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# A New Standard in **Durability, Environmental** Safety, and Reliability



## **Features**

- No fill material
- RoHS compliant for sustainability programs
- Robust, thicker Inconel diaphragm is coated with Dymax®
- Available with a thermocouple temperature output
- 0-1,000 to 0-10,000 PSI pressure range capability
- HART<sup>™</sup> digital communication available

## Description

Dynisco's Vertex melt pressure sensor innovation matches or exceeds the performance of the traditional sensor. The big differences are that Vertex is more robust, much faster, and significantly friendlier to the environment.

The direct measurement tip is a simple and elegant design with a more robust diaphragm. Direct measurement of the process reduces errors that are transferred by complicated internal support structures, transmission fill materials, or moving push rods. The diaphragm thickness is pressure range dependent and can be up to 7.5 times thicker than a traditional sensor. Add to these features, a diaphragm composition of Inconel 718 coated with the corrosion and abrasion resistant properties of Dymax® and experience the true definition of a robust sensor that has proven to increase the life of the sensor and significantly lowers the cost of owner-ship.

Vertex design innovation also extends to the speed of response of the sensor. Faster processes and controls demand faster sensing measurements. Vertex is many times faster than traditional sensors improving real time production.

Environmental regulations and community conscientiousness are driving sustainability policies and programs in large and small companies. Waste stream reduction and longer life cycles are good for the environment and the budget. There is no mercury, no NaK, no oil, no Gallium, no fill material what-so-ever. Vertex is also RoHS compliant.

Vertex sensors are designed to work with universal pressure indicators. HART digital communication is available for more extensive diagnostics and remote configuration. An optional Type J or K thermocouple is available to provide a melt temperature signal as well as a 4-20 mA temperature output. Vertex is equipped with a 1/2-20 UNF for installation in standard transducer mounting holes. An adaptor is also available to install 1/2-20 UNF units into a Button Seal application. A sealed welded shell and electrical connection are available if washdown capability is needed for food or medical applications (not available if thermocouple option TCx is selected).









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### **Specifications**

#### PERFORMANCE CHARACTERISTICS

mV/V: 10-12VDC; mA; voltage Input, Excitation:

16-36VDC

Diaphragm Operating Temp. Range<sup>1</sup>: -40°F to +752°F (-40°C to +400°C)

Electronics Operating Temp. (Max): 185°F (85°C) 0.012%/°F (0.022%/°C) Zero Shift (Electronics Temp.): Span Shift (Electronics Temp.): 0.012%/°F (0.022%/°C)

Hex/Transition Temp. (Max): 300°F (150°C)

0.022%/°F (0.039%/°C) Zero Shift (Hex Temp.):

Overload Pressure Rating: 1.5x FSP

1.0M, 1.5M, 3M, 5M, 7.5M or 10M Pressure Ranges (PSI) PSI, Bar, Kg/cm2, MPa, KPa **Pressure Units:** 

mV/V: na; mA: -6 to +12%, Voltage Zero Balance Adjustment (±% FSO):

±20%

Zero Balance Setting (±% FSO):  $mV/V: 10\%; mA: \pm 3\%, Voltage \pm 3\%$ 

mV/V:  $100 M\Omega @50VDC$ ; Insulation Resistance: Internal Shunt Calibration (R-Cal): 80% FSO ±1% FSO

Zero Shift (Process Temp. Change): 1.0%/100°F (2.0%/100°C)

#### **MECHANICAL & PACKAGING**

Diaphragm Wetted Parts: Inconel 718, DyMax® coated 250 in-lbs recommended, Mounting Torque:

500 in-lbs max

Temp. Sensor (Optional): Type J or Type K thermocouple (available on flex units only) IP54 (IP67 if welded and tempera-Ingress Protection:

ture sensor code is NTR)

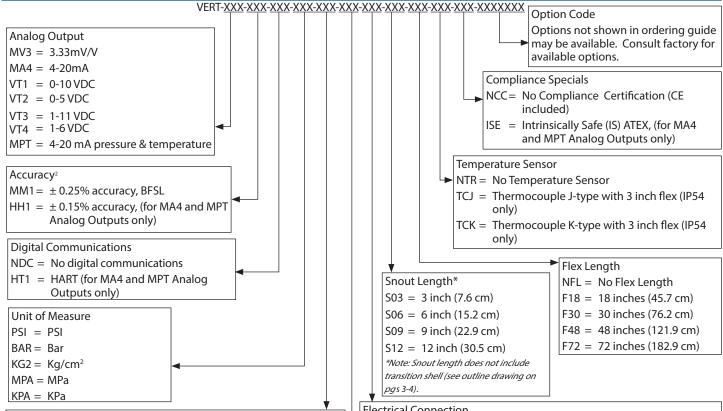
#### **APPROVALS & CERTIFICATIONS**

Directive 2004/108/EC CF: ISO9001:2008 production ISO: environment

RoHS 1: Directive 2011/95/EC RoHS 2: Directive 2011/65/EU ATEX IS Intrinsically Safe

Diaphragm Operating Temp. Range refers to the functional limits of the snout tip. Refer to the manual for greater detail on the operating and compensated temperature ranges of the diaphragm tip, flex and electronics.

