Herco®
Pollet Water Group

Product Guide 2026

Water Treatment Solutions for the Industry

#hercowater

A warm **welcome**

Quality connects us

Dear business partners,
Herco stands for tested quality, technological responsibility and sustainable water technology – developed and manufactured in Germany. For almost 80 years, our solutions have been convincing customers with their precision, reliability and durability.

We owe this consistency to our partnership-based collaboration with people like you – for this we are truly grateful.

Herco is a brand that is lived and carried by everyone who works with us. Professional expertise, commitment and a shared commitment to quality are the cornerstones of our success.

In a world filled with information, we continue to focus on direct, collaborative exchange with you. Transparent communication builds trust and strengthens our shared understanding of the brand.

Let us continue to strengthen and visualise this partnership at a digital level. LinkedIn, for example, offers us the ideal environment for this: as a platform for professional exchange and as a network for joint visibility. Connect with our employees and with me, and share your projects or experiences – feel free to use the hashtag #hercowater. Every contribution makes our values visible and shows how strong a partnership can be when put into practice.

In this edition, you will find our current portfolio of standard systems technology as well as insights into future topics such as PFAS removal and container solutions.

Herco remains true to itself – as a reliable partner for pure water and pure action. Thank you for joining us on this journey.

With kind regards,

Edwin Locker

News 2026

New control system: LF-MAG – successor to the LMW 358
As announced last year, we are pleased to present our new control system, the LF-MAG. As the successor to the LWM 358, the LF-MAG is a specially developed digital control system for conductivity measurement. In combination with a desalination valve, it can also be used as a simple desalination control system.

The system is available in two versions: the LF-MAG W (090 049) is designed for wall mounting, while the LF-MAG S (090 050) is specially designed for mounting on switchboards. Depending on the requirements, the appropriate option can be selected.

You can find more information about LF-MAG on page 61 or in our product centre.

PFAS-free water treatment – Benefit from our PFAS expertise
Herco offers customised solutions for the removal and, depending on the process, destruction of PFAS in water. We take long- and short-chain compounds into account, comply with stricter threshold values and ensure an economical, sustainable treatment.

More information on this topic can be found on page 37.

Herco® Pollet Water Group

linkedin.com/company/hercowater/

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Changes and errors excepted; illustrations may differ from the original (10/2025). **Price list is valid from 01.01.2026 on.**

Sector solutions for **industry**

Beverage

Herco offers efficient hygienic design solutions for the food and beverage industry. These fulfil legal requirements and reduce energy and water consumption.

hercowater.com/en/f&b

Dairy

Safe water for dairy processes requires the highest level of hygiene. Modern systems supply desalinated water for product contact, cleaning and packaging – efficiently, sustainably and in a resource-saving manner for reliable processes.

hercowater.com/dairy

Brewery

Stable brewing water ensures consistent beer quality. Modern systems remove iron, manganese and organic substances, optimise boiler feed and cooling circuits, and ensure efficient, hygienic and resource-saving processes.

hercowater.com/brewery

Boiler feed water

The treatment of boiler feed water from Herco prevents corrosion and scale formation. This increases system efficiency, reduces blowdown quantities and boiler maintenance and increases system service life.

hercowater.com/boilerwater

Cooling water

Herco offers customised system technology for water treatment for cooling systems - from feed water treatment to desalination in open, closed or hybrid circuits.

hercowater.com/cwater

Green hydrogen

Herco develops customised water treatment solutions for green hydrogen. Modular, compact and reliable - optimised for maximum efficiency and a long service life.

hercowater.com/en/h2

Surface technology

Pure water is crucial for process baths and rinsing results in surface technology. Water treatment systems from Herco deliver the required water quality and therefore ensure the value of your workpieces.

hercowater.com/st

Pharmaceutical industry

Herco offers customised solutions for the construction of water treatment units for the pharmaceutical industry as well as customer-oriented and flexible services for your existing systems.

hercowater.com/en/pharma

Data Center

Data centres require efficient and redundant cooling systems to guarantee low energy consumption, PUE and reliability. Herco offers solutions at the highest level of purity.

hercowater.com/dc

Hospital and laboratory

Hospitals and laboratories require microbiologically flawless ultrapure water with reliable germ and endotoxin removement. Herco offers systems with precise documentation and the highest quality standards.

hercowater.com/laboratory

Sector solutions for **medicine**

Hemodialysis

Herco develops systems for hemodialysis in accordance with MDR which provide maximum hygiene and operational safety. Our dialysis water treatment is efficient and conserves resources.

hercowater.com/dialysis

Endoscopy

Herco provides ultrapure water for endoscopy. We offer compact systems with automatic thermal disinfection for WD-Es to provide microbiologically safe water at all times.

hercowater.com/endoscopy

CSSD

In the CSSD, pure and ultrapure water is essential for the hygienic reprocessing of medical devices. Herco offers systems with thermal disinfection that fulfil DIN EN ISO 285 and guarantee maximum hygiene.

hercowater.com/en/cssd

Quality responsibility at Herco

At Herco, responsible behaviour is a top priority: towards our employees, our business partners and our environment.

We understand corporate responsibility to be more than just compliance with rules, rather as a practised promise of quality. Therefore, our water treatment systems meet the highest technical and hygienic requirements – tested, reliable and durable.

As the first EMAS-certified water treatment company, we set standards for sustainable management, documented quality and ethical entrepreneurship.

Our environmental policy

Sustainability is a central component of our corporate policy. Since 2022, we have therefore been committed to certified environmental management in accordance with EMAS and ISO 14001. To actively shape a sustainable future, we develop products that save resources and have a long service life.

Our quality management

Quality and safety characterise our development, production and operations. We ensure the highest product quality through standard-compliant design management, controlled processes and final inspections. We use new technologies, especially AI, responsibly and in accordance with the European AI Act.

Our responsibility to our employees

We offer a fair and inclusive working environment, promote equality and personal development. As an employer, we assume social responsibility by creating a safe and healthy working environment.

Our responsibility to our business partners

A good partnership is the basis of our activities and success. For Herco, responsible, long-term and fair cooperation with our business partners is just as important as the quality of our products. Herco has been manufacturing at its Freiberg am Neckar site for decades. As a result, we have built up a long-term network of local suppliers, which ensures short transportation routes. Trust, transparency and sustainability form the basis of our business relationships.

Our identity

Herco embodies technical excellence, active responsibility, and sustainable quality. For nearly 80 years, Herco has been synonymous with German SME expertise. With our in-house production and customer-oriented engineering, we develop future-proof solutions for water treatment. Our early specialisation in membrane technology and reverse osmosis continues to shape our systems until today.

Our values

The vision of helping to shape the future of the blue planet sustainably is rooted in our values, which combine technical precision with ethical responsibility and guide our actions. Our brand is shaped by people. Every employee and every partner contribute to the credibility of our brand by living these values in their everyday work.

Integrity
We act transparently, honestly and fairly – in every process and every decision.

Responsibility
We take responsibility for the consequences of our actions – towards people, the environment and society.

Partnership
We cultivate respectful, reliable and long-term relationships.

Sustainability
We consider every challenge from an economic, ecological and social perspective.

Quality
We ensure top quality in all processes and results.

Innovation
We design bold and creative solutions for the future.

Our certificates

All systems are tested in our own test facility. Herco complies with European standards and is regularly inspected by TÜV.

DIN EN ISO 9001:2015, EN ISO 13485:2016, EC Certificate MDR, EMAS Certificate from the Chamber of Industry and Commerce 2023, EMAS - ISO 14001

All certificates available for download:
https://hercowater.com/en/downloads

„For almost eight decades, Herco represents sustainable top quality – Made in Germany. Our success is based on our extensive engineering expertise in the development of durable water treatment systems and a relationship with our business partners characterised by integrity.“

Edwin Locker, Managing Director and Sustainability Officer at Herco Wassertechnik GmbH

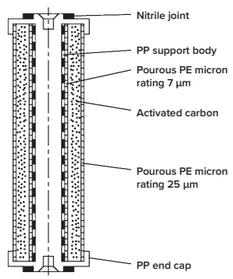
Customer-oriented engineering of future-proof solutions

Consulting, planning, design, engineering and manufacturing: Herco is a single-source supplier of reliable water treatment systems. We combine long-standing experience with innovative development expertise and provide sustainable, top-quality products – made in Germany.

Activated carbon filters

Activated carbon filter AF

Activated carbon cartridge



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.

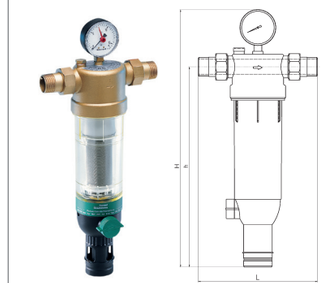
Design
The activated carbon filter consists of a plastic filter housing with a vent screw. Its filter element consists of an activated carbon cartridge with an outer and inner envelope around a polypropylene body.

Activated carbon filters AF — RG 4
Threaded connection 3/4" – 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

RF threaded connection



DVGW approval

RFF-H flange connection

RFF-RAM-H

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 ¼“	8.9	R 1 ¼“ / R 1 ¼“ / HT	222 x 453	105 - 135	325 020
RF 1 ½“	15.6	R 1 ½“ / R 1 ½“ / 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 ¼“ / DN 65 - 100	Dry contact for RAM	-	325 526
DIFF-P	1 ½“ - 2“	Dry contact for RAM	-	325 527

Backflow prevention devices

ST-C threaded connection

DVGW approval

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 back-flow. 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.

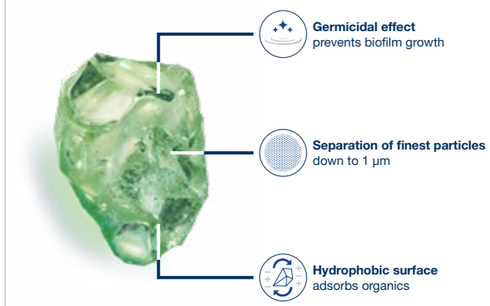
Design
- Housing made of dezincification-resistant brass / powder-coated ductile iron
- Filter insert made of high-grade stainless steel with integrated check valve and discharge valve
- Three brass ball valves for connection of differential pressure gauge

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

Side-stream filters for cooling circuits (glass granules)

Filter material AFM® ng



SPS Siemens LOGO!

