

numatics®

Air Bellows



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Air Bellows

Single Convoluted **3-13**

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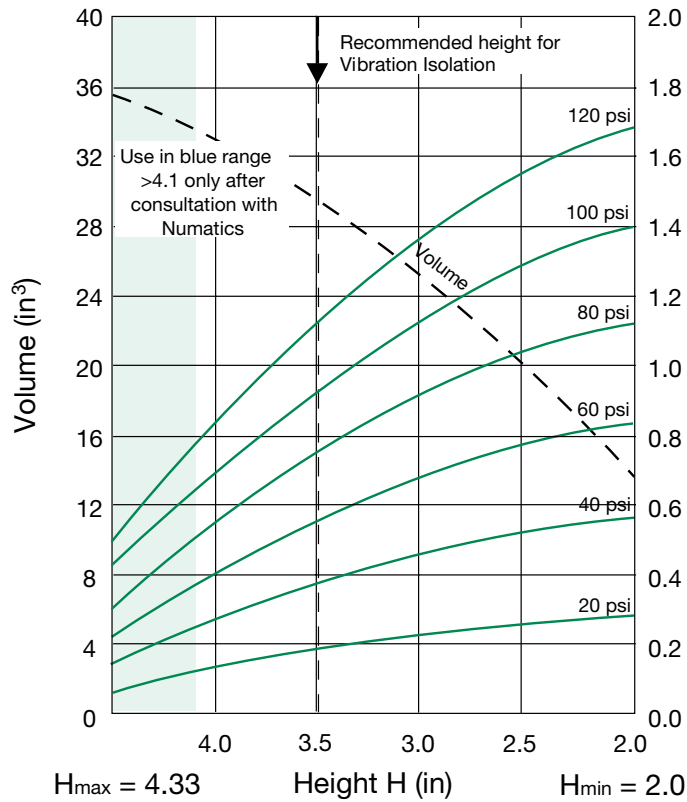
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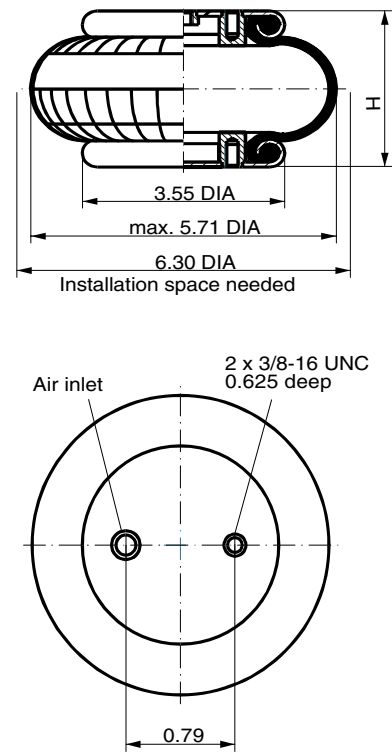
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Numatics Single Convoluted Air Bellows

ASNS10-2-1



Force-Height Diagram



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 27 lbs |
| Overall Weight with Clamped Plates | 2.1 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With Clamped Plates 1/8 NPTF air inlet | ASNS10-2-1 |

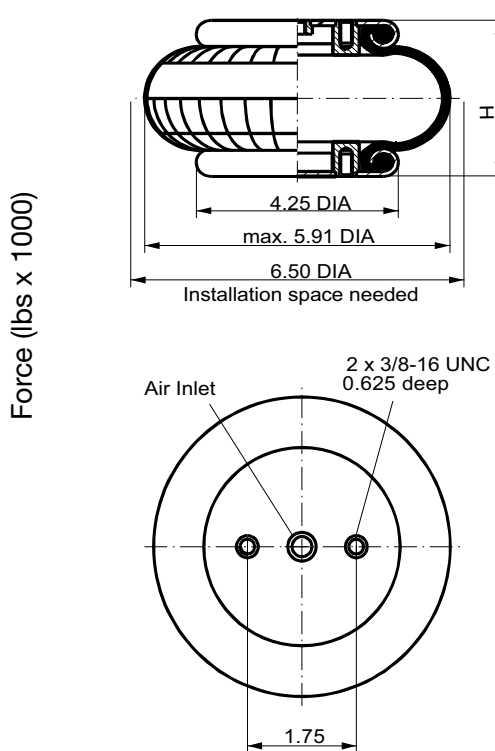
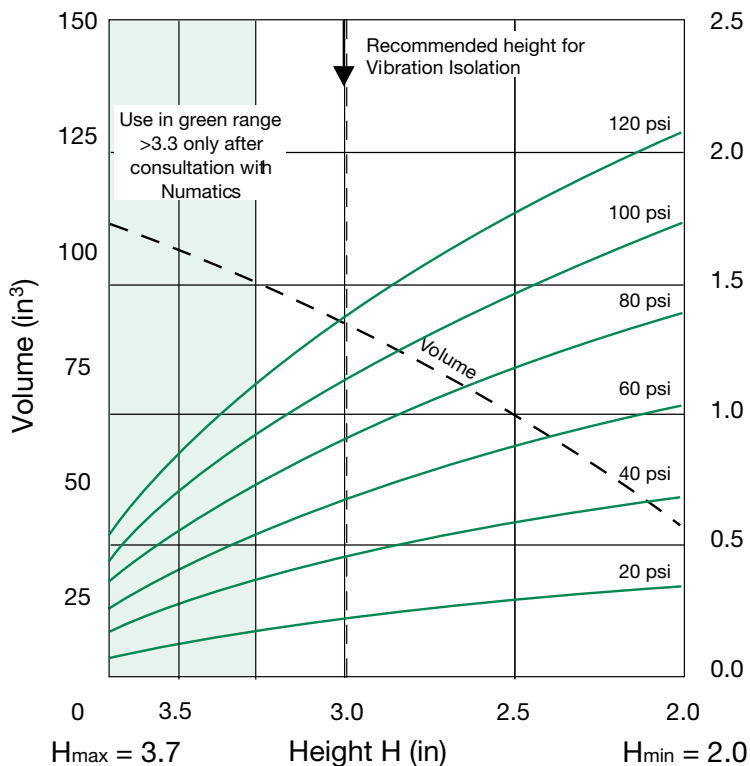
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|-----|-----|-----|------|------------------------|
| Design Height H: Recommended 3.5 Inch, Minimum 2.7 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 350 | 530 | 700 | 800 | 1060 | – |
| Spring Rate | (lbs/in) | 399 | 585 | 768 | 905 | 1075 | 30 |
| Natural Frequency | (Hz) | 3.5 | 3.3 | 3.3 | 3.3 | 3.2 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|-----|-----|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 4 | 120 | 250 | 370 | 490 | 620 | 740 | 34 |
| | 3 | 220 | 450 | 670 | 890 | 1110 | 1340 | 26 |
| | 2 | 280 | 560 | 850 | 1130 | 1410 | 1690 | 14 |

Installation Instruction – Torque rating
 Mounting Holes 3/8" = 15-20 lb-ft
 Air Inlet 1/8" NPTF = 12-15 lb-ft

Numatics Single Convoluted Air Bellows

ASNS11-1-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 56 lbs |
| Overall Weight with Clamped Plates | 2.7 lbs |

| Order Data | |
|--|--------------|
| Type | Model Number |
| With clamped plates 1/4" NPTF air inlet | ASNS11-1-1 |

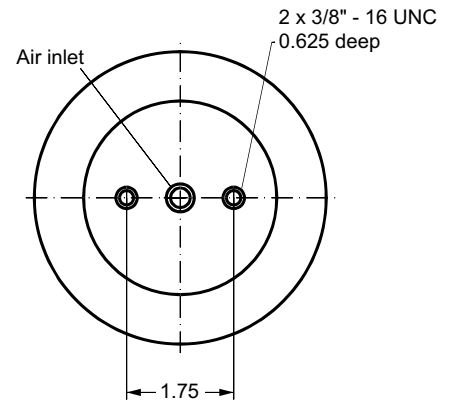
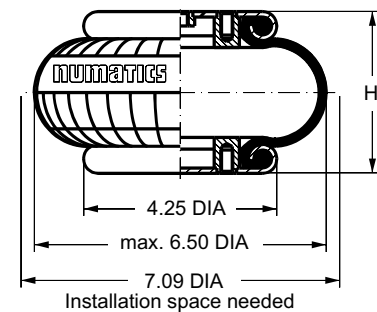
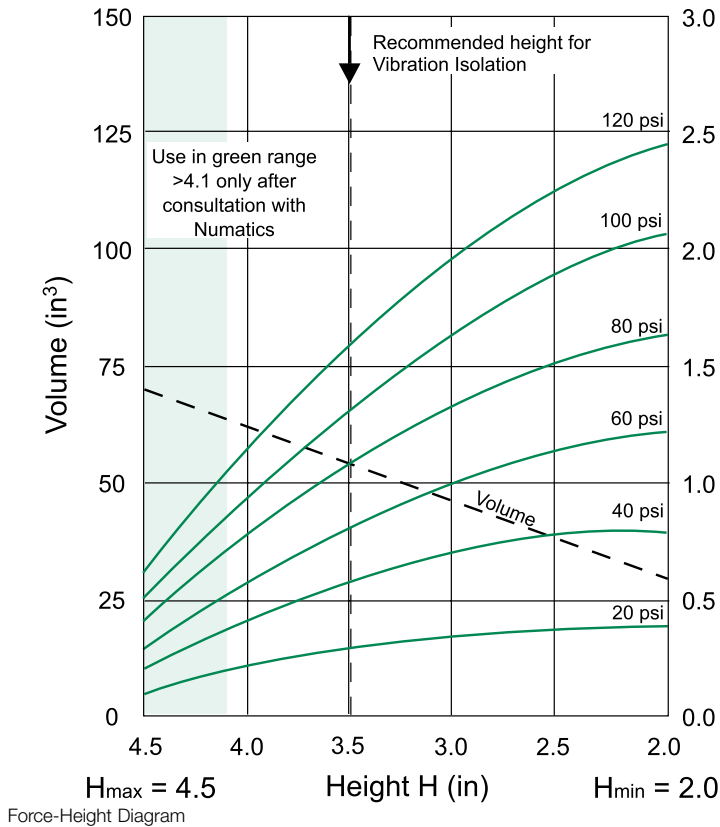
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|------|------|------|------|------------------------|
| Design Height H: Recommended 3.0 Inch, Minimum 2.7 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 460 | 680 | 910 | 1140 | 1370 | – |
| Spring Rate | (lbs/in) | 793 | 1128 | 1442 | 1710 | 1972 | 24 |
| Natural Frequency | (Hz) | 3.9 | 3.8 | 3.7 | 3.7 | 3.6 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|-----|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 3 | 230 | 460 | 680 | 910 | 1140 | 1370 | 24 |
| | 2.5 | 290 | 580 | 880 | 1170 | 1460 | 1750 | 20 |
| | 2 | 350 | 690 | 1040 | 1390 | 1740 | 2080 | 12 |

Installation Instruction – Torque rating
Mounting Holes 3/8" = 15-20 lb-ft
Air Inlet - 1/4" NPTF = 12-15 lb-ft

Numatics Single Convuluted Air Bellows

ASNS11-2-1



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 2.7 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With Clamped Plates 1/4 NPTF Air Inlet | ASNS11-2-1 |
| Additional types on request | |

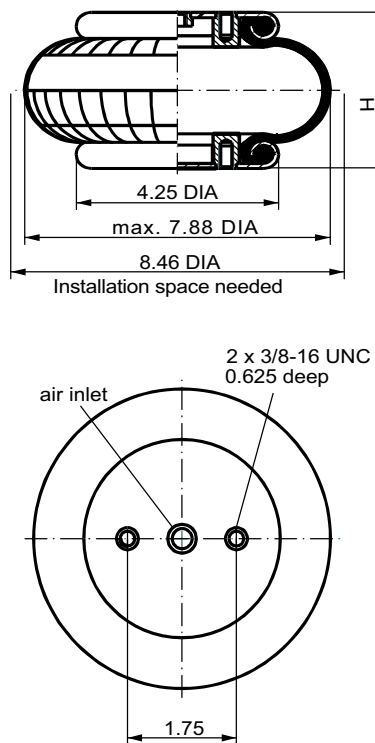
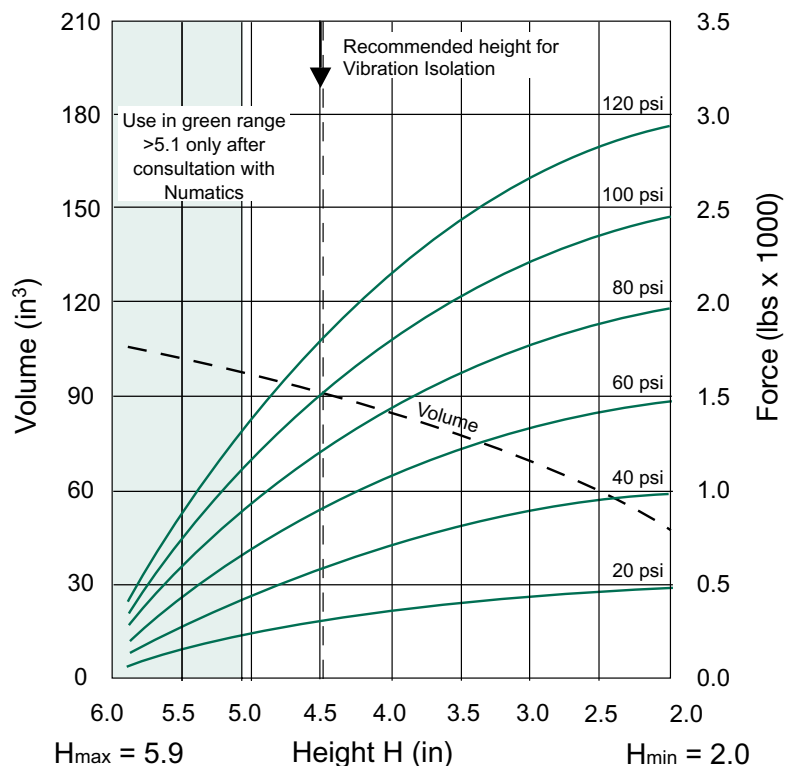
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|-----|------|------|------|------------------------|
| Design Height H: Recommended 3.5 Inch, Minimum 2.7 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 530 | 790 | 1060 | 1320 | 1590 | – |
| Spring Rate | (lbs/in) | 619 | 874 | 1146 | 1333 | 1570 | 54 |
| Natural Frequency | (Hz) | 3.5 | 3.4 | 3.3 | 3.3 | 3.2 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|-----|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 5 | 190 | 380 | 570 | 750 | 940 | 1130 | 62 |
| | 4 | 330 | 650 | 980 | 1310 | 1640 | 1960 | 46 |
| | 3 | 410 | 820 | 1240 | 1650 | 2060 | 2470 | 28 |

Installation Instruction – Torque rating
Mounting Holes 3/8" = 15-20 lb-ft
Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Single Convoluted Air Bellows

ASNS11-3-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 3.1 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With clamped plates 1/4 NPTF air inlet | ASNS11-3-1 |

