

KS/KD Air Actuated Ball Valves

Ordering Part No. =
(e.g., KS 2-S-2-D-P)



Proximity Switch/Indicator

Electrical Connection

Namur Style Solenoid Valve



Fitting Name		Port Size (in)	Connection		Valve Body Type		Valve Material		Options	
Single Acting (Spring Return)	KS		1/4	NPT	(leave blank)	2 Way, Normally Closed	(leave blank)	316 Stainless Steel	(leave blank)	Namur Solenoid Valve
Double Acting (Air Return)	KD	3/8	Tri-Clamp	C	2 Way, Normally Open	O	Brass	B	Coil Voltage	
		1/2	Flange	F					12VDC	1
		3/4	BSPP	G					24VDC	2
		1	BSPT	R	24VAC	2A				
		1 1/4	Socket Weld	S	110VAC 50/60HZ	3				
		1 1/2	Butt Weld	W	220VAC 50/60HZ	4				
2			Coil Electrical		DIN	D				
2 1/2					2 Lead Wires	G				
3					1/2NPT for Conduit	N				
4					Explosion Proof Coil	E				
6					Proximity Switch, 2 SPDT (APL-210N)	P				
						Proximity Switch, 2 SPDT, Exp. Proof (APL-410)	X			

Part No. for Air Actuators only

Air Actuator Model	Bore Size (mm)	Acting Mode
AT= Air Actuator	032	D = Double Acting S = Single Acting
	050	
	063	
	075	
	088	
	100	
	125	
	145	
	160	

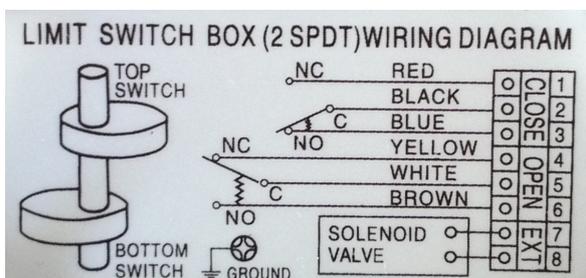
PROXIMITY SWITCH (POSITION INDICATOR & RELAY)			
Model	APL-210N	APL-310N	APL-410N
Picture			
Description	Proximity Switch (2 SPDT)	Proximity Switch (2 SPDT)	Explosion Proof Proximity Switch (2 SPDT)

Pneumatic Actuator Accessories

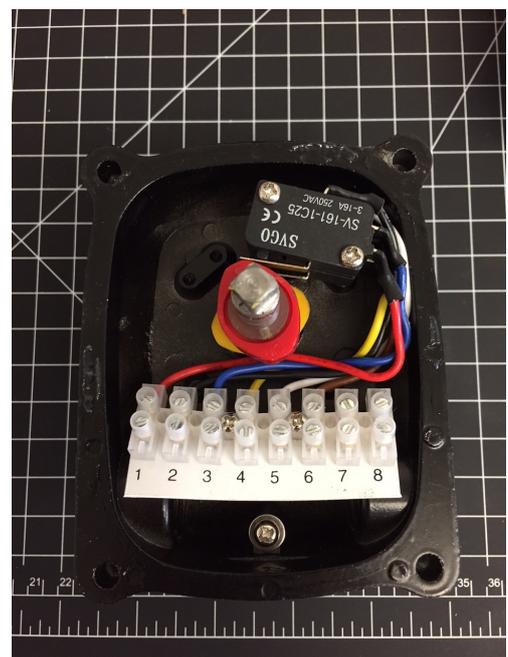


Model	Namur Solenoid Valves for Controlling Air Actuated Valves		
	Part No. = Model — Voltage Option — Electrical Options		
	Model	Voltage Options	Electrical Options
 Non-Exp. Proof	3 Way Namur Single Solenoid Valve (for Single-Acting Ball Valve)	3V310-1/4B	1 = 12 VDC 2 = 24VDC 2A=24VAC 3 = 110VAC 4 = 220VAC (50/60Hz)
	3 Way Namur Double Solenoid Valve (for Single Acting Ball Valve)	3V320-1/4B	
 Exp. Proof	4 Way Namur Single Solenoid Valve (for Double Acting Ball Valve)	4V310-1/4B	
	4 Way Namur Double Solenoid Valve (for Double Acting Ball Valve)	4V320-1/4B	
 Flow Control for Namur Valve		ASC N1/4B	D = DIN G = Grommet (12" Lead Wire) E = Explosion Proof

Model	STC Proximity Switches/Position Indicators				
	Part No.	Voltage	Current	Cable Entry	Specifications
	APL-210N	Max. 250VAC or DC	5A @ 8 to 14VDC 4A @ 30VDC 0.4A @ 125VDC 0.2A @ 250VDC 5A @ 125VAC, 3A @ 250VAC	(2) 1/2 NPT	Position Indicator for Rotary Actuator, IP 67 ENCLOSURE 2 SPDT Mechanical Limit Switches, Visual OPEN/CLOSED Indicator
	APL-310N	Max. 250VAC or DC	0.6A 125VDC, 0.3A 250V DC 16A 125 to 250VAC	(2) 1/2 NPT	Position Indicator for Rotary Actuator, 2 SPDT Mechanical Limit Switches, Visual OPEN/CLOSED Indicator
	APL-410	Max. 250VAC or DC	0.6A 125VDC, 0.3A 250VDC 15A 125 to 250 VAC	(2) 1/2 NPT	Explosion Proof Position Indicator for Rotary Actuator, Exd II BT6, IP 67 ENCLOSURE, 2 SPDT Mechanical Limit Switches, Visual OPEN/CLOSED Indicator



