KF Series
Model KFL
Liquid Level Indicating Controller

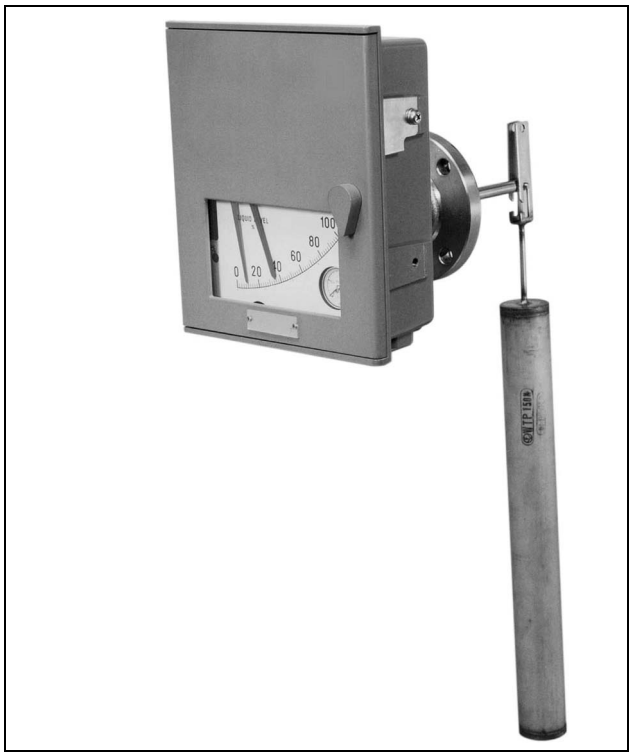
OVERVIEW

The KF Series instruments are field- installed type of pneumatic indicating controllers which are used to measure and control the various types of process variables such as liquid levels, temperatures, pressures and flows.

Model KFL Liquid Level Indicating Controllers are a displacement type of instruments to measure and control such process variables as liquid levels, boundary surfaces, and specific gravities.

They indicate and control the process variable by converting its change into mechanical displacement by means of a float (displacer) and a torque tube or a torque arm.

Indicating transmitters and indicating transmitting controllers also are available as well as indicating controllers. The controllers are available either in the local type to set the set-point value with the knob on the instrument or in the cascade type (remote type) to set the set-point value with a pneumatic signal.



FEATURES

- A wide variety of measuring elements and control mechanisms are available to meet various applications.
- A pneumatic circuit board and a heat-resistant weather-proof sturdy case are used, thereby greatly improving durability and reliability.
- The pneumatic circuit board system allows to readily add or eliminate control mechanisms and units, thereby enhancing the system modification and expansion flexibility.
- Interchangeable parts are used to the maximum practicable extent, thereby reducing the number of parts to be kept in stock.
- Able to measure stably a liquid level with pulsation. (High damping type)
- Manufacturing and test approvals awarded as per High Pressure Gas Control Ordinance.
- Able to cover wide ranges of temperatures, pressures, and specific gravities.

