

The source of flawless cleaning results



First impressions must
always be the best



You feast with your eyes. This is why perfect cleaning results are essential for the convictive presentation of food and drinks.

It is not only the dishwashing system, detergent and hygiene products that determine the cleaning result. Water quality also plays an important role. Depending on its quality it can leave limescale, streaks and spots on the dishes. Appropriate water treatment provides you with flawless cleaning results.



- Why water treatment?

Water treatment – The washing results are crystal clear



Advantages of water treatment

Mains water contains different substances. These substances leave residue on dishes and in the dishwasher which leaves dishes looking dirty. Regardless of the dishwasher brand, the functionality of all dishwashers will, over time, be impaired particularly by limescale deposits. **Water treatment prevents these negative effects and also provides you with many advantages:**

- **Optimised cleaning result.** Depending on the quality of the mains water and the dishes, you will always have optimum cleaning results with the appropriate water treatment – leaving you with gleaming glasses and spotless cutlery. Polishing by hand is a thing of the past and glass breakage is greatly reduced, saving time and money.
- **Increased effectiveness of detergent and rinse aid.** Detergent and rinse aid can achieve full effectiveness, consumption is reduced and the cleaning results are improved.
- **Hygienic safety.** Correctly treated water does not leave any limescale deposits behind in the dishwasher or on the dishes. This means that there are no rough surfaces on which dirt and bacteria can settle.
- **Maintaining value.** Limescale deposits are prevented on all the integral components of your dishwasher. Wear is considerably reduced and the service life of the dishwasher and crockery is increased. Enabling you to make savings on regular investment costs.
- **Increased reliability.** The downtimes due to service work can be reduced via water treatment. Thus enabling you to minimise your running costs.

Water treatment in three steps

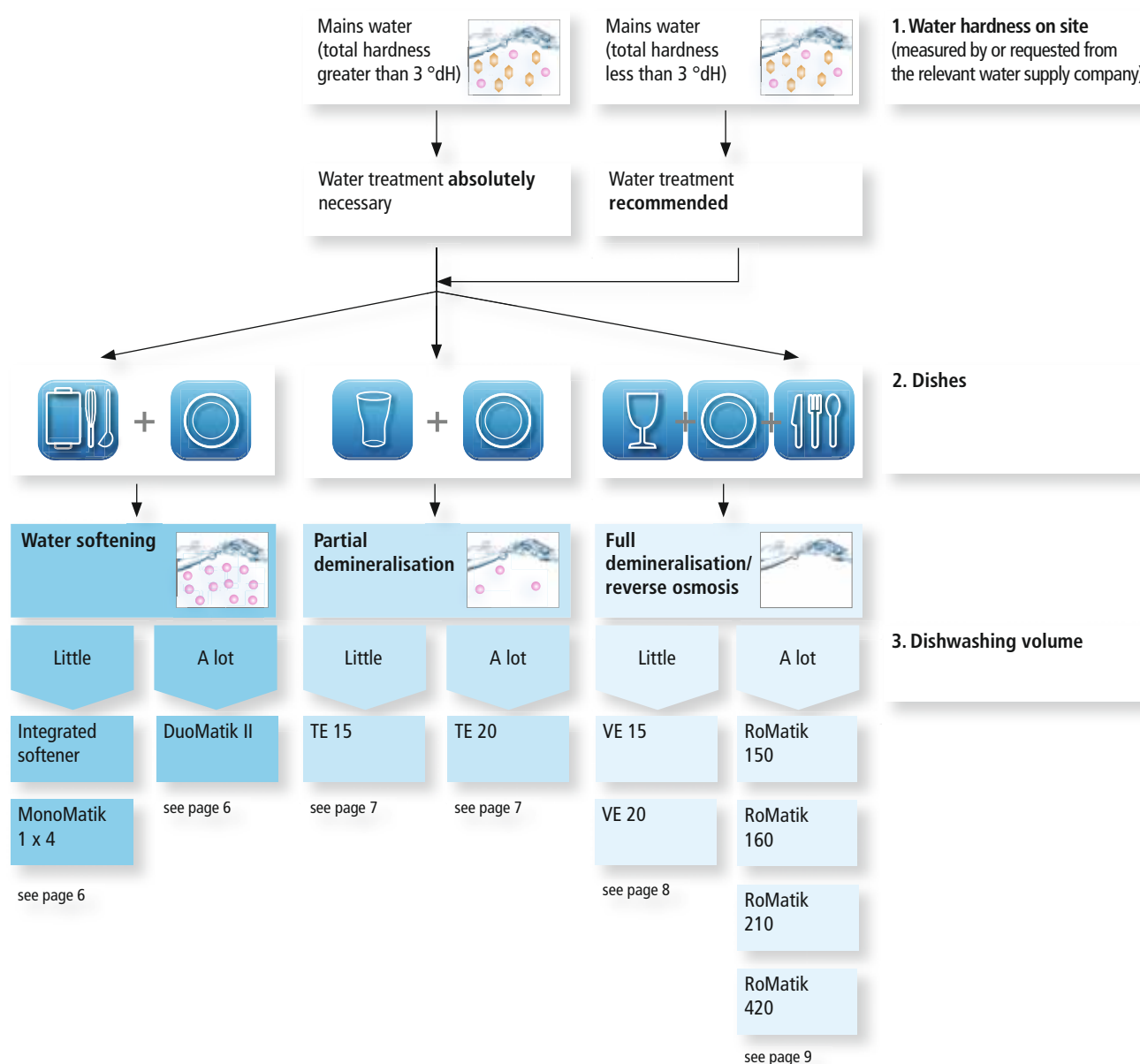
Finding the right water treatment unit is really simple. The most important criteria for deciding which one is right for you, is as follows:

1. Water hardness on site

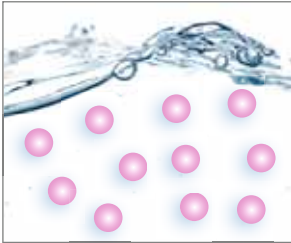
2. Dishes

3. Dishwashing volume

The following selection guide is intended to help you find the right Winterhalter water treatment for your needs. Your Winterhalter consultant will gladly advise you.



Water softening – the basis of all water treatment



Softened water:

The water is decalcified, the calcium carbonate is substituted by water soluble salts.



Integrated softener

The Winterhalter softener which is integrated in dishwashers does not require any additional space. A resin container for ion exchange continuously supplies soft water. Regeneration takes place automatically during the wash cycles according to water consumption.

MonoMatik 1 x 4 softener

The MonoMatik 1 x 4 is an external device which works according to the ion exchange principle with one cartridge. Regeneration is automatically triggered by an electrical timer at an individually set time, Eg. at the end of the operational day. With its compact dimensions it offers basic water treatment for a low purchase price and low operating costs.

DuoMatik II softener

The external DuoMatik II softener is equipped with two ion exchange cartridges which alternate during water softening. The DuoMatik II is therefore able to continuously treat water at a mains water hardness of up to 40 °dH without regeneration pauses. Water softening and regeneration are controlled mechanically without electricity.

Device	Capacity at 10 °GH	Waste water outlet required	Electrical supply	Suitable / available for models
Integrated softener	1,460 l/salt filling*	None	via the dishwasher	UC Series, GS 502, GS 515
MonoMatik 1 x 4	15 l/min (max. capacity 800 l/Tag)	Waste water connection	required	GS 300 Series, GS 402, GSR 36, UC Series, GS 500 Series, GS 600 Series, MT Series, STR
DuoMatik II	22 l/min (continuous operation)	Waste water connection	not necessary	

*Fill level of salt container: 1.5 kg
GH = total hardness

Partial demineralisation – for a more demanding cleaning result



Partially demineralised water:
The water is decalcified and minerals are partially removed.



Partial demineralisation TE 15 / TE 20

The partial demineralisation cartridges TE 15 and TE 20 require very little space. The ion exchange capacity is monitored via a measuring display device and/or by the regeneration symbol on the machine's operating panel. The partial demineralisation cartridges supply up to 100% regenerated water; waste water is not generated. They thus ensure particularly efficient and resource-friendly water treatment. Partial demineralisation offers good cleaning results with low purchase costs.

Device	Capacity at 10 °KH [l]	Waste water outlet required	Electrical supply	Suitable for models
TE 15	14,000	None	not necessary	GS 200 Series, GS 300 Series, GS 402, UC Series, GS 500 Series
TE 20	18,000	None	not necessary	

KH = carbonate hardness

- Full demineralisation

Full demineralisation – for the highest cleaning quality



Fully demineralised water:
The water is decalcified, all salts and minerals are removed.



Full demineralisation VE 15 / VE 20

The ion exchange cartridges VE 15 and VE 20 provide space-saving and effective full demineralisation with a 100% yield of regenerated water without waste water generation. The capacity is monitored via a measuring display device and/or by the regeneration symbol on the machine's operating panel. The full demineralisation cartridges fulfil the highest demands on the cleaning result.