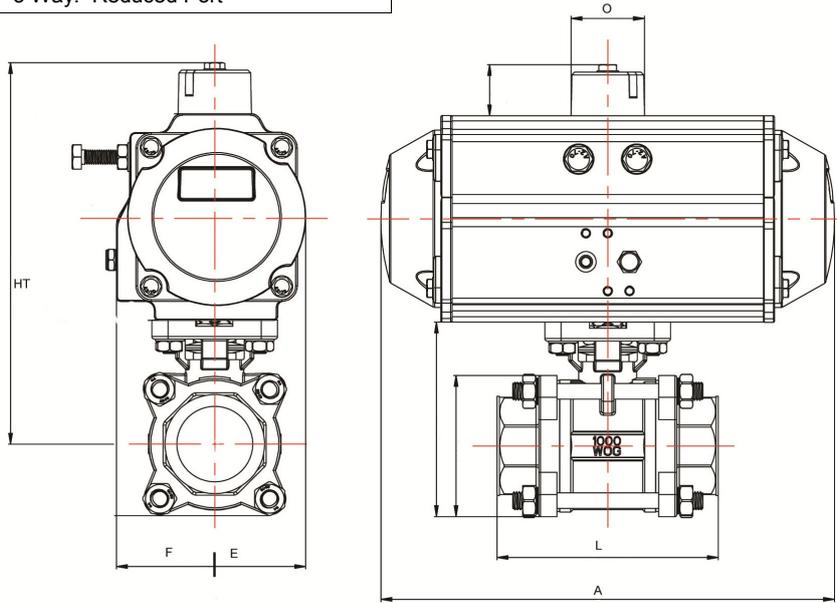
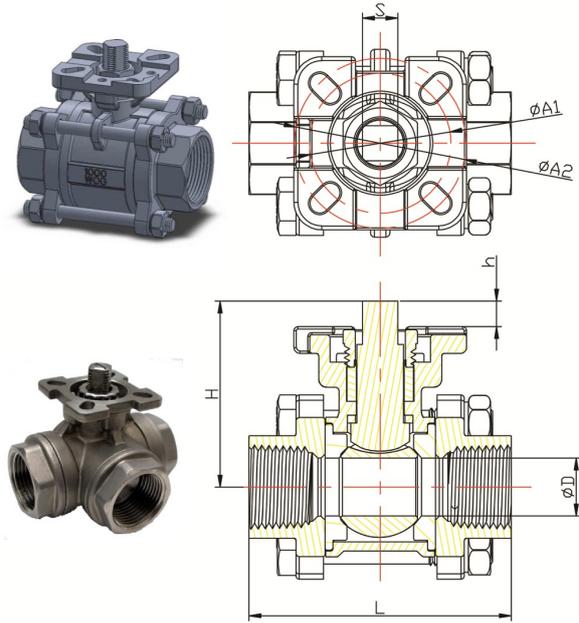
Wiring Diagram



Internal Wiring Setup

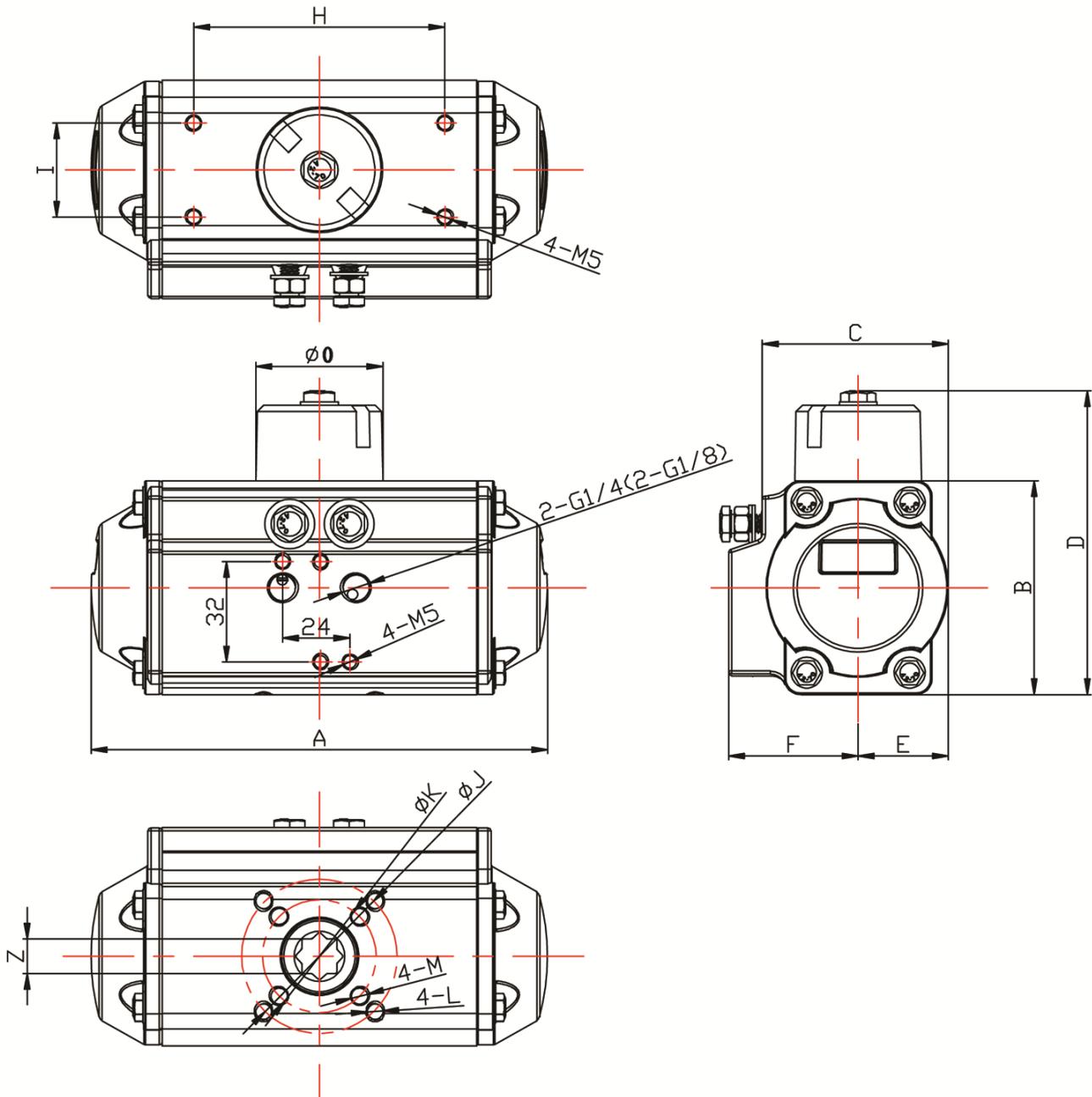
Air Actuated Ball Valve Size & Specifications

Actuated Valve Body Specifications	
Valve Body & Ball	316 Stainless Steel / CF8M
Seat Seals & Packing	PTFE
Service Medium	Air, Gas, Liquid, Steam, Water
Operating Pressure	1/2" to 2": 1000 PSI @ 100°F WOG 2 1/2" to 4": 800 PSI @ 100°F WOG
Media Temperature	-60 to 450 °F (-21 TO 232 °C)
Ambient Temperature	-4 to 176 °F (-20 TO 80 °C)
Maximum Viscosity	600 mm ² /s
Installation Orientation	Any Orientation
Controlling Medium	Air, Inert Gas
Controlling Pressure Range	45-120 PSI
Mounting standard	DIN 3203-M3, ISO 5211 MOUNTING PAD, ISO5211 PLATFORM
Port	2 Way: Full Port 3 Way: Reduced Port



