

FM Series IP55

□ **119 mm – 38 mm Thick Fan Type**

□ **92 mm – 25 mm Thick Fan Type**

Exhaust Type

Fan and Filter Panel



Ambient Temperature: -10~+60°C
 Operating Voltage Range: ±10%
 Dust-Removal Ratio of Filter Media: 95%
 (Details of dust-removal ratio → Page E-27)

Materials

Enclosure
 Hood: Polycarbonate (Flammability grade: V-0)
 Grille: ABS
 Mounting Frame: ABS
 Installed Fan
 Fan Frame: Die Cast Aluminum
 Blades: Polycarbonate (Flammability grade V-0)
 Installed Fan
 Overheat Protection: Impedance Protected
 Bearings: Ball Bearings

Specifications RoHS

Model	Diagram Number	Size	Input Voltage VAC	Frequency Hz	Input W	Current A	Speed r/min	Max. Air Flow		Max. Static Pressure Pa	Noise Level dB (A)	
								m³/min	m³/h			
FMA23CI-2H251	①	209 mm×226 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 220	50	14.0	0.11	2300	0.55	33	51	38	
				50	16.7	0.11	2400	0.55	33	53	38	
			Single-Phase 230	60	14.0	0.11	2500	0.61	36.6	56	40	
				Single-Phase 115	50	15.2	0.19	2300	0.55	33	53	38
					60	14.0	0.18	2500	0.61	36.6	56	40
				FMA23CI-2H221	①	209 mm×226 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 220	50	14.0	0.11	2300	0.37
50	16.7	0.11	2400					0.37	22.2	60	39	
Single-Phase 230	60	14.0	0.11				2500	0.41	24.6	63	40	
	Single-Phase 115	50	15.2				0.19	2300	0.37	22.2	60	39
		60	14.0				0.18	2500	0.41	24.6	63	40
	FMA23CI-2J251	②	157 mm×170 mm (□119 mm – 38 mm Thick Fan Type)				Single-Phase 220	50	10.2	0.07	2600	0.16
50				12.2	0.09	2600		0.16	9.6	41	37	
Single-Phase 230				60	9.4	0.07	3000	0.20	12	55	41	
				Single-Phase 115	50	11.2	0.13	2600	0.16	9.6	41	37
					60	9.4	0.12	3000	0.20	12	55	41
				FMA23CI-2K151	③	129 mm×134 mm (□92 mm – 25 mm Thick Fan Type)	Single-Phase 220	50	10.2	0.07	2600	0.16
50	12.2	0.09	2600					0.16	9.6	41	37	
Single-Phase 230	60	9.4	0.07				3000	0.20	12	55	41	
	Single-Phase 115	50	11.2				0.13	2600	0.16	9.6	41	37
		60	9.4				0.12	3000	0.20	12	55	41

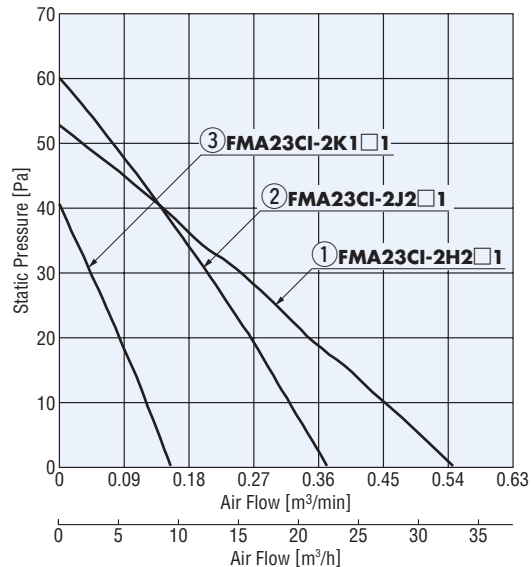
- How to read specifications → Page E-17
- Details of RoHS Directive → Page G-23
- The maximum air flow, maximum static pressure and noise level are representative values.
- Assemble the filter media to the hood. If you assemble it to the grill, the air flow may decrease.
- Internal structure of the **FM Series** → Page E-26
- For the air flow – static pressure characteristics, frequency – audible noise level, dimensions and panel cut-out, refer to the data and figures of each size.

The following items are included in each product.
 Cooling Module, Plug Cord, Mounting Screws,
 Operating Manual

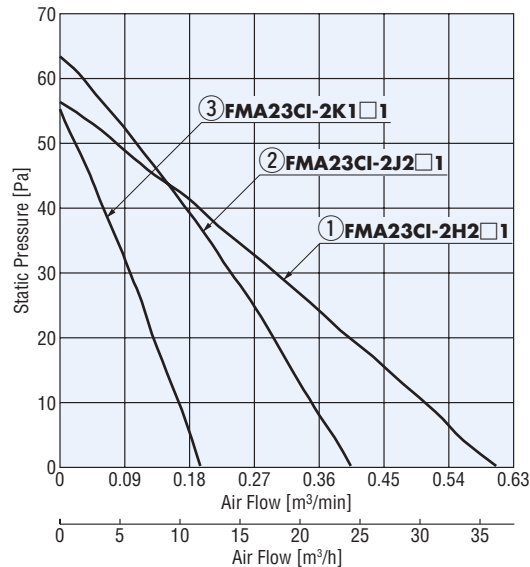
Air Flow – Static Pressure Characteristics