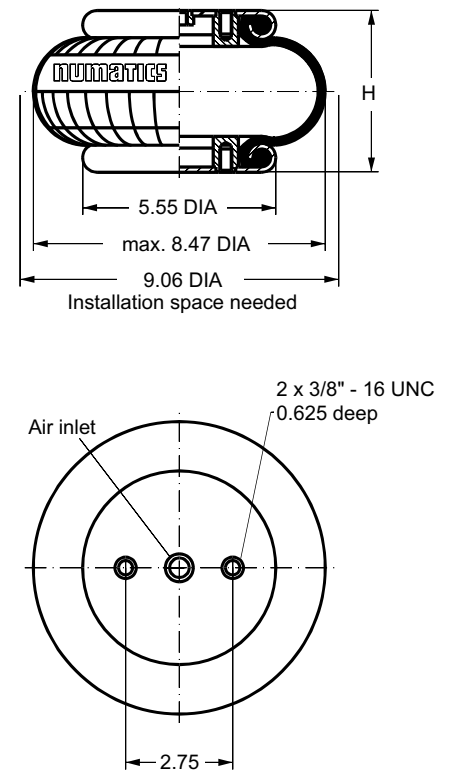
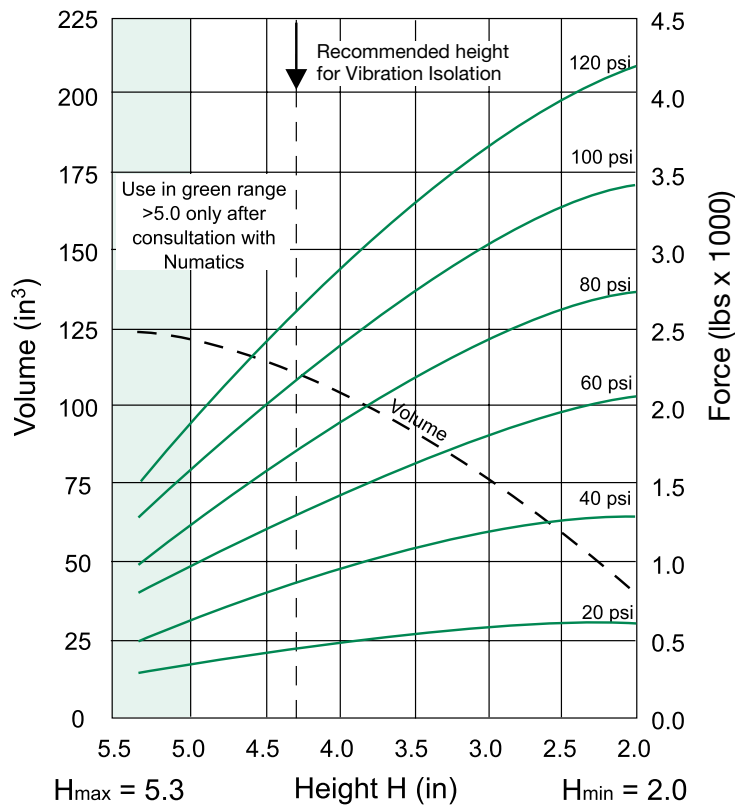
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|-----|------|------|------|------------------------|
| Design Height H: Recommended 3.0 Inch, Minimum 2.7 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 620 | 930 | 1240 | 1550 | 1850 | – |
| Spring Rate | (lbs/in) | 449 | 655 | 844 | 1035 | 1211 | 90 |
| Natural Frequency | (Hz) | 2.7 | 2.6 | 2.6 | 2.6 | 2.5 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|-----|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 5 | 230 | 460 | 690 | 910 | 1140 | 1370 | 96 |
| | 4.5 | 300 | 600 | 910 | 1210 | 1510 | 1810 | 91 |
| | 4 | 360 | 720 | 1080 | 1440 | 1800 | 2150 | 85 |
| | 3.5 | 410 | 820 | 1230 | 1630 | 2040 | 2450 | 77 |
| | 3 | 440 | 890 | 1330 | 1770 | 2210 | 2660 | 69 |
| | 2.5 | 470 | 940 | 1410 | 1880 | 2350 | 2820 | 60 |

Installation Instructions - Torque rating
Mounting Holes - 3/8" = 15-20 lb-ft
Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Single Convuluted Air Bellows

ASNS18-3-1



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 4.5 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With Clamped Plates 3/4 NPTF Air Inlet | ASNS18-3-1 |
| 1/4 NPTF Air Inlet | ASNS18-3-1-2 |

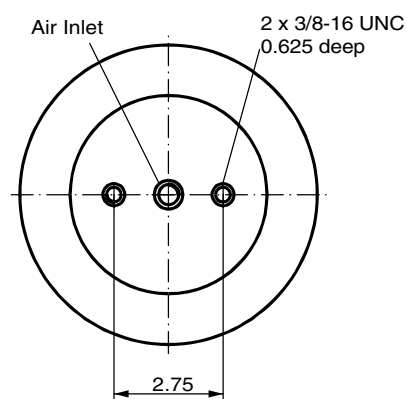
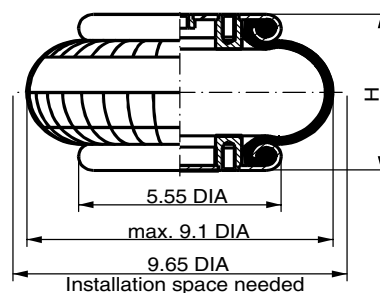
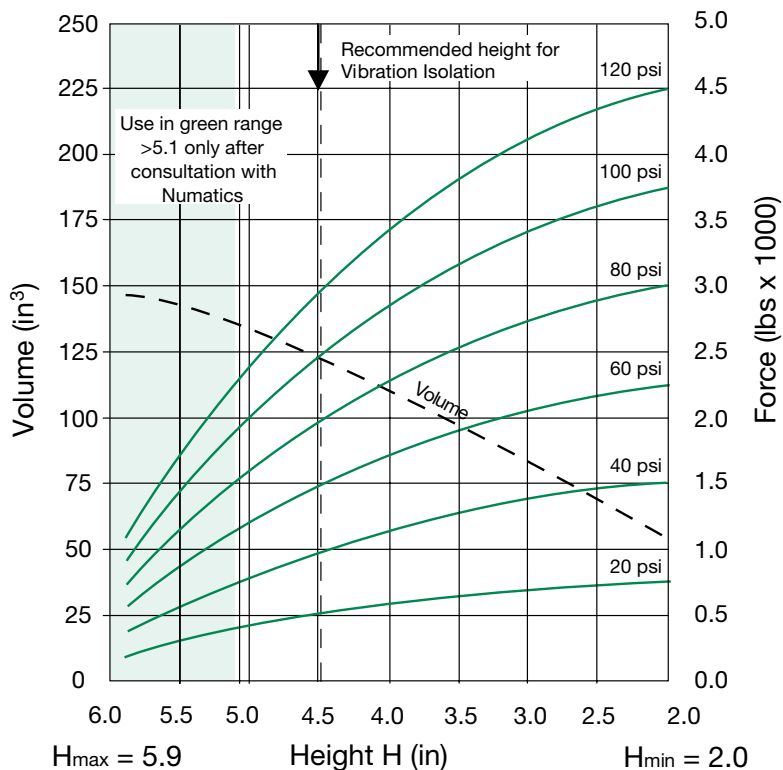
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|------|------|------|------|------------------------|
| Design Height H: Recommended 4.4 Inch, Minimum 3.5 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 820 | 1230 | 1640 | 2050 | 2460 | – |
| Spring Rate | (lbs/in) | 690 | 957 | 1230 | 1426 | 1677 | 111 |
| Natural Frequency | (Hz) | 2.9 | 2.8 | 2.7 | 2.6 | 2.6 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|------|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 5 | 300 | 600 | 900 | 1200 | 1500 | 1800 | 120 |
| | 4 | 470 | 950 | 1420 | 1900 | 2370 | 2850 | 105 |
| | 3 | 600 | 1200 | 1800 | 2410 | 3010 | 3610 | 75 |
| | 2 | 690 | 1370 | 2060 | 2750 | 3430 | 4120 | 43 |

Installation Instruction – Torque rating
 Mounting Holes 3/8" = 15-20 lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Single Convoluted Air Bellows

ASNS18-4-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 4.2 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet | ASNS18-4-1 |
| 1/4 NPTF air inlet | ASNS18-4-1-2 |

Additional types on request

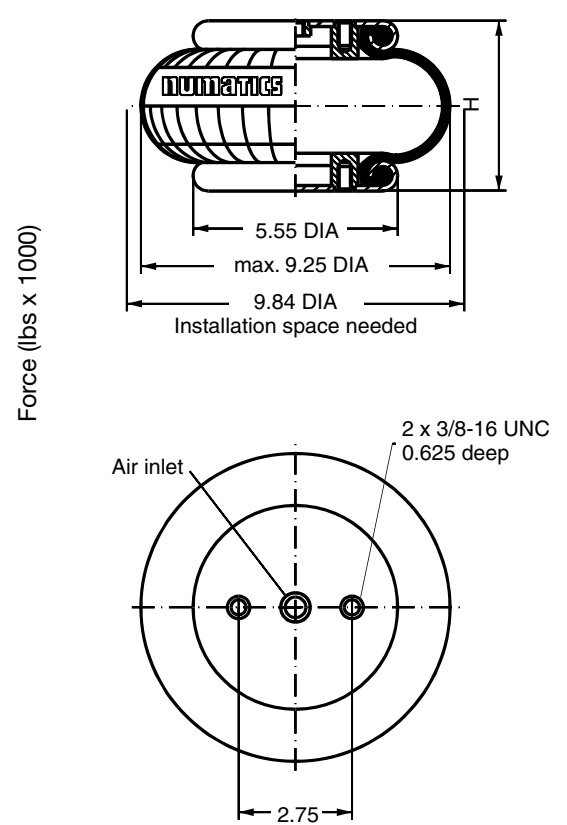
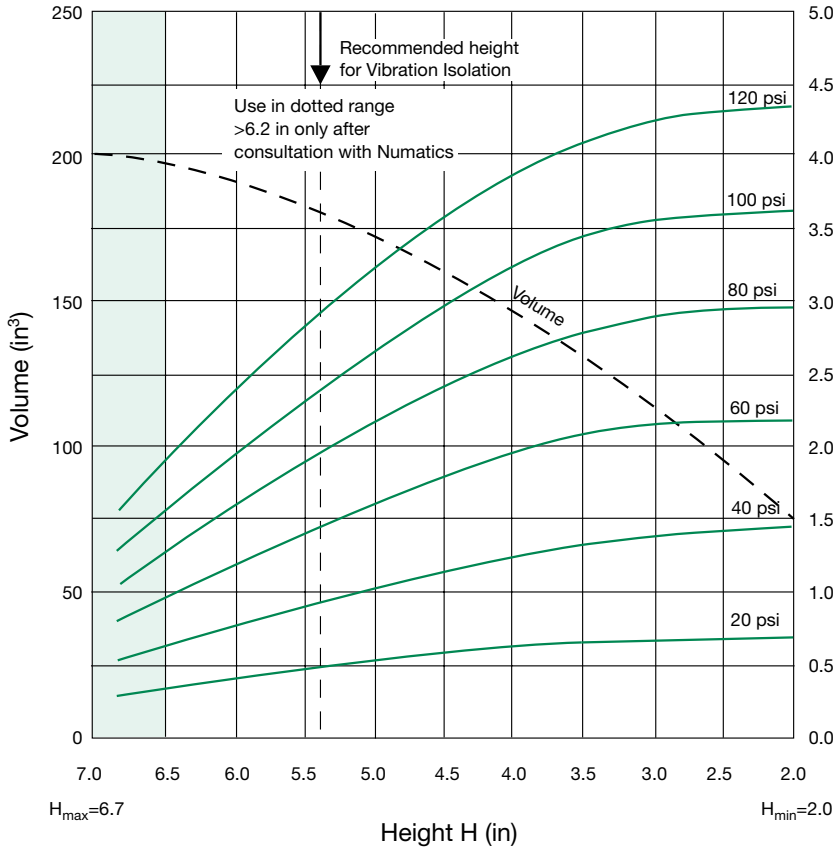
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|------|------|------|------|------------------------|
| Design Height H: Recommended 4.5 Inch, Minimum 3.9 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 970 | 1450 | 1940 | 2420 | 2910 | – |
| Spring Rate | (lbs/in) | 693 | 1004 | 1316 | 1558 | 1866 | 123 |
| Natural Frequency | (Hz) | 2.7 | 2.6 | 2.6 | 2.6 | 2.5 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|------|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 5 | 390 | 790 | 1180 | 1580 | 1970 | 2360 | 133 |
| | 4.5 | 480 | 970 | 1450 | 1940 | 2420 | 2910 | 123 |
| | 4 | 570 | 1130 | 1700 | 2270 | 2830 | 3400 | 111 |
| | 3.5 | 630 | 1260 | 1890 | 2530 | 3160 | 3790 | 96 |
| | 3 | 690 | 1380 | 2060 | 2750 | 3440 | 4130 | 83 |
| | 2.5 | 720 | 1450 | 2170 | 2890 | 3620 | 4340 | 68 |

Installation Instructions - Torque rating
 Mounting Holes 3/8" = 15-20 lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Single Convuluted Air Spring

ASNS18-5-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 4.2 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With Clamped Plates 3/4 NPTF Air Inlet | ASNS18-5-1 |
| 1/4 NPTF Air Inlet | ASNS18-5-1-2 |

Additional types on request

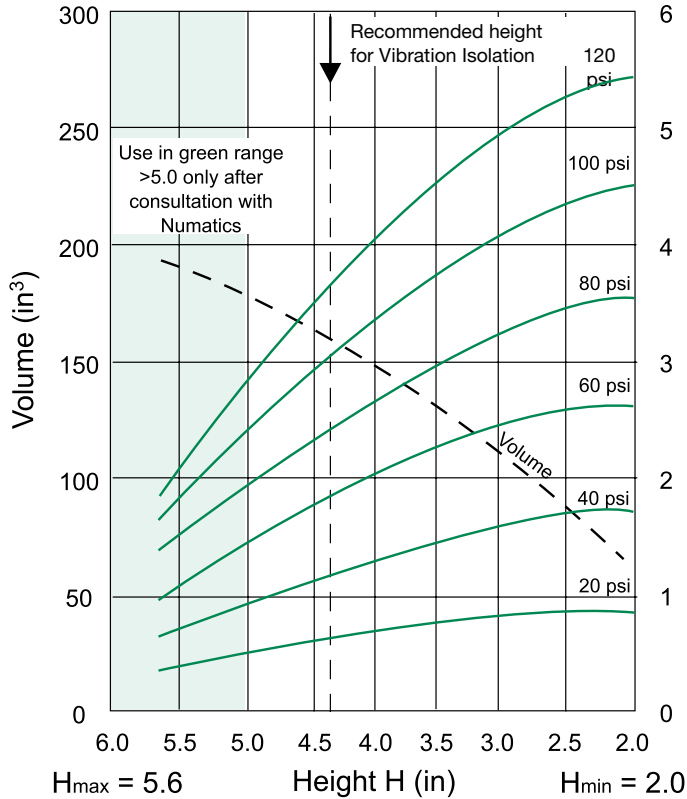
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|--|----------|-----|------|------|------|------|------------------------|
| Design Height H: Recommended 5.5 Inch, Minimum 4.92 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 950 | 1420 | 1890 | 2370 | 2840 | – |
| Spring Rate | (lbs/in) | 609 | 856 | 1090 | 1294 | 1524 | 173 |
| Natural Frequency | (Hz) | 2.9 | 2.8 | 2.7 | 2.6 | 2.6 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|------|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 6 | 400 | 790 | 1190 | 1580 | 1980 | 2370 | 181 |
| | 5.5 | 470 | 950 | 1420 | 1890 | 2370 | 2840 | 173 |
| | 5 | 540 | 1080 | 1610 | 2150 | 2690 | 3230 | 162 |
| | 4.5 | 500 | 1180 | 1770 | 2360 | 3960 | 4550 | 150 |
| | 4 | 640 | 1280 | 1910 | 2550 | 3190 | 3830 | 136 |
| | 3.5 | 670 | 1340 | 2020 | 2690 | 3360 | 4030 | 122 |
| | 3 | 700 | 1390 | 2090 | 2790 | 3490 | 4180 | 107 |

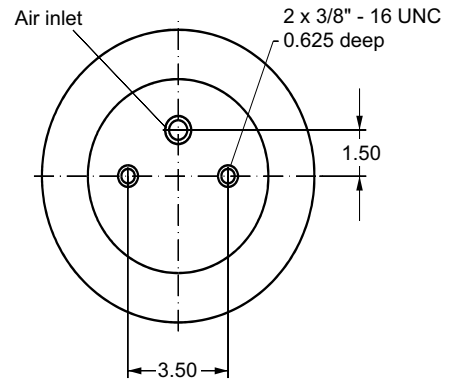
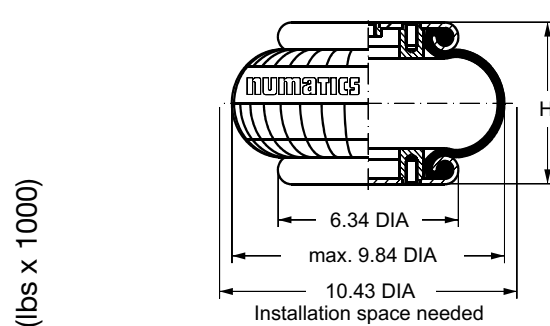
Installation Instruction –
 3/8-16 UNC = 15-20 LBxFT
 Mounting holes - 3/8" = 15-20 lb-ft
 3/4 NPTF = 40-50 LBxFT
 Air Inlet 3/4" NPTF = 40-50 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Single Convoluted Air Bellows

ASNS31-3-1



Force-Height Diagram



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 5.1 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet | ASNS18-3-1 |
| 1/4 NPTF air inlet | ASNS18-3-1-2 |

