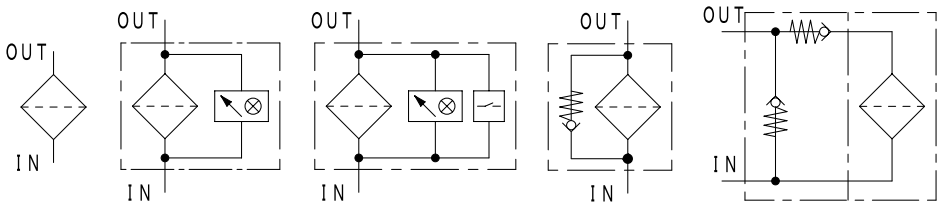
Manifold type Filter with built-in check valve* *option

Characteristics

- Directly installable on manifold block *1
- Manifold type reverse flow valve is available for reciprocating motion circuit
- Element size is selectable depending on flow rate and contaminant amount
- Clogging indicator and relief valve are selectable as an option
- Element of GM can be used in common with TM model.



Oil filter | Visual type indicator | Electric contact type indicator | Relief valve | Reverse flow valve

★ Refer to P.222 for hydraulic graphic symbol of other combination of optional equipment.

SPECIFICATION

Max working pressure		MPa	21.0
Repetition durability test			0 ~ 21.0MPa x10^{7}times
Working temperature	Standard	℃	–10 ~ 90
	High temperature *2	℃	–10 ~ 150
Indicator working pressure	Standard	MPa	0.3
	High pressure	MPa	0.7
Cracking pressure	Standard	MPa	0.35
	High pressure	MPa	Non bypass
Allowable differential pressure of filter element	Standard	MPa	0.7
	High pressure	MPa	21.0
Flow direction/Extract direction of filter element			OUT → IN / Upward

Inner diameter		04Z-2	04Z-3	Reverse flow valve
Standard flow rate ☆ ℓ /min		25	30	—
Main material	Body	FCD		—
	Shell	STPT		
	Cover	FCD		
	Block	—		Carbon steel
Coating		Protective film treatment		
Weight kg		4.2	5.0	2.1

☆ Standard flow rate is estimated by the condition of density: 0.86, kinematic viscosity: 32mm^2/s, filtration rating: 10U, pressure drop: lower than 0.05MPa.
(Since it is adjusted by characteristic of each product, value can be different in some cases.)

MODEL CODE

〈Model code example〉

F – GM – 04Z – 2 – 3C – I V D P
❶ ❷ ❸ ❹

Code	Fluid type
Blank	Mineral oil
F	Phosphate ester fluid
G	Water glycol fluid
C	Fatty ester fluid
W	High water base fluid
S	Fuel (Kerosene, Gas oil, Diesel oil)
B	Brake fluid

Code	Inner diameter
04Z	15A Equivalent

Case length	
Code	2
	3

Code	Filtration rating	Code	Filtration rating
C-Fiber		Wire gauze	
3C	3 μm	5UW	5 μm
8C	8 μm	10UW	10 μm
25C	25 μm	20UW	20 μm
High pressure C-Fiber		40UW	40 μm
3CH	3 μm	50UW	50 μm
8CH	8 μm	200W	200Mesh
25CH	25 μm	150W	150Mesh
Paper		100W	100Mesh
10U	10 μm	60W	60Mesh
20U *3	20 μm		
40U *3	40 μm		

Refer to P.15 -16 for detail information of filter element.

