



Rowe Scientific Pty Ltd



PORTABLE WATER ANALYSIS METERS

VOLUMETRIC GLASSWARE

BULK CHEMICALS

MIXERS AND STIRRERS

PLASTICWARE

OVENS, INCUBATORS & ENVIRONMENTAL CHAMBERS

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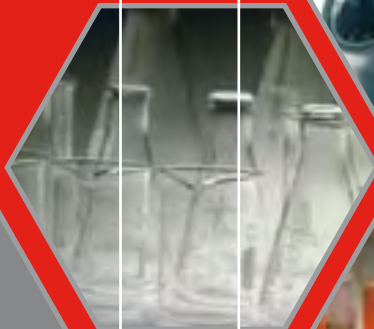
AIR SAMPLING PUMPS

WATER ANALYSIS

COMBUSTION ANALYSIS

BALANCES

FINE CHEMICALS AND STANDARDS





Rowe Scientific Pty Ltd
For accuracy and professionalism

The Rowe Pledge

If you are experiencing difficulty in obtaining supply of scientific products and items, please contact me by email and the team at Rowe Scientific will help you.

This is not a "subtle" attempt to obtain business, but a sincere pledge to help fellow scientists source the items they need to do their work.

Rowe Scientific have been servicing the science community since 1987. It has been our industry knowledge and practical understanding which has seen Rowe Scientific grow to become a leading and respected supplier.

I thank all clients for your valued patronage and trust you will find our new 2006 product catalogue a valuable resource.



R. Rowe (Chartered Chemist, FRACI, MBA)

CEO Rowe Scientific Pty Ltd.



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PRODUCT CATALOGUE E D I T I O N

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EDITION 4

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Editor: Carl Casella (1.7.06)

Graphics and setting: Wendy Biletic & Carl Casella.

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X/MARKETING/CATALOGUE-E4-REF66



Using Your Rowe Catalogue

Welcome to edition 4 of the Rowe Scientific Pty Ltd product catalogue.

The monumental task of producing this comprehensive catalogue has been made in conjunction with your dedicated team at Rowe and with valued input of many of our clients.

Edition 4 is the first full colour catalogue Rowe has produced, giving you a "life-like" portrayal of products featured in this catalogue. It is designed as a guide to help you source an array of equipment and consumables for the field or laboratory.

Features of this catalogue:

CONTENTS

Looking up the item you are searching for is made easier with a comprehensive cross-referenced index. E.g. a magnetic stirrer, will appear in the catalogue under "S" section for stirring, however in the index it will under "M" (magnetic stirrer) and "S" (Stirring – Magnetic)

ALPHA LISTING

The catalogue lists all items alphabetically, and the letter of the alphabet together with the page number is colour highlighted and positioned clearly in the top outer corner of all pages to help you find the page you need with ease.

ROWE CODE

All Rowe codes appear in red text to make finding our reference number quick and easy.

TABLES

Tables with alternating tinted rows are used to make reading across the page straight forward associating relevant information to each item.

CONTACT

Contact numbers and email addresses to our state offices appear at the foot of every product page for your convenience.

We welcome your enquiries should you not find what you are looking for in this catalogue.

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If you are unable to find what you're looking for in this catalogue, please call any of our Rowe Scientific consultants, and we will help you find the product or item you are seeking.

Contact us ...



ADELAIDE: 08 8186 0523 rowesa@rowe.com.au
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Rowe Scientific Pty Ltd. Western Australia.



Queensland.



Victoria



South Australia

Why we are market leaders

Rowe Scientific Pty Ltd is an Australian owned and operated company. We are successful in supplying the science community because we are supported by many wonderful clients.

1. ISO9002

Since its incorporation in 1987, Rowe Scientific Pty Ltd. has been administered on the scientific principles of traceability and accuracy (Reg Rowe is an industrial chemist). Rowe Scientific is an ISO9001:2000 accredited company (License No. QEC10372) which means that we have proven quality control procedures.

2. SERVICE

We offer a 24 hour, 7 day service in emergency situations in order for our clients to maintain production in their laboratories.

3. MANUFACTURE

We have an industrial chemistry manufacturing division and our own laboratory. This means that we can supply laboratory solutions (traceable to NBS/NIST standards) at a competitive price, and to your specific requirements.

4. ELECTRONIC DATA INTERCHANGE

We currently operate EDI with many companies, and can also save you administration expenses. Our computer system has the flexibility to accommodate all forms of EDI, including integration with SAP, DVO and Bar Coding Technology.

5. ELECTRONIC QUOTATIONS

The price and availability details of your product enquiry can be emailed or faxed to you automatically at the completion of your call, to give you an accurate record of technical details and catalogue numbers.

6. REORDER REPORT

We can email or fax you a report of all the items and their quantities which you have purchased from us in the past, along with their present price and availability. This allows you to easily monitor your usage and to replenish your stocks.

7. FIXED PRICES

For items which you repeatedly use, we can fix the price for 6 or 12 months. This is then logged into our computer to ensure that we will always have stock for you, and that you will always receive the agreed price, regardless of who you speak to. We can also handle "forward orders" for you.

8. YOUR WAREHOUSE NUMBERS ON DELIVERY DOCKETS

We can print your warehouse part numbers on our delivery dockets for the specific items which you have ordered, to make it easier for you to identify the items. Simply tell us your number for that item and we will enter it onto our computer.

9. INVENTORY MANAGEMENT

For corporate clients, we can manage your stores, ensuring that your expensive time is not wasted on routine ordering. This provides you with the following cost savings.

- Your staff are freed up to do other things
- You never run out of items as we are responsible for monitoring the stock

17. FAST DELIVERY

i) We have large warehouses in Perth, Adelaide, Brisbane and Victoria which hold good stocks, that means we can supply quickly. This includes export orders to the Pacific Rim and to Africa.

ii) We import from U.K., Europe, U.S.A., Canada, Japan etc., which means:

- We can supply almost anything;
- Our prices are very competitive;
- Our supply is prompt because we can air freight (<5 days from overseas)

18. LOW PRICES

Our prices are very competitive because for the majority of the items we deal in, we are manufacturers' agents. We also import in bulk quantities.

19. CLIENT OF THE MONTH

Each month our computer randomly chooses a "Client of the Month". If you are chosen, you receive \$100 worth of free scientific items from a list we post to you.

20. E-COMMERCE

We are committed to remaining abreast of our clients' E-commerce requirements. Our web address is: www.rowe.com.au. The E-commerce facility on our site is constantly being developed and reviewed.

Contact us ...



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rowevic@rowe.com.au
rowewa@rowe.com.au

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21. INSTRUMENT REPAIR SERVICE

There are many small instruments in laboratories which staff do not have time to fix. Our instrument technician is able to get these instruments out of dark cupboards and back into use, rather than new ones being bought, thus reducing your costs.

22. "ONE STOP SHOP"

As well as supplying the full range of scientific consumables and instrumentation detailed in this catalogue, we also supply chemicals of all grades in all quantities. This potentially allows us to be a partner for all of your scientific needs, thus reducing the number of your vendors.

23. STAFF EMPOWERMENT

We have a comprehensive cross checking computer system which gives early warning of any potential stock outs, or slippage of delivery dates. Your Account Manager has full access to this information and is empowered to ensure you are looked after.

24. IN-HOUSE MANUFACTURING FACILITY

We can manufacture custom chemical solutions for you in our laboratory, under the ISO9001:2000 supervision of a chartered chemist.

25. EASY TO DEAL WITH

Our amenable staff, the majority of whom are ex-laboratory people, are co-operative and easy to deal with. Orders may be placed by mail, email, fax or phone. All common credit cards are acceptable, and 30 day accounts are available to approved clients.

26. LOYAL, EFFICIENT STAFF

The team effort of our excellent staff IS Rowe Scientific Pty Ltd. All shares in the company are owned by staff members.

27. NON SUBSTITUTION

All pack sizes and brands of product have a unique "Rowe Code" which means that whenever you order a specific Rowe Code, you will always receive the same identical product.

I sincerely thank you for your support. Please help us to continue to grow.

R. J. ROWE

Managing Director
Chartered Chemist, F.R.A.C.I., MBA



... How can we help you today?

Contact us ...



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Our Vision

We are the preferred scientific supplier in our geographical region; a profitable company with which customers can identify and one where our dedicated staff are of paramount importance through their hard work, providence of goodwill and committed customer service.

Our Mission

The purpose of Rowe Scientific Pty Ltd is to keep our clients supplied with the scientific items they need to do their work.

Our Motto

Rowe Scientific- for when accuracy and professionalism are important.

*(Developed by a consensus of all the staff of our company.
We teach new staff members our culture)*

Professionalism

MEANS:

- We keep promises to staff and clients
- We ensure our knowledge of our products is always current.
- We always focus on the client.
- We are aware of relevant changes in our market
- We respect the confidentiality of our clients and our company.
- Our response to our clients is fast
- There is loyalty between staff members 24 hours per day.
- We endeavour at all times to be honest with clients and colleagues.
- Our presentation of both ourselves and our company is high.
- Being dedicated to excellence, and pursuing our Vision and Mission.

(Developed by a consensus of all the staff of our company.)

Contact us ...



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Quality Policy Statement

Rowe Scientific Pty Ltd are recognised as a market leader in providing scientific supplies to our clients.

Our reputation is based on our uncompromising ability to respond to the needs of clients whilst providing unsurpassed levels of service.

This reputation has been achieved through creating a highly trained and motivated staff combined with supplying the best products available.

Each and every member of the Rowe Scientific Pty Ltd team is responsible for the quality of product and services we provide to our existing and prospective clients.

In order to maintain our current position and to create a platform for our future improvement, development and growth, we are committed to developing Management Systems based on the internationally recognised criteria of ISO 9001:2000.

We are personally committed to the future improvement and growth of Rowe Scientific Pty Ltd which will be achieved through ongoing training of all employees and the continuous improvement of our Management Systems.

We urge employees to share this commitment with us so that together we can continue to surpass the expectations and needs of our clients.

Health, Safety, Environment & Community

For our company to have a future, the ongoing health and safety of our employees must never be compromised. eg this is reflected in our staff regularly attending Dangerous Goods courses.

The environment in which we operate must be maintained as self sustaining (be the same or better in 100 years, for future generations). eg this is reflected in protecting the groundwater under our sites.

The community in which we operate must be supportive of our presence. eg this is reflected in us doing business with neighbourhood companies, and in keeping our neighbours informed of our Dangerous Goods Emergency Plans.

The company is committed to achieving compatibility between economic development and the maintenance of the environment.

To fulfil this commitment, the company will abide by all environmental laws.

Our Company's Philosophy

As a company, we aim to supply profitably the highest quality laboratory products sold in Australia and overseas. We want to achieve the maximum possible customer satisfaction and ensure the prosperity of the Company and its staff.

To assist in this, we aim to achieve mutual trust and co-operation between all people within the Company and make Rowe Scientific a place where long term job satisfaction can be achieved. We recognise that people are our most valued resource and in line with this spirit believe that the following principles are of value to all.

People

- We will develop and expand the contributions of all staff by strongly emphasising training and by the encouragement of personal involvement in the day-to-day management of their specific areas of responsibility. We seek to delegate and involve staff in discussion and decision making particularly in those areas in which each of us can effectively contribute so that all may participate in the efficient running of Rowe Scientific. We firmly believe in common terms and conditions of employment.

Teamwork

- We recognise that all staff have a valued contribution to make as individuals but in addition believe that this contribution can be most effective within a teamworking environment. Our aim is to build a Company with which people can identify and to which we all feel commitment.

Communication

- Within the bounds of commercial confidentiality we will encourage open channels of communication. We would like everyone to know what is happening in our Company, how we are performing and what we plan. We want information and views to flow freely upward, downward and across our Company.

Objectives

- We will agree clear and achievable objectives and provide meaningful feedback on performance.

Flexibility

- We will not be restricted by the existing way of doing things. We will continuously seek improvements in all our actions.

These are tough targets and we aim high. With hard work and goodwill we will continue to grow.

(Benchmarked from Nissan U.K.)

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Hazard Classifications



Class 1.1- Explosives with a mass explosion hazard such as TNT, Gunpowder, Gelnite, etc.



Class 1.2- Explosives with a projectile or fragmentation hazard, but not a significant mass explosion hazard eg. Grenades, ammunition, etc.



Class 1.3- Explosives which are a fire and minor blast hazard, with minor projectile or minor fragmentation hazards.



Class 1.4- Explosives which are not a significant mass explosion hazard eg. flares, fireworks, safety cartridges, etc.



Class 1.5- Explosives with a mass explosion hazard, but which are insensitive substances.



Class 1.6- Substances which are a minor explosion hazard, very insensitive substances.



Class 2.1- Gases that can ignite in air on contact with a source of ignition.



Class 2.2- Gases that are non flammable but may cause asphyxiation and/or represent stored energy hazard



Class 2.3- Gases likely to cause death or serious injury to human health if exposed or by skin contact



Class 3- Liquids, the vapors of which can ignite the air on contact with an ignition source.

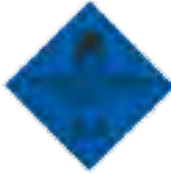


Class 4.1- Solids easily ignited eg. by sparks or flames or liable to cause fire through friction.



Class 4.2- Substances liable to spontaneously heat up and ignite.

Hazard Classifications



Class 4.3- Substances which emit flammable or toxic gases when wet.



Class 7- Substances (solid or liquid) which spontaneously emit ionising radiation. Category I determined by radiation level of transport package. (lowest level)



Class 5.1- Substances likely to increase the risk and intensity of fire in other materials



Class 7- Substances (solid or liquid) which spontaneously emit ionising radiation. Category II determined by radiation level of transport package.



Class 5.2- Substances that are thermally unstable and likely to react dangerously with other substances.



Class 7- Substances (solid or liquid) which spontaneously emit ionising radiation. Category III determined by radiation level of transport package (lowest level)



Class 6.1- Toxic substances likely to cause death or severe injury to human or animal health if swallowed, inhaled or by skin contact.



Class 8- Solids or liquids able to cause, to varying severity, damage to living tissue. May be either acidic or caustic in nature.



Class 6.2- Infectious substances liable to cause death or severe injury to human or animal health if swallowed, inhaled or by skin contact.



Class 9- Substances and articles which during transport present a danger not covered by other classes.

Risk & Safety Phrases

R1	Explosive when dry	R25	Toxic if swallowed	R52	Harmful to aquatic organisms
R2	Risk of explosion by shock, friction, fire or other sources of ignition.	R26	Very toxic by inhalation	R53	May cause long term adverse effects in the aquatic environment
R3	Extreme risk of explosion by shock, friction, fire and other sources of ignition	R27	Very toxic in contact with skin	R54	Toxic to flora
R4	Forms very sensitive explosive metallic compounds.	R28	Very toxic if swallowed	R55	Toxic to fauna
R5	Heating may cause explosion	R29	Contact with water liberates toxic gas	R56	Toxic to soil organisms
R6	Explosive with or without contact with air	R31	Contact with acids liberates toxic gas	R57	Toxic to bees
R7	May cause fire	R32	Contact with acids liberates very Toxic gas	R58	May cause long term adverse effects in the environment
R8	Contact with combustible material may cause fire	R33	Danger of cumulative effects	R59	Dangerous for the ozone layer
R9	Explosive when mixed with combustible material	R34	Causes burns	R60	May impair fertility
R10	Flammable	R35	Causes severe burns	R61	May cause harm to the unborn child
R11	Highly flammable	R36	Irritating to eyes	R62	Possible risk of impaired fertility
R12	Extremely flammable	R37	Irritating to respiratory system	R63	Possible risk of harm to the unborn child
R14	Reacts violently with water	R38	Irritating to skin	R64	May cause harm to breastfed babies
R15	Contact with water liberates extremely flammable gases	R39	Danger of very serious irreversible effects	R65	Harmful: May cause lung damage if swallowed
R16	Explosive when mixed with oxidising substances	R40	Possible risk of irreversible effects	R20/21	Harmful by inhalation and in contact with skin
R17	Spontaneously flammable in air	R41	Risk of serious damage to eyes	R20/22	Harmful by inhalation and if swallowed
R18	In use may form flammable/explosive vapour-air mixture	R42	May cause sensitisation by inhalation	R20/21/22	Harmful by inhalation, in contact with skin and if swallowed
R19	May form explosive peroxides	R43	May cause sensitisation by skin contact	R21/22	Harmful in contact with skin and if swallowed
R20	Harmful by exhalation	R45	May cause cancer	R23/24	Toxic by inhalation and in contact with skin
R21	Harmful in contact with skin	R46	May cause heritable genetic damage	R23/25	Toxic by inhalation and if swallowed
R22	Harmful if swallowed	R48	Danger of serious damage to health by prolonged exposure	R23/24/25	Toxic by inhalation, in contact with skin and if swallowed
R23	Toxic by inhalation	R49	May cause cancer by inhalation	R24/25	Toxic in contact with skin and if swallowed
R24	Toxic in contact with skin	R50	Very toxic to aquatic organisms		
		R51	Toxic to aquatic organisms		

Risk & Safety Phrases

R26/27	Very toxic by inhalation and in contact with skin	R39/28	Very toxic: danger of very serious irreversible effects if swallowed	R48/21	Harmful: danger of serious damage to health by prolonged exposure in contact with skin
R26/28	Very toxic by inhalation and if swallowed	R39/26/27	Very toxic: danger of very serious irreversible effects	R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed
R26/27/28	Very toxic by inhalation, in contact with skin and if swallowed	R39/26/28	Very toxic: danger of very serious irreversible effects through inhalation and if swallowed	R48/20/21	Harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin
R27/28	Very toxic in contact with skin and if swallowed	R39/27/28	Very toxic: danger of very serious irreversible effects in contact with skin and if swallowed	R48/20/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin
R36/37	Irritating to eyes and respiratory system	R39/26/27/28	Very toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed	R48/21/22	Harmful: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed
R36/38	Irritating to eyes and skin	R40/20	Harmful: possible risk of irreversible effects through inhalation	R48/20/21/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed
R36/37/38	Irritating to eyes, respiratory system and skin	R40/21	Harmful: possible risk of irreversible effects in contact with skin	R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation
R37/38	Irritating to respiratory system and skin	R40/22	Harmful: possible risk of irreversible effects if swallowed	R48/24	Toxic: danger of serious damage to health by prolonged exposure in contact with skin
R39/23	Toxic: danger of very serious irreversible effects through inhalation	R40/20/21	Harmful: possible risk of irreversible effects through inhalation and in contact with skin	R48/25	Toxic: danger of serious damage to health by prolonged exposure if swallowed
R39/24	Toxic: danger of very serious irreversible effects in contact with skin	R40/20/22	Harmful: possible risk of irreversible effects through inhalation and if swallowed	R48/23/24	Toxic: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin
R39/25	Toxic: danger of very serious irreversible effects if swallowed	R40/21/22	Harmful: possible risk of irreversible effects through inhalation and if swallowed	R48/23/25	Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed
R39/23/24	Toxic: danger of very serious irreversible effects through inhalation and in contact with skin	R40/20/21/22	Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed	R48/24/25	Toxic: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed
R39/23/25	Toxic: danger of very serious irreversible effects through inhalation and if swallowed	R42/43	May cause sensitisation by Inhalation and skin contact	R48/23/24/25	Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed
R39/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed	R48/20	Harmful: danger of serious Damage to health by prolonged Exposure through inhalation		
R39/26	Very toxic: danger of very Serious irreversible effects Through inhalation				
R39/27	Very toxic: danger of very Serious irreversible effects in Contact with skin				

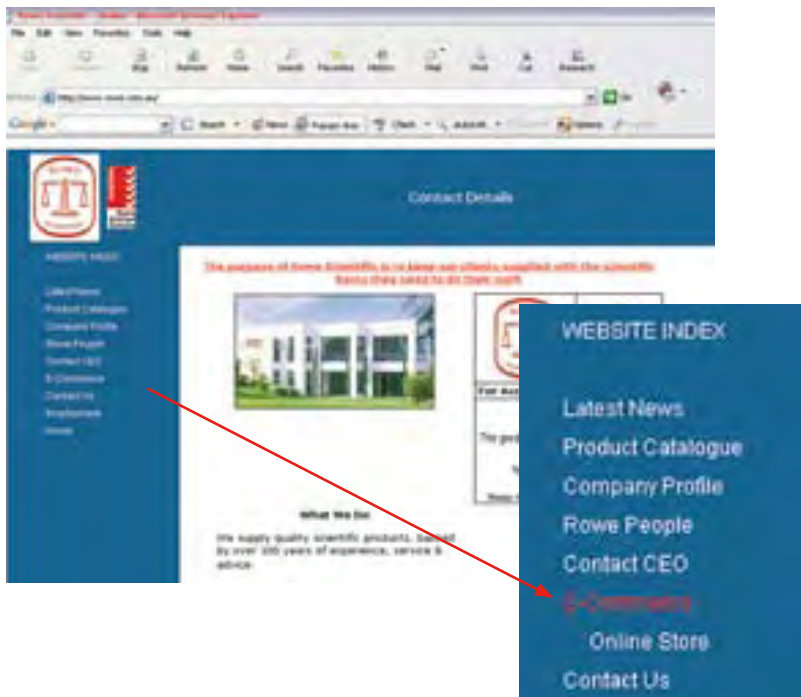
Risk & Safety Phrases

S1	Keep locked up				
S2	Keep out of reach of children	S27	Rinse immediately with plenty of water and seek medical advice. Take off immediately all contaminated clothing	S47	Keep at temperature not exceeding...
S3	Keep in a cool place	S28	After contact with skin, wash immediately with plenty of soap suds	S48	To be kept wet with (there follows a material name)
S4	Keep away from living quarters	S29	Do not empty into drains	S49	Keep only in the original container
S5	Keep contents under...(there follows the name of the liquid)	S30	Never add water to this product	S50	Do not mix with...
S6	Keep under...(there follows the name of an inert gas)	S33	Take precautionary measures against static discharges	S51	Use only in well ventilated areas
S7	Keep container tightly closed	S35	This material and its container must be disposed of in a safe way	S52	Not recommended for interior use on large surface areas
S8	Keep container dry	S36	Wear suitable protective clothing	S53	Avoid exposure- obtain special instructions before use
S9	Keep container in a well	S37	Wear suitable gloves	S56	Dispose of this material and its container at a hazardous or special waste collection point
S12	Do not keep the container sealed	S38	In case of insufficient ventilation, wear suitable respiratory equipment	S57	Use appropriate container to avoid environmental contamination
S13	Keep away from food, drink and animal foodstuffs	S39	Wear eye / face protection	S59	Refer to manufacturer/supplier for information on recovery recycling
S14	Keep away from...(a list of incompatible material will follow)	S40	To clean the floor and all objects contaminated by this material use...(there follows suitable cleaning material)	S60	This material and its container must be disposed of as hazardous waste
S15	Keep away from heat	S41	In case of fire and / or explosion do not breathe fumes	S61	Avoid release to the environment. Refer to special instructions/safety data sheets
S16	Keep away from sources of ignition	S42	During fumigation / spraying wear suitable respiratory equipment	S62	If swallowed, do not induce vomiting; seek medical advcse
S17	Keep away from combustible material	S43	In case of fire use...(there follows the type of fire fighting equipment to be used)		Immediately and show this container or label
S18	Handle and open container with care	S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible)	S1/2	Keep locked up and out of reach of children
S20	When using, do not eat or drink	S46	If swallowed, seek medical advice immediately and show the label or container	S3/7	Keep container tightly closed in a cool place
S21	When using do not smoke				
S22	Do not breathe dust				
S23	Do not breathe vapour				
S24	Avoid contact with skin				
S25	Avoid contact with eyes				
S26	In case of contact with eyes,				

Risk & Safety Phrases

S3/9/14	Keep in a cool well ventilated place away from... (incompatible materials to be indicated by manufacturer)	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection
S3/9/14/49	Keep only in the original container in a cool well ventilated place away from... (incompatible materials to be Indicated by manufacturer)	S36/39	Wear suitable protective clothing and eye/face protection
S3/9/49	Keep only in the original container in a cool, well ventilated place	S37/39	Wear suitable gloves and eye/face protection
S3/14	Keep in a cool place away from... (incompatible materials to be indicated by the manufacturer)	S47/49	Keep only in the original container at temperature not exceeding...oC (to be specified by the manufacturer)
S7/47	Keep container tightly closed at a temperature not exceeding...oC (to be specified by the manufacturer)		
S7/8	Keep container tightly closed and dry		
S7/9	Keep container tightly closed and in a well ventilated place		
S20/21	When using do not eat, drink or smoke		
S24/25	Avoid contact with skin and eyes		
S29/56	Do not empty into drains, dispose of this material and its Container to a hazardous or special waste collection point		
S36/37	Wear suitable protective clothing and gloves		

Ordering Online



1

If you're a Rowe Scientific Pty Ltd client with an established account operating within our terms and conditions, you can now choose to order your products from Rowe Scientific Pty Ltd. ONLINE!

Our website (www.rowe.com.au) now features an E-commerce online ordering facility which allows you to search and view products. Once you have found what you are looking for you can add the item to your shopping cart with a simple click and proceed to the check-out to confirm your purchase and invoice.

The Online Ordering facility is designed to make ordering your products easy and with little fuss, saving you time and letting you get on with other important matters. If you need to talk to a representative, we're only a phone call away.

The following illustrates the process of using the Rowe Scientific online ordering facility.



2

1 From our home page at www.rowe.com.au, select the "E-Commerce" heading in the left hand side menu bar. This will drop down a submenu heading called "Online Store", which when clicked will take you to the online store welcome page.

2 Once you have read the important notes on the welcome page, click the "Ordering & Catalogue" link. This will take you to the login page.

3 The login page will allow you to login as a guest if you do not have an account with Rowe Scientific Pty. Ltd. However if you wish to purchase products and place orders you will need to apply for an account by selecting the "click here to apply for a Rowe Scientific on-line store account" link. Once your account is approved and established you will be given login details which will allow you full access to online ordering and special pricing.



3

Account holders will be able to login using their Username and Password supplied to them by Rowe Scientific Pty Ltd. Once you login, you will enter the catalogue section of the site.

Note: Entering your password and username is case sensitive.

Contact us ...



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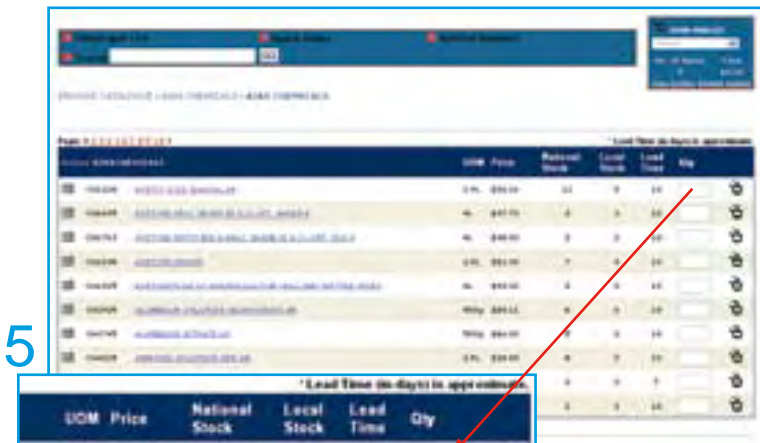
4

4 You will see your user name at the head of the page confirming you are now logged in.

You can now choose to enter the product you are seeking or (Rowe code if you know it) into the search box or simply browse the listed product groups.

When you select a product group it will take you to the product group page which lists any sub-headings related to that group, simply click the one you want. E.g.: Selecting the group listing "Velp" will take you to the Velp main page which lists any sub-groups of Velp products you can browse through.

Alternatively, if you type "Velp" into the search box, you will by-pass the Velp main page and be presented with a list of available products for purchase.



5

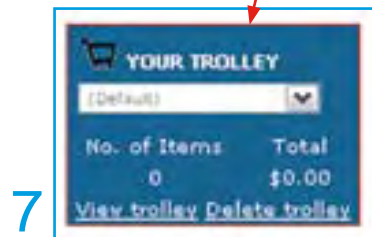
5 You can order items on these pages by entering the quantity you require in the box provided. The ordering page lists all available products requested together with important information such as: Rowe product code, Units of sale, Your Price, availability and lead time.

NOTE: The availability is shown in two columns, the "National Stock" shows the total number available in the country where as the "Local Stock" column shows stock levels in your state.



6

6 To view the item click the camera icon and a picture of the item will open in a separate window. NOTE: If the camera icon appears with a red cross over it then there is no picture available for that item.



7

7 "Your Trolley" box positioned at the top right hand side of the screen will keep a running tally of the items and total amount you have selected. You can view the content of your trolley in detail by clicking the "view Trolley" link.



8 When in “Your Trolley” screen you have the option to change or remove items or attach special notes to items. If you are finished you can proceed to checkout.



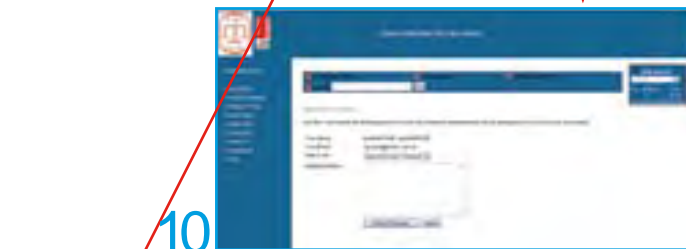
9 Once you have proceeded to checkout, a pro-forma invoice will appear. Ensure you check all details are correct. You can change the delivery address if required from this screen. Provision is made for your purchase order number and any additional notes. You will also be given an online transaction number.

When you are satisfied that all details are correct, click the “confirm order” button. This will submit the order to our office. Record your online transaction number for future reference.

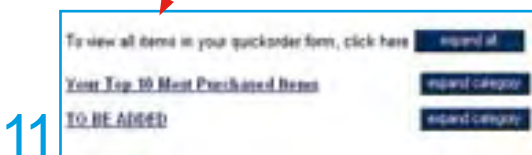
Orders are processed daily and confirmation will be sent to you.



Other Features



10 “Special Request”
This link can be found above the search box at the top of the screen. Clicking this link will open a submission form which you can use to contact us regarding special orders or requests.



11 “Quick Order”
This feature lists your top ten items you have repeatedly ordered from Rowe Scientific Pty Ltd over the past 90 days. Items are listed under group listings which you can expand and select to initiate a quick order screen, simply complete the quantity and add to your trolley.

Apply for a Rowe Scientific Account.
Simply download a copy of our credit application form, complete and fax it back to us.

Online ordering data which appears on the e-commerce site is up dated overnight reflecting up to date data as of the previous trading day. These instructions, while correct at the time of print, may be subject to changes due to constant review and improvements being made to make using this site easy and functional. If you experience any problems using this site, please contact your nearest Rowe Scientific office.

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Contact Us

Rowe Scientific Pty Ltd service the whole of Australia and abroad from its centrally located warehouses. We continue to plan our future growth in conjunction with our clients needs, with a warehouse in NSW being planned in the near future.



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Agar

Dehydrated Media

Amyl Media is a wholly owned Australian Company that manufactures microbiological media. Their product range is divided into three groups:

Dry Media
Raw materials
Supplement

A three tiered quality control system ensures that the products meet world standards.

Firstly, the product is quality controlled internally to acceptable criteria. The product is then quarantined until an independent commercial laboratory also clears the batch and then a representative quantity is used by a regular customer. When this performs in day to day operations favourably, the batch is finally released for sale.

PREPARATION

Suspend 26g of powder in 1 litre of distilled or deionised water.

For Aseptic Filling:

Sterilise by autoclaving for 15 min at 121°C. Mix thoroughly while still hot, prior to dispensing.

For Terminal Sterilisation:

Heat to boiling with continuous agitation to dissolve all solids. Dispense into desired containers then sterilise by autoclaving for 15 min at 121°C.

Amyl Media

Nutrient Agar

FORMULA GRAMS PER LITRE

Bacteriological Peptone	5.0
Sodium Chloride	5.0
Yeast Extract	2.0
Beef Extract	1.0
Agar, Bacteriological	13.0

pH 7.4 +/- 0.2

Code AM 130

A general purpose culture medium

500g net

Batch No:-
Expiry Date:-

REPLACE CAP FIRMLY
STORE AWAY FROM
STRONG LIGHT IN A
COOL DRY PLACE.

LABORATORY USE ONLY

PLEASE ENQUIRE FOR YOUR SPECIFIC MEDIA REQUIREMENTS

Air Gun



Rowe Code	Description	Std Pack Size
RA1003	CEJN	ea
RA1012	Ryco, Blue	ea
RA1010	Ryco, Red	ea
RA1027	Silvent, 100mm S/Steel Laval nozzle	ea

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Air Sampling

HSEC

Health, Safety, Environment and Community governance (HSEC) has today become an important factor in mining and industry globally. Corporations are adopting HSEC policies and targets in a bid to ensure their work practices and operations are free of incidents and that they can operate efficiently as a responsible corporate citizen, with the benefits flowing to the community, company and individuals.

Air quality remains a key environmental concern. Research has shown that air pollution, depending on its nature and concentration, can have an adverse effect on the community and the environment.

Pollutants emitted to the air from sources including combustion of fossil fuels (e.g. coal, petrol and diesel), emissions of hydrocarbons from oil and gas refining, odours from industrial processes and dust associated with mining and land clearing require monitoring and assessing to maintain the company's HSEC programs.

There are a range of sampling and measurement meters and products available for air and water quality analysis. To find out which item may best suit your needs, or request a demonstration, please feel free to talk to us at **Rowe Scientific Pty Ltd.**

To view Water Analysis meters look under "Meters" in this catalogue.

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Air Sampling Pumps

Gases, Vapours & Aerosols

Drager Tubes - The most comprehensive efficient and economical system for immediate and accurate detection of over 500 gases and vapours.

accuro® Gas Detection System

The Drager accuro is a bellows type pump which provides one-hand operation when necessary, such as on ladders or difficult to reach areas. This pump is easy to maintain (no special tools required) and never needs to be lubricated. Constructed of corrosion-resistant materials, the accuro is designed to provide years of reliable service. A unique internal scissors mechanism ensures a uniform, even pump stroke - delivering 100 cubic centimetres of sample air. The Drager accuro, used with short-term Drager Tubes, forms an integral sampling system.

Specifications: Weight - 454 grams
Dimensions - 17.2 cm x 4.5 cm x 8.6 cm



Rowe Code	Description	Std. Pack Size
IC1690	Accuro Detector Pump, with tube opener	ea
IC1691	Multigas Detector Kit - includes accuro gas detector pump, tube opener, spare parts kit, in standard carrying case.	Kit

Sampling Tubes

For nearly 60 years Drager Tubes have followed the same standard of high quality. This currently applies to over 200 different Drager Tubes - for measuring more than 500 different contaminants. Sealed glass tubes are filled with solid carrier material containing reagents that discolour on contact with certain contaminants. This visible reaction reveals that certain gases, vapours, or aerosols are present. For most colour reactions, the contaminant concentration can be read from a scale on the tube.

Short-term Measurement Tubes

Short-term tubes are used to measure the concentration of specific contaminants instantaneously. Currently, about 170 short-term Drager Tubes are available for determining and measuring more than 500 different gases, vapours, and aerosols. Areas of use include:

- Measuring concentrations at a specific moment (e.g. concentration peaks)

PLEASE CONTACT US FOR SPECIFICS

Drager



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Air Sampling Pumps

Short-Term Measurement Tubes cont.

- Measuring person-related exposure in an inhalation area (e.g. at defined intervals)
- Detecting leaks (e.g. in pipelines or gas installations)
- Investigating confined spaces (e.g. canals, tunnels, or tanks)



Long-Term (Active) Measurement Tubes

The long-term Dräger Tubes are direct reading scaled tubes that can be used for time weighted average measurements. Designed for use with a constant flow sampling pump, each long-term tube has a flow rate range from 10 to 20 cc/minute.

Long term tubes are available for a wide range of organic and inorganic gases and vapours, and are calibrated in microlitres (uL).

Typical applications include the following:

- Determining personal exposures
- Monitoring work areas
- Measuring gas levels in the PEL range

For the full range of Dräger Short-Term and Long-Term Measurement tubes, please contact our Sales Team.

SENSIDYNE

Gilian



Air Sampling Pumps

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Air Sampling Pumps



Rowe Code	Description
NP5040	GILAIR-5RC STARTER KIT WITH CLOCK 230V CHARGER AND ACCESSORIES
NP5050	GILAIR-5R BASIC 5 PACK WITH UNIVERSAL CHARGER
NP5051	GILAIR-5R STARTER KIT BASIC 230v BMSII MAINTENANCE SYSTEM
NP5055	GILAIR-5RC WITH CLOCK 5 PACK WITH UNIVERSAL CHARGER
NP5060	GILAIR-5RC WITH CLOCK 5 PACK WITH BMS11 MAINTENANCE SYSTEM
NP5405	GILAIR-3R BASIC
NP5410	GILAIR-3RC CLOCK
NP5425	GILAIR-3RC CLOCK STARTER KIT
NP5435	GILAIR-3R BASIC 5 PACK WITH BMS11-200CE CHARGER
NP5450	GILAIR-3R BASIC 5 PACK WITH UNIVERSAL CHARGER
NP5455	GILAIR -3RC CLOCK 5 PACK WITH UNIVERSAL 5-UNIT CHARGER 230v
NP5460	GILAIR-3RC CLOCK 5 PACK WITH BMSII BATTERY MAINTENANCE SYSTEM 240v
NP5510	GILAIR-5R BASIC
NP5515	GILAIR-5RC CLOCK
NP5520	GILAIR-5 RP PROGRAMMABLE
NP5525	GILAIR-5R STARTER KIT BASIC 230v
NP5530	GILAIR-5 RP PROGRAMMABLE 5 PACK WITH UNIVERSAL CHARGER 230V
NP5531	GILAIR-5 PROGRAMMABLE 5 PACK WITH BMSII MAINT SYSTEM 240V

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Anemometer



The MC-86 is a compact, handheld anemometer with digital thermometer function. It provides fast, accurate readouts of air velocity in km/h, m/s, knots and ft/min. Temperature readout is in OC and OF units. The sensor is supplied with 1 metre of cable, allowing readings to be taken in hard to reach places.

Rowe Code: IT1271

Atomic Absorption Lamps

Photron is an Australian company that specializes in research, development and manufacture of high quality light sources for use in analytical spectroscopy. Stringent process conditions, modern and efficient high vacuum equipment coupled with intelligent selection of internal components provide Photron's hollow cathode lamps with fast warm up times and extended shelf life guaranteed.

37mm (1.5") Diameter Hollow Cathode Lamps

For direct use in AAS systems manufactured by Varian, GBC, Hitachi, Shimadzu, Thermo Jarrell Ash (IL), Unicam Seiko, and all other makes. Use in Perkin Elmer instruments can be facilitated with the use of an adapter kit



Photron

Rowe Code	Element	Symbol	Photron Code
IA1005	Aluminium	Al	P801
IA1010	Antimony	Sb	P802
IA1000	Arsenic	As	P803
IA1163	Barium	Ba	P804
IA1019	Bismuth	Bi	P806
IA1020	Boron	B	P807
IA1025	Cadmium	Cd	P808
IA1045	Calcium	Ca	P809
IA1060	Chromium	Cr	P812
IA1027	Cobalt	Co	P813
IA1100	Copper	Cu	P814
IA1150	Gold	Au	P821
IA1160	Iridium	Ir	P825
IA1200	Iron	Fe	P826
IA1225	Lead	Pb	P828
IA1230	Lithium	Li	P829
IA1240	Magnesium	Mg	P831
IA1242	Manganese	Mn	P832
IA1245	Mercury	Hg	P833
IA1250	Nickel	Ni	P836
IA1260	Palladium	Pd	P839
IA1265	Phosphorus	P	P874
IA1270	Platinum	Pt	P840

SPECIAL CALIBRATION STANDARD SOLUTIONS

We specialise in making Atomic Absorption and ICP working standards to your requirements in our own ISO9001:2000 laboratory, e.g. 10ppm (Fe, Ni) in 10% HCl.

Please contact us with your requirements.

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Auto Analyser Cups

Material: Polystyrene

Kartell

Rowe Code	Size mL	Std Pack Size
PA1016 (without caps)	0.25	1000
PA1015 (without caps)	0.50	1000
PA1009 (without caps)	1.50	1000
PA1010 (without caps)	2.00	1000
PA1060 (no caps to suit)	4.00	1000
PA1020 (cap only)		1000



Autoclaves

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Autoclave Indicator Tape



Rowe Code	Size	Std Pack Size
PA1165	55 x 12mm	ea
PA1150	50m x 19mm	ea
PA1166	55m x 25mm	ea

Autoclave Bags



Paper

Rowe Code	Size mm	Std. Pack Size
PA1175	340 x 205 x 35	500
PA1188	440 x 202 x 98	250

Many other sizes available - please enquire.



Plastic

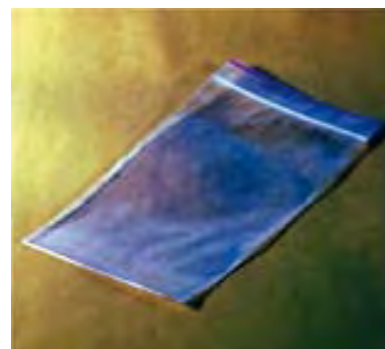
Rowe Code	Size mm	Std. Pack Size
PA1180	250 X 325	100
PA1391	300 x 600	500
PA1396	550 x 700	250
PA1405	550 x 710	200

Many other sizes available - please enquire.

Bags

Plastic - Press Seal.

Rowe Code	Size (L x W) mm	Thickness micron	Std. Pack Size
RB1030	150 x 100	40	1000
RB1400	125 x 75	50	1000
RB1430	150 x 100	50	1000
RB1431	150 x 100	50	100
RB1450	200 x 125	50	100
RB1500	230 x 150	40	1000
RB1550	250 x 200	40	1000
RB1210	300 x 230	40	1000
RB1650	380 x 300	50	1000



Plastic

High strength. UV stabilized for field use.
Holds 15kg of rock, green tint

Rowe Code	Size (L x W) mm	Thickness mm	Std. Pack Size
RB1340	600 x 400	micron	1000

Sample - Brown paper

Rowe Code	Size (L x W)	Description	Std. Pack Size
RB1760	920 x 404mm	With plastic Liner	ea.
RB1920	8" x 4"	Wire at Top	1000
RB1925	8" x 4"	Wire at Top	2500
RB1930	5" x 3"	Wire at top	1000
RB1938		Box to suit RB1930	ea.
RB1936		Box to suit RB 1920	ea.



Sample - Calico

Rowe Code	Size (L x W) mm	Description	Std. Pack Size
RB1900	300 x 200	Draw String	100
RB1960	300 x 200	Corner Tie	100

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Balances - Analytical



Excellence Plus XP analytical balances. Peak weighing performance and built-in QM-tools for full regulatory compliance



Item	Rowe Code	Description	Readability	Weighing Capacity
XP105DR	TBA	Balance, XP105 Delta Range®	0.01mg / 0.1mg	31g/120g
XP205	TBA	Balance, XP205	0.01mg	220g
XP205DR	IB3220	Balance, XP205 Delta Range®	0.01mg / 0.1mg	81g/220g
XP204	TBA	Balance, XP204	0.1mg	220g
XP504	TBA	Balance, XP504	0.1mg	520g

Excellence XS analytical balances. Innovative ergonomics for high weighing efficiency



XS105DU	IB3510	Balance, XS105DU Dual Range	0.01mg/0.1mg	41g/ 120g
XS205DU	IB3210	Balance, XS205DU Dual Range	0.01mg/0.1mg	81g/210g
XS64	TBA	Balance, XS64	0.1mg	61g
XS104	TBA	Balance, XS104	0.1mg	120g
XS204	IB3200	Balance, XS204	0.1mg	220g
XS204DR	TBA	Balance, XS204DR Delta Range	0.1mg/1mg	81g/ 220g

Classic AB analytical balances with FACT – for automatically accurate results



11139502	TBA	AB135-S/FACT Analytical Bal with FACT Dual range	0.01mg/0.1mg	31g/ 120g
11139506	TBA	AB265-S/FACT Analytical Bal with FACT Dual range	0.01mg/0.1mg	61g/ 220g
11139574	TBA	AB54-S/FACT Analytical Balance with FACT	0.1mg	51g
11139578	TBA	AB104-S/FACT Analytical Balance with FACT	0.1mg	110g
11139582	IB3520	AB204-S/FACT Analytical Balance with FACT	0.1mg	220g
11139586	TBA	AB304-S/FACT Analytical Balance with FACT	0.1mg	320g

Classic Light AL analytical balance. Low-budget balance for simple weighing tasks



AL54/00	IB3505	Balance	0.1 mg	51 g
AL54/01	TBA	Balance with RS232	0.1 mg	51 g
AL104/00	TBA	Balance	0.1 mg	110 g
AL104/01	TBA	Balance with RS232	0.1 mg	110 g
AL204/00	TBA	Balance	0.1 mg	210 g
AL204/01	TBA	Balance with RS232	0.1 mg	210 g

Optional RS232 interface supplied with external calibration weight.

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Balances - Analytical



Analytical Plus range of durable, reliable balances delivers performance and precision you would expect to find in premium priced balances.



Item	Rowe Code	Readability	Weighing Capacity
AP250D	IB7050	0.01 mg / 0.1 mg	52 g / 210 g
AP110	TBA	0.1 mg	110 g
AP210	TBA	0.1 mg	210 g
AP310	TBA	0.1 mg	310 g

Voyager Pro's advanced applications simplify complex laboratory measurements and help reduce errors in manual calculations.



EP64	TBA	0.1 mg	62 g
EP64C	TBA	0.1 mg	62 g
EP214D	TBA	0.1 mg / 1 mg	100 g / 210 g
EP214DC	TBA	0.1 mg / 1 mg	100 g / 210 g
EP114	TBA	0.1 mg	110 g
EP114C	TBA	0.1 mg	110 g
EP214	IB7414	0.1 mg	210 g
EP214C	IB7415	0.1 mg	210 g

Adventurer Pro Offers more standard features and options than any other balance in its class, the Adventurer Pro has the flexibility to meet your application needs.



AV114	TBA	0.1 mg	110 g
AV114C	TBA	0.1 mg	110 g
AV264	TBA	0.1 mg	260 g
AV264C	IB7146	0.1 mg	260 g

Adventurer SL. Designed for uncomplicated performance, the Adventurer SL has only those features necessary for routine weighing.



AS214	TBA	0.1 mg	210 g
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Adventurer. Ohaus® Analytical balances offer the right range of capacities and functions to meet your most demanding requirements.



AR0640	TBA	0.1 mg	65 g
AR1140	TBA	0.1 mg	110 g
AR2140	IB7145	0.1 mg	210 g

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Balances - Bench Scales



CKW Series

The CKW Series all stainless steel construction scale is designed for check weighing applications requiring fast and accurate operation. Combining a NSF/USDA certified food-safe design, durable stainless steel construction, and industry leading software, the Ohaus CKW series of bench scales are dedicated check weighing scales built for applications requiring fast and accurate operation. Designed with the operator in mind, the Ohaus CKW scales are easy to operate, but allow full configuration to match different checkweighing procedures.



Item	Rowe Code	Readability	Weighing Capacity
CKW3R55	TBA	0.0005 kg 0.001 lb	3 kg 6 lb
CKW6R55	TBA	0.001 kg 0.002 lb	6 kg 15 lb
CKW15L55	TBA	0.002 kg 0.005 lb	15 kg 30 lb
CKW30L55	TBA	0.005 kg 0.01 lb	30 kg 60 lb
CKW Indicator			
CKW55	TBA	1:10,000 (NTEP pending)	1:20,000 max
CKW Bases			
CKW3R	TBA	0.0005 kg	3 kg
	TBA	0.001 lb	6 lb
CKW6R	TBA	0.001 kg	6 kg
	TBA	0.002 lb	15 lb
CKW15L	TBA	0.002 kg	15 kg
	TBA	0.005 lb	30 lb
CKW30L	TBA	0.005 kg	30 kg

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Balances - Bench Scales

Item	Rowe Code	Readability	Weighing Capacity
ES Series			
ES6R	TBA	0.002 kg	6 kg
ES30R	IB7590	0.01 kg	30 kg
ES50L	TBA	0.02 kg	50 kg
ES50R	TBA	0.02 kg	50 kg
ES100L	TBA	0.05 kg	100 kg
ES200L	TBA	0.1 kg	200 kg



Utility and economy come together in the ES Series of all-purpose bench scales. The low profile design of the ES Series scales makes them perfect for shipping, receiving, and general bench applications.



Trooper

The Trooper's design is optimized for economical weighing applications. A concave stainless steel weighing pan and ABS housing provide protection for light industrial conditions, and the simple menu operation and easy-to-read backlit LCD display make the Trooper an affordable weighing solution. Portability and compact footprint allow use of the Trooper throughout your business. (60lbs) Readability: 0.0005kg to 0.005kg

Item	Rowe Code	Readability	Weighing Capacity
TR3RS	TBA	0.0005 kg	3 kg
TR6RS	IB3723	0.001 kg	6 kg
TR15RS	TBA	0.002 kg	15 kg
TR30RS	IB7585	0.005 kg	30 kg



Ohaus Corporation is a leading manufacturer of scales and balances for the laboratory, education, industrial and speciality markets worldwide.

With over 90 years of experience in the design, development and marketing of balances for a wide variety of applications, Ohaus has earned its reputation as a trusted supplier of precise, reliable and affordable products that meet virtually any weighing need. We remain firmly focused on continuing the long-standing record of success and on expanding our global presence with new products, new solutions and new relationships worldwide.

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Balances - Bench Scales



Champ II

Ohaus® Champ II Bench Scales are both durable and economical. These portable, 'plug-and-play' scales are ready to go to work for you right out of the box.



Item	Rowe Code	Readability	Weighing Capacity
CH15R11	TBA	0.002 kg	15 kg
CH30R11	IB7039	0.005 kg	30 kg
CH60L11	IB7070	0.01 kg	60 kg
CH60R11	TBA	0.01 kg	60 kg
CH100R11	TBA	0.02 kg	100 kg
CH150R11	TBA	0.02 kg	150 kg
CH300R11	TBA	0.05 kg	300 kg

Champ General

For general weighing needs, there's a Champ Bench Scale that's just right for your application and budget.



CQ10R11	TBA	0.001 kg	10 kg
CQ25R11	TBA	0.002 kg	25 kg
CQ50L11	IB7038	0.005 kg	50 kg
CQ100L11	TBA	0.01 kg	100 kg
CQ250XL11	TBA	0.02 kg	250 kg

Champ Multi-functional

From multiple weighing needs such as shipping to precise industrial requirements, there's a Champ Multi-Functional Bench Scale that's just right for your application and budget.



CQ10R31	TBA	0.001 kg	10 kg
CQ10R33	TBA	0.001 kg	10 kg
CQ25R31	IB7010	0.002 kg	25 kg
CQ25R33	TBA	0.002 kg	25 kg
CQ50L31	TBA	0.005 kg	50 kg
CQ50L33	TBA	0.005 kg	50 kg
CQ100L31	TBA	0.01 kg	100 kg
CQ100L33	TBA	0.01 kg	100 kg
CQ250XL31	TBA	0.02 kg	250 kg
CQ250XL33	TBA	0.02 kg	250 kg

Champ Washdown

From general weighing needs such as shipping to precise industrial and water washdown requirements, there's a Champ Bench Scale that's just right for your application and budget.



CQ10R11W	IB7037	0.001 kg	10 kg
CQ25R11W	TBA	0.002 kg	25 kg
CQ50L11W	IB7036	0.005 kg	50 kg
CQ100L11W	TBA	0.01 kg	100 kg
CQ250XL11W	TBA	0.02 kg	250 kg

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Balances - Counting



Item	Rowe Code	Readability	Weighing Capacity
EC3	IB7060	0.1 g	3000 g
EC6	TBA	0.2 g	6000 g
EC15	TBA	0.5 g	15000 g
EC30	IB7065	1 g	30000 g



The **EC Series** is designed for fast, accurate operations ideally suited for annual inventories, parts rooms, rentals and other counting applications. Easy to use, the Ohaus® EC Series offers accuracy, durability and portability in one practical design.

TC3RS	TBA	0.0005 kg	3 kg
TC6RS	TBA	0.001 kg	6 kg
TC15RS	TBA	0.002 kg	15 kg
TC30RS	TBA	0.005 kg	30 kg



The **Trooper Count** is an economical counting scale with enhanced software designed for flexible counting operations. Featuring simple to advanced counting modes, 300 memory locations for up to 60 items, and an intuitive, easy-to-operate design, the Ohaus® Trooper Count is a practical counting product you can depend on for a full range of industrial use.

RC3RS	TBA	0.0002 kg	3 kg
RC6RS	TBA	0.0005 kg	6 kg
RC12LS	TBA	0.001 kg	12 kg
RC30LS	TBA	0.002 kg	30 kg
RC60LS	TBA	0.005 kg	60 kg



The **Ranger Count** series is a comprehensive line of high performance counting bench scales.

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Balances - Mechanical



Triple Beam

Whether you're weighing solids, liquids, powders or even animals, an Ohaus® Triple Beam balance is well-equipped to handle the job.



Harvard Trip

With a two-pan design, the Harvard Trip balances feature magnetic damping, beams with sliding weights and a variety of weighing platforms



Dial-O-Gram® & Cent-O-Gram® Favorites in classrooms and industries worldwide, these balances offer high precision and remarkable value.



Field Test Scale

Ohaus® **Field Test** Scales have set an industry standard for precision in high-capacity weighing. Durable enough to resist corrosion, these precise balances also weigh with a feather touch - even under the most demanding conditions



Ohaus® Heavy Duty

Solution Balance has set an industry standard for precision in high-capacity weighing.



Item	Rowe Code	Readability	Weighing Capacity
1610-00	IB1706	0.1 g / 0.1 g	610 g / 2610 g
1650-00	TBA	0.1 g / 0.1 g	610 g / 2610 g
710-00	TBA	0.1 g / 0.1 g	610 g / 2610 g
710-T0	TBA	0.1 g / 0.1 g	610 g / 2610 g
720-00	TBA	0.1 g / 0.1 g	610 g / 2610 g
720-S0	TBA	0.1 g / 0.1 g	610 g / 2610 g
730-00	TBA	0.1 g / 0.1 g	610 g / 2610 g
750-S0	TBA	0.1 g / 0.1 g	610 g / 2610 g
760-00	TBA	0.1 g / 0.1 g	610 g / 2610 g
1650-W0	IB1705	0.1 g	2610 g
750-SW	IB1710	0.1 g	2610 g

1450-SD	IB1730	0.1 g	2000 g
1550-SD	TBA	0.1 g	2000 g
1560-SD	TBA	0.1 g	2000 g

310-00	TBA	0.01 g	310 g
311-00	TBA	0.01 g	311 g

2400-11	TBA	5 g	16 kg
2400-12	TBA	5 g	16 kg

Ohaus® Field Test Scales have set an industry standard for precision in high-capacity weighing. Durable enough to resist corrosion, these precise balances also weigh with a feather touch - even under the most demanding conditions

1119-D0	TBA	1 g	20 kg
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Durable enough to resist corrosion, this precise balance also weighs with a feather touch - even under the most demanding conditions.

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Balances - Micro



Microbalances

The METTLER TOLEDO UMX is an innovative micro balance, which sets new world standards for weighing performance, user friendliness and quality standards. The UMX has a very high resolution: 50 million digits. A brilliant touch screen display, intelligent user guidance, and hands-free infrared draft shield control make this highly-precise balance faster, easier and more fun to use than ever before

Item	Rowe Code	Description	Readability	Weighing Capacity
UMX2	TBA	Microbalance, UMX2	0.1µg	2100mg
MX5	IB2092	Microbalance, MX5	1µg	5100mg
AX26DR	TBA	Balance, AX26 Delta Range®	2µg / 0.01mg	3g/21g



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Balances - Moisture Analysis



The halogen moisture analyzers from METTLER TOLEDO warrant reliable moisture determination within just minutes. The circular halogen lamp and gold-plated reflector ensure the exceptionally fast and repeatable heating of the sample. The easy operation, automatic method development and sophisticated QM Tools are among the unique features for regulated use.



Item	Rowe Code	Description	Readability	"Weighing Capacity"
HR83P	TBA	Halogen Moisture analyser, HR83, with built in printer	1mg	81g
HR83	IB2038	Halogen Moisture analyser, HG83	1mg	81g
HG63P	IB2040	Halogen Moisture analyser, HG63, with built in printer	1mg	61g
HG63	TBA	Halogen Moisture analyser, HG63	1mg	61g
HB43	IB2012	Halogen Moisture analyser, HB43	1mg	41g



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Balances - Moisture Analysis

Designed to quickly, effectively and affordably measure moisture content, the Ohaus MB Series Moisture Analyzers incorporate state-of-the-art halogen heating with precision weighing technology to give a fast and accurate method for moisture content determination.



Perfect for applications in the pharmaceutical, chemical and research industries; versatile and rugged enough for continuous operation in food and beverage, quality control, environmental and many other applications.

Item	Rowe Code	Readability	Weighing Capacity
MB45	IB2019	0.001g	45g
MB35	IB2018	0.005g	35g



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Balances - Moisture Analysis Accessories

Accessories - Moisture Analyser

Sample Handling		
214526	TBA	Pan handler, sample, set of 3
13865	RT3555	Aluminium dishes, box of 80 pcs for one time use
11113863	TBA	Aluminium dishes professional thick walled box of 80 pcs
214462	TBA	Pans, HA-DR1, reusable, stainless steel, set of 3 (6mm high)
13954	TBA	Pans, reusable, stainless steel, set of 3 (15mm high)
214695	TBA	Cage for high volume lightweight material
214464	TBA	Fibreglass paper, box of 100 pcs
Printers		
HA-P43	TBA	Printer, HA-P43 (built-in) for HR/HG only
RS-P42	TBA	Printer, RS-P42
65975	TBA	Ink ribbon, black
72456	TBA	Paper, set of 5 rolls
11600388	TBA	Paper, self-adhesive, 1 roll
Quality Management		
214455	TBA	Temperature calibration/adjustment kit, HA-TC
214528	TBA	Temperature calibration/adjustment kit, certified, HA-TCC
214534	TBA	Recalibration, HA-TCC (inc. retraceable test cert. at 50C, 100C, 160C)
00158640	TBA	Single weight class F1, 20 g for HB
00158650	TBA	Single weight class F1, 50 g for HR/HG
Accessories		
21900879	TBA	Barcode scanner RS232 (must include power supply and cable)
214533	TBA	In-use cover, set of 2 for HR/HG
214515	TBA	Carry case for HR/HG
11113363	TBA	In-use cover, set of 2 for HB
11113855	TBA	Carry case for HB
11600361	TBA	Antitheft device (steel cord with lock) for HB
214469	TBA	Dryer replacement unit
13701	TBA	Thermometer kit, LP16 / LJ16
214240	TBA	Temperature calibration kit, LP16 / LJ16
214247	TBA	Thermal strips for 00214240
237010	TBA	BalanceLink Software 3.5" Disk (windows and NT)
21900855	TBA	BalanceLink Upgrade Version 2.2 to Version 3.0
Cables		
229050	TBA	Cable, LC-RS25,RS232/25 Pin, m/f, for IBM PC and compatibles 1.5 m
229065	TBA	Cable, LC-RS9, RS232/9 Pin, m/f, for IBM PC and compatibles, 1.5 m
11101051	TBA	Cable, RS9m – RS9f, 2 metre for HB
11101052	TBA	Cable, RS9m – RS25f, 2 metre for HB

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Balances - Portable



Item	Rowe Code	Readability	Weighing Capacity
SP202	IB7710	0.01 g	200 g
SP401	IB7705	0.1 g	400 g
SP402	IB7720	0.01 g	400 g
SP601	TBA	0.1 g	600 g
SP2001	IB7760	0.1 g	2000 g
SP4001	IB7770	0.1 g	4000 g
SP6000	IB7765	1 g	6000 g

The **Scout Pro** combines the accuracy and reliability of earlier Scout balances with all new features for an exceptional balance at an affordable price.



AV53	IB7045	0.001 g	51 g
AV212	TBA	0.01 g	210 g
AV412	IB7182	0.01 g	410 g
AV812	IB7185	0.01 g	810 g
AV2101	TBA	0.1 g	2100 g
AV4101	IB7190	0.1 g	4100 g
AV8101	IB7580	0.1 g	8100 g

Ohaus **Adventurer Pro** balances are ideal for general laboratory, industrial and educational applications requiring multiple weighing units. Ohaus Adventurer Pro balances are the economical way to weigh with precision.



AS153	TBA	0.001 g	150 g
AS312	TBA	0.01 g	310 g
AS612	TBA	0.01 g	610 g
AS811	TBA	0.1 g	810 g
AS1502	TBA	0.01 g	1500 g
AS3101	TBA	0.1 g	3100 g
AS6101	TBA	0.1 g	6100 g
AS8100	TBA	1 g	8100 g

Designed for uncomplicated performance, the **Adventurer SL** has only those features necessary for routine weighing.



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Balances - Portable



The Ohaus® Navigator balance is a full-featured, compact, affordable, portable balance. The Navigator balance offers you capacities from 32g to 8100g.

(Note: Balances beginning with item # N1xxxx have Internal calibration and those with N0xxxx do not.)

Item	Rowe Code	Readability	Weighing Capacity
N10330	TBA	0.002 g	32 g
N12120	TBA	0.01 g	210 g
N14120	TBA	0.01 g	410 g
N06112	TBA	0.1 g	610 g
N18110	TBA	0.1 g	810 g
N1B110	IB7225	0.1 g	2100 g
N1D110	TBA	0.1 g	4100 g
N0F1A2	TBA	1 g	6100 g
N1H110	TBA	0.5 g	8100 g

Ohaus® Compact Scales

are the perfect economical portable balance. Ohaus® Compact Scales are ideal when cost matters and dependable results are a must, offering capacities of 200g to 5000g and readabilities from 0.1g. "P" denotes US Postal version.



CS200	IB1810	0.1 g	200 g
CS2000	IB1840	1 g	2000 g
CS2000P	TBA	1 g	2000 g
CS5000	TBA	2 g	5000 g
CS5000P	TBA	2 g	5000 g

Ohaus® Hand-Held Scales

are convenient and compact allowing weighing in the palm of your hand. Use them to weigh jewellery, take them out into the field, for quality control, these scales are ideal to carry anywhere. They easily fit into your pocket or backpack for weighing on the go with capacities up to 320g and readabilities of 0.1g.



HH120D	TBA	0.1 g / 0.2 g	60g / 120 g
HH120	TBA	0.1 g	120 g
HH320	IB7180	0.1 g	320 g

Pocket Scales are the smallest and most portable electronic scales from Ohaus®. Rugged and innovative design lets you take the precision of an Ohaus® scale anywhere with capacities up to 250g and readabilities of 0.1g.



PS121	TBA	0.1 g	120 g
PS251	TBA	0.1 g	250 g

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Balances - Precision


Excellence precision balances XP S platforms

Leading in terms of weighing performance and ease of use, our Excellence balances increase your productivity, support regulatory compliance and offer clever solutions for instrument control and data management.



Item	Rowe Code	Description	Readability	Weighing Capacity
XP204S	TBA	Balance, XP204S	0.1mg	210g
XP404S	TBA	Balance, XP404S	0.1mg	410g
XP404SDR	TBA	Balance, XP404S Delta Range®	0.1mg/1mg	80g/410g
XP203S	TBA	Balance, XP203S	0.001g	210g
XP603S	TBA	Balance, XP603S	0.001g	610g
XP603SDR	TBA	Balance, XP603S Delta Range®	0.001g / 0.01g	120g/ 610g
XP1203S	TBA	Balance, XP1203S	0.001g	1210g
XP2003SDR	IB3710	Balance, XP2003S Delta Range®	0.001g / 0.01g	500g/ 2100g
XP5003SDR	TBA	Balance, XP5003S Delta Range®	0.001g / 0.01g	1000g/ 5100g
XP1202S	TBA	Balance, XP1202S	0.01g	1210g
XP4002S	TBA	Balance, XP4002S	0.01g	4100g
XP6002S	TBA	Balance, XP6002S	0.01g	6100g
XP6002SDR	TBA	Balance, XP6002S Delta Range®	0.01g / 0.1g	1200g/ 6100g
XP8002S	TBA	Balance, XP8002S	0.01g	8100g
XP10002S	TBA	Balance, XP10002S	0.01g	10100g
XP10002SDR	TBA	Balance, XP10002S Delta Range®	0.01g / 0.1g	2000g/ 10100g
XP4001S	TBA	Balance, XP4001S	0.1g	4100g
XP6001S	TBA	Balance, XP6001S	0.1g	6100g
XP8001S	TBA	Balance, XP8001S	0.1g	8100g
XP10001S	TBA	Balance, XP10001S	0.1g	10100g

Excellence precision balances XP M platforms


XP6002MDR	TBA	Balance, XP6002M Delta Range®	0.01g / 0.1g	1200g/ 6100g
XP12002MDR	TBA	Balance, XP12002M Delta Range®	0.01g / 0.1g	2400g/ 12100g
XP8001M	TBA	Balance, XP8001M	0.1g	8100g
XP8001MDR	TBA	Balance, XP8001M Delta Range®	0.1g / 1.0g	1600g/ 8100g
XP12001M	TBA	Balance, XP12001M	0.1g	12100g
XP12000M	TBA	Balance, XP12000M	1.0g	12100g
XP16001M	TBA	Balance, XP16001M	0.1g	16,100g
XP20001M		Balance, XP20001M	0.1g	20,100g
XP20000M		Balance, XP20000M	1g	20,100g

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Balances - Precision



Excellence precision balances XP L platforms



Item	Rowe Code	Description	Readability	Weighing Capacity
XP8001L	TBA	Balance, XP8001	0.1g	8,100g
XP16001L	TBA	Balance, XP16001L	0.1g	16,100g
XP32001L	TBA	Balance, XP32001	0.1g	32,100g
XP32001LDR	TBA	Balance, XP32001L Delta Range®	0.1g / 1g	6400g/ 32100g
XP64001L	TBA	Balance, XP64001L	0.1g	64,100g
XP16000L	TBA	Balance, XP16000L	1g	16,100g
XP32000L	TBA	Balance, XP32000L	1g	32,100g
XP64000L	TBA	Balance, XP64000L	1g	64100g

Excellence precision balances XS S platforms



XS203S	TBA	Balance, XS203S	0.001g	210 g
XS403S	TBA	Balance, XS403S	0.001g	410 g
XS603S	TBA	Balance, XS603S	0.001g	610 g
XS603SDR	TBA	Balance, XS603S DeltaRange®	0.001g / 0.01g	120 g / 610 g
XS1003S	TBA	Balance, XS1003S	0.001g	1010 g
XS802S	TBA	Balance, XS802S	0.01g	810 g
XS2002S	TBA	Balance, XS2002S	0.01g	2100 g
XS4002S	TBA	Balance, XS4002S	0.01g	4100 g
XS4002SDR	TBA	Balance, XS4002S DeltaRange®	0.01g / 0.1g	800g/4100 g
XS6002S	TBA	Balance, XS6002S	0.01g	6100 g
XS6002SDR	TBA	Balance, XS6002S DeltaRange®	0.01g / 0.1g	1200g/ 6100g
XS4001S	TBA	Balance, XS4001S	0.1g	4100g
XS6001S	TBA	Balance, XS6001S	0.1g	6100g
XS8001S	TBA	Balance, XS8001S	0.1g	8100g

Excellence precision balances XS M platforms



XS6001M	TBA	Balance, XS6001M	0.1g	6100g
XS6001MDR	TBA	Balance, XS6001M DeltaRange®	0.1g / 1g	1200g/ 6100g
XS10001M	TBA	Balance, XS10001M	0.1g	10100g
XS10000M	TBA	Balance, XS10000M	1g	10100g
XS16001M	TBA	Balance, XS16001M	0.1g	16,100g
XS16000M	TBA	Balance, XS16000M	1g	16,100g

Excellence precision balances XS L platforms



XS8001L	TBA	Balance, XS8001	0.1g	8,100g
XS16001L	TBA	Balance, XS16001L	0.1g	16,100g
XS32001L	TBA	Balance, XS32001	0.1g	32,100g
XS32001LDR	TBA	Balance, XS32001L Delta Range®	0.1g / 1g	6400g/ 32100g
XS16000L	TBA	Balance, XS16000L	1g	16,100g
XS32000L	TBA	Balance, XS32000L	1g	32,100g

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Balances - Precision

Item	Rowe Code	Description	Readability	Weighing Capacity
11139590	IB3508	PB153-S/FACT Precision Balance with FACT	0.001g	151g
11139594	IB3533	PB303-S/FACT Precision Balance with FACT	0.001g	310g
11139598	TBA	PB303-SDR/FACT Prec Bal with FACT DeltaRange®	0.001g / 0.01g	60 / 310 g
11139602	IB1925	PB403-S/FACT Precision Balance with FACT	0.001g	410g
11139606	IB3733	PB503-S/FACT Precision Balance with FACT	0.001g	510g
11139610	TBA	PB602-S/FACT Precision Balance with FACT	0.01g	610g
11139614	IB3742	PB1502-S/FACT Precision Balance with FACT	0.01g	1510g
11139618	IB3743	PB3002-S/FACT Precision Balance with FACT	0.01g	3100g
11139622	TBA	PB3002-SDR/FACT Prec Bal with FACT DeltaRange®	0.01g / 0.1g	600 / 3100 g
11139626	IB1979	PB4002-S/FACT Precision Balance with FACT	0.01g	4100g
11139630	TBA	PB1501-S/FACT Precision Balance with FACT	0.1g	1510g
11139634	TBA	PB3001-S/FACT Precision Balance with FACT	0.1g	3100g
11139638	IB3598	PB5001-S/FACT Precision Balance with FACT	0.1g	5100g
11139642	IB1958	PB8001-S/FACT Precision Balance with FACT	0.1g	8100g
11139646		PB8000-S/FACT Precision Balance with FACT	1g	8100g



Classic Plus precision balances PB-S/FACT



Classic precision balances AB



AB265-S	IB3546	Balance, AB265-S	0.01mg/ 0.1mg	61g/220g
AB54-S	IB3524	Balance, AB54-S	0.1mg	51g
AB104-S	IB3512	Balance, AB104-S	0.1mg	110g
AB204-S	IB3527	Balance, AB204-S	0.1mg	220g
AB304-S	IB3567	Balance, AB304-S	0.1mg	320g

AB-S includes RS 232 interface and internal calibration

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Classic precision balances PB-L and SB



Item	Rowe Code	Description	Readability	Weighing Capacity
11139526	IB3506	PB153-L Precision Balance	0.001g	151g
11139530	IB3544	PB303-L Precision Balance	0.001g	310g
11139534	TBA	PB303-LDR Precision Balance Delta Range	0.001g / 0.01g	60 / 310 g
11139538	IB1686	PB602-L Precision Balance	0.01g	610g
11139542	TBA	PB1502-L Precision Balance	0.01g	1510g
11139546	IB3736	PB3002-L Precision Balance	0.01g	3100g
11139550	TBA	PB3002-LDR Precision Balance Delta Range	0.01g / 0.1g	600 / 3100 g
11139554	TBA	PB1501-L Precision Balance	0.1g	1510g
11139558	TBA	PB3001-L Precision Balance	0.1g	3100g
11139562	IB3596	PB5001-L Precision Balance	0.1g	5100g
11139566	IB1955	PB8001-L Precision Balance	0.1g	8100g
11139570	IB3528	PB8000-L Precision Balance	1g	8100g
SB8001	IB1953	Balance, SB8001	0.1g	8100g
SB12001	TBA	Balance, SB12001	0.1g	12100g
SB16001	IB2200	Balance, SB16001	0.1g	16100g
SB16001DR	IB3746	Balance, SB16001 Delta Range	0.1g / 1g	3200/ 16100g
SB24001DR	TBA	Balance, SB24001 Delta Range	0.1g / 1g	4800/ 24100g
SB32001DR	IB2036	Balance, SB32001 Delta Range	0.1g / 1g	6400/ 32100g
SB8000	TBA	Balance, SB8000	1g	8100g
SB16000	IB2210	Balance, SB16000	1g	16100g
SB32000	IB2212	Balance, SB32000	1g	32100g

Classic Light Precision Balances PL



PL83-S/00	TBA	Balance	0.001 g	81 g
PL83-S/01	TBA	Balance with RS232	0.001 g	81 g
PL303/00	TBA	Balance	0.001 g	310 g
PL303/01	TBA	Balance with RS232	0.001 g	310 g
PL202-S/00	IB3543	Balance	0.01g	210 g
PL202-S/01	TBA	Balance with RS232	0.01g	210 g
PL602-S/00	IB1687	Balance	0.01g	610 g
PL602-S/01	TBA	Balance with RS232	0.01g	610 g
PL1502-S/00	TBA	Balance	0.01g	1510 g
PL1502-S/01	TBA	Balance with RS232	0.01g	1510 g
PL3002/01	TBA	Balance with RS232	0.01 g	3100 g
PL601-S/00	IB1680	Balance	0.1g	610 g
PL601-S/01	IB3716	Balance with RS232	0.1g	610 g
PL1501-S/00	IB2099	Balance	0.1g	1510 g
PL1501-S/01	TBA	Balance with RS232	0.1g	1510 g
PL3001-S/00	IB1920	Balance	0.1g	3100 g
PL3001-S/01	TBA	Balance with RS232	0.1g	3100 g
PL6001-S/00	TBA	Balance	0.1g	6100 g
PL6001-S/01	TBA	Balance with RS232	0.1g	6100 g
PL6000-S/00	IB3741	Balance	1 g	6100 g
PL6000-S/01		Balance with RS232	1 g	6100 g

Optional RS232 interface and Rechargeable battery. Calibration requires external weight (not included).

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Balances - Precision



Explorer Pro

Ohaus® Explorer Pro Precision Top Loading balances offer a full range of capacities and functions to meet your most demanding requirements.

Item	Rowe Code	Readability	Weighing Capacity
EP413D	TBA	0.001 g / 0.01 g	100 g / 410 g
EP413DC	TBA	0.001 g / 0.01 g	100 g / 410 g
EP213	TBA	0.001 g	210 g
EP213C	TBA	0.001 g	210 g
EP413	IB7040	0.001 g	410 g
EP413C	IB4010	0.001 g	410 g
EP612	TBA	0.01 g	610 g
EP612C	TBA	0.01 g	610 g
EP613	TBA	0.001 g	610 g
EP613C	IB7461	0.001 g	610 g
EP4102D	TBA	0.01 g / 0.1 g	1000 g / 4100 g
EP4102DC	TBA	0.01 g / 0.1 g	1000 g / 4100 g
EP2102	IB7405	0.01 g	2100 g
EP2102C	IB7420	0.01 g	2100 g
EP4101	TBA	0.1 g	4100 g
EP4101C	TBA	0.1 g	4100 g
EP4102	IB7410	0.01 g	4100 g
EP4102C	IB7425	0.01 g	4100 g
EP6101	IB7436	0.1 g	6100 g
EP6101C	TBA	0.1 g	6100 g
EP6102	IB7433	0.01 g	6100 g
EP6102C	IB7434	0.01 g	6100 g
EP8101	TBA	0.1 g	8100 g
EP8101C	TBA	0.1 g	8100 g
EP12001	TBA	0.1 g	12000 g
EP12001C	TBA	0.1 g	12000 g
EP22001	TBA	0.1 g	22000 g
EP22001C	TBA	0.1 g	22000 g
EP32001	TBA	0.1 g	32000 g
EP32001C	TBA	0.1 g	32000 g



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Balances - Precision



Adventurer SL

Ohaus® Adventurer Precision Top Loading balances offer a full range of capacities and functions to meet your most demanding requirements.



Item	Rowe Code	Readability	Weighing Capacity
N10330	TBA	0.002 g	32 g
N12120	TBA	0.01 g	210 g
N14120	TBA	0.01 g	410 g
N06112	TBA	0.1 g	610 g
N18110	TBA	0.1 g	810 g
N1B110	IB7225	0.1 g	2100 g
N1D110	TBA	0.1 g	4100 g
N0F1A2	TBA	1 g	6100 g
N1H110	TBA	0.5 g	8100 g
N1H110	TBA	0.5 g	8100 g

Adventurer



AR1530	IB7110	0.001 g	150 g
AR3130	IB7130	0.001 g	310 g
AR5120	TBA	0.01 g	510 g
ARA520	IB7124	0.01 g	1500 g
ARC120	IB3778	0.01 g	3100 g
ARD110	TBA	0.1 g	4100 g

Navigator

The Ohaus® Navigator balance is a full-featured, compact, affordable, portable balance. The Navigator balance offers you capacities from 32g to 8100g.

(Note: Balances beginning with item # N1xxxx have Internal calibration and those with N0xxxx do not.)



N10330	TBA	0.002 g	32 g
N12120	TBA	0.01 g	210 g
N14120	TBA	0.01 g	410 g
N06112	TBA	0.1 g	610 g
N18110	TBA	0.1 g	810 g
N1B110	IB7225	0.1 g	2100 g
N1D110	TBA	0.1 g	4100 g
N0F1A2	TBA	1 g	6100 g
N1H110	TBA	0.5 g	8100 g

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Balances - Precision



The Voyager® Series was designed with the user in mind. Voyager Pro features an ultra-simple and innovative user interface. Key features include scroll down menus for simple menu navigation and on screen text prompts which guide you through Voyager Pro's application modes. Voyager® Pro's state of the art high-resolution display is easy to view and displays only the information you want to see. Plus, your investment is protected! Voyager® Pro is designed with a spill channel and includes an in-use cover. The Voyager® Pro is manufactured to ISO 9001:2000 quality assurance specifications.

Item	Rowe Code	Readability	Weighing Capacity
VP413DCN	TBA	0.001 g / 0.01 g	100 g / 410 g
VP213CN	TBA	0.001 g	210 g
VP413CN	TBA	0.001 g	410 g
VP612CN	TBA	0.01 g	610 g
VP4102DCN	TBA	0.01 g / 0.1 g	1000 g / 4100 g
VP2102CN	TBA	0.01 g	2100 g
VP4101CN	IB7600	0.1 g	4100 g
VP4102CN	TBA	0.01 g	4100 g
VP6101CN	TBA	0.1 g	6100 g
VP8101CN	TBA	0.1 g	8100 g

Voyager Pro



AV53	IB7045	0.001 g	51 g
AV212	TBA	0.01 g	210 g
AV212C	TBA	0.01 g	210 g
AV213	TBA	0.001 g	210 g
AV213C	TBA	0.001 g	210 g
AV412	IB7182	0.01 g	410 g
AV412C	TBA	0.01 g	410 g
AV812	IB7185	0.01 g	810 g
AV812C	IB7183	0.01 g	810 g
AV2101	TBA	0.1 g	2100 g
AV2101C	TBA	0.1 g	2100 g
AV2102	IB7127	0.01 g	2100 g
AV2102C	IB7126	0.01 g	2100 g
AV4101	IB7190	0.1 g	4100 g
AV4101C	TBA	0.1 g	4100 g
AV8101	IB7580	0.1 g	8100 g
AV8101C	TBA	0.1 g	8100 g

Adventurer Pro

The Ohaus® Adventurer™ Pro family combines unsurpassed value with solid reliability. Adventurer Pro balances are affordable, accurate and easy to use for all of your basic weighing needs. The Adventurer Pro family offers capacities ranging from 51g to 8100g.



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Balances - Trade Approved



Certificate of Approval No 6/4C/228

Characteristics of trade approved balances:

- All models feature internal calibration.
- The balance display shows the entire readability.
- Figures after the verification scale are shown in brackets.
- Internal calibration is automatically initiated on instrument switch on and 2 hours after switch on and every 2°C change and 150 hours.
- Only kilograms and grams are available units (except for -C jewellery models which have carats).
- External calibration is not available.
- Functions such as %, counting & dynamic weighing are fitted, but not approved for trade use.
- Instruments will carry appropriate labelling including certification mark.
- Instruments are sealed to prevent unauthorised calibration and tampering.
- All balances approved for use over temperature range 10-30°C except PB8000-S/A Class III version 10-40°C.

Analytical Balances AB

Item	Rowe Code	Description	Weighing Capacity (Max) g	Verification "Scale Interval" (e) g	"Minimum capacity" "for trade use" (Min) g	Readability (d) g	Accuracy class
AB135-S/A	TBA	Balance, AB135-S/A	31 / 120	0.001 / 0.001	0.001	0.00001 / 0.0001	I
AB265-S/A	TBA	Balance, AB265-S/A	61 / 220	0.001 / 0.001	0.001	0.00001 / 0.0001	I
AB54-S/A	TBA	Balance, AB54-S/A	51	0.001	0.01	0.0001	I
AB104-S/A	TBA	Balance, AB104-S/A	110	0.001	0.01	0.0001	I
AB204-S/A	TBA	Balance, AB204-S/A	220	0.001	0.01	0.0001	I
AB304-S/A		Balance, AB304-S/A	320	0.001	0.01	0.0001	I



JB8001



JB3002



JB803

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Balances - Trade Approved



Precision Balances PB-S/SB

Item	"Rowe Code"	Description	Weighing Capacity (Max) g	Verification "Scale Interval" (e) g	"Minimum capacity" "for trade use" (Min) g	Readability (d) g	Accuracy class
PB153-S/A	TBA	Balance, PB153-S/A	151	0.01	0.02	0.001	II
PB303-S/A	TBA	Balance, PB303-S/A	310	0.01	0.02	0.001	II
PB303-SDR/A	TBA	Balance, PB303-S/A Delta	60 / 310	0.01 / 0.01	0.02	0.001 / 0.01	II
PB403-S/A	TBA	Balance, PB403-S/A	410	0.01	0.02	0.001	II
PB602-S/A	TBA	Balance, PB602-S/A	610	0.1	0.5	0.01	II
PB1502-S/A	TBA	Balance, PB1502-S/A	1510	0.1	0.5	0.01	II
PB3002-S/A	TBA	Balance, PB3002-S/A	3100	0.1	0.5	0.01	II
PB3002-SDR/A	TBA	Balance, PB3002-S/A Delta	600 / 3100	0.1 / 0.1	0.5	0.01 / 0.1	II
PB4002-S/A	TBA	Balance, PB4002-S/A	4100	0.1	0.5	0.01	II
PB1501-S/A	TBA	Balance, PB1501-S/A	1510	0.1	5	0.1	II
PB3001-S/A	TBA	Balance, PB3001-S/A	3100	0.1	5	0.1	II
PB5001-S/A	TBA	Balance, PB5001-S/A	5100	1	5	0.1	II
PB8001-S/A	TBA	Balance, PB8001-S/A	8100	1	5	0.1	II
PB8000-S/A	TBA	Balance, PB8000-S/A	8100	1	50	1	II
PB8000-S/A	TBA	Balance, PB8000-S/A	8100	1	20	1	III
JB3002-G/A	TBA	Balance, JB3002-G/A	3100	0.1	0.5	0.01	II
JB8001-G/A	TBA	Balance, JB8001-G/A	8100	1	5	0.1	II
JB203-C/A	TBA	Balance, JB203-C/A	51 255ct	0.01 0.01ct	0.02 0.02ct	0.001 0.001ct	II
JB803-C/A	TBA	Balance, JB803-C/A	162 810ct	0.01 0.01ct	0.02 0.02ct	0.001 0.001ct	II
JB1603-C/A	TBA	Balance, JB1603-C/A	320 1600ct	0.01 0.01ct	0.02 0.1ct	0.001 0.001ct	II I

Jewellery Balances

JB3002-G/A	TBA	Balance, JB3002-G/A	3100	0.1	0.5	0.01	II
JB8001-G/A	TBA	Balance, JB8001-G/A	8100	1	5	0.1	II
JB203-C/A	TBA	Balance, JB203-C/A	51 255ct	0.01 0.01ct	0.02 0.02ct	0.001 0.001ct	II II
JB803-C/A	TBA	Balance, JB803-C/A	162 810ct	0.01 0.01ct	0.02 0.02ct	0.001 0.001ct	II II
JB1603-C/A	TBA	Balance, JB1603-C/A	320 1600ct	0.01 0.01ct	0.02 0.1ct	0.001 0.001ct	II I

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Balances - Accessories

Printers and Printer Accessories



Item	Rowe Code	Description
RS-P42	IT4220	Printer
BT-P42	TBA	Printer, Blue tooth
LC-P43	IB2025	Printer, simple dot matrix, LC interface for PR, SR, PG, SG, AB, PB, SB, HR73 & HG52
LC-P45	IB2030	Printer, versatile dot matrix, LC/RS232 interface for all MT Instruments
LC-PVolume	TBA	Pipette calibration printer for professional and standard balances
00072456	TBA	Paper, set of 5 rolls, for LC-P45, LC-P43, SQC14, GA42, RS-P42
00071328	TBA	Printer Paper, set of 4 rolls, for GA44
00065975	IB2020	Ink ribbon, 1 unit, for LC-P45, LC-P43, SQC14, GA42, RS-P42 (Must buy in Qty of 2)
11600388	TBA	Paper, adhesive, 1 roll, for LC-P45, LC-P43, SQC14, GA42, RS-P42
Anti-Theft		
590101	IB1999	Anti theft device, cable lock for AB-S/PB-S/SB/PG-S/SG/PR/SR/PL/AL
229175	TBA	Anti theft device, metal rod lock, pin with lock for AB/PB/PG/PR
11600361	IB1998	Anti theft device, steel cord, for XS/XP/AX
In-Use Covers		
11103681	IB2082	In use cover, for AB-S, PB-S
11100830	IB2073	In use cover, for front terminal, AX, MX, UMX
12102970	IB3230	In use cover, AL/PL
12102980	IB2014	In use cover, PL-S
11106870	TBA	In use cover, XS analytical & precision terminal
11100089	TBA	Dust cover for AX

Interface Output Options

11103678	TBA	Interface RS232 for AB-S, PB-S, standard on models shipped after March 9, 2000
11100070	TBA	Interface RS232 for UMX, MX, AX balances
11100071	TBA	Interface LocalCan for UMX, MX, AX balances
11100072	TBA	Interface Mini Mettler for UMX, MX, AX balances
11132500	TBA	Interface, RS232 for XS (additional)
11132505	TBA	Interface, LC option, LocalCAN for XS
11132510	TBA	Interface Mini Mettler for XS & XP
11132520	TBA	Interface PS/2 for XS & XP
11132535	TBA	Interface Bluetooth for XS & XP
11132515	TBA	Interface Ethernet for XS & XP

Software

237010	TBA	BalanceLink Software 3.5" Disk (Windows and NT)
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Barometers

Rowe Code	Description
EB1330	Aneroid with Walnut Frame, 200mm
EB1100	Aneroid, Demonstration Type, 100mm diameter
EB1390	Fortin Type Mercury 63 to 82cm/Hg
EB1370	Precision 100mm diameter dial, brass finish
EB1300	Student, without mercury





About 1645, an Italian mathematician named Torricelli discovered the principle of the barometer by using a long glass tube closed at one end, which he put upside down in an open container holding liquid. He found that the pressure of the air bearing down on the liquid in the container forced it up the tube, and the measurement of the various lengths of the column of liquid was therefore a means of expressing the changes in air pressure. In order to have a tube of manageable length, the heaviest of all liquids, mercury, was later used.

Today we have finely constructed mercurial barometers capable of giving very accurate readings. They are costly and they need special care in handling. For general use an easier though less precise means of measurement has been devised - the ANEROID BAROMETER (aneroid = without fluid).

Conversion table		
Hectopascals	Inches	Millimetres
992	29.29	744.1
996	29.41	747.1
1000	29.53	750.1
1004	29.65	753.1
1008	29.77	756.1
1012	29.88	759.1
1016	30.00	762.1
1020	30.12	765.1
1024	30.24	768.1
1028	30.36	771.1
1032	30.48	774.1

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Basins

Evaporating

Haldenwanger

Porcelain. Low form with lip. Glazed except for base.



Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WB1005	45	80	16	ea
WB1010	60	90	20	ea

Evaporating

Chinese

Porcelain. Low form with lip. Glazed except rim. Economy



Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WB1550	35	60	25	ea
WB1700	100	90	35	ea
WB1750	115	96	36	ea
WB1830	150	104	40	ea
WB1850	180	107	43	ea
WB2000	300	126	52	ea
WB2100	400	150	58	ea
WB2150	450	158	58	ea
WB1600	50	70	28	ea
WB1610	60	74	30	ea
WB1650	75	82	32	ea
WB1770	125	98	38	ea
WB1800	140	100	39	ea

Flat Form with Spout

Bhanu

Silica



Rowe Code	Capacity mL	Size (Dia. x Ht.) mm	Std. Pack Size
TB1105	25	79 X 15	ea.
TB1155	75	101 X 20	ea.
TB1200	125	131 X 23	ea.
TB1000	200	113 X 47	ea.

Round Bottom with Spout

Bhanu

Silica



Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
TB1120	45	75	27	ea
TB1140	70	87	33	ea
TB1000	200	113	47	ea

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Baths - Water

Shaking

Similar construction to Ratek non circulated water baths. Oscillating unit is mounted inside the water tank. Platform travel of 40mm over speed range of 20 to 200rpm. Separate on/off switch. Polycarbonate or stainless steel lids available.

Rowe Code	Capacity L	Usable Platform		External Dimensions		
		W	L	W	H	L
IW1110	20	330	310	600	430	430
IW1233	Polycarbonate Lid for SWB20					
IW1231	Stainless Steel Lid for SWB20					



Culture

The Culture Water Baths are suitable for a variety of applications where temperature uniformity and stability are important. Operation below room temperature is possible with the cooled S Models, although use below +5°C requires the addition of a suitable anti-freeze. Tanks are constructed from seamless welded stainless steel, with exteriors fabricated from heavy gauge zinc coated steel with a durable epoxy finish. Two styles of lid are available; stainless steel lift-off, and insulated hinged lid. Contherm Culture Water Baths are fitted with a multi-flow circulating system designed to ensure good temperature uniformity when loaded, and are supplied complete with fitted multi-flow work support and your choice of lid. Convenient carrying handles are also fitted.

Manufactured in a quality production environment, these Culture Water Baths comply with EMC Standard EN61326-1:1997.



Model 360	Cap 25L
Model 360S.	Cap 25L
Model 370	Cap 35L
Model 370S	Cap 35L
Model 380	Cap 50L
Model 380S.	Cap 50L



Steam

SEM Steam Baths are constructed of all stainless steel with welded joints, and fitted with a constant water level device.

The heating element is easily replaceable and has an inbuilt over heat protection device.

Water temperature is controlled by an energy regulator. The cover is removable for ease of cleaning



Rowe Code	No. of Places	Hole Size mm
IW1245	6	80
IW1250	6	100
IW1255	12	80
IW1260	12	100
IW2000	Roller Rack "Universal", to suit Ratek Shaking Water Bath	



Beakers

Low Form - Glass

TGI



Borosilicate glass. Graduated with pouring spout.



Rowe Code	Capacity mL	OD mm	Height mm	Std.Pack Size
GB1508	10	26	35	10
GB1575	25	34	50	10
GB1675	50	42	59	10
GB1825	100	50	70	10
GB1885	150	60	80	10
GB2055	250	70	95	10
GB2225	400	80	110	10
GB2420	600	90	125	10
GB2620	1000	105	145	10
GB2860	2000	130	185	4
GB2980	3000	150	210	4
GB3105	5000	170	270	3

Low Form - Heavy Duty

Kimax

Borosilicate glass. Thick uniform walls, increased mechanical strength.



Rowe Code	Capacity mL	OD mm	Height mm	Std.Pack Size
GB2100	250			12
GB2340	400			12
GB2345	500			10
GB2350	600			6
GB2650	1000	107	152	6
GB2910	2000	130	190	4
GB3020	4000			1

P.T.F.E.

Cowie

Isostatically moulded from pure PTFE, inert with super smooth finish. Base machined flat for good heat transfer. With pouring spout.



Rowe Code	Capacity mL	OD mm	Height mm	Std.Pack Size
PB4450	50	43	55	ea
PB4500	100	54	68	ea
PB4550	250	66	97	ea

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Beakers

Low Form - Polypropylene

Kartell

Polypropylene, high chemical and thermal resistance.
Autoclavable to 121°C for 20 min. Continuous work at 100°C.
Moulded graduations.

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
PB3800	25	34	49	20
PB3850	50	42	60	20
PB3950	100	51	72	12
PB4000	250	71	95	16
PB4100	500	87	119	12
PB4200	1000	109	147	4
PB4250	2000	132	183.5	4
PB4275	3000	158	201	2
PB4350	5000	188.5	229	2



Tall Form - Glass

TGI



Borosilicate glass. Graduated with pouring spout.

Rowe Code	Capacity mL	OD mm	Height mm	Std. Pack Size
GB3165	50	38	66	10
GB3235	100	47	80	10
GB3355	150	53	96	10
GB3505	250	60	120	10
GB3605	400	70	130	10
GB8330	600	82	143	10
GB3955	1000	95	185	10



Conical Beaker - Low Form

Schott

Borosilicate glass with pouring spout

Row Code	Capacity mL	OD Bottom mm	ID Top mm	Height mm	Std. Pack Size
GB1350	250	68	48	110	10
GB1450	500	88	61	145	10



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Blenders

Waring make a range of blenders that satisfy all blending needs in the laboratory. Laboratory blenders range in size up to 4L capacity and special safety models enable blending in hazardous locations, including explosion proof.

