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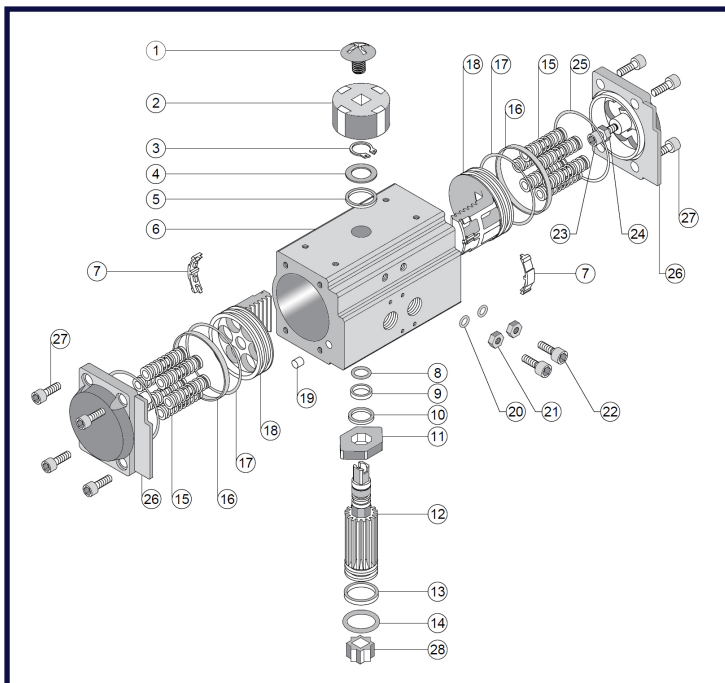
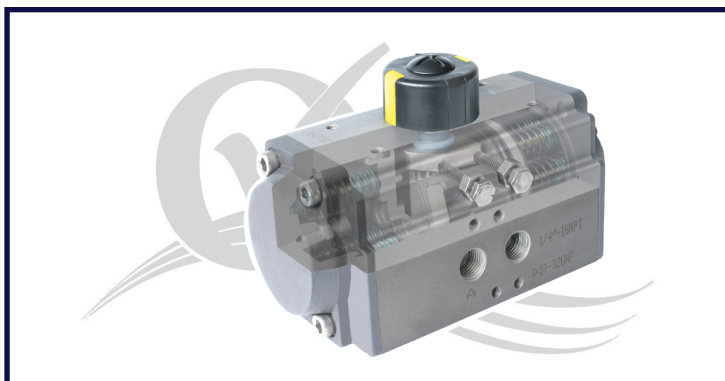
The pneumatic rack & pinion actuator is manufactured using the latest materials and methods to provide dependable and smooth operation in demanding process control conditions.

### aero<sup>2</sup> DESIGN FEATURES

- ✓ Hard Anodized aluminum housing
- ✓ "Versa-View" Continuous mechanical position indicator
- ✓ Nickel Plated Alloy drive shaft
- ✓ ISO/NAMUR design for universal mounting and accessory attachment
- ✓ Bi-Directional Stroke Adjustment
- ✓ 1/4" NPT air inlet manifold
- ✓ Actuator is designed for 120 psi supply air pressure
- ✓ Optional 304 SS and 316 SS material available - Consult SVF

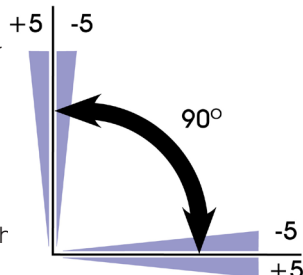
### MATERIALS OF CONSTRUCTION

| ITEM | DESCRIPTION             | MATERIALS SPECIFICATIONS           |
|------|-------------------------|------------------------------------|
| 1    | Indicator Cap Screw     | Plastic/Stainless Steel            |
| 2    | Position Indicator      | Plastic (ABS)                      |
| 3    | Pinion Snap Ring        | Stainless Steel 300 Series         |
| 4    | Thrust Washer           | Stainless Steel 300 Series         |
| 5    | Thrust Bearing          | Polyoxymethylene (Delrin®)         |
| 6    | Body                    | Extruded Aluminum Alloy            |
| 7    | Piston Guide            | Polyoxymethylene (Delrin®)         |
| 8    | O-Ring (Pinion Top)     | Buna "N" (standard), Viton®        |
| 9    | Bearing (Pinion Top)    | Polyoxymethylene (Delrin®)         |
| 10   | Inside Washer           | Polyoxymethylene (Delrin®)         |
| 11   | Stroke Adjustment Stop  | Alloy Steel                        |
| 12   | Pinion (Drive Shaft)    | Nickel Plated Alloy Steel          |
| 13   | Bearing (Pinion Bottom) | Polyoxymethylene (Delrin®)         |
| 14   | O-Ring (Pinion Bottom)  | Buna "N" (standard), Viton®        |
| 15   | Spring (Cartridge)      | Spring Steel (Corrosion Resistant) |
| 16   | Bearing (Piston)        | Polyoxymethylene (Delrin®)         |
| 17   | O-Ring (Piston)         | Buna "N" (standard), Viton®        |
| 18   | Piston                  | Aluminum                           |
| 19   | Plug                    | NBR                                |
| 20   | O-Ring (Adjust Screw)   | Buna "N" (standard), Viton®        |
| 21   | Stop Nut (Adjust Screw) | Stainless Steel 300 Series         |
| 22   | Adjust Screw            | Stainless Steel 300 Series         |
| 23   | Stop Screw              | Stainless Steel 300 Series         |
| 24   | Nut (Stop Screw)        | Stainless Steel 300 Series         |
| 25   | O-Ring (End Cap)        | Buna "N" (standard), Viton®        |
| 26   | End Cap                 | Aluminum                           |
| 27   | End Cap Screw           | Stainless Steel 300 Series         |



