Pioneering for You

Water Quality Systems for Heating and Cooling Applications

Product Overview

The Importance of Water Quality in Heating and Cooling Systems

1 Office Buildings

2 Multi-Family Houses

3 Hospitals

4 Public Buildings

5 Education and Healthcare facilities

6 Retail Buildings (e.g. shopping centres, shops)

7 Data centre

The treatment of water in closed heating and cooling systems is crucial for avoiding harmful microbiological fouling, corrosion and scale in the system. These results can cause energy wastage, poor system performance and reliability as well as the need for early replacement of plant and components.

Therefore, the water quality has become a major issue in buildings in recent years.

Systems, in which the water is properly deaerated and free of contamination are more efficient, produce less noise and have a longer service life. Our products use proven and innovative technology to remove air and solid particles from the water, i.e. using coalescence and flow velocity reduction. Regardless of whether in a domestic environment or commercial installations with large heating or cooling systems, our range of pressure keeping systems, degassing automats, air and dirt separators and automatic air vents provide the most efficient solution.

Expansion Automats and Pressurisation Equipment

Heating and cooling installation use water for the energy transfer because it's the most cost effective medium. Water expands when is heated, and contracts (volume reduces) when cooled.

For sealed systems with large volumes or static height traditional expansion vessels are not the most efficient solution in terms of operational pressure or physical footprint. Wilo-Sinum expansion automats balance the system pressure using a highly efficient vessel design and control equipment.

We produce a comprehensive range of models that offer high-quality performance and versatility which may be further enhanced by the addition of numerous optional accessories. This makes the Wilo-Sinum expansion automats suitable for use in a variety of situations.

Wilo-Sinum – Pump Units

For pressurisation, deaeration and topping up in sealed heating installations (acc. to EN12828) and chilled water (cooling) installations.

Wilo-Sinum pump units are used for storage of expansion water with a closed expansion vessel. It also handles deaeration and topping up the installation automatically with state of the art micro-electronics. The Wilo-Sinum balanced pressure expansion equipment is sized according to the total system volume and the boiler or chiller load. The Wilo-Sinum vessel is 80 % efficient irrespective of the static height of the system. It is the ideal solution for large installations or high installations where standard diaphragm expansion equipment is limited.

- → Automatically performs volumetric control and automatic topping-up during the heating or cooling cycles.
- → Integrated turbo degassing allows for very rapid degassing.
- → The degassing function allows for continuous degassing if desired.
- → The user-friendly control unit displays all operating and error conditions in a comprehensible and convenient way.
- → Advanced technology ensures low power consumption, long service life and easy maintenance.
- → Single (mono), automatic change-over or load dependent (duo) and combined operation.
- → Microprocessor control, self-learning, with graphical display and RS 485 interface.
- → 20 languages can be selected in the menu of the SPC controller.
- → Due to the hydraulic design of the Wilo-Sinum and the connection sets the vessel can be positioned anywhere around the Wilo-Sinum.
- → Beams are fitted to the Wilo-Sinum for protection of components and easy transport into hard to reach places.
- → The position of the second pump on a double pump Wilo-Sinum can positioned on either side of the Wilo-Sinum.
- → Deaeration modes: fast, normal or off.

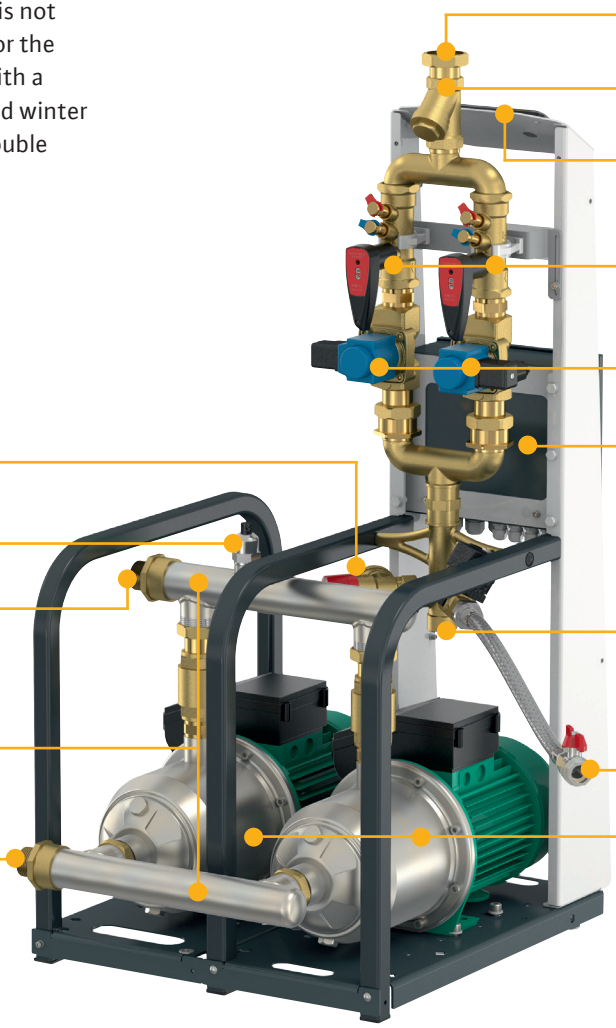
Technical specifications

Type	Nominal voltage	Rated current	Rated power	Protection class of pump unit*
Single Pump Units		*A*	*kW*	
Wilo-Sinum Pump MM	230 V ~1 N PE 50 Hz	0.43	0.09	IP44
Wilo-Sinum Pump M10	230 V ~1 N PE 50 Hz	4.4	0.75	IP54
Wilo-Sinum Pump M20	230 V ~1 N PE 50 Hz	7.2	1.1	IP54
Wilo-Sinum Pump M60	230 V ~1 N PE 50 Hz	7.4	1.1	IP54
Wilo-Sinum Pump M80	400 V ~3 N PE 50 Hz	3.4	1.5	IP54
Wilo-Sinum Pump M100	400 V ~3 N PE 50 Hz	4.75	2.2	IP54
Wilo-Sinum Pump M130	400 V ~3 N PE 50 Hz	6.4	3.0	IP54
Double Pump Units				
Wilo-Sinum Pump DM	230 V ~1 N PE 50 Hz	0.86	0.18	IP44
Wilo-Sinum Pump D10	230 V ~1 N PE 50 Hz	8.8	1.5	IP54
Wilo-Sinum Pump D20	230 V ~1 N PE 50 Hz	14.4	2.2	IP54
Wilo-Sinum Pump D60	230 V ~1 N PE 50 Hz	14.8	2.2	IP54
Wilo-Sinum Pump D80	400 V ~3 N PE 50 Hz	6.8	3.0	IP54
Wilo-Sinum Pump D100	400 V ~3 N PE 50 Hz	9.5	4.4	IP54
Wilo-Sinum Pump D130	400 V ~3 N PE 50 Hz	12.8	6.0	IP54

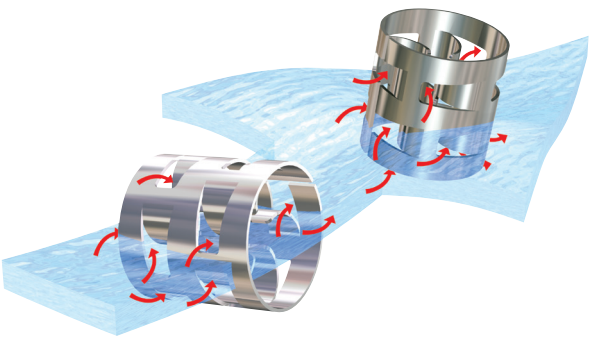
* Protection, Control unit SPCx-lw / hw: IP54.

How the Wilo-Sinum Works

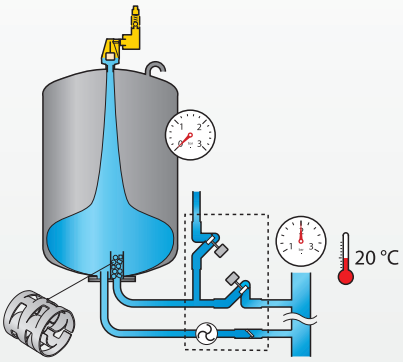
The Wilo-Sinum is a versatile expansion equipment with supreme technical performance. The de-aeration capacity is not dependent on the circulation speed or the pressure in the system. In systems with a large difference between summer and winter operation, we recommend using a double (load-dependent) pump unit.



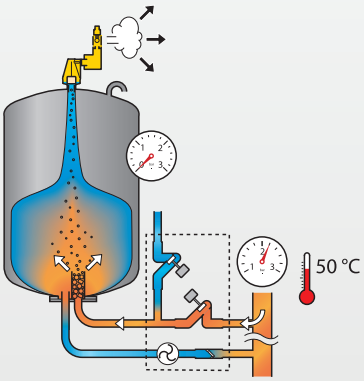
Active de-aeration
By using an integrated PALL ring box it is possible to de-aerate the installation continuously and completely.
The 'Turbo-vent' function significantly increases the de-aeration capacity.



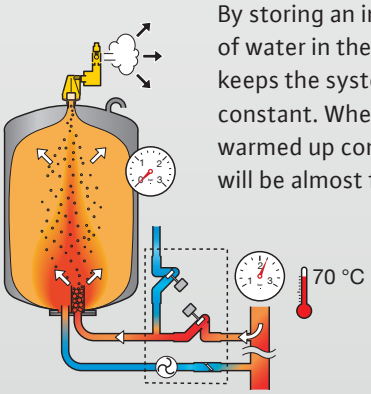
1. Cold
The automat contains a small amount of water. The automat is still at rest.



