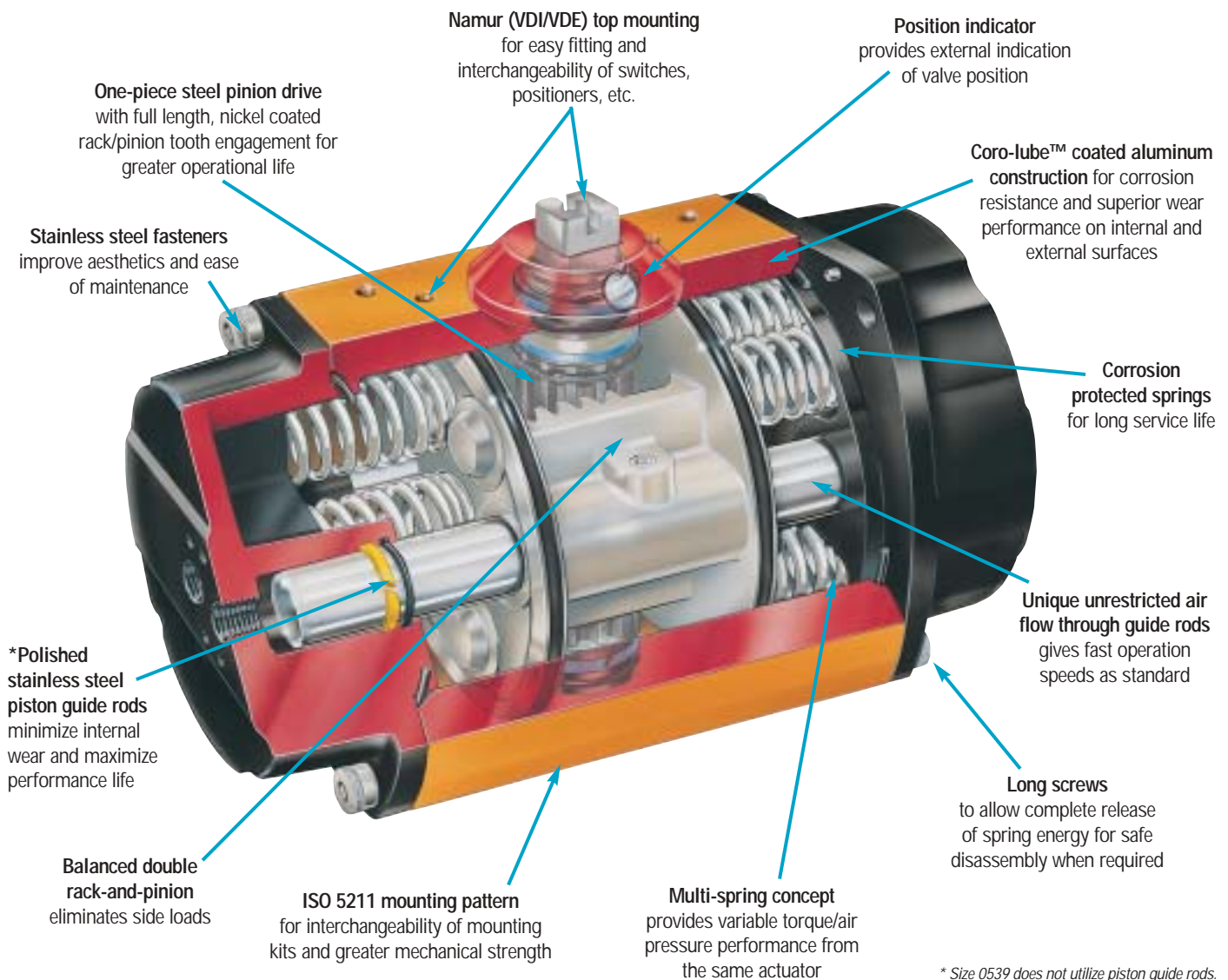


## *Series 39 Pneumatic Actuator*

*Twin piston double rack-and-pinion pneumatic actuator  
offers long cycle life for rotary applications*

# Series 39 Pneumatic Actuators

*High cycle pneumatic power for on-off or throttling control of rotary valves and dampers*



*\* Size 0539 does not utilize piston guide rods.*

## Features and Benefits

- Available as spring return or double acting
- Large range of sizes for efficient torque matching
- All parts sealed and greased for life, no maintenance required
- Safe disassembly, no special tools required
- Can be mounted for fail-open or fail-closed operation
- Backed by our exclusive two-year warranty

# Operating Principle

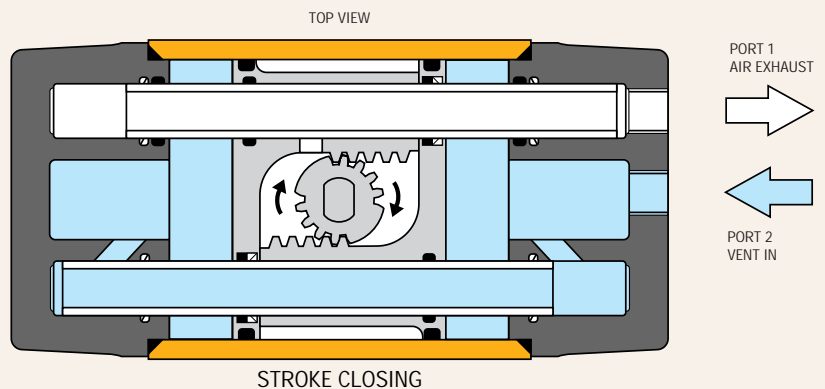
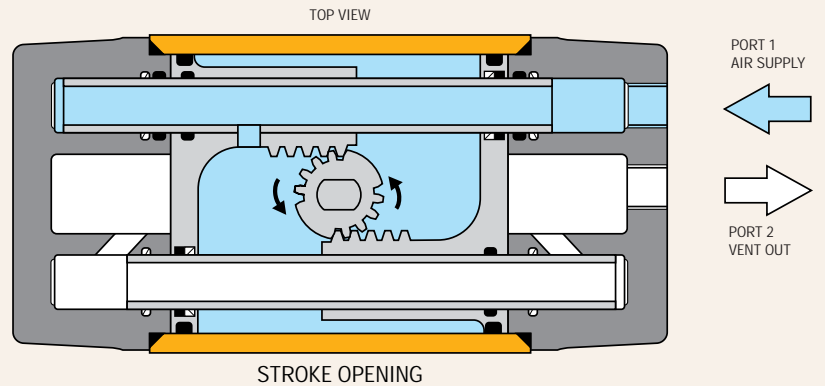


The Series 39 Pneumatic Actuator design is based on the opposed rack-and-pinion principle utilizing piston guide rods to guarantee part alignment. The fully supported guide rods minimize friction and wear between the pistons and the body bore.

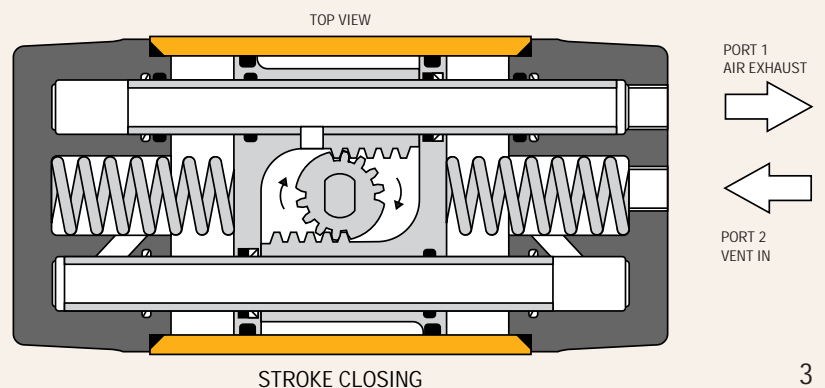
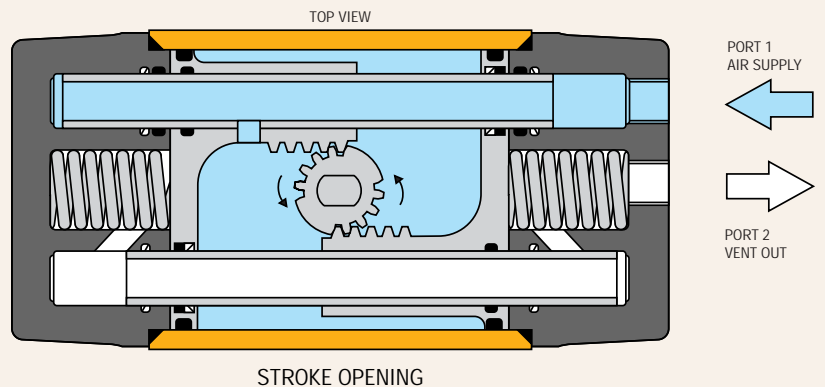
In the double acting actuator, compressed air is applied to Port 1. The air flows through the rear guide rod, enters the center chamber to push the pistons apart, turning the shaft counter-clockwise (as seen from above) to open the valve. During this action, air in the end caps is vented through Port 2 via the front guide rod. Action is reversed, i.e. the valve is closed, by applying air to Port 2 and venting air through Port 1.

In a fail-safe spring return actuator, springs are nested in the end caps. The number of springs in each cap depends on the available supply air pressure and required torque output. Air is supplied through Port 1 to the center chamber to push the pistons apart which compresses the springs. During this action, air in the end caps is vented through Port 2 via the front guide rod. When air is vented out through Port 1 (via a three-way solenoid valve) the springs push the pistons back together thus closing the valve. Port 2 is continuously vented. The springs provide a dependable, safe closure in the event of electrical or air supply failure.

## DOUBLE ACTING ACTUATOR 39



## SPRING RETURN ACTUATOR 39S

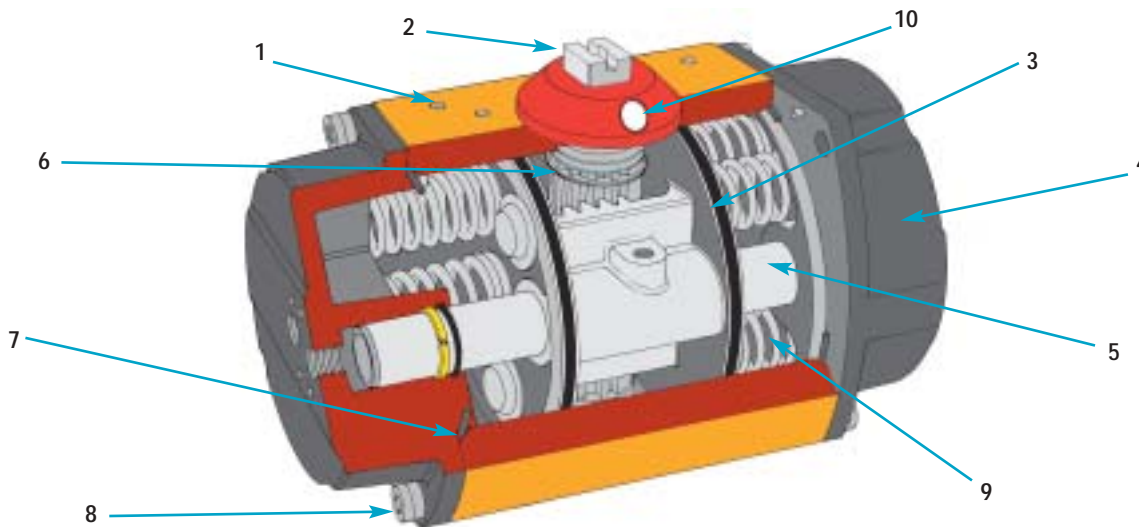


## Product Specifications

- Pneumatic Actuators shall be of a dual-piston design for compactness, highest torque output, minimal air consumption and even weight distribution (balanced) on the valve stem.
- Actuators shall be equipped with two piston guide rods to bear the lateral rack-and-pinion thrust forces, increasing piston seal life and eliminating the possibility of cylinder scratching by the pistons. Elastomeric seals shall not be loaded as bearings.
- The torque shall be generated through a double rack-and-pinion gearing mechanism with full-length, uninterrupted engagement of the rack-and-pinion teeth.
- The rack shall be machined as part of the piston in order to extend the actuator life and eliminate hysteresis.
- Actuator housings shall be protected both internally and externally with a nickel acetate filled coating for corrosion resistance.
- Single acting actuators shall use multi-springs at each end to eliminate uneven forces on the pistons and shall be field adaptable to reduced pressure air supplies.
- Actuators shall have external extended shafts for position indication and manual override capability.
- Actuators shall have optional integral end-mounted limit switches, reducing overall height and allowing the use of extended actuator shafts as manual override.
- Actuators shall have optional integral solenoid valving without the use of transfer tubes. Valving shall incorporate fail-safe action upon interruption of electrical signal.
- Actuator manufacturer shall offer the minimum of a two-year warranty.

As manufactured and offered by Flowserve.

## Parts List/Material Specifications



ITEM NO.	DESCRIPTION	MATERIAL/FINISH
1	Body	Aluminum (Extrusion) Anodized
2	Pinion	Carbon Steel (Corrosion Resistant Coated)
3	Pistons	Aluminum
4	End Caps	Aluminum Anodized
5	Guide Rods	Stainless Steel
6	Bearings	Acetal
7	"O" Rings	Nitrile Rubber
8	End Cap Screws	Stainless Steel
9	Springs	Chrome Silicon (Corrosion Resistant Coated)
10	Position Indicator	Polyethylene

# Solenoid Mounting

## SOLENOID BLOCK - DIRECT MOUNTED

The solenoid end cap of each actuator is pre-drilled to allow rapid attachment of either a double acting or spring return solenoid control block.

The double acting solenoid control block provides extremely fine and independent adjustments for speed control on the opening and closing strokes of a double acting actuator (20:1 ratio). The double acting solenoid control block can be overridden by manual operation of the control block spool.

The spring return solenoid control block provides an optional adjustment for speed control on the spring stroke of a spring return actuator.

Both double acting and spring return styles will return to the actuator "closed" position (pistons together) upon electrical failure.

### General Purpose TYPE1 Solenoid Coil Data

(Class A Coil)

VOLTAGE	INRUSH AMPS	HOLDING AMPS
24 VAC 50/60 Hz	1.20	.80
120 VAC 50/60 Hz	.30	.15
240 VAC 50/60 Hz	.12	.08
12 VDC	—	.70
24 VDC	—	.35

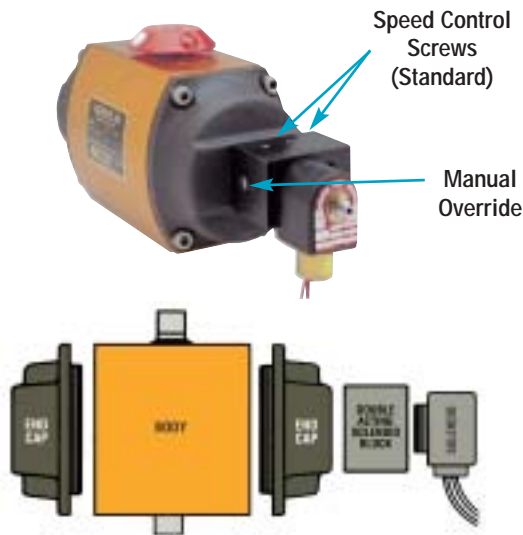
### Watertight/Hazardous Locations TYPE 4, 4x, 7 & 9 Solenoid Coil Data

(Class F Coil)

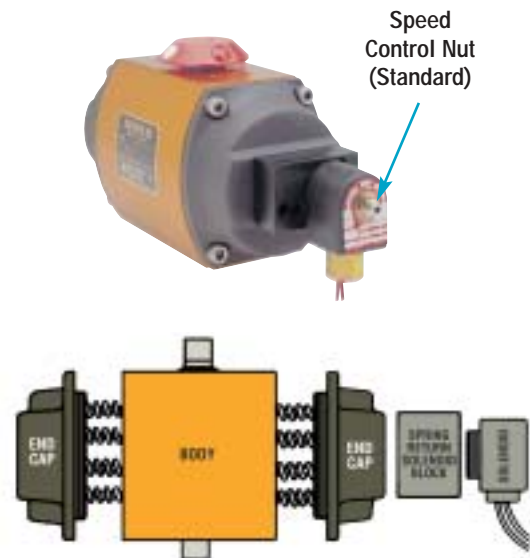
VOLTAGE	INRUSH AMPS	HOLDING AMPS
24 VAC 50/60 Hz	1.13	.71
120 VAC 50/60 Hz	.23	.14
240 VAC 50/60 Hz	.11	.07
12 VDC	—	.81
24 VDC	—	.41

Solenoids are available in the following types: General Purpose TYPE 1; Watertight TYPE 4, 4x; Hazardous Locations TYPE 7 (UL & CSA listed for Class I, Division I, Groups A, B, C & D) and TYPE 9 (UL & CSA listed for Class II, Groups E, F & G). The Type 7 solenoid is also rated Type 4, 4x.