Actuated Valve Body Dimensions (mm)																	
2 WAY	3 WAY	SIZE	D	L	H	h	S	Actuator Mounting: ISO05211		Actuator Bore Size (MM)							
								A1/(MM)	A2/(MM)	Single Acting	A	F+E	HT	Double Acting	A	F+E	HT
V3-1/2-A	V-1/2-L-A	1/2"	15	75	38	9	9	F03/36	F04/42	63	190	80	103	32	110	45.5	103
V3-3/4-A	V-3/4-L-A	3/4"	20	80	47	9	9	F03/36	F04/42	63	190	80	112	50	143	71	139
V3-1-A	V-1-L-A	1"	25	90	57.2	11	11	F04/42	F05/50	63	190	80	122.2	50	143	71	149.2
V3-1 1/4-A	V-1 1/4-L-A	1 1/4"	32	110	62.5	11	11	F04/42	F05/50	75	207	91	182	63	190	80	170.5
V3-1 1/2-A	V-1 1/2-L-A	1 1/2"	38	120	77.5	14	14	F05/50	F07/70	88	213	98.5	206.5	63	190	80	185.5
V3-2-A	V-2-L-A	2"	50	140	86.5	14	14	F05/50	F07/70	88	213	98.5	215.5	75	207	91	206
V3-2 1/2-A	V-2 1/2-L-A	2 1/2"	65	162	108	17	17	F07/70	F10/102	100	267	121	261	88	213	98.5	237
V3- 3-A	V- 3-L-A	3"	80	184	115	17	17	F07/70	F10/102	125	340	137.5	290	100	267	121	268
V3-4-A	V-4-L-A	4"	100	228	141	22	22	F07/70	F10/102	145	414	151	332.5	125	340	137.5	316

Rotary Air Actuator Dimensions & Specifications



Rotary Air Actuator Dimensions																				
Model Double Acting	Model Single Acting	Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	A120	A180	Air Connection
AT032D	AT032S	32	110	45	45	65	22.5	23	12	50	25		F03/36		M5X5	9				G1/8
AT050D	AT050S	50-52	143	72	55	92	30	41	14	80	30	F05/50	F03/36	M6X8	M5X8	11	40	158	200	G1/4
AT063D	AT063S	63	190	88	69	108	35	45	18	90	30	F07/70	F05/50	M8X13	M6X10	14	40	184	233	G1/4
AT075D	AT075S	75	207	99.5	100.5	119.5	38.5	52.5	20.5	80	30	F07/70	F05/50	M8X10	M6X8	14	40	203	243	G1/4
AT088D	AT088S	85-88	213	109	88	129	46	52.5	21	80	30	F07/70	F05/50	M8X13	M6X10	17	40	221	280	G1/4
AT092D	AT092S	92	258	117	98.5	137	50	61	21	80	30	F07/70	F05/50	M8X12	M6X10	17	40	280	374	G1/4
AT0100D	AT0100S	100-105	267	133	109	153	57	64	26	80	30	F10/102	F07/70	M10X13	M8X10	22	40	304	388	G1/4
AT125D	AT125S	125	340	155	120.5	175	67.5	70	27.5	80	30	F10/102	F07/70	M10X16	M8X13	22	65	365	470	G1/4
AT145D	AT145S	140-145	414	171.5	132	191.5	75	76	32	80	30	F12/125	F10/102	M12X20	M10X15	27	65	442	568	G1/4

NOTE: A120 and A180 represent the acting length of the 120° rotation travel and 180° rotation travel, respectively.

Rotary Air Actuator Dimensions & Specifications

AIR ACTUATOR KEY FEATURES:

1. Full conformance to the specifications of: ISO5211, DIN3337, VDI/VDE3845, NAMUR.
2. The extruded high strength aluminum bodies are precision honed and hard anodized yielding an internal bore surface that can provide low coefficient of friction, smooth performance and a long service life.
3. All acting surfaces are fitted with high quality bearings, resulting in low friction, quite and high cycle life.
4. The two independent external travel stop adjustment bolts can easily and precisely adjust up to $\pm 5^\circ$ at both open and closed directions.
5. Multifunction position indicator with NAMUR standard is convenient for mounting accessories.
6. Pre-compressed load springs are convenient for safe mounting and disassemble operations.
7. Die-casted aluminum pistons and end caps are high strength and light weight.
8. Optional Viton and Silicone seals are available for low and high temperature applications.

PNEUMATIC ACTUATOR SPECIFICATIONS

Actuator Standard	ISO5211, DIN3337, VDI/VDE3845, NAMUR
Actuator Controlling Pressure Range	45 to 120 PSI
Temperature Range	Standard: -4 to 176°F (-20 to 80°C) High Temperature Option: 5 to 302°F (-15 to 150°C) Low Temperature Option: -40 to 176°F (-40 to 80°C)
Materials	Housing & End Cap: Aluminum O-Rings: standard: Buna N, Options: fluorocarbon FKM, or silicone Mounting Bracket 316 stainless steel

PNEUMATIC ACTUATOR AND VALVE MODEL SELECTION

316SS 3 PIECE BALL VALVE SIZE	Double Acting Actuator Size (MM)	Single Acting Actuator Size (MM)	MOUNTING STD. ISO5211	Double Acting Torque (in-Lbs)	AIR PRESSURE*	MODEL NO.					
						Female NPT		Flange type		Butt weld type	
						SINGLE ACTING	DOUBLE ACTING	SINGLE ACTING	DOUBLE ACTING	SINGLE ACTING	DOUBLE ACTING
1/4"	32	50	F03-F04	87	100 PSI	KS-1/4	KD-1/4	KS-1/4F	KD-1/4F	KS-1/4W	KD-1/4W
3/8"	32	50	F03-F04	87	100 PSI	KS-3/8	KD-3/8	KS-3/8F	KD-3/8F	KS-3/8W	KD-3/8W
1/2"	32	63	F03-F04	87	100 PSI	KS-1/2	KD-1/2	KS-1/2F	KD-1/2F	KS-1/2W	KD-1/2W
3/4"	50	63	F03-F04	87	100 PSI	KS-3/4	KD-3/4	KS-3/4F	KD-3/4F	KS-3/4W	KD-3/4W
1"	50	63	F04-F05	226	100 PSI	KS-1	KD-1	KS-1F	KD-1F	KS-1W	KD-1W
1-1/4"	63	75	F04-F05	226	100 PSI	KS-1 1/4	KD-1 1/4	KS-1 1/4F	KD-1 1/4F	KS-1 1/4W	KD-1 1/4W
1-1/2"	63	75	F05-F07	405	100 PSI	KS-1 1/2	KD-1 1/2	KS-1 1/2F	KD-1 1/2F	KS-1 1/2W	KD-1 1/2W
2"	75	75-88	F05-F07	737	100 PSI	KS-2	KD-2	KS-2F	KD-2F	KS-2W	KD-2W
2-1/2"	88	100	F07-F10	1072	100 PSI	KS-2 1/2	KD-2 1/2	KS-2 1/2F	KD-2 1/2F	KS-2 1/2W	KD-2 1/2W
3"	100	125	F07-F10	1376	100 PSI	KS-3	KD-3	KS-3F	KD-3F	KS-3W	KD-3W
4"	125	125-145	F07-F10	2230	100 PSI	KS-4	KD-4	KS-4F	KD-4F	KS-4W	KD-4W