Code	Option
❶ Indicator	
Blank	Closing plug
I	Visual type
E	Electric contact type
D	Electric contact type (Micro capacity)
❷ Relief valve *4	
K	Non
V	Relief valve
❸ Reverse flow valve	
Blank	Non
D	Reverse flow valve
❹ Knock pin	
Blank	Non
P	Knock pin

＊1 Surface roughness of manifold should be lower than Ra1.6 ＊2 Sealing parts: FKM, only for wire gauze element, indicator and relief valve are not available (Max oil temperature is visual type: 130℃ , electric contact type: 90℃) ＊3 Not available for water-glycol based oil and high water based fluid ＊4 Relief valve is not available if selecting high pressure element

FLOW RATE GRAPH

■ Condition

Fluid type：ISO VG32
Oil temperature：40℃
(Density: 0.86, Kinematic viscosity: 32mm²/s)

■ How to calculate of pressure drop

・Estimate pressure drop of filter assembly by following equation:

Pressure drop of filter assembly = ① Pressure drop of filter housing + ② Pressure drop of filter element

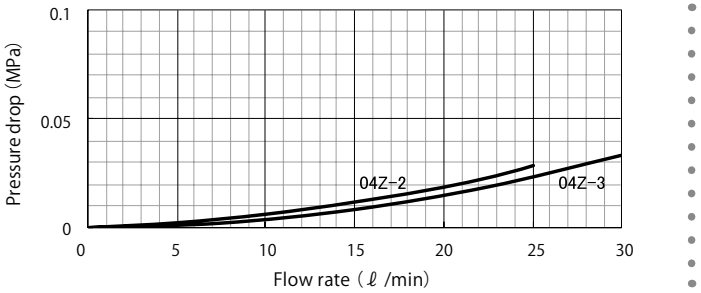
・Estimate pressure drop of filter assembly by following equation if required condition is different:

$$\text{Pressure drop of filter housing} = \frac{\text{Fluid density}}{0.86} \times \text{Pressure drop of filter housing at density of 0.86}$$

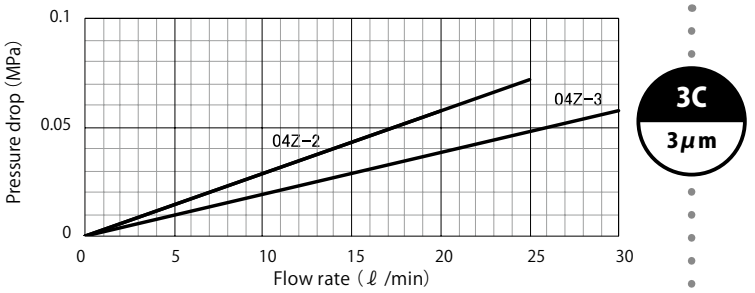
$$\text{Pressure drop of filter element} = \frac{\text{Fluid density}}{0.86} \times \frac{\text{Kinematic viscosity}}{32} \times \text{Pressure drop of filter element at density of 0.86, kinematic viscosity of 32}$$

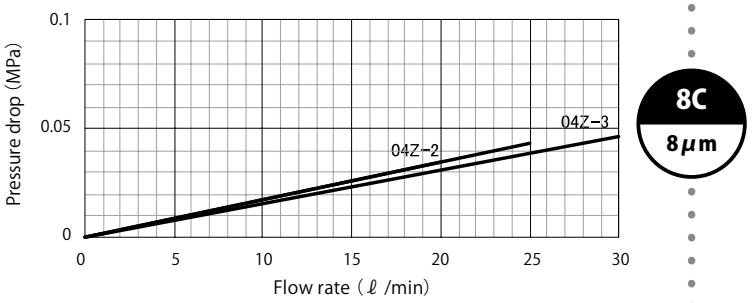
★ Pressure drop of filter housing is proportional to fluid density, and pressure drop of filter element is proportional to fluid density and kinematic viscosity.

