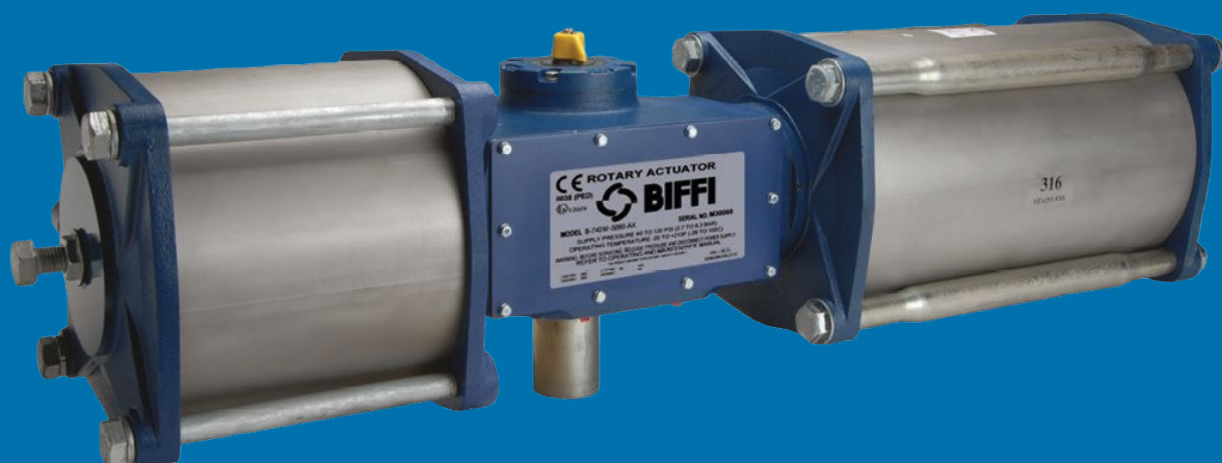


Приводы низкого давления Morin B/C, S

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Section 1: Introduction

1.1 General Application

Actuators are designed for "ON-OFF" or modulating control of any quarter-turn ball, butterfly, rotary plug or damper style valve application.

1.2 Technical Data

Supply Pressure	40 - 160 psig (2.75 - 11 barg), see product nameplate
Supply Medium	any pneumatic fluid compatible with materials of construction
Temperature Rating	Standard Range: -20 °F to +210 °F (-28 °C to +99 °C)
	Optional Range: -65 °F to +300 °F (-54 °C to +149 °C)
Angular Rotation	90 degrees ± 8 degrees

1.3 Installation

The actuator can be mounted parallel or perpendicular to pipeline. The actuator can be installed in any convenient position including vertical, horizontal or upside down.

- A. Bolt mounting bracket to actuator hand tight. Do not tighten yet.
- B. Install coupling on valve. Be sure rotary stops on valve are removed or adjusted to allow actuator stops to do the stopping.
- C. Install actuator and bracket to valve being sure to leave all fastener connections hand tight. If possible, stroke valve and actuator to a half open position 45° and physically shift actuator back and forth until coupling and all fasteners are relaxed then tighten all bolts and nuts. This procedure will accurately align valve stem to actuator output shaft and prolong valve stem seal life. Lift the actuator at a balance point near the center housing. Do not lift the weight of the valve, see Figure 1.
- D. Cycle valve / actuator assembly and observe for smooth operation.
- E. Adjust travel stops for perfect alignment in both open and closed positions.

NOTICE

If jackscrew override is installed, please refer to Section 3 for stroke adjustment.

- F. Tubing connections - some models utilize two pistons for added power. Spring-return (single acting) dual cylinders designs require one "jumper" to make the supply port common on both pistons. Double-acting (air to air) dual cylinder designs require two "jumpers". See Figure 2 for typical arrangement.

Section 2: Maintenance

Actuators are factory lubricated and in general do not require periodic lubrication or maintenance while in service. Actuators should be visually inspected periodically for corrosion damage and promptly repaired. Actuators should be operated at least annually to assure proper operation.