Side-stream filter TSF 18000

Design of side-stream filters
- Flow rate from 8 to 18 m^3/h
- SPS Siemens LOGO! with display for comfortable operation
- Filter vessel made of GRP and multivalve system
- Filter medium glass granulate supplied separately
- Feed pump housing and impeller made from plastic or stainless steel
- Automatic, time-controlled backwash

Advantages of side-stream filters
- Independent from operation of cooling water circuit due to integrated feed pump
- Easy to mount thanks to the 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
- Option backwash with city water already integrated
- No control medium (air/water) needed

Advantages of AFM® ng
- Germicidal effect prevents biofouling and channel formation
- 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

Side stream filter TSF — RG 4
Automatic side stream filter for cooling circuits with glass granulate filling

Description	Flow rate min./max. at 20 m/h	Hydraulic connection RW / Filtrate / AW	Dimensions in mm W x D x H	Item number
TSF 8000	8	DN 40 / DN 40 / DN 40	1.200 x 875 x 1.790	315 136
TSF 12000	12	DN 50 / DN 50 / DN 50	1.200 x 910 x 1.790	315 137
TSF 18000	18	DN 50 / DN 50 / DN 50	1.270 x 930 x 1.790	315 138

Option initiating backwash via differential pressure for side stream filter TSF — RG 4

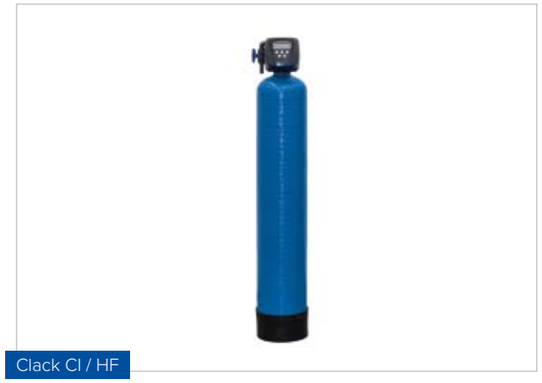
Diff-P for TSF 8000	Triggers backwash when a pre-set differential pressure is reached	315 139
Diff-P for TSF 12000 - 18000	Triggers backwash when a pre-set differential pressure is reached	315 150

Option fast rinse for side stream filter TSF — RG 4

Option fast rinse for TSF 8000	Discarding of initial filtrate to reduce risk of parkicle breakthrough	315 140
Option fast rinse for TSF 12000 - 18000	Discarding of initial filtrate to reduce risk of parkicle breakthrough	315 151

Mediafilter MF

MF 4300



Clack CI / HF

Version mediafilter MF 900 – 4300
- Flow rate from 0,9 – 4,3 m³/h
- Filter vessel made of GRP with riser tube and nozzle
- Control valve Clack CI
- Automatic, time-controlled backwash
- Different filter media available seperately
- Filter media supplied seperately, filling on site by the customer

MF 21000 HF

Version mediafilter MF 8400 – 21000 HF
- Flow rate from 8,4 – 21,0 m3/h
- Filter vessel made of GRP with jet star for even flow
- Control valve Clack CI for size 8400 (installed on frame)
- Industrial controller Clack HF for sizes 12000 and 21000 (installed on frame)
- Sizes with Clack HF: Modbus-interface already integrated, parallel connection of mutliple filters without extra controller possible
- Automatic, time-controlled backwash
- Different filter media available seperately
- Filter media supplied seperately, filling on site by the customer

Advantages of controller CLACK HF
- Modbus RTU already integrated
- Parallel connection of mutliple filters without extra controller possible
- Fast and easy setting of the parameters on the lead-filter

Mediafilter MF Automatic simplex multi-media filter units for well, surface, and process water				**RG 4**
Product name	Flow rate m³/h at 20 m/h	Hydraulic connection RW / Filtrate / WW	Dimensions in mm W x D x H	Item number
MF 900	0,9	R 1 ½“ / R 1 ½“ / Tülle 20 mm	300 x 370 x 1.630	315 141
MF 1600	1,6	R 1 ½“ / R 1 ½“ / Tülle 20 mm	360 x 390 x 1.640	315 142
MF 2300	2,3	R 2“ / R 2“ / Tülle 20 mm	420 x 420 x 1.920	315 143
MF 4300	4,3	R 2 ¼“ / R 2 ¼“ / R 2 ¼“	570 x 570 x 1.990	315 144
MF 8400	8,4	DN 32 / DN 32 / DN 32	885 x 1.535 x 2.700	315 145
MF 12000 HF	12	DN 80 / DN 80 / DN 50	1.050 x 1.785 x 2.705	315 146
MF 21000 HF	21	DN 80 / DN 80 / DN 65	1.255 x 2.010 x 2.890	315 147

Options for media filter MF	**RG 4**
Operating valve BV1	315 112
Operating valve BV2	366 015
Operating valve BV3 for MF	300 290
Ventilation and air bleed valve BEV	365 238
Skid version	

Option additional filter system control using differential pressure for MF media filter		**RG 4**
DIFF-P for MF 8400 - 21000	Triggers backwash when a pre-set differential pressure is reached	300 293
Option external water backwash MF 8400	Backwash with water from an external source	300 292
Option backwash MF 12000 - 21000	Backwash with water from an external source	300 291

Filter media

AFM® ng

Larger selection

Gravel-filling
- Optimum grain size distribution, to remove suspended solids and particles
- Typical filter velocity 20 m/h
- First step for water treatment systems

Multimedia-filling
- Combination of gravel and hydroanthrazite H, to remove suspended solids and particles
- Typical filter velocity 20 m/h
- Improved filter performance compared to the gravel filling
- Additionally adsorptive effect due to hydroanthrazite H

AFM-filling
- Filter media made from recycled green and brown glass, to remove suspended solids and particles
- Typical filter velocity 20 m/h
- Germicidal effect prevents biofouling and channel formation
- Proven separation of 95 % of particles > 1 µm (comparison sand: 95 % of particles > 20 µm)
- Patented activation process generates hydrophobic surface that adsorbs organic material
- Ideal as pretreatment for reverse osmosis units

Hydrox

Birm-filling (for iron removal)
- Combination of Birm and hydroanthrazite N for removal of dissolved iron and low concentrations of manganese
- Typical filter velocity 12 m/h (depending on water analysis)
- Layer of manganese dioxide on the Birm provides for oxidation of the iron

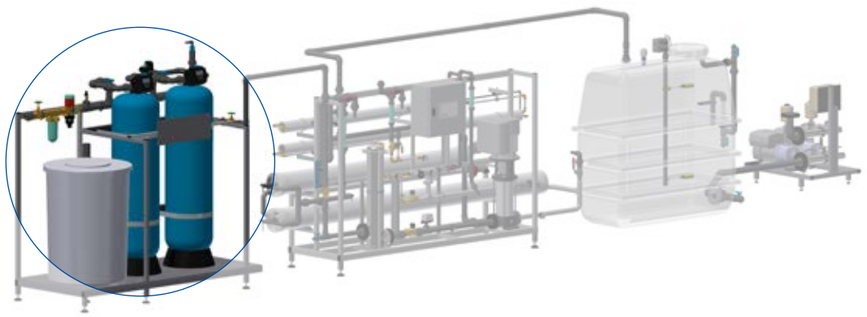
Hydrox-filling (for manganese removal)
- Filter media to remove dissolved iron, high manganese and hydrogen sulphide contents
- Typical filter velocity 8 m/h (depending on water analysis)
- Higher efficiency compared to similar media, consisting of 68 – 82 % manganese dioxide (Birm 1 %)

Activated carbon-filling
- Acid-washed activated carbon with high surface area
- Removal of organic matter, colour, odor and flavouring substances
- Protects RO-membranes by removing free chlorines
- Typical filter velocity 20 m/h

Filtration media for media filter MF Item No. and price in € per complete filling							**RG 4**
Size		Gravel-filling	Multimedia-filling	AFM-filling	Birm-filling	Hydrox-filling	activated carbon-filling
MF 900	Item Number	300 248	300 269	300 283	300 255	300 276	300 262
MF 1600	Item Number	300 249	300 270	300 284	300 256	300 277	300 263
MF 2300	Item Number	300 250	300 271	300 285	300 257	300 278	300 264
MF 4300	Item Number	300 251	300 272	300 286	300 258	300 279	300 265
MF 8400	Item Number	300 252	300 273	300 287	300 259	300 280	300 266
MF 12000 HF	Item Number	300 253	300 274	300 288	300 260	300 281	300 267
MF 21000 HF	Item Number	300 254	300 275	300 289	300 261	300 282	300 268

Water softening units – overview

Water softening unit | Reverse osmosis unit | Tank | Pressure booster unit



Our wide range of standardised softening units covers flow rates from 1.0 to 37.0 m³/h and capacities from 60 to 3,700 m³x°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 (integrated Modbus RTU for the Clack HF controller).

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.

Units for commercial applications (discontinuous soft water production)

Basic: ECOTROL-E
Simplex softening unit with Clack CI valve and optional economy brining up to 1,400 m³x°dH

Affordable: ECOTROL TWIN
Duplex softening unit with Clack CI valve up to 400 m³x°dH

Robust: WA-ED
Duplex softening unit with Fleck valve made of red brass up to 1,400 m³x°dH

Units for industrial applications (continuous mode, one control valve)

Units for industrial applications (continuous mode, two control valves)

Allrounder: ECOTROL-D
Duplex softening unit with Clack CI valves up to 2,000 m³x°dH

Hygienic design: ECOTROL-P
Duplex softening unit with Clack CI valves, parallel mode and two brine tanks up to 800 m³x°dH

The efficient solution: ECOTROL-D sensor
Double softening with Clack CI and HF valves with integrated integrated hardness measurement for quality-controlled operation. Up to 3.700 m³x°dH

Connected: ECOTROL-D HF
Duplex softening unit with Clack valve HF and Modbus RTU interface, optional with measurement for quality-controlled operation up to 3.700 m3x°dH

Available central control valves for softening plants

Fleck | Clack CI | Clack HF

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

ECOTROL-E | ECOTROL TWIN | WA-ED | ECOTROL-P | ECOTROL-D | ECOTROL-D HF

Capacity	ECOTROL -E	ECOTROL TWIN	WA-ED	ECOTROL -P	ECOTROL -D	ECOTROL -D HF	ECOTROL -D SENSOR
Flow range [m³/h]	1 - 14	1 - 4	1 - 12	1 - 8	1 - 20	29 - 37	1 - 37
Capacity range [m³ x °dH]	60 - 1,400	60 - 400	60 - 1,400	60 - 800	60 - 2,000	2,900 - 3,700	60 - 3,700
Type							
Simplex water softener	✓						
Duplex water softener		✓	✓	✓	✓	✓	✓
Parallel water softener				✓			
Regeneration controlled by							
Time	✓	✓	✓		✓	✓	✓
Volume	✓	✓	✓	✓	✓	✓	✓
Quality					optional	optional	✓
Equipment							
One control valve per vessel	✓			✓	✓	✓	✓
Controller	Clack	Clack	Fleck	Clack	Clack	Clack HF	Clack / Clack HF
Inlet and outlet isolating valve				✓	✓	✓	✓
Sample valves						✓	partially
Pressure gauge						✓	partially
Messages							
Operation or regeneration			✓				
Operation and regeneration	✓	✓		✓	✓	✓	✓
Ext. regeneration stop					optional	✓	optional
Ext. regeneration initiation					optional	✓	optional
Accessories							
Blending valve	optional	optional	optional	optional	optional	optional	optional
Operating valve	optional	✓	✓	✓	✓	✓	✓
Salt shortage switch	optional	optional	optional	optional	optional	optional	optional
Data logger					optional	✓	✓
Economy brining	optional						
Operation with liquid brine						optional	optional
Profinet/-bus interface					TCP optional	RTU	TCP
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Simplex water softening units – ECOTROL-E

ECOTROL-E

Economy brining option

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

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 ½“ / Rp 1 ½“	1,300 x 750 x 2,000	350 149
ECOTROL-E 800	1.00 / 8.00	Rp 1 ½“ / Rp 1 ½“	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

ECOTROL TWIN 400

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

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 **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
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 ½“ / Rp 1 ½“	1,900 x 800 x 1,900	360 071
WA-ED 500	0.65 / 5.00	Rp 1 ½“ / Rp 1 ½“	1,900 x 800 x 1,900	360 072
WA-ED 600	0.75 / 6.00	Rp 1 ½“ / Rp 1 ½“	2,100 x 800 x 2,000	360 068
WA-ED 800	1.00 / 8.00	Rp 1 ½“ / Rp 1 ½“	2,300 x 900 x 2,000	360 059
WA-ED 1000	1.25 / 10.0	Rp 1 ½“ / Rp 1 ½“	2,400 x 900 x 1,900	360 060
WA-ED 1400	1.75 / 12.0	Rp 1 ½“ / Rp 1 ½“	2,600 x 1,200 x 2,100	360 073

Duplex water softening units ECOTROL-P

ECOTROL-P 800

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 the 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.

