

# SAF-XN filters

Amiad



Amiad SAF filters have been the standard in high-tech greenhouse horticulture for years, ensuring long-term, reliable filtration and thus contributing to reliable irrigation. The trusted SAF concept has been further improved. In 2023, Netafim Netherlands has launched the new SAF-XN filter in collaboration with Amiad as the successor to the trusted SAF filter series. The SAF-XN series have been adapted based on requirements and experiences from the Dutch greenhouse horticulture market. SAF-XN filters are industrial, self-cleaning, metal filters manufactured by Amiad that can handle large amounts of contamination, which is automatically discharged during the filtering process. During the flushing cycle only a small amount of flushing water is released. In addition, the filters are compact in construction, so they can be placed easily into an irrigation unit.

Amiad SAF-XN filters are unique due to their large effective screen area and high quality. The filter screen has no dead spots, can be fully used during filtration and can also be completely cleaned. With the SAF-XN filters, the water enters the filter through a coarse screen and leaves the filter through the multi-layer fine filter screen.

The contamination is collected on the inside of the fine filter screen, which increases the resistance across the filter. The SAF-XN filter starts the flushing cycle as soon as this resistance exceeds 0.5 bar or as soon as the set time has elapsed. During the flushing cycle, the drain valve opens, releasing the pressure in the suction scanner and nozzles in front of the screen. The electric motor ensures (spirally) cleaning of the entire filter screen through several suction nozzles mounted on the suction scanner shaft.

## IMPROVEMENTS OF SAF-XN VS. SAF

- ✓ Improved bearing and sealing with increased performance and easy replacement
- ✓ The hinged lid and connection box can easily be placed on both the left and right side
- ✓ Removable (polymer) service cover for maintenance
- ✓ Standardization of parts and housing
- ✓ Limited number of welded joints on the filter housing, which minimizes the risk of leakages
- ✓ Standard equipped with Supernozzles resulting in a lower flushing water capacity is obtained

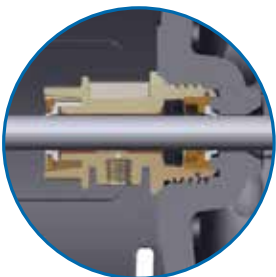
## APPLICATION

SAF filters are used where a high capacity, fine filtration or continuous filtration is required. Application for pre-filtration, drip irrigation, spinkler irrigation (roof, greenhouse and outdoor irrigation), fog installations, filtration for UV installations and underground water storage.

## CHARACTERISTICS

- ✓ Fresh, contemporary look
- ✓ Filtration from 10 to 800 micron
- ✓ Large effective screen surface area
- ✓ Coarse inlet filter and fine filter screen
- ✓ Automatic flushing cycle with various setting possibilities
- ✓ Small amount of flushing water
- ✓ Equipped as standard with spring-loaded nozzles (for extra suction force)
- ✓ CE approved
- ✓ Blue colour, RAL 5010
- ✓ Increased flexibility and convenience in use

### ADVANCED BEARING AND SEALING



### FLEXIBILITY



### CONVENIENCE IN USE



## TECHNICAL DATA

Filter		SAF-XN 1500	SAF-XN 3000	SAF-XN 4500
<b>General information</b>				
Theoretical capacity of body*	m <sup>3</sup> /h	80 (4")	150 (6")	250 (8")
Effective filtration area	cm <sup>2</sup>	1500	3000	4500
Standard filtration levels	micron	10, 25, 50, 80, 100, 130, 200, 300, 500, 800		
Material of filter screen		4 or 5 layers of woven stainless steel 316L (with exception of 800 micron screen)		
Diameter of connection flange	inch	2"-3"-4"	3"-4"-6"	4"-6"-8"
Minimum working pressure	bar	2 (lower pressure on request)		
Maximum working pressure	bar	10		
Maximum (working)temperature	°C	50	50	50
Weight	kg	2": 108	3": 131	4": 154
		3": 109	4": 132	6": 155
		4": 110	6": 133	8": 156
<b>Flushing</b>				
Flushing time **	sec	20	20	20
Flushing water per cycle***	litres	25	78	117
Minimum flushing capacity ***	m <sup>3</sup> /h	check table		
Water content	litres	60	70	89
Drainage Dorot-75 S 3-way (basic)		2"	2"	2"
Flushing criteria		Pressure difference of 0.5 bar (standard)		
No. of nozzles		2	4	6
<b>Control and electricity</b>				
Operating voltage		3-phase, 230/400 VAC 50/60 Hz		
Electric motor output	kW	0,18	0,18	0,18
Force	pk	¼	¼	¼
Nominal power consumption (at 400V)	A	0,71	0,71	0,71
Inrush current (at 400V)	A	2,6	2,6	2,6
Co sinus Phi		0,67	0,67	0,67
Control voltage		24 VAC 50/60 Hz		
<b>Construction material</b>				
Filter housing and lid		Epoxy-coated steel 37-2 (blue: RAL 5010)		
Coating type		Phenolic epoxy coating (inside) / polyester coating (outside)		
Cover for maintenance		Polypropylene (PP)		
Cleaning mechanism		Stainless steel 316, POM, PVC		
Drainage valve		Reinforced polyamide and EDPM		
Seals		Synthetic rubber		

\* see application recommendation table \*\* adjustable \*\*\* with 2 bar pressure difference

## CONNECTION CAPACITY

Dimensions	Recommended capacity m <sup>3</sup> /h
2"	20
3"	40
4"	80
6"	150
8"	250

## BRACKET MOUNT

Type	Diameter (mm)	Diameter (")	Article number VDL Pipe clamp
SAF-XN 1500 / 3000 / 4500	276	11	77300-104096

## FILTER SELECTION

The choice of filter depends on the desired capacity, filtration level and contamination level of the water. The selection table below can be used to make the right choice. The recommendations have been compiled with the greatest care on the basis of practical experience and based on an average water contamination. Deviations can occur, for example, due to dirtier water or pre-filtration; in some cases rainwater can be more contaminated than surface water. It is then possible that the values for surface water have to be used for rainwater. If in doubt, ask Netafim for advice.

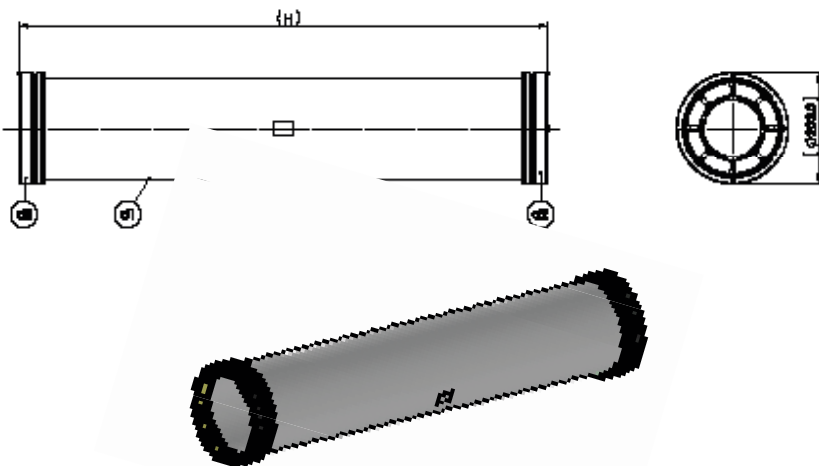
### Application recommendations for SAF filters (capacity in m<sup>3</sup>/h)