- How to read air flow – static pressure characteristics → Page E-18

◇ 50 Hz



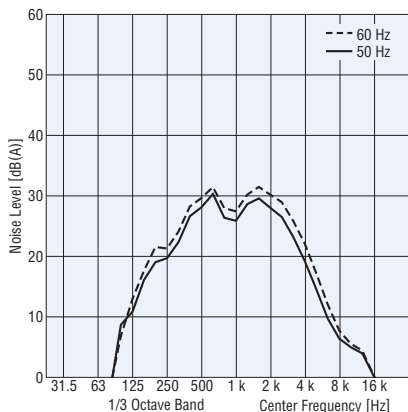
◇ 60 Hz



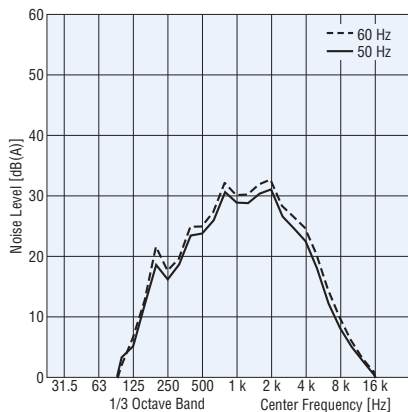
Frequency – Audible Noise Level (dB) (Measured at a distance of 1 m from the cover)

● How to read frequency – audible noise level → Page E-18

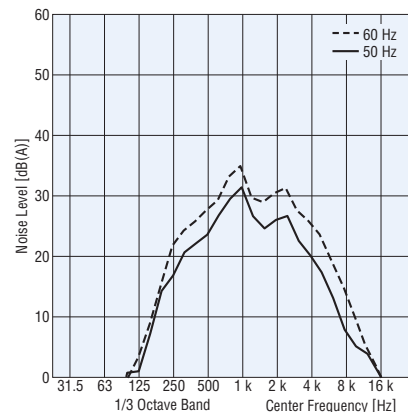
① FMA23CI-2H2 □ 1



② FMA23CI-2J2 □ 1



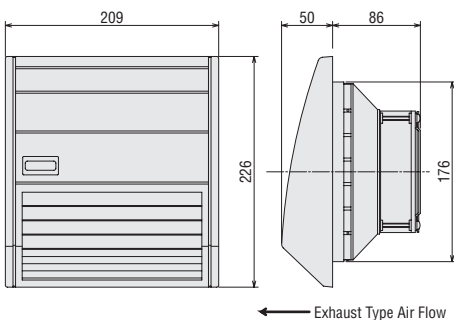
③ FMA23CI-2K1 □ 1



Dimensions (Unit = mm)

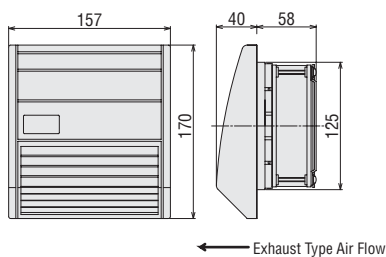
① FMA23CI-2H2 □ 1

Mass: 1.2 kg



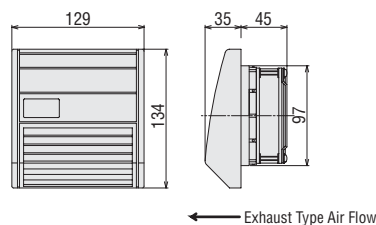
② FMA23CI-2J2 □ 1

Mass: 0.9 kg

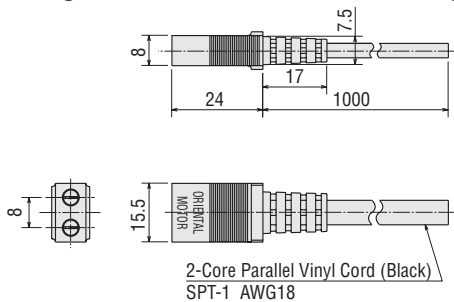


③ FMA23CI-2K1 □ 1

Mass: 0.5 kg



● Plug Cord for Connection to Power Supply (Included)



● Refer to page E-38 for the panel cut-out and connection diagram, and page E-39 for the filter panel.

FM Series IP55

□ **119 mm – 38 mm Thick Fan Type**

□ **92 mm – 25 mm Thick Fan Type**

Suction Type

Fan and Filter Panel



Ambient Temperature: -10~+60°C
 Operating Voltage Range: ±10%
 Dust-Removal Ratio of Filter Media: 95%
 (Details of dust-removal ratio → Page E-27)
Materials
 Enclosure
 Hood: Polycarbonate (Flammability grade: V-0)
 Grille: ABS
 Mounting Frame: ABS
 Installed Fan
 Fan Frame: Die Cast Aluminum
 Blades: Polycarbonate (Flammability grade V-0)
 Installed Fan
 Overheat Protection: Impedance Protected
 Bearings: Ball Bearings

