RPID Series Regulator Pilot Instruction Manual

Applicable Models:
This Instruction Manual applies to the following VRG RPID Series Regulator Pilots. To confirm suitability for additional models and/or componenents, please contact VRG Controls or view us online at www.vrgcontrols.com

RPID-225-SN-CS-DIR	RPID-700-SN-CS-DIR	RPID-1500-SN-CS-DIR
RPID-225-SN-CS-REV	RPID-700-SN-CS-REV	RPID-1500-SN-CS-REV

STAY IN TOUCH!
Scan the QR Code at right for company information and product updates.

ADDRESS: VRG Controls, LLC.
1199-B Flex Court
Lake Zurich, IL 60047, USA
TOLL FREE: (800) 844-FLOW-VRG
E-MAIL: sales@vrgcontrols.com
WEBSITE: vrgcontrols.com

Table of Contents

Revision Table

Revision	Date	Notes
1	JULY 2026	First Release

Scope of Manual:

This Instruction Manual provides instructions for installation, maintenance, adjustment and troubleshooting of VRG Controls RPID series Regulator Pilots. This product is typically utilized in conjunction with pilot-operated regulators and a variety of other ancillary devices and accessories. For information on products other than those manufactured by VRG Controls, please consult the appropriate manufacturer.

Warning:

RPID series Regulator Pilots utilize high pressure flammable natural gas or other pneumatic supply as part of their standard operation. Improper installation, operation, maintenance and adjustment of these devices can result in property damage, personal injury or death. Only those qualified through training should install, operate, maintain or adjust this product. Contact your local VRG Controls sales representative or VRG Controls direct for additional information or assistance.

Technical Assistance:

For technical assistance with VRG products, please contact your local VRG Controls sales representative or VRG Controls direct. In order to facilitate technical assistance, we strongly recommend that obtain the MODEL NUMBER and SERIAL NUMBER of the product for which you require assistance prior to contact us. MODEL NUMBER and SERIAL NUMBER may be found on the PRODUCT ID LABEL located on the front of the VPC product on the center face of lower portion of the unit.

STAY IN TOUCH!
Scan the QR Code at right for company information and product updates.

ADDRESS: VRG Controls, LLC.
1199-B Flex Court
Lake Zurich, IL 60047, USA
TOLL FREE: (800) 844-FLOW-VRG
E-MAIL: sales@vrgcontrols.com
WEBSITE: vrgcontrols.com

We recommend that you record the MODEL NUMBER and SERIAL NUMBER of all VRG Products installed at each application location in the table below for future reference.

Installed Product Identification Log

Item	Tag	Model Number	Serial Number
1			
2			
3			
4			
5			
6			
7			
8			

Product ID Label

Installation & General Information

Personal injury, damage, or explosion due to leakage of accumulated gas, or rupture of pressurized components could result if this pilot is overpressured or is installed where operating parameters could exceed the design limits as indicated in this manual, or where parameters exceed the ratings of the regulator body, adjacent piping or piping components & fittings. Verify the pressure limitations of pilot and the regulator on which it is installed to ensure neither device is overpressured. To avoid injury or damage to property, incorporate relief valves or pressure limiting devices to prevent operating parameters from exceeding required limits. Reference U.S. code of Federal Regulations, by the National Fire Codes of the National Fire Protection Association, or by other applicable codes or codes mandated by the operating company as needed.

Pneumatic Instrumentation installed in enclosed or confined spaces should be provided with adequate ventilation to prevent the potential of gas accumulation from leakage or venting. Leakage and vent gas can accumulate causing property damage, severe injury or death. Atmospheric vent ports should be vented to a safe area away from air intakes, or any hazardous location.

PERSONNEL: Installation of VRG Controls and other manufacturer's instrumentation and equipment should be performed by qualified personnel that are familiar with high pressure natural gas piping and related items.

INSPECTION: Inspect all equipment supplied for damage that might have occurred in shipping and handling. Do NOT use any product that has any remote semblance of damage. Care should also be taken to ensure that no damage exists on previously installed products that may have been installed at previous locations. If the origin or operational capability of any product is suspect or unknown, we recommend confirmation of fitness for service by a qualified technician or by VRG Controls.

ACTION: Inspect the RPID Model Number Identification Label AND the Body of the RPID to ensure that the unit has the appropriate MODEL and SPRING for the desired application.

INSTALLATION ORIENTATION: RPID may be installed in any orientation; however, for best results and ease of maintenance it is recommended to install the RPID in a vertical orientation with the Setpoint Adjustment Screw pointing upward.

MOUNTING: RPID may be installed utilizing a convenient mounting bracket available from VRG Controls. The RPID may be wall mounted or 2.0" pipe mounted.

PIPING: Appropriate pipe thread seal tape should be applied to all fittings installed on the RPID. Use of application suitable pipe dope is also encouraged to minimize potential for galling or damage to threaded connections. All threaded connection on the RPID are ¼" FNPT.

SUPPLY LINES: Unrestricted 3/8" diameter stainless steel tubing should be utilized to make supply connections to the RPID. In the event that an isolation valve is installed in the INLET connection, it should be a full-opening type without restriction.

FILTRATION: Most gas pipeline applications do not require a filter on the SUPPLY connection. If the application may exhibit dirty gas, an appropriate filter should be applied upstream of the SUPPLY connection to prevent clogging of the adjustable orifices. The filter should be application appropriate with adequate capacity with filtration to 10µ.

EXHAUST (EX): 3/8" stainless steel tubing or ¼" diameter threaded, non-restricted connections should be utilized to make connections to the RPID when necessary. The EX connection should be made without restrictions in the piping components. In the event that an isolation valve is installed in the EX connection, it should be a full-opening type without restriction. If the installation is outside and not in an enclosure, it is typical to utilize a screened vent elbow fitting for the EX port when venting to atmosphere.

PILOT GAS PRE-HEATERS: Supply gas may be heated to prevent excessive refrigeration effects and potential formation of ice or hydrates in the system. Supply gas heaters should be connected after the filter, upstream of the Supply port. Heaters are not required, but should be considered when large pressure drops result in severe refrigeration effects.

SENSING LINES: Sensing Lines should be routed to a distance of 10 to 25 times the valve diameter away from the valve to prevent unstable readings due to turbulence. The Sensing Line connection should have a full bore opening to the pipe. Isolation valves are typically recommended on the Sensing Line(s) and should be non-restricted, full opening type. For setpoints below 5 psig, 1/2" SS tubing is recommended. For setpoints above 5 spig, 3/8" SS tubing is recommended.

MAINTENANCE: Instrumentation and equipment utilized in gas control/regulation applications are subject to normal wear and should be inspected and replaced as necessary. The frequency of inspection and replacement of parts depends on severity of service conditions and/or the requirements of local, state, federal regulations. You should consult your company standards and regulations to determine protocol for maintenance on your equipment. It is critical to ensure that the RPID Model Number Identification Labels, Control Spring Range Labels, and other applicable labels are updated and maintained to ensure legibility and to accurately reflect the operation limitations of the device.

WARNING: Before removal, disassembly, or initiating maintenance ensure that the RPID and the associated equipment on which it is installed have been isolated from the process. All pressurized gas must be safely vented from the RPID and associated equipment. Failure to relieve all pressure from the system may result in property damage, severe injury or death.

APPLICATIONS: The RPID is designed to provide self-contained pressure control when incorporated with pilot-operated regulators. The system utilizes pressurized natural gas from the pipeline to operate. The RPID provides control solutions for challenging pipeline applications such as short, dynamic systems or systems with large turndown. Contact VRG Controls for assistance with your application.

RPID Series Regulator Pilot Technical Specifications

General	
Type	Regulator Pilot w/ ID Control
Internal Valve Logic	Seat & Nozzle (SN)
Spring Chamber	Closed Spring (CS)
Output	Single, Variable
Available Action	Direct Acting, Reverse Acting
Setpoint Range	1.25 - 1300 psig (9.0 - 8962 kPa)
Temperature Range	-20F to 160F (-29C to 71C)
Pneumatic	
Supply Gas Quality	Dry, Filtered @ 10µ Natural Gas
Max Inlet Pressure	RPID-225: 1200 psig RPID-700: 1200 psig RPID-1500: 1200 psig
Max Outlet Pressure	RPID-225: 1200 psig RPID-700: 1200 psig RPID-1500: 1200 psig
Max Differential Pressure	RPID-225: 1200 psig RPID-700: 1200 psig RPID-1500: 1200 psig
Max Sensing Pressure	RPID-225: 225 psig RPID-700: 700 psig RPID-1500: 1500 psig
Connections	All ports 1/4” FNPT
Available Nozzles	1/8”
Available Orifice	Small (S), Medium (M), Large (L)
Construction	
External Parts	VRG Military Grade Aluminum Alloy with “Stealth System” Corrosion Protection; 316 SS – Optional Construction
Internal Parts	316 SS
Diaphragms	High Performance Nylon Reinforced Buna-N, VITON optional
O-rings	Buna-N, VITON optional
Control Springs	Painted Alloy Steel
Gauges	2.5 in. Liquid-filled SS Case & Body
Weight	22 lbs. (10 kg)
Dimensions	22 in. x 11.2 in. x 4.0 in. (559mm x 284mm x 102 mm)
Application Guide	
Pressure Reducing / Monitor	Optimal
Relief / Backpressure	Optimal
Boiler Power Plant	Optimal
Duct Burner Control	Optimal
Performance Guide	
Sulfur Formation	Sulfur Resistant
Flow Capacity	Low to High Capacity; capable of high turndown
Control Accuracy	Ultimate Accuracy
Control Stability	Ultimate Stability
Droop	2% of Spring Range

Flow Calculations

Critical Flow Equation:

$$Q_c = 312.9 \times (P_1 + 14.7) \times C_V \times \sqrt{\frac{1}{G \times (T + 460)}}$$

Where:

Variable	Description	Unit
Q_c	Critical Flow Across Inlet Orifice	Scfh
P_1	Supply Pressure	Psig
C_v	Flow Factor	--
G	Specific Gravity of Gas	--
T	Gas Temperature	°F

