

FRIC 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

FRIC 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 2500 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: FRIC 255
Anodized Aluminium: FRIC 025-040-100-250-630
Phosphatized Steel: FRIC 850
- Cover: Polyamide, GF reinforced: FRIC 255
Anodized Aluminium: FRIC 025-040-100-250-630-850
- Valve: Polyamide, GF reinforced - Steel

Pressure

- Test pressure: 3 MPa (30 bar)
- Min. Burst pressure: 6 MPa (60 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 2 MPa (20 bar)

Bypass valve

Opening pressure 0.24 MPa (2.4 bar) $\pm 10\%$

Filter element features

Filter FRIC		Filter element CUC	
Δp Element type			
Element media	Construction	Δp Series	Δp
A - Microfiber	Standard	D	10 bar
M - Wire mesh	Standard	D	10 bar
P - Paper	Standard	D	10 bar
Please see ordering code tables to check element Δp series availability based on filter features.			
Flow direction through the filter element:			
From OUT to IN			

Seals

- Standard NBR series A (or W only for FRIC850)
- Optional FPM series V (or Z only for FRIC850)

Temperature

From -25 °C to +110 °C

Note

FRIC filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]		Volumes [dm ³]	
	Length	10	Length	10
FRIC 025		1.0		0.28
FRIC 040		2.0		0.70
FRIC 100		3.8		1.09
FRIC 250		6.3		2.60
FRIC 255		4.2		3.20
FRIC 630		13.8		7.05
FRIC 850		48.0		21.50

Flow rates [l/min]

Filter series	Length	Filter element design - D Series							
		A0003	A0006	A0010	A0016	A0025	M0025 M0060 M0090	P0010	P0025
FRIC 025	10	6	10	17	19	43	122	43	47
FRIC 040	10	19	23	43	45	94	155	94	102
FRIC 100	10	32	34	89	92	187	260	187	206
FRIC 250	10	144	179	271	300	448	645	448	490
FRIC 255	10	144	179	271	300	448	645	448	490
FRIC 630	10	242	279	508	577	834	1446	834	911
FRIC 850	10	440	541	971	1143	1705	2528	1705	1880

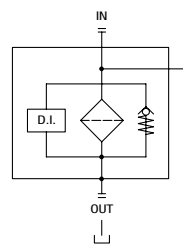
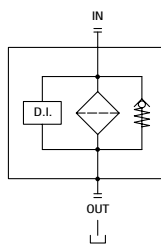
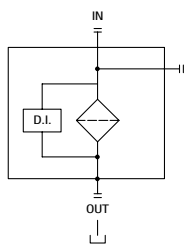
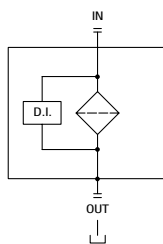
Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

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.

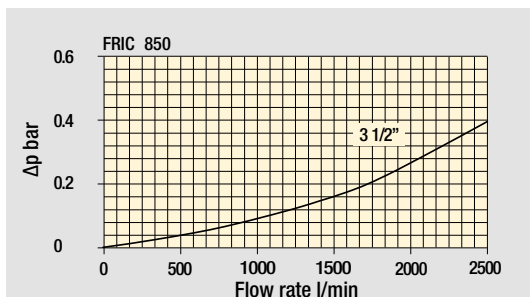
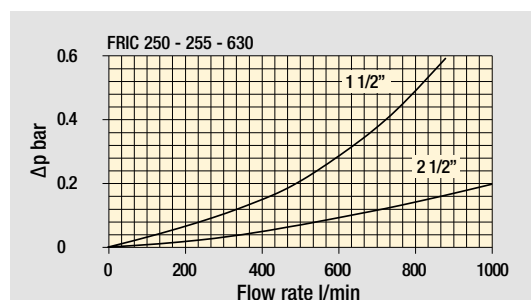
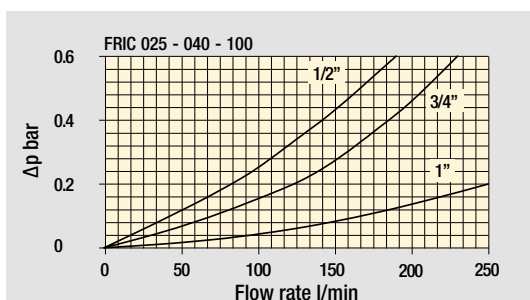
Filter series	00 - without bypass		24 - with bypass 2.4 bar	
	without additional connection	with additional connection	without additional connection	with additional connection
FRIC 025	-	•	-	•
FRIC 040	-	•	-	•
FRIC 100	-	•	-	•
FRIC 250	-	•	-	•
FRIC 255	•	-	•	-
FRIC 630	-	•	-	•
FRIC 850	•	-	•	-



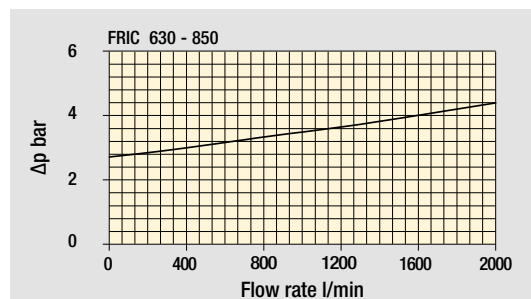
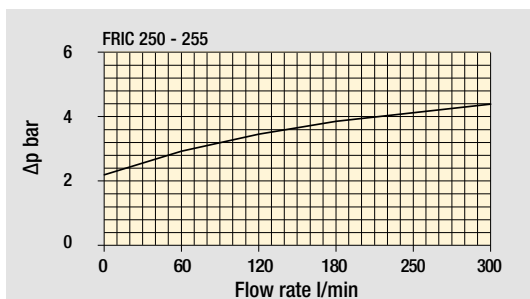
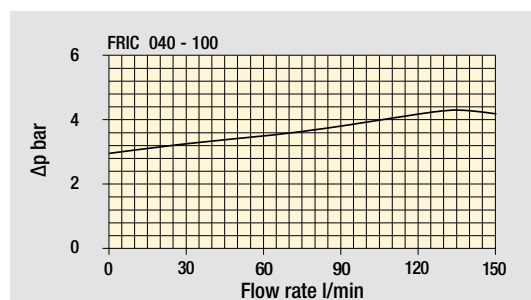
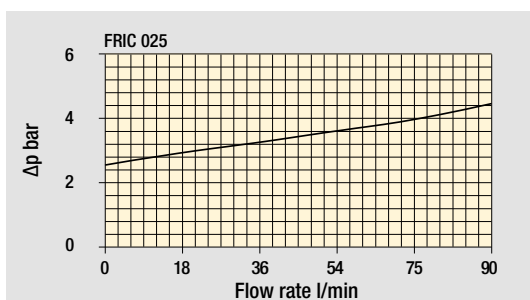
Hydraulic diagram

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	Example 1:	FRIC	025	10	A0025	D	W	00	FG012	1	1N	NN	P01	NN
FRIC	Example 2:	FRIC	630	10	M0025	D	Z	00	FF212	1	1N	NN	P01	NN

Size		
025	250	
040	630	
100		Length
		10

Filtration rating (filter media)		
A0003	Inorganic microfiber	3 µm
A0006	Inorganic microfiber	6 µm
A0010	Inorganic microfiber	10 µm
A0016	Inorganic microfiber	16 µm
A0025	Inorganic microfiber	25 µm
M0025	Wire mesh	25 µm
M0060	Wire mesh	60 µm
M0090	Wire mesh	90 µm
P0010	Resin impregnated paper	10 µm
P0025	Resin impregnated paper	25 µm

Element Δp
D 10 bar

Seals and treatments	
W	NBR with filter and components surface treatment
Z	FPM with filter and components surface treatment

