

FRI series

Maximum working pressure up to 2 MPa (20 bar) - Flow rate up to 2500 l/min



Description

Technical data

Return filter

Maximum working pressure up to 2 MPa (20 bar)

Flow rate up to 2500 l/min

FRI is a range of return filters for protection of the reservoir against the system contamination.

They could be directly fixed to the reservoir in immersed or semi-immersed position or connected to the lines of the system through the hydraulic fittings.

The filter output must be always immersed into the fluid to avoid aeration or foam generation into the reservoir.

Available features:

- Female threaded connections up to 2 1/2" and flanged connections up to 3 1/2", for a maximum flow rate of 1500 l/min
- Double input connections, to connect several return lines or drains
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve, to relieve excessive pressure drop across the filter media
- Visual, electrical and electronic differential clogging indicators

Common applications:

Heavy duty industrial equipment

Filter housing materials

- Filter body
 - Aluminium: FRI 255
 - Anodized Aluminium: FRI 025-040-100-250-630
 - Phosphatized Steel: FRI 850
- Cover
 - Polyamide, GF reinforced: FRI 255
 - Anodized Aluminium: FRI 025-040-100-250-630-850
- Valve: Polyamide, GF reinforced - Steel

Bypass valve

Opening pressure 240 kPa (2.4 bar) ±10%

Δp element type

- Microfibre filter elements - series N: 10 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

FRI filters are provided for vertical mounting



Weights [kg] and volumes [dm³]

Filter series	Weights [kg]		Volumes [dm ³]	
	Length	1	Length	1
FRI 025		1.0		0.28
FRI 040		2.0		0.70
FRI 100		3.8		1.09
FRI 250		6.3		2.60
FRI 255		4.2		3.20
FRI 630		13.8		7.05
FRI 850		48.0		21.50

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
FRI 025	1	6	10	17	19	43	122	43	47
FRI 040	1	19	23	43	45	94	155	94	102
FRI 100	1	32	34	89	92	187	260	187	206
FRI 250	1	144	179	271	300	448	645	448	490
FRI 255	1	144	179	271	300	448	645	448	490
FRI 630	1	242	279	508	577	834	1446	834	911
FRI 850	1	440	541	971	1143	1705	2528	1705	1880

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

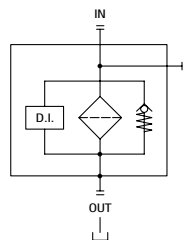
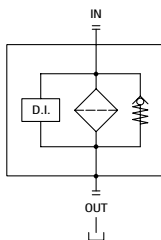
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

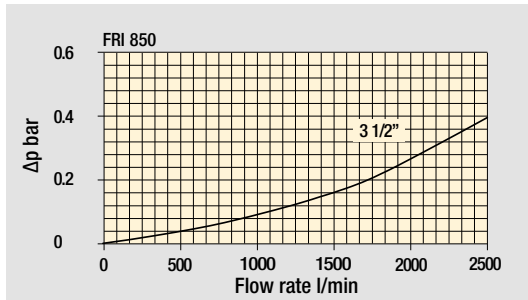
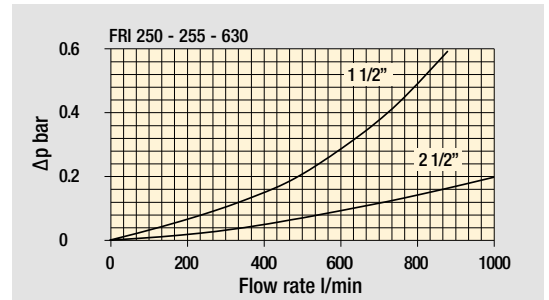
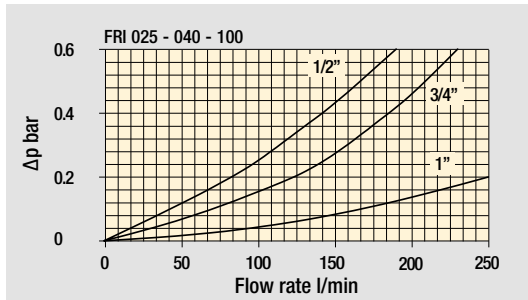
Hydraulic symbols

Filter series	Style 1 connection + Diff. indic.	Style 2 connections + Diff. indic.
FRI 025		•
FRI 040		•
FRI 100		•
FRI 250		•
FRI 255	•	
FRI 630		•
FRI 850	•	

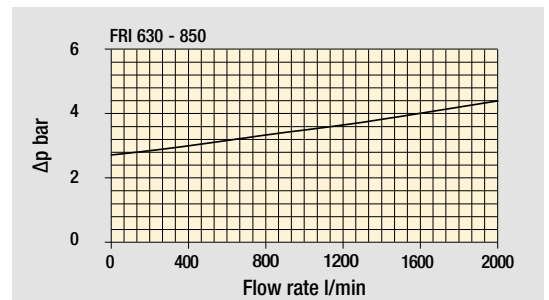
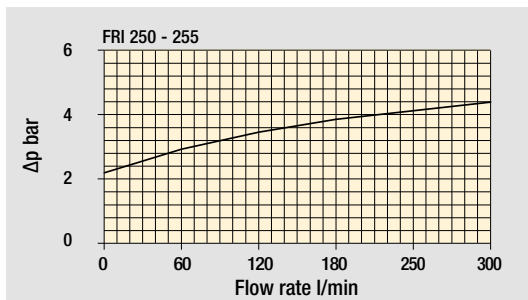
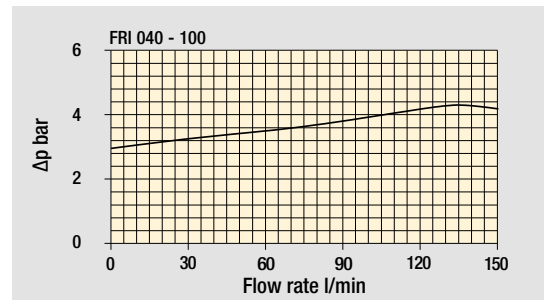
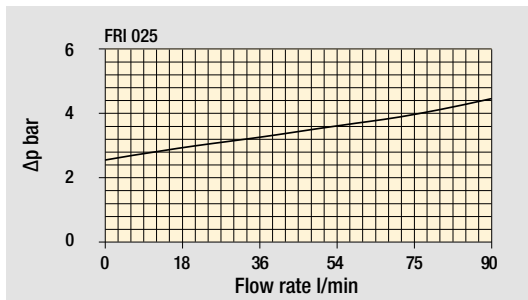


Pressure drop

Filter housings Δp pressure drop



Bypass valve pressure drop



The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1: FRI025 B A G1 A25 N P01						
FRI025	Configuration example 2: FRI040 S W G2 M25 N P01						
FRI040							
Bypass valve							
B With bypass							
S Without bypass							
Seals and treatments	Filtration rating						
A NBR	Axx	Mxx	Pxx				
V FPM	•	•	•				
W NBR head anodized	•	•					
Z FPM head anodized	•	•					
	filter element compatible with fluids HFA-HFB-HFC						
Connections for FRI025	Connections for FRI040						
G1 G 1/2"	G 3/4"						
G2 1/2" NPT	3/4" NPT						
G3 SAE 8 - 3/4" - 16 UNF	SAE 12 - 1 1/16" - 12 UN						
Filtration rating (filter media)							
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm						
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm						
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm						
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm						
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm						
	Element Δp			Execution			
	N 10 bar			P01 MP Filtri standard			
				Pxx Customized			