Specifications RoHS

Model	Diagram Number	Size	Input Voltage VAC	Frequency Hz	Input W	Current A	Speed r/min	Max. Air Flow		Max. Static Pressure Pa	Noise Level dB (A)
								m³/min	m³/h		
FMB23CI-2H251	①	209 mm×226 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 220	50	14.0	0.11	2300	0.44	26.4	34	38
				60	16.7	0.11	2400	0.47	28.2	37	38
			Single-Phase 230	50	14.0	0.11	2500	0.52	31.2	41	40
				60	15.2	0.19	2300	0.47	28.2	37	38
				50	14.0	0.18	2500	0.52	31.2	41	40
				60	14.0	0.18	2500	0.52	31.2	41	40
FMB23CI-2H221	①	209 mm×226 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 115	50	15.2	0.19	2300	0.47	28.2	37	38
				60	14.0	0.18	2500	0.52	31.2	41	40
			Single-Phase 220	50	14.0	0.11	2300	0.30	18	42	40
				60	16.7	0.11	2400	0.32	19.2	45	40
				50	14.0	0.11	2500	0.34	20.4	47	41
				60	14.0	0.11	2500	0.34	20.4	47	41
FMB23CI-2J251	②	157 mm×170 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 220	50	14.0	0.11	2300	0.30	18	42	40
				60	16.7	0.11	2400	0.32	19.2	45	40
			Single-Phase 230	50	14.0	0.11	2500	0.34	20.4	47	41
				60	15.2	0.19	2300	0.32	19.2	45	40
				50	14.0	0.18	2500	0.34	20.4	47	41
				60	14.0	0.18	2500	0.34	20.4	47	41
FMB23CI-2J221	②	157 mm×170 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 115	50	15.2	0.19	2300	0.32	19.2	45	40
				60	14.0	0.18	2500	0.34	20.4	47	41
			Single-Phase 220	50	14.0	0.11	2300	0.30	18	42	40
				60	16.7	0.11	2400	0.32	19.2	45	40
				50	14.0	0.11	2500	0.34	20.4	47	41
				60	14.0	0.11	2500	0.34	20.4	47	41
FMB23CI-2K151	③	129 mm×134 mm (□92 mm – 25 mm Thick Fan Type)	Single-Phase 220	50	10.2	0.07	2600	0.14	8.4	28	37
				60	12.2	0.09	2600	0.14	8.4	31	37
			Single-Phase 230	50	9.4	0.07	3000	0.17	10.2	42	41
				60	9.4	0.13	2600	0.14	8.4	31	37
				50	11.2	0.13	2600	0.14	8.4	31	37
				60	9.4	0.12	3000	0.17	10.2	42	41

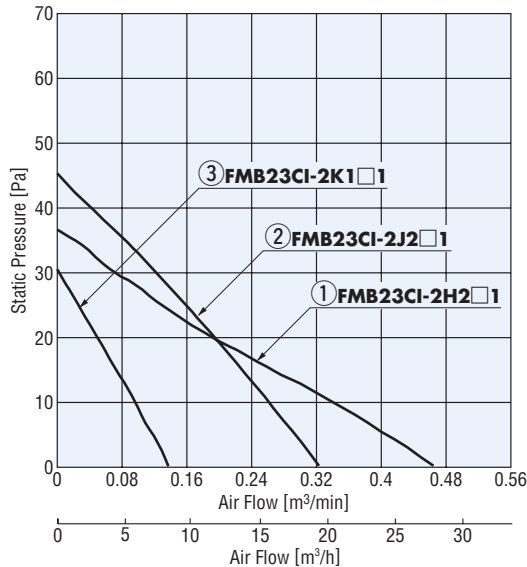
- How to read specifications → Page E-17
- Details of RoHS Directive → Page G-23
- The maximum air flow, maximum static pressure and noise level are representative values.
- Assemble the filter media to the hood. If you assemble it to the grill, the air flow may decrease.
- Internal structure of the **FM Series** → Page E-26
- For the air flow – static pressure characteristics, frequency – audible noise level, dimensions and panel cut-out, refer to the data and figures of each size.

The following items are included in each product.
 Cooling Module, Plug Cord, Mounting Screws,
 Operating Manual

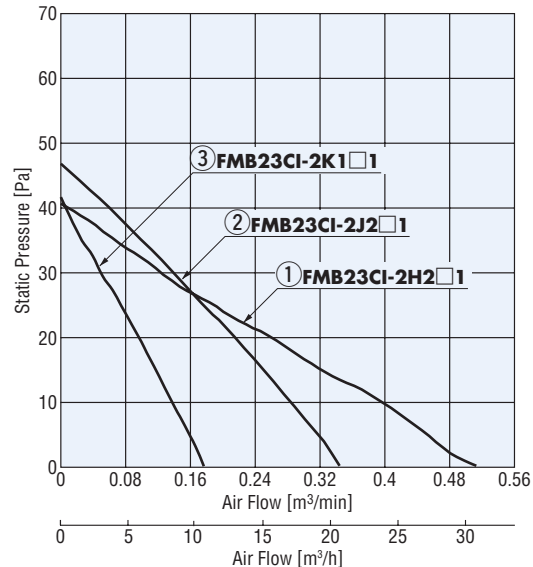
Air Flow – Static Pressure Characteristics

- How to read air flow – static pressure characteristics → Page E-18

◇ 50 Hz



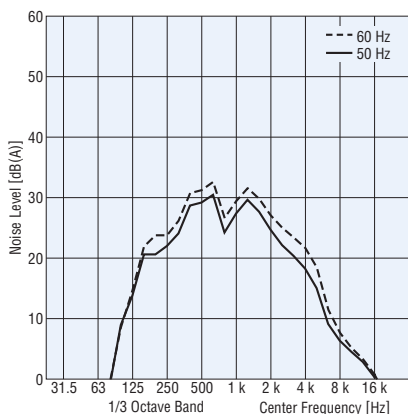
◇ 60 Hz



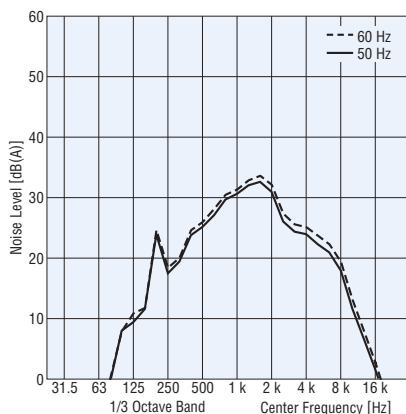
Frequency – Audible Noise Level (dB) (Measured at a distance of 1 m from the cover)