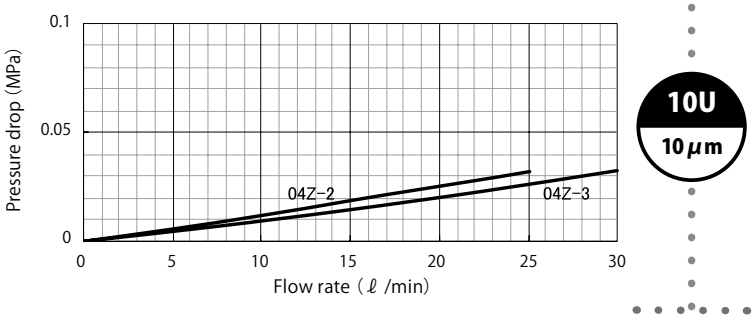
① Pressure drop of filter housing

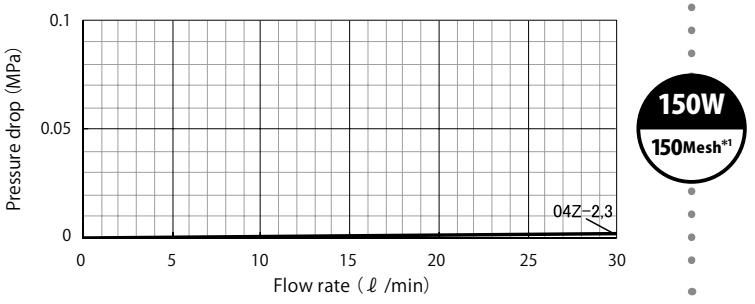


② Pressure drop of filter element





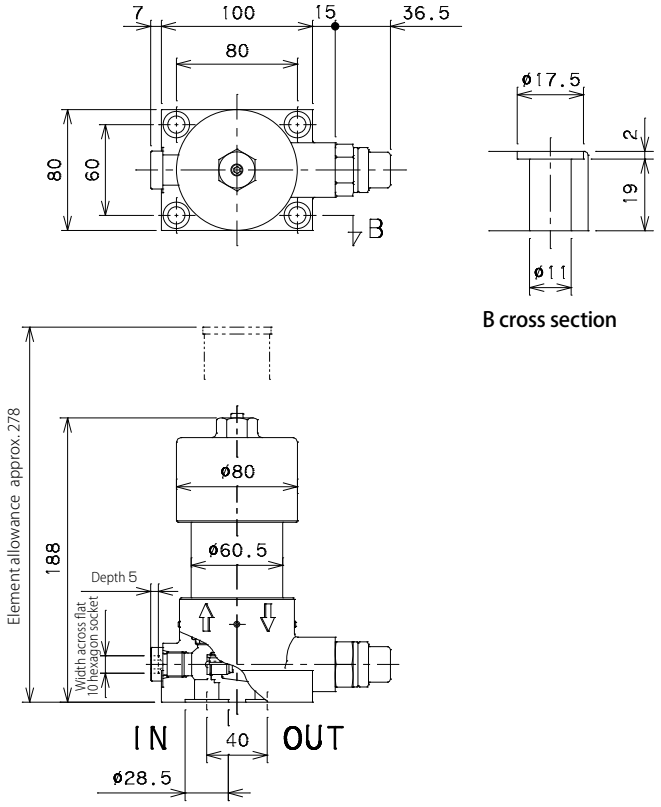




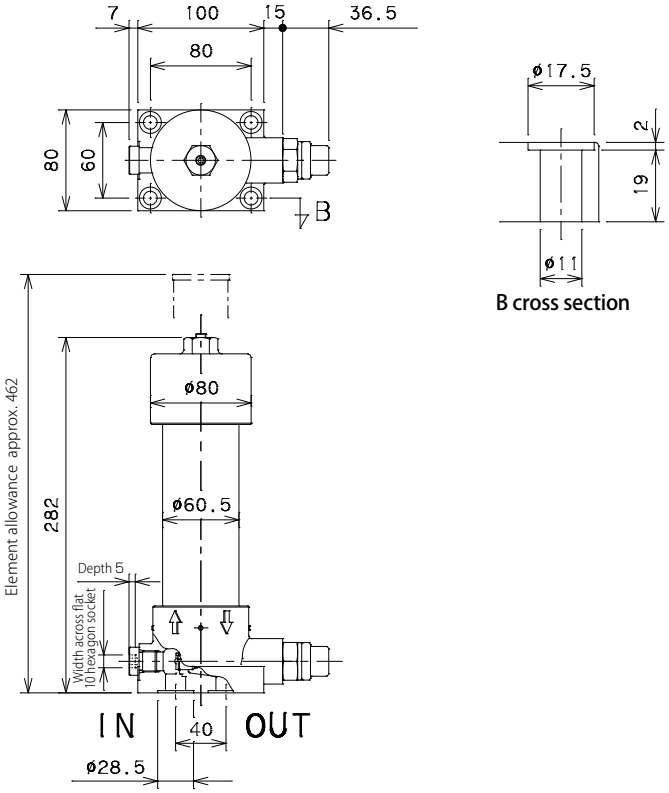
＊1 Pressure drop of wire gauze element is described with one line since the value is low and there is no difference at each filter size.

