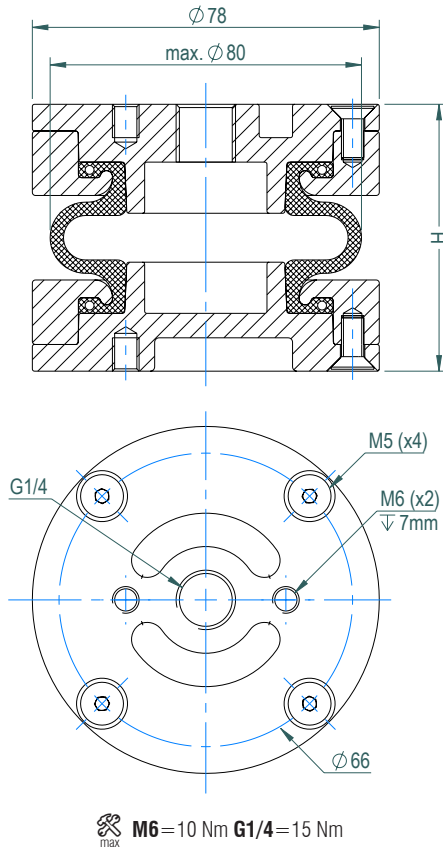


D SERIES
Dismountable Design

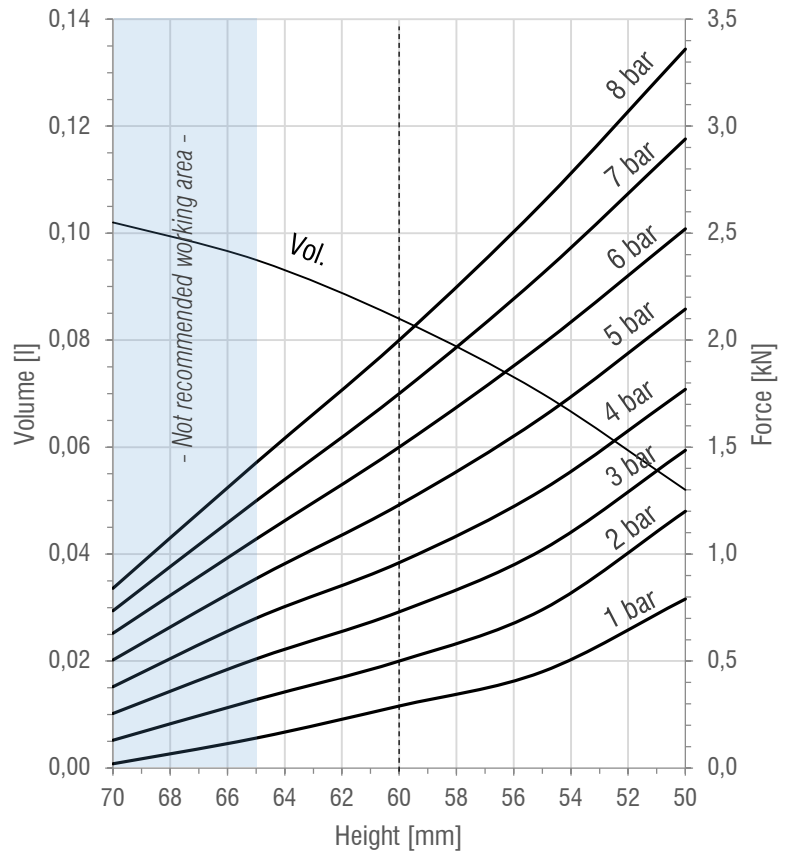
2 3/4" X 1

SINGLE
CONVOLUTION

DRAWING



FORCE-HEIGHT CHART



TECHNICAL DATA

PRODUCT CHARACTERISTICS

| | |
|--|-----|
| Static diameter [mm] | 70 |
| Max. diameter [mm] | 80 |
| Required space diameter [mm] | 95 |
| Min. height [mm] | 50 |
| Static height [mm] | 60 |
| Design height [mm] | 60 |
| Max. usable height [mm] | 65 |
| Max. stroke [mm] | 15 |
| Force to compress to H_{\min} at 0 bar [N] | 200 |
| Weight [kg] | 0,5 |

REFERENCES

| | |
|-------|-----------------------------|
| 2x1_B | Rubber bellow only |
| 2x1_D | With aluminium end closures |

Additional designs on request.