Figure 1

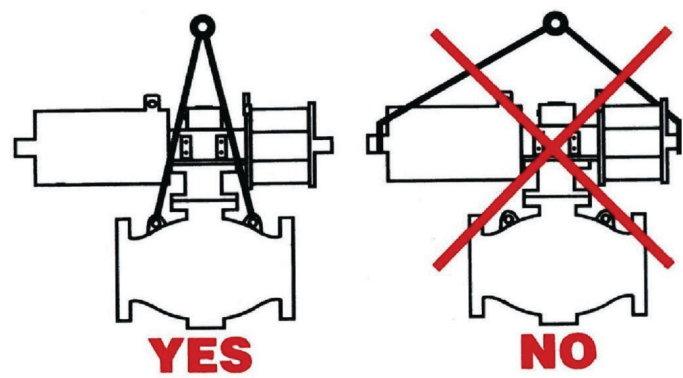
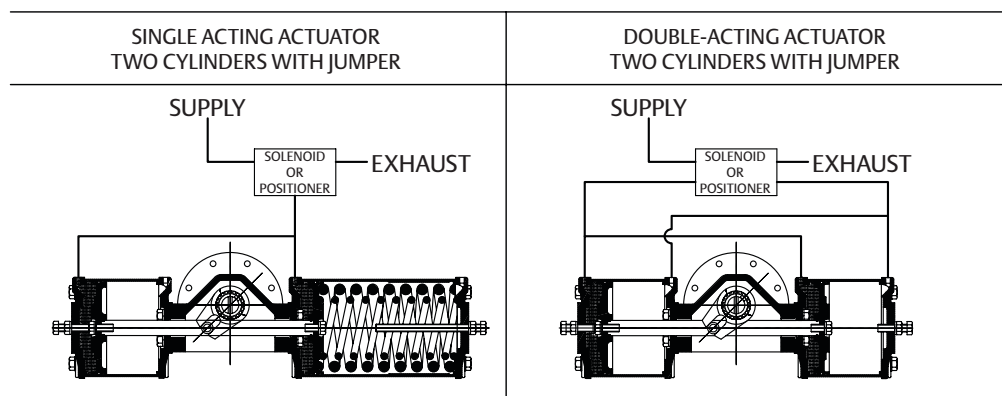


Figure 2



Section 3: Jackscrew Override

The jackscrew option is intended for infrequent or emergency on-site operation of the automated valve.

3.1 Jackscrew Operating Instructions

1. Disengage power supply and vent air from actuator.
2. Operate the handwheel to drive the actuator into the desired position. Valve position can be verified by checking the actuator position indicator. For models 006 through 270, the jackscrew must be returned to the fully retracted position before actuator can resume normal operation. Back the jackscrew out until it stops. Air will leak from the jackscrew unless it has been fully retracted against its internal seal.

3.2 Actuator Stroke Adjustment

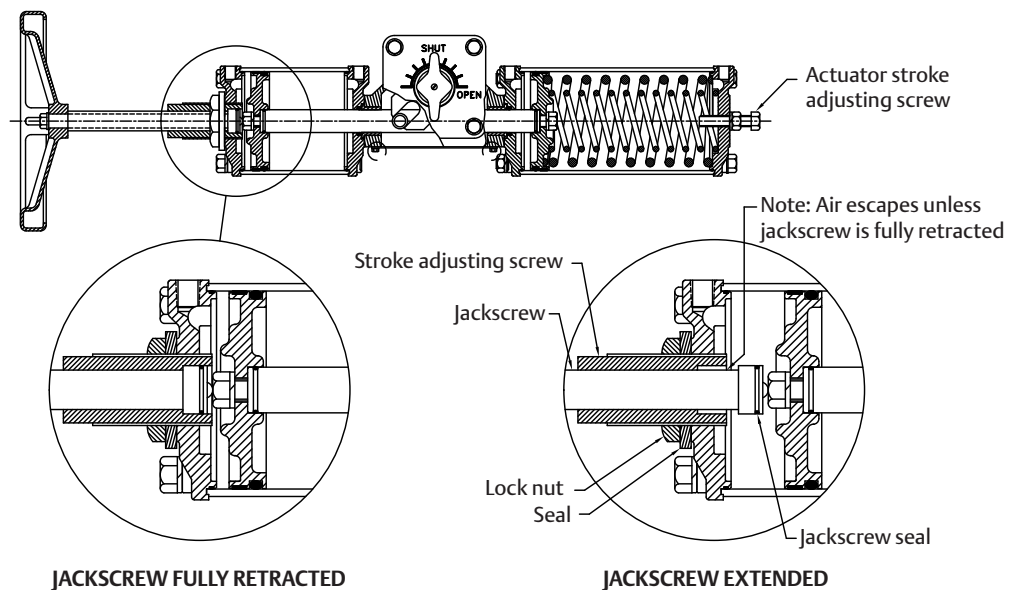
The jackscrew has a built-in actuator stroke adjustment, see Figure 3 and 4.

