

# TRIAQ<sup>®</sup>

CONTROLS

A Division of A-T Controls, Inc.

## *Pneumatic Rotary Actuators and Accessories*





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**ATEX** **CE** 0425

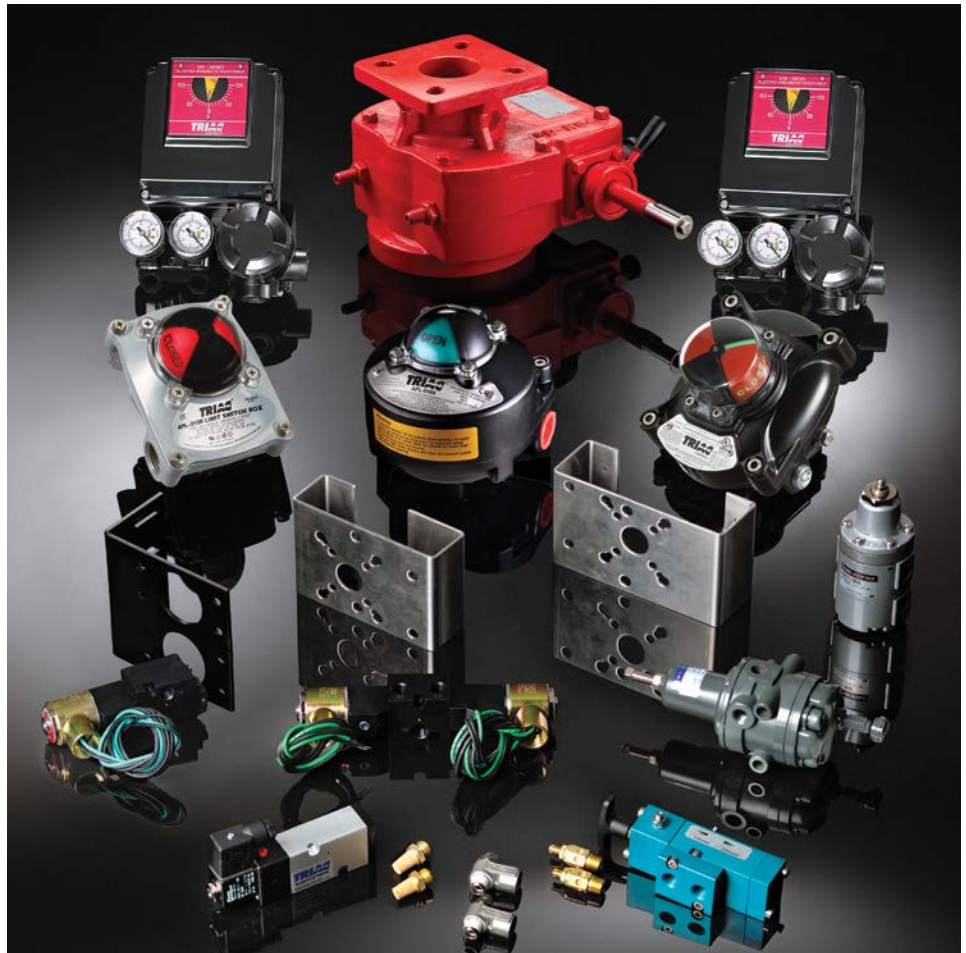
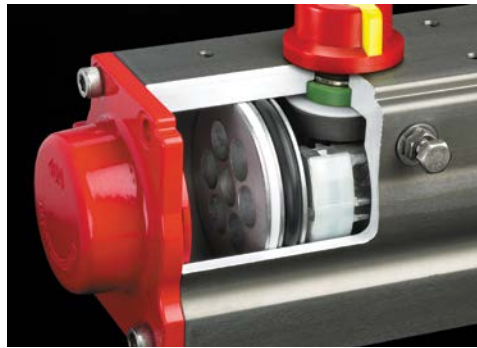


## FEATURES

# TRIAC

TRIAC® pneumatic actuators are designed and manufactured to provide the highest cycle-life on the market. We can accessorize them to accomplish virtually any control requirement. They are available with various mounting dimension configurations and span eleven models for appropriate torque compatibility. Our extensive inventory and engineering capabilities allow us to respond to your needs with flexibility. We pride ourselves on exceeding customer expectations. Contact us for application assistance.

- ▶ Double acting and spring return
- ▶ Dual travel stops
- ▶ Torques to 36,000 In-lbs
- ▶ DA and SR common end caps
- ▶ ISO 5211 / DIN 3337 mounting pad dimensions
- ▶ Wide base for direct mount to many butterfly valves
- ▶ Substantial pinion bearings mean high cycle life
- ▶ Corrosion resistant hard anodized finish
- ▶ Each unit serialized
- ▶ VDI/VDE 3845 accessory mounting configuration
- ▶ Custom accessory mounting
- ▶ NAMUR solenoid mounting pad



See accessory page for details



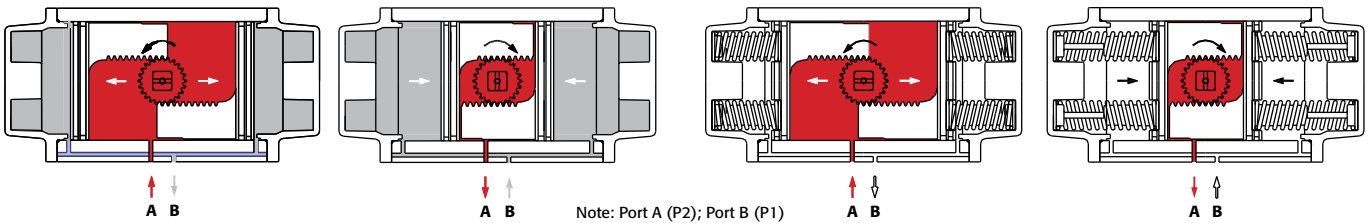
# GENERAL TECHNICAL DATA



- Standard working temperature -5°F to 175°F
- Low temperature and high temperature option
- Maximum working pressure 150 psig
- Operating media - clean, dry air, non-corrosive gas or light hydraulic oil

- Air supply 40 psi - 150 psi
- Rotation 100°
- Dual travel stops standard
- Mounting dimensions
  - Accessories to NAMUR - VDI/VDE 3845
  - Valve mounting to ISO 5211 (TR10 - 2R3500)
  - Custom configurations available in quantity
- Permanently lubricated units

## Operation



### Double Acting Operation

#### CCW

Air is supplied to Port A forcing the pistons away from each other (toward ends), rotating drive pinion counterclockwise and exhausting air out of Port B.

#### CW

Air is supplied to Port B forcing the pistons toward each other (toward center), rotating drive pinion clockwise and exhausting air out of Port A.

### Spring Return Operation

#### CCW

Air is supplied to Port A forcing the pistons away from each other (toward ends), rotating drive pinion counterclockwise, compressing springs and exhausting air out of Port B.