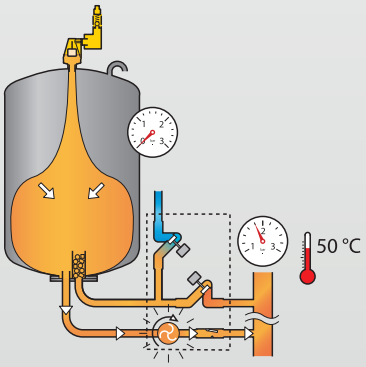
2. Warming up
The volume of water and the system pressure increases. The unit responds to this by opening the solenoid valve. Water flows into the pressureless vessel. The water in the vessel is de-aerated due to both the drop in pressure and the presence of the PALL rings.



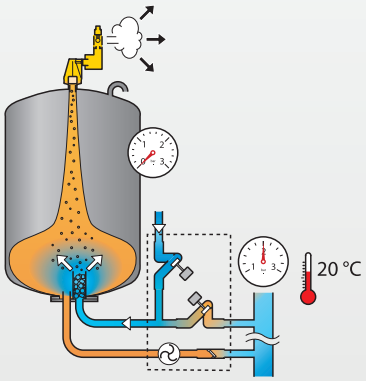
3. Full power
By storing an increasing amount of water in the tank, the automat keeps the system pressure almost constant. When the system has warmed up completely, the vessel will be almost full to capacity.



4. Cooling down
The volume of water and the system pressure decreases. The de-aerated water is pumped from the pressureless vessel back into the system. This restores the system pressure.



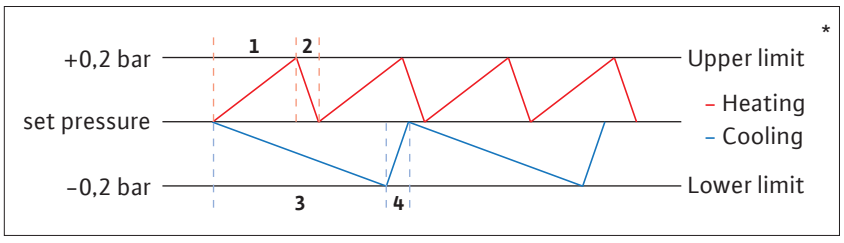
5. Topping-up
If the water level in the vessel drops to a critical level, an appropriate amount of water will be carefully pumped into the system from the water mains.
This water will be de-aerated (by pressure loss and the PALL rings), before entering the vessel.



Accurate Pressure Monitoring

→ **Temperature rises:**
Pressure rises and reaches the upper limit (**1**): The solenoid valve discharges water into the vessel => Pressure drops to the set pressure (**2**).

→ **Temperature drops:**
Pressure drops and reaches the lower limit (**3**): The pump sends the water back into the system => Pressure rises to the set pressure (**4**).



* Graph shows heating system.

Single Pump Unit

- → Maximum system pressure: 6, 10 and 16 bar.
- → Operating modes: single (mono) operation.
- → Suitable for addition of glycol-based anti-freeze up to 50 %.
- → Working temperature: 3 °C / 70 °C.
- → In accordance with Machinery Directive 2006/42/EC.
- → For the correct Wilo-Sinum pump selection, see ('Wilo-Sinum Pump Selection Graphs').

Technical data

Type	Connection to			For boiler output	Design pressure	Pump orientation	Working pressure	Dimensions L x W x H	Order Code
	Vessel	*System connection*	*Water supply*	*kW*	*PN*		*bar*	*mm*	
Wilo-Sinum Pump MM	G 1" M	G 1 ¼" F	Rp ½"	100 – 200	PN 6	hor.	1.2 – 3.0	506 x 227 x 922	2198856
Wilo-Sinum Pump M02	G 1" M	G 1 ¼" F	Rp ½"	500 – 2300	PN 10	hor.	1.2 – 3.5	540 x 227 x 922	2198858
Wilo-Sinum Pump M10	G 1" M	G 1 ¼" F	Rp ½"	900 – 4700	PN 10	hor.	2.0 – 5.0	513 x 227 x 922	2198859
Wilo-Sinum Pump M20	G 1" M	G 1 1¼" F	Rp ½"	1600 – 8400	PN 10	hor.	2.0 – 5.0	553 x 227 x 922	2198860
Wilo-Sinum Pump M60	G 1" M	G 1 ¼" F	Rp ½"	1400 – 4700	PN 10	vert.	3.5 – 8.5	561 x 227 x 922	2198861
Wilo-Sinum Pump M80	G 1" M	G 1 ¼" F	Rp ½"	1400 – 4900	PN 16	vert.	4.7 – 10.0	593 x 299 x 937	2198862
Wilo-Sinum Pump M100	G 1 ½" F	G 1 ½" F	Rp ½"	1300 – 5200	PN 16	vert.	5.9 – 14.1	540 x 605 x 1030	2198863
Wilo-Sinum Pump M130	G 1 ½" F	G 1 ½" F	Rp ½"	3300 – 5300	PN 16	vert.	8.0 – 14.4	540 x 605 x 1190	2198864

Double Pump Unit

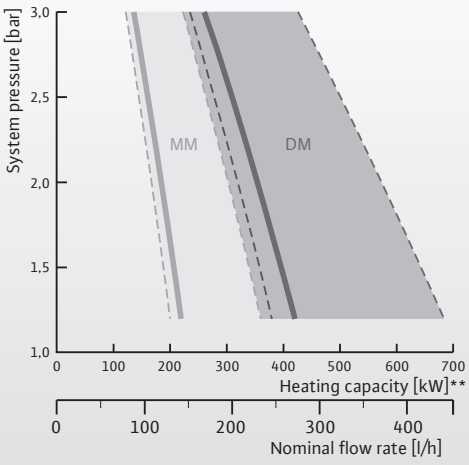
- → Maximum system pressure: 6, 10 and 16 bar.
- → Operating modes: automatic change-over or load dependent (duo) and combined operation.
- → Suitable for addition of glycol-based anti-freeze up ton 50 %.
- → Working temperature: 3 °C / 70 °C.
- → In accordance with Machinery Directive 2006/42/EC.
- → For the correct Wilo-Sinum pump selection, see ('Wilo-Sinum Pump Selection Graphs').

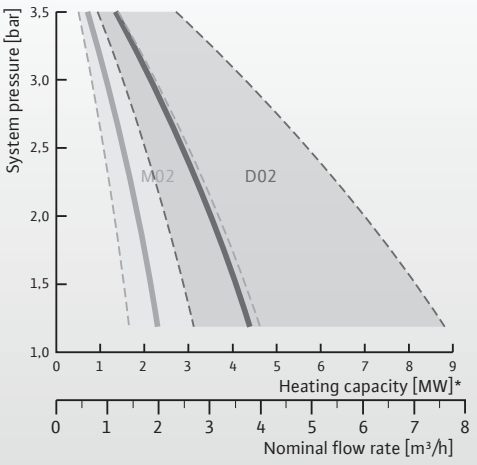
Technical data

Type	Connection to			For boiler output	Design pressure	Pump orientation	Working pressure	Dimensions L x W x H	Order Code
	Vessel	*System connection*	*Water supply*	*kW*	*PN*		*bar*	*mm*	
Wilo-Sinum Pump DM	G 1" M	G 1 ¼" F	Rp ½"	100 – 400	PN 6	hor.	1.2 – 3.0	506 x 267 x 942	2198865
Wilo-Sinum Pump D02	G 1" M	G 1 ¼" F	Rp ½"	500 – 4400	PN 10	hor.	1.2 – 3.5	603 x 452 x 974	2198867
Wilo-Sinum Pump D10	G 1" M	G 1 ¼" F	Rp ½"	900 – 9200	PN 10	hor.	2.0 – 5.0	583 x 452 x 974	2198868
Wilo-Sinum Pump D20	G 1" M	G 1 ¼" F	Rp ½"	1600 – 10000	PN 10	hor.	2.0 – 5.0	620 x 446 x 974	2198869
Wilo-Sinum Pump D60	G 1" M	G 1 ¼" F	Rp ½"	1400 – 9400	PN 10	vert.	3.5 – 8.5	594 x 444 x 974	2198870
Wilo-Sinum Pump D80	G 1" M	G 1 ¼" F	Rp ½"	1400 – 9400	PN 16	vert.	4.7 – 10.0	594 x 515 x 975	2198871
Wilo-Sinum Pump D100	G 1 ½" F	G 1 ½" F	Rp ½"	1300 – 10000	PN 16	vert.	5.9 – 14.1	930 x 530 x 1030	2198872
Wilo-Sinum Pump D130	G 1 ½" F	G 1 ½" F	Rp ½"	3300 – 10000	PN 16	vert.	8.0 – 14.4	930 x 530 x 1190	2198873

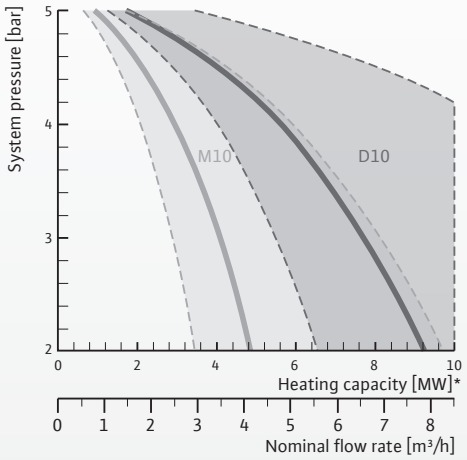
Wilo-Sinum Pump Selection Graphs

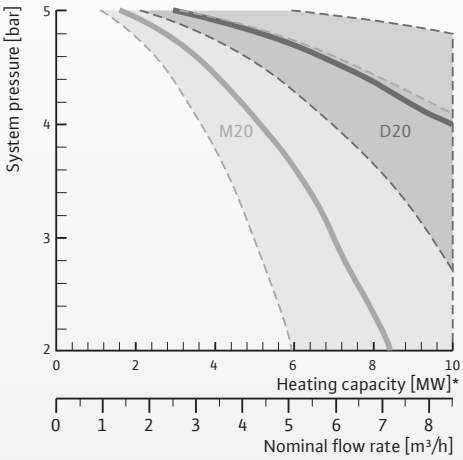
The Wilo calculation program for expansion automats determines the flow according to the exact contraction flow factor (VDI4708-2). Please contact your Wilo contact partner for a recommend pump selection.