### BI-DIRECTIONAL STROKE ADJUSTMENT

aero<sup>2</sup> actuators feature bi-directional pinion travel stops. These stops allow for true +/-5° for valve travel adjustment to ensure precise positioning in all flow control services. The aero<sup>2</sup> travel stops are designed to absorb the maximum rated torque of the actuator and the maximum impact loads associated with the recommended stroke speed.



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**High Performance Compact Pneumatic Actuators**



**aero<sup>2</sup> DIMENSIONAL TABLE (INCHES)**

| Model | A    | B    | C     | D     | E    | F    | G        | H        | J           | K           | L sq N (Depth) |      |
|-------|------|------|-------|-------|------|------|----------|----------|-------------|-------------|----------------|------|
| 10    | 1.12 | 1.44 | 3.15  | 4.80  | 3.15 | 1.18 | F03/1.42 | F05/1.97 | #10-32UNF   | 1/4"-20UNC  | 0.43           | 0.55 |
| 20    | 1.18 | 1.63 | 3.62  | 5.79  | 3.15 | 1.18 | F03/1.42 | F05/1.97 | #10-32UNF   | 1/4"-20UNC  | 0.43           | 0.55 |
| 35    | 1.42 | 1.85 | 4.23  | 6.61  | 3.15 | 1.18 | F05/1.97 | F07/2.76 | 1/4"-20UNC  | 5/16"-18UNC | 0.55           | 0.71 |
| 50    | 1.65 | 2.09 | 4.70  | 7.24  | 3.15 | 1.18 | F05/1.97 | F07/2.76 | 1/4"-20UNC  | 5/16"-18UNC | 0.55           | 0.71 |
| 75    | 1.81 | 2.24 | 5.07  | 8.04  | 3.15 | 1.18 | F05/1.97 | F07/2.76 | 1/4"-20UNC  | 5/16"-18UNC | 0.67           | 0.83 |
| 110   | 1.97 | 2.30 | 5.39  | 10.31 | 3.15 | 1.18 | F05/1.97 | F07/2.76 | 1/4"-20UNC  | 5/16"-18UNC | 0.67           | 0.83 |
| 160   | 2.26 | 2.52 | 6.02  | 10.55 | 3.15 | 1.18 | F07/2.75 | F10/4.02 | 5/16"-18UNC | 3/8"-16UNC  | 0.87           | 1.02 |
| 255   | 2.66 | 2.93 | 6.89  | 11.65 | 3.15 | 1.18 | F07/2.75 | F10/4.02 | 5/16"-18UNC | 3/8"-16UNC  | 0.87           | 1.02 |
| 400   | 2.95 | 3.03 | 7.54  | 15.35 | 3.15 | 1.18 | F10/4.02 | F12/4.92 | 3/8"-16UNC  | 1/2"-13UNC  | 1.06           | 1.22 |
| 500   | 3.43 | 3.43 | 8.54  | 18.03 | 3.15 | 1.18 | F10/4.02 | F12/4.92 | 3/8"-16UNC  | 1/2"-13UNC  | 1.06           | 1.22 |
| 550   | 4.06 | 4.06 | 9.84  | 20.79 | 5.12 | 1.18 | -        | F14/5.51 | -           | 5/8"-11UNC  | 1.42           | 1.57 |
| 600   | 4.45 | 4.45 | 11.22 | 22.20 | 5.12 | 1.18 | -        | F14/5.51 | -           | 5/8"-11UNC  | 1.42           | 1.57 |
| 650   | 5.12 | 5.12 | 12.55 | 23.70 | 5.12 | 1.18 | -        | F16/6.49 | -           | 3/4"-10UNC  | 1.81           | 1.97 |
| 700   | 5.79 | 5.79 | 14.01 | 27.80 | 5.12 | 1.18 | -        | F16/6.49 | -           | 3/4"-10UNC  | 1.81           | 1.97 |

