

# BIFFI

Spring return pneumatic quarter-turn actuator for spring end torques to 685,500 lb.in.

## Features and benefits

- Scotch yoke design generates high break torque needed for the actuation of many quarter-turn valves.
- Six bearings provide reliability, smooth operation and extended service life:
  - Two bronze yoke bearings ensure minimal friction.
  - Two bronze sliding block bearings spread load over large surface area.
  - Guide block bearing and piston rod bearing of sintered bronze impregnated with PTFE increase efficiency, reduce maintenance and prolong actuator life.
- Graphite-impregnated PTFE piston bearing reduces friction between the piston and cylinder bore and allows the cylinder to be operated without lubrication.
- Guide bar supports the transverse forces and insures proper support of the piston rod. Hard chrome plating on guide bar provides corrosion resistance and minimal friction loads.
- Chrome-plated piston rods provide maximum corrosion resistance and minimal friction loads on dynamic seals.
- Electroless nickel-plated cylinder bore provides maximum corrosion resistance and reliability.
- Multiple external tie bar design provides maximum cylinder integrity.
- Totally enclosed, weatherproof carbon steel housing provides maximum strength. Internal coating protects against corrosion.
- External travel stops allow precise adjustments of  $\pm 4^\circ$  rotation at each end of travel.
- Low hysteresis and high response enhance modulating service.
- Spring cartridge incorporates up to four springs, fully encapsulated in a tamper-proof factory welded assembly.
- Spring configurations available up to 1,300,000 lb.in. spring end torque.
- Available with canted or with symmetric scotch yoke mechanism to suit the valve characteristics.
- Special coatings for offshore or corrosive environments.
- Special version available for use with sour gas supply.



## Options and accessories

- Accessory mounting brackets provided for mounting of controls or enclosures.
- Manual jackscrews and hydraulic manual overrides optional.
- Double acting actuators available.

## General application

Designed for on-off or modulating control of quarter-turn ball, butterfly, plug or damper style valves.

## Technical data

Supply pressure	: 20 to 150 psig
Supply medium	: air, nitrogen or sweet gas
Output torque	: Spring end torque to 685,500 lb.in.
Ambient temperature standard range	: -20°F to 210°F (-30°C to 100°C)
optional ranges	: -65°F to 300°F (-55°C to 150°C)

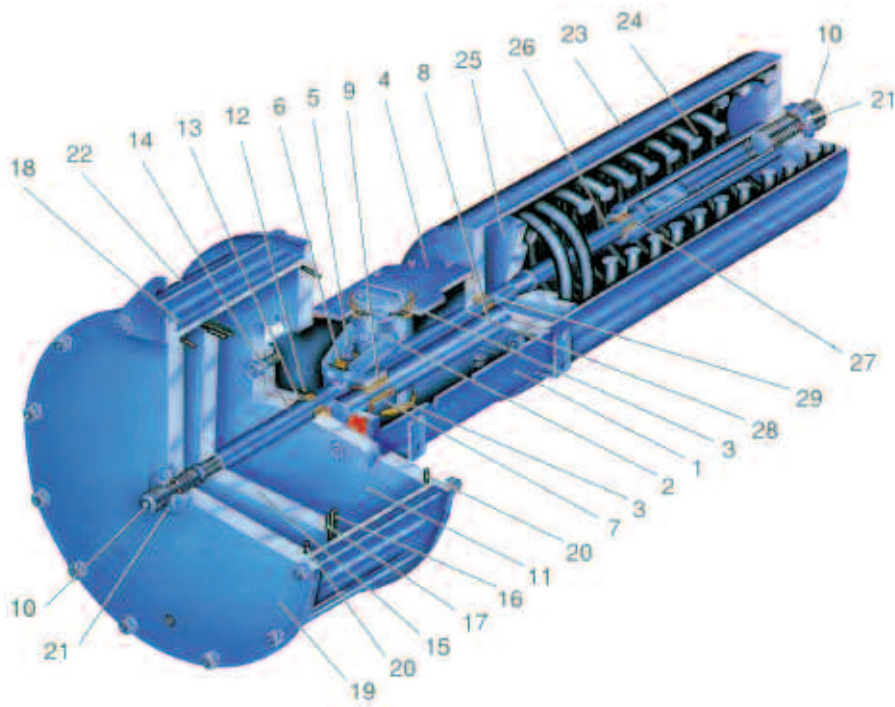
**tyco** / Flow Control

Total Flow Control Solutions™

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# Algas Spring Return Pneumatic Actuator

## Scotch Yoke Design



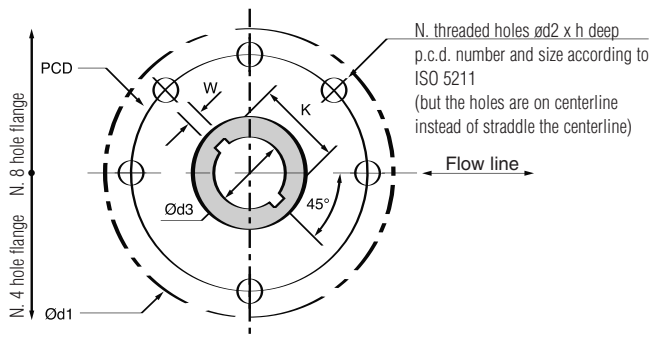
### Materials

Part	Material	Material Standards
1 Housing	Carbon steel	ASTM A537 cl1 + ASTM A283 gr D
2 Yoke	Carbon steel	API 5LX gr X52 (C<0.2%) + ASTM A537 cl1
3 Yoke bearing	Bronze	ASTM B427 Alloy UNS No. C90800
4 Cover	Carbon steel	ASTM A283 gr D
5 Guide block pin	Alloy steel	AISI SAE 9840
6 Sliding block bearing	Bronze	ASTM B427 Alloy UNS No. C90800
7 Guide block	Carbon steel	ASTM A537 cl1
8 Guide bar	Alloy steel	AISI SAE 9840 (hard chrome plated)
9 Guide block bearing	Steel + bronze + PTFE	–
10 Travel stop screw	Carbon steel	AISI SAE 1040
11 Cylinder head flange	Carbon steel	ASTM A283 gr D
12 Piston rod bearing	Steel + bronze + PTFE	–
13 Piston rod seal	NBR rubber	–
14 Piston rod	Alloy steel	AISI SAE 9840 (hard chrome plated)
15 Piston	Carbon steel	ASTM A283 gr D
16 Piston bearing	PTFE + graphite	–
17 Piston seal O-ring	NBR rubber	–
18 Cylinder tube	Carbon steel (ENP)	API 5LX GR X52
19 Cylinder end flange	Carbon steel	ASTM A283 gr D
20 Cylinder seal O-ring	NBR rubber	–
21 Sealing washer	PVC	–
22 Tie rod	Alloy steel	AISI SAE 9840
23 Spring container	Carbon steel	ASTM A283 gr D + ASTM A 106 gr B
24 Spring	Carbon steel	ASTM A29 gr 9254
25 Spring thrust flange	Carbon steel	ASTM A283 gr D
26 Guide rod	Alloy steel	AISI SAE 9840 (hard chrome plated)
27 Guide rod bearing	Steel + bronze + PTFE	–
28 Container rod	Alloy steel	AISI SAE 9840 (hard chrome plated)
29 Container rod bearing	Steel + bronze + PTFE	–

# Algas Spring Return Pneumatic Actuator

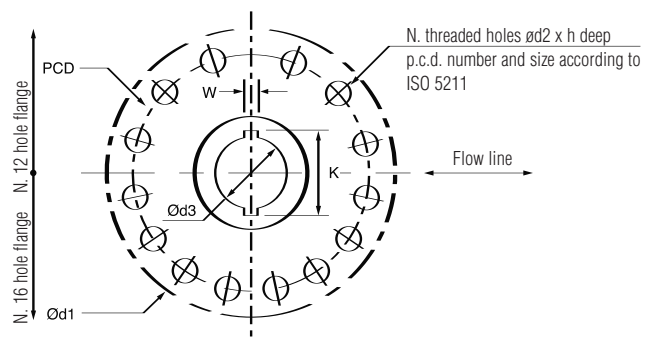
## Mounting dimensions

### Actuator models 0.3 to 6.0



Top view of the scotch yoke mechanism (actuator shown in closed position)

### Actuator models 14 to 32



Top view of the scotch yoke mechanism (actuator shown in closed position)

#### Notes

- All dimensions are in inches unless otherwise noted (Keyway dimension W & K are mm.)
- \*Thread according to ISO R261
- Ød1 is maximum adapter flange diameter

#### Coupling dimensions

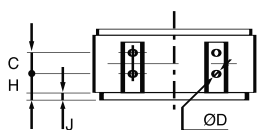
Actuator model	PCD	Ød1	Ød2*	N	Standard Bore			Keyway	
					h	Ød3	Depth	W	K
0.3	6.496	9.45	M20x2.5	4	0.67	2.756	4.80	12 mm	75.6 mm
0.9	10	12.20	M16x2	8	0.75	3.386	5.70	14 mm	93.6 mm
1.5	11.732	14.17	M20x2.5	8	0.75	4.409	7.26	18 mm	119.0 mm
3.0	14.016	16.93	M30x3.5	8	0.90	6.181	7.54	25 mm	167.8 mm
6.0	15.984	20.47	M36x4	8	1.14	7.874	9.65	28 mm	212.8 mm
14	19.016	22.8	M36x4	12	1.14	6.890	13.00	45 mm	195.8 mm
18	23.740	26.7	M36x4	16	1.26	7.874	13.33	45 mm	220.8 mm
32	23.470	30.7	M36x4	16	1.26	8.661	15.23	50 mm	242.8 mm