Accessories and replacement parts are readily available for all models.



Rowe Code	Description
IB4100	Blender Waring, Two Speed 1.25 litre



Blender Accessories

Rowe Code	Description
IB4110	Spare Blender Assembly
IB4120	Glass Container 1L
IB4288	Stainless Steel Mini Container 50-250mL
IB4145	Single Speed Base, 240v 50Hz
IB4140	Stainless Steel 500mL Container with Lid for dry homogenizing.



Other sizes and combinations available, please enquire.

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Bottles

Aspirator Bottles - Heavy Duty

Kartell

Material: High density polyethylene

Designed for lifetime service. Can be used in sub zero temperatures. Very sturdy construction having a 2mm wall thickness whilst retaining translucency. The 3/4" BSP Waddington & Duval tap (supplied) mates with a 12mm deep thread in the aspirator for total leak proof performance.

Rowe Code	Cap. mL	ID Mouth mm	Dia Bottle mm	Height mm	Handles	Std. Pack Size
PB3240	5	45	165	335	1	ea
PB3250	10	55	210	415	1	ea
PB3260	25	55	280	525	2	ea
PB3270	50	55	365	600	2	ea
PT1050	Tap for Aspirator Bottles 3/4" BSP Thread					



Carboy - Narrow Neck - Heavy Walled

Kartell

Material: High density Polyethylene

2mm heavy robust bottles which can withstand considerable abuse. The insert plug and soft seal cap makes them leakproof and suitable for developed pressure vessels. The cap can be wired down for added safety. Complete with carrying handles.

Rowe Code	Capacity L	ID Mouth mm	OD mm	Height mm	Handles	Std. Pack Size
PB3505	5	45	165	335	1	ea
PB3510	10	55	210	415	1	ea
PB3503	25	55	280	525	2	ea
PB3280	50	55	365	600	2	ea



Carboy - Wide Neck - Heavy walled

Kartell

Material: High Density Polyethylene

Very robust bottles, ideal for liquids or powders. Wide mouth for easy filling and emptying. Insert seal for complete leakproof closure. Caps can be wired down for safety. Tommy bar lugs on 10 litre capacity to assist release. Carrying handles.

Rowe Code	Capacity L	ID Mouth mm	OD mm	Height mm	Std. Pack Size
PB3470	5	90	165	315	ea
PB3500	10	120	210	390	ea



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Bottles

Dispenser Bottles - Adjustable Volume

Kartell

Material: Polyethylene (bottle), TPX (container)



The graduated clear TPX measuring cup slides up and down the tube and the variation in height changes the volume to be dispensed. The dispensed volume remains constant at any preset position of the cup.

The cup is filled by squeezing the bottle and forcing the liquid up the tube.

When the bottle pressure is released, the excess will be drawn back into the bottle and only the desired volume will remain.

Rowe Code	Measuring container mL	Bottle mL	Std. Pack Size
PD1375	25	250	ea
PD1350	25	500	ea
PD1736	25	1000	ea
PD1359	50	500	ea
PD1360	50	1000	ea

Dropping



Screw on caps. Glass pipette, rubber aspirator.

Rowe Code	Capacity mL	Type	Std. Pack Size
GB4250	25	Amber Glass	ea
GB4300	25	Clear Glass	ea
GB4450	50	Amber Glass	ea
GB4550	50	Clear Glass	ea
(Short dropper - half bottle height)			

General Purpose - HDPE

28mm Neck Natural HDPE with plain screw cap



Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
PB2200	50	34	79	ea
PB2250	125	48	98	ea
PB2300	250	51	160	ea
PB2450	500	69	180	ea
PB2510	1000	84	220	ea

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Bottles

General Purpose - LDPE

28mm Neck. Natural LDPE with plain screw cap

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
PB2260	125	48	98	ea
PC1345	250	51	160	ea



Graduated - Narrow Neck

Kartell

Material: Polyethylene

Double sealing with insert cap in neck of bottle. Sloping shoulders reduce tendency for residue deposits. Tagging points on shoulder & cap ensure tamper proof closure

Rowe Code	Capacity mL	I.D. Mouth mm	Dia. Bottle mm	Height mm	Std. Pack Size
PB2340	50	18	40	75	ea
PB3410	125	18	45	115	ea
PB2350	250	23	60	135	ea
PB3420	500	23	75	165	ea
PB2550	1000	34	95	215	ea
PB2700	2000	34	115	275	ea



Graduated - Narrow Neck, Opaque

Kartell

Material: Grey Polyethylene

Completely opaque. Excellent for all photosensitive materials whether liquid or solid. Sloping shoulders reduces tendency for residue deposits. No leaching. Insert plug for maximum security. Easy grip cap.

Rowe Code	Capacity mL	O.D. mm	Height mm	ID Mouth mm	Std. Pack Size
PB1785	50	40	75	18	ea
PB1788	125	45	115	18	ea
PB1790	250	60	135	23	ea
PB1795	500	75	165	23	ea
PB1800	1000	95	215	34	ea



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Bottles

Graduated - Wide Neck

Kartell

Material: Polyethylene

Graduated, general purpose bottle meeting Food and Drug regulations with pictograms. Long pinch seal ensures leakproof closure. Wide neck for easy filling and emptying of liquid or powder samples. Conforms to DIN 13316 and 168.



Rowe Code	Cap. mL	Grad. mL	O.D. mm	Height mm	ID Mouth mm	Std. Pack Size
PB3556	50	10	38	90	24	ea
PB3558	100	20	48	105	24	ea
PB3560	250	25	60	140	38	ea
PB3565	500	100	75	170	38	ea
PB3570	1000	100	95	205	55	ea
PB2610	2000	100	120	250	55	ea

Graduated - Wide Neck

Kartell

Material: Polyethylene

Will withstand considerable pressure before rupture. Secured by tagging points on bottle and cap. Confidential notes can be placed in the space between insert sealing plug and cap.



Rowe Code	Capacity mL	ID Mouth mm	OD mm	Height mm	Std. Pack Size
PB3540	50	24	40	75	ea
PB3670	100	24	50	90	ea
PB3550	250	34	60	125	ea
PB3660	500	34	75	160	ea
PB2570	1000	45	95	200	ea
PB2600	2000	45	115	250	ea

Graduated Square - Wide Neck

Kartell

Material: HDPE

Space saving bottles, ideal for long term storage of samples. Approximate graduations allow reproducible filling without the use of cylinders/beakers. Easy grip caps can be wired down for security. Head space between cap and insert plug can be used for confidential notes.



Rowe Code	Cap. mL	Grad. mL	Sides mm	Height mm	ID Mouth mm	Std. Pack Size
PB3175	25	5	34x32	50	18	ea
PB3180	50	10	39x37	70	24	ea
PB3185	100	20	48x42	90	34	ea
PB3190	250	50	60x57	110	34	ea
PB3200	500	100	80x70	140	44	ea
PB3210	1000	100	103x80	175	58	ea
PB3215	2000	100	135x100	210	58	ea

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Bottles

Graduated - Wide Neck

Kartell

Material: Polypropylene

Autoclavable, graduated bottle meeting Food and Drug regulations with pictograms. Very sturdy, rupture proof bottle. Long pinch seal ensures leak proof closure. Wide neck for easy filling and emptying of liquid or powder samples. Conforms to DIN 13316 and 168. Remove cap before autoclaving.

Rowe Code	Cap. mL	Grad. mL	O.D. mm	Height mm	ID Mouth mm	Std. Pack Size
PB3320	50	10	38	90	24	ea
PB3330	100	20	48	105	24	ea
PB3340	250	25	60	140	38	ea
PB3350	500	100	75	170	38	ea
PB3360	1000	100	95	205	55	ea
PB3363	2000	100	120	250	55	ea



Indicator

High density polyethylene.

Natural with white witches hat screw cap and red end.

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
PB2149	250	55	165	ea



Laboratory/Media

Graduated, with chemical resistance and have a pouring ring which allows drip free use. Screw cap. Autoclavable.

Rowe Code	Capacity mL	Std. Pack Size
GB7850	50	10
GB7915	100	10
GB7965	250	10
GB8002	500	10
GB8040	1000	10
GB8110	2000	10
GB8140	5000	ea
GB8200	10000	ea

Also available in amber glass - please enquire



Spares for Laboratory Bottles

Rowe Code	Neck Size	Colour	Std. Pack Size
Caps, polypropylene			
GB8316	GL45	Blue	ea
Pouring Rings, polypropylene			
GB8304	GL45	Blue	ea

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Bottles

Reagent



Glass, narrow neck. Plastic stopper

Rowe Code	Capacity mL	Std. Pack Size
GB6650	500	ea
GB6800	1000	ea

Specific Gravity



Precisely calibrated with ground stopper.

Rowe Code	Capacity mL	Std. Pack Size
GB8336	25	ea
GB8340	50	ea
GB8351	100	ea

Wash Bottles - Integral

Kartell

Material: Polyethylene

Easy squeeze wash bottles with integral moulded tube.

Dispensing tip, which is provided with polyethylene closure cap, can be cut back to increase flow. Special shape for easy grip and stability.



Rowe Code	Capacity mL	Height mm	Neck	Std. Pack Size	Carton Qty
PW1000	250	140	GL32	ea	10
PW1200	500	180	GL32	ea	10

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Bottles

Wash Bottles - Round

Kartell

Material: Polyethylene

Ideal for distilled water, the stream of liquid is regulated by hand pressure. Dispensing tip gives ultra-fine stream or can be removed to increase flow.

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size	Carton Qty
PW1800	100	43	115	ea	10
PW1810	250	60	140	ea	10
PW2225	500	75	180	ea	10
PW2250	1000	95	220	ea	10



Wash Bottles - Wide mouth - Graduated

Kartell

Material: Polyethylene

Wide mouth for easy, safe filling. Colour coded caps for easy identification. Graduated. Ingenious cap designed to alleviate involuntary dripping due to pressure build up in bottle - very important where noxious, toxic or radioactive material is being used. Available in the colours: neutral, blue, yellow, red. Have a GL45 neck.

Rowe Code	Capacity mL	Graduations mL	OD mm	Mouth ID mm	Cap Colour	Std. Pack Size
PW 2320	250	25	60	38	neutral	ea
PW2350	250	25	60	38	blue	ea
PW2300	250	25	60	38	yellow	ea
PW2340	250	25	60	38	red	ea
PW2360	500	100	75	38	neutral	ea
PW2362	500	100	75	38	blue	ea
PW2364	500	100	75	38	yellow	ea
PW2366	500	100	75	38	red	ea



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Bottles

Wash Bottles - Labelled

Bel-Art



Bel-Art's new wash bottles ensure leak proof dispensing of your most common solvents in the laboratory. Polypropylene closure is 53mm wide with a leakproof design. Easy to read, LDPE solvent resistant printed bottles include: Department of transportation (DOT), National Fire Protection Association (NFPA) codes and symbols, Chemical Abstract Service (CAS) numbers, protective equipment symbols and target organ information making your workplace a safer place.

Rowe Code	Capacity mL	Label	Std. Pack Size
PW1400	500	Acetone	ea
PW1370	500	Ethanol	ea
PW1380	500	70% Ethanol	ea
PW1410	500	Isopropyl Alcohol	ea
PW2450	500	Methanol	ea
PW1425	500	Toluene	ea
PW1650	500	Water	ea



Weighing

Low form with lid. Borosilicate glass

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
GW1181	15.0	38	30	ea
GW1050	30.0	50	30	ea

Bottles

Weighing

Tall form borosilicate glass

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
GW1150	10.0	25	40	ea
GW1053	20.0	30	50	ea
GW1060	70.0	40	80	ea



Wide Mouth

HDPE general purpose bottles with polypropylene screw closure.

Rowe Code	Capacity mL	Closure Size (mm)	Std. Pack Size
PB2230	60	28	ea
PB2255	125	38	ea
PB2307	250	43	ea
PB2496	500	53	ea
PB2580	1000	63	ea

Nalgene



The above bottles are also available in Polypropylene.

Bowls

Stainless Steel

Rowe Code	Diameter mm	Std. Pack Size
HB2502	160	ea
HB2503	190	ea
HB2500	290	ea
HB2507	400	ea
HB2510	440	ea
HB2515	460	ea



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BOD Sensor (Biochemical Oxygen Demand Sensor)



The BOD Sensor manometric equipment has been developed by VELP according to international safety rules for workers and environment protection. An innovative, microprocessor controlled electronic measuring system (without mercury) allows BOD (Biological Oxygen Demand) determinations by manometric technique. The BOD Sensor has an ergonomic design developed and optimized for ease of use, easy reading and data retrieval. It is produced with the most advanced manufacturing techniques. The unit is placed on the sample bottle and, using a pressure sensor and electronics, shows the actual BOD values.



Rowe Code: TBA

Five BOD values are memorized at 24 hour intervals allowing determinations over week ends.

At any time the current BOD value can be shown on the display, or after the standard 5 days period. The BOD Sensor has no external electric connection.

Single Test Set

This simple configuration is intended to meet the requirements of those labs where just single measurements are required.

The BOD Sensor set is composed of a BOD Sensor, a bottle, an alkali holder and a magnetic bar.

The recommended magnetic stirrer to use with this set is the VELP MST.



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BOD Sensor (Biochemical Oxygen Demand Sensor)

System 6, System 10

The BOD Sensor Systems 6 and 10 are composed of a 6 or 10 place stirring group with 6 or 10 BOD Sensor units, 6 or 10 alkali holders for carbon dioxide absorption, and 6 or 10 stirring bars. This offers users a complete setup for measuring BOD values within four scales, up to 90, 250, 600, 999 ppm, or to higher values after dilution. The epoxy painted stainless steel structure gives the equipment a strong resistance to chemical corrosion. The compact design allows the simultaneous operation of 6 or 10 BOD bottles in a reduced space. Two side embedded handles allow easy placement removal of the equipment into/from a refrigerated thermostat. The robustness of the stirring motor assures continuous operation without risk of stopping or overheating which could alter the results of the BOD determination.



ROWE CODE	ITEM
IB6000	BOD System 6
NV4100	BOD System 10

Refrigerated Incubator VELP Model FTC90

A small dimension refrigerating incubator purposely built for the incubation of a manometric BOD measurement unit, either the 6 or 10 bottles version. The uniform distribution of temperature inside the incubator is obtained by forced circulation of air.

Volume 90 litres
Temperature setting 20°C +/- 0.5
Power 150W

Rowe Code: II1640



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Brushes

Burette

Nylon Bristles, wire handle



Rowe Code	Brush Dia. mm	Length mm	Total Length mm	Std. Pack Size
HB1650	9	190	785	ea
HB1600	13	280	785	ea
HB2200	25	100	1000	ea

Test Tube/ Bottle

Nylon Bristles, wire handle



Rowe Code	Brush Dia. mm	Length mm	Total Length mm	Std. Pack Size
HB1695	4	65	200	ea
HB1700	8	65	200	ea
HB1790	13	65	300	ea
HB1850	15	80	300	ea
HB1930	20	100	300	ea
HB1950	26	80	300	ea
HB2050	30	100	320	ea
HB1461	60	100	350	ea
HB1460	80	150	350	ea
HB1550	90	110	550	ea
HB1200	100	80	300	ea
HB1350	100	120	550	ea

Sieve

Nylon bristles. Soft & Coarse head



Rowe Code	Length mm	Std. Pack Size
RB1700	250	EA.

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Buckets

Plastic

With lid and handle. Excellent for bulk storage.

Rowe Code	Capacity L	Std. Pack Size
PB4655	4	ea
PB4650	5	ea
PB4700	10	ea
PB3620	15	ea
PB3650	20	ea
PB3655	25	ea



Pulp Density

Rowe Code	Capacity mL	Description	Height mm	Diameter mm	Std. Pack Size
MB1000	1000	Clear Plastic	170	95	ea
MB1150	1000	Stainless Steel	245	105	ea



Bulb (Bellows) (Aspirator)

With valve and connecting hose.

Rowe Code: HS1001



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Bunsen Burner



With rotatable air regulator and gas inlet tube
Stove enamelled die-cast base.

Rowe Code	Gas Type	Diameter Top O.D.mm	Height mm	Std. Pack Size
HB2850	LPG	11	135	ea
HB2800	Natural	11	135	ea



With flame retention collar, rotatable air regulator and gas inlet tube. Stove
enamelled die-cast base.

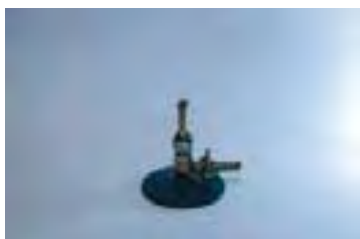
Rowe Code	Gas Type	Diameter Top O.D.mm	Height mm	Std. Pack Size
HB2550	LPG	18	135	ea
HB2600	Natural	18	135	ea



Semi-Micro

With flame retention collar, rotatable air regulator and gas inlet tube.

Rowe Code	Gas Type	Diameter Top O.D.mm	Height mm	Std. Pack Size
HB2685	LPG	12.7	100	ea
HB2690	Natural	12.7	100	ea



Micro

With rotatable air regulator and stopcock.

Rowe Code	Gas Type	Diameter Top O.D.mm	Height mm	Std. Pack Size
HB2658	LPG	10	90	ea
HB2660	Natural	10	90	ea



Meker

With flame retention grid, air regulator and stopcock.

Rowe Code	Gas Type	Diameter Top O.D.mm	Height mm	Std. Pack Size
HB3100	LPG	30	200	ea
HB2660	Natural	30	200	ea

Burettes

Daffert Pattern

Witeg

Main point ring graduations Class A accuracy.
Interchangeable stopcock.

Rowe Code	Capacity mL	Graduations mL	Key Type	Std. Pack Size
GB8800	25	0.1	Glass	ea
GB8810	25	0.1	PTFE	ea
GB8870	50	0.1	Glass	ea
GB8875	50	0.1	PTFE	ea



Digital Burette

Witeg

Optifix Titrier combines high tech micro electronics with modern design, to provide precision titration with ease of use.

The unit has a capacity of 50mL, with addition up to 99.99mL. A multifunctional gear selector enables macro or micro titration modes to be used easily.

- .. Suitable for left & right handed operation
- .. Display arranged at 10° angle for easy readability
- .. Valve block made from pure PTFE
- .. Integrated sapphire ball valves
- .. Large LCD display

Rowe Code	Description
DL6500	Optifix Titrier - digital burette, with 9V battery, GL40 & GL45 adapters and discharge tube set.
DL6505	Humidity Absorber, PTFE, with glass filter disc 30mm, porosity 1. (requires suitable filling material)



Burettes

Dr. Schilling.

Witeg

With automatic zero adjustable polyethylene bottle, on mounted foot. Blue graduations



Rowe Code	Capacity mL	Graduations mL	Std. Pack Size
TBA	5	0.05	ea
TBA	10	0.05	ea
GB9065	25	0.1	ea
GB9080	50	0.1	ea

Pellet Pattern

Witeg

With 2 litre reservoir, without intermediate stopcock, with lateral PTFE stopcock. Blue graduations



Rowe Code	Capacity mL	Graduations mL	Std. Pack Size
GB8897	10	0.02	ea
GB8844	50	0.1	ea

Plain, Schellbach - PTFE Key

Witeg

Borosilicate glass. Main point blue ring graduations. Interchangeable straight stopcock and PTFE key. Class 'AS'



Rowe Code	Capacity mL	Graduations mL	Std. Pack Size
GB9002	10	0.02	ea
GB9001	25	0.05	ea
GB9003	50	0.1	ea
GB9005	100	0.2	ea

Calibration Masses

Class F1 analytical masses are stainless steel analytical masses suitable for analytical measurements, precision balance calibration and as economy reference standards. Manufactured from highly polished non-magnetic Stainless Steel. Available as single units from 1mg to 20kg, or in cased sets.

All sets consist of masses in the 1-2-2-5 sequence and are supplied with a carry case. Cased sets are available from 1mg to 20kg.

Rowe Code	Part Number	Value	Description
IM1774	CF1-SDG050	1g - 50g	8 weights
IM1775	CF1-SDG100	1g - 100g	9 weights
IM1773	CF1-SMG1	1mg - 500mg	12 weights

Masses also available:

Cast iron

Brass

Iron

NATA Certification

Masses available in an array of types e.g. slotted, flat circular, nesting masses.

To find out more call Rowe Scientific Pty Ltd.



Contact us ...



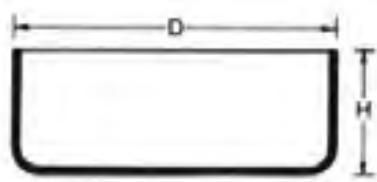
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Capsules

Silica - without lid

Bhanu



Rowe Code	Capacity mL	OD mm	Height mm	Std. Pack Size
TC1105	10	40	15	ea
TC1151	20	48	15	ea
TC1260	35	69	15	ea
TC1275	50	78	18	ea
TC1282	80	75	28	ea
TC1284	100	87	28	ea

For more information about the properties of Silica, please refer to the Technical Section at the end of the catalogue.

Casseroles

Porcelain

Haldenwanger



Rowe Code	Capacity mL	OD mm	Height mm	Std. Pack Size
WC5000	100	63	35	ea
WK1000	220	100	56	ea

Centrifuges

About Laboratory Centrifuges

Laboratory centrifuges are used for separating particles from solutions according to their size, shape, density, viscosity of the medium and rotor speed. The theoretical basis of this technique is the effect of gravity on particles (including macromolecules) in suspension. Two particles of different masses will settle in a tube at different rates in response to gravity. Centrifugal force (measured as xg , gravity) is used to increase this settling rate depending on the rotation to induce centrifugal force, which accelerates the separation of the liquid from the solids. Centrifugal force causes the solid phase to move through the liquid phase in a straight line and away from the center of rotation. Solid-phase characteristics such as particle density, size, shape, and consistency and the rotation speed for the laboratory centrifuges' chamber (a basket or bowl, depending on the centrifuge type) of a given diameter also influence how fast the solid phase moves away from the center of rotation. The higher the rotation speed, the higher the G force exerted on the solid phase and the faster the solids accumulate.

The two most common types of laboratory centrifuges are analytical and preparative; the distinction between the two is based on the purpose of centrifugation.

Preparative laboratory centrifuges are used to isolate specific particles. This classification is divided into two types: differential and density. Differential centrifuges are used to separate particles from a liquid medium or to separate particles of different masses into separate fractions of the supernatant. Density centrifuges work by spinning two fluids of different densities within a rotating container or rotor the heavier fluid is forced to the wall at the inside of the rotor while the lighter fluid is forced toward the center of the rotor.

Analytical laboratory centrifuges measure the physical properties of particle, such as sedimentation coefficient or molecular weight. Optimal methods are used in analytical ultra centrifugation. Molecules are observed by optical system during centrifugation, to allow observation of macromolecules in solution as they move in gravitational field. The samples are centrifuged in cells (tubes with quartz windows) having windows that lie parallel to the plane of rotation of the rotor head. As the rotor turns, the images of the cell (proteins) are projected by an optical system on to film or a computer. The concentration of the solution at various points in the cell is determined by absorption of a light of the appropriate wavelength (Beer's law is followed). This can be accomplished either by measuring the degree of blackening of a photographic film or by the pen deflection.

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Centrifuges



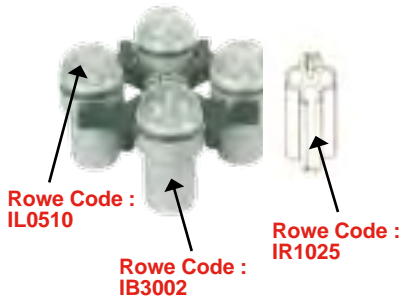
Rowe Code : IC3774

Swing out rotor

Rowe Code : IR1002



Rowe Code : IS5050



Rowe Code : IL0510

Rowe Code : IB3002

Rowe Code : IR1025



Rowe Code : TBA



Boeco Centrifuge C-28

The non-refrigerated microprocessor-controlled C-28 is the ideal bench-top centrifuge for performing daily routine tasks in doctors' laboratories and small hospitals. The centrifuge has a brushless frequency drive (no carbon brushes). A special locking device allows effortless opening and closing of the lid with just one hand.

Controls and displays

During centrifugation the actual values of the parameters are indicated
Entry of the running parameters via water-protected foil keypad
Speed display in RPM x 100: Min. speed 500 rpm Max. speed 6000 rpm
Input in steps of 100 rpm
Time t/min: Min. preset time 1 min Max. preset time 99 min
Input in steps of 1 min
Continuous operation, Impulse key: For short centrifugation operations

Safety

Housing and lid of metal finished in a scratch and impact resistant coating
Centrifuge chamber of stainless steel, Lid locking and holding device
See-through glass in the lid, Emergency lid lock release
Imbalance switch-off, Easily exchangeable rotors, Automatic rotor recognition
The C-28 conforms to safety regulations such as IEC 1010-2-2, all relevant EC standards and DIN norms and has been manufactured under ISO 9000.

Capacity (max):	4 x 100 ml (swing-out rotor)
Speed / RCF (max):	6000 rpm / RCF 4.186
Dimension:	261x368x437mm (HxWxD)
Netweight:	15,5 kg

Boeco Centrifuge M-24 A

Powerful, space-saving, low-noise, reliable and microprocessor-controlled microlitre centrifuge with brushless frequency drive.

Controls and displays

During centrifugation the actual values of the parameters are indicated
Entry of the running parameters via foil keypad
Speed display in RPM x 100
Time t / min: 1 - 99 min, continuous operation
Impulse key: For short centrifugation operations, Open lid key

Safety

Lid locking and holding device, Emergency lid lock release
Motor overheating protection, See-through glass in the lid
Imbalance switch-off, Double-walled plastic housing and lid are mounted on a solid metal chassis.

The M-24 A conforms to safety regulations such as IEC 61010 or the CE mark and all relevant EC standards and DIN norms and has been manufactured under ISO 9001:2000

Technical details

Max RPM (speed) / RCF: 14.000 rpm / 17.530 RCF
Noise level: ≤ 59 dB(A) (dependent on rotor)
Radio interference: EN 55011 ISM class B
Immunity: EN 61000-6-1
Dimensions in mm: 199 (H) x 231 (W) x 292 (D) Net weight: approx 6 kg

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Centrifuges

Boeco Centrifuge M-240/M-240R

The M-240 and M-240R rank among the fastest centrifuges in their class, with a maximum speed of 14,000 RPM and an RCF of 18,626.

Not only are they fast, the M-240R also refrigerates quickly: to +4°C with the Fast Cool function in 10 to 15 minutes.

Even thermosensitive samples can be gently centrifuged thanks to highly reliable refrigeration. Best separation results are guaranteed with the smooth-running, high-performance motor featuring a maintenance-free frequency drive. With the optional autoclavable and aerosol-tight accessories, even infectious materials can be processed safely for both the user and the environment.

Features:

- Automatic lid locking
- Quick-entry foil keypad
- Easy-to-read, digital display
- Display of current parameter values
- Select key for parameter selection
- Impulse key for short centrifuging
- Open lid key
- RCF key
- Twist knob to enter values
- RPM in increments of 10
- Running time in minutes, max. 99 min
- Temperature in increments of 1°C (M-240R)
- 4 programmable memories

Refrigeration (M-240R)

- Infinitely variable setting from -10 °C to +40 °C
- Fast Cool function in 10 - 15 min to +4 °C
- Stand-by mode maintains the set temperature
- Automatic refrigeration switch-off when the lid is opened

Safety

- Lid dropping protection
- Lid locking and holding
- Emergency lid lock release
- Motor overheating protection
- Chamber overheating protection
- Imbalance switch-off
- Standstill indication
- with the refrigerated model M-240R the LED in the Open key lights up
- with the M-240 the lid opens automatically after the rotor has come to a standstill
- The M-240 / M-240R conform to safety regulations such as IEC 1010-2-2, all relevant EC standards and DIN norms and have been manufactured under ISO 9000



Rowe Code : IC3776

	M-240	M-240 R
Dimensions in mm (HxWxD)	260 x 275 x 347	260 x 281 x 547
Net weight approx	11,5 kg	28 kg
Radio interference	EN 55011 ISM class B	
Immunity	EN 50082-2	
Centr. chamber temp.	as per DIN 58970	



50° angle rotor, 24-place rotor.
Rowe Code: IR1005



45° angle rotor, 30-place rotor
Rowe Code: TBA



lid 2425, aerosol-tight and autoclavable
Rowe Code: IC3097



45° angle rotor, for PCR strips
Rowe Code: TBA

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Centrifuges



Boeco Centrifuge S-8

Practical and handy the BOECO S-8 is the ideal centrifuge for small sample volumens. It is supplied with a 8-place angle steel rotor, which accomodates various tube systems as well as 15 ml glass tubes without adapters.

Controls and displays

During centrifugation the actual values of the parameters are indicated

Entry of the running parameters via foil keypad

Speed display in RPM x 100:

Min. speed 500 rpm

Max. speed 6000 rpm

Input in steps of 100 rpm

Time t/min: Min. preset time 1 min Max. preset time 99 min

Input in steps of 1 min.

Continuous operation

Impulse key: For short centrifugation operations

Open lid key

Safety

Lid locking and holding device

Emergency lid lock release

Motor overheating protection

Imbalance switch-off

Double-walled plastic housing and is mounted on a solid metal chassis. The transparent lid is made of Polycarbonate Resins The S-8 conforms to safety regulations such as IEC 1010-2-2, all relevant EC standards and DIN norms and has been manufactured under ISO 9000

Technical details

Dimensions in mm (HxWxD) 216 x 231 x 292

Net weight approx 4 kg

Radio interference EN 55011 ISM class B

Immunity EN 50082-2

Centr. chamber temp. as per DIN 58970

Rowe Code : IC3769

Max. speed:	6.000 rpm
Max force:	3.421 RCF
Dimensions in mm (HxWxD):	216 x 231 x 292
Net weight:	approx 4 kg
Radio interference:	EN 55011 ISM class B
Immunity:	EN 50082-2
Centr. chamber temp.:	as per DIN 58970



Centrifuges

Orbital 310 Benchtop Centrifuge

When basic centrifuge functions are required at an economical cost then the Orbital 310 is the answer. This centrifuge is available in two models, offering the choice of aerosol protection or open tube carriers.

The Orbital 310 has the following features:

Functional Controls - For easy and precise operation

Accurate - Digital timer for precise timed operations

Economical - Provides basic centrifuge functions for standard requirements

Aerosol Protection - Aerosol sealed tube carriers (CEN 91510)

Safety - Lid interlocked power cut off switch

TECHNICAL SPECIFICATIONS

Capacity	8 x 15 ml Open Tube Carriers (CEN 91509) 6 x 15 ml Sealed Tube Carriers (CEN 91510)
Speed	Variable speed control from 1000 to 3200 RPM
RCF (max)	1,700 g
Digital Timer	Countdown, 0-99 mins 59 secs
Indicators	Min, Sec, Start, Stop, 4 Digit LCD time display, Run LED, Speed Control Analog Dial, End of Cycle, Audible alert
Safety	Lid interlocked power cut off switch
Power	240 V 50 Hz 0.5A
Shipping Weight	16 kg
Unit Dimensions	Height 245 mm, Width 350 mm, Depth 370 mm
Shipping Dimensions	Height 350 mm, Width 400 mm, Depth 450 mm

CLEMENTS



Rowe Code : TBA

Orbital 325 Benchtop Centrifuge

A fully integrated electronic lid lock combined with precise digital timing and analogue speed control are the main features of the Orbital 325. Ideal for the clinical and small laboratory's requirements, the Orbital 325 is an economical centrifuge built to perform.

The Orbital 325 has the following features:

Functional Controls - For easy and precise operation

Electric Lid Lock - Prevents accidental opening of the centrifuge while running

Economical - Provides basic centrifuge functions for standard requirements

Aerosol Protection - Aerosol sealed tube carriers (CEN 91517)

TECHNICAL SPECIFICATIONS

Capacity	8 x 15 ml Open Tube Carriers (CEN 91516) 6 x 15 ml Sealed Tube Carriers (CEN 91517)
Speed	Variable speed control from 1000 to 3200 RPM
RCF (max)	1,700 g
Digital Timer	Countdown 0-99 mins 59 secs
Speed Control	Analog Dial
Indicators	Min, Sec, Start, Stop, 4 Digit LCD time display, Run LED,
Safety	Integrated Electronic Lid Lock
Power	240 V 50 Hz 0.5A
Shipping Weight	16 kg
Unit Dimensions	Height 245 mm, Width 350 mm, Depth 370 mm
Shipping Dimensions	Height 350 mm, Width 400 mm, Depth 450 mm



Rowe Code : IC3766

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Centrifuges

CLEMENTS



Rowe Code : IC3612
with CEN 91004

Rowe Code : IC3622
with CEN 93004

Orbital 420 Benchtop Centrifuge

The Clements Orbital 420 is designed for multi-purpose centrifugation where large capacity and uncomplicated but accurate control is required. The Orbital 420 is available with either the CEN 91004 Rotor for 4 x 100 ml Buckets only, or the CEN 93004 Rotor suitable for a large range of Multi Buckets. An extensive range of adaptors is available to suit most applications.

The Orbital 420 has the following features:
 Functional Controls - For easy and precise operation
 Accurate - Digital timer for precise timed operations
 Large Capacity - Provides time-saving operation
 Versatile - Select from a wide range of carriers and adaptors

TECHNICAL SPECIFICATIONS

Speed	Variable speed control from 0 to 3500 RPM
RCF (Max)	2,400 g
Digital Timer	Countdown, 0-99 mins 59 secs
Indicators	Min, Sec, Start, Stop, 4 Digit LCD time display, Run LED
End of Cycle	Audible Alert
Speed Control	Analog Dial
Safety	Integrated Electronic Lid Lock
Braking	Manually Operated electric braking
Acceleration	55 to 65 seconds to 3500 rpm
Power	240 V 50 Hz 0.5A
Warning Lamps	Imbalance, Power On, Low brush
Shipping Weight	29 kg
Unit Dimensions	320 H - 470 W - 500 D

Coombs Test Benchtop Centrifuge

The Clements Coombs Test Centrifuge is specially designed to prepare washed red cells for the negative Coombs Test. The Coombs Test centrifuge is also suitable for blood grouping, typing and cross matching, spinning down samples of whole blood, urine and other body fluids.

The Coombs Test Centrifuge has the following features:
 Repeatability - Centrifuge operates for exactly the time set. Assists in eliminating false readings.
 Secured Tubes - Removable head allows loading, conveying and decanting to take place without having to remove the tubes from the head.
 Stainless Steel Bowl - Bowl unaffected by saline or blood spillage.
 Safety - Lid interlocked power cut off switch



Rowe Code : TBA

TECHNICAL SPECIFICATIONS

Bowl	Stainless steel
Timer	4 digit, 0-99 mins 59 secs
End of Cycle	Audible Alert
Indicators	Min, Sec, Start, Stop, 4 Digit LCD time display, Run LED
Power	220V/240V - 50 Hz.
Speed	2800 rpm
RCF	700 (with Cat. No. CEN 96242 Head)
Safety	Lid interlocked power cut off switch
Unit Dimensions	Height 245 mm, Width 350 mm, Depth 370 mm
Shipping Dimensions	Height 350 mm, Width 400 mm, Depth 450 mm
Shipping Weight	18 kg

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Centrifuges

Microhaematocrit Benchtop Centrifuge

The Clements Microhaematocrit is an efficient centrifuge for the measuring of Packed Cell Volume (P.C.V.) of whole blood. The combination of high RCF and 24-place head enables high throughput and the digital timer ensures flexibility and accurate repeatability.

The Microhaematocrit has the following features:

Linear Reader - Compact and lightweight. Disc reader also available.
 Quiet Operation - Resiliently mounted motor. Resonant free body design.
 Cool Running - Low operating temperature. No Haemolysis
 Functional Controls - For easy and precise operation
 Safety - Lid interlocked power cut off switch

CLEMENTS



Rowe Code : TBA

TECHNICAL SPECIFICATIONS

Capacity	24 x 1.75 mm capillary tubes
Speed	Fixed speed control for 12,500 RPM
RCF (Max)	15,500 g
Digital Timer	Countdown, 0-99 mins 59 secs
Indicators	Min, Sec, Start, Stop, 4 Digit LCD time display, Run LED
End of Cycle	Audible Alert
Speed Control	Analog Dial
Safety	Lid interlocked power cut off switch
Power	240 V 50 Hz 0.5A
Shipping Weight	16 kg
Unit Dimensions	Height 245 mm, Width 350 mm, Depth 370 mm
Shipping Dimensions	Height 350 mm, Width 400 mm, Depth 450 mm

An extensive array of accessories are also available for bench top centrifuges where Clements offers a variety of head configurations, tube carriers and adaptors, making the range extremely versatile.

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Certified Reference Materials

Rowe Scientific stocks and supplies a wide range of Certified Reference Materials. Listing these standards would involve a catalogue of its own so we have listed a synopsis of the major sources of Certified Reference Materials and the types that they cover.

A separate CRM Catalogue is available.

ASCRM - Australian Standards and Certified Reference Materials.

Canmet

Canmet has around eighty different types of material available in its range of Certified Reference Materials.

These include environmental reference materials, powdered Canadian ores, geochemical and radioactive reference materials, physical test materials, metals and alloys.

NIST (formerly NBS)

The National Institute of Standards and Technology (USA) produce a huge range of standards which are characterised by the prefix "SRM". These can be separated into three main areas:

- Standard reference materials for Chemical Composition
- Standard reference materials for Physical Properties and
- Standard reference materials for Engineering Materials

Standard Reference Materials for Chemical Composition include ferrous metals, non ferrous metals, microanalysis, high purity materials, health and industrial hygiene, inorganics, primary gas mixtures, fossil fuels, organics, food and agriculture, geological materials and ores, ceramics and glasses, cement and engine wear materials.

The range of SRM's for Physical Properties include ion activity, electrical, polymeric, thermodynamic and optical properties, radioactivity, metrology, ceramics and glasses and X-ray spectrometry.

NIST's range of engineering standard reference materials include materials for sizing, surface finish, nondestructive evaluation and fire research.

BGS

British Geological Survey Standard Reference Materials can be identified by the prefix "IGS". The range includes geological ores and ore concentrates with certified values for rare-earth oxides.



Certified Reference Materials

South African Standards

Identified by the prefix SARM, South African Standards produce a range of Certified Reference Materials which includes geological, ores, semi processed minerals, coal and uranium.

BAS

Bureau of Analysed Standards prepare a large range of Certified Reference Materials for the metallurgical industry. These are commonly identified by the prefixes BCS and ECRM.

The range includes ferrous and non-ferrous metals, ores, fluxes, ceramic materials, minerals and cements.

National Water Research Institute

The Canadian National Water Research Institute, or NWRI, prepare a range of water and sediment certified reference materials with values for trace metals, major ions, organic compounds and nutrients.

National Research Council Canada

This range of certified reference materials for environmental analysis can be identified by a code consisting of an acronym followed by a number.

The range includes biological tissue, natural waters, sediments and toxins.

BCR

The Community Bureau of Reference's (BCR) range of Certified Reference Materials can be classified under the following headings: Environment, Water and Food Microbiology, Food and Agriculture, Biomedical, Physical Properties and Industrial Raw Materials and Products.

High Purity Standards

As well as boasting a wide range of metals, salts & oxides, HPS produce a range of Certified Reference Materials. These include certified wastewater, sediment & soil solutions, trace metals in drinking & biological materials, sea water and TCLP solutions.

Many other certified reference materials are available. Please ask about your requirements.

Losing time on calibration standards? ... We have the solutions for you!

The purity and accuracy of standard calibration solutions are imperative to achieving not only the correct answers, but also to getting the job done efficiently, allowing you to get on with more important tasks.

Rowe Scientific are experienced in laboratory practices and understand the importance in having reliable standards and reliable supply.



Some Solutions we manufacture:

- ✓ AAS standards 10.00ppm Ni, Fe, Cr, Mg, Co, Cu, Zn, Mn
- ✓ GOLD 2.00ppm solution in 0.1% NaOH/0.01% NaCN.
- ✓ KCl conductivity standards
- ✓ Corrosion inhibitors
- ✓ All pH buffers
- ✓ Titration standards solutions: 0.500M HCl, 0.500 NaOH, 0.500M H_2SO_4 , 0.1N AgNO $_3$
- ✓ Soil analysis buffers
- ✓ Mixed mineral acids
- ✓ Engine coolants (ethylene glycol based)

Rowe offer you:

- ✓ Primary chemicals traceable to N.I.S.T (N.B.S) standards. That's guaranteed accuracy and quality control.
- ✓ Quality Assurance Certificates with AAS standards. Available on request for other solutions.
- ✓ 100mL to 2000L quantities available.
- ✓ Custom made to meet your needs.
- ✓ Competitive pricing designed to save you money in the long term.

Talk to Rowe Scientific Pty Ltd and find out how we can save you time and money with Rowe chemical solution standards.



**Accuracy
Guaranteed.
Made by
Chartered
Chemists.**

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Chemicals

Laboratory Fine Chemicals

We supply all grades and common brands of Laboratory Fine Chemicals to Reagents including:

- APS (AJAX) Fine Chemicals
- Merck Fine Chemicals



We can also supply:

Acros Organics

Amyl Media

Burdick & Jackson

Calbiochem

Chem-Supply

Decon

Dow Corning

EM Science

ICN Biomedicals

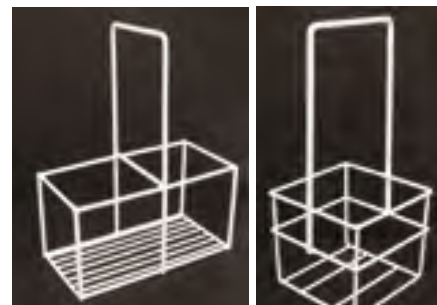
Johnson Matthey

Shell Solvents

Bottle Carriers.

Plastic coated, heavy duty wire - Single handle

Rowe Code	Positions	Suit Bottle	Std. Pack Size
HB1050	2	2.5L Winchesters (old style)	ea
HB1060	1	4L Winchesters	ea
HB1070	2	4L Winchesters & 2.5L Winchesters (new squat style)	ea



Industrial Chemicals

We supply bulk technical chemicals and custom formulations including:

Mineral Acids - Hydrochloric Acid
Nitric Acid
Sulphuric Acid

Caustic - Sodium Hydroxide

Chlorine- Sodium Hypochlorite

Swimming Pool Chemicals

Engine Coolant

Ethanol

Distilled Water

Customised Solutions - e.g. 13% Sulphuric Acid



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Chemicals

Rowe Scientific also supply the AJAX & MERCK refined Chemicals range ...



When you carry out your analyses, you want to be absolutely sure that the reagents you are using will meet your requirements. You want to know you can trust the reagents you are using.

Ajax Finechem has delivered satisfaction to the scientific community for over 50 years.

QUALITY

Our NATA accredited Quality Control Laboratory performs analysis by classical, ICP-AES and GC techniques to ensure that our stringent specification requirements are met.

Ajax Finechem has a well equipped NATA (National Association of Testing Authorities) accredited laboratory. The Laboratory conducts Quality Control of materials, in-process and finished products testing in accordance with NATA accreditation No: 458 to ensure that they comply with our stringent specifications that often exceed ACS requirements.



We provide customers around the world with products and services for their individual application.

Merck has an extensive range of products designed to support you during all stages of the drug manufacturing process from research to industrial-scale production to quality control.

Better Quality for Better Life.

Merck offers first-class products for microbiological, inorganic and organic analysis procedures that have been constantly developed in the context of our many decades of experience in the food sector.

Accelerating your Biopharmaceutical Production.

High-quality mineral salts, buffers and other chemicals for biopharmaceutical manufacturing processes.



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Chromatography

MACHEREY-NAGEL Liquid Chromatography

Columns for HPLC

Macherey-Nagel offers a broad range of eight different column types with lengths from 30 to 600mm and inner diameters from 1 - 80 mm for many different analytical as well as preparative tasks.

These column systems are:

- **ChromCart® column system (CC)**
 - 2,3,4 and 4.6mm ID and lengths from 30 to 250mm
 - Convenient connection of the cartridge without tools
 - Connection with only one connecting kit independent of length and inner diameter (except for 30mm columns)
 - Mounting of guard columns without special adaptor
 - Easy coupling of several columns
 - Broad range of numerous NUCLEOSIL® packings as well as adsorbents from other manufacturers.
- **Microbore columns (MB)**
 - Stainless steel columns with 1mm inner diameter and lengths from 100 to 250mm (0.3, 0.4mm 0.5 mm, 0.75mm and 1.0mm ID as well as lengths of 40, 60, 200 and 300mm on request)
 - Packed with high-quality NUCLEOSIL® phases
 - Suited for HPLC and LC/MS
 - Rapid analyses with high resolution and sensitivity
 - Only small sample volumes required
 - Due to low flow rates, reduced eluent consumption = reduced cost per analysis.
- **EcoChrome columns (ED) the standard MN column system**
 - Stainless steel columns with 2, 3, 4 and 4.6 mm ID
 - Gel bed protected by a sandwich of metal screen and glass fibre paper.
 - Connection of ChromCart® guard column cartridges via adaptor.
- **Valco type columns (VA)**
 - Stainless steel columns with 4.6mm ID
 - Well-known column hardware in many countries, which MN use mainly for their polymer-based columns.



Chromatography



- **Peek columns (PE)**
 - Completely metal-free columns made from polyether ether ketone with 4.6 or 7.5 mm ID and lengths from 50 to 300 mm
 - Column frits made from ceramics or PEEK/Teflon compound material
 - Recommended for the analysis of metal-sensitive compounds or the separation of metal ions.

- **Standard-Prep Columns (SP)**
 - Preparative columns with 10 - 50.8 mm (2") inner diameter, with non-adjustable end fitting.
 - Column connection depending on diameter via nut and ferrule, direct connection via outer threads on the column tubing or flanged end fittings.
 - Termination of the gel bed with metal frits or metal screen/glass fibre combinations depending on diameter.
 - Broad range of MN packings available on request.

- **VarioPrep® Columns (VP)**
 - Preparative columns with axially adjustable end fitting for compensation of variations of the gel bed.
 - Inner diameters from 10 to 80mm
 - Column packing terminated with a metal screen/glass fibre paper sandwich.
 - Packed with a variety of MN silica packings

- **EcoPrep columns (EP)**
 - Preparative columns with 8 or 16 mm ID; column hardware corresponds to the EcoChrome analytical columns.

Columns for Special Applications

Macherey-Nagel also manufactures HPLC columns for the following special applications:

- **Environmental analysis**
 - Anion exchange chromatography of inorganic anions
 - Polycyclic aromatic hydrocarbons (PAHs)
 - Phenols (EPA method 604)

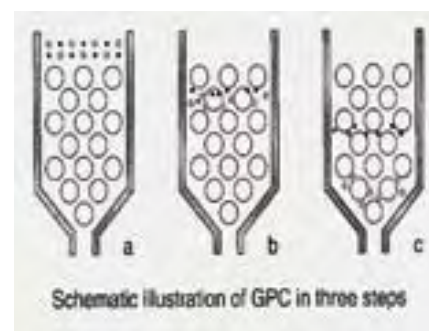
Chromatography

- **Enantiomer Separation**
 - Ligand exchange
 - Charge-transfer, dipole-dipole interactions and others
 - Enantioselective binding to chiral protein surface structures
 - Formation of inclusion complexes
- **Biochemical Separations**
 - Anion exchange chromatography of biomolecules
 - Cation exchange chromatography of biomolecules
 - Reversed phase chromatography of biomolecules
 - Reversed phase chromatography of small biomolecules
 - Gel filtration of biomolecules
- **Food analysis**
 - Mono and oligosaccharides
 - Sugars, alcohols, organic acids
 - Hop constituents
- **Gel permeation chromatography (GPC) also known as size exclusion chromatography (SEC)**
 - Water-insoluble substances
 - Water-soluble polymers

Packing for HPLC

Macherey-Nagel offer a versatile programme of HPLC packings, briefly summarised as follow:

- Silica, spherical particles totally porous - available under the trade names Nucleosil® and Nucleoprep®
- Silica, irregular particles totally porous - available under the trade name Polygosil® and Polygoprep®



Chromatography



Sample Preparation

Solid phase extraction (SPE) is a powerful method for sample preparation and is used by almost half of all chromatographers today. It has capabilities in a broad range of applications such as environmental analyses, pharmaceutical and biochemical analyses, organic chemistry and food analyses.

The advantages of SPE compared to classical liquid-liquid extraction are the low solvent consumption, the enormous time saving and the potential for automation. Additionally, a sample preparation task can often be solved more specifically by using SPE, since different interactions of the analyte with the solid phase (absorbent) are possible, and methods can be optimised by adjusting chromatographic conditions.

The Chromabond® columns and Chromafix® cartridges from Macherey-Nagel which have been developed especially for SPE provide rapid, economical and effective systems for sample preparation. They can be used to process samples for HPLC, GC, TLC, UV or IR spectroscopy and many more.

Thin Layer Chromatography

Thin layer chromatography is used for a wide range of analyses, and over the years it has become apparent, that there is no universal plate which meets all possible demands. Macherey-Nagel's range of TLC ready-to-use layers is very versatile to cover many different types of applications.

They offer several advantages:

- They are immediately ready for chromatographic separation. Tedious coatings or impregnations are not necessary.
- They have homogeneous, smooth, well adhering layers, an important criterion especially for reproducible quantitative evaluation.

Stringent production controls guarantees the continuous high quality of Macherey-Nagel TLC plates & sheets

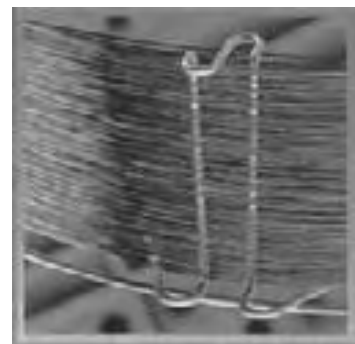


Chromatography

Gas Chromatography

Capillary Columns for GC

The large number of stationary phases and the variability of column parameters have caused a considerable diversification of our column programme. MN now offers more than 30 different phases with a total of more than 650 Cat. Nos.



The following criteria are critically important for selecting the most appropriate column. A capillary column is characterised by the following parameters:

- A = length
- B = Inner diameter
- C = type of chemical bonding, immobilisation
- D = polarity of the stationary phase
- E = film thickness

All these parameters have to be optimised for each particular chromatographic task.

Optima® High Performance Capillary Columns

As a result of Macherey-Nagel's efforts in research and development and the continuous improvements in their manufacturing techniques we present Optima® - a series of high performance capillary columns for gas chromatography.

Optima® capillary columns provide

- **Reduced column bleed**
Improved manufacturing processes offer capillaries with lower bleed levels, which are especially recommended for GC-MS. Less column bleed yields increased sensitivity and accuracy through a better signal-to-noise ratio for any kind of detector. Reduced column bleed improves detectability of solutes in qualitative and quantitative GC-MS analyses.
- **High thermal stability**
Improved temperature stability is the reason why Optima® capillary columns can be operated at about 40°C higher temperatures compared to standard phases. High-boiling solutes (with very low vapour pressures) "normally" have very long retention times and rather broad peak shapes. Optima® columns with their increased operation temperature elute high-boiling compounds faster and with better peak shapes.

Chromatography



SGE Chromatography

The SGE range covers an extensive selection of products for chromatography. Their main product groupings are:

Instrument Supplies - for the main brands of auto samplers

Syringes, Syringe Valves & Syringe Filters

Gas Chromatography Columns

Gas Chromatography Supplies

HPLC Columns & Accessories

Instrumentation

SGE, well known around the world for its craftsmanship and innovation, has been supplying the scientific industry for over 30 years. SGE products are manufactured to a high level of quality and adhere to strict ISO requirements. Whether you purchase a single syringe from their standard range or take advantage of their custom designs, you can be assured of receiving a quality product which will serve its function time after time.

Contact us ...



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Clamps

Bosshead Clamp

Met-App

With fixed right angled vee grooves.

Rowe Code	Will hold rod Diameter (mm)	Std. Pack Size
HB1100	16	ea
HB1160	25	ea



Burette Clamp

Kartell

Material: Polypropylene

Boss head supplied with two olives so that the clamp can fit onto support rods having diameters 8 - 14mm. Stainless steel spring loaded centre arm holds burette firmly against the two outer arms and is protected by rubber grips. Graduations and meniscus are visible at all time. Suitable for all burettes.

Rowe Code	No. Clamps	Rod Diameter mm	Std. Pack Size
PB1300	1	8 -14	ea
PB1250	2	8 -14	ea



Retort Clamp

Met-App

For holding various diameter objects. Made from aluminium die-cast. Jaws are vinyl coated.

Rowe Code	Description
HR1000	Four Prong Clamp with 10x115mm long arm. For holding 2 - 70mm diameter objects.
HR1010	Same as above, but jaws are cork lined
HR1030	Heavy Duty Clamp Large, holds 50 - 180mm diameter objects.
HR1056	Three Prong Clamp with 12 x 115mm long arm. For holding 6 - 80mm diameter objects. With 2 separate locking screws, either side of clamp.
HR1058	Three Prong Clamp, Micro, with 120mm long arm. For holding 0 - 15mm diameter objects.
HR1070	Three Prong Clamp with 10 x 125mm long arm and twin screw. For holding 5 - 90mm diameter objects.



Clamps may be fibreglass covered for heat protection or made from other materials where necessary.

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Clamps



Retort Rings

Met-App

With Bosshead - Made of zinc plated steel, fitted with a fixed angle bosshead. Available in 40, 50, 60, 70, 80, 90, 100, 120, 140mm ID sizes.



With Arm. Made of zinc plated steel, with a 180mm long arm. Available in 40, 50, 60, 70, 80, 90, 100, 120, 140, 160mm ID sizes



With Arm and open front. Made of zinc plated steel, with a 180mm long arm. Available in 40, 50, 60, 70, 80, 90, 100, 120, 140, 160mm ID sizes



Retort Stand

Met-App

Rectangular Base. Made of heavy iron casting. Threaded hole at one end, and 12mm hard aluminium rod.

Rowe Code	Base Size L x W mm	Rod Length cm	Std. Pack Size
HR3301	160 x 115	50	ea
HR3300	200 x 140	60	ea
HR3305	260 x 160	70	ea
HR3310	320 x 170	90	ea



Tubing Clamps

Met-App

Made of Nickel plated brass.



Rowe Code	Description
HH1000	Screw Compressor - Hoffman Type 20mm opening, with hinged bottom part
HH1005	Same as above, but with 25mm opening
HT2050	Same as above but with 31mm opening
HT2100	Mohr Clip for 13mm diameter
HT2150	Mohr Clip for 16mm diameter tubing

Colorimeters

DR/820 Portable Colorimeter

Hach DR/820 Colorimeter combines ease of use with high testing capabilities and field readiness

The DR/820 Colorimeter tests for 20+ methods with automatic wavelength detection

Ready-to-use out of the box

Easy-to-use software, preprogrammed methods, and prepared reagents

Datalogging capabilities

Readout in concentration, ABS, and %T

Dustproof, waterproof, shockproof, and worry free

Rowe Code: TBA



DR/850 Portable Colorimeter

Hach DR/850 Colorimeter combines ease of use with high testing capabilities and field readiness

The DR/850 Colorimeter tests for 50+ methods with automatic wavelength detection

Ready-to-use out of the box

Easy-to-use software, preprogrammed methods, and prepared reagents

Datalogging capabilities

Readout in concentration, ABS, and %T

Dustproof, waterproof, shockproof, and worry free

Rowe Code: IC1585



DR/890 Portable Colorimeter

Hach DR/890 Colorimeter combines ease of use with high testing capabilities and field readiness

The DR/890 Colorimeter tests for 90+ methods with automatic wavelength detection

Ready-to-use out of the box

Easy-to-use software, preprogrammed methods, and prepared reagents

Datalogging capabilities

Readout in concentration, ABS, and %T

Dustproof, waterproof, shockproof, and worry free

Rowe Code: IC1580



see over ...

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Colorimeters



DR/890 Portable Colorimeter

Ergonomically designed instrument fits comfortably in the palm of your hand, with all functions easily accessible.



Instrument cap slides off and is used as a light shield during measurement.

All instrument setup and operation functions are accessible by the keypad. Following prompts provided on the instrument display, the user selects the appropriate program, zeroes the instrument, reacts the sample, and reads the results.

Large LCD display prompts user step by step through procedures. Separate areas of the display indicate procedure number, sample number, parameter, test results, units of measure, and other data.

Up to 99 individual readings can be stored and recalled with the touch of a button.

Built-in timer is preprogrammed for methods requiring a fixed reaction time and can be set by the user.

ROWE CODE IC1580

1. When turned on, the instrument automatically recalls the last program used. To change programs, press the program key and enter the program number from the procedures manual.

2. Prepare the blank (zero) according to the procedure, place it in the instrument, and press the zero key. The instrument displays the zero and the read icon.

3. Prepare the sample according to the procedure. (An internal timer is preprogrammed for methods that require a fixed reaction time. Timer duration is automatically displayed for the selected procedure; simply start the timer at the start of the reaction.) After reacting the sample, place the sample cell in the instrument and press the read key.

4. The instrument displays the result in concentration units. The user can also toggle the ABS %T key to display absorbance or % transmittance. Some results can be displayed in alternate chemical forms (e.g., Cr may be displayed as mg/L CrO4 or Cr2O7). Scroll through available forms by pressing the concentration key.

5. Save the results by pressing the store key. The instrument will store up to 99 measurements in an internal, non-volatile memory. Results may be printed or transferred to a computer at any time using the Data Transfer Adapter.



FEATURES

DR890 More than 90 parameters

Waterproof & rugged

Direct reading

BENEFITS

Broad testing ability

Strong and durable for the field

No standard calibration required

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- Crucibles & boats
- Oil standards for sulphur & lead
- ICP glassware (plasma torches)
- Spare parts for other instruments

Please contact our sales team to request your Alpha Products Catalogue.



Combustion Boats

Rowe Code	Application	Size mm (LxWxH)	Std. Pack Size
AA1585	Acid/base analysis	92 x 12.7 x 8	500
AA1582	For Leco SD32/432 & CR12	57 x 22 x 14	500



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Contherm - CO₂ Cell Culture Incubators



Standard CO₂ Incubators



These Mitre Series Incubators feature an anticipative logic system controlling both temperature and CO₂ levels, with a dedicated LED display monitoring these functions. A temperature range of ambient+4°C to 50°C, and humidity levels higher than 80% RH at 37°C can be achieved. The Contherm microprocessor-based control system is e²rom-backed to save set-points during power failures, with all models featuring alarm displays and automatic high/low limit protection, which maintains existing parameters in the event of sensor failure. A fan-driven system circulates air over a stainless steel sheathed tubular heater.

Featuring unique catch and hinge componentry, the fully-sealed toughened NZS1223 glass inner door incorporates an integral heater to prevent condensation, and enhance the humidity and temperature envelopes.

Brief Specifications -Mitre Series Incubators

Temperature Range	Ambient+4°C to 50°C
Temporal Accuracy	±0.1°C (tested empty at 37°C, 20°C Ambient)
Spatial Accuracy	±0.2°C (tested empty at 37°C, 20°C Ambient)
Humidity	Natural Vaporisation from Pan, more than 80% RH at 37°C
CO ₂ Control	Microprocessor -Accuracy at 37°C 5% CO ₂ ±0.5%. Dedicated LED Display
CO ₂ Range	0.3 - 19.9%
Inlet CO ₂ Supply Pressure	0.3kg/cm ²
Power Supply Requirements	236 Watts at 230-240Vac 50Hz supply

Models:

Model 4150 -155L **Rowe Code TBA**

Model 4200 -200L **Rowe Code TBA**

Model 4400 -400L **Rowe Code TBA**



CO2 regulator required - not supplied with instrument.

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Contherm - CO₂ Cell Culture Incubators

CO₂ Cell Culture Incubators- "Tropicool" Variants

To deal cost-effectively with bacteriological culturing in the tropics, Contherm has developed the Tropicool system. The heart of this system and serving as the active cooling element, is a semi-conductor device which contains no moving parts or plumbing, yet is very effective at transferring heat energy. This entirely new thermoelectric technology gives the Contherm Mitre Series "Tropicool" Variant incubators a new dimension in quality and performance. With low power consumption, operating temperatures below 25°C at an ambient of 30°C, for instance, can be achieved (4150T).



The Mitre Series "Tropicool" Variant Incubators enable quality incubating in the tropics, and B.O.D. work in temperate regions. Plate and sample drying problems are greatly reduced with the "Tropicool" system, with high humidity levels being maintained due to the elevated dew point. Using proven technology, a precise environment is created for tissue and cell propagation. These models feature an anticipative logic system controlling both temperature and CO₂ levels.

A dedicated LED display monitors both these functions. Humidity levels higher than 70% RH at 37°C can be achieved. The Contherm microprocessor-based control system is EEROM backed to save set-points and calibration factors during power failures, with all models featuring alarm displays and automatic high/low limit protection. Featuring unique catch and hinge componentry, the fully-sealed toughened NZS1223 glass inner door incorporates an integral heater to prevent condensation, and enhance the humidity and temperature envelopes.

Brief Specifications -Mitre Series "Tropicool" Variant Incubators

Temperature Range	Ambient-5°C to 50°C
Temporal Accuracy	±0.2°C (tested empty at 37°C, 20°C Ambient)
Spatial Accuracy	±0.3°C (tested empty at 37°C, 20°C Ambient)
Humidity	Natural Vaporisation from Pan, more than 70% RH at 37°C
CO ₂ Control	Microprocessor -Accuracy at 37°C 5% CO ₂ ±0.5%. Dedicated LED Display
CO ₂ Range	0.3 - 19.9%
Inlet CO ₂ Supply Pressure	0.3kg/cm ²
Power Supply Requirements	600 Watts at 230-240Vac 50Hz supply

Models:

Model 4150T -150L Rowe Code TBA

Model 4200T -200L Rowe Code TBA

Model 4400T -400L Rowe Code TBA



CO₂ regulator required - not supplied with instrument.

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Contherm - CO₂ Cell Culture Incubators



CO₂ Cell Culture Incubators- "Polar" Variants

With accurate and reliable control from 15°C to 50°C at higher ambient temperatures, and a true one-pass air circulation system, The Mitre Series "Polar" Variant Incubators enable quality incubating in the tropics, and B.O.D. work in temperate regions.

Plate and sample drying problems are greatly reduced, with high humidity levels being maintained due to the elevated dew point. Using proven technology, a precise environment is created for tissue and cell propagation. These models feature an anticipative logic system controlling both temperature and CO₂ levels. A dedicated LED display monitors both these functions. Humidity levels higher than 70% RH at 37°C can be achieved using a more effective vaporisation technique. The Contherm microprocessor-based control system is EEROM backed to save set-points and calibration factors during power failures, with all models featuring alarm displays and automatic high/low limit protection.

Featuring unique catch and hinge componentry, the fully-sealed toughened NZS1223 glass inner door incorporates an integral heater to prevent condensation, and enhance the humidity and temperature envelopes.

Brief Specifications -Mitre Series "Polar" Variant Incubators

Temperature Range	15°C to 50°C
Temporal Accuracy	±0.2°C (tested empty at 37°C, 20°C Ambient)
Spatial Accuracy	±0.3°C (tested empty at 37°C, 20°C Ambient)
Humidity	Natural Vaporisation from Pan, more than 70% RH at 37°C
CO ₂ Control	Microprocessor -Accuracy at 37°C 5% CO ₂ ±0.5%. Dedicated LED Display
C _{O2} Range	0.3 - 19.9%
Inlet CO ₂ Supply Pressure	0.3kg/cm ²
Power Supply Requirements	750 Watts at 230-240Vac 50Hz supply

Models:

Model 4150C -150L **Rowe Code TBA**

Model 4200C -200L **Rowe Code TBA**

Model 4400C -400L **Rowe Code TBA**



**NOW WITH
INFRA-RED
SENSOR**



CO2 regulator required - not supplied with instrument

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Contherm - Environmental Chambers

Environmental Chambers-HS Models

The Contherm Series 5000HS Environmental Chambers provide the ability to routinely achieve internationally compliant testing procedures, and assist with the attainment of product conformity to global (including military) standards.



With separate displays for each parameter and an easy-to-use digital control panel, Contherm's proven PLCS5 Control System offers self-diagnostic alarm displays and automatic high/low limit protection. Nine on-board user-configurable programs are provided, and the system is EEROM backed for convenience and reliability. Temperature control between Ambient+10° C to +100°C can be attained, and humidity control down to ±2% achieved with a highly effective humidity generator incorporating the latest sensor technology. An efficient fan-driven air system assures even circulation and diffusion of conditioned air through samples.

Glass doors allow excellent visual monitoring of product without disturbing the chamber environment, and the outer door is fitted with a "door-open" sensor and soft-closing magnetic seals to ensure jar-free closure. Adjustable stainless steel shelves are also included. A 50mm cable port is fitted as standard equipment in all models.

Brief Specifications -Environmental Chambers-HS Models

Operating Temperature	Ambient+10°C to +100°C
Temperature Fluctuation	0.3°C
Temperature Uniformity	0.75°C
Controller	PLCS5 microprocessor-based; 9 programmable steps; RS232C Comm. port; Digital LCD Readout
Humidity	40%RH to 98%RH (dependent on temperature)
Timer	1 minute to 99hrs59mins; max 999 cycles
Power Supply	Requirements 230 - 240Vac 50Hz 10A grounded supply

Models:

Model 5200HS.. 200L Rowe Code TBA

Model 5400HS.. 400L Rowe Code TBA

Model 5800HS.. 800L Rowe Code TBA



CO2 regulator required - not supplied with instrument.

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Contherm - Environmental Chambers

Environmental Chambers-R Models

The Contherm Series 5000R Environmental Chambers provide the ability to routinely achieve internationally compliant testing procedures, and assist with the attainment of product conformity to global (including military) standards.

With separate displays for each parameter and an easy-to-use digital control panel, Contherm's proven PLCS5 Control System offers self-diagnostic alarm displays and automatic high/low limit protection. Nine on-board user-configurable programs are provided, and the system is EEROM backed for convenience and reliability. There is an optional product disconnection feature which will switch a socket outlet/powerbox in the event of thermal runaway.

Temperature control between -10°C to $+100^{\circ}\text{C}$ can be attained, and an efficient fan-driven vertical air system assures even circulation and diffusion of conditioned air through samples. A viewing window in larger models, or glass inner door in smaller models allows excellent visual monitoring of product without disturbing the chamber environment, and the outer door is fitted with a "door-open" sensor and soft-closing magnetic seals to ensure jar-free closure. Adjustable stainless steel shelves are also included. A 50mm sample port is fitted as standard equipment in all models.



Brief Specifications -Environmental Chambers-R Models

Operating Temperature	-10°C to $+100^{\circ}\text{C}$
Temperature Fluctuation	5200R and 5400R- 0.3°C 5800R, 5900R, 51250R- 0.5°C
Temperature Uniformity	5200R and 5400R- 0.75°C 5800R, 5900R, 51250R- 1.0°C
Controller	PLCS5 microprocessor-based; 9 programmable steps; S232C Comm. port; Digital LCD Readout
Timer	1 minute to 99hrs59mins;max 999 cycles
Power Supply Requirements	230 - 240Vac 50Hz 10A grounded supply

Models:

Model 5200R... 200L	Rowe Code TBA
Model 5400R... 400L	Rowe Code TBA
Model 5800R... 800L	Rowe Code TBA
Model 5900R... 1000L	Rowe Code TBA
Model 51250R..1250L	Rowe Code TBA



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Contherm - Environmental Chambers

Environmental Chambers-RHS Models

The Contherm Series 5000RHS Environmental Chambers featuring Contherm's proven PLCS5 Control System offer separate displays for each parameter and an easy-to-use digital control panel, self-diagnostic alarm displays and automatic high/low limit protection. Nine on-board user-configurable programs are provided, and the system is EEROM backed for convenience and reliability. There is also an optional product disconnection feature which will switch a socket outlet/powerbox in the event of thermal runaway.



Temperature control between -10° C to +100°C can be attained, and humidity control delivers RH control down to ±2%. An efficient fan-driven vertical air system assures even circulation and diffusion of conditioned air through samples.

Either glass doors or a viewing window allow excellent visual monitoring of product without disturbing the chamber environment, and the door is fitted with a "door-open" sensor and soft-closing magnetic seals to ensure jar-free closure. Adjustable stainless steel shelves are also included. A 50mm cable port is fitted as standard equipment in all models.

Brief Specifications -Environmental Chambers-RHS Models

Operating Temperature	-10°C to +100°C
Temperature Fluctuation	5200RHS and 5400RHS- 0.3°C 5800RHS, 5900RHS, 51250RHS- 0.5°C
Temperature Uniformity	5200RHS and 5400RHS- 0.75°C 5800RHS, 5900RHS, 51250RHS- 1.0°C
Controller	LCS5 microprocessor-based; 9 programmable steps; RS232C Comm. port; Digital LCD Readout
Humidity	35%RH to98%RH (dependent on temperature)
Timer	1 minute to 99hrs59mins; max 999 cycles
Power Supply	230 - 240Vac 50Hz grounded supply (refer full specifications)

Models:

Model 5200RHS -200L	Rowe Code IC9055
Model 5400RHS -400L	Rowe Code TBA
Model 5800RHS -800L	Rowe Code TBA
Model 5900RHS -1000L	Rowe Code TBA
Model 51250RHS - 1250L	Rowe Code TBA



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Contherm - Environmental Chambers

Environmental Chambers-RLT Models

The Contherm Series 5000RLT Environmental Chambers provide the ability to routinely achieve internationally compliant testing procedures. With separate displays for each parameter and an easy-to-use digital control panel, Contherm's proven PLCS5 Control System offers self-diagnostic alarm displays and automatic high/low limit protection. Nine on-board user-configurable programs are provided, and the system is EEROM backed for convenience and reliability.



There is also an optional product disconnection feature which will switch a socket outlet/powerbox in the event of thermal runaway. Temperature control between -40° C to +100° C can be attained, and an efficient fan-driven air system assures even circulation and diffusion of conditioned air through samples.

A viewing window allows excellent visual monitoring of product without disturbing the chamber environment, and the door is fitted with a "door-open" sensor and soft-closing magnetic seals to ensure jar-free closure. Adjustable stainless steel shelves are also included. A 50mm cable port is fitted as standard equipment in all models.

Brief Specifications -Environmental Chambers-RLT Models

Operating Temperature	-40°C to +100°C
Temperature Fluctuation	5200RLT and 5400RLT- $\pm 0.3^{\circ}\text{C}$ 5800RLT, 5900RLT, 51250RLT- $\pm 0.5^{\circ}\text{C}$
Temperature Uniformity	5200RLT and 5400RLT- $\pm 0.75^{\circ}\text{C}$ 5800RLT and 5900RLT - $\pm 1.0^{\circ}\text{C}$ 51250RLT - $\pm 2.0^{\circ}\text{C}$
Controller	PLCS5 microprocessor-based; 9 programmable steps; RS232C Comm. port; Digital LCD Readout
Timer	1 minute to 99hrs59mins; max 999 cycles
Power Supply Requirements	230 - 240Vac 50Hz 10A grounded supply

Models:

Model 5200RLT -200L	Rowe Code TBA
Model 5400RLT -400L	Rowe Code TBA
Model 5800RLT -800L	Rowe Code TBA
Model 5900RLT-1000L	Rowe Code TBA
Model 51250RLT-1250L	Rowe Code TBA



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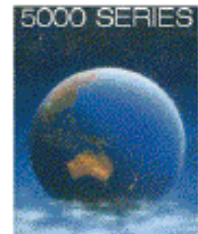
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Contherm - Environmental Chambers

Environmental Chambers-RHSLT Models

The Contherm Series 5000RHSLT Environmental Chambers featuring Contherm's proven PLCS5 Control System offer separate displays for each parameter and an easy-to-use digital control panel, self-diagnostic alarm displays and automatic high/low limit protection. Nine on-board user-configurable programs are provided, and the system is EEROM backed for convenience and reliability.



There is also an optional product disconnection feature which will switch a socket outlet/powerbox in the event of thermal runaway. Temperature control between -40° C to +100° C can be attained, and humidity control delivers an RH accuracy down to 1%, achieved with a highly effective humidity generator incorporating the latest sensor technology. An efficient fan-driven vertical air system assures even circulation and diffusion of conditioned air through samples.

A viewing window allows excellent visual monitoring of product without disturbing the chamber environment, and the door is fitted with a "door-open" sensor and soft-closing magnetic seals to ensure jar-free closure. Adjustable stainless steel shelves are also included. A 50mm cable port is fitted as standard equipment in all models.

Brief Specifications -Environmental Chambers-RHSLT Models

Operating Temperature	-40°C to +100°C
Temperature Fluctuation	5200RHSLT and 5400RHSLT- $\pm 0.3^{\circ}\text{C}$ 5800RHSLT, 5900RHSLT, 51250RHSLT- $\pm 0.5^{\circ}\text{C}$
Temperature Uniformity	5200RHSLT and 5400RHSLT- $\pm 0.75^{\circ}\text{C}$ 5800RHSLT and 5900RHSLT - $\pm 1.0^{\circ}\text{C}$ 51250RHSLT - $\pm 2.0^{\circ}\text{C}$
Controller	PLCS5 microprocessor-based; 9 programmable steps; RS232C Comm. port; Digital LCD Readout
Humidity	35%RH to 98%RH (dependent on temperature)
Timer	1 minute to 99hrs59mins; max 999 cycles
Power Supply	230 - 240Vac 50Hz grounded supply (refer full specifications)

Models:

Model 5200RHSLT- 200L	Rowe Code TBA
Model 5400RHSLT- 400L	Rowe Code TBA
Model 5800RHSLT- 800L	Rowe Code TBA
Model 5900RHSLT-1000L	Rowe Code TBA
Model 51250RHSLT-1250L	Rowe Code TBA



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Contherm - Incubator

Designer Series Incubators

Offering the research professional an affordable cabinet with respectable performance, the Contherm Designer 7000 Series Incubators achieve consistent temperature control over the range of ambient +5°C to 100°C nominal.



These economically-priced units have been designed to provide a quality incubating capability, and in an innovative step all of the servicable components have been incorporated into the outer door. In line with modern incubator practice, an inner glass door is neither fitted nor is necessary.

The soft-closing magnetic seal and hinge system ensures leak-proof sealing and cabinet compliance with set points and safety standards even at maximum temperatures. All three models feature an attractive corrosion-resistant finish on steel exteriors, with 50mm of specialised insulation surrounding the stainless steel interiors and doors. Positionable stainless steel shelves are also included. Toroidal air circulation and heating is provided by fan and element combinations, controlled by a new Contherm ZP21LC microprocessor-based controller featuring easy-to-set and read LED display and high limit protection. In addition, the microprocessor is EEROM backed to retain set-points and calibration factor during power failures. The Contherm Designer Series Cabinets provide the user with maximum performance at the lowest price while assuring consistent and repeatable results. Manufactured in a quality production environment, complying with AS/NZS 3350 and EEC harmonised standards for Electrical Safety and EMC, these cabinets meet the EC requirements for CE marking.

Brief Specifications

Operating Temperature	Ambient+5°C to 100°C
Setability	0.1°C
Controller	Microprocessor ZP21LC Series
Timer	1 minute to 99hrs59mins or continuous
Spatial Variation	±0.2°C unloaded at 37°C
Temporal Variation	±0.1°C unloaded at 37°C
Power Requirements	240Vac 50Hz 10A grounded supply

Models:

Model 7050 - 50L **Rowe Code II2050**

Model 7100 - 100L **Rowe Code II2052**

Model 7150 - 150L **Rowe Code II2025**



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Contherm - Incubator Orbital

Orbital Incubators

The Contherm Biosyn Orbital Incubator is ideally suited to culturing micro-organisms and cells under strict conditions of temperature, time, light and agitation. The constant motion allows effective aeration with the wide orbital action reducing buffeting of shear-sensitive cells. With separate displays for each parameter and an easy-to-use digital control panel, Contherm's proven PLC5 microprocessor-based, EEROM-backed control system offers self-diagnostic alarm displays with automatic high/low limit protection, user-adjustable firmware, and LED-based readout.



The platform will accept standard conical flasks from 25mL. to 2000mL., and the clips used to retain the flasks screw directly onto the platform. Orbital speeds between 20 and 400 r.p.m. can be set and controlled using state-of-the-art inverter technology. Accurate temperature control between 0° C to +60°C can be attained with the BIOSYN Orbital Incubator, with an impeller-driven air system assuring even circulation and diffusion of conditioned air through specimens.

The sealed, energy-efficient refrigeration system incorporates a unique hot-gas control for continuous operation and automatic defrosting, with all functions under the control of the microprocessor. Lighting is programmable in four steps to maximum levels in the RP6 model, with 6 x 30W fluorescent lights built into the lid. The Contherm BIOSYN Orbital Incubator features an attractive, corrosion-resistant finish on steel exterior, and polished stainless steel interior to assure a long service life.

Brief Specifications - Biosyn Orbital Incubators

Temperature Range	0°C to 60°C (lights off)
Temporal Accuracy	±0.3°C (tested at 20°C Ambient)
Spatial Accuracy	±0.6°C (tested at 20°C Ambient)
Orbit Speed Range	20 - 400 rpm
Max light level	200µE (RP6 only)
Sound level	57dbA average across speed range
Program Steps	9 Maximum
Power Requirements and Consumption	1600 Watts at 230-240Vac 50Hz 10A supply

Models:

Model 608R- Refrigerated **Rowe Code TBA**

Model 608RP6-Refrigeration and Light
Rowe Code TBA



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Contherm - Ovens

Designer Series Ovens

The Contherm Thermotec Designer Series Ovens can achieve consistent temperature control over the range of ambient +5°C to 260°C (nominal). Rapid and continuous drying is achieved by the introduction of warm, dry air regulated by an adjustable vent.



An efficient fan-driven toroidal air and heating system assures even circulation and is controlled by the proven Contherm ZP21 microprocessor-based system. With an easy-to-set and read LED display, the system offers precision steady-state operation, with audible and visual alarms for over and under temperature, plus a selectable 100 hour timer. In addition, the system is EEROM backed to retain the calibration factor and set-points for audit purposes after power failures.

The compression door catch and hinge system ensures leak-proof sealing for low thermal and fume loss, with an integral switch to interrupt fan and heating when door is opened.

All controls and active components are in the door which can be removed as a unit for service should this be necessary. The Contherm Thermotec Designer Series Ovens offer educational and industrial users maximum performance and reliability in an attractive and cost-effective package

Brief Specifications

Operating Temperature	Ambient+5°C to 260°C
Setability	0.1°C
Controller	Microprocessor ZP21 Series
Timer	1 minute to 99hrs 59mins or continuous
Spatial Variation	±2.5°C unloaded at 105°C
Temporal Variation	±0.2°C unloaded at 105°C
Power Requirements	240Vac 50Hz 10A grounded supply

Models:

Model 8050 -50L **Rowe Code IO1258**

Model 8100 -100L **Rowe Code IO1260**

Model 8150 -150L **Rowe Code IO1265**



We also supply Contherm Ovens from 200-1000L

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Contherm - Tissue & Plant Growth Chambers

Tissue and Plant Growth Chambers-CP4 and CP8 Models



Offering accurate, reliable and cost effective control of temperature and lighting, The Biosyn Series 6000 CP4 and CP8 models deliver excellent performance to the researcher, providing Photosynthetically Active Radiation and microprocessor-managed temperature control.

Inner doors of toughened glass allow excellent visual monitoring, and a soft-closing outer door ensures jar-free growth of samples. With accurate and reliable control from 5°C to 50°C, and a fan-driven air circulation system, optimum and repeatable performance is assured.

The proven Contherm ZP21 microprocessor-based control system with user-adjustable software and easy-to-set and read LED digital display is EEROM backed to save set points during power failures. These models feature self-diagnostic alarm displays and dual hi-limit controls, with two user configurable programs for day/night simulation, and an additional delayed start facility is installed.

Brief Specifications -CP4/8 Plant Growth Chambers

Temperature Range	5°C to 50°C (lights off)
Temporal Accuracy	±0.5°C (tested at 20°C Ambient)
Spatial Accuracy	±2°C (tested at 20°C Ambient)
Humidity	Natural Vaporisation from Pan, more than 70% RH at 37°C
Lighting level	60µE @ 300mm Controller ZP21 Digital LED Readout
Power Supply	230-240Vac 50Hz 10 Amp

Models:

Model 6150CP4- 150L	Rowe Code TBA
Model 6200CP4- 200L	Rowe Code TBA
Model 6300CP4- 300L	Rowe Code TBA
Model 6400CP4- 400L	Rowe Code IC9050
Model 6800CP8- 800L	Rowe Code TBA



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Contherm - Tissue & Plant Growth Chambers

Tissue and Plant Growth Chambers 610R, 620R and 625R Models



These versatile Phytotron chambers provide Photosynthetically Active Radiation to medium levels and consistent temperature control, offering enhanced lighting functions for the 625 models, and 610 and 620 models with the P6 option.

All models feature heated glass doors and double glazed windows each side to allow clear interior viewing, with stainless steel shelves provided. An efficient fan-driven air system assures uniform circulation and diffusion of air through the interior. Standard is the proven Contherm PLCS5 microprocessor-based, EEROM- backed control system with user-adjustable firmware and LED-based readout. Day/night control for temperature and lighting is programmable in real or elapsed time, with nine user-configurable programs available. All models feature self-diagnostic alarm displays and high limit controls, plus an optional RS232c port allows the user to monitor or change parameters via a PC.

The sealed energy-efficient refrigeration system incorporates a unique hot-gas control for continuous operation and automatic defrosting, with all functions under the control of the microprocessor. Lighting is provided by fluorescent tubes in all models, with many options of lighting type and performance available. These Contherm BIOSYN Tissue Growth Chambers offer precise performance and reliability in a compact and easy-to-use format to the research professional and student alike.

Brief Specifications -Tissue and Plant Growth Chambers-R Models

Temperature Range	0°C to 50°C (lights off)
Temporal Accuracy	±0.3°C (610R and 620R) ±0.5°C (625R)
Spatial Accuracy	±0.6°C (610R and 620R) ±1.2°C (625R)
Lighting levels	610R and 620R 200µE (P6 300µE) 625R 300µE
Lighting control	Programmable to 4 levels
Power Supply	610R and 620R- 230Vac 50Hz 10A 625R- 230Vac 50Hz 15A

Models:

Model 610R -200L **Rowe Code TBA**

Model 620R -400L **Rowe Code TBA**

Model 625R -900L **Rowe Code TBA**



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Contherm - Tissue & Plant Growth Chambers

Tissue and Plant Growth Chambers 610RHS, 620RHS and 625 RHS Models



Photosynthetically Active Radiation is provided by fluorescent tubes in these versatile Phytotron chambers, with many options of lighting type and performance available. Heated glass doors and double glazed windows each side allow clear interior viewing, with stainless steel shelves provided for all models.

An efficient fan-driven air system assures uniform circulation and diffusion of air through the interior. Standard is the proven Contherm PLCS5 microprocessor-based, EEROM-backed control system with user-adjustable firmware and LED-based readout. Day/night control for temperature, lighting and humidity is programmable in real or elapsed time, with nine user-configurable programs available. All models feature self-diagnostic alarm displays and high limit controls, plus an optional RS232c port allows the user to monitor or change parameters via a PC. Humidity control is achieved with a highly effective humidity generator incorporating the latest sensor technology.

The sealed energy-efficient refrigeration system incorporates a unique hot-gas control for continuous operation and automatic defrosting, with all functions under the control of the microprocessor. These chambers offer precise performance and reliability in a compact and easy-to-use format to the research professional and student alike.

Brief Specifications -Tissue and Plant Growth Chambers-RHS Models

Temperature Range	0°C to 50°C (lights off)
Temporal Accuracy	±0.3°C (610R and 620R) ±0.5°C (625R)
Spatial Accuracy	±0.6°C (610R and 620R) ±1.2°C (625R)
Lighting levels	610RHS and 620RHS 200µE (P6 300µE). 625RHS 300µE.
Lighting control	Programmable to 4 levels
RH Range	35%RH to 98%RH
Power Supply	610R and 620R- 230Vac 50Hz 10A 625R- 230Vac 50Hz 15A

Models:

Model 610RHS -200L

Rowe Code TBA

Model 620RHS -400L

Rowe Code TBA

Model 625RHS -900L

Rowe Code TBA



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Cork Borer

Met-App



Made from plated, hard brass. Has removable handle, with a range of borers

Rowe Code	Number of Borers	Diameter of Borers	Std. Pack Size
HC1050	6	4.5 - 13.0	ea
HC1000	10	4.5 - 19.0	ea
HC1045 (with fixed handle) Made of polished hard brass.	6	4.5-13.0	ea
HC1047 (with fixed handle) Made of polished hard brass.	9	4.5-19.0	ea
HC1080	Cork Borer Sharpener, 225mm long		

Crucibles



Alsint

Haldenwanger

Flat Bottom Cylindrical

Rowe Code	Capacity mL	Outside Diameter mm	Height mm	Std. Pack Size
TC1000	60	40	60	ea
TC1050	110	50	75	ea



Clay Graphite

Vesuvius

Rowe Code	Size mm	Std. Pack Size
AC1000	Crucible - A100 (Clay Graphite)	ea

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Crucibles

Filter

Schott

Rowe Code	Capacity mL	Porosity	Plate Diameter (mm)	Std. Pack Size
GC1312	15	2	23	ea.
GC1201	50	1	40	ea.
GC1405	50	2	40	ea.
GC1250	30	3	39	ea.
GC1470	50	3	40	ea.
GC1351	30	4	30	ea.
GC1410	50	4	40	ea.



Gooch

Haldenwanger

Rowe Code	Capacity mL	Diameter Rim mm	Height mm	Std. Pack Size
WC1000	35	41	43	ea



Porcelain

Chinese

Glazed with lids, Economy

Low Form

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WC1900	15	34	23	ea
WC1950	25	47	27	ea
WC2000	30	51	30	ea
WC2050	40	55	34	ea
WC2100	45	57	36	ea
WC1650	50	59	38	ea



Medium Form

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WC2240	5	25	21	ea
WC2250	10	30	28	ea
WC2300	15	35	30	ea
WC2400	20	38	32	ea
WC2450	25	40	36	ea
WC2500	30	42	41	ea
WC2600	100	63	59	ea
WC2605	150	77	63	ea
WC2610	200	82	70	ea
WC2615	300	90	78	ea



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Crucibles

Porcelain

Chinese



Tall Form

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WC1100	15	32	34	ea
WC1130	18	34	36	ea
WC1150	20	36	38	ea
WC1170	25	38	40	ea
WC1200	30	40	46	ea
WC1250	50	43	58	ea



Glazed without lid Low Form

Haldenwanger

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WC1400	11	35	22	ea
WC1500	25	45	28	ea
WC1600	29	50	32	ea
WC1750	85	70	44	ea



Medium Form

Haldenwanger

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WC2650	5	25	20	ea
WC2750	15	35	28	ea
WC2410	20	40	32	ea
WC2850	38	45	36	ea
WC3150	150	70	56	ea



Tall Form

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WC3450	11	26	33	ea
WC3600	40	40	50	ea
WC3650	50	45	56	ea



Lids for Haldenwanger Crucibles

Rowe Code	To Fit Crucible Diameter mm	Std. Pack Size
WC1810	35	ea
WC1825	45	ea
WC1850	80	ea

Crucibles

Glazed rim & base without lid

Jipo European

Low Form

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WC2235	5	30	19	ea
WC1405	10	35	22	ea
WC1505	21	45	28	ea
WC1655	34	50	32	ea
WC1645	63	60	38	ea
WC1755	91	70	44	ea



Medium Form

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WC2755	12	35	28	ea
WC2855	30	45	36	ea
WC2597	80	60	48	ea
WC3155	120	70	56	ea



Tall Form

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
WC1110	15	30	38	ea
WC1140	26	35	44	ea
WC3605	35	40	50	ea



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Crucibles

Silica

Low Form



Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
TC1427	15	41	25	ea
TC1450	25	47	28	ea
TC1501	50	57	37	ea
TC1525	80	67	45	ea
TC1532	150	82	51	ea
TC1432	Lid for 41mm diameter			ea
TC1505	Lid for 47mm diameter			ea
TC1540	Lid for 57mm diameter			ea
TC1526	Lid for 67mm diameter			ea

Tall Form

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
TC1440	20	35	38	ea
TC1550	50	51	51	ea
TC1555	Lid for 51mm diameter			ea

Zirconium



Superior in Sodium Peroxide and Sodium Carbonate fusions. Zirconium crucibles will average around 100 fusions per crucible. This is around twenty times more than is possible with a Nickel equivalent.

Sample contamination is virtually eliminated. Zirconium crucibles are ideal for most fusions done in the full heat of a burner.

Rowe Code	Top Diam. mm	Bottom Diam. mm	Height mm	Wall mm	Volume mL
HC1295	42	30	40	2	40
HC1275	39	30	33	2	25

(Other sizes are also available)

Platinum and nickel crucibles are also available.

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Cuvettes

For Spectroscopy

Standard and semi-micro disposable cuvettes for spectroscopy made of optical PS and PMMA UV grade. With optical windows to achieve optimal transmittance through spectral range from 340 to 800 nm (OPS) and from 280 to 800 nm (PMMA UV grade).

The engineering and quality control determine the reproducibility of the cuvettes. These are strictly controlled and variations should be within the range +/-1% absorption. This is vital when batch analysis is being undertaken. Dust-proof packing: 100pcs in expanded polystyrene box with dust lid.



Visible Range Cuvettes - Optical Polystyrene

Kartell

Rowe Code	Capacity mL	Path Length mm	Type	Std. Pack Size
PC3750	4.5	10	Standard	100
PC3740	1.5	10	Semi-micro	100
PC3796	2.5	10	Semi-micro	100
PC3785	4.5	10	4 clear faces	100



UV Range Cuvettes - UV grade PMMA

Kartell

Rowe Code	Capacity mL	Path Length mm	Type	Std. Pack Size
PC3770	4.5	10	Standard	100
PC3790	4.5	10	4 Clear Faces	100

Cuvette Holder

Material: Polyethylene

Can accommodate 12x10mm cuvettes vertically in firm recesses for preparation work, or 12 x 10mm cuvettes horizontally for storage and protection,. In storage mode the racks are stackable.

Rowe Code: PC3765



Desiccators

Cabinets - Secador - Plastic

Bel-Art



The Secador™ Desiccator Cabinets protect valuable reagents or samples from ambient moisture. Use to dry out specimens, pipettes/pipettors or other components. Available in small or large models, with either horizontal or vertical orientation, these uniquely-designed units are available totally clear, clear with blue end caps, or blue (note: all doors are clear). The stackable small model is perfect for maximizing storage space in a minimum footprint. All models with built-in hygrometer in the door.

Auto style include 230v AC automatic desiccant regeneration.



Rowe Code	Overall External Dimensions mm			Style
	Height	Width	Depth	
PD1505	213	341	414	Standard
PD1510	518	341	414	Auto
PD1511	518	341	414	Standard
PD1512	416	341	414	Auto
PD1515	315	341	414	Auto

All non-electric (standard) models may be used with any desiccant.

Cabinets- Metal

SEM

The cabinet is constructed of heavy gauge zinc seal steel with a full view glass door.

All joints are sealed and the door has an adjustable catch to ensure airtight closing on a silicone rubber seal.

Two chrome plated wire trays are supplied, also a stainless steel desiccant tray on floor.

The unit is powder coated, white inside and outside. Also available in stainless steel construction.



Rowe Code	Overall External Dimensions mm			Shelf Positions	Shelves Supplied
	Height	Width	Depth		
PD1530	380	305	305	2	2
PD1535	400	400	400	3	2
PD1540	550	530	500	5	2

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Desiccators

Filtration & Vacuum Desiccators

Kartell

Material: Polypropylene/Polycarbonate

Implosion proof desiccators. Will take vacuum of 740mm Hg with loss not exceeding 20mm Hg in 24 hours. The transparent polycarbonate cover seals onto a neoprene 'O' ring set into the flange of the polypropylene base. A little grease spread on the 'O' ring will assist in establishing initial vacuum.

Within the desiccator is a removable pan for holding a drying agent. Vacuum release tap/non return valve assembly is included; specially grooved stopper in this assembly allows air, when required, to be re-admitted very slowly to avoid disturbing the contents.

Without plate.

