

PRESSURE REGULATING VALVES

Type **EPR**

SAGINOMIYA

GENERAL DESCRIPTION

- Evaporating pressure regulating valves
- Direct operated, 2-way valves designed for maintaining suitable evaporating pressure in refrigeration. Fitted at the evaporator outlet to keep suitable set evaporating pressure.



Type EPR-B



Type EPR-D

COMMON SPECIFICATIONS

Operation Specifications	Direct Operation type
Max. Working Pressure	2.5MPa {25kgf/cm ² }
Max. Testing Pressure	3MPa {30kgf/cm ² }
Fulid Temp.	to 100°C
Pressure Adjustment	○ Increase 1604 to 05: 0.08MPa {Approx.0.82kgf/cm ² } /rotation 1905 to 07: 0.05MPa {Approx.0.51kgf/cm ² } /rotation
Manual Open	—

TYPE NUMBER SELECTION (SPECIFICATIONS)

Catalog No.		Equalization	Port size (mm)	Capacity (U.S.R.T.) {kW}			Adjusting Range (MPa) {kgf/cm ² }	Connection		Factory Setting (MPa) {kgf/cm ² }	Wt. (kg)
Type	Model			CT 38°C ΔP0.074MPa {0.75kgf/cm ² } ET 5°C				Style	Copper Tube (O.D.)		
				Valve Open 100%	Valve Open 70%	Valve Open 100%					
EPR-	1604B	Internal	15	2.6 {9.1}	1.5 {5.3}	1.9 {6.7}	Flare	1/2"	0.3 {3}	0.3	
	1605B							5/8"			
	1905B		20	5.5 {19}	3.5 {12}	4.1 {14}		3/4"		0.5	
	1906B										
	1604D		15	2.6 {9.1}	1.5 {5.3}	1.9 {6.7}	Solder	12.7		0.2	
	1605D							20			5.5 {19}
	1905D		20	5.5 {19}	3.5 {12}	4.1 {14}				19.05	
	1906D							22.23			
1907D											

APPLICATION EXAMPLE

Evaporating pressure regulating valve type EPR

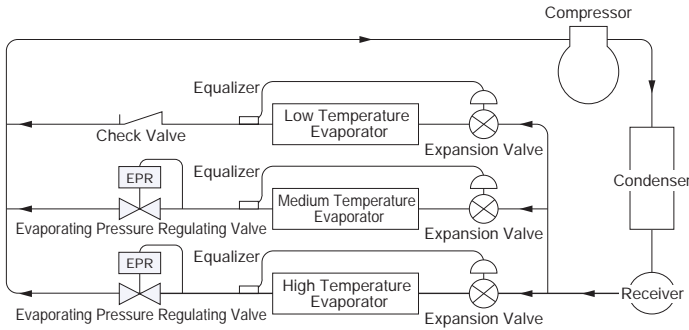
Fitted at the evaporator outlet to keep suitable set evaporating pressure.

At multi evaporator system, evaporating pressure regulating valves are used to control each different pressure (temperature) of evaporators.

Compressor operates based on the lowest pressure (temperature) of evaporators, pressure regulating valves keep pressure (temperature) of each evaporator at their setting pressure.

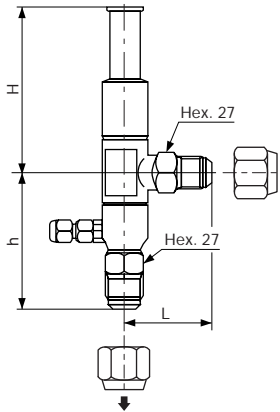
In this case, a check valve is required at the outlet of lowest pressure evaporator.

Also, evaporating pressure regulating valve is used at water chiller for prevent form congelation of cool water and vegetable warehouse for prevents form over dehumidification.

