

OUR PRODUCT OVERVIEW

FOR THE INDUSTRY
2023

NEW PRODUCTS IN 2023

ENERGY EFFICIENCY IS OUR GOAL BECAUSE SUSTAINABILITY IS OUR MOTIVATION

The availability of energy resources is the future topic of humanity. The dramatic rise in energy costs is currently a burden on many companies. In Germany, the typical cost of industrial electricity in 2021 was still around €0.21 per kWh, but in July 2022 it was already at over €0.40 per kWh. In view of the current geopolitical situation energy prices are expected to rise further in the future.

Our goal for the coming years is to offer you optimized reverse osmosis systems with high-pressure pumps equipped with variable-speed drive (VSD) as standard feature to reduce electricity consumption. In this way, you can help your customers to reduce electricity cost, to future-proof their production through energy saving and to treat water more sustainably.

Take the opportunity to increase your sales by offering your customers reverse osmosis units that save 30 - 50 % of electricity cost – this corresponds to a multiple of the unit cost over the lifetime of the RO unit!

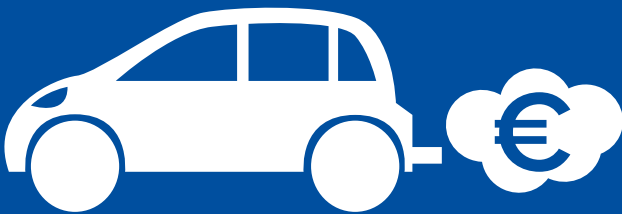
ELECTRICITY COSTS CUT IN HALF NOW COME AS STANDARD WITH OUR REVERSE OSMOSIS UNITS

As of 01.04.2023, the following RO series will be equipped with a variable-speed drive pump (VSD = FU) as standard:

- » Universal series UO-D FU (p. 35, from 2500 l/h on)
- » Water-saving series UO-S7 KR/FU (p. 38)
- » Permeate-staged series UO-D P/FU (p. 39, from 750 l/h on, already with VSD as standard since 2022)
- » Ultrapure water series UP-S7 FU (p. 40, from 550 l/h on)
- » Antiscalant series UO-D AS/FU (p. 42, from 450 l/h on)
- » Brackish water series UO-D BW/FU (p. 43, from 250 l/h on, already with VSD as standard since 2022)

In addition, we have completely revised our UO-D FU series (formerly UO-D ND) and UO-D AS/FU series. We now offer you RO systems with antiscaling operation for low flow rates as well. Compressed air is no longer required for any of the above series.

Do you have a specific project and want to know more or need help with your operating costs? Contact us at hercowater.com.



WOULD YOU DRIVE YOUR CAR AT FULL THROTTLE ALL THE TIME AND CONTROL THE SPEED BY APPLYING THE BRAKES? THEN WHY DO YOU DO THAT WITH A REVERSE OSMOSIS UNIT?

WEBINAR: WHAT ARE MY CUSTOMER'S ADVANTAGES WITH A SYSTEM EQUIPPED WITH VSD PUMP?

ON THE 9TH OF MARCH AND THE 27TH OF APRIL 2023

In this webinar we will introduce you to our RO series with VSD and calculate the operating costs for different load cases. We will show you how you can easily demonstrate the great advantages of saving energy to your customers in a very simple way. Our Excel tool and our marketing materials will be made available to you free of charge. Sign up directly!



hercowater.com/energyefficiency/



50% POTENTIAL SAVINGS

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Changes and errors excepted; illustrations may differ from the original (01/2023). **Price list is valid from 01.04.2023 on.**

OUR FIELDS OF ACTIVITY



SURFACE TECHNOLOGY



Surface technology describes the mechanical or physical-chemical processing of parts to change their surface properties. Demineralised water is used in many processes, such as in rinsing baths.

Water treatment systems from Herco are engineered to provide water quality that is suitable for each application and guarantee the highest reliability for your production and the best quality for your parts. Resource saving is a central aspect of our engineering concept, so that your operating costs can be greatly reduced by lowering water and energy consumption.

Typical areas of application are painting, coating, electroplating and fine cleaning, for example in glass production.



BOILER FEED WATER



Boilers can be found in every factory or workshop. Depending on the pressure stage and mode of operation, different treatment of the feed water is required.

Insufficient treatment results in operating problems due to scale formation, corrosion, or waste of energy. In the worst case, this can lead to boiler failure.

Our boiler feed water treatment systems cover the range from simple softening units to complex ultrapure water systems with membrane degassing, electrodeionisation and online silica monitoring. In addition to industrial boilers, typical areas of application include district heating networks and waste-to-energy plants.



H2 HYDROGEN

Green hydrogen is produced by electrolysis, using only power from renewable energy sources. Ultrapure water is an indispensable raw material for the process.

We supply the entire water treatment system tailored to the customer's needs, whether it is a compact plant for pilot projects, a large-scale plant with sophisticated process technology or a containerised plant for rapid installation and commissioning. We are happy to advise you on process technology and suitable materials as well as control and redundancy concepts.

Our water treatment plants are designed in a modular and scalable way and include pre-treatment, demineralisation with reverse osmosis and electrodeionisation as well as water storage and distribution. If required, we can also supply polishing steps for the ultrapure water circuit.

Thanks to our extensive experience with hydrogen applications, we offer you solutions that are exactly tailored to your electrolyser requirements. Our high-quality plants ensure that water is reliably provided in the required quality to guarantee maximum availability and long service life of your plant. Our short production lead times help you to achieve fast project execution.





FOOD & BEVERAGE

The requirements in the food and beverage sector are varied and need to be met responsibly. For example, desalinated water is used to dilute cola concentrate or to produce allergen-free water for baby food. Water treatment is also required to produce brewing water.

Our water treatment plants meet all the important requirements of the food industry - from plant design in stainless steel without dead spaces or customised cleaning and sanitisation concepts (CIP/SIP) to component selection in compliance with permissible materials and process connections.

We will gladly provide you with the required component certifications according to e.g. Regulation (EC) No. 1935/2004. We design our plants according to the usual market standards or regulations such as DIN 11853 or doc. 28 of the EHEDG. Of course we will also take your special requirements in consideration.

Another important topic for the food industry is technology for saving water and energy. We would be pleased to advise you and design a plant that fits your specific application and minimises operating costs through sustainable engineering.



COOLING WATER



Suitable water treatment is indispensable for operating cooling systems with the lowest possible water consumption and thus at low cost. In addition, the 42nd BImSchV requires monitoring of the cooling water to avoid microbial contamination.

We offer the entire range of water treatment technologies for cooling tower applications - from treatment of the make-up water with softening systems or for higher thickening with reverse osmosis and nanofiltration to our blowdown control system with a wide range of functions and documentation of the operating data.



HOSPITAL AND LABORATORY



Many applications in laboratories and hospitals require ultrapure water. In laboratories, it is crucial to avoid any contamination to ensure correct results. In the hospital, ultrapure water without microbial contamination is needed for example in the central sterile supply department (CSSD).

Usually, several process steps (e.g. RO and EDI) are necessary to achieve the desired conductivity. Further treatment steps such as UF or UV ensure that there is no microbial contamination of the ultrapure water.

OUR FIELDS OF ACTIVITY



DATA CENTER

Data centers are expected to process increasingly more data in increasingly less time, but also to decrease energy usage as much as possible to ensure sustainability. Cooling is responsible for a large part of the energy consumption. Therefore, a well-designed cooling system that is adapted to the climatic conditions on site and is as secure as possible through sufficient redundancy is an important prerequisite for the smooth operation of the data center.

An efficient cooling system significantly increases energy efficiency (measured as PUE = Power Usage Effectiveness) of a data center and thus minimizes the operating costs.

There are many ways to design the cooling system, from pure direct or indirect free cooling to adiabatic cooling to direct water cooling of many components. In practically all cases, water is used as the heat transfer medium in at least part of the cooling circuits.

Our water treatment systems are designed to meet the needs of data centers. They are characterized by reliable operation with low maintenance frequency, low energy and water consumption, and long service life.



PHARMACEUTICAL INDUSTRY

Water is the most frequently used substance in the manufacture and formulation of drugs. The control of microbiological and chemical water quality during production, but also during storage and distribution, is therefore of central interest. This applies similarly to related sectors such as life science and the cosmetics industry.

The pharmacopoeia specifications for pharmaceutical water list three water qualities: purified water (PW), high purity water (HPW) and water for injections (WFI). Depending on the water quality, different parameters or limit values must be fulfilled and accordingly different processes of water treatment are required.

In any case, during the planning and construction of the plant, attention must always be paid to compliance with good manufacturing practice (GMP), hygienic / aseptic design of the plant and a suitable sanitisation concept.

We design our plants in the pharmaceutical, life science or cosmetics sector in accordance with the relevant regulations and customer-specific requirements and carry out all relevant qualification steps in cooperation with our customers.

We would also be glad to meet your special requirements, contact us for a discussion.

WATER AND ENERGY SAVING



NO LIFE WITHOUT WATER

Water is our most precious good, but in many regions of the world water is becoming scarce due to overuse and climate change. The responsible use of water resources is therefore becoming increasingly important, especially in industrial areas with high water consumption.

With our innovative water treatment plants, we offer you solutions to treat water in an uncomplicated, reliable, and resource-saving way. Through water and energy saving strategies, we help you to minimise the costs of water treatment over the entire lifetime of the unit for your customers.

MORE ON OUR WEBSITE

Sustainability is our motivation and of course we would like to show you what we have already achieved in this area and what exciting projects we are still working on.



Here you can find all the information you need on the topic of sustainability in our production and related to our treatment units.

hercowater.com/sustainability/

SERIES AND CUSTOMISED PLANTS

We take great care in designing standard products as well as series or customised project plants manufactured especially for you. Our series products for OEM customers include, for example, plants for water treatment in the flat glass industry or in car wash facilities. For laser applications, our destillo desalination cartridges reliably provide a constant ultrapure water quality.

Are you interested in a customised series solution manufactured especially for you? Contact us!

OUR LIVE WEBINARS FOR YOU

Our webinars offer you many advantages:

- » Live training followed by a question-and-answer session.
- » Free and convenient participation from your workplace
- » Various topics with practical relevance
- » Subsequent viewing on our website possible



Interested? On our website you can sign up for our newsletter to receive invitations to our webinars.

hercowater.com/en/service/webinars

SAVING WATER

Our reverse osmosis series UO-S7 KR/FU produces 50 % less wastewater than standard units. The investment in a UO-S7 KR/FU has a payback period of a few months only. In addition, one saves a multiple of the unit value in water costs over its entire lifetime. For more information, see p. 38.

Our brackish water series UO-D BW/FU can reduce wastewater production by 50 - 70 % if used as a second stage after an existing RO unit. Typical payback periods of the UO-D BW/FU installed as a second RO stage are just a few months. For more information, see p. 43.

SAVING ENERGY

Would you drive your car at full throttle all the time and control the speed by applying the brakes? Then why do you do that with a reverse osmosis? In a reverse osmosis unit without variable-speed drive (VSD), the pump is regulated by a throttle valve, thereby permanently wasting 30 - 50 % of the energy used, depending on the operating conditions.

The installation of a new RO system with a VSD pump avoids these losses and the additional cost of the VSD pump is redeemed in less than a year. The savings in electricity cost over the lifetime of the system amount to a multiple of the system costs. On p. 2 you can read more about the advantages of saving energy with VSD pumps.

OUR MEDICAL SECTOR COMPETENCE



DIALYSIS



CSSD



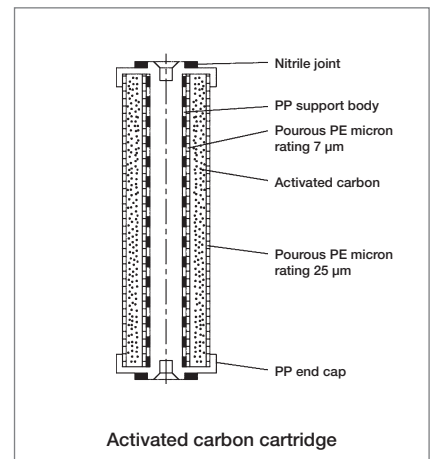
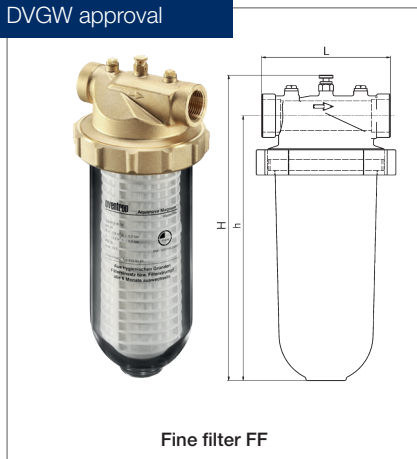
ENDOSCOPY

OUR WATER TREATMENT SYSTEMS FOR YOUR DIALYSIS CENTRE COMBINE STATE-OF-THE-ART TECHNOLOGY FOR WATER AND ENERGY SAVING WITH THE HIGHEST SAFETY STANDARDS.

CONTACT US:
INFO@HERCOWATER.COM

FINE FILTERS AND ACTIVATED CARBON FILTERS

DVGW approval



FINE FILTERS

APPLICATIONS

Rust and dirt particles, sand grains, scale and installation debris are held back, thus avoiding contact corrosion in the piping system and valve malfunctions.

For hygiene reasons, filter maintenance needs to be carried out at least once every 6 months, or earlier if the dirt deposits on the filter cartridge require this.

DESIGN

The water filter consists of

- » Housing made of Trogamid T (shock-proof, pressure surge resistant, permanently transparent, stress-resistant)
- » Cartridge made of polyamide support body with nylon fabric
- » Brass head piece and union nut
- » Connection for differential pressure gauge

All materials used are physiologically sound and comply with the German drinking water regulations. DVGW approval is available.

Fine filters FF						RG 4
DIN / DVGW tested and approved – threaded connection 1" – 2"						
Product name / Connection	Flow rate m ³ /h at dp = 0.2 bar	Hydraulic connection RW / Filtrate / WW	Dimensions in mm L x H	Micron rating µm	Item number	
FF 1"	8.3	Rp 1" / Rp 1" / -	130 x 309	95 - 140	330 055	
FF 1 ¼"	11.2	Rp 1 ¼" / Rp 1 ¼" / -	135 x 309	95 - 140	330 056	
FF 1 ½"	11.2	Rp 1 ½" / Rp 1 ½" / -	150 x 323	95 - 140	330 057	
FF 2"	13.1	Rp 2" / Rp 2" / -	160 x 336	95 - 140	330 058	
Filter cartridge	-	-	-	95 - 140	335 113	
Filter wrench	-	-	-	-	332 034	

ACTIVATED CARBON FILTERS

APPLICATIONS

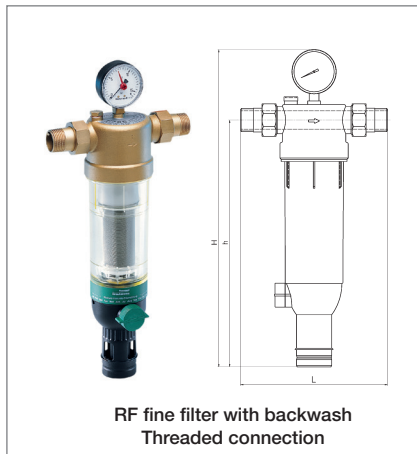
In general, activated carbon filters are used to adsorb impurities dissolved in the water. Such impurities include odorous substances, flavours and dyes as well as other organic matter. In the water treatment industry, activated carbon filters are also used to remove oxidants such as chlorine and ozone.

DESIGN

The activated carbon filter consists of a plastic filter housing with a vent screw. Its filter element consists of an activated carbon cartridge with an outer and inner envelope around a polypropylene body.

Activated carbon filters AF						RG 4
Threaded connection ¾" – filter cartridge 10" – 20"						
Product name / Cartridge length	Flow rate l/h at dp = 0.2 bar	Hydraulic connection RW / Filtrate / WW	Dimensions in mm L x H	Micron rating µm	Item number	
AF 10"	780.0	Rp ¾" / Rp ¾" / -	130 x 320	7	310 038	
AF 20"	1,560.0	Rp ¾" / Rp ¾" / -	130 x 570	7	310 039	
Filter cartridge 10"	780.0	-	70 x 255	7	335 082	
Filter cartridge 20"	1,560.0	-	67 x 510	7	335 083	

FINE FILTERS WITH BACKWASH



APPLICATIONS

Rust and dirt particles, sand grains, scale and installation debris are held back, thus avoiding contact corrosion in the piping system and valve malfunctions.

Backwash and filtered water supply can take place simultaneously, therefore plant operation is not interrupted.

For hygiene reasons, filter maintenance needs to be carried out at least once every 6 months.

DESIGN

Water filter with manual backwash (RF) – Threaded connection

- » Brass housing with pressure gauge
- » Clear plastic filter cup
- » Stainless steel fine filter
- » Memory ring to indicate timing of next backwash
- » Rinse water connection

Water filter with manual backwash (RFF-H) – Flange connection

- » Ductile iron housing with polyamide coating
- » Equipped with two pressure gauges
- » Stainless steel filter element
- » Rinse water connection

Fine filters with backwash RF					RG 4
DIN / DVGW tested and approved – threaded connection 1" – 2" – flange connection DN 65 – DN 100					
Product name / Connection	Flow rate m ³ /h at dp = 0.5 bar	Hydraulic connection RW / Filtrate / WW	Dimensions in mm L x H	Micron rating µm	Item number
RF 1"	7.5	R 1" / R 1" / HT	209 x 453	105 - 135	325 019
RF 1 1/4"	8.9	R 1 1/4" / R 1 1/4" / HT	222 x 453	105 - 135	325 020
RF 1 1/2"	15.6	R 1 1/2" / R 1 1/2" / HT	246 x 532	105 - 135	325 021
RF 2"	16.5	R 2" / R 2" / HT	267 x 532	105 - 135	325 022
RFF-H 65	48.0	DN 65 / DN 65 / HT	290 x 581	105 - 135	325 027
RFF-H 80	78.0	DN 80 / DN 80 / HT	310 x 665	105 - 135	325 028
RFF-H 100	100.0	DN 100 / DN 100 / HT	350 x 767	105 - 135	325 029

Options for automatic backwash of fine filters				RG 4
Product name	Compatible with	Mains connection	Additional height in mm	Item number
RF-RAM	RF	10 W / 230 V / 50 - 60 Hz	approx. 30	332 174
RFF-RAM-H	RFF-H	10 W / 230 V / 50 - 60 Hz	approx. 150	332 175
DIFF-P	1" - 1 1/4" / DN 65 - 100	Dry contact for RAM	-	325 526
DIFF-P	1 1/2" - 2"	Dry contact for RAM	-	325 527

BACKFLOW PREVENTION DEVICES

DVGW approval



Backflow prevention device ST-C
Threaded connection



Backflow prevention device ST-H
Flange connection

APPLICATIONS

Backflow prevention devices are compulsory for systems connected to the public water supply network. They are used to prevent non-drinking water from entering the public drinking water network by back-siphonage, backflow or pressure backflow. Please consider the rules of DIN 1988-100, table A1, or local regulations. Our backflow prevention devices are DIN/DVGW tested.

The backflow prevention devices ST-C/ST-H protect the drinking water network against fluids up to and including fluid category 4 as defined by EN 1717 and EN 12729.

DESIGN

- » Housing made of dezincification-resistant brass / powder-coated ductile iron
- » Filter insert made of high-grade stainless steel with integrated check valve and discharge valve
- » Three brass ball valves for connection of differential pressure gauge

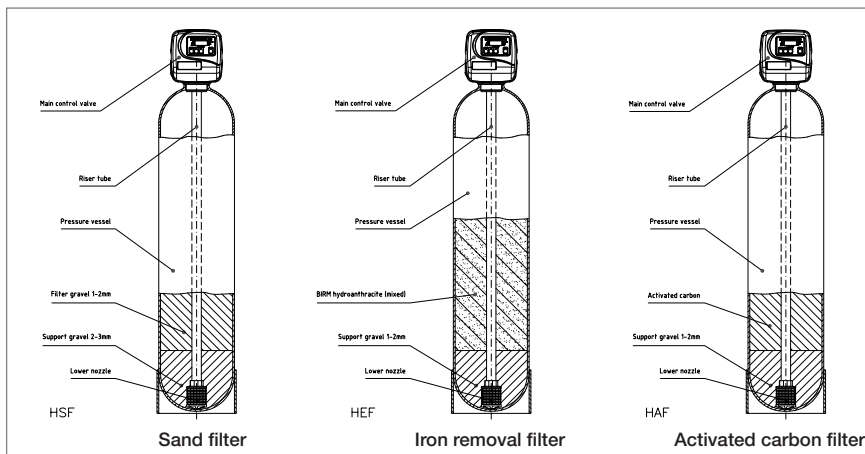
Backflow preventers

RG 4

DIN / DVGW-tested and approved – mounting type 2 – threaded connection 1" – 2" – flange connection DN 65 – DN 100

Product name / Connection	Flow rate m ³ /h at dp = 1.0 bar	Hydraulic connection RW / Filtrate / WW	Dimensions in mm L x H x B	Response pressure bar	Item number
ST-C ¾"	4.0	R ¾" / R ¾" / HT	227 x 103 x 44.5	1.5	340 054
ST-C 1"	12.0	R 1" / R 1" / HT	280 x 100 x 72.5	1.5	340 053
ST-C 1 ¼"	15.0	R 1 ¼" / R 1 ¼" / HT	280 x 100 x 72.5	1.5	340 056
ST-C 1 ½"	25.0	R 1 ½" / R 1 ½" / HT	387 x 130 x 103.5	1.5	340 057
ST-C 2"	35.0	R 2" / R 2" / HT	395 x 130 x 103.5	1.5	340 058
ST-H DN 65	35.8	DN 65 / DN 65 / HT	365 x 152 x 246	1.0	340 061
ST-H DN 80	54.3	DN 80 / DN 80 / HT	440 x 167 x 275	1.0	340 062
ST-H DN 100	108.0	DN 100 / DN 100 / HT	530 x 185 x 296	1.0	340 063

SAND FILTERS, IRON REMOVAL FILTERS AND ACTIVATED CARBON FILTERS



DESIGN

- » Filter vessel made of GRP with fixtures
- » Main control valve with built-on microprocessor controller
- » Automatic, time-controlled backwash

FILLING

- » Unit sizes HEF 1C – 2C and HAF 1C – 2C are supplied completely filled
- » The media for unit sizes HSF 1C – 5C, HEF 3C – 5C and HAF 3C – 5C are supplied separately packed

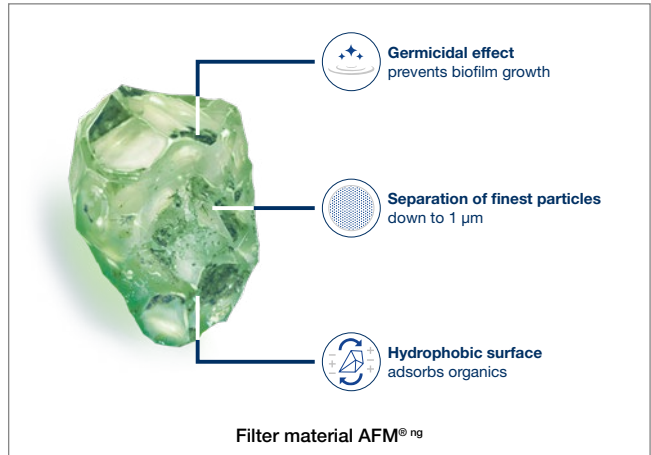
Sand filters HSF for removal of mechanical impurities RG 4				
Support medium: quartz gravel 2 – 3 mm / Filter medium: quartz gravel 1 – 2 mm				
Product name	Flow rate m ³ /h at 20 m/h	Hydraulic connection RW / Filtrate / WW	Dimensions in mm W x D x H	Item number
HSF 1C	0.9	R 1 ½" / R 1 ½" / hose tail 20 mm	300 x 370 x 1,630	315 092
HSF 2C	1.6	R 1 ½" / R 1 ½" / hose tail 20 mm	360 x 390 x 1,640	315 093
HSF 3C	1.9	R 2" / R 2" / hose tail 20 mm	390 x 410 x 1,920	315 094
HSF 4C	2.3	R 2" / R 2" / hose tail 20 mm	420 x 420 x 1,920	315 095
HSF 5C	4.3	R 2 ¼" / R 2 ¼" / R 2 ¼"	570 x 570 x 1,990	315 096

Iron removal filters HEF for removal of small amounts of iron and manganese RG 4				
Support medium: quartz gravel 1 – 2 mm / Filter medium: BIRM and Hydroanthracite N				
Product name	Flow rate m ³ /h at 12 m/h	Hydraulic connection RW / Filtrate / WW	Dimensions in mm W x D x H	Item number
HEF 1C	0.6	R 1 ½" / R 1 ½" / hose tail 20 mm	300 x 370 x 1,630	320 065
HEF 2C	0.9	R 1 ½" / R 1 ½" / hose tail 20 mm	360 x 390 x 1,640	320 066
HEF 3C	1.2	R 2" / R 2" / hose tail 20 mm	390 x 410 x 1,920	320 067
HEF 4C	1.4	R 2" / R 2" / hose tail 20 mm	420 x 420 x 1,920	320 068
HEF 5C	2.6	R 2 ¼" / R 2 ¼" / R 2 ¼"	570 x 570 x 1,990	320 069

Activated carbon filters HAF for removal of free chlorine as well as of organic and mechanical impurities RG 4				
Support medium: quartz gravel 1 – 2 mm / Filter medium: activated carbon 0.5 – 2.5 mm				
Product name	Flow rate m ³ /h at 20 m/h	Hydraulic connection RW / Filtrate / WW	Dimensions in mm W x D x H	Item number
HAF 1C	0.9	R 1 ½" / R 1 ½" / hose tail 20 mm	300 x 370 x 1,630	310 084
HAF 2C	1.6	R 1 ½" / R 1 ½" / hose tail 20 mm	360 x 390 x 1,640	310 085
HAF 3C	1.9	R 2" / R 2" / R 2"	390 x 410 x 1,920	310 086
HAF 4C	2.3	R 2" / R 2" / R 2"	420 x 420 x 1,920	310 087
HAF 5C	4.3	R 2 ¼" / R 2 ¼" / R 2 ¼"	570 x 570 x 1,990	310 088

Options for HSF - HEF - HAF RG 3			
Operating valve BV 1	Size 1C to 4C	Prevents raw water flow to the consumer during backwash	315 112
Operating valve BV 2	Size 5C	Prevents raw water flow to the consumer during backwash	366 015
BEV	Size 1C to 5C	Ventilation and air bleed valve	365 238
Skid-mounted version	Skid-mounted version with city water backwash		

MULTI-MEDIA FILTERS WITH DIFFERENT FILTER MEDIA



DESIGN MFT

- » Filter vessel made of GRP
- » Fixtures for uniform flow
- » Front piping with main control valve
- » Fully automatic, time-controlled operation
- » Filter medium not included, please order separately

OPTIONS MFT

- » Flushing with filtrate / external water source
- » Automatic backwash triggered by adjustable differential pressure controller
- » NEW: AFM variant with particularly effective filtration performance and germicidal effect available on request

Multimedia filters MFT are also available with AFM filter filling on request. AFM[®] ("activated filter media") is an activated aluminosilicate produced by upcycling used green and amber glass in a special, patented process. Filtration with AFM results in excellent water quality and is ideal as pre-treatment before reverse osmosis.

