

INSTALLATION, SERVICE AND MAINTENANCE INSTRUCTIONS

RIGHT ANGLE FILTER 82700



11.103.32.0001



EC Declaration of Conformity

Manufacturer: **INOXPA, S.A.U**
Telers, 60
17820 - Banyoles (Girona)

We hereby declare that the following products:

<u>FILTER</u>	<u>RIGHT ANGLE FILTER - 82700</u>
Name	Type

Conform with the provisions of the Council Directive:

Pressure Equipment Directive 2014/68/UE, the abovementioned equipment has been designed and manufactured in accordance with the requirements of this Directive

Max. Operating pressure: DN - 25/1" à DN - 150/6" = 10 bar

Diameter: DN - 25 ≤ X ≤ DN - 50

Equipment category: SEP = Sound Engineering Practice, determined according to Article 3 Section 3, first paragraph Annex II, table 1

This material SHALL NOT carry EC marking

Diameter: X = DN - 65 - 80

Equipment category: Category I, determined according to Article 3, Section 1.1.a, first paragraph Annex II, table 1

This material SHALL carry EC marking.

Conformity Assessment Module: Module A

Diameter: X = DN - 100/125/150

These filters are subject to the following assessment procedure, Module A, Category I, fluids group 2.

This material SHALL carry EC marking.

In compliance with **Regulation EC n° 1935/2004**, relating to materials and articles intended to come into contact with food, the materials in contact with the product do not transfer their constituents to the product in quantities which could endanger human health.



David Reyero Brunet
Technical manager
Banyoles, January 15th, 2019

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2. Generalities

2.1. INSTRUCTIONS MANUAL

This manual contains information about the reception, installation, operation, assembly, disassembly and maintenance of the right angle filter 82700.

Carefully read the instruction prior to starting the filter, familiarize yourself with the installation, operation and correct use of the filter and strictly follow the instructions. These instructions should be kept in a safe location near the installation area.

The information published in the instruction manual is based on updated data.

INOXPA reserves the right to modify this instruction manual without prior notice.

2.2. COMPLIANCE WITH THE INSTRUCTIONS

Not following the instructions may impose a risk for the operators, the environment and the machine, and may result in the loss of the right to claim damages.

This non-compliance may result in the following risks:

- failure of important machine/plant functions,
- failure of specific maintenance and repair procedures,
- possible electrical, mechanical and chemical hazards,
- risk to the environment due to the type of substances released.

2.3. WARRANTY

Any warranty will be void immediately and lawfully and, additionally, INOXPA will be compensated for any civil liability claims submitted by third parties, in the following cases:

- the service and maintenance work have not been carried out in accordance with the service instructions, the repairs have not been carried out by our personnel or have been carried out without our written authorisation,
- modifications have been carried out on our material or equipment without written authorisation,
- the parts or lubricants used are not original INOXPA parts and products,
- the material or equipment has been improperly used, has been used negligently, or has not been used according to the instructions and their intended.

The General Conditions of Delivery already in your possession are also applicable.



The machine may not undergo any modification without prior approval from the manufacturer. For your safety, only use original spare parts and accessories.

The usage of other parts will relieve the manufacturer of any liability.

Changing the service conditions can only be carried out with prior written authorization from INOXPA.

Please do not hesitate to contact us in case of doubts or if further explanations are required regarding specific data (adjustments, assembly, disassembly, etc.).

3. Security

3.1. WARNINGY SYMBOLS



Safety hazard for people in general and/or for equipment

ATTENTION

Important instruction to prevent damage to the equipment and its functions

3.2. GENERAL SAFETY INSTRUCTIONS



Read the instruction manual carefully before installing and using the filter for the first time. Contact INOXPA in case of doubt.

3.2.1. During the installation



The [Technical Specifications in chapter 9](#) should always be observed.

The installation and use of the filter must always be carried out in accordance with applicable health and safety regulations.

Before using the filter, verify that it is correctly assembled and that the clamp is securely closed.

3.2.2. During operation



The [Technical Specifications in chapter 9](#) should always be observed. Under no circumstances can the limit values specified be exceeded.

Never touch the filter and/or the lines that are in contact with the liquid during operation. A burn hazard exists when working with hot products.

3.2.3. During maintenance



The [Technical Specifications in chapter 9](#) should always be observed.

NEVER disassemble the filter until the pipes have been emptied. Bear in mind that the liquid in the line may be dangerous or extremely hot. Consult the regulations in effect in each country for these cases.