DYNAMIC CHARACTERISTICS FOR USE AS ISOLATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-------------------------|-------|-------|-------|-------|-------|----------|
| Load [kN] | 0,73 | 0,96 | 1,23 | 1,50 | 1,75 | 0,08 |
| Spring rate [N/mm] | 83 | 94 | 111 | 128 | 148 | |
| Natural frequency [Hz] | 5,33 | 4,95 | 4,75 | 4,62 | 4,61 | |
| Isolation rate at 10 Hz | 60,3% | 67,5% | 70,9% | 72,9% | 73,1% | |

Values at recommended design height H : 60 mm -----

STATIC CHARACTERISTICS FOR USE AS ACTUATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] | |
|-----------------|----|------|------|------|------|----------|------|
| Height H [mm] | 50 | 1,49 | 1,77 | 2,15 | 2,52 | 2,94 | 0,05 |
| | 55 | 1,02 | 1,30 | 1,64 | 1,98 | 2,31 | 0,07 |
| | 60 | 0,73 | 0,96 | 1,23 | 1,50 | 1,75 | 0,08 |
| | 65 | 0,51 | 0,70 | 0,89 | 1,07 | 1,25 | 0,10 |

Force values [kN]

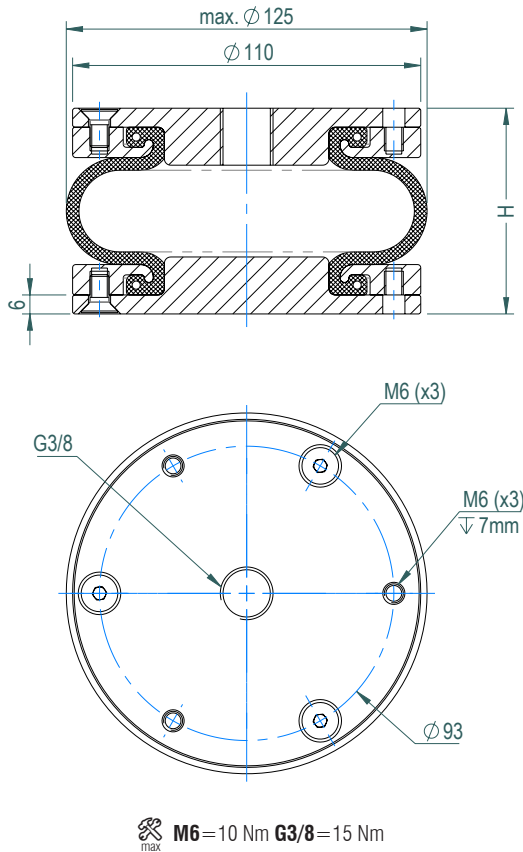
All Volume [l] values at 7 bar

D SERIES
Dismountable Design

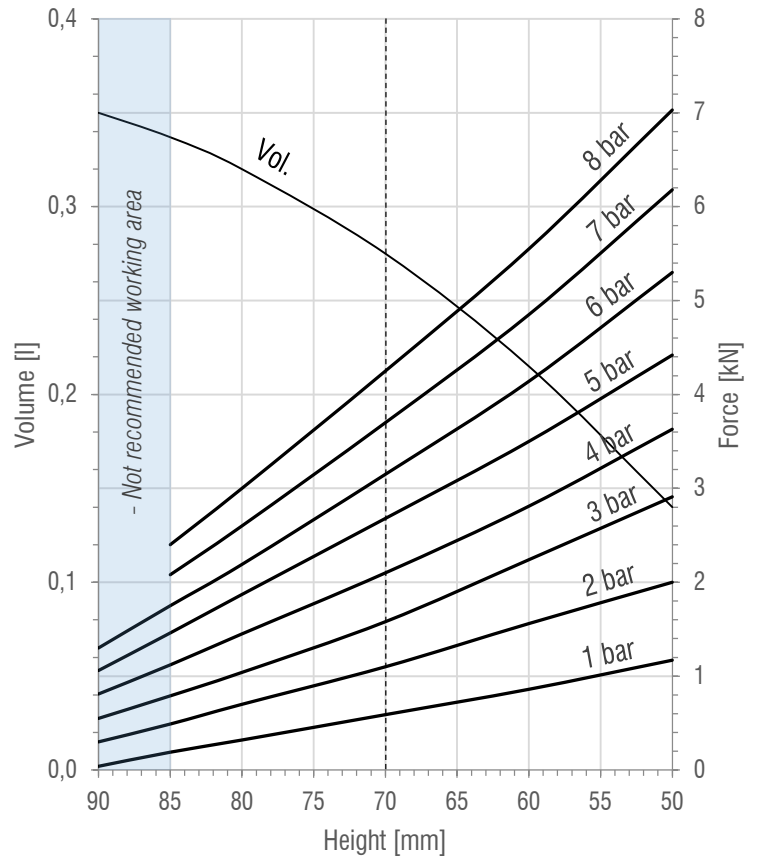
4½" x 1

SINGLE
CONVOLUTION

DRAWING



FORCE-HEIGHT CHART



TECHNICAL DATA

PRODUCT CHARACTERISTICS

| | |
|---|-----|
| Static diameter [mm] | 114 |
| Max. diameter [mm] | 125 |
| Required space diameter [mm] | 140 |
| Min. height [mm] | 50 |
| Static height [mm] | 65 |
