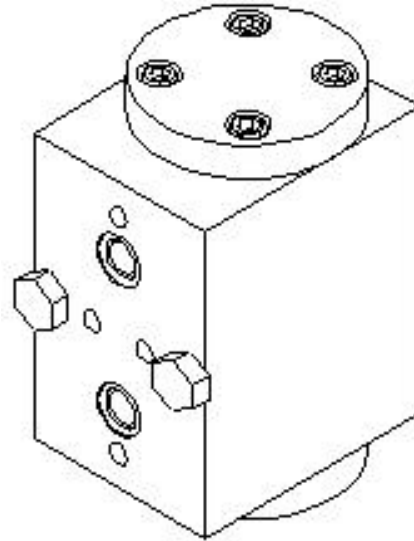


NBV-No Bleed Valve

The new Becker No-Bleed Valve (Model NBV) greatly simplifies double-acting instrumentation by completely eliminating instrument bleed gas while the corresponding control valve is in a fully open or fully closed position. The NBV can be easily installed between the orifice block and the pilot or positioner.

Benefits:

- Provides zero bleed at both the full-open and full-closed position.
- Simple design consists of only one moving part.
- Eliminates adjustment associated with PS-2 and DPS-2 non-bleed sensors.
- Reduces need for spare parts associated with PS-2 and DPS-2 non-bleed sensors.
- Eliminates extra tubing lines and fittings required for non-bleed systems.
- Easily retrofit to all Becker double-acting instrumentation.
- Substantially lower in cost than non-bleed sensors (Models PS-2/DPS-2)*



Model NBV-100/NBV-150 No-Bleed Valve

Compatible Instrumentation:

- All VRP series double-acting pilots
- All VRP-B series double-acting pilots
- All HPP-2 series double-acting positioners
- All HPP-2E series double-acting positioners
- All HPP-3 series double-acting positioners
- All HPP-3E series double-acting positioners

Table 1- NBV Usage Chart

	NBV-100-B	NBV-150-B	NBV-100	NBV-150
Compatible Instruments	VRP-B HPP-3 HPP-3E	VRP-B HPP-3 HPP-3E	VRP HPP-2 HPP-2E	VRP HPP-2 HPP-2E
Power Gas	100 psid	150 psid	100 psid	150 psid
Part Number	25-8260	25-8261	25-8262	25-8263
Parts Included	Adapter Plate NBV-100 O-rings 316 SS Bolts	Adapter Plate NBV-150 O-rings 316 SS Bolts	Orifice Block NBV-100 O-rings 316 SS Bolts	Orifice Block NBV-150 O-rings 316 SS Bolts
Repair Kit	25-1458	25-1458	25-1458	25-1458

Notes:

1. Power Gas is defined as “Effective Power Gas” where $P_{\text{effective}} = P_{\text{supply}} - P_{\text{discharge}}$
2. $P_{\text{Discharge Maximum}} = 60$ psig for Model NBV-100/NBV-150
3. For Effective Power Gas = 100 psid, use NBV-100 or NBV-100-B
4. For Effective Power Gas = 150 psid, use NBV-150 or NBV-150-B
5. For Effective Power Gas > 150 psid, use Model PS-2 or DPS-2 Pressure Sensors to achieve non-bleed state (consult Becker Precision Equipment, Inc. for specific details)