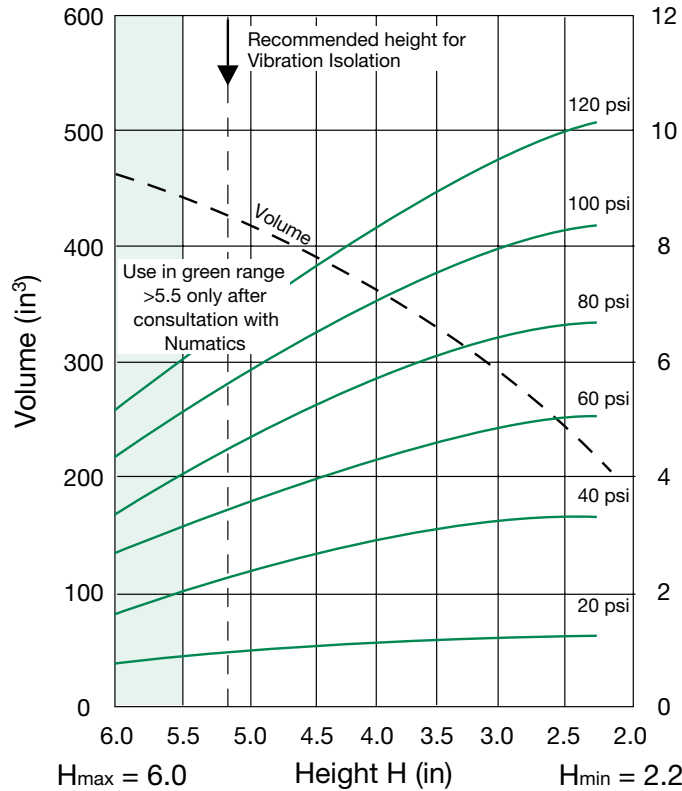
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|------|------|------|------|------|------------------------|
| Design Height H: Recommended 4.4 Inch, Minimum 3.5 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 1200 | 1810 | 2410 | 3010 | 3610 | – |
| Spring Rate | (lbs/in) | 787 | 1211 | 1638 | 2081 | 2510 | 166 |
| Natural Frequency | (Hz) | 2.5 | 2.6 | 2.6 | 2.6 | 2.6 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|------|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 5 | 470 | 950 | 1420 | 1890 | 2370 | 2840 | 179 |
| | 4 | 670 | 1350 | 2020 | 2690 | 3360 | 4040 | 144 |
| | 3 | 820 | 1640 | 2460 | 3280 | 4100 | 4930 | 105 |
| | 2 | 920 | 1830 | 2750 | 3670 | 4580 | 5500 | 62 |

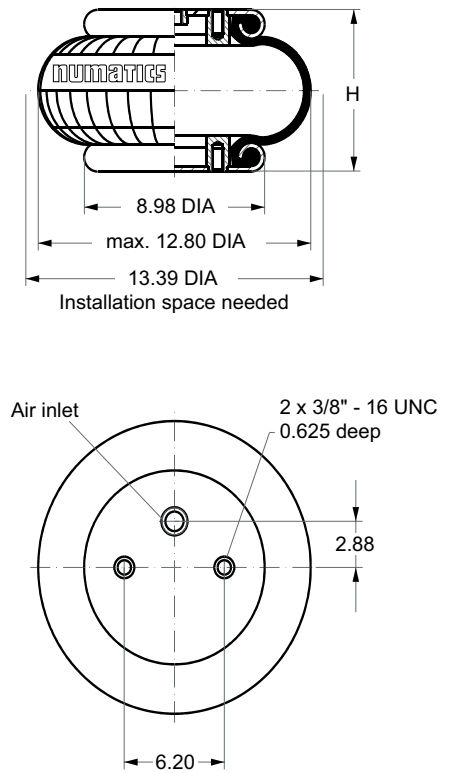
Installation Instruction – Torque rating
 Mounting Holes 3/8" = 15-20 lb-ft
 Air Inlet 1/4" NPTF = 12-15lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft

Numatics Single Convuluted Air Bellows

ASNS51-3-1



Force-Height Diagram



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 67 lbs |
| Overall Weight with Clamped Plates | 9.1 lbs |

| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|--|----------|------|------|------|------|------|------------------------|
| Design Height H: Recommended 5.5 Inch, Minimum 4.92 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 2450 | 3680 | 4900 | 6130 | 7350 | – |
| Spring Rate | (lbs/in) | 1388 | 1943 | 2479 | 2939 | 3466 | 415 |
| Natural Frequency | (Hz) | 2.4 | 2.3 | 2.2 | 2.2 | 2.2 | – |

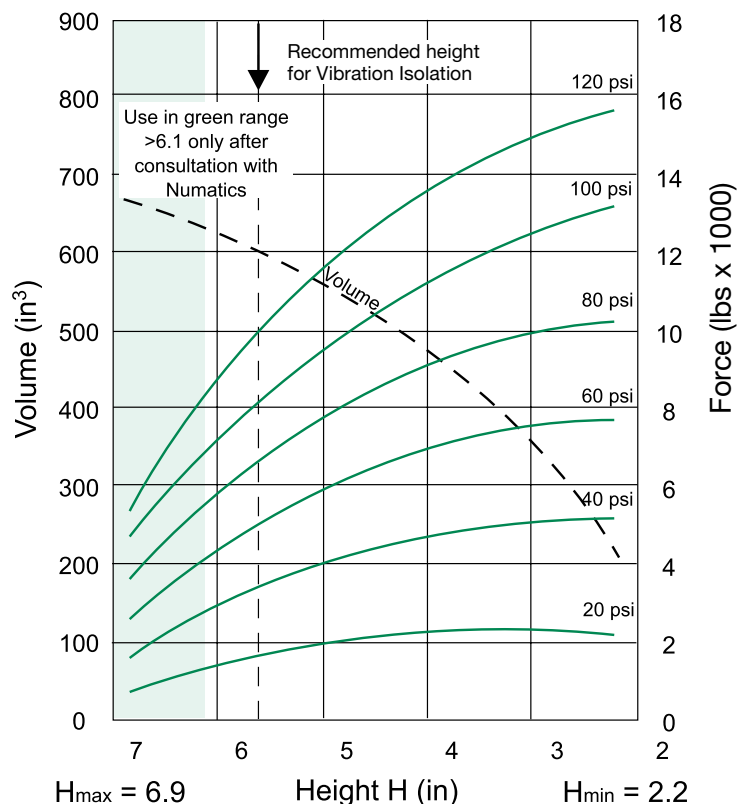
| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 5 | 1150 | 2300 | 3450 | 4600 | 5760 | 6910 | 412 |
| | 4 | 1400 | 2800 | 4210 | 5610 | 7010 | 8410 | 341 |
| | 3 | 1590 | 3180 | 4760 | 6350 | 7940 | 9530 | 285 |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet | |
| 2.8 inch excentrical | ASNS51-3-1 |
| 1/4 NPTF air inlet | ASNS51-3-1-2 |

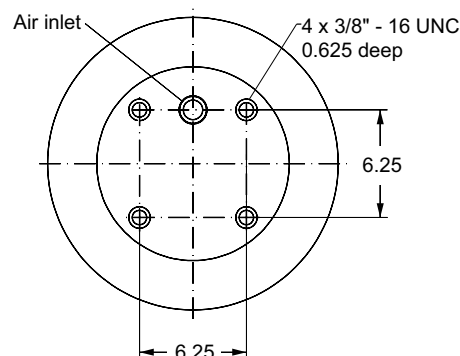
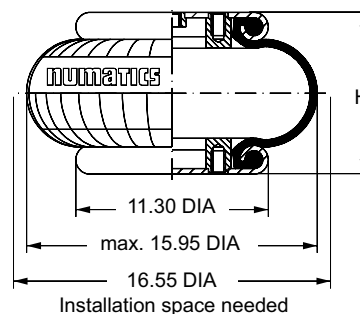
Installation instruction - Torque Rating
 Mounting Holes 3/8" = 15-20 LB-FT
 Air Inlet 3/4" NPTF = 40-50 LB-FT
 Air Inlet 1/4" NPTF = 12-15 LB-FT

Numatics Single Convoluted Air Bellows

ASNS82-4-1



Force-Height Diagram



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 67 lbs |
| Overall Weight with Clamped Plates | 12.9 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet 3.12 inch exccentric | ASNS82-4-1 |
| 1/4 NPTF air inlet | ASNS82-4-1-2 |

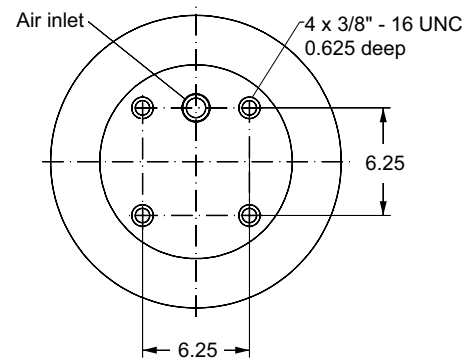
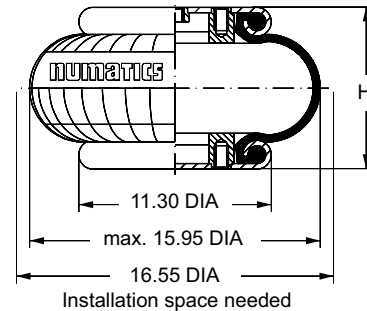
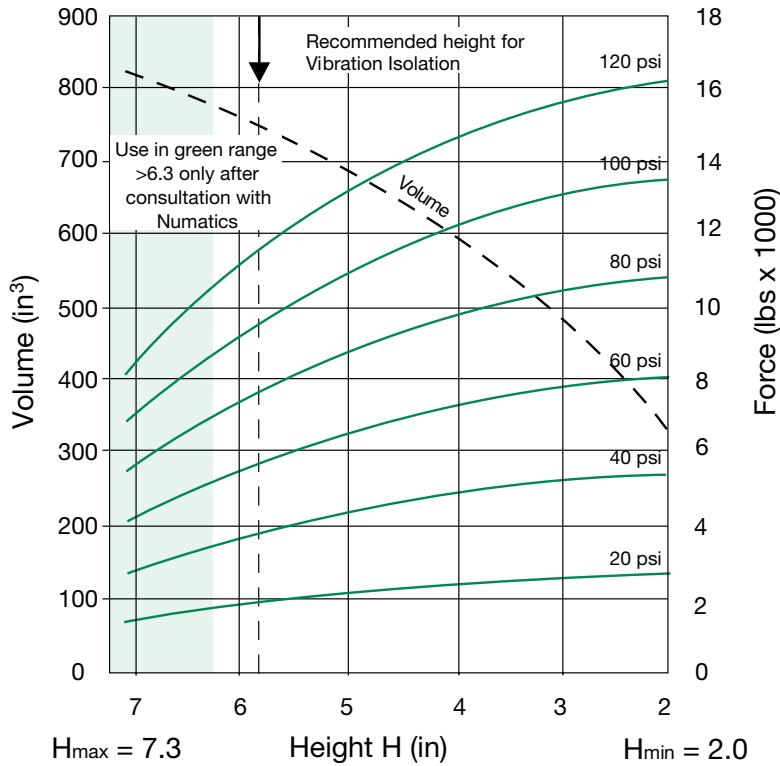
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|------|------|------|------|------|------------------------|
| Design Height H: Recommended 5.7 Inch, Minimum 4.3 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 3260 | 4900 | 6530 | 8160 | 9790 | – |
| Spring Rate | (lbs/in) | 2084 | 2953 | 3830 | 4572 | 5403 | 607 |
| Natural Frequency | (Hz) | 2.5 | 2.4 | 2.4 | 2.4 | 2.3 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|------|------|--------|--------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 6 | 1480 | 2970 | 4450 | 5940 | 7420 | 8910 | 621 |
| | 5 | 1930 | 3860 | 5790 | 7720 | 9660 | 11,590 | 564 |
| | 4 | 2260 | 4510 | 6770 | 9020 | 11,280 | 13,540 | 482 |
| | 3 | 2480 | 4970 | 7450 | 9930 | 12,410 | 14,900 | 357 |

Installation Instruction – Torque rating
 Mounting Holes 3/8" = 15-20 lb-ft
 Air Inlet 1/4" NPTF = 12-15lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft

Numatics Single Convuluted Air Bellows

ASNS82-5-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 67 lbs |
| Overall Weight with Clamped Plates | 13.5 lbs |

| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|------|------|------|------|-------|------------------------|
| Design Height H: Recommended 5.9 Inch, Minimum 4.3 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 3920 | 5880 | 7840 | 9800 | 11760 | – |
| Spring Rate | (lbs/in) | 1916 | 2604 | 3364 | 4051 | 4677 | 750 |
| Natural Frequency | (Hz) | 2.2 | 2.1 | 2.1 | 2.0 | 2.0 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|------|-------|-------|-------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 6 | 1920 | 3850 | 5770 | 7690 | 9620 | 11540 | 758 |
| | 5 | 2240 | 4490 | 6730 | 8980 | 11220 | 13460 | 674 |
| | 4 | 2470 | 4940 | 7410 | 9880 | 12350 | 14820 | 586 |
| | 3 | 2610 | 5220 | 7830 | 10440 | 13050 | 15660 | 483 |

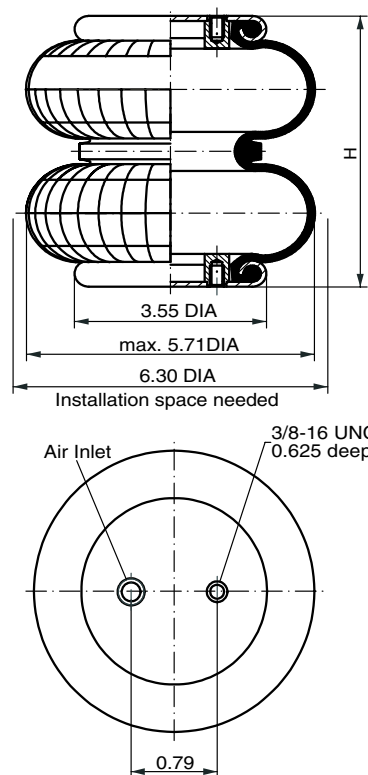
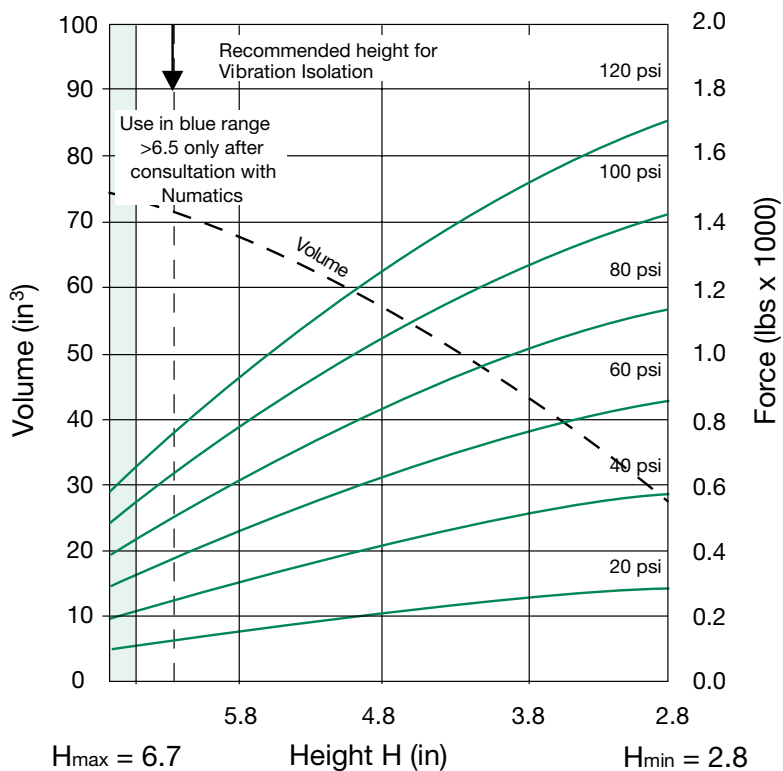
| Order Data | |
|--|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet 3.12 inch excentrical | ASNS82-5-1 |
| 1/4 NPTF Air Inlet | ASNS82-5-1-2 |

Additional types on request

Installation Instruction - Torque rating
 Mounting Holes - 3/8" = 15-20 lb-ft
 Air Inlet 1/4" NPTF = 12-15lb-ft
 Air Inlet - 3/4" NPTF = 40-50 lb-ft

Numatics Double Convoluted Air Bellows

ASND10-4-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 2.5 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With clamped plates 1/8 NPTF air inlet | ASND10-4-1 |

