

Actuators

Actuator Options and Accessories.....	2-8
Actuator Valves.....	2-7, 2-11, 2-13
Electric Actuators	2-10 — 2-14
Pneumatic Actuators	2-1 — 2-9

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General Description: Parker 60 Series spring return (AC/AO) or double acting (AD) rack and pinion actuators are compact, simply designed devices that are quality engineered to provide high torque outputs and a high cycle, trouble-free life.

A compact, dual opposed rack and pinion design and guide band suspension combine to produce a symmetrically balanced, center mount actuator. In addition, the actuator has a short powerful stroke, rapid response, and fully concentric operating load capability which ensures optimum performance.

Features:

- Three point suspension system uses carbon filled PTFE guide bands for piston alignment and rack support
- Dual opposed piston design uses air pressure on two pistons to deliver a balanced force to the pinion gear
- Patented balanced piston design results in even distribution of bearing loads and eliminates piston tilting
- Multiple spring concept permits actuator use at 40 to 120 psig air supply requirements
- Suitable for use with dry or lubricated air, non-corrosive gas, or light hydraulic oil
- Aluminum alloy body construction with two component polyurethane coating
- Manual override

PNEUMATIC ACTUATORS**SPECIFICATIONS****Operating Pressure**

90° Models: 40 to 120 psig maximum

AC – Normally Closed Spring Return

AD – Double Acting

AO – Normally Open Spring Return

180° Models: 80 psig maximum

ACX – Spring Return

ADX – Double Acting

Temperature Range

-4°F to 175°F

Optional high and low temperature

OPERATION

Actuators are manufactured with an integral air manifold and internal porting. The air manifold is designed for direct mounting of solenoid valves. This eliminates the need for external tubing and simplifies installation. For applications not requiring a solenoid valve, the air manifold inlet ports are marked "A" and "B". Air inlet port "A" will rotate the actuator counter-clockwise. Spring return actuators fail clockwise.

PNEUMATIC ACTUATORS

90° MODELS AD, AC AND AO

Performance Characteristics

Series	Bore (in.)	Stroke (in.)	Weight		Operating Time sec	Air Consumption in ³	
			AD lb	AC/AO lb		Port "A"	Port "B"+
61	1.8	0.5	1.3	1.5	0.4	3.1	3.7
62	2.2	0.6	2.9	3.7	0.5	6.1	6.7
63	2.8	0.7	4.0	5.3	0.7	9.8	13.4
65	3.1	0.9	5.3	7.9	1.1	20.1	22.0
66	3.6	1.0	6.8	10.1	1.2	21.4	29.9

+Double acting only

AD Torques

Series	40 psig in-lb	60 psig in-lb	80 psig in-lb	100 psig in-lb
61	59	89	119	149
62	109	165	220	276
63	205	309	413	518
65	312	471	630	789
66	461	696	930	1165

AC and AO Torques

Series	Spring Set	Air Torque				Spring Torque in-lb
		40 psig in-lb	60 psig in-lb	80 psig in-lb	100 psig in-lb	
61	2	-	23	55	87	41
62	2	44	103	162	220	39
62	3	8	66	126	185	58
62	4	-	31	90	149	78
62	5	-	-	54	113	98
62	6	-	-	18	77	117
63	2	82	193	304	413	74
63	3	15	126	236	346	110
63	4	-	58	169	279	146
63	5	-	-	101	212	183
63	6	-	-	34	144	220
65	2	117	285	453	622	117
65	3	10	178	347	515	175

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PNEUMATIC ACTUATORS

90° MODELS AC AND AO

AC and AO Torques

continued from previous page

Series	Spring Set	Air Torque				Spring Torque in-lb
		40 psig in-lb	60 psig in-lb	80 psig in-lb	100 psig in-lb	
65	4	-	72	240	408	234
65	5	-	-	133	301	292
65	6	-	-	26	195	351
66	2	192	441	690	939	161
66	3	43	293	542	790	242
66	4	-	143	392	641	323
66	5	-	-	244	492	403
66	6	-	-	95	344	484

2

PNEUMATIC ACTUATORS

180° MODELS ACX AND ADX

Performance Characteristics

Series	Bore (in.)	Stroke (in.)	Weight		Operating Time sec	Air Consumption in ³	
			AD lb	AC lb		Port "A"	Port "B"+
61	1.8	1.0	1.9	2.4	0.8	4.5	5.7

+Double acting only

ADX Torques

Series	40 psig in-lb	60 psig in-lb	80 psig in-lb
61	59	89	119

ACX Torques

Series	Spring Set	Air Torque			Spring Torque in-lb
		40 psig in-lb	60 psig in-lb	80 psig in-lb	
61	2	-	25	57	39

PNEUMATIC ACTUATORS

Recommended Actuators for B, MB, and HB Series Ball Valves*

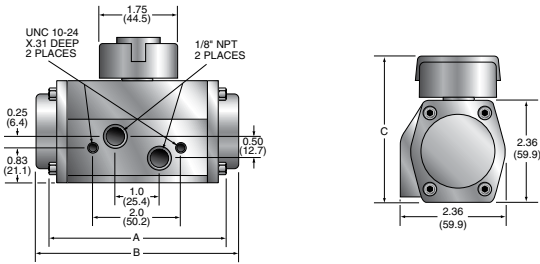
Valve Series	Double Acting AD	Spring Return AO	Spring Return AC
B2LJ	61AD	61AO-2	61AC-2
B2LJ2	61AD	61AO-2	61AC-2
B2XJ	61ADX	61ACX-2	61ACX-2
B2XJ2	61ADX	61ACX-2	61ACX-2
B6LJ	61AD	61AO-2	61AC-2
B6LJ2	61AD	61AO-2	61AC-2
B6LS2	61AD	61AO-2	61AC-2
B6LPKR	61AD	61AO-2	61AC-2
B6LSPKR	61AD	61AO-2	61AC-2
B6XJ	61ADX	61ACX-2	61ACX-2
B6XJ2	61ADX	61ACX-2	61ACX-2
B6XS2	61ADX	61ACX-2	61ACX-2
B6XPKR	61ADX	61ACX-2	61ACX-2
B6XSPKR	61ADX	61ACX-2	61ACX-2
B8LJ	61AD	61AO-2	61AC-2
B8LJ2	61AD	62AO-3	62AC-3
B8LS2	61AD	62AO-3	62AC-3
B8LPKR	61AD	62AO-3	62AC-3
B8XJ	61ADX	61ACX-2	61ACX-2
B8XJ2	61ADX	ACX64-3	ACX64-3
B8XS2	61ADX	ACX64-3	ACX64-3
B8XPKR	61ADX	ACX64-3	ACX64-3
HB4LPKR	61AD	62AO-3	62AC-3
HB4LK	61AD	61AO-2	61AC-2
HB4XPKR	61ADX	ACX62-3	ACX62-3
HB4XK	61ADX	61ACX-2	61ACX-2
MB2A	61AD	61AO-2	61AC-2
MB2L	61AD	61AO-2	61AC-2
MB2X	61ADX	61ACX-2	61ACX-2
MB4A	61AD	61AO-2	61AC-2
MB4L	61AD	61AO-2	61AC-2
MB4X	61ADX	61ACX-2	61ACX-2
MB6A	61AD	61AO-2	61AC-2
MB6L	61AD	61AO-2	61AC-2
MB6X	61ADX	61ACX-2	61ACX-2
SWB4	61AD	61AO-2	61AC-2
SWB8	61AD	62AO-3	62AC-3
SWB12	61AD	62AO-3	62AC-3
SWB16	62AD	62AO-3	62AC-3

*With 60 psig actuation pressure



PNEUMATIC ACTUATORS

DIMENSIONAL DATA FOR 61 MODEL

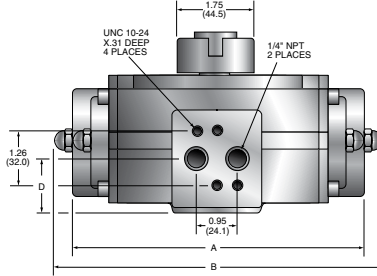
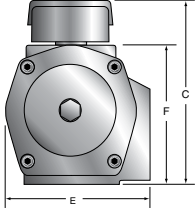


Dim.	61AD (in.)	61AC/O (in.)	61ADX (in.)	61ACX (in.)
A	4.06	-	6.10	--
B	-	4.65	-	8.50
C1	3.38	3.38	3.38	3.38
C2	2.36	2.36	2.36	2.36

C1 – Single Mount C2 – Dual Mount

PNEUMATIC ACTUATORS

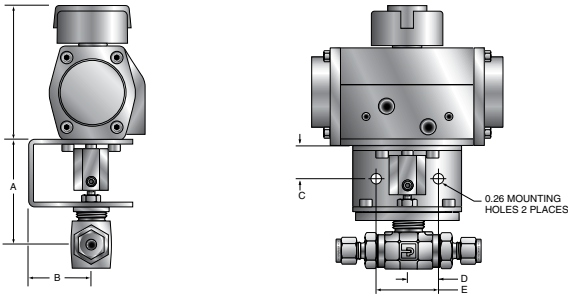
62, 63, 64, 65, 66 AND 69 MODELS



Part No.	A (in.)	B (in.)	C		D (in.)	E (in.)	F (in.)
			Single Mount (in.)	Dual Mount (in.)			
62AD	6.26	-	4.17	3.15	1.26	2.91	3.15
62AC/O	-	6.77	4.17	3.15	1.26	2.91	3.15
63AD	7.09	-	4.68	3.86	1.32	3.39	3.66
63AC/O	-	8.03	4.68	3.86	1.32	3.39	3.66
ADX64	6.34	-	5.00	3.98	1.69	4.27	3.98
ACX64	-	7.17	5.00	3.98	1.69	4.27	3.98
65AD	7.83	-	5.15	4.13	1.54	3.86	4.13
65AC/O	-	9.8	5.15	4.13	1.54	3.86	4.13
66AD	8.70	-	5.67	4.65	1.59	4.25	4.65
66AC/O	-	10.51	5.67	4.65	1.59	4.25	4.65
69AD	11.14	-	6.65	5.63	1.99	5.04	5.63
69AC/O	-	14.17	6.65	5.63	1.99	5.04	5.63

PNEUMATIC ACTUATORS

VALVES



Model Shown: 4Z-B6LJ-V-SS-61AC-2

Valve Series	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)
B2	2.23	1.61	0.80	0.75	1.50
B6	2.49				
B8	2.91				
MB2	2.33				
MB4	2.33				
MB6	2.48				
HB4	2.70				
SWB4	2.57	1.25	0.82	0.75	1.50
SWB8	2.79				
SWB12	2.95				
SWB16	3.14				

PNEUMATIC ACTUATORS

OPTIONS

Suffix	Accessory
Single Option	
-1A	Breather Block
-1B	Solenoid Valve, (NEMA 4, 120 VAC)
-1C	Solenoid Valve, (NEMA 7, 120 VAC)
-1D	Solenoid Valve, (NEMA 4, 24 VDC)
-1E	Solenoid Valve, (NEMA 7, 24 VDC)
-1F	Solenoid Valve, (NEMA 4, 240 VAC)
-1G	Solenoid Valve, (NEMA 7, 240 VAC)
-1H	Limit Switch – Two SPDT switches with mounting kit
Double Option	
-2A	Breather Block, Solenoid Valve, (NEMA 4, 120 VAC)
-2B	Breather Block, Solenoid Valve, (NEMA 7, 120 VAC)
-2C	Breather Block, Solenoid Valve, (NEMA 4, 24 VDC)
-2D	Breather Block, Solenoid Valve, (NEMA 7, 24 VDC)
-2E	Breather Block, Solenoid Valve, (NEMA 4, 240 VAC)
-2F	Breather Block, Solenoid Valve, (NEMA 7, 240 VAC)
-2G	Limit Switch, Solenoid Valve, (NEMA 4, 120 VAC)
-2H	Limit Switch, Solenoid Valve, (NEMA 7, 120 VAC)
-2J	Limit Switch, Solenoid Valve, (NEMA 4, 24 VDC)
-2K	Limit Switch, Solenoid Valve, (NEMA 7, 24 VDC)
-2L	Limit Switch, Solenoid Valve, (NEMA 4, 240 VAC)
-2M	Limit Switch, Solenoid Valve, (NEMA 7, 240 VAC)
Triple Option	
-3A	Breather Block, Limit Switch, Solenoid Valve, (NEMA 4, 120 VAC)
-3B	Breather Block, Limit Switch, Solenoid Valve, (NEMA 7, 120 VAC)
-3C	Breather Block, Limit Switch, Solenoid Valve, (NEMA 4, 24 VDC)
-3D	Breather Block, Limit Switch, Solenoid Valve, (NEMA 7, 24 VDC)
-3E	Breather Block, Limit Switch, Solenoid Valve, (NEMA 4, 240 VAC)
-3F	Breather Block, Limit Switch, Solenoid Valve, (NEMA 7, 240 VAC)