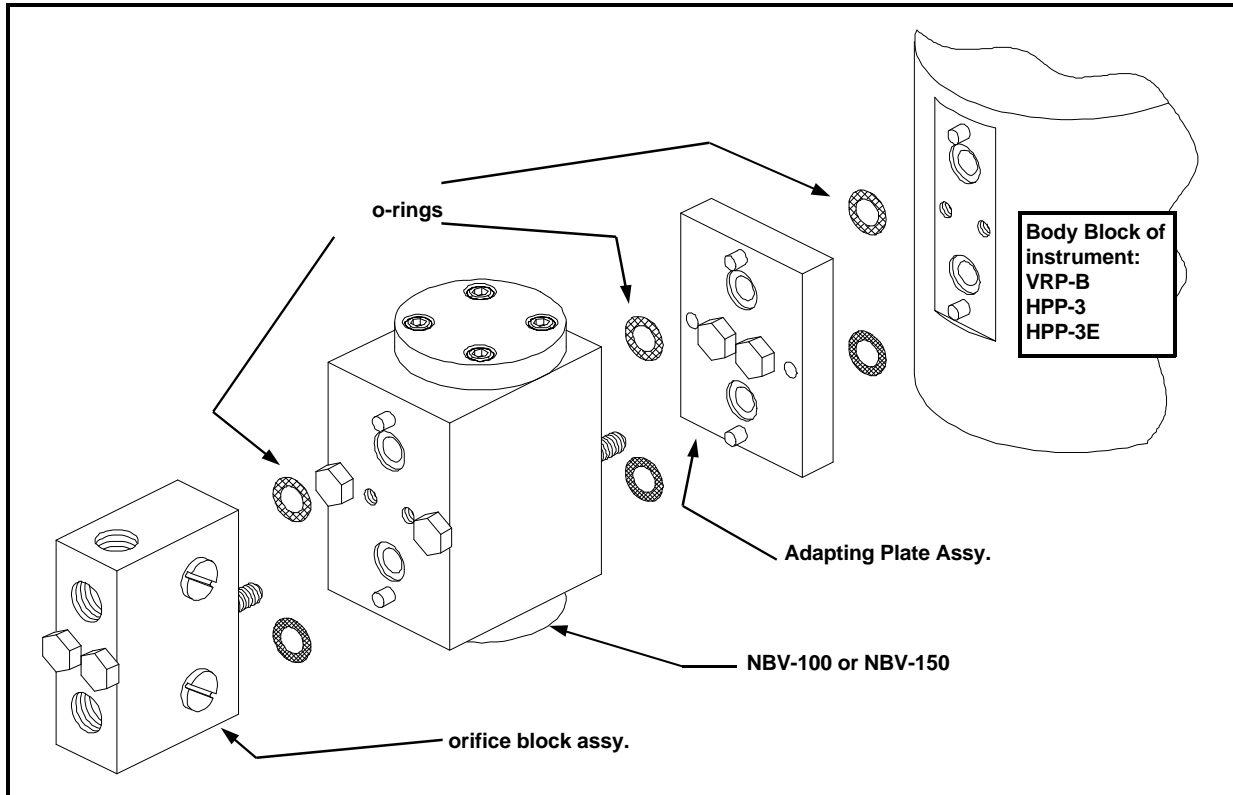


Figure 1- NBV Assembly on VRP-B, HPP-3, HPP-3E

Installation Instructions for VRP-B pilots and HPP-3/HPP-3E positioners:

1. Remove the orifice block that is bolted to the left of the pilot or positioner.
2. Install fresh, greased o-rings in the recesses of the pilot or positioner and bolt the included adapting plate to the pilot or positioner using 1/4-20 X 7/8" hex head cap screws.
3. Install fresh, greased o-rings in the recesses of the adapting plate and bolt the NBV to the adapting plate using 1/4-20 X 3" hex head cap screws.
4. Install fresh, greased o-rings in the recesses on the left side of the NBV and bolt the orifice block that was removed in step 1 to the NBV.
5. Reconnect the power gas to the inlet of the orifice block.

Cost Savings for NBV installed on VRP-B, HPP-3, or HPP-3E

Model DPS-2-200 Non-Bleed Sensor
Cost \$695.00 USD Ea. (2 Required)

Cost for ZERO bleed at Full-Open & Full-Closed Positions...\$1390.00 USD EA.

Model NBV-100 Non-Bleed Valve
Cost \$695.00 USD Ea.

Cost Savings...\$695.00 USD

Note: Model DPS-2-200 Non-Bleed Sensor can provide ZERO bleed for VRP-B Series Pilots, HPP-3 Series Positioners and HPP-3E Series Electro-Pneumatic Positioners when control valve is in EITHER Full-Open or Full-Closed position. In order to achieve ZERO bleed when control valve is in BOTH Full-Open and Full-Closed Positions, two (2) Model DPS-2-200 Non-Bleed Sensors are required.