### Four-Way Double Acting Solenoid



### Three-Way Spring Return Solenoid



## Namur Solenoid Interface

Optional Namur VDI/VDE 3845 interface end caps and direct mount Namur solenoids are available making the Series 39 a truly international actuator. All ports are G 1/4 except size 05 and 10, which are G 1/8. Consult table on back cover for ordering details.

Three-way Namur solenoids include a standard rebreather feature.



Namur End Cap  
(designated V64)



Namur  
Mounted Solenoid



# Torque Output

## Sizing

Determine appropriate valve torque requirements from valve literature. For double acting actuators, select the actuator whose torque output at available air supply exceeds breakaway torque requirements of the valve. For detailed instructions, consult Worcester Controls' Ball Valve Actuator Selection Manual, brochure V400.

For fail-closed, spring return actuators, select the appropriate size actuator whose torque output at end of the spring stroke (at available air supply) is sufficient to close the valve.

For fail-open spring return actuators, select appropriate actuator whose torque output at the end of the air stroke is sufficient to close the valve. For fail-open actuators, it is also necessary to determine that the torque output at the start of the spring stroke exceeds breakaway requirements of the valve.

## Spring Return Actuator

		Operating Pressure												psi (Bar)
		30 (2.0)		40 (2.7)		50 (3.4)		60 (4.1)		70 (4.8)		80 (5.4)		
No. of Springs		2		4		6		8		8		10		
Model No.	Stroke	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	
	Air	70	40	85	60	105	60	125	70	170	120	175	95	
1039	Spring	58	35	60	35	95	55	125	75	125	75	160	95	
	Air	140	60	130	85	200	125	240	150	260	155	325	190	
1539	Spring	100	60	105	74	165	105	220	145	220	145	280	185	
	Air	220	150	300	240	340	235	415	280	575	440	600	360	
2039	Spring	140	95	190	125	300	195	400	265	400	265	505	335	
	Air	220	110	260	400	600	350	730	420	925	655	980	550	
2539	Spring	240	170	345	210	540	330	720	450	720	450	915	575	
	Air	324	180	840	610	965	600	1130	690	1575	1145	1650	920	
3039	Spring	456	264	560	340	870	535	1160	730	1160	730	1470	920	
	Air			1550	1160	1810	1200	2060	1220	2700	1860	2950	1900	
3339	Spring			1070	680	1680	1070	2300	1460	2300	1460	2900	1850	
	Air	1560	1260	2100	1470	2360	1450	2850	1730	3570	2615	3850	2210	
3539	Spring	900	720	1330	850	2070	1330	2770	1815	2770	1815	3500	2300	
	Air			3410	2300	3980	2350	4470	2390	5620	3450	6150	3500	
4039	Spring			385	260	450	266	505	270	635	390	695	396	
	Air			2490	1500	3730	2240	4970	2980	4970	2980	6210	3740	
4239	Spring			435	170	422	253	562	337	562	337	702	423	
	Air			6550	4520	7280	4140	7960	3390	10510	6190	10920	5590	
	Spring			740	511	822	468	899	383	1187	699	1233	632	
	Air			4560	2390	6900	3800	9290	4890	9290	4890	11720	6370	
No. of Springs				12		16		18		22		24		
4539	Spring			8700	4000	10600	4300	13200	5900	14900	6100	17600	8000	
	Air			983	452	1200	485	1490	667	1680	689	1990	904	
5039	Spring			8300	4000	11800	5500	15600	6300	16600	7800	18000	8400	
	Air			938	452	1330	622	1760	712	1880	881	2030	949	
	Spring			12500	6000	15500	6000	19500	8500	21800	8000	26500	11500	
	Air			1410	678	1750	678	3250	960	2460	904	2990	1330	
	Spring			13000	6500	18000	8500	20500	9500	26000	12200	28500	13500	
	Air			1470	7340	2030	960	2320	1070	2940	1380	3220	1520	

N m = Newton meter, the standard metric measure of torque.

N m = Newton meter, the standard metric measure of torque.

## Double Acting Actuator

		Operating Pressure										psi (Bar)
		30 (2.0)	40 (2.7)	50 (3.4)	60 (4.1)	70 (4.8)	80 (5.4)	90 (6.1)	100 (6.8)	110 (7.5)	120 (8.2)	
05		33.6	48.6	59.7	73.5	86.3	97.4	106	126	137	148	
1039	Air	80	125	160	200	245	270	310	350	385	425	in-lb
		9.3	14.1	18.1	22.5	27.7	30.5	35.0	39.6	43.5	48.0	N m
1539	Air	155	240	300	370	460	510	580	650	725	790	in-lb
		17.6	27.1	33.9	41.8	52.0	57.6	65.5	73.4	81.9	89.3	N m
2039	Air	285	435	545	680	840	935	1070	1200	1330	1460	in-lb
		32	49.1	61.6	76.8	94.9	106	121	136	150	165	N m
2539	Air	590	785	980	1180	1375	1570	1770	1965	2160	2355	in-lb
		66.6	88.4	111	133	155	177	200	222	244	266	N m
3039	Air	790	1200	1500	1860	2305	2580	2935	3290	3645	4000	in-lb
		89	136	169	210	260	292	332	372	412	452	N m
3339	Air	1600	2230	2280	3520	4160	4800	5430	6070	6720	7330	in-lb
		181	252	325	398	470	542	614	686	760	828	N m
3539	Air	2220	2975	3900	4800	5600	6400	7200	8000	8800	9600	in-lb
		250	336	441	542	633	723	814	904	994	1080	N m
4039	Air	3510	4710	6170	7390	8710	10040	11400	12700	13970	15270	in-lb
		397	532	697	835	984	1135	1288	1435	1579	1726	N m
4239	Air	6500	8700	10900	13090	15330	17530	19720	21920	24120	26310	in-lb
		734	983	1232	1479	1732	1981	2228	2477	2725	2973	N m
4539	Air	9000	12700	16100	19500	22700	26000	29400	32600	36000	39500	in-lb
		1016	1430	1820	2200	2560	2940	3320	3680	4070	4460	N m
5039	Air	13145	19000	24000	29000	34000	40000	45000	50000	55000	60000	in-lb
		1485	2150	2710	3280	3840	4520	5080	5650	6210	6780	N m

