

DPS-2 Series Pressure Sensor

Eliminates Becker Double-Acting Control Instrumentation Atmospheric Bleed Gas When in Full-Open or Full-Closed.

Description

The DPS-2 Series Non-Bleed Sensor eliminates atmospheric bleed gas on double-acting instrumentation when control valve is full-open or full-closed. It is designed for use with balanced seat positioners and pilots. The DPS-2 is ideal for monitor regulators and standby regulators. The DPS-2 features bleed shutoff at one end of valve travel. If bleed shutoff is required at both ends of valve travel, two DPS-2 are necessary. The DPS-2 is typically utilized for high pressure power supply gas (>150 psig) or when Bleed to Pressure System (BPS™) discharge exceeds 60 psig. The DPS-2 is compatible with the VRP-B-CH Valve Regulator Pilot and HPP-5 High Pressure Positioner.



Figure 1 - DPS-2-200 Non-Bleed Sensor

The DPS-2-200 eliminates bleed gas from Becker balanced seat type double-acting control instruments when corresponding control valve is full-open or full-closed. The DPS-2 features high pressure capabilities when power supply gas and discharge pressure gas is elevated.

Features

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

Available Models

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

Compatible Instrumentation

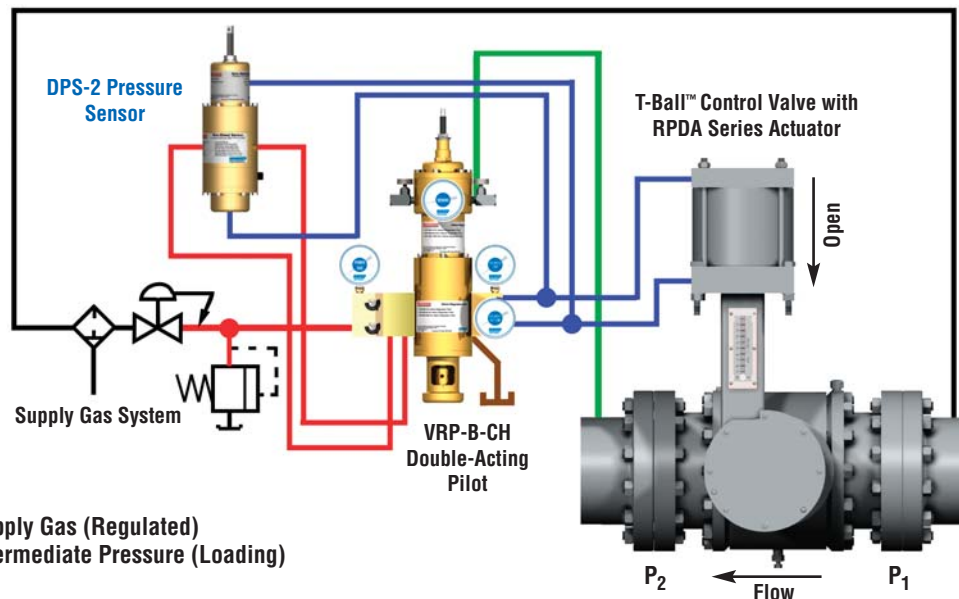
- Model VRP-B-CH
- Model HPP-5

May Be Easily Retrofit to Discontinued Becker Control Instrumentation

- Model VRP
- Model VRP-B
- Model HPP-3
- Model HPP-3E

Figure 2 - DPS-2 Series Non-Bleed Sensor Installed on VRP-B-CH

The DPS-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 DPS-2 eliminates the constant bleed gas emissions without effecting control accuracy or reliability.