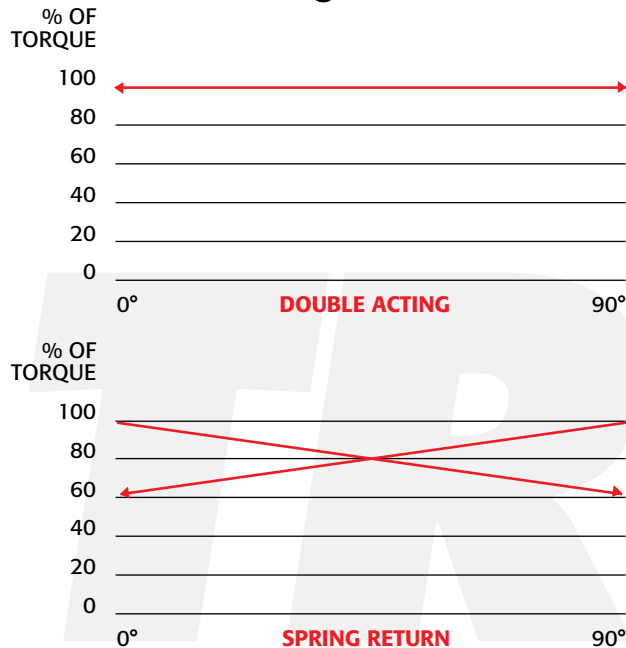
#### FAIL CW

Air failure (loss of pressure) allows compressed springs to force pistons toward each other (toward center), rotating drive pinion clockwise and exhausting air out of Port A.

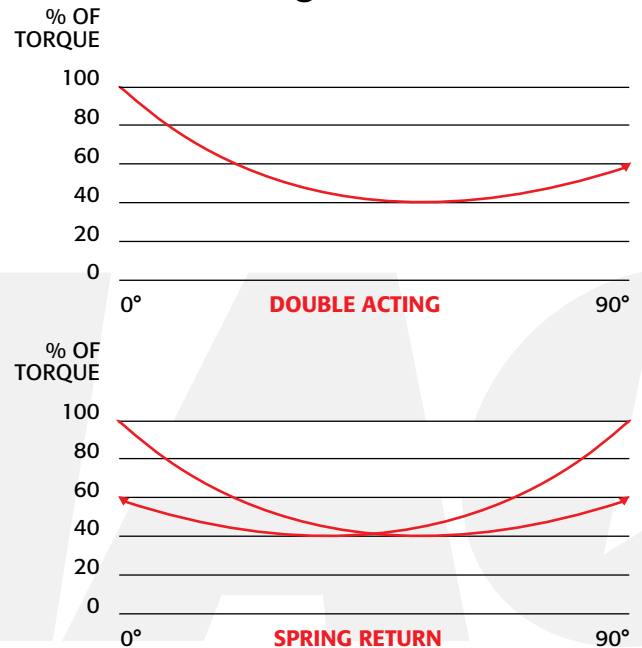
\*(Unit is capable of failure in counterclockwise direction by reversing pistons inside of housing.)

## Torque Curves

### TR10-2R1750 Rack & Pinion Design



### 2R2500-2R3500 Scotch Yoke Design



MODEL	SPRINGS/ SIDE (5 Standard)	SPRING TORQUE		AIR SUPPLY									
		40 psi	60 psi	80 psi	100 psi	END	BREAK	END	BREAK	END	BREAK		
TR20SR	2	19	31	36	48	77	89						
	3	29	49	20	40	60	80	94	115	139	160		
	4	39	67			42	70	78	106	113	145		
	5	49	84			25	60	61	96	105	135		
	6	59	101					43	85	88	121		
2R40SR	2	33	59	63	89	125	151						
	3	49	87	27	54	98	135	159	196				
	4	65	114			70	119	131	180	194	243		
	5	82	142			43	103	103	164	165	226		
	6	98	170					75	147	137	209		
2R80SR	2	86	160	185	259	358	432						
	3	128	245	101	218	273	390	447	564				
	4	170	330			188	348	362	522	536	696		
	5	215	410			109	304	282	477	455	651		
	6	260	490					202	432	375	605		
2R130SR	2	120	226	233	339	473	579						
	3	185	343	117	275	356	514	586	744				
	4	250	460			239	449	469	679	720	930		
	5	315	573			127	385	357	614	607	864		
	6	380	685					244	549	494	799		
2R200SR	2	168	310	339	481	669	811						
	3	252	460	190	398	519	727	849	1,057				
	4	336	610			369	643	699	973	1,030	1,304		
	5	420	760			220	560	549	889	879	1,219		
	6	504	910					399	805	729	1,135		
2R300SR	2	350	644	745	1,039	1,445	1,739						
	3	525	962	428	865	1,127	1,564	1,827	2,264				
	4	700	1,280			809	1,389	1,509	2,089	2,200	2,780		
	5	880	1,605			485	1,210	1,184	1,909	1,874	2,599		
	6	1,060	1,930					859	1,729	1,549	2,419		
2R500SR	2	530	920	1,109	1,499	2,129	2,519						
	3	795	1,380	650	1,235	1,669	2,254	2,679	3,264				
	4	1,060	1,840			1,209	1,989	2,219	2,999	3,231	4,010		
	5	1,325	2,300			750	1,725	1,759	2,734	2,769	3,744		
	6	1,590	2,760					1,299	2,469	2,309	3,479		
2R850SR	2	740	1,230	1,499	1,989	2,929	3,419						
	3	1,100	1,835	1,095	1,830	2,324	3,059	3,644	4,379				
	4	1,460	2,440			1,719	2,699	3,039	4,019	4,320	4,300		
	5	1,815	3,050			1,110	2,345	2,429	3,664	3,709	4,944		
	6	2,170	3,660					1,819	3,309	3,099	4,589		
2R1200SR	2	1,050	1,820	2,029	2,799	4,189	4,959						
	3	1,575	2,730	1,120	2,275	3,279	4,434	5,169	6,324				
	4	2,100	3,640			2,369	3,909	4,259	5,799	6,140	7,680		
	5	2,625	4,550			1,460	3,385	3,349	5,274	5,169	7,094		
	6	3,150	5,460					2,439	4,749	4,259	6,569		
2R1750SR	2	1,390	2,430	3,049	4,089	6,124	7,164						
	3	2,085	3,645	1,835	3,395	4,909	6,469	7,664	9,224				
	4	2,780	4,860			3,694	5,774	6,449	8,529	9,100	11,180		
	5	3,475	6,075			2,480	5,080	5,234	7,834	7,884	10,484		
	6	4,170	7,290					4,019	7,139	6,669	9,789		

Torques shown are for 2R-Series (ISO), 2CI-Series (Centerline Direct Mount), and 2K Series (Keystone Direct Mount)

# TORQUE OUTPUT AND OPERATION INFORMATION **TRIAQ**

## TR10DA - 2R1750DA DOUBLE ACTING TORQUE (In-lbs)

MODEL	AIR SUPPLY (psi)				
	40	60	80	100	120
TR10DA	30	45	60	75	90
TR20DA	79	118	158	197	237
2R40DA	164	245	327	409	491
2R80DA	352	528	703	879	1,055
2R130DA	527	791	1,054	1,318	1,581
2R200DA	716	1,073	1,431	1,789	2,147
2R300DA	1,217	1,825	2,434	3,042	3,651
2R500DA	1,749	2,624	3,498	4,373	5,247
2R850DA	3,282	4,923	6,565	8,206	9,847
2R1200DA	4,510	6,765	9,020	11,275	13,530
2R1750DA	5,729	8,586	11,448	14,311	17,173

**NOTE:**

Torque shown are for 2R Series (ISO), 2CI Series (Centerline Direct Mount, and 2K Series (Keystone Direct Mount)

Torques are actual. Please be sure to include appropriate safety factors for all service condition variables when sizing.

