SPECIFICATION DATA
V500-2016-R0

PILOT OPERATED TANK BLANKET VALVE, PRESSURE REGULATING VALVE

SERIES V500

djc

CONTENTS

APPLICATION

- Refineries
- Chemical & Petrochemical Plant
- Liquid Bulk Storage Terminals
- Pulp & Paper Plants
- Food & Beverage Storage

PERFORMANCE

- Very Tight Operating Band
- Bubble Tight Shut off
- Quick Changed Trim for Easy Maintenance
- Set Pressure is field adjustable

FEATURES

- Fully Balanced Pilot operated design
- Pilot Control
- Self – Contained
- Highly Sensitive
- Fully Field Serviceable

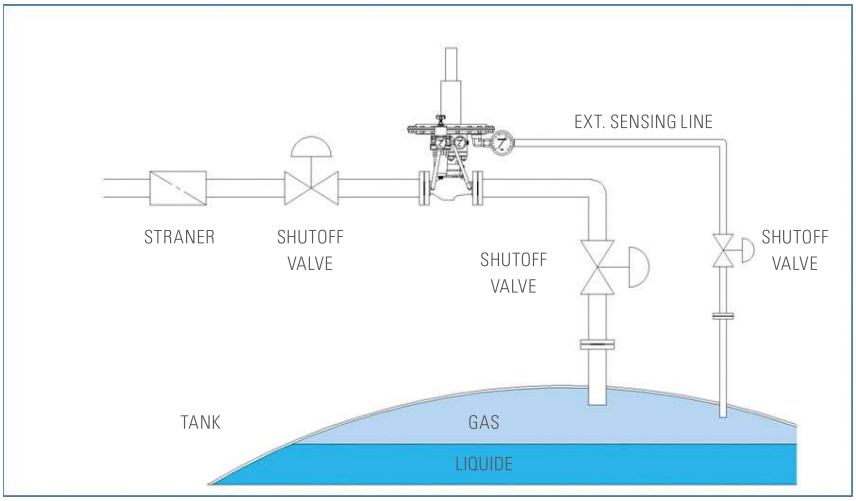
DESIGN FLEXIBILITY

- Angled or In-Line Body Option
- Optional flow plugs to meet specific flow requirements
- System purge and field test capability available

V510 SERIES
PILOT OPERATED TANK BLANKETING VALVE

The blanket gas regulator is one of the principal components typically installed on as storage tank to protect the tank and its contents. It is a precision regulator that is capable of maintaining a very low gas pressure (Min. 0.005 BarG) in the tank by controlling the flow of a high pressure (Max. 14 BarG) Blanketing gas.
It maintains a positive pressure in the tank when fluid is pumped out or as fluid temperature decreases.
Typically nitrogen or another compatible gas is used to suppress the tank product vapors. This reduces losses due to product evaporation and prevents atmospheric contaminants, including moisture from ring the tank, preventing tank corrosion and product contamination.
V510 Series tank blanketing valves are self-contained, balanced, pilot operated, and used for accurate pressure control on gas blanketing systems.
The unit is controlled by a very large diaphragm actuator.
When a storage tank cools and tank vapors condense, tank blanketing valves replace the condensing vapors with an inert gas to prevent internal tank pressure from decreasing.

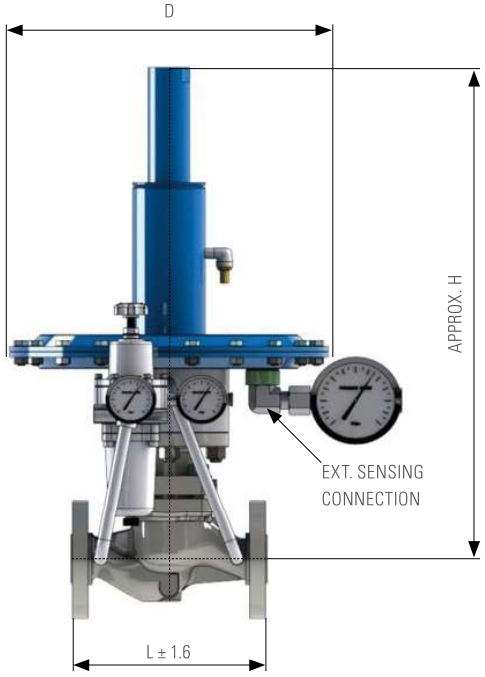
Positive tank pressure prevents outside air from contaminating the product and reduces the possibility of atmospheric pressure collapsing the tank. As demand is satisfied, the valve closes.
Tank blanketing valve respond to slight decreases in internal tank pressure by opening and increasing the flow rate of inert gas into the tank. When the tank liquid level has been lowered to the desired point and the vapor pressure set point is re-established, the valve closes.

