

Water separator WS2 - WS19

Efficient liquid separators for compressed air installations

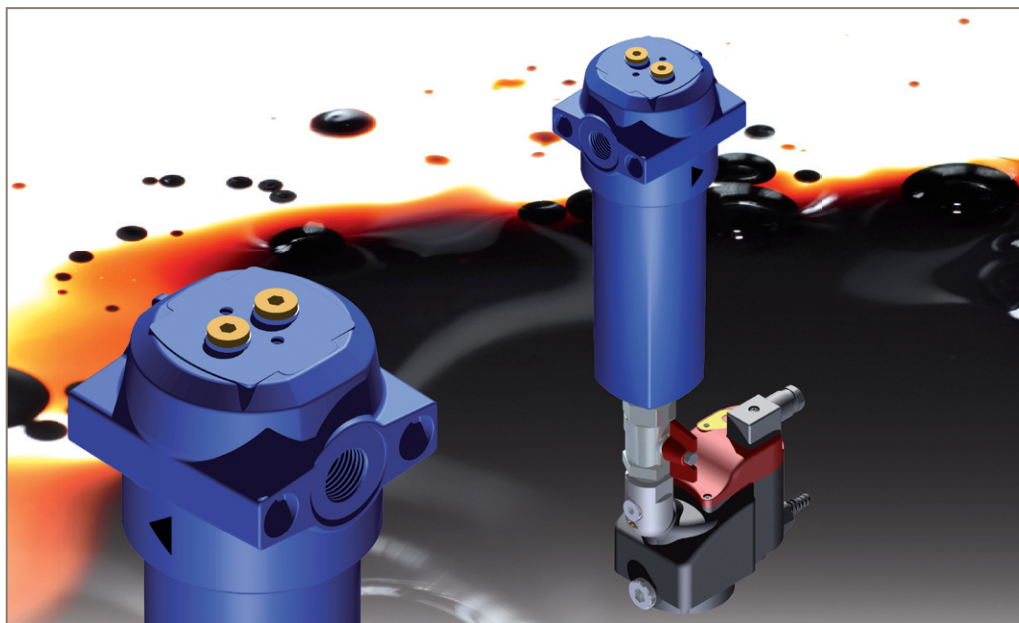


Brief description

The WS water separators from Parker Zander are designed to be efficient liquid separators and are capable of removing large amounts of bulk contamination from compressed air systems.

WS series water separators will efficiently remove water in droplet form, likewise when present as wall-flow in coolers and refrigeration dryers. Their level of efficiency covers a wide range of operating parameters, removing between 92 and 99% of the bulk liquid contamination within 25 to 125% of the rated flow capacity, a fact which contributes to their suitability for use with frequency controlled compressors.

Highly-innovative construction features, in terms of housing-design and internal separator-geometry ensure optimum flow management, resulting in the lowest possible differential pressure at rated flow capacity. This in turn leads to operating cost-efficiencies and reliable, consistent separation performance. Each WS separator is equipped with an ED3000 electronic, level-sensing condensate drain as standard. This proven technology serves to efficiently evacuate the separator housing whilst ensuring zero-air loss from the system. Preventative maintenance of the drain on a 12 month basis is recommended. The WS water separator as such is maintenance free.



Performance overview:

Model	Port Size ¹	Nominal ²
WS2	1/4	31
WS3	3/8	64
WS5	1/2	98
WS7	3/4	137
WS9	1	250
WS11	1 1/2	434
WS12	1 1/2	780
WS13	2	957
WS14	2 1/2	1276
WS19	3	2014

- 1: Port Size in accordance with DIN ISO 228 (BSP-P) or ANSI B 1.20.1 (NPT-F)
- 2: Flow rate in m³/h @ 1 bara, 20°C, compressed to 7 bare @ <70 mbar differential pressure. For the effect on differential pressure of different flow rates, please refer to corresponding table.

To calculate the flow rate at other minimum operating pressures, multiply by the correction factor (f) to obtain the nominal flow rate and thus determine the required separator model (please see corresponding table).

Scope of supply:

WS Water separator including zero-air-loss condensate drain ED3000.
Supply without drain - optional.

Product-Specification

Liquid separators series WS

Area of application

Flow medium	Compressed air and gaseous nitrogen	
Separation	Liquids (wall flow, droplets)	
Flow direction	outside to inside	
Separation performance	92 to 99 % at 25 to 125 % nominal capacity	
Differential pressure	< 70 mbar at nominal capacity	
Max. operating pressure	16 bar _e	with ED3000 series electronic condensate drain
	20 bar _e	without drain
operating temperature	1.5 up to 60 °C	with ED3000 series electronic condensate drain
	1.5 up to 100 °C	without drain

