

## PS-2 Series Pressure Sensor

**Eliminates Atmospheric Bleed Gas of Becker Double-Acting Control Instrumentation When Control Valve is Full-Open or Full-Closed, Typically Utilized When Power Supply Gas and Bleed to Pressure System are Elevated.**

### Description

The PS-2 Series Non-Bleed Sensor eliminates bleed gas from Becker seat and nozzle type double-acting control instrumentation when corresponding control valve is at full-open or full-closed positions. This is ideal for monitor regulators and standby regulators that typically remain in the full-open or full-closed positions. The PS-2 features bleed shutoff at one end of valve travel. If bleed shutoff is needed at both ends of valve travel, two PS-2 Non-Bleed Sensors are required. The PS-2 is typically utilized for high pressure power supply gas (> 150 psig) or when Bleed to Pressure System (BPS™) discharge pressures exceed 60 psig. The PS-2 is compatible with the VRP-CH Valve Regulator Pilot and HPP-4 High Pressure Positioner



**Figure 1** - Model PS-2-200 Non-Bleed Sensor

The Non-Bleed Sensor renders Becker seat and nozzle double-acting control instrumentation non-bleeding when the corresponding control valve is at full-open or full-closed positions. The PS-2 features high pressure capabilities when power supply gas and discharge pressure gas is elevated.

### Features

- Compatible with Becker seat and nozzle type double-acting control instrumentation
- Compatible with high pressure power supply gas
- Compatible with high pressure Bleed to Pressure System™ (discharge pressure)
- Minimizes leak callouts
- Complies with EPA STAR program for emissions reduction
- Improves safety by eliminating constant emissions
- Renders monitor, standby, and relief valve control valves
- Non-Bleeding

### Available Models

- PS-2-200 ( $P_{\text{supply}} \leq 200$  psig)
- PS-2-600 ( $P_{\text{supply}} > 200$  psig)

### Compatible Instrumentation

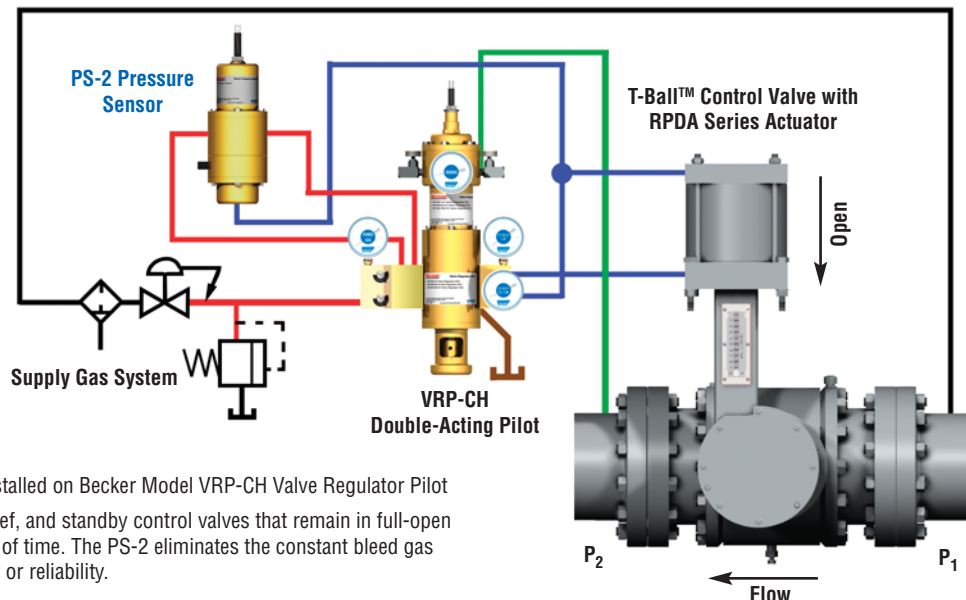
- Model VRP-CH
- Model HPP-4

### May Be Easily Retrofit to Discontinued Becker Control Instrumentation

- Model HPP-2
- Model HPP-2E
- Model VRP

### Schematic Legend

- Sensing Pressure ( $P_2$ )
- Upstream Pressure ( $P_1$ )
- Exhaust (Discharge)
- Supply Gas (Regulated)
- Intermediate Pressure (Loading)



**Figure 2** - PS-2 Series Non-Bleed Sensor Installed on Becker Model VRP-CH Valve Regulator Pilot

The PS-2 is typically utilized on monitor, relief, and standby control valves that remain in full-open or full-closed positions for extended periods of time. The PS-2 eliminates the constant bleed gas emissions without effecting control accuracy or reliability.