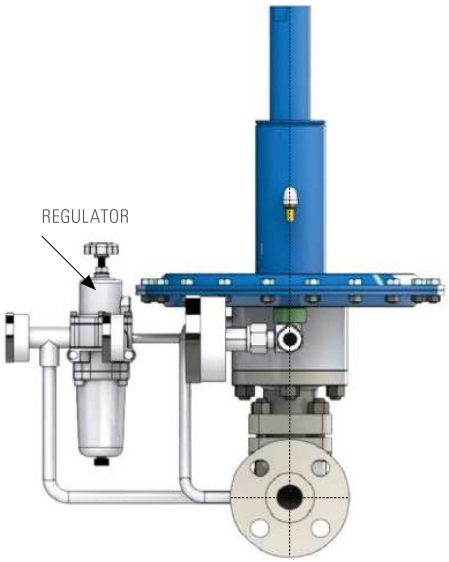


V510 Series Tank Blanketing Valve Installation

SPECIFICATION

MAXIMUM OPERATING INLET PRESSURE	14BarG
MAXIMUM EMERGENCY OUTLET PRESSURE	1.5BarG (Diaphragm Casing)
MAXIMUM OPERATING OUTLET PRESSURE	1.2BarG
CONTROL PRESSURE RANGES	0.005 ~ 0.15BarG
PRESSURE REGISTRATION	External
MAIN VALVE FLOW CHARACTERISTIC	Linear
OPERATING TEMPERATURE RANGE	0℃ ~ 100℃



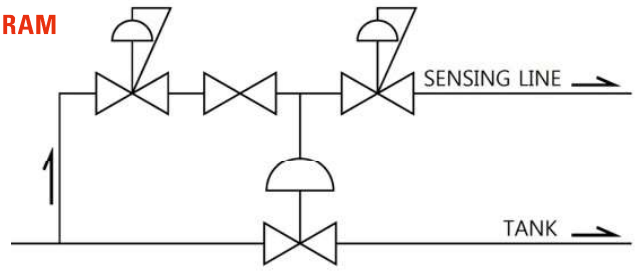


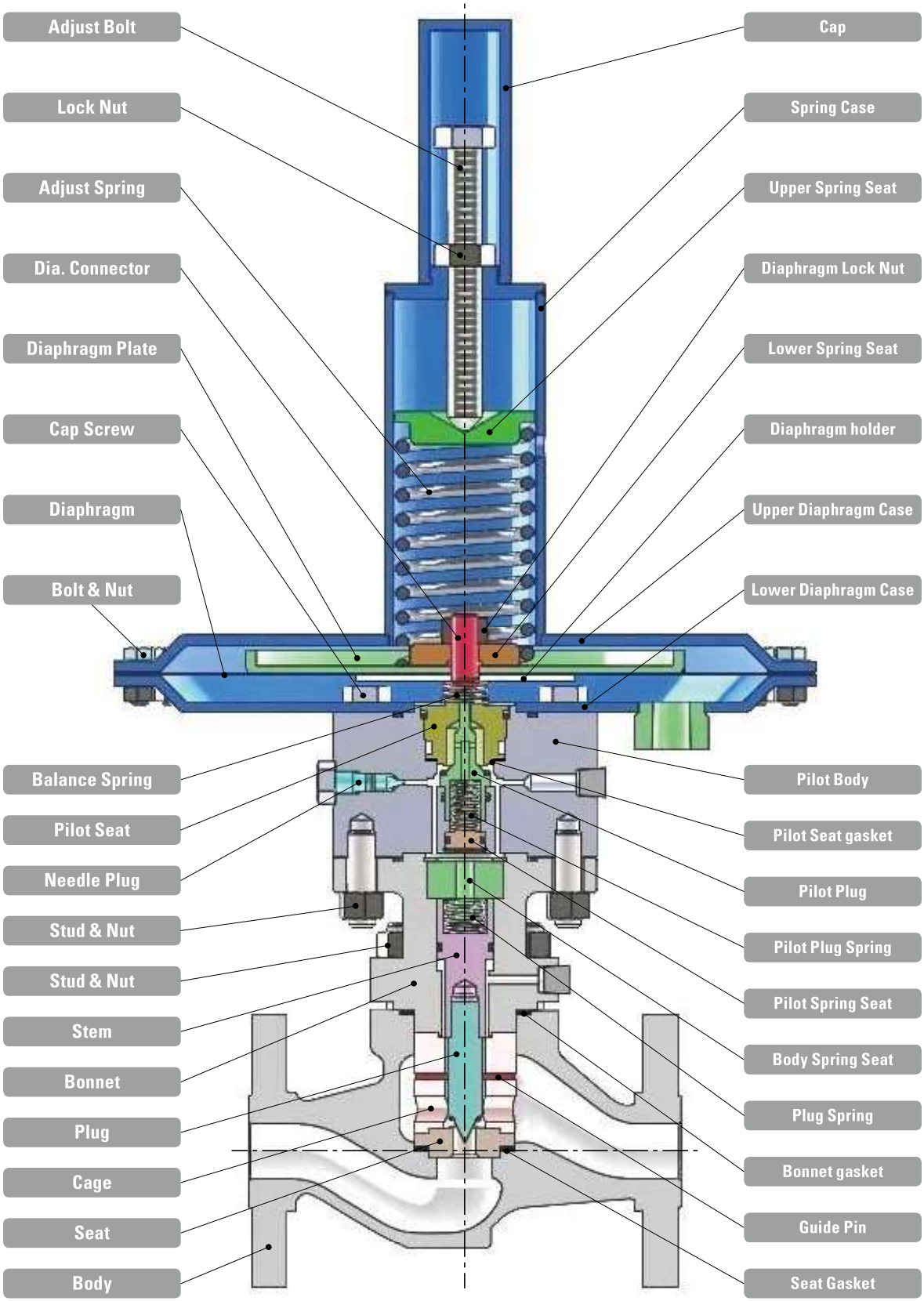
DIMENSIONAL DIAGRAMS

Valve Size	L	H	D	Weight
1"(25A)	197	515	320	APPROX. 40Kg
1.5"(40A)	235	535	320	APPROX. 45Kg
2" (50A)	267	540	320	APPROX. 50Kg

