

SH · SD

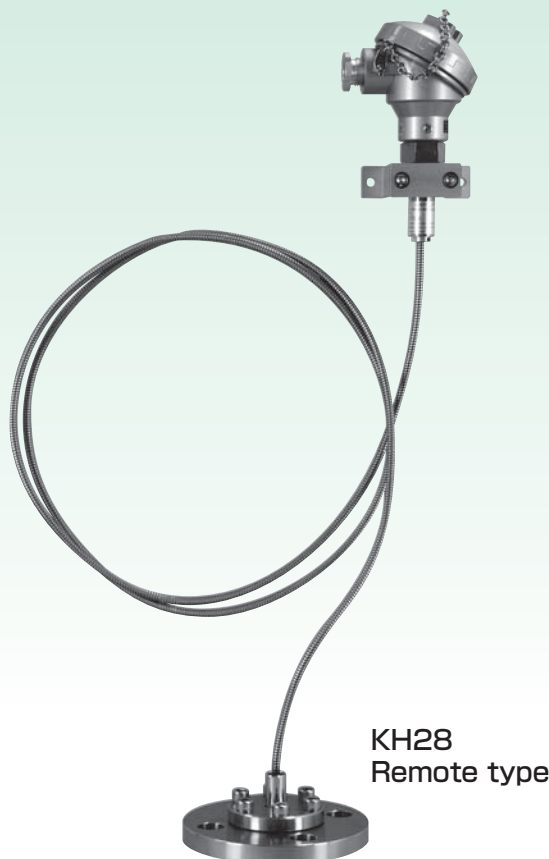
Diaphragm Seal Pressure Transmitter for High Temperature

Overview

This is a pressure transmitter that uses enclosed intermediate liquid for pressure transmission between pressure receiving part and its sensor part. It is used to measure under the high temperature condition and to measure the pressure of high viscosity fluid at normal temperature, and is widely used in the synthetic chemical, synthetic fiber, and plastic industries.

Features

- Capable of pressure measurement under wide range of operating temperature with 0°C to 330°C and 0°C to 400°C (Optionally available with $\phi 8$ diameter)
- Easy zero adjustable even under fluctuating temperature where compensation is needed
- Flush diaphragm type which will prevent pressure media from ingressing directly into sensor element (diaphragm) suitable for high viscous media measurement
- Selectable filling liquid (NKS instrument oil X3 or mercury)



KH28
Remote type

Features

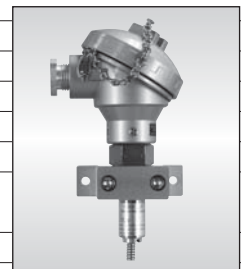
<p>KH28 Pressure Transmitter This is a pressure transmitter that converts the pressure into 4 to 20mA DC electric signal by using the pressure detection part with semiconductor strain gauge and internal electronic circuits and then transmits it.</p>	<p>KJ16 Pressure Transmitter This intrinsically safe construction pressure transmitter of 2 wire system (Explosion class: Exia IIC T4) uses a semiconductor strain gauge type pressure sensor and built-in electronic circuit to convert pressure to 4 to 20mA DC electric signal and to transmit this signal.</p>	<p>KH75 Pressure Transmitter This is a semiconductor strain gauge type high precision converter that converts the change in pressure sensed by a strain gauge into an electric signal. Because it is equipped with an indicator (electric type), it is easy to check pressure in the field.</p>	<p>KH31 Pressure Transmitter Displacement of the element by the filled liquid is extracted as change in inductance and is converted into a signal proportional to the measured amount, and then the converted signal is transmitted. Because it is equipped with an indicator (mechanical type), it is easy to check pressure in the field. A pressure transmitter with pressure resistant explosion proof construction (d2G4) is also available (Model: KD31).</p>

Specification of pressure receiver

Item	Description
Media	Gas, liquid
Operating condition	Install in location where no gases or liquids may exist that have the potential to become flammable or ignitable under normal operating condition. Use explosion proof construction type at hazardous sites.
Installation method	Thread type (Taper seat, gasket seat) * Either taper seat or gasket seat is available depending on diaphragm diameter. Flange type
Filled liquid	X3 : Harmless oil of stable product quality. Applicable where mercury cannot be accepted. (NKS instrument oil) Mercury: Wide availability in pressure range especially for low pressure applications.
Diaphragm diameter	φ8 to φ37 (X3 filled: φ18, φ23.6 only, KH31: φ15 to 37)
Connection	G1/4B, 1/2-20UNF, G3/8B, G1/2B, G3/4B, G1B, Flange
Wetted parts	SUS316, SUS316L, or Hastelloy C-276 or equivalent
Pressure sensing part	With protection (φ15, φ18, φ23.6), without protection
Allowable temperature range (Sensing part)	0 to 330°C, 0 to 400°C (Optionally available for diaphragm diameter φ8 only)
Allowable temperature range (Circuit)	Indicating part
Pressure range	Mercury: 0 to 0.6→0 to 70MPa X3 : 0 to 10→0 to 50MPa (KH31: 0 to 1.5→0 to 50MPa)
Maximum allowable pressure	120%F.S.

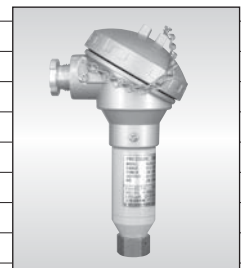
Specification [Pressure Transmitter (KH28)]

Item	Description
Output accuracy	±0.75%F.S., ±1.5%F.S. or ±2.0%F.S. (Depending on diaphragm diameter and pressure range)
Temperature coefficient	Circuit: ±0.1%F.S./°C (Zero, span), Detecting element ±0.005MPa/°C
Power source	24V DC±10%
Output	4 to 20mA DC
Load resistance	500Ωmax.
Transmission system	2 wire system
Outlet for electric wire (Gland)	JIS F 8801 15b (Standard), 15a, 15c
Case material, finishing	Terminal box: ADC12 Radiation fin: A5056BD
Protection	Equivalent to IP52
Maximum lead length	2m to 10m (Depending on diaphragm diameter and filled liquid)
Allowable temperature range (Circuit)	0 to 70°C (No freezing or condensation)



Specification [Intrinsically safe pressure transmitter (KJ16)]

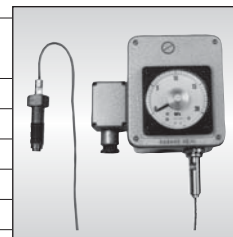
Item	Description
Output accuracy	±0.75%F.S., ±1.5%F.S. or ±2.0%F.S. (Depending on diaphragm diameter and pressure range)
Temperature coefficient	Circuit: ±0.1%F.S./°C (Zero, span), Detecting element ±0.005MPa/°C
Power source	24V DC±10%
Output	4 to 20mA DC
Load resistance	500Ωmax.
Transmission system	2 wire system
Outlet for electric wire (Gland)	JIS F 8801 15b (Standard), 15a, 15c
Case material, finishing	Terminal box: ADC12
Protection	Equivalent to IP52
Maximum lead length	2m to 10m (Depending on diaphragm diameter and filled liquid)
Allowable temperature range (Circuit)	0 to 60°C (No freezing or condensation)



Note) Prepare safety barrier separately.