**aero<sup>2</sup> - WEIGHTS**

| Model | A2D |    | A2S |    |
|-------|-----|----|-----|----|
|       | lbs | kg | lbs | kg |
| 10    | 2   | 1  | -   | -  |
| 20    | 3   | 1  | 3   | 1  |
| 35    | 4   | 2  | 4   | 2  |
| 50    | 6   | 2  | 6   | 2  |
| 75    | 7   | 3  | 7   | 3  |
| 110   | 10  | 4  | 12  | 5  |
| 160   | 13  | 5  | 14  | 6  |
| 255   | 19  | 9  | 22  | 10 |
| 400   | 25  | 14 | 29  | 16 |
| 500   | 36  | 22 | 44  | 26 |
| 550   | 70  | 31 | 78  | 35 |
| 600   | 76  | 35 | 85  | 39 |
| 650   | 106 | 48 | 135 | 61 |
| 700   | 163 | 74 | 216 | 98 |

**HOW TO ORDER *aero<sup>2</sup>* ACTUATORS**

| Series   | Model | Springs                    | Seals               | Options                                  |
|--|-------|----------------------------|---------------------|--|
| A2D = Double Acting                                | 10†   | Blank =                    | B =                 | Blank =                                  |
|  | 20    | Double Acting              | Buna "N" (Standard) | 90° Turn operation (Standard)            |
| A2S = Spring Return                                | 35    |                            | V =                 | 180 =                                    |
|  | 50    | 5                          | Viton® (Optional)   | 180° Turn operation (Double Acting Only) |
| A2DNI =  | 75    | 6                          |                     |  |
| Double Acting with Nickel Infused Aluminum Housing | 110   | 7                          |                     |  |
|  | 160   | 8                          |                     |  |
|  | 255   | 9                          |                     |  |
| A2SNI =  | 400   | 10*                        |                     |  |
| Spring Return with Nickel Infused Aluminum Housing | 500   | 11                         |                     |  |
|  | 550   | 12                         |                     |  |
|  | 600   |                            |                     |  |
|  | 650   |                            |                     |  |
|  | 700   | (*10 Springs are standard) |                     |  |

†Series A2D-10 is only available as a Double Acting Actuator.

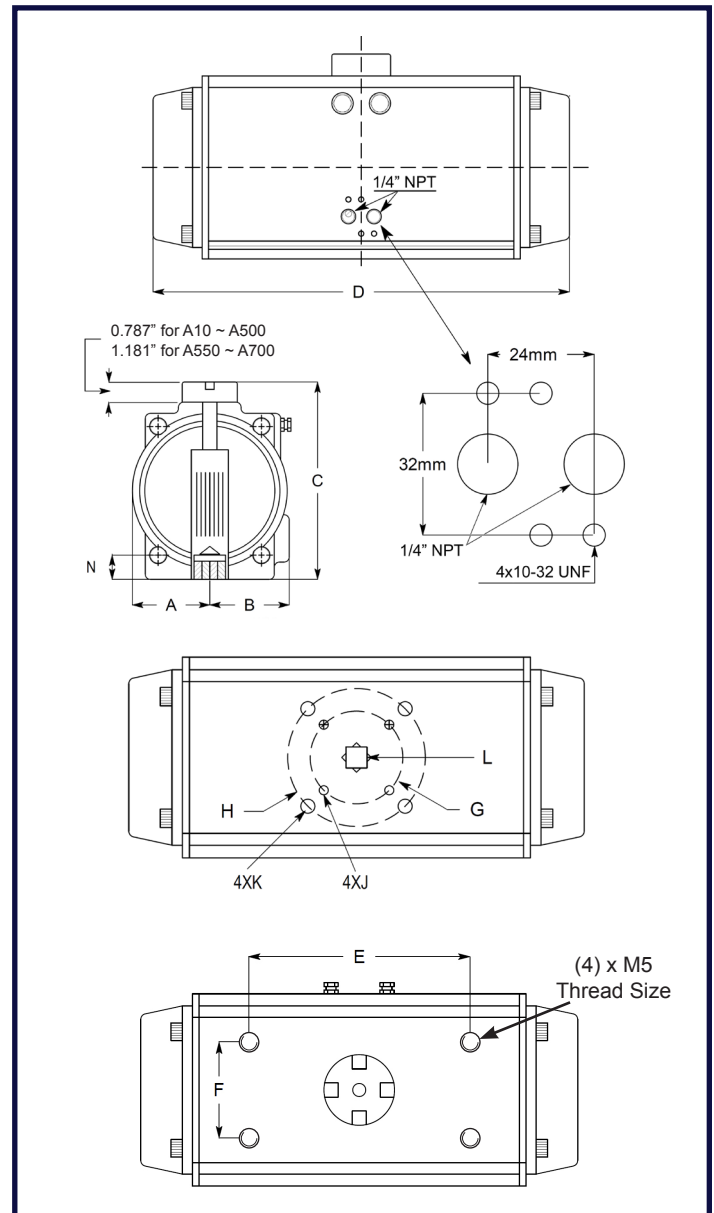
**Order Examples:**

**(A2D-20-B-180) Double Acting Model 20, Buna Seals, 180° Operation**

|        |   |       |   |                |   |      |
|--------|---|-------|---|----------------|---|------|
| A2D    | - | 20    | - | B              | - | 180  |
| Series |   | Model |   | Buna "N" Seals |   | Turn |

