



**Type: 2300R**

Pneumatic actuator direct mounted



**Type: 2310R**

Actuator fitted via mounting kit

**Type: 2320R**

Actuator fitted via TSM stem extension

### Pneumatic Actuator features:

- Rack and pinion construction
- Hard anodised extruded aluminium body
- Epoxy coated cast aluminium end caps
- Pre-tensioned spring sets, no special tools needed to change
- Low friction sliding parts
- Factory lubricated for life (high temperature grease available)
- ATEX approved for use in Zone 1 EExd applications
- Local visual position indicator
- ISO5211, VDI-VDE3845 & Namur compliant

### Applications:

Water, oil, air and many corrosive media, subject to compatibility with wetted parts in contact with media. Not approved for use on potable water.

Valve actuators sized on a maximum differential pressure of 10 bar wet service, operated at least once per day. If the intended duty differs from these parameters, or is dry (air or gas), please call to check actuator sizing as a larger output valve actuator may be required. Maximum working temperature of a direct mounted assembly is +80C, the temperature limit for the pneumatic actuator using standard grease. A factory option of high temperature grease is available.

For higher working temperatures, consider models that have a mounting kit or TSM stem extension between the valve and the pneumatic valve actuator which uses air cooling to dissipate the rising heat from the ball valve away from the actuator.

### 3 Way ball valve information:

Reduced bore stainless steel 3 way ball valve designed for automation with integrally cast ISO5211 actuator mounting platform. End connections are threaded BSP female.

3 Way ball valves are used to change the direction of flow as opposed to 2 way ball valves that simply isolate the flow.

Specifications:	
Actuator housing	Hard anodised aluminium
Hazardous area rating	ATEX II 2GD EExd
Actuator temp limits	-20 to +80°C
Assembly temp limits	PC2300E +80°C Direct mounted
	PC2310E +130°C Via mounting kit
	PC2320E +100°C Via extension
Valve body	CF8M (Cast 316SS)
Valve ball	316SS
Valve seats	RTFE
Valve Pressure rating	63 bar at ambient temp
Valve temp limits	-20 to +200°C
Size range	1/4" to 2"

### How this air operated 1/4 turn valve works (on-off):

Within the cylindrical bore of the actuator are 2 opposing aluminium pistons, each with an integrally cast rack, which is driven by a bearing supported nickel plated steel pinion.

The housing has air ports drilled to allow compressed air supplied via the air connection ports to flow either in to the cavity between the pistons to drive them apart, which via the rack & pinion system, rotates the actuator's output drive shaft, or into the cylinder between the pistons and end caps to drive the pistons together, which reverses the direction of rotation of the output shaft

### Actuator body coating options:

**Standard:** Hard anodized extruded aluminium body, with epoxy coated aluminium end caps.

**ENP:** Electroless nickel plated body and end caps

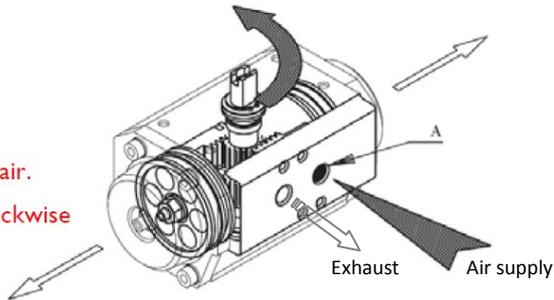
**Teflon®:** PTFE coated aluminium body & end caps

**Epoxy:** Epoxy coated aluminium body & end caps to your colour

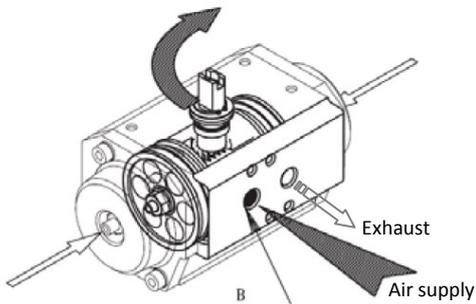
Actuator Information - air ports and standard direction of rotation (closes clockwise)

