

KOBE *Kawaki* JAPAN

Products Information



KAWAKI MEASURING INSTRUMENT CO.,LTD.

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Profile

Company name :

KAWAKI MEASURING INSTRUMENT CO., LTD.

Address :

Head office and factory : 176-1, Imazu, Tamatsu-cho, Nishi-ku, Kobe, 651-2128

Tel : 078 (911) 1991

Fax : 078 (913) 1543

E-mail : info@kawaki.com

URL: <http://www.kawaki.com>

Foundation :

April, 1948

Capital :

10,000,000 yen

Products :

A wide variety of instantaneous flow meter ; Mechanical flow meter,
Area flow meter,
Metal-tube area flow meter,

Flow switch ; Shuttle flow switch,

Flow killer ; Thermistor flow meter,

River flow ; Field indication of instantaneous+integrated flow rates,
Pulse output and alarm output by external power drive,
Flow meter for high-viscosity fluid,

A wide variety of sight flow,

A wide variety of manometer ; Liquid column manometer, U-tube manometer,

Safety valve, Check valve,

Sight feed indicator,

Flowing indicator,

Flow control valve,

Stroke gauge, and angle sensor

Chief Executive Officer :

Tetsu Yamada, Chief Executive Officer

Banks :

Akashi Branch, Sumitomo Mitsui Banking Corporation

Akashi Branch, Mizuho Bank, Ltd.

Akashi Branch, Tokyo-Mitsubishi UFJ, Ltd.

SF FLOW METER & FLOW SWITCH



SF-MA



SF-MA (waterproof type)

- Types : SF-M : Instantaneous flow indicator
 SF-MA : Instantaneous flow indicator+lower (or upper) microswitch
 SF-MAA : Instantaneous flow indicator+lower & upper microswitches

Diameter : $\frac{3}{8}$ B~12B flange type, Rc $\frac{3}{8}$ ~Rc1 $\frac{1}{2}$ screw-in type

Withstanding Pressure : Standard : 1.0MPa
 Special order : 30MPa

Temperature : Standard : 80°C or less
 Special order : 300°C or less

Accuracy : $\pm 3\%$ of readings

Contact Capacity :

Microswitches used for contacts are classified into the following three types according to diameter and flow rate :

- 15A : 125.250 or 480VAC
- 0.5A : 125VDC 0.25A : 250VDC
- 5A : 125 or 250VAC
- 0.5A : 125VDC 0.25A : 250VDC
- 10A : 125 or 250VAC

Characteristics :

- ★ Most suitable for opaque liquids (oils, etc.), high-temperature and high-pressure fluids. No restrictions on flow direction.
- ★ The contact of the SF-MA (A) standard flow switch is internally variable, but an external variable type can also be manufactured for frequent variations.
- ★ Complete waterproof type (IEC IP67) is also manufactured for outdoor or severe-atmosphere use.

Construction :

Body : FC250, CAC406, SS400, SUS304, SUS316, SUS316L

Main parts : C3604B, SUS304, SUS316, SUS316L

Note

- For use in high vibration places, use vibration-proof type.

SA FLOW METER & FLOW SWITCH

(Proximity switch are used for SF switch of small flow rates.)



SA-M



SA-MA (external variable type)

- Types : SA-M : Instantaneous flow indicator
 SA-MA : Instantaneous flow indicator+lower (or upper) limit contact
 SA-MAA : Instantaneous flow indicator+lower & upper limit contacts

Diameter : $\frac{3}{8}$ B~1B flange type
 Rc $\frac{3}{8}$ ~Rc1 screw-in type

Withstanding Pressure : Standard : 1.0MPa

Temperature : Standard : 80°C or less
 Special order : 300°C or less

Accuracy : $\pm 3\%$ of readings

Contact Capacity : 50W~0.5A, 125V AC

Self-holding proximity switch

Characteristics :

- ★ Most suitable for relatively small flow rates (0~15 l/min. in water terms) of opaque liquids (oils, etc.), high-temperature and high-pressure fluids.
- ★ No restrictions on the flow direction.

Construction :

Body : FC250, CAC406, SS400, SUS304, SUS316, SUS316L

Main parts : C3604B, SUS304, SUS316, SUS316L

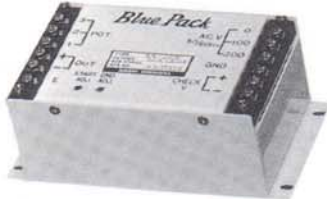
Note

- For use in high vibration places, use vibration-proof type.

SH FLOW METER (SF Type with Electronic Transmitter)



Transmitter



Converter



Indicator

This flow meter is an SF type incorporating a transmitter that transmits instantaneous flow rates. Characteristics etc., are the same as those of the SF type.

Diameter : $\frac{3}{8}$ B~12B flange type
Rc $\frac{3}{8}$ ~Rc1 $\frac{1}{2}$ screw-in type

Withstanding Pressure : 1.0MPa

Accuracy : $\pm 3\%$ of readings

Power Source : 100V/200V AC, 12V/24V DC

Output : 4~20mA DC, 1~5V DC

Structure of Transmitter :

Body : FC250. CAC406. SUS304. SUS316. SUS316L

Main parts : C3604B. SUS304. SUS316. SUS316L.

FY FLOW METER & FLOW SWITCH (Compact SF Type)



FY-M



FY-MA



FY-MA (external variable type)

Types : FY-M : Instantaneous flow indicator

FY-MA : Instantaneous flow indicator+lower (or upper) micro-switch

Diameter : $\frac{3}{8}$ B~5B flange type
Rc $\frac{3}{8}$ ~Rc1 $\frac{1}{2}$ screw-in type

Withstanding Pressure : 1.0MPa

Temperature : Standard : 80°C or less

Accuracy : $\pm 3\%$ of readings

Contact Capacity : 5A, 125 or 250V AC

0.5A : 125V DC, 0.25A : 250V DC

Characteristics :

★ These flow meters and flow switches are the compact SF type, and characteristics are the same as those of the SF type and SA type.

★ External contact variable type is also available.

Construction :

Body : FC250. CAC406. SUS304

Main parts : C3604B. SUS304.

Note

- For use in high vibration places, use vibration-proof SF type.
- For 1.0MPa or greater operating pressure, use the SF type designed for high pressure.
- Complete waterproof type (IEC IP67) is also manufactured for outdoor or severe-atmosphere use.

RIVER FLOW (Gear Type Flow Meter)



RF-I



G36-301



RF-S

RF-I-S



RF-II



KSP-582



RF-S

RF-II-S

☆RF-I :

Field Indication Type (Instantaneous+Integrated Indication)

This compact high-precision flow meter measures not only water and oils, but also chemicals. The rotations of two three-lobe elliptic gears output signals directly proportional to flow rates. Receiving the signals, the indicator provides field indication of instantaneous flow rates or integrated flow rates.