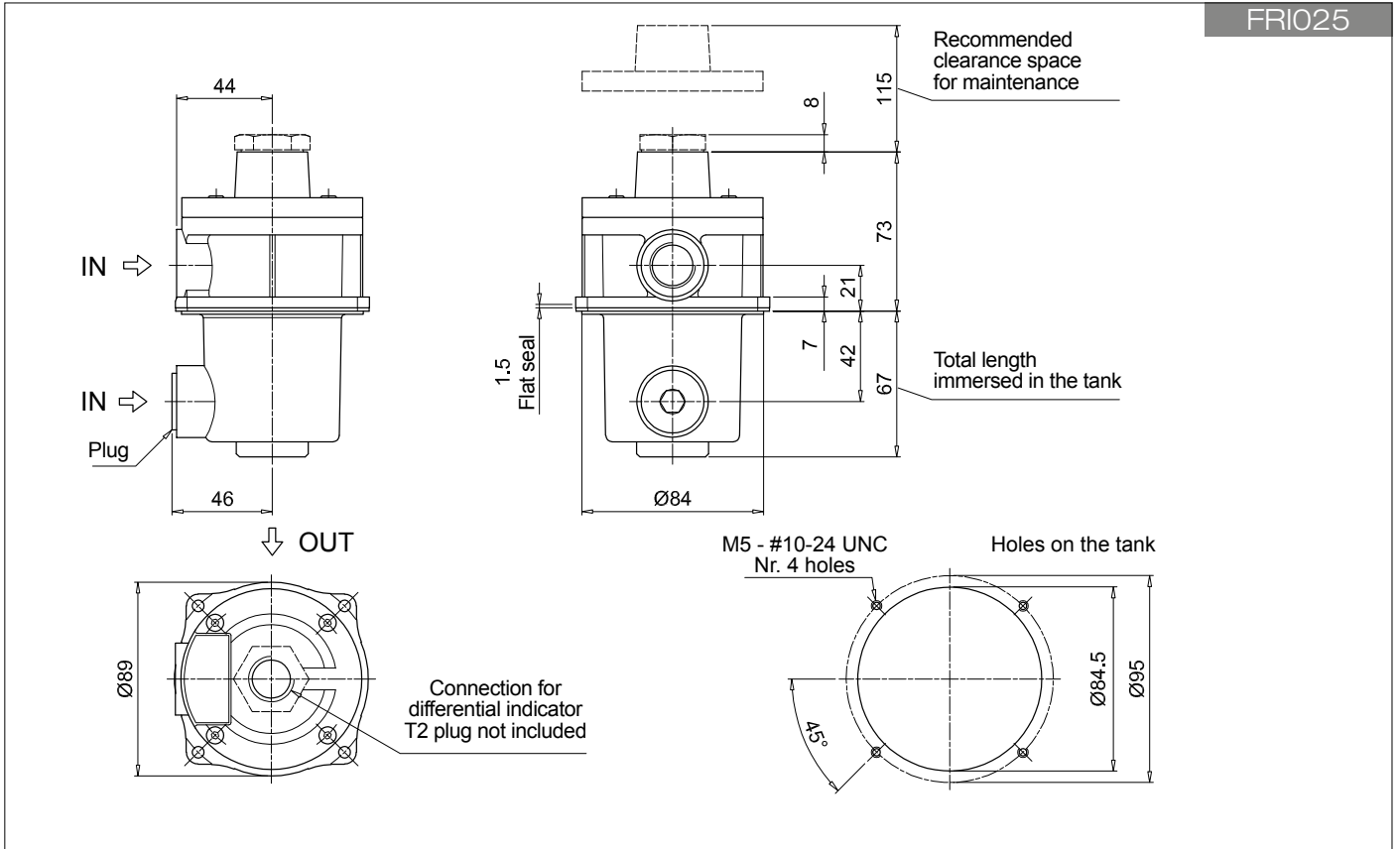
FILTER ELEMENT

Element series and size	Configuration example 1: CU025 A25 N P01						
CU025	Configuration example 2: CU040 M25 W P01						
CU040							
Filtration rating (filter media)							
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm						
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm						
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm						
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm						
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm						
Seals and treatments	Filtration rating						
N NBR	Axx	Mxx	Pxx				
V FPM	•	•	•				
W NBR	•	•					
Z FPM	•	•					
	filter element compatible with fluids HFA-HFB-HFC						
				Execution			
				P01 MP Filtri standard			
				Pxx Customized			

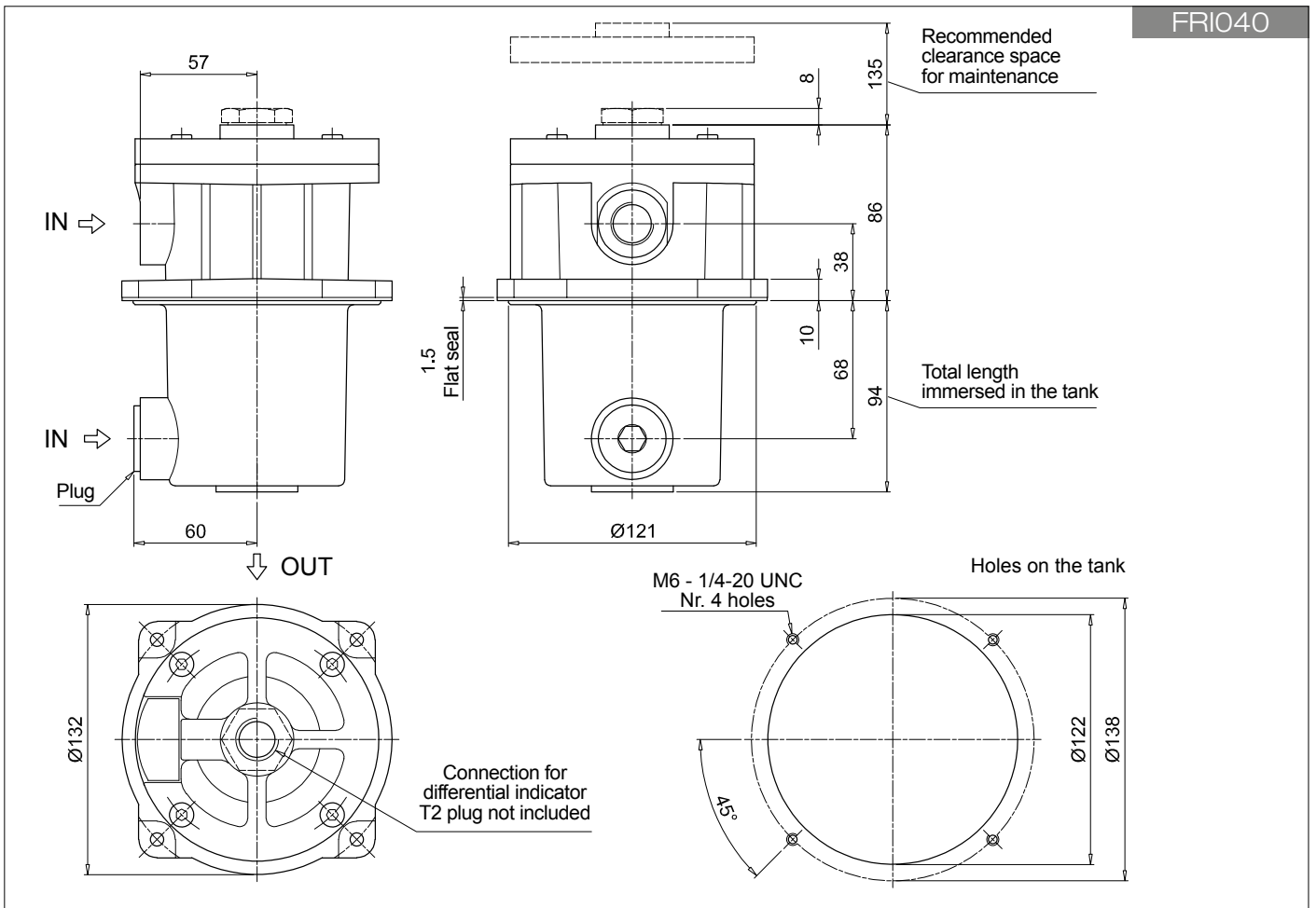
ACCESSORIES

Indicators	page		page
DEA Electrical differential indicator	242	DTA Electronic differential indicator	245
DEM Electrical differential indicator	242-243	DVA Visual differential indicator	245
DLA Electrical / visual differential indicator	243-244	DVM Visual differential indicator	245
DLE Electrical / visual differential indicator	244		
Additional features	page		
T2 Plug	246		

