# General Specifications

## Y/15FA and Y/13FA Pneumatic Flange Mounting Differential Pressure Transmitter

**P10 Series**

**GS 02C01D01-00EN**

*The Pneumatic Flange Mounting Differential Pressure Transmitters measure level or density of practically any liquid in differential spans from 1.25 to 210 kPa at static pressures from full vacuum to flange ratings.*

*The instruments transmit a proportional 20 to 100 kPa signal to remote pneumatic receivers.*

## ■ FEATURES

- **Easiest to Install of All Level Transmitters.**
- **Broad Application Capability.**
- **Wide Choice of Transmitter Location.**
- **Time-Proven Differential Pressure Transmitter Design.**
- **Trouble-Free Construction.**
- **Excellent Performance.**
- **Easy to Calibrate.**
- **Wide Range.**
- **Stable Force Balance System.**
- **Weatherproof and Dusttight. Bleed air from the mechanism purges the transmitter topworks and, together with the gasketed cover, inhibits entry of vapor and dust.**

## ■ STANDARD SPECIFICATIONS

**Span Limits:**
Refer to Table 1.
Span is continuously adjustable within range limits.

**Range Limits *:**
Refer to Table 1.
*: When lower range-value is above zero, optional kit for suppressed-zero ranges is installed.

**Static Pressure Limits:**
Full vacuum and the flange rating per JIS B 2201 or ANSI B16.5.

**Output Signal:**
Refer to Table 1.

**Accuracy (includes linearity, hysteresis and repeatability):**
Spans between 1.25 and less than 130 kPa, 125 and less than 13400 $mmH_2O$, 12.5 and less than 1300 mbar, or 5 and less than 525 in $H_2O$ differential pressure ($\Delta P$): ±0.5% of span.
Spans between 130 and 210 kPa, 13400 and 21600 $mmH_2O$, 1300 and 2100 mbar, or 525 and 850 in $H_2O$ differential pressure ($\Delta P$): ±0.75% of span.

**Repeatability:**
0.1% of span.

**Dead Band:**
0.1% of span.

**Table 1. Span and Range Limits.**

| Capsule | | – | M-calibration | P-calibration | bar-calibration |
|---|---|---|---|---|---|
| L | Span Limits | 1.25 to 6.2 kPa | 125 to 635 $mmH_2O$ | 5 to 25 $inH_2O$ | 12.5 to 62 mbar |
| | Range Limits | -12.5 to 12.5 kPa | -1.27 to 1.27 $mH_2O$ | -50 to 50 $inH_2O$ | -125 to 125 mbar |
| M | Span Limits | 5 to 51 kPa | 0.5 to 5.2 $mH_2O$ | 20 to 205 $inH_2O$ | 50 to 510 mbar |
| | Range Limits | -51 to 51 kPa | -5.2 to 5.2 $mH_2O$ | -205 to 205 $inH_2O$ | -510 to 510 mbar |
| H | Span Limits | 50 to 210 kPa | 5 to 21.6 $mH_2O$ | 200 to 850 $inH_2O$ | 0.5 to 2.1 bar |
| | Range Limits | -210 to 210 kPa | -21.6 to 21.6 $mH_2O$ | -850 to 850 $inH_2O$ | -2.1 to 2.1 bar |
| Output Signal | | 20 to 100 kPa | 0.2 to 1.0 $kgf/cm^2$ | 3 to 15 psi | 0.2 to 1.0 bar |
| Option Code | | Standard Specifications | CAL-M | CAL-E | CAL-B |

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**Supply Pressure:**
140 kPa, 1.4 kgf/cm$^2$ or bar, or 20 psi.

**Air Consumption:**
0.5 m$^3$/h at 0°C, 101.3 kPa {1.033 kgf/cm$^2$} absolute (0.3 scfm).

**Ambient Operating Temperature Range:**
-40 to 120°C (-40 to 250°F).

**Process Temperature Limits:**
-40 and 120°C (-40 and 250°F) at capsule.

**Mounting:**
Direct to process with connection flange in any position.
For Model Y/15FA, diaphragm must be in vertical plane.