**(A2D-20-10-V) Spring Return Model 20, 10 Springs, Viton Seals, 90° Operation**

|        |   |       |   |         |   |             |
|--------|---|-------|---|---------|---|-------------|
| A2D    | - | 20    | - | 10      | - | V           |
| Series |   | Model |   | Springs |   | Viton Seals |



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## High Performance Compact Pneumatic Actuators



### aero<sup>2</sup> SPRING RETURN OUTPUT TORQUES (in-lbf)

| A2S-20 ~ A2S-255          |            | OUTPUT AIR TO SPRING |         |          |         |          |         |          |         |          |         |          |         |          |         | Continued on next page>> |        |
|---------------------------|------------|----------------------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|--------------------------|--------|
| SUPPLY PRESSURE (psig) >> |            | 40 psig              |         | 50 psig  |         | 60 psig  |         | 70 psig  |         | 80 psig  |         | 90 psig  |         | 100 psig |         | SPRING OUTPUT            |        |
| MODEL                     | SPRING QTY | 0° START             | 90° END | 0° START | 90° END | 0° START | 90° END | 0° START | 90° END | 0° START | 90° END | 0° START | 90° END | 0° START | 90° END | 90° START                | 0° END |
| A2S-20                    | 5          | 55                   | 37      | 77       | 58      |          |         |          |         |          |         |          |         |          |         | 55                       | 38     |
|                           | 6          | 48                   | 24      | 70       | 46      | 924      | 78      |          |         |          |         |          |         |          |         | 66                       | 45     |
|                           | 7          | 39                   | 13      | 61       | 34      | 90       | 67      | 120      | 89      |          |         |          |         |          |         | 77                       | 52     |
|                           | 8          |                      |         | 53       | 20      | 84       | 55      | 113      | 78      | 140      | 114     |          |         |          |         | 87                       | 60     |
|                           | 9          |                      |         | 44       | 8       | 76       | 44      | 105      | 67      | 133      | 104     | 160      | 132     |          |         | 98                       | 67     |
|                           | 10         |                      |         |          |         | 68       | 33      | 98       | 57      | 126      | 94      | 153      | 122     |          |         | 109                      | 75     |
|                           | 11         |                      |         |          |         | 60       | 21      | 91       | 46      | 119      | 84      | 146      | 113     | 172      | 140     | 120                      | 82     |
|                           | 12         |                      |         |          |         |          |         | 83       | 36      | 112      | 74      | 139      | 95      | 166      | 130     | 131                      | 90     |
| A2S-35                    | 5          | 111                  | 75      | 153      | 116     | 204      | 137     |          |         |          |         |          |         |          |         | 92                       | 61     |
|                           | 6          | 98                   | 55      | 138      | 95      | 191      | 152     | 242      | 205     |          |         |          |         |          |         | 111                      | 72     |
|                           | 7          | 84                   | 35      | 127      | 73      | 179      | 133     | 229      | 187     |          |         |          |         |          |         | 129                      | 85     |
|                           | 8          |                      |         | 111      | 52      | 167      | 114     | 218      | 169     | 267      | 220     | 315      | 269     |          |         | 148                      | 97     |
|                           | 9          |                      |         |          |         | 154      | 95      | 206      | 151     | 255      | 203     | 304      | 253     |          |         | 166                      | 109    |
|                           | 10         |                      |         |          |         | 135      | 75      | 195      | 133     | 244      | 186     | 293      | 236     | 341      | 286     | 185                      | 121    |
|                           | 11         |                      |         |          |         |          |         | 184      | 115     | 234      | 169     | 283      | 220     | 330      | 270     | 203                      | 133    |
|                           | 12         |                      |         |          |         |          |         | 171      | 97      | 222      | 152     | 271      | 204     | 320      | 254     | 222                      | 145    |
| A2S-50                    | 5          | 141                  | 103     | 197      | 158     | 270      | 235     |          |         |          |         |          |         |          |         | 128                      | 93     |
|                           | 6          | 121                  | 74      | 176      | 128     | 251      | 208     | 321      | 280     |          |         |          |         |          |         | 154                      | 112    |
|                           | 7          | 101                  | 47      | 155      | 99      | 232      | 182     | 303      | 256     |          |         |          |         |          |         | 179                      | 131    |
|                           | 8          |                      |         | 133      | 69      | 211      | 155     | 284      | 231     | 352      | 301     | 418      | 369     |          |         | 205                      | 149    |
|                           | 9          |                      |         |          |         | 192      | 129     | 266      | 206     | 335      | 278     | 402      | 347     |          |         | 231                      | 168    |
|                           | 10         |                      |         |          |         | 174      | 102     | 246      | 181     | 318      | 254     | 386      | 324     | 451      | 391     | 256                      | 187    |
|                           | 11         |                      |         |          |         |          |         | 231      | 157     | 301      | 231     | 369      | 301     | 435      | 369     | 282                      | 205    |
|                           | 12         |                      |         |          |         |          |         | 213      | 132     | 284      | 207     | 353      | 278     | 419      | 346     | 308                      | 224    |
| A2S-75                    | 5          | 227                  | 157     | 317      | 244     | 428      | 364     |          |         |          |         |          |         |          |         | 204                      | 140    |