Micron	300	200	130	100	80	50	25	10
<b>Rain water</b>								
SAF-XN 1500	60	58	50	45	35	25	15	6
SAF-XN 3000	120	116	100	90	70	50	30	12
SAF-XN 4500	180	174	150	135	105	75	45	18
<b>Surface water</b>								
SAF-XN 1500	50	45	35	30	25	15	10	5
SAF-XN 3000	100	90	70	60	50	30	20	10
SAF-XN 4500	150	135	105	90	75	45	30	15
<b>Drain water</b>								
SAF-XN 1500	45	40	30	25	20	12	8	4
SAF-XN 3000	90	80	60	50	40	24	16	8
SAF-XN 4500	135	120	90	75	60	36	24	12

### Dimensions of stainless steel screen elements

Type	Screen cylinder		
	ø (mm)		H (mm)
	d1	d2	
SAF-XN 1500	240	180	370
SAF-XN 3000	240	180	665
SAF-XN 4500	210	180	910

### SAF-XN SCREEN ELEMENTS

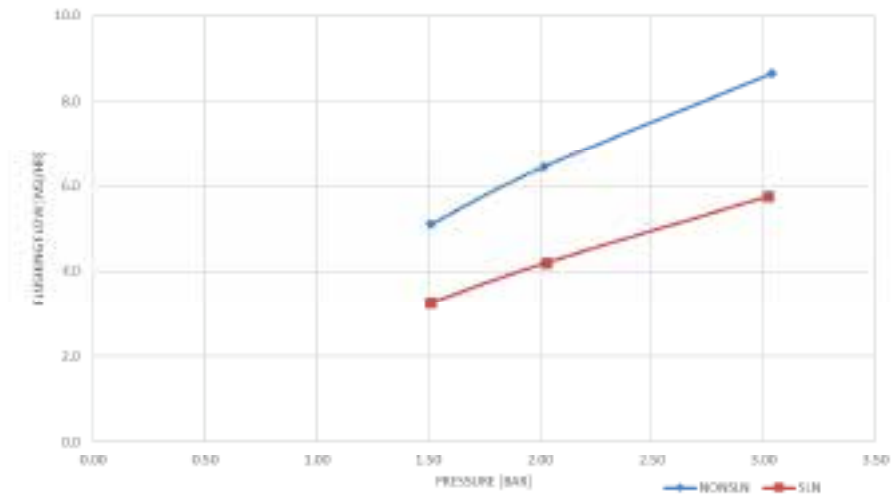


### SCREEN CODES

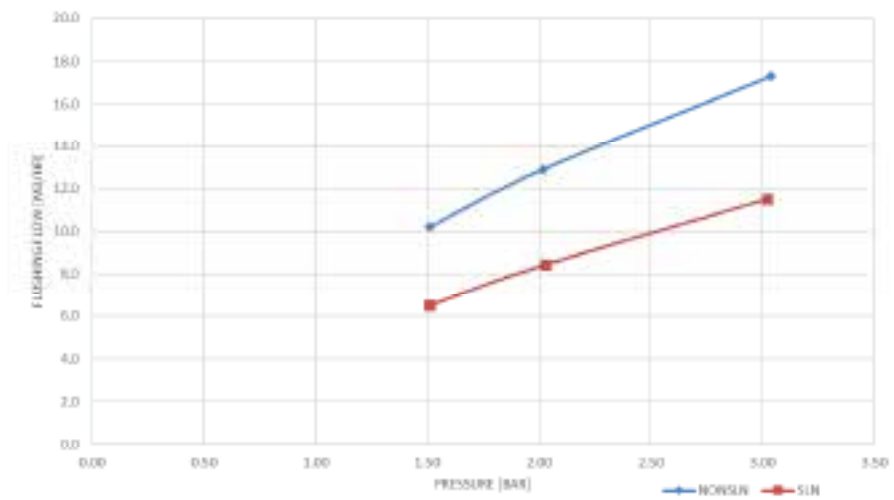
C.ML.HB	Screen type
000349	Amiad code I
130 MIC.	Filtration grade
316L	Steel quality
44/13	Production Wk /Yr
158328-1-2	Amiad code II

## SPRING LOADED NOZZLES

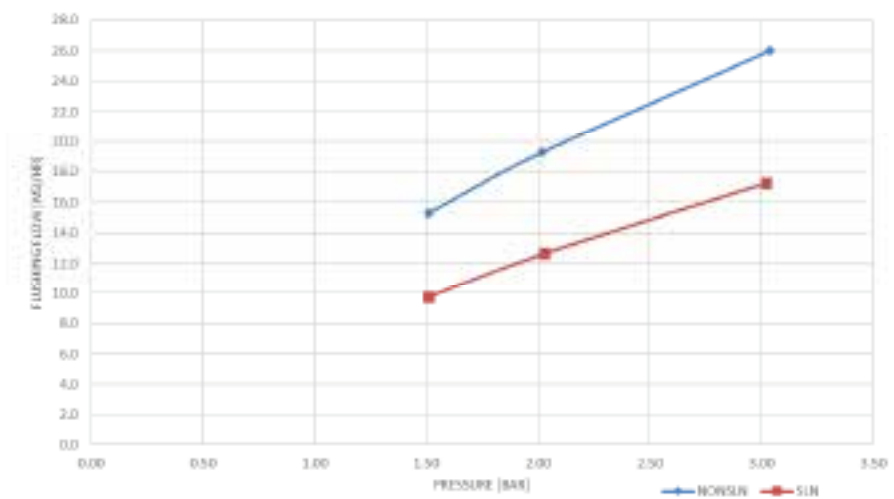
### Flushing capacity SAF-XN 1500



### Flushing capacity SAF-XN 3000



### Flushing capacity SAF-XN 4500



## FILTER PARTS SAF-XN 1500 / 3000 / 4500

Item	Amiad SAF-XN Parts list	Article number
1	SAF-XN Body (9 models)	/
2	SAF-XN Hinged lid	A. 710105-005905
3	SAF-XN Hinged door (1/2 part)	A. 710105-005906
4	SAF-XN Lid handle	A. 760111-000004
5	SAF-XN Lid hinge pin	A. 710103-011309
6	Am SAF-XN Pin cotter 4x40 mm	A. 760105-000009
7	Am SAF-XN Sealing sleeve	A. 710101-001625
8	Am SAF-XN Coarse screen	A. 710101-001607
9	Am SAF T3/SAF-XN Suction scanner bearing	74480-017407
10	SAF-X Filter screen (check portfolio overview)	/
11	SAF-X STD Scanner assembly (3 models)	/
12	Am SAF-XN Suction scanner shaft S/St316	74480-080210
13	Am SAF-XN Dowel pin 6x36mm St/St 316 DIN7	74480-080250
14	Am SAF-XN Suction scanner Plug 8mm	74480-066286
16+17	Am SAF-XN Suction scanner nozzle STD	74480-018110
18.1	Am SAF-XN Suction scanner SLN assy T1	A. 700190-006222
18.2	Am SAF-XN Suction scanner SLN assy T3	A. 700190-006221
18.3	Am SAF-XN Suction scanner SLN assy T4	A. 700190-006206
24	Am SAF-XN SLN cap assy	A. 700190-002400
25	Am SAF-XN Rear-side flange	A. 710103-011692
26	Am SAF-XN Shaft sealing assembly	74480-080170
27	Am SAF-XN Shaft sealing stopper	74480-080190
28	Am SAF-XN Back flange shaped washer	74480-080180
29	Am SAF-XNS Side cover	A. 710101-001609
31	Am SAF(-XN) Drive bushing	74480-017292
32	Am SAF-XN Drive shaft St/St	74480-080200
33	Am SAF(-XN) Drive shaft key	74480-017289
34	Am SAF-XN Plate for limit swith	A. 710103-011328
35	Am SAF-XN Shaft adaptor	A. 710103-011313
36	Am SAF-XN Clevis pin 3/16" X 1-1/16"	74480-080240
37	Am SAF-XN Pin cotter 3/64 X 5/8 mm	74480-080230
38	Am SAF-XN External retaining ring 25 mm DIN 471	A. 760106-000010
39	Am SAF-XN Drive shaft cover	A. 710101-001613
100	Am SAF-XN Lid O-ring 2-452	74480-080280
101	Am SAF-XN Sealing sleeve hydraulic seal	74480-080300
102	Am SAF-XN Coarse screen rubber	74480-080310
103	Am SAF(-XN) O-ring suction scanner lager	74480-018020
104	Am SAF-XN rubber fine screen	74480-080290
105	Am SAF-XN O-ring plate back flange	74480-080270
106	Am SAF-XN O-ring sealing	74480-080260
107	Am SAF-XN SLN Nozzle seal 16mm	74480-000072
108	Am SAF-XN O-ring SLN cap assy	A. 700190-002400
200	Am SAF-XN Hex bolt partial THR M16 X 65 lid	A. 760101-000329
201	Lock washer St/St M16	76540-006331
202	Bolt St/St M16	76540-006400
203	Lock washer St/St M16	76540-006331
204	Lock washer St/St M16	76540-006331
205	Am SAF-XN Hex bolt M12x20 hinge	A. 760101-000798
206	Washer M12 DIN125 St/St 304	74480-014748
207	Am SAF-XN Socket screw M6x15 lid handle	A. 760101-000696
208	Am SAF-XN Socket screw M10x60 rear flange	A. 760101-000703
209	Nut St/St M10	76540-006260
210	Am SAF-XN Phillips pan tapping screw no.10 1/2"	74480-080220
211	Bolt St/St M8 x 40	76540-020210
212	Lock washer St/St M8	76540-005295
213	Spring washer M8 DIN127	A. 760103-000085
214	Nut St/St M8	76540-006120
215	Am SAF-XN Socket screw M8x16	A. 760101-001208
216	Am SAF-XN Phillips screw PH M4 x 20	A. 760101-000511
217	Lock washer M4 DIN125	A. 760103-000092