**Air Connection:**
Tapped for JIS R1/4 or 1/4 NPT, whichever specified.

**Process Connection:**
High Pressure Side:
Y/15FA: Nominal 150 mm JIS 10K raised face (RF), nominal 6 inches ANSI Class 150 RF modified flange, or nominal 6 inches JPI Class 150 RF modified flange. RF surface serrated.
Y/13FA: Nominal 80 mm JIS 10 or 20 K RF, nominal 3 inches ANSI Class 150 or 300 RF modified flange, or nominal 3 inches JPI Class 150 or 300 RF modified flange. RF surface serrated.
Low Pressure Side:
Tapped for JIS Rc1/2 or 1/2 NPT, whichever specified.

**Wetted Parts Material:**
Body and Flange: Forged JIS SUS316 stainless steel.
Capsule (Body): SUS316L stainless steel.
Retaining Ring: SUS316 stainless steel.
Force Bar: SUS316 stainless steel.
Force Bar Seal: Cobalt-nickel alloy.
Capsule Gaskets: SUS316L stainless steel coated with Teflon.
Force Bar Seal Gasket: Silicone elastomer.

**Cover:**
Cast aluminum, finished with gray polyurethane paint.

**Degrees of Protection:**
IP53 (Equivalent to NEMA3)

**Approximate Weight:**
Y/15FA, JIS 10K flange version: 24 kg (53 lb).
Y/13FA, JIS 10K flange version: 8.9 kg (20 lb).

## ■ MODEL AND SUFFIX CODES

| Model | Suffix Codes | Description |
|---|---|---|
| **Y/15FA**<br>**Y/13FA** | . . . . . .<br>. . . . . . | Low differential pressure use.<br>Medium and High differential pressure use. |
| Diaphragm Capsule | **-L** . . . . . .<br><br>**-M** . . . . . .<br><br>**-H** . . . . . . | Low range capsule.<br>Span: 1.25 to 6.2 kPa.<br>(For Y/15FA only).<br>Medium range capsule.<br>Span: 5 to 51 kPa.<br>(For Y/13FA only).<br>High range capsule.<br>Span: 50 to 210 kPa.<br>(For Y/13FA only). |
| Body Material *1 | **S** . . . . . | Forged SUS316 stainless steel. |
| Flange Size, Rating and Flange Extension Length ($X_1$=129 mm) | **615** . .<br><br>**315** . .<br><br>**335** . . | 150 mm JIS 10K or 6 inches ANSI 150/JPI 150<br>(For Y/15FA only).<br>80 mm JIS 10K or 3 inches ANSI 150/JPI 150<br>(For Y/13FA only).<br>80 mm JIS 20K or 3 inches ANSI 300/JPI 300<br>(For Y/13FA only). |
| Flange Size, Rating and Flange Extension Length ($X_1$=205 mm) | **618** . .<br><br>**338** . . | 80 mm JIS 10K or 3 inches ANSI 150/JPI 150<br>(For Y/13FA only)<br>80 mm JIS 20K or 3 inches ANSI 300/JPI 300<br>(For Y/13FA only) |
| Flange Standard | **J** . .<br>**A** . .<br>**P** . . | JIS standard.<br>ANSI standard.<br>JPI standard. |
| Options | /□/□ | |

*1: ⚠ Users must consider the characteristics of selected wetted parts material and the influence of process fluids. The use of inappropriate materials can result in the leakage of corrosive process fluids and cause injury to personnel and/or damage to plant facilities. It is also possible that the diaphragm itself can be damaged and that material from the broken diaphragm and the fill fluid can contaminate the user's process fluids. Be very careful with highly corrosive process fluids such as hydrochloric acid, sulfuric acid, hydrogen sulfide, sodium hypochlorite, and high-temperature steam (150 ºC [302 ºF] or above). Contact Yokogawa for detailed information of the wetted parts material.