|                           | 6          | 196                  | 112     | 285      | 196     | 400      | 321     | 508      | 434     |          |         |          |         |          |         | 244                      | 168    |
|                           | 7          | 166                  | 67      | 252      | 151     | 371      | 279     | 481      | 395     |          |         |          |         |          |         | 285                      | 196    |
|                           | 8          |                      |         | 221      | 103     | 342      | 237     | 454      | 355     | 560      | 466     | 663      | 572     |          |         | 326                      | 224    |
|                           | 9          |                      |         |          |         | 313      | 195     | 426      | 316     | 534      | 429     | 638      | 536     |          |         | 367                      | 252    |
|                           | 10         |                      |         |          |         | 284      | 152     | 400      | 276     | 508      | 391     | 613      | 500     | 715      | 605     | 407                      | 280    |
|                           | 11         |                      |         |          |         |          |         | 373      | 237     | 483      | 353     | 588      | 464     | 691      | 570     | 448                      | 308    |
|                           | 12         |                      |         |          |         |          |         | 345      | 198     | 456      | 316     | 563      | 428     | 667      | 536     | 489                      | 336    |
| A2S-110                   | 5          | 322                  | 214     | 450      | 338     | 612      | 511     |          |         |          |         |          |         |          |         | 304                      | 207    |
|                           | 6          | 277                  | 148     | 403      | 269     | 569      | 449     | 725      | 612     |          |         |          |         |          |         | 365                      | 248    |
|                           | 7          | 231                  | 80      | 355      | 197     | 526      | 385     | 685      | 553     |          |         |          |         |          |         | 426                      | 289    |
|                           | 8          |                      |         | 319      | 128     | 484      | 323     | 646      | 495     | 799      | 655     | 947      | 808     |          |         | 487                      | 331    |
|                           | 9          |                      |         |          |         | 441      | 260     | 606      | 436     | 761      | 599     | 911      | 755     |          |         | 548                      | 372    |
|                           | 10         |                      |         |          |         | 399      | 197     | 566      | 377     | 723      | 543     | 874      | 700     | 1,022    | 853     | 608                      | 413    |
|                           | 11         |                      |         |          |         |          |         | 525      | 318     | 685      | 487     | 837      | 647     | 986      | 801     | 669                      | 454    |
|                           | 12         |                      |         |          |         |          |         | 486      | 260     | 647      | 432     | 800      | 593     | 950      | 749     | 730                      | 496    |
| A2S-160                   | 5          | 497                  | 325     | 687      | 508     | 921      | 760     |          |         |          |         |          |         |          |         | 436                      | 280    |
|                           | 6          | 435                  | 229     | 622      | 407     | 862      | 670     | 1,008    | 908     |          |         |          |         |          |         | 523                      | 336    |
|                           | 7          | 374                  | 133     | 559      | 308     | 805      | 580     | 1,035    | 824     |          |         |          |         |          |         | 610                      | 392    |
|                           | 8          |                      |         | 494      | 208     | 747      | 490     | 980      | 740     | 1,203    | 974     | 1,419    | 1,198   |          |         | 697                      | 448    |
|                           | 9          |                      |         |          |         | 689      | 400     | 927      | 656     | 1,152    | 894     | 1,370    | 1,122   |          |         | 784                      | 504    |
|                           | 10         |                      |         |          |         | 631      | 306     | 872      | 569     | 1,100    | 811     | 1,320    | 1,041   | 1,535    | 1,264   | 871                      | 560    |
|                           | 11         |                      |         |          |         |          |         | 818      | 487     | 1,048    | 733     | 1,270    | 966     | 1,486    | 1,191   | 958                      | 616    |
|                           | 12         |                      |         |          |         |          |         | 764      | 406     | 997      | 656     | 1,221    | 892     | 1,439    | 1,119   | 1,045                    | 672    |
| A2S-255                   | 5          | 712                  | 453     | 1,000    | 729     | 1,358    | 1,115   |          |         |          |         |          |         |          |         | 698                      | 462    |
|                           | 6          | 610                  | 305     | 893      | 574     | 1,263    | 976     | 1,608    | 1,340   |          |         |          |         |          |         | 832                      | 555    |
|                           | 7          | 509                  | 148     | 787      | 410     | 1,167    | 828     | 1,519    | 1,202   |          |         |          |         |          |         | 971                      | 647    |
|                           | 8          |                      |         | 681      | 255     | 1,071    | 689     | 1,429    | 1,072   | 1,770    | 1,429   | 2,100    | 1,772   |          |         | 1,110                    | 740    |
|                           | 9          |                      |         |          |         | 976      | 541     | 1,340    | 934     | 1,685    | 1,298   | 2,018    | 1,645   |          |         | 1,249                    | 832    |
|                           | 10         |                      |         |          |         | 880      | 402     | 1,251    | 804     | 1,600    | 1,174   | 1,936    | 1,526   | 2,264    | 1,865   | 1,387                    | 925    |
|                           | 11         |                      |         |          |         |          |         | 1,161    | 666     | 1,514    | 1,043   | 1,854    | 1,399   | 2,184    | 1,742   | 1,530                    | 1,017  |
|                           | 12         |                      |         |          |         |          |         | 1,072    | 536     | 1,429    | 919     | 1,772    | 1,280   | 2,105    | 1,626   | 1,665                    | 1,110  |

