

# Electronic Pressure Independent Valves (ePIV)

## INSTALLATION

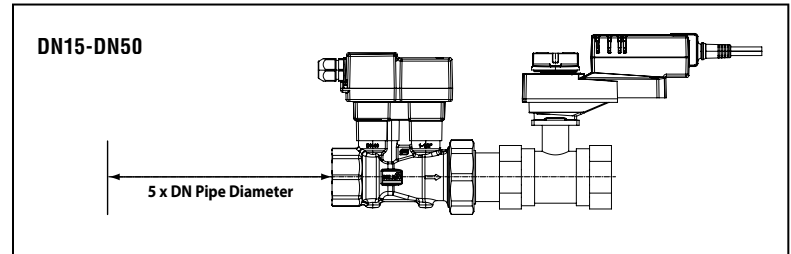
### Inlet Length

The ePIV requires a section of straight pipe on the valve inlet to guarantee sensor accuracy. This section should be at least 5 pipe diameters long with respect to the size of the valve.

DN15 5 x DN = 2½" [63.5 mm]  
 DN20 5 x DN = 3¾" [95.2 mm]  
 DN25 5 x DN = 5" [127 mm]  
 DN32 5 x DN = 6¼" [158.7 mm]  
 DN40 5 x DN = 7½" [190.5 mm]  
 DN50 5 x DN = 10" [254 mm]

### Output Length

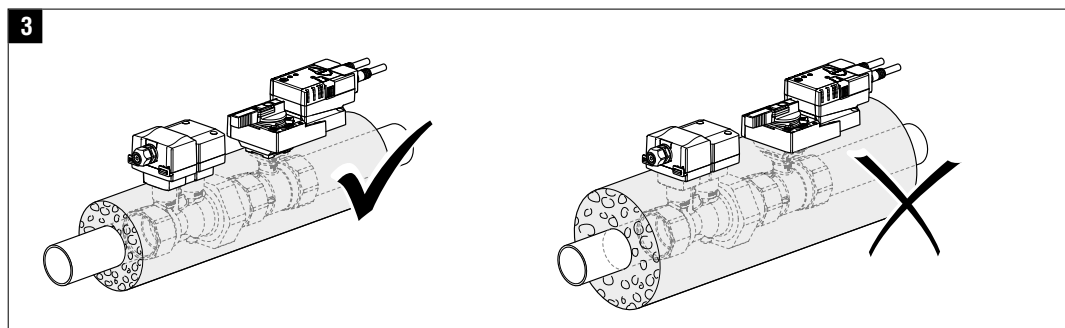
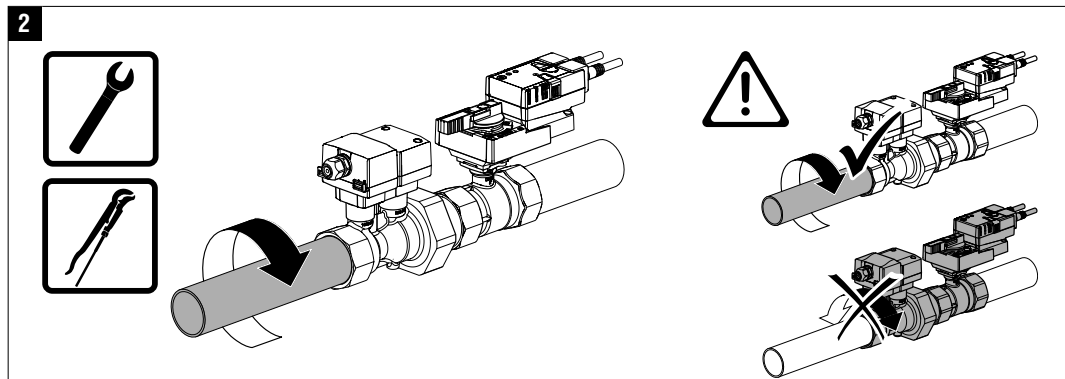
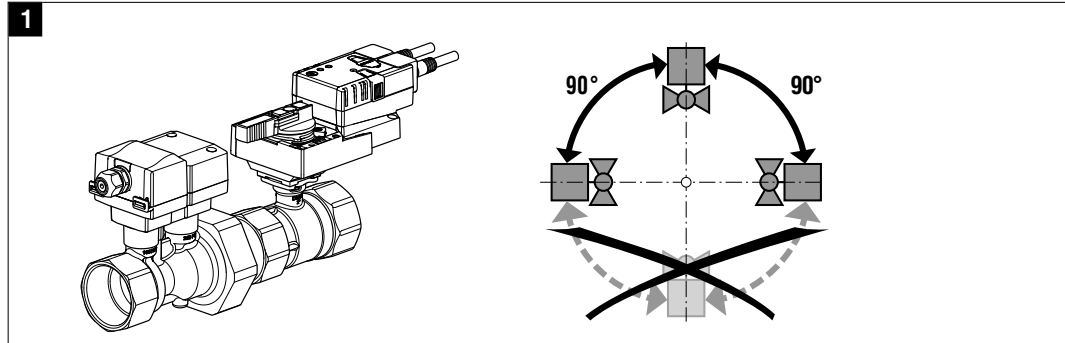
No requirements for outlet length.  
 Elbows can be installed directly after the valve.



