B

Float Type Area Flowmeters

B Best Selection

Float Type Area Flowmeters

Flowmeter with Precision Needle Valve
(for Accurate Flow Control)
MODEL RK1250 SERIES
P.56

High-Precision Flowmeter
(for Sensitive Measurements)
MODEL RK1450 SERIES
P.62

Low-cost Flowmeter
(for Immediate Delivery)
MODEL RK1700 SERIES
P.68

Reed Switch Flowmeters (for Alarm Switches)
**MODEL RK1970/
RK1975/RK1976 SERIES**
P.76

Large Capacity Flowmeters
**MODEL RK2000/
RK2005/RK2006 SERIES**
P.77

Flowmeters with Photosensor
(for Alarm Switches)
MODEL RK1812/ RK1814 SERIES
P.84

Flowmeter with Bellows Needle Valve
(for Low-leak Flow Measurement and Control)
MODEL RK1500 SERIES
P.78

Flow Meter with Flow Controller
(Not Subject to Load Pressure Change)
MODEL 2503F SERIES
P.81

Flow Meter with Flow Controller
(Not Subject to Inlet Pressure Change)
MODEL 2504FR SERIES
P.80

Simplified Flexible Flow Meter (with Exchangeable Tapered Tube)
MEDEL RK1100 SERIES
P.82

Multiple Flow Meter with Needle Valve
(for Precision Measurement and Control for Laboratory)
MODEL RK120X SERIES
P.86

PRINCIPLE OF AREA (FLOAT TYPE) FLOW METER (1)

B

As shown in the figure, the area (float type) flow meter has a conical cylinder (tapered tube) with the upper end larger than the lower end, having a float inside. The float moves up and down according to the flow, and the reading taken when it balances indicates the flow rate.

The symbols and units are determined as follows:

Vf:	Volume of float	[cm³]
ρf:	Density of float	[g/cm³]
af:	Maximum cross-section of float	[cm²]
P_1:	Pressure directly under float	[Pa]
P_2:	Pressure directly above float	[Pa]
ρ:	Flow density	[g/cm³]
U_1:	Flow velocity directly under float	[cm/sec]
U_2:	Flow velocity in float clearance	[cm/sec]
A_1:	Cross section directly under float	[cm²]
A_2:	Cross section of float clearance	[cm²]
Q:	Flow rate	[cm³/sec]
g:	Gravitational acceleration	

The force that pushes up the float is af (P_1–P_2).
Subtracting the buoyancy, the gravitation of the float is Vf (ρf–ρ) g.
The balance equation is:

$$af(P_1-P_2)=Vf(\rho f-\rho)g$$

$$P_1-P_2=\frac{Vf(\rho f-\rho)g}{af} \quad \cdots\cdots (1)$$

Flow rate $Q = A_1U_1 = A_2U_2$

$$\text{Therefore, } U_1=\frac{Q}{A_1} \qquad U_2=\frac{Q}{A_2} \quad \cdots\cdots (2)$$

According to Bernoulli's theorem:

$$\frac{U_1^2}{2}+\frac{P_1}{\rho}=\frac{U_2^2}{2}+\frac{P_2}{\rho}$$

$$\text{Therefore, } P_1-P_2=\frac{\rho}{2}(U_2^2-U_1^2) \quad \cdots\cdots (3)$$

When (2) is substituted in (3):

$$P_1-P_2=\frac{\rho}{2}\left[\left(\frac{Q}{A_2}\right)^2-\left(\frac{Q}{A_1}\right)^2\right]$$

The solution of the above equation is:

$$Q=\frac{A_1A_2}{\sqrt{A_1^2-A_2^2}}\sqrt{\frac{2(P_1-P_2)}{\rho}} \quad \cdots\cdots (4)$$

When P_1–P_2 is substituted in (1):

$$Q=\frac{A_1A_2}{\sqrt{A_1^2-A_2^2}}\sqrt{\frac{2g(\rho f-\rho)}{\rho}\cdot\frac{Vf}{af}}$$

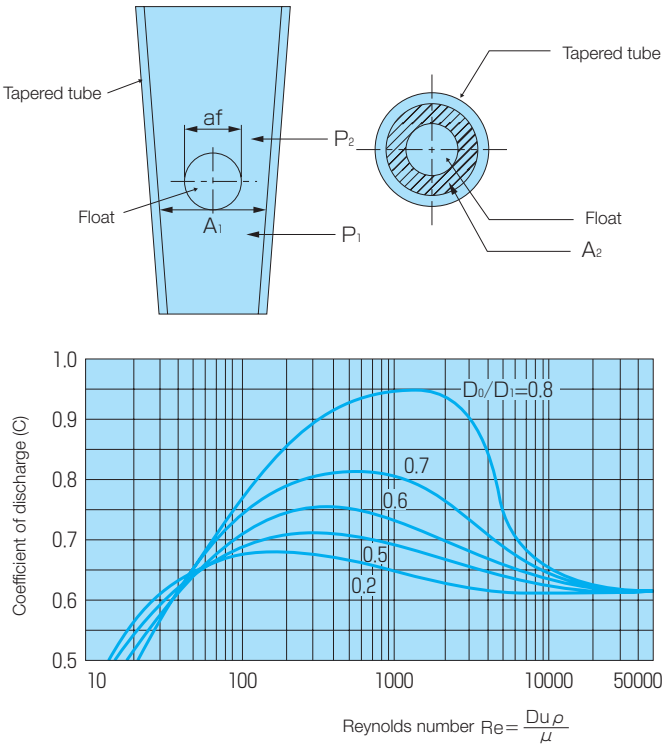
Because there is frictional resistance in practice, the general equation will be:

$$Q=C\frac{A_1A_2}{\sqrt{A_1^2-A_2^2}}\sqrt{2g\left(\frac{\rho f-\rho}{\rho}\right)\cdot\frac{Vf}{af}} \quad \cdots\cdots (5)$$

A_1A_2 is determined by the position of the float, and C is a function of the Reynolds number, in which the equivalent diameter of a circular runway is used. (Refer to the graph.)
In Equation (5), A_1A_2 and af are determined by the position of the float in the flow meter, and so the above can be summarized as:

$$Q=C'\sqrt{2g\left(\frac{\rho f-\rho}{\rho}\right)Vf} \quad \cdots\cdots (6)$$

This is the basic equation for all conditions.



[In the case of a liquid]

Equation (6) is used as it is. When a flow meter for water is used for kerosene with different specific gravity, the reading will change as follows:

$$QH_2O=C'\sqrt{2g\left(\frac{\rho f-\rho H_2O}{\rho H_2O}\right)Vf} \quad \cdots\cdots (A)$$

$$Qoil=C'\sqrt{2g\left(\frac{\rho f-\rho oil}{\rho oil}\right)Vf} \quad \cdots\cdots (B)$$

A÷B:

$$Qoil=QH_2O\sqrt{\frac{(\rho f-\rho oil)\times\rho H_2O}{\rho oil\times(\rho f-\rho H_2O)}}$$

Namely, the flow rate is obtained as follows:

$$\text{Actual flow rate of kerosene}=\text{Reading of water flow when kerosene flows}\times\sqrt{\frac{\text{(Float density–Kerosene density) X Water density}}{\text{Kerosene density X (Float density–Water density)}}}$$

[In the case of a gas]

In the case of a gas, the gas density ρ is negligibly small with respect to the float density ρf, and so Equation 6 can be simplified as follows:

$$Q=C'\sqrt{2g\left(\frac{\rho f}{\rho}\right)Vf}$$

Since the float density ρf and volume Vf are constant, the equation can be further simplified:

$$Q=C''\sqrt{\frac{1}{\rho}} \quad \cdots\cdots 7$$

In the case of a gas, C" is regarded as constant when the Re number is close, and the flow rate is determined based on the gas density ρ.

However, since the Re number is also a function $\frac{Du\rho}{\mu}$ of the gas density and viscosity, very complex analysis is necessary when C" changes and thedensity and viscosity conditions differ substantially.

The gas density changes, of course, according to the type of gas, and it also changes according to the pressure and temperature. Therefore, when the same flow meter is used for measurement under different conditions, the following relationship exists theoretically:

$$PV=nRT$$

Therefore: $P\frac{1}{\rho}=nRT \quad \rho=\frac{P}{nRT}$

The density is inversely proportional to the absolute temperature T, while it is proportional to the absolute pressure P. When these conditions are combined with Equation 7 , the following equation holds:

Gas density	ρ_1
Pressure	Reading Q_1 ($L/_{MIN}$ at 20°C) of flow meter for P_1
Temperature	T_1
Gas density	ρ_2
Pressure	Actual flow rate Q_2 ($L/_{MIN}$ at 20°C) when measuring the condition for P_2
Temperature	T_2

$$Q_2=Q_1\times\sqrt{\frac{\rho_1\times P_2\times(273+T_1)}{\rho_2\times P_1\times(273+T_2)}}$$

In the case of P_1/P_2 gauge pressure:

$$Q_2=Q_1\times\sqrt{\frac{\rho_1(0.1+P_2G)(273+T_1)}{\rho_2(0.1+P_1G)(273+T_2)}}$$

(Absolute pressure = 0.10133 + Gauge pressure (MPa))

Example 1: When the type of gas differs

When a flow meter for H_2 is used for He, the equation will be as follows when the above equation is substituted because P_1, P_2, T_1, and T_2 are the same:

$$QHe=QH_2\sqrt{\frac{\rho H_2}{\rho He}}=QH_2\sqrt{\frac{2}{4}}\fallingdotseq 0.7QH_2$$

As shown above, the actual flow rate is smaller than the reading.

Example 2: When the pressure condition differs

When a flow meter for N_2 with the atmospheric scale (P_1G = 0 Pa) is used for measurement of N_2・0.3 MPa (= P_2G), ρ_1, ρ_2, T_1, and T_2 are the same and the following equation holds:

$$Q_3=Q_0\sqrt{\frac{0.1+0.3}{0.1+0}}\fallingdotseq 2Q_0$$

The actual flow rate is larger than the reading.

Example 3: When the temperature condition differs

When a flow meter calibrated at 1 atmosphere at 20°C is used at 25°C:

(T_1=20℃)　　(T_2=25℃)

Since ρ_1, ρ_2, T_1, and T_2 are the same:

$$Q_{\text{Actual flow rate}}=Q_{\text{Reading}}\sqrt{\frac{273+20}{273+25}}\fallingdotseq 0.99Q_{\text{Reading}}$$

The actual flow rate is smaller than the reading.

The above corrections are approximations, and the measured flow rate frequently differs from the theoretical value under actual conditions. Please use the correction equations, keeping in mind that theory and practice are not always the same.

PRINCIPLE OF AREA (FLOAT TYPE) FLOW METER (2)

B

Flow rate when load pressure is applied (Measurement of gas)

As shown in Figure A, the float type flow meter is generally used with the rear section of the flow meter exposed to the atmosphere or without any load (without pressure loss resistance). The scale of such a flow meter is called “atmospheric scale.” In fact, however, there often exists load pressure resistance as shown in Figure B. As shown in the example of the principle (P.49), load pressure resistance does not allow the actual flow rate to be indicated. There is a method to find a rough standard using the equation for calculation, but some error will be caused because of the gap between theory and practice. Such an error will be caused both in the pressurized condition and in the vacuum condition.
If the pressure to be applied to the flow meter is known in such a case, it is possible to calibrate the scale of the flow meter under the pressurized condition.
For example, the flow control valve and the like are arranged in the later stage as shown in Figure C to control the pressure applied to the flow meter with a pressure regulator or the like. The scale of the flow meter is calibrated under that pressure condition. The scale of such a flow meter is called a “load pressure scale.” An example of using the load pressure scale is our GM Series gas mixing equipment. In the GM Series, the basic flow sheet is used as shown in Figure C so that the gas obtained with a constant flow rate will be pressurized. The load pressure scale of a flow meter with a valve on the outlet side (needle, etc. on top of RK-1250) is automatically calibrated at all times, but if the flow meter will be used independently, please inform us of this in advance and select the Pa notation. An extra charge will be added for load pressure calibration.

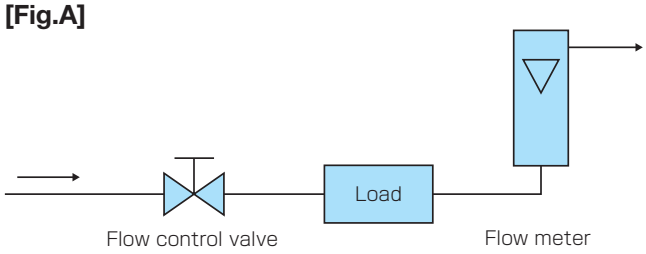
Calibration of special gas

There are seven standard gases for our float type flow meters: air (dry), N_2, O_2, He, H_2, Ar, and CO_2. Actual gases are used for calibrating flow meters. For other special gases, either we or the customer uses actual gases for calibration, or N_2 gas or the like is used for conversion scale calibration based on the conversion equations shown in the examples of the principle of flow meters (P.49). The conversion scale method hardly causes problems when the special gas has similar mass and properties, but in comparison with the actual gas calibration scale method, the error tends to be greater. Some special gases need special materials or cause adhesion of crystals, preventing measurement, so please contact us in advance if any gas other than the above-mentioned standard gases will be used.

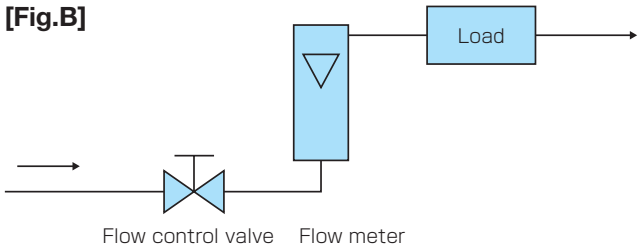
Temperature correction

As shown in example 3 of the principle of flow meters, the density of a gas changes with temperature. A scale, for which 20°C is used as the standard, is used frequently for area (float type) flow meters in general. We also manufacture standard flow meters calibrated in a thermostatic chamber. However, calibration at 0°C or some other temperature may be necessary according to the operating conditions. In such cases, we manufacture a conversion scale as shown in example 3.
(The calibration temperature is indicated on standard tapered tubes.)

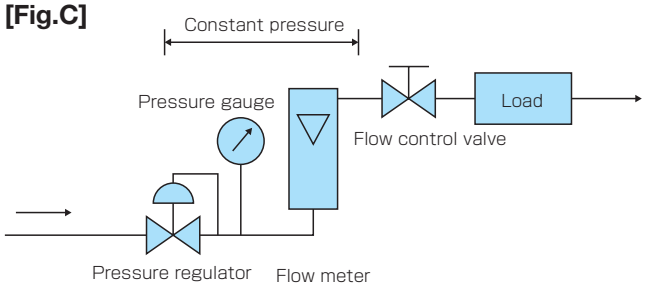
[Fig.A]



[Fig.B]

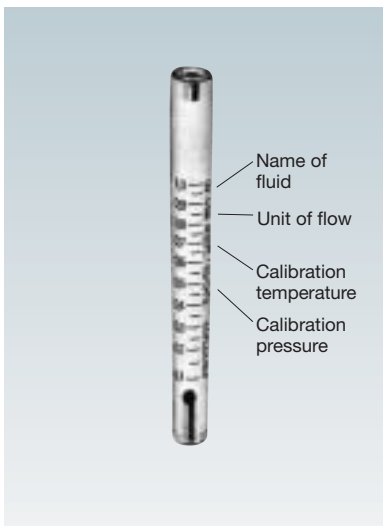


[Fig.C]



Notation of flow meter accuracy

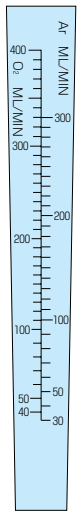
The accuracy of an area (float type) flow meter is represented by the percentage of an error with respect to the full-scale flow rate (maximum flow rate that can be measured by the flow meter). In the case of RK1400 of 100 ML/MIN, for example, which has an accuracy of ±2% of full scale, the error is ±2 ML/MIN. Calibration points are specified for each flow range, and the accuracy is the value at these points. Points other than the calibration points are distributed equally, and the values at these points are within the specified accuracy range in most cases, but they are exempt from the guarantee.
The operating temperature (20°C usually) and operation pressure are indicated on the glass tube of the flow meter. The accuracy is guaranteed under these conditions (the outlet side is open to the atmosphere when there is no pressure notation), and the reading depends on changes in the temperature, atmosphere, etc. (P.49).



Special scale

mm scale

The scales are at uniform intervals like a ruler. A calibration curve scale convection line is used. These scales are available as standard scales.

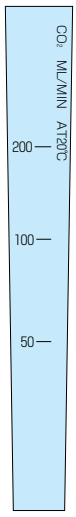


Scale on both sides

One tapered tube is used to measure two types of fluid. The scales on both sides can be used simultaneously according to the types of gas, pressure, and temperature.

1/20 scale

The smallest measurable flow is 10% of the maximum scale usually, but this special specification permits indication of 5% (1/20) scale.



Special specification scale

The figure shows one-point special specification scales. Please contact us for other special specifications.

Scale notation on tapered tube of flow meter

This table applies to FS 5–50 ML/MIN.

Total length	Flow range (e.g.: ML/MIN)	Scale interval (e.g.: ML/MIN)	Notation number (e.g.: ML/MIN)
L=80	0.1-1 (10-100)	1／20 (5)	10, 50, 100
	0.2-2 (20-200)	1／20 (10)	20, 100, 200
	0.3-3 (30-300)	1／12 (25) 1/15 between 0.3 and 0.5 only (20 between 30 and 50 only)	30, 50, 100, 150, 200, 250, 300
	0.5-5 (50-500)	1／20 (25)	50, 100, 200, 300, 400, 500
L=100	0.1-1 (10-100)	1／20 (5)	10, 20, 30, 40, 50, 60, 70, 80, 90, 100
	0.2-2 (20-200)	1／20 (10)	20, 40, 60, 80, 100, 120, 140, 160, 180, 200
	0.3-3 (30-300)	1／30 (10)	30, 50, 100, 150, 200, 250, 300
	0.5-5 (50-500)	1／25 (20) 1/50 between 0.5 and 0.6 only (10 between 50 and above only)	50, 100, 200, 300, 400, 500
L=120	0.1-1 (10-100)	1／20 (5)	10, 20, 30, 40, 50, 60, 70, 80, 90, 100
	0.2-2 (20-200)	1／20 (10)	20, 40, 60, 80, 100, 120, 140, 160, 180, 200
	0.3-3 (30-300)	1／30 (10)	30, 50, 100, 150, 200, 250, 300
	0.5-5 (50-500)	1／25 (20) 1/50 between 0.5 and 0.6 only (10 between 50 and above only)	50, 100, 200, 300, 400, 500
L=150	0.1-1 (10-100)	1／40 (2.5)	10, 20, 30, 40, 50, 60, 70, 80, 90, 100
	0.2-2 (20-200)	1／40 (5)	20, 40, 60, 80, 100, 120, 140, 160, 180, 200
	0.3-3 (30-300)	1／30 (10)	30, 50, 100, 150, 200, 250, 300
	0.5-5 (50-500)	1／50 (10)	50, 100, 150, 200, 250, 300, 350, 400, 450, 500
L=200	0.1-1 (10-100)	1／50 (2)	10, 20, 30, 40, 50, 60, 70, 80, 90, 100
	0.2-2 (20-200)	1／80 (2.5)	20, 40, 60, 80, 100, 120, 140, 160, 180, 200
	0.3-3 (30-300)	1／60 (5)	30, 50, 100, 150, 200, 250, 300
	0.5-5 (50-500)	1／50 (10)	50, 100, 150, 200, 250, 300, 350, 400, 450, 500
L=250	0.1-1 (10-100)	1／100 (1)	10, 20, 30, 40, 50, 60, 70, 80, 90, 100
	0.2-2 (20-200)	1／100 (2)	20, 40, 60, 80, 100, 120, 140, 160, 180, 200
	0.3-3 (30-300)	1／60 (5)	30, 50, 100, 150, 200, 250, 300
	0.5-5 (50-500)	1／100 (5)	50, 100, 150, 200, 250, 300, 350, 400, 450, 500

Flow meter with valve

KOFLOC is a general manufacturer of precision flow measuring and precision flow control instruments. By combining these two technologies, we manufacture float type flow meters with various valves. For flow control, the flow must be measured almost all the time. Assembling a valve and a flow meter separately and then combining them may have some merits in terms of specifications, but flow meters with a valve have more merits in terms of piping labor, mounting space, and possibility of general adjustment.

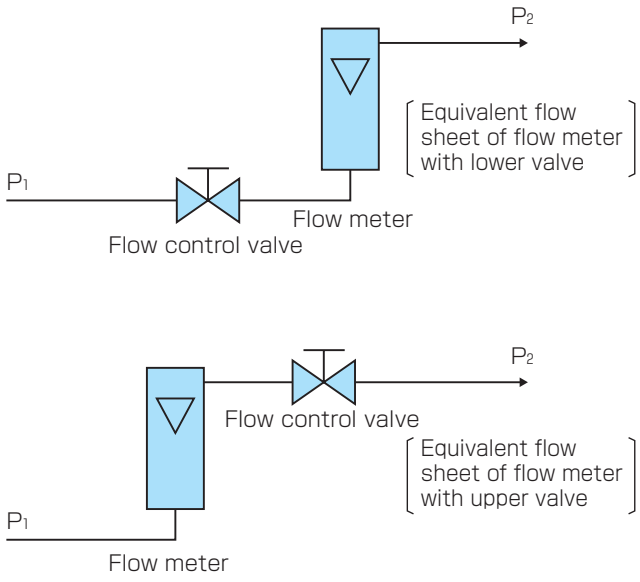
To meet such needs, KOFLOC manufactures flow meters with various types of valves, as represented by the flow meter with a needle valve. Flow meters with a needle valve are subdivided into the simple type, precision type, large-capacity type, and bellows type, as well as models with a valve on the inlet side or on the outlet side. In addition, flow meters with a variable primary pressure type flow controller, flow meters with a variable secondary pressure type flow controller, and flow meters with a sophisticated control valve are also available. Most valves attached to these flow meters are basically identical to the flow control valves shown under different headings. Reference pages for those valves are shown in the text of the catalog. Please refer to those pages for the detailed specifications, etc.