ADVANTAGES AFM^{® ng}

- » Germicidal effect prevents biofilm growth, fouling and channel formation in the filter
- » Proven separation of 95 % of the finest particles > 1 µm (comparison sand: 95 % particles > 20 µm)
- » Patented activation process creates a hydrophobic surface that adsorbs organic material

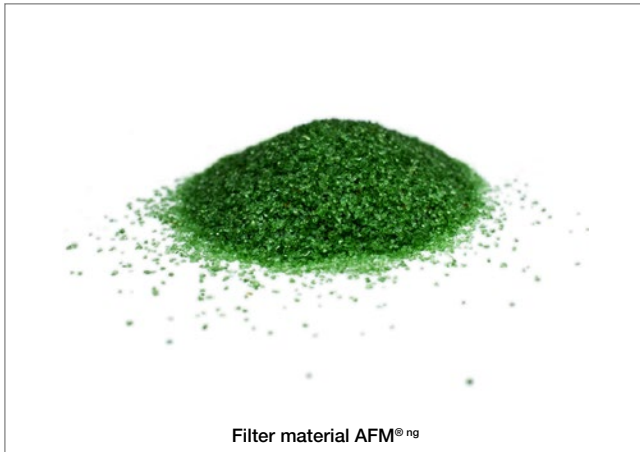
Multi-media filter MFT RG 4				
Automatic simplex multi-media filter units for well, surface, and process water				
Product name	Flow rate m ³ /h at 20 m/h	Hydraulic connection RW / Filtrate / WW	Dimensions in mm W x D x H	Item number
MFT 1	4.3	DN 50 / DN 50 / DN 32	770 x 940 x 2,450	300 050
MFT 2	5.3	DN 50 / DN 50 / DN 32	830 x 1,000 x 2,660	300 051
MFT 3	8.4	DN 50 / DN 50 / DN 32	850 x 1,160 x 2,730	300 052
MFT 4	12.2	DN 50 / DN 50 / DN 32	930 x 1,320 x 2,770	300 053
MFT 5	21.3	DN 65 / DN 65 / DN 65 flanges	1,250 x 1,740 x 2,880	300 108

Filtration media for multi-media filter MFT RG 4					
Item No. and price in € per complete filling					
Size		Sand	Iron removal	Activated carbon	Multi-media
MFT 1	Item Number	300 210	300 225	300 220	300 215
MFT 2	Item Number	300 211	300 226	300 221	300 216
MFT 3	Item Number	300 212	300 227	300 222	300 217
MFT 4	Item Number	300 213	300 228	300 223	300 218
MFT 5	Item Number	300 214	300 229	300 224	300 219

Option differential pressure controller for MFT simplex filter RG 4		
DIFF-P	Triggers backwash when a pre-set differential pressure is reached	325 525

Optional MFT multimedia filter backwash with city water RG 4		
MFT 1-4 SW	For MFT 1-4	300 116
MFT 5 SW	For MFT 5	300 115

SIDE-STREAM FILTERS FOR COOLING CIRCUITS (SAND / GLASS GRANULES)



DESIGN SIDE-STREAM FILTERS

- » Flow rate from 11 to 24 m³/h
- » GRP filter tank
- » Filter medium quartz gravel (SF) or glass granulate (SF / AFM) supplied separately
- » Feed pump housing and impeller made from plastic or stainless steel
- » Automatic, time-controlled backwash

Particle-free city water or compressed air at a pressure of 3 – 4 bar should be used as control medium.

ADVANTAGES SIDE-STREAM FILTERS

- » Independent from operation of cooling water circuit due to integrated feed pump
- » High separation capacity thanks to quartz gravel with optimum grain size distribution
- » Alternative version with particularly effective filtering and germicidal action (AFM version)
- » Easy to mount thanks to ready-to-connect design on plastic Euro pallet
- » Can also be used in the main stream of the cooling circuit, as long as the maximum supply pressure is not exceeded

ADVANTAGES AFM® ng

- » Germicidal effect prevents biofilm growth, fouling and channel formation in the filter
- » Proven separation of 95 % of ultra-fine particles > 1 µm (comparison sand: 95 % particles > 20 µm)
- » Patented activation process creates a hydrophobic surface that adsorbs organic material

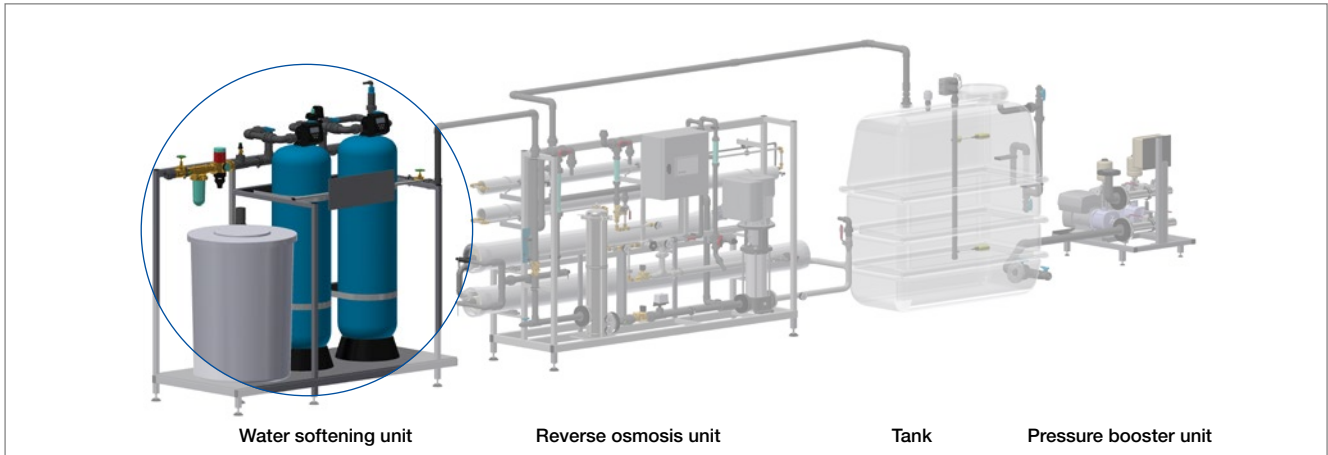
SF sand filters RG 4				
Automatic side-stream filter for cooling circuits with quartz gravel and support gravel filling				
Product name	Flow rate min./max. m ³ /h	Hydraulic connection RW / Filtrate / WW	Dimensions in mm W x D x H	Item number
SF 200-6.0 bar	7 - 11	DN 40 / DN 40 / DN 40	1,200 x 830 x 1,600	315 024
SF 320-6.0 bar	11 - 17	DN 50 / DN 40 / DN 40	1,200 x 820 x 1,490	315 051
SF 580-6.0 bar	17 - 24	DN 50 / DN 40 / DN 40	1,280 x 940 x 1,580	315 029

SF / AFM sand filters RG 4				
Automatic side-stream filter for cooling circuits with glass granules filling				
Product name	Flow rate min./max. m ³ /h	Hydraulic connection RW / Filtrate / WW	Dimensions in mm W x D x H	Item number
SF 200-6.0 bar / AFM	7 - 11	DN 40 / DN 40 / DN 40	1,200 x 830 x 1,600	315 121
SF 320-6.0 bar / AFM	11 - 17	DN 50 / DN 40 / DN 40	1,200 x 820 x 1,490	315 122
SF 580-6.0 bar / AFM	17 - 24	DN 50 / DN 40 / DN 40	1,280 x 940 x 1,580	315 123

Option differential pressure controller for SF sand filter RG 4		
DIFF-P	Triggers backwash when a pre-set differential pressure is reached	325 525

Optional SF sand filter backwash with city water RG 4		
SF-SW-6.0 - 200	For SF 200-6.0	315 060
SF-SW-6.0 - 320/580	For SF 320-6.0 / SF 580-6.0	315 109

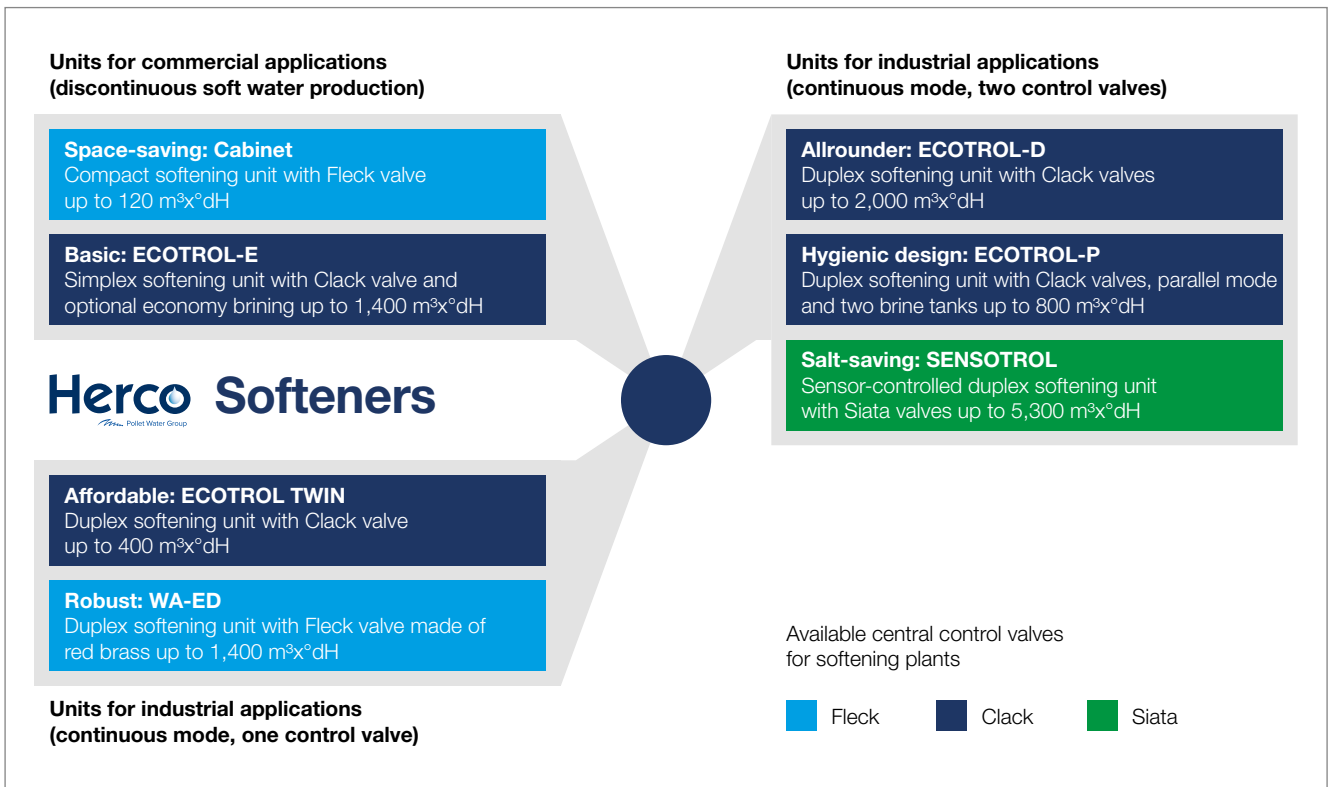
WATER SOFTENING UNITS – OVERVIEW



Our wide range of standardised softening units covers flow rates from 1.0 to 53.0 m³/h and capacities from 40 to 5,300 m³·x°dH. Our plants are equipped with tried and tested central control valves and use the co-current regeneration principle.

The softening plants can be used in combination with a Herco reverse osmosis or individually. We also supply a wide range of accessories such as blending devices, bypass arrangement, low salt switch, hardness control units and interfaces (Profinet / Profibus). For the SENSOTROL series, piping and valves are optionally available in PP.

We are pleased to offer you economy brining as option for our simplex softening series ECOTROL-E. We will gladly advise you on the selection of the right softening plant for your application.



DEFINITIONS

- » **Full brining:** regeneration with full brining regenerates almost 100 % of the resin capacity. The residual hardness of the soft water is < 0.1 °dH. When combining softening with reverse osmosis, full brining should always be chosen.
- » **Economy brining:** regeneration with economy brining regenerates about 75 % of the resin capacity. Only about 60 % of the salt quantity is required compared to full brining, which significantly reduces operating costs. In this case the softened water has a low residual hardness.

WATER SOFTENING UNITS – OVERVIEW



Capacity	K xx W	ECOTROL -E	ECOTROL TWIN	WA-ED	ECOTROL -D	ECOTROL -P	SENSOTROL
Flow range [m³/h]	1 - 2.5	1 - 14	1 - 4	1 - 12	1 - 20	1 - 8	1 - 53
Capacity range [m³ x °dH]	40 - 120	60 - 1,400	60 - 400	60 - 1,400	60 - 2,000	60 - 800	120 - 5,300
Type							
Simplex water softener	✓	✓					
Duplex water softener			✓	✓	✓	✓	✓
Parallel water softener						✓	
Regeneration controlled by							
Time	✓	✓	✓	✓	✓		✓
Volume	✓	✓	✓	✓	✓	✓	✓
Quality							✓
Equipment							
One control valve per vessel	✓	✓			✓	✓	✓
Controller	Fleck	Clack	Clack	Fleck	Clack	Clack	Siata
Inlet and outlet isolating valve					✓	✓	✓
Sample valves							✓
Pressure gauge							✓
Messages							
Operation or regeneration				✓			
Operation and regeneration		✓	✓		✓	✓	✓
Control of dosing pump							✓
Ext. regeneration stop							✓
Ext. regeneration initiation							✓
Alarms							
System monitoring							✓
Regeneration monitoring							✓
Lack of capacity							✓
Flow rate monitoring							✓
Salt empty							✓
Accessories							
Blending valve	✓	optional	optional	optional	optional	optional	optional
Operating valve		optional	✓	✓	✓	✓	✓
Salt shortage switch		optional	optional	optional	optional	optional	✓
Data logger							✓
Economy brining		optional					
Water recirculation pump							optional
Operation with liquid brine							optional
Skid assembly				optional	optional	optional	optional
Profinet/-bus interface							optional
Design in PP							optional
Page	16	16	17	18	19	20	21

CABINET / SIMPLEX WATER SOFTENING UNITS – K XX W / ECOTROL-E



K 40 W



ECOTROL-E 120

CHARACTERISTICS OF CABINET WATER SOFTENING UNITS

- » Time or volume-controlled regeneration start
- » Integrated blending
- » Raw water supply during regeneration
- » Units completely internally piped and wired

ECOTROL-E series starting from unit size 200 with option economy brining available!

See page 23 for options and accessories.

CHARACTERISTICS OF SIMPLEX WATER SOFTENING UNITS ECOTROL-E

- » Time or volume-controlled regeneration start
- » Input for external regeneration start
- » User-friendly microprocessor control
- » Regeneration signal via potential-free changeover contact, two universal outputs (12 VDC)
- » Monodisperse quality exchange resin
- » From size 400 on resin in bags for on-site filling
- » Units completely internally piped and wired

CHARACTERISTICS ECONOMY BRINING ECOTROL-E

- » Economy brining uses 60 % of the salt amount for full brining, i.e. salt consumption is reduced by 40 %
- » Capacity of the softening unit with economy brining is 75 % of the capacity with full brining, i.e. only 25 % reduction
- » This results in significant reduction of salt consumption and production of soft water with low residual hardness

Cabinet water softening unit				RG 3
For soft water production				
Product name/ Max. capacity m ³ x °dH	Hydr. capacity m ³ /h min. / max.	Hydraulic connection raw / soft water	Dimensions in mm W x D x H	Item number
K 40 W	0.05 / 1.0	R 1" / R 1"	300 x 430 x 670	352 053
K 60 W	0.08 / 1.5	R 1" / R 1"	300 x 430 x 1,130	352 054
K 100 W	0.13 / 2.2	R 1" / R 1"	300 x 430 x 1,130	352 055
K 120 W	0.15 / 2.5	R 1" / R 1"	300 x 430 x 1,130	352 056

ECOTROL-E Simplex water softening unit				RG 3
For soft water production with hardness < 0.1 °dH (> 0.1 °dH in case of economy brining)				
Product name/ Max. capacity m ³ x °dH	Hydr. capacity m ³ /h min. / max.	Hydraulic connection raw / soft water	Dimensions in mm W x D x H	Item number
ECOTROL-E 60	0.10 / 1.00	R 1" / R 1"	750 x 500 x 1,100	350 143
ECOTROL-E 120	0.15 / 1.50	R 1" / R 1"	900 x 500 x 1,100	350 144
ECOTROL-E 200	0.25 / 2.00	R 1" / R 1"	1,000 x 550 x 1,600	350 145
ECOTROL-E 320	0.40 / 3.50	R 1" / R 1"	1,150 x 750 x 1,600	350 146
ECOTROL-E 400	0.50 / 4.00	R 1" / R 1"	1,150 x 750 x 1,850	350 147
ECOTROL-E 500	0.63 / 5.00	R 1" / R 1"	1,250 x 750 x 1,850	350 148
ECOTROL-E 600	0.75 / 6.00	Rp 1 1/2" / Rp 1 1/2"	1,300 x 750 x 2,000	350 149
ECOTROL-E 800	1.00 / 8.00	Rp 1 1/2" / Rp 1 1/2"	1,450 x 900 x 2,000	350 150
ECOTROL-E 1000	1.25 / 10.0	Rp 2" / Rp 2"	1,450 x 900 x 1,900	350 151
ECOTROL-E 1400	1.75 / 14.0	Rp 2" / Rp 2"	1,850 x 1,200 x 2,150	350 152

Given capacity is valid for full brining. For economy brining, capacity is reduced by 25 %.

DUPLEX WATER SOFTENING UNITS – ECOTROL TWIN



CHARACTERISTICS

- » Time or volume-controlled regeneration start
- » Input for external regeneration start
- » Regeneration signal via potential-free changeover contact (optional) and two universal outputs (12 VDC)
- » User-friendly microprocessor controller
- » Operator can switch to the other vessel quickly, without starting regeneration
- » Monodisperse quality exchange resin
- » Size 400 with resin in bags for on-site filling
- » Units completely internally piped and wired

ADVANTAGES

- » Operational reliability due to continuous supply of soft water
- » Quick replacement of the maintenance kit
- » Programmable forced regeneration
- » Suitable for both commercial and industrial applications
- » Ideal for low soft water consumption

See page 23 for options and accessories.

ECOTROL TWIN Duplex water softening unit

RG 3

For continuous soft water production with hardness < 0.1 °dH

Product name/ Max. capacity m ³ x °dH	Hydr. capacity m ³ /h min. / max.	Hydraulic connection raw / soft water	Dimensions in mm W x D x H	Item number
ECOTROL TWIN 60	0.10 / 1.00	R 1" / R 1"	1,200 x 500 x 1,300	360 540
ECOTROL TWIN 120	0.15 / 1.50	R 1" / R 1"	1,300 x 500 x 1,300	360 541
ECOTROL TWIN 200	0.25 / 2.00	R 1" / R 1"	1,400 x 600 x 1,800	360 542
ECOTROL TWIN 320	0.40 / 3.50	R 1" / R 1"	1,500 x 800 x 1,800	360 543
ECOTROL TWIN 400	0.50 / 4.00	R 1" / R 1"	1,800 x 800 x 1,900	360 544

DUPLEX WATER SOFTENING UNITS – WA-ED



WA-ED 800



WA-ED 320 Skid option

CHARACTERISTICS

- » Time or volume-controlled regeneration start
- » Permanent soft water supply
- » Potential-free contact for production / regeneration message
- » Rugged design with red brass main control valve
- » Microprocessor controller with three function keys
- » Monodisperse quality exchange resin
- » From size 400 on resin in bags for on-site filling
- » Units completely internally piped and wired

ADVANTAGES

- » Simple design and reliable operation
- » Programmable forced regeneration, also manual
- » Suitable for example for water supply in boiler houses

See pages 22 – 23 for options and accessories.

WA-ED Duplex water softening units

For continuous soft water production with hardness < 0.1 °dH

RG 3

Product name/ Max. capacity m ³ x °dH	Hydr. capacity m ³ /h min. / max.	Hydraulic connection raw / soft water	Dimensions in mm W x D x H	Item number
WA-ED 60	0.10 / 1.00	R 1" / R 1"	1,200 x 500 x 1,100	360 069
WA-ED 120	0.15 / 1.50	R 1" / R 1"	1,300 x 500 x 1,100	360 067
WA-ED 200	0.25 / 2.00	R 1" / R 1"	1,400 x 600 x 1,600	360 062
WA-ED 320	0.40 / 3.50	R 1" / R 1"	1,600 x 800 x 1,600	360 070
WA-ED 400 LC	0.50 / 4.00	R 1" / R 1"	1,600 x 800 x 1,900	360 065
WA-ED 400	0.50 / 4.00	Rp 1 1/2" / Rp 1 1/2"	1,900 x 800 x 1,900	360 071
WA-ED 500	0.65 / 5.00	Rp 1 1/2" / Rp 1 1/2"	1,900 x 800 x 1,900	360 072
WA-ED 600	0.75 / 6.00	Rp 1 1/2" / Rp 1 1/2"	2,100 x 800 x 2,000	360 068
WA-ED 800	1.00 / 8.00	Rp 1 1/2" / Rp 1 1/2"	2,300 x 900 x 2,000	360 059
WA-ED 1000	1.25 / 10.0	Rp 1 1/2" / Rp 1 1/2"	2,400 x 900 x 1,900	360 060
WA-ED 1400	1.75 / 12.0	Rp 1 1/2" / Rp 1 1/2"	2,600 x 1,200 x 2,100	360 073

DUPLEX WATER SOFTENING UNITS ECOTROL-D



CHARACTERISTICS OF ECOTROL-D

- » Time or volume-controlled regeneration start
- » User-friendly microprocessor controller
- » Regeneration signal via potential-free changeover contact (optional) and two universal outputs (12 VDC)
- » Operator can switch to the other vessel quickly, without starting regeneration
- » Monodisperse quality exchange resin
- » From size 400 resin in bags for on-site filling
- » Units completely internally piped and wired

ADVANTAGES OF ECOTROL-D

- » High operational reliability thanks to independent control valves (simplex operation in case of failure possible)

See pages 22 – 23 for options and accessories.

ECOTROL-D Duplex water softening units					RG 3
Alternating water softening unit with two control valves for continuous soft water production with hardness < 0.1 °dH					
Product name/ Max. capacity m ³ x °dH	Hydr. capacity m ³ /h min. / max.	Hydraulic connection raw / soft water	Dimensions in mm W x D x H	Item number	
ECOTROL-D 60	0.10 / 1.00	DN 32 / DN 25	1,320 x 640 x 1,180	360 472	
ECOTROL-D 120	0.15 / 1.50	DN 32 / DN 25	1,410 x 640 x 1,180	360 473	
ECOTROL-D 200	0.25 / 2.00	DN 32 / DN 25	1,550 x 680 x 1,680	360 474	
ECOTROL-D 320	0.40 / 3.50	DN 32 / DN 25	1,650 x 730 x 1,680	360 475	
ECOTROL-D 400	0.50 / 4.00	DN 32 / DN 25	1,660 x 730 x 1,930	360 476	
ECOTROL-D 500	0.65 / 5.00	DN 50 / DN 40	1,720 x 730 x 2,260	360 477	
ECOTROL-D 600	0.75 / 6.00	DN 50 / DN 40	2,170 x 730 x 2,430	360 478	
ECOTROL-D 800	1.00 / 8.00	DN 50 / DN 40	2,240 x 870 x 2,430	360 479	
ECOTROL-D 1000	1.25 / 10.0	DN 50 / DN 50	2,240 x 870 x 2,370	360 480	
ECOTROL-D 1400	1.75 / 14.0	DN 50 / DN 50	2,690 x 1,170 x 2,620	360 481	
ECOTROL-D 2000	2.5 / 20.0	DN 65 / DN 50	3,100 x 1,300 x 2,750	360 482	

DUPLEX WATER SOFTENING UNITS ECOTROL-P

Hygienic operation



CHARACTERISTICS OF ECOTROL-P

- » Water softening unit in parallel operation with volume-controlled regeneration
- » User-friendly microprocessor controller
- » Regeneration signal via potential-free change-over contact (optional) and two universal outputs (12 VDC)
- » Operator can switch to the other vessel quickly, without starting regeneration
- » Monodisperse quality exchange resin
- » Addition of second brine tank
- » From size 400 on, resin in bags for on-site filling
- » Unit completely internally piped and wired

ADVANTAGES OF ECOTROL-P

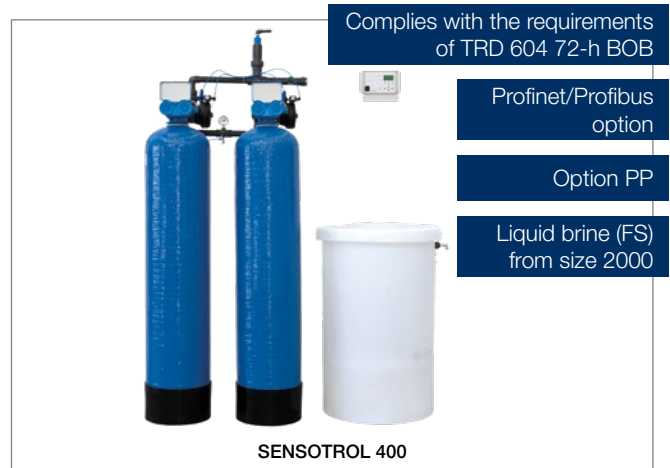
- » Thanks to simultaneous operation of both vessels, there is no water stagnation and microbial contamination is reduced
- » Especially suitable for applications with high hygiene requirements (hospital, cooling circuit according to 42nd BImSchV)

See pages 22 – 23 for options and accessories.

ECOTROL-P Duplex water softening units				RG 3
Water softening unit in parallel operation with two control valves for continuous soft water production with hardness < 0.1 °dH				
Product name/ Max. capacity m ³ x °dH	Hydr. capacity m ³ /h min. / max. *	Hydraulic connection raw / soft water	Dimensions in mm W x D x H	Item number
ECOTROL-P 60	0.20 / 2 x 1.00	DN 32 / DN 25	2,080 x 640 x 1,100	360 560
ECOTROL-P 120	0.30 / 2 x 1.50	DN 32 / DN 25	2,080 x 640 x 1,100	360 561
ECOTROL-P 200	0.50 / 2 x 2.00	DN 32 / DN 25	2,080 x 640 x 1,680	360 562
ECOTROL-P 320	0.80 / 2 x 3.50	DN 32 / DN 32	2,080 x 640 x 1,680	360 563
ECOTROL-P 400	1.00 / 2 x 4.00	DN 32 / DN 32	2,350 x 680 x 2,190	360 564
ECOTROL-P 500	1.30 / 2 x 5.00	DN 40 / DN 40	2,420 x 740 x 2,190	360 565
ECOTROL-P 600	1.50 / 2 x 6.00	DN 50 / DN 50	2,770 x 750 x 2,230	360 566
ECOTROL-P 800	2.00 / 2 x 8.00	DN 50 / DN 50	2,770 x 750 x 2,230	360 567

* While one ion-exchange tank is regenerating, the maximum hydraulic capacity available is the rated capacity of the other tank.