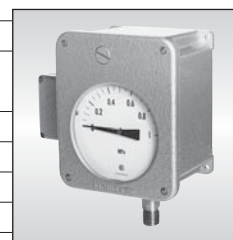
Specification [Pressure Transmitter with Display Function (KH75)]

Item	Description
Output accuracy	$\pm 0.75\%$ F.S., $\pm 1.5\%$ F.S. or $\pm 2.0\%$ F.S. (Depending on pressure range)
Indication accuracy	$\pm 1.0\%$ F.S.
Temperature coefficient	Pressure sensing part: $\pm 0.005\text{MPa}/^\circ\text{C}$ Circuit : $\pm 0.1\%$ F.S./ $^\circ\text{C}$
Power source	24V DC $\pm 10\%$
Output	4 to 20mA DC
Load resistance	450 Ω max.
Transmission system	2 wire system
Outlet for electric wire (Gland)	JIS F 8801 20b
Dial scale angle	270°
Case material, finishing	ADC12 · Gray wrinkle paint Plating
Enclosure	Indoor use
Maximum lead length	2m to 10m (Depending on diaphragm diameter and filled liquid)
Allowable temperature range (Circuit)	0 to 60°C (No freezing or condensation)



Specification [Pressure Transmitter with Display Function (KH31)]

Item	Description
Output accuracy	$\pm 1.5\%$ F.S. (SD__: Within to 20 to 80%F.S.)
Indication accuracy	$\pm 1.5\%$ F.S. (SD__: Within to 20 to 80%F.S.)
Temperature coefficient	Pressure sensing part: $\pm 0.005\text{MPa}/^\circ\text{C}$ Circuit : $\pm 0.2\%$ F.S./ $^\circ\text{C}$
Power source	24V DC $\pm 10\%$
Output	4 to 20mA DC
Load resistance	400 Ω max.
Transmission system	2 wire system
Outlet for electric wire (Gland)	JIS F 8801 20b
Dial scale angle	180°
Case material, finishing	ADC12 · Gray wrinkle paint Plating
Enclosure	IP54
Maximum lead length	3m to 10m (Depending on diaphragm diameter)
Allowable temperature range (Circuit)	0 to 45°C (No freezing or condensation)



* The indicator with a mechanical structure assures function as a pressure indication even at the time of loss of power without electricity.

Specification (X3)

Filled liquid: X3 (NKS instrument oil)

Model (Indicating part)	Diaphragm diameter	Connection	Pressure range MPa	Output accuracy (%F.S.)	Maximum lead length* (m)	Model (Pressure receiver)
KH75	φ 18	G3/4B	0 to 25→0 to 50	±1.5	3	SD41
	φ 23.6	G1B	0 to 10→0 to 35			SD51
KH28 KJ16	φ 18	G3/4B	0 to 35→0 to 50	±1.5	3	SD41
	φ 23.6	G1B	0 to 10→0 to 35			SD51
KH31	φ 15	G3/4B	0 to 35→0 to 50	±1.5 (Within to 20 to 80%F.S.)	3	SD31
	φ 18	G3/4B	0 to 15→0 to 50			SD41
	φ 23.6	G1B	0 to 10→0 to 35			SD51
	φ 37	Flange	0 to 1.5→0 to 10			SD7□

* Please specify of the lead length separately. (1m Interval)

Specification (Mercury)

Filled liquid: Mercury

Model (Indicating part)	Diaphragm diameter	Connection	Pressure range MPa	Output accuracy (%F.S.)	Maximum lead length* (m)	Model (Pressure receiver)	
KH75	φ 8	G1/4B or 1/2-20UNF	0 to 10, 0 to 15	±2.0	2	SH14	
			0 to 20→0 to 70	±1.5			
	φ 10	G3/8B or G1/2B	0 to 10, 0 to 15	±2.0		10	SH23
			0 to 20→0 to 70	±1.5			
	φ 18	G3/4B	0 to 5→0 to 70	±0.75	5	SH41	
	φ 23.6	G1B	0 to 5→0 to 35			SH51	
φ 37	Flange	0 to 0.6, 0 to 1	±1.5	10	SH7□		
		0 to 1.5→0 to 5					
KH28 KJ16	φ 8	G1/4B or 1/2-20UNF	0 to 10	±2.0	2	SH14	
			0 to 20→0 to 70	±1.5			
	φ 10	G3/8B or G1/2B	0 to 10	±2.0		10	SH23
			0 to 20→0 to 70	±1.5			
	φ 18	G3/4B	0 to 5→0 to 70	±0.75	5	SH41	
	φ 23.6	G1B	0 to 5→0 to 35			SH51	
φ 37	Flange	0 to 1	±1.5	10	SH7□		
		0 to 2→0 to 5					
KH31	φ 18	G3/4B	0 to 15→0 to 70	±1.5	10	SH41	
	φ 23.6	G1B	0 to 5→0 to 35			SH51	
	φ 37	Flange	0 to 0.6, 0 to 1		3	SH7□	
			0 to 1.5→0 to 5				5

* Please specify of the lead length separately. (1m Interval)

About mercury use

Mercury-filled product is indicated its use of mercury with product label etc.

Danger

Handle with care not to let filled-mercury leak from product. In the event of the leakage caused by the break of diaphragm or lead part, ensure NOT to breath vaporized mercury in and collect, disposal of leaked liquid mercury in an appropriate manner in accordance with 『Wastes Disposal and Public Cleansing Act』

Warning

Do not use in application where mercury could affect quality of process media in consideration of its leakage by any chance.

Warning

At the time of mercury disposal, supply information that the product contains mercury to waste disposer, and process disposal of mercury in an appropriate manner in accordance with 『Wastes Disposal and Public Cleansing Act』

Warning

During transpiration of mercury-filled product, ensure to prevent enclosed mercury from flying and leakage. Supply information that the product contains mercury to transporter and receiver of the product.

Warning

When product needs to be sent back for its repair to Nagano Keiki and related companies, pack in polyethylene bag etc. enclosing mercury-filled product in it preventing from expansion of mercury during the transportation outside of box in the event mercury is leaked.

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Diaphragm Seal Pressure Transmitter for High Temperature

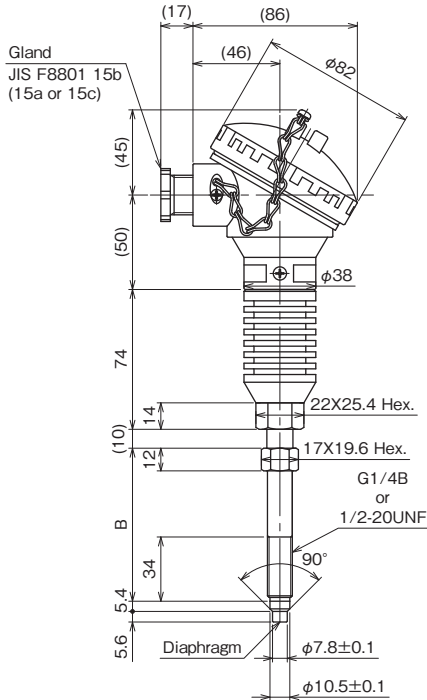
Dimensions 1

Direct type

Unit: mm

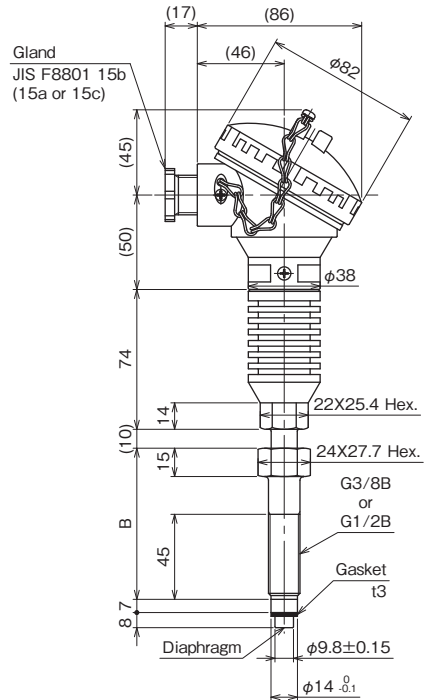
KH28

φ8 (Taper seat)