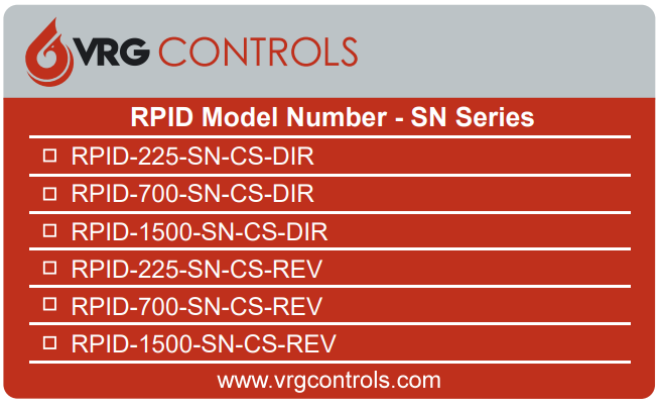
Adjustable Orifice Flow Coefficients

	Adjustable Orifice Setting							
Installed Orifice	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Standard	0.003	0.004	0.009	0.026	0.042	0.071	0.100	0.123
Medium (M)	0.042	0.045	0.062	0.089	.134	0.172	0.211	0.249
Large (L)	0.042	0.063	0.172	0.328	0.461	0.578	0.634	0.675

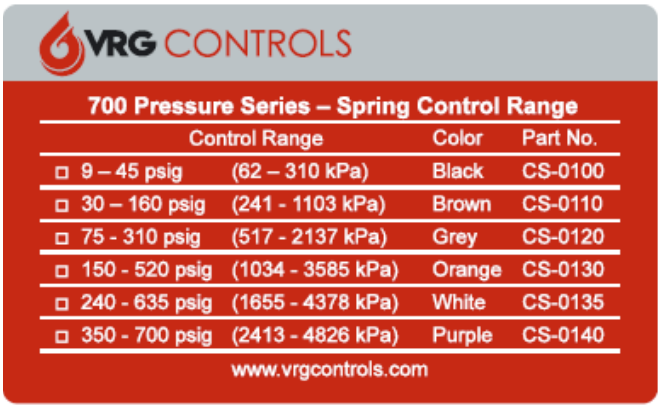
Model Number Explanation

BASE MODEL		PRESSURE SERIES		INTERNAL VALVE LOGIC		SPRING CHAMBER TYPE		ACTION	
RPID	Regulator Pilot w/ ID Control	225	225 psig Max Sensing	SN	Seat & Nozzle	CS	Closed Spring	DIR	Direct
		700	700 psig Max Sensing					REV	Reverse
		1500	1500 psig Max Sensing						

RP Model Number Identification Label:



RP Spring Control Range Label:



Control Spring Specifications

Pressure Class	Control Range	Spring Color	Setpoint Change per Revolution	Setpoint Accuracy	Control Spring Part Number
225	1.25-15 psig 9-103 kPa	Black	0.8 psig 5.5 kPa	±0.1 psig ±0.7 kPa	CS-0100
	8-53 psig 55-365 kPa	Brown	3.1 psig 21.4 kPa	±0.2 psig ±0.7 kPa	CS-0110
	16-100 psig 110-689 kPa	Grey	8 psig 55 kPa	±0.3 psig ±1.0 kPa	CS-0120
	40-170 psig 276-1172 kPa	Orange	20 psig 139 kPa	±0.4 psig ±2.6 kPa	CS-0130
	65-205 psig 448-1413 kPa	White	32 psig 222 kPa	±0.6 psig ±4.2 kPa	CS-0135
	100-225 psig 689-1551 kPa	Purple	44 psig 305 kPa	±0.8 psig ±5.6 kPa	CS-0140
700	9-45 psig 62-310 kPa	Black	2.4 psig 17 kPa	±0.4 psig ±2.4 kPa	CS-0100
	35-160 psig 241-1103 kPa	Brown	10.6 psig 3 kPa	±0.5 psig ±3.4 kPa	CS-0110
	75-310 psig 517-2137 kPa	Grey	25.4 psig 175 kPa	±1.1 psig ±7.7 kPa	CS-0120
	150-520 psig 1034-3585 kPa	Orange	61.4 psig 423 kPa	±2.7 psig ±18.6 kPa	CS-0130
	240-635 psig 1586-4447 kPa	White	100 psig 687 kPa	±4.4 psig ±30.3 kPa	CS-0135
	350-700 psig 2413-4826 kPa	Purple	134 psig 926 kPa	±5.8 psig ±40.0 kPa	CS-0140
1500	30-90 psig 207-620 kPa	Black	4.9 psig 34 kPa	±3.5 psig ±24 kPa	CS-0100
	50-335 psig 345-2309 kPa	Brown	21.7 psig 149 kPa	±3.5 psig ±24 kPa	CS-0110
	100-640 psig 689-4412 kPa	Grey	52.3 psig 361 kPa	±3.5 psig ±24 kPa	CS-0120
	265-1070 psig 1827-7377 kPa	Orange	126 psig 870 kPa	±5.5 psig ±38 kPa	CS-0130
	400-1300 psig 2758-8962 kPa	White	204 psig 870 kPa	±9.1 psig ±63 kPa	CS-0135
	625-1500 psig 4309-10341 kPa	Purple	276 psig 1904 kPa	±11.9 psig ±82 kPa	CS-0140

Product Overview

RPID Series Regulator Pilots are proportional pressure control devices designed for use in conjunction with pilot-operated regulator bodies. They can be used for pressure reducing, backpressure or relief type applications. The RPID Series Regulator Pilots are designed for gas applications and provide better performance than other standard-issue regulator pilots.

RPID Series Regulator Pilots are available with 3 sensing diaphragm optins that are suited for different applications based upon the maximum sensing pressure applied and the desired setpoint pressure to be achieved. See Control Spring Specifications Table for additional information.

RPID Series Regulator Pilots utilize an internal seat & nozzle internal loading configuration as noted by the characters “SN” in the model number derivation. The internal nozzle is 1/8”.

The RPID Series Regulator Pilot features manifolded Adjustable Orifice installed on the supply, exhaust, and tank ports. 3 different sizes of Adjustable Orifices are available (S, M, and L) to adapt to different operating scenarios and to ensure optimal performance.

Orifice adjustment and sensitivity drum adjustment enable the RPID Series Regulator Pilots to provide control solutions for a wide array of applications. With 2 control elements, one for loading and one for unloading, the RPID allows for adjustment of opening and closing speeds independently, and provides significantly reduced setpoint droop when compared to traditional pilots.

The RPID is a single acting pilot that utilizes the seat and nozzle control element mechanism to modulate an output signal. For direct acting RPIDs, the output signal increases as sensing pressure increases. For reverse acting, output decreases as sensing pressure increases.

How it Works

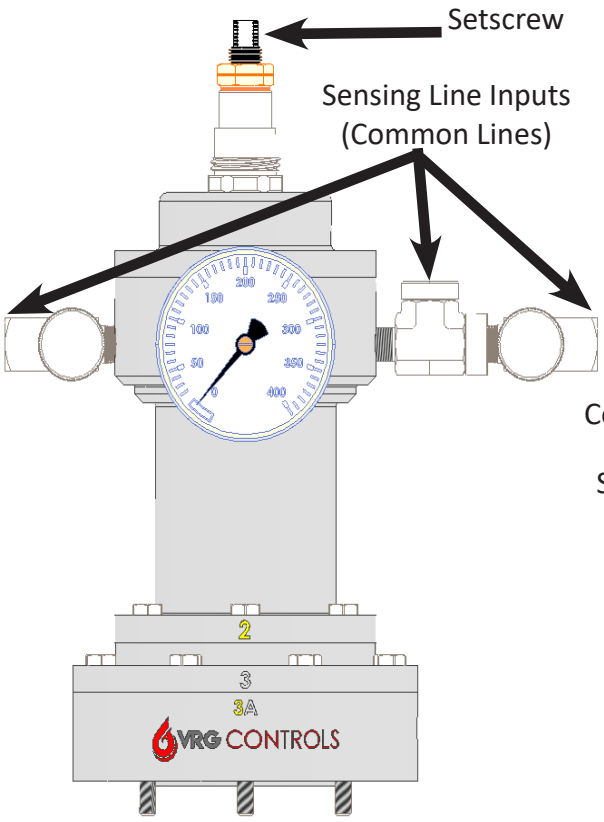
The RPID can be divided into 2 main sections: the sensing chamber and the control assembly. The sensing chamber will be examined first.

A setpoint screw is used to compress or relax a control spring in order to establish the setpoint of the RPID. This screw is reverse-threaded, such that clockwise rotation will raise the internal assembly. With clockwise roation of the setscrew, the control spring will be compressed and a higher sensing pressure will be required to shift the assembly downards. **Clockwise rotation INCREASES the setpoint, while counter-clockwise rotation DECREASES the setpoint.**

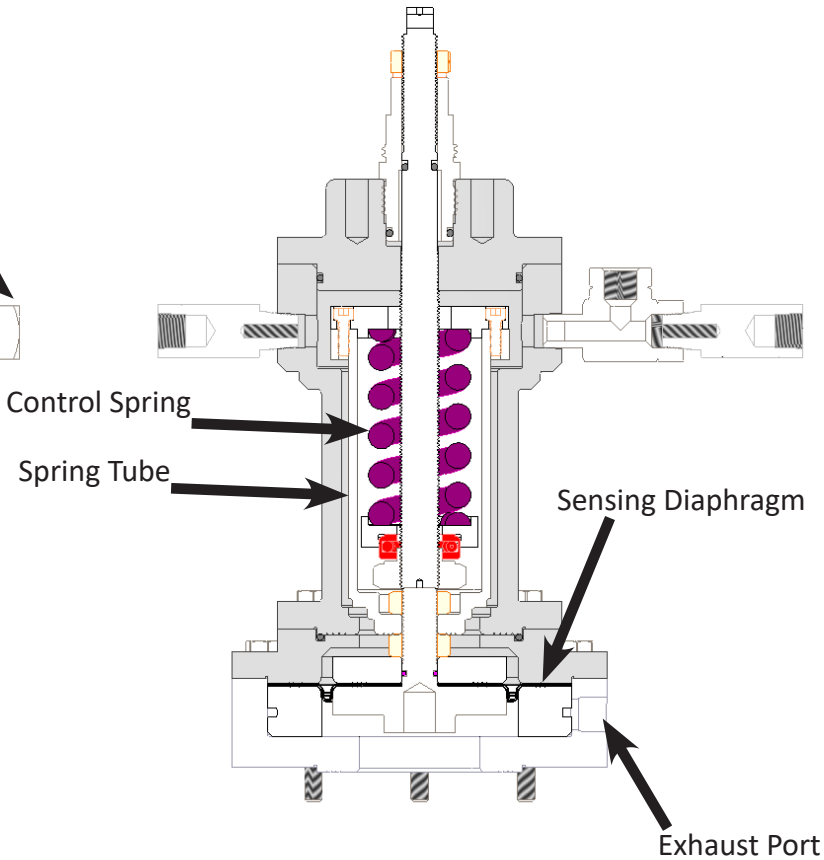
At setpoint, downward force of the sensed pressure acting upon the sensing diaphragm will be equal to the upward force of the control spring, and the interal yoke will be in equilibrium. When sensing pressure rises above setpoint, the downard force will be greater and the yoke will move downwards.