DUPLEX WATER SOFTENING UNITS – SENSOTROL



CHARACTERISTICS

- » Sensor-controlled alternating water softening units
- » Permanent soft water supply, sensor-controlled regeneration and automatic alternation to the other vessel upon depletion of the ion exchange resin
- » High operational safety thanks to monitoring of the operating conditions, regeneration and brine formation
- » Sophisticated SENSOTROL controller with Profinet or Profibus option
- » Monodisperse quality exchange resin
- » From size 400 resin in bags for on-site filling
- » Units completely internally piped and wired

ADVANTAGES

- » Lower water and salt consumption due to optimal use of resin capacity
- » Particularly suitable if raw water hardness fluctuates
- » Relevant operating parameters are logged
- » Many freely programmable inputs / outputs
- » High-quality brine tank with salt shortage switch
- » Liquid brine (FS) version available from size 2000 onwards
- » Optional design pipework / fittings in PP

See pages 22 – 23 for options and accessories.

SENSOTROL Duplex water softening units					RG 3
Sensor-controlled, alternating water softening unit with two control valves for cont. soft water production < 0.1 °dH					
Product name/ Max. capacity m ³ x °dH	Hydr. capacity m ³ /h min. / max.	Hydraulic connection raw / soft water	Dimensions in mm W x D x H	Item number	
SENSOTROL 120	0.15 / 1.50	Rp 1" / R 1"	1,300 x 600 x 1,400	361 002	
SENSOTROL 200	0.25 / 2.00	Rp 1" / R 1"	1,310 x 600 x 1,700	361 003	
SENSOTROL 320	0.40 / 3.50	Rp 1" / R 1"	1,550 x 750 x 1,750	361 004	
SENSOTROL 400	0.50 / 4.00	Rp 1 ¼" / DN 32	1,800 x 750 x 2,300	361 005	
SENSOTROL 500	0.65 / 5.00	Rp 1 ¼" / DN 32	1,800 x 750 x 2,300	361 006	
SENSOTROL 600	0.75 / 6.00	Rp 2" / DN 40	2,050 x 750 x 2,500	361 007	
SENSOTROL 800	1.00 / 8.00	Rp 2" / DN 40	2,200 x 900 x 2,500	361 008	
SENSOTROL 1000	1.25 / 10.0	Rp 2" / R 1 ½"	2,250 x 900 x 2,350	361 009	
SENSOTROL 1400	1.75 / 14.0	Rp 2" / R 1 ½"	2,600 x 1,200 x 2,600	361 010	
SENSOTROL 2000	2.50 / 20.0	DN 65 / DN 50	3,350 x 1,300 x 2,700	361 011	
SENSOTROL 2900	3.70 / 28.0	DN 80 / DN 65	3,750 x 1,500 x 2,800	361 012	
SENSOTROL 2000 FS	2.50 / 20.0	DN 65 / DN 50	3,350 x 1,300 x 2,700	361 071	
SENSOTROL 2900 FS	3.70 / 28.0	DN 80 / DN 65	3,750 x 1,500 x 2,800	361 072	
SENSOTROL 3700 FS	5.00 / 37.0	DN 100 / DN 80	4,600 x 2,000 x 3,000	361 073	
SENSOTROL 5300 FS	5.00 / 53.0	DN 150 / DN 100	4,800 x 2,000 x 3,000	361 074	

Options			RG 9*
Product name	Description	Item number	
Profinet module for SENSOTROL	For transmission of all relevant operating parameters to the central control room	541 844	
Profibus module for SENSOTROL	and for remote system control, either via Profinet or Profibus interface	542 200	
Design SENSOTROL in PP	For SENSOTROL 120 - 320	800 018	
Design SENSOTROL in PP	For SENSOTROL 400 - 500	800 018	
Design SENSOTROL in PP	For SENSOTROL 600 - 1400	800 018	
Design SENSOTROL in PP	For SENSOTROL 2000 and larger	800 018	

* The surcharge for the design of a unit in PP is given as percentage of the unit net price and is not subject to discount. Our quotation documents describe which parts of the unit are constructed in PP.

SKID ASSEMBLY OF DUPLEX WATER SOFTENING UNITS – RECIRCULATION PUMPS



ADVANTAGES OF SKID MOUNTING

- » Ready-to-install unit for direct connection to the drinking water system. If the unit and skid are ordered simultaneously, mounting of the backflow prevention unit, fine filter, blending valve, etc. is included in the price (parts to be ordered separately)
- » Simple unit connection on site; only four connections required: drinking water, soft water, wastewater and electricity
- » Quick and easy commissioning; water softeners are filled with ion exchange resin and, if requested, delivered pre-set

Skid assembly of duplex water softening units				RG 3
For the SENSOTROL, ECOTROL-D and WA -ED series; for ECOTROL-P available on request				
Product name	Hydraulic connection raw / soft water / WW	Dimensions in mm W x D x H	Item number	
RD 60	Rp 1" / Rp 1" / HT 100	1,350 x 850 x 1,660	365 589	
RD 120	Rp 1" / Rp 1" / HT 100	1,350 x 850 x 1,660	365 590	
RD 200	Rp 1" / Rp 1" / HT 100	1,350 x 850 x 1,810	365 591	
RD 320	Rp 1" / Rp 1" / HT 100	1,350 x 850 x 1,810	365 592	
RD 400	Rp 1 1/2" / Rp 1 1/2" / HT 100	2,400 x 950 x 2,500	365 593	
RD 500	Rp 1 1/2" / Rp 1 1/2" / HT 100	2,400 x 950 x 2,500	365 594	
RD 600	Rp 2" / Rp 1 1/2" / HT 100	2,400 x 1,050 x 2,660	365 595	
RD 800	Rp 2" / Rp 1 1/2" / HT 100	2,400 x 1,050 x 2,660	365 596	
RD 1000	Rp 2" / Rp 2" / HT 100	2,850 x 1,250 x 2,500	365 913	
RD 1400	Rp 2" / Rp 2" / HT 100	2,850 x 1,250 x 2,500	365 728	

ADVANTAGES OF A WATER CIRCULATION PUMP

- » Safe operation of the softening unit by maintaining a minimum flow rate
- » Residual hardness breakthrough (> 1 °dH) is prevented effectively
- » Maintenance-free and quiet circulating pumps
- » Including shut-off valves and non-return valve
- » If ordered at the same time, the softening unit will be prepared for easy WUP assembly

WUP water recirculation pumps for SENSOTROL					RG 3
Ensures safe operation, even if soft water consumption is below the minimum flow rate					
Product name	For unit series	Mains connection V / Hz	Capacity m ³ /h	Item number	
WUP-D6	120 - 320	230 / 50	0.8	365 552	
WUP-D7	400 - 500	230 / 50	0.8	365 536	
WUP-D8	600 - 1400	230 / 50	3.5	365 618	
WUP-D9	2000	230 / 50	6.5	365 619	
WUP-D10	2900 - 5300	230 / 50	6.5	365 529	

ACCESSORIES FOR WATER SOFTENING UNITS



We offer a wide range of accessories for water softening units. Please compare the table on p. 15 to see which options are suitable for which softening unit.

Some accessories are already included in the SENSOTROL series, e.g. the salt shortage switch SMS. If you need other accessories, please contact us.

Accessories For ECOTROL-E RG 3

Product name	Description	Electric/ hydraulic connection	Item number
Economy brining (From unit size 200 on)	Economy brining version with 40 % reduced salt consumption at 75 % capacity of the standard full brining unit		366 283
Operating valve BV 1	Prevents hard water supply to the consumer during regeneration, for ECOTROL-E 60 – 500 For ECOTROL-E 600 - 1400	12 V DC -	315 112 -

Fittings and connection kits RG 3

Product name	Description	Electric/ hydraulic connection	Item number
VSE 1"	Blending device with isolating valves	Rp 1"	600 080
VSE 1 1/4"	Blending device for installation in a bypass pipe	Rp 1 1/4"	600 013
VSE 2"	Blending device for installation in a bypass pipe	Rp 2"	600 014
Bypass pipe 1"	Fitting for bypassing a water softening unit	Rp 1"	600 081
Connection hoses 1"	2 x length 1 m	Rp 1"	365 607
Connector kit 1"	Bypass pipe and connection hoses	Rp 1"	365 398
Connector kit VSE 1"	Blending device and connection hoses	Rp 1"	365 399

Optional messages Potential-free change-over contacts for messages to on-site central control room or for use as switching contact RG 3

Product name	Description	Item number
SMS	Change-over contact for alarm signal in case of salt shortage	365 978
Changeover contact	Regeneration signal. e.g. for switching an RO unit off For cabinet units K 40 - 120 W	365 605
Changeover contact CI	For ECOTROL-E /-D 60 - 800 and ECOTROL TWIN 60 - 400	365 855

AUTOMATIC HARDNESS MONITORING UNITS – LIMITENT AND LIMITRON



CHARACTERISTICS

- » Automatic hardness monitoring unit for continuous control of the soft water downstream of water softening units
- » General fault signal as potential-free change-over contact

- in the event of hardness breakthrough, e.g. to switch off a downstream reverse osmosis unit
- » No need for water or chemicals, since no regeneration

limitent				RG 7
Automatic hardness monitoring unit with controller for installation downstream of water softeners				
Product name	Hydr. capacity m ³ /h min. / max.	Hydraulic connection	Mains connection V / Hz	Item number
limitent ¾"	0.025 / 2.5	R ¾"	230 / 50	370 037
limitent 1"	0.2 / 7.0	R 1"	230 / 50	370 067
limitent 1 ¼"	0.5 / 12.0	R 1 ¼"	230 / 50	370 043
limitent 1 ½"	1.5 / 16.0	R 1 ½"	230 / 50	370 068
limitent 2"	3.0 / 25.0	R 2"	230 / 50	370 055
Replacement sensor				370 031

limitron				RG 7
Automatic hardness monitoring unit without controller for the protection of HERCO reverse osmosis units				
Product name	Hydr. capacity m ³ /h min. / max.	Hydraulic connection	Suitable for RO sizes	Item number
limitron ¾"	0.025 / 2.5	R ¾"	UO 100 - 1500	370 038
limitron 1"	0.2 / 7.0	R 1"	UO 1650 - 3500	370 069
limitron 1 ¼"	0.5 / 12.0	R 1 ¼"	UO 3800 - 6000	370 044
limitron 1 ½"	1.5 / 16.0	R 1 ½"	UO 7000 - 10000	370 070
limitron 2"	3.0 / 25.0	R 2"	UO 11000 - 18000	370 063
Installation of limitron in RO unit				370 078
Replacement sensor				370 031

ULTRAFILTRATION UNITS UF



UF 1D6-SO-S7



UF 6D6 ultrafiltration unit with backwash tank

PLC

Skid-mounted, free-standing ultrafiltration unit for the filtration of surface or well water that has been pre-filtered or flocculated.

- » Considerable reduction of operating costs by using raw water (e.g. surface water or well water) instead of city water
- » Ultrafiltrate is the perfect raw water to supply reverse osmosis units
- » Fully automatic operation with cyclic backwash of the UF membranes with ultrafiltrate
- » Recommended for raw water with a high particle concentration between 20 and 0.2 µm and a turbidity > 1 NTU
- » Fully automatic operation using PLC type Siemens S 7-1200 with convenient touch screen interface

» Backwash tank / cleaning tank with high-capacity, frequency-controlled backwash pump included

Pre-treatment of the raw water with flocculation / precipitation and gravel filter or disc filter (type DISC-UF) recommended.

Please check whether the produced wastewater needs to be treated.

Other unit sizes as well as pilot or project units available on request.

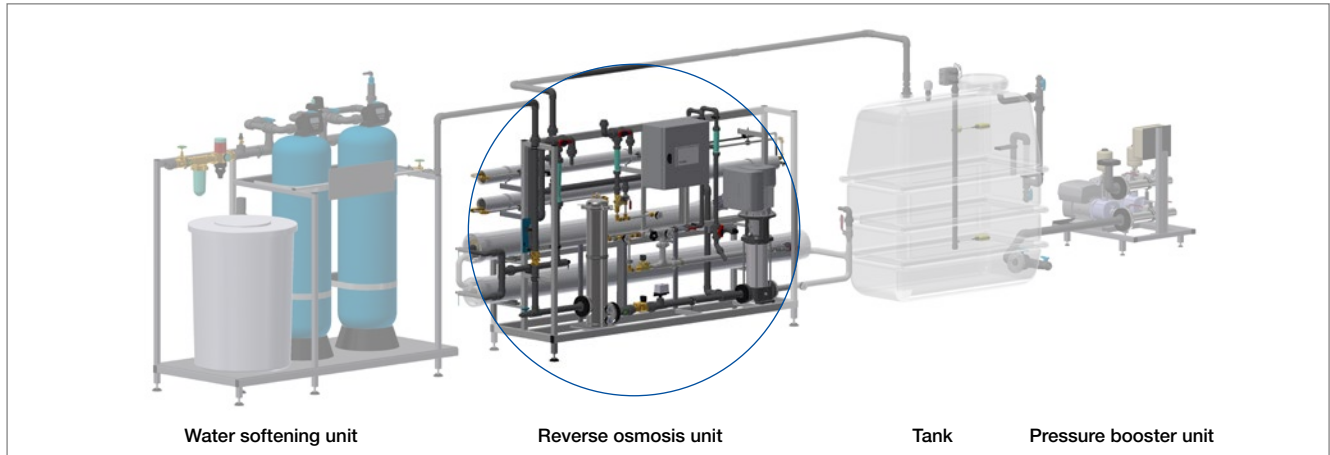
Ultrafiltration units UF RG 9				
For removal of particles / microorganisms from raw water from different sources				
Product name	Flow rate m³/h at Flux (lmh)	Hydraulic connection RW / Filtrate / WW	Dimensions in mm * W x D x H	Item number
UF 1D6	3.0 / 4.8 at 50 / 80	DN 32 / DN 32 / DN 50	2,200 x 1,150 x 2,050	428 044
UF 2D6	6.0 / 9.6 at 50 / 80	DN 50 / DN 50 / DN 80	3,050 x 1,850 x 2,100	428 054
UF 4D6	12.0 / 19.2 at 50 / 80	DN 65 / DN 65 / DN 100	4,200 x 2,500 x 2,200	428 064
UF 6D6	18.0 / 28.8 at 50 / 80	DN 80 / DN 80 / DN 125	4,800 x 2,800 x 2,200	428 074
UF 8D6	21.0 / 38.4 at 50 / 80	DN 100 / DN 100 / DN 150	5,450 x 3,000 x 2,300	428 084

* Depending on the position of the backwash tank.

Option CEB RG 9		
Chemically enhanced backwash		
Product name	Description	Item number
CEB 30	For 1 chemical product, for UF 1D6 to UF 6D6	428 129
CEB 50	For 1 chemical product, for UF 8D6	428 130

Please order the corresponding number of CEB units if more than one chemical product is used.

REVERSE OSMOSIS AND EDI UNITS – OVERVIEW



Our standardised range of reverse osmosis systems covers permeate capacities from 80 to 30,000 liters per hour. We offer a wide range of plants: from affordable undersink units and standard series with many applications to multi-stage project plants with accessories such as electro-deionisation (EDI) and membrane contactors (MEG). For capacities exceeding those mentioned here, please contact us.


The specific design of the various series offers the optimum system solution for every application:

Units for softened water (TDS < 1,000 mg/l) with permeate recovery of 75 - 80 %, EC < 20 µS/cm

- Compact: UO Budget**
Undersink unit, available from stock · 80 – 130 l/h
- Fast track: UO / UO-D**
Available from stock · 120 – 500 l/h
- Ready for operation: Combi series C/CD**
RO + softener · 120 – 500 l/h · 600 – 2,000 l/h
- Allrounder: UO-D (FU)**
Space-saving RO · 600 – 2,000 l/h
- Powerful: UO-ED Z (combi)**
Counterpressure RO for AC systems · 50 – 1,200 l/h
- Efficient: UO-D FU**
Low-pressure RO · 2,500 – 12,000 l/h

Units for softened water (TDS < 1,000 mg/l) with high requirements regarding permeate quality or yield

- Water-saving: UO-S7 KR/FU**
Recovery of up to 90 % · 3,000 – 15,000 l/h
- Double-stage: UO-D P (FU)**
RO for EC < 5 µS/cm · 200 – 1,700 l/h
- Ultrapure water unit: UP-S7 (FU)**
RO + EDI for EC < 0.2 µS/cm · 150 – 20,000 l/h



Available controllers for reverse osmosis systems

Antiscalant unit: UO-D AS/FU
TDS < 1,000 mg/l · 450 – 30,000 l/h

Brackish water unit: UO-D BW/FU
TDS < 5,000 mg/l · 250 – 13,500 l/h

Units for antiscalant operation or for water with higher salt content (TDS > 1,000 mg/l)

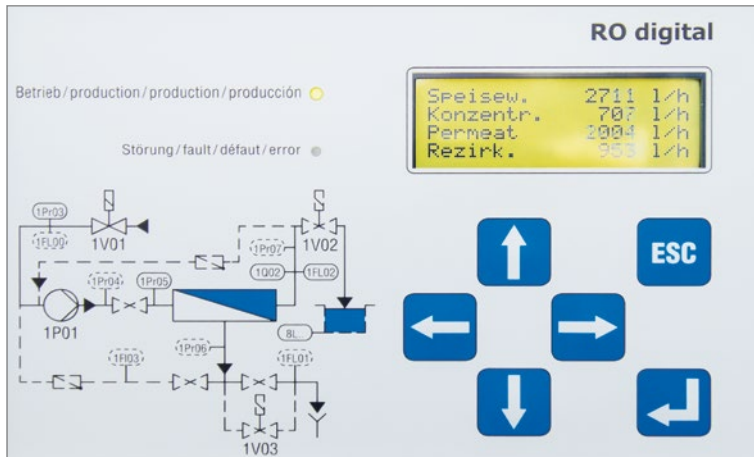
DEFINITIONS

- » **Soft water:** Water after pre-treatment with a softening unit. We would be pleased to offer you a matching system of softening unit and reverse osmosis.
- » **Hardness-stabilised drinking water:** dosing of a small amount of an antiscalant chemical into the feed water upstream of the reverse osmosis unit to prevent salt deposits on the membranes (scaling).
- » **FU:** Pump equipped with variable-speed drive (VSD) to save electrical energy. These pumps comply at least with energy efficiency class IE3 and are up to 11 kW efficiency class IE5.

REVERSE OSMOSIS AND EDI UNITS – OVERVIEW

Overview units					
Feed water	Permeate l/h	Series	Controller	Comments	Page
Softened city water (free of chlorine)	80 and 130	Budget	RO 524	Undersink device, space-saving, delivery from stock (Fast Track)	30
	120 - 500	UO		Space saving, delivery from stock (Fast Track)	30
		combi UO C series		Incl. pre-filter, backflow preventer, simplex softener, hardness monitoring unit. Ready for operation ("plug & flow")	30
		combi UO CD series		Incl. pre-filter, backflow preventer, duplex softener, hardness monitoring unit. Ready for operation ("plug & flow")	30
	120 - 500	UO-D	RO digital	Freely programmable controller, space saving, delivery from stock (Fast Track)	31
		combi UO-D C series		Incl. pre-filter, backflow preventer, simplex softener, hardness monitoring unit. Freely programmable controller, ready for operation ("plug & flow")	31
		combi UO-D CD series		Incl. pre-filter, backflow preventer, duplex softener, hardness monitoring unit. Freely programmable controller, ready for operation ("plug & flow")	31
	600 - 2,000	UO-D	RO digital	Freely programmable controller, universally applicable unit, Profinet interface optional	32
		UO-D FU		Like UO-D, energy-saving due to variable-speed drive (VSD = FU)	32
		combi UO-D CD series		Incl. pre-filter, backflow preventer, duplex softener, hardness monitoring unit. Freely programmable controller, ready for operation ("plug & flow")	33
		combi UO-D FU CD series		Like UO-D CD, energy-saving due to variable-speed drive (VSD)	33
	50 - 1,200	UO-ED Z	RO digital	Unit for permeate back pressure max. 7 bar (e.g. for cooling/air conditioning)	34
		combi UO-ED Z CD series		Incl. pre-filter, backflow preventer, duplex softener, hardness monitoring unit	34
	2,500 - 12,000	UO-D FU	RO digital	Freely programmable controller, all-round system, optionally with interfaces, energy-saving due to variable-speed drive (VSD = FU)	35
	3,000 - 15,000	UO-S7 KR/FU	Siemens S7-1200	Concentrate-staged, permeate recovery up to 90 %, energy-saving due to variable-speed drive (VSD = FU)	38
	200 - 1,700	UO-D P(FU)	RO digital (2x)	Permeate-staged, typical permeate conductivity < 5 µS/cm, energy-saving due to variable-speed drive (VSD = FU, from size 750 l/h on)	39
150 - 20,000	UP-S7 FU	Siemens S7-1200	Ultrapure water production unit, RO + EDI, typical diluate conductivity < 0.2 µS/cm, energy-saving due to variable-speed drive (VSD = FU) from size 550 l/h on	40	
150 - 2,200	EP	Siemens LOGO!	EDI stage for demineralisation of RO permeate, typical diluate conductivity < 0.2 µS/cm	41	
900 - 12,500	MEG	-	MEG stage for degassing RO permeate, CO ₂ in product water < 5 mg/l	41	
City water (free of chlorine, antiscalant dosing)	450 - 30,000	UO-D AS/FU	RO digital	Freely programmable controller, incl. ARA, KSE, connection for DOSIN AS-K, energy-saving due to variable-speed drive (VSD = FU)	42
Brackish water	250 - 13,500	UO-D BW/FU	RO digital	For raw water < 5,000 mg/l TDS, freely adjustable control, incl. ARA, KSE, PKR, 2x Dosing point connection, energy-saving due to variable-frequency drive (VFD = FU)	43

MICROPROCESSOR CONTROLLERS FOR REVERSE OSMOSIS UNITS



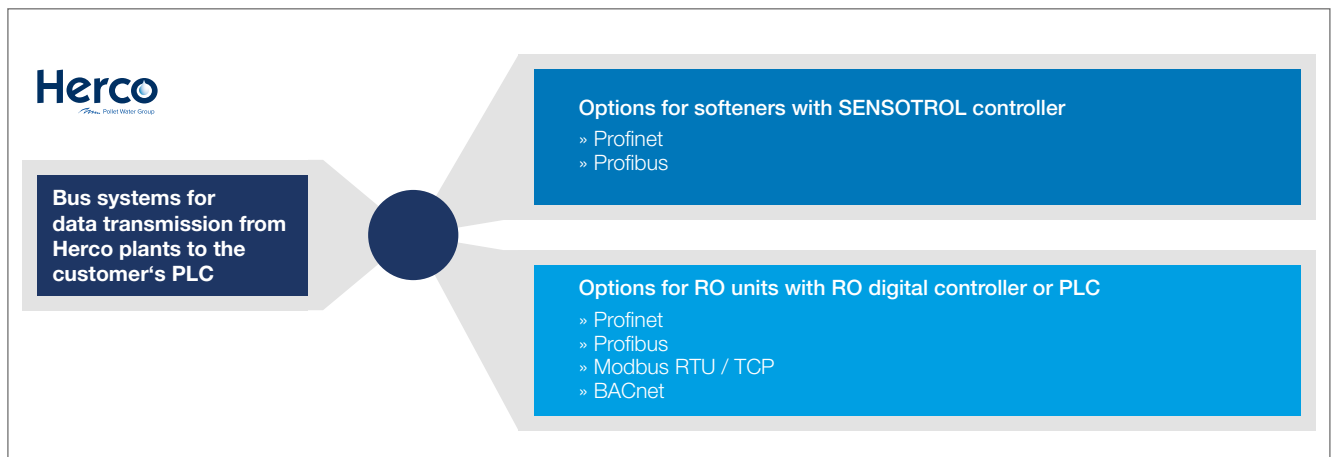
RO digital

Microprocessor controllers for reverse osmosis units		
Type	RO 524	RO digital
Display	2-digit	4 lines, 20 chars./line
Conductivity measuring range	1 - 99 µS/cm	1 - 1,000 µS/cm
Further conductivity ranges (µS/cm)	-	-
Control voltage	24 VDC	24 VDC
Supply voltage	230 V / 50 - 60 Hz ± 10 %	93 - 265 V / 50 - 60 Hz
Dry running protection for RO pump	yes	yes
Connection for limitron	yes	yes
Forced stop RO	yes	yes
Operating signal	-	adjustable
Centralised alarm	yes	yes
Automatic mode (e. g. tank level)	yes	yes
Permeate conductivity limit	fixed	adjustable
Flow rate limits	-	adjustable
Pressure limits	-	adjustable
Behaviour if the limit is exceeded	fixed	adjustable
Constant permeate rate possible	-	yes, if FU available
Alternating pump activation	-	-
Optional ports (inputs)		
Concentrate flushing valve	yes (as an alternative)	yes
Permeate recirculation	yes (as an alternative)	yes
Double-staged RO unit	-	-
Analogue level switch	-	yes
Feed water conductivity	-	-
Programmable digital inputs	-	3
e.g. pre-alarm dosing tank empty	-	yes
e.g. external fault	-	yes
Optional ports (outputs)		
Permeate conductivity pre-warning	-	yes
Analogue values	-	2
e.g. permeate conductivity	-	yes
e.g. permeate output	-	yes
Programmable digital outputs	-	1
e.g. operating signal	-	yes
Data logging	-	1,960 data sets approx. 10 days
Parameter setting	pre-configured	adjustable
Firmware update	at the factory	via RS232
Profinet module	-	optional

PROGRAMMABLE LOGIC CONTROLLER (PLC) AND INTERFACES FOR RO UNITS

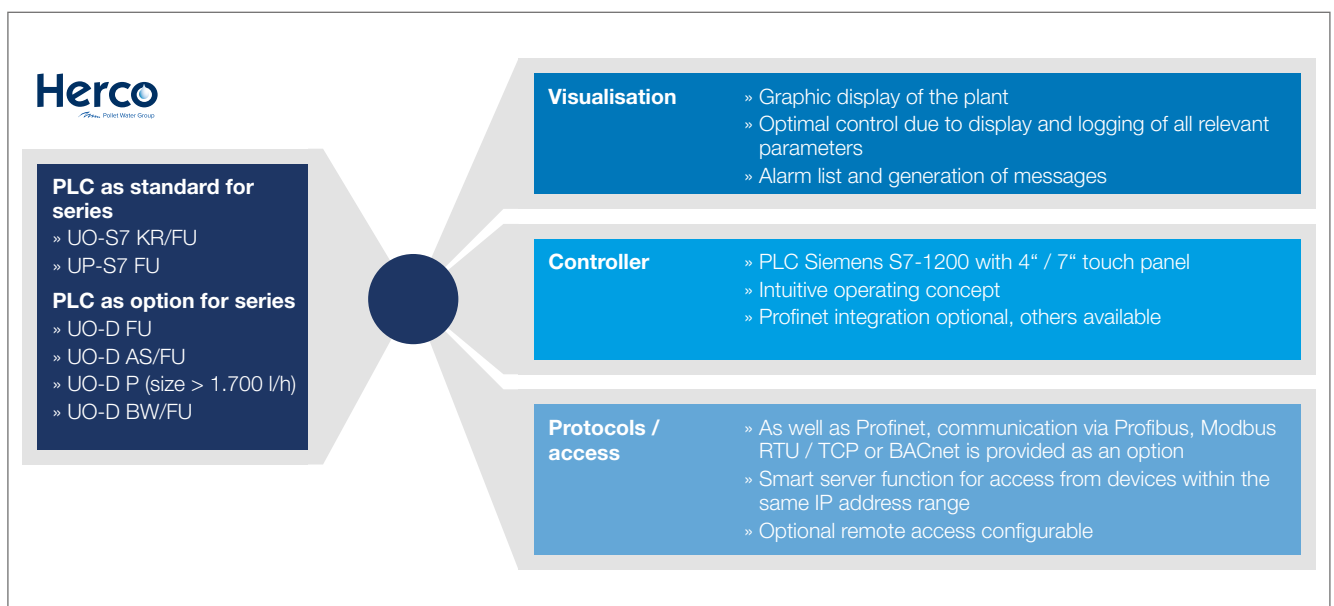


To enable communication of softening or reverse osmosis units with the customer's central control system, use of an interface is required. The tried and tested Herco controllers SENSOTROL and RO digital are now optionally equipped with BUS interface modules. With this step, the entire plant data can be made available to the client's on-site PLC (see also p. 46).