## Ordering Guide



#### Pressure Range\*

70 Bar; 70 Kg/cm<sup>2</sup>; 7 MPa; R16 or T16 = 1000 PSI;R17 or T17 = 1500 PSI; 100 Bar; 100 Kg/cm<sup>2</sup>; 10 MPa; 10000 KPa R20 or T20 = 3000 PSI; 200 Bar; 200 Kg/cm<sup>2</sup>; 20 MPa; 20000 KPa R21 or T21 = 5000 PSI; 350 Bar; 350 Kg/cm<sup>2</sup>; 35 MPa; 35000 KPa R22 or T22 = 7500 PSI; 500 Bar; 500 Kg/cm<sup>2</sup>; 50 MPa; 50000 KPa R23 or T23= 10000 PSI; 700 Bar; 700 Kg/cm<sup>2</sup>; 70 MPa; 70000 KPa

\*Note: Use RXX codes for standard pressure . Use TXX codes if turndown is required. When using TXX codes be sure to inidicate in option code section. For example: 3000 PSI Turned down to 2500 would be a T20 with option code @2500

Process Connection\*

UNF = 1/2-20 UNF

F25 = Standard Small Flange

\*Note: Other process connections are available. Contact factory for available options.

<sup>2</sup>Accuracy Defined as the combined error expressed as a percentage of full scale output. Combined error includes linearity BFSL), hysteresis, and repeatability at ambient temperature, as defined in ISA-S37

## **Electrical Connection**

6 pin bayonet style o-ring sealed (IP54 only)

3-wire conduit -42 inches, welded (for MA4 Analog Out \*3AC= put only)

\*5AC= 5 wire conduit -42 inches, welded (for MA4 and MPT Analog Output only)

\*6AC= 6 wire conduit -42 inches, welded (for MV3 Analog Output only)

\*\*6PW = 6 pin bayonet style, welded

\*\*8PW = 8 pin bayonet style, welded (for MA4 and MPT Analog Output only)

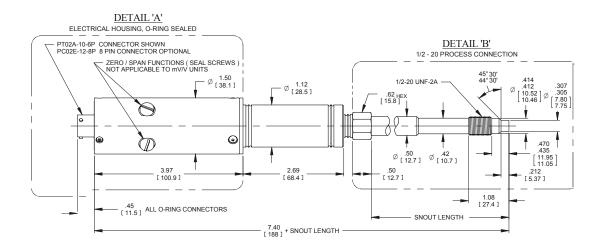
8 pin threaded style (PC) o-ring sealed (for MV3 Analog = N38Output only (IP54 only)

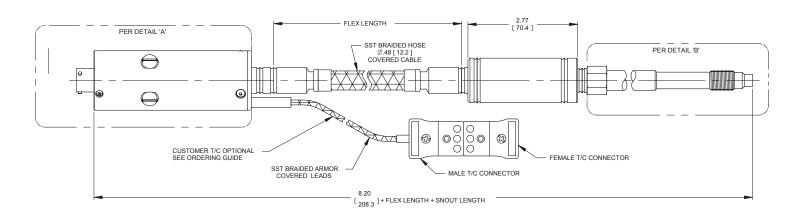
\*\*8CW = 8 pin threaded style (PC), welded (for MA4 and MPT Analog Output only)

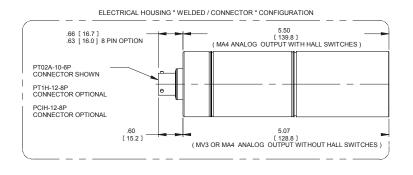
\*Note: Other lengths are available. Contact factory for available options.

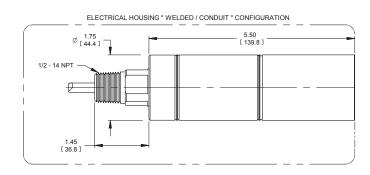
\*\*IP67 units require special mating cable. See accessory section of product manual for P/N.