PNEUMATIC ACTUATORS**HOW TO ORDER****PNEUMATIC ACTUATORS****Factory Assembled**

Add the actuator model designation as a suffix to the ball valve part number.

Example: **4Z-B6LJ2-SS-61AC-2**. Describes a B6 ball valve with a normally closed actuator.

For Field Assembly

Simply specify the actuator.

Example: **65AC-3**. Mounting bracket kits are required when mounting actuators to valves.

With Mounting Brackets

Specify the ball valve series and seat material followed by the actuator.

Examples: **B6LJ-61AO-2**, **MB6XPFA-61ACX**, **SWB12LRT-62AC-3-**

OPTIONS

High Temperature Seals – Add the suffix –**HT** to the end of the part number for service up to 250°F. Add the suffix –**HT4** to the end of the part number for service up to 400°F. **NOTE:** The –**HT4** option is only available on series 62 and 63 90° models. Example: 2F-HB4LK-BN-SS-61AD-**HT**.

Low Temperature Seals – Add the suffix –**LT** to the end of the part number.

Example: 4A-MB4LPFA-SS-61SAC-**LT**.

Accessories – Add one of the following suffixes to the end of the part number.

Example: 16F-SWB16L-RT-T-SS-63AC-3-**2D**.

General Description: Parker 70 and 80 Series Electric Actuators are designed for electric actuation of Parker's B Series, MB Series, HB Series, and SWB Series Ball Valves. They provide reliable, cost effective, remote valve actuation. The simplicity of design provides accessible and easy wiring installation. The convenience and accuracy of advanced modular electronics gives the user the ability to wire in accessories without all the hard wiring hassles. The master PC ("mother") board accepts plug-in modular ("daughter") boards to allow for a variety of accessory functions. Other than connecting a power source, there is no internal wiring to tangle with, ever. With a variety of accessories as well as superior actuator design, Parker's Ball Valves with the 70 or 80 Series actuators are the obvious choice.

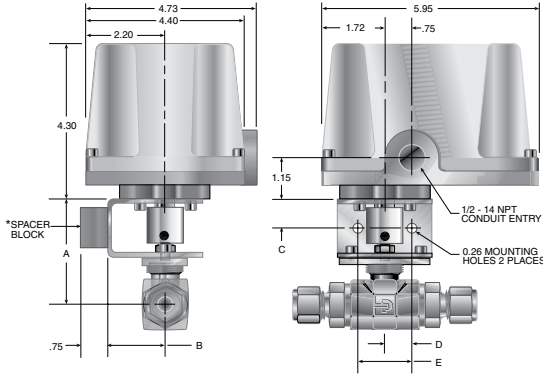
Features:

- Single direction actuation
- PVC cover resists damage/UV radiation
- NEMA 4 (weatherproof), 4X (weatherproof with corrosion resistance)
- Hardened steel spur gear drive train provides consistent, long life performance
- Permanently lubricated gear drive train and bearings
- Low profile design/direct drive male output permit limited space installation
- Available for the B Series, MB Series, HB Series and SWB Series ball valves
- Available for 2-way (90°) and 3-way (180°) configurations.
- Approximate weight: 6 lb
- CSA certified (Standard)
- Two Limit Switches: Single pole, double throw, rated for 1/3 HP, 10 amps @ 125/230 VAC, CSA certified

ELECTRIC ACTUATORS**70 SERIES****SPECIFICATIONS**

- Voltage: 24, 115 or 230 VAC (50/60 Hz); 12 or 24 VDC
- Torque: 150, 300, 600 in lb
- Enclosure: PVC composite
- Duty cycle: 25%; 100% (VDC models)
- Actuator bolt pattern: ISO standard (5211)
- Conduit connection: 1/2" NPT
- Output shaft: Male, zinc plated steel
- Temperature limits (all models): 32°F to 150°F;
(-40°F minimum with heater and thermostat)