Additional types on request

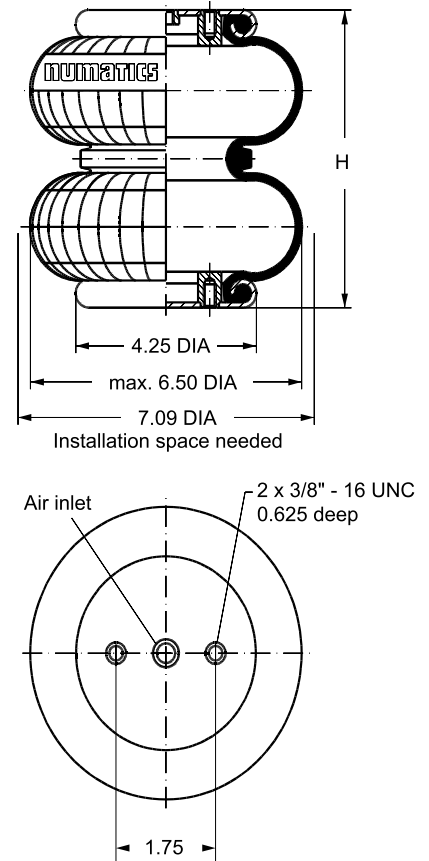
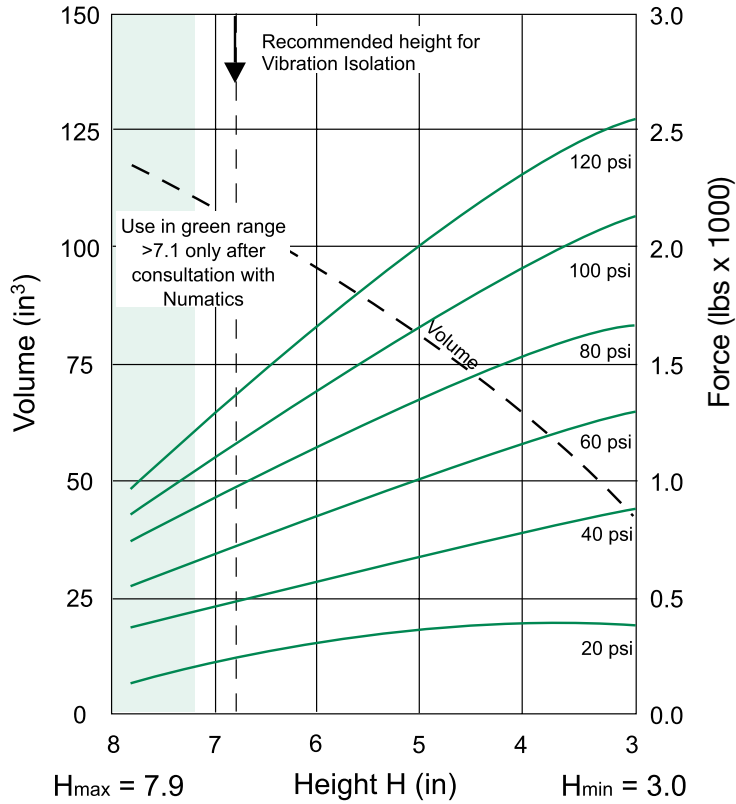
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-------|-------|-------|-----|-----|------------------------|
| Design Height H: Recommended 6.3 Inch, Minimum 5.9 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 250 | 370 | 490 | 620 | 740 | – |
| Spring Rate | (lbs/in) | 178.5 | 265.7 | 265.3 | 464 | 561 | 69 |
| Natural Frequency | (Hz) | 2.8 | 2.8 | 2.7 | 2.7 | 2.7 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|-----|-----|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 6 | 140 | 290 | 430 | 570 | 720 | 860 | 70 |
| | 5 | 200 | 400 | 600 | 800 | 1000 | 1200 | 59 |
| | 4 | 240 | 490 | 730 | 980 | 1220 | 1460 | 44 |
| | 3 | 280 | 560 | 840 | 1120 | 1400 | 1680 | 32 |

Installation Instruction - Torque rating
Mounting holes - 3/8" NPTF = 15-20 lb-ft
Air Inlet - 1/8" NPTF = 12-15 lb-ft

Numatics Double Convoluted Air Bellows

ASND11-4-1



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 3.3 lbs |

| Order Data | |
|--------------------------------------|--------------|
| Type | Model Number |
| With clamped plates 1/4 Air inlet | ASND11-4-1 |

Additional types on request

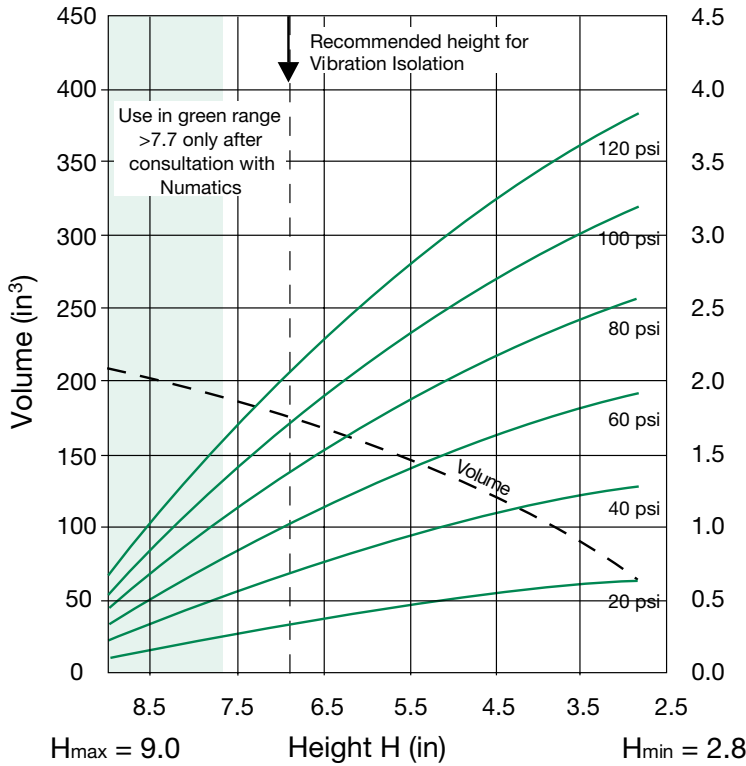
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|-----|-----|------|------|------------------------|
| Design Height H: Recommended 6.9 Inch, Minimum 6.3 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 460 | 690 | 920 | 1150 | 1380 | – |
| Spring Rate | (lbs/in) | 273 | 396 | 517 | 630 | 750 | 107 |
| Natural Frequency | (Hz) | 2.4 | 2.4 | 2.4 | 2.3 | 2.3 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|-----|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 7 | 220 | 450 | 670 | 900 | 1120 | 1350 | 108 |
| | 6 | 280 | 560 | 850 | 1130 | 1410 | 1690 | 93 |
| | 5 | 330 | 670 | 1000 | 1340 | 1670 | 2010 | 84 |
| | 4 | 380 | 770 | 1150 | 1540 | 1920 | 2310 | 68 |
| | 3 | 420 | 850 | 1270 | 1690 | 2120 | 2540 | 38 |

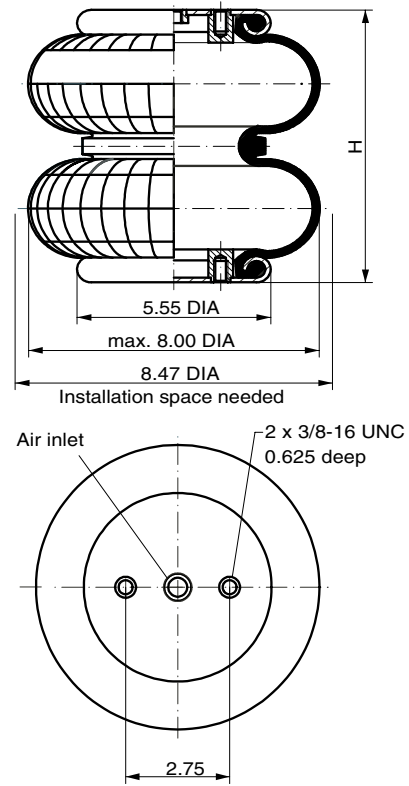
Installation Instruction – Torque rating
 Mounting Holes 3/8" = 15-20 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Double Convoluted Air Bellows

ASND18-4-1



Force-Height Diagram



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 4.8 lbs |

| Order Data | |
|---|----------------------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet 1/4 NPTF air inlet | ASND18-4-1 ASND18-4-1-2 |

Additional types on request

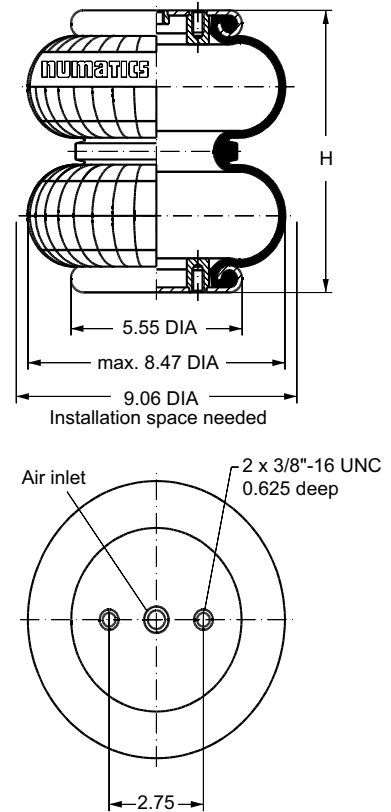
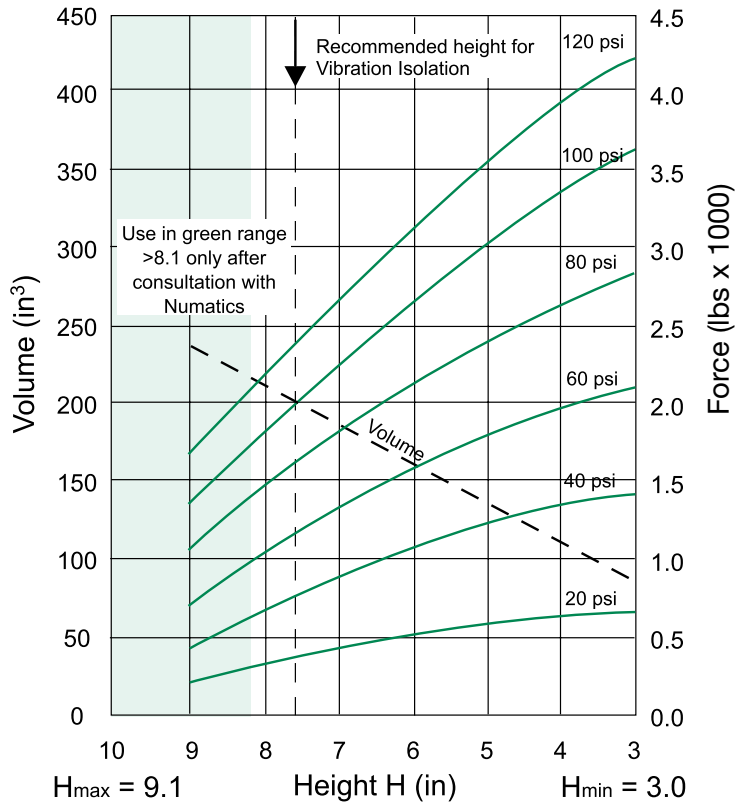
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|------|------|------|------|------------------------|
| Design Height H: Recommended 6.9 Inch, Minimum 6.1 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 700 | 1040 | 1390 | 1740 | 2090 | – |
| Spring Rate | (lbs/in) | 354 | 526 | 699 | 827 | 989 | 173 |
| Natural Frequency | (Hz) | 2.3 | 2.2 | 2.2 | 2.2 | 2.1 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|------|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 7 | 340 | 670 | 1010 | 1340 | 1680 | 2010 | 176 |
| | 6 | 430 | 850 | 1280 | 1710 | 2130 | 2560 | 158 |
| | 5 | 500 | 1000 | 1510 | 2010 | 2510 | 3010 | 133 |
| | 4 | 570 | 1150 | 1720 | 2300 | 2870 | 2440 | 107 |
| | 3 | 630 | 1270 | 1900 | 1900 | 2530 | 3160 | 70 |

Installation Instruction - Torque rating
 Mounting holes - 3/8" NPTF = 15-20 lb-ft
 Air Inlet - 3/4" NPTF = 40-50 lb-ft
 Air Inlet - 1/4" NPTF = 12-15 lb-ft

Numatics Double Convoluted Air Bellows

ASND18-5-1



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 5.1 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF Air inlet | ASND18-5-1 |
| 1/4 NPTF Air inlet | ASND18-5-1-2 |

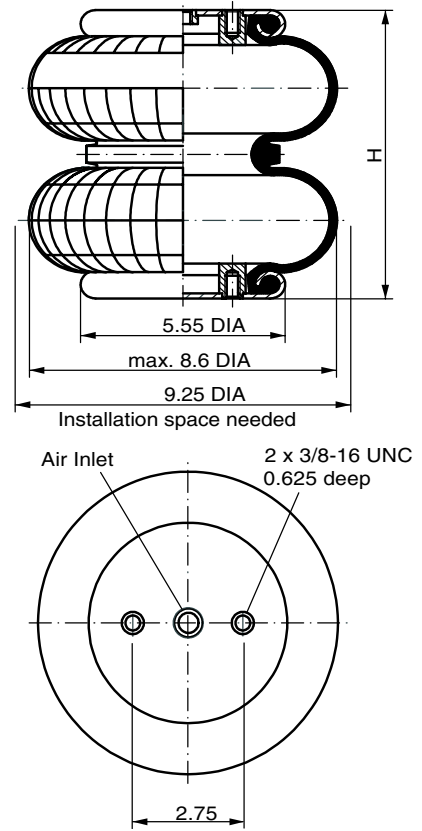
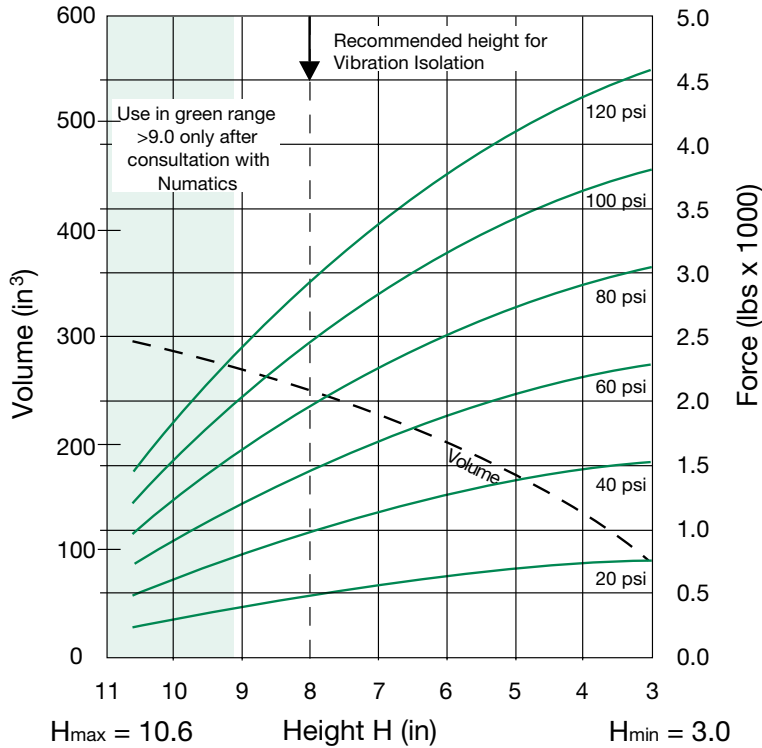
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|------|------|------|------|------------------------|
| Design Height H: Recommended 7.6 Inch, Minimum 6.9 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 800 | 1200 | 1600 | 2000 | 2390 | – |
| Spring Rate | (lbs/in) | 315 | 490 | 668 | 855 | 1033 | 202 |
| Natural Frequency | (Hz) | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|------|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 9 | 250 | 510 | 760 | 1020 | 1270 | 1530 | 230 |
| | 8 | 360 | 720 | 1090 | 1450 | 1810 | 2170 | 211 |
| | 7 | 450 | 900 | 1350 | 1800 | 2250 | 2700 | 186 |
| | 6 | 530 | 1050 | 1580 | 2110 | 2640 | 3160 | 154 |
| | 5 | 600 | 1190 | 1790 | 2390 | 2980 | 3580 | 141 |
| | 4 | 660 | 1320 | 1980 | 2640 | 3300 | 2960 | 107 |
| | 3 | 710 | 1420 | 2120 | 2830 | 3540 | 4250 | 82 |

Installation Instruction – Torque rating
 Mounting Holes 3/8" = 15-20 lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Double Convoluted Air Bellows

ASND18-6-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 5.1 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet | ASND18-6-1 |
| 1/4 NPTF air inlet | ASND18-6-1-2 |