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## High Performance Compact Pneumatic Actuators



### aero<sup>2</sup> SPRING RETURN OUTPUT TORQUES (in-lbf)

| A2S-400 ~ A2S-700         |            | OUTPUT AIR TO SPRING |         |          |         |          |         |          |         |          |         |          |         |          |         | << See also previous page |        |
|---------------------------|------------|----------------------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|---------------------------|--------|
| SUPPLY PRESSURE (psig) >> |            | 40 psig              |         | 50 psig  |         | 60 psig  |         | 70 psig  |         | 80 psig  |         | 90 psig  |         | 100 psig |         | SPRING OUTPUT             |        |
| MODEL                     | SPRING QTY | 0° START             | 90° END | 0° START | 90° END | 0° START | 90° END | 0° START | 90° END | 0° START | 90° END | 0° START | 90° END | 0° START | 90° END | 90° START                 | 0° END |
| A2S-400                   | 5          | 1,246                | 823     | 1,737    | 1,296   | 2,346    | 1,948   |          |         |          |         |          |         |          |         | 1,143                     | 759    |
|                           | 6          | 1,082                | 573     | 1,566    | 1,035   | 2,192    | 1,713   | 2,778    | 2,331   |          |         |          |         |          |         | 1,370                     | 908    |
|                           | 7          | 916                  | 324     | 1,392    | 773     | 2,035    | 1,478   | 2,631    | 2,112   |          |         |          |         |          |         | 1,598                     | 1,059  |
|                           | 8          |                      |         | 1,218    | 512     | 1,878    | 1,244   | 2,485    | 1,892   | 3,063    | 2,498   | 3,624    | 3,080   |          |         | 1,826                     | 1,211  |
|                           | 9          |                      |         |          |         | 1,713    | 1,009   | 2,331    | 1,673   | 2,916    | 2,290   | 3,483    | 2,879   |          |         | 1,054                     | 1,370  |
|                           | 10         |                      |         |          |         | 1,557    | 765     | 2,185    | 1,446   | 2,777    | 2,073   | 3,348    | 2,670   | 3,906    | 3,247   | 2,283                     | 1,522  |
|                           | 11         |                      |         |          |         |          |         | 2,039    | 1,226   | 2,638    | 1,864   | 3,214    | 2,468   | 3,776    | 3,051   | 2,510                     | 1,673  |
| 12                        |            |                      |         |          |         |          | 1,892   | 1,007    | 2,498   | 1,655    | 3,080   | 2,267    | 3,645   | 2,855    | 2,741   | 1,824                     |        |
| A2S-500                   | 5          | 1,877                | 1,212   | 2,640    | 1,943   | 3,592    | 2,966   |          |         |          |         |          |         |          |         | 1,844                     | 1,236  |
|                           | 6          | 1,609                | 805     | 2,359    | 1,518   | 3,340    | 2,583   | 4,256    | 3,549   |          |         |          |         |          |         | 2,212                     | 1,483  |
|                           | 7          | 1,332                | 398     | 2,069    | 1,093   | 3,079    | 2,200   | 4,012    | 3,192   |          |         |          |         |          |         | 2,581                     | 1,730  |
|                           | 8          |                      |         | 1,789    | 667     | 2,826    | 1,818   | 3,777    | 2,022   | 4,680    | 3,782   | 5,556    | 4,691   |          |         | 2,949                     | 1,977  |
|                           | 9          |                      |         |          |         | 2,566    | 1,435   | 3,533    | 2,477   | 4,448    | 3,442   | 5,332    | 4,363   |          |         | 3,321                     | 2,225  |
|                           | 10         |                      |         |          |         | 2,313    | 1,052   | 3,297    | 2,120   | 4,223    | 3,102   | 5,116    | 4,034   | 5,986    | 4,935   | 3,691                     | 2,472  |
|                           | 11         |                      |         |          |         |          |         | 3,062    | 1,771   | 3,999    | 2,769   | 4,900    | 3,714   | 5,776    | 4,624   | 4,056                     | 2,719  |
| 12                        |            |                      |         |          |         |          | 2,818   | 1,413    | 3,767   | 2,429    | 4,676   | 3,386    | 5,559   | 4,305    | 4,422   | 2,966                     |        |
| A2S-550                   | 5          | 3,228                | 2,164   | 4,457    | 3,345   | 5,957    | 4,957   |          |         |          |         |          |         |          |         | 2,737                     | 1,774  |
|                           | 6          | 2,839                | 1,563   | 4,051    | 2,717   | 5,592    | 4,392   | 7,041    | 5,921   |          |         |          |         |          |         | 3,287                     | 2,127  |
|                           | 7          | 2,451                | 962     | 3,645    | 2,088   | 5,227    | 3,827   | 6,700    | 5,393   |          |         |          |         |          |         | 3,834                     | 2,480  |
|                           | 8          |                      |         | 3,239    | 1,460   | 4,861    | 3,261   | 6,359    | 4,865   | 7,789    | 6,366   | 9,180    | 7,808   |          |         | 4,380                     | 2,833  |
|                           | 9          |                      |         |          |         | 4,496    | 2,696   | 6,018    | 4,337   | 7,464    | 5,863   | 8,867    | 7,323   |          |         | 4,927                     | 3,186  |
|                           | 10         |                      |         |          |         | 4,131    | 2,131   | 5,677    | 3,809   | 7,139    | 5,360   | 8,554    | 6,838   | 9,936    | 8,269   | 5,473                     | 3,540  |