### Torque Output Series 0539 Two-Spring Return Actuator

Operating Pressure							
	50 (3.4)		60 (4.1)		70 (4.8)		psi (Bar)
	Start	End	Start	End	Start	End	
Air	28 (3.2)	16 (1.9)	35 (4.3)	30 (3.4)	50 (5.7)	41 (4.5)	in-lb N m
Spring	42 (4.7)	32 (3.6)	42 (4.7)	32 (3.8)	42 (4.7)	32 (3.6)	in-lb N m

### Torque Output Series 0539 Four-Spring Return Actuator

Operating Pressure			
	80 (5.4)		psi (Bar)
	Start	End	
Air	45 (5.1)	30 (3.4)	in-lb N m
Spring	53 (6.0)	41 (4.6)	in-lb N m

### Torque Output Series 0539 Double Acting Actuator

Operating Pressure										
	30 (2.0)	40 (2.7)	50 (3.4)	60 (4.1)	70 (4.8)	80 (5.4)	90 (6.1)	100 (6.8)	120 (8.2)	psi (Bar)
Air	33.6 (3.8)	48.6 (5.5)	59.7 (6.8)	73.5 (8.3)	86.3 (9.8)	97.4 (11.0)	106 (12.0)	126 (14.2)	148 (16.7)	in-lb N m

## Engineering Data

### Air Flow Requirements

Actuator Size	Under 4 ft. Run	Over 4 ft. Run
0539, 1039, 1539 2039, 2539	1/8" Tubing	1/4" Tubing
3039, 3339, 3539, 4039, 4239, 4539, 5039	1/4" Tubing	1/2" Tubing

### Actuator Weights\*

Actuator Model	Double Acting	Spring Return
	lb. (kg)	lb. (kg)
0539	1.7 (.77)	2.0 (.90)
1039	3 (1.3)	3.5 (1.6)
1539	6 (2.7)	7 (3.1)
2039	10 (4.5)	12 (5.5)
2539	16.25 (4.5)	18.5 (8.4)
3039	24.6 (11)	27 (12)
3339	50.6 (23)	54.5 (24.7)
3539	58 (26)	65 (30)
4039	70 (32)	80 (36)
4239	158 (68)	192 (83)
4539	213 (97)	253 (115)
5039	304 (138)	355 (161)

\*without solenoid

### Stroke Time (seconds)

Model No.	Minimum (Unloaded)		
	D/A Actuator	SR Actuator	With Max.* Speed Control
0539	Less than 1	Less than 1	10
1039	Less than 1	Less than 1	10
1539	Less than 1	1	15
2039	1	1-2	15
2539	2-3	2-3	18
3039	3-4	3-4	20
3339	4-5	7-8	25
3539	4-5	8-9	25
4039	5-6	9-10	30
4239	10-11	11-12	36
4539	10-12	11-13	40
5039	12-14	13-15	60

\*Average times under 50% load conditions, 80 psi (with standard solenoid).

#### NOTE:

These figures are meant as an indication of obtainable speeds only. For more precise figures for any particular application, contact your Worcester representative. Faster speeds are obtainable, if required, by using additional control equipment.

Speed control with spring return actuators only available on exhaust air (spring stroke).

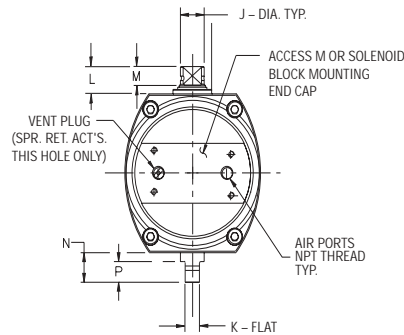
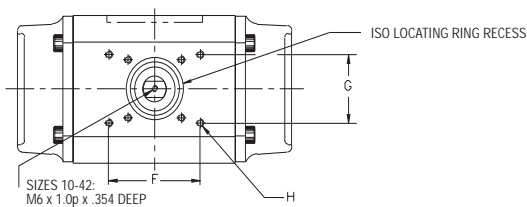
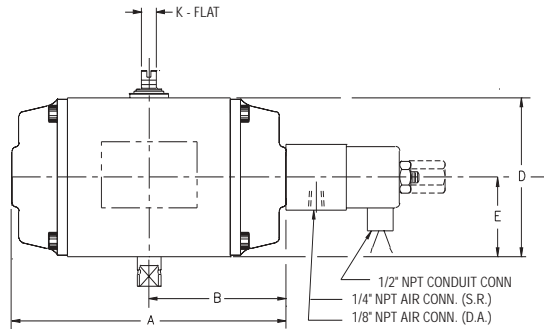
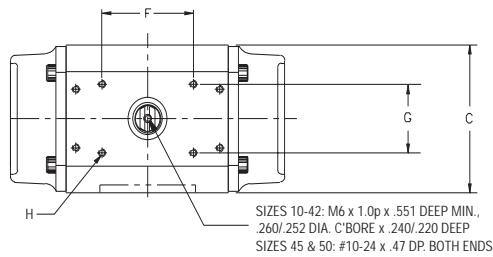
### Operating Conditions

Pressure Range:	30-120 psi Double Acting 40-120 psi All Spring Return Versions* *Standard spring return units require 80 psi minimum. Reduced pressure versions are available.
Media:	Air or non-corrosive gas.
Temperature Range:	0° to 212°F (-18° to 100°C) Actuator Only To 100°F (38°C) continuous, actuator with G.P. solenoid To 175°F (79°C) continuous, actuator with Watertight Type 4, 4x or Hazardous Locations Type 4, 4x, 7 & 9 solenoid High temperature option to 250°F continuous, to 300°F intermittent (without solenoid) Low temperature option to -40°F (without solenoid)
Rotation:	Actuators rotate in counter-clockwise direction when the outer air connection is pressurized.
Movement: Sizes 10-35: Sizes 40-50:	90° with up to 2° each direction 90° with up to 2° overrun each end
Supply Air:	The Series 39 Actuator is factory lubricated. For optimum performance, standard filtered and lubricated air is recommended.

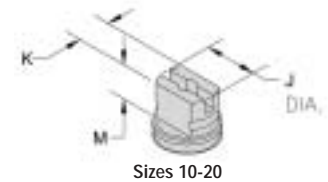
### Air Consumption per Stroke (actual) at 80 psi

	0539	1039	1539	2039	2539	3039	3339	3539	4039	4239	4539	5039
To Open	0.01 0.3	0.04 1.1	0.08 2.3	0.16 4.5	0.28 7.9	0.43 12.1	.65 18.3	0.9 25.5	1.26 35.6	1.73 49	3.1 87.7	5.5 155
To Close (DA only)	0.01 0.3	0.05 1.4	0.09 2.5	0.17 4.8	0.3 8.5	0.47 13.3	1.1 31.0	1.27 36	1.43 40.5	3.25 92	4.6 130.2	7.0 198

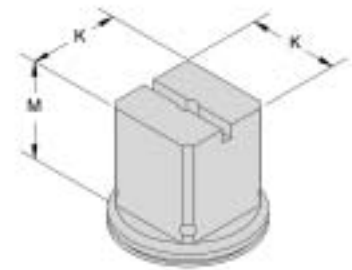
# Dimensions Inches (mm)



## Shaft Dimensions (Top shaft shown)



Sizes 10-20



Sizes 25-50

\* Tapped mounting hole dimensions are those of Flowserve design and are designed for Worcester's valve mounting kits and accessories. Series 39 actuators are also tapped for ISO and Namur mounting. See opposite page.

## Series 39 Actuator Dimensions\* - Inches (mm)

ACTUATOR	A	B	C	D	E	F	G	H	AIR PORTS
1039	6.10 (155)	3.05 (77.5)	3.02 (76.7)	3.37 (85.6)	1.69 (42.9)	2.00 (50.8)	1.38 (35.1)	10-32 UNF-2B .30 DP	1/8" NPT
1539	7.66 (195)	3.83 (97.3)	3.70 (94.0)	4.09 (104)	2.05 (52.1)	2.00 (50.8)	1.38 (35.1)	10-32 UNF-2B .31 DP	1/8" NPT
2039	9.24 (235)	4.62 (117)	4.57 (116)	4.92 (125)	2.46 (62.5)	2.00 (50.8)	1.38 (35.1)	10-32 UNF-2B .32 DP	1/8" NPT
2539	10.62 (270)	5.31 (135)	5.34 (136)	5.78 (147)	2.89 (73.4)	4.22 (107)	1.94 (49.3)	1/4-28 UNF-2B .42 DP	1/4" NPT
3039	12.77 (324)	6.39 (162)	6.10 (155)	6.60 (168)	3.30 (83.8)	6.34 (161)	2.87 (72.9)	1/4-28 UNF-2B .64 DP	1/4" NPT
3339	15.64 (397)	7.82 (199)	8.11 (206)	8.44 (214)	4.22 (107)	6.34 (161)	3.39 (86.1)	1/4-28 UNF-2B .72 DP	1/4" NPT
3539	16.62 (422)	8.31 (211)	8.34 (212)	8.54 (217)	4.27 (109)	8.38 (213)	4.00 (102)	1/4-28 UNF-2B .77 DP	1/4" NPT
4039	20.02 (509)	10.01 (254)	9.64 (245)	10.87 (276)	5.87 (149)	9.59 (244)	4.63 (118)	1/16-20 UNF-2B .91 DP	1/4" NPT
4239	24.24 (616)	12.12 (308)	11.14 (283)	12.44 (170)	6.69 (149)	9.59 (244)	4.63 (118)	1/16-20 UNF-2B .81 DP	1/4" NPT
4539	22.87 (581)	11.43 (290)	13.19 (335)	13.49 (343)	6.74 (171)	13.00 (330)	6.25 (159)	5/8-18 UNF .98 DP	1/4" NPT
5039	24.94 (633)	12.47 (317)	15.39 (391)	15.52 (394)	7.76 (197)	15.50 (394)	7.50 (191)	5/8-18 UNF .98 DP	1/4" NPT

