

BIFFI

Double Acting Pneumatic Quarter-Turn Actuator For Output Torques to 2,200,000 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.
- 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.
- Spring return 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 | : To 2,200,000 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) |

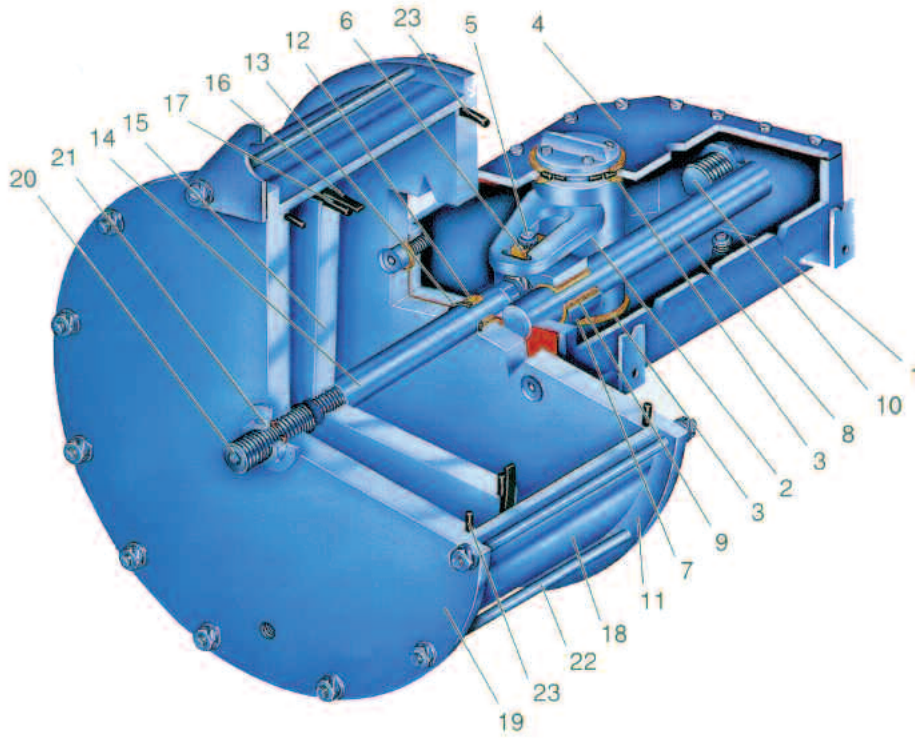
tyco / Flow Control

Total Flow Control Solutions™

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Alga Double Acting Pneumatic Actuator

Scotch Yoke Design

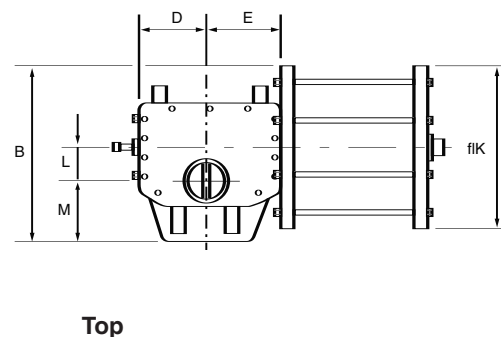
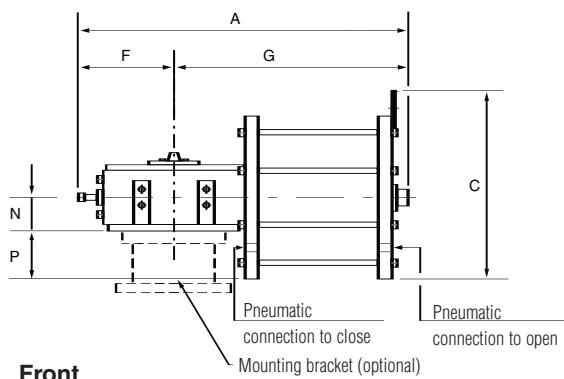


Materials

| 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 | Bronze | ASTM B427 Alloy UNS No. C90800 |
| 7 Guide block | Carbon steel | ASTM A537 cl1 |
| 8 Guide bar | Alloy steel (hard chrome plated) | AISI SAE 9840 (chromium 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 (hard chrome plated) | AISI SAE 9840 |
| 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 Travel stop screw | Carbon steel | AISI SAE 1040 |
| 21 Sealing washer | PVC | – |
| 22 Tie rod | Alloy steel | AISI SAE 9840 |
| 23 Cylinder seal O-ring | NBR rubber | – |