FRI025



FRI040



FRI FRI100 - FRI250 - FRI630

Designation & Ordering code

COMPLETE FILTER

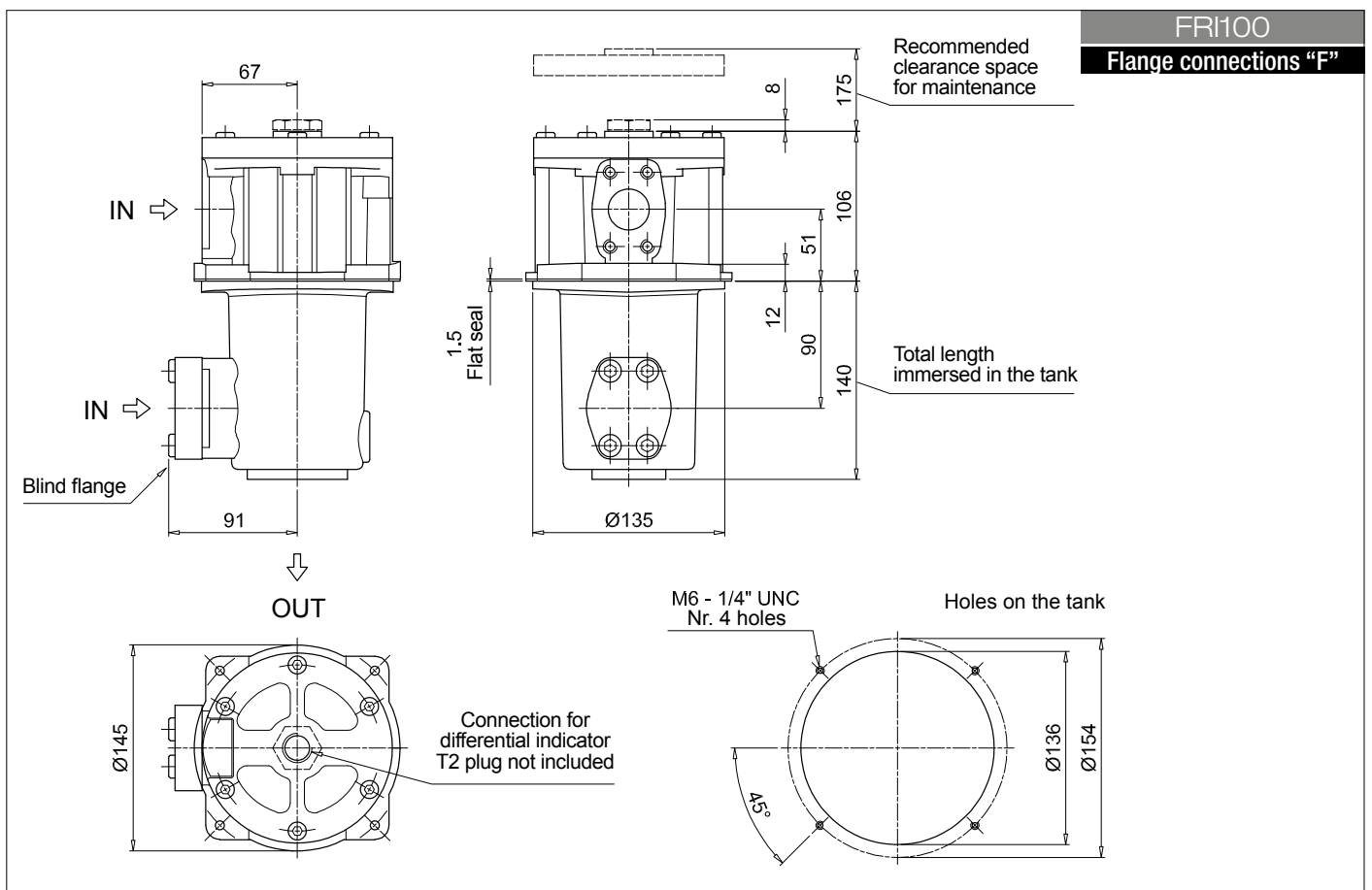
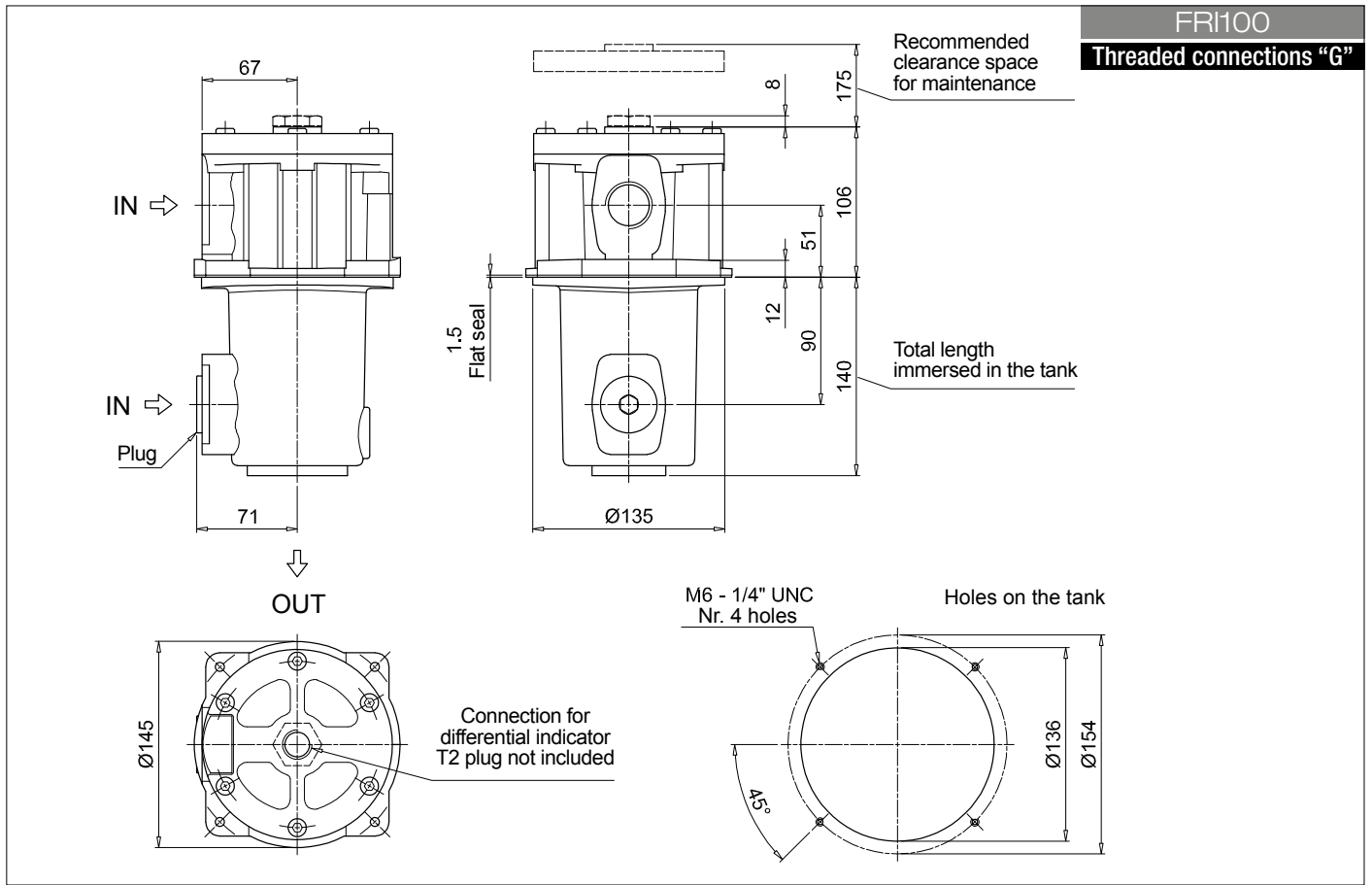
Series and size	Configuration example 1: FRI100 B A G1 A25 N P01						
FRI100	Configuration example 2: FRI630 S W F2 M25 N P01						
FRI250							
FRI630							
Bypass valve							
B	With bypass						
S	Without bypass						
Seals and treatments							
		Filtration rating					
		Axx	Mxx	Pxx			
A	NBR	•	•	•			
V	FPM	•	•	•			
W	NBR head anodized	•	•		filter element compatible with fluids HFA-HFB-HFC		
Z	FPM head anodized	•	•				
Connections for FRI100		Connections for FRI250		Connections for FRI630			
G1	G 1"	G 1 1/2"	G 1 1/2"	G 2 1/2"			
G2	1" NPT	1 1/2" NPT	1 1/2" NPT	2 1/2" NPT			
G3	SAE 16 - 1 5/16" - 12 UN	SAE 24 - 1 7/8" - 12 UN	SAE 24 - 1 7/8" - 12 UN	SAE 32 - 2 1/2" - 12 UN			
F1	1" SAE 3000 psi/M	1 1/2" SAE 3000 psi/M	1 1/2" SAE 3000 psi/M	2 1/2" SAE 3000 psi/M			
F2	1" SAE 3000 psi/UNC	1 1/2" SAE 3000 psi/UNC	1 1/2" SAE 3000 psi/UNC	2 1/2" SAE 3000 psi/UNC			
Filtration rating (filter media)							
A03	Inorganic microfiber	3 µm	M25	Wire mesh	25 µm		
A06	Inorganic microfiber	6 µm	M60	Wire mesh	60 µm		
A10	Inorganic microfiber	10 µm	M90	Wire mesh	90 µm		
A16	Inorganic microfiber	16 µm	P10	Resin impregnated paper	10 µm		
A25	Inorganic microfiber	25 µm	P25	Resin impregnated paper	25 µm		
				Element Δp		Execution	
				N	10 bar	P01	MP Filtri standard
						Pxx	Customized