● How to read frequency – audible noise level → Page E-18

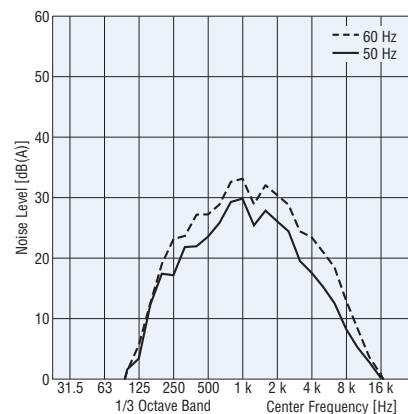
① FMB23CI-2H2 □ 1



② FMB23CI-2J2 □ 1



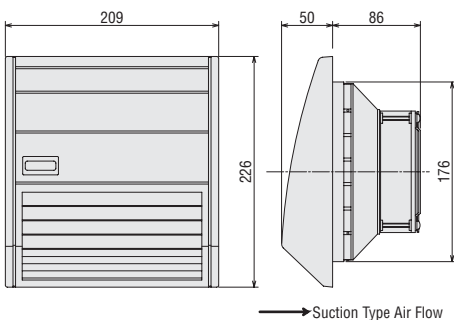
③ FMB23CI-2K1 □ 1



Dimensions (Unit = mm)

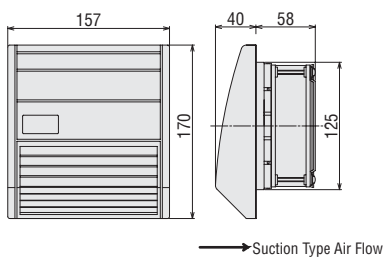
① FMB23CI-2H2 □ 1

Mass: 1.2 kg



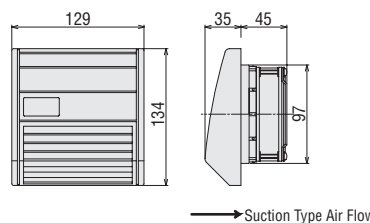
② FMB23CI-2J2 □ 1

Mass: 0.9 kg

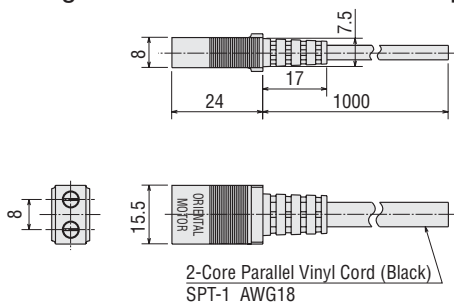


③ FMB23CI-2K1 □ 1

Mass: 0.5 kg



● Plug Cord for Connection to Power Supply (Included)



● Refer to page E-38 for the panel cut-out and connection diagram, and page E-39 for the filter panel.

FM Series IP43

□ **119 mm – 38 mm Thick Fan Type**

□ **92 mm – 25 mm Thick Fan Type**

Exhaust Type

Fan and Filter Panel



Ambient Temperature: -10~+60°C
 Operating Voltage Range: ±10%
 Dust-Removal Ratio of Filter Media: 48%
 (Details of dust-removal ratio → Page E-27)

Materials

Enclosure: ABS
 Hood: Polycarbonate (Flammability grade: V-0)
 Grille: ABS
 Mounting Frame: ABS
 Installed Fan
 Fan Frame: Die Cast Aluminum
 Blades: Polycarbonate (Flammability grade V-0)

Installed Fan

Overheat Protection: Impedance Protected
 Bearings: Ball Bearings

Specifications RoHS

Model	Diagram Number	Size	Input Voltage VAC	Frequency Hz	Input W	Current A	Speed r/min	Max. Air Flow		Max. Static Pressure Pa	Noise Level dB (A)
								m³/min	m³/h		
FMA23BI-2H251	①	209 mm×226 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 220	50	14.0	0.11	2300	1.18	70.8	49	40
			Single-Phase 230	50	16.7	0.11	2400	1.21	72.6	51	40
				60	14.0	0.11	2500	1.37	82.2	56	41
FMA23BI-2H221			Single-Phase 115	50	15.2	0.19	2300	1.21	72.6	51	40
				60	14.0	0.18	2500	1.37	82.2	56	41
FMA23BI-2J251			②	157 mm×170 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 220	50	14.0	0.11	2300	0.75	45
	Single-Phase 230	50			16.7	0.11	2400	0.76	45.6	58	38
		60			14.0	0.11	2500	0.83	49.8	61	41
FMA23BI-2J221	Single-Phase 115	50			15.2	0.19	2300	0.76	45.6	58	38
		60			14.0	0.18	2500	0.83	49.8	61	41
FMA23BI-2K151	③	129 mm×134 mm (□92 mm – 25 mm Thick Fan Type)			Single-Phase 220	50	10.2	0.07	2600	0.33	19.8
			Single-Phase 230	50	12.2	0.09	2600	0.34	20.4	41	36
				60	9.4	0.07	3000	0.41	24.6	55	40
FMA23BI-2K121			Single-Phase 115	50	11.2	0.13	2600	0.34	20.4	41	36
				60	9.4	0.12	3000	0.41	24.6	55	40