Item	Amiad SAF-XN Parts list	Article number
218	Lock washer M4 DIN985	74480-011846
219	Am SAF-XN Hex bolt V.D. M6 20MM DIN933	A. 760101-000444
220	Spring washer M6 DIN127	A. 760103-000109
221	Am SAF-XN Hex bolt M6x30 cover	76540-017100
222	Phillips pan tapping screw PT4x20	A. 760101-000537
223	Am SAF-XN Socket screw M6x25 PDS	74480-000044
224	Am SAF-XN Hex bolt M6x35 drive bushing	76540-004425
225	Lock washer St/St M6	76540-005280
226	Am SAF-XN Hex bolt M6 St/St DIN985	74480-002420
300	Dorot-75-basic 2"	71600-002300
301	Solenoid 3-weg Gemsol NO 24VAC 5,5W 1,6-1/4"	02244-600835
302	Tefen nippel 1/4"bu x 1/4" ext.	76400-006300
303	Tefen nippel 8x1/4" ext.	76400-002300
304	Tefen knee 8x1/4" ext.	76400-003500
305	Amiad finger filter 1/4"/M/F	74480-000036
305.1	Am PL Filter 3/4"	74400-001090
305.2	Am Cylinder 3/4" 200 micr PL+St/St white	74480-001040
305.3	Am SAF(-XN) Raccord connector nut 3/4"	74480-060800
305.4	Am SAF(-XN) Raccord connector nippel 3/4"	74480-060700
307	LDPE 8x6 100m	02058-250051
308	Tefen nippel 8x1/4" ext.	76400-002100
311	Am SAF(-XN) Gear drive 1:28 T134	74480-017296
312	Am SAF(-XN) Motor 400V-1/4Hp T134	74480-018360
313	Am SAF(-XN) PDS-Midwest	74480-011560
314	Electronical junction box	A. 700190-002421
315	Am SAF(-XN) Limit switch Mechanic NM*	74480-040000

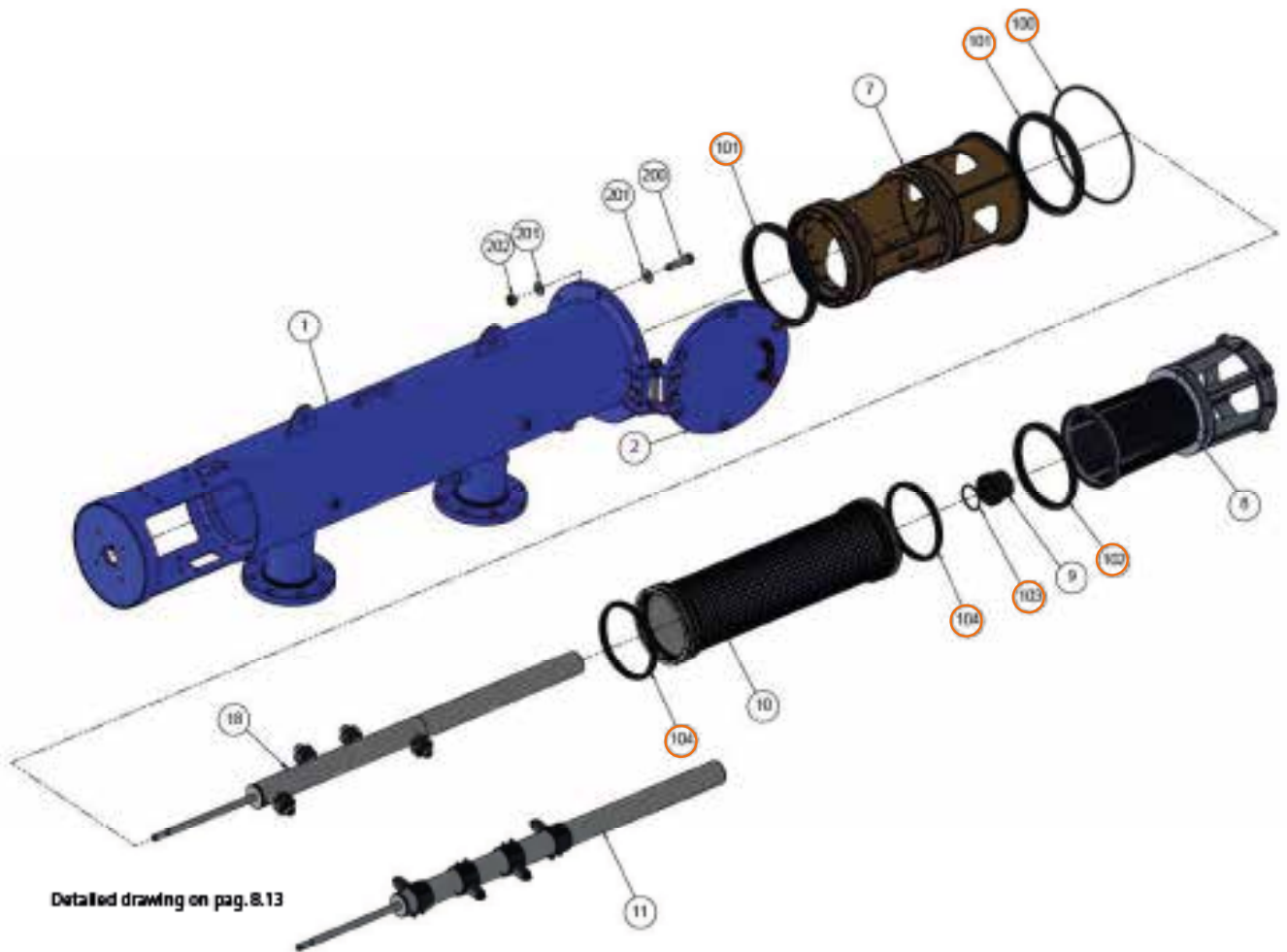
Item	Amiad SAF-XN maintenance sets	Article number
	SAF-XN 1500 SLN maintenance set	74480-080100
	SAF-XN 3000 SLN maintenance set	74480-080110
	SAF-XN 4500 SLN maintenance set	74480-080120
	SAF-XN 1500 STD maintenance set	74480-080130
	SAF-XN 3000 STD maintenance set	74480-080140
	SAF-XN 4500 STD maintenance set	74480-080150
	SAF-XN maintenance set T134	74480-080160