If visualisation of the process with a touch panel and extensive access to the unit is required, we recommend a PLC instead of a micro-processor controller. We offer you the option to order RO plants with a PLC instead of a microprocessor controller for all units of the series UO-D FU, UO-D AS/FU, UO-D P (size > 1,700 l/h) and UO-D BW/FU.

Our most sophisticated RO series UO-S7 KR (see p. 38) and UP-S7 (see p. 40) are equipped with a PLC as standard control system. Further details on the scope of services and on the item numbers can be found on page 46.



COMPACT REVERSE OSMOSIS UNITS (PARTLY WITH SOFTENER)

Controller RO 524

Fast Track



UO Budget 130

CHARACTERISTICS OF THE BUDGET SERIES

- » Space-saving undersink unit
- » Operation without water softening unit possible
- » Measurement of permeate conductivity available as an option
- » Particularly good value

CHARACTERISTICS OF THE UO SERIES

- » Wall-mounted or free-standing
- » Particularly space-saving due to vertical arrangement of membrane housings
- » Equipped with efficient rotary vane pumps
- » Ready for operation because of pre-set controller
- » More options such as limitron, PR and VSE available

The series budget and UO 120 – 500 are available from stock (valid for units without options and without softener). If one of these reverse osmosis units is ordered until 3 pm with the comment “FAST TRACK”, HERCO guarantees readiness for shipment within two working days.

See pages 24 and 44 – 45 for options and accessories.

Budget series: undersink units, permeate capacity 80 and 130 l/h RG 7

Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO Budget 80	0.4 / 230 / 50	R ¾" AG / DN 10 / DN 10	800 x 360 x 360	381 900
UO Budget 130	0.4 / 230 / 50	R ¾" AG / DN 10 / DN 10	800 x 360 x 360	381 901
Measurement of permeate conductivity		Option for UO Budget, only installation ex works		381 903

UO series: wall/free-standing units, permeate capacity 120 – 500 l/h RG 7

Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO 120	0.55 / 230 / 50	DN 20 / DN 10 / DN 10	410 x 380 x 1,160	381 921
UO 300	0.55 / 230 / 50	DN 20 / DN 10 / DN 10	410 x 380 x 1,250	381 922
UO 500	0.55 / 230 / 50	DN 20 / DN 10 / DN 10	410 x 380 x 1,250	381 923

Combi UO C series: RO units with simplex softening units, permeate capacity 120 – 500 l/h RG 7

Demineralisation of drinking water with a salinity of up to 1,000 mg/l

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO 120 C	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 750 x 1,520	420 191
UO 300 C	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 750 x 1,520	420 192
UO 500 C	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 750 x 1,520	420 193

Combi UO CD series: RO units with duplex softening units, permeate capacity 120 – 500 l/h RG 7

Demineralisation of drinking water with a salinity of up to 1,000 mg/l

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO 120 CD	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 760 x 1,520	420 201
UO 300 CD	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 760 x 1,520	420 202
UO 500 CD	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 760 x 1,520	420 203

Options

For RO series UO 120 - 500

Option HR modules	Salt rejection rate increased from 97 % to > 98.5 %, slightly lower permeate capacity	383 767
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COMPACT REVERSE OSMOSIS UNITS (PARTLY WITH SOFTENER)



The series UO-D 120 – 500 is available from stock (valid for units without options and without softener). If one of these reverse osmosis units is ordered until 3 pm with the comment “FAST TRACK”, HERCO guarantees readiness for shipment within two working days.

CHARACTERISTICS OF THE C AND CD COMBI SERIES

- » Freely programmable controller with adjustable limit values
- » Logging of all relevant operating parameters
- » BUS connection, e.g. via Profinet, optionally available
- » More options such as HR modules, PR and VSE available
- » Cover included in scope of delivery of all UO-D 120 – 500 units

CHARACTERISTICS OF THE SERIES UO-D

- » Freely programmable controller with adjustable limit values
- » Logging of all relevant operating parameters
- » BUS connection, e.g. via Profinet, optionally available
- » More options such as HR modules, PR and VSE available
- » Cover included in scope of delivery of all UO-D 120 – 500 units

See pages 24 and 44 – 49 for options and accessories.

UO-D series: Wall/free-standing, permeate capacity 120 - 500 l/h					RG 7
Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l					
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number	
UO-D 120	0.55 / 230 / 50	DN 20 / DN 10 / DN 10	460 x 400 x 1,260	387 141	
UO-D 300	0.55 / 230 / 50	DN 20 / DN 10 / DN 10	460 x 400 x 1,260	387 142	
UO-D 500	0.55 / 230 / 50	DN 20 / DN 10 / DN 10	460 x 400 x 1,260	387 143	

Combi UO-D C series: RO units with simplex softening unit, permeate capacity 120 - 500 l/h					RG 7
Demineralisation of drinking water with a salinity of up to 1,000 mg/l					
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number	
UO-D 120 C	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 780 x 1,520	420 211	
UO-D 300 C	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 780 x 1,520	420 212	
UO-D 500 C	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 780 x 1,520	420 213	

Combi UO-D CD series: RO units with duplex softening unit, Permeate capacity 120 - 500 l/h					RG 7
Demineralisation of drinking water with a salinity of up to 1,000 mg/l					
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number	
UO-D 120 CD	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 780 x 1,520	420 221	
UO-D 300 CD	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 780 x 1,520	420 222	
UO-D 500 CD	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 780 x 1,520	420 223	

Options		
For RO series UO-D 120 - 500		
Option HR modules	Salt rejection rate increased from 97 % to > 98.5 %, slightly lower permeate capacity	383 767

REVERSE OSMOSIS UNITS FOR SOFT WATER

Controller RO digital

30 – 50 % less electricity cost



UO-D 900 FU



UO-D 2000

CHARACTERISTICS OF THE UO-D SERIES

- » Equipped with high-quality centrifugal pumps
- » Freely programmable controller with adjustable limit values
- » Logging of all relevant operating parameters
- » BUS connection, e.g. via Profinet, optionally available
- » Higher salt rejection with HR membrane modules (optionally available without charge)
- » More options such as limitron, PR, KSE and VSE available

ADVANTAGES OF UNITS WITH VSD (FU)

- » Energy saving of 30 – 50 %
- » Amortisation often after less than one year
- » Permeate production constant independent of operating pressure (permeate constant control PKR)
- » Protection of the unit due to soft start
- » Particularly quiet operation

Pumps with variable-speed drive (VSD = FU) use 30 - 50 % less energy and have a payback time under a year. The savings in electricity costs over the lifetime of the system are many times the system costs.



Click on the link below for more information on our RO units with VSD (FU) and our helpful tool for the calculation of energy savings.

hercowater.com/energyefficiency/

See pages 24 and 44 – 49 for options and accessories.

UO-D series: Permeate capacity 600 - 2,000 l/h RG 8

Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 600	1.5 / 3 x 400 / 50	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 151
UO-D 900	1.5 / 3 x 400 / 50	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 152
UO-D 1200	2.2 / 3 x 400 / 50	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 153
UO-D 1500	2.2 / 3 x 400 / 50	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 154
UO-D 2000	3.0 / 3 x 400 / 50	DN 32 / DN 20 / DN 15	610 x 810 x 1,830	387 155

UO-D FU series: Permeate capacity 600 - 2,000 l/h RG 8

Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 600 FU	2.2 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 161
UO-D 900 FU	2.2 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 162
UO-D 1200 FU	2.2 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 163
UO-D 1500 FU	2.2 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 164
UO-D 2000 FU	3.0 / 3 x 380 - 500 / 50 - 60	DN 32 / DN 20 / DN 15	610 x 810 x 1,830	387 165

Options

For RO series UO-D 600 - 2000

Option HR modules	Salt rejection rate increased from 97 % to > 98.5 %, slightly lower permeate capacity	383 777
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COMBI REVERSE OSMOSIS UNITS FOR CITY WATER



UO-D 900 CD



UO-D 2000 FU CD

Controller RO digital

30 – 50 % less electricity cost

CHARACTERISTICS OF THE UO-D CD COMBI SERIES

- » Units ready for connection, incl. shut-off valve, pre-filter, backflow preventer, duplex (CD) softening unit ECOTROL TWIN and hardness monitoring device limitron
- » Equipped with high-quality centrifugal pumps
- » Freely programmable controller with adjustable limit values
- » Logging of all relevant operating parameters
- » BUS connection, e.g. via Profinet, optionally available
- » Higher salt rejection with HR membrane modules (optionally available without charge)
- » More options such as brine tank skid SLB, PR, KSE and VSE available

ADVANTAGES OF UNITS WITH VSD (FU)

- » Energy saving of 30 – 50 %
- » Amortisation often after less than one year
- » Permeate production constant independent of operating pressure (permeate constant control PKR)
- » Protection of the unit due to soft start
- » Particularly quiet operation

Pumps with variable-speed drive (VSD = FU) use 30 - 50 % less energy and have a payback time under a year. The savings in electricity costs over the lifetime of the system are many times the system costs.



Click on the link below for more information on our RO units with VSD (FU) and our helpful tool for the calculation of energy savings.

hercowater.com/energyefficiency/

See pages 24 and 44 – 49 for options and accessories.

Combi UO-D CD series: RO units with duplex softening unit, permeate capacity 600 - 2,000 l/h				RG 8
Demineralisation of drinking water with a salinity of up to 1,000 mg/l				
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 600 CD	1.5 / 3 x 400 / 50	DN 25 / DN 20 / HT 100	1,760 x 810 x 1,860	420 231
UO-D 900 CD	1.5 / 3 x 400 / 50	DN 25 / DN 20 / HT 100	1,760 x 810 x 1,860	420 232
UO-D 1200 CD	2.2 / 3 x 400 / 50	DN 25 / DN 20 / HT 100	1,940 x 810 x 2,000	420 233
UO-D 1500 CD	2.2 / 3 x 400 / 50	DN 25 / DN 20 / HT 100	1,940 x 810 x 2,000	420 234
UO-D 2000 CD	3.0 / 3 x 400 / 50	DN 32 / DN 20 / HT 100	1,940 x 810 x 2,000	420 235

Combi UO-D FU CD series: RO units with duplex softening unit, permeate capacity 600 - 2,000 l/h				RG 8
Demineralisation of drinking water with a salinity of up to 1,000 mg/l				
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 600 FU CD	2.2 / 3 x 380 - 500 / 50 - 60	DN 25 / DN 20 / HT 100	1,760 x 810 x 1,860	420 241
UO-D 900 FU CD	2.2 / 3 x 380 - 500 / 50 - 60	DN 25 / DN 20 / HT 100	1,760 x 810 x 1,860	420 242
UO-D 1200 FU CD	2.2 / 3 x 380 - 500 / 50 - 60	DN 25 / DN 20 / HT 100	1,940 x 810 x 2,000	420 243
UO-D 1500 FU CD	2.2 / 3 x 380 - 500 / 50 - 60	DN 25 / DN 20 / HT 100	1,940 x 810 x 2,000	420 244
UO-D 2000 FU CD	3.0 / 3 x 380 - 500 / 50 - 60	DN 32 / DN 20 / HT 100	1,940 x 810 x 2,000	420 245

Options				RG 8
For RO series UO-D 600 - 2000				
Option HR modules	Salt rejection rate increased from 97 % to > 98.5 %, slightly lower permeate capacity			383 777
Option skid SLB	Base frame for brine tank		630 x 810 x 170	366 146

COUNTERPRESSURE REVERSE OSMOSIS UNITS FOR SOFT WATER

Controller RO digital
Hygienic operation



UO-ED 300 Z



UO-ED 300 Z-CD

CHARACTERISTICS OF THE UO-ED Z SERIES

- » Designed for a counterpressure of 4 bar, operation with up to 7 bar possible
- » Hygienic operation due to direct supply of permeate to consumer
- » Design with minimal dead zones on permeate side due to flow-through expansion vessel
- » Permeate recirculation PR inklusive
- » Higher salt rejection with HR membrane modules optionally available without charge (from RO size 150 on)
- » More options such as limitron and VSE available

CHARACTERISTICS OF THE UO-ED Z CD SERIES

- » Units ready for connection, incl. pre-filter, backflow preventer, duplex (CD) softening unit and hardness monitoring device limitron
- » Further characteristics as described for UO-ED Z

Air conditioning (AC) systems regulate the temperature and humidity in buildings.

This often requires humidification of the supply air. The reverse osmosis series UO-ED Z is specially designed to produce water for air conditioning systems.

ADVANTAGES OF THE UO-ED Z (COMBI) SERIES:

- » Design with minimal dead zones and hygienic operation make this series ideally suited for air conditioning applications
- » Transport of permeate over several floors possible
- » Ideal for confined spaces

See pages 24 and 44 – 49 for options and accessories.

UO-ED Z series: Counterpressure reverse osmosis units, permeate capacity 50 - 1,200 l/h				RG 8
Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l				
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-ED 50 Z	0.25 / 230 / 50	DN 20 / DN 10 / DN 10	610 x 500 x 1,530	380 620
UO-ED 150 Z	0.55 / 230 / 50	DN 20 / DN 10 / DN 10	610 x 500 x 1,530	380 621
UO-ED 300 Z	1.5 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	710 x 790 x 1,630	380 622
UO-ED 600 Z	1.5 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	710 x 790 x 1,630	380 623
UO-ED 900 Z	2.2 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	710 x 790 x 1,630	380 624
UO-ED 1200 Z	2.2 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	710 x 790 x 1,630	380 625

UO-ED Z CD series: Counterpressure RO units with duplex softening unit, permeate capacity 50 - 1,200 l/h				RG 8
Demineralisation of drinking water with a salinity of up to 1,000 mg/l				
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-ED 50 Z CD	0.25 / 230 / 50	1" IG / DN 10 / HT 100	1,700 x 800 x 1,560	420 250
UO-ED 150 Z CD	0.55 / 230 / 50	1" IG / DN 10 / HT 100	1,700 x 800 x 1,560	420 251
UO-ED 300 Z CD	1.5 / 3 x 400 / 50	1" IG / DN 15 / HT 100	1,810 x 800 x 1,680	420 252
UO-ED 600 Z CD	1.5 / 3 x 400 / 50	1" IG / DN 15 / HT 100	1,900 x 800 x 1,750	420 253
UO-ED 900 Z CD	2.2 / 3 x 400 / 50	1" IG / DN 15 / HT 100	1,900 x 800 x 1,750	420 254
UO-ED 1200 Z CD	2.2 / 3 x 400 / 50	1" IG / DN 15 / HT 100	2,040 x 800 x 2,000	420 255

Options		
For RO series UO-ED Z and UO-ED Z CD		
Option HR modules	Salt rejection rate increased from 97 % to > 98.5 %, slightly lower permeate capacity, max. backpressure 4 bar	383 829

REVERSE OSMOSIS UNITS FOR SOFT WATER



REDESIGNED

Controller RO digital

30 – 50 % less electricity cost

UO-D 4300 ND/FU

CHARACTERISTICS OF THE UO-D FU SERIES

- » Suitable for most industry applications
- » Modern microprocessor controller RO digital
- » Logging of all relevant operating parameters
- » BUS connection, e.g. via Profinet, optionally available
- » PLC instead of RO digital available as an option
- » More options such as limitron, PR and KSE available
- » Unit sizes 2500 and 3000 optionally available as space-saving versions with vertical arrangement of membrane housings
- » No pressurised air required

ADVANTAGES OF UNITS WITH VSD (FU)

- » Energy saving of 30 – 50 %
- » Amortisation often after less than one year
- » Permeate production constant independent of operating pressure (permeate constant control PKR)
- » Protection of the unit due to soft start
- » Particularly quiet operation

Pumps with variable-speed drive (VSD = FU) use 30 - 50 % less energy and have a payback time under a year. The savings in electricity costs over the lifetime of the system are many times the system costs.

See pages 24 and 44 – 49 for options and accessories.



Click on the link below for more information on our RO units with VSD (FU) and our helpful tool for the calculation of energy savings.

hercowater.com/energyefficiency/

UO-D FU series: Permeate capacity 2,500 - 3,500 l/h				RG 8
Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l				
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 2500 FU	3.0 / 3x 380 - 500 / 50 - 60	DN 32 / DN 25 / DN 25	2,480 x 710 x 1,650	387 195
UO-D 3000 FU	3.0 / 3x 380 - 500 / 50 - 60	DN 32 / DN 25 / DN 25	3,500 x 710 x 1,650	387 196
UO-D 3500 FU	3.0 / 3x 380 - 500 / 50 - 60	DN 32 / DN 25 / DN 25	3,500 x 710 x 1,650	387 197

UO-D FU series: Permeate capacity 4,300 - 12,000 l/h				RG 9
Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l				
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 4300 FU	5.5 / 3x 380 - 500 / 50 - 60	DN 50 / DN 32 / DN 32	2,900 x 790 x 1,790	387 198
UO-D 5400 FU	5.5 / 3x 380 - 500 / 50 - 60	DN 50 / DN 32 / DN 32	2,900 x 790 x 1,790	387 199
UO-D 7000 FU	5.5 / 3x 380 - 500 / 50 - 60	DN 50 / DN 40 / DN 32	3,870 x 790 x 1,830	387 200
UO-D 8000 FU	7.5 / 3x 380 - 500 / 50 - 60	DN 50 / DN 40 / DN 32	3,870 x 790 x 1,830	387 201
UO-D 10000 FU	7.5 / 3x 380 - 500 / 50 - 60	DN 65 / DN 50 / DN 32	4,880 x 790 x 1,830	387 202
UO-D 12000 FU	11.0 / 3x 380 - 500 / 50 - 60	DN 65 / DN 50 / DN 50	4,060 x 840 x 1,880	387 203

Options	
For RO series UO-D ND/FU	
Option HR modules	Salt rejection rate increased from 97 % to > 98.5 %, slightly lower permeate capacity

CUSTOMISED PLANTS

SPECIAL APPLICATION? OUR TEAM OF EXPERTS IS HAPPY TO ADVISE YOU.

OUR COMPETENCE IN SERIES AND CUSTOMISED PLANT ENGINEERING

In addition to our standard products, we offer custom-made series products and tailor-made project systems. You benefit from short project execution times, as we do not have to develop project systems from scratch, but build them based on our standard products.

Furthermore, all systems are designed, fabricated, and tested in-house. We are happy to offer you a factory acceptance test (FAT) and project-specific training on the plant.

We adapt our plants in customised project engineering exactly to your requirements.

Here are just a few examples of our abilities:

- » Piping in PP or stainless steel instead of PVC
- » Instrumentation as required (e.g. Endress+Hauser)
- » Integration of online measurements (e.g. silicate)
- » Customer-specific CIP/SIP concepts
- » Adaptation of PLC programming
- » Extended documentation and certification

WATER TREATMENT FOR THE CHEMICAL INDUSTRY

The plant produces ultrapure water for the production processes from well water. All plant components were mounted on racks. The pipework of the demineralisation plant was carried out in PP and the control via PLC Siemens S7-1200.

PRE-TREATMENT

- » Multimedia filter MFT 5 as activated carbon filter (21 m³/h)
- » Softener DUOTROL 2000 (17.6 m³/h)

DESALINATION

- » Monitoring residual hardness < 0.1°dH in soft water
- » Reverse osmosis with HR modules and permeate recirculation (13.2 m³/h)
- » Membrane degassing MEG 13500 for CO₂ removal
- » Electrodeionisation EP 12000 (12 m³/h)

CAPACITY

12 m³/h ultrapure water with resistivity of > 10 MOhm x cm



Unit for Wycombe Water Ltd.

EXAMPLES OF OUR EXPERIENCE IN SERIES AND CUSTOMER-SPECIFIC PLANT MANUFACTURING

With innovative, digital, and sustainable water treatment plants and services, we offer solutions "Made in Germany" to provide our partners with their most important raw material day after day: Pure water.

Our products are used in medical technology, enable numerous industrial processes, provide the basis for pharmaceuticals as well as food and thus preserve the basis of life for all of us - worldwide!

Therefore, here are some projects we are proud of:

- » Containers with ultrafiltration for drinking water supply in distress areas (> 90 units).
- » Water treatment in Russia with documentation according to chemical standards (softener + RO with 10 m³/h)
- » Water treatment for endoscope cleaning for Ireland / UK, consisting of RO, permeate tank, recirculation and hot cleaning (> 140 units)
- » Nanofiltration plant in stainless steel design for drinking water treatment in Germany (2 x 115 m³/h)
- » Water treatment for dialysis in Uzbekistan (> 40 RO units)



CONCENTRATE-STAGED REVERSE OSMOSIS UNITS FOR SOFT WATER

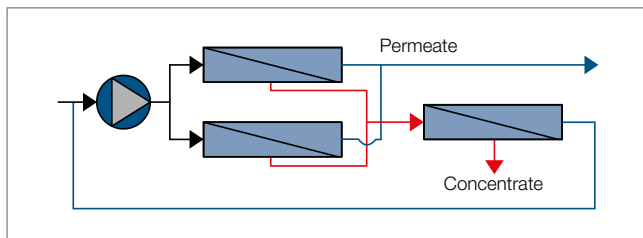
PLC

Recovery up to 90 %

30 – 50 % less electricity cost



UO-S7 5000 KR



ADVANTAGES OF UNITS WITH VSD (FU)

- » Energy saving of 30 – 50 %
- » Amortisation often after less than one year
- » Permeate production constant independent of operating pressure (permeate constant control PKR)
- » Protection of the unit due to soft start
- » Particularly quiet operation

Pumps with variable-speed drive (VSD = FU) use 30 - 50 % less energy and have a payback time under a year. The savings in electricity costs over the lifetime of the system are many times the system costs.

CHARACTERISTICS OF THE UO-S7 KR/FU SERIES

- » PLC S7-1200 with 4" (only sizes 3000/3500) or 7" display
- » Water saving due to high recovery of up to 90 %.
- » Optimal permeate quality through special membrane selection
- » Including KSE concentrate flushing unit and ARA connection kit
- » More options such as limitron, PR and KVP KR available



Click on the link below for more information on our RO units with VSD (FU) and our helpful tool for the calculation of energy savings.

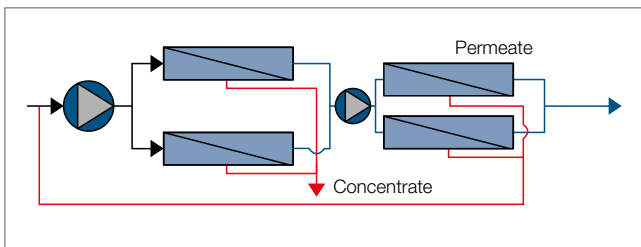
hercowater.com/energyefficiency/

Due to the savings in fresh water and wastewater, amortisation is usually possible after a few months. We will be pleased to prepare an operating cost calculation for you.

See pages 24 and 44 – 49 for options and accessories.

UO-S7 KR/FU series: Concentrate-staged RO units, permeate capacity 3,000 - 15,000 l/h				RG 9
Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l				
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-S7 3000 KR/FU	5.5 / 3 x 380 - 500 / 50 - 60	DN 32 / DN 25 / DN 20	3,500 x 700 x 1,740	381 822
UO-S7 3500 KR/FU	5.5 / 3 x 380 - 500 / 50 - 60	DN 32 / DN 25 / DN 20	3,500 x 700 x 1,740	381 832
UO-S7 4000 KR/FU	7.5 / 3 x 380 - 500 / 50 - 60	DN 32 / DN 32 / DN 25	2,900 x 840 x 1,810	381 842
UO-S7 5000 KR/FU	7.5 / 3 x 380 - 500 / 50 - 60	DN 32 / DN 32 / DN 25	2,950 x 840 x 1,810	381 852
UO-S7 6000 KR/FU	7.5 / 3 x 380 - 500 / 50 - 60	DN 40 / DN 40 / DN 25	3,440 x 840 x 1,830	381 862
UO-S7 7000 KR/FU	7.5 / 3 x 380 - 500 / 50 - 60	DN 40 / DN 40 / DN 25	3,920 x 840 x 1,830	381 872
UO-S7 8500 KR/FU	11.0 / 3 x 380 - 500 / 50 - 60	DN 50 / DN 40 / DN 25	4,880 x 790 x 1,830	381 882
UO-S7 10000 KR/FU	11.0 / 3 x 380 - 500 / 50 - 60	DN 50 / DN 50 / DN 32	4,060 x 870 x 1,860	381 962
UO-S7 12000 KR/FU	11.0 / 3 x 380 - 500 / 50 - 60	DN 50 / DN 50 / DN 32	4,930 x 870 x 1,860	381 972
UO-S7 15000 KR/FU	15.0 / 3 x 380 - 480 / 50 - 60	DN 50 / DN 50 / DN 32	5,100 x 940 x 1,860	381 982

PERMEATE-STAGED REVERSE OSMOSIS UNITS FOR SOFT WATER



CHARACTERISTICS OF THE UO-D P SERIES

- » RO digital controller up to size 1,700 l/h
- » System consistently designed with two stages, one controller per stage
- » Subsequent upgrade of UO-D units to UO-D P possible
- » Units from 750 l/h upwards with variable-speed drive (VSD = FU) as standard
- » Further options such as limitron and bus interfaces available

ADVANTAGES OF THE UO-D P SERIES

- » Subsequent upgrade from standard to permeate-staged unit easy to carry out
- » Very good permeate quality is achieved through two-stage design (typical conductivity < 5 µS/cm)
- » Ideal for applications with strict requirements on permeate conductivity (e.g. in surface technology, chemical industry, laboratory technology etc.)