#### Accessories mounting dimensions

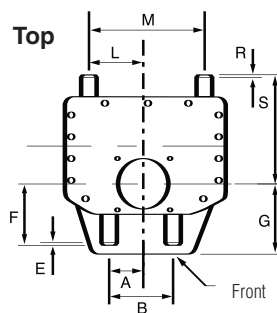
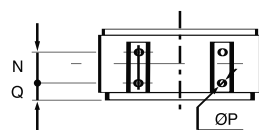
##### Actuator

model	A	B	C	ØD	E	F	G	H	J	L	M	N	ØP	Q	R	S	T	U	V	W	X	Y
0.3	3.1	6.10	2.36	0.55	0.2	4.5	4.7	1.5	0.5	3.6	7.87	2.36	0.55	1.4	0.2	7.9	5.51	2.76	2.76	N°4M10	.39	.39
0.9	3.6	7.28	2.36	0.55	0.2	6.1	6.7	2.4	1.4	3.4	7.87	2.36	0.55	1.9	0.2	9.6	5.51	2.76	2.76	N°4M10	.47	.87
1.5	3.6	7.28	2.36	0.55	0.2	6.9	7.3	2.4	1.4	5.1	11.81	3.94	0.55	1.8	0.2	11.2	5.51	2.76	2.76	N°4M10	.47	.87
3.0	4.6	9.25	3.35	0.91	0.3	8.0	8.5	2.2	1.0	9.1	19.69	3.94	0.55	2.1	0.2	14.6	6.30	5.00	5.35	N°4M16	.47	.47
6.0	5.4	17.91	4.53	0.91	0.3	9.8	10.2	2.3	0.9	8.8	19.69	3.94	0.55	3.4	0.3	18.9	6.30	5.00	5.35	N°4M16	.51	1.18
14	12.4	24.80	7.87	1.06	0.4	8.9	13.0	3.8	2.2	8.7	19.69	6.69	1.06	3.9	0.3	21.4	6.30	5.00	5.35	N°4M16	.63	.63
18	12.4	24.80	7.87	1.06	0.4	8.9	13.4	2.8	1.3	12.1	26.77	8.46	1.06	3.2	0.4	23.6	12.36	24.80	7.87	N°4M16	.71	1.38
32	12.4	24.80	7.87	1.06	0.4	15.2	15.6	2.8	1.3	16.3	35.04	8.46	1.06	5.9	0.4	26.0	12.36	24.80	7.87	N°4M16	.63	1.30

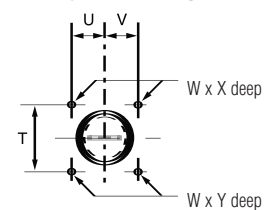
#### Front



#### Back



#### Top view accessory mounting pad



#### Front

#### Notes

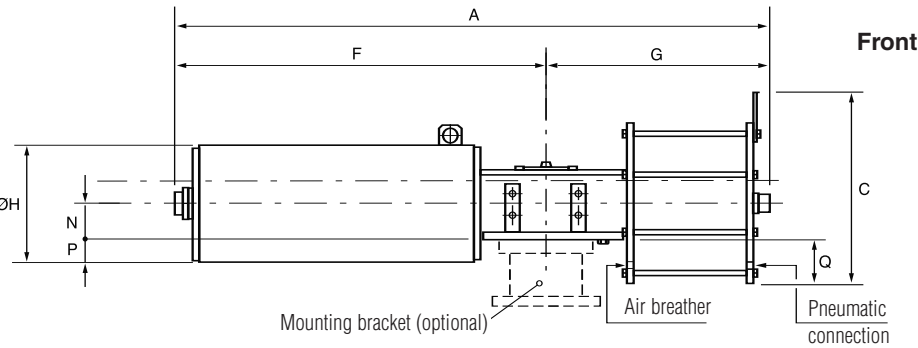
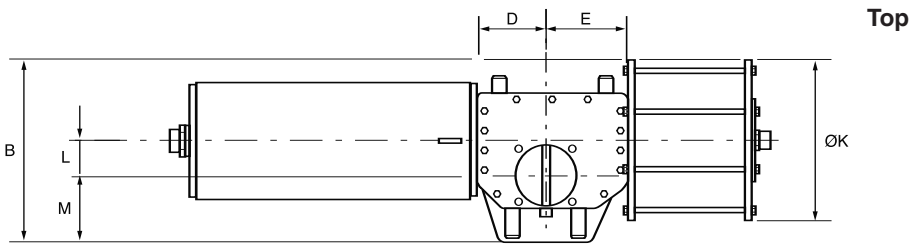
- The listed maximum acceptance values are applicable for stems with keyway parallel or perpendicular to the flow line and for square stems with diagonal parallel with the flow line.
- Key according to UNI6604 or DIN 6885 sh.1 or BS4325 part 1 or ISO 773 or equivalent.
- † S max: maximum external diameter in case of rounded edge.
- \*\*Without adapter flange.

#### Stem acceptance dimensions for insert bushings

Housing size	Max. stem diameter with square key (key dimension)	Max. stem diameter with rectangular key (•)	Square stem		Maximum stem protrusion**
	Ø	Ø	W	S	
0.3	2.05 (0.55)	2.16	1.81	2.52	4.72
0.9	2.60 (0.63)	2.75	2.16	3.03	5.51
1.5	3.34 (0.71)	3.54	2.87	4.06	7.08
3.0	4.72 (1.26)	5.12	4.09	5.78	7.48
6.0	5.90 (1.41)	6.69	5.23	7.40	9.48
14		Not Applicable			
18		Not Applicable			
32		Not Applicable			

# Algas Spring Return Pneumatic Actuator

## Overall dimensions



### Notes

1. All dimensions are in inches unless otherwise noted.
2. Weights refer to base construction (with out adapter).
3. \*Add C for canted yoke, S for symmetric yoke.