Performance overview in relation to differential pressure

Order no.	Flow rate in m ³ /h (1 bar _a , 20 °C, compressed to 7 bar _e)			
	< 50 mbar	< 70 mbar	< 100 mbar	< 120 mbar
WS2K3	26	31	37	41
WS3K3	55	64	76	83
WS5K3	83	98	116	127
WS7K3	117	137	162	176
WS9K3	216	250	294	319
WS11K3	374	434	509	552
WS12K3	670	780	916	994
WS13K3	822	957	1125	1222
WS14K3	1096	1276	1500	1629
WS19K3	1711	2014	2404	2615

Correction factor f in accordance with the minimum operating pressure in bar_e

Minimum operating pressure	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9
Correction factor f	2.65	2.16	1.87	1.67	1.53	1.41	1.32	1.25	1.18	1.13	1.08	1.04	1.00	0.97	0.94	0.91	0.88
Minimum operating pressure	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	16	17	18	19	20
Correction factor f	0.86	0.84	0.82	0.80	0.78	0.76	0.75	0.73	0.72	0.71	0.69	0.68	0.66	0.64	0.62	0.61	0.59

Example for a maximum flow rate of 285 m³/h for a minimum operating pressure of 4.3 bar_e:
 285 m³/h x 1.32 = 376.2 m³/h – select size WS11 for differential pressure < 70 mbar (see table above).

Product key

Series	Size	Options	Port ¹	
WS	2 up to 19	K3, OA	–N	¹ NPT-F only
Examples				
WS	7	K3		Standard design G3/4i (BSP-P) port with electronic condensate drain – ED3000 series
WS	3	OA	–N	3/8" NPT-F port, no drain (open port)

Product-Specification

Liquid separators series WS

Approvals for pressure equipment

EU	Approval for fluid group 2 according to pressure equipment directive 97/23/EC (PED): WS2-WS11 (Art. 3, para. 3); WS12-WS14 (category I, modules B+D); WS19 (category II, modules B+D)
USA	Strength calculation according to ASME VIII Div. 1, no obligation for approval

Materials

Housing

Upper/lower housing	Aluminium alloy with alochrome coating, external powder coating
Sealing materials	NBR

Materials

Separator insert

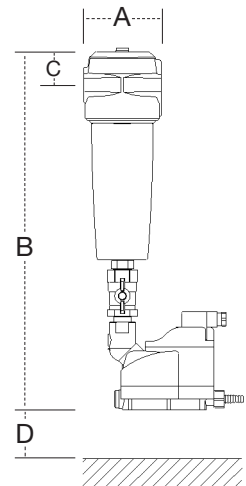
Separator insert	Glass fibre reinforced polyamide and polyoxymethylen
Sealing materials	NBR

Quality assurance and warranty

R&D, Manufacturing	DIN EN ISO 9001, DIN EN ISO 14001
Testing method	ISO 8573-9:2004
Housing	Corrosion warranty limited to a maximum housing lifetime of 10 years

Dimensions (mm) and weights (kg)

Order no.	A	B	C	D	Weight
WS2K3	67	177	23	50	1.8
WS3K3	89	239	38	60	2.5
WS5K3	89	239	38	60	2.5
WS7K3	89	239	38	60	2.5
WS9K3	130	278	46	80	4.7
WS11K3	130	368	46	80	4.8
WS12K3	164	440	57	115	8.5
WS13K3	164	532	57	115	8.9
WS14K3	164	532	57	115	8.6
WS19K3	192	844	72	135	14.9



All data provided represent approximations.

Product-Specification

Liquid separators series WS

Wear part kits

Type	Scope of delivery
SKED3000	Wear part kit for the preventive maintenance (every 12 months) of an electronic condensate drain of the ED3000 series
RKWS2-WS19	O-rings for separator insert and housing all sizes

The separator itself is maintenance free; however, once the housing has been opened (i.e. for inspection), all o-rings must be replaced.

Accessories

Drain fitted			
Order no.	Function	Suitable for	Product key
ED3004-G230	electronic float drain (as standard)	WS2 up to WS7	K3
ED3007-G230	electronic float drain (as standard)	WS9 up to WS11	K3
ED3030-G230	electronic float drain (as standard)	WS12 up to WS14	K3
ED3100-G230	electronic float drain (as standard)	WS19	K3
open	without drain	WS2 up to WS19	OA

Other drains available as accessories.

Mounting kits for other drains				
Order no.	Separator port	Drain port	Suitable for separator	Suitable for drain
MK-G15-G10	G1/2a	G3/8a	WS2 up to WS19	Trap22
MK-G15-G15	G1/2a	G1/2a	WS2 up to WS19	ED2010
MKG15-G20	G1/2a	G3/4a	WS2 up to WS19	ED2020 and ED2060

Wall mount	
Order no.	Suitable for
BF/GL2	WS2
BF/GL3-GL7	WS3 up to WS7
BF/GL9-GL11	WS9 up to WS11
BF/GL12-GL14	WS12 up to WS14
BF/GL17-GL19	WS19

EMEA Product Information Centre

Free phone: 00 800 27 27 5374

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US Product Information Centre

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