FILTER ELEMENT

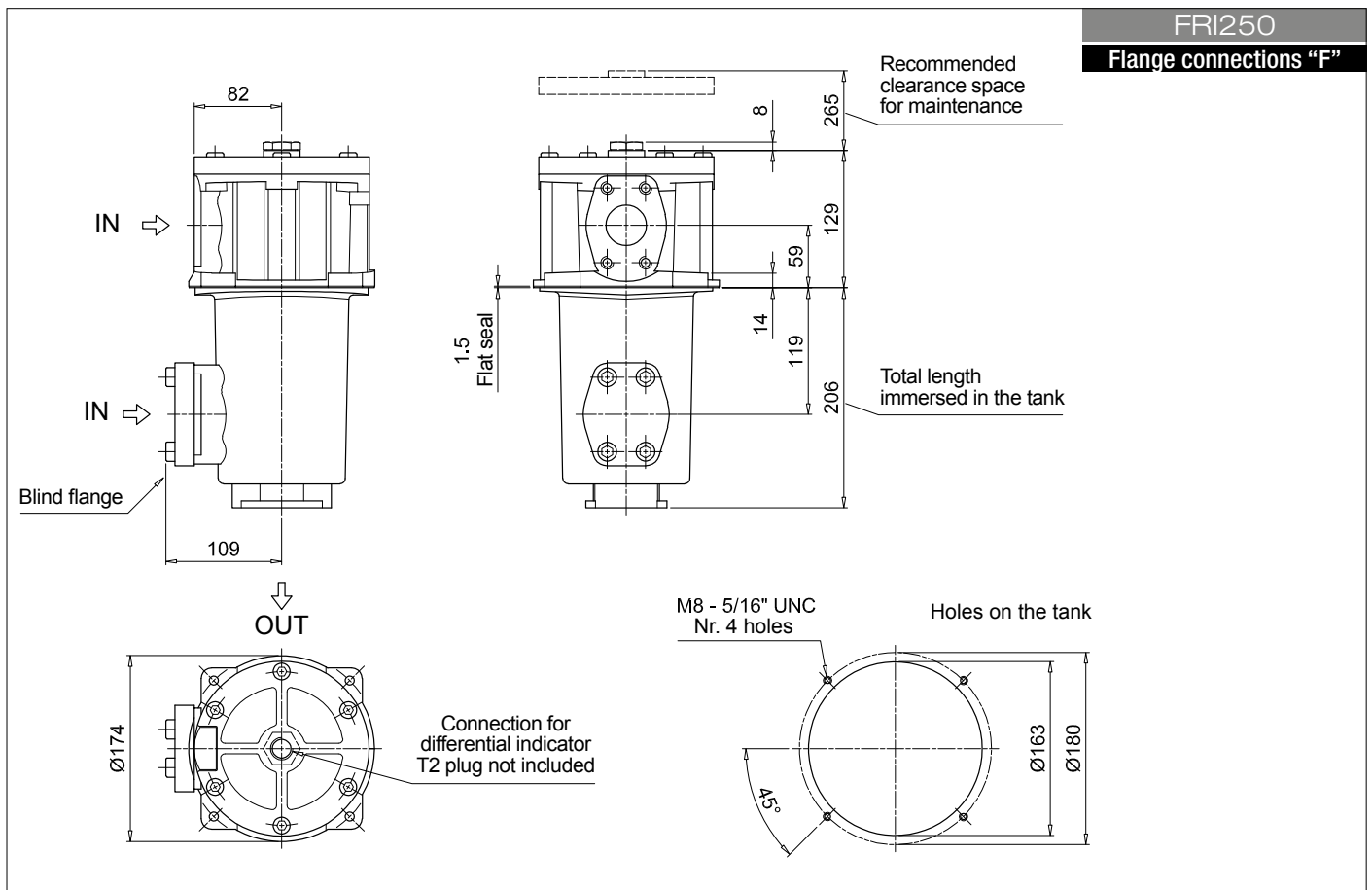
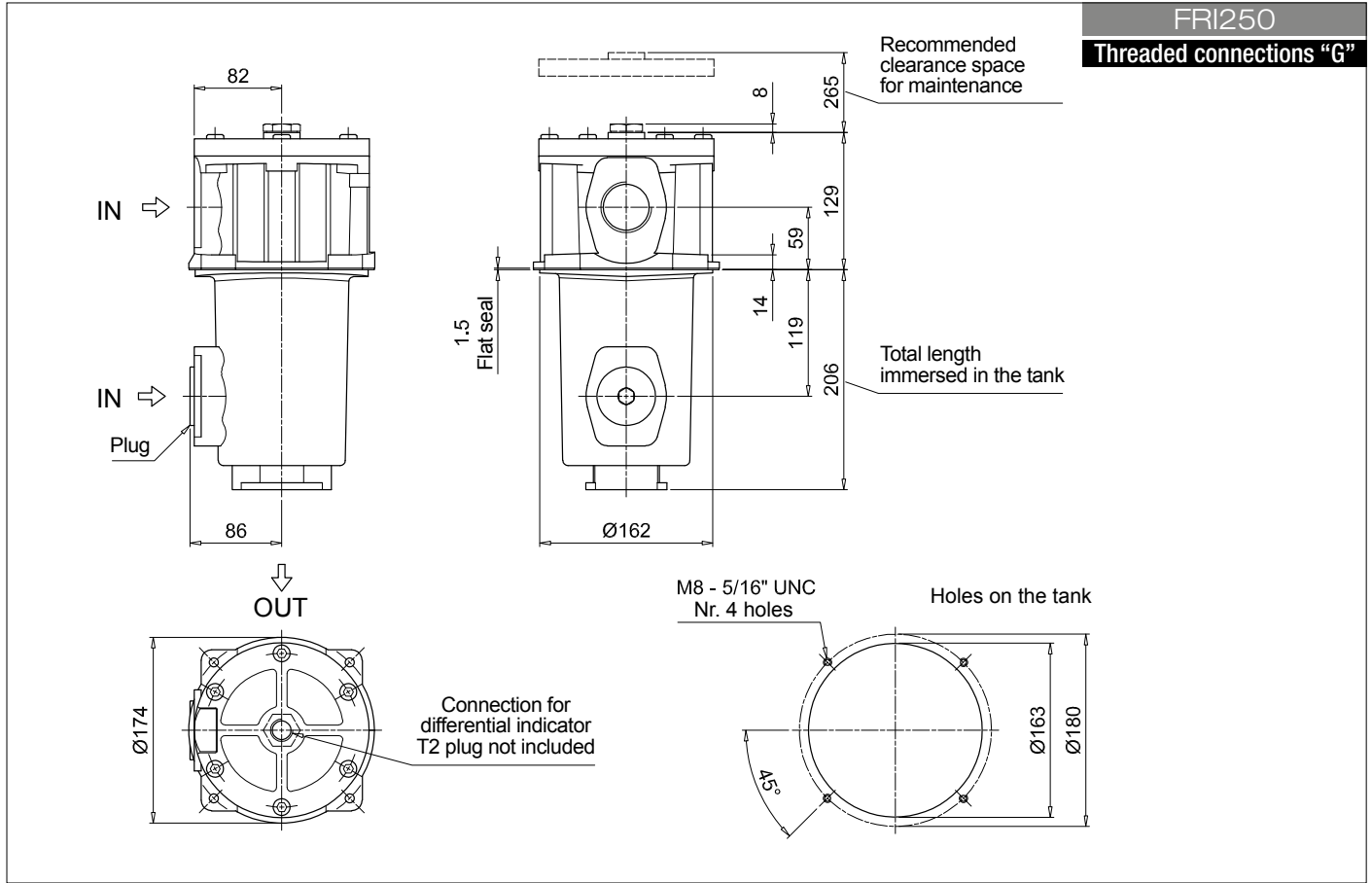
Element series and size	Configuration example 1: CU100 A25 N P01			
CU100	Configuration example 2: CU630 M25 W P01			
CU250				
CU630				
Filtration rating (filter media)				
A03	Inorganic microfiber	3 µm	M25	Wire mesh 25 µm
A06	Inorganic microfiber	6 µm	M60	Wire mesh 60 µm
A10	Inorganic microfiber	10 µm	M90	Wire mesh 90 µm
A16	Inorganic microfiber	16 µm	P10	Resin impregnated paper 10 µm
A25	Inorganic microfiber	25 µm	P25	Resin impregnated paper 25 µm
Seals and treatments				
		Filtration rating		
		Axx	Mxx	Pxx
N	NBR	•	•	•
V	FPM	•	•	•
W	NBR	•	•	
Z	FPM	•	•	
				Execution
				P01
				MP Filtri standard
				Pxx
				Customized