Item	Amiad SAF-XN installation sets	Article number
	SAF-XN 2" installation set	02227-303201
	SAF-XN 3" installation set	02227-303202
	SAF-XN 4" installation set	02227-303203
	SAF-XN 6" installation set	02227-303204

Item	Amiad SAF-XN lubricants maintenance kit	Article number
	Lubricant tube Mylokote PG-21 100 gram*	/
	Lubricant tube Spanjaard 100 gram**	/

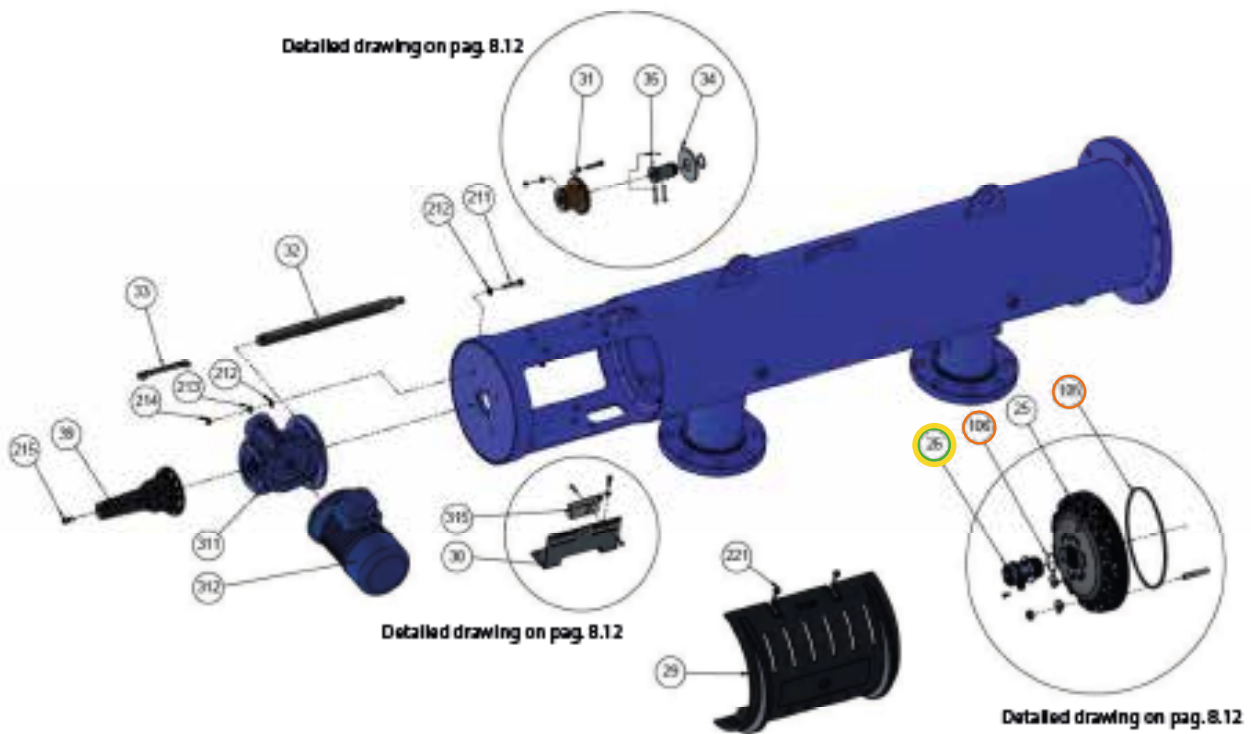
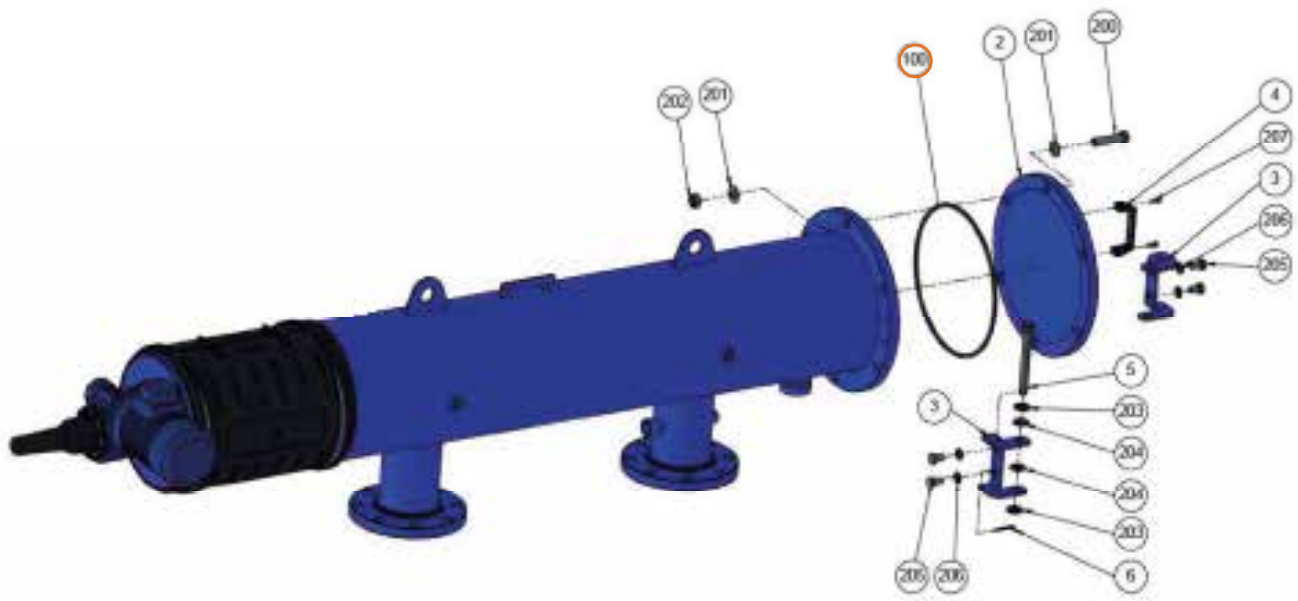
\* for lubricating rubbers and sliding bearings in the SAF-XN filter  
 \*\* for lubricating mechanical transmissions outside the SAF-XN filter