## **MECHANICAL DIMENSIONS**





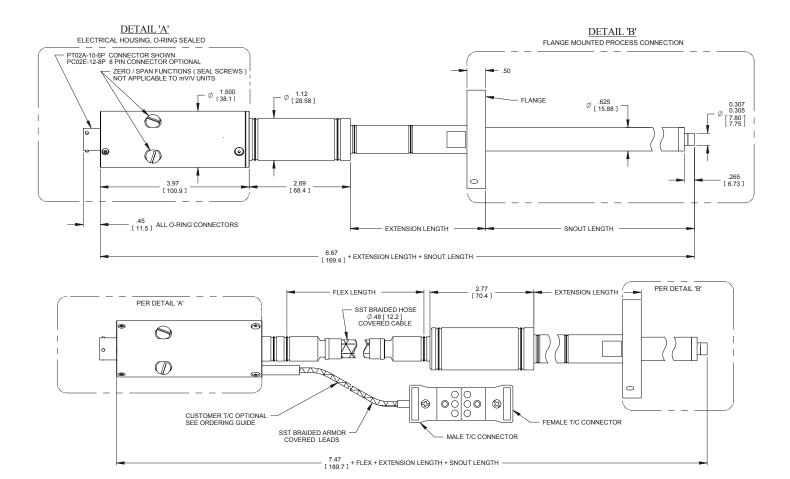


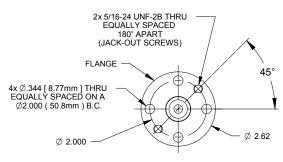


#### NOTES

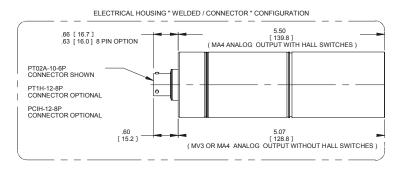
- 1. DIMENSIONS ARE IN INCHES [ MILLIMETERS ].
- 2. DIMENSIONS ARE NOMINAL AND FOR REFERENCE ONLY.
- 3. NOT ALL CONFIGURATIONS & OPTIONS ARE SHOWN, CONSULT FACTORY.

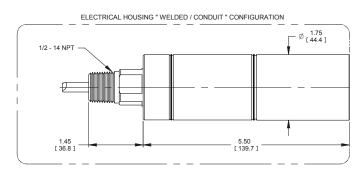
## **MECHANICAL DIMENSIONS**





STD. FLANGE "F25 " SHOWN





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## **ELECTRICAL CONNECTIONS**

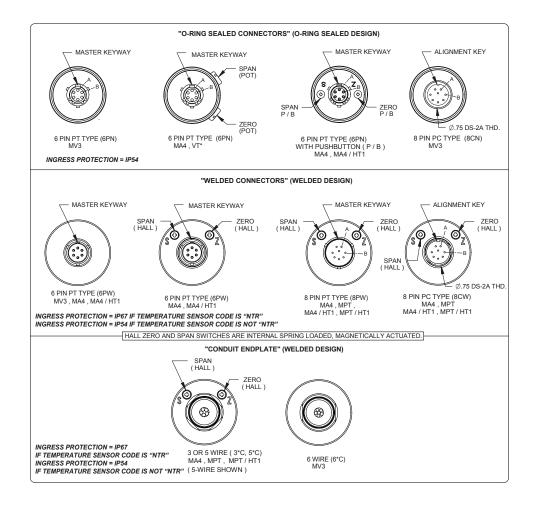
CONNECTOR OPTIONS			
	BENDIX PT02-10-6P		
6 PIN	OR EQUIVALENT		
PT	MATING CONNECTOR		
	PT06-10-6S		
	BENDIX PC02-12-8P		
8 PIN	OR EQUIVALENT		
PC	MATING CONNECTOR		
	PC02-12-8S		
	BENDIX PT02-12-8P		
8 PIN	OR EQUIVALENT		
PT	MATING CONNECTOR		
	PT06A-12-8S		

ANALOG OUTPUT MA4, MPT	CONNECTION TYPE			
SIGNAL	TERMINAL DESCRIPTION	¹CONDUIT-LEAD OR DYNISCO CABLE WIRE COLOR	6- PIN	8-PIN
	PWR+/SIG+	RED	Α	Α
PRIMARY 4-20mA	PWR-/SIG-	BLACK	В	В
	CASE	GREEN	-	-
OPTIONAL RCAL	RCAL+	ORANGE	F	E
OF HONAL NOAL	RCAL-	BLUE	Е	D
OPTIONAL SECONDARY 4-20mA	PWR+/SIG+	ORANGE	N/A	G
OF HOUSE GEOGRAPHY 4 2011/4	PWR-/SIG-	BLUE	N/A	Н

<sup>1</sup>UNITS THAT HAVE CONDUIT LEADS ARE AVAILABLE WITH OPTIONAL RCAL OR TEMPERATURE 4-20mA SIGNAL, NOT BOTH.

ANALOG OUTPU	JT MV3	CONNECTION TYPE		
SIGNAL	TERMINAL DESCRIPTION	CONDUIT-LEAD OR DYNISCO CABLE WIRE COLOR	6-PIN	8-PIN
PRIMARY OUTPUT	SIG+	RED	Α	В
	SIG-	BLACK	В	D
SUPPLY	PWR+	WHITE	С	Α
	PWR-	GREEN	D	С
RCAL	RCAL+	ORANGE	F	F
NOAL	RCAL-	BLUE	E	E
N/A	-	-	-	G
	-	-	-	Н

ANALOG OUTPUT VT*		CONNECTION TYPE	
SIGNAL	TERMINAL DESCRIPTION	DYNISCO CABLE WIRE COLOR	6-PIN
PRIMARY OUTPUT	SIG+	RED	Α
	SIG-	BLACK	В
SUPPLY	PWR+	WHITE	С
	PWR-	GREEN	D
RCAI	RCAL+	ORANGE	F
	RCAL-	BLUE	E



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