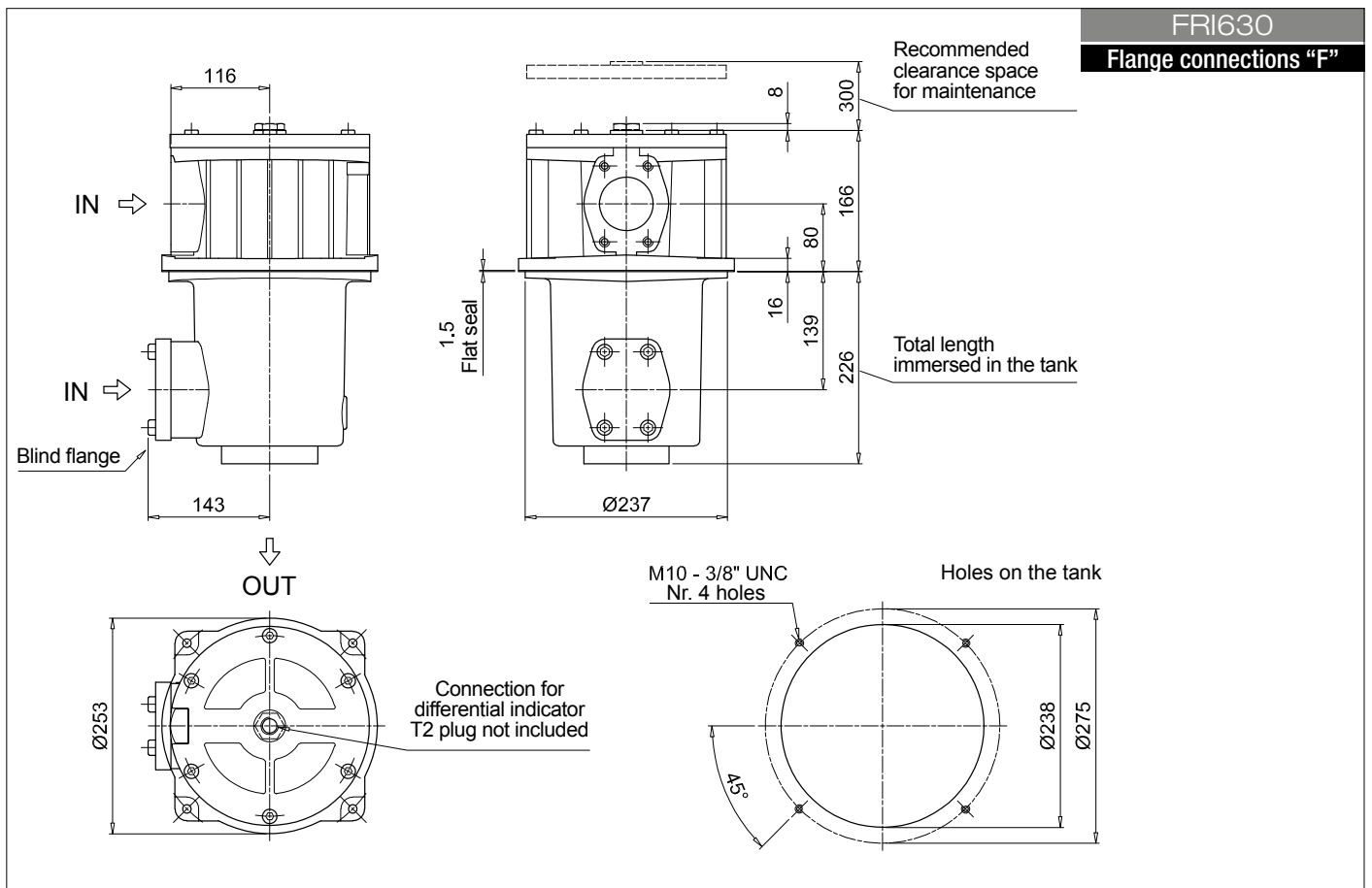
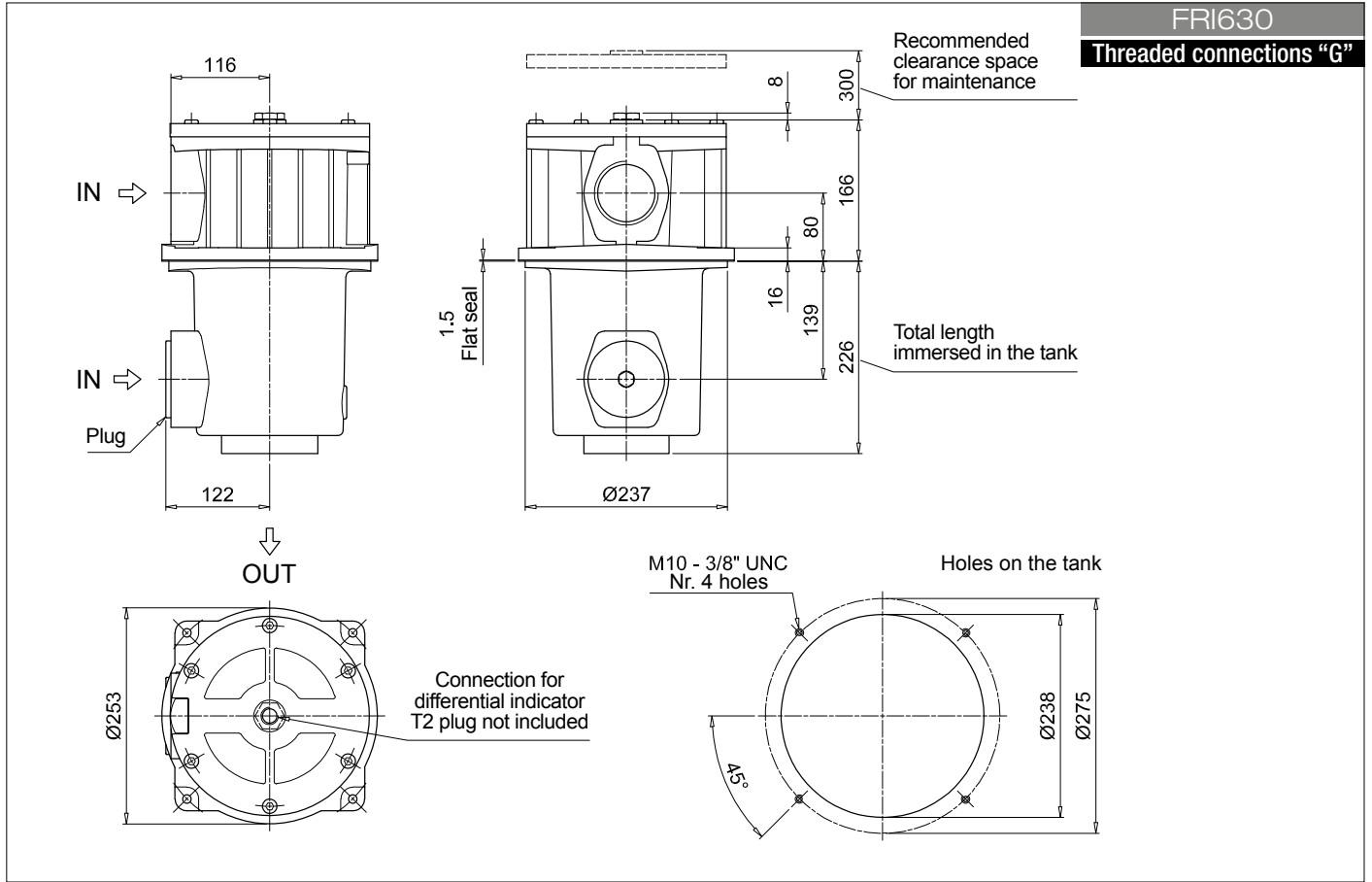
ACCESSORIES