Do not leave loose parts on the floor.

4. General Information

4.1. DESCRIPTION

The filter basically consists of a filter body with an inlet and an outlet for the product.

The screen is fixed inside the body. The screen retains all particles that are equal or larger than the size of the screen openings.

They have a hygienic design and are used to filter particles capable of damaging pumps and other equipment.

The filters are suitable for contact with food products.

4.2. OPERATING PRINCIPLE

The liquid enters the filter and the largest solid particles are trapped by the strainer screen inside the filter. The filtered liquid exists through the filter outlet.

4.3. APPLICATION

Filters have a wide range of applications in the food-processing, cosmetics and some chemical industries as well as in auxiliary services of the pharmaceutical industry.



ATTENTION

Do not modify the operating parameters for which the filter has been designed without prior written authorisation from INOXPA.

5. Installation

5.1. RECEPTION OF THE FILTER



INOXPA is not liable for any deterioration of the material caused by its transport or unpacking. Visually check that the packaging has not been damaged.

The first thing to do on receiving the filter is to check it and verify that it matches the delivery note. INOXPA will inspect all the equipment before packing, although it cannot guarantee that the merchandise will arrive intact to the user. Ensure that the filter has not been damaged in any way. If it is not in good condition and/or any parts are missing, the carrier must submit a report as soon as possible.

The following documentation is included with the filter:

- shipping documents,
- instructions and servicing manual for the filter.

5.2. IDENTIFICATION OF THE FILTER

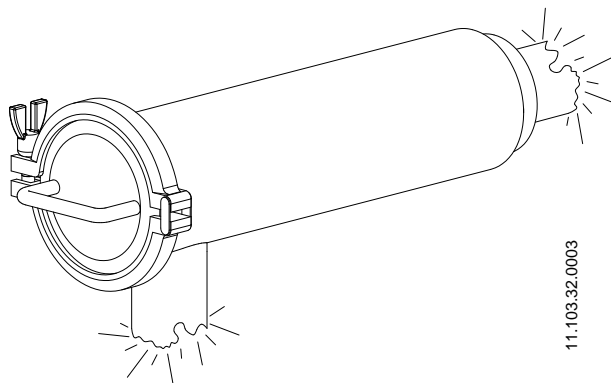
F	0	330	-	11	06	52	050	101
Strainer type								
PERFORATED SHEET: ROUND WEDGE WIRE SCREEN								
005			0,05 mm			T05 0,05 mm		
010			1,0 mm			T10 0,1 mm		
020			2,0 mm			T20 0,2 mm		
025			2,5 mm			T30 0,3 mm		
050			5,0 mm			T40 0,4 mm		
PERFORATED SHEET: LONGITUDINAL								
101			10 x 1 mm					
Nominal diameter								
025		DN 25 (DN 1")						
032		DN 32 (DN 1 ¼")						
040		DN 40 (DN 1 ½")						
050		DN 50 (DN 2")						
063		DN 2 ½"						
065		DN 65						
076		DN 3"						
080		DN 80						
100		DN 100 (DN 4")						
Seal material								
40		NBR						
52		EPDM						
80		FPM						
Body material								
06		AISI 316L						
Connection type								
00		Welded						
11		Male						
33		Nut						
77		Clamp						
88		Flange						
Filter type								
130		Straight filter						
230		Y-filter						
330		Right angle filter						
Connection type								
0		DIN 11851						
1		OD ASME						
2		SMS FRANCE						
3		GAS DIN 259						
4		ASEPTICO DIN 11864						
5		ASEPTICO DIN 11864 PULGADAS						
6		RJT UK						
7		MACON FRANCE						
8		FIL						
Product family								
F		Filters						

5.3. LOCATION

Place the filter in such a way as to facilitate inspections and checks. Leave sufficient space around the filter for appropriate inspection, separation and maintenance. It is very important to ensure that enough space is available for removing the strainer screen.

5.4. INSTALLATION

Once the filter has been installed at the desired location it can be connected to the pipeline by welding the filter body or by means of accessories (connectors).