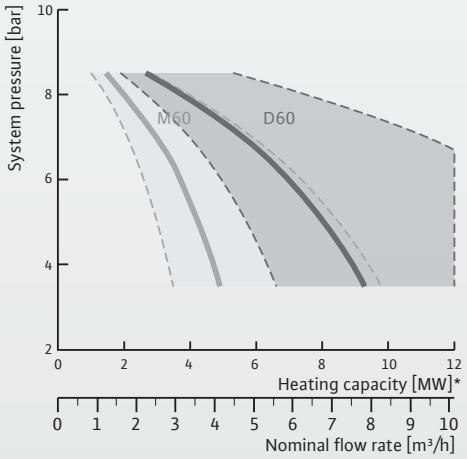


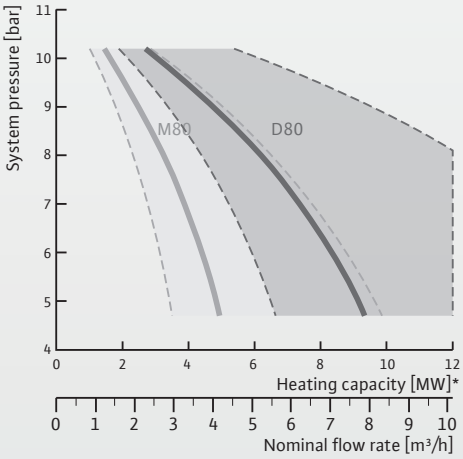


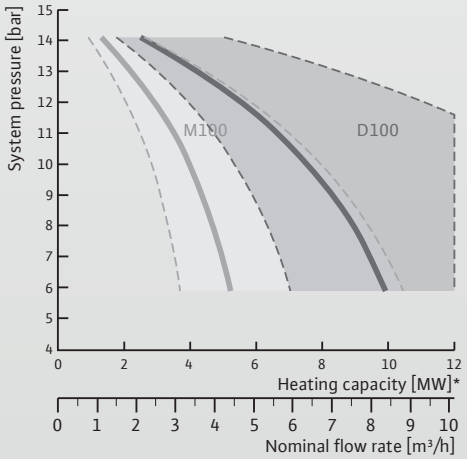
* based on 0.85 l/(kW*h)
** based on 0.65 l/(kW*h)

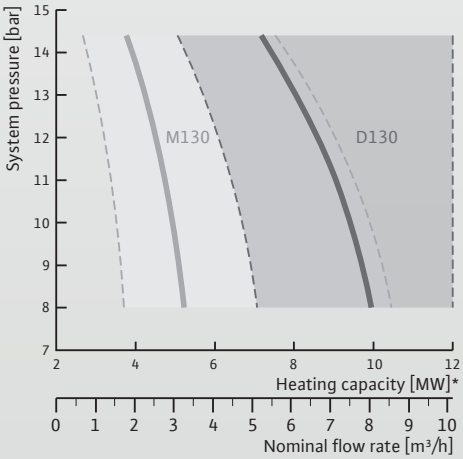












* based on 0.85 l/(kW*h)
** based on 0.65 l/(kW*h)

Pressureless Expansion Vessels

For sealed heating installations (acc. to EN12828) and chilled water (cooling) installations.

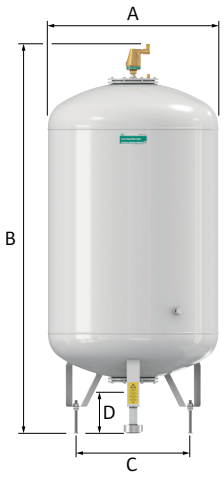
A multi function product which provides all the essential requirements for a sealed chilled or heated water system i.e. automatic expansion control, pressurisation, deaeration and make-up.

- → Expansion fluid is stored at atmospheric pressure in the bladder.
- → Unique pressure step degassing process, even when the system is in equilibrium, by combination of pressure drop and application of patented PALL ring technology.
- → Suitable for addition of glycol-based anti-freeze up to 50 %.
- → Suitable for systems with a maximum flow temperature of 120 °C.
- → Maximum temperature bladder: 70 °C.
- → Vessels 100 – 1,000 litres: in accordance with EN13831 / 1,200 – 10,000 litres: in accordance with AD2000.
- → In accordance with European Pressure Equipment Directive 2014/68/EU and Machinery Directive 2006/42/EC.
- → With replaceable butyl bladder.
- → Delivered with Wilo-Carus Super.
- → White epoxy powder coating.
- → Height adjustable feet and weight-capacity sensor (only for Wilo-Sinum MV).

Wilo-Sinum MV Main Vessels

Pressureless vessel without automat for the Wilo-Sinum pump units. The vessels are for the purpose of storage of expansion water at atmospheric pressure to avoid pressure surges in the system and reduce the switching frequency of the pumps/system.

The integrated weight-capacity sensor in the foot measures the weight and hence, the water level. Up to four vessels with the same sizes can be combined with just one pressure keeping system.

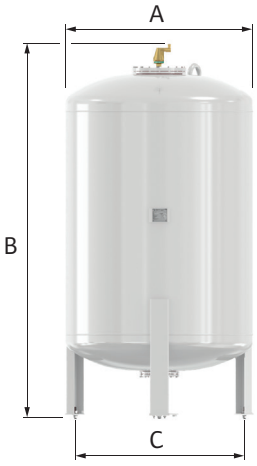


Technical data

Type	Connection	Capacity	Design pressure	Dimensions				Weight	Order Code
		l	*PN*	*A* *mm*	*B* *mm*	*C* *mm*	*D* *mm*	*kg*	
Wilo-Sinum MV 200	G 1 ½" M	200	PN 6	484	1560	360	150	31	2198874
Wilo-Sinum MV 300	G 1 ½" M	300	PN 6	600	1596	450	185	41	2198875
Wilo-Sinum MV 400	G 1 ½" M	400	PN 6	790	1437	610	185	62	2198876
Wilo-Sinum MV 500	G 1 ½" M	500	PN 6	790	1587	610	185	70	2198877
Wilo-Sinum MV 600	G 1 ½" M	600	PN 6	790	1737	610	185	77	2198878
Wilo-Sinum MV 800	G 1 ½" M	800	PN 6	790	2144	610	185	92	2198879
Wilo-Sinum MV 1000	G 1 ½" M	1000	PN 6	790	2493	610	185	106	2198880
Wilo-Sinum MV 1200	G 1 ½" M	1200	PN 3	1000	2210	1060	170	291	2198881
Wilo-Sinum MV 1600	G 1 ½" M	1600	PN 3	1000	2710	1060	170	346	2198882
Wilo-Sinum MV 2000	G 1 ½" M	2000	PN 3	1200	2440	1265	220	431	2198883
Wilo-Sinum MV 2800	G 1 ½" M	2800	PN 3	1200	3040	1265	225	516	2198884
Wilo-Sinum MV 3500	G 1 ½" M	3500	PN 3	1200	3840	1265	225	626	2198885
Wilo-Sinum MV 5000	G 1 ½" M	5000	PN 3	1500	3570	1570	225	1241	2198886
Wilo-Sinum MV 6500	G 1 ½" M	6500	PN 3	1800	3500	1885	225	1711	2198887
Wilo-Sinum MV 8000	G 1 ½" M	8000	PN 3	1900	3650	1985	225	1831	2198888
Wilo-Sinum MV 10000	G 1 ½" M	10000	PN 3	2000	4050	2085	225	2026	2198889

Wilo-Sinum AV Auxiliary Vessels

Pressureless auxiliary expansion vessels are designed as a back-up solution to increase the expansion capacity in combination with main expansion vessels in pressure keeping systems. The storage of expansion water at atmospheric pressure avoids pressure surges in the system and reduces the switching frequency of the pumps/system. Up to four vessels with the same sizes can be combined with just one pressure-maintaining system.



Technical data

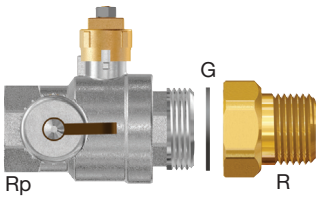
Type	Connection	Capacity	Design pressure	Dimensions			Weight	Order Code
		l	*PN*	*A* *mm*	*B* *mm*	*C* *mm*	*kg*	
Wilo-Sinum AV 200	G 1 ½" M	200	PN 6	484	1560	360	31	2198890
Wilo-Sinum AV 300	G 1 ½" M	300	PN 6	600	1596	450	41	2198891
Wilo-Sinum AV 400	G 1 ½" M	400	PN 6	790	1437	610	62	2198892
Wilo-Sinum AV 500	G 1 ½" M	500	PN 6	790	1587	610	70	2198893
Wilo-Sinum AV 600	G 1 ½" M	600	PN 6	790	1737	610	77	2198894
Wilo-Sinum AV 800	G 1 ½" M	800	PN 6	790	2144	610	92	2198895
Wilo-Sinum AV 1000	G 1 ½" M	1000	PN 6	790	2493	610	106	2198896
Wilo-Sinum AV 1200	G 1 ½" M	1200	PN 3	1000	2210	1060	290	2198897
Wilo-Sinum AV 1600	G 1 ½" M	1600	PN 3	1000	2710	1060	345	2198898
Wilo-Sinum AV 2000	G 1 ½" M	2000	PN 3	1200	2440	1265	430	2198899
Wilo-Sinum AV 2800	G 1 ½" M	2800	PN 3	1200	3040	1265	515	2198900
Wilo-Sinum AV 3500	G 1 ½" M	3500	PN 3	1200	3840	1265	625	2198901
Wilo-Sinum AV 5000	G 1 ½" M	5000	PN 3	1500	3570	1570	1240	2198902
Wilo-Sinum AV 6500	G 1 ½" M	6500	PN 3	1800	3500	1885	1710	2198903
Wilo-Sinum AV 8000	G 1 ½" M	8000	PN 3	1900	3650	1985	1830	2198904
Wilo-Sinum AV 10000	G 1 ½" M	10000	PN 3	2000	4050	2085	2025	2198905

Accessories

Wilo-Sinum Ball Valve

Ball valve with drain connection for expansion automats and auxiliary vessels. The valve is for draining with or without an additional adapter.