## PIPING

The ePIV is recommended to be installed on the return side of the coil. PT ports are recommended on either side of the valve and the supply side of the heat transfer device to allow for pressure/flow measurement/calculation. Refer to ePIV technical documentation for flow verification and commissioning procedures.

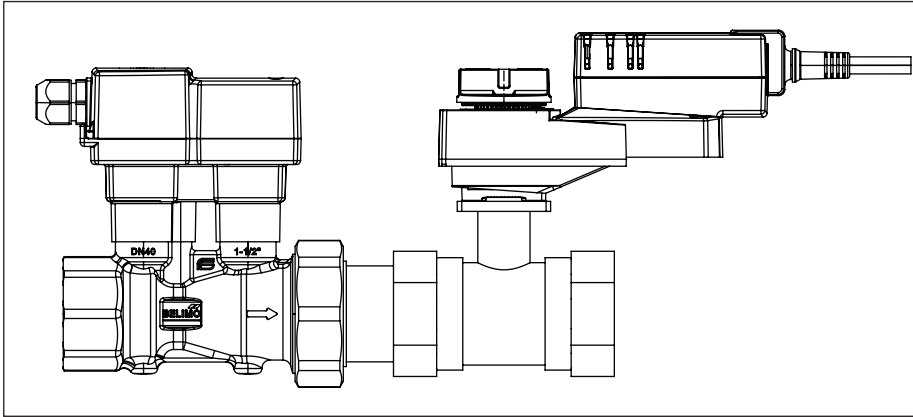
It is not necessary to install one strainer per unit. Belimo recommends installing one strainer per system. If the system has multiple branches, it is recommended to install one strainer per branch.



### General Warnings

- Valve should not be used for combustible gas applications. Gas leaks and explosions may result. Do not install in systems, which exceed the ratings of the valve.
  - Avoid installations where valve may be exposed to excessive moisture, corrosive fumes, vibration, high ambient temperatures, elements, or high traffic areas with potential for mechanical damage.
  - Valve assembly location must be within ambient ratings of actuator. If temperature is below -14°F a heater is required.
  - The valve assembly will require heat shielding, thermal isolation, or cooling if combined effect of medium and ambient temperatures – conduction, convection, and radiation – is above 122°F for prolonged time periods at the actuator.
  - Visual access must be provided. Assembly must be accessible for routine schedule service. Contractor should provide unions for removal from line and isolation valves.
  - Avoid excessive stresses. Mechanical support must be provided where reducers have been used and the piping system may have less structural integrity than full pipe sizes.
  - Sufficient upstream piping runs must be provided to ensure proper valve capacity and flow response. See installation section for details.
  - Life span of valve stems and O-rings is dependent on maintaining non-damaging conditions. Poor water treatment or filtration, corrosion, scale, other particulate can result in damage to trim components. A water treatment specialist should be consulted.
1. Inspect shipping package, valve, linkage, and actuator for physical damage. If shipping damage has occurred notify appropriate carrier. Do not install.
  2. If a replacement, remove existing valve, linkage and actuator from the piping system.
  3. If actuator and linkage are removed, they must be reinstalled correctly. The actuator must be rotated so that the valve seats properly for close off.
  4. Install valve with the proper ports as inlets and outlets. Check that inlet and outlet of 2-way valves are correct. Flow direction arrows must be correct.
  5. Blow out all piping and thoroughly clean before valve installation.
  6. Clean flanges with wire brush and rag. Clean pipes, flanges, and valve flanges before installation; check for any foreign material that can become lodged in trim components. Strainers should be cleaned after initial startup.
  7. Valve must be installed with the stem towards the vertical, not below horizontal.

# LRX, NRX, ARX, AKRX Actuators with Electronic Pressure Independent Valves (ePIV)



## WIRING DIAGRAM

LRX, NRX, ARX, AKRX	
<p>24 VAC/DC Transformer</p> <p>2 to 10 VDC control signal for Non-Spring Return and Electronic Fail-Safe</p>	<p>24 VAC Transformer</p> <p>4 to 20 mA control signal for Non-Spring Return and Electronic Fail-Safe</p>
<p>24 VAC/DC Transformer</p> <p>2 to 10 VDC control signal for Non-Spring Return and Electronic Fail-Safe</p>	<p>24 VAC Transformer</p> <p>Floating Control Signal</p>

BLK	RED	WHT	ORG
Black	Red	White	Orange
Negro	Rojo	Blanco	Anaranjado
Noir	Rouge	Blanc	Orange
Preto	Vermelho	Branco	Alaranjado