Rowe Code	Capacity L	Height mm		Int. Dia. mm
		External	Internal	
PD1462	2.15	190	135	150
PD1450	4.35	230	175	200
PD1470	9.2	300	225	250
Plates for above desiccators				
PC1461	To suit 150mm, PD1462, 140.5mm diameter			
PD1480	To suit 200mm, PD1450, 189mm diameter			
PD1460	To suit 250mm, PD1470, 238mm diameter			



Glass (Borosilicate) with Knobbed Lid

TGI

Rowe Code	Nominal Size mm	OD at Flange mm	Std. Pack Size
TBA	100	153	ea
TBA	150	215	ea
GD1205	200	270	ea
TBA	250	320	ea
GD1222	300	380	ea



Vacuum Style with Stopcock in Lid

TGI

Rowe Code	Nominal Size mm	OD at Flange mm	Std. Pack Size
TBA	100	153	ea
GD1052	150	215	ea
GD1075	200	270	ea
GD1049	250	320	ea
GD1235	300	380	ea

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Desiccators

Glass (Borosilicate) with Knobbed Lid

Schott



Rowe Code	Nominal Size mm	OD at Flange mm	Std. Pack Size
GD1010	100	153	ea
GD1059	150	215	ea
GD1210	200	270	ea
GD1048	250	320	ea
GD1220	300	380	ea

Vacuum Style with Stopcock in Lid

Schott



Rowe Code	Nominal Size mm	OD at Flange mm	Std. Pack Size
TBA	100	153	ea
GD1053	150	215	ea
GD1072	200	270	ea
GD1083	250	320	ea
GD1078	300	380	ea

Lids - Knobbed

Schott



Rowe Code	Nominal Size mm	OD at Flange mm	Std. Pack Size
TBA	100	153	ea
GD1085	150	215	ea
GD3160	200	270	ea
GD1082	250	320	ea
GD3155	300	380	ea

Lids - Vacuum Style

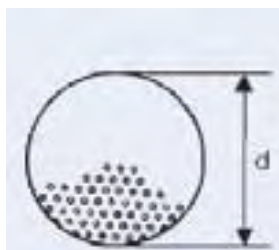
Schott



Rowe Code	Nominal Size mm	OD at Flange mm	Std. Pack Size
TBA	100	153	ea
GD1065	150	215	ea
GD3165	200	270	ea
GD1090	250	320	ea
GD3140	300	380	ea

Plates - Metal

Schott



Rowe Code	Nominal Size mm	Diameter mm	Std. Pack Size
GD1249	100	90	ea
GD1248	150	140	ea
GD1250	200	185	ea
GD1260	250	235	ea
GD1270	300	280	ea

Contact us ...



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Desiccators - Spares & Accessories

Lids - Knobbed

TGI

Rowe Code	Nominal Size mm	OD at Flange mm	Std. Pack Size
TBA	100	153	ea
TBA	150	215	ea
TBA	200	270	ea
TBA	250	320	ea
TBA	300	380	ea

Lids - Vacuum Style

TGI

Rowe Code	Nominal Size mm	OD at Flange mm	Std. Pack Size
TBA	100	153	ea
TBA	150	215	ea
GD1068	200	270	ea
TBA	250	320	ea
TBA	300	380	ea

Plates - Porcelain

TGI

Rowe Code	Nominal Size mm	Diameter mm	Std. Pack Size
TBA	100	90	ea
GD1251	150	140	ea
GD1252	200	190	ea
GD1257	250	235	ea
GD1258	300	280	ea

Stopcocks- with PTFE spindle

TGI

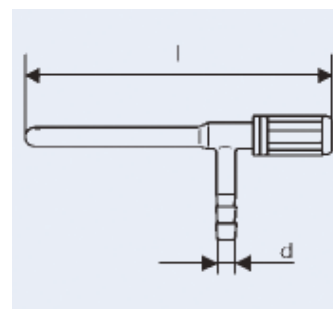
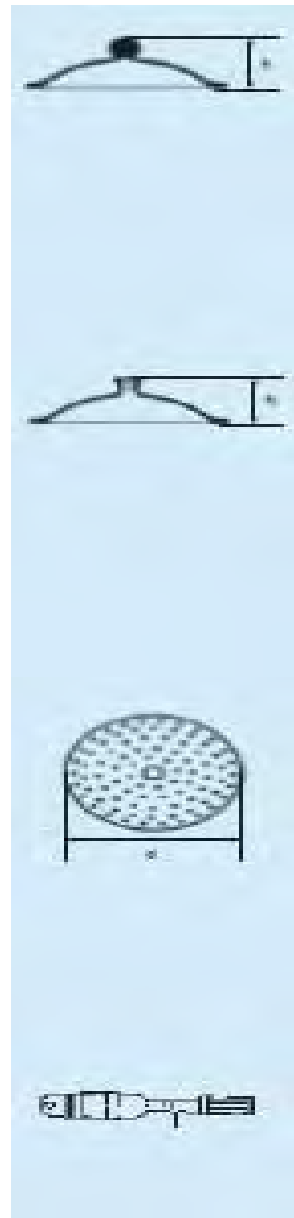
Made from Borosilicate glass.

Rowe Code: **GS1030**

Stopcocks- with PTFE spindle

Schott

Made from Borosilicate glass.

Rowe Code: **GD1125**Rowe Code: **GS3000**

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Detergent



QUANTUM CLEAN (Concentrate)

Avoid Contamination Totally Clean Laboratory Glassware and Apparatus



For total cleaning (including radioactive decontamination) of all laboratory and industrial glassware, plastics, ceramics and stainless steel.

**IDEAL FOR USE IN
ULTRASONIC CLEANERS
PHOSPHATE FREE
AND BIODEGRADABLE**

**ASK FOR
A FREE
SAMPLE**

USE:

Supplied as a liquid concentrate for dilution with water (approx. 2-5% is adequate for most laboratory applications). Ideal for manual cleaning or for use in an ultrasonic cleaner.

Rowe Code	Pack Size
CQ1000	1L
CQ1050	5L
CQ1100	20L

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Diluters

Compudil 3

The Compudil 3 is the ultimate diluter/dispenser for virtually all liquid handling procedures. It features dual syringes, on-board programming and a 45 program memory

A 48 character display prompts the user and provides program information. From the keypad 4 types of dilution, 6 types of dispensing, liquid transfer and wash and serial dilution can be accessed.

Further versatility is provided by the RS232 socket which allows two way program exchange with a PC for GLP accreditation requirements. 15 further memories are provided for the storage of PC generated programs.

Syringes and other optional parts are available for the Compudil 3

Specifications:

Accuracy and Resolution: Full stroke of all syringes in 5000 steps. Where necessary, selected volumes are rounded down. Actual delivered volume: +/-1% of syringe volume
 Speeds: Approx. 2-15 seconds for full stroke of syringe.
 Precision: CV: Better than 0.1%.
 Dead Volume: Approx. 1ml, of which 95% is recoverable using the PRIME function (standard 30cm length 1.6mm I.D. reagent inlet tube, 1ml and 50ul syringes). Increased risk of detectable carry-over with dilution ratios less than 5:1, or with immiscible liquids.
 Chemical Resistance: All valves, syringes and tubing are manufactured from glass or PTFE-based materials for total chemical resistance (except HF and HF compounds).
 Controls: Rear panel: POWER on/off switch, socket for handset or footswitch control.
 RS232 socket for computer control.
 Front panel: 48 character display and 14 button tactile keypad.
 Dimensions: 300mm(W) x 200mm(D) x 215mm(H).
 Weight: 7.5kg,

Hook & Tucker



Rowe Code: ID2150

Simple keypad programming
 2-way program exchange with PC
 45 program memory
 Volumes from 1ul - 25ml
 4 dilution modes
 6 transfer and wash modes
 Serial dilution mode

Repipet

Single-Stroke Repipet Diluter has speed and precision. It dilutes with a single action, eliminating separate aspiration and dilution steps. Simply lift the plunger to aspirate and then press it down to deliver the diluted sample. It takes only 2 to 4 seconds per dilution. It has a 0.75 mL sampling syringe graduated in 0.01 mL and a 10 mL diluent syringe graduated in 0.1 mL; minimum dilution ratio is 13:1.



Rowe Code: DD1050

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Dishes

Crystallizing - with spout - borosilicate glass



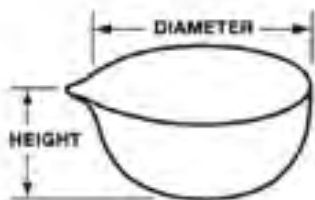
Rowe Code	Diameter mm	Volume mL	Height mm	Std. Pack Size
GC1010	70	100	40	10
GC1040	80	150	45	10
GD1000	95	300	55	10
GC1052	95	300	55	10
GC1059	115	500	65	10
GC1080	190	2000	90	10
GC1082	230	3500	100	ea

Crystallizing - without spout - borosilicate glass



Rowe Code	Diameter mm	Volume mL	Height mm	Std. Pack Size
GD1029	50	40	30	10
GC1035	70	100	40	10
GC1045	80	150	45	10
GC1055	95	300	55	10
GC1057	115	500	65	10
GC1048	140	900	75	10
GD1051	230	3500	100	ea

Evaporating - borosilicate glass



Rowe Code	Diameter mm	Volume mL	Height mm	Std. Pack Size
GE0995	60	45	30	10
GE1010	70	60	35	10
GE1001	80	90	45	10
GE1035	95	170	55	10
GE1040	115	320	65	10
GE1045	140	600	80	10

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Dishes

Petri - Polystyrene

Rowe Code	Diameter mm	Description	Std. Pack Size
PP1010	36	Polystyrene, Gamma Sterile	900
PP1060	47	Polystyrene, Sterile	100
PP1195	55	Polystyrene, Machine sterile	1200
PP1120	90	Polystyrene, Sterile	500
PP1150	90	Polystyrene UV Standard Machine Sterile	500
PP1170	90	Polystyrene, 1/2 plate machine sterile	500



Petri - Flat Form - Soda Glass

Rowe Code	Diameter mm	Height mm	Std. Pack Size
GP11401	40	12	10
GP11411	60	15	10
GP11421	80	15	10
GP1144	100	15	10
GP1072	100	20	10
GP1151	120	20	10
GP1149	150	25	10
GP11481	180	30	10



Available in Borosilicate Glass if required.

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Dissecting



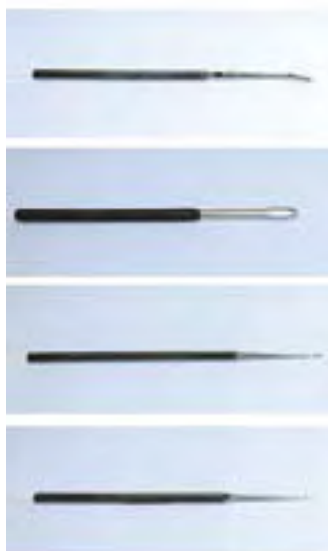
Kit

Met-App

Rowe Code	Description	Std. Pack Size
ED1420	Dissecting kit in zippered pouch containing 10 dissecting instruments	ea

Probes and Needles

Met-App



Rowe Code	Description	Carton Qty
HN1000	Dissecting Needle, straight with solid handle	10
HP1250	Seeker, angled blunt flat end	10
HP1200	Seeker, blunt round pointed straight	10
HN1050	Holder , for Dissecting Needles and Loops 0-1mm Probes, Eyes & Needles , 150mm plastic handle	10
HI1010	Eye probe - 1.5mm Diameter eye for HN1050	10
HP1290	Eye probe - 2.5mm Diameter eye for HN1050	10
HP1300	Eye probe - 4.0mm Diameter eye for HN1050	10
HN1070	Needle, arrowhead point for HN1050	10
HP1320	Needle, sharp point for HN1050	10

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Distillation Units

Water Stills

Rivergum Series

Labglass

The Rivergum series of automatic all-glass Water Stills incorporates over a quarter of a century of Labglass experience in production of quality Water Stills for the world.

- Attractive Rivergum colour, powder coated finish
- 24 hour unattended operation of all models
- Can be supplied for use with pre-treated water sources



The Cascade Still produces 3 litre per hour single distilled water.

The Delta Still, unlike other stills available, allows re-configuration by the user at any time to produce 3 or 6 litres per hour single distilled water, or 3 litres per hour double distilled water.

Choosing a Water Still:

- Determine if double distilled water is required
If Yes - choose the Delta
- Determine production quantity of single distilled water required
If 6 litres per hour - choose the Delta
If 3 litres per hour - choose the Cascade



Rowe Code	Model	Output L/hr	Dual Feed Option	Double Distilled Possible
IS2160	Cascade	3	No	No
IS2165	Cascade	3	Yes	No
IS2170	Delta	3 or 6	No	Yes
IS2175	Delta	3 or 6	Yes	Yes

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Dry Block Heaters

Analogue Models

Ratek

Rowe Code	Model	Description
ID1500	DBH10	A heater unit designed to accommodate a single dry block, and provide electronic temperature control to 110°C with a stability of 0.1°C.
ID1520	DBH30	A larger heater designed to take 3 standard dry blocks, providing electronic temperature control to 110°C with a stability of 0.1°C. Temperature uniformity between 3 blocks of the same type is 0.2°C.



Digital Modes

Ratek

Rowe Code	Model	Description
ID1510	DBH20D	Two models of digital microprocessor controlled block heaters with a temperature range of approximately 28°C to 150°C. The DBH20D holds two standard Ratek test tube blocks or one 96 well microtitre plate block.
ID1522	DBH30D	The DBH30D holds three standard blocks, or one standard block plus a block to suit 96 well micro plates. Cartridge elements are used in all Ratek block heaters, and are set into the solid heater plate to ensure efficient and accurate temperature control.



Standard blocks are anodised aluminium, 95 x 75 x 50mm and are supplied with hole sizes as required. Special custom drilled or plain blocks can be supplied to order.



Rowe Code	Description
ID1530	12 x 16mm holes
ID1550	20 x 13mm holes
ID1555	4 x 29mm holes
ID1565	12 x 17mm holes
ID1595	6 x 25mm holes

* Other available patterns as required.

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Drying

Glass Carrying

Made from plastic coated wire.

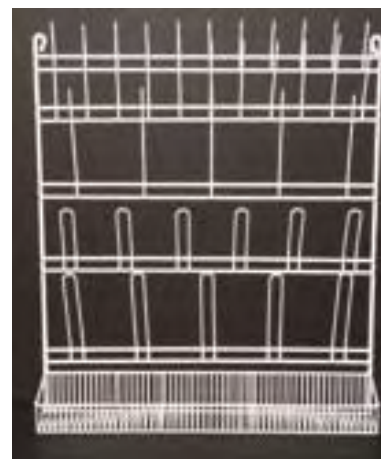
Rowe Code	Inside mm	Outside mm	Height mm	Std. Pack Size
HW1370	420 x 420	432 x 432	50	ea
HW1350	438 x 368	450 x 387	50	ea



Other sizes and variations of trays are available.

Racks

Plastic coated wire draining rack with basket.
Wall mountable.
Measurements 620mmH x 570mmW.



Rowe Code: HW1200

Tubes

Ideal for drying gases. Made of polyethylene, tapered connections to take rubber tubing of 8, 9, 10mm diameter.

Rowe Code	OD mm	Tube Length mm	Overall Length mm	Std. Pack Size
PD1570	20	100	170	5
PD1580	20	150	220	5
PD1590	20	200	270	5

Kartell



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Electrodes - pH Electrodes

pH/Redox Electrodes Intermediate Junction (IJ) Electrodes

The new IJ electrodes from IONODE are a breakthrough for pH measurement. They combine a refillable gel electrolyte with an easy to clean sleeve reference junction to produce electrodes with:

Accuracy
Durability
Versatility
Value for money

IJ44 - pH Electrode

Ionode

Rowe Code	Connector
IP14401	BNCO
IP14405	RASO
IP14410	BELO
IP14371	TPS4

Other variations of cable length and type of glass tip are available.

IJ64 - Combination Redox Electrode

Rowe Code	Connector
IP1360	BNCO
IP1362	TPS4
IP1364	METO

IJ14 - Reference Half Cell (Ag/AgCl)

Rowe Code	Connector
IP1452	BNCO
IP1456	BNCO
IP14591	TPS4

Also available, optional temperature sensors for the pH



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Electrodes - pH Electrodes

Conventional pH Electrodes

Ionode

Rowe Code	Model	Body	Range	Tip	Connector	Description
IP1515	PBFB	Polypropylene	0-60°C	Bulb	BNC	Lab. electrode for high alkali. Suitable for continuous use over 13pH Flow Ag/AgCl reference.
IP1400	PBFC	Polypropylene	0-60°C	Bulb	BNC	General Purpose for Lab. Flow Ag/AgCl reference.
IP1500	PBFC	Polypropylene	0-60°C	Bulb	TPS4	
IP1425	GBFC	Glass	0-60°C	Bulb	BNC	Research Grade Lab. use 0-14pH low Ag/AgCl reference
IP1426	GBFC	Glass	0-60°C	Bulb	TPS4	
IP1430	GBFC	Glass	0-60°C	Bulb	Meto	
IP1411	IH20	Polypropylene	0-40°C 0-12pH	Spear	BNC	Economical, easy to clean membrane. Gel Ag/AgCl reference. Fully sealed
IP1526	IH20	Polypropylene	0-40°C	Spear	TPS4	

Conventional Redox Electrodes Ionode

Rowe Code	Model	Body	Connector	Description
IP12951	IH30	Polypropylene	BNC	Gel AG/AgCl reference
IP12961	IH30	Polypropylene	BNC	(2m cable)
IP12971	IH30	Polypropylene	TPS4	
IP1306	PRFO	Polypropylene	BNC	Flow Ag/AgCl reference
IP1282	PRFO	Polypropylene	TPS4	



Rowe Code: IP1400

Single Junction Reference Electrodes

Rowe Code	Model	Body	Range Tip	Connector	Description
IC1010	GOFC	Glass	0-66°C 0-14pH	4mm	Single Junction reference
IS1146	PJFO	Polypropylene	0-66°C	4mm	Single junction reference Ag/AgCl, flow

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Environmental Chambers



As the global marketplace imposes many quality control standards on technical products, the ability to routinely achieve internationally compliant testing procedures is of the utmost importance. The Contherm Series 5000 Environmental Chambers provide that environment, and assist with the attainment of product conformity to global (including military) standards in an international market. Comprising five distinct types and twenty-three different models with a variety of options on all, this high-precision range is manufactured in a quality production environment.

Contherm Series 5000 Environmental Chambers are equipment-friendly, and comply with AS/NZS 2064 EMC Standards.

Rowe Code	Description	Chamber Volume Litres	External Dimensions H x W x D mm	Internal Dimensions H x W x D mm	Shelves
IC9055	Environmental Chamber Series 5000	200L	1445 x 890 x 870	625 x 640 x 540	3
IC9050	Tissue & Plant Growth Chamber Series 6000	400L	1510 x 820 x 940	1230 x 655 x 510	5



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Extractor - Solvent

Solvent Extraction Apparatus SER148/6

The SER 148/6 unit allows the quantitative separation of a substance or a group of substances (e.g. fats) from a mixture of solids or semisolids. The extraction is performed, according to the Randall technique, in two phases with a final recovery of the used solvent. This allows a reduction of atmospheric pollution, extraction time and of the costs of analysis.

The equipment, designed for optimized manuality, is controlled by a programmable microprocessor allowing choice among 29 programs; two different displays will constantly show actual temperature and residual working time for the selected program.

The extractions are performed under high safety conditions because the equipment follow the norms CEI EN 60529 with an IP 55 protection degree and is manufactured from advanced materials and with innovative technical details.

The main sectors of application include the analysis of food, feed, detergents, rubber and plastic formulates, pharmaceutical products, soils and others, for their content of soluble components like fats, tensides, plastifiers and pesticides.



SER 148/6

6 places extractor for quantitative separation of substances using solvent

Rowe Code TBA

Solvent Extraction Apparatus SER148/3



SER 148/3

3 places extractor for the quantitative separation of substances using solvent

Rowe Code TBA

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Filtration

Filter Paper

Extraction Thimbles

Membranes

Micro Filtration



MILLIPORE

Schleicher & Schuell

Whatman®

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Filtration - Extraction Thimbles

Macherey Nagel



Commonly used to hold solid materials from which specific substances are to be eluted, or as filter thimbles for separating solid particles (dust) in air and exhausts. Macherey-Nagel manufacture thimbles from both cellulose fibres and glass microfibres in a variety of grades and in a wide range of sizes.

Extraction thimbles made from glass microfibres

Grade MN 649 Macherey-Nagel

These glass microfibre extraction thimbles are non-sintered thimbles, which display a high degree of air-permeability and very good particle retention. Due to these properties and their high temperature resistance they are ideally suited for dust analysis in industrial and hot exhaust gases.



Rowe Code	Size ID x Height mm	Std. Pack Size
FE0902	22 x 80	25
GE1050	30 x 100	25

Extraction thimbles made from cellulose

Grade MN 645 Macherey-Nagel

Standard grade extraction thimbles made from pure cellulose

Rowe Code	Size ID x Height mm	Std. Pack Size
FE0900	22 x 80	25
FE1041	27 x 80	25
FE1032	28 x 100	25
FE1050	48 x 145	25
FE1300	60 x 180	25

Please contact our sales team for other grades and sizes of extraction and filter thimbles.

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Filtration - Filter Papers



Macherey-Nagel have produced high quality filter papers since 1911, manufactured in accordance with firmly established formulae which have been tested over many years, guaranteeing constant quality.

The range of filter papers available is diverse and is continually being expanded with innovative new products.



Filter Papers for Qualitative Analyses

Filter papers for qualitative analyses are not chemically treated and have an ash content of approx. 1.2mg per circle of 11cm diameter. They are available as sheets, circles and folded filters.

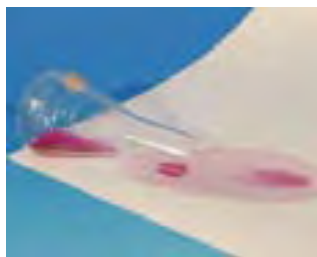
In addition to their high chemical and mechanical resistance in wet condition, the wet-strengthened (hardened) qualitative filter papers have a very smooth surface. Consequently, they are also suitable for the fibre-free filtration of injection solutions, sera, etc.

Grade properties	Filtration	Application	Thickness mm	Filtration speed sec.*	Basis weight g/m ²
MN617we	extra soft, fast filtration, smooth	very suitable for precipitates which allow fast filtration and for unstable precipitates which require fast filtration.	0.22	5	85
MN617	soft, fast filtration, smooth	soft filters with loose structure, for coarse precipitates, e.g. Iron and aluminium hydroxide, bismuth, copper and iron sulphide, nickel diacetyldioxime	0.20	9	85
MN615	medium speed filtration, smooth	thin filter paper for general application, in particular for filtration of waters, salt solutions and similar, together with MN 616 the most common qualitative filter paper	0.16	22	70
MN616	medium speed filtration, smooth	most commonly used qualitative filter, e.g. for filtration of sulphides, lead chromate, calcium oxalate	0.20	22	85
MN618	medium speed filtration, smooth	thick filter paper, particularly suitable for filtration of large quantities of liquid; structure and thickness result in better retention than with MN 616, at virtually the same filtration speed	0.32	22	140
MN616md	medium to slow filtration, smooth	special filter for fast filtration of fine precipitates, such as magnesium ammonium phosphate, zinc sulphide, etc.	0.20	55	85
MN619	dense, slow filtration smooth	dense filters, for all fine and extremely fine precipitates	0.17	100	75
MN619eh			0.17	140	85
MN619de	very dense very slow filtration, smooth	slightly thicker and even denser than MN 619eh, suitable for the reliable filtration of the very finest precipitates, such as cold-precipitated barium sulphate	0.20	195	100

* In accordance with DIN 53 137, September 1967, filter circles, 11cm diameter

Laboratory Bench Top Paper

Polyethylene backed. Consists of an absorbent top layer of paper, backed with water-proof polyethylene.



Rowe Code	Width mm	Length mm	Std.Pack Size
FL1000	480	600	100

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Filtration - Filter Papers

Wet-strengthened (hardened) qualitative filter papers

Grade	Filtration properties	Application	Thickness mm	Filtration speed sec.	Basis weight g/m ²
MN1670	fast	fast speed filtration, smooth	0.13	9	85
MN1672	medium	medium speed filtration, smooth	0.13	35	85
MN1674	slow	slow speed filtration, smooth	0.13	110	85



Rowe Code for Macherey-Nagel Qualitative filter Papers - Box 100 circles

Diameter (cm)	MN617	MN615	MN616	MN618	MN616md	MN619	MN619eh	MN619de	MN1670	MN1672	MN1674
5.5	FF2147	FF1000									
7.0		FF1100									
9.0	FF2150	FF1150						FF2385	FF2359	FF2600	FF2541
11.0	FF2160	FF1200		FF2124	FF2397	FF2398	FF2399	FF2389		FF2650	
12.5	FF2220	FF1300						FF2390	FF3258	FF2700	FF2544
15.0	FF2227	FF1450		FF2139			FF2405			FF2750	
18.5	FF2228	FF1600	FF2100			FF2350				FF2800	
24.0		FF1700		FF2146					FF3680	FF2850	FF2545
27.0		FF1950									
32.0		FF2000								FF2900	FF2550
40.0		FF2020									
50.0		FF2030									



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Filtration - Filter Papers

Qualitative Filter Papers - Whatman



Grade 1

The most widely used filter paper in the Whatman range. Medium retention and flow rate. Extended range of circle sizes from 2 to 50cm diameter. Sheets and strips also available.

This grade covers a wide range of laboratory applications and is frequently used for clarifying liquids. Traditionally this grade is used in qualitative analytical separations for precipitates such as lead sulfate, calcium oxalate (hot) and calcium carbonate.

Rowe Code	Diameter cm	Std. Pack Size
FF1050	5.5	100
FF1110	7.0	100
FF1155	9.0	100
FF1205	11.0	100
FF1310	12.5	100
FF1550	15.0	100
FF1650	18.5	100
FF1710	24.0	100
FF1951	27.0	100

We also supply filter papers and other filtration products from:

- **Ekwip**
- **Gelman Pall**
- **Osmonics**
- **Postlip**
- **Millipore**
- **Sartorius**
- **Schleicher & Schuell**

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Filtration - Filter Papers

Quantitative analyses Filter Paper

For quantitative analysis, acid-washed, so-called ashless filter papers with a max. ignition residue of 0.01% are employed, particularly for gravimetric analyses that require a high level of purity.



All grades are packed in units of 100 circles, in dust-protected boxes.

Grade: Ashless	Grade: Ashless hardened	Colour code Properties	Application mm	Thickness speed sec.*	Filtration weight g/m ²	Basis
MN640we	MN1640we	grey box, very fast filtration, smooth	for precipitates which allow fast filtration, and for unstable precipitates which require fast filtration; e.g. fast analysis of Si	0.22	5	85
MN640w	MN1640w	grey box, fast filtration, smooth	soft, loosely-structured filters for coarse precipitates, e.g. iron and aluminium hydroxide, bismuth, copper and iron sulphides, nickel diacetyldioxime etc. standard filter for Si analysis	0.20	9	85
MN640m	MN1640m	white box, medium speed filtration, smooth	most commonly used acid-washed filters e.g. for filtration of sulphides, lead chromate, calcium oxalate	0.20	27	85
MN640md	MN1640md	yellow box, medium speed filtration, smooth	special filters for fast filtration of fine precipitates, such as magnesium ammonium phosphate, zinc sulphide, etc.	0.20	55	85
MN640dd	-	blue box, slow filtration, smooth	special thin filter papers with dense structure, relatively high filtration speed with good retention; filtration of fine precipitates, such as barium sulphate, lead sulphate, calcium oxalate	0.16	85	70
MN640d	MN1640d	green box, slow filtration, smooth	dense filters for all fine and extremely fine precipitates	0.17	140	85
MN640de	MN1640de	green box, very slow filtration, smooth	for all cases in which the above specified dense types are not sufficient, e.g. filtration of cold-precipitated barium sulphate or metastannic acid.	0.20	195	100

* In accordance with DIN 53 137, September 1967, filter circles, 11cm diameter

Rowe Codes for Macherey-Nagel Quantitative Filter Papers - Box 100 Circles

Diameter (cm)	MN640w	MN640m	MN640dd	MN640d	MN640de	MN1640w	MN1640m	MN1640d
9.0						FF3500	FF3245	FF3800
11.0				FF2521		FF3550	FF3250	
12.5	FF2500	FF2448	FF2680		FF2530	FF3600	FF3300	FF3850
15.0	FF2570		FF2685		FF2560	FF3650	FF3350	FF3900
18.5		FF2445			FF2575	FF3700	FF3400	FF3950
24.0			FF2695		FF2580	FF3750	FF3450	FF39521

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Filtration - Filter Papers - Glass



Glass Fibre Papers

Macherey-Nagel glass fibre papers are produced from 100% pure borosilicate glass, with or without organic acrylate binders. The glass fibres used have a diameter of between 0.4 and 1.8mm. The different grades are produced using either glass fibres of uniform thickness or mixtures of fibres of different diameters.

Binder free glass fibres show a very good wettability towards water, while the papers with organic binder show retarded water

wettability. The content of binder used in the latter is about 5%.

MN glass fibre papers are brilliant white in colour and reflect more than 96% of visible light. They are packed in boxes of 100 circles.

MN glass fibre filters with and without binder - Technical data and ordering information

Grade	Weight g/m ²	Thickness mm	Filtration Speed (Sec)		Binder	Retention ³⁾ um	max. temp. °C	Cat. No.
			water ¹⁾	air ²⁾				
MNGF-1	55	0.30	20	12	without	0.7	500	4110..
MNGF-2	140	0.65	40	30	without	0.5	500	4120..
MNGF-3	50	0.28	35	18	without	0.6	500	4130..
MNGF-4	120	0.60	8	5	without	1.4	500	4140..
MNGF-5	85	0.40	90	57	without	0.4	500	4150..
MNGF-6	70	0.35	18	12	without	0.6	500	4160..
MN85/70	70	0.35	17	12	organic	0.6	200	4030..
MN85/70BF	70	0.35	17	12	without	0.6	500	4040..
MN85/90	90	0.40	17	12	organic	0.5	200	4050..
MN85/90BF	90	0.40	17	12	without	0.5	500	4060..
MN85/220	220	1.0	20	14	organic	0.4	200	4070..
MN85/220 BF	220	1.0	20	14	without	0.4	500	4080..

- 1) In accordance with DIN 53 137, July, 1967, filter circle, 11cm diameter
- 2) According to Densometer 4110, Gurley type
- 3) The retention test uses a particle counter. Specified particle size values reflect 98% retention.

The catalogue number is obtained by replacing the two dots by the two figures specified for the desired diameter.

Example: glass fibre filter circle MN 85/90, 9cm diameter = Cat. No. 405 009

05 for 5.5 cm dia. 24 for 24.0 cm dia.
 07 for 7.0 cm dia. 27 for 27.0 cm dia.
 09 for 9.0cm dia. 32 for 32.0 cm dia.
 11 for 11.0cm dia. 38 for 38.5 cm dia.
 12 for 12.5cm dia. 40 for 40.0 cm dia.
 15 for 15.0 cm dia. 45 for 45.0 cm dia.
 18 for 18.5 cm dia. 50 for 50.0 cm dia.

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Filtration - Filter Papers - Glass

Glass Fibre Filters Whatman

Grade GF/C (1.2mm)

Slightly more retentive than GF/A and 934-AH. Combines fine particle retention with good flow rate. The standard filter in many parts of the world for the collection of suspended solids in potable water and natural and industrial wastes.

Fast and efficient clarification of aqueous liquids containing low to medium levels of fine particulates can be carried out in the laboratory. Used in cell harvesting and liquid scintillation counting techniques where more retentive medium loading capacity filters are required.

Rowe Code	Diameter cm	Std. Pack Size
FF4074	2.4	100
FF4075	2.5	100
FF4126	4.7	100
FF4145	5.5	100
FF4162	7.0	100
FF4603	9.0	100
FF4775	11.0	100
FF4645	12.5	100



Filter Aids - Filter Floccs

Filter Floccs are available as ashless grades or as standard grades. These filter floccs consist of pure cellulose fibres (cotton linters, pulp) in particularly finely dispersed form. They are best added to the filtration solution shortly before filtration. The required amount depends mainly on the quantity of precipitate to be filtered and is best determined empirically. In general 0.5g should be sufficient for a volume of 300ml.

Rowe Code	Description	Std. Pack Size
GF1150	MN101 filter floccs, standard cellulose, qualitative	500g
GF3020	MN2101 filter floccs, cellulose, acid-washed, (ashless) quantitative	500g

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Filtration - Filter Papers - Wet Strengthened

Postlip Filter Paper

Hollingsworth & Vose

Hollingsworth & Vose have been manufacturing filter paper for nearly three centuries. They utilise high quality materials and manufacture according to ISO9002.

Grade B w/s Wet Strength with a creped finish.

Postlip Grade B w/s filters have an exceptionally high wet strength and a creped finish. This allows greater flow rates and ability to stretch than non-creped filters and this makes them ideal for use in pressure filters.

Weight 90 gsm; Filtration Time (time to collect 100mL of water under a constant hydrostatic head): 72 seconds.

Rowe Code	Diameter cm	Std. Pack Size
FP1000	20.0	100
FP1040	25.0	100
FP1050	33.0	100
FP1010	63.5	100

Wet Strength Filter Paper

Ekwip

Ekwip filter media is made from selected high purity grades of wood pulp and cotton fibres in a pH neutral paper making process.

Grade 2H Wet strength with a crepe finish

Weight 92gsm, Thickness 0.3mm, speed 1300mL/min

Rowe Code	Diameter cm	Std. Pack Size
FP1030	24.0	2500
FP1035	25.5	2500
FP1045	30.5	1000
FP1048	32.0	1000
FP1049	33.0	1000
FP1060	35.0	1000
FP1070	40.5	1000

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Filtration - Filter Papers - Selection Chart

FILTER SPEED	QUALITATIVE	QUALITATIVE WET STRENGTHENED	ASHLESS	HARDENED	HARDENED ASHLESS	RETENTION
FAST	WH 4		WH 41	WH 54	WH 541	COARSE AND GELATINOUS PRECIPITATES
	MN 617		MN 640W	MN 1670	MN 1640W	
	SS 604		SS 598/1	SS 1573	SS 1505	
MEDIUM FAST	WH 1		WH 43			MEDIUM CRYSTALLINE
	MN 615		MN 640MF			
	SS 595		SS 589/4			
MEDIUM	WH 2	See POSTLIP Range	WH 40	WH 52	WH 540	CRYSTALLINE
	MN 616		MN 640M	MN 1672	MN 1640M	
	SS 597		SS 589/2	SS 1574	SS 1506	
SLOW	WH 5		WH 40	WH 50	WH 542	FINE CRYSTALLINE
	WH 6		WH 42			
	MN 619DE		MN 640DD	MN1674	MN 1640D	
	SS 601EH		MN 640D			
	SS 602EH		SS 590	SS 1575	SS 1507	
	SS 602H		SS 589/3			
ASH	WH 0.06%		WH 0.01%	WH 0.025%	WH 0.008%	
	MN 0.1%		MN <0.1%	MN <0.1%	MN <0.1%	

Whatman 3 - Similar to MN618 (Thick medium speed paper with high retention).

Code: **WH** = Whatman
MN = Macherey Nagel
SS = Schleicher & Schuell

PLEASE NOTE:

In this filter Paper Selection Table filter papers manufactured by Macherey Nagel and/or Schleicher Schuell are, for convenience only, described as being "similar to" the relevant Whatman number classification. In response to concerns raised by Whatman, we ask you to note that the reference to the Whatman number in respect of such filter papers does not imply that those products are manufactured by or originate from, or otherwise have the sponsorship or approval of, Whatman Plc (the manufacturer of Whatman brand filter papers)

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Filtration - Filter Papers - Metallurgy

Selection Chart - Wet Strength

FILTER SPEED	MODERATE	MODERATE TO HIGH	HIGH	PARTICLE RETENTION
FAST		MN 1670	POSTLIP H W/S	COARSE
		MN 1640W		
MEDIUM		MN 1672	POSTLIP B W/S	MEDIUM / CRYSTALLINE
		MN 1640M	EKWIP 2H	
SLOW	MN 619	MN 1674		CRYSTALLINE ("FINES')
	MN 619EH	MN 1640D		
	MN 619DE			

OTHER METALLURGY PRODUCTS :

Sizing sieves and sieve shakers under "S" of this catalogue.

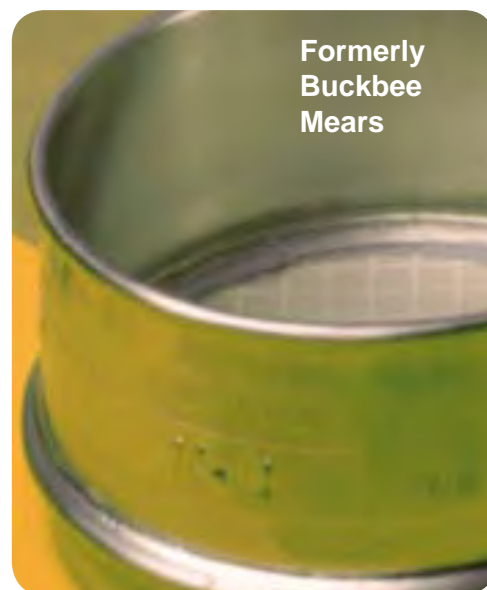
Endecotts sieves



Hardware



Electroformed Sieves



Formerly Buckbee Mears

Contact us ...




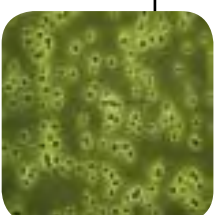



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Filtration - Membrane

Millipore Membrane Filters - Selection overview

	POLYMER	PROPERTIES
	Polyethersulfone (PES)	<ul style="list-style-type: none"> • Unique combination of speed and low protein binding • Binds significantly less protein than cellulosic or nylon filters • Minimizes loss of key proteins
	Polyvinylidene fluoride (PVDF)	<ul style="list-style-type: none"> • lowest protein binding membrane available • Recommended for filtration of high value biomolecules (e.g. monoclonal antibodies)
	Mixed Cellulose Esters (MCE)	<ul style="list-style-type: none"> • Most widely used membrane paper • General purpose filter
	Polycarbonate	<ul style="list-style-type: none"> • Smooth, glass-like surface for clear sample observation of particles using optical or electron microscopy • Clearing not necessary for most transmitted light microscopy
	Polytetrafluoroethylene (PTFE)	<ul style="list-style-type: none"> • PTFE has broad chemical compatibility • Available with a polyethylene backing (Fluoropore membrane)

Colours are for illustrative purposes only.

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Filtration - Membrane

Chromatography

Non-sterile,

low-extractable filters for fine particulate removal (0.2 or 0.22 µm pore sizes) or clarification prior to instrument analysis

Durapore (PVDF)

Mild organic solutions; ultra-low protein binding

Nylon

Aqueous or organic solutions

Millipore LCR (hydrophilic PTFE)

Aqueous or mild organic solutions

Fluoropore (hydrophobic PTFE)

Organic solvents

Millex-LCR filters are HPLC certified for low levels of UV-absorbing extractables. IC

Millex-LG filters are IC certified for low non-extractable levels.



4mm Diameter



13mm Diameter

Pore Size (µm)	Type	Process Volume	Hold-up Volume (after air purge)	Outlet Connection	Qty/Pk	Catalogue No.	Rowe Code
4 mm Diameter							
Durapore (PVDF) Membrane							
0.22	GV	1 mL	<10 µL		100	SLGV R04 NL	TBA
					1000	SLGV R04 NK	TBA
0.45	HV	1 mL	<10 µL		100	SLHV R04 NL	TBA
					1000	SLHV R04 NK	TBA
Nylon Membrane							
0.20	GN	1 mL	<10 µL		100	SLGN R04 NL	TBA
					1000	SLGN R04 NK	TBA
0.45	HN	1 mL	<10 µL		100	SLHN R04 NL	TBA
					1000	SLHN R04 NK	TBA
Millipore LCR (PTFE) Membrane							
0.20	LG	1 mL	<10 µL		100	SLLG R04 NL	TBA
					1000	SLLG R04 NK	TBA
0.45	LH	1 mL	<10 µL		100	SLLH R04 NL	TBA
					1000	SLLH R04 NK	TBA
Fluoropore (PTFE) Membrane							
0.20	FG	1 mL	<10 µL		100	SLFG R04 NL	TBA
					1000	SLFG R04 NK	TBA
0.45	FH	1 mL	<10 µL		100	SLFH R04 NL	TBA
					1000	SLFH R04 NK	TBA
13 mm Diameter							
Durapore (PVDF) Membrane							
0.22	GV	10 mL	<25 µL	Male Luer slip	100	SLGV 013 NL	TBA
				Male Luer slip	1000	SLGV 013 NK	TBA
				Tube outlet	100	SLGV T13 NL	TBA
0.45	HV	10 mL	<25 µL	Male Luer slip	100	SLHV 013 NL	TBA
				Male Luer slip	1000	SLHV 013 NK	TBA
				Tube outlet	100	SLHV T13 NL	TBA
Nylon Membrane							
0.20	GN	10 mL	<25 µL	Male Luer slip	100	SLGN 013 NL	TBA
				Male Luer slip	1000	SLGN 013 NK	TBA
				Tube outlet	100	SLGN T13 NL	TBA
0.45	HN	10 mL	<25 µL	Male Luer slip	100	SLHN 013 NL	TBA
				Male Luer slip	1000	SLHN 013 NK	TBA
				Tube outlet	100	SLHN T13 NL	TBA
IC Millex-LG Filters (Hydrophilic PTFE) Membrane							
0.2	IC Millex-LG	10 mL	<10 µL	Male Luer slip	100	SLLG C13 NL	TBA
Millipore LCR (Hydrophilic PTFE) Membrane							
0.45	LCR	10 mL	<25 µL	Male Luer slip	100	SLCR 013 NL	TBA
				Male Luer slip	1000	SLCR 013 NK	TBA
				Tube outlet	100	SLCR T13 NL	TBA
Fluoropore (Hydrophobic PTFE) Membrane							
0.20	FG	10 mL	<25 µL	Male Luer slip	100	SLFG 013 NL	TBA
				Male Luer slip	1000	SLFG 013 NK	TBA
				Tube outlet	100	SLFG T13 NL	TBA
0.45	FH	10 mL	<25 µL	Male Luer slip	100	SLFH 013 NL	TBA
				Male Luer slip	1000	SLFH 013 NK	TBA
				Tube outlet	100	SLFH T13 NL	TBA

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Filtration - Membrane

Pore Size (µm)	Type	Process Volume	Hold-up Volume (after air purge)	Outlet Connection	Qty/Pk	Catalogue No.	Rowe Code
25 mm							
Diameter Durapore (PVDF) Membrane							
0.45	HV	100 mL	<100 µL		50	SLHV 025 NS	TBA
					250	SLHV 025 NB	TBA
					1000	SLHV 025 NK	TBA
Nylon Membrane							
0.20	GN	100 mL	<100 µL		50	SLGN 025 NS	TBA
					250	SLGN 025 NB	TBA
					1000	SLGN 025 NK	TBA
0.45	HN	100 mL	<100 µL		50	SLHN 025 NS	TBA
					250	SLHN 025 NB	TBA
					1000	SLHN 025 NK	TBA
IC Millex-LG Filters (Hydrophilic PTFE) Membrane							
0.21	C Millex-LG	100 mL	<100 µL	Male Luer slip	50	SLLG C25 NS	TBA
Millipore LCR (Hydrophilic PTFE) Membrane							
0.45	LCR	100 mL	<100 µL		50	SLCR 025 NS	TBA
					250	SLCR 025 NB	TBA
					1000	SLCR 025 NK	TBA
Fluoropore (Hydrophobic PTFE) Membrane							
0.20	FG	100 mL	<100 µL		50	SLFG 025 NS	TBA
					250	SLFG 025 NB	TBA
					1000	SLFG 025 NK	TBA
0.45	FH	100 mL	<100 µL		50	SLFH 025 NS	TBA
					250	SLFH 025 NB	TBA
					1000	SLFH 025 NK	TBA

Chromatography



General Filtration

Pore Size (µm)	Type	Process Volume	Hold-up Volume (after air purge)	Qty/Pk	Catalogue No.	Rowe Code
25 mm						
Diameter Glass Fiber Filter						
Prefilter	AP	100 mL	<100 µL	50	SLAP 025 50	TBA
Durapore (PVDF) Membrane						
0.22	GV	100 mL	<100 µL	50	SE4M 122 I02	TBA
				250	SLGV 025 NB	TBA
				1000	MSP0 008 42	TBA
5.0	SV	100 mL	<100 µL	50	SE4M 121 I02	TBA
				250	SLSV 025 NB	TBA
				1000	SE 2M 747 H5	TBA
Mixed Cellulose Esters (MCE) Membrane						
0.22	GS	100 mL	<100 µL	250	SLGS 025 NB	TBA
0.45	HA	100 mL	<100 µL	250	SLHA 025 NB	TBA
				1000	SLHA 025 10	TBA
0.8	AA	100 mL	<100 µL	250	SLAA 025 NB	TBA
				1000	SLAA 025 NK	TBA

General Filtration

Non-sterile 25 mm filters with a variety of membranes for fine particulate removal (0.22 µm pore size) or clarification

Glass fiber Prefiltration

Durapore (PVDF)
Aqueous and mild organic solutions; ultra-low protein binding

Mixed cellulose esters (MCE)
Aqueous solutions

Millipore Express (PES)
Aqueous solutions; fast flow & low protein binding

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Filtration - Membrane

Sterile Filtration

Pre-sterilized filters for sterilizing (0.22 µm pore size or smaller) or clarifying biological solutions

Millipore Express™ (PES)

Fast flow & low protein binding

Durapore (PVDF)

Ultra-low protein binding

Mixed cellulose esters (MCE)

General purpose; binds trace proteins

Millipore LCR (hydrophilic PTFE)

Broad chemical compatibility



33mm Millex with Millipore Express



33mm Millex with Durapore Membrane



33mm Millex with MCE Membrane

Pore Size (µm)	Type	Process Volume	Hold-up Volume (after air purge)	Sterilization Method	Qty/ Pk	Catalogue No.	Rowe Code
4 mm Diameter							
Durapore (PVDF) Membrane							
0.22	GV	1 mL	< 10 µL	EO	100	SLGV 004 SL	TBA
0.45	HV	1 mL	< 10 µL	EO	100	SLHV 004 SL	TBA
13 mm Diameter							
Millipore LCR (Hydrophilic PTFE) Membrane							
0.20	LG	10 mL	< 25 µL	EO	100	SLLG 013 SL	TBA
Durapore (PVDF) Membrane							
0.22	GV	10 mL	< 25 µL	EO	100	SLGV 013 SL	TBA
0.45	HV	10 mL	< 25 µL	EO	100	SLHV 013 SL	TBA
25 mm Diameter							
Durapore (PVDF) Membrane							
0.1	VV	100 mL	< 100 µL	EO	50	SLVV 025 LS	TBA
				RS	50	SLVV R25 LS	TBA
0.22	GV	100 mL	< 100 µL	EO	50	SLGV 025 LS	TBA
				RS	50	SLGV R25 LS	TBA
				RS	250	SLGV R25 CS	TBA
				RS	1000	SLGV R25 KS	TBA
0.45	HV	100 mL	< 100 µL	EO	50	SLHV 025 LS	TBA
				RS	50	SLHV R25 LS	TBA
				RS	1000	SLHV R25 KS	TBA
5.0	SV	100 mL	< 100 µL	EO	50	SLSV 025 LS	TBA
				RS	50	SLSV R25 LS	TBA
Millipore LCR (Hydrophilic PTFE) Membrane							
0.20	LG	100 mL	< 100 µL	EO	50	SLLG 025 SS	TBA
33 mm Diameter (CE-marked)							
Millipore Express (PES) Membrane							
0.22	GP	200 mL	< 100 µL	RS	50	SLGP 033 RS	TBA
					250	SLGP 033 RB	TBA
Durapore (PVDF) Membrane							
0.1	VV	100 mL	< 100 µL	RS	50	SLVV 033 RS	TBA
					250	SLVV 033 RB	TBA
0.22	GV	100 mL	< 100 µL	RS	50	SLGV 033 RS	TBA
					250	SLGV 033 RB	TBA
0.45	HV	100 mL	< 100 µL	RS	50	SLHV 033 RS	TBA
					250	SLHV 033 RB	TBA
Mixed Cellulose Esters (MCE) Membrane							
0.22	GS	100 mL	< 100 µL	EO	50	SLGS 033 SS	TBA
					250	SLGS 033 SB	TBA
0.45	HA	100 mL	< 100 µL	EO	50	SLHA 033 SS	TBA
					250	SLHA 033 SB	TBA
0.8	AA	100 mL	< 100 µL	EO	50	SLAA 033 SS	TBA
					250	SLAA 033 SB	TBA
50 mm Diameter Millipore Express (PES) Membrane							
0.22	GP ₅₀	4000 mL	< 1 mL	RS	10	SLGP 050 10	TBA
0.22	GP ₅₀ with filling bell			RS	10	SLGP B50 10	TBA

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Filtration - Membrane

Pore Size (µm)	Type	Process Volume	Hold-up Volume (after air purge)	Qty/ Pk	Catalogue No.	Rowe Code
25 mm Diameter						
Durapore (PVDF) Membrane and Glass Fiber Prefilter						
Prefilter: 10.0 to 0.7 µm	HPF Millex-HV	100 mL	<100 µL	50	SLHV M25 NS	TBA
				1000	SLHV M25 NK	TBA
Membrane: 0.45 µm	Automation Certified	100 mL	<100 µL	200	SLHV MZ5 NZ	TBA
Nylon Membrane and Glass Fiber Prefilter						
Prefilter: 10.0 to 0.7 µm	HPF Millex-HN	100 mL	<100 µL	50	SLHN M25 NS	TBA
				1000	SLHN M25 NK	TBA
Membrane: 0.45 µm	Automation Certified	100 mL	<100 µL	200	SLHN MZ5 NZ	TBA

Graduated glass fiber prefilter (10.0 to 0.7 µm) and either nylon or Durapore (PVDF) final filter (0.45 µm) Nylon has broad chemical compatibility; Durapore (PVDF) is the lowest protein binding membrane available

Particulate (High) Filtration

HPF Millex filters include two media: a graduated prefilter and a membrane filter for high throughput filtration of particle-laden solutions



Pore Size (µm)	Type	Inlet Type	Outlet Type	Sterilization Method	Qty/ Pk	Catalogue No.	Rowe Code
25 mm Diameter							
0.20	FG	Female Luer-Lok	Male Luer slip	EO	50	SLFG 025 LS	TBA
		Female Luer-Lok	Male Luer slip	EO	50	SE2M 407 H0*	TBA
		Female Luer-Lok	Male Luer-Lok	EO	50	SLFG L25 BS	TBA
		Female Luer-Lok	Needle	EO	25	SLFG N25 VS	TBA
		Female Luer-Lok	Male Luer slip	Autoclavable	50	SLFG 025 50	TBA
50 mm Diameter							
0.20	FG ₅₀	Stepped hose barb (latex) with female Luer slip interior	Stepped hose barb (latex) with female Luer slip interior	Autoclavable	10	SLFG 050 10	TBA
					100	SLFG 050 00	TBA
		Stepped hose barb (silicone) with female Luer slip interior	1/8" NPTM	Autoclavable	10	SLFG 550 10	TBA
					100	SLFG 550 00	TBA
		Stepped hose barb (latex) with female Luerslip interior	1/8" NPTM	Autoclavable	10	SLFG 650 10	TBA
					100	SLFG 650 00	TBA
		1/8" NPTM	1/8" NPTM	Autoclavable	10	SLFG 750 10	TBA
					100	SLFG 750 00	TBA
		Stepped hose barb (silicone) with female Luer slip interior	Stepped hose barb (silicone) with female Luer slip interior	Autoclavable	10	SLFG 850 10	TBA
					100	SLFG 850 00	TBA
0.45	FH ₅₀	Stepped hose barb with female Luer slip interior	Stepped hose barb with female Luer slip interior	Autoclavable	10	SLFH 050 10	TBA
					100	SLFH 050 00	TBA
1.0	FA ₅₀	Stepped hose barb with female Luer slip interior	Stepped hose barb with female Luer slip interior	Autoclavable	10	SLFA 050 10	TBA
					100	SLFA 050 00	TBA

*Solvent resistant polyethylene housing

Vent/Gas Filters

Fluoropore (hydrophobic PTFE) membrane is an excellent moisture barrier and can be used for sterilizing (0.2 µm pore size) or clarifying gases or organic solutions

Millex filters are bi-directional, you don't have to worry about their orientation when using them in-line.



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Filtration - Membrane

Osmonics Laboratory Products



Osmonics Laboratory Products is a leading manufacturer of membranes and filtration devices, for tissue culture media preparation, HPLC sample preparation, transfer membranes and microbiological detection applications. Osmonics is the complete source for filters, filter devices, transfer membranes and specialised diagnostic membranes.

Filtration Membrane Selection Chart

Material	Name	Description	Pore Size (um)
Nitrocellulose	MicronSep	Unsupported Nitrocellulose	0.1, 0.22, 0.45, 0.65, 0.80, 1.2, 5.0, 8.0
Cellulose Acetate	AcetatePlus	Internally Supported Cellulose Acetate	0.22, 0.45, 0.65, 0.80, 1.2, 5.0
Nylon	Magna	Internally Supported Nylon	0.1, 0.22, 0.45, 0.65, 0.8, 1.2, 5.0, 10.0, 20.0
Teflon	TefSep	PTFE Laminated onto a Polypropylene Support	0.22, 0.45, 1.0
	TefSep	Pure PTFE (no support)	0.22, 0.45, 1.0, 5.0, 10.0
Polycarbonate	Poretics	Polycarbonate	0.01, 0.03, 0.05, 0.08, 0.1, 0.2, 0.4, 0.6, 0.8, 1.0, 2.0, 3.0, 5.0, 8.0, 10.0, 12.0, 14.0, 20.0
Polyethersulphone	Micron-PES	Polyethersulfone	0.22, 0.45, 0.65, 0.8, 1.2, 5.0
	UltraSep	Polyethersulfone for Ultrafiltration	10,000, 30,000 and 100,000 Molecular Weight Cut-offs
Glass Fibers	PreSep	Glass Fiber Prefilters	0.5, 1.0
Polypropylene	PreSep	Polypropylene Prefilters	0.22, 0.45, 0.8, 1.2
	PolySep	Polypropylene Filter	0.1, 0.22, 0.45

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Filtration - Membrane

Features	Applications
<ul style="list-style-type: none"> • Consistent Flow Rates • High Throughputs • Uniform Pore Structure • Hydrophilic 	<ul style="list-style-type: none"> • Aqueous Filtration • Microbiological Analysis • Sterility Testing • Gravimetric Analysis With Ashing Technique • Particulate Analysis • Tissue Culture Media Sterilization • Protein and Enzyme Filtration, Sterilization • Biological Fluid Filtration, Sterilization
<ul style="list-style-type: none"> • Lowest Binding Material Available • Highest Throughput • Strength and Dimension Stability • Uniform Pore Structure • Hydrophilic 	
<ul style="list-style-type: none"> • Naturally Hydrophilic • Wide Chemical Compatibility Range • Extremely Low Extractables • Strength and Dimensional Stability 	<ul style="list-style-type: none"> • Sterilization, Clarification of Aqueous and Organic Solvent Solutions • HPLC Sample Preparation
<ul style="list-style-type: none"> • Naturally Hydrophobic • Compatible with Strong Acids and Aggressive Solvents • Improved Durability and Handling 	<ul style="list-style-type: none"> • Filtration of Strong Acids and Aggressive Solvents • Venting Applications
<ul style="list-style-type: none"> • Compatible with High Temperatures • Chemically and Biologically Inert 	<ul style="list-style-type: none"> • Filtration of High Temperature Acids and Solvents
<ul style="list-style-type: none"> • Smooth Flat Surface • Precisely Controlled Cylindrical Pores • Narrow Pore Size Distribution • Transparent 	<ul style="list-style-type: none"> • Chemotaxis • Accurate Separation of Samples by Size • Epifluorescence • Cellbiology Microscopy • Cytology • Tissue Culture Media Sterilization • Protein and Enzyme Filtration, Sterilization • Biological Fluid Filtration, Sterilization
<ul style="list-style-type: none"> • Low Protein Binding • Low Extractables • Autoclavable • Wide Chemical Compatibility range • Strength and Dimensional Stability 	
<ul style="list-style-type: none"> • High Flow Rates • Excellent Sample Recovery • Controlled Pore Structures 	<ul style="list-style-type: none"> • Purify and Concentrate Proteins, Enzymes, Nucleic Acids and Antibodies • Desalt
<ul style="list-style-type: none"> • Biologically Inert • Available With or Without Acrylic Binders • High Dirt Holding Capacity 	<ul style="list-style-type: none"> • Gravimetric Analysis • Prefilter to Extend Final Filter Life • Clarification of Particulate Laden Solutions
<ul style="list-style-type: none"> • Chemically and Biologically Inert • More Defined Pore Size and Greater Retention efficiency than Glass Prefilters • Low Fibre Release • Wide Chemical Compatibility Range • Extremely Low Extractables 	<ul style="list-style-type: none"> • Prefilter to Extend Final Filter Life • Final Filter to Noncritical Filtrations • Prefiltering Solvents and Acids
	<ul style="list-style-type: none"> • Sterilization, Clarification of Organic Solvent Solutions • HPLC Sample Preparation

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Filtration - Membrane

Membrane Filters, Nitrocellulose



MicronSep nitrocellulose filters are composed of inert cellulose nitrate and cellulose acetate polymers. The uniform microporous structure of these filters provide the fastest flow rates and highest throughputs available in a membrane filter. Because they are biologically inert, MicronSep filters are ideal for a wide range of clarification, sterilization, and analytical applications such as: microbiological analysis, clarification or sterilization of aqueous solutions, industrial hygiene applications and particulate-matter analysis.

Osmonics

Rowe Code	Diameter mm	Pore Size um	Surface	Sterile	Std. Pack Size
FF4169	25	0.45	Plain	No	100
FF41701	25	0.80	Plain	No	100
FF4274	47	0.22	Plain	Yes	100
FF4220	47	0.45	Plain	No	100
FF5110	47	0.45	Grid	Yes	100
FF4235	47	0.45	Grid	No	100
FF4405	47	0.65	Plain	No	100
FF4505	47	0.80	Plain	No	100
FF4295	47	1.2	Plain	No	100
FF4299	47	3.0	Plain	No	100
FF4296	47	5.0	Plain	No	100

Syringe Filters, Cameo



Osmonics

Cameo Syringe Filters are available in a variety of filter and housing types.

These are set out in the chart on the following page.

The choice of housing types include:

- Polypropylene
- Acrylic
- Nylon

The choice of filter types includes:

- Polypropylene
- Glass Fibre/Polypropylene
- Glass Fibre
- Glass Fibre/Acetate
- Acetate
- Nylon
- Glass Fibre/Nylon
- Nitrocellulose
- Teflon
- Glass/Teflon
- Polyethersulfone(PES)
- Glass Fibre/PES
- Polycarbonate

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Filtration - Membrane

Membrane	Housing (1)			Diameter (2)				Sterile (3)
	PP	Acrylic	Nylon	3	13	25	50	Available
Acetate	N	Y	Y	Y	Y	Y	N	Y
Glass/Acetate	N	Y	N	N	N	Y	Y	Y
PES	N	Y	N	N	Y	Y	N	Y
Glass/PES	N	Y	N	N	N	Y	N	Y
Glass	N	Y	N	N	N	Y	N	N
Nitrocellulose	N	Y	N	N	N	Y	N	Y
Nylon	Y	Y	Y	Y	Y	Y	Y	Y
Glass/Nylon	Y	N	N	N	N	Y	N	N
PTFE	Y	N	N	N	Y	Y	Y	N
Glass PTFE	Y	N	N	N	N	Y	N	N
Polypropylene	Y	N	N	N	Y	Y	N	N
Glass/PP	Y	N	N	N	N	Y	N	N
Polycarbonate	Y	N	N	N	N	N	Y	N

- 1) Nylon housing in 3mm diameters only
- 2) 30mm Diameter coming soon
- 3) All sterile syringe filters have acrylic housing

In-Line Filter, 50mm Teflon

Osmonics

The Cameo 50F filter is a 50mm in-line filter designed to sterilize and clarify most aggressive solvents, acid and base samples up to 2 litres. This unit can also be used as an air vent or in-line moisture barrier to protect instruments and culture vessels.

The membrane filter in the Cameo 50F filter is our naturally hydrophobic PTFE which is autoclavable and will not release any extractables into the sample.

The housing is manufactured of pure polypropylene which is autoclavable. The inlet/outlet connections are stepped hose barbs of 3/8 inch to 1/4 inch with an internal female luer taper.

Rowe Code	Diameter mm	Pore Size mm	Std. Pack Size
PF1138	50	0.22	10

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Filtration - Accessories

Vacuum Filtration Unit - Osmonics

AcetatePlus VP filtration units are the only **disposable vacuum filtration devices** which feature AcetatePlus, a supported cellulose acetate filter. An integral nonwoven support within the cellulose acetate filter provides unequalled dimensional and wet strength to completely eliminate filter cracking and tearing while under pressure. Units with PES membranes are also available.

Osmonics' AcetatePlus filters combine fast flow rates and high throughputs with extremely low protein/nucleic acid-binding characteristics. Due to the negligible protein binding and consistent throughputs, these units are ideal for sterilization and clarification of tissue culture media, biological fluids, serum, protein and enzyme solutions, as well as other aqueous samples.

Rowe Code	Capacity mL	Disc mm	Pore Size μm	Std. Pack Size
FF6800	500	90	0.45	12



Glass Filter Holder - Kimble

The 47mm glass filter holder is designed for vacuum filtration of aqueous and solvent solutions (<500mL) or for analysis of particulate or microbiological contamination.

These holders have a sintered glass base, recommended for general filtration. Maximum volume 320mL.

Rowe Code	Description
GF1154	Glass filter holder assembly with sintered glass support

Funnels are also available to hold 13mm and 25mm diameter filters.

Methods of filtration

There are many different methods of filtration; all aim to attain the separation of two or more substances. This is achieved by some form of interaction between the substance or objects to be removed and the filter. In addition the substance that is to pass through the filter must be a fluid, i.e. a liquid or gas.

The simplest method of filtration is to pass a solution of a solid and fluid through a porous interface so that the solid is trapped, while the fluid passes through. This principle relies upon the size difference between the particles making up the fluid, and the particles making up the solid. In the laboratory, a Büchner funnel is often used, with a filter paper serving as the porous barrier.

For example an experiment to prove the existence of microscopic organisms involves the comparison of water passed through unglazed porcelain and unfiltered water. When left in sealed containers the filtrated water takes longer to go foul, showing that very small items (such as bacteria) can be removed from fluids by filtration.

A further disadvantage with the physical barrier method of filtration is that the substance being filtered from the fluid will clog the channels through the filter over time. Thus the filter becomes less and less efficient over time (for example, a vacuum cleaner bag). Thus methods have been developed to prevent this from happening. Most such methods involve replacing the filter. However, if the filter is needed for a continuous process, this is highly problematic, and complex scraping and in-situ cleaning mechanisms have to be used.

For separation where there is a very small size difference, chemical filters may be used. These will use a filter that has properties so that undesirable items are attracted and retained by the filter, and the fluid from which it is to be separated is not. Filters of this kind most often take the form of electrostatic attractions. These form of filters again have the problem of either becoming clogged, or the active sites on the filter all become used by the undesirable. However, most chemical filters are designed so that the filter can be flushed with a chemical that will remove the undesirables and allow the filter to be re-used.

Filtration is a more efficient method for the separation of mixtures than decantation, but is much more time consuming. If very small amounts of solution are involved, most of the solution may be soaked up by the filter medium.

Microfiltration is a filtration process which removes contaminants from a fluid or gas by passage through a microporous membrane. A typical microfiltration membrane pore size range is 0.1 to 10 μm . Microfiltration is not fundamentally different from reverse osmosis, ultrafiltration or nanofiltration, except in terms of the size of the molecules it retains.

Developed by Professor Sigmondy [University of Goettingen, Germany] in 1935, membrane filters were first commercially produced by Sartorius GmbH a few years later. Membrane filters found immediate application in the field of microbiology and in particular in assessment of safe drinking water. Further development of microfilters in the mid 1970's led by the FDA's requirement for non-fibre releasing filters to be used in the production of injectable solutions. Microporous membranes are used by the micro-electronics industry as an integral part of wafer production. Membrane filters are widely used in biotechnology and food and beverage applications where sterile product is required.

Increasingly used in drinking water treatment, it effectively removes major pathogens and contaminants such as Giardia lamblia cysts, Cryptosporidium oocysts, and large bacteria.

Microfiltration membranes were first introduced to the municipal water treatment market in 1987 and applied primarily to waters that were relatively easy to treat. These were cold, clear source waters that were susceptible to microbial contamination. Low pressure membranes were selected to remove turbidity spikes and pathogens without chemical conditioning. As low pressure membranes increased in acceptance and popularity, users began to apply the technology to more difficult waters which contained more solids and higher levels of dissolved organics. Some of these waters required chemical pretreatment, including pre-chlorination. These shifts in water quality triggered change in low pressure membrane technology. New products and processes were introduced to deal with higher solids and chemical compatibility.

Fire Assay

Fire assaying is the quantitative determination in which a metal or metals are separated from impurities by fusion processes and weighed in order to determine the amount present in the original sample.

Metals recovered in fire assaying are the metals that emerge from the fusion of the material in a assay furnace, for gold, usually at temperatures of about 2,000 Degrees F. The Fire Assay Method is centuries old, but it is still one of the most reliable methods for performing assays (to determine the metal content of a ore) of ores that contain precious (noble) metals - Gold, Silver and Platinum. Ore from the mine, or exploration sampling program is scientifically sampled using a statistically accurate method fitting the desired accuracy, it is then prepared by crushing, splitting and pulverizing. This is a process referred to as sample preparation.

For fire assaying ores, usually fluxes, materials such as borax, soda, silica are added to the ore. The amounts of each chemical added to the flux mixture depends upon the elements present in the particular ore, such as sulfur and iron. Usually lead, in the form of Litharge, is also added. The Fluxes (Except for the Lead, which is added for oxidization and sodium carbonate, which is added for de-sulfurization), are added for the purpose of lowering the melting point and imparting a homogeneous fluidity to the melted oxide impurities. The most common oxide impurities are silica, lime, and various metal oxides such as iron, copper, zinc, etc..

The ore samples with the fluxes are then added to a crucible, placed in a Assay Furnace, which has been pre-heated to 2,000 deg F, and left

for a predetermined time, to melt or "fuse" the contents of the crucible. Then, the crucibles are removed from the assay furnace, the molten slag is carefully poured from the crucible, into a cast iron or graphite mold, such as cone shaped molds, and allowed to cool. The lead, containing the gold, being the heaviest material in the slag will be on the very bottom. When the slag cools, the hardened slag is removed from the mold and tapped with a button hammer to break away the lighter material, leaving only the lead button. The lead button is placed in a clay crucible called a Cupel. The cupel is designed to absorb the lead when heated to the melting point, and they are rated in the grams of lead they will absorb. So, the cupel's with the lead buttons are again placed in a Assay or Cupellation furnace, heated to about 2,000 deg F and the lead is absorbed into the cupel, leaving only a tiny gold bead. The cupels are removed from the furnace, allowed to cool and the gold bead is weighed.

The most common unit of fire assay samples is called the Assay Ton, which is 29.166 grams of ore. A milligram (0.001) gram of gold in a sample weighing 29.166 grams gives an assay equivalent to 1 troy ounce of gold in a ton (2,000 pound) of ore. A troy ounce is 1.097 ounces. Since mining companies need to know the content of salable material in their ore in usable numbers, such as ounces of gold per ton of ore, this makes conversion and reporting easy. So, the gold bead will usually weigh much less than 0.001 grams, more like 0.0001 grams.

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Fire Assay

Chemicals for Gold Fire Assay



Rowe Code	Description	Std. Pack Size
CB2350	Borax, Anhydrous (Dehybor)	25kg
CF1350	Flour (Plain)	25kg
YF1000	Flux Type 104 (in 15kg bags)	1000kg
YF1010	Flux Type 104 (in 4 x 250kg drums)	1000kg
CG2010	Gold Wire (99.99%) 1.0mm diameter	g
CG1200	Gold 1000 ppm Standard Solution	500mL
CL1573	Lead Foil 0.16mm thick, 65mm wide	500g
CL1576	Lead Foil 0.16mm thick, 80mm wide	500g
CL1577	Lead Foil 0.16mm thick, 80mm wide	5kg
CL1560	Lead Foil 0.18mm thick, 100mm wide	500g
CL1565	Lead Foil 0.18mm thick, 100mm wide	5kg
CL2110	Litharge for fire assay, in drum	25kg
CP4451	Potassium Nitrate	25kg
CS7700	Silicon Flour (200 mesh)	25kg
CS8255	Silver Nitrate AR	25g
CS8250	Silver Nitrate AR	100g
CS8350	Silver Nitrate AR	250g
CS8400	Silver Nitrate AR	500g
CS7940	Silver Wire 0.35mm Diameter, Gold Free	g
CS7959	Silver Wire 1.0mm Diameter, Gold Free	g
CS7000	Sodium Carbonate (Dense Soda Ash)	25kg

Consumables

Rowe Code	Description	Size	Std. Pack Size
YC1005	Crucible DFC Multitrip	50g	1440
YC1460	Cupel, Mabor	6A	300
YC1465	Cupel, Mabor	7A	300
YC1010	Cocktail Shaker Fibreglass		ea
YC1250	Cupel Tray 350x180x8mm		ea
YC1251	Cupel Tray 350x210x5mm		ea
YC1300	Cupel Tray 350x210x6mm		ea
YC1320	Cupel Tray 360x180x6mm		ea
YC1350	Cupel Tray 370x180x8mm		ea
YT1200	Cupel Tray Stand 240x230x105mm		ea
AC1035	Crucible (pots) 65g T105mmD X 165mmH clay		



Tongs



Rowe Code	Description	Length mm	Std. Pack Size
YT1050	Tongs for Lead Button	950	ea
YT1165	Tongs for crucibles	900	ea

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Fire Assay

Muffle Furnace - 1150C

SEM

SEM Muffle Furnaces are available in two sizes, 100 series and 200 series. Both sizes can be supplied with either a sliding or cantilever type door. The quick action sliding door can be held in any position and is ideal for ashing or similar operations. A cantilever door has an outward and upward swing with a counter-balanced handle.

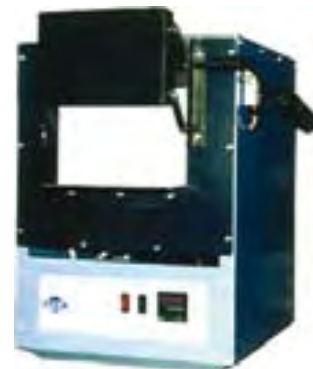
The furnaces are strongly constructed of zinc coated steel powder coated Wedgewood blue with HI Temp black front face and door. The muffle is strongly supported by a refractory mould at the front and insulating bricks at the back. It is insulated with top grade Kaowool ceramic fibre blanket.

The steel cover around the baffle is surrounded by an air cavity and by gravity convection draws heat away from the bottom and out through the top reducing the wall temperature of the outer body. An air gap at the front and louvres on the back panel allow adequate air flow to ensure a cool instrument panel. All cantilever door furnaces are fitted with a door switch for safety.

Kanthal A1 Element is controlled by a microprocessor based PID Controller complete with Auto Tune function and sensor compensation for accurate temperature control.

Options:

- 7 day or 24 hour Timer
- Programmable Controller (up to 81 steps)
- Ramp Function
- Overtemp Cutout (complete with Alarm Indicator)
- Monitory Overheat Cutout (separate Controller & Thermo Couple)



Rowe Code	Model	Power Rating	Dimensions						
			Internal mm			External mm			Weight kg
		W	D	W	H	D	W	H	
IF1570	102C	2200	250	160	90	456	468	560	50
IF1580	102S	2200	250	160	90	456	468	560	50
IF1560	202C	4500	435	230	150	608	546	630	70

C = Cantilever S = Sliding Door

Furnace Accessories

Rowe Code	Description	Std. Pack Size
YC1055	Mould, 5 place	ea
YF1305	Furnace Tile 600x600x25mm	ea
IF1561	Muffle Chamber to suit EMF-C	ea
YF1310	Furnace Tile 460x250x15mm	ea
YS1000	Scorifier, Clay 76mm Diameter	ea
YS1050	Scorifier, Clay 76mm Diameter	ea

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Fire Assay - Furnace

Cupellation Furnace Model EMF-C

- uses a No. 4 Muffle
- takes 50 x Cupels at a time
- easy to maintain and operate

Rowe Code: IF1565



Fusion Furnace Model 50PF

- takes 50 x 50 & 65gm, or 84 x 30, 40, & 55gm crucibles at one time
- easy to maintain and operate
- compatible with "Multi-pour" loading/unloading system

Rowe Code TBA



Trays, racks and multi-pour systems available on request.

All spare parts for furnaces are available upon request.

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Flasks

Boiling - Flat Bottom - narrow neck with rim.

Schott



Rowe Code	Capacity mL	Std. Pack Size
GF1345	100	10
GF1365	500	10
GF1435	2000	10
GF1440	3000	1

Boiling - Round Bottom - narrow neck with rim.

Schott

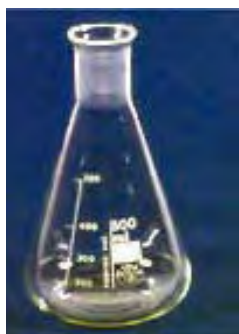


Rowe Code	Capacity mL	Std. Pack Size
GF14192	1000	10
GF14194	2000	10
GF1390	5000	1

Erlenmeyer - Narrow Neck

TGI

Borosilicate glass, graduated with rim



Rowe Code	Capacity mL	Neck ID mm	Base OD mm	Height mm	Std. Pack Size
GF1720	100	22	64	105	10
GF1825	200	34	79	131	10
GF1925	250	34	85	140	10
GF1985	300	34	87	156	10
GF2055	500	34	105	175	10
GF2135	1000	42	131	220	10
GF2220	2000	50	166	280	6
GF2425	5000	50	270	365	2

Erlenmeyer - Polypropylene

Kartell

For general laboratory use. Autoclavable.



Rowe Code	Capacity mL	Graduations mL	Neck NS	Std. Pack Size
PF1430	125	25	14/23	ea
PE1020	250	25	19/26	ea
PF1460	500	50	24/29	ea
PF1480	2000	100	34/35	ea

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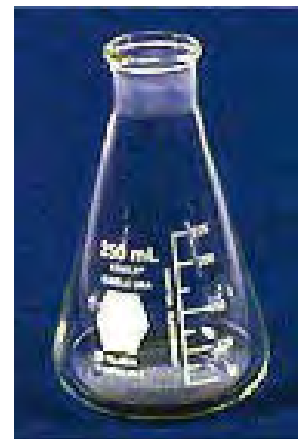
Flasks

Erlenmeyer - Narrow Neck

Kimax

Borosilicate glass, graduated with reinforced beaded rim.

Rowe Code	Capacity mL	Base OD mm	Height mm	Std. Pack Size
GF1550	25	39	65	12
GF1650	50	50	78	12
GF1750	125	66	108	12
GF1900	250	81	130	12
GF1970	300	88	140	12
GF2100	500	102	174	6
GF2200	1000	128	213	6
GF2300	2000	161	275	4
GF2400	4000	208	355	1
GF2420	6000	235	393	1

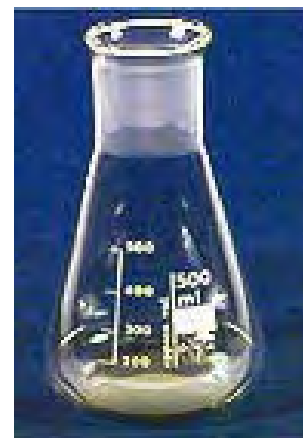


Erlenmeyer - Wide Neck

TGI

Borosilicate glass, graduated with rim

Rowe Code	Capacity mL	Neck ID mm	Base OD mm	Height	Std. Pack Size
GF1600	50	34	51	85	10
GF2675	100	34	64	105	10
GF2815	250	50	85	135	10
GF2865	300	50	87	156	10
GF2905	500	50	105	170	10
GF2170	1000	50	131	220	10
GF2230	2000	72	153	280	6



Erlenmeyer - Wide Neck

Kimax

Borosilicate Glass, graduated with tooled top finish

Rowe Code	Capacity mL	Base OD mm	Height mm	Std. Pack Size
GF2651	125	66	108	12
GF2800	250	77	130	12
GF2950	500	97	172	6
GF2955	1000	122	216	6
GF2990	2000	161	265	4



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Flasks



Filter (Buchner)

TGI

With tube connection. Borosilicate glass

Rowe Code	Capacity mL	Std. Pack Size
GF3265	500	ea
GF3345	1000	ea



Filter

Schott

Borosilicate Glass, Heavy wall, graduated with tube connection

Rowe Code	Capacity mL	Base OD mm	Height mm	Std. Pack Size
GF3105	100	65	100	10
GF3152	250	85	155	10
GF3260	500	105	185	10
GF3351	1000	135	230	10
GF3502	2000	166	265	1



Filter

Nalgene

Polypropylene. Moulded in one piece to withstand vacuum to 30in. Hg. Autoclavable. Tubulation at 45° angle prevents tipping.

Rowe Code	Capacity mL	Fits Tubing I.D.mm	Std. Pack Size
PF2203	500	6.4-9.5	ea
PF2205	1000	6.4-9.5	ea
PF2215	1700	9.5	ea



Kjeldahl

Rowe Code	Capacity mL	Joint Size	Std. Pack Size
GQ3165	250	24/29	ea
GQ3500	500	24/29	ea

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Flask - Volumetric

Volumetric

Witeg

Borosilicate glass, Class A accuracy. Blue graduation. With polypropylene stopper.

Rowe Code	Capacity mL	Joint Size	Std. Pack Size
GF3660	5	10/19	ea
GF9020	10	10/19	ea
GF9002	20	10/19	ea
GF9003	25	10/19	ea
GF9004	50	12/21	ea
GF9006	100	12/21	ea
GF9005	200	14/23	ea
GF9007	250	14/23	ea
GF9008	500	19/26	ea
GF9009	1000	24/29	ea
GF9011	2000	29/32	ea
GF9002	5000	34/35	ea



Volumetric - Kohlrausch Pattern

Class A precision. Blue Graduation

Rowe Code	Capacity mL	Std. Pack Size
GF3621	100	ea



Volumetric - Polypropylene

Kartell

These flasks create no meniscus so final readings are easy. Calibrated gravimetrically at 20°C to Class B standards. Translucency of polypropylene enhanced when in contact with liquids. Thick walls eliminate distortion.

Thin necks make final reading precise. Autoclavable. Chemically non-absorbant. No wetting. Stoppers included.

Rowe Code	Capacity mL	OD mm	Neck Size	Std. Pack Size
PV1708	25	36	12/21	ea
PV1710	50	46	14/23	ea
PV1712	100	58	14/23	ea
PV1714	250	82	19/26	ea
PV1716	500	100	19/26	ea
PV1750	1000	120	19/26	ea



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Flocculators (Leaching testing)

VELP
SCIENTIFICA



JLT6 Rowe Code IF1170



JLT4 Rowe Code IF1155



Rowe Code TBA



Rowe Code TBA

Models JLT4 and JLT6 are microprocessor controlled and combine simplicity of use with ergonomic design and reproducibility of operations. The front control panel is slightly bent for easier setting and visualization of set parameters.

The rotation speed, settable from 10 to 300 rpm with a resolution of 1 rpm, is kept constant by continuous alignment to the set value.

The residual stirring time can be displayed on two different scales: hours or minutes.

The equipment can be used for two different analytical procedures:

- 1) Jar Test for the optimization of coagulants addition to flocculate suspended matter in water treatment plants.
- 2) Leaching Test for heavy metals, by diluted acetic acid or carbon dioxide saturated water, on solid wastes to be sent to dump.

About Jar Testing

In primary and waste waters treatments, the choice and dosage of chemical coagulants aimed at removing suspended matter and pollutants are derived from the results of laboratory evaluations by the so called jar test.

Multiple stirrers, with reproducible speed, allow simulation of standard testing conditions, an essential requirement for reliable results. Considering the water's variability, the test must be repeated with a frequency tied to specific situations.

The FC4S and FC6S flocculators have a metal structure coated with epoxy paint specially formulated to make the instruments highly resistant to chemical and mechanical aggression, and corrosion in general. The sample being examined can be backlit using a special switch found on the front panel so that reading is easier.

The stainless steel stirring shafts are adjustable in height and are equipped with a self-locking device with clutch.

Motion is transmitted by six direct current gear motors that make it possible to achieve optimum performance and reproducibility, even at low speeds. FC4S and FC6S let you pre-select 9 different speeds for each stirring point using the relative selectors located on the front panel (10 – 15 – 30 – 45 – 60 – 90 – 120 – 150 – 200 rpm).

The FP4 (4-position) portable flocculator was developed for optimum use in the field. It operates with 230 V mains power supply or with 12 DC by connecting it to a normal battery or a car's cigarette lighter. FP4 features a non-skid base so the beakers are kept stable during operation.

It is particularly suitable for Jar Tests for optimizing the dosing of coagulants and polyelectrolytes in proximity of water treatment plants.

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Flow Indicators

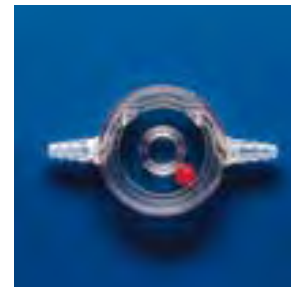
Flow Indicator, Ball

Kartell

Material SAN (Styrene - acrylonitrile)

For liquid flow from 50 ml/min. in horizontal position, and 140 ml/min. in vertical position. Minimum air flow 3 litres/min. horizontal and 8 litres/min. vertical. Speed of rotation of ball proportional to flow. Not to be used with corrosive fluids or over 50°C.

Rowe Code	Length mm	Diameter mm	Thickness mm	Connections OD mm	Std. Pack Size
PF1300	102	57	14	6.5-10	ea



Flow Indicator, Paddle Wheel

Kartell

Material SAN (Styrene - acrylonitrile)

For liquid flows down to 5 ml/sec. Wheel spins freely and speed of rotation is proportional to flow rate. Maximum recommended flow rate up to 95 ml/sec. Max 2 bar pressure. Not to be used with corrosive fluids or over 85°C. Can be used with gases.

Rowe Code	Length mm	Diameter mm	Thickness mm	Connections OD mm	Std. Pack Size
PF1310	90	40	15	6-11	ea



Flowmeters

Halu "Triple Guided", variable area flowmeters are specifically designed to indicate the flowrate of liquids and gases in the low flow range. They are suited to a variety of uses in the laboratory, pilot plant and many industrial installations.

- Flowmeter tube has 3 "flats" running parallel to the axis of the tube to guide the ball float in a concentric position at all times.
- 3 diameter tubes, each with 2 tapers available, with 3 types of ball floats, (ruby, stainless steel & tungsten carbide) gives 18 variations of flow range.
 - 1.8 to 1030 cc/min H₂O
 - 120 to 33000 cc/min Air
- 6 different flowmeter types, with a variety of connections allows correct arrangement for the required usage.
 - Hose
 - Cone & Socket
 - Ball Joints
 - Needle valve inlet
 - Benchtype with stopcock
 - Benchtype with interchangeable tubes

Flowmeter for Connecting to hose

Rowe Code	Tube Size inches	Max Flow Rate cc/min H ₂ O	Max Flow Rate cc/min Air	Ballfloat
IF1200	1/8	36	1420	Ruby
IF1210	1/16	1.35	90	Ruby
IF1220	1/8	110	3660	Stainless Steel
IF1230	1/4	250	9600	Ruby



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Food Analysis - Dietary Fibre



Food and Feed represent all the substances which, introduced in living organisms, supply the energy and the structural components required for growth and preservation of vital functions.

Food and Feed are to be characterized by their composition in terms of proteins, carbohydrates and fat for their nutritional content, also according to law requirements.

Equipment manufactured by VELP Scientifica, with their remarkable innovative content, give a substantial help to specialists of food and feed analysis both for production and research.

Filtration Equipment CSF 6VELP



Dietary fibre includes cellulose, hemicelluloses, lignin, pectins, gums and waxes. For its determination by thermostable enzymes, the American Association of Official Analytical Chemists proposes method 985.29 (AOAC Official Methods of Analysis).

VELP Scientifica developed this 6 place equipment that makes easier and faster the critical filtration step increasing also reproducibility in the analysis of bran, meal, fodder, cereals, etc.

Rowe Code TBA

Enzymatic Digester GDEVELP



Enzymatic methods reproduce better than chemical methods the natural phenomena occurring during digestion in man and animals. The undigestible residue determined by chemical methods is defined as "raw fibre", the residue obtained by enzymatic methods is defined as "dietary fiber" (soluble, insoluble and total).

Rowe Code TBA

See the entire VELP line-up of products UNDER "Velp"

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Food Analysis - Microbial Rapid Enumeration

interscience

The rapid enumeration of developing microbial colonies is easier, safer and more economical with the Spiral System®. It is a method of rapid bacterial enumeration avoiding serial dilutions and makes an ideal complement for the BagSystem® line.

The Spiral System® enables rapid enumeration of bacterial concentrations ranging from several colonies up to 500,000 or more colonies per milliliter without dilution, as in food microbiology, for example, the number of germs to be counted can vary considerably from one sample to another. The Spiral Plater fitted with a calibrated micro-syringe dispenses, via a stylus, the liquid sample on the surface of the agar in a Petri dish, itself placed on a rotating table. The stylus moves from the centre to the outside of the plate and thus dispenses in the form of an Archimedes spiral a calibrated and regularly decreasing volume of sample (50 microliters). The volume dispensed is always identical and known at all points of the plate.

After incubation, colony counting is quick and easy, either manually, using the dedicated counting grid, or with an automatic colony counter.

GRAVIMAT® gravimetric diluter

The Gravimat® automatically dilutes random-weight samples in seconds. The design provides the user with an ergonomically developed system ensuring a comfortable working position. To operate the Gravimat®, simply place the filter bag (BagFilter®) on the holder (BagOpen®), zero the unit, select the dilution ratio, add the sample, press to start and the diluant is added quickly and accurately. Gravimat®'s advantages:

- Accuracy : 1%
- Fast dispensing, e.g 200 ml in 16 seconds,
- User-friendly,
- Small footprint,
- Autoclavable tubing and bottle,
- System closed to contamination,
- RS 232 output to printer.



SPIRAL PLATER® DS +

The Spiral System® method allows rapid bacterial enumeration while avoiding all or part of the intermediary dilutions. A logarithmically decreasing volume of sample is dispensed on the surface of a rotating Petri dish in an Archimedes spiral. The volume is calibrated and known at every point of the Petri dish. Bacterial concentration is determined by dividing the number of colonies found by the volume dispensed in the same sector of the dish. Spiral® DS + advantages:

- Microprocessor control
- Dispensing time : 8 seconds
- Savings on Petri dishes, agar, pipettes...
- 100% automatic sample-taking, disinfecting, rinsing.
- 250µl of sample drawn in one cycle for plating of successive dishes : 5x50µl.
- 50 or 100µl of sample plated on the same dish for stronger concentration.
- Three possible dispensing modes : Spiral® exponential, variable, uniform.
- Numerous safety features.
- Continuous supply of disinfecting liquids
- Counting range from 200 to 500,000 cfu/ml for 90 mm Petri dishes and up to 4,000,000 for 150 mm Petri dishes.



Scan® 500 colony counter

Has novel features to ensure that the widest range of plates can be read - it will even compensate for: • different coloured media • variations in agar thickness • touching colonies • meniscus effects • spreaders • bubbles • debris • different sized colonies. To achieve this level of automation, Scan® 500 is equipped with a unique colony detection system which combines special illumination and camera control with software which analyses and automatically compensates for variations between plates and samples. The technology built into Scan® 500 produces results of the highest consistency and repeatability.



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Food Analysis - Protein Determination



About Kjeldahl

Steam distillation is applied in laboratories for the fractionation of water insoluble liquids or solids according to Dalton's law of partial pressures in a gas mixture. It is also used for the stripping of chemicals from mixtures or solutions after displacement of ionic equilibria by adding acids or bases, as in the well known Kjeldahl's method for total Nitrogen determination.

The method takes its name from the Danish chemist that conceived it more than a century ago. The Kjeldahl method is still the most used for determining Nitrogen and protein contents in foods and feeds (official methods). This is simply due to its precision and reproducibility. From its first setting-up many improvements were introduced aimed at reducing energy consumption, space requirement and sample weight.

Steam Distillation Unit UDK127

The UDK 127 is designed for diversified and flexible use, including applications such as determining ammoniacal nitrogen, protein nitrogen, (Kjeldahl or direct alkaline distillation), nitric nitrogen (after reduction), phenols, volatile fatty acids, cyanides, sulfur dioxide, alcohol content, etc. according to official procedures.

The new UDK 127 distillation unit comes with a patented steam generator that assures distillations are carried out in absolute safety and without routine maintenance. The UDK 127 unit allows to run automatically the distillation time and the Sodium hydroxide addition. The supply water feed is automatically stopped during pauses, thus cutting down on its consumption. The instrument is equipped with a system that recognizes when the sliding protection door is not closed and when the test tube is not in position, without which the dosing pump does not start operation. Use of an innovative system allows various sizes of test tubes to be used and 500 ml Kjeldahl flasks to be housed.

Rowe Code:TBA



Semi-Automatic Steam Distillation Unit UDK132D

The distillation unit is equipped with a patented steam generator fed with deionized water. The steam generation capacity higher than 2kg/h allows production of 100ml of distillate in only 4 minutes.

The programmable electronic control allows automatic management of the most important operations. A beeping sound signals the end of the distillation cycle. The supply of cooling water is interrupted automatically during idle periods between distillations, sharply reducing the water consumption.

The unit is proposed for determinations of total Kjeldahl Nitrogen, alcoholic content, ammonia, cyanide, phenols, sulfite and volatile organic acids.

Rowe Code TBA



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Food Analysis - Protein Determination

UDK142 Fully automatic Steam Distiller

Used for the separation of volatiles from non-volatiles quickly, safely and at low cost. Useful for Kjeldahl analysis plus many other analytes including ammonia, nitrogen, nitrates (after reduction), phenols, volatile fatty acids, cyanide, sulphur dioxide and alcohol. Features include a patented steam generator (not under pressure and variable steam flow) for safety and versatility, ability to connect to all common brands of auto-titrators to fully automate analysis, accepts multiple digestion tube sizes plus Kjeldahl flasks, epoxy coating for high chemical resistance, sensors on guards, full programmability and much more. Auto-titrator not included

Rowe Code:ID6031

(Titrator not included)



UDK152 which includes internal colourmetric titration.

Rowe Code:TBA

Scrubber SMS

The SMS unit is designed for the removal of toxic, noxious and corrosive fumes coming from oxidative mineralizations or other processes. The system works in three steps:

- condensation
- neutralization,
- adsorption on activated carbon,

This allow effective removal of all kind of substances. The unit has a variety of applications, from the Kjeldahl method to acid or basic gases control and permits the correct disposal of polluting substances, avoiding dangerous emissions to the workplace and to the environment.

The unit is very compact and has high flexibility due to its independence from the aspiration, that can be best provided by the velp recirculating water vacuum pump.



Rowe Code:IP2050

Rowe Code:IS5100

Rowe Code:ID1726

Rowe Code:IS5100

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Food Analysis - Solid Sample Preparation

Stomacher Bagmixers

interscience

Microbiological or chemical analyses require the solid sample to be blended with a diluant into a mixed homogenous slurry. The care taken in the sample preparation phase determines the quality of the analysis results. BagSystem® avoids deterioration of the sample or its possible alteration through external or cross-contamination. BagSystem® is the safe and economical solution.

The sample and diluting liquid are put in a sterile BagFilter® filter bag. The filter bag is placed in a BagMixer® blender. The sample is then crushed and mixed by the alternating movement of the paddles. The resulting suspension can now be pipeted, free of particles which are retained by the filter.



Rowe Code	Item	Applications
TBA	BagMixer® 100 "MiniMix®" W(window door), P (plain door): - Nominal volume: 5 - 100 ml. - Adjustable timer: 10 to 360 secs. or open running - Variable speed: 6 to 9 strokes/second. - 220V and 110 V available. - 3 year warranty, ISO 9001, CE.	Food, pharmaceutical, clinical and veterinary analysis, (biopsies, organ and stool samples) Molecular extraction (proteins, liquids, DNA) Tests for toxins, HPLC, GCMS
IS4200	BagMixer® 400 W (window door): VW (W + variable speed), P (plain door): - Nominal volume: 50 - 400 ml. - Adjustable time: 30 to 210 secs. or open running - 400 P & W: 8 str/sec (fixed speed). - 400 VW: 6 - 9 str/sec (variable speed). - 220V and 110 V available. - 3 year warranty, ISO 9001, CE.	Bacterial analysis in food: raw and cooked meat, fish, vegetables, fruit, biscuits etc. Bacterial analysis of pharmaceutical and cosmetic products, tobacco, dilutions, blending.
TBA	BagMixer® 3500 "JumboMix®" W (window door), P (plain door): - Nominal volume : 400 - 3500 ml. - Adjustable time : 30 to 210 secs. or open running - 3500 P & W : variable speed : 2 - 6 str/sec. - 220V and 110 V available. - 3 year warranty, ISO 9001, CE.	Large samples: food, Trichinella testing of pork, textiles, bacterial and chemical tests, waste matter, air and water filters, mud, sterility tests, forensic, Industrial blending of powders and polymers.