Additional types on request

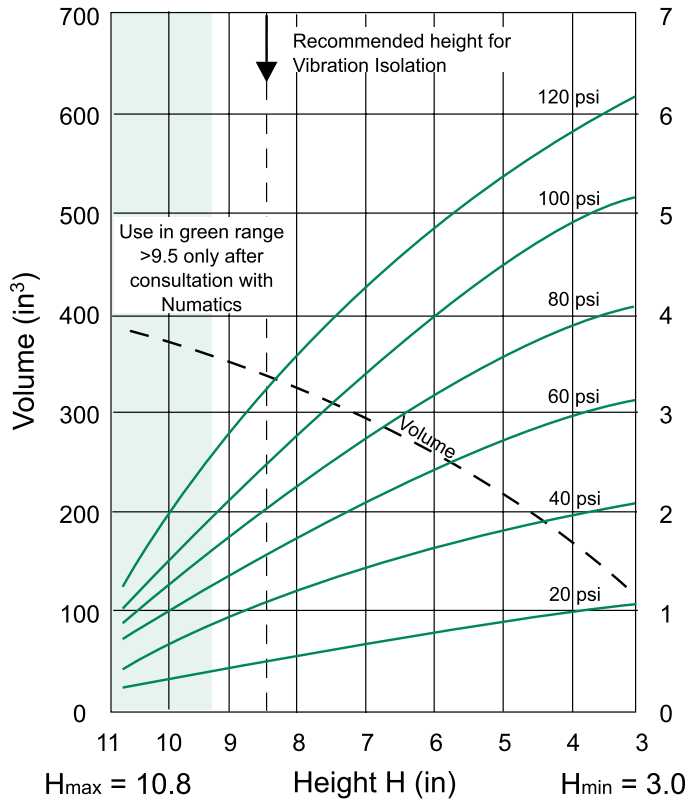
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|------|------|------|------|------------------------|
| Design Height H: Recommended 8.0 Inch, Minimum 7.5 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 970 | 1450 | 1940 | 2420 | 2910 | – |
| Spring Rate | (lbs/in) | 341 | 496 | 649 | 782 | 910 | 250 |
| Natural Frequency | (Hz) | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|------|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 9 | 400 | 800 | 1200 | 1600 | 2000 | 2400 | 270 |
| | 8 | 480 | 970 | 1450 | 1940 | 2420 | 2910 | 250 |
| | 7 | 560 | 1120 | 1680 | 2230 | 2790 | 3350 | 228 |
| | 6 | 630 | 1260 | 1890 | 2530 | 3160 | 3790 | 197 |
| | 5 | 690 | 1380 | 2070 | 2760 | 3450 | 4140 | 166 |
| | 4 | 730 | 1460 | 2200 | 2930 | 3660 | 4390 | 135 |

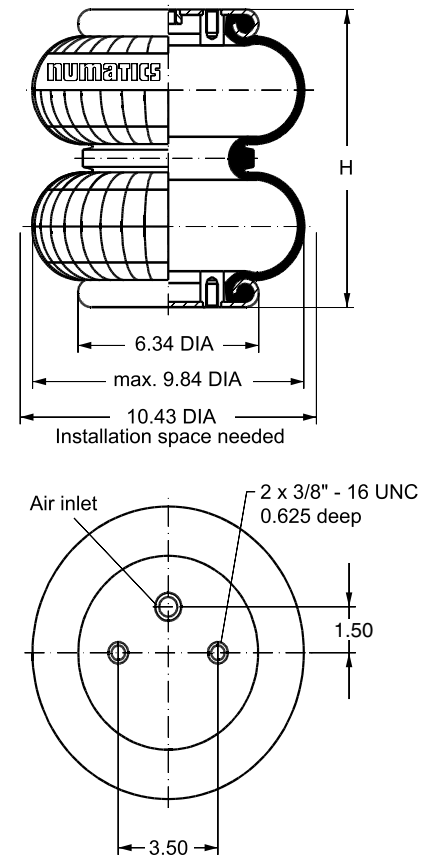
Installation Instructions - Torque rating
 Mounting holes - 3/8" = 15-20 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft
 Air Inlet - 3/4" NPTF = 40-50 lb-ft

Numatics Double Convoluted Air Bellows

ASND31-6-1



Force-Height Diagram



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 7 lbs |

| Order Data | |
|--|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet 1.5 inch exccentric | ASND31-6-1 |
| 1/4 NPTF air inlet | ASND31-6-1-2 |

Additional types on request

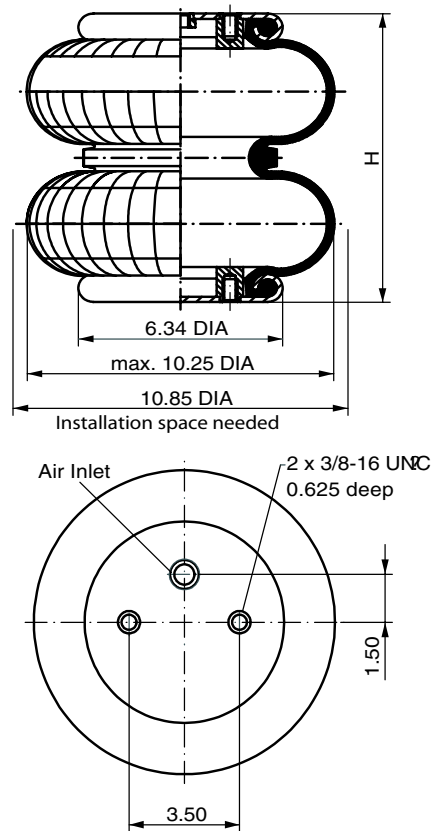
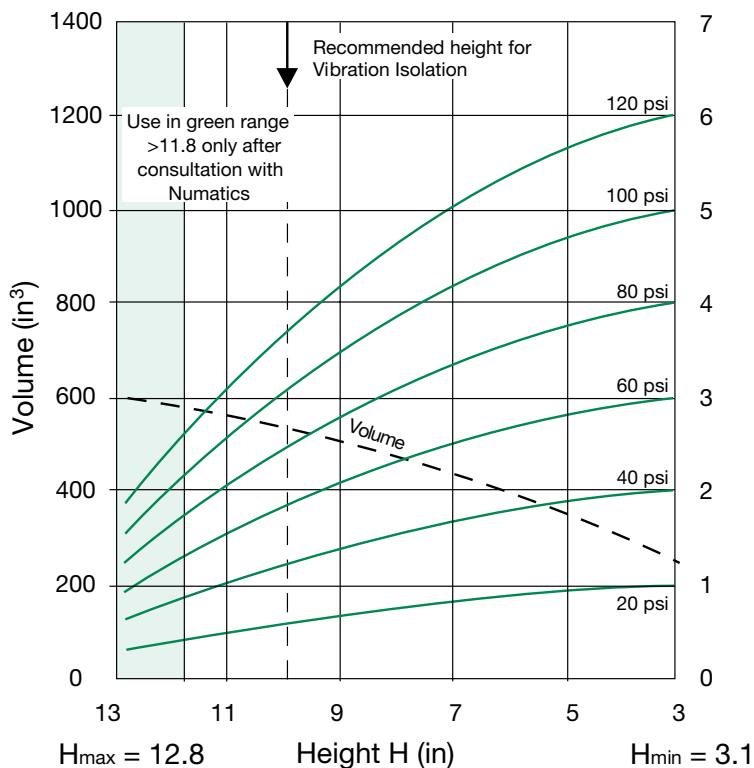
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|------|------|------|------|------|------------------------|
| Design Height H: Recommended 8.5 Inch, Minimum 7.7 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 1040 | 1560 | 2080 | 2600 | 3120 | – |
| Spring Rate | (lbs/in) | 417 | 608 | 797 | 976 | 1163 | 333 |
| Natural Frequency | (Hz) | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 9 | 450 | 910 | 1360 | 1820 | 2270 | 2730 | 352 |
| | 8 | 580 | 1160 | 1740 | 2320 | 2900 | 3480 | 325 |
| | 7 | 690 | 1380 | 2070 | 2770 | 3460 | 4150 | 290 |
| | 6 | 790 | 1590 | 2380 | 3180 | 3970 | 4760 | 256 |
| | 5 | 960 | 1930 | 2890 | 3850 | 4820 | 5780 | 168 |
| | 4 | 960 | 1930 | 2890 | 3850 | 4820 | 5780 | 168 |
| | 3 | 1020 | 2040 | 3060 | 4080 | 5100 | 6120 | 119 |

Installation Instructions - Torque rating
 Mounting holes - 3/8" = 15-20 lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft
 Air Inlet - 1/4" NPTF = 12-15 lb-ft

Numatics Double Convoluted Air Bellows

ASND31-8-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 67 lbs |
| Overall Weight with Clamped Plates | 7.7 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet | ASND31-8-1 |
| 1/4 NPTF air inlet | ASND31-8-1-2 |

Additional types on request

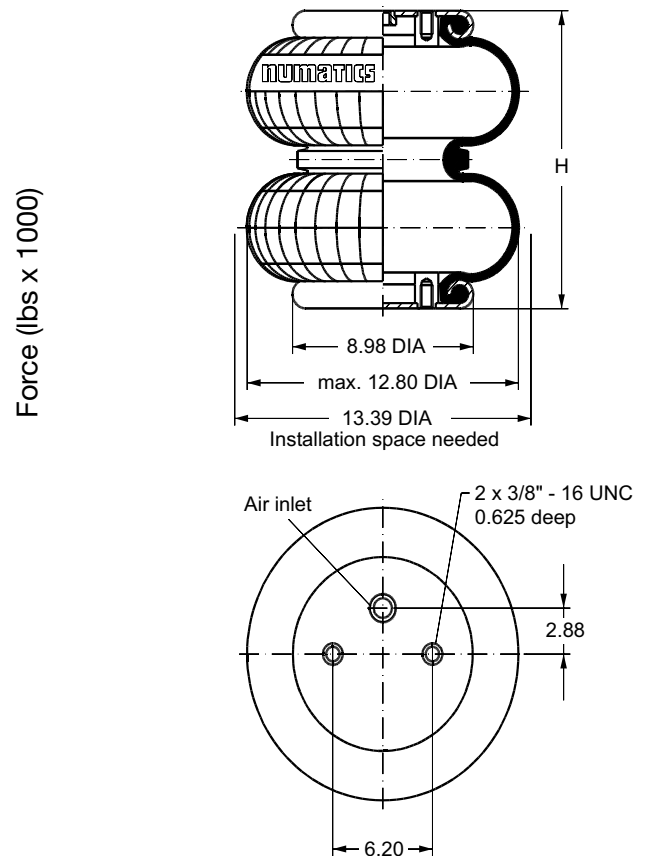
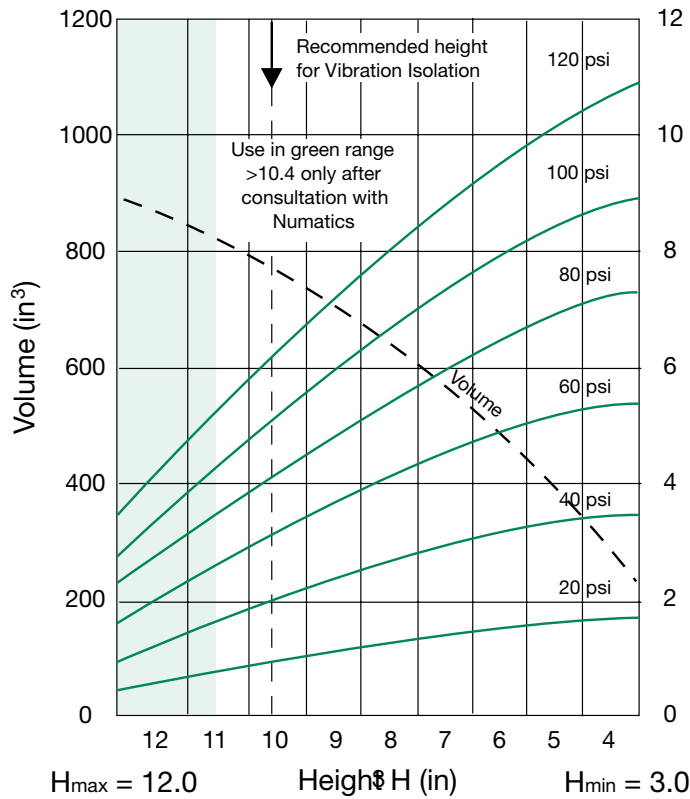
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|------|------|------|------|------|------------------------|
| Design Height H: Recommended 10.0 Inch, Minimum 9.06 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 1220 | 1830 | 2440 | 3050 | 3660 | – |
| Spring Rate | (lbs/in) | 383 | 549 | 756 | 934 | 1087 | 538 |
| Natural Frequency | (Hz) | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|------|------|------|------|------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 11 | 510 | 1020 | 1530 | 2030 | 2540 | 3050 | 563 |
| | 10 | 610 | 1220 | 1830 | 2440 | 3050 | 3660 | 538 |
| | 9 | 700 | 1400 | 2100 | 2800 | 3500 | 4200 | 510 |
| | 8 | 770 | 1530 | 2300 | 3070 | 3830 | 4600 | 474 |
| | 7 | 840 | 1670 | 2510 | 3340 | 4180 | 5010 | 437 |
| | 6 | 890 | 1780 | 2670 | 3560 | 4440 | 5330 | 396 |
| | 5 | 930 | 1870 | 2800 | 3740 | 4670 | 5610 | 346 |

Installation Instructions - Torque rating
 Mounting holes - 3/8" = 15-20lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Double Convoluted Air Bellows

ASND51-7-1



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 67 lbs |
| Overall Weight with Clamped Plates | 10.6 lbs |

| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|------|------|------|------|------|------------------------|
| Design Height H: Recommended 9.5 Inch, Minimum 8.7 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 2100 | 3150 | 4200 | 5250 | 6300 | – |
| Spring Rate | (lbs/in) | 835 | 1122 | 1392 | 1592 | 1854 | 766 |
| Natural Frequency | (Hz) | 2.0 | 1.9 | 1.8 | 1.7 | 1.7 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|------|------|------|--------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 10 | 1010 | 2020 | 3030 | 4030 | 5040 | 6050 | 793 |
| | 8 | 1280 | 2560 | 3840 | 5120 | 6400 | 7680 | 669 |
| | 6 | 1550 | 3100 | 4650 | 6200 | 7750 | 9300 | 518 |
| | 5 | 1650 | 3310 | 4960 | 6610 | 8270 | 9920 | 433 |
| | 4 | 1750 | 3500 | 5250 | 6990 | 8740 | 10,490 | 340 |
| | 3 | 1820 | 3630 | 5450 | 7270 | 9080 | 10,900 | 247 |

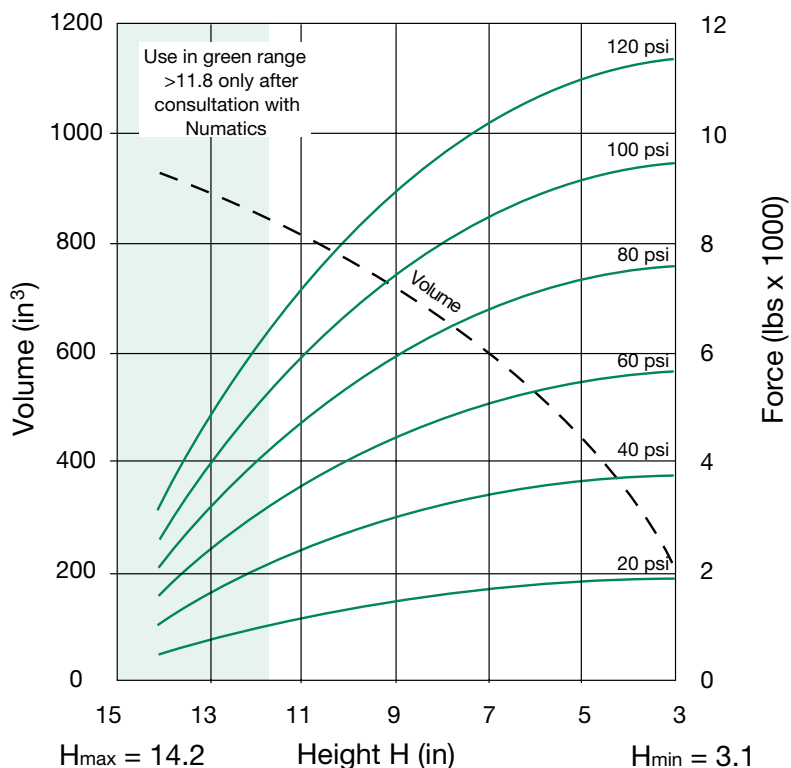
| Order Data | |
|--|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet 2.88 inch excentrical | ASND51-7-1 |
| 1/4 NPTF air inlet | ASND51-7-1-2 |