DA

Opening by air.  
Counter-clockwise



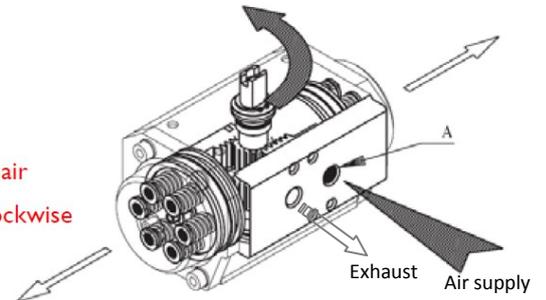
Closing by air.  
Clockwise



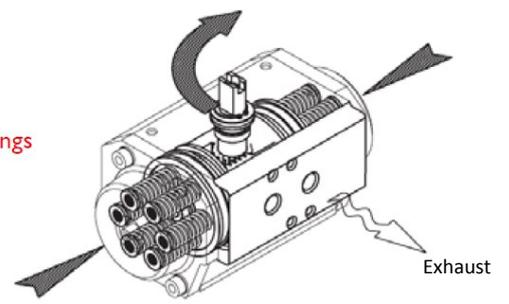
Double acting actuators - standard shaft rotation

SR

Opening by air.  
Counter-clockwise



Closing by springs.  
Clockwise

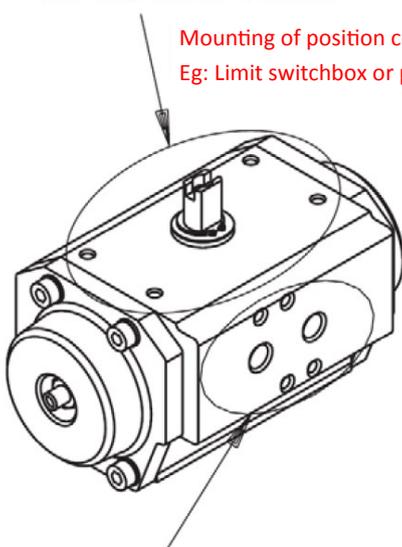


Single acting actuators - standard shaft rotation

Actuator Information - standards for mounting valves and accessories

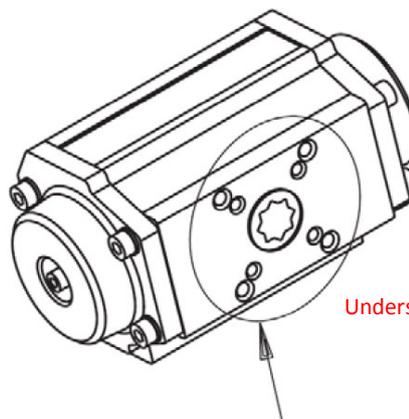
VDI-VDE 3845 (NAMUR)

Mounting of position control & monitoring devices  
Eg: Limit switchbox or positioner



VDI-VDE 3845 (NAMUR)

Mounting of Namur pilot solenoid valves



Underside of actuator

ISO 5211 - DIN 3337

Valve mounting

Method of assembly and accessories for position feedback, position monitoring and position control



**Safety Notice:**

Ensure positioner, switchbox and/ or solenoid are compatible with the intended installation area - is it a safe area, or a hazardous area? If hazardous, which Zone? We can supply either. Call to check if unsure.

**Positioner:** Sets the degree of opening of the actuator (and therefore valve) proportional to a control input signal. This signal can be either 4-20mA, or 0-15psi.

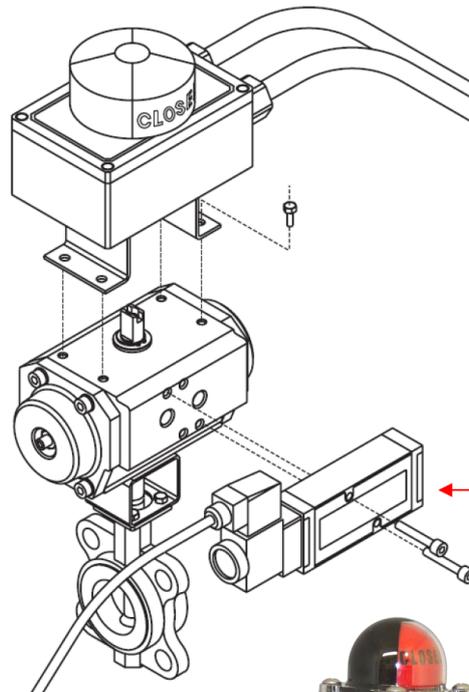
**Switchbox:** Internal switches, activated by cams or similar, driven by the actuator's pinion, make a circuit at end of travel (ie: full open, or full closed) to provide remote end of travel confirmation. Also has local visual position indicator

**Solenoid:** Provides electrical control of the pneumatic actuator. Air remains energised permanently, the solenoid valve switches to control the opening and closing of the actuator.