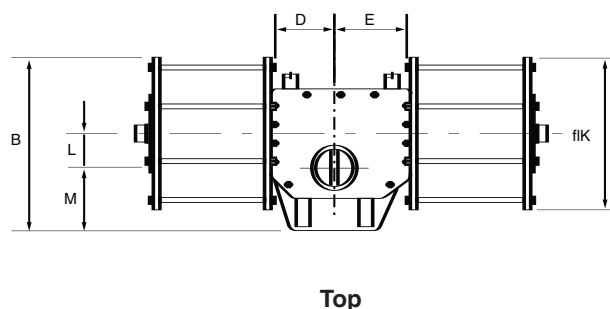
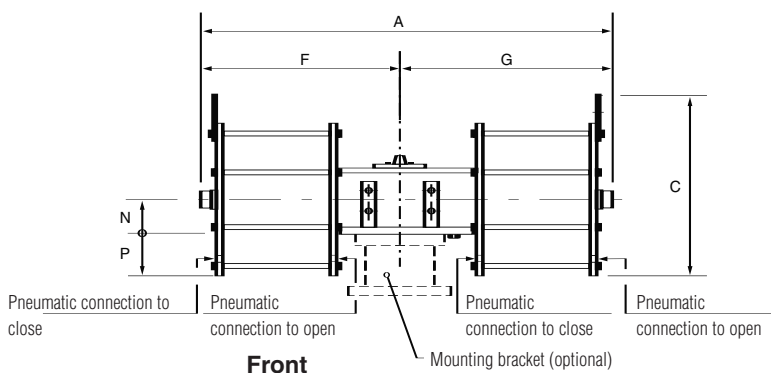
Alga Double Acting Pneumatic Actuator

Overall dimensions



Overall dimensions

| Actuator model | A | B | C | D | E | F | G | ØK | L | M | N | P | Pneumatic connection NPT | | Weight (lbs) |
|----------------|------|------|------|------|------|------|------|------|------|------|-----|-----|--------------------------|---------|--------------|
| | | | | | | | | | | | | | To close | To open | |
| 0.3*-135 | 28.8 | 12.6 | 11.7 | 5.4 | 5.9 | 8.7 | 20.0 | 6.1 | 2.76 | 4.7 | 2.8 | 0.3 | 1/4" | 1/4" | 117 |
| 0.3*-175 | 29.3 | 12.6 | 12.1 | 5.4 | 5.9 | 8.7 | 20.6 | 7.9 | 2.76 | 4.7 | 2.8 | 1.2 | 1/4" | 1/2" | 141 |
| 0.3*-235 | 29.3 | 12.6 | 13.2 | 5.4 | 5.4 | 8.7 | 20.7 | 10.2 | 2.76 | 4.7 | 2.8 | 2.4 | 1/2" | 1/2" | 181 |
| 0.9*-235 | 31.9 | 16.3 | 13.7 | 6.3 | 7.5 | 9.7 | 22.2 | 10.2 | 3.15 | 6.7 | 3.3 | 1.9 | 1/2" | 1/2" | 207 |
| 0.9*-280 | 31.8 | 16.7 | 15.4 | 6.3 | 7.5 | 9.7 | 22.1 | 13.6 | 3.15 | 6.7 | 3.3 | 3.5 | 1/2" | 3/4" | 273 |
| 1.5*-280 | 36.5 | 18.2 | 20.1 | 7.4 | 8.5 | 11.5 | 24.9 | 13.6 | 3.94 | 7.3 | 3.9 | 2.9 | 1/2" | 3/4" | 366 |
| 1.5*-335 | 36.5 | 19.1 | 18.8 | 7.4 | 8.5 | 11.5 | 24.9 | 15.8 | 3.94 | 7.3 | 3.9 | 3.9 | 1/2" | 1" | 428 |
| 1.5*-385 | 36.2 | 20.1 | 21.1 | 7.4 | 8.5 | 11.5 | 24.7 | 17.7 | 3.94 | 7.3 | 3.9 | 4.9 | 1/2" | 1" | 500 |
| 3.0*-385 | 51.4 | 23.6 | 21.1 | 11.2 | 12.6 | 15.4 | 36.0 | 17.7 | 6.30 | 8.5 | 4.2 | 4.7 | 1/2" | 1" | 679 |
| 3.0*-485 | 51.7 | 25.8 | 25.2 | 11.2 | 12.5 | 15.4 | 36.3 | 22.1 | 6.30 | 8.5 | 4.2 | 6.9 | 3/4" | 1" | 855 |
| 6.0*-485 | 59.0 | 28.5 | 25.2 | 12.9 | 14.4 | 16.9 | 42.1 | 22.1 | 7.28 | 10.2 | 5.5 | 5.5 | 3/4" | 1" | 1129 |
| 6.0*-585 | 59.2 | 30.7 | 29.8 | 12.9 | 14.4 | 16.9 | 42.3 | 26.4 | 7.28 | 10.2 | 5.5 | 7.7 | 3/4" | 1" | 1552 |
| 14*-635 | 65.9 | 33.7 | 31.9 | 14.8 | 16.6 | 19.5 | 46.3 | 28.4 | 7.87 | 11.6 | 7.6 | 6.6 | 1" | 1" | 2756 |
| 18*-685 | 77.0 | 37.6 | 35.0 | 16.6 | 18.7 | 21.6 | 55.4 | 30.3 | 9.06 | 13.4 | 7.7 | 7.4 | 1" | 1" | 3417 |
| 18*-735 | 77.0 | 38.5 | 37.0 | 16.6 | 18.7 | 21.6 | 55.4 | 32.1 | 9.06 | 13.4 | 7.7 | 8.4 | 1" | 1" | 3638 |



