



## Rack & Pinion Pneumatic Actuators



### FEATURES & BENEFITS

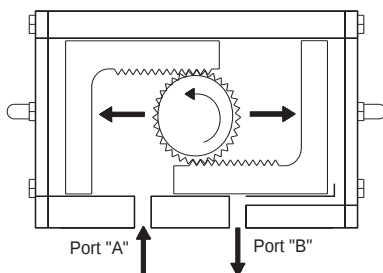
DEI's Rack & Pinion Pneumatic Actuators are designed for high reliability operation. They are permanently lubricated and feature a corrosion resistant hard anodized finish.

- **ISO MOUNTING** conforms to the ISO 5211 mounting standard, which fits more mounting configurations with less hardware variation (on models PN/PS20 through PN/PS1750 only).
- **SUBSTANTIAL PINION BEARINGS** provide protection against side loading which increases cycle life.
- **CORROSION RESISTANT** rugged hard anodized finish (standard) ensures protection from most corrosive environments. Optional baked epoxy finish available for severe environments. Call DEI for more information.
- **NAMUR ACCESSORY MOUNTING PATTERN** allows for more combinations of solenoids, positioners and limit switches with minimal or no mounting hardware.
- **INDIVIDUAL SPRINGS** allow for torque adjustment. Springs can be added or deleted to "fine tune" the torque output. All the springs in each actuator are the same size.
- **ACCESSORIES** are available for a wide variety of control signals, controller, computer and control panel interface.

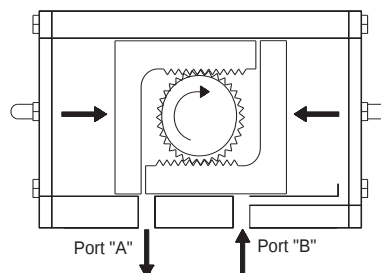
### TECHNICAL DATA

- **Maximum Working Pressure** 150 PSIG
- **Standard Working Temperature** -20°F to 175°F
- **Air Supply** Double Acting and Spring Return 40-150 PSIG
- **Rotation** 90° Travel - Travel Stops standard
- **Operating Media** Clean, dry air, noncorrosive gas or light hydraulic oil

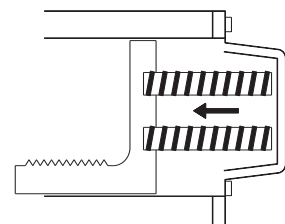
#### Counter Clockwise



#### Clockwise



#### Spring-Return Only



### Double Acting Operation

#### Counter Clockwise

Air is supplied to Port A which forces the pistons away from each other (toward ends). This rotates the drive pinion counter clockwise which exhausts air out of Port B.

#### Clockwise

Air is supplied to Port B which forces the pistons toward each other (toward center). This rotates the drive pinion clockwise which exhausts air out of Port A.

### Spring Return Operation

#### Counter Clockwise

Air is supplied to Port A which forces the pistons away from each other (toward ends). This rotates the drive pinion counterclockwise which compresses the springs and exhausts the air out of Port B.

#### Fail Clockwise (CCW optional, call DEI)

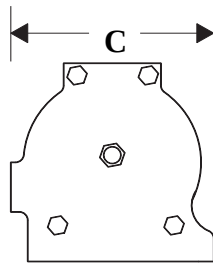
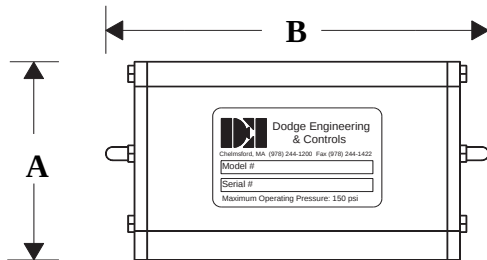
Air failure (loss of pressure) allows the compressed springs to force the pistons toward each other (toward center). This rotates the drive pinion clockwise and exhausts air out of Port A.



## Rack & Pinion Pneumatic Actuators

### Dimensional Information

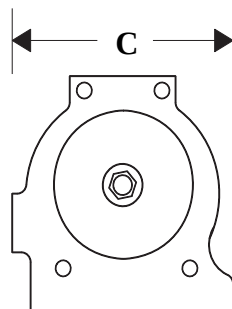
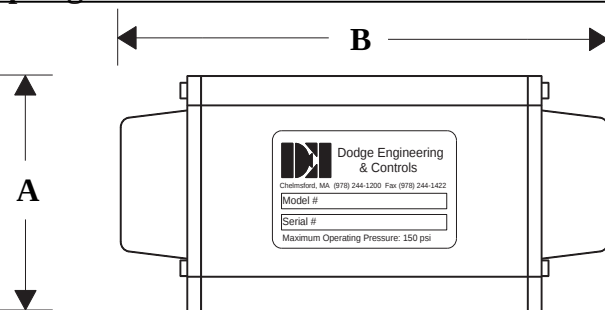
#### Double Acting Actuators