*All Dimension Units are mm

VALVE INTERNAL DIAGRAM





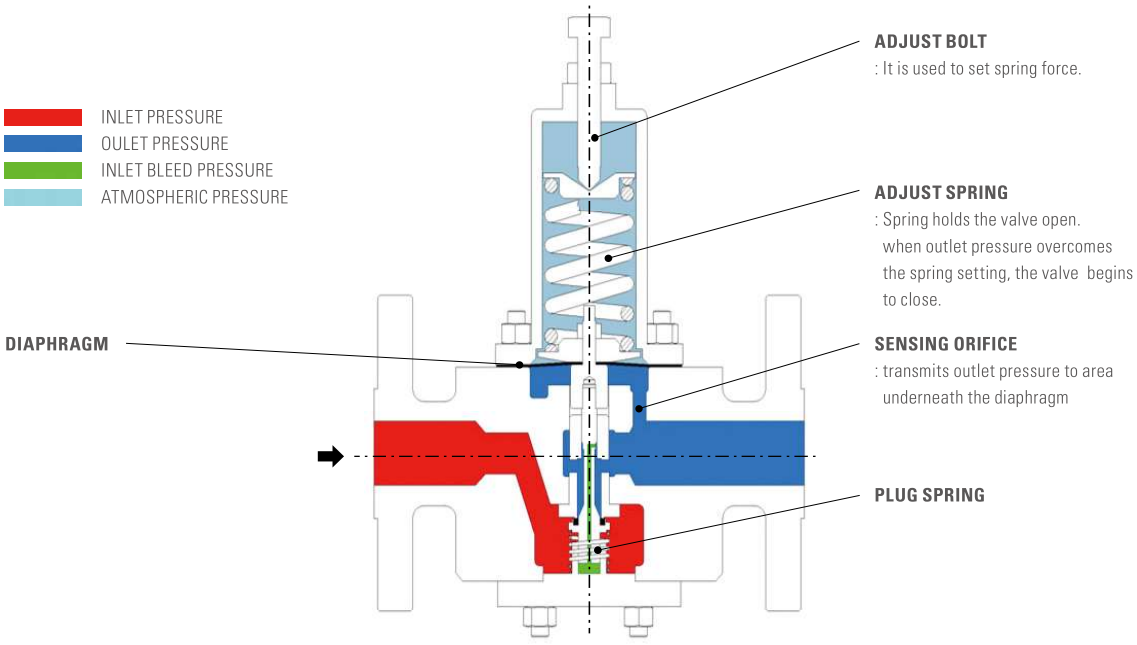
Assembly Drawing (Sectional)

V515 SERIES
DIRECT ACTING –
PRESSURE REDUCING VALVE

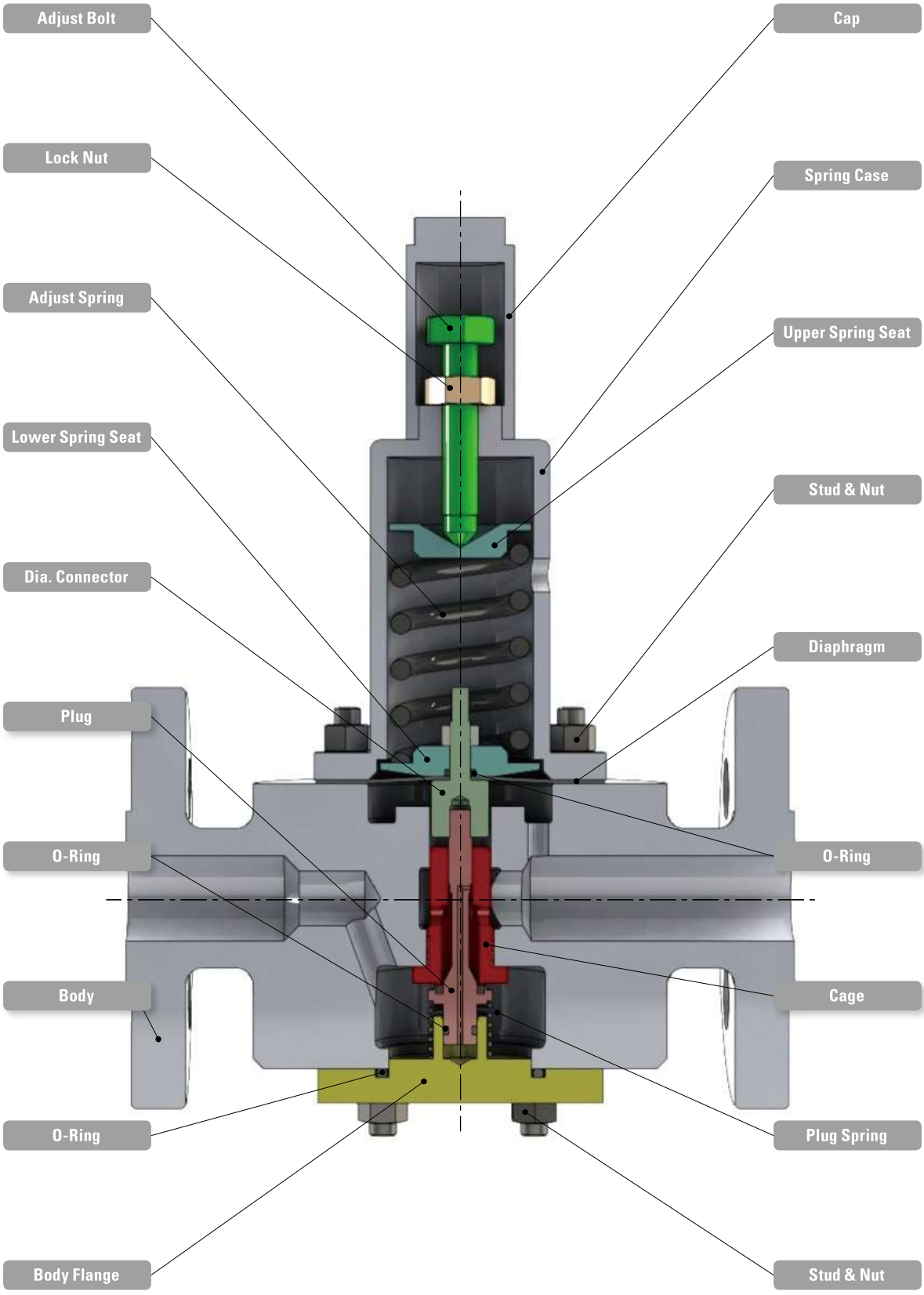
Pressure Reducing valves automatically reduce a high initial pressure to a lower delivery pressure, and maintain that lower pressure, depending on the specific design selected, within reasonably close limits. Pressure Reducing valve is single seated, self-actuating, diaphragm type regulators. V510 series valve offers various modifications of the pressure regulating valve.