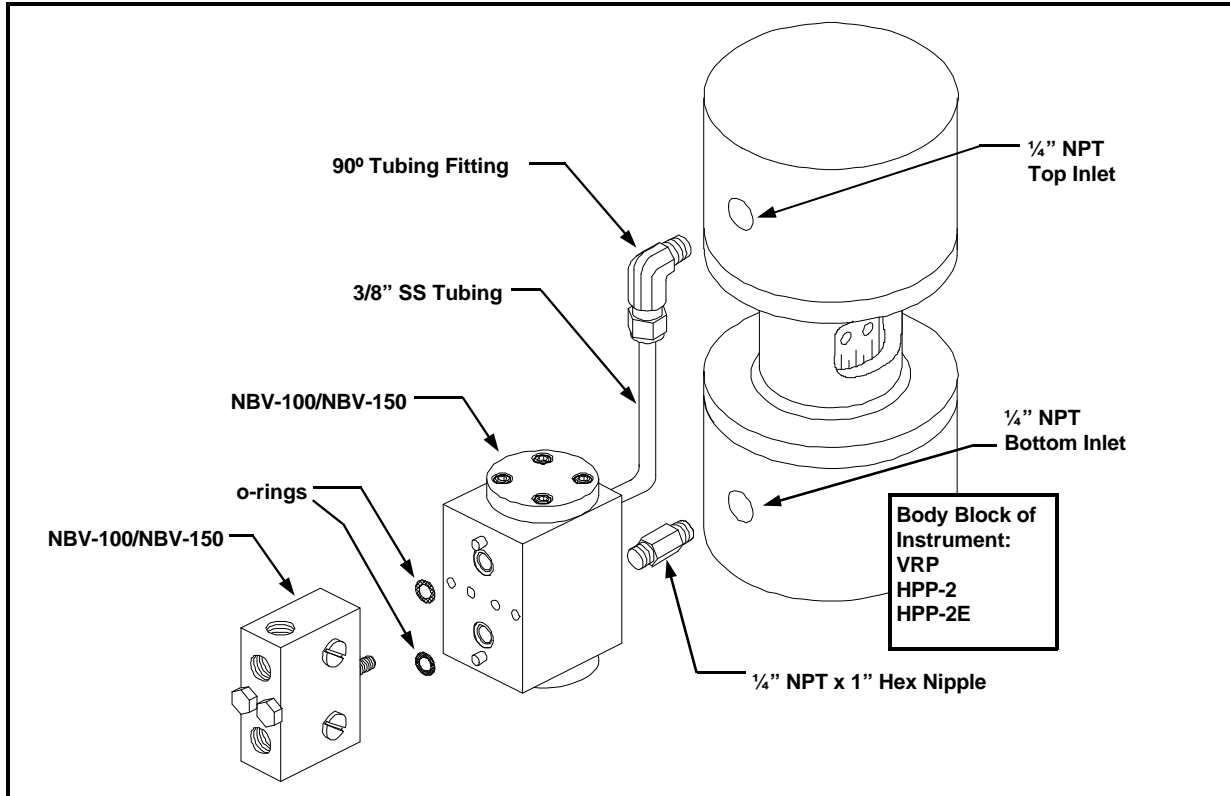


Figure 2- NBV Assembly on VRP, HPP-2, HPP-2E

Installation Instructions for VRP pilots and HPP-2/HPP-2E positioners:

1. Remove the orifice block that is between the power gas and pilot or positioner.
2. If the new orifice block (#35-1015) is not already bolted to the pilot or positioner, place fresh, greased o-rings into the recesses of the NBV and bolt the orifice block to the NBV.
3. Set the orifices in the new orifice block to the same settings as the old orifice block. Move the gauge from the old orifice block to the new one.
4. Using the 1/4 NPT holes in the NBV, pipe the top of the NBV to the top inlet of the pilot or positioner and pipe the bottom of the NBV to the bottom inlet of the pilot or positioner.
5. Pipe the power gas to the inlet of the new orifice block.
6. Inspect the unit per the inspection procedure.

Cost Savings for NBV installed on VRP, HPP-2, or HPP-2E

Model PS-2-200 Non-Bleed Sensor
Cost \$525.00 USD Ea.