SPECIFICATIONS

Standard Specifications

<table>
<tr><th>Item</th><th>Specification</th></tr>
<tr><td colspan="2">Detector Section</td></tr>
<tr><td>Measuring range</td><td>0-300, 0-500, 0-700, 0-1000, 0-1500, 0-2000, 0-2500, 0-3000 mm</td></tr>
<tr><td>Specific-gravity</td><td>0.05-1.6 (for details, see the following table.)
<table>
<tr><td colspan="2">Pressure rating / Specific-gravity range</td><td>General type
JIS 10K, 30K
ANSI/JPI 150,300</td><td>Corrosion resistant type (major component: Hastelloy C)
JIS 63K,
ANSI/JPI 600</td><td>JIS 10K, 30K ANSI/JPI 150,300</td></tr>
<tr><td rowspan="2">Medium sp.-gr.</td><td>0.2-1.6</td><td colspan="3">Applicable to all ranges except 300 mm range.</td></tr>
<tr><td>0.3-1.6</td><td colspan="3">Applicable to 300 mm range only.</td></tr>
<tr><td rowspan="3">Low sp.-gr.</td><td>0.05-0.4</td><td>Applicable to all ranges except300 and 500 mm ranges. (applicable to JIS 10K and ANSI/JPI 150.)</td><td>—</td><td>—</td></tr>
<tr><td>0.08-0.4</td><td>Applicable to 500 mm range only.</td><td>—</td><td>—</td></tr>
<tr><td>0.1-0.6</td><td>Applicable to 300 mm range only.</td><td>—</td><td>—</td></tr>
</table></td></tr>
<tr><td>Process Connections</td><td>Flange connections
External chamber type: Connecting method; Side-side flanged, Side-bottom flanged,
Top-side flanged, Top-bottom flanged
Flange size; 2 in. or 1½ in. RF, 2 in. or 1½ in. RTJ for ANSI600
Internal float type: Connecting method; Top flanged, Side flanged
Flange size; 4 in. RF, 4 in. RTJ for ANSI600</td></tr>
<tr><td>Operating pressure and temperature range</td><td>
<table>
<tr><td>Type of detector</td><td>Pressure and temperature range</td></tr>
<tr><td>High damping type (model 31 or 32)</td><td>From -100 kPa {-1.0 kgf/cm^2} to respective pressure ratings (refer to table 2 and fig.1)</td></tr>
<tr><td>Torque tube type (model 51 or 52)</td><td>From -103.3 kPa {-1.033 kgf/cm^2} to respective pressure ratings, -196 to +400°C</td></tr>
</table></td></tr>
<tr><td>Materials (table 1)</td><td>
<table>
<tr><td colspan="2">Model No. (temp. range) / Major components</td><td>U
(350 to 400°C)</td><td>H
(200 to 250°C)</td><td>M
(200 to 350°C)</td><td colspan="2">E
(0 to 200°C)</td><td>W
(-40 to 200°C)</td><td>D
(-196 to 0°C)</td><td>(-40 to 0°C)</td></tr>
<tr><td colspan="2">Torque tube</td><td>Inconel</td><td>—</td><td>Inconel</td><td>—</td><td>SUS 316L</td><td>—</td><td>SUS 316L</td><td>—</td></tr>
<tr><td colspan="2">Seal diaphragm</td><td>—</td><td>SUS 316L</td><td>—</td><td>SUS 316L</td><td>—</td><td>Hastelloy C</td><td>—</td><td>SUS 316L</td></tr>
<tr><td colspan="2">Bonnet</td><td colspan="8" rowspan="2">Carbon steel (SFVC 2A, SUS304, SUS316, SUS316L (Standard use of carbon steel is at temperature higher than 0°C. Please contact us to operating -196 to 0°C temp. range. And SUS316L is standard, in case of seal diaphragm material is made of Hastelloy C.)</td></tr>
<tr><td colspan="2">Chamber</td></tr>
<tr><td colspan="2">Float</td><td colspan="6">SUS 316L</td><td>Hastelloy C</td><td>SUS 316L</td></tr>
<tr><td colspan="2">Bolts</td><td colspan="6">Chromium-molybdenum steel (SNB7)</td><td>SUS 304</td></tr>
<tr><td rowspan="2">Gasket</td><td>JIS10K, 30K ANSI/JPI150, 300</td><td colspan="3" rowspan="2">Semi-metallic (filler material: asbestos)</td><td colspan="3">Asbestos sheet</td><td colspan="2">Teflon sheet (ceramic reinforced)</td></tr>
<tr><td>JIS63K ANSI/JPI 600</td><td colspan="3">Semi-metallic (filler material: asbestos)</td><td>—</td><td>Semi-metallic (filler material: material: teflon)</td></tr>
<tr><td colspan="2">Radiating fins</td><td>Provided</td><td>Not provided</td><td>Provided</td><td>Not provided</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Sealing liquid</td><td>—</td><td>B</td><td>—</td><td>B</td><td>—</td><td>A</td><td>—</td><td>A</td></tr>
</table></td></tr>
<tr><td colspan="2">Performance</td></tr>
<tr><td>Accuracy, repeatability, and dead band</td><td>
<table>
<tr><td colspan="2">Specific-gravity range</td><td colspan="2">Accuracy (calibration with weight)</td><td rowspan="2">Repeatability</td><td rowspan="2">Dead band</td></tr>
<tr><td>Medium sp.-gr.</td><td>Low sp.-gr.</td><td>Transmission</td><td>Indication</td></tr>
<tr><td>Less than 0.4
0.4 or over</td><td>Less than 0.1
0.1 or over</td><td>1.0% FS
±0.5% FS</td><td>±1.5% FS
±1.0% FS</td><td>0.6% FS
0.3% FS</td><td>0.2% FS
0.1% FS</td></tr>
</table></td></tr>
<tr><td>Damping adjustment</td><td>Adjustable range: Approx. 100:1 or more (time constant is 20 sec. or more at maximum damping)
(applicable to type 31 or 32 detector)</td></tr>
<tr><td colspan="2">Indicator Section</td></tr>
<tr><td>Indicating angle</td><td>44 degrees</td></tr>
<tr><td>Scale length</td><td>150mm</td></tr>
<tr><td>Pointers</td><td>PV ; Red, SP ; Green</td></tr>
<tr><td>Output gauge (40mm)</td><td>Scale: 0-200 kPa {0-2 kgf/cm^2} Indicating accuracy: ±3% FS</td></tr>
<tr><td colspan="2">Setting Section</td></tr>
<tr><td>Local Setting</td><td>Internal or external setting with a setting knob.</td></tr>
<tr><td>Remote Setting</td><td>With a pneumatic signal of 20-100 kPa (0.2-1.0 kgf/cm^2}</td></tr>
<tr><td>Setting range</td><td>0-100% FS</td></tr>
</table>

