

EQUIP

Essential innovations from VWR

ISSUE 6 - JUNE 2008

vwr.com



Successful effective autoclaving
from Tuttinauer and Ebro

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Presenting performance and
excellent prices in brilliant
new colours, the new VWR
Collection benchtop centrifuges

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Bellingham + Stanley ADP410
polarimeter and RFM300+
refractometers

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VWR Exclusive...
the new IKA rotary
evaporator family

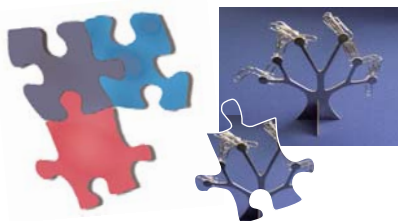
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*Are you registered for our e-newsletter?
Get all the latest news and offers go to
www.vwr.com*

Competition!

Do you like a puzzle?
Test yourself against the clock and
try your hand at our competition
on www.vwr.com
and you could win
a handy magnetic tree.



Simply put all the pieces of the
puzzle together to make our
special VWR equip picture -
the fastest 10 entries will win.

Once you have solved the puzzle
click on the send button and
fill in your name and email
address to be entered into
our prize draw.

Closing date for entries
31/10/2008

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Essential innovations from VWR

editorial

*Welcome to this June edition of equip reaching you, we hope, as summer
is truly beginning. This edition is packed with new products featuring
the latest innovations in the world of scientific instrumentation.
A bumper selection from our VWR Collection includes thermal cyclers
and gel documentation systems for Life Scientists, as well as the brand
new bench centrifuges with performances as funky as their colours!
The great value for money IKA rotary evaporators are exclusive to
VWR and provide a excellent alternative choice for chemists. Labconco
are welcomed into the VWR European portfolio with their first entry in
the equip magazine.*

*We hope you enjoy reading our latest selection – our celebration for
the coming of midsummer.*

Best Wishes

The VWR equip team

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State of the art for homogenising, mixing and milling

High quality equipment from KINEMATICA for sample preparation and applications in the lab

Benchtop Homogeniser - POLYTRON® PT 3100 D



The POLYTRON® PT 3100 D dispersing, homogenising and mixing system has been equipped with a complete new and intelligent control system to ensure user safety at both a constant speed level and when the load changes.

A new user interface with foil keyboard and LCD for displaying different process parameters has been incorporated. Three possible operation modes can be chosen for manual (Standard), semi-automatic (Time) and remote (Auto) work and the drive unit is delivered with a standard RS232 interface with software and cable, as well as a port for the connection of an optional temperature probe.

Working volume	0,1 - 4000 ml
Speed range	500 - 30 000 min ⁻¹
Ø mm dispersing aggregates	3, 5, 7, 12, 20, 30, 36
User-interface	Quick coupling type B / F
Power	LCD with foil keyboard
Supply	1200 W
Noise level (w/o load)	230/115 V, 50/60 Hz
Dimensions (LxWxH)	< 75 dB(A)
Weight (drive unit only)	240 x 130 x 265 mm
	3,8 kg

Software for control via PC and RS232 interface cable are included in the delivery. Optional PT100 temperature probe for temperature surveillance can be directly connected to the drive unit.

Great choice of dispersing aggregates, stands and accessories available

Hammer Mill and Blade Mill - POLYMIX® PX-MFC 90 D



The new POLYMIX® PX-MFC 90 D lab mill with interchangeable grinding attachments and sieves with mesh sizes from 0.2 to 6 mm is suitable for all dry mill applications in the lab. Thanks to the powerful drive unit with LED and high speed levels, dry and brittle substances like cereals, malt, pectin, raw & roasted coffee, beans, bones, fins (fish), gravel, stone, amber, mortar, etc. In addition dry and stringy or ductile substances like wood, roots, straw, cork, dried degreased meat, wool, cotton, leashes, paper, coal, turf, dried resins, synthetic materials, etc. can be processed.

Working volume (funnel)	Approx. 300 ml
Speed range	50 - 6 000 min ⁻¹
Ø mm sieves	0,2 - 6, interchangeable
User-interface	LED with speed knob
Power	1000 W
Supply	230/115 V, 50/60 Hz
Noise level (w/o load)	< 70 dB(A)
Dimensions (LxWxH)	251 x 325 x 480 mm
Weight (drive unit only)	12 kg

Lab mill available as hammer mill or blade mill. Grinding attachments are interchangeable.

Includes drive unit, milling chamber with grinding attachment, 2mm Ø sieve, collecting tubes, wooden stand for the tubes, tool set.

Safety Lab Mixer - MICROTRON® MB 550



The **MICROTRON®** MB 550 system is.... is specially designed for mixing, dispersing, homogenising, emulsifying and size reduction of materials.

