

HIGH PRESSURE FILTERS

INSTALLATION,
SERVICE AND
MAINTENANCE
MANUAL
AND SAFETY
INSTRUCTIONS

HPB050
BOWL KIT



EN



PASSION  PERFORM



TABLE OF CONTENTS

	Page
1. Description	2
2. General warnings	2
3. Tools	2
4. Handling	2
5. Dimensional drawings	4
6. Installation	5
7. Commissioning	5
8. Standard maintenance	6
8.1 Filter element replacement	6
9. Special maintenance	8
9.1 Seals replacement	8
10. Instructions for use in explosive atmospheres	10
11. Regulations	10
12. Spare parts list	11
13. Ordering code	12
13.1 Bowl assembly	12
13.2 Filter element	13
14. Troubleshooting	14
14.1 Misuse of the product	14
14.2 Leaks of working fluid	14



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1. Description

The hydraulic filters are components used to remove the contaminants from the hydraulic fluids used in the hydraulic systems, maximum pressure up to 420 bar, flow rate up to 150 l/min.

2. General warnings

- Before the installation, use or maintenance of the filter carefully read the manual
- The system and the filter are pressurised! Be sure the system is at ambient pressure before starting any activity
- The fluid temperature inside the system and the filter can cause injuries to personnel or create a hazardous environment
- Any activity must be carried out by trained and certified specialists, they must use the correct protective equipment
- Any activity must be carried out using the correct tool
- Any activity must be carried out in accordance with the laws in force in the country where the system is in operation
- The data shown onto the nameplate must be complete and legible during the whole filter working life
- Connect the filter with an anti-loosening system and regularly check the condition of the connection
- The declared performances and the safety of the product are only guaranteed when MP Filtri original spare parts are used
- Warranty is only effective if MP Filtri original spare parts are used.

3. Tools

HPB050	TOOLS	TIGHTENING TORQUE
Bowl	Wrench A/F 30	65 N·m
Drain plug G 1/4	Allen key A/F 6	20 N·m

HPB050

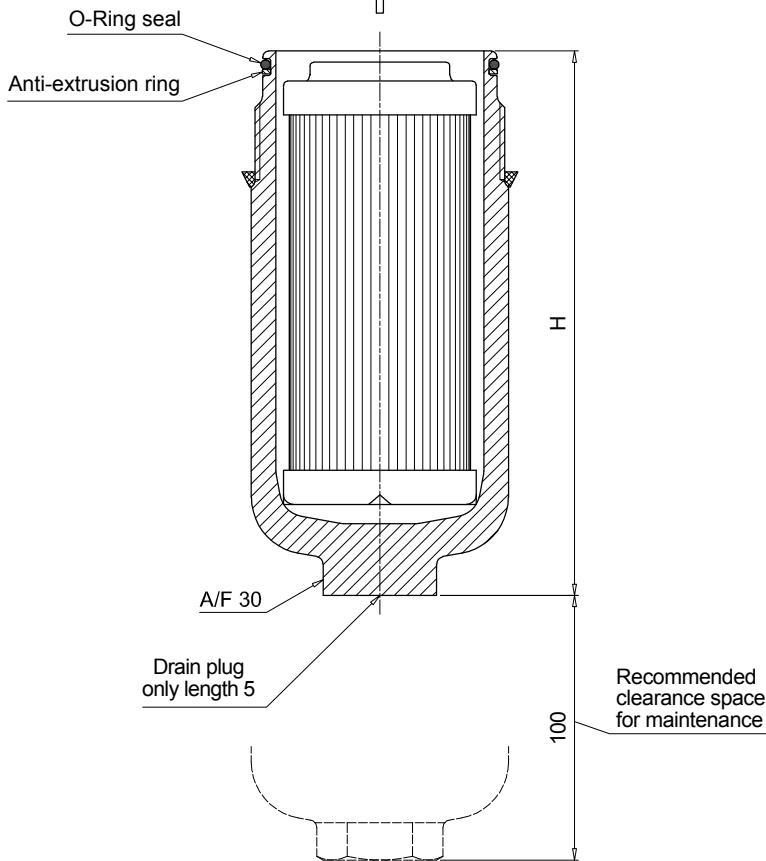
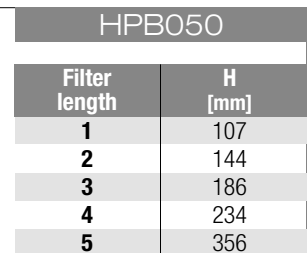
4. Handling