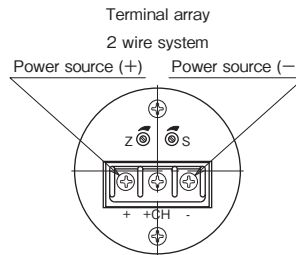
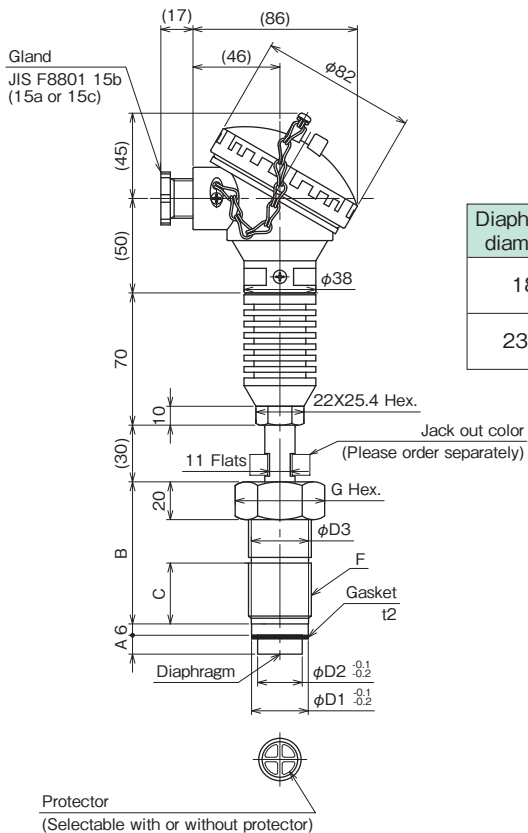
B=80 to 450 (10mm Intervals)

φ10 (Gasket seat)



B=80 to 450 (10mm Intervals)

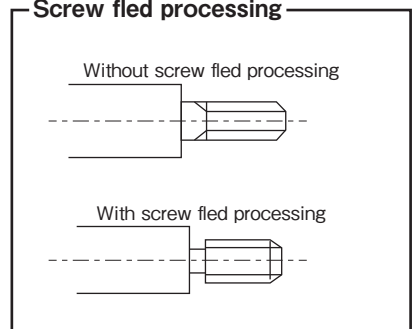
φ18, φ23.6 (Gasket seat)



Diaphragm diameter	D1	D2	F	D3	G
18	18	24	G3/4B	23.5 (When there is screw flared processing)	36 × 41.6
23.6	23.6	30	G1B	29.5 (When there is screw flared processing)	41 × 47.3

*A size=10 to 30mm (5mm Intervals)
 B size=55, 80 to 450mm (10mm Intervals)
 C=45 (B=55: C=25)

Screw flared processing



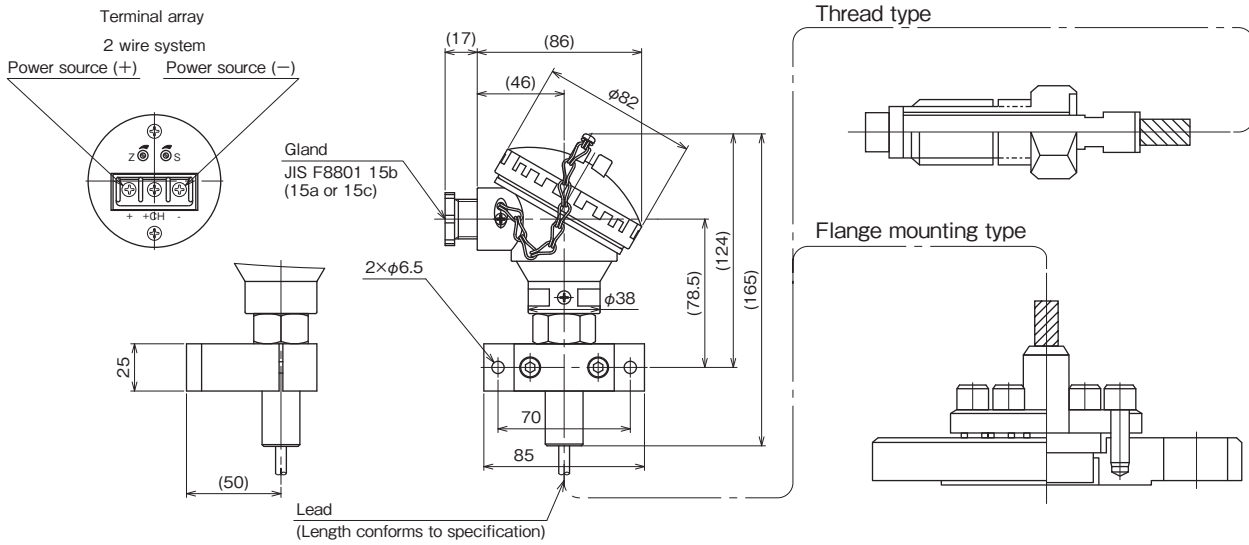
When ordering, please specify the lengths A and B separately.