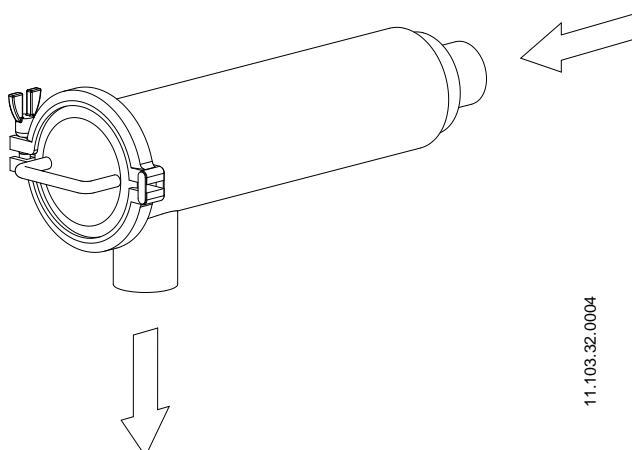


Excessive stress should be avoided during the installation of the filter and special attention should be given to the following:

- vibrations which may be produced during the installation,
- the expansion of the lines during the circulation of hot liquids,
- the weight that the lines can withstand,
- excessive welding current.

5.5. FINAL CHECK

Check the following before use, check the flow direction of the product. The drawing on the right shows the recommended installation position. The solids are trapped inside the strainer screen and remain in its interior when it is removed.



5.6. WELDING



Any welding work may only be carried out by qualified personnel that has been suitably trained and equipped with the necessary means to carry out this work.

Disassemble the filter before starting the welding work.

- Disassemble the filter as indicate in the [chapter 8. Maintenance](#).
- Weld the filter body to the pipework.

6. Start-up



Before operating the filter, the persons responsible should be duly informed about the operation of the filter and the safety instructions to be followed. This instruction manual should be available to personnel at all times.

The following should be taken into consideration before using the filter:

- check that the pipeline and the filter are completely free from any traces of welding or other foreign matter. Proceed to clean the system if required,
- check for possible leaks and check that all the lines and connections are watertight and free from leaks,
- open the circuit.



Visually check that no leaks are present in the sealed area.



Do not modify the operating parameters for which the filter has been designed without prior written authorisation from INOXPA.

⚠ Burn hazard! Do not touch the filter or pipes when hot liquids are circulating or when cleaning and/or sterilisation procedures are being carried out.

7. Troubleshooting

The attached table lists solutions to problems that may arise while operating the filter. It is assumed that the filter has been properly installed and that it has been selected correctly for the specific application. Contact INOXPA if technical assistance is required.

External product leak													
↓	No product is flowing through the pipeline												
↓	Excessive sediments pass through the filter												
↓	<table border="1"> <thead> <tr> <th>PROBABLE CAUSES</th> <th>SOLUTIONS</th> </tr> </thead> <tbody> <tr> <td>• The clamp seal is worn or deteriorated</td> <td>Replace the clamp seal Replace the seal material</td> </tr> <tr> <td>• The sealing clamp is not sufficiently tight</td> <td>Tighten the sealing clamp</td> </tr> <tr> <td>• The strainer screen is blocked</td> <td>Remove and clean the strainer screen</td> </tr> <tr> <td>• The pipe is blocked</td> <td>Unblock the pipe</td> </tr> <tr> <td>• The strainer screen is defective or damaged</td> <td>Replace the strainer screen</td> </tr> </tbody> </table>	PROBABLE CAUSES	SOLUTIONS	• The clamp seal is worn or deteriorated	Replace the clamp seal Replace the seal material	• The sealing clamp is not sufficiently tight	Tighten the sealing clamp	• The strainer screen is blocked	Remove and clean the strainer screen	• The pipe is blocked	Unblock the pipe	• The strainer screen is defective or damaged	Replace the strainer screen
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• The pipe is blocked	Unblock the pipe												
• The strainer screen is defective or damaged	Replace the strainer screen												



If the problems persist stop using the filter immediately. Contact the filter manufacturer or the representative.

8. Maintenance

8.1. GENERAL CONSIDERATIONS

This filter, just like any other machine, requires maintenance. The instructions contained in this manual cover the identification and replacement of spare parts. The instructions are aimed at maintenance personnel and those responsible for the supply of spare parts.



Carefully read the chapter [9. Technical Specifications](#).

Maintenance work can only be carried out by qualified personnel that are trained and equipped with the necessary resources to carrying out this work.

All parts or Materials that are replaced must be properly disposed of/recycled in accordance with the current directives applicable in each area.

8.2. MAINTENANCE

The following is recommended for correct maintenance:

- regular inspection of the filter and its components,
- keep a record of the operation of each filter, noting any incidents,
- always have spare seals in stock.

During maintenance, pay particular attention to the danger warnings indicated in this manual.



The filter and pipes should never be pressurised during maintenance.