## ■ OPTIONS

| Item | Description | | Code |
|---|---|---|---|
| Kit for elevated-zero or suppressed-zero ranges | Permits adjustments up to range limits of capsule. Upper range-value must not exceed upper range-limit of capsule. | Elevated-zero | **L** |
| | | Suppressed-zero | **R** |
| Air set | Supply pressure: 0.2 to 1 MPa, 2 to 10 kgf/cm$^2$ or bar, or 30 to 150 psi.<br>Output pressure: 140 kPa, 1.4 kgf/cm$^2$ or bar, or 20 psi.<br>Maximum operating temperature: 80 °C (180 °F). Refer to Table 2. | | **GAS-F□**<br>**NAS-F□** |
| Low differential span | Refer to Table 3. | | **LD** |
| Cover color other than standard finish | Specify in color block □ by color code. Refer to GS22D01F01-00E. | | **SCF-□** |
| Coating other than standard finish | Epoxy resin-baked coated. | | **EPF** |
| High process temperature | Glass reinforced Teflon gasket is used in the force bar seal.<br>Maximum process temperatures to 190 °C (375 °F). | | **DG5** |
| Oxygen service preparation | Degrease cleansing treatment | | **OSW** |
| | Degrease cleansing treatment with fluorinated oilfilled capsule | | **OSFC** |
| High damping capsule*1 | Filled with high viscosity fluid. Time constant of Y/13FA is approximate 1.3 sec and Y/15FA is approximate 2.6 sec.<br>Not applicable for high range capsule of Y/13FA. | | **HVC** |
| Special wetted parts | Refer to Table 4. Applicable only for Y/13FA. | | |
| FEP Teflon film | Diaphragm protection from sticky process fluid by FEP Teflon film attached with Daifloil. Process temperature limits: 20 to 150 °C (70 to 300°F) | | **FEPTC** |
| Ammonia service | Force bar gasket: Neoprene rubber | | **AMM** |
| Stainless tube | Tube and connectors between air-set (fixed pressure regulator with filter) and transmitter are made by stainless steel. However, connection of pressure gauge remains as standard material (Bs-Ni3). | | **SST** |
| ANSI connection | Air, low pressure process, drain, and vent plug connections with tapped for ANSI NPT threads. Applicable only for ANSI flange. | | **NPT** |
| Tropicalization | When there is a possibility to generate rusts using under the condition of high temperature and high humidity area, silicone grease is coated on whole screws. Silicon grease which has stronger oil film feature. | | **PSG** |
| M-calibration | Output signal: 0.2 to 1.0 kgf/cm$^2$ | | **CAL-M** |
| P-calibration | Output signal: 3 to 15 psi | | **CAL-E** |
| bar-calibration | Output signal: 0.2 to 1.0 bar | | **CAL-B** |
| Stainless Tag plate | Stainless Tag plate fixed with screws. Up to 16 characters. | | **TP-S** |
| Force bar seal gasket*2 | GF Teflon | | **GFT** |
| Teflon coating*3 | Teflon coating for wetted parts of high side. Applicable only for Y/13FA. | | **TFSC** |

*1: Not applicable for special wetted parts.
*2: Not applicable for option code OSW, OSFC, and DG5.
*3: Not applicable for option code OSW, OSFC, HVC, and special wetted parts.

**Table 2. Air set**

| Air Connection | Gauge Scale | Code |
|---|---|---|
| JIS Rc 1/4 female | 0 to 200 kPa<br>0 to 2 kgf/cm$^2$<br>0 to 30 psi<br>0 to 2 bar | **GAS-FP**<br>**GAS-FM**<br>**GAS-FE**<br>**GAS-FB** |
| 1/4 NPT female | 0 to 200 kPa<br>0 to 2 kgf/cm$^2$<br>0 to 30 psi<br>0 to 2 bar | **NAS-FP**<br>**NAS-FM**<br>**NAS-FE**<br>**NAS-FB** |