|                           | 11         |                      |         |          |         |          |         | 5,336    | 3,281   | 6,814    | 4,858   | 8,240    | 6,354   | 9,632    | 7,798   | 6,020                     | 3,893  |
| 12                        |            |                      |         |          |         |          | 4,995   | 2,753    | 6,490   | 4,355    | 7,927   | 5,869    | 9,327   | 7,327    | 6,566   | 4,246                     |        |
| A2S-600                   | 5          | 3,801                | 2,774   | 5,327    | 4,254   | 7,227    | 6,262   |          |         |          |         |          |         |          |         | 3,363                     | 2,430  |
|                           | 6          | 3,265                | 2,035   | 4,767    | 3,481   | 6,723    | 5,566   | 8,552    | 7,472   |          |         |          |         |          |         | 4,036                     | 2,917  |
|                           | 7          | 2,728                | 1,295   | 4,206    | 2,707   | 6,218    | 4,870   | 8,081    | 6,822   |          |         |          |         |          |         | 4,708                     | 3,405  |
|                           | 8          |                      |         | 3,645    | 1,934   | 5,714    | 4,174   | 7,610    | 6,172   | 9,413    | 8,044   | 11,164   | 9,844   |          |         | 5,381                     | 3,893  |
|                           | 9          |                      |         |          |         | 5,209    | 3,479   | 7,139    | 5,523   | 8,965    | 7,426   | 10,731   | 9,247   |          |         | 6,053                     | 4,380  |
|                           | 10         |                      |         |          |         | 4,705    | 2,783   | 6,668    | 4,873   | 8,516    | 6,807   | 10,299   | 8,651   | 12,038   | 10,436  | 6,726                     | 4,868  |
|                           | 11         |                      |         |          |         |          |         | 6,169    | 4,223   | 8,068    | 6,188   | 9,866    | 8,054   | 11,617   | 9,856   | 7,399                     | 5,356  |
| 12                        |            |                      |         |          |         |          | 5,726   | 3,574    | 7,619   | 5,569    | 9,434   | 7,457    | 11,197  | 9,276    | 8,071   | 5,843                     |        |
| A2S-650                   | 5          | 5,373                | 3,977   | 7,571    | 6,111   | 10,332   | 9,018   |          |         |          |         |          |         |          |         | 4,902                     | 3,632  |
|                           | 6          | 4,578                | 2,895   | 6,739    | 4,979   | 9,584    | 8,001   | 12,239   | 10,761  |          |         |          |         |          |         | 5,885                     | 4,355  |
|                           | 7          | 3,773                | 1,822   | 5,898    | 3,858   | 8,827    | 6,992   | 11,533   | 9,819   |          |         |          |         |          |         | 6,861                     | 5,087  |
|                           | 8          |                      |         | 5,066    | 2,727   | 8,079    | 5,975   | 10,834   | 8,869   | 13,451   | 11,579  | 15,989   | 14,184  |          |         | 7,844                     | 5,810  |
|                           | 9          |                      |         |          |         | 7,323    | 4,957   | 10,128   | 7,919   | 12,778   | 10,674  | 15,340   | 13,312  |          |         | 8,828                     | 6,541  |
|                           | 10         |                      |         |          |         | 6,575    | 3,948   | 9,429    | 6,976   | 12,113   | 9,777   | 14,699   | 12,446  | 17,220   | 15,031  | 9,803                     | 7,264  |
|                           | 11         |                      |         |          |         |          |         | 8,731    | 6,026   | 11,448   | 8,872   | 14,057   | 11,574  | 16,596   | 14,183  | 10,787                    | 7,987  |
| 12                        |            |                      |         |          |         |          | 8,024   | 5,076    | 10,775  | 7,967    | 13,408  | 10,701   | 15,966  | 13,335   | 11,771  | 8,719                     |        |
| A2S-700                   | 5          | 8,786                | 6,576   | 12,163   | 9,852   | 16,289   | 14,210  |          |         |          |         |          |         |          |         | 6,961                     | 4,952  |
|                           | 6          | 7,695                | 5,050   | 11,022   | 8,257   | 15,263   | 12,775  | 19,256   | 16,934  |          |         |          |         |          |         | 8,349                     | 5,944  |
|                           | 7          | 6,612                | 3,514   | 9,891    | 6,652   | 14,245   | 11,332  | 18,306   | 15,585  |          |         |          |         |          |         | 9,744                     | 6,928  |
|                           | 8          |                      |         | 8,750    | 5,057   | 13,219   | 9,897   | 17,348   | 14,245  | 21,286   | 18,332  | 25,109   | 22,260  |          |         | 11,132                    | 7,920  |
|                           | 9          |                      |         |          |         | 12,193   | 8,453   | 16,389   | 12,897  | 20,374   | 17,048  | 24,229   | 21,023  |          |         | 12,527                    | 8,912  |
|                           | 10         |                      |         |          |         | 11,167   | 7,018   | 15,431   | 11,557  | 19,461   | 15,771  | 23,349   | 19,792  | 27,156   | 23,699  | 13,914                    | 9,904  |
|                           | 11         |                      |         |          |         |          |         | 14,473   | 10,209  | 18,548   | 14,487  | 22,469   | 18,554  | 26,300   | 22,496  | 15,310                    | 10,896 |
| 12                        |            |                      |         |          |         |          | 13,523  | 8,869    | 17,643  | 13,211   | 21,597  | 17,324   | 25,452  | 21,300   | 16,697  | 11,880                    |        |