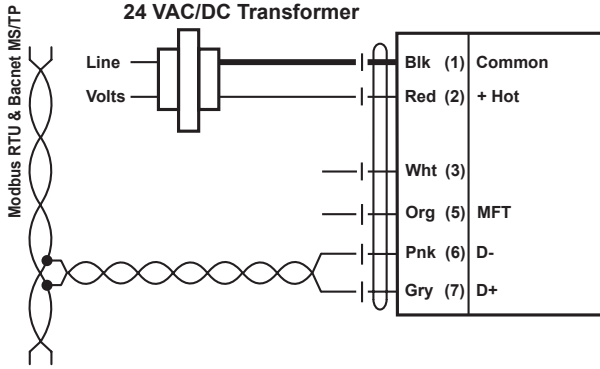
- 1 Provide overload protection and disconnect as required.
- 2 **CAUTION Equipment damage!**  
Actuators may be connected in parallel. Power consumption and input impedance must be observed.
- 21 IN4004 or IN4007 diode required.
- ◆ Meets UL requirements without the need of an electrical ground connection.

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# LRX, NRX, ARX Modbus Actuators with Electronic Pressure Independent Valves (ePIV)

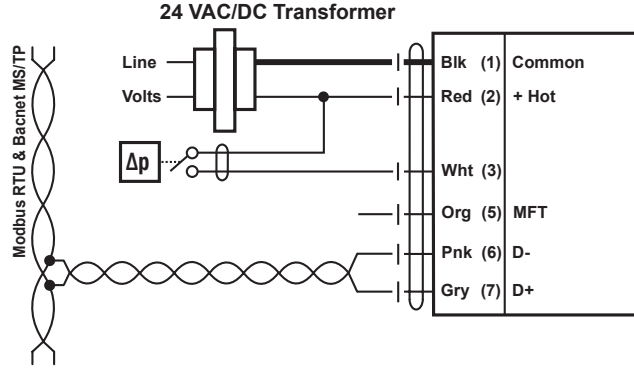
## WIRING DIAGRAM

### ModBus Actuators - LRX, NRX, ARX



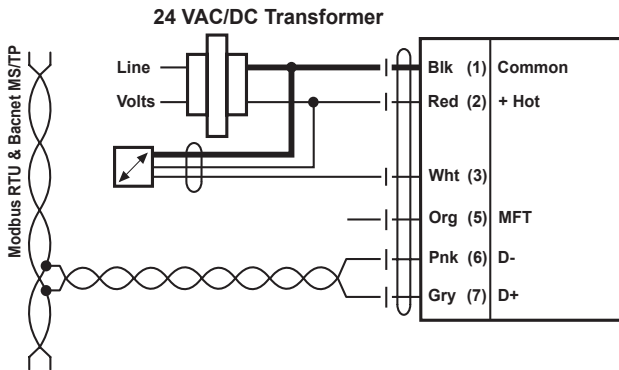
#### Modbus & BACnet control for Non-Spring Return

**Note:**  
 Modbus signal assignment: Power supply and communication are not galvanically isolated.  
 $C_1 = D- = A$   
 $C_2 = D+ = B$   
 Interconnect ground signal of the devices.



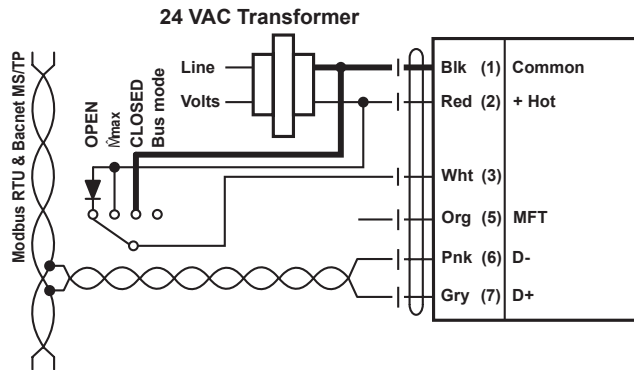
#### Modbus & BACnet control with switching contact for Non-Spring Return

**Requirements for switching contact:**  
 The switching contact must be able to accurately switch a current of 16 mA at 24 V.



#### Modbus & BACnet control with active sensor for Non-Spring Return

**Possible input voltage range:**  
 0...32 V (resolution 30 mV)



#### Modbus & BACnet control with local override (AC only, analog override) for Non-Spring Return

**Note:**  
 If no sensor is integrated, then connection 3 (Y) is available for the protective circuit of a local override control. Options: CLOSED,  $V_{max}$ , OPEN

BLK	RED	WHT	ORG	PNK	GRY
Black	Red	White	Orange	Pink	Gray
Negro	Rojo	Blanco	Anaranjado	Rosado	Gris
Noir	Rouge	Blanc	Orange	Rosa	Gris
Preto	Vermelho	Branco	Alaranjado	Cor-de ros	Cinza