3.3 Models 006 through 270

See Figure 3:

1. Retract the jackscrew override completely by rotating counter clockwise.
2. Loosen the lock nut and turn the brass adjusting screw to the desired position. The handwheel will rotate with the adjusting screw. Never make stroke adjustments by turning the handwheel only.
3. Tighten lock nut.

Figure 3 Jackscrew Override - Models 006 through 270

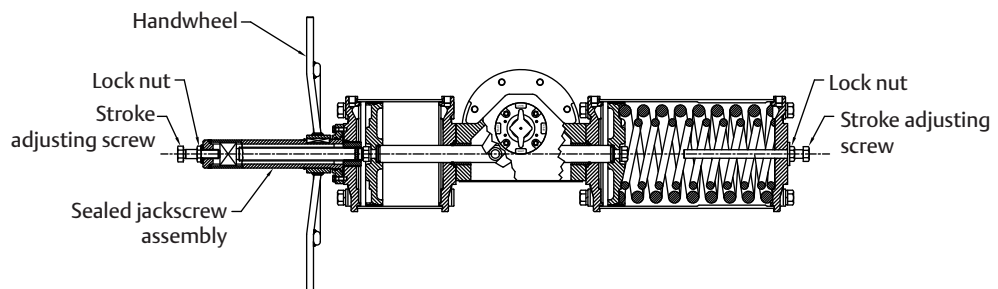


3.4 Models 370, 575 and 740

See Figure 4:

1. Retract the jackscrew override completely by rotating clockwise.
2. Loosen the stroke adjusting screw and lock nut.
3. Using the handwheel, turn the jackscrew to adjust the actuator to the desired position.
4. Screw the adjusting screw until it stops and tighten lock nut.

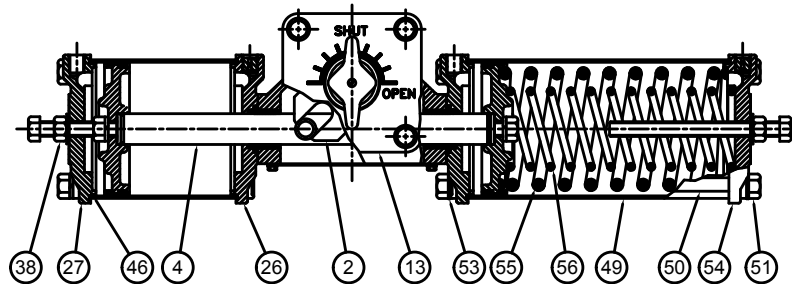
Figure 4 **Jackscrew Override - Models 370, 575 and 740**