### DOUBLE ACTING TORQUE (in-lbf)

| ACTUATOR MODEL | Supply Pressure (psig) |         |         |          | ACTUATOR MODEL | Supply Pressure (psig) |         |         |          |
|----------------|------------------------|---------|---------|----------|----------------|------------------------|---------|---------|----------|
|                | 40 psig                | 60 psig | 80 psig | 100 psig |                | 40 psig                | 60 psig | 80 psig | 100 psig |
| A2D-10         | 55                     | 85      | 115     | 142      | A2D-255        | 1,225                  | 1,833   | 2,450   | 3,063    |
| A2D-20         | 97                     | 146     | 195     | 244      | A2D-400        | 2,088                  | 3,133   | 4,177   | 5,221    |
| A2D-35         | 178                    | 267     | 356     | 446      | A2D-500        | 3,249                  | 4,873   | 6,497   | 8,122    |
| A2D-50         | 245                    | 368     | 490     | 613      | A2D-550        | 5,198                  | 7,797   | 10,396  | 12,995   |
| A2D-75         | 383                    | 574     | 766     | 957      | A2D-600        | 6,497                  | 9,746   | 12,995  | 16,243   |
| A2D-110        | 551                    | 827     | 1,103   | 1,378    | A2D-650        | 9,398                  | 14,097  | 18,796  | 23,495   |
| A2D-160        | 808                    | 1,211   | 1,615   | 2,019    | A2D-700        | 14,282                 | 21,430  | 28,565  | 35,712   |

Specifications subject to change. Please visit [www.SVF.net](http://www.SVF.net) for the latest updates on this Data Sheet. All Data Sheets posted on our website supersede all prior publications • [Document #SVF\_aero2\_Data\_Sheet • 06/19/2015]

## High Performance Compact Pneumatic Actuators



### aero<sup>2</sup> ACTUATOR SIZING GUIDE

#### Selecting the correct Actuator (Sizing)

The output torques for each actuator model are listed in the Torque Tables (Pages 3 and 4). These values do not include a safety factor. For best results we recommend selecting an actuator model with a minimum output torque that is greater than the highest operating torque of the valve to be actuated, **plus 10%**.

#### Example for Double Acting (DA) Actuator Sizing:

Published Valve Torque: 300 in-lbs (plus 10% safety factor = 330 in-lbf)  
 Air Supply: 80 psig  
 aero2 Model: A2D-35

**The A2D-35 has the output torque value of 356 in-lbf @ 80 psig.**

#### Example for Spring Return (SR) Actuator Sizing:

Published Valve Torque: 300 in-lbs (plus 10% safety factor = 330 in-lbf)  
 Air Supply: 80 psig  
 aero2 Model: A2S-110 (10 Springs - Standard)

**The A2S-110 has the following output torque values @ 80 psig:**

Air End: 543 in-lbf  
 Spring End: 413 in-lbf

#### Sizing Safety Factors

Media and other conditions can effect the operating torque of a valve. Following is a list of common Safety Factors.

| MEDIA                                | SAFETY FACTOR |
|--------------------------------------|---------------|
| Basic Value                          | 1.0           |
| Liquid, clean (particle free)        | 1.0           |
| Gas, clean and wet (saturated steam) | 1.0           |
| Gas, dry (superheated steam)         | 1.3           |
| Gas, dirty (natural gas)             | 1.5           |
| Oxygen, Chlorine                     | 1.5           |
| Liquid, dirty (slurry), raw water    | 1.8           |
| Paste/Paint                          | 1.8           |

An aero2 Actuator Sizing Guide configurator is available on our website: [www.SVF.net/aero2\\_actuator\\_sizing.php](http://www.SVF.net/aero2_actuator_sizing.php)