**Table 3. Low Differential Spans**

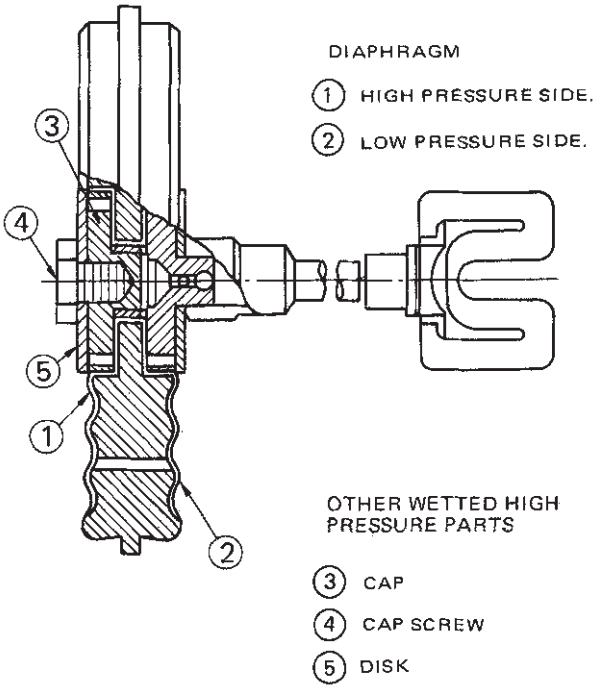
| Capsule | Span (kPa) | Accuracy (%) | |
|---|---|---|---|
| | | Suffix Code LD | Suffix Code LD+R (L) |
| L | 0.5 to 3.1 | ±0.5 | ±1.0 |
| M | 2.5 to 25 | ±0.5 | |
| H | 25 to 65 | ±0.5 | |
| | 65 to 105 | ±0.75 | |

**Table 4. Special Wetted Parts Material–High Pressure Side (For Y/13FA)**

| Capsule Material | | Retaining Ring (Raised Face Portion of Flange) | Gasket *1 | Option Codes *3 |
|---|---|---|---|---|
| Diaphragm | Other Wetted Parts | | | |
| Hastelloy C-276 | Hastelloy C | Hastelloy C | Teflon (PTFE) | **D-CSC-C-☐** |
| Hastelloy C-276 | Hastelloy C | Tantalum sheathed JIS SUS316 stainless steel (SS) | (PTFE) | **D-CSC-T-☐** |
| Tantalum *4 | None *2 | Tantalum sheathed JIS SUS316 SS | (PTFE) | **D-TSO-T- M** |

*1: Maximum temperature for Teflon (TFE) gasket is 175°C (347°F)
*2: Diaphragm without cap screw and disc.
*3: Capsule Code (M or H) will be specified in ☐.
*4: Capsule Code "M" only.