E-P Positioner mounted



Fit limit switchbox or positioner



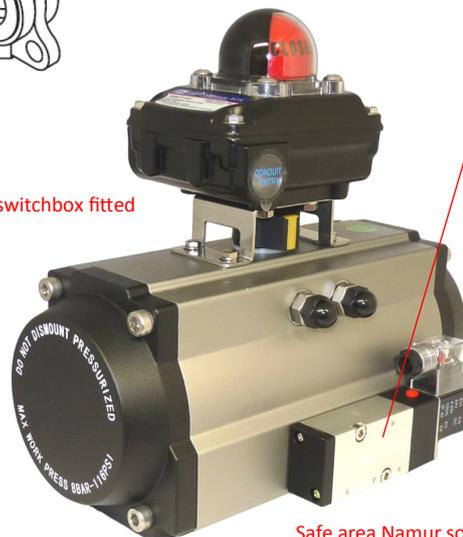
Fit Namur pilot solenoid



Exd -Zone 1 hazardous area pilot solenoid and switchbox fitted. On request the solenoid can be pre-wired to the switch-box.



Safe area switchbox fitted

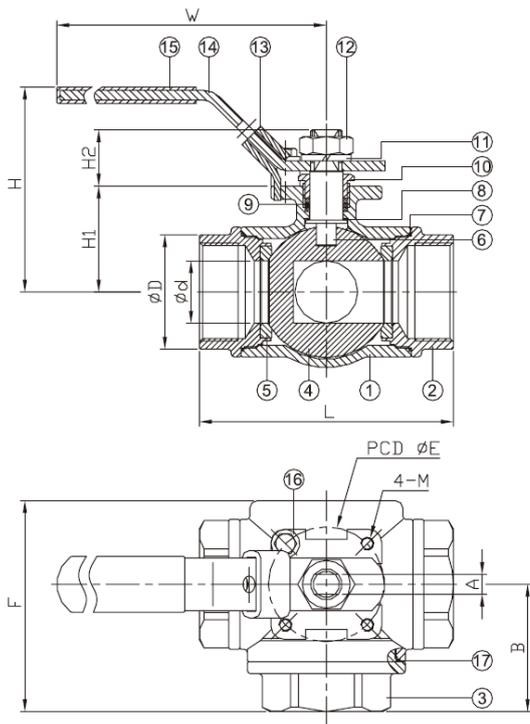


Safe area Namur solenoid fitted.

## Valve Data



- **L port / T port, 1/4"~2" (DN8~DN50)**
- W.P. : 1000 WOG (PN63)
- W.T. : -20°C~200°C (-4°F~392°F)
- Investment casting
- Blow-out proof stem
- Locking device
- Anti-static device (option)
- ISO 5211 Mounting pad
  
- Thread type : ASME B1.20.1 (NPT)  
DIN2999 & BS21  
ISO7/1 & EN10226



ITEM	PARTS	MATERIAL
1	BODY	ASTM A351-CF8M
2	CAP-A	
3	CAP-B	
4	BALL	
5	SEAT	PTFE
6	STEM	AISI 316
7	SEAL-A	AISI 304
8	THRUST WASHER	
9	PACKING	
10	GLAND NUT	
11	SPRING WASHER	AISI 304
12	STEM NUT	
13	LOCKING DEVICE	
14	HANDLE	PVC
15	HANDLE SLEEVE	
16	STOP PIN	AISI 304
17	SEAL-B	PTFE

### Dimensions:

DN	d	D	L	B	F	H	W	E	M	H1	H2	A	Torque (N-M)
8	11.6	25.5	76	37.3	58.5	67	153	42	M5	29.1	18	8	7.9
10	12.5	25.5	76	37.3	58.5	67	153	42	M5	29.1	18	8	8.1
15	12.5	25.5	76	37.3	58.5	67	153	42	M5	29.1	18	8	11.3
20	16	32	86	44	72	77	153	42	M5	38.5	20	8	14.5
25	20	38.5	99	49	81.5	83	183	50	M6	43	23	9.5	20
32	25	48.5	117	57	94.5	88	183	50	M6	47.8	23	9.5	23.8
40	32	58.5	124	61.3	104	116	246	70	M8	55.7	34	12.5	34.8
50	38	69.5	148	74.3	125	124	246	70	M8	64.5	34	12.5	58.1

