Lineup of Mist Separators and Filters for Micro Flow Sensors

(made by Nippon Donaldson Ltd.)

KAX and MFF100 Series filters protect products from foreign matter such as dust in gas, oil mist, and welding fumes during piping work.

A wide variety of models are available not only for compressed air and low pressure air applications, but also for flammable gases like natural gas and propane, and for inert gases like argon and carbon dioxide.

These filters fit Yamatake's CME, CMG, CML, CMQ, CMR, CMS, MPC, and MVF Series.

For low pressure air (blowers): KAX
→ See pages 1 to 3.
For compressed air and flammable gases: MFF100
→ See pages 4 to 11.

KAX Series

MFF100 Series

■ KAX Series

Maximum treated flow rate: 120 to 1200m^3/h(normal)
Pipe size: 40A to 150A

KAX common specifications

Item	Description
Applicable gases	Low pressure air only
Operating pressure range	-30 to +5kPa
Operating temperature range	0 to 70°C
Material	Housing: galvanized steel plate. Element: cellulose fiber.
Piping connection	JIS 5K flange connection
Trapping rate	Up to 99.999% of dust by JIS type-7 test
Mounting position	Any position
Element replacement cycle	1 year (recommended)
Packing and delivery style	Housing and element packed together

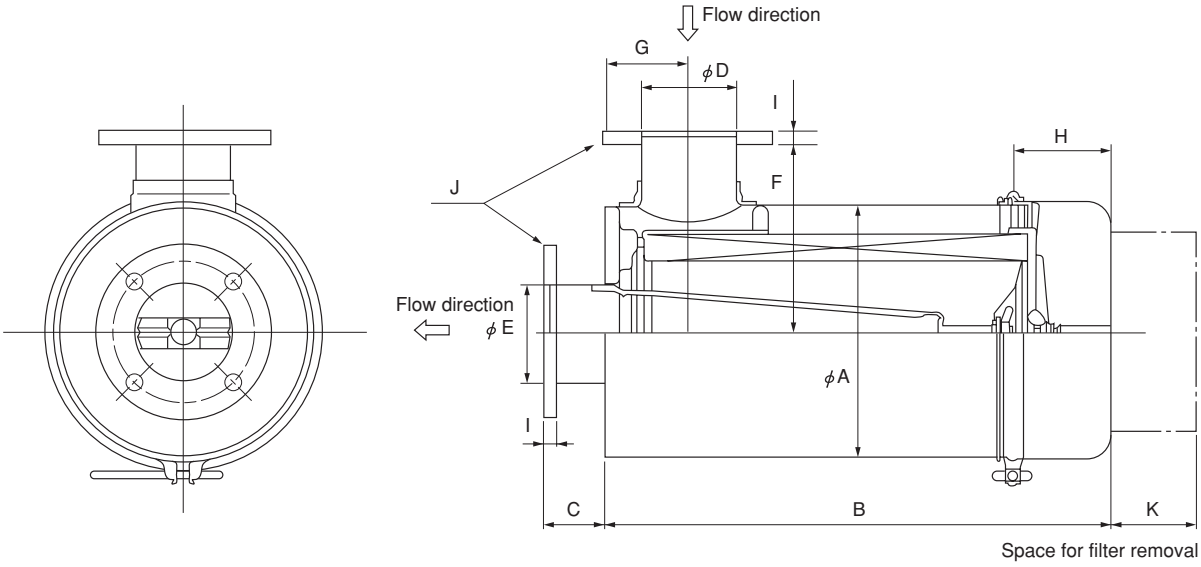
Individual specifications

Model No.	Mounting band*	Pipe size	Flow rate m^3/min (normal)	Flow rate m^3/h (normal)	Filtration area (m^2)	Weight (kg)
KAX00-8770	P00-2348	40A	2 max.	120 max.	0.9	5.0
KAX00-8771	P00-7191	50A	2 to 4	120 to 240	1.9	5.5
KAX00-8772	P00-4307	65A	4 to 6	240 to 360	2.1	9.4
KAX00-8773	P00-4076	80A	6 to 8	360 to 480	4.2	15.0
KAX00-8774	AAH00-0349	100A	8 to 10	480 to 600	5.5	22.0
KAX00-8775	AAH00-0350	125A	10 to 15	600 to 900	9.3	27.0
KAX00-8776	AAH00-0351	150A	15 to 20	900 to 1200	12.2	35.0

* Two mounting bands are required to install each air filter (housing). Order bands when ordering air filters.

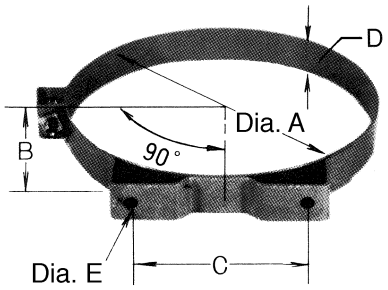
■ External dimensions

(Unit: mm)



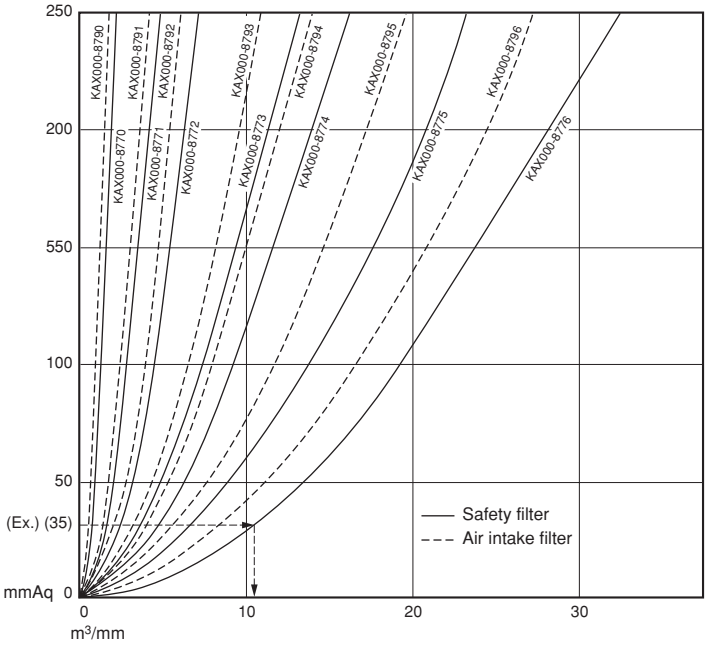
	A	B	C	D	E	F	G	H	I	J	K
KAX00-8770	133.4	310.4	70.0	50.8	50.8	105.0	34.0	81.3	12.0	40A	220.0
KAX00-8771	165.0	349.2	66.0	63.5	57.2	125.0	45.0	95.3	14.0	50A	230.0
KAX00-8772	203.2	467.6	60.0	76.2	76.2	180.0	66.0	95.3	14.0	65A	340.0
KAX00-8773	258.8	533.4	65.0	101.6	101.6	210.0	86.0	101.6	14.0	80A	335.0
KAX00-8774	300.0	458.8	60.0	127.0	127.0	230.0	119.0	101.6	13.0	100A	260.0
KAX00-8775	355.6	535.5	65.0	152.4	152.4	260.0	134.0	101.6	16.0	125A	335.0
KAX00-8776	406.4	585.2	65.0	177.8	177.8	310.0	146.3	101.6	18.0	150A	385.0