**<Reference>**
Teflon: Trademark of E.I. DuPont de Nemours & Co.
Hastelloy: Trademark of Haynes International Inc.



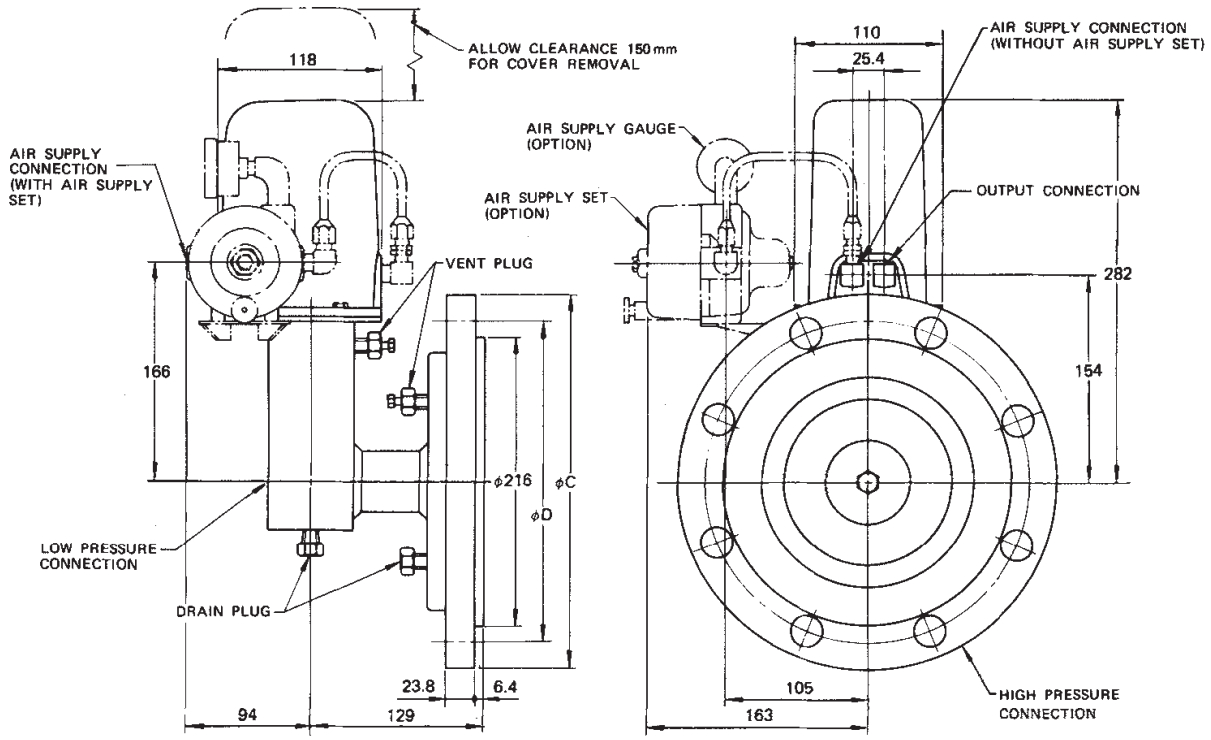

## ■ ORDERING INSTRUCTIONS

Specify the following when ordering:
1. Model and suffix codes.
2. Option codes.
3. Calibrated range.
4. Tag number.

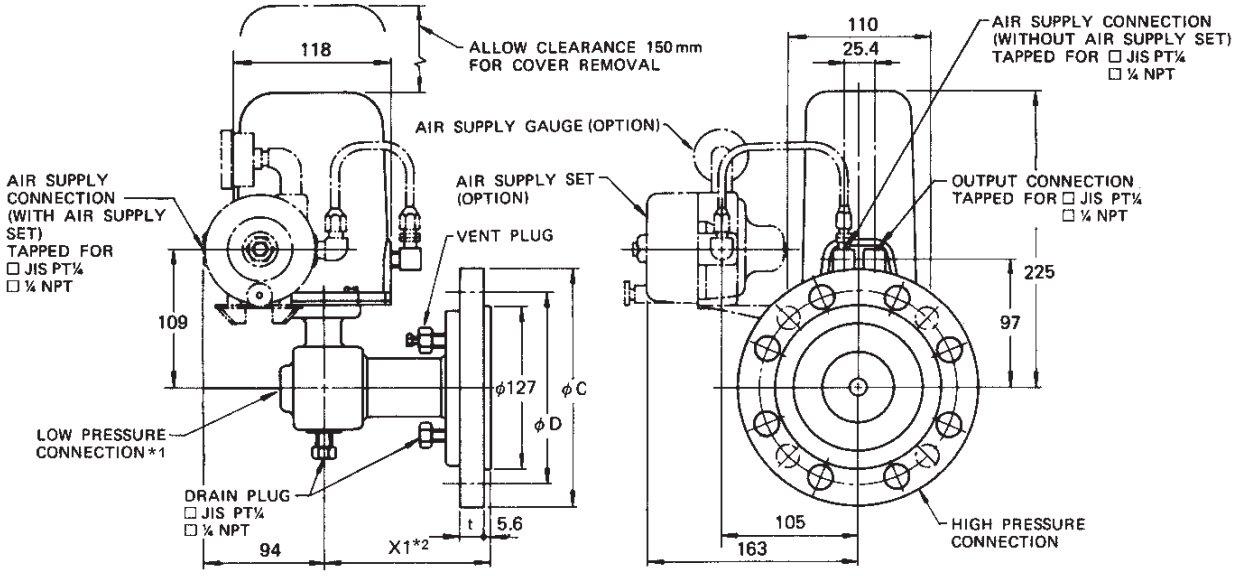
## ■ DIMENSIONS

Unit: mm

### Y/15FA




### Y/13FA




*1: LOW PRESSURE CONNECTION
☐ JIS PT1/2 FEMALE
☐ 1/2NPT FEMALE

*2: 129 or 205