→ PN 16.
→ Max. fluid temperature 120 °C.



Technical data

Type	Connection			Drain connection	Application		Order Code
	Rp	*G*	*R*		*Wilo-Pump unit*	*Wilo-Vessel*	
Wilo-Sinum Bvalve 1 ¼" + adapter	1 ¼"	1 ½"	1 ¼"	G ¾"	–	Sinum AV	2198906
Wilo-Sinum Bvalve 1"	1"	1 ¼"	–	G ¾"	MM – M80 (G3) DM – D80 (G3)	Sinum MV	2198907
Wilo-Sinum Bvalve 1 ¼"	1 ¼"	1 ½"	–	G ¾"	M100 – M130 D100 – D130	Sinum AV	2198908

Wilo-Sinum Flexible Connections

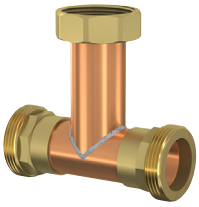
For connecting the Wilo-Sinum main or auxiliary vessel to the pump unit, face sealed female, with ball valve and drainage valve.

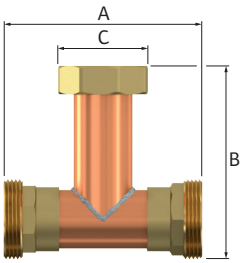
Technical data

Type	Connection		Suitable for		Length	Weight	Order Code
	Vessel	*Pump unit*	*Wilo-Pump unit*	*Vessel sizes l*	*mm*	*kg*	
Wilo-Sinum FC 1G3 200–1600	G 1 ½" F	G 1" F	MM – M80, DM – D80	100 – 1600	940	1.4	2198909
Wilo-Sinum FC 2G3 2000–5000	G 1 ½" F	G 1" F	MM – M80, DM – D80	2000 – 5000	1240	1.5	2198910
Wilo-Sinum FC 3G3 6500–10000	G 1 ½" F	G 1" F	MM – M80, DM – D80	6500 – 10000	1440	1.6	2198911
Wilo-Sinum FC 4 200–1000	G 1 ½" F	G 1 ½" M	M100 – M130, D100 – D130	200 – 1000	500	5.0	2198912
Wilo-Sinum FC 5 1200–5000	G 1 ½" F	G 1 ½" M	M100 – M130, D100 – D130	1200 – 5000	750	5.5	2198913
Wilo-Sinum FC 6 6500–10000	G 1 ½" F	G 1 ½" M	M100 – M130, D100 – D130	6500 – 10000	1000	6.5	2198914

Wilo-Sinum T-Piece

T-piece PN 10 for an easy installation of a Wilo-Sinum AV auxiliary vessel. Use the pump connection from the main vessel for installing an auxiliary vessel with the T-piece.





Technical data

Type	Dimensions			Weight	Order Code
	A *mm*	*B* *mm*	*C* *mm*	*kg*	
Wilo-Sinum T-Piece G 1 ½"	120	105	52	0.6	2198917

Wilo-Sinum Backflow Preventer

Backflow preventer suitable for pump controlled pressurisation units for heating and chilled water (cooling) installations.

→ Including strainer and shut-off valves.
→ Maximum working pressure: 10 bar.
→ Maximum working temperature: 65 °C.

Technical data

Type	Connection	Vessel capacity	K_{VS}	Weight	Order Code
		l	*m^3/h*	*kg*	
Wilo-Sinum Backflow Preventer	Rp ½" – R ½"	> 3500	3.5	0.6	2198918

Optional Control Units

Wilo-Sinum Easycontact 1.0

Remote volt free failure contacts for pressure, level and thermal motor protection.

Technical data			
Type	**For Control unit**	**For automat**	**Order Code**
Wilo-Sinum Easycontact 1.0	SPC	Wilo-Sinum	2198919

Wilo-Sinum Diaphragm Rupture Sensor

Diaphragm rupture sensor for remote monitoring of expansion automats with single or double pumps.
→ Can be integrated at a later date.

Technical data			
Type	**For Control unit**	**For automat**	**Order Code**
Wilo-Sinum Diaphragm Rupture Sensor	SPC	Wilo-Sinum	2198920

Wilo-Sinum Analogue Signalling Module

For analogue signalling (0–10 V) of vessel volume (0–100 %) and system pressure (0–16 bar).

→ Internal.
→ Build-in afterwards is possible.
→ Setting up data processing and visualisation is the responsibility of the installer.

Technical data

Type	For Control unit	For automat	Order Code
Wilo-Sinum Module 33	SPC	Wilo-Sinum	2198921

Wilo-Sinum SD Card Module

External SD card module used for:
→ Saving of SPC parameter files.
→ Downloading of files via SD Card to PC.
→ Transmission of the files to Service Centre.
→ Firmware updates by the service support.

Technical data

Type	For Control unit	For automat	Order Code
Wilo-Sinum SD Card Module	SPC	Wilo-Sinum	2198922

Wilo-Sinum Extension Modules

Connection module for communication between two controls.

→ For SPC control.
→ Makes linked operating options possible (configuration and commissioning by Wilo Service only).

Technical data

Type	For Control unit	For automat	Order Code
Wilo-Sinum Master / Slave	SPC	Wilo-Sinum	2198923
Wilo-Sinum Slave	SPC	Wilo-Sinum	2198924

Venting Range and Air/Dirt Separators

Systems in which the water is properly de-aerated and free of contamination are more efficient, produce less noise and have a longer service life. Our products use proven and innovative technology to remove air and solid particles from the water, i.e. using coalescence and flow velocity reduction.

Regardless of whether in a domestic environment or commercial installations with large heating or cooling systems, Wilo's range of automatic air vents and air/dirt separators provide the most efficient solution.

Automatic Air Venting Units

The compact, proven design has high efficiency and guaranteed operation for heating and air conditioning.

The water within the installation contains air which can form corrosion and reduce the thermal transfer. A Wilo-Carus is fitted at places where the air collects.

Wilo-Carus float vents are made of brass. Most types are equipped with a shut-off valve for easy fitting and dismantling.

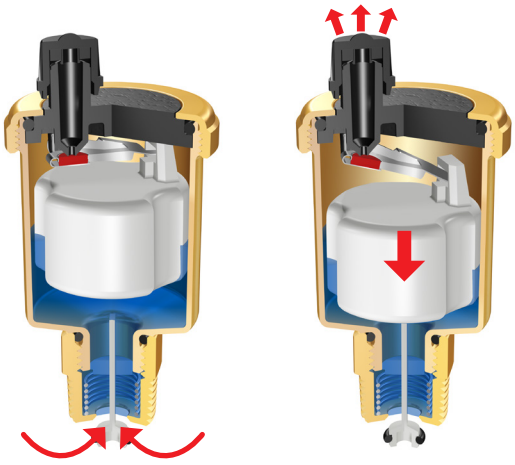
A Wilo-Carus float vent is easy to fit in any installation due to its very small dimensions. The relatively large air cushion at the top of each type of Wilo-Carus float vent protects the valve seat sufficiently against contamination so that the Wilo-Carus will not leak.

To guarantee top quality, we test all Wilo-Carus before they leave our factory.

How the Wilo-Carus works

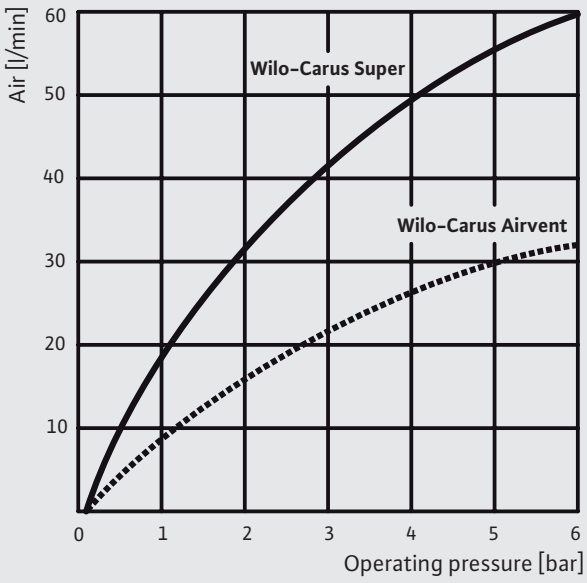
Float operated, the air is collected in the Wilo-Carus causing the float to drop and open the air release valve. The water pressure then pushes the air out, the float rises and closes the valve.

The air cushion in the upper part of each Wilo-Carus protects the valve seat against contamination.



Wilo-Carus capacity graph

The amount of air that is allowed to escape through the Wilo-Carus float vent depends on the system pressure. The graph shows the relationship between the amount of air in litres/min at 15 °C and the system pressure.
The graph shows the free air bubbles that the carus series can remove depending on system pressure.