GM-04Z-2-□□-I□□□

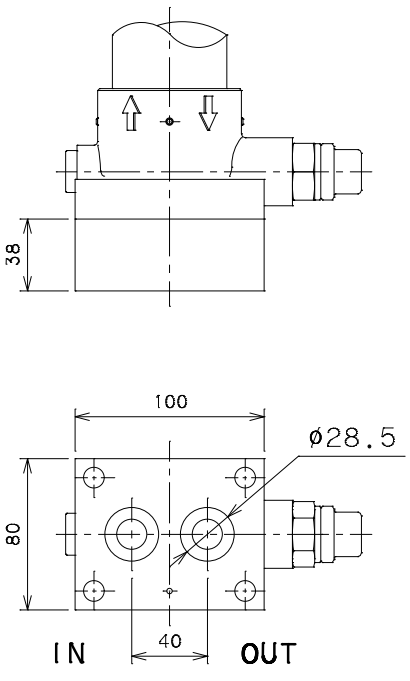
I : Visual type indicator



GM-04Z-3-□□-I□□□



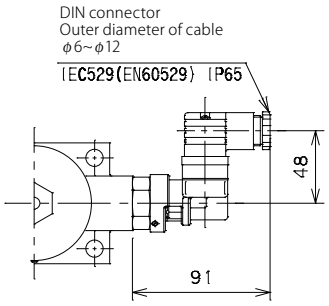
GM-04Z-□-□□-□□D□



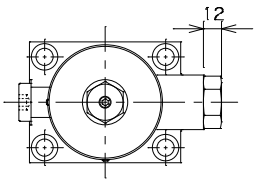
D : Reverse flow valve
GM-04Z-□-□□-□□D□

Differential pressure type indicator part

＊ Common at all size



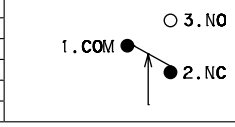
E,D : Electric contact type indicator
GM-04Z-□-□□-E,D□□□



Closing plug
GM-04Z-□-□□-_□□□

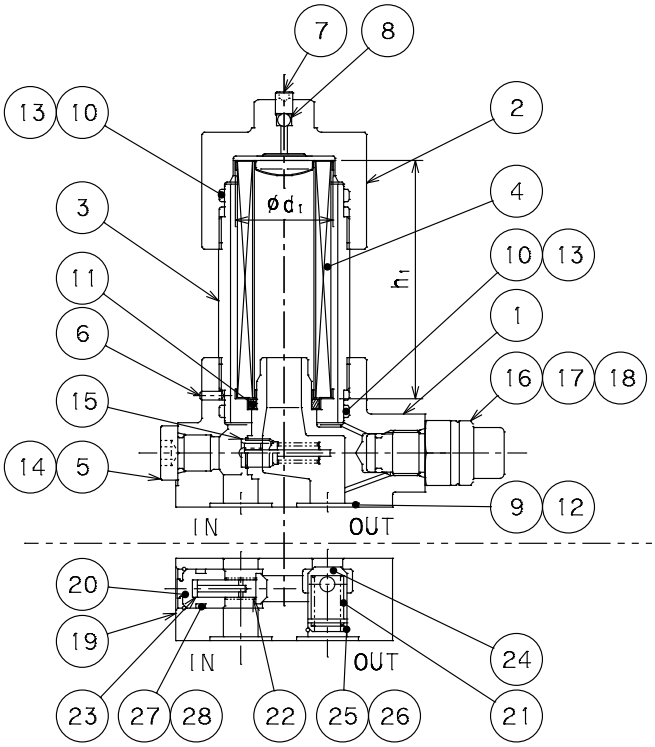
Model code	Working pressure(MPa)		
	Visual observation signal		Electric signal
	Caution	Clogging	
IF-3	0.2	0.3	
IF-7		0.7	
EF-3		0.3	0.3
EF-3D			
EF-7		0.7	0.7
EF-7D			