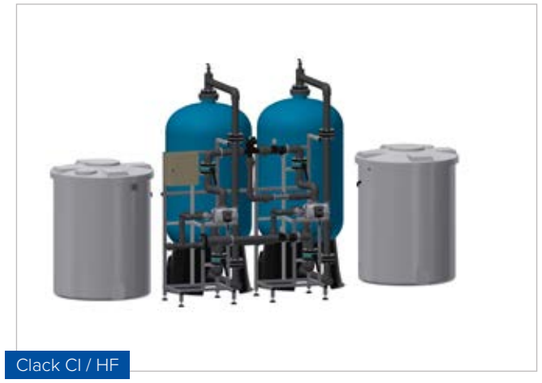
Duplex softening unit ECOTROL-D (HF)

ECOTROL-D 320

All-purpose softener

Characteristics of ECOTROL-D
- Time or volume-controlled regeneration start
- User-friendly microprocessor controller Clack CI
- 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

ECOTROL-D 3700 HF



Clack CI / HF

Charasteristics of ECOTROL-D HF
- Time or volume-controlled regeneration start
- Industrial standard microprocessor controller Clack HF with integrated Modbus RTU interface
- Interconnection of more than two vessels possible (LEAD – LAG1 – LAG2 – etc.)
- Monodisperse quality exchange resin
- Resin in bags for on-site filling
- Unit completely internally piped and wired

Advantages of ECOTROL-D HF
- Industrial standard microprocessor controller with many features
- Softening to < 0,1 °dH with full brining
- Continuous supply of softened water
- High operational reliability thanks to independent control valves
- Parallel connection of more than two units easy to implement

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
ECOTROL-D 2900 HF	3,7 / 28,0	DN 80 / DN 65	3,710 x 1,990 x 2,765	360 592
ECOTROL-D 3700 HF	5,0 / 37,0	DN 100 / DN 80	5,290 x 2,090 x 2,840	360 593

SoftGuard F(F) / ECOTROL-D sensor

SoftGuard H

NEW

Features SoftGuard H(F)
- Residual hardness monitoring using an ion-selective sensor
- Direct connection to the Clack control valve for automatic regeneration triggering enables quality-controlled operation
- Modbus TCP interface
- Digital logbook for data logging
- Sensor with a service life of approx. 9 months

Characteristics SoftMonitor:
- Monitoring the hardness in the softened water
- Standalone operation, does not need a connection to a softener
- Function equivalent to SoftGuard

Advantages of SoftGuard H(F)
- Continuous residual hardness monitoring by measuring every 30 seconds
- Completely chemical-free process with the sensor as the only consumable
- Simple structure and clear operation
- Straightforward and low service costs
- Flexible limit value setting in °dH, °f, ppm and mmol

Options and accessories on pages 22 – 23.

ECOTROL-D SENSOR Duplex water softening units — **RG 3**
Softener ECOTROL-D with additionally connected SoftGuard

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 SENSOR	0,10 / 1,00	DN 32 / DN 25	1,320 x 640 x 1,180	361 078
ECOTROL-D 120 SENSOR	0,15 / 1,50	DN 32 / DN 25	1,410 x 640 x 1,180	361 079
ECOTROL-D 200 SENSOR	0,25 / 2,00	DN 32 / DN 25	1,550 x 680 x 1,680	361 080
ECOTROL-D 320 SENSOR	0,40 / 3,50	DN 32 / DN 25	1,650 x 730 x 1,680	361 081
ECOTROL-D 400 SENSOR	0,50 / 4,00	DN 32 / DN 25	1,660 x 730 x 1,930	361 090
ECOTROL-D 500 SENSOR	0,65 / 5,00	DN 50 / DN 40	1,720 x 730 x 2,260	361 082
ECOTROL-D 600 SENSOR	0,75 / 6,00	DN 50 / DN 40	2,170 x 730 x 2,430	361 083
ECOTROL-D 800 SENSOR	1,00 / 8,00	DN 50 / DN 40	2,240 x 870 x 2,430	361 084
ECOTROL-D 1000 SENSOR	1,25 / 10,0	DN 50 / DN 50	2,240 x 870 x 2,370	361 085
ECOTROL-D 1400 SENSOR	1,75 / 14,0	DN 50 / DN 50	2,690 x 1,170 x 2,620	361 086
ECOTROL-D 2000 SENSOR	2,5 / 20,0	DN 65 / DN 50	3,100 x 1,300 x 2,750	361 087
ECOTROL-D 2900 HF SENSOR	3,7 / 28,0	DN 80 / DN 65	3,710 x 1,990 x 2,765	361 088
ECOTROL-D 3700 HF SENSOR	5,0 / 37,0	DN 100 / DN 80	5,290 x 2,090 x 2,840	361 089

SoftGuard/SoftMonitor — **RG 3**
Ionselective residual hardness monitoring

Product name	Fitting softener controler	Item number
SoftGuard H	Clack CI	370 170
SoftGuard HF	Clack WS2 H/WS2 HF/WS3	370 172
SoftGuard	General controlers with external regeneration triggering	370 173
SoftMonitor	Monitoring regardles of softener	370 175
Sensor SoftGuard	to be ordered separately for loose orders of SoftGuard/SoftMonitor	370 171

Skid mount ECOTROL-D G / G sensor

ECOTROL D 800 SENSOR-G

NEW

Advantages skid-mounted softeners

- Ready-to-connect system for direct connection to the drinking water network including backwashable fine filter, system separator, safety, aeration and venting valve
- Integrated low-salt switch
- Sampling valves for checking the water quality
- Central control box with the relevant signal exchange in one place
- Flexibility of installation location thanks to frame
- System fully tested and ready for use
- Low commissioning effort and simple system installation on site

Series ECOTROL D G — RG 3
Complete solution mounted on a skid

Product name/ Max. capacity m³ x °dH	Hydr. capacity m³/h min. / max.	Hydraulic connection raw / soft water	Dimensions in mm W x D x H	Item number
ECOTROL-D 60-G	0,10 / 1,00	DN 32 / DN 25	1,320 x 640 x 1,180	362 147
ECOTROL-D 120-G	0,15 / 1,50	DN 32 / DN 25	1,410 x 640 x 1,180	362 148
ECOTROL-D 200-G	0,25 / 2,00	DN 32 / DN 25	1,550 x 680 x 1,680	362 149
ECOTROL-D 320-G	0,40 / 3,50	DN 32 / DN 25	1,650 x 730 x 1,680	362 150
ECOTROL-D 400-G	0,50 / 4,00	DN 32 / DN 25	1,660 x 730 x 1,930	362 169
ECOTROL-D 500-G	0,65 / 5,00	DN 50 / DN 40	1,720 x 730 x 2,260	362 151
ECOTROL-D 600-G	0,75 / 6,00	DN 50 / DN 40	2,170 x 730 x 2,430	362 152
ECOTROL-D 800-G	1,00 / 8,00	DN 50 / DN 40	2,240 x 870 x 2,430	362 153
ECOTROL-D 1000-G	1,25 / 10,0	DN 50 / DN 50	2,240 x 870 x 2,370	362 154
ECOTROL-D 1400-G	1,75 / 14,0	DN 50 / DN 50	2,690 x 1,170 x 2,620	362 155
ECOTROL-D 2000-G	2,5 / 20,0	DN 65 / DN 50	3,100 x 1,300 x 2,750	362 156
ECOTROL-D 2900-G	3,7 / 28,0	DN 80 / DN 65	4,020 x 2,070 x 2,990	362 157

Series ECOTROL D SENSOR-G — RG 3
Skid-mounted complete solution including SoftGuard H

Product name/ Max. capacity m³ x °dH	Hydr. capacity m³/h min. / max.	Hydraulic connection raw / soft water	Dimensions in mm W x D x H	Item number
ECOTROL-D 60 SENSOR-G	0,10 / 1,00	DN 32 / DN 25	1,320 x 640 x 1,180	362 158
ECOTROL-D 120 SENSOR-G	0,15 / 1,50	DN 32 / DN 25	1,410 x 640 x 1,180	362 159
ECOTROL-D 200 SENSOR-G	0,25 / 2,00	DN 32 / DN 25	1,550 x 680 x 1,680	362 160
ECOTROL-D 320 SENSOR-G	0,40 / 3,50	DN 32 / DN 25	1,650 x 730 x 1,680	362 161
ECOTROL-D 400 SENSOR-G	0,50 / 4,00	DN 32 / DN 25	1,660 x 730 x 1,930	362 170
ECOTROL-D 500 SENSOR-G	0,65 / 5,00	DN 50 / DN 40	1,720 x 730 x 2,260	362 162
ECOTROL-D 600 SENSOR-G	0,75 / 6,00	DN 50 / DN 40	2,170 x 730 x 2,430	362 163
ECOTROL-D 800 SENSOR-G	1,00 / 8,00	DN 50 / DN 40	2,240 x 870 x 2,430	362 164
ECOTROL-D 1000 SENSOR-G	1,25 / 10,0	DN 50 / DN 50	2,240 x 870 x 2,370	362 165
ECOTROL-D 1400 SENSOR-G	1,75 / 14,0	DN 50 / DN 50	2,690 x 1,170 x 2,620	362 166
ECOTROL-D 2000 SENSOR-G	2,5 / 20,0	DN 65 / DN 50	3,100 x 1,300 x 2,750	362 167
ECOTROL-D 2900 SENSOR-G	3,7 / 28,0	DN 80 / DN 65	4,020 x 2,070 x 2,990	362 168

Accessories for water softening units

VSE 1“

VSE 2“

Bypass pipe 1“

BV 1

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 — RG 3
For ECOTROL-E

Product name	Description	Item number
Operating valve BV 1	Prevents the flow of hard water during regeneration, for ECOTROL-E 60 - 500	315 112
Operating valve BV2	Prevents the flow of hard water during regeneration, for ECOTROL-E 600 - 800	366 015
Operating valve BV3 for ECOTROL-E	Prevents the flow of hard water during regeneration, for ECOTROL-E 1000 - 1400	366 173
System controller	Connection of up to 8 filters or softeners and Modbus TCP connection, requires 1 x BV, 1 x communication cable and 1 x power cable per central control valve	366 339
System Controller-Clack CI communication cable	Communication between control valve and system controller, 7.3m	366 362
Power cable System Controller-Clack CI	Power supply to the Clack control valve via the system controller, 4.5 m	366 363

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 ¼“	Blending device for installation in a bypass pipe	Rp 1 ¼“	600 021
VSE 2“	Blending device for installation in a bypass pipe	Rp 2“	600 022
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 — RG 3
Potential-free change-over contacts for messages to on-site central control room or for use as switching contact

Product name	Description	Item number
SMS	Change-over contact for alarm signal in case of salt shortage	365 978
Changeover contact CI	For ECOTROL-E /-D 60 - 800 and ECOTROL TWIN 60 - 400	365 855
Signal exchange for ECOTROL	4 additional relays for a potential-free interface to a controller for alarm and regeneration operating messages	545 937

Automatic hardness monitoring units – limitent and limitron

Limitent

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 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

SPS

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

UF 6D6 with backwash tank

- 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 m^3/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.

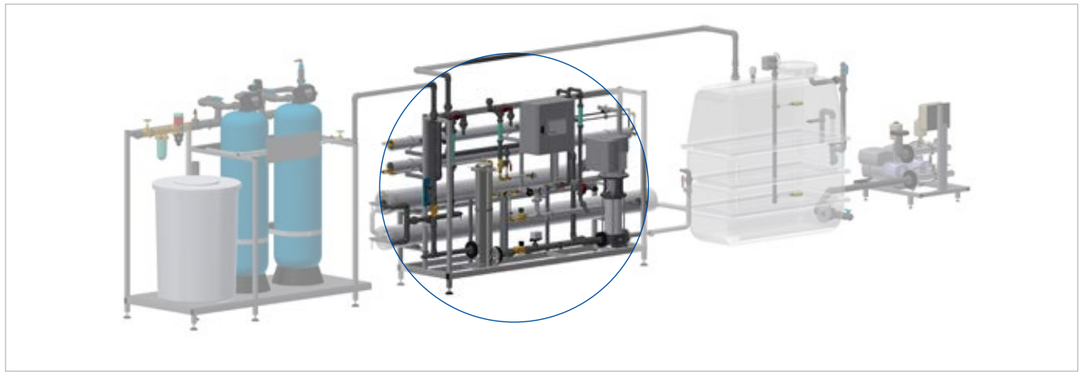
Option CEB RG 9
Chemically enhanced backwash

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

Water softening unit | Reverse osmosis unit | Tank | Pressure booster unit



Our standardised range of reverse osmosis systems covers permeate capacities from 120 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

- **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 – 1,500 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 % · 5,000 – 25,000 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

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

- **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

Erhältliche Steuerungen für Umkehrosmoseanlagen

- RO digital
- RO digital
- SPS
- SPS optional

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.