3-way (master slave) assemblies should use a 35% safety factor. Call factory for assistance.

Spring Return (In-Lbs) Spring Clockwise Direction						
2R2500SR						
	Air Break	Run	Air End	Spring Break	Run	Spring End
60 psi	9,854	4,000	5,612	6,000	2,500	3,480
80 psi	12,258	4,750	6,403	9,080	3,950	5,520
2R3500SR						
	Air Break	Run	Air End	Spring Break	Run	Spring End
60 psi	19,700	8,000	11,200	12,000	5,000	6,900
80 psi	24,500	9,500	12,800	18,100	7,900	11,000

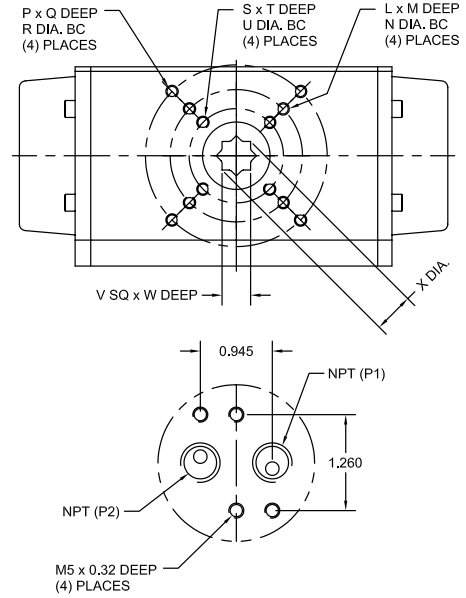
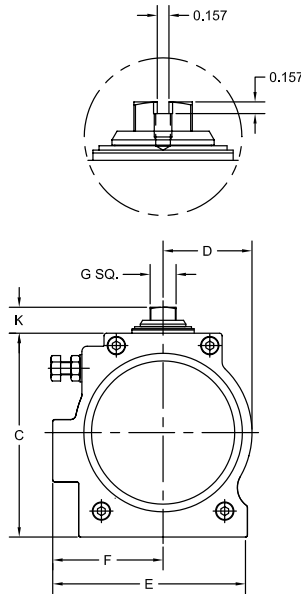
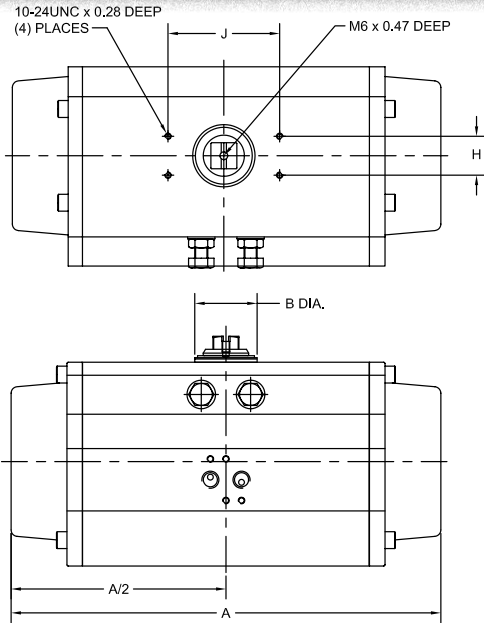
Double Acting (In-lbs) Direct Acting			
2R2500DA			
	0 deg	Min	90 deg
60 psi	13,334	6,667	11,610
80 psi	17,778	8,890	15,483
100 psi	22,223	11,110	19,350
2R3500DA			
	0 deg	Min	90 deg
60 psi	26,650	13,330	23,200
80 psi	35,550	17,750	30,960
100 psi	44,440	22,200	38,700

Spring Return (In-Lbs) Spring Counter Clockwise Direction						
2R2500SR						
	Air Break	Run	Air End	Spring Break	Run	Spring End
60 psi	7,522	4,160	6,000	6,240	2,330	2,760
80 psi	9,500	5,110	6,432	7,800	3,600	4,200
2R3500SR						
	Air Break	Run	Air End	Spring Break	Run	Spring End
60 psi	15,000	8,200	12,000	12,400	4,600	5,410
80 psi	19,000	10,200	12,800	15,600	7,200	8,400

**NOTES:**

- 2R2500 and 2R3500 are scotch yoke design
- Consult factory for 2R2500DAR and 2R3500DAR (reverse acting) torques.

# DIMENSIONS TR10-2R1750



Model	TR10	TR20	2R40	2R80	2R130	2R200	2R300	2R500	2R850	2R1200	2R1750
A	4.57	5.98 / 7.60	7.95	9.29	10.87	11.46	13.90	15.16	20.95	22.68	24.37
B dia.	0.79	1.22	1.22	1.22	1.42	1.61	1.89	2.09	2.40	2.68	2.91
C	1.91	2.76	3.43	4.49	4.88	5.28	6.18	6.93	8.31	9.17	10.12
D	0.83	1.10	1.42	1.69	2.11	2.30	2.70	2.99	3.74	4.13	4.57
E	1.93	2.58	3.29	4.41	4.69	5.06	5.91	6.50	6.89	7.60	8.31
F	1.10	1.40	1.79	2.48	2.72	2.89	3.35	3.70	3.90	4.29	4.72
NPT	1/8"	1/8"	1/8"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"

### ACCESSORY MOUNTING DIMENSIONS

G sq.	0.354	0.630	0.630	0.630	0.630	0.630	0.787	0.787	0.787	1.260	1.260
H	0.984	1.181	1.181	1.181	1.181	1.181	1.181	1.181	1.181	1.181	1.181
J	1.969	3.150	3.150	3.150	3.150	3.150	3.150	5.118	5.118	5.118	5.118
K	0.787	0.787	0.787	0.787	0.787	0.787	0.787	1.181	1.181	1.181	1.181

### VALVE MOUNTING DIMENSIONS

ISO 5211	F03	F04	F05 / F07	F05/F07/F10	F07 / F10	F07 / F10	F07/F10/F12	F10 / F12	F10 / F12	F14	F14
U dia.	1.417	1.654	1.969	1.969	N/A	N/A	2.756	N/A	N/A	N/A	N/A
N dia.	N/A	N/A	2.756	2.756	2.756	2.756	4.016	4.016	4.016	N/A	N/A
R dia.	N/A	N/A	N/A	4.016	4.016	4.016	4.921	4.921	4.921	5.512	5.512
S	10-24	1/4"-20	1/4"-20	1/4"-20	N/A	N/A	5/16"-18	N/A	N/A	N/A	N/A
L	N/A	N/A	5/16"-18	5/16"-18	5/16"-18	5/16"-18	3/8"-16	3/8"-16	3/8"-16	N/A	N/A
P	N/A	N/A	N/A	3/8"-16	3/8"-16	3/8"-16	1/2"-13	1/2"-13	1/2"-13	5/8"-11	5/8"-11
T	0.24	0.31	0.39	0.39	N/A	N/A	0.47	N/A	N/A	N/A	N/A
M	N/A	N/A	0.47	0.47	0.47	0.47	0.63	0.63	0.63	N/A	N/A
Q	N/A	N/A	N/A	0.63	0.63	0.63	0.79	0.79	0.79	0.87	0.87
V sq.	0.354	0.433	0.551	0.748	0.748	0.748	0.866	1.063	1.063	1.417	1.417
W	0.39	0.63	0.67	0.71	0.71	0.71	1.02	1.18	1.18	1.58	1.58
X	0.46	0.58	0.75	1.02	1.02	1.02	1.19	1.47	1.47	1.97	1.97