By-pass valve	
00	Without bypass
24	With bypass 2.4 bar

Connections	025	040	100	250	630
FG012 G 1/2"	•	-	-	-	-
FG034 G 3/4"	-	•	-	-	-
FG100 G 1"	-	-	•	-	-
FG112 G 1 1/2"	-	-	-	•	-
FG212 G 2 1/2"	-	-	-	-	•
FN012 1/2" NPT	•	-	-	-	-
FN034 3/4" NPT	-	•	-	-	-
FN100 1" NPT	-	-	•	-	-
FN112 1 1/2" NPT	-	-	-	•	-
FN212 2 1/2" NPT	-	-	-	-	•
FS008 SAE 8 - 3/4" - 16 UNF	•	-	-	-	-
FS012 SAE 12 - 1 1/16" - 12 UN	-	•	-	-	-
FS016 SAE 16 - 1 5/16" - 12 UN	-	-	•	-	-
FS024 SAE 24 - 1 7/8" - 12 UN	-	-	-	•	-
FS032 SAE 32 - 2 1/2" - 12 UN	-	-	-	-	•

Connections	025	040	100	250	630
FE100 1" SAE 3000 psi/M	-	-	•	-	-
FE112 1 1/2" SAE 3000 psi/M	-	-	-	•	-
FE212 2 1/2" SAE 3000 psi/M	-	-	-	-	•
FF100 1" SAE 3000 psi/UNC	-	-	•	-	-
FF112 1 1/2" SAE 3000 psi/UNC	-	-	-	•	-
FF212 2 1/2" SAE 3000 psi/UNC	-	-	-	-	•

Additional connections	
1	With additional connection

Connections for clogging indicator	
1N	With top indicator connection

Additional features	
NN	Without additional features

Execution
P01 Standard catalogue item

Certificates
NN None

CLOGGING INDICATORS

See pages 776-777

DEA	Electrical differential pressure indicator
DEM	Electrical differential pressure indicator
DEU	Electrical differential pressure indicator
DLA	Electrical / visual differential pressure indicator
DLE	Electrical / visual differential pressure indicator

DTA	Electronic differential pressure indicator
DTI	I-O Link electronic differential pressure indicator
DVA	Visual differential pressure indicator
DVM	Visual differential pressure indicator

PLUGS

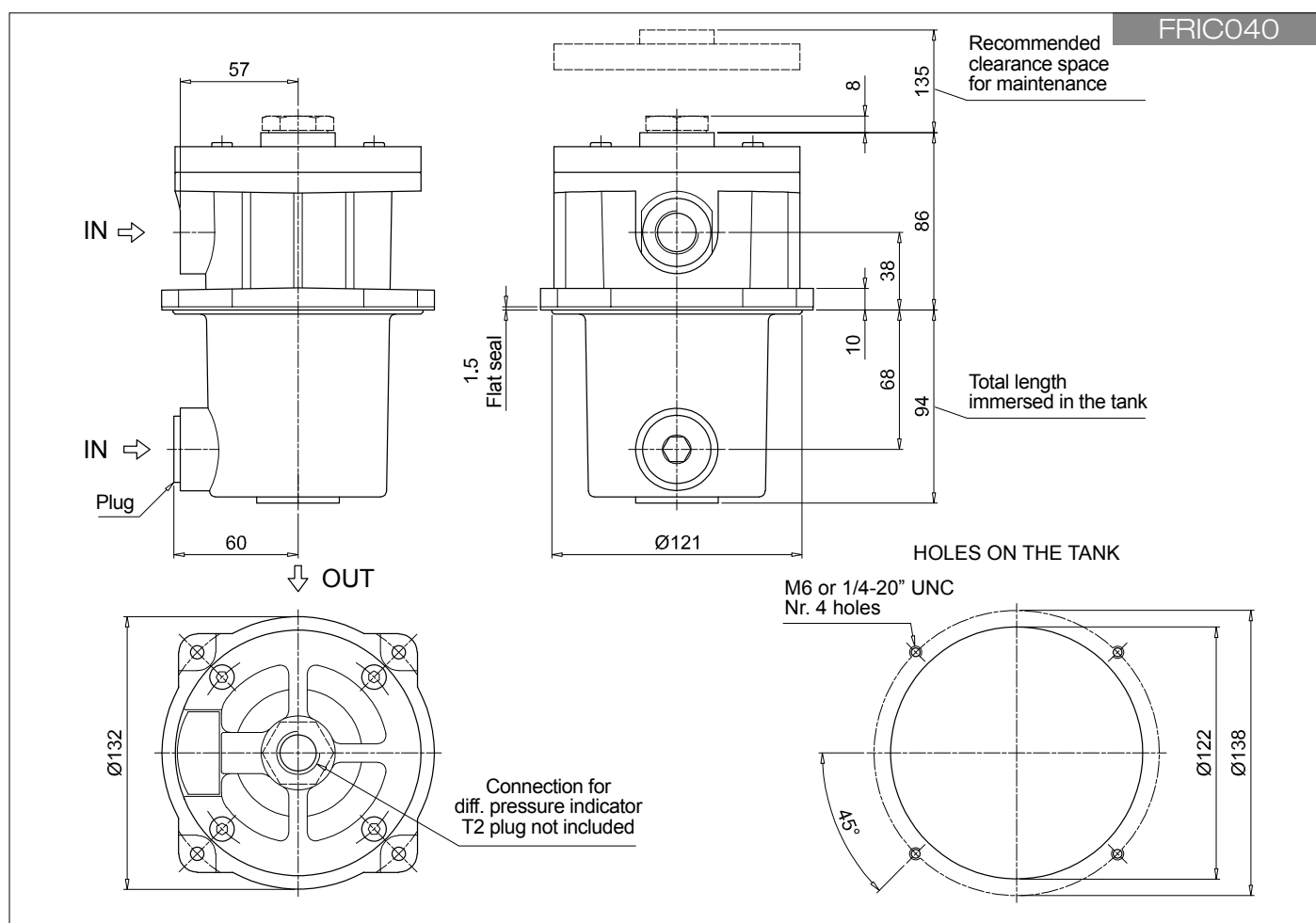
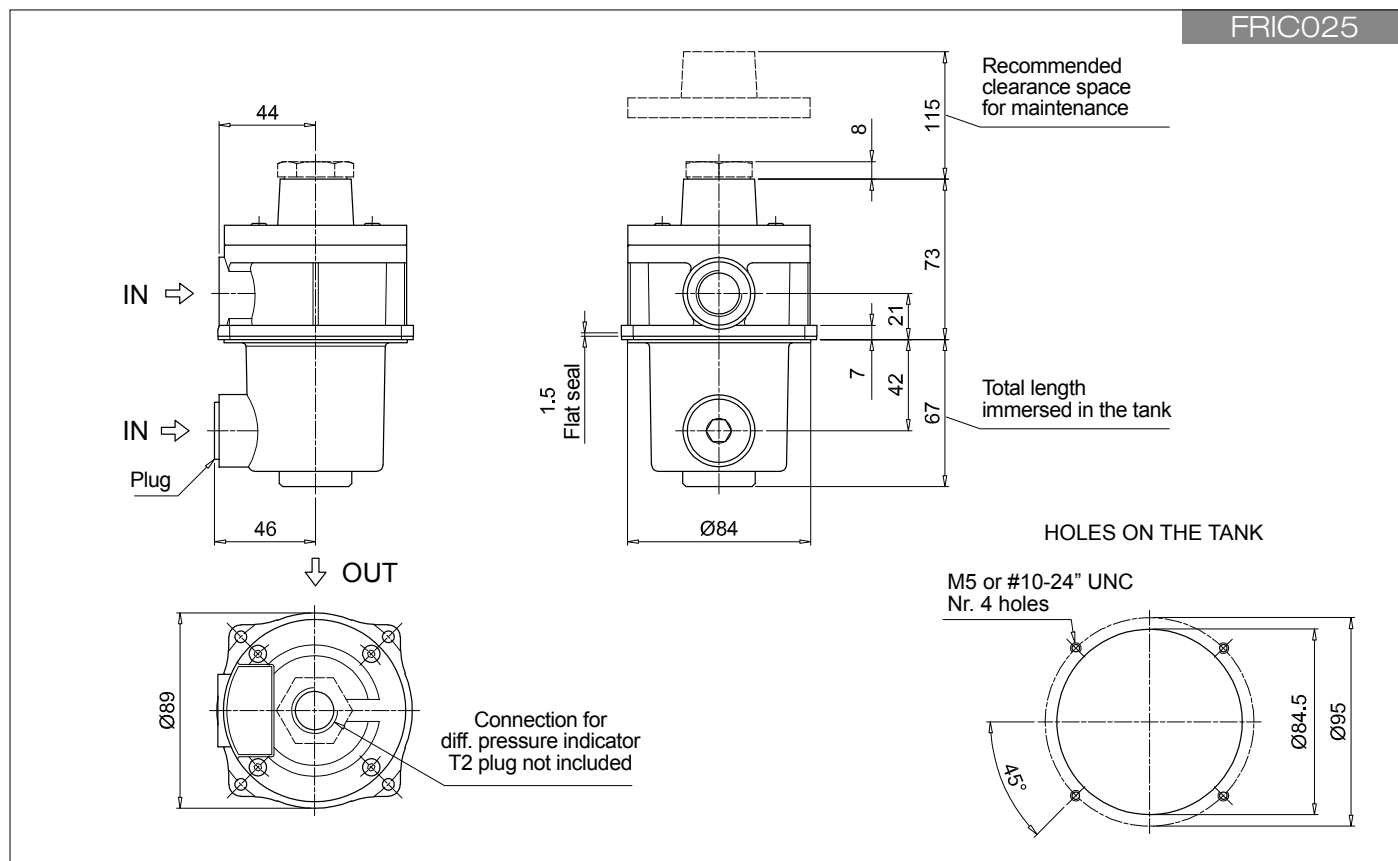
See page 807