Additional types on request

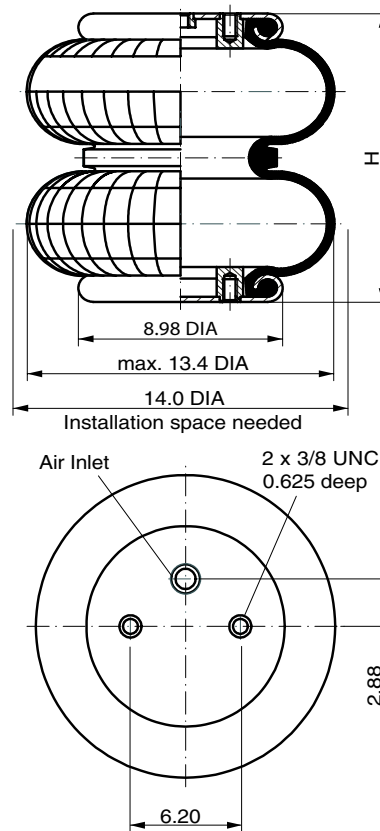
Installation Instruction – Torque rating
 Mounting Holes 3/8" = 15-20 lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Double Convoluted Air Bellows

ASND51-8-1



Force-Height Diagram



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 67 lbs |
| Overall Weight with Clamped Plates | 11.7 lbs |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|------|------|------|-------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 11 | 1190 | 2380 | 3580 | 4770 | 5960 | 7150 | 823 |
| | 9 | 1480 | 2960 | 4440 | 5920 | 7400 | 8890 | 726 |
| | 7 | 1690 | 3380 | 5070 | 6770 | 8460 | 10150 | 595 |
| | 5 | 1840 | 3670 | 5510 | 7340 | 9180 | 11020 | 431 |

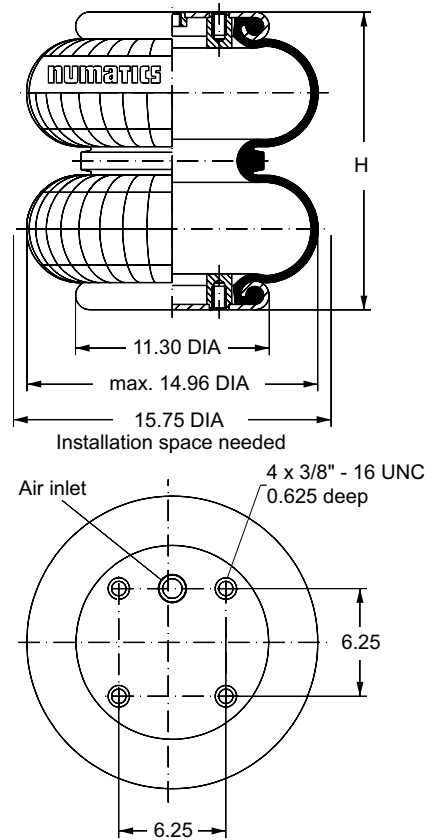
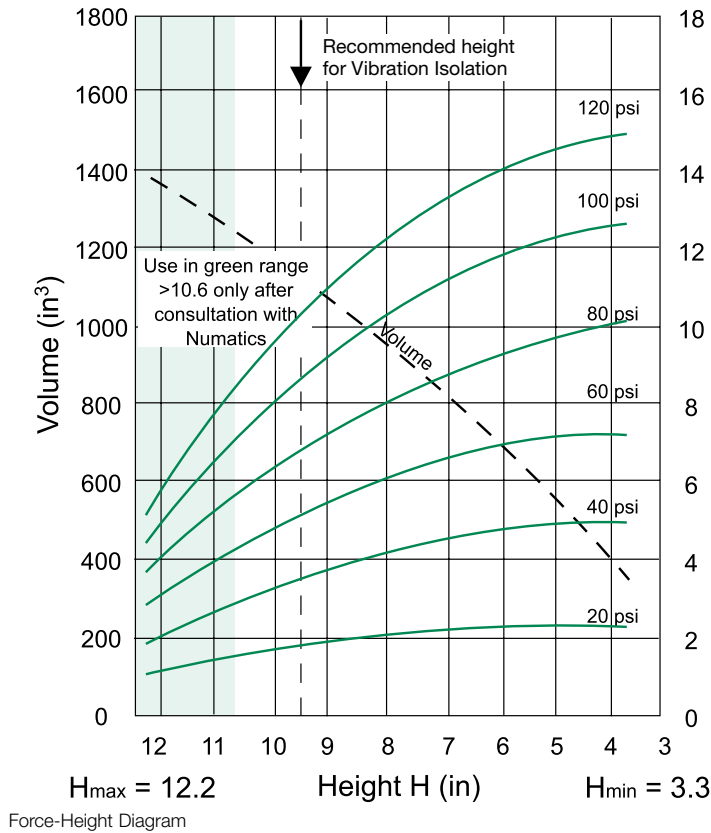
| Order Data | |
|---|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet | ASND51-8-1 |
| 1/4 NPTF air inlet | ASND51-8-1-2 |
| 2.88 Inch excentrical | |

Additional types on request

Installation Instruction - Torque rating
 Mounting holes - 3/8" = 15-20 lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Double Convoluted Air Bellows

ASND82-7-1



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 67 lbs |
| Overall Weight with Clamped Plates | 15.4 lbs |

| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|------|------|------|------|------|------------------------|
| Design Height H: Recommended 9.8 Inch, Minimum 8.9 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 3270 | 4900 | 6530 | 8170 | 9800 | – |
| Spring Rate | (lbs/in) | 1168 | 1689 | 2201 | 2680 | 3189 | 1132 |
| Natural Frequency | (Hz) | 1.9 | 1.8 | 1.8 | 1.8 | 1.8 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|------|--------|--------|--------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 10 | 1580 | 3160 | 4740 | 6320 | 7900 | 9480 | 1159 |
| | 9 | 1830 | 3650 | 5480 | 7310 | 9140 | 10,960 | 1041 |
| | 8 | 2030 | 4050 | 6080 | 8100 | 10,130 | 12,150 | 930 |
| | 7 | 2200 | 4410 | 6610 | 8820 | 11,020 | 13,220 | 819 |
| | 6 | 2340 | 4680 | 7020 | 9370 | 11,710 | 14,050 | 697 |
| | 5 | 2430 | 4870 | 7300 | 9370 | 12,170 | 14,600 | 561 |
| | 4 | 2500 | 5000 | 7500 | 10,000 | 12,500 | 15,000 | 434 |

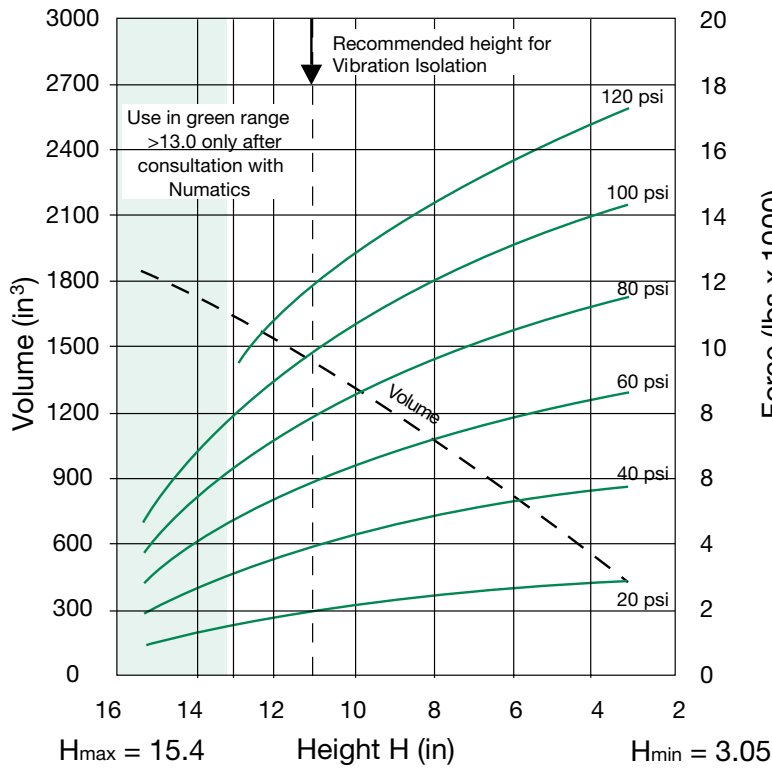
| Order Data | |
|--|--------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet 3.12 inch excentrical | ASND82-7-1 |
| 1/4 NPTF air inlet | ASND82-7-1-2 |

Additional types on request

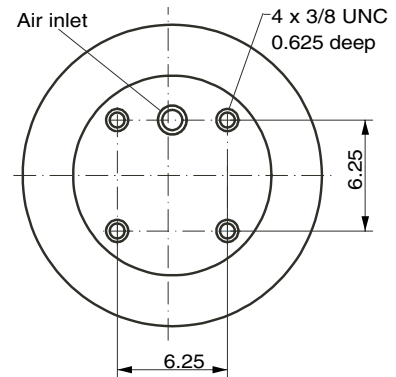
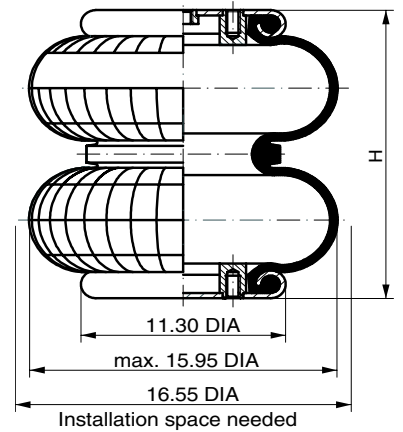
Installation Instruction – Torque rating
 Mounting Holes 3/8" = 15-20 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft

Numatics Double Convoluted Air Bellows

ASND82-10-1



Force-Height Diagram



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 90 lbs |
| Overall Weight with Clamped Plates | 17.1 lbs |

| Order Data | |
|---|---------------|
| Type | Model Number |
| With clamped plates 3/4 NPTF air inlet | ASND82-10-1 |
| 1/4 NPTF air inlet | ASND82-10-1-2 |

Additional types on request

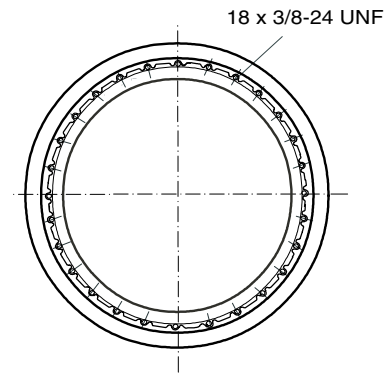
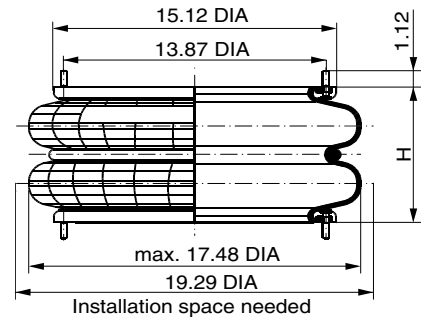
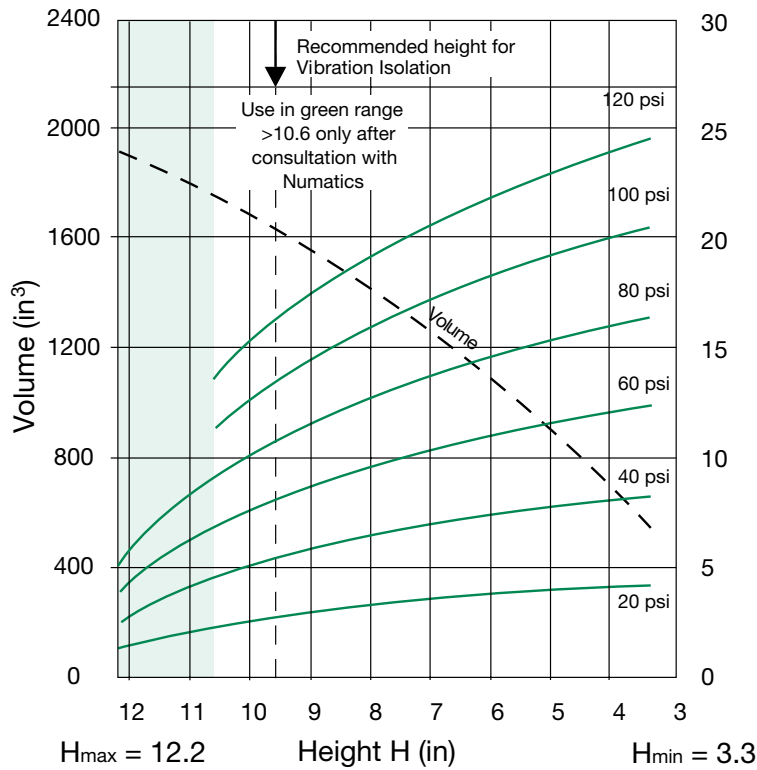
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|------|------|------|------|-------|------------------------|
| Design Height H: Recommended 11.0 Inch, Minimum 10.2 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 3960 | 5950 | 7930 | 9910 | 11890 | – |
| Spring Rate | (lbs/in) | 929 | 1329 | 1701 | 2047 | 2421 | 1410 |
| Natural Frequency | (Hz) | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|------|-------|-------|-------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 13 | 1580 | 3170 | 4750 | 6340 | 7920 | 9510 | 1628 |
| | 11 | 1980 | 3960 | 5950 | 7930 | 9910 | 11890 | 1411 |
| | 9 | 2270 | 4550 | 6820 | 9090 | 11370 | 13640 | 1199 |
| | 7 | 2500 | 5010 | 7510 | 10020 | 12520 | 15020 | 952 |
| | 5 | 2690 | 5370 | 8060 | 10750 | 13430 | 16120 | 694 |

Installation Instructions - Torque rating
Mounting holes - 3/8" = 15-20 lb-ft
Air Inlet 3/4" NPTF = 40-50 lb-ft
Air Inlet 1/4" NPTF = 12-15 lb-ft

Numatics Double Convoluted Air Bellows

ASND154-8-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 45 lbs |
| Overall Weight with Clamped Plates | 19 lbs |

| Order Data | |
|---|--------------|
| Type | Model Number |
| Bellow with bead rings, 1 7/8 bolts, nuts and washers | ASND154-8-1 |

Additional types on request

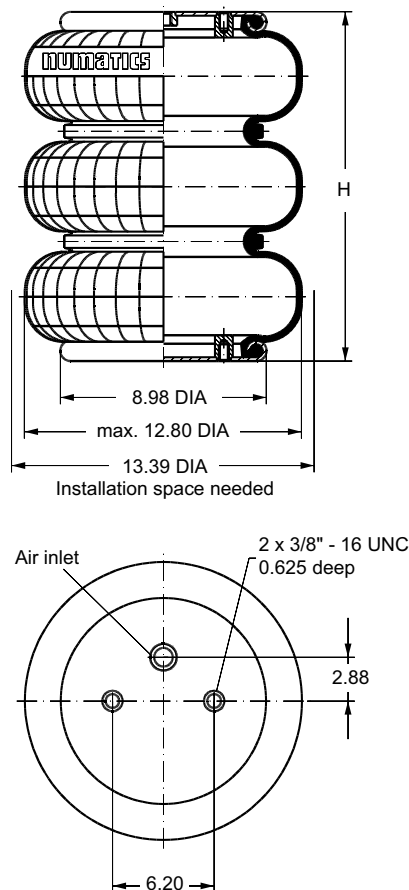
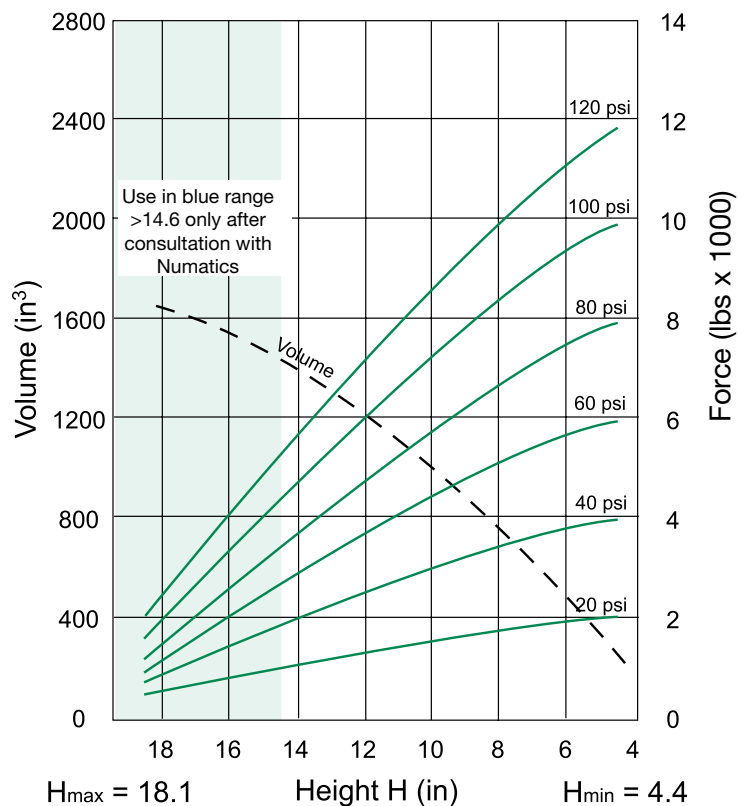
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|------|------|-------|-------|-------|------------------------|
| Design Height H: Recommended 9.5 Inch, Minimum 8.7 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 5450 | 8180 | 10900 | 13630 | 16350 | – |
| Spring Rate | (lbs/in) | 1638 | 2303 | 3005 | 3633 | 4317 | 1655 |
| Natural Frequency | (Hz) | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | – |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|-------|-------|-------|-------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 10 | 2520 | 5040 | 7560 | 10080 | 12600 | 15130 | 1687 |
| | 9 | 2890 | 5790 | 8680 | 11580 | 14470 | 17370 | 1566 |
| | 8 | 3190 | 6380 | 9560 | 12750 | 15940 | 19130 | 1423 |
| | 7 | 3420 | 6840 | 10260 | 13680 | 17100 | 20520 | 1265 |
| | 6 | 3630 | 7260 | 10890 | 14510 | 18140 | 21770 | 1081 |
| | 5 | 3800 | 7610 | 11410 | 15220 | 19020 | 22830 | 896 |
| | 4 | 3990 | 7980 | 11970 | 15960 | 19950 | 23940 | 688 |