Overall dimensions

| Actuator model | A | B | C | D | E | F | G | ØK | L | M | N | P | Pneumatic connection NPT | | Weight (lbs) |
|----------------|-------|------|------|------|------|------|------|------|-------|------|-----|-----|--------------------------|---------|--------------|
| | | | | | | | | | | | | | To close | To open | |
| 18*2-635 | 105.9 | 36.8 | 32.0 | 15.6 | 18.3 | 51.6 | 54.3 | 28.7 | 9.06 | 13.4 | 7.7 | 6.7 | 1" | 1" | 4300 |
| 32*2-685 | 122.4 | 41.3 | 35.0 | 19.2 | 22.4 | 59.6 | 62.8 | 30.3 | 10.63 | 15.6 | 9.1 | 6.0 | 1" | 1" | 5400 |

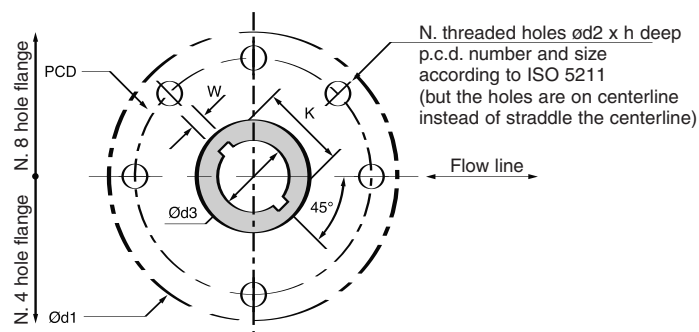
Notes

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.

Alga Double Acting Pneumatic Actuator

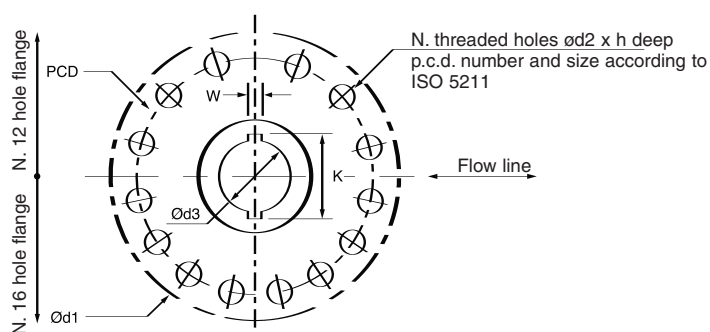
Mounting dimensions

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)



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 |

Notes

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

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** |
|--------------|---|---|-------------|------|---------------------------|
| |  |  | 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 | | | | |

Notes

1. 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.
2. • Key according to UNI6604 or DIN 6885 sh.1 or BS4325 part 1 or ISO 773 or equivalent.
3. † S max: maximum external diameter in case of rounded edge.
4. **Without adapter flange.

Alga Double Acting Pneumatic Actuator

Scotch Yoke Design

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.