PARTS DRAWING SAF-XN 1500 / 3000 / 4500

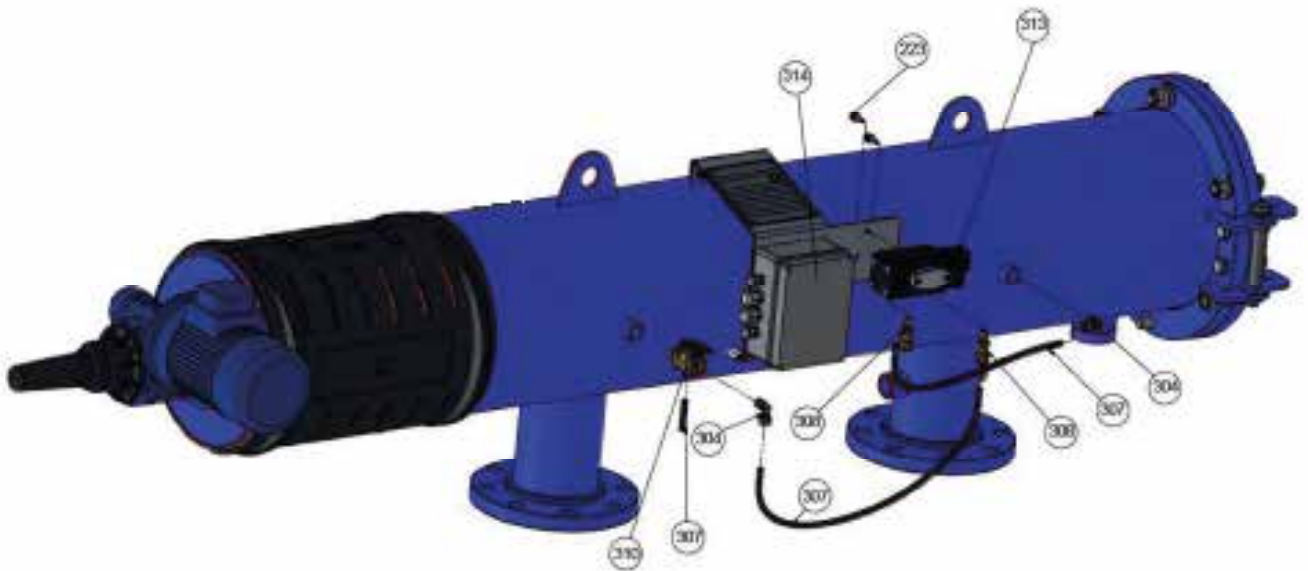
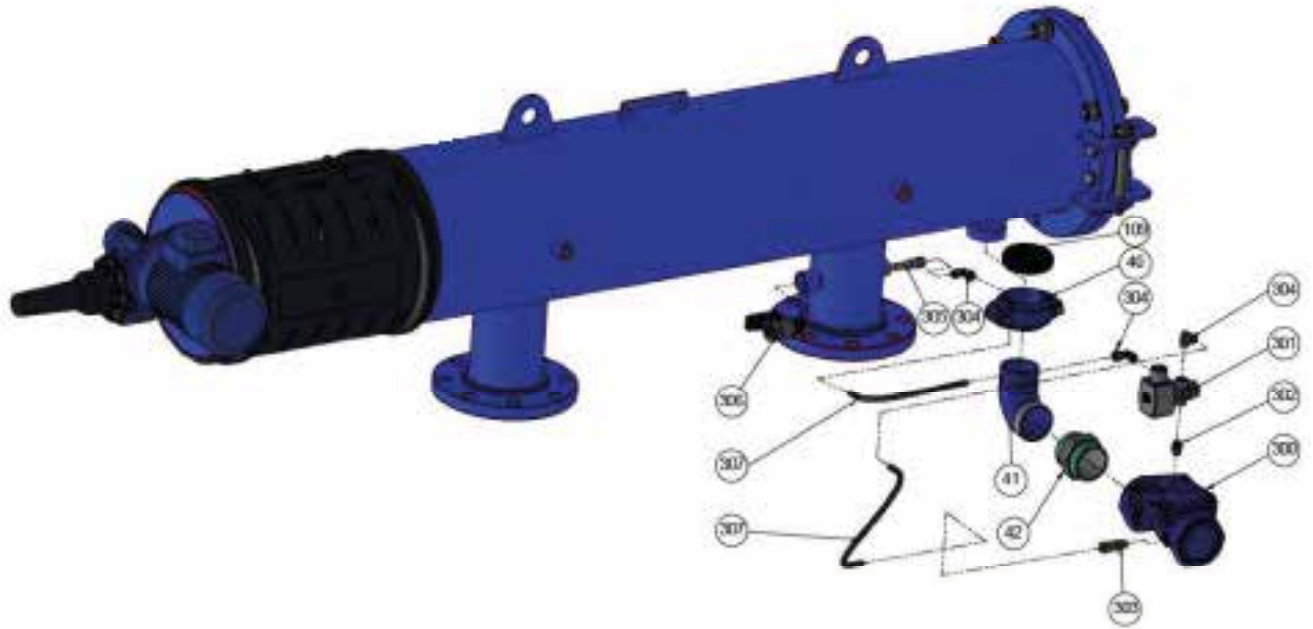


Detailed drawing on pag. 8.13

PARTS DRAWING SAF-XN 1500 / 3000 / 4500

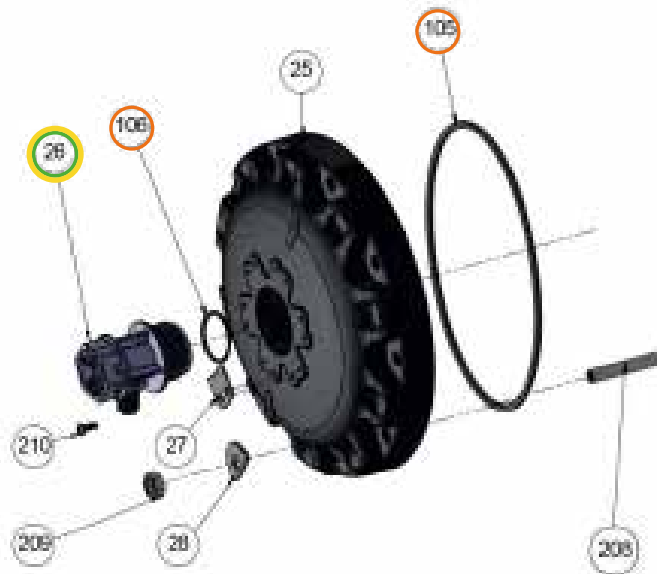
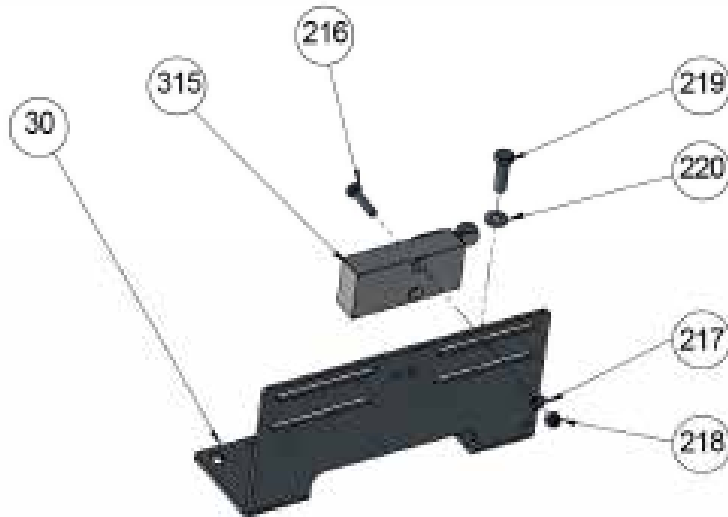
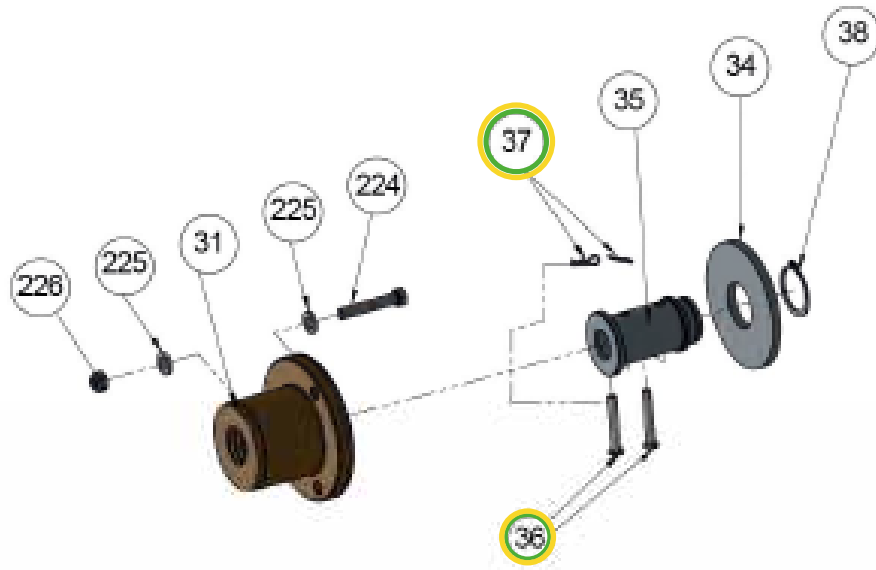