The sensing chamber features a closed spring design. The control spring is sealed within a steel tube, sheltering it from the sensing line gas. Control springs can be swapped out easily based on setpoint changes. In the effect of a leaking or burst sensing diaphragm, gas will be exhausted in the exhaust port noted below.

Sensing Chamber



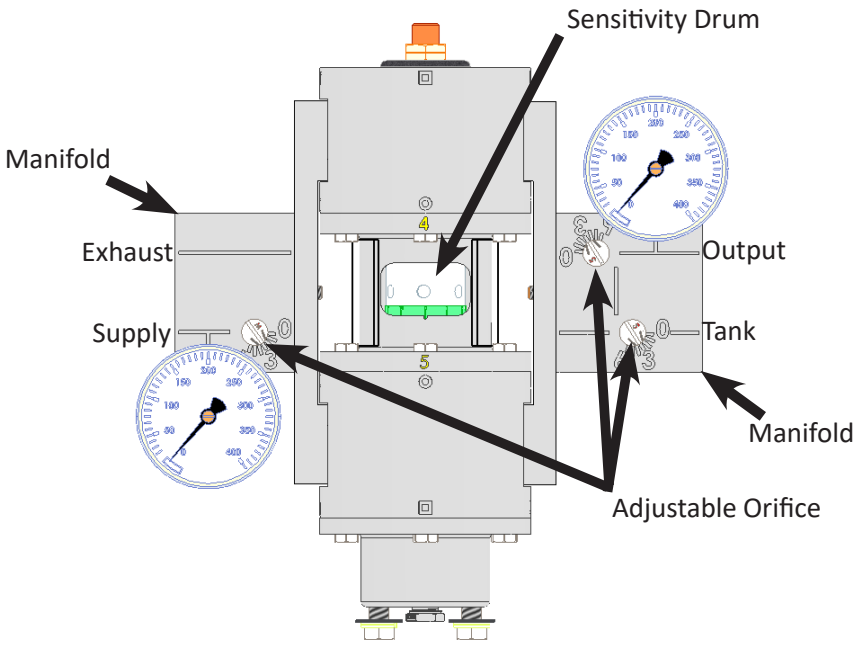
Sensing Chamber Cross-section



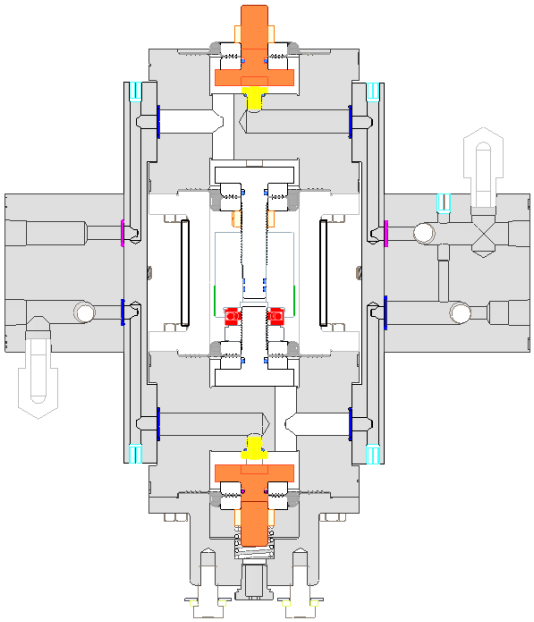
The control assembly consists of 2 seat and nozzle control elements that modulate an output signal. The nozzles remain stationary, while the pistons move up and down as a single unit. An increasing downstream signal will push the assembly downwards, closing off the top control nozzle and opening up the bottom control nozzle. For a direct acting RPID (see below), supply gas will flow through the bottom control block, into the Output / Tank manifold, then back through the top control block to the exhaust port. When sensing pressure is greater than setpoint, the inernal assembly shifts downward. The bottom block is open, and supply gas loads the Output and Tank signals. The top block is closed, as the seat in the piston seals against the nozzle. When the sensing pressure falls, the assembly shifts upward. Now, the bottom block is closed; the bottom piston seats against the nozzle and the connection between supply and Output / Tank is blocked. The top block opens up, and the Output / Tank signal is exhausted. For reverse acting units, the manifolds are flipped such that an increasing sensing pressure lowers output.

The sensitivity drum connects the top block to the bottom block. It can be adjusted to lengthen or shorten the distance between the seats. This drum provides the gain adjustment of the RPID. **Note: the sensitivity drum provides a massive change in RPID performance, and it should be adjusted in extremely small increments. Always adjust one tick at a time, and wait for the system to respond before further adjustment.**

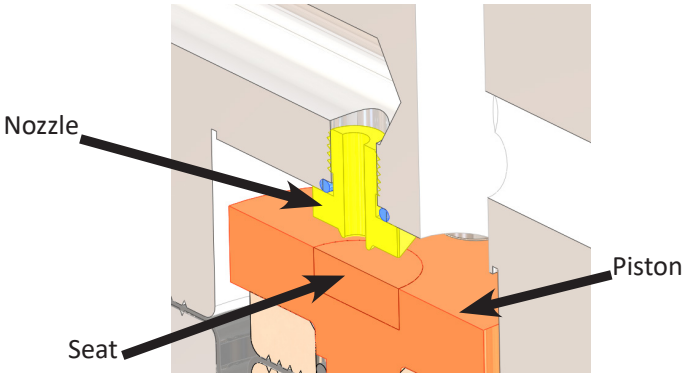
Direct Acting Control Assembly



Direct Acting Control Assembly Cross-section



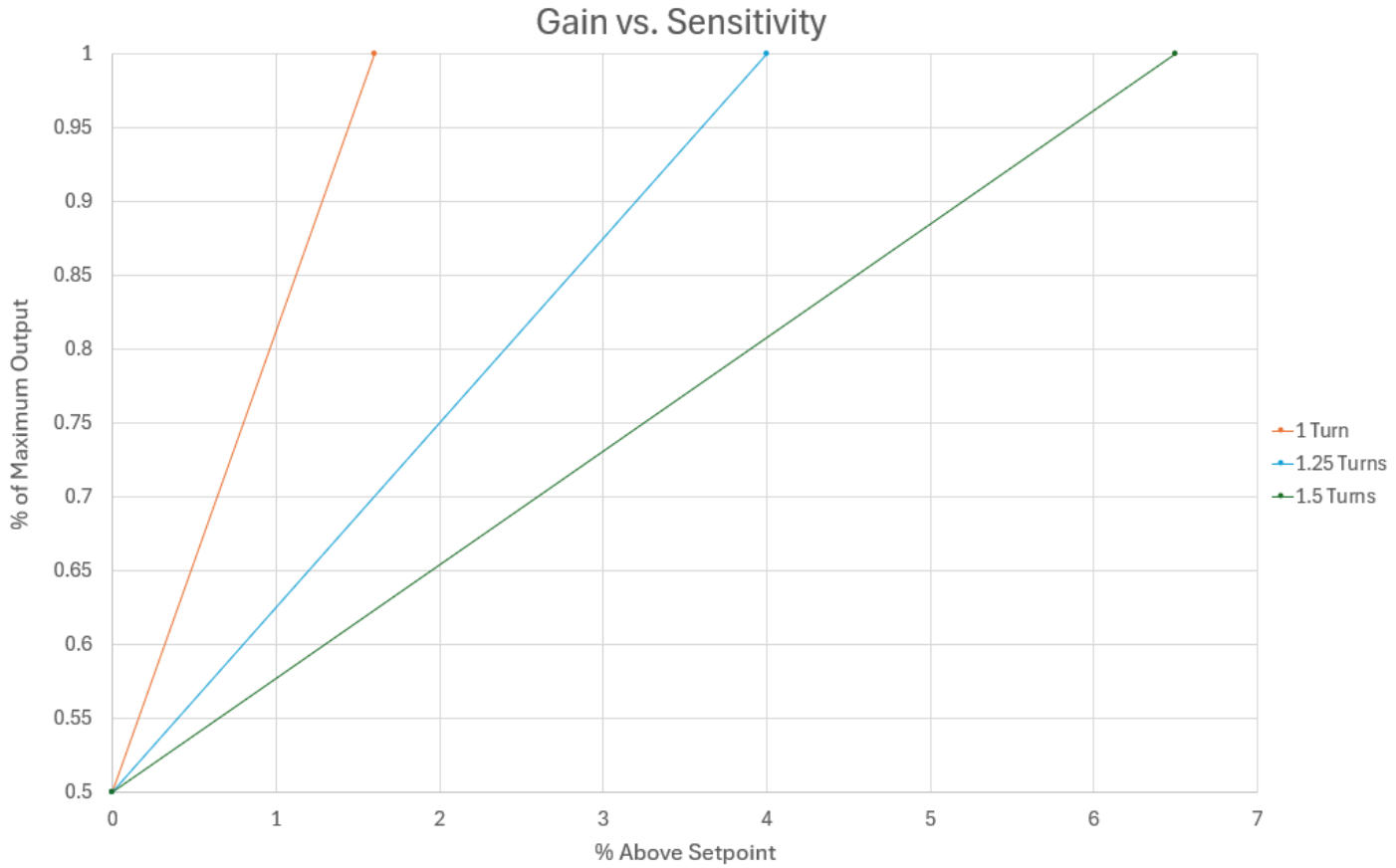
Seat & Nozzle Control Element



Response Adjustment

Depending on many factors like desired speed of response, system gain, valve type or system length, control adjustments can be made to the RPID.

The sensitivity drum provides gain adjustment by varying the distance between the seats of the upper and lower control blocks. As the sensitivity drum number is increased, the distance between the seats increases. A greater change in sensing pressure is thus required to fully open the bottom control block and build full output. The below Gain vs. Sensitivity graph explains this trend. At setpoint, RPID Output should be ~50% of maximum output. As the RPID sensing pressure goes above setpoint, the Output will rise. The relationship between change in sensing pressure and change in output is dependent on the sensitivity drum setting. The starting point for the sensitivity drum is 1 turn in the positive direction, beginning from the extreme negative position.