Dimensions 2

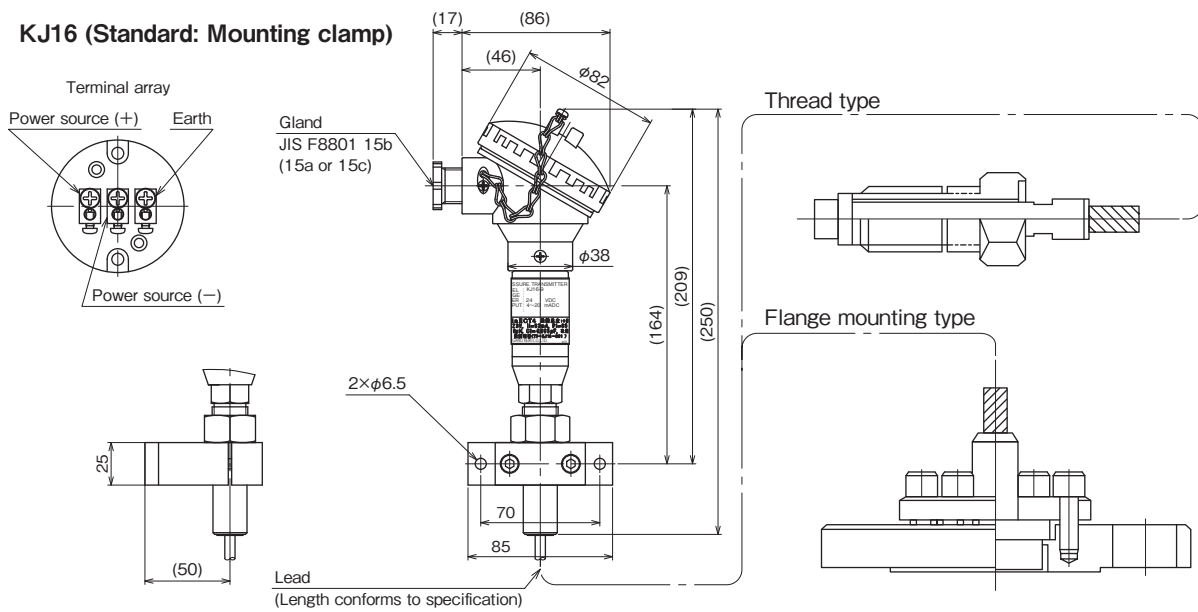
Remote type

Unit: mm

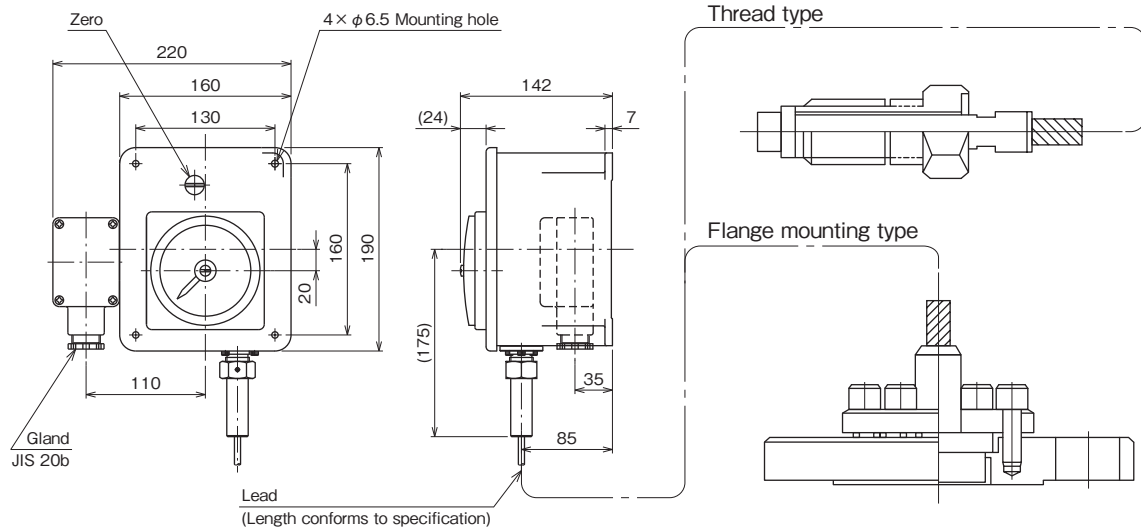
KH28 (Standard: Mounting clamp)



KJ16 (Standard: Mounting clamp)



KH75



SH·SD

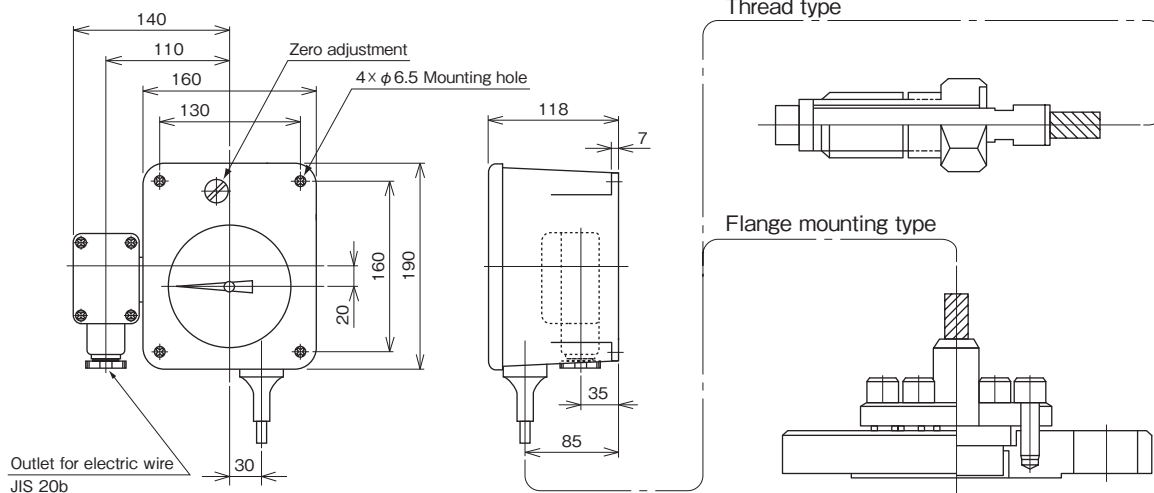
Diaphragm Seal Pressure Transmitter for High Temperature

Dimensions 3

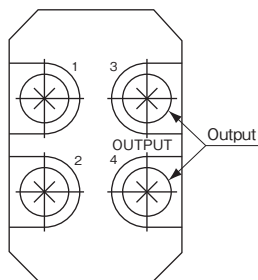
Remote type

Unit: mm

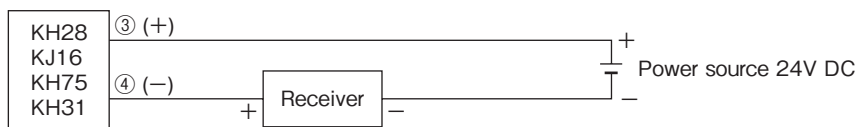
KH31



Terminal array (KH75/KH31 Common)



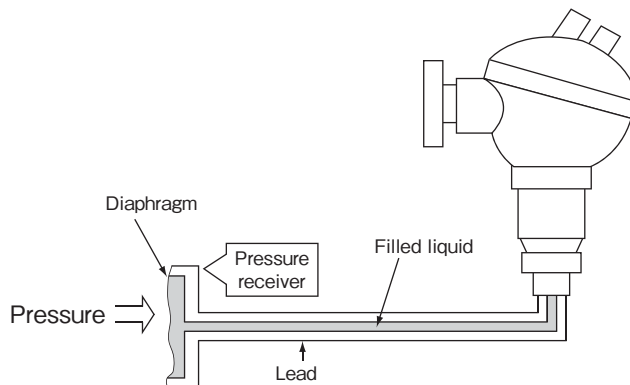
Wiring



Note: KJ16 is intrinsically safe pressure transmitter. Prepare safety barrier when it is used.

Construction and principle

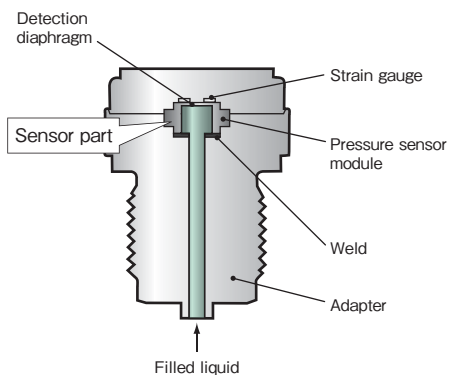
The intermediate liquid is filled between diaphragm part and pressure sensor part or bourdon tube to transmitting received pressure through this filled liquid.



The maximum lead length depends on the filled liquid, pressure range, and diaphragm diameter. Check the specifications.

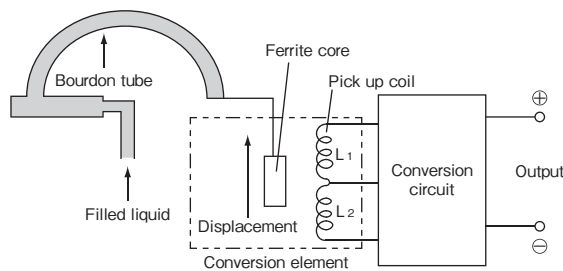
Strain gauge type (KH28 · KJ16 · KH75)

The pressure transmitted through the filled liquid generates a strain on the detection diaphragm. This strain is sensed by a strain gauge installed on the diaphragm and converted into an electric signal proportional to the pressure change and then transmitted.