Operating data

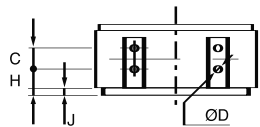
| Actuator Model | Air Consumption (cu.in.) | Maximum operating pressure | | Maximum operating torque (lb.in.) |
|----------------|--------------------------|----------------------------|------------------|-----------------------------------|
| | | Canted (psig) | Symmetric (psig) | |
| 0.3C-135 | 177 | 150 | 150 | 22000 |
| 0.3C-175 | 294 | 100 | 150 | 22000 |
| 0.3C-235 | 553 | 50 | 80 | 22000 |
| 0.9C-235 | 553 | 130 | 150 | 61000 |
| 0.9C-280 | 854 | 90 | 130 | 61000 |
| 1.5C-280 | 976 | 130 | 150 | 104000 |
| 1.5C-335 | 1404 | 90 | 120 | 104000 |
| 1.5C-385 | 1891 | 60 | 90 | 104000 |
| 3.0C-280 | 2870 | 80 | 110 | 220000 |
| 3.0C-485 | 4515 | 50 | 70 | 220000 |
| 6.0C-485 | 5187 | 90 | 130 | 440000 |
| 6.0C-585 | 7570 | 60 | 80 | 440000 |
| 14C-635 | 9703 | 90 | 130 | 870000 |
| 18C-685 | 12693 | 100 | 150 | 1300000 |
| 18C-735 | 14584 | 80 | 130 | 1300000 |
| 18C2-635 | 21785 | 60 | 80 | 1300000 |
| 32C2-685 | 29719 | 70 | 110 | 2200000 |

Accessories mounting dimensions

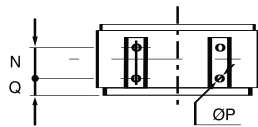
Actuator

| 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 |

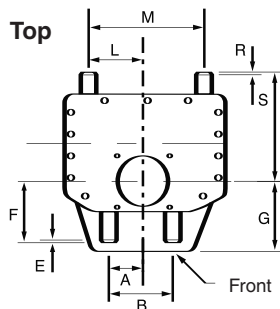
Front



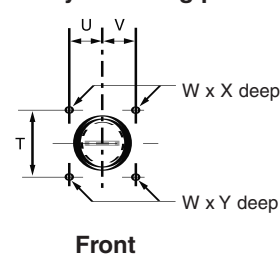
Back



Top



Top view accessory mounting pad



Alga Double Acting Pneumatic Actuator

Canted Yoke Design

Output torques (lb.in.)