For unstable systems, the first adjustment should always be the tank orifice. Increasing the tank orifice will divert more of the output signal to the ID tank, smoothing the system response in instances of rapid sensing pressure change. The output and tank lines are common in the RPID. The next adjustment should be the sensitivity drum, which will impact the gain of the system. Gain is defined as the relationship between system error and system output. Note that adjusting the sensitivity drum will slightly alter the setpoint. A low gain system like a large pipeline may require a higher gain setting on the RPID. Conversely, a high gain system like a powerplant may require a lower gain setting on the RPID. Finally, if the system is still unstable after tank orifice and sensitivity drum adjustments, the supply and exhaust orifices can be adjusted. These adjustments should be a last resort, as they will impact the lockup and droop performance of the RPID.

Application Guidelines

	Sensitivity Drum	Supply Orifice	Exhaust Orifice	Tank Orifice
Linear Diaphragm Globe Valve	+1/2	M1	M3	S6
Spring Return LHPA Globe Valve	+0	M1	M3	S4
Spring Return PRCV Ball Valve w/ booster	-2	M1	M2	S2
Red Ox IMC	+0	M2	M2	S3

The above settings represent a starting point estimate for tuning, depending on valve type. Note that the sensitivity drum adjustments are in terms of numbers. **An adjustment of -2 means moving the sensitivity drum number 2 numbers negative in relationi to the factory setting. It is imperative to document any changes in sensitivity drum position. Refer to the Factory Quality Checklist on page 15 to see the initial factory setting of the sensitvity drum.** From the factory, the RPID sensitivity drum will be positioned at 1 rotation in the increasing number direction, starting from the extreme minimum setting. Do not move the sensitivity drum more than 1/2 rotation from the starting point without consulting VRG personnel. Moving more than 1/2 rotation in the negative direction can decouple the top and bottom control blocks. Moving more than 1/2 rotation in the positive direction will create a deadzone, in which a large change in sensing pressure will yield no change in RPID Output.

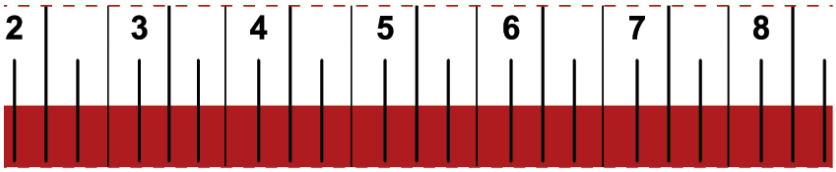
For systems that produce a cycling response, it is generally advisable to increase the tank orifice setting. This will reduce system gain by slowing down RPID response. The Output and Tank ports of the RPID are common, meaning that a larger tank orifice setting will divert a bigger portion of the Output to the derivative tank. Along with tank orifice adjustment, the sensitivity drum can be used to manipulate the gain of the RPID response, as per the previous page.

Tuning Procedure

The desired outcome when tuning the RPID is to provide a stable output pressure while preventing excessive wear of the control device. To do this, it is imperative to eliminate any cycling of the control device. Typically, reducing gain will reduce cycling.

Step	Action
1	Confirm that the appropriate model, serial number, orifices, and spring are installed
2	Close the Output valve to isolate the RPID from the system
3	Rotate the sensitivity drum in the direction of decreasing numbers until the drum stops
4	From this point, rotate the drum one complete rotation in the direction of increasing numbers.
5	Ensure that RPID has the correct supply pressure
6	Load the RPID sensing chamber with a signal equal to the setpoint
7	Adjust the setpoint screw until Output is equal to 50% of Supply pressure. Clockwise rotation increases setpoint.
8	Open the Output valve of the RPID
9	If the system begins to cycle, slowly increase the tank orifice
10	If the system is still cycling, slowly move the sensitivity drum in the direction of increasing numbers. There are 4 ticks per number, and it is imperative to adjust in increments of 1 tick. After adjusting, wait for the system to respond before adjusting the drum again. From the initial starting point, do not move the sensitivity drum more than one half revolution in either direction.
11	If the system is still cycling, slowly adjust the supply and exhaust orifices. Typically, increasing the loading signal and decreasing the exhaust signal will reduce the gain of the system.

Sensitivity Adjustment Screw



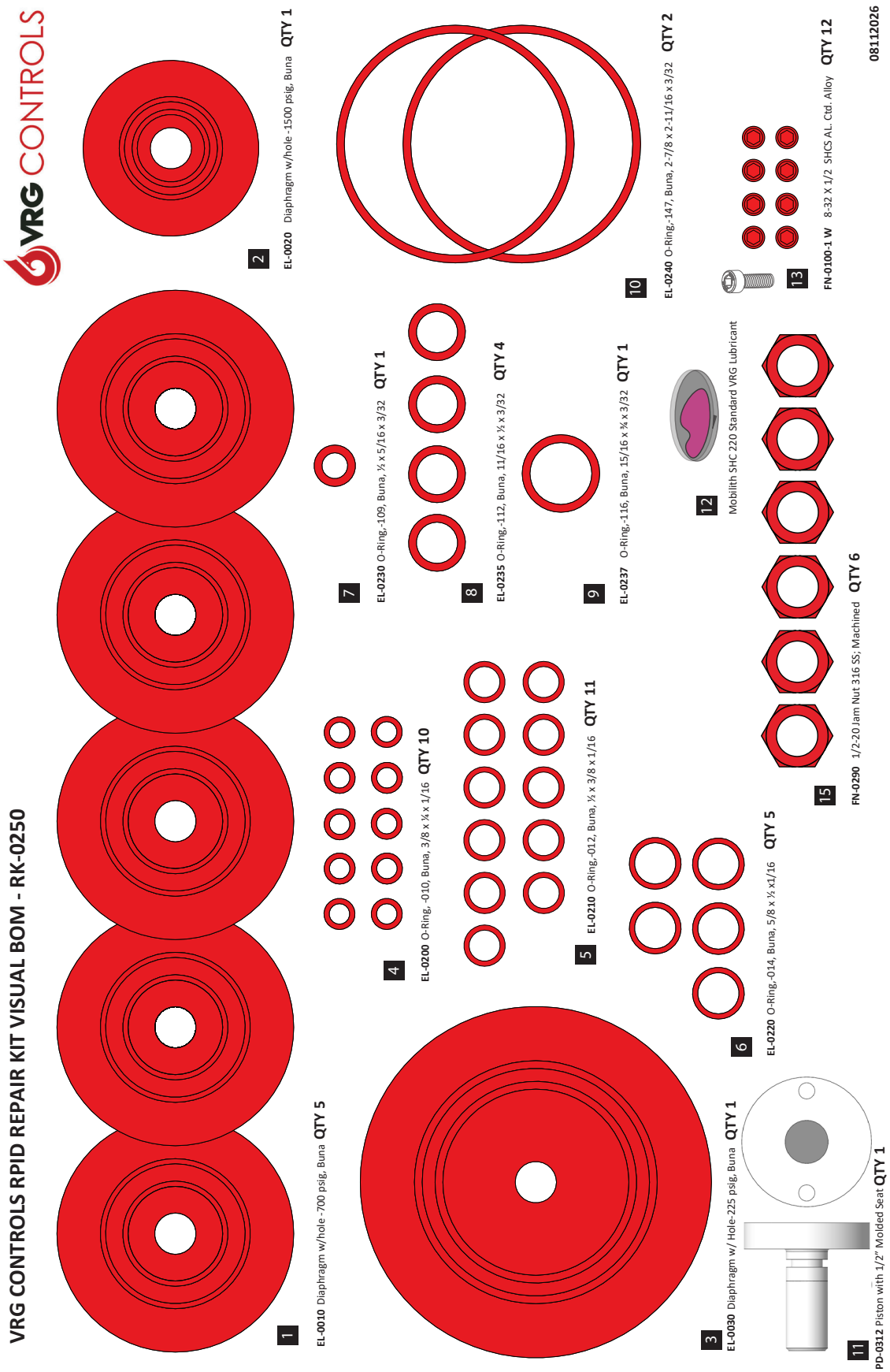
RPID Factory Quality Checklist

Date:		
VRG Invoice Number:		
Technician Name:	**Technician Signature:**	
QC Name:	**QC Signature:**	
Model Number:		
Serial Number:		
Customer:		
Supply Pressure:		
100% Supply Setpoint:		
90% Supply Setpoint:		
80% Supply Setpoint:		
Lockup:		
Customer Tag:		
Discharge Pressure:		
Orifice Settings:		
Sensitivity Drum Setting:		

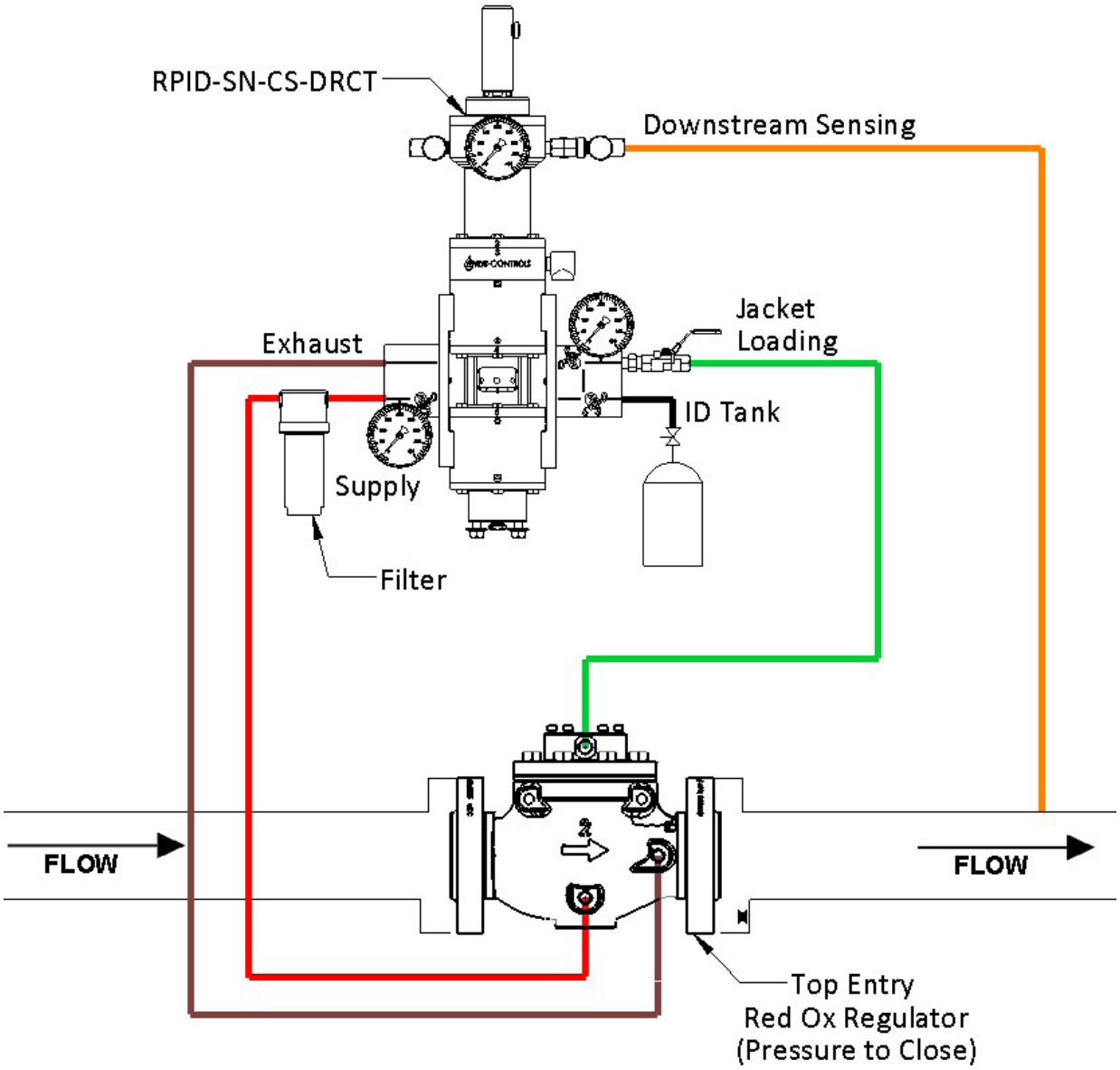
Procedure	Verified	Notes
Apply Maximum Sensing Pressure 30 min.	▫ VERIFY	
Adjust RPID to Setpoint	▫ VERIFY	
Friction Test	▫ VERIFY	
Gage Check (if applicable)	▫ VERIFY	
Valve Leak Check	▫ VERIFY	
Assembly Leak Check	▫ VERIFY	
Seat Check	▫ VERIFY	
Sensitivity Check	▫ VERIFY	
Label Check	▫ VERIFY	