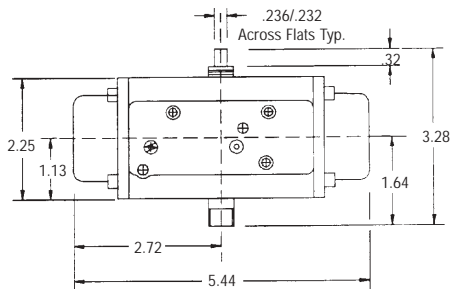
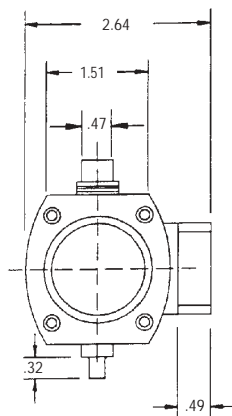
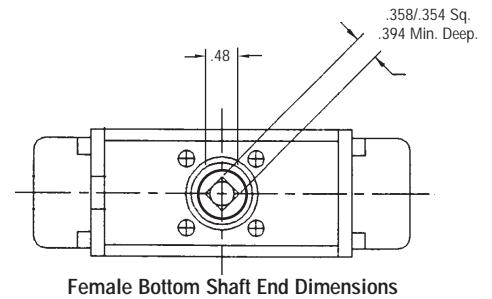
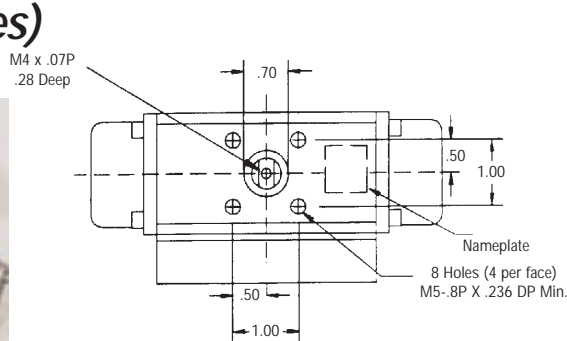
## Shaft Dimensions

J	K	L	M	N	P
.59 (15.0)	.358 (9.1)	.79 (20.1)	.63 (16.0)	.72 (18.3)	.59 (15.0)
.63 (16.0)	.498 (12.7)	.79 (20.1)	.53 (13.5)	.87 (22.1)	.65 (16.5)
.80 (20.3)	.498 (12.7)	.79 (20.1)	.53 (13.5)	.85 (21.6)	.65 (16.5)
.99 (25.2)	.748 (19.0)	1.18 (30.0)	.88 (22.4)	1.14 (29.0)	.85 (21.6)
1.13 (28.7)	.875 (22.2)	1.18 (30.0)	.87 (22.1)	1.19 (30.2)	.92 (23.4)
1.44 (36.6)	1.125 (28.6)	1.18 (30.0)	.84 (21.3)	1.60 (40.6)	1.25 (31.8)
1.44 (36.6)	1.125 (28.6)	1.18 (30.0)	.83 (21.1)	1.52 (38.6)	1.21 (30.7)
1.80 (45.7)	1.375 (34.9)	1.97 (50.0)	1.46 (37.1)	1.96 (49.8)	1.93 (49.0)
2.63 (66.8)	2.000 (50.8)	1.97 (50.0)	1.54 (39.1)	1.96 (49.8)	1.93 (49.0)
—	2.000 (50.8)	2.30 (58.4)	1.50 (38.1)	2.30 (58.4)	1.50 (38.1)
—	2.250 (57.2)	2.71 (68.8)	1.75 (44.5)	2.71 (68.8)	1.75 (44.5)

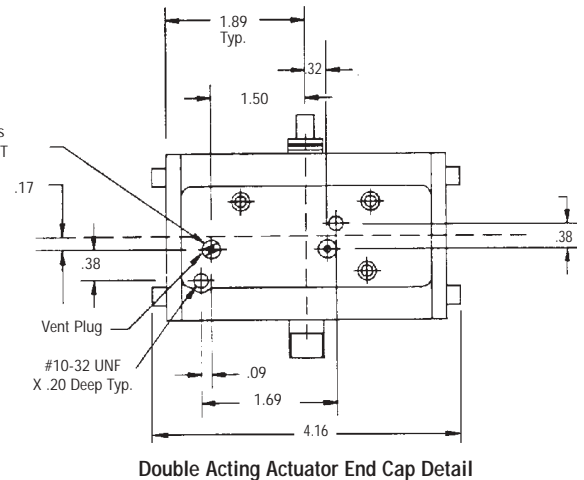


# The Series 0539 Pneumatic Actuator

## Dimensions (inches)



NOTE: Mounting pattern identical top and bottom.



Double Acting Actuator End Cap Detail

## Mounting Configurations

### Namur - inches (mm)

Actuator Size	Mounting Pattern	Shaft Height
0539	WCC	WCC
1039	3.15 x 1.18 x M5 (80.0 x 30.0)	.79 (20.0)
1539	3.15 x 1.18 x M5 (80.0 x 30.0)	.79 (20.0)
2039	3.15 x 1.18 x M5 (80.0 x 30.0)	.79 (20.0)
2539	3.15 x 1.18 x M5 (80.0 x 30.0)	1.18 (30.0)
3039	3.15 x 1.18 x M5 (80.0 x 30.0)	1.18 (30.0)
3339	3.15 x 1.18 x M5 (80.0 x 30.0)	1.18 (30.0)
3539	3.15 x 1.18 x M5 (80.0 x 30.0)	1.18 (30.0)
4039	5.12 x 1.18 x M5 (130.0 x 30.0)	1.97 (50.0)
4239	5.12 x 1.18 x M5 (130.0 x 30.0)	1.97 (50.0)
4539	—	—
5039	—	—

### Top-Mount Namur VDI/VDE 3845 Mounting Configuration\*



### ISO Mounting Configuration\*



\*See boxed note on opposite page (8)

### ISO - inches (mm)

Actuator Size	ISO 5211	Mounting Pattern
0539	F03	1.00 sq. (25.4)
1039	F04	1.17 sq. (29.7)
1539	F05	1.39 sq. (35.3)
2039	F07	1.95 sq. (49.5)
2539	F07	1.95 sq. (49.5)
3039	F10	2.84 (72.1)
3339	F12	3.48 (88.4)
3539	F12	3.48 (88.4)
4039	F14	3.90 (99.1)
4239	F16	4.59 (117)
4539	—	—
5039	—	—

## ***ACCESS™ — For Integral Control with Optional Digital Protocol Compatibility***

There's never been this much performance in such a small package — until now. ACCESS is an industry innovation which integrates the pneumatic actuator, limit switches, solenoid and diagnostics into a single package!

