Honeywell

Technical Note

Pneumatic Interface Recommendations for TruStability® Board Mount Pressure Sensors, HSC, SSC, TSC, NSC Series

1.0 INTRODUCTION

There are four methods, depending on the sensor's port type, that may be used to pneumatically connect Honeywell's TruStability® Board Mount Pressure Sensors to the end user's system. These methods are tubing, O-rings, epoxy, and clamping.

2.0 TUBING

Plastic tubing is a common method of pneumatically connecting to a sensor. The type of tubing selected (i.e., Superthane®, silicone, and vinyl) depends on the sensor's working pressure range and operating temperature.

Silicone tubing tends to be the easiest to connect to a sensor; however, its working pressure is not as high as that of other tubing materials.

The lower the tubing's shore number, the easier it is to insert the tubing onto the sensor's port. The lower shore tubing, however, also has lower working pressures. For working pressures of 20 psi and below, silicone or vinyl tubing tend to be used. For pressures above 20 psi, Superthane® or low-density polyethylene tubing can be considered.

Match the tubing to the application's required working pressure and maximum operating temperature. (See Table 1.)

NOTICE

To apply a more rigid tubing-to-port connection, use a low-power heat gun to slightly heat the tubing. Once cooled, the tubing will grip the port better.

Table 1. Recommended Tubing for Honeywell TruStability® Board Mount Pressure Sensors, HSC, SSC, TSC, NSC Series

TruStability® Port	Manufacturer	Tubing Type	Part Number	ID (mm [in])	Shore	Pressure at 25 °C [77 °F] (psi)	Operating Temperature, Max. (°C [° F])
A, NB, F, G, H	NewAge Industries	Superthane® (ether)	2100455	4,78 [0.188]	85	74	80 [176]
A, NB, F, G, H	NewAge Industries	silicone	2801085	4,78 [0.188]	50	20	260 [500]
A, NB, F, G, H	NewAge Industries	low density polyethylene	2510886	4,78 [0.188]	50	140	60 [140]
J	Frelin-Wade	Fre-Thane® polyurethane	1A-156-11	2,36 [0.093]	95	210	65 [149]
J	Frelin-Wade	nylon	1A-200-01	2,36 [0.093]	78	270	65 [149]
J	NewAge Industries	PVC	1100225	2,39 [0.094]	68	42	80 [176]
J	NewAge Industries	silicone	2800315	2,39 [0.094]	50	20	260 [500]
R	Frelin-Wade	Fre-Thane®	95a-157	1,68 [0.066]	95	100	65 [149]
R	NewAge Industries	Superthane® (ether)	2110535	1,68 [0.066]	85	135	80 [176]

Technical Note

Pneumatic Interface Recommendations for Honeywell TruStability® Pressure Sensors

3.0 O-RINGS

O-rings may also be used to connect pneumatically to the sensor. This method is generally used for sensors with the **LN**, **MN**, **SN** and **NN** ports.

- Silicone or fluorosilicone O-rings are commonly used as they tend to take less of a set over temperature when compared with O-rings made of other materials.
- Most O-ring manufacturers recommend a compression of 20% to 25% to provide the proper O-ring compression over the temperature range.
- Use a 70 Shore 2-006 O-ring to connect to the **NN** and **SN** ports.
- Use a 2-015 O-ring for the **MN** port.
- Use a 2-005 O-ring for the **L** port. Two O-rings provide a better seal, although one O-ring may also be used.

4.0 MANIFOLD MOUNTING USING EPOXIES OR RTV SILICONE

For working pressures under 30 psi, epoxy or RTV (Room Temperature Vulcanization) silicone may be used to connect the **MN**, **SN** and **NN** ports to a manifold.

- When epoxy, ensure it is compatible with Zytel® plastic, the sensor's plastic housing material. Silicones are compatible with Zytel plastic.
- When applying epoxy to a port, ensure the sensor's pressure or vent holes are not blocked.
- When using an exothermic reactive epoxy (gives off heat during cure), ensure its exothermic reaction doesn't increase the sensor's temperature above its storage temperature of 85 °C [185 °F].
- When using a temperature-cured material, ensure the combined curing temperature/exothermic reaction temperature does not exceed the sensor's storage temperature. Use a given epoxy's lower curing temperature to help ensure the sensor's storage temperature is not exceeded.

5.0 CLAMPING

When the working pressure is 15 psi or less, clamps are not typically required to ensure the tubing remains in place and doesn't leak. Each application is different; however, each end use must be considered before deciding if clamps are necessary. Such considerations include vibration, pressure spikes, temperature, and the tubing being used.

Clamping methods include:

- Plastic cable ties. Found in most hardware stores, ties come in a variety of sizes. The advantage of ties is that they are relatively easy to install and tend to stay in place over time.
- Plastic hose clamps. Two manufacturers are HellermannTyton Products (Snapper clamps) and Cole Parmer. They work with the **A**, **NB**, **F, G**,and **H** ports; however, for the **R** port, plastic cable ties are preferred due to the small port size. The exact size needed depends on the OD (out diameter) of the tubing used with the sensor.

NOTICE

Instead of clamping, apply a small drop of epoxy to the port prior to the tubing being placed onto the port, or to the end of the tubing once the tubing is in place. This method holds the tubing in place and further act as a sealing agent to help ensure a leak-tight connection between the port and tubing. Use a room temperature sealant. Ensure that the epoxy doesn't block the hole in the port.

Find out more

To learn more about Honeywell's sensing and control products, call **1-800-537-6945**, visit **sensing.honeywell.com,** or e-mail inquiries to **info.sc@honeywell.com**

Sensing and Control
Honeywell
1985 Douglas Drive North
Golden Valley, MN 55422
honeywell.com

Honeywell

008283-1-EN IL50
December 2014