* Actuator Controlling Pressure Range 45 to 120 PSI

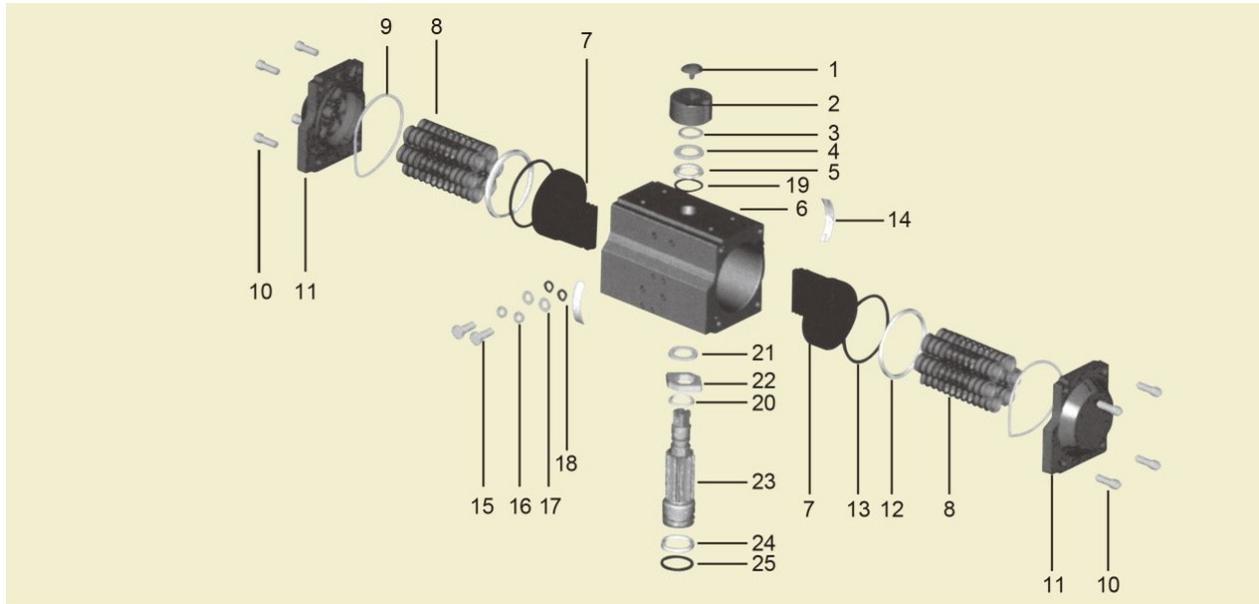
Torque Output

DOUBLE ACTING PNEUMATIC ACTUATOR TORQUE OUTPUT (in-Lbs)								
DA ACTUATOR SIZE	AIR PRESSURE (PSI)							
	40	50	60	70	80	90	100	115
32	34	43	55	64	71	82	87	101
50-52	85	110	133	156	179	203	226	261
63	154	196	238	280	321	363	405	458
75	284	360	435	511	586	661	737	850
85-88	408	518	629	740	851	962	1072	1238
92	527	668	810	951	1093	1234	1376	1588
100-105	858	1087	1315	1544	1773	2000	2230	2573
125	1409	1783	2157	2532	2906	3280	3654	4216
140-145	2209	2511	3013	3515	4018	4513	5015	5772

SINGLE ACTING PNEUMATIC ACTUATOR OUTPUT TORQUE (UNIT Nm)													
AIR PRESSURE (BAR)		3	4	5	6	7	Spring Stroke						
ACTUATOR SIZE	# OF SPRING	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
50-52	5	8.48	6.28	12.64	10.44							4	6.2
	6	7.68	4.98	11.84	9.14							4.8	7.5
	7	6.98	3.78	11.14	7.94							5.5	8.7
	8			10.34	6.74	14.5	10.9					6.3	9.9
	9			9.54	5.44	13.7	9.6					7.1	11.2
	10			8.74	4.24	12.9	8.4	17.06	12.56			7.9	12.4
	11					12.1	7.1	16.26	11.26	20.42	15.42	8.7	13.7
63	5	15	11.2	22.3	18.5	29.6	25.8					7	10.8
	6	13.5	9	20.8	16.3	28.1	23.7					8.5	12.9
	7	12	6.9	19.4	14.2	26.7	21.5					9.9	15.1
	8			18	12	25.3	19.3	32.6	26.6			11.3	17.3
	9			16.5	9.9	23.9	17.2	31.2	24.5			12.7	19.4
	10			15.3	7.7	22.6	15	29.9	22.3	37.2	29.6	14	21.6
	11			13.8	5.6	21.1	12.9	28.4	20.2	35.7	27.5	15.5	23.7
75	5	23.4	17.8	35.1	29.5							11.9	17.5
	6	21.1	14.3	32.8	26							14.2	21
	7	18.7	10.8	30.4	22.5							16.6	24.5
	8			28	19	39.8	30.8					19	28
	9			25.7	15.5	37.5	27.3					21.3	31.5
	10			23.3	12	35.1	23.8	46.8	35.5	58.6	47.3	23.7	35
	11					32.7	20.3	44.4	32	56.2	43.8	26.1	38.5
83-88	5	30.9	23.8	46.1	38.9							14.5	21.7
	6	28.1	19.5	43.3	34.6							17.4	26
	7	25.2	15.1	40.3	30.2							20.3	30.4
	8			37.4	25.9	52.6	41.1					23.2	34.7
	9			34.5	21.5	49.7	36.7					26.1	39.1
	10			31.6	17.2	46.8	32.4	62	47.6	77.1	62.7	29	43.4
	11					43.9	28.1	59.1	43.3	74.2	58.4	31.9	47.7
92	5	50.3	37.8	75.6	63							25.5	38
	6	45.2	30.2	70.4	55.4							30.6	45.6
	7	40.1	22.6	65.3	47.8							35.7	53.2
	8			60.2	40.2	85.5	65.5					40.8	60.8
	9			55.1	32.7	80.4	57.9					45.9	68.4
	10			50	25	75.3	50.3	100.6	75.6	125.8	100.8	51	76
	11					70.2	42.7	95.5	68	120.7	93.2	56.1	83.6
100-105	5	68.6	52	103.6	87							33.2	49.8
	6	61.9	42	96.9	77							39.9	59.8
	7	55.3	32.1	90.3	67.1							46.5	69.7
	8			83.7	57.1	116.6	90					53.1	79.7
	9			77	47.4	109.9	80.3					59.8	89.4
	10			70.4	37.2	103.3	70.1	137.3	104	171.2	138	66.4	99.6
	11					96.7	60.1	130.6	94	164.6	128	73	109.6
125	5	115.5	88	173.8	146.3							59.4	86.9
	6	103.6	70.6	161.9	128.9							71.3	104.3
	7	91.8	53.5	150.1	111.6							83.1	121.6
	8			138.2	94.2	196.5	152.5					65	139
	9			126.3	76.8	184.6	135.1					106.9	156.4
	10			114.4	59.4	172.7	117.7	231	176			118.8	173.8
	11					160.9	100.4	219.2	158.7	277.5	217	130.6	191.1
12					149	83	207.3	141.3	265.6	199.6	142.5	208.5	