■ Mounting band dimensions (2 bands required for each filter housing)



Mounting band No.	Housing No.	A	B	C	D	E
P00-2348	**KAX00-8770**	133.4	81.0	82.6	22.4	8.7
P00-7191	**KAX00-8771**	165.0	98.6	95.3	22.4	10.4
P00-4307	**KAX00-8772**	203.2	114.3	108.0	25.4	8.8
P00-4076	**KAX00-8773**	258.8	146.0	127.0	32.0	11.2
AAH00-0349	**KAX00-8774**	300.0	174.8	152.4	38.0	10.4
AAH00-0350	**KAX00-8775**	355.6	206.2	203.2	38.0	12.0
AAH00-0351	**KAX00-8776**	406.4	231.6	254.0	38.0	12.0

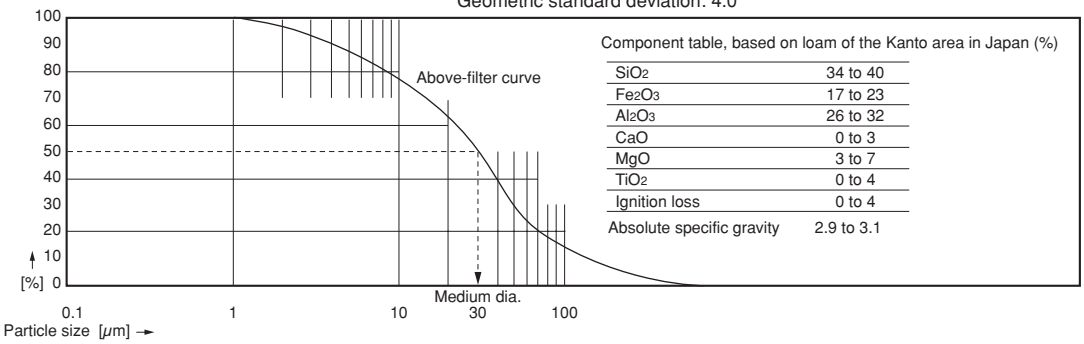
■ Initial pressure loss



■ Dust removal efficiency (Dust collection efficiency)

JIS type-7 dust particle size distribution

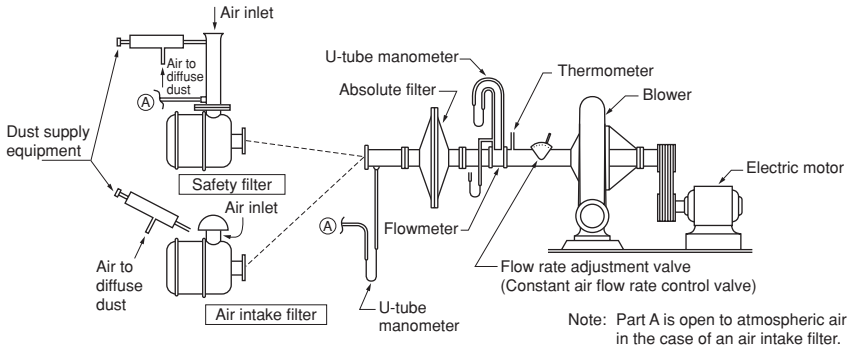
Distribution index: 0.95
Geometric standard deviation: 4.0



Component table, based on loam of the Kanto area in Japan (%)

SiO_2	34 to 40
Fe_2O_3	17 to 23
Al_2O_3	26 to 32
CaO	0 to 3
MgO	3 to 7
TiO_2	0 to 4
Ignition loss	0 to 4
Absolute specific gravity	2.9 to 3.1

Test equipment overview



Note: Part A is open to atmospheric air in the case of an air intake filter.

The measurement conditions for the 99.999% trapping rate shown in the specifications table are as follows:

Dust used: JIS type 7 (JIS Z 8901 dust for test)
JIS type-7 dust particle size distribution
Filtration speed: 1.5m/min
Dust input quantity per filtration area: 2000g/m^3 (constant supply in 0.88g/m^3 dust density)

With an absolute filter installed just after the air filter, and air being drawn with constant air flow (flow speed) control, and dust being suctioned to the air filter, the dust removal efficiency is calculated using the following formula:

$$\text{Dust removal efficiency} = 100 \times \left(1 - \frac{\text{Increased absolute filter weight}}{\text{Total input dust weight}}\right)$$

■ MFF100 Series

Lineup

Maximum treated flow rate: 20 to 11520m³/h(normal)
Pipe size: MFF100NAG Series: Rc 1/4" to Rc 3"
MFF100NSG Series: DIN100A or DIN150A flange

MFF100 common specifications

Item		Description
Applicable gas	MFF100NXGXXXXA	Air only
	MFF100NXGXXXXS	Flammable gases: methane, natural gas, propane, butane, butane-air, and propane-butane mixed gas.
		Air, inert gas: nitrogen, argon, carbon dioxide
Operating pressure range		0 to 1MPa
Pressure resistance		1.6MPa
Operating temperature range		0 to 70°C
Material	Housing	MFF100NAGXXXX: aluminum, MFF100NSGXXXX: steel
	O-ring	NBR
	Element	SUS304, aluminum, epoxy resin, polyurethane, Cerex
Trapping efficiency		99.99999% for 0.01μm solid particles
Residual oil density		0.01mg/m³ max. when inlet density is 3mg/m³
Drain	MFF100NXGXXXXA	Automatic drain is a standard feature on the compressed air model.
	MFF100NXGXXXXS	No drain. Use this model No. if a drain cannot be installed. There is no drain on flammable gas or inert gas models.
Differential pressure gauge		Clogged filter guideline mark is a standard feature.
Coating specifications		Polyester resin coating
Element replacement cycle		Every year, or before element differential pressure reaches 0.05MPa (0.5bar).
Packing and delivery style		Since housing and element are separately packed, the element is user-mounted.