unit:mm

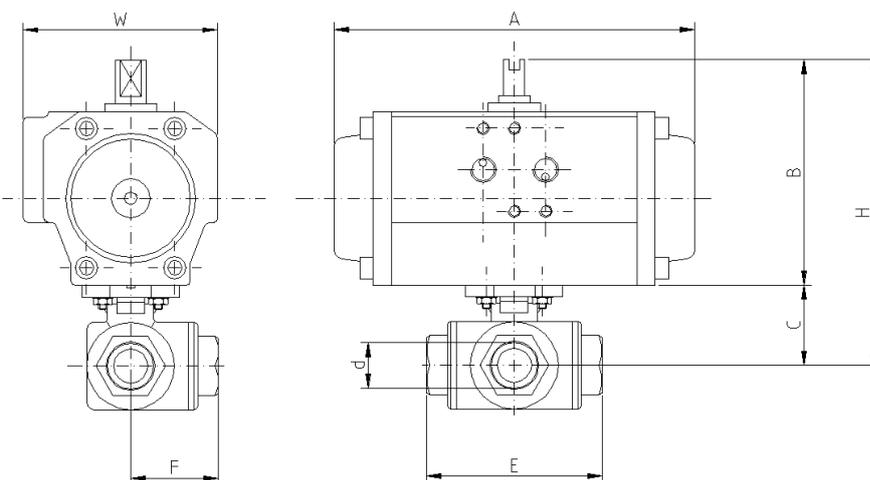
## Assembly Dimensions

Type: **2300E** Air actuator direct mounted to 3 way stainless steel ball valve

### 3 Way ball valve information:

Reduced bore 3 way ball valve designed for automation with integrally cast ISO5211 actuator mounting platform. End connections are threaded BSP female.

3 Way ball valves are used to change the direction of flow as opposed to 2 way ball valves that simply isolate the flow, and are available as either a L-port or T-port design. L-port diverter valves typically divert flow from the centre port to either output port. T-port valves are used for either mixing or diverting type flow functions. As a diverting valve the T port