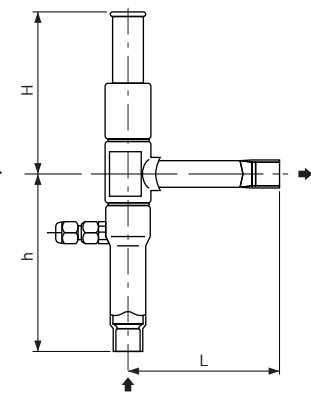


DIMENSIONS

Type EPR-B



Type EPR-D



Unit: mm

Direct Operation Type

Catalog No.		Unit: mm		
Type	Model	L	H	h
EPR-	1604B	45	82	91
	1605B	53		94
	1905B	56	109	100
	1906B	60		105
	1604D	71	82	78
	1605D			
	1905D	100	109	120
	1906D			
1907D				

PRESSURE REGULATING VALVES

High Volume OEM Item (Type DPR)

Type **SPR & DPR**

SAGINOMIYA

GENERAL DESCRIPTION

- Type SPR ... Direct operated, 2-way valves, designed for maintaining suitable compressor suction pressure in refrigeration or air conditioning units.

Fitted in suction line after the evaporator to prevent compressor overload.

- Type DPR ... Fitted in by-pass line between compressor discharge and suction line in refrigeration or air conditioning units. (Quantity order only.)

Senses excessive compressor discharge pressure and releases it through the bypass line to the low pressure side to protect the compressor from overloading.

Reduces frequency of cut-in and cut-out of high pressure switch to keep the compressor operating.

A typical advantage is in the heating cycle of heat pump systems during spring or autumn, or at the time when filter is clogged with foreign materials.



Type SPR-B



Type SPR-D



Type DPR

COMMON SPECIFICATIONS (Type SPR)

Specifications	Operation	Direct Operation type
Max. Working Pressure		2.5MPa {25kgf/cm ² }
Max. Testing Pressure		3MPa {30kgf/cm ² }
Fluid Temp.		to 100°C
Pressure Adjustment		◯ Increase 1604 to 05: Approx. 0.08MPa {0.82kgf/cm ² } /rotation 1905 to 07: Approx. 0.05MPa {0.51kgf/cm ² } /rotation 3011 to 13: Approx. 0.03MPa {0.31kgf/cm ² } /rotation
Manual Open		—

TYPE NUMBER SELECTION (SPECIFICATIONS)

Type SPR

Catalog No.		Fluid	Port Size (mm)	Capacity (U.S.R.T.) {kW}			Connection		Wt. (kg)
Type	Model			CT38°C ΔP0.049MPa {0.5kgf/cm ² } ET-10°C			Copper Tube (O.D.)	Style	
			Valve Open 40%	Valve Open 70%	Valve Open 70%				
			R22	R134a	R404A				
SPR-	1604B	Fluorinated Refrigerants	15	1.4 {4.9}	0.9 {3.2}	1.1 {3.9}	1/2"	Flare	0.3
	1605B						5/8"		
	1905B						3/4"		
	1906B		20	3.0 {10.5}	1.8 {6.3}	2.5 {8.8}	1/2"	Solder	0.4
	1604D		15	1.4 {4.9}	0.9 {3.2}	1.1 {3.9}	5/8"		
	1605D						3/4"		
	1905D		20	3.0 {10.5}	1.8 {6.3}	2.5 {8.8}	7/8"		
	1906D						1-1/8"		
	1907D		29	5.0 {17.6}	2.7 {9.5}	4.5 {15.8}	1-3/8"	1.3	
	3011D								
3013D									

* Nominal capacity is based on condensing temp. 38°C, evaporating temp. -10°C, pressure drop across the valve 0.049 MPa {0.5kgf/cm²}, and Set Pressure R134a...0.2MPa {2kgf/cm²}, R22...0.4MPa {4kgf/cm²}, R404A...0.5MPa {5kgf/cm²}

Type DPR

Catalog No.		Fluid	Port Size (mm)	* Factory Adjustable Range (MPa)	Connection (mm)		Max. Working Press. (MPa) {kgf/cm ² }	Wt. (kg)
Type	Model				Tube (I.D.)	Style		
DPR-	343D	Fluorinated Refrigerants	3.4	0.98 to 2.45	7.94	Solder	2.9 {29}	0.11