Overview reverse osmosis and ultrapure water units

Suitable plant engineering according to the water quality

Our systems offer reliable technical solutions for a variety of requirements, from compact reverse osmosis systems to high-performance ultrapure water systems. The overview contains all the important information on performance, controllers and equipment.

Softened city water (free of chlorine)

Permeat l/h	Series	Controller	Comments	Page
120 - 500	UO-D	RO digital	Freely programmable controller, space saving, delivery from stock (Fast Track)	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 FU		Freely programmable controller, universally applicable unit, 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-series UO-D FU CD		Like UO-D CD, energy-saving due to variable-speed drive (VSD)	33
50 - 1,500	UO-ED Z		System for permeate back pressure max. 7 bar (e.g. in the cooling/air conditioning area)	34
50 - 1,200	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
5,000 - 25,000	UO-S7 KR/FU	Siemens S7-1200	Concentrate graded, permeate yield up to 90 %, energy-saving with frequency converter FU	36
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)	37
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 - 25,000	MEG	-	MEG stage only for degassing permeate from a UO, typical CO2 content after degassing < 5 mg/l	42
2,000 - 6,000	Polisher MB	-	Polisher-stage for use after UP-unit or ultrapure water tank with pressure booster	43

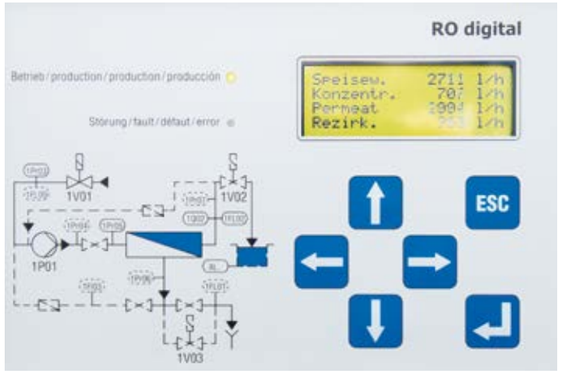
City water (free of chlorine, antiscalant dosing)

Permeat l/h	Series	Controller	Comments	Seite
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)	44

Brackish water

Permeat l/h	Series	Controller	Comments	Seite
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)	45

Microprocessor controllers for reverse osmosis units



You can find updates and news about our technologies and controllers in our Tech Infos.

Interested? Ask us!
Get in touch with your contact person or via sales@hercowater.com

Microprocessor controllers for reverse osmosis units	
Type	**RO digital**
Display	4 lines, 20 chars./line
Conductivity measuring range	1 - 1,000 µS/cm
Further conductivity ranges (µS/cm)	-
Control voltage	24 VDC
Supply voltage	93 - 265 V / 50 - 60 Hz
Dry running protection for RO pump	yes
Connection for limitron	yes
Forced stop RO	yes
Operating signal	adjustable
Centralised alarm	yes
Automatic mode (e. g. tank level)	yes
Permeate conductivity limit	adjustable
Flow rate limits	adjustable
Pressure limits	adjustable
Behaviour if the limit is exceeded	adjustable
Constant permeate rate possible	yes, if FU available
Alternating pump activation	-
Optional ports (inputs)	
Concentrate flushing valve	yes
Permeate recirculation	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	adjustable
Firmware update	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 new softening units ECOTROL-D HF are already equipped with an integrated Modbus TCP interface. The tried and tested Herco controller RO digital can optionally be equipped with BUS interface modules and enables the entire plant data to be made available to the client's on-site PLC (see also p. 48).

Bus systems for data transmission from Herco plants to the customer's PLC

Already integrated in the softeners ECOTROL-D with the Clack HF controller
» Modbus RTU

Available for the softeners ECOTROL-D with the System Controller and Clack CI
» Modbus TCP

Options for RO units with RO digital controller or PLC
» Profinet
» Profibus
» Modbus RTU / TCP
» BACnet

If visualisation of the process with a touch panel and extensive access to the unit is required, we recommend a PLC instead of a microprocessor 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. 35) 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 48.

PLC as standard for series
» UO-S7 KR/FU
» UP-S7 FU

PLC as option for series
» UO-D FU
» UO-D AS/FU
» UO-D P (BG > 1.700 l/h)
» UO-D BW/FU

Visualisation
» Graphic display of the plant
» Optimal control due to display and logging of all relevant parameters
» Alarm list and generation of messages

Controller
» PLC Siemens S7-1200 with 4“ / 7“ touch panel
» Intuitive operating concept
» Profinet integration optional, others available

Protocols / access
» As well as Profinet, communication via Profibus, Modbus RTU / TCP or BACnet is provided as an option
» Smart server function for access from devices within the same IP address range
» Optional remote access configurable

Compact reverse osmosis units (partly with softener)

UO-D 500 C

UO-D 120 with cover

Controller RO digital

Fast Track

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 CD combi series

- Ready-to-connect systems incl. pre-filter, system separator, single (C) or double softening (CD) and limitron hardness control unit
- Other features as described for the UO-D series
- Equipped with efficient separating vane pumps (max. operating hours according to operating instructions must be observed)
- Ready for operation ex works thanks to preset control unit
- Further options such as HR modules, PR and VSE available

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 46 – 51 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 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

UO-D 900 FU

Controller RO digital

30 – 50 % less electricity cost

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

See pages 24 and 46 – 51 for options and accessories.

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.

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

Combi reverse osmosis units for city water

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 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.

See pages 24 and 46 – 51 for options and accessories.

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

Counterpressure reverse osmosis units for soft water

UO-ED 300 Z

Controller RO digital

Hygienic operation

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

UO-ED 300 Z CD

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

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

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 1500 Z	2,2 / 3 x 400 / 50	DN 20 / DN 20 / DN 15	760 x 960 x 1.630	380 626

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
Blending device VSE	For UO-ED Z 300 - 900	383 544

Reverse osmosis units for soft water

UO-D 4300 FU

Controller RO digital

30 – 50 % less electricity cost

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

See pages 24 and 46 – 51 for options and accessories.

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.

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 32 / 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 40 / 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

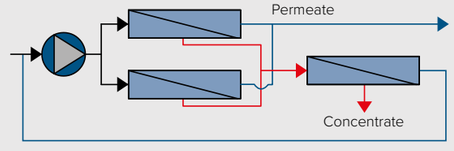
Concentrate-staged reverse osmosis units for soft water

UO-S7 5000 KR

PLC

Recovery up to 90 %

30 – 50 % less electricity cost



Characteristics of the UO-S7 KR/FU SERIES
- PLC S7-1200 with 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

See pages 24 and 46 – 51 for options and accessories.

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.

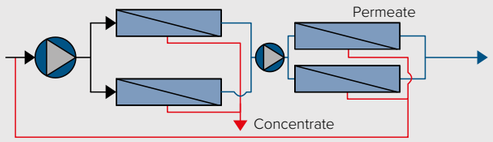
Due to the savings in fresh water and wastewater, amortisation is usually possible after a few months. We will be pleased to prepare an operating cost calculation for you.

UO-S7 KR/FU series: Concentrate-staged RO units, permeate capacity 5,000 - 25,000 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 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 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 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 15000 KR/FU	15.0 / 3 x 380 - 480 / 50 - 60	DN 50 / DN 50 / DN 32	5,100 x 940 x 1,860	381 984
UO-S7 25000 KR/FU	18,5 / 3 x 380 - 480 / 50 - 60	DN 80 / DN 65 / DN 50	5.100 x 940 x 2.000	381 986

Permeate-staged reverse osmosis units for soft water

UO-D 200 P



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.)

UO-D 1250 P/FU

Controller RO digital

Typical conductivity permeate < 5 µS/cm

30 – 50 % less electricity cost

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.

See pages 24 and 46 – 51 for options and accessories.

UO-D P series: Permeate-staged RO units, permeate capacity 200 - 400 l/h Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l				**RG 8**
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 Demineralisation of softened drinking water with a salinity of up to 1,000 mg/l				**RG 9**
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	3.0 / 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.

PFAS-free with our solutions

PFAS (per- and polyfluoroalkyl substances) are extremely durable industrial chemicals. They are water-, grease- and dirt-repellent and are therefore widely used in many industrial processes. At the same time, they are considered non-biodegradable and enter the environment via wastewater, for example. Herco offers customised plant solutions for the targeted removal and destruction of PFAS.

Benefit from our PFAS expertise

Due to its high chemical stability, PFAS in water poses a risk to health and the environment. Herco develops customised solutions that not just remove PFAS molecules from water but, depending on the process, also destroy them permanently.

Benefit from our long-standing engineering and consulting expertise in the development of treatment systems for complex water qualities. Together, we are setting new standards for clean water and future-proof systems.

Removing and destroying PFAS

Removing PFAS from water and destroying it requires customised solutions depending on the contamination, process and industry. We take both long-chain and short-chain PFAS compounds into account and select the appropriate technology according to your requirements. Our processes are designed to comply with even stricter limits while ensuring safe, economical and sustainable water treatment.

Our PFAS service package

Our approach offers you PFAS-free water – customised to your requirements. We provide you with comprehensive information and advice and ultimately ensure that your water is free of this persistent chemical in accordance with the applicable limit values and industry standards. Depending on the type and amount of contamination, we recommend and select the appropriate process for your PFAS challenge. Our approach and the associated services at a glance:

1. Analysis service:
Water analysis and requirements definition

2. Technical consulting:
Process selection and solution recommendation

3. PFAS removal:
Integration of the selected process technology into the plant design

4. Onsite or offsite destruction:
Integration of the selected process technology into the system design

5. Routine monitoring:
Laboratory testing to ensure water quality

Contact our sales team now

Contact us and integrate PFAS removal and destruction into your water treatment solution. For greater safety, responsibility and sustainability.

Phone +49 7141 7095-202
E-Mail sales@hercowater.com

hercowater.com/pfas

Mobile **water treatment in a container**

The mobile water treatment system ensures a reliable supply of high-quality ultrapure water: flexible, efficient and ready for use anywhere. It combines modern technology with sophisticated functionality and guarantees consistent water quality at all times.

Thanks to its compact and robust design, the system is suitable for a wide range of locations and applications. It is easy to transport, quick to install and operates reliably even under demanding conditions.

Flexible water technology

Our robust water technology in containers with optional air conditioning can be used worldwide – whether in 10', 20' or 40' standard containers or as a customised special solution.

Efficient service quality

Our service directly from the manufacturer and the fast supply of original spare parts ensures smooth operation with consistent quality and reduces your costs.

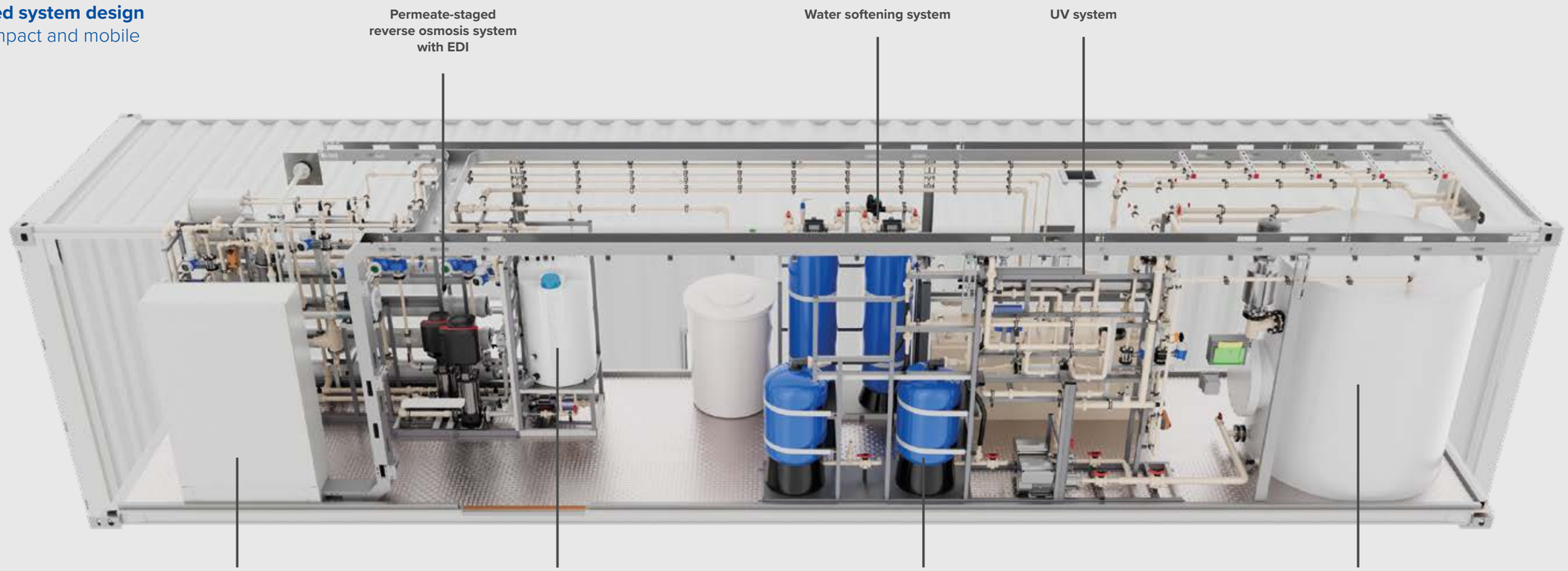
Sustainable innovation

We only install durable and innovative technology in our container systems. The system technology is always tested in the test field before delivery.