The MB 550 is available with four different attachments for volumes of 125, 250, 500, 1000 ml. A safety system prevents uncontrolled starting and hence any personal injuries.

Working volume (attachments)	125, 250, 500, 1000 ml
Speed range	600 - 14 000 min ⁻¹
User-interface	Speed setting with 0-8
Power	550 W
Supply	230 V, 50 Hz
Dimensions (ØxH)	190 x 250 mm
Weight (drive unit only)	4,6 kg

Attachments and safety covers have to be ordered separately and are not supplied with the drive unit.



KINEMATICA.CH
Dispersing and Mixing Technology
Finest Swiss Made solutions

More...



Designed to perform

Tuttnauer has been designing and manufacturing a wide range of sterilisation equipment for medical, dental, pharmaceutical, biotechnology and laboratory applications from 7,5 to 17 000 litres for over 80 years.

The range of laboratory benchtop and vertical autoclaves includes models from 23 to 160 l for the sterilisation of:

- Liquids such as nutrient media and buffer solutions
- Solid items such as pipettes, tubes and filters
- Glassware and plastic articles
- Waste for disposal



Accessories

- Rapid cooling option
- Integrated vacuum system
- Air exhaust filtration (Bio Safety Level 2)
- Optional integratable printer
- Process documentation software
- Stainless steel wire baskets and containers and more...

Standard features of the Tuttnauer laboratory autoclaves:

- Microcomputer control system for highly reliable and safe operation
- 6 individual programmes
- Pressure, temperature, time and any faults registered on LCD or LC display
- Sterilisation temperature/time freely selectable, between 105 and 138 °C and 1–99 minutes respectively
- PT 100 temperature sensor in a reference vessel ensures set sterilisation temperature is actually reached during the cycle
- De mineralised water level – automatically regulated
- Exhaust steam – cooled down before leaving the autoclave
- Heat-resistant plastic covering on lid prevents operator contact with hot parts and protects from burning
- Temperature and pressure regulated – guaranteeing an absolutely safe sterilisation procedure
- Validation ports – for external temperature sensors
- Pre-prepared for fitting a printer
- RS232 interface

The safety aspects – prevention is key:

- Pressure-dependent door lock prevents the door from being opened when under pressure
- Temperature-dependent door lock works in conjunction with temperature control in a reference, to prevent the door from being opened until the temperature is below a specified level, thereby preventing delayed boiling (as specified by technical safety regulations, in compliance with European and International standards)
- Door lock safety switch prevents the sterilisation program from being started if the door has not been closed properly
- Water level safety device prevents the autoclave from being heated up if insufficient water is available for steam generation
- Overpressure valve releases over pressure to prevent high pressure explosion.



Routine checks and validation

The ebro® Starter Set EBI-AT-S is the right kit for routine checks and validation of steam sterilisers and washer disinfectors in the pharmaceutical market. According to the European Regulations EN 554 / EN ISO 17665 and EN ISO 15883.

Your advantage

- Routine checks and validation of steam sterilisers according to EN 554 / EN ISO 17665
- Routine checks and validation of washer disinfectors according to EN ISO 15883
- System conforms to FDA 21 CFR Part 11 conform
- Monitoring pressure and temperature inside the process



Technical Specification EBI 125-A-PT-AK-5-N

	Pressure	Temperature
Memory	9,000 readings	9,000 readings
Measuring range	0 bar to 4 bar / 0 psi to 58 psi (burst pressure 10 bar/145 psi)	-40 °C to +140 °C (-40 °F to +284 °F) (+140 °C / +284 °F up to 1h max.)
Accuracy	± 0,5% of measuring range	± 0,3 °C (± 0,5 °F)
Resolution	1 mbar (0,02 psi)	0,1 °C (0,2 °F)
Measuring probe	ceramic pressure sensor	Pt 1000

The Starter-Set contains:

- 1 x Pressure-Temperature Data Logger EBI 125-A-PT-AK-5-N incl. calibration certificate
- 1 x Silicone protection box EBI-SSB-BD
- 1 x Software Winlog.pharm
- 1 x Interface EBI-AE-S Version C
- User manual, transport case

The Validation-Set contains:

- 1 x Pressure-Temperature Data Logger EBI 125-A-PT-3
- 5 x Temperature Logger EBI 125-A-EM-500-F1,6-2K
- 1 x Silicone protection box EBI-SSB-BD
- 1 x Silicone protection box EBI-SSB-EM
- 1 x Software Winlog.pharm
- 1 x 8-port Interface EBI-AE-S8-1
- User manual, transport case

-ebro®
MEASUREMENTS FOR LIFE

Description	Type	Cat. No.
ebro® Starter-Set	EBI-AT-S	620-1374
ebro® Validation-Set	EBI-AT-V6	620-1376

VWR Collection Autoclavable Biohazard Bags, 0,02 mm

Ideal for processing of biohazardous materials, which require autoclaving prior to disposal. Available with or without temperature indicator. High-integrity polypropylene bag withstands 135°C maximum autoclave temperature. Twist-tie closure allows bag to expand and vent steam during cooling. Bag resists punctures, tears, and leaks, and meets the 165g dart drop standard performed as required by ASTM D1709-98. Available in clear or orange plastic, with a temperature indicator. Each bag imprinted with the universal biohazard symbol.

Bags with a temperature indicator have the words "Contents Have Been Autoclaved" printed in chemically active ink. Before autoclaving, the ink is white. After autoclaving is complete, it darkens, providing instant proof that biohazardous waste has been autoclaved.



Dimensions, W x H cm	Pk.	Cat. No.
Clear		
30,5 x 61	200	129-0028
61 x 91,4	200	129-0029
Orange with temperature indicator		
35,6 x 48,3	200	129-0024
48,3 x 61	200	129-0025
63,5 x 88,9	200	129-0026
91,4 x 114,3	100	129-0027

VWR



Freeze drying and concentrating solutions from Labconco



FreeZone® 2,5 litre Freeze Dry Systems

These compact lyophilisers are designed to handle light sample loads. Freeze drying removes the moisture from samples while preserving their biological and chemical structure and activity. Freeze dried samples do not need refrigeration and can be stored at ambient temperatures.

Features and Benefits

- 2,5 litre collector capacity
- Refrigeration system cools collector to -50 °C for aqueous samples. Cascade models have two refrigeration systems that reach -84 °C for low eutectic point samples
- Vacuum monitor in mBar, Pa or Torr
- Temperature monitor in °C or °F
- Vacuum control valve maintains set point vacuum level and bleeds system after freeze drying is complete
- Available in benchtop and console models
- Drying chamber, glassware and vacuum pump are sold separately
- Labconco offers a full line of FreeZone Freeze Dry Systems and accessories including freeze dryers with collector sizes from 1 to 18 litres, FreeZone Triad Systems with built-in stoppering tray dryer, and a variety of drying chambers and freeze drying glassware.



Refrigerated CentriVap® Vacuum Concentrators

These vacuum concentrators are designed to rapidly concentrate multiple heat-sensitive samples, such as RNA and proteins. Centrifugal force combines with vacuum and controlled temperature to achieve fast results

Features and Benefits

- Microprocessor-controlled cooling and heating (from -4 to +100 °C in one degree increments) speed evaporation while protecting heat-sensitive samples
- Microprocessor-controlled centrifugal motion eliminates bumping and foaming and maximises recovery of trace solutes
- Memory stores 9 user-set programs
- Large chamber accommodates a variety of rotors that hold up to 132 small samples (rotor sold separately)
- Available with acrylic or glass lid
- Cold trap, vacuum pump and rotor are sold separately
- Labconco offers a full line of CentriVap Vacuum Concentrators including Acid-Resistant CentriVap Concentrators and floor-mounted CentriVap Mobile Systems



New rotary vane Pumps XS

Application

VACUUBRAND rotary vane pumps XS are used in any application where vacuum levels from a few millibar down to 10^{-3} mbar have to be achieved reliably. VACUUBRAND rotary vane pumps are compact one- or two-stage oil-sealed rotary vane pumps, with integrated oil pump and gas ballast for high vapour tolerance. Their exceptionally high performance and flexible accessories can be used for a wide range of applications in laboratories and factories. One important application is freeze drying and the RZ 6 is the ideal pump to combine with a freeze dryer to get outstanding results.

Advantages

- High conductance coefficient: high pumping speed, even at low vacuum levels
- High vapour tolerance for water and solvents due to large gas ballast quantities of up to 10% of the pumping capacity
- Excellent ultimate vacuum even with gas ballast
- Anti-corrosion protection on shutdown due to vacuum-tight oil circuit, to prevent corrosive gases or oil contamination from entering the pump module
- New oil circuit and large oil volume for longer service intervals
- Compact design: very small dimensions, light weight and easy maintenance due to telescopic design

Package ready for use with your freeze dryer

2 stage pump RZ 6 with oil mist filter and VS 16 butterfly valve

VACUUBRAND's new rotary vane one and two stage rotary vane pumps XS keep all of their performance and reliability...



...but are now also...

- Extra easy to maintain
- Extra quiet
- Extra energy efficient
- Extra light

Model	Max. pump capacity 50/60 Hz m ³ /h // cFm	Ultimate vacuum (total) without gas ballast mbar//Torr	Ultimate vacuum (total) with gas ballast mbar//Torr
RZ 6	5,7 / 6,8 // 4	2 x 10 ⁻³ // 1,5 x 10 ⁻³	1 x 10 ⁻² // 1 x 0,75 ⁻²

Description	Plug version	Cat. No.
2 Stage pump RZ 6	EU	181-1126
2 Stage pump RZ 6	CH	181-0152
2 Stage pump RZ 6	UK	181-0153



Whisper quiet high speed performance

The VWR collection proudly presents the new range of bench top and micro centrifuges with colour, styling, and most importantly the performance and price that are sure to grab the attention.

The CT6E/CT6EL are some of the most environmentally friendly centrifuges around with energy saving operation. It's very easy to use, quickly reaches maximum speed of 6000 rpm and can be programmed for routine operations. There's no doubt that this model will become one of the great laboratory workhorses from the moment that you take it out of the box.



Model	CT6E	CT6EL
Drive motor	Brushless DC motor (inverter control)	
Max. speed (rpm)	6000 (angle rotor)	
Speed control range (rpm)	300 to 6000 rpm (in increments of 100 rpm)	
Max. RCF (g)	4770 (angle rotor)	
Max. capacity	1000 ml (4x250 ml) (T5SS swing rotor)	2000 ml (4x500 ml) (T3S6 swing rotor)
Output (W)	600	
Power requirements	Single phase, AC 220/240 V 50/60 Hz 10 A	
Timer	1-99 minutes (in increments of 1 minute) with a HOLD function (continuous operation)	
Programs	5 programmed operations possible (speed, run time, acceleration/deceleration settings and rotor stop signal)	
Rotor stop signal	Selectable from 5 melodies, a beep tone and mute setting	
Acceleration / braking time (s)	2 stage variable acceleration, 2 stage braked deceleration and coasting deceleration	
Colour	Sherbet silver	Mint blue
W x D x H (mm)	440 x 595 x 330	540 x 720 x 330
Weight (kg)	45	55



For typical life science applications especially in areas where biosafety is critical, the VWR Collection presents the CT15 microcentrifuge (CT15RE - refrigerated model). These are the **fastest** instruments on the market (21 500 x g) with the **highest capacity** (24 x 1,5 / 2,0 ml and 0,5 ml and the **lowest noise level** (<50dB (A)). All this plus safety features such as door interlock, dual overspeed detector, imbalance detector, abnormal motor temperature detector and automatic door closure system. Overall a compact unit that is easy to use, has a small footprint and a selection of auto-clavable rotors for extra biological protection for PCR tubes and PCR strips.

Model	CT15 E	CT15 RE
Drive motor	Brushless DC motor (inverter control)	
Max. speed (rpm)	15 000	
Max. RCF (g)	21 500	
Max. capacity	24 x 1,5 / 2,0 ml and 24 x 0,5 ml (when using T15A62 angle rotor)	
Output (W)	300	500
Power requirements	AC 220/240 V $\pm 10\%$ - 50/60 Hz 10 A	AC 220/230 V $\pm 10\%$ - 50 Hz 10
Timer	1-99 minutes (in increments of 1 minute) with a HOLD function (continuous operation)	
Programs	SPEED/RCF, TIME, TEMP (CT15RE only), ACCEL, DECEL and stop melody	
Memory	Up to 3 sets of operating parameters can be stored	
Temperature (°C)		-20...+40
Acceleration / braking time (s)	2 stage variable acceleration, 2 stage braked deceleration plus free deceleration	
W x D x H (mm)	240 x 320 x 250	290 x 520 x 300
Weight (kg)	17	40

Ultrapure and pure water the easy way



For analytical applications, the specifications of instruments, as well as the purity of reagents and media, are constantly on the rise. The role of water as a reagent is a key factor when it comes to ensuring the results and reproducibility of an analytical method. Easy to produce and handle, purified water should be free of ionic and organic contaminants. Therefore, most laboratories use ultrapure water systems or bottled water; however, these solutions vary greatly in their suitability for analytical analysis, as important differences in quality can be observed.

Direct-Q® 3 UV system

The easy-to-use Direct-Q 3 UV system is designed to simplify life for small volume users who require from 2 - 10 l of ultrapure (Type I) water per day. Incorporating reverse osmosis, deionisation, UV and sterile filtration technologies, the system guarantees the production of high-quality ultrapure water directly from tap water. The system also produces pure (Type III) water, which is stored in an integrated reservoir and can be used in basic applications. For ease of use, the main purification technologies are contained in an innovative all-in-one pack. The pack's plug-and-use design means that is ready for use in just a couple of minutes. The system's colour graphic display enables users to see the product quality parameters and system status at a glance.



A superior alternative to bottled water

As tap water cannot be used directly for analytical applications because of its high concentrations of ionic and organic contaminants, bottled water or freshly produced ultrapure water from a system such as the Direct-Q 3 UV system is generally used. Organic contamination expressed as TOC (Total Oxidisable Carbon), typically varies from 500-800 ppb in feed (tap) water, depending on local conditions. Following the Direct-Q 3 UV system's first purification step (reverse osmosis), 98 % of the organic contaminants are removed. The TOC concentration of the permeate (Type III) water in the internal reservoir is typically between 10 - 20 ppb. In the next step, the ion-exchange resins and the UV lamp reduce this level to a value of < 5 ppb measured at the Direct-Q 3 UV system's outlet.

Bottled water often shows a higher TOC value, which in addition, increases each time water is poured from the bottle. This is mainly due to the absorption of airborne organic contaminants. Ultrapure water purification systems always produce fresh ultrapure water on demand, avoiding this problem.

The easy to use Direct-Q 3 UV water purification system guarantees the production of high-quality ultrapure water, and is ideal for critical applications in trace TOC analysis (TOC < 5 ppb) as well as in standard analysis (TOC < 30 ppb). Hence, it is a better alternative to bottled water for users needing up to ten litres per day.

References and literature:

Kleefisch G., Weber C.; Pharm. Ind. 69, No. 6, 735-738 (2007)
Direct-Q 3 system User Manual,
Millipore Corporation

Direct-Q 3 UV - specifications for Type I product water

Resistivity	18,2 Ohm.cm @ 25 °C
TOC	< 5 ppb
Particulates	< 1 particulate/ml
Pyrogens	< 0,01 Eu/ml with Biopak™ ultrafilter
Flow rate	> 0,5 l/min



Make your own Hydrogen and Nitrogen...

Gas generators have been used for many years in industrial applications but more recently have found applications in chromatographic and other laboratory techniques.

Main applications for gas generators

HYDROGEN

- Carrier gas in capillary gas chromatography (GC) leads to shorter analysis times and higher sensitivities
- GC detector fuel gas for e.g. FID, NPD, ECD, FPD
- Reactor gas
- Combustion/plasma chambers

NITROGEN

- For LC MS
- Carrier gas in gas chromatography (GC)
- "Blanket gas" wherever an oxygen free atmosphere is required

The advantages are clear

Producing your own gases is cheaper than buying in and you don't have to bear the extra costs of storage and transport as you can make what you want when you want it. There is no potentially dangerous handling of gases under high pressure and on-line generation means that the flow of clean gas is uninterrupted because there is no potential of the contamination you can sometimes get when changing gas bottles.

Gas generators can be placed next to instruments like LCMS or GC because they do not contain hazardous quantities of high pressure gas. A hydrogen gas generator for example has an internal volume of <40 ml of hydrogen. This makes gas generators very safe and easy to handle.

Schmidlin/VWR are pleased to announce a new range of generators.



N₂ NM-H₂-Generator

Hydrogen – made directly in the laboratory

The NM range produces a continuous flow of clean hydrogen with a purity of >99,9999% up to 10,5 bar and with flow rates between 100 ml min⁻¹ and 1000 ml min⁻¹. No aggressive chemicals are needed – just distilled water and the exclusive "no maintenance" auto-drying technology ensures long uninterrupted operation since there is no need to replace drying cartridges.

N₂ MISTRAL-LCMS

Nitrogen – made directly in the laboratory

The Mistral-LCMS is designed to meet or exceed the nitrogen requirements of all types of LCMS systems. The proven hollow fibre membrane technology combined with a sophisticated dual compressor and fibre management system, guarantees smooth operation for over 8000 hours. This bench-space unit which fits easily underneath a laboratory desk produces nitrogen with a purity of >98% at a flow rate of up to 35 litres/min and a pressure of 8 bar.

N₂ MISTRAL-0

Nitrogen – made directly in the laboratory

For labs with an existing central compressed air supply, there is the MISTRAL-0 that works pneumatically and does not require power. Simply connect to the compressed air supply line and depending on the inlet pressure, nitrogen with 5 – 11 bar and a purity of >98% can be produced. Flow rates are between 25 and 60 litres/min depending on the model.

Models for other applications are available.

Please contact your local VWR sales office

The VWR Collection introduces a complete range of gel documentation systems



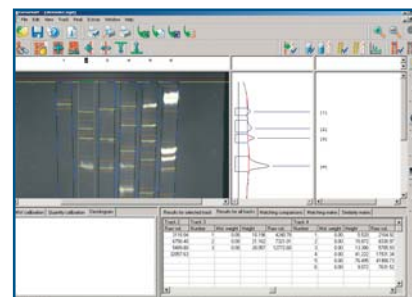
This broad, complete range provides a solution to every need:

GenoPlex and GenoPlex Chemi

The GENOPLEX systems are available in a range of standard configurations for all fluorescence and chemiluminescence applications. You can choose from models featuring the very latest high-resolution CCD cameras for use in general gel documentation or the more advanced specification units for chemiluminescence work. Motor driven lenses are standard to both systems and you get the choice of selecting either manual or computer driven filter selectors and a range of lighting options for both reflected and transmitted light applications. The camera / lenses, lighting and darkroom functions are computer controlled.

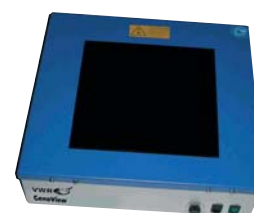
Features:

- Cost-effective, quality digital imaging
- High resolution camera
- Flexibility to add hardware and software
- Innovative mini-darkroom option
- Programmable and reproducible capture settings
- Real-time imaging using your PC or Mac



The GenoMini offers reproducible, high-resolution digital images for gel documentation. GenoMini is ideal if you have a limited budget because you can purchase the basic system and then add a UV transilluminator, white light table or conversion screen, safety hood, mini darkroom and printer, as well as GenoSoft analysis software.

Special introductory prices on the GenoSmart model in the VWRbioMarkeshop valid until July 30th



GenoSmart

The new GenoSmart gel documentation system from VWR makes analysis and documentation of your DNA and protein gels very easy. By simply transferring the data on to a USB stick you can work with your images on a separate PC without blocking the gel documentation system for other users. Also supplied with versatile GenoSoft analysis software.

Features:

- Real-time images from 8-bit CCD camera, (768 x 582 pixel resolution)
- Self-contained, microprocessor controlled darkroom
- Integrated colour LCD screen for image viewing
- White Epi-light
- Instant on-screen saturation detection
- Rapid photographic print production
- Transilluminator (optional)
- White light converter (optional)

The GenoSmart darkroom allows you to use many bench top UV transilluminators – even one you might currently have in your laboratory. The system is compatible with most commonly used electrophoresis gel stains and by using a white or blue light converter you can also capture images from other applications such as petri dishes, cells in flasks, autoradiographs, membranes, spot and slot blots of DNA, RNA or protein, TLC plates and more.

Size (cm)	Wavelength (nm)	Cat. No.
20 x 20	312	730-3004
20 x 30	312	730-3005
25 x 30	312	730-3006
20 x 20	365	730-3008
20 x 30	365	730-3009
25 x 30	365	730-3010

Description	Cat. No.
Gel documentation system GenoSmart. Digital video system with integral LCD monitor. Fits any benchtop transilluminator (not supplied).	730-3000

The next generation in thermal cycling technology

The VWR Collection thermal cyclers are easy to use, intuitive yet incredibly powerful. The vital elements of temperature uniformity and accuracy are met time after time, cycle after cycle. The UnoCycler is the ideal choice for users who require superb thermal performance in a single headed unit. While for higher throughput requirements, the Duo and QuattroCycler, have two or four fully independent thermal bays respectively.



Colour touch-screen display

The software interface for all programming and running of the cyclers is controlled by a bright, easy to view TFT full colour VGA, touch-screen monitor display. Users have the choice of control, either by screen, stylus or optional USB mouse.

Easy to use, intuitive, yet powerful and flexible

Simple drag and drop commands, with easy to recognise icons make programming a simple and effective process. The program wizard function uses primer sequences or melting temperatures (TM's) to create a fully optimised program for your reactions using inbuilt primer algorithms. All cycler's feature gradient functionality on all plate and tube format blocks (96 & 384).

Fast blocks

Choose between standard and fast blocks:

- Ramp rate of up to 3 °Cs⁻¹ with standard blocks
- Ramp rate of up to 6 °Cs⁻¹ with fast blocks
- Increased productivity and faster protocols

Fast blocks are made from solid silver with a gold finish by an electroplating process that reduces the thermal mass of the block. All of the blocks can be interchanged and swapped within seconds.



Multiple sensor technology

Each thermal block has 4 independent temperature control sensors and 8 peltier heating units that ensure accurate heating and cooling control and unsurpassed uniformity across the block surface; factors that are vital to superb thermal cycling performance. All cyclers contain the Active Sample Cooling (ASC) function that cools your sample until the heated lid reaches its target temperature. This feature reduces non-specific primer binding and extension.

Automated power lids Duo and QuattroCycler

As a standard feature, these cyclers have fully independent and automated, heated power lids. If your application is within a standard lab or if you are looking to integrate into robotics, they are the perfect choice. Automated power lids provide uniform pressure to plates and tubes every time, ensuring reproducibility of factors within experiments.

Quality assured

- NIST/UKAS traceable calibration procedures
- Password control – allows access to various reports
- Administrator, user and guest levels enable programs to be written, edited, protected and run according to status
- Power failure options – continue or halt
- Barcode reading option
- Encrypted GLP documentation produced with every program run

Description	Cat. No.
UnoCycler Thermal Cycler chassis, (requires 1 block to be ordered separately, 96 or 384 format)	732-1200
DuoCycler Thermal Cycler chassis, (requires 2 blocks to be ordered separately, 96 or 384 format)	732-1201
QuattroCycler Thermal Cycler chassis, (requires 4 blocks to be ordered separately, 96 or 384 format)	732-1202
96 well gradient block	732-1203
384 well gradient block	732-1204
96 well fast gradient block	732-1205
384 well fast gradient block	732-1206
in-situ block	732-1207

Low cost automatic polarimeter for industrial applications



- Dual scale
- Simple operation
- Temperature sensor
- LED/Interference filter (589,3nm)

The ADP410 digital polarimeter is ideally suited for use in applications that do not require the highest level of accuracy or demand stringent data control such as that offered on some of the higher priced polarimeters on the market. Offering dual scales with temperature correction, the ADP410 is ideal for use in the sugar, confectionery, chemical and in some instances, the pharmaceutical industry. The ADP410 is also used extensively in academia.

Operation is very simple by way of four graphically identified push buttons including scale and compensation selection, zero calibration and the displaying of optical density (OD) and temperature. Results are shown on a bright LED display and may be printed via an RS232 interface. A service menu provides access to span calibration, where quartz compensation may be used when using quartz control plates.

Unlike some other polarimeters on the market that only take one single reading of the sample, the ADP410 continually measures and displays the optical rotation, offering the user a high level of confidence in the measurement being made.

Description	Angular (°A)	ISS (°Z)
Range	-90 to +90	-225 to +225
Resolution	0,01	0,01
Accuracy	±0,02	±0,05



RFM300+ Refractometers with Peltier temperature control for industrial applications



- Multiple language on-screen menu
- RI, °Brix and user scales
- Rapid temperature stabilisation by Peltier device
- Automatic READ when sample presser placed on prism
- Rapid configuration of instrument by METHODS system
- Reading offset method
- Citric acid correction method
- 700 stored readings
- PIN protection & GLP printout.

For Over 15-years, the RFM340 refractometer has become the bench-mark in refractive index and °Brix measurement within the industrial manufacturing sector. In 2007, Bellingham + Stanley Ltd. launched replacement models that surpass the operational features of the earlier instruments, whilst retaining the simple to use philosophy and factory friendly construction.

The new models have a number of additional benefits that enhance the world leading marque. The sample is presented to the artificial sapphire prism housed in a very flat, easy to clean dish. Replacing the presser instigates the reading whilst the Peltier temperature control with an intelligent thermal management system ensures that the result is only given when both the temperature and sample are stable. The results are shown on the display and may be printed, sent to LIMS and/or up to 700 may be stored within the instrument memory for later extraction.

The METHODS system allows rapid configuration of measurement parameters; typically only two button presses are required to change scale, compensation type, stability check type, operating temperature etc. Additionally, citric acid correction values or product offsets can be set independently to product types, types, facilitating use in beverage packaging plants, amongst other applications. A PIN system protects instrument settings from misuse in factory environments and an optional Enhanced Protection Pack ensures moisture and dust can not penetrate the instrument systems.

Two special models are also available that enable use where harsh solvents are involved such as those in the edible oil, resin, adhesive and chemical industries.

Specifications	RFM330+	RFM340+
Scales		
Refractive Index	1,32 – 1,58	0-100
Sugar (°Brix)	0-100	0-100
User-defined	Yes	Yes
Resolution		
Refractive Index	0,0001	0,1
Sugar (°Brix)	0,00001	0,01
Accuracy		
Refractive Index	±0,0001	±0,1
Sugar (°Brix)	±0,00004	±0,03



The New Rotary Evaporators from IKA®

RV 10 basic V, RV 10 basic V-C, RV 10 basic D, RV 10 basic D-C



The newly developed range of rotary evaporators from IKA® offer an ergonomic, compact design with innovative functions to ensure great results. Best of all these units offer exceptional value for money.

Control version with USB interface, colour graphic display, integrated vacuum controller and lots of other features due late Summer 2008



RV 10 basic

These units feature the HB 10 basic integrated heating bath with either saving vertical or diagonal glassware (1 litre) and are very easy to operate from the control panel at the front of the unit, which is safe to use even when the unit is in action. The water (or oil) heating bath heats up quickly as the volume has been optimised and an optional pivoting safety hood is available.

The bath has integrated carry handles for easy and safe handling and offers the versatility of being used as "stand alone" unit for other tasks.

In fact safety is very much in mind when using these instruments as demonstrated by the unique 'safety stop' function of the motorised lift, if the power cuts out the evaporator assembly is automatically lifted out of the heating bath. The heating bath itself has an adjustable safety circuit. In addition, you can set the lowering limit so that it is recognised by the lift automatically to prevent any possibility of breaking the glassware.

To ensure that you get great results every time the unit features movement from left to right and right to left in intervals you can adjust for an efficient drying process.

Other features include:

- Timer function for time lapse controls
- Speed range from 20 to 270 rpm
- Smooth start from 100 rpm
- Digital speed display
- Cooling surface 1,200 cm²
- Push-off mechanism to loosen tightly fitting flasks

Model	Cat. No. (EU plug)	Cat. No. (UK plug)	Cat. No. (CH plug)
RV 10 basic V with vertical glassware	531-0295	531-3406	531-3407
RV 10 basic V-C with vertical glassware, coated	531-0289	531-3430	531-3437
RV 10 basic D with diagonal glassware	531-0294	531-3408	531-3409
RV 10 basic D-C with diagonal glassware, coated	531-0288	531-3438	531-3439

RV 10 digital V, RV 10 digital V-C, RV 10 digital D, RV 10 digital D-C

- Properties as RV 10 basic V, with the following additional functions:
- Digital water - oil heating bath with integrated carrying handles
- Temperature control of the heating bath by a micro controller
- Digital temperature display
- Infrared interface for data transfer from the heating bath to the drive unit
- RS232 interface for PC remote operation with labworldsoft®
- Automatic operation with labworldsoft®



RV 10 digital

Optional accessories on request.

Model	Cat. No. (EU plug)	Cat. No. (UK plug)	Cat. No. (CH plug)
RV 10 digital V with vertical glassware	531-0293	531-3410	531-3417
RV 10 digital V-C with vertical glassware, coated	531-0287	531-3440	531-3447
RV 10 digital D with diagonal glassware	531-0292	531-3418	531-3419
RV 10 digital D-C with diagonal glassware, coated	531-0286	531-3448	531-3449

IKA®

KBF series constant climate chambers deliver humidity under high pressure.

BINDER sets new standards for humidification in climatic chambers



BINDER KBF:
Excellent homogenous conditions, ...
even with a large number of samples.



KBF 240 model, easily accessible
with the new upright format

▶ The KBF series constant climatic chambers, have been improved once again in line with the company's philosophy of creating the "Best conditions for your success." A novel humidification system, along with an improved refrigeration system and housing design, provides even better performance for climatic testing, including compliance with the ICH guideline Q1A. This reserve capacity is also utilised for the refinement of the well-known ICH lighting system for compliance in the areas of light intensity and light distribution pursuant to ICH-Q1A. By combining it with the complete documentation of measured data and remote monitoring, BINDER offers a complete package for climatic testing and storage under controlled climatic conditions.

▶ To satisfy the many requirements and operating conditions facing global players today, the new generation of the BINDER KBF series was fine-tuned for increased peak performance even under unfavorable conditions, and can operate under a wide range of different power supplies.

▶ Differences in the quality of water used and more stringent environmental conditions in the operation of climatic chambers have a particularly bad effect on performance. The new humidification system (patent applied for) can use water of any quality, regardless of the source (municipal water, or stand-alone from a canister), without affecting performance. This pressurised humidification system significantly improves humidity control. The required humidity is metered into the climatic test chamber faster, more accurately, and with fewer germs than with any previous systems, and is distributed homogeneously throughout the interior without the need for high air recirculation. Superheated steam spreads naturally, in molecular form, without major assistance from any equipment such as large air turbines. In addition to a low noise level, this also provides natural test conditions while avoiding the notorious "fogging" effect in the interior and with minimum risk of condensation on internal equipment surfaces or specimens.

▶ Using this technology enables precise dehumidification at a dewpoint above 0 °C, eliminating the need for defrosting cycles and the resulting fluctuations in humidity. Improved controllability of the pressurised steam humidification system, combined with optimised refrigeration control and improved sealing results and additional capacity reserves – even at elevated environmental conditions up to 32 °C. The improved sealing was achieved by a redesign, which resulted in only one outer door for the model KBF 240, in conjunction with the new inner glass door, which now has a separate seal. These measures have produced high reliability and long-term stability for a temperature range from -10 to +100 °C (dry) or 10°C to 90°C (10-90% RH).

THE NEW KBF 240 AT A GLANCE:

- Absolute compliance with standards for all relevant guidelines
- Independent of water quality
- Precise long-term stability for temperature and humidity
- Extremely fast humidification after opening door
- ICH compliant illumination for photostability tests

 **BINDER**

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