ADVANTAGES OF UNITS WITH VSD (FU)

- » Energy savings of up to 30 % or more
- » Amortisation often after less than one year
- » Permeate production constant independent of operating pressure (permeate constant control PKR)
- » Protection of the unit due to soft start
- » Particularly quiet operation

Pumps with variable-speed drive (VSD = FU) use 30 - 50 % less energy and have a payback time under a year. The savings in electricity costs over the lifetime of the system are many times the system costs.



Click on the link below for more information on our RO units with VSD (FU) and our helpful tool for the calculation of energy savings.

hercowater.com/energyefficiency/

See pages 24 and 44 – 49 for options and accessories.

UO-D P series: Permeate-staged RO units, permeate capacity 200 - 400 l/h RG 8

Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 200 P	0.55 / 230 / 50 + 0.55 / 230 / 50	DN 20 / DN 10 / DN 10	880 x 400 x 1,260	387 190
UO-D 400 P	0.55 / 230 / 50 + 0.55 / 230 / 50	DN 20 / DN 10 / DN 10	880 x 400 x 1,260	387 191

UO-D P/FU series: Permeate-staged RO units, permeate capacity 750 - 1,700 l/h RG 9

Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 750 P/FU	2.2 / 3 x 400 / 50-60 + 2.2 / 3 x 400 / 50-60	DN 20 / DN 20 / DN 15	1,220 x 810 x 1,800	387 192
UO-D 1250 P/FU	2.2 / 3 x 400 / 50-60 + 2.2 / 3 x 400 / 50-60	DN 20 / DN 20 / DN 15	1,220 x 810 x 1,800	387 193
UO-D 1700 P/FU	4.0 / 3 x 400 / 50-60 + 2.2 / 3 x 400 / 50-60	DN 20 / DN 20 / DN 15	1,220 x 810 x 1,800	387 194

Larger units (> 1,700 l/h) are available on request and are designed according to your requirements. These units are equipped with PLC Siemens S7-1200 as a standard.

ULTRA-PURE WATER UNITS (RO WITH EDI)

PLC

Typical cond. diluate
< 0.2 µS/cm

30 – 50 % less
electricity cost



UP-S7 20000 FU

CHARACTERISTICS OF THE UP-S7 FU SERIES

- » PLC S7-1200 with 4" (only sizes 150/250) or 7" display
- » Electro-deionisation with upstream RO unit
- » Diluate (product water) with typical conductivity < 0.2 µS/cm
- » Continuous operation
- » PR permeate recirculation included
- » Options such as pipework in PP instead of PVC or MEG available

ADVANTAGES OF THE UP-S7 FU SERIES

- » Excellent product water quality due to downstream EDI (typical conductivity < 0.2 µS/cm)
- » No chemicals required
- » Ideal for applications with very strict requirements for permeate conductivity (e.g. pharmaceutical, power plant, microelectronics, etc.)

ADVANTAGES OF UNITS WITH VSD (FU)

- » Energy saving of 30 – 50 %
- » Amortisation often after less than one year
- » Permeate production constant independent of operating pressure (permeate constant control PKR)
- » Protection of the unit due to soft start
- » Particularly quiet operation

Pumps with variable-speed drive (VSD = FU) use 30 - 50 % less energy and have a payback time under a year. The savings in electricity costs over the lifetime of the system are many times the system costs.



Click on the link below for more information on our RO units with VSD (FU) and our helpful tool for the calculation of energy savings.

hercowater.com/energyefficiency/

See pages 24 and 44 – 49 for options and accessories.

UP-S7 series: Reverse osmosis units with Electro-deionisation, diluate capacity 150 - 3,000 l/h RG 8

Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l

Product name / Diluate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/diluate/conc.	Dimensions in mm W x D x H	Item number
UP-S7 150	0.9 / 230 / 50	DN 20 / DN 20 / HT 50	1,040 x 840 x 2,000	425 083
UP-S7 250	1.2 / 230 / 50	DN 20 / DN 20 / HT 50	1,040 x 840 x 2,000	425 093
UP-S7 550 FU	3.2 / 3 x 380-480 / 50-60	DN 20 / DN 20 / HT 50	1,040 x 840 x 2,000	425 006
UP-S7 800 FU	4.0 / 3 x 380-480 / 50-60	DN 20 / DN 20 / HT 50	1,040 x 840 x 2,000	425 016
UP-S7 1100 FU	4.5 / 3 x 380-480 / 50-60	DN 20 / DN 20 / HT 50	1,040 x 840 x 2,000	425 026
UP-S7 1500 FU	4.5 / 3 x 380-480 / 50-60	DN 25 / DN 20 / HT 50	1,040 x 840 x 2,000	425 036
UP-S7 2200 FU	7.3 / 3 x 380-480 / 50-60	DN 25 / DN 20 / HT 50	1,040 x 970 x 2,000	425 056
UP-S7 3000 FU	10.5 / 3 x 380-480 / 50-60	DN 32 / DN 25 / DN 25+15	3,470 x 820 x 1,880	425 086

UP series: Reverse osmosis units with Electro-deionisation, diluate capacity 4,100 - 20,000 l/h RG 9

Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l

Product name / Diluate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/diluate/conc.	Dimensions in mm W x D x H	Item number
UP-S7 4100 FU	12.5 / 3 x 380-480 / 50-60	DN 40 / DN 32 / DN 32+15	3,210 x 880 x 2,190	425 088
UP-S7 6000 FU	17.0 / 3 x 380-480 / 50-60	DN 50 / DN 40 / DN 32+15	3,860 x 880 x 2,200	425 090
UP-S7 8200 FU	18.5 / 3 x 380-480 / 50-60	DN 50 / DN 40 / DN 32+20	5,070 x 880 x 2,200	425 094
UP-S7 12500 FU	24.0 / 3 x 380-480 / 50-60	DN 50 / DN 50 / DN 50+20	5,070 x 1,190 x 2,160	425 096
UP-S7 20000 FU	40.0 / 3 x 380-480 / 50-60	DN 80 / DN 65 / DN 50+20	5,070 x 1,500 x 2,200	425 098

ULTRA-PURE WATER COMPONENTS (EDI AND MEG)



CHARACTERISTICS OF THE EP SERIES

- » Electro-deionisation (EDI) for demineralisation of RO permeate
- » Diluate (product water) with typical conductivity < 0.2 $\mu\text{S}/\text{cm}$
- » Prepared for direct connection to a RO unit
- » Piping in PP



$\text{CO}_2 < 5 \text{ mg/l}$

CHARACTERISTICS OF MEMBRANE DEGASIFIER MEG

- » Reduction of dissolved CO_2 in the permeate from 30 mg/l to < 5 mg/l, thereby significant reduction of conductivity
- » Compact installation on skid of UP-S7 units is included
- » Scope of supply includes accessories such as air filter, pressure reducer and air flow meter
- » MEG DL is supplied with pressurised air provided by the customer, MEG SV is supplied with air from a side-channel compressor (included in scope)
- » For special applications such as oxygen degassing, degassing with FDA approved modules or permeate with CO_2 values > 30 mg/l please contact us

ADVANTAGES OF MEMBRANE DEGASIFIER MEG

- » Improves efficiency of downstream EDI (particularly important, if very low silica concentrations are required in the diluate)
- » Sturdy and reliable physical process, no chemical consumption

EP series: Electro-deionisation (EDI), diluate capacity 300 - 2,200 l/h RG 8

For RO permeate demineralisation

Product name / Diluate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/diluate/conc.	Dimensions in mm W x D x H	Item number
EP 300	2.1 / 3 x 400 / 50	DN 20 / DN 20 / DN 50	1,040 x 690 x 1,610	425 101
EP 900	2.1 / 3 x 400 / 50	DN 20 / DN 20 / DN 50	1,040 x 690 x 1,610	425 121
EP 1500	2.1 / 3 x 400 / 50	DN 20 / DN 20 / DN 50	1,040 x 690 x 1,610	425 141
EP 2200	3.1 / 3 x 400 / 50	DN 20 / DN 20 / DN 50	1,040 x 690 x 1,610	425 151

MEG series: Membrane contactor RG 8

For the removal of dissolved CO_2 from reverse osmosis permeate with a CO_2 concentration of up to 30 mg/l in the permeate

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Compatible with	Item number
CO_2 -contactor MEG 900 DL	-	UP-S7 150 - 250 & UP-S7 550 - 800 FU	425 228
CO_2 -contactor MEG 2500 DL	-	UP-S7 1100 - 2200 FU	425 229
CO_2 -contactor MEG 6600 DL	-	UP-S7 3000 - 6000 FU	425 230
CO_2 -contactor MEG 12500 SV	1.5 / 3 x 400 / 50	UP-S7 8200 - 12500 FU	425 231

REVERSE OSMOSIS UNITS FOR ANTISCALANT DOSING

REDESIGNED

Controller RO digital

Antiscalant

30 – 50 % less electricity cost



UO-D 10000 AS/FU

CHARACTERISTICS OF THE UO-D AS/FU SERIES

- » Connection for Antiscalant injection point
- » Signal output for dosing unit DOSIN AS-K (for unit size <1650 l/h dilution of antiscalant required to achieve continuous dosing)
- » Antiscalant (AS) suction lance emits low level warning
- » Options KSE and ARA included
- » PLC instead of RO digital available (optional)

ADVANTAGES OF THE UO-D AS/FU SERIES

- » Now also available for small flow rates starting at 450 l/h
- » No upstream softening required
- » No pressurised air required

For advantages of units with VSD pump (FU) see page 43.

See pages 44 – 49 for options and accessories.

UO-D AS/FU series: Permeate capacity 450 - 3,100 l/h

RG 8

Demineralisation of hardness-stabilised drinking water with a salinity of up to 1,000 mg/l

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 450 AS/FU	2.2 / 3x 380 - 500 / 50-60	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 156
UO-D 700 AS/FU	2.2 / 3x 380 - 500 / 50-60	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 157
UO-D 950 AS/FU	2.2 / 3x 380 - 500 / 50-60	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 158
UO-D 1250 AS/FU	2.2 / 3x 380 - 500 / 50-60	DN 20 / DN 20 / DN 15	610 x 810 x 1,800	387 159
UO-D 1650 AS/FU	3.0 / 3x 380 - 500 / 50-60	DN 32 / DN 20 / DN 15	610 x 810 x 1,830	387 160
UO-D 2200 AS/FU	3.0 / 3x 380 - 500 / 50-60	DN 32 / DN 25 / DN 25	2,480 x 710 x 1,650	387 204
UO-D 2500 AS/FU	3.0 / 3x 380 - 500 / 50-60	DN 32 / DN 25 / DN 25	3,500 x 710 x 1,650	387 205
UO-D 3100 AS/FU	3.0 / 3x 380 - 500 / 50-60	DN 32 / DN 25 / DN 25	3,500 x 710 x 1,650	387 206

UO-D AS/FU series: Permeate capacity 3,800 - 30,000 l/h

RG 9

Demineralisation of hardness-stabilised drinking water with a salinity of up to 1,000 mg/l

Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 3800 AS/FU	5.5 / 3x 380 - 500 / 50-60	DN 32 / DN 32 / DN 32	2,900 x 790 x 1,790	387 207
UO-D 5000 AS/FU	5.5 / 3x 380 - 500 / 50-60	DN 50 / DN 32 / DN 32	2,900 x 790 x 1,790	387 208
UO-D 6000 AS/FU	5.5 / 3x 380 - 500 / 50-60	DN 50 / DN 40 / DN 32	3,870 x 790 x 1,830	387 209
UO-D 7000 AS/FU	7.5 / 3x 380 - 500 / 50-60	DN 50 / DN 40 / DN 32	3,870 x 790 x 1,830	387 210
UO-D 8500 AS/FU	7.5 / 3x 380 - 500 / 50-60	DN 65 / DN 50 / DN 32	4,880 x 790 x 1,830	387 211
UO-D 10000 AS/FU	11.0 / 3x 380 - 500 / 50-60	DN 65 / DN 50 / DN 50	4,060 x 840 x 1,880	387 212
UO-D 12000 AS/FU	11.0 / 3x 380 - 500 / 50-60	DN 65 / DN 50 / DN 50	4,930 x 840 x 1,860	387 213
UO-D 15000 AS/FU	11.0 / 3x 380 - 500 / 50-60	DN 65 / DN 50 / DN 50	5,080 x 840 x 1,920	387 214
UO-D 18000 AS/FU	11.0 / 3x 380 - 500 / 50-60	DN 65 / DN 65 / DN 50	6,190 x 840 x 1,880	387 215
UO-D 20000 AS/FU	15.0 / 3x 380 - 480 / 50-60	DN 80 / DN 65 / DN 50	4,990 x 840 x 2,230	387 216
UO-D 25000 AS/FU	18.5 / 3x 380 - 480 / 50-60	DN 80 / DN 65 / DN 50	5,170 x 940 x 2,200	387 217
UO-D 30000 AS/FU	18.5 / 3x 380 - 480 / 50-60	DN 100 / DN 80 / DN 50	6,050 x 990 x 2,360	387 218

Options

For series UO-D AS

Option HR modules Salt rejection rate increased from 97 % to > 98.5 %, slightly lower permeate capacity

REVERSE OSMOSIS UNITS FOR BRACKISH WATER DESALINATION



UO-D 1000 BW/FU

NEW CHARACTERISTICS OF UO-D BW/FU SERIES

- » Permeate recovery 50 - 75 %, depending on feed water salinity and the desired desalination rate
- » Use of adapted materials for resistance even to high salt content in the concentrate
- » Space-saving with vertical membrane housings for sizes up to 1,000 l/h
- » Control and connection of two dosing units possible (e.g. antiscalant and acid)
- » Options ARA, KSE and PKR already included
- » PLC instead of RO digital available (optional)
- » PP version available instead of PVC (optional)

APPLICATIONS

- » Second stage for existing / new RO plants to save water (reduction of wastewater by 50 - 75 %).
- » Well or process water with high salt content
- » UO-D 250 BW can be used as pilot plant

The UO-D BW/FU series is ideal for use as a second RO stage downstream of existing RO plants. Due to the savings in water and wastewater costs, the system usually pays off within a few months.

The smallest size, UO-D 250 BW, can also be used for any kind of piloting. With the RO digital controller, all operating data can be stored and read out; optionally, data can also be transferred via an interface (see p. 46).

ADVANTAGES OF UNITS WITH VSD (FU)

- » Energy saving of 30 – 50 %
- » Amortisation often after less than one year
- » Permeate production constant independent of operating pressure (permeate constant control PKR)
- » Protection of the unit due to soft start
- » Particularly quiet operation

Pumps with variable-speed drive (VSD = FU) use 30 - 50 % less energy and have a payback time under a year. The savings in electricity costs over the lifetime of the system are many times the system costs.



Click on the link below for more information on our RO units with VSD (FU) and our helpful tool for the calculation of energy savings.

hercowater.com/energyefficiency/

See pages 44 – 49 for options and accessories.

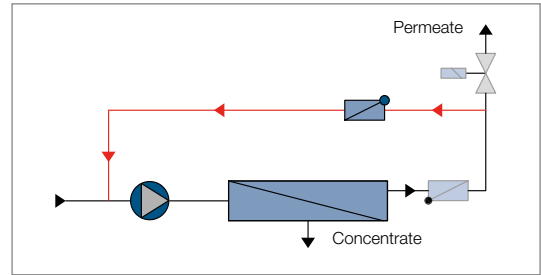
UO-D BW/FU series: Brackish water units, permeate capacity 250 - 13,500 l/h					RG 9
For salt concentrations of up to 5,000 mg/l					
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number	
UO-D 250 BW/FU	2.2 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 15 / DN 15	710 x 730 x 1,760	384 501	
UO-D 500 BW/FU	2.2 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 15 / DN 15	710 x 730 x 1,760	384 511	
UO-D 1000 BW/FU	2.2 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 15 / DN 15	710 x 730 x 1,760	384 531	
UO-D 2000 BW/FU	3.0 / 3 x 380 - 500 / 50 - 60	DN 32 / DN 25 / DN 25	2,480 x 700 x 1,640	384 561	
UO-D 3000 BW/FU	5.5 / 3 x 380 - 500 / 50 - 60	DN 32 / DN 25 / DN 25	3,500 x 700 x 1,650	384 581	
UO-D 4500 BW/FU	5.5 / 3 x 380 - 500 / 50 - 60	DN 40 / DN 32 / DN 32	2,840 x 750 x 1,790	384 601	
UO-D 6500 BW/FU	11.0 / 3 x 380 - 500 / 50 - 60	DN 50 / DN 32 / DN 32	3,850 x 750 x 1,820	384 621	
UO-D 10000 BW/FU	11.0 / 3 x 380 - 500 / 50 - 60	DN 65 / DN 50 / DN 50	4,040 x 850 x 1,860	384 641	
UO-D 13500 BW/FU	15.0 / 3 x 380 - 480 / 50 - 60	DN 65 / DN 50 / DN 50	5,060 x 890 x 1.860	384 661	

INSTALLABLE OPTIONS FOR REVERSE OSMOSIS UNITS

PR – PERMEATE RECIRCULATION

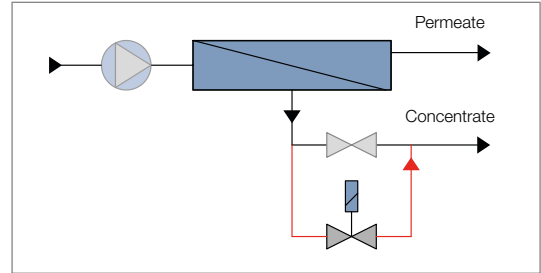
During the start-up of a RO, permeate with slightly higher conductivity is produced first. The option PR prevents this water from reaching the consumer / tank. The permeate is circulated until the desired conductivity is reached. Then the permeate valve is automatically opened and the system switches over to the consumer / tank.

The PR option is useful if there is a fixed limit value for the permeate conductivity and this may not be exceeded even for a short time.



KSE – CONCENTRATE FLUSHING UNIT

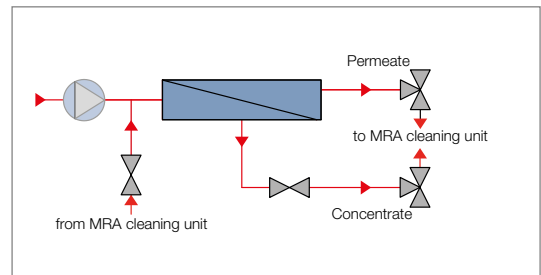
During shutdown of the RO, scaling and fouling can occur especially on the concentrate side of the membrane, as this is where the highest salt and organic contents are found. The option KSE displaces the concentrate with the pressure of the RO feed water when the plant is shut down via an automatic bypass valve. The KSE option is particularly useful for feed waters with a potential for precipitation or corrosion and for the operation with antiscalant. In both cases, it extends the lifetime of the RO.



ARA – CONNECTION KIT FOR MANUAL CLEANING UNIT

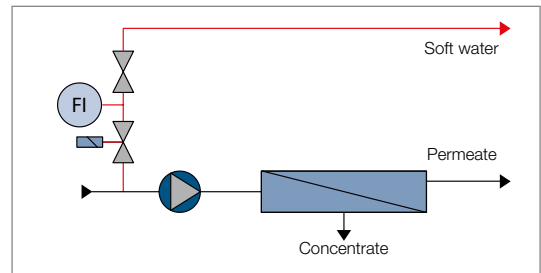
Installation of ball valves for easy connection of a manual cleaning unit e.g. for acid or alkaline cleaning of the RO membranes.

This option is recommended if regular cleaning of the membranes is to be expected, e.g. due to difficult raw water or due to antiscalant operation.



VSE – BLENDING DEVICE

Automatic bypass of the RO plant for mixing the permeate with RO feed water in the tank. With this option a defined residual hardness or a defined residual salt content in the permeate tank can be set.



PROFINET AND OTHER INTERFACES

All measured and logged data of any RO system with RO digital or Siemens S7-1200 controller can be transferred to an on-site PLC (e.g. central control system) via interfaces. In addition to Profinet and Profibus, we also offer interfaces for Modbus RTU / TCP and BACnet as standard. The scope of delivery includes hardware and software or engineering for the transfer of 30 data points. If required, additional data points can be added.

For more information, see p. 29 and 46.



DESIGN IN PP

Design of the ultrapure water plant UP-S7 FU or the RO plant of the type UO-D FU, UO-D AS/FU or UO-D BW/FU in polypropylene (PP). The entire low-pressure piping is made of PP, the high-pressure piping remains unchanged.

In detail, the following system parts are made of PP instead of PVC:

- » Shut-off valve feed water (if designed as diaphragm valve)
- » Inlet piping up to the high-pressure pump
- » Permeate piping and permeate return if available (and associated diaphragm valve, if required)
- » Concentrate piping downstream of the control valves
- » Cleaning connections (if available)

The surcharge includes not only the material costs but also the engineering and the additional manufacturing costs.

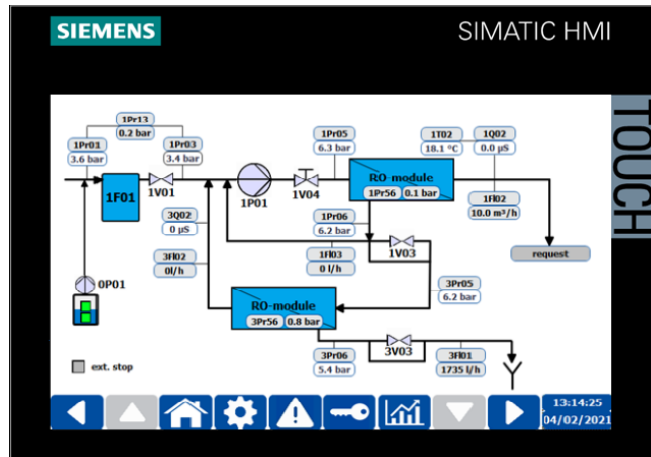
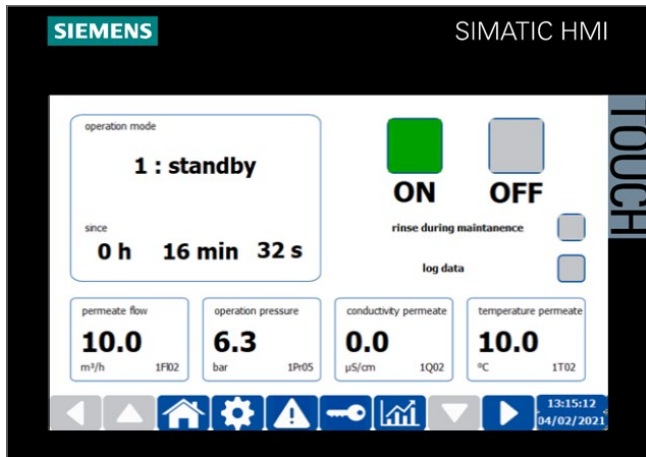
INSTALLABLE OPTIONS FOR REVERSE OSMOSIS UNITS

Options with item number and price in € per unit							RG 9
Series/permeate capacity	PR	KSE	ARA	VSE	PP **		
	Item No.	Item No.	Item No.	Item No.	Item No.		
UO, C + CD (p. 30)							
120 - 500	383 764	-	incl.	383 765	-		
UO-D, C + CD (p. 31)							
120 - 500	383 764	-	incl.	383 765	-		
UO-D, FU, CD (p. 32/33)							
600 - 1500	383 775	383 774	383 321	383 805	-		
2000	383 775	383 774	383 321	383 776	-		
UO-ED Z, CD (p. 34)							
50 - 150	incl.	-	incl.	o.r.	-		
300 - 1200	incl.	-	incl.	o.r.	-		
UO-D FU (p. 35)							
2500	383 452	382 873	382 113	o.r.	800 019		
3000 - 3500	383 452	382 873	382 113	o.r.	800 019		
4300 - 5400	383 453	382 878	382 114	o.r.	800 019		
7000 - 10000	383 454	382 878	382 122	o.r.	800 019		
12000	383 456	382 905	382 138	o.r.	800 019		
UO-S7 KR/FU (p. 38)							
3000 - 3500	383 452	incl.	incl.	o.r.	o.r.		
4000 - 5000	383 453	incl.	incl.	o.r.	o.r.		
6000 - 8500	383 454	incl.	incl.	o.r.	o.r.		
10000	383 455	incl.	incl.	o.r.	o.r.		
12000 - 15000	383 456	incl.	incl.	o.r.	o.r.		
UO-D P, FU (p. 39)							
200 - 400	incl.	-	-	-	-		
750 - 1700	incl.	-	-	-	-		
Sizes > 2,000 l/h are available as project-specific plants, a design in PP is then possible.							
UP-S7 FU (p. 40)							
150 - 250	incl.	-	-	-	800 019		
550 - 1500	incl.	383 774	-	-	800 019		
2200	incl.	382 873	-	-	800 019		
3000	incl.	382 873	-	-	800 019		
4100	incl.	382 878	382 114	-	800 019		
6000 - 8200	incl.	382 878	383 122	-	800 019		
12500	incl.	382 905	384 138	-	800 019		
20000	incl.	382 905	382 471	-	800 019		
UO-D AS/FU (p. 42)							
450 - 1650	383 775	incl.	incl.	o.r.	-		
2200 - 3100	383 452	incl.	incl.	o.r.	800 019		
3800 - 5000	383 453	incl.	incl.	o.r.	800 019		
6000 - 8500	383 454	incl.	incl.	o.r.	800 019		
10000 - 15000	383 456	incl.	incl.	o.r.	800 019		
18000 - 25000	383 322	incl.	incl.	o.r.	800 019		
30000	383 323	incl.	incl.	o.r.	800 019		
UO-D BW/FU (p. 43)							
250 - 1000	383 464	incl.	incl.	o.r.	800 019		
2000 - 3000	383 452	incl.	incl.	o.r.	800 019		
4500 - 6500	383 453	incl.	incl.	o.r.	800 019		
10000 - 13500	383 456	incl.	incl.	o.r.	800 019		

o.r. = on request

** The surcharge for the PP version of a plant is given as a percentage of the net price of the plant and is not subject to discount. On p. 44 it is indicated which plant components are executed in PP, further details can also be found in the description attached to our quotes.

OPTIONS FOR REVERSE OSMOSIS UNITS: INTERFACES AND PLC



CHARACTERISTICS OF PLC AS OPTION

- » Suitable for standard RO units with RO digital controller or PLC
- » Scope of delivery: hardware, software and engineering costs
- » Connection of 30 data points included with each interface, additional data points at extra charge
- » For customized plants we create an individual concept

The PLC is available for the series UO-D FU, UO-D AS/FU and UO-D BW/FU as standard option.