Indicators	page		page
DEA	Electrical differential indicator	242	DTA Electronic differential indicator 245
DEM	Electrical differential indicator	242-243	DVA Visual differential indicator 245
DLA	Electrical / visual differential indicator	243-244	DVM Visual differential indicator 245
DLE	Electrical / visual differential indicator	244	
Additional features	page		
T2	Plug	246	



Dimensions





Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1: FRI255 S W F2 M25 N P01						
FRI255	Configuration example 2: FRI850 B A F1 A25 N P01						
FRI850							
Bypass valve							
B With bypass							
S Without bypass							
Seals and treatments	Filtration rating						
	Axx	Mxx	Pxx				
A NBR	•	•	•				
V FPM	•	•	•				
W NBR head anodized	•	•		filter element compatible with fluids HFA-HFB-HFC			
Z FPM head anodized	•	•					
Connections for FRI255	Connections for FRI850						
G1 G 1 1/2"	F1 3 1/2" SAE 3000 psi/M						
G2 1 1/2" NPT	F2 3 1/2" SAE 3000 psi/UNC						
G3 SAE 24 - 1 7/8" - 12 UN							
G4 G 1 1/4"							
G5 1 1/4" NPT							
G6 SAE 20 - 1 5/8" - 12 UN							
F1 1 1/2" SAE 3000 psi/M							
F2 1 1/2" SAE 3000 psi/UNC							
Filtration rating (filter media)							
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm						
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm						
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm						
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm						
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm						
				Element Δp		Execution	
				N 10 bar		P01 MP Filtri standard	
						Pxx Customized	

FILTER ELEMENT

Element series and size	Configuration example 1: CU250 M25 W P01			
CU250	Configuration example 2: CU850 A25 N P01			
CU850				
Filtration rating (filter media)				
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm			
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm			
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm			
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm			
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm			
Seals and treatments	Filtration rating			
	Axx	Mxx	Pxx	
N NBR	•	•	•	
V FPM	•	•	•	
W NBR	•	•		filter element compatible with fluids HFA-HFB-HFC
Z FPM	•	•		
				Execution
				P01 MP Filtri standard
				Pxx Customized