Wilo-Carus Airvent

- With protective cap including expansion sealer rings to prevent leaks.
- Substantial distance between the water and the closing mechanism, reducing the chance of contamination.

- Suitable for addition of glycol-based anti-freeze up to 50 %.
- Minimum/maximum working temperature: -10 °C / 90 °C (peak load: 120 °C).
- Minimum/maximum working pressure: 0.2 / 6.0 bar (peak load: 10.0 bar).
- With automatic shut-off valve.

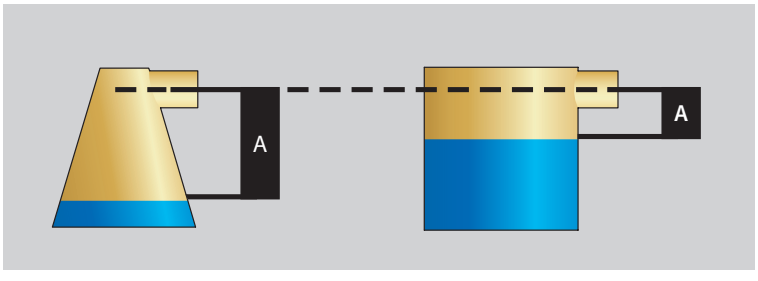
Technical data

Type	Connection	Dimensions		Order Code
		Ø mm	Height mm	
Wilo-Carus Airvent R ⅜" M	R ⅜"	30	73	2198933
Wilo-Carus Airvent R ½" M	R ½"	30	73	2198934

Wilo-Carus Super

- The cap of the Wilo-Carus Super is conical in shape. The advantage of this construction is that the clearance between the water level and venting valve is maximized.
- The air escape duct can be opened or closed with an adjusting screw.
- The venting valve forms an integral part of the cap, so that it is impossible to damage the float vent mechanism from outside.

- Suitable for addition of glycol-based anti-freeze up to 50 %.
- Minimum/maximum working temperature: -10 °C / 120 °C.
- Minimum/maximum working pressure: 0.2 / 10.0 bar.



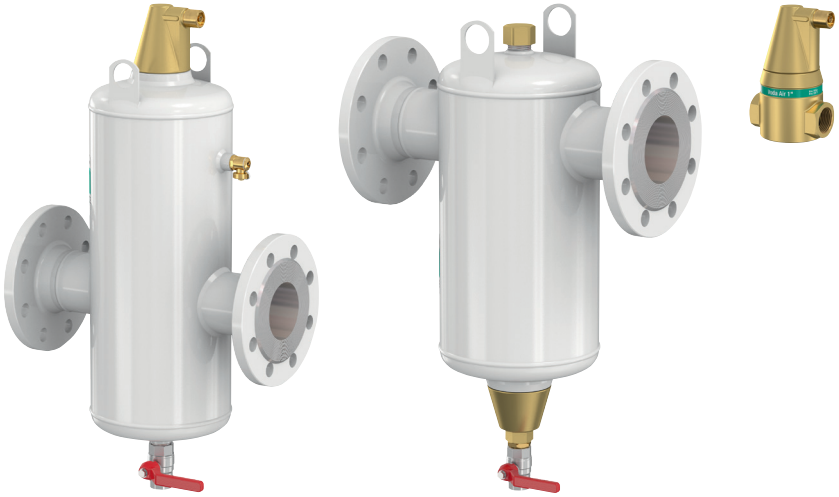
Technical data

Type	Connection	Dimensions		Shut-off valve	Order Code
		Ø mm	Height mm		
Wilo-Carus Super ½"	G ½" F	73	119	no	2198935

Separators

Air and dirt separator for domestic and commercial installations
Regardless of whether in a domestic environment or commercial installations with large heating or cooling systems, Wilo´s range of automatic air vents and air and dirt separators provide the most efficient solution. Our products are suitable for both heating and cooling systems.

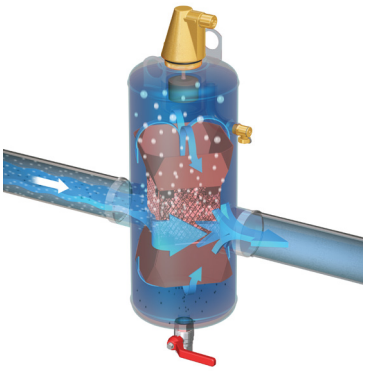
- → Increases comfort and yield.
- → Prevents deposit of dirt particles in the boiler.
- → The removal of air and dirt from the system water extends the service life of pumps, control equipment and other system accessories.



Dual Zone Flow Diversion Technology for Separators (from DN50 onwards) – Three Technologies in One

The patent Dual Zone Flow Diversion unites all existing technologies to separate air particles and dirt from system water: coalescence, lowering of the flow speed and pressure drop. Under the influence of coalescence, micro-bubbles attach themselves to metal and other surfaces; lowering the flow speed of system water allows air-bubbles to rise and a drop in pressure releases gases dissolved in fluid.

The combination of these three technologies combined with optimum system flow guarantees the best possible result.



Wilo-Voda – How it works

The separation element combined with the return flow ensures excellent air and dirt separation and at the same time saves energy because of the negligible flow resistance. An exceptional rate of at least 40 % of the air and dirt is separated per cycle while using only 10 % extraction of the main flow.
Inside the chamber of the separator the water velocity is heavily reduced down to less than 1 % of the main flow. This efficiently separates microbubbles by allowing the air particles to automatically rise to the air release valve at the top and allows the dirt particles to sink to the bottom to the dirt collector.
A supermagnet additionally contributes in trapping ferrous particles.

Double thrust function

Two thrust functions ensure efficient deaeration of the system water

A: The first function is achieved by the separating element in the path of the main flow through the unit, diverting contaminated water into the entrapment chamber.

B: The second effect is achieved by bringing back the clean return flow of water in the centre, upstream of the separating element. This forces the air and dirt particles present in the main flow outwards and into the chambers of the separator to be removed.

Air Separators

For total elimination of air from heating and cooling installations.
Air separators increase comfort and improve the yield. Air separators also offer benefits in the event of application in old systems or when an open system is converted to a closed system.

- → Increases comfort and yield.
- → The removal of air from the system water extends the service life of pumps, control equipment and other system accessories.

Wilo-Voda Air 22 mm – 2"

Air separators for horizontal installations.
The Wilo-Voda Air separators remove even the smallest microbubbles from the system water. They are virtually maintenance-free and the flow resistance is negligibly low.

- → Removes not only the smallest air bubbles, but even the air which has been absorbed into the water. Even microbubbles from 15 - 20 µm!
- → The removal of air from the system water extends the service life of pumps, control equipment and other system accessories.
- → With PALL ring technology. Even the smallest micro-bubbles adhere to the PALL rings, separating them from the system water.
- → The air chamber is conical, so the greatest possible distance can be maintained between the water level and the vent valve.
- → The vent valve with regulating screw can be shut off.
- → Consistent performance throghout its service life.
- → Minimum/maximum working temperature: -10 °C / 120 °C.
- → Maximum working pressure: 10 bar.
- → Suitable for addition of glycol-based anti-freeze up to 50 %.
- → Maximum flow velocity: 1.5 m/s.

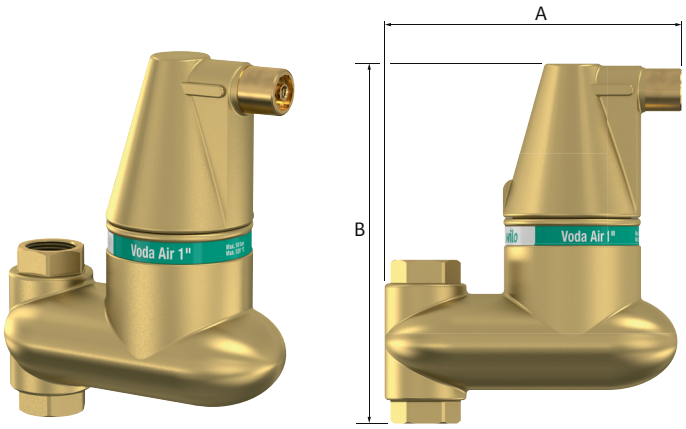
Technical data

Type	Connection	Dimensions		Weight	Order Code
		A *mm*	*B* *mm*	*kg*	
Wilo-Voda Air 22 mm	22 mm	98	151	1.4	2198831
Wilo-Voda Air ¾"	Rp ¾"	88	151	1.3	2198832
Wilo-Voda Air 1"	Rp 1"	100	171	1.6	2198833
Wilo-Voda Air 1 ¼"	Rp 1 ¼"	114	192	2.1	2198834
Wilo-Voda Air 1 ½"	Rp 1 ½"	114	192	2.1	2198835
Wilo-Voda Air 2"	Rp 2"	131	213	2.5	2198836

Wilo-Voda Air 22 mm – 1 ¼" V

Air separators for vertical installations. The Wilo-Voda Air separators remove even the smallest microbubbles from the system water. They are virtually maintenance-free and the flow resistance is negligibly low.

- → Removes not only the smallest air bubbles, but even the air which has been absorbed into the water. Even microbubbles from 15 – 20 µm!
- → The removal of air from the system water extends the service life of pumps, control equipment and other system accessories.
- → With PALL ring technology. Even the smallest micro-bubbles adhere to the PALL rings, separating them from the system water.
- → The air chamber is conical, so the greatest possible distance can be maintained between the water level and the vent valve.
- → The vent valve with regulating screw can be shut off.
- → Consistent performance throghout its service life.
- → Minimum/maximum working temperature: -10 °C / 120 °C.
- → Maximum working pressure: 10 bar.
- → Suitable for addition of glycol-based anti-freeze up to 50 %.
- → Maximum flow velocity: 1.5 m/s.