ELECTRIC ACTUATORS
70 SERIES



Valve Type	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)
B2	2.23	1.61	0.80	0.75	1.50
B6	2.49				
B8	2.91				
MB2	2.33				
MB4	2.33				
MB6	2.48				
HB4	2.70	1.25	0.82		
SWB4	2.57				
SWB8	2.79				
SWB12	2.95				
SWB16	3.14				

* Spacer block ordered separately

Actuator Model	Breakaway Torque (in. lb.)	Voltage	Duty Cycle	Cycle Time (sec)	Amps at stall (Nominal)			Approx. Weight (lb.)
					24 VAC	115 VAC	230 VAC	
71	150	24 VAC	25%	5	5.2	1.3	0.7	6
72	300	115 VAC or		9	7.2	1.8	0.9	
73	600	230 VAC		16	7.2	1.3	0.7	

Actuator Model	Breakaway Torque (in. lb.)	Voltage	Duty Cycle	Cycle Time (sec)		Amps at Running Torque (Nominal)		Approx. Weight (lb.)
				12 VDC	24 VDC	12 VDC	24 VDC	
72	300	24 VDC	100%	**	9	**	0.5	6
73	600	12 VDC or 24 VDC		16	16	1.3	0.5	

NOTE: Cycle times reflect 90° rotation. For 180° rotation, double the cycle time. **12 VDC not available with this model.

General Description: Parker 70 and 80 Series Electric Actuators are designed for electric actuation of Parker's B Series, MB Series, HB Series, and SWB Series Ball Valves. They provide reliable, cost effective, remote valve actuation. The simplicity of design provides accessible and easy wiring installation. The convenience and accuracy of advanced modular electronics gives the user the ability to wire in accessories without all the hard wiring hassles. The master PC ("mother") board accepts plug-in modular ("daughter") boards to allow for a variety of accessory functions. Other than connecting a power source, there is no internal wiring to tangle with, ever. With a variety of accessories as well as superior actuator design, Parker's Ball Valves with the 70 or 80 Series actuators are the obvious choice.

Features:

- Bi-directional actuation
- Mother/daughter board, modular electronics technology
- Circuit board readily accepts plug-in connectors
- Variety of plug-in accessory boards are available
- Easy installation, no hard-wiring required
- NEMA 4 (weatherproof), 4X (weatherproof with corrosion resistance), NEMA 7 (explosion proof, gases) & 9 (explosion proof, dust) - Class I, Div. I, Group C&D; Class II, Div. I, Group E, F, and G; Class III
- Highly efficient spur gear power train
- Lubrication: Permanently lubricated gear train and bearings
- Manual override
- Visual position indicator
- Available for the B Series, MB Series, HB Series and SWB Series ball valves
- Available for 2-way (90°) and 3-way (180°) configurations
- Approximate weight: 17 lb
- CSA certified (Option)
- Two Limit Switches: Single pole, double throw, rated for 1/3 HP, 10 amps @ 125/230 VAC, CSA certified

ELECTRIC ACTUATORS**80 SERIES****SPECIFICATIONS**

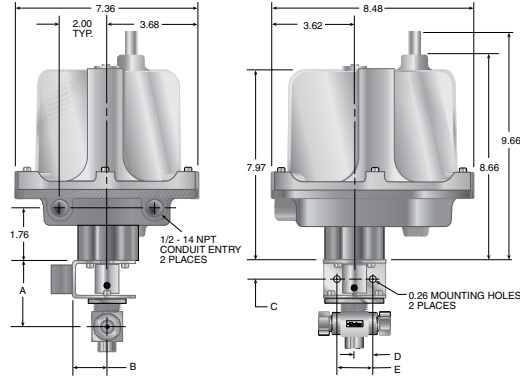
- Voltage: 24, 115 or 230 VAC (50/60 Hz); 12 or 24 VDC
- Torque: 150, 300, 600, 1000 in lb
- Enclosure: Epoxy coated cast aluminum
- Duty cycle: 75%; 100% (VDC models)
- Actuator bolt pattern: ISO standard (5211)
- Conduit connection: 1/2" NPT (2 places)
- Output drive: ISO compatible female drive output
- Temperature limits (all models): 32° F to 150° F; (-40° F minimum with heater and thermostat)