Ready-to-use system

Thanks to plug & play, our containerised systems are ready for operation with minimal installation effort. This enables quick commissioning without time-consuming assembly.

Sophisticated system design
modular, compact and mobile



PFAS removal?

Everything you need to know about removing PFAS from water can be found on page 37 (previous page).

If you have any technical questions about mobile solutions, please contact us!

E-Mail sales@hercowater.com
Phone +49 7141 7095-202

Ultra-pure water units (RO WITH EDI)

UP-S7 20000 FU

PLC

Typical cond. diluate < 0.2 µS/cm

30 – 50 % less electricity cost

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.

See pages 24 and 46 – 51 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	1.1 / 230 / 50	DN 20 / DN 20 / HT 50	1,040 x 840 x 2,000	425 246
UP-S7 250	1.4 / 230 / 50	DN 20 / DN 20 / HT 50	1,040 x 840 x 2,000	425 247
UP-S7 550 FU	3.5 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 20 / HT 50	1,040 x 840 x 2,000	425 248
UP-S7 800 FU	3.5 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 20 / HT 50	1,040 x 840 x 2,000	425 249
UP-S7 1100 FU	4.8 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 20 / HT 50	1,040 x 840 x 2,000	425 250
UP-S7 1500 FU	4.8 / 3 x 380 - 500 / 50 - 60	DN 25 / DN 20 / HT 50	1,040 x 840 x 2,000	425 251
UP-S7 2200 FU	6.4 / 3 x 380 - 500 / 50 - 60	DN 25 / DN 20 / HT 50	1,040 x 970 x 2,000	425 252
UP-S7 3000 FU	11.2 / 3 x 380 - 500 / 50 - 60	DN 32 / DN 25 / DN 25+15	3,470 x 820 x 1,880	425 253

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	13.2 / 3 x 380 - 500 / 50 - 60	DN 40 / DN 32 / DN 32+15	3,210 x 880 x 2,190	425 254
UP-S7 6000 FU	17.8 / 3 x 380 - 500 / 50 - 60	DN 50 / DN 40 / DN 32+15	3,860 x 880 x 2,200	425 255
UP-S7 8200 FU	21.1 / 3 x 380 - 500 / 50 - 60	DN 50 / DN 40 / DN 32+20	5,070 x 880 x 2,200	425 256
UP-S7 12500 FU	23.8 / 3 x 380 - 480 / 50 - 60	DN 50 / DN 50 / DN 50+20	5,070 x 1,190 x 2,160	425 257
UP-S7 20000 FU	39.4 / 3 x 380 - 480 / 50 - 60	DN 80 / DN 65 / DN 50+20	5,070 x 1,500 x 2,200	425 258

Ultra-pure water units (EDI)

EP 300

More flexibility through upgrade kit

Characteristics of the EP series

- Electro-deionisation (EDI) for demineralisation of RO permeate
- Diluate (product water) with typical conductivity < 0.2 µS/cm
- Prepared for direct connection to a RO unit
- Operation after pressure booster through Upgrade-Kit possible
- Piping in PP

Advantages series EP

- Unproblematic upgrade of existing RO-units possible
- Comfortable operation through SPS Siemens LOGO! with display
- Compact unit

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

Option Upgrade-Kit — **RG 8**
For operation of the EP-unit after a pressure booster system (no retrofitting)

Upgrade kit standalone-operation	Extention for unit to enable standalone-operation	800 026

Ultra-pure water components (MEG)

Membrane degasifier (contactor) module

CO_2 < 5 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

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
CO_2-contactor MEG 25000 SV	2,2 / 3 x 400 / 50	UP-S7 20000 FU	425 243

Ultra-pure water components (polisher)

Polisher MB 6000 PP (Front view)

Polisher MB 6000 PP (Back view)

NEW

Characteristics of mixed bed polisher

- Operation after UP-unit or ultrapure water pressure booster system
- Two vessels made of GRP with frame, piping in PP
- Incl. manometer, sampling valves and resin trap (PVC)
- High-grade conductivity meter by Thornton
- Mixed bed resin not included – to be ordered separately
- Operation in parallel connection as standard
- Series connection also possible with extension package (additional conductivity meter)

Advantages of mixed bed polisher

- Great flexibility through multiple operating modes
- GRP vessels can be individually locked
- Transparent resin trap
- Free choice of resin type

Mixed bed polisher series Polisher MB — **RG 8**
For downstream connection in ultrapure water applications

Product name / Diluate output	resin amount per tank l	Hydraulic connection Inlet/Outlet	Dimensions in mm W x D x H	Item number
Polisher MB 2000 PP	50	DN 40 / DN 40	1.500 x 795 x 2.016	030 146
Polisher MB 4000 PP	100	DN 40 / DN 40	1.500 x 884 x 2.016	030 147
Polisher MB 6000 PP	150	DN 40 / DN 40	1.500 x 884 x 2.016	030 148

Options Polisher MB — **RG 8**

Extension series operation	030 150

Filling Polisher MB — **RG 8**
Filling with mixed bed resin

Resin filling Polisher MB 2000 PP	030 151
Resin filling Polisher MB 4000 PP	030 152
Resin filling Polisher MB 6000 PP	030 153

Reverse osmosis units for antiscalant dosing

UO-D 10000 AS/FU

Redesigned
Controller RO digital
Antiscalant
30 – 50 % less electricity cost

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 antiscale 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 45.

See pages 46 – 51 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 40 / 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

Controller RO digital
Water-saving
30 – 50 % less electricity cost

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)

Advantages of units with VSD (FE)
- 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.

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).

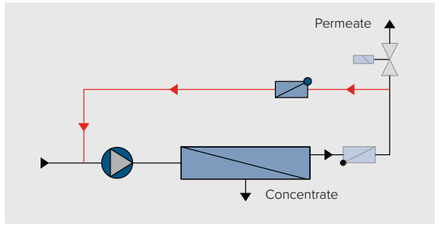
See pages 46 – 51 for options and accessories.

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

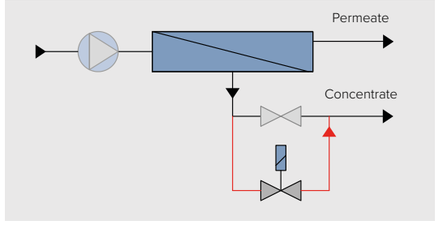
Product name / Permeate capacity l/h	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-D 250 BW/FU	2.2 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 15 / DN 15	710 x 730 x 1,760	384 501
UO-D 500 BW/FU	2.2 / 3 x 380 - 500 / 50 - 60	DN 20 / DN 15 / DN 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

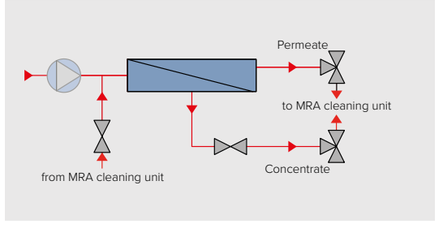
PR – Permeate recirculation
During the start-up of a RO, permeate with slightly higher conductivity is produced first. The option PR prevents this water from reaching the consumer / tank. The permeate is circulated until the desired conductivity is reached. Then the permeate valve is automatically opened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



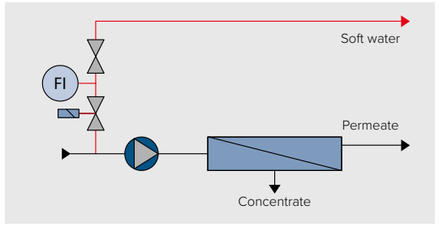
KSE – Concentrate flushing unit
During shutdown of the RO, scaling and fouling can occur especially on the concentrate side of the membrane, as this is where the highest salt and organic contents are found. The option KSE displaces the concentrate with the pressure of the RO feed water when the plant 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.



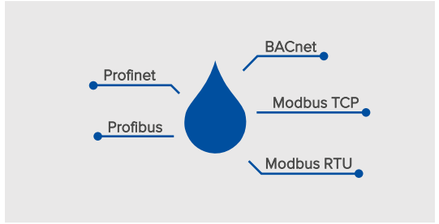
ARA – Connection kit for manual cleaning unit
Installation of ball valves for easy connection of a manual cleaning unit e.g. for acid or alkaline cleaning of the RO membranes.
This option is recommended if regular cleaning of the membranes is to be expected, e.g. due to difficult raw water or due to 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.
For more information, see p. 29 and 48.



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**

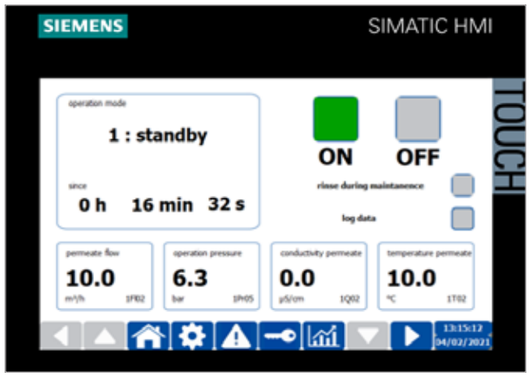
Permeate capacity	PR Item No.	KSE Item No.	ARA Item No.	VSE Item No.	PP ** Item No.
UO-D CD (p. 30)					
120 - 500	383 764	-	incl.	383 765	-
UO-D FU, CD (p. 32)					
600 - 1500	383 775	383 774	383 321	383 805	-
2000	383 775	383 774	383 321	383 776	-
UO-ED Z, CD (p. 33)					
50 - 150	incl.	-	incl.	o.r.	-
300 - 1500	incl.	-	incl.	o.r.	-
UO-D FU (p. 34)					
2500	383 452	382 873	382 113	o.r.	800 019
3,000 - 3,500	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. 35)					
5000	383 453	incl.	incl.	o.r.	o.r.
7000	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.
25000	383 322	incl.	incl.	o.r.	o.r.
UO-D P, FU (p. 36)					
200 - 400	incl.	-	-	-	-
750 - 1700	incl.	-	-	-	-

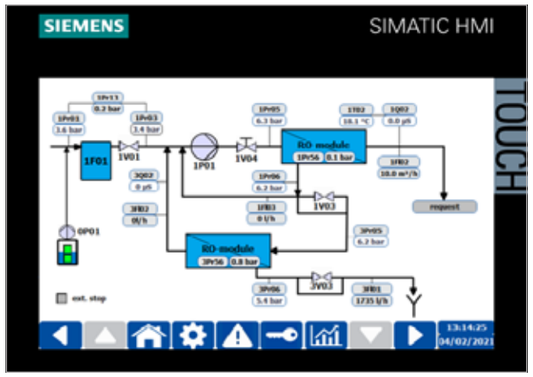
Sizes > 2,000 l/h are available as project-specific plants, a design in PP is then possible