Schematic Legend

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

Table 1 - DPS-2 Non-Bleed Sensor Model Specifications

DPS-2 Model	Setpoint Range (psig/kPa)	Spring Color	Spring Part Number	P _{Supply} (Minimum)	P _{Supply} (Maximum)	Weight	DPS-2 Part Number	DPS-2 Repair Kit Part Number
DPS-2-200	5.0 – 40 psig (34.5 – 278 kPa)	Green	20-2592	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	8.5 lbs. (4.5 kg)	25-6005	25-1497
	10 – 70 psig (68.9 – 483 kPa)	Silver	25-1038	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	8.5 lbs. (4.5 kg)	25-6005	25-1497
	25 – 140 psig (172 – 965 kPa)	Blue	25-1036	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	8.5 lbs. (4.5 kg)	25-6005	25-1497
	50 – 200 psig (345 – 1379 kPa)	Red	25-1037	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	8.5 lbs. (4.5 kg)	25-6005	25-1497
DPS-2-600	200 – 475 psig (1379 – 3275 kPa)	White	25-1279	200 psig (1380 kPa)	600 psig (4137 kPa)	10 lbs. (3.89 kg)	25-6006	25-1497
	400 – 600 psig (2758 – 4137 kPa)	Yellow	25-1306	200 psig (1380 kPa)	600 psig (4137 kPa)	10 lbs. (3.89 kg)	25-6006	25-1497
DPS-2-200-SS	5.0 – 40 psig (34.5 – 278 kPa)	Green	20-2592	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	25.5 lbs. (11.6 kg)	25-6084	25-1497
	10 – 70 psig (68.9 – 483 kPa)	Silver	25-1038	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	25.5 lbs. (11.6 kg)	25-6084	25-1497
	25 – 140 psig (172 – 965 kPa)	Blue	25-1036	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	25.5 lbs. (11.6 kg)	25-6084	25-1497
	50 – 200 psig (345 – 1379 kPa)	Red	25-1037	5.0 psig (34.5 kPa)	200 psig (1380 kPa)	25.5 lbs. (11.6 kg)	25-6084	25-1497
DPS-2-600-SS	200 – 475 psig (1379 – 3275 kPa)	White	25-1279	200 psig (1380 kPa)	600 psig (4137 kPa)	30 lbs. (11.6 kg)	25-6119	25-1497
	400 – 600 psig (2758 – 4137 kPa)	Yellow	25-1306	200 psig (1380 kPa)	600 psig (4137 kPa)	30 lbs. (11.6 kg)	25-6119	25-1497

Notes

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



Figure 3 - Model DPS-2-200 Non-Bleed Sensor



Figure 4 - Model DPS-2-600 Non-Bleed Sensor

Table 2 - DPS-2 Non-Bleed Sensor Specifications

Technical Specifications	
Ambient Temperature Range	-20° F to +160° F (-29° C to +71° C)
Port Sizes (all ports)	1/4" FNPT
Cv (flow coefficient)	0.991
Installation Orientation	Vertical Orientation Recommended

Table 3 - DPS-2 Non-Bleed Sensor Dimensions

Dimensions	
DPS-2-200	3.75" dia. x 10.75" ht. (95 mm dia. x 273 mm ht.)
DPS-2-600	3.75" dia. x 12" ht. (95 mm dia. x 305 mm ht.)
DPS-2-200-SS	3.75" dia. x 10.75" ht. (95 mm dia. x 273 mm ht.)
DPS-2-600-SS	3.75" dia. x 12" ht. (95 mm dia. x 305 mm ht.)