The design of the valve isolates the diaphragm and pressure response chamber from the main flow stream. The downstream pressure (outlet pressure) is registered under the diaphragm through the sensing orifice. If the downstream pressure increases, pressure under the diaphragm also increases. This force overcomes the spring compression and loading supply pressure, allowing the stem to rise.

The valve plug spring forces is it to close the valve. Flow through the valve is reduced so that downstream pressure returns to the desired differential level. When the downstream pressure decreases, the opposite action takes place. Pressure under the diaphragm decreases. The valve stem pushes the valve plug downward, opening the flow stream and increasing the flow through the regulator. Downstream pressure rises back to the desired differential level.



Operational Schematic (Valve Close)



Assembly Drawing (Sectional)

V520 SERIES
DIRECT ACTING –
BACK PRESSURE VALVE

V520 Series Back Pressure Valve Type relieves excessive pressures upstream of the main valve. If the upstream pressure rises above the setting of the valve, pressure on the underside of the diaphragm overcomes the spring compression. The valve plug moves away from the seat and allows the excess pressure to escape. When the upstream pressure returns to normal, the valve plug resumes a closed position.

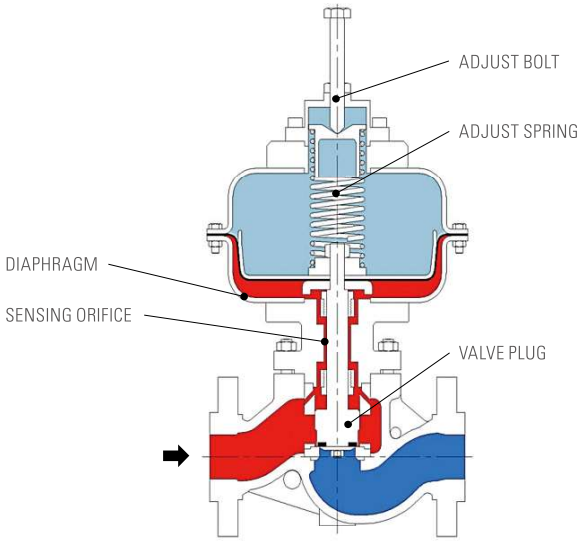
Adjust Spring : Spring holds the valve closed. When inlet pressure overcomes the spring setting, the valve begins to open.

Adjust Bolt : It is used to set spring force.

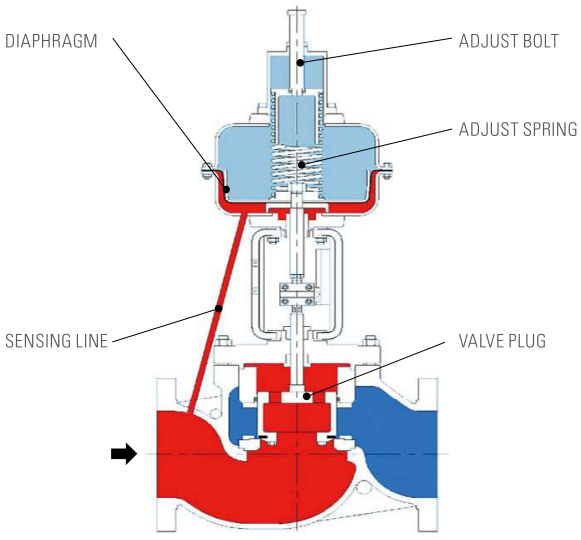
Diaphragm, Piston : Transmits inlet pressure to spring