Differential inductance method (KH31)

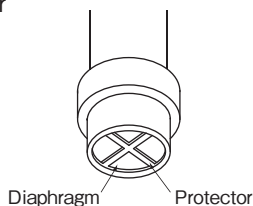
The principle of converting displacement into a DC signal regards the displacement of a Bourdon tube as change in inductance. The conversion element is made up from a pickup coil and a ferrite core. High-frequency voltage is applied to the pickup coil. The high-frequency voltage ratio of L1 and L2 changes according to the displacement in the core. This change is extracted as an output signal proportional to pressure changes.



Detecting element

Protector is used to protect the diaphragm. ($\phi 15$, $\phi 18$, $\phi 23.6$)

With protector



Without protector



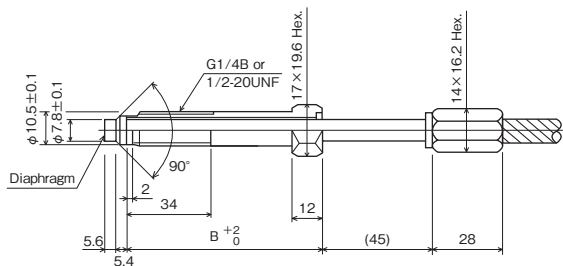
Pressure receiver dimensions 1

Unit: mm

Thread type

φ8 SH14

(Indicating part: KH28, KJ16, KH75)

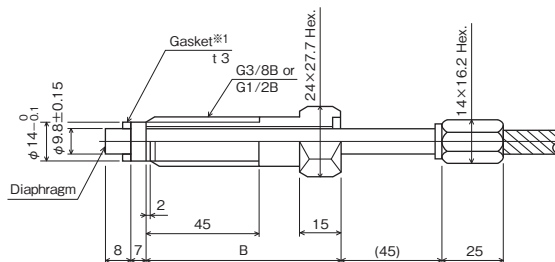


*B size=80 to 450mm (10mm Intervals)

(Taper seat)

φ10 SH23

(Indicating part: KH28, KJ16, KH75)



※1 Material: Aluminum

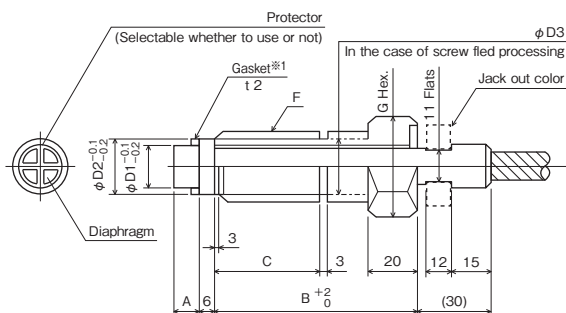
*B size=80 to 450mm (10mm Intervals)

(Gasket seat)

When ordering, please specify the lengths B separately.

φ15, φ18, φ23.6 SH41, SH51, SD31, SD41, SD51

(Indicating part: KH28, KJ16, KH31, KH75)



(Gasket seat)

Diaphragm diameter	D1	D2	F	D3	G
15 (KH31 only)	15	24	G3/4B	23.5	36×41.6
18	18	24	G3/4B	23.5	36×41.6
23.6	23.6	30	G1B	29.5	41×47.3

*A size=10 to 30mm (5mm Intervals)

B size=55, 80 to 450mm (10mm Intervals)

C=45 (B=55, C=25)

※1 Material: Aluminum

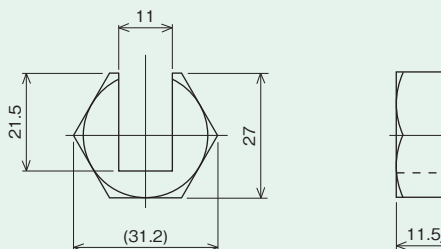
When ordering, please specify the lengths A and B separately.

Recommended parts

Jack out color (SH41, SH51, SD31, SD41, SD51):

When the detection end is pulled out from the mounting hole, it may not be able to pull out because the measuring fluid is firmly fixed. In such a case, it can be pulled out without difficulty by inserting the jack out collar and then turning the mounting screws.

* When ordering, please specify separately.



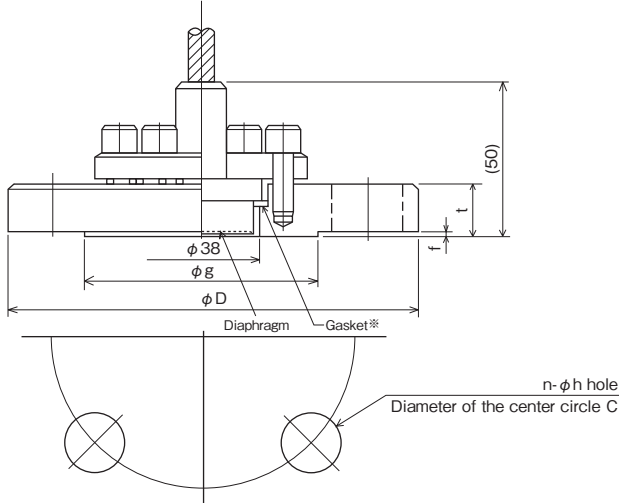
Pressure receiver dimensions 2

Unit: mm

Flange mounting type

φ37 SH7□、SD7□

(Indicating part: KH28, KJ16, KH31, KH75)



Flange standard	D	t	f	g	c	n	h
JIS 10K32A RF	135	16	2	76	100	4	19
40A RF	140	16	2	81	105	4	19
50A RF	155	16	2	96	120	4	19
JIS 20K32A RF	135	18	2	76	100	4	19
40A RF	140	18	2	81	105	4	19
50A RF	155	18	2	96	120	8	19
JIS 30K32A RF	140	22	2	80	105	4	19
40A RF	160	22	2	90	120	4	23
50A RF	165	22	2	105	130	8	19
JIS 40K32A RF	140	24	2	80	105	4	19
40A RF	160	24	2	90	120	4	23
50A RF	165	26	2	105	130	8	19
JIS 63K32A RF (KH31 only)	150	30	2	80	110	4	23
40A RF (KH31 only)	175	32	2	90	130	4	25
50A RF (KH31 only)	185	34	2	105	145	8	23

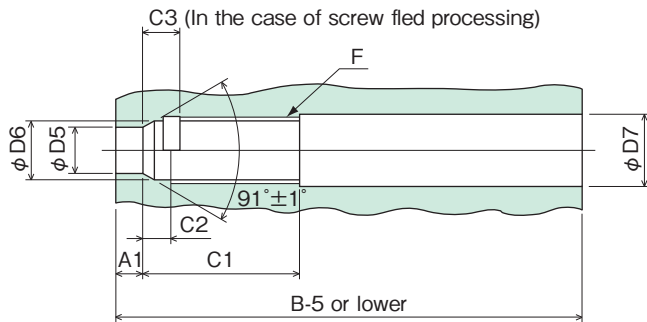
※Material: Aluminum

Mounting 1

Unit: mm

Taper seat:

(Recommended mounting hole)



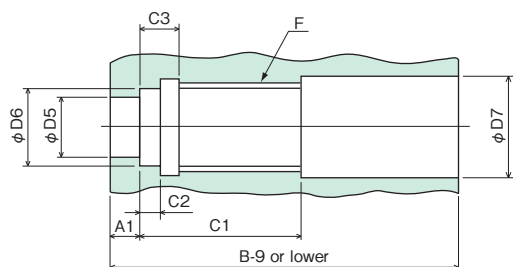
Diaphragm diameter	F	D5	D6	D7	A1	C1	C2	C3
8	G1/4B	$7.93^{+0.05}_0$	$11.5^{+0.3}_0$	13.6 or higher	6.4 or higher	35^{+3}_0	6 or lower	9 or lower
8	1/2-20UNF	$7.93^{+0.05}_0$	$11.3^{+0.3}_0$	13.1 or higher	6.4 or higher	35^{+3}_0	6 or lower	9 or lower