## Overall dimensions

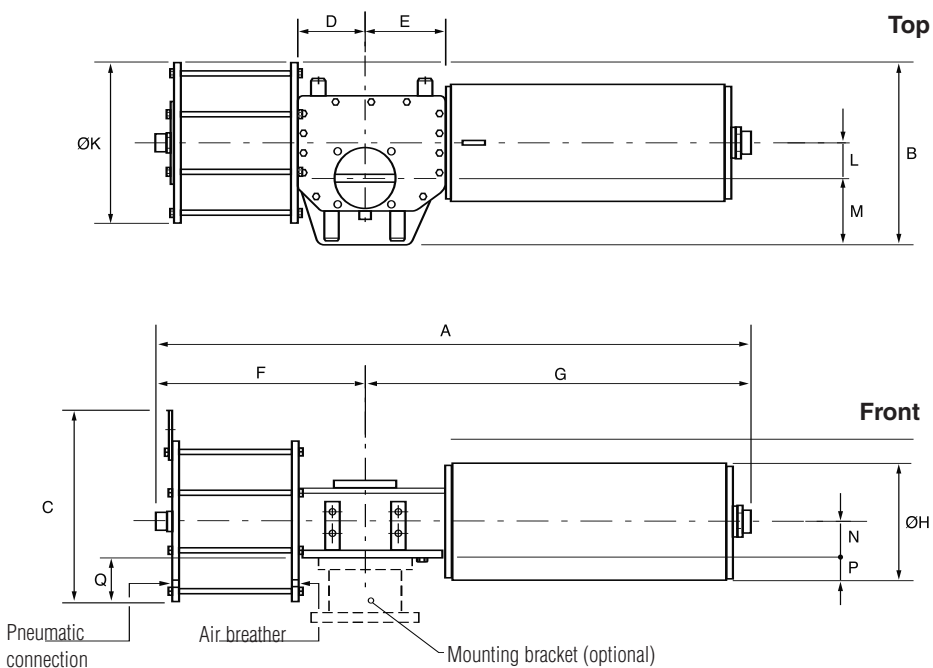
Actuator		Pneumatic connection														Wt.	
model		A	B	C	D	E	F	G	ØH	ØK	L	M	N	P	Q	NPT	(lbs)
0.3*-0150-175	CL	50.5	12.6	12.1	5.4	5.9	29.9	20.6	7.3	7.9	2.76	4.7	2.8	0.9	1.2	1/2"	225
0.3*-0150-235	CL	50.6	12.6	13.2	5.4	5.4	29.9	20.7	7.3	10.2	2.76	4.7	2.8	0.9	2.4	1/2"	260
0.9*-0200-235	CL	54.5	16.3	13.7	6.3	7.5	32.3	22.2	9.4	10.2	3.15	6.7	3.3	1.5	1.9	1/2"	408
0.9*-0200-280	CL	54.4	16.7	15.4	6.3	7.5	32.3	22.1	9.4	13.6	3.15	6.7	3.3	1.5	3.5	3/4"	472
0.9*-0350-280	CL	56.5	16.7	15.4	6.3	7.5	34.4	22.1	12.2	13.6	3.15	6.7	3.3	2.8	3.5	3/4"	540
0.9*-0350-335	CL	57.9	17.7	18.8	6.3	7.1	34.4	23.5	12.2	15.8	3.15	6.7	3.3	2.8	4.6	1"	611
0.9*-0350-385	CL	57.6	18.7	21.1	6.3	7.1	34.4	23.2	12.2	17.7	3.15	6.7	3.3	2.8	5.6	1"	683
0.9*-0400-280	CL	53.9	16.7	15.4	6.3	7.5	31.8	22.1	12.2	13.6	3.15	6.7	3.3	2.8	3.5	3/4"	540
0.9*-0400-335	CL	55.3	17.7	18.8	6.3	7.1	31.8	23.5	12.2	15.8	3.15	6.7	3.3	2.8	4.6	1"	611
0.9*-0400-385	CL	55.0	18.7	21.1	6.3	7.1	31.8	23.2	12.2	17.7	3.15	6.7	3.3	2.8	5.6	1"	683
0.9*-0700-335	CL	56.4	17.7	18.8	6.3	7.1	32.9	23.5	12.2	15.8	3.15	6.7	3.3	2.8	4.6	1"	661
0.9*-0700-385	CL	56.1	18.7	21.1	6.3	7.1	32.9	23.2	12.2	17.7	3.15	6.7	3.3	2.8	5.6	1"	732
0.9*-0700-485	CL	56.6	22.1	25.2	6.3	7.0	32.9	23.7	12.2	22.1	3.15	7.9	3.3	2.8	7.8	1"	897
1.5*-1100-385	CL	61.8	20.1	21.1	7.4	8.5	37.1	24.7	16.1	17.7	3.94	7.3	3.9	4.1	4.9	1"	974
1.5*-1100-485	CL	62.3	22.2	25.2	7.4	8.4	37.1	25.2	16.1	22.1	3.94	7.3	3.9	4.1	7.1	1"	1140
1.5*-1200-385	CL	65.8	20.1	21.1	7.4	8.5	41.1	24.7	12.8	17.7	3.94	7.3	3.9	2.4	4.9	1"	974
1.5*-1200-485	CL	66.3	22.2	25.2	7.4	8.4	41.1	25.2	12.8	22.1	3.94	7.3	3.9	2.4	7.1	1"	1140
1.5*-1200-585	CL	66.6	26.4	29.8	7.4	8.4	41.1	25.5	12.8	26.4	3.94	9.3	3.9	2.4	9.3	1"	1503
3.0*-2000-385	CL	95.8	23.6	21.1	11.2	12.6	59.8	36.0	16.1	17.7	6.30	8.5	4.2	3.9	4.7	1"	1680
3.0*-2000-485	CL	96.1	25.8	25.2	11.2	12.5	59.8	36.3	16.1	22.1	6.30	8.5	4.2	3.9	6.9	1"	1808
3.0*-2000-585	CL	97.9	28.0	29.8	11.2	12.5	59.8	38.1	16.1	26.4	6.30	8.5	4.2	3.9	9.0	1"	2238
6.0*-2500-485	CL	117.1	28.5	25.2	12.9	14.4	75.0	42.1	14.0	22.1	7.28	10.2	5.5	1.5	5.5	1"	2354
6.0*-2500-585	CL	117.3	30.7	29.8	12.9	14.4	75.0	42.3	14.0	26.4	7.28	10.2	5.5	1.5	7.7	1"	2745
6.0*-2500-635	CL	119.2	31.7	31.9	12.9	14.4	75.0	44.2	14.0	28.4	7.28	10.2	5.5	1.5	8.7	1"	2917
6.0*-3800-585	CL	124.5	30.7	29.8	12.9	14.4	82.2	42.3	20.9	26.4	7.28	10.2	5.5	4.9	7.7	1"	3615
6.0*-3800-635	CL	126.4	31.7	31.9	12.9	14.4	82.2	44.2	20.9	28.4	7.28	10.2	5.5	4.9	8.7	1"	3792
6.0*-3800-735	CL	127.1	33.6	35.9	12.9	14.3	82.2	44.9	20.9	32.1	7.28	10.2	5.5	4.9	10.6	2 x 1"	4264
14*-5400-735	CL	125.5	35.6	35.9	14.8	16.5	78.4	47.1	20.9	32.1	7.87	11.6	7.6	5.6	8.5	2 x 1"	4520
14*-5400-835	CL	125.5	37.7	40.8	14.8	16.3	78.4	47.1	20.9	36.4	7.87	11.6	7.6	5.6	10.6	2 x 1"	4960
14*-5400-935	CL	127.7	41.5	46.4	14.8	16.3	78.4	49.3	20.9	41.5	7.87	12.9	7.6	5.6	13.2	2 x 1"	5730
14*-8300-735	CL	127.8	35.6	35.9	14.8	16.5	80.7	47.1	20.9	32.1	7.87	11.6	7.6	5.6	8.5	2 x 1"	4630
14*-8300-835	CL	127.8	37.7	40.8	14.8	16.3	80.7	47.1	20.9	36.4	7.87	11.6	7.6	5.6	10.6	2 x 1"	5070
14*-8300-935	CL	130.0	41.5	46.4	14.8	16.3	80.7	49.3	20.9	41.5	7.87	12.9	7.6	5.6	13.2	2 x 1"	5840
18*-9600-835	CL	158.3	40.7	40.7	16.8	18.7	105.8	52.5	22.0	36.4	9.06	13.4	7.7	6.9	10.4	2 x 1"	7390
18*-9600-935	CL	160.3	43.2	46.4	16.8	18.7	105.8	54.5	22.0	41.5	9.06	13.4	7.7	6.9	13.0	2 x 1"	8270
18*-9600-1100	CL	160.7	48.0	53.7	16.8	18.4	105.8	54.9	22.0	48.0	9.06	15.0	7.7	6.9	16.3	2 x 1"	9590
18*-9800-835	CL	158.3	40.7	40.7	16.8	18.7	105.8	52.5	22.0	36.4	9.06	13.4	7.7	6.9	10.4	2 x 1"	8160
18*-9800-935	CL	160.3	43.2	46.4	16.8	18.7	105.8	54.5	22.0	41.5	9.06	13.4	7.7	6.9	13.0	2 x 1"	9040
18*-9800-1100	CL	160.7	48.0	53.7	16.8	18.4	105.8	54.9	22.0	48.0	9.06	15.0	7.7	6.9	16.3	2 x 1"	10360

# Algas Spring Return Pneumatic Actuator

## Overall dimensions

### Notes

1. All dimensions are in inches unless otherwise noted.
2. Weights refer to base construction (without adapter).
3. \*Add C for canted yoke, S for symmetric yoke.



### Overall dimensions

Actuator model		A	B	C	D	E	F	G	ØH	ØK	L	M	N	P	Q	Pneumatic connection		Wt. (lbs)
																NPT		
0.3*-0150-175	OP	50.4	12.6	12.1	4.9	5.9	20.0	30.4	7.3	7.9	2.76	4.7	2.8	0.9	1.2	1/2"	225	
0.3*-0150-235	OP	50.6	12.6	13.2	4.9	5.9	20.2	30.4	7.3	10.2	2.76	4.7	2.8	0.9	2.4	1/2"	260	
0.9*-0200-235	OP	54.6	16.3	13.7	5.8	7.5	20.6	34.0	9.4	10.2	3.15	6.7	3.3	1.5	1.9	1/2"	408	
0.9*-0200-280	OP	54.5	16.7	15.4	5.8	7.5	20.5	34.0	9.4	13.6	3.15	6.7	3.3	1.5	3.5	3/4"	472	
0.9*-0350-280	OP	56.2	16.7	15.4	5.8	7.5	20.5	35.7	12.2	13.6	3.15	6.7	3.3	2.8	3.5	3/4"	540	
0.9*-0350-335	OP	57.9	17.7	18.8	5.8	7.5	22.2	35.7	12.2	15.8	3.15	6.7	3.3	2.8	4.6	1"	611	
0.9*-0350-385	OP	57.7	18.7	21.1	5.8	7.5	22.0	35.7	12.2	17.7	3.15	6.7	3.3	2.8	5.6	1"	683	
0.9*-0400-280	OP	53.6	16.7	15.4	5.8	7.5	20.5	33.1	12.2	13.6	3.15	6.7	3.3	2.8	3.5	3/4"	540	
0.9*-0400-335	OP	55.3	17.7	18.8	5.8	7.5	22.2	33.1	12.2	15.8	3.15	6.7	3.3	2.8	4.6	1"	611	
0.9*-0400-385	OP	55.1	18.7	21.1	5.8	7.5	22.0	33.1	12.2	17.7	3.15	6.7	3.3	2.8	5.6	1"	683	
0.9*-0700-335	OP	55.9	17.7	18.8	5.8	7.5	21.9	34.0	12.2	15.8	3.15	6.7	3.3	2.8	4.6	1"	661	
0.9*-0700-385	OP	56.0	18.7	21.1	5.8	7.5	22.0	34.0	12.2	17.7	3.15	6.7	3.3	2.8	5.6	1"	732	
0.9*-0700-485	OP	56.6	22.1	25.2	5.8	7.5	22.6	34.0	12.2	22.1	3.15	7.9	3.3	2.8	7.8	1"	897	
1.5*-1100-385	OP	61.6	20.1	21.1	6.9	8.9	23.0	38.6	16.1	17.7	3.94	7.3	3.9	4.1	4.9	1"	974	
1.5*-1100-485	OP	62.3	22.2	25.2	6.9	8.9	23.7	38.6	16.1	22.1	3.94	7.3	3.9	4.1	7.1	1"	1140	
1.5*-1200-385	OP	65.6	20.1	21.1	6.9	8.9	23.0	42.6	12.8	17.7	3.94	7.3	3.9	2.4	4.9	1"	974	
1.5*-1200-485	OP	66.3	22.2	25.2	6.9	8.9	23.7	42.6	12.8	22.1	3.94	7.3	3.9	2.4	7.1	1"	1140	
1.5*-1200-585	OP	66.5	26.4	29.8	6.9	8.9	23.9	42.6	12.8	26.4	3.94	9.3	3.9	2.4	9.3	1"	1503	
3.0*-2000-385	OP	95.7	23.6	21.1	10.8	13.0	34.2	61.5	16.1	17.7	6.30	8.5	4.2	3.9	4.7	1"	1680	
3.0*-2000-485	OP	96.0	25.8	25.2	10.8	13.0	34.5	61.5	16.1	22.1	6.30	8.5	4.2	3.9	6.9	1"	1808	
3.0*-2000-585	OP	97.0	28.0	29.8	10.8	13.0	36.3	61.5	16.1	26.4	6.30	8.5	4.2	3.9	9.0	1"	2238	
6.0*-2500-485	OP	117.1	28.5	25.2	12.4	14.9	40.1	77.0	14.0	22.1	7.28	10.2	5.5	1.5	5.5	1"	2354	
6.0*-2500-585	OP	117.3	30.7	29.8	12.4	14.9	40.3	77.0	14.0	26.4	7.28	10.2	5.5	1.5	7.7	1"	2745	
6.0*-2500-635	OP	119.2	31.7	31.9	12.4	14.9	42.2	77.0	14.0	28.4	7.28	10.2	5.5	1.5	8.7	1"	2917	
6.0*-3800-585	OP	123.6	30.7	29.8	12.4	14.9	40.3	84.3	20.9	26.4	7.28	10.2	5.5	4.9	7.7	1"	3615	
6.0*-3800-635	OP	126.5	31.7	31.9	12.4	14.9	42.2	84.3	20.9	28.4	7.28	10.2	5.5	4.9	8.7	1"	3792	
6.0*-3800-735	OP	127.3	33.6	35.9	12.4	14.9	43.0	84.3	20.9	32.1	7.28	10.2	5.5	4.9	10.6	2 x 1"	4264	
14*-5400-735	OP	125.5	35.6	35.9	14.3	17.1	44.8	80.7	20.9	32.1	7.87	11.6	7.6	5.6	8.5	2 x 1"	4520	
14*-5400-835	OP	125.5	37.7	40.8	14.3	17.1	44.8	80.7	20.9	36.4	7.87	11.6	7.6	5.6	10.6	2 x 1"	4960	
14*-5400-935	OP	127.7	41.5	46.4	14.0	17.1	47.0	80.7	20.9	41.5	7.87	12.9	7.6	5.6	13.2	2 x 1"	5730	
14*-8300-735	OP	127.8	35.6	35.9	14.3	17.1	44.8	83.0	20.9	32.1	7.87	11.6	7.6	5.6	8.5	2 x 1"	4630	
14*-8300-835	OP	127.8	37.7	40.8	14.3	17.1	44.8	83.0	20.9	36.4	7.87	11.6	7.6	5.6	10.6	2 x 1"	5070	
14*-8300-935	OP	130.0	41.5	46.4	14.0	17.1	47.0	83.0	20.9	41.5	7.87	12.9	7.6	5.6	13.2	2 x 1"	5840	
18*-9600-835	OP	158.3	40.7	40.7	16.0	19.5	49.8	108.5	22.0	36.4	9.06	13.4	7.7	6.9	10.5	2 x 1"	7390	
18*-9600-935	OP	160.3	43.2	46.4	16.1	19.5	51.8	108.5	22.0	41.5	9.06	13.4	7.7	6.9	13.1	2 x 1"	8270	
18*-9600-1100	OP	160.7	48.0	53.7	14.3	19.5	52.2	108.5	22.0	48.3	9.06	15.0	7.7	6.9	16.3	2 x 1"	9590	
18*-9800-835	OP	158.3	40.7	40.7	16.0	19.5	49.4	108.5	22.0	36.4	9.06	13.4	7.7	6.9	10.5	2 x 1"	8160	
18*-9800-935	OP	160.3	43.2	46.4	16.1	19.5	51.8	108.5	22.0	41.5	9.06	13.4	7.7	6.9	13.1	2 x 1"	9040	
18*-9800-1100	OP	160.7	48.0	53.7	14.3	19.5	52.2	108.5	22.0	48.3	9.06	15.0	7.7	6.9	16.3	2 x 1"	10360	

# Algas Spring to Close Pneumatic Actuator

## Canted Yoke Design

### Output torques (lb.in.)

Actuator model	Spring torque			Operating pressure (psig)						
	SET	SRT	SST	40	50	60	70	80	90	100
0.3C-0150-175 CL	6740	3720	AST					9800	11990	14180
			ART				2270	3184	4066	
			AET	6350			2340	3583	4816	
0.3C-0150-235 CL	6510	3640	AST	7880	11820	15770	19710			
			ART	1260	3110	4690	6260			
			AET	1260	3480	5710	7930			
0.9C-0200-235 CL	8600	4860	AST		12600	17160	21730	26290	30850	35420
			ART		2764	4677	6500	8317	10110	11900
			AET	8360	2777	5349	7922	10490	13060	15630
0.9C-0200-280 CL	8340	4760	AST	15460	21940	28420	34900	41370	47850	54330
			ART	3980	6580	9150	11690	14230	16780	19320
			AET	8230	4390	8040	11690	15340	18990	22640
0.9C-0350-280 CL	16880	9340	AST					26390	32870	39350
			ART					6450	9110	11690
			AET	15930				6880	10530	14180
0.9C-0350-335 CL	16540	9210	AST		27110	36380	45650	54920		
			ART		6750	10510	14200	17860		
			AET	15760	7280	12510	17740	22960		
0.9C-0350-385 CL	16460	9180	AST	29660	41900	54150				
			ART	7800	12710	17560				
			AET	15720	8720	15630	22530			
0.9C-0400-280 CL	22850	11500	AST					26930	33410	39890
			ART					6680	9320	11900
			AET	18840				7180	10840	14490
0.9C-0400-335 CL	22510	11370	AST			30440	39710	48980	58260	
			ART			8120	11830	15520	19160	
			AET	18670		9160	14390	19620	24480	
0.9C-0400-385 CL	22420	11340	AST	23720	35960	48210	60460			
			ART	5300	10340	15220	20030			
			AET	18630	5370	12280	19180	26080		
0.9C-0700-335 CL	30210	15920	AST				32040	41310	50580	59860
			ART				5740	10210	14010	17700
			AET	26600			5740	10960	16190	21420
0.9C-0700-385 CL	30130	15890	AST			40540	52790			
			ART			9890	14880			
			AET	26560			10530	17430		
0.9C-0700-485 CL	29830	15790	AST	44530	60760					
			ART	11540	19340					
			AET	26410	12780	23740				
1.5C-1100-385 CL	44830	27720	AST					75530	91020	104100
			ART					13890	21590	28020
			AET	49470				13890	22620	31350
1.5C-1100-485 CL	44460	27580	AST		74190	98770				
			ART		13130	24850				
			AET	49280		13130	26990			
1.5C-1200-385 CL	61550	33780	AST						74370	89850
			ART						13500	21260
			AET	57380					13500	22230
1.5C-1200-485 CL	61180	33640	AST			82110	106600			
			ART			17870	28240			
			AET	57190			17870	31730		
1.5C-1200-585 CL	60690	33460	AST	77230	112900					
			ART	15120	30820					
			AET	56950	15120	35270				
3.0C-2000-385 CL	98080	50870	AST					101200	126800	152500
			ART					19090	31300	41800
			AET	84410				19090	33540	47990
3.0C-2000-485 CL	97470	50640	AST		99020	139700	180300	221000		
			ART		17840	36560	52930	69130		
			AET	84110	17840	40770	63700	86630		
3.0C-2000-585 CL	96650	50350	AST	131600	190800					
			ART	33250	57080					
			AET	83710	36210	69580				

Maximum operating pressure is the pressure required to produce the maximum rated torque of the actuator model.  
 Maximum allowed pressure is 150 psig (static pressure applicable to fully stroked actuator against the travel stops).

AST - Air start torque  
 ART - Air run torque  
 SRT - Spring run torque  
 AET - Air end torque  
 SET - Spring end torque  
 SST - Spring start torque  
 Output torques (in.lb.)

# Algas Spring to Close Pneumatic Actuator Canted Yoke Design (cont'd)

## Output torques (lb.in.)

Actuator model	Spring torque			Operating pressure (psig)						
	SET	SRT	SST	40	50	60	70	80	90	100
6.0C-2500-485 CL	146500			AST			178300	225900	273500	321000
			73590	ART			45400	64660	83600	102400
				AET	120400			49690	76500	103300
6.0C-2500-585 CL	145600			AST		190500	259700	328900	398100	
			73250	ART		50390	78130	105500	132700	
				AET	120000	56560	95570	134500	173500	
6.0C-2500-635 CL	144600			AST	169800	251300	332900	414400		
			72900	ART	41880	74780	107100	139100		
				AET	44870	90830	136700	182700		
6.0C-3800-585 CL	218800			AST			186800	256000	325200	394300
			102500	ART			44790	73040	100500	127900
				AET	162700		47220	86230	125200	164200
6.0C-3800-635 CL	217900			AST		178400	259900	341400	422900	
			102200	ART		41220	74600	107000	139100	
				AET	162200	42480	88440	134400	180300	
6.0C-3800-735 CL	215700			AST	205700	314900	424100			
			101400	ART	52670	96500	139600			
				AET	57880	119400	181000			
14C-5400-735 CL	314100			AST			385500	504900	624300	743700
			155000	ART			102100	150000	197500	244400
				AET	25200		114700	182000	249300	316600
14C-5400-835 CL	311400			AST		437100	591200	745300	867700	
			154000	ART		123000	184400	245100	305500	
				AET	250600	143800	230700	317500	404400	
14C-5400-935 CL	303300			AST	436800	630000	823200			
			153000	ART	122900	199800	275700			
				AET	143700	252600	361500			
14C-8300-735 CL	411900			AST				407500	526900	646300
			200900	ART				96520	145700	193300
				AET	324900			101000	168200	235500
14C-8300-835 CL	409200			AST			493800	647900	802000	
			200000	ART			132200	193900	255200	
				AET	323500		149600	236500	323300	
14C-8300-935 CL	406100			AST		532600	725800	919000	1112100	1299800
			198900	ART		148000	225000	301200	377000	452800
				AET	322100	171500	280400	389300	498200	607100
18C-9600-835 CL	552300			AST					840900	1018100
			307400	ART					198900	272300
				AET	525500				208000	307800
18C-9600-935 CL	548800			AST			753300	975400	1197500	
			306100	ART			158500	254800	344500	
				AET	523800		158500	283800	409000	
18C-9600-1100 CL	542100			AST	644200	951700	1259200			
			303600	ART	97100	245100	369000			
				AET	97100	270400	443700			
18C-9800-835 CL	685500			AST						885500
			387500	ART						153600
				AET	666900					153600
18C-9800-935 CL	682000			AST				842800	1064900	1287100
			386200	ART				129500	246700	339200
				AET	665200			129500	254800	380000
18C-9800-1100 CL	675200			AST		819000	1126600			
			383800	ART		116100	272900			
				AET	661900	116100	289500			

Maximum operating pressure is the pressure required to produce the maximum rated torque of the actuator model.  
 Maximum allowed pressure is 150 psig (static pressure applicable to fully stroked actuator against the travel stops).  
 AST - Air start torque      ART - Air run torque      AET - Air end torque  
 SST - Spring start torque      SRT - Spring run torque      SET - Spring end torque  
 Output torques (in.lb.)

# Algas Spring to Open Pneumatic Actuator

## Canted Yoke Design

### Output torques (lb.in.)

Actuator model	Spring torque			Operating pressure (psig)						
	SST	SRT	SET	40	50	60	70	80	90	100
0.3C-0150-175 OP	11780	3090	AET					3880	6310	8740
			ART				2670	3570	4450	
			AST	3460			4950	6140	7320	
0.3C-0150-235 OP	11570	3010	AET		6120	10500	14880	19260		
			ART		3500	5080	6640	8190		
			AST	3340	6050	8180	10320	12460		
0.9C-0200-235 OP	14930	3860	AET		5180	10250	15310	20370	25440	30500
			ART		3600	5460	7280	9080	10870	12670
			AST	4080	6690	9160	11640	14110	16580	19050
0.9C-0200-280 OP	14690	3660	AET	8360	15550	22740	29920	37110	44300	51490
			ART	4770	7360	9920	12460	15010	17550	20090
			AST	3950	8240	11750	15260	18770	22280	25790
0.9C-0350-280 OP	28470	7310	AET				13030	20220	27400	34590
			ART				7920	10550	13130	15700
			AST	8050			14050	17560	21070	24580
0.9C-0350-335 OP	28160	7190	AET		13820	24110	34400	44690	54980	
			ART		8210	11950	15640	19280	22920	
			AST	7880	14430	19460	24480	29510	34530	
0.9C-0350-385 OP	28090	7150	AET	16650	30240	43830	57420			
			ART	9250	14150	18970	23780			
			AST	7840	15810	22450	29090	35720		
0.9C-0400-280 OP	33850	9500	AET					13620	20810	28000
			ART					8140	10760	13350
			AST	11080				14340	17850	21360
0.9C-0400-335 OP	33540	9370	AET			17520	27810	38100	48390	58680
			ART			9570	13280	16940	20580	24230
			AST	10910			16240	21260	26290	31310
0.9C-0400-385 OP	33470	9340	AET	10060	23650	37240	50830			
			ART	6820	11780	16640	21450			
			AST	10870	12590	19230	25870	32510		
0.9C-0700-335 OP	47660	13010	AET					20780	31070	41360
			ART					12470	16230	19930
			AST	14540				21990	27020	32040
0.9C-0700-385 OP	47580	12780	AET			19920	33520	47110	60700	
			ART			12150	17110	21990	26820	
			AST	14500			21570	28210	34850	41490
0.9C-0700-485 OP	47320	12670	AET	24360	45930					
			ART	13780	21570					
			AST	14350	23740	34270				
1.5C-1100-385 OP	87300	20000	AET					26290	43480	60670
			ART					20810	27220	33550
			AST	20520				40410	48810	57200
1.5C-1100-485 OP	86960	19850	AET		24800	52080	79350	106600		
			ART		20230	30390	40310	50110		
			AST	20340	39690	53010	66320	79640		
1.5C-1200-385 OP	101900	26290	AET						25530	42710
			ART						20410	26830
			AST	29040					39780	48180
1.5C-1200-485 OP	101600	26160	AET			34120	61400	88670		
			ART			23670	33720	43550		
			AST	28850			43980	57300	70620	
1.5C-1200-585 OP	101100	25970	AET	28710	68390	108000				
			ART	21630	36260	50530				
			AST	28600	41340	60710	80090			
3.0C-2000-385 OP	149900	40760	AET					36800	65250	93700
			ART					28320	38870	49290
			AST	46560				54480	68370	82270
3.0C-2000-485 OP	149400	40540	AET			79480	124600	169700	214900	
			ART			44120	60410	76530	92510	
			AST	46250			75320	97370	119400	141400
3.0C-2000-585 OP	148600	40230	AET	70510	136200	201800				
			ART	40810	64560	87900				
			AST	45830	70950	103000	135100			

Maximum operating pressure is the pressure required to produce the maximum rated torque of the actuator model.  
 Maximum allowed pressure is 150 psig (static pressure applicable to fully stroked actuator against the travel stops).  
 AST - Air start torque      ART - Air run torque      AET - Air end torque  
 SST - Spring start torque      SRT - Spring run torque      SET - Spring end torque  
 Output torques (in. lb.)

# Algas Spring to Open Pneumatic Actuator

## Canted Yoke Design (cont'd)

Output torques (lb.in.)											
Actuator model	Spring torque			Operating pressure (psig)							
	SST	SRT	SET	40	50	60	70	80	90	100	
6.0C-2500-485 OP	213800		AET				97650	150400	203200	255900	
			ART	59850			55840	74970	93950	112600	
			AST		69690		96580	122300	148100	173900	
6.0C-2500-585 OP	213000		AET		111100	187900	264700	341500	418300		
			ART	59500		60830	88470	115700	142900	170000	
			AST		69210	103100	140600	178100	215600	253100	
6.0C-2500-635 OP	212100		AET		88160	178600	269100	359500			
			ART	59150		52350	85120	117200	149200		
			AST		68710	91950	13610	180300	224400		
6.0C-3800-585 OP	290600		AET			92710	169500	246200	323000	399800	
			ART	86840			56840	84800	112300	139400	166600
			AST		105700		101100	138600	176100	213600	251100
6.0C-3800-635 OP	289700		AET			173800	264300	354800			
			ART	86490			86370	118700	150700		
			AST		105200		140700	184900	229100		
6.0C-3800-735 OP	287800		AET		113600	234900	356100				
			ART	85700		64570	108200	151100			
			AST		104100	111300	170500	229700			
14C-5400-735 OP	448400		AET			225000	357500	490000	622500	754900	
			ART	127500			122900	170600	217800	264700	311600
			AST		150200		208500	273200	337800	402500	467200
14C-5400-835 OP	445900		AET		111300	282300	453300	624300	795300		
			ART	126500		81070	143600	204800	265300	325800	
			AST		148800	152900	236400	319900	403400	486900	
14C-5400-935 OP	443200		AET		281900	496300	710700				
			ART	125400		143500	220100	295900			
			AST		147200	236300	341000	445700			
14C-8300-735 OP	577200		AET				199500	331900	464400	596900	
			ART	165800			123700	172200	219800	267000	
			AST		196600		221100	285800	350500	415200	
14C-8300-835 OP	574700		AET			295300	466200	637200	808200		
			ART	164800			159000	220500	281200	341800	
			AST		195200		267900	351400	434900	518400	
14C-8300-935 OP	572000		AET		123900	338300	552700	767100			
			ART	163700		95700	174500	251400	327200		
			AST		193700	184300	288900	393700	498300		
18C-9600-835 OP	916900		AET				222300	419000	615600	812200	
			ART	230900			184800	258300	330600	401300	
			AST		250800		364400	460400	556400	652400	
18C-9600-935 OP	913700		AET			321700	568300	814800	1061300	1299800	
			ART	229600			222400	313300	402200	490900	578100
			AST		249000		412900	533300	653600	774000	894400
18C-9600-1100 OP	907700		AET		200600	541900	883200	1224400			
			ART	227100		176400	303600	426800	548600		
			AST		245600	353800	520400	687100	853700		
18C-9800-835 OP	1164000		AET						312600	509200	
			ART	288900					249100	322600	
			AST		310600				484800	580900	
18C-9800-935 OP	1160800		AET				265200	511800	758300	1004800	
			ART	287500			230900	323500	414400	503200	
			AST		308800		461700	382100	702500	822900	
18C-9800-1100 OP	1154700		AET		238800	580100	921300	1262600			
			ART	284900		220800	348700	473200	595900		
			AST		305400	448800	615500	782100	948700		

Maximum operating pressure is the pressure required to produce the maximum rated torque of the actuator model.  
 Maximum allowed pressure is 150 psig (static pressure applicable to fully stroked actuator against the travel stops).  
 AST - Air start torque      ART - Air run torque      AET - Air end torque  
 SST - Spring start torque      SRT - Spring run torque      SET - Spring end torque  
 Output torques (in.lb.)

# Algas Spring to Close Pneumatic Actuator

## Symmetric Yoke Design

### Output torques for spring to close symmetric yoke mechanism (in lb.in.)

Model	Spring torque			Operating supply pressure (psi)							
	SET	SRT	SST	40	50	60	70	80	90	100	
0.3S-0150-235-CL	4.603			AST	7.081	8.940	12.480	16.109	19.738		
		3.629		ART	3.363	4.514	6.815	9.117	11.418		
			7.877	AET	4.160	6.196	10.356	14.427	18.499		
0.3S-0150-175-CL	4.780			AST			4.603	6.638	8.585	10.621	14.604
		3.717		ART			1.328	3.009	4.337	5.576	8.143
			8.054	AET			1.328	3.629	5.930	8.143	12.745
0.9S-0200-280-CL	5.930			AST	13.454	16.374	22.305	28.235	34.076	40.007	51.778
		4.691		ART	6.992	8.851	12.657	16.374	20.180	23.898	31.421
			10.356	AET	10.002	13.365	20.092	26.819	33.545	40.272	53.814
0.9S-0200-235-CL	6.107			AST	7.523	10.444	13.719	17.879	22.039	26.199	34.519
		4.868		ART	3.098	4.514	7.169	9.825	12.480	15.135	20.446
			10.533	AET	3.186	5.576	10.267	15.047	19.826	24.517	33.988
0.9S-0350-385-CL	11.683			AST	25.668	31.244	42.396	53.549			
		9.117		ART	13.454	17.082	24.163	31.244			
			19.826	AET	19.384	25.756	38.502	51.336			
0.9S-0350-335-CL	11.683			AST	16.286	20.446	28.943	37.174	45.848	54.257	
		9.117		ART	7.346	10.090	15.578	20.977	26.376	31.687	
			19.826	AET	8.674	13.454	23.101	32.749	42.396	52.044	
0.9S-0350-280-CL	11.949			AST			16.374	22.128	28.235	34.076	45.937
		9.294		ART			7.435	11.329	15.047	18.853	26.376
			20.092	AET			8.762	15.578	22.305	29.031	42.485
0.9S-0400-385-CL	15.489			AST	21.685	27.438	38.502	49.566	61.072		
		11.506		ART	11.064	14.604	21.685	28.766	35.847		
			23.455	AET	15.047	21.242	34.076	46.910	59.744		
0.9S-0400-335-CL	15.578			AST		16.817	25.225	33.634	42.042	50.451	
		11.506		ART		7.523	13.277	18.587	23.898	29.208	
			23.455	AET		9.294	18.587	28.323	38.059	47.795	
0.9S-0400-280-CL	15.755			AST				18.587	24.340	30.093	42.131
		11.506		ART				8.851	12.834	16.374	23.986
			23.632	AET				11.064	18.145	24.783	38.148
0.9S-0700-485-CL	20.800			AST	39.387	48.238					
		15.932		ART	20.357	26.110					
			33.191	AET	29.651	39.387					
0.9S-0700-385-CL	21.065			AST		22.128	33.191	44.255	55.319		
		15.932		ART		9.294	16.817	23.898	30.979		
			33.368	AET		9.736	22.570	35.404	48.238		
0.9S-0700-335-CL	21.065			AST			19.472	28.323	36.732	45.140	61.957
		15.932		ART			7.081	13.277	19.030	24.340	35.050
			33.457	AET			7.081	16.817	26.553	36.289	55.407
1.5S-1100-485-CL	31.864			AST	50.451	62.842	86.740				
		26.553		ART	15.932	24.783	39.387				
			54.434	AET	15.932	27.881	50.893				
1.5S-1100-385-CL	32.306			AST				57.532	72.578	88.067	
		26.553		ART				21.242	30.979	39.830	
			54.876	AET				22.570	37.617	52.221	
1.5S-1200-585-CL	43.370			AST	77.004	94.706					
		32.749		ART	33.634	44.255					
			63.285	AET	42.042	59.302					
1.5S-1200-485-CL	43.812			AST		50.893	75.234	99.131			
		32.749		ART		16.817	32.306	46.910			
			63.727	AET		16.817	40.272	63.727			
1.5S-1200-385-CL	43.989			AST				46.025	61.072	76.561	105.327
		33.191		ART				11.949	23.898	33.191	51.424
			63.727	AET				11.949	26.553	41.600	70.897
3S-2000-585-CL	68.595			AST	128.340	156.663	215.079				
		49.566		ART	61.514	78.774	113.293				
			94.706	AET	83.199	111.523	169.054				
3S-2000-485-CL	69.038			AST	65.497	85.412	124.799	164.629	204.458		
		50.008		ART	21.242	34.961	59.302	83.199	107.097		
			95.591	AET	21.242	41.157	80.544	119.489	158.433		

1. Max. allowable pressure 150 psi (static pressure applicable to fully stroked actuator against the travel stop)
2. Angular positions: 0° Closed  
45° Intermediate  
90° Open
3. SET: Spring Ending Torque to close (0°)

- SRT: Spring Running Torque (45°)  
 SST: Spring Starting Torque to close (90°)  
 AST: Air Starting Torque to open (0°)  
 ART: Air Running Torque (45°)  
 AET: Air Ending Torque to open (90°)

# Algas Spring to Close Pneumatic Actuator Symmetric Yoke Design (cont'd)

## Output torques for spring to close symmetric yoke mechanism (in lb.in.) (cont'd)

Model	Spring torque			Operating supply pressure (psi)							
	SET	SRT	SST		40	50	60	70	80	90	100
3S-2000-385-CL	69.569	50.185	AST					77.004	101.787	126.569	177.020
			ART					30.093	45.583	60.629	90.280
			AET					32.749	57.532	82.314	131.880
6S-2500-635-CL	101.787	72.136	AST	168.169	207.999	287.658	366.431	441.665			
			ART	80.102	103.557	151.352	199.148	246.058			
			AET	108.867	147.812	227.471	306.245	385.019			
6S-2500-585-CL	102.672	72.578	AST	126.569	160.203	228.356	295.623	362.891	430.159		
			ART	54.876	75.676	115.948	155.778	196.492	236.322		
			AET	67.710	100.901	168.169	234.552	301.819	369.087		
6S-2500-485-CL	103.557	73.021	AST			123.029	169.054	215.964	261.990	354.925	
			ART			52.663	80.987	108.867	136.305	192.067	
			AET			64.170	109.752	155.778	201.803	294.738	
6S-3800-735-CL	151.352	100.901	AST	210.654	263.760	370.857					
			ART	102.672	134.535	198.262					
			AET	142.501	195.607	301.819					
6S-3800-635-CL	153.122	101.787	AST	117.718	157.548	237.207	316.866	395.640			
			ART	46.025	70.808	118.603	165.514	213.309			
			AET	50.451	89.395	169.054	247.828	326.602			
6S-3800-585-CL	154.007	101.787	AST			177.905	245.173	312.440	379.708		
			ART			82.757	123.029	163.744	203.573		
			AET			109.752	176.135	243.403	469.988		
14S-5400-935-CL	219.505	151.352	AST	431.929	527.520	718.701	884.215				
			ART	212.424	269.070	380.593	493.001				
			AET	299.164	391.214	575.315	759.416				
14S-5400-835-CL	221.275	152.237	AST	298.279	374.397	526.635	678.872	831.109			
			ART	132.765	178.790	268.185	357.580	446.976			
			AET	170.824	244.288	391.214	537.256	684.182			
14S-5400-735-CL	223.045	153.122	AST		238.977	356.695	475.299	593.017	710.735		
			ART		97.361	168.169	238.092	307.130	376.168		
			AET		114.178	227.471	340.764	454.941	568.234		
14S-8300-935-CL	288.543	197.377	AST	363.776	459.367	649.663	840.845				
			ART	160.203	217.735	330.142	442.550				
			AET	203.573	295.623	479.724	663.825				
14S-8300-835-CL	290.313	198.262	AST		306.245	458.482	610.719	762.956	884.215		
			ART		125.684	216.850	307.130	396.525	485.920		
			AET		148.697	295.623	441.665	588.592	735.518		
14S-8300-735-CL	292.083	199.148	AST			288.543	406.261	524.864	642.583	878.904	
			ART			115.063	186.756	256.679	325.717	464.678	
			AET			131.880	245.173	358.466	472.643	700.114	
18S-9600-1100-CL	390.329	299.164	AST	647.008	798.360	1,102.835					
			ART	269.070	360.236	540.796					
			AET	321.291	467.333	760.301					
18S-9600-935-CL	394.755	300.049	AST		465.563	685.067	904.572	1,124.077	1,326.765		
			ART		146.042	292.083	423.963	554.073	683.297		
			AET		146.042	357.580	570.004	781.543	993.082		
18S-9600-835-CL	397.410	300.934	AST			465.563	639.927	815.177	990.427	1,326.765	
			ART			146.042	264.645	369.972	474.414	681.527	
			AET			146.042	315.096	483.265	652.319	989.542	
18S-9800-1100-CL	484.150	374.397	AST		706.310	1,009.899	1,313.488				
			ART		265.530	451.401	632.847				
			AET		287.658	580.626	873.594				
18S-9800-985-CL	488.575	377.053	AST			592.132	812.522	1,032.027	1,251.531		
			ART			178.790	331.913	464.678	595.672		
			AET			178.790	390.329	601.868	813.407		
18S-9800-835-CL	491.231	377.938	AST				547.877	723.127	897.491	1,247.991	
			ART				135.420	276.151	384.133	593.902	
			AET				135.420	303.589	472.643	809.867	

- Max. allowable pressure 150 psi (static pressure applicable to fully stroked actuator against the travel stop)
- Angular positions:
  - 0° Closed
  - 45° Intermediate
  - 90° Open
- SET: Spring Ending Torque to close (0°)  
 SRT: Spring Running Torque (45°)  
 SST: Spring Starting Torque to close (90°)  
 AST: Air Starting Torque to open (0°)  
 ART: Air Running Torque (45°)  
 AET: Air Ending Torque to open (90°)

# Algas Spring to Open Pneumatic Actuator

## Symmetric Yoke Design

### Output torques for spring to open symmetric yoke mechanism (in lb.in.)

Model	Spring torque			Operating supply pressure (psi)							
	SET	SRT	SST	40	50	60	70	80	90	100	
0.3S-0150-235-OP	7.081			AET	4.337	6.373	10.444	14.427	18.499	22.039	
		3.275		ART	3.452	4.603	6.992	9.294	11.506	13.808	
			4.071	AST	7.612	9.471	13.188	16.994	20.711	24.429	
0.3S-0150-175-OP	7.258			AET				3.894	6.107	8.320	12.834
		3.452		ART				3.186	4.514	5.753	8.320
			4.337	AST				7.169	9.294	11.329	15.489
0.9S-0200-280-OP	8.940			AET	10.533	13.808	20.446	27.084	33.722	40.272	53.549
		4.071		ART	7.435	9.294	13.099	16.817	20.534	24.340	31.864
			4.868	AST	14.693	17.702	23.809	30.005	36.112	42.219	54.522
0.9S-0200-235-OP	9.117			AET	3.894	6.196	10.887	15.489	20.180	24.783	34.165
		4.160		ART	3.452	4.868	7.612	10.267	12.922	15.578	20.800
			5.045	AST	8.497	10.621	14.958	19.295	23.544	27.881	36.555
0.9S-0350-385-OP	17.082			AET	20.446	26.730	39.210	51.690			
		7.877		ART	14.250	17.791	24.960	32.041			
			9.648	AST	27.969	33.811	45.406	56.912			
0.9S-0350-335-OP	17.171			AET	9.913	14.604	24.075	33.545	43.016	52.486	
		7.966		ART	8.054	10.975	16.286	21.685	27.084	32.483	
			9.648	AST	18.145	22.570	31.333	40.095	48.858	57.620	
0.9S-0350-280-OP	17.348			AET			10.002	16.640	23.278	29.916	43.104
		8.054		ART			8.143	12.037	15.843	19.649	27.173
			9.913	AST			18.322	24.429	30.624	36.732	48.946
0.9S-0400-385-OP	20.534			AET	16.197	22.482	34.961	47.441	60.010		
		10.179		ART	11.772	15.401	22.482	31.421	36.732		
			13.542	AST	24.075	29.828	41.423	53.017	61.868		
0.9S-0400-335-OP	20.623			AET		10.356	19.826	29.297	38.767	48.238	
		10.179		ART		8.408	13.896	19.295	24.694	30.005	
			13.631	AST		18.587	27.350	36.201	44.963	53.726	
0.9S-0400-280-OP	20.800			AET				12.391	19.030	25.579	38.856
		10.356		ART				9.559	13.365	17.171	24.694
			13.808	AST				20.534	26.642	32.749	45.052
0.9S-0700-485-OP	28.943			AET	27.881	40.980					
		13.896		ART	21.685	27.350					
			17.791	AST	42.750	51.955					
0.9S-0700-385-OP	29.120			AET		11.860	24.340	36.820	49.389		
		13.985		ART		10.444	17.791	24.960	32.129		
			17.968	AST		24.871	36.466	48.061	59.656		
0.9S-0700-335-OP	29.208			AET			9.205	18.676	28.146	37.617	
		13.985		ART			8.851	14.516	20.003	25.402	
			18.056	AST			22.482	31.244	40.007	48.769	
1.5S-1100-485-OP	59.744			AET	17.791	31.421	58.682	85.943			
		22.747		ART	17.791	26.287	40.892	55.230			
			24.960	AST	43.547	54.257	75.499	96.476			
1.5S-1100-385-OP	60.010			AET				25.756	42.927	60.098	94.706
		22.924		ART				23.190	32.483	41.688	59.656
			25.225	AST				49.743	63.196	76.561	103.557
1.5S-1200-585-OP	69.657			AET	48.238	68.064					
		29.031		ART	44.166	45.760					
			34.784	AST	67.091	82.580					
1.5S-1200-485-OP	69.923			AET		18.853	46.114	73.286	100.901		
		29.208		ART		18.853	34.165	48.503	62.842		
			35.050	AST		44.078	65.409	86.651	105.327		
1.5S-1200-385-OP	70.188			AET				13.099	30.270	47.441	81.783
		29.385		ART				13.099	25.579	34.873	53.017
			35.315	AST				39.652	53.017	66.471	92.936
3S-2000-585-OP	100.901			AET	94.706	127.454	192.067				
		44.432		ART	63.816	81.075	115.063				
			55.850	AST	115.948	142.501	194.722				
3S-2000-485-OP	100.901			AET		47.087	91.165	136.305	180.560	220.390	
		44.786		ART		37.971	61.957	85.678	108.867	132.765	
			56.292	AST		77.712	113.293	149.582	184.986	220.390	

1. Max. allowable pressure 150 psi (static pressure applicable to fully stroked actuator against the travel stop)
2. Angular positions:
  - 0° Closed
  - 45° Intermediate
  - 90° Open
3. SET: Spring Ending Torque to close (0°)

- SRT: Spring Running Torque (45°)
- SST: Spring Starting Torque to close (90°)
- AST: Air Starting Torque to open (0°)
- ART: Air Running Torque (45°)
- AET: Air Ending Torque to open (90°)

# Algas Spring to Open Pneumatic Actuator

## Symmetric Yoke Design (cont'd)

### Output torques for spring to open symmetric yoke mechanism (in lb.in.) (cont'd)

Model	Spring torque			Operating supply pressure (psi)							
	SET	SRT	SST	40	50	60	70	80	90	100	
3S-2000-385-OP	101.787			AET				37.794	65.851	93.821	149.582
		44.963		ART				32.749	48.149	63.196	92.936
			56.735	AST				70.277	92.936	115.063	160.203
6S-2500-635-OP	143.386			AET	124.799	169.054	258.449	346.959	436.354		
		64.878		ART	84.173	107.982	154.893	202.688	249.598		
			83.642	AST	154.007	190.297	261.990	333.683	405.376		
6S-2500-585-OP	143.386			AET	78.331	115.948	191.182	267.300	342.534	417.767	
		65.320		ART	59.213	79.570	119.489	160.203	200.033	239.862	
			84.085	AST	116.833	146.927	207.999	269.070	330.142	391.214	
6S-2500-485-OP	144.271			AET			74.171	125.684	177.905	230.126	333.683
		65.674		ART			56.912	84.881	112.408	139.846	195.607
			84.793	AST			113.293	154.893	197.377	238.977	323.062
6S-3800-735-OP	194.722			AET	163.744	223.045	342.534				
		92.936		ART	107.097	138.961	202.688				
			126.569	AST	192.952	241.632	337.223				
6S-3800-635-OP	195.607			AET	59.302	103.557	192.952	281.462	370.857	441.665	
		93.821		ART	50.982	75.322	123.029	169.939	217.735	264.645	
			127.454	AST	108.867	145.156	216.850	288.543	360.236	431.929	
6S-3800-585-OP	196.492			AET		50.451	125.684	201.803	277.036	352.270	
		93.821		ART		46.025	87.448	127.454	168.169	207.999	
			128.340	AST		101.787	162.858	223.930	285.002	346.074	
14S-5400-935-OP	305.360			AET	347.844	454.941	669.136	883.330			
		137.191		ART	218.620	275.266	386.789	498.311			
			177.905	AST	377.938	462.022	629.306	796.590			
14S-5400-835-OP	307.130			AET	198.262	283.232	454.941	624.881	795.705		
		138.961		ART	140.731	184.986	274.381	363.776	453.171		
			179.675	AST	261.105	327.487	461.137	594.787	728.437		
14S-5400-735-OP	308.900			AET		131.880	264.645	396.525	528.405	661.170	884.215
		139.846		ART		104.442	175.250	244.288	313.325	382.363	520.439
			181.446	AST		208.884	312.440	415.997	519.554	623.110	829.339
14S-8300-935-OP	394.755			AET	238.092	345.189	558.498	772.692			
		178.790		ART	169.939	226.586	338.993	443.435			
			233.666	AST	318.636	402.721	570.004	737.288			
14S-8300-835-OP	396.525			AET		173.480	344.304	515.128	685.953	856.777	
		180.560		ART		135.420	226.586	315.981	405.376	493.886	
			235.437	AST		269.070	401.835	535.486	669.136	802.786	
14S-8300-735-OP	398.295			AET			154.007	286.772	418.652	550.532	815.177
		181.446		ART			124.799	195.607	265.530	334.568	472.643
			237.207	AST			253.139	356.695	460.252	563.809	770.037
18S-9600-1100-OP	622.225			AET	385.019	555.843	896.606	1,236.485			
		253.139		ART	294.738	385.904	564.694	742.599			
			297.394	AST	576.200	709.850	976.265	1,242.680			
18S-9600-935-OP	625.766			AET		182.331	428.388	674.446	920.504	1,166.562	
		256.679		ART		182.331	317.751	448.746	577.085	706.310	
			300.934	AST		417.767	609.834	802.786	994.852	1,187.804	
18S-9600-835-OP	628.421			AET			182.331	377.938	574.430	770.922	1,163.021
		257.564		ART			182.331	291.198	395.640	499.196	704.540
			303.589	AST			416.882	570.890	724.012	878.019	1,185.149
18S-9800-1100-OP	793.050			AET	173.480	343.419	684.182	1,024.946			
		320.406		ART	173.480	297.394	480.609	660.285			
			371.742	AST	493.001	625.766	892.181	1,158.596			
18S-9800-935-OP	797.475			AET			215.964	462.022	708.080	954.138	
		323.062		ART			215.964	362.891	493.886	623.110	
			376.168	AST			526.635	718.701	911.653	1,103.720	
18S-9800-835-OP	800.130			AET			165.514	362.006	558.498	750.000	950.597
		323.947		ART			165.514	308.015	414.227	521.000	621.340
			377.938	AST			486.805	640.812	793.935	950.000	1,101.064