- How to read specifications → Page E-17
- Details of RoHS Directive → Page G-23
- The maximum air flow, maximum static pressure and noise level are representative values.
- Assemble the filter media to the hood. If you assemble it to the grill, the air flow may decrease.
- Internal structure of the **FM Series** → Page E-26
- For the air flow – static pressure characteristics, frequency – audible noise level, dimensions and panel cut-out, refer to the data and figures of each size.

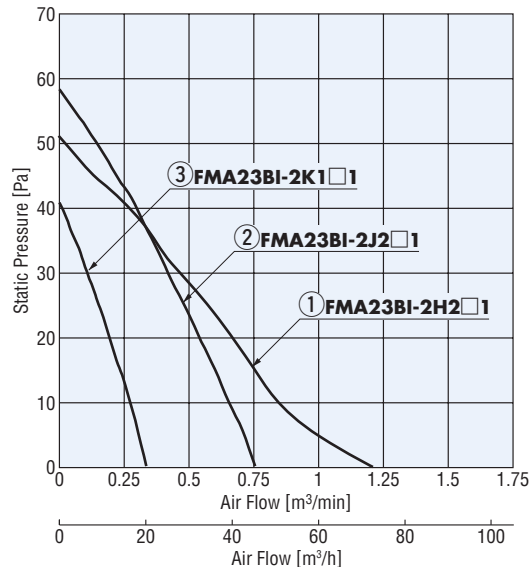
The following items are included in each product.

Cooling Module, Plug Cord (1 m),
 Mounting Screws, Operating Manual

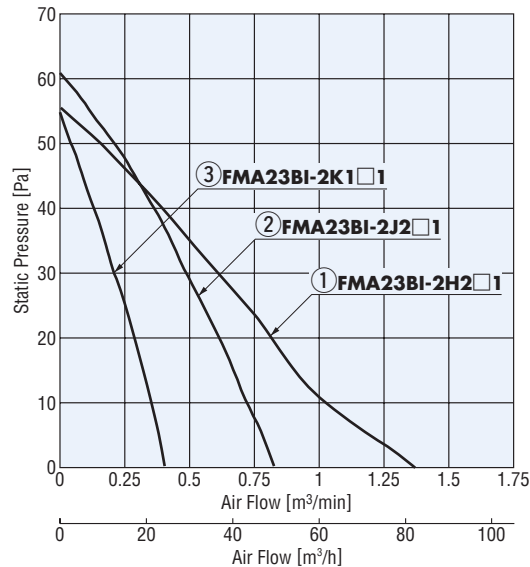
Air Flow – Static Pressure Characteristics

- How to read air flow – static pressure characteristics → Page E-18

◇ 50 Hz



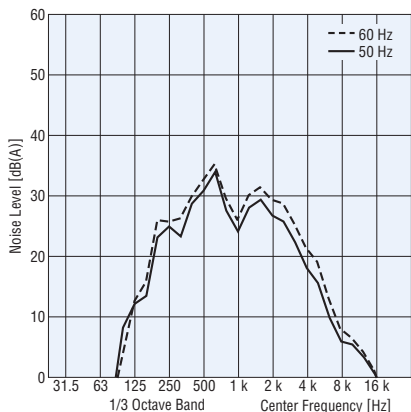
◇ 60 Hz



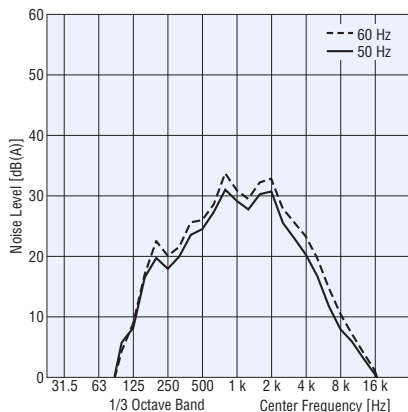
Frequency – Audible Noise Level (dB) (Measured at a distance of 1 m from the cover)

● How to read frequency – audible noise level → Page E-18

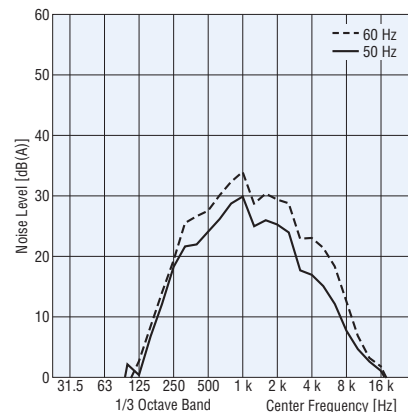
① FMA23BI-2H2 □ 1



② FMA23BI-2J2 □ 1



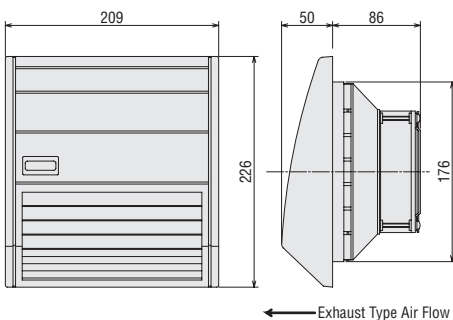
③ FMA23BI-2K1 □ 1



Dimensions (Unit = mm)