When the RO unit is ordered with optional PLC, the standard microprocessor controller is not included in the scope of supply.

ADVANTAGES OF PLC

- » Self-explanatory menu navigation and intuitive operating concept
- » Optimal control and assessment of the operating status
- » Controller complies with current industry standard, thus a complete integration in the control system on the client's side is possible (see also interface options)
- » Setup of remote access to plant possible (optional)
- » Optionally, an extension or adaptation of the controller is easily achievable (e.g. further measurements, integration of pre-treatment or peripherals such as tanks, etc.)

CHARACTERISTICS OF INTERFACES

- » Suitable for standard RO units with RO digital controller or PLC
- » Scope of delivery includes hardware and software or engineering costs
- » Connection of 30 data points included with each interface, additional data points at extra charge
- » For customized plants we create an individual concept

Option interfaces for standardised transfer of all measured and logged data to the on-site PLC RG 9

For all RO units with RO digital controller or PLC S7-1200

Product name	Description	Item number
Profinet	Interface for RO digital, for RO series UO-D 120 - 500 (C/CD)	542 070
Profinet	Interface for all other RO series UO-D with the RO digital controller (for detailed listing see p. 27 and 45)	541 842
Profibus	Interface for RO digital	542 181
Modbus RTU	Interface for RO digital	542 396
Modbus TCP	Interface for RO digital	542 397
BACnet	Interface for RO digital	542 398
Profinet	Interface for S7-1200	542 409
Profibus	Interface for S7-1200	542 431
Modbus RTU	Interface for S7-1200	542 399
Modbus TCP	Interface for S7-1200	542 400
BACnet	Interface for S7-1200	542 401
Data point Modbus RTU / TCP	Transfer of additional data point for corresponding interface	542 402
Data point BACnet	Transfer of additional data point for corresponding interface	542 403

Option equipment with PLC Siemens S7-1200 RG 9

For RO series UO-D ND (FU), UO-D AS (FU) and UO-D BW/FU

Product name	Description	Item number
SPS	For series UO-D FU, UO-D AS/FU and UO-D BW/FU	800 002

ACCESSORIES FOR REVERSE OSMOSIS UNITS



Back-up / alternating / parallel RO operation RG 9

For RO units

Product name	Description	Item number
Back-up / alternating / parallel RO operation	For 2 units RO digital, digital level, potential-free change-over contact	383 705
Back-up / alternating / parallel RO operation	For 2 units RO digital, analogue level, 4 - 20 mA	545 852
Back-up / alternating / parallel operation UO-S7/UP-S7	For 2 units S7-1200 (Level 2x analogue)	542 404

Fouling index measurement device RG 6

Product name	Description	Item number
VIM	Manual tester with pressure reducer and 0.45 µm filter for SDI measurement	382 284

Manual cleaning unit RG 9

For RO units UO-D FU and UO-D AS/FU (UP-S7 on request)

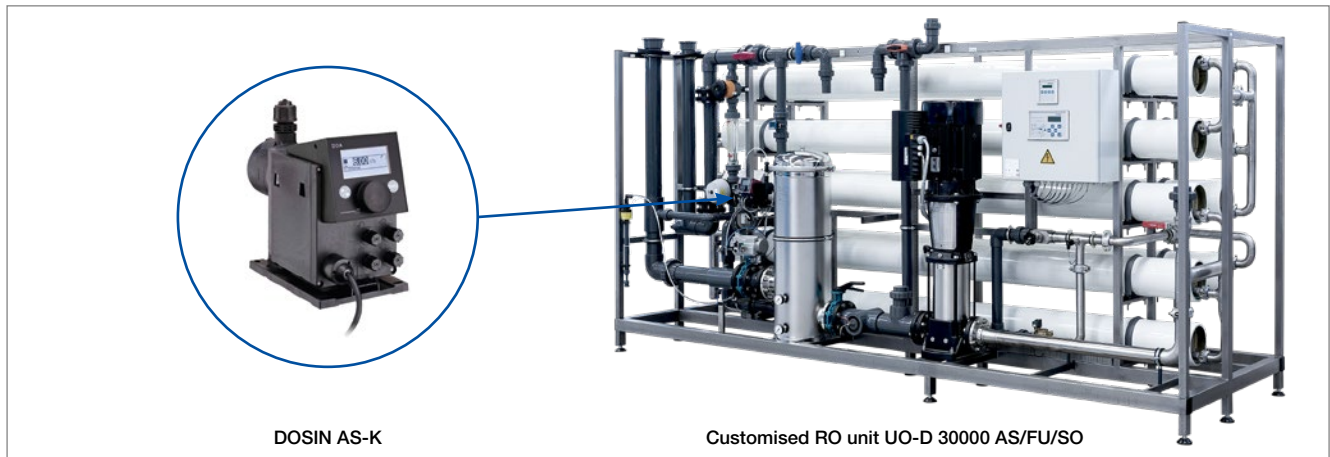
Product name / Volume l	Suitable for unit size	Mains connection kW / V / Hz	Dimensions in mm W x D x H	Item number
MRA 100	120 - 2000	1.13 / 230 / 50	640 x 810 x 1,400	382 026
MRA 200	2200 - 3500	0.6 / 400 / 50	640 x 810 x 1,470	382 095
MRA 300	4300 - 10000 (UO-D FU) / 3800 - 8500 (UO-D AS/FU)	1.20 / 400 / 50	800 x 1,010 x 1,750	382 332
MRA 500	12000 (UO-D FU) / 10000 - 15000 (UO-D AS/FU)	2.20 / 400 / 50	800 x 1,010 x 1,900	382 407
MRA 1000	18000 - 30000	4.00 / 400 / 50	1,110 x 1,405 x 1,850	382 809
Heater for MRA	MRA 100 - 300	6 kW heating power, with thermostat		383 516
	MRA 500 - 1000	9 kW heating power, with thermostat		383 178

Automatic concentrate displacement with permeate (incl. functionality of manual cleaning equivalent to MRA) RG 9

For difficult raw water (water components that are highly corrosive or hard to condition), for RO units UO-D AS/FU, UO-S7 KR/FU and UO-D BW/FU

Product name / Volume l	Compatible with	Mains connection kW / V / Hz	Dimensions in mm W x D x H	Item number
KVP 300 AS	UO-D 3800 - 8000 AS/FU	1.50 / 3 x 400 / 50	1,000 x 800 x 1,600	383 896
KVP 500 AS	UO-D 10000 - 15000 AS/FU	2.20 / 3 x 400 / 50	1,000 x 800 x 1,800	383 897
KVP 1000 AS	UO-D 18000 - 30000 AS/FU	4.00 / 3 x 400 / 50	1,500 x 1,100 x 1,800	383 898
KVP 200 KR	UO-S7 3000 - 3500 KR/FU	0.46 / 3 x 400 / 50	640 x 850 x 1,450	383 457
KVP 300 / DN 32 KR	UO-S7 4000 - 5000 KR/FU	1.50 / 3 x 400 / 50	1,000 x 800 x 1,750	383 458
KVP 300 / DN 40 KR	UO-S7 6000 - 8500 KR/FU	1.50 / 3 x 400 / 50	1,000 x 800 x 1,750	383 460
KVP 500 KR	UO-S7 10000 - 15000 KR/FU	2.20 / 3 x 400 / 50	1,100 x 800 x 1,900	383 459
KVP 100 BW	UO-D 250 - 1000 BW/FU	0.46 / 3 x 400 / 50	640 x 830 x 1,370	384 720
KVP 200 BW	UO-D 2000 - 3000 BW/FU	0.46 / 3 x 400 / 50	640 x 830 x 1,450	384 721
KVP 300 BW	UO-D 4500 - 6500 BW/FU	1.50 / 3 x 400 / 50	840 x 940 x 1,750	384 722
KVP 500 BW	UO-D 10000 - 13500 BW/FU	2.20 / 3 x 400 / 50	840 x 1,080 x 1,890	384 723

DOSING STATIONS FOR REVERSE OSMOSIS UNITS



DOSIN AS-K

Customised RO unit UO-D 30000 AS/FU/SO

CHARACTERISTICS OF DOSING STATIONS

Dosing stations already include:

- » Special pumps that can dose smallest amounts
- » Dosing accessories (suction lance, injection fitting, cable)
- » Mounting on RO unit skid (AS, BW and SW series)

ADVANTAGES OF DOSING STATIONS

- » Mounting on RO skid is already included if dosing station is ordered with RO unit
- » Dosing station is mechanically and electrically integrated in reverse osmosis unit
- » No changes in dimensions of RO skid

Antiscalant dosing station RG 5			
For RO units UO-D AS/FU and UO-D BW/FU			
Product name	Description	Dosing tank	Item number
DOSIN AS-K	Dosing pump with dosing control	From 25 kg drum	450 301

DOSING STATIONS FOR CHEMICAL DOSING RG 5			
For RO units UO-D FU, UO-D AS/FU, UO-D P, UO-S7 KR/FU and UP-S7 FU			
Product name	Description	Dosing tank Volume l	Item number
DOSIN UO-DB75	With dosing control up to 7,000 l/h permeate	75	450 302
DOSIN UO-DB100	With dosing control for regulated operation	100	450 303
DOSIN UO-DB100REG	Without dosing control for regulated operation	100	450 304

Options for DOSIN dosing stations RG 5		
Product name	Description	Item number
SAW 35	Safety drip tray for DOSIN AS-K, 1 x 25 kg drum	453 099
SAW 100	Safety drip tray for DOSIN DB75 and DB100	450 089

MEMBRANE ELEMENTS FOR REVERSE OSMOSIS UNITS



We supply our RO plants with high-quality and long-lasting PWG membrane elements. Every membrane brand is tested by us in our in-house technical centre before being used in our plants to provide you with the best quality.

Please contact us for special requests regarding membrane elements.

Are you interested in the design of reverse osmosis plants as well as the characteristics and areas of application of different membrane elements? Then watch our webinar "Design of reverse osmosis plants" on our website!

hercowater.com/en/service/webinars



PWG membrane elements for reverse osmosis units				RG 10
Tested quality for a long service life – in stock				
Product name	Description (comparable with)	Permeate m ³ /day	Salt rejection rate % nom.	Item number
2540 ND	Low-pressure element 2540 ND	3.3	99.1	395 142
4040 BW	Brackish water element 4040 BW	8.7	99.5	395 144
4021 HF	Low pressure element 4021 HF	5.5	99.0	395 229
4040 ND	Low pressure element 4040 ND	9.8	99.3	395 146
4040 HR	Low pressure element 4040 HR	7.2	99.6	395 147
4040 ES	Low pressure element 4040 ES	9.8	99.2	395 149
8040 ND	Low pressure element 8040 ND	45.4	99.3	395 151
8040 HR	Low pressure element 8040 HR	34.1	99.6	395 152
8040 ES	Low pressure element 8040 ES	45.4	99.2	395 154

Cleaning chemicals				RG 6
For membrane units				
Product name	Description	Unit	Item number	
Membrane cleaner S 2	Acid membrane cleaner, pH level 2	5 kg	530 183	
Membrane cleaner A 12	Alkaline membrane cleaner, pH level 12	5 kg	530 177	

RECTANGULAR AND CYLINDRICAL TANKS



RET rectangular tank



RUT cylindrical tank

GENERAL CHARACTERISTICS

- » All tanks are suitable for non-pressurised storage of pure water (soft water, permeate, totally demineralised water with conductivity > 1 µS/cm)
- » Scope includes connections for inlet, withdrawal, overflow as well as manhole (RET type) or handhole (RUT type) with cover
- » Suitable tanks for pure water with lower conductivity on request

RECTANGULAR TANKS, BLACK

CHARACTERISTICS

- » Material: opaque, black HD-PE
- » Storage capacity can be increased by connecting several tanks
- » We recommend HERCO connection kits for easy withdrawal pipe connection and for interconnecting several tanks

CYLINDRICAL TANKS, BLACK

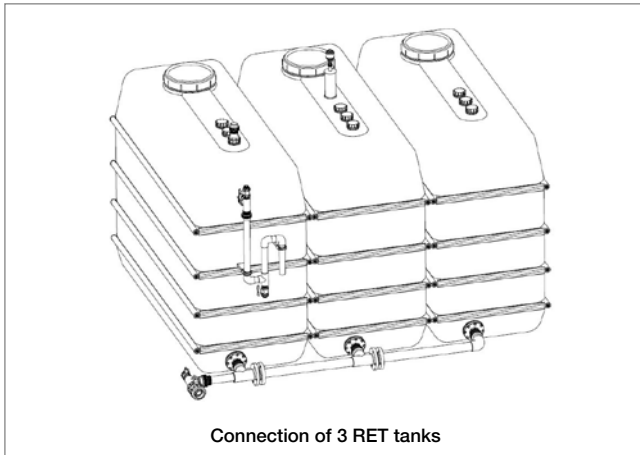
CHARACTERISTICS

- » Material: opaque, black PE
- » Includes two PVC ball valves for withdrawal and drain; drain port equipped with hosedtail d 25

RET series, black					RG 6
Volume 1,100 - 5,000 liter					
Product name / Volume l	Manhole Ø in mm	Hydraulic connection inlet / outlet / overflow	Dimensions in mm W x D x H	Item number	
RET 1100 S	400	DN 25 / DN 50 / d 50	1,560 x 720 x 1,500	430 264	
RET 1500 S	400	DN 25 / DN 50 / d 50	1,670 x 770 x 1,730	430 265	
RET 2000 S	400	DN 25 / DN 50 / d 50	2,230 x 770 x 1,800	430 266	
RET 2500 S	400	DN 40 / DN 50 / d 50	2,000 x 990 x 1,760	430 395	
RET 3000 S	400	DN 40 / DN 50 / d 50	2,380 x 1,030 x 1,760	430 268	
RET 3000 S/DN100	400	DN 65 / DN 100 / DN 100	2,370 x 1,030 x 1,670	430 579	
RET 4000 S	400	DN 40 / DN 50 / d 50	2,590 x 1,040 x 2,080	430 269	
RET 4000 S/DN100	400	DN 65 / DN 100 / DN 100	2,550 x 1,040 x 2,010	430 530	
RET 5000 S	400	DN 40 / DN 50 / d 50	2,520 x 1,350 x 2,120	430 374	
RET 5000 S/DN100	400	DN 65 / DN 100 / DN 100	2,450 x 1,350 x 2,010	430 645	

RUT series, black					RG 6
Ball valves for withdrawal and drain included					
Product name / Volume l	Handhole Ø in mm	Hydraulic connection inlet / outlet / overflow	Dimensions in mm Ø x H	Item number	
RUT 200 S	150	DN 20 / DN 25 / d 40	595 x 875	430 277	
RUT 300 S	150	DN 20 / DN 25 / d 40	675 x 995	430 278	
RUT 500 S	150	DN 20 / DN 25 / d 40	840 x 1,230	430 279	

WITHDRAWAL KIT AND KIT FOR INTERCONNECTION OF RET TANKS



CONNECTION KIT FOR WITHDRAWAL FROM RET RECTANGULAR TANK

CHARACTERISTICS

- » Pre-mounted withdrawal kits with manual valves
- » Consisting of:
 - › DN 50: 1 ball valve DN 50 (withdrawal) and 1 ball valve DN 25 (drain)
 - › DN 100: 1 butterfly valve DN 100 (withdrawal) and 1 ball valve DN 25 (drain)
- » The kit is connected to the tank at no extra charge if ordered together with a tank.

Connection kit for withdrawal from RET rectangular tank				RG 6
Product name / Nennweite	Max. withdrawal m ³ /h	Hydraulic connection outlet / drain	Compatible with RET / RET conn. kit	Item number
RET-EG DN50	11	DN 50 / DN 25	1100 - 5000 / DN 50	435 128
RET-EG DN100	30	DN 100 / DN 25	3000 & 4000 / DN 100	435 246

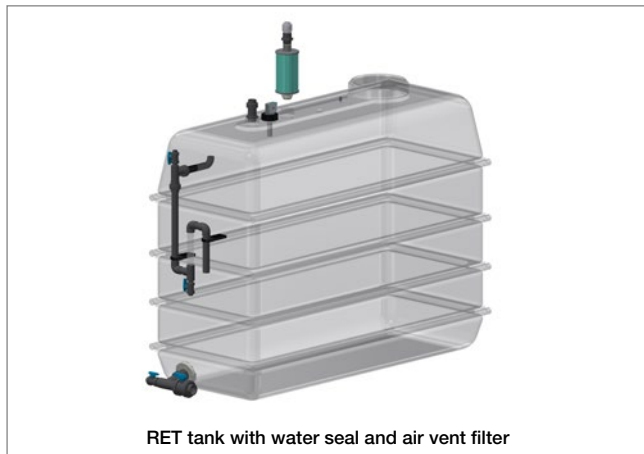
KIT FOR INTERCONNECTION OF RET RECTANGULAR TANKS

CHARACTERISTICS

- » Pre-mounted kit for interconnection of 2 tanks (RET type) with connection for a compatible withdrawal fitting
- » If ordered together with 2 tanks, the kits are pre-mounted / connected to the tank at no extra charge
- » Optional: extension kit complementing the connection kit for interconnection of up to 4 RET tanks (1 connection and 1 extension kit for 3 tanks, 1 connection and 2 extension kits for 4 tanks)

Kit for interconnection of RET rectangular tanks				RG 6
Basic version for interconnection of 2 RET tanks; please order extension kit if you wish to connect more tanks				
Product name / Nominal diameter	Max. withdrawal m ³ /h	Hydraulic connection inlet / inlet / withdrawal	Compatible with RET / RET connection kit	Item number
RET connection kit DN50	11	DN 50 / DN 50 / DN 50	2 x 1100 - 5000 DN 50	435 127
Expansion kit DN50	11	DN 50 / DN 65 / DN 65	- / DN 50	435 289
RET connection kit DN100	30	DN 100 / DN 100 / DN 100	2 x 3000 - 5000 DN 100	435 244
Expansion kit DN100	30	DN 100 / DN 100 / DN 100	- / DN 100	435 249

WATER SEALS AND AIR VENT FILTERS FOR TANKS



CHARACTERISTICS

- » Water seal for tank overflow; required if an air vent filter or a CO₂ absorption filter for tank ventilation are fitted. Prevents the entry of ambient air through the overflow orifice
- » CO₂ absorption filter with granule filling; depletion is indicated by colour change.
- » Air vent filters (also sterile air filters) protect the pure water from particles and microorganisms in the ambient air

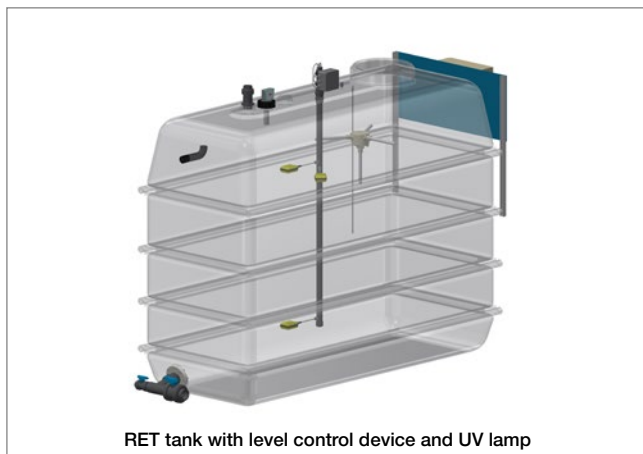
Important note: for safe CO₂ absorption, the CO₂ filter may only be charged with 50 % of the maximum air volume stated in the specifications!

The listed filters are designed for pure water with a conductivity > 1 µS/cm. Specially adapted solutions for pure water with a conductivity < 1 µS/cm are also available on request.

Water seals				RG 6
Product name	Compatible with tank	Hydraulic connection tank / overflow / drain	Item number	
Water seal WS-40	RUT	DN 32 / d 40 / DN 15	383 101	
Water seal WS-50	RET	DN 50 / d 50 / DN 20	382 419	
Water seal WS-100	RET	DN 100 / d 100 / DN 20	435 248	

Air vent filters						RG 6
Absorption filters for CO ₂ separation / fine filters for particle separation						
Product name	Max. capacity Nm ³ /h / dp mbar	Connection tank / atmosphere	Dimensions in mm Ø x H	Micron rating µm	Item number	
CO ₂ absorp. filter CAF 1	1.5 / 10	R ¾" / R ¾"	100 x 350		435 066	
CO ₂ absorp. filter CAF 5	5 / 10	R 2" / R 2"	170 x 410		435 057	
CO ₂ absorp. filter CAF 15	15 / 10	DN 80 / DN 80	270 x 520		435 191	
Refill for CAF 1					435 068	
Refill for CAF 5					435 059	
Refill for CAF 15					435 193	
Air vent filter BF 03	3 / 10	DN 32 / -	100 x 120	0.3	300 020	
Sterile air vent filter BF 02 S	6 / 10	R ½" / -	70 x 91	0.2	300 001	
Sterile air vent filter BF 30 S	30 / 10	DN 65 / -	200 x 400	0.2	300 113	
Replacement for BF 03					330 047	
Replacement for BF 02 S					330 077	
Replacement for BF 30 S					335 180	

LEVEL CONTROL DEVICES AND SUBMERSIBLE UV LAMPS FOR TANKS



RET tank with level control device and UV lamp

LEVEL CONTROL DEVICES

CHARACTERISTICS

The level controller detects the fluid level in tanks and transmits the reading to an external control unit. Up to 5 different levels can be detected, depending on the number of switching points featured, for example:

- » TLS – dry running protection for the extraction pump
- » MIN – minimum level, tank refilling starts
- » NIV – tank full / tank empty; water supply control
- » Fluid level – 50 %, 70 %, 100 %
- » MAX – tank full, stop filling
- » FULL – overflow warning

Between 1 and 5 float switches (depending on the version) with cable and cable glands on PVC pipe, holder with screw connection and terminal box with terminals, float switch with switching hysteresis of 300 mm (\pm 150 mm) each.

SUBMERSIBLE UV LAMPS

CHARACTERISTICS

- » For sterile storage of ultrapure water in containers
- » The water and the container walls are irradiated with UV radiation above and below the water level, so that no biofilm can develop, and a permanent prevention of germs is ensured.
- » Suitable for RET tanks up to 6 m³ volume with fluctuating water level
- » Consists of 4 UV lamps in a quartz tube, which are attached to the float by means of screw connections. Flexible antennas centralise the system in the tank.

Level control devices					RG 6
For tanks series RUT and RET					
Product name	Mains connection	Signal	Signal source / quantity	Tank height max. in m	Item number
Visual level indicator			Opt. indicator / 1	2	630 208
TLS	24 VDC ; max 1 A	Floating change-over contact	Float switch / 1	2.5	435 308
NIV	24 VDC ; max 1 A	Floating change-over contact	Float switch / 1	2.5	435 301
TLS / NIV	24 VDC ; max 1 A	Floating change-over contact	Float switch / 2	2.5	435 302
TLS / MIN / MAX	24 VDC ; max 1 A	Floating change-over contact	Float switch / 3	2.5	435 307
TLS / NIV / FULL	24 VDC ; max 1 A	Floating change-over contact	Float switch / 3	2.5	435 303
TLS / MIN / MAX / FULL	24 VDC ; max 1 A	Floating change-over contact	Float switch / 4	2.5	435 306
TLS / 50 % / 70 % / 100 %	24 VDC ; max 1 A	Floating change-over contact	Float switch / 4	2.5	435 304
TLS / 50 % / 70 % / 100 % / FULL	24 VDC ; max 1 A	Floating change-over contact	Float switch / 5	2.5	435 305
NIV 420/2	7 - 33 V	4 - 20 mA	Analogue level sensor / 1	2	435 218

Submersible UV lamps					RG 6
Product name	Mains connection W / V / Hz	UV capacity at 254 nm	Lamp dimensions Ø x H	Number of lamps	Item number
T-UV RET	44 / 230 / 50	approx. 4 x 3 W	580 x 390	4	455 092

SIMPLEX PRESSURE BOOSTER UNITS, DEFU X S SERIES, FREQUENCY CONTROLLED



DEFU 3 S

CHARACTERISTICS

- » Pipes and valves made entirely of stainless steel
- » With diaphragm pressure vessel, non-return valve, pressure sensor, pressure gauge
- » Pumps made of stainless steel 1.4301
- » With stainless steel skid
- » All electric connections for the customer in a single terminal box (power supply, potential-free contacts for production / fault message, connection of external dry run protection device)
- » Increases the pressure in the water supply pipe to a constant value, can be installed upstream or downstream of water softening or other water treatment installations
- » The unit keeps the selected operating pressure constant by adjusting the frequency, even in the event of varying flow requirements, so that continuous partial load operation is ensured within a wide flow rate range

ADVANTAGES

- » Energy-saving and quiet operation
- » The latest generation of intelligent controls prevents water hammers in the system
- » Better monitoring of the required minimum flow rate, integrated in the FU unit
- » Integrated media temperature control
- » All pump drives used in DEFU pressure booster units meet the requirements of Energy Efficiency Class IE5

OPTIONAL ON REQUEST

- » Pumps made of stainless steel 1.4404
- » BUS communication systems
- » Adapter kit for connecting stainless steel pipes to PVC pipes
- » Pressure pipe installation

Series DEFU X S					RG 6
Frequency-controlled pressure booster units					
Product name / Nom. Vol. m ³ /h	Mains connection kW / V / Hz	Hydraulic connection suction / pressure	Dimensions in mm W x D x H	Capacity Q / p m ³ /h / m w.c.	Item number
DEFU 1 S	1.1 / 3 x 380 - 500 / 50 - 60	Rp 1" / Rp 1"	310 x 560 x 937	0.2 - 2.2 / 65 - 40	440 388
DEFU 3 S	1.1 / 3 x 380 - 500 / 50 - 60	Rp 1" / Rp 1"	310 x 560 x 937	0.4 - 4.5 / 65 - 39	440 389
DEFU 5 S	1.5 / 3 x 380 - 500 / 50 - 60	Rp 1 1/4" / Rp 1"	310 x 560 x 937	0.5 - 7.0 / 55 - 36	440 390
DEFU 10 S	4.0 / 3 x 380 - 500 / 50 - 60	Rp 1 1/2" / Rp 1 1/2"	310 x 560 x 937	1.0 - 16.0 / 68 - 42	440 391
DEFU 15 S	4.0 / 3 x 380 - 500 / 50 - 60	Rp 2" / Rp 2"	380 x 710 x 1,520	2.0 - 24.0 / 48 - 34	440 409
DEFU 25 S	7.5 / 3 x 380 - 500 / 50 - 60	Rp 2" / Rp 2"	380 x 710 x 1,520	3.0 - 32.0 / 48 - 36	440 410

