

TerTech

WONDERSAP

Self Cleaning Suction Filter



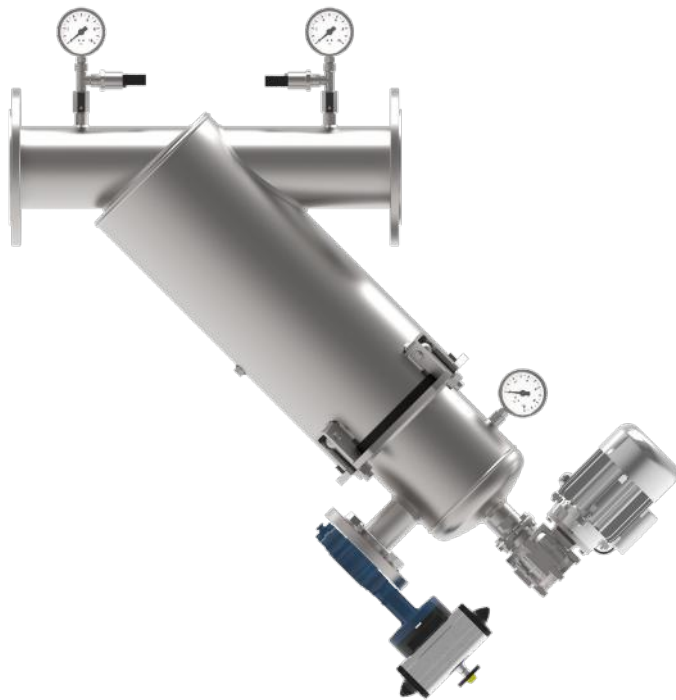
WONDERSAP

WONDERSAP is a self-cleaning suction mesh filter equipped with a motorized adaptive suction pad cleaning system which easily regenerates the filtering element within a few seconds, without interrupting the flow. It is ideal to treat water loaded with suspended solids and can be implemented in various industrial applications such as: process water treatment, cooling towers, heat exchangers, aquaculture, spray nozzles protection, pre-filters for ultrafiltration (UF) and reverse osmosis (RO) plants. It is available in 3 different constructive shapes, Y- L and O in order to adapt to different installation layouts.

The vessel and cleaning system are completely made of stainless steel supplemented with adaptive and resistant suction pads which make the filter very robust and low-maintenance.

The wide array of filter screens, supplied with a PES or Stainless Steel AISI 316 filtering mesh, allows the user to choose between various filtration degrees, ranging from 3000µm to 25µm.

WONDERSAP is supplied complete of valves, pressure gauges and electronic controller.



FILTRATION PROCESS

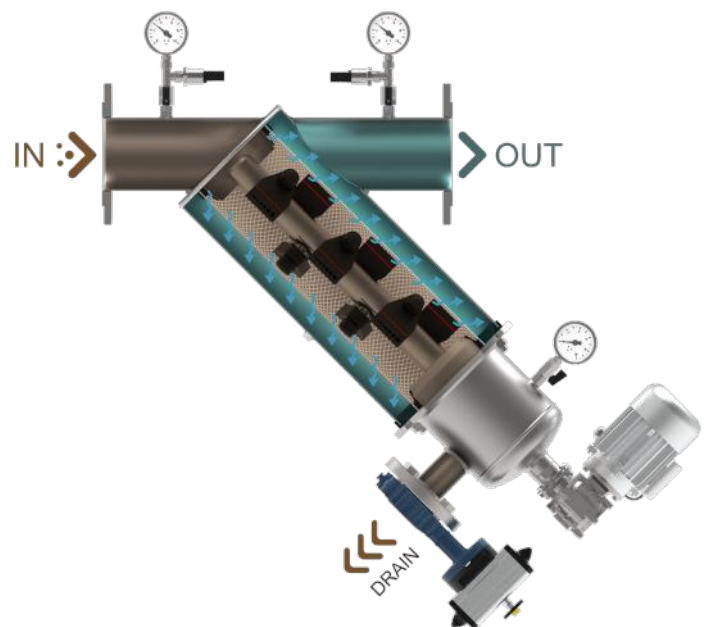
To-be-treated raw liquid enters the filter through the inlet connection (IN), suspended solids are retained inside the filtering element and purified liquid flows out of the outlet connection (OUT).