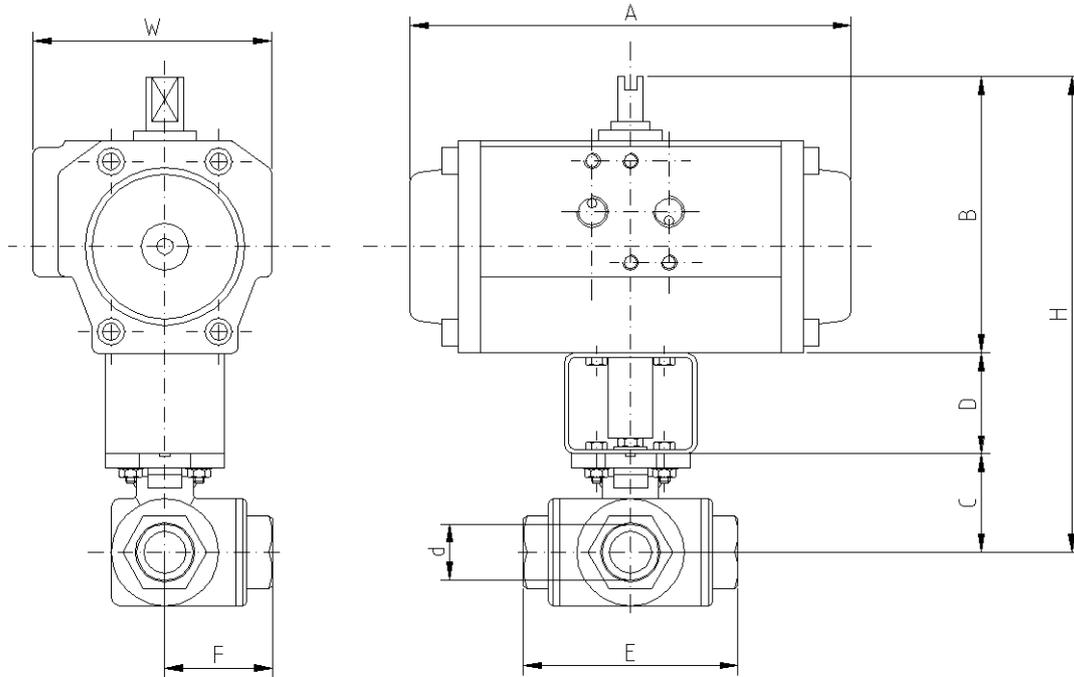


### Typical Dimensions:

Double Acting 3 Way Stainless Steel Ball Valve with direct mounted pneumatic actuator PC-2301E										
	Model	A	B	C	E	F	H	W	Kilos	Bore 'd'
1/4"										
3/8"										
1/2"										
3/4"										
1"										
1 1/4"										
1 1/2"										
2"										
Spring Return 3 Way Stainless Steel Ball Valve with direct mounted pneumatic actuator PC-2302E										
1/4"										
3/8"										
1/2"										
3/4"										
1"										
1 1/4"										
1 1/2"										
2"										

## Assembly Dimensions

Type: **2310E** Actuator assembled to 3 way stainless steel ball valve via a stainless steel mounting kit

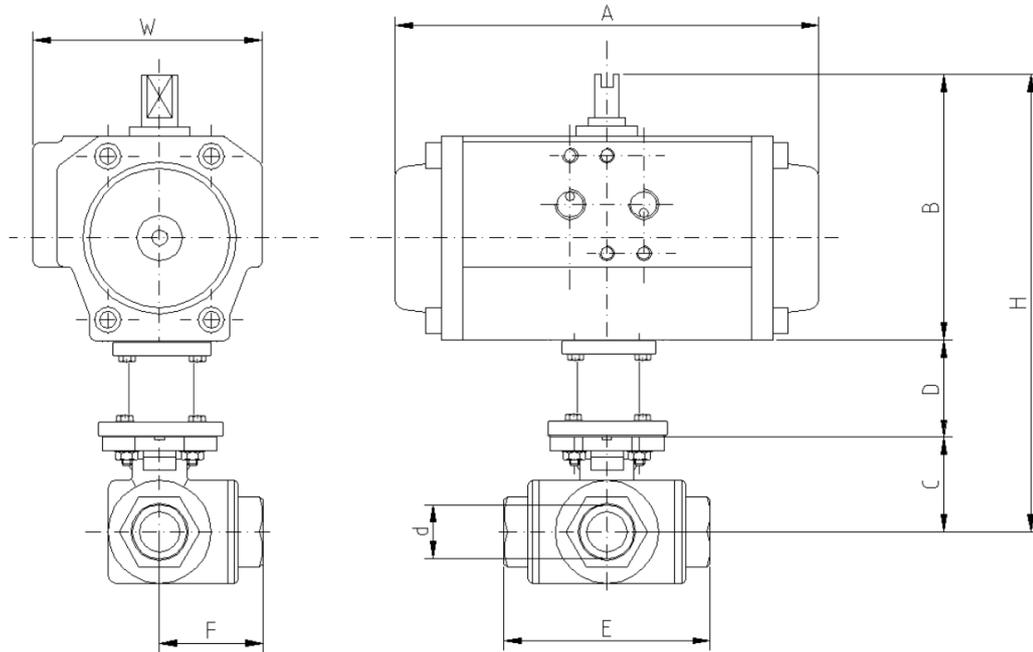


### Typical Dimensions:

Double acting 3 way stainless steel ball valve with pneumatic actuator fitted using a stainless steel mounting kit PC-2311E											
	Model	A	B	C	D	E	F	H	W	Kilos	Bore 'd'
1/4"											
3/8"											
1/2"											
3/4"											
1"											
1 1/4"											
1 1/2"											
2"											
Spring Return 3 way stainless steel ball valve with pneumatic actuator fitted using a stainless steel mounting kit PC-2312E											
1/4"											
3/8"											
1/2"											
3/4"											
1"											
1 1/4"											
1 1/2"											
2"											

## Assembly Dimensions

Type: **2320E** Air actuator mounted to 3 way stainless steel ball valve via stainless steel stem extension (TSM)