PRINCIPLE OF AREA (FLOAT TYPE) FLOW METER (3)

B

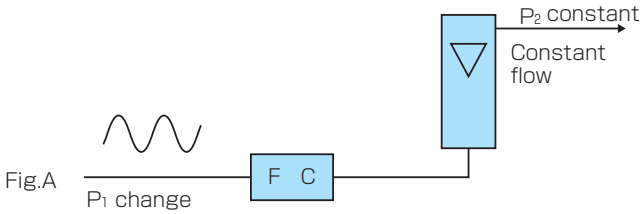
Upper valve and lower valve

The upper section of a flow meter is on the outlet side, while the lower section is on the inlet side.
The equivalent flow chart of the upper and lower valves is shown in the figure. The pressure loss of a flow meter is very small, not causing any problem when a flow meter is used individually. In the case of a flow meter with a valve, however, the inlet side pressure and outlet side pressure are important. The valve installed in a flow meter causes a pressure loss, generating a difference between the inlet pressure and outlet pressure. As shown on page 50, the reading of a float type flow meter differs according to the applied pressure. Therefore, for flow meters with a valve, care is needed to see what will be the applied pressure. In such cases, the inlet pressure P_1 is throttled by a needle valve, changing into P_2 at the outlet. In the lower section, this P_2 is the pressure applied to the flow meter. When there is no significant load resistance (similar to atmospheric conditions) at the outlet and the subsequent section, P_2 can be regarded as 0 MPa · G (gauge pressure), and as no pressure is applied to the flow meter, a general flow meter is used for calibration. (Refer to the atmospheric scale on page 50.) Since operating pressure conditions are necessary for valves, however, it is necessary to clearly indicate P_1 and $P_2$when placing an order. Please indicate P_2 as well when there is load resistance (when P_2 pressure exists).
In the case of the upper valve, the inlet pressure P_1 is applied to the flow meter. In that case, P_1 and P_2 are necessary when selecting a valve as mentioned above, and the scale of the flow meter should be the negative pressure scale (P.50) of P_1. Therefore, the pressure is controlled by a pressure regulator so that P_1 will not change while using a flow meter in general. Especially, when pressure is reduced to a vacuum in the rear stage, the flow reading will be incorrect unless an upper valve type, which reduces pressure P_1 so that the flow meter will not be decompressed, is used. Care is needed.

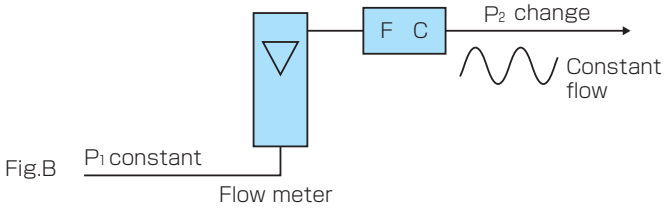


Flow meter with flow controller

When pressure changes during flow control, variable primary pressure flow controllers (Model 2204) (P.105) and variable secondary pressure flow controllers (Model 2203) (P.104) are used to make the flow constant. Such flow meters with a valve are Model 2504FR and 2503F. The variable primary pressure flow controller has a valve that controls the flow so that it will be constant (P.105) even if the pressure on the primary side (inlet side) changes, and the flow meter is arranged as shown in Figure A. In other words, this flow measuring control method is effective when P_1 changes and P_2 remains constant or is released to the atmosphere.
This flow meter with a valve is a lower valve type, because it meets the condition that the pressure applied to the flow measuring section should be constant.
The variable secondary pressure flow controller can make the flow constant when the secondary-side pressure loss changes (P.104) provided the primary pressure is constant. It can be used in combination with the flow meter as shown in Figure B. In the case of this valve, the primary pressure (P_1) is constant, and it is used as an upper valve as shown in the figure to control the pressure P_1, which is applied to the flow meter, with a pressure regulator or the like. Therefore, the flow meter scale is calibrated according to the scale in a state where pressure P_1 is applied (load pressure scale).



Equivalent flow sheet of flow meter with variable primary pressure flow controller



Equivalent flow sheet of flow meter with variable secondary pressure flow controller

PRECAUTIONS FOR HANDLING OF FLOW METER

Measurement with area flow meter

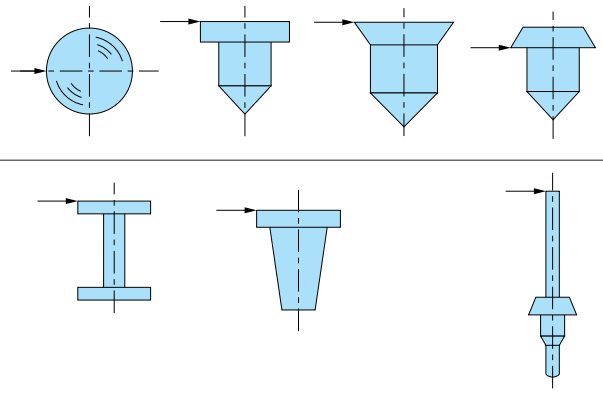
When a float that moves up and down is put in a tapered tube that is precision-formed into a tri-flat and rib-guide and fluid is introduced from below, the fluid is throttled by the float, causing a pressure difference before and after.
Upon receiving an upward force due to this pressure difference, the float rises and stops at a position where it balances the effective weight of the movable section. Since the relationship between the rising height, namely, the flow area, and the flow is constant, the position is detected to measure the flow.

⚠ Caution

Precautions on handling of area flow meter

- Install the meter as vertical as possible in a dry place.
- Select pipes with appropriate material and diameter according to the fluid, flow, and pressure.
- Thoroughly clean the inside of the pipe.
- Turn the mounted needle valve clockwise to decrease the flow, and turn it counterclockwise to increase the flow. (Refer to the precision needle valve Model 2412.)
- When stopping the flow with a needle valve, take great care that the axis does not turn beyond the flow stop position. (Refer to the precision needle valve Model 2412.) Install a needle valve separately to keep it protected.
- The scale on the flow meter is marked according to the actual measurement.
- Refer to the figure below for reading the float. (Refer to JIS Z8761.)

Float reading position



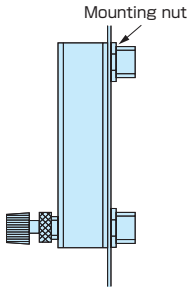
Note: These figures show the scale reading positions, and do not specify the shape and structure of the movable section.

- In order to prevent rupture of the tapered tube during flow measurement, do not let the pressure exceed 70% of the proof pressure. The temperature should not exceed 60°C to prevent breakage of the tapered tube and other parts. Use of toxic gas, toxic liquid, or any fluid other than those shown on the tapered tube or use at a temperature or pressure exceeding the highest limit could cause human injury. Never use the flow meter in such a manner.
- The clearance between the tapered tube and float is very small in our flow meters to enable very small flows to be measured. If dust or water enters the clearance, it will become clogged or unstable. Use clean and dry gas so that dust will not enter.
- Our original filter is installed within the very small flow range on the end face of the tapered tube. If an abnormality is found in the tapered tube, clean it with a neutral detergent. If the abnormality persists, contact us for recleaning.
- Should the needle valve cause trouble, return it as is to our company. We will investigate the cause and make adjustments.
- Install the flow meter perpendicularly. Contact us in advance if the flow meter is to be installed at an angle.
- Apply only the minimum force necessary to tighten nuts and screws.
- Secure the flow meter joint (arrow section) with a spanner when mounting it on a panel or removing the pipe joint in order to prevent the joint from becoming loose. After mounting, be sure to conduct a leak test using soapy water.
- If the pressure or flow changes suddenly, the float will jump up, possibly breaking the glass. When the flow meter is installed in series with a solenoid valve as shown in the figure, a fairly large quantity of gas will flow suddenly. Install a regulator or the like in between to isolate the flow meter from direct pressure change.
- N_2 conversion or air conversion is used for calibration. In principle, however, the accuracy will not be guaranteed unless the actual gas is used. When accuracy is particularly important, it is recommended to use the actual gas (P.49). For calibration with any gas other than our standard gases, a separate gas cylinder is necessary. Provide us with the actual gas or we will prepare the gas by ourselves (an extra charge and actual gas calibration charge will be required). However, if dangerous gases are to be used or the flow rate is too large, we may not be able to assist, in order to protect our products and facilities. Contact our sales representative in advance.

Mounting and piping (General specifications)

- Use the accompanying nuts as shown in the figure when installing the flow meter on a panel. Refer to the dimensional drawing for the panel processing method.

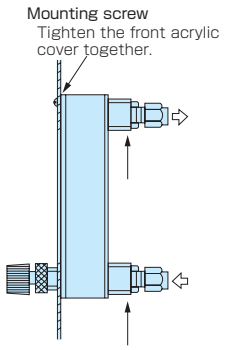
  If you find any unclear point concerning the mounting, contact our factory.



Mounting on panel

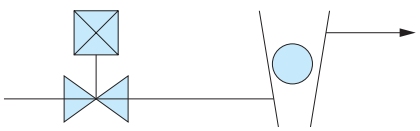
- If the flow meter is to be embedded in a panel, use the screw hole at the front of the body shown in the figure. Remove the label from the RK1450 and RK1250 to reveal the screw hole.

  If you find any unclear point concerning the mounting, contact our factory.



Embedding in panel

- Connect a piping joint to the gas inlet and outlet so that no load will be applied to the flow meter.



Incorrect use

LIST OF AREA (FLOAT TYPE) FLOW METERS

B

Table of dimensions

Type	Page	Model	Full-scale flow	Accuracy FS (full scale)	Proof pressure	Standard body block material			
						Brass (BsBM)	SUS304	SUS316	Others
Built-in general product	56	RK1250	5ML/MIN-30L/MIN	± 2%FS	0.5-1.0MPa	○	—	○	—
	58	RK1200	5ML/MIN-100L/MIN	± 2%FS	0.5-1.0MPa	○	—	○	—
	60	RK1650	1L/MIN-20L/MIN	± 5%FS	0.5-0.8MPa	○	○	—	—
	61	RK1600R	1L/MIN-20L/MIN	± 5%FS	0.5-0.8MPa	○	○	—	—
	62	RK1450	5ML/MIN-30L/MIN	± 2%FS	0.5-1.0MPa	○	—	○	—
	64	RK1400	5ML/MIN-100L/MIN	± 2%FS	0.5-1.0MPa	○	—	○	—
	66	RK1050	100ML/MIN-20L/MIN	± 5%FS	0.5-0.8MPa	○	○	—	—
	67	RK1000	100ML/MIN-20L/MIN	± 5%FS	0.5-0.8MPa	○	○	—	—
	68	RK1700	1L/MIN-50L/MIN	± 7%FS	0.5MPa	○	—	○	—
	69	RK1950AP	AIR : 350L/MIN-25m³/MIN H_2O : 10L/MIN-900L/MIN	± 2%FS	0.8-1.0MPa	—	—	—	Ductile cast iron
Resin product	70	RK1150/RK1150PV	100ML/MIN-30L/MIN	± 10%FS	0.5MPa	—	—	—	Engineering plastic
	70	RK1150V	5L/MIN-30 L /MIN	± 10%FS	0.5MPa	—	—	—	Engineering plastic
	71	RK200	AIR : 0.5L/MIN-50L/MIN	± 6%FS	0.7MPa	—	—	—	Acrylic resin
	72	RK400	H_2O : 50cc/MIN-3700cc/MIN	± 6%FS	0.7MPa	—	—	—	Acrylic resin
	73	RK500	AIR : 700L/MIN-4000L/MIN H_2O : 15L/MIN-75L/MIN	± 3%FS	0.7MPa	—	—	—	Acrylic resin
Product with stand	74	RK1350	5ML/MIN-30L/MIN	± 2%FS	0.5-1.0MPa	○	—	○	—
Reed switch-compatible product	75	RK1930/RK1935	H_2O : 1L/MIN-2L/MIN	± 5%FS	0.5MPa	○	○	—	—
	76	RK1970/RK1975/RK1976	AIR : 10L/MIN-150L/MIN H_2O : 0.5L/MIN-10L/MIN	± 5%FS	0.5MPa	—	—	○	—
	77	RK2000/RK2005/RK2006	AIR : 100L/MIN-1000L/MIN H_2O : 3L/MIN-30L/MIN	± 5%FS	0.8MPa	○	○	—	—
Photosensor-compatible product	84	RK1812/1814	2L/MIN-50L/MIN	± 2%FS	0.5-1MPa	○	—	○	—
Product with built-in special valve	78	RK1500	5ML/MIN-30L/MIN	± 2%FS	0.5-1.0MPa	—	—	○	—
	81	RK2503F	5ML/MIN-20L/MIN	± 2%FS	0.5MPa	—	—	○	Aluminum
	80	RK2504FR	5ML/MIN-10L/MIN	± 2%FS	0.5MPa	—	—	○	Aluminum
Product that can be disassembled	82	RK1100/RK1100PV	10ML/MIN-20L/MIN	± 2%FS	0.5MPa	—	○	—	Aluminum
	82	RK1100V	1L/MIN-20L/MIN	± 2%FS	0.5MPa	—	○	—	Aluminum
Cylinder-compatible product	85	RK4400	10ML/MIN-20L/MIN	± 2%FS	0.3MPa	○	—	○	—
Multiple/mixing product with stand	86	RK120X	5ML/MIN-20L/MIN	± 2%FS	0.5MPa	○	—	○	—
	87	RK120X(M)	5ML/MIN-20L/MIN	± 2%FS	—	○	—	○	—
	88	RK140X	5ML/MIN-20L/MIN	± 2%FS	0.5MPa	○	—	○	—

Overall length of flow meter (mm)						Alarm switch	Standard body block end connection	Embedding	Surface mount
80	100	120	150	200	250				
—	—	126	156	206	256	—	Rc1/4	○	○
—	—	○	○	○	○	—	Rc1/4	○	○
84	104	124	154	—	—	—	Rc1/8	○	○
○	○	○	○	—	—	—	Rc1/8	○	○
—	—	126	156	206	256	—	Rc1/4	○	○
—	—	○	○	○	○	—	Rc1/4	○	○
84	104	124	154	—	—	—	Rc1/8	○	○
○	○	○	○	—	—	—	Rc1/8	○	○
—	—	—	149	—	—	—	Rc1/4	—	○
—	—	—	—	—	—	—	JIS10K-RF10A-100A Rc3/8, 1/2, 3/4, 1	—	—
—	—	○	—	—	—	—	Rc1/4	—	○
—	—	○	—	—	—	—	Rc1/4	—	○
—	101.6	—	—	—	—	—	Rc1/4	—	○
—	—	—	165.1	—	—	—	Rc1/4	—	○
—	—	—	—	—	342.9	—	NPT1	—	○
—	—	153	183	233	283	—	Rc1/4	(○)	(○)
—	110	—	—	—	—	○	Rc1/4	○	○
—	—	—	○	○	—	○	Rc1/4	○	○
—	—	—	—	○	○	○	Rc3/8　Rc3/4	○	—
—	—	○	○	○	○	○	Rc1/4	○	○
—	—	○	○	○	○	—	UNF9/16 — 18	○	○
—	—	163.5	193.5	243.5	293.5	—	Rc1/4+M8P1	○	—
—	—	○	○	○	○	—	Rc1/4+M8P1	○	—
—	—	○	○	○	○	—	M8P1	○	—
—	—	○	○	○	○	—	M8P1	○	—
—	—	—	146	—	—	—	Inlet = JIS PF 1/4 male thread Outlet = Rc 1/4	—	—
—	—	○	○	○	○	—	M8P1	(○)	—
—	—	—	—	○	—	—	M8P1	(○)	—
—	—	○	○	○	○	—	M8P1	(○)	—

(○) Mounting is possible when the stand is removed.

Flowmeter with **Precision Needle Valve** (for Accurate Flow Control)

MODEL RK1250 SERIES

The Model RK1250 Series Flowmeter is a completely renewed model of existing KOFLOC RK1200, designed as a flowmeter that can be integrated into the customer's equipment. A combination of a grade high precision float type flowmeter with a needle valve capable of very accurate flow control provides a flowmeter ideal for measurement and control of trace flows.

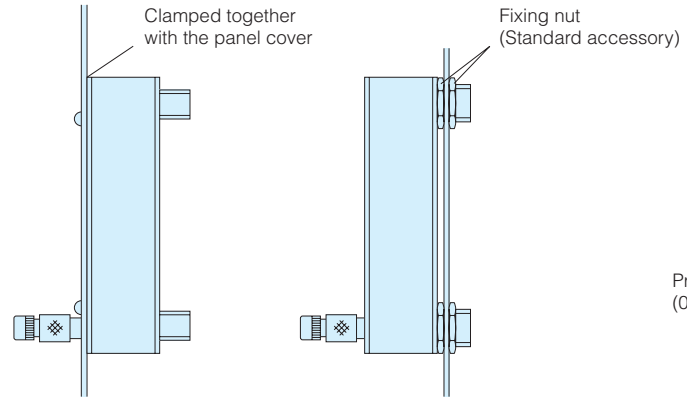
Features

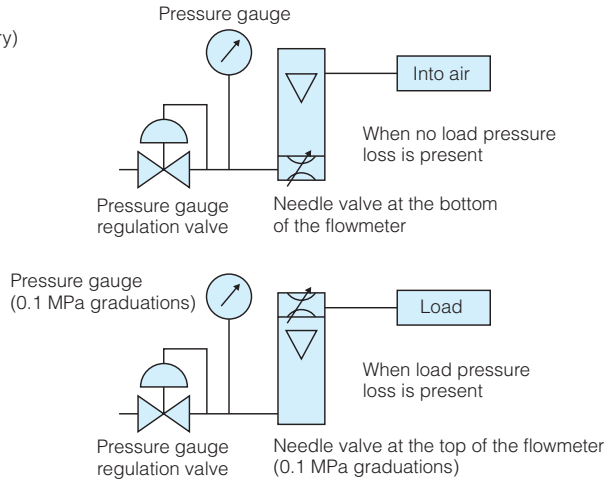
- **Capable of controlling ultra-minute flows**
  Can respond to a wide range of flows from ultra-minute flows of 0.5-3 ML/MIN to flows of 3-30 L/MIN.
- **The incorporated precision needle valve allows a delicate control of flows.**
  The effective revolving speed of the needle valve can be maximized by specifying a maximum flow and normal supply pressure.
- **Wide variations**
  Four total lengths of the flowmeter are available: 126, 156, 206, and 256 mm, for your selection according to your needs.
- **Two types of valve arrangement**
  The needle valve can be laid out either at the top or at the bottom of the meter. Choose the type that best suits your needs.
- **Measurement and control of water flows also possible**
  Measurement and control of water flows not exceeding 1 L/MIN are also possible.

Applications

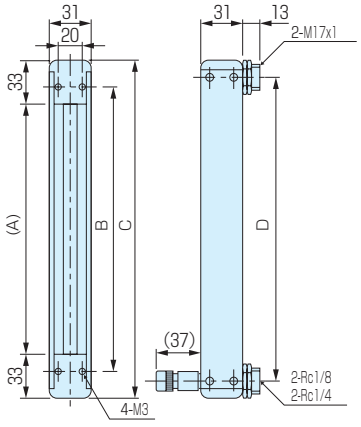
- **For integration into your equipment panel**
- **For gas devices to be used on the semiconductor manufacturing site**
- **For biotechnology industries**
- **For vacuum line control**

Layout Example with Model RK1250





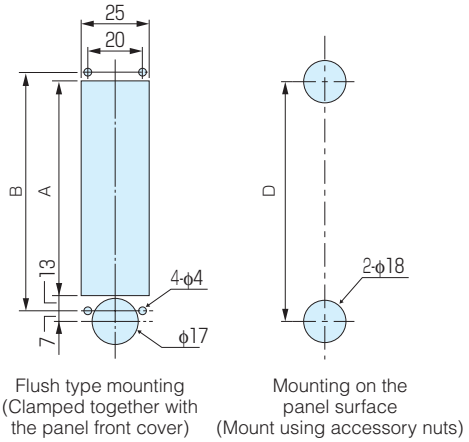
Dimensions



Dimensions of parts per length designation code

Part \ Code	12	15	20	25
A	60	90	140	190
B	86	116	166	216
C	126	156	206	256
D	100	130	180	230

<Cut Dimensions>



Flush type mounting (Clamped together with the panel front cover)

Mounting on the panel surface (Mount using accessory nuts)

Standard Specifications

	Gases	Liquids
Fluids	Air, N_2, O_2, H_2, He, Ar, and CO_2 (Calibration by actual gas) For other gases, consultation is necessary regarding whether conversion conditions or calibration by actual gas is to be used. * Optional: Scale indicating two types of fluids	Standard fluid: Water For other liquids, consultation is necessary regarding whether conversion conditions or calibration by actual liquid is to be used.
Flow range	0.5-5 ML/MIN to 3-30 L/MIN (See the Capacity Table below.) * Optional: 0.5-3 ML/MIN	0.5-5 ML/MIN to 0.1-1 L/MIN (See the Capacity Table below.) * Optional: 0.5-3 ML/MIN
Accuracy	FS±2% (Measurement point) * Optional: FS±1% (Measurement point)	FS±2% (Measurement point)
Proof pressure	1.0 MPa for 100 ML/MIN or less 0.7 MPa for 5 L/MIN or less 0.5 MPa for 10 L/MIN or more	1.0 MPa for 5 ML/MIN or less 0.7 MPa for 150 ML/MIN or less 0.5 MPa for 200 ML/MIN or more
Available scale	10:1 * Optional: 20:1	

Materials	SS	BS
Body block	SUS316	Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS316	
Protective cover	Acrylic resin	
Temperature resistance	120°C	70°C
Connection end	Rc1/4 (Standard); Rc1/8 (Optional)	

Capacity Table

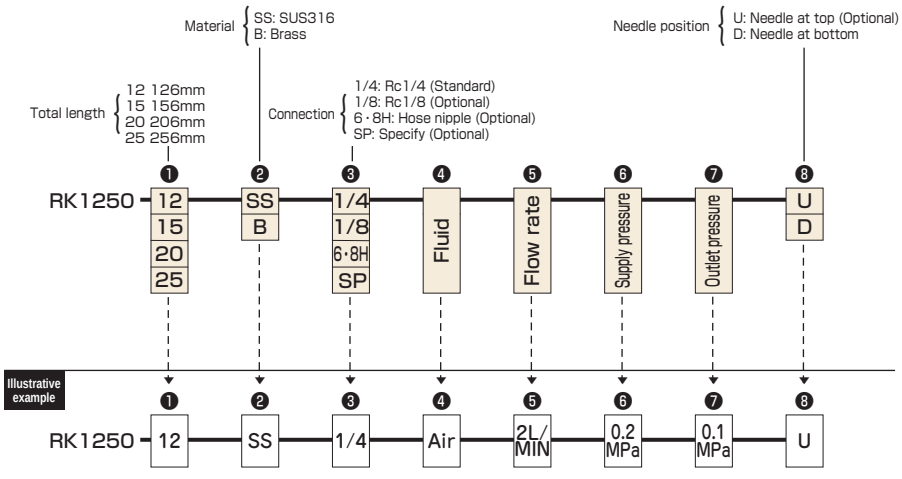
Air (Flow rate at atmospheric pressure)

Total length \ Max. flow rate	5 ML/MIN	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN	2 L/MIN	3 L/MIN	5 L/MIN	10 L/MIN	15 L/MIN	20 L/MIN	30 L/MIN
126mm	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
156mm	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
206mm	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○
256mm	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○

H_2O

Total length \ Max. flow rate	5 ML/MIN	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN
126mm	○	○	○	○	○	○	○	○	○	○	○
156mm	○	○	○	○	○	○	○	○	○	○	○
206mm	○	○	○	○	○	○	○	○	○	○	○
256mm	○	○	○	○	○	○	○	○	○	○	○

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Flowmeter with **Precision Needle Valve** (for Accurate Flow Control)

MODEL RK1200 SERIES

B

This is a grade high precision float type flowmeter combined with a needle valve capable of very accurate flow control. It is ideal for measurement and control of minute flows.

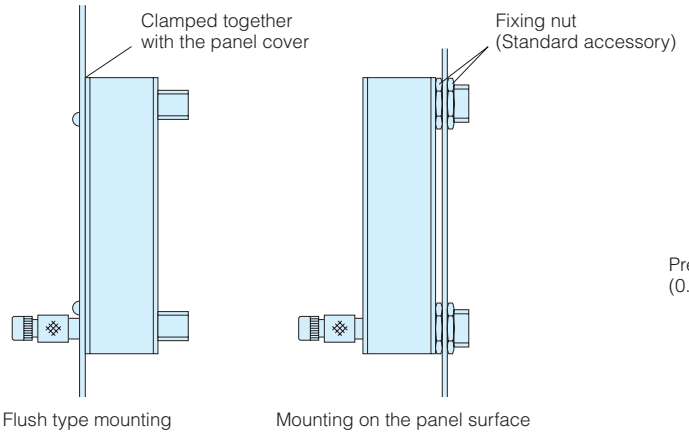
Features

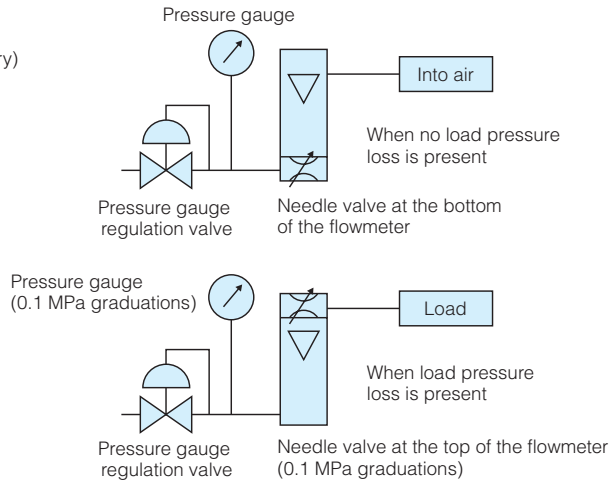
- Capable of controlling ultra-minute flows
- A needle valve incorporated to maximize precision control of flows
- Two types of valve arrangement available: at the top or bottom of the meter at the user's choice
- Wide variations

Applications

- For integration into your equipment panel
- For gas devices to be used on the semiconductor manufacturing site
- For biotechnology industries
- For vacuum line control

Layout Example with Model RK1200





Dimensions

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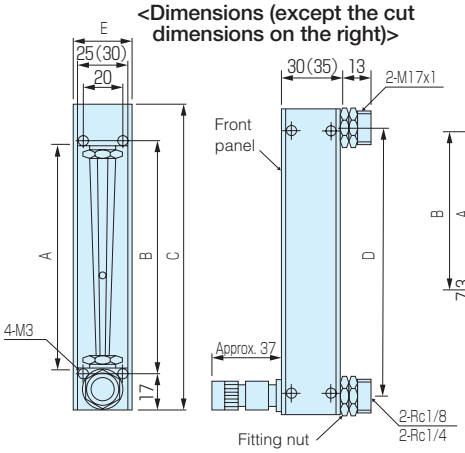

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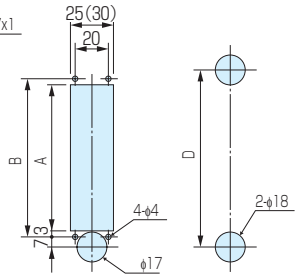
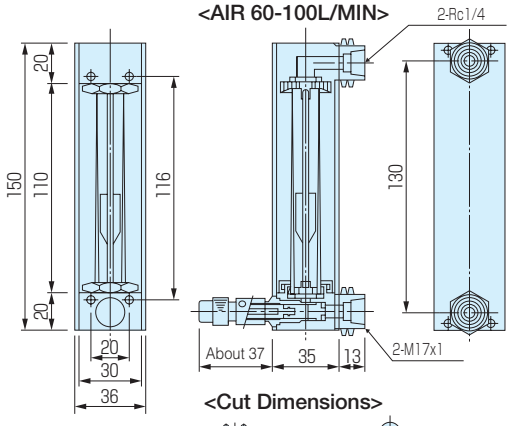


* This dimensional drawing shows the bottom needle valve type. For the top needle valve type, invert dimensions.
* Dimensions indicated in ( ) apply to measurement of flows of 50 L/MIN.

Dimensions of parts per length designation code

Part \ Code	12	15	20	25	H20 2L
A	80	110	160	210	160
B	86	116	166	216	166
C	120	150	200	250	200
D	100	130	180	230	180
E	29 (36)	29 (36)	31 (36)	31 (36)	36

<AIR 60-100L/MIN>



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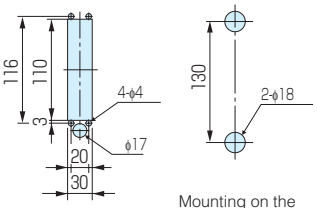


Flush type mounting (Clamped together with the panel front cover)

Mounting on the panel surface (Mount using accessory nuts)

Standard Specifications

	Gases	Liquids
Fluids	Air, N_2, O_2, H_2, He, Ar, and CO_2 (Calibration by actual gas) For other gases, consultation is necessary regarding whether conversion conditions or calibration by actual gas is to be used. * Optional: Scale indicating two types of fluids	Standard fluid: Water For other liquids, consultation is necessary regarding whether conversion conditions or calibration by actual liquid is to be used.
Flow range	0.5-5 ML/MIN to 10-100 L/MIN (See the Capacity Table below.) * Optional: 0.5-3 ML/MIN	0.5-5 ML/MIN to 0.2-2 L/MIN (See the Capacity Table below.) * Optional: 0.5-3 ML/MIN
Accuracy	FS±2% (Measurement point) * Optional: FS±1% (Measurement point)	FS±2% (Measurement point)
Proof pressure	1.0 MPa for 100 ML/MIN or less 0.7 MPa for 5 L/MIN or less 0.5 MPa for 10 L/MIN or more	1.0 MPa for 5 ML/MIN or less 0.7 MPa for 150 ML/MIN or less 0.5 MPa for 200 ML/MIN or more
Available scale	10:1 * Optional: 20:1	

Materials	SS	BS
Body block	SUS316	Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS316, SUS304	
Protective cover	Acrylic resin	
Temperature resistance	120°C	70°C
Connection end	Rc1/4 (Standard); Rc1/8 (Optional)	

Capacity Table

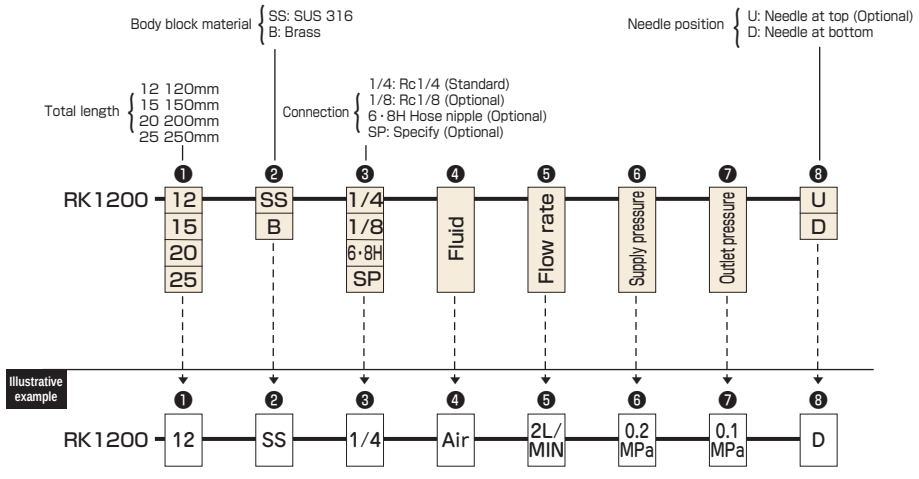
Air (Flow rate at atmospheric pressure)

Total length \ Max. flow rate	5 ML/MIN	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN	2 L/MIN	3 L/MIN	5 L/MIN	10 L/MIN	15 L/MIN	20 L/MIN	30 L/MIN	50 L/MIN	100 L/MIN
120mm	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—
150mm	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
200mm	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—
250mm	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—

H_2O

Total length \ Max. flow rate	5 ML/MIN	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN	2 L/MIN
120mm	○	○	○	○	○	○	○	○	○	○	○	—
150mm	○	○	○	○	○	○	○	○	○	○	○	○
200mm	○	○	○	○	○	○	○	○	○	○	○	○
250mm	○	○	○	○	○	○	○	○	○	○	○	—

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Purge Flowmeter with Needle Valve (for Scientific Instrumentation System)

MODEL RK1650 SERIES

This is a completely renewed model of existing KOFLOC RK1600R with sophisticated design to fit sophisticated laboratory or plant equipment.

Features

- **Compact**
  A compact flowmeter with variations of total length of 84 mm, 104 mm, 124 mm and 154 mm for choice according to the user's needs
- **Low pressure loss**
  Pressure loss minimized to allow applications for low supply pressure
- **Choice of needle valve to suit the user's needs**
  Four types of needle valve available for your choice according to the requirement of supply pressure
- **Superior stability**
  All tubes are precision-formed to provide the float with outstanding repeatability and stability.
- **Economical**
  A flowmeter at quite affordable price achieved through our all-out effort at streamlined design

Applications

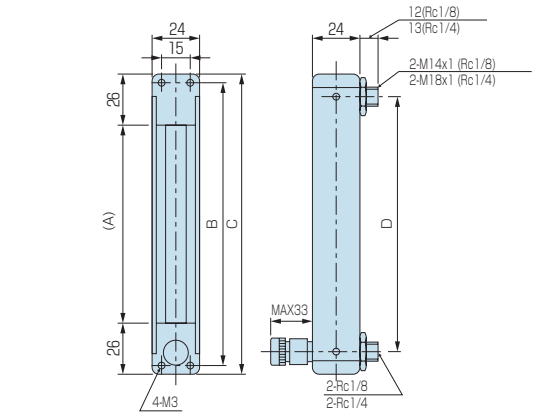
- For environmental instrumentation systems
- For general instruments for analysis
- For purge systems
- For semiconductor manufacturing equipment

Standard Specifications

Fluids	Air, N_2, O_2, H_2, He, Ar, and CO_2 (Calibration by actual gas) For other gases, consultation is necessary regarding whether conversion conditions or calibration by actual gas is to be used.
Flow range (Full scale)	1L, 2L, 3L, 5L, 10L, 15L, 20L/MIN
Accuracy	FS±5% (Measurement point)
Proof pressure	0.8 MPa for 5 L/MIN or less 0.5 MPa for 10 L/MIN or more
Available scale	10:1

Materials	S	BS
Body block and some other components	SUS304, SUS303	Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS316	
Protective cover	Acrylic resin	
(Temperature resistance)	120°C	70°C
Connection	Rc1/8 (Standard); Rc1/4 (Optional)	

Dimensions



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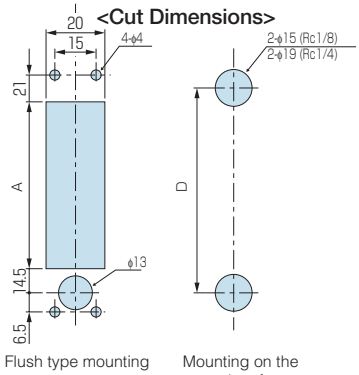


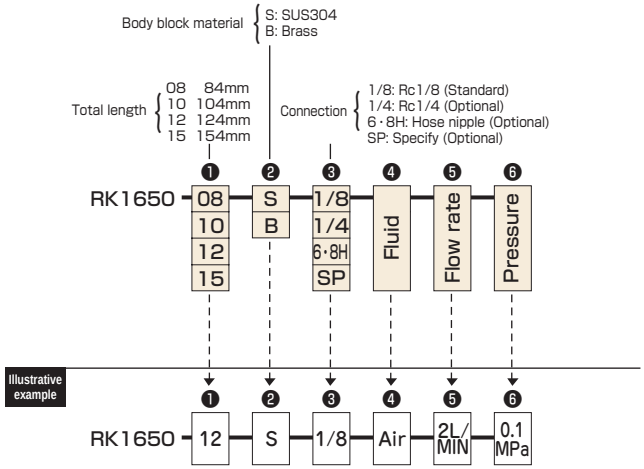
Flush type mounting

Mounting on the panel surface

Dimensions of parts per length designation code

Part \ Code	08	10	12	15
A	32	52	72	102
B	74	94	114	144
C	84	104	124	154
D	61	81	101	131

Ordering



* Refer to "Ordering" and "Illustrative Example" when placing an order or requesting a quotation. Fill in the blanks in the "Order/Quotation Request Card" at the end of the catalog, and send the card by fax.

Purge Flowmeter with Needle Valve (for Scientific Instrumentation System)

MODEL RK1600R SERIES

The MODEL RK1600R Series Flowmeter is a compact, lightweight model with needle valve designed through our all-out effort at streamlining with the aim of achieving an economical but superior quality flowmeter in accuracy and repeatability, and still more, handy at operation site.

Features

- Compact design
- Economical
- Very small in size
- Wide variations

Applications

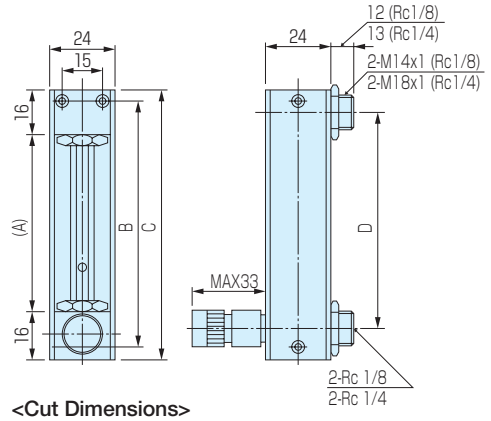
- For environmental instrumentation systems
- For general instruments for analysis
- For purge systems
- For semiconductor manufacturing equipment

Standard Specifications

Fluids	Air, N_2, O_2, H_2, He, Ar, and CO_2 (Calibration by actual gas) For other gases, consultation is necessary regarding whether conversion conditions or calibration by actual gas is to be used.
Flow range (Full scale)	1L, 2L, 3L, 5L, 10L, 15L, 20L/MIN
Accuracy	FS±5% (Measurement point)
Proof pressure	0.8 MPa for 5 L/MIN or less 0.5 MPa for 10 L/MIN or more
Available scale	10:1

Materials	S	BS
Body block and some other components	SUS303, SUS304	Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS316	
Protective cover	Acrylic resin	
(Temperature resistance)	120°C	70°C
Connection	Rc1/8 (Standard); Rc1/4 (Optional)	

Dimensions



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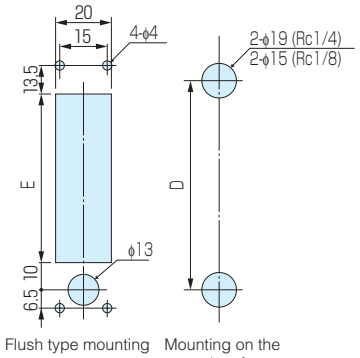
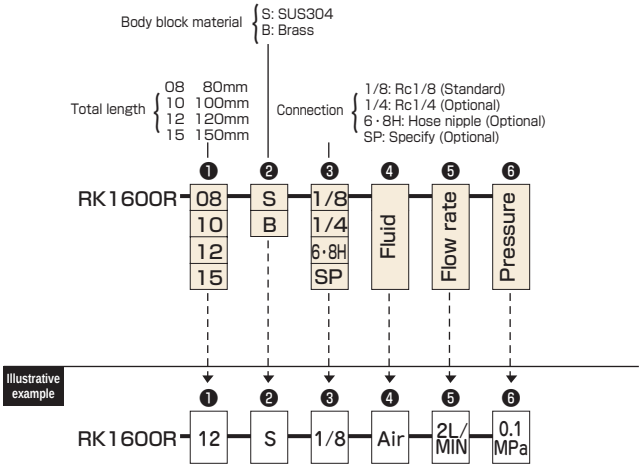


Dimensions of parts per length designation code

Part \ Code	08	10	12	15
A	48	68	88	118
B	74	94	114	144
C	80	100	120	150
D	61	81	101	131
E	44	64	84	114

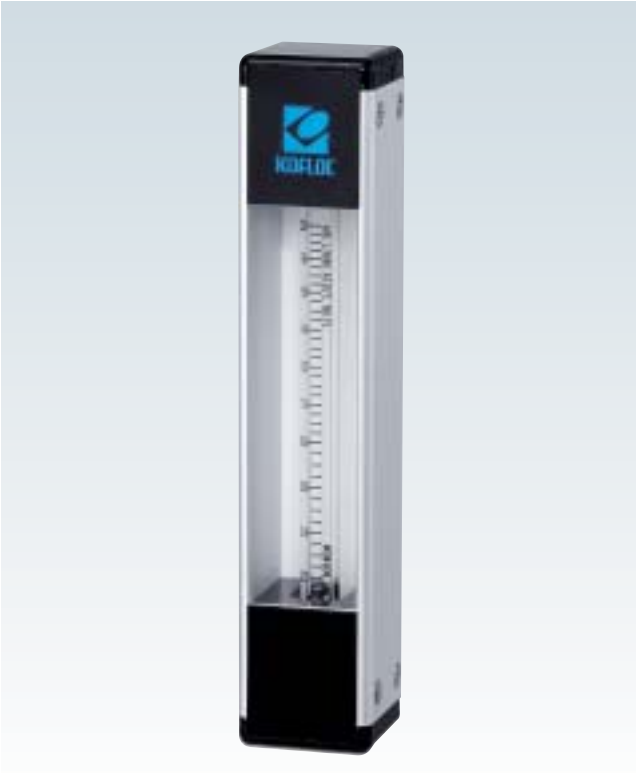
Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

High-Precision Flowmeter (for Sensitive Measurements)
MODEL RK1450 SERIES

This top-grade high-precision area flowmeter is a fruit of KOFLOC's challenge to boost the general perception currently conceived by people of flowmeter of being a "mere yardstick" into a new conception that a flowmeter is a "precision instrument." This flowmeter particularly features its uniquely precision-formed glass tube and ultra-precision ball float.



B

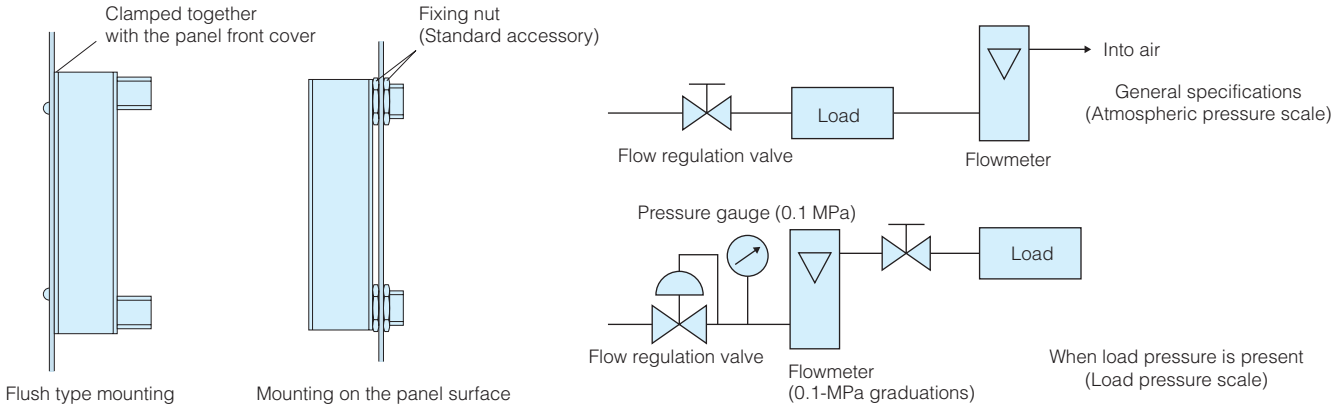
Features

- **Capable of measuring ultra-minute flows**
  Can measure a wide range of flows from ultra-minute flows of 0.5-3 ML/MIN to flows of 3-30 L/MIN.
- **High precision measurement**
  High precision measurement of flows is available up to ±2% of full scale (standard specification) or to ±1% of full scale (optional specification).
- **Wide variations**
  A broad range of variations is available in total length, materials of construction, flow rate, pressure, scale, and so forth to meet diverse applications from a variety of fields.
- **Capable of measuring all kinds of gases**
  Practically all kinds of gases can be measured, not to mention those standard (Air, N_2, O_2, H_2, He, Ar and CO_2).
- **Measurement of water flows also possible**
  Measurement of full-scale water flows not exceeding 1 L/MIN is also possible. (Dimensions may vary depending upon the specified maximum flow rate.)

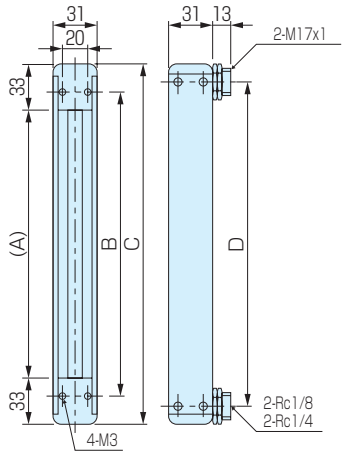
Applications

- **For integration into your equipment panel**
- **For flow inspections at laboratory**
- **For semiconductor manufacturing equipment**
- **For biotechnology industries**

Layout Example with Model RK1450

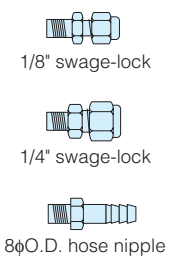


Dimensions



Dimensions of parts per length designation code

Part \ Code	12	15	20	25
A	60	90	140	190
B	86	116	166	216
C	126	156	206	256
D	100	130	180	230



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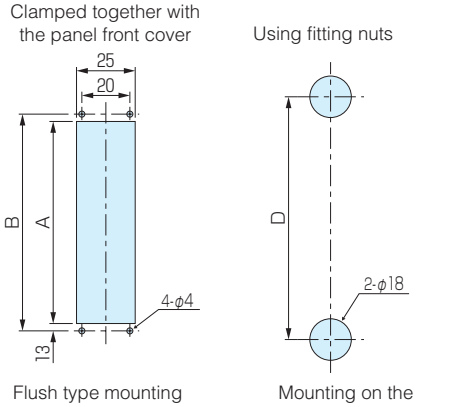


Standard Specifications

	Gases	Liquids
Fluids	Air, N_2, O_2, H_2, He, Ar, and CO_2 (Calibration by actual gas) For other gases, consultation is necessary regarding whether conversion conditions or calibration by actual gas is to be used. * Optional: Scale indicating two types of fluids	Standard fluid: Water For other liquids, consultation is necessary regarding whether conversion conditions or calibration by actual liquid is to be used.
Flow range	0.5-5 ML/MIN to 3-30 L/MIN (See the Capacity Table below.) * Optional: 0.5-3 ML/MIN	0.5-5 ML/MIN to 0.1-1 L/MIN (See the Capacity Table below.) * Optional: 0.5-3 ML/MIN
Accuracy	FS±2% (Measurement point) * Optional: FS±1% (Measurement point)	FS±2% (Measurement point)
Proof pressure	1.0 MPa for 100 ML/MIN or less 0.7 MPa for 5 L/MIN or less 0.5 MPa for 10 L/MIN or more	1.0 MPa for 5 ML/MIN or less 0.7 MPa for 150 ML/MIN or less 0.5 MPa for 200 ML/MIN or more
Available scale	10:1 * Optional: 20:1	

Materials	SS	BS
Body block	SUS316	Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS316	
Protective cover	Acrylic resin	
Temperature resistance	120°C	70°C
Connection end	Rc1/4 (Standard); Rc1/8 (Optional)	

Capacity Table

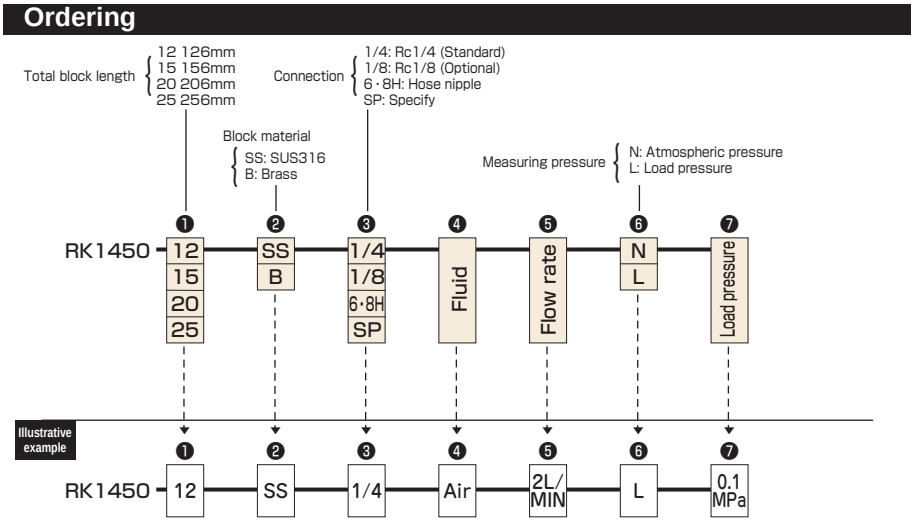
Air (Flow rate at atmospheric pressure)

Total length \ Max. flow rate	5 ML/MIN	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN	2 L/MIN	3 L/MIN	5 L/MIN	10 L/MIN	15 L/MIN	20 L/MIN	30 L/MIN
126mm	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
156mm	–	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
206mm	–	–	–	–	○	○	○	○	○	○	○	○	○	○	○	○	○	○
256mm	–	–	–	–	–	○	○	○	○	○	○	○	○	○	○	○	○	○

H_2O

Total length \ Max. flow rate	5 ML/MIN	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN
126mm	○	○	○	○	○	○	○	○	○	○	○
156mm	○	○	○	○	○	○	○	○	○	○	○
206mm	○	○	○	○	○	○	○	○	○	○	○
256mm	○	○	○	○	○	○	○	○	○	○	○

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

High-Precision Flowmeter (for Sensitive Measurements)
MODEL RK1400 SERIES

B

This top-grade high precision, float type area flowmeter is a fruit of KOFLOC's challenge to boost the general perception currently conceived by people of flowmeter of being a "mere yardstick" into a new conception that a flowmeter is a "precision instrument." This flowmeter particularly features its uniquely precision-formed glass tube and ultra-precision ball float that ensures accurate measurements of minute flows to medium flows.

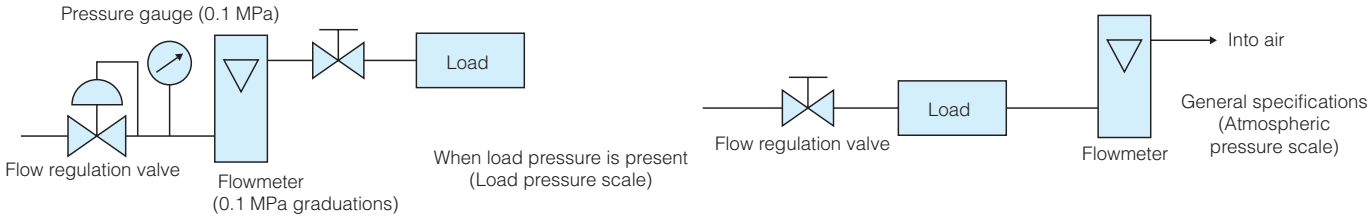
Features

- Capable of measuring ultra-minute flows
- High precision measurement of flows
- Wide variations

Applications

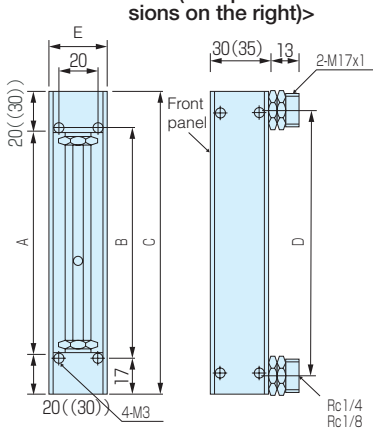
- For integration into your equipment panel
- For flow inspections at laboratory
- For semiconductor manufacturing equipment
- For biotechnology industries

Layout Example with Model RK1400



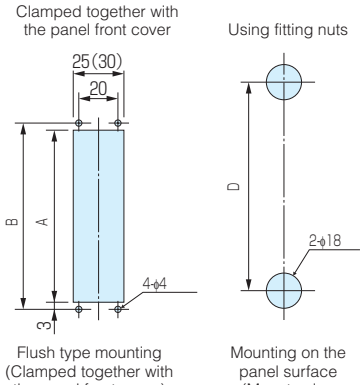
Dimensions

<Dimensions (except the cut dimensions on the right)>



* Dimensions indicated in ( ) apply to measurement of flows of 50 L/MIN.
* Dimensions indicated in (( )) apply to measurement of H_2O flows of 3 L/MIN.

<Cut Dimensions>



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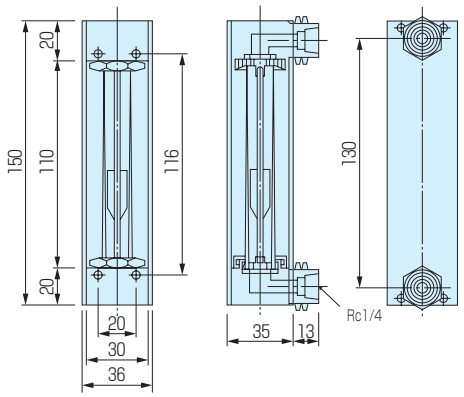

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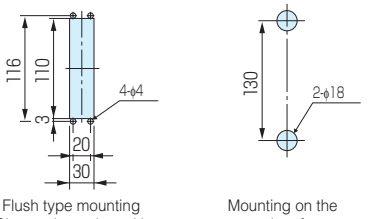


Dimensions of parts per length designation code

Part \ Code	12	15	20	25	H20 2L	H20 3L
A	80	110	160	210	160	140
B	86	116	166	216	166	152
C	120	150	200	250	200	200
D	100	130	180	230	180	180
E	29	29	31	31	36	36

Connection opening

1/8" swage-lock | 1/4" swage-lock | 8ϕO.D. hose nipple

Standard Specifications

	Gases	Liquids
Fluids	Air, N_2, O_2, H_2, He, Ar, and CO_2 (Calibration by actual gas) For other gases, consultation is necessary regarding whether conversion conditions or calibration by actual gas is to be used. * Optional: Scale indicating two types of fluids	Standard fluid: Water For other liquids, consultation is necessary regarding whether conversion conditions or calibration by actual liquid is to be used.
Flow range	0.5-5 ML/MIN to 10-100 L/MIN (See the Capacity Table below.) Optional: 0.5-3 ML/MIN	0.5-5 ML/MIN to 0.3-3 L/MIN (See the Capacity Table below.) * Optional: 0.5-3 ML/MIN
Accuracy	FS±2% (Measurement point) * Optional: FS±1% (Measurement point)	FS±2% (Measurement point)
Proof pressure	1.0 MPa for 100 ML/MIN or less 0.7 MPa for 5 L/MIN or less 0.5 MPa for 10 L/MIN or more	1.0 MPa for 5 ML/MIN or less 0.7 MPa for 150 ML/MIN or less 0.5 MPa for 200 ML/MIN or more
Available scale	10:1 * Optional: 20:1	

Materials	SS	BS*
Body block	SUS316, SUS304	Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS 316, SUS 304 or SUS 303 (for measurement of H_2O in the flow range of 2-3 L/MIN only)	
Protective cover	Acrylic resin	
Temperature resistance	120°C	70°C
Connection end	Rc1/4 (Standard); Rc1/8 (Optional)	

Capacity Table

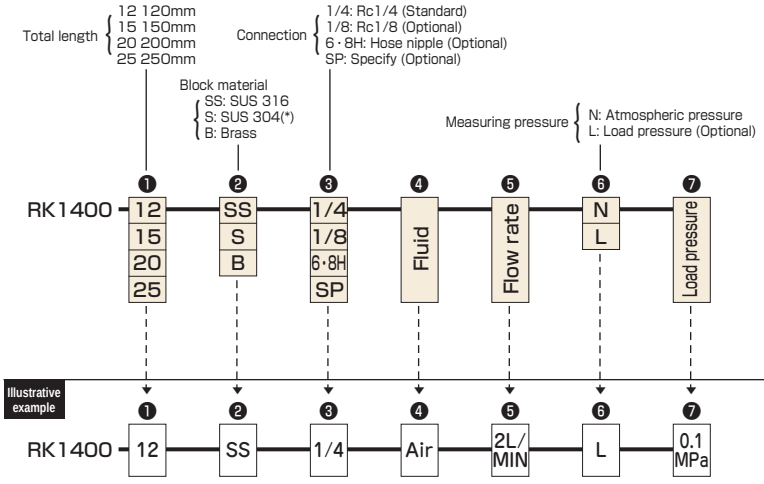
Air (Flow rate at atmospheric pressure)

Total length \ Max. flow rate	5 ML/MIN	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN	2 L/MIN	3 L/MIN	5 L/MIN	10 L/MIN	15 L/MIN	20 L/MIN	30 L/MIN	50 L/MIN	100 L/MIN
120mm	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	–
150mm	–	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
200mm	–	–	–	–	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	–
250mm	–	–	–	–	–	○	○	○	○	○	○	○	○	○	○	○	○	○	○	–

H_2O

Total length \ Max. flow rate	5 ML/MIN	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN	2 L/MIN	3 L/MIN
120mm	○	○	○	○	○	○	○	○	○	○	○	–	–
150mm	○	○	○	○	○	○	○	○	○	○	○	○	–
200mm	○	○	○	○	○	○	○	○	○	○	○	○	○
250mm	○	○	○	○	○	○	○	○	○	○	○	–	–

Ordering



Note: SUS 304 is for 2-3 L/MIN of water only.

* Refer to "Ordering" and "Illustrative Example" when placing an order or requesting a quotation. Fill in the blanks in the "Order/Quotation Request Card" at the end of the catalog, and send the card by fax.

Purge Flowmeter (for Scientific Instrumentation System)
MODEL RK1050 SERIES

This is a completely renewed model of the existing compact, economical KOFLOC RK1000. With its surprisingly slender appearance, this new compact model provides high stability performance that bears comparison with any high precision models. It can be ideally integrated in the customer's scientific instrumentation system. Reduced period of delivery is ensured.

Features

- **Superior stability**
  Superior stability is ensured through thorough antistatic measures and using the same try-flat, rib-guid glass tube as that used for high precision models.
- **Economical**
  Economy and reduced period of shipping achieved through our all-out effort at process streamlining such as introduction of mass production system using advanced printing technology
- **Super-compact**
  Space-saving as its total length ranges from 84 mm to 154 mm.
- **Wide variations**
  A broad range of variations is available in maximum flow rate, total length and materials of construction to meet diverse applications from a variety of fields.

Applications

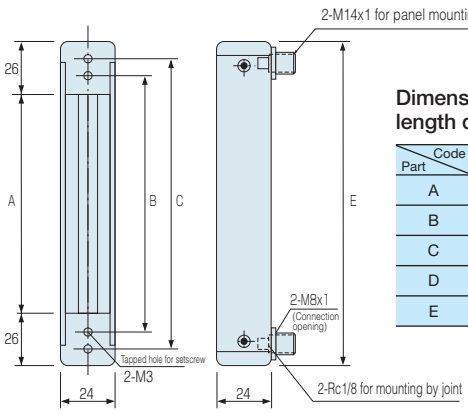
- For integration into equipment panel
- For gas purge systems
- For measurement of welding gas flows
- For various types of analyzers
- For semiconductor manufacturing equipment

Standard Specifications

Fluids	Air, N_2, O_2, H_2, He, Ar, and CO_2 (Calibration by actual gas) For other gases, consultation is necessary regarding whether conversion conditions or calibration by actual gas is to be used.
Flow range (Full scale)	100ML, 150ML, 200ML, 300ML, 500ML/MIN 1L, 2L, 3L, 5L, 10L, 15L, 20L/MIN
Accuracy	FS±5% (Measurement point)
Proof pressure	0.8 MPa for 5 L/MIN or less 0.5 MPa for 10 L/MIN or more
Available scale	10:1

Materials	S	BS
Body block and some other components	SUS303, SUS304	Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS 316	
Protective cover	Acrylic resin	
(Temperature resistance)	120°C	70°C
Connection	Rc1/8 (Standard); Rc1/4 (Optional special joint)	

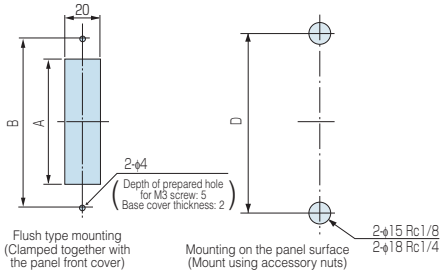
Dimensions



Dimensions of parts per length designation code

Part \ Code	08	10	12	15
A	32	52	72	102
B	60	80	100	130
C	70	90	110	140
D	65	85	105	135
E	84	104	124	154

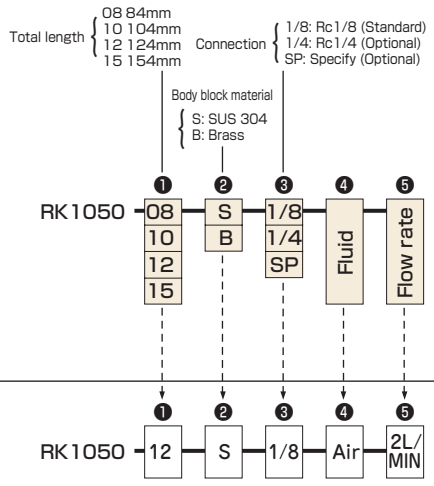
<Cut Dimensions>



Flush type mounting (Clamped together with the panel front cover)

Mounting on the panel surface (Mount using accessory nuts)

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Purge Flowmeter (for Scientific Instrumentation System)

MODEL RK1000 SERIES

This is a glass tube float type flowmeter materialized through our all-out effort at streamlining the production line to offer users a low-cost model that can be shipped in a reduced period of delivery. While it is outstandingly compact (total length of the smallest type: 80 mm), it provides high performance in stability that bears comparison with any high precision models and is optimum to form a part of the customer's scientific instrumentation system.

Features

- Superior stability
- Economical
- Super-compact
- Wide variations

Applications

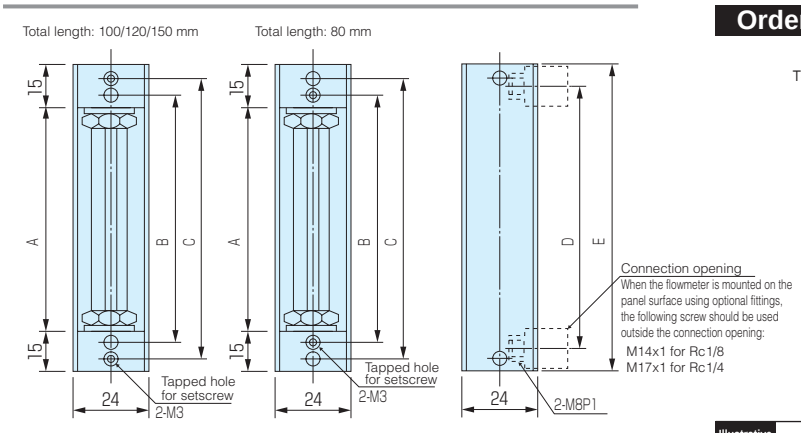
- For integration into equipment panel
- For gas purge systems
- For measurement of welding gas flows
- For various types of analyzers
- For semiconductor manufacturing equipment

Standard Specifications

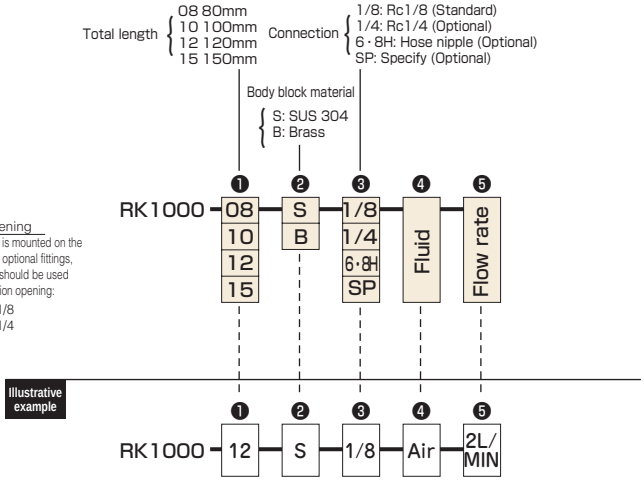
Fluids	Air, N_2, O_2, H_2, He, Ar, and CO_2 (Calibration by actual gas) For other gases, consultation is necessary regarding conversion conditions or calibration by actual gas is to be used.
Flow range (Full scale)	100ML, 150ML, 200ML, 300ML, 500ML/MIN 1L, 2L, 3L, 5L, 10L, 15L, 20L/MIN
Accuracy	FS±5% (Measurement point)
Proof pressure	0.8 MPa for 5 L/MIN or less 0.5 MPa for 10 L/MIN or more
Available scale	10:1

Materials	S	BS
Body block and some other components	SUS303, SUS304	Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS 316	
Protective cover	Acrylic resin	
Temperature resistance	120°C	70°C
Connection	Rc1/8 (Standard); Rc1/4 (Optional)	

Dimensions

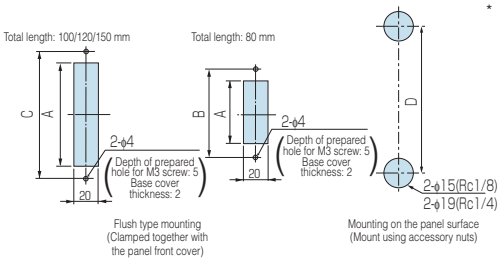


Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

<Cut Dimensions>



Dimensions of parts per length designation code

Part \ Code	08	10	12	15
A	50	70	90	120
B	60	80	100	130
C	70	90	110	140
D	65	85	105	135
E	80	100	120	150

Low-cost Flowmeter (for Immediate Delivery)
MODEL RK1700 SERIES

The Model RK1700 Series Flowmeter centers the focus on cost reduction using SUS 316 as the material of construction. This flowmeter covers flow ranges from 1 L/MIN to 50 L/MIN and can be shipped in one week after the customer's purchase order.

RK1700V

B

Features

- Very reduced price
- One-week delivery
- Compact design

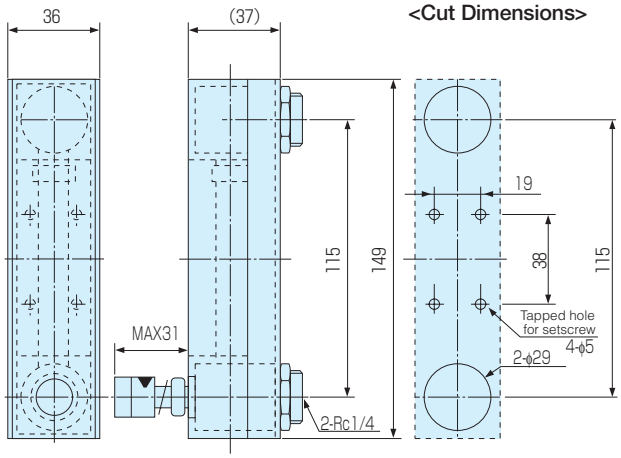
Notes:

- Operating temperature is 20°C (at atmospheric pressure).
- The needle is located at the bottom. (Standard specification)
- Supply pressure, standard: 0.1 MPa to 0.3 MPa

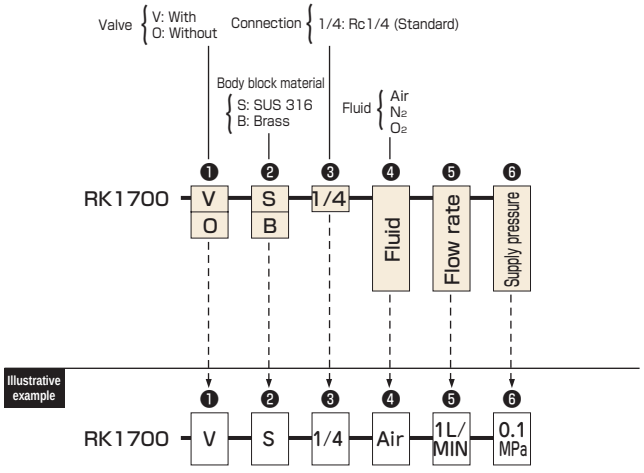
Standard Specifications

Flow range (Full scale)	1L, 5L, 10L, 30L, 50L/MIN (AT20°C)
Fluids	Use for Air, N_2 and O_2 exclusively
Accuracy	FS±7%
Available scale	10:1
Proof pressure	0.5MPa
Materials	SS: SUS 316, Pyrex, Viton, SUS 304, SUS 303 BS: Brass, Pyrex, NBR, SUS303
Connection	Rc1/4

Dimensions



Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Large Capacity Flow Meter
MODEL RK1950AP SERIES

Amber tapered tube with secure structure

B

Features

- Float receiver functions also as a joint, for secure piping.
- The block tapered tube has an O-ring seal.
- The integral housing protects the tapered tube.
- The tapered tube made of engineering plastic is impact-resistant.

Standard Specifications

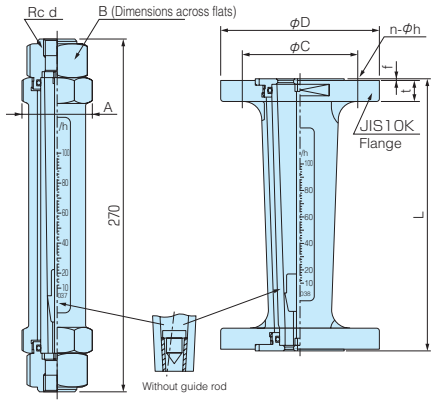
Accuracy	±2%F.S	
Max. operating temperature	120°C	
Max. operating pressure	1 MPa for 40 A or less	0.8 MPa for 50 A or more
Direction of flow	Bottom → Top	
Coating	Finish color: Gray (Close to Munsell N-6.5) Epoxy powder baking	
Connection standard	JIS10K-RF 10A-100A RC female thread 3/8–1 inch	Flange only ANSI150#RF,DIN

Part name	Material
Float receiver	SUS304
O-ring	NBR
Tapered tube	Polysulfone resin (Transparent amber)
Housing	Ductile cast iron: FCD400
Rod	SUS304
Float	SUS304

Bore	For water	For air
10A	1.5-10L/min	120-350L/min
15A	1.5-15L/min	120-500L/min
20A	1.5-30L/min	0.2-1m³/min
25A	9-100L/min	0.3-3m³/min
32A	60-150L/min	2-5m³/min
40A	90-200L/min	3-6m³/min
50A	80-300LL/min	2.5-9m³/min
65A	250-500L/min	8-15m³/min
80A	250-500L/min	8-15m³/min
100A	400-900L/min	15-25m³/min

* Gas (Applicable to N_2, O_2, H_2, Ar, etc.)
* Maximum scale range
* Threaded type for 10–25 A
Flange type for 10–100 A

Dimensions



Dimensions of each part
mm

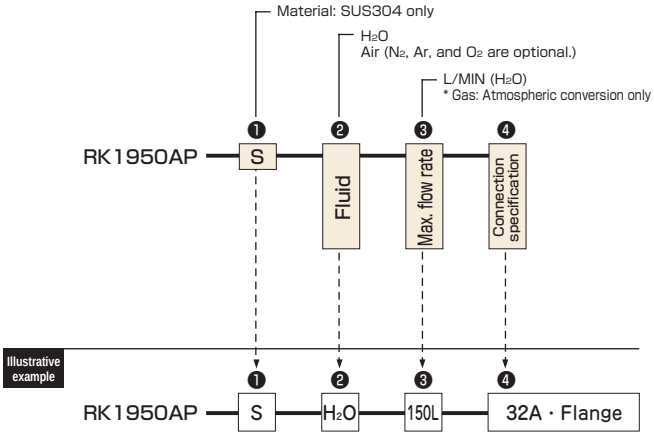
Bore	d	A	B
10A	3/8	52	41
15A	1/2	52	41
20A	3/4	62	46
25A	1	73	41 *

* Width across flats

Dimensions of each part
JIS10kg/cm²RF
mm

Bore	L	ϕD	ϕC	f	t	n−ϕh
10A		90	65	1	14	4−15
15A		95	70	1	16	4−15
20A		100	75	1	18	4−15
25A		125	90	1	18	4−19
32A	220	135	100	2	20	4−19
40A		140	105	2	20	4−19
50A		155	120	2	20	4−19
65A		175	140	2	22	4−19
80A		185	150	2	22	8−19
100A	250	210	175	2	24	8−19

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Low-cost Flow Meter (for Immediate Delivery)
MODEL RK1150 SERIES

These revolutionary low-price flow meters are mass-produced for quick delivery. The body material is made of high corrosion-resistant engineering plastic molded into elegant shapes.

Features

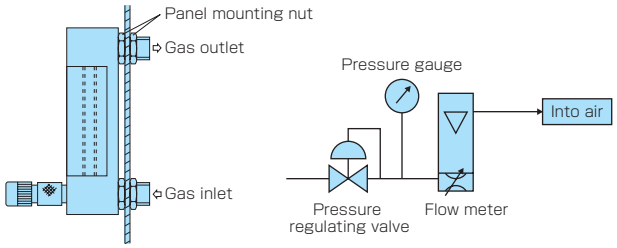
- **Low price**
  Rationalized mass production with a resin mold for low cost and quick delivery.
- **Easy disassembly/reassembly**
  Users can easily disassemble the flow meter for cleaning.
- **Elegant design**
  Shapely panel surface without screws and compact design
- **Flow meters equipped with a flow control valve are also available.**
  Flow meters with a simple needle valve or a precision needle valve reduce installation space.
- **OEM supply is possible.**
  The body color, label, and valve shape can be specified for supply on an OEM basis.

Standard Specifications

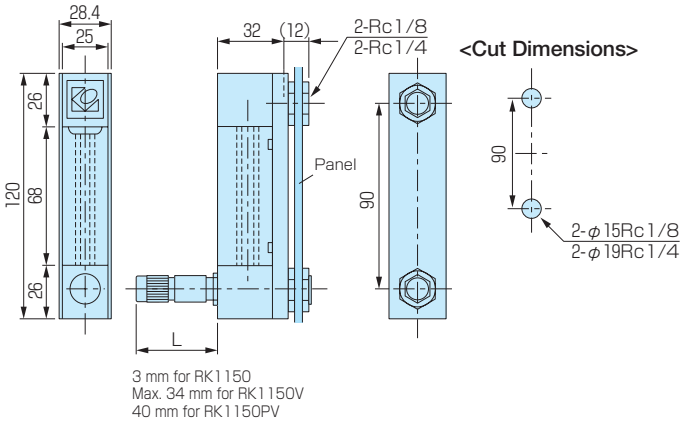
Fluids	Exclusively for air and N_2	
Flow range (FS)	RK1150	100ML,200ML,500ML/MIN
	RK1150PV	5L,10L,25L,30L/MIN
	RK1150V	5L,10L,25L,30L/MIN
Accuracy	FS ±10% (Measurement point)	
Proof pressure	0.5MPa	
Available scale	10:1	

Material	S	BS
Body block	Plastic	
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS316	
Protective cover	Acrylic resin	
Joint	SUS304	Brass
Temperature resistance	40°C	
Connection	Rc 1/4 (Standard); Rc 1/8 (Optional)	

Example of use

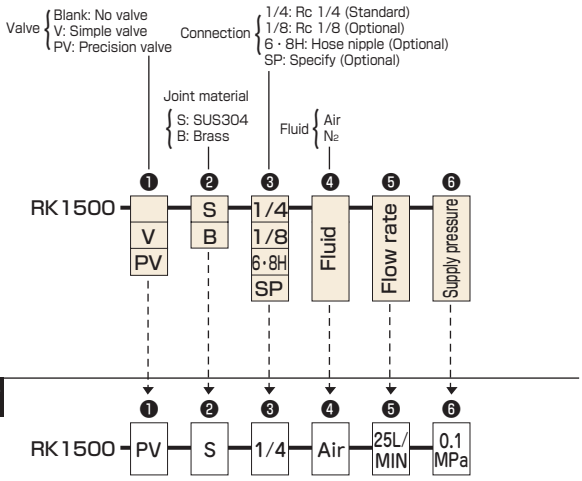


Dimensions



3 mm for RK1150
Max. 34 mm for RK1150V
40 mm for RK1150PV

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Acrylic Resin Flow Meter
MODEL RK200 SERIES

This is a compact lightweight acrylic flow meter. Models with or without a valve are available. The integrated transparent acrylic panel structure permits easy reading of the flow. This model is ideal for air sampling equipment, medical equipment, and analyzers.

RK200V

B

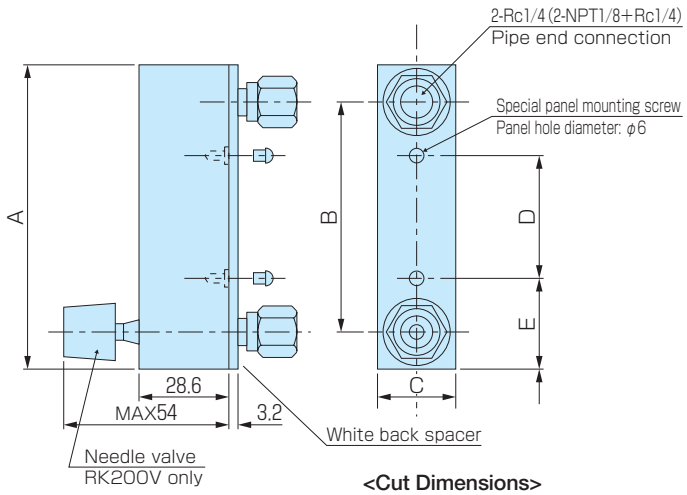
Features

- **Compact design**
  The total length is approx. 100 mm, and air can be measured and controlled at the rate of 100 L/MIN.
- **Low price**
  The simple structure keeps the price low.
- **Quick delivery**

Standard Specifications

Fluids	Air	
Flow range	0.04-0.5L/MIN	2.5-25L/MIN
	0.1-1L/MIN	5-50L/MIN
	0.4-5L/MIN	10-100L/MIN
	1-10L/MIN	
Accuracy	FS±6%	
Connection	Rc 1/4	
Material	Body	Acrylic resin
	Joint	Brass
	Sealing material	Buna N.
Proof pressure	0.7MPa	
Temperature resistance	65°C (MAX)	

Dimensions



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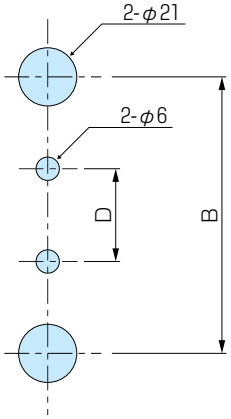
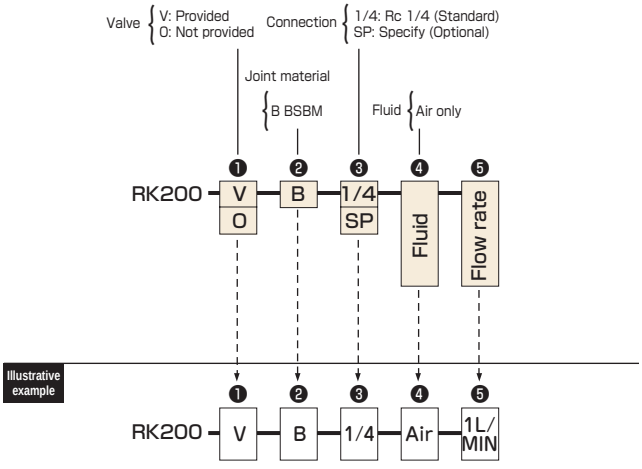


Dimensions of each part

A	101.6
B	76.2
C	25.4
D	41.3
E	30.2

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Acrylic Resin Flow Meter
MODEL RK400 SERIES

This acrylic resin flow meter covers a wide flow range. Two types, with and without a valve, are available. The flow meter integral with a transparent acrylic panel permits easy reading, making it ideal for water treatment systems, purge systems, and medical equipment.

RK400

B

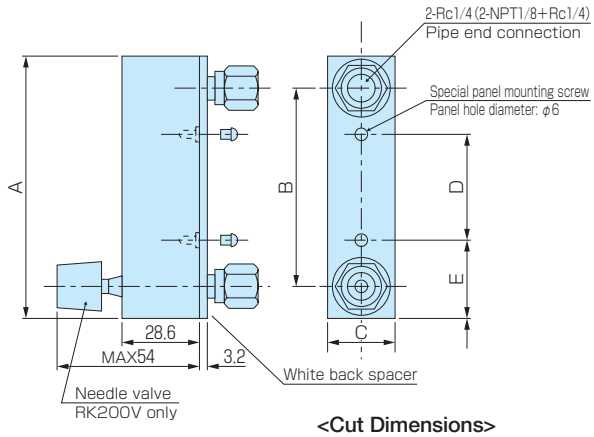
Features

- **A variety of flow ranges**
  Selection of desired flow range from a variety of flow ranges
- **For measurement of water**
  Long flow scales, easy reading of flow, and easy maintenance
- **Low price**
  Simple structure and low price
- **Quick delivery**

Standard Specifications

Fluids	WATER	
Flow range	4-50cc/min 10-120cc/min 25-225cc/min 40-400cc/min 50-650cc/min 100-1,500cc/min 200-3,000cc/min 300-3,700cc/min	
Accuracy	FS±6%	
Connection	Rc 1/4	
Material	Body	Acrylic resin
	Joint	Stainless steel
	Sealing material	Viton®
Proof pressure	0.7MPa	
Temperature resistance	65°C (MAX)	

Dimensions



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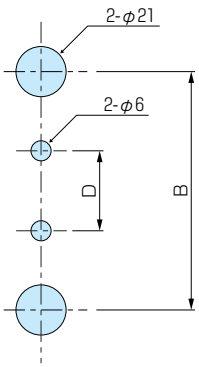
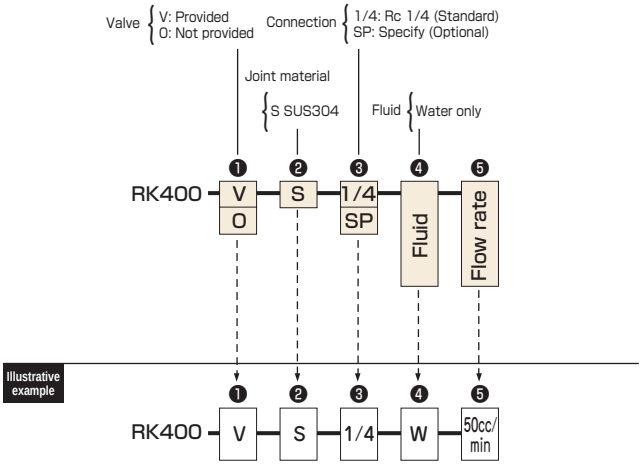


Dimensions of each part

A	165.1
B	139.7
C	34.9
D	88.9
E	38.1

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Acrylic Resin Flow Meter
MODEL RK500 SERIES

This acrylic resin flow meter is designed for measuring large flow. The flow meter integral with a transparent acrylic panel permits easy reading, coming in two types according to the direction of flow – one from bottom to top and the other on the back side. It can be mounted on a panel with a support metal.

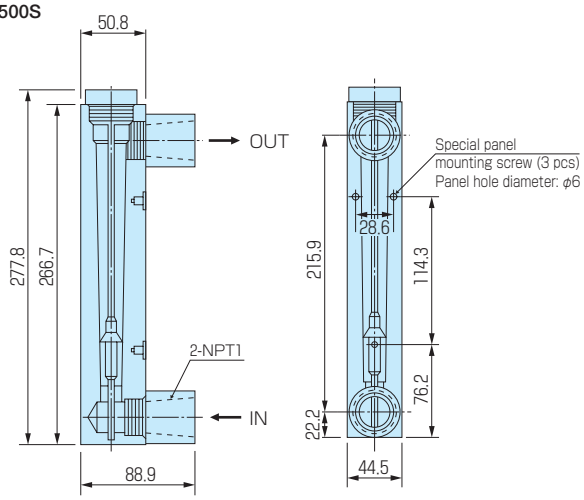
Features

- **Lightweight and easy flow reading**
  The acrylic panel is made integral.
- **Application to water**
  The flow meter can be used for measuring water at up to 75 L/MIN.
- **Low price**
  Simple structure and low price

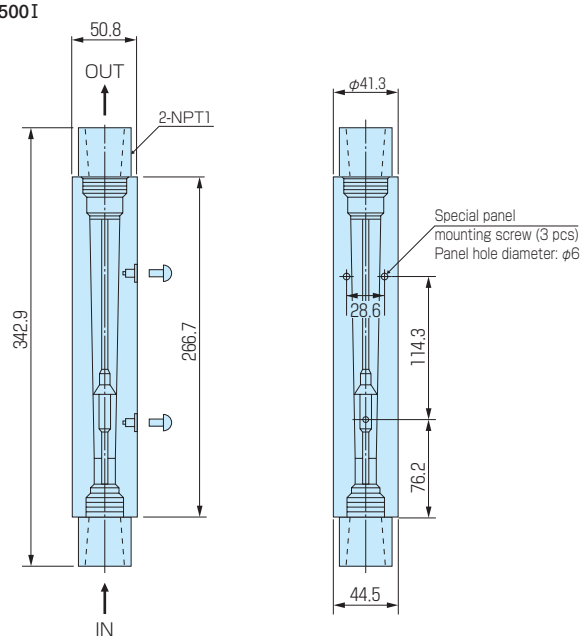
RK500VS

Dimensions

RK500S



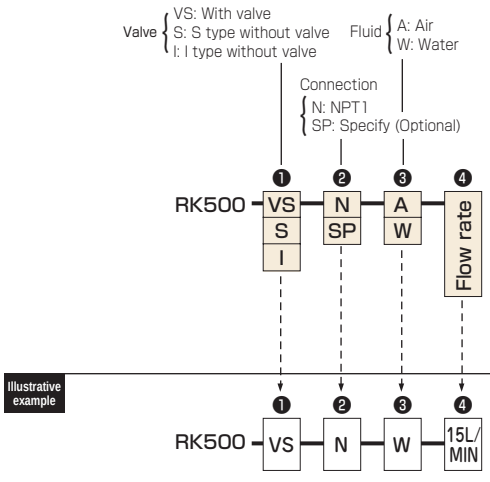
RK500I



Specifications

		AIR L/MIN	WATER L/MIN
Flow range		(RK500I, RK500S) 100-700, 100-1400 (RK500VS) 100-700, 100-1400, 400-3000	1-15 4-36 5-75
Accuracy		Full scale ±3%	
Material	Body•packing	Transparent acrylic resin, Buna N.	
	Float	Stainless steel	
Proof pressure		0.7MPa	
Temperature resistance		65°C (MAX)	
Connection		NPT1	
Remarks		Models with a valve are S (direction of flow) only.	

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Precision Flow Meter for Laboratory (with Stand for Precision Flow Measurement)
MODEL 1350 SERIES

The easy-to-handle RK1350 Series for laboratory use is ideal for high-precision measurement and control of very small flow.


RK1350 VD

Features

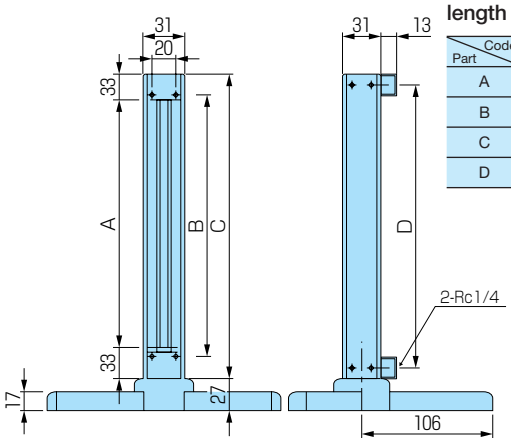
- Calibration with actual standard gases for high-precision flow control.
- Control of very small flow
- Measurement of wide-ranging flow from 0.5–5 ML/MIN to 3–30 L/MIN
- The flow meters come in four types with total length of 126, 156, 206, or 256 mm.

Standard Specifications

	Gas	Liquid
Fluids	Air,N_2,O_2,H_2,He,Ar,CO_2 (Calibration with actual gas) For other gases, please consult us regarding conversion conditions or calibration with the actual gas to be used. * Option: Scales for two types of fluids	Standard fluid (Water) For other liquids, please consult us regarding conversion conditions or calibration with actual liquid to be used.
Flow range	0.5-5ML/MIN to 3-30L/MIN (Refer to the Capacity List on page 57.) * Option: 0.5–3 ML/MIN	0.5-5ML/MIN to 0.1-1L/MIN (Refer to the Capacity Table on page 57.) * Option: 0.5–3 ML/MIN
Accuracy	FS ±2% (Measurement point) * Option: FS ±1% (Measurement point)	FS ±2% (Measurement point)
Proof pressure	100 ML/MIN or less: 1.0 MPa 5 L/MIN or less: 0.7 MPa 10 L/MIN or more: 0.5 MPa	5 ML/MIN or less: 1.0 MPa 150 ML/MIN or less: 0.7 MPa 200 ML/MIN or less: 0.5 MPa
Available scale	10:1 * Option 20:1	

Material	SS	BS
Body block	SUS316	Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex®, SUS316	
Protective cover	Acrylic resin	
Temperature resistance	120°C	70°C
End connection	Rc 1/4 (Standard), Rc 1/8 (Optional)	

Dimensions



Dimensions of parts per length designation code

Part \ Code	12	15	20	25
A	60	90	140	190
B	86	116	166	216
C	126	156	206	256
D	100	130	180	230

Ordering

Valve { Blank: No valve / VU: Upper valve (Optional) / VD: Lower valve }
Block material { SS: SUS316 / B: Brass }
Total length { 12 126mm / 15 156mm / 20 206mm / 25 256mm }
Connection { 1/4: Rc 1/4 (Standard) / 1/8: Rc 1/8 (Optional) / 6・8H: Hose nipple (Optional) / SP: Specify (Optional) }

	❶	❷	❸	❹	❺	❻	❼	❽
RK1350	VU / VD	12 / 15 / 20 / 25	SS / B	1/4 / 1/8 / 6·8H / SP	Fluid	Flow rate	Supply pressure	Outlet pressure
Illustrative example								
RK1350	VD	12	SS	1/4	Air	2L/MIN	0.2 MPa	0.1 MPa

* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Compact Reed Switch Flow Meter for Alarm Switches
MODEL RK1930, RK1935 SERIES

The RK1935 Series has been developed for compact alarm switches. It is a compact flow meter for small equipment panel designs.

Features

- Compact design
- Applicable to gas and liquid
- With alarm contact
- Low price

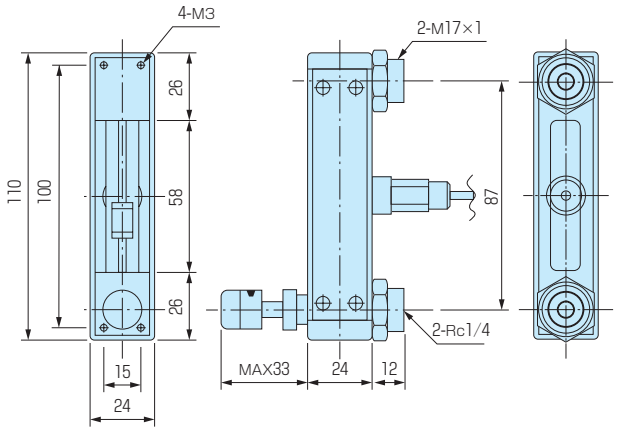
Standard Specifications and Length Designations

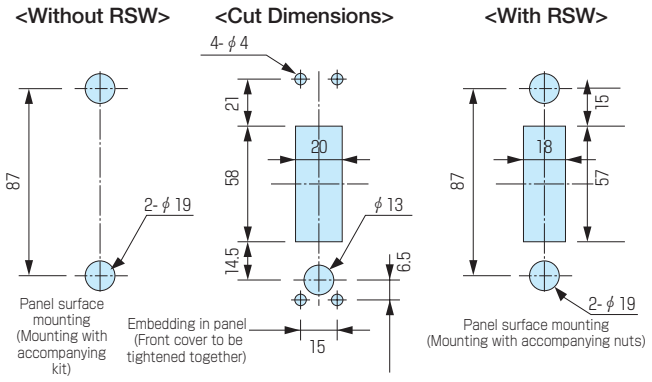
Fluid	H_2O
Accuracy	FS±5%
Proof pressure	0.5MPa
Material	(S) SUS303, 304, Pyrex®, Viton® (B) Brass, Pyrex®, NBR
Available scale	10:1
Connection	Rc 1/4
Environmental temperature	10–35°C (No condensation)

Fluid	Flow scale (L/MIN)	Alarm setting range (L/MIN)	Method of contact
H_2O	0.1-1.0	0.3-0.7	(A) ON when the reading is above the set value (B) ON when the reading is below the set value
	0.2-2.0	0.7-1.4	
Contact capacity	100VAC/100VDC 10VAAC/10WDC		

* Models with valve: Differential pressure of 0.2 MPa is necessary for H_2O 1 L/MIN.
* Models with valve: Differential pressure of 0.3 MPa is necessary for H_2O 2 L/MIN.

Dimensions





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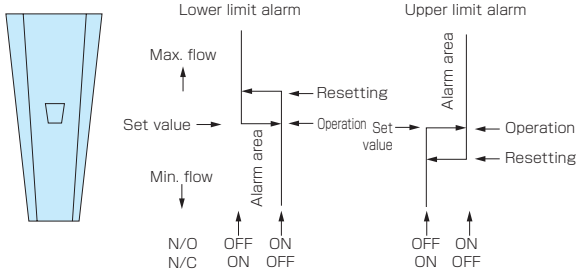


Ordering

Valve { VU: Upper valve / O: No valve / VD: Lower valve }
Connection { 1/4: Rc 1/4 / SP: Specify (Optional) }
Block material { S: SUS304 / B: Brass }
Contact { RK: 1935 only / A / B }

	❶	❷	❸	❺	❻	❼	❽
RK1930 Without reed switch RK1935 With reed switch	VU O VD	S B	1/4 SP	Flow rate	Supply pressure	Outlet pressure	A B
Illustrative example RK1935	VD	S	1/4	2L/MIN	0.2 MPa	0.1 MPa	A

* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Reed Switch Flowmeters (for Alarm Switches)
MODELS RK1970/RK1975/RK1976 SERIES

These compact reed switch flowmeters developed centering the focus on cost reduction are for monitoring gas and liquid flows. Any of these models is optimum for process control of cooling water.

RK1975VD

Features

- Low price
- Compact design
- Compatible with gases and liquids

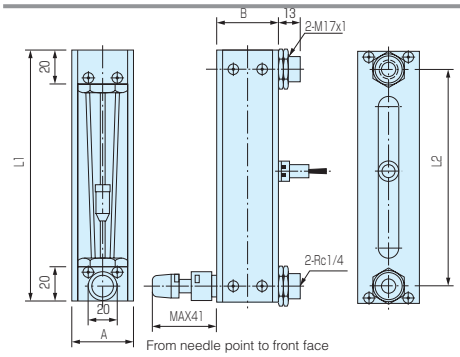
Standard Specifications and Length Designations

Fluids	H_2O and gases
Accuracy	FS±5%
Proof pressure	0.5 MPa standard
Materials	SUS 316, Pyrex®, Viton®
Available scale	10: 1
Connection	Rc 1/4
Ambient temperature	10-35°C (No condensation)

Length designation code	H_2O	Air (2)	Contact method
15	0.1-1L/MIN	3-30L/MIN	(A) Turns on when the flow rises over the set point. (B) Turn on when the flow goes down over the set point.
	0.3-3L/MIN	10-100L/MIN	
	0.5-5L/MIN	15-150L/MIN	
20	0.3-3L/MIN	10-100L/MIN	
	0.5-5L/MIN	15-150L/MIN	
Alarm setting range	20-90% F.S. common for all fluids		
Contact rating	100VAC/100VDC 10VAAC/10WDC		

* Calibration conditions for the flow ranges above are at 20°C (atmospheric pressure) for air, and at 20°C (0.3 MPa) for H_2O.

Dimensions

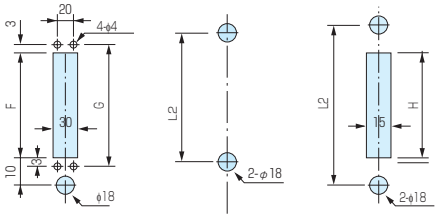


<Cut Dimensions>

Flush type mounting (Clamped together with the panel front cover)

Mounting on the panel surface without sensor (Mount using accessory nuts)

Mounting on the panel surface with sensor (Mount using accessory nuts)

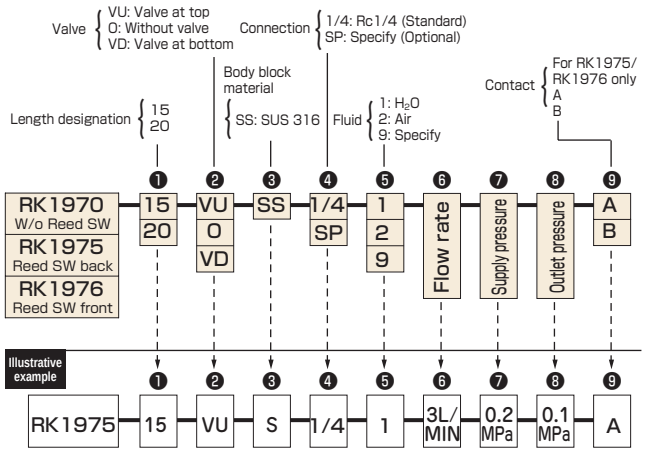


Dimensions of parts per length designation code

Part \ Code	15	20
A	36	36
B	35	35
L1	150	200
L2	130	180
F	110	160
G	116	166
H	100	150

* In case of flowmeter with reed switch

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Large Capacity Flowmeters

MODELS RK2000/RK2005/RK2006 SERIES

These are large capacity float type flowmeters. Flows within the ranges of 200 to 1,000 L/MIN (for gases) and 10 L/MIN to 30 L/MIN (for liquids) full scale can be measured and controlled.

Features

- Capable of measuring/controlling large flows of gases in the ranges of 200 to 1,000 L/MIN full scale (Air calibration)
- Capable of measuring/controlling large flows of liquids in the ranges of 10 to 30 L/MIN full scale (Water calibration)
- Low prices
- Can be mounted onto various types of measuring instruments and sampling systems, and in diverse plants.

RK2000 RK2006VU

Standard Specifications and Length Designations

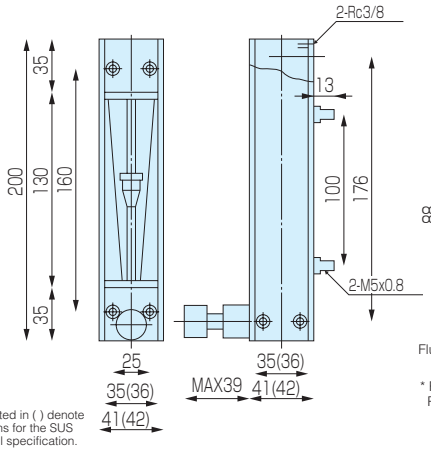
Fluids	Gases and liquids (Calibration conditions for other fluids)	
Accuracy	Within FS±5%	
Proof pressure	0.7MPa	
Materials	S	BS
Body block and some other components	SUS304	Brass
Tapered tube	Pyrex®	
Packing	Viton®, fluorocarbon resin	NBR, Duracon®
Float	SUS304	
Protective cover	Acrylic resin	
Temperature resistance	120°C	70°C

Length designation code	Air (L/MIN)(at atmospheric pressure)	H_2O L/MIN
20	20-200	*1.0-10
Connection	25-250	—
Rc3/8	30-300	—
25	40-400	1.5-15
Connection	50-500	*2.0-20
Rc3/4	70-700	*3.0-30
	100-1000	—

* The RK2005 and RK2006 are compatible with flow ranges marked with asterisks (*) only.

Dimensions (Based on air flows at 20°C and at atmospheric pressure)

<200-300 L/MIN and below>



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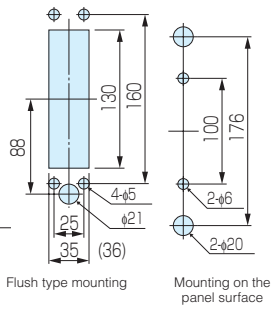
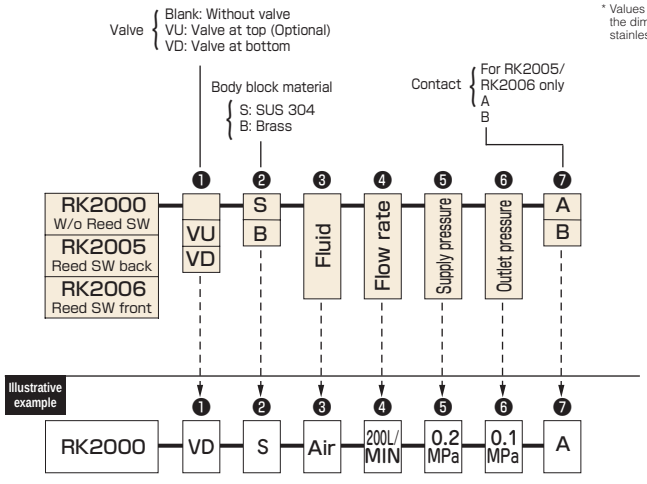


Flush type mounting — Mounting on the panel surface

* Flush type mounting only for the RK2005/ RK2006.

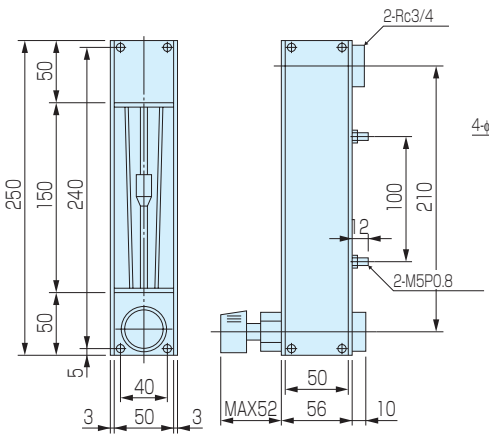
* Values indicated in ( ) denote the dimensions for the SUS stainless steel specification.

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

<301-1000 L/MIN>



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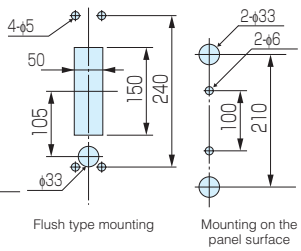


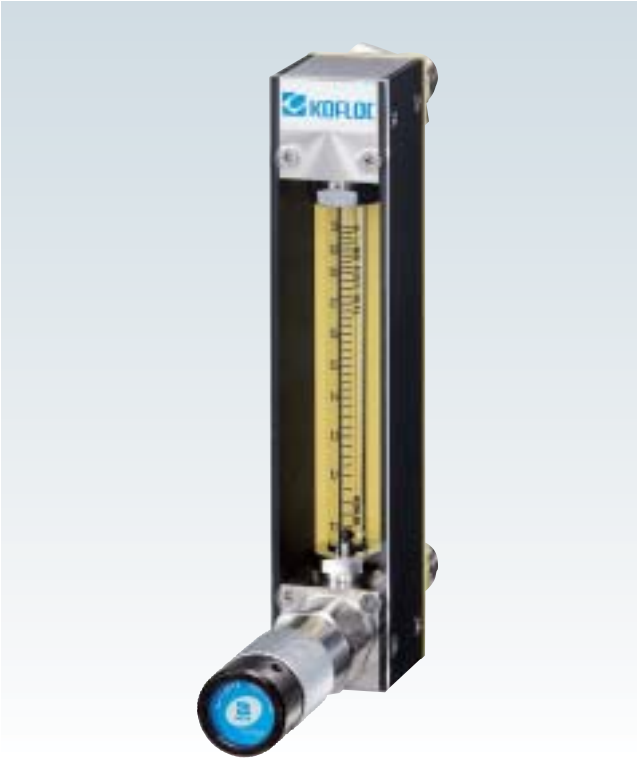
Flush type mounting — Mounting on the panel surface

* Flush type mounting only for the RK2005/ RK2006.

Flowmeter with Bellows Needle Valve (for Low-leak Flow Measurement and Control)

MODEL RK1500 SERIES

The Model RK1500 Series Flowmeter is equipped with a bellows seal type needle valve so that it can withstand high vacuum, high pressure, high temperature and toxic gases.



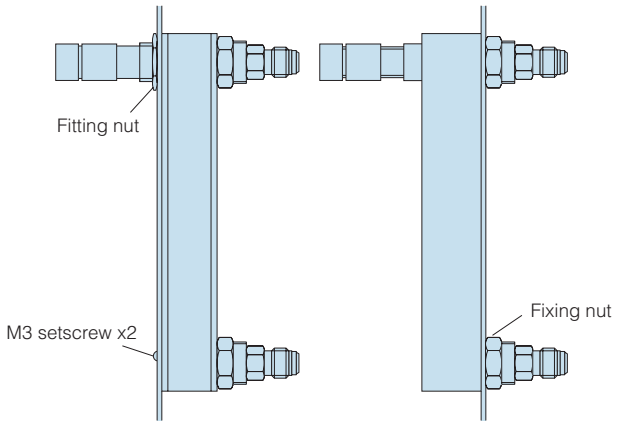
Features

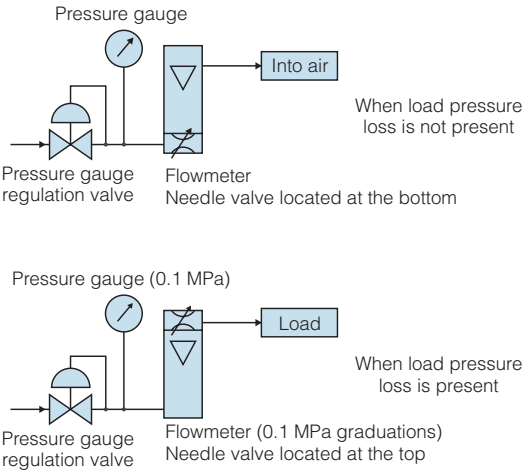
- High reliability against leak is ensured because 100% leak test is conducted before shipping, using a helium leak detector.
- Bellows seal type needle valve perfectly eliminates leak from the valve stem.
- Superior corrosion resistance is ensured by using SUS 316, Viton(tm), fluorocarbon resin and Pyrex glass only for wetted parts and those which are exposed to other fluids.
- Enhanced stability and repeatability are ensured using a flowmeter consisting of a precision-formed try-flat, rib-guided glass tube and a ultra-precision ball float in combination with a sophisticated needle valve.

Applications

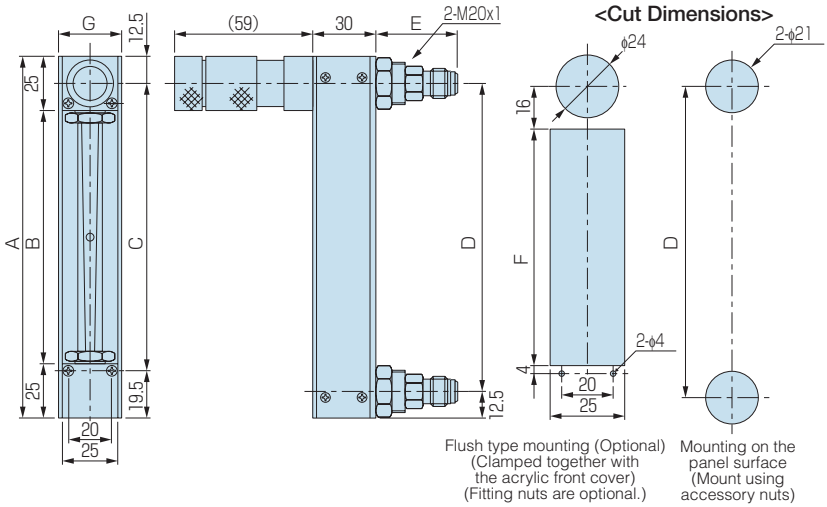
- For vacuum systems
- For semiconductor manufacturing lines

Example of use





Dimensions



Dimensions of parts per length designation code

Part / Code	A	B	C	D	E			F	G
					1/4SW	1/8SW	1/4VCR		
12	120	88	70	95	39	37	37	68	29
15	150	118	100	125	39	37	37	98	29
20	200	168	150	175	39	37	37	148	31
25	250	218	200	225	39	37	37	198	31

Standard Specifications

	Gases	Liquids
Fluids	Air, N_2, O_2, H_2, He, Ar, and CO_2 (Calibration by actual gas) For other gases, consultation is necessary regarding whether conversion conditions or calibration by actual gas is to be used. * Optional: Scale indicating two types of fluids	Standard fluid: Water For other liquids, consultation is necessary regarding whether conversion conditions or calibration by actual liquid is to be used.
Flow range	0.5-5 ML/MIN to 3-30 L/MIN (See the Capacity Table below.) * Optional: 0.5-3 ML/MIN	0.5-5 ML/MIN to 0.1-1 L/MIN (See the Capacity Table below.) * Optional: 0.5-3 ML/MIN
Accuracy	FS±2% (Measurement point) * Optional: FS±1% (Measurement point)	FS±2% (Measurement point)
Proof pressure	1.0 MPa for 100 ML/MIN or less 0.7 MPa for 5 L/MIN or less 0.5 MPa for 10 L/MIN or more	1.0 MPa for 5 ML/MIN or less 0.7 MPa for 150 ML/MIN or less 0.5 MPa for 200 ML/MIN or more
Available scale	10:1 * Optional: 20:1	

Materials	SS
Body block	SUS316
Tapered tube	Pyrex®
Packing	Viton®, fluorocarbon resin
Float	Pyrex, SUS 316
Protective cover	Acrylic resin
Temperature resistance	120°C

Capacity Table

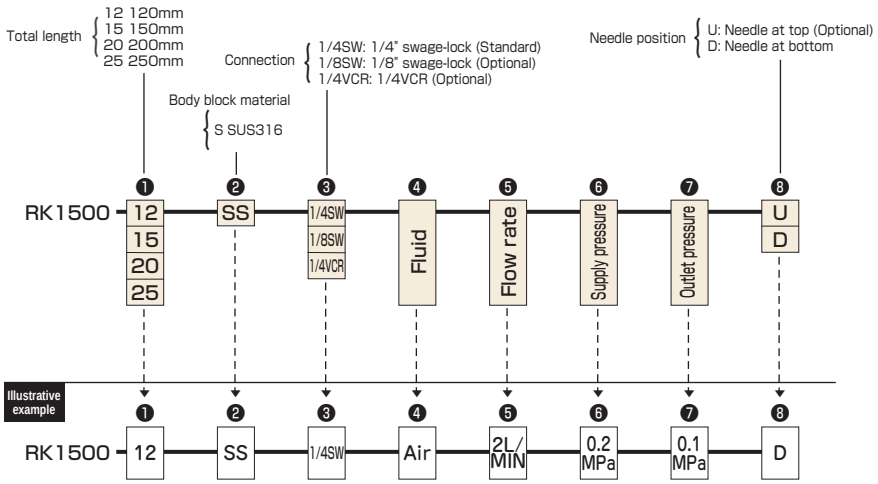
Air

Max. flow rate / Total length	5 ML/MIN	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN	2 L/MIN	3 L/MIN	5 L/MIN	10 L/MIN	15 L/MIN	20 L/MIN	30 L/MIN
120mm	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
150mm	–	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
200mm	–	–	–	–	○	○	○	○	○	○	○	○	○	○	○	○	○	○
250mm	–	–	–	–	–	○	○	○	○	○	○	○	○	○	○	○	○	○

H_2O

Max. flow rate / Total length	5 ML/MIN	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN
120mm	○	○	○	○	○	○	○	○	○	○	○
150mm	○	○	○	○	○	○	○	○	○	○	○
200mm	○	○	○	○	○	○	○	○	○	○	○
250mm	○	○	○	○	○	○	○	○	○	○	○

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Flow Meter with Flow Controller (Not Subject to Inlet Pressure Change)
MODEL 2504FR SERIES

The constant flow valve Model 2204 that permits constant flow and the precision flow meter RK1400 are combined in this flow meter to permit high-precision measurement and control of a wide flow range from very small flow to medium flow when the gas supply pressure (inlet side) changes.

B

Features

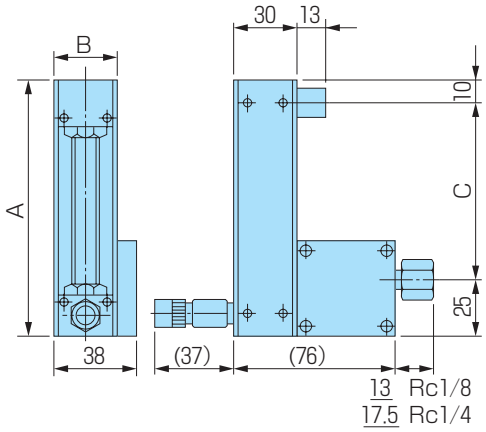
- This flow meter ensures constant flow under the constant pressure on its outlet side even if the pressure on the inlet side changes.
- The flow controller is made on the basis of the Model 2204 with excellent precision control characteristics, permitting smooth control of very small flow.
- The measuring section of the flow meter made on the basis of the high-precision float type flow meter RK1400 ensures highly reliable flow.

Standard Specifications

Fluids	Air,N_2,O_2,H_2,He,Ar,CO_2 (Calibration with actual gas) For other gases, please consult us regarding conversion conditions or calibration with the actual gas to be used. * Option: Scales for two types of fluids
Flow range (FS)	From 1–10 ML/MIN to 1–10 L/MIN (Refer to the Capacity Table on page 59.)
Accuracy	FS ±2% (Measurement point) The flow fluctuation is within FS ±2% when the inlet pressure changes to 0.07–0.7 MPa under the flow meter outlet pressure condition.
Control pressure	The pressure difference between inlet and outlet must be 0.07 MPa or more.
Proof pressure	5 L/MIN or less: 0.8 MPa 10 L/MIN or more: 0.5 MPa
Available scale	10:1

Material	SS	Al
Body block	SUS316	Al, Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS316	
Protective cover	Acrylic resin	
Heat resistance	120°C	70°C
Connection	Rc 1/4 (Standard), Rc 1/8 (Optional)	

Dimensions



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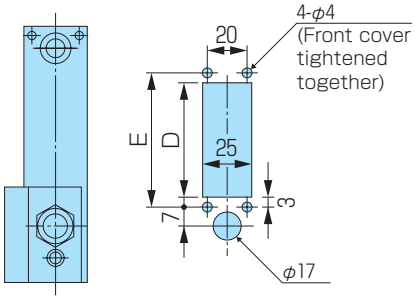
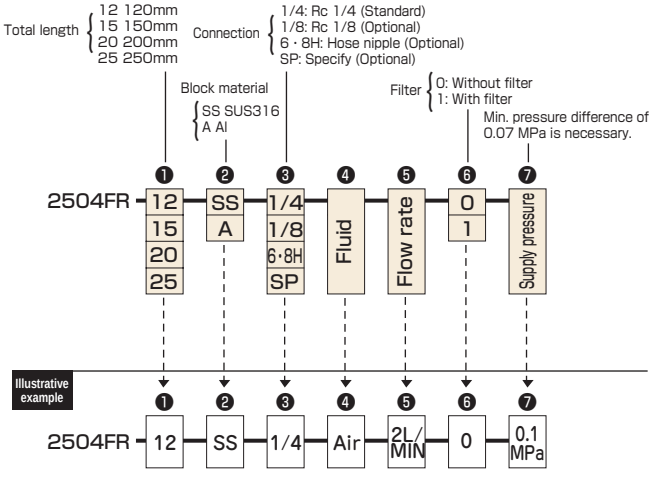


Dimensions of parts per length designation code

Part \ Code	12	15	20	25
A	120	150	200	250
B	29	29	31	31
C	85	115	165	215
D	80	110	160	210
E	86	116	166	216

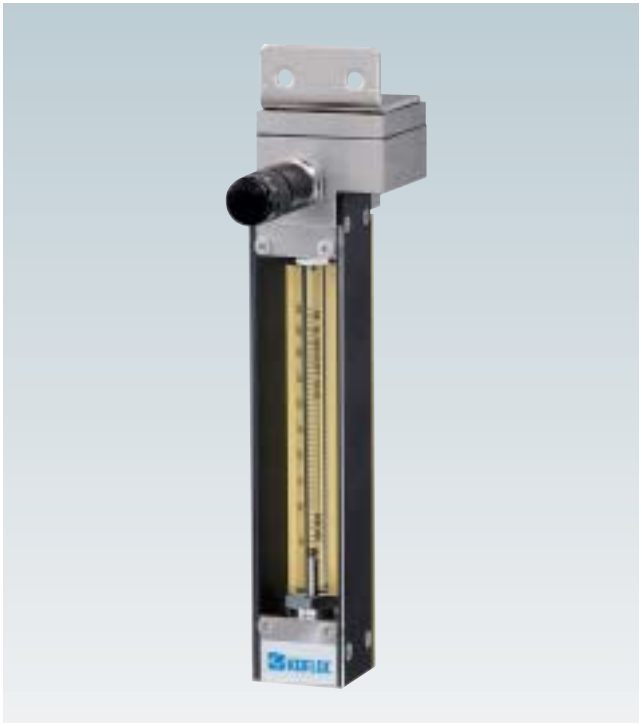
Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Flow Meter with Flow Controller (Not Subject to Load Pressure Change)
MODEL 2503F SERIES

The constant flow valve Model 2203 that permits constant flow and the precision flow meter RK1400 are combined in this flow meter to permit high-precision measurement and control of a wide flow range, from very small flow to medium flow, when the pressure on the load side (outlet side) changes.



Features

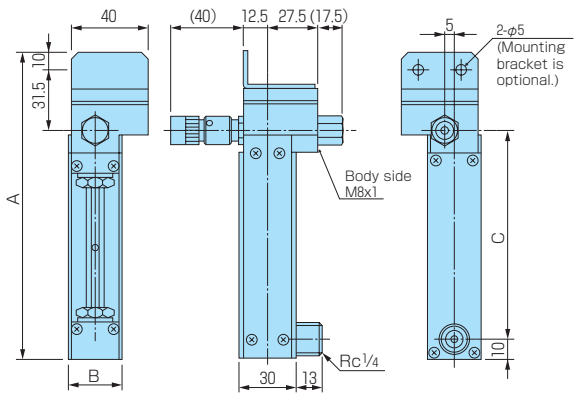
- This flow meter ensures constant flow under constant pressure on its inlet side even if the load pressure loss on the outlet side changes.
- The measuring section of the flow meter is based on the high-precision float type flow meter RK1400.
- The precision valve permits smooth and stable control of very small flow.
- Constant pressure on the inlet side eliminates pressure errors of the float type flow meter, allowing a complete flow control system to be configured.

Standard Specifications

Fluids	Air,N_2,O_2,H_2,He,Ar,CO_2 (Calibration with actual gas) For other gases, please consult us regarding conversion conditions or calibration with the actual gas to be used. * Option: Scales for two types of fluids
Flow range (FS)	From 1–10 ML/MIN to 2–20 L/MIN (Refer to the Capacity Table on page 59.)
Accuracy	FS ±2% (Measurement point) (under specified constant primary pressure)
Control pressure	The pressure difference between inlet and outlet must be 0.05 MPa or more.
Proof pressure	5 L/MIN or less: 0.8 MPa 10 L/MIN or more: 0.5 MPa
Available scale	10:1

Material	SS	Al
Body block	SUS316	Al, Brass
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex, SUS316	
Protective cover	Acrylic resin	
Heat resistance	120°C	70°C
Connection	Rc 1/4 (Standard), Rc 1/8 (Optional)	

Dimensions



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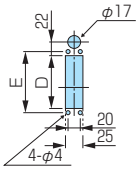
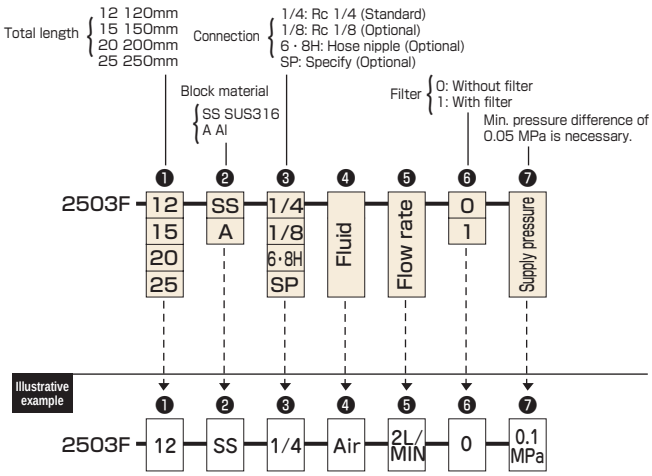


Dimensions of parts per length designation code

Part \ Code	12	15	20	25
A	163.5	193.5	243.5	293.5
B	29	29	31	31
C	112	142	192	242
D	80	110	160	210
E	86	116	166	216

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Simplified Flexible Flow Meter (with Exchangeable Tapered Tube)
MODEL RK1100 SERIES

The flexible flow meter is designed to permit easy disassembly, cleaning, and reassembly. It is ideal for equipment that must be disassembled for maintenance. Users can change the flow meter tube only without changing the block.

B

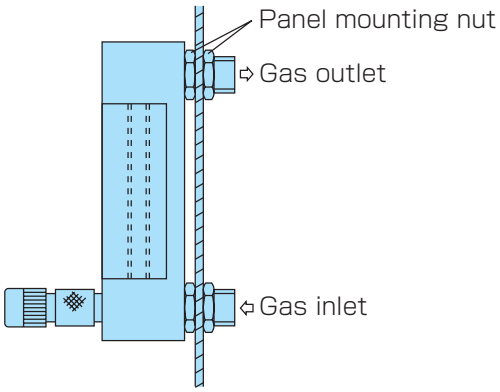
Features

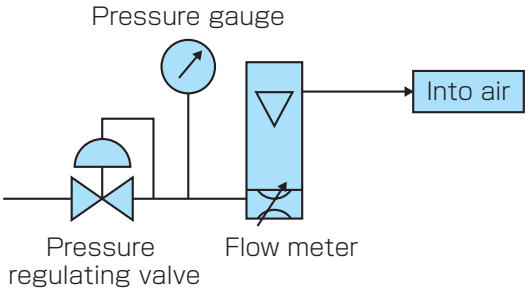
- **Easy disassembly and reassembly**
  It can be disassembled just with a screwdriver and wrench. This flow meter is ideal when frequent cleaning or tube change is required.
- **Sophisticated design**
  Equipped with many shaped component parts and an alumite body with a satin finish, the product has a sophisticated design.
- **High-precision flow meter**
  A high-precision flow meter tube equivalent to that used in the precision flow meter RK1450 is used.
- **Models (1100V and 1100VP) equipped with a valve are also available.**
  The models with a needle valve come in two types – a precision needle valve type 1100PV and a simplified needle valve type 1100V.

Applications

- In combination with various measuring instruments
- Measurement of pipe lines
- Compressors
- Semiconductor related equipment

Example of use





RK1100 RK1100V RK1100PV

Exploded view

①	Panel mounting nut	⑦	Backboard base
②	Gas outlet joint	⑧	Lower block
③	Gas inlet joint	⑨	Glass tapered tube
④	Wrench for disassembly/reassembly	⑩	Acrylic cover
⑤	Glass tube retainer	⑪	Needle valve
⑥	Upper block		

Standard Specifications

Fluids	Air,N_2,O_2,H_2,He,Ar,CO_2 (Calibration with actual gas) For other gases, please consult us regarding conversion conditions or calibration with the actual gas to be used.	
Flow range (FS)	RK1100	10ML/MIN-20L/MIN
	RK1100PV	
	RK1100V	1L/MIN-20L/MIN
Accuracy	FS ±2% (Measurement point) * Option: FS ±1% (Measurement point)	
Proof pressure	0.5MPa	
Available scale	10:1 * Option 20:1	

Material	S	Al
Body block	SUS303 · 304	Al
Tapered tube	Pyrex®	
Packing	Viton®	NBR
Float	Pyrex®, SUS316	
Protective cover	Acrylic resin	
Heat resistance	80°C	
Connection	Rc 1/4 (Standard), Rc 1/8 (Optional)	

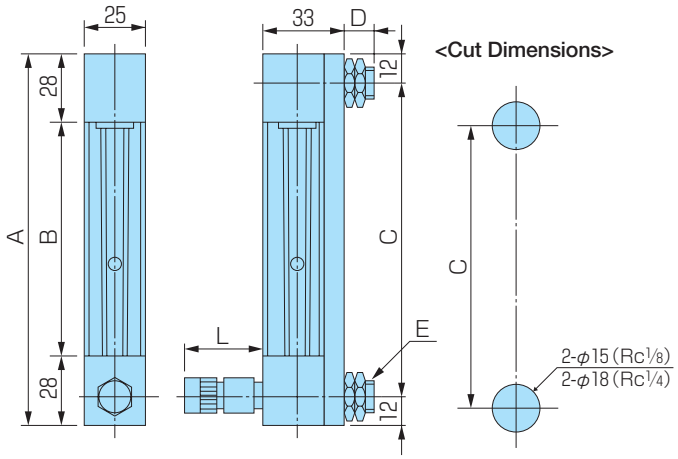
B

Capacity Table

Air (Flow rate under atmospheric pressure)

Total length \ Max. flow rate	10 ML/MIN	20 ML/MIN	30 ML/MIN	50 ML/MIN	100 ML/MIN	150 ML/MIN	200 ML/MIN	300 ML/MIN	500 ML/MIN	1 L/MIN	2 L/MIN	3 L/MIN	5 L/MIN	10 L/MIN	15 L/MIN	20 L/MIN
120mm	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
150mm	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
200mm	–	–	–	○	○	○	○	○	○	○	○	○	○	○	○	○
250mm	–	–	–	–	–	–	○	○	○	○	○	○	○	○	○	○

Dimensions

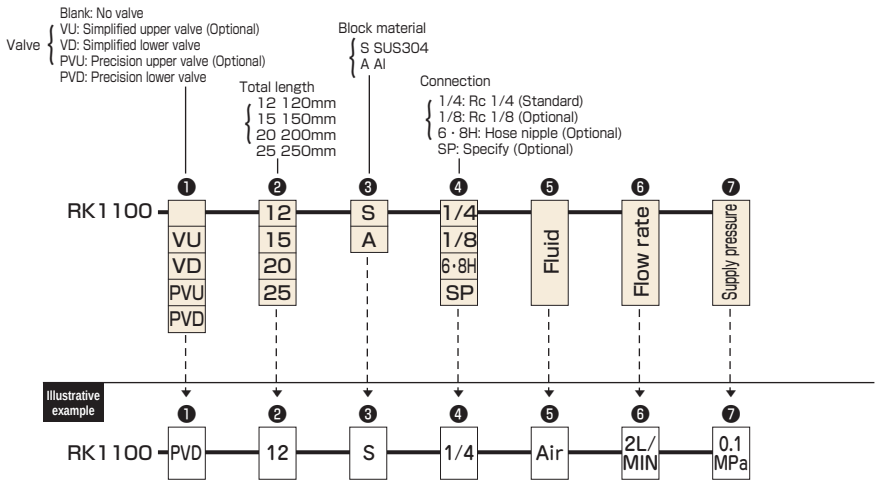


Dimensions of parts per length designation code

Code \ Part	A	B	C	D		E	
				Rc1/8	Rc1/4	Rc1/8	Rc1/4
12	120	64	96	10	14	M14X1	M17X1
15	150	94	126	10	14	M14X1	M17X1
20	200	144	176	10	14	M14X1	M17X1
25	250	194	226	10	14	M14X1	M17X1

Model	L
RK1100	0
RK1100V	33MAX
RK1100PV	40

Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Flowmeters with Photosensor (for Alarm Switches)
MODEL RK1812/RK1814 SERIES

These are enhanced models of the KOFLOC High Precision Flowmeters RK1200 and RK1400, respectively, by attaching photoswitch sensors for detection of float position and issuance of alarm signals.

Features

Red LEDs are used to visualize projected light spots. Stable and running modes of flows can be checked by pilot lamps.

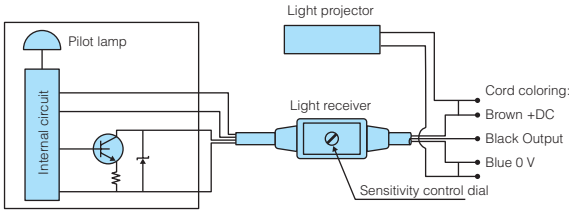
Standard Specifications

Rated flow ranges	See the specifications for the RK1200/RK1400. Measurement of flows below 50 ML/MIN is not available (air at atmospheric pressure condition).
Setting range	10-90%
Ambient temperature	5-55°C

* For other conditions, see the specifications for the RK1200/RK1400.

Photosensor Specifications

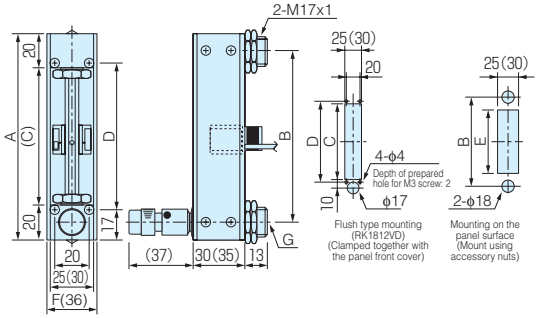
Operating power supply	24 VDC±10%
Power consumption	Light projector: 15 mA or less; Light receiver: 22 mA or less
Output mode	NPN open collector, sink current: 80 mA (30 VDC) max.
Running mode	Light on
Response time	0.5 msec or less
Cord	Light projector: 0.15 mm² two-core cable (2 m); Light receiver: 0.15 mm² three-core cable (2 m)
Manufacturer	Takenaka electronic industrial co., Ltd.
Type	UM-T15TV (24 VDC) photoelectric switch containing amplifier with repeater dial on the receiver side



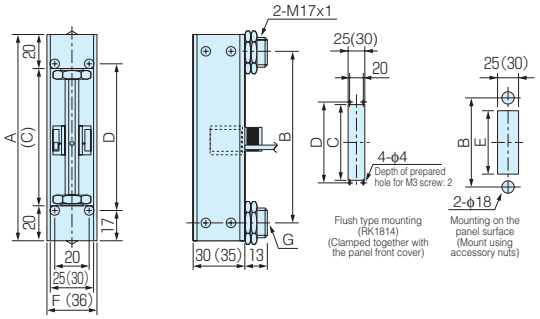
Note: When adjusting the photosensor, first loosen the sensor thumbscrew. The translucent projector is not shown because it is for power input (brown: 24 VDC; blue: 0 V) only. See the photosensor instruction manual enclosed in the package before use.

Dimensions

<RK1812> <Panel Cut Dimensions>

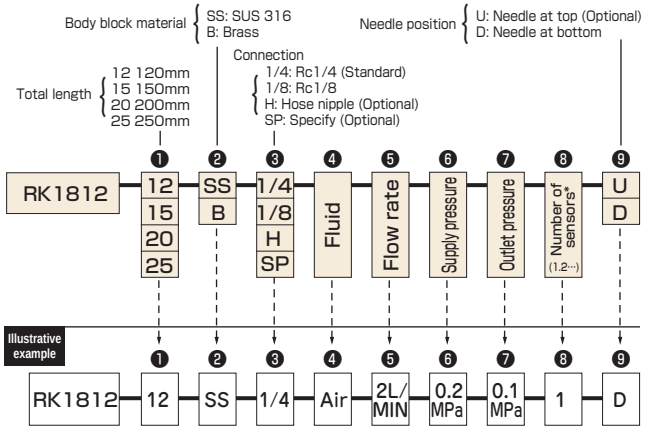


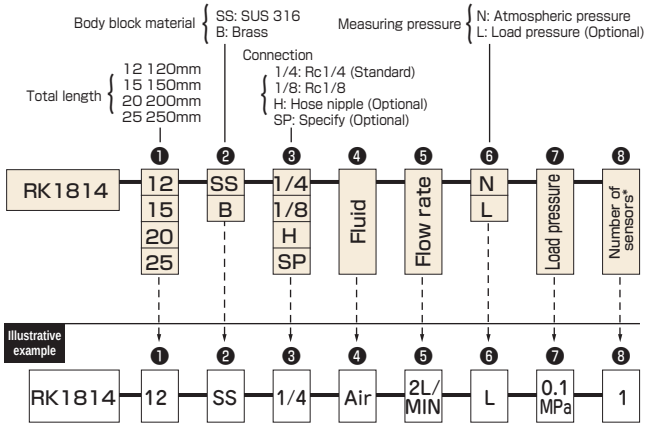
<RK1814> <Panel Cut Dimensions>



RK1812 RK1814

Ordering





* If you need two or more sensors, please consult us before placing a purchase order.

* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Precision Flow Meter for Pressure Regulator (for Cylinder Regulator)

MODEL RK4400 SERIES

The KOFLOC RK4400 has been designed specially for connection to precision pressure regulators, and is widely used for cylinder regulators.

Features

- The precision needle valve Model 2412 is used for easy, fine adjustment of flow.
- The flow meter tube made by high-precision molding ensures excellent stability and repeatability even if it is inclined.
- The material, cleaning method, and assembly are carefully designed for the use of high-purity, high-price standard gases so as to eliminate waste losses, reduce absorption of constituent gas and minimize generation of other types of gas from the parts.
- For cylinder regulators
- For line regulators

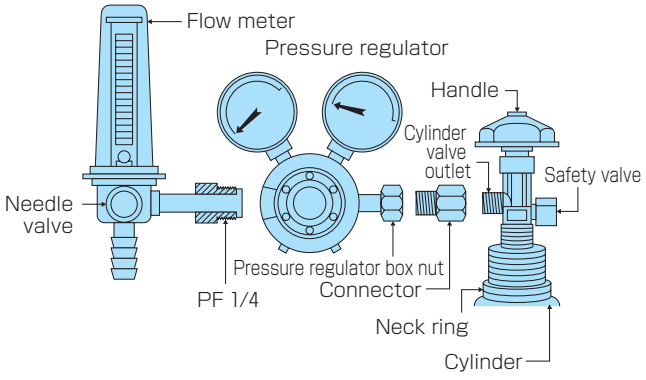
Standard Specifications

Flow range	Standard 1-10ML/MIN, 5-50ML/MIN 10-100ML/MIN, 50-500ML/MIN 0.1-1L/MIN, 0.5-5L/MIN 1-10L/MIN, 1.5-15L/MIN 2-20L/MIN
Object gas	Air,N_2,O_2,H_2,He,Ar,CO_2 For other gases, please consult us regarding conversion conditions or calibration with the actual gas to be used. (Refer to page 50.)
Accuracy	Within FS ±2%
Repeatability	Within ±0.5% of reading
Proof pressure	0.3MPa
Temperature resistance	40°C
Scale	Direct reading or mm scale (Refer to page 51.)
Needle valve	Precision needle valve Model 2412 equivalent
Material of exhaust gas section	(B) Pyrex glass, SUS316, Brass, NBR, acrylic resin (SS) Pyrex glass, SUS316, Viton (Teflon)
End connection	Inlet: PF 1/4 thread Outlet: Rc 1/4 (ϕ7 hose nipple) standard accessory

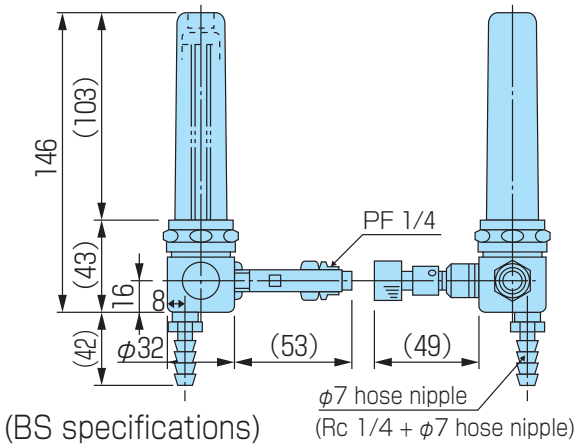
Purchasing

- Almost all types of general cylinder regulators can be attached. Refer to Model 7700 for a product equipped with a cylinder regulator.
- Our company will select a needle valve. Be sure to clearly indicate the supply pressure (preset pressure of cylinder regulator).

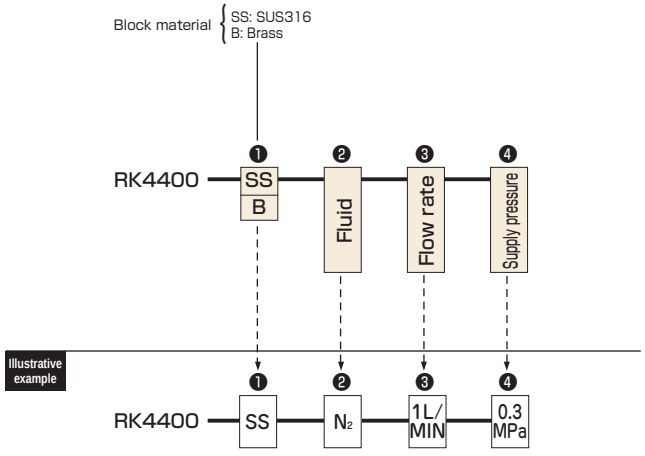
Example of use



Dimensions



Ordering



* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Multiple Flow Meter with Needle Valve (for Precision Measurement and Control for Laboratory)

MODEL RK120X SERIES

This multiple flow meter with a needle valve is made by combining several types of flow meter for controlling various flows in a laboratory. It is designed based on the RK1200, a flow meter with precision needle valve, and has been verified to have outstanding reliability.

B

Features

- **Multiple control of two to four flow meters**
  Two to four flow meters can be attached to one unit to permit control of various gases in various flow ranges.
- **Various flow ranges**
  The flow meter can measure a variety of flows ranging from the very small flow of full-scale 5 ML/MIN to 20 L/MIN.
- **High-precision measurement and control**
  This flow meter is designed based on the precision flow meter RK1200 and permits control of very small flow and high-precision measurement (FS ±2%).

Applications

- Control of multiple components
- Multiple range control
- Flow control in laboratories

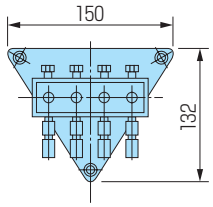
Standard Specifications

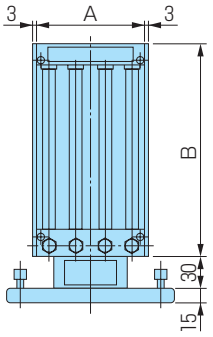
Fluids	Air,N_2,O_2,H_2,He,Ar,CO_2 (Calibration with actual gas) For other gases, please consult us regarding conversion conditions or calibration with the actual gas to be used.
Flow range	From 0.5–5 ML/MIN to 2–20 L/MIN (Refer to the Capacity Table on page 59.)
Accuracy	FS ±2% (Measurement point) * Optional: FS ±1% (Measurement point)
Proof pressure	0.5MPa
Available scale	10:1 * Optional 20:1

Material	SS	BS
Body block	SUS316	Brass
Tapered tube	Pyrex®	
Packing	Viton® * Option (1)	NBR
Float	Pyrex, SUS316	
Protective cover	Acrylic resin	
Temperature resistance	120°C	70°C
Connection	Rc 1/4 (Standard), Rc 1/8 (Optional)	

* Option (1): Fluorocarbon resin, Kalrez, Perfluoro, etc.

Dimensions



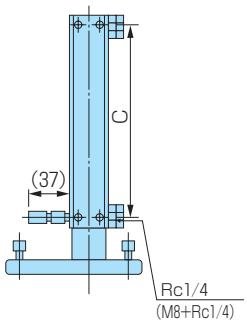


Dimensions of each part

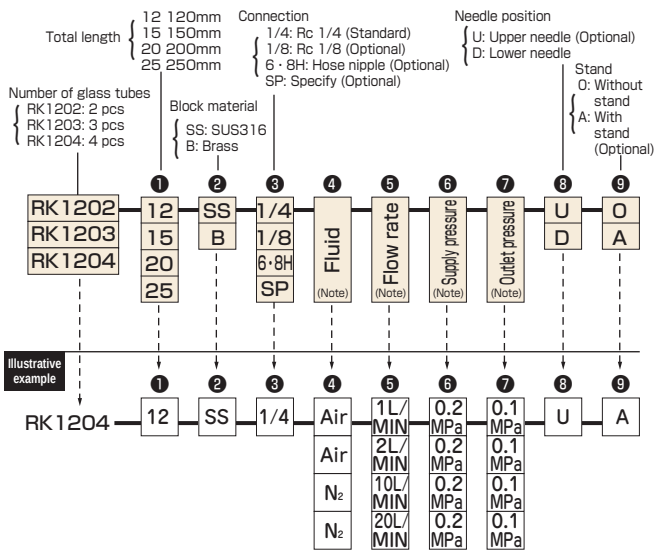
Model	A	B			
1202	50	120	150	200	250
1203	75	120	150	200	250
1204	100	120	150	200	250

	C
B=120	100
B=150	130
B=200	180
B=250	230

<Cut Dimensions>



Ordering



(Note) Specify the flow rates in increasing order from the left, as many as the number of glass tubes for (4), (5), (6), and (7).

* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Flow Meter for Gas Mixing
MODEL RK120XM SERIES

The flow meter for gas mixing uses a KOFLOC multiple flow meter to mix multicomponent fluids. Connection of pipes to respective gas inlets and the mixed gas outlet permit gases to be mixed. This flow meter is ideal for easy gas mixing in laboratories and studies.


RK1203 M

B

Features

- The simple structure facilitates maintenance.
- The precision needle valve allows easy, fine control of flow.
- All the parts are super-cleaned to ensure excellent cleanliness.
- The flow meter is made into two- to four-component types to handle various gases in various flow ranges.

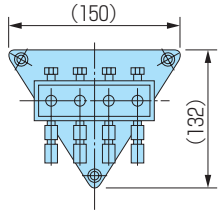
Standard Specifications

Fluids	Air,N_2,O_2,H_2,He,Ar,CO_2 (Calibration with actual gas) For other gases, please consult us regarding conversion conditions or calibration with the actual gas to be used.
Flow range	From 5–50 ML/MIN to 1–10 L/MIN 10 L/MIN or less per line and 20 L/MIN or less in total (Refer to the Capacity Table on page 59.)
Accuracy	FS ±2% (Measurement point) * Optional: FS ±1% (Measurement point)
Proof pressure	0.5MPa
Available scale	10:1 * Optional 20:1

Material	SS	BS
Body block	SUS316	Brass
Tapered tube	Pyrex®	
Packing	Viton ® * Option (1)	NBR
Float	Pyrex, SUS316	
Protective cover	Acrylic resin	
Temperature resistance	120°C	70°C
Connection	Rc 1/4 (Standard), Rc 1/8 (Optional)	

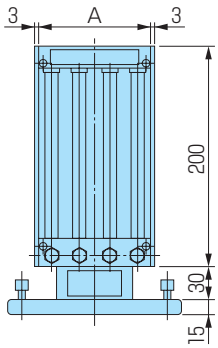
* Option (1): Fluorocarbon resin, Kalrez, Perfluoro, etc

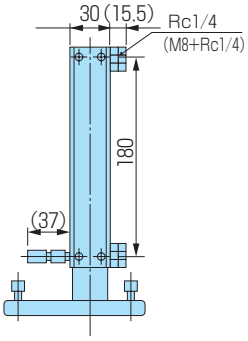
Dimensions



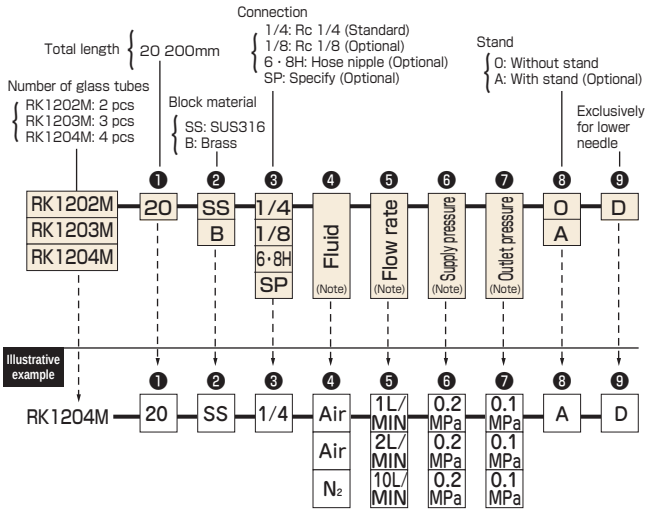
Dimensions of each part

Model	Dimension A
1202M	50
1203M	75
1204M	100





Ordering



(Note) Specify the flow rates in increasing order from the left, as many as the number of glass tubes for (4), (5), (6), and (7).

* Refer to “Ordering” and “Illustrative Example” when placing an order or requesting a quotation. Fill in the blanks in the “Order/Quotation Request Card” at the end of the catalog, and send the card by fax.

Multiple Flow Meter (for Precision Measurement for Laboratory)
MODEL RK140X SERIES

This multiple flow meter is made by combining several types of flow meter for control of various flows in a laboratory. It is designed based on the RK1400, a high-precision flow meter with high performance. It is recommended to install one unit to facilitate flow measurement in the laboratory.

B

Features

- **Multiple measuremens of two to four flow meters**
  Two to four flow meters can be attached to one unit to permit control of various gases in various flow ranges.
- **Various flow ranges**
  The flow meter can measure a variety of flows ranging from the very small flow of full-scale 5 ML/MIN to 20 L/MIN.
- **High-precision measurement**
  This flow meter is provided with a flow meter tube equivalent to that of the precision flow meter RK1400, permitting high-precision measurement at ±2% F.S.
- **Stand convenient for measurement**
  The model has a stand with a level adjuster for convenient use in a laboratory.
- **For measurement of multiple components**
- **For measurement of multiple ranges**
- **Flow checker in laboratories**

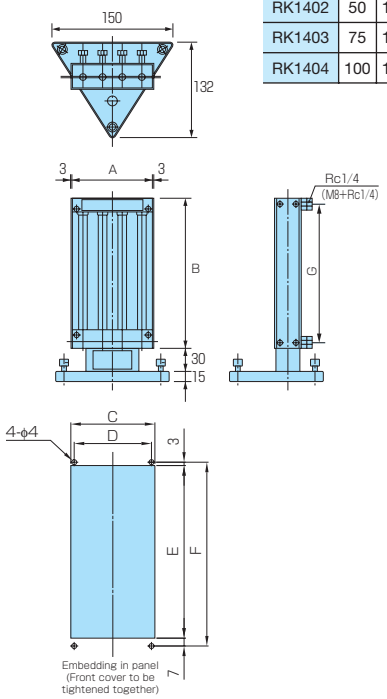
Standard Specifications

Fluids	Air,N_2,O_2,H_2,He,Ar,CO_2 (Calibration with actual gas) For other gases, please consult us regarding conversion conditions or calibration with the actual gas to be used.
Flow range	From 0.5–5 ML/MIN to 2–20 L/MIN (Refer to the Capacity Table on page 59.) * Optional: 0.5–3 ML/MIN
Accuracy	FS ±2% (Measurement point) * Optional: FS ±1% (Measurement point)
Proof pressure	0.5MPa

Material	SS	BS
Body block	SUS316	Brass
Tapered tube	Pyrex®	
Packing	Viton® * Option (1)	NBR
Float	Pyrex, SUS316	
Protective cover	Acrylic resin	
Temperature resistance	120°C	70°C
Connection	Rc 1/4 (Standard), Rc 1/8 (Optional)	

* Option (1): Fluorocarbon resin, Kalrez, Perfluoro, etc.

Dimensions

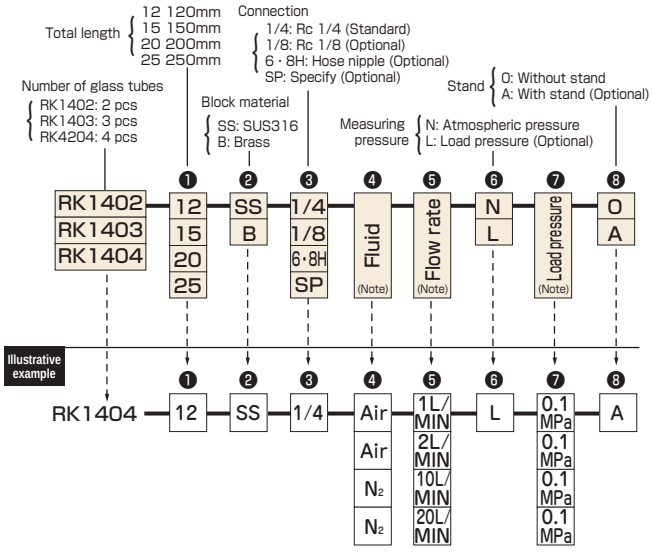


Dimensions of each part

Model	A	B				C	D
RK1402	50	120	150	200	250	50	44
RK1403	75	120	150	200	250	75	69
RK1404	100	120	150	200	250	100	94

	E	F	G
B=120	74	84	100
B=150	104	114	130
B=200	154	164	180
B=250	204	214	230

Ordering



(Note) Specify the flow rates in increasing order from the left, as many as the number of glass tubes for (4), (5), and (7).

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