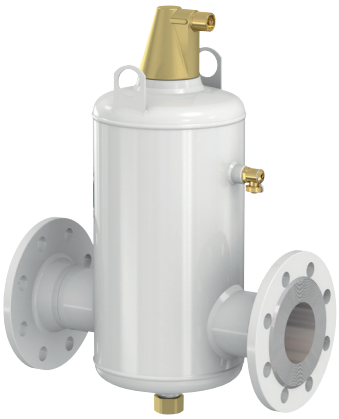
Technical data

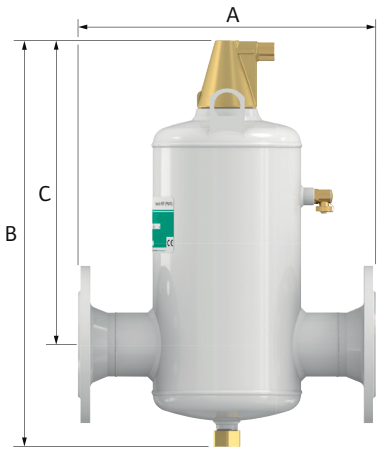
Type	Connection	Dimensions		Weight	Order Code
		A *mm*	*B* *mm*	*kg*	
Wilo-Voda Air 22 mm V	22 mm	98	189	1.9	2198837
Wilo-Voda Air ¾" V	Rp ¾"	88	182	1.9	2198838
Wilo-Voda Air 1" V	Rp 1"	100	204	2.9	2198839
Wilo-Voda Air 1 ¼" V	Rp 1 ¼"	114	204	2.8	2198840

Wilo-Voda Air 50-200F (PN10)

Air separator constructed in steel with Dual Zone Flow Diversion technology.
For total elimination of air from heating and cooling installations. Air separators also offer benefits in the event of application in old systems or when an open system is converted to a closed system.

- → Increases comfort and yield.
- → The removal of air from the system water extends the service life of pumps, control equipment and other system accessories.
- → With flanged connection according to EN 1092-1 PN16.
- → Maximum working pressure: 10 bar.
- → Suitable for systems with a maximum flow temperature of 120 °C.
- → Maximum flow velocity: 1.5 m/s.
- → Suitable for addition of glycol-based anti-freeze up to 50 %.
- → In accordance with Pressure Equipment Directive 2014/68/EU.





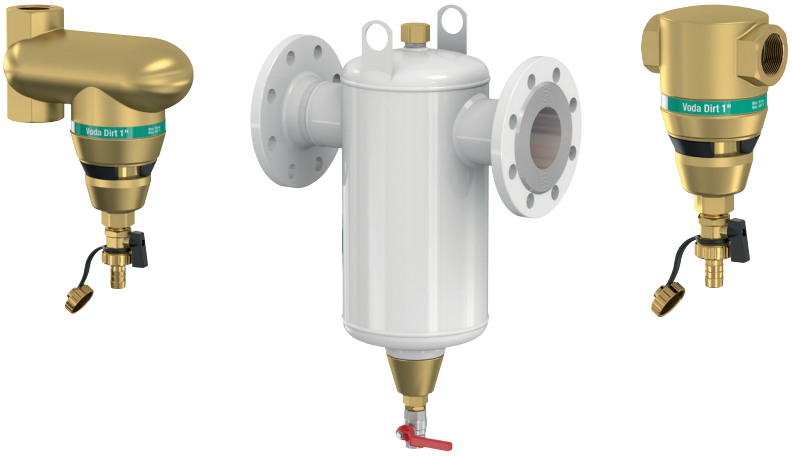
Technical data

Type	Connection	Capacity	Dimensions			Weight	Order Code
		l	*A* *mm*	*B* *mm*	*C* *mm*	*kg*	
Wilo-Voda Air 50F (PN10)	DN 50	8	350	470	338	13.1	2198808
Wilo-Voda Air 65F (PN10)	DN 65	8	350	470	338	14.1	2198809
Wilo-Voda Air 80F (PN10)	DN 80	25	470	621	435	22.4	2198810
Wilo-Voda Air 100F (PN10)	DN 100	25	470	621	435	24.8	2198811
Wilo-Voda Air 125F (PN10)	DN 125	59	635	790	515	45.6	2198812
Wilo-Voda Air 150F (PN10)	DN 150	60	635	790	510	50.0	2198813
Wilo-Voda Air 200F (PN10)	DN 200	123	774	970	670	79.5	2198814

Dirt Separators

For use in sealed heating and cooling systems. Dirt separators protect the boilers, pumps and fittings from damage caused by the deposit of dirt particles. Dirt separators also offer benefits in the event of application in old systems or when an open system is converted to a closed system.

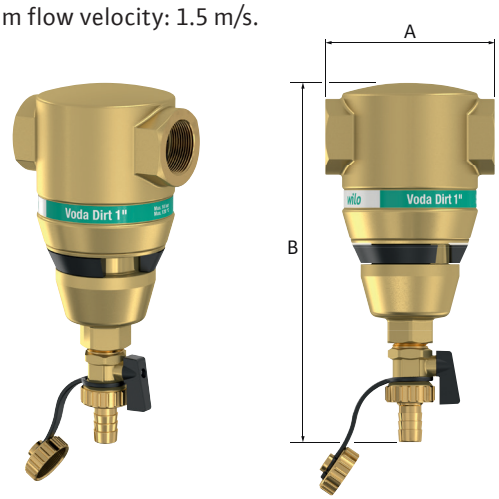
- → Prevents deposit of dirt particles in the boiler.
- → The removal of dirt particles from the system water extends the service life of pumps, control equipment and other system accessories.



Wilo-Voda Dirt 22 mm – 2"

Dirt separators for horizontal installations. The Wilo-Voda Dirt separators remove even minuscule dirt particles from the system water. They are virtually maintenance-free and the flow resistance is negligibly low.

- → Prevents deposit of dirt particles in the boiler.
- → The removal of dirt particles from the system water extends the service life of pumps, control equipment and other system accessories.
- → With PALL ring technology.
- → Compact dimensions, light weight.
- → Integrated drain valve and magnets.
- → Consistent performance throghout its service life.
- → Minimum/maximum working temperature: -10 °C / 120 °C.
- → Maximum working pressure: 10 bar.
- → Suitable for addition of glycol-based anti-freeze up to 50 %.
- → Maximum flow velocity: 1.5 m/s.



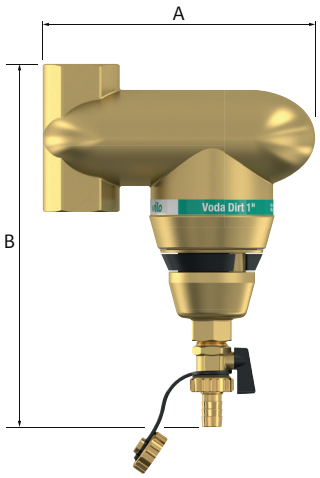
Technical data

Type	Connection	Dimensions		Weight	Order Code
		A *mm*	*B* *mm*	*kg*	
Wilo-Voda Dirt 22 mm	22 mm	118	196	1.3	2198841
Wilo-Voda Dirt ¾"	Rp ¾"	118	196	1.2	2198842
Wilo-Voda Dirt 1"	Rp 1“	100	216	1.5	2198843
Wilo-Voda Dirt 1 ¼"	Rp 1 ¼"	114	237	2.0	2198844
Wilo-Voda Dirt 1 ½"	Rp 1 ½"	114	237	2.1	2198845
Wilo-Voda Dirt 2"	Rp 2"	131	255	2.5	2198846

Wilo-Voda Dirt 22 mm – 1 ¼" V

Dirt separators for vertical installations. The Wilo-Voda Dirt separators remove even minuscule dirt particles from the system water. They are virtually maintenance-free and the flow resistance is negligibly low.

- → Prevents deposit of dirt particles in the boiler.
- → The removal of dirt particles from the system water extends the service life of pumps, control equipment and other system accessories.
- → With PALL ring technology.
- → Compact dimensions, light weight.
- → Integrated drain valve and magnets.
- → Consistent performance throghout its service life.
- → Minimum/maximum working temperature: -10 °C / 120 °C.
- → Maximum working pressure: 10 bar.
- → Suitable for addition of glycol-based anti-freeze up to 50 %.
- → Maximum flow velocity: 1.5 m/s.



Technical data

Type	Connection	Dimensions		Weight	Order Code
		A *mm*	*B* *mm*	*kg*	
Wilo-Voda Dirt 22 mm V	22 mm	158	230	1.9	2198847
Wilo-Voda Dirt ¾" V	Rp ¾"	158	223	1.9	2198848
Wilo-Voda Dirt 1" V	Rp 1"	184	247	2.1	2198849
Wilo-Voda Dirt 1 ¼" V	Rp 1 ¼"	184	247	2.8	2198850

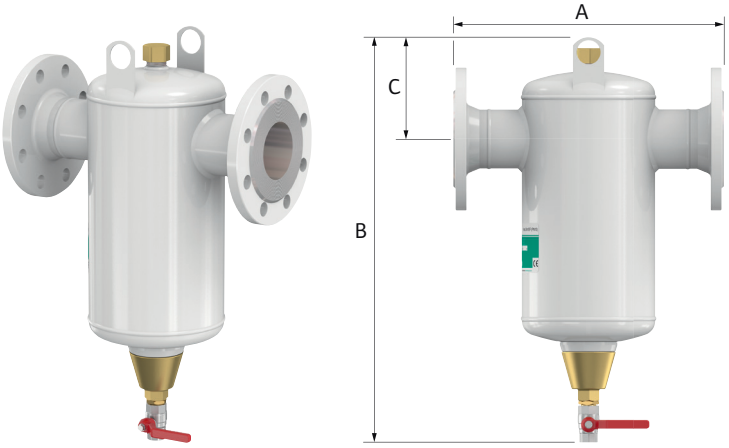
Wilo-Voda Dirt 50-200F (PN10)

Optimum dirt separation combined with energy efficiency.

Dirt separators protect the boilers, pumps and fittings from damage caused by the deposit of dirt particles. Dirt separators also offer benefits in the event of application in old systems or when an open system is converted to a closed system.

Dirt separator constructed in steel with Dual Zone Flow Diversion technology.

- → Prevents deposit of dirt particles in the boiler.
- → The removal of dirt particles from the system water extends the service life of pumps, control equipment and other system accessories.
- → With flanged connection according to EN 1092-1 PN16.
- → Integrated dirt scraper.
- → Constant performance during the entire lifespan.
- → Low maintenance.
- → Maximum working pressure: 10 bar.
- → Suitable for systems with a maximum flow temperature of 120 °C.
- → Maximum flow velocity: 1.5 m/s.
- → Suitable for addition of glycol-based anti-freeze up to 50 %.
- → In accordance with Pressure Equipment Directive 2014/68/EU.



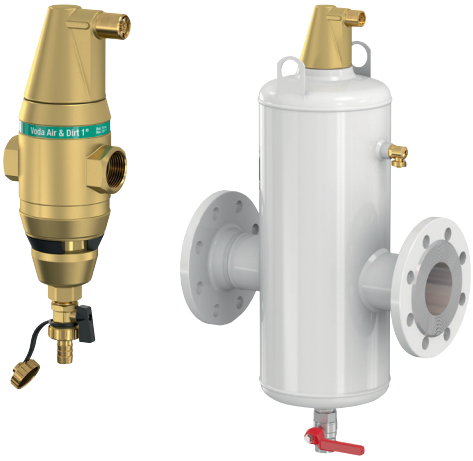
Technical data

Type	Connection	Capacity	Dimensions			Weight	Order Code
		l	*A* *mm*	*B* *mm*	*C* *mm*	*kg*	
Wilo-Voda Dirt 50F (PN10)	DN 50	8	350	517	135	13.1	2198815
Wilo-Voda Dirt 65F (PN10)	DN 65	8	350	517	135	14.1	2198816
Wilo-Voda Dirt 80F (PN10)	DN 80	25	470	651	180	22.4	2198817
Wilo-Voda Dirt 100F (PN10)	DN 100	25	470	651	180	24.8	2198818
Wilo-Voda Dirt 125F (PN10)	DN 125	59	635	780	225	45.6	2198819
Wilo-Voda Dirt 150F (PN10)	DN 150	60	635	780	230	50	2198820
Wilo-Voda Dirt 200F (PN10)	DN 200	123	774	1013	300	79.5	2198821

Combined Air/Dirt Separators

For use in sealed heating and cooling systems. Air and dirt separators protect the boilers, pumps and fittings from damage caused by the deposit of dirt particles, increase comfort and improve the yield. Air and dirt separators also offer benefits in the event of application in old systems or when an open system is converted to a closed system.

- → Increases comfort and yield.
- → Prevents deposit of dirt particles in the boiler.
- → The removal of air and dirt from the system water extends the service life of pumps, control equipment and other system accessories.

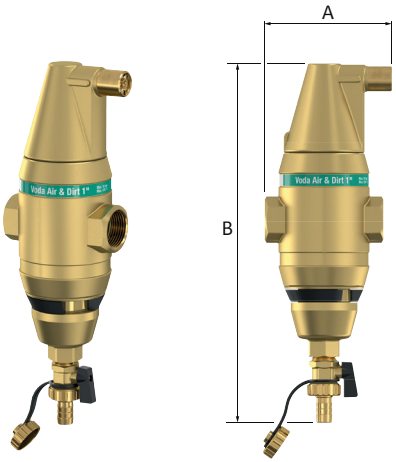


Wilo-Voda Air/Dirt 22 mm – 1 ½"

Air and Dirt separators for vertical installations. The Wilo-Voda Air & Dirt separators remove even the smallest microbubbles and minuscule dirt particles from the system water. They are virtually maintenance-free and the flow resistance is negligibly low.

- → Large distance between the water level and the venting valve through a conical air chamber.
- → The bleed valve can be closed with the shut-off valve.
- → Solid brass housing.
- → With PALL ring technology and magnets.
- → Compact dimensions, light weight.
- → Consistent performance throghout its service life.

- → Maximum working pressure: 10 bar.
- → Minimum/maximum working temperature: -10 °C / 120 °C.
- → Suitable for addition of glycol-based anti-freeze up to 50 %.
- → Maximum flow velocity: 1.5 m/s.



Technical data

Type	Connection	Dimensions		Weight	Order Code
		A *mm*	*B* *mm*	*kg*	
Wilo-Voda Air/Dirt 22 mm	22 mm	115	283	2	2198851
Wilo-Voda Air/Dirt ¾"	Rp ¾"	350	517	1.9	2198852
Wilo-Voda Air/Dirt 1"	Rp 1"	470	651	2.4	2198853
Wilo-Voda Air/Dirt 1 ¼"	Rp 1 ¼"	470	651	2.8	2198854
Wilo-Voda Air/Dirt 1 ½"	Rp 1 ½"	635	780	2.7	2198855

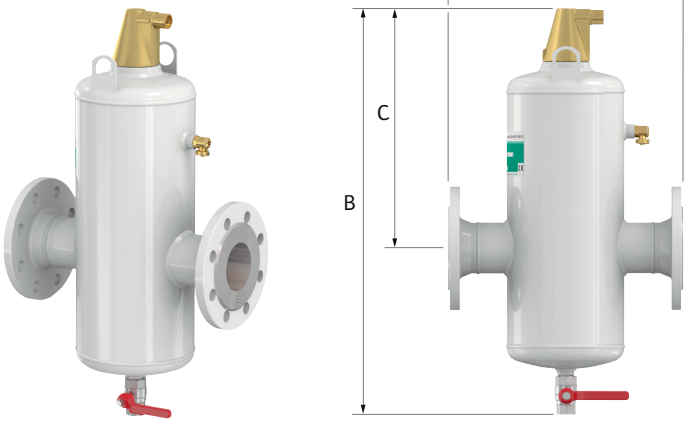
Wilo-Voda Air/Dirt 50-200F (PN10)

Optimum air and dirt separation combined with energy efficiency.

Air and dirt separators protect the boilers, pumps and fittings from damage caused by the deposit of dirt particles, increase comfort and improve the yield. Air and dirt separators also offer benefits in the event of application in old systems or when an open system is converted to a closed system.

Separator constructed in steel with Dual Zone Flow Diversion technology.

- → Prevents deposit of dirt particles in the boiler.
- → The removal of dirt particles from the system water extends the service life of pumps, control equipment and other system accessories.
- → With flanged connection according to EN 1092-1 PN16.
- → Constant performance during the entire lifespan.
- → Low maintenance.
- → Maximum working pressure: 10 bar.
- → Suitable for systems with a maximum flow temperature of 120 °C.
- → Maximum flow velocity: 1.5 m/s.
- → Suitable for addition of glycol-based anti-freeze up to 50 %.
- → In accordance with Pressure Equipment Directive 2014/68/EU.



Technical data

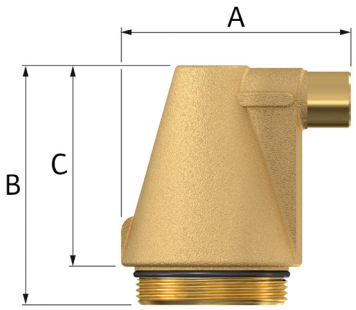
Type	Connection	Capacity	Dimensions			Weight	Order Code
		l	*A* *mm*	*B* *mm*	*C* *mm*	*kg*	
Wilo-Voda Air/Dirt 50F (PN10)	DN 50	10	350	560	333	15.0	2198822
Wilo-Voda Air/Dirt 65F (PN10)	DN 65	10	350	560	333	15.0	2198823
Wilo-Voda Air/Dirt 80F (PN10)	DN 80	33	470	756	435	26.0	2198824
Wilo-Voda Air/Dirt 100F (PN10)	DN100	33	470	756	435	28.5	2198825
Wilo-Voda Air/Dirt 125F (PN10)	DN 125	78	635	970	515	52.0	2198826
Wilo-Voda Air/Dirt 150F (PN10)	DN 150	78	635	970	515	56.0	2198827
Wilo-Voda Air/Dirt 200F (PN10)	DN 200	158	774	1193	705	89.0	2198828

Spare Parts for Air Venting Units

Wilo-Spare Part Airvent S

Cone-shaped air chamber equipped with a long float to create more distance to the vent valve.
This reduces the risk of contamination of the valve seat to a minimum.

→ Maximum system working pressure: 25 bar.
→ Maximum working pressure: 10 bar.



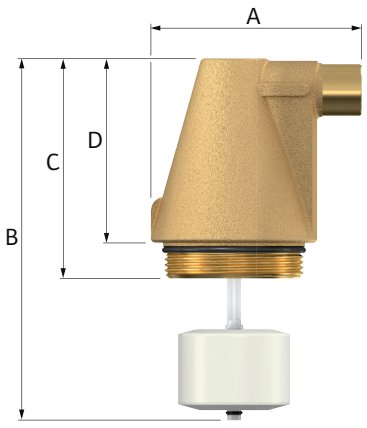
Technical data

Type	Used for Wilo Separators	Dimensions			Order Code
		A *mm*	*B* *mm*	*C* *mm*	
Wilo-Spare Part Airvent S	Voda Air 22 mm – 2" Voda Air/Dirt 22 mm – 2"	90	94	79	2198830

Wilo-Spare Part Airvent L

Cone-shaped air chamber equipped with a long float to create more distance to the vent valve.
This reduces the risk of contamination of the valve seat to a minimum.