Item		Specification
Controller Section		
	Control actions	P + manual reset, PI, PID, PD +manual rest, PI + batch, on-off, differential gap, P + external reset, PD + external reset
	Proportional band (P)	5-500% (direct or reverse action)
	Integral time (I)	0.05-30 minutes
	Derivative time (D)	0.05-30 minutes
	Differential gap	0-100% FS, adjustable
	Batch setting pressure	60 to 110 kPa {0.6 to 1.1 kgf/cm^2} adjustable
	External reset pressure	20 to 100 kPa {0.2 to 1.0 kgf/cm^2}
	Manual reset	0 to 100% FS, adjustable (by pneumatic pressure settings)
General Specifications		
	Signal pressure	20 to 100 kPa {0.2 to 1.0 kgf/cm^2}, 0 or Corresponding to supply air pressure (on-off, differential gap)
	Minimum load	ID 4 mm x 3 m + 20 cm^3
	Supply air pressure	140 ±14 kPa {1.4 ±0.14 kgf/cm^2}
	Air consumption (50% output balanced)	Indicating transmitter (A0) ; 5 L/min [N] Indicating controller (A1, A3) ; 9 L/min [N] Indicating transmitting controller (A2, A4) ; 9 L/min [N] Manual controller (M) ; 3 L/min [N]
	Saturated air supply capacity	Transmitter output : 40 L/min [N] Controller output : 40 L/min [N] Manual control output : 30 L/min [N]
	Air piping connections	Rc ¼ (PT ¼ internal thread) or ¼ NPT internal thread
	Operating temperature	Controller (ambient); -30 to +80 °C
	Relative humidity	10-90% RH
	Case, Door	Enclosure ; Rain-tight and dust-tight, meets JIS F8001 Class 3 splash-proof, NEMA3, IEC IP54 Materials ; Case .....Aluminum die-cast Door.....Polyester with fiberglass Door-glass .....Reinforced glass (3 mm thick) Case finish ; Acryl baking finish (for corrosion-resistant and silver finish, refer to the optional specification.) Color of finish ; .....Dark beige (Munsell 10YR 4.7/0.5)
	Installation	Direct mount to the process with flanges.
	Weight	Approx. 45 kg (KFLB 12-5111N4103A1-X)

Optional Specifications

Item	Specification
(1) External SP setting knob (for local setting)	A setting knob is mounted on the door. SP can be adjusted from outside.
(2) Built-in manual controller (with auto/manual transfer switch)	Consists of a manual control regulator, two position transfer switch and balance check button.
(3) Elevation (applicable to type 31 or 32 high damping type detector)	(1) Elevation : Use for an input range the low limit of which is higher than zero. (2) Float weight adjustment mechanism. (applicable also to floats which are not of standard types) Use this mechanism to satisfy the following condition: • W_A-W = We We: Elevation weight ≤ 1.2 kg W: Float weight WA: Basic weight for adjustment For details, please contact us. (3) Zero elevation mechanism (used for measuring range change by zero-point elevation) Use this mechanism to satisfy the following condition: • $Fe = \frac{\pi d^2}{4} \times \lambda e \times \rho \leq 1.2kg$ • $FR + Fe = \frac{\pi d^2}{4} \times (\lambda R + \lambda e) \times \rho \leq 1.6kg$ • $\frac{\lambda R + \lambda e}{\lambda} \leq 1$ • $FR = \frac{\pi d^2}{4} \times \lambda R \times \rho \geq 0.4kg$ Fe : Buoyancy corresponding to amount of zero-elevation (kg) FR : Buyancy at measuring range (kg) d : Diameter of float (m) λ : Total length of float before zero-elevation (m) λR : Measuring range after zero-elevation (m) λe : zero-elevation range (m) ρ : Density of measured liquid (kg/cm^3) For details, please contact Yamatake Agent.
(4) Pressure regulator with filter	Pressure regulator with filter and 40 mm pressure gauge. (Supply pressure : 200 to 970 kPa {2 to 9.7 kgf/cm²}, output ; 140 kPa {1.4 kgf/cm²}, pressure gauge : 0 to 200 kPa {0 to 2 kgf/cm²}