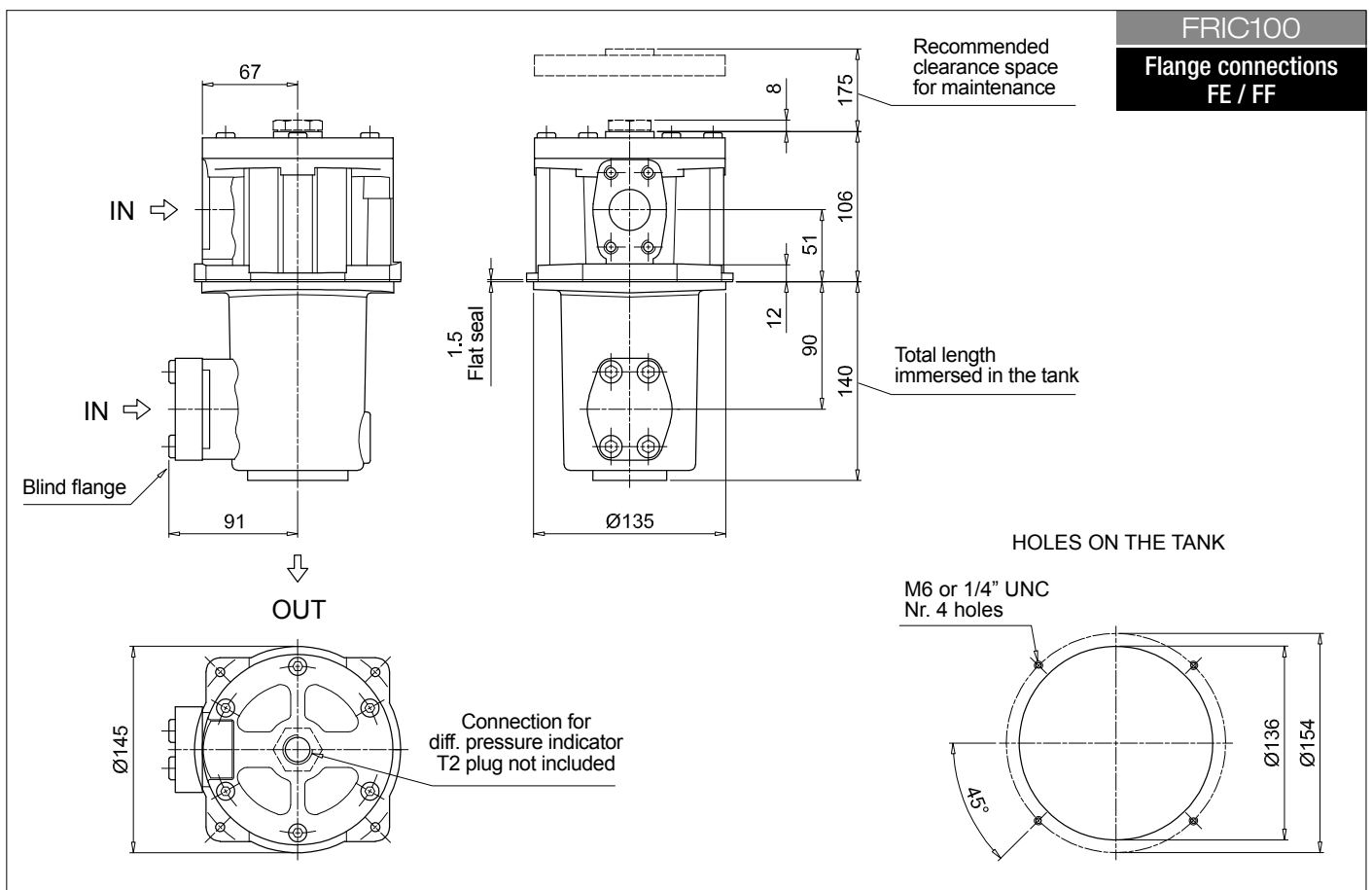
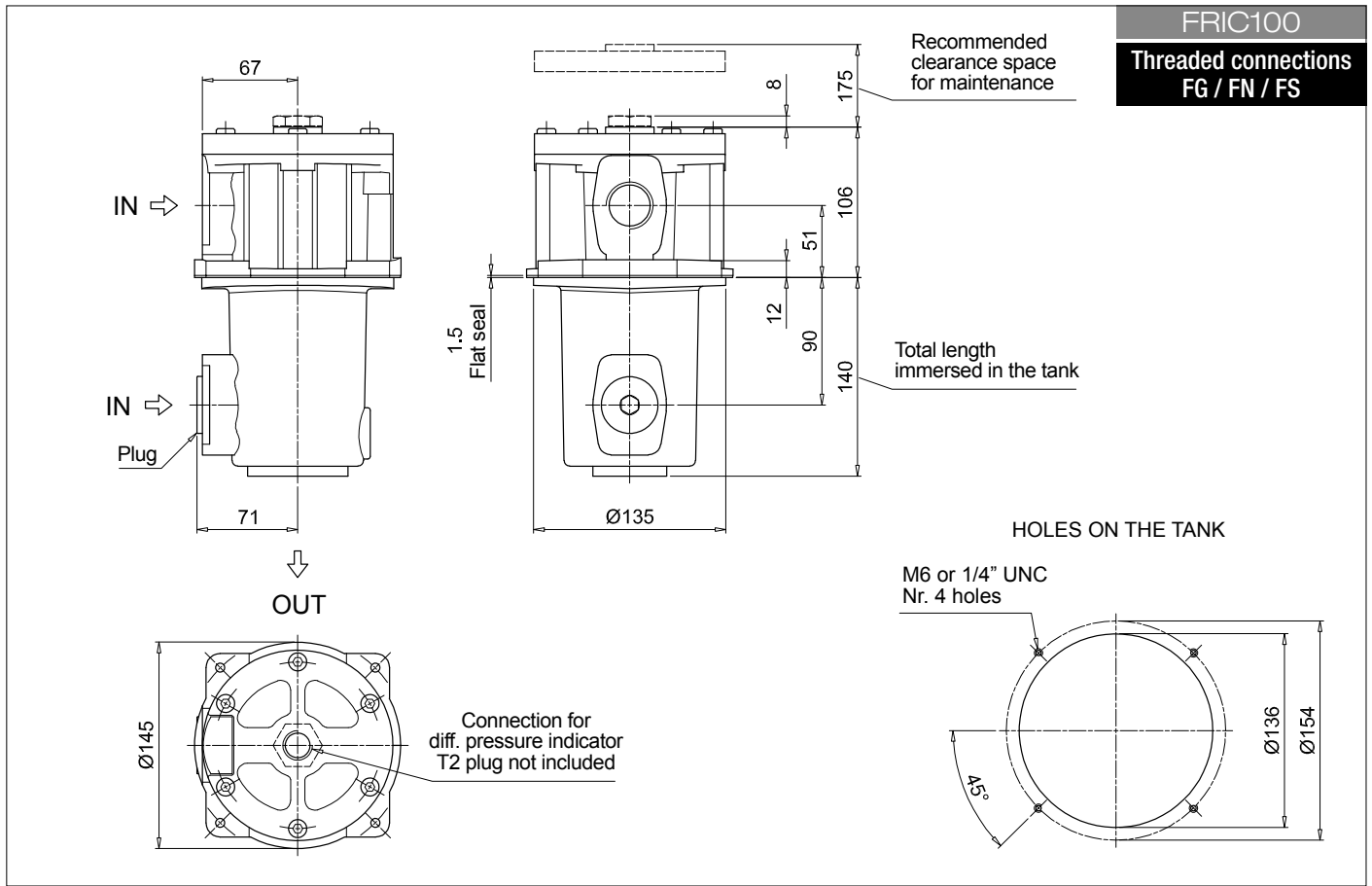
T2	Plug (not included)
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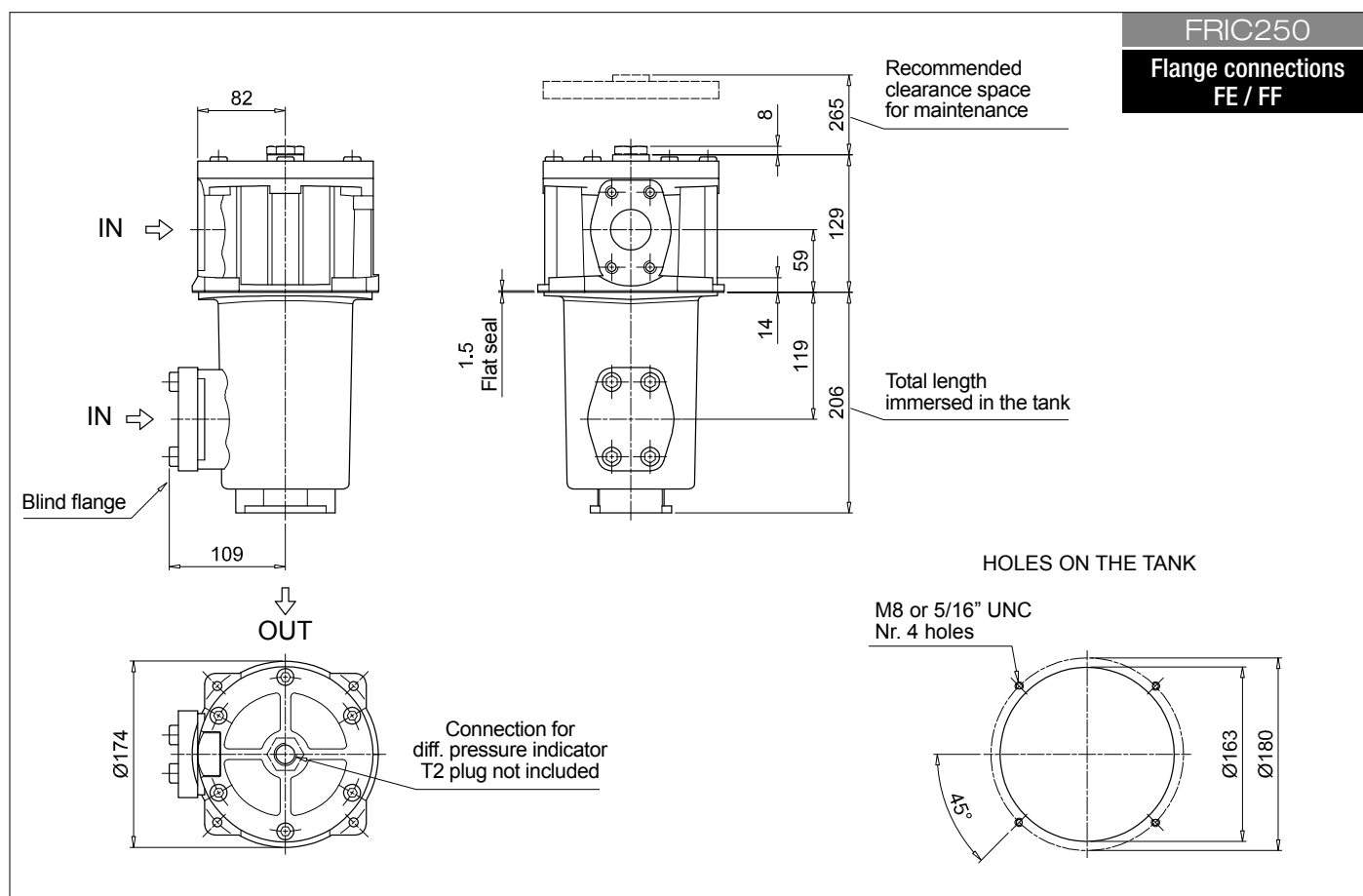
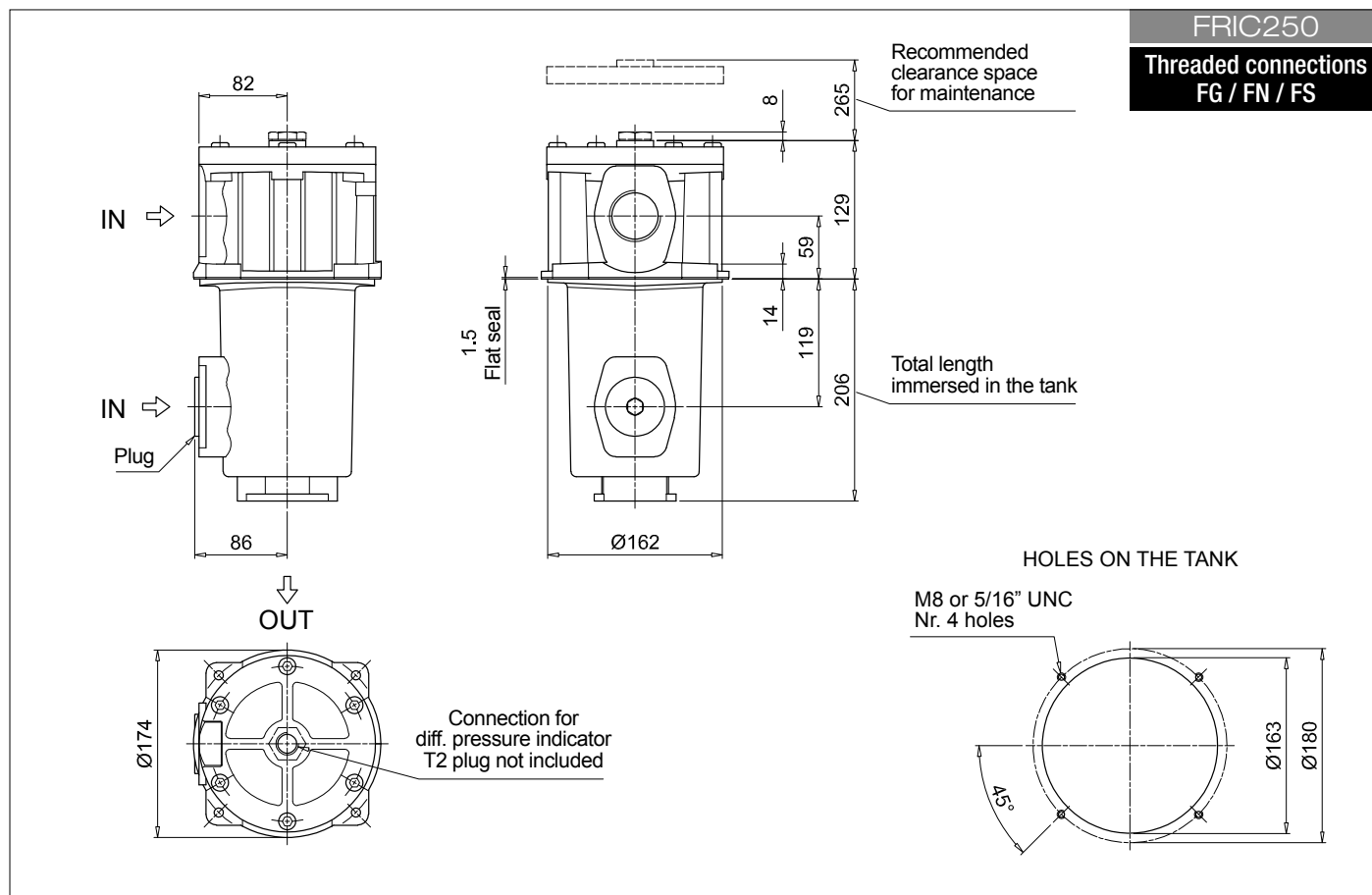
FILTER ELEMENT											
Series		Example 1: CUC 025 10 A0025 D A 00 NN P01 NN									
CUC		Example 2: CUC 630 10 M0025 D V 00 NN P01 NN									
Size											
025	250										
040	630										
100											
Length											
10											
Filtration rating (filter media)											
A0003	Inorganic microfiber	3 µm									
A0006	Inorganic microfiber	6 µm									
A0010	Inorganic microfiber	10 µm									
A0016	Inorganic microfiber	16 µm									
A0025	Inorganic microfiber	25 µm									
M0025	Wire mesh	25 µm									
M0060	Wire mesh	60 µm									
M0090	Wire mesh	90 µm									
P0010	Resin impregnated paper	10 µm									
P0025	Resin impregnated paper	25 µm									
Element Δp											
D 10 bar											
Seals and treatments											
A NBR											
V FPM											
Bypass											
00 Without bypass											
Additional features											
NN Without additional features											
Execution											
P01 Standard catalogue item											
Certificates											
NN None											