| Actuator model | Angular position | Operating pressure (psig) | | | | | | | | | |
|----------------|---------------------|---------------------------|---------|---------|---------|---------|---------|---------|-------|--------|-------|
| | | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 |
| 0.3C-135 | 0° break (CCW) | 4880 | 6190 | 7490 | 8800 | 10100 | 11400 | 12700 | 14000 | 15300 | 16600 |
| | 0° seating (CW) | 5220 | 6620 | 8020 | 9410 | 10800 | 12200 | 13600 | 15000 | 16400 | 17800 |
| | Run | 1880 | 2380 | 2880 | 3380 | 3880 | 4390 | 4890 | 5390 | 6390 | 7400 |
| | 90° full open (CCW) | 2550 | 3230 | 3910 | 4600 | 5280 | 5960 | 6640 | 7330 | 8010 | 8690 |
| 0.3C-175 | 0° break (CCW) | 8300 | 10500 | 12700 | 14900 | 17100 | 19300 | | | | |
| | 0° seating (CW) | 9010 | 11400 | 13800 | 16200 | 18500 | 20900 | | | | |
| | Run | 3240 | 4090 | 4950 | 5800 | 6660 | 7520 | | | | |
| | 90° full open (CCW) | 4400 | 5560 | 6730 | 7890 | 9050 | 10200 | | | | |
| 0.3C-235 | 0° break (CCW) | 15100 | 19100 | | | | | | | | |
| | 0° seating (CW) | 16600 | 20900 | | | | | | | | |
| | Run | 5960 | 7520 | | | | | | | | |
| | 90° full open (CCW) | 8100 | 10200 | | | | | | | | |
| 0.9C-235 | 0° break (CCW) | 17500 | 22100 | 26600 | 31200 | 35800 | 40400 | 44900 | 49500 | 54100 | 58600 |
| | 0° seating (CW) | 19200 | 24200 | 29200 | 34200 | 39300 | 44300 | 49300 | 54300 | 59300 | 60900 |
| | Run | 6890 | 8690 | 10490 | 12300 | 14100 | 15900 | 17700 | 19500 | 23100 | 22700 |
| | 90° full open (CCW) | 9370 | 11800 | 14300 | 16700 | 19200 | 21600 | 24100 | 26200 | 29000 | 31400 |
| 0.9C-280 | 0° break (CCW) | 24900 | 31400 | 37900 | 44400 | 50900 | 57400 | | | | |
| | 0° seating (CW) | 27100 | 34100 | 41200 | 48200 | 55300 | 61000 | | | | |
| | Run | 9730 | 12300 | 14800 | 17300 | 19900 | 22400 | | | | |
| | 90° full open (CCW) | 13200 | 16700 | 20100 | 23600 | 27000 | 30400 | | | | |
| 1.5C-280 | 0° break (CCW) | 31500 | 39700 | 47900 | 56100 | 64300 | 72600 | 80800 | 89000 | 97200 | |
| | 0° seating (CW) | 34300 | 43200 | 52100 | 61000 | 69900 | 78800 | 87800 | 96700 | 103900 | |
| | Run | 12300 | 15400 | 18600 | 21800 | 25000 | 28200 | 31600 | 34800 | 41200 | |
| | 90° full open (CCW) | 16700 | 21100 | 25400 | 29800 | 30100 | 38500 | 42900 | 47200 | 51600 | |
| 1.5C-335 | 0° break (CCW) | 45300 | 57000 | 68800 | 80500 | 92300 | | | | | |
| | 0° seating (CW) | 49500 | 62400 | 75200 | 88100 | 100900 | | | | | |
| | Run | 17700 | 22300 | 26900 | 31500 | 36100 | | | | | |
| | 90° full open (CCW) | 24200 | 30500 | 36700 | 43000 | 49300 | | | | | |
| 1.5C-335 | 0° break (CCW) | 60300 | 75800 | 91300 | | | | | | | |
| | 0° seating (CW) | 66200 | 83200 | 100200 | | | | | | | |
| | Run | 23700 | 29800 | 35900 | | | | | | | |
| | 90° full open (CCW) | 32300 | 40600 | 48900 | | | | | | | |
| 3.0C-385 | 0° break (CCW) | 99800 | 125400 | 151100 | 176800 | 202400 | | | | | |
| | 0° seating (CW) | 109500 | 137700 | 165800 | 194000 | 219900 | | | | | |
| | Run | 39200 | 49300 | 59400 | 69500 | 79600 | | | | | |
| | 90° full open (CCW) | 53500 | 67200 | 81000 | 94700 | 108500 | | | | | |
| 3.0C-485 | 0° break (CCW) | 159500 | 200200 | | | | | | | | |
| | 0° seating (CW) | 175800 | 219900 | | | | | | | | |
| | Run | 63000 | 79100 | | | | | | | | |
| | 90° full open (CCW) | 85800 | 107700 | | | | | | | | |
| 6.0C-485 | 0° break (CCW) | 186400 | 234100 | 281700 | 329300 | 376900 | | | | | |
| | 0° seating (CW) | 205500 | 258000 | 310500 | 363000 | 415500 | | | | | |
| | Run | 73600 | 92400 | 111200 | 130100 | 148900 | | | | | |
| | 90° full open (CCW) | 100300 | 126000 | 151600 | 177200 | 202800 | | | | | |
| 6.0C-585 | 0° break (CCW) | 272200 | 341500 | 410800 | | | | | | | |
| | 0° seating (CW) | 300700 | 377200 | 439900 | | | | | | | |
| | Run | 107700 | 135200 | 162600 | | | | | | | |
| | 90° full open (CCW) | 146800 | 184200 | 221500 | | | | | | | |
| 14C-635 | 0° break (CCW) | 350600 | 439800 | 529000 | 618300 | 707500 | 796700 | | | | |
| | 0° seating (CW) | 386600 | 485000 | 583400 | 681900 | 780300 | 869900 | | | | |
| | Run | 138400 | 173600 | 208800 | 244000 | 279300 | 314500 | | | | |
| | 90° full open (CCW) | 188800 | 236800 | 284900 | 332900 | 381000 | 429000 | | | | |
| 18C-685 | 0° break (CCW) | 469200 | 588600 | 708000 | 827400 | 946800 | 1066200 | 1185600 | | | |
| | 0° seating (CW) | 516600 | 648100 | 779600 | 911100 | 1042600 | 1174100 | 1299800 | | | |
| | Run | 184900 | 232000 | 279000 | 326100 | 373200 | 420200 | 467300 | | | |
| | 90° full open (CCW) | 252200 | 316400 | 380600 | 444800 | 509000 | 573300 | 637500 | | | |
| 18C-735 | 0° break (CCW) | 540100 | 677600 | 815100 | 952600 | 1090100 | | | | | |
| | 0° seating (CW) | 595400 | 746900 | 898500 | 1050100 | 1201600 | | | | | |
| | Run | 213100 | 267300 | 321600 | 375800 | 430100 | | | | | |
| | 90° full open (CCW) | 290700 | 364700 | 438700 | 512700 | 586700 | | | | | |
| 18C2-635 | 0° break (CCW) | 802700 | 1007000 | 1211300 | | | | | | | |
| | 0° seating (CW) | 890800 | 1117500 | 1299900 | | | | | | | |
| | Run | 318800 | 400000 | 481100 | | | | | | | |
| | 90° full open (CCW) | 434900 | 545600 | 656300 | | | | | | | |
| 32C2-685 | 0° break (CCW) | 1097200 | 1376500 | 1655800 | 1935000 | | | | | | |
| | 0° seating (CW) | 1217600 | 1527600 | 1837500 | 2147500 | | | | | | |
| | Run | 436300 | 547300 | 658300 | 769400 | | | | | | |
| | 90° full open (CCW) | 594500 | 745800 | 897200 | 1048500 | | | | | | |

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).