The ACCESS is available for either conventional wiring applications or for simple communications with the most common digital protocols.

The ACCESS is significantly more compact than conventional actuators with accessories and eliminates unnecessary brackets, couplings and additional enclosures. Advanced digital technology provides instant valve/actuator status. A simple cable connection — for both power supply and communications — reduces engineering time, wiring and installation costs. For further details, refer to Brochure PB 940.



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Open DeviceNet Vendor Association



## ***Pulsair® Zero Air Bleed Positioner; MAstermind® Switches/Dribble Feed***



For pneumatically actuated control valves such as the characterized seat control valve shown here, Flowserve offers the Pulsair loop powered positioner with auto calibration and zero air bleed. Operated by a 4-20 mA analog signal, Pulsair's microprocessor and three-button keypad provide on-site automatic calibration, split-range, speed adjustment, fault-delay, etc. Available with Hart Protocol®. For further details, refer to Brochure PB 90P.

Also available, in a multi-NEMA rated enclosure similar to that of Pulsair, is the MAstermind Modular Accessory System. This is a highly versatile actuator accessory package containing any of the following options: limit switches, solenoids, 4-20 mA position feedback, all in an explosion-proof housing. It also includes an optional dribble feed arrangement for filling, batching and blending processes.



**PULSAIR** )))

Member of the HART  
Communication Foundation

**HART®**

## Accessories & Options

### End-Mounted Limit Switches

(CSA and FM Approved)



Where compact installation is required, an end-mounted limit switch module is available. This module comes as a combined Watertight TYPE 4 and Hazardous Location version TYPE 7 (Class I, Division 1, 2, Group C, D; and Class II, Division 1, 2, Group E, F, G) and TYPE 9, and comes with two SPDT or two DPDT mechanical switches. It is also available with SPST AC or DC proximity switches. Refer to Brochure PB EMS.

### Top-Mounted Limit Switches



One or two switches can be furnished as required. The switch has a cast aluminum housing, SPDT switch, and a one-way roller lever. General Purpose (TYPE 1), Watertight (TYPE 1, 3, 3 R, and 4), and Hazardous Location (TYPE 7, Class I, Groups C and D; and TYPE 9, Class II, Groups E, F and G) housings are available.

### Position Indicator



### Polyester Coating



### Bidirectional Travel Stops



### Declutchable Geared Override



## Also Available

■ Top-Mounted Stainless Steel Rotary Switches

■ Stainless Steel Springs

■ Rebreather Gasket

## How to Order

10 Actuator Sizes	E Special Services	39 Series	S Operating Mode	W Solenoid	Z Limit Switches	120A Solenoid Voltage	T Options
05 10 15 20 25 30 33 35 40 42 45 50	Blank - None - (Male Shaft End)  F - Female Shaft End (0539 Only)  9 - Fail Open Mount  H - High Temperature (N and SN models only)  E - End-Mounted Limit Switch Module  R - Rotary Switch†  T - Travel Stops† (Sizes 10-30 only)	39	Blank - Double Acting  S - Spring Return*	Blank - General Purpose Solenoid (TYPE 1)  W - Watertight Solenoid (TYPE 4)  X - Hazardous Locations Solenoid (TYPE 4, 4x, 7 & 9)  N - No Solenoid (No Block)	<u>Top Mounted</u> M1 - General Purpose Switch M2 - Two General Purpose Switches W1 - Watertight Switch W2 - Two Watertight Switches X1 - Hazardous Locations Switch X2 - Two Hazardous Location Switches  <u>Rotary - (must specify "R" in Special Services Column)†</u> M1 - 1 SPDT M2 - 2 SPDT D1 - 1 DPDT D2 - 2 DPDT  <u>End-Mounted - (must specify "E" in Special Service Column)†</u> Z - Watertight/Hazardous Locations, SPDT Switches ZD - Watertight/Hazardous Locations, DPDT Switches Z1 - Watertight/Hazardous Locations, 2 wire AC Proximity Switches Z3 - Watertight/Hazardous Locations, 3 wire DC Proximity Switches	12 D - 12 DC 24 D - 24 DC 24 A - 24/60 AC 120 A - 120/60 AC 240 A - 240 60 AC	V-54 - S.S. Springs (Sizes 10-30 only)  V-55 - Rebreather Gasket  V-64 - Namur Solenoid End Cap

Code depicts Series 39 Spring Return Actuator with watertight solenoid and watertight/hazardous locations end mounted limit switches.

† Not available on Series 0539.

Due to continuous development of our product range, we reserve the right to alter the product specifications contained in this brochure as required.

\*NOTE: Specify air supply for spring return actuators. Place appropriate code from below after Solenoid voltage when ordering.

4 - Prepared for 40 psi air supply

5 - " 50 "

6 - " 60 "

7 - " 70 "

Blank " 80 "



To Order ACCESS combined pneumatic actuator, limit switches and solenoid, refer to the ACCESS Brochure.

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