### WEIGHT (lbs.)

DA	2.2	2.9	4.5	9	12	14.5	23	32	59	78	100
SR	N/A	3.5	6	11	14	17	26	38	68	91	117

### VOLUME (cubic inches per 90°)

CW	3	8	16.5	34	52	67	116	183	334	505	703
CCW	3	6	14	23	36	49	100	137	259	357	439

### CYCLE TIMES (seconds per 90°)

DA	0.3	0.5	0.6	1	1.2	1.5	2	2.5	3	4	5
SR	N/A	0.5	0.6	1	1.2	1.5	2	2.5	3	4	5

TR10 & TR20 have travel stops located in the End Caps for travel adjustment in one direction. 2R40 & 2R80 have travel stops on the opposite side as shown.

#### Direct Acting:

Pressure at port P1 will result in a clockwise rotation

Pressure at port P2 will result in a counter clockwise rotation

#### Reverse Acting:

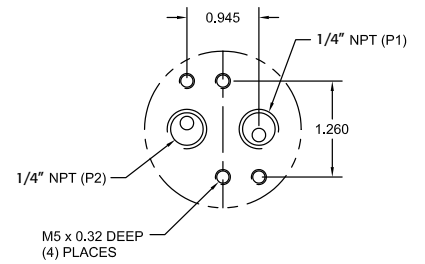
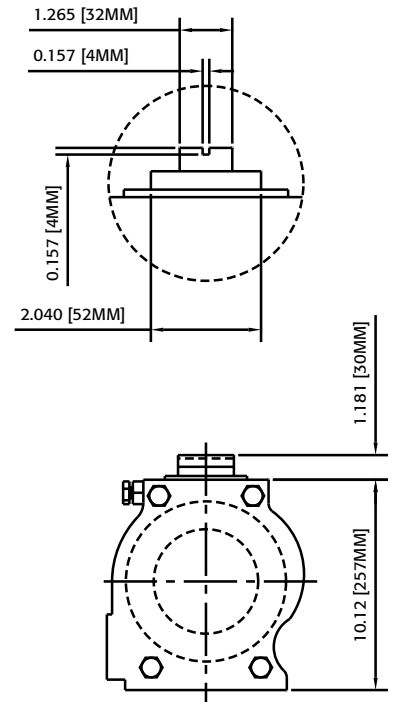
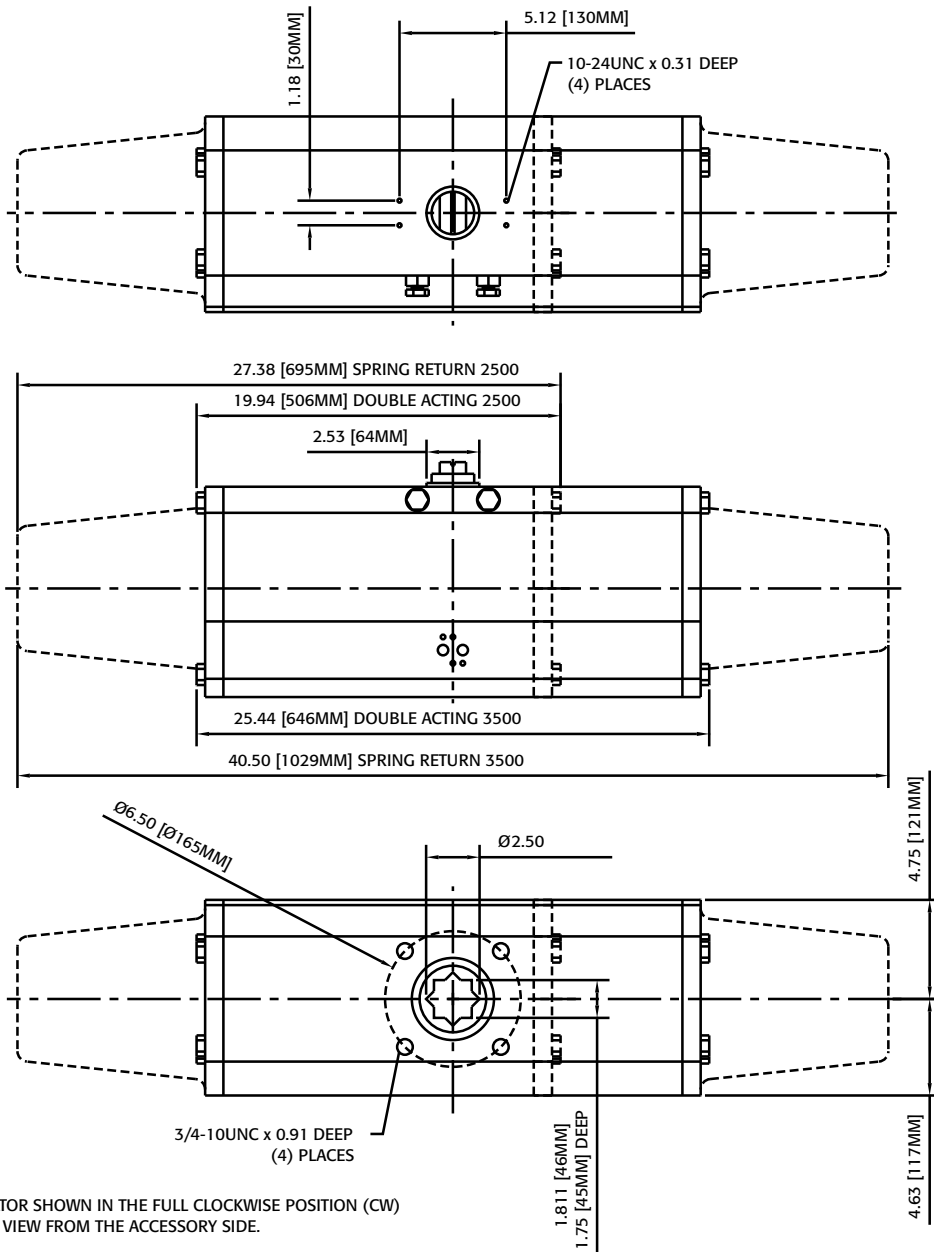
Pressure at port P1 will result in a counter clockwise rotation

Pressure at port P2 will result in a clockwise rotation

$$\text{Air Consumption (scf per 90 Deg)} = \frac{\text{Volume}}{1,728} \times \frac{\text{Supply Pressure} + 14.7}{14.7}$$

**NOTES:** Accessory mounting holes are not intended for Manual Gear Overrides or Stop Blocks. Cycle times are under no load conditions. Air line size, air capacity, and valve torque characteristics affect these cycle times. Faster or slower cycle times can be accomplished using special control components.

# DIMENSIONS 2R2500-2R3500



ACTUATOR SHOWN IN THE FULL CLOCKWISE POSITION (CW)  
WHEN VIEW FROM THE ACCESSORY SIDE.