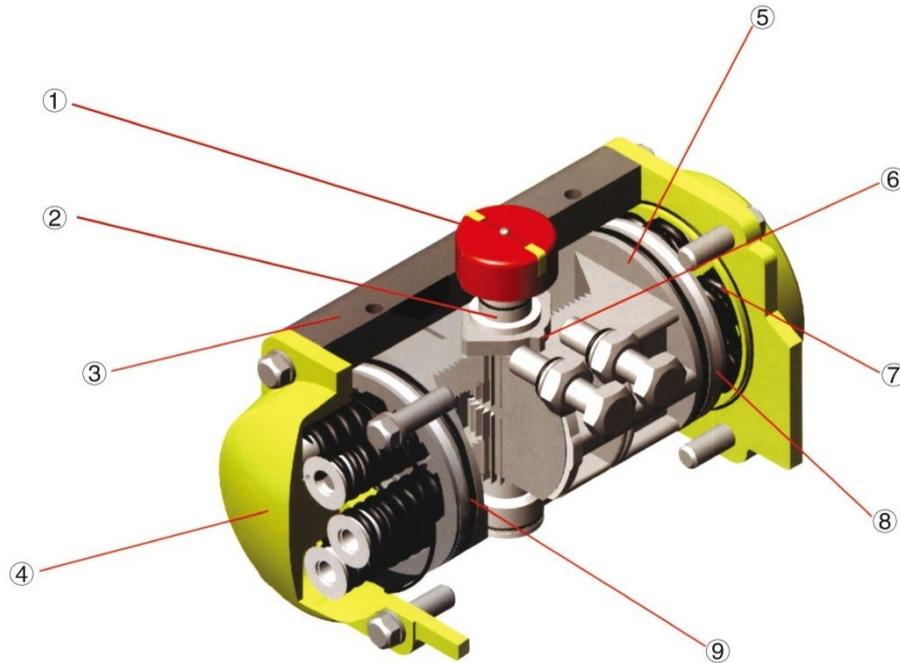
Materials of Construction

PNEUMATIC ACTUATOR MATERIALS OF CONSTRUCTION



NO.	NAME	QTY	MATERIAL	FINISH	OPTION
1	INDICATOR SCREW	1	PLASTIC		
2	INDICATOR	1	PLASTIC		
3	SPRING CLIP	1	STAINLESS STEEL		
4	WASHER	1	STAINLESS STEEL		
5	OUTSIDE WASHER	1	PTFE		
6	BODY	1	EXTRUDED ALUMINUM	HARD ANODIZED	
7	PISTON	2	EXTRUDED ALUMINUM	ANODIZED/ZINC GALVANIZED	STAINLESS STEEL
8	SPRING-INTEGRATED	*	SPRING STEEL	DIP COATING	
9	O-RING (END CAP)	2	NBR		VITON/SILICONE
10	CAP SCREW	8	STAINLESS STEEL		
11	END CAP	2	ALUMINUM ALLOY	POLYESTER POWDER PAINTED	
12	PISTON BEARING	2	ENGINEERING PLASTIC		
13	PISTON O-RING	2	NBR		VITON/SILICONE
14	PISTON GUIDE	2	ENGINEERING PLASTIC		
15	ADJUSTMENT SCREW	2	STAINLESS STEEL		
16	ADJUST SCREW NUT	2	STAINLESS STEEL		
17	ADJUSTMENT SCREW WASHER	2	STAINLESS STEEL		
18	ADJUSTMENT SCREW O-RING	2	NBR		VITON/SILICONE
19	PINION TOP O-RING	1	NBR		VITON/SILICONE
20	PINION TOP BEARING	1	ENGINEERING PLASTIC		
21	INSIDE WASHER	1	PTFE		
22	CAM	1	ALLOY STEEL		
23	PINION	1	ALLOY STEEL	NICKEL PLATED	STAINLESS STEEL
24	PINION BOTTOM O-RING	1	ENGINEERING PLASTIC		
25	PINION BOTTOM BEARING	1	NBR		VITON/SILICONE

Internal Structure

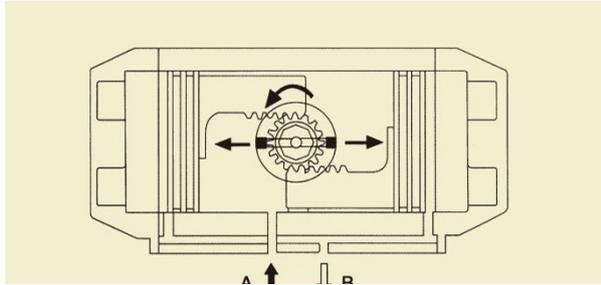


1. Indicator: Position indicator with NAMUR standard is convenient for mounting accessories such as Limit Switch box positioned etc.
2. Pinion: The pinion is high precision and integrative, made from nickel plated alloy steel, full conform to the latest standards of ISO5211, DIN3337, VDI/VDE3845, NAMUR. The dimensions and the stainless steel option can be customized for specific applications.
3. Actuator Body: The extruded aluminum alloy ASTM 6005 body can be treated with hard anodized, polyester power coated, PTFE or Nickel Plated.
4. End Caps: Die-casting aluminum polyester powder coated, PTFE or Nickel-plated.
5. Pistons: The twin rack pistons are made from die-casted aluminum treated with hard anodized or made from casted steel with galvanization. Symmetric mounting position, long cycle life and fast operation, reversing rotation by simply inverting the pistons.
6. Travel Adjustment: The two independent external travel stop adjustment bolts can adjust $\pm 5^\circ$ at both open and close direction easily and precisely.
7. High performance spring: Preloaded coated springs are made from high quality material for resistant to corrosion and long service life, which can be dismantled safely and conveniently to meet different torque requirements by changing the number of springs.
8. Bearing and Guides: Made from low friction, long-life compound material, to avoid the direct contact between metals. The maintenance and replacement are easy and convenient.
9. O-rings: Standard: NBR, High and low temperature; Viton or Silicone are available as options.

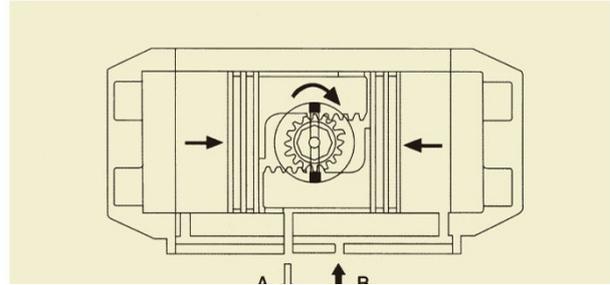
Principles of Operation

PNEUMATIC ACTUATOR PRINCIPLE OF OPERATION

1. Double Acting

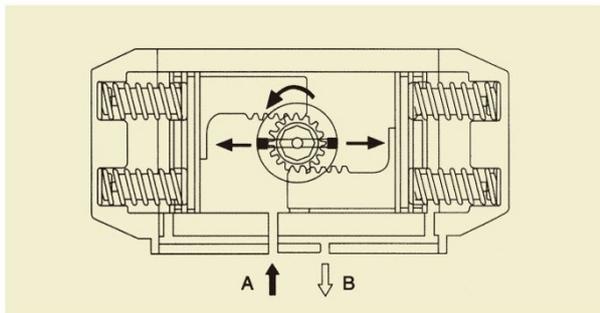


Air into Port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air being exhausted from Port B.