To extract bacteria from a solid sample, just place the sample and liquid in a sterile BagFilter®, and then slide the bag into the BagMixer®. BagMixer® gently isolates the microbial flora contained in and on the surface of a solid sample. The homogenous blend in the sterile bag is representative of the overall sample contamination. BagMixer® considerably reduces preparation time : 30 to 60 seconds are generally sufficient. The juice containing the filtered extract may be pipeted and analysed without any risk of alteration or cross-contamination. BagMixer® offers a variety of standard models covering a wide range of applications in all fields of analysis and research.

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Food Analysis - Solid Sample Preparation

Bagmixer Consumables

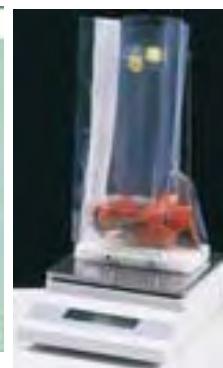
interscience

Filter bags for sample blender

BagFilter® and BagPage® are highly resistant, reinforced plastic bags fitted with a filter: non-woven side-filter for BagFilter® and full-width filter for BagPage®. After blending, the fibers are retained in one of the compartments. The solution to be analyzed is already filtered and can easily be pipeted. The absence of particles ensures optimum result quality. The single-use, sterile filter bags guarantee great time-saving in complete security

BagFilter®, with its non-woven filter, is recommended for the analysis of raw and cooked meat, fish, vegetables, fruit... Two models: "P" for pipeting or "S" for pouring, as the extra weld withholds the particles.

Rowe Code	Item	Size (cm)	Unit
IS4100 25 pk	BagFilter® 400 ml: Sterile pack of 25 or 10	19 x 30	box of 500
TBA	BagFilter® 3500 ml: Sterile pack of 10.	38 x 51	box of 100



BagPage® ideally suited to the blending and filtration of thick, pasty products: cheese; pastry, flour, chocolate... The large dimension filter never blocks.

Rowe Code	Item	Size (cm)	Unit
TBA	BagPage® 100 ml: Sterile pack of 25.	9.5 x 18	box of 500
IS4110 25 pk	BagPage® 400 ml: Sterile pack of 25 or 10	19 x 30	box of 100
TBA	BagPage® 3500 ml: Sterile pack of 10	38 x 51	box of 100



BagPage® + has two compartments separated by the filter: one side is marked to identify the "sample" compartment, the other is pinched by an extra weld for error-free pipeting (Interscience patent).

BagLight® is a plain bag used for products not requiring filtration. Made from PolySilk®, it is remarkably resistant and can be deep-frozen. When closed with BagClip®, BagLight® is ideal for transporting all kinds of samples.

Rowe Code	Item	Size (cm)	Unit
TBA	BagLight® 100 ml: Sterile pack of 25	11 x 18.5	box of 500
IS4210 50 pk	BagLight® 400 ml : Sterile pack of 50 or 25	18 x 29	box of 1000
TBA	BagLight® 3500 ml : Sterile pack of 25	38 x 51	box of 500



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Food Analysis - Solid Sample Preparation

Bagmixer Accessories

interscience



BagOpen® Two uses: Bag opener and bag holder Bag opener: opens bags automatically without contact with the sample. The bag is pinched and held open by adhesive gums (4 supplied).

Bag holder: holds packs of 25 bags ready for use. Stable on the bench-top or on the scale.

Rowe Code	Item
IS4120 400 pk	BagOpen® Three models available: 80, 100, 400, 3500

BagRack® & BagClip® Storage rack / closing clips BagRack® allows clean and methodical storage of 12 bags.

BagRack® models for 80/100, 400 and 3500 ml blender bags.

Rowe Code	Item	Unit
TBA	BagRack® 80/100	1
IS4130	BagRack® 400	1
TBA	BagRack® 3500	1



BagClip® 400 , stackable, autoclavable, stainless steel. BagClip® closes, by pinching, all types of bag. Quick closing, water- and air-tight. (Inter-science patented model).

TBA	BagClip® 80/100	Pack of 50
IS4204	BagClip® 400	Pack of 50
TBA	BagClip® 3500	Pack of 50



BagSeal® Thermo-sealing unit for bags

Specially developed for sealing BagFilter® and BagPage® filter Bags. Will also seal sterilization bags for small instruments.

TBA	BagSeal® 400 for bags of 80, 100, 400 ml.
-----	---

BagPipet® Fixed volume pipet + sterile straws

The fully autoclavable BagPipet®, with a single-use sterile BagTips® straw, pipets accurate, preset volumes of 0.1, 0.9 and 1 ml.

TBA	BagPipet® preset volumes of 0.1, 0.9 and 1 ml.
-----	---



BagTips®

BagTips® are sterilized and highly rigid. Ideal for all liquid and viscous samples: milk, cream, dairy products, yoghurt, cosmetic creams

IS4208	BagTips® Regular 19cm	Box of 1000. Sterile in pack of 25.
IS4160	BagTips® Jumbo 24cm	Box of 1000. Sterile in pack of 25.

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Food Analysis - Solvent Extractor

Solvent Extraction Apparatus SER148/6

The SER 148/6 unit allows the quantitative separation of a substance or a group of substances (e.g. fats) from a mixture of solids or semisolids. The extraction is performed, according to the Randall technique, in two phases with a final recovery of the used solvent. This allows a reduction of atmospheric pollution, extraction time and of the costs of analysis.

The equipment, designed for optimized manuality, is controlled by a programmable microprocessor allowing choice among 29 programs; two different displays will constantly show actual temperature and residual working time for the selected program.

The extractions are performed under high safety conditions because the equipment follows the norms CEI EN 60529 with an IP 55 protection degree and is manufactured from advanced materials and with innovative technical details.

The main sectors of application include the analysis of food, feed, detergents, rubber and plastic formulates, pharmaceutical products, soils and others, for their content of soluble components like fats, tensides, plastifiers and pesticides.



Model SER148/3

Rowe Code: TBA

Other VELP products:



Mixers & Overhead Stirrers
See Stirring



Hot Plates & Magnetic Stirrers
See Stirring



Environmental Line
See Velp

Contact us ...



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Forceps (Tweezers)

Met-App



Thumb



Rowe Code	Length mm	Description	Std. Pack Size
HT2240	100	Straight, blunt	ea
HT2200	130	Straight, blunt	ea
HT2250	150	Straight, blunt	ea
HT2300	200	Straight, blunt	ea
HT2305	250	Straight, blunt	ea
HT2310	300	Straight, blunt	ea
HT2315	500	Straight, blunt	ea
HT2350	130	Curved, blunt	ea
HT2355	150	Curved, blunt	ea
HT2356	200	Curved, blunt	ea

Microscopic



Rowe Code	Length mm	Description	Std. Pack Size
HT2650	100	Straight, with guide pin	ea
HT2450	130	Straight, with guide pin	ea
HT2470	180	Straight, with guide pin	ea
HT2480	200	Straight, with guide pin	ea
HT2530	100	Curved, with guide pin	ea
HT2540	130	Curved, with guide pin	ea
HT2550	150	Curved, with guide pin	ea
HT2600	180	Curved, with guide pin	ea
HT2659	100	Strongly curved, with guide pin	ea
HT2660	130	Strongly curved, with guide pin	ea

Forceps (Tweezers)



Various Types



Rowe Code	Length mm	Description	Std. Pack Size
HT2665	130	Entomology	ea
HT2400	160	Goose Neck	ea
HT2760	100	Cover Glass	ea
HT2800	130	Cover Glass, self retaining	ea
HT2870	130	Tissue, 1 + 2 teeth	ea
HT2875	150	Tissue, 1 + 2 teeth	ea
HT2855	130	Dressing, bent in middle	ea
HT2730	100	Sharp Point, straight with guide pin	ea
HT2750	130	Sharp Point, straight with guide pin	ea
HT2705	100	Sharp Point, curved with guide pin	ea
HT2740	130	Sharp Point, curved with guide pin	ea
HT2770	120	Splinter (Filchenfeld), straight	ea
HT2695	125	Needle Point (Watchmakers), straight	ea
HT2700	125	Needle Point (Watchmakers), curved	ea

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Funnels

Analytical - Polypropylene

Kartell



Designed specifically for analytical chemistry. Each size takes a standard size filter paper. Body of funnel is exact 60° angle. Provided with external and internal ribs. Can withstand temperatures up to 120°C and may be autoclaved.

Rowe Code	Diameter mm	Stem Diameter (mm)	Std. Pack Size
PF1440	25	4	ea
PF1450	35	5	ea
PF1458	45	5	ea
PF1600	65	10	ea
PF1670	80	11	ea
PF1700	100	11	ea
PF1750	120	11	ea
PF1800	150	14	ea
PF1840	180	14	ea



Buchner - Polypropylene

Kartell

Robust, lightweight. Unbreakable and resistant to corrosion and heat (Max 120°C). Two piece construction. Top and bottom can be separated for easy and total cleaning. Autoclavable. Excellent chemical resistance.

Rowe Code	Capacity mL	Diameter mm	Holes Dia. (mm)	Std. Pack Size
PF0990	40	42.5	1	ea
PF0995	70	55	1	ea
PF1000	180	70	1.5	ea
PF1175	285	80	1.5	ea
PF1050	390	90	2	ea
PF1100	810	110	2	ea
PF1110	2100	160	2.5	ea
PF1150	6000	240	3.0	ea

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Funnels

Buchner - Porcelain

JIPO European

Rowe Code	To Suit Filter Paper Diameter (mm)	Diameter of Holes (mm)	Length of Stem (mm)	Std. Pack Size
WF1055	55	1.0	64	ea
WF1060	70	1.0	64	ea
WF1070	90	1.5	71	ea
WF1135	110	1.5	83	ea
WF1190	125	2.0	85	ea
WF1305	150	2.0	96	ea
WF1355	185	2.0	117	ea
WF1420	240	2.0	117	ea



Buchner - Porcelain

Haldenwanger

Rowe Code	To Suit Filter Paper Diam. (mm)	Length of Stem mm	Diameter of Filter Plate mm	Capacity mL	Std. Pack Size
WF1025	45	44	56	50	ea
WF1050	55	55	69	85	ea
WF1065	90	80	105	265	ea
WF1130	110	90	125	510	ea
WF1300	150	110	170	1100	ea
WF1350	185	130	220	2050	ea



General Purpose - HDPE

Kartell

Tough, robust, general purpose funnels suitable for a wide range of liquids. Upstand on rim to reduce possible overflow. Ribbed on outside to eliminate back pressure. Hanging eye for storage.

Rowe Code	Diameter mm	Capacity mL	Std. Pack Size
PF1680	80	100	ea
PF1755	100	300	ea
PF1760	120	450	ea
PF1765	140	750	ea
PF1865	180	1500	ea
PF1870	220	2750	ea
PF1880	260	4000	ea
PF1885	310	5500	ea



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Funnels



Glass - Long Stem - Borosilicate

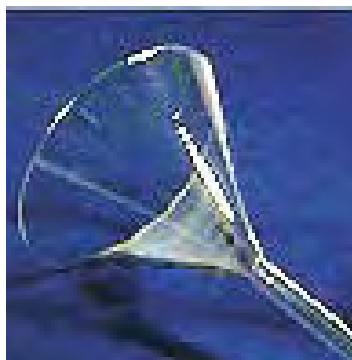
Bunsen type, stem length approx 150mm

Rowe Code	Diameter mm	Std. Pack Size
Borosilicate		
GF5110	55	ea
GF5260	80	ea
Soda		
GF5160	100	ea

Glass - Short Stem

With no markings. 60° angle

Borosilicate		
GF5355	35	ea
GF5770	45	ea
GF5605	70	ea
GF5610	80	ea
GF5714	100	ea
GF5730	120	ea
GF5740	150	ea
GF5810	200	ea
Soda		
GF5351	35	ea
GF5455	45	ea
GF5502	55	ea
GF5602	80	ea
GF5713	100	ea
GF5750	150	ea
GF5800	200	ea



Glass - Powder

GF5280	70	ea
GF5300	100	ea
GF5306	120	ea



Hirsch - Porcelain

With fixed filter plate

WF1490	18	50	70	ea
WF1500	30	90	110	ea

Haldenwanger

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Funnels

Powder - Polypropylene

Kartell

60° angle, autoclavable funnels. Large bore avoids bridging of powders during transfer. Ribbed both inside and outside to avoid pressure lock. Can be used with liquids. Excellent chemical resistance.

Rowe Code	Diameter mm	Stem Diameter mm	Std. Pack Size
PF1900	60	15	ea
PF1950	80	15	ea
PF2000	100	25	ea
PF2050	120	30	ea
PF2100	150	35	ea
PF2130	180	40	ea

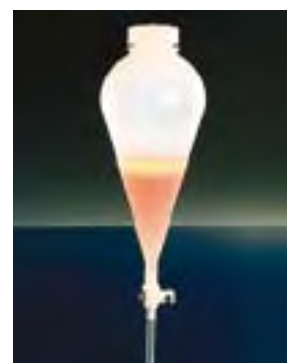


Separating - Polypropylene

Nalgene

Ungraduated, pear-shaped, with PTFE stopcock and housing. Polypropylene screw closure, Phase interface visible down to stopcock. Resists virtually all chemicals, including hydrofluoric acid. Autoclavable except for stopcock assembly.

Rowe Code	Capacity mL	Closure Size mm	Std. Pack Size
PF1035	500	43	ea
PF1040	1000	53	ea



Separating - FEP

Nalgene

Ungraduated, conical, with PTFE stopcock and ETFE screw closure. Break resistant, transparent, non-stick for easy cleaning, non-wetting for complete draining & impervious to any chemical used in a separating funnel. Phase interface of even colourless liquid is visible. Leakproof closure & stopcock. Autoclavable except for stopcock assembly.

Rowe Code	Capacity mL	Closure Size mm	Std. Pack Size
PF1005	125	28	ea
PF1006	250	33	ea
PF2500	500	43	ea
PF1045	1000	53	ea
PF1046	2000	53	2



Separating - Glass

Ungraduated, with P.T.F.E. key. With polypropylene stopper and capacity inscription. Borosilicate glass. Squibb pattern. *

Rowe Code	Capacity mL	Std. Pack Size
GF4607	250	ea
GF4655	500	ea
GF9014	1000	ea



* Other funnel patterns available.

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Funnels



Thistle

Rowe Code	Description	Std. Pack Size
GC2020	for cyanide determination	ea
GF6100	350mm long	ea

Gas Distribution Tubes



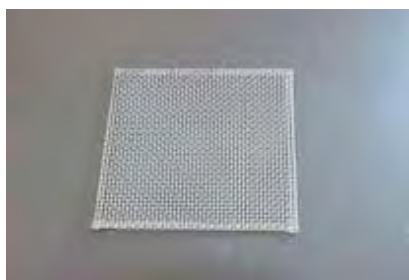
Rowe Code	Porosity	Tube Length mm	Std. Pack Size
GT1062	0	300	ea
GG1005	1	250	ea
GG1060	1	250	ea
GG1004	1	250	ea
GT1063	1	300	ea
GF1026	2	210	ea
GT1066	2	300	ea
GG1065	3	300	ea
GF1030	3	210	ea

Gas Lighter



Rowe Code	Description	Std. Pack Size
HG1351	Piezo electric start	ea
HG1352	Piezo electric start - refillable (butane)	ea
HG1330	Piezo electric start	ea
HL2200	Flint ignition	ea
HL2210	Replacement flints for HL2200	10

Gauze Mats



Made of 8 mesh, 24 gauge galvanized wire non-asbestos centre.

Rowe Code	Length mm	Width mm	Std.Pack Size
HM1450	150	150	ea
HM1460	180	180	ea
Made of 8 mesh, 24 gauge long life Chrome/Nickel wire with folded edges.			
HM1500	150	150	ea

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Glass Scriber

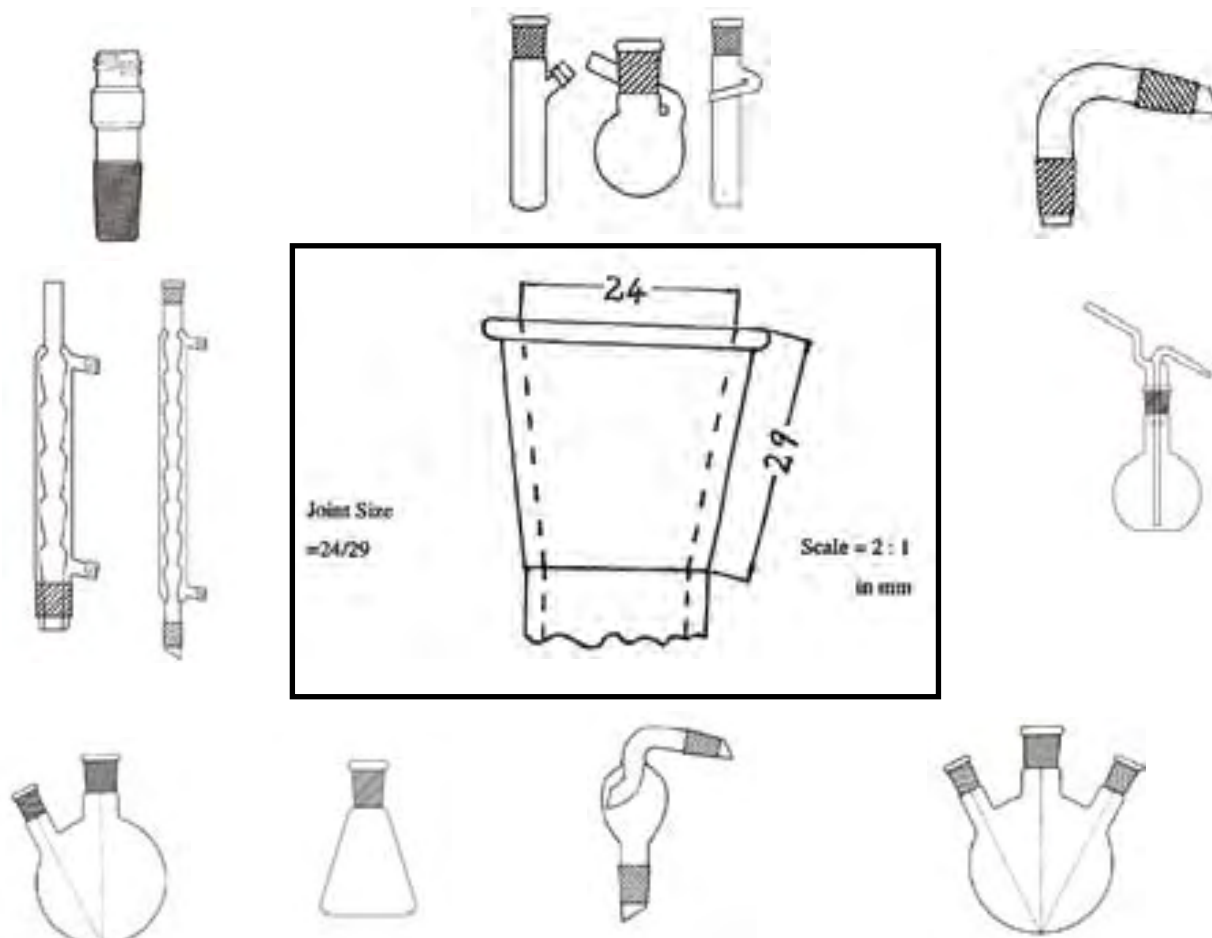
Rowe Code	Description	Std. Pack Size
HG1450	Diamond Tip with solid handle	ea
HS1600	Diamond Tip - retractable	ea
HG1446	Carbide Tip - retractable	ea



Glassware

Interchangeable (Jointed) - Laboratory

The full range of laboratory glassware is available.
To order, please specify item, size and joint size.



**Custom Blown glass items are also available.
Please contact us with your requirements.**

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Gloves

Cotton



Industrial white cotton gloves. Fine cotton knit.

Rowe Code	Size	Std. Pack Size	Carton Qty
HG1220	Small	12pr	10
HG1222	Large	12pr	10

Latex Disposable

Betel

Non-medical use with high tensile strength, elasticity and rupture resistance. Comfortable fit with standard cuff length of 240mm. Complies fully with Australian Standards AS4011-1997.



Rowe Code	Size	Powdered Yes/No	Box Qty	Carton Qty (boxes)
HG1862	Small	Yes	100	10
HG1864	Small	No	100	10
HG1872	Medium	Yes	100	10
HG1874	Medium	No	100	10
HG1881	Large	Yes	100	10
HG1884	Large	No	100	10
HG1883	X Large	Yes	100	10

Neoprene Industrial

Ansell

"Neo-green" flock lined disposable gloves. With added neoprene, cotton lined for extra comfort and perspiration absorption. Long lasting, sanitized against bacterial infection.



Rowe Code	Size	Std. Pack Size	Carton Qty
HG1750	7	12pr	12
HG1850	9	12pr	12
HG1855	10	12pr	12

Protector Mitt "Hot Hand"

Bel-Art

Silicone rubber, for superior protection when handling hot (260°C/500°F) or cold (-57°C/-70°F) objects. Gripping surfaces have multiple concave tipped studs for non-slip grip.



Rowe Code	Size	Std. Pack Size
HP4000	10 x 19cm	ea

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Gloves

Nitrile Disposable

Touch N Tuff gloves are made of 100% nitrile. They have no fillers or additives, such as wax, silicone or plasticisers, that can contaminate your product. They provide three times the puncture resistance of comparable latex or vinyl gloves.

Touch N Tuff nitrile gloves offer a high level of resistance to nuisance nicks, cuts and abrasions. They also offer superior splash protection against irritating chemicals.

Rowe Code	Size	Powdered Yes/No	Box Qty	Carton Qty
HG1890	Small	Yes	100	10
HG1891	Small	No	100	10
HG1892	Medium	Yes	100	10
HG1893	Medium	No	100	10
HG1894	Large	Yes	100	10
HG1895	Large	No	100	10
HG1896	X-Large	Yes	100	10
HG1897	X-Large	No	100	10



Rubber Industrial

Pink Silver Lined gloves provide easy on, easy off features, are silver lined for comfort, double dipped for extra thickness and protection, and have a non-slip, pebble surface for extra grip. Ideal for use with non-aggressive chemicals such as detergents. Length 30cm.

Rowe Code	Size	Std. Pack Size	Carton Qty
HG1440	7	12	12
HG1500	7.5	12	12
HG1550	8	12	12
HG1600	8.5	12	12
HG1650	9	12	12
HG1700	9.5	12	12
HG1702	10	12	12

Ansell



Vinyl Disposable

Food quality vinyl gloves. Fits either hand, easy on, easy off. Clear vinyl. Powdered.

Rowe Code	Size	Box Qty	Carton Qty
HG2160	Small	100	10
HG2170	Medium	100	10
HG2180	Large	100	10

Ansell



Grinding Tablets

Grinding Tablets

Grinding Aid with binding, anti-caking and plasticising characteristics.

Rowe Code	Tablet Weight (mg)	Std. Pack Size
XG1000	250	500
XG1005	500	500

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188 Ha

Rowe Scientific Pty. Ltd.



COLORIMETERS

CONDUCTIVITY METERS

MULTI PARAMETER METERS

PROBES

SPECTROPHOTOMETERS



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Hach - Water Analysis products

DR/820 Portable Colorimeter

Hach DR/820 Colorimeter combines ease of use with high testing capabilities and field readiness

The DR/820 Colorimeter tests for 20+ methods with automatic wavelength detection

Ready-to-use out of the box

Easy-to-use software, preprogrammed methods, and prepared reagents

Datalogging capabilities

Readout in concentration, ABS, and %T

Water Resistance: Meter Casing: 1 meter submersion for 30 minutes (IP67)

Rowe Code: TBA



DR/850 Portable Colorimeter

Hach DR/850 Colorimeter combines ease of use with high testing capabilities and field readiness

The DR/850 Colorimeter tests for 50+ methods with automatic wavelength detection

Ready-to-use out of the box

Easy-to-use software, preprogrammed methods, and prepared reagents

Datalogging capabilities

Readout in concentration, ABS, and %T

Water Resistance: Meter Casing: 1 meter submersion for 30 minutes (IP67)

Rowe Code: IC1585



DR/890 Portable Colorimeter

Hach DR/890 Colorimeter combines ease of use with high testing capabilities and field readiness

The DR/890 Colorimeter tests for 90+ methods with automatic wavelength detection

Ready-to-use out of the box

Easy-to-use software, preprogrammed methods, and prepared reagents

Datalogging capabilities

Readout in concentration, ABS, and %T

Water Resistance: Meter Casing: 1 meter submersion for 30 minutes (IP67)

Rowe Code: IC1580



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Hach - Water Analysis products



Rowe Code: TBA

HQ14d Portable Conductivity Meter

Dedicated Conductivity Meter - excellence in conductivity measurement!

- Designed for use with any of Hach's IntelliCAL conductivity probes
- Password-protected data for accurate, tamper proof reporting
- 500-point event log stores measurements, calibrations and check standards

Comes with HQ14d Meter, manual and 4 AA batteries.

Power : 4 AA batteries; Battery life: > 200 hours Optional AC/DC power

Display: Display readings from one probe

Conductivity Probes: selected parameter, temperature correction, temperature

Data Memory: 500 data points

Data Storage: GLP/ISO compliant reading data stored with calibration details. Calibration details and check standard readings documented as events in log. Automatically store in "press to read" mode and interval measurement mode. Manually store in "continuous read" mode.

Temperature Correction/Compensation: Automatic

Display Lock Function: Continuous measurement or "press to read" mode (available with averaging function)

Automatic Standard Recognition: Choose from 11+ custom sets

Water Resistance: Meter Casing: 1 meter submersion for 30 minutes (IP67)



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Hach - Water Analysis products

HQ40d Dual-Input Multi-Parameter Digital Meter

Plug and Play with IntelliCAL™ probes - pH, conductivity, LDO.

- Dual display of two different parameters/probes!
- A single meter measures pH, Conductivity, and LDO®
- Simultaneously measure two different parameters at once
- View information from two probes on one screen (up to two parameters)
- Transfer GLP/ISO data effortlessly to PC or flash stick-transfer entire datalog, or individual readings
- Includes Field Kit, which contains a protective glove, 2 probe holders, and sample cups in one organized portable kit
- Quick and easy swapping of parameter/probe without re-calibration
- Password-protected data for accurate, tamper proof reporting
- 500-point data log stores measurements, calibrations and check standards, offering complete traceability

Comes with HQ40d Meter, manual, 4 AA batteries, power supply, USB/DC adapter and field kit (field kit includes protective meter glove, wrist strap, neck strap, 2 standard probe holders and 5 sample cups)



Parameter	Range
Dissolved Oxygen	0.01 - 20.0 mg/L 1 - 200% Saturation
pH	pH 2.00 - 14.00

Rowe Code: IM6700

HQ30d Single-Input Multi-Parameter Digital Meter

Plug and Play with IntelliCAL(TM) probes -pH, conductivity, LDO.

Lighten your load with a single meter to measure either pH, Conductivity, or LDO interchangeably

- Quick and easy swapping of parameter/probe without re-calibration
- Password-protected data for accurate, tamper proof reporting
- 500-point event log stores measurements, calibrations and check standards

Comes with HQ30d Meter, manual and 4 AA batteries.

Parameter	Range
Dissolved Oxygen	.01 - 20.0 mg/L 1 - 200% Saturation
pH	pH 2.00 - 14.00

Rowe Code: TBA



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Hach - Water Analysis products



HQ11d Portable pH Meter

Dedicated pH Meter - pH measurement

The HQ11d Digital pH Meter features one probe port for use with any of Hach's IntelliCAL pH probes. "Smart" meters store probe serial numbers, calibration history, user ID, time, date and location of readings. All data (up to 500 data points) can be accessed using a simple menu-driven interface with intuitive icons.

- Designed for use with any of Hach's IntelliCAL pH probes
- Password-protected data for accurate, tamper proof reporting
- 500-point event log stores measurements, calibrations and check standards

Comes with HQ11d Meter, manual and 4 AA batteries.

Parameter	Range
pH	pH 2.00 - 14.00

Rowe Code: TBA



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Hach - Water Analysis products

CDC401 IntelliCAL Standard Conductivity Probe

IntelliCAL(TM) Standard Probes are accurate, pre-calibrated, and reliable.

Move probes between meters without the need to re-calibrate

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate trackability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Waterproof to 3 meters for 24 hours (IP68)

Unbreakable, locking, color-coded connectors for easy identification of parameter

Choice of cable lengths-1 or 3 meters

Range

0.01 μ S/cm - 200.0 mS/cm

0 - 42 g/kg (ppt) Salinity

0.0 - 50.0 mg/L TDS

Cable Length	Part Nummber	Rowe Code
1 metre	CDC40101	IP5310
3 metre	CDC40103	TBA

CDC401 IntelliCAL Rugged Conductivity Probe

IntelliCAL(TM) Rugged Probes can reliably test in harsh environmental conditions.

Move probes between meters without the need to re-calibrate

Super tough, stainless steel body and polymer sensor shroud

Reinforced, steel sheathed cables-durable yet manageable

Waterproof to 3 meters for 24 hours (IP68)

Unbreakable, locking connectors-color-coded for easy identification.

Choice of cable lengths-5, 10, 15, or 30 meters

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate traceability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Cable Length	Part Nummber	Rowe Code
5 metre	CDC40105	TBA
10 metre	CDC40110	TBA
15 metre	CDC40115	TBA
30 metre	CDC40130	TBA



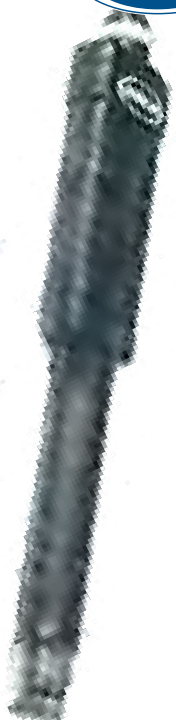
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Hach - Water Analysis products



LDO101 IntelliCAL Standard Dissolved Oxygen Probe

IntelliCAL(TM) Standard Probes are accurate, pre-calibrated, and reliable.

Move probes between meters without the need to re-calibrate

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate trackability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Waterproof to 3 meters for 24 hours (IP68)

Unbreakable, locking, color-coded connectors for easy identification of parameter

Choice of cable lengths-1 or 3 meters

Range: 0.01 - 20.0 mg/L 1 - 200% Saturation

Cable Length	Part Nummber	Rowe Code
1 metre	LDO10101	IP5300
3 metre	LDO10103	TBA



LDO101 IntelliCAL Rugged Dissolved Oxygen Probe

IntelliCAL(TM) Rugged Probes can reliably test in harsh environmental conditions.

Move probes between meters without the need to re-calibrate

Super tough, stainless steel body and polymer sensor shroud

Reinforced, steel sheathed cables-durable yet manageable

Waterproof to 3 meters for 24 hours (IP68)

Unbreakable, locking connectors-color-coded for easy identification of parameter

Choice of cable lengths-5, 10, 15, or 30 meters

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate traceability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Range: 0.01 - 20.0 mg/L 1 - 200% Saturation

Cable Length	Part Nummber	Rowe Code
5 metre	LDO10105	IP5302
10 metre	LDO10110	TBA
15 metre	LDO10115	TBA
30 metre	LDO10130	TBA

Contact us ...



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Hach - Water Analysis products

PHC101 IntelliCAL Standard Gel Filled pH Electrode

IntelliCAL(TM) Standard Probes are accurate, pre-calibrated, and reliable.

Move probes between meters without the need to re-calibrate

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate traceability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Waterproof to 3 meters for 24 hours (IP68)

Range pH 2 - 14 (Refillable PHC30101 has range pH 0 - 14)

Unbreakable, locking, color-coded connectors for easy identification of parameter

Choice of cable lengths-1 or 3 meters

Cable Length	Part Nummber	Rowe Code
1 metre	pHC10101	IP5315
3 metre	pHC10103	TBA



PHC101 IntelliCAL Rugged Gel Filled pH Electrode

IntelliCAL(TM) Rugged Probes can reliably test in harsh environmental conditions.

Move probes between meters without the need to re-calibrate

Super tough, stainless steel body and polymer sensor shroud

Reinforced, steel sheathed cables-durable yet manageable

Waterproof to 3 meters for 24 hours (IP68)

Range pH 2 - 14 (Refillable PHC30101 has range pH 0 - 14)

Unbreakable, locking connectors-color-coded for easy identification of parameter

Choice of cable lengths-5, 10, 15, or 30 meters

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate traceability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Cable Length	Part Nummber	Rowe Code
5 metre	pHC10105	TBA
10 metre	pHC10110	TBA
15 metre	pHC10115	TBA
30 metre	pHC10130	TBA



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Hach - Water Analysis products



DR 2800 Portable Spectrophotometer

The DR 2800 Portable Spectrophotometer adds new power to your work, in the lab or in the field

- Touch screen display with intuitive user interface
- USB ports for easy program updates and printer/accessory connections
- Over 240 pre-installed analytical methods
- Automatic test recognition when used with TNTplus barcoded vial tests
- Small footprint
- Open measurement
- Runs on either line power or optional lithium-ion battery

DR 2800 Portable Spectrophotometer Performance Specifications:

Operating Mode: Transmittance (%), Absorbance and Concentration

Source Lamp: Tungsten

Wavelength Range: 340 to 900nm

Wavelength Accuracy: ± 1.5 nm

Wavelength Resolution: 1 nm

Wavelength Calibration: Automatic

Wavelength Selection: Automatic, based on method selection

Spectral Bandwidth: 5 nm

User-entered Calibrations up to 50

Data Logging 500 points

Automatic Method Recognition With TNTplus vial tests

10-fold measurement and averaging With TNTplus vial tests

Display Backlit, greyscale LCD touch screen

External Outputs USB (1 master, 1 slave)

Cell Compatibility 1" square, 1" round, 1-cm square,

1-cm x 5-cm,

Multipath 1"/1-cm, 16-mm round, 13-mm round

Export Capability .csv (comma-separated values) file



Rowe Code: IS3096

Optional Pour-Thru Cell accessory for high volume analysis and trace level measurement

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Hach - Water Analysis products

DR 5000 UV-Vis Spectrophotometer, 230 Vac



The DR 5000 UV-Vis Spectrophotometer offers broad spectrophotometric capabilities over the full UV-Vis spectrum:

- High Speed Wavelength Scanning
- Touch Screen Display with intuitive user interface
- Universal sample cell holder holds 5 common cell types
- USB ports for easy program updates and printer/accessory connections
- Large sample cell compartment
- Automatic Test Recognition (when used with TNTplus barcoded vial tests)

Includes: Power cord (115V), Instrument Manual, Procedure manual (CD-ROM), 1-inch matched glass sample cells, 1-cm matched quartz sample cells and Multi-cell holder

DR 5000 UV-Vis Spectrophotometer Performance Specifications

Operating Mode: Transmittance (%), Absorbance and Concentration

Source Lamp: Tungsten (visible) (2000 h) and Deuterium (UV) (1100 h)

Wavelength Range: 190 - 1100 nm

Wavelength Accuracy: ± 1 nm

Wavelength Resolution: 0.1 nm

Wavelength Calibration: Automatic

Wavelength Selection: Automatic, based on method selection

Scanning Speed: One complete scan per minute in 1 nm steps

Spectral Bandwidth: 2 nm

Photometric Range: ± 3.0 A in the wavelength range 200 - 900 nm

Photometric Accuracy: 5 mA at 0.0 - 0.5 A
1% at 0.50 - 2.0 A

Photometric Linearity: $< 0.5\%$ at 2 A $\leq 1\%$ at > 2 A

Stray Light: KJ-solution at 220 nm > 3.3 Abs



Rowe Code: IS3099

Optional Accessories for the DR 5000 UV-Vis Spectrophotometer:

Sipper Module and Pour-Thru Cell for high volume analysis and trace level measurement

Integrated carousel (holds up to seven 1-cm rectangular cells)

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Heating - Mantles

Heating Mantles - EM Series

Electrothermal

The Electrothermal EM Series Heating Mantles are housed in a polypropylene housing and are available with a special safety earth screen for maximum operator safety. A special ceramic fibre, thermal insulator contains the flexible mantle to provide maximum heat transfer.

These units are controlled and earthed, with a power on indicator and a heater on indicator. The maximum element temperature is 450°C and these units have a built-in energy regulator. All units have a support rod clamp with the larger units (2 & 3L) having 3 support clamps.



Rowe Code	Flask Capacity L	Power W	Dimensions W x D x Hmm
IH1162	50	60	260 x 175 x 127
IH1165	100	60	260 x 175 x 127
IH1180	250	150	260 x 175 x 127
IH1190	500	200	310 x 238 x 145
IH1195	1000	300	310 x 238 x 145
IH1240	2000	500	400 x 350 x 190
IH1245	3000	500	400 x 350 x 190
IH1235	5000	800	400 x 350 x 190

Unique ventilation slots keep the exterior "safe to the touch" even while in use.

The replaceable coiled heating element is suspended within a thermal insulating cartridge to provide maximum heat transfer and support. Ceramic fibre insulation keeps the chemical-resistant polypropylene case cool. Built-in power controller has dial markings from 1 to 10 for repeatability. Mantles feature indicator lights: an amber-colored "power on" light and a clear-colored "heater on" light. All mantles are double fused and include a single support rod clamp that accepts a 1/2" rod. The stainless steel grounding screen provides added protection against shock in the event of spillage or flask breakage. Mantles include 6 1/2-ft (2-m) power cord; the 115 VAC models include a U.S. plug (230 VAC models do not include plugs). Call our Application Specialists to order replacement heating element cartridges.

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Heating - Mantles

Heating Mantles - "Fibroman-N"

J.P. Selecta

FEATURES

AISI 304 stainless steel outer casing with a rod support clamp at the back.
Safety earth woven into the mantle.

CONTROL PANEL

Main power switch with power on indicator lamp.
Heating control using a 0 to 100 % energy regulator.
Indicator lamp shows when the heating mantle is on.
To monitor the sample temperature, a connection at the back of the unit allows for a contact or digital thermometer "Sensoterm", to be connected.
Alternatively an "Electemp" controller can be added to set and control the temperature of the unit.

ACCESSORIES

Support bar Dur-Aluminium
Boss head, double nut
Thermometer clamp
Clamp for supporting and holding condensers
Electric contact thermometer.
Digital display electronic contact thermometer "Sensoterm"
Electronic PID temp. regulator. "Electemp"



Rowe Code	Flask Capacity L	Power W	Dimensions W x D x H mm
IH1187	250	130	180 x 240 x 120
IH1191	500	270	180 x 240 x 120
IH1194	1000	410	210 x 270 x 130

Slide Warming Tray

Ratek

Temperature setting is by an analogue control on the front panel, with indicators for power on, and element operation. The temperature range of between approx 30°C and 80°C (min 5°C above ambient) allows this warming tray to be used for a variety of purposes. For safety a thermal cut out is fitted, this will remove power to the element in the event of over heating.

Rowe Code	Model	Temperature	Plate size
IT1629	WT1	temperature between approximately 30° and 80°C.	heated working plate 200 x 400 mm.



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Hotplate

Hotplates

SEM

S.E.M. hotplates are suitable for all laboratory applications and come in a range of sizes and types. Designed for temperature uniformity over the whole top surface. Bodies are made from mild steel coated with acid resistant white enamel, or stainless steel. Cast iron units are controlled with energy regulators to a maximum of 500°C while aluminium top units are thermostatically controlled up to 300°C. Teflon coated aluminium hotplates are also available, with a maximum temperature of 280°C.

SEM Round Type Hotplates



Rowe Code	Diam. cm	Top Plate	Approx. Max. Temp °C	Power Rating W	Separate Controller Yes/No	Phase	Control
IH1430	20	Cast Iron	480	1200	No	1	Energy Reg
IH1435	20	Cast Iron	480	1500	Yes	1	Energy Reg
IH1400	13	Aluminium	300	400	No	1	Energy Reg

SEM Rectangular and Square Hotplates



Rowe Code	Size cm	Top Plate	Approx. Max. Temp °C	Power Rating W	Phase	Control
IH1450	23 x 23	Cast Iron	400	1200	1	Energy Reg
IH1455	23 x 23	Aluminium	300	750	1	Thermostat
IH1460	23 x 23	Teflon	280	750	1	Thermostat
IH1250	46 x 26	Cast Iron	375	2400	1	Energy Reg
IH1300	46 x 26	Aluminium	300	1500	1	Thermostat
IH1320	46 x 26	Teflon	280	1500	1	Thermostat
IH1540	61 x 30	Cast Iron	385	3600	1	Energy Reg
IH1550	61 x 30	Aluminium	300	2400	1	Thermostat
IH1555	61 x 30	Teflon	280	2400	1	Thermostat
IH1560	61 x 50	Cast Iron	450	7200	3	Energy reg
IH1570	61 x 50	Aluminium	300	4500	3	Thermostat

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Hotplate

Hotplates for Heavy Acid Environment SEM

These hotplates have a 316 Stainless Steel body and a separate controller.

Rowe Code	Size cm	Top Plate	Approx. °C	Power Max Temp W	Phase Rating	Control
IH1260	46 x 26	Cast Iron	375	2400	1	Energy Reg
IH1610	61 x 30	Cast Iron	385	3600	1	Energy Reg
IH1620	61 x 50	Cast Iron	450	7200	3	Energy Reg



Hotplates for Heavy Acid Environment

Stainless Steel frame - 304 grade 0.7mm thick. Hotplate Anodising - 10 microns clear, Hotplate is 600 x 300 x 10mm Aluminium Total Height - 135mm Element - 2kw Separate Control Box with 2 m cable, 10 amp 3 pin plug, plus 2m cable to hotplate. Power on indicator lights for controller and element. C - Tick compliant.

Rowe Code: IH1703



Hotplates, Education IEC

IEC hotplates are ideal for educational use - They provide:

- Efficiency - rugged & reliable
- Compact modular body housing providing stability & ease of use
- Versatility - simmerstat & thermostat models available
- Durability - non corrosive finish
- Quality - proven performance

Rowe Code	Size cm	Top Plate	Approx. Max Temp °C	Controller
IH1725	21.5 x 18.5	Alloy	400	Simmerstat
IH1740	21.5 x 18.5	Alloy	300	Thermostat
IH1730	21.5 x 18.5	Teflon	300	Thermostat



Hotplates VELP

Epoxy painted metal structure studied and tested in order to give to the instrument an excellent resistance to the attack of chemical and mechanical agents and to corrosion in general.

Temperature controlled by an internal thermoelement, single place (RC) or 2 places (RC2). The heating head, built in aluminium alloy. Finished with a thick coating of a BLACK proprietary resin that grants a uniform distribution on the whole surface with a high resistance to chemical agents.

Rowe Code	Plate Diam. mm	No. of	Max Temp °C	Power W	Dimensions L x W x H mm
IH1340	150	1	350	750	160 x 190 x 90
IH1350	150	2	350	1500	340 x 190 x 90



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Hydrometers

Density Hydrometers - Precision

German



Rowe Code	Range g/cm ³	Length (mm)	Divisions g/cm ³	Std. Pack Size
GH1210	0.900-1.000	300	0.001	ea
GH1300	1.000-1.060	160	0.001	ea
GH1355	1.000-1.100	300	0.001	ea
GH1410	1.000-1.300	300	0.005	ea
GH1400	1.000-2.000	350	0.02	ea
GH1460	1.100-1.200	300	0.001	ea
GH1500	1.200-1.300	300	0.001	ea
GH1380	1.200-1.400	280	0.002	ea
GH1600	2.500-3.000	280	0.005	ea

A full range of hydrometers including Brix, Specific Gravity, Density, Alcoholometers, Baumé, Soil, and Twaddell are available - please enquire.

Baumé Hydrometers

Without thermometer, colourless capillary, blue special liquid



Rowe Code	Range °BE	Length (mm)	Divisions °BE	Std. Pack Size
GH1750	0-10	280	0.1	ea
GH1850	0-20	330	0.1	ea
GH2000	10-20	280	0.1	ea

Please contact our sales team for other hydrometer ranges

Baumé Hydrometers



Rowe Code	Range °BE	Length (mm)	Divisions °BE	Std. Pack Size
GH1780	-2-10	250	0.1	ea
GH1790	10-20	250	0.1	ea
GA1100	0-20	325	0.2	ea

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Hygrometers

Masons, Wet and Dry Bulb Type

Zeal

370mm x 80mm. Quality polypropylene plastic case with lid and bulb protectors. Detachable plastic water cistern. Mercury filled tubes mounted on metal scale. Supplied with hygrometric tables, spare wick and mounting screws.



Rowe Code	Description	Std. Pack Size
GH2240	Hygrometer -5/50°C	ea

Whirling (Psychrometer)

Zeal

230mm x 50mm. Robust yellow plastic frame with folding handle. Plastic water cistern. Mercury filled (replaceable) tubes. Supplied with hygrometric tables and spare wick. Conforming to BS.2842. Leatherette carrying case optional. Zeal.



Rowe Code	Description	Std. Pack Size
IH1900	Hygrometer whirling -5/50°C	ea

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Incubators



The Contherm Designer 7000 Series Incubators achieve consistent temperature control over the range of ambient +5°C to 100°C nominal. These economically-priced units have been designed to provide a quality incubating capability, and in an innovative step all of the serviceable components have been incorporated into the outer door. In line with modern incubator practice, an inner glass door is neither fitted nor is necessary.

The soft-closing magnetic seal and hinge system ensures leak-proof sealing and cabinet compliance with set points and safety standards even at maximum temperatures. All three models feature an attractive corrosion-resistant finish on steel exteriors, with 50mm of specialised insulation surrounding the stainless steel interiors and doors. Positionable stainless steel shelves are also included.

Toroidal air circulation and heating is provided by fan and element combinations, controlled by a new Contherm ZP21LC microprocessor-based controller featuring easy-to-set and read LED display and high limit protection. In addition, the microprocessor is EEPROM backed to retain set-points and calibration factor during power failures.

The Contherm Designer Series Cabinets provide the user with maximum performance at the lowest price while assuring consistent and repeatable results. Manufactured in a quality production environment, complying with AS/NZS 3350 and EEC harmonised standards for Electrical Safety and EMC, these cabinets meet the EC requirements for CE



Rowe Code	Description	Chamber Volume Litres	External Dimensions H x W x D mm	Internal Dimensions W x D x H mm	Shelves
I12050	INCUBATOR 50L DIGITAL CONTROL FAN AIR CIRCULATION COMPLETE WITH ONE PERFORATED STAINLESS STEEL SHELF.	50	550H x550W x 535D	420H x400W x 360D	1
I12052	INCUBATOR 100L DIGITAL CONTROL FAN AIR CIRCULATION COMPLETE WITH ONE PERFORATED STAINLESS STEEL SHELF.	100	790H x550W x 535D	660H x400W x 360D	1
I12055	INCUBATOR 150L DIGITAL CONTROL FAN AIR CIRCULATION COMPLETE WITH TWO PERFORATED STAINLESS STEEL SHELVES.	150	850H x550W x 680D	710H x 400W x 500D	2

We also supply Contherm Ovens from 200-1000L

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Incubators



Rowe Code	Description	Chamber Volume Litres	External Dimensions H x W x D mm	Internal Dimensions H x W x D mm	Shelves
II1640	REFRIGERATED INCUBATOR FEATURES INCLUDE GLASS INNER DOOR, A TEMPERATURE RANGE OF 3°C TO 50°C AND STABILITY OF +0.5°C	90	590H x550W x 600D	330H x480W x 480D	1

Incubators - Orbital Mixer

Rowe Code	Description	Platform (mm)	Speed Range (rpm)	Temperature controlled from
II1025	INCUBATOR ORBITAL MIXER WITH REFRIGERATION OPTION 40 TO 400rpm 75C 60x45cm PLATFORM	600 x 450mm	40 - 400	10°C below ambient to 75°C
IO1011	ORBITAL MIXER/INCUBATOR	600 x 400mm	40 - 400	6°C above ambient to 75°C
IO1012	ORBITAL MIXER/INCUBATOR	400 x 400mm	40 - 400	6°C above ambient to 75°C
	ORBITAL MIXER/INCUBATOR OM11 INCLUDING UNIVERSAL RACK RR10	400 x 400mm	40 - 400	6°C above ambient to 75°C
IO1013	UNIVERSAL RACK (RR10) FOR IO1012			
IO1031	TULIP CLIP TRAY (TCT10) FOR IO1012			
IR2015	UNIVERSAL RACK (RR25) FOR IO1011			
IO1014	TULIP CLIP TRAY (TCT15) FOR IO1011			
TULIP CLIPS AVAILABLE TO SUIT FLASKS 50mL TO 2000mL				



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Incubators - CO₂ Cell Culture



Using proven technology with enhanced user-friendly firmware techniques, the Mitre Series Incubators create a precise environment for tissue and cell propagation. Featuring an anticipative logic system controlling both temperature and CO₂ levels, with a dedicated LED display monitoring these functions. A temperature range of ambient +4°C to 50°C, and humidity levels higher than 80% RH at 37°C can be achieved.

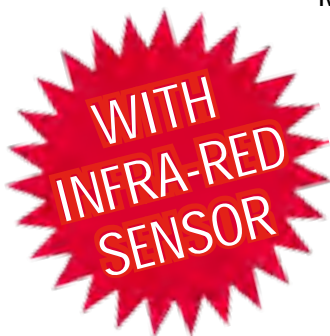
The Contherm microprocessor-based control system is EEPROM-backed to save set-points during power failures, with all models featuring alarm displays and automatic high/low limit protection, which maintains existing parameters in the event of sensor failure.

A fan-driven system circulates air over a stainless steel sheathed tubular heater. Featuring unique catch and hinge componentry, the fully-sealed toughened NZS1223 glass inner door incorporates an integral heater to prevent condensation, and enhance the humidity and temperature envelopes. Requires CO₂ gas regulator.

Model 4150 - Capacity 150L **Rowe Code TBA**

Model 4200 - Capacity 200L **Rowe Code II1405**

Model 4400 - Capacity 400L **Rowe Code TBA**



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Incubators - CO₂ Cell Culture



Specifications			
Model	4150	4200	4400
Exterior Dimensions (W x H x D)	630 x 920 x 680mm	790 x 960 x 730mm	790 x 1560 x 730mm
Interior Dimensions (W x H x D)	470 x 640 x 480mm	630 x 665 x 510mm	630 x 1240 x 510mm
Effective Capacity	155 litres	200 litres	400 litres
Net Weight	85kg	98kg	115kg
Packed weight	91kg	112kg	132kg
Shelves: Stainless Steel Perforated	3	3	6
Temperature Range	Ambient +4°C to 50°C)		
Temperature Accuracy:	Temporal Accuracy ±0.1°C Spatial Accuracy ±0.2°C		Tested Empty at: 37°C 20°C Ambient
Humidifying Method	Natural Vaporisation with Humidity Pan, more than 80% RH at 37°C.		
CO ₂ Control	Microprocessor Control, Accuracy at 37°C 5% CO ₂ +0.15%. Dedicated LED Display		
CO ₂ Range	0.3 - 19.9%		
Inlet CO ₂ Supply Pressure	0.3kg/cm ²		
Alarm System Output	Audible and Visual Alarm Temperature, CO ₂ , Door Ajar, Independent Overtemperature Protection, Connection for External Alarm Activation		
Power Supply	300W at 230 Volt, 50hz Supply	500W /230 V, 50Hz	
Options (full list available)	HEPA Filter-Option HF; CO ₂ cylinder Autochangeover-Option A; Cable Port-Option Z		

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Jars

Glass - with screw cap

Rowe Code	Capacity mL	Std. Pack Size
GJ1000	15	ea
GJ1340	30	ea
GJ1355	60	60
GJ1405	120	ea
GJ1100	125	ea
GJ1426	250	ea
GJ1434	1000	ea
GJ1441	2000	ea

Polyethylene - with screw cap

Kartell

Ideal for storing mercury etc. Leak proof. Small quantities of liquid or solid samples can be taken out by pipette/spatulas without the hindrance of internal shoulders. Sturdy, heavy walled with excellent chemical resistance.



Rowe Code	Cap. mL	OD mm	ID mm	Height mm	Wall Thick. mm	Std. Pk Size
PC1910	10	21	17.6	58.4	1.7	10
PC1940	30	35	31	53	2	10
PC1945	60	35	31	94.2	1.7	10
PC1950	90	54.5	50	63.4	2.2	10
PC1900	180	54.5	50	109.6	2.2	10



Sample/Specimen Containers

Technoplas

A range of polystyrene or polycarbonate screw cap specimen containers with leakproof qualities and laboratory safety in mind. Designed for collecting biological specimens such as urine, sputum and tissue but are also ideal for water sampling and specimen storage.

Available in 70mL, 120mL or 250mL, labelled or unlabelled, natural or yellow screw cap, UV standard or gamma sterile.



Sample/Specimen Containers - with spoon

Polystyrene container with polyethylene cap and spoon, available in 70mL and 120mL.



Sample/Specimen Tube

Polystyrene or polypropylene screw cap tube for biological specimens and samples. Leakproof colour-coded caps. Available in 5mL and 10mL.

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Jars

Wide Mouth

Natural plastic with screw cap

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
PC1420	500	85	128	240
PC1450	1000	100	165	135
PC1600	2000	125	198	70
PB2750	4500	170	240	ea
PC1480	4500	170	240	28



Jerricans

Plastic

Rowe Code	Capacity L	Std. Pack Size
PJ2500	2.5	ea
PJ1005	6	ea
PJ1010	10	ea
PJ1015	20	ea



Jugs

Measuring

Kartell

Material: Polypropylene

Autoclavable, highly translucent especially when filled with liquids. Permanent moulded-in graduations. Robust. Non drip spout. Thumb grip on handle.

Rowe Code	Capacity mL	Diameter mm	Height mm	Std. Pack Size
PJ1100	500	90	116	ea
PJ1155	1000	116	131	ea
PJ1200	2000	145	165	ea
PJ1250	3000	165	180	ea
PJ1300	5000	190	225	ea



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Liquid Dispensers - Bottle Top



The LABMAX Bottle top dispensers features excellent accuracy, standard deviation and precision. It is manufactured to ISO9001 standards. By turning the discharge tube 90° the Labmax can be primed without the loss of reagent via a recirculating valve. Turning the discharge tube upwards closes the discharge valve stopping drips and discharge in the event the piston is accidentally moved. A large range of adaptors as standard means it can be used with a variety of bottles of different sizes including Winchesters and lab bottles. The glass cylinder is coated with a transparent polymer to contain the reagent and therefore prevent injury if damaged. The patented piston contains a PTFE protected O-ring to prevent leaks.

Labmax Basic



Rowe Code	Item	Capacity mL	Graduations mL	Std Pack Size
DD1112	DISPENSER LABMAX WITH GOLD SPRINGS	0.3-2.5mL	0.05	ea
DD1107	DISPENSER LABMAX WITH GOLD SPRINGS	1-5mL	0.10	ea
DD1100	DISPENSER LABMAX WITH GOLD SPRINGS	2-10mL	0.20	ea
DD1102	DISPENSER LABMAX WITH GOLD SPRINGS	5-25mL	0.50	
DD1108	DISPENSER LABMAX WITH GOLD SPRINGS	10-50mL	1.00	ea
DD1109	DISPENSER LABMAX WITH GOLD SPRINGS	25-100mL	2.00	ea
DD1140	DISPENSER BOTTLE TOP MINI-SPENSOR 2 x FIXED VOLUME	500 + 1000uL		ea

Labmax HF Especially designed for Hydrofluoric acid (HF)

Rowe	Item	Capacity mL	Graduations mL	Std Pack Size
DD1101	DISPENSER LABMAX HF WITH GOLD SPRINGS	2-10m L	0.20	ea
DD1103	DISPENSER LABMAX HF WITH GOLD SPRINGS	5-25mL	0.50	ea

Labmax Solvent

Rowe Code	Item	Capacity mL	Graduations mL	Std. Pack Size
DD1104	DISPENSER LABMAX SOLVENT WITH GOLD SPRINGS	2-10mL	0.20	ea
DL1105	DISPENSER LABMAX SOLVENT WITH GOLD SPRINGS	5-25mL	0.50	ea

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Liquid Dispensers - Bottle Top



Digital Burette

A new generation of the WITEG measuring instruments (e. g. TITREX 2000). All electrical measuring devices can justify the accuracy without any tools. Just call up the installed "CAL" programme and the justification can be made without any problems. This device shows you continuously the new value being actualised.

It's very easy and simple to work with.

All dosing and titration processes up to 250 data can be stored non-stop and evaluated at your PC or be printed with almost any printer.

Statistical data evaluation can be set up if an Excel programme is used in addition.

The Witeg "Titrex" is a precision digital burette.

The unit has a capacity of 50mL and can store data from 250 titrations. Supplied with a cable to connect to a computer and software on CD-ROM, a statistical analysis can be done to ensure QC of your results.

Rowe Code: DB1040



Burette - Digital

Optifix

Optifix Titrier combines high tech micro electronics with modern design, to provide precision titration with ease of use.

The unit has a capacity of 50mL, with addition up to 99.99mL. A multifunctional gear selector enables macro or micro titration modes to be used easily.

- ◆ Suitable for left & right handed operation
- ◆ Display arranged at 10° angle for easy readability
- ◆ Valve block made from pure PTFE
- ◆ Integrated sapphire ball valves
- ◆ Large LCD display

Rowe Code: DL6500

Optifix Titrier - digital burette, with 9v battery, GL40 & GL45 adapters and discharge tube set



Liquid Dispensers - Bottle Top

Optifix Basic

For dosing of aqueous solutions and dilute acids or crystallizing liquids. PTFE encased glass piston, moving in a precision glass cylinder ensures a smooth and corrosion-free operation.



Rowe Code	Capacity mL	Graduation mL	Std. Pack Size
DL5250	0.2-1	0.02	ea
DL5300	0.4-2	0.1	ea
DL5350	1-5	0.1	ea
DL5400	2-10	0.2	ea
DL5450	6-30	0.5	ea
DL5500	10-50	1.0	ea
DL5550	20-100	2.0	ea
DL5340	40-200	5.0	ea
DL5650	50-300	5.0	ea
DL5670	100-500	5.0	ea



Optifix HF

Especially designed for Hydrofluoric acid (HF). Dispensing cylinder made of pure PTFE, dispensing piston made of especially solid PTFE encased glass. With additional ventilation valve.

Rowe Code	Capacity mL	Std. Pack Size
DL6300	2-10	ea
DL6340	6-30	ea

Optifix Safety

For secure dosing of strong or fuming acids and highly odorous liquids. Dispensing cylinder made of glass, dispensing piston made of glass, encased in solid PTFE, with additional ventilation valve.



Rowe Code	Capacity mL	Graduations mL	Std. Pack Size
DL6000	0.4-2	0.1	ea
DL6030	1-5	0.1	ea
DL6050	2-10	0.2	ea
DL6060	6-30	0.5	ea
DL6100	10-50	1.0	ea
DL6120	20-100	2.0	ea

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Liquid Dispensers -Bottle Top

Optifix Solvents

For dosing of organic solvents and PTFE attacking liquids . Dispensing cylinder calibrated, with ground piston made of glass. The SOLVENT FA comes with a humidity absorber for use with hygroscopic liquids.

Rowe Code	Capacity mL	Graduations mL	Std. Pack Size
DL5150	0.2-1	0.05	ea
DL5160	1-5	0.1	ea
DL5170	2-10	0.2	ea
DL5180	10-50	1.0	ea
DL5190	20-100	2.0	ea
DL5210	100-500	5.0	ea



Optifix Adaptors

Thread adaptors made from natural coloured polypropylene

Rowe Code	Thread	Std. Pack Size
DL5725	GL25	ea
DL5750	GL28	ea
DL5755	GL30	ea
DL5760	GL33	ea
DL5770	GL36	ea
DL5800	GL38 (old style winchester)	ea
DL5850	GL40 (new style winchester)	ea
DL5900	GL45	ea
DL5920	GL52	ea
DL5930	GL55	ea
DL5950	GL60	ea
DL5970	GL65	ea



PTFE Adaptors Available

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Liquid Dispensers - Bottle Top

Discharge Tube Set

Includes tube, 2 threaded nipples, locknut and stopper cap



Rowe Code	Suits Capacity mL	Std. Pack Size
DL6445	1, 2	ea
DL6450	5, 10	ea
DL6455	30, 50	ea
DL6560	100	ea



Volume Setting System

Replacement volume setting system for all models

Rowe Code	Suits Dispenser	Std. Pack Size
DL6625	All models	ea



Dispenser Stand

Made from heavy steel and finished in bright yellow, this unique stand enables an Optifix dispenser to be used for remote dispensing from drums etc. Has a holder for storage of the discharge tube when not in use.

Rowe Code	Height mm	Diameter of base mm	Std. Pack Size
DL5145	210	120	ea

Measuring Cylinders

Glass - Tall Form - Spouted

Witeg

Tall form with blue graduations - glass hexagonal base

Rowe Code	Capacity mL	Graduations mL	Std. Pack Size
GC1049	10	0.2	10
GC1064	25	0.5	10
GC1107	50	1.0	10
GC1166	100	1.0	10
GC1208	250	2.0	10
GC1276	500	5.0	10
GC1286	1000	10.0	10
GC1371	2000	20.0	10



Glass - Tall Form - Spouted

Witeg

Tall form with blue graduations - polypropylene base

Rowe Code	Capacity mL	Graduations mL	Std. Pack Size
GC9001	5	0.1	10
GC9002	10	0.2	10
GC9003	25	0.5	10
GC9004	50	1.0	10
GC9005	100	1.0	10
GC9006	250	2.0	10
GC9007	500	5.0	10
GC9008	1000	10.0	10
GC9009	2000	20.0	10



Glass - Tall Form - Stoppered

Witeg

Tall form with blue graduations - polyethylene stopper & polypropylene base

Rowe Code	Capacity mL	Graduations mL	Std. Pack Size
GM9001	25	0.5	20
GM9002	50	1.0	20
GC9010	100	1.0	20
GC9011	250	2.0	20
GC9012	500	5.0	20
GC9013	1000	10.0	ea
GC9014	2000	20.0	ea



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Measuring Cylinders



Low Form Polypropylene

Kartell

Low form, circular base. Excellent chemical resistance. Autoclavable. Permanent graduations moulded into cylinders. Can withstand temperatures up to 120°C.

Rowe Code	Capacity mL	Diameter mm	Height mm	Graduations	Sub Divisions mL	Std. Pack Size
PM1350	10	16	88	2	0.25	ea
PM1400	25	22	107	5	1.0	ea
PM1450	50	29	143	10	2.5	ea
PM1500	100	34	178	25	5.0	ea
PM1550	250	45.5	264	50	10.0	ea
PM1600	500	55.5	305	100	10.0	ea
PM1650	1000	70	332	200	25.0	ea
PM1700	2000	92	370	400	50.0	ea

Tall Form Polypropylene

Kartell

Special polypropylene giving very high translucency. Autoclavable to 121° C for 20 mins., continuous work at 100°C. Permanent graduation are moulded in for reproducibility. No wetting. Chemically cleaner than glass. Chemically non-absorbant. Excellent chemical resistance. Pentagon base for added stability.



Rowe Code	Capacity mL	Diameter mm	Height mm	Graduations	Sub Divisions mL	Std. Pack Size
PM1750	10	13.5	140	2	0.2	ea
PM1800	25	18	195	5	0.5	ea
PM1850	50	25.5	199	10	1.0	ea
PM1900	100	30.5	249	10	1.0	ea
PM1950	250	41.5	315	20	2.0	ea
PM2000	500	55	361	50	5.0	ea
PM2050	1000	66	439	100	10.0	ea
PM2100	2000	84	531	200	20.0	ea

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Low Form TPX**Kartell**

Low form, circular base. Excellent chemical resistance. Autoclavable. Permanent graduations moulded into cylinders. Can withstand temperatures up to 170°C.

Rowe Code	Capacity mL	Diameter mm	Height mm	Graduations	Sub Divisions mL	Std. Pack Size
PM1270	50	29	143	10	2.5	ea
PM1255	100	34.5	177	25	5.0	ea
PM1160	250	46	263	50	10	ea
PM1260	500	56	302	100	10	ea
PM1265	1000	71	331	200	25	ea
PM1300	2000	92	369	400	50	ea

**Tall Form TPX****Kartell**

Crystal clear. Autoclavable. Can be used for liquids up to 170°C. No wetting. No meniscus. Permanent graduations are moulded in for reproducibility. Chemically cleaner than glass. Chemically non-absorbant. Excellent chemical resistance. Pentagon base for added stability.

Rowe Code	Capacity mL	Diameter mm	Height mm	Graduations	Sub Divisions mL	Std. Pack Size
PM1000	10	13.5	139	2	0.2	ea
PM1030	25	18.5	195	5	0.5	ea
PM1050	50	26	199	10	1.0	ea
PM1100	100	31	249	10	1.0	ea
PM1150	250	41.5	315	20	2.0	ea
PM1200	500	55	361	50	5.0	ea
PM1250	1000	66	438	100	10.0	ea
PM2110	2000	84	531	200	20.0	ea



Meters - Conductivity

HQ14d Portable Conductivity Meter



Rowe Code: TBA

Dedicated Conductivity Meter - excellence in conductivity measurement!

- Designed for use with any of Hach's IntelliCAL conductivity probes
- Password-protected data for accurate, tamper proof reporting
- 500-point event log stores measurements, calibrations and check standards

Comes with HQ14d Meter, manual and 4 AA batteries.

Power : 4 AA batteries; Battery life: > 200 hours Optional AC/DC power

Display: Display readings from one probe

Conductivity Probes: selected parameter, temperature correction, temperature

Data Memory: 500 data points

Data Storage: GLP/ISO compliant reading data stored with calibration details. Calibration details and check standard readings documented as events in log. Automatically store in "press to read" mode and interval measurement mode. Manually store in "continuous read" mode.

Temperature Correction/Compensation: Automatic

Display Lock Function: Continuous measurement or "press to read" mode (available with averaging function)

Automatic Standard Recognition: Choose from 11+ custom sets

Water Resistance: Meter Casing: 1 meter submersion for 30 minutes (IP67)



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Meters - Analyser

Australian Made Electrochemical Instruments

Field-Lab Analyser

TPS

The Model 90-FL Micro-processor Field-Lab Analyser is a major step forward in portable electrochemical measurement.

This is a single multi-purpose instrument for Autoranging Conductivity or linearised Salinity, Dissolved Oxygen, pH and Temperature. and Turbidity. Temperature compensation is fully automatic in all modes. The 90-FLMV also measures mV.

In the Dissolved Oxygen mode, the 90-FL features automatic Salinity Compensation for parts per million mode (ppm).

An 80 character LCD display is used for "HELP" messages, calibration information, and Data readout. Calibration procedures and compensation functions are fully automated. There are no knobs to set. The fully-sealed membrane keypad and the LCD display make operation of the 90-FL very simple.

The 90-FL is designed for rugged field applications in wet environments. The case, keypad and all input connectors are designed for water resistant operation, and complete corrosion resistance.

Features:

- Data logging of up to 60 readings
- Optional extended logging up to 1980 readings
- Optional RS232 interface



Rowe Code	Description
IA2500	Field-Lab Analyser Model 90-FL
IA2510	Field-Lab Analyser Model 90-FLMV
IA2501	Field-Lab Analyser Model 90-FLT

Kit includes

Handbook
 Buffers
 Conductivity standard
 Salinity standard
 NiCad battery
 Charger & cable

Please ask our sales team about the recommended probe & cable options

Contact us ...



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Meters - Conductivity

Conductivity and TDS Testers with ATC Hanna



The DiST testers are reliable, pocket-sized instruments that will give you quick and accurate readings of conductivity and TDS. Simply dip the tester and read the display. Automatic Temperature Compensation assures that all readings are corrected to compensate for the effect of temperature.

DiST 1 & DiST 3

- Water treatment (softener, demineralization, reverse osmosis, drinking water).
- Fish farming and aquariums plants
- Pollution control

DiST 2 & DiST 4

- Agriculture, horticulture and hydroponics.
- Cooling towers
- Boiling and steam heating
- Water purification plants

All with 1 point manual calibration
All with Automatic temperature compensation

Rowe Code	Model	Range	Resolution	Waterproof
IC1150	DiST 1	1999ppm(mg/L)	1ppm (mg/L)	No
IC1209	DiSTWP1	1999ppm(mg/L)	1ppm(mg/L)	Yes
IC1160	DiST2	10000ppm(mg/L)	10ppm(mg/L)	No
IC1210	DiSTWP2	10000ppm(mg/L)	10ppm(mg/L)	Yes
IC1142	DiST 3	1999mS/cm	1mS/cm	No
IC1215	DiSTWP 3	1999mS/cm	1mS/cm	Yes
IC1166	DiST 4	19999mS/cm	10mS/cm	No
IC1220	DiSTWP 4	19999mS/cm	10mS/cm	Yes

WP-84 Conductivity - Salinity - Waterproof - Temperature

TPS

Waterproof Conductivity, Salinity and Temperature meter. 32 character display with user-friendly menu system. 150 reading Notepad with automatic data logging. Calendar clock with GLP feature. NiCad battery. RS232 interface.



Rowe Code	Description
IC1103	WP-84, Conductivity-Salinity-Temp, Waterproof, Meter

Kit Includes:

k=1/ATC/Temp Sensor
 2.76mS/cm Cond Std, 200ml
 2ppK Salinity Std, 200ml
 Battery Charger
 WP-84 Handbook

Optional Sensors

k=10/ATC/Temp Sensor
 k=0.1/ATC/Temp Sensor
 Extended cable / metre
 (Maximum 10 metre cable length)

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Meters - Dissolved Oxygen

90-D Dissolved Oxygen Meter Portable model

TPS

The TPS **90-D** Microprocessor Oxygen Analyser is a major step forward in portable dissolved oxygen measurement. This is a multi-purpose instrument for Dissolved or Gaseous Oxygen and Temperature. Automatic Temperature Compensation (ATC), and programmable Salinity Compensation are provided in the Parts Per Million mode (ppm).

The **90-D** uses an 80 character LCD display for "HELP" messages, calibration information, and data readout. Calibration procedures and compensation functions are fully automated. The **90-D** is designed for rugged field applications in wet environments. The case, keypad and all input connectors are rated for IP65 water resistant operation, and complete corrosion resistance. A standard feature of the **90-D** is a Data Logging function. Up to 60 readings can be stored for later review or downloading. Optional extended data logging available.

Rowe Code	Description
ID1360	Dissolved Oxygen Meter for field and industrial applications, Model 90-D . Kit contains NiCad rechargeable battery, 240V AC Charger and 90-D handbook
ID1205	Dissolved Oxygen - Temp, Field Sensor YSI without cable. Includes filling solution and membrane kit. Can be submerged to 60m. The waterproof connector is weighted to ensure easy sinking
ID1365	3m cable for YSI Sensor. Other cable lengths available.



WP82 Dissolved Oxygen - Temperature Meter - Waterproof Portable TPS

The Model WP-82 DO meter is waterproof and is available in two versions. Salinity, altitude and barometric pressure can all be manually corrected. It has a 150 reading notepad with automatic logging. The WP-82 has a calendar clock with GLP feature, while an RS232 interface is optional.

Like the rest of the WP Series, the WP-82 is the ideal instrument for use in the harshest of conditions, while it is equally at home in the laboratory or industrial environment.

Rowe Code	Description
ID1109	DO/Temp Meter, Model WP-82 - uses the ED500-WDO Sensor
ID1190	DO/Temp Sensor ED500-W with 3m cable and membrane kit (waterproof plug). Maximum submersible depth for sensor is 3m
ID1110	DO/Temp Meter, Model WP-82Y - compatible with the YSI DO Sensor.
ID1205	DO/Temp Field Sensor, YSI, without cable.
ID1211	3m cable for YSI Sensor, other cable lengths available

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Meters - Multi Parameter

labCHEM-pH

TPS



Rowe Code: IP1163

labCHEM-C

Rowe Code: IC1230

Conductivity-TDS-
Temperature Meter

labCHEM-CP

Rowe Code: IC1231

Conductivity-TDS-pH-
Temperature Meter

At last - a pH meter that has all the features required for precision laboratory work, but which is easy enough for anybody to use.

The 16 character alphanumeric display has huge 14.5mm digits. It features simultaneous readout of pH/mV and temperature and user-friendly full-text messages.

The new Automatic Stability Function (ASF) makes taking readings absolutely simple. When all the readings have fully stabilised, the ASF system will freeze the display and show a tick. The reading can then be recorded as required. The user can also disable the ASF system.

The labCHEM-pH is ideal for Quality Control laboratories, plant operators, educational use and many other purposes. It has been designed primarily for ease of use. Operators with little or no laboratory experience can operate the labCHEM-pH with complete confidence quickly and easily.

The labCHEM-pH is fully waterproof to IP65, so it is suitable for even the harshest laboratory or factory environments. It has just four keys to make operation of the labCHEM-pH absolutely simple.

Calibration of the labCHEM-pH is fully automatic at the press of just one key. The meter automatically recognises buffers and calibrates itself accordingly. The electrode asymmetry and slope are displayed at calibration, allowing for preventative maintenance and instant troubleshooting.

smartCHEM-pH

TPS



Rowe Code: IP1245

smartCHEM-LAB

Rowe Code: IA2204

Dissolved Oxygen,
Conductivity,TDS
2 Channels of Specific
Ion Concentration,
pH,mV or Relative mV
Temperature

The smartCHEM-pH is a research grade pH/mV meter with all the features expected in today's modern laboratories.

Datalogging

The smartCHEM-pH comes with a 2730 reading memory. Readings can be recorded manually, or automatically logged at preset intervals.

RS232 Computer Interface

The capabilities of the smartCHEM-pH have been expanded with the RS232 port, which is standard equipment (cable sold separately). All readings stored in memory can be downloaded to an RS232 printer or PC. The RS232 port also allows the smartCHEM-pH to log directly to the printer or PC. WinTPS Communication software for Windows 3.1 or 95, 98 & ME is available.

Automatic Stability Function (ASF)

ASF adds an extra level of versatility to the smartCHEM-pH. When ASF is activated, the smartCHEM-pH monitors all parameters that are currently in use. When ALL parameters become stable, the readings are frozen on the display. ASF is automatically activated with extra fine settings during calibration, to ensure the most accurate possible results for the user.

ASF can also be used during Manual and Automatic Datalogging. When used during Automatic Datalogging, the smartCHEM-pH will log until a stable end-point is reached for all parameters, then stop logging.

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Meters - Multi Parameter



HQ40d Dual-Input Multi-Parameter Digital Meter

Plug and Play with IntelliCAL™ probes - pH, conductivity, LDO.

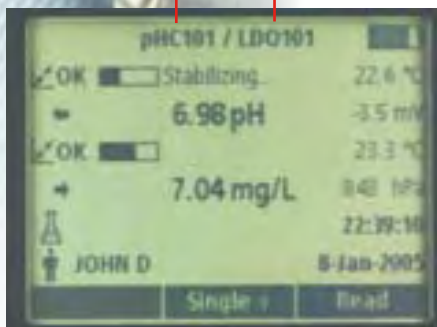
- Dual display of two different parameters/probes!
- A single meter measures pH, Conductivity, and LDO®
- Simultaneously measure two different parameters at once
- View information from two probes on one screen (up to two parameters)
- Transfer GLP/ISO data effortlessly to PC or flash stick-transfer entire datalog, or individual readings
- Includes Field Kit, which contains a protective glove, 2 probe holders, and sample cups in one organized portable kit
- Quick and easy swapping of parameter/probe without re-calibration
- Password-protected data for accurate, tamper proof reporting
- 500-point data log stores measurements, calibrations and check standards, offering complete traceability

Comes with HQ40d Meter, manual, 4 AA batteries, power supply, USB/DC adapter and field kit (field kit includes protective meter glove, wrist strap, neck strap, 2 standard probe holders and 5 sample cups)

Parameter	Range
Dissolved Oxygen	0.01 - 20.0 mg/L 1 - 200% Saturation
pH	pH 2.00 - 14.00

Rowe Code: IM6700

View readings from two probes on one screen



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Meters - Multi Parameter

HQ30d Single-Input Multi-Parameter Digital Meter

Plug and Play with IntelliCAL(TM) probes -pH, conductivity, LDO.

Lighten your load with a single meter to measure either pH, Conductivity, or LDO interchangeably

- Quick and easy swapping of parameter/probe without re-calibration
- Password-protected data for accurate, tamper proof reporting
- 500-point event log stores measurements, calibrations and check standards

Comes with HQ30d Meter, manual and 4 AA batteries.

Parameter	Range
Dissolved Oxygen	.01 - 20.0 mg/L 1 - 200% Saturation
pH	pH 2.00 - 14.00

Rowe Code: TBA

Features one probe port for use with any of the IntelliCAL probes.



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Meters - pH

HQ11d Portable pH Meter

Dedicated pH Meter - pH measurement

- Designed for use with any of Hach's IntelliCAL pH probes
- Password-protected data for accurate, tamper proof reporting
- 500-point event log stores measurements, calibrations and check standards

Comes with HQ11d Meter, manual and 4 AA batteries.

Parameter	Range
pH	pH 2.00 - 14.00

Rowe Code: TBA



pH Testers Checker Series

Hanna

At the cost of a few rolls of pH litmus paper, you can have the industry's latest electronic pH tester. Checker® supplies you with fast and accurate readings on a large LCD. Unlike other pH testers, the Checker® electrode can be changed and any pH electrode of different shape or size can be used. Checker® is also suitable for checking electrodes in pipes and tanks and various industrial applications.

The extended family of Checker® pH testers now includes standard gelfilled electrodes with built-in BNC or screw-type connectors.

Some of the Checker®'s outstanding features include:

- Large and easy-to read LCD
- High accuracy with 0.01 pH resolution
- Two point fast and accurate calibration
- Usable with virtually any pH electrode
- Battery life: 3000 hours of continuous use
- Wide range: 0.00 to 14.00pH
- Replaceable pH electrode



Rowe Code	Model	Description
IP1700	Checker 1	supplied complete with HI1270 combination pH electrode, 2 x 1.4V batteries and instructions.
IP1701	Checker 2	supplied complete with HI1207 combination full-size screw-type, gel-filled pH electrode, 2 x 1.4V batteries and instructions
IP1702	Checker 3	supplied complete with HI1208 combination full-size BNC-type, gel-filled pH electrode, 2 x 1.4V batteries and instructions.
* Replacement electrodes are available for all the checker series of pH testers		

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Meters - pH

pH Testers pHep Family

Hanna

Hanna has completely redesigned the popular pHep range of testers. With more rugged casing and ergonomically enhanced design, they also feature a large LCD display for easier reading.



Rowe Code	Model	Range	Resolution	Calibration	Waterproof Housing	Temp Compensation
IP1800	pHep	0.0-14.0pH	0.1pH	Manual	no	N/A
				1 point		
IP1890	pHep1	0.0-14.0pH	0.1pH	Manual	yes	N/A
				1 or 2 points		
IP1801	pHep2	0.0-14.0pH	0.1pH	Manual	yes	Automatic
				1 or 2 points		
IP1802	pHep3	0.0-14.0pH	0.1pH	Automatic	yes	Automatic
				1 or 2 points		

WP-81 pH-Conductivity - Salinity - Waterproof - Temperature TPS

Waterproof pH, Conductivity, Salinity and Temperature meter. Auto-ranging Conductivity and Salinity readings. 32 character display with user-friendly menu and help system. 150 reading notepad with automatic logging. Calendar clock with GLP feature. Battery saver function. RS232 port.



Rowe Code	Description
IC1105	Meter, pH-Conductivity-Salinity-Temperature Waterproof, Model WP81, TPS
IS10325	Electrode k=1.0/ATC/Temp
IP1400	Electrode Combination pH
IC19557	Standard, 2.76m/Scm Conductivity (200mL)
ID1315	Standard, 2ppK TDS (200mL)
IS1055	Sensor, k=10 Conductivity/Salinity/Temperature 5m cable
IS1029	Sensor, Glass k=0.1 Conductivity/Salinity/Temperature

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Meters - Probes IntelliCAL™

CDC401 IntelliCAL Standard Conductivity Probe

IntelliCAL(TM) Standard Probes are accurate, pre-calibrated, and reliable.

Move probes between meters without the need to re-calibrate

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate trackability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Waterproof to 3 meters for 24 hours (IP68)

Unbreakable, locking, color-coded connectors for easy identification of parameter

Choice of cable lengths-1 or 3 meters

Range

0.01 µS/cm - 200.0 mS/cm

0 - 42 g/kg (ppt) Salinity

0.0 - 50.0 mg/L TDS

Cable Length	Part Number	Rowe Code
1 metre	CDC40101	TBA
3 metre	CDC40103	TBA

CDC401 IntelliCAL Rugged Conductivity Probe

IntelliCAL(TM) Rugged Probes can reliably test in harsh environmental conditions.

Move probes between meters without the need to re-calibrate

Super tough, stainless steel body and polymer sensor shroud

Reinforced, steel sheathed cables-durable yet manageable

Waterproof to 3 meters for 24 hours (IP68)

Unbreakable, locking connectors-color-coded for easy identification.

Choice of cable lengths-5, 10, 15, or 30 meters

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate traceability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Cable Length	Part Number	Rowe Code
5 metre	CDC40105	TBA
10 metre	CDC40110	TBA
15 metre	CDC40115	TBA
30 metre	CDC40130	TBS



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Meters - Probes IntelliCAL™

LDO101 IntelliCAL Standard Dissolved Oxygen Probe

IntelliCAL(TM) Standard Probes are accurate, pre-calibrated, and reliable.

Move probes between meters without the need to re-calibrate

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate trackability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Waterproof to 3 meters for 24 hours (IP68)

Unbreakable, locking, color-coded connectors for easy identification of parameter

Choice of cable lengths-1 or 3 meters

Range: 0.01 - 20.0 mg/L 1 - 200% Saturation

Cable Length	Part Number	Rowe Code
1 metre	LDO10101	TBA
3 metre	LDO10103	TBA

LDO101 IntelliCAL Rugged Dissolved Oxygen Probe

IntelliCAL(TM) Rugged Probes can reliably test in harsh environmental conditions.

Move probes between meters without the need to re-calibrate

Super tough, stainless steel body and polymer sensor shroud

Reinforced, steel sheathed cables-durable yet manageable

Waterproof to 3 meters for 24 hours (IP68)

Unbreakable, locking connectors-color-coded for easy identification of parameter

Choice of cable lengths-5, 10, 15, or 30 meters

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate traceability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Range: 0.01 - 20.0 mg/L 1 - 200% Saturation

Cable Length	Part Number	Rowe Code
5 metre	LDO10105	IP5302
10 metre	LDO10110	TBA
15 metre	LDO10115	TBA
30 metre	LDO10130	TBA

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Meters - Probes IntelliCAL™



PHC101 IntelliCAL Standard Gel Filled pH Electrode

IntelliCAL(TM) Standard Probes are accurate, pre-calibrated, and reliable.

Move probes between meters without the need to re-calibrate

Track performance with calibration history
Probe alerts when re-calibration is needed

Ultimate traceability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Waterproof to 3 meters for 24 hours (IP68)

Range pH 2 - 14 (Refillable PHC30101 has range pH 0 - 14)

Unbreakable, locking, color-coded connectors for easy identification of parameter

Choice of cable lengths-1 or 3 meters

Cable Length	Part Nummber	Rowe Code
1 metre	pHC10101	IP5315
3 metre	pHC10103	TBA

PHC101 IntelliCAL Rugged Gel Filled pH Electrode

IntelliCAL(TM) Rugged Probes can reliably test in harsh environmental conditions.

Move probes between meters without the need to re-calibrate

Super tough, stainless steel body and polymer sensor shroud

Reinforced, steel sheathed cables-durable yet manageable

Waterproof to 3 meters for 24 hours (IP68)

Range pH 2 - 14 (Refillable PHC30101 has range pH 0 - 14)

Unbreakable, locking connectors-color-coded for easy identification of parameter

Choice of cable lengths-5, 10, 15, or 30 meters

Track performance with calibration history

Probe alerts when re-calibration is needed

Ultimate traceability-easily obtain:

- Time and Date stamp
- Operator and Sample ID
- Calibration history
- Parameter
- Reading

Factory calibrated probes-be up and running right out of the box

Cable Length	Part Nummber	Rowe Code
5 metre	pHC10105	TBA
10 metre	pHC10110	TBA
15 metre	pHC10115	TBA
30 metre	pHC10130	TBA



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Meters - Specific Ion

Specific Ion Meter - Benchtop

TPS



The smartCHEM-Ion is a research grade Specific Ion/pH/mV meter with all the features expected in today's modern laboratories.

Fully programmable for any Monovalent or Divalent Anion or Cation. Simultaneous display of...

Specific Ion, pH or mV
Temperature
Date & Time

Automatic Stability Function

PIN Code Access

Programmable "Calibration Due" Alarm

240 x 64 dot graphic display with large digits, full text messages and backlight.

2730 reading memory with Automatic Datalogging.

RS232 computer interface port.

Automatic calibration.

Readout of probe condition for instant troubleshooting.

Fully waterproof design.

Rowe Code: IS1101

smartCHEM-Ion3

Rowe Code: IS1103

3 channels of Specific Ion
Concentration, pH, mV or Relative
mV Temperature

Specific Ion Meter - Portable

TPS Model WP-90



Waterproof handheld Specific Ion-pH-mV meter. Fully programmable Specific Ion function. 32 character display with user-friendly menu and help system. 150 reading Notepad with Auto Logging. Calendar clock with GLP feature. Optional RS232 port.

Rowe Code	Description
IS1143	Specific Ion/pH/mV/Temp Meter, Waterproof TPS

Kit includes: Temp/ATC Sensor
Battery Charger
Handbook

For a complete range of Ion Selective Electrodes, Reference Electrodes, pH Sensors or Redox sensors please consult our sales team.

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Meters - TPS Aqua Series



The Aqua Series enclosure is waterproof to IP65, and will float if dropped into water. A sturdy carry case is available for field use.

TPS uses the latest microprocessor electronics to totally eliminate moving parts in the Aqua Series. There are no internal or external adjustments, resulting in excellent long term reliability.

The Aqua series use an alphanumeric display. This allows the units to provide plain English prompts and error messages. There are no obscure codes to interpret like some other brands. The simple keypad uses just four keys to perform all calibration and set-up functions, making operation of the Aqua series simple.

To calibrate the Aqua Series place the relevant sensor into the standard solution supplied and press the Calibrate key. That's all there is to it! Sensor condition is displayed after calibration has been completed, allowing for preventative maintenance. This information can be recalled on the display at any time. All calibration information is stored in memory when the Aqua Series is switched off, even if the battery is removed.

The Aqua Series are supplied with a 9V Alkaline battery, which provides up to 100 hours of continuous use, depending on model. A handy battery-saver function switches the meter off after 5 minutes if no keys have been pressed. This function can also be disabled.

The Aqua Series displays up to three parameters simultaneously, for example Conductivity, pH and Temperature on the Aqua-CP. The user can choose which two parameters are displayed. Alternatively, a large digit mode is available which displays one parameter at almost double the digit size.

The Aqua Series is proudly designed and manufactured in Australia and has been certified in accordance with the AS/NZS ISO 9001 standard. Since 1968, TPS has built a reputation for excellent backup service that is second to none. The Aqua Series sets the standard for Quality, Service and Value for handheld instruments.

ROWE CODE	MODEL	pH	mV	Conductivity	TDS	Dissovled Oxygen	Temperature	Notes
IM1197	Aqua-pH	X	X				X	
IC1240	Aqua-CP	X		X	X		X	Single range conductivity & TDS
IC1242	Aqua-CPA	X		X	X		X	Auto-ranging conductivity & TDS
ID1106	Aqua-D					X	X	Uses TPS ED1 Dissolved Oxygen sensor
ID1108	Aqua-DY					X	X	Uses YSI Dissolved Oxygen sensor
IC11125	Aqua-C			X	X		X	
IT2800	Aqua-TP	X	X		X		X	

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Meter Accessories - Electrodes



pH/Redox Electrodes

Intermediate Junction (IJ) Electrodes

Ionode

The new IJ electrodes from IONODE are a breakthrough for pH measurement. They combine a refillable gel electrolyte with an easy to clean sleeve reference junction to produce electrodes with:

- Accuracy
- Durability
- Versatility
- Value for money



IJ44 - pH Electrode - with 1m cable

Rowe Code	Connector
IP14401	BNCO
IP14405	RASO
IP14410	BELO
IP14371	TPS4

Other variations of cable length (up to 20m max) and type of glass tip are available.



Combination Redox Electrode -IJ64

Rowe Code	Connector
IP1360	BNCO
IP1362	TPS4
IP1364	METO

Reference Half Cell (Ag/AgCl) - IJ14

Rowe Code	Connector
IP1452 - with 2.5m cable + connector	4mm
IP1456	BNCO
IP14591	TPS4

Also available, optional temperature sensors for the pH electrode (IJ46) and reference half cell (IJ16).

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Meter Accessories - Electrodes

Conventional pH Electrodes

Ionode

Rowe Code	Model	Body	Range	Tip	Connector	Description
IP1515	PBFB	Polypropylene	0-60°C	Bulb	BNC	Lab. electrode for high alkali. Suitable for continuous use over 13pH. Flow Ag/AgCl reference
IP1400	PBFC	Polypropylene	0-60°C	Bulb	BNC	General Purpose for Lab. Flow Ag/AgCl reference.
IP1500	PBFC	Polypropylene	0-60°C	Bulb	TPS4	
IP1425	GBFC	Glass	0-60°C 0-14pH	Bulb	BNC	Research Grade Lab. use Flow Ag/AgCl reference
IP1426	GBFC	Glass	0-60°C	Bulb	TPS4	
IP1430	GBFC	Glass	0-60°C	Bulb	Meto	
IP1411	IH20	Polypropylene	0-40°C 0-12pH	Spear	BNC	Economical, easy to clean membrane. Gel Ag/AgCl reference. Fully sealed
IP1526	IH20	Polypropylene	0-40°C	Spear	TPS4	



Conventional Redox Electrodes

Ionode

Rowe Code	Model	Body	Connector	Description
IP12951	IH30	Polypropylene	BNC	Gel AG/AgCl reference
IP12961	IH30	Polypropylene	BNC	(2m cable)
IP12971	IH30	Polypropylene	TPS4	
IP1306	PRFO	Polypropylene	BNC	Flow Ag/AgCl reference
IP1282	PRFO	Polypropylene	TPS4	



Single Junction Reference Electrodes

Ionode

Rowe Code	Model	Body	Range Tip	Connector	Description
IC1010	GOFC	Glass	0-66°C 0-14pH	4mm	Single Junction reference
IS1146	PJFO	Polypropylene	0-66°C	4mm	Single junction reference Ag/AgCl, flow

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Mettler Toledo - Balances

Analytical



Excellence Plus XP analytical balances. Peak weighing performance and built-in QM-tools for full regulatory compliance



Excellence XS analytical balances. Innovative ergonomics for high weighing efficiency



Classic AB analytical balances with FACT – for automatically accurate results



Classic Light AL analytical balance. Low-budget balance for simple weighing tasks



Item	Rowe Code	Description	Readability	Weighing Capacity
XP105DR	TBA	Balance, XP105 Delta Range®	0.01mg / 0.1mg	31g/120g
XP205	TBA	Balance, XP205	0.01mg	220g
XP205DR	IB3220	Balance, XP205 Delta Range®	0.01mg / 0.1mg	81g/220g
XP204	TBA	Balance, XP204	0.1mg	220g
XP504	TBA	Balance, XP504	0.1mg	520g
XP504DR		Balance, XP504 Delta Range®	0.1mg / 1mg	101g/520g
XS105DU	IB3510	Balance, XS105DU Dual Range	0.01mg/0.1mg	41g/ 120g
XS205DU	IB3210	Balance, XS205DU Dual Range	0.01mg/0.1mg	81g/210g
XS64	TBA	Balance, XS64	0.1mg	61g
XS104	TBA	Balance, XS104	0.1mg	120g
XS204	IB3200	Balance, XS204	0.1mg	220g
XS204DR	TBA	Balance, XS204DR Delta Range	0.1mg/1mg	81g/ 220g
11139502	TBA	AB135-S/FACT Analytical Bal with FACT Dual range	0.01mg/0.1mg	31g/ 120g
11139506	TBA	AB265-S/FACT Analytical Bal with FACT Dual range	0.01mg/0.1mg	61g/ 220g
11139574	TBA	AB54-S/FACT Analytical Balance with FACT	0.1mg	51g
11139578	TBA	AB104-S/FACT Analytical Balance with FACT	0.1mg	110g
11139582	IB3520	AB204-S/FACT Analytical Balance with FACT	0.1mg	220g
11139586	TBA	AB304-S/FACT Analytical Balance with FACT	0.1mg	320g
AL54/00	IB3505	Balance	0.1 mg	51 g
AL54/01	TBA	Balance with RS232	0.1 mg	51 g
AL104/00	TBA	Balance	0.1 mg	110 g
AL104/01	TBA	Balance with RS232	0.1 mg	110 g
AL204/00	TBA	Balance	0.1 mg	210 g
AL204/01	TBA	Balance with RS232	0.1 mg	210 g

Optional RS232 interface Supplied with external calibration weight.