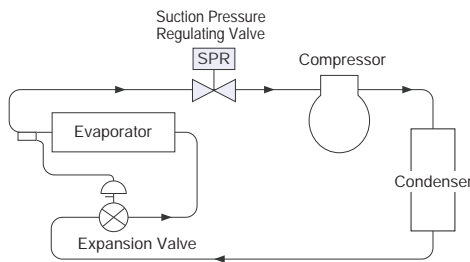
* Working pressure is factory set, please specify working pressure when order.

APPLICATION EXAMPLE

Suction pressure regulating valve type SPR

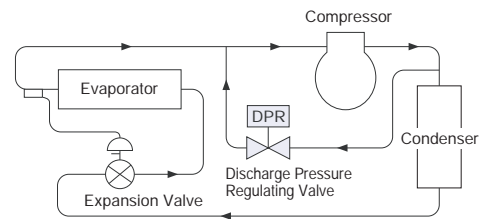
Suction pressure regulating valve is installed between compressor and evaporator in order to keep outlet pressure (suction pressure) under it's setting.

In case of rapid increase of load, suction pressure regulating valve could be used to prevent from overload of electric motor for compressor.



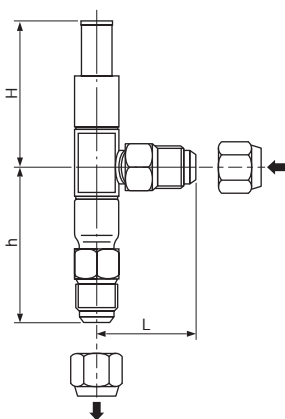
Discharge pressure regulating valve type DPR

Discharge pressure regulating valve is mounted in the low-pressure side bypass piping from the discharge piping of a compressor as a control valve to control the discharge pressure to be lower than the specified pressure for the purpose of preventing the compressor from being an abnormal high pressure.

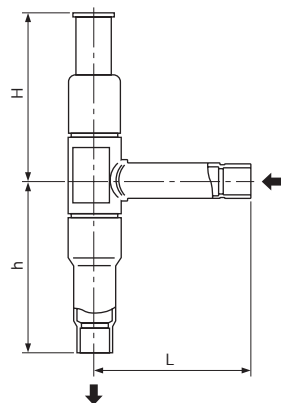


DIMENSIONS

Type SPR-B

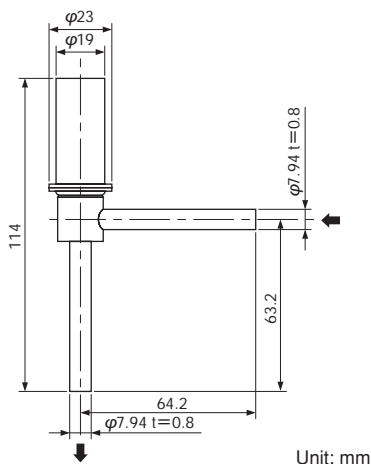


Type SPR-D



Catalog No.		Unit: mm		
Type	Model	L	H	h
SPR-	1604B	45	82	91
	1605B	53		94
	1905B	56		100
	1906B	60		105
	1604D	71	82	78
	1605D			
	1905D	100	109	120
	1906D			
	1907D	140	147	170
	3011D			
3013D				

Type DPR



Unit: mm

FLOW SWITCHES

Type **FQS**

SAGInoMIYA

GENERAL DESCRIPTION

- For use on liquid lines such as water, ethylene glycol, or any non-corrosive fluid in chillers, pumps, condensers, boilers, etc.
- With S.P.D.T. contact mechanism.
- Paddle consists of three segments that can be removed or trimmed for use in 1 to 6" pipe.
- Drip proof models: Available upon request.