The filter should never be hot during maintenance. Burn hazard!

8.2.1. Maintenance of the seals

Preventive maintenance	Replace after twelve months
Maintenance after a leak	Replace at the end of the process
Scheduled maintenance	Check for the absence of leaks on a regular basis Keep a record of the filter Use statistics to plan inspections

The time interval between each preventive maintenance operation may vary according to the working conditions to which the filter is subjected: temperature, pressure, particle diameter, type of cleaning solutions used, etc.

8.2.2. Storage

The filters should be stored in a closed area, under the following conditions:

- temperature: 15°C to 30°C
- air humidity: <60%

Open-air storage of the equipment is not permitted.

8.2.3. Spare parts

To request spare parts, it is necessary to indicate the type of filter, the position and the description of the part which can be found in the chapter [9. Technical Specifications](#).

8.3. CLEANING



The use of aggressive cleaning products such as caustic soda and nitric acid may burn the skin.
Use rubber gloves during the cleaning process.
Always use protective goggles.

- Loosen and remove the sealing clamp, check the seal.
- Remove the filter by pulling from its handle, check the internal O-ring seal.
- Clean the filter outside of its housing, do not allow any particles or deposits adhering to the strainer to dry out because its subsequent cleaning would be very difficult. See chapter [8.4 Disassembly and Assembly of the filter](#).
- Insert the assembly into its housing.

8.3.1. CIP (clean-in-place) cleaning

Cleaning solutions for CIP processes

Only use clear water (chlorine-free) to mix with the cleaning agents:

a) Alkaline solution: 1% by weight of caustic soda (NaOH) a 70°C (150°F)

1 Kg NaOH + 100 l H₂O = cleaning solution

o

2,2 l NaOH al 33% + 100 l H₂O = cleaning solution

b) Acid solution: 0,5% by weight of nitric acid (HNO₃) a 70°C (150°F)

0,7 l HNO₃ al 53% + 100 l H₂O = cleaning solution



Check the concentration of the cleaning solutions; incorrect concentrations may lead to the deterioration of the filter seals.

Before beginning with the disassembly and assembly tasks, clean both the interior and exterior of the filter.

To remove any remains of cleaning products, ALWAYS perform a final rinse with clean water upon completion of the cleaning process.

8.3.2. Automatic SIP (sterilization-in-place)

Sterilization with steam is applied to all equipment including pigging.



The parts/materials will not be damaged if the indications specified in this manual are observed.
No cold fluid can enter the equipment until the temperature of the equipment is lower than 60°C (140°F).

Maximum conditions during the SIP process with steam or overheated water:

- Maxim temperature: 140°C / 284°F
- Maximum time: 30 min
- Cooling: sterile air or inert gas
- Materials: EPDM / FPM / NBR

8.4. DISASSEMBLY AND ASSEMBLY OF THE FILTER



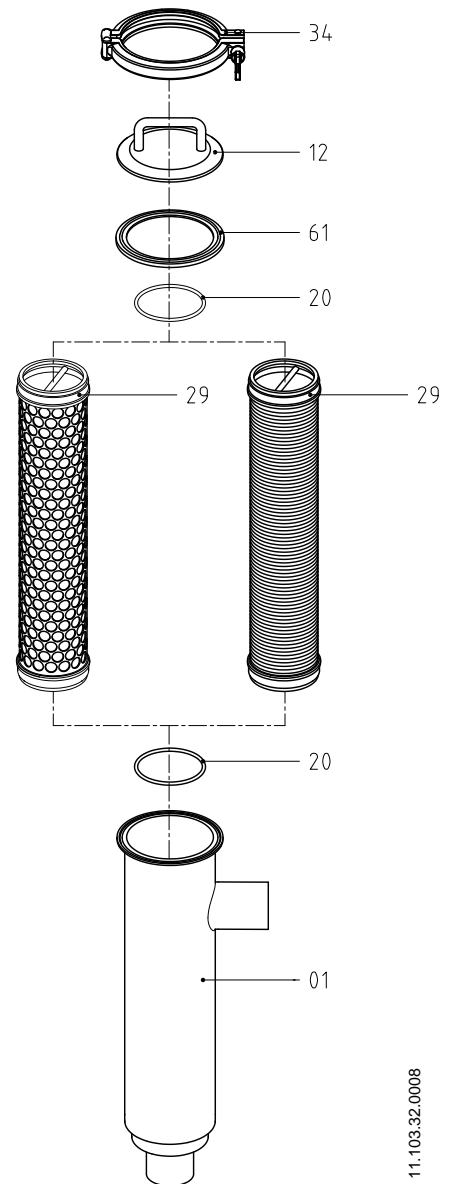
Assembly and disassembly of the filter must only be carried out by qualified personnel.