CLEANING

The continuous build-up of solids, trapped inside the filter mesh, creates a differential pressure between inlet and outlet that can be read on the filter's manometers.

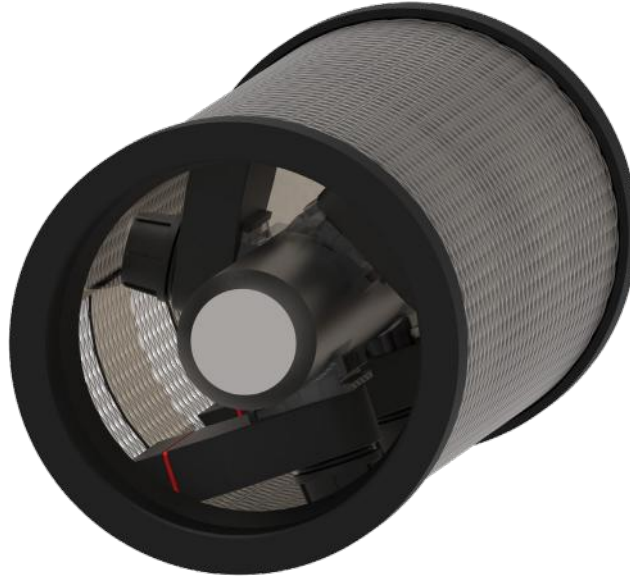
The cleaning cycle is activated at regular time intervals or when the progressive build-up of suspended solids, trapped inside the filtering mesh, causes an excessive differential pressure between inlet and outlet (0,8 bar). Both parameters can be set by the controller.

During the cleaning cycle the drain valve is opened while the adaptive suction pads start rotating and removing the dirt accumulated on the filtering element, thanks to the suction force created by the pressure differential between the filter and the drain chamber. Captured dirt particles are discharged through the drain valve (DRAIN). Filtration is not interrupted if the inlet pressure is above 3 bar.



SAP (SUCTION ADAPTIVE PADS) SELF-CLEANING SYSTEM

WONDERSAP's self-cleaning system is composed of suction adaptive pads installed on a stainless steel shaft which rotates during the cleaning cycle, started by the electronic controller, and remove suspended particles from the filtering screen. The system does not require external intervention but is activated at regular time intervals or when the progressive build-up of suspended solids, trapped inside the filtering mesh, causes an excessive differential pressure between inlet and outlet (0,8 bar).



TECHNICAL SPECIFICATIONS

Design Data

Flow rate	Up to 400 m ³ /h
Design Pressure (bar)	PN 10
Max Temperature (°C)	80
Salinity	< 10.000 ppm
pH range	3-9
Design Code	PED Directive 2014/68/EU - Machinery Directive 2006/42/CE - LVD Directive 2014/35/EU

Power Supply

Electric Voltage	230 Vac 50/60Hz single phase
Compressed Air	6 bar

Actuation*

Electric Motor	230Vac 0.11kW
Valves	Electropneumatic 24Vac

*Filter's actuation is powered by the controller

Materials

Filter Housing	Stainless Steel AISI 304 - AISI 316L
Gaskets	EPDM*
Valves	Cast iron Body with AISI 316L lens
Pressure Gauges	Stainless Steel AISI 304 - AISI 316L
Surface finishing	Microshot Peening and Passivation

*Certified to comply to the following European Drinking Water regulations: UBA, DVGW standard W-270, WRAS and ACS