CE mark applicable (available upon request)

UL listed (available upon request)



SPECIFICATIONS

Catalog No.	Paddle Size	Connection	Max. Fluid Press (MPa) {kgf/cm ² }	Max. Fluid Temp. (°C)	Wt. (kg)	* Adjustment (liter/min.)				
						Line Size	Min.		Max.	
							Flow Decrease	Flow Increase	Flow Decrease	Flow Increase
FQS-U30G	3"	R1"	0.98 {10}	80	0.6	1"	18	28	45	55
						2"	50	65	150	180
						3"	100	120	225	270

* Flow decrease ... Flow amount at which the switch operates on flow decrease.

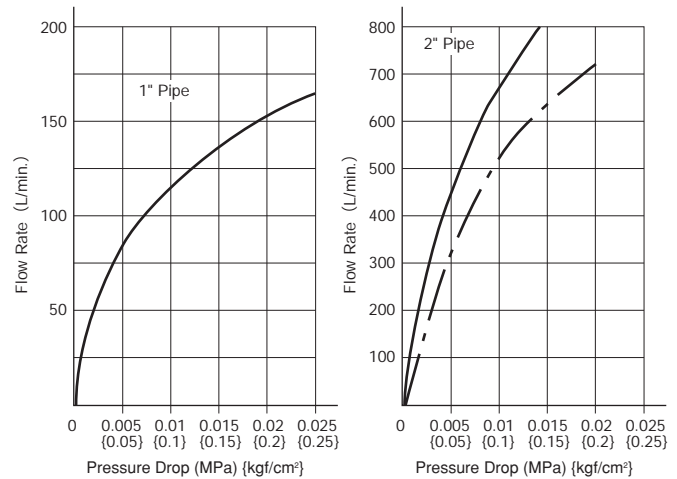
Flow increase ... Flow amount at which the switch operates on flow increase.

Flow rate based on the flow amount when 1" paddle is used for 1" pipe, 2" paddle for 2" pipe, and 3" paddle for 3" pipe.

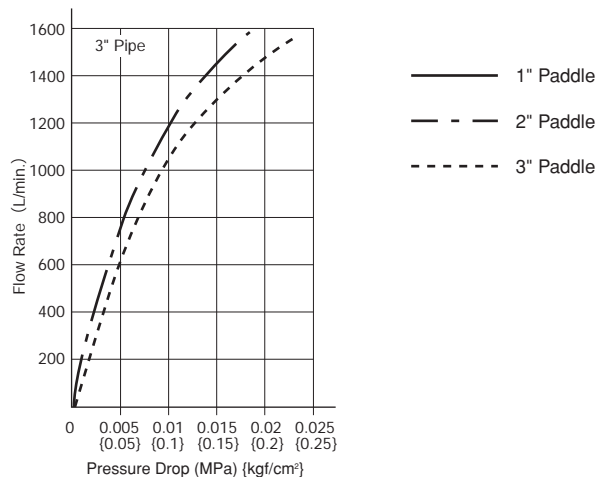
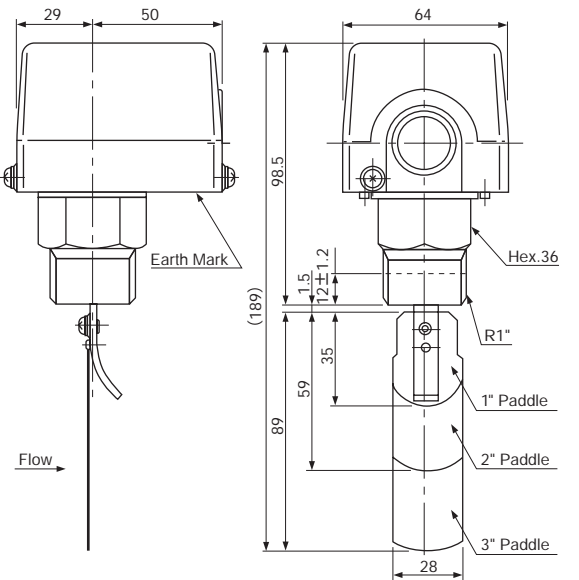
ELECTRICAL RATINGS