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	382 122	-	800 019
12500	incl.	382 905	382 138	-	800 019
20000	incl.	382 905	382 471	-	800 019
UO-D AS/FU (p. 44)					
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. 45)					
250 - 500	383 464	incl.	incl.	o.r.	800 019
1000 - 2000	383 452	incl.	incl.	o.r.	800 019
3000 - 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. 46 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

- Siemens S7-1200 with 7” touch panel (TP700C) and all necessary electrical electrical components, I/O cards etc.
- Conversion of the measurement and control technology of the UO system for operation with PLC
- Storage of all relevant operating parameters as well as messages and alarms
- Graphic display of the system, measured values and operating states
- Smart server function for remote access

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
- 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 47)	541 842
Profibus	Interface for RO digital	542 181
Modbus RTU	Interface for RO digital	542 396
Modbus TCP	Interface for RO digital built-in version	542 597
Modbus TCP	Interface for RO RO digital mount version	542 598
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

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

MRA 300

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
SDI	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 3W	120 - 2.000	0.46 / 3x 400 / 50	640 x 810 x 1.400	383 344
MRA 200 3W	2.000 - 3.500	0.6 / 3x 400 / 50	640 x 810 x 1.470	383 345
MRA 300 3W	3.800 - 8.500	1.5 / 3x 400 / 50	800 x 1.010 x 1.750	383 346
MRA 500 3W	10.000 - 15.000	2.2 / 3x 400 / 50	800 x 1.010 x 1.900	383 347
MRA 1000 3W	20.000 - 30.000	4.0 / 3x 400 / 50	1.110 x 1.405 x 1.850	383 348
Heater for MRA	MRA 100 - 300 (CIP)	6 kW heating power, with thermostat		383 516
	MRA 500 - 1000 (CIP)	9 kW heating power, with thermostat		383 178

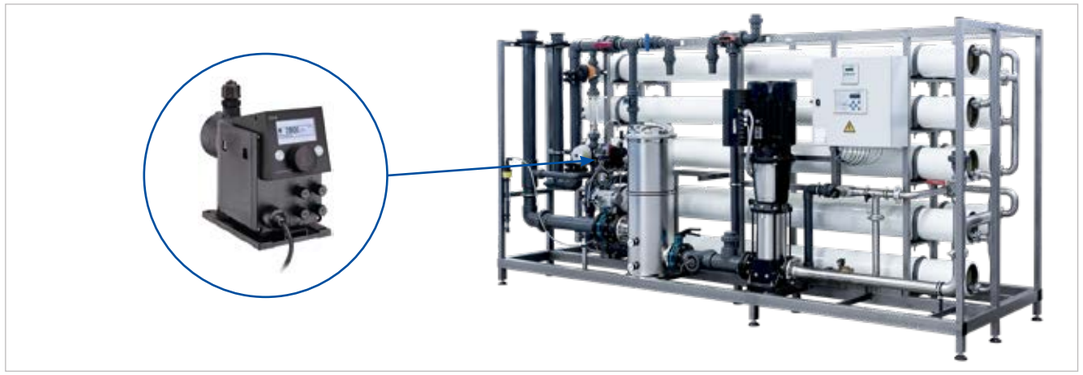
Automatic concentrate displacement with permeate (incl. functionality of manual cleaning equivalent to MRA) — RG 9
For difficult raw water (water components that are highly corrosive or hard to condition),
for RO units UO-D AS/FU, UO-S7 KR/FU and UO-D BW/FU

Product name / Volume l	Suitable for unit size	Mains connection kW / V / Hz	Dimensions in mm W x D x H	Item number
KVP 100 3W	120 - 2.000	0.46 / 3x 400 / 50	640 x 810 x 1.400	800 036
KVP 200 3W	2.000 - 3.500	0.6 / 3x 400 / 50	640 x 810 x 1.470	800 037
KVP 300 3W	3.800 - 8.500	1.5 / 3x 400 / 50	800 x 1.010 x 1.750	800 038
KVP 500 3W	10.000 - 15.000	2.2 / 3x 400 / 50	800 x 1.010 x 1.900	800 039
KVP 1000 3W	20.000 - 30.000	4.0 / 3x 400 / 50	1.110 x 1.405 x 1.850	800 040
Heater for KVP	100 - 300 (CIP)	6 kW heating power, with thermostat		383 354
	500 - 1000 (CIP)	9 kW heating power, with thermostat		385 355

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 and BW 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 For RO units UO-D AS/FU and UO-D BW/FU			**RG 5**
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 For RO units UO-D FU, UO-D AS/FU, UO-D P, UO-S7 KR/FU and UP-S7 FU			**RG 5**
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	Drip tray for DOSIN AS-K, 1 x 25 kg drum	453 099
SAW 100	Drip tray for DOSIN DB75 and DB100	450 089

Membrane elements for reverse osmosis units

PWG membrane elements

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 Tested quality for a long service life – in stock				**RG 10**
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 ND	Low-pressure element 4021 ND	3.8	99.4	395 145
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 For membrane units			**RG 6**
Product name	Description	Unit	Item number
Membrane cleaner MEM-S	Acid membrane cleaner, pH level 2	5 kg	530 183
Membrane cleaner MEM-X	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 hosetail d 25

RET series, black — RG 6
Volume 1,100 - 5,000 liter

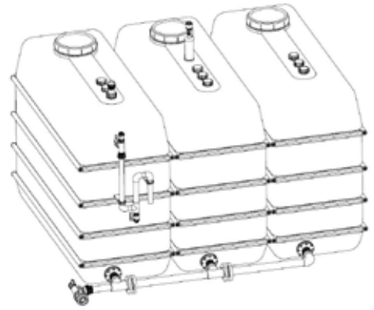
Product name / Volume l	Manhole Ø in mm	Hydraulic connection inlet / outlet / overflow	Dimensions in mm W x D x H	Item number
RET 1100 S	400	DN 25 / DN 50 / d 50	1,560 x 720 x 1,500	430 264
RET 1500 S	400	DN 25 / DN 50 / d 50	1,670 x 770 x 1,730	430 265
RET 2000 S	400	DN 25 / DN 50 / d 50	2,230 x 770 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 of 3 RET tanks



RET-EG DN 50 | Connection kit

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
Airside connection 2 x RET DN 32				435 290

Water seals and air vent filters for tanks

RET tank with water seal and air vent filter

Characteristics

- Water seal for tank overflow; required if an air vent filter or a CO_2 absorption filter for tank ventilation are fitted. Prevents the entry of ambient air through the overflow orifice
- CO_2 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 CO_2 absorption, the CO_2 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 Absorption filters for CO_2 separation / fine filters for particle separation					**RG 6**
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 80 / -	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 (± 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 m^3 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 For tanks series RUT and RET					**RG 6**
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 1.4401
- BUS communication systems
- Adapter kit for connecting stainless steel pipes to PVC pipes
- Pressure pipe installation

Series DEFU X S Frequency-controlled 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
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 ¼“ / 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 ½“ / Rp 1 ½“	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

DEFU 2x5 M

DEFU 2x15 M

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 1.4401
- BUS communication systems
- Adapter kit for connecting stainless steel pipes to PVC pipes
- Pressure pipe installation

DEFU X M series: Frequency-controlled 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
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

DE 3 S | DE 3 M

JP4 C incl. pressure manager

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 1.4401
- 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 ¼“ / Rp 1“	380 x 560 x 1,087	5 / 45	440 398
DE 10 S	2.2 / 3 x 380 - 415 / 50	Rp 1 ½“ / Rp 1 ½“	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 ½“ / Rp 1 ½“	550 x 810 x 1,537	1 / 43	440 400
DE 3 M	0.65 / 3 x 380 - 415 / 50	Rp 1 ½“ / Rp 1 ½“	550 x 810 x 1,537	3 / 39	440 401
DE 5 M	1.5 / 3 x 380 - 415 / 50	Rp 2“ / Rp 1 ½“	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

UVE digital 35 P

UVE digital control unit

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**
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-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			390 887

Blowdown systems Cooltrol data

Cooltrol data I

Cooltrol data K

Characteristics

- Blowdown controller for open cooling systems and scrubbers with documentation function (according to 42nd BImSchV)
- Control of up to 3 dosing pumps possible (2x timecontrolled, 1x quantity-controlled)
- 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 0.1) or inductive possible (measuring range see table)
- 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
- Versions with blowdown valve MKB DN 15 und DN 20 fit into weatherproof casing WSG

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 K (MKB 20) K=1,0	10 - 500	MKB DN 20	DN 20 / DN 20 / DN 20	170 163
Cooltrol data K (MKB 25) K=1,0	10 - 500	MKB DN 25	DN 25 / DN 25 / DN 25	170 162
Cooltrol data K (MKB 15) K=0,1	0,5 - 10	MKB DN 15	DN 20 / DN 20 / DN 15	170 170
Cooltrol data K (MKB 20) K=0,1	0,5 - 10	MKB DN 20	DN 20 / DN 20 / DN 20	170 173
Cooltrol data K (MKB 25) K=0,1	0,5 - 10	MKB DN 25	DN 25 / DN 25 / DN 25	170 172
Cooltrol data I (MKB 15)	10 - 500	MKB DN 15	DN 20 / DN 20 / DN 15	170 157
Cooltrol data I (MKB 20)	10 - 500	MKB DN 20	DN 20 / DN 20 / DN 20	170 174
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 K BP (K=0,1)	0,5 - 10	-	DN 20 / DN 20 / -	170 171
Cooltrol data I BP	10 - 500	-	DN 20 / DN 20 / -	170 159
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

Components for blowdown systems

Cooltrol data

LF-MAG W

Characteristics LF-MAG

- Digital controller for conductivity measurement
- LF-MAG W with closed housing for wall installation and LF-MAG S for switch panel installation
- Selectable measuring ranges for different applications
- Adjustable limit values for conductivity and temperature
- Function as blowdown controller with adjustable blowdown time and value
- Warning/fault messages immediately visible on the display thanks to color change
- SD card for saving and retrieving data

Conductivity measurement and blowdown device LF-MAG **RG 5**
Digital controller for conductivity measurement and possible blowdown unit

Product name	Version	mains connection	Item number
LF-MAG W	wall mounting	230 / 50	090 049
LF-MAG S	control panel mounting	230 / 50	090 050

Measuring probes and accessories **RG 5**

Product name	Measuring range mS/m	Cable length m	For controller	Item number
Conductive probe LFK 1.0	10 - 500	2	Cooltrol data	175 143
Conductive probe LFK 0.1	0.5 - 10	2	Cooltrol data	175 144
Inductive probe LFI	10 - 500	2	Cooltrol data	175 145
Probe LFK 0,1 3/4"	0 - 1000 µS/cm	5	LF-MAG	100 129
Probe LFK 1,0 3/4"	0 - 200	5	LF-MAG	100 130
Flow assembly Cooltrol data-K	-	-	Cooltrol data	175 146
Flow assembly Cooltrol data-I	-	-	Cooltrol data	175 148

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

DDC

DDE

Dosing stations DOS

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

ClO_2 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
Pulse multiplier BG 4/2	Multiplies water meter pulses and forwards them to up to 4 devices	453 570

Dosing / accessories

Lip valve injection

Water meter WMT

SAW 35, 100 & 400

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 ½“	453 108

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 Q (m^3/h) / pulse interval	Nominal flow m^3/h	Minimum flow m^3/h	Dimensions mm L x H	Connection	Item number
WMT 5/0.5	2.5	0.10	288 x 155	R ¾“	453 535
WMT 5/1.0	2.5	0.10	288 x 155	R ¾“	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 ½“	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

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
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 hosetails 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 — RG 5
For scale and rust removal in water systems with storage tank and multi-control valve

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

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

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 69.