- The unit is shipped in a cardboard box with dimensions depending on the order
- The handling must be carried out in accordance with the laws in force in the country of use of the product
- Handle the product with care, avoid impacts
- Store in a dry and frost-free room
- The unit should be stored in a suitable location away from the production area when not in use.
The unit should be stored with the caps provided on the ports and the bowl's protective net, if present.
This location should not impede any other production or personnel

Please refer to the following Weight table:

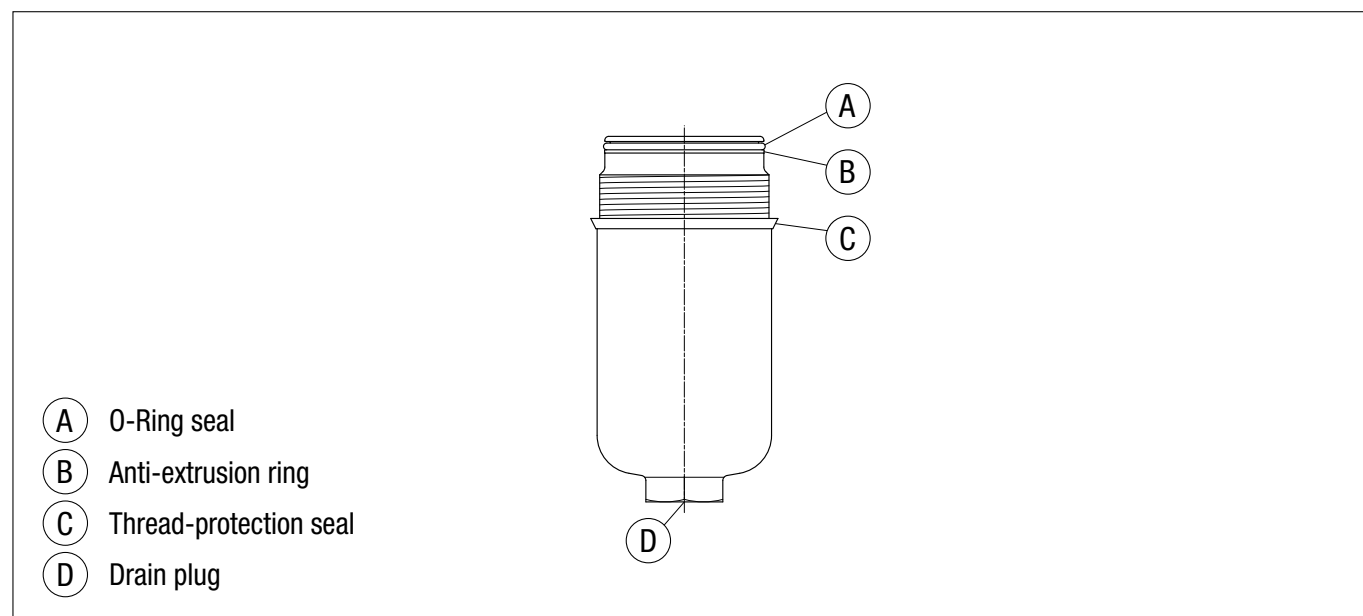
SERIES AND SIZE	WEIGHTS [kg]					
	Length	1	2	3	4	5
HPB050		1.10	1.50	1.90	2.40	3.50

5. Dimensional drawings



HPB050

6. Installation



- Check that the system working pressure does not exceed the maximum working pressure of the filter.
- Check that the filter is compatible with the fluid used in the system
- Remove the plastic plugs from the inlet, the outlet and the indicator connection
- Check that the correct filter elements are fitted into the filter
- Check the flow direction
- Fasten the filter to the bracket with the correct bolts. Be sure to fit the filter without any tension stress
- Check that there is appropriate clearance for maintenance and the filter elements replacement.
Correct operation is only guaranteed if the filter is installed in a vertical orientation with the filter housing at the top
- Check for a good view of the clogging indicator
- Connect the filter to the hydraulic system, using the appropriate hydraulic fittings.