Rated Amps. (A)	Rated Voltage (V)	Power Factor (cos φ)	125V. AC	250V. AC
	Non-Inductive Current		1	15
Inductive Current	Full Load	0.75	3.5	2.5
	Locked Rotor	0.45	21	15

PRESSURE DROP CHARACTERISTICS



DIMENSIONS



CONDENSER FAN SPEED CONTROLLERS

Type RGE

SAGInoMIYA

GENERAL DESCRIPTION

- The most suitable for controlling the speed of a condenser fan of freezing and refrigeration condensing unit, package air conditioner and other units which are operated throughout a year.
- Keep condensing pressure constant in winter and intermediate seasons for stable operation.
- One of the following operation models is selectable when low speed.
 - Minimum Speed Operation
 - Cut off Operation
- Excellent noise-resisting design.
- Applicable to the external forced operation switch.

CE mark applicable

SP_{us} Certified (available upon request)



Single-phase type



Three-phase type

COMMON SPECIFICATIONS

Max.working pressure : 4.7MPa

Control method : Phase control

Enclosure : IP54

TYPE NUMBER SELECTION (SPECIFICATIONS)

Catalog No.	*1 F.V.S. Setting (MPa)			*2 E.P.B. (MPa)	Refrigerants	Electrical Ratings	Function	Ambient Temp. (°C)	Operation	Wt. (kg)	
	Factory Set	Adjusting Range									
		Min.	Max.			Ampere					
RGE-Z1L4-7	1.9	0.8	2.8	Fixed 0.6	R22, R404A, R407C	Single phase 220 to 240V. AC 50/60Hz	At approx. 45% (50Hz) at approx. 35% (60Hz) Cut Off or Minimum Speed function is selectable with changeover switch. Default setting: Cut Off	-20 to 55	①	0.36	
RGE-Z1L6-7	3.2	1.6	3.9	Fixed 0.9	R410A						0.2 to 3A
RGE-Z1N4-7	1.9	0.8	2.8	Fixed 0.4	R22, R404A, R407C						0.2 to 4A
RGE-Z1N6-7	3.2	1.6	3.9	Fixed 0.8	R410A						0.2 to 6A
RGE-Z1P4-7	1.9	0.8	2.8	Fixed 0.4	R22, R404A, R407C						0.2 to 8A
RGE-Z1P6-7	3.2	1.6	3.9	Fixed 0.8	R410A						
RGE-Z1Q4-7	1.9	0.8	2.8	Fixed 0.4	R22, R404A, R407C						
RGE-Z1Q6-7	3.2	1.6	3.9	Fixed 0.8	R410A						
RGE-Z3R4-7	1.6	0.8	2.8	Fixed 0.4	R22, R404A, R407C	Three phase 220 to 240V. AC 50/60Hz	At approximately 35%, Cut Off or Minimum Speed function is selectable with changeover switch. Default setting: Min. Speed	-20 to 50	②	1.4	
RGE-Z3R6-7	3.2	1.6	3.9	Fixed 0.8	R410A						0.2 to 5A
RGE-Z3T4-7	1.6	0.8	2.8	Fixed 0.6	R22, R404A, R407C	Three phase 380 to 415V. AC 50/60Hz	At approximately 35%, Cut Off or Minimum Speed function is selectable with changeover switch. Default setting: Min. Speed	-15 to 50	②	1.53	
RGE-Z3T6-7	3.2	1.6	3.9	Fixed 0.8	R410A						0.2 to 7A
RGE-X3R4-7	1.6	0.8	2.8	Fixed 0.4	R22, R404A, R407C						0.2 to 5A
RGE-X3R6-7	3.2	1.6	3.9	Fixed 0.8	R410A						

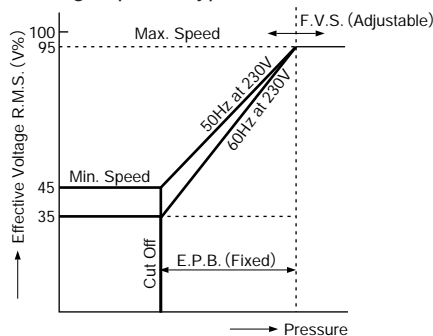
*1: The pressure at which the control delivers 95% output effective voltage (VRMS).