DUPLEX PRESSURE BOOSTER UNITS, DEFU X M SERIES, FREQUENCY CONTROLLED



CHARACTERISTICS

- » Pipes and valves made entirely of stainless steel
- » Each pump has its own diaphragm pressure vessel and pressure probe for high operational safety
- » Industrial standard stainless-steel isolating valves, stainless steel non-return valves, pressure gauge
- » Pumps made of stainless steel 1.4301
- » Ready for connection, mounted on a stainless-steel skid and preconfigured ex works
- » All electric connections for the customer in a single terminal box (power supply, potential-free contacts for operating and fault message for each pump, connection for external dry run protection)
- » Increases the pressure in the water supply pipe to a constant value, e.g. upstream or downstream of water softeners or other water treatment units
- » The unit keeps the selected operating pressure constant by adjusting the frequency, even in the event of varying flow requirements, so that continuous partial load operation is ensured within a wide flow rate range
- » Fully automatic controller with master-master-function

- » Automatic changeover in case of back-up or alternating operation
- » Automatic activation of the second pump in the event of increased water consumption, offering double nominal volumetric capacity. Activation with start-up ramp in order to avoid pressure surges

ADVANTAGES:

- » Energy-saving and quiet operation
- » The controller prevents water hammers in the system
- » Better monitoring of the required minimum flow rate, integrated in the FU unit
- » All pump drives used in DEFU pressure booster units meet the requirements of Energy Efficiency Class IE5
- » Integrated media temperature control

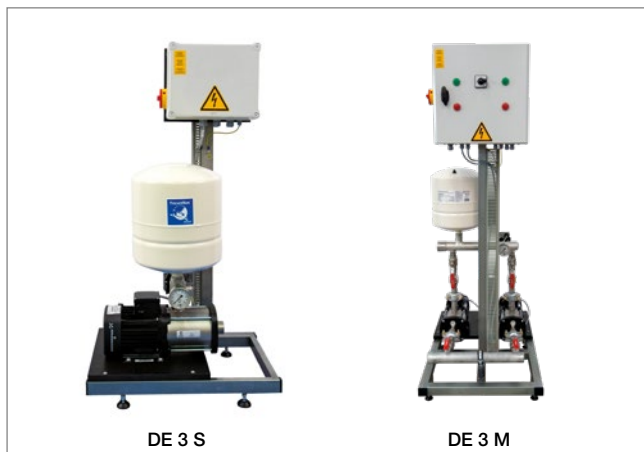
OPTIONALLY AVAILABLE ON REQUEST

- » Pumps made of stainless steel 1.4404
- » BUS communication systems
- » Adapter kit for connecting stainless steel pipes to PVC pipes
- » Pressure pipe installation

DEFU X M series:					RG 6
Frequency-controlled pressure booster units					
Product name / Nom. Vol. m ³ /h	Mains connection kW / V / Hz	Hydraulic connection suction / pressure	Dimensions in mm W x D x H	Capacity Q / p m ³ /h / m w.c.	Item number
DEFU 2 x 1 M	2 x 1.1 / 3 x 380 - 500 / 50 - 60	Rp 1 ½" / Rp 1 ½"	620 x 810 x 937	0.2 - 4.4 / 65 - 40	440 392
DEFU 2 x 3 M	2 x 1.1 / 3 x 380 - 500 / 50 - 60	Rp 1 ½" / Rp 1 ½"	620 x 810 x 937	0.4 - 9.0 / 65 - 39	440 393
DEFU 2 x 5 M	2 x 1.5 / 3 x 380 - 500 / 50 - 60	Rp 2" / Rp 1 ½"	620 x 810 x 937	0.5 - 14.0 / 55 - 36	440 394
DEFU 2 x 10 M	2 x 4.0 / 3 x 380 - 500 / 50 - 60	Flange DN 65 / DN 65	660 x 910 x 937	1.0 - 25.0 / 68 - 54	440 395
DEFU 2 x 15 M	2 x 4.0 / 3 x 380 - 500 / 50 - 60	Flange DN 100 / DN 100	740 x 1,010 x 1,100	2.0 - 40.0 / 48 - 39	440 407
DEFU 2 x 25 M	2 x 7.5 / 3 x 380 - 500 / 50 - 60	Flange DN 100 / DN 100	740 x 1,010 x 1,100	3.0 - 60.0 / 50 - 38	440 408

Accessories for DEFU				RG 6
Product name	Configuration of FU in:	Required on site	Item number	
Communication adapter	DEFU-S / DEFU-M	Android or iOS device with Bluetooth & Grundfos App	390 766	

SIMPLEX / DUPLEX PRESSURE BOOSTER UNITS DE X S / DE X M AND JP4 C UNIT



SIMPLEX / DUPLEX PRESSURE BOOSTER UNITS DE X S / DE X M AND JP4 C UNIT

CHARACTERISTICS

- » Pumps, pipes, and valves in stainless steel 1.4301
- » With diaphragm pressure vessel, non-return valve, pressure switch, pressure gauge (and shut-off valves for DE X M)
- » Adjustable follow-up time
- » Connection port for external dry running protection device (DE X S/M) and for external release contact (only DE X M)
- » Controller with changeover for alternating or back-up operation (DE X M)

ADVANTAGES

- » Rugged and corrosion-proof industrial design
- » Suitable for permeate delivery
- » DE X M with 100% redundancy guarantees reliable supply to the consumer

OPTIONALLY AVAILABLE ON REQUEST

- » Pumps made of stainless steel 1.4404
- » Adapter kit for connecting stainless steel pipes to PVC pipes

DE X S series: Simplex pressure booster units RG 6					
Product name / Nom. Vol. m ³ /h	Mains connection kW / V / Hz	Hydraulic connection suction / pressure	Dimensions in mm W x D x H	Capacity Q / p m ³ /h / m w.c.	Item number
DE 1 S	0.46 / 3 x 380 - 415 / 50	Rp 1" / Rp 1"	380 x 560 x 1,087	1 / 43	440 396
DE 3 S	0.65 / 3 x 380 - 415 / 50	Rp 1" / Rp 1"	380 x 560 x 1,087	3 / 39	440 397
DE 5 S	1.5 / 3 x 380 - 415 / 50	Rp 1 1/4" / Rp 1"	380 x 560 x 1,087	5 / 45	440 398
DE 10 S	2.2 / 3 x 380 - 415 / 50	Rp 1 1/2" / Rp 1 1/2"	380 x 560 x 1,087	10 / 38	440 399

DE X M series: Duplex pressure booster units RG 6					
Product name / Nom. Vol. m ³ /h	Mains connection kW / V / Hz	Hydraulic connection suction / pressure	Dimensions in mm W x D x H	Capacity Q / p m ³ /h / m w.c.	Item number
DE 1 M	0.46 / 3 x 380 - 415 / 50	Rp 1 1/2" / Rp 1 1/2"	550 x 810 x 1,537	1 / 43	440 400
DE 3 M	0.65 / 3 x 380 - 415 / 50	Rp 1 1/2" / Rp 1 1/2"	550 x 810 x 1,537	3 / 39	440 401
DE 5 M	1.5 / 3 x 380 - 415 / 50	Rp 2" / Rp 1 1/2"	550 x 810 x 1,537	5 / 45	440 402
DE 10 M	2.2 / 3 x 380 - 415 / 50	Flange DN 65 / DN 65	660 x 910 x 1,537	10 / 38	440 403

PRESSURE BOOSTER UNIT JP4 C

CHARACTERISTICS

- » Self-priming rugged pump
- » Suction and discharge connection made of stainless steel
- » Internal hydraulics and handle made of composite material
- » Aluminium base with cataphoresis coating
- » Pressure control unit for consumption-based activation of the pump, including check valve

ADVANTAGES

- » Small and compact device
- » Robust entry-level model

OPTIONALLY AVAILABLE

- » Auxiliary control for connection of an external dry running protection device (extra-low voltage)

Pressure booster unit RG 6					
Product name	Mains connection kW / V / Hz	Hydraulic connection suction / pressure	Dimensions in mm W x D x H	Capacity Q / p m ³ /h / m w.c.	Item number
JP4 C (Replacement for JP5 C)	0.75 / 230 / 50	G 1" IG / G 1" AG	186 x 424 x 476	2.2 / 25	440 437
Auxiliary control for JP4 C	- / 230 / 50		170 x 101 x 135		382 339

UV-DISINFECTION SYSTEMS



NEW

CHARACTERISTICS OF THE UVE DIGITAL CONTROLLER

- » Four-line display of operating status and measured values
- » Storage of relevant parameters UV lamp in circulating memory with 255 data records
- » Simple menu-guided operation via buttons (info, settings, on/off)
- » Indication of warning and fault messages by flashing and colour change of the info button
- » Acknowledgement of warning and error messages by switching off the system
- » Password-protected programming of operating parameters in the settings menu
- » Autoclean mode to prevent contamination when the system is at a standstill (only in conjunction with circulation pump)

ADVANTAGES

- » User-friendly and clearly arranged control
- » More operational safety due to separate control box for electronic ballast
- » Dry-running protection via built-in flow sensor

UV disinfection units					RG 5
UVE monitor, UVE lamp and UVE reactor with sensor for on-site installation					
Product name	Hydr. capacity m ³ /h 250 J/m ² - 400 J/m ²	Hydraulic connection	Dimension in mm W x D x H	Item number	
UVE 35 digital	6.7 – 4.2	R 1"	130 x 120 x 520	455 108	
UVE 45 digital	8.6 – 5.4	DN 50	190 x 185 x 580	455 109	

UV disinfection units					RG 5
Including piping and pressure switch, ready for connection mounted on plate					
Product name	Hydr. Leistung m ³ /h 250 J/m ² - 400 J/m ²	Hydraulic connection	Dimension in mm W x D x H	Item number	
UVE 35 P digital	6.7 – 4.2	DN 25	510 x 170 x 1,000	455 110	
UVE 45 P digital	8.6 – 5.4	DN 50	630 x 230 x 1,300	455 111	

Accessories and spare parts for UV disinfection units					RG 5
Product name	Description	Mains connection V AC / Hz	Dimension in mm W x D x H	Item number	
UVE digital controller	Controller w/o electronic ballast	100 - 240 / 50 - 60	190 x 60 x 110	457 103	
UVE digital controller with ballast	Controller incl. electronic ballast	100 - 240 / 50 - 60	225 x 120 x 300	457 105	
UVE digital controller with adapter plate and ballast	Replacement unit for UV monitor 00457002	100 - 240 / 50 - 60	225 x 120 x 300	457 106	
UVE-Sensor	Replacement sensor for UVE 20, UVE 35 and UVE 45			457 075	
UVE-35-L	Replacement lamp for UVE 35			457 004	
UVE-45-L	Replacement lamp for UVE 45			457 024	
Circulating pump U35	Circulating pump for UVE 35			457 076	

BLOWDOWN SYSTEMS COOLTROL DATA



COOLTROL DATA

CHARACTERISTICS

- » NEW: Control of up to 3 dosing pumps possible (2x time-controlled, 1x quantity-controlled)
- » Blowdown controller for open cooling systems and scrubbers with documentation function (according to 42nd BImSchV)
- » Data can be read out from micro SD card
- » Output 4 - 20 mA (conductivity or temperature)
- » Conductivity measurement with temperature compensation and cable break monitoring
- » Conductivity measurement conductive (cell constant 1.0) or inductive possible (measuring range 10 - 500 mS/m each)
- » Graphic display with German and English menu navigation
- » Warning / fault signals shown via display colour change
- » Operating signal for one of the four functions (blowdown, circulation pump, volume- or time-controlled dosing)
- » Blowdown valve (motor ball valve) is currentless closed, no risk of accidental drainage during power outage

Cooltrol data – Blowdown units and bypass measuring sections

RG 5

Conductivity and dosing controller limiting the concentration of dissolved solids in open cooling circuits and scrubbers with data logging according to 42nd BImSchV

Product name	Measuring range mS/m	Blowdown valve	Hydraulic connection supply / return / blowdown	Item number
Cooltrol data K (MKB 15) K = 1.0	10 - 500	MKB DN 15	DN 20 / DN 20 / DN 15	170 156
Cooltrol data I (MKB 15)	10 - 500	MKB DN 15	DN 20 / DN 20 / DN 15	170 157
Cooltrol data K (MKB 25) K = 1.0	10 - 500	MKB DN 25	DN 25 / DN 25 / DN 25	170 162
Cooltrol data I (MKB 25)	10 - 500	MKB DN 25	DN 25 / DN 25 / DN 25	170 167
Cooltrol data K BP (K = 1.0)	10 - 500	-	DN 20 / DN 20 / -	170 158
Cooltrol data I BP	10 - 500	-	DN 20 / DN 20 / -	170 159

COMPONENTS FOR BLOWDOWN SYSTEMS



Cooltrol data



Blowdown unit in a WSG weatherproof casing

Measuring probes and accessories					RG 5
Product name	Measuring range mS/m	Cable length m	For controller	Item number	
Conductive probe LFK 1.0-E	10 - 500	1.2	Cooltrol, LF-CC	175 043	
Conductive probe LFK 1.0-ES	10 - 500	Refer to "Connection cable"	Cooltrol, LF-CC	175 044	
Conductive probe LFK 0.1-E	1 - 50	1.2	Cooltrol, LF-CC	175 045	
Conductive probe LFK 0.1-ES	1 - 50	Refer to "Connection cable"	Cooltrol, LF-CC	175 046	
Conductive probe LFK 1.0	10 - 500	2	Cooltrol data	175 143	
Inductive probe LFI	10 - 500	2	Cooltrol data	175 145	
Flow assembly Cooltrol data-K	-	-	Cooltrol data	175 146	
Flow assembly Cooltrol data-I	-	-	Cooltrol data	175 148	
Connection cable 1.2 m	-	1.2	Cooltrol, LF-CC	175 027	
Connection cable 5.0 m	-	5	Cooltrol, LF-CC	175 028	
Connection cable 10.0 m	-	10	Cooltrol, LF-CC	175 029	

Blowdown controllers and weater-proof casing			RG 5
Product name	Description	Item number	
Cooltrol data	Dosing and blowdown controller for blowdown systems and bypass measuring sections with data logging according to 42nd BImSchV	542 375	
WSG	Protective weather-proof plastic casing with heating	175 041	

Blowdown valves					RG 5
MV = Solenoid valve, MKB = Motorised ball valve (NC), MKV = Motorised ball valve					
Product name	Mains connection V / Hz	Hydraulic connection	Material	Item number	
MV 15	230 / 50	R ½"	Brass, SS, NBR	175 047	
MKB 15 NC	100 - 230 / 50 - 60	Rp ½"	Nickel-plated brass, SS, EPDM	410 231	
MKB 20 NC	100 - 230 / 50 - 60	Rp ¾"	Nickel-plated brass, SS, EPDM	410 232	
MKB 25 NC	100 - 230 / 50 - 60	Rp 1"	Nickel-plated brass, SS, EPDM	410 233	
MKV 15	230 / 50	DN 15	Nickel-plated brass / hard chrome plated	175 066	

Larger solenoid valves available on request.

OVERVIEW DOSING PUMPS



DDC



DDE

Dosing pump series	DDE	DDC	DDA	
Type	DDE-PR	DDC-AR	DDA-AR	DDA-FC
Suitable for:				
General water treatment applications	✓	✓	✓	✓
Volume-controlled dosing	✓	✓	✓	✓
Biocide dosing	✓	✓	✓	✓
Dosing of outgassing biocides			✓	✓
Dosing in closed systems (high concentrations, low make-up volumes)		✓	✓	✓
Antiscalant dosing		✓	✓	✓
General features				
Digital controller	✓	✓	✓	✓
Mounting plate (base/wall mounting)	✓	✓	✓	✓
Control elements				
Mechanical button for capacity control 0 – 100 %	✓			
Start/stop switch		✓	✓	✓
Operating mode selector (remote on/off or contact)	✓			
100 % switch (vent)	✓	✓	✓	✓
Graphic display		✓	✓	✓
Push-turn button for easy navigation and setting		✓	✓	✓
Plain text menu in various languages		✓	✓	✓
Operating mode				
Remote on/off	✓	✓	✓	✓
Water-meter-controlled operation	✓	✓	✓	✓
Water-meter-controlled operation with idle run time		✓	✓	✓
Analogue control (0 / 4 – 20 mA)		✓	✓	✓
Features				
Automatic vent			✓	✓
Flow control (dosing control)				✓
Memory function for incoming pulses		✓	✓	✓
Pressure monitoring (min. / max.)			✓	✓
Calibration mode		✓	✓	✓
Service information		✓	✓	✓
Programmable outputs	✓	✓	✓	✓
Inputs/outputs				
Input for remote on/off	✓	✓	✓	✓
Input for water meter pulse	✓	✓	✓	✓
Input for analogue control (0 / 4 – 20 mA)		✓	✓	✓
Input for low level message	✓	✓	✓	✓
Input for empty message	✓	✓	✓	✓
Output for relay	✓	✓	✓	✓
Output for analogue signal (0 / 4 – 20 mA)		✓	✓	✓

DOSING / ACCESSORIES



Dosing stations RG 5

With 75, 100 or 200 l dosing tanks – wetted materials: PP / PE / PTFE / EPDM / FKM / ceramic

Product name/ Vol. / Dosing pump type	Volumetric delivery l/h min. / max.	Backpressure bar min. / max.	Connection PE hose mm	Item number
DOS 75/DDE 6-10 PR	0.006 - 6.00	1 / 10	4 / 6	450 305
DOS 75/DDE 15-4 PR	0.015 - 15.0	1 / 4	9 / 12	450 307
DOS 75/DDC 6-10 AR	0.006 - 6.00	1 / 10	4 / 6	450 333
DOS 75/DDC 15-4 AR	0.015 - 15.0	1 / 4	9 / 12	450 334
DOS 75/DDA 7.5-16 AR	0.003 - 7.50	1 / 16	4 / 6	450 306
DOS 100/DDE 6-10 PR	0.006 - 6.00	1 / 10	4 / 6	450 308
DOS 100/DDE 15-4 PR	0.015 - 15.0	1 / 4	9 / 12	450 309
DOS 200/DDE 6-10 PR	0.006 - 6.00	1 / 10	4 / 6	450 312
DOS 200/DDE 15-4 PR	0.015 - 15.0	1 / 4	9 / 12	450 313

ClO₂ dosing unit RG 5

For feeding stabilised chlorine dioxide directly from the drum

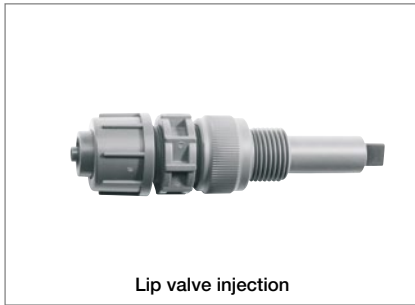
Product name	Description	Material	Electric / hose connection mm	Item number
DDA 7.5 - 16 AR ClO ₂	Diaphragm dosing pump	PVDF / PTFE / PTFE / ceramic	100 - 240 V / 50 - 60 Hz 4 / 6 or 9 / 12 hose	453 551
SL 25/75 ClO ₂	Suction lance (for 25 l drum)	PVC / PVDF / FKM / ceramic	4 / 6 or 9 / 12	453 555
ISI ClO ₂	Injection fitting PN10	PVDF / PTFE / ceramic	4 / 6 or 9 / 12	453 357
Dosing hose	Dosing hose, 20 bar	ETFE	4 / 6	560 445

Dosing controllers RG 5

Accessories for dosing stations DOS and BIODOS

Product name	Controller	Item number
Cooltrol data	Dosing and desalination control for blowdown units and bypass measuring pipes with data logging according to 42nd BImSchV	542 375
ZA Mono timer	Timer	453 254
Pulse multiplier BG 4/2	Multiplies water meter pulses and forwards them to up to 4 devices	453 570

DOSING / ACCESSORIES



Injection fittings					RG 5
Product name	Description	Material	Connection mm	Item number	
ISI	Injection fitting, PN 16	PP / EPDM	4 / 6 and 9 / 12	453 148	
ISI-K	Injection fitting with ball valve, PN 10	PP / EPDM	4 / 6 and 9 / 12	453 149	
ISI-K (PVC)	Injection fitting with ball valve, PN 16	PP / PVC / EPDM	4 / 6 and 9 / 12	453 526	
Lip valve injection	Injection fitting for NaOCl dosing, PN 16	PVC / FKM / ceramic	4 / 6 and 9 / 12	450 221	
HISI	Hot water injection fitting, PN 16	VA / PP / EPDM	4 / 6 and 9 / 12	453 153	
DL	Dosing lance for HISI (for extension), PN 16	VA	R 1/2"	453 108	

Safety drip trays					RG 5
Product name	Retention capacity up to (l)		Dimensions in mm W x D x H / Dia x H	Item number	
SAW 35	35		600 x 350 x 210	453 099	
SAW 100	100		555 x 540	450 089	
SAW 200	200		740 x 735	453 076	
SAW 220	220		1,260 x 860 x 335	453 571	
SAW 400	370		1,260 x 860 x 485	453 101	

Electric mixing agitators and hand mixer					RG 5
If ordered together with a dosing station, installation is carried out at no extra charge					
Product name	Description		Mains connection V / Hz	Item number	
ERWI 75	Electric mixing agitator for DB 75		220 - 240 / 50 - 60	453 285	
ERWI 200	Electric mixing agitator for DB 200		220 - 240 / 50 - 60	453 109	
HM 75	Hand mixer for DB 75		-	450 076	

Valves					RG 5
Product name	Description	Material	Connection mm	Item number	
DV	Pressure sustaining valve 3 bar, adjustable	PP	4/6 or 9/12	453 043	
SV	Overflow valve 10 bar, adjustable	PP	4/6 or 9/12	453 464	
MFV	Multifunction valve 3/10 bar, adjustable	PVDF / PTFE	4/6 or 9/12	453 465	
Pressure valve	Pressure valve 3 bar		4/6 or 9/12	453 448	

Water meter for dosing units						RG 5
Water volume detection with pulse emission						
Product name	Nominal flow	Minimum flow	Dimensions mm	Connection	Item number	
Q (m³/h) / pulse interval	m³/h	m³/h	L x H			
WMT 5/0.5	2.5	0.10	288 x 155	R 3/4"	453 535	
WMT 5/1.0	2.5	0.10	288 x 155	R 3/4"	453 536	
WMT 10/2.5	6	0.24	378 x 170	R 1"	453 537	
WMT 20/2.5	10	0.40	438 x 190	R 1 1/2"	453 275	
WMT 30/2.5	15	0.60	270 x 248	DN 50	453 530	

DOSING / COMPONENTS

Dosing pumps				RG 5
Product name Vol. delivery / back-pressure	Mains connection V / Hz	Material	Connection PE hose mm	Item number
DDE 6-10 PR	100 - 240 / 50 - 60	PP / PTFE / EPDM / ceramic	4/6 or 9/12	453 413
DDE 15-4 PR	100 - 240 / 50 - 60	PP / PTFE / EPDM / ceramic	4/6 or 9/12	453 414
DDC 6-10 AR	100 - 240 / 50 - 60	PP / PTFE / EPDM / ceramic	4/6 or 9/12	453 375
DDC 15-4 AR	100 - 240 / 50 - 60	PP / PTFE / EPDM / ceramic	4/6 or 9/12	453 377
DDA 7.5-16 AR	100 - 240 / 50 - 60	PP / PTFE / FKM / ceramic	4/6 or 9/12	453 378

Dosing tank				RG 5
Including suction lance with 5 m connection cable and PE dosing hose 4/6 mm				
Product name Volume / connection		Material	Dimensions in mm Ø x H	Item number
DB 75 4/6		PE / EPDM / FKM / ceramic	460 x 670	453 435
DB 100 4/6		PE / EPDM / FKM / ceramic	460 x 790	453 436
DB 200 4/6		PE / EPDM / FKM / ceramic	600 x 880	453 437

Suction lances				RG 5
Including connection cable, 5 m				
Product name	Compatible with	Material	Connection PE hose mm	Item number
SL 25	25 l drum	PE / EPDM / FKM / ceramic	4/6 or 9/12	453 443
SL 75	DB 75	PE / EPDM / FKM / ceramic	4/6 or 9/12	453 423
SL 100	DB 100	PE / EPDM / FKM / ceramic	4/6 or 9/12	453 424
SL 200	DB 200	PE / EPDM / FKM / ceramic	4/6 or 9/12	453 425
SL F 200	200 l drum	PE / EPDM / FKM / ceramic	4/6 or 9/12	453 444
SL IBC	IBC Container	PE / EPDM / FKM / ceramic	4/6 or 9/12	453 462
SL flexible		PE / EPDM / FKM / ceramic	4/6 or 9/12	453 428

Hoses				RG 5
Product name		Connection mm	Item number	
PE dosing hose		4 / 6	560 308	
PE dosing hose		9 / 12	560 315	

Connection cables and adapters			RG 5
Product name	Description		Item number
Control cable	Connection of water meter/dosing pump, 2 m		453 029
Control cable	Connection of water meter/dosing pump, 5 m		453 030
Alarm cable	Connection of dosing pump/central control room, 2 m		453 031
Alarm cable	Connection of dosing pump/central control room, 5 m		453 032
Suction lance adapter flat/round	Connection of suction lance SLI (for DPI/DPS/DPSV) to DDE/DDC/DDA pumps		453 368
Suction lance adapter round/flat	Connection of suction lance SL to DPI/DPS/DPSV dosing pumps		453 449
Shorting plug	For permanent release of the DDE / DDC / DDA dosing pumps		453 460
WKI	Stainless steel wall bracket for dosing pumps		453 116

CLEANING/DESCALING PUMPS



EKP 45-W / II



EKP 90-W / II

CHARACTERISTICS

- » Powerful electric pump for easy descaling of pipes and tanks
- » Maximum head 6 m
- » Maximum flow rate 50 l/min
- » Robust plastic tank with practical handle and transport wheels (size 90 only)
- » Multi-port control valve for continuous adjustment of pressure and flow rate as well as flow direction (recirculation in the tank at zero position)
- » Wetted components are made of acid and alkali-proof material
- » Operation with cold and warm fluid up to 50 °C possible
- » System ready for connection, with 2 x 2 m woven hose with hosedetails and union nuts

FOR DESCALING OF

- » Piping systems
- » Heat exchangers
- » Heating and cooling systems
- » Circulating water heaters and boilers
- » Hot and cold water storage tanks

ADVANTAGES

- » Robust industrial quality with a long service life
- » Easy, clean, and safe filling thanks to large opening with screw cap
- » Safe operation due to premixing of chemicals and water with multi-port control valve
- » High precision control of flow rate and direction with multi-port control valve
- » Easy transport due to equipment with wheels (size 90)

Cleaning and descaling pumps

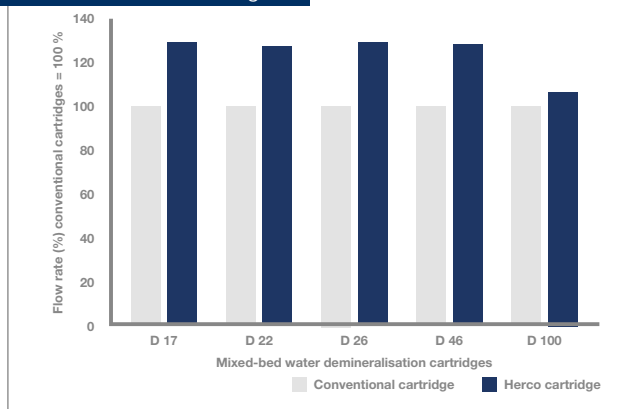
For scale and rust removal in water systems with storage tank and multi-control valve

RG 5

Product name	Mains connection kW / V / Hz	Hydraulic connection	Dimensions in mm W x D x H	Tank volume l	Item number
EKP 45-W / II	0.37 / 230 / 50	R ¾"	640 x 490 x 620	50	392 002
EKP 90-W / II	0.37 / 230 / 50	R ¾"	650 x 500 x 820	100	392 005

DESTILLO MIXED-BED WATER DEMINERALISATION UNITS

Up to 30 % higher flow rate than conventional cartridges



DESTILLO stainless steel mixed-bed cartridge with LWM D

CHARACTERISTICS

- » Production of demineralised water (< 0.2 µS/cm) from drinking water
- » Capacity valid for: Feed water with approx. 300 µS/cm (approx. 10 °dH) and conductivity up to 20 µS/cm in the pure water
- » Capacity decreases with higher salt content of feed water and / or lower conductivity pure water
- » All hydraulic connections: R ¾"

ADVANTAGES

- » Compact and simple system, easy installation
- » Quick and easy cartridge replacement
- » No wastewater
- » Higher flow rate than conventional cartridges (with the same pressure drop)

DESIGN

- » D 2 complete unit (cpl): cartridge with disposable resin, conductivity meter, connection hoses, wall bracket and accessories.
- » D 2 replacement cartridges (EP): plastic cartridges with resin filling
- » D 12 - D 100 complete units (cpl): stainless steel cartridge pressure-proof up to 10 bar, with inserts, conductivity meter with connection cable, connection hoses and wrench
- » D 12 - D 100 replacement cartridges (dE): stainless steel cartridges with inserts and resin filling

We also offer a regeneration service for DESTILLO mixed-bed demineralizers from size D 12 upwards, details on page 67.