Optional Semi-standard Specifications

<table>
<tr><th colspan="2">Item</th><th colspan="5">Specification</th></tr>
<tr><td colspan="2">(1) Stainless steel bolts (Y131)</td><td colspan="5">Connecting bolts made of SUS304. For details, please contact Yamatake agent.</td></tr>
<tr><td colspan="2">(2) Corrosion-resistant and silver finish (Y138)</td><td colspan="5">Corrosion-resistant finish with baked acryl (Y 138A) : Resistant against corrosive gases.
Corrosion-proof finish with baked epoxy resin (Y 138B) : Resistant against corrosive liquids.
Regular silver finish with baked acryl (Y138C) :
To suppress temperature rise caused by direct sunlight or other cause.
Corrosion-resistant silver finish with baked acryl (Y 138D) :
To suppress temperature rise cause as above and to be resistance against corrosive gases.
(note: silver finish is not resistant against alkaline gases.)</td></tr>
<tr><td colspan="2" rowspan="4">(3) With approvals for use on high pressure gas (Y2054)

*1)Apply to using SF440A More than 0°C on standard material SFVC2A</td><td rowspan="2">Material (chamber/bonnet)</td><td colspan="2">Design Temp</td><td rowspan="2">Design Pressure</td><td rowspan="2">Diameter</td></tr>
<tr><td>MAX</td><td>MIN</td></tr>
<tr><td>Carbon steel</td><td>Less than 350° C</td><td>More than –5°C *1)</td><td>Less than 6.4 MPa {65 kgf/cm²}</td><td>Less than 5 in.</td></tr>
<tr><td rowspan="2">Stainless steel</td><td>Less than 350° C</td><td>More than -10°C</td><td>Less than 6.4 MPa {65kgf/cm²}</td><td>Less than 5 in.</td></tr>
<tr><td>Less than -40°C</td><td>More than -196°C</td><td>Less than 3.5 MPa {35 kgf/cm²}</td><td>Less than 5 in.</td></tr>
<tr><td colspan="2">(4) Special order items are available</td><td colspan="5">For details, please contact Yamatake agent.</td></tr>
</table>

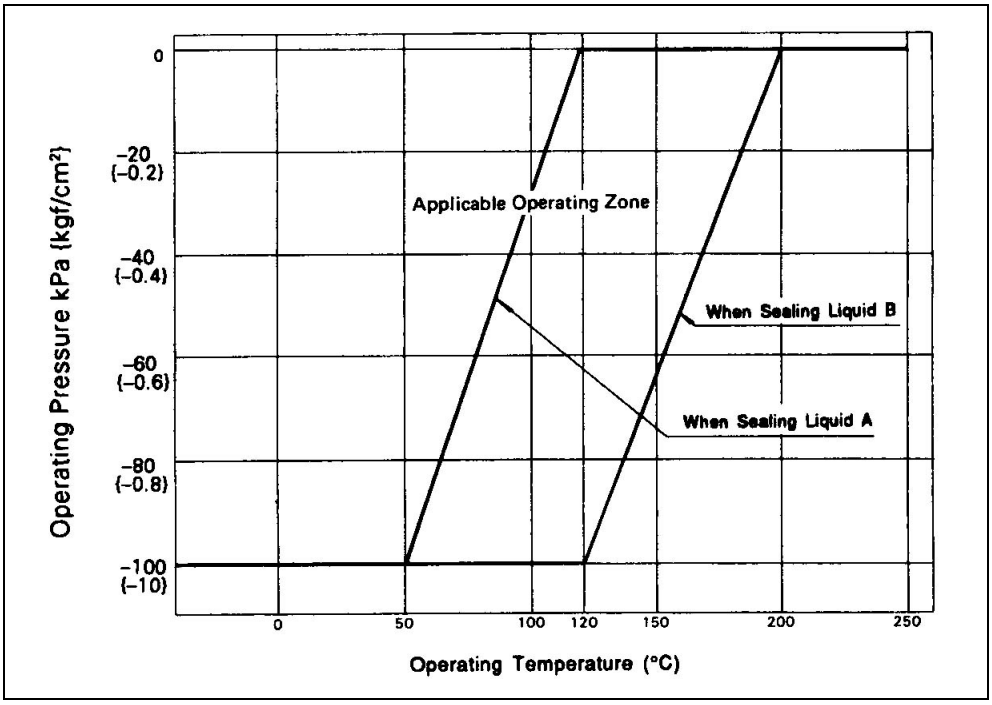


Fig. 1 Operating Temperature and Pressure at Negative Pressure

MODEL SELECTION

Ex. : KFLB12-5118U1103A1-M, K, 7

Basic model no.				Selections								
Type	Function	Control action	Type of detector	Process Connection	Mat'l of bonnet/ chamber	Mat'l of torque tube/ seal diaphragm	Pressure rating	Flange size	Measuring range	Air Connection	Signal pressure	Options
KFL	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII

I

B0	Indicating transmitter
B1	Indicating controller (local type)
B2	Indicating transmitter and controller (local type)
B3	Indicating controller (cascade type)
B4	Indicating transmitter and controller (cascade type)

II

0	No selection	5	PI + Batch
1	P + Manual reset	6	On-Off
2	PI	7	Differential gap
3	PID	8	P + External reset
4	PD + Manual reset	9	PD + External reset

III

-31	High damping type specific gravity : 0.2-1.6, 0.3-1.6 (0-300 mm range only)
-32	High damping type, specific gravity : 0.05-0.4, 0.3-1.6 (0-300 mm range only)
-51	Torque tube type specific gravity : 0.2-1.6, 0.3-1.6 (0-300 mm range only)
-52	Torque tube type specific gravity : 0.05-0.4, 0.08-0.4 (0-500 mm range only), 0.1-0.6 (0-300 mm range only)

IV

1	External chamber type, side-side flanged
2	External chamber type, side-bottom flanged
3	External chamber type, top-bottom flanged
4	External chamber type, top-side flanged
5	Internal float type, top flanged
6	Internal float type, side flanged

V

0	None (applicable to type 31 or 32 detector and side flanged type connection)
1	Bonnet (side flanges) and chamber: Carbon steel
2	Bonnet (side flanges) and chamber: SUS316
7	Bonnet (side flanges) and chamber: SUS304
8	Bonnet (side flanges) and chamber: SUS316L

VI

U	Torque tube: Inconel (350 - +400 °C) Applicable to type “51”, “52” of selection III
M	Torque tube: Inconel (200 - +350 °C) Applicable to type “51”, “52” of selection III
H	Seal diaphragm : SUS316L (0 - +250 °C) Applicable to type “31”, “32” of selection III
E	Torque tube: SUS316L (0 - +200 °C) Applicable to type “51”, “52” of selection III
	Seal diaphragm : SUS316L (0 - +200 °C) Applicable to type “31”, “32” of selection III
W	Seal diaphragm : Hastelloy (-40 - +200 °C) Applicable to type “31” of selection III and required corro-sion-proof
D	Torque tube: SUS316L (-196 – 0 °C) Applicable to type “51”, “52” of selection III
	Seal diaphragm : SUS316L (-40 - +200 °C) Applicable to type “31”, “32” of selection III

VII

1	JIS10K
2	JIS30K
3	ANSI150
4	ANSI300
5	ANSI600 (Applicable to type “31” or “51” of selection III)
6	JIS63K (Applicable to type “31” or “51” of selection III)
7	JPI150
8	JPI300
9	JPI600 (Applicable to type “31” or “51” of selection III)

VIII

1	1½ in. RF flanges (external chamber type only)	
2	2 in. RF flanges (external chamber type only)	
3	4 in. RF flanges (internal float type only)	
4	1½ in. RTJ flanges (external chamber type only)	Refer to Note 3
5	2 in. RTJ flanges (external chamber type only)	
6	4 in. RTJ flanges (internal float type only)	

IX

03	0-300 mm	These ranges not applicable to the pressure ratings JIS63K, ANSI600 and JPI600 of type “32” and “52” of selection III.
05	0-500 mm	
07	0-700 mm	For type “32” and “52” of selection III can be used only for the pressure ratings JIS10K, ANSI150 and JPI150.
10	0-1000 mm	
15	0-1500 mm	
20	0-2000 mm	
25	0-2500 mm	
30	0-3000 mm	

X

A	Rc ¼ internal thread (When this option chosen, instruction plate becomes Japanese version.)
B	¼ NPT internal thread (When this option chosen, instruction plate becomes Japanese version.)

XI

1	0.2 to 1.0 kgf/ cm²
2	3 to 15 PSI
3	0.2 to 1.0 bar
4	20 to 100 kPa
8	19.6 to 98.1kPa (equality to 0.2 to 1.0 kgf/cm²)

XII

-X	No options
-M	Internal manual loader (with AUTO/MAN switch)
-K	With external manual SP setting knob
-5	Elevation (applicable to type “31” or “32” in selection III.)
-7	With Pressure regulator with filter

Note :

1) Measurements of specific gravity or boundary surface :
   For these usages, add suffix “Z” to the end of the basic model number. Also specify the usage is for specific gravity or boundary surface. In case of boundary surface, the specific gravities of upper and lower liquids are required.
2) Specifying a semi-standard specification (Y□) :
   Enter “Y” and the corresponding “Y number” at the end of the model number.
   Example : KFLB12Y-5118V1103A1-M, K, 7 (Y131)