Controller

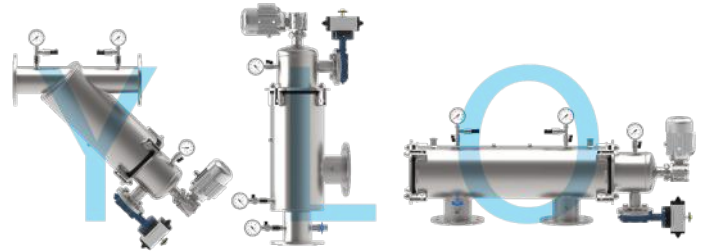
Power supply	230 Vac 50/60Hz single phase
Protection Class	IP65
Material	ABS
Input	2 digital (Pause, DP), 3 analogic (pressure)
Output	4 SPDT (16A 250Vac), 4 SPST (1A 24Vac), 4 SPST Status (On/Off, Filtration, Cleaning, Alarm)
Cleaning Cycle Management	Differential Pressure, Pre-set time intervals, Manual

FEATURES

WONDERSAP filters are manufactured with technical and constructive features suitable for industrial applications and are available in 3 different constructive shapes: Y, L and O.

The vessel is manufactured in Stainless Steel AISI 304 or in AISI 316 (upon request) and is available in Y, L and O constructive shapes. For each shape, four different sizes are available: 6, 8, 18 and 30 which differ in the size of the filtering element inside them.

After the welding procedure the vessel is subjected to two surface treatments, micro-shot peening and passivation: the first provides a greater surface resistance and removes any manufacturing impurities whereas the second one reconstructs the natural passive film which constitutes the absolute stainlessness of the filter.



CONNECTIONS

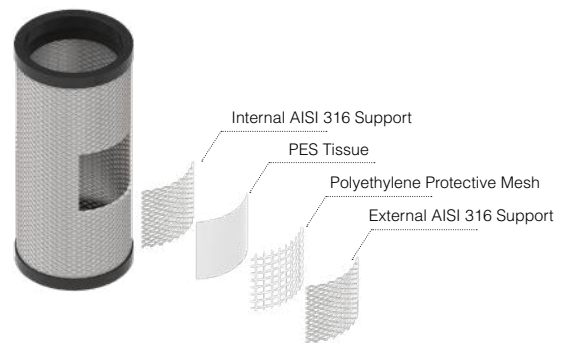


WONDERSAP's Inlet and Outlet connections can be BSPP Threaded up to 3" and are ISO PN16 flanged from DN80 onwards.

FILTERING ELEMENTS

M-LAY PES FILTERKIT

Composed of 4 layers, its wide array of available filtering tissues and allows the customer to choose from various filtration degrees starting from 25µm up to 810µm. From the inside outwards: AISI 316 Internal Support, PES tissue, Polyethylene protection mesh, AISI 316 External support.



3LAY INOX FILTERKIT

Composed of 3 stainless steel AISI 316 layers, this type of filtering element is very resistant and proves to be an excellent alternative to the M-LAY FILTERKIT when it comes to harsh exercise conditions, especially when sharp or cutting suspended solids might be present inside the liquid.



FLOW RATE & SIZE

You can select the product you need by identifying the IN/OUT connections and MAX flowrate first, then choosing one of the available constructive shapes and finally the relative size of the filtering element.