**Table 1 - PS-2 Non-Bleed Sensor Model Information (Specifications)**

PS-2 Model	Setpoint Range (psig/kPa)	Spring Color	Spring Part Number	P <sub>Supply</sub> (Minimum)	P <sub>Supply</sub> (Maximum)	Weight	PS-2 Part Number	PS-2 Repair Kit Part Number
<b>PS-2-200</b>	5.0 – 40 psig (34.5 – 278 kPa)	Green	20-2592	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	7.0 lbs. (3.2 kg)	25-1501	25-1513
	10 – 70 psig (68.9 – 483 kPa)	Silver	25-1038	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	7.0 lbs. (3.2 kg)	25-1501	25-1513
	25 – 140 psig (172 – 965 kPa)	Blue	25-1036	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	7.0 lbs. (3.2 kg)	25-1501	25-1513
	50 – 200 psig (345 – 1379 kPa)	Red	25-1037	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	7.0 lbs. (3.2 kg)	25-1501	25-1513
<b>PS-2-600</b>	200 – 475 psig (1379 – 3275 kPa)	White	25-1279	200 psig (1380 kPa)	600 psig (4137 kPa)	8.0 lbs. (3.72 kg)	25-1502	25-1513
	400 – 600 psig (2758 – 4137 kPa)	Yellow	25-1306	200 psig (1380 kPa)	600 psig (4137 kPa)	8.0 lbs. (3.72 kg)	25-1502	25-1513
<b>PS-2-200-SS</b>	5.0 – 40 psig (34.5 – 278 kPa)	Green	20-2592	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	21 lbs. (9.5 kg)	25-6055	25-1513
	10 – 70 psig (68.9 – 483 kPa)	Silver	25-1038	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	21 lbs. (9.5 kg)	25-6055	25-1513
	25 – 140 psig (172 – 965 kPa)	Blue	25-1036	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	21 lbs. (9.5 kg)	25-6055	25-1513
	50 – 200 psig (345 – 1379 kPa)	Red	25-1037	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	21 lbs. (9.5 kg)	25-6055	25-1513
<b>PS-2-600-SS</b>	200 – 475 psig (1379 – 3275 kPa)	White	25-1279	200 psig (1380 kPa)	600 psig (4137 kPa)	24 lbs. (10.9 kg)	25-6118	25-1513
	400 – 600 psig (2758 – 4137 kPa)	Yellow	25-1306	200 psig (1380 kPa)	600 psig (4137 kPa)	24 lbs. (10.9 kg)	25-6118	25-1513

**Notes**

“SS” Suffix indicates 304 Stainless Steel (99% Passivated) materials of construction on major components.



**Figure 3 - Model PS-2-200 Non-Bleed Sensor**



**Figure 4 - Model PS-2-600 Non-Bleed Sensor**

**Table 2 - PS-2 Non-Bleed Sensor Specifications**

Technical Specifications	
<b>Ambient Temperature Range</b>	-20°F to +160°F (-29°C to +71°C)
<b>Port Sizes (All Ports)</b>	1/4" FNPT
<b>Cv (Flow Coefficient)</b>	0.991
<b>Installation Orientation</b>	Vertical Orientation Recommended

**Table 3 - PS-2 Non-Bleed Sensor Dimensions**

Dimensions	
<b>PS-2-200</b>	3.75" dia. x 9.0" ht. (95 mm dia. x 229 mm ht.)
<b>PS-2-600</b>	3.75" dia. x 10.0" ht. (95 mm dia. x 254 mm ht.)
<b>PS-2-200-SS</b>	3.75" dia. x 9.0" ht. (95 mm dia. x 229 mm ht.)
<b>PS-2-600-SS</b>	3.75" dia. x 10.0" ht. (95 mm dia. x 254 mm ht.)