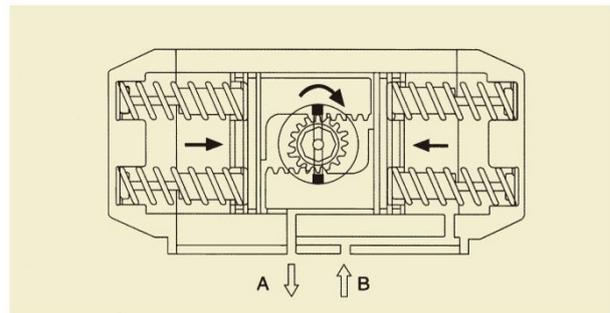


Air into Port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from Port A.

2. Single Acting:

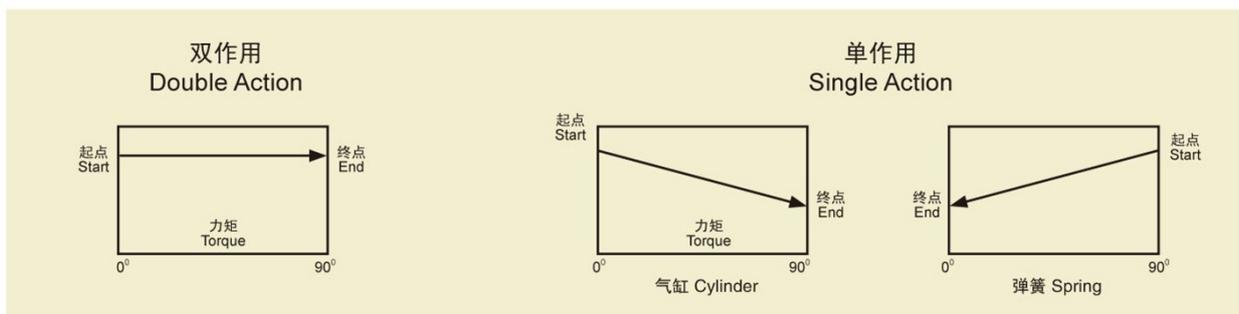


Air into Port A forces the pistons outwards, causing the springs to compress, the pinion turns counterclockwise while air is being exhausted from Port B.



In the event of loss air pressure or power, the stored energy in the springs forces the pistons inwards, causing the pinion turns clockwise while air is being exhausted from Port A, and air to Port B can accelerate closing the valve.

PNEUMATIC ACTUATOR TORQUE DIAGRAM



Namur Solenoid Valve Installation

1. Lay out the KS/KD series air actuated ball valve with the control ports on the air actuator facing upward as in FIG. 1 below.
2. Make sure the O-ring(s) is properly seated on port in the Namur solenoid valve as in FIG. 2 below.
3. Put the Namur solenoid valve on top of the KS/KD actuator with the solenoid coil on the left side as shown in FIG. 3.
4. Fasten the Namur solenoid valve onto the KS/KD actuator with the two socket head screws as shown in FIG. 4 and tighten to 1.5 to 2 lb-ft. torque.
5. Connect the supply air to port P as shown in FIG. 4, connect a muffler to the exhaust port is recommended.
6. Follow the electrical connection procedure to connect the coil on the Namur solenoid valve.

FIG. 1

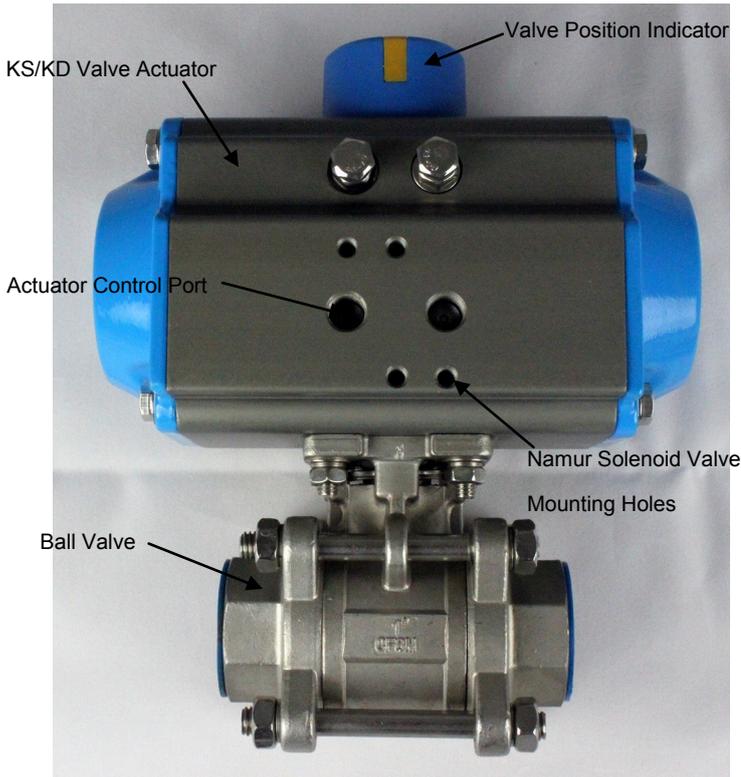


FIG. 2

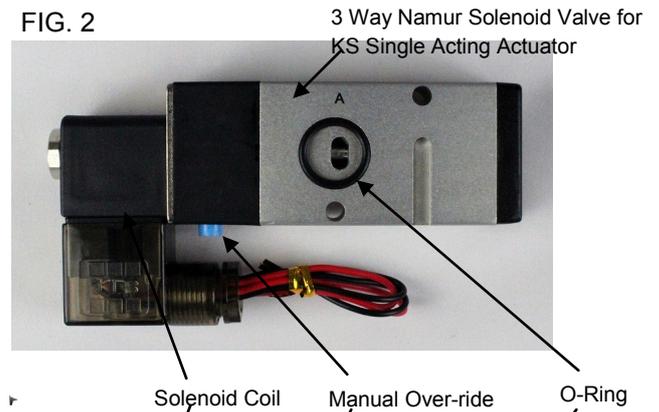


FIG. 2A



FIG. 3

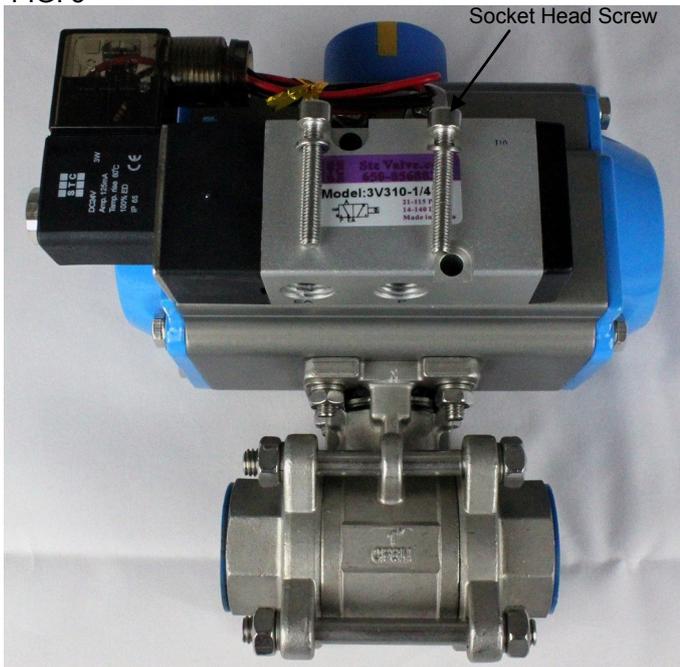


FIG. 4



Electrical Connection Procedure

ELECTRICAL CONNECTION PROCEDURE

A: DIN Connector:

[1] Remove the Philip screw from the plastic housing.