7. Commissioning

- Switch on the hydraulic system
- Check the filter is free of leaks
- Check the filter for leaks at the maximum working conditions (pressure, temperature ...)
- Check the filter does not cause excessive pressure drop.

8. Standard maintenance

8.1 FILTER ELEMENT REPLACEMENT

- Check the availability of the right spare filter element by comparing the part number shown on the element with that shown on the spare parts list.
- For the disassembly and the assembly of the parts, please refer to the tools table in paragraph 3
- Switch off the system
- (Fig. 1) If provided, unscrew the drain plug after placing a vessel to collect the operating fluid
- (Fig. 2) Drain the operating fluid from the bottom of the bowl into the collection vessel
- (Fig. 3) Screw the drain plug in referring to the tightening torque table in paragraph 3
- (Fig. 4) If no drain plug is provided, unscrew the filter bowl after placing a vessel to collect the operating fluid

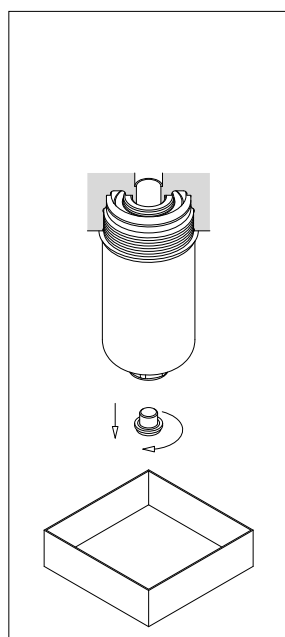


fig. 1

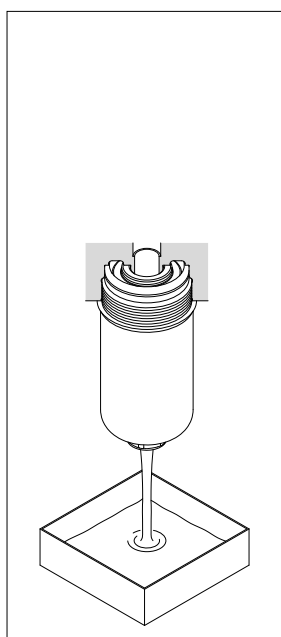


fig. 2

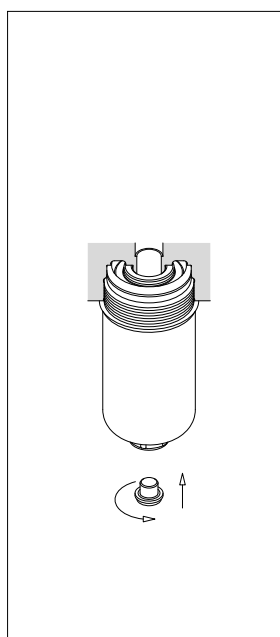


fig. 3

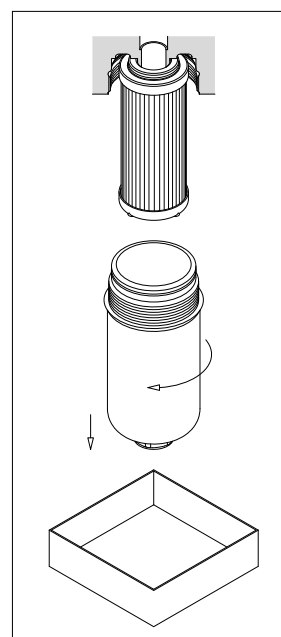


fig. 4

HPB050

- (Fig. 5) Empty the operating fluid from the bowl into the collection vessel
- (Fig. 6) Pull the filter element out
- Clean the cavity in the housing, the tap and the bowl. Check them for damage
- Check the condition of the bowl seals and, if necessary, replace them referring to the "Special maintenance" paragraph