- Diameter : Rc^{1/8}~Rc^{3/8}
- Operating Pressure : 1.0MPa
- Withstanding Pressure : 1.5MPa
- Liquid viscosity : 1,000mm²/s or less
- Ambient Temperature : -5°C~+40°C
- Liquid Temperature : 0~80°C
- Operating humidity : 45~85%RH
- Accuracy : ±1%

Indication : Instantaneous flow rate indication : 4 digits
 Integrated flow rate indication : 8 digits

Characteristics :

- ★ Compact and rugged with liquid crystal digital indication that can be switched between integrated flow rate indication and instantaneous flow rate indication by the [T/R] key.
- ★ A lithium battery is incorporated for field indication alone, and the indicating section is dustproof and dripproof. (IEC IP67)
- ★ Can be rotated 90° between the detecting section and indicating section, allowing correspondence with the direction of flow in installation, and the sensor section and indicating section can be separated (RF-I-S) up to 30m at maximum.

☆RF-II :

Electronic Transmission Type

Field indication type (integrated type)

Remote transmission type (separate type)

(instantaneous+integrated indication+analog output+high/low alarm contact)

Pulse (contact) signals from the transmitter (RF-S) can be output variously by using a converter in accordance with the application. Integrated type (RF-II) in which the transmitter (sensor section), converter and indicating section are integrated, and a separate type (RF-II-S) are available.

Power Source : AC100V/200V±10%
 DC12V/24V (option)

Output Signals : Current Output : 4~20mADC

Voltage Output : 0~1V, 0~5V, 0~10V, 1~5V

Relay Output : Instantaneous high/low alarm contact

KY FLOW METER & FLOW SWITCH



KY-M



KY-MA

Types : KY-M : Instantaneous flow indicator

KY-MA : Instantaneous flow indicator+lower (or upper) micro-switch

Diameter : $\frac{3}{8}$ B~5B flange type

Rc $\frac{3}{8}$ ~Rc1 $\frac{1}{2}$ screw-in type

Withstanding Pressure : 1.0MPa

Temperature : 80°C or less

Accuracy : $\pm 5\%$ of reading

Contact Capacity : 15A : 125.250 or 480VAC

0.5A : 125VDC

0.25A : 250VDC

Applications :

Most suitable for flow rate indications and alarms for lubricating oil.

Most suitable for flow rate indications and alarms for fluids containing iron powder.

Characteristics :

★ Most suitable for opaque liquids because the indicating section is mechanically sealed.

★ No restrictions on the flow direction.

★ The contact position is variable.

Construction :

Body : FC250, CAC406, SUS304

Main parts : C3604B, SUS304

Note

• For use in high vibration places, use vibration-proof SF type.

• For 1.0MPa or greater operating pressure, use the SF type designed for high pressure.

• The scale range is 0~30 l/min. in water terms, and 0~20 l/min. in oil terms.

FLOW KILLER (Thermistor Flow Meter)



FK

Type : FK

This flow meter, using thermistor characteristics, has no movable parts structurally. Fluids to be measured include water or aqueous solutions.

Diameter : 1B~12B flange type

Operating Pressure : 1.0MPa

Withstanding Pressure : 1.5MPa

Liquid Temperature : 0~80°C

Ambient Temperature : -20°C~+60°C

Accuracy : $\pm 3\%$ FS

Indication : LED

Output : 4~20mA DC, two switching points : S₁ and S₂ can be set independently.

Power Source : 100V~200V AC

Characteristics :

★ Little or no trouble and no pressure loss because there are no movable parts.

★ No restrictions on installation of piping, allowing horizontal and vertical piping (in a full condition).

★ Can also be used in magnetic fields because of LED indication, noise resistance, and can also measure pure water.

★ The waterproof structure (JISC0920 watertight type (IEC IP67)) can also be used outdoors.

FSJ SIGHT FLOW INDICATORS (Compact Type)

Types : FSJ-I : Without flapper
 FSJ-II : With flapper
 FSJ-B : With balls

Diameter : Rc^{3/8}~Rc1

Withstanding Pressure : 1.0MPa

Temperature : 80°C or less

Construction :	Body	Main parts
For oils :	A2017	C2801P
For water :	C3604B	C2801P
For chemicals :	SUS304	SUS304



FSJ-I



FSJ-II



FSJ-B

FS-M, FS-O SIGHT FLOW INDICATORS (Magnet Following Type)

Types : FS-M : Magnet following sight flow
 FS-O : Magnet following sight flow for small flow rates

Diameter : FS-M : ³/₈B~6B flange type
 Rc³/₈~Rc2 screw-in type

FS-O : ³/₈B~1B flange type
 Rc³/₈~Rc1¹/₂ screw-in type

Withstanding Pressure : 1.0MPa

Temperature : 80°C or less

Construction :	Body : FC250, FCD450, CAC406, SS400, SUS304, SUS316
	Main parts : C2801P, SUS304, SUS316

Note

• The FS-K flow sight complies with fire laws.



FS-M



FS-O

KFS FLOWING INDICATOR



KFS

Type : KFS

The flow direction is from bottom to top, and the inlet side is provided with a needle valve so that oil amounts can be controlled. Rough flow rates can be known from the float moving up and down according to changes in oil level.

Diameter : Inlet Rc³/₈ × Outlet Rc³/₈

Flow rate : 0~0.5 l/min. at 150mm²/s & 0.2MPa

Withstanding Pressure : 0.5MPa

Temperature : 80°C or less

Construction :

Body : SS400

Main parts : S25C

Float : C3604B

Note

- A 3~4 point flow rate scale is optionally available.

MFI MULTIPLE SIGHT FLOW INDICATORS



MFI -6-15

Types : MFI-1~MFI-10 (1~10 Sights)

Diameter : Inlet Rc³/₈~RC³/₄
Outlet Rc³/₈

Flow rate : 0~6 l/min. at 220mm²/s & 0.2MPa

Withstanding Pressure : 0.5MPa

Temperature : 80°C or less

Construction :

Body : SS400, C3604B, SUS304

Main parts : S25C, C3604B, SUS304

Float : C3604B, SUS304

Note

- A 3~4 point flow rate scale is optionally available.

B-MFI BLACK MULTIPLE SIGHT FLOW INDICATORS

The multiple sight flow indicators of this type are for black lubricating oils.

The flow rates of oils, the indications of which are difficult to see for the MFI type, can clearly be seen because of indications out of contact with liquids.



B-MFI -3-15

Types : B-MFI-1~B-MFI-10 (1~10 Sights)

Diameter : Inlet Rc^{1/2}, Rc^{3/4}
Outlet Rc^{3/8}

Flow rate : Inlet Rc^{1/2}
0~3 l/min at 320mm²/s & 0.2MPa
Inlet Rc^{3/4}
0~5 l/min at 320mm²/s & 0.2MPa

Withstanding Pressure : 1.0MPa

Temperature : 80°C or less

Construction : Block : body SS400, C3604B
Flow sight : body CAC406
main parts C2801P
Needle valve : body CAC406
main parts C3604B

Note

• A 3~4 point flow rate scale is optionally available.

NF FLOW SWITCH

This flow switch, working as a water (oil) failure/reduction relay, is used for detection and check of flow rates of cooling water, oils, etc.



NF-I

Types : NF-I (fixed contact type) : The set point cannot be moved.
NF-II (variable contact type) : The set point can be moved.

Diameter : ³/₈B~3B flange type
Rc³/₈~Rc2 screw-in type

Withstanding Pressure : 1.0MPa

Temperature : 80°C or less

Contact Capacity : 15A 125. 250 or 480V AC
0.5A 125VDC. 0.25A 250VDC

Construction :

Body : FC250. CAC406. SS400. SUS304. SUS316. SUS316L
Main parts : C3604B. SUS304. SUS316. SUS316L



NF-II (Waterproof Type)

STF-S FLOW METER



This flow meter uses a metal tapered tube with the indicating section magnet-coupled out of liquids to be measured. There are two types : STF-S-I transmitting from remote locations through conversion into linear analog pneumatic signals between 0.02 and 0.098MPa by the pneumatic transmitter incorporated in the indication case, and STF-S-II transmitting electric signals.

Types : STF-S(A) : Instantaneous field indication (with contact)
STF-S-T : Instantaneous field indication+field integration
STF-S-I : Instantaneous field indication+pneumatic transmission
STF-S-II : Instantaneous field indication+electric transmission

Diameter : $1/2$ B~8B flange type

Withstanding Pressure : 1.0MPa

* Those for high pressure are also available.

Temperature : 80°C or less

Accuracy : $\pm 2\%$ FS

Construction :

Body : SS400, SUS304, SUS316, SUS316L

Main parts : SUS304, SUS316, SUS316L

STF-H FLOW METER



The measurement principles of this flow meter use the same as that of the SR flow meters, except that the tapered tube section is made of metal for high-temperature and high-pressure opaque liquids with the indicating section taken at the top.

Diameter : $1/2$ B~6B flange type

Withstanding Pressure : 0.7MPa

Temperature : 80°C or less

Accuracy : $\pm 2\%$ FS

Construction :

Body : SS400, SUS304, SUS316, SUS316L

Main parts : SUS304, SUS316, SUS316L

STF FLOW METER



STF

This area flow meter using a metal tapered tube, was developed specifically for measuring slurry fluids. This flow meter, using a ribbed glass tube for the indicating section, can also measure opaque liquids such as sludge, and does not cause a condition where the indication is difficult to read due to adhesion of scales, etc.

Diameter : 1/2B~8B flange type

Withstanding Pressure : 0.7MPa

Temperature : 80°C or less

Accuracy : ±2%FS

Construction :

Body : SS400. SUS304. SUS316. SIS316L

Main parts : SUS304. SUS316. SUS316L

Liquid-contact lining : Rubber

epoxy resin

PVC

STF-T FLOW METER



STF-T

This STF flow meter provided with an air chamber between the connecting section and indicating section, was manufactured specifically for slurry fluids. Structurally, slurries have difficulty entering the indicating section even if large amounts of sand, dust, etc. are mixed in fluids.

Diameter : 1/2B~8B flange type

Withstanding Pressure : 0.7MPa

Temperature : 80°C or less

Accuracy : ±2%FS

Construction :

Body : SS400. SUS304. SUS316. SUS316L

Main parts : SUS304. SUS316. SUS316L

Liquid-contact lining : Rubber

epoxy resin

PVC

☆RFH for High-Viscosity and High-Pressure Fluids
(Instantaneous+Integrated Indication)

This RIVER FLOW is modified for high-viscosity and high-pressure fluids, which is most suitable for measuring the flow rates of greases, and in hydraulic circuits of construction equipment, earthmoving equipment, etc.



RFH

Diameter : Rc^{1/4}~Rc^{1/2}

Operating Pressure : 21MPa

Withstanding Pressure : 31MPa

Operating NLGL No. and Consistency : NLGL : NLGL No. 006~6
Consistency range : 85~475

Ambient Temperature : -5°C~+40°C

Liquid Temperature : 0°C~80°C

Accuracy : ±1%

Indication : Instantaneous flow rate indication : 4 digits

Integrated flow rate indication : 8 digits

Characteristics :

- ★ No restrictions on the installation location in piping lines as it can be used in 21MPa oil pressure lines.
- ★ Can be used for grease of any consistency.
- ★ Can also be used as a stroke gauge on construction equipment, earthmoving equipment, etc.

FS SIGHT FLOW INDICATORS (Transparent Sight Glass)



FS-I



FS-II



FS-I-N



FS-B

Types : FS-I : Without flapper

FS-II : With flapper

FS-B : With balls

FS-I-N : With nozzle

FS-IV : Normal/reverse dual-use

FS-T : Rotor vane

FS-W : With wiper

Diameter : ³/₈B~6B flange type

Rc³/₈~Rc2 screw-in type

Withstanding Pressure : 1.0MPa

Temperature : 80°C or less

Construction :

Body : FC250. FCD450. CAC406. SS400. SUS304. SUS316

Main parts : C2801P. SUS304. SUS316

Note

- FS-II type can be provided with a rough flow rate scale.



FS-IV



FS-T



FS-W

SR FLOW METER



SR-I



SR-III



SR-II

Types : SR-I : Ribbed Pyrex glass tapered tube flow meter
 SR-II : Inorganic glass tapered tube flow meter
 SR-III : Methacrylic resin tapered tube flow meter

Diameter : SR-I : $\frac{3}{8}$ B~2B flange type
 SR-II : $\frac{3}{8}$ B~3B flange type
 SR-III : $\frac{3}{8}$ B~3B flange type

Withstanding Pressure : SR-I : $\frac{3}{8}$ B~ $\frac{3}{4}$ B 1.0MPa
 1B~2B 0.7MPa
 SR-II : $\frac{3}{8}$ B~ $\frac{3}{4}$ B 1.0MPa
 1B~3B 0.7MPa
 SR-III : $\frac{3}{8}$ B~ $\frac{3}{4}$ B 1.0MPa
 1B~3B 0.7MPa

Temperature : SR-I : 80°C or less
 SR-II : 60°C or less
 SR-III : 50°C or less

Accuracy : $\pm 2\%$ FS

Construction :

Body : FC250, SS400, SUS304, SUS316, SUS316L, PVC
 Float : SUS304, SUS316, SUS316L, PTFE, PVC, Ti
 Stay : SS400, SUS304, SUS316

TR FLOW METER (Simple Type)



TR-I



TR-III

Types : TR-I : Pyrex glass tapered tube flow meter
 TR-III : Methacrylic resin tapered tube flow meter

Diameter : TR-I : RC $\frac{1}{4}$ ~RC $\frac{3}{4}$
 TR-III : RC $\frac{1}{4}$ ~RC $\frac{3}{4}$

Withstanding Pressure : TR-I : 1.0MPa
 TR-III : 1.0MPa

Temperature : TR-I : 80°C or less
 TR-III : 50°C or less

Accuracy : $\pm 2\%$ FS

Construction :

Body : C3604B, SS400, SUS304, SUS316
 Float : SUS304, SUS316, PTFE, PVC, Ti
 Outer casing : SGP, SUS304TPA, SUS316TPA

INF FLOW METER & FLOW SWITCH

This flow meter & flow switch is an NF flow switch equipped with an indicator.

Though an area flow meter, it is a compact flow meter that can measure the flow rates of liquids and gases in horizontal piping.



INF-MA

Types : INF-M : Instantaneous flow rate indicator
INF-MA : Instantaneous flow rate indicator+1 contact

Diameter : $\frac{3}{8}$ B~3B flange type
Rc $\frac{3}{8}$ ~Rc2 screw-in type

Withstanding Pressure : 1.0MPa

Temperature : 80°C or less

Contact Capacity : 5A 125 or 250VAC
0.5A 125VDC. 0.25A 250VDC

Construction :

Body : FC250. CAC406. SS400. SUS304. SUS316. SUS316L
Main parts : C3604B. SUS304. SUS316. SUS316L

CY FLOW SWITCH (Flow Switch for Unfilled Conditions)

This flow switch is most suitable for unfilled return oil (water) piping in which the piping is not filled with oil (water).

This includes a needle for variable contact, the adjustment of which allows variations of the set flow rate.

Type : CY- I

Standard type

Direction of flow : Side → bottom

Diameter : $\frac{3}{8}$ B~6B flange type

Withstanding Pressure : 0.5MPa

Temperature : 80°C or less

Contact Specifications : For 220V AC as standard.

Max. Contact Capacity : 50VAAC, 50WDC

Max. operating current : 0.5AAC, 0.5ADC

Max. operating voltage : 300VAC, 300VDC

Max. contact resistance : 0.1Ω

Construction :

Body : SS400. SUS304. SUS316

Main parts : C3604B. SUS304. SUS316



CY- I

PMF/MMF FLOW METER



PMF



MMF

Types : PMF : Panel-mounted type
 MMF : Metal-tube area mini flow meter

Diameter : $1/2$ B~1B flange type
 Rc $1/2$ ~Rc1 screw-in type

Flow rates :

	Gas	Liquid
$1/2$ B	10Nl/h~100Nl/h	0.3~3l/h
$3/4$ B	0.2Nm ³ /h~2Nm ³ /h	10~100l/h
1B	2.5Nm ³ /h~25Nm ³ /h	120~1,200l/h

Withstanding Pressure : 1.0MPa
 Special specifications up to 30MPa can be manufactured.

Temperature : 100°C or less
 Special specifications up to 300°C can be manufactured.

Accuracy : $\pm 3\%$ FS

Construction :
 Body : SUS304. SIS316
 Main parts : SUS316. Ti

SMF FLOW METER (Metal-tube Area Type)



SMF-V

Types : SMF-B : Flow direction : Bottom → Side
 SMF-V : Flow direction : Bottom → Top
 SMF-H : Flow direction : Horizontal

Diameter : $1/2$ B~8B flange type

Withstanding Pressure : 1.0MPa
 Special specifications up to 50MPa can be manufactured.

Temperature : 100°C or less
 Special specifications up to 400°C can be manufactured.

Accuracy : $\pm 2\%$ FS

Construction :
 Body : SS400. SUS304. SUS316. PVC
 Main parts : SUS304. SUS316. PVC

SMC FLOW METER (Compact Type)



SMC-V

Types : SMC-B : Flow direction : Bottom → Side
 SMC-V : Flow direction : Bottom → Top
 SMC-H : Flow direction : Horizontal

Diameter : $1/2$ B~2B flange type

Withstanding Pressure : 1.0MPa

Temperature : 100°C or less

Accuracy : $\pm 2\%$ FS

Construction :
 Body : SS400. SUS304. SUS316
 Main parts : SUS304. SUS316. Ti

SR-II-P FLOW METER (Panel Type)



SR-II-P-N

This SR flow meter for relatively small flow rates is modified for panel mounting or a stand type. The outlet side or inlet side can also be equipped with a flow control needle valve.

Diameter : Rc^{1/4} ~ Rc^{1/2}

Flow rates :	Gas (air) max.	Liquid (water) max.
Rc ^{1/4}	1NI/min~10NI/min	30cc/min~300cc/min
Rc ^{3/8}	3NI/min~30NI/min	0.1l/min~1l/min
Rc ^{1/2}	10NI/min~100NI/min	0.3l/min~3l/min

Withstanding Pressure : 1.0MPa

Temperature : 60°C or less

Accuracy : ±2%FS

Construction :

Body : C3604B, SUS304, SUS316, PVC

Float : SUS304, SUS316, PTFE, PVC, Glass

KNR FLOW METER (Purge Meter)



KNR-3200



KNR-4000

This glass tapered tube flow meter measures micro flow rates of gases and liquids as it is mounted on a panel, directly mounted to piping, or mounted on a stand to monitor the flow rates of analytical instruments and measuring instruments.

Types :	Without valve	With valve
	KNR-100	KNR-100V
	KNR-1125	KNR-1225
	KNR-1150	KNR-1250
	KNR-1175	KNR-1275
	KNR-3100	KNR-3200
	KNR-4000	
	KNR-5000	

Diameter : Rc^{1/8}, Rc^{1/4}, Rc^{1/2}

Flow rates :	Gas	Liquid
Rc ^{1/8}		
KNR-100	30~300Ncc/min	
KNR-1125	150~1,500Ncc/min	5~50cc/min
KNR-1150	150~1,500Ncc/min	5~50cc/min
KNR-1175	0.5~5NI/min	20~200cc/min
Rc ^{1/4}		
KNR-3100	10~100NI/min	0.3~3l/min
KNR-4000	10~100NI/min	0.3~3l/min
Rc ^{1/2}		
KNR-5000	30~300NI/min	2.5~25l/min

Withstanding Pressure : 1.0MPa

Temperature : 60°C or less

Accuracy : ±2%FS

Construction : KNR-100, KNR-1125, KNR-3100, KNR-4000, KNR-1150, KNR-1175, KNR-5000.

Body : C3604B, Jurakon, PVC

Float : Carbon ball, SUS304, Glass, SUS304

Tapered tube : Hard glass, Pyrex

FS-C/FS-N SIGHT FLOW INDICATORS WITH NEEDLE VALVE



FS-C



FS-N

Types : FS-C : The capped needle valve prevents access by unauthorized personnel after setting the oil level.

FS-N : The needle valve is a vibration-proof 2.0MPa type, allowing high-precision adjustment of trace amounts.

Diameter : FS-C : Rc^{1/4}~Rc1^{1/2}

FS-N : Rc^{1/4}~Rc1

Withstanding Pressure : 1.0MPa

Temperature : 80°C or less

Construction : FS-C : Flow sight body FCD450

main parts C2801P

Needle valve body CAC406

main parts C3604B

FS-N : Flow sight body FCD450

main parts C2801P

Needle valve body C3771B

main parts C3604B

Note

- In order to prevent damage to window glass, the FS-K type, complying with fire laws, with a steel protective cover and with no window glass, is also available. For small flow rates and for measuring deep-black oils, use the FS-O type.

FI SIGHT FEED INDICATOR

Types : FI-1~FI-12

The flow direction is from side to bottom, and the inlet side is provided with a needle valve so that oil amounts can be controlled.

Diameter :	Inlet	Outlet	
FI-1 :	Rc ^{1/4}	× Rc ^{1/2}	max. flow rate 3 l/min.
FI-2 :	Rc ^{3/8}	× Rc ^{1/2}	max. flow rate 3 l/min.
FI-3 :	Rc ^{1/2}	× Rc ^{1/2}	max. flow rate 3 l/min.
FI-4 :	Rc ^{1/4}	× Rc ^{3/4}	max. flow rate 5 l/min.
FI-5 :	Rc ^{3/8}	× Rc ^{3/4}	max. flow rate 5 l/min.
FI-6 :	Rc ^{1/2}	× Rc ^{3/4}	max. flow rate 5 l/min.
FI-7 :	Rc ^{3/4}	× Rc ^{3/4}	max. flow rate 5 l/min.
FI-8 :	Rc ^{1/4}	× Rc1	max. flow rate 5 l/min.
FI-9 :	Rc ^{3/8}	× Rc1	max. flow rate 5 l/min.
FI-10 :	Rc ^{1/2}	× Rc1	max. flow rate 5 l/min.
FI-11 :	Rc ^{3/4}	× Rc1	max. flow rate 5 l/min.
FI-12 :	Rc1	× Rc1	max. flow rate 10 l/min.

Withstanding Pressure : 1.0MPa

Temperature : 80°C or less

Construction :

Body : AC-8BT6

Main parts : C3604B

Needle valve : SUS304

Note

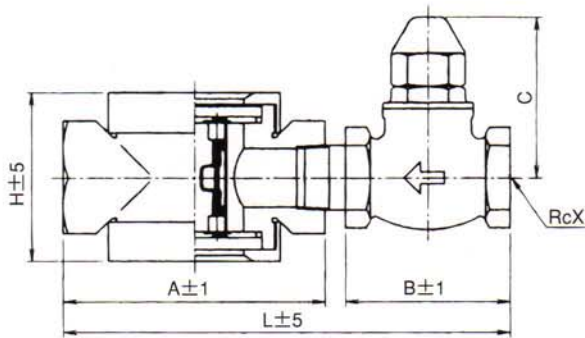
- In order to prevent damage to the window glass, a steel-protective-cover-equipped type, complying with fire laws, is also manufactured.



FI

SPECIFICATIONS

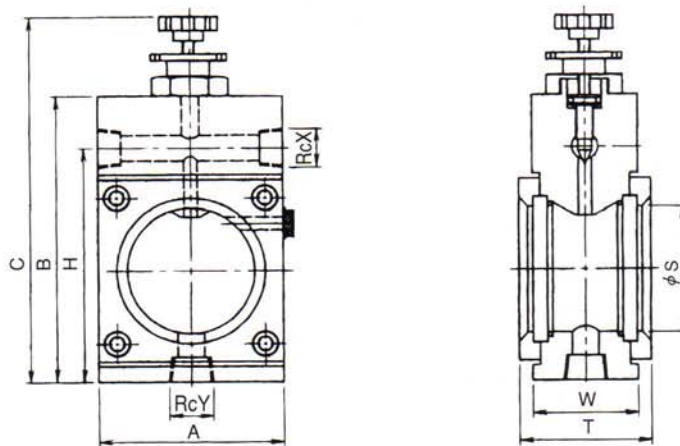
SIGHT FLOW INDICATORS WITH NEEDLE VALVE **FS-C**



RcX	A	B	C	H	L	(L/M) QUANTITY
Rc ¹ / ₄	70	40	50	54	118	1 - 8
Rc ³ / ₈	70	50	50	54	132	3 - 15
Rc ¹ / ₂	80	60	66	57	155	5 - 24
Rc ³ / ₄	90	70	66	63	178	8 - 44
Rc1	100	80	80	76	203	10 - 70

SPECIFICATIONS

SIGHT FEED INDICATOR **FI**

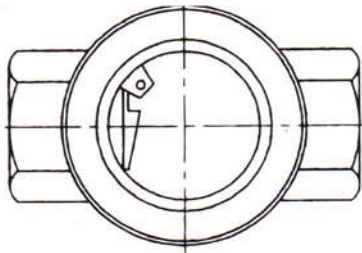


TYPE	RcX	RcY	A	B	C	T	W	H	S
FI-1	Rc ¹ / ₄	Rc ¹ / ₂	70	110	145	52	40	90	48
FI-2	Rc ³ / ₈	Rc ¹ / ₂	70	110	142	52	40	90	48
FI-3	Rc ¹ / ₂	Rc ¹ / ₂	70	110	140	52	40	90	48
FI-4	Rc ¹ / ₄	Rc ³ / ₄	70	110	145	62	50	90	48
FI-5	Rc ³ / ₈	Rc ³ / ₄	70	110	142	62	50	90	48
FI-6	Rc ¹ / ₂	Rc ³ / ₄	70	110	140	62	50	90	48
FI-7	Rc ³ / ₄	Rc ³ / ₄	70	110	140	62	50	90	48
FI-8	Rc ¹ / ₄	Rc1	70	110	145	62	50	90	48
FI-9	Rc ³ / ₈	Rc1	70	110	142	62	50	90	48
FI-10	Rc ¹ / ₂	Rc1	70	110	140	62	50	90	48
FI-11	Rc ³ / ₄	Rc1	70	110	140	62	50	90	48
FI-12	Rc1	Rc1	70	125	155	62	50	100	48

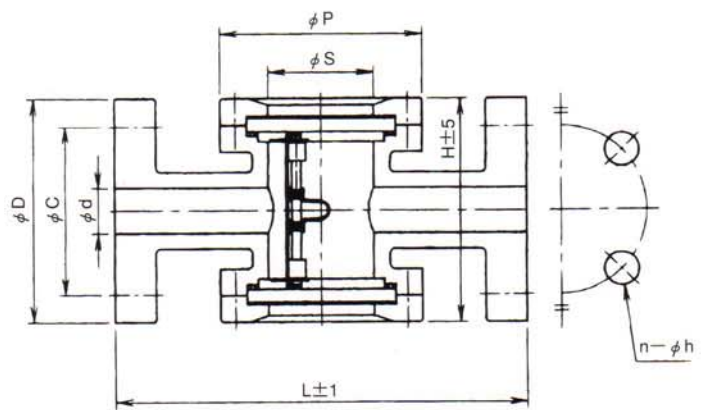
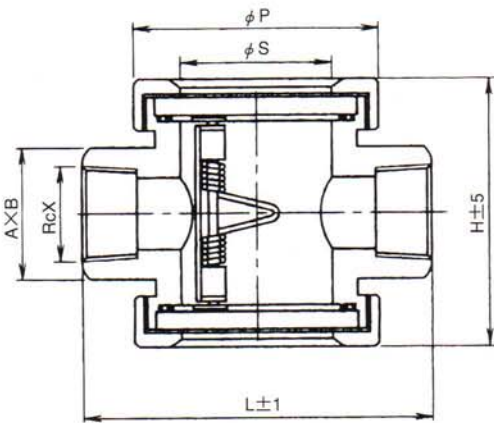
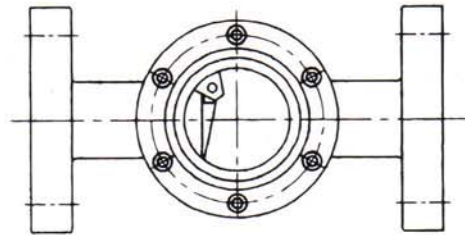
SPECIFICATIONS

SIGHT FLOW FS-II

FS-II (SCREW TYPE)



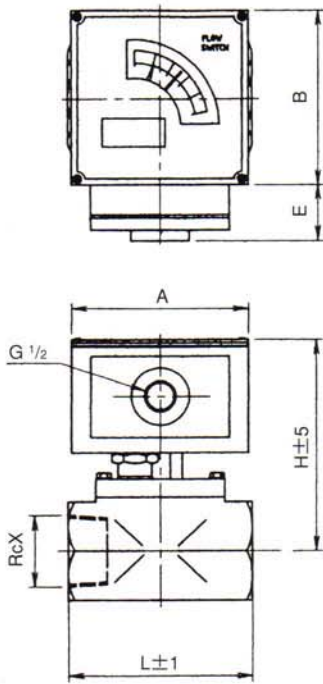
FS-II (FLANGE TYPE)



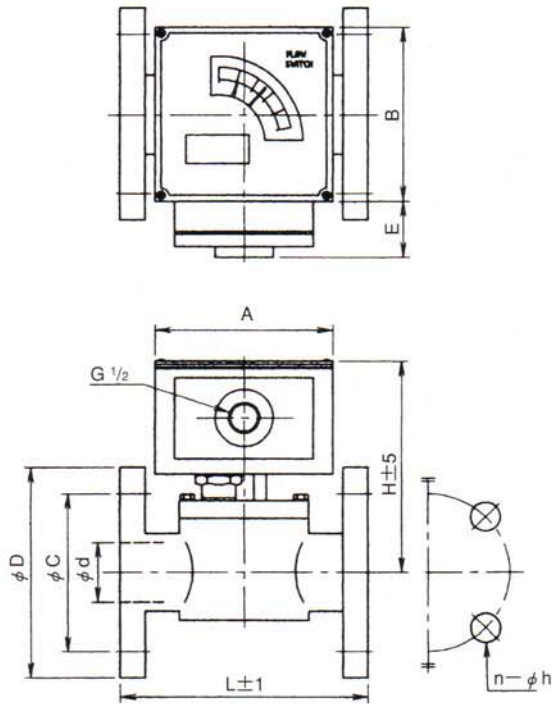
SCREW TYPE						FLANGE TYPE									
RcX	H	S	P	L	A×B	SIZE	d	C	D	H	S	P	L	n-h	
Rc ³ / ₈	74	40	71	100	35×40	³ / ₈ B	10	65	90	80	40	80	160	4-15	
Rc ¹ / ₂	74	40	71	100	35×40	¹ / ₂ B	15	70	95	80	40	80	160	4-15	
Rc ³ / ₄	92	46	78	110	41×47	³ / ₄ B	20	75	100	100	46	88	180	4-15	
Rc1	94	52	84	120	46×53	1B	25	90	125	102	52	96	180	4-19	
Rc1 ¹ / ₄	132	70	110	150	60×69	1 ¹ / ₄ B	32	100	135	140	75	120	180	4-19	
Rc1 ¹ / ₂	132	70	110	150	60×69	1 ¹ / ₂ B	40	105	140	140	75	120	180	4-19	
Rc2	142	70	110	160	80×92	2B	50	120	155	150	80	128	220	4-19	
						2 ¹ / ₂ B	65	140	175	200	120	180	270	4-19	
						3B	80	150	185	200	120	180	270	8-19	
						4B	100	175	210	230	155	240	320	8-19	
						5B	125	210	250	270	175	260	380	8-23	
						6B	150	240	280	300	200	300	420	8-23	

SPECIFICATIONS
FLOW METER KY-M
FLOW SWITCH KY-MA

KY-MA (SCREW TYPE)



KY-MA (FLANGE TYPE)



SCREW TYPE									SIZE	MAX. FLOW (WATER) L/M	FLANGE TYPE											
RcX	L	H		A		B		E *			d	C	D	L	H			A		B		E *
		KY-M TYPE	KY-MA TYPE	KY-M TYPE	KY-MA TYPE	KY-M TYPE	KY-MA TYPE								KY-M TYPE	KY-MA TYPE	n-h	KY-M TYPE	KY-MA TYPE	KY-M TYPE	KY-MA TYPE	
Rc ³ / ₈	80	99	124	90	115	90	115	40	³ / ₈ B	30	10	65	90	150	99	124	4-15	90	115	90	115	40
Rc ¹ / ₂	80	99	124	90	115	90	115	40	¹ / ₂ B	30	15	70	95	150	99	124	4-15	90	115	90	115	40
Rc ³ / ₄	90	107	132	90	115	90	115	40	³ / ₄ B	50	20	75	100	150	107	132	4-15	90	115	90	115	40
Rc1	100	109	134	90	115	90	115	40	1B	100	25	90	125	160	109	134	4-19	90	115	90	115	40
Rc1 ¹ / ₄	120	117	142	90	115	90	115	40	1 ¹ / ₄ B	150	32	100	135	160	117	142	4-19	90	115	90	115	40
Rc1 ¹ / ₂	120	117	142	90	115	90	115	40	1 ¹ / ₂ B	200	40	105	140	160	117	142	4-19	90	115	90	115	40
* E-For KY-MA Type only.									2B	300	50	120	155	200	132	157	4-19	90	115	90	115	40
									2 ¹ / ₂ B	400	65	140	175	250	209	234	4-19	90	115	90	115	40
									3B	600	80	150	185	280	164	189	8-19	90	115	90	115	40
									4B	1200	100	175	210	300	219	244	8-19	90	115	90	115	40
									5B	1800	125	210	250	400	228	253	8-23	90	115	90	115	40

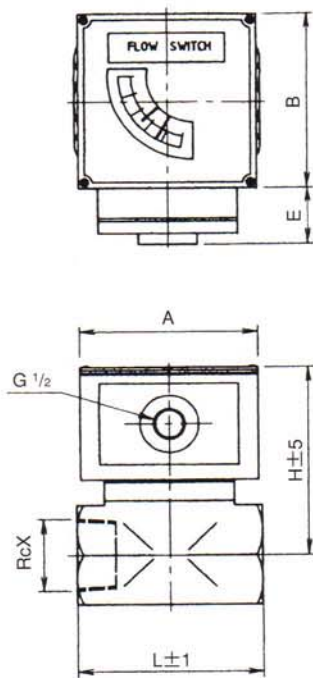
Note : Above specifications are JIS (Japanese Industrial Standard).
 N. P. T., ANSI, or DIN specifications can also be available upon your request.

SPECIFICATIONS

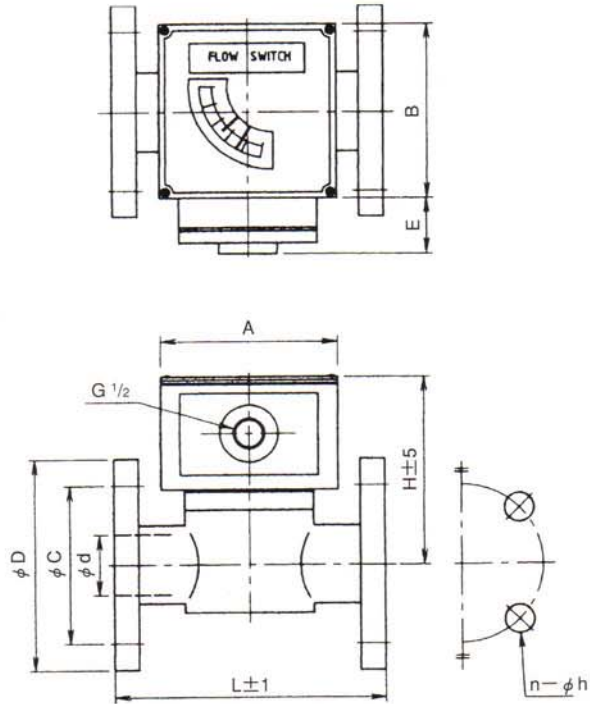
FLOW METER **FY-M**

FLOW SWITCH **FY-MA**

FY-MA (SCREW TYPE)



FY-MA (FLANGE TYPE)



SCREW TYPE									SIZE	MAX. FLOW (WATER) L/M	FLANGE TYPE											
RcX	L	H		A		B		E*			d	C	D	L	H			A		B		E*
		FY-M TYPE	FY-MA TYPE	FY-M TYPE	FY-MA TYPE	FY-M TYPE	FY-MA TYPE								FY-M TYPE	FY-MA TYPE	n-h	FY-M TYPE	FY-MA TYPE	FY-M TYPE	FY-MA TYPE	
Rc ³ / ₈	90	85	110	90	115	90	115	40	³ / ₈ B	15	10	65	90	180	85	110	4-15	90	115	90	115	40
Rc ¹ / ₂	90	85	110	90	115	90	115	40	¹ / ₂ B	30	15	70	95	180	85	110	4-15	90	115	90	115	40
Rc ³ / ₄	90	95	120	90	115	90	115	40	³ / ₄ B	50	20	75	100	180	95	120	4-15	90	115	90	115	40
Rc1	100	100	125	90	115	90	115	40	1B	60	25	90	125	180	100	125	4-19	90	115	90	115	40
Rc1 ¹ / ₄	140	115	140	90	115	90	115	40	1 ¹ / ₄ B	100	32	100	135	180	115	140	4-19	90	115	90	115	40
Rc1 ¹ / ₂	140	115	140	90	115	90	115	40	1 ¹ / ₂ B	150	40	105	140	180	115	140	4-19	90	115	90	115	40
* E-For FY-MA Type only.									2B	250	50	120	155	240	155	180	4-19	90	115	90	115	40
									2 ¹ / ₂ B	500	65	140	175	250	190	215	4-19	90	115	90	115	40
									3B	800	80	150	185	280	195	220	8-19	90	115	90	115	40
									4B	1200	100	175	210	300	205	230	8-19	90	115	90	115	40
									5B	2000	125	210	250	400	210	235	8-23	90	115	90	115	40

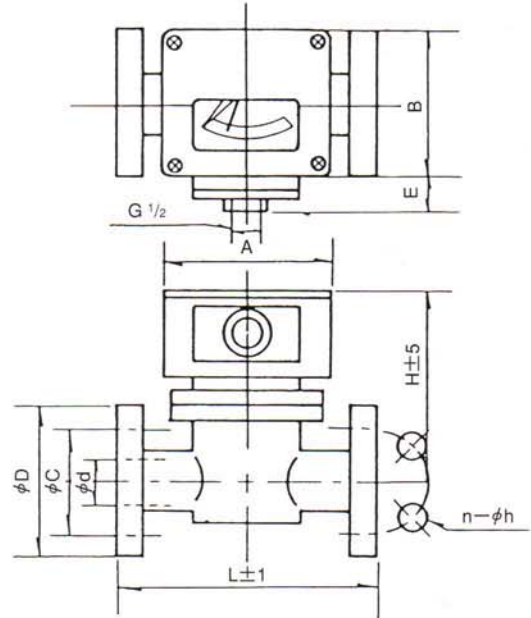
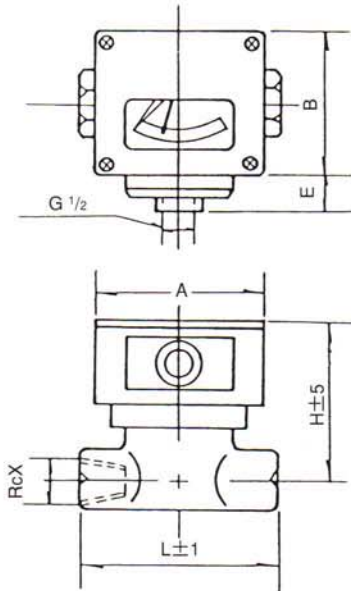
Note : Above specifications are JIS (Japanese Industrial Standard).

N. P. T., ANSI, or DIN specifications can also be available upon your request.

SPECIFICATIONS

FLOW METER **SF-M**

FLOW SWITCH **SF-MA**



SCREW TYPE						SIZE	MAX FLOW (WATER) L/M	FLANGE TYPE								
RcX	L	H	A	B	E*			d	D	C	L	H	n-h	A	B	E*
Rc ³ / ₈	90	141	138	117	40	³ / ₈ B	20	10A	90	65	180	141	4-15	138	117	40
Rc ¹ / ₂	90	141	138	117	40	¹ / ₂ B	30	15A	95	70	180	141	4-15	138	117	40
Rc ³ / ₄	90	151	138	117	40	³ / ₄ B	50	20A	100	75	180	151	4-15	138	117	40
Rc1	100	156	138	117	40	1B	80	25A	125	90	180	156	4-19	138	117	40
Rc1 ¹ / ₄	140	168	138	117	40	1 ¹ / ₄ B	150	32A	135	100	180	168	4-19	138	117	40
Rc1 ¹ / ₂	140	168	138	117	40	1 ¹ / ₂ B	200	40A	140	105	180	168	4-19	138	117	40
* E—For SF-MA Type only.						2B	400	50A	155	120	240	198	4-19	143	153	40
						2 ¹ / ₂ B	500	65A	175	140	250	233	4-19	143	153	40
						3B	800	80A	185	150	280	237	8-19	143	153	40
						4B	1200	100A	210	175	300	245	8-19	143	153	40
						5B	2000	125A	250	210	400	252	8-23	143	153	40
						6B	2500	150A	280	240	400	292	8-23	143	153	40
						7B	4000	175A	305	265	500	355	12-23	143	153	40
						8B	6000	200A	330	290	555	425	12-23	143	153	40
						10B	8000	250A	400	355	600	460	12-25	143	153	40
						12B	10000	300A	445	400	650	500	16-25	143	153	40

Note : Above specifications are JIS (Japanese Industrial Standard).

N. P. T., ANSI, or DIN specifications can also be available upon your request.

MS-P FLOW METER OF NON-SPRING DYNAMIC PRESSURE PLATE TYPE

(Japanese Utility Model No.2004042)

This flow meter has been developed for the purpose of measuring corrosive fluids (plating liquids, etc.)

Conventionally, spring-incorporated or metal tapered tube flow meters would be used for measuring this kind of liquid, but the main parts of the flow meters would seriously deteriorate over time, and their service lives are extremely short due to corrosive fluids. This flow meter, having been then developed, operates on an absolutely physical principle, and it is highly durable, and its performance will not deteriorate when used with corrosive fluids.



Standard flow meter



High-pressure flow meter



Magnetic shielding flow meter

Diameter : 2B~8B flange type

Temperature : 80°C or less (non-freezing)

Acid Resistance : PH1~7

Withstanding Pressure : 0.3MPa

*0.5MPa can also be ordered specially.

Characteristics :

- ★ Most suitable for measuring corrosive fluids (plating liquids, etc.)
- ★ Contaminated liquids can clearly be measured because of the indicating section out of contact with the liquid.
- ★ The scale is relatively linear because it is balanced by using a special toggle link mechanism relative to the fluid energy.
- ★ The absolutely physical flow meter hardly deteriorates over time.
- ★ The flow meter is compact and lightweight.
- ★ There are three flow directions : horizontal ; left ⇔ right, and from bottom to top. The flow direction from top to bottom is not available.
- ★ Can also be used in magnetic fields by using a magnetic shielding case.

Construction :

Body : HTPVC (FRP lining)

Main parts : Ti, SUS316, SUS316L

SV SAFETY VALVE (for High Pressure)

Types : SV-I : Diameter Rc³/₄
Maximum pressure 21Mpa
SV-II : Diameter Rc1
Maximum pressure 11Mpa

Withstanding Pressure : 31.5MPa

Operating Fluids : Oils

Characteristics :

- ★ Its special valve structure has good response characteristics to severe blowouts.
- ★ The high quality material of the spring assures excellent reproducibility of the set pressure.
- ★ Though designed to resist high pressure, it is compact and low-priced.

Construction :

Body : SS400

Main parts : SUS304

Spring : SWOCV-V



SV-II

CV RUGGED CHECK VALVE (for High Pressure)

Types : CV-I : Diameter 2B
CV-II : Diameter 4B
CV-III : Diameter 6B

Operating Pressure : 11MPa

Withstanding Pressure : 18MPa

Characteristics :

- ★ Reliable and quiet operation.
- ★ Lightweight compared with other products.
- ★ Low-priced and quick delivery.

Construction :

Body : SS400

Main parts : SUS304



CV-I

FR AUTOMATIC FLOW CONTROL VALVE

This constant flow control valve maintains the outlet flow rate constant even if the inlet pressure fluctuates.

Applications : For maintaining feed oil (water) constant.
 For protection including prevention of excessive flow rates, and functioning as a safety valve when hydraulic piping or the like bursts.
 For uniform water supply equipment, and maintaining flow rates constant in other cases.

Diameter : $\frac{3}{8}$ B~ $2\frac{1}{2}$ B flange type
 $Rc\frac{3}{8}$ ~ $Rc1\frac{1}{2}$ screw-in type

Withstanding Pressure : 2.0MPa~25MPa

Temperature : 80°C or less

Construction : SS400, C3604B, SUS304



FR-S

M F. Con (Flow Controller) Constant Flow Rate Valve

This constant flow rate valve for water has a function of supplying an automatically set constant flow rate to the secondary side even if the primary side pressure fluctuates.

Diameter : $Rc\frac{1}{2}$ ~ $Rc1$
Fluid : Water or hot water
Fluid Temperature : 0°C~100°C
Operating Pressure Range :

1070 series : 0.1~0.7MPa

0130 series : 10~300kPa

Set flow rates : 1070 series : 5l/min. 10l/min.
 15l/min. 20l/min.
 0130 series : 3l/min. 6l/min. 9l/min.
 12l/min. 15l/min. 20l/min.

Construction : 1070 series : Body : C3771B
 Needle : C3604B
 0130 series : Body : CAC406
 Needle : C5441B



1070 series



0130 series

ODF ORIFICE FLOW METER



ODF
(with Alarm Contact)

This flow meter measures the fluctuations of the pressure difference developing before and after the orifice by the differential pressure gauge, and indicates the flow rates. This differential pressure gauge can also be equipped with an alarm contact that allows remote transmission.

Diameter : 1B~20B flange type

Fluids : Liquids and gasses

Withstanding Pressure : 1.0MPa

Temperature : 80°C or less

Construction :

Measuring Section : SS400. SUS304. SUS316. SUS316L. P.V.C

Indicating Section : SUS316

PU U-TUBE DIFFERENTIAL PRESSURE GAUGE



PU

This U-tube differential pressure gauge measures the pressure difference between the inlet pressure and outlet pressure, which is most suitable for measuring the micro pressure difference of an orifice, duct, etc. Those for H₂O, Hg, oils, etc., are available. Specify the liquid to be measured.

Construction :

Body : Wood

SS400

Liquid-contact section : C3604B

SS400

SUS304

Measuring tube : Pyrex glass

Methacrylic resin

Measuring range : ±1kPa~±20kPa

PT LIQUID COLUMN PRESSURE GAUGE



PT

This liquid column pressure gauge is provided with a tank at the back and coupled at the lower end to measure the pressure difference for simplifying the measurement of the U-tube differential pressure gauge. Those for H₂O and Hg are available. When ordering, specify which one.

Measuring Range : 0~40kPa

Construction :

Body : SS400

Liquid-contact section : C3604B

SS400

SUS304



KAWAKI MEASURING INSTRUMENT CO.,LTD.

176-1, Imazu, Tamatsu-cho, Nishi-ku, Kobe 651-2128, Japan
Tel:078 (911) 1991 Fax:078 (913) 1543

E-mail: kawakime@skyblue.ocn.ne.jp
E-mail : info@kawaki.com
URL:<http://www.kawaki.com>

Agency

K C MAHANAKORN CO., LTD.

141,143 Narathiwat-Rachanakarin Rd., Chongnonsi, Yannawa, Bangkok 10120 Thailand
Tel. :+66 2678-2530-40
Website: www.kcbkk.com