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 at 300 µS/cm l	Dimensions in mm Ø x H	Max. temperature °C	Item number
destillo D 2 cpl	320	115 x 515	30	010 001
destillo D 2 EP	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	Capacity at 300 µS/cm l	Dimensions in mm Ø x H	Max. temperature °C	Item number
destillo D 12 dE cpl	1,500	237 x 600	30	020 001
destillo D 12 dE	1,500	237 x 404	30	020 002
destillo D 17 dE cpl	2,000	237 x 680	30	020 054
destillo D 17 dE	2,000	237 x 484	30	020 055
destillo D 26 dE cpl	3,300	237 x 900	30	020 058
destillo D 26 dE	3,300	237 x 700	30	020 059
destillo D 46 dE cpl	6,000	237 x 1,350	30	020 060
destillo D 46 dE	6,000	237 x 1,150	30	020 061
destillo D 100 dE cpl	13,000	363 x 1,300	30	020 007
destillo D 100 dE	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

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 µS/cm (green to yellow) and 20 µS/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 µS/cm, others on request)
- Manual bridging of limit value contact during start-up

Conductivity meters Standard device for installation on top of a destillo mixed-bed demineralisation unit					**RG 2**
Product name	Suitable for destillo	Measuring range µS/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 µS/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	
Commissioning technician	
Software engineer	
Online Troubleshooting	
Remote kit for commissioning	542 443
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)	

Get in touch with our experts

Technical purchase advice: Our sales team

Our sales team is available to answer any technical questions you may have about reverse osmosis, pre- and post-treatment, design based on water analyses, and peripheral products.

Phone +49 7141 7095-202
E-Mail sales@hercowater.com

Purchase-related questions: Our order management

If you have any questions about your order, order confirmation, delivery, invoice, customs clearance or transport, our order management team will be happy to assist you.

Phone +49 7141 7095-203
E-Mail order@hercowater.com

Questions about your system: Our service

If you have any questions regarding the delivered system, scheduling an appointment for commissioning, service or maintenance, or technical support, please contact us via our hotline.

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

For spare parts enquiries, please contact our spare parts team directly for a quick and accurate response.

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

Our network: Visible together

LinkedIn offers us the opportunity to make ourselves visible and tangible together. By establishing a connected appearance, we strengthen our market presence and demonstrate what successful collaboration looks like in practice.

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Follow us on LinkedIn and share your posts or experiences with the hashtag **#hercowater** to increase the visibility of joint projects, technologies and successes. Connect with our employees.

Our product centre: Ordering and research

In our product centre, we provide a clear overview of our product portfolio and a simple selection of options and accessories via product links. In addition, with your customer access, you can download data sheets, quotation texts, layout drawings and images, as well as view list prices and your prices for all standard systems.

shop.hercowater.com

General Terms and Conditions of Business of Herco Wassertechnik GmbH

General Terms and Conditions of Supply and Payment Last amended: September 2023

1. Scope, form

1.1 All goods, services and offers supplied by Herco Wassertechnik GmbH (Herco) are subject solely to these terms and conditions of supply and payment (TCSPs). These terms and conditions will be deemed to have been accepted at the latest when the customer takes receipt of the goods or services. These TCSPs apply in particular to contracts for the sale and/or supply of movable items irrespective of whether Herco produces the good itself or purchases it from other suppliers (secs. 433, 650 German Civil Code (Bürgerliches Gesetzbuch)). These TCSPs are a frame agreement for all future business relations between Herco and the customer even if this is not subsequently expressly agreed.

1.2 These TCSPs apply to the exclusion of any other standard terms and conditions. Standard terms and conditions of business or purchase of the customer which differ from, conflict with or supplement Herco's own will only become a constituent part of the contract in as far as Herco has expressly consented. This consent requirement applies in all cases, including, for example, where Herco supplies to the customer without reserve despite being aware of the customer's standard terms and conditions of business.

1.3 Herco employees are not authorised to enter into ancillary agreements or to make commitments on Herco's behalf unless they are authorised to represent Herco accordingly by act of law.

1.4 Individual agreements entered into with the customer in an individual case (including ancillary agreements, additions and amendments) will always take precedence over these TCSPs. Unless evidence is provided to the contrary, the content of such agreements must be set out in a written contract or confirmed by Herco in writing.

1.5 Any statements or notifications from the customer regarding the contract which are of legal relevance (such as deadlines, notification of defects, withdrawal or reduction of price) must be made in writing, i.e. in written form (with an original signature) or text form (e.g. email, fax). This has no effect on statutory requirements regarding form and other evidence, particularly where there is doubt as to whether the person making the declaration is authorised to do so.

1.6 Information on the applicability of statutory provisions is provided for clarification purposes only. Thus, even in the absence of such clarification, statutory provisions apply unless they are directly amended or expressly disapplied in these TCSPs

2. Offer, conclusion of contract

2.1 Herco's offers are subject to confirmation and non-binding. This applies even if Herco has provided the customer with catalogues, technical documentation (e.g. drawings, plans, calculations, references to DIN standards), other product descriptions or documents – including in electronic formats. The documents associated with the order such as illustrations, drawings, sizes and dimensions are only approximate and are not binding unless they are expressly designated as binding.

2.2 The scope of supply and the item to be supplied will be as set out in the order confirmation – if available - and as described in Herco's service and product descriptions in as far as these form part of the contractual agreement.

2.3 Herco reserves the right to make modifications to the design or form during the delivery period owing to technological advances and statutory requirements.

2.4 Once the customer places an order for the goods this constitutes a binding offer to enter into a contract. The content and scope of the contract will be as set out in Herco's written confirmation of order. Declarations of acceptance and all orders are valid in law only when they have been confirmed in Herco's written confirmation of order. A contract has not been entered into until the written confirmation of order (acceptance) has been issued.

3.Copyright, reservation of right to modify

3.1 Herco reserves all title and copyright in illustrations, drawings, calculations and other documents. These may not be reproduced or disclosed to third parties without written consent.

3.2 Herco has the right to make expedient modifications and improvements to products and services at any time; however, it is under no obligation to do so.

4. Prices

4.1 Unless otherwise stated in the confirmation of order, Herco's prices are net ex works at the time the contract is concluded. The prices do not include value added tax, which will be added and indicated separately on the invoice at the applicable statutory rate on the date of invoice.

4.2 For contracts involving the carriage of goods to a place other than the place of performance the customer will bear the transport costs ex warehouse and, where requested by the customer, the costs of transport insurance. Any customs duties, charges, taxes and other public charges will be borne by the customer.

4.3 A processing charge of EUR 20.00 (plus value added tax at the applicable statutory rate) will be applied to orders for goods with a net value of less than EUR 50.00.

5. Delivery period, delay in delivery

5.1 The delivery period will be agreed individually or stated by Herco in its acceptance of the order. It will begin on the date on which the order confirmation is sent, but not before all documents to be provided by the customer have been made available or before all technical issues have been clarified. Delivery dates or delivery periods, which may be binding or non-binding, must meet written-form requirements.

5.2 If Herco is unable to meet binding delivery periods/dates for reasons outside its control (unavailability of performance), Herco will notify the customer without undue delay, simultaneously advising the new probable delivery time/date. If performance is not possible by the new delivery date, Herco may withdraw from the contract in whole or in part; Herco will refund any consideration already rendered by the customer without undue delay. An example of unavailability of performance within the meaning of this contract would in particular be where Herco were not supplied in a timely manner by a supplier, if Herco entered into a congruent covering transaction (kongruentes Deckungsgeschäft), neither Herco nor its supplier are at fault or Herco, in the individual case, is not under an obligation to procure.

5.2 Herco will not be liable for delays in supply and service which are attributable to force majeure or occurrences which make it substantially more difficult or impossible for Herco to supply. These include without limitation strike, lock-out, official orders, etc. even if they affect Herco's suppliers and even if such delays in supply and service concern binding delivery periods and dates. In such cases Herco may postpone the supply or service by the duration of the impediment plus a reasonable starting-up period or may withdraw in whole or in part from the portion of the contract which has not yet been performed. If the impediment lasts for more than three months, the customer may withdraw from the portion of the contract which has not yet been performed provided that it has first set a reasonable extension to the deadline. If the delivery period is extended or if Herco is released from its obligation, this will not entitle the customer to claim compensation.

5.3 The point at which Herco falls into delay with supply will be as provided for by statute. However, the customer must issue a reminder. If Herco is in delay with supply, the customer may demand liquidated damages for the loss suffered. The liquidated damages will be 0.5% of the net price per complete calendar week but no more than 5% of the net price of the goods affected by the delay. Herco will reserve the right to prove that the customer has suffered no loss or that any loss suffered was significantly lower than the above compensation.

6. Delivery, passage of risk, acceptance, delay in taking delivery

6.1 Delivery will be ex warehouse, the warehouse also being the place of performance for the shipment and any subsequent performance. The goods will be shipped to a destination other than the place of performance at the customer's cost and request (sales shipment pursuant to sec. 447 German Civil Code (Bürgerliches Gesetzbuch). Unless otherwise agreed, Herco may choose the mode of transport (in particular the carrier, route, packaging) itself.

6.2 If the customer is in default with taking delivery, Herco may – having previously set a reasonable extension to the deadline – dispose of the item supplied and supply it to the customer with a reasonable extension to the deadline or withdraw from the contract. If the customer is in delay with taking delivery or if it breaches other duties to collaborate, Herco may also demand compensation for any additional expenses incurred.

6.3 Risk passes to the customer as soon as the shipment is handed over to the carrier or it has left warehouse for the purpose of shipment. If shipment is impossible for reasons for which Herco is not responsible, risk passes to the customer when the customer is advised that the goods are ready for despatch. This will apply in particular if shipment is deferred at the customer's request after the customer has been advised that the goods are ready for despatch, in which case the risk of accidental loss or accidental damage passes to the customer. In as far as claims can be asserted against liable third parties and/or against insurers (insurance policies only at the customer's request and cost) any claim which the customer may have against Herco is limited to the amount due under the claim assigned to the customer.

6.4 Where the parties have stipulated acceptance, passage of risk will occur on acceptance. In all other respects, acceptance will be subject to the law regarding contracts for mixed work and services (Werkverträge). Handover or acceptance will be deemed to have been effected if the customer is in delay in taking receipt of the goods.

6.5 If the customer is in delay with taking receipt of the goods, or if it fails to cooperate as required or ifs the shipment is delayed for other reasons within the customer's sphere of responsibility, Herco has the right to demand compensation for any resultant loss including any additional expenses (e.g. storage costs). For this Herco will charge compensation of EUR 50.00 per calendar day beginning with the delivery period or – in the absence of a delivery period – beginning on notification that the goods are ready for despatch. This has no effect on the right to prove a higher loss on Herco's statutory rights (including without limitation reimbursement of additional expenses, appropriate compensation, termination); however, this compensation will be offset against any further monetary claims. The customer will reserve the right to prove that Herco has suffered no loss or that any loss suffered was significantly lower than the above compensation.

6.6 In all other respects, shipment (including any returns) will be at the cost and risk of the customer. This will also apply if the goods are shipped in Herco's own vehicles.

6.7 Herco may provide the goods and services in instalments.

7. Terms of payment

7.1 Unless otherwise agreed, Herco's invoices will be payable immediately and without deductions. However, Herco reserves the right to perform some or all of a supply contract against advance payment at any time even in the context of an ongoing business relationship, in which case Herco will notify the customer accordingly in the order confirmation. Payment by bill of exchange is only possible subject to express written agreement.

7.2 Even if the customer's provisions state otherwise Herco may always assign payments to older debts owed by the customer first. If costs and interest have already arisen, Herco may use payments made to first service such costs, then the interest and finally the principal amount owed. All payments must be made to Herco head office; no charges may be deducted.

7.3 Payment will only be deemed to have been made once the amount is credited to one of Herco's accounts.

7.4 If the customer is in default with payment, Herco may charge interest as of the date concerned as follows: 8% above the applicable base interest rate of the European Central Bank to companies, and 5% above the applicable base interest rate of the European Central Bank to consumers.

7.5 If the customer fails to perform its payment obligations or if Herco becomes aware of other circumstances which cast doubt on the customer's creditworthiness, Herco may demand that the entire balance owed be due. In such an event Herco is also entitled to demand that the customer pay in advance or provide security. If the entire outstanding balance is not paid immediately the customer will forfeit its right to use the item supplied. Herco may either repossess the item supplied without waiving its claims until they have been satisfied or it may withdraw from the contract. All the costs of repossessing the item supplied will be borne by the customer. In the event that Herco withdraws from the contract, the customer will reimburse Herco for any loss in value as well as compensation for having used the item supplied.