- (Fig. 7) Lubricate with the operating fluid the filter element O-ring, the housing tap and cavity, then fit the filter element on the tap. Pay attention not to damage the O-ring seal
- (Fig. 8) Lubricate the thread and the O-ring of the bowl, then screw the bowl in referring to the tightening torque table in paragraph 3
- Switch on the system and check the filter for leaks at the maximum working conditions (pressure, temperature...)
- Dispose of the replaced parts and the collected fluid in accordance with the laws in force in the country of use of the product.

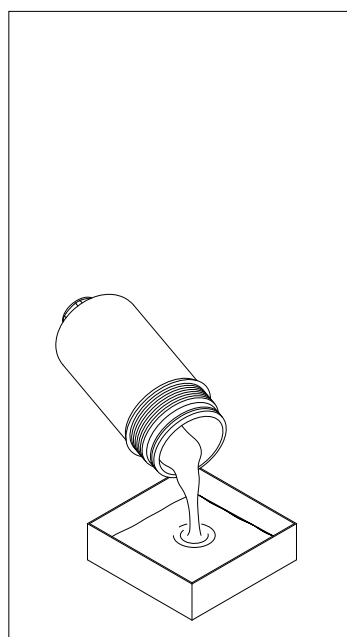


fig. 5

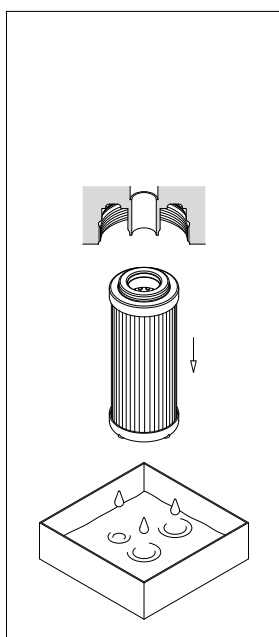


fig. 6

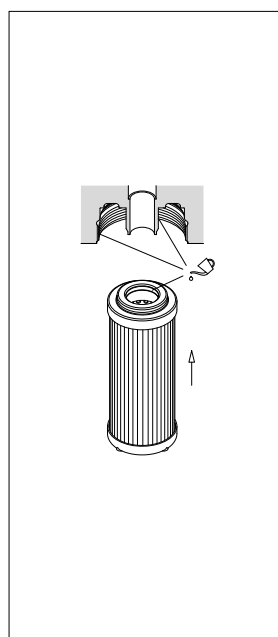


fig. 7

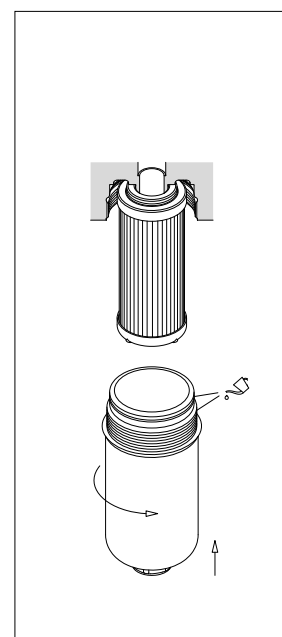


fig. 8

9. Special maintenance

9.1 SEALS REPLACEMENT

- Check the availability of the right spare filter element by comparing the part number shown on the element with that shown on the spare parts list.
- For the disassembly and the assembly of the parts, please refer to the tools table in paragraph 3
- Switch off the system
- (Fig. 9) If provided, unscrew the drain plug after placing a vessel to collect the operating fluid
- (Fig. 10) Drain the operating fluid from the bottom of the bowl into the collection vessel
- (Fig. 11) Screw the drain plug in referring to the tightening torque table in paragraph 3
- (Fig. 12) If no drain plug is provided, unscrew the filter bowl after placing a vessel to collect the operating fluid