STANDARD OPTIONS

- Additional limit switches and cams (specify up to 2)
- Heater and thermostat (For operation to -40° F)
- Modulating control package with position re-transmit (4-20mA, 0-10 VDC, includes potentiometer)
- CE (European Conformity) marking available
- CSA Certified

ELECTRIC ACTUATORS

80 SERIES



Valve Type	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)
B2	2.23	1.61	0.80	0.75	1.50
B6	2.49				
B8	2.91				
MB2	2.33				
MB4	2.33				
MB6	2.48				
HB4	2.70				
SWB4	2.57	1.25	0.82		
SWB8	2.79				
SWB12	2.95				
SWB16	3.14				

Actuator Model	Breakaway Torque (in. lb.)	AC				DC			
		Cycle Time (sec)	Voltage	Duty Cycle	Amp** Draw (@115 VAC)	Cycle Time (sec)	Voltage	Duty Cycle	Amp** Draw (@12 VDC)
81	150	10	115	75%	0.3	5	12 VDC	100%	1.1
82	300	15	230		0.3	10	OR		1.1
83	600	30	OR	0.3	15	24 VDC†		1.1	
84‡	1000	25‡	24 VAC	0.5	15‡			2.6	

NOTE: Cycle times reflect 90° rotation. For 180° rotation, double the cycle time.
 **Amps rated at full running torque. Amp draws shown are for 115 VAC and 12VDC only. For other voltages, consult the factory.
 †24 VDC cycle time and amp draw are half of 12 VDC.
 ‡Large 80 Series enclosure must be ordered (consult factory).

Duty Cycle: The percentage of time an electric actuator may operate in relation to the time it must rest. It equals “on time” divided by total elapsed time, multiplied by 100. For example, an actuator with a duty cycle of 25% and a cycle time of five seconds must rest for 15 seconds before operating again.

HOW TO ORDER

Electric Actuators for Field Assembly

The correct part number is easily derived by following the circled number sequence.

Example: 71 - T
 ① ② ③ ④

Describes a Model 71, 2-Way electric actuator unit with a NEMA 4 and 4X rating, a 115 VAC motor with optional heater and thermostat.

① Actuator Model	② Flow Pattern	③ Voltage	④ Options
71 72 73 71R 72R 73R 81 82 83 84	Blank - 2-Way X - 3-Way	Blank - 115 VAC A - 230 VAC B - 24 VAC C - 12 VDC D - 24 VDC	T - Heater and Thermostat S# - Additional Limit Switch; # = number of limit switches required C - Modulating Control Package with position re-transmit (4-20mA, 0-10 VDC includes potentiometer) [‡] F - Position Indicator (70R Series only) CE - European Conformity Marking *CSA - Canadian Standard

NOTE: Mounting bracket kits are required when ordering actuators for field assembly.
 *CSA - Standard on 70 series (optional on 80 series)

Electric Actuators Factory Assembled

The correct part number is easily derived by following the circled number sequence.

Example: 4Z-MB6XPFA-SS - 81 X A -
 ① ② ③ ④ ⑤

Describes a Model 81, 3-Way electric actuator unit with a NEMA 4, 4X, 7 and 9 rating, a 230 VAC motor and no options, mounted on a MB Series ball valve.

① Valve Part Number	② Actuator Model	③ Flow Pattern	④ Voltage	⑤ Options
See the "How to Order" Section for the desired valve series	71 72 81 73 82 71R 83 72R 84 73R	Blank - 2-Way X - 3-Way	Blank - 115 VAC A - 230 VAC B - 24 VAC C - 12 VDC D - 24 VDC	T - Heater and Thermostat S# - Additional Limit Switch; # = number of limit switches required C - Modulating Control Package with position re-transmit (4-20mA, 0-10 VDC includes potentiometer) [‡] F - Position Indicator (70R Series only) CE - European Conformity Marking

NOTE: Parker electrically actuated, B Series Ball Valves should be ordered with elastometric stem packing and seals or the optional live loaded PTFE packing. This reduces the need for any further packing adjustment after receipt from the factory.

[‡] For 80 Series electric actuators only.