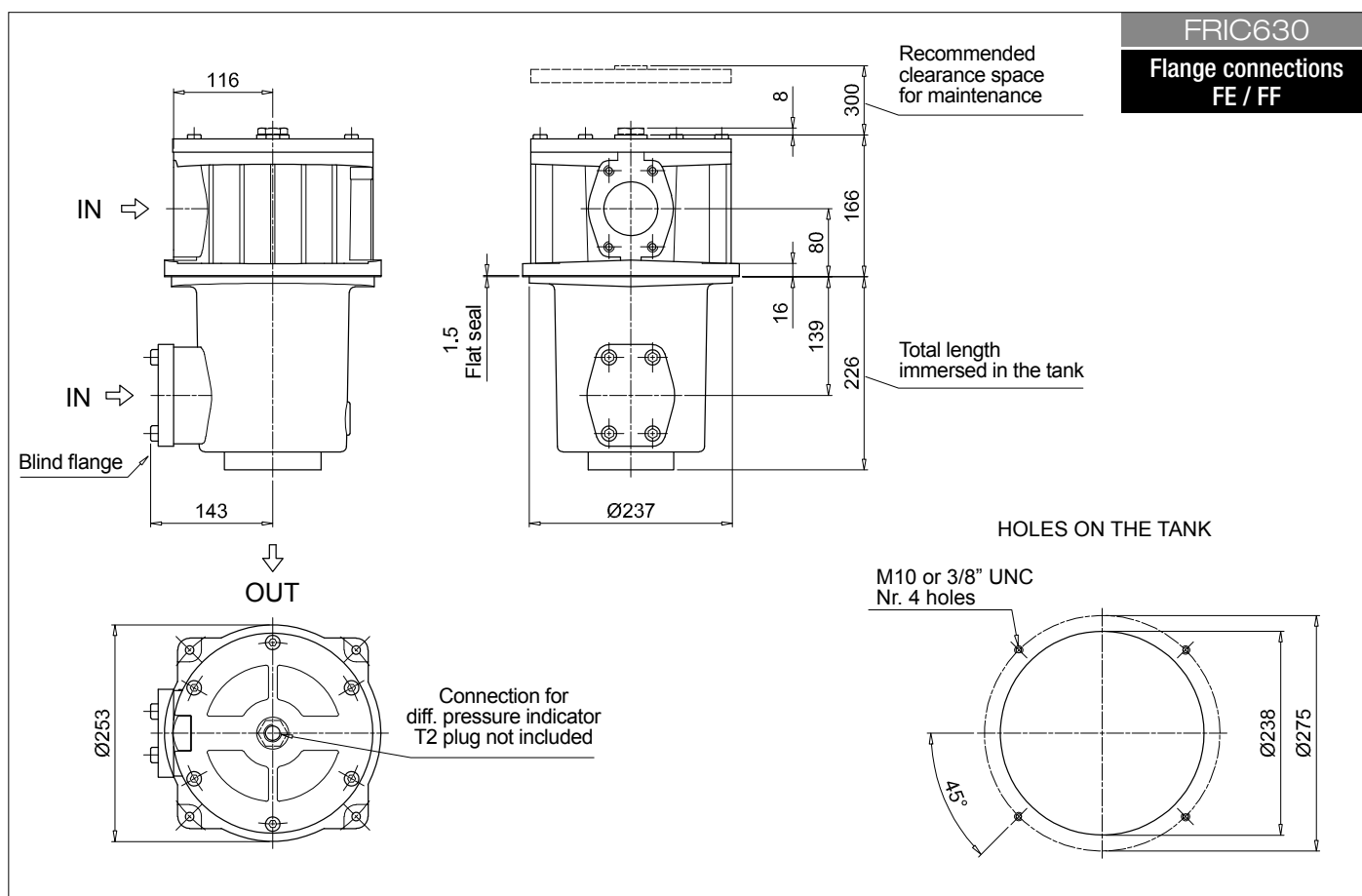
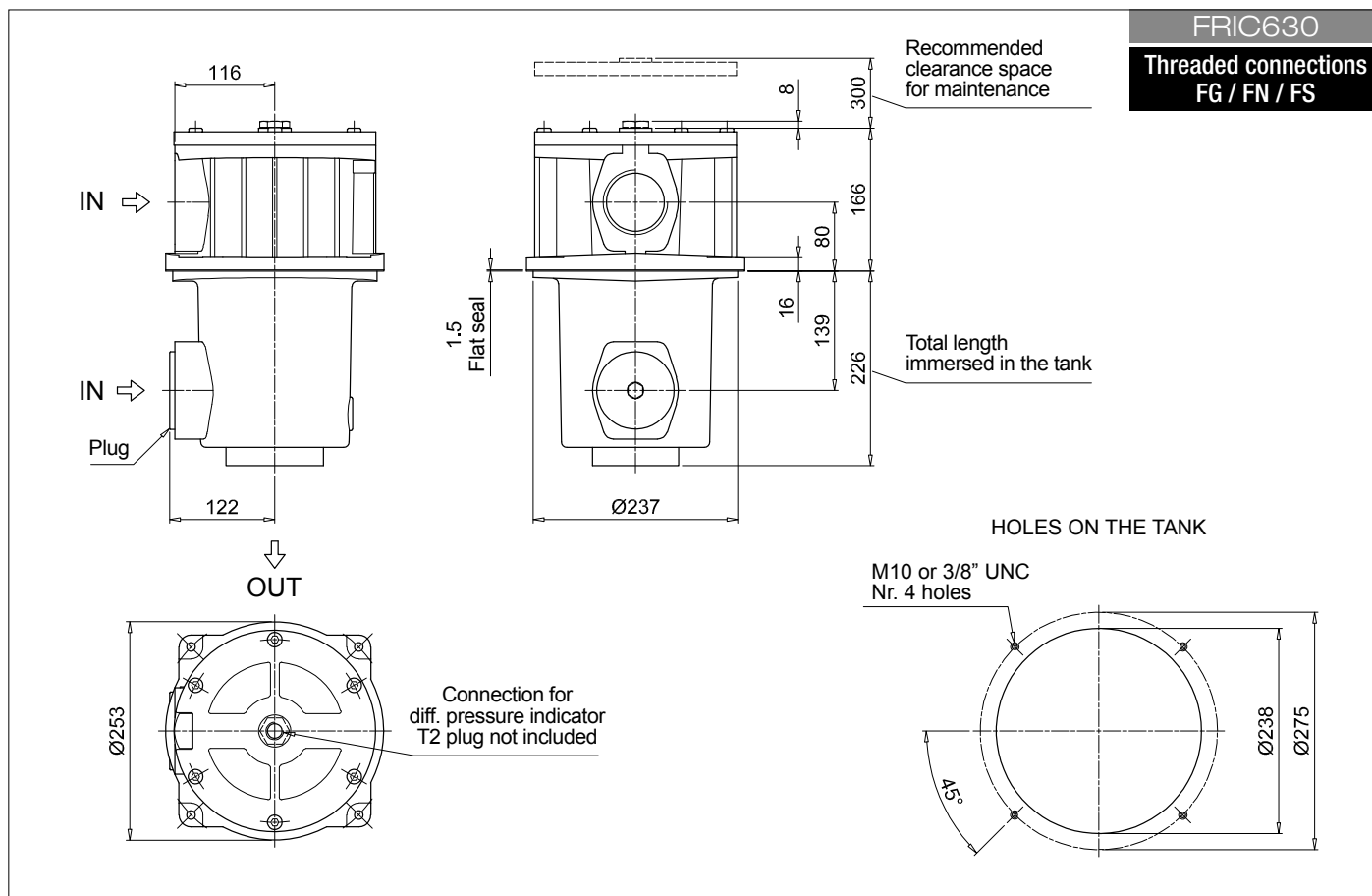
FRIC FRIC025 - FRIC040