Individual specifications

Model Nos. of housing + element sets
Compressed air models: MFF100NXGXXXXA000

Model No.		Connection type	Pipe size	Max. treated flow rate (m³/h[normal])	Replacement element	
					Model No.	Required qty. (units)
MFF100NAG	0002A	Rc thread	Rc 1/4"	20	MFF100SMF0205000	1
	0006A		Rc 3/8"	60	MFF100SMF0310000	1
	0012A		Rc 1/2"	120	MFF100SMF0420000	1
	0027A		Rc 1"	270	MFF100SMF0525000	1
	0048A		Rc 1-1/2"	480	MFF100SMF0730000	1
	0108A		Rc 2"	1080	MFF100SMF1530000	1
	0288A		Rc 3"	2880	MFF100SMF3050000	1
MFF100NSG	0576A	DIN flange	DIN100A	5760	MFF100SMF3030000	3
	1152A		DIN150A	11520	MFF100SMF3030000	6

Model Nos. for sets of housing + element

Flammable gas or other compatible gas models: MFF100NXGXXXXS000

Model No.		Connection type	Pipe size	Max. treated flow rate (m³/h[normal])	Replacement element	
					Model No.	Required qty. (units)
MFF100NAG	0002S	Rc thread	Rc 1/4"	20	MFF100SMF0205000	1
	0006S		Rc 3/8"	60	MFF100SMF0310000	1
	0012S		Rc 1/2"	120	MFF100SMF0420000	1
	0027S		Rc 1"	270	MFF100SMF0525000	1
	0048S		Rc 1-1/2"	480	MFF100SMF0730000	1
	0108S		Rc 2"	1080	MFF100SMF1530000	1
	0288S		Rc 3"	2880	MFF100SMF3050000	1
MFF100NSG	0576S	DIN flange	DIN100A	5760	MFF100SMF3030000	3
	1152S		DIN150A	11520	MFF100SMF3030000	6

■ Selection guide

Mist separator — Ex. MFF100NAG0002S000

Basic model No.	Filter type	Identification	Type flow rate	Treated	Drain	Design code	Description
MFF							Filter for Micro Flow products
	100						Mist separator
		N					Housing + element set
			AG				Rc thread connection
				0002			Pipe size: Rc 1/4", treated flow rate: 20m³/h(normal)
				0006			Pipe size: Rc 3/8", treated flow rate: 60m³/h(normal)
				0012			Pipe size: Rc 1/2", treated flow rate: 120m³/h(normal)
				0027			Pipe size: Rc 1", treated flow rate: 270m³/h(normal)
				0048			Pipe size: Rc 1-1/2", treated flow rate: 480m³/h(normal)
				0108			Pipe size: Rc 2", treated flow rate: 1080m³/h(normal)
				0288			Pipe size: Rc 3", treated flow rate: 2880m³/h(normal)
					A		Air model with drain
					S		For flammable and inert gases. No drain.
						000	(None)
			SG				DIN flange connection
				0576			Pipe size: DIN100A, treated flow rate: 5760m³/h(normal)
				1152			Pipe size: DIN150A, treated flow rate: 11520m³/h(normal)
					A		Air model with drain
					S		For flammable and inert gases. No drain.
						000	(None)

Replacement element — Ex. MFF100SMF0205000

Basic model No.	Filter type	Identification	Type flow rate	Treated	Design code	Description
MFF						Filter for Micro Flow products
	100					Mist separator
		S				Auxiliary part for mist separator
			MF			Element model No. code
				0205		For AG0002
				0310		For AG0006
				0420		For AG0012
				0525		For AG0027
				0730		For AG0048
				1530		For AG0108
				3030		For SG0576 and SG1152 *1
				3050		For AG0288
					000	(None)

Note *1. Multiple elements are required for SG filters. For details, see the relevant specifications table.

Replacement housing — Ex. MFF100SAG0002S000

Basic model No.	Filter type	Identification	Type flow rate	Treated	Drain	Design code	Description
MFF							Filter for Micro Flow products
	100						Mist separator
		S					Auxiliary part for mist separator
			AG				Rc thread connection (housing only)
				0002			Pipe size: Rc 1/4", treated flow rate: 20m³/h(normal)
				0006			Pipe size: Rc 3/8", treated flow rate: 60m³/h(normal)
				0012			Pipe size: Rc 1/2", treated flow rate: 120m³/h(normal)
				0027			Pipe size: Rc 1", treated flow rate: 270m³/h(normal)
				0048			Pipe size: Rc 1-1/2", treated flow rate: 480m³/h(normal)
				0108			Pipe size: Rc 2", treated flow rate: 1080m³/h(normal)
				0288			Pipe size: Rc 3", treated flow rate: 2880m³/h(normal)
					A		Air model with drain
					S		For flammable and inert gases. No drain.
						000	(None)
			SG				DIN flange connection (housing only)
				0576			Pipe size: DIN100A, Treated flow rate: 5760m³/h(normal)
				1152			Pipe size: DIN150A, Treated flow rate: 11520m³/h(normal)
					A		Air model with drain
					S		For flammable and inert gases. No drain.
						000	(None)

■ External dimensions

● Filter housing: MFF100NAG0002A to 0288A (with drain)