PARTS DRAWING SAF-XN 1500 / 3000 / 4500



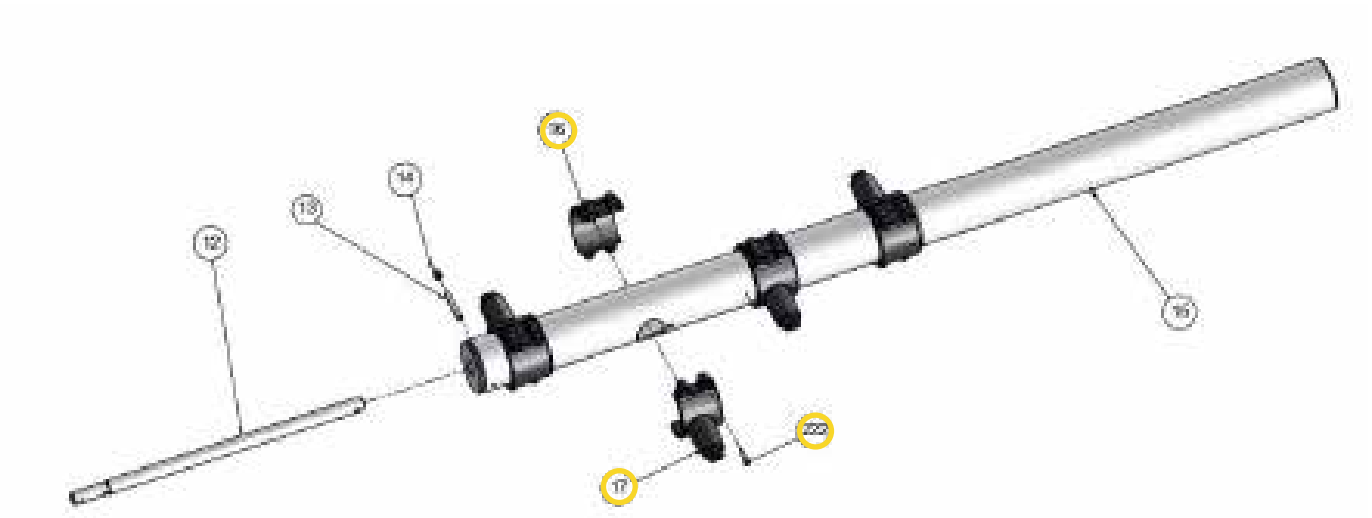
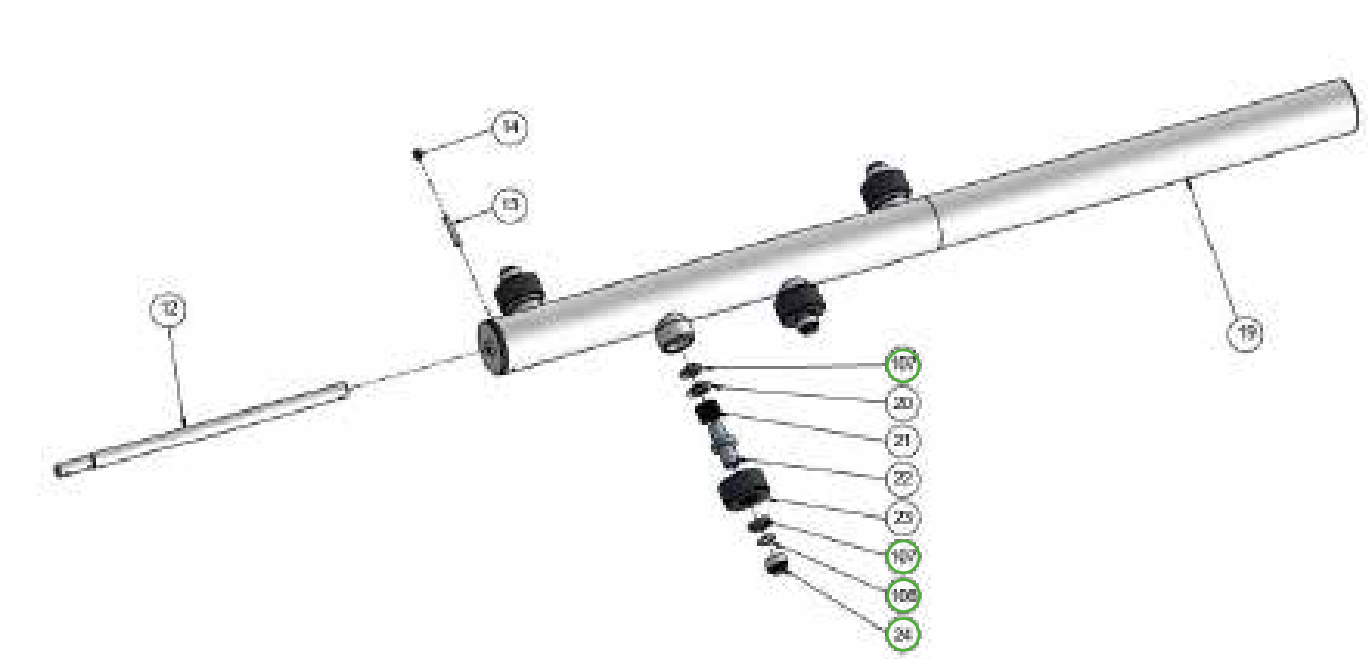


PARTS DRAWING SAF-XN 1500 / 3000 / 4500

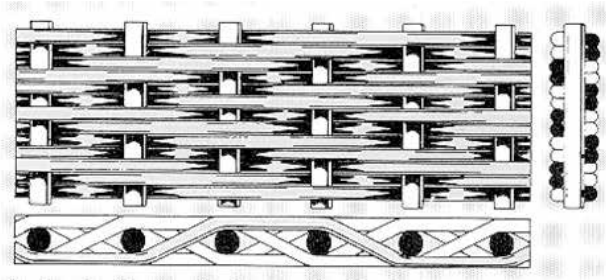


### PARTS DRAWING SAF-XN 1500 / 3000 / 4500\*

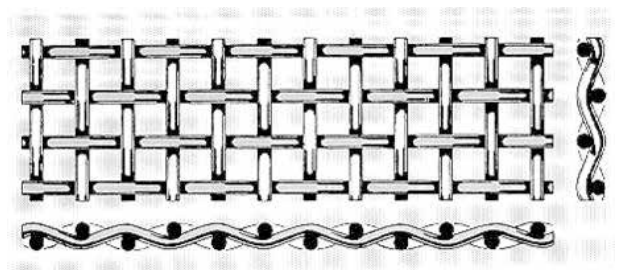
\* In the schematic drawing a SAF-XN 3000 suction scanner is shown with 4 nozzles, different from SAF-XN 1500 and 4500