Figure 5 - PS-2-200 Non-Bleed Sensor Exploded View

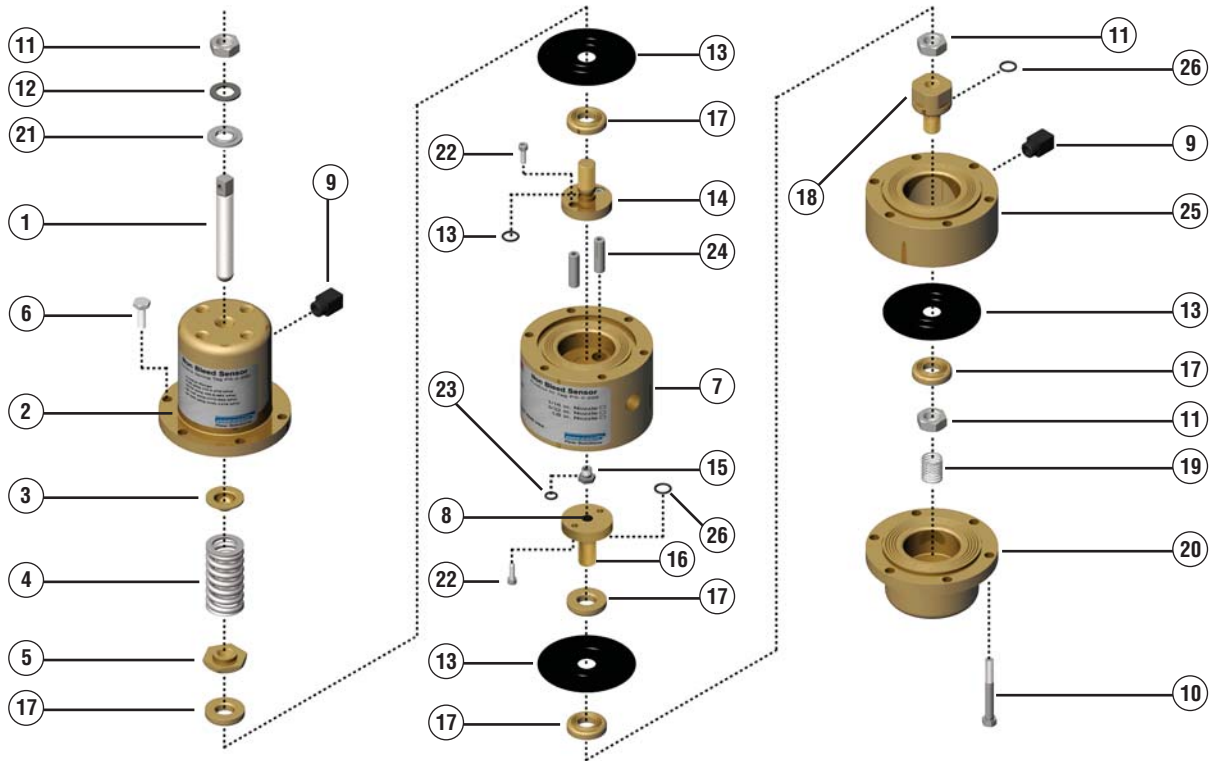


Table 4 - PS-2-200 Non-Bleed Sensor Parts Description

Item	Description	Part No.	Qty	Note	Item	Description	Part No.	Qty	Note
1	Adjusting Screw	25-1035	1		14	Outside Piston	25-1019	1	
2	Spring Cartridge	25-1009	1	2	15	1/8 Nozzle	25-1030	1	
3	Spring Seat	25-2503	1		16	Bottom Inside Piston	25-1018	1	
4	Spring		1	1	17	Diaphragm Washer	25-1016	5	
5	Spring Nut	25-1076	1		18	Bottom Piston	25-1177	1	
6	1/4-20 x 3/4 HHCS 316 SS	98-3137	6		19	Bottom Spring	25-1033	1	
7	Sensing Body	25-1039	1	2	20	Pressure Cartridge	25-1022	1	2
8	Buna-N-Seat	25-1031	1	3	21	Thread Seal	25-1203	1	3
9	1/4 Vent Elbow	01-2572	2		22	8-32 x 1/2 SHCS	98-2614	4	
10	1/4-20 x 2 HHCS 316 SS	98-3155	6		23	O-Ring -010	95-2609	1	3
11	1/2"-20 Hex Jam Nut	98-3056	3		24	Pilot Post	25-1023	2	
12	1/2" S.S. Washer	98-3185	1	3	25	Bottom Spacer	25-1176	1	2
13	Diaphragm W/ Convolute	25-1027	3	3	26	O-Ring -012	95-2615	3	3

**Notes**

1. Spring selected per specific PS-2 Model. Reference Table 1.
2. Major pressure containing (body) parts are manufactured from anodized AL2024 on standard models.  
"SS" Stainless Steel Models major pressure containing (body) parts are manufactured from 304 Stainless Steel (99% Passivated).
3. Indicates items included in standard repair kit for all PS-2 Model (25-1513)