*2: Pressure width where effective voltage corresponds to the minimum speed or causes cut off operation

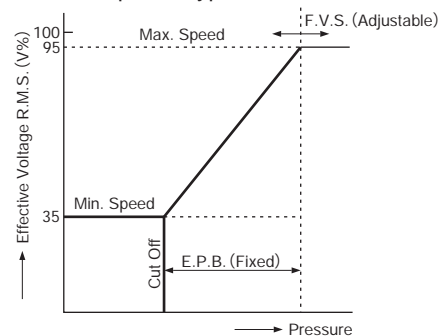
- Min. speed: Fan motor will be kept running at the specific value (V%) when pressure band increase more than E.P.B.
- Cut off: Fan motor will be stopped when pressure decrease to the specific value (V%) for R.M.S.
- For other pressure set values or min. speed/cut off set values, please contact us.

OPERATION

① Single-phase type



② Three-phase type

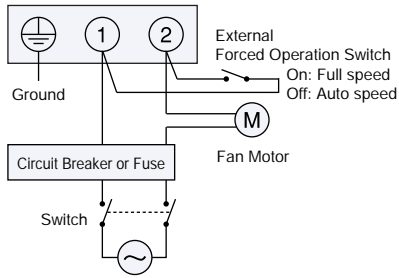


The operating characteristic may vary according to the voltage, frequency, and fan motor characteristics.

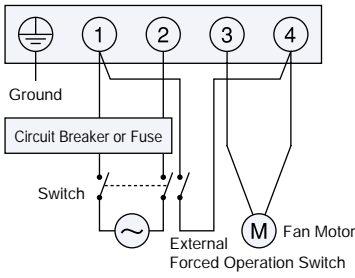
WIRING

Single-phase type

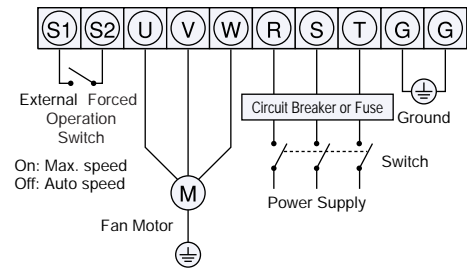
for 2A (RGE - Z1)



for 4A, 6A, 8A (RGE - Z1)



Three-phase type

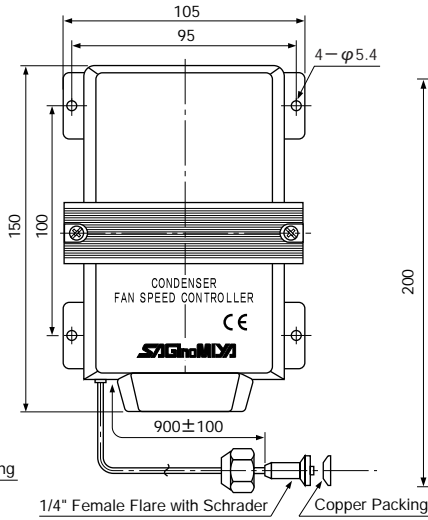
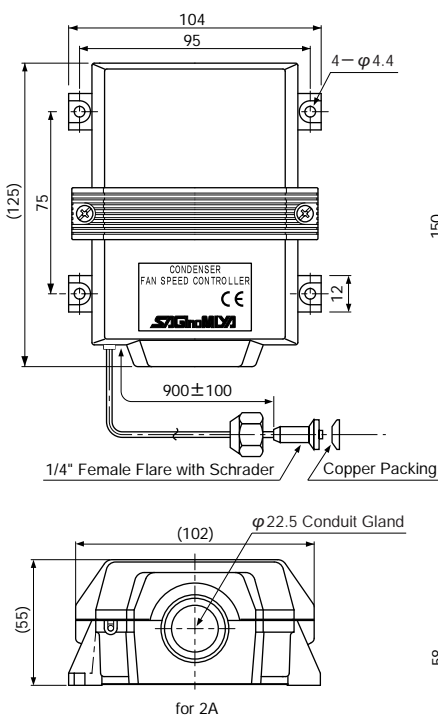


Apply external forced operation switches that afford to cut consumption current of fan motors.