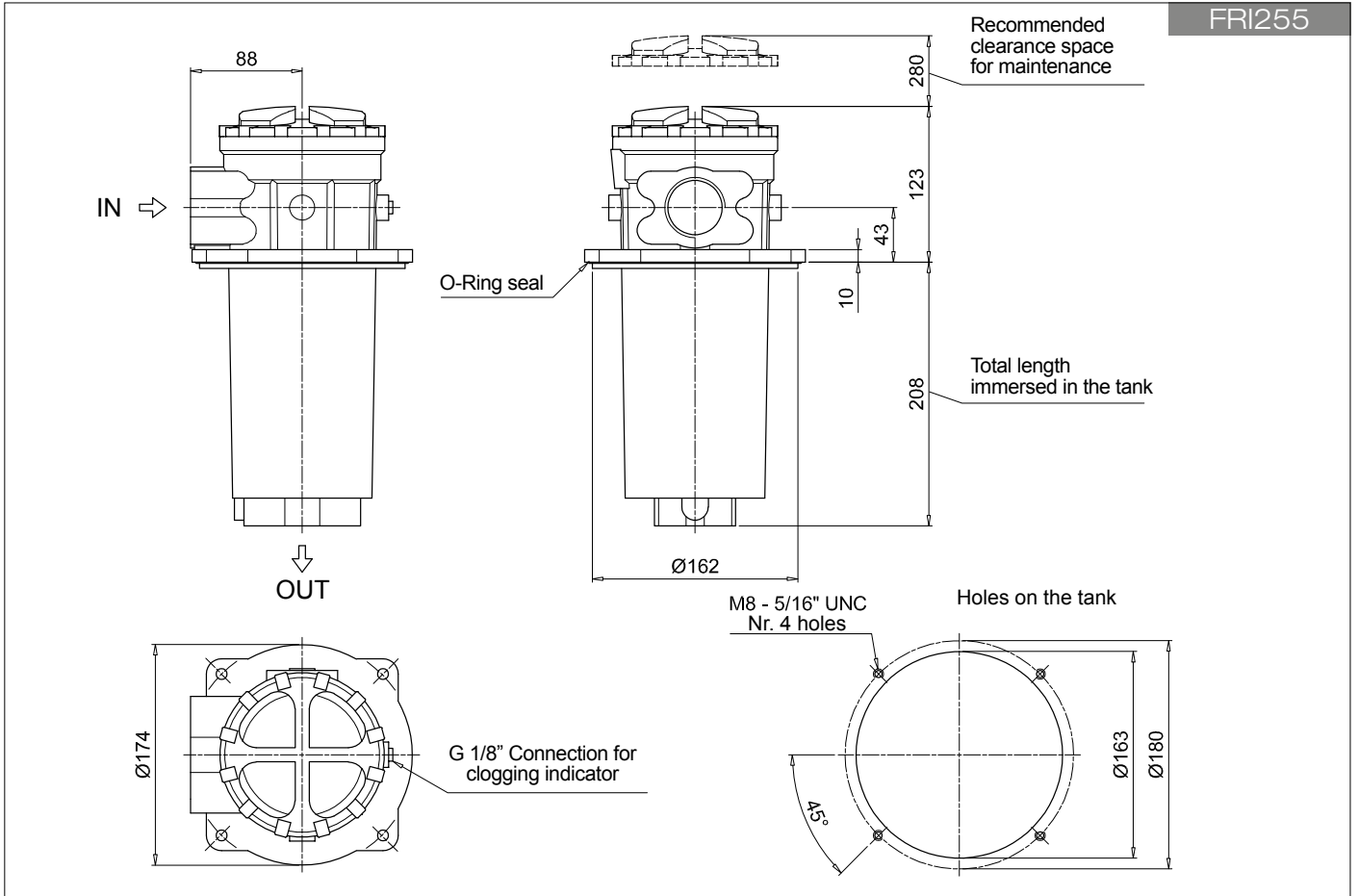
FRI255 ACCESSORIES

Indicators	page		page
BVA Axial pressure gauge	240	BEA Electrical pressure indicator	239
BVR Radial pressure gauge	240	BEM Electrical pressure indicator	239
BVP Visual pressure indicator with automatic reset	241	BLA Electrical / visual pressure indicator	239-240
BVQ Visual pressure indicator with manual reset	241		

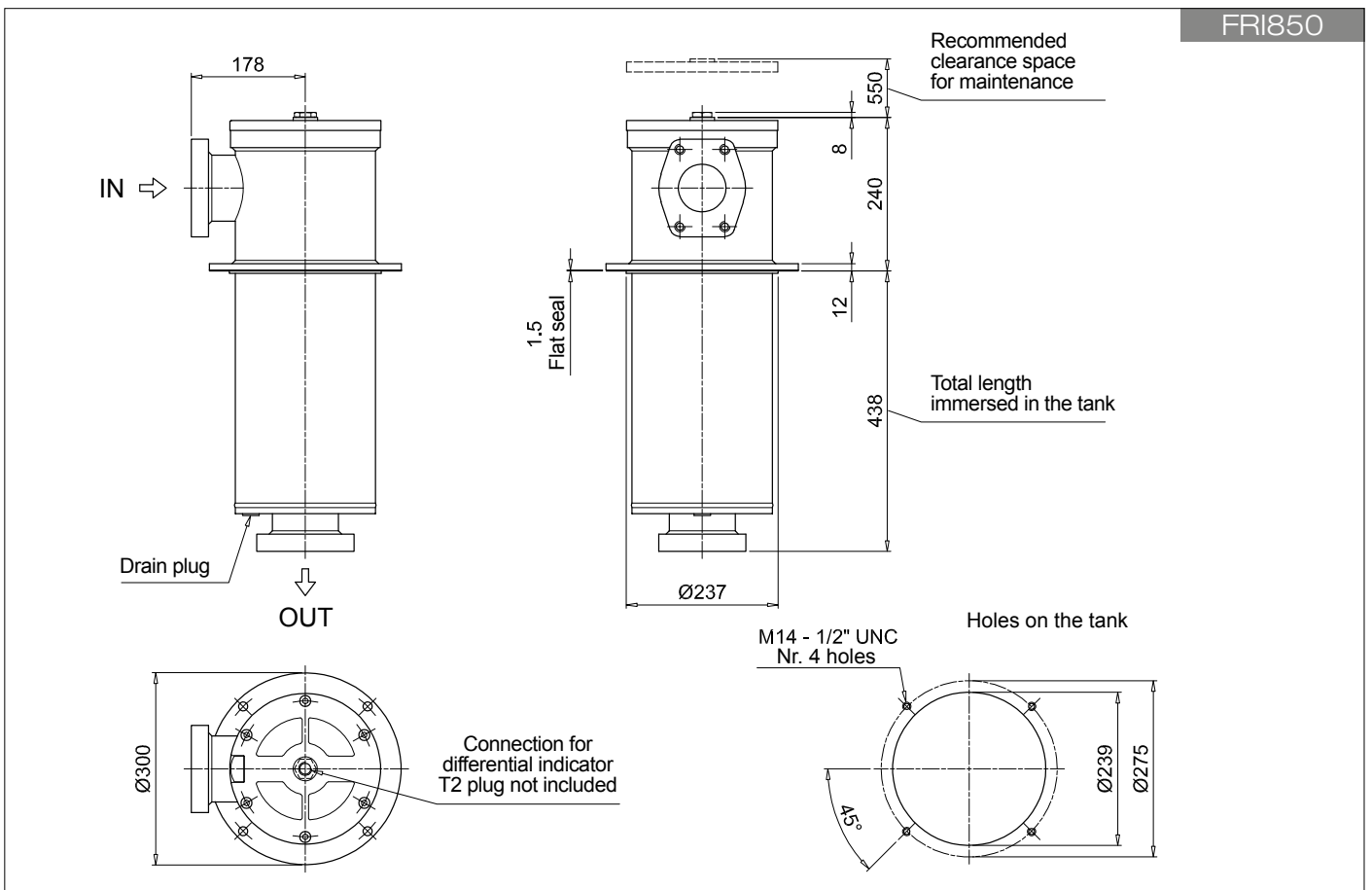
FRI850 ACCESSORIES

Indicators	page		page
DEA Electrical differential indicator	242	DTA Electronic differential indicator	245
DEM Electrical differential indicator	242-243	DVA Visual differential indicator	245
DLA Electrical / visual differential indicator	243-244	DVM Visual differential indicator	245
DLE Electrical / visual differential indicator	244		
Additional features	page		
T2 Plug	246		

