**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 ownership. 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 whatever. 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 adapter 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).
### Performance Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input, Excitation:</strong></td>
<td>mV/V: 10-12VDC; mA; voltage 16-36VDC</td>
</tr>
<tr>
<td><strong>Diaphragm Operating Temp. Range:</strong></td>
<td>-40°F to +752°F (-40°C to +400°C)</td>
</tr>
<tr>
<td><strong>Electronics Operating Temp. (Max):</strong></td>
<td>185°F (85°C)</td>
</tr>
<tr>
<td><strong>Zero Shift (Electronics Temp.):</strong></td>
<td>0.012%/°F (0.022%/°C)</td>
</tr>
<tr>
<td><strong>Span Shift (Electronics Temp.):</strong></td>
<td>0.012%/°F (0.022%/°C)</td>
</tr>
<tr>
<td><strong>Hex/Transition Temp. (Max):</strong></td>
<td>300°F (150°C)</td>
</tr>
<tr>
<td><strong>Zero Shift (Hex Temp.):</strong></td>
<td>0.022%/°F (0.039%/°C)</td>
</tr>
<tr>
<td><strong>Overload Pressure Rating:</strong></td>
<td>1.5x FPS</td>
</tr>
<tr>
<td><strong>Pressure Ranges (PSI):</strong></td>
<td>2.5C, 5C, 7.5C, 1.0M, 1.5M, 3M, 5M, 7.5M or 10M</td>
</tr>
<tr>
<td><strong>Pressure Units:</strong></td>
<td>PSI, Bar, Kg/cm², MPa, KPA</td>
</tr>
<tr>
<td><strong>Zero Balance Adjustment (±% FSO):</strong></td>
<td>mV/V: na; mA: ±3%, Voltage ±20%</td>
</tr>
<tr>
<td><strong>Zero Balance Setting (±% FSO):</strong></td>
<td>mV/V: 10%; mA: ±3%, Voltage ±3%</td>
</tr>
<tr>
<td><strong>Insulation Resistance:</strong></td>
<td>mV/V: 100 MΩ @50VDC</td>
</tr>
<tr>
<td><strong>Internal Shunt Calibration (R-Cal):</strong></td>
<td>80% FSO ±1% FSO</td>
</tr>
<tr>
<td><strong>Zero Shift (Process Temp. Change):</strong></td>
<td>1.0%/100°F (2.0%/100°C)</td>
</tr>
</tbody>
</table>

### Mechanical & Packaging

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diaphragm Wetted Parts:</strong></td>
<td>Inconel 718, DyMax® coated</td>
</tr>
<tr>
<td><strong>Mounting Torque:</strong></td>
<td>250 in-lbs recommended, 500 in-lbs max</td>
</tr>
<tr>
<td><strong>Temp. Sensor (Optional):</strong></td>
<td>Type J or Type K thermocouple (available on flex units only)</td>
</tr>
<tr>
<td><strong>Ingress Protection:</strong></td>
<td>IP54 (IP67 if welded and temperature sensor code is NTR)</td>
</tr>
</tbody>
</table>

### Approvals & Certifications

<table>
<thead>
<tr>
<th>Certification</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CE:</strong></td>
<td>Directive 2004/108/EC</td>
</tr>
<tr>
<td><strong>ISO:</strong></td>
<td>ISO9001:2008 production environment</td>
</tr>
<tr>
<td><strong>RoHS 1:</strong></td>
<td>Directive 2011/95/EC</td>
</tr>
<tr>
<td><strong>RoHS 2:</strong></td>
<td>Directive 2011/65/EU</td>
</tr>
<tr>
<td><strong>ATEX IS</strong></td>
<td>Intrinsically Safe</td>
</tr>
</tbody>
</table>

*Diaphragm Operating Temp. Range refers to the functional limits of the snout tip. Refer to the manual for greater detail on the operating compensated temperature ranges of the diaphragm tip, flex and electronics.
A New Standard in Durability, Environmental Safety, and Reliability

**Ordering Guide**

**Analog Output**
- MV3 = 3.33mV/V
- MA4 = 4-20mA
- VT1 = 0-10 VDC
- VT2 = 0-5 VDC
- VT3 = 1-11 VDC
- VT4 = 1-6 VDC
- MPT = 4-20 mA pressure & temperature