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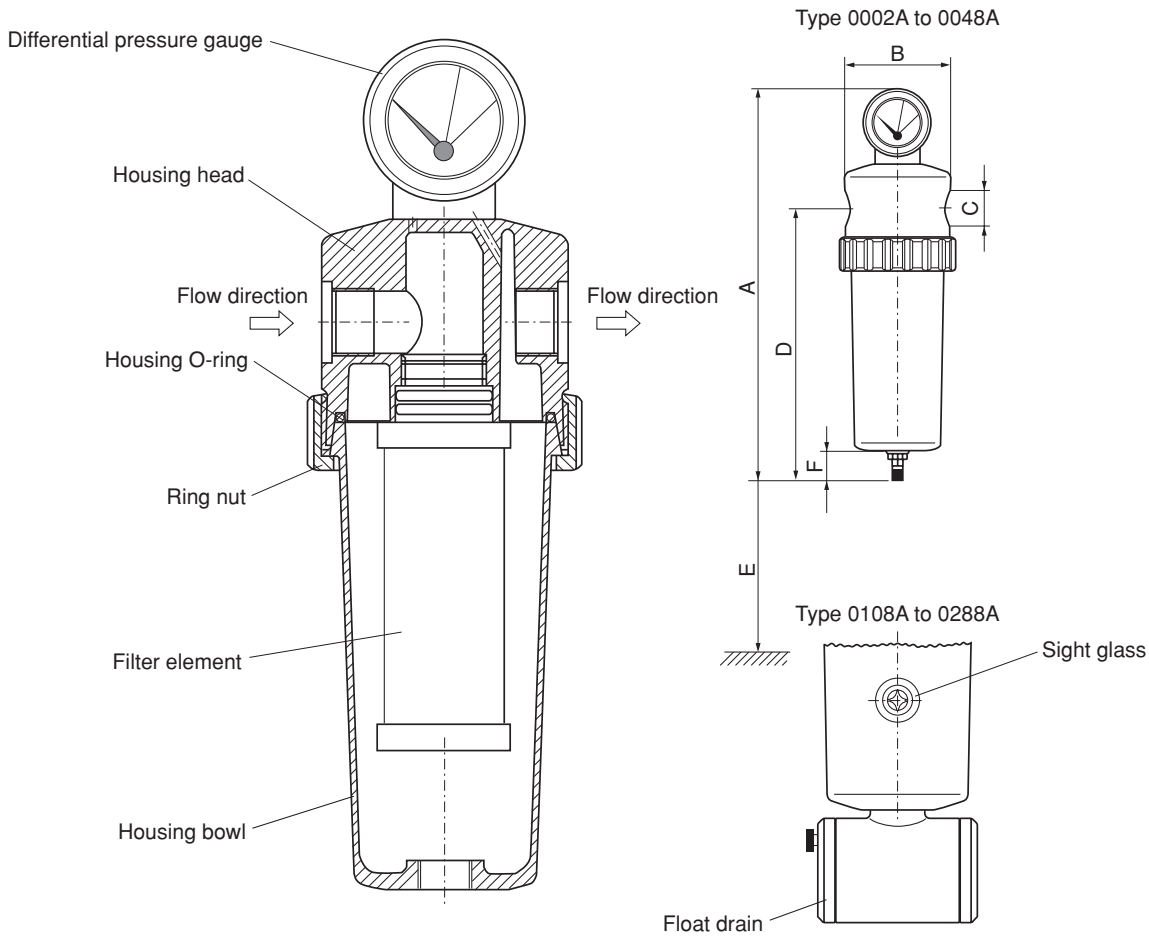


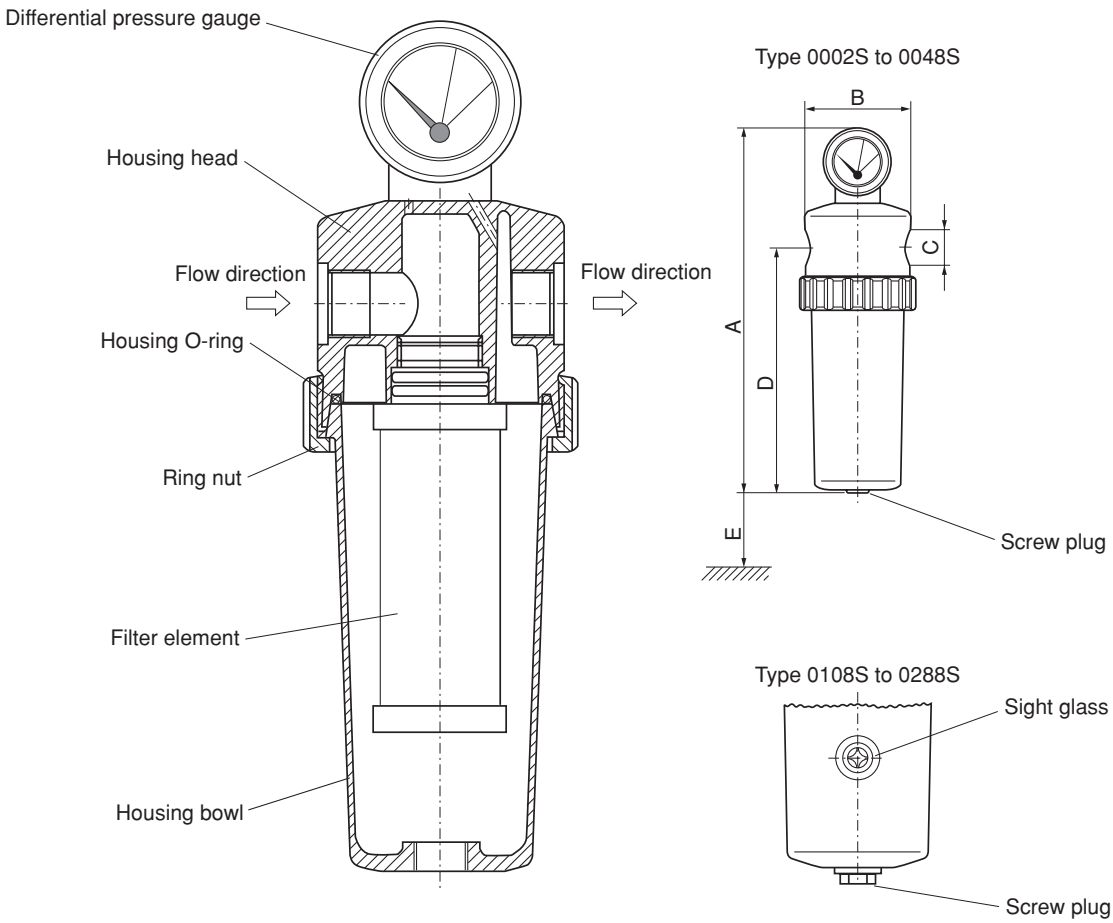
Housing size	Volume (liter)	Weight* (kg)	A mm	B mm	C	D mm	E mm	F mm	Replacement element	
									Model No.	Required qty. (units)
MFF100NAG0002A	0.35	1.0	285	70	R 1/4"	190	75	25	MFF100SMF0205000	1
MFF100NAG0006A	0.5	1.5	335	80	R 3/8"	220	90	25	MFF100SMF0310000	1
MFF100NAG0012A	0.9	1.9	360	95	R 1/2"	245	120	25	MFF100SMF0420000	1
MFF100NAG0027A	1.4	2.2	430	110	R 1"	310	150	25	MFF100SMF0525000	1
MFF100NAG0048A	4.5	6.5	585	150	R 1 1/2"	415	200	25	MFF100SMF0730000	1
MFF100NAG0108A	6.0	10.0	795	160	R 2"	625	450	105	MFF100SMF1530000	1
MFF100NAG0288A	18.0	20.0	1195	210	R 3"	1015	850	105	MFF100SMF3050000	1