→ Maximum system working pressure: 25 bar.
→ Maximum working pressure: 10 bar.



Technical data

Type	Used for Wilo Separators	Dimensions				Order Code
		A *mm*	*B* *mm*	*C* *mm*	*D* *mm*	
Wilo-Spare Part Airvent L	Voda Air 50F – 200F (PN10) Voda Air/Dirt 50F – 200F (PN10)	90	155	94	79	2198829

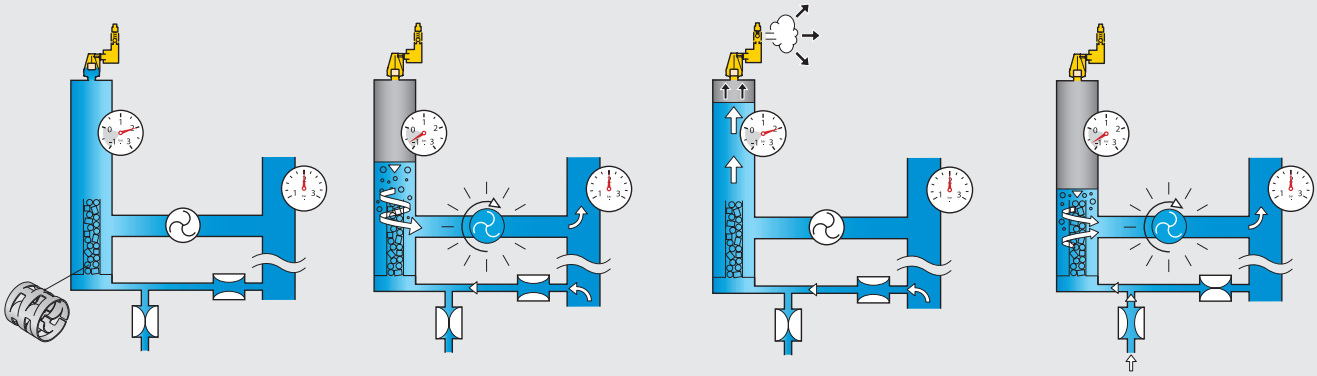
Degassing and Top-up Automats

For active degassing and automatic topping up of closed heating and cooling systems. The Wilo-Tagus vac is a pressure step degasser that makes use of vacuum for highly efficient degassing of closed systems. Moreover, the Wilo-Tagus vac ensures automatic topping-up of the system after the top-up water has been degassed.

Can be easily used in combination with a Wilo-Sinum pressure expansion automat.

- → Active degassing by patented PALL ring technology.
- → The menu of the control unit is available in 18 languages.
- → Easy to use.
- → Fully assembled and ready to connect.
- → Compact and robust design.
- → Controller can be programmed.

How the Wilo-Tagus vac works



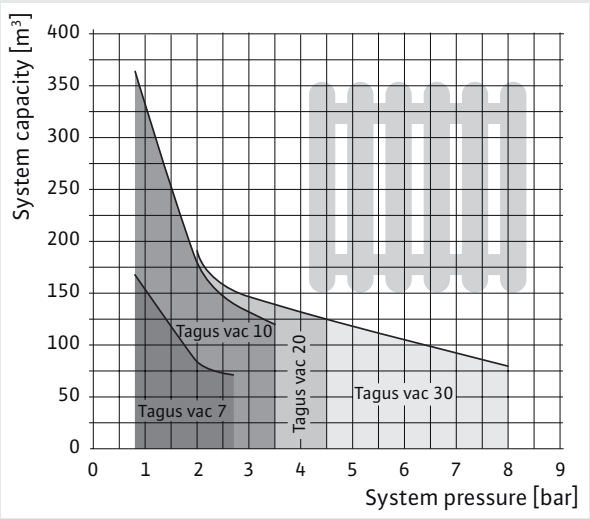
1. Not active
When the Wilo-Tagus vac is inactive, the stainless steel column is filled with water and the pressure is equal to the system pressure.

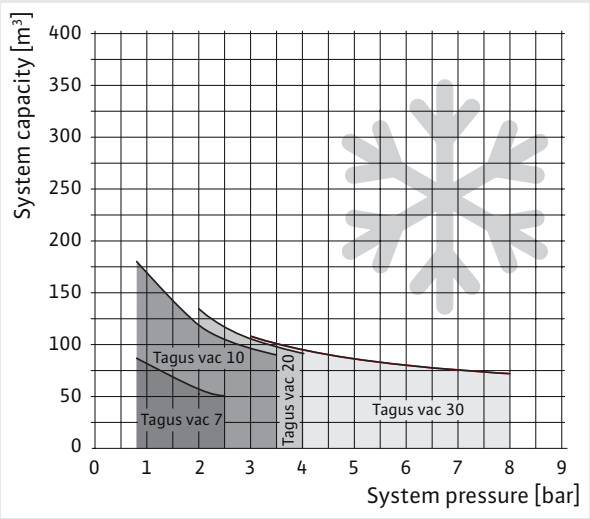
2. Creating a vacuum
As the pump draws more water out of the column than can flow back in a vacuum is created. Gas is released and collects on the surface of the water.

3. Water intake
The pump stops and the column fills up again with water. The gas is then expelled via the automatic air vent.

4. Topping-up
If water is lost from the system installation the volume and, as a consequence, the pressure will drop. Water for topping-up is deaerated in the column and fed into the system in small doses (until the correct pressure has been restored).

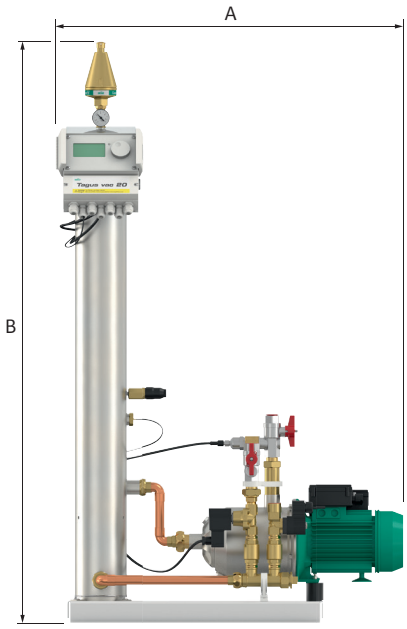
Selection graphs heating/cooling





Wilo-Tagus vac 7 – 30

- → Working temperature: 3 °C to 70 °C.
- → Maximum (feed) supply temperature in the system: 120 °C.
- → Ambient temperature: > 3 °C to 45 °C.
- → Maximum pressure in the suppletion feed line: 2 to 8 bar.
- → Noise production: approx. 55 dB(A).
- → Electrical connection 230 V 50 Hz.
- → Suitable for addition of glycol-based anti-freeze up to 30 %.
- → Complies with the following guidelines: Machinery Directive 2006/42/EC. PED 2014/68/EU.



Technical data

Type	Connection	Max. working pressure	Operating pressure	Dimensions			Weight	Order Code
		bar	*bar*	*A mm*	*B mm*	*C mm*	*kg*	
Wilo-Tagus vac 7	Rp ¾"	8	0.8 – 2.7	740	1270	325	40	2202012
Wilo-Tagus vac 10	Rp ¾"	8	0.8 – 3.5	740	1270	325	40	2198925
Wilo-Tagus vac 20	Rp ¾"	8	2.0 – 4.5	740	1270	325	45	2198926
Wilo-Tagus vac 30	Rp ¾"	10	3.0 – 8.0	710	1270	525	60	2198927

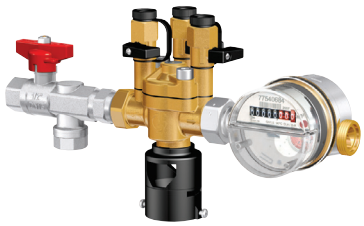
Accessories for Topping-up

For heating and chilled water (cooling) installations.

Wilo-Top-Up Unit 1.X

Used for direct top-up from drinking water supply according to DIN 1988 and DIN EN 1717.

- → Consists of a backflow preventer, water meter, ball valve and non-return valve.
- → Maximum operating pressure: 10 bar.
- → Maximum operating temperature: 65 °C.



Technical data

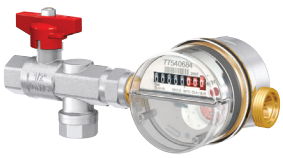
Type	Connection to		Length	K_{vs} (backflow preventer)	Weight	Order Code
	Drinking water	*System*	*mm*	*m^3/h*	*kg*	
Wilo-Top-Up Unit 1.1	Rp ½"	G ¾"	355	2	3	2198929
Wilo-Top-Up Unit 1.2*	Rp ½"	G ¾"	355	2	3	2198930

* Wilo-Top-Up Unit 1.2 has an impulse output water meter (10 litres / impulse).

Wilo-Top-Up Unit 2.X

Used for top-up from a water supply where a backflow preventer is not needed.

- → Consists of a water meter, ball valve and non-return valve.
- → Maximum operating pressure: 10 bar.
- → Maximum operating temperature: 90 °C.



Technical data

Type	Connection to		Length	Weight	Order Code
	Drinking water	*System*	*mm*	*kg*	
Wilo-Top-Up Unit 2.1	Rp ½"	G ¾"	200	2	2198931
Wilo-Top-Up Unit 2.2*	Rp ½"	G ¾"	200	2	2198932

* Wilo-Top-Up Unit 2.2 has an impulse output water meter (10 litres / impulse).

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