MODEL	WEIGHT (POUNDS)		VOLUME (CU. IN. PER 90 DEG)		CYCLE TIMES (SEC. PER 90 DEG)	
	DA	SR	CW	CCW	CW	CCW
2R2500	98	137	525	310	5	5
2R3500	125	195	650	585	9	9

$$\text{Air Consumption (scf per 90 Deg)} = \frac{\text{Volume}}{1,728} \times \frac{\text{Supply Pressure} + 14.7}{14.7}$$

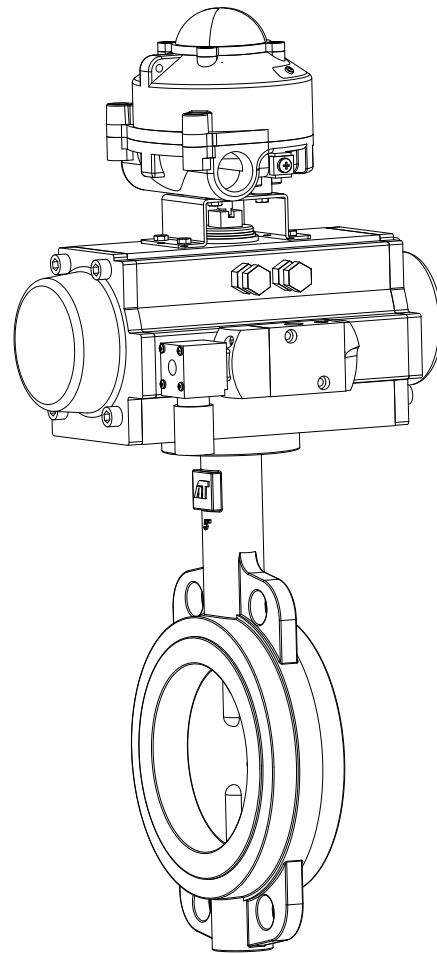
**NOTES:** Accessory mounting holes are not intended for Manual Gear Overrides or Stop Blocks. Cycle times are under no load conditions. Air line size, air capacity, and valve torque characteristics affect these cycle times. Faster or slower cycle times can be accomplished using special control components.

# DIRECT MOUNT FOR BUTTERFLY VALVES

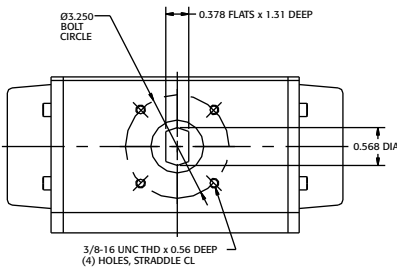


- ▶ Available for many of the most popular resilient seated butterfly valves
- ▶ Call for details and availability
- ▶ Usually requires no additional hardware
- ▶ Lower profile packages
- ▶ Wide base accommodates pattern without transition plate

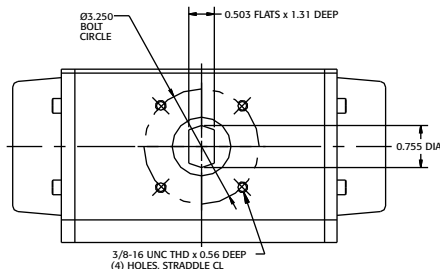
TRIAC actuators feature a wide base to enable direct mounting to many butterfly valves without transition plates. Contact factory for compatibility with your particular butterfly valve or see A-T Controls' complete line of resilient and high performance butterfly valves.



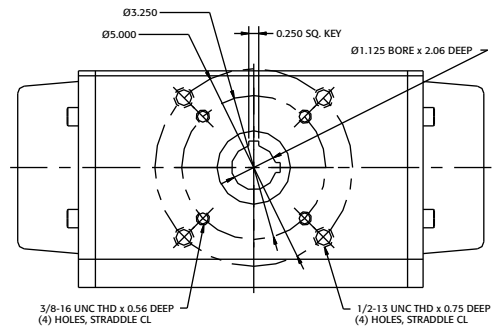
## Dimensions – 2K Series



2K40



2K80 - 2K200

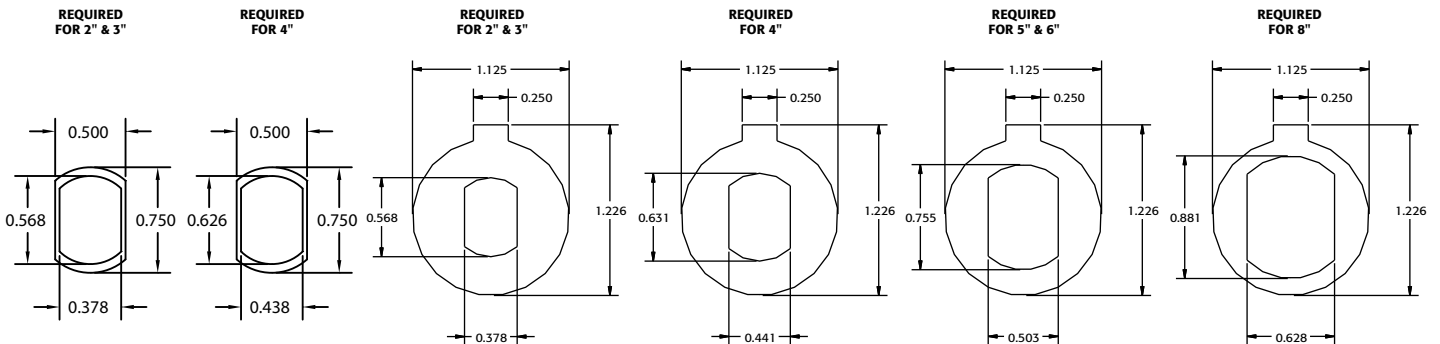


2K300 - 2K1200

Note: 2K850 and 2K1200 have only 5" bolt circle

## Adapter Dimensions for 2K Series

Refer to valve dimensions for actual sizing



PART #TKA-010

PART #TKA-012

PART #TKA-020

PART #TKA-030

PART #TKA-040

PART #TKA-050

Other inserts are available on request.

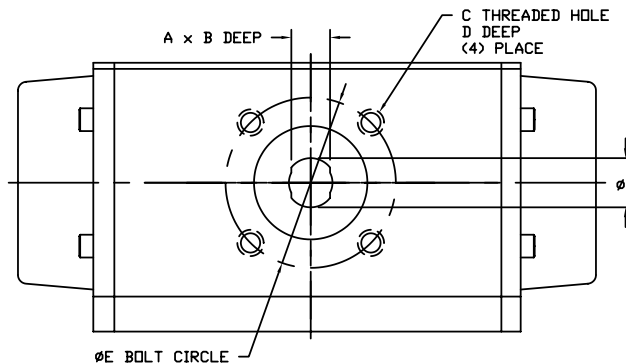


# DIRECT MOUNT ACTUATORS FOR CENTERLINE BUTTERFLY VALVES



Note:

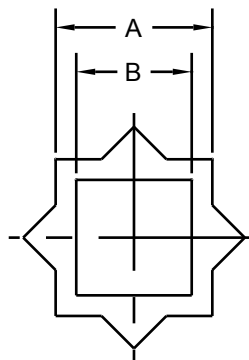
- » The 2CI Series actuators have five springs per side.
- » The final number(s) in the 2CI model numbers refers to the size of the Butterfly Valve body for mounting.



