

**Yamatake-Honeywell****SPECIFICATION**

**DIFFUSED SILICON TRANSMITTER (DSTJ 8000)  
ELECTRONIC DIFFERENTIAL PRESSURE TRANSMITTER**

MODEL:KDI 51/52/53(FLANGE TYPE, FOR OPEN AND CLOSED TANK  
LEAD PIPE GAS SEALING)  
KDI 61/62/63(FLANGE TYPE, FOR CLOSED TANK LEAD PIPE LIQUID SEALING)

**Description**

The DSTJ 8000 Differential Pressure and Process Pressure Transmitters employ diffused silicon sensors developed by the latest integrated circuit technology. In the DSTJ 8000, a variety of models which have high stability and accuracy, and cover a wide measurement range is available.

The flange type Differential Pressure Transmitter can be directly mounted flush with pad of open or closed vessel walls. It measures a specific gravity, a liquid level or a liquid interface.

The process fluid sealing diaphragm is mounted on the flange side of the process connection, which makes suitable for measurement of high viscous liquids, slurry, etc.

**Features**

- **Simple Principle**

Since the highly sensitive diffused silicon sensor converts pressure to current and mechanical linkages are eliminated, the resistance of the sensor against vibration, tilting and shock is much improved comparing to conventional sensors.

- **Diffused Silicon Sensor Employing IC Technology**

The resistance bridge of the sensor is integrally formed employing the diffusion technology for IC's. Therefore, it has no bonded layer and eliminates the fault caused by the inherent disadvantages of the element (the drift of zero-point by creep or slip) providing stable operation for a long period.

- **Ideal Silicon Wafer**

Silicon is an ideal elastic material, and has outstanding characteristics on hysteresis and repeatability.

- **Ample Experience**

Honeywell has marketed Class 41 differential pressure / process pressure transmitters employing diffused silicon sensors since 1972, and their excellent properties and reliability have been proved.

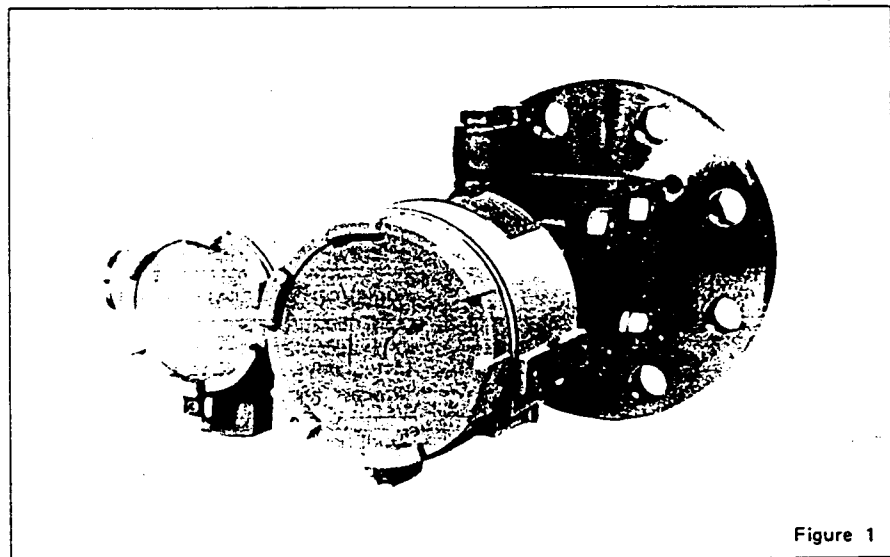


Figure 1

- **Outstanding Temperature Effect**

Since the temperature compensation is made through all operational ambient temperature ranges, an outstanding temperature effect of the sensor is obtained.

- **Stable Performance**

Excellent repeatability and revolution characteristics in the diffused silicon sensor can retain stable performance.

- **Compact and Light-weight**

The small diffused silicon sensor enables the meter body to be compact and light.

- **Complete Flame-proof Type Explosion-proof Enclosure Conforming to JIS d2G4**

The DSTJ 8000 Transmitters satisfy completely the requirement of JIS for the flame-proof type explosion-proof construction, and realized for the first time in the micro displacement type transmitters.

- **Fully Welded Meter Body**

The meter body is fully welded by electronic beam welding. Electric signals from the sensor is taken out through hermetic seal, and there is no fear of leakage of the fill fluid.

- **Easy Maintenance**

Zero and span adjustments or other maintenance work can easily be made from the front of the transmitter. Interference between zero and span adjustment has been largely reduced.

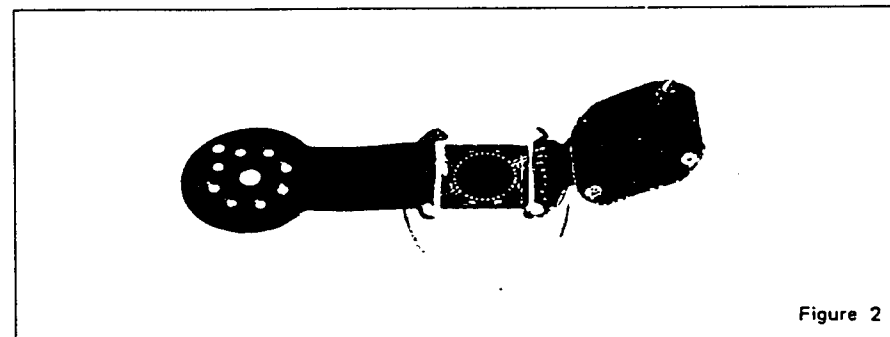


Figure 2

## Standard Specifications

Item	Specifications
<b>Measuring range</b> (Continuously adjustable)	KDI51/61: 0 - 2,500 to 0 - 25,000 mmH <sub>2</sub> O KDI52/62: 0 - 650 to 0 - 6,500 mmH <sub>2</sub> O KDI53/63: 0 - 500 to 0 - 2,600 mmH <sub>2</sub> O
<b>Process connection</b>	Measuring side (Liquid level); Flange connection Flush diaphragm type 80 mm-JIS 10K, 30K (RF) equivalent flange 3"-ANSI 150, 300 (RF) equivalent flange Extended diaphragm type 100 mm-JIS 10K, 30K (RF) equivalent flange 4"-ANSI 150, 300 (RF) equivalent flange Reference side; PT $\frac{1}{2}$ (ISO R7 $\frac{1}{2}$ " ) or $\frac{1}{2}$ NPT tap thread
<b>Electrical conduit connection</b>	PF $\frac{1}{2}$ (ISO R228 $\frac{1}{2}$ " ) tap thread
<b>Power supply</b>	21.6 - 44V DC
<b>Output</b>	4 - 20 mA DC (External load; 575 ohms at 24V, 1475 ohms at 42V)
<b>Accuracy</b>	$\pm 0.5\%$ FS
<b>Dead band</b>	Within 0.01% FS
<b>Temperature effect</b>	$\pm 0.5\%$ FS/55°C (Value of zero shift at maximum span.)
<b>Operating pressure range</b>	-1 kgf/cm <sup>2</sup> G to maximum flange rated pressure.
<b>Operating temperature conditions</b>	Amplifier: -30 to + 80°C Meter body: -40 to +120°C (Process fluid)
<b>Operating temperature limits</b>	Amplifier: -40 to + 93°C Meter body: -40 to +120°C (Process fluid)
<b>Transportation and storage conditions</b>	-50 to +120°C
<b>Operating humidity conditions</b>	10 - 90% RH
<b>Overload protection</b>	Up to maximum flange rated pressure in either direction.
<b>Damping adjustment</b> (Electrically continuously adjustable)	KDI51/61: Approx. 0.05 ~ 2.9 sec. KDI52/62: Approx. 0.06 ~ 3.9 sec. KDI53/63: Approx. 0.1 ~ 6.8 sec. } Time constant at maximum span
<b>Electronics housing</b>	Flame-proof type explosion-proof construction*: Class d2G4 of JISC0903 code approved. (JISF8001 Class 3 splash-proof included.) Also suitable for NEMA 4 and NEC Class 1, Group C, D, Division 1. (*Max. operating temperature: +70°C) Intrinsic safety construction*: Class i3nG4 of JISC0903 code approved. (Also suitable for above explosion and splash-proof construction.) (*Power supply: 23-27.5VDC, Operating temperature: -10 to +60°C)
<b>Zero adjustment ranges</b> (Use within the ranges; Elevation + Span) ( $\leq$ Max. Span, and Suppression $\geq$ Span)	KDI51/61: Elevation side; Up to 2,000 mmH <sub>2</sub> O, Suppression side; Up to 4,500 mmH <sub>2</sub> O KDI52/62: Elevation side; Up to 600 mmH <sub>2</sub> O, Suppression side; Up to 1,500 mmH <sub>2</sub> O KDI53/63: Elevation side; Up to 400 mmH <sub>2</sub> O, Suppression side; Up to 1,400 mmH <sub>2</sub> O
<b>Material</b>	Process connecting flange: Carbon steel (SF 45A), SUS304 (Wet-part; SUS316, SUS316L, Monel lining, Tantalum lining) Reference chamber cover: Carbon steel (SF 45A), SUS316 Rigid PVC (with reinforced plate, pressure range; -0.1 to +15 kg/cm <sup>2</sup> G and temperature range; 0 - 55°C) Measuring element: SUS316 (Diaphragm; SUS316L), SUS316L, Monel, Tantalum Wet-part gasket: Teflon Transmitter case: Aluminium alloy
<b>Finish</b>	Acryl baking finish Color: Light beige (Munsell 4Y 7.2/1.3)
<b>Mounting</b>	Directly flange mounted to process flange.
<b>Net weight</b>	Approx. 12 kg with 80 mm-JIS 10K flange.

## Optional Specifications

- Item
- (1) High elevation and high suppression  
(Use within the ranges; Elevation + Span)  
( $\leq$  Max. Span, and Suppression  $\geq$  Span)
- (2) Flame-proof packing type cable connecting adapter
- (3) Induction lightning arrester
- (4) Ammeter

Specifications

Zero adjustment range (mmH <sub>2</sub> O)					
Model No.	High elevation		Model No.	High suppression	
	Elevation side	Suppression side		Elevation side	Suppression side
KDI51:	Up to 20,000	Up to 4,500	KDI61	Up to 2,000	Up to 25,000
KDI52:	Up to 5,850	Up to 1,500	KDI62	Up to 600	Up to 6,500
KDI53:	Up to 2,100	Up to 1,400	KDI63	Up to 400	Up to 2,600

For low voltage cable work in the division 1 location (JIS d2G4).

Built-in semi-conductor lightning arrester.

Built-in wide-angle, easy-to-observe indicator.

## Semi-standard Specifications

- Item
- (1) Oil free (Y 21J)
- (2) For chlorine (Y 21O)
- (3) 304SS body bolts (Y 66G)
- (4) Corrosion-resistant and silver finish (Y 138A-D)
- (5) High damping adjustment (Y 169A)
- (6) 10 - 50 mA DC output (Y 170A)  
(Available for the explosionproof construction type only)

Specifications

Measuring element material: SUS316  
Sealing liquid: Fluorine oil  
Operating temperature: -10 to +60°C (Both amplifier and meter body)

Measuring element material: Tantalum  
Sealing liquid: Fluorine oil  
Operating temperature: -10 to +80°C (Both amplifier and meter body)

Max. operating pressure: Up to maximum flange rated pressure.

Y138A Corrosion-resistant (Acryl baking) finish; Resistance for corrosive gases.  
Y138B Corrosion-proof (Epoxy baking) finish; Resistance for corrosive liquids.  
Y138C Silver-normal (Acryl baking) finish; Protection for temperature rise of device caused by direct sun light, radiation heat, etc.  
Y138D Silver-corrosion-resistant (Acryl baking) finish; Protection for above-mentioned temperature rise and resistance for corrosive gases.  
(Note: Silver finish is not applicable for alkaline gases.)

Applicable up to approx. 2 times the standard damping adjustment.

Power supply: 30 - 85V DC  
Allowable load resistance: Max. 1100Ω (Varies with the supply voltage)

## Model Number Table

Ex: Flush diaphragm type . . . . . KDI 51 - 2222E - 5, A, M  
Extended diaphragm type. . . . . KDI 51 - 2222SE 10 - 5, A, M

Basic Model No.	Flange & Cover Mat'l		Measuring Element Mat'l		Flange Rating	Housing	Length of Extended Part of Flange	Option	Description
	Measuring Side	Reference Side	Measuring Side	Reference Side					
KDI 51/61									Measuring range 0 - 2,500 to 0 - 25,000 mmH <sub>2</sub> O
KDI 52/62									Measuring range 0 - 650 to 0 - 6,500 mmH <sub>2</sub> O
KDI 53/63									Measuring range 0 - 500 to 0 - 2,600 mmH <sub>2</sub> O
	-1								Carbon steel (SF 45A)
	-2								SUS304
		1							Carbon steel (SF 45A)
		2							SUS316
		5							Rigid PVC
			2						SUS316
			3						Monel (Excluding extended diaphragm type)
			4						Tantalum ( " )
			8						SUS316L
				2					SUS316
				3					Monel (Excluding extended diaphragm type)
				4					Tantalum ( " )
				8					SUS316L
					1				Flush diaphragm type 80 mm-JIS 10K (RF) equiv. flange
					2				" 80 mm-JIS 30K (RF) equiv. flange
					3				" 3"-ANSI 150 (RF) equiv. flange
					4				" 3"-ANSI 300 (RF) equiv. flange
					5				Extended diaphragm type 100 mm-JIS 10K (RF) equiv. flange
					6				" 100 mm-JIS 30K (RF) equiv. flange
					7				" 4"-ANSI 150 (RF) equiv. flange
					8				" 4"-ANSI 300 (RF) equiv. flange
					E				Explosion-proof type
					H				Intrinsic safety type
					10				100 mm (Excluding flush diaphragm type)
					15				150 mm (Excluding flush diaphragm type)

Note:

- 1) When ordering "Y" options, please write as: KDI51Y-2222E-5, A, M (Y□). When two or more "Y" options are needed, please consult us.

-5	High elevation (For KDI5□)
-6	High suppression (For KDI6□)
-A	With one flame-proof packing type cable connecting adapter
-B	With two flame-proof packing type cable connecting adapters
-L	Built-in induction lightning arrester
-M	Built-in ammeter

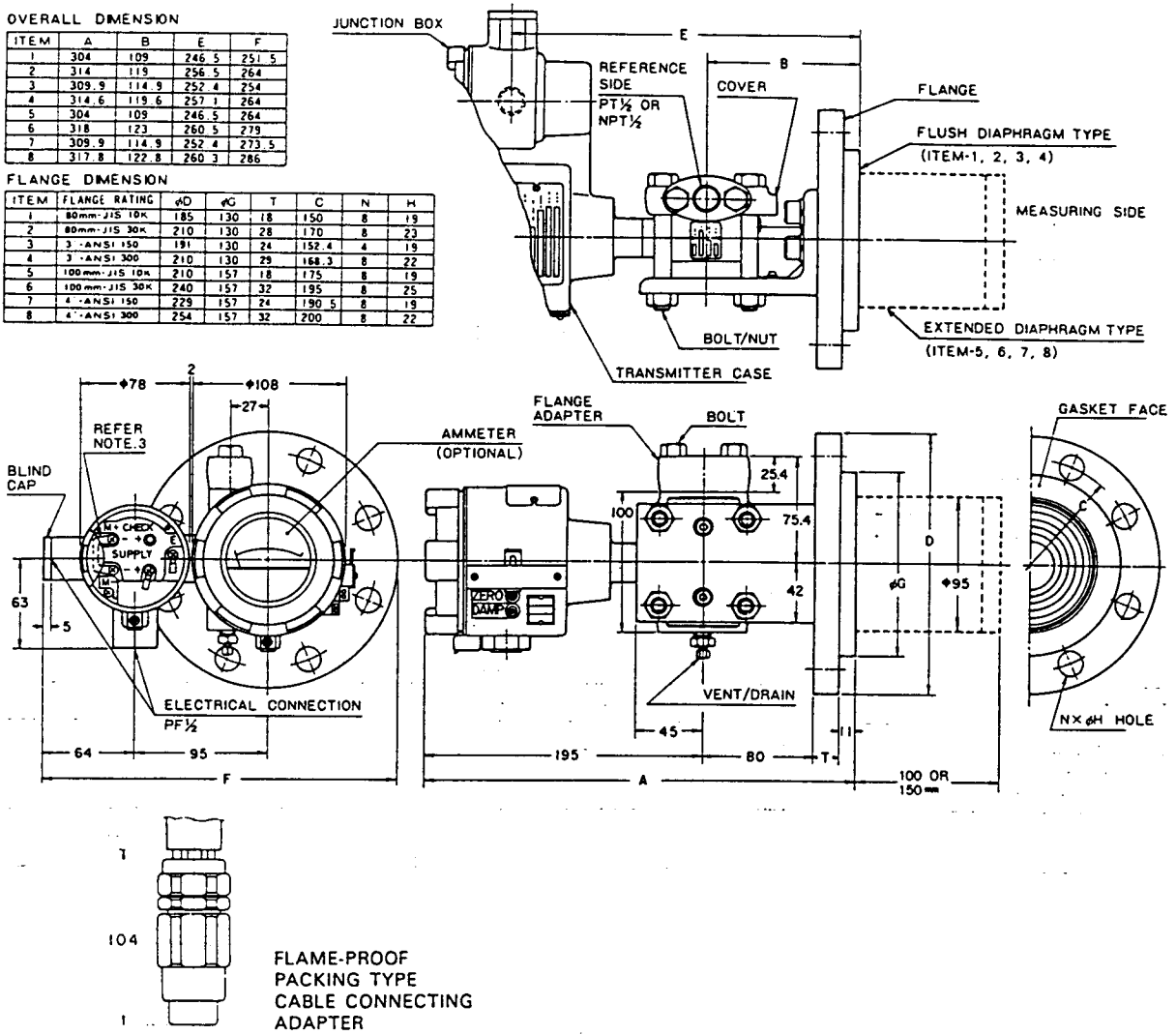
# Dimensions

## OVERALL DIMENSION

ITEM	A	B	E	F
1	304	109	246.5	251.5
2	314	119	256.5	264
3	309.9	114.9	252.4	254
4	314.6	119.6	257.1	264
5	304	109	246.5	264
6	318	123	260.5	273.5
7	309.9	114.9	252.4	273.5
8	317.8	122.8	260.3	286

## FLANGE DIMENSION

ITEM	FLANGE RATING	φD	φG	T	C	N	H
1	80mm-JIS 10K	185	130	18	150	8	19
2	80mm-JIS 30K	210	130	28	170	8	23
3	3-ANSI 150	191	130	24	152.4	4	19
4	3-ANSI 300	210	130	29	168.3	8	22
5	100mm-JIS 10K	210	157	18	175	8	19
6	100mm-JIS 30K	240	157	32	195	8	25
7	4-ANSI 150	229	157	24	190.5	8	19
8	4-ANSI 300	254	157	32	200	8	22



- Note: 1) The reference side process connections can be made in any of two positions of top or bottom. When connection is changed, replace the flange adapter and the vent/drain plug.
- 2) Mount the transmitter vertically.
- 3) To use an external indicating meter, disconnect the jumper bar from the M terminals, and connect in its place the lead-wires of the external indicating meter.
- 4) For KDI 5□, connect the low pressure side of process to the reference side while the measured pressure side to H.P. side. For KDI 6□, connect them in the reverse order.

Figure 3

## Ordering Information

When ordering, please specify:

- 1) Model No.
- 2) Measuring range
- 3) Optional specifications

Reference Instruction Manual . . . . OM2-521-510

\* Specifications are subject to change without notice.