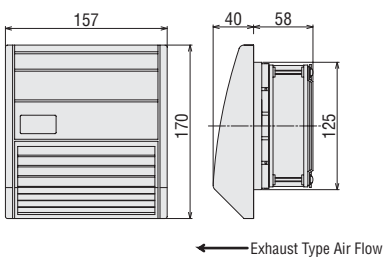
① FMA23BI-2H2 □ 1

Mass: 1.2 kg



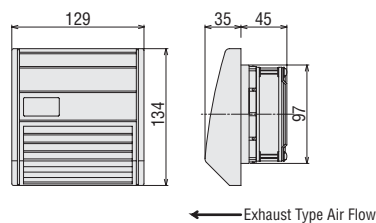
② FMA23BI-2J2 □ 1

Mass: 0.9 kg

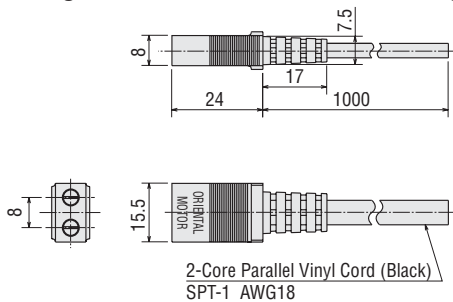


③ FMA23BI-2K1 □ 1

Mass: 0.5 kg



● Plug Cord for Connection to Power Supply (Included)



● Refer to page E-38 for the panel cut-out and connection diagram, and page E-39 for the filter panel.

FM Series IP43

□ **119 mm – 38 mm Thick Fan Type**

□ **92 mm – 25 mm Thick Fan Type**

Suction Type

Fan and Filter Panel



Ambient Temperature: -10~+60°C
 Operating Voltage Range: ±10%
 Dust-Removal Ratio of Filter Media: 48%
 (Details of dust-removal ratio → Page E-27)
 Materials

Enclosure: ABS
 Hood: Polycarbonate (Flammability grade: V-0)
 Grille: ABS
 Mounting Frame: ABS
 Installed Fan
 Fan Frame: Die Cast Aluminum
 Blades: Polycarbonate (Flammability grade V-0)
 Installed Fan
 Overheat Protection: Impedance Protected
 Bearings: Ball Bearings

Specifications RoHS

Model	Diagram Number	Size	Input Voltage		Frequency	Input		Speed	Max. Air Flow		Max. Static Pressure	Noise Level
			VAC	Hz		W	A		m³/min	m³/h		
FMB23BI-2H251	①	209 mm×226 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 220	50	14.0	0.11	2300	1.08	64.8	40	40	
				50	16.7	0.11	2400	1.08	64.8	41	40	
			Single-Phase 230	60	14.0	0.11	2500	1.25	75	46	41	
				60	14.0	0.18	2500	1.25	75	46	41	
FMB23BI-2H221	①	209 mm×226 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 115	50	15.2	0.19	2300	1.08	64.8	41	40	
				60	14.0	0.18	2500	1.25	75	46	41	
			Single-Phase 220	50	14.0	0.11	2300	0.70	42	42	38	
				50	16.7	0.11	2400	0.71	42.6	43	38	
FMB23BI-2J251	②	157 mm×170 mm (□119 mm – 38 mm Thick Fan Type)	Single-Phase 230	60	14.0	0.11	2500	0.80	48	45	40	
				50	15.2	0.19	2300	0.71	42.6	43	38	
			Single-Phase 115	60	14.0	0.18	2500	0.80	48	45	40	
				50	12.2	0.09	2600	0.40	24	33	36	
FMB23BI-2K151	③	129 mm×134 mm (□92 mm – 25 mm Thick Fan Type)	Single-Phase 230	60	9.4	0.07	3000	0.49	29.4	44	41	
				50	11.2	0.13	2600	0.40	24	33	37	
			Single-Phase 115	60	9.4	0.12	3000	0.49	29.4	44	41	
				50	9.4	0.12	3000	0.49	29.4	44	41	

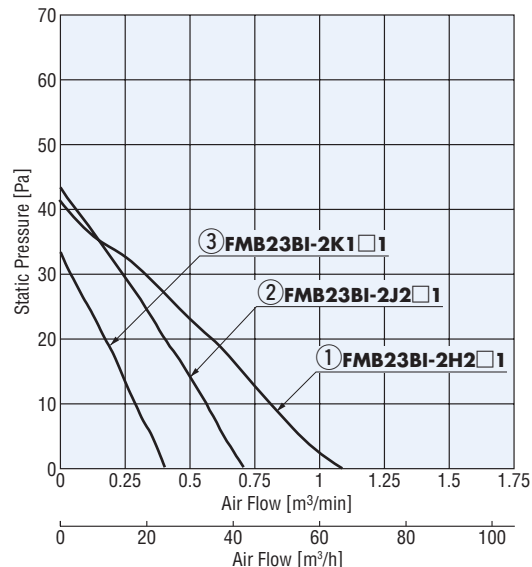
- How to read specifications → Page E-17
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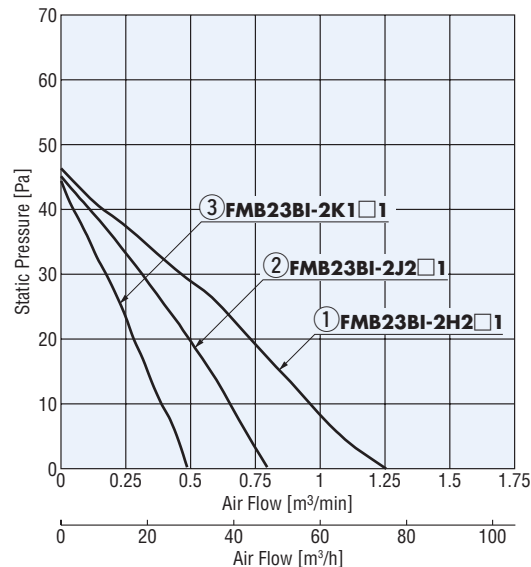
Air Flow – Static Pressure Characteristics