Notes:

RK-0250: RPID-SN REPAIR KIT



Application 1A: RPID Direct Acting Pressure Control w/ Top Entry Regulator

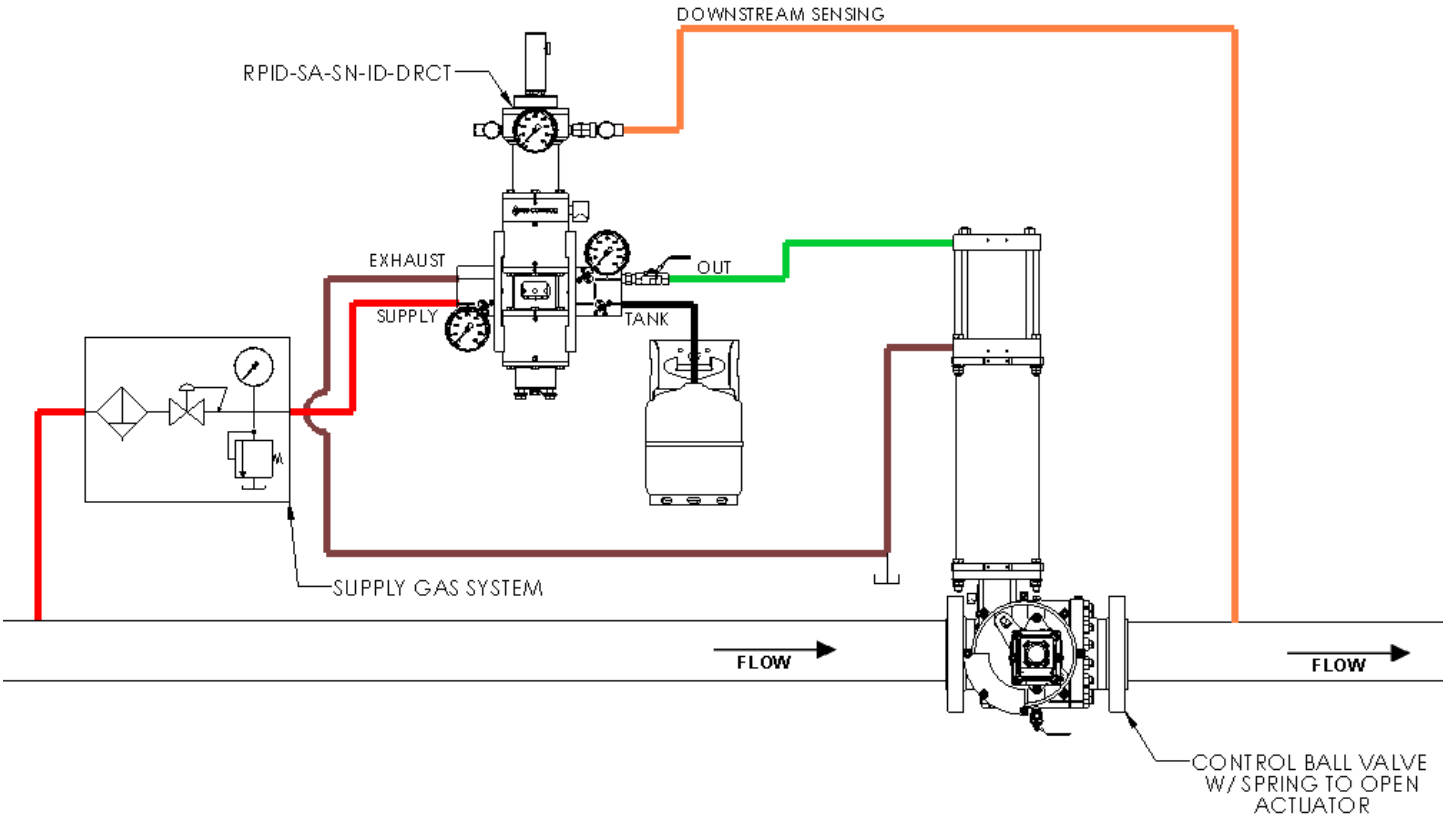


The RPID pilot presents several control changes when compared to the RP pilot that provide optimal stability and minimal droop. First, there are 2 seat/nozzle control element blocks. In the top block, the nozzle points upward. In the bottom block, the nozzle points downward. Upon rising downstream sensing pressure, the internal piston assembly will shift down, closing the top nozzle and opening the bottom nozzle. This will direct supply pressure to jacket loading, and will cut off the connection between jacket loading and exhaust. The regulator valve will be loaded, closing the valve and lowering downstream pressure until setpoint is restored. Upon falling downstream pressure, the internal assembly will shift up, opening the top nozzle and closing the bottom nozzle. Now, jacket loading pressure is exhausted, and the connection between supply and jacket loading is closed. Jacket pressure will fall, causing the regulator valve to open, and downstream pressure will rise until the setpoint is restored.

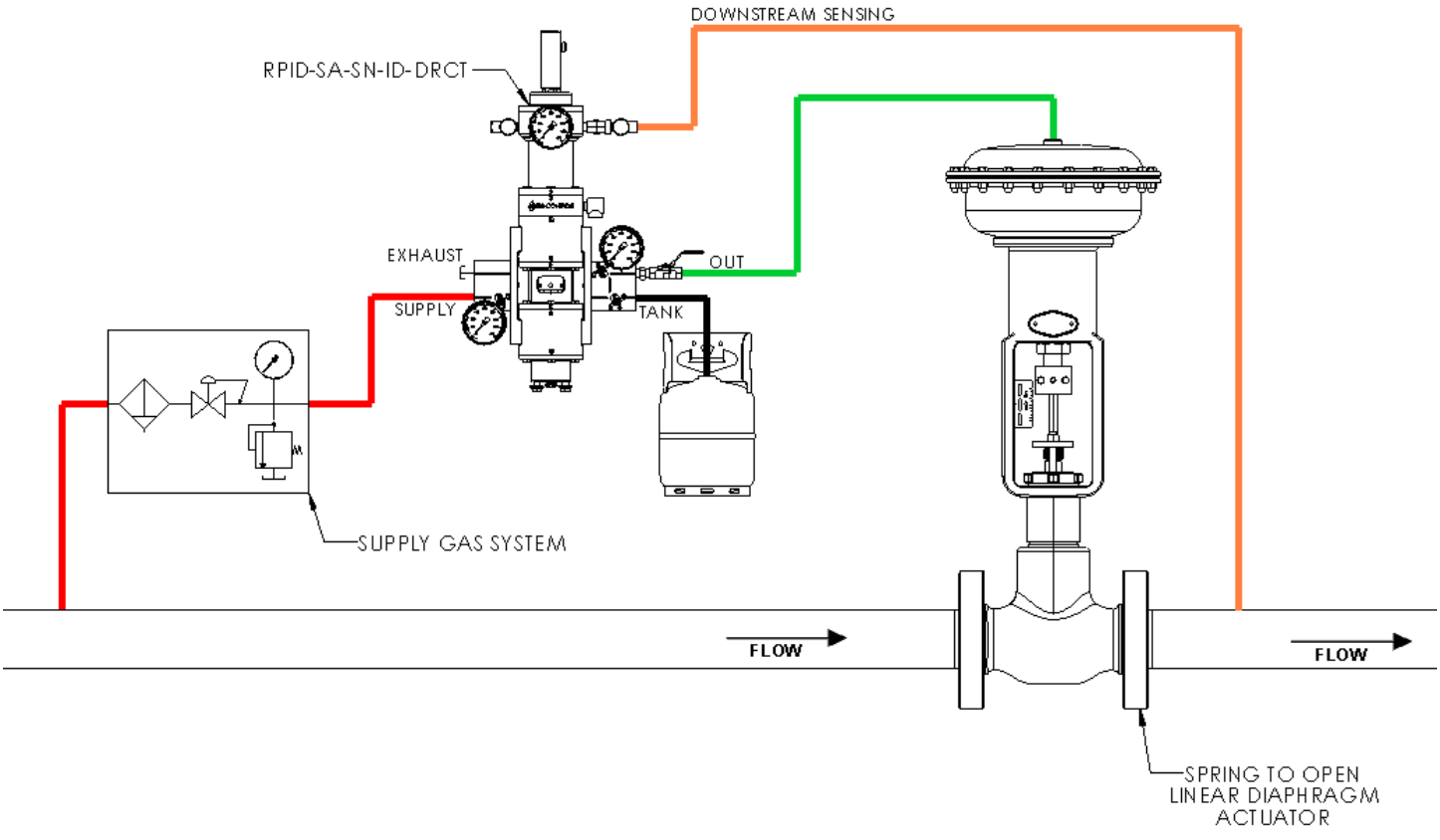
The RPID features a sensitivity adjustment drum between the 2 control element blocks. The user can rotate the drum to expand or contract the distance between the seat and the nozzle, allowing for precise manipulation of the deadband and sensitivity of the pilot response. Additionally, the RPID has 3 orifices on the supply, ID tank, and exhaust signal lines. This allows for precise control of opening and closing times. The tank provides ID control, allowing for manipulation of the response rate of the RPID.