* Weight without filter element

■ Precautions for installation

When used with compressed air, oil or water may accumulate in the housing and flow out. Be sure to connect a hose to the drain outlet (float type drain) to remove the oil or water to the discharge location.

● Filter housing: MFF100NAG0002S to 0288S (without drain)



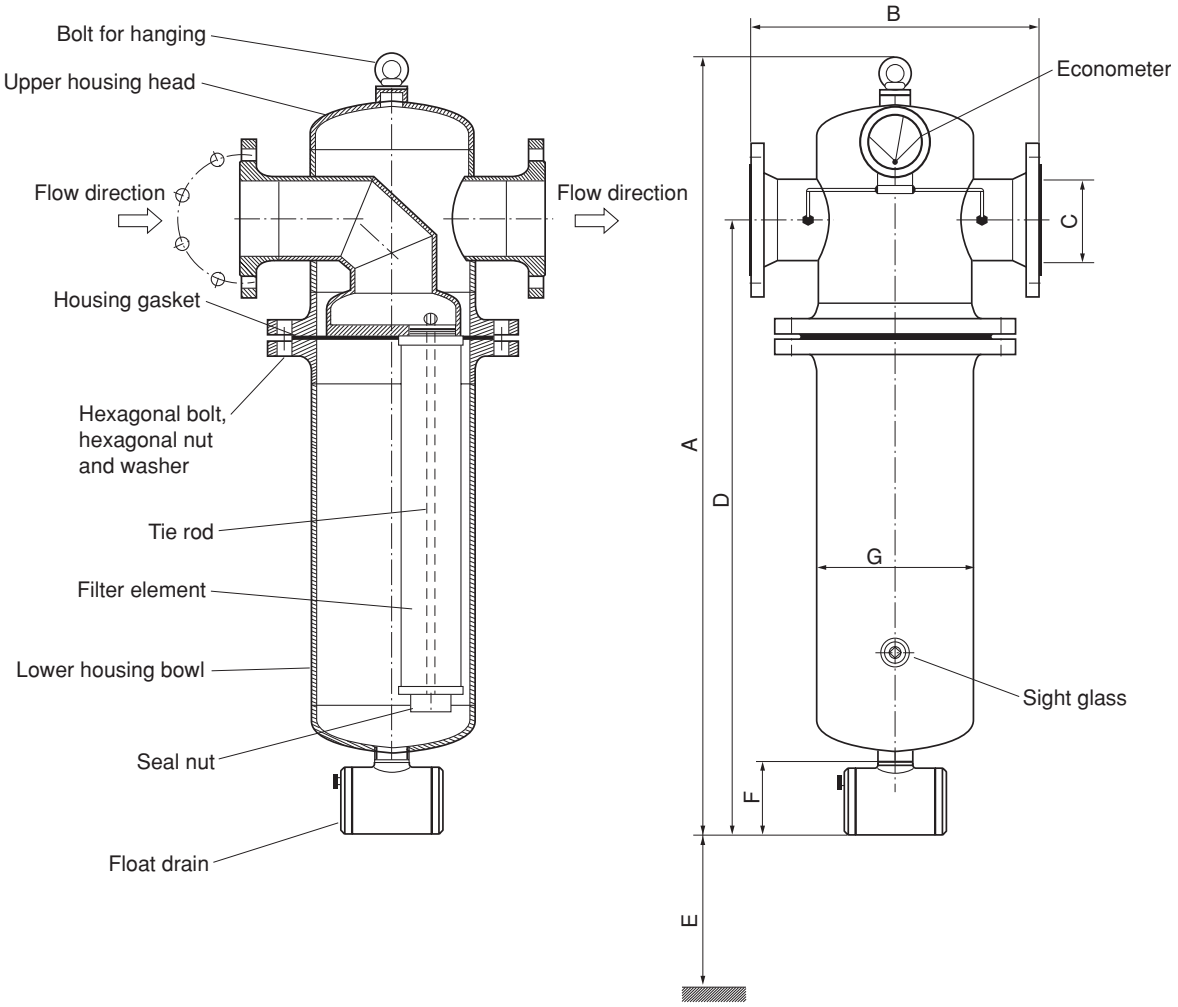
Housing size	Volume (liter)	Weight* (kg)	A mm	B mm	C	D mm	E mm	Replacement element	
								Model No.	Required qty. (units)
MFF100NAG0002S	0.35	1.0	265	70	R 1/4"	170	75	MFF100SMF0205000	1
MFF100NAG0006S	0.5	1.5	315	80	R 3/8"	200	90	MFF100SMF0310000	1
MFF100NAG0012S	0.9	1.9	340	95	R 1/2"	225	120	MFF100SMF0420000	1
MFF100NAG0027S	1.4	2.2	410	110	R 1"	290	150	MFF100SMF0525000	1
MFF100NAG0048S	4.5	6.5	565	150	R 1 1/2"	395	200	MFF100SMF0730000	1
MFF100NAG0108S	6.0	8.7	705	160	R 2"	535	450	MFF100SMF1530000	1
MFF100NAG0288S	18.0	18.4	1105	210	R 3"	925	850	MFF100SMF3050000	1

* Weight without filter element

■ Precautions for installation

Do not loosen or remove the screw plug located in the lower portion of the housing when there is gas pressure.