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

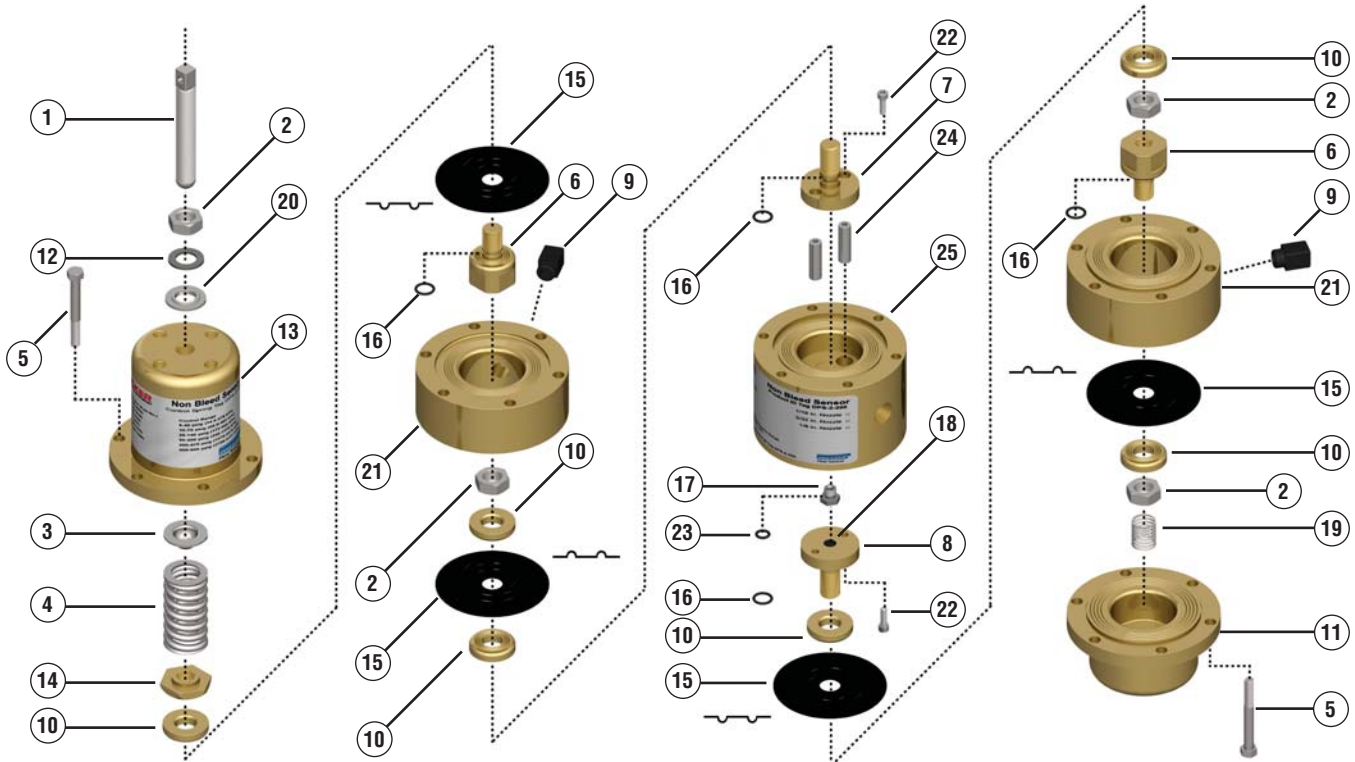


Table 4 - DPS-2-200 Non-Bleed Sensor Parts Description

Item	Description	Part No.	Qty	Note	Item	Description	Part No.	Qty	Note
1	Adjusting Screw	25-1035	1		14	Spring Nut	25-1076	1	
2	1/2-20 Hex Jam Nut	98-3056	4		15	Diaphragm W/ Convolute	25-1027	4	3
3	Spring Seat	11-2503	1		16	O-Ring -012	95-2615	4	3
4	Spring		1	1	17	1/8 Nozzle	25-1030	1	
5	1/4-20 x 2 HHCS 316 S.S.	98-3155	12		18	Buna-N-Seal	25-1031	13	
6	Bottom Piston	25-1177	2		19	Bottom Spring	25-1033	1	
7	Outside Piston	25-1019	1		20	Thread Seal	25-1203	1	3
8	Bottom Inside Piston	25-1018	1		21	Bottom Spacer	25-1176	2	2
9	1/4 Vent Elbow	24-5445	2		22	8-32 x 1/2 SHCS	98-2614	4	
10	Damping Washer	25-1016	6		23	O-Ring -010	95-2609	1	3
11	Pressure Cartridge	25-1022	1	2	24	Pilot Post	25-1023	2	
12	1/2" S.S. Flat Washer	98-3185	1		25	Sensor Body	25-1039	1	2
13	Spring Cartridge	25-1009	1	2					

Notes

1. Spring selected per specific DPS-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 DPS-2 Model (25-1497)

Table 5 - Application Guidelines for Becker Control Instrumentation

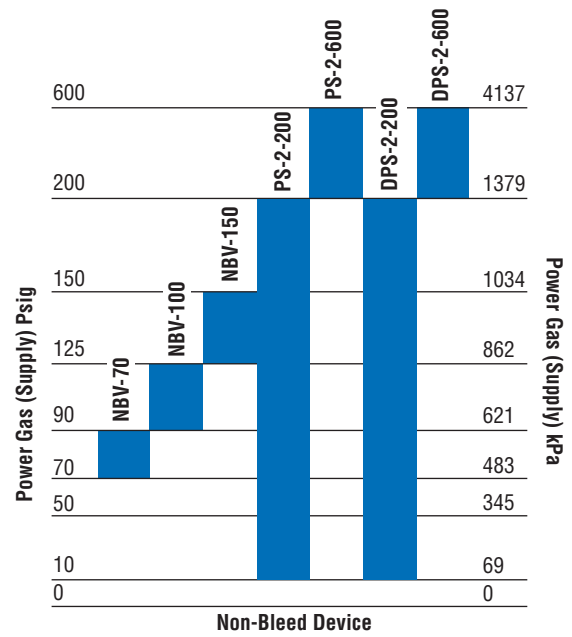
	VRP-CH Pilot	VRP-B-CH Pilot	VRP-SB-CH	VRP-SB-PID	HPP-4 Positioner	HPP-5 Positioner	HPP-SB Positioner	DNGP Positioner	Notes
Instrumentation Options									
Bleed to Pressure System BPS™	•		•		•	•	•	•	1
AB Series Atmospheric Bleed Control	•		•		•	•	•	•	
NBV Series No-Bleed Valve	•	•			•	•			2
DPS-2 Series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

1. BPS™ is limited to pressure systems below 300 psig. Consult Becker for assistance.
2. NBV non-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.

Additional resources are available on our website. Sales literature, sizing software, and technical manuals are available for download at www.dresser.com/becker

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 only 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.

**Becker Precision Equipment
Dresser, Inc.**

1550 Greenleaf Avenue
Elk Grove Village, Illinois 60007 USA
Ph: 847.437.5940 Fax: 847.437.2549
Toll Free Phone: 800.323.8844 Email: becker@dresser.com



www.dresser.com