Dimensions









Designation & Ordering code

COMPLETE FILTER

Series	Example: FRIC	255	10	A0025	D	W	24	FF112	0	5T	NN	P01	NN
Size													
255													
Length													
10													
Filtration rating (filter media)													
A0003	Inorganic microfiber	3 µm											
A0006	Inorganic microfiber	6 µm											
A0010	Inorganic microfiber	10 µm											
A0016	Inorganic microfiber	16 µm											
A0025	Inorganic microfiber	25 µm											
M0025	Wire mesh	25 µm											
M0060	Wire mesh	60 µm											
M0090	Wire mesh	90 µm											
P0010	Resin impregnated paper	10 µm											
P0025	Resin impregnated paper	25 µm											
Element Δp													
D 10 bar													
Seals and treatments													
W	NBR with filter and components surface treatment												
Z	FPM with filter and components surface treatment												
By-pass valve													
00	Without bypass												
24	With bypass 2.4 bar												
Connections													
FG114	G 1 1/4"	FN114	1 1/4" NPT	FS020	SAE 20 - 1 5/8" - 12 UN	FE112	1 1/2" SAE 3000 psi/M						
FG112	G 1 1/2"	FN112	1 1/2" NPT	FS024	SAE 24 - 1 7/8" - 12 UN	FF112	1 1/2" SAE 3000 psi/UNC						
Additional connections													
0	Without additional connections												
Connections for clogging indicator													
5T	With rear indicator connection, with metal plug												
Additional features													
NN	Without additional features												
Execution													
P01	Standard catalogue item												
Certificates													
NN	None												

CLOGGING INDICATORS

See pages 776-777

BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

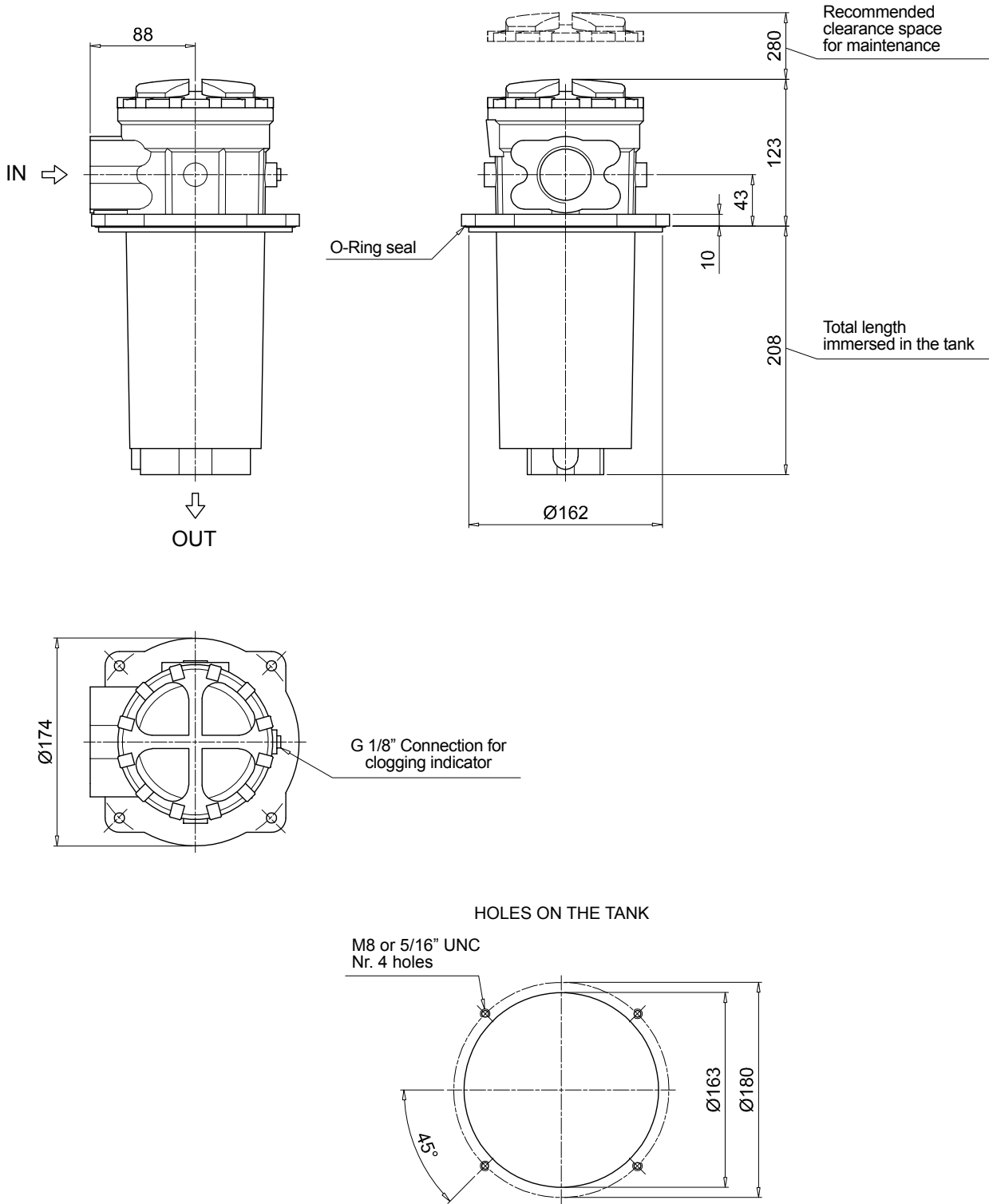
BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator

PLUGS

See page 807

T2 Plug (not included)