● SG standard housing: MFF100NSG0576A to 1152A (with drain)



This product has a DIN flange. For a JIS flange connection, obtain a companion flange separately.

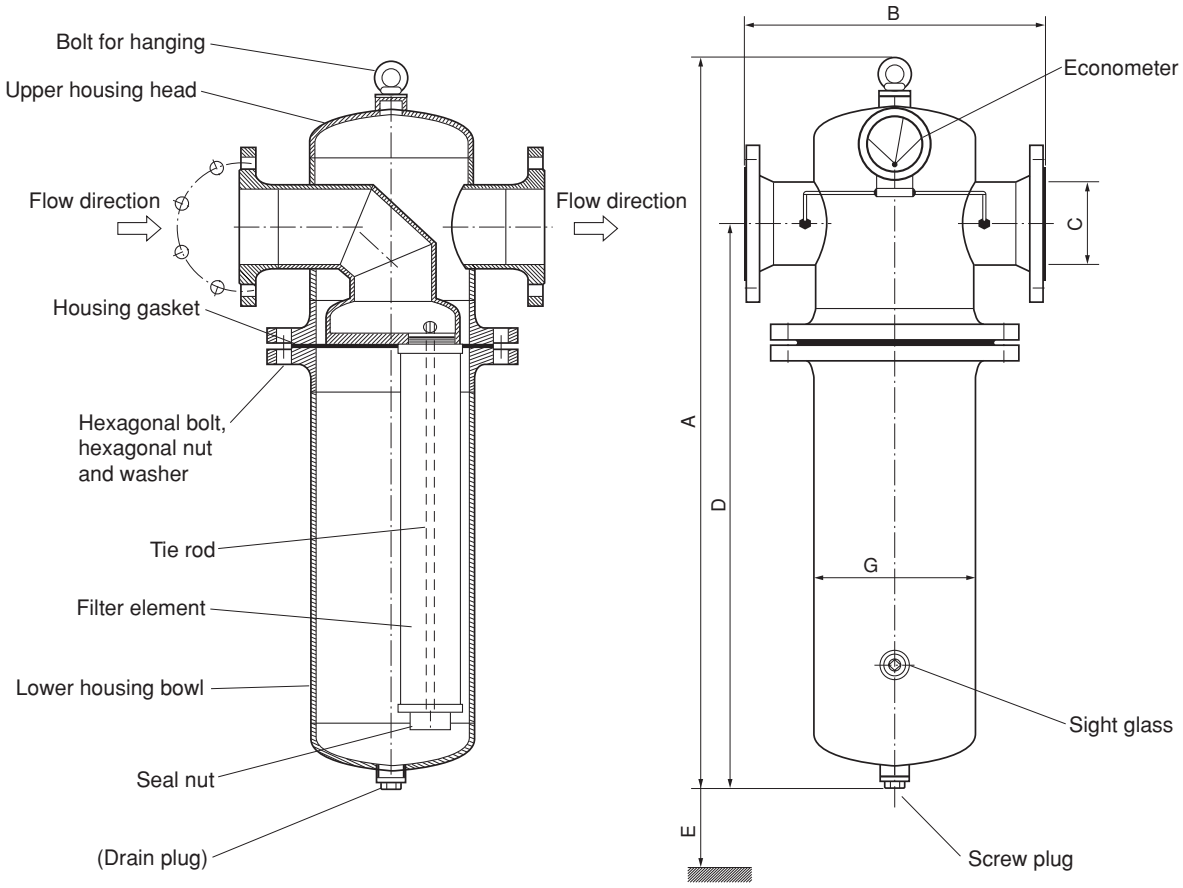
Housing size	Volume (liter)	Weight* (kg)	A mm	B mm	C	D mm	E mm	F mm	G mm	Replacement element	
										Model No.	Required qty. (units)
MFF100NSG0576A	40	90	1370	410	DIN100A	1140	850	105	219.1	MFF100SMF3030000	3
MFF100NSG1152A	103	150	1515	540	DIN150A	1225	875	105	323.9	MFF100SMF3030000	6

* Weight without filter element

■ Precautions for installation

When used with compressed air, oil or water may accumulate in the housing and flow out. Be sure to connect a hose to the drain outlet (float type drain) to remove the oil or water to the discharge location.

● SG standard housing: MFF100NSG0576S to 1152S (without drain)



This product has a DIN flange. For a JIS flange connection, obtain a flange separately.

Housing size	Volume (liter)	Weight* (kg)	A mm	B mm	C	D mm	E mm	G mm	Replacement element	
									Model No.	Required qty. (units)
MFF100NSG0576S	40	88.5	1280	410	DIN100A	1050	850	219.1	MFF100SMF3030000	3
MFF100NSG1152S	103	148.5	1430	540	DIN150	1140	875	323.9	MFF100SMF3030000	6

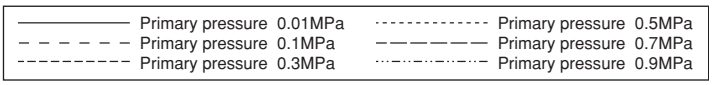
* Weight without filter element

■ Precautions for installation

Do not loosen or remove the screw plug located in the lower portion of the housing when there is gas pressure.