3) RTJ connection :
   A ring joint type is applicable to the flange connection of process con-nection only. (ANSI 600 only)

DIMENSIONS

External chamber type, side-side flanged, JIS10K, 30K, 63K, ANSI/JPI150, 300, 600

(Unit: mm)

Torque-tube Type

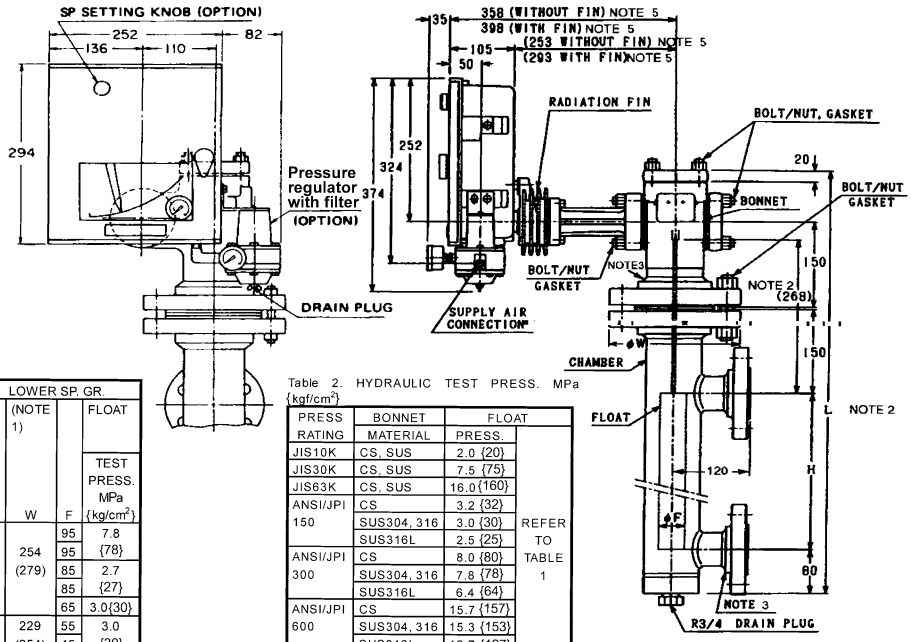


Table 1. MAIN DIMENSION

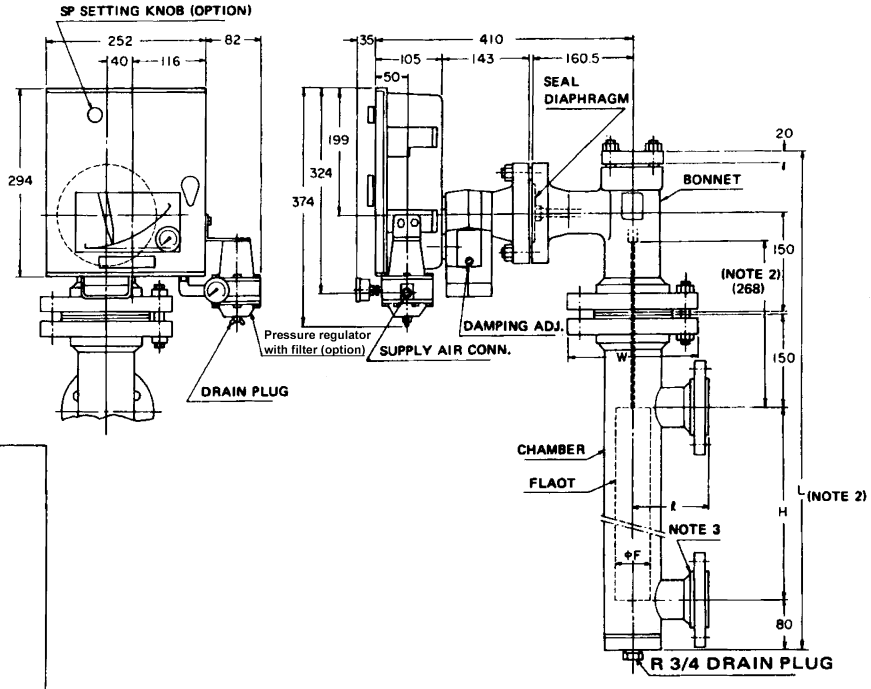
ITEM	MEASURING RNAGE		(NOTE 2)		MEDIUM SP. GR. (NOTE 1)		FLOAT		LOWER SP. GR. (NOTE 1)		FLOAT	
							TEST PRESS. MPa {kg/cm²}				TEST PRESS. MPa {kg/cm²}	
	(mm)	H	L	ℓ	W	F		ℓ	W	F		
03	0~ 300	300	775			55				95	7.8	
05	0~ 500	500	975		190	55	15.0		254	95	{78}	
07	0~ 700	700	1175	120	(210)	45	{150}	140	(279)	85	2.7	
10	0~1000	1000	1475			45				85	{27}	
15	0~1500	1500	1975			30				65	3.0{30}	
20	0~2000	2000	2475		190	30	15.0		229	55	3.0	
25	0~2500	2500	2975	120	(210)	23	{150}	120	(254)	45	{30}	
30	0~3000	3000	3475			23				45		