Mounting 2

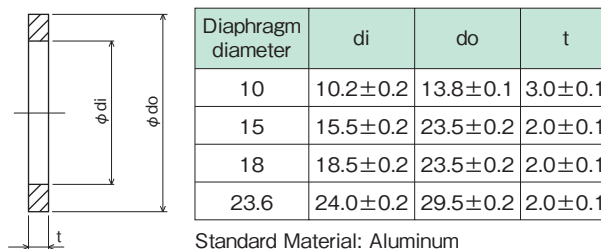
Unit: mm

Gasket seat:

(Recommended mounting hole dimension)



(Recommended gasket dimension)

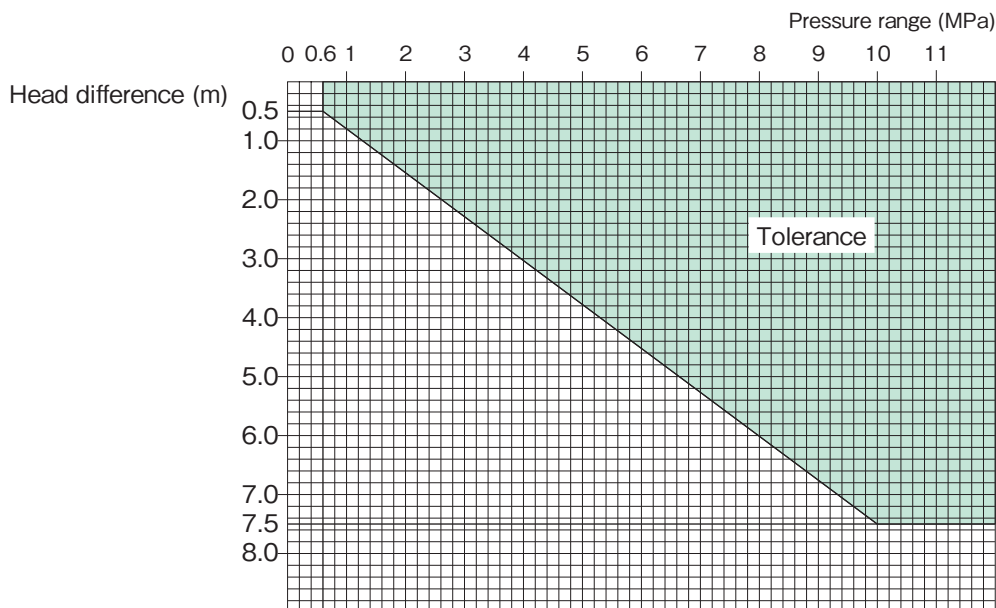
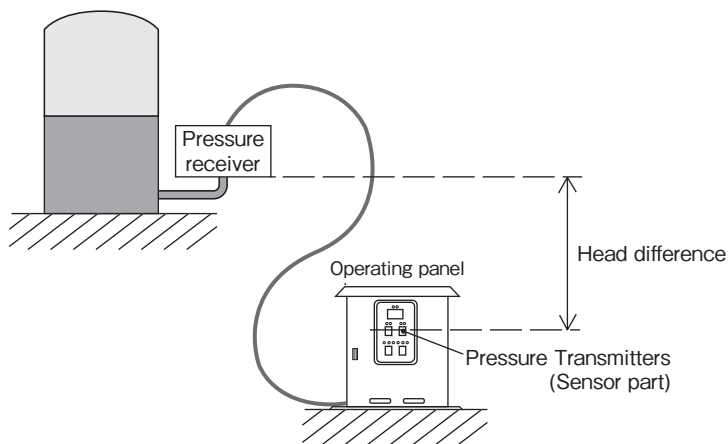


Diaphragm diameter	F	D5	D6	D7	A1**	C1	C2**	C3
10	G3/8B	10.0 ^{+0.1} ₀	14.1 ^{+0.3} ₀	17.2 or higher	5.8 or higher	45 ⁺⁶ ₀	5 or higher	14 or lower
10	G1/2B	10.0 ^{+0.1} ₀	14.1 ^{+0.3} ₀	21.5 or higher	5.8 or higher	45 ⁺⁶ ₀	5 or higher	14 or lower
15	G3/4B	15.0 ^{+0.1} ₀	24.1 ^{+0.3} ₀	27.0 or higher	A-1 or higher	c ⁺⁶ ₀	4 or higher	11 or lower
18	G3/4B	18.0 ^{+0.1} ₀	24.1 ^{+0.3} ₀	27.0 or higher	A-1 or higher	c ⁺⁶ ₀	4 or higher	11 or lower
23.6	G1B	23.6 ^{+0.1} ₀	30.1 ^{+0.3} ₀	33.8 or higher	A-1 or higher	c ⁺⁶ ₀	4 or higher	11 or lower

**Values in table vary depending on type of installed gasket.
Table represents values for recommended gasket installation.

Head difference

Because the specific gravity of mercury is high, if the head difference between the sensing part and the receiving part is large, a large load is applied to the diaphragm or pressure element and cause trouble. The allowable range of the head difference is shown in the chart below. If there is a head difference, please inform us when ordering, so we will ship the product after the adjustment.



Note: Mounting type of the sensor higher than the sensing part is generally unsuitable.

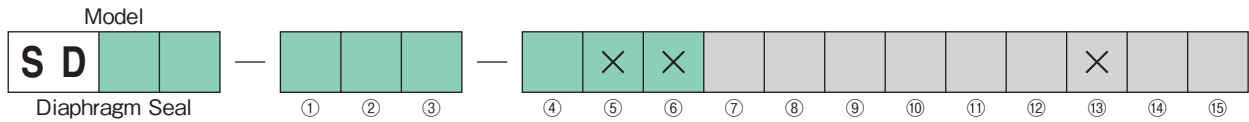
SH·SD

Diaphragm Seal Pressure Transmitter for High Temperature

Filled liquid: X3

Model number configuration

Please specify the model number, each specs and the range for ordering.



Diaphragm Seal Pressure Transmitter for High Temperature

Model number		Product specifications		Additional specifications (Optional)		
Thread type	3	1	Diaphragm diameter	φ 15	Pressure range	0 to 35, 50MPa (KH31 only)
	4	1	Diaphragm diameter	φ 18	Pressure range	0 to 15, 20MPa (KH31 only) 0 to 25, 35, 50MPa
	5	1	Diaphragm diameter	φ 23.6	Pressure range	0 to 10, 15, 20, 25, 35MPa
① Connection	6	G3/4B				
	8	G1 B				
② Protector	1	With protector, No screw fled processing				
	2	Without protector, No screw fled processing				
	3	With protector, Screw fled processing				
	4	Without protector, Screw fled processing				
③ Wetted parts	3	SUS316				
	4	SUS316L				
	8	Hastelloy® C-276 or equivalent (Note 1)				
④ Diaphragm material	3	SUS316				
	4	SUS316L				
	8	Hastelloy® C-276 or equivalent (Note 1)				
⑤ Pressure receiving part A dimensions	X	Please specify a length between 10 to 30mm in 5mm intervals.				
⑥ Pressure receiving part B dimensions	X	Please specify a length between 55 or 80 to 450mm in 10mm intervals.				
⑦ Option	0	Not required				
	1	With jack out color				
⑧ Treatment	0	Not required				
	1	Use no oil				
	2	Use no water				
	3	Use no oil & water				
⑨⑩⑪⑫ Indicating part * 1	KH28	Pressure Transmitter	When ordering, please specify the pressure range and units separately.			
	KJ16	Pressure Transmitter				
	KH31	Pressure Transmitter				
	KH75	Pressure Transmitter				
⑭ Design and temperature limit	1	Direct type				
	2	Remote type For remote type, please specify the lead length and type.				
⑮ Documents	0	Not required				
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Mill test report Calibration test report (One-part one sheet) Inspection / Traceability certificate Strength calculation sheet Attending inspection				

* When ordering, please specify the lead length and A and B lengths for screw mounting.