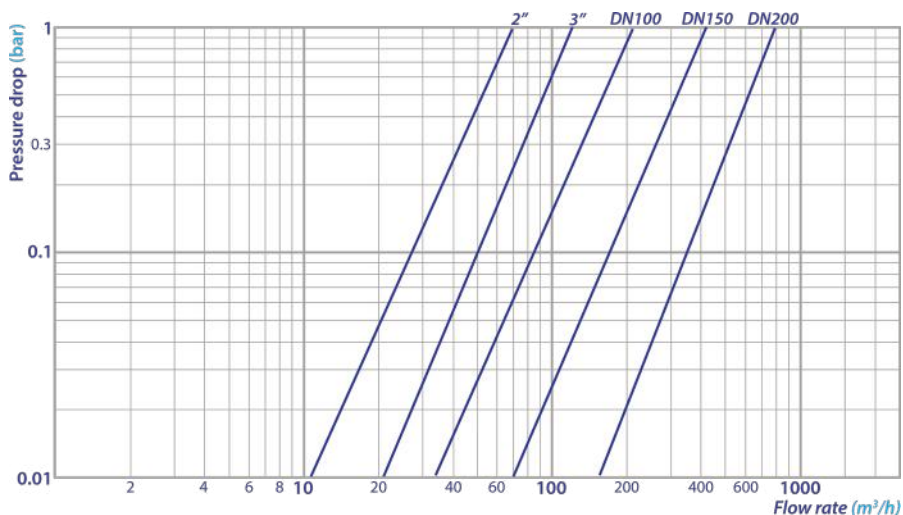
IN/OUT Ø	MAX FLOW RATE*		Y	SHAPE		FILTERING SURFACE		
	[m³/h]	[l/min]		L	O	SIZE	[cm²]	[in²]
2" BSPP	30	500	✓	✓	-	6	1500	233
3" BSPP	60	1000	✓	✓	-			
DN 80	60	1000	✓	✓	✓			
DN100	100	1666	✓	✓	✓			
3" BSPP	70	1166	✓	✓	-	8	2200	341
DN 80	70	1166	✓	✓	✓			
DN100	110	1833	✓	✓	✓			
DN100	120	2000	✓	✓	✓	18	3300	512
DN150	240	4000	✓	✓	✓			
DN100	120	2000	✓	✓	✓	30	5400	837
DN150	260	4333	✓	✓	✓			
DN200	400	6666	-	✓	✓			

*Max flow rates are calculated based on clean water with a filtration degree of 120µm
With the same IN/OUT connection and the same MAX flowrate, the larger filter will require less frequent cleaning than the smaller one.

CLEANING CYCLE

	SIZE 6	SIZE 8	SIZE 18	SIZE 30
Min. cleaning flow rate	9m³/h	13m³/h	13m³/h	20m³/h
Min. pressure during the cleaning cycle	3 bar	3 bar	3 bar	3 bar
Water consumption full cleaning cycle	50lt	75lt	75lt	115lt
Cleaning cycle's length	20-25sec	20-25sec	20-25sec	20-25sec

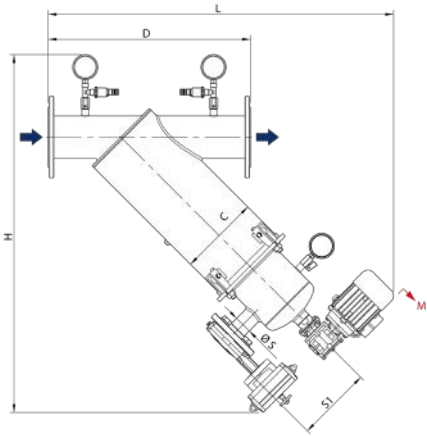
HEAD LOSS



Head losses are referred to filters with 120 µm clean filtering mesh.