FILTER ELEMENT		
Series	Example 1: CUC 250 10 A0025 D A 00 NN P01 NN	
CUC		
Size		
250		
Length		
10		
Filtration rating (filter media)		
A0003 Inorganic microfiber 3 µm		
A0006 Inorganic microfiber 6 µm		
A0010 Inorganic microfiber 10 µm		
A0016 Inorganic microfiber 16 µm		
A0025 Inorganic microfiber 25 µm		
M0025 Wire mesh 25 µm		
M0060 Wire mesh 60 µm		
M0090 Wire mesh 90 µm		
P0010 Resin impregnated paper 10 µm		
P0025 Resin impregnated paper 25 µm		
Element Δp		
D 10 bar		
Seals and treatments		
A NBR		
V FPM		
Bypass		
00 Without bypass		
Additional features		
NN Without additional features		
Execution		
P01 Standard catalogue item		
Certificates		
NN None		



Designation & Ordering code

COMPLETE FILTER													
Series	Example: FRIC	850	10	A0025	D	A	24	FE312	0	1N	NN	P01	NN
FRIC													
Size													
850													
Length													
10													
Filtration rating (filter media)													
A0003	Inorganic microfiber	3 µm											
A0006	Inorganic microfiber	6 µm											
A0010	Inorganic microfiber	10 µm											
A0016	Inorganic microfiber	16 µm											
A0025	Inorganic microfiber	25 µm											
M0025	Wire mesh	25 µm											
M0060	Wire mesh	60 µm											
M0090	Wire mesh	90 µm											
P0010	Resin impregnated paper	10 µm											
P0025	Resin impregnated paper	25 µm											
			Element Δp										
			D		10 bar								
Seals and treatments			A0xxx	M0xxx	P0xxx								
A	NBR		•	•	•								
V	FPM		•	•	•								
W	NBR with filter element tinned tube		•	•	-								
Z	FPM with filter element tinned tube		•	•	-								
By-pass valve													
00	Without bypass												
24	With bypass 2.4 bar												
Connections													
FE312	3 1/2" SAE 3000 psi/M												
FF312	3 1/2" SAE 3000 psi/UNC												
Additional connections													
0	Without additional connections												
Connections for clogging indicator													
1N	With top indicator connection												
Additional features													
NN	Without additional features												
Execution													
P01	Standard catalogue item												
Certificates													
NN	None												

CLOGGING INDICATORS

See pages 776-777

DEA Electrical differential pressure indicator

DEM Electrical differential pressure indicator

DEU Electrical differential pressure indicator

DLA Electrical / visual differential pressure indicator

DLE Electrical / visual differential pressure indicator

DTA Electronic differential pressure indicator

DTI I-O Link electronic differential pressure indicator

DVA Visual differential pressure indicator

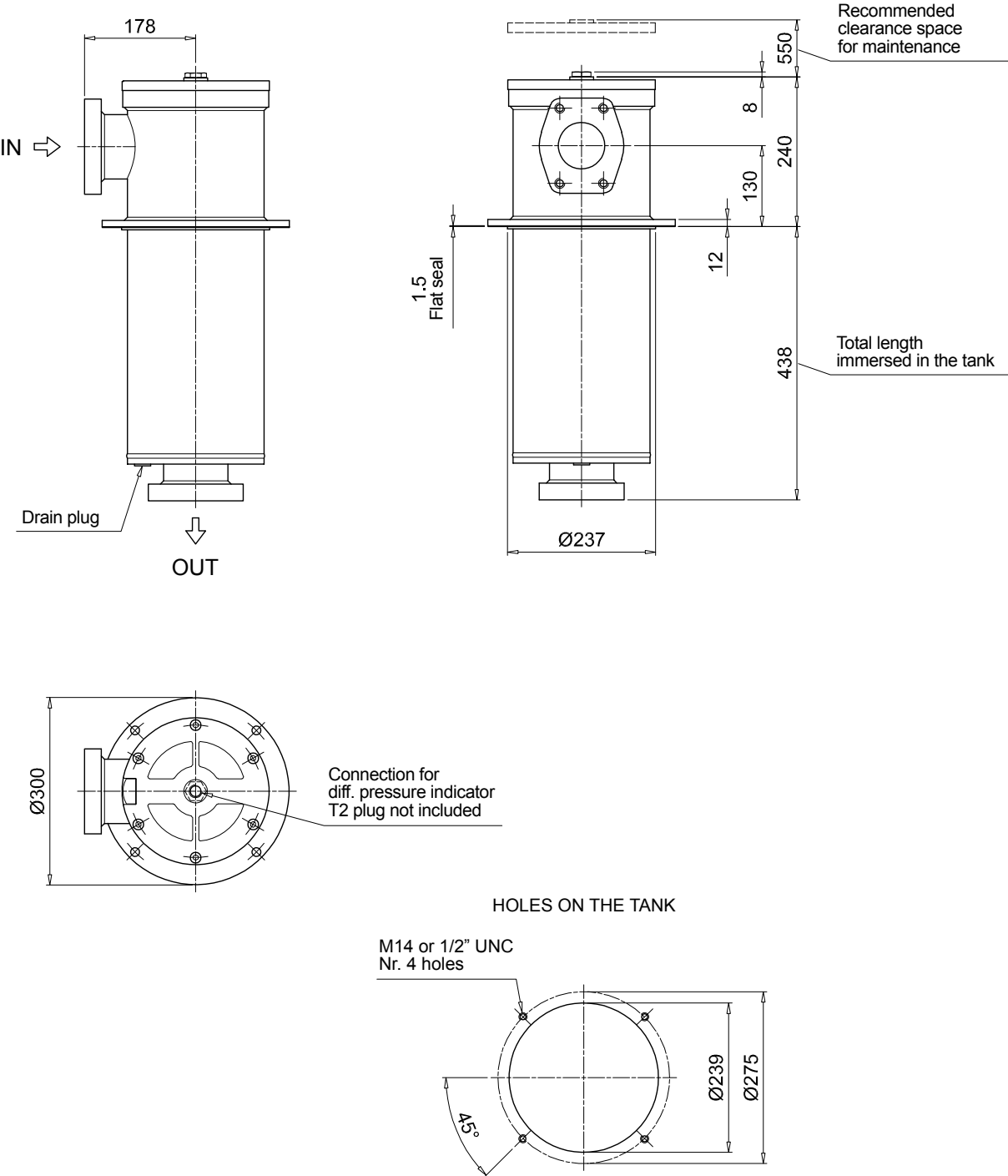
DVM Visual differential pressure indicator

PLUGS

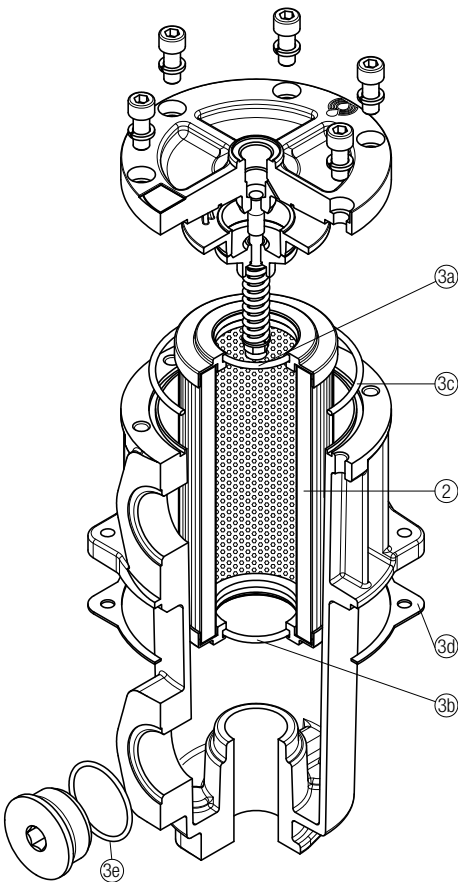
See page 807

T2 Plug (not included)