Note 1: Remote type only available.

Maximum lead length 3m

Filled liquid: X3

* 1 For Indicating part, please select from the Filled liquid: X3 specification.
Model configuration of the Indicating part is ⑨, ⑩, ⑪ and ⑫.
Please also specify the model number configuration of the Indicating part.
[Note] Production specification range is different from mercury-enclosed type.

* Specify code "X" to refer N/A

SH·SD

Diaphragm Seal Pressure Transmitter for High Temperature

Filled liquid: X3 **Indicating part**

Model number configuration

Please specify the model number, each specs and the range for ordering.

Model

K H 3 1 — **X 2 1** — **0 1 1** × × × × × × ×

Pressure Transmitter ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮

Model number

Product specifications Additional specifications (Optional)

Please specify pressure range and unit of measure along with corresponding ordering code.

④ Pressure range (MPa)	3	0 to 10, 15, 20, 25, 35 (φ23.6, SD51)
	4	0 to 15, 20, 25, 35, 50 (φ18, SD41)
	5	0 to 35, 50 (φ15, SD31)
⑤ Accuracy	0	±1.5%F.S. (Within 20 to 80%F.S.)
⑥ Power source	1	24V DC 2 wire system
⑦ Output	1	4 to 20mA DC 2 wire system
⑧ Outlet for electric wire	7	JIS 20b
		Others
⑮ Documents	0	Not required
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Calibration test report (One-part one sheet) Inspection / Traceability certificate

This product is combined with SD model for its pressure receiving part.

Filled liquid: X3

* Specify code "X" to refer N/A

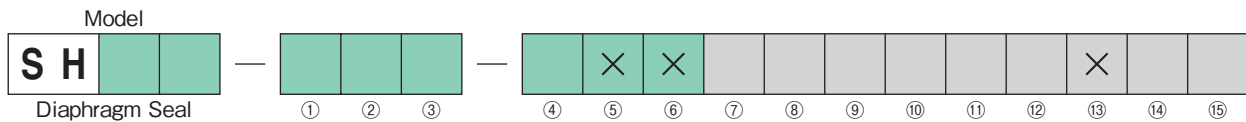
SH·SD

Diaphragm Seal Pressure Transmitter for High Temperature

Filled liquid: Mercury

Model number configuration

Please specify the model number, each specs and the range for ordering.



Model number		Product specifications	Additional specifications (Optional)
Thread type	1 4	Diaphragm diameter	Pressure receiver sheet
	2 3	φ 8	Taper seat with temperature compensating function
	4 1	φ 10	Gasket seat with temperature compensating function
	5 1	φ 18	Gasket seat
		φ 23.6	Gasket seat
① Connection	2	G1/4B	SH14 only
	3	G3/8B	SH23 only
	4	G1/2B	SH23 only
	6	G3/4B	SH41 only
	8	G1 B	SH51 only
	Y	1/2-20UNF	SH14 only
② Protector	1	With protector, Except for φ 8 and φ 10	
	2	Without protector	
	3	With protector, Screw fled processing Except for φ 8 and φ 10	
	4	Without protector, Screw fled processing Except for φ 8 and φ 10	
③ Wetted parts	3	SUS316	
	4	SUS316L	
	8	Hastelloy® C-276 or equivalent (Note 1)	
④ Diaphragm material	3	SUS316	
	4	SUS316L	
	8	Hastelloy® C-276 or equivalent (Note 1)	
⑤ Pressure receiving part A dimensions	X	Please specify a length between 10 to 30mm in 5mm intervals. Except for φ 8 and φ 10	
⑥ Pressure receiving part B dimensions	X	Please specify a length between 55 or 80 to 450mm in 10mm intervals. (But φ 8 and φ 10, please specify a length between 80 to 450mm in 10mm intervals.)	
⑦ Option	0	Not required	
	1	With jack out color (SH41 and SH51 only)	
⑧ Treatment	0	Not required	
	1	Use no oil	
	2	Use no water	
	3	Use no oil & water	

* When ordering, please specify the lead length and A and B lengths for screw mounting.

Note 1: When the material of wetted parts is Hastelloy C-276 or equivalent, only the remote type up to 50MPa is available.

⑨⑩⑪⑫ Indicating part *2	KH28	Pressure Transmitter	When ordering, please specify the pressure range and units separately.
	KJ16	Pressure Transmitter	
	KH31	Pressure Transmitter	
	KH75	Pressure Transmitter	
⑭ Design and temperature limit	1	Direct type (KH28 only)	
	2	Remote type Please specify the lead length and type. Temperature limit 0 to 330°C standard	
	3	Remote type φ 8 Temperature of detecting element 0 to 400°C	
⑮ Documents	0	Not required	
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Mill test report Calibration test report (One-part one sheet) Inspection / Traceability certificate Strength calculation sheet Attending inspection	

* 1 KH31 is not available

* 2 For Indicating part, please select from the Filled liquid: Mercury specification.
Model configuration of the Indicating part is ⑨, ⑩, ⑪ and ⑫.
Please also specify the model number configuration of the Indicating part.

[Note] Production specification range is different from Filled liquid X3 specification.

* Specify code "X" to refer N/A

⚠ Danger

Handle with care not to let filled-mercury leak from product. In the event of the leakage cause by the break of diaphragm or lead, ensure NOT to breath vaporized mercury in followed by the collect and disposal of leaked liquid mercury in accordance with『Wastes Disposal and Public Cleansing Act』

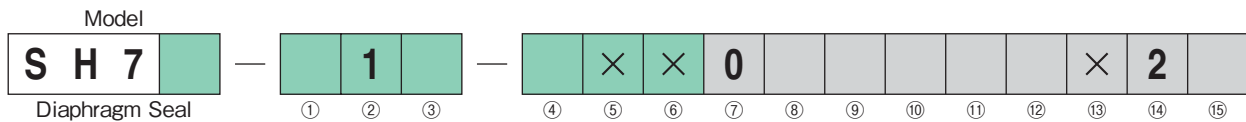
SH·SD

Diaphragm Seal Pressure Transmitter for High Temperature

Filled liquid: Mercury

Model number configuration

Please specify the model number, each specs and the range for ordering.