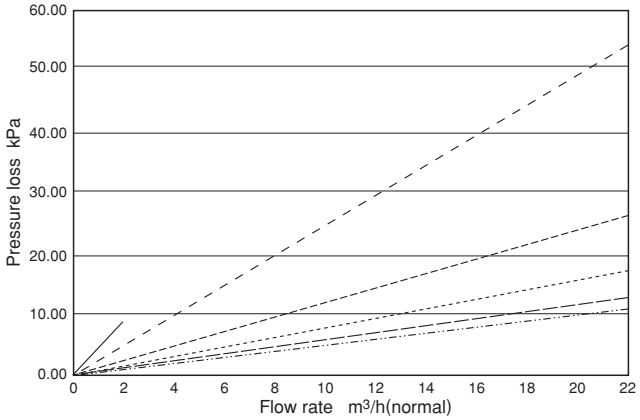
■ Initial pressure loss

This data shows the amount of initial pressure loss, after filter installation.
Notice that pressure loss will increase due to clogging of the filter by foreign matter.



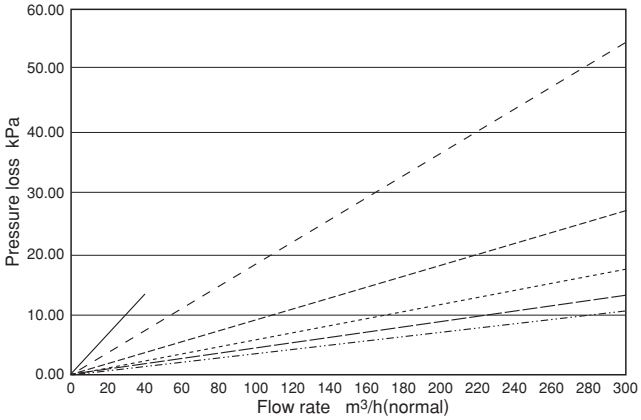
● MFF100NAG0002

(Pipe size: Rc 1/4". Treated flow rate: 20m³/h)



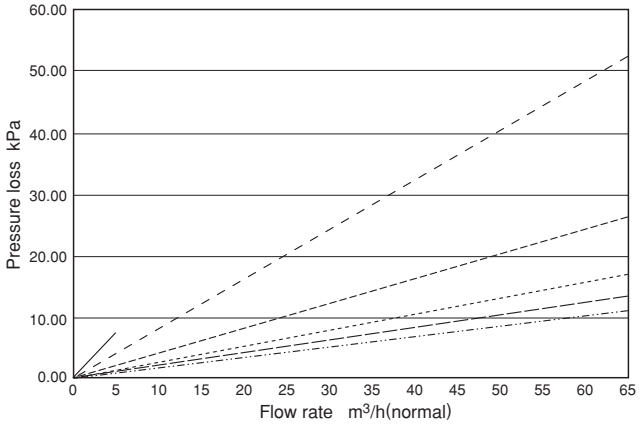
● MFF100NAG0027

(Pipe size: Rc 1". Treated flow rate: 270m³/h)



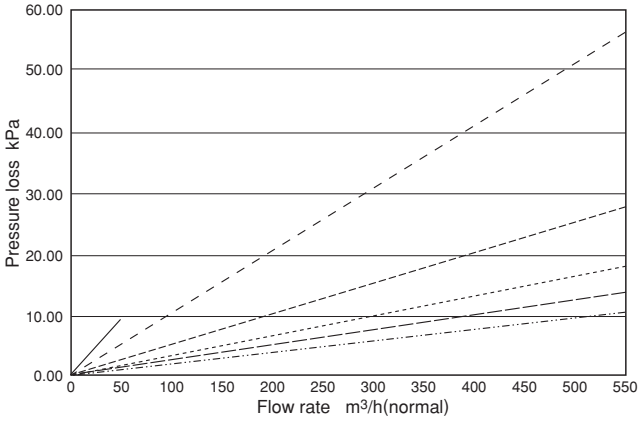
● MFF100NAG0006

(Pipe size: Rc 3/8". Treated flow rate: 60m³/h)



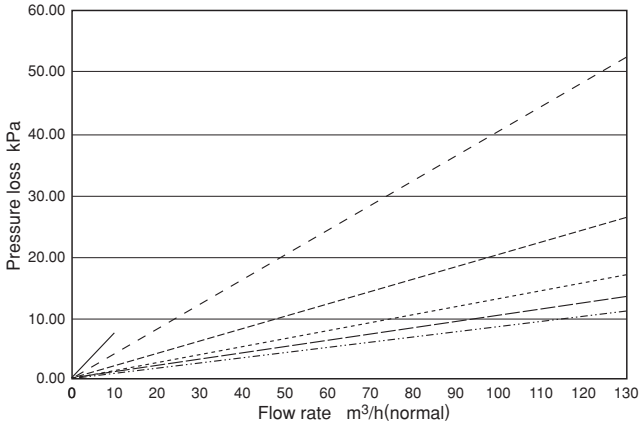
● MFF100NAG0048

(Pipe size: Rc 1-1/2". Treated flow rate: 480m³/h)



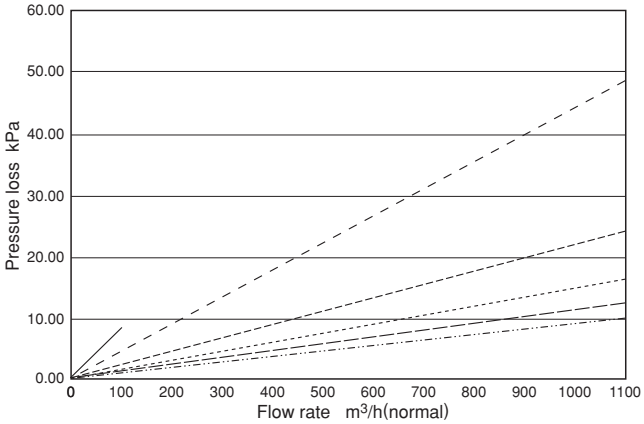
● MFF100NAG0012

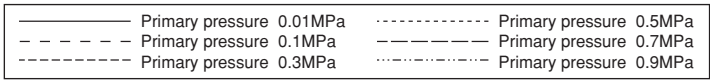
(Pipe size: Rc 1/2". Treated flow rate: 120m³/h)