[2] Unplug the plastic housing from the DIN coil.

[3] From the screw opening, use the screw to push the terminal block out of the plastic housing.

[4] Note the 1, 2, and ground markings on underside of DIN enclosure.

[5] For DC DIN coil, connect 1 to positive, 2 to negative.

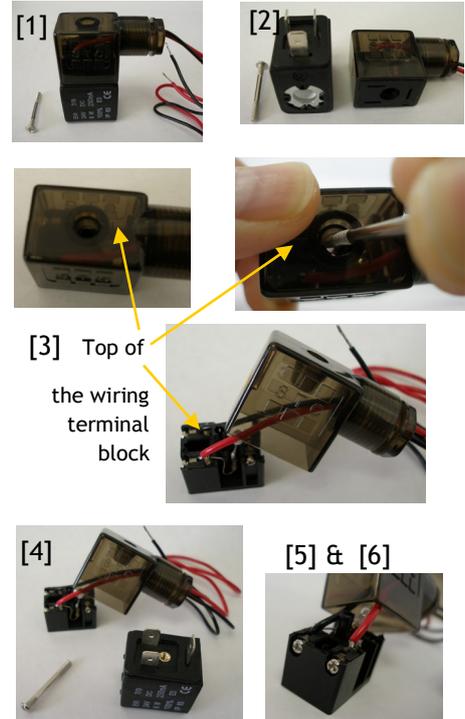
[6] For AC DIN coil, connect 1 to HOT wire, 2 to neutral wire, and if required connect ground to ground wire.

B: Grommet/Lead Wire Connector:

DC: Red=Positive, Black=Negative

AC: Black=Hot, White=Neutral/Common

To download detail procedure: please visit www.StcValve.com



Installation Guide

Note: This valve is designed to be controlled by air flow only. Any kind of COMPATIBLE fluid may flow through the valve body.

Warning: When tightening any connections to the valve, do not use the actuator as leverage. Doing so may damage the joint between the actuator and the valve.

Adjusting the valve's default position:

1. Remove the four bolts underneath the actuator.
2. Separate the actuator from the valve.
3. Rotate the valve to the desired default position.
4. Place the actuator back on the valve and screw everything back into place.

Connection to fluid supply:

1. Connect the main fluid ball valve to the primary source and primary outlet.
2. Connect the control supply to the actuator. If the actuator is double acting, air supplied to the right port will open the valve, and the air supplied to the left port will close the valve.

Connection to Position Indicator:

1. Remove the bolt and cap covering the slot at the top of the actuator.
2. Set the indicator to the default/current position and place it so that the key fits in the slot.
3. Screw the bracket holding the indicator in place.

Adjustment:

The angle of the actuator can be adjusted if the actuator becomes misaligned during operation. To realign the actuator, adjust the two screws near the top of the actuator, above the air supply ports. Ensure that the screws are tightened down after adjustment.

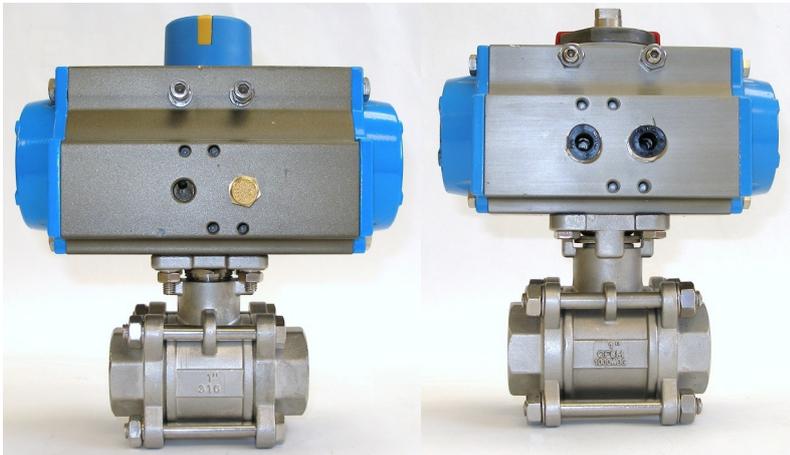


Figure 1: [Left] Model KS-1 and [Right] Mode KD-1. Main valve body is under the actuator.



Figure 2: KD-1 1/2 with solenoid controller and indicator attached.



Figure 3: Valve without actuator. The key may be rotated to either normally open or closed position.

Maintenance

Note: This valve is designed to last for an extended time period. However, common maintenance is necessary. If a leak begins to develop on the valve body, please consult these common maintenance procedures for a solution.

Warning: When tightening any connections to the valve, do not use the actuator as leverage. Doing so may damage the joint between the actuator and the valve.

Tightening the seal between the valve and the actuator:

This valve does not have a dynamic seal (i.e. no spring), therefore as the valve ages, the seal between the valve and the actuator body must be periodically tightened manually.

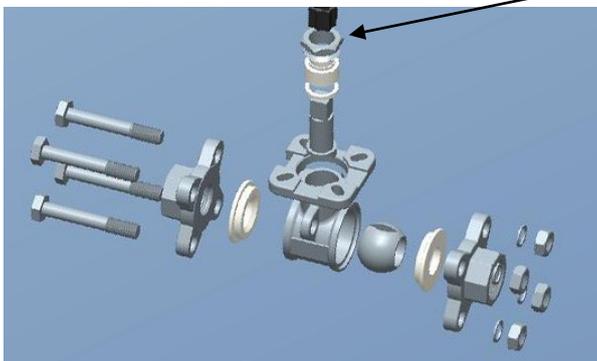
1. Remove the four bolts underneath the actuator.
2. Separate the actuator from the valve.
3. Tighten the nut on the top of the valve body. See figure one for location.
4. Place the actuator back on the valve and screw everything back into place.

Tightening the seals between the valve and the inlet/outlet ports:

Leaks developing in the inlet/outlet ports are often caused by inconsistent tightening of the torque bolts on the valve body. If this occurs, make sure to use a consistent method of tightening these bolts to ensure consistent torque.

1. Remove the torque bolts and check for any debris or damage to the gaskets.
2. Use a torque wrench or other consistent method of tightening the torque bolts to reconnect the inlet and outlet ports.