Diaphragm Seal Pressure Transmitter for High Temperature

Model number		Product specifications		Additional specifications (Optional)	
Flange mounting type		Diaphragm diameter	Flange connection		
	1	φ 37	JIS 10K		
	3		JIS 20K		
	4		JIS 30K		
	5		JIS 40K		
①	Flange connection nominal diameter	4	32A		
		5	40A		
		6	50A		
②	Flange seat	1	RF		
③	Wetted parts	3	SUS316		
		4	SUS316L		
④	Diaphragm material	3	SUS316		
		4	SUS316L		
⑤	Pressure receiving part A dimensions	X			
⑥	Pressure receiving part B dimensions	X			
⑦	Option	0	Not required		
⑧	Treatment	0	Not required		
		1	Use no oil		
		2	Use no water		
		3	Use no oil & water		
⑨⑩⑪⑫	Indicating part *1	KH28	Pressure Transmitter Remote type		
		KJ16	Pressure Transmitter Remote type		
		KH31	Pressure Transmitter Remote type		
		KH75	Pressure Transmitter Remote type		
⑭	Design and temperature limit	2	Remote type Please specify lead length and lead type.		
⑮	Documents	0	Not required		
		1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Mill test report Calibration test report (One-part one sheet) Inspection / Traceability certificate Strength calculation sheet Attending inspection		

* When ordering, please specify lead length.

Filled liquid: Mercury

* 1 For Indicating part, please select from the Filled liquid: Mercury specification.
Model configuration of the Indicating part is ⑨, ⑩, ⑪ and ⑫.
Please also specify the model number configuration of the Indicating part.
【Note】 Production specification range is different from Filled liquid X3 specification.

* Specify code "X" to refer N/A

⚠ Danger

Handle with care not to let filled-mercury leak from product. In the event of the leakage cause by the break of diaphragm or lead, ensure NOT to breath vaporized mercury in followed by the collect and disposal of leaked liquid mercury in accordance with『Wastes Disposal and Public Cleansing Act』

SH·SD

Diaphragm Seal Pressure Transmitter for High Temperature

Filled liquid: Mercury **Indicating part**

Model number configuration

Please specify the model number, each specs and the range for ordering.

Model																							
K H 2 8			X		9		0 1 1			0	×	×	×	×	×								
Pressure Transmitter			①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮						
Model number						Product specifications					Additional specifications (Optional)												
① Model			X For high temperature diaphragm-seal																				
② Type			1	Direct (Flange type cannot be manufactured)																			
			2	Remote 0 to 330°C (With mounting clamp)																			
			3	Remote 0 to 400°C (With mounting clamp, φ8 only)																			
③ Body			9 Terminal box type (Large), Standard																				
Please specify pressure range and unit of measure along with corresponding ordering code.			④ Pressure range (MPa)		G	0 to 1		φ37 (Accuracy ±1.5%F.S.)															
					J	0 to 2																	
					K	0 to 3.5																	
					L	0 to 5										φ18, φ23.6 (Accuracy ±0.75%F.S.), φ37 (Accuracy ±1.5%F.S.) only							
					N	0 to 10										φ8, φ10 (Accuracy ±2.0%F.S.), φ18, φ23.6 (Accuracy ±0.75%F.S.) only							
					Q	0 to 20										φ8, φ10 (Accuracy ±1.5%F.S.), φ18, φ23.6 (Accuracy ±0.75%F.S.) only							
					R	0 to 35										φ8, φ10 (Accuracy ±1.5%F.S.), φ18, φ23.6 (Accuracy ±0.75%F.S.) only							
		S	0 to 50		φ8, φ10 (Accuracy ±1.5%F.S.), φ18 (Accuracy ±0.75%F.S.) only																		
		T	0 to 70		φ18 (Accuracy ±0.75%F.S.) only																		
⑤ Accuracy			0	Standard																			
⑥ Power source			1	24V DC ±10%																			
⑦ Output			1	4 to 20mA DC (2 wire system)																			
⑧ Outlet for electric wire			⑧	⑨	⑧ Outlet for electric wire		⑨ Cable type		Terminal box (Large) (Without cable attachment)														
			3	0	JIS 15a		—																
			4	0	JIS 15b		—																
⑨ Cable type			5	0	JIS 15c		—																
			⑮ Documents	0	Not required																		
			1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Calibration test report (One-part one sheet) Inspection / Traceability certificate																			

This product is combined with SD model for its pressure receiving part.

Filled liquid: Mercury

* Specify code "X" to refer N/A

⚠ Danger

Handle with care not to let filled-mercury leak from product. In the event of the leakage cause by the break of diaphragm or lead, ensure NOT to breath vaporized mercury in followed by the collect and disposal of leaked liquid mercury in accordance with『Wastes Disposal and Public Cleansing Act.』

Filled liquid: Mercury **Indicating part**

Model number configuration

Please specify the model number, each specs and the range for ordering.

Model																				
K	J	1	6	—	X		9	—	0	1	1	0	×	×	×	×				
Intrinsically Safe Pressure Transmitter					①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Model number				Product specifications									Additional specifications (Optional)							
① Model				X For high temperature diaphragm-seal																
② Type				2		Remote 0 to 330°C (With mounting clamp)														
				3		Remote 0 to 400°C (With mounting clamp, φ 8 only)														
③ Body				9		Terminal box type (Large), Standard														
④ Pressure range (MPa)				G		0 to 1														
				J		0 to 2														
				K		0 to 3.5														
				L		0 to 5														
				N		0 to 10														
				Q		0 to 20														
				R		0 to 35														
				S		0 to 50														
				T		0 to 70														
⑤ Accuracy				0		Standard														
⑥ Power source				1		24V DC ±10%														
⑦ Output				1		4 to 20mA DC (2 wire system)														
⑧ Outlet for electric wire				⑧		⑨		⑧ Outlet for electric wire		⑨ Cable type										
				3		0		Terminal box (Large) (Without cable attachment)		JIS 15a			——							
				4		0		JIS 15b		——										
				5		0		JIS 15c		——										
⑮ Documents				0		Not required														
				1		Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Calibration test report (One-part one sheet) Inspection / Traceability certificate														

Please specify pressure range and unit of measure along with corresponding ordering code.

This product is combined with SD model for its pressure receiving part.

Filled liquid: Mercury

* Specify code "X" to refer N/A

⚠ Danger

Handle with care not to let filled-mercury leak from product. In the event of the leakage cause by the break of diaphragm or lead, ensure NOT to breath vaporized mercury in followed by the collect and disposal of leaked liquid mercury in accordance with『Wastes Disposal and Public Cleansing Act』

SH·SD

Diaphragm Seal Pressure Transmitter for High Temperature

Filled liquid: Mercury **Indicating part**

Model number configuration

Please specify the model number, each specs and the range for ordering.

Model

K H 3 1 — **X 2 1** — **0 1 1** × × × × × × ×

Pressure Transmitter (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15)

Model number

Product specifications Additional specifications (Optional)

Please specify pressure range and unit of measure along with corresponding ordering code.

④ Pressure range (MPa)	1	0 to 0.6, 1, 1.5, 2, 2.5, 3.5, 5 (φ37, SH71)
	2	0 to 5, 7, 10, 15, 20, 25, 35 (φ23.6, SH51)
	5	0 to 15, 20, 25, 35, 50, 70 (φ18, SH41)
⑤ Accuracy	0	±1.5%F.S.
⑥ Power source	1	24V DC 2 wire system
⑦ Output	1	4 to 20mA DC 2 wire system
⑧ Outlet for electric wire	7	JIS 20b
		Others
⑮ Documents	0	Not required
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Calibration test report (One-part one sheet) Inspection / Traceability certificate

This product is combined with SD model for its pressure receiving part.

Filled liquid: Mercury

* Specify code "X" to refer N/A

⚠ Danger

Handle with care not to let filled-mercury leak from product. In the event of the leakage cause by the break of diaphragm or lead, ensure NOT to breath vaporized mercury in followed by the collect and disposal of leaked liquid mercury in accordance with『Wastes Disposal and Public Cleansing Act』