8.4.1. Disassembly of the filter

- Depressurise and drain the pipelines in the circuit.
- Remove the sealing clamp (34) from the filter.
- Remove the filter cover (12) of the filter body (01).
- Pull out the strainer screen (29) from the filter body (01).
- Remove and check the clamp seal (61) and the O-ring (20).

8.4.2. Assembly of the filter

- Place the O-rings (20) on the strainer screen (29).
- Insert the assembly in the filter body (01).
- Place the clamp seal (61) on the filter body (01).
- Tighten the sealing clamp (34) joining the strainer screen (29) and the filter body (01).



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9. Technical Specifications

9.1. MATERIALS

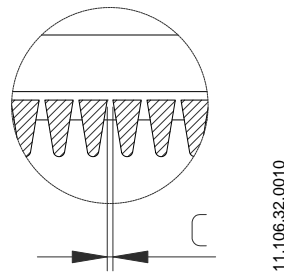
Parts in contact with the product	AISI 316L
Other steel parts	AISI 304
Retainer	EPDM (standard) – NBR – FPM
Type of connections	Welding (standard), DIN 11851, FIL-IDF, BS-RJT, Clamp, flanges, Macon
Internal Surface finish	$Ra \leq 0,8 \mu m$
External Surface finish	Mirror polished

9.2. OTHER FEATURES

Maximum working pressure	10 bar
Maximum working temperature	121°C (250°F) standard EPDM seals (other seal materials supplied for higher temperatures)

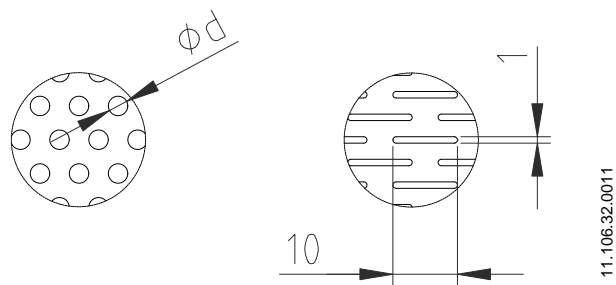
STRAINER SCREEN: WEDGE WIRE

Eq. mesh C	mm	Useful surf. (%)
40	0,40	28
60	0,30	23
80	0,20	17
165	0,10	10
325	0,05	5