Section 4: Actuator Construction

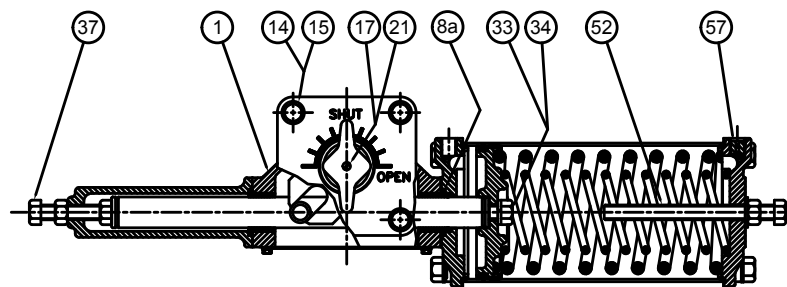
Single acting Spring-Return Two Pistons

Models: 012, 046, 058, 059, 072, 100, 270, 344, 345, 420, 740, 944, 945, 1150, 1480, 1929, 1930, 2380



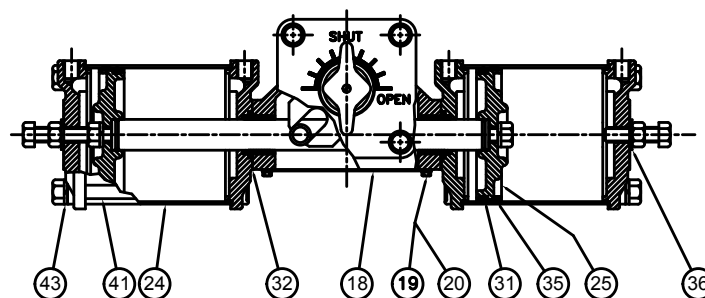
Single acting Spring-Return One Piston

Models: 003, 006, 015, 023, 036, 050, 135, 210, 370 and 575



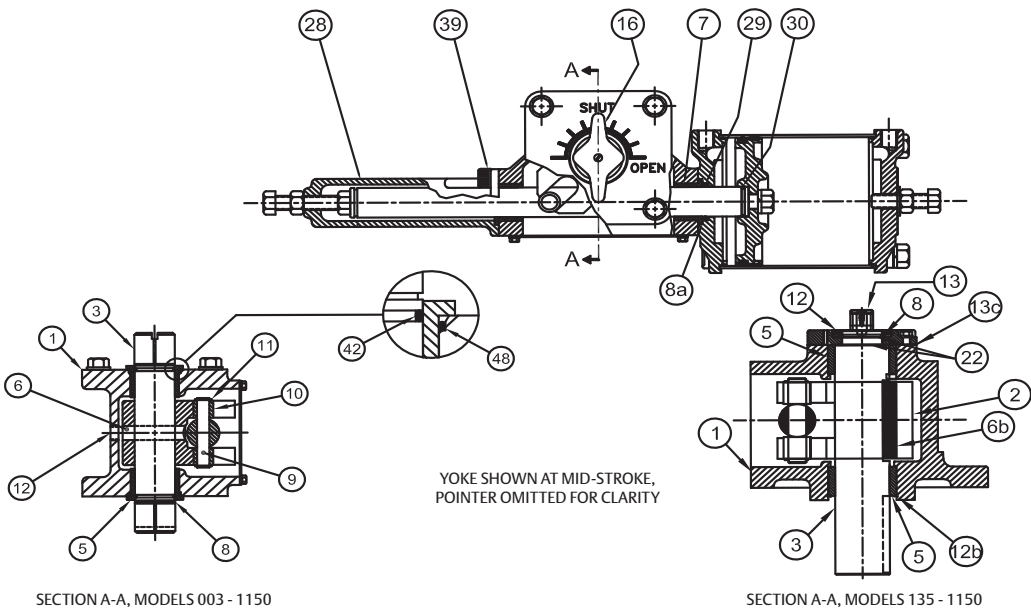
Double-Acting Air to Air Two Pistons