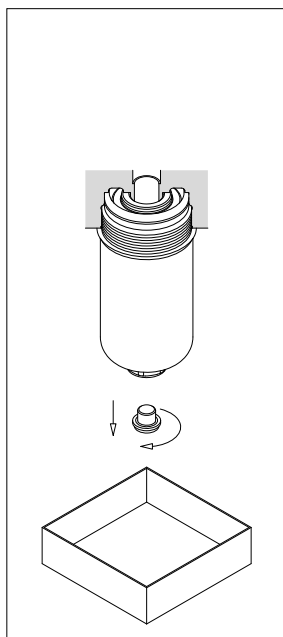


fig. 9

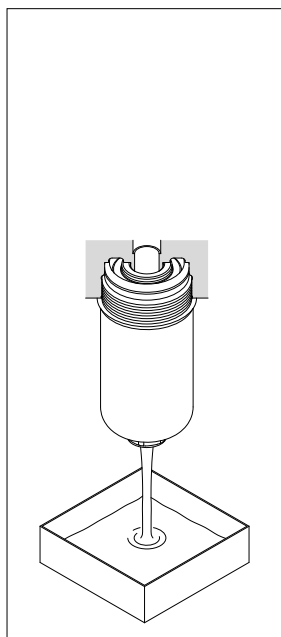


fig. 10

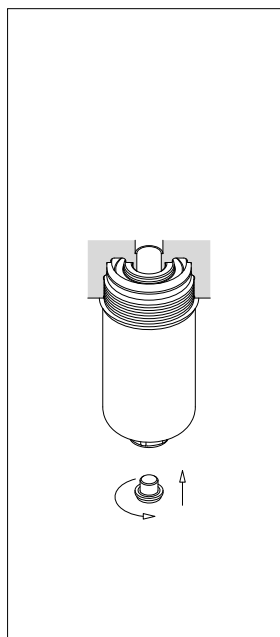


fig. 11

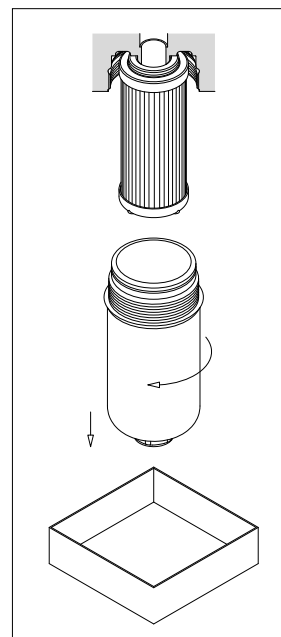


fig. 12

HPB050

- (Fig. 13) Empty the operating fluid from the bowl into the collection vessel
- (Fig. 14) Pull the filter element out
- Remove all the seal from the bowl and the filter element and prepare the spare parts referring to the list in paragraph 12
- Clean the cavity in the housing, the tap and the bowl. Check them for damage
- (Fig. 15) Fit #1: the anti-extrusion ring and #2: the O-ring in the bowl groove, insert the O-ring in the filter element cap
- (Fig. 16) Lubricate with the operating fluid the filter element O-ring, the housing tap and cavity, then fit the filter element on the tap. Pay attention not to damage the O-ring seal.
- (Fig.17) Lubricate the thread and the O-ring of the bowl, then screw the bowl in referring to the tightening torque table in paragraph 3
- Switch on the system and check the filter for leaks at the maximum working conditions (pressure, temperature...)
- Dispose of the replaced parts and the collected fluid in accordance with the laws in force in the country of use of the product.