This setup can be used for a variety of control elements such as spring return ball valves or linear diaphragm globe valves.

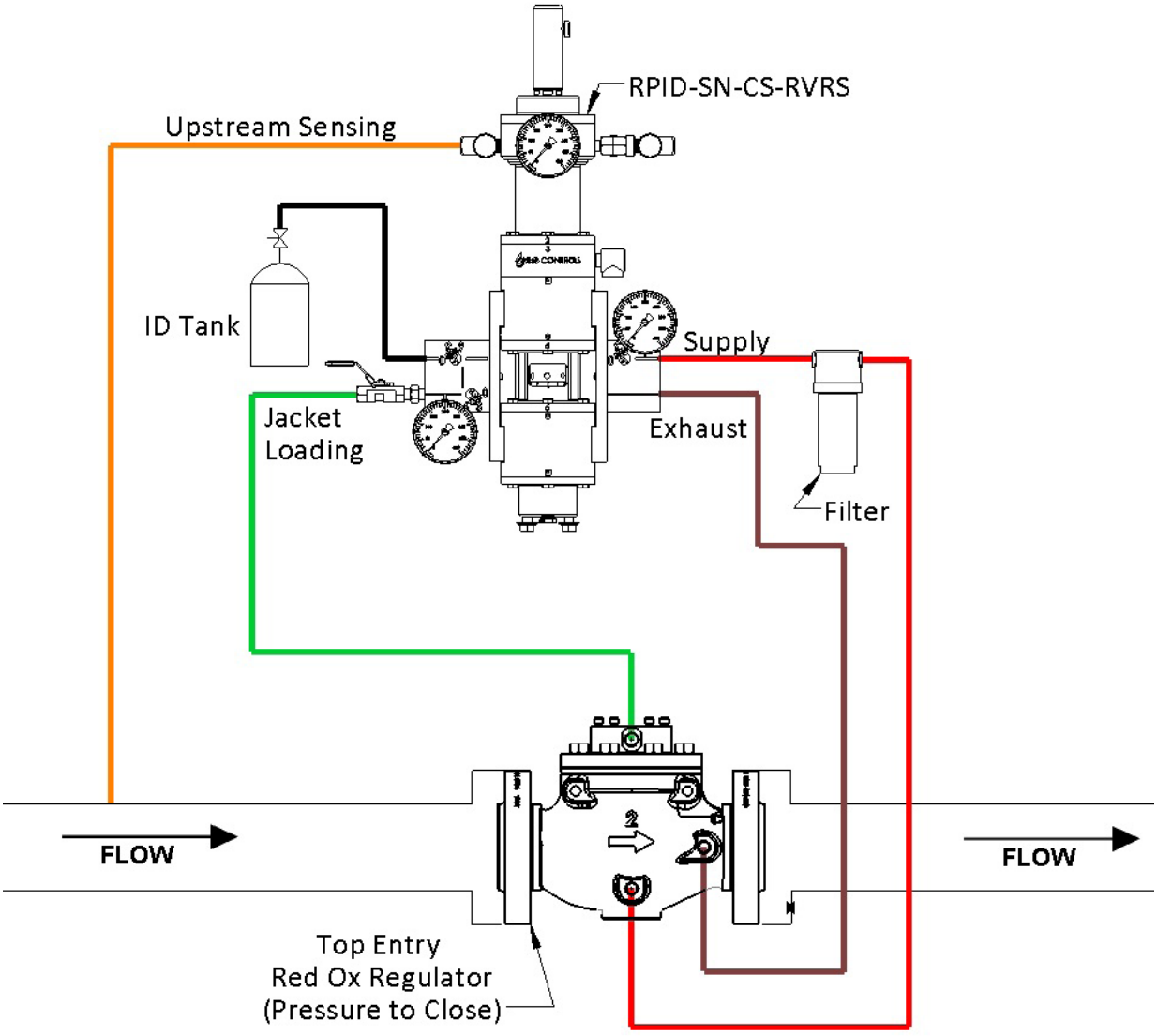
Application 1B: RPID Direct Acting Pressure Control w/ Fail Open Ball Valve



Application 1C: RPID Direct Acting Pressure Control w/ Fail Open Linear Diaphragm Globe Valve

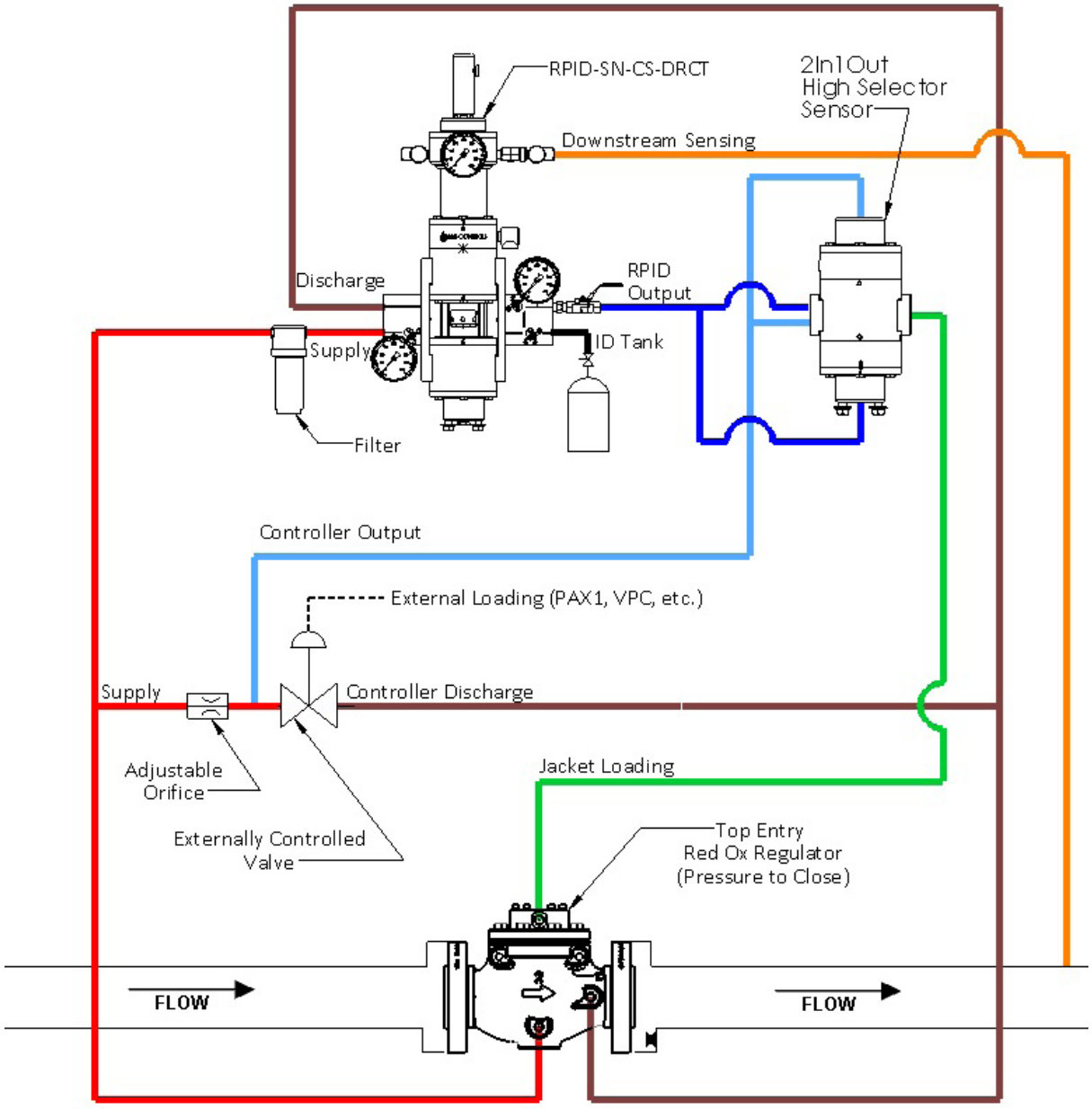


Application 2: RPID Reverse Acting Backpressure Control



The RPID backpressure control application functions in the opposite fashion as Application 6. While the internal piston and seat/nozzle assembly is identical, the side manifolds are swapped and sensing is on the upstream side. Now, rising sensing pressure will exhaust the jacket loading signal and open the regulator valve, relieving pressure buildup in the upstream. Falling downstream pressure will cause supply to connect to jacket loading, loading the regulator valve and closing it. The RPID is denoted as reverse acting because its OUTPUT acts inversely to the sensing signal. Like the direct acting pressure control application, other types of valves such as spring return ball or globe valves can be used for backpressure control.