### Typical Dimensions:

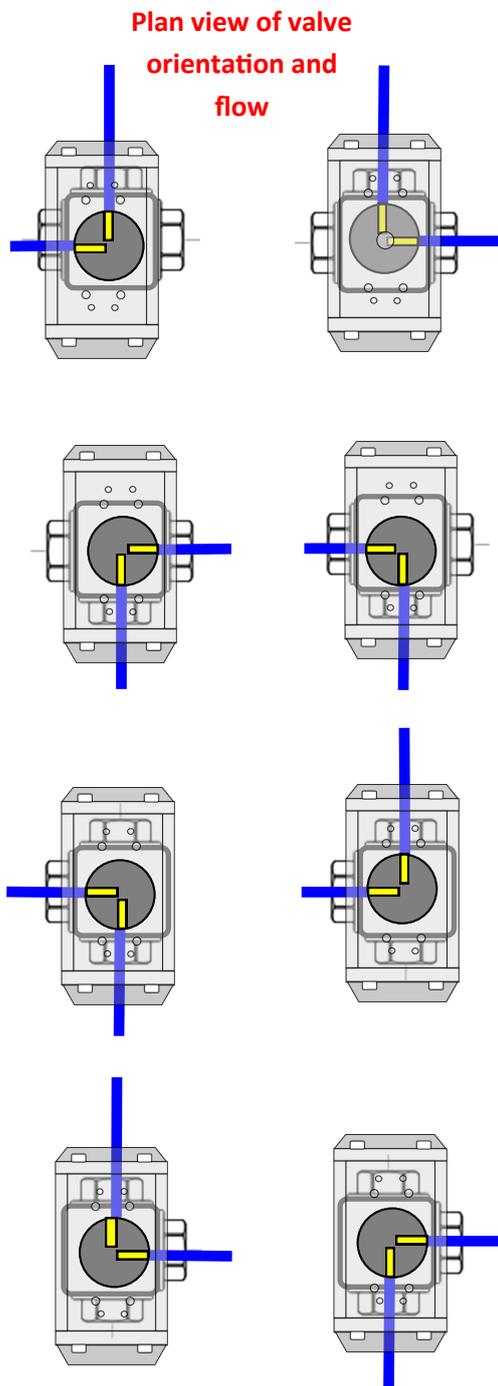
Double Acting 3 way stainless steel ball valve with pneumatic actuator fitted using a TSM stem extension PC-2321E											
	Model	A	B	C	D	E	F	H	W	Kilos	Bore 'd'
1/4"											
3/8"											
1/2"											
3/4"											
1"											
1 1/4"											
1 1/2"											
2"											
Spring Return 3 way stainless steel ball valve with pneumatic actuator fitted using a TSM stem extension PC-2322E											
1/4"											
3/8"											
1/2"											
3/4"											
1"											
1 1/4"											
1 1/2"											
2"											

#### Flow Path L 3 Way L port, diverting flow. Side entry style ball valve, all 3 ports in the same plane

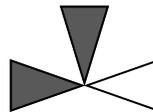
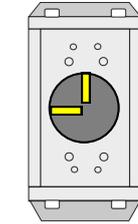
#### 3 Way ball valve information:

3 Way ball valves are used to change the direction of flow as opposed to 2 way ball valves that simply isolate the flow, and are available as either a L-port or T-port design. L-port diverter valves typically divert flow from the centre port to either output port. T-port valves are used for either mixing or diverting type flow functions. As a diverting valve the T port valve provides straight through flow in one position.

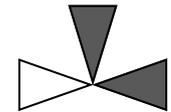
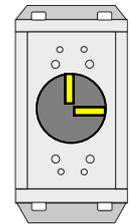
The following 3 pages show all the flow path options, depending on the valve and actuator orientation, for both L and T port 3 way ball valves.