Microbalances

UMX2	TBA	Microbalance, UMX2	0.1µg	2100mg
MX5	IB2092	Microbalance, MX5	1µg	5100mg
AX26DR	TBA	Balance, AX26 Delta Range®	2µg / 0.01mg	3g/21g

The METTLER TOLEDO UMX is an innovative micro balance, which sets new world standards for weighing performance, user friendliness and quality standards. The UMX has a very high resolution: 50 million digits. A brilliant touch screen display, intelligent user guidance, and hands-free infrared draft shield control make this highly-precise balance faster, easier and more fun to use than ever before

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Mettler Toledo - Balances

Moisture Analysis

The halogen moisture analyzers from METTLER TOLEDO warrant reliable moisture determination within just minutes. The circular halogen lamp and gold-plated reflector ensure the exceptionally fast and repeatable heating of the sample. The easy operation, automatic method development and sophisticated QM Tools are among the unique features for regulated use.

Item	Rowe Code	Description	Readability	"Weighing Capacity"
HR83P	TBA	Halogen Moisture analyser, HR83, with built in printer	1mg	81g
HR83	IB2038	Halogen Moisture analyser, HG83	1mg	81g
HG63P	IB2040	Halogen Moisture analyser, HG63, with built in printer	1mg	61g
HG63	TBA	Halogen Moisture analyser, HG63	1mg	61g
HB43	IB2012	Halogen Moisture analyser, HB43	1mg	41g



Precision balances XP S platforms

XP204S	TBA	Balance, XP204S	0.1mg	210g
XP404S	TBA	Balance, XP404S	0.1mg	410g
XP404SDR	TBA	Balance, XP404S Delta Range®	0.1mg/1mg	80g/410g
XP203S	TBA	Balance, XP203S	0.001g	210g
XP603S	TBA	Balance, XP603S	0.001g	610g
XP603SDR	TBA	Balance, XP603S Delta Range®	0.001g / 0.01g	120g/ 610g
XP1203S	TBA	Balance, XP1203S	0.001g	1210g
XP2003SDR	IB3710	Balance, XP2003S Delta Range®	0.001g / 0.01g	500g/ 2100g
XP5003SDR	TBA	Balance, XP5003S Delta Range®	0.001g / 0.01g	1000g/ 5100g
XP1202S	TBA	Balance, XP1202S	0.01g	1210g
XP4002S	TBA	Balance, XP4002S	0.01g	4100g
XP6002S	TBA	Balance, XP6002S	0.01g	6100g
XP6002SDR	TBA	Balance, XP6002S Delta Range®	0.01g / 0.1g	1200g/ 6100g
XP8002S	TBA	Balance, XP8002S	0.01g	8100g
XP10002S	TBA	Balance, XP10002S	0.01g	10100g
XP10002SDR	TBA	Balance, XP10002S Delta Range®	0.01g / 0.1g	2000g/ 10100g
XP4001S	TBA	Balance, XP4001S	0.1g	4100g
XP6001S	TBA	Balance, XP6001S	0.1g	6100g
XP8001S	TBA	Balance, XP8001S	0.1g	8100g
XP10001S	TBA	Balance, XP10001S	0.1g	10100g

Leading in terms of weighing performance and ease of use, our Excellence balances increase your productivity, support regulatory compliance and offer clever solutions for instrument control and data management.



Precision balances XP M platforms

XP6002MDR	TBA	Balance, XP6002M Delta Range®	0.01g / 0.1g	1200g/ 6100g
XP12002MDR	TBA	Balance, XP12002M Delta Range®	0.01g / 0.1g	2400g/ 12100g
XP8001M	TBA	Balance, XP8001M	0.1g	8100g
XP8001MDR	TBA	Balance, XP8001M Delta Range®	0.1g / 1.0g	1600g/ 8100g
XP12001M	TBA	Balance, XP12001M	0.1g	12100g
XP12000M	TBA	Balance, XP12000M	1.0g	12100g
XP16001M	TBA	Balance, XP16001M	0.1g	16,100g
XP20001M	TBA	Balance, XP20001M	0.1g	20,100g
XP20000M	TBA	Balance, XP20000M	1g	20,100g



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Mettler Toledo - Balances

Excellence precision balances XP
L platforms

Item	Rowe Code	Description	Readability	Weighing Capacity
XP8001L	TBA	Balance, XP8001	0.1g	8,100g
XP16001L	TBA	Balance, XP16001L	0.1g	16,100g
XP32001L	TBA	Balance, XP32001	0.1g	32,100g
XP32001LDR	TBA	Balance, XP32001L Delta Range®	0.1g / 1g	6400g/ 32100g
XP64001L	TBA	Balance, XP64001L	0.1g	64,100g
XP16000L	TBA	Balance, XP16000L	1g	16,100g
XP32000L	TBA	Balance, XP32000L	1g	32,100g
XP64000L	TBA	Balance, XP64000L	1g	64100g

Excellence precision balances XS
S platforms

XS203S	TBA	Balance, XS203S	0.001g	210 g
XS403S	TBA	Balance, XS403S	0.001g	410 g
XS603S	TBA	Balance, XS603S	0.001g	610 g
XS603SDR	TBA	Balance, XS603S DeltaRange®	0.001g / 0.01g	120 g / 610 g
XS1003S	TBA	Balance, XS1003S	0.001g	1010 g
XS802S	TBA	Balance, XS802S	0.01g	810 g
XS2002S	TBA	Balance, XS2002S	0.01g	2100 g
XS4002S	TBA	Balance, XS4002S	0.01g	4100 g
XS4002SDR	TBA	Balance, XS4002S DeltaRange®	0.01g / 0.1g	800g/4100 g
XS6002S	TBA	Balance, XS6002S	0.01g	6100 g
XS6002SDR	TBA	Balance, XS6002S DeltaRange®	0.01g / 0.1g	1200g/ 6100g
XS4001S	TBA	Balance, XS4001S	0.1g	4100g
XS6001S	TBA	Balance, XS6001S	0.1g	6100g
XS8001S	TBA	Balance, XS8001S	0.1g	8100g

Excellence precision balances XS
M platforms

XS6001M	TBA	Balance, XS6001M	0.1g	6100g
XS6001MDR	TBA	Balance, XS6001M DeltaRange®	0.1g / 1g	1200g/ 6100g
XS10001M	TBA	Balance, XS10001M	0.1g	10100g
XS10000M	TBA	Balance, XS10000M	1g	10100g
XS16001M	TBA	Balance, XS16001M	0.1g	16,100g
XS16000M	TBA	Balance, XS16000M	1g	16,100g

Excellence precision balances XS
L platforms

XS8001L	TBA	Balance, XS8001	0.1g	8,100g
XS16001L	TBA	Balance, XS16001L	0.1g	16,100g
XS32001L	TBA	Balance, XS32001	0.1g	32,100g
XS32001LDR	TBA	Balance, XS32001L Delta Range®	0.1g / 1g	6400g/ 32100g
XS16000L	TBA	Balance, XS16000L	1g	16,100g
XS32000L	TBA	Balance, XS32000L	1g	32,100g

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Mettler Toledo - Balances

Item	Rowe Code	Description	Readability	Weighing Capacity
XP8001L	TBA	Balance, XP8001	0.1g	8,100g
XP16001L	TBA	Balance, XP16001L	0.1g	16,100g
XP32001L	TBA	Balance, XP32001	0.1g	32,100g
XP32001LDR	TBA	Balance, XP32001L Delta Range®	0.1g / 1g	6400g/ 32100g
XP64001L	TBA	Balance, XP64001L	0.1g	64,100g
XP16000L	TBA	Balance, XP16000L	1g	16,100g
XP32000L	TBA	Balance, XP32000L	1g	32,100g
XP64000L	TBA	Balance, XP64000L	1g	64100g

Excellence precision balances XP L platforms



XS203S	TBA	Balance, XS203S	0.001g	210 g
XS403S	TBA	Balance, XS403S	0.001g	410 g
XS603S	TBA	Balance, XS603S	0.001g	610 g
XS603SDR	TBA	Balance, XS603S DeltaRange®	0.001g / 0.01g	120 g / 610 g
XS1003S	TBA	Balance, XS1003S	0.001g	1010 g
XS802S	TBA	Balance, XS802S	0.01g	810 g
XS2002S	TBA	Balance, XS2002S	0.01g	2100 g
XS4002S	TBA	Balance, XS4002S	0.01g	4100 g
XS4002SDR	TBA	Balance, XS4002S DeltaRange®	0.01g / 0.1g	800g/4100 g
XS6002S	TBA	Balance, XS6002S	0.01g	6100 g
XS6002SDR	TBA	Balance, XS6002S DeltaRange®	0.01g / 0.1g	1200g/ 6100g
XS4001S	TBA	Balance, XS4001S	0.1g	4100g
XS6001S	TBA	Balance, XS6001S	0.1g	6100g
XS8001S	TBA	Balance, XS8001S	0.1g	8100g

Excellence precision balances XS S platforms



XS6001M	TBA	Balance, XS6001M	0.1g	6100g
XS6001MDR	TBA	Balance, XS6001M DeltaRange®	0.1g / 1g	1200g/ 6100g
XS10001M	TBA	Balance, XS10001M	0.1g	10100g
XS10000M	TBA	Balance, XS10000M	1g	10100g
XS16001M	TBA	Balance, XS16001M	0.1g	16,100g
XS16000M	TBA	Balance, XS16000M	1g	16,100g

Excellence precision balances XS M platforms



XS8001L	TBA	Balance, XS8001	0.1g	8,100g
XS16001L	TBA	Balance, XS16001L	0.1g	16,100g
XS32001L	TBA	Balance, XS32001	0.1g	32,100g
XS32001LDR	TBA	Balance, XS32001L Delta Range®	0.1g / 1g	6400g/ 32100g
XS16000L	TBA	Balance, XS16000L	1g	16,100g
XS32000L	TBA	Balance, XS32000L	1g	32,100g

Excellence precision balances XS L platforms



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Item	Rowe Code	Description	Readability	Weighing Capacity
11139526	IB3506	PB153-L Precision Balance	0.001g	151g
11139530	IB3541	PB303-L Precision Balance	0.001g	310g
11139534	TBA	PB303-LDR Precision Balance Delta Range	0.001g / 0.01g	60 / 310 g
11139538	IB1686	PB602-L Precision Balance	0.01g	610g
11139542	TBA	PB1502-L Precision Balance	0.01g	1510g
11139546	IB3736	PB3002-L Precision Balance	0.01g	3100g
11139550	TBA	PB3002-LDR Precision Balance Delta Range	0.01g / 0.1g	600 / 3100 g
11139554	TBA	PB1501-L Precision Balance	0.1g	1510g
11139558	TBA	PB3001-L Precision Balance	0.1g	3100g
11139562	IB3596	PB5001-L Precision Balance	0.1g	5100g
11139566	IB1955	PB8001-L Precision Balance	0.1g	8100g
11139570	IB3528	PB8000-L Precision Balance	1g	8100g
SB8001	IB1953	Balance, SB8001	0.1g	8100g
SB12001	TBA	Balance, SB12001	0.1g	12100g
SB16001	IB2200	Balance, SB16001	0.1g	16100g
SB16001DR	IB3746	Balance, SB16001 Delta Range	0.1g / 1g	3200/ 16100g
SB24001DR	TBA	Balance, SB24001 Delta Range	0.1g / 1g	4800/ 24100g
SB32001DR	IB2036	Balance, SB32001 Delta Range	0.1g / 1g	6400/ 32100g
SB8000	TBA	Balance, SB8000	1g	8100g
SB16000	IB2210	Balance, SB16000	1g	16100g
SB32000	IB2212	Balance, SB32000	1g	32100g



Classic precision balances PB-L and SB



PL83-S/00	TBA	Balance	0.001 g	81 g
PL83-S/01	TBA	Balance with RS232	0.001 g	81 g
PL303/00	TBA	Balance	0.001 g	310 g
PL303/01	TBA	Balance with RS232	0.001 g	310 g
PL202-S/00	IB3543	Balance	0.01g	210 g
PL202-S/01	TBA	Balance with RS232	0.01g	210 g
PL602-S/00	IB1687	Balance	0.01g	610 g
PL602-S/01	TBA	Balance with RS232	0.01g	610 g
PL1502-S/00	TBA	Balance	0.01g	1510 g
PL1502-S/01	TBA	Balance with RS232	0.01g	1510 g
PL3002/00	IB1921	Balance	0.01 g	3100 g
PL3002/01	TBA	Balance with RS232	0.01 g	3100 g
PL601-S/00	IB1680	Balance	0.1g	610 g
PL601-S/01	IB3716	Balance with RS232	0.1g	610 g
PL1501-S/00	IB2099	Balance	0.1g	1510 g
PL1501-S/01	TBA	Balance with RS232	0.1g	1510 g
PL3001-S/00	IB1920	Balance	0.1g	3100 g
PL3001-S/01	TBA	Balance with RS232	0.1g	3100 g
PL6001-S/00	TBA	Balance	0.1g	6100 g
PL6001-S/01	TBA	Balance with RS232	0.1g	6100 g
PL6000-S/00	IB3741	Balance	1 g	6100 g
PL6000-S/01	TBA	Balance with RS232	1 g	6100 g

Classic Light Precision Balances PL



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Mettler Toledo - Balances

Printers and Printer Accessories



Item	Rowe Code	Description
RS-P42	IT4220	Printer
BT-P42	TBA	Printer, Blue tooth
LC-P43	IB2025	Printer, simple dot matrix, LC interface for PR, SR, PG, SG, AB, PB, SB, HR73 & HG52
LC-P45	IB2030	Printer, versatile dot matrix, LC/RS232 interface for all MT Instruments
LC-PVolume	TBA	Pipette calibration printer for professional and standard balances
00072456	TBA	Paper, set of 5 rolls, for LC-P45, LC-P43, SQC14, GA42, RS-P42
00071328	TBA	Printer Paper, set of 4 rolls, for GA44
00065975	IB2020	Ink ribbon, 1 unit, for LC-P45, LC-P43, SQC14, GA42, RS-P42 (Must buy in Qty of 2)
11600388	TBA	Paper, adhesive, 1 roll, for LC-P45, LC-P43, SQC14, GA42, RS-P42
Anti-Theft	TBA	
590101	IB1999	Anti theft device, cable lock for AB-S/PB-S/SB/PG-S/SG/PR/SR/PL/AL
229175	TBA	Anti theft device, metal rod lock, pin with lock for AB/PB/PG/PR
11600361	IB1998	Anti theft device, steel cord, for XS/XP/AX
In-Use Covers	TBA	
11103681	IB2082	In use cover, for AB-S, PB-S
11100830	IB2073	In use cover, for front terminal, AX, MX, UMX
12102970	IB3230	In use cover, AL/PL
12102980	IB2014	In use cover, PL-S
11106870	TBA	In use cover, XS analytical & precision terminal
11100089	TBA	Dust cover for AX

Interface Output Options

11103678	TBA	Interface RS232 for AB-S, PB-S, standard on models shipped after March 9, 2000
11100070	TBA	Interface RS232 for UMX, MX, AX balances
11100071	TBA	Interface LocalCan for UMX, MX, AX balances
11100072	TBA	Interface Mini Mettler for UMX, MX, AX balances
11132500	TBA	Interface, RS232 for XS (additional)
11132505	TBA	Interface, LC option, LocalCAN for XS
11132510	TBA	Interface Mini Mettler for XS & XP
11132520	TBA	Interface PS/2 for XS & XP
11132535	TBA	Interface Bluetooth for XS & XP
11132515	TBA	Interface Ethernet for XS & XP

Software

237010	TBA	BalanceLink Software 3.5" Disk (Windows and NT)
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titration made easy ...

Titration

METTLER TOLEDO

DL50 RONDOLINO

METTLER TOLEDO introduced a new and innovative solution to run small batches of titrations more efficiently: The DL50 Rondolino. The titrator offers the same set of functions as the successful DL50 Graphix titrator, but allows much more efficient sample handling due to the Rondolino autostand. With the DL50 Rondolino, titrating a series of up to 9 samples can be analysed fully automatically. Just put the sample beakers into the rack of the Rondolino and press run. All the samples will be titrated without further assistance from the user.

The system is as effortless to set up and maintain as a non-automated system. No extensive configuration of the autostand is necessary. Basically, connecting the cable to the titrator is all you have to do. Due to the revolutionary compact size of the Rondolino, the DL50 Rondolino needs very little benchspace, not much more than a titrator alone.

The solution is not only perfect for small sample series but also has many advantages when used with single samples: Due to automated processing, the reproducibility gets better, the manipulation is easier because no manual rinsing is necessary and the electrodes are well protected because they are always automatically stored in a conditioning beaker.

For dirty and sticky samples, Rondolino can be equipped with the optional PowerShower rinsing system. The PowerShower, which is also used on the Rondo sample changer, provides ultra-efficient rinsing of electrode, burette tip and stirrer after each titration.

Rondolino

Rondolino autostand - 9 samples

Rowe Code: TBA

DL50 Rondolino

Automatic Graphix Titrator with 9 sample Rondolino autostand.

Rowe Code: TBA

DL50 Graphix

Automatic Titrator - Graphix single burette drive.

Rowe Code: IT4200



DL15 Titrator - The DL15 is ideal for the many different industries when all that is needed is an endpoint titration or a pH measurement. Most often the DL15 is used to determine acid and base content (acidity and alkalinity).

Rowe Code: TBA

DL22 Food & Beverage Analyzer - The DL22 Food & Beverage Analyzer is a specialized instrument for the food and beverage industry. It includes methods with predefined parameters most commonly used in these industries, making life as easy as possible, eg citric acid in orange juice, acid in wine, nitrogen determination according to Kjeldahl etc.

Rowe Code: TBA

DL28 Titrator - The DL28 is a compact endpoint and equivalence point titrator for the food, water and chemical industries. It includes a lot of methods commonly used in the field. In addition, the DL28 offers the option of further customizing the parameter sets to fine tune your analysis even more.

Rowe Code: IT4002



Mettler Toledo - High End Titrators

- The DL5x and DL7x Series of Titrators are suitable for any application from basic to complex multi-stage titrations and can be fully automated using multi-burette drives and sample carousels.

Rowe Code: TBA

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METTLER TOLEDO manufacture a comprehensive range of titrators from entry-level through to advanced multi-burette, fully automated titrators, including an industry specific (Food & Beverage) instrument.

Rowe Code	Model	Description
DL7X Titrators		
TBA	DL70ES	Titrator DL70ES Multi-Burette Drive Titrator
TBA	DL77	Titrator DL77 Multi-Burette Titrator (DL70ES with addition of second burette drive)
DL5X Titrators		
IT4200	DL50Graphix	Titrator DL50 Graphix, Single Burette Drive Titrator (complete with burette included)
TBA	DL50Rondolino	"DL50 Rondolino, Automated titration system includes DL50Graphix Titrator and the Rondolino Autosampler (complete with burette included)"
TBA	DL53	Titrator DL53, Single-Burette Drive Titrator with Enhanced Software
TBA	DL55	Titrator DL55, Dual-Burette Drive Titrator
TBA	DL58	Titrator DL58, Flexible Method Dual-Burette Drive Titrator
All DL7X and DL5X are supplied with LabX Software.		
DLow Titrators		
TBA	DL15	Titrator DL15 Compact Endpoint Titrator
TBA	DL22F&B	Titrator DL22 Food and Beverage Analyzer
TBA	DL28	Titrator DL28 Compact Endpoint and Equivalence Point Titrator
All DLow titrators are supplied with titration stand, DG115-SC electrode and DV1020 burette. DL15 is supplied with magnetic stirrer and the DL22F&B and DL28 come with Compact stirrer(no magnetic stirrer)		
Accessories & Consumables - DL7x / DL5x Titrators		
TBA	51107269	KF option for DL53, DL55, and DL58
TBA	00025660	DV90: Burette drive
TBA	00025692	DV92: Dual titration stand
Software		
TBA	51106331	LabX Light titration
TBA	51106300	LabX pro titration
TBA	51710131	LabX Validation Manual I (supplier documentation)
TBA	51710166	LabX Validation Manual II (for system qualification)
Sample Transports		
TBA	RONDOLINO	Basic Sample Transport for DL5X - 9 sample capacity with fixed rinse/condition beaker. Includes 20 beakers, dispensing tubes and connecting cable to DL5x. Diaphragm pump and power shower not included.
TBA	51108000	Rondo 60 Multifunction Sample Transport 20 sample capacity, includes one tower, one rinse pump, 20 beakers, dispensing tubes and connecting cable to DL5x,DL7x.
Sample Changes		
TBA	QUANTO/A	QUANTO Aliquot - Includes diaphragm pump, peristaltic pump, transfer rack, titration beaker, 100 test tubes and connection tubing. Titrator connection cable sold separately.
TBA	QUANTO/D	QUANTO Direct - Includes diaphragm pump, FlipRack, titration head with PowerShower mechanism, titration cups, and connection tubing. Titrator connection cable sold separately.
Karl Fischer Volumetric Titration DL31, DL38		
TBA	DL38	Karl Fischer Titrator DL38
TBA	DL31	Karl Fischer Titrator DL31
Karl Fischer Coulometric Titration DL32, DL39		
TBA	DL32X	Routine Coulometric Titrator DL32X
TBA	DL32D	Routine Coulometric Titrator DL32D (incl. Cell w/ Diaphragm)
TBA	DL39X	Advanced Coulometric Titrator DL39X
TBA	DL39D	Routine Coulometric Titrator DL39D (incl. Cell w/ Diaphragm)

FOOD

Thanks to its ease-of-use, the DL50 Rondolino is ideally suited for typical near-process environments in the **food industry**. Possible applications are: acid and chloride content; peroxide number, iodine number, acid number and free fatty acid content (FFA); pH, acid, free and total SO₂ and reducing sugars.

PHARMACEUTICAL

The perfect documentation functions of the DL50 Rondolino are a big advantage in the **pharmaceutical industry**. Typical applications are: the titration of weak acids, acid neutralizing capacity of antacids; pH stating of enzymatic reactions; titrations in non aqueous media.

CHEMICAL

DL50 Rondolino's great flexibility allows it to be adapted for numerous applications in the **chemical industry**: alkali and carbonate content; chloride content; acid strength; determination of heavy metals; epoxy values in polymers and resins; general chloride determination; surfactant determinations; total acid number(TAN); total base number (TBN) and bromine number.

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Microscopes

MICROSCOPES

MICROSCOPE COVER GLASS

MICROSCOPE SLIDES

MICROSCOPE ACCESSORIES

Some Microscopes come with a range of options on eye pieces etc. To find out more about how you can "customise" microscopes to suit your application and needs, speak with a Rowe Scientific consultant.

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Microscopes

Dissection Microscopes

Rowe Code TBA Model LM50 & LM100

	LM50	LM100
Size	128x112x188mm	128x122x176mm
Eye Point	11.3mm	6.5mm
Field of View	Largest diameter 6.0mm	Largest diameter 6.0mm
Magnification	10X-50X, freely selectable	20X-100X, freely selectable
Illumination	Top Light: LED with intensity control	Top Light: LED with intensity control
	Bottom Light; LED with intensity control	Bottom Light: LED with intensity control
Power Supply	3 x AA alkaline batteries (1.5V) Not included	3 x AA alkaline batteries (1.5V) Not included
Focusing Range	30mm	30mm



Rowe Code TBA Model AIS-10-P

Vertical Binocular Head
Widefield Eyepieces WF10X/20mm
Objective 2X
Plain pillar stand



Rowe Code TBA Model AIS-20-LO

Binocular Head, inclined 45°
Widefield Eyepieces WF10X/20mm
Objective 2X
Incident Light 12V/10W
Main Supply 220V-240V (CE)



Student Biological Microscopes

Rowe Code TBA Model DM-52

Head, 45° inclined with a built-in Digital Camera
Single Widefield 10X Eyepiece (lockable)
Forward facing triple nosepiece with positive click-stops
Coated Glass Objectives, 4X, 10X, 40X (spring)
Moving and rotating circular stage with stage clips
Fine-touch single focusing control on both sides
Built-in LED-type condenser with diffuser
Rechargeable LED with stepless intensity control
Removable 110V-240V variable voltage charger



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Microscopes



Rowe Code TBA Model TT-52LED

Monocular Head, inclined 45°, 360° rotating
 WF10X eyepiece with built in pointer
 4X, 10X (spring) objectives
 Triple revolving nosepiece with click stops
 Single coarse/fine focusing control
 Moveable and rotatable stage with spring loaded stage clips
 Rechargeable LED illumination with intensity control
 Safety auto-cut off charger 120V-240V
 Dust Cover



Rowe Code TBA Model AIS-M2L

Monocular Head, inclined 45° and 360° rotating
 Widefield WF10X (FN18) eyepiece
 Achromatic 4X/0.10; 10X0.25; 40X0.65 (spring) objectives
 Triple revolving nosepiece with click stops
 Separate coarse/fine focusing adjustment
 Fixed spring loaded stage clips
 Fixed Abbe condenser
 Iris diaphragm with filter holder (32mm blue filter included)
 Built-in illumination with 240V/20W Tungsten lamp



Rowe Code EM4045 Model AIS-260

40X-1000X magnification range
 4X, 10X, S40X & S100X objectives
 WF10X - 18mm eyepiece
 Monocular 45° angle, 360° rotatable head
 Ball bearing mechanical stage W135 x D135mm tracking 70mm x 30mm
 0.1mm
 Substage condenser N.A. 1.25 with Iris Diaphragm
 12V 20W Halogen illumination with variable intensity 2mm 2.5mm

Rowe Code EM4115 Model AIS-262

40X-1000X magnification range
 4X, 10X, S40X & S100X objective
 WF10X - 18mm eyepiece
 Binocular 45° angle 360° rotatable head
 Ball bearing mechanical stage W135 x D135mm tracking 70mm x 30mm
 0.1mm
 Substage condenser N.A. 1.25 with Iris Diaphragm
 12V 20W Halogen illumination with variable intensity 2mm 2.5mm



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Microscopes

Stereo Microscopes

Rowe Code EM4391 Model SMZ-140-N2GG

Binocular head 45° inclined, 360° rotating
Widefield eyepieces WF10X/20mm
Zoom range: 1:4
Incident halogen light 12V/15W with intensity control
Transmitted halogen light 12V/10W with intensity control
Main supply 220V-240V
Pole type stand



Rowe Code EM4244 Model SMZ-143-N2TG

Trinocular head 45° inclined, 360° rotating
Widefield eyepieces WF10X/120mm
Zoom range: 1:4
Incident halogen light 12V/15W with intensity control
Transmitted halogen light 12V/10W with intensity control
Main supply 220V-240V
Pole type stand
Including CCD adapter only

Rowe Code TBA Model SMZ-168-BP

Binocular head 35° inclined, 350° rotating
Widefield eyepieces WF10X/23mm
Zoom ratio: 1:6:7, Zoom objectives range 0.75X - 5X
Pole type stand



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Microscopes

Inverted Microscopes



Rowe Code TBA Model AE-20 (Binocular head)
Model AE-21 (Trinocular head)

Siedentopf type heads, 45° inclined
Widefield high eyepoint eyepiece WF10X/20
Side facing quadruple nosepiece
CCIS E Plan Achromat objective EPL4X, LWD EPL40X
CCIS E Plan Achromat phase objective EPL Ph10X, LWD EPL Ph20X
ELWD N.A. 0.30 condenser with phase slider, centerable Ph1, Ph3, brightfield
Centering telescope
Plain Stage
Halogen illumination 6V/30W with intensity control
45mm blue, green interference and neutral density filters
Hexagonal keys, vinyl dust cover
Universal power supply 100-240V, CE



Rowe Code TBA Model AE-30 (Binocular head)
Model AE-31 (Trinocular head)

Siedentopf type heads, 45° inclined
WF PL 10X/22mm eyepiece, focusable with diopter adjustment and rubber eyecup
Side facing quintuple nosepiece
CCIS Plan Achromat objective PL4X
CCIS Plan Achromat phase objective PL Ph10X, LWD PL Ph20X, LWD PL Ph40X
ELWD N.Z. 0.30 condenser
Phase slider, centerable, Ph 1, brightfield, Ph3 Centering telescope
Plain stage, glass and metal stage inserts
Koehler illumination: AE-30 centerable lamp 6V/30W
AE-31 quarta halogen 6V/30W
45mm blue, green interference and neutral density filters
Hexagonal keys, vinyl dust cover
Universal power supply 100-240V CE

Laboratory Biological Microscope



Rowe Code TBA Model B3-220

Binocular Siedentopf type head can be rotated 360° inclined 30° from horizontal and has constant tube length with graduated interpupillary adjustment from 55mm to 75mm. Diopter adjustment can be made on the left eyepiece tube +/- 5. Magnification factor 1X.

Trinocular Tube - Model B3-223, inclined 30° from horizontal, has constant tube length with graduated interpupillary adjustment from 55 to 75mm, vertical photo tube; two-way prism slider for 100% visual or 20%/80% photo. Diopter adjustment can be made on the left eyepiece tube +/- 5. Magnification factor 1X

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www.rowe.com.au

Microscopes

Rowe Code TBA Model BA-300

The BA300 Binocular and Trinocular have Siedentopf type head 30° inclined, 36 ° rotating
Widefield high eyepoint eyepiece WF PL 10X/20mm with diopter adjustment on both eyepieces
Reversed quintuple nosepiece
CCIS EF Plan Achromat objectives 4X, 10X, 40X S, 100X S-Oil
Built in low position coaxial mechanical stage, right hand control
Focusable Abbe condenser N.A. 1.25 with iris diaphragm
Koehler illumination quartz halogen 6V/30W with intensity control
45mm blue filter, immersion oil (5mL), power cord, allen hexagonal key, vinyl dust cover
Universal power supply 100-240V CE



Laboratory Biological Microscope

Rowe Code TBA Model SL-41

Widefield eyepieces WF10X 9FN20) (paired)
Long working distance objectives 2X
With head and objectives
Pen light 12V/10W, main supply 220V-240V



Rowe Code TBA Model SL-47

Widefield eyepieces WF10X 9FN20) (paired)
Long working distance objectives 2X
With head and objectives
Pen light 12V/10W, main supply 220V-240V



Microscope - Cover Glasses



Cover glasses are made of borosilicate glass of the first hydrolytic class and are manufactured according to the requirements of DIN ISO 8255.

Cover glasses, thickness No. 1 (0.13 to 0.16 mm), suitable for in-vitro-diagnostic applications,

Rowe Code	Cat. No.	Product description	Size mm	Unit of quantity	Pack size
	01 010 50	Cover glasses No. 1, 100 pcs./two-part-box	22x22	piece	10x100
	01 010 52	Cover glasses No. 1, 200 pcs./hinged-lid box	22x22	piece	10x200
GM2360	01 010 53	Cover glasses No. 1, 1 ounce/hinged-lid box	22x22	ounce	10
	01 010 60	Cover glasses No. 1, 100 pcs./two-part-box	24x24	piece	10x100
	01 010 62	Cover glasses No. 1, 200 pcs./hinged-lid box	24x24	piece	10x200
GM 2500	01 010 63	Cover glasses No. 1, 1 ounce/hinged-lid box	24x24	ounce	10
	01 010 92	Cover glasses No. 1, 200 pcs./hinged-lid box	21x26	piece	10x200
	01 011 02	Cover glasses No. 1, 100 pcs./hinged-lid box	22x30	piece	10x100
	01 011 03	Cover glasses No. 1, 1 ounce/hinged-lid box	22x30	ounce	10
	01 011 12	Cover glasses No. 1, 100 pcs./hinged-lid box	22x32	piece	10x100
GM 2404	01 011 13	Cover glasses No. 1, 1 ounce/hinged-lid box	22x32	ounce	10
	01 011 22	Cover glasses No. 1, 100 pcs./hinged-lid box	22x40	piece	10x100
GM2450	01 011 23	Cover glasses No. 1, 1 ounce/hinged-lid box	22x40	ounce	10
	01 011 42	Cover glasses No. 1, 100 pcs./hinged-lid box	22x50	piece	10x100
	01 011 43	Cover glasses No. 1, 1 ounce/hinged-lid box	22x50	ounce	10
	01 011 52	Cover glasses No. 1, 100 pcs./hinged-lid box	22x60	piece	10x100
	01 011 72	Cover glasses No. 1, 100 pcs./hinged-lid box	24x32	piece	10x100
	01 011 73	Cover glasses No. 1, 1 ounce/hinged-lid box	24x32	ounce	10
	01 011 82	Cover glasses No. 1, 100 pcs./hinged-lid box	24x36	piece	10x100
	01 011 92	Cover glasses No. 1, 100 pcs./hinged-lid box	24x40	piece	10x100
	01 011 93	Cover glasses No. 1, 1 ounce/hinged-lid box	24x40	ounce	10
	01 012 02	Cover glasses No. 1, 100 pcs./hinged-lid box	24x46	piece	10x100
	01 012 12	Cover glasses No. 1, 100 pcs./hinged-lid box	24x48	piece	10x100
	01 012 22	Cover glasses No. 1, 100 pcs./hinged-lid box	24x50	piece	10x100
GM2550	01 012 23	Cover glasses No. 1, 1 ounce/hinged-lid box	24x50	ounce	10
	01 012 32	Cover glasses No. 1, 100 pcs./hinged-lid box	24x55	piece	10x100
	01 012 33	Cover glasses No. 1, 1 ounce/hinged-lid box	24x55	ounce	10
	01 012 42	Cover glasses No. 1, 100 pcs./hinged-lid box	24x60	piece	10x100
	01 012 43	Cover glasses No. 1, 1 ounce/hinged-lid box	24x60	ounce	10
	01 012 44	Cover glasses No. 1, 2 ounce/hinged-lid box	24x60	ounce	20



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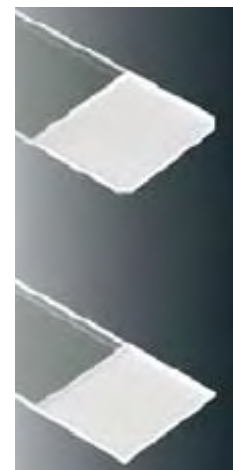
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Microscope - Slides



Microscope slides, approx. 75 x 25 mm, thickness approx. 1 mm, in boxes of 50 pieces, for increased safety the corners have been clipped and the edges are carefully ground water-cooled at an angle of 90°, suitable for in-vitro-diagnostic applications,

Rowe Code	Cat. No.	Product description	Size mm	Unit of quantity	Pack size
TBA	10 008 12	Slides clipped corners, plain. No polypropylene film wrapping.	75x25	piece	50x50
TBA	10 009 12	Slides clipped corners, twin-frosted. No polypropylene film wrapping.	75x25	piece	50x50



Microscope slides with ground edges 90°, approx. 75 x 25 mm, thickness approx. 1 mm, in boxes of 50 pieces, suitable for in-vitro-diagnostic applications,

TBA	10 054 12	Slides, pw. Ground edges, plain, packed in aluminium bag, without individual polypropylene film wrapping.	75x25	piece	50x50
TBA	10 056 12	Slides, pw. Ground edges, twin-frosted, packed in aluminium bag, without individual polypropylene film wrapping.	75x25	piece	50x50



Microscope slides with ground-in and polished cavities, made of white glass, with ground edges 90°, approx. 76 x 26 mm, thickness approx. 1.2 to 1.5 mm, cavities: Ø approx. 15-18 mm, depth approx. 0.6 to 0.8 mm, capacity approx. 0.1 to 0.2 ml, suitable for in-vitro-diagnostic applications,

TBA	13 200 02	Microscope slides with 1 cavity, 50 pcs./box	76x26	piece	50
TBA	13 201 02	Microscope slides with 2 cavities, 50 pcs./box	76x26	piece	50
TBA	13 202 02	Microscope slides with 3 cavities, 50 pcs./box	76x26	piece	50

Universal

Rowe Code	Type	Thickness mm	Length x Width mm	Std. Pack Size
GM3050	Plain	0.8 - 1.0	76 x 25	50
GM3140	Plain	1.0 - 1.2	76 x 25	50
GM2700	Frosted end	1.0 - 1.2	76 x 25	50
GM3200	Single Cavity	1.2 - 1.5	76 x 25	50
GM2650	Double Cavity	1.2 - 1.5	76 x 25	50



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Microscope - Slides



UniMark® microscope slides, with coloured area at one end, with ground edges 90°, approx. 75 x 25 x 1 mm, in boxes of 50 pieces, suitable for in-vitro-diagnostic applications, Minimum quantity for coloured slides is 5,000 pieces each per colour and order.

Rowe Code	Cat. No.	Product description	Size mm	Unit of quantity	Pack size
TBA	07 040 02	UniMark® white ground edges	75x25	piece	50x50
TBA	07 040 04	UniMark® white ground edges, gl. wrapped and sealed in polypropylene-film	75x25	piece	50x50
TBA	07 041 02	UniMark® yellow ground edges	75x25	piece	50x50
TBA	07 041 04	UniMark® yellow ground edges, gl. wrapped and sealed in polypropylene-film	75x25	piece	50x50
TBA	07 042 02	UniMark® green ground edges	75x25	piece	50x50
TBA	07 042 04	UniMark® green ground edges, gl. wrapped and sealed in polypropylene-film	75x25	piece	50x50
TBA	07 043 02	UniMark® blue ground edges	75x25	piece	50x50
TBA	07 043 04	UniMark® blue ground edges, gl. wrapped and sealed in polypropylene-film	75x25	piece	50x50
TBA	07 044 02	UniMark® pink ground edges	75x25	piece	50x50
TBA	07 044 04	UniMark® pink ground edges, gl. wrapped and sealed in polypropylene-film	75x25	piece	50x50
TBA	07 045 02	UniMark® orange ground edges	75x25	piece	50x50
TBA	07 045 04	UniMark® orange ground edges, gl. wrapped and sealed in polypropylene-film	75x25	piece	50x50

HistoBond® + adhesive microscope slides with silane treated surfaces for reliable adhesion of tissue sections, with ground edges 90°, approx. 75 x 25 x 1 mm, with coloured area at one end, 100 microscope slides in a plastic box, suitable for in-vitro-diagnostic applications,

TBA	08 000 00	HistoBond® white glass, twin-frosted, boxes of 50	75x25	piece	50x50
TBA	08 000 01	HistoBond® white glass, twin-frosted, boxes of 100	75x25	piece	20x100
TBA	08 100 00	HistoBond® twin-frosted, boxes of 50	75x25	piece	50x50
TBA	08 100 01	HistoBond® twin-frosted, boxes of 100	75x25	piece	20x100
TBA	08 104 01	HistoBond® + white	75x25	piece	20x100
TBA	08 104 11	HistoBond® + yellow	75x25	piece	20x100
TBA	08 104 21	HistoBond® + green	75x25	piece	20x100
TBA	08 104 31	HistoBond® + blue	75x25	piece	20x100
TBA	08 104 41	HistoBond® + pink	75x25	piece	20x100
TBA	08 104 51	HistoBond® + orange	75x25	piece	20x100

The Marienfeld grinding and polishing processes are always carried out water-cooled. This results in an excellent quality of the slides' edges which cannot be matched by any dry grinding process. For different applications we offer microscope slides with 3 different types of edges: •Cut edges for economical routine diagnosis of non-infectious specimen • Smooth and burr-free wet ground edges with 90° shape. When handling infectious material it is strongly recommended to use this type of slides for increased safety • Smooth and burr-free wet ground edges with 90° shape and with precisely clipped corners. Recommended for reducing the risk of cuts and for usage on some automatic machinery

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Microscope - Accessories - Embedding Cassettes

STANDARD: Without lid, naps at the rear side serve to fix the regular stainless steel lid, entirely perforated bottom part increases adhesion of paraffin blocks to the cassette, 500 cassettes in a bag.

Embedding cassettes made of high-grade technical plastic (POM), resistant against all common solvents used in laboratories, with one 45° inclined and 2 vertical marking areas, to fit all common fixing clamps

Rowe Code	Cat. No.	Product description	Unit of quantity	Pack size
TBA	52 525 00	Embedding cassettes Standard light blue	piece	10,000
TBA	52 525 01	Embedding cassettes Standard yellow	piece	10,000
TBA	52 525 02	Embedding cassettes Standard light green	piece	10,000
TBA	52 525 03	Embedding cassettes Standard grey	piece	10,000
TBA	52 525 04	Embedding cassettes Standard white	piece	10,000
TBA	52 525 07	Embedding cassettes Standard pink	piece	10,000
TBA	52 525 08	Embedding cassettes Standard beige	piece	10,000
TBA	52 525 09	Embedding cassettes Standard orange	piece	10,000



BIOPSY: Biopsy cassette perforation with 1 x 1 mm holes. Bottom and top parts are hinged and supplied assembled, 500 cassettes in a carton.

TBA	52 526 00	Embedding cassettes Biopsy light blue	piece	6,000
TBA	52 526 01	Embedding cassettes Biopsy yellow	piece	6,000
TBA	52 526 02	Embedding cassettes Biopsy light green	piece	6,000
TBA	52 526 03	Embedding cassettes Biopsy grey	piece	6,000
TBA	52 526 04	Embedding cassettes Biopsy white	piece	6,000
TBA	52 526 07	Embedding cassettes Biopsy pink	piece	6,000
TBA	52 526 08	Embedding cassettes Biopsy beige	piece	6,000
TBA	52 526 09	Embedding cassettes Biopsy orange	piece	6,000



UNIVERSAL: Bottom and top parts are hinged and supplied assembled, 500 cassettes in a carton.

TBA	52 530 00	Embedding cassettes Universal light blue	piece	6,000
TBA	52 530 01	Embedding cassettes Universal yellow	piece	6,000
TBA	52 530 02	Embedding cassettes Universal light green	piece	6,000
TBA	52 530 03	Embedding cassettes Universal grey	piece	6,000
TBA	52 530 04	Embedding cassettes Universal white	piece	6,000
TBA	52 530 07	Embedding cassettes Universal pink	piece	6,000
TBA	52 530 08	Embedding cassettes Universal beige	piece	6,000
TBA	52 530 09	Embedding cassettes Universal orange	piece	6,000



MARLENFELD

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Microscopes - Accessories

Lamps

General purpose, 25W lamp mounted in an adjustable and ventilated housing. The outer surface is ribbed and is cool to touch. The pale blue tint option provides a whiter light due to absorption of some of the red colour.

Rowe Code	Description
EM2450	Microscope lamp, 240v clear window
EM2452	Microscope lamp, 240V pale blue window



Lens Cleaning Tissue

Rowe Code	Description	Std. Pack Size
FT1015	Lens Cleaning Tissue 10cm x 15cm	25
FT1005	Lens Cleaning Tissue 12cm x 12cm	500



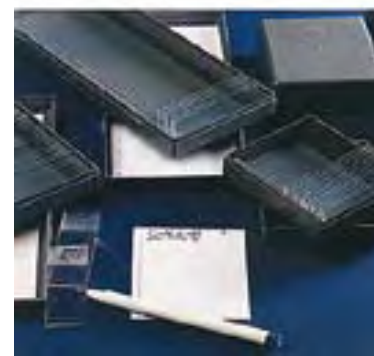
Slide Box

Material: High Impact Polystyrene

The slots are well spaced for easy handling of 76x 26 mm slides. Each slot is clearly numbered and can be cross referenced with corresponding index card. Lids are totally removable. The 50 and 100 place boxes have locating lugs so boxes can be stacked. Virtually unbreakable.

Rowe Code	No. of Places	Dimensions mm	Std. Pack Size
PM4045	25	98L x 83W x 38H	4
PM4048	50	230L x 97W x 35H	ea
PM4050	100	230L x 180W x 35H	ea

Kartell



Slide Mailer

Material: Polypropylene

Ideal for storing and shipping 5 to 10 microscope slides. Unbreakable, chemically inert, the container will also hold up to 12 ml as a specimen vial; 20mm of slide projects above jar, allowing easy removal. The thread of cap is very deep allowing leakproof seal for shipment. Supplied with small loop on cap for tagging. Cap should be taped for shipment.

Rowe Code	OD mm	Length mm	Std. Pack Size
PM4042	40	90	1

Kartell



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Microscopes - Accessories

Slide Dispenser

Material: ABS and AS

For fingerprint free dispensing of 76 x 26mm microscope slides. Up to 60 slides can be put in the magazine. A cover protects the slides from the ingress of dust. Each slide is dispensed by rotating the knurled knob on either side of the moulded base. Rubber rollers at the sides of the slides ease out the slide which can then be handled by the edges.

Rowe Code	Dimensions mm	Std. Pack Size
PM4040	100 x 120 x 140H	ea



Staining Jars & Troughs Kartell

A range of staining equipment is available, in a variety of designs and plastics.

Rowe Code	Description	Dimensions mm	Std. Pack Size
PS1220	Staining Jar with 2 lids	81 x 101 x 70H	ea
PS1210	Staining Rack for PS1220		
	Holds 20 slides		
PS1230	Staining Jar, Hellendhal type	58 x 53.5 x 86H	ea
	can hold 16 slides back to back		
PS1225	Staining Jar, Schifferdecker Type	85 x 70 x 80H	ea
	can hold 20 slides back to back		
PS1200	Staining trough for 25 slides	100 x 87 x 51H	ea
PM4010	Staining Rack to fit trough PS1200	91 x 79 x 38H	ea



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Mixing Paper

Ideal for mixing samples.

Rowe Code	Size mm	Std. Pack Size
RP1010	580 x 455	ea

Mortar & Pestle

Agate



Rowe Code	Diameter mm	Std. Pack Size
AM0005	40	ea
AM0004	60	ea
AM0007	70	ea
AM0002	80	ea
AM0010	100	ea
AM0014	110	ea
AM0016	125	ea



Porcelain

Rowe Code	Capacity mL	Std. Pack Size
WM1040	75	ea
WM1050	100	ea
WM1100	300	ea
WM1200	1000	ea
WM1210	2000	ea

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Mylar Film for X-Ray Spectroscopy

Rapid • Convenient • Clean • Versatile • Economical

Ideally suitable for retaining liquids, slurries or loose powder materials in x-ray sample holders or Somar Spectro-cups. These films are strong, broadly resistant to chemical attack and facilitate safe handling of materials; properly positioned, they remain taut in the sample holders permitting uniform x-ray intensities, reproducibility and analytical accuracy.

Microfine

Polyester (Mylar) with a guage of 0.00010"/ approx 2um

Rowe Code	Description	Std. Pack Size
XM1050	Roll Form, 77mm x 92m	Roll
XM1060	Roll Form, 102mm x 92m	Roll

Ultra-Thin

Polyester (Mylar) with a guage of 0.00015:/ approx 4um

Rowe Code	Description	Std. Pack Size
XM1100	Pre-cut 77 x 77mm	1000



Standard

Polyester (Mylar) with a gauge of 0.00025" / approx 6um

Rowe Code	Description	Std. Pack Size
XM1370	Pre-cut 77 x 77mm	1000
XM1455	Roll form, 77m x 92m	Roll



Mylar Half-Mil

Polyester (Mylar) with a gauge of 0.00050" / approx 13 um

Rowe Code	Description	Std. Pack Size
XM1445	Pre-cut 77 x 77mm	1000
XM1450	Roll form, 102mm x 92m	Roll

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Ovens

Designer Series Ovens

The Contherm Thermotec Designer Series Ovens can achieve consistent temperature control over the range of ambient +5°C to 260°C (nominal). Rapid and continuous drying is achieved by the introduction of warm, dry air regulated by an adjustable vent.



An efficient fan-driven toroidal air and heating system assures even circulation and is controlled by the proven Contherm ZP21 microprocessor-based system. With an easy-to-set and read LED display, the system offers precision steady-state operation, with audible and visual alarms for over and under temperature, plus a selectable 100 hour timer. In addition, the system is EEROM backed to retain the calibration factor and set-points for audit purposes after power failures.

The compression door catch and hinge system ensures leak-proof sealing for low thermal and fume loss, with an integral switch to interrupt fan and heating when door is opened.

All controls and active components are in the door which can be removed as a unit for service should this be necessary. The Contherm Thermotec Designer Series Ovens offer educational and industrial users maximum performance and reliability in an attractive and cost-effective package

Brief Specifications

Operating Temperature	Ambient+5°C to 260°C
Setability	0.1°C
Controller	Microprocessor ZP21 Series
Timer	1 minute to 99hrs 59mins or continuous
Spatial Variation	±2.5°C unloaded at 105°C
Temporal Variation	±0.2°C unloaded at 105°C
Power Requirements	240Vac 50Hz 10A grounded supply

Models:

Model 8050 -50L	Rowe Code IO1258
Model 8100 -100L	Rowe Code IO1260
Model 8150 -150L	Rowe Code IO1265



ontherm

We also supply Contherm Ovens from 200-1000L

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Ovens

Muffle Furnace - 1150C

SEM

SEM Muffle Furnaces are available in two sizes, 100 series and 200 series. Both sizes can be supplied with either a sliding or cantilever type door. The quick action sliding door can be held in any position and is ideal for ashing or similar operations. A cantilever door has an outward and upward swing with a counter-balanced handle.

The furnaces are strongly constructed of zinc coated steel powder coated Wedgewood blue with HI Temp black front face and door. The muffle is strongly supported by a refractory mould at the front and insulating bricks at the back. It is insulated with top grade Kaowool ceramic fibre blanket.

The steel cover around the baffle is surrounded by an air cavity and by gravity convection draws heat away from the bottom and out through the top reducing the wall temperature of the outer body. An air gap at the front and louvres on the back panel allow adequate air flow to ensure a cool instrument panel. All cantilever door furnaces are fitted with a door switch for safety.

Kanthal A1 Element is controlled by a microprocessor based PID Controller complete with Auto Tune function and sensor compensation for accurate temperature control.

Options:

- 7 day or 24 hour Timer
- Programmable Controller (up to 81 steps)
- Ramp Function
- Overtemp Cutout (complete with Alarm Indicator)
- Monitory Overheat Cutout (separate Controller & Thermo Couple)

Rowe Code	Model C = Cantilever S = Sliding Door	Power Rating W	Dimensions						Weight Kg
			Internal			External			
			D	W	H	D	W	H	
IF1570	102C	2200	250	160	90	456	468	560	50
IF1580	102S	2200	250	160	90	456	468	560	50
IF1560	202C	4500	435	230	150	608	546	630	70
IF1565	202S	4500	435	230	150	608	546	630	70

Multi Purpose Ovens

SEM

S.E.M. Laboratory Ovens are solidly built with triple wall construction. The interior is of satin finish stainless steel and the heating chamber and outer body of zinc coated steel. The door is constructed and insulated for temperatures up to 300°C on standard models. SEM ovens feature a solid state digital controller with touch switch temperature selection, working in conjunction with a zero switching solid state relay. A push button reset overheat thermostat is mounted on the control panel.

A range of sizes and types are available to suit the varying requirements of individual users. Higher temperature operating standards can be met and certified tests can be performed if required.

Models range from tiny 10 litre to large 432 litre sizes. A full range of options is available to design the oven to user requirements.



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Parafilm



The all-purpose sealing film for laboratory use. Parafilm M is a thermo plastic, self sealing film that will seal beakers, flasks, cylinders and many other laboratory apparatus.

- Flexible
- Moldable
- Odourless
- Moisture Resistant
- Semi Transparent
- Practically odourless

Rowe Code	Description	Std. Pack Size
PP1200	Parafilm M Sealing Film 50mm x 76m	Roll
PP1250	Parafilm M Sealing Film 100mm x 38m	Roll

Pellet Pestle



PELLET PESTLE® Cordless Motor

Kontes

For all Pellet Pestle mixers
Complete with two AA batteries
Resuspend Protein and DNA Pellets or Grind Soft Tissues in Micro Centrifuge Tubes

Rowe Code	Description	Std. Pack Size
TBA	1.5mL Matched Micro Tubes	100
PP3000	Cordless Motor for Pellet Pestle	ea

Manual tissue grinders are also available please ask

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pH Test Strips



Limas paper



Universal paper



Duotest



pH - Fix

Litmus Paper

Rowe Code	Indicator Paper	Colour Change	pH Change	Std. Pack Size
FI1400	Litmus Paper Blue	Blue-Red	8.0 - 5.0	100 strips
FI1450	Litmus Paper Red	Red-Blue	5.0 - 8.0	100 strips

Macherey-Nagel

Universal Indicator Paper

Rowe Code	Indicator Paper	Std. Pack Size
FI1355	Universal Indicator pH 1-11 (1-2-3-4-5-6-7-8-9-10-11)	5m roll
FI1500	Universal Indicator pH 1-14 (1-2-3-5-6-7-8-9-10-12-14)	5m roll
FI1340	Special Indicator pH 6.4 - 8.0 (<6.4-6.4-6.6-6.8-7.0-7.2-7.4-7.6-7.8-8.0->8.0)	5m roll

Macherey-Nagel

Duotest indicator papers

Indicator papers with greater accuracy and increased ease of reading.

Rowe Code	Indicator Paper	Std. Pack Size
FI1700	pH 1-12 (1-2-3-4-5-6-7-8-9-10-11-12)	5m roll
FI1705	pH 3.5 - 6.8 (3.5-3.8-4.1-4.4-4.7-5.0-5.3-5.6-5.9-6.2-2.6-6.5-6.8)	5m roll
FI1710	pH 5.0 - 8.0 (5.0-5.3-5.6-5.9-6.2-6.5-6.8-7.1-7.4-7.7-8.0)	5m roll

Macherey-Nagel

Peñanon Indicator Papers Macherey-Nagel

for measurement of pH in coloured solutions

Rowe Code	Indicator Paper	Std. Pack Size
FI1065	pH 0.0 - 1.8 (0-0.3-0.6-0.8-1.0-1.2-1.5-1.8)	200 strips
FI1750	pH 10.5 - 13.0 (10.5-11.0-11.5-12.0-12.5-13.0)	200 strips

Note: other pH ranges available

pH - Fix Indicator Sticks,

Recommended for measurements of the pH of weakly buffered or strongly alkaline solutions. Non-bleeding

Macherey-Nagel

Rowe Code	Indicator Stick	Graduation of Scale	Std. Pack Size
FI1100	pH 1-14	0-1-2-3-4-5-6-7-8-9-10-11-12-13-14	100 sticks
FI1150	pH 0-6.0	0-0.5-1.0-1.5-2.0-2.5-3.0-3.5-4.0-4.5-5.0-5.5-6.0	100 sticks
FI1200	pH 2.0-9.0	2.0-2.5-3.0-3.5-4.0-4.5-5.0-5.5-6.0-6.5-7.0-7.5-8.0-8.5-9.0	100 sticks
FI1250	pH 4.5-10.0	4.5-5.0-5.5-6.0-6.5-7.0-7.5-8.0 8.5-9.0-9.5-10.0	100 sticks
FI1300	pH 7.0-14.0	7.0-7.5-8.0-8.5-9.0-9.5-10.0-10.5-11.0-11.5-12.0-12.5-13.0-13.5-14.0	100 sticks
FI1125	pH 0.3-2.3	0.3-0.7-1.0-1.3-1.6-1.9-2.3	100 sticks
FI1265	pH 5.1-7.2	5.1-5.4-5.7-6.0-6.3-6.6-6.9-7.2	100 sticks
FI1278	pH 6.0-7.7	6.0-6.4-6.7-7.0-7.3-7.7	100 sticks

Qualitative Test Papers

Test Papers allow the qualitative determination of ions and chemical compounds. They yield the information, whether a given component is present above the defined limit of detection.

Rowe Code	Indicator Paper	Std. Pack Size
FI1816	Chromium Test Paper (Chromium, Chromate)	200 strips
FI1825	Cyantesmo (Cyanides, Hydrocyanic Acid)	5m
FF6500	Fluoride Test Paper (Fluorides, Hydrogen Fluoride)	200 strips
FI1802	Dipyridyl Paper (Iron II)	200 strips
FI2100	Oil Test Paper (Oil in water & soil)	100 strips
FI1470	Peroxtesmo KO (Peroxidase in foodstuffs)	100 strips

Note: Other test papers available for a wide range of determinations.

pH Meter range
can be seen under
Meters

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Pipettes - Glass Measuring

Graduated 'B' Grade

Witeg



Rowe Code	Capacity mL	Graduations mL	Std. Pack Size	Carton Pack Size
GP9004	5	0.05	ea	12
GP9006	10	0.1	ea	12
GP9009	25	0.1	ea	12

Graduated 'AS' Grade

Witeg

Rowe Code	Capacity mL	Graduations mL	Std. Pack Size	Carton Pack Size
GP1970	0.2	0.002	ea	12
GP9007	0.5	0.01	ea	12
GP9001	1	0.01	ea	12
GP9002	2	0.02	ea	12
GP9003	5	0.05	ea	12
GP9005	10	0.1	ea	12
GP2002	20	0.1	ea	12
GP2052	25	0.1	ea	12



Graduated with Safety Piston

Hirschmann

Clear glass with amber graduations with interchangeable suction piston.
Use of pipetting aid not necessary.

Rowe Code	Capacity mL	Graduations mL	Std. Pack Size
GP4651	1	0.01	ea
GP1770	2	0.02	ea
GP2260	5	0.05	ea
GP2310	10	0.1	ea
GP2355	20	0.1	ea
GP2345	25	0.1	ea

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Pipettes - Glass

Volumetric

Witeg

Class AS, clear glass pipettes with blue graduations

Rowe Code	Capacity mL	Tolerance +/-	Delivery Time (sec.)	Std. Pack Size
GP9010	1	0.007	5-9	12
GP9011	2	0.01	5-9	12
GP9012	3	0.015	7-11	6
GP9013	4	0.015	7-11	6
GP9014	5	0.015	7-11	6
GP9015	10	0.02	8-12	12
GP9016	15	0.03	9-13	6
GP9017	20	0.03	9-13	6
GP9008	25	0.03	10-15	6
GP9018	30	0.03	13-18	6
GP9019	40	0.05	13-18	6
GP9020	50	0.05	13-18	6
GP9021	100	0.08	25-35	6



With Safety Piston

Hirschmann

Clear glass with amber markings. With interchangeable suction piston. Use of pipetting aid not necessary.

Rowe Code	Capacity mL	Tolerance +/-	Delivery Time (sec)	Std. Pack Size
GP4655	1	0.007	5-9	ea
GP4665	2	0.01	5-9	ea
GP4701	5	0.015	7-11	ea
GP4760	10	0.02	8-12	ea
GP4770	15	0.03		ea
GP4805	20	0.03	9-13	ea
GP4905	50	0.05	13-18	ea



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Pipettes - Pasteur

Pasteur

Manufactured from soda lime glass to conform to rigid specifications and are suitable for use in blood banks, haematology, bacteriology and general laboratory applications. These economical pipettes feature straight cut tips and smooth, fire-polished tops to make bulb attachment easy. Strong corrugated packaging is used to provide maximum protection from external shock and each pack contains a foam pad to protect the pipette tips. The easel configuration of each pack keeps pipettes orderly and easily accessible.



Chase

Rowe Code	Volume mL	Length mm	Std. Pack Size
GP2520	2	145	1000
GP2660	2	230	1000
HT1500	Teat for pasteur pipette - orange ribbed rubber		ea
HT1503	Teat for pasteur pipette - amber natural rubber		ea



Pasteur

Polyethylene transfer pipettes for a wide range of sampling tasks.

Rowe Code	Description	Std. Pack Size
PP1911	Graduated to 1mL with large bulb	500
PP2101	Graduated to 3mL with small bulb	500



Pasteur - Bellows Type

Blow-moulded in one piece with high capacity bellows reservoir for take up and expelling. Ideal replacement for the traditional glass Pasteur pipette and rubber teat. They are graduated to give an indication of the amount of liquid being taken up and have a strong suction capacity due to the bellows-shaped leak proof bulb.

Kartell

Rowe Code	Capacity mL	Length mm	Stem. Diam. mm	Std. Pack Size
PP1970	1.5	132.5	7	100
PP1790	4.0	194.0	10	100

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Pipettes - Accessories

Stand

Material: Polypropylene

Accommodates 18 pipettes with diameters not exceeding 10mm, plus 10 pipettes with diameters not exceeding 15mm. Small holes in base allow drainage. Boss head (supplied) allows for the holder to be raised or lowered on supporting rod. Can be used with other supporting rod of 8-14mm using the olives supplied.

Kartell



Rowe Code	Description
PP1600	Pipette stand, vertical (no base)
PP1650	Pipette stand, base only

Holder

Material: Polypropylene

Three tier rack that has 8 x 16mm holes and 8 x 8 mm holes. Autoclavable.

Kartell



Rowe Code	Description
PP1700	Pipette Holder 16 position. 200 x 75 x 150mm H

Pipette/Burette rinsing set, automatic

Kartell

Material: Polypropylene & Polyethylene autoclavable

High quality and high speed. Solves the problem of washing pipettes up to 600 mm long and Mohr burettes quickly and safely. Indispensable in the laboratory where radioactive, caustic and toxic materials are in use. The polyethylene rinser fills via the spray nozzle situated on the top rim. This eliminates backsiphoning as the water inlet is located above and away from any contaminated waters. Contaminated waters will syphon out totally, once the syphon point at the top of the rinser has been reached, via the large diameter drain situated at lowest point, before refilling automatically. During washing the pipettes/burettes are housed in specially designed baskets which minimise breakages as it buffers the tips of pipettes against the soft polyethylene base. Since soaking takes the longest time, two or three baskets pipettes/burettes can soak in their jars whilst another basket full is being washed in the rinser. Low water flow rate is NOT a problem but it is better to adjust the flow for a cycle of about 90 secs.

Rowe Code	Description	Height mm	Diameter mm	Std. Pack Size
PP1310	Automatic burette washer	990	170	ea`
PP1305	Automatic pipette washer	734	170	ea
PP1400	Pipette Jar	650	162	ea
PP1300	Pipette basket (300mmH)	648	145	ea
PP1410	Pipette Jar	503	162	ea
PP1412	Pipette basket (300mmH)	497	145	ea
PP1315	Extension handle for PP1300 basket			ea



Suggested basic set:

Pipettes - 1 x PP1305, 2 x PP1300, 1 x PP1400

Burettes - 1 x PP1310, 2 x PP1300, 2 x PP1315, 1 x PP1400

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Pipette - Accessories



Pipette Fillers

Rowe Code	Description	Std. Pack Size
HP1505	3 valve pipette filler, red rubber, up to 25mL	ea
HP1455	Universal, 3 valve, long stem pipette filler, red rubber	ea
HP1755	Saffron Pattern (bulb on side) 3 valve, Black PVC	ea



Pipette Filler

Pi-Pump



Pipetting aid with a stepped, elastic, cone shaped holder to prevent pipettes slipping off. Also has a drain valve

Rowe Code	Size mL	Colour Code	Std. Pack Size
HP1630	0 - 2	Blue	ea
HP1650	0 - 10	Green	ea
HP1700	0 - 25	Red	ea



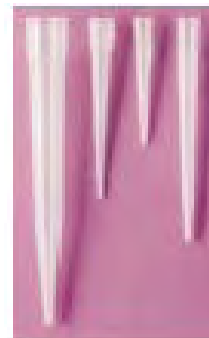
Flip Pipette Filler

Rowe Code	Description	Std. Pack Size
HF4000	Rubber, up to 100mL, Red	ea
HF4020	Rubber, up to 100mL, Green	ea

Pipette - Accessories

Tips

Kartell manufacture a wide range of polypropylene disposable pipette tips to fit the most popular brands of pipettors in the market.



Rowe Code	Capacity uL	Colour	To suit	Std. Pack Size
DL3066	0.5 - 10	Neutral	Eppendorf®	1000
DL3068	0.5 - 10	Neutral	Socorex®	96 in rack
DL3000	2 - 200	Yellow	Universal, Boeco	1000
DL3005	2 - 200	Neutral	Oxford (old model)	1000
DL3050	100 - 1000	Blue	Universal	1000
DL3030	100 - 1000	Blue	Universal	96 in rack
DL3051	250 - 1000	Green	Boeco, Oxford (Old model)	1000
DL3053	250 - 1000	Blue	Oxford (slim line)	1000
DL3055	1000 - 5000	Neutral	Boeco	100

* We also supply other pipette tips for a wide range of pipettors. To ensure the correct application for your pipettor, we recommend a sample tip be posted to us before your order is placed.

** WITEG and EPPENDORF tips are also available.

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Pipettors - Electronic

Boeco - Electronic

All pipettors have a wide operational volume range and are easily programmed with variable pipetting speeds and small incremental volumes. The programmable pipetting speed provides optimal pipetting conditions for various viscosities. They perform up to a dilution ratio of 1:25 and as a dispenser up to 25 strokes with one single filling.

Uses a DC motor for fast piston movements monitored by a real time optical feedback system. This, together with microprocessor control, ensures reliable pipetting operations and eliminates the need of recalibration. Electronic operation combines with light weight and ergonomically designed operation button and tip ejector to minimize the stress and fatigue in operating.



Stands act as a recharging station ensuring the NiCad-batteries are maintained at an optimal performance level. Over 1,000 pipettings are easily achieved in a working day. Single stand and a multiple stand are available.

Rowe Code	Channels	Volume uL	Increment uL
DP2310	1	5 - 100	1
DP2315	1	10 - 250	5
DP2320	1	20 - 500	5
DP2325	1	50- 1000	10
DP2330	1	100 - 5000	50
DP2235	4	5 - 100	1
DP2240	4	25 - 250	5
DP2245	8	5 - 100	1
DP2250	8	25 - 250	5
DP2255	8	50 - 1200	10
DP2260	12	5 - 100	1
DP2265	12	25 - 250	5
DP2390	Charging stand for 1 Pipettors		
DP2395	Charging carousel for 4 Pipettors		

Witeg Electronic

Rechargeable battery - no recharging station required.



Rowe Code	Item	Volume uL
DP1004	PIPETTOR ELECTRONIC 'WITEG'	100-1000uL
DP1003	PIPETTOR ELECTRONIC 'WITEG'	10-200uL

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Pipettors - Fixed

Boeco - Fixed

The BOECO micropipette is an adjustable or fixed volume, air displacement, general purpose pipettor for dispensing liquids precisely and safely. The pipettors are ergonomically designed, robust, lightweight and designed for single handed operation. All models have a tip ejector. Each unit is factory calibrated with a performance certificate. Included is a calibration tool, grease, pipette holder and labels for colour coding.

Fixed pipettors have coloured push buttons to identify the size of the tip cone.

Rowe Code	Volume uL
DP2025	5
DP2030	10
DP2035	20
DP2040	25
DP2045	50
DP2050	100
DP2052	200
DP2053	250
DP2055	500
DP2060	1000
DP2065	2000
DP2070	5000



witeg Fixed

Witeg pipettors represent German quality, durability and accuracy with ergonomic design to reduce fatigue from repetitive operation. Only the shaft is autoclavable.

Rowe Code	Item	Volume uL
DP2161	Pipettor fixed volume WITOPET tip ejector, autoclavable	1000uL

Other volumes available - from 5uL to 1000uL.



Pipettors - MultiChannel

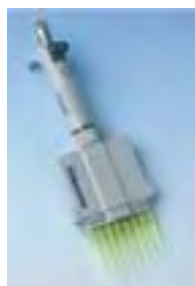
Boeco

Multichannel models feature new tip construction providing easy single handed tip seating and ejecting.



Rowe Code	Channels	Volume uL	Increment uL
DP2200	4	5 - 50	0.5
DP2205	4	50 - 250	5
DP2210	8	0.5 - 10	0.1
DP2215	8	5 - 50	0.5
DP2220	8	50 - 250	5
DP2225	12	5 - 50	0.5
DP2230	12	50 - 250	5

Witeg Multi-channel



Rowe Code	Item	Volume uL	Increment uL
DP2163	Pipettor variable volume WITOPET 8 channel, tip ejector, autoclavable	5-50uL	0.1uL

Other 8 and 12 channel Witeg pipettors also available.

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Pipettors - Variable

Step Pipettors

Boeco & Witeg

These hand held "stepper" pipettors are extremely easy to handle piston pipettes.

- Fatigue-proof design for extended use
- Low weight (approx. 100g)
- Easy-to-handle adjusting wheel to determine the volume and the number of pipetting steps.
- Covers volume range from 1uL to 5mL
- Permits up to 48 dispensing steps
- A special mechanism provides exact pipetting actions with all required volumes until the built-in safety margin is reached, which guarantees a precise final result. Thus it is impossible to dose a lower volume than set at the adjusting wheel. At the same time, the remaining amount retained in the Multitips is reduced to a minimum.

Rowe Code	Description
DP2700	BOECO "stepper" pipettor
DP2705	WITEG "WITOPET" step pipettor

Boeco - Adjustable Volume

Volume adjustment is easily achieved by turning the thumb activated plunger mechanism. The selected volume is shown on a clear digital display window on the hand grip.

Rowe Code	Volume uL	Increment uL
DP2110	0.5 - 10	0.1
DP2115	5 - 50	0.5
DP2120	10 - 100	1
DP2123	20 - 200	1
DP2129	100 - 1000	5
DP2135	1000 - 5000	50



Witeg Variable

Rowe Code	Item	Volume uL
DP2133	PIPETTOR VARIABLE VOLUME WITOPET TIP EJECTOR AUTOCLAVABLE	10-100uL
DP2162	PIPETTOR VARIABLE VOLUME WITOPET TIP EJECTOR AUTOCLAVABLE	20-200uL
DP2160	PIPETTOR VARIABLE VOLUME WITOPET TIP EJECTOR AUTOCLAVABLE	100-1000uL
DP2134	PIPETTOR VARIABLE VOLUME WITOPET TIP EJECTOR AUTOCLAVABLE	1000-5000uL



* We also supply other brands of pipettors to suit particular needs. Please discuss your requirements with our sales team.

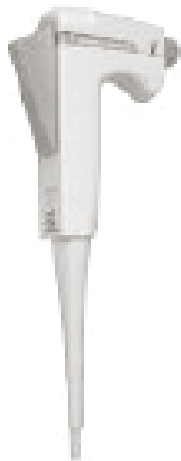
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Pipettors



Transferpette

Rowe Code	Capacity mL	Std. Pack Size
DP4910	2-20uL	ea
DL1000	20uL	ea
DP4732	20-200uL	ea
DL2850	200uL	ea
DP4915	100-1000uL	ea
DL2865	500-5000uL	ea



Varipet Pipettor

Bel-Art

Dependable, Positive Displacement Repetitive Dispenser

The Varipet® Pipettor is a self filling pipetting aid designed for speed, ease and convenience. The moulded polypropylene handle is ergonomically designed to permit extended use without fatigue. A Teflon® plunger assures smooth consistent operation. The Teflon® Tip Varipet® Pipettor has excellent chemical resistance because the fluids only contact the borosilicate glass and teflon®.

Rowe Code	Capacity mL	Graduations mL	Std. Pack Size
DL3880	0 - 1.0	0.01	ea
DL3890	0 - 4.0	0.05	ea
DL3900	0 - 10.0	0.2	ea
DL3910	0 - 30.0	1.0	ea

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Pulp Density

Specific Gravity Scale

The Direct Reading Pulp Density and Specific Gravity Scale speeds up the determination of pulp densities, specific gravities of pulps or liquids, or the determination of specific gravity of dry solids. It eliminates errors in reading charts or graphs, and prevents errors in calculations.

Use Pulp Density Scales to obtain the following direct readings:

- Weight of sample in grams or kilograms.
- Specific gravity of liquid or pulp
- Percent solids contained in a pulp of any given specific gravity
- Specific gravity of dry solids



Rowe Code	Description	Std. Pack Size
MM1350	Pulp Density Scale, plastic body scale only, including Dial Face #4	ea
MM1360	Pulp Density Scale, metal body scale only, including Dial Face #4	ea
MM0900	Pulp Density Scale set. Includes plastic body scale, clear plastic bucket and set of dial faces #1-12	ea
MM0905	Pulp Density Scale set. Includes metal body scale, clear plastic bucket and set of dial faces #1-12	ea



Pulp Density

Accessories

Buckets



Rowe Code	Capacity mL	Description	Height mm	Diameter mm	Std. Pack Size
MB1000	1000	Clear Plastic	170	95	ea
MB1150	1000	Stainless Steel	245	105	ea



Dial Faces

For measuring particular dry solid specific gravity in pulp.

Rowe Code	Face No.	Specific Gravity Range of Dry Solids	Std. Pack Size
MM1000	1	2.2,2.6,2.8,3.2,3.6,4.0,4.4	ea
MM1003	2	1.2,1.3,1.4,1.5,1.6,1.7,1.8	ea
MM1007	3	1.7,1.8,1.9,2.0,2.1,2.2,2.3	ea
MM1010	4	2.2,2.3,2.4,2.5,2.6,2.7,2.8	ea
MM1050	5	2.6,2.7,2.8,2.9,3.0,3.1,3.2	ea
MM1100	6	3.0,3.1,3.2,3.3,3.4,3.5,3.6	ea
MM1103	7	3.4,3.5,3.6,3.7,3.8,3.9,4.0	ea
MM1107	8	3.8,3.9,4.0,4.1,4.2,4.3,4.4	ea
MM1110	9	4.2,4.3,4.4,4.5,4.6,4.7,4.8	ea
MM1130	10	4.6,4.8,5.0,5.2,5.4,5.6,5.8	ea
MM1140	11	5.6,5.8,6.0,6.2,6.4,6.6,6.8	ea
MM1150	12	6.6,6.8,7.0,7.4,7.6,7.8	ea



Perspex Scale Face

MM1200	Replacement dial face cover for MM1360
MM1205	Replacement dial face cover for MM1350

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Pulverisers

Ring Mills

Vibratory motor driven mills for rapidly preparing up to 1.8kg of ore or mineral for analysis. The models LM1 & LM1.5 are Labtech Essa's reliable and robust adaptation of the traditional vibratory ring mill that incorporate an integral 3 phase vibratory duty electric motor drive. These mills however differ from traditional mills because of their ability to be fitted with a unique 800cc, 1000cc or 2000cc single puck type grinding bowl in addition to any standard size of ring and roller grinding bowl.



Rowe Code: XG2100

Vibratory mill for rapidly preparing up to 1.8kg of ore for mineral analysis (with the extra power of a 2.2kW shaft drive). The vibratory head of the model LM2 is driven by a universal shaft powered by vee-belts from standard, stationary (non-vibrating) 2.2kW electric motor. This drive arrangement delivers more power to the grinding bowl.

Rowe Code: XG2105



Vibratory ring mill for preparing up to 3.5kg of ore for mineral analysis. The Labtech Essa model LM5 mill is used for pulverising ores, minerals, soils metallurgical samples, ceramics, aggregates, chemicals and similar particulates. It finds particular application in mineral laboratories needing to prepare larger, more representative samples.

Rowe Code: TBA



Ring Mill Bowls

A unique range of bowls from 10 to 2000cc nominal capacity The Labtech Essa programme of ring mill bowls is unique because it includes 3 sizes of internationally patented high capacity and performance bowls together with a range of traditional ring and roller type bowls.

Accessories

Bowl	Disc	Lid	O Ring	For Model	Bowl Capacity
XG1120	XG1125	XG1130	XG1035	LM1 & LM2	800g
XG1025	XG1026	XG1039	XG1017	LM1 & LM2	1000g
XG1034	XG1029	XG1032	XG1037	LM2	2000g
XG1023	XG1028	XG1031	RL1000	LM5	5000g



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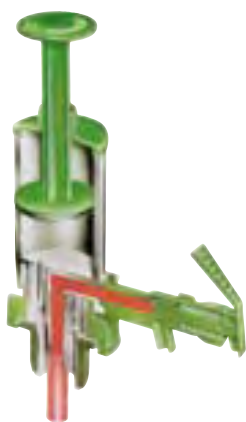
Pumps - General



General Purpose Pump - Siphon Style

Made largely from polyethylene.
Red bellows with flexible outlet tube.
Not to be used with hot, highly acidic or aggressive liquids

Rowe Code	Description	Std. Pack Size
PP1955	Plastic pump for 20L drums	ea
PP1950	Plastic pump for 200L drums	ea



Transfer Release Pump

Each pump suitable for 5L to 210L containers.
Flow rate up to 20L/min depending on viscosity. Only three working parts.
Built-in pressure relief valve. Maximum recommended operating pressure 5psi (34kpa).
Not suitable for use with flammable liquids. Available in three models which cover almost all liquids. Enquire about compatibility information.

Rowe Code	Description	Colour Code	Std. Pack Size
HP2265	Supplied with 4 nitrile seals for oils & chemicals	Red	ea
HP2270	Supplied with 4 EPDM (ethylene propylene) seals for water based liquids & food grade products	Blue	ea
HP2262	Supplied with 4 viton seals for special and aggressive chemicals	Green	ea



Vacuum Pump - Hand Operated

Kartell

Material: High Impact Polystyrene

Light, portable hand operated vacuum pump, attains a vacuum of 625mm Hg(25"). Pumping rate is 15ml per stroke. Built in vacuum release valve. Can be used as pressure pump by transferring release valve cap to vacuum port. Nozzle fits standard 6mm (1/4") I.D. tubing.



Rowe Code	Description	Std. Pack Size
PP1960	Hand operated vacuum pump	ea
PV1700	Hand operated vacuum pump with vacuum gauge	ea

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Pumps - Peristaltic

Peristaltic Pumps

Watson Marlow

Watson Marlow are the world specialists in peristaltic pumping, a field they pioneered. With over one million pumps supplied to industry and science worldwide, Watson Marlow is the largest manufacturer of peristaltic pumps

“The Perfect Pump”

Squeeze a tube filled with fluid between your fingers, slide them along and the fluid moves. The only contact with the fluid is the tube. It is the perfect pumping principle.

“The benefits of peristaltic pumping”

Compared to all other pumps, Watson Marlow peristaltic pumps have these advantages:

- No contamination of the fluid
- No contamination of the pump
- Ideal for shear sensitive and aggressive fluids
- Self-priming, dry running
- No valves, seals or glands
- Automatic check valve action prevents backflow

Many industries have difficult pumping applications where care in handling the process fluid is required. The peristaltic pump is the pump of first choice wherever the process fluid is:

- abrasive, corrosive or aggressive
- sensitive, valuable or sterile
- delicate and must not be degraded

“Customised for your process”

Watson Marlow produces a wider range of peristaltic pumps than any other company. This means they can meet virtually any capacity and control requirement, using options of fixed or variable speed, digital, analogue or manual control and single or multi-channel flows.



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Pumps - Peristaltic



Series	Flow Rate	Tube Range ID (Wall thickness)
100	Single channel Low flow pumps mL to mL/min Fixed or variable speed	0.5mm to 4.8mm (1.6mm)
200	Near pulseless mL to mL/min Multi-channel pumps up to 32 channels	0.13mm to 2.79mm (0.8mm)
300	Single or multi mL to L/min Channel pumps with manual remote or dispensing control	0.5mm to 8.0mm (1.6mm, 2.4mm)
500	Microprocessor controlled mL to L/min and IP55 industrial pumps with manual, auto & digital controls	0.5mm to 9.6mm (1.6mm, 2.4mm)
600	IP55 mid-flow cased and industrial 0.03 to 37.4L/min pumps. Fixed or variable speed	6.4mm to 16.0mm (3.2mm, 4.0mm)
700	IP55 industrial pumps with mL to L/min manual or auto control, single or twin channel L to 1003L/min	9.6mm to 25.4mm (4.8mm)
800	High flow hygiene pumps with full CIP and SIP capability	25mm to 40mm (9mm - 13mm)

"Choosing the right tube"

The tubing is as important as the pump because it is the restitution of the tube that draws in the fluid. The tube's restitution creates suction lift, its strength resists pressure, its flex resistance determines pumping life, its bore decides the flow rate, and its wall thickness controls pumping efficiency.

The best way to select a tube is to first decide which materials are chemically suitable and then chose the one which best meets the physical demands of the application.

- For maximum tube life, use a large bore tube at low speed
- For maximum flow rate use the largest tube at maximum speed
- For maximum accuracy, use a small bore tube at maximum speed

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Pumps - Peristaltic

Tubing Selection guide

Bioprene	Choose Bioprene for the longest tube life to meet USP and NFS Class VI requirements. Bioprene also complies with FDA 21 CFR 177.260 and meets USDA standards for food handling. Beige. Autoclavable.
Marprene	Watson-Marlow's exclusive thermoplastic which has superseded Neoprene, Butyl and silicone in many applications. Greatly enhanced tube life. Marprene meets USDA standards for food handling and complies with FDA 21 CFR 177.260. Recommended for all applications where chemically suitable. Beige. Autoclavable.
Silicone	The standard laboratory tubing most used for bore sizes up to 9.6mm (3/8"). Silicone tubing meets USP and NFS Class VI standards. Translucent. Food and medical quality. Autoclavable.
Neoprene	Until the introduction of Marprene, the standard industrial tubing and generally best for abrasive slurries and for pumping against sustained pressure. Most used for bore sizes over 12.7mm (1/2"). Black. Food quality.
Butyl	Sometimes useful for its chemical resistance where Neoprene is unsuitable. Black. Not food quality.
Tygon	Polyvinylchloride thermoplastic. Good pressure performance. Glass clear. Food quality.
Fluorel	Watson-Marlow's Fluorel® has greatly extended life (five to twenty-five times longer than previously available). Fluorel is expensive, but sometimes the only chemically suitable material. Black. Not food quality.
Sta-Pure	Operates at pressures up to 7 bar, lasts 18 times longer than silicone tubing and virtually eliminates spallation. USP Class VI approved and non-toxic. Pure white and autoclavable.



See Tubing on page

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Pumps - Vacuum

Pump Selection Chart

For Common Lab Applications



Application	Welch Vacuum Pumps & Systems	Flow Rate & Vacuum	Unit Photo	Model
Rotovap Volatiles, Low B.P. B.P. < 100°C Samples 0-5 Liter 	"Rotovap System" DRYFAST [®] System with regulator, gauge, condensate jars, self-clearing auto-purge	34 L/min. x 8 Torr (12 mbar)		202501
Rotovap DMF, Toluene, other non-volatiles Samples 0-5 Liter 	"High Boiler System" DRYFAST ULTRA [®] System & Pump	32 L/min. x 2 Torr (2.7 mbar) 32 L/min. x 2 Torr (2.7 mbar)		202701 2031B-01
Concentrator Samples < 2ml x 24, DNA Profiling 	"Concentrator Pump" DRYFAST ULTRA Pump DRYFAST ULTRA SYSTEM Compatible with: SpeedVac [®] & CentriVac [®]	32 L/min. x 2 Torr (2.7 mbar) 32 L/min. x 2 Torr (2.7 mbar)		2031B-01 202601
Vacuum Manifold Schlenk Line 	"Vacuum Manifold Pump" DUOSEAL [®] & CHEMSTAR [®] Pumps GEM [®] System	25 L/min. < 1 millitorr (1.3x10 ⁻³ mbar) 31 L/min. 150 millitorr (0.13 mbar)		1400B-01 OR 1400N-01 8850A-70
Freeze Dryer 	"Freeze Dryer Pump" Direct Drive pump with integral oil filtration system CHEMSTAR Low RPM Pump	173 L/min. 180 L/min.		8817A-80 1402N-01
Filtration 	"Filtration Pump" Chemical Duty Standard Duty	22 L/min. 22 L/min.		2012B-01 2522B-01
Aspiration Cell Harvester Plate Washer 	"Aspiration System" Standard Duty Chemical Duty	38 L/min. @ 27.6 in. Hg (80 mbar) 64 L/min. 26.7 in. Hg (106 mbar)		2567B-50 2017B-01
Cell Culture Aspiration 	"Cell Culture Station" With gauge, regulator, 2000 ml autoclavable trap with liquid blockade system	34 L/min. x 27.2 in. Hg (93 mbar)		2515B-75
Vacuum Oven Drying Degassing 	"Vacuum Drying Pump" Standard Duty Dry Direct-Drive DUOSEAL	100 L/min. 173 L/min. 180 L/min.		2581B-50 8817A 1402B-01
Gel Dryer 	"GELMASTER[™] System" Complete Gel Drying Vacuum System with hose, valve	>50 L/min. of Vapor @ 28 in. Hg (86 mbar)		142601

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Pumps - Vacuum Filtration Manifold & Flask

Economical Dry Pumps For Aqueous Solutions



"Did you know that the most common reason filtration pumps fail is because of liquid ingestion into the pump?"

- 1 Water trap protects against accidental ingestion
- 2 Vacuum regulator and gauge adjusts and monitors vacuum level
- 3 Muffler quiets pump

Standard Duty Pumps

Standard duty, oil-free pumps provide continuous, reliable vacuum your filtration application requires. Added accessories simplify use: lower noise level, and extend service life. All wetted parts are treated for corrosion protection from moisture. Use cat. nos. 2522B-01, 2534B-01 and 2546B-01 (115V, 60Hz); 2522C-02, 2534C-02 and 2546C-02 (230V, 50Hz) for pressure filtration up to 100 psig. Pumps are compact, lightweight, and easy to use. Note: May be used with buffer solutions, but not recommended for use with acidic, basic or organic solutions.

Cat. No.	Description*
2522B-01	22 L/min, 25.6"Hg, 115V, 60Hz, 1 Ph with N. American 115V plug
2522C-02	18 L/min, 133 mbars, 230V, 50Hz, 1 Ph with IEC connector and detachable Schuko line cord, CE
2567B-50	120 L/min, 27.6"Hg, 115V, 60Hz, 1 Ph with N. American 115V plug
2567C-50	83 L/min, 80 mbars, 230V, 50Hz, 1 Ph with IEC connector and detachable Schuko line cord, CE

Chemically Resistant Dry Pumps For Harsh Chemicals



- 1 PTFE construction resists chemical attack
- 2 Portable for lab to lab usage
- 3 Steady, reliable vacuum

Chemical Duty Pumps

Chemical duty, diaphragm pumps are the ideal oil-free solution when filtering acidic, basic or organic materials. Wetted parts are made of fluorinated plastic (PTFE) which can withstand the use of aggressive chemicals. A small footprint, carrying handle, and attached line cord make these pumps easy to move and easy to use.

Cat. No.	Description*
2010B-01	12.7 L/min, 25.5"Hg, 115V, 60Hz, 1 Ph with N. American 115V plug
2010C-02	10.6 L/min, 146 mbars, 230V, 50Hz, 1 Ph with IEC connector and detachable Schuko line cord, CE
2015B-01	50 L/min, 26.7"Hg, 115V, 60Hz, 1 Ph with N. American 115V plug
2015C-02	42 L/min, 106 mbars, 230V, 50Hz, 1 Ph with IEC connector and detachable Schuko line cord, CE

Pump Selection Chart (115V, 60Hz)*		
# of Funnels	Standard Duty	Chemical Duty
1	2522B-01	2010B-01
1-2	2522B-01	2012B-01
1-4	2534B-01	2015B-01
1-6	2546B-01	2015B-01
6 Funnel Manifolds	2567B-50	2017B-01
Multi Tabletop	2585B-50	2017B-01

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Pumps - Vacuum

Diaphragm Type



The Dynavac heavy duty oil-free diaphragm vacuum pumps and compressors offer reliable, trouble free and rugged performance - all at a low cost.

The pump mechanism remains free from corrosive gases and moisture which means low maintenance and long term dependability. They are especially suitable for rugged industrial applications.

The vacuum pumps and compressors are environmentally friendly - they are absolutely oil-free and therefore deliver 100% odourless, contaminant-free air.

Rowe Code	Description
IP1880	Vacuum pump, OD1
IP1882	Vacuum Pump, OD1/2 (parallel)

Piston Type



If you want an oil-free piston compressor or vacuum pump which is tough, reliable and has a long life, then Dynavac offers you the OP Series.

This standard range has proven reliability. Conventional pistons have wrist pins, rings and two-piece connecting rods, but the Dynavac OP Series features an integral one-piece piston and connecting rod. This means you can be assured of virtually no maintenance and year in, year out dependability.

And you don't have to worry about fumes - the oil free piston compressors and vacuum pumps deliver 100% odourless, contaminant-free air. Light weight, they are easily transportable.

Rowe Code	Description
IP1862	Vacuum Pump, OP1
IP1863	Vacuum Pump, OP4
IP1883	Vacuum Pump, OP7
IP1865	Vacuum Pump, OP14

Pumps - Vacuum

Vacuum Pumps KNF Neuberger

Whether for use with neutral or aggressive gases or liquids, the KNF Neuberger range provides the right type of pump. KNF compressors and vacuum pumps carry out transferring, compressing and evacuating tasks, KNF liquid pumps take on transferring and metering jobs.

Diaphragm Compressors and Vacuum Pumps for Gases and Vapours

Depending on the type of pump, the components in contact with media are corrosion-resistant. Transfer, evacuation and compression of air and neutral, slightly aggressive and slightly corrosive gases and vapours.

Performance Range:

Micro Diaphragm Gas Sampling Pumps

- Flow rate: up to 4 L/min (at atm. pressure)
- Ultimate vacuum: down to 380 mbar abs
- Maximum pressure: up to 1 bar g.

Diaphragm Compressors and Vacuum Pumps

- Flow rate: up to 300 L/min (at atm. pressure)
- Ultimate vacuum: down to 0.5mbar abs
- Maximum pressure: up to 12 bar g.



Water Jet Vacuum Pumps

Material: Polypropylene

This pump will work on pressures up to 10kg/cm². Built in non-return valve to eliminate back flow. Useful for sucking to waste any spilt chemicals as well as for filter work. Easily dismantled for cleaning. Autoclavable. Evacuating nozzle tapers from 8 to 14 mm. The connector PW2900 can be pushed onto evacuating tubing to act as a quick release from the pump.

Kartell



Rowe Code	Description	Std. Pack Size
PW2850	Water Jet Vacuum Pump	ea
PW2900	Water Jet Pump Connectors	5

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Refractometry

ABBE refractometer



Developed over a century ago, the ABBE type refractometer is an established standard for the measurement of refractive indices, and today, the ABBE Refractometer is commonly used for a wide variety of analysis including purity studies, quantitative analysis of binary mixtures, determination of soluble sugar BRIX and fats, and the measurement of refractive indices of plastic films and glass. In view of its high degree of accuracy and simplicity of operation the ABBE refractometer is the most popular refractometer.

Refractive Index:

Range: 1.3000 - 1.7000, Min. Scale: 0.001

Reading accuracy: +/- 0.0002

Brix Percentage:

Range: 0-95%, Min. Scale: 0.5%

Reading accuracy: +/- 0.1%

Temperature range for measurement 0-50°C

IR8050	Abbe advanced type refractometer no.105
IR1800	Abbe advanced type refractometer no.106

Hand-held Refractometers



Rowe Code	Model	Brix	Accuracy	Other
	Model A	0-32% Brix	0.2%	
	Model B	28-62% Brix	0.2%	
	Model ATC	0-32% Brix	0.2%	automatic temperature compensation (ATC)
	Model S	Salinity refractometer	0-28%	0.2% accuracy

New digital models also available with 0.1% accuracy.

Density and Refractometry



Rowe Code	Model	Description
ID0909	51324450	Densito 30PX, Hand-held Density Meter
TBA	51324650	Refracto 30PX, Hand-held Refractometer
TBA	51324660	Refracto 30GS, Hand-held Refractometer

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Riffle Splitters

We supply high quality Australian made as well as overseas sourced riffle splitters (Precision Carpco). They are available in mild steel and stainless steel and can be custom made to client specifications.

When ordering please specify:

- Mild steel or stainless steel
- Separation required eg
50/50
25/75
12.5/87.5
- Riffle size, width and length
- Blade width
- Number of trays required
- Use in field or laboratory



Rowe Code	Description
RR1500	Riffle Splitter "Carpco" Stainless Steel 16x3mm Slots
RR1550	Riffle Splitter "Carpco" With Aluminium Trays 32x6mm Slots
RR1230	Riffle Splitter 6.35mm Slot Stainless Steel (Endecotts)

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Safety

Eye Wash Station



Emergency eye wash station moulded in strong high-impact polystyrene. Directions for use clearly displayed on the support rack. Eye wash bottle made from polyethylene has an eye cup with snap on cap to allow an immediate flushing of the eye. Air vent valve and perforated spray plate for gentle wash.

Rowe Code	Description
PE1000	Eye wash station rack & 500ml eye wash bottle
PE1100	Eye wash station rack only
PE1050	Eye wash bottle 500ml
PE1060	Spare eye cup
PE1070	Spare drainage tube

Glasses

A wide range of styles and colours are available.

Rowe Code	Description	Std. Pack Size
PS1144	Safety glasses, clear plastic	ea
PS1135	Safety glasses, clear - anti fog lens	ea
PS11575	Safety glasses, Panther clear lens, black frame	ea
PS11573	Safety glasses, Panther smoke lens, black frame	ea



Gold Room & Fire Assay Safety Equipment

Rowe Code	Description	Std. Pack Size
AP1350	Visor (face mask) - clear	ea
AP1400	Visor (face mask) - green	ea
AP1050	Brow guard (to hold visor)	ea
HC1803	Coat, aluminised wool, knee length	ea
AC1095	Coat, aluminised kevlar, Preox	ea
AP1500	Gauntlets, aluminised leather palm, 16" long	pr
HG1114	Gloves, Kevlar, aluminium back, 400MM long	pr



HF Protection

For first aid in HF accidents

Rowe Code	Description	Std. Pack Size
CC2340	Calcium Gluconate Ampoules	5 x 10mL
CC2350	Calcium Gluconate Gel	50g

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Safety

Spill Kits

Clean up kits are available for absorbing and neutralising spills of hazardous chemicals. The kits contain all items needed to safely dispose of the spills.