〈Micro switch specification〉

Model code	Rated capacity		Contact diagram : 1C
EF-3 EF-7	Resistance load	3A,250V AC	
		3A,30V DC	
	Inductive load	2A,250V AC	
		2A,30V DC	
EF-3D EF-7D	Micro capacity	100mA,125V AC	
		100mA,30V DC	

★ IF-7 and EF-7(D) are for High pressure element.

CROSS SECTION



PARTS LIST

No.	Item	Qty
1	Body	1
2	Cover	1
3	Shell	1
4	Element	1
5	Drain plug	1
6	Cap bolt (set screw)	2
7	Cap bolt (air vent)	1
8	Steel ball	1
9	O-ring	2*1
10	O-ring	2
11	O-ring	1
12	Backup ring	2*1
13	Backup ring	2
14	O-ring	1
15	Relief valve	1
16	Indicator	1
17	O-ring	1
18	O-ring	1

No.	Item	Qty
19	Reverse flow block	1
20	Plug	1
21	Spring	1
22	Spring	1
23	Spool	1
24	Spool	1
25	Spring holder	1
26	Stop ring	2
27	O-ring	1
28	Backup ring	1

ELEMENT SIZE

Element Model code	Size(mm)				Weight*2 (Kg)
	φ d1			h1	
		High mesh*	High pressure		
P-GM-2	45.2	46.0	45.3	115	0.32
P-GM-3				209	0.52

*Filtration rating : 5UW、10UW、20UW　　*Common to TM、GM

SEALING PARTS LIST

No.	9	10	11	12	13	14	17	18	27	28	Item code of sealing parts set*4			
Standard*3 / Model code	JIS B2401 1B	JIS B2401 1A	AS568	SUN-4B	JIS B2407 T3	JIS B2401 1B	JIS B2401 1B	JIS B2401 1A	JIS B2401 1A	JIS B2407 T2	Material	SP*5 No. : 10,11,13, 14	SA No. : 9 ～ 14, 17,18	SA-D No. : 9 ～ 14, 17,18,27,28
GM-04Z	P22	G55	214	For P22	For G55	P14	P18	P14	P14	For P14	NBR	SSF000121	SSF000119	SSF000120
											FKM	SSF000488	SSF000486	SSF000487

MODEL CODE OF SPARE PARTS

Replacement element 〈Model code example〉

P – **F** – **GM** – **2** – **3C**

("P" represents filter element)

Fluid type

Case length	
Code	2
	3

Filtration rating

Sealing parts set 〈Model code example〉

SA – **F** – **GM** – **04Z** – **D**

Code	Sealing parts set
SP	For element replacement
SA	For overhaul

Fluid type

Code	Reverse flow valve
Blank	Non
D	Reverse flow valve

★ Model code of replacement element exists two types: "Individual code" and "Common code", however it represents same product.

"Individual code": Used in drawings and nameplate as shown in <Model code example>.
"Common code": Used in vouchers and tag
Refer to【Spare Element List】on P.152 for "Common code".

★ Refer to the MODEL CODE table on the previous page for code selection.

＊1　O-rings are attached 4 pcs each for the model with the (optional) reverse flow valve.　＊2　Weight of "Paper" element
＊3　Standard for NBR. For other material, conform to the standard.
＊4　Sealing parts are available as "Sealing parts set" only. We do not provide single part individually. ＊5　Part #10 and #13 are only for the cover side.