Models: 012, 059, 072, 100, 270, 345, 420, 740, 945, 1150, 1480, 1930, 2380



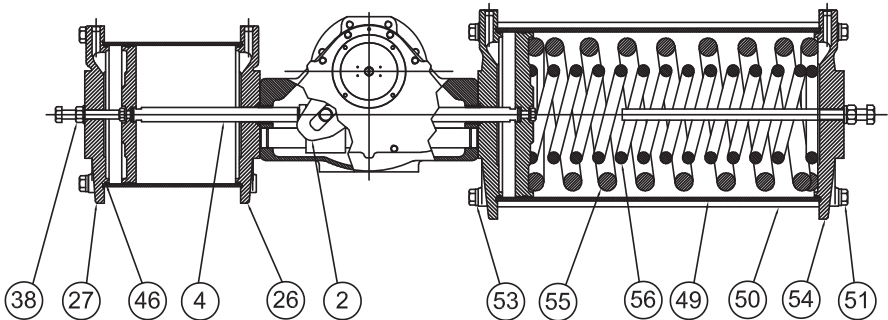
Double-Acting Air to Air One Piston

Models: 003, 006, 015, 023, 036, 050, 135, 210, 370, 575



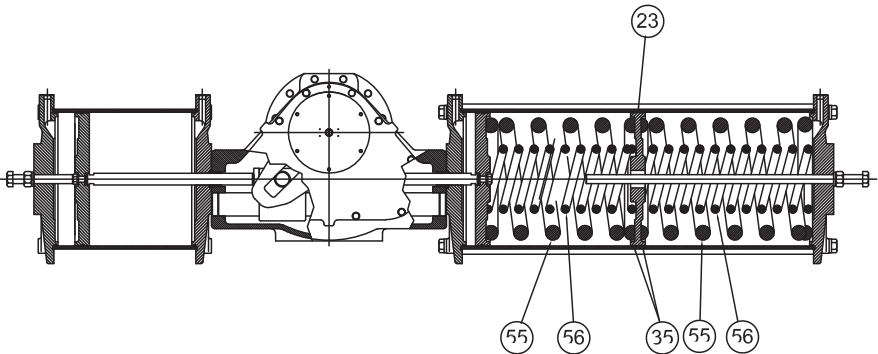
Single acting Spring-Return Two Pistons

Models: 1485, 1934, 1935, 2385-5336



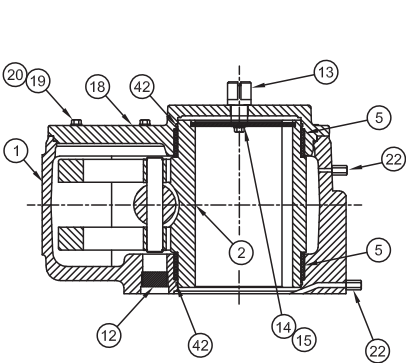
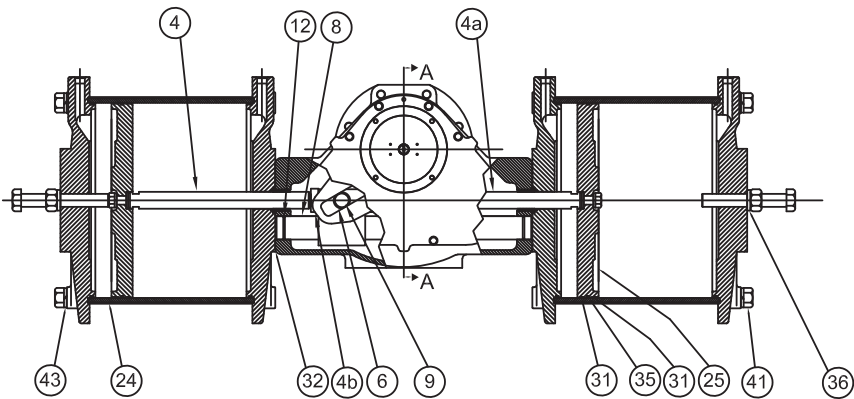
Single acting Spring-Return Two Pistons