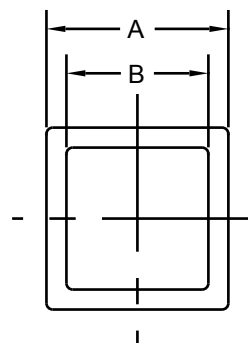
DOUBLE ACTING MODEL	SPRING RETURN MODEL	A	B	C	D	E	F
2CI40DA/2-3	2CI40SR/2-3	0.394	1.31	5/16-18	0.47	2.756	0.50
2CI80DA/2-3	2CI80SR/2-3	0.394	1.31	5/16-18	0.47	2.756	0.50
2CI80DA/4	2CI80SR/4	0.472	1.31	5/16-18	0.47	2.756	0.63
2CI80DA/5-6	2CI80SR/5-6	0.551	1.31	5/16-18	0.47	2.756	0.75
2CI130DA/2-6	2CI130SR/2-6	0.394	1.31	5/16-18	0.47	2.756	0.50
2CI130DA/4	2CI130SR/4	0.472	1.31	5/16-18	0.47	2.756	0.63
2CI130DA/5-6	2CI130SR/5-6	0.551	1.31	5/16-18	0.47	2.756	0.75
2CI200DA/4	2CI200SR/4	0.472	1.31	5/16-18	0.47	2.756	0.63
2CI200DA/5-6	2CI200SR/5-6	0.551	1.31	5/16-18	0.47	2.756	0.75
2CI300DA/5-6	2CI300SR/5-6	0.551	1.31	5/16-18	0.47	2.756	0.75
2CI300DA/8	2CI300SR/8	0.669	1.81	3/8-16	0.63	4.016	0.88
2CI300DA/10	2CI300SR/10	0.866	1.81	3/8-16	0.63	4.016	1.13
2CI500DA/8	2CI500SR/8	0.669	1.81	3/8-16	0.63	4.016	0.88
2CI500DA/10	2CI500SR/10	0.866	1.81	3/8-16	0.63	4.016	1.13
2CI500DA/12-14	2CI500SR/12-14	0.945	1.81	3/8-16	0.63	4.016	1.25
2CI850DA/8	2CI850SR/8	0.669	1.81	3/8-16	0.63	4.016	0.88
2CI850DA/10	2CI850SR/10	0.866	1.81	3/8-16	0.63	4.016	1.13
2CI850DA/12-14	2CI850SR/12-14	0.945	1.81	3/8-16	0.63	4.016	1.25
2CI1200DA/10	2CI1200SR/10	0.866	1.81	3/8-16	0.63	4.016	1.13
2CI1200DA/12-14	2CI1200SR/12-14	0.945	1.81	3/8-16	0.63	4.016	1.25

## Inserts for use with 2R Series Actuators

(Refer to V sq. dimension on page 6)



STAR INSERTS	A	B
ATD11T09	0.433	0.354
ATD14T09	0.551	0.354
ATD14T11	0.551	0.433
ATD17T11	0.669	0.433
ATD19T09	0.748	0.354
ATD19T11	0.748	0.433
ATD19T14	0.748	0.551
ATD19T17	0.748	0.669
ATD22T14	0.866	0.551
ATD27T17	1.063	0.669
ATD27T22	1.063	0.866



SQUARE INSERTS	A	B
C13706 (14mm-9mm)	0.551	0.354
C14352 (17mm-14mm)	0.669	0.551
C14700 (22mm-11mm)	0.866	0.433
C11251 (22mm-17mm)	0.866	0.669
ATE22T19	0.866	0.748
C17394 (27mm-11mm)	1.063	0.433
C17012 (27mm-14mm)	1.063	0.551
C15186 (27mm-19mm)	1.063	0.748
C17291 (27mm-22mm)	1.063	0.866
C17011 (36mm-17mm)	1.417	0.669
C17013 (36mm-19mm)	1.417	0.748
C13116 (36mm-27mm)	1.417	1.063

## Solenoid Valves

- ▶ Direct mount TVC series
- ▶ Nipple mount available
- ▶ Weatherproof/explosion proof construction
- ▶ Intrinsically safe coil available
- ▶ Various voltages - AC or DC
- ▶ Quick exhaust modification
- ▶ 2 or 3 position control
- ▶ Exhaust speed controls



**TVCS-X411-4N**  
**Direct Mount Solenoids**  
**All Accessory Options Available**

## APL Limit Switches

- ▶ Aluminum or Stainless Steel housing
- ▶ Weatherproof/explosion proof construction
- ▶ Dome indicator
- ▶ Easy-Set cams
- ▶ Captive bolts
- ▶ Many switch options
- ▶ AS-I systems
- ▶ Can be mounted on manual valves



**APL-210N**  
 CSA Approved, Type 4X

**APL-310N**  
 CSA Approved,  
 Type 4X

**APL-910N**  
 Stainless Steel  
 Type 4X, IP 67

**APL-510N**  
 CSA Approved  
 Class I, Div 1 & 2, Groups B, C, D

See brochure for details & options

## Other Pneumatic Actuators



See stainless steel actuator brochure for detailed information.



See 180° Pneumatic Rack & Pinion brochure for details.