Diaphragm Type **Piston Type**

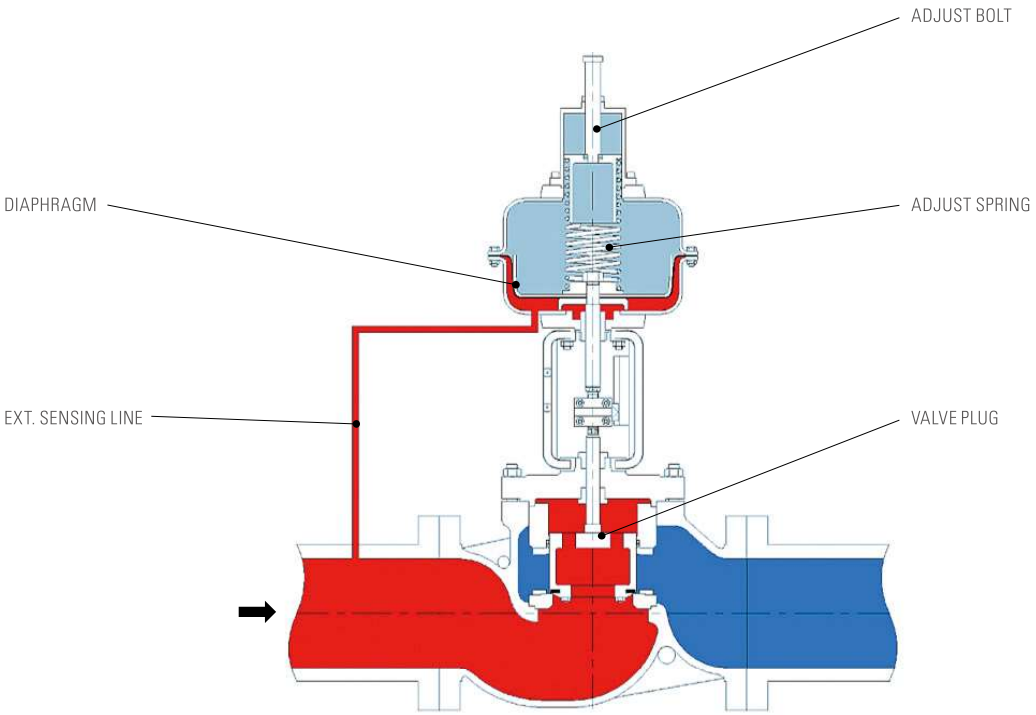
INLET PRESSURE
OULET PRESSURE
ATMOSPHERIC PRESSURE



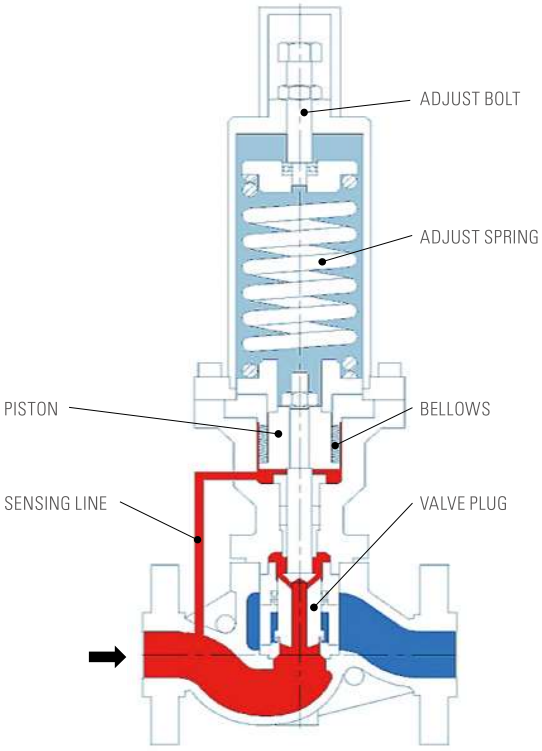
Operational Schematic - Diaphragm Type 1



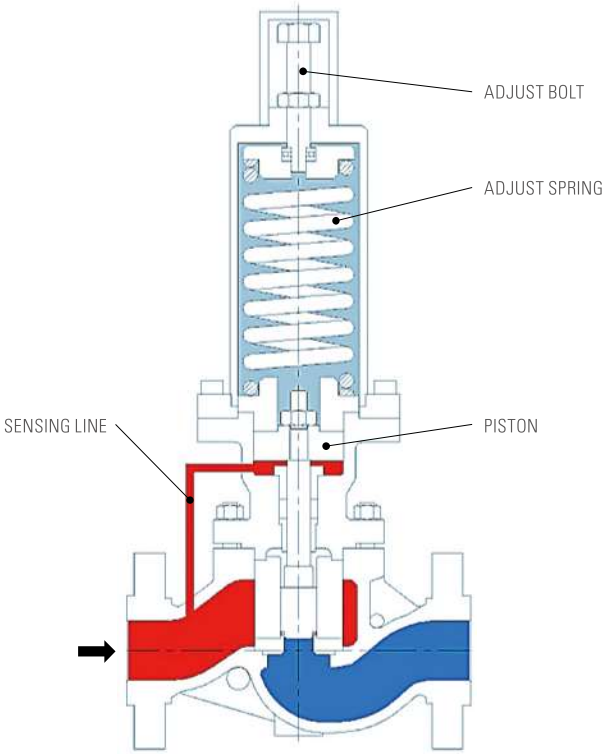
Operational Schematic - Diaphragm Type 2