Models: 6044, 7114

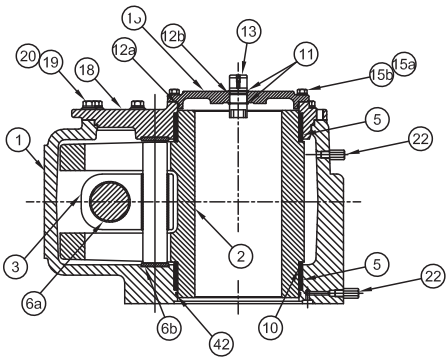


Double-Acting Air to Air Two Pistons

Models: 1485, 1934, 2385 - 7114



SECTION A-A, MODELS 1480 - 2380



SECTION A-A, MODELS 1485, 1934, 1935, 2385 - 7114

YOKE SHOWN AT MID-STROKE, POINTER OMITTED FOR CLARITY

Table 1. Materials of Construction

Item		S material		B material		C material	A material	
		003-100	135-1150	006-100	135-1150	135-1150	006-100	135-420
1	Housing	316 SS	316 SS	Ductile iron	Ductile iron	Ductile iron	Steel	Steel
2	Yoke	17-4 PH	17-4 PH	17-4 PH	17-4 PH	17-4 PH	17-4 PH	17-4 PH
3	Output shaft	17-4 SS	17-4 SS	4140	4140	4140	4140	4140
4	Piston rod	316 SS	316 SS	CPO	CPO	CPO	CPO	CPO
5	Bushing - output shaft	PTFE	PTFE composite	Bronze	PTFE composite	PTFE composite	Bronze	PTFE composite
6a	Yoke pin	18-8 SS	-	Steel	-	-	Steel	-
6b	Key - yoke	-	17-4 PH	Steel		Steel	Steel	
7	Bushing - piston rod	PTFE	PTFE	Bronze	Bronze	Bronze	Bronze	Bronze
8	Retaining ring - output shaft	15-7 MO	15-7 MO	Steel	Steel	Steel	Steel	Steel
9	Thrust pin	440C SS	440C SS	440C SS	440C SS	440C SS	440C SS	440C SS
10	Roller bearing	440C SS	440C SS	440C SS	440C SS	440C SS	440C SS	440C SS
11	Retaining ring - pin	15-7 MO	15-7 MO	Steel	Steel	Steel	Steel	Steel
12	Seal, thrust plate	NBR		NBR		NBR	Steel	
12a	Set screw	18-8 SS	-	18-8 SS		-	18-8 SS	
12b	Retaining ring - lower bearing	-	18-8 SS	Steel		Steel	Steel	
13	Pointer adaptor	Nylon		Nylon		Nylon	Nylon	
13a	Position indicator	304 SS	-	-	-	-	-	-
13b	Thrust plate	-	316 SS	Ductile iron		Ductile iron	Steel	
13c	Gasket, thrust plate	Fiber		Fiber		Fiber	Fiber	
14	Hex head bolt	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 ss	Steel
15	Lock washer	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 ss	Steel
16	Pointer	Soft PVC	Soft PVC	Soft PVC	Soft PVC	Soft PVC	Soft PVC	Soft PVC
17	Round head screw	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 ss	steel
18	Cover - housing	316 SS	316 SS	Steel	Steel	Steel	Steel	Steel
19	Hex head bolt	18-8 SS	18-8 SS	18-8 ss	Steel	Steel	18-8 SS	Steel
20	Lock washer	18-8 SS	18-8 SS	18-8 ss	Steel	Steel	18-8 SS	Steel
21	Pointer washer	18-8 SS	18-8 SS	18-8 ss	Steel	Steel	18-8 SS	Steel
22	Thrust washer	-	18-8 SS	Steel		Steel	Steel	
23	Gasket - cover	Fiber	Fiber	Fiber	Fiber	Fiber	Fiber	Fiber
24	Cylinder	316 SS	316 SS	316 SS	316 SS	Steel /XYLAN	316 SS	Steel /XYLAN
25	Piston	316 SS	316 SS	Ductile iron	Ductile iron	Ductile iron	Steel	Steel
26	Adaptor	316 SS	316 SS	Ductile iron	Ductile iron	Ductile iron	Steel	Steel