- How to read air flow – static pressure characteristics → Page E-18

◇ 50 Hz



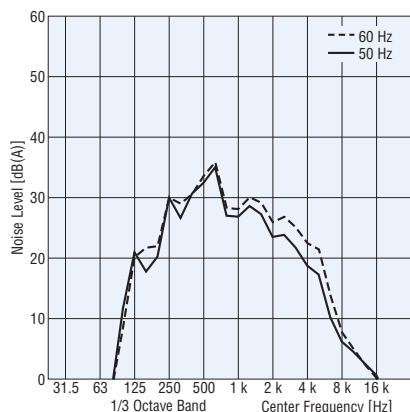
◇ 60 Hz



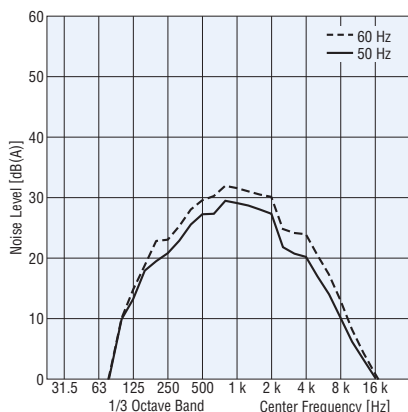
Frequency – Audible Noise Level (dB) (Measured at a distance of 1 m from the cover)

● How to read frequency – audible noise level → Page E-18

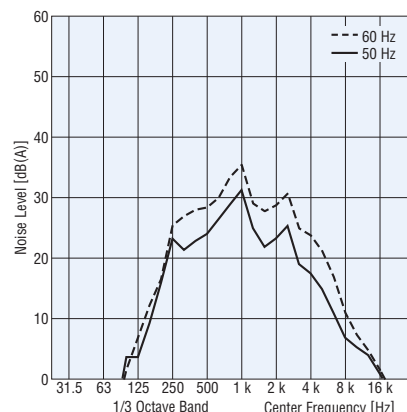
① FMB23BI-2H2 □ 1



② FMB23BI-2J2 □ 1



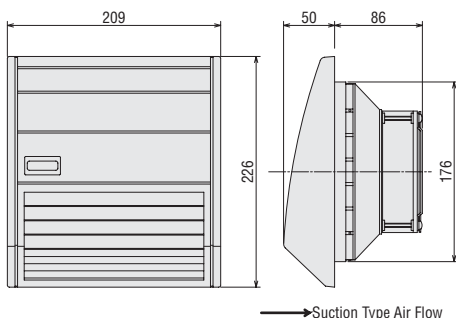
③ FMB23BI-2K1 □ 1



Dimensions (Unit = mm)

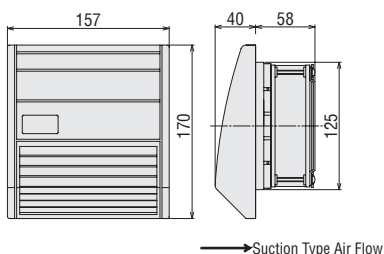
① FMB23BI-2H2 □ 1

Mass: 1.2 kg



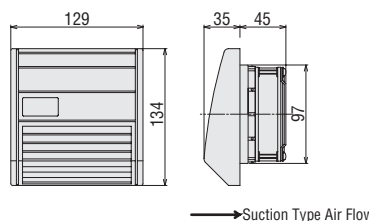
② FMB23BI-2J2 □ 1

Mass: 0.9 kg

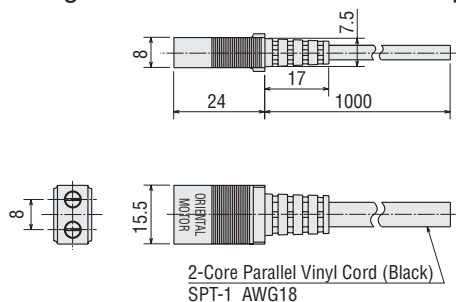


③ FMB23BI-2K1 □ 1

Mass: 0.5 kg



● Plug Cord for Connection to Power Supply (Included)



● Refer to page E-38 for the panel cut-out and connection diagram, and page E-39 for the filter panel.

Panel Cut-Out (Unit = mm) These panel cut-outs apply to both fan and filter panel, and filter panel.