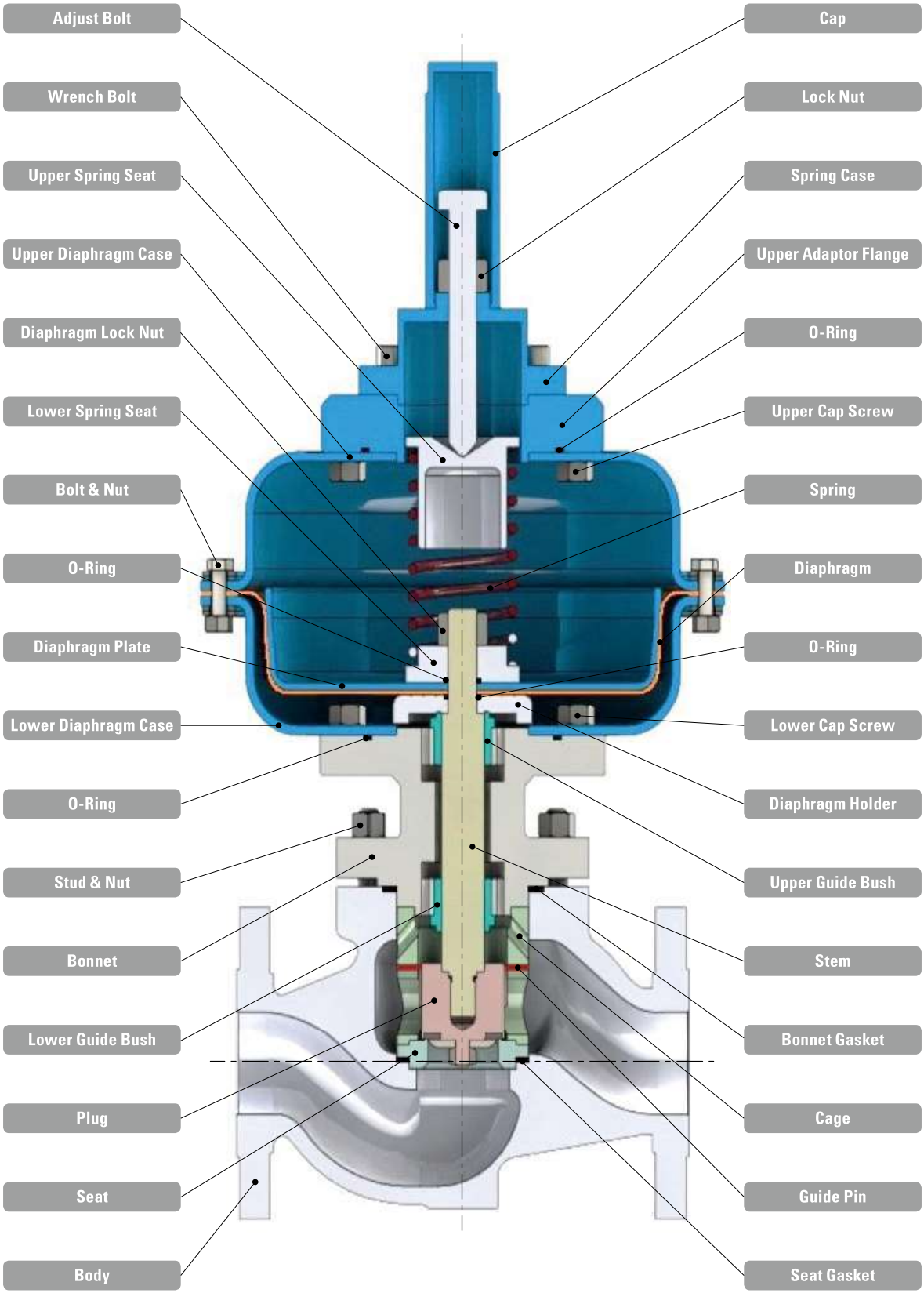
Operational Schematic - Diaphragm Type 3



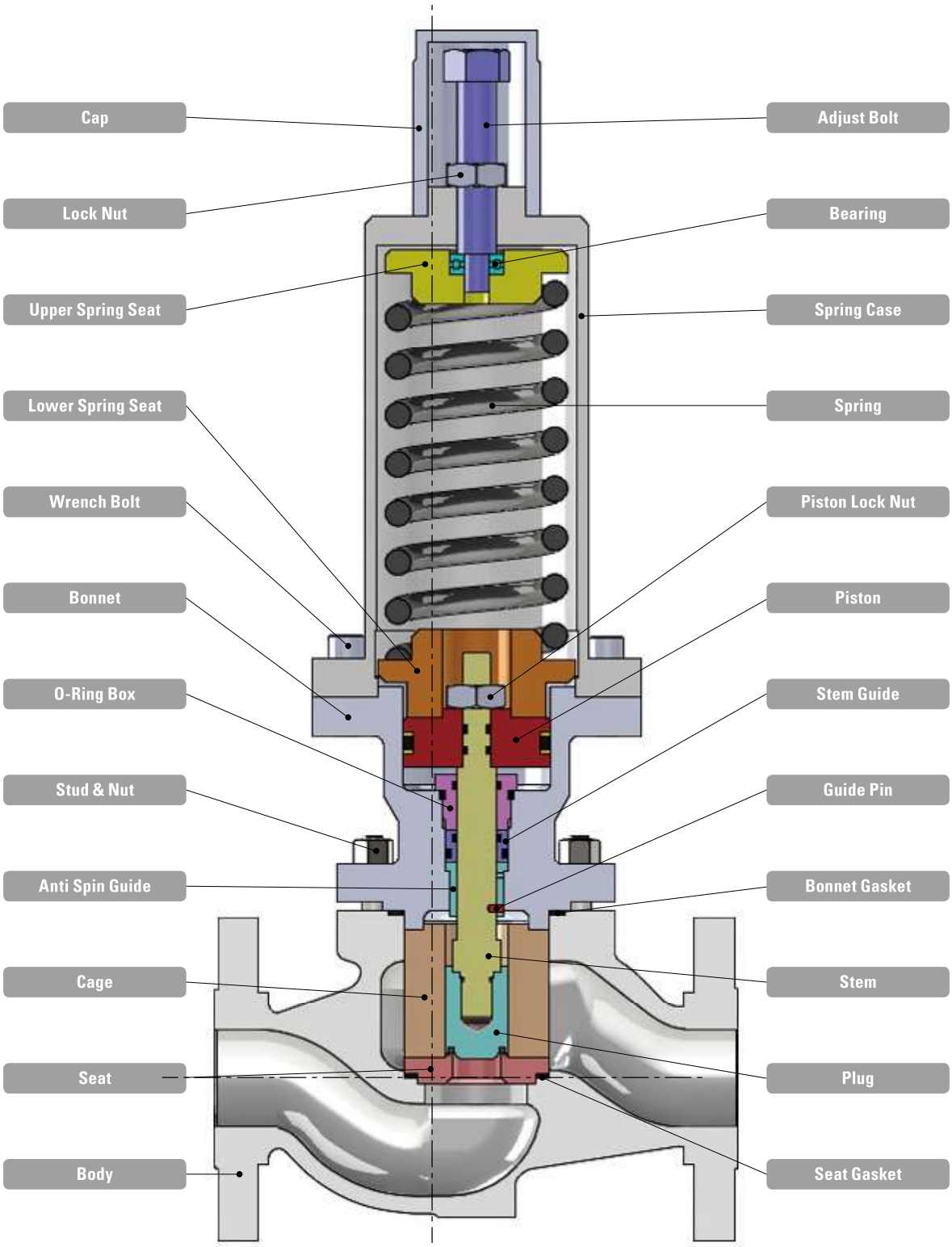
Operational Schematic – Piston Type (Liquid)