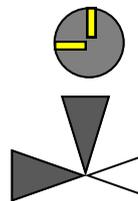
Actuator OPEN



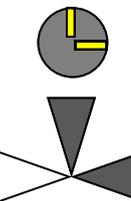
Actuator CLOSED



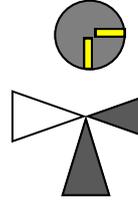
Actuator OPEN



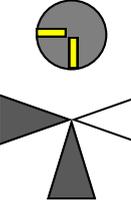
Actuator CLOSED



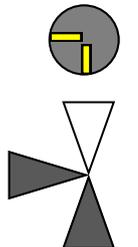
Actuator OPEN



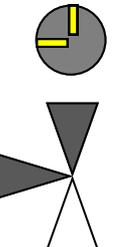
Actuator CLOSED



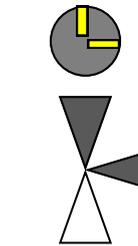
Actuator OPEN



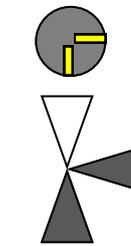
Actuator CLOSED



Actuator OPEN

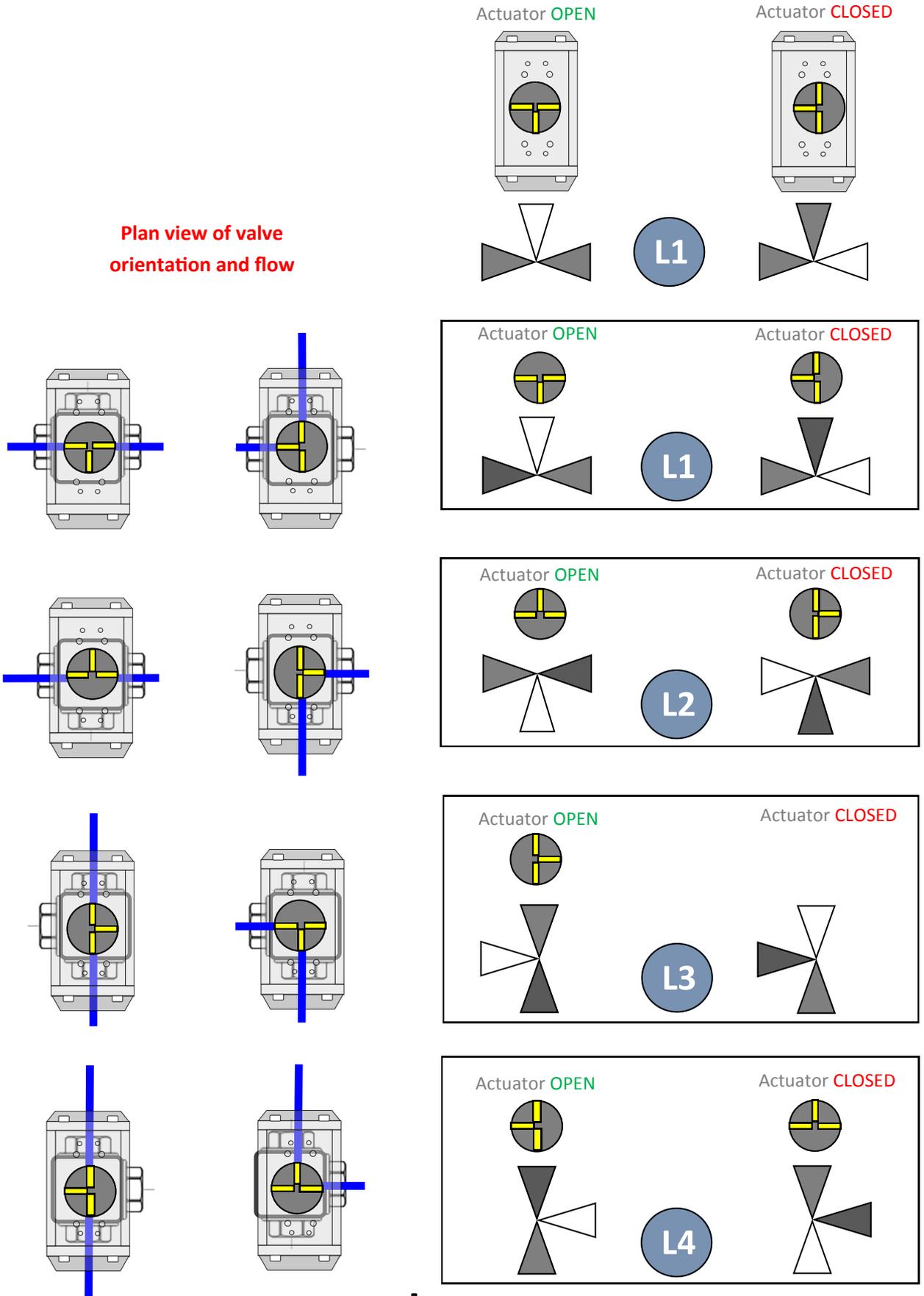


Actuator CLOSED



Flow Path TD 3 Way T port, diverting flow. Side entry style ball valve, all 3 ports in the same plane

Plan view of valve orientation and flow



Flow Path TM 3 Way T port, mixing flow. Side entry style ball valve, all 3 ports in the same plane

Plan view of valve orientation and flow