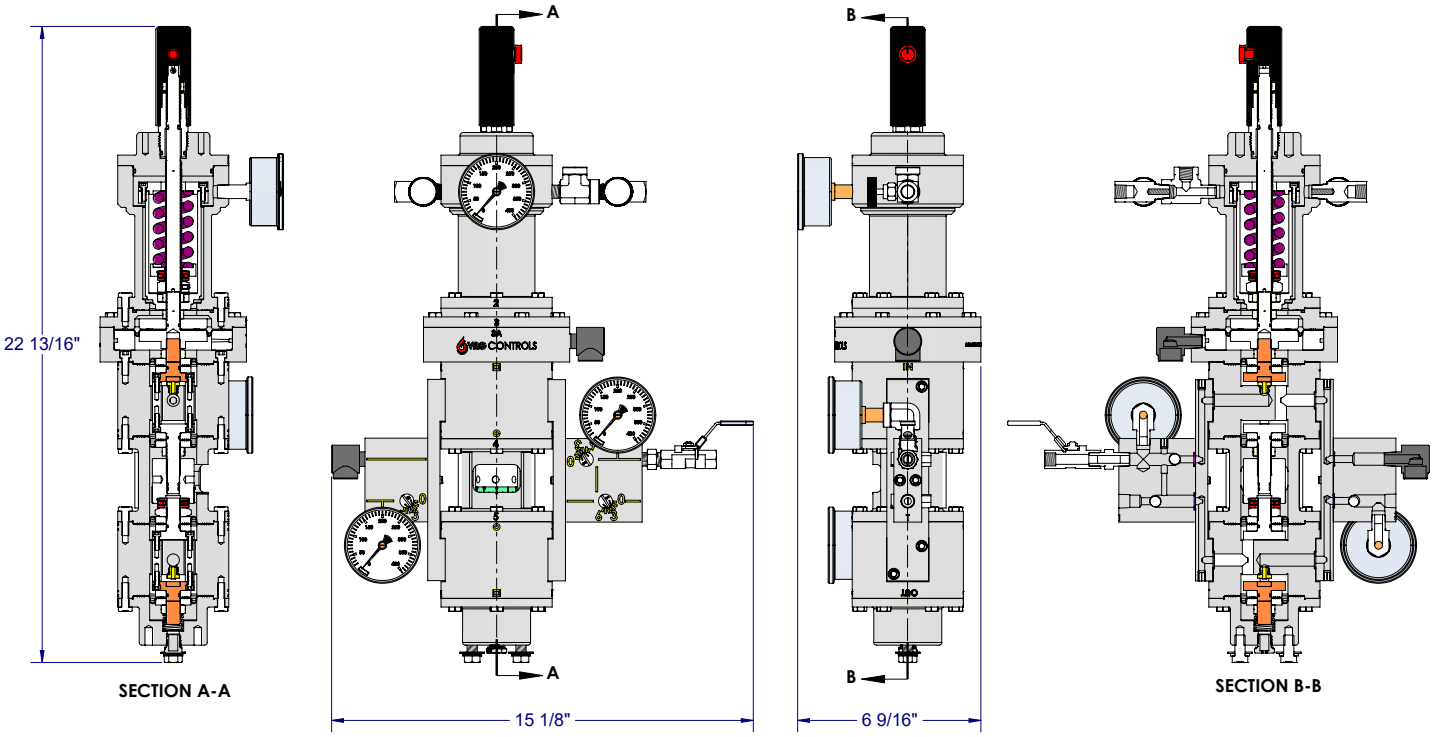
Application 3: RPID with Override

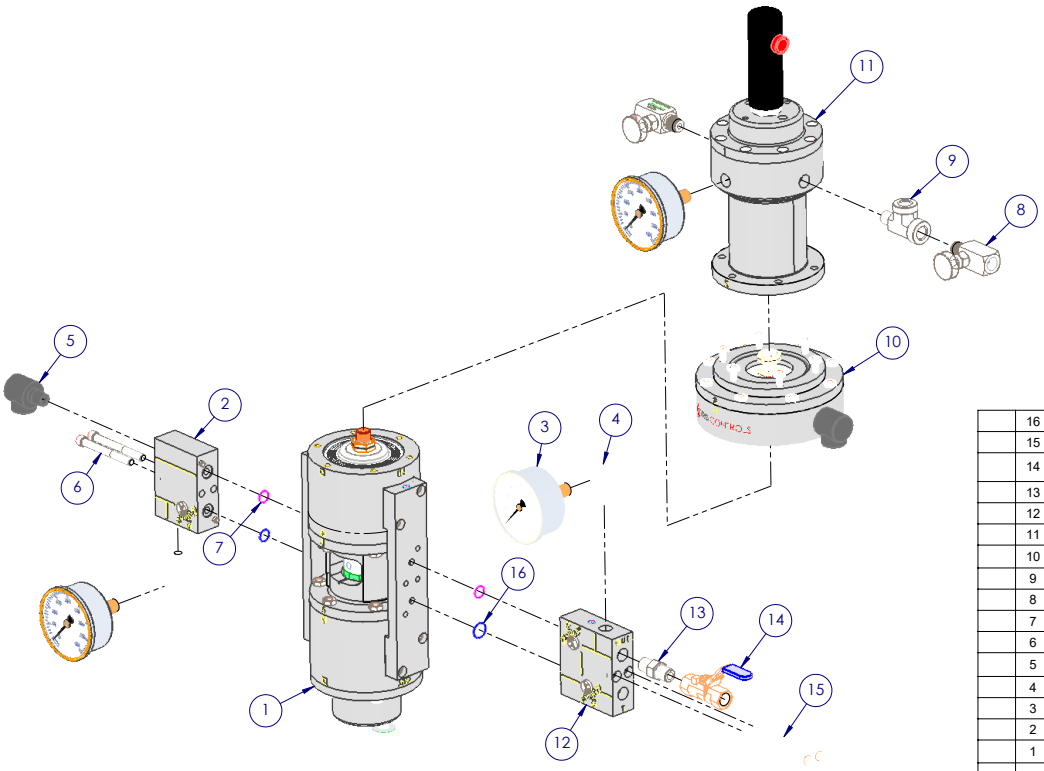


The RPID pilot can be used with an externally loaded control valve such as the Badger Type 807 Low Flow Control Valve for a pressure or flow override application. The outputs of the RPID and the other controller will both go into the 2In1Out High Selector Sensor, which will select the higher of the signals to load the regulator. The setpoints of the RPID and other controller can be manipulated to determine which is the primary controller, and which is the override.

Drawings

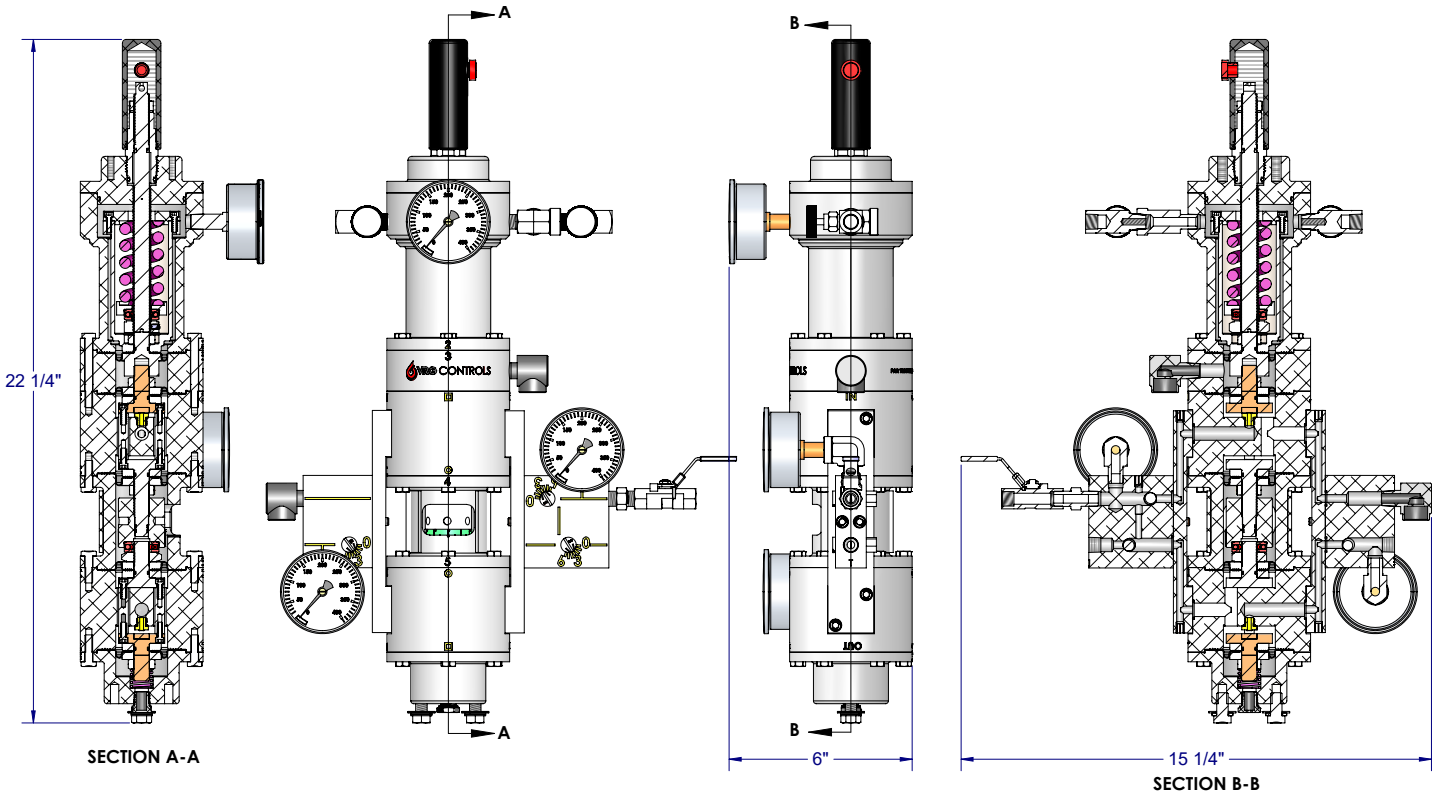
PA-0245: RPID-225-SA-SN-ID-DRCT (for Pressure control)

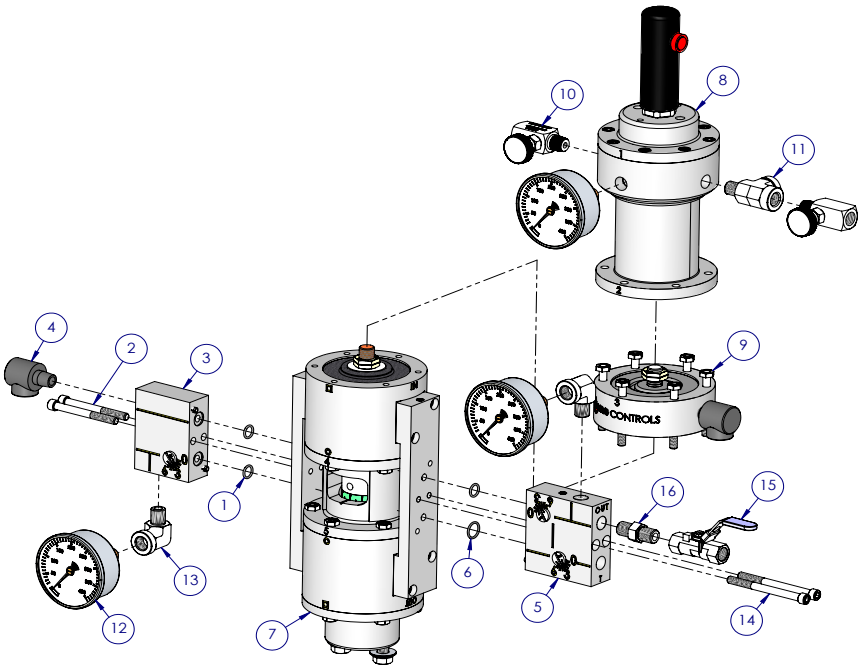




	16	1	EL-0220	O-RING -014 BUNA
	15	2	FN-0035	1/4-20 X 3 SHCS 316 SS #92185A557
	14	1	FV-0010	1/4NPT FxF Ball VLV SS -lock handle#1017S02;1000psig
	13	1	FP-0010	1/4 NPT HEX NIPPLE SS; ISST4HN
	12	1	PD-0438	ID OUTPUT MANIFOLD ASSEMBLY
	11	1	PA-0070	CLOSED CARTRIDGE ASSY
	10	1	PA-0100	SENSING ASSY-225
	9	1	FP-0025	1/4 NPT STREET TEE SS; ISS4TST
	8	2	FV-0020	1/4NPT M x F NEEDLE VALVE
	7	3	EL-0210	O-RING - 012 BUNA, #9452K21
	6	2	FN-0030	1/4-20 X 2-1/2 SHCS 316 SS #92185A555
	5	1	FP-0043	1/4NPT vent elbow -Black Anodized Aluminum
	4	2	FP-0030	1/4NPT STREET ELBOW SS; ISST4SE
	3	3	GA-0004	1/4NPT CBM SS,2.5 dial
	2	1	PD-0435	SA INLET MANIFOLD ASSEMBLY
	1	1	PA-0062	SA RPID-700 PILOT BLANK ASSEMBLY-SN
REV	ITEM	QTY	P/N	DESCRIPTION