● MFF100NAG0108

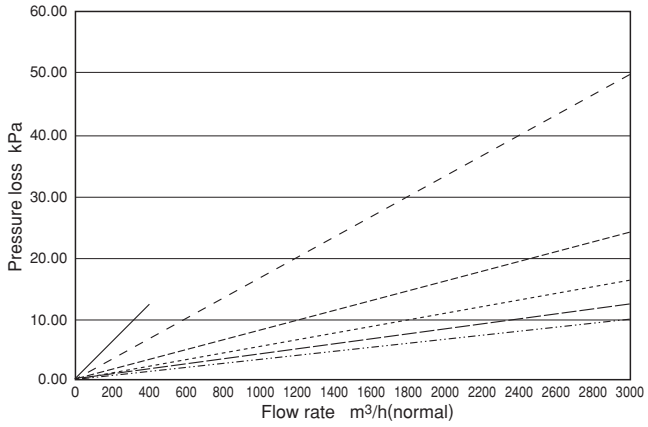
(Pipe size: Rc 2". Treated flow rate: 1080m³/h)





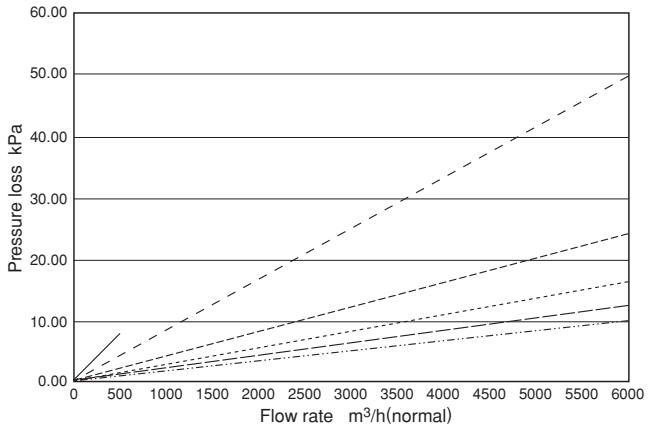
● MFF100NAG0288

(Pipe size: Rc 3". Treated flow rate: 2880m³/h)



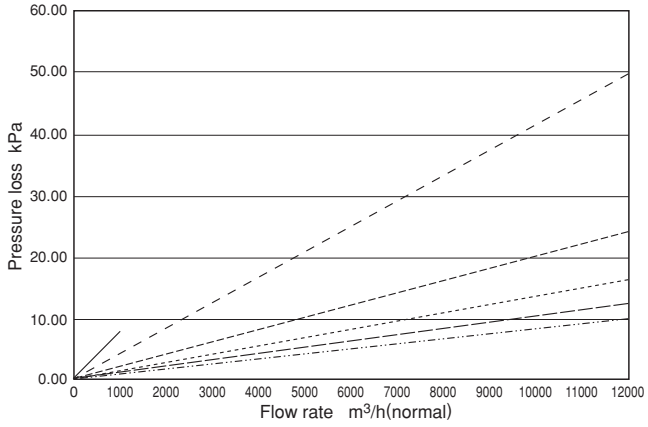
● MFF100NSG0576

(Pipe size: DIN100A. Treated flow rate: 5760m³/h)



● MFF100NSG1152

(Pipe size: DIN150A. Treated flow rate: 11520m³/h)



For use with a gas other than air, multiply by the appropriate specific gravity below.

Example: When the primary pressure of the MFF100NSG1152 is 0.1MPa, and flow rate is 2000m³/h(normal), the pressure loss for city gas 13A is calculated as follows: From the graph for 0.1MPa primary pressure, the pressure loss is approx. 8kPa when the flow rate is 2000m³/h(normal). Multiply this value by the specific gravity to get the result: 8kPa × 0.64 = 5.12kPa.

Specific gravity of gases (air = 1.0)	
Argon	1.38
Carbon dioxide	1.53
City gas 13A (88% methane)	0.64
Methane (100%)	0.56
Propane (100%)	1.56
Butane (100%)	2.08

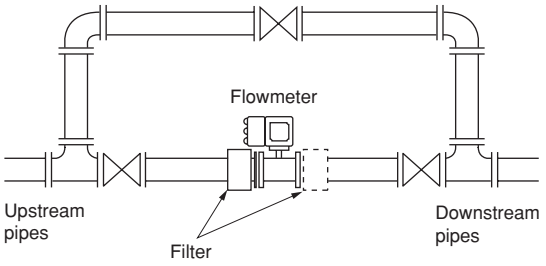
■ Precautions for both KAX and MFF100

● Filter selection

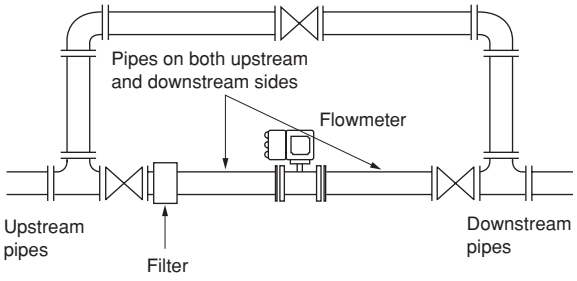
Select a filter according to the type of gas and foreign matter to be removed. Since pressure loss is caused by the filter, be sure to check the pressure loss table in advance and confirm that the filter suits the application conditions. For any questions about selection, do not hesitate to contact a Yamatake Corporation representative.

● Filter installation

- Install the filter on the upstream side as close as possible to the flowmeter.
- When reverse flow of gas is expected, install a filter downstream of the flowmeter also.
- For some models, the filter element and filter housing are separately packed when shipped. Be sure to mount the internal filter element during installation before using the filter.



- If it is necessary to have some distance between the flowmeter and the filter, wipe and clean the inside of the pipes both upstream and downstream of the flowmeter to remove welding fumes and foreign matter as much as possible



⚠ RESTRICTIONS ON USE

This product has been designed, developed and manufactured for general-purpose application in machinery and equipment. Accordingly, when used in the applications outlined below, special care should be taken to implement a fail-safe and/or redundant design concept as well as a periodic maintenance program.

- **Safety devices for plant worker protection**
- **Start/stop control devices for transportation and material handling machines**
- **Aeronautical/aerospace machines**
- **Control devices for nuclear reactors**

Never use this product in applications where human safety may be put at risk.

Specifications are subject to change without notice.

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