## Positioners



PPR, EPR & SS "Smart" Series



## Declutchable Gear Overrides



2R, 2C, and 2K DGO SERIES

## Other Accessories and Controls



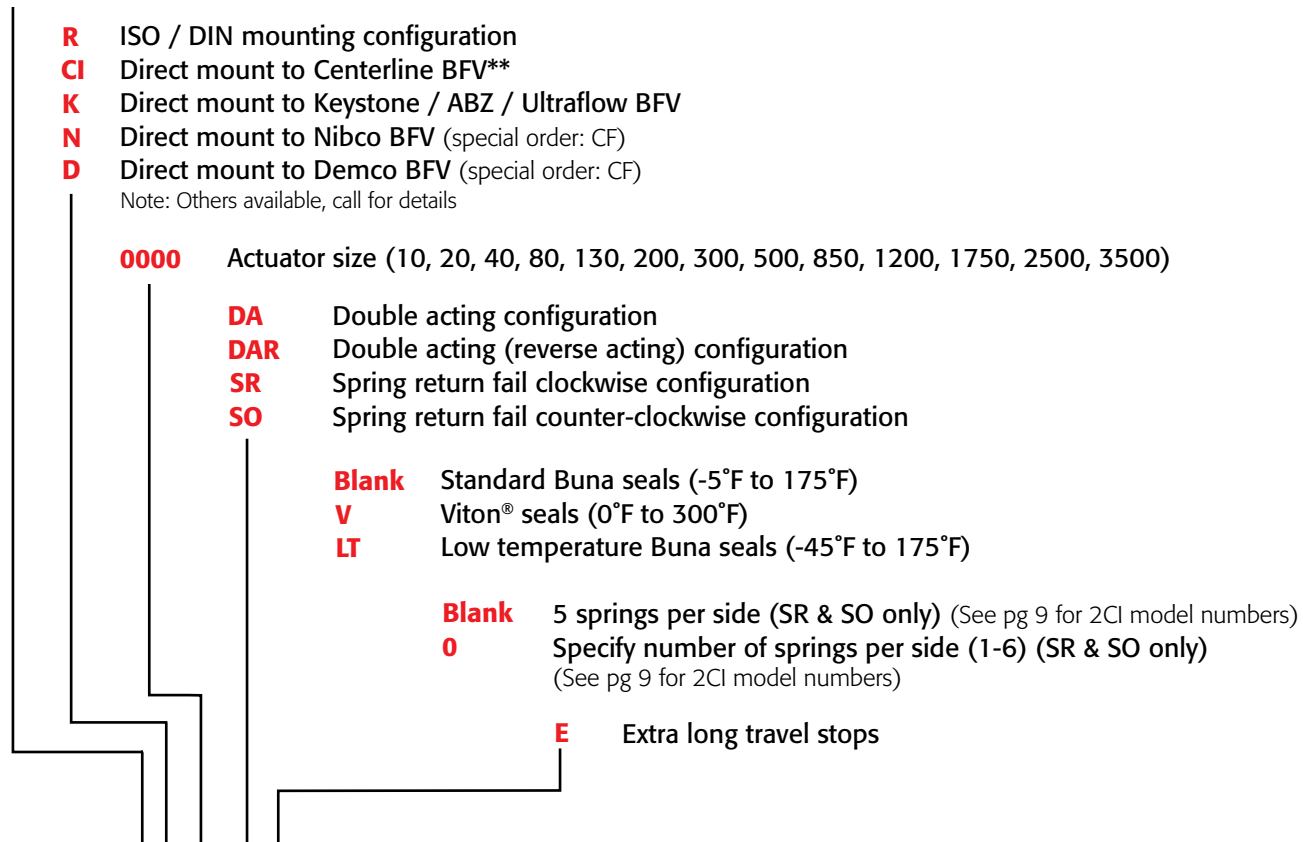
- ▶ Lock-up valves
- ▶ Filter regulators
- ▶ Special tubing/fittings
- ▶ Lockout/tagout hardware
- ▶ Flow controls
- ▶ Speed controls
- ▶ Custom assemblies
- ▶ Dribble control
- ▶ Specials
- ▶ Complete mounting and assembly service

## Sample Specification

Actuators shall be of rugged pneumatic Rack & Pinion Design. Actuator body should be hard anodized to promote long cycle life and corrosion resistance. The actuator body should incorporate a heavy duty, ISO 5211 valve mounting pad with multiple ISO FO bolt circles for ease of mounting. Actuator internals should include dual aluminum pistons for a balanced torque load and a one-piece plated blow-out proof pinion for operator safety. Actuator drive pinions should incorporate significant body housing bearings with heavy duty O-Ring seals to promote high cycle life. The unit should have a dual travel stop feature, with a minimum of 5° of stroke adjustment on both ends of travel, to accommodate numerous valve and damper designs. All actuator fasteners and hardware should be stainless steel for corrosion resistance. The rack & pinion actuator line should be offered in a broad range of torque outputs. The actuator of choice should be A-T Controls (TRIAC®) TR/2R Series Rack & Pinions.

## TRIAC Model Number Matrix

- 2** Triac Rack & Pinion Actuator with double travel stops
- T** Triac Rack & Pinion Actuator with single travel stop (TR10DA, TR20DA, TR20SA only)

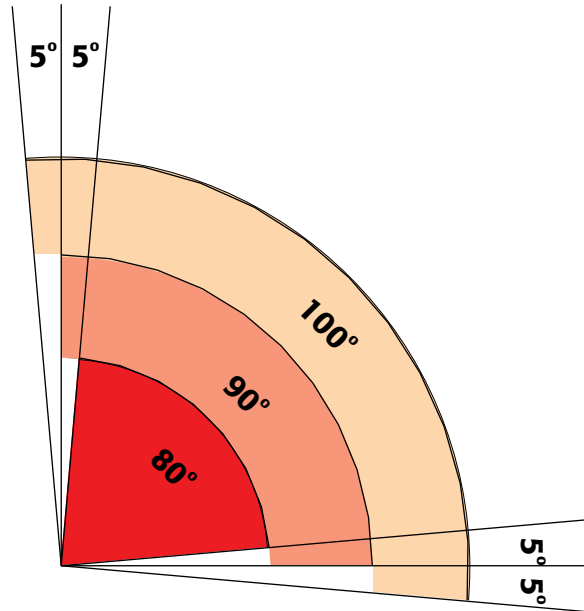
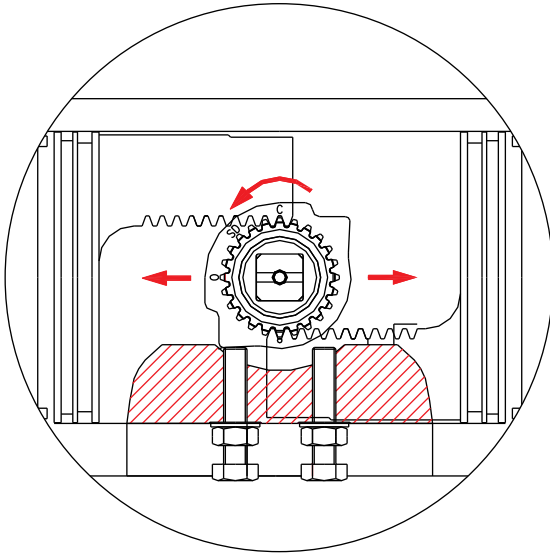


**Example: 2R80SRE** (TRIAC Model 80 Rack & Pinion Actuator with Travel Stop in both directions, Spring Return fail clockwise, with Extra long travel stops)

\*\*Note: When ordering a 2CI actuator, please specify the valve size per the 2CI model numbers on page 9.



### Dual Travel Stop Adjustment



Triac 2R Series features a splined stop collar that provides travel stop adjustments in both the clockwise and counter-clockwise directions. The splined collar ensures minimal hysteresis and repeatable stop positions.

Note: Extended travel stops available; consult factory.