CCW = Counterclockwise rotation

CW = Clockwise rotation

Alga Double Acting Pneumatic Actuator

Symmetric Yoke Design

Output torques (lb.in.)

| Actuator model | Angular position | Operating pressure (psig) | | | | | | | | | |
|----------------|---------------------|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 130 | 150 |
| 0.3S-135 | 0° break (CCW) | 3060 | 3880 | 4700 | 5520 | 6340 | 7150 | 7970 | 8790 | 10400 | 12100 |
| | 0° seating (CW) | 3310 | 4190 | 5080 | 5960 | 6850 | 7740 | 8260 | 9510 | 11300 | 13000 |
| | Run | 1880 | 2380 | 2880 | 3380 | 3880 | 4390 | 4890 | 5390 | 6390 | 7400 |
| | 90° full open (CCW) | 3070 | 3890 | 4710 | 5540 | 6360 | 7180 | 8000 | 8820 | 10500 | 12100 |
| 0.3S-175 | 0° break (CCW) | 5210 | 6580 | 7960 | 9330 | 10700 | 12100 | 13500 | 14800 | 17600 | 20300 |
| | 0° seating (CW) | 5710 | 7220 | 8730 | 10200 | 11700 | 13300 | 14800 | 16300 | 19300 | 22900 |
| | Run | 3240 | 4090 | 4950 | 5800 | 6660 | 7520 | 8370 | 9230 | 10900 | 12700 |
| | 90° full open (CCW) | 5300 | 6700 | 8100 | 9500 | 10900 | 12300 | 13700 | 15100 | 17900 | 20700 |
| 0.3S-235 | 0° break (CCW) | 9490 | 12000 | 14500 | 16900 | 19400 | | | | | |
| | 0° seating (CW) | 10500 | 13300 | 16000 | 18800 | 21500 | | | | | |
| | Run | 5960 | 7520 | 9080 | 10600 | 12200 | | | | | |
| | 90° full open (CCW) | 9760 | 12300 | 14900 | 17400 | 20000 | | | | | |
| 0.9S-235 | 0° break (CCW) | 11000 | 13800 | 16700 | 19600 | 22400 | 25300 | 28200 | 31000 | 36800 | 42500 |
| | 0° seating (CW) | 12200 | 15300 | 18500 | 21700 | 24900 | 28000 | 31200 | 34400 | 40700 | 47100 |
| | Run | 6890 | 8690 | 10490 | 12300 | 14100 | 15900 | 17700 | 19500 | 23100 | 26700 |
| | 90° full open (CCW) | 11300 | 14200 | 17200 | 20100 | 23100 | 26000 | 29000 | 31900 | 37800 | 43700 |
| 0.9S-280 | 0° break (CCW) | 15600 | 19700 | 23800 | 27900 | 31900 | 36000 | 40100 | 44100 | 52300 | |
| | 0° seating (CW) | 17200 | 21600 | 26100 | 30600 | 35000 | 39500 | 44000 | 48400 | 57400 | |
| | Run | 9730 | 12300 | 14800 | 17300 | 19900 | 22400 | 24900 | 27500 | 32500 | |
| | 90° full open (CCW) | 15900 | 20700 | 24200 | 28400 | 32500 | 36700 | 40800 | 44900 | 53200 | |
| 1.5S-280 | 0° break (CCW) | 21500 | 27000 | 32600 | 38200 | 43800 | 49400 | 55000 | 60500 | 71700 | 82900 |
| | 0° seating (CW) | 23500 | 29700 | 35800 | 41900 | 48100 | 54200 | 60300 | 66400 | 78700 | 91000 |
| | Run | 12300 | 15400 | 18600 | 21800 | 25000 | 28200 | 31600 | 34800 | 41200 | 47400 |
| | 90° full open (CCW) | 18400 | 23200 | 28000 | 32800 | 37600 | 42400 | 47200 | 52000 | 61600 | 71200 |
| 1.5S-335 | 0° break (CCW) | 30800 | 38800 | 46800 | 54800 | 62800 | 70800 | 78800 | 86800 | | |
| | 0° seating (CW) | 34000 | 42900 | 51700 | 60500 | 69400 | 78200 | 87000 | 95800 | | |
| | Run | 17700 | 22300 | 26900 | 31500 | 36100 | 40700 | 45300 | 49900 | | |
| | 90° full open (CCW) | 26600 | 33600 | 40500 | 47400 | 54300 | 61200 | 68100 | 75000 | | |
| 1.5S-385 | 0° break (CCW) | 41000 | 51600 | 62100 | 72700 | 83200 | 93800 | | | | |
| | 0° seating (CW) | 45500 | 57200 | 68900 | 80600 | 92300 | 103900 | | | | |
| | Run | 23700 | 29800 | 35900 | 42000 | 48000 | 54100 | | | | |
| | 90° full open (CCW) | 35600 | 44800 | 53900 | 63100 | 72200 | 81400 | | | | |
| 3.0S-385 | 0° break (CCW) | 67000 | 84300 | 101500 | 118700 | 136000 | 153200 | 170500 | 187700 | | |