Item		S material		B material		C material	A material	
		003-100	135-1150	006-100	135-1150	135-1150	006-100	135-420
27	End cap	316 SS	316 SS	Ductile iron	Ductile iron	Ductile iron	Steel	Steel
28	Rod cover	316 SS	316 SS	Ductile iron	Ductile iron	Ductile iron	Steel	Steel
29	Seal - piston rod	NBR	NBR	NBR	NBR	NBR	NBR	NBR
30	Seal - piston bolt	NBR	NBR	NBR	NBR	NBR	NBR	NBR
31	Seal- piston	NBR	NBR	NBR	NBR	NBR	NBR	NBR
32	Gasket - housing	Fiber	Fiber	Fiber	Fiber	Fiber	Fiber	Fiber
33	Piston bolt	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 SS	Steel
34	Lock washer	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 SS	Steel
35	Bearing - piston	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
36	Thread seal	SS/EPDM	SS/EPDM	Steel/NBR	Steel/NBR	Steel/NBR	Steel/NBR	Steel/NBR
37	Travel stop bolt	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 SS	Steel
38	Jam nut	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 SS	Steel
39	Socket head cap screw	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 SS	Steel
41	Tie rod	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 SS	Steel
42	Seal - output shaft	-	-	NBR	-	-	NBR	-
43	Lock washer	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 SS	Steel
45	Stato-seal	NBR	NBR	NBR	NBR	NBR	NBR	NBR
46	Cylinder gasket or o-ring	TFE OR NBR	NBR	NBR	NBR	NBR	NBR	NBR
47	Label - nameplate	MYLAR	MYLAR	MYLAR	MYLAR	MYLAR	MYLAR	MYLAR
48	Seal - output shaft bushing	-	-	NBR	-	-	NBR	-
49	Cylinder - spring side	316 SS	316 SS	316SS	316 SS	Steel / XYLAN	316 SS	Steel / XYLAN
50	Tie rod - spring side	316 SS	316 SS	316 SS	Steel	Steel	316 SS	Steel
51	Hex head bolt	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 SS	Steel
52	Travel stop bolt	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 SS	Steel
53	Flat washer	18-8 SS	18-8 SS	18-8 SS	Steel	Steel	18-8 SS	Steel
54	End cap - spring side	316 SS	316 SS	Ductile iron	Ductile iron	Ductile iron	Steel	Steel
55	Spring - outer	Steel	Steel	Steel	Steel	Steel	Steel	Steel
56	Spring - inner	Steel	Steel	Steel	Steel	Steel	Steel	Steel
57	Breather	18-8 SS	18-8 SS	Steel	Steel	Steel	Steel	Steel
58	Label - spring	LEXAN	LEXAN	leXAn	LEXAN	LEXAN	LEXAN	LEXAN