Operational Schematic – Piston Type (Gas)



Assembly Drawing (Diaphragm Type)



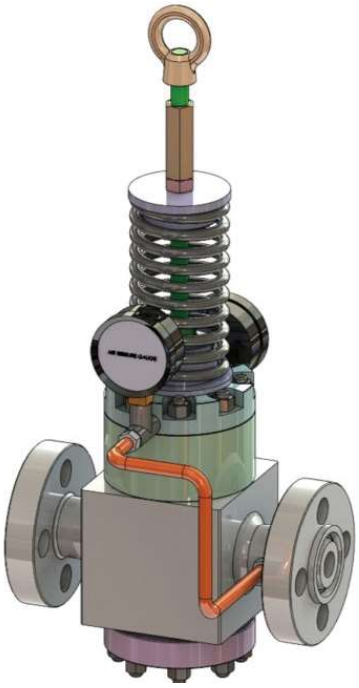
Assembly Drawing (Sectional)

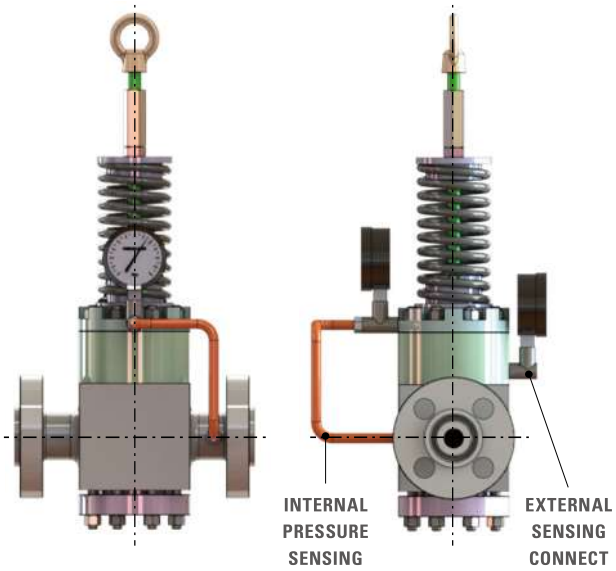
V530 SERIES DIFFERENTIAL PRESSURE REGULATING VALVE

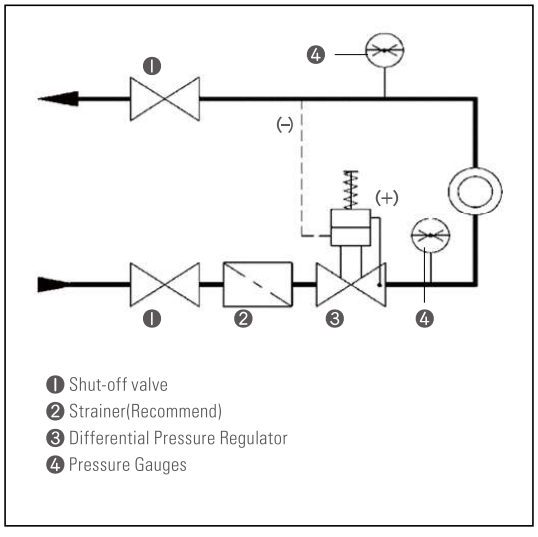
The Differential Pressure Regulating Valve consist of a valve with a balanced plug and closing cylinder with a operating piston. It is designed to maintain the differential pressure between the high-pressure and low-pressure pipes at the adjusted set point. The valve closes when the differential pressure rises.

The Differential Pressure Regulating Valve installed in a flow pipe, the medium flows through the valve in the direction indicated by the arrow. The high pressure in the valve outlet is transmitted through the attached control line to the high-pressure side of the operating piston. The low pressure from the return pipe is transmitted to the low-pressure side of the piston via the control line which must be routed externally on site.