**Table 5 - Application Guidelines for Becker Control Instrumentation**

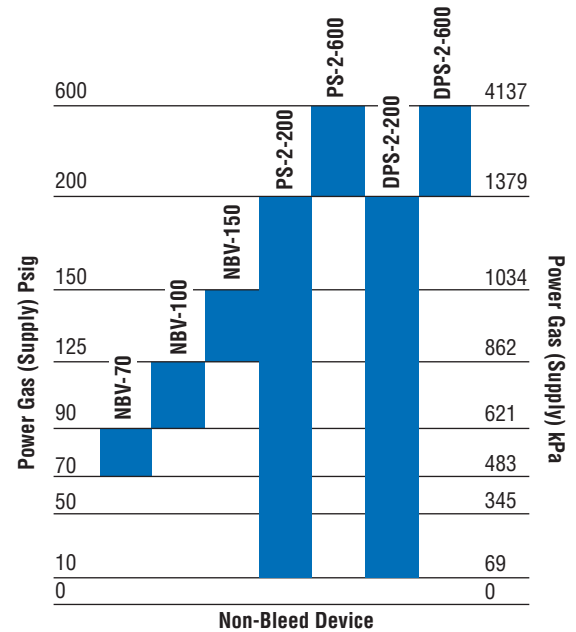
	VRP-CH Pilot	VRP-B-CH Pilot	VRP-SB-CH	VRP-SB-PID	HPP-4 Positioner	HPP-5 Positioner	HPP-SB Positioner	DNGP Positioner	Notes
<b>Instrumentation Options</b>									
<b>Bleed to Pressure System BPS™</b>	•		•		•	•	•	•	1
<b>AB Series Atmospheric Bleed Control</b>	•		•		•	•	•	•	
<b>NBV Series No-Bleed Valve</b>	•	•			•	•			2
<b>DPS-2 Series Non-Bleed Sensor</b>	•	•			•	•			3
<b>PS-2 Series Non-Bleed Sensor</b>	•				•				3
<b>SP Series Setpoint Pump</b>	•	•	•	•					
<b>RSM Series Remote Setpoint Module</b>	•	•	•	•					
<b>Panel Mounting</b>	•	•	•	•				•	
<b>Stainless Steel Option</b>	•	•	•	•	•	•	•		
<b>VB Series Volume Booster</b>	•		•	•	•		•		4
<b>QEV Series Quick Exhaust Valve</b>							•		
<b>I/P Transducer</b>					•	•	•		
<b>SLV Series Signal Lock Valve</b>					•	•	•		

1. BPS™ is limited to pressure systems below 300 psig. Consult Becker for assistance.
2. NBV No-Bleed Valves may only be utilized when  $P_{Discharge} \leq 60$  psig (414 kPa) and/or  $P_{Supply} \leq 150$  psig (1034 kPa).
3. PS-2 and DPS-2 Non-Bleed Sensors must be utilized when  $P_{Discharge} > 60$  psig (414 kPa) and/or  $P_{Supply} > 150$  psig (1034 kPa).
4. VB Series Volume Boosters are necessary for power plant regulation, surge control applications, or when Large Model RPDA and LPDA Series Actuators are utilized.

**\*CAUTION:** This information is intended as a guideline for application of Becker Precision Equipment products. Becker strongly recommends consulting Becker Engineering prior to application of any product.

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**Table 6 - Non-Bleed Device Selection Chart (Bleed to Atmosphere Applications)**



**Notes**

1. All non-bleed devices are only used with double-acting actuators and double-acting control instrumentation.
2. The NBV series can be used with all Becker pneumatic double-acting instrumentation and does not require tubing or adjustment.
3. The PS-2 series can be used with the Becker VRP-CH series and model HPP-4 but requires proper adjustment and additional tubing.
4. The DPS-2 series can be used with all Becker pneumatic double-acting instrumentation but requires proper adjustment and more tubing than the PS-2 series.
5. The PS-2 and DPS-2 series non-bleed sensors have greater sensitivity than the NBV series, resulting in activation and deactivation much closer to setpoint.
6. This selection chart shows the power gas pressure range for instrumentation bleeding to atmosphere. Please consult the Becker factory for proper selection of non-bleed device if the control instrumentation is bleeding to a pressure system.

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