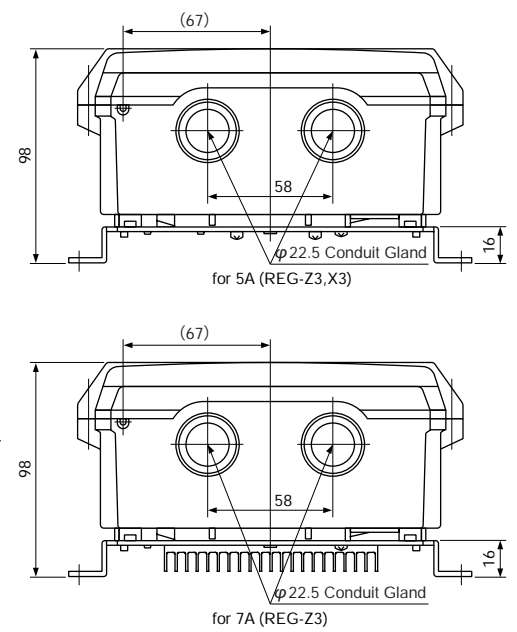
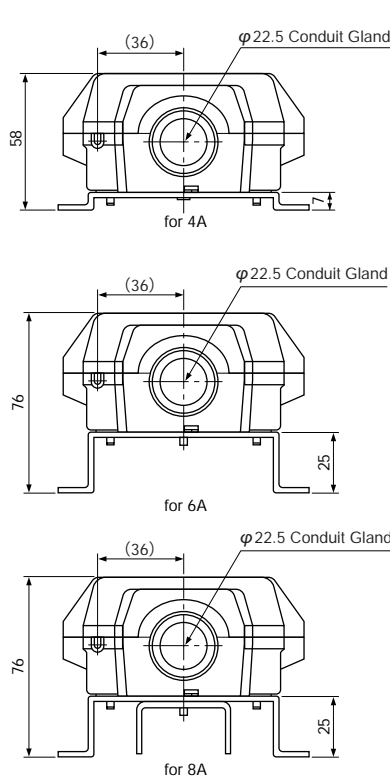
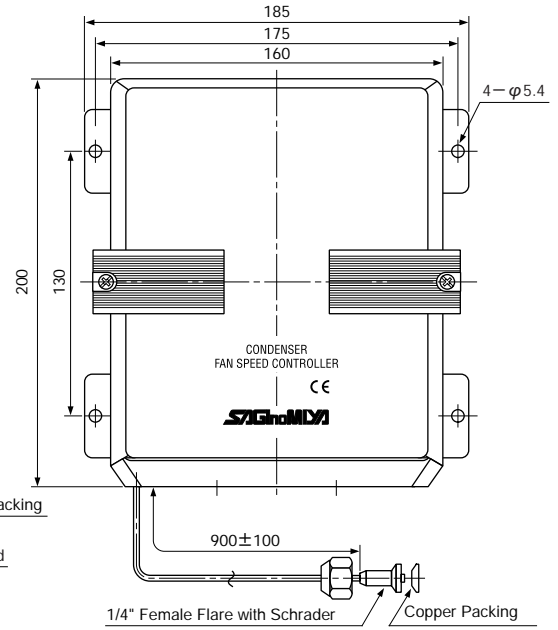
Use a forced operation switch with non-voltage contact signal.

DIMENSIONS

Single-phase type



Three-phase type



Unit: mm