7.6 If it becomes apparent after the contract has been concluded (e.g. in the event of an insolvency filing) that Herco's claim to the purchase price is jeopardised by the customer's lack of solvency, Herco is entitled to refuse performance and – if applicable, having set a deadline – to withdraw from the contract (sec. 321 German Civil Code). In the case of contracts for unique items (custom-made) Herco may declare withdrawal from the contract immediately;
this has no effect on the statutory requirements waiving the setting of a deadline.

7.7 The customer may only offset counterclaims against claims of Herco if the counterclaims are undisputed or have been ruled final and absolute in a court of law.

7.8 The customer may only assert rights of retention against claims of Herco if the counterclaims are undisputed or have been ruled final and absolute in a court of law.

8. Reservation of title

8.1. Herco will reserve title in the goods sold until the customer has paid all Herco's present and future claims under the purchase agreement and a current business relationship (secured claims) in full.

8.2 The customer may not pledge reserved items or assign them as security to third parties until the secured claims have been paid in full. The customer must notify Herco in writing without undue delay if an application is filed for insolvency or if third parties exercise claims (e.g. attachment) on goods belonging to Herco.

8.3 If the customer acts in breach of contract, including without limitation by failing to pay the purchase price due, Herco may withdraw from the contract as provided for by statute and/or demand that the goods be surrendered on the grounds of reservation of title. Demand for surrender of the goods is not to be equated with declaration of withdrawal from contract. On the contrary, Herco is entitled to demand surrender of the goods and reserve the right to withdraw from the contract. If the customer does not pay the due purchase price, Herco may only assert these rights if it has previously set the customer a reasonable deadline for payment without success or if the law does not require such a deadline to be set.

8.4 Until revocation (see (c) below) the customer is authorised to resell and/or process the reserved goods in the normal course of business, in which case the following provisions will also apply: (a) Reservation of title will extend to any products generated by processing, mixing or combining Herco's reserved goods at their full value, whereby Herco will be deemed to be the manufacturer. If the goods are processed, mixed or combined with the goods of third parties such that the third parties retain title, Herco will acquire pro rata joint title in proportion to the invoice value of the processed, mixed or combined goods. In all other respects, the same will apply to the product generated as to the goods supplied under reservation of title. (b) The customer hereby assigns to Herco by way of security any claims against third parties arising from the resale of the goods or the product in full or to the value of any joint title of Herco pursuant to the preceding paragraph. Herco hereby accepts such assignment. The customer's obligations under 8.2 also apply in respect of the assigned claims. (c) Both the customer and Herco are authorised to collect the claim.
Herco will not collect the claim as long as the customer performs its payment obligations to Herco, the customer's ability to perform is not impaired and Herco does not assert its reserved title by exercising a right pursuant to 8.3. If the above criteria are satisfied Herco may demand that the customer disclose the assigned claims and the debtors, that it provide all information required for collection, furnish the associated documents and notify the debtors (third parties) of the assignment, in which case Herco may revoke the customer's right to resell and process the reserved
goods. (d) If the realizable value of the securities exceeds Herco's claims by more than 10 % at the customer's request Herco will release securities as it seems fit.

9. Warranty

9.1 Unless otherwise stated below, the customer's rights in respect of quality defects and defects in title (including incorrect or short supply, improper assembly or deficient assembly instructions) will be subject to statutory provisions. In all cases this will not affect the special statutory provisions applying to unprocessed goods supplied to a consumer, even if the customer has processed them further (supplier recourse pursuant to sec. 478 German Civil Code). Claims to recourse against suppliers are excluded if the customer or another company has processed the defective good further, for example by installing it in another product.

9.2 In as far as the goods supplied to the customer were not manufactured by Herco itself but bought from another supplier, Herco will meet its warranty obligations by assigning its own warranty claims against its supplier to the customer. The customer accepts this assignment by way of performance. Subsidiary warranty claims against Herco which are not enforceable or fail will be subject to the provisions below.

9.3 Herco's liability for defects is based primarily on the agreement regarding the attributes of the goods. The agreement on the attributes of the goods consists of all product descriptions and manufacturer's data forming the subject of the individual contract or information made publicly known by Herco (in particular in catalogues or on its website) at the time the contract is entered into.

9.4 Where such attributes have not been agreed, the existence of a defect will be judged according to statutory rules (sec. 434(3) German Civil Code). However, Herco will not accept liability for public statements (e.g. advertising claims) of the manufacturer or other third parties which the customer has not indicated to Herco as being a crucial factor in its decision to purchase.

9.5 Statements regarding attributes do not constitute a guarantee unless this has been expressly set out in writing. As a general rule, no obligations regarding the remedy of defects and subsequent performance will be assumed over and above those set out in these terms and conditions.

9.6 Herco will not be liable for defects known to the customer at the time the contract is concluded or of which the customer is not aware owing to gross negligence on its part (sec. 442 German Civil Code). The customer may only assert claims for defects provided it has met its statutory obligations to examine the goods and report defects (secs.377, 381) German Commercial Code (Handelsgesetzbuch)). In all cases, building materials and other goods to be installed or otherwise processed must be inspected directly before processing. Herco must be notified without undue delay in writing if any defect becomes apparent on delivery, inspection or at any time thereafter. In any event, obvious defects must be reported within 3 working days of delivery and defects which were not detected on inspection within the same period after detection. If the customer fails to properly carry out inspection and/or to report defects, pursuant to statute Herco will not be liable for defects which are not reported properly or in a timely manner.

9.7 If the item supplied is defective, Herco may initially choose whether to render subsequent performance by remedying the defect (repair) or by supplying a non-defective item (replacement). This has no effect on Herco's right to refuse subsequent performance as provided for by statute.

9.8 Herco may make subsequent performance dependent on the customer having paid the due purchase price. However, the customer may retain a portion of the purchase price commensurate with the defect.

9.9 The customer will grant Herco the necessary time and opportunity to render subsequent performance, in particular it will hand over the item in question for inspection. Where the defective item is to be replaced, the customer will return it to Herco in accordance with statute. If Herco was not originally required to install it, subsequent performance will not include removal or re-installation of the defective item.
Where there is a defect Herco will bear/refund the necessary expenses incurred by inspection and subsequent performance including without limitation costs of transport, travel, labour and materials and, if applicable, any removal/installation costs. Otherwise Herco can demand that the customer refund the costs incurred from an unjustified request to remedy a defect (in particular, inspection and transport costs) unless it was not possible for the customer to identify that the item was not defective.

9.10 If, after the subsequent performance has been completed, the goods have to be moved somewhere other than the original destination, the customer will bear any additional costs which arise. The same will apply if the customer returns the defective item to Herco for subsequent performance from somewhere other than its head office/the place of delivery.

9.11 Where subsequent performance fails or cannot be rendered within a reasonable period set by the customer or where statutory provisions do not require subsequent performance the customer may withdraw from the contract or reduce the purchase price. However, where the defect is immaterial the customer is not entitled to withdraw from the contract.

9.12 Herco has no warranty obligations if (a) the defect is attributable to improper use, operation, care or inadequate maintenance, deficient assembly and commissioning, breach of or failure to comply with our operating and assembly instructions or instructions for use or to the use of force and other external influences (e.g. chemical, electromagnetic, electrical, etc.) outside Herco's reasonable control or if (b) the defect arose because the item supplied was tampered with in particular using unsuitable spare parts, including without limitation third-party spares, and the loss is attributable to such tampering or use. The warranty does not cover normal wear and tear or damage attributable to negligent or improper use or treatment.

9.13 The goods must be returned to Herco along with the original delivery note or a photocopy thereof. Negotiations about complaints do not mean that Herco will waive the defence of failure to report a defect properly or in good time.

9.14 Herco will not be liable for the consequences if the customer or a third party remedies defects by improper means. The same will apply to any alterations made to the item supplied without Herco's prior written consent.

9.15 The provisions of section 10 also apply to claims for compensation
9.16 If the scope of supply includes software or other copyright-protected goods and hence associated rights, the customer will be granted a non-exclusive right to use that software including the associated documentation in conjunction with the items supplied. The customer may only use and edit the software to the extent permitted by statute and may not remove manufacturer's data without Herco's prior written consent. The customer may not assign the software or rights therein to third parties – such as by way of licence – without Hreco's prior written consent.
9.17 The customer may not use Herco products for advertising purposes unless Herco has approved the advertising. If the customer's clients assert claims for liability for defects on the grounds that the product purchased is not as stated in claims made in the customer's advertising and if such advertising has not been approved by Herco the customer may not assert claims against Herco.

10. Liability
10.1 Unless otherwise stated in these TCSPs and the provisions set out below, Herco's liability for a breach of contractual and non-contractual obligations will be as provided for by statute.
10.2 Herco will only be liable for compensation – irrespective of the legal basis – in the event of fault attributable to intent and gross negligence. In the event of minor negligence – subject to statutory liability limitation (e.g. care in one's own affairs; minor breach of duty) – Herco will be liable only
a) for losses arising from injury to life, the body or health,
b) for losses arising from breach of a material contractual duty (an obligation performance of which is a prerequisite for proper performance of the contract and on which the contractual partner relies and can normally rely on being performed), in which case Herco's liability will be limited to compensation of foreseeable typically occurring losses.
10.3 The liability exclusions and limitations in 10.2 also apply to third parties and breaches of duty on the part of (or to the benefit of) persons for whose fault Herco is responsible by statute. They do not apply where a defect has been fraudulently concealed or where a warranty has been assumed for the attributes of the product or where the customer has claims under the German Product Liability Act (Produkthftungsgesetz).
10.4 The liability limitations in sections 9 and 10 also apply to liability for incorrect advice, incorrect assembly instructions and other breaches of collateral duties.
10.5 Any claims for compensation over and above this are excluded to the extent permitted by statute.

11. Limitation period
11.1 Notwithstanding sec.438 (1) no 3 German Civil Code the general limitation period for claims arising from defects in quality or title is one year from delivery. Where the parties have stipulated acceptance, the limitation period will begin on acceptance.
11.2 If the item supplied is a building or an item which has been used for a building in accordance with its usual purpose and has caused the building to be deficient (building material), the limitation period pursuant to statute is five years from delivery (sec. 438(1) no. 2 German Civil Code). This has no effect on other statutory special rules on limitation (in particular sec. 438(1) no. 1, (3), secs. 444, 445b German Civil Code).
11.3 The above limitation periods under sales law also apply to contractual and non-contractual claims for compensation of the customer arising from a defect in the item supplied except where the standard statutory limitation period applies (secs 195, 199 German Civil Code).

12. Applicable law, place of jurisdiction, severability
12.1 These TCSPs and all legal relations between Herco and the customer are subject to the law of the Federal Republic of Germany excluding uniform international law, in particular the UN Convention on Contracts for the International Sale of Goods (CISG) even if the customer's registered office is outside the Federal Republic of Germany.
12.2 If the customer is a merchant (Kaufmann) within the meaning of the German Commercial Code (Handelsgesetzbuch), a legal person under public law or a legal entity under public law, the sole – including international – place of jurisdiction for all disputes arising directly or indirectly from the contractual relationship will be Herco's domicile in Freiberg am Neckar. The same will apply if the customer is an entrepreneur (Unternehmer) as defined in sec. 14 German Civil Code. However, Herco is also entitled to bring action at the place of performance for the supply obligation stipulated in these TCSPs or in an overarching individual agreement, or at the customer's general place of jurisdiction.
12.3 Unless otherwise stated in the confirmation of order the place of performance will be Herco's domicile.
12.4 If any provision of these terms and conditions of business or any provision of other agreements is or becomes invalid this will not affect the validity of all other provisions or agreements.
12.5 Amendments, additions and ancillary agreements to these terms and conditions and to individual contracts are valid only if they comply with written-form requirements. This will apply even if the written-form requirements are to be waived. There are no oral ancillary agreements.

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