**DEI Rack & Pinion  
Double Acting Pneumatic Actuator**

| Double Acting Actuators |                     |       |      |                              |     |
|-------------------------|---------------------|-------|------|------------------------------|-----|
| Actuator<br>Model No.   | Dimensions (inches) |       |      | Cycle<br>Times<br>(secs/90°) |     |
|                         | A                   | B     | C    | CW                           | CCW |
| PN20                    | 2.68                | 6.81  | 2.58 | 0.5                          | 0.5 |
| PN40                    | 3.39                | 7.68  | 3.25 | 0.6                          | 0.6 |
| PN80                    | 4.45                | 8.23  | 4.33 | 1                            | 0.6 |
| PN130                   | 4.88                | 9.60  | 4.76 | 1                            | 0.7 |
| PN200                   | 5.28                | 9.96  | 5.22 | 1                            | 0.7 |
| PN300                   | 6.18                | 11.30 | 5.98 | 1.5                          | 1   |
| PN500                   | 6.93                | 12.56 | 6.69 | 2                            | 1.5 |
| PN850                   | 8.27                | 16.69 | 7.64 | 2.5                          | 2   |
| PN1200                  | 9.17                | 15.67 | 7.83 | 4                            | 3   |
| PN1750                  | 10.08               | 19.84 | 9.29 | 5                            | 4   |

#### Spring Return Actuators



**DEI Rack & Pinion  
Spring Return Pneumatic Actuator**

| Spring Return Actuators |                     |       |      |                              |     |
|-------------------------|---------------------|-------|------|------------------------------|-----|
| Actuator<br>Model No.   | Dimensions (inches) |       |      | Cycle<br>Times<br>(secs/90°) |     |
|                         | A                   | B     | C    | CW                           | CCW |
| PS20                    | 2.68                | 8.39  | 2.58 | 0.5                          | 0.5 |
| PS40                    | 3.39                | 7.56  | 3.25 | 0.6                          | 0.6 |
| PS80                    | 4.45                | 8.94  | 4.33 | 1                            | 0.6 |
| PS130                   | 4.88                | 10.39 | 4.76 | 1                            | 0.7 |
| PS200                   | 5.28                | 11.50 | 5.22 | 1                            | 0.7 |
| PS300                   | 6.18                | 13.23 | 5.98 | 1.5                          | 1   |
| PS500                   | 6.93                | 16.26 | 6.69 | 2                            | 1.5 |
| PS850                   | 8.27                | 20.24 | 7.64 | 2.5                          | 2   |
| PS1200                  | 9.17                | 19.80 | 7.83 | 4                            | 3   |
| PS1750                  | 10.08               | 28.15 | 9.29 | 5                            | 4   |



## Rack & Pinion Pneumatic Actuators

### *Spring Return Torque (in-lbs)*

| Actuator Model No. | Spring Torque |       | Air Supply |       |        |       |         |       |
|--------------------|---------------|-------|------------|-------|--------|-------|---------|-------|
|                    |               |       | 60 PSI     |       | 80 PSI |       | 100 PSI |       |
|                    | End           | Break | End        | Break | End    | Break | End     | Break |
| PS20               | 49            | 84    | 25         | 60    | 61     | 96    | 105     | 140   |
| PS40               | 82            | 142   | 43         | 103   | 103    | 164   | 165     | 226   |
| PS80               | 215           | 410   | 109        | 304   | 282    | 477   | 455     | 651   |
| PS130              | 315           | 573   | 127        | 385   | 357    | 614   | 607     | 864   |
| PS200              | 420           | 760   | 220        | 560   | 549    | 889   | 879     | 1219  |
| PS300              | 880           | 1605  | 485        | 1210  | 1184   | 1909  | 1874    | 2599  |
| PS500              | 1325          | 2300  | 750        | 1725  | 1759   | 2734  | 2769    | 3744  |
| PS850              | 1815          | 3050  | 1719       | 2345  | 2429   | 3664  | 3709    | 4944  |
| PS1200             | 2625          | 4550  | 1460       | 3385  | 3349   | 5274  | 5169    | 7094  |
| PS1750             | 3475          | 6075  | 2480       | 5080  | 5234   | 7834  | 7884    | 10484 |

**Notes:**

- Torques are actual. Please be sure to include appropriate safety factors and all service conditions variables when sizing.
- Three-way (master-slave) assemblies should use a 35% safety factor. Call factory for assistance.

### *Double Acting Torque (in-lbs)*

| Actuator Model No. | Air Supply |        |        |         |         |
|--------------------|------------|--------|--------|---------|---------|
|                    | 40 PSI     | 60 PSI | 80 PSI | 100 PSI | 120 PSI |
| PN20               | 69         | 109    | 145    | 180     | 229     |
| PN40               | 103        | 185    | 246    | 308     | 370     |
| PN80               | 346        | 519    | 693    | 866     | 1038    |
| PN130              | 460        | 700    | 930    | 1180    | 1390    |
| PN200              | 650        | 980    | 1310   | 1640    | 1968    |
| PN300              | 1390       | 2090   | 2790   | 3480    | 4270    |
| PN500              | 2030       | 3050   | 4060   | 5070    | 6090    |
| PN850              | 2930       | 4160   | 5480   | 6760    | 8200    |
| PN1200             | 3850       | 6010   | 7910   | 9780    | 11830   |
| PN1750             | 5480       | 8555   | 11310  | 13960   | 16960   |