Installation Instruction - Torque rating
Mounting holes - 3/8" = 28-32 lb-ft

Numatics Triple Convuluted Air Bellows

ASNT51-11-1



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 90 lbs |
| Overall Weight with Clamped Plates | 18.4 lbs |

| Order Data | |
|--|---------------|
| Type | Model Number |
| With Clamped Plates 3/4 NPTF Air Inlet 2.88 inch excentrical | ASNT51-11-1 |
| 1/4 NPTF Air Inlet | ASNT51-11-1-2 |

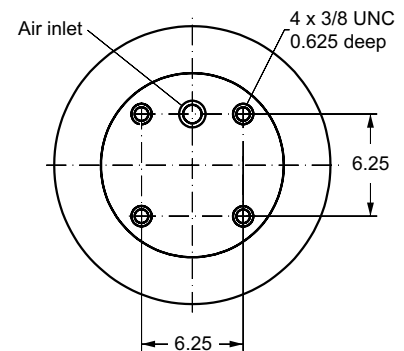
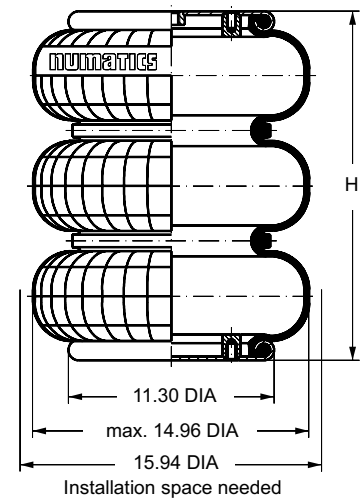
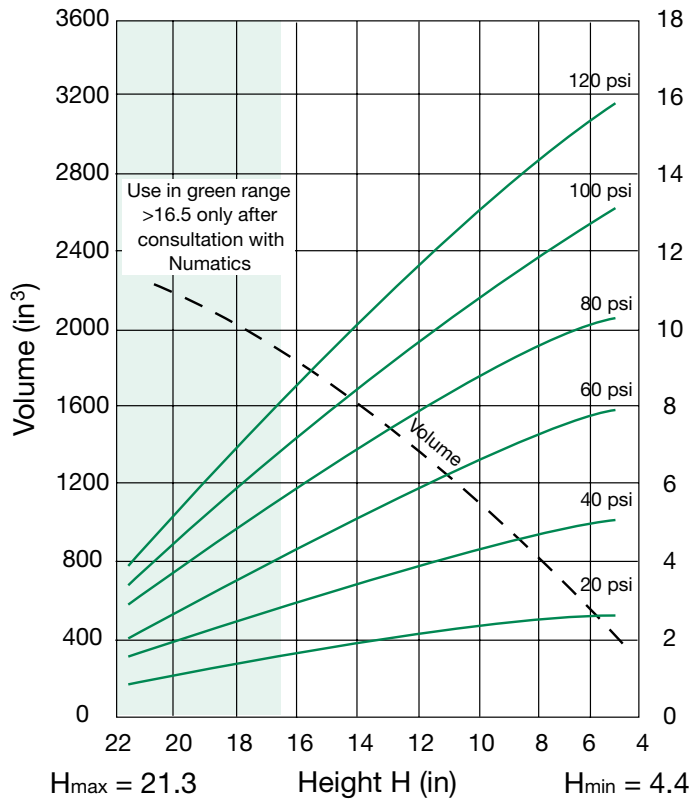
| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|------|------|------|--------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 14 | 920 | 1840 | 2760 | 3680 | 4600 | 5520 | 1390 |
| | 12 | 1190 | 2380 | 3570 | 4760 | 5950 | 7140 | 1227 |
| | 10 | 1430 | 2860 | 4300 | 5730 | 7160 | 8590 | 1023 |
| | 8 | 1640 | 3270 | 4910 | 6540 | 8180 | 9820 | 782 |
| | 6 | 1830 | 3670 | 5500 | 7330 | 9170 | 11,000 | 504 |

Additional types on request

Installation Instruction — Torque rating
 Mounting Holes 3/8" = 15-20 lb-ft
 Air Inlet 1/4" NPTF = 12-15 lb-ft
 Air Inlet 3/4" NPTF = 40-50 lb-ft

Numatics Triple Convuluted Air Bellows

ASNT82-12-1



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 90 lbs |
| Overall Weight with Clamped Plates | 21 lbs |

| Order Data | |
|--|---------------|
| Type | Model Number |
| With Clamped Plates 3/4 NPTF Air Inlet 3.12 inch excentrical | ASNT82-12-1 |
| 1/4 NPTF Air Inlet | ASNT82-12-1-2 |

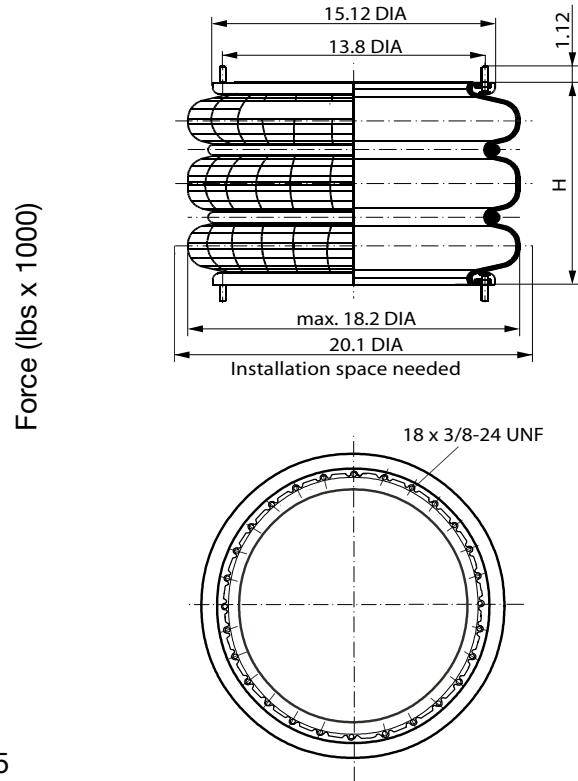
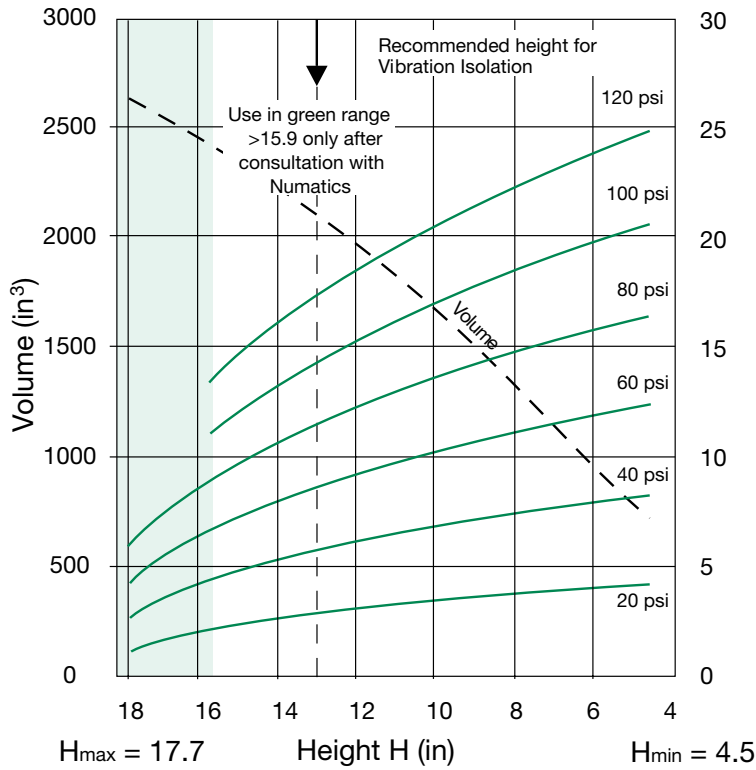
| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|------|--------|--------|--------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 16 | 1450 | 2900 | 4360 | 5810 | 7260 | 8710 | 1803 |
| | 14 | 1720 | 3450 | 5170 | 6900 | 8620 | 10,350 | 1588 |
| | 12 | 1970 | 3940 | 5910 | 7890 | 9860 | 11,830 | 1354 |
| | 10 | 2170 | 4350 | 6520 | 8700 | 10,870 | 13,050 | 1140 |
| | 8 | 2370 | 4740 | 7120 | 9490 | 11,860 | 14,230 | 887 |
| | 6 | 2520 | 5030 | 7550 | 10,060 | 12,580 | 15,100 | 610 |

Additional types on request

Installation Instruction — Torque rating
Mounting Holes 3/8" = 15-20 lb-ft
Air Inlet 1/4" NPTF = 12-15 lb-ft
Air Inlet 3/4" NPTF = 40-50 lb-ft

Numatics Triple Convulated Air Bellows

ASNT154-12-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|-----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 135 lbs |
| Overall Weight with Clamped Plates | 21 lbs |

| Order Data | |
|--|--------------|
| Type | Model Number |
| Bellow with bead rings, 1 7/8 bolts, nuts and washers | ASNT154-12-1 |

Additional types on request

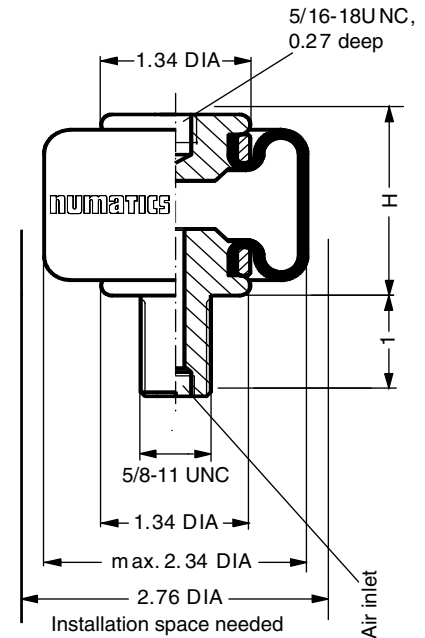
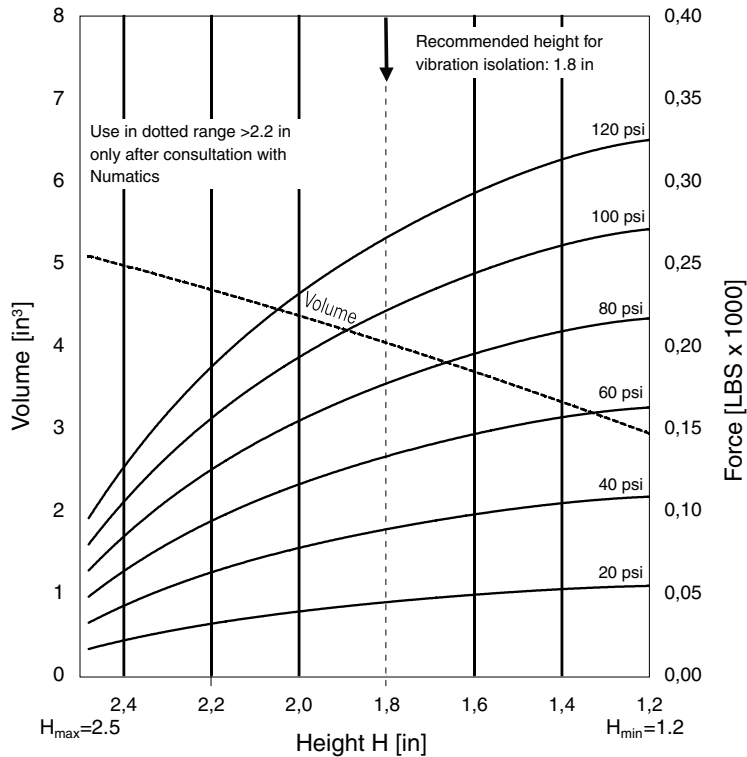
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|------|------|-------|-------|-------|------------------------|
| Design Height H: Recommended 13 Inch, Minimum 12.4 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 5770 | 8650 | 11530 | 14420 | 17300 | – |
| Spring Rate | (lbs/in) | 1144 | 1659 | 2079 | 2610 | 3029 | 2125 |
| Natural Frequency | (Hz) | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | – |

Installation Instructions - torque rating
Mounting holes - 3/8" = 28-32 lb-ft

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|------|------|-------|-------|-------|-------|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 15 | 2420 | 4830 | 7250 | 9670 | 12080 | 14500 | 2368 |
| | 13 | 2880 | 5770 | 8650 | 11530 | 14420 | 17300 | 2125 |
| | 11 | 3270 | 6530 | 9800 | 13070 | 16330 | 19600 | 1846 |
| | 9 | 3560 | 7130 | 10690 | 14250 | 17820 | 21380 | 1511 |
| | 7 | 3830 | 7650 | 11480 | 15300 | 19130 | 22950 | 1161 |

Numatics Sleeve Type Air Spring

ASNC2-1-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|---------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 5 lbs |
| Overall Weight with Clamped Plates | 0.5 lbs |

| Order Data | |
|-------------------------|--------------|
| Type | Model Number |
| With 1/8 NPTF Air Inlet | ASNC2-1-1 |

| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|-----|-----|-----|-----|------------------------|
| Design Height H: Recommended 1.8 Inch, Minimum 1.4 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 88 | 132 | 176 | 220 | 264 | |
| Spring Rate | (lbs/in) | 110 | 154 | 195 | 231 | 272 | 4.0 |
| Natural Frequency | (Hz) | 3.5 | 3.4 | 3.3 | 3.2 | 3.2 | |

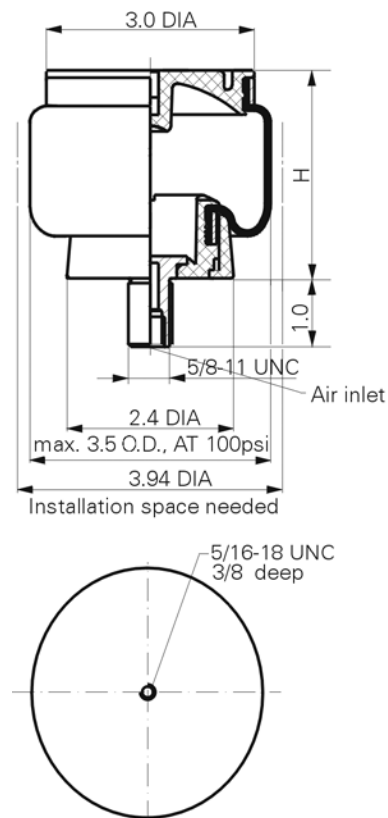
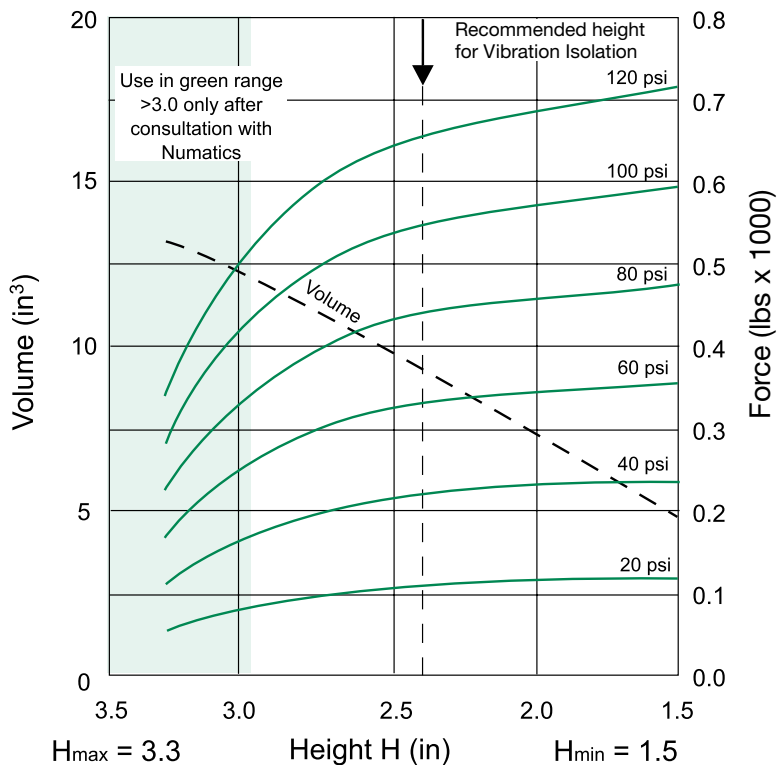
Additional types on request

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|----|-----|-----|-----|-----|-----|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 2.2 | 31 | 62 | 92 | 123 | 154 | 185 | 4.7 |
| | 1.8 | 44 | 88 | 132 | 176 | 220 | 264 | 4.0 |
| | 1.4 | 52 | 104 | 156 | 208 | 260 | 312 | 3.3 |

Installation Instruction — Torque rating
 5/16-18 UNC = 2-4 lb-ft
 5/8-11 UNC = 8-10 lb-ft
 1/8 NPTF = Handtight plus one turn.