| Design height [mm] | 70 |
| Max. usable height [mm] | 85 |
| Max. stroke [mm] | 35 |
| Force to compress to H_{min} at 0 bar [N] | 120 |
| Weight [kg] | 0,8 |

REFERENCES

| | |
|-------|-----------------------------|
| 4x1_B | Rubber bellow only |
| 4x1_D | With aluminium end closures |

Designs available with stainless steel and high temperature rubber compounds. Additional designs on request.

DYNAMIC CHARACTERISTICS FOR USE AS ISOLATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-------------------------|-------|-------|-------|-------|-------|----------|
| Load [kN] | 1,58 | 2,10 | 2,68 | 3,15 | 3,70 | 0,28 |
| Spring rate [N/mm] | 115 | 141 | 170 | 195 | 225 | |
| Natural frequency [Hz] | 4,26 | 4,10 | 3,98 | 3,94 | 3,90 | |
| Isolation rate at 10 Hz | 77,8% | 79,8% | 81,2% | 81,7% | 82,1% | |

Values at recommended design height H: 70 mm -----

STATIC CHARACTERISTICS FOR USE AS ACTUATOR

| Pressure [bar] | | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|----------------|----|------|------|------|------|------|----------|
| Height H [mm] | 50 | 2,91 | 3,63 | 4,42 | 5,3 | 6,18 | 0,14 |
| | 60 | 2,24 | 2,81 | 3,5 | 4,14 | 4,85 | 0,22 |
| | 70 | 1,58 | 2,1 | 2,68 | 3,15 | 3,7 | 0,28 |
| | 80 | 1,04 | 1,45 | 1,87 | 2,19 | 2,6 | 0,32 |

Force values [kN]