Please ask about the safety spill kits that are available



Storage Cabinets

Rowe Code	Substance	Storage Capacity L	External Dimensions mm			Internal Dimensions mm		
			H	W	D	H	W	D
HC3085 - 1 shelf	Corrosive	30	800	500	450	553	418	370
HC3215 - 1 shelf - non-metallic	Corrosive	50	800	500	470	585	460	430
HC3255 - 1 shelf	Corrosive	60	1065	500	450	818	418	370
HC3218 - 1 shelf - dual compartment - non-metallic	Corrosive	100	800	500	470	585	460	430
HC3219 - 1 shelf - dual compartment - non-metallic	Corrosive	160	1225	985	470	985	460	430
HC3202 - 2 shelves	Corrosive	250	1825	1100	450	1578	1018	370
HC3082 - 1 shelf	Flammable	30	800	500	450	553	418	370
HC3095 - 1 shelf	Flammable	60	1065	500	450	818	418	370
HC3015 - 1 shelf	Flammable	100	800	920	615	553	838	535
HC3060 - 1 shelf	Flammable	160	1220	1100	450	973	1018	370
HC3302 - 2 shelves	Flammable	250	1825	1100	450	1578	1018	370
HC3315 - 2 shelves -heavy duty	Flammable	250	1850	806	804	1608	726	726
HC3395 - 1 shelf	Toxic	30	800	500	450	553	418	370
HC3010 - 1 shelf	Toxic	100	800	920	615	553	838	535

Others available on request.



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Scalpel Blades

Scalpel Blades - Carbon Steel

Swann Morton



Rowe Code	Blade No.	Std. Pack Size
HS1090	10	100
HS1050	11	100
HS1480	12	100
HS1110	15	100
HS1200	21	100
HS1240	22	100
HS1250	23	100
HS1305	24	100
HS1357	25	100



Scalpel Handles

Met-App



Made from high quality stainless steel.
Suitable for interchangeable blades.

Rowe Code	Handle No.	To Fit Blades	Std. Pack Size
HS1450	3	10 - 15	ea
HS1500	4	20 - 25	ea

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Scissors

High quality stainless steel in a variety of styles.

Rowe Code	Description	Length mm	Std. Pack Size
HS1740	Dressing scissors sharp/probe	130	ea
HS1705	Surgical scissors, straight, sharp/sharp	100	ea
HS1710	Surgical scissors, straight, sharp/sharp	130	ea
HS1712	Surgical scissors, straight, sharp/sharp	150	ea
HS1720	Surgical scissors, straight, sharp/sharp	200	ea
HS1650	Surgical scissors, straight, sharp/blunt	100	ea
HS1700	Surgical scissors, straight, sharp/blunt	130	ea
HS1701	Surgical scissors, straight, sharp/blunt	150	ea
HS1716	Dissecting scissors, open shank, straight, sharp/sharp	100	ea
HS1905	Dissecting scissors, open shank, curved, sharp/sharp	100	ea
HS1900	Dissecting scissors, Iris type, straight	90	ea
HS1903	Dissecting scissors, Iris type, straight	110	ea
HS1904	Dissecting scissors, Iris type, straight	130	ea



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Scoops

Aluminium, Round Bottom

Round bottom. Highly polished. (Dimensions do not include handle)



Rowe code	Scoop Size L x W mm	Capacity oz	Std. Pack Size
RS4150	120 x 60	5	ea
RS4210	160 x 80	12	ea
RS4220	200 x 100	24	ea
RS4230	230 x 120	39	ea
RS4360	260 x 140	57.5	ea
RS4400	300 x 160	84.5	ea

Aluminium, Flat Bottom

Flat bottom. Cast Aluminium (Dimensions do not include handle)



Rowe Code	Scoop Size L x W mm	Capacity oz	Std. Pack Size
RS4410	120 x 65	4	ea
RS4450	140 x 85	8	ea
RS4500	190 x 110	16	ea
RS4510 *	230 x 140	40	ea
* (heavy duty)			

Seals

Gooch Rubber



Rowe Code	BaseDiam. mm	Top Diam. mm	Std. Pack Size
HS2095	19	29	ea
HS2100	22	32	ea
HS2247	27.5	41	ea
HS2150	29	41	ea
HS2246	33	53	ea
HS2249	48	68	ea
HS2260	58	78	ea

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Scrubber Unit

Scrubber SMS

The SMS unit is designed for the removal of toxic, noxious and corrosive fumes coming from oxidative mineralizations or other processes. The system works in three steps:

- condensation
- neutralization,
- adsorption on activated carbon,

This allows the effective removal of all kinds of substances. The unit has a variety of applications, from the Kjeldahl method to acid or basic gases control and permits the correct disposal of polluting substances, avoiding dangerous emissions to the workplace and to the environment.

The unit is very compact and has high flexibility due to its independence from the aspiration, that can be best provided by the Velp recirculating water vacuum pump.

Rowe Code:IS5100



Sharps Container

Rowe Code	Description	Capacity
PB6000	Sharps Container	8 Litre
PS1450	Sharps Container round	23 Litre
PS1440	Sharps Container	5 Litre
PS4100	Sharps Container	1.4 Litre
PS1485	Sharps Container with open top	23 Litre



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Sieves & Accessories



Test Sieves

Endecotts

Endecotts test sieves are of the highest quality and are designed for accurate and efficient particle size analysis.

For accurate, dependable results you can't buy a better test sieve than Endecotts. The combination of its many features and the quality of manufacture make it the perfect measuring instrument.

Certified sieves are the most widely used test sieves and are manufactured to a National or International Specification. Each is supplied with a Certificate of Conformity and individually numbered to provide full traceability.



Woven Wire Mesh Sieves

Endecotts

Endecotts woven wire mesh sieves are the most widely used test sieves for all types of laboratory particle size analysis. They are made with only the highest quality materials and are available in diameter sizes of 100, 200, 300 and 450mm.

They can be supplied with aperture sizes ranging from 125mm down to 20 microns and in full or half height versions.

Woven wire mesh sieves are available in frame materials of either brass or stainless steel with larger diameter sieves.

Sieves & Accessories



British Standard Sieve Series ISO3310:BS410-1:2000

Aperture	100mm Brass WWM	200mm Brass WWM	200mm Brass 1/2 WWM	200mm SS WWM
20 micron		RS1498		RS5598
25 micron		RS1499		RS5599
28 micron				
32 micron		RS1490		RS55995
38 micron	RS0900	RS1500	RS1501	RS5601
45 micron	RS1000	RS1550	RS1553	RS5655
53 micron	RS1020	RS1600	RS1601	RS5701
63 micron	RS1030	RS1650	RS1652	RS5755
75 micron	RS1050	RS1700	RS1701	RS5810
80 micron		RS1720		
90 micron	RS1100	RS1750	RS1751	RS1755
100 micron		RS1760		RS5880
106 micron	RS1120	RS2000	RS2001	RS5870
125 micron	RS1150	RS2050	RS2051	RS6002
150 micron	RS1200	RS2100	RS2101	RS6055
180 micron	RS1250	RS2150	RS2151	RS6101
200 micron		RS2410	RS2415	
212 micron	RS1300	RS2450	RS2451	RS6151
250 micron	RS1350	RS2500	RS2501	RS6225
280 micron		RS2520		
300 micron	RS1400	RS2600	RS2601	RS6250
355 micron	RS1450	RS2650	RS2651	RS6260
400 micron		RS2070		
425 micron	RS1480	RS2800	RS2801	RS6321
500 micron	RS1580	RS2900	RS2901	RS6270
600 micron	RS1483	RS3050	RS3051	RS6400
710 micron	RS1482	RS3100	RS3101	RS6450
800 micron		RS3210		RS6290
850 micron	RS1484	RS3200	RS3201	RS6500
1.00 mm	RS4095	RS1800	RS1801	RS5900
1.18 mm	RS1485	RS1850	RS1853	RS1851
1.40 mm		RS1900	RS1901	RS6509
1.70 mm	RS1486	RS1950	RS1951	RS6511
2.00 mm	RS4090	RS2290	RS22905	RS6518
2.24 mm				RS6520
2.36 mm	RS1487	RS2250	RS2251	RS6526
2.50 mm				RS65205
2.80 mm		RS2400	RS2402	RS6530
3.15 mm		RS2291		RS6542



Brass = Brass frame
 Brass 1/2 = Brass frame halfheight
 SS = Stainless steel frame
 WWM = Stainless steel woven wire mesh



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Sieves & Accessories



Brass = Brass frame
 Brass 1/2 = Brass frame halfheight
 SS = Stainless steel frame
 WWM = Stainless steel woven wire mesh
 PP= Perforated Plate



British Standard Sieve Series ISO3310:BS410-1:2000cont.

Aperture	100mm Brass WWM	200mm Brass WWM	200mm Brass PP	200mm Brass 1/2 WWM	200mm SS WWM
3.35 mm	RS1488	RS2550		RS2554	RS6570
4.00 mm		RS2750	RS2755		RS6523
4.75 mm		RS2701		RS2703	RS6527
5.00 mm		RS2840	RS3230		RS2845
5.60 mm		RS2852	RS2851		RS2854
6.30 mm		RS2951			RS65216
6.70 mm		RS3001	RS3000		RS2857
7.10 mm					
8.00 mm		RS3150	RS3160		RS65315
9.50 mm		RS3250	RS3251	RS3253	RS2860
10.00 mm		RS3265	RS3260		
11.20 mm		RS3270			RS3273
12.50 mm		RS3274	RS3271	RS1860	RS3282
13.20 mm		RS1865	RS1867		
14.00 mm		RS3276	RS2190		
16.00 mm		RS3279			RS6535
19.00 mm			RS2200		RS65361
20.00 mm			RS3277		
22.40 mm			RS3290		RS6539
25.00 mm		RS1870	RS3280		RS6537
26.50 mm			RS3294		
31.50 mm		RS3370	RS3368		
37.50 mm			RS3374		
40.00 mm			RS3380		
45.00 mm			RS1555		
50.00 mm					
53.00 mm			RS3385		
63.00 mm					
75.00 mm		RS3390	RS3387		
90.00 mm					
106.00 mm			RS3389		
125.00 mm					
Lid	RS4040	RS3300	RS3300		RS6550
Receiver	RS4050	RS3350	RS3350	RS3301	RS6600
Int. Receiver		RS3353	RS3355	RS3355	RS6603

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Sieves & Accessories

British Standard Sieve Series ISO3310:BS410-1:2000

Aperture	300mm Brass WWM	300mm SS WWM	450 mm SS WWM	450mm SS PP
20 micron	RS3395	RS8007	RS7680	
25 micron	RS3398		RS7619	
32 micron				
38 micron	RS3400	RS8008	RS7500	
45 micron	RS3450	RS8035	RS7545	
53 micron	RS3500	RS8034	RS7551	
63 micron	RS3540	RS8033		
75 micron	RS3550	RS8010		
90 micron	RS3554			
100 micron				
106 micron	RS3555	RS8030	RS7695	
125 micron	RS3557	RS8020		
150 micron	RS3560	RS8021	RS7586	
180 micron	RS3565	RS8022		
212 micron	RS3570	RS2452		
250 micron		RS8024		
300 micron	RS3740	RS8028		
355 micron		RS8027		
425 micron	RS3775	RS3770		
500 micron	RS3777	RS8025		
600 micron	RS3779	RS8029	RS7375	
710 micron	RS3780	RS3785		
850 micron	RS3800	RS8037	RS7370	
1.00 mm	RS3590	RS80370	RS7652	
4.0mm				
1.18 mm	RS3600	RS8039	RS7630	
1.40 mm	RS3706		RS7642	
1.70 mm	RS3650	RS8042	RS7662	
2.00 mm	RS3670	RS8043	RS8864	
2.36 mm	RS3700	RS7633	RS8865	
2.80 mm	RS3721	RS8045	RS7663	
3.15 mm	RS3713			



Brass = Brass frame
 SS = Stainless steel frame
 WWM = Stainless steel woven wire mesh
 PP= Perforated Plate



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British Standard Sieve Series ISO3310:BS410-1:2000



Brass = Brass frame
 SS = Stainless steel frame
 WWM = Stainless steel woven wire mesh
 PP= Perforated plate



Aperture	300mm Brass WWM	300mm SS WWM	450 mm SS WWM	450mm SS PP
3.35 mm	RS3715	RS3716	RS76651	
4.00 mm	RS3720	RS8047	RS7629	RS7385
4.75 mm	RS8558	RS8077	RS7628	RS7362
5.00 mm	RS3725		RS7677	
5.60 mm	RS3726			RS7384
6.30 mm	RS3730	RS3735		RS7383
6.70 mm	RS8556	RS7632	RS7627	RS7364
8.00 mm	RS8065	RS3739	RS7626	RS7382
9.00 mm				
9.50 mm	RS8554	RS7635	RS7625	RS7361
10.00 mm	RS8240			RS7336
11.20 mm				RS7381
12.50 mm	RS8570			RS7339
13.20 mm	RS3658	RS7637	RS7624	
14.00 mm	RS8580			
16.00 mm		RS7636	RS7623	RS7352
19.00 mm	RS8588	RS7646	RS7622	RS7360
20.00 mm	RS3553			
22.40 mm				
25.00 mm			RS7619	RS7359
26.40 mm			RS7621	
31.50 mm				RS7369
35.50 mm				RS7351
37.50 mm				RS7358
40.00 mm				
45.00 mm				RS7368
50.00 mm				RS7357
53.00 mm				RS7365
63.00 mm	RS8650			RS7367
75.00 mm				RS7356
90.00 mm				RS7366
100.00 mm				RS7355
106.00 mm				RS7353
125.00 mm				RS7354
Lid	RS3860	RS8082	RS7775	
Receiver	RS3850	RS8080	RS7770	

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Sieves & Accessories

Test Sieves

Labtechnics test sieves are manufactured to BS 410 and include a range of sizes and material types.

Stainless steel wire is used throughout the range of standard mesh type sieves. The frames of all 100mm to 200mm diameter sieves are also of stainless steel. Stainless steel has high resistance to corrosion and chemical attack, with a high level of structural strength.

Perforated plate sieves are constructed of a zinc coated mild steel frame with a heavy gauge mild steel perforated plate. The larger frame 300 & 450 mm diameter sieves also have a heavy duty mild steel construction with a cadmium coating.

Labtechnics test sieves are manufactured to metric dimensions and will nest with Endecotts metric frames.



Labtechnics

Test Sieves

The U.S. Tyler test sieve range is also available.

Test Sieve Cloth

A full range of aperture sizes is available in nylon test sieve cloth. Please enquire.



Tyler

Wet Washing Sieves

Extremely useful sieves where samples need to be separated with the help of wet washing. Available in 8 inch diameter by 4 or 8 inches deep or their metric equivalent with brass or stainless steel frames. A complete range of aperture sizes with optional support medium for fine mesh.

Air-Jet Sieves

These sieves are specifically designed for use with air jet systems. They are available in 200mm diameter brass or stainless steel frames and an extensive range of aperture sizes.

Endecotts

Endecotts



Precision Forming Sieves

These sieves and sieving material can be used in any application compatible with pure nickel material. They are a direct replacement for any woven material and offer unparalleled versatility in design and function.



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Sieve Shakers

Endecotts



There are three essential characteristics to look for in a good test sieve shaker. It should generate an effective sieving action for tests to reach an ultimate end point. The end point should be reached in the shortest possible time. The results achieved should be reproducible.

Endecotts design and engineer shakers around these key features. They ensure that the design performance provides the optimum sieving action to the sieves to give rapid accurate results. Not only must the sample be vibrated vertically but it needs to rotate over the full surface of the sieve where it can be presented to the maximum number of apertures in the minimum time.

As manufacturers of test sieves they understand how sieves and shakers interrelate. This knowledge is built into every model. So too are the same skills and exacting engineering standards that have made Endecotts the finest test sieves in the world.

The new 2000 Series incorporates some of the latest features and technology whilst retaining all the essential features of earlier models.

EFL2000 Series Endecotts

The EFL 2000 series are rugged no nonsense shakers ideal for on site and heavy duty applications.

When heavy or large bulk samples need to be analysed it's important to use a shaker that is built for the job.

The EFL 2000 has been specially designed to operate with heavy samples without loss of performance. It is equipped with a dynamic power source which ensures the right vibration is imparted to the sieves and sample for fast, accurate and reproducible tests. The vertical movement is fixed to ensure the sample spends maximum time seeking apertures rather than being suspended in mid air. As with other Endecotts shakers the unique vibratory action also helps keep the apertures clear and free from binding.

The EFL 2000 shaker is fitted with a new and totally unique clamping device. It ensures sieves are held firmly without over tightening and allows them to be quickly removed and replaced.

The time can be pre-set for any duration up to 60 minutes. Non-corrodible, non-metallic springs are fitted making the EFL 2000 maintenance free.



Rowe Code	Model	Sieve Capacity 300mm	200mm	100mm
RS7838	EFL 2000/1	-	8	12
RS7840	EFL 2000/2	6	12	-

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Sieve Shakers

Minor Test Sieve Shaker

Endecotts

The Minor has been specially designed and manufactured to combine the advantages of low cost with the benefits of a well designed and engineered shaker, incorporating many features usually found only on larger more expensive models.

It is ideal for the laboratory or plant since it is compact and genuinely portable (weighing only 17 kilos).

There are no moving mechanical parts in the Minor. Consequently it is very quiet in operation and maintenance free. The sieve stack is held firmly in position between the location and clamp plates by an efficient, simple to use adjustable clamp system.

Simply set the 0 to 60 minute timer for a timed operation or select "1" for continuous sieving.

The vibrating action imparts a precise movement to the sieve stack ensuring efficient sieving and excellent repeatability.

The Minor is fitted with anti-vibration feet to ensure good stability. It will hold 200mm and 100mm sieves.



Rowe Code	Model	Sieve Capacity 200 mm
RS7836	Minor	8

Powermatic, Heavy Duty

Endecotts

The Powermatic is a powerful test sieve shaker specially designed to handle larger sieves up to 450mm diameter.

It overcomes the problems normally encountered with lighter shakers where the sheer weight of the sample and sieves cause both performance and results to be erratic.

The Powermatic is fitted with two powerful motors offset at strategic angles transmitting exactly the right vibration frequency and movement to the sample for optimum performance. At the end of the cycle the motors are braked to avoid over run.

The unique design and construction of the shaker ensures all the energy is transmitted to the sieves and sample. The design also enables the machine to be virtually silent in operation while the tough construction makes it suitable for most environments.

The Powermatic is designed to operate with up to five sieves plus a lid and receiver while the location plate is fully adaptable to a range of sieve diameters.



Rowe Code	Model	Sieve Capacity
RS7843	Powermatic	Will accommodate 5 x 350, 400 or 450mm sieves, plus a lid and receiver.

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Sieve Shakers

Octagon Digital Shaker

Endecotts

The New Octagon Digital is a high performance test sieve shaker offering excellent operator control for maximum efficiency.



The Octagon is ideal for laboratory or on site use. It is robust, compact and sufficiently lightweight to be portable. A digital display makes the setting of the microprocessor controlled functions very straightforward. The Octagon is powered by an electromagnetic drive which has no rotating parts to wear making it maintenance free and extremely quiet in operation.

The vibratory action produced by the power unit moves the sample over the sieve in a unique way producing faster more efficient sieving, while the rapid vertical movements also help to keep the apertures from blinding.

The Octagon's digital controller is used to set both the process time and the amplitude setting while a further control enables the vibration to run continuously or intermittently. Intermittent vibration improves performance and helps to clear apertures that may have become blocked. The controller will also set the duration of both the on and off times of the vibration. The Octagon Digital offers total flexibility enabling optimum settings to be established for virtually any material under test.

Rowe Code	Model	Sieve Capacity	
		200mm	100mm
RS7842	Octagon Digital	8	12



EML200 HAVER EML 200 digital plus

T - for dry screening; N - for wet screening.

Ideal for analytical sieves with diameter 3" (76,2 mm), 100 mm, 150 mm, 200 mm, 8" (203 mm)

- programmable, memory functions
- computer controlled
- three-dimensional movement of the sieve
- fully electronic regulation
- digital display for all functions
- max. weight of testing sample: 3 kg

Analytical screening machines EML 200 can be provided with leading bars of various length (620, 445, 560 or 660 mm). Number of sieves clamped into the machine depends on the length of bars (8, 5, 7, 9) with the height of 50 mm. Bars with length 660 mm are determined for clamping system EASY LOCK.

Rowe Code	Model	max. weight of testing sample
TBA	N- Wet screening	3kg
TBA	T- Dry screening	3kg

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Sieve Shakers

Test Sieve Shakers

Ro-Tap

For over 70 years, technicians around the world have relied on W.S. Tyler's Ro-Tap® Test Sieve Shaker. Ro-Tap's unique simultaneous horizontal circular and vertical tapping motions allow for testing in both coarse and fine particle applications.

This special action allows material particles to stratify and "seek" critical openings in the test media. The result is the most accurate and consistent particle analysis testing.

The RX-29 model is recommended for testing 200mm diameter test sieves, the RX-30 model is recommended for testing with 300mm test sieves.

The units feature a 99 minute digital clock/timer and are designed for heavy duty use with minimal maintenance.



Rowe Code	Model	Sieve Capacity	
		300mm	200mm
RS7850	Rx-29-10	-	6
RS7855	RX-30-10	4 or 6*	-
* with half height pan			

Sound Enclosure Cabinet

Ro-Tap

Designed to be used exclusively with Ro-Tap® Sieve Shakers, operating noise levels are reduced from approximately 85 dB to 60dB. The cabinets are fabricated with 18 gauge steel and a 1" metal faced, acoustic foam inner liner.



Rowe Code	Suit Ro-Tap	Dimensions W x D x H mm	Weight kg
RS7858	RX-29, RX-30	860 x 610 x 780	50

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Spatulas

Chattaway

Met-App

Stainless Steel



Rowe Code	Length mm	Width mm	Type	Std. Pack Size
HS3300	150	8.5	Standard	ea
HS3350	180	9.0	Standard	ea
HS3400	200	11.0	Standard	ea
HS3533	180	4.0	Semi Micro	ea
HS3510	130	4.0	Semi Micro	ea
HS3450	100	3.0	Micro	ea
HS3500	130	3.0	Micro	ea
HS3505	150	3.0	Micro	ea

Double Ended

Met-App

Stainless Steel



Rowe Code	Length mm	Width mm	Type	Std. Pack Size
HS3550	150	9	Standard	ea
HS3551	180	9	Standard	ea
HS3570	130	6	Semi-Micro	ea
HS3580	150	6	Semi-Micro	ea
HS3600	180	6	Semi-Micro	ea
HS3630	130	4	Micro	ea
HS3530	150	4	Micro	ea

Micro

Met-App

With solid handle, stainless steel



Rowe Code	Length mm	Type
HS3650	140	Micro blade 23 x 2.5mm
HS4000	140	Micro spoon 4.5 mm diameter

Pharmacological

Met-App

Flexible blade, stainless steel, wooden handle

Parallel Flexible Blade



Rowe Code	Blade Length (mm)	Blade Width (mm)	Std. Pack Size
HS3700	80	18	ea
HS3750	100	18	ea
HS3800	150	20	ea
HS3850	200	22	ea
HS3875	250	28	ea
HS3900	300	32	ea

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Spatulas

Pharmacological

Met-App

Flexible blade, stainless steel, wooden handle

Tapered Flexible Blade

Rowe Code	Blade Length (mm)	Std. Pack Size
HS4050	80	ea
HS3915	100	ea
HS4060	150	ea
HS3930	180	ea



Wide Blade

Rowe Code	Blade Length (mm)	Blade Width (mm)	Std. Pack Size
HS3940	200	32	ea
HS3950	300	45	ea
HS3951	500	55	ea



Plastic

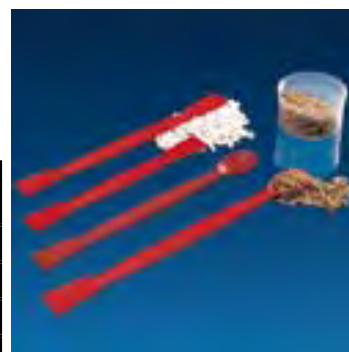
Kartell

Material: Glass fibre filled nylon

A range of robust, inexpensive, general purpose spatulas.

Excellent chemical resistance. Scraper plus spoon or double scraper configuration.

Rowe Code	Description	Length mm	Std. Pack Size
PS1350	Flat/Flat	150	ea
PS1360	Flat/Flat	180	ea
PS1370	Flat/Spoon	180	ea
PS1380	Flat/Spoon	210	ea



Spoon

Met-App

Stainless Steel

Rowe Code	Length mm	Type
HS4200	160	Spoon/Spatula
HS4250	180	Spoon/Spatula
HS4300	210	Spoon/Spatula
HS4400	150	Weighing Spoon (29 x 15mm)
HS4150	115	Chemical Spoon (23 x 35mm)



Trulla

Met-App

Stainless Steel

Rowe Code	Length mm	Std. Pack Size
HS4325	175	ea



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Spectrophotometer



DR 2800 Portable Spectrophotometer

The DR 2800 Portable Spectrophotometer adds new power to your work, in the lab or in the field

- Touch screen display with intuitive user interface
- USB ports for easy program updates and printer/accessory connections
- Over 240 pre-installed analytical methods
- Automatic test recognition when used with TNTplus barcoded vial tests
- Small footprint
- Open measurement
- Runs on either line power or optional lithium-ion battery

DR 2800 Portable Spectrophotometer

Performance Specifications:

Operating Mode: Transmittance (%), Absorbance and Concentration

Source Lamp: Tungsten

Wavelength Range: 340 to 900nm

Wavelength Accuracy: ± 1.5 nm

Wavelength Resolution: 1 nm

Wavelength Calibration: Automatic

Wavelength Selection: Automatic, based on method selection

Spectral Bandwidth: 5 nm

User-entered Calibrations up to 50

Data Logging 500 points

Automatic Method Recognition With TNTplus vial tests

10-fold measurement and averaging With TNTplus vial tests

Display Backlit, greyscale LCD touch screen

External Outputs USB (1 master, 1 slave)

Cell Compatibility 1" square, 1" round, 1-cm square,
1-cm x 5-cm,

Multipath 1"/1-cm, 16-mm round, 13-mm round

Export Capability .csv (comma-separated values) file



Rowe Code: IS3096

Optional Pour-Thru Cell accessory for high volume analysis and trace level measurement

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Spectrophotometer

DR 5000 UV-Vis Spectrophotometer, 230 Vac



The DR 5000 UV-Vis Spectrophotometer offers broad spectrophotometric capabilities over the full UV-Vis spectrum:

- High Speed Wavelength Scanning
- Touch Screen Display with intuitive user interface
- Universal sample cell holder holds 5 common cell types
- USB ports for easy program updates and printer/accessory connections
- Large sample cell compartment
- Automatic Test Recognition (when used with TNTplus barcoded vial tests)

Includes: Power cord (115V), Instrument Manual, Procedure manual (CD-ROM), 1-inch matched glass sample cells, 1-cm matched quartz sample cells and Multi-cell holder

DR 5000 UV-Vis Spectrophotometer Performance Specifications

Operating Mode: Transmittance (%), Absorbance and Concentration

Source Lamp: Tungsten (visible) (2000 h) and Deuterium (UV) (1100 h)

Wavelength Range: 190 - 1100 nm

Wavelength Accuracy: ± 1 nm

Wavelength Resolution: 0.1 nm

Wavelength Calibration: Automatic

Wavelength Selection: Automatic, based on method selection

Scanning Speed: One complete scan per minute in 1 nm steps

Spectral Bandwidth: 2 nm

Photometric Range: ± 3.0 A in the wavelength range 200 - 900 nm

Photometric Accuracy: 5 mA at 0.0 - 0.5 A

1% at 0.50 - 2.0 A

Photometric Linearity: $< 0.5\%$ at 2 A $< = 1\%$ at > 2 A

Stray Light: KJ-solution at 220 nm > 3.3 Abs



Rowe Code: TBA

Optional Accessories for the DR 5000 UV-Vis Spectrophotometer:

Sipper Module and Pour-Thru Cell for high volume analysis and trace level measurement

Integrated carousel (holds up to seven 1-cm rectangular cells)

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Spectrophotometer

LABOMED INC.



Rowe Code: TBA

UVD-3500 Spectro UV-VIS Double Beam Research Spectrophotometer

Excellent Performance : The high- performance blazed holographic grating and the optimized CT-type monochromator reduce stray light, and widen the photometric range.

Ideal baseline stability: Double-beam dynamic feedback ratio recording photometric system coupled with reasonably designed electric control system ensures high stability of the instrument baseline.

High resolution: The unique optic design of full-transmission and full-reflection satisfies both needs of the double beam optic and the enhancement of the light energy of instrument so as to reduce noise and guarantees high resolution.

Accurate wavelength: The automatic wavelength driving system and the automatic light source interchanging system ensures wavelength accuracy and high holistic performance of instrument.

Easy accessories replacement: the detachable structure of the sample chamber facilitates change of a wide range of optional accessories and ensures wavelength accuracy of instrument.

Easy light replacement: The open-type design of light source chamber, socket deuterium lamp and socket tungsten halogen lamp facilitates light source over replacement, simplify maintenance and reduces operation error.

Versatile Application: The application software on Windows platform offers rich operation and data processing facilities, representing to the full the fascination of modern computer technology.

Technical Specifications

- 1) Optical System: Double Beam
 - Wavelength range: 190 nm – 900 nm
 - Spectral bandwidth: 0.1, 0.2, 0.5nm, 1.0nm, 2.0nm, and 5.0 nm.
 - Stray Light: 0.02%T
 - Wavelength accuracy: ± 0.3 nm(automatic correction)
 - Wavelength Reproducibility: 0.1 nm
- 2) Photometric System: The double-beam ratio recording system.
 - Optical System: The monochromator of Czerny-Turner configuration with high-resolution diffraction holographic grating.
 - Photometric Method: Transmittance, absorbance, reflectance, energy, concentration.
 - Photometric Range: -4.0 ~ 4.0 Abs
 - Photometric Accuracy: 0.3%T 0.300%T
 - Photometric Reproducibility: 0.001Abs(0~0.5 Abs) 0.001Abs(0.5~1.0 Abs) 0.15%T (0~100%T),
 - Baseline flatness: ± 0.001 Abs
 - Resolution: 0.1nm (UVD-3500)
 - Baseline stability: 0.0004Abs/h (@ 500nm, after preheating)
 - Absorbance Range: -9.999 to 9.999 ABS
 - Continuously variable spectral bandwidth from: 0.1, 0.2, 0.5, 1.0, 2.0 and 5.0 nm.
 - Scanning Speed: 1000 nm/min
 - Interface Card: PC Compatible
 - Detector: Hi sensitivity R928 multiplier detector.
 - Photometric Display: Unlimited
 - Photometric Noise: $< \pm 0.0003$ Abs (500nm, 0Abs, 2nm Bandwidth)
 - Slew rate of wavelength: 2400nm/min
- 3) DNA/RNA Measurement:
 - Results Printout.
- 4) Mainframe: Compact and standalone spectrophotometer mainframe
 - Light Source: Socket Deuterium Lamp and Socket Tungsten Halogen Lamp.
 - Sample Chamber: With accessories like two-cell sample holder, optional integrating sphere.
 - Size: 587mm. x 562mm. x 260mm.
 - Weight: 34 Kg.

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Spectrophotometer

UVD-2950 Spectro UV-VIS Double Beam PC Scanning Spectrophotometer

LABOMED INC.

Baseline Stability: The Double beam monitoring ratio system enhances baseline stability.

Excellent Resolution: The big-caliber light path enhances the instrument's energy, reduces its noise and raises its resolution performance

2 Cell Holder: Spectro UVD-2950 has 2 cell holder for reference (standard) and sample.

User-friendly light source: The socket deuterium lamps and tungsten lamps facilitate light source replacement, simplify maintenance and reduce operation error.

Convenient Display: The large backlit LCD screen displays both photometric values and spectral curves.

Full use of Computer Technology: Being computer controlled with RS-232 interface and working on the Windows platform with the UV/Win application software.

The key components adopt all from the world famous manufacturer, such as deuterium lamp, silicon photodiode and holographic grating, which ensures the stabilization and credibility of the Instrument for extended life.



Rowe Code: TBA

Technical Specifications

- 1) Wavelength range: 190 nm – 1100 nm
 - Spectral bandwidth: 2,0 nm
 - Resolution: 2nm.
 - Stray Light: 0.2%T (220 nm and 340 nm)
 - Wavelength accuracy: 0.5 nm (with automatic wavelength correction).
 - Wavelength Reproducibility: 0.2 nm
- 2) Photometric System: The double-beam monitoring ratio system.
 - Photometric Method: Transmittance, absorbance, energy and concentration
 - Photometric Range: -0.3~3.0 Abs (0~200%T)
 - Photometric Accuracy: 0.002Abs (0~0.5Abs) , 0.004Abs (0.5~1.0Abs), ±0.3%T (0-100%T)
 - Photom. Reproducibility: 0.001Abs (0~0.5 Abs), 0.002Abs (0.5~1.0Abs), 0.15%T (0~100%T),
 - Photometric Display: -9999 ---- 9999
 - Photometric Noise: <±0.001Abs (500nm, 0Abs, 2nm Bandwidth)
 - Scanning Speed: 1400nm/min
 - Baseline flatness: 0.002Abs (190 nm. ~1100 nm.)
 - Baseline stability: 0.002Abs/h (500 nm., after preheating).
 - Slew rate of wavelength: 3600nm/min
- 3) DNA/RND Measurement:
 - Results Printout: Printing of measured data by using any Printer with Paralell Port connection available.
- 4) Mainframe: Compact and standalone spectrophotometer mainframe
 - Light Source: Socket Deuterium Lamp and Socket Tungsten Halogen Lamp.
 - Detector: Double Beam
 - Sample Chamber: 2 cell holder
 - Display Liquid Crystal Display (LCD 320 iÅ240 dot matrix)
 - Keypad: Touch soft keys.
 - PC Interface: PC Interface: RS-232
 - Size: 22x16x10"
 - Weight: 55 Lb

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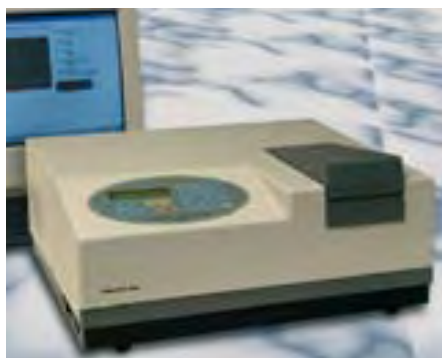


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Spectrophotometer

LABOMED INC.



Rowe Code: IS3050

UV-2602 Spectro UV-VIS Auto Scanning Spectrophotometer

Spectro UV-Vis Auto UV-2602 is Labomed's latest in single beam scanning UV-VIS Spectroscopy; with its seamless integration with any PC, which makes managing data exceptionally easy. This spectrophotometer delivers enhanced ease-of-use, precision and accuracy resulting in time and cost savings, as well as unprecedented confidence in test results. Model UV-2602 works in the ultraviolet and visible range of 190-1100 nm and has a fixed bandwidth of 1.8 nm. Model UV-2602 spectrophotometer offers high performance and reliability, which can be used in various applications. Spectrophotometer Model UV-2602 can be used extensively for qualitative and quantitative analysis in such fields as clinical analysis, medical laboratories, DNA/RNA testing, petro-chemistry laboratories, chemistry and biochemistry laboratories, educational labs, research laboratories, analytical laboratories, as well as in quality control departments, i.e. environmental control, water management, food processing, and agriculture.

Automatic 8 Cell holder by microprocessor.
Auto A/T/C.
Auto Zero.
Auto Wavelength.
Auto Scanning by PC.
Auto Switching Deuterium and Tungsten lamps.
2 way computer communication.
RS 232 computer interface.
2 nm bandwidth.
Wide continuous wavelength.
Easy to change lamp.
USA/FDA licensed.

Technical Specifications

Wavelength range: 190 to 1100 nm.
Wavelength accuracy: ± 0.5 nm.
Wavelength Repeatability: ≤ 0.2 nm
Spectral Bandwidth: 1.8 nm
Straylight: 0.3% T.
(220nm, 340nm, NaI)
Transmittance Range: 0.0~200.0%T.
Absorbance Range: -0.301~4.000A.
Concentration Range: 0~9.999C.
Transmittance accuracy: $\pm 0.5\%$ T.
Transmittance repeatability: $\leq 0.2\%$ T
Baseline Flatness: ± 0.005 A
Noise: 100%noise 0.3%T
0% noise 0.2%T
Stability: ± 0.005 A/h (at 500nm)
Light Source: 2000hr. Tungsten, Halogen and Deuterium Lamp.
Detector:
Optical Cells Photodiode
Power: AC220V/110V. $\pm 10\%$, 50/60Hz ± 1 Hz
Software: Labomed Inc. Software (Included). for Windows:
98, 2000 and XP.
Computer Interface: RS 232
Cell holder: Automatic 8 cell holder.
Display:
LCD.
Keypad: Soft key.
Printer: External (Optional).

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Spectrophotometer

Spectro SC

LABOMED INC.

Spectro SC is an economical single cell visible spectrophotometer which is ideal for small laboratories and educational institutions. This spectrophotometer delivers enhanced ease-of-use, precision and accuracy resulting in time and cost savings, as well as unprecedented confidence in test results.

Spectro Sc is easy to use, affordable, compact and light weight. It has a continuous wavelength ranging from 320 nm to 1000 nm and the ability to hold both square cells (10 mmx10 mm) and round test tubes.

Spectro SC is rugged, reliable, low cost, and maintenance free. This instrument simplifies analysis and increases measurement capabilities for routine applications in various fields such as chemistry, biochemistry, agricultural, petrochemistry, environmental protection, science classes, educational laboratories and general analytical industry.

Microprocessor controlled.

Digital LCD Display.

Auto transmission, absorption, concentration and factor.

Silicon Diode detector

It can use square or round cells.

Interface RS232 to link to a computer.

Wide continuous wavelength range.

Built in stray light filter.

1200 /mm. grating mirror.



Rowe Code: IS3040

Technical Specifications

Display: LCD

Wavelength Range: 320-1000nm.

Light Source: Tungsten Halogen Lamp

Detector: Silicon Photodiode

Wavelength Accuracy : 1nm.

Wavelength Reliability: 1nm.

Spectral Bandwidth: 5nm.

Absorption Range : 0-2A.

Concentration Range : 0-2000

Transmittance Range : 0-150% (T)

Photometric Accuracy: 1% T

Monochromator: 1200 Lines/Grating Mirror

Dimensions: 13"(W) x 12" (D) x 4" (H) inches

Net Weight : 7 kg.

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Steam Distillation

Steam Distillation Unit UDK127

Rowe Code:TBA

The UDK 127 is designed for diversified and flexible use, including applications such as determining ammoniacal nitrogen, protein nitrogen, (Kjeldahl or direct alkaline distillation), nitric nitrogen (after reduction), phenols, volatile fatty acids, cyanides, sulfur dioxide, alcohol content, etc. according to official procedures.

The new UDK 127 distillation unit comes with a patented steam generator that assures distillations are carried out in absolute safety and without routine maintenance. The UDK 127 unit allows to run automatically the distillation time and the Sodium hydroxide addition. The supply water feed is automatically stopped during pauses, thus cutting down on its consumption. The instrument is equipped with a system that recognizes when the sliding protection door is not closed and when the test tube is not in position, without which the dosing pump does not start operation. Use of an innovative system allows various sizes of test tubes to be used and 500mL Kjeldahl flasks to be housed.

VELP
SCIENTIFICA



Semi-Automatic Steam Distillation Unit UDK132D

Rowe Code:TBA

The distillation unit is equipped with a patented steam generator fed with deionized water. The steam generation capacity higher than 2kg/h allows production of 100mL of distillate in only 4 minutes.

The programmable electronic control allows the automatic management of the most important operations. A beeping sound signals the end of distillation cycle. The supply of cooling water is interrupted automatically during idle periods between distillations, sharply reducing the water consumption.

The unit is proposed for determinations of total Kjeldahl nitrogen, alcoholic content, ammonia, cyanide, phenols, sulfite and volatile organic acids.

VELP
SCIENTIFICA



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Steam Distillation

UDK142 Fully automatic Steam Distiller

Used for the separation of volatiles from non-volatiles quickly, safely and at low cost. Useful for Kjeldahl analysis plus many other analytes including ammonia, nitrogen, nitrates (after reduction), phenols, volatile fatty acids, cyanide, sulphur dioxide and alcohol. Features include a patented steam generator (not under pressure and variable steam flow) for safety and versatility, ability to connect to all common brands of auto-titrators to fully automate analysis, accepts multiple digestion tube sizes plus Kjeldahl flasks, epoxy coating for high chemical resistance, sensors on guards, full programmability and much more. Auto-titrator not included

Rowe Code: ID6031

(Titrator not included)



UDK152 Automatic distillation and titration system

Rowe Code: TBA

The new Distillation unit UDK 152 is the latest release from VELP Scientifica and a result of intensive Research and Development efforts. The UDK 152 manages automatically all the process activities from distillation to titration phase thanks to the integrated colorimetric titration system.

It is a fully automatic system designed for the most demanding needs of any laboratory working in a continuous operation and oriented to high productivity and safety standards.



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Stirring - Magnetic Stirrer



Magnetic Stirrers

Ratek

The MS8 is a general purpose stirrer suitable for most stirring tasks. The recommended stirring bar is 25mm PTFE coated. The MS10 with its heavy duty motor, and powerful magnet would be suitable for more demanding applications. The electronic speed control gives maximum torque. The recommended stirring bar is 40mm PTFE coated.

Rowe Code	Description	RPM	Stirring Capacity
IM2020	Ratek MS8 Magnetic Stirrer	250 - 2400	2 Litre
IM2025	Ratek MS10 Magnetic Stirrer	300- 1900	20 Litre



MST Magnetic Stirrer

VELP

The VELP MST is a small magnetic stirrer, suitable for microtitration and particularly useful where a reliable apparatus of limited height is required.

The AGE & ATE models are respectively medium to high powered magnetic stirrers. Other features:

- Electronic speed regulation
- Good speed adjustment at low rpm.
- High strength driving magnet.

Rowe Code	Description	RPM	Stirring Capacity
IM2015	Velp MST magnetic Stirrer 130mmW x 50mmH x 150mmL	1100	5 Litre
IM2005	Velp AGE magnetic Stirrer 171mmW x 75mmH x 190mmL	1200	8 Litre
IM2006	Velp ATE magnetic Stirrer 250mmW x 120mmH x 285mmL	1000	25 Litre

ESP Magnetic Stirrer

VELP

Ultraflat magnetic stirrer without moving mechanical components so it is maintenance-free.

The stirring system, adjustable by means of a microprocessor, is made up of coils that induce a rotating magnetic field. Its gentle start-up offers optimum progression of the stirring speed. The modern, ergonomic structure is made of materials that guarantee high resistance to the aggression of chemical reagents.

Lighted Magnetic Stirrer

VELP

Magnetic Stirrer with light, single place (AMI) or 4 places separately controlled (AMI 4). Designed for titrations, in particular when perfect light conditions are requested in order for good visualization of their end point. Especially suitable for reactions with weak colour change colour variations.

The units feature good speed regulation, even at a low revolutions, up to 1100 rpm. Features High-power driving magnet type "PCM" operated by a mono-phase motor for continuous operation. Stirring capacity to 5L.

Rowe Code	Description
IM2029	VELP Model AMI lighted magnetic stirrer. 150mmW x 55mmH x 270mmL
IM2030	VELP Model AMI 4, 4 place, separately controlled, lighted magnetic stirrer. 600mmW x 55mmH x 270mmL



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Stirring - Magnetic Stirrer/Hotplate

Magnetic Stirrer/Hotplate

IEC

The I.E.C. Magnetic Stirrer - Hot Plates provide a reliable and rugged source of controlled heat for the laboratory. The heating element is recessed and bonded into the underside of the alloy plate for total thermal efficiency. A combination of insulation and baffle plates ensures that the housing is cool even after prolonged operation at maximum temperature (400°C). It incorporates a powerful brushless motor driving a balanced and powerful 'Alnico' magnet. Dimensions 215mm x 185mm x 125mmH

Rowe Code	Plate Material	Max Temp °C	Heating Control
IM2250	High temp alloy	400	Simmerstat
IM2255	High temp alloy	320	Thermostat
IS1710	PTFE Coated	420	Simmerstat
IS1720	PTFE Coated	300	Thermostat



Magnetic Stirrer/Hotplate

SEM

Compact design featuring continuously variable speed control with speed to approximately 2000rpm, with an adequately powered motor and strong Alnico bar magnet. Choice of energy regulator or thermostat control (optional). Hotplate diameter approximately 125mm, aluminium for good conductivity, PTFE coated (optional), Supplied complete with stainless steel retort rod. The unit is of mild steel body and finished with a bright polyester powder coating for durability.

Rowe Code	Description
IM2200	SEM Model MSH90 Magnetic Stirrer/Hotplate 140mmH x 150mmW x 240mmD



Magnetic Stirrer/Hotplates

VELP

Magnetic stirrer with heating plate built in aluminium alloy and finished with a thick coating of a BLACK proprietary resin that provides uniform heating distribution on the whole surface, with a high resistance to chemical agents. All have electronic speed control up to 1200 rpm, with heating control by way of a thermostat from room temp to 350°C.

Rowe Code	Model	No. of Plates	Heating Plate Dia. mm	Stirring Capacity H ₂ O	Power W	Programmable Timer
IM2215	ARE	1	155	up to 15L	630	No
IM2216	AREX	1	155	up to 20L	650	No
IM2217	T.ARE	1	155	up to 25L	900	Yes
IM2222	ARED	1	180	up to 25L	900	No
IM2224	AM4	4	155	up to 50L	2500	No
TBA	AREC	1	180x180	15 Litre	800	No
TBA	AREC.X	1	180x180	15 Litre	800	No
TBA	AREC.T	1	180x180	15 Litre	800	Yes



AM4



AREX

ARE



AREC

with ceramic heating plate

Models AREC, AREC.X & AREC.T all have a white ceramic heating plate which is highly resistant to corrosion and is excellent for observing changes of colour (e.g. titrations, etc.), and is extremely easy to clean

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Stirring - Magnetic Stirrer/Multistirrer

Multistirrer

VELP

The VELP Multistirrer series enables simultaneous stirring of 6 vessels (Multistirrer 6) or 15 vessels (Multistirrer 15). The Multistirrer 6 will stir 6 vessels with a maximum diameter of 85mm while the multistirrer 15 will stir 15 vessels with a maximum diameter of 64mm.

Both units have electronic speed regulation from 50 to 850 rpm and utilise the "PCM" type high-power driving magnets. The units will remain cool even after many days of continuous operation.

Rowe Code	Description
IM2207	VELP Multistirrer 6 240mmW x 55mmH x 408mmL
IM2209	VELP Multistirrer 15 240mmW x 55mmH x 408mmL



Stirring - Mixer

Mixer - Blood Tube Roller

Ratek

Rowe Code	Model	Description
IR2050	BTR5	Blood Tube Roller mixers available in 5 or 10 roller versions. The 5 roller model will hold up to 12 x 10mL blood tubes or 24 x 5mL.
IR2060	BTR10	The 10 roller model will hold up to 27 x 10mL or 54 x 5mL blood tubes. The rollers are mounted eccentrically to provide a rocking as well as a rolling motion to the tubes, and speed is variable from 10 to 60 rpm. Can be supplied with parallel mounted rollers if preferred.



Mixer - Orbital Incubator

Ratek

Rowe Code	Model	Description
IO1012	OM11	A compact benchtop Orbital Mixer/Incubator with cabinet temperature controllable between approximately 28° and 75°C. The 400 x 400mm platform will hold up to 5 x 1 litre or 4 x 2 litre erlenmeyer flasks, and has a maximum speed of 400 rpm with smaller loads. Tulip type clips and racks and adjustable roller racks are available, whilst customised fittings can be provided.
IO1011	OM15	A heavy duty, large capacity orbital mixer/incubator, with a 25mm diameter orbital action to suit a range of mixing and incubation applications. The 600 x 450 mm platform is mounted on precision ball bearings and is driven by a new super quiet, adjustable, counter-balanced drive system, that allows the mixer to run continuously if required.



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Stirring - Mixer

Mixers - Orbital

Ratek

Rowe Code	Model	Description
IO1015	MM1	A small capacity Orbital Mixer designed for light duty mixing in flat bottomed containers or racks. The 180 x 180mm platform is fitted with a high grip rubber mat, and speed control is variable from 20 to 200 rpm. Ideal for gentle agitation in small flasks, test tubes, petri dishes etc.
IO1005	OM6	A medium capacity benchtop mixer with the all new microprocessor controlled super quiet orbital drive system. Holds up to 4 x 2 litre flasks. Complete with digital tachometer Timer to ensure reliable & repeatable procedures at any speed from 40 - 400rpm. Includes 3 user preset programmes. Platform size 350 x 350mm.
IO1004	OM7	The OM7 orbital mixer has a 500mm square platform supported by precision ball races and can handle loads up to 25kg. It is suitable for use in many applications including medical diagnostics, sample preparation, product testing etc. The digital speed control has a range of 30-400 rpm and is controlled from the easy to read front panel where a large LED display can show set and actual speed, when required the OM7 can run for extended periods unattended. The timer can be set from 0-99 in either minutes or hours & has 3 memory buttons to allow repeat time/speed functions to be stored. A nitrile mat is supplied fitted to the platform and is sufficient for holding containers at low speeds. For higher speeds optional racks are available.
IO1006	OM8	A heavy duty large capacity mixer with a 25mm diameter orbital action to suit a range of mixing applications, suitable for medical diagnostics, haematology, sample preparation, etc. The 700 x 530 mm platform is mounted on precision ball bearings and is driven by a new super quiet, adjustable, counterbalanced drive system, that allows the mixer to run continuously if required.

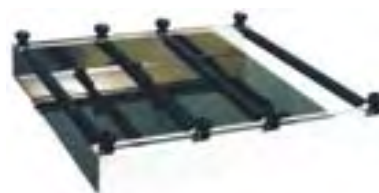


Mixers, Racks for Platform Mixers

Ratek

Adjustable Roller Racks and Tulip Clip type racks are available for all platform type mixers. A range of clip sizes is available to suit all of the commonly used Erlenmeyer flasks.

Rowe Code	Model	Description
IR2010	RR10	Universal rack to suit OM11
IR2020	RR5	Universal rack to suit OM6, RPM5, RM2
IR2015	RR15	Universal rack to suit OM15
IR2025	RR25	Universal rack to suit OM8, OM25
IO1031	TCT10	Tulip Clip Tray to suit OM11
IO1030	TCT5	Tulip Clip Tray to suit OM6, RPM5, RM2
IO1032	TC50	Tulip Clip to suit 50mL flask
IO10325	TC100	Tulip Clip to suit 100mL flask
IO1033	TC250	Tulip Clip to suit 250mL flask
IO1034	TC500	Tulip Clip to suit 500mL flask
IO1035	TC1000	Tulip Clip to suit 1000mL flask
IO1036	TC2000	Tulip Clip to suit 2000mL flask



Stirring - Mixer



Mixer - Reciprocating

Ratek

Rowe Code	Model	Description
IM2870	RM2	A medium capacity benchtop mixer with microprocessor controlled super quiet reciprocating drive system. Reciprocating action ideal for bottles, flasks, separating funnels etc. Speed range from 20 -200rpm. Digital tachometer and timer. Includes 3 user preset programs. Platform size 350 x 350mm.



Mixer Rocking Platform

Ratek

Rowe Code	Model	Description
IM2885	RPM5	A medium capacity benchtop mixer with micro processor rocking platform drive system. Variable tilt action with speed range of 4 -40 rpm complete with digital tachometer and timer. Includes 3 user preset programs. Platform size 350 x 350mm.



Mixer - Rotary Suspension

Ratek

Rowe Code	Model	Description
IM2805	RSM7	A Rotary mixer suitable for many applications where an end over end action is required, including blood & sample mixing. The tilting head allows for the disc to be held at any angle from horizontal to vertical enabling a wide range of different mixing actions. A centre locking screw is provided for heavier and unbalanced loads. It is supplied with a disc that has 20 threaded inserts & clips for tube diameters to suit customer specifications.

Mixer - Rotary

VELP

ROTAX 6.8 can be used for all applications requiring overturning, rotating stirring.

The instrument is designed for evaluating the solubility of pollutant substances, sludge, sediments and solid wastes in water.

Some benefits of this new unit:

EASY TO USE - new digital display, giving the possibility to select and visualize the speed;

PRECISE - electronic regulation of the speed, from 0 to 30 rpm, 1 rpm selection;

SAFE – new safety device, to stop the unit if something blocks the rotation.

The instrument works in accordance with DIN 38414 and UNI 10802 ("Criteria to admit wastes to dump").



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Stirring - Mixer

Mixer - Universal

Ratek

Rowe Code	Model	Description
IU3000	UM12	A large capacity benchtop mixer with the all new microprocessor controlled super quiet orbital drive system. Can hold up to 14 flasks of various sizes. Flask clamps can be secured at any angle for a variety of mixing actions. Reliable speed control from 30 - 40 rpm.
IU3001	UMC1	Clamp for Universal Mixer UM12



Mixer - Vortex

Ratek

Rowe Code	Model	Description
IV1040	VM1	This very popular Vortex Mixer has been upgraded with an improved drive system and is now housed in an injection moulded case. It has two operating modes where it can be run continuously or by applying downward pressure with a tube into the silicone cup. Speed is controlled from 200 - 2400 rpm electronically.



Mixer - Vortex

VELP

The ZX3 and RX3 are traditional style vortex mixers with epoxy coated high chemical resistant cast aluminium body and suction cup feet for stability. The ZX3 has manual or continuous operation whilst the RX3 operates with a constant vibration speed of 2400rpm.

The Wizard has an infrared sensor which detects the presence of the test tube and automatically starts the vibration. No pressure needed by the lab operator!

The Classic has an automatic "touch" mode which starts with a light amount of pressure by the test tube on the cupping glass

ZX3

RX3



Rowe Code	Model	Description
IV1075	Zx3	Manual or continuous operation
IV1074	Rx3	Manual operation only
IM1063	Wizard	Infrared sensor, continuous operation
IM1062	Classic	Touch mode, continuous operation

Wizard



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Stirring - Overhead Stirrer

Overhead Stirrers

VELP

VELP Scientifica have a choice of stirring motors depending on user requirements.

The laboratory stirrers model LS and DLS are characterized by medium to high torque, allowing their use with **medium viscosity** liquids.

The laboratory stirrers model LH and DLH are characterized by high torque, allowing their use with **highly viscous** liquids.

All units have a powerful motor with a sturdy construction that is microprocessor controlled assuring a constant speed even if variations of viscosity of the stirred liquid occur. Choice of stirring speed between 50 and 2000 rpm. A progressive start avoids spillages of stirred liquids. A safety system against "over loads" protects the equipment in case of improper operation or motor failure.

The quality of manufacturing materials allows a continuous noiseless and precise operation, absolutely reproducible. The manufacturing technology assures a safe and easy operation with a limited volume and weight.

Ergonomically designed, the modern & compact finish make these units practical and attractive. The models DLS and DLH are equipped with two digital displays, showing clearly the set and actual speed.



IS2215

IS2210



Rowe Code	Model	Power (W)	Stirring Speed rpm	Stirring Capacity	Speed Display
IS2220	ES	30	50-1300	15 Litre	-
IS2240	PW	120	20-1200	70 Litre	-
IS2206	BS	60	50-2000	25 Litre	-
IS2210	DLH	120	50-2000	40 Litre	LCD
IS2215	LH	120	50-2000	40 Litre	-
IS2200	DLS	60	50-2000	25 Litre	

* We also supply other brands of overhead stirrers



IS2240



IS2220



IS2206



IS2200

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Stirring - Accessories

Overhead Stand and Clamp

Rowe Code	Description
IS2300	Support Rod & Base
IS2305	Double clamp

Velp



Overhead Stirring shafts

Rowe Code	Description	Features	Uses
IS16594	Propeller	Standard stirring shaft axial flow from bottom to top.	Medium to high speeds, high solids, flocculation, mixing of thickening agents
IS16595	2 floating blades	Two blades open when speed increases, giving an axial flow from top to bottom	Medium to high speeds, high solids, flocculation, mixing of thickening agents.
IS16596	Turbine	Produces a radial flow with movement of products from top and from bottom, with strong turbulence Medium to high speeds for dissolving	Medium to high speeds for dissolving products or breaking particles
IS16597	Turbo propeller	Produces an axial flow from top to bottom with limited shearing. Avoids contact of propeller with vessel. Medium to low speeds of high solids,	Medium to low speeds of high solids, flocculation or dissolving dyestuffs



Stirring shaft with paddle, six holes, stainless steel

IS16596
Stirring shaft with turbine, stainless steel

IS16597
Stirring shaft with turbo propeller, stainless steel

Stirring shaft with anchor, stainless steel

IS16595
Stirring shaft with floating blades, stainless steel

Stirring shaft with folding blade, stainless steel

Stirring shaft with fixed blade, stainless steel

IS16594
Stirring shaft with propeller, stainless steel

Stirring - Accessories

These stirring bars have a permanent magnet core of the type AlnicoV. The magnet is isostatically encapsulated in pure PTFE.

Rowe Tip !

(To prevent demagnetisation, stirring bars using Alnico magnets should not be stored in a random mass, but kept "paired" and should not be dropped on hard, especially steel surfaces).

Cylindrical

Cowie

Smooth round profile, a popular general - purpose stirrer for a wide variety of applications.



Rowe Code	Length mm	Diameter mm	Std. Pack Size
PM2254	6	3	ea
PM2256	8	3	ea
PM2258	12	4.5	ea
PM2262	13	6	ea
PM2265	15	6	ea
PM2270	20	6	ea
PM2285	25	5	ea
PM2275	30	6	ea
PM2280	40	7	ea
PM2815	40	8	ea
PM2900	50	8	ea
PM2943	60	10	ea
PM2950	70	10	ea
PM2980	80	10	ea

Pivot Ring

Use in containers with bases that are slightly curved or uneven.



Rowe Code	Length mm	Diameter mm	Std. Pack Size
PM2255	8	3	ea
PM2260	13	8	ea
PM2305	15	4.5	ea
PM2400	20	6	ea
PM2500	25	6	ea
PM2630	30	6	ea
PM2750	35	6	ea
PM2800	40	8	ea
PM2860	45	8	ea
PM2941	50	8	ea
PM2946	60	10	ea
PM2975	70	10	ea

Stirring - Accessories

Stirring Bars - Plain

Similar in action to cylindrical but give more turbulence at low speed.

Rowe Code	Length mm	Diameter mm	Std. Pack Size
PM2310	15	4.5	ea
PM2340	20	6	ea
PM2620	30	7	ea
PM2810	40	7	ea



Stirring bars are also available in other forms and sizes.

Other types include:

- Octahedral - Similar action to Pivot Ring.
- Triangular - Particularly effective for dissolving solids and mixing sediments because of the scraper-like action on the base of the container.
- Oval - For use in round bottom flasks.
- Cross head - Designed for use with tube-like containers yet very effective as general stirrers.

Stirring Bar Retrievers

Kartell

PVC coated magnet

Rowe Code	Diameter mm	Length mm	Std. Pack Size
PM3000	11	240	ea
PM3050	11	300	ea



Stirring Paddles

The blades are made of chemically resistant polypropylene and are fixed to a steel rod covered with PVC, with a diameter of 8mm x 350mm long.

Rowe Code	Description	Width mm	Std. Pack Size
PS1290	Two fixed blades	40	ea
PS1300	Two collapsable paddles - fully extended	60	ea
PS1320	"U" shaped	65	ea
PS1330	Two collapsable paddles - fully extended	100	ea



Stirring Rod

Material: Polypropylene

White, one piece rod with flattened end forming two small spatulas. Policeman type

Rowe Code	Length mm	Std. Pack Size
PP2150	245	ea



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Stirring - Accessories

Stirring Rods - Glass



Rowe Code	Type Glass	Length mm	Diameter mm	Std. Pack Size
GS1160	Soda	150	6	ea
GS1150	Soda	200	6	ea
GS1200	Borosilicate	200	8	ea
GS1210	Borosilicate	200	9	ea
GS1250	Borosilicate	300	8	ea
GS1255	Borosilicate	300	9	ea

Glass rod in 1.5m lengths is also available

Stopcocks

Material: Polypropylene and High Density Polyethylene

Kartell

Ideal for liquids and gasses under low pressure (operating pressure 0.5 bar) or low vacuum. HDPE body interfaces with HDPE tap giving a smooth turning action requiring no lubricants. All are straight bored.



Rowe Code	O.D. mm	Bore mm	Std. Pack Size
PT1010	8	4.9	ea
PT1012	10	7.0	ea
PT1014	13	10.9	ea
PT1016	15	12.7	ea

Stoppers

Polyethylene

Stoppers according to DIN standards 12242 ensuring sealing action on non-standard surfaces.



Rowe Code	Cone Size	Colour	Std. Pack Size
PS1503	10/19	Blue	ea
PS1505	12/21	Green	ea
PS1510	14/23	Brown	ea
PS1520	19/26	Yellow	ea
PS1550	24/29	Red	ea
PS1565	29/32	Black	ea
PS1570	34/35	White	ea

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Stoppers

Rubber - Conical red rubber stoppers

Rowe Code	Base mm	Top mm	Height mm	Holes			Std. pack Size
				Solid	1	2	
HR1350	6	10	14	S			ea
HR1373	8	13	19	S			ea
HR1400	10	14	19	S			ea
HR1450	10	14	19		1		ea
HR1550	13	16	19	S			ea
HR1600	13	16	19		1		ea
HR1650	13	16	19			2	ea
HR1700	14	19	25	S			ea
HR1750	16	19	19	S			ea
HR1800	16	19	19		1		ea
HR1850	16	19	19			2	ea
HR1900	17	24	44	S			ea
HR1950	19	22	19	S			ea
HR2000	19	22	19		1		ea
HR2050	19	22	19			2	ea
HR2100	21	24	22	S			ea
HR2150	21	24	22		1		ea
HR2200	21	24	22			2	ea
HR2250	22	25	25	S			ea
HR2300	22	25	25		1		ea
HR2350	22	25	25			2	ea
HR2400	25	29	25	S			ea
HR2450	25	29	25		1		ea
HR2500	25	29	25			2	ea
HR2550	29	32	25	S			ea
HR2600	29	32	25		1		ea
HR2650	29	32	25			2	ea
HR2700	32	38	32	S			ea
HR2750	32	38	32		1		ea
HR2800	32	38	32			2	ea
HR2810	35	36	16	S			ea
HR2850	35	44	32	S			ea
HR2900	38	44	25	S			ea
HR2950	41	48	25	S			ea
HR3000	41	48	25		1		ea
HR3150	41	48	25			2	ea
HR3050	44	51	25	S			ea
HR3100	48	54	25	S			ea
HR3200	51	57	25	S			ea
HR3220	57	62	25	S			ea
HR3250	63	70	25	S			ea
HR3270	94	100	25	S			ea
HR3280	102	108	25	S			ea



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Strainers

Single Mesh

Kitchen quality strainer with wooden handle



Rowe Code	Diameter mm	Mesh mm	Std. Pack Size
WS1800	180	2	ea
WS1810	180	1	ea

Syringes

Disposable - Luer Slip- Plastic - Sterile

Terumo

Rowe Code	Capacity mL	Std. Pack Size
PS1611	1	100
PS1650	2.5	100
PS1750	5	100
PS1800	10	ea
PS1850	10	100
PS1900	20	ea
PS1951	20	50
PS1977	30	25
PS2000	60	ea
PS2050	60	25



Disposable - Luer Lock - Plastic - Sterile

Rowe Code	Capacity mL	Std. Pack Size
PS1755	5	100
PS1840	10	100
PS1960	20	25
PS1975	30	25
PS2060	60	25

Needles

Rowe Code	Gauge g	Length inches	Std. Pack Size
PS2130	18	1.5	100
PS2135	19	1.0	100
PS2140	19	1.5	100
PS2257	20	1.0	100
PS2258	21	1.5	100
PS2255	22	1.5	100
PS2250	22	2.0	100
PS2310	25	1.0	100
PS2300	27	0.5	100

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Tags

Rowe Code	Description	Std. Pack Size
RT1000	Aluminium Tag	1000
RT1005	Aluminium Tag with wire tie	1000
RT1020	No. 4, 108 x 54mm	1000



Tap

Rowe Code	Description	Std. Pack Size
PT1000	Tap, black polyethylene. 20mm thread to fit bung on 20L drums where supplied. Non-leak seal	ea
PT1007	Tap & Cap, AeroFlo, LDPE 48mm self venting, in place of cap on 20L drum	ea



Temperature Sensor - Infrared Meter

BUILT-IN LASER POINTER
 COMPLIES WITH FDA RADIATION PERFORMANCE STANDARD 21CFR
 SUBCHAPTER J.
 ADJUSTABLE EMISSIVITY FROM 0.3 TO 1.0
 DISTANCE : SPOT = 12 : 1
 RUBBER-LIKE HAND GRIP
 FLIP BATTERY COMPARTMENT, EASY TO REPLACE BATTERIES

- Ergonomic hand grip design
- Auto power off for saving battery life .
- Backlight function for using in dark area.
- Class II laser product , <100mW output at 675nm wave length.
- High temperature up to 1500 degree F for most metal surface temperature measurement.
- Easy to adjust emissivity value by pressing MODE button .



Rowe Code IS1617

Temp. Range : -40~816°C(-40°F~1500°F)
 Big LCD display
 Operating temp. :10~40°C,10~90%RH.
 Response time : 500 ms.
 Temperature unit °C and °F switchable.
 Accuracy : 2°C (or 4°F) less than 0°C
 ± 2% or 2°C (or 4°F) <300°C
 ± 2.5% or 5°C (or 9°F)
 >300°C ,<500°C
 ± 3% above 500°C .
 Resolution : 0.1°C (< 280°C)
 1.0°C (> 280°C)
 Repeatability : 1°C
 Storage Ambient :-20~50°C (0~90%RH)
 Dimension : 195 x 134 x 50 mm
 Battery life : 100hrs
 Meter includes :
 Hard case, AAA batteries, Carry pouch, Instruction manual.

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Thermogravimetric Analysis (TGA)



TGA - 2000 Series

NAVAS INSTRUMENTS

Multiple sample (19) thermogravimetric analyzers with auto-crucible covers for volatiles (coal & coke) (patented) and operational program in windows

Only instrument to provide excellent volatile matter accuracy (no operator dependant results installing crucible covers)

Determination of :Moisture, volatiles, ash, fix-carbon, LOI.

Applications: coal, coke, graphite, iron ore, cement, bauxite ,fertilizers, rubbers, plastics, food, animal feed, snacks, dough, wheat, flour, used engine oil etc.

Temperature range: 50 ~ 1000 °C ± 1 °C

Sample size: 0.1 ~ 10 g

Standard deviation of ± 0.0002 grams

Number of samples: 19 simultaneously

Weight Loss/Gain range: 0 ~ 100 %.

Complies with standard methodologies related to this type TGA analysis

TGA-2000 A stand alone or in network for multiple TGA units (TGA for Coal)

Rowe Code: TBA

The automatic crucible-covers installation and removal (Patented) during the analysis of volatiles makes the instrument fully automatic and eliminates sample oxidation,it provides better reproducibility of the volatile matter results. Below is an example of the reproducibility of the excellent volatile results:

	VOL %	CORR. VOL % Fact. 1.0127	ASH %	FIX-C %
X	33.88	34.31	13.18	52.51
SD	0.09	0.09	0.04	0.09
CV %	0.26	0.26	0.32	0.18
MAX	34.12	34.56	13.25	52.74
MIN	33.71	34.14	13.11	52.26

TGA ADVANTAGES IN ALL NAVAS MODELS MECHANICS

- 1- No expensive ceramic parts, all parts (carousel, pedestal, crucibles & covers) are made of a special metal stainless refractory alloy, up to 1200 °C. Ceramic parts breaks and are expensive, metallic parts do not break and are durable.
- 2- Robust mechanics and robust chassis.

ELECTRONICS

We use few proprietary electronics most of our electronics are made by the experts and are standard in the industry (Temperature controller, Balance, Magnetic sensors)

- 1- Precision balance with big display, we use a balance (0.1 mg precision), not the balance motor only, and communications with the balance are done through standard RS-232 protocol.
- 2- Temperature controller of ±1 °C deviation at 105°C and ±2 °C deviation at 1000°C, this complete temperature controller has a with present temperature and set point temperature. It is a fully programmable controller with auto tuning and 15 PID control. Communications with the controller are done through standard RS-232 protocol.
- 3- All sensor are magnetic switches with light indicators, the advantages are the dust does not affect them because they are not optocoupled sensors, in case of failure easy to diagnose

SOFTWARE - DUAL OR SINGLE FURNACE CONTROLLED BY 1 SINGLE PC - Windows software, intuitive and easy to use.

- 1- Easy to use diagnostics screen, the state of the furnace balance, the temperature controller and all the sensors are shown in real time dynamically, for example activating the button that raises the lid the lid sensor changes on the screen immediately. All mechanical functions can be activated in the diagnostics window (carousel turning, raising and lowering the lid, carousel pneumatic piston, nitrogen, oxygen electrovalves etc ...)
- 2- Calibration, linearization and curves fitting for all slopes, the software has spreadsheets to allow the user to edit manually the factors, it also allows to calculate the calibration factors using results and standards, there is also non-linear regression and curves fitting for volatiles and all the slopes using interpolation, least squares and quadratic formulas.
- 3- Temperature controller auto-tuning for better temperature control accuracy.
- 4- Integration with Microsoft Office data base and spreadsheets (Microsoft Access and Microsoft Excel, Data base storing through a powerful Open database connectivity (ODBC) connection with configurable data exports, printouts and reports, the information can be classified and sorted, data export can be done manually or automatically after analysis via network for LIMS connection in TXT (ASCII Text files) , CSV (Comma Separated Values) and XLS (Microsoft Excel) formats. The data is stored in Microsoft Access Format, MDB file.

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Thermogravimetric analysis (TGA)

MMS - 2003 Series (Patent pending) MULTIPLE MATRIX - MULTIPLE SAMPLE TGA

For determination of Moisture-Ash in food, animal feed, snacks, dough, wheat, flour, Coal preparation plants, Loss on ignition in cement, Calcium carbonate, iron ore & other ores.

Temperature range: 50 ~ 1000 °C ± 1 °C
Sample size: 0.1 ~ 10 g
Standard deviation of ± 0.0002 grams
Number of samples: 19 simultaneously
Weight Loss/Gain range: 0 ~ 100 %.

Complies with standard methodologies related to this type TGA analysis
LOI at 1000 °C in 20 minutes (19 samples)



Rowe Code: TBA

The operator only weighs crucibles and samples in the external balance, enters the identification codes for the samples and places the crucibles on the conveyor. The rest of the process ; analysis, loading of samples and extraction of samples is fully automatic.

- 1 - The furnace is always hot.
- 2 - Robot picks up crucibles from the conveyor and inserts the samples in the empty positions of the carousel.
- 3 - Robot removes samples with result from the carousel and drops them in the bin, these position get empty and are ready for next sample.
- 4 - It performs the analysis process at the same time the robot loads and removes samples

ADVANTAGES

1 -The user can weigh crucibles and samples during the analysis in the same PC that manages the instrument. Multitasking software means there is no time wasted in getting the initial weights of crucibles and samples and entering the ID codes because initial weights are not obtained inside the instrument but in an external balance during analysis time. The software is managing at the same time the instrument to obtain results, the robot, the furnace internal balance and the external balance.

2 - Samples of different materials can be analysed, there are no samples that conditions the others, the first to finish is the first to be removed by the robot from the furnace.

3 - No time spent in heating and cooling to start a new batch, in this instrument the furnace is always hot and operates in a continues process.

4 - The user does not make mistakes placing the samples, all samples are placed one after the other on the conveyor.

All heated parts inside furnace are made of refractory stainless steel alloy (Carousel, pedestal & crucibles). The carousels do not bend nor warp under temperature stress, metal is unbreakable unlike ceramics. Ceramics charges with static electricity and may produce unstable balance readings.

NO CONSUMABLES OR SPARE PARTS NEEDED.

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Thermometers

Contact

Dual magnet, surface mount thermometers. Designed to be used on horizontal or ferrous non-horizontal surfaces. Have two alnico magnets that hold it in place on ferrous surfaces. Dial diameter is 5.1cm.



Rowe Code	Range °C	Divisions °C	Std. Pack Size
IT1130	-20 to 120	1	ea
IT1150	-20 to 250	2	ea
IT1140	10 to 400	5	ea

Digital - Desktop

Desktop or wall mount. Records maximum and minimum temperature. Has an internal sensor and an external sensor, with a 3m weatherproof sensor wire. The range is from -50 to +70°C with a jumbo digital display reading to 0.1°C. 2 year battery life (includes 1 x AAA battery)



Rowe Code	Description
IT1800	Thermometer Desktop, Min/Max
IT1807	Thermometer Aquarium Min/Max -50/70°C, inside/outside, waterproof sensor

Digital Stem

Pocket digital stem thermometer with a range from -50° to +150°C. Controlled by an on/off switch for fast response. Has a hold function to store the momentary display. Comes with a plastic case that clips on to a pocket like a ball point pen. Resolution is 0.1°C with accuracy better than 1°C. Probe length 120 x 3.5mm. Battery life approximately 5000 hours.



Rowe Code	Description	Std. Pack Size
IT1360	Digital thermometer with stainless steel stem	ea

Dual Channel Thermocouple MC-87

TPS

The MC-87 is a convenient and economical unit for accurate and fast measurements over a wide temperature range. It can display temperature in °C or °F, with indication to 0.1 or 1°, depending on the desired range.

The temperature from either of the sensors can be displayed at the flick of a switch. Alternatively, the MC-87 can display the difference between the two sensors. The display has large 18mm digits, making it easy to read.

In hard-to-reach places, the "HOLD" function can be used to freeze the reading on the display until it can be noted.

It is designed for use with all Type K thermocouple sensors and uses industry standard mini-plug connectors, making it compatible with most brands of sensors.



Rowe Code	Description	Std. Pack Size
IT1614	Dual Channel, Digital Thermocouple Thermometer MC-87	ea
Kit Includes:	Stab type sensor (750°C) Battery MC-87 Handbook	

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Thermometers

General Purpose - For daily use in laboratories.

Enclosed Scale

Diameter 7-8mm, capillary lens front, colourless. Total immersion with ring at top. Mercury filled.

Rowe Code	Range °C	Divisions °C	Length mm	Std. Pack Size
GT4900	-10/50	1	200	ea
GT3700	-10/110	1	300	ea
GT4700	-10/200	1	300	ea
GT4200	-10/300	1	340	ea



Solid Stem

Diameter 5.5 - 7.0mm, yellow back glass. Total immersion with ring at top, Mercury filled.

Rowe Code	Range °C	Divisions °C	Length mm	Std. Pack Size
GT3800	-10/110	1	260	ea
GT3900	-10/150	1	260	ea
GT4000	-10/200	1	300	ea
GT4250	-10/360	1	340	ea



Solid Stem

White enamel back, 76mm immersion, Mercury filled

Rowe Code	Range °C	Divisions °C	Length mm	Std. Pack Size
GT4910	-10/50	0.5	305	ea
GT3750	-10/110	0.5	305	ea
GT4100	-10/250	1.0	305	ea
GT4300	-10/360	2.0	305	ea
GT4350	-10/400	2.0	305	ea



Spirit

White enamel back, 76mm immersion, Red Spirit filled

Rowe Code	Range °C	Divisions °C	Length mm	Std. Pack Size
GT4865	-10/50	0.5	305	ea
GT4750	-10/110	1.0	305	ea
GT3905	-10/150	1.0	305	ea



White enamel back, 76mm immersion, Green spirit filled

Rowe Code	Range °C	Divisions °C	Length mm	Std. Pack Size
GT4755	-10/110	1.0	305	ea



We also offer the full range of ASTM, IP & NATA Certified thermometers - please enquire.

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Thermoregulator



Model TH1

Ratek

A basic Heater/Stirrer where high precision temperature control is not necessary. Provided with a simple paddle type stirrer, this unit will provide control from approximately 30° to 75° with a stability of +/- 0.2°C.

Rowe Code	Description
IT2400	Thermoregulator Model TH1



Model TH3

Ratek

A general purpose Heater/Stirrer with a temperature control range from approximately 30° to 100°C. Available with paddle type agitator or circulating pump, this model has a control stability of +/- 0.1°C.

Rowe Code	Description
IT2460	Thermoregulator Model TH3 with paddle type agitator
IT2470	Thermoregulator Model TH3 with circulating pump



Model TH5

Ratek

The latest model precision Heater/Stirrer with microprocessor type control, digital temperature display, and sealed front panel controls. Temperature range is 0° to 100° (external cooling required for temperatures below ambient). Control stability is +/- 0.02°C and display accuracy 0.1°C. The unit is fitted with a large capacity circulating pump.

Rowe Code	Description
IT2670	Thermoregulator Model TH5
IT2675	Thermoregulator Model TH5 with optional 2KW heating element.



Vertex

Velp

Fuzzy logic temperature controller with timer for use where precise temperature control is required. Designed for use with the Velp AREX hotplate stirrer IM2216 (as pictured). It has an IP54 rated housing and stainless steel Pt100 probe. Specifications include a resolution of 1°C, precision of +/- 0.1°C and a range of up to 250°C

Rowe Code	Description
IT2485	Vertex Thermoregulator

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Thermoregulator - Accessories

Immersion Cooler

Ratek

Rowe Code	Model	Description
IR1060	RC1	This Immersion Cooler, when used with the Ratek TH2 or TH5 Thermoregulators will allow accurate temperature control to +/-0.1°C at and below ambient temperatures. When used with an insulated water bath up to 20 litres can be controlled, depending on the heat load. The insulated stainless steel flexible line is approximately 1 metre long, with the nickel plated coil supported by an adjustable mounting bracket. Only environmentally friendly R134a refrigerant is used in Ratek coolers. Suitable insulated stainless steel tanks can be manufactured to order.



Timers

Digital Timer Rowe Code: IT1530

Pocket, Bench or Magnetic Attachment.

Small and sturdy to carry in your pocket, clip on your pocket, stand on your bench, or fix to your fridge or filing cabinet with the magnetic clip. The strong case allows careless handling without chipping or cracking.

Its special features are:

1. It counts UP
2. It counts DOWN
3. It counts NEGATIVE in countdown mode so you know how long you have overrun if you are interrupted.
4. It is also a CLOCK.
5. It has a MEMORY.
6. It can carry out all these functions AT THE SAME TIME.

Replacement battery for timer clock **Rowe Code: IT1535**



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titration made easy ...

Titration

METTLER TOLEDO

DL50 RONDOLINO

METTLER TOLEDO introduced a new and innovative solution to run small batches of titrations more efficiently: The DL50 Rondolino. The titrator offers the same set of functions as the successful DL50 Graphix titrator, but allows much more efficient sample handling due to the Rondolino autostand. With the DL50 Rondolino, titrating a series of up to 9 samples can be analysed fully automatically. Just put the sample beakers into the rack of the Rondolino and press run. All the samples will be titrated without further assistance from the user.

The system is as effortless to set up and maintain as a non-automated system. No extensive configuration of the autostand is necessary. Basically, connecting the cable to the titrator is all you have to do. Due to the revolutionary compact size of the Rondolino, the DL50 Rondolino needs very little benchspace, not much more than a titrator alone.

The solution is not only perfect for small sample series but also has many advantages when used with single samples: Due to automated processing, the reproducibility gets better, the manipulation is easier because no manual rinsing is necessary and the electrodes are well protected because they are always automatically stored in a conditioning beaker.

For dirty and sticky samples, Rondolino can be equipped with the optional PowerShower rinsing system. The PowerShower, which is also used on the Rondo sample changer, provides ultra-efficient rinsing of electrode, burette tip and stirrer after each titration.

Rondolino

Rondolino autostand - 9 samples

Rowe Code: TBA

DL50 Rondolino

Automatic Graphix Titrator with 9 sample Rondolino autostand.

Rowe Code: TBA

DL50 Graphix

Automatic Titrator - Graphix single burette drive.

Rowe Code: IT4200



DL15 Titrator - The DL15 is ideal for the many different industries when all that is needed is an endpoint titration or a pH measurement. Most often the DL15 is used to determine acid and base content (acidity and alkalinity).

Rowe Code: TBA

DL22 Food & Beverage Analyzer - The DL22 Food & Beverage Analyzer is a specialized instrument for the food and beverage industry. It includes methods with predefined parameters most commonly used in these industries, making life as easy as possible, eg citric acid in orange juice, acid in wine, nitrogen determination according to Kjeldahl etc.

Rowe Code: TBA

DL28 Titrator - The DL28 is a compact endpoint and equivalence point titrator for the food, water and chemical industries. It includes a lot of methods commonly used in the field. In addition, the DL28 offers the option of further customizing the parameter sets to fine tune your analysis even more.

Rowe Code: IT4002



Mettler Toledo - High End Titrators - The DL5x and DL7x Series of Titrators are suitable for any application from basic to complex multi-stage titrations and can be fully automated using multi-burette drives and sample carousels. **Rowe Code: TBA**

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METTLER TOLEDO manufacture a comprehensive range of titrators from entry-level through to advanced multi-burette, fully automated titrators, including an industry specific (Food & Beverage) instrument.

Rowe Code	Model	Description
DL7X Titrators		
TBA	DL70ES	Titrator DL70ES Multi-Burette Drive Titrator
TBA	DL77	Titrator DL77 Multi-Burette Titrator (DL70ES with addition of second burette drive)
DL5X Titrators		
IT4200	DL50Graphix	Titrator DL50 Graphix, Single Burette Drive Titrator (complete with burette included)
TBA	DL50Rondolino	"DL50 Rondolino, Automated titration system includes DL50Graphix Titrator and the Rondolino Autosampler (complete with burette included)"
TBA	DL53	Titrator DL53, Single-Burette Drive Titrator with Enhanced Software
TBA	DL55	Titrator DL55, Dual-Burette Drive Titrator
TBA	DL58	Titrator DL58, Flexible Method Dual-Burette Drive Titrator
All DL7X and DL5X are supplied with LabX Software.		
DLow Titrators		
TBA	DL15	Titrator DL15 Compact Endpoint Titrator
TBA	DL22F&B	Titrator DL22 Food and Beverage Analyzer
TBA	DL28	Titrator DL28 Compact Endpoint and Equivalence Point Titrator
All DLow titrators are supplied with titration stand, DG115-SC electrode and DV1020 burette. DL15 is supplied with magnetic stirrer and the DL22F&B and DL28 come with Compact stirrer(no magnetic stirrer)		
Accessories & Consumables - DL7x / DL5x Titrators		
TBA	51107269	KF option for DL53, DL55, and DL58
TBA	00025660	DV90: Burette drive
TBA	00025692	DV92: Dual titration stand
Software		
TBA	51106331	LabX Light titration
TBA	51106300	LabX pro titration
TBA	51710131	LabX Validation Manual I (supplier documentation)
TBA	51710166	LabX Validation Manual II (for system qualification)
Sample Transports		
TBA	RONDOLINO	Basic Sample Transport for DL5X - 9 sample capacity with fixed rinse/condition beaker. Includes 20 beakers, dispensing tubes and connecting cable to DL5x. Diaphragm pump and power shower not included.
TBA	51108000	Rondo 60 Multifunction Sample Transport 20 sample capacity, includes one tower, one rinse pump, 20 beakers, dispensing tubes and connecting cable to DL5x,DL7x.
Sample Changes		
TBA	QUANTO/A	QUANTO Aliquot - Includes diaphragm pump, peristaltic pump, transfer rack, titration beaker, 100 test tubes and connection tubing. Titrator connection cable sold separately.
TBA	QUANTO/D	QUANTO Direct - Includes diaphragm pump, FlipRack, titration head with PowerShower mechanism, titration cups, and connection tubing. Titrator connection cable sold separately.
Karl Fischer Volumetric Titration DL31, DL38		
TBA	DL38	Karl Fischer Titrator DL38
TBA	DL31	Karl Fischer Titrator DL31
Karl Fischer Coulometric Titration DL32, DL39		
TBA	DL32X	Routine Coulometric Titrator DL32X
TBA	DL32D	Routine Coulometric Titrator DL32D (incl. Cell w/ Diaphragm)
TBA	DL39X	Advanced Coulometric Titrator DL39X
TBA	DL39D	Routine Coulometric Titrator DL39D (incl. Cell w/ Diaphragm)

FOOD

Thanks to its ease-of-use, the DL50 Rondolino is ideally suited for typical near-process environments in the **food industry**. Possible applications are: acid and chloride content; peroxide number, iodine number, acid number and free fatty acid content (FFA); pH, acid, free and total SO₂ and reducing sugars.

PHARMACEUTICAL

The perfect documentation functions of the DL50 Rondolino are a big advantage in the **pharmaceutical industry**. Typical applications are: the titration of weak acids, acid neutralizing capacity of antacids; pH stating of enzymatic reactions; titrations in non aqueous media.

CHEMICAL

DL50 Rondolino's great flexibility allows it to be adapted for numerous applications in the **chemical industry**: alkali and carbonate content; chloride content; acid strength; determination of heavy metals; epoxy values in polymers and resins; general chloride determination; surfactant determinations; total acid number(TAN); total base number (TBN) and bromine number.

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Tongs

Beaker

Met-App



Rowe Code	Description
HT1000	40-90mm diameter objects, vinyl covered, S/Steel (illustrated)
HT1020	16-110mm diameter objects, vinyl covered, S/Steel
HT1050	Up to 150mm diameter objects, heavy duty, Aluminium Alloy

Crucible

Met-App



Rowe Code	Description
HT1150	200mm long, with bow, brass
HT1200	220mm long, with bow, stainless steel
HT1250	280mm long, with bow, stainless steel (illustrated)
HT1255	220mm long, without bow, stainless steel
HT1260	500mm long, with bow, heavy duty, hand rest, s/steel
HT1270	400mm long, with bow, heavy duty, hand rest, s/steel
HT1110	300mm long, with bow, light weight, s/steel
HT1300	420mm long, with radiation shield, s/steel
HT1350	620mm long, with radiation shield, s/steel
HT1370	720mm long, with radiation shield, s/steel



Flask

Met-App

Rowe Code	Description
HT1285	25-90mm objects, finger rims & extended handle, s/steel (illustrated)

Tools for Gold Room

For your Gold Room

Rowe Code	Description	Std. Pack Size
TBA	Wire Brush, Stainless Steel	ea
TBA	Chipping Hammer (Welders)	ea
TBA	Cold Chisel	ea
TBA	Electric Drill, 10mm Chuck	ea
TBA	Drill Set (1/8, 3/16, 1/4, 5/16, 3/8 inch)	ea
TBA	Letter Punch, 12mm	set
AT1100	Letter Punch, 8mm	set
TBA	Number Punch, 8mm	set
TBA	Number Punch, 12mm	set
TBA	Stirring Tongs	pr4

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Trays

Aluminium

Rowe Code	Length mm	Width mm	Height mm	Std. Pack Size
RT1950	24	13	6	ea
RT1960	250	150	55	ea
RT1970	280	280	75	ea
RT1289	340	280	55	ea



Aluminium Foil

Made from aluminium foil. Ideal for drying samples.

Rowe Code	Width mm	Length mm	Height mm	Std. Pack Size
RT1201	214	220	38	200
RT1210	145	195	48	500
RT12005	227	228	36	200



Glass Carrying

Made from plastic coated wire.

Rowe Code	Inside mm	Outside mm	Height mm	Std. Pack Size
HW1370	420 x 420	432 x 432	50	ea
HW1350	438 x 368	450 x 387	50	ea



Other sizes and variations of trays are available. Minimum of quantity of 10. Please contact our sales team.

General Purpose

Kartell

Made from PVC.

Very useful for knick knacks - rulers, erasers, pencils etc, in desk drawers.

Centre compartment of five compartment tray can be used for pipettes.

Sturdy. Can be used for carrying items such as stir bars, connectors etc.

Rowe Code	Compartments	Compartment Dimensions mm	Overall Dimensions mm	Std. Pack Size
PT1580	12	90 x 90	303x403x63	ea
TBA	5	100x185(4) 100x385(1)	304x404x64	ea

Other sizes and variations of trays are available. Please contact our sales team.



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Trays

Plastic

Kartell

Made from ABS plastic.



Rowe Code	Length mm	Width mm	Height mm	Std. Pack Size
PT1527	202	151	81	ea
PT1523	303	151	21	ea
PT1524	252	252	42	ea
PT1529	353	252	21	ea
PT1526	353	253	41	ea
PT1530	352	252	81	ea
PT1540	408	300	21	ea

Other sizes and variations of trays are available.
Please contact our sales team.



Slide Warming Tray

Ratek

Rowe Code	Model	Description
IT1629	WT1	A Slide Warming tray with a heated working area of 200 x 400 mm. The temperature of the anodised aluminum plate can be controlled between approximately 30° and 80°C.

Stainless Steel



Rowe Code	Width mm	Length mm	Height mm	Std. Pack Size
AM1300	161	175	50	ea
AM1342	264	321	65	ea
AM1349	162	265	65	ea
AM1344	323	352	65	ea
RT1110	450	550	70	ea
AM1345	325	530	65	ea
AM1355	325	530	100	ea

Tinned Steel



Rowe Code	Width mm	Length mm	Height mm	Std. Pack Size
RT1247	150	220	6	ea
RT1265	250	310	3	ea
RT1261	270	370	8	ea

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Triangles - Tripods

Pipeclay

Rowe Code	Length of Side mm	Carton Qty
WT1050	50	5
WT1100	60	5
WT1150	75	5



Silica on nichrome wire

Rowe Code	Inside Dia. mm	Length of Side mm	Std. Pack Size
TT1000	20	38	ea
TT1010	32	58	ea

Tripods

Cast iron top is heat resistant silver painted. Has 3 removable Zinc plated legs

Rowe Code	Length of side mm	Height mm	Std. Pack Size
HT1700	120	205	ea



Tubes - Centrifuge

Conical - Plain

Kimax

Standard taper tube. Top is beaded for strength. No graduations. Marking spot.

Rowe Code	Capacity mL	O.D. mm	Length mm	Std. Pack Size
GT3300	10	17	108	12
GT3310	15	17	118	12

Conical - Graduated

Kimax

Standard taper tube. Calibrated to contain. Top is beaded for strength. Scale & legend are printed in permanent red stain. Marking spot.

Rowe Code	Capacity mL	O.D. mm	Length mm	Std. Pack Size
GT3287	15	17	118	12
GT3290	50	29	133	12

Conical - Graduated- Polypropylene

Kartell

Autoclavable. Can withstand temperatures up to 120°C. Rimmed. High chemical resistance. Good transparency especially when in contact with liquids. Cannot be used with naked flame. Can be used as conventional test tubes.

Rowe Code	Capacity mL	O.D. mm	Length mm	Std. Pack Size
PT1110	10	16	107	ea
TBA	15	18	118	ea

Conical - Graduated - Screw Capped

Kimax

Standard taper tube with screw thread finish. Graduated and calibrated to contain. Cap packaged separately. Scale, legend & marking spot are durable white ceramic enamel.

Rowe Code	Capacity mL	O.D. mm	Length mm	Std. Pack Size
GT3270	15	17	130	12
GT3275	50	29	147	12

Centrifuge tubes are available in many other sizes and designs. Please contact our sales team with your specific requirements.

Conical - Graduated - Oil Test

Kimax

Designed for field use in testing petroleum. Calibrated to contain. Cap packaged separately. Scale & legend are durable white ceramic enamel.

Rowe Code	Capacity mL	O.D. mm	Length mm	Std. Pack Size
GT3200	100	45	165	ea
GT3230	100	45	165	12
GT3240	100	37	203	12

Centrifuge tubes are available in many other sizes and designs. Please contact our sales team with your specific requirements.



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Tubes - Culture

Disposable - Borosilicate

Chase

Borosilicate, disposable culture tubes that are chemically clean and suitable for a wide range of applications, including haematology and chemistry. Have consistent size and weight, with uniform rounded bottoms. Packed in Dispens-A-Pak shipping cartons.

Rowe Code	O.D. mm	Length mm	Std. Pack Size
GT2002	10	75	1000
GT2105	12	75	1000
GT2151	13	100	1000
GT2210	16	100	1000
GT2215	16	125	1000
GT2310	16	150	1000
GT2485	18	150	500

Disposable - Geochemical

Chase

These disposable culture tubes are manufactured from high quality flint glass and meet strict specifications of size and weight. Packed in Dispens-A-Pak shipping cartons that have multi layer corrugation on top and bottom, with a buffer of air around all four sides. This ensures the tubes are received in perfect condition.

Rowe Code	O.D. mm	Length mm	Std. Pack Size
GT2110	12	75	1000
GT2155	13	100	1000
GT2320	16	150	1000
GT2475	18	150	500

Screw Cap

Kimax

KIMAX culture tube made from tubing with uniform wall thickness for maximum heat transfer and chemical resistance. Thread finish complies with Glass packaging Institute (GPI) requirements. Cap has a PTFE-faced rubber liner and is not attached. Designed from ASTM E982, Type VI, Class B requirements.

Rowe Code	O.D. and Length mm	Capacity to Neck mL	GPI Thread Finish	Std Pack Size
GT1565	13 x 100	8	13-415	72
GT1570	16 x 100	12	15-415	72
GT1600	16 x 125	16	15-415	72
GT1650	16 x 150	20	15-415	72
GT1700	20 x 125	25	18-415	48
GT1750	20 x 150	30	18-415	48
GT1800	25 x 150	50	24-410	36
GT1900	25 x 200	70	24-410	36

Replacement Caps - Phenolic, with PTFE-Faced Rubber Liner
Made of a special phenolic material (mineral filled) to withstand the effects of repeated autoclaving. With a PTFE-faced rubber liner. Liner/cap bond was selected to retain its adhesive properties during autoclaving.



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Tubes - Test

Rimmed - Glass

Kimax

KIMAX test tube made from KG-33 glass tubing with a sturdy lip and uniform wall thickness for maximum heat transfer and chemical resistance. Durable white ceramic enamel marking spot on each tube. Designed from ASTM Specification E982, Type 1 requirements.



Rowe Code	O.D. mm	Length mm	Overflow Capacity mL	Std. Pack Size
GT5150	10	75	4	72
GT5155	12	75	6	72
GT5605	13	100	10	72
GT5200	16	150	24	72
GT5300	18	150	28	72
GT5450	25	150	55	72
GT5550	25	200	75	24

Rimless - Glass

Kimax

KIMAX culture tube made from KG-33 glass tubing, with a fire-polished top rim and uniform wall thickness for maximum heat transfer and chemical resistance. Durable white ceramic enamel marking spot on each tube. Designed from ASTM Specification E982, Type IV requirements.



Rowe Code	O.D. mm	Length mm	Overflow Capacity mL	Std. Pack Size
GT1150	16	100	15	72
GT1200	16	150	24	72
GT1250	18	150	28	72
GT1300	20	150	36	72
GT1350	25	150	55	72

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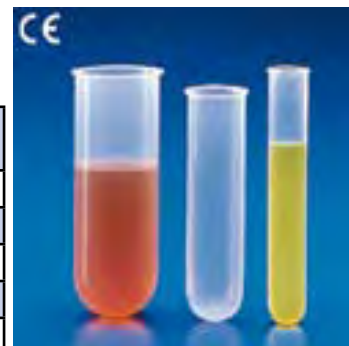
Tubes - Various Kartell

Cylindrical

Material: Polypropylene

Autoclavable. Can withstand temperatures up to 120°C. Rimmed. High chemical resistance. Cannot be used with naked flame. Can also be used as conventional test tubes. Very good translucency.

Rowe Code	Capacity mL	O.D. mm	Height mm	Std. Pack Size
PT1175	16	17	101	500
PT1160	31	24	95	50
PT1745	48	30	100	25
PT1750	70	35	100	20
PT1240	110	40	120	25



Caps - Polypropylene (plug in type)

Kartell

Rowe Code	O.D. mm	To fit Test Tube Dia. mm	Std. Pack Size
PC1058	10.5	12	100
PC1060	14	16	100
PC1150	14.5	16	100
PC1200	16	18	100
PC1065	22	24	100
PC1230	28	30	100



Micro

Kartell

Ideal for sample analysis. Depending on centrifuge being used, these tubes can withstand a centrifuge force of up to 15000 rpm. Other colours available.

Rowe Code	Capacity mL	Description	Std. Pack Size
PT1600	1.5	Eppendorf type - neutral colour	1000



Microhaematocrit

Chase

Non-heparinized blood capillary tubes that are packed in vials of 200 tubes. They are colour coded blue.

ID	1.1 - 1.2 mm
Wall	0.2 +/-0.02mm
Length	75 mm
Min volume	70ml

Rowe Code	Description	Std. Pack Size
GT9000	Microhaematocrit tube, plain, blue coded	12 x 200



Polystyrene

Kartell

Disposable test tubes, cylindrical

Rowe Code	O.D. mm	Height mm	Std. Pack Size
PT6240	16	100	1000
PT6200	16	150	1000



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Tube - Racks

Microcentrifuge Tubes

Kartell


Material: Polypropylene

Two-tier, available in four distinct colours. These versatile racks are autoclavable and can be used dry, in water baths or in freezers. Each rack has an alpha-numeric reference for ease of sample identification.

Can accommodate 100 x 1.5ml tubes with closed caps or without caps, and 50 x 1.5ml tubes with caps open. Racks are stackable even when loaded and have purpose designed label spaces on each side (for bar coding, etc.)

Rowe Code	Colour	No. of Places	Dimensions L x W x H mm
PT2110	white	100	262 x 108 x 45
PT2120	blue	100	262 x 108 x 45
PT2130	yellow	100	262 x 108 x 45
PT2140	red	100	262 x 108 x 45

Universal



Material: Polypropylene

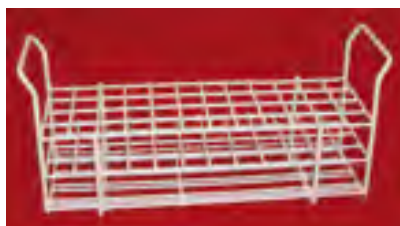
Large capacity racks. Autoclavable at 121°C for 20 mins. Can be used dry, wet, in water-baths. Will not float. No restrictions down length of rack so all samples will be incubated at same temperature. Can be used in freezers without deforming or going brittle. Will not rot, rust or deform. Alpha numerical grid reference on top tier for easy identification of samples. Colour coded for batch work. Stackable when empty.

Rowe Code	Colour	Suit Tube ODmm	No. of holes	Format	Dimensions L x W x H mm
PT2305	white	13	90	6 x 15	246 x 105 x 60
PT1955	white	16	60	5 x 12	246 x 105 x 72
PT1970	white	20	40	4 x 10	246 x 105 x 72
PT2105	white	25	40	4 x 10	295 x 125 x 85
PT2055	white	30	24	3 x 8	300 x 112 x 85

* Also available in blue, yellow and red

Wire Racks

These racks are made from plastic coated wire. For a minimum quantity of 10, other sizes can be made to any format as required. NOTE: Not all rack have side handles



Rowe Code	Suit Tube OD mm	No. of Holes	Format	Std. Pack Size
HW1860	16	50	10 x 5	ea
HW1550 (1)	25	24	3 x 8	ea
HW1650	25	40	4 x 10	ea
HW1750 (1)	25	40	4 x 10	ea
HW1675	30	60	6 x 10	ea

- (1) Have double wire support for extra strength
- (2) Minimum of 10 units for any new formats requested.

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Tubing

Borosilicate Glass

Rowe Code	O.D. mm	Wall mm	Std. Pack Size
GG1741	7	1.5	1.5m
GG1815	15	1.8	1.5m
GG1900	20	1.8	1.5m

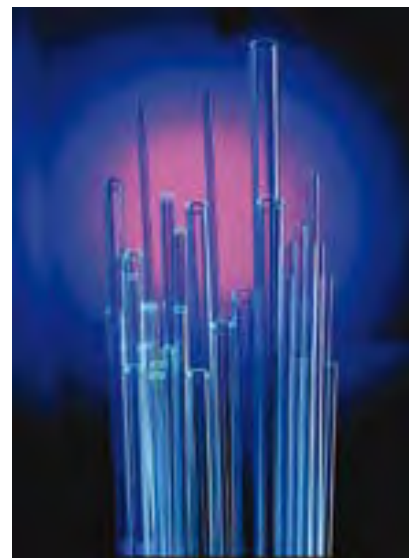
Soda Glass

Rowe Code	O.D. mm	Wall mm	Std. Pack Size
GG1750	8	0.5	1.5m
GG1800	10	1.2	1.5m

Capillary

Rowe Code	O.D. mm	Bore mm	Std. Pack Size
GG1450	8	1.2	1.5m

Glass tubing can be cut into smaller lengths for transport. Please ask our sales team when you place your order.



PTFE

Rowe Code	I.D. mm	Wall Thickness mm	Std. Pack Size
PT3630	1.68	0.40	metre
PT3637	3.00	0.50	metre
PT3640	3.76	0.50	metre
PT3643	4.30	0.50	metre
PT3690	6.00	1.00	metre
PT3692	8.00	0.75	metre
PT3603	9.52	0.76	metre



Many other sizes are available on request

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Tubing

Rubber



Rowe Code	Inside Diameter mm	Wall Thickness mm	Std. Pack Size
PT3320	5	3	metre
PT3350	6.5	3	metre
PT3450	8	2.5	metre
PT3460	10	2.5	metre
PT3465	10	1.5	metre

Silicone - platinum cured

Only available in multiples of 3m, up to 15m maximum roll length.



Rowe Code	Inside Diameter mm	Wall Thickness mm	Std. Pack Size
PT36125	0.80	1.60	metre
PT36131	1.60	1.60	metre
PT3624	1.60	2.40	metre
PT36141	3.20	1.60	metre
PT3563	3.20	2.40	metre
PT36150	4.80	2.40	metre
PT36181	6.40	2.40	metre
PT3621	8.00	2.40	metre
PT3720	9.60	2.40	metre
PT3622	9.60	3.20	metre
PT36184	9.60	4.80	metre
PT36188	12.70	3.20	metre

Vinyl



Rowe Code	Inside Diameter mm	Wall Thickness mm	Std. Pack Size
PT2650	3.2	1.50	metre
PT2750	5	1.50	metre
PT2800	6	1.50	metre
PT2850	8	1.50	metre
PT2900	10	1.50	metre
PT2920	12.5	1.50	metre
PT2930	16	2.00	metre

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Tubing Connectors

Made from autoclavable polypropylene with excellent chemical resistance. Serrations hold tubing tightly and prevent slipping.

“T” Untapered

Kartell

Rowe Code	Nominal O.D. mm	Valley O.D. mm	Crest mm	Bore mm	Std. Pack Size
PC2950	4	3.3	3.6	1.6	ea
PC3000	6	4.5	5.4	2.8	ea
PC3100	8	6.9	7.6	4.4	ea
PC3200	10	8.7	9.5	6.3	ea
PC3300	12	10.7	11.5	8.2	ea
PC3170	14	12.7	13.7	10.0	ea
PC3180	16	14.7	15.6	12.1	ea



“Y” Untapered

Kartell

Rowe Code	Nominal O.D. mm	Valley O.D. mm	Crest mm	Bore mm	Std. Pack Size
PC3400	4	3.2	4.0	2.0	ea
PC3450	6	4.7	5.7	2.7	ea
PC3550	8	6.6	7.6	4.6	ea
PC3630	10	8.9	9.9	5.5	ea
PC3700	12	10.5	11.6	7.3	ea



“L” Untapered

Kartell

Rowe Code	Nominal O.D. mm	Valley O.D. mm	Crest mm	Bore mm	Std. Pack Size
PC2240	4	3.5	4.0	1.3	ea
PC2245	6	5.2	5.7	2.5	ea
PC2250	8	6.9	7.8	4.5	ea
PC2300	10	8.7	9.9	6.0	ea
PC2310	12	10.7	11.8	8.0	ea
PC2320	14	12.6	13.7	10.5	ea



Straight - Tapered

Kartell

Rowe Code	Nominal O.D. mm	Crest O.D. mm	Bore mm	Std. Pack Size
PC2610	4/5/6	3/4.5/5.5	2.0	ea
PC2615	6/7/8	4.5/7/8.2	3.5	ea
PC2620	8/9/10	6.3/9/11	4.5	ea
PC2730	10/11/12	8.3/10.5/13	6.5	ea
PC2760	12/13/14	10/13/15	8.5	ea
PC2770	14/15/16	12/14.5/17	10.5	ea



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Ultrasonic Cleaners

UNISONICS

The FXP Series from Unisonics is wholly Australian made and features a range of compact ultraSoniC cleaners that are one piece pressed stainless steel

- Clean easy maintenance design
- Industrial, Medical & commercial applications
- Compact & quiet operation

The FXP ultrasonic cleaners have a white PVC jacket and a black aluminium base. A stainless steel lid and basket are standard with the unit.

The transducer utilises lead zirconate titanate piezoelectric discs with captive leads. All circuitry is solid state transistorised. The units are controlled by an on-off switch with optional 99 minute digital electronic timer.



FXP8D



FXP10D



FXP12D



FXP40D



FXP Series with Mechanical Timer

Rowe Code	Model	L mm	W mm	D mm	Tank Capacity Litres
IU1395	FXP8M	152	140	100	1.6
IU1410	FXP10M	240	140	100	3.0
IU1430	FXP12M	295	152	152	5.3
IU1440	FXP14M	295	240	152	10.7
IU1460	FXP20M	495	295	152	22.0
IU1465	FXP40M	400	495	200	59.4

FXP Series with Digital Electronic Timer

Rowe Code	Model	L mm	W mm	D mm	Tank Capacity Litres
IU1400	FXP8D	152	140	100	1.6
IU1420	FXP10D	240	140	100	3.0
IU1431	FXP12D	295	152	152	5.3
IU1445	FXP14D	295	240	152	10.7
IU1470	FXP20D	495	295	152	22.0
IU1480	FXP40D	600	495	200	59.4

The FXP Series is also available in heated units, with either the mechanical timer or digital timer.

Other heavy duty models are available (eg IB1495) please enquire.

Ultrasonic Sieve Cleaner.

Designed especially for 200mm sieves. Ensures the accuracy of your particle size analysis. Includes sieve holder rack.

Rowe Code IU1500

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Ultrasonic Cleaners

Branson

Ultrasonic cleaning is faster, more thorough, and safer than any other method. Scrubbing, soaking and steam don't even come close.

Ultrasonic sound waves moving through a cleaning solution create an effect called cavitation, the rapid formation and implosion of microscopic bubbles. Heat enhances the process. The deep-cleaning action of ultrasonics removes even the most stubborn dirt and contaminants.

Branson have redesigned their Bransonic cleaners to be leak proof & foolproof.

Models include:

- Ultrasonics w/mechanical timer
- Ultrasonics w/heat/mechanical timer
- Ultrasonics w/digital heat/digital timer/degas and temperature monitor

The new degas feature is especially helpful at start-up. Ultrasonic pulses, activated before cleaning begins, remove unwanted air bubbles from the solution. You get higher cleaning efficiency much sooner, with better results.

A range of accessories is available for Bransonic Ultrasonic cleaners. These include:

- Solid insert trays
- Perforated insert trays
- Mesh baskets
- Beakers (glass, stainless or polypropylene)
- Beaker positioning covers
- Tank covers

Bransonic cleaners with mechanical timer & heating

Rowe Code	Model	L mm	W mm	D mm	Tank Capacity Litres
TBA	B1510E-MTH	139.7	152.4	101.6	1.91
TBA	B2510E-MTH	241.3	139.7	101.6	2.81
TBA	B3510E-MTH	292.1	152.4	152.4	5.71
TBA	B5510E-MTH	292.1	24.3	152.4	9.51
TBA	B8510E-MTH	495.3	279.4	152.4	20.81



Bransonic cleaners with digital control, heating, degas & timer

Rowe Code	Model	L mm	W mm	D mm	Tank Capacity Litres
TBA	B1510E-DTH	139.7	152.4	101.6	1.91
TBA	B2510E-DTH	241.3	139.7	101.6	2.81
IU1310	B3510E-DTH	292.1	152.4	152.4	5.71
TBA	B5510E-DTH	292.1	241.3	152.4	9.51
TBA	B8510E-DTH	495.3	279.4	152.4	20.81



Bransonic cleaners are also available in unheated models with mechanical timer.

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Velp Scientifica

LH120W Overhead Stirrer

High torque stirrer for highly viscous liquids at volumes up to 40L. The powerful motor is microprocessor controlled to assure constant speed of up to 2000rpm. It also features progressive start, a safety overload system and keyless chuck. Stand, clamp and shaft sold separately. **Rowe Code:IS2215**

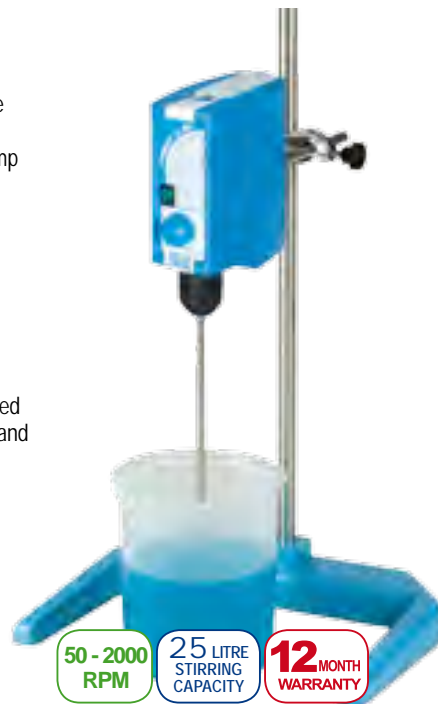


2000 RPM
40 LITRE STIRRING CAPACITY
12 MONTH WARRANTY

DLH 120W Digital Overhead Stirrer

Specifications are the same as the LH stirrer with the addition of two digital displays which clearly show the set speed and the effective speed. Stand, clamp and shaft sold separately.

Rowe Code:IS2210



50 - 2000 RPM
25 LITRE STIRRING CAPACITY
12 MONTH WARRANTY

BS 60W Overhead Stirrer

Suitable for use with medium viscosity liquids. Houses a 60W brushless motor with a progressive "start" to prevent splashing during start up. A keyless chuck makes changing paddles a simple operation. Stand, clamp and stirring shaft sold separately.

Rowe Code:IS2206



Heavy Duty Stand and Clamp

Heavy U-shaped base and 800mm stainless steel 2 piece rod. When used with the chrome plated double clamp, it provides a highly stable support for any Velp overhead stirrer. Stand and clamp available as individual items.

**Rowe Codes: Clamp IS2305
Stand IS2300**

Turbine Stirring Shaft

Manufactured from stainless steel and suitable for general purpose applications. It is 400mm long and has a 60mm diameter, 3 blade turbine. Please enquire regarding other designs.

Rowe Code: IS16594



20 - 1200 RPM
70 LITRE STIRRING CAPACITY
12 MONTH WARRANTY

PW 120W Overhead Stirrer

High power high torque stirrer designed for highly viscous liquids. Also features progressive start and keyless chuck. Stand, clamp and shaft sold separately.

Rowe Code:IS2240



30 WATT
15 LITRE STIRRING CAPACITY
12 MONTH WARRANTY

ES 30 W Overhead Stirrer

A low cost stirrer designed for liquids of low to medium viscosity and up to a volume of 15L. It features progressive start and keyless chuck. Stand, clamp and paddle sold separately.

Rowe Code:IS2220

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1100 RPM
5 LITRE STIRRING CAPACITY
12 MONTH WARRANTY

MST Magnetic Stirrer

The Velp classic magnetic stirrer with chemically resistant ABS housing and high powered PCM magnet.

Rowe Code:IM2015



1200 RPM
8 LITRE STIRRING CAPACITY
12 MONTH WARRANTY

ACE 8L Magnetic Stirrer

Epoxy coated body resulting in high chemical resistance. High powered PCM magnet operated mono-phase motor.

Rowe Code:IM2005



Infrared sensor
12 MONTH WARRANTY

Wizard Infrared Vortex Mixer

The next generation of vortex mixer is here! An infrared sensor detects if a tube is present and automatically activates the Vortex action. NO MORE PRESSURE AND NO MORE STRAIN. The low profile, solid zinc alloy body and suction cup feet aid stability. Chemically resistant IP42 rated ergonomically designed body.

Rowe Code:IM1063



12 MONTH WARRANTY

ZX3 Vortex Mixer

Traditional style vortex mixer with epoxy coated high chemical resistant cast aluminium body and suction cup feet for stability. Can be operated continuously (with variable speed) or manually (by pressing tube on cup). Attachments for plates and vials also available.

Rowe Code:IV1075



Up to 370°C heating
1200 RPM
15 LITRE STIRRING CAPACITY
12 MONTH WARRANTY

ARE Hotplate Magnetic Stirrer

Features a brushless motor and high powered "PCM" magnetic drive for reliable and efficient operation. It has an epoxy coated ergonomic cast aluminium body and a 155mm diameter aluminium heating plate with special protective coating for high chemical resistance.

Rowe Code:IM2215



Up to 370°C heating
12 MONTH WARRANTY

RC Hotplate

Thermostatically controlled with 155mm diameter aluminium heating flat plate element for uniform heating. "Proprietary resin" coated hotplate and epoxy coated ergonomic body for high chemical resistance.

Rowe Code:IH1340

VELP SCIENTIFICA
European designed products manufactured in accordance to IEC1010/1 and are in line with the requirements of the major analytical methods definition standards: AOAC, EPA, DIN, ISO, ISO9001 and ISO9002 certified



Vertex Thermoregulator

Fuzzy logic temperature controller with timer for use where precise temperature control is required.

Designed for use with the AREX hotplate stirrer IM2216 (as pictured). It has an IP54 rated housing and stainless steel Pt100 probe. Specifications include a resolution of 1°C, precision of +0.1°C and a range of up to 250°C

Rowe Code:IT2485



1300 RPM
20 LITRE STIRRING CAPACITY
12 MONTH WARRANTY

AREX Hotplate Magnetic Stirrer

Features similar to the ARE hotplate stirrer (IM2215) and includes electronic speed regulation for constant speed, even with varying viscosities. Increased stirring capacity of up to 20L speeds to 1300rpm. Connects to VERTEX thermoregulator (IT2485) for precise temperature control.

Rowe Code:IM2216

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DK6 Place Heating Digestion System

Features include a four stage temperature ramp, 20 user selectable programs, aluminium block & flat plate element for uniform heating, 42mm holes to hold common size digestion tubes, timer & over temperature back-up thermostat.

Rowe Code:ID1700



BOD 10 Place System

This BOD system operates using the manometer method (carbon dioxide absorption by an alkali). Features include microprocessor control, 4 ranges from up to 90ppm to up to 999ppm and an epoxy coated, stainless steel structure.

Rowe Code: NV4100



FTC90E 90L Refrigerated Incubator

Ideal for partnering with BOD 10 system. Features include glass inner door, a temperature range of 3°C to 50°C and stability of +/-0.5°C.

Rowe Code:II1640

Velp Scientifica

JP & SMS Fume Neutralization System

The SMA scrubber unit comprises a two stage neutralisation system and the JP recirculating water vacuum pump is programmable to provide the optimal suction for each stage of the digestion process.

System comprises:

IP2050 JP Vacuum pump

IS5100 SMS Scrubber

ID1726 DK6 Suction cap @ \$444



JLT6 6 Place Flocculator

Microprocessor controlled with a rotation speed which can be set from 10 to 300rpm with a resolution of 1rpm. Other features include timer, stainless steel stirring rods and epoxy painted body.

Rowe Code:IF1170

UDK142 Fully automatic Steam Distiller

Used for the separation of volatiles from non-volatiles quickly, safely and at low cost. Useful for Kjeldahl analysis plus many other analytes including ammonia, nitrogen, nitrates (after reduction), phenols, volatile fatty acids, cyanide, sulphur dioxide and alcohol. Features include a patented steam generator (not under pressure and variable steam flow) for safety and versatility, ability to connect to all common brands of auto-titrators to fully automate analysis, accepts multiple digestion tube sizes plus Kjeldahl flasks, epoxy coating for high chemical resistance, sensors on guards, full programmability and much more. Auto-titrator not included in price.

Rowe Code:ID6031

(Titrator not included)



To find out more about these and other VELP Environmental, Food or stirring products, call Rowe Scientific Pty Ltd.



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Chromacol Glass Specifications

Neutral Borosilicate Glasses

PROPERTY	GOLD GRADE	NEUTRAL TYPE 1
Working Point	1255°C	1140°C
Strain Point	513°C	530°C
Annealing Point	565°C	570°C
Softening Point	827°C	785°C
Linear Coefficient of Expansion (from 0 to 300°C), in./in./°C	32x10 ⁻⁷	55x10 ⁻⁷
Density grams per mL	2.22	2.33
Refractive Index—Sodium D line (.5893 microns)	1.47	1.49
Visible Light Transmission, 2 mm thickness	92%	91%
Specific Heat (in g.cals per g.deg.) (25 to 175°C) (25 to 175°C)	0.204	0.204
Thermal Conductivity (in cal/cm/cm ² /sec/°C)	0.0027	0.0026

- The Working Point** — the temperature at which glass has a viscosity of 104 poises. At this temperature, glass is soft enough for most working or sealing operations.
- The Softening Point** — the temperature at which glass has a viscosity of 107.6 poises. In this temperature range glass will deform noticeably under its own weight: ASTM C 338.
- The Annealing Point** — the temperature at which the internal stress caused by rapid cooling from lamp working or forming temperatures may be substantially removed in a matter of minutes. It is determined by measuring the elongation rate versus temperature of a fiber of glass under conditions prescribed by ASTM Designation C 336. The values given here are typical for production glasses.

Typical Glass Composition

Different glass types contain different proportions of oxides to give characteristics such as colour and different expansion coefficients.

Oxide by %	SiO ₂	B ₂ O ₃	TiO ₂	K ₂ O	Al ₂ O ₃	Fe ₂ O ₃	Na ₂ O	BaO	CaO	MgO
Soda Glass	69	1		3	4		13	2	5	3
Borosilicate-Clear	75	10.5			5		7	1	1.5	
Borosilicate-Amber	70	7	5	1	6	1	7	2	1	
Borosilicate-Gold Grade	80.6	13		2.3		4				

Chromacol autosampler vials are manufactured from glass meeting the international standards for hydrolytic extraction.

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Vials - Crimp Cap 8mm

Vials using 8mm Crimp Caps

Part Number	Rowe Code	Description	size (mm)
1.2-CWV	TBA	1.2 mL crimp top vial - clear - for Waters	8 x 40 mm
1.1-CRVV	TBA	1.1mL crimp top round bottom vial - clear for 96 square deep well plates	7 x 42 mm
1-CRV(A)	TBA	1mL crimp top round bottom vial - amber	7 x 40 mm
1-CWV	TBA	1mL crimp top tapered vial - clear - for Waters	8 x 40 mm
08-CV	TBA	800µL crimp top vial - clear	8 x 30 mm
08-CPV(A)	TBA	800µL crimp top vial - amber	7 x 40 mm
08-CPV	TBA	800µL crimp top vial - clear	7 x 40 mm
08-CRV(A)	TBA	800µL crimp top round bottom vial - amber	7 x 32 mm
07-CPV(A)	TBA	700µL crimp top tapered vial - amber	7 x 40 mm
07-CPV	TBA	700µL crimp top tapered vial - clear	7 x 40 mm
06-CTV(A)	TBA	600µL crimp top tapered vial - amber	7 x 32 mm
05-CTV(A)	TBA	500µL crimp top tapered vial - amber	7 x 30 mm

8mm Crimp Caps

Part Number	Rowe Code	Description	Special Note
8-AC6	TBA	Cap with type 6 natural rubber/PTFE seal	Sulphur free,ideal for ECD
8-AC6(B)	TBA	Blue cap with type 6 natural rubber/PTFE seal	Sulphur free,ideal for ECD
8-AC6(R)	TBA	Red cap with type 6 natural rubber/PTFE seal	Sulphur free,ideal for ECD
8-AC7	TBA	Cap with type 7 natural rubber/PTFE seal	Standard,suitable for HP/Agilent
8-ACB	TBA	Blank cap - with hole	
8-AC-CBT1	TBA	Cap with grey chlorobuty/PTFE seal	For long term storage
8-AC(B)-ST144	TBA	Blue cap with blue silicone/red PTFE seal	Preferred for Fisons
8-AC-ST15	TBA	Cap with white silicone/red PTFE seal	Preferred for ICI and Pharmacia
8-AC-ST101	TBA	Cap with blue silicone/PTFE seal	Preferred for Fisons and Thermo Finnigan.Good for ECD
8-AC-ST101X	TBA	Cap with blue silicone/PTFE seal	Pre-cut,for PE ISS-200,Merck-Hitachi
8-ACT	TBA	Cap with PTFE seal	Suitable for PE ISS-100
8-AC-TST1	TBA	Cap with red PTFE/white silicone/red PTFE seal	Anti-coring,preferred for Gilson
8-AC-V1	TBA	Cap with viton seal	Good for ECD

Plastic Caps & Plugs

Part Number	Rowe Code	Description	Special Note
8-PEP1	TBA	8mm polyethylene plug	
8-PEPC2	TBA	8mm polyethylene snap cap	
8-PEC1	TBA	8mm polyethylene snap cap	
8-PEC1X	TBA	8mm polyethylene snap cap	Pre-cut,suitable for PE (LC)
8-PEC-ST1	TBA	8mm snap cap with a silicone/PTFE seal	



1.2-CWV 1.1-CRVV 1-CRV(A) 1-CWV 08-CV 08-CPV 08-CPV 08-CPV(A) 08-CRV(A) 07-CPV(A) 07-CPV 06-CTV(A) 05-CTV(A)



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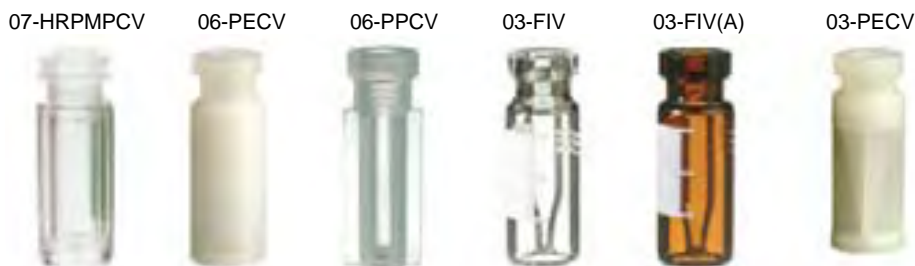
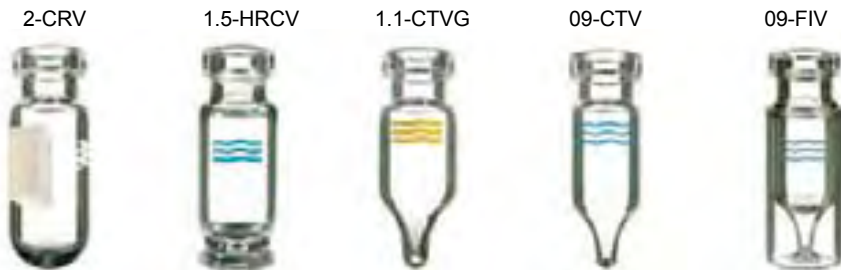
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Vials - Crimp Cap 11mm

Vials using 11mm Crimp Caps

Part Number	Rowe Code	Description	size (mm)
4-CV	TBA	4mL crimp top vial - clear	15 x 46 mm
2.5-CV	TBA	2.5mL crimp top vial -clear	12 x 40 mm
2-CV	VV2160	2mL crimp top vial - clear wide mouth with write on patch	12 x 32 mm
2-CV(A)	TBA	2mL crimp top vial - amber wide mouth with write on patch	12 x 32 mm
2-CVG	TBA	2mL crimp top vial - clear gold grade - with write on patch	12 x 32 mm
2-CRV	TBA	2mL round bottom vial with write on patch - clear	12 x 32 mm
1.5-HRCV	TBA	1.5mL crimp top vial - clear - High Recovery	12 x 32 mm
1.1-CTVG	TBA	1.1mL crimp top tapered vial - clear	12 x 32 mm
1.1-CTV(A)	TBA	1.1mL crimp top tapered vial - amber	12 x 32 mm
09-CTV	TBA	900µL crimp top tapered vial - clear	10 x 32 mm
09-FIV	VV2466	900µL crimp top fused insert vial - clear.	12 x 32 mm
07-HRPMPCV	TBA	700µLPMP crimp vial - High Recovery	12 x 32mm
06-PECV	TBA	600µL polyethylene crimp top vial	12 x 32 mm
06-PPCV	TBA	600µL polypropylene crimp top vial	12 x 32 mm
03-FIV	TBA	300µL crimp top fused insert vial - clear with write on patch	12 x 32 mm
03-FIV(A)	TBA	300µL crimp top fused insert vial-amber with write on patch	12 x 32 mm
03-PECV	TBA	300µL polyethylene crimp top vial	12 x 30 mm



ADDITIONAL NOTES

1. Due to lack of lateral support in some carousels, support sleeves may be required for 1.1-CTVG.

2. 11-PEPC3X and 11-PEPC3XW are not suitable for Spectra-Physics.

3. In order to use a 1.1-CTVG in the Fisons AS 800, a TTS-312 and a PWS-11 must be used.

4. The 09-CTV must be used with a WS-6 support.

5. The 06-PECV/06-PPCV have an internal rounded bottom and are suitable for microsampling work.

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Vials - Crimp Cap 11mm

11mm Crimp Caps

Part Number	Rowe Code	Description	Special Note
11-AC6	VC1959	Cap with type 6 natural rubber/PTFE seal	Sulphur free,ideal for ECD
11-AC6(B)	TBA	Blue cap with type 6 natural rubber/PTFE seal	Sulphur free,ideal for ECD
11-AC6(G)	TBA	Green cap with type 6 natural rubber/PTFE seal	Sulphur free,ideal for ECD
11-AC6(GO)	TBA	Gold cap with type 6 natural rubber/PTFE seal	Sulphur free,ideal for ECD
11-AC6(R)	TBA	Red cap with type 6 natural rubber/PTFE seal	Sulphur free,ideal for ECD
11-AC7	TBA	Cap with type 7 natural rubber/PTFE seal	Standard,suitable for Agilent Technologies
11-AC7(B)	TBA	Blue cap with type 7 natural rubber/PTFE seal	Standard,suitable for Agilent Technologies
11-AC7(G)	TBA	Green cap with type 7 natural rubber/PTFE seal	Standard,suitable for Agilent Technologies
11-AC7(GO)	TBA	Gold cap with type 7 natural rubber/PTFE seal	Standard,suitable for Agilent Technologies
11-AC7(R)	TBA	Red cap with type 7 natural rubber/PTFE seal	Standard,suitable for Agilent Technologies
11-ACB	VC1958	Blank cap - with hole	For use with the 11-LLX
11-LLX	TBA	Blue silicone/PTFE seal	For use with liquid/liquid extraction
11-AC-CBT1	VC1975	Cap with grey chlorobutyl/PTFE seal	For long term storage
11-AC-PP	TBA	Cap with polypropylene seal	Suitable for Perkin Elmer(LC)
11-AC(B)-ST144	TBA	Blue cap with blue silicone/red PTFE seal	Preferred for Fisons
11-AC-ST15	TBA	Cap with white silicone/red PTFE seal	Preferred for ICI and Pharmacia
11-AC-ST101	TBA	Cap with blue silicone/PTFE seal	For Fisons,Shimadzu and TSP.Good for ECD
11-AC-ST101X	TBA	Cap with blue silicone/PTFE seal	Pre-cut,for PE ISS-200,Merck-Hitachi
11-ACT	VC1020	Cap with PTFE seal Suitable for PE ISS-100	
11-AC-TST1	TBA	Cap with red PTFE/white silicone/red PTFE seal	Anti-coring,preferred for Gilson
11-AC-V1	TBA	Cap with Viton seal	Good for ECD

Plastic Caps & Plugs

Part Number	Rowe Code	Description	Special Note
11-PEP2(B)	TBA	11mm black polyethylene plug	For Varian autosamplers
11-PEP2W	TBA	11mm polyethylene plug for wide necked vials	
11-PEPC3X	TBA	11mm polyethylene snap cap plug for narrow necked vials	Anti vacuum generation,pre-cut
11-PEPC3XW	TBA	11mm snap cap plug for wide necked vials	Anti vacuum generation,pre-cut
11-PEC1	TBA	11mm polyethylene snap cap	Ideal for single injections
11-PEC1X	TBA	11mm polyethylene snap cap	Pre-cut,suitable for PE(LC)
11-PEC-8RT1	TBA	11mm snap cap,rubber/PTFE seal	General purpose,does not require a crimper
11-PEC-ST1	TBA	11mm snap cap,white silicone/red PTFE seal	General purpose,does not require a crimper

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Vials - Screw Cap 8mm

Vials using 8mm Screw Caps

Part Number	Rowe Code	Description	size (mm)
2-SV	TBA	2mL screw top vial with write on patch - clear	12 x 32 mm
2-SV(A)	TBA	2mL screw top vial with write on patch - amber	12 x 32 mm
2-SVG	TBA	2mL screw top vial with write on patch - clear gold grade	12 x 32 mm
1.1-STVG	TBA	1.1mL screw top tapered vial - clear gold grade	12 x 32 mm
06-PESV	TBA	600µL polyethylene screw top vial	12 x 32 mm
06-PPSV	TBA	600µL polypropylene screw top vial	12 x 32 mm
03-PPSV	TBA	300µL polypropylene screw top vial	12 x 32 mm

2-SVG



2-SV



2-SV(A)



1.1STVG



06-PESV



06-PPSV



03-PPSV



Vials pictured on this page are narrow necked.

8mm Screw Caps

Part Number	Rowe Code	Description	Special Note
8-SC-8RT1	TBA	Cap with rubber/PTFE seal	General purpose
8-SC-ST15	TBA	Cap with white silicone/red PTFE seal	
8-SC	TBA	Black cap	
8-SC(B)	TBA	Blue cap for HP	Screw cap for HP 7673 with 2-SV vials
8-SC(BT)	TBA	Blue cap	
8-SC(R)	TBA	Red cap	
8-SC(W)	TBA	White cap	
8-SC(Y)	TBA	Yellow cap	
8-SCJ	TBA	Black cap with wider flange	For Jasco, Hitachi and Shimadzu
8-SCJ(R)	TBA	Red cap with wider flange	For Jasco, Hitachi and Shimadzu
8-SCJ(W)	TBA	White cap with wider flange	For Jasco, Hitachi and Shimadzu
8-SCJ(Y)	TBA	Yellow cap with wider flange	For Jasco, Hitachi and Shimadzu
8-SCS	TBA	Black solid cap, no central hole	For long term storage and general purpose



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Vials - Screw Cap 8mm

8mm Seals

Part Number	Rowe Code	Description	Special Note
8-6RT1	TBA	Type 6 natural rubber/PTFE seal	
8-ST15	TBA	Red silicone/white PTFE seal	Standard
8-ST14	TBA	Blue silicone/PTFE seal	Low cost
8-ST14X	TBA	Blue silicone/PTFE seal,pre-cut	Anti vacuum generation
8-ST143	TBA	White silicone/PTFE seal	Extremely soft,suitable for Shimadzu
8-ST101	TBA	Blue silicone/PTFE seal	Good for ECD
8-TST11	TBA	PTFE/blue silicone/PTFE seal	Low cost
8-TST1	TBA	Red PTFE/white silicone/red PTFE seal	
8-T02	TBA	PTFE seal	

Plugs

8-SCP	TBA	8mm polyethylene snap cap plug	Push fit screw cap
11-PEP2(B)	TBA	11mm black polyethylene plug	For Varian autosamplers with I.R.detectors

ADDITIONAL NOTES

- Customers using the PE AutoSystem,Spectra-Physics/TSP or Varian should use the following caps:8-SC,8-SC(BT),8-SC(R),8-SC-(W) or 8-SC(Y).
- The 8-SCP is not compatible with Shimadzu,Spectra-Physics/TSP or Varian.
- When used with the SpectraPhoresis 1000,the 06-PESV vial may also be used with the Spectra-Physics cap reference number 905 10602.

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Vials - Screw Cap 9 & 11mm

Vials using 9mm & 11mm Screw Caps

Part Number	Rowe Code	Description	size (mm)
4-SVQ	TBA	4mL screw top vial - clear - For ThermoFinnigan	15 x 46mm
2-DV	TBA	2mL Double Top vial - clear – uses 11mm screw caps	12 x 32mm
2-DV(A)	TBA	2mL Double Top vial - amber – uses 11mm screw caps	12 x 32mm
2-SVW	VV2155	2mL screw top vial with write-on patch – clear	12 x 32mm
2-SVW(A)	TBA	2mL screw top vial with write-on patch – amber	12 x 32mm
1.5-HRSV	TBA	1.5mL High Recovery screw top vial with write-on patch – clear	12 x 32mm
1.5-HRSV(S)	TBA	1.5mL High Recovery screw top vial with write-on patch – clear - silanised	12 x 32mm
1.5-HRSV(A)	TBA	1.5mL High Recovery screw top vial with write-on patch – amber	12 x 32mm
1.5-HRSV(A)S	TBA	1.5mL High Recovery screw top vial with write-on patch – amber - silanised	12 x 32mm
09-FISV	TBA	900µL fused insert screw top vial – clear	12 x 32mm
03-FISV	TBA	300µL fused insert screw top vial – clear	12 x 32mm
03-FISV(A)	TBA	300µL fused insert screw top vial – amber	12 x 32mm

4-SVQ



2-DV



2-DV(A)



2-SVW



2-SVW(A)



Screw Caps & seals for 2-DV and 2-DV(A)

Part Number	Rowe Code	Description
11-DSC(R)-ST14X	TBA	11mm screw cap prefitted with a silicone/PTFE seal, pre-cut
11-DSC(R)	TBA	11mm screw cap for 2-DV and 2-DV(A) vials

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Vials - Screw Cap 9 & 11mm

Screw Caps for 09-FISV, 2-SVW, 2-SVW(A), 03-FISV, 4-SVQ & 03-FISV(A)

Part Number	Rowe Code	Description
9-SC(BLK)-BST1	TBA	9mm screw cap(black),prefitted with a bonded silicone/PTFE seal
9-SC(GY)-BST1X	TBA	9mm screw cap(grey),prefitted with a bonded pre-cut silicone/PTFE seal
9-SC(B)-8RT1	TBA	9mm screw cap (blue) prefitted rubber/PTFE seal
9-SC(B)-8RT1X	TBA	9mm screw cap (blue) prefitted rubber/PTFE seal pre-cut
9-SC(B)-ST1	VC1968	9mm screw cap (blue) prefitted silicone/PTFE seal
9-SC(B)-ST101	TBA	9mm screw cap (blue) prefitted silicone/PTFE seal for ThermoFinnigan
9-SC(B)-ST1X	TBA	9mm screw cap (blue) prefitted silicone/PTFE seal pre-cut
9-SC(B)-TST1	TBA	9mm screw cap (blue) prefitted PTFE/silicone/PTFE seal
9-SCS-8RT1	TBA	9mm solid screw cap (blue) prefitted rubber/PTFE seal - ideal for storage
9-SCJ-ST15	TBA	9mm screw cap (black) with flange,prefitted with a silicone/PTFE seal
9-SCJ-8RT1	TBA	9mm screw cap (black) with flange,prefitted with a rubber/PTFE seal
9-SCJ-ST101	TBA	9mm screw cap (black) with flange,prefitted with a soft silicone/PTFE seal
9-SCJ(W)-ST15	TBA	9mm screw cap (white) with flange,prefitted with a silicone/PTFE seal
9-SCJ(W)-8RT1	TBA	9mm screw cap (white) with flange,prefitted with a rubber/PTFE seal
9-SCJ(W)-ST101	TBA	9mm screw cap (white) with flange,prefitted with a soft silicone/PTFE seal
9-SCJ(Y)-ST15	TBA	9mm screw cap (yellow) with flange,prefitted with a silicone/PTFE seal
9-SCJ(Y)-8RT1	TBA	9mm screw cap (yellow) with flange,prefitted with a rubber/PTFE seal
9-SCJ(Y)-ST101	TBA	9mm screw cap (yellow) with flange,prefitted with a soft silicone/PTFE seal
9-SCJM*	TBA	Magnetic cover that fits over any 9-SCJcap
9-SCJM-ST101*	TBA	9mm magnetic cover and screw cap,prefitted with a soft silicone/PTFE seal

*The 9-SCJM is a magnetic cover that fits over any 9-SCJ cap,enabling wide necked screw top vials to be used in an autosampler where magnetic transport is used.

1.5-HRSV



1.5-HRSV(A)



09-FIZV



03-FISV



03-FISV(A)



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Vials - Screw Cap 12 & 13mm

Vials using 12mm & 13mm Screw Caps

Part Number	Rowe Code	Description	size (mm)
10-SV	TBA	10mL screw top round bottom vial - clear	13 x 100mm
5-SV	TBA	5mL screw top round bottom vial - clear	13 x 65mm
4-SV	TBA	4mL screw top vial - clear	15 x 46mm
4-SV(A)	TBA	4mL screw top vial - amber	15 x 46mm
3.5-HRSV	TBA	3.5mL screw top vial - High Recovery - uses 13mm screw caps	15 x 46mm

Screw Caps & plugs

Part Number	Rowe Code	Description	Special Note
13-SC-8RT15	TBA	13mm screw cap prefitted type 8 rubber/PTFE seal	For 3.5-HRSV
13-SC-ST15	TBA	13mm screw cap prefitted silicone/PTFE seal	For 3.5-HRSV
13-SC(W)-ST15X	TBA	13mm screw cap prefitted silicone/PTFE seal - pre-cut	For 3.5-HRSV
12-SC-8RT1	TBA	Cap with rubber PTFE seal	General purpose
12-SC-ST2	TBA	Cap with white silicone/red PTFE seal	Suitable for Waters Wisp 48
12-SC	TBA	Black cap	
12-SC(R)	TBA	Red cap	
12-SC(W)	TBA	White cap	
12-SC(WG)	TBA	Green cap	
12-SC(Y)	TBA	Yellow cap	
12-SCS	TBA	Black solid cap, no central hole	For long term storage and general purpose
12-PEP4	TBA	Polyethylene plug	For 4mL screw cap vials
12-SCP	TBA	Polyethylene snap cap plug	For 4mL screw cap vials

Seals

Part Number	Rowe Code	Description	Special Note
12-6RT1	TBA	Type 6 natural rubber/PTFE seal	
12-ST2	TBA	White silicone/red PTFE seal	Standard
12-ST18	TBA	White silicone/red PTFE seal	
12-ST143	TBA	White silicone/PTFE seal	Extremely soft
12-ST101	TBA	Blue silicone/PTFE seal	Good for ECD
12-T02	TBA	PTFE seal Does not reseal	Does not reseal

ADDITIONAL NOTES

1. The 03-CVG, 02-CTVG and 01-CVG vials can be used with an S-72 spring as a limited volume insert in the 5-SV. Alternatively, the 07-CPV(A) may be used with an S-40.

2. The 07-CPV(A) and 07-CPV are used by some Waters' customers as limited volume inserts in the 4mL vial, where an S-15 spring is used.

3. A WS-7 support sleeve with one of our 2ml vials may be substituted for a 4mL vial in the Waters 717.



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Vials - Snap Cap

Vials using 11mm Snap Caps

Part Number	Rowe Code	Description	size (mm)
2-RV	VV2165	2mL snap cap vial in clear glass,with write-on patch.	12 x 32mm
2-RV(A)	TBA	2mL snap cap vial in amber glass,with write-on patch	12 x 32mm
1.5-HRRV	TBA	1.5mL High Recovery snap cap vial with write-on patch – clear	12 x 32mm
1.5-HRRV(S)	TBA	1.5mL High Recovery snap cap vial with write-on patch – clear - silanised	12 x 32mm
09-FIRV	TBA	900µL fused insert snap cap vial – clear	12 x 32mm
03-FIRV	TBA	300µL fused insert snap cap vial – clear	12 x 32mm
03-FIRV(A)	TBA	300µL fused insert snap cap vial – amber	12 x 32mm

11mm Snap Caps

Part Number	Rowe Code	Description
11-PSN(B)	VV1970	11mm polyethylene snap cap with an integral PE seal.
11-PSN(B)-T02	TBA	11mm polyethylene snap cap pre-fitted with a PTFE seal.
11-PSN(B)-TST1	TBA	11mm polyethylene snap cap pre-fitted with a PTFE/silicone/PTFE seal.
11-PSN(B)-8RT1	TBA	11mm polyethylene snap cap pre-fitted with a red rubber/PTFE seal.
11-PSN(B)-ST1	TBA	11mm polyethylene snap cap pre-fitted with a silicone/PTFE seal.
11-PSN(B)-ST101	TBA	11mm polyethylene snap cap pre-fitted with a soft blue silicone/PTFE seal.
11-PSN(B)-ST1X	TBA	11mm polyethylene snap cap pre-fitted with a pre-cut silicone/PTFE seal.



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Vials - EPA & Storage



What are EPA Vials?

- The Environmental Protection Agency (EPA) is responsible for monitoring of analytical standards used for environmental analysis in the USA.
- Much of this analysis is applied to the testing of water supplies for the presence of potentially harmful chemicals.
- These chemicals include pesticides, herbicides and polycyclic aromatic hydrocarbons. (PAH)
- The collection and processing of these water samples has been controlled by defining the type of vials used for this stage of the analysis.
- The vials are defined by their size, volume and their degree of cleanliness.
- These vials are also referred to as VOA (Volatile Organic Analysis) vials.

EPA Certification Vials are available in three levels of cleanliness that is certified to EPA procedures.

Class 100

The vials are supplied pre-assembled in clean room packaging after an initial cleaning stage. For most users the clean assembled packaging is sufficient.

Class 200

When dealing with trace amounts of environmental pollutants the clean room packaging will be enhanced by a controlled washing procedure to remove the last traces of potential interferences. These vials are then specially tray packed with certification provided of the washing process.

Class 300

For the most stringent applications individual certification of a batch analysis of the vials will be supplied.

Chromacol EPA vials provide:-

- Two sizes available in clear or amber neutral glass.
- Standard 28mm o.d. with heights of 57mm (20mL) and 95mm (40mL)
- Glass that meets ASTM Type I Class A and USP Type I standards
- Caps and seals manufactured from high purity polypropylene with silicone/PTFE injection septa.
- Vials, caps and septa pre-assembled to reduce possible contamination.
- Cleaning conforms to EPA standards with three levels of certification available.



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Vials - EPA & Storage

Part Number	Rowe Code	Description	size (mm)
40-EPASV	TBA	40mL clear glass EPA vial	28 x 95mm
40-EPASV(A)	TBA	40mL amber glass EPA vial	28 x 95mm
40-EPAVCS	TBA	40mL clear glass EPA vial with cap and seal	28 x 95mm
40-EPAVCS-PC	TBA	40mL clear glass EPA vial with cap and seal Class 200 pre-cleaned	28 x 95mm
40-EPAVCS-PC3	TBA	40mL clear glass EPA vial with cap and seal Class 300 pre-cleaned	28 x 95mm
40-EPAVCS(A)	TBA	40mL amber glass EPA vial with cap and seal	28 x 95mm
40-EPAVCS(A)-PC	TBA	40mL amber glass EPA vial with cap and seal. Class 200 pre-cleaned	28 x 95mm
40-EPAVCS(A)-PC3	TBA	40mL amber glass EPA vial with cap and seal. Class 300 pre-cleaned	28 x 95mm
20-EPASV	TBA	20mL clear glass EPA vial	28 x 57mm
20-EPASV(A)	TBA	20mL amber glass EPA vial	28 x 57mm
20-EPAVCS	TBA	20mL clear glass EPA vial with cap and seal	28 x 57mm
20-EPAVCS-PC	TBA	20mL clear glass EPA vial with cap and seal Class 200 pre-cleaned	28 x 57mm
20-EPAVCS-PC 3	TBA	20mL clear glass EPA vial with cap and seal Class 300 pre-cleaned	28 x 57mm
20-EPAVCS(A)	TBA	20mL amber glass EPA vial with cap and seal	28 x 57mm
24-SC-EPA	TBA	EPA screw cap - white	
24-ST3-EPA	TBA	EPA septa silicone/PTFE 24mm storage vials	

Part Number	Rowe Code	Description	size (mm)
30-USVC	TBA	30mL screw top universal storage vial, cap included, preassembled	28 x 83mm
40-SV	TBA	40mL storage vial-clear glass, with 24-400 thread	28 x 95mm
40-SV(A)	TBA	40mL storage vial-amber glass, with 24-400 thread	28 x 95mm
22-SV	TBA	22mL storage vial-clear glass, with 20-400 thread	23 x 85mm
16-SV	TBA	16mL storage vial-clear glass, with 18-400 thread	21 x 70mm
16-SV(A)	TBA	16mL storage vial-amber glass, with 18-400 thread	21 x 70mm
12-SV	TBA	12mL storage vial-clear glass, with 15-425 thread	19 x 65mm
12-SV(A)	TBA	12mL storage vial-amber glass, with 15-425 thread	19 x 65mm
8-SV	TBA	8mL storage vial-clear glass, with 15-425 thread	17 x 60mm
8-SV(A)	TBA	8mL storage vial-amber glass, with 15-425 thread	17 x 60mm
24-SCST	TBA	PTFE lined cap for 24-400 thread	
20-SCST	TBA	PTFE lined cap for 20-400 thread	
18-SCST	TBA	PTFE lined cap for 18-400 thread	
15-SCST	TBA	PTFE lined cap for 15-425 thread	

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Vials - Headspace

Of the many headspace autosamplers currently available most use a 20-CV, a 10-CV or a 6-CV vial. The exceptions are the headspace units from Tekmar where the most appropriate vials have the reference 22-CV. These vials have a slightly larger diameter in order to maximise thermal contact and they must not be used in other headspace units.

Chromacol vials have a special design to ensure that the vial has the maximum possible strength to withstand higher positive internal pressures. The wall thickness is greater and the base is rounded to eliminate the weak area where the wall joins the base. The rim of the vial has a peak designed to press into the seal so that the seal is more able to withstand higher pressures.

Chromacol has developed some new seal formulations to withstand the higher temperatures and pressures generated by the latest headspace analysers from Tekmar and CTC/Leap. These seals are also cleaner which means that they may be used with selective detectors.

The headspace autosampler from CTC/Leap employs a unique magnetic system to transport the vials to and from the oven area. This means that the caps must be magnetic. Our new composite 20-MCBC caps are ideal for this process. These caps have an aluminium skirt with a magnetic central disk and are easier to seal, give better results and can be de-capped easily.

INSTRUMENTS	VIALS
Agilent	3,4,6,7
AI Cambridge	5,8
CTC/Leap	3,4,6,7
Dani	3,4,6,7
Dani Purge and Trap	3,4
Fisons HS 500	6,7
Fisons HS 850	3,4
Perkin Elmer	3,4,9
Shimadzu HSS-2B	1
Tekmar	2,5,8
Varian	2,5,8

	VIALS	SIZE VOLUME	Rowe Code
1	27-CV	30 x 60mm 27mL	TBA
2	22-CV	22 x 75mm 22mL	TBA
3	20-CV	22 x 75mm 20mL	VV2455
4	20-CV(A)	22 x 75mm 20mL	TBA
5	12-CV	18 x 65mm 12mL	TBA
6	10-CV	22 x 45mm 10mL	VV2465
7	10-CV(A)	22 x 45mm 10mL	TBA
8	9-CV	18 x 50mm 9mL	TBA
9	6-CV	22 x 38mm 6mL	TBA



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Vials - Headspace

Newer high temperature headspace analysers from Tekmar and CTC/LEAP require headspace seals which can operate at higher temperatures without introducing additional components to the chromatogram. Our 20-ST3HT seal has been formulated for this requirement and may be used up to 250°C, depending also on the solvent being used.

Code	Description	Special Note
20-ACB	Blank cap	
20-MCB	Blank cap, tin plate, magnetic	For CTC, Fisons, Leap and Alpha MOS
20-MCBC*	Composite blue magnetic cap	For CTC, Fisons, Leap and Alpha MOS
20-MCBC-ST3*	Composite blue magnetic cap with blue chlorobutyl/PTFE seal	For CTC, Fisons, Leap and Alpha MOS
20-AC-CBT3	Cap with blue chlorobutyl/PTFE seal	Standard
20-AC-ST3	Cap with blue silicone/PTFE seal	Ideal for Shimadzu HSS-2B, very clean

* Also available in red 20-MCBC(R), 20-MCBC(R)-ST3, and neutral 20-MCBC(N), 20-MCBC(N)-ST3.

Rowe Code	20-AS3	White silicone/aluminium seal	For temperatures <170°C, aluminium face
TBA	20-ASH3	Red silicone/aluminium seal	For temperatures >170°C, aluminium face
TBA	20-B3P	Butyl rubber plug	
TBA	20-CB3	Blue chlorobutyl seal	
VS3010	20-CBT3	Blue chlorobutyl/PTFE seal	
TBA	20-CBT3B	Blue chlorobutyl/PTFE seal, bellows type	
TBA	20-LLX	Blue silicone/PTFE seal	For use with liquid/liquid extraction
VS3012	20-ST3	Blue silicone/PTFE seal	Very clean for selective detectors
TBA	20-ST3HT	Red silicone/PTFE seal	For temperatures up to 250°C
TBA	20-ST15	Blue silicone/red PTFE seal	Preferred for Fisons
TBA	20-ST101	Blue silicone/PTFE seal	Suitable for wash waste vials - not headspace
TBA	20-1FB3	Butyl rubber freeze drying bung	
TBA	20-2FB3	Butyl rubber freeze drying bung	

20-PEPC5 Polyethylene snap cap plug Only suitable as a cap for short term storage and not headspace analysis

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Vials - Microsampling

Microsampling Using MICRO+™

MICRO+™ from Chromacol is a range of nine vials which are suited to microsampling, trace analysis, environmental work and clinical investigations, since they provide a very convenient way for analysts to work with small samples, e.g. down to 4µL. The convenience of this range should allow faster sample preparation with a consequential reduction in analysis costs.

MICRO+™ vials are produced automatically and the accurate positioning of the bottom of the taper, fused to the base, is tightly controlled allowing the analyst to work confidently with very small samples. The 300µL MICRO+™ vials feature a 'write on' ceramic label which means that there is no likelihood of the wrong sample being placed in the wrong container. MICRO+™ vials are compatible with all the major chromatography autosamplers which use standard 2mL, 12 x 32mm vials.

Part Number	Rowe Code	Description	Size
09-FIV	VV2466	900µL crimp top, fused insert vial, clear.	12 x 32mm
09-FIRV	TBA	900µL snap cap, fused insert vial, clear.	12 x 32mm
09-FISV	TBA	900µL screw top, fused insert vial, clear.	12 x 32mm
03-FIV	TBA	300µL glass insert, fused into a 2mL crimp top vial	12 x 32mm
03-FIV(A)	TBA	300µL glass insert, fused into an amber 2mL crimp top vial	12 x 32mm
03-FISV	TBA	300µL glass insert, fused into a 2mL screw top vial	12 x 32mm
03-FISV(A)	TBA	300µL glass insert, fused into an amber 2mL screw top vial	12 x 32mm
03-FIRV	TBA	300µL fused insert snap cap vial – clear	12 x 32mm
03-FIRV(A)	TBA	300µL fused insert snap cap vial – amber	12 x 32mm



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Vials - Microsampling

Microsampling Using Glass Inserts

Residual Volumes

The requirement to work with small volumes of sample has been met by the use of precision inserts and small volume vials. The ability of an autosampler to extract the last few microlitres from these vials is however dependent on the bottom profile. The best recovery is from tapered insert or high recovery bases. The values given are for conical needles with positioning within 2mm or 1mm of the vial base. For side-entry needles the volumes will be slightly higher. Recovery will also be affected by the solvent viscosity and syringe draw capacity.

Mandrel Point Inserts

For the most precious samples, where extraction of the last few microlitres is critical then an internal mandrel point insert may be used. The mandrel point gives a controlled inner profile that allows the extraction needle to consistently reach the last few drops of sample.

Microsampling

Part Number	Rowe Code	Description	Size
03-MTV	TBA	300µL tapered insert for 2.5-CV vials	5 x 38mm
03-NV	TBA	300µL flat bottomed insert for wide necked 2mL vials	6 x 31mm
02-MTVMP	TBA	200µL tapered insert for narrow necked vials – mandrel point	5 x 30mm
02-MTVWG	TBA	200µL tapered insert for wide necked 2mL vials, Gold grade glass	6 x 30mm
02-MTV	TBA	200µL tapered insert for narrow necked 2mL vials	5 x 30mm
02-NV	TBA	200µL flat bottomed insert for narrow necked 2mL vials	5 x 31mm

Accessory

Part Number	Description
MTS-1	Polyethylene support for tapered glass inserts

ADDITIONAL NOTES the 02-MTVWG, 02-MTVMP and 02-MTV require the use of the MTS-1 spring support.



Residual Volumes

VIAL TYPE	Rowe Code	PRODUCT CODE	RESIDUAL VOLUMES 2mm FROM BASE	RESIDUAL VOLUMES 1mm FROM BASE
2µL flat base	TBA	2-CV	157.1µL	78.6µL
Round bottomed	TBA	1.1-CRV	14.1µL	7.1µL
300µL fused insert	TBA	03-FIV	1.6µL	0.8µL
1.5µL High Recovery	TBA	1.5-HRCV	3.5µL	1.8µL
200µL SCI-VI™	TBA	02-CTVG	0.4µL	0.2µL
900µL fused insert	TBA	09-FIV	1.6µL	0.8µL
Conical tapered insert	TBA	02-MTVWG	0.9µL	0.4µL

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Vials - Microsampling

Microsampling - SCI-VI™ System

Part Number	Rowe Code	Size	Description
SV-S1	TBA	12 x 29mm	Designed to replace standard 12 x 32mm vials. Suitable for most autosamplers.
SV-S2	TBA	8 x 27mm	Designed to replace 8 x 30mm vials (08-CV).
SV-S3A	TBA	12 x 31mm	Designed to replace standard 12 x 32mm vials. Similar to the SV-S1, but with a solid base.
SV-S4	TBA	12 x 32mm	Designed to be used in the Agilent 1090A. This can also be used in most autosamplers to protect light sensitive materials.
SV-S11A	TBA	12 x 33mm	Specially designed to replace standard 12 x 32mm vials in robotic autosamplers. May also be used in most autosamplers.
SV-S11G	TBA	12 x 33mm	Glass version of the SV-S11A. Specially designed to replace standard 12 x 32mm vials in robotic autosamplers. May also be used in most autosamplers. Comes with a T-25 tray
SV-S12A	TBA	23 x 13mm	Replaces 12 x 32mm screw top vials with flanged caps, when used in Shimadzu and Jasco instruments.
SV-S14	TBA	12 x 33mm	Designed to replace a standard 12 x 32mm vial. Suitable for most autosamplers. This has a longer neck than the SV-S11A, and is ideal for the Agilent 7673A
SV-CE	TBA	12 x 40mm	Designed to replace the 2.5-CV (12 x 40mm vial) on the Thermo AS 800 (CE and Fisons).
SV-TSP	TBA	12 x 34mm	Designed to replace a standard 12 x 32mm vial on TSP instruments.
SV-S15	TBA	15 x 45mm	Designed to replace a standard 15 x 46mm 4mL vial in Waters Wisp, and any other instrument that uses 4mL vials



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Vials - Microsampling

Vials

Part Number	Rowe Code	Description	Size
03-CVG	TBA	300µL SCI-VI™ crimp top vial, round bottomed, Gold grade glass	6 x 32 mm
02-CTV(A)	TBA	200µL SCI-VI™ crimp top vial, tapered, amber glass	6 x 32 mm
02-CTVG	TBA	200µL SCI-VI™ crimp top vial, tapered, Gold grade glass	6 x 32 mm
01-CVG	TBA	100µL SCI-VI™ crimp top vial, round bottomed, Gold grade glass	6 x 32 mm

8mm Crimp Caps

Code	Description	Special Note
8-AC6	Cap with type 6 natural rubber/PTFE seal	Sulphur free, ideal for ECD
8-AC6(B)	Blue cap with type 6 natural rubber/PTFE seal	Sulphur free, ideal for ECD
8-AC6(R)	Red cap with type 6 natural rubber/PTFE seal	Sulphur free, ideal for ECD
8-AC7	Cap with type 7 natural rubber/PTFE seal	Standard, suitable for HP/Agilent
8-ACB	Blank cap - no seal	
8-AC-CBT1	Cap with grey chlorobutyl/PTFE seal	For long term storage
8-AC(B)-ST144	Blue cap with blue silicone/red PTFE seal	Preferred for Fisons
8-AC-ST15	Cap with white silicone/red PTFE seal	Preferred for ICI and Pharmacia
8-AC-ST101	Cap with blue silicone/PTFE seal	Preferred for Fisons and Thermo Finnigan. Good for ECD
8-AC-ST101X	Cap with blue silicone/PTFE seal	Pre-cut, for PE ISS-200, Merck-Hitachi
8-ACT	Cap with PTFE seal	Suitable for PE ISS-100
8-AC-TST1	Cap with red PTFE/white silicone/red PTFE seal	Anti-coring, preferred for Gilson
8-AC-V1	Cap with viton seal	Good for ECD

Plugs and Snap Caps

Code	Description	Special Note
8-PEP	1 8mm polyethylene plug	
8-PEPC2	8mm polyethylene snap cap	
8-PEC1	8mm polyethylene snap cap	
8-PEC1X	8mm polyethylene snap cap	Pre-cut, suitable for PE (LC)
8-PEC-STI	8mm snap cap with a silicone/PTFE seal	

ADDITIONAL NOTES

- All of the SCI-VI™ SYSTEM sleeves are made from PTFE apart from the SV-S4, SV-S15 and SV-S11G, which are made from black PE, PE and glass respectively.
- The SCI-VI™ SYSTEM may now be used with our low cost polyethylene snap cap 8-PEC1 and 8-PEC1X. In some cases the skirt of the 8-PEC1 and 8-PEC1X is widened as it grips the vial so it may not fit the SV-S3A, SV-S11A, SV-S11G and SV-S12A sleeves which have a cap recess. However, they are compatible with the SV-TSP.
- SCI-VI™ SYSTEM sleeves should not be used with the Spectra-Physics heater module.
- The SV-S2 requires the use of an S-06 spring when used in the Waters 96 vial tray.
- The Fisons AS 800 requires the additional use of a support sleeve, reference number PWS-11.
- The PE ISS-200/ Series 200, Gilson, Kontron, Merck/Hitachi, Jasco and CMA all have carousels or trays which allow the use of the vials from the SCI-VI™ SYSTEM to be used without the need for a support sleeve.
- SV-S4 can be used for additional light protection

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Watch Glasses

Soda Glass - Fused Edge

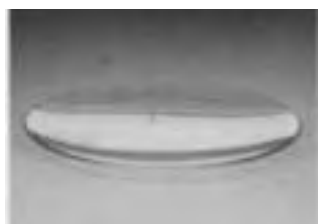
TGI

Rowe Code	Size - mm	Std. Pack Size
GW1505	50	ea
GW1554	60	ea
GW1604	80	ea
GW1753	100	ea
GW1438	150	ea

Soda Glass

Schott

Rowe Code	Size - mm	Std. Pack Size
GW1605	70	ea
GW1720	90	ea
GW1761	120	ea
GW1851	150	ea
GW1870	250	ea



Borosilicate Glass

Schott

Rowe Code	Size - mm	Std. Pack Size
GW1355	40	ea
GW1360	50	ea
GW1400	80	ea
GW1405	100	ea
GW1410	125	ea

Water Baths



The range of Ratek static waterbaths is designed to suit a variety of procedures where temperature controlled water is required. They are designed to operate continuously for long periods of time. Four standard models are available: 4, 7, 14 and 20 litre.

Custom made waterbaths are available to suit specific applications. A solid state proportional control is used to provide accurate and stable temperatures from approximately 28°C to 100°C. Polycarbonate or stainless steel gabled lids are available as an option.

A solid state proportional control is used to provide accurate and stable temperatures. For safety, a manual reset cut out, disconnects power to the element if the water level falls too low. The tank and surround is polished, grade 304 stainless steel, and the outer case is manufactured from a chemical and flame resistant plastic to provide durability and safety. A perforated panel is supplied to support flasks and containers. Polycarbonate or stainless steel gabled lids are available as an option.

Baths

Rowe Code	Model	Useable Cap. (L)	Element Rating	Dimensions	
				Internal LxWxD	External LxWxD
IW1130	WB4	4	500W	170x170x110	290x255x200
IW1160	WB7	7	1000W	400x180x110	530x225x200
IW1180	WB14	14	1000W	400x260x140	530x335x230
IW1230	WB20	20	1500W	400x350x140	530x430x230

Lids

Lid to Suit	Polycarbonate	Stainless Steel
WB4	IW1132	IW1186
WB7	IW1165	IW1131
WB14	IW1185	IW1190
WB20	IW1195	IW1225

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Water Baths

Shaking

Similar construction to Ratek non circulated water baths. Oscillating unit is mounted inside the water tank. Platform travel of 40mm over speed range of 20 to 200rpm. Separate on/off switch. Polycarbonate or stainless steel lids available.

Rowe Code	Capacity L	Usable Platform		External Dimensions		
		W	L	W	H	L
IW1110	20	330	310	600	430	430
IW1233	Polycarbonate Lid for SWB20					
IW1231	Stainless Steel Lid for SWB20					



Culture

The Culture Water Baths are suitable for a variety of applications where temperature uniformity and stability are important. Operation below room temperature is possible with the cooled S Models, although use below +5°C requires the addition of a suitable anti-freeze. Tanks are constructed from seamless welded stainless steel, with exteriors fabricated from heavy gauge zinc coated steel with a durable epoxy finish. Two styles of lid are available; stainless steel lift-off, and insulated hinged lid. Contherm Culture Water Baths are fitted with a multi-flow circulating system designed to ensure good temperature uniformity when loaded, and are supplied complete with fitted multi-flow work support and your choice of lid. Convenient carrying handles are also fitted.

Manufactured in a quality production environment, these Culture Water Baths comply with EMC Standard EN61326-1:1997.



Model 360	Cap 25L
Model 360S.	Cap 25L
Model 370	Cap 35L
Model 370S	Cap 35L
Model 380	Cap 50L
Model 380S.	Cap 50L



Steam

SEM Steam Baths are constructed of all stainless steel with welded joints, and fitted with a constant water level device.

The heating element is easily replaceable and has an inbuilt over heat protection device.

Water temperature is controlled by an energy regulator. The cover is removable for ease of cleaning



Rowe Code	No. of Places	Hole Size mm
IW1245	6	80
IW1250	6	100
IW1255	12	80
IW1260	12	100
IW2000	Roller Rack "Universal", to suit Ratek Shaking Water Bath	



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Water Purification Systems



Rowe Code: TBA

Applications

- Type I water for HPLC mobile phase preparation, sample dilution, buffer and cell culture media preparation, preparation of chemical solutions used with titrators, spectrophotometers and electrophoresis systems, preparation of culture media and reagents for molecular biology applications.

- Type III water for low-volume non critical applications such as glassware washing or rinsing.

Direct-Q® 3 Ultrapure Water Systems

Produce Type I and Type III reagent grade water directly from potable tap water

Type I Water Instant Flow Rate Above 0.5 L/min The Direct-Q 3 systems are designed for simple and intuitive operation. Water quality parameters (resistivity or conductivity, temperature) are clearly indicated on a bright colour display. The Direct-Q 3 systems allow delivery of a fixed volume of Type I water and automatically shut off once the selected volume has been delivered.

The Type I product water is suitable for most low-volume laboratory applications, including the preparation of buffers for liquid chromatography separations And biochemical experiments, of solutions for analytical techniques such as spectrophotometry and spectroscopy, and of culture media. For applications requiring very low organic contaminant levels, the Direct-Q 3 UV system also incorporates a dual wavelength UV lamp to produce water with <5 ppb TOC, making it suitable for HPLC, GC, ILC and TOC analyses.

With the BioPak™ cartridge as a final filter, Direct-Q 3 systems produce pyrogen-free, RNase-free water for cell culture and molecular biology applications.

Features

- Produce Type I ultrapure water (18.2 MW·cm resistivity at 25 °C and < 10 ppb Total Organic Carbon) on demand directly from potable tap water.
- Available with a built-in 185 and 254 nm UV lamp for production of low TOC water required by organic-sensitive applications.
- Produce Type III (Reverse Osmosis) water for basic lab applications at a flow rate of 2.4 L/hr at 15 °C. Type III water is easily available from the 6 L built-in reservoir.
- Maintenance reduced to a simple cartridge change once or twice a year.
- Ideal for laboratories that do not have easy access to pretreated water and need between 1 and 10L of ultrapure water per day.
- Alarm warning in case of a sudden drop in the quality of the product water.
- Dispensing adapted to different size laboratory glassware.
- Time-saving fixed volume dispense.

* In regular operating conditions

** With Millipak Express 20 (0.22 µm) membrane filter or with BioPak ultrafiltration cartridge as final polisher

***Only with BioPak ultrafiltration cartridge as final polisher

Pure (Type III) Product Water Quality*	
Ionic Rejection, %	>94
Organic Rejection for MW > 200, %	>99
Bacteria and Particulates, %	>99
Flow Rate	2.4 L/h at 15 °C (typical)

Ultrapure (Type I) Product Water Quality*	
Resistivity, MW·cm at 25 °C	18.2
TOC (Direct-Q 3 system)	<10 ppb
TOC (Direct-Q 3 UV system with 185//254 nm UV lamp)	<5 ppb
Particulates (size > 0.22 µm)**	<1 Particulate/mL
Bacteria**	<1 cfu/mL
Endotoxin***	<0.01 EU/mL
RNase***	<0.003 ng/mL
Flow Rate (w/ Millipak® Express 20 filter or BioPak™ cartridge)	>0.5 L/ min
System Dimensions	
Height, cm	54
Width, cm	29
Depth, cm	42
Operating Weight, kg (lb)	
Direct-Q 3 system without 185//254 nm UV lamp	17.6 (38.8)
Direct-Q 3 UV system with 185//254 nm UV lamp	18.2 (40.1)

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Water Purification Systems

Direct-Q™ 5 Ultrapure Water Systems

Produce up to 0.6 L/min of ultrapure water from tap

Compact System Produces Type I Water Directly from Tap

The Direct-Q 5 tap-fed water purification system is designed for scientists who need 5 to 15 L of ultrapure water per day and do not have easy access to acceptable quality pretreated water. This compact, silent system produces up to 0.6 L/min of ultrapure (Type I) water on demand, directly from potable tap water. Direct-Q system performance characteristics are automatically monitored by pressure, temperature and resistivity sensors, and are clearly shown on the system's display, which also indicates when routine maintenance should be performed

Features

- Progard™ plug-in pretreatment pack
- Constant water flow-rate
- Automatic refilling of the 10 L reservoir
- Quiet operation



Rowe Code: TBA

Resistivity, MW·cm at 25 °C	18.2
TOC, ppb – with Quantum IX	<30
TOC, ppb – with Quantum EX	<10
Particulates	0.22 µm sterilizing filter
Dimensions (with 10 L reservoir attached)	
Height, cm	45.7
Width, cm	25.5
Depth, cm	50.0
Operating Weight (with full reservoir), kg	29.5
Type I water flow rate (L/min)	Up to 0.6
Type III water flow rate (L/hour)	Up to 5

Applications

- Culture Media
- Buffers
- Blanks or Standard Solutions

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Water Purification Systems



Rowe Code: TBA

Applications

- Microbiological media preparation
- Buffer preparation
- Hydroponics
- Manufacturing chemical and biochemical reagents
- Purified water for pharmaceutical applications (according to US and European Pharmacopeia)
- Feed for laboratory equipment (washing machines, clinical analyzers, stability chambers, humidifiers, autoclaves, weathering test equipment instruments, hydrogen gas generators)
- Feed to Milli-Q® ultrapure water systems

Elix® 3/5/10 Water Purification Systems

The standard for analytical-grade water

Produce Consistently-pure Type II Water from Tap

Elix system water meets or exceeds Type II water quality (corresponding to analytical-grade water) as defined by CAP, CLSI and ISO® 3696/BS 3997. With easy operation and maintenance, Elix systems have set a new standard in the pure water market.

With Elix systems, control of water purity is built-in to every step of the purification process – ensuring that water quality will be a constant in your applications – not an additional variable.

Features

- A unique and easy-to-install prefiltration pack unit
- Self-maintenance of the reverse osmosis membrane
- Self-regeneration of the ion-exchange resins by an electrical current
- Advanced reverse osmosis technology with high recovery loop reduces water consumption by more than 50%
- Constant product flow rate
- Integrated UV lamp for optimum water quality for applications sensitive to bacteria
- All system functions are accessible from a user-friendly keypad and displayed on backlit screen

Elix 3 System	Elix 5 System	Elix 10 System
10 to 60 L per day	50 to 100 L per day	100 to 200 L per day

Elix® 20/35/70/100 Water Purification Systems

Type II analytical-grade water

Produce Up to 4000 L/day of Pure Water

Elix systems are designed to produce up to 4000 L/day of Type II analytical-grade water from potable tap feedwater to meet or exceed the relevant standards defined by CLSI, ISO® 3696 / BS 3997 and the European and US Pharmacopoeia.

One Complete Purification and Control Unit

Elix systems can be integrated into a centralized system, providing total control of all parameters within the system itself as well as within the external pure water distribution loop.

Features

- Total control of all functions, operating parameters and standard accessory components within the Elix system itself and within the external pure water distribution loop
- Patented Elix electrodeionization module continuously regenerates ion-exchange resins
- Built-in resistivity and TOC (Total Organic Carbon) monitoring to ensure water quality
- No additional softeners are required for most feedwater conditions
- Easy-to-replace pretreatment packs, tailored to the feedwater source
- Built-in UV lamp for bacteria-sensitive applications
- Systems contain integrated control functions for distribution loop components (pump, UV lamp, ASM, TOC and resistivity meters)

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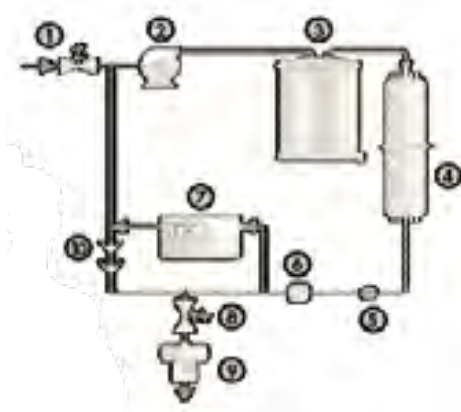
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Water Purification Systems

Milli-Q Academic

Designed for General Laboratory Applications.

The Milli-Q system employs a three-step purification process. A Q-Gard purification pack tailored to the feedwater source provides initial purification to optimize the performance of the downstream media. Secondary purification is provided by application-specific Quantum polishing cartridges, designed to remove ionic and organic contaminants down to trace levels. Final purification is provided by the 0.22 µm Millipak filter unit at the point-of-use for removal of bacteria and particles above 0.22 µm in size. The Milli-Q Academic polishing system measures both resistivity and total organic carbon (TOC) in compliance with USP 24 specifications.



1. Inlet Solenoid Valve
2. Pump
3. Q-Gard Pack
4. Quantum Cartridge
5. Resistivity Sensor
6. Strainer
7. A10 TOC Monitor
8. Outlet Solenoid Valve
9. Millipak Final Filter
10. Check Valve

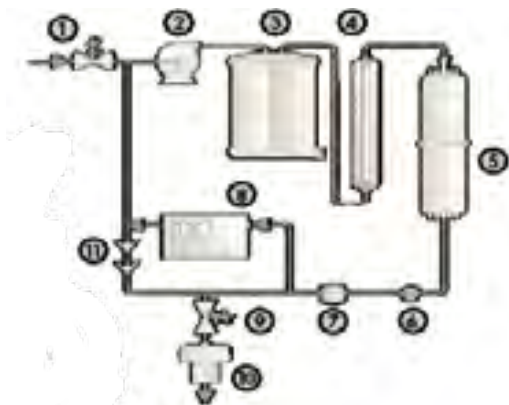


Rowe Code: TBA

Milli-Q Gradient

The preferred system for chromatography (HPLC, LC, ILC, GC-MS).

The Milli-Q Gradient system incorporates the same purification and monitoring techniques as the Milli-Q Academic. In addition, it includes UV photo-oxidation technology to reduce organics to levels below 5 ppb* for optimum chromatographic results and increased column life time. UV radiation is generated by a powerful (17 Watt) low-pressure mercury vapor lamp, constructed of ultrapure quartz to ensure optimal UV 185 and 254 nm transmission. An electro-polished 316 L stainless steel housing provides maximum UV light reflection for optimum efficiency. The 254 nm wavelength also acts as an effective germicidal treatment maintaining low bacterial levels within the system itself.



1. Inlet Solenoid Valve
2. Pump
3. Q-Gard Pack
4. UV lamp 185/254 nm
5. Quantum Cartridge
6. Resistivity Sensor
7. Strainer
8. A10 TOC Monitor
9. Outlet Solenoid Valve
10. Millipak Final Filter
11. Check Valve



Rowe Code: TBA

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Water Purification Systems

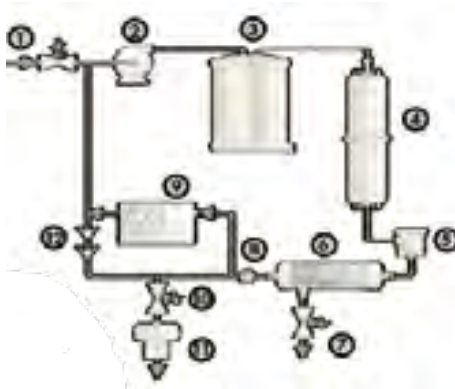


Rowe Code: TBA

Milli-Q Biocel

Designed for Life Science Applications.

The Milli-Q Biocel water purification system provides water quality that is ideal for life science applications such as electrophoresis buffers or serum based cell and tissue culture media preparation for plant cells or bacteria development. In addition to the Milli-Q Academic purification and monitoring techniques, the Milli-Q Biocel system incorporates ultrafiltration technology for removal of pyrogens and other bacterial by-products. The Pyrogard 5000 UF cartridge guarantees very low nuclease and pyrogen levels. Water produced by the Milli-Q Biocel system conveniently replaces DEPC-treated water.



1. Inlet Solenoid Valve
2. Pump
3. Q-Gard Pack
4. Quantum Cartridge
5. Sanitization Port
6. Pyrogard 5000 UF Cartridge
7. Automatic Flush Solenoid Valve
8. Resistivity Sensor
9. A10 TOC Monitor
10. Outlet Solenoid Valve
11. Millipak Final Filter
12. Check Valve

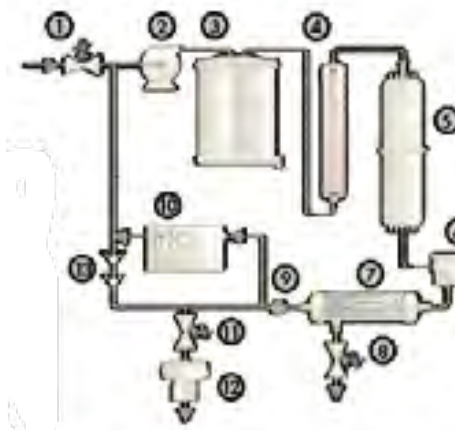


Rowe Code: TBA

Milli-Q Synthesis

Designed for Critical Biological Applications.

The Milli-Q Synthesis water purification system combines the Milli-Q Academic purification and monitoring techniques with both UV photo-oxidation and ultrafiltration technologies. The Milli-Q Synthesis system produces water that has extremely low ionic, organic, pyrogen and nuclease contamination. This water quality is a convenient replacement for DEPC-treated water and is ideal for molecular biology techniques such as PCR, 2-D electrophoresis, and DNA sequencing. It is also recommended for the production of buffers and defined cell culture media used in mammalian cell culture.



1. Inlet Solenoid Valve
2. Pump
3. Q-Gard Pack
4. UV Lamp 185/254 nm
5. Quantum Cartridge
6. Sanitization Port
7. Pyrogard 5000 UF Cartridge
8. Automatic Flush Solenoid Valve
9. Resistivity Sensor
10. A10 TOC Monitor
11. Outlet Solenoid Valve
12. Millipak Final Filter
13. Check Valve

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Water Purification Systems

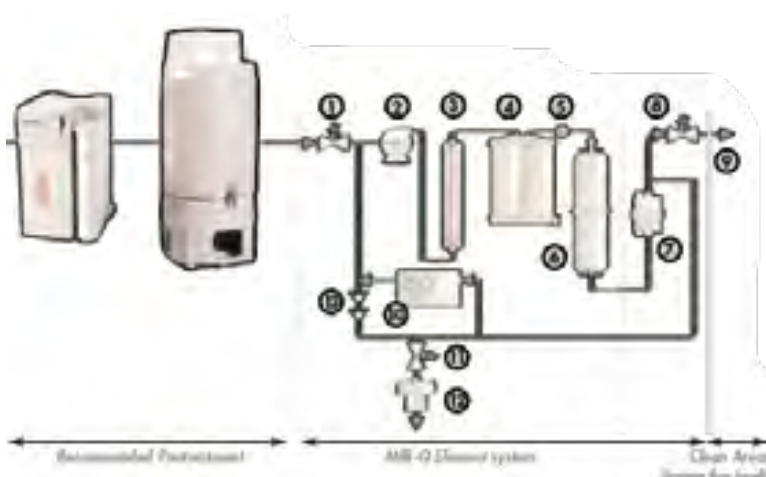
Milli-Q Element

Designed for elemental ultra-traceanalysis (ICP-MS,FAAS, ILC).

The Milli-Q Element system is designed using ultra-clean materials and an optimized succession of water purification technologies to provide the highest quality water, free of contaminants that are detrimental to trace elemental analysis. Specific consumables (Q-Gard B1, Quantum ICP and Optimizer LW (0.1 µm) final filter are designed to produce ultrapure water reaching detection limits at ppt and ppq levels, depending on the element considered (Millipore brochures are available on request for detailed analysis and experimental conditions). Foot-pedal activation allows for hands-free, contaminant-free operation in a clean area.



Rowe Code: TBA



1. Inlet Solenoid Valve
2. Pump
3. UV Lamp 185/254 nm
4. Q-Gard Pack
5. Resistivity Sensor
6. Quantum ICP Cartridge
7. Optimizer LW 0.1 µm Final Filter
8. Ultra Clean Solenoid Valve
9. Water Delivery in Clean Area
10. A10 TOC Monitor
11. Outlet Solenoid Valve
12. Millipak Final Filter
13. Check Valve

Milli-Q bench-integrated Systems

Design your laboratory to save bench space.

The Milli-Q systems described in the previous pages are also available as bench-integrated systems. Designed for the functions of ultrapure water production, point-of-use dispensing, and water system monitoring to be separately located where most convenient, Milli-Q benchintegrated systems are easily accommodated within all lab environments. The water production unit can be conveniently positioned on a rollout underbench shelf, with the display and monitoring functions built into the bench panel at the point-of-use. The Milli-Q remote POU dispenser can be located where it is most convenient. Foot-pedal activation is available as an option for hands-free, contaminant-free operation of a Milli-Q system. For laboratories requiring a complete purification chain, Millipore offers RiOs and Elix systems for pretreatment to Milli-Q systems, and also offers reservoirs for purified water storage that can all be easily accommodated under the bench.



Milli-Q systems have 2 built-in monitors:

- Resistivity meter with a 0.01 cm-1 nominal cell constant and 0.1 °C accuracy thermistor for accurate monitoring of trace ionic contamination. The resistivity meter reports conductivity (µS/cm) or resistivity (MΩ.cm) compensated or not at 25 °C and meets USP 24 requirements.
- TOC monitor with a 1 to 999 ppb detection range for accurate analysis of organics. The TOC monitor passes the USP 24 suitability test.

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Water Purification Systems

RiOs-DI™ 3 UV Water Purification Systems



Rowe Code: TBA

Produce up to 10 L/day of high quality analytical grade water (Type II water) from tap

Compact System Integrates Several Purification Technologies
The RiOs-DI 3 UV system is a very compact solution that efficiently combines reverse osmosis technology with deionization resins to produce high quality pure water of high resistivity and low TOC (>10 MW-cm and <50 ppb). The system's product water is stored in an internal reservoir and is ideal for low volume routine laboratory applications.

The unique simple "plug-and-use" purification pack enables the production of high quality (Type II) water from tap water. To ensure reliable contaminant removal, the pump-assisted flow of tap water steadily reaches the cartridge, in spite of low pressure on the supply side or drop in water temperature.

Applications

- Buffer and reagent preparation
- Microbiological culture media preparation
- General washing
- Feed to Milli-Q® and Synergy® ultrapure water systems

Features

- Combining several purification technologies including Reverse Osmosis and Deionization, the RiOs-DI 3 UV system removes all types of water contaminants (typically >99 %).
- The built in UV lamp* is ideal for applications that require low bacteria levels.
- The consumable is a "unique all-in-one" pack that includes the pre-treatment, reverse osmosis membrane and ion-exchange resin.
- Maintenance is reduced to the quick change of a single cartridge.
- Backlit colour display shows resistivity, temperature and water level in reservoir.
- Integrated, compact 6-liter reservoir.

* This system is also available without UV lamp.

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Water Purification Systems

RiOs™ 5 /8 /16 Water Purification Systems

RiOs water purification systems are ideal for the production of laboratory-grade water, which is particularly suitable for glassware rinsing, feedwater for humidifiers, autoclaves, washing machines and Milli-Q® ultrapure water systems.

RiOs systems are fed directly with potable tap water and combine complementary purification technologies in a compact system design that is easy to operate, reliable, and allows total control over the water produced at a low operating cost. Bench-operated, wall-mounted or bench-integrated, RiOs systems are designed to fit your space requirements. A complete range of RiOs systems and specially designed storage reservoirs are available to meet the needs of laboratories requiring anywhere from 10 to 300 liters of pure water per day. Larger systems, based on the same principle, are also available for users with needs of up to 5000 liters per day.



Rowe Code: TBA

By filtration through a Reverse Osmosis (RO) membrane, RiOs systems ensure the removal of all contaminants initially present in potable water (as shown in the table). The semi-permeable RO membrane is protected from clogging by using a pretreatment pack that contains a combination of complementary technologies. The water produced in the reservoir is always of optimal quality; each time the system is restarted, water is rejected until its quality meets the required expectations. High performance RO systems

Benefits

- Pure water is always available and no longer depends on the temperature of the feedwater. RiOs systems provide water with a constant flow rate.
- A unique and easy-to-install prefiltration pack unit (plug-and-use concept) includes three types of purification media.
- The reverse osmosis membrane is self-maintaining due to the automatic flushing cycles.
- System functions are easily accessible by a user-friendly keypad. The information is displayed in the chosen language on an easy-to-read alphanumeric backlit display. The screen angle can be adjusted.
- Advanced reverse osmosis technology reduces water consumption by more than 50 % due to the high recovery loop, and doubles the lifetime of the pretreatment pack as the recovered water has already been pretreated.
- Replacement of the pretreatment pack is calculated based upon the actual amount of water pretreated.
- The entire pretreatment sequence results in a long life expectancy for the RO membrane, thus decreasing running costs.

Contaminant	Rejection*	Passage*
Ions	94-99 %	1-6%
Organics	≥99 %	≤1%
Particles	≥99 %	≤1%
Microorganism	≥99 %	≤1%
*Typical Values		

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Water Purification Systems



Rowe Code: TBA

Simplicity® Ultrapure Water Systems

Type I ultrapure water for scientists who require less than 5 liters per day

Type I Reagent Grade Water, Flow Rate Above 0.5 L/min

The Simplicity portable water purification system can be located anywhere in your laboratory. It requires no special installation, no water feed connection and produces ultrapure water on demand from pretreated water (Elix® system, distilled, deionized or reverse osmosis water).

For scientists who use less than 5 liters of ultrapure water per day, the Simplicity system is an economical alternative for laboratories that currently use bottled water. Simplicity ultrapure water, produced and used at the point-of-use, is not subject to the degradation and contamination that affects bottled water. The intuitive colour graphic display of the Simplicity system means that you can instantly see all system parameters, whether you want to know the water quality, reservoir level or when to replace the pack. With its integrated, removable reservoir, the Simplicity system is designed to make your work easier. The Simplicity UV system contains a built-in dual-wavelength UV lamp (185 and 254 nm) to reduce organic contaminants to < 5 ppb in your ultrapure water, making it suitable for your sensitive applications, such as HPLC, GC and TOC analysis.

Applications

- Production of mobile phase for chromatographic separations
- Preparation of blanks and standard solutions for spectrophotometry, spectroscopy or other analytical techniques
- Preparation of buffers for biochemical experiments

Features

- Produces Type I water (18.2 MW·cm at 25 °C ultrapure water) on demand from pretreated water (reverse osmosis or deionized water)*.
- Installation requires no plumbing.
- System draws water from a removable, refillable, built-in reservoir.
- Flow rate > 0.5 L/min.
- Maintenance reduced to a single cartridge change once or twice a year, based on the resistivity value displayed for the ultrapure water produced.
- System designed for users needing between 1 and 5 liters of ultrapure water per day with instant flow rate of 0.5 L/min.
- System comes with or without a UV lamp (depending on incidence of TOC on applications).
- Alarm function in the event of a sudden drop in the quality of the product water guarantees your water quality at all times.
- Dispensing adapted to different size laboratory glassware.

	Simplicity	Simplicity UV
Resistivity, MW·cm at 25 °C	18.2	18.2
TOC, ppb	<15	<5
Flow Rate, L/min	>0.5	>0.5
Final Filter, µm	0.05	0.05
Dimensions		
Height, cm	51	51
Width, cm	29	29
Depth, cm	36	36
Operating Weight, kg (lb)	8.4	9
*The Milli-DI system provides a convenient feedwater source for Simplicity systems.		

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Water Purification Systems

Synergy® Ultrapure Water Systems

Type I reagent grade water with a flow rate above 1 L/min

Ultrapure Water from Pretreated Water for Low-Volume Critical Applications
The Synergy system is designed for laboratories that already have access to purified water and need a point-of-use system to supply high quality ultrapure water. The compact design assures easy installation anywhere in your lab, on the bench or wall-mounted. The Synergy system allows delivery of a fixed volume of Type I water and automatically shuts off once the selected volume has been delivered.

For applications requiring very low organic contaminants levels, the Synergy system also incorporates a dual wavelength UV lamp to produce water with <5 ppb TOC (when feedwater TOC is below 50 ppb), making it suitable for HPLC, GC, ILC and TOC analyses. With the BioPak™ cartridge as a final filter, Synergy systems produce pyrogen-free, Nuclease-free water.

The Synergy system is designed for simple and intuitive operation. Water quality parameters (resistivity or conductivity, temperature) are clearly indicated on a bright colour display. Maintenance is limited to a quick and easy replacement of a single consumable.

Features

- Produces Type I water (18.2 MW-cm at 25 °C ultrapure water) on demand from pretreated water (reverse osmosis or demineralized water).
- Maintenance reduced to a single cartridge change once or twice a year, depending on the volume produced and the quality of the pure water feed.
- System designed for users needing between 2 and 20 liters of ultrapure water per day with instant flow rate of 1 L/min.
- Quality suitable for HPLC and other spectrophotometric/spectroscopic analytical techniques for biological, biochemical, and cell culture applications
- Dispensing adapted to different size laboratory glassware.
- Time-saving fixed-volume dispense.

Specifications	
Resistivity, MW-cm at 25 °C	18.2
TOC, ppb – Synergy System*	<10
TOC, ppb – Synergy UV System*	< 5
Final Filter	0.22 µm sterilizing filter or BioPak ultrafilter
Height, cm	54
Width, cm	29
Depth, cm	38
Operating Weight, kg – Synergy System	9.7
Operating Weight, kg – Synergy UV System	10.2
Flow Rate, L/min	Up to 1.2
* Feedwater: Pretreated water (Elix® system, RO, distilled or DI water)	



Rowe Code: TBA

Applications

- LC buffer preparation
- HPLC isocratic and gradient solution preparation
- Sample dilution
- Buffer, reagents for molecular biology and cell culture media preparation
- Preparation of chemical solutions used with titrators, spectrophotometers and electrophoresis systems

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XRF

XRF Binder

For binding powder samples. 10g of sample is mixed with 2mL of XRF binder.

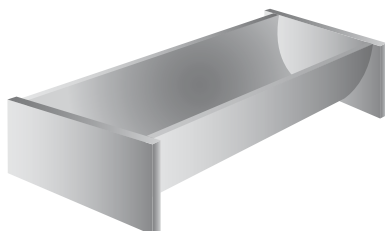
Rowe Code	Std. Pack Size
XB1000	2L



XRF Cups

These cups allow the analysis of solutions by XRF, and fit all common makes of XRF instrument, including X-Unique II, PW2400, PW2404 and Axios, all Panalytical instruments.

Rowe Code	Description
XC1005	CUP, XRF, LIQUID (CLEAR)
XC1006	CUP, XRF, LIQUID (GREY)
XC1007	CUP, XRF, LIQUID (ORANGE)



XRF Disc Tray

Rowe Code: XX1050

PVC Disc Tray 200mm (L) 45 (W) holds up to 42mm diameter discs.

XRF Pellet Cups

Somar-caps are compressible thin-walled aluminium cups for briquetting powder samples. Simply fill the somar-cap with the powdered sample and briquette in a standard mould assembly - sample weighing is not required. The resultant pellet is reinforced with aluminium on all sides except the surface to be investigated. Somar-caps are chemically treated to eliminate adhesive to the mould assembly with provision on the backs for recording sample identification numbers.



Rowe Code	Diameter mm	Briquette Size mm	Std. Pack Size
XP1050	33	35	1500
XP1100	38	40	1000

Other XRF related products:

Also see in this catalogue:
Grinding Tablets
Mylar film

XRF/XRD Consumables

Rowe Scientific Pty Ltd supply XRF/XRD Consumables from the Chempex, Somar and Spex ranges, and can supply a separate catalogue upon request.

TECHNICAL REFERENCE PAGES

Chemistry

Alphabetical List of the Elements

Element	Symbol	Atomic No.	Atomic Weight	Element	Symbol	Atomic No.	Atomic Weight
Actinium	Ac	89	—	Mercury	Hg	80	200.61
Aluminium	Al	13	28.98	Molybdenum	Mo	42	95.95
Americium	Am	95	—	Neodymium	Nd	60	144.27
Antimony	Sb	51	121.76	Neon	Ne	10	20.183
Argon	Ar	18	39.944	Neptunium	Np	93	—
Arsenic	As	33	74.91	Nickel	Ni	28	58.71
Astatine	At	85	—	Niobium	Nb	41	92.91
Barium	Ba	56	137.36	Nitrogen	N	7	14.008
Berkelium	Bk	97	—	Nobelium	No	102	—
Beryllium	Be	4	9.013	Osmium	Os	76	190.2
Bismuth	Bi	83	209.00	Oxygen	O	8	16.0000
Boron	B	5	10.82	Palladium	Pd	46	106.4
Bromine	Br	35	79.916	Phosphorus	P	15	30.975
Cadmium	Cd	48	112.41	Platinum	Pt	78	195.09
Cesium	Cs	55	132.91	Plutonium	Pu	94	—
Calcium	Ca	20	40.08	Polonium	Po	84	—
Californium	Cf	98	—	Potassium	K	19	39.100
Carbon	C	6	12.011	Praseodymium	Pr	59	140.92
Cerium	Ce	58	140.13	Promethium	Pm	61	—
Chlorine	Cl	17	35.457	Protactinium	Pa	91	—
Chromium	Cr	24	52.01	Radium	Ra	88	—
Cobalt	Co	27	58.94	Radon	Rn	86	—
Copper	Cu	29	63.54	Rhenium	Re	75	186.22
Curium	Cm	96	—	Rhodium	Rh	45	102.91
Dysprosium	Dy	66	162.51	Rubidium	Rb	37	85.48
Einsteinium	Es	99	—	Ruthenium	Ru	44	101.1
Erbium	Er	68	167.27	Samarium	Sm	62	150.35
Europium	Eu	63	152.0	Scandium	Sc	21	44.96
Fermium	Fm	100	—	Selenium	Se	34	78.96
Fluorine	F	9	19.00	Silicon	Si	14	28.09
Francium	Fr	87	—	Silver	Ag	47	107.880
Gadolinium	Gd	64	157.26	Sodium	Na	11	22.991
Gallium	Ga	31	69.72	Strontium	Sr	38	87.63
Germanium	Ge	32	72.60	Sulphur	S	16	32.066
Gold	Au	79	197.0	Tantalum	Ta	73	180.95
Hafnium	Hf	72	178.50	Technetium	Tc	43	—
Helium	He	2	4.003	Tellurium	Te	52	127.61
Holmium	Ho	67	164.94	Terbium	Tb	65	158.93
Hydrogen	H	1	1.0080	Thallium	Tl	81	204.39
Indium	In	49	114.82	Thorium	Th	90	232.05
Iodine	I	53	126.91	Thulium	Tm	69	168.94
Iridium	Ir	77	192.2	Tin	Sn	50	118.70
Iron	Fe	26	55.85	Titanium	Ti	22	47.90
Krypton	Kr	36	83.80	Tungsten	W	74	183.86
Lanthanum	La	57	138.92	Uranium	U	92	238.07
Lead	Pb	82	207.21	Vanadium	V	23	50.95
Lithium	Li	3	6.940	Xenon	Xe	54	131.30
Lutetium	Lu	71	174.99	Ytterbium	Yb	70	173.04
Magnesium	Mg	12	24.32	Yttrium	Y	39	88.92
Manganese	Mn	25	54.94	Zinc	Zn	30	65.38
Mendelevium	Md	101	—	Zirconium	Zr	40	91.22

Solubility Rules for Salts in Water

- 1) All the salts of the alkali metals (Li, Na, K, Rb and Cs) and ammonium (NH₄⁺) are soluble.
- 2) All nitrate (NO₃⁻) and acetate salts are soluble.
- 3) All chloride and bromide salts are soluble except those of silver (Ag), mercury (Hg) and lead (Pb). Lead chloride is soluble in hot water.
- 4) All sulphate (SO₄²⁻) salts are soluble, except those of barium (Ba), strontium (Sr) and lead (Pb). Calcium sulphate is only slightly soluble.
- 5) All sulphides (S²⁻) are insoluble in water except those of the alkali metals (See Rule 1) and the alkali earth metals (Mg, Ca, Sr and Ba).
- 6) All hydroxides (OH⁻) are insoluble except those of the alkali metals and barium.
- 7) All phosphates (PO₄³⁻) and carbonates (CO₃²⁻) are insoluble except those of ammonium and the alkali metals (See Rule 1).

Chemistry

The Periodical Table

GROUP	I	II	III	IV	V	VI	VII	VIII										
	1 H 1.008	2 He 4.003																
	3 Li 6.941	4 Be 9.012	5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 18.998	10 Ne 20.18										
	11 Na 22.99	12 Mg 24.31	13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.06	17 Cl 35.45	18 Ar 39.94										
	19 K 39.10	20 Ca 40.08	TRANSITION METALS						36 Kr 83.80									
	37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc (97)	44 Ru 101.1	45 Rh 102.9	46 Pd 106.4	47 Ag 107.9	48 Cd 112.41	49 In 114.8	50 Sn 118.7	51 Sb 121.8	52 Te 127.6	53 I 126.9	54 Xe 131.3
	55 Cs 132.9	56 Ba 137.3	57 La 138.9	58 Ce 140.1	59 Pr 140.9	60 Nd 144.2	61 Pm 145	62 Sm 150.4	63 Eu 152.0	64 Gd 157.3	65 Tb 158.9	66 Dy 162.5	67 Ho 164.9	68 Er 167.3	69 Tm 168.9	70 Yb 173.0	71 Lu 175.0	
	87 Fr (223)	88 Ra 226.0	89 Ac 227.03	90 Th 232.0	91 Pa 231.0	92 U 238.0	93 Np 237.0	94 Pu 244	95 Am 243	96 Cm 247	97 Bk 247	98 Cf 251	99 Es 254	100 Fm 257	101 Md 258	102 No 259	103 Lr (260)	

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The Electrochemical Series

Standard reduction potentials		E° (V/0.05)
Half-reaction		
	$F_2(g) + 2e^- \rightarrow 2F^-(aq)$	+2.87
	$H_2O_2(aq) + 2H^+(aq) + 2e^- \rightarrow 2H_2O(l)$	+1.78
	$2HClO(aq) + 2H^+(aq) + 2e^- \rightarrow Cl_2(g) + 2H_2O(l)$	+1.63
	$MnO_2(aq) + 8H^+(aq) + 5e^- \rightarrow Mn^{2+}(aq) + 4H_2O(l)$	+1.51
	$Au^{3+}(aq) + 3e^- \rightarrow Au(s)$	+1.50
	$HClO(aq) + H^+(aq) + 2e^- \rightarrow Cl^-(aq) + H_2O(l)$	+1.49
	$Cl_2(g) + 2e^- \rightarrow 2Cl^-(aq)$	+1.36
	$Cr_2O_7^{2-}(aq) + 14H^+(aq) + 6e^- \rightarrow 2Cr^{3+}(aq) + 7H_2O(l)$	+1.33
	$MnO_2(s) + 4H^+(aq) + 2e^- \rightarrow Mn^{2+}(aq) + 2H_2O(l)$	+1.23
	$O_2(g) + 4H^+(aq) + 4e^- \rightarrow 2H_2O(l)$	+1.23
	$Br_2(l) + 2e^- \rightarrow 2Br^-(aq)$	+1.09
	$NO_3^-(aq) + 4H^+(aq) + 3e^- \rightarrow NO(g) + 2H_2O(l)$	+0.96
	$Hg^{2+}(aq) + 2e^- \rightarrow Hg(l)$	+0.85
	$O_2(g) + 4H^+(aq)(10^{-2} \text{ mol L}^{-1}) + 4e^- \rightarrow 2H_2O(l)$	+0.82*
	$NO_3^-(aq) + 2H^+(aq) + e^- \rightarrow NO_2(g) + H_2O(l)$	+0.80
	$Ag^+(aq) + e^- \rightarrow Ag(s)$	+0.80
	$Hg_2^{2+}(aq) + 2e^- \rightarrow 2Hg(l)$	+0.79
	$Fe^{3+}(aq) + e^- \rightarrow Fe^{2+}(aq)$	+0.77
	$O_2(g) + 2H^+(aq) + 2e^- \rightarrow H_2O_2(aq)$	+0.68
	$MnO_2(aq) + 2H_2O(l) + 3e^- \rightarrow MnO_2(s) + 4OH^-(aq)$	+0.60
	$I_2(s) + 2e^- \rightarrow 2I^-(aq)$	+0.54
	$Cu^+(aq) + e^- \rightarrow Cu(s)$	+0.52
	$O_2(g) + 2H_2O(l) + 4e^- \rightarrow 4OH^-(aq)$	+0.40
	$Cu^{2+}(aq) + 2e^- \rightarrow Cu(s)$	+0.34
	$H_2SO_3(aq) + 3H^+(aq) + 2e^- \rightarrow H_2SO_3(aq) + H_2O(l)$	+0.17
	$Cu^{2+}(aq) + e^- \rightarrow Cu^+(aq)$	+0.15
	$Sn^{4+}(aq) + 2e^- \rightarrow Sn^{2+}(aq)$	+0.15
	$S(s) + 2H^+(aq) + 2e^- \rightarrow H_2S(aq)$	+0.14
	$2H^+(aq) + 2e^- \rightarrow H_2(g)$	0.00
	$Pb^{2+}(aq) + 2e^- \rightarrow Pb(s)$	-0.13
	$Sn^{2+}(aq) + 2e^- \rightarrow Sn(s)$	-0.14
	$Ni^{2+}(aq) + 2e^- \rightarrow Ni(s)$	-0.25
	$Co^{2+}(aq) + 2e^- \rightarrow Co(s)$	-0.28
	$Cr^{3+}(aq) + e^- \rightarrow Cr^{2+}(aq)$	-0.41
	$2H_2O(l) + 2e^- \rightarrow H_2(g) + 2OH^-(aq)(10^{-2} \text{ mol L}^{-1})$	-0.41*
	$Fe^{2+}(aq) + 2e^- \rightarrow Fe(s)$	-0.44
	$2C_2O_4^{2-}(aq) + 2H^+(aq) + 2e^- \rightarrow H_2C_2O_4(aq)$	-0.49
	$Cr^{3+}(aq) + 3e^- \rightarrow Cr(s)$	-0.74
	$Zn^{2+}(aq) + 2e^- \rightarrow Zn(s)$	-0.76
	$2H_2O(l) + 2e^- \rightarrow H_2(g) + 2OH^-(aq)$	-0.83
	$Mn^{2+}(aq) + 2e^- \rightarrow Mn(s)$	-1.18
	$Al^{3+}(aq) + 3e^- \rightarrow Al(s)$	-1.66
	$Mg^{2+}(aq) + 2e^- \rightarrow Mg(s)$	-2.36
	$Na^+(aq) + e^- \rightarrow Na(s)$	-2.71
	$Ca^{2+}(aq) + 2e^- \rightarrow Ca(s)$	-2.87
	$Sr^{2+}(aq) + 2e^- \rightarrow Sr(s)$	-2.89
	$Ba^{2+}(aq) + 2e^- \rightarrow Ba(s)$	-2.90
	$K^+(aq) + e^- \rightarrow K(s)$	-2.93
	$Li^+(aq) + e^- \rightarrow Li(s)$	-3.05

* Not true E° 's for these half-reactions because not measured under standard conditions (i.e. solution concentration of 1 mol L⁻¹, gas pressure of 101.3 kPa and at a temperature of 25 °C).

The Activity (Reactivity) Series of Metals

The properties of metals can be compared with an activity series. This series is given below with a number of comments.

Potassium	K		
Sodium	Na	1)	All metals above hydrogen will displace hydrogen from dilute sulphuric acid and dilute and concentrated hydrochloric acids.
Calcium	Ca	2)	Metals near the top of the series will vigorously displace hydrogen from water. Magnesium will displace hydrogen from steam.
Magnesium	Mg		
Aluminium	Al	3)	Metals above silver combine directly with oxygen and this action is rapid with metals at the top of the series.
Zinc	Zn	4)	Metals below mercury do not combine directly with oxygen to form oxides.
Iron	Fe	5)	Oxides of mercury and the metals below it may be decomposed to metals with mild heating.
Tin	Zn	6)	Oxides of metals above mercury are not easily decomposed by heat alone.
Lead	Pb	7)	Elements above silver are rarely found free in nature and those near the top of the series are relatively difficult to separate from the compounds in which they are found.
Hydrogen	H	8)	Elements low in the series are often found free in nature.
		9)	The carbonates of sodium and potassium are fairly stable to heat.
Copper	Cu	10)	The carbonates below sodium form oxides and liberate carbon dioxide when heated and the oxides of the metals below copper are themselves reduced and oxygen liberated.
Mercury	Hg		
Silver	Ag	11)	Under suitable conditions, each element in the series will displace from a compound any of the elements below it. The larger the interval between the elements the more vigorous will be the reaction.
Platinum	Pt		
Gold	Au		

Approximation of Furnace Temperature from Colour of Furnace

COLOUR OF FURNACE	APPROXIMATE TEMPERATURE °C
Lowest red visible in the dark	470
Dark blood red	530
Low red	560
Dark cherry red	640
Cherry red	750
Light cherry red	845
Orange	900
Light orange	940
Yellow	1000
Light yellow	1080
White	1200

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Physical Properties of Kimble Borosilicate Glass

TUMBLE Glasses

KIMAX Brand KG-33 glass is a borosilicate glass with a low coefficient of expansion and a very high resistance to chemical attack. It meets the requirements for Type I Class A glass of ASTM E-438, "Glasses in Laboratory Apparatus". The alkali content is low and it is made without elements of the calcium, magnesium and zinc group of heavy metals. The combined total of arsenic and antimony oxides is less than 0.005%.

Amber 203 — Amber borosilicate glass developed for light sensitive pharmaceutical products. Amber 203 glass meets U.S. Pharmacopoeia Type I Specifications.

N-51A — KIMAX brand N-51A glass belongs to the family of KIMBLE borosilicate glasses. It possesses the best all-around chemical durability of available commercial glasses. Because of a comparatively low coefficient of expansion, N-51A also possesses good resistance to thermal shock. N-51A meets the requirements for Type I Class B glass of ASTM E-438.

Physical Properties of Glass

Glass is an inorganic product of fusion that has cooled to a rigid condition without crystallizing and, therefore, has no melting point as such. There are, however, four temperatures that are of interest to the glassblower. They are:

1. The **Working Point**—the temperature at which glass has a viscosity of 10^7 poises. At this temperature, glass is soft enough for most lampworking or sealing operations.
2. The **Softening Point**—the temperature at which glass has a viscosity of $10^7.5$ poises. In this temperature range glass will deform noticeably under its own weight.
3. The **Annealing Point**—the temperature at which the internal stress caused by rapid cooling from lampworking or forming temperatures may be substantially removed in a matter of minutes. It is determined by measuring the elongation rate versus temperature of a fiber of glass under conditions prescribed by ASTM Designation C 336. The values given herein are typical for production glasses.
4. The **Strain Point**—the temperature at which the internal strain in a glass is substantially relieved only after a matter of hours and not at a commercially desirable rate. It is determined by extrapolation of annealing point data for fiber elongation; ASTM C 336.

Table 2

Physical Properties of
KG-33, N-51A and N-5 Glasses

	KG-33	N-51A	N-5
Working Point	1250°C	1140°C	990°C
Strain Point	513°C	530°C	488°C
Annealing Point	565°C	570°C	525°C
Softening Point	827°C	785°C	706°C
Linear Coefficient of Expansion (from 0 to 300°C), in./in./°C	32×10^{-7}	55×10^{-7}	93×10^{-7}
Density grams per cm ³	2.22	2.53	2.53
Refractive Index—Sodium D line (5893 mμ)	1.47	1.48	1.52
Visible Light Transmission, 2 mm thickness	92%	91%	92%
Specific Heat (in g. cal. per g. deg.)	0.204 (25 to 175°C)	0.204 (25 to 175°C)	0.209 (25 to 125°C)
Thermal Conductivity (in cal/cm ² /°C)	0.0027	0.0026	0.0024

Physical & Chemical Properties of TGI Borosilicate Glass

Chemical Properties

Water resistance tested to DIN-ISO 719 (at 98°C):
HGB 1 with a typical consumption of 0.04 ml hydrochloric acid [c(HCl) = 0.01 mol/l] per one gram glass grit.

Water resistance tested to DIN-ISO 720 (at 121°C):
HGA 1 with a typical consumption of 0.04 ml hydrochloric acid [c(HCl) = 0.02 mol/l] per one gram glass grit.

Alkali resistance tested to DIN 52 322 (according to ISO695):
class A2 with a typical mass loss of 150 mg/dm²

Acid resistance tested to DIN 12 116: class 1

Acid resistance tested to DIN-ISO 1776 with a typical alkali delivery of 50 μg Na₂O/dm².

Physical Properties

- Mean linear thermal expansion:
a (20°C...300°C) = $3.3 \pm 0.1 \times 10^{-6} \text{ K}^{-1}$

- Density at 20°C:
 $\rho = 2.23 \text{ g/cm}^3$

- Mean thermal conductivity (20°C...100°C): $\lambda = 1.2 \text{ W m}^{-1} \text{ K}^{-1}$

- Working point:
 $\eta_{11} = 1250^\circ\text{C}$ at a viscosity of $\eta_{11} = 10^4 \text{ dPa} \cdot \text{s}$

- Littleton/Softening point:
 $\eta_{12} = 815^\circ\text{C}$ at a viscosity of $\eta_{12} = 10^{7.6} \text{ dPa} \cdot \text{s}$

- Annealing point:
 $\eta_{13} = 560^\circ\text{C}$ at a viscosity of $\eta_{13} = 10^{13} \text{ dPa} \cdot \text{s}$

- Strain point:
 $\eta_{14} = 510^\circ\text{C}$ at a viscosity of $\eta_{14} = 10^{14.7} \text{ dPa} \cdot \text{s}$

- Transformation temperature:
 $t_g = 530^\circ\text{C}$

- Maximum permitted usage temperature:
500°C

- Modulus of elasticity:
E = 64 GPa

Care and Cleaning of Volumetric Glassware

There are several essential rules which must be followed in order to get the best results with volumetric apparatus. These rules concern cleanliness, method of reading the meniscus and the filling and emptying of the various types of instruments.

CLEANLINESS OF APPARATUS

The usual criterion of cleanliness of glass apparatus is uniform wetting of the surface by distilled water. Certain contaminants, especially grease, adhering to the walls prevent them from being uniformly wetted, and there is a tendency for water to collect into drops. Imperfect wetting causes irregularities in capacity of volumetric glassware by distorting the meniscus, and also by affecting the volume of the residue adhering to the walls after emptying instruments calibrated to deliver the indicated volume.

Even when the surface of the vessel is uniformly wetted, variations in the apparent capacity still may occur, due to contamination of the liquid surface by minute quantities of fatty or other organic substances which produce a change in surface tension affecting the shape of the meniscus. The cleaning, rinsing and drying, therefore, must be carried out in such a way as to prevent this from happening.

The choice of the procedure to be used in cleaning glassware depends on the nature of the contaminant. In many cases special reagents or methods must be used to remove a particular substance. Before listing the more important methods, it is desirable to make a few general statements.

Glass. Glasses used in chemical apparatus have excellent resistance to acids, except hydrofluoric. Strong alkaline solutions, such as hot caustic solutions, will attack any glass if contact is prolonged. This is true even though a particular glass may not exhibit any visible effect, due to the solubility of the reaction products. Dilute detergent solutions, up to about 2% strength, will have no serious effect on the glass, unless the glass is exposed for unnecessarily long periods or the detergent is allowed to dry on the glass.

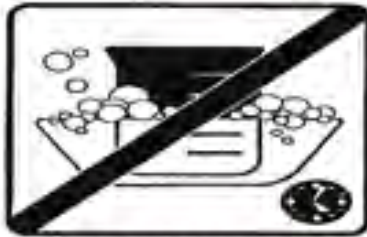


Fig. 4 Don't leave in detergent solutions for prolonged periods



Fig. 5 Don't pipet by mouth



Fig. 6 Don't apply direct heat

Colored Graduations. The scales and inscriptions of many items of Kimble glassware are colored by staining a thin layer of the glass. Since the colored portion is of the same composition as the glass object, the resistance to chemical attack is the same as that of the rest of the glass. Here, the color can be removed only by dissolving a layer of glass from the surface.

Some Kimble volumetric glassware has fused on, ceramic enamel printed lines and inscriptions. These fused-on enamels are quite resistant to acids and alkalis. In most cases they should last as long as the piece of apparatus if cared for properly. However, by their nature, they cannot be as resistant as the ware to which they adhere.

Consequently, the graduated lines should not be subjected to prolonged immersion in acids or alkalies. Whenever the lines are wetted by reagents, they should be rinsed as soon as conveniently possible.

Safety Precautions. With many pieces of glassware, it is necessary or desirable to fill by suction when cleaning. Do not suck up acid or other cleaners by mouth. In fact, do not pipet by mouth at all. Use hand held, manual or electric pipetting aids.

Abrasives. Do not use abrasives on glassware, particularly volumetric ware. The surface will be marred in time, and the resultant scratches may prevent proper drainage or act as resting places for adulterants which will be difficult to remove.

Water for Rinsing. When preparing a piece of glassware for calibration, rinsing with tap water should be followed by a thorough rinsing with distilled water.

Sufficient material may be deposited on the surface by tap water to cause erratic results, particularly with small items, even though water wets the surface uniformly.

Even in ordinary cleaning processes, the use of de-ionized water is recommended.

Adherent Organic Residues. Never attempt to remove such residues by the application of steel files. Permanent strains may be introduced and, what is more important, the calibration of volumetric apparatus may be changed.

CLEANING METHODS

Care should be exercised when using most cleaning solutions as they can cause skin irritation or severe burns on contact. Dilute solutions become concentrated as the water evaporates; therefore, always flush the exposed area immediately with large quantities of water.

The list of methods given here is by no means complete, but offers a fairly wide variety and should cover all the usual contaminants, as well as the more important special cases.

Frequently it is desirable to give glassware a preliminary rinse or soak with organic solvent such as kylene, xylol or acetone to remove grease, followed by a water rinse. The rinsing with water must be done thoroughly if acid will be used later to clean the glassware.

Unless autoclaving is necessary, glassware should be cleaned as soon as possible after use to avoid setting and curing of residues. Pipets, for example, may be placed in a convenient jar containing a weak antiseptic solution, immediately after use. Autoclaving is necessary to disinfect glassware that may have been used to contain potentially dangerous biological fluids.

A selection of general cleaning methods follows:

1. Fill with sulfuric acid-dichromate mixture and let stand. After removal of mixture rinse with distilled water at least six times. To make the cleaning mixture dissolve 50-100 grams of sodium or potassium dichromate by heating in 20-50 ml. of water, cool and slowly add concentrated sulfuric acid to make one liter of solution.

Note: Due care should be exercised in handling acidic solutions.

2. Scrub with a 1 to 2% hot solution of a detergent. Rinse well after brushing. A number of commercial washing compounds are available for such use available.

3. An excellent cleaning agent is fuming sulfuric acid. Usually, cleaning can be accomplished by use of a comparatively small amount of acid, macerating the vessel so that the acid comes in contact with all of the surface and immediately emptying and rinsing.

To remove particular contaminants the following special treatments are suggested:

1. **Blackish Grease.** When a piece is badly contaminated with stopcock grease (except silicone grease), it may be necessary to fill with acetone once or twice before using one of the preceding methods. For silicone greases, the acetone can be omitted and the piece soaked for 30 minutes in fuming sulfuric acid. Warm dicalciumtetrachloride (fluorin) also has been suggested for silicone greases. In the case of the piece soak for 2 hours, drain and rinse once or twice with acetone.

2. **Potassium Permanganate Stains.** Use concentrated hydrochloric acid or a saturated solution of oxalic acid at room temperature. An acid solution of ferrous sulfate also has been suggested.

3. **Iron Stains.** Use hydrochloric acid solution in a strength of one part hydrochloric acid to one part water.

4. **Resistor's Solution.** Wash tubes with concentrated nitric acid and rinse well.

5. **Bacteriological Material.** Soak in 2 to 4% cresol, or a weak lysol solution. Autoclaving in steam also is recommended.

6. **Blood and Other Fluids.** Rinse as soon as possible with water. If badly contaminated, soak at room temperature in a weak solution of a detergent or the sulfuric acid-dichromate mixture.

7. **Aluminum Encrustations.** Pipette with such crusts in tube or stem may be washed by a number of solutions, such as nitric acid, hypochlorite solution or peroxal and 4% hydrochloric acid.

8. **Carbonaceous Materials.** Fill with permanganate solution and let stand. After removal of permanganate fill with a saturated solution of oxalic acid. Then rinse several times with hot distilled water. The permanganate solution is made by dissolving 50 grams of potassium permanganate and 50 grams of sodium hydroxide in 1 liter of water.

9. **Carbonaceous Materials.** Fill with a mixture of sulfuric and nitric acids and let stand. After removal of mixture rinse with distilled water. This method may not be used if the mixture will form dangerous compounds with any organic material present. The proportion of nitric acid needed depends on the cleaning job to be done, and may be as high as 52%. The mixture may be used cold or hot and sometimes the glass is boiled in the mixture. A fume hood is needed.

10. **CAUTIONS.** Some of the cleaning materials mentioned leave residues which must be rinsed off thoroughly. Waste such residues may not be harmful if the object of cleaning is to prepare the glassware for calibration; they can give trouble in certain laboratory operations. For example, manganese and chromium compounds even in extreme dilution may retard or inhibit growth of micro-organisms, and traces of phosphorus may interfere with delicate tests for this element. When glassware is to be calibrated, the final rinsings must be distilled water.

If an article is to be dried after cleaning, as is necessary for all vessels marked "To Calibrate", effort should be made to remove (American Chemical Society Specifications) may be used. Drying may be hastened by blowing clean, dry air into the vessel (or sucking the air through the vessel).

Exhaust air lines must be provided to remove any particles of oil or dirt from compressed air.



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Plasticware - properties

Kartell Plastics Properties

Biological properties of plastics

In general, we consider most of the plastics used in Kartell Labware to be biologically inert. For example LDPE, HDPE, PP, PMP (TPX), PC, PS, PTFE, FEP, and PFA have been shown to be non-toxic to cell cultures. Distilled water for preparing culture media is often collected and stored in polyethylene containers.

Polycarbonates (PC)

This is a special type of polyester in which dihydric phenols are joined through carbonate linkages (O-CO-O). These linkages are subject to chemical reaction with bases, concentrated acids, etc., and make PC soluble in various organic solvents. PC is window-clear, amazingly strong and rigid. It is autoclavable, non-toxic, and the toughest of all thermoplastics. PC maintains its resistance to impact in a wide range of temperatures and even under very severe environmental conditions. It withstands both low and high temperature from -50°C up to +130°C and has extremely good optical properties together with a high resistance to sunlight exposure (UV radiation).

Polypropylene (PP)

It is similar to polyethylene, but each unit of the chain has a methyl group attached. It is translucent, autoclavable, and has no known solvent at room temperature. It is slightly more susceptible to strong oxidizing agents than conventional polyethylene because of its many branches (methyl groups, in this case).

Polyethylene (PE)

The polymerisation of ethylene results in an essentially straight-chained, high molecular weight hydrocarbon. Branching (side chain formation) occurs to some extent and can be controlled.

Like other polyolefins, the polyethylenes are chemically inert. Strong oxidizing agents will eventually cause oxidation and embrittlement. They have no known solvent at room temperature. Aggressive solvents will cause softening or swelling, but these effects are normally reversible.

Low-density polyethylene (LDPE) has more extensive branching, resulting in a less compact molecular structure. High-density polyethylene (HDPE) has minimal branching, which makes it more rigid and less permeable than LDPE. Linear low-density polyethylene (LLDPE) combines the toughness of low-density polyethylene with the rigidity of high-density polyethylene.

Polymethylpentene (PMP or TPX)

It is similar to polypropylene, but it has an isobutyl group instead of a methyl group attached to each monomer group of the chain. Its chemical resistance is close to that of PP. It is more easily softened by some hydrocarbons and chlorinated solvents. PMP is slightly more susceptible than PP to attack by oxidizing agents. Its excellent transparency, rigidity, and resistance to chemicals and high temperatures make PMP a superior material for labware. PMP withstands repeated autoclaving, even at 150°C. It can withstand intermittent exposure to temperatures as high as 175°C. Products made of polymethylpentene are brittle at ambient temperature and may crack or break if dropped from benchtop height.

Polytetrafluoroethylene (PTFE)

PTFE is a high molecular weight polymer with the following fundamental characteristics: chemical resistance to all reagents and solvents, exceptional heat stability (nonflammable), superior self-lubrication and high impact characteristics, toughness and flexibility even at low temperatures. Since 1940 PTFE's have been extensively used in industry for gaskets, bearings, «O» rings etc. They can withstand temperatures from -270°C to +250°C (up to 300°C for short periods).

Polyvinyl Chloride (PVC)

It is similar in structure to polyethylene but each unit contains a chlorine atom. The chlorine atom renders it vulnerable to some solvents, but also makes it more resistant in many applications (PVC has extremely good resistance to oils and very low permeability to most gases). Polyvinyl chloride is transparent and has a slight bluish cast. When blended with phthalate esters plasticizers, PVC becomes soft and pliable, providing tubings of any dimension.

Tetrafluoroethylene - perfluoropropylene (FEP)

FEP is translucent, flexible and feels heavy because of its high density. It resists all known chemicals except molten alkali metals, elemental fluorine and fluorine precursors at elevated temperatures. It should not be used with concentrated perchloric acid. FEP withstands temperatures from -200°C to +205°C, and may be sterilised repeatedly by all known chemical and thermal methods. It can even be boiled in nitric acid.

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Abbreviations, Temperature and Chemical Resistance of Plastics

The table below lists commonly used abbreviations for plastics. This list covers plastics commonly employed in the manufacture of plastic laboratory ware.

DIN-Abbrev.	Chemical Designation	Tolerated Temperature Range in Normal Use	
		from	to
ABS	Acrylonitrile-butadiene-styrene copolymer	-40°C	+85 (100)°C
HDPE	High-density polyethylene	-50°C	+80 (120)°C
LDPE	Low-density polyethylene	-50°C	+75 (90)°C
PA	Polyamide (PA6)	-30°C	+80 (140)°C
PC	Polycarbonate	-100 °C	+135 (140)°C
PE	Polyethylene (cf. HDPE/LDPE)	-40°C	+80 (90)°C
PMP (TPX)	Polymethylpentene	0°C	+120 (180)°C ?
PMMA	Polymethylmethacrylate	-40°C	+85 (90)°C
POM	Polyoxymethylene	-40°C	+90 (110)°C
PP	Polypropylene	-10°C	+120 (140)°C ?
PS	Polystyrene	-10°C	+70 (80)°C
SAN	Styrene-acrylonitrile	-20°C	+85 (95)°C
SI	Silicone rubber	-50°C	+180 (250)°C
PVDF	Polyvinylidene fluoride	-40°C	+105 (150)°C
PTFE	Polytetrafluoroethylene	-200°C	+260°C
E-CTFE	Ethylene-chlorotrifluoroethylene	-76°C	+150 (170)°C
ETFE	Ethylene-tetrafluoroethylene	-100°C	+150 (180)°C
PFA	Perfluoroalkoxy	-200°C	+260°
FEP	Tetrafluoroethylene-perfluoropropylene	-200°C	+205°C
PVC	Polyvinylchloride	-20°C	+80°C

Temperatures appearing in parentheses: limits tolerated for intervals only

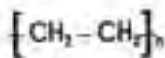
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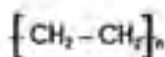
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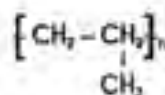
Polymeric Structure of Plastics

**Low Density Polyethylene (LDPE)**

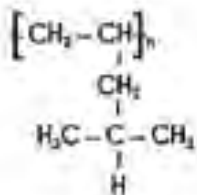
The first of the polyethylenes originally prepared some fifty years ago by the high pressure polymerisation of ethylene. Its comparatively low density arises from the presence of a small amount of branching in the chain (on about 2% of the carbon atoms). This gives a more open structure. LDPE is a most useful and widely used plastic. It is translucent to opaque, soft enough to be virtually unbreakable and at the same time quite flexible. Chemically LDPE is unreactive at room temperature although it is slowly attacked by strong oxidising agents and some solvents will cause softening or swelling. It may be used at temperatures up to 95°C for short periods and at 80°C continuously. LDPE is ideally suited for a wide range of laboratory apparatus including wash bottles, plastic washing equipment and tanks.

**High Density Polyethylene (HDPE)**

A linear polymer prepared from ethylene by a catalytic process. The absence of branching results in a more closely packed structure with a higher density and somewhat higher chemical resistance than LDPE. It is also somewhat harder and more opaque and it can withstand rather higher temperatures (120°C for short periods, 110°C continuously). It lends itself particularly well to blow-moulding, e.g. for bottles and containers.

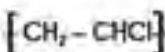
**Polypropylene (PP)**

A polymer prepared catalytically from propylene which differs from HDPE by having an isobutyl replacement of a hydrogen atom by a methyl group on alternate carbon atoms in the main chain. Although largely unreactive chemically the presence of the methyl groups makes it slightly more susceptible to attack by strong oxidising agents than HDPE. A major advantage is its higher temperature resistance. It may be used up to 140°C for short periods and 130°C continuously (i.e. it may be autoclaved). This makes it particularly suitable for items such as douche cans, trays and instrument jars that have to be sterilised frequently for use in a clinical environment. PP is a translucent material with excellent mechanical properties and it has gradually replaced the polyethylenes for many purposes.

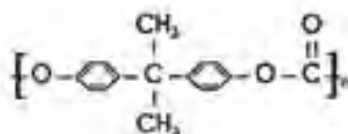
**Polymethylpentene (PMP or 'TPX' *)**

A polymer of 4-methylpentene-1 which is similar to PP but has an isobutyl group in place of the methyl group on alternate C atoms. The important qualities of PMP ('TPX') as a laboratory plastic are its high transparency, its rigidity and resistance to impact and its ability to withstand temperatures of up to 200°C for short periods (180°C continuously). It is particularly suitable for volumetric apparatus such as flasks, measuring cylinders and beakers. Like other polyolefins PMP ('TPX') is susceptible to attack by strong oxidising agents over a period of time and some chlorinated solvents (e.g. trichloroethylene) can cause some softening and swelling.

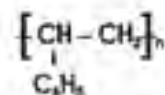
* 'TPX' is a trademark of Mitsui Petrochemicals Ltd.

**Polyvinylchloride (PVC)**

PVC has a linear structure similar to polyethylene but with a chlorine atom replacing a hydrogen atom on alternate carbon atoms. PVC itself is hard and rigid but the addition of plasticisers makes it soft and pliable and ideal for tubing. The material is generally transparent with a bluish tint. It is attacked by many organic solvents but it has a very good resistance to oils and it has a low permeability to gases. In its rigid form PVC is available in sheets which can readily be welded to produce tanks, trays and troughs. It is not recommended for use above 70°C although it can be taken to 80°C for short periods.

**Polycarbonate (PC)**

PC is a linear polycarbonic acid ester prepared from a dihydric phenol. It possesses extraordinarily good dimensional stability with a high impact strength which is maintained over a wide temperature range. This makes it ideal for the manufacture of laboratory safety shields, vacuum desiccators and centrifuge tubes. PC may be autoclaved (maximum continuous working temperature 130°C, and 140°C for short periods), but some loss in mechanical strength occurs on repeated autoclaving and the equipment should not then be used for vacuum applications. The carbonate linkages in the chain make the material subject to attack with a variety of concentrated acids and bases and it is soluble in various organic solvents.

**Polystyrene (PS)**

A hard, rigid, transparent plastic with good dimensional stability. The material has good chemical resistance to many aqueous solutions but it is soluble in many aromatics and halogenated solvents. It cannot be used at elevated temperatures (maximum 60°C continuous, 70°C for short periods) and it tends to suffer from mechanical stress. It finds a wide use in disposable laboratory products.

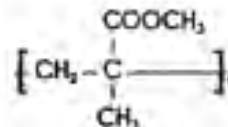
Polymeric Structure of Plastics

The chemical resistance to non-polar solvents and aromatics can be improved by co-polymerising styrene with acrylonitrile ($\text{CH}_2 = \text{CH}\cdot\text{CN}$). The resultant product SAN usually contains 25-35% of acrylonitrile by weight. SAN also has an improved impact strength and rigidity and is much used for injection moulded articles such as bottles, boxes and food containers.

An acrylonitrile - butadiene - styrene (ABS) graft copolymer is obtained by polymerising acrylonitrile and styrene in the presence of soluble polybutadiene ($[\text{CH}_2 - \text{CH} = \text{CH} - \text{CH}_2]_n$). The physical properties of the product may be varied by changing the individual proportions. The polymer has a higher chemical resistance than PS and it will retain its stability of shape up to 100°C.

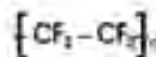
Polymethylmethacrylate (ACRYLIC)

A rigid plastic with a high degree of transparency, it is resistant to inorganic acids and alkalis but it is attacked by a wide range of organic solvents. Its clarity and stability make it very suitable for the manufacture of lenses and in sheet form it may be cemented to produce lenses, trays, etc. ACRYLIC may be used at temperatures up to 70°C continuously and to 90°C for short periods.



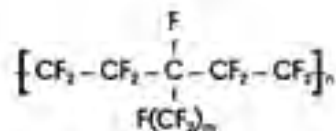
Polytetrafluoroethylene (PTFE)

PTFE shows a remarkable chemical resistance and it is insoluble in all known solvents. It is attacked only by molten alkali metals and by fluorine at high temperatures. PTFE is incombustible and may be used up to 260°C (300°C for short periods). Its coefficient of friction is extremely low and it shows the effect of self lubrication with constant mechanical properties which makes it particularly suitable for bearings, joints, O-rings, stirring bars etc. It may be shaped by compression and slitting into bottles and beakers where its chemical stability and non-wettability make it suitable for use in saline circumstances.



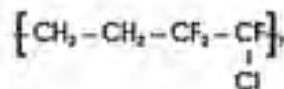
Perfluoroalkoxy PTFE (PFA)

PFA is a copolymer of tetrafluoroethylene ($\text{CF}_2 = \text{CF}_2$) with a perfluoroalkyl vinyl ether ($[\text{F}(\text{CF}_2)_n\text{CF}_2\text{O} - \text{CF}_2 = \text{CF}_2]$). The resultant polymer contains the carbon-fluorine backbone chain typical of PTFE with perfluoroalkoxy side chains. The mechanical, chemical and physical properties are fundamentally attributable to the main chain and the chief effect of the side chains is to control the crystallinity of the polymer. Unlike PTFE the new polymer does not require special fabricating techniques. It has outstanding chemical and solvent resistance over a temperature range even greater than PTFE (i.e. -270°C to +260°C). PFA has extremely low absorption and permeability levels even at 200°C which make it very suitable for trace element analysis, isotopic separations, sample digestions and the handling of sensitive biological solutions. The material is translucent but liquid levels can easily be seen. In sheet PFA approximates closely (and in some cases exceeds) the overall properties of PTFE while offering the flexibility of thermoplastic processing.



Ethylene-chlorotrifluoroethylene (E-CFTE)

This is a 1:1 co-polymer of ethylene and chlorotrifluoroethylene. It has excellent chemical resistance and boiling properties being resistant to mineral acids and alkalis, metal chlorides, liquid oxygen and most organic solvents (the major exceptions being aliphatic and aromatic amines at higher temperatures). As with other fluoropolymers E-CFTE is attacked by molten sodium and potassium. The material has a low permeability to water vapour and other gases as well as liquids. It is not wetted by water but oils readily spread. (Wettability by water can be greatly improved by etching with sodium based alkalis). E-CFTE may be employed at temperatures up to 170°C and it has a wide range of uses including containers (e.g. beakers and bottles), tubing (both unsupported and flexible), valve seatings, pumps, etc.



Synthetic rubbers and other O-ring and gasket materials

Synthetic rubbers are based chiefly on polymers and co-polymers of butadiene and its derivatives.

NEOPRENE

A polymer of chloroprene (2-chlorobutadiene) i.e. $\text{CH}_2 = \text{CH} - \text{CCl} = \text{CH}_2$. This material has a better oil resistance than natural rubber. The presence of chlorine deactivates the C-C bond and makes it less susceptible to oxidative attack as well as increasing its resistance to solvents. It has a higher temperature and fire resistance than natural rubber.

NITRILE RUBBER

A co-polymer of acrylonitrile ($\text{CH}_2 = \text{CHCN}$) and butadiene ($\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$). It has a good solvent resistance increasing with increasing acrylonitrile. Good for gaskets, oil and petrol hoses.

VITON A

A co-polymer of perfluoropropene ($\text{CF}_2\text{CF} = \text{CF}_2$) and vinylidene fluoride ($\text{CH}_2 = \text{CF}_2$). It is resistant to chemicals and solvents up to 200°C and is used for O-rings, gaskets and hose linings.

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Chemical Resistance of Plastics

- A** Excellent resistance – no attack
- B** Good resistance – minor attack
- C** Limited resistance – moderate attack, suitable for short term use only
- D** Poor resistance – attacked or dissolved, not recommended
- No information available

SPECIFIC REAGENTS

Reagent/ Temperature °C	LDPE		HDPE		PP		PMMA (TPX)		PVC		FC		PS		SAN		ABS		ACRYLIC		PIPE		PFA		E-CIFE	
	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50
Acetaldehyde	B	D	B	C	C	D	B	D	D	D	C	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Acetic Acid	A	B	A	A	A	B	B	B	A	B	B	C	C	D	D	C	D	D	D	D	A	A	A	A	A	A
Acetic Anhydride	C	D	B	C	B	C	B	B	D	D	D	D	D	D	—	—	—	—	D	D	A	A	A	A	A	A
Acetone	B	C	B	B	A	A	B	B	D	D	D	D	D	D	D	D	—	—	—	D	D	A	A	A	A	A
Acetyl Chloride	D	D	D	D	D	D	—	—	D	D	D	D	D	D	—	—	—	—	—	—	A	A	A	A	A	A
Ammonium Chloride (10%)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium Hydroxide (28%)	A	B	A	A	A	A	A	B	A	A	D	D	A	A	—	—	A	C	A	A	A	A	A	A	A	A
Amyl Acetate	D	D	A	B	B	C	D	D	D	D	D	D	D	D	D	D	—	—	D	D	A	A	A	A	A	A
Aniline	B	C	A	B	A	C	A	A	C	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Aqua Regia	B	D	B	D	B	D	C	A	D	C	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Benzaldehyde	B	D	B	D	B	D	A	B	D	D	C	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Benzene	C	D	B	B	B	C	B	C	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Benzoic Acid	A	A	A	A	A	A	A	—	—	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Boric Acid (10%)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Bromine Gas (Dry)	D	D	C	D	D	D	D	D	C	C	C	D	D	D	D	D	D	—	—	—	A	A	A	A	C	D
Bromine Water	D	D	C	D	D	D	D	D	C	C	C	D	D	D	D	D	—	—	—	—	A	A	A	A	C	D
Butyl Acetate	B	C	A	B	B	D	B	C	C	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Butyl Alcohol	A	A	A	A	A	A	A	B	A	B	B	C	B	B	—	—	C	D	D	D	A	A	A	A	A	A
Butyric Acid	C	D	A	B	A	B	C	D	B	D	D	D	C	D	D	D	D	D	D	D	A	A	A	A	A	A
Calcium Hydroxide (Satd)	A	A	A	A	A	A	A	A	A	A	D	D	B	B	A	A	A	B	C	D	A	A	A	A	A	A
Carbon Disulphide	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Carbon Tetrachloride	C	D	B	C	B	D	D	D	C	D	C	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Chlorine Gas (Dry)	D	D	C	D	C	D	B	D	B	B	A	B	D	D	D	D	B	B	B	C	A	A	A	A	A	A
Chlorine Water	D	D	D	D	B	C	C	D	D	B	C	A	C	D	D	D	D	B	B	C	D	A	A	A	A	A
Chloroform	D	D	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Citric Acid	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	A	A	A	A	A	A	A	A	A	A	A
m-Cresol	D	D	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Cyclohexane	B	C	A	B	C	D	D	D	B	D	A	A	D	D	D	D	B	B	D	D	A	A	A	A	—	—
Dibutyl-phthalate	B	C	A	C	A	B	C	D	D	D	D	D	D	D	D	D	D	D	C	C	A	A	A	A	A	A
p-Dichloro-benzene	C	D	B	C	C	D	C	D	C	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	—	—
Diethyl Ether	D	D	C	D	B	D	D	D	D	C	D	D	D	D	D	D	D	D	D	D	A	A	A	A	—	—
Diallylflone																										
Glycol	A	A	A	A	A	A	A	A	A	C	D	B	C	A	A	A	A	A	A	A	A	A	A	A	A	A
Dimethyl Formamide	A	A	A	A	A	A	A	A	A	C	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A
Dioxane	B	C	B	B	B	C	B	C	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A



Chemical Resistance of Plastics

Reagent/ Temperature °C	LDPE		HDPE		PP		PMP (TRX)		PVC		PG		PS		SAN		ABS		ACRYLIC		PIPE		PIA		N-CRY		
	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	20	50	
Ethyl Acetate	A	A	A	A	B	B	A	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A
Ethyl Alcohol	A	A	A	A	A	A	A	A	A	D	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A
Ethyl Chloride	C	D	C	C	C	C	D	D	D	D	D	D	D	D	-	-	-	-	D	D	D	A	A	A	A	A	
Ethylene Chloride	B	D	B	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	
Ethylene Dichloride	C	C	C	C	C	C	C	C	C	C	C	C	C	C	-	-	-	-	-	-	-	A	A	A	A	A	
Fluorine Gas (Dry)	D	D	D	D	D	D	-	-	D	D	C	-	-	-	-	-	-	-	-	-	-	A	A	A	A	B	
Formaldehyde (Formalin)	A	A	A	A	A	A	A	B	B	B	A	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	
Formic Acid	A	A	A	A	A	A	B	B	B	B	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	
Fuel Oil	C	D	B	B	A	B	C	A	A	A	B	D	D	C	-	-	-	-	D	D	D	A	A	A	A	A	
Glycerine (Glycerol)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Hexane	C	D	A	B	C	C	C	A	C	A	D	D	A	C	A	B	A	B	A	B	A	C	A	A	A	A	
Hydrobromic Acid (25%)	A	A	A	A	A	A	D	D	A	B	D	D	D	D	D	D	B	B	B	C	A	A	A	A	A	A	
Hydrochloric Acid (25%)	A	B	A	A	A	A	A	B	A	B	D	B	C	B	C	B	C	B	C	A	A	A	A	A	A	A	
Hydrofluoric Acid (35%)	A	A	A	A	A	A	A	B	C	D	C	C	C	C	C	D	B	C	A	A	A	A	A	A	A	A	
Nitrogen Peroxide (20%)	A	C	A	A	A	C	A	C	A	A	A	D	D	C	-	-	D	A	A	A	A	A	A	A	A	A	
Lactic Acid	A	A	A	A	A	A	A	B	B	D	C	D	C	D	D	D	D	D	D	D	D	A	A	A	A	A	
Methyl Acetate	-	-	A	A	A	A	-	-	D	D	-	D	D	C	A	D	D	D	D	D	D	A	A	A	A	A	
Methyl Alcohol	A	A	A	A	A	A	A	A	C	A	B	C	B	C	A	B	C	A	A	A	A	A	A	A	A	A	
Methyl Ethyl Ketone	B	C	B	B	B	C	B	C	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A	
Methylene Chloride	C	D	B	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A	
Mineral Oil	C	D	A	B	A	C	A	B	A	D	A	B	A	B	A	A	A	A	A	A	A	A	A	A	A	A	
Naphthalene	C	C	D	B	D	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Nitric Acid (20%)	C	A	D	A	C	D	A	A	A	D	A	C	D	D	D	D	D	D	D	D	D	A	A	A	A	A	
Nitric Acid (70%)	D	D	D	C	D	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	
Nitrobenzene	D	D	D	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A	
Oxalic Acid	A	A	A	A	A	A	A	A	B	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Perchloric Acid (50%)	A	B	A	D	B	D	B	D	B	C	D	D	D	D	-	-	D	A	A	A	A	A	A	A	A	A	
Petrol	C	D	B	B	B	C	B	C	B	C	B	C	D	D	B	C	B	C	A	A	A	A	A	A	A	A	
Petroleum Ether	C	D	C	D	B	C	B	C	B	C	C	D	D	-	-	-	-	-	-	-	A	A	A	A	A	A	
Phosphoric Acid (85%)	A	C	A	B	A	A	A	B	A	B	A	B	C	D	A	B	A	B	A	B	A	A	A	A	A	A	
Photographic Developer	A	A	A	A	A	A	-	-	A	A	A	A	A	A	C	D	-	-	-	-	A	A	A	A	A	A	
Photographic Fixer	A	A	A	A	A	A	-	-	A	A	-	-	A	A	C	D	-	-	-	-	A	A	A	A	A	A	
Potassium Hydroxide (50%)	A	A	A	A	A	A	A	A	A	A	D	B	A	B	A	B	B	B	D	A	A	A	A	A	A	A	
Potassium Permanganate (20%)	A	B	A	A	A	A	A	A	A	A	A	A	B	B	B	C	C	B	B	A	A	A	A	A	A	A	
Propylene Glycol	A	A	A	A	A	A	A	B	D	D	B	C	A	A	A	A	D	-	-	-	A	A	A	A	A	A	
Pyridine	A	A	A	A	A	A	-	-	D	D	D	B	C	D	A	D	D	-	-	-	A	A	A	A	A	A	
Salicylic Acid	A	A	A	A	A	A	A	A	A	A	A	A	B	C	B	B	A	A	A	A	A	A	A	A	A	A	
Silver Nitrate	B	C	A	B	A	B	C	D	A	B	A	A	A	B	A	B	-	-	A	A	A	A	A	A	A	A	
Sodium Hydroxide (50%)	A	A	A	A	A	A	A	A	A	A	D	B	B	B	A	A	A	D	D	A	A	A	A	A	A	A	
Sodium Hypochlorite (50%)	B	B	B	B	B	B	B	B	A	B	B	C	B	B	B	B	B	B	A	A	A	A	A	A	A	A	
Sodium Thiocyanate	A	A	A	A	A	A	-	-	A	A	A	A	B	C	A	C	-	-	-	-	A	A	A	A	A	A	
Sulphuric Acid (20%)	A	A	A	A	A	A	A	A	A	A	A	A	B	C	B	B	A	A	A	A	A	A	A	A	A	A	
Sulphuric Acid (30%)	C	D	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A	
Tetrahydrofuran	C	D	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A	
Tetrahydro-naphthalene	D	D	C	D	C	D	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	A	A	A	A	
Thionyl Chloride	D	D	D	D	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	A	A	A	A	
Toluene	C	D	D	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A	
Trichloro-ethylene	C	D	C	D	C	D	D	D	C	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A	
Turpentine	C	D	C	D	C	D	D	D	C	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A	
Vegetable Oil	B	C	B	C	A	C	B	D	B	C	A	D	B	D	B	D	B	D	D	D	A	A	A	A	A	A	
Xylene	C	D	C	D	C	D	D	D	C	D	D	D	D	D	D	D	D	D	D	D	A	A	A	A	A	A	

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Properties of Plastics

Properties of Plastics

CLASSES OF REAGENTS (20°C)

Reagent	LDPE	HDPE	PP	PMP (TPX)	PVC	PC	PS	SAH	ABS	ACRYLIC	PTFE	PFA	E-CTFE
Mineral acids (concentrated)	A	A	A	A	A/B	D	B	B	B	B	A	A	A
Oxidising acids	B	B	B	B	B	D	C	C	C	D	A	A	A
Organic acids	A	A	A	A	A	B	B	B	B	A/D	A	A	A
Alkalis													
Acid-concentrated	A	A	A	A	A	D	B	B	B	B	A	A	A
Alcohols	A	A	A	A	A	A/B	B	C	B	A/D	A	A	A
Aldehydes	N/C	N/C	C	B	C	C	D	D	D	D	A	A	A
Amines	C	B	A/B	A	C	D	D	D	D	D	A	A	A/C
Esters	A	A	B	B/C	D	D	D	D	D	D	A	A	A
Ethers	C	C	C	C/D	D	D	D	D	D	D	A	A	A
Nitrocompounds	B	B	A	B	D	C/D	D	D	D	D	A	A	A
Hydrocarbons (aliphatic)	C	B	B	C	B	C	C	B	B	B	A	A	A
Hydrocarbons (aromatic)	C	B	C	C/D	D	D	D	D	D	D	A	A	A
Hydrocarbons (halogenated)	C	B	C	C/D	D	D	D	D	D	D	A	A	A
OHs (mineral)	C	B	C	C/D	D	D	D	D	D	D	A	A	A
OHs (vegetable)	B	B	A	B	A/C	B	B	B	B	D	A	A	A

PHYSICAL PROPERTIES

	Clarity	Rigidity	Maximum Use Temp (°C)		Minimum Use Temp (°C)	Specific Gravity (g cm ⁻³)	Dielectric Constant (60 Hz)
			Short Period	Continuous			
LDPE	Translucent	Flexible	95	80	-50	0.92	2.25 - 2.35
HDPE	Translucent to Opaque	Fully rigid	120	110	-50	0.96	2.30 - 2.35
PP	Translucent	Fully rigid	140	130	0	0.90	2.2
PMP ("TPX")	Transparent	Fully rigid	200	180	-180	0.83	2.1
PVC	Transparent	Flexible or rigid	60	70	-25	1.35	5.0 - 6.0 (flex)
PC	Transparent	Rigid	140	130	-150	1.20	3.2 - 3.8 (rigid)
PS	Transparent	Fully rigid	70	60	-40	1.05	3.17
SAH	Transparent	Rigid	80	70	-40	1.06 - 1.08	2.49 - 2.56
ABS	Opaque	Rigid	90	80	-30	1.05	2.79 - 3.18
ACRYLIC	Transparent	Rigid	90	70	-60	1.18	2.9 - 3.2
PTFE	Opaque	Fully rigid	300	260	-200	2.13 - 2.20	3.3 - 4.5
PFA	Translucent	Flexible	265	260	-270	2.13 - 2.16	2.1
E-CTFE	Translucent	Fully rigid	170	150	-100	1.68	2.1

- ① Can be autoclaved at 120°C for 20 minutes
- ② Autoclaving reduces mechanical strength
- ③ All plastics are affected to some extent by ionising radiation - the effect increasing with increasing dose
- ④ Resistance increases with increasing styrene content.

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Properties of Plastics

GAS PERMEABILITY AND WATER TRANSMISSION.

	Permeability (mm cm ³ /cm ² sec (cm Hg) x 10 ⁻⁹)				Water Vapour Transmission Rate g.mol/100 m ² 24 hrs
	Water Vapour	N ₂	O ₂	CO ₂	
LDPE	800	20	89	260	1.0 - 1.5
HDPE	130	3.3	11	43	0.3 - 0.4
PP	880	4.4	23	92	0.25
PVC (rigid)	1580	0.4	1.2	10.2	0.9 - 5.1
PC	14000	3	16	85	-
PS	12000	3	21	93	2.0 - 10.0
E-CFPE	-	0.8	1.5	6.6	0.10

Approximate Gas Permeabilities (Room Temp.) and Water Vapour Transmission Rates (35°C).

	Volume Resistivity	Water Absorption (%)	Resistance to Ionising Radiation ^③	Stabilisation			
				Autoclave	Gas (ethylene oxide)	Dry (140°C)	Chemical (e.g. formalin)
LDPE	> 10 ¹⁴	0.01	Good	No	Yes	No	Yes
HDPE	> 10 ¹⁴	0.01	Good	Yes ^①	Yes	No	Yes
PP	> 10 ¹⁴	0.02	Fair, darkens	Yes	No	No	Yes
PMP (¹ TPK ¹)	> 10 ¹⁴	0.01	Fair, darkens	Yes	Yes	Yes	Yes
PVC	10 ¹³ - 10 ¹⁴ (flex)	0.2	Poor, darkens	No	Yes	No	Yes
PC	10 ¹³ - 10 ¹⁴ (rigid)	0.5	Good	Yes ^②	Yes	No	Yes
PS	2 x 10 ¹⁴ > 10 ¹⁴	0.1	Very Good	No	Yes	No	Yes
SAN							
ABS							
ACRYLIC	10 ¹³ - 10 ¹⁴	0.2	Fair ^④	No	Yes	No	Yes
	> 10 ¹⁴	0.7	Fair ^④	No	Yes	No	Yes
PIFE	> 10 ¹⁴	0.2	Poor, rigid deforming	No	Yes	No	Yes
PFA	10 ¹⁴	0.01	Poor	Yes	Yes	Yes	Yes
E-CFPE	> 10 ¹⁴	0.03	Poor	Yes	Yes	Yes	Yes
	> 10 ¹⁴	< 0.1	Good	Yes	Yes	Yes	Yes

① Can be autoclaved at 120°C for 20 minutes

② Autoclaving reduces mechanical strength

③ All plastics are affected to some extent by Ionising Radiation - the effect increasing with increasing dose

④ Resistance increases with increasing Styrene content

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Porcelain - Laboratory

Rowe Scientific can supply several ranges of laboratory porcelain, including:

Haldenwanger (German)

Excellent quality with a high resistance to thermal and chemical shock.

Jipo (European)

High quality with a high resistance to thermal and chemical shock.

Sail Brand (Chinese)

Inexpensive for use in those situations where rough handling would damage a crucible of any quality.

Note:

Porcelain has a temperature range from ambient to 1200°C

Physical Properties of some Haldenwanger Materials

	Dimension	Porcelain	Pythagoras	Alisiri	TZ	ABS 4
Approx. Al ₂ O ₃ content	%	40	60	99.7	40	45
Type acc. to DIN 40 685	—	110	810	710	—	—
Water absorption	%	0	0	0	19	16
Volumetric weight	g/cm ³	2.4	2.6	3.8	1.75	1.9
Bending strength	MPa/m ²	90-110	185	340	10	35
Hardness acc. to Mohs	—	7-8	8	9	—	—
Thermal expansion	mm °C (10 ⁻⁶) 20- 300° C 20- 700° C 20-1000° C	3.3 3.6 4.1	3.6 4.5 5.1	7.0 7.6 8.0	3.2 5.0 4.1	5.4 4.8 4.9
Thermal conductivity	20-100° C W/m · K	1.4	2.0	26.0	1.1	1.0
Heat resistance acc. to SK	SK °C	33 1730	36 1750	42 2050°C	—	—
Upper temperature limit in use	°C	unglazed 1400 glazed 1200	1600	1900	—	—
Spec. flow resistance	50 Hz Ω cm 20° C	10 ¹⁷	10 ¹⁷	10 ¹⁴	—	—

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Silicaware- Laboratory

We can supply two brands of high quality laboratory silicaware: **Vitreosil & Infusil**

THERMAL PROPERTIES		
Average co-efficient expansion 0° to 600°C		$5.5 \times 10^{-7}/^{\circ}\text{C}$
Thermal conductivity	Temp	Cal/cm ² Sec ⁻¹ °C ⁻¹
	20°C	30×10^{-4}
	100°C	38×10^{-4}
	250°C	41×10^{-4}
	500°C	50×10^{-4}
	800°C	57×10^{-4}
	1000°C	65×10^{-4}
Specific heat	Temp	Cal/g
	0	0.168
	100	0.200
	500	0.275
	1000	0.290
Softening temp.	1780°C	
Annealing temp.	1150°C	
Working temp.	1900°C to 2000°C	
Operating temp. (Continuous)	1050°C	
Operating temp. (Intermittent)	1350°C	
ELECTRICAL PROPERTIES		
Dielectric constant		3.70
Specific resistivity	Temp. °C	Sp. Resistivity ohm-cm (Of the order of)
	20	10^{18}
	200	10^{17}
	600	10^6
	1000	10^4
Electrical breakdown strength at 20°C 25-400KV-cm.		
PHYSICAL PROPERTIES:		
Density		2.2g/cm ³
Hardness		6-7 Mohs
Poisson's ratio		0.17
Young's Modulus		7.4×10^8 Kg/cm ²
Tensile strength		600 to 700 Kg/cm ²

VITREOSIL TRANSLUCENT VITREOUS SILICA		Reactions	
Chemical Purity		The temperatures shown are those at which reaction starts to occur.	
Typical values in parts per million (p.p.m.) by weight.			
Element or Radical	Content	Metal	Reaction
Aluminium	170	Ag	none
Antimony	<0.05	Al	800°C
Arsenic	<0.01	As	none
Boron	1.0	C	1000°C
Calcium	50	Ca	600°C
Chromium	<0.5	Ca	none
Copper	<0.4	Ca	800°C
Gold	<0.05	Hg	none
Iron	50	Li	250°C
Lithium	7	Mg	800°C
Manganese	0.1	Mo	none
Magnesium	15	Pb	none
Nickel	<0.5	P	none
Phosphorus	<0.05	Sn	none
Potassium	25	W	none
Silver	<0.05	Zn	none
Sodium	30		
Titanium	50		
Zirconium	35		
Hydroxyl	200		
		Gas	Reaction
		Cl ₂ , Br ₂ , I ₂ , F ₂	none
		H ₂ , H ₂ O, H ₂ SO ₄	reactivity
		NO ₂ , H ₂	none
		N ₂ , O ₂	none
			Acid
			H ₂ SO ₄
			HCl
			HF
			Organic acids
			Reaction
			Al ₂ O ₃ 1000°C
			BaO 900°C
			CaO 900°C
			CaO 800°C
			Fe (oxides) 900°C
			MgO 900°C
			PbO 800°C
			ZnO 900°C
			Basic oxides 800°C
			none
			reactivity
			200°C
			none
			Interactions on the reactions of VITREOSIL with other substances may be available and if so will be sent on request.

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Metric Units/Conversion Charts, Units of Length

METRIC UNITS

Prefix Name	Prefix Symbol	Equivalent	Units of Length	Units of Mass	Units of Capacity
kilo-	k	10 ³	kilometer (km)	kilogram (kg)	kiloliter (kl)
hecto-	h	10 ²	hectometer (hm)	hectogram (hg)	hectoliter (hl)
deci-	d	10 ⁻¹	decimeter (dm)	decigram (dg)	deciliter (dl)
centi-	c	10 ⁻²	centimeter (cm)	centigram (cg)	centiliter (cl)
milli-	m	10 ⁻³	millimeter (mm)	milligram (mg)	milliliter (ml)
micro-	μ	10 ⁻⁶	micrometer (μm)	microgram (μg)	microliter (μl)
nano-	n	10 ⁻⁹	nanometer (nm)	nanogram (ng)	nanoliter (nl)
pico-	p	10 ⁻¹²	picometer (pm)	picogram (pg)	picoliter (pl)

CONVERSION CHARTS

I. UNITS OF LENGTH

Kilometer km	Meter m	Decimeter dm	Centimeter cm	Millimeter mm	Micrometer μm	Nanometer nm	Angstrom Å	Picometer pm	Inch in.
1	10 ³	10 ⁴	10 ⁵	10 ⁶	10 ⁶	10 ⁹	10 ¹⁰	10 ¹²	39.37 × 10 ³
10 ⁻³	1	10	10 ²	10 ³	10 ³	10 ⁶	10 ⁷	10 ⁹	39.37
10 ⁻⁶	10 ⁻³	10 ⁻²	10	10 ²	10 ³	10 ⁶	10 ⁷	10 ⁹	39.37 × 10 ⁻³
10 ⁻⁹	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻³	10 ⁰	10 ¹	10 ³	39.37 × 10 ⁻⁶
10 ⁻¹²	10 ⁻⁹	10 ⁻⁸	10 ⁻⁷	10 ⁻⁶	10 ⁻⁶	10 ⁻³	10 ⁰	10 ³	39.37 × 10 ⁻⁹
10 ⁻¹⁵	10 ⁻¹²	10 ⁻¹¹	10 ⁻¹⁰	10 ⁻⁹	10 ⁻⁹	10 ⁻⁶	10 ⁻³	10 ⁰	39.37 × 10 ⁻¹²
10 ⁻¹⁸	10 ⁻¹⁵	10 ⁻¹⁴	10 ⁻¹³	10 ⁻¹²	10 ⁻¹²	10 ⁻⁹	10 ⁻⁶	10 ⁰	39.37 × 10 ⁻¹⁵
2.54 × 10 ⁻⁵	2.54 × 10 ⁻⁴	2.54 × 10 ⁻³	2.54	2.54 × 10	2.54 × 10 ⁴	2.54 × 10 ⁷	2.54 × 10 ⁸	2.54 × 10 ¹⁰	1

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Conversion Charts, Units of Mass and Capacity

2. UNITS OF MASS

Kilogram kg	Gram g	Decigram dg	Centigram cg	Milligram mg	Microgram µg	Nanogram ng	Picogram pg	Ounce (Av.) oz.	Pound (Av.) lb.
1	10 ³	10 ²	10 ¹	10 ⁰	10 ⁻¹	10 ⁻²	10 ⁻³	35.27	2.2
10 ⁻¹	1	10	10 ¹	10 ²	10 ³	10 ⁴	10 ⁵	35.27 × 10 ⁻¹	2.2 × 10 ⁻¹
10 ⁻²	10 ⁻¹	1	10	10 ¹	10 ²	10 ³	10 ⁴	35.27 × 10 ⁻²	2.2 × 10 ⁻²
10 ⁻³	10 ⁻²	10 ⁻¹	1	10	10 ¹	10 ²	10 ³	35.27 × 10 ⁻³	2.2 × 10 ⁻³
10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	1	10 ¹	10 ²	10 ³	35.27 × 10 ⁻⁴	2.2 × 10 ⁻⁴
10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	1	10 ¹	10 ²	35.27 × 10 ⁻⁵	2.2 × 10 ⁻⁵
10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	1	10 ¹	35.27 × 10 ⁻⁶	2.2 × 10 ⁻⁶
10 ⁻⁷	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	10 ¹	35.27 × 10 ⁻⁷	2.2 × 10 ⁻⁷
10 ⁻⁸	10 ⁻⁷	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	35.27 × 10 ⁻⁸	2.2 × 10 ⁻⁸
10 ⁻⁹	10 ⁻⁸	10 ⁻⁷	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	35.27 × 10 ⁻⁹	2.2 × 10 ⁻⁹
10 ⁻¹⁰	10 ⁻⁹	10 ⁻⁸	10 ⁻⁷	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	35.27 × 10 ⁻¹⁰	2.2 × 10 ⁻¹⁰
28.35 × 10 ⁻³	28.35	28.35 × 10	28.35 × 10 ²	28.35 × 10 ³	28.35 × 10 ⁴	28.35 × 10 ⁵	28.35 × 10 ⁶	1	0.0625
454	454	454 × 10	454 × 10 ²	454 × 10 ³	454 × 10 ⁴	454 × 10 ⁵	454 × 10 ⁶	16	1

3. UNITS OF CAPACITY

Kiloliter kl	Liter l	Deciliter dl	Centiliter cl	Milliliter ml	Microliter µl	Nanoliter nl	Picoliter pl	Ounce oz.	Quart qt.
1	10 ³	10 ²	10 ¹	10 ⁰	10 ⁻¹	10 ⁻²	10 ⁻³	33.81 × 10 ³	1.06 × 10 ⁴
10 ⁻¹	1	10	10 ¹	10 ²	10 ³	10 ⁴	10 ⁵	33.81	1.06
10 ⁻²	10 ⁻¹	1	10	10 ¹	10 ²	10 ³	10 ⁴	33.81 × 10 ⁻¹	1.06 × 10 ⁻¹
10 ⁻³	10 ⁻²	10 ⁻¹	1	10	10 ¹	10 ²	10 ³	33.81 × 10 ⁻²	1.06 × 10 ⁻²
10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	1	10 ¹	10 ²	10 ³	33.81 × 10 ⁻³	1.06 × 10 ⁻³
10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	1	10 ¹	10 ²	33.81 × 10 ⁻⁴	1.06 × 10 ⁻⁴
10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	1	10 ¹	33.81 × 10 ⁻⁵	1.06 × 10 ⁻⁵
10 ⁻⁷	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	10 ¹	33.81 × 10 ⁻⁶	1.06 × 10 ⁻⁶
10 ⁻⁸	10 ⁻⁷	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	33.81 × 10 ⁻⁷	1.06 × 10 ⁻⁷
10 ⁻⁹	10 ⁻⁸	10 ⁻⁷	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	33.81 × 10 ⁻⁸	1.06 × 10 ⁻⁸
10 ⁻¹⁰	10 ⁻⁹	10 ⁻⁸	10 ⁻⁷	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	33.81 × 10 ⁻⁹	1.06 × 10 ⁻⁹
29.57 × 10 ⁻³	29.57	29.57 × 10	29.57 × 10 ²	29.57 × 10 ³	29.57 × 10 ⁴	29.57 × 10 ⁵	29.57 × 10 ⁶	1	3.125 × 10 ⁻⁴
0.946 × 10 ⁻³	0.946	0.946 × 10	0.946 × 10 ²	0.946 × 10 ³	0.946 × 10 ⁴	0.946 × 10 ⁵	0.946 × 10 ⁶	32	1

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Greek Alphabet

GREEK ALPHABET (UPRIGHT AND SLOPING TYPES)

alpha	Α	α	Α	α	nu	Ν	ν	Ν	ν
beta	Β	β	Β	β	xi	Ξ	ξ	Ξ	ξ
gamma	Γ	γ	Γ	γ	omicron	Ο	ο	Ο	ο
delta	Δ	δ	Δ	δ	pi	Π	π	Π	π
epsilon	Ε	ε, ε	Ε	ε, ε	rho	Ρ	ρ	Ρ	ρ
zeta	Ζ	ζ	Ζ	ζ	sigma	Σ	σ	Σ	σ
eta	Η	η	Η	η	tau	Τ	τ	Τ	τ
theta	Θ	θ, θ	Θ	θ, θ	upsilon	Υ	υ	Υ	υ
iota	Ι	ι	Ι	ι	phi	Φ	φ, φ	Φ	φ, φ
kappa	Κ	κ, κ	Κ	κ, κ	chi	Χ	χ	Χ	χ
lambda	Λ	λ	Λ	λ	psi	Ψ	ψ	Ψ	ψ
mu	Μ	μ	Μ	μ	omega	Ω	ω	Ω	ω

Temperature Conversions

(Celsius-Fahrenheit)

$$^{\circ}\text{C} = 5/9 \times (^{\circ}\text{F} - 32)$$

$$^{\circ}\text{F} = (9/5 \times ^{\circ}\text{C}) + 32$$

Temp. °C	0	1	2	3	4	5	6	7	8	9
-10	14.0	12.2	10.4	8.6	6.8	5.0	3.2	1.4	-0.4	-2.2
-0	32.0	30.2	28.4	26.6	24.8	23.0	21.2	19.4	17.6	15.8
0	32.0	33.8	35.6	37.4	39.2	41.0	42.8	44.6	46.4	48.2
10	50.0	51.8	53.6	55.4	57.2	59.0	60.8	62.6	64.4	66.2
20	68.0	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2
30	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2
40	104.0	105.8	107.6	109.4	111.2	113.0	114.8	116.6	118.4	120.2
50	122.0	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2
60	140.0	141.8	143.6	145.4	147.2	149.0	150.8	152.6	154.4	156.2
70	158.0	159.8	161.6	163.4	165.2	167.0	168.8	170.6	172.4	174.2
80	176.0	177.8	179.6	181.4	183.2	185.0	186.8	188.6	190.4	192.2
90	194.0	195.8	197.6	199.4	201.2	203.0	204.8	206.6	208.4	210.2
100	212.0	213.8	215.6	217.4	219.2	221.0	222.8	224.6	226.4	228.2

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Boiling Points of Commonly Used Solvents

Name	Additional Names	Molecular Mass	Boiling Point* (°C)
Acetic acid	Ethanoic acid	60.05	118.5 ^{mm}
Acetoacetic acid	3-Oxobutanoic acid	102.09	<100 d)
Acetone	2-Propanone	58.08	56.2
Aniline	Aminobenzene	93.13	184.3 ^{mm}
Benzene		78.11	80.1
n-Butanol	1-Butanol	74.12	117.5 ^{mm}
Carbon disulfide		76.14	45 ^{mm}
Carbon tetrachloride	Tetrachloromethane	153.82	76.8 ^{mm}
Chloroform	Trichloromethane	119.38	61.2 ^{mm}
Ethanol	Ethyl alcohol	46.07	78.5
Ethyl acetate	Acetic acid ethyl ester	88.11	77.1 ^{mm}
Ethyl ether	Diethyl ether	74.12	34.6
Ethylene dichloride	1,2-Dichloroethane	98.96	84 ^{mm}
Heptane		100.21	98.4
Isamyl acetate	Acetic acid 3-methylbutyl ester	130.2	142
Isamyl alcohol	3-Methyl-1-butanol	88.15	131 ^{mm}
Isobutyl alcohol	2-Methyl-1-propanol	74.12	108.4
Isopropyl alcohol	2-Propanol	60.09	82.4
Methanol	Carbinol; Methyl alcohol	32.04	65.0 ^{mm}
Methyl isobutyl ketone	4-Methyl-2-propanone	100.16	116.9
Methylene chloride	Dichloromethane	84.93	40
Nitrobenzene		123.11	210.8 ^{mm}
Petroleum ether		Varies with fraction	Appr. 40 to 120 Varies with fraction
Pyridine		79.10	115.5
Toluene	Methylbenzene	92.13	110.6
p-Xylene	1,4-Dimethylbenzene	106.16	138
m-Xylene	1,3-Dimethylbenzene	106.16	139
o-Xylene	1,2-Dimethylbenzene	106.16	144

* Superscript indicates the barometric pressure at which the boiling point was measured. If no figure is given, the barometric pressure was measured at approximately 1 atmosphere.
) d = decomposes.

Primary and Secondary Standards

PRIMARY STANDARDS

Formula	Molecular Mass (also, g quantity needed for 1 liter of solution containing 1 mole)	Equivalent Mass (also, g quantity needed for 1 liter of solution containing 1 equivalent)
Sodium carbonate	Na ₂ CO ₃	105.989
Sodium oxalate	Na ₂ C ₂ O ₄	134.000
Sodium chloride	NaCl	58.443
Potassium iodate	KIO ₃	214.005
Potassium dichromate	K ₂ Cr ₂ O ₇	294.182
Potassium hydrogen phthalate	KHC ₈ H ₄ O ₄	204.229
Succinic acid	HOOC-(CH ₂) ₂ -COOH	118.090
Sodium tetraborate, decahydrate	Na ₂ B ₄ O ₇ ·10 H ₂ O	381.373
Tri(hydroxymethyl)aminomethane (Trommsdorff's, THAM, or Tris)	NH ₂ C(CH ₂) ₂ OH ₃	121.14

SECONDARY STANDARDS

Formula	Molecular Mass (also, g quantity needed for 1 liter of solution containing 1 mole)	Equivalent Mass (also, g quantity needed for 1 liter of solution containing 1 equivalent)
Oxalic acid	H ₂ C ₂ O ₄	90.033
Oxalic acid, dihydrate	H ₂ C ₂ O ₄ ·2 H ₂ O	126.067
Nitric acid	HNO ₃	63.013
Hydrochloric acid	HCl	36.461
Sulfuric acid	H ₂ SO ₄	98.077

* Calculated from specific gravity and assay of acid and available exact concentration by titration against primary standard.

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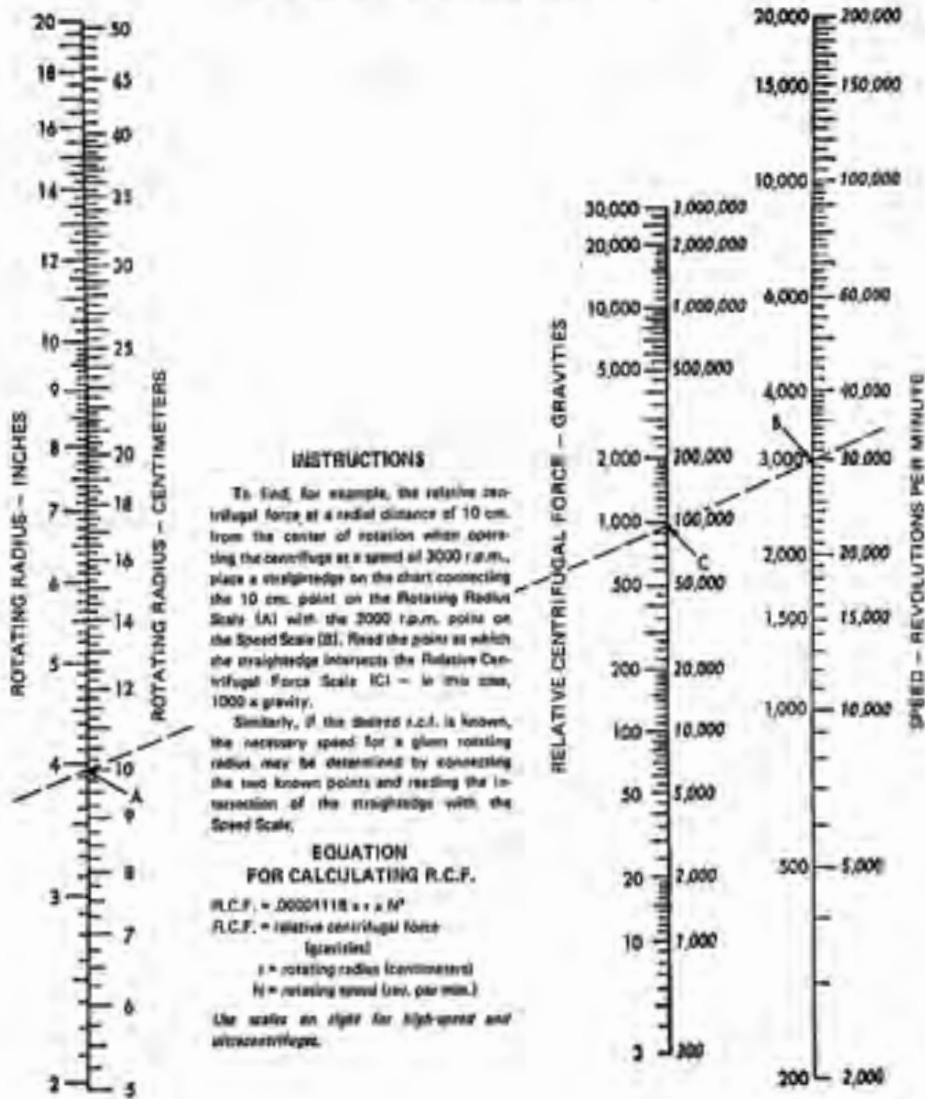


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Relative Centrifugal Force Nomograph

THE IEC RELATIVE CENTRIFUGAL FORCE NOMOGRAPH



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Gold Analysis

Measuring Gold

Systems of Weighing

There are three systems of weighing; Avoirdupois, Troy and Metric. Gold is weighed in Troy or metric units.

Troy Conversions

1 pound (lb) troy	=	12 ounces (oz) troy
1 ounce	=	480 grains
24 grains	=	1 pennyweight (dwt)
1 ounce	=	20 pennyweights

Metric Conversions

1 troy ounce	=	31.1035 grams
1 avoirdupois ounce	=	28.34954 grams
1000 grams (g)	=	1 kilogram (kg)
1000 Kg	=	1 tonne

Measuring gold in rock

The concentration (grade) of gold in rock is expressed as follows:

Grams per tonne (g/t), or parts per million (ppm);
 which means 1gm of gold in 1 tonne of rock, or 1 microgram of gold in 1 gram of rock.
 Therefore: 1 g/t = 1 ppm

Measuring gold in solution

The concentration of dissolved gold in solution is expressed as parts per million (ppm), which means:

1 milligram (mg) of gold dissolved in 1 litre of solution, or
 1 microgram (ug) of gold dissolved in 1 millilitre (mL) of solution.
 Therefore: 1 mg/litre = 1 ppm
 1 ug/mL = 1 ppm

Measuring gold in bullion

The purity of gold bars is usually expressed as "fineness" which means parts of gold per thousand parts of gold bar. (Note: percent means parts per 100).

Example: 1000 "fine" gold is pure gold
 A 900 fine bar is 90% gold and 10% other metals

Measuring gold in alloys

The purity of gold when it is alloyed with other metals is measured in "carats", which means parts of gold per 24 parts of alloy.

Example: 24 carat gold is pure gold (100% or 1000 fine). 12 carat gold jewellery is half gold and half other metals (usually copper), and would be 50% pure gold, or 500 fine.

NOTE: The word "carat" is also a measure of weight used for precious gems (e.g. diamonds).
 Where: 1 carat = 0.200 grams.

Typical Geochemical Atomic Absorption Parameters

TYPICAL GEOCHEMICAL ATOMIC ABSORPTION PARAMETERS

Element	High Ni	Low Ni	Cu	Co	Fe	Pb	Zn	Mg	Ca	Cr	Na	K	Au
Wavelength (nm)	352.4	232.0	324.8	240.7	372.0 248.3	217.0 283.3	213.9	202.5 285.2	422.7	357.8	589.6	769.9	242.8
Lamp Current (mA)	6	6	4	6	5	6	6	4	4	6	5	5	6
Slit (nm)	0.5	0.5	0.5	0.2	0.2	1.0	1.0	0.5	0.5	1.0	1.0	1.0	1.0
Background Correction	-	-	-	-	-	✓	-	-	-	-	-	-	✓
Beam	S	S	S	S	D	D	S	S	S	S	S	S	S
Sensitivity ABS 2ppm >	0.50	0.11	0.25	0.17	0.25	0.04	0.89			0.09			
Approximate Burner angle 20ppm =	0.143		0.300					0.295					
Oxidant/ Fuel	A/A	A/A	A/A	A/A	A/A	A/A	A/A	N/A	N/A	N/A	A/A	A/A	A/A
Fuel cond.	NORM	NORM	NORM	NORM	RICH	RICH	NORM	NORM	NORM	NORM	NORM	NORM	LEAN
Burner Height	ADJUST TO RETURN VALUE OF PULP STANDARD												

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Metallurgical Testing

Selection of Bond Work Indices

MATERIAL	WORK INDEX	MATERIAL	WORK INDEX
Barite	4.73	Granite	15.13
Bauxite	8.78	Graphite	43.56
Coal	13.00	Limestone	12.74
Dolomite	11.27	Mica	134.5
Emery	56.70	"Nickel Ore"	11.88
Ferro-silicon	10.01	Quartzite	9.58
Fluorspar	8.91	Quartz	13.57

Conversions from A.S.T.M. Mesh Numbers to Aperture Size

ASTM MESH NUMBER	APERTURE SIZE (MM)
3.5	5.6
4	4.75
5	4.00
6	3.35
7	2.80
8	2.36
9	2.00
10	1.70
12	1.40
14	1.18
16	1.00
20	850 microns
24	710
28	600
32	500

ASTM MESH NUMBER	APERTURE SIZE (MICRONS)
35	425
42	355
48	300
60	250
65	212
80	180
100	150
115	125
150	106
170	90
200	75
250	63
270	53
325	45
400	38

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1. DEFINITIONS AND INTERPRETATION

In the following Conditions of Sale

- a) "The Seller" means Rowe Scientific Pty Ltd (ABN 63 009 437 790).
- b) "The Buyer" means the Person, Company or Party purchasing the goods subject to these Conditions of Sale.
- c) "The Goods" means the goods and services.

2. TITLE OF GOODS

Title of Goods does not pass to the Buyer until all accounts or monies owing to the Seller have been paid in full.

3. PAYMENT TERMS

Payment Terms are Nett 30 Days. Any overdue amount in excess of 30 days may attract a rate of two and a half (2.5%) per centum interest per month on any balance owing to the Seller. The Seller reserves the right to withhold further supplies to the Buyer until any outstanding amount is paid in full. In the event that the Buyer is in default of payment terms the Buyer agrees that any expenditure or cost that the Seller has incurred in recovering the debt will be passed on to the buyer. No responsibility is accepted for incorrectly ordered goods.

4. RETURN OF GOODS

No returns are recognised unless made in writing within seven days. Delivery charges for return of goods will be at the Buyer's expense unless otherwise agreed upon in writing. Credit on returns is subject to goods being returned in the condition that they were originally supplied. No direct payment will be made for returns by the Seller to the buyer, however a credit in favour of the buyers account will be provided. Goods may not be cancelled from an order except by mutual consent in writing. A re-stocking fee may be imposed on the Buyer subject to the Sellers discretion.

5. CONTAINERS

Some goods supplied by the Seller may attract a container charge as determined by the Seller, Cost of containers may vary or change without notice and containers are considered as sold by the Seller to the buyer, however, credit on returned containers may be extended to the Buyer subject to condition 5a.

5a. RETURN OF CONTAINERS

Buyers may return containers to the Seller subject to the following:

Containers must be in reusable condition and must conform to Government and Statutory Regulations. Containers must not be used for any other purpose other than to contain the goods that are detailed on the label of the container. Any containers that have deteriorated or do not pass approved testing will not be credited. Credits to the Buyer will only be extended by the Seller on the basis of continuance of trade with the Seller. No direct payment will be made for returns by the Seller to the Buyer, however a credit in favour of the Buyers account will be provided.

6. PALLETS

Some goods are supplied by the Seller on Pallets. The Seller prefers that pallets are exchanged at point of delivery to the Buyer's store or transport company. Should exchange pallets not be available then the Seller reserves the right to apply a fee as determined by the Seller for the supply of pallets to the Buyer. The Seller shall be happy to accept pallet returns subject to returned pallets being in good and reusable condition. Credits to the Buyer will only be extended by the Seller on the basis of continuance of trade with the Seller. No direct payment will be made for returns by the Seller to the Buyer, however a credit in favour of the Buyer's account will be provided.

7. PRODUCT LIABILITY

The Seller will not accept any responsibility whatsoever for any consequential loss or damage arising from use or consumption of Goods sold by the Seller to the Buyer other than responsibility for the merchantable quality of the Goods and such responsibilities mandatorily imposed by Statutes applicable to the sale or supply of the relevant Goods to the extent allowed by such Statutes. The liability of the Seller is limited to the replacement of the product, or at the option of the Seller, the refund of the price paid by the Buyer conditional upon a claim being made in writing and where possible sufficient part of the product to enable proper examination being returned to the seller within 30 days of delivery.

8. DELIVERY AND HANDLING

All Goods sold by the Seller to the Buyer are sold on the basis that the Goods are available ex works for the Buyers collection unless otherwise arranged by prior written agreement between the Seller and Buyer for the goods to be delivered by the Seller to the Buyer or to the Buyers nominated delivery point. The Seller will apply a delivery fee to the Buyers account for Goods delivered and will also apply a fee if the Buyer requests the Seller to collect Goods for return to the Seller from the Buyer unless otherwise arranged by prior written agreement. The Seller will only accept responsibility for Goods lost or damaged in transit whilst in the care of the Seller and will not accept any responsibility whatsoever for Goods lost or damaged in transit by the Buyers nominated transport.

RESERVATION OF TITLE

1. Ownership of the goods contained in each delivery ("the goods") shall remain with the Seller which reserves the right to dispose of the goods until payment has been received in full or until such time as the Buyer sells the goods by way of bona fide sale at full market value.
2. Until payment in full for the goods has been received by the Seller the Buyer shall hold the goods as bailee for the Seller, provided however that the Buyer may, in the ordinary course of business, use any of the goods to make up other products or sell any of the goods to make up other products or sell any of the goods on condition that should the Seller so require the Buyer will assign to the Seller his rights in respect of the sale proceeds thereof.
3. In the event that the Buyer has any sequestration order made affecting his property or has any authority to a trustee under Section 88 of the Bankruptcy Act, or commits any act of bankruptcy or any petition for winding up, or is placed in receivership, or any official manager is appointed, or ceases to trade or carry on business in the usual manner, any amount then due by the Buyer to the Seller shall become immediately payable or the goods returned if so desired by the Seller.

These terms and conditions are provided as a summary only. Full terms and conditions are contained in our formal credit application.

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The purpose of Rowe Scientific Pty. Ltd. is to keep our clients supplied with the scientific items they need to do their work.

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For accuracy & professionalism