Device	Capacity at 10 °GS [l]	Waste water outlet required	Electrical supply	Suitable for models
VE 15	4,000	None	not necessary	GS 200 Series, GS 300 Series, GS 310, GS 402,
VE 20	5,500	None	not necessary	UC Series (particularly as cutlery washer), GS 500 Series

GS = Total salt content

Reverse osmosis – the best results for large washing volumes



Water treated using reverse osmosis:

Water is mechanically thrust through a membrane that removes approximately 98 % of particles.



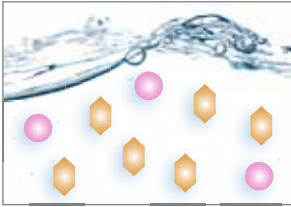
RoMatik Series

The RoMatik Series are available in four different capacities. They are able to remove approximately 98 % of minerals via membrane filtering and are extremely economical even when water consumption is high, especially when connected to several dishwashers. RoMatik devices appeal to customers because of their compact design, simple handling and safe operation. They guarantee cleaning results and eliminate the need for polishing which helps reduce operating costs.

Device	Capacity [l/h] (at a water inlet temperature of 15 °C*)	For water hardness [°GH]	Waste water outlet required	Preliminary softening	Advantages	Suitable for models
RoMatik 150	150	max. 25	Waste water connection	Recommended! Authorised for operation without preliminary softening up to 25 °GH	- Extremely compact - Microprocessor controlled monitoring	GS 200 Series, GS 300 Series, GS 310, GS 402, UC Series (particularly as cutlery washer STR, MT Series)
RoMatik 160	160	max. 25	Floor drain and waste water connection	Recommended! Authorised for operation without preliminary softening up to 25 °GH	- High yield (with water softening) - Integrated 35 l storage tanks	
RoMatik 210	210	max. 10	Floor drain and waste water connection	Recommended! Authorised for operation without preliminary softening up to 10 °GH	- High yield (with water softening) - Integrated 66 l storage tanks	
RoMatik 420	420	max. 10	Floor drain and waste water connection	Recommended! Authorised for operation without preliminary softening up to 10 °GH	- High yield (with water softening) - Integrated 66 l storage tanks	

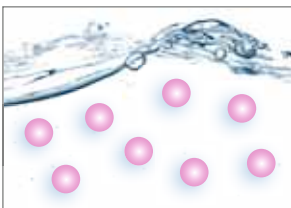
*Only for cold water connection up to 25 °C
GH = total hardness

The cleaner the water, the more dazzling the result



Mains water contains impurities in addition to calcium carbonate and minerals.

Winterhalter offers four water treatment methods. Specific substances are removed from the water thus making it possible to achieve different degrees of purity.



Softened water:
The water is decalcified, the calcium carbonate is substituted by water soluble salts.

Water softening

The largest proportion of water hardness is exhibited by a white, non-water soluble deposit which settles over a long period in the machine and on dishes. Limescale deposits and associated damage to the dishwasher are prevented by softened water, i.e. demineralised water. At the same time detergent and rinse aid are able to achieve their full effectiveness and thus ensure better cleaning results with lower consumption.



Partially demineralised water:
The water is decalcified and part of the minerals are removed.

Partial demineralisation

Despite water softening, water-soluble mineral salts remain on the dishes. They considerably impair the cleaning result of glasses, dark dishes and cutlery. Partial demineralisation on the other hand reduces the mineral content in the water to a large degree and thus produces nearly deposit-free cleaning results.



Fully demineralised water:
The water is decalcified, all salts and minerals are removed.

Full demineralisation

Full demineralisation completely removes salts and minerals from the water. In terms of quality, it is comparable with distilled water and does not leave any deposits on dishes, cutlery and glasses. Resulting in a dazzling, deposit-free shine without the need for time-consuming polishing.

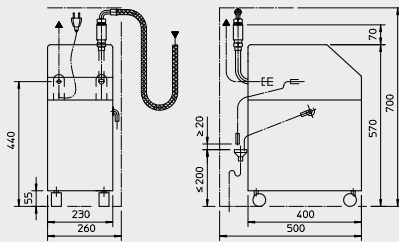


Water treated using reverse osmosis:
Water is mechanically thrust through a 11 membrane that removes approximately 98 % of particles.