Reference Figures:



Tightening Nut

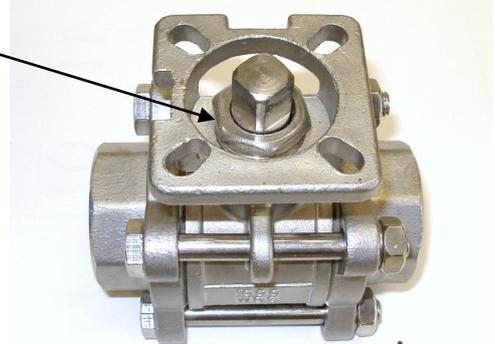


Figure 2: Valve Body without actuator with tightening nut indicated.

Figure 1: Exploded view of valve body with tightening nut indicated.

Torque Bolts (4x)

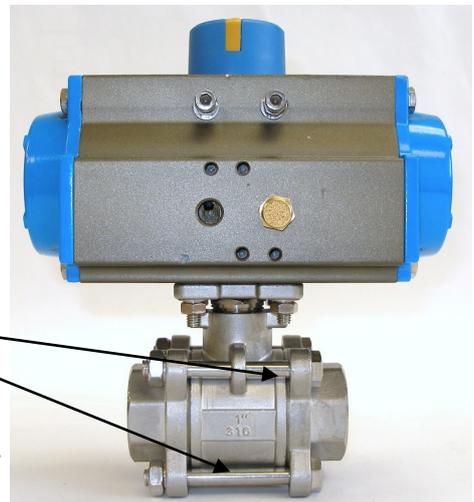
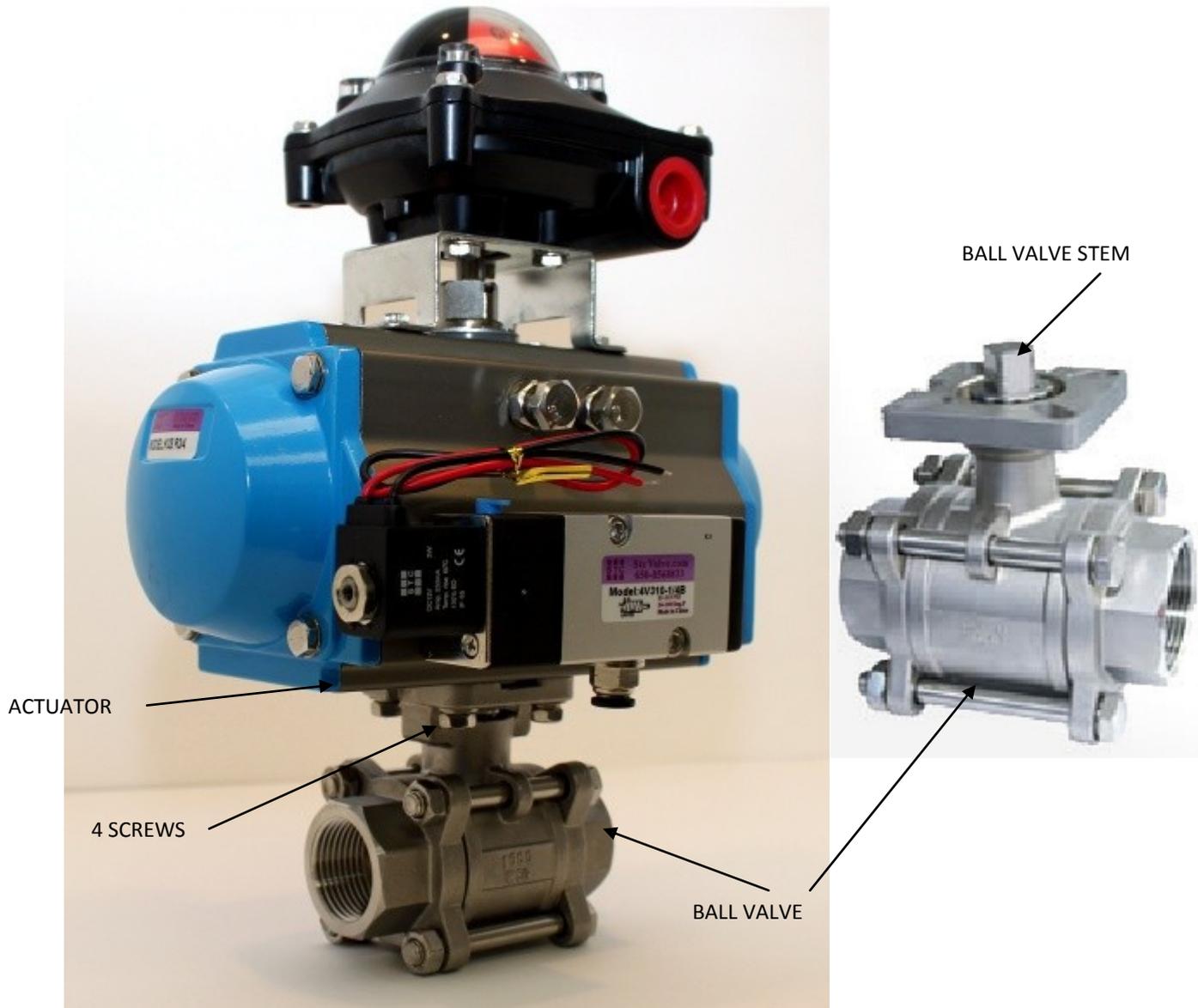


Figure 3: Model KS-1 with torque bolts indicated.

Reconfiguration



To re-configure a normally closed valve to a normally open valve:

1. Turn off the air supply to the air actuator
2. Remove the 4 SCREWS on the bottom of the ACTUATOR
3. Remove the BALL VALVE from the ACTUATOR
4. Turn the BALL VALVE STEM on the ball valve 90 degree such at the valve is fully open (visually inspect the ball to make sure it is open)
5. Put the BALL VALVE back into the ACTUATOR and re-install the 4 SCREWS.

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All shipments are F.O.B. 892 Commercial Street, Palo Alto, CA 94303, USA. Most orders are shipped via UPS Standard Ground unless instructions accompany order. Outside the UPS zones, shipment will be made Best Way. The responsibility for goods delay, lost or damaged in transit rests with the carrier and purchaser. Purchaser may purchase shipping insurance to cover lost or damaged products caused by shipping.

RETURN OF MERCHANDISE:

No merchandise is accepted for return 30 days after delivery date. No credit allowed on merchandise shipped as ordered and returned without obtaining an authorization number IN ADVANCE. A 20% restocking charge applies to all returns, and transportation charges must be fully prepaid. We will pay **ground** transportation charges on re-sent or returned merchandise due to STC's error.

Shortages & Mis-Shipments: Any shortages or mis-shipment must be reported within 15 days.

Remittances should be sent to:

Sizto Tech Corporation

892 Commercial Street, Palo Alto, CA 94303, USA

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Credit Application: To establish a net 30 day account, please mail or fax three trade references with complete mailing addresses and account numbers.

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