Numatics Sleeve Type Air Bellows

ASNC6-1-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 34 lbs |
| Overall Weight with Clamped Plates | 0.7 lbs |

| Order Data | |
|---------------------------------------|--------------|
| Type | Model Number |
| With 1/8" NPTF Air Inlet - Brass Stud | ASNC6-1-1 |

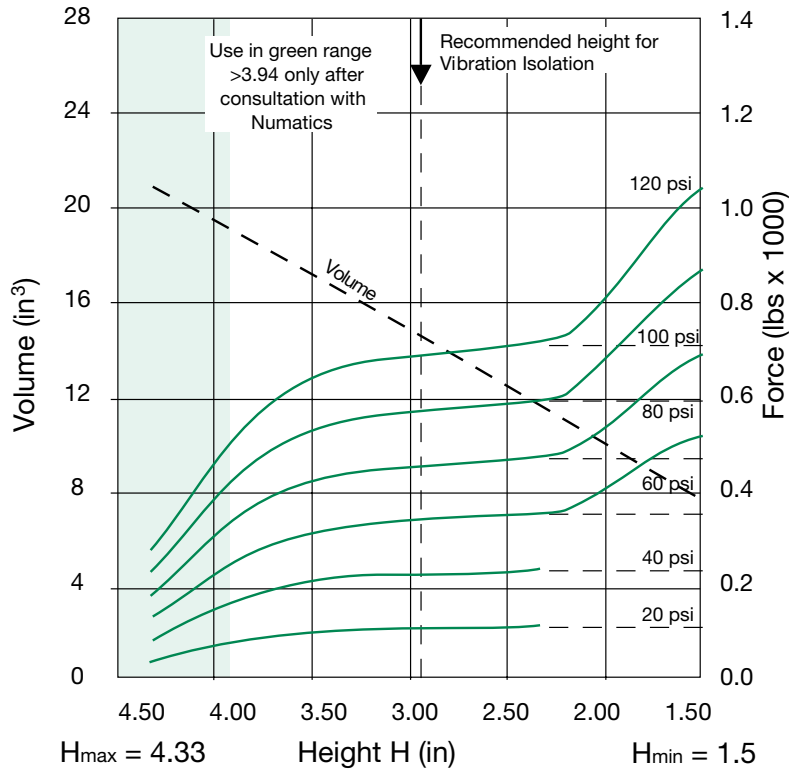
| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|-----|-----|-----|-----|-----|------------------------|
| Design Height H: Recommended 13 Inch, Minimum 12.4 Inch | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 220 | 330 | 440 | 550 | 660 | - |
| Spring Rate | (lbs/in) | 171 | 242 | 315 | 377 | 443 | 9 |
| Natural Frequency | (Hz) | 2.7 | 2.7 | 2.7 | 2.6 | 2.6 | - |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|-----|-----|-----|-----|-----|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 3 | 90 | 170 | 260 | 340 | 430 | 510 | 12 |
| | 2.5 | 110 | 210 | 320 | 430 | 530 | 640 | 10 |
| | 2 | 110 | 230 | 340 | 460 | 570 | 690 | 7 |

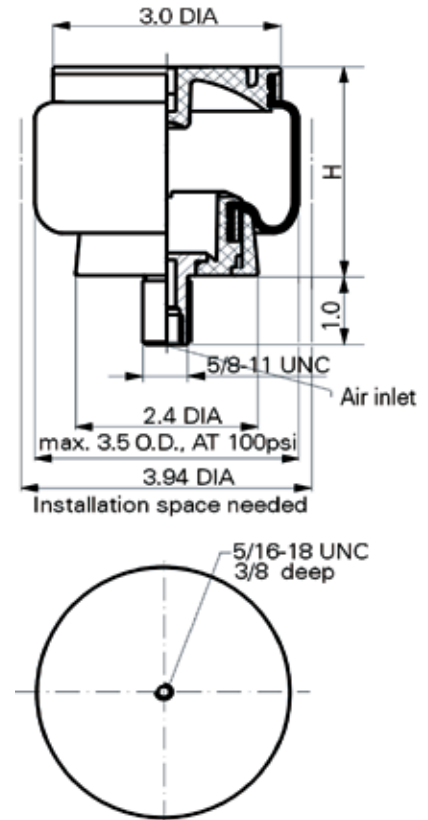
Installation Instruction – Torque rating
 Mounting Stud 5/16" = 2-4 lb x ft
 5/8" - 11 UNC = 8-10 lb x ft
 Air Inlet 1/8" NPTF = Handtight plus one turn

Numatics Sleeve Type Air Bellows

ASNC6-2-1



Force-Height Diagram



| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 0 PSI |
| Return Force to Min. Height | ≤ 34 lbs |
| Overall Weight with Clamped Plates | 0.66 lbs |

| Order Data | |
|---------------------------------------|--------------|
| Type | Model Number |
| With 1/8" NPTF Air Inlet - Brass Stud | ASNC6-2-1 |

| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|--|----------|-----|-----|-----|-----|-----|------------------------|
| Design Height H: Recommended 2.95 Inch, lateral guidance necessary | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | 230 | 340 | 460 | 570 | 690 | – |
| Spring Rate | (lbs/in) | 159 | 221 | 272 | 310 | 363 | 15 |
| Natural Frequency | (Hz) | 2.7 | 2.5 | 2.4 | 2.3 | 2.3 | – |

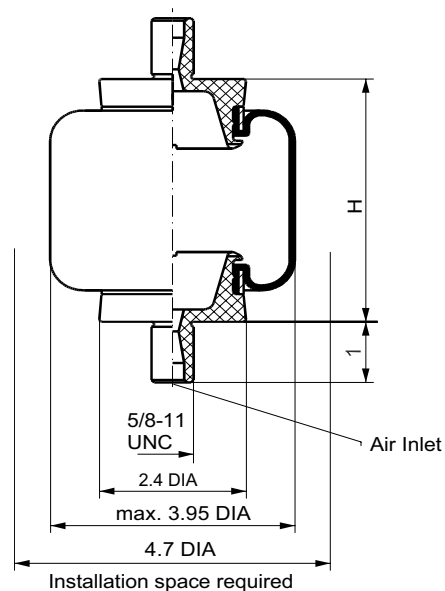
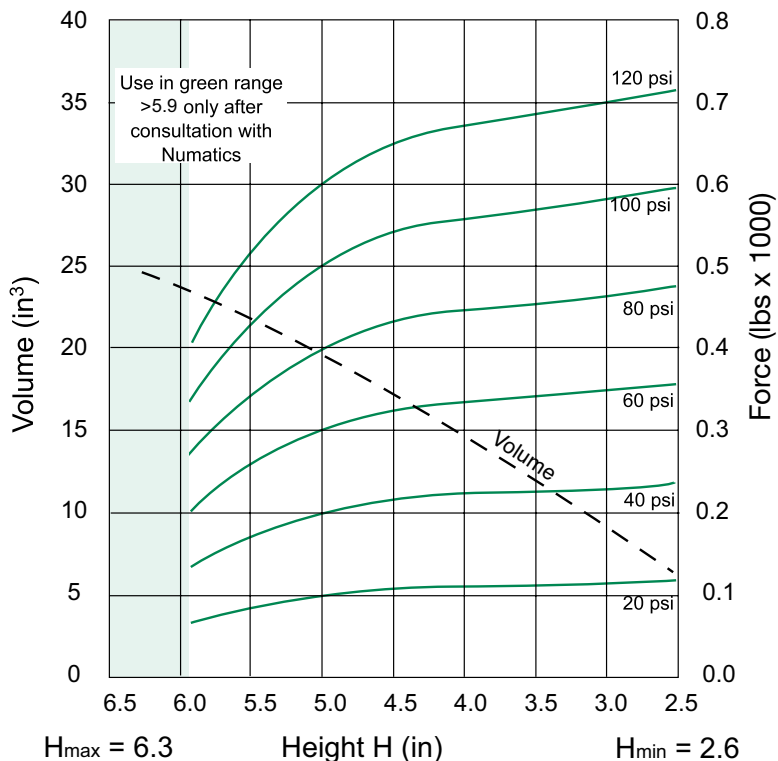
Installation Instruction –
 5/16-18 UNC = 2-4 lb-ft
 5/8-11 UNC = 8-10 lb-ft
 1/8 NPTF = Handtight plus one turn

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|-----|-----|-----|-----|-----|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 3.5 | 100 | 210 | 310 | 420 | 520 | 630 | 17.2 |
| | 3 | 110 | 230 | 340 | 460 | 570 | 80 | 14.9 |
| | 2.5 | 120 | 240 | 360 | 470 | 590 | 710 | 12.5 |

Note:
 The dotted lines on the static load curves shows the force of the ASNC6-2-1 with an additional 0.6inch. pedestal under the piston. This pedestal is NOT provided by Numatics. If this pedestal is not used, then the bellows will contact the ground at a height of approx. 2.2inch. This should be avoided because it could cause wear at the bellows. Minimum pressure for service without pedestal is 45psi.

Numatics Sleeve Type Air Bellows

ASNC6-3-1



Force-Height Diagram

| Technical Data | |
|------------------------------------|----------|
| Min. Pressure | 5 PSI |
| Return Force to Min. Height | ≤ 34 lbs |
| Overall Weight with Clamped Plates | 0.9 lbs |

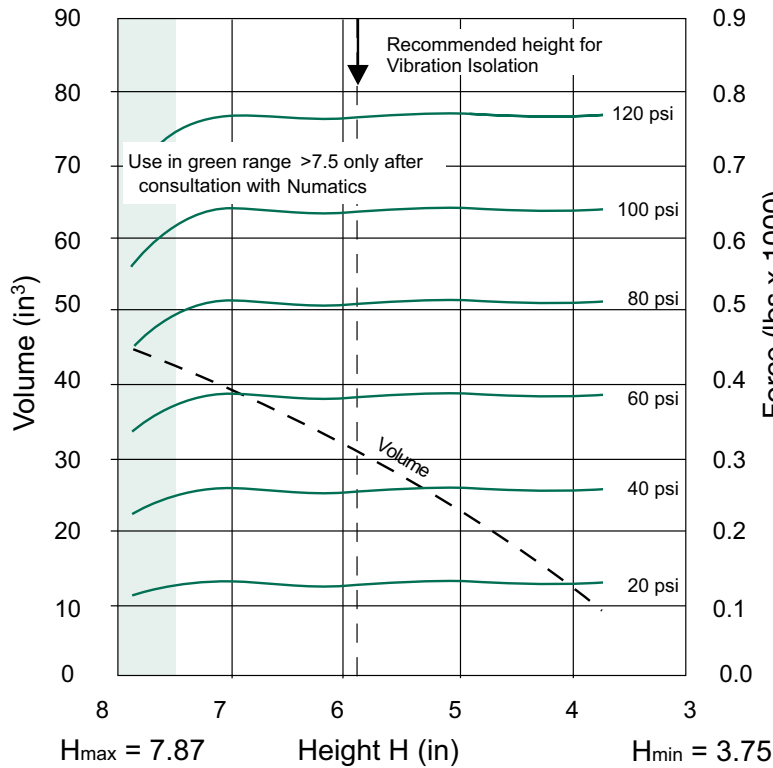
| Order Data | |
|---|--------------|
| Type | Model Number |
| With 1/8" NPTF Air Inlet - Brass Stud at both ends | ASNC6-3-1 |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|-----|-----|-----|-----|-----|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 3 | 130 | 270 | 400 | 540 | 670 | 800 | 10 |
| | 3.5 | 130 | 260 | 400 | 530 | 660 | 790 | 13 |
| | 4 | 130 | 260 | 390 | 520 | 650 | 780 | 16 |
| | 4.5 | 120 | 240 | 360 | 480 | 500 | 720 | 19 |
| | 5 | 100 | 210 | 310 | 420 | 520 | 630 | 23 |
| | 5.5 | 80 | 160 | 240 | 320 | 400 | 480 | 25 |

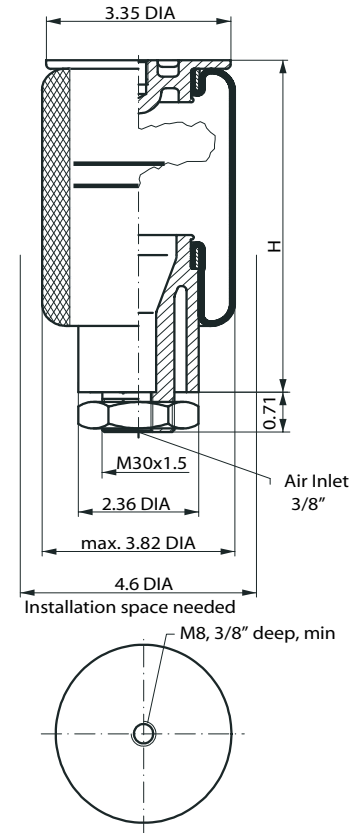
Installation Instruction
 5/8-11 UNC = 8-10 lb-ft
 1/8 NPTF = Handtight plus one turn

Numatics Sleeve Type Air Bellows

ASNC8-4-1



Force-Height Diagram



| Technical Data | |
|------------------------------------|-----------|
| Min. Pressure | 13.05 PSI |
| Return Force to Min. Height | ≤ 101 lbs |
| Overall Weight with Clamped Plates | 1.15 lbs |

| Order Data | |
|---------------------|--------------|
| Type | Model Number |
| With 3/8" Air Inlet | ASNC8-4-1 |

Additional types on request

| Vibration Isolation – Dynamic Characteristic Values | | | | | | | |
|---|----------|----|----|----|-----|-----|------------------------|
| Design Height H: Recommended 5.9 Inch, lateral guidance necessary | | | | | | | |
| Pressure p | (psi) | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Force (Load) | (lbs) | | | | | | - |
| Spring Rate | (lbs/in) | | | | | | 31 |
| Natural Frequency | (Hz) | | | | | | - |

| Pneumatic Application – Static Characteristic Values | | | | | | | | |
|--|-------|-----|-----|-----|-----|-----|-----|------------------------|
| Force F (lbs) | | | | | | | | |
| Pressure p | (psi) | 20 | 40 | 60 | 80 | 100 | 120 | Vol (in ³) |
| Height H (in) | 7 | 130 | 260 | 380 | 510 | 640 | 770 | 39 |
| | 6 | 130 | 260 | 380 | 510 | 640 | 770 | 32 |
| | 5 | 130 | 260 | 380 | 510 | 640 | 770 | 25 |
| | 4 | 130 | 260 | 380 | 510 | 640 | 770 | 18 |

Installation Instruction
M8 = 4 LBxFT
M30x1.5 = 28 LBxFT
G 3/8 = 7 LBxFT



World Class Supplier of Pneumatic Components



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