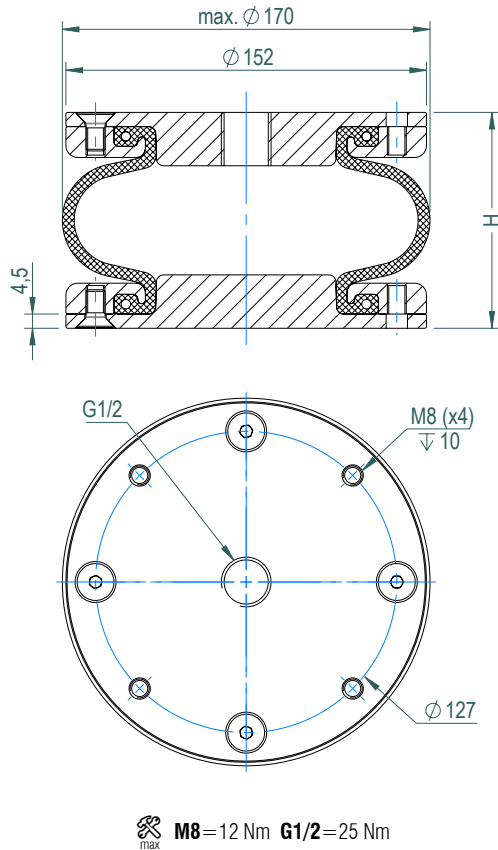
All Volume [l] values at 7 bar

D SERIES
Dismountable Design

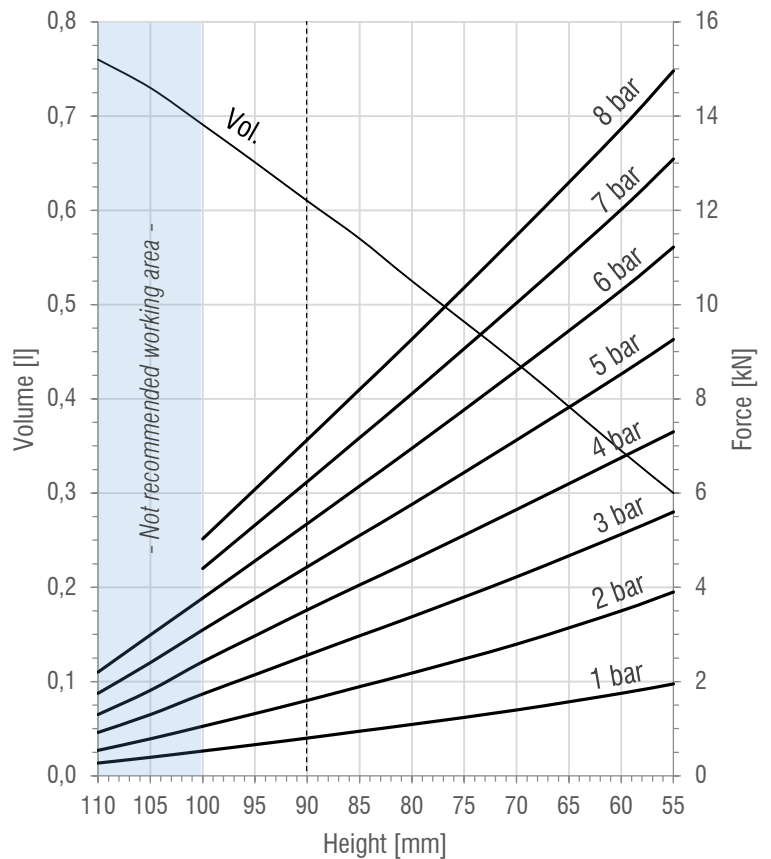
6"x1 AL

SINGLE
CONVOLUTION

DRAWING



FORCE-HEIGHT CHART



TECHNICAL DATA

PRODUCT CHARACTERISTICS

| | |
|---|-----|
| Static diameter [mm] | 155 |
| Max. diameter [mm] | 170 |
| Required space diameter [mm] | 185 |
| Min. height [mm] | 55 |
| Static height [mm] | 85 |
| Design height [mm] | 90 |
| Max. usable height [mm] | 100 |
| Max. stroke [mm] | 45 |
| Force to compress to H_{min} at 0 bar [N] | 200 |
| Weight [kg] | 1,8 |

REFERENCES

| | |
|----------|-----------------------------|
| 6x1_B | Rubber bellow only |
| 6x1_D_AL | With aluminium end closures |

Designs available with stainless steel and high temperature rubber compounds. Additional designs on request.

DYNAMIC CHARACTERISTICS FOR USE AS ISOLