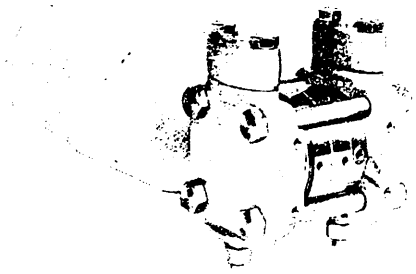
ST 3000 Smart Transmitter
Differential Pressure/Pressure Transmitter for Corrosion-Resistant Application

Models JTD215/220/235/260, JTF226/228/229, JTR226/235 JTG240/260, JTA222/240, JTU240/260

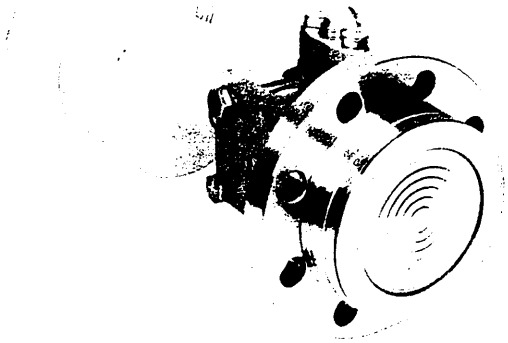
Introduction

The ST3000 Differential Pressure/Pressure Transmitter measures a differential pressure or a process pressure and transmits an analog 4 to 20mA DC output proportional to the measured variable. The transmitter is a microprocessor-based instrument, whose parameters and setting (range, damping time constant, linear or square-root output, constant current output and others) can be remote-controlled from the instrument room via the SFC (Smart Communicator).

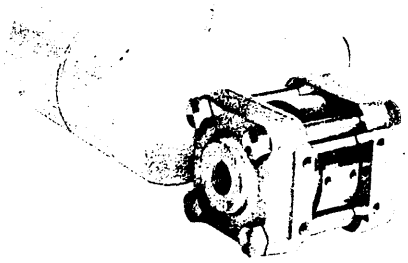
Differential Pressure/Pressure transmitters for corrosion-resistant application are utilized for measuring differential pressure/pressure of process fluid requiring high corrosion resistance. Differential Pressure/Pressure of a wide range of corrosive fluid can be measured by selecting the material according to the application.



JTD215/220/235/260
(Standard-type differential pressure transmitter for corrosion-resistant application)



JTF226/228 229
(Flange-type differential pressure transmitter for corrosion-resistant application)



JTF240 260, JTA222/240
(Gauge pressure transmitter for corrosion-resistant application)
(Absolute pressure transmitter for corrosion-resistant application)

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Standard Specifications (Differential Pressure Transmitter)

Item \ Model	Differential Pressure Transmitter			
	Standard Type			
	JTD215	JTD220	JTD235	JTD260
Measuring Span	75 to 1250 mmH_2O	25 to 10000 mmH_2O (Recommended measuring span: 250 to 10000 mmH_2O)	0.35 to 14 kgf/cm^2 (Recommended measuring span: 0.5 to 14 kgf/cm^2)	7 to 140 kgf/cm^2
Diaphragm Material	Hastelloy C, Tantalum			
Accuracy	Percentage with respect to x that represents the URV or LRV of the calibrated range, or the span—whichever is greatest.			
	±0.3% (When x is 500 mmH_2O or greater) ±[0.25+(0.05×$\frac{500}{x}$)] % (When x is less than 500 mmH_2O)	±0.3% (When x is 1250 mmH_2O or greater) ±[0.25+(0.05×$\frac{1250}{x}$)] % (When x is less than 1250 mmH_2O)	±0.2% (When x is 2.1 kgf/cm^2 or greater) ±[0.15+(0.05×$\frac{2.1}{x}$)% (When x is less than 2.1 kgf/cm^2)	Same as that of model for ordinary application ±0.15% (When x is 35 kgf/cm^2 or greater) ±[0.1+(0.05×$\frac{35}{x}$)] % (When x is less than 35 kgf/cm^2)
Temperature Effect (25±30°C)	Percentage with respect to x that represents the URV or LRV of the setting range, or the span—whichever is greatest.			
Zero Shift	±[0.15+(2×$\frac{500}{x}$)] %	±[0.15+(0.4×$\frac{2500}{x}$)] %	±[0.15+(0.2×$\frac{2.1}{x}$)] %	±[0.15+(0.2×$\frac{35}{x}$)] %
Combined Shift	±[0.55+(2.25×$\frac{500}{x}$)] %	±[0.55+(0.45×$\frac{2500}{x}$)] %	±0.6% (When x is 2.1 kgf/cm^2 or greater) ±[0.35+(0.25×$\frac{2.1}{x}$)] % (When x is less than 2.1 kgf/cm^2)	±0.6% (When x is 35 kgf/cm^2 or greater) ±[0.35+(0.25×$\frac{35}{x}$)] % (When x is less than 35 kgf/cm^2)
Static Pressure Effect	Percentage with respect to x that represents the URV or LRV of the setting range, or the span—whichever is greatest.			
Zero Shift	±[0.03+(1.05×$\frac{500}{x}$)] % 25°C, static pressure: 35 kgf/cm^2	±[0.03+(0.3×$\frac{2500}{x}$)] % 25°C, static pressure: 50 kgf/cm^2	±[0.03+(0.12×$\frac{7}{x}$)] % 25°C, static pressure: 50 kgf/cm^2	±[0.03+(0.12×$\frac{70}{x}$)] % 25°C, static pressure: 50 kgf/cm^2
Combined Shift	±[0.11+(0.5×$\frac{500}{x}$)+(0.88×$\frac{500}{x}$)] %	±[0.28+(0.25×$\frac{2500}{x}$)] % (When x is 2500 mmH_2O or greater) ±[0.14+(0.39×$\frac{2500}{x}$)] % (When x is less than 2500 mmH_2O) 25°C, static pressure: 50 kgf/cm^2	±[0.21+(0.07×$\frac{7}{x}$)] % (When x is 7 kgf/cm^2 or greater) ±[0.07+(0.21×$\frac{7}{x}$)] % (When x is less than 7 kgf/cm^2) 25°C, static pressure: 50 kgf/cm^2	±[0.21×(0.07×$\frac{70}{x}$)] % (When x is 70 kgf/cm^2 or greater) ±[0.07+(0.21×$\frac{70}{x}$)] % (When x is less than 70 kgf/cm^2) 25°C, static pressure: 50 kgf/cm^2
Working Pressure	Same as those of models for ordinary application			

Differential Pressure Transmitter			
Flange Type		Remote Seal Type	
JTR226/228	JTF229	JTR226 (Including the model for high-temperature application)	JTR235 (Including the model for high-temperature application)
250 to 10000 mmH ,O	250 to 10000 mmH_2O	250 to 10000 mmH_2O	0.35 to 14 kgf/cm² (Recommended measuring span: 0.5 to 14 kgf/cm²)
Hastelloy C, Tantalum (SUS316 for the reference pressure side. Hastelloy C/tantalum reference pressure side is also available; contact us.)		Hastelloy C, Tantalum	
Percentage with respect to x that represents the URV or LRV of the calibrated range, or the span—whichever is greatest.			
±0.3% (When x is 1250 mmH_2O or greater) ±[0.25 + (0.05 × $\frac{1250}{x}$)] % (When x is less than 1250 mmH_2O)	±0.4% (When x is 1250 mmH_2O or greater) ±[0.25 + (0.15 × $\frac{1250}{x}$)] % (When x is less than 1250 mmH_2O)	±0.3% (When x is 1250 mmH_2O or greater) ±[0.25 + (0.05 × $\frac{1250}{x}$)] % (When x is less than 1250 mmH_2O)	Same as that of model for ordinary application [±0.2% (When x is 2.1 kgf/cm² or greater) ±[0.15 + (0.05 × $\frac{2.1}{x}$)] % (When x is less than 2.1 kgf/cm²)]
Percentage with respect to x that represents the URV or LRV of the setting range, or the span—whichever is greatest.			
±[0.15 + (1.0 × $\frac{2500}{x}$)] %	±[0.15 + (1.25 × $\frac{2500}{x}$)] %	±[0.15 + (1.0 × $\frac{2500}{x}$)] %	±[0.15 + (0.35 × $\frac{2.1}{x}$)] %
±[0.55 + (1.05 × $\frac{2500}{x}$)] %	±[0.55 + (1.35 × $\frac{2500}{x}$)] %	±[1.0 + (1.05 × $\frac{2500}{x}$)] %	±1.4% (When x is 2.1 kgf/cm² or greater) ±[1.0 + (0.4 × $\frac{2.1}{x}$)] % (When x is less than 2.1 kgf/cm²)
Percentage with respect to x that represents the URV or LRV of the setting range, or the span—whichever is greatest.			
±[0.03 + (0.19 × $\frac{2500}{x}$)] % 25°C, static pressure: 10 kgf/cm²	±[0.03 + (0.34 × $\frac{2500}{x}$)] % 25°C, static pressure: 10 kgf/cm²	±[0.03 + (0.76 × $\frac{2500}{x}$)] % 25°C, static pressure: 10 kgf/cm²	±[0.03 + (0.1 × $\frac{7}{x}$)] % 25°C, static pressure: 10 kgf/cm²
±[0.19 + (0.14 × $\frac{2500}{x}$)] % (When x is 2500 mmH_2O or greater) ±[0.04 + (0.29 × $\frac{2500}{x}$)] % (When x is less than 2500 mmH_2O) 25°C, static pressure: 10 kgf/cm²	±[0.47 + (0.14 × $\frac{2500}{x}$)] % (When x is 2500 mmH_2O or greater) ±[0.04 + (0.57 × $\frac{2500}{x}$)] % (When x is less than 2500 mmH_2O) 25°C, static pressure: 10 kgf/cm²	±[0.24 + (0.72 × $\frac{2500}{x}$)] % (When x is 2500 mmH_2O or greater) ±[0.1 + (0.86 × $\frac{2500}{x}$)] % (When x is less than 2500 mmH_2O) 25°C, static pressure: 10 kgf/cm²	±[0.18 + (0.03 × $\frac{7}{x}$)] % (When x is 7 kgf/cm² or greater) ±[0.04 + (0.17 × $\frac{7}{x}$)] % (When x is less than 7 kgf/cm²) 25°C, static pressure: 10 kgf/cm²
Same as those of models for ordinary application		Same as those of models for ordinary application (As to the working pressure of the models with tantalum diaphragms for high-temperature application, refer to Fig. 2.)	

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Standard Specifications (Pressure Transmitter)

Model / Item	Pressure Transmitter					
	Gauge Pressure Type		Absolute Pressure Type		Remote Seal Type	
	JTG240	JTG260	JTA222	JTA240	JTU240 (Including the model for high-temperature application)	JTU260 (Including the model for high-temperature application)
Measuring Span	0.35 to 35 kgf/cm² (Recommended measuring span: 0.7 to 35 kgf/cm²)	7 to 140 kgf/cm²	30 to 780 mmHg	0.35 to 35 kgf/cm² (Recommended measuring span: 0.7 to 35 kgf/cm²)	0.35 to 35 kgf/cm² (Recommended measuring span: 0.7 to 35 kgf/cm²)	7 to 140 kgf/cm²
Diaphragm Materials	Hastelloy C, Tantalum (SUS316L for the reference pressure side)					
Accuracy	Percentage with respect to x that represents the URV or LRV of the calibrated range, or the span—whichever is greatest					
	±0.2% (When x is 3.5 kgf/cm² or greater) ±[0.15 + (0.05 × 3.5/x)] % (When x is less than 3.5 kgf/cm²	Same as that of model for ordinary application ±0.15% (When x is 35 kgf/cm² or greater) ±[0.1 + (0.05 × 35/x)] % (When x is less than 35 kgf/cm²)	±0.35% (When x is 90 mmHg or greater) ±[0.3 + (0.05 × 90/x)] % (When x is less than 90 mmHg)	±0.25% (When x is 3.5 kgf/cm² or greater) ±[0.2 + (0.05 × 3.5/x)] % (When x is less than 3.5 kgf/cm²)	Same as that of model for ordinary application ±0.2% (When x is 3.5 kgf/cm² or greater) ±[0.15 + (0.05 × 3.5/x)] % (When x is less than 3.5 kgf/cm²)	Same as that of model for ordinary application ±0.2% (When x is 35 kgf/cm² or greater) ±[0.15 + (0.05 × 35/x)] % (When x is less than 35 kgf/cm²)
Temperature Effect (25 ± 30°C)	Percentage with respect to x that represents the URV or LRV of the calibrated range, or the span—whichever is greatest					
Zero Shift	±[0.15 + (0.25 × 3.5/x)] %	±[0.15 + (0.25 × 35/x)] %	±[0.15 + (0.9 × 180/x)] %	±[0.15 + (0.5 × 3.5/x)] %	±[0.15 + (0.25 × 3.5/x)] %	±[0.15 + (0.25 × 35/x)] %
Combined Shift	±0.65% (When x is 35 kgf/cm² or greater) ±[0.35 + (0.3 × 3.5/x)] % (When x is less than 3.5 kgf/cm²)	±0.65% (When x is 3.5 kgf/cm² or greater) ±[0.35 + (0.3 × 35/x)] % (When x is less than 35 kgf/cm²	±[0.55 + (0.95 × 180/x)] %	±0.9% (When x is 3.5 kgf/cm² or greater) ±[0.35 + (0.55 × 3.5/x)] % (When x is less than 3.5 kgf/cm²)	±[0.35 + (0.3 × 3.5/x)] %	±[0.35 + (0.3 × 35/x)] %
Working Pressure	Same as those of models for ordinary application		Refer to Fig. 1		Same as those of models for ordinary application (As to the working pressure of the models with tantalum diaphragms for high-temperature application, refer to Fig. 2.)	

(Note: As to the specifications and model number configuration other than listed here, refer to the specification sheet of respective model for ordinary application.)

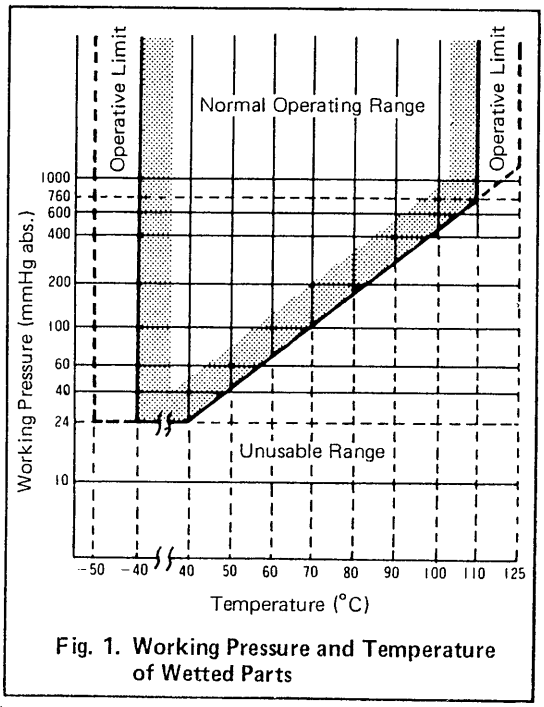


Fig. 1. Working Pressure and Temperature of Wetted Parts

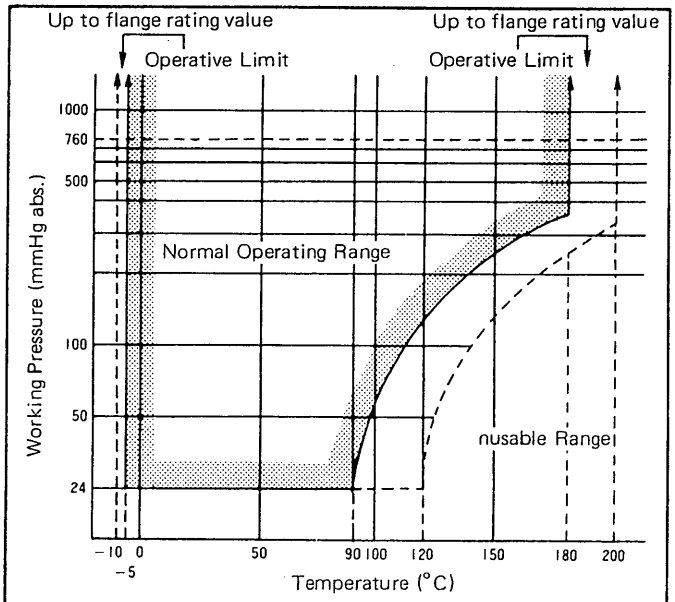
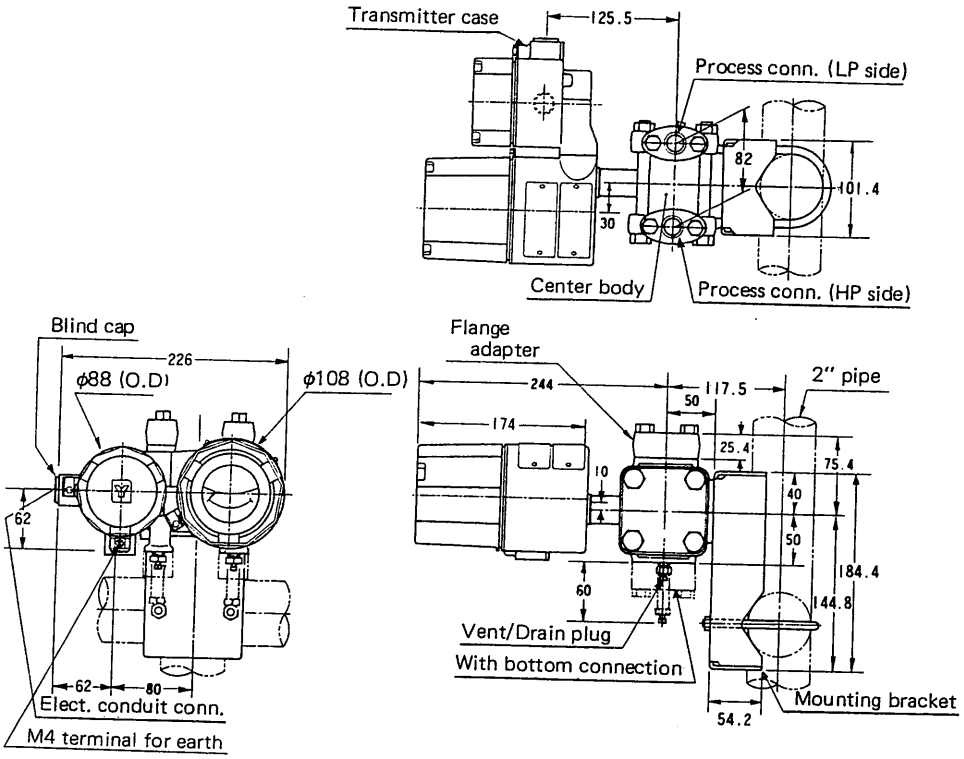


Fig. 2. Working Pressure and Temperature of Wetted Parts (Models with Tantalum Diaphragms for High-temperature Application)

Dimension Drawing (Fig. 3)

(Unit: mm)

JTD215/220/230/260 (Standard-type differential pressure transmitter for corrosion-resistant application)



Process connection: Top or bottom connection

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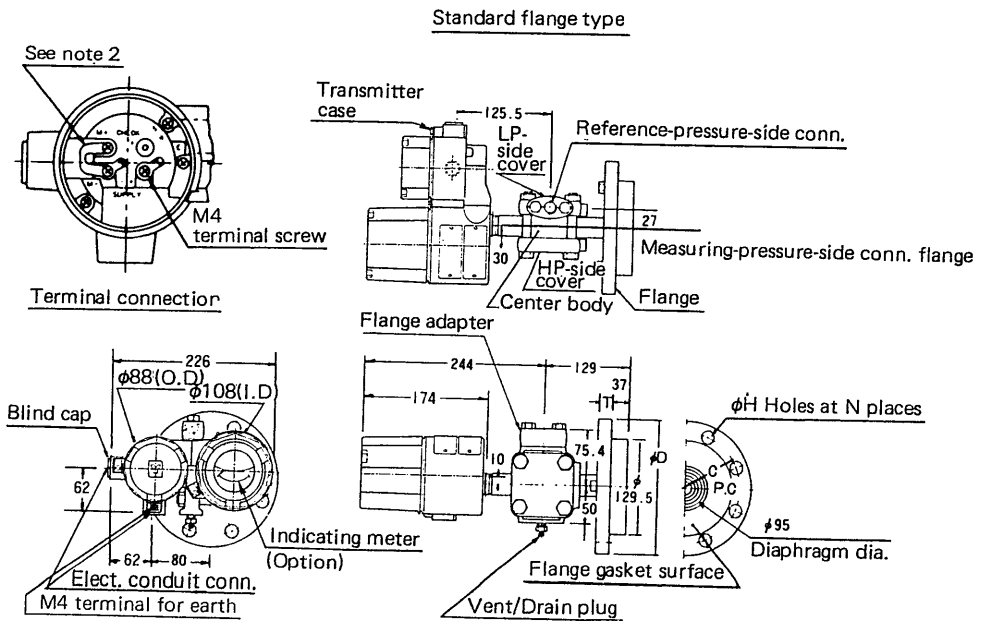
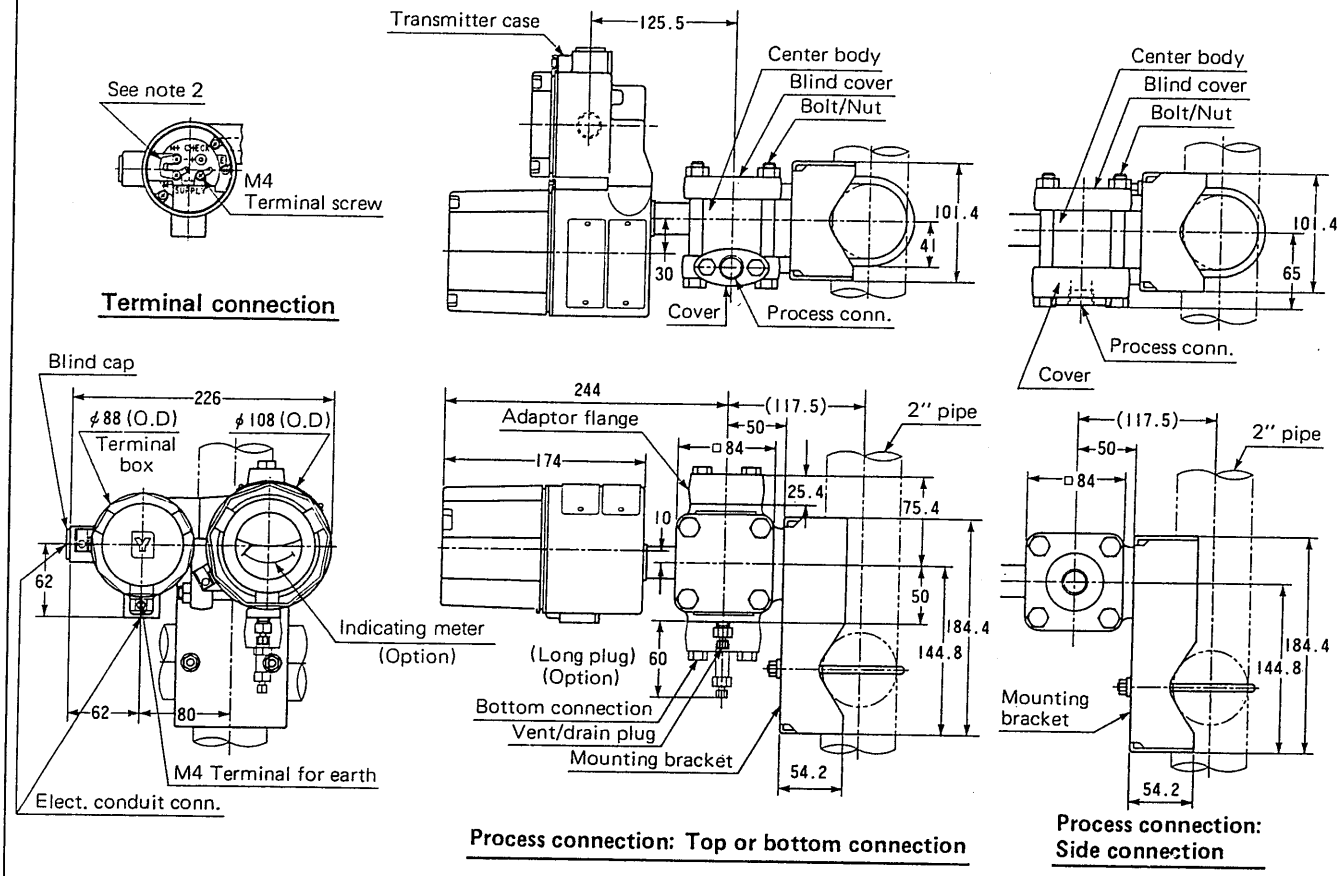
JTF226/228/229 (Flange-type differential pressure transmitter for corrosion-resistant application)



Notes: 1) Mount the transmitter vertically.
2) 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.

JTG240/260 (Gauge pressure transmitter for corrosion-resistant application)
JTA222/240 (Absolute pressure transmitter for corrosion-resistant application)

(Unit: mm)



Notes: 1) Mount the transmitter vertically.
2) 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.

Notes

1) Dimensions
- Types JTD, JTG, and JTA employ brackets for corrosion-resistant application, and the dimensions from the 2" pipe to the process connection differ from those of types for ordinary application.
- With the type JTF, dimensions of the diaphragm differ from those of the type for ordinary application.
- As to the types JTR and JTU, dimensions are the same as those of the types for ordinary application.

2) Bracket installation position
- Install brackets as shown in Fig. 4.
(Flange type and Remote seal type are not applicable.)

3) Process connection installation dimension
- 82mm between two connections (high-pressure side and low-pressure side). (Only applicable with JTD220, 235, and 260)
- If required is 54mm, the same dimension as that of types for ordinary application, flange adapters for corrosion-resistant application (A1 of Options II) are available.
Example: When a flange adapter is required;
JTD220-B1Q-00000-X-A1
When a flange adapter is not required;
JTD220-B1Q-00000-X-XX

4) As to the Model Number Table, refer to the specification sheet of respective model for ordinary application.

Fig. 4 Bracket Installation Position