Mixed-bed water demineralisation systems and replacement cartridges for free pure water outlet						RG 2
Plastic tank, small devices for unpressurised operation						
Product name / Mixed bed resin vol. l	Capacity l/h	Capacity at 300 µS/cm l	Dimensions in mm Ø x H	Max. temperature °C	Item number	
destillo D 2 cpl	50	320	115 x 515	30	010 001	
destillo D 2 EP	50	320		30	010 002	

Mixed-bed water demineralisation units and replacement cartridges						RG 2
Pressure resistant, made of stainless steel						
Product name / Mixed bed resin vol. l	Hydr. output in l/h at 1 bar / 2 bar pressure drop	Capacity at 300 µS/cm l	Dimensions in mm Ø x H	Max. temperature °C	Item number	
destillo D 12 dE cpl	200 / 300	1,500	237 x 600	30	020 001	
destillo D 12 dE	200 / 300	1,500	237 x 404	30	020 002	
destillo D 17 dE cpl	1,000 / 1,500	2,000	237 x 680	30	020 054	
destillo D 17 dE	1,000 / 1,500	2,000	237 x 484	30	020 055	
destillo D 22 dE cpl	1,000 / 1,500	2,800	237 x 800	30	020 056	
destillo D 22 dE	1,000 / 1,500	2,800	237 x 600	30	020 057	
destillo D 26 dE cpl	1,000 / 1,500	3,300	237 x 900	30	020 058	
destillo D 26 dE	1,000 / 1,500	3,300	237 x 700	30	020 059	
destillo D 46 dE cpl	1,000 / 1,500	6,000	237 x 1,350	30	020 060	
destillo D 46 dE	1,000 / 1,500	6,000	237 x 1,150	30	020 061	
destillo D 100 dE cpl	1,600 / 2,500	13,000	363 x 1,300	30	020 007	
destillo D 100 dE	1,600 / 2,500	13,000	363 x 1,100	30	020 008	

Demineralisation cartridge accessories					RG 2
Product name	Description	Connection	Length in mm	Item number	
Hose set for SS cartridges	Raw and pure water hose, wrench	Rp ¾"	2 x 1,000	020 048	
Connection hose	For connection of 2 destillo dE cartridges	Rp ¾"	1 x 1,000	020 014	

Hose set for plastic cartridges (D 2 EP) available on request

CONDUCTIVITY METERS

NEW LWM S D2



DESTILLO D 2 mit LWM S D2

CHARACTERISTICS OF LWM S D2

- » For DESTILLO D2
- » Conductivity meter with integrated battery (exchangeable, working life approx. 5 years)
- » Easy-to-understand qualitative display of water quality with green, yellow and red LED
- » Non-adjustable switchpoints at 5 $\mu\text{S}/\text{cm}$ (green to yellow) and 20 $\mu\text{S}/\text{cm}$ (yellow to red)



LWM D

CHARACTERISTICS OF LWM D

- » For DESTILLO D 12 - D 100
- » Conductivity meter with temperature compensation
- » Easy-to-read digital display of conductivity value
- » Limit value contact (switchpoint 10 $\mu\text{S}/\text{cm}$, others on request)
- » Manual bridging of limit value contact during start-up

Conductivity meters

RG 2

Standard device for installation on top of a destillo mixed-bed demineralisation unit

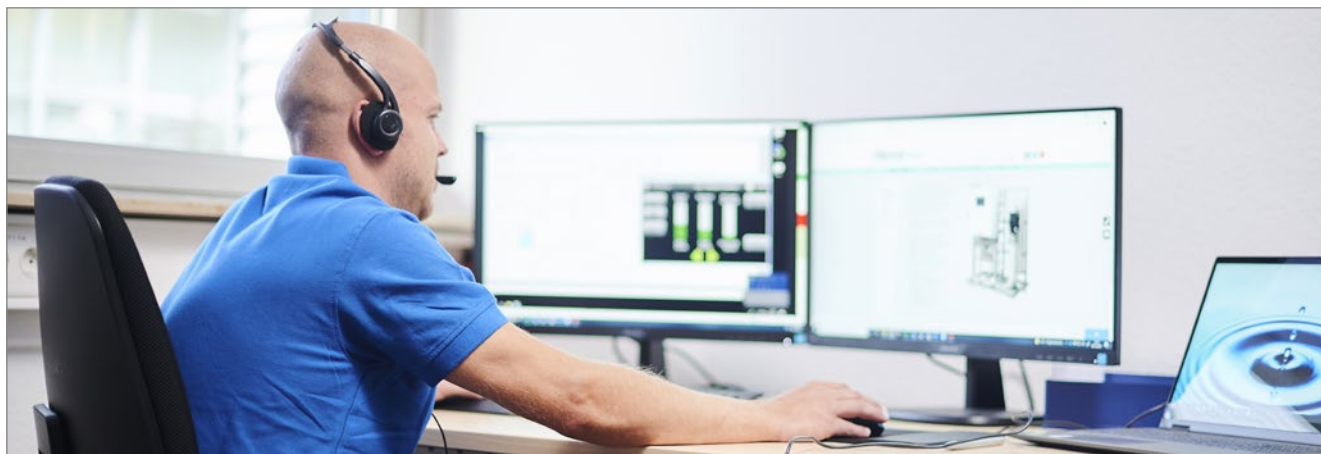
Product name	Suitable for destillo	Measuring range $\mu\text{S}/\text{cm}$	Mains connection V / Hz	Limit value contact	Item number
LWM S D2	D 2	-	0 - 20	None	070 032
LWM D	D 12 dE - D 100 dE	100 - 240 / 50 - 60	0 - 20	1 x floating changeover-contact	070 030

Accessories

RG 2

Product name	Measuring range $\mu\text{S}/\text{cm}$	Description	Connection / length mm	Item number
GMH 3431	0.2 - 19,990	Handheld conductivity meter		630 074

REGENERATION SERVICE / AFTER-SALES SERVICE



REGENERATION SERVICE

Regeneration of depleted, regenerable mixed-bed quality resins that have been in contact with drinking water. The regeneration service also includes the replacement of defective O-rings and filter bags as well as tank venting.

Additional costs such as packaging and delivery are not included.

AFTER-SALES SERVICE

Charges for maintenance, assembly and commissioning services. Preparation, travelling, waiting and remote maintenance time will be charged as working time.

Payment for after-sales-service and regeneration services is due immediately, without discount. For returns of new goods, we reserve the right to deduct the costs incurred by us with a testing and re-storage deduction, amounting to 25 % of the value of the goods, but no less than 50 €.

Regeneration service		RG 4
Product name		Item number
Regeneration D 10-MB		150 004
Regeneration D 12 dE-MB		150 009
Regeneration D 17 dE-MB		150 028
Regeneration D 22 dE-MB		150 029
Regeneration D 26 dE-MB		150 030
Regeneration D 46 dE-MB		150 031
Regeneration D 100 dE-MB		150 015

Customer service	
Product name	
Service technician	
Service engineer	
Online Troubleshooting	
Daily allowance	
Surcharges for work under difficult conditions	

Overtime surcharges	
Product name	
Monday to Friday 5:00 pm to 9:00 pm	
Monday to Friday 9:00 pm to 6:00 am	
Saturday 6:00 am to 9:00 pm	
Saturday 9:00 pm to 6:00 am	
Sunday	
Public holidays	
Mileage allowance for assembly / service vehicle	
Overnight allowance	
Overnight accommodation expenses will be reimbursed against receipt	
Foreign country charge (according to BMF)	



CONTACT OUR EXPERTS

TECHNICAL ADVICE? OUR SALES TEAM

Please contact us if you have technical questions about reverse osmosis units as well as pre- and post-treatment equipment, if you need support with unit design based on the water analysis or if you have any other questions! We support and advise you tailored to your individual needs.

Telephone +49 7141 7095-133
E-Mail sales@hercowater.com

COMMERCIAL QUESTIONS? OUR COMMERCIAL PROCESSING TEAM

If you have any questions about your order, order confirmation, delivery note and invoice or customs clearance and transport organisation, please contact us! We will be glad to help you.

Telephone +49 7141 7095-123
E-Mail order@hercowater.com

QUESTIONS ABOUT YOUR UNIT? OUR SERVICE TEAM

If you have any questions about your unit after delivery, if you would like to make an appointment for commissioning, service, maintenance or for technical support, please contact us via the hotline. We are here for you!

Telephone +49 7141 7095-204
E-Mail service@hercowater.com

Please contact our spare parts team directly for the fast processing of spare parts requests

Telephone +49 7141 7095-136
E-Mail spareparts@hercowater.com

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hercowater.com/en/contact



GENERAL TERMS AND CONDITIONS HERCO WASSERTECHNIK GMBH

General Terms of delivery and payment status March 2015 – Page 1 of 2

1. Scope of Application of these General Terms and Conditions

1.1 All deliveries, services and quotations provided by HERCO Wassertechnik GmbH (hereinafter referred to as HERCO) shall be made solely on the basis of these General Terms and Conditions. These General Terms and Conditions shall be deemed accepted at the latest upon receipt of the goods or services. These General Terms and Conditions shall also apply to all future business relationships of HERCO with the purchaser, even if they are not once again expressly agreed upon. Conflicting or contradictory General Terms and Conditions or purchase terms and conditions of the purchaser are herewith rejected. Conflicting or contradictory General Terms and Conditions or purchase terms and conditions of the purchaser shall also not apply if they are part of a confirmation letter by the purchaser sent subsequent to our confirmation of the contract and even if we do not separately object to same.

1.2 Unless employees of HERCO do not hold any power of attorney vested in them by statute, said employees shall not be authorized to enter into ancillary agreements or make warranties. Any verbal agreements made with employees of HERCO holding respective power of attorney shall only be effective if they have been confirmed in writing.

2. Offer, Execution of the Agreement

2.1 All offers made by HERCO shall be subject to change, prior sale and non-binding. For any acceptance declarations and orders to be legally effective, same shall require a written order confirmation from HERCO. An agreement shall have been finalized only upon issuance of said written order confirmation.

2.2 HERCO's written order confirmation shall govern the contents and scope of the agreement. Documents that are part of the offer, such as figures, drawings, size and dimension information shall be approximate and non-binding, unless expressly identified as binding.

2.3 For the entire delivery time, HERCO reserves the right to implement design and form changes resulting from the further development of technology or statutory mandates.

2.4 The scope of delivery and the delivery object shall be stipulated in the order confirmation as well as, if applicable, our service and product descriptions, provided same have been made objects of the contractual agreement.

3. Intellectual Property Rights, Reservation of Right to Modify

3.1 HERCO reserves all property and intellectual property rights in all figures, drawings, calculations and other documents. Same shall neither be duplicated nor made accessible to any third parties without HERCO's written consent.

3.2 HERCO shall have the right to perform expedient modifications and improvements on its products and services at all times; it shall, however, be under no obligation to make such changes.

4. Prices

4.1 Unless otherwise stated in the order confirmation, HERCO's prices shall be quoted ex factory, net. Prices do not include sales/value added tax. Same shall be added separately to the invoice in the statutory amount on the day the invoice is issued.

4.2 Prices do not include packaging and shipping costs and are quoted without the cost of transportation insurance. The afore-mentioned costs shall be billed to the purchaser separately. Transportation insurance shall be obtained only upon purchaser's express written request.

4.3 For orders less than EUR 50.00 net we charge EUR 20.00 extra handling fee (+ VAT).

5. Delivery, Transfer of Risks

5.1 The delivery time shall begin only upon posting of the order confirmation, however, no earlier than at the time all documents required have been provided by the purchaser and all technical issues have been clarified. Delivery dates or times, which may be agreed upon as binding or non-binding dates and times, shall be agreed in writing.

5.2 Herco shall not be liable for delays in delivery or services due to force majeure or due to events that make it substantially more difficult or impossible for HERCO to perform the delivery/service – in particular due to events such as strike, lockouts, government agency mandates, etc., including those that occur at the end of HERCO's suppliers, even if delivery times and dates have been agreed upon as binding. In these cases, HERCO shall have the right to delay the delivery or service for the duration of the encumbrance, plus a reasonable start-up period or to rescind from the part of the contract pertaining to the unfulfilled part of same in full or in part. In the event that the hindrance should last more than three months, the purchaser shall, after having set a reasonable deadline for remedial action, have the right to rescind from the contract pertaining to the unfulfilled part. The purchaser shall not have the right to construe any claims for damages in the event that the delivery time is extended or in the event that HERCO is released from its obligations.

5.3 In the event that the purchaser should be in default of acceptance, HERCO shall have the right, upon setting a reasonable deadline for remedial action, to take control of the object and to make delivery to the purchaser within the reasonable extended remedial time period or to rescind from the agreement. In the event that the purchaser is in default of delivery or if the former breaches any other participation obligations, HERCO shall also have the right to demand reimbursement of any additional expenditures incurred.

5.4 The risk shall transfer to the purchaser as soon as the shipment has been handed over to the transportation carrier or as soon as it has left the warehouse for the purpose of shipping. In the event that shipping becomes impossible for reasons

beyond HERCO's control, the risk shall transfer to the purchaser upon notification that the delivery is ready for shipment. This shall apply in particular if shipment is delayed upon purchaser's request after a notice that the consignment is ready for shipment has been sent. In this case the risk of accidental loss or accidental damages shall also transfer to the purchaser. In the event that claims can be filed against liable third parties and/or insurance providers (insurance shall be arranged only upon purchaser's request and at the latter's expense), any claim purchaser might have against HERCO shall be limited to our assignment of the receivable to the purchaser.

5.5 Incidentally, shipment shall be made at purchaser's cost and risk (same shall also apply to any return shipments). This shall also apply if we deliver goods in our own vehicles.

5.6 HERCO shall have the right to make partial shipments and render partial services.

6. Retention of Title

6.1. Until satisfaction of all claims (including any current account balance claims) to which HERCO is entitled against the purchaser now or in the future, HERCO is hereby granted the following securities which HERCO shall release on request at its discretion once their value permanently exceeds the claims by more than 10 %.

6.2. The subject of purchase shall remain the property of HERCO until full payment has been made. Processing or transformation shall always be carried out for HERCO but without giving rise to any obligations for HERCO. If HERCO's (co)ownership ceases to exist as a result of combining, it is agreed now in advance that the (co)ownership of the purchaser in the new uniform product shall pass to HERCO in proportion to the value (invoice value). The purchaser shall keep HERCO's (co)owned product free of charge.

6.3. Goods for sale in which HERCO has (co)ownership shall be referred to as the retained goods („Retained Goods“). The purchaser is entitled to process and sell the Retained Goods in the ordinary course of business providing the purchaser is not in default and only subject to the purchaser receiving payment from its customer or providing that title shall only pass to the customer once it has met its payment obligations.

6.4. Pledging or transferring such items as security is not permitted. The purchaser hereby assigns to HERCO now in advance as security all claims in full with respect to the Retained Goods which result from selling goods on or which arise on other legal grounds (insurance, tort). HERCO hereby revocably authorises the purchaser to collect the claims assigned to HERCO in its own name for HERCO's account. This collection authorisation can only be revoked if the purchaser does not properly meet its payment obligations or in the event that the purchaser files an application for the institution of insolvency proceedings or for protective shield proceedings under the German Insolvency Act (Insolvenzordnung).

6.5. If third parties obtain access to the Retained Goods, particularly as a result of pledges, the purchaser shall point out that they are HERCO's property and inform it without undue delay so that HERCO can assert its title rights. For the event that the third party is not in a position to reimburse HERCO for in or out-of-court costs arising in this regard, the purchaser shall be liable herefor.

6.6. In the case of breaches of duty by the purchaser, particularly in the case of default with payment, HERCO is entitled to rescind the agreement and repossess the goods after fruitless expiry of a reasonable period granted to the purchaser for performance. The statutory provisions regarding when setting such a period is unnecessary shall remain unaffected. The purchaser shall be obliged to surrender the goods.

6.7. HERCO does not consent to sale of the Retained Goods in the event that an application is filed for the institution of insolvency proceedings or for protective shield proceedings under the German Insolvency Act.

6.8. If before or during delivery justified doubts arise regarding the solvency of the purchaser, HERCO can request further securities from the purchaser to secure future payment obligations over and above the retention of title and refrain from providing the deliveries and services until such securities have been furnished. Should the purchaser be unable to furnish the required securities, HERCO is entitled to rescind the agreement.

6.9. The purchaser shall treat the Retained Goods with care and shall, in particular, sufficiently insure these at their new value at its own costs against fire, water and theft. Where maintenance and inspection work is necessary, the purchaser shall have this carried out by HERCO in due time at its own cost.

7. Payment Terms

7.1 Unless otherwise agreed upon, all HERCO invoices shall be due for immediate payment, net, without any deductions. HERCO shall have the right to set off any payments made against older debts of the purchaser, regardless of any instructions to the contrary from the purchaser. In the event that costs and interest have already been incurred, HERCO shall have the right to set off payments in the following order: first against costs, next against interest and subsequently against the principal. All payments shall be made at our domicile, all costs prepaid by purchaser. Payments via deferred bank draft shall not be accepted unless expressly agreed otherwise in writing.

7.2 A payment shall be deemed made only upon credit of the amount to one of HERCO's accounts.

7.3 In the event that the purchaser should be in default of payment, HERCO shall have the right to charge interest in the amount of 8 % above the applicable prime rate published by the European Central Bank for companies and in the amount of 5 % above the applicable prime rate published by the European Central bank for consumers as of the due date.

7.4 In the event that purchaser should fail to meet purchaser's payment obligations or if HERCO should learn of other circumstances that give rise to misgivings about

purchaser's creditworthiness, HERCO shall have the right to make any remaining balance due payable immediately. In this case, HERCO shall also have the right to demand advance payments or collateral. In the event that the entire balance of debts is not paid immediately, the purchaser shall lose the right to utilize the object delivered. HERCO shall have the right to either seize the delivered object until fulfillment or to rescind from the agreement – without waiving any of its entitlements. In the event of seizure of the delivered object, all costs shall be for the account of the purchaser. In the event of rescission from the agreement, the purchaser shall pay to HERCO not only remuneration for the use of the delivered object, but also reimburse any decline in value incurred.

7.5 The purchaser shall have the right to set off counter entitlements against our receivables only if said counter entitlements are undisputed for have been finally adjudged by a court of law.

7.6 The purchaser shall have the right to execute withholding rights against our receivables only if said counter entitlements are undisputed or have been finally adjudged by a court of law.

8. Warranty

8.1 In the event that the goods delivered have not been manufactured by us in-house, but have been procured from a supplier, we shall fulfil our warranty obligations by assigning all of our own warranty entitlements against our supplier to the purchaser. The purchaser accepts said assignment as fulfilment. In the event that such rights should not be enforceable or if their execution should fail, the subsidiary warranty entitlements shall be rendered entitlements against us pursuant to subsequent Article 8.2.

8.2 The delivered goods shall be in the condition described in the product description and if not, in standard trade condition. Explanations pertaining to the condition of the goods shall not constitute warranties unless expressly denoted as such in writing. In general, no other obligations than those regarding elimination of deficiencies and remedial action warranties shall be assumed according to these General Terms and Conditions. The purchase shall examine the goods received for deficiencies and condition immediately. Deficiencies shall be reported to us within one week after delivery by written notification. This shall be without prejudice to additional statutory provisions. Concealed deficiencies shall be reported to us in writing not later than one week after their discovery. In all cases of deficiency claims, the purchaser shall undertake to provide us with the goods subject to the complaint for verification immediately.

In the event of culpable refusal to do so or delay all entitlements shall be rendered null and void. The aforementioned reporting obligation shall also apply if the purchaser finds out about deficiencies in our delivered goods or parts from purchaser's customers. In the event that purchaser's claim is justified, purchaser shall have the right to demand repair or replacement of the delivery within the scope of remedial action. We shall have the right to reject the chosen mode of remedial action if same should be possible only at disproportional costs or if the chosen type of remedy is more costly than an alternative and the latter would not translate into any disadvantages for the purchaser in comparison to the remedial option purchaser has elected. In the event of remedial action by way of repair, our repair attempts shall be limited to two in regard to a concrete defect and to four in regard to all deficiencies in the delivery object that is the object of the complaint. If the purchase object is to be moved to another location than the original place of delivery upon performance of the remedial action the purchaser shall absorb any additional costs incurred. The same shall apply if the purchaser sends the deficient object back to us from a different location than purchaser's domicile/the original place of delivery.

The purchaser shall have the right to claim further warranty entitlements only after setting us a reasonable deadline for the performance of the repairs or replacement shipment and same has expired to no avail. In the event that the deficiency is only minor, purchaser shall not have the right to rescind from the agreement. This shall be without prejudice to the right to reduce the purchase price.

8.3 No warranty obligations shall exist if a) the deficiency is the result of improper use, operation or care or inadequate maintenance, faulty assembly and start-up, violation or non-adherence to our operating, user and installation instructions or of forced manipulation and other external influences (e.g. chemical, electro-magnetic, electrical, etc.), provided we are not responsible for same, b) the deficiency is the result of an improper modification to the object of delivery, in particular of the use of inadequate, in particular third party spare parts, and the damage was incurred originally in connection with the modification or utilization. Natural wear and tear, or damages resulting from negligent or improper operation or handling shall be excluded from warranty coverage.

8.4 The product subject to the claim must be sent to us along with the original delivery note or a copy of same. The fact that we engage in negotiations on claims shall not constitute our waiver of raising the objection of claims filed late or improperly.

8.5 The purchaser shall have the right to withhold payments or invoke entitlements for deficiencies only insofar as such claims are proportionate to the claimed defect based on good faith, i.e. up to a maximum of the purchase price portion of the concrete item the deficiency claim pertains to.

8.6 In the event that the purchaser or a third party should perform any improper remedial action, we shall not assume any liability for consequential damages. The same shall apply to any modifications made to the delivery object without our prior written consent.

8.7 Article 9 shall apply in supplement to any damage compensation claims.

8.8 In the event that the delivery scope should include software or other products subject to intellectual property rights and related licenses, the purchaser shall be awarded a nonexclusive license to utilize the delivered software along with all related

documentation in conjunction with the delivery objects. The purchaser shall be permitted to utilize and process the software only within the scope permitted by law and shall undertake not to remove manufacturer information or to change same without our prior written consent. Without our prior written consent, purchaser shall not be permitted to transfer the software or rights to it, for instance via licenses, to any third parties.

8.9 For business transactions with commercial entities, the warranty period for material defects shall be one year as of the delivery of the goods. This shall not apply if we are liable due to acts of intent or malicious concealment of a defect we are aware of. In these cases we shall be liable pursuant to statutory requirements. The warranty period for wear and tear parts shall be limited to the time period by which these parts would begin to become subject to normal wear and tear based on ordinary use measured by its concrete frequency and duration.

8.10 The purchaser shall not be authorized to carry out advertising activities we have not approved with our goods. In the event that customers of the purchaser should file claims for deficiencies based on deviations of the purchased goods from advertising statements of the purchaser, which have not been approved by HERCO, the purchaser shall not have the right to establish entitlements from us based on such circumstances.

9. Liability

9.1 For damages of the purchaser, regardless of the legal grounds, and in particular based on breaches of obligations under the agreement and based on illegal acts or pursuant to the Product Liability Act we shall assume liability only in the event of intent or gross neglect unless a) we are liable for loss of life, personal injury or health damages, b) we are liable for the breach of cardinal contractual obligations.

9.2 Entitlements to damage compensation based on the breach of cardinal contractual obligations shall, however, be limited to contract typical, regularly foreseeable damages.

9.3 This shall also apply in the event of liability of deficiencies.

9.4 The liability limitations pursuant to Articles 8 and 9 shall also apply in regards to any liability for erroneous consulting, faulty installation instructions and the breach of any other ancillary obligation breaches.

9.5 If permitted by law, any other entitlements for damage compensation shall be excluded.

9.6 Article 8.9 shall apply to the statute of limitations pertaining to the above entitlements.

10. Governing Law, Jurisdiction, Severability

10.1 These General Terms and Conditions and all legal relationships between HERCO and the purchaser shall be governed by the laws of the Federal Republic of Germany under exclusion of the UN Convention on the International Sale of Goods (CISG), even if the purchaser's domicile is in a foreign jurisdiction.

10.2 Provided the purchaser is a commercial entity pursuant to the German Trade Law, or a legal entity of public law or a public-legal special entity, the headquarter location of HERCO shall be the sole place of jurisdiction for all litigation arising directly or indirectly from the contractual relationship.

10.3 Unless otherwise provided in the order confirmation, the headquarter location of HERCO shall be the sole place of fulfillment.

10.4 In the event that one of the provisions in these General Terms and Conditions or within the scope of other agreements should be or rendered ineffective, this shall not affect the effectiveness of all other provisions or agreements.

10.5 For any changes, additions and ancillary arrangements pertaining to these General Terms and Conditions or to the individual agreements to become effective, same shall be made in writing. This shall also apply if the requirement of written form is waived in changes. Verbal ancillary agreements have not been made.

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The English version of the General Terms and Conditions of HERCO Wassertechnik GmbH is only a courtesy translation; for interpretation, the German version shall prevail.

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