

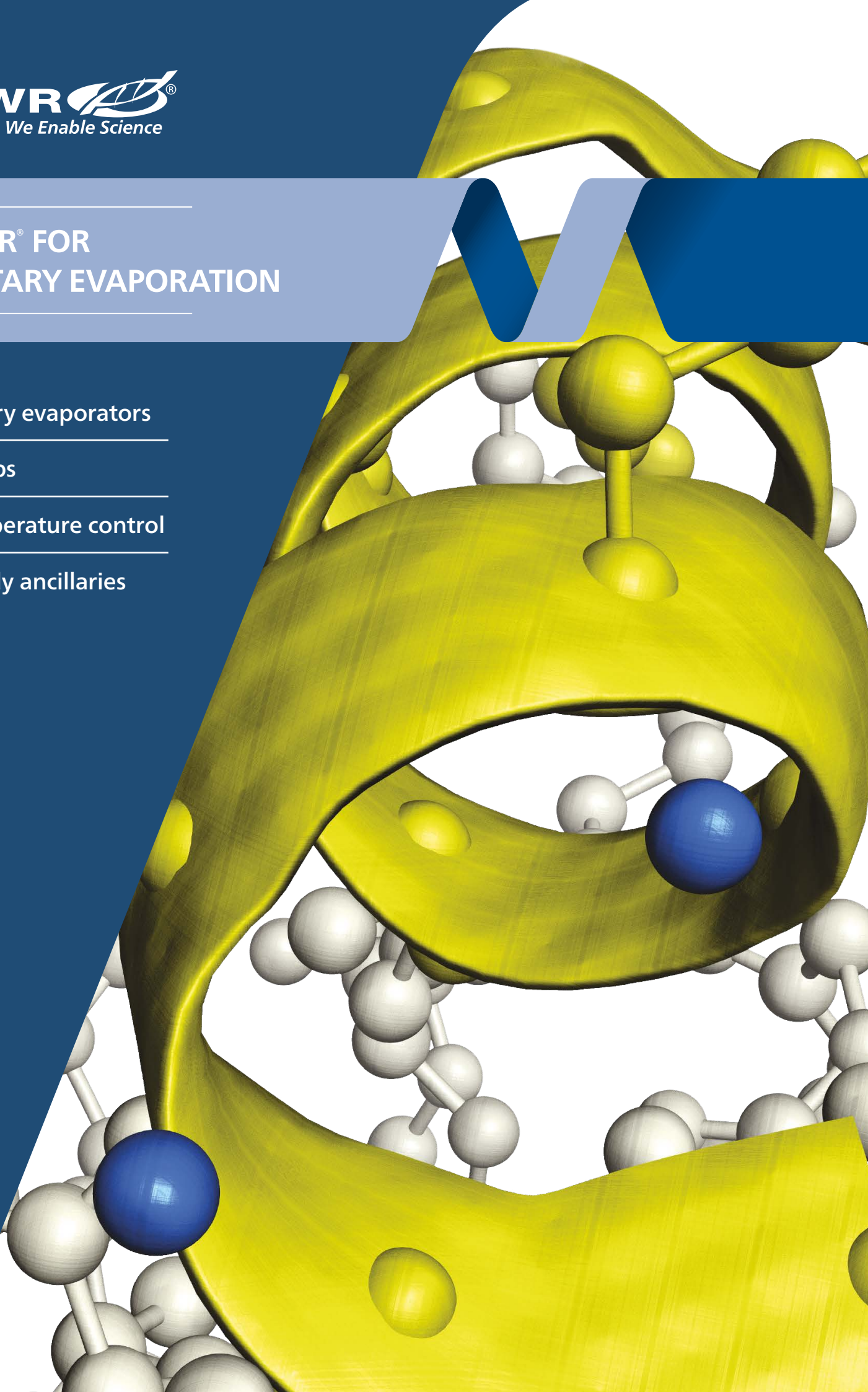
VWR® FOR ROTARY EVAPORATION

Rotary evaporators

Pumps

Temperature control

Handy ancillaries



VWR® FOR ROTARY EVAPORATION

Welcome to VWR for rotary evaporation

Choice – enough to cover almost every application without being overwhelming

Performance – market leading consistency and reliability

Value for money – products that don't cost a fortune to buy



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SYMBOLS



RS232 interface



USB interface



IP Classification



Autoclavable



Sustainable



Warranty

Rotary evaporators, RV 8

VWR by IKA

All models have manual lift with safety stop function

These entry-level evaporators are ideal for all standard evaporation applications in universities and research laboratories. The functions of the familiar RV10 control have been extended and improved to enable fully automatic distillation, with automatic boiling point determination, an integrated solvent library and the option to connect a speed-controlled vacuum pump.

- Manual lift with integrated "safety stop" function
- Digital displays for rotation speed and heating bath temperature
- Single-hand lift system with pressure sensors can be operated easily with the right or left hand
- Water/oil heating bath with integrated carrying handles

Delivery information: Units are supplied with heating bath HB 10, either with or without glassware. RV 8 models are compatible with the full RV10 glassware range.

Please note: A vacuum source, vacuum check valve and cooling system are required but not supplied. Please contact your local VWR sales office for advice and details.



Model	RV 8 V		RV 8 V-C	RV 8 Flex
Temperature range (°C)			Ambient...+180	
Rotation speed (min ⁻¹)			5 - 300	
Rotation speed setting			Digital	
Heating capacity (W)			1300	
Cooling surface (cm ²)			1500	
Bath capacity (l)			3	
WxDxH (mm)	495x390x615		510x345x490	
Weight (kg)	12,5		17,2	15,5
Protection class DIN EN 60529			IP 20	

Type	Version	Glassware	Pk	Cat. No.
RV 8 V, EU-plug	Vertical condenser	Standard	1	531-0893
RV 8 V, UK-plug	Vertical condenser	Standard	1	531-0894
RV 8 V, CH-plug	Vertical condenser	Standard	1	531-0895
RV 8 V-C, EU-plug	Vertical condenser	Coated*	1	531-0896
RV 8 V-C, UK-plug	Vertical condenser	Coated*	1	531-0897
RV 8 V-C, CH-plug	Vertical condenser	Coated*	1	531-0898
RV 8 Flex, EU-plug	Without condenser	Without**	1	531-0899
RV 8 Flex, UK-plug	Without condenser	Without**	1	531-0900
RV 8 Flex, CH-plug	Without condenser	Without**	1	531-0901

* With transparent plastic coating

** Delivered only with bath, vapour tube, clamps for glassware and Wouff bottle. This package enables the customer to select the glassware set up for their specific application.

Rotary evaporators, RV 8

IKA

All models have manual lift with safety stop function

These entry-level evaporators are ideal for all standard evaporation applications in universities and research laboratories. The functions of the RV10 control have been extended and improved to enable fully automatic distillation: With automatic boiling point determination, an integrated solvent library and the option to connect a speed-controlled vacuum pump.

- Digital TFT display showing the rotation speed and heating bath temperature allows optimal control of the entire distillation process
- Single-hand lift system with pressure sensors can be operated easily with the right or left hand
- Water/oil heating bath can be used as a stand-alone unit and has integrated ergonomic carrying handles
- New clamp mechanism for an easier changing of evaporation flasks
- USB connection enables online update of the firmware

Delivery information: Units are supplied with heating bath HB 10, either with or without glassware. RV 8 models are compatible with the full RV10 glassware range.

Please note: A vacuum source, vacuum check valve and cooling system are required but not supplied. Please contact your local VWR sales office for advice and details.



Model	RV 8
Temperature range (°C)	Ambient to 180
Rotation speed (min ⁻¹)	5 - 300
Rotation speed setting	digital
Heating capacity (W)	1300
Cooling surface (cm ²)	1500 cm ²
Bath capacity (l)	3
WxDxH (mm)	510x345x490 (without glassware)
Weight (kg)	17,2 (without glassware)
Protection class DIN EN 60529	IP 20

Type	Version	Glassware	Pk	Cat. No.
RV 8 V	Vertical condenser	Standard	1	531-3030
RV 8 V-C	Vertical condenser	Coated	1	531-0892
RV 8 Flex package	Without condenser	Without*	1	531-3031

* Flex package is delivered with bath, vapour tube, clamps for glassware and Wouff bottle only. This package enables the customer to select the glassware set up for their specific application.

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Rotary evaporators, RV 10 digital

VWR by IKA

All models have motorised lift with safety stop function

Rotary evaporators with integrated heating bath, safe and simple operation via ergonomic controls in the front. A motorised lift with 140 mm stroke with „safety stop“ function - if the power cuts out the evaporator flask is automatically lifted out of the heating bath. Units can be programmed to reverse the direction of rotation of the evaporation flask at intervals to assist the drying process. Temperature control of the heating bath is via a microprocessor controller.

- Digital speed display and digital bath temperature display
- Infrared interface transfers data from heating bath to the drive unit
- Digital heating bath with microprocessor controller can be used with oil or water, features integrated carrying handles for increased safety
- RS232 interface for remote PC operation using labworldsoft® software (optional), to allow for operation in automatic mode

Delivery information: Supplied with water/oil bath, 1 l evaporation flask (NS 29/32), 1 l receiving flask (KS35/20) and condensing glassware set (except Flex Package which is supplied without glassware).

Please note: A vacuum source, vacuum check valve and cooling system are required but not supplied. Please contact your local VWR sales office for advice and details.



Model	RV 10 digital
Temperature range (°C)	Ambient to 180
Rotation speed (min ⁻¹)	20 - 280
Rotation speed setting	Digital
Heating capacity (W)	1300
Cooling surface (cm ²)	1500
Bath capacity (l)	3
WxDxH (mm)	530x410x430 (without glassware)
Weight (kg)	20
Protection class DIN EN 60529	IP 20

Type	Version	Glassware	Pk	Cat. No.
RV 10 digital, EU-plug	Vertical condenser	Standard	1	531-0905
RV 10 digital, UK-plug	Vertical condenser	Standard	1	531-0908
RV 10 digital, CH-plug	Vertical condenser	Standard	1	531-0909
RV 10 digital, EU-plug	Vertical condenser	Coated*	1	531-0910
RV 10 digital, UK-plug	Vertical condenser	Coated*	1	531-0911
RV 10 digital, CH-plug	Vertical condenser	Coated*	1	531-0912
RV 10 digital, EU-plug	Flex Package	Without**	1	531-0913
RV 10 digital, UK-plug	Flex Package	Without**	1	531-0914
RV 10 digital, CH-plug	Flex Package	Without**	1	531-0915

* With transparent plastic coating

** Delivered only with bath, vapour tube, clamps for glassware and Wouff bottle. This package enables the customer to select the glassware set up for their specific application. See "Glassware and accessories for rotary evaporators RV 10 / RV 8" for details of glassware available for the Flex Package.

Rotary evaporators, RV 10 control

VWR by IKA



All models have motorised lift with safety stop function

Rotary evaporators with integrated heating bath and vacuum controller; units feature USB interface, central display for automatic distillation and ramp programming. A motorised lift with 140 mm stroke with „safety stop“ function - if the power cuts out the evaporator flask is automatically lifted out of the heating bath. Units can be programmed to reverse the direction of rotation of the evaporation flask at intervals to assist the drying process. Volume controlled distillation processes can be programmed.

- Built-in solvent library, can be added to by the user
- Specific distillation parameters can be stored for standard distillation; measurements and distillation type can be automatically transferred by the press of a key
- Automatic boiling point recognition
- Operated via colour graphic display which shows distillation curves and has a choice of multiple languages
- Environmentally efficient; cooling water and heating bath are automatically switched off at the end of the cycle; units have integrated monitoring of cooling water and automatic heating bath monitoring which stops the distillation in the event of temperature errors

Delivery information: Supplied with water/oil bath, magnetic valve laboratory vacuum (531-3485), 1 l evaporation flask (NS 29/32), 1 l receiving flask (KS 35/20) and condensing glassware set.

Please note: A vacuum source, vacuum check valve and cooling system are required but not supplied. Please contact your local VWR sales office for advice and details.

Model	RV 10 control
Temperature range (°C)	Ambient to 180
Rotation speed (min ⁻¹)	20 - 280
Rotation speed setting	Digital
Heating capacity (W)	1300
Cooling surface (cm ²)	1500
Bath capacity (l)	3
WxDxH (mm)	530x410x430 (without glassware)
Weight (kg)	21,5
Protection class DIN EN 60529	IP 21

Type	Version	Glassware	Pk	Cat. No.
RV 10 control, EU-plug	Vertical condenser	Standard	1	531-0877
RV 10 control, UK-plug	Vertical condenser	Standard	1	531-0878
RV 10 control, CH-plug	Vertical condenser	Standard	1	531-0879
RV 10 control, EU-plug	Vertical condenser	Coated*	1	531-0880
RV 10 control, UK-plug	Vertical condenser	Coated*	1	531-0881
RV 10 control, CH-plug	Vertical condenser	Coated*	1	531-0882
RV 10 control, EU-plug	Flex Package	Without**	1	531-0904
RV 10 control, UK-plug	Flex Package	Without**	1	531-0906
RV 10 control, CH-plug	Flex Package	Without**	1	531-0907

* With transparent plastic coating

** Delivered only with bath, vapour tube, clamps for glassware and Wouff bottle. This package enables the customer to select the glassware set up for their specific application.

Glassware and accessories for rotary evaporators, RV 10 / RV 8

VWR by IKA

Glassware sets include 1000 ml evaporation and receiving flasks. The solvent being distilled can be continuously fed in through the PTFE inlet tube. Plastic coated versions are available and offer additional user protection.

Other options include a heating bath shield for optimal protection against splashes of hot liquid. A protective cover which is essential when it is not possible to work in an extractor hood (protects the user against splashes of hot liquid and in the event of the evaporator flask breaking - coated glassware should also be used).

Description	Pk	Cat. No.
Glassware sets, protection cover and shield		
Set of glassware, vertical, standard	1	531-3476
Set of glassware, vertical, coated*	1	531-3478
Set of glassware, diagonal, standard	1	531-3477
Set of glassware, diagonal, coated*	1	531-3479
Shield for heating bath	1	531-0299
Protective cover for heating bath	1	531-0298
Condensers		
Dry ice condenser, standard	1	531-0462
Dry ice condenser, coated*	1	531-0463
Vertical intensive condenser with double jacket and manifold, standard	1	531-0460
Vertical intensive condenser with double jacket and manifold, coated*	1	531-0461
Vertical condenser with manifold and cut-off valve for reflux distillation, standard	1	531-0464
Vertical condenser with manifold and cut-off valve for reflux distillation, coated*	1	531-0465
Vertical intensive condenser with manifold and cut-off valve for reflux distillation, standard	1	531-0466
Vertical intensive condenser with manifold and cut-off valve for reflux distillation, coated*	1	531-0467
Vapour tubes, evaporation flasks and additional accessories		
Vapour tube NS 29/32	1	531-0468
Vapour tube, short, NS 29/32, borosilicate glass for vertical condensers RV 10.5 and RV 10.6	1	531-1033
Evaporation flask 50 ml	1	531-0674
Evaporation flask 100 ml	1	531-0675
Evaporation flask NS 29/32, 50 ml, borosilicate glass	1	531-3004
Evaporation flask NS 29/32, 100 ml, borosilicate glass	1	531-3005
Evaporation flask NS 29/32, 250 ml, borosilicate glass	1	531-3006
Evaporation flask NS 29/32, 500 ml, borosilicate glass	1	531-3007
Evaporation flask NS 29/32, 1000 ml, borosilicate glass	1	531-3008
Evaporation flask NS 29/32, 1000 ml, borosilicate glass, coated	1	531-1032
Evaporation flask NS 29/32, 2000 ml, borosilicate glass	1	531-3009
Evaporation flask NS 29/32, 3000 ml, borosilicate glass	1	531-3010
Powder flask NS 29/32, 500 ml, borosilicate glass	1	531-3025
Powder flask NS 29/32, 1000 ml, borosilicate glass	1	531-3026
Powder flask NS 29/32, 2000 ml, borosilicate glass	1	531-3027
Evaporation cylinder NS 29/32 500 ml, borosilicate glass	1	531-3028
Evaporation cylinder NS 29/32 1500 ml, borosilicate glass	1	531-3029
Receiving flasks and additional accessories		
Foam brake NS 29/32	1	531-3000
Distilling spider with 6 distilling sleeves 20 ml	1	531-3001
Distilling spider with 12 distilling sleeves 20 ml	1	531-3002
Distilling spider with 20 distilling sleeves 20 ml	1	531-3003
Distilling sleeve 20 ml	1	531-0676
Distilling spider with 5 flasks NS 29/32 of 50 ml	1	531-3011
Distilling spider with 5 flasks NS 29/32 of 100 ml	1	531-3012
Receiving flask KS 35/20, 100 ml, borosilicate glass, standard	1	531-3013
Receiving flask KS 35/20, 250 ml, borosilicate glass, standard	1	531-3014
Receiving flask KS 35/20, 500 ml, borosilicate glass, standard	1	531-3015
Receiving flask KS 35/20, 1000 ml, borosilicate glass, standard	1	531-3016
Receiving flask KS 35/20, 2000 ml, borosilicate glass, standard	1	531-3017
Receiving flask KS 35/20, 3000 ml, borosilicate glass, standard	1	531-3018
Receiving flask KS 35/20, 100 ml, borosilicate glass, coated*	1	531-3019
Receiving flask KS 35/20, 250 ml, borosilicate glass, coated*	1	531-3020
Receiving flask KS 35/20, 500 ml, borosilicate glass, coated*	1	531-3021
Receiving flask KS 35/20, 1000 ml, borosilicate glass, coated*	1	531-3022
Receiving flask KS 35/20, 2000 ml, borosilicate glass, coated*	1	531-3023
Receiving flask KS 35/20, 3000 ml, borosilicate glass, coated*	1	531-3024
Valves and filters		
Magnetic valve, laboratory vacuum, for RV10 control	1	531-3485
Magnetic valve, in-house vacuum, for RV10 control	1	531-3487
Pump control including magnetic valve, for RV10 control	1	531-3486
Choke water valve to regulate the water flow, for RV10 control	1	531-3488
Filter to prevent contamination of the water pipes, for RV10 control	1	531-3489
Pressure regulating valve for adjusting the cooling water pressure, for RV10 control	1	531-0673
Miscellaneous accessories		
Membrane vacuum pump, N 920 KT.29.18, oil-free	1	531-1034
Extension plate (required when using foam brake and 3 l evaporating flask)	1	531-0672
Seal	1	531-0842

* With transparent plastic coating



531-3476



531-0460



531-3026

Vacuum system for evaporation and solvent recovery, VP 10 Autovac



The self-regulated vacuum system VP 10 Autovac is especially suitable for vacuum distillation. The pump system provides optimal and trouble free solvent stripping and creates a fully-automatic distillation process without giving any attention to fraction quantities, manual adjustment or continuous regulation. The outstanding design of the VP 10 Autovac utilises solvent flow to automatically regulate the diaphragm pump vacuum level.



After reaching the operating pressure, the chemical resistant system VP 10 Autovac automatically moderates vacuum for each solvent group and distills any solvent/volume mixture without composition knowledge. This is done without interruption despite the different fractions. These are collected together on the pressure side in the emission condenser. The VP 10 Autovac operates without expensive controller technology by directly implementing the physical principles of the condensation process. The solvent itself provides the information for the automatic pressure control.

All wetted parts inside the integrated diaphragm pump are made from high quality PTFE, PEEK, PP materials and clear plastic coated glassware to be able to handle acidic or basic solvents and aggressive solvent vapours. The product is quickly separated without loss in a single cycle of evaporation due to a condensation process at the optimal boiling point.

- Automatic distillation
- Collection flask at atmosphere pressure
- Easy connection to rotary evaporators
- The solvent recovery system of the VP 10 Autovac reduces the emissions and is environmentally friendly

Model	Autovac VP 10
Flow rate (l/min)	2,3 - 2,5
Flow rate (m ³ /h)	38 – 41
Working overpressure (bar)	1
Final pressure (abs.) (mbar)	10
Protection class	IP 42
Connection on pressure side (EX)	Hose nozzle DN 8 for hose - inside Ø 8 mm
Connection on suction side (IN)	GL 14 with squeezing ring 10 for hose - outside Ø 10 mm or hose nozzle DN 8 for hose - inside Ø 8 mm
Motor	230 V, 50/60 Hz
WxDxH (mm)	310x270x490
Weight (kg)	18,8

Description	Pk	Cat. No.
Vacuum system for evaporation and solvent recovery, Autovac VP 10	1	181-0311

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Chemically resistant vacuum system, VP 2 Autovac

VWR by Vacuubrand

The VP 2 Autovac chemistry pumping unit, with vacuum controller, meets the demands of modern rotary evaporation. The hysteresis-free vacuum control prevents boiling retardation and foaming, therefore ensuring consistently high process safety and an exceptionally high performance even at low vacuum.

This unique control enables detection of vapour pressure and fully automatic adjustment of the vacuum level to the process requirements without any user programming or intervention.

The vacuum controller is easy to operate with clear text menus, selection knob and integrated venting valve. It allows a simple manual intervention during the distillation process. The heart of the extremely compact VP 2 Autovac system is an outstanding chemically resistant diaphragm pump with ultimate vacuum of 2 mbar and excellent 4 mbar in heavy duty operation (gas ballast operation for permanent internal cleaning) for high boiling point solvents. The separator at the inlet, made of glass with a protective coating, retains particles and liquid droplets.

For safe and reproducible operation with complex applications; ten fully configurable programmes can be edited and stored. Each one can be programmed with up to ten time and pressure steps, with control functions such as venting, pumping and vacuum ramp.



- Outstanding chemical resistance and superior vapour tolerance
- Excellent ultimate vacuum even in gas ballast operation – heavy duty operation
- Whisper quiet and ultra low vibration
- Automatic adaptation of the vacuum level throughout the process for unattended operation, and short process times due to hysteresis-free vacuum control
- Controls process vacuum, cooling water and venting to demand

Delivery information: Delivered with three plugs: EU, UK, CH.

Model	VP 2 Autovac
Vacuum controller	CVC 3000
Flow rate (m ³ /h)	1,7
Vacuum (mbar)	2
Final pressure (abs.) (mbar)	2
Final pressure with gas ballast (mbar)	4

Description	Pk	Cat. No.
Chemistry pumping unit for low up to high boiling point solvents, VP 2 Autovac	1	181-0159



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Chemistry diaphragm vacuum pump, self-drying for moist gases, SD 820



Dual-head, dry running diaphragm pump with an integrated self-drying system. There is a wide range of applications for this pump in laboratories, especially whenever clean vacuum is required and moist gases must be pumped down. Examples include operation of vacuum drying chambers (for drying or heat-treating substances and components) or steam sterilisers for sterilising instruments, vessels, filters and textiles. This pump can be used in a wide range of applications due to the pump's high resistance to aggressive media. The pump includes a PTFE coated diaphragm with patented tension optimisation, which allows the pump to be smaller and prolongs the service life of the diaphragm. The innovative self-drying system allows condensed liquid to be blown out of the pump heads at high speed during evacuation. The vacuum in the vacuum chamber remains constant. The drying cycle can be adjusted to the requirements of the individual process using three variables. After drying the pump reaches a better vacuum and is able to evacuate significantly faster compared with pumps without a drying system.

- Pure transfer and evacuation
- Highly compatible with moist gases and vapours
- Maintenance-free
- Environmentally friendly

Delivery information: Includes the diaphragm pump with thermal switch, mains fuse, connecting cable with plug and hose connector for hose with 10 mm internal diameter.



Model	SD 820
Flow rate (l/min)	20
Working overpressure (bar)	1
Final pressure (abs.) (mbar)	10
Protection class	IP 44
Permitted gas and ambient air temperature	+5...+40 °C
WxDxH (mm)	312x220x177
Weight (kg)	9,6

Model	Pk	Cat. No.
SD 820	1	181-0094

* Flow rate at atmospheric pressure

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Chemical duty high performance diaphragm pump, VP 220



The VP 220 is ideal for rotary evaporators providing the powerful vacuum needed for demanding evaporations without the use of oil pumps. VP 220 has a built-in Advanced Vapour Management (AVM) which means precise control capability for the distillation of organic solvents and applications handling aggressive vapours and gases. The VP 220 is especially effective for rotary evaporation of low boiling point solvents such as acetone, ethanol and is able to even strip DMF fast at 35 °C.

The pump parts are all made of corrosion resistant materials like PTFE and Kalrez to handle aggressive vapours, and together with the vacuum adjustment the evaporation process will be optimised. Use the vacuum adjustment to increase vacuum until bubbles form in the evaporation flask – then back off slightly. Reduce the vacuum for fast reaction to bumping or foaming.

- Durable and strong diaphragm technology
- Compact design, lightweight, portable
- Powerful chemical resistant diaphragm pump
- Adjustable vacuum to control evaporation rate
- Very little maintenance leading to low cost of ownership and improved productivity



Model	VP 220
Flow rate (l/min)	21
Flow rate (m ³ /h)	1,3
Final pressure (abs.) (mbar)	2,7
WxDxH (mm)	352x172x223
Weight (kg)	9,6

Description	Pk	Cat. No.
Vacuum pump with adjustable vacuum control, VP 220	1	181-0310

Description	Pk	Cat. No.
Accessories		
Maintenance kit for VP 220 pump	1	181-0314
Vapour recovery kit for VP 220 pump, allows an efficient recovery of solvent and protection of the lab environment	1	181-0317
Vapour recovery kit for VP 220 pump and gauge, allows an efficient recovery of solvent and protection of the lab environment and the gauge	1	181-0318
Separator kit for VP 220 pump, prevents liquid drops entering the pump and collects condensate at the outlet	1	181-0319
Synchro kit for VP 220 pump, allows simultaneous operation of two independent vacuum applications	1	181-0320

VWR COLLECTION CATALOGUE

For full details of the range get your copy of the VWR Collection Catalogue from your local VWR sales office or **vwr.com**



Circulating chillers



These circulating chillers are an environmentally friendly, water-conserving and reliable means of controlling the temperature of liquids in open tanks or closed loop systems. They provide high cooling performance at low cost. With a temperature range from -10 to $+40$ °C, they are ideally suited for many process and routine applications. There are two pump versions available, with a wide choice of cooling volumes and compressor sizes to suit special applications. The devices are characterised by readily programmable, bright LED displays that can be read easily and comfortably. The standard, magnetically-coupled centrifugal pumps (MD model series) generate a high flow rate at relatively low pressure. The positive displacement pumps (PD model series) have a lower flow rate, but provide higher, adjustable pressures for more demanding applications. The modulating system maintains stable temperatures, even under fluctuating load conditions. The circulating chillers provide a temperature stability of $\pm 0,1$ °C.

Dimensions (WxHxD): 368x575x702 mm

- Exceptional cooling performance and wide temperature range from -10 to $+40$ °C
- Extra-large digital display for easy reading of the set temperature, the flow rate and/or the pressure even from a distance
- Optical and acoustic alarm function if any of the set parameters are not maintained
- Adjustable low and high temperature limits, low fluid level alarm function, temperature stability with easy to operate calibration function and optional interfaces for various functions, such as remote control

Max. flow rate / max. pressure:

MD models: 14,7 l/min, 0,66 bar

PD models: 3,6 l/min, 5,7 bar

Delivery information: Supplied with $\frac{1}{2}$ » lockable NPT inlet and outlet fittings, and lockable castors. Each unit is supplied complete with three plugs: EU, UK and CH for use throughout Europe. Please contact the VWR sales office for details of options and accessories.



Type	Cooling capacity (kW)	Pk	Cat. No.
MD models with magnetically coupled centrifugal pump			
1171MD	0,66/0,44/0,16*	1	462-7033
1173MD	0,99/0,74/0,41*	1	462-7035
1175MD	1,41/0,91/0,62*	1	462-7036
1177MD	2,07/1,41/0,63*	1	462-7038
1179MD	2,40/1,59/0,83*	1	462-7040
PD models with positive displacement pump			
1171PD	0,66/0,44/0,16*	1	462-7032
1173PD	0,99/0,74/0,41*	1	462-7034
1175PD	1,41/0,91/0,62*	1	462-7037
1177PD	2,07/1,41/0,63*	1	462-7039
1179PD	2,40/1,59/0,83*	1	462-7041

* Cooling capacity at $+20$, $+10$ and 0 °C

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Recirculating chillers, RC-10 range



VWR recirculating chillers are ideal for use with rotary evaporators, as they ensure constant, reproducible cooling conditions and avoid wasting tap water thereby increasing cost savings. Designed to be user friendly, the units have an easily accessible filling port on top of the unit and a drain tap at the back. The chillers have a stainless steel reservoir, operate using R134 refrigerant and can be used in the permitted ambient temperature range of 15 to 32 °C.

- Temperature set point can be adjusted by using the keys on the command panel (except the Basic model which has a fixed set point at 7 °C)
- The Duo chiller can cool two cooling cycles directly connected on the double outlets and inlets
- Regulate the temperature of the cooling cycle between –10 °C and +40 °C (use water and glycol mixture (70:30 mixture) for temperatures below +5 °C)
- Indicator on front panel for perfect visualisation of liquid level

Max. flow rate (with no counter pressure) / max. pressure (at zero flow)

RC-10 Basic: 14 l/min, 0,4 bar

RC-10 Digital: 8 l/min, 0,6 bar

RC-10 Duo: 11 l/min, 1,0 bar

Delivery information: Basic and Digital units supplied with 2x 8 Ø mm hose connections, 2x screw nuts M 16 x 1, 2x PVC hose (1500 mm) and 2x hose clamps, Duo models have four of each of these. Includes EU, UK and CH power cables.



RC-10 Duo



RC-10 Digital

Type	Temp. range (°C)	Temp. stability	Cooling capacity (kW)	Capacity (l)	WxDxH (mm)	Pk	Cat. No.
RC-10 Basic	7*	±2 K	0,5	3,5	280x360x520	1	462-0137
RC-10 Digital	–10...+40	±0,5 K	0,5	3,5	280x370x490	1	462-0138
RC-10 Duo	–10...+40	±0,5 K	0,95	3,5	350x420x600	1	462-0139

* Fixed

Note: Cooling capacity at +15 °C

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- Purity >99,5%
- Low water content



Description	Pk	Cat. No.
Acetone GPR RECTAPUR®	5 l	20065.362
2-Propanol GPR RECTAPUR®	5 l	20839.366
Methanol GPR RECTAPUR®	5 l	20846.361
Chloroform GPR RECTAPUR®, stabilised with 2-methyl-2-butene	5 l	22707.364
Diethyl ether GPR RECTAPUR®	5 l	23809.363
Ethyl acetate GPR RECTAPUR®	5 l	23880.368
Hexane (mixture of isomers) TECHNICAL	5 l	24574.367
n-Hexane, dehydrated (max. 0.01% H ₂ O) GPR RECTAPUR®	5 l	24580.360
Dichloromethane GPR RECTAPUR®	5 l	25631.362
Tetrahydrofuran GPR RECTAPUR®	5 l	28552.368

VWR CHEMICALS® anhydrous solvents for organic synthesis

Ultra dry solvents are very important, mainly in organic synthesis, Grignard reactions and ADN /ARN synthesis. The range is extended with solvents in 250 ml septum sealed glass bottles. Guaranteeing low moisture level, very low water content and high chemical purity every time. The septum cap "6 in 1" resealable packaging offers real advantages.



Description	Pk	Cat. No.
Diethyl ether anhydrous (max. 0.005% H ₂ O)	250 ml	83671.230
Ethanol absolute anhydrous (max. 0.003% H ₂ O)	250 ml	83672.230
Dimethyl sulphoxide anhydrous (max. 0.005% H ₂ O)	250 ml	83673.230
1,4-Dioxane anhydrous (max. 0.003% H ₂ O)	250 ml	83674.230
N,N-Dimethylformamide anhydrous (max. 0.005% H ₂ O)	250 ml	83675.230
Acetonitrile anhydrous (max. 0.001% H ₂ O)	250 ml	83676.230
Dichloromethane anhydrous (max. 0.001% H ₂ O)	250 ml	83682.230

VWR CHEMICALS® „Greener“ solvents for organic synthesis

A lot of toxic solvents are used in organic synthesis and with the new regulations some of them are CMR and an alternative is advised.

- Methyl THF is derived from corn; it can be used to replace solvents such as THF and diethyl ether in Grignard, organometallic and lithiation applications
- 1,3 Propane diol is also derived from corn; it has low toxicity and can be used in polymerisation reactions
- 1,3 Dioxalane is strong solvent with good solubility in water, hydrophilic and hydrophobic solvents, that will salt out in aqueous solutions easily if water soluble salts are added
- Supplied in 1 l glass bottles



Description	Pk	Cat. No.
Methyl-2 Tetrahydrofuranne for synthesis	1 l	87132.290
1,3-Propanediol GPR RECTAPUR® for synthesis	1 l	87134.290
1,3-Dioxalane GPR RECTAPUR® for synthesis	1 l	87135.290

AnalaR® NORMAPUR® high purity analytical grade reagents

This comprehensive product range combines the best quality with competitive prices on over 400 reagents suitable for a multitude of analytical applications. Large choice of packaging and pack sizes: Glass, plastic or plastic-coated glass bottles. Larger pack sizes or custom packs, up to 200 l, are also available for many lines.

Recently, we have extended the range of Acids and Solvents Analara NORMAPUR® in plastic bottles to improve the safety in labs. All these products show an expiry date on the product label and certificate of analysis. Certificates of analysis are easily obtained from our website.





Flasks, round bottom with standard ground joint



Borosilicate glass, grade 3.3, clear

The inexpensive alternative for a wide range of laboratory applications. With matt labelling area. Imprinted catalogue number for convenient reordering.

- Very good chemical resistance
- High temperature resistance
- Minimal thermal expansion giving relatively high resistance to temperature changes

DIN 12348

Socket size (NS)	Capacity (ml)	Height (mm)	Ø ext. (mm)	Pk	Cat. No.
14/23	10	65	33	2	201-1351
14/23	25	85	41	2	201-1352
14/23	50	90	51	2	201-1353
14/23	100	105	64	2	201-1355
29/32	50	90	51	2	201-1354
29/32	100	105	64	2	201-1356
29/32	250	140	85	2	201-1357
29/32	500	163	105	2	201-1358
29/32	1000	200	131	1	201-1359

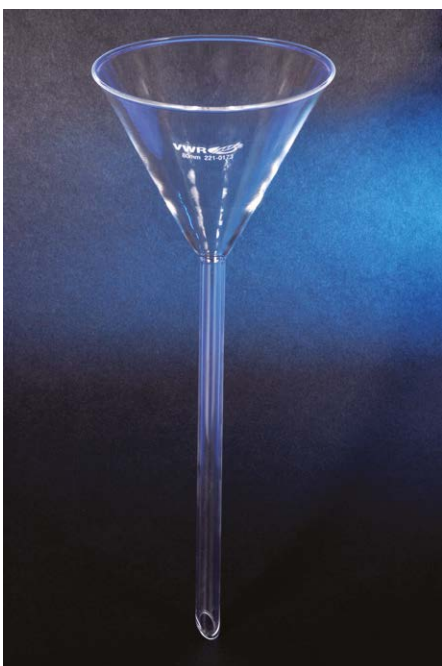
Holders, round bottom flasks

Compressed cork, natural

The ideal rest for round bottom flasks and other round bottom glass vessels.

- Economical and from a renewable resource
- Lightweight, tough
- Good thermal resistance

For (ml)	Ø ext. (mm)	Pk	Cat. No.
10 - 100	80	5	217-1000
250 - 500	110	5	217-1001
500 - 1000	140	3	217-1002
2000	170	3	217-1003
4000	210	2	217-1004
6000	240	2	217-1005



Funnels with long stem



Borosilicate glass, grade 3.3

With smooth internal walls.

- Very good chemical resistance
- High temperature resistance
- Minimal thermal expansion, giving relatively high resistance to temperature changes

ISO 4798

Stem O-Ø (mm)	Stem length (mm)	Pk	Cat. No.
65	150	2	221-0172
80	150	2	221-0173
110	180	2	221-0174



Funnels with short stem



Borosilicate glass, grade 3.3

With smooth internal walls.

- Very good chemical resistance
- High temperature resistance
- Minimal thermal expansion giving relatively high resistance to temperature changes

ISO 4798

Funnel O-Ø (mm)	Stem O-Ø (mm)	For filter Ø (mm)	Stem length (mm)	Pk	Cat. No.
35	6	45 - 55	35	2	221-0175
45	6	55 - 70	45	2	221-0176
55	8	70 - 90	55	2	221-0177
70	8	110 - 125	70	2	221-0178
80	10	125 - 150	80	2	221-0179
100	10	150 - 185	100	2	221-0180
120	16	185 - 240	120	2	221-0181
150	16	240 - 270	150	2	221-0182

Rigid sleeves for standard ground joints



PTFE, with grip

For fitting onto standard ground cones. Sturdy construction with protruding grip so sleeves can be detached easily. With sealing rings on the outside of the ground socket, which prevent ground joints from seizing and give a very good seal. Grease-free connection; no grease residue to contaminate sample.

- Very good chemical resistance
- Gas, liquid and vacuum-tight
- Temperature resistant from -200 to +280 °C

For NS	Pk	Cat. No.
10/19	10	201-0039
14/23	10	201-0040
19/26	10	201-0041
24/29	10	201-0042
29/32	10	201-0043
34/35	10	201-0044
40/38	10	201-0045
45/40	10	201-0046
55/44	10	201-0048



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Sleeves for standard ground joints



PTFE, 0,05 mm thick

For fitting onto standard ground cones. Easily detachable and suitable for repeated use. Joint grease is not needed.

- Very good chemical resistance
- Gas, liquid and vacuum-tight (to 0,1 mbar)
- Temperature resistant from –200 to +280 °C

For NS	Pk	Cat. No.
7/16	10	201-0024
10/19	10	201-0025
12/21	10	201-0026
14/23	10	201-0027
19/26	10	201-0028
24/29	10	201-0029
29/32	10	201-0030
34/35	10	201-0031
45/40	10	201-0033
50/42	10	201-0034
55/44	10	201-0035
60/46	10	201-0036
71/51	10	201-0037



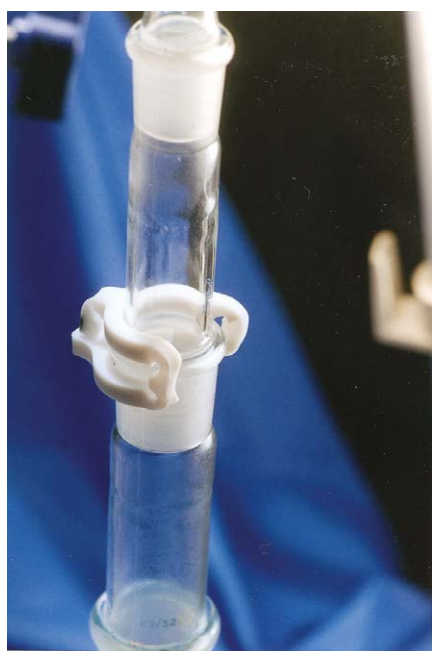
Clips for conical standard ground joints



PTFE with inner steel spring

Very stable, safe and durable, easy to use.

- Very good chemical resistance
- Temperature resistant from –200 to +280 °C



For NS	Pk	Cat. No.
14/23	1	232-0053
19/26	1	232-0054
24/29	1	232-0055
29/32	1	232-0056
34/35	1	232-0057
40/38	1	232-0058

Grease for joints

A range of silicones and non silicones that can be used to maintain and lubricate all types of glass, plastic, rubber and metal components under even the most demanding conditions.

- Wide temperature range
- Inert
- Long life
- Resistant to corrosive chemicals
- Do not effect rubber or plastics
- Resistant to oxidation



Description	Pack type	Pk	Cat. No.
Grease TECHNICAL for taps and sockets	Plastic tube	25 g	24513.141
Silicone grease TECHNICAL for high vacuum	Aluminium tube	50 g	331353N
Silicone grease TECHNICAL	Plastic bottle	50 g	6674.0050

Silicone fluids, XIAMETER® PMX-200

A range of silicone fluids recommended for use in baths. Fluids possess excellent heat transfer characteristics and cover a large temperature range from –40 °C to +200 °C. Low in toxicity, inert and long lasting due to their low volatility.

Note: Harmful vapours may be given off at elevated temperatures. It is advisable to use this material in a fume cupboard at temperatures greater than 140 °C.

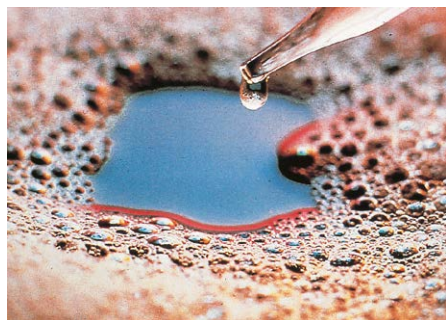
- Non corrosive
- High flash point
- Long service life
- Low evaporation



Description	Temp. range (°C)	Viscosity (mm ² /s)	Colour	Pk	Cat. No.
Dow Corning® XIAMETER® PMX-200/10 cS silicone fluid	–40...+200	10	Clear	400 g	630044R
Dow Corning® XIAMETER® PMX-200/10 cS silicone fluid	–40...+200	10	Clear	4 kg	630046T
Dow Corning® XIAMETER® PMX-200/20 cS silicone fluid	–40...+200	20	Clear	500 g	630054T
Dow Corning® XIAMETER® PMX-200/20 cS silicone fluid	–40...+200	20	Clear	5 kg	630056V
Dow Corning® XIAMETER® PMX-200/50 cS silicone fluid	–40...+200	50	Clear	5 kg	630066A
Dow Corning® XIAMETER® PMX-200/100 cS silicone fluid	–40...+200	100	Clear	500 g	630074A
Dow Corning® XIAMETER® PMX-200/100 cS silicone fluid	–40...+200	100	Clear	5 kg	630076C
Dow Corning® XIAMETER® PMX-200/350 cS silicone fluid	–40...+200	350	Clear	100 ml	630092C
Dow Corning® XIAMETER® PMX-200/350 cS silicone fluid	–40...+200	350	Clear	500 g	630094E
Dow Corning® XIAMETER® PMX-200/350 cS silicone fluid	–40...+200	350	Clear	5 kg	630096G
Dow Corning® XIAMETER® PMX-200/12500 cS silicone fluid	–40...+200	12500	Clear	5 kg	630126S

1 cS = 1 mm²/s

Anti-foam XIAMETER® AFE-0400 (previously Dow Corning RD emulsion)



Silicone antifoams, available in the form of fluids, emulsions or compounds, can be used to control even resistant foams without significantly altering or contaminating products. They can be used in both aqueous and non-aqueous situations throughout industry.

- Immediate foam knockdown
- Long term foam inhibition
- Low addition levels
- Rapid dispersion in aqueous foaming systems
- Stable in textile processes at pH 4 - 11
- Foam control up to 100 °C
- Good compatibility with dye stuffs, surfactants and textile auxiliaries

Description	Pk	Cat. No.
Dow Corning antifoam silicone emulsion, XIAMETER® AFE-0400	500 g	632134D
Dow Corning antifoam silicone emulsion, XIAMETER® AFE-0400	5 kg	632136F
Dow Corning antifoam silicone emulsion, XIAMETER® AFE-0400	25 kg	632137G



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Melting point capillaries

Borosilicate glass

Capillary tubes and melting point tubes are quality products perfect for the handling and transport of small volumes of liquid, melting point determinations and many other purposes. The tubes are uniform and are cut at right angles.

Supplied in vials of 100 pcs. or bulk packed in boxes.

Description	Length (mm)	Ø ext. (mm)	Ø int. (mm)	Pk	Cat. No.
Open at both ends, in vial	75	1,40	1,00	100	621-1806
Open at both ends, in box	100	1,40	1,00	50	621-0056
Open at both ends, in box	100	1,65	1,20	500	621-1803
Open at both ends, in vial	100	1,40	1,00	100	621-1807
Open at both ends, in vial	100	1,65	1,20	100	621-1811
Open at both ends, in box	125	1,40	1,00	1.000	621-1801
Open at both ends, in box	125	1,65	1,20	1.000	621-1804
Open at both ends, in vial	125	1,40	1,00	100	621-1808
Open at both ends, in box	150	1,40	1,00	1.000	621-1802
Open at both ends, in box	150	1,65	1,20	1.000	621-1805
Open at both ends, in vial	150	1,40	1,00	100	621-1809
Open at both ends, in vial	200	1,40	1,00	100	621-1810
Closed at one end, in vial	80	1,40	1,00	100	621-1812

Desiccators

Borosilicate glass 3.3

- With knobbed lids
- DIN 12491



Nominal size	Usable height (mm)	Ø ext.xH (mm)	Ø int. (mm)	Pk	Cat. No.
Desiccators					
100	65	153×195	92	1	467-0069
150	95	215×265	143	1	467-0070
200	130	270×315	192	1	467-0071
250	140	320×370	239	1	467-0072
300	165	380×445	285	1	467-0073
Type	Ø (mm)			Pk	Cat. No.
Desiccator plates					
Porcelain	90			1	467-0100
Porcelain	140			1	467-0101
Porcelain	190			1	467-0102
Porcelain	235			1	467-0103
Porcelain	280			1	467-0104



Vacuum desiccators

Borosilicate glass 3.3

- Tubulated lid
- Stopcock with PTFE spindle
- DIN 12491

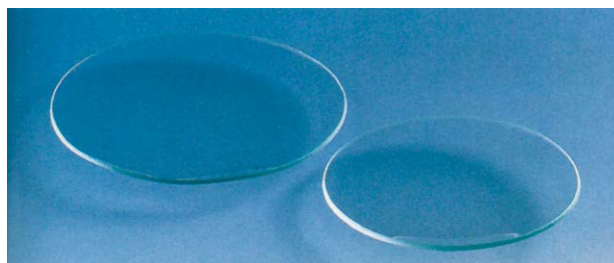
Type	Nominal size	Ø ext.xH (mm)	Ø int. (mm)	Pk	Cat. No.
With stopcock	100	153x180	92	1	467-0086
With stopcock	150	215x250	143	1	467-0087
With stopcock	200	270x315	192	1	467-0088
With stopcock	250	320x355	239	1	467-0089
With stopcock	300	380x435	258	1	467-0090

Watch glasses

Soda-lime glass

With fused edges. DIN 12341.

- Good chemical and physical properties
- Use in applications that do not involve high thermal stresses
- Quick and easy to clean



Ø ext. (mm)	Pk	Cat. No.
40	1	216-1171
50	1	216-1172
60	1	216-1174
70	1	216-1175
80	1	216-1176
90	1	216-1177
100	1	216-1178
110	1	216-1181
120	1	216-1179
125	1	216-1180
150	1	216-1182



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Disposable paper lab funnel

Made of clay-coated heavy paper stock

Good alternative to disposable plastic funnels. Environmentally friendly paper product will naturally biodegrade in the standard municipal waste stream. Helps to reduce cross contamination.

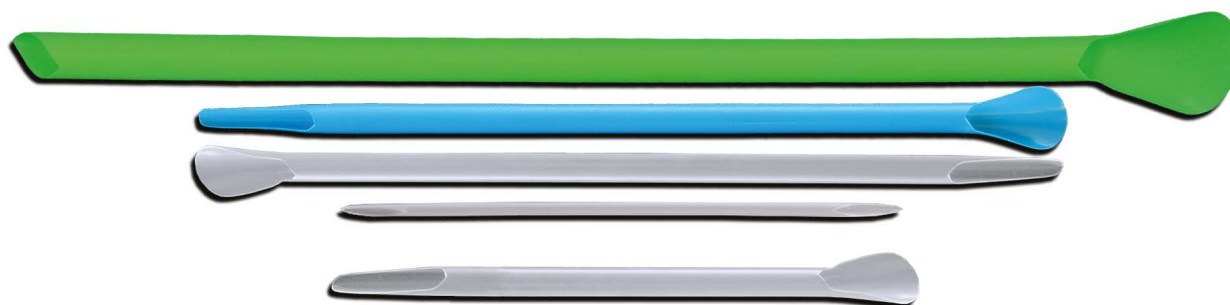
- Innovative "backrest" allows hands-free use when pouring viscous liquids
- Fits a wide variety of openings
- Maximum flexibility - cut stem to any desired opening size or shape
- Apply a minimum of pressure and the funnel will stay in position
- Use with virtually any liquid or powder*

*NOTE: Not recommended for hot liquids.

Capacity (ml)	Pk	Cat. No.
186	25	221-0274



Spatulas, disposable



PP

Multipurpose, robust and inexpensive tools for collecting, transferring and processing samples of chemical and biological materials. The innovative shape of these spatulas allows them to be used as a spatula, spoon, scoop, scraper, mixing rod or for wiping. Ideal for recovering samples that have been frozen in liquid nitrogen. The macro type disposable spatulas are 50% larger than standard disposable spatulas. The long shaft makes it easier to transfer material from larger containers.

- Resistant to dilute acids and alkalis
- Reduce cross-contamination
- Autoclavable
- Compliant with FDA standards for applications involving contact with food

Description	Type	Length (mm)	Colour	Pk	Cat. No.
Standard disposable spatulas	Standard	210	Blue	300	231-0103
Standard disposable spatulas	Standard	210	Natural	300	231-0104
Macro disposable spatulas	Macro	310	Green	150	231-0105
Micro disposable spatulas, anti-static	Micro	140	Natural	300	231-0106
Sterile disposable spatulas	Sterile	210	Natural	100	231-0369
Disposable Eco spatulas, biodegradable (EcoPure® additive)	Eco	140	Natural	300	231-0416

NOTES

VWR Handy solution guides



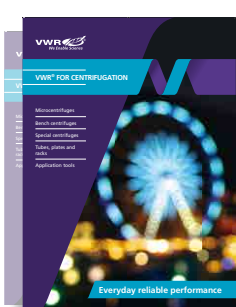
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