**Accuracy**
- MM1 = ±0.25% accuracy, BFSL
- HH1 = ±0.15% accuracy, (for MA4 and MPT Analog Outputs only)

**Units of Measure**
- PSI = PSI
- BAR = Bar
- KG2 = Kg/cm²
- MPA = MPa
- KPA = KPa

**Pressure Range**
- R13 or T13 = 250 PSI; 17.5 Bar; 17.5 Kg/cm²; 1.75 MPa; 1750 KPa
- R14 or T14 = 500 PSI; 35 Bar; 35 Kg/cm²; 3.5 MPa; 3500 KPa
- R15 or T15 = 750 PSI; 50 Bar; 50 Kg/cm²; 5 MPa; 5000 KPa
- R16 or T16 = 1000 PSI; 70 Bar; 70 Kg/cm²; 7 MPa; 7000 KPa
- R17 or T17 = 1500 PSI; 100 Bar; 100 Kg/cm²; 10 MPa; 10000 KPa
- R20 or T20 = 3000 PSI; 200 Bar; 200 Kg/cm²; 20 MPa; 20000 KPa
- R21 or T21 = 5000 PSI; 350 Bar; 350 Kg/cm²; 35 MPa; 35000 KPa
- R22 or T22 = 7500 PSI; 500 Bar; 500 Kg/cm²; 50 MPa; 50000 KPa
- R23 or T23 = 10000 PSI; 700 Bar; 700 Kg/cm²; 70 MPa; 70000 KPa

*Note: Use RXX codes for standard pressure. Use TXX codes if turndown is required. Turndown ratio 6:1. When using TXX codes be sure to indicate in option code section. For example: 3000 PSI Turned down to 2500 would be a T20 with option code @2500

**Digital Communications**
- NDC = No digital communications
- HT1 = HART (for MA4 and MPT Analog Outputs only)

**Temperature Sensor**
- NTR = No Temperature Sensor
- TCJ = Thermocouple J-type with 3 inch flex (IP54 only)
- TCK = Thermocouple K-type with 3 inch flex (IP54 only)

**Flex Length**
- NFL = No Flex Length
- F18 = 18 inches (45.7 cm)
- F30 = 30 inches (76.2 cm)
- F48 = 48 inches (121.9 cm)
- F72 = 72 inches (182.9 cm)

**Snout Length**
- S03 = 3 inch (7.6 cm)
- S06 = 6 inch (15.2 cm)
- S09 = 9 inch (22.9 cm)
- S12 = 12 inch (30.5 cm)

*Note: Snout length does not include transition shell (see outline drawing on pgs 3-4).

**Electrical Connection**
- 6PN = 6 pin bayonet style o-ring sealed (IP54 only)
- *3AC = 3-wire conduit -42 inches, welded (for MA4 Analog Output 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 Analog Output only)
- 8CN = 8 pin threaded style (PC) o-ring sealed (for MV3 Analog Output 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.

**Option Code**
- Options not shown in ordering guide may be available. Consult factory for available options.

**Compliance Specials**
- NCC = No Compliance Certification (CE included)
- ISE = Intrinsically Safe (IS) ATEX, (for MA4 and MPT Analog Outputs only)

**Temperature Sensor**
- NTR = No Temperature Sensor
- TCJ = Thermocouple J-type with 3 inch flex (IP54 only)
- TCK = Thermocouple K-type with 3 inch flex (IP54 only)

**Units of Measure**
- PSI = PSI
- BAR = Bar
- KG2 = Kg/cm²
- MPA = MPa
- KPA = KPa

**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-S57**

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

**ANALOG OUTPUT MV3**

<table>
<thead>
<tr>
<th>SIGNAL</th>
<th>TERMINAL DESCRIPTION</th>
<th>DYNISCO CABLE WIRE COLOR</th>
<th>6-PIN</th>
<th>5-PIN</th>
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<tbody>
<tr>
<td>PRIMARY OUTPUT</td>
<td>SIG+</td>
<td>RED</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>SIG-</td>
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<td>B</td>
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<tr>
<td>SUPPLY</td>
<td>PWR+</td>
<td>WHITE</td>
<td>C</td>
<td>C</td>
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<td></td>
<td>PWR-</td>
<td>GREEN</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>RCAL</td>
<td>RCAL+</td>
<td>ORANGE</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>RCAL-</td>
<td>BLUE</td>
<td>F</td>
<td>F</td>
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<tr>
<td>N/A</td>
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**ANALOG OUTPUT VT***

<table>
<thead>
<tr>
<th>SIGNAL</th>
<th>TERMINAL DESCRIPTION</th>
<th>DYNISCO CABLE WIRE COLOR</th>
<th>6-PIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY OUTPUT</td>
<td>SIG+</td>
<td>RED</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>SIG-</td>
<td>BLACK</td>
<td>B</td>
</tr>
<tr>
<td>SUPPLY</td>
<td>PWR+</td>
<td>WHITE</td>
<td>C</td>
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<tr>
<td></td>
<td>PWR-</td>
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<tr>
<td>RCAL</td>
<td>RCAL+</td>
<td>ORANGE</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>RCAL-</td>
<td>BLUE</td>
<td>F</td>
</tr>
</tbody>
</table>

**Master Keyway**

- **O-Ring Sealed Connectors** (O-Ring Sealed Design)
- **Welded Connectors** (Welded Design)
- **Conduit Endplate** (Welded Design)

**Notes:**
1. Dimensions are in inches (millimeters).
2. Dimensions are nominal and for reference only.
3. Not all configurations & options are shown; consult factory.

**Ingress Protection**

- IP43
- IP67
- IP54

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Refer to www.dynisco.com for access to Operator Manual and other support documentation.

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