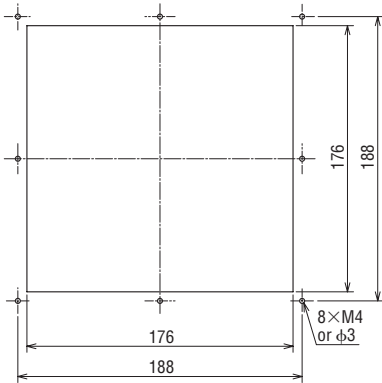
● Dimensions 209 mm×226 mm

◇ Fan and Filter Panel

- IP55: **FMA23CI-2H2**□1 (Exhaust Type)
- IP55: **FMB23CI-2H2**□1 (Suction Type)
- IP43: **FMA23BI-2H2**□1 (Exhaust Type)
- IP43: **FMB23BI-2H2**□1 (Suction Type)

◇ Filter Panel

- IP55: **FMZ23CI-D**
- IP43: **FMZ23BI-D**



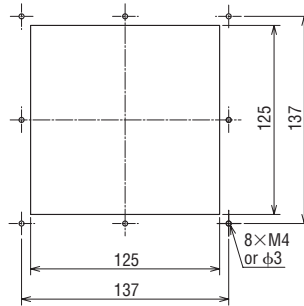
● Dimensions 157 mm×170 mm

◇ Fan and Filter Panel

- IP55: **FMA23CI-2J2**□1 (Exhaust Type)
- IP55: **FMB23CI-2J2**□1 (Suction Type)
- IP43: **FMA23BI-2J2**□1 (Exhaust Type)
- IP43: **FMB23BI-2J2**□1 (Suction Type)

◇ Filter Panel

- IP55: **FMZ23CI-E**
- IP43: **FMZ23BI-E**



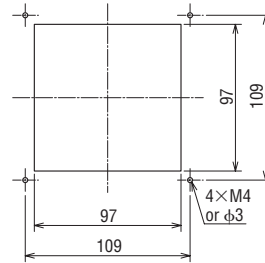
● Dimensions 129 mm×134 mm

◇ Fan and Filter Panel

- IP55: **FMA23CI-2K1**□1 (Exhaust Type)
- IP55: **FMB23CI-2K1**□1 (Suction Type)
- IP43: **FMA23BI-2K1**□1 (Exhaust Type)
- IP43: **FMB23BI-2K1**□1 (Suction Type)

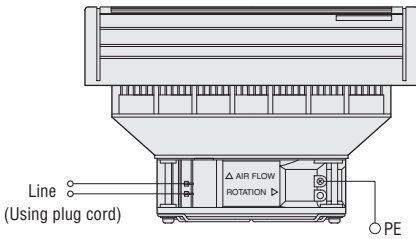
◇ Filter Panel

- IP55: **FMZ23CI-F**
- IP43: **FMZ23BI-F**



● Providing M4 mounting holes will enable mounting and replacement of the fan from outside of the enclosure.

Connection Diagram The connection diagram applies to all IP55/IP43 models of FM Series.



Filter Panel **IP55/IP43** **RoHS**

Ingress of dust or water droplets into the enclosure and discharge dust from the enclosure can be prevented by installing a filter panel over the vent holes in the enclosure.

Product Line

IP55

Model	Size (mm)
FMZ23CI-D	209×226
FMZ23CI-E	157×170
FMZ23CI-F	129×134

The following items are included in each product.
Filter Panel, Operating Manual

IP43

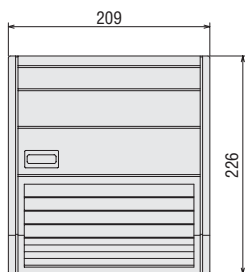
Model	Size (mm)
FMZ23BI-D	209×226
FMZ23BI-E	157×170
FMZ23BI-F	129×134



Dimensions (Unit = mm)

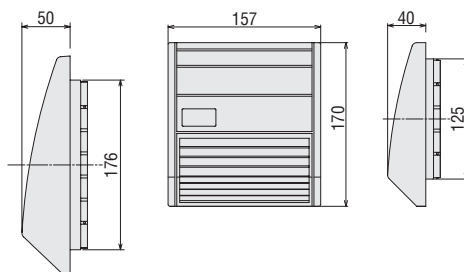
FMZ23□I-D

Mass: 0.5 kg



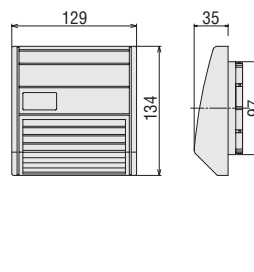
FMZ23□I-E

Mass: 0.3 kg



FMZ23□I-F

Mass: 0.2 kg



● Dimensions of panel cut-out are also same as those of fan filter panels.

Accessories

Replacement Filter Medias

◇ Filter Medias for IP55 **RoHS**

Model	Applicable Model
FMXAC-D	FM Series Dimensions 209 mm×226 mm IP55
FMXAC-E	FM Series Dimensions 157 mm×170 mm IP55
FMXAC-F	FM Series Dimensions 129 mm×134 mm IP55

◇ Filter Medias for IP43 **RoHS**

Model	Applicable Model
FMXAB-D	FM Series Dimensions 209 mm×226 mm IP43
FMXAB-E	FM Series Dimensions 157 mm×170 mm IP43
FMXAB-F	FM Series Dimensions 129 mm×134 mm IP43

- These filter medias apply to both fan and filter panel, and filter panel.
- These filter medias are the same as those supplied with each product.
- It is recommended that the filter media be checked periodically for clogging, because a clogged filter media will cause the cooling capacity to drop.