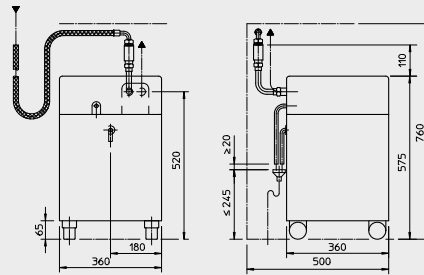
Reverse osmosis

Water treated using reverse osmosis is filtered through membranes. Hardly any deposits are left on dishes, cutlery and glasses after washing. Polishing by hand is a thing of the past as the dishes come out of the dishwasher spotlessly clean and sparkling.

MonoMatik 1 x 4



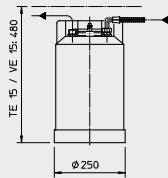
DuoMatik II



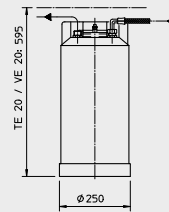
MonoMatik / DuoMatik WSE set

A MonoMatik or a DuoMatik WSE set must be used in order for the system to be operated in accordance with DVGW and/or DIN requirements. The set includes a HP safety combination acc. to DIN EN 1717 with check valve and anti-vacuum device (design C) and also complies with DIN 1988-4. National installation and operating regulations must be complied with!

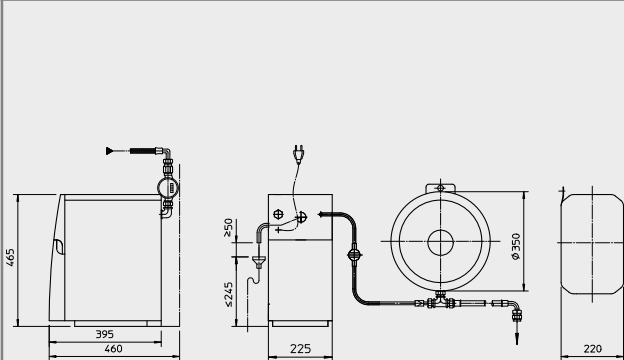
TE 15 / VE 15



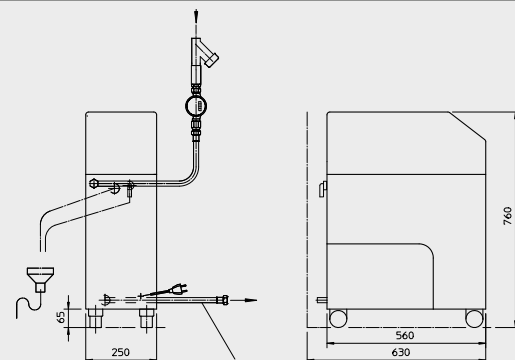
TE 20 / VE 20



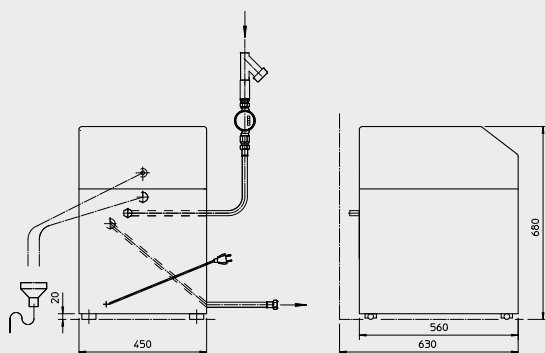
RoMatik 150



RoMatik 160



RoMatik 210 / RoMatik 420



Technische Daten	MonoMatik 1 x 4	DuoMatik II	TE 15/TE 20	VE 15/VE 20
Capacity	Capacity at 10 °dH Total hardness: 800 l* Flow rate 15l/min continuous	22 l/min, continuous soft water supply possible: Use up to max. 32 °dH**	Capacity at 10 °dH Carbonate hardness. TE 15: 14,000 l* TE 20: 18,000 l*	Capacity at 10 °dH Total salt content: VE 15: 4,000 l* VE 20: 5,500 l*
Material	Cartridge made of fibre glass, salt container and cover made of plastic	Cartridge made of fibre glass, salt container and cover made of plastic	Cartridge made of chromium-nickel steel	Cartridge made of chromium-nickel steel
Water supply with connection hose 3/4" [m]	2.0	2.0	2.0	2.0
Water inlet temperature [°C]	max. 50	max. 60	max. 60	max. 60
Monitoring	–	–	Control display/ impulse counter	Control display/ impulse counter
Mode of operation	Power mains operation 230 V regeneration program automatically controlled	Automatic regeneration program controlled by hardness range tables and water flow	Measuring display device via mains power operation 230 V (optional)	Measuring display device via mains power operation 230 V (optional)
Connection cable length [m]	–	–	5.0	5.0
Dimensions [mm]	Height 650 Width 260 Installation depth 500	Height 790 Width 360 Installation depth 500	TE 15: Height 475 Ø 250 TE 20: Height 590 Ø 250	VE 15: Height 475 Ø 250 VE 20: Height 590 Ø 250
Weight (incl. filter material) [kg]	12.0	21.0	TE 15: 15.0 TE 20: 21.0	VE 15: 15.0 VE 20: 21.0