| | 0° seating (CW) | 74300 | 93400 | 112500 | 131600 | 150700 | 169900 | 189000 | 208100 | | |
| | Run | 39200 | 49300 | 59400 | 69500 | 79600 | 89700 | 99800 | 109900 | | |
| | 90° full open (CCW) | 59800 | 75200 | 90600 | 106000 | 121400 | 136800 | 152200 | 167600 | | |
| 3.0S-485 | 0° break (CCW) | 107100 | 134500 | 161800 | 189200 | | | | | | |
| | 0° seating (CW) | 119200 | 149700 | 180100 | 210600 | | | | | | |
| | Run | 63000 | 79100 | 95100 | 111200 | | | | | | |
| | 90° full open (CCW) | 96000 | 120600 | 145100 | 169600 | | | | | | |
| 6.0S-485 | 0° break (CCW) | 125000 | 156900 | 188900 | 220800 | 252700 | 284700 | 316600 | 348500 | 412400 | |
| | 0° seating (CW) | 139100 | 174700 | 210200 | 245800 | 281300 | 316900 | 352400 | 388000 | 439900 | |
| | Run | 73600 | 92400 | 111200 | 130100 | 148900 | 167700 | 186500 | 205300 | 242900 | |
| | 90° full open (CCW) | 112500 | 141200 | 170000 | 198700 | 227500 | 256200 | 284900 | 313700 | 371200 | |
| 6.0S-585 | 0° break (CCW) | 182500 | 229000 | 275400 | 321900 | 368400 | | | | | |
| | 0° seating (CW) | 203600 | 255400 | 307300 | 359100 | 410900 | | | | | |
| | Run | 107700 | 135200 | 162600 | 190000 | 217400 | | | | | |
| | 90° full open (CCW) | 164600 | 206500 | 248400 | 290300 | 332200 | | | | | |
| 14S-635 | 0° break (CCW) | 238600 | 299300 | 360000 | 420800 | 481500 | 542200 | 602900 | 663700 | 785100 | |
| | 0° seating (CW) | 265700 | 333400 | 401000 | 468600 | 536300 | 603900 | 671600 | 739200 | 869900 | |
| | Run | 138400 | 173600 | 208800 | 244000 | 279300 | 314500 | 349700 | 384900 | 455400 | |
| | 90° full open (CCW) | 208000 | 261000 | 313900 | 366900 | 419800 | 472800 | 525700 | 578700 | 684600 | |
| 18S-685 | 0° break (CCW) | 319200 | 400400 | 481700 | 562900 | 644200 | 725400 | 806700 | 887900 | 1050400 | 1212900 |
| | 0° seating (CW) | 355000 | 445300 | 535700 | 626000 | 716400 | 806800 | 897100 | 987500 | 1168200 | 1299800 |
| | Run | 184900 | 232000 | 279000 | 326100 | 373200 | 420200 | 467300 | 514400 | 608500 | 702600 |
| | 90° full open (CCW) | 278100 | 348800 | 419600 | 490400 | 561200 | 631900 | 702700 | 773500 | 915100 | 1056600 |
| 18S-735 | 0° break (CCW) | 367500 | 461000 | 554600 | 648100 | 741600 | 835200 | 928700 | 1022200 | 1209300 | |
| | 0° seating (CW) | 409100 | 513200 | 617400 | 721500 | 825600 | 929800 | 1033900 | 1138100 | 1299700 | |
| | Run | 213100 | 267300 | 321600 | 375800 | 430100 | 484300 | 538500 | 592800 | 701300 | |
| | 90° full open (CCW) | 320500 | 402000 | 483600 | 565200 | 646700 | 728300 | 809900 | 891500 | 1054600 | |
| 18S2-635 | 0° break (CCW) | 546100 | 685100 | 824100 | 963100 | 1102100 | | | | | |
| | 0° seating (CW) | 612100 | 767900 | 923700 | 1079500 | 1235300 | | | | | |
| | Run | 318800 | 400000 | 481100 | 562300 | 643400 | | | | | |
| | 90° full open (CCW) | 479500 | 601500 | 723500 | 845600 | 967600 | | | | | |
| 32S2-685 | 0° break (CCW) | 737000 | 924600 | 1112100 | 1299700 | 1487300 | 1674900 | 1862500 | 2050100 | | |
| | 0° seating (CW) | 826000 | 1036200 | 1246500 | 1456700 | 1667000 | 1877200 | 2087500 | 2199800 | | |
| | Run | 436300 | 547300 | 658300 | 769400 | 880400 | 991500 | 1102500 | 1213600 | | |
| | 90° full open (CCW) | 665300 | 834600 | 1004000 | 1173300 | 1342700 | 1512000 | 1681300 | 1850700 | | |