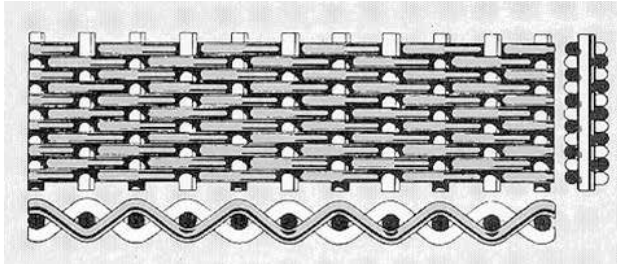
## STRUCTURE OF FILTER SCREENS



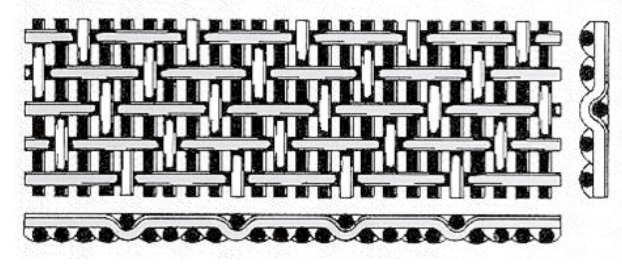
100-200 micron



> 200 micron



50-80 micron



10 micron

## INSTALLATION & MAINTENANCE

### Installation

- ✓ Pre-filtration with 250 micron is recommended when filtering surface water and drain water (10-50 micron, ebb and flood systems also 80 micron).
- ✓ For the installation of an 8" SAF filter with 16 bar bore, a special adapted flange 225 mm is available (77300-000350), this fits on a VDL flange adapter DN200-225 mm (77300-103552) in combination with a rubber ring for flange adapter 225 mm (77300-104735). The regular VDL PVC flange and flange adapter fit on the 8" SAF filter with 10 bar bore.
- ✓ Before installation, read the manual where you will find drawings and installation instructions.
- ✓ Install a non-return valve on the outgoing side to prevent damage due to water hammer, etc.
- ✓ Ensure that the correct screen is installed, that the installation sequence is correct and that the seals are fitted (see manual for SAF filters)
- ✓ Ensure sufficient earthing of the filter housing to avoid the risk of stress corrosion cracking.



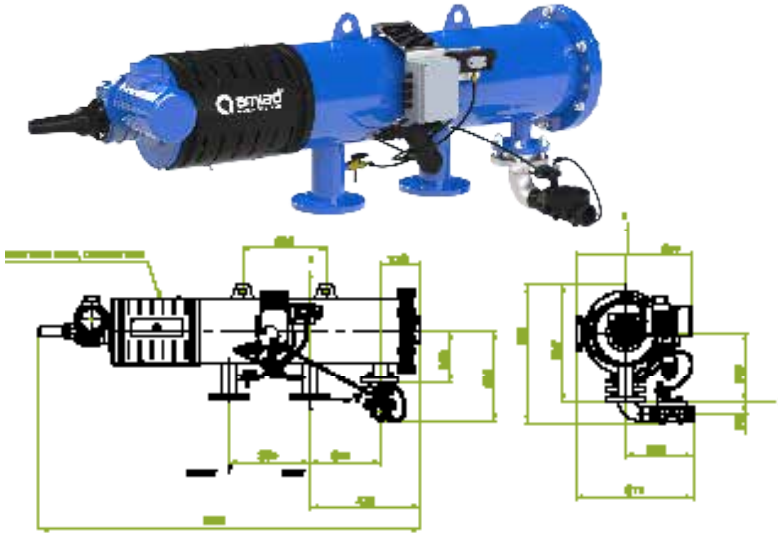
SAF-XN earth point at the end contacts

### Maintenance

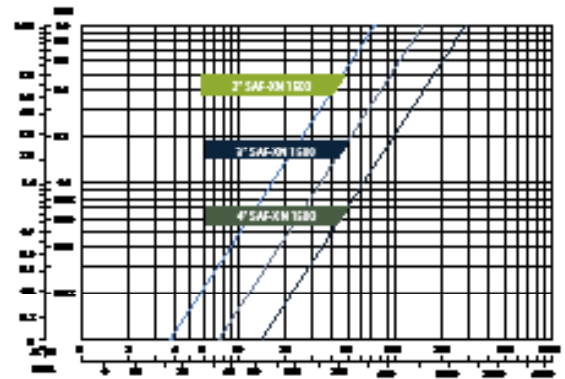
- ✓ We recommend that the function of the SAF filter and screen is checked at regular intervals, depending on the application, but at least once a year. For maintenance: See the manual and SAF maintenance checklist.
- ✓ The maintenance frequency of SAF filters is linked to the flushing frequency of the filter, which in turn is proportional to the amount of pollution in combination with applied filtration degree and capacity. With regular applications such as drip irrigation or overhead irrigation, once a year is usually sufficient. With UV disinfectants, maintenance usually also takes place once a year, or depending on the pollution load and capacity, 2 or even 3 times a year.
- ✓ Standard parts kits are available for regular maintenance, which are sufficient in most cases. Of course, these do not take specific local situations into account.
- ✓ Cleaning of the SAF filter screen in case of organic contamination takes place by exposing the screen to 0.1% hydrogen peroxide for a maximum of 30 minutes. For inorganic contamination we recommend 1% hydrochloric acid for max. 10-20 min. Note the removal of rubbers. After cleaning, the screen filter should be rinsed well (see also the SAF maintenance advice).
- ✓ A repair kit for SAF filters for treatment against corrosion is also available. This kit includes i.a. epoxy coating, thinner and a brush.

TECHNICAL DRAWINGS AND DIAGRAMS

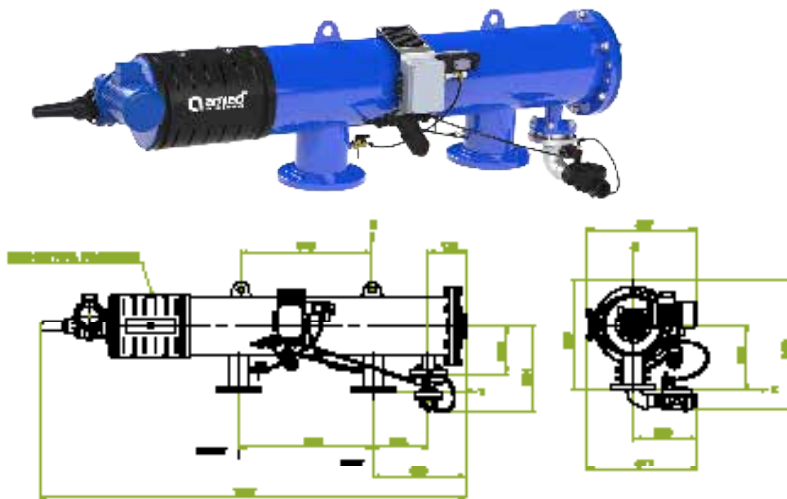
SAF-XN 1500 (2")



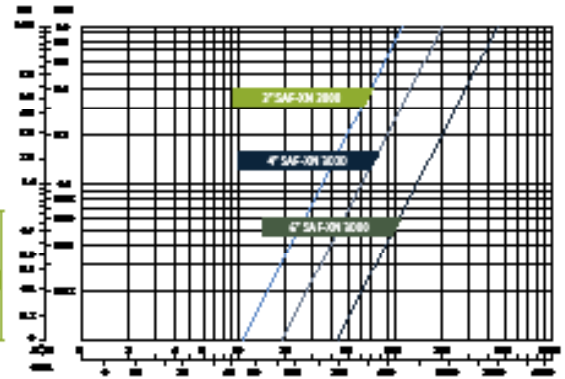
Pressure loss (clean water)