Cost for ZERO bleed at Full-Open & Full-Closed Positions...\$1050.00 USD EA.

Model NBV-100 Non-Bleed Valve
Cost \$695.00 USD Ea.

Cost Savings...\$355.00 USD

Note: Model PS-2-200 Non-Bleed Sensor can provide ZERO bleed for VRP-Series Pilots, HPP-2 Series Positioners and HPP-2E Series Electro-Pneumatic Positioners when control valve is in EITHER Full-Open or Full-Closed position. In order to achieve ZERO bleed when control valve is in BOTH Full-Open and Full-Closed Positions, two (2) Model PS-2-200 Non-Bleed Sensors are required.

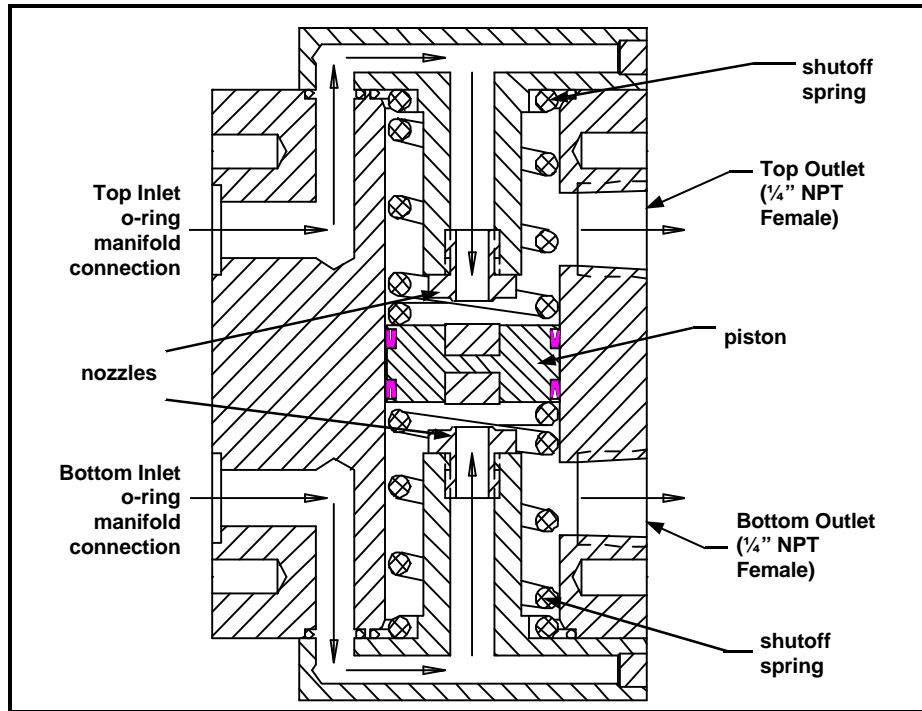


Figure 3- Cross Section of NBV-100/NBV-150

Principle of Operation:

The NBV is placed between the orifice block and the pilot or positioner. The power gas flows from each orifice into the respective chamber of the NBV. The two chambers of the NBV are separated by a piston, and each chamber exhausts to the respective pilot or positioner inlet. When the actuator is controlling, springs hold the piston centered between the nozzles allowing free flow of both passageways. But as the actuator reaches the end of its stroke, the pilot or positioner will increase the pressure in one end of the cylinder to full power gas pressure, while the other end of the cylinder will decrease

to the exhaust pressure. Because the pressure difference across the piston in the NBV is the same as the pressure difference across the cylinder, the piston will slide to the side that is continuously bleeding, closing the nozzle and shutting off the supply to the bleed gas. When called upon to move, the pilot or positioner will bleed off the side of the cylinder that has full power gas until the pressure difference is approximately 15% of the power gas and no longer able to hold the piston against the nozzle. As soon as the piston moves away from the nozzle, the actuator is ready to move.

For additional information on the Model NBV No-Bleed Valve and other money-saving products, contact Becker Precision Equipment direct, or your local Becker Sales Representative.



Toll-Free Assistance!
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