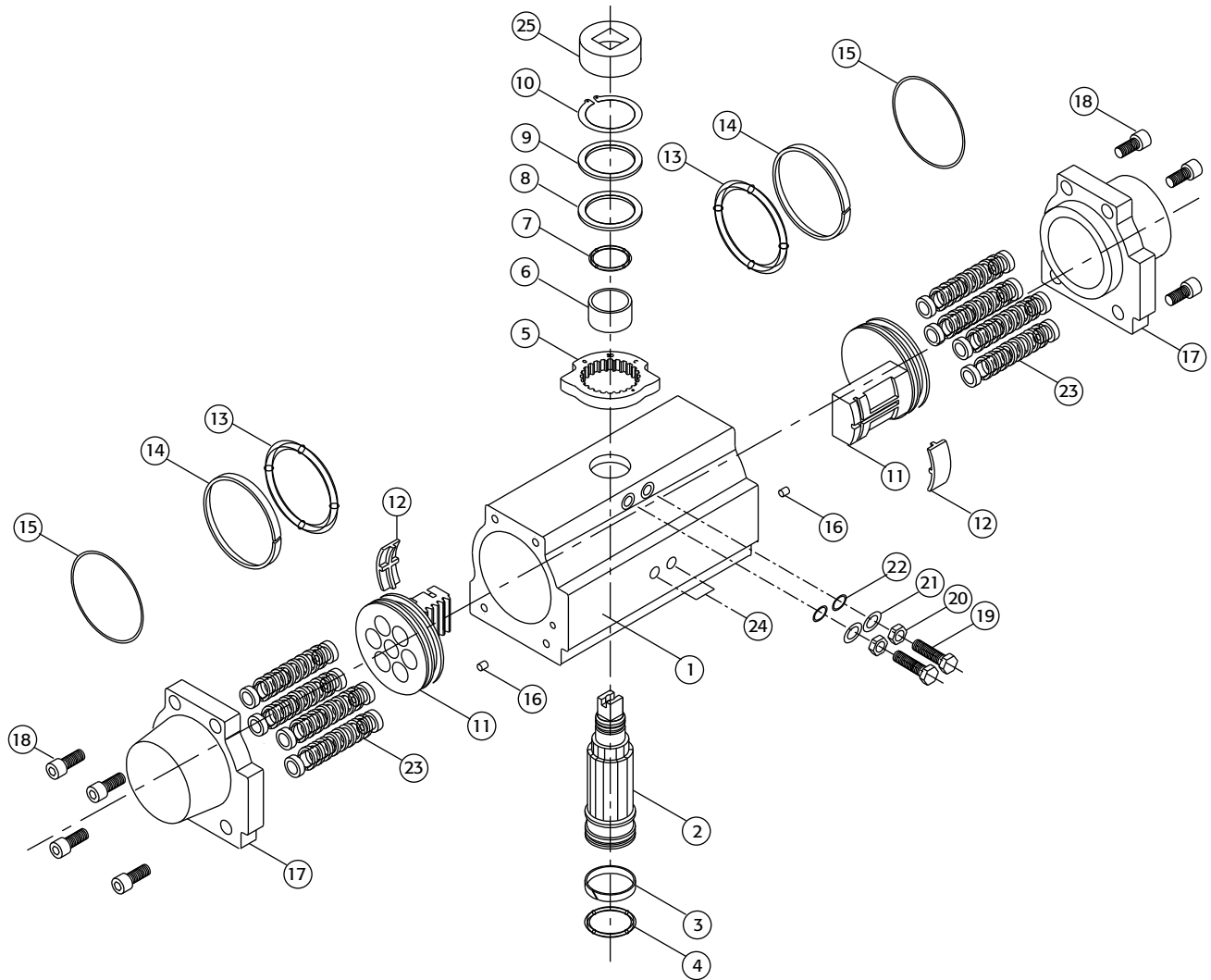
### Support

Engineering assistance and 2D & 3D model drawings available

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	PR120	PR-120 FILTER REGULATOR
2	1	2R200SR	2R200SR BACK & FRONT SOLENOID ACTUATOR
3	1	2R200SR	2R200SR BACK & FRONT PNEUMATIC ACTUATOR
4	1	2R200SR	2R200SR BACK & FRONT PNEUMATIC ACTUATOR
5	1	APL510	APL510 LIMIT SWITCH
6	1	2R200SR	2R200SR IN EXCHANGEABLE GEAR OVERVIEW

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	2R200SR	2R200SR BACK & FRONT PNEUMATIC ACTUATOR
2	1	PR1200	PR1200 POSITIONER

# EXPLODED VIEW AND BILL OF MATERIAL



No.	Description	Qty.	Material	Remarks
1	Cylinder Body	1	Aluminum	Hard Anodized
2	Pinion	1	Steel	Zinc Plated
3	Bottom Pinion Bushing ①②	1	Nylon	
4	Bottom Pinion O-ring ①②	1	Nitrile Buna	
5	Travel Stop Cam	1	SCM21	Phosphate Coated
6	Top Pinion Bushing ①②	1	Nylon	
7	Top Pinion O-ring ①②③	1	Nitrile Buna	
8	Pinion Teflon Washer ①②	1	RTFE	
9	Pinion SST Washer ①②	1	304 Stainless Steel	
10	Snap Ring ①②	1	Steel	Zinc Plated
11	Piston	2	Die Cast Aluminum	Dichromate Dipped
12	Guide Plate ①②	2	Nylon	
13	Piston O-ring ①②③	2	Nitrile Buna	
14	Piston Guide Band ①②	2	PTFE	
15	End Cap O-ring ①②③	2	Nitrile Buna	
16	Hole Sealant	2	Nitrile Buna	
17	End Cap	2	Die Cast Aluminum	Epoxy Coated
18	End Cap Bolt	2	304 Stainless Steel	
19	Travel Stop Bolt	2	304 Stainless Steel	
20	Travel Stop Nut	2	304 Stainless Steel	
21	Travel Stop Washer	2	304 Stainless Steel	
22	Travel Stop O-ring ①②③	2	Nitrile Buna	
23	Spring Cartridge	12	Spring Steel	Epoxy Coated
24	Dust Plug	2	Polyethylene	
25	Position Indicator	1	Polyethylene	

Repair Kit		
Nitrile Buna	2RKB(Actuator Size)	-5°F ~ +175°F
Viton	2RKV(Actuator Size)	0°F ~ +300°F
Low Temp Buna	2RKL(Actuator Size)	-45°F ~ +175°F

Example: 2RKB0130 = Nitrile Buna Repair Kit for 2R130

Seal Kit		
Nitrile Buna	2BOK(Actuator Size)	-5°F ~ +175°F
Viton	2VOK(Actuator Size)	0°F ~ +300°F
Low Temp Buna	2LTOK(Actuator Size)	-45°F ~ +175°F

Example: 2VOK0080 = Viton Seal Kit for 2R80

- ① Recommended spare parts
- ② Parts included in a repair kit
- ③ Parts included in a seal kit

**TRIAO**  
**Electric Actuators**



- ▶ Torques to 80,000 in-lbs
- ▶ Weatherproof enclosure
- ▶ ISO 5211 mounting kits
- ▶ On-off or modulating
- ▶ CSA approved
- ▶ Fail-Safe Electrics

*Custom Mounting and  
Assembly Service*

**TRIAO**  
**Heavy Duty Actuators**



- ▶ Double Acting
- ▶ Spring Return
- ▶ Features stabilizer bar for longer cycle life
- ▶ Torques to 1,600,000 in-lbs
- ▶ Easy accessory mounting
- ▶ Symmetric & Canted Yoke

**AT**  
**Manual Gear Operators  
& Overrides**



- ▶ Quarter turn and multi-turn
- ▶ Torques to 410,000 in-lbs
- ▶ Declutchable gear overrides
- ▶ ISO 5211 and other mounting
- ▶ Custom mounting available

**TRIAO**  
**Automated Valve  
Assemblies**

- ▶ Pneumatic or Electric
- ▶ Pre-engineered assemblies
- ▶ Pre-sized and pre-priced
- ▶ Double Acting or Spring Return
- ▶ Multi-port valves
- ▶ Various End Connection
- ▶ Options
- ▶ 150#, 300# and 600# flanged
- ▶ Sanitary ends
- ▶ Firesafe valves and more
- ▶ Tank bottom valves
- ▶ Segmented Control Valves
- ▶ Butterfly Valve packages
- ▶ FM Approved Assemblies





**Complete Valve Automation**  
**See our website for IOM's & 3D models!**



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