

INSTALLATION AND OPERATING MANUAL

Treated water separator PUREBERG FWW



Please read the following instructions carefully before installing cyclone housing unit into service. Trouble free and safe operating of the unit can only be guaranteed if recommendations and conditions stated in this manual are respected.

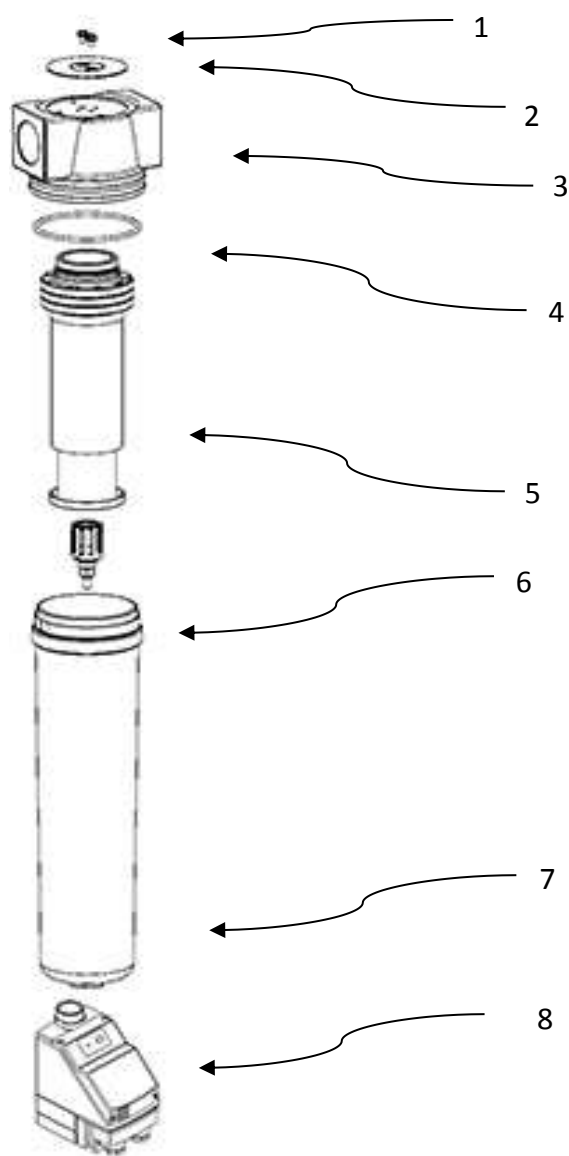


Description

PUREBERG FWW cyclone separators have been developed for high efficient removal of bulk liquids from compressed air(1) and vacuum systems. Inside the housing there is an insert with vanes that creates controlled rotation of the air. As a result of centrifugal action liquids (water, oil) and large particles are forced to the housing wall, slowed down and accumulated at the bottom of separator housing as condensate. The turbulent free zone in the lower part of the filter housing prevents condensate from being picked up and “carried over” into the airstream.

To discharge condensate from the FWW cyclone separator it is essential to install automatic or electronic condensate drain.

Components



Part	
1	Screws
2	Head cover
3	Cyclone head
4	Housing sealing
5	Cyclone element
6	Condensate drain
7	Cyclone bowl
8	Condensate drain(optional)

Technical data

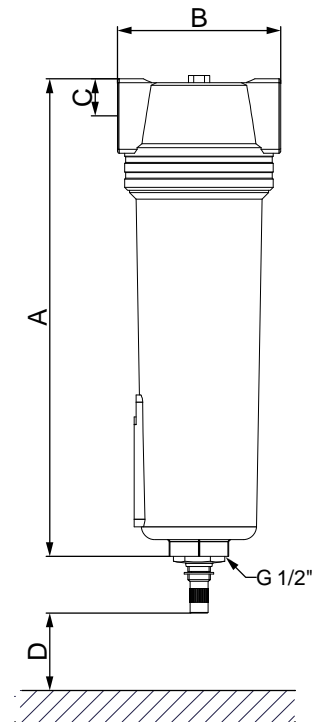
Vessel characteristics

Operating temperature	1,5 - 65 °C	35 - 149 °F
Operating pressure	0 - 20 bar(g)	0 - 290 psi
Efficiency(1)	>98%	
Working medium:	Fluid group 2	

⁽¹⁾Under nominal flow, 20°C, inlet droplet size 10µm - 50µm

MATERIALS

Housing material	Aluminium
Fittings, Screws	Brass, Brass-zinc plated, Steel
Cover	ABS
Sealing	NBR
Cyclone element	PA6 30% glass fibre, Aluminium,
Corrosion protection	Stainless Steel 1.4301
Outside protection	Anodized (optional)
Lubricant	Powder paint coated



HOUSING	PIPE SIZE [inch]	FLOW CAPACITY		DIMENSIONS [mm]				VOLUME [l]	WEIGHT [kg]
		[Nm ³ /h]	[scfm]	A	B	C	D		
F 01 WW	3/8	72	42	187	88	20	80	0,47	0,7
F 02 WW	1/2	96	56	256	88	20	80	0,6	0,8
F 03 WW	1/2	150	88	278	106	25	100	1,2	1,3
F 04 WW	3/4	216	127	278	106	25	100	1,2	1,3
F 05 WW	1	282	166	252	125	32	120	1,57	2,1
F 09 WW	1 ½	510	300	450	125	32	160	3,0	3,2
F 15 WW	2	888	522	605	160	43	180	6,0	5,1
F 24 WW	2 ½	1440	847	685	160	43	200	6,5	6,3
F 46 WW *	3	2760	1624	800	240	60	300	19	12,9

Flow capacity at 7 bar(g), 20°C
*Stainless steel cyclone element

CORRECTION FACTORS

To calculate the correct capacity of a given cyclone based on actual operating conditions, multiply the nominal flow capacity by the appropriate correction factor(s).

$$\text{CORRECTED CAPACITY} = \text{NOMINAL FLOW CAPACITY} \times C_{OP}$$

[bar]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
[psi]	29	44	58	72	87	100	115	130	145	160	174	189	203	218	232	247	261	276	290
C _{OP}	0,38	0,5	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,00	2,13	2,25	2,38	2,50	2,63

PRESSURE EQUIPMENT DIRECTIVE PED 2014/68/EU

(Fluid group 2)

F 01 WW – F 05 WW	Not required
F 09 WW – F 24 WW	Category 1, Module A
F 46 WW	Category 2, Module H

There is Technical datasheet available. For additional technical specification, contact manufacturer.

Safety instructions

The relevant safety at work and accident prevention regulations, plus operating instructions, shall apply for operating the cyclone. The cyclone has been constructed in accordance with the generally recognized rules of engineering. It complies with the requirements of directive PED 2014/68/EU concerning pressure equipment.

Ensure that installation complies with local laws for operation and routine testing of pressure equipment at the place of installation.

Operator/user of the cyclone should make himself familiar with the function, installation and start-up of the unit. All the safety information is always intended to ensure your personal safety.

- Do not exceed max. operating pressure or operating temperature range (see data label).
- The permissible working temperatures and pressures for ad-on parts and separator elements are given under Technical data for those ad-ons. Maximum temperature and pressure for assembled system is the lowest of any individual part.
- It is necessary to ensure that the unit is equipped with the corresponding safety and test devices to prevent the permissible operating parameters from being exceeded.
- Separator has been designed for a primarily static pressure. Rapid changes of pressure are not allowed.
- Ensure that the separator is not subject to vibrations that could cause fatigue fractures.
- Separator is not to be subjected to mechanical stresses.
- The medium used may not have any corrosive components that could attack the materials of the separator in a way that is not permitted. Do not use the separator in hazardous areas with potentially explosive atmospheres.
- All installation and maintenance work on the separator may only be carried out by trained and experienced specialists.
- It is forbidden to carry out any kind of work on the separator and piping, including welding and constructional changes, etc.
- A pressure gauge, which shows the operational pressure, must be installed in the unit, respectively in the pipeline.
- Depressurize the system before carrying out the installation work. The unit must be installed vertically in the piping.
- Ensure that separator is installed without any stresses.
- Use original spare parts only.
- Use the device for appropriate purpose only.

Appropriate use



FWW series cyclone separators are designed for high efficient removal of bulk liquids from compressed air and vacuum systems. This appliance must be used only for the purpose for which it was specifically designed. All other uses are to be considered incorrect and will void warranty.

Specifically:

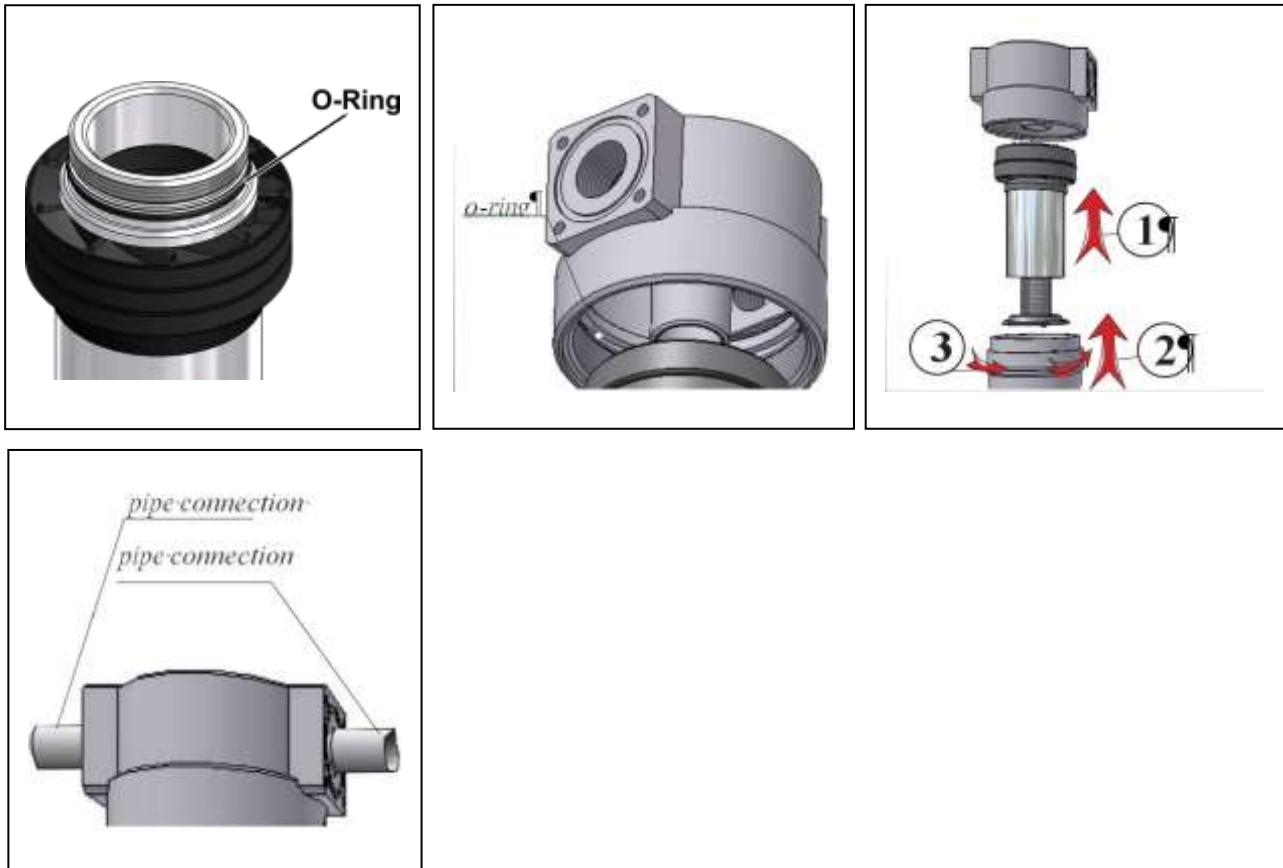
- cyclone can only be used for “GROUPE 2” fluids (PED 2014/68/EU).
- cyclone can not be used for explosive, toxic, flammable, corrosive and “GROUPE 1” fluids (PED 2014/68/EU).

Warning: internal corrosion can seriously reduce the safety of installation: check it during changing the cartridge.

The manufacturer will under no circumstances be responsible for any damage resulting from improper, incorrect or unreasonable use.

Use genuine spare parts only. Any damage or malfunction caused by the use of ungenueine parts is not covered by Warranty or Product Liability.

Installation



Transportation of cyclone is carried on a pallet, fixed with soft rope wrapped around jacket to prevent slippage. Cyclone can be hand over to market and operation only in case, if it is properly installed and used for intended purpose. Installation must not be dangerous for health and safety of people. There must be enough space for undisturbed inspection and maintenance.

Cyclone must ensure safety and reliably operation. Cyclone must be protected against injuries and non-authorized substitution. Operating pressure must correspond to design pressure. Cyclone must be connected to pipeline with controlled pressure, which cannot exceed values of the max. working (operating) pressure.

Cyclone must have all necessary technical documentation. It must be regularly checked and maintained in accordance with technical and state regulations. Instructions for handling in the case of emergency must hang on the visible place near the vessel. In case of explosion, operating process must be stopped immediately.

Maintenance

- To prevent air leakage and malfunction replace housing O-ring if necessary. For replacement contact manufacturer.
- Damaged components are to be replaced by new ones. If a marked degree of damage is found, the entire cyclone is to be replaced.
- Cyclone has been designed for a life of 10 years in normal operating environment. After 10 years periodical checks of cyclone integrity are strongly recommended for safe operation.
- Carry out a check for leaks once the maintenance work has been finished.

Warranty exclusion

The guarantee shall be void if:

- The operating instructions were not followed with respect to initial commissioning and maintenance.
- The unit was not operated properly and appropriately.
- The unit was operated when it was clearly defective.
- Non-original spare parts or replacement parts were used.
- The unit was not operated within the permissible technical parameters.
- Unauthorised constructional changes were made to the unit or if parts of the unit that may not be opened were dismantled.