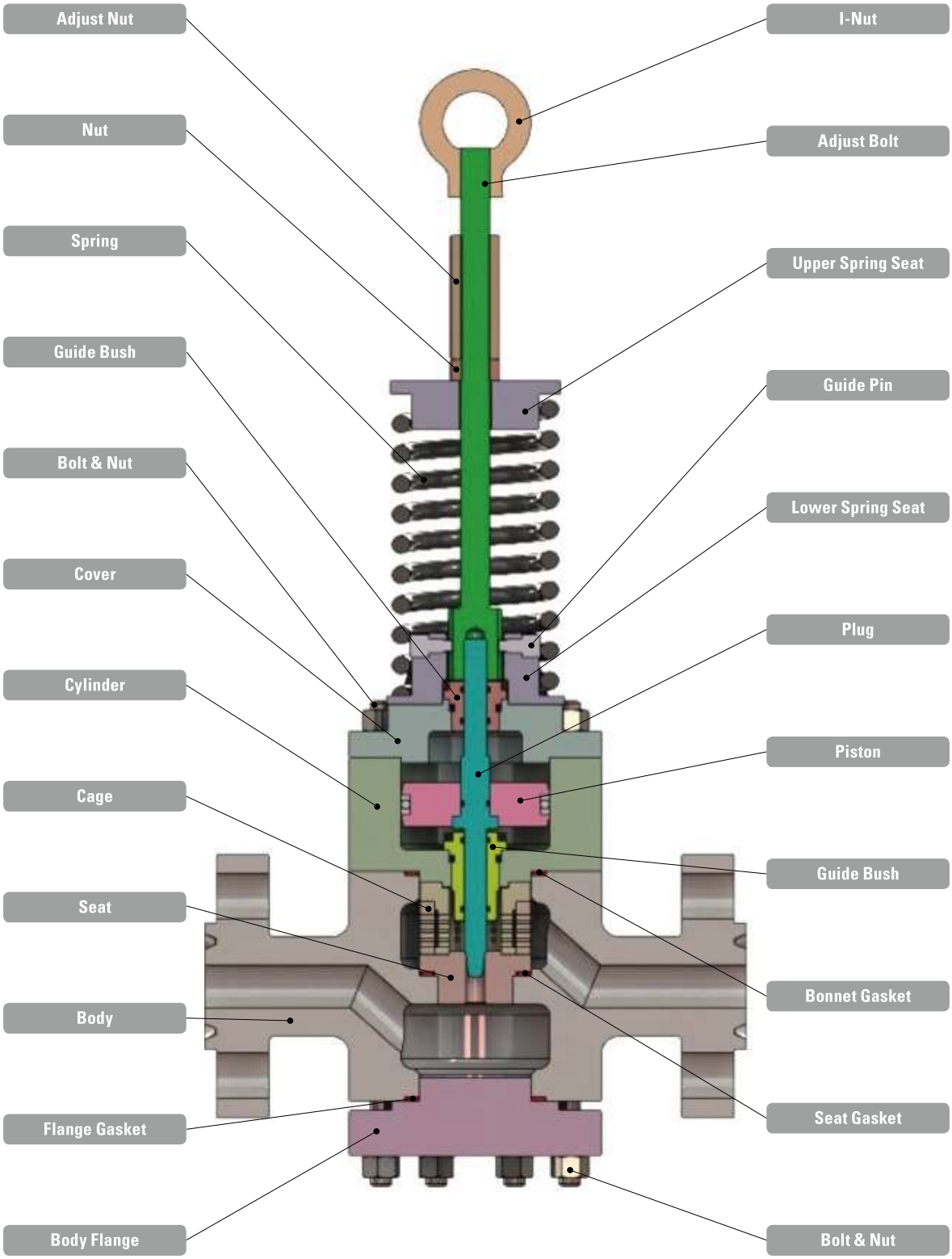
The differential pressure acting on the operating piston generates a positioning force, which positions the plug against the force of the set point spring.







Typical Installation



Assembly Drawing (Sectional)

NUMBERING SYSTEM

V	0	0	0	-	1	2	3	4	-	5	6

Valve Constructions

000. VALVE SERIES	
510	PILOT OPERATED TANK BLANKETING VALVE
515	PRESSURE REDUCING VALVE
520	BACK PRESSURE VALVE
530	DIFFERENCIAL PRESSURE REGULATING VALVE

1,2. BODY SIZE (INCH)			
CODE	INCH	CODE	INCH
15	5 / 8	80	3
20	3 / 4	A0	4
25	1	A2	5
32	1-1 / 4	A5	6
40	1-1 / 2	B0	8
50	2	B5	10
65	2-1 / 2	YY	SPECIAL

3. PRESSURE RATING	
B	ANSI 150LB
E	ANSI 300LB
H	ANSI 600LB
K	ANSI 900LB
L	ANSI 1500LB
Y	SPECIAL

4. END CONNECTION	
P	RF THREAD
R	RF FLANGED
U	UNION
F	FF FLANGED
B	BUTT WELDING
C	TRY CLAMP
S	SOCKET WELDING
T	RING JIONT
N	NPT THREAD
L	LARGE GROOVE
M	MALE & FEMALE
W	WAFER (BOLTED)
Y	SPECIAL

5. SENSING POINT	
I	INTERNAL
E	EXTERNAL
Y	SPECIAL

6. DIAPHRAGM MATERIAL	
E	EPDM
S	STAINLESS STEEL
Y	SPECIAL

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