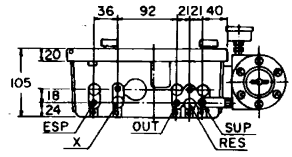
Float weight: 3 kg (Medium sp. gr. Type)

Table 2. HYDRAULIC TEST PRESS. MPa {kgf/cm²}

PRESS RATING	BONNET MATERIAL	FLOAT PRESS.	
JIS10K	CS, SUS	2.0 {20}	
JIS30K	CS, SUS	7.5 {75}	
JIS63K	CS, SUS	16.0{160}	
ANSI/JPI 150	CS	3.2 {32}	REFER TO TABLE 1
	SUS304, 316	3.0 {30}	
	SUS316L	2.5 {25}	
ANSI/JPI 300	CS	8.0 {80}	
	SUS304, 316	7.8 {78}	
	SUS316L	6.4 {64}	
ANSI/JPI 600	CS	15.7 {157}	
	SUS304, 316	15.3 {153}	
	SUS316L	12.7 {127}	

CS: CARBON STEEL
SUS: STAINLESS STEEL





AIR CONNECTIONS

○ : Rc 1/4 INTERNAL
● : ¼ NPT INTERNAL

REGEND

ESP : EXTERNAL SP SIGNAL (FOR CASCADE TYPE ONLY)
X : TRANSMITTING SIGNAL (FOR TRANSMITTER ONLY)
OUT : CONTROLLED SIGNAL
RES : EXTERNAL RESET SIGNAL (FOR EXTERNAL RESET TYPE ONLY)
SUP : SUPPLY AIR PRESSURE

Notes:

1) The dimensions enclosed in the parentheses are pressure ratings of JIS 30K or ANSI/JPI 300. The flanges comply with JPI ratings.
2) When the gasket is asbestos or when high damping type instrument is used, the dimensions are shorter by 2 mm.
3) For instrument of JIS10K, the hub shown in the illustration is not provided.
4) The illustrations are for typical examples of external chamber, side-side flange mounting, and flange rating JIS 10K/30K, ANSI/JPI 150/300. For other models, refer to respective installation drawings.
5) When model number of torque tube mat'l is "U" or "M", the dimensions are indicated as with fin. And when model number is "E" or "D", these are indicated as without fin.

Internal float type, Top-flanged, JIS10K, 30K, 63K, ANSI/JPI150, 300, 600

Torque-tube Type

(Unit: mm)

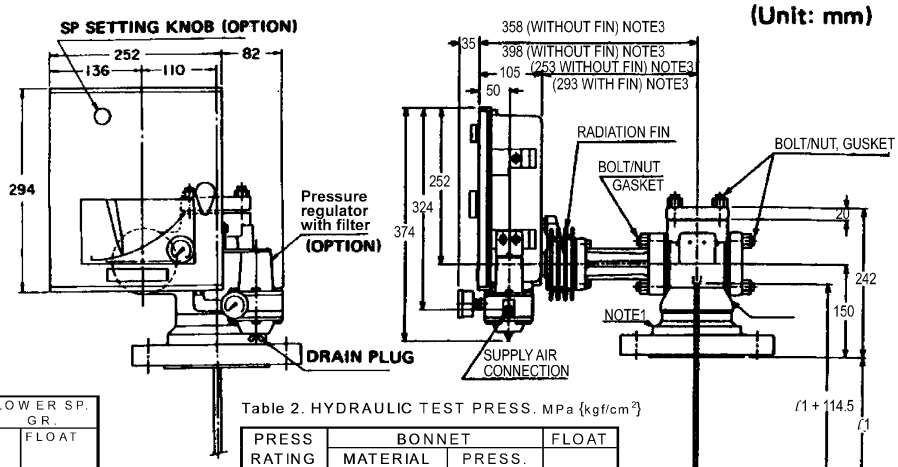


Table 1. MAIN DIMENSION

ITEM	MEASURING RANGE (mm)	H	ℓ1	MEDIUM SP. GR. FLOAT F	MEDIUM SP. GR. FLOAT TEST PRESS. MPa {kg/cm²}	LOWER SP. GR. FLOAT F	LOWER SP. GR. FLOAT TEST PRESS. MPa {kg/cm²}
03	0– 300	300	Customer requested value	65	15.0 {150}	95	7.8 {78}
05	0– 500	500					
07	0– 700	700		45		85	2.7 {27}
10	0–1000	1000					
15	0–1500	1500		30		65	3.0 {30}
20	0–2000	2000				55	
25	0–2500	2500		23		45	
30	0–3000	3000					