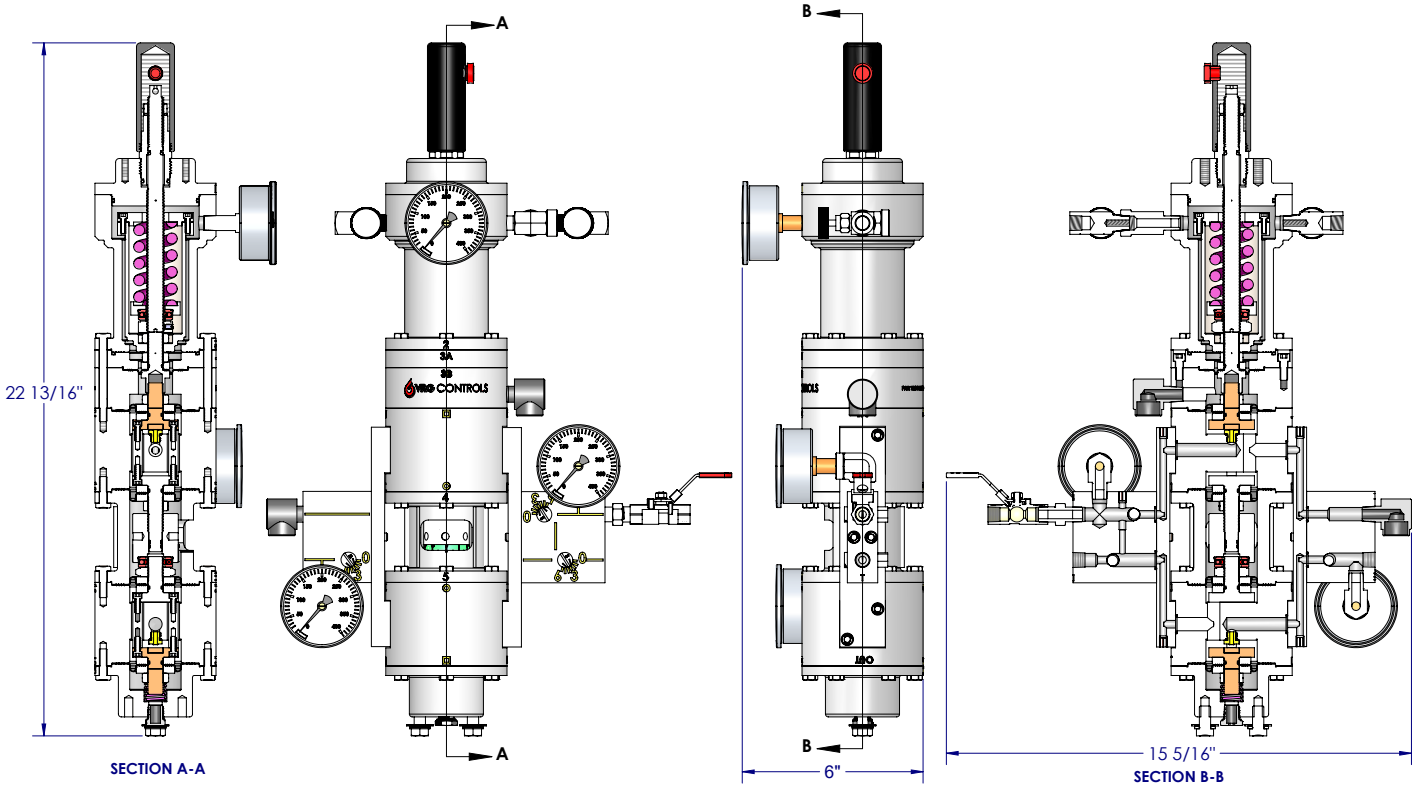
PA-0250: RPID-700-SA-SN-ID-DRCT (for Pressure control)

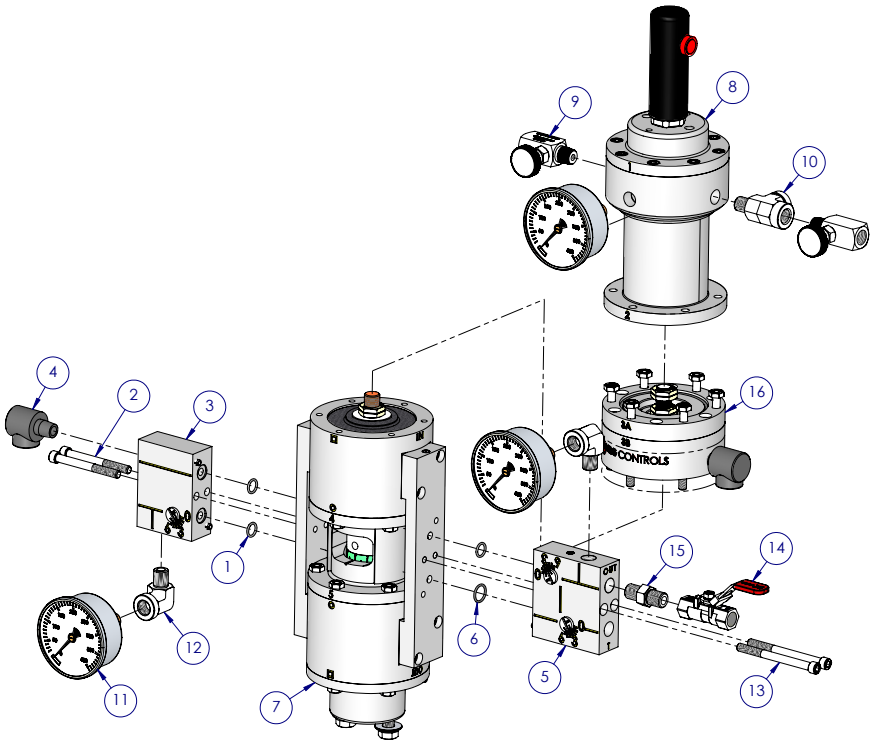




ITEM	QTY	P/N	DESCRIPTION
16	1	FP-0010	1/4 NPT HEX NIPPLE SS; ISST4HN
15	1	FV-0010	1/4NPT FxF Ball VLV SS -lock handle#1017S02;1000psig
14	2	FN-0035	1/4-20 X 3 SHCS 316 SS #92185A557
13	2	FP-0030	1/4NPT STREET ELBOW SS; ISST4SE
12	3	GA-0004	1/4NPT CBM SS,2.5 dial
11	1	FP-0025	1/4 NPT STREET TEE SS; ISS4TST
10	2	FV-0020	1/4NPT M x F NEEDLE VALVE
9	1	PA-0080	SENSING ASSY-700
8	1	PA-0070	CLOSED CARTRIDGE ASSY
7	1	PA-0062	SA RPID-700 PILOT BLANK ASSEMBLY-SN
6	1	EL-0220	O-RING -014 BUNA
5	1	PD-0438	ID OUTPUT MANIFOLD ASSEMBLY
4	1	FP-0043	1/4NPT vent elbow -Black Anodized Aluminum
3	1	PD-0435	SA INLET MANIFOLD ASSEMBLY
2	2	FN-0030	1/4-20 X 2-1/2 SHCS 316 SS #92185A555
1	3	EL-0210	O-RING - 012 BUNA, #9452K21

PA-0265: RPID-1500-SA-SN-ID-DRCT (for Pressure control)





ITEM	QTY	P/N	DESCRIPTION
16	1	PA-0090	SENSING ASSY-1500
15	1	FP-0010	1/4 NPT HEX NIPPLE SS; ISST4HN
14	1	FV-0005	HAMLET 1/4NPT FxF Ball VLV SS -lock handle; 316 SS; 2000psig
13	2	FN-0035	1/4-20 X 3 SHCS 316 SS #92185A557
12	2	FP-0030	1/4NPT STREET ELBOW SS; ISST4SE
11	3	GA-0004	1/4NPT CBM SS,2.5 dial
10	1	FP-0025	1/4 NPT STREET TEE SS; ISS4TST
9	2	FV-0020	1/4NPT M x F NEEDLE VALVE
8	1	PA-0070	CLOSED CARTRIDGE ASSY
7	1	PA-0062	SA RPID-700 PILOT BLANK ASSEMBLY-SN
6	1	EL-0220	O-RING -014 BUNA
5	1	PD-0438	ID OUTPUT MANIFOLD ASSEMBLY
4	1	FP-0043	1/4NPT vent elbow -Black Anodized Aluminum
3	1	PD-0435	SA INLET MANIFOLD ASSEMBLY
2	2	FN-0030	1/4-20 X 2-1/2 SHCS 316 SS #92185A555
1	3	EL-0210	O-RING - 012 BUNA, #9452K21

Notes:

STAY IN TOUCH!
Scan the QR Code at right for company information and product updates.

ADDRESS: VRG Controls, LLC.
1199-B Flex Court
Lake Zurich, IL 60047, USA
TOLL FREE: (800) 844-FLOW-VRG
E-MAIL: sales@vrgcontrols.com
WEBSITE: vrgcontrols.com