FRI255



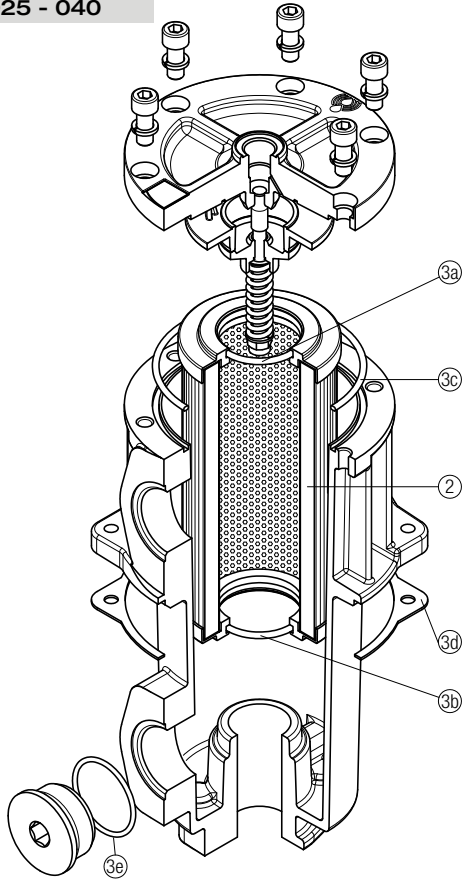
FRI850



FRI SPARE PARTS

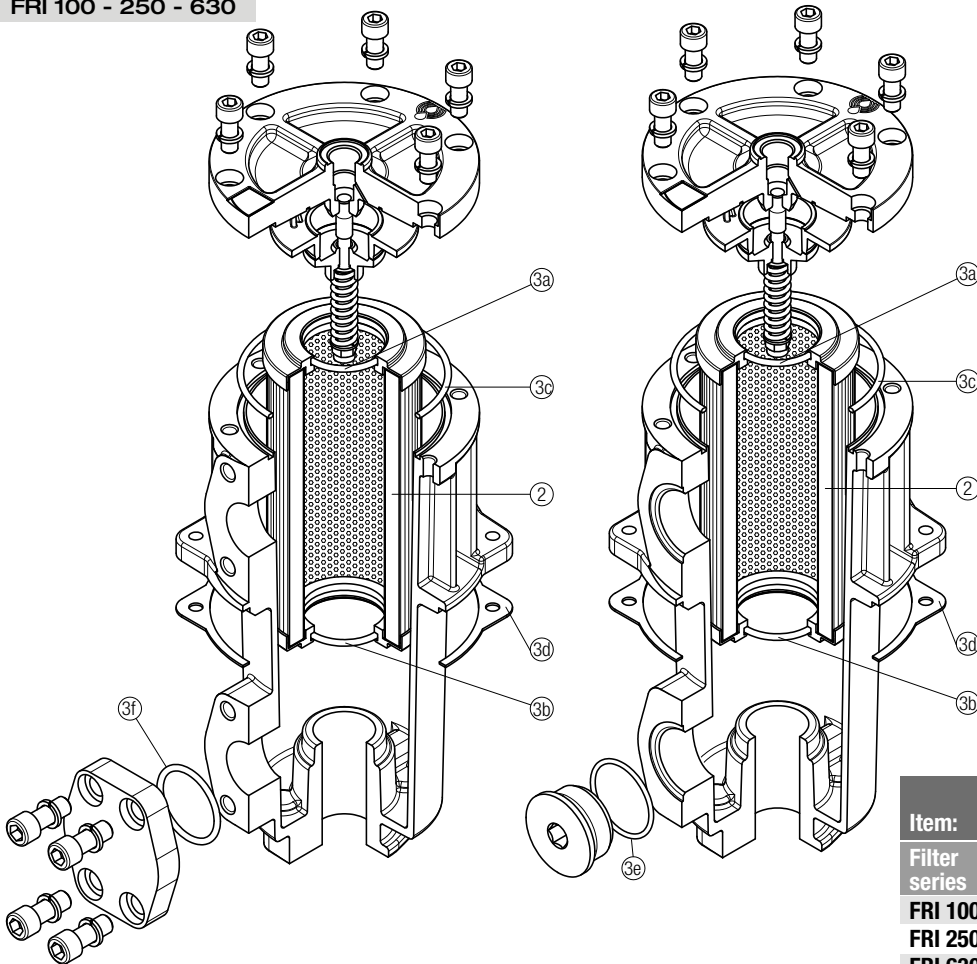
Order number for spare parts

FRI 025 - 040



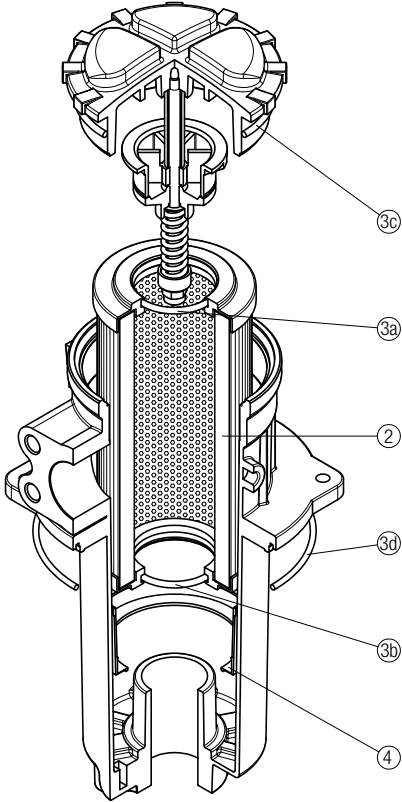
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
	2	3 (3a ÷ 3e)	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
FRI 025	See order table	02050213	02050220
FRI 040		02050214	02050221

FRI 100 - 250 - 630



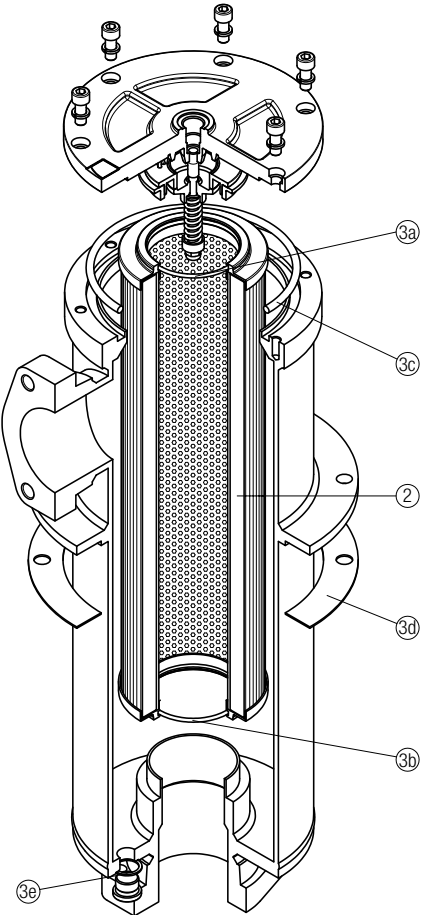
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
	2	3 (3a ÷ 3f)	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
FRI 100	See order table	02050215	02050222
FRI 250		02050216	02050223
FRI 630		02050217	02050224

FRI 255



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.
	2	3 (3a ÷ 3d)	4
Filter series	Filter element	Seal Kit code number	
	See order table	NBR	FPM
FRI 255		02050013	02050014
		Contamination retainer binder	
		01060301	

FRI 850



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.
	2	3 (3a ÷ 3e)
Filter series	Filter element	Seal Kit code number
	See order table	NBR
FRI 850		02050218
		FPM
		02050225