DIMENSIONS

Y Shape - Dimensions

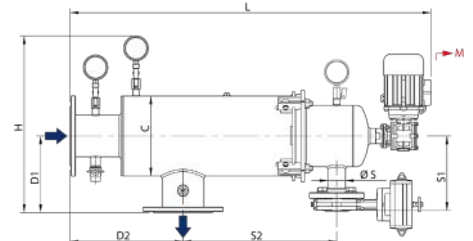


*M = Minimum free space required for maintenance

MODEL	IN/OUT	D [mm]	L [mm]	H [mm]	C [mm]	S1 [mm]	S2 [mm]	Ø S [mm]	M min [mm]	WEIGHT [Kg]
WSAP 2" Y 6	2" BSPP	412	757	830	219	204	-	DN40	500	31
WSAP 3" Y 6	3" BSPP	464	783	844	219	204	-	DN40	500	32
WSAP 80 Y 6	DN 80	487	782	844	219	204	-	DN40	500	36
WSAP 100 Y 6	DN 100	547	824	857	219	204	-	DN40	500	37
WSAP 3" Y 8	3" BSPP	464	892	953	219	204	-	DN40	700	35
WSAP 80 Y 8	DN 80	487	891	953	219	204	-	DN40	700	41
WSAP 100 Y 8	DN 100	547	933	966	219	204	-	DN40	700	42
WSAP 100 Y 18	DN 100	585	933	966	273	204	-	DN40	700	51
WSAP 150 Y 18	DN 150	660	956	993	273	204	-	DN40	700	56
WSAP 100 Y 30	DN 100	585	1150	1194	273	216	-	DN50	1000	61
WSAP 150 Y 30	DN 150	660	1173	1221	273	216	-	DN50	1000	67

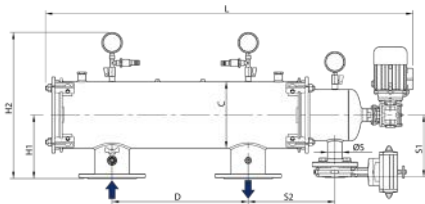
L Shape - Dimensions

MODEL	IN/OUT	D1 [mm]	D2 [mm]	L [mm]	H [mm]	C [mm]	S1 [mm]	S2 [mm]	Ø S [mm]	M min [mm]	WEIGHT [Kg]
WSAP 2" L 6	2" BSPP	190	310	836	549	219	204	268	DN40	500	31
WSAP 3" L 6	3" BSPP	190	310	836	549	219	204	268	DN40	500	32
WSAP 80 L 6	DN 80	210	310	836	549	219	204	268	DN40	500	36
WSAP 100 L 6	DN100	210	310	836	549	219	204	268	DN40	500	37
WSAP 3" L 8	3" BSPP	190	310	990	549	219	204	422	DN40	700	35
WSAP 80 L 8	DN 80	210	310	990	549	219	204	422	DN40	700	41
WSAP 100 L 8	DN100	210	310	990	549	219	204	422	DN40	700	42
WSAP 100 L 18	DN100	246	350	1061	576	273	204	422	DN40	700	51
WSAP 150 L 18	DN150	246	350	1061	576	273	204	422	DN40	700	56
WSAP 100 L 30	DN100	246	350	1367	576	273	216	728	DN50	1000	60
WSAP 150 L 30	DN150	246	350	1367	576	273	216	728	DN50	1000	66
WSAP 200 L 30	DN200	266	350	1367	576	273	216	728	DN50	1000	71



*M = Minimum free space required for maintenance

O Shape - Dimensions



*M = Minimum free space required for maintenance

MODEL	IN/OUT	D [mm]	L [mm]	H1 [mm]	H2 [mm]	C [mm]	S1 [mm]	S2 [mm]	Ø S [mm]	M min [mm]	WEIGHT [Kg]
WSAP 80 O 6	DN 80	450	1215	210	482	219	204	287	DN40	500	54
WSAP 100 O 6	DN100	450	1215	210	482	219	204	287	DN40	500	55
WSAP 80 O 8	DN 80	450	1215	210	482	219	204	287	DN40	700	55
WSAP 100 O 8	DN100	450	1215	210	482	219	204	287	DN40	700	56
WSAP 100 O 18	DN100	640	1720	246	546	273	204	422	DN40	700	81
WSAP 150 O 18	DN150	640	1720	246	546	273	204	422	DN40	700	86
WSAP 100 O 30	DN100	640	1720	246	546	273	216	422	DN50	1000	84
WSAP 150 O 30	DN150	640	1720	246	546	273	216	422	DN50	1000	88
WSAP 200 O 30	DN200	640	1720	266	566	273	216	422	DN50	1000	93