Float weight: 3 kg (Medium sp. gr. Type)

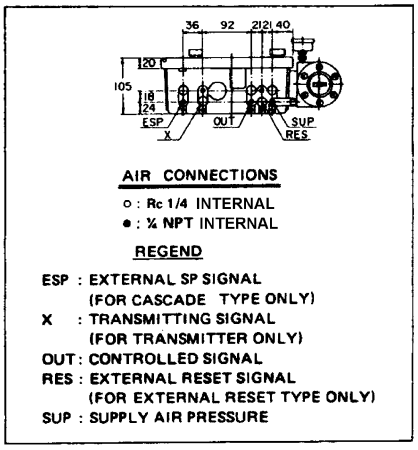
Table 2. HYDRAULIC TEST PRESS. MPa {kgf/cm²}

PRESS RATING	BONNET MATERIAL	BONNET PRESS.	FLOAT
JIS10K	CS, SUS	2.0 {20}	REFER TO TABLE 1
JIS30K	CS, SUS	7.5 {75}	
JIS63K	CS, SUS	16.0 {160}	
ANSI/JPI 150	CS	3.2 {32}	
	SUS304, 316	3.0 {30}	
	SUS316L	2.5 {25}	
ANSI/JPI 300	CS	8.0 {80}	
	SUS304, 316	7.8 {78}	
	SUS316L	6.4 {64}	
ANSI/JPI 600	CS	15.7 {157}	
	SUS304, 316	15.3 {153}	
	SUS316L	12.7 {127}	

CS: CARBON STEEL

SUS: STAINLESS STEEL

High-damping Type

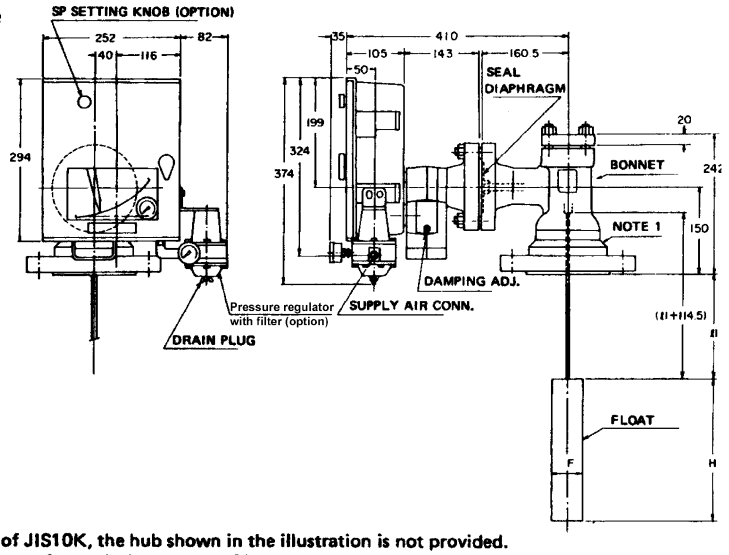


AIR CONNECTIONS

○ : Rc 1/4 INTERNAL
● : ¼ NPT INTERNAL

REGEND

ESP : EXTERNAL SP SIGNAL (FOR CASCADE TYPE ONLY)
X : TRANSMITTING SIGNAL (FOR TRANSMITTER ONLY)
OUT : CONTROLLED SIGNAL
RES : EXTERNAL RESET SIGNAL (FOR EXTERNAL RESET TYPE ONLY)
SUP : SUPPLY AIR PRESSURE



Notes:

1) For instrument of JIS10K, the hub shown in the illustration is not provided.
2) The illustrations are for typical examples of internal cylinder, top flange mounting, and flange rating JIS 10K/30K, ANSI/JPI 150/300. For other models, refer to respective installation drawings.
3) When model number of torque tube mat'l is "U" or "M", the dimensions are indicated as with fin. And when model number is "E" or "D", these are indicated as without fin.

Ordering Information

When ordering, please specify the followings :

1) Model No. (For specific-gravity measurement or boundary surface measurement, enter "Z" at the end of the basic model number)
2) Gas name or liquid name (especially when instruments approved for high-pressure gas applications are required.
3) Specific gravity, pressure and temperature of liquid.
4) Dimension (ℓ1) from bottom of flange to top of float.
5) For specific-gravity measurement : Measuring range of specific gravity.
6) For boundary surface measurement : Specific gravities of upper and lower liquids.
7) Option

YAMATAKE

Savemation

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