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).
 CCW = Counterclockwise rotation
 CW = Clockwise rotation

Alga Double Acting Pneumatic Actuator

Scotch Yoke Design

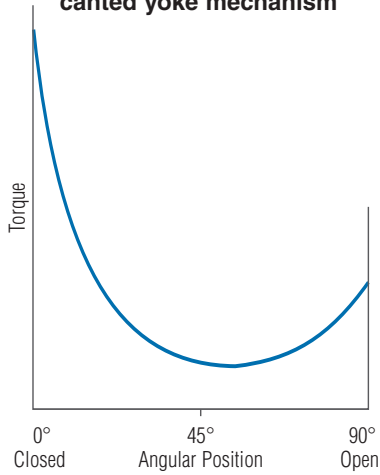
Canted and Symmetric scotch yoke torque output

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

The canted version produces a torque output as represented in Fig 1 and is therefore most suitable for use with valves which display a similar torque requirement, such as butterfly valves.

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

**ALGA (double acting)
canted yoke mechanism**



**ALGA (double acting)
symmetric yoke mechanism**

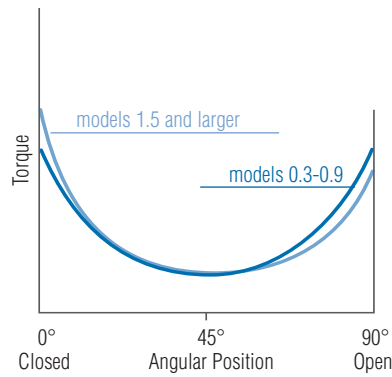
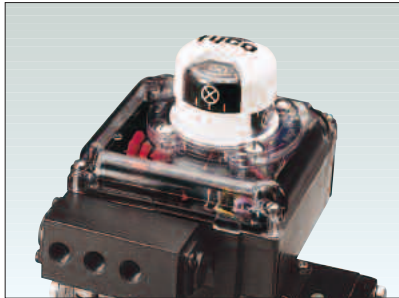


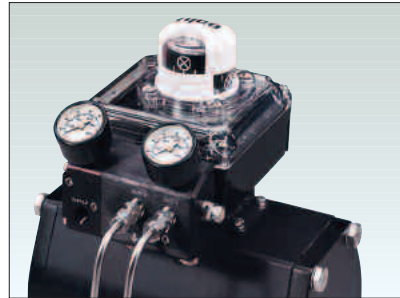
Fig. 1

Fig. 2

Other control products



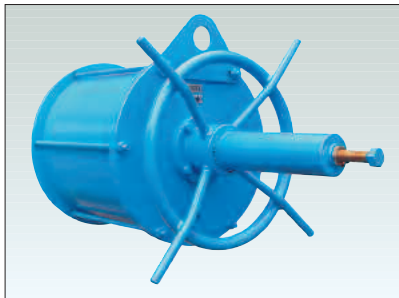
Tyco AVID Control Position Monitors



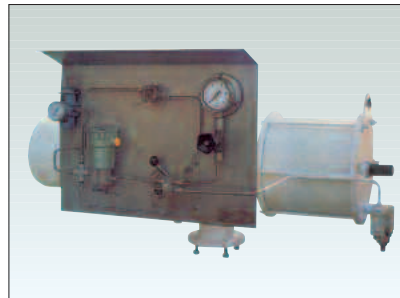
Tyco AVID analogue positioners



Tyco AVID intelligent positioners



Biffi manual override device



Biffi control panel

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