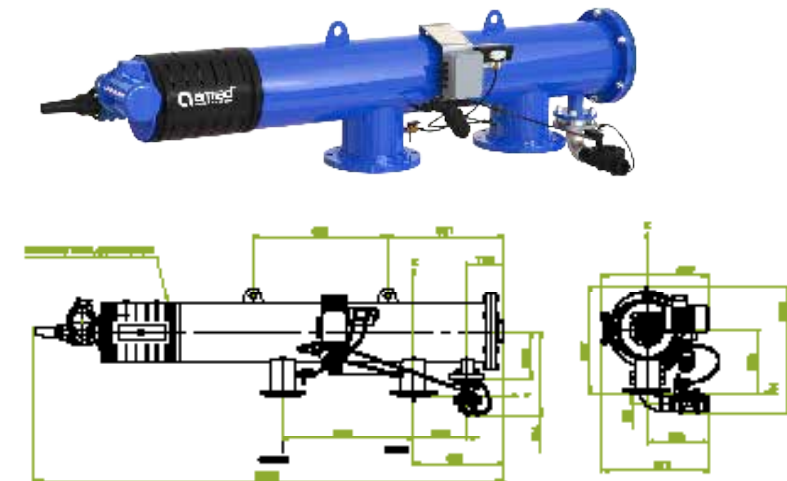
SAF-XN 3000 (3")



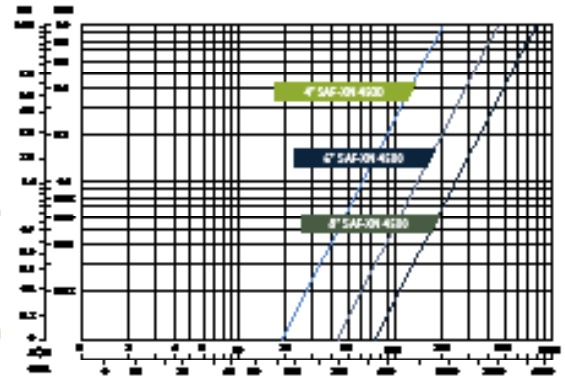
Pressure loss (clean water)



SAF-XN 4500 (4")



Pressure loss (clean water)



## CONTROL BOARD TYPE E

Compared to its predecessor type C, the flush controller type E has been completely renewed. The beating heart of this controller is a new Siemens Logo! PLC, which provides clear information about flushing cycles and settings to its user. This PLC is also very easy to operate and settings such as flushing interval or time starts can be easily set. The adjustment options and reliability of the coil controller have also been greatly improved. The Type-E controller is used to flush SAF-XN filters. The pressure difference switch of the SAF-XN filter can serve as an input to flush when the pressure difference is too high. However, it is also possible to flush at fixed time settings or time intervals. The filter can also be started externally, for example by a start contact of a horticultural or irrigation computer. The controller can be paused when the motor thermal protection is active and can trigger an external alarm.

## APPLICATION

The type-E coil controller for SAF-XN filters is mainly used when the SAF-XN filter is used completely autonomously and/or outside an irrigation unit. But also where the flush control is not already integrated in the existing control panel on the unit.

## CHARACTERISTICS

- ✓ Suitable for all SAF(-XN) filters
- ✓ All-in-one control
- ✓ Compact housing
- ✓ Flushing on: time, differential pressure, manual or continuous setting
- ✓ Flushing counter
- ✓ Alarm output + indicator
- ✓ 8 Digital Inputs
  - Differential pressure switch
  - Upper limit switch
  - Lower limit switch
  - Start
  - Reset
  - Select SAF mod
  - External start
  - Thermal motor protection
- ✓ 4 Digital Outputs
  - Turn engine left
  - Turn engine right
  - Flush valve open/close (24VAC solenoid)
  - External alarm

## TECHNICAL DATA

Voltage	: 230/400VAC, 3-phase, 50/60Hz
Control voltage	: 24VAC
Protection	: IP65
Weight	: 7kg
Sizing	: 40x30x20 cm
Standard	: CE norm

## INSTALLATION & MAINTENANCE

### Installation

- ✓ Installation of Type-E controllers should only be performed by qualified personnel.
- ✓ Please note that sufficient space is maintained around the panel for maintenance and to perform future work in a safe and secure way.
- ✓ Electrical installation must be performed in accordance with the installation and safety regulations applicable in the country of installation.
- ✓ Mount the controller panel within sight of the filter so any manual operation of the filter connected to the panel can be done safely and checked visually.

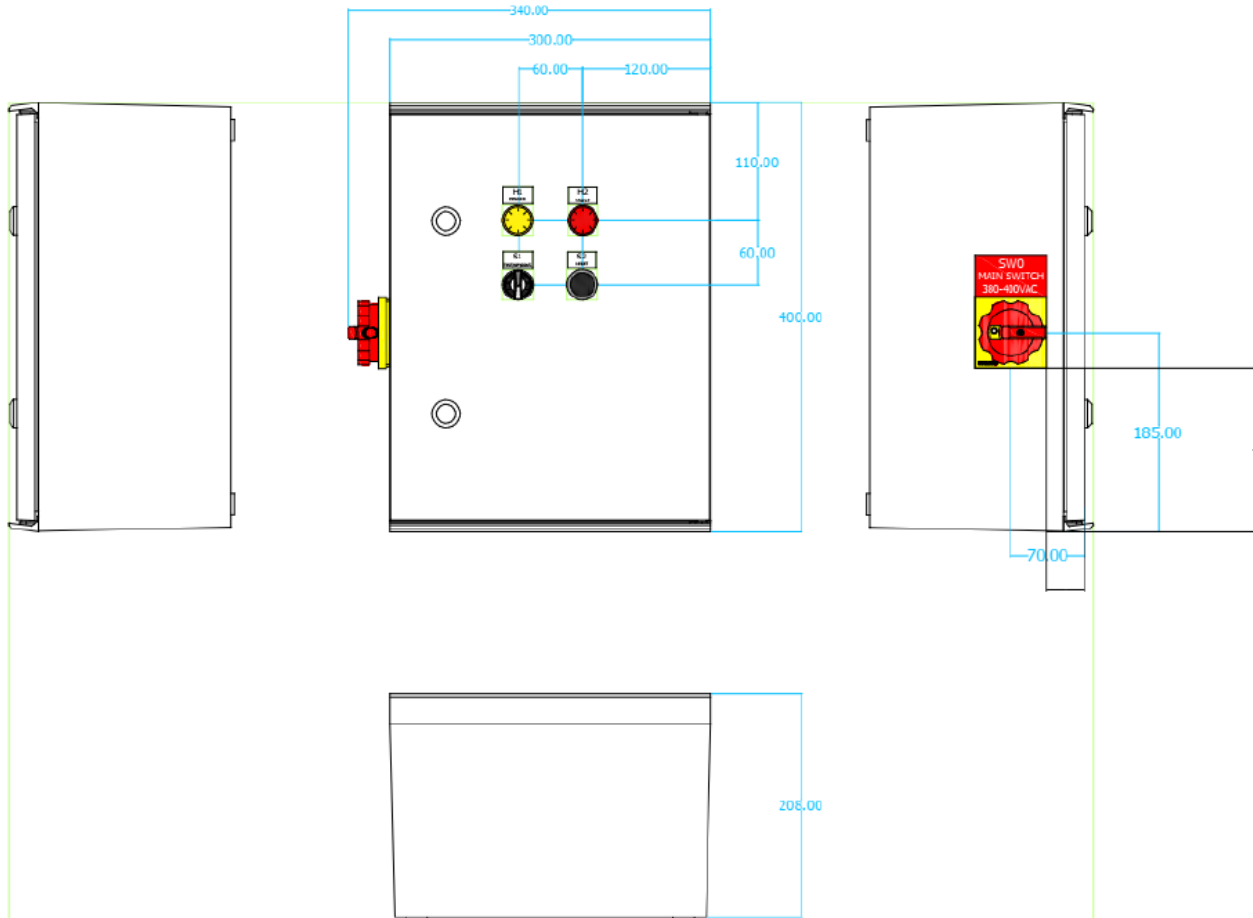
### Maintenance

- ✓ Maintenance of the SAF-XN filter and Type-E controller should only be performed by qualified personnel.
- ✓ Always disconnect the power before performing work on the controller or filter.



## TECHNICAL DRAWING

### Amiad flush controller type E



## APPEARANCE