1. Max. allowable pressure 150 psi (static pressure applicable to fully stroked actuator against the travel stop)
2. Angular positions:
  - 0° Closed
  - 45° Intermediate
  - 90° Open
3. SET: Spring Ending Torque to close (0°)  
 SRT: Spring Running Torque (45°)  
 SST: Spring Starting Torque to close (90°)  
 AST: Air Starting Torque to open (0°)  
 ART: Air Running Torque (45°)  
 AET: Air Ending Torque to open (90°)

# Algas Spring Return Pneumatic Actuator

## Canted Yoke Design

### Operating data

Actuator model	Air consumption (cu.in.)	Maximum operating pressure (psig)		Maximum operating torque (lb.in.)
		Spring to Close actuators	Spring to Open actuators	
0.3C-0150-175	294	130	150	22000
0.3C-0150-235	553	70	80	22000
0.9C-0200-235	553	150	150	61000
0.9C-0200-280	854	110	110	61000
0.9C-0350-280	854	120	130	61000
0.9C-0350-335	1230	80	90	61000
0.9C-0350-385	1590	60	70	61000
0.9C-0400-280	847	130	140	61000
0.9C-0400-335	1230	90	100	61000
0.9C-0400-385	1590	70	70	61000
0.9C-0700-335	1230	100	110	61000
0.9C-0700-385	1590	70	90	61000
0.9C-0700-485	2510	50	50	61000
1.5C-1100-385	1891	100	120	104000
1.5C-1100-485	2920	60	80	104000
1.5C-1200-385	1891	110	130	104000
1.5C-1200-485	2920	70	80	104000
1.5C-1200-585	4270	50	60	104000
3.0C-2000-385	2870	120	140	220000
3.0C-2000-485	4515	80	90	220000
3.0C-2000-585	6580	50	60	220000
6.0C-2500-485	5187	120	130	440000
6.0C-2500-585	7570	80	90	440000
6.0C-2500-635	8920	70	70	440000
6.0C-3800-585	7570	100	100	440000
6.0C-3800-635	8920	80	80	440000
6.0C-3800-735	11900	60	60	440000
14C-5400-735	13000	100	110	870000
14C-5400-835	16700	80	80	870000
14C-5400-935	20900	60	60	870000
14C-8300-735	13000	110	110	870000
14C-8300-835	16700	80	90	870000
14C-8300-935	20900	60	70	870000
18C-9600-835	19400	110	120	1300000
18C-9600-935	24300	80	100	1300000
18C-9600-1100	33700	60	70	1300000
18C-9800-835	19400	110	140	1300000
18C-9800-935	24300	90	110	1300000
18C-9800-1100	33700	60	80	1300000

### Notes

1. Maximum operating torque is maximum rating of scotch yoke mechanism.
2. Maximum allowable pressure is 150 psig (static pressure applicable to fully stroked actuator against travel stops).
3. Maximum operating pressure is the pressure required to produce the maximum operating torque of the actuator.

# Algas Spring Return Pneumatic Actuator

## Symmetric Yoke Design

### Operating data

Actuator model	Air consumption (cu.in.)	Maximum operating pressure (psig)		Maximum operating torque (lb.in.)
		Spring to Close actuators	Spring to Open actuators	
0.3S-0150-175	294	150	150	22000
0.3S-0150-235	553	110	110	22000
0.9S-0200-235	553	150	150	61000
0.9S-0200-280	847	150	150	61000
0.9S-0350-280	847	150	150	61000
0.9S-0350-335	1230	130	110	61000
0.9S-0350-385	1590	90	80	61000
0.9S-0400-280	847	150	150	61000
0.9S-0400-335	1230	130	130	61000
0.9S-0400-385	1590	100	100	61000
0.9S-0700-335	1230	140	130	61000
0.9S-0700-385	1590	100	100	61000
0.9S-0700-485	2510	60	60	61000
1.5S-1100-385	1891	130	140	104000
1.5S-1100-485	2920	80	80	104000
1.5S-1200-385	1891	140	150	104000
1.5S-1200-485	2920	80	100	104000
1.5S-1200-585	4270	60	60	104000
3.0S-2000-385	2870	150	150	220000
3.0S-2000-485	4515	100	110	220000
3.0S-2000-585	6580	70	70	220000
6.0S-2500-485	5187	150	150	440000
6.0S-2500-585	7570	110	110	440000
6.0S-2500-635	8920	100	100	440000
6.0S-3800-585	7570	130	130	440000
6.0S-3800-635	8920	100	110	440000
6.0S-3800-735	11900	80	80	440000
14S-5400-735	13000	130	140	870000
14S-5400-835	16700	100	100	870000
14S-5400-935	20900	80	80	870000
14S-8300-735	13000	140	150	870000
14S-8300-835	16700	110	110	870000
14S-8300-935	20900	80	90	870000
18S-9600-835	19400	140	150	1300000
18S-9600-935	24300	110	120	1300000
18S-9600-1100	33700	80	80	1300000
18S-9800-835	19400	150	150	1300000
18S-9800-935	24300	110	130	1300000
18S-9800-1100	33700	80	90	1300000

### Notes

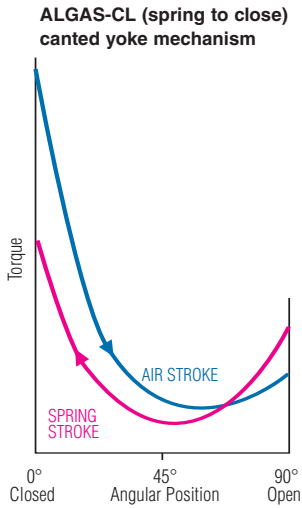
1. Maximum operating torque is maximum rating of scotch yoke mechanism.
2. Maximum allowable pressure is 150 psig (static pressure applicable to fully stroked actuator against travel stops).
3. Maximum operating pressure is the pressure required to produce the maximum operating torque of the actuator.

## Canted and Symmetric scotch yoke torque output

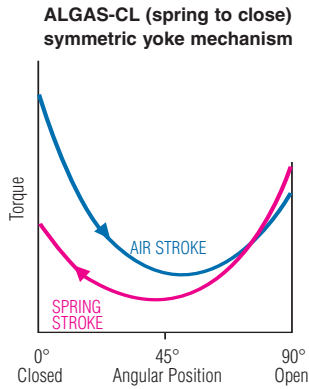
Algas actuators are available with either canted or symmetric scotch yoke mechanisms.

The canted versions produce a torque output as represented in Fig. 1 and Fig. 3 and are therefore most suitable for use with valves which display a similar torque requirement, such as butterfly valves.

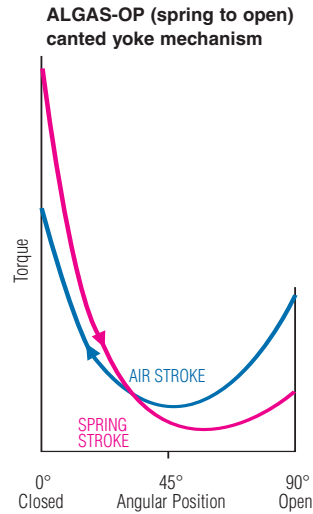
The torque output characteristics of the symmetric versions are as shown in Fig. 2 and Fig. 4 and are most suitable for use with valves which display a similar torque requirement, such as ball valves.



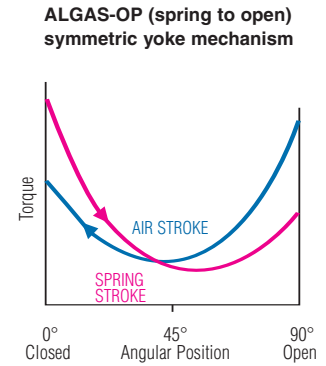
**Fig. 1**



**Fig. 2**



**Fig. 3**



**Fig. 4**

## Other control products



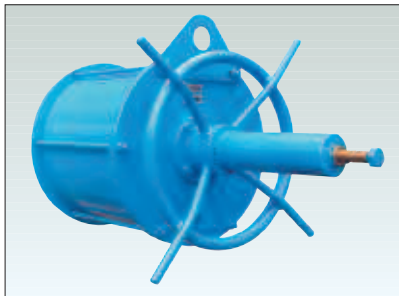
Tyco AVID Control Position Monitors



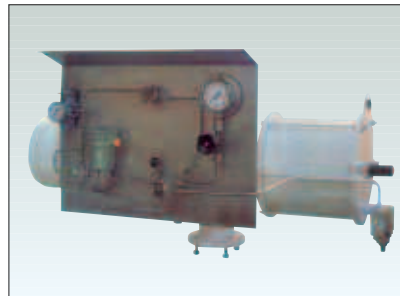
Tyco AVID analogue positioners



Tyco AVID intelligent positioners



Biffi manual override device



Biffi control panel

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