* Theoretical values, for corresponding mineral content in raw water, can be up to 25% lower

** From 33 – 40 °dH on request

Technical data	RoMatik 150	RoMatik 160	RoMatik 210	RoMatik 420
Water inlet temperature [°C]	max. +25	max. +25	max. +25	max. +25
Permeate power at +15 °C [l/h]	150	160	210	420
Yield [%]	min. 50	min. 50 ¹⁾	min. 75 – 80 ²⁾	min. 75 – 80 ²⁾
Salt retention rate [%]	≥ 96	≥ 98	≥ 98	≥ 98
Water quality [µS/cm]	< 50	< 20	< 20	< 20
Water flow pressure [bar]	min. 1.5, max. 6	min. 1, max. 6	min. 1, max. 6	min. 1, max. 6
Max. conductivity of water supply [µS/cm]	1,500	2,000	2,000	2,000
Raw water hardness, maximum [°dH]	25	25	10	10
Storage tanks [l]	optional	35	66	66
Total connected load [kW]	0.55	1.4	1.4	1.9
Upstream softener	recommended	recommended	recommended	recommended
Electrical supply [V, Hz, A]	230, 50	230, 50, 10	230, 50, 10	230, 50, 10
Protection class	IPX 1	IPX 1	IPX 1	IPX 1
Weight [kg]	30.0	49.0	63.0	81.0

¹⁾ when connected to raw water up to 10 °dH, cold

²⁾ when connected to softened water 0 °dH, cold

As a rule, the applicable on site water requirements for operating Winterhalter devices are the requirements of the **German drinking water regulations** which among other things specifies the following **limit values**:

Aluminium [mg/l]	0.2
Ammonium [mg/l]	0.5
Chloride [mg/l]	250
Conductivity (at 20 °C) [µS/cm]	2,500
Iron [mg/l]	0.2
Manganese [mg/l]	0.05
Oxidizability [mg/l]	5.0 O ₂
Sodium [mg/l]	200
Sulphate [mg/l]	240
pH value	6.5 – 9.5

Furthermore, the following **tightened limit values for the operation of reverse osmosis units**:

Chlorine [mg/l]	< 0.1 (should be 0), (0.2 only with upstream activated carbon filter)
Copper [mg/l]	2.0
Iron [mg/l]	0.05
Manganese [mg/l]	0.02
Silicate [mg/l]	< 10
Potassium permanganate [mg/l]	10.0
Conductivity (at 20 °C) [µS/cm]	1,200 – 2,000
pH value	6.0 – 8.0
TDS [mg/l]	< 1,000

Important notes regarding terms

All about water

Carbonate hardness. The carbonate hardness indicates the amount of dissolved minerals in the water, this is known as limescale.

Total hardness. The total hardness is the total carbonate hardness and other dissolved salts in the water which consist of solid elements calcium, magnesium and sulphates and nitrates.

Total salt content. The total salt content includes the total amount of minerals and salts such as calcium, magnesium, sodium, etc. dissolved in the water.

Points of interest regarding water treatment

There are different water treatment types:

Filtering. Solids are mechanically removed from the water using filtration.

Ion exchange. Water contains dissolved minerals in the form of ions which leave deposits after washing. These ions are substituted with other minerals via an exchange material, the exchange minerals do not leave any long-term deposits. This technique is used for water softening, partial demineralisation and full demineralisation.

Membrane filtering (reverse osmosis). Water containing dissolved substances is mechanically forced through a membrane against its normal diffusion direction. 98 % of the particles from the water are retained. Resulting in pure water for brilliant cleaning results. This technique is used in the RoMatik Series.

Notes re the RoMatik Series

To ensure the long-term function of a RoMatik osmosis unit, we recommend a maintenance contract with Winterhalter customer service.

Prefilter. We recommend you use prefilters to protect the RoMatik membranes. An activated carbon filter must be used if the chlorine content of the mains water is very high, this prevents membrane decomposition. A sediment filter should be used in order to protect against solids such as clay, sand, etc. which are not retained by the dirt trap (retention capacity > 150 µM). It prevents the membranes from becoming blocked.

Caution!

Treated water must not come into contact with copper pipes, galvanised pipes or brass parts (e.g. screw connections).



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