FILTER ELEMENT		
Series CUC	Example : CUC	850
Size 850		10
Length 10		A0025
Filtration rating (filter media)		D
A0003 Inorganic microfiber 3 µm		A
A0006 Inorganic microfiber 6 µm		00
A0010 Inorganic microfiber 10 µm		NN
A0016 Inorganic microfiber 16 µm		P01
A0025 Inorganic microfiber 25 µm		NN
M0025 Wire mesh 25 µm		
M0060 Wire mesh 60 µm		
M0090 Wire mesh 90 µm		
P0010 Resin impregnated paper 10 µm		
P0025 Resin impregnated paper 25 µm		
Element Δp D 10 bar		
Seals and treatments		
A NBR		
V FPM		
W NBR with tinned tube		
Z FPM with tinned tube		
Bypass 00 Without bypass		
Additional features NN Without additional features		
Execution P01 Standard catalogue item		
Certificates NN None		

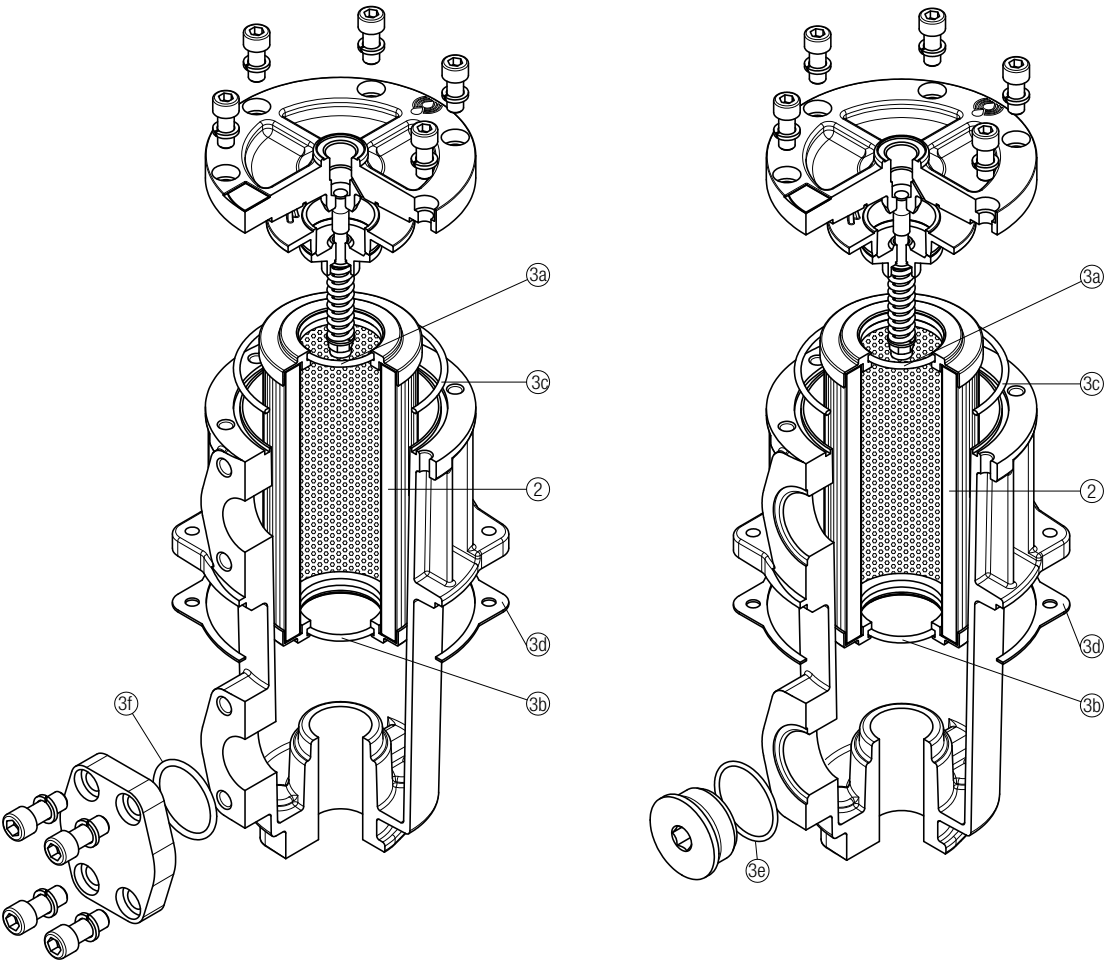


FRIC 025 - 040



Q.ty: 1 pc.		Q.ty: 1 pc.	
Item:	2	3 (3a ÷ 3e)	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
FRIC 025	See order table	AK021000139	AK021000146
FRIC 040		AK021000140	AK021000147

FRIC 100 - 250 - 630

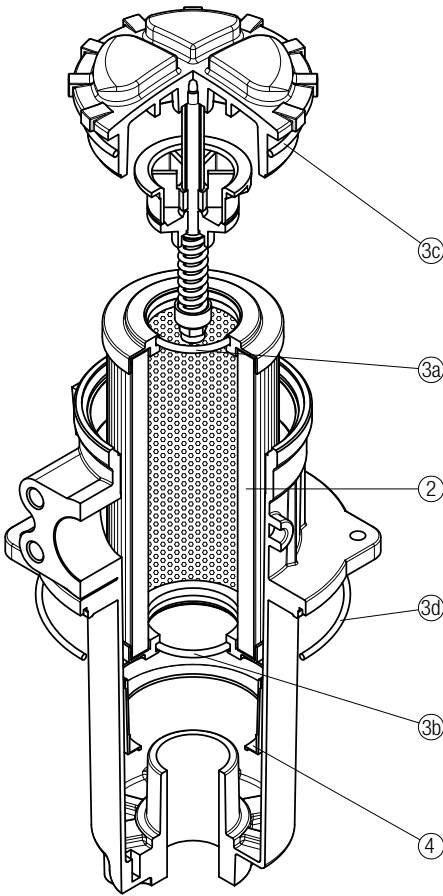


Q.ty: 1 pc.		Q.ty: 1 pc.	
Item:	2	3	(3a ÷ 3f)
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
FRIC 100	See order table	AK021000141	AK021000148
FRIC 250		AK021000142	AK021000149
FRIC 630		AK021000143	AK021000150

FRIC SPARE PARTS

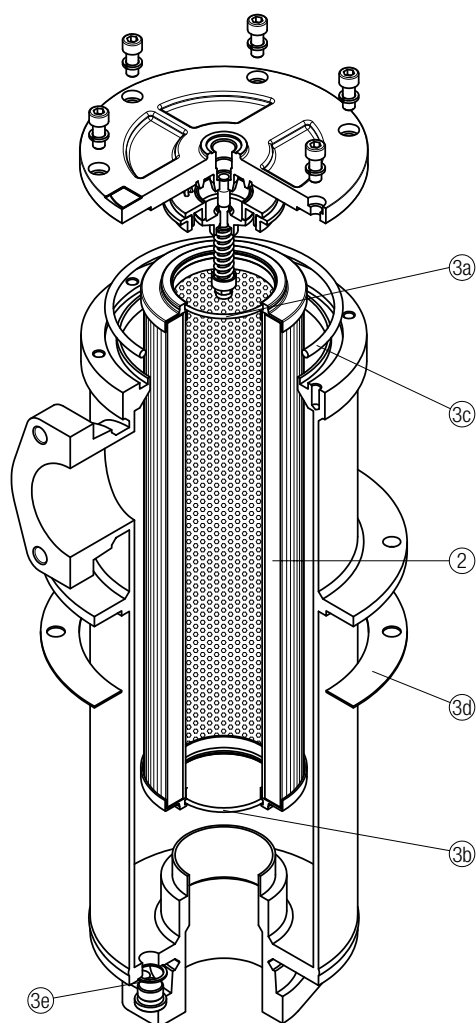
Order number for spare parts

FRIC 255



Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.
Item:	2	3	(3a ÷ 3d)	4
Filter series	Filter element	Seal Kit code number		Contamination retainer binder
		NBR	FPM	
FRIC 255	See order table	AK021000012	AK021000013	01060301

FRIC 850



Q.ty: 1 pc.		Q.ty: 1 pc.	
Item:	2	3	(3a ÷ 3e)
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
FRIC 850	See order table	AK021000144	AK021000151