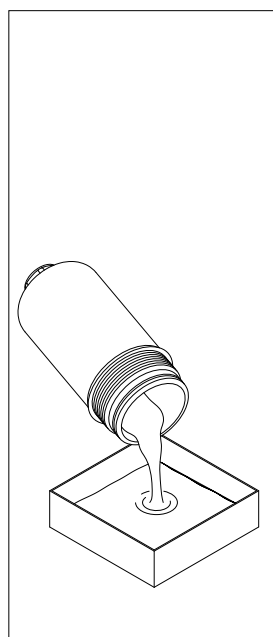


fig. 13

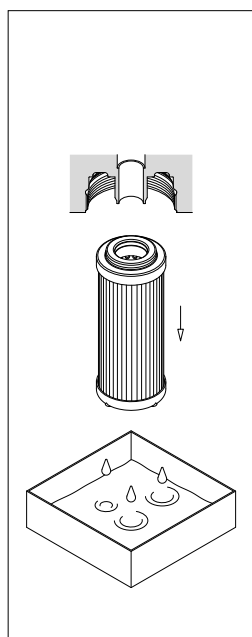


fig. 14

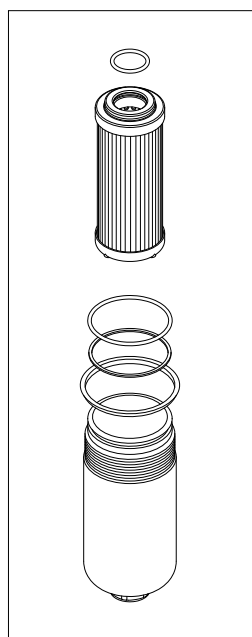


fig. 15

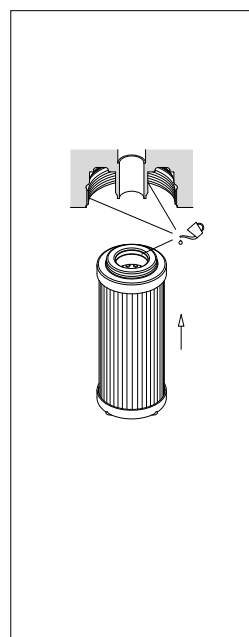


fig. 16

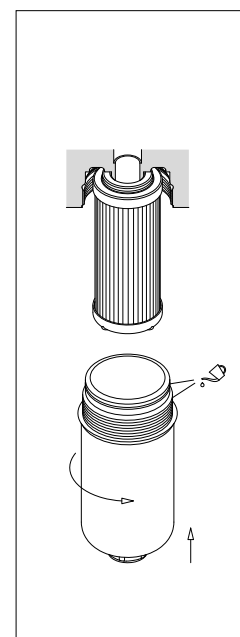


fig. 17

10. Instructions for use in explosive atmospheres

Hydraulic filters should be installed in applications in which special safety measures are required to prevent the triggering of explosive atmospheres, such as use in environments classified according to directive 1999/92/CE (ATEX) or the use of flammable fluids.

Conditions like the use of low conductivity fluids, which could cause electrostatic discharges, or installation near hot components, which could cause surfaces heating, could alter the safety of the filters.

MP FILTRI has carried out a voluntary certification of a part of the product range in compliance with directive 2014/34/EU, in order to guarantee an appropriate degree of safety in these particular conditions.

The content of the certification and the relative marking make them suitable for use in environments classified in accordance with directive 1999/92/CE (ATEX - ZONE 2).

11. Regulations

Hydraulic filters are not machines, but simple components.

Hydraulic filters are excluded from the scope of the Machinery Directive 2006/42/EC, they don't need the CE mark.

Hydraulic filters are designed to be fitted within a hydraulic system designed in accordance with the Machinery Directive 2006/42/EC.

Hydraulic filters are pressurized components. The maximum working pressure PS is over 0.5 bar, so they are subject to the Directive 2014/68/EU (PED)

HPB filters are designed and manufactured for fluids included into the Group 2 defined by the Directive 2014/68/EU.