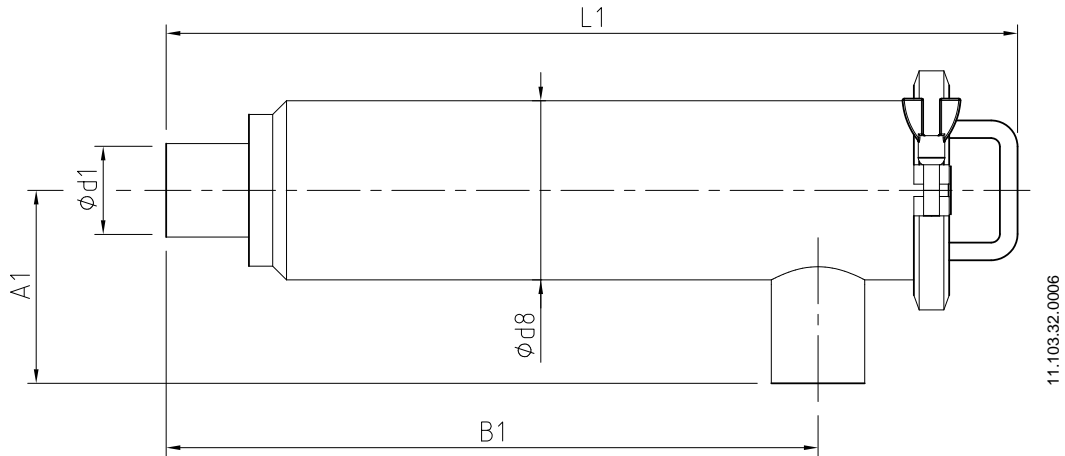


STRAINER SCREEN: PERFORATED PLATE

A (mm)	Useful surf. (%)
0,5	15
1	28
2	30
5	46
10 x 1	20



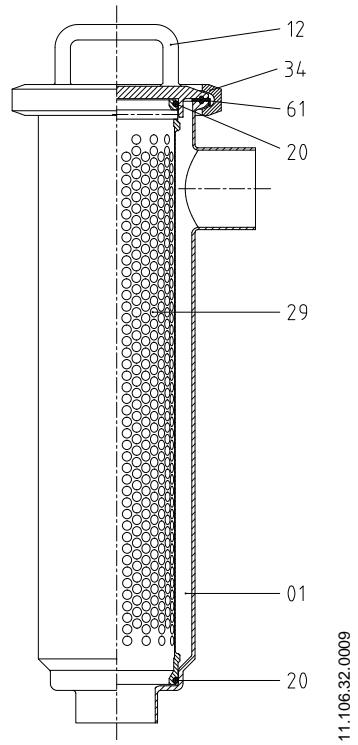
9.3. DIMENSIONS AND WEIGHTS



WELD / WELD DIN						
DN	d1(ØID)	d8	A1	B1	L1	kg
25	26	76,2	90	300	399	2,8
32	32	76,2	95	300	399	2,8
40	38	101,6	100	370	486	4,1
50	50	101,6	110	370	486	4,1
65	66	114,3	120	525	663	6,9
80	81	114,3	145	525	663	6,9
100	100	154,0	155	676	823	13,3
125	125	219,1	175	912	1089	19,0
150	150	219,1	175	912	1089	20,0

WELD / WELD OD						
DN	d1(ØID)	d8	A1	B1	L1	kg
1"	22,1	76,2	76	300	399	2,8
1 ½"	34,8	101,6	95	370	486	4,1
2"	47,5	101,6	121	370	486	4,1
2 ½"	60,2	114,3	140	525	663	6,9
3"	72,9	114,3	159	525	663	6,9
4"	97,4	154,0	203	676	823	13,3
6"	146,8	219,1	220	920	1097	25,1

9.4. EXPLODED DRAWING AND PARTS LIST

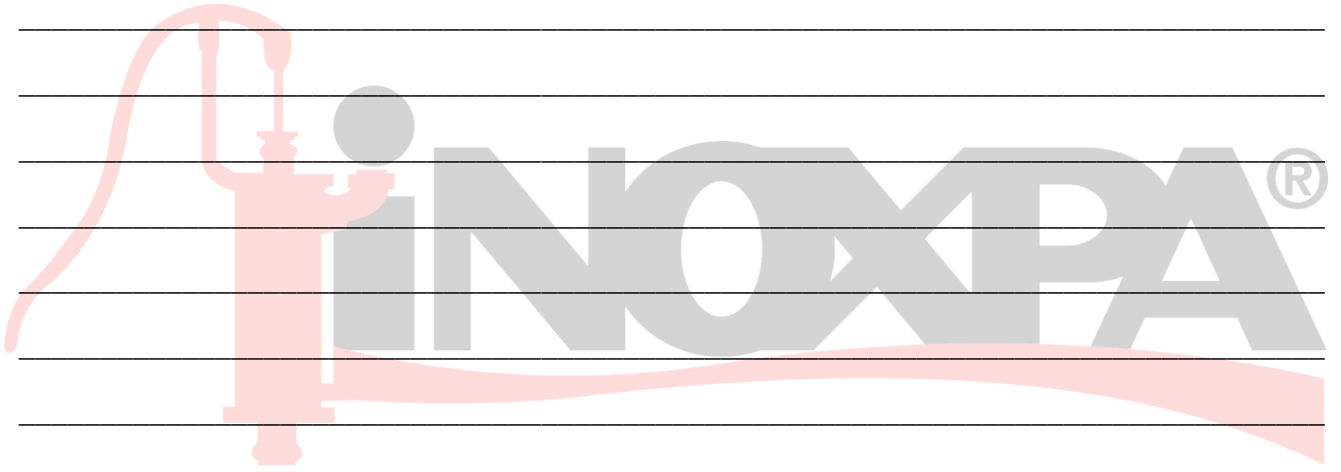


Position	Description	Quantity	Material
01	Filter body	1	AISI 316L
12	Filter cover	1	AISI 316L
20	O-ring	2	EPDM
29	Strainer screen	1	AISI 316L
34	Sealing clamp	1	AISI 304
61	Clamp seal	1	EPDM

NOTES



NOTES



How to contact INOXPA S.A.U.:

Contact details for all countries are continually updated on our website.

Please visit www.inoxpa.com to access the information



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