Item		S Material 1480 - 2380	Item		B material 1480 - 2380	C material 1480 - 2380
1	Housing	316 SS	1	Housing	Ductile iron	Ductile iron
2	Yoke	17-4 PH	2	Yoke	Ductile iron	Ductile iron
			3	Guide block	Ductile iron	Ductile iron
			4	Piston rod - left	CPO	CPO
			4a	Piston rod - right	CPO	CPO
4	Piston rod	316 SS	4b	Jam nut - piston rod	Steel	Steel
5	Bearing - yoke	PTFE composite	5	Bearing - yoke	PTFE composite	PTFE composite
			6	Bearing - thrust pin	Steel	Steel
			6a	Bearing - guide bar	Steel	Steel
			6b	Thrust bearing - thrust pin	Nylon	Nylon
7	Bushong - piston rod	Bronze	7	Bushong - piston rod	Bronze	Bronze
			8	Guide bar	CPO	CPO
9	Thrust pin	440C SS	9	Thrust pin	440C SS	440C SS
10	Slide block	Bronze	10	Seal, bearing	NBR	NBR
11	Retaining ring - pin	15-7 MO	11	Retaining ring - accessory drive	Steel	Steel
12	Plug - thrust pin access	18-8 SS	12	Seal - guide bar	NBR	NBR
			12a	Seal, cap	NBR	NBR
			12b	Seal, accessory drive	NBR	NBR
13	Pointer adaptor	Nylon	13	Accessory drive	Steel	Steel
14	Drive bar	Steel	14	Drive bar	Steel	Steel
15	Screw, accessory drive	Steel	15	Cap	Ductile iron	Ductile iron
16	Pointer	Soft PVC	16	Pointer	Soft PVC	Soft PVC
17	Round head screw	18-8 SS	17	Round head screw	18-8 SS	Steel
18	Cover - housing	316 SS	18	Cover - housing	ductile iron	Ductile iron
19	Hex head bolt - cover	18-8 SS	19	Hex head bolt - cover	Steel	Steel
20	Lock washer - cover	18-8 SS	20	Lock washer - cover	Steel	Steel
21	Pointer washer	18-8 SS	21	Pointer washer	Steel	Steel
22	Vent valve	Brass	22	Vent valve	Brass	Brass
			23	Cup, spring	Ductile iron	Ductile iron
24	Cylinder	316 SS	24	Cylinder	316 SS	Steel / XYLAN
25	Piston	316 SS	25	Piston	Ductile iron	Ductile iron
26	Adaptor	316 SS	26	Adaptor	Ductile iron	Ductile iron
			26a	Spacer plate (1485-2385 only)	Ductile iron	Ductile iron
27	Endcap	316 SS	27	Endcap	Ductile iron	Ductile iron
28	Rod cover	316 SS	28	Rod cover	Ductile iron	Ductile iron
29	Seal - piston rod	NBR	29	Seal - piston rod	NBR	NBR
30	Seal - piston bolt	NBR	30	Seal - piston bolt	NBR	NBR

Item	S Material 1480 - 2380	Item	B material 1480 - 2380	C material 1480 - 2380
31 Seal - piston	NBR	31 Seal - piston	NBR	NBR
32 Gasket - housing	Fiber	32 Gasket - housing	Fiber	Fiber
33 Hex head bolt - piston	18-8 SS	33 Hex head bolt - piston	Steel	Steel
34 Lock washer - piston	18-8 SS	34 Lock washer - piston	Steel	Steel
35 Bearing - piston	PTFE	35 Bearing - piston	PTFE	PTFE
36 Thread seal	SS/EPDM	36 Thread seal	Steel/EPDM	Steel/EPDM
37 Travel stop bolt	18-8 SS	37 Travel stop bolt	Steel	Steel
38 Jam nut	18-8 SS	38 Jam nut	Steel	Steel
39 Socket head cap screw	18-8 SS	39 Socket head cap screw	Steel	Steel
40 Tie rod	18-8 SS	40 Tie rod	Steel	Steel
41 Seal - yoke	NBR	41 Seal - yoke	NBR	NBR
42 Lock washer	18-8 SS	42 Lock washer	Steel	Steel
43 Hex head bolt	18-8 SS	43 Hex head bolt	Steel	Steel
44 Stator-seal	NBR	44 Stator-seal	NBR	NBR
45 Cylinder o-ring	NBR	45 Cylinder o-ring	NBR	NBR
46 Label - nameplate	MYLAR	46 Label - nameplate	MYLAR	MYLAR
47 Seal - output shaft bushing	NBR	47 Seal - output shaft bushing		
48 Cylinder - spring side	316 SS		316 SS	Steel / XYLAN
49 Tie rod - spring side	316 SS	49 Tie rod - spring side	Steel	Steel
50 Hex head bolt	18-8 SS	50 Hex head bolt	Steel	Steel
51 Travel stop bolt	18-8 SS	51 Travel stop bolt	Steel	Steel
52 Flat washer	18-8 SS	52 Flat washer	Steel	Steel
53 Endcap - spring side	316 SS	53 Endcap - spring side	Ductile iron	Ductile iron
54 Spring - outer	Steel	54 Spring - outer	Steel	Steel
55 Spring - inner	Steel	55 Spring - inner	Steel	Steel
56 Breather	18-8 SS	56 Breather	Steel	Steel
57 Label - spring	LEXAN	57 Label - spring	LEXAN	LEXAN

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