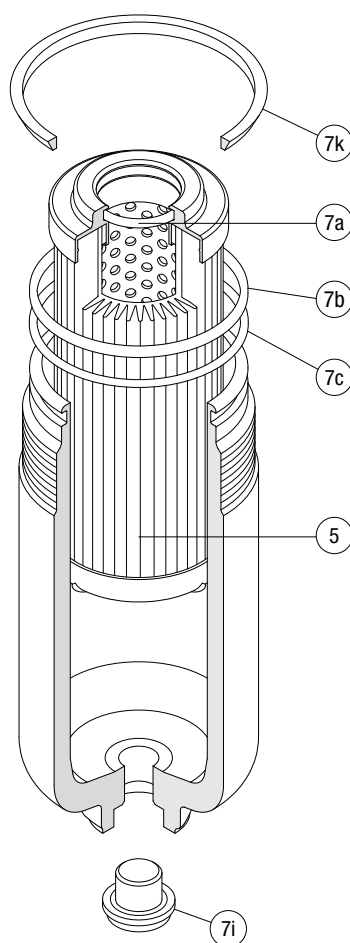
HPB filters do not need the CE marking in accordance with the Directive 2014/68/EU Article 4, Section 3.

HPB filters do not contain any substance of very high concern (SVHC) in percentage higher than 0.1% in accordance with the Regulation (EC) No 1907/2006 (REACH)

HPB filters are designed and manufactured in accordance with the Commission Delegated Directive (EU) 2015/863 (RoHS).

HPB050

12. Spare parts list



Item	Quantity	Description	Designation / Ordering code		
1	1	Complete filter	See "Ordering Code" table		
5	1	Filter element			
7	1	Seals kit	NBR	FPM	EPDM
			02050813	02050823	02050833
7a	1	Filter element seal	O-Ring 3093 - di = 23.47 - d ₂ = 2.62		
7b	1	Bowl seal	O-Ring 3225 - di = 56.82 - d ₂ = 2.62		
7c	1	Bowl anti-extrusion ring	SR139		
7i	1	Drain plug	DIN 908-ST-G1/4-A + seal DIN EN 3869		
7k	1	Thread-protection seal	Private dimensions		

13. Ordering code

13.1 BOWL ASSEMBLY

BOWL ASSEMBLY							
Filter Series and size	Example: <table><tr><td>HPB050</td><td>3</td><td>A</td><td>A10</td><td>N</td><td>P01</td></tr></table>	HPB050	3	A	A10	N	P01
HPB050	3	A	A10	N	P01		
HPB050 Bowl assembly							
Filter length							
<table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>	1	2	3	4	5		
1	2	3	4	5			
Seals							
A NBR							
V FPM							
E EPDM							
Filtration rating (filter media)							
A03 Inorganic microfiber 3 µm							
A06 Inorganic microfiber 6 µm							
A10 Inorganic microfiber 10 µm							
A16 Inorganic microfiber 16 µm							
A25 Inorganic microfiber 25 µm							
M25 Wire mesh 25 µm							
Element Δp							
N 20 bar							
S 210 bar							
	Execution						
	P01 MP Filtri standard						
	Pxx Customized						

HPB050

13.2 FILTER ELEMENT

FILTER ELEMENT		
Element series and size HP050	Configuration example: HP050 3 A10 A N P01	
Element length 1 2 3 4 5		
Filtration rating (filter media) A03 Inorganic microfiber 3 µm A06 Inorganic microfiber 6 µm A10 Inorganic microfiber 10 µm A16 Inorganic microfiber 16 µm A25 Inorganic microfiber 25 µm M25 Wire mesh 25 µm		
Seals A NBR V FPM E EPDM		
Element Δp N 20 bar S 210 bar		
		Execution P01 MP Filtri standard Pxx Customized

14. Troubleshooting

14.1 MISUSE OF THE PRODUCT

This product should be connected to a hydraulic line; this must not exceed upper pressure limit of the product. This product should follow all standard operating procedures previously set at the operating location as well as the procedures required by the manufacturer.

Over-tighten of test points/hoses can damage threads causing the unit to fail.

The product is designed with no components in motion.

14.2 LEAKS OF WORKING FLUID

Leaks from the connections with normal tightening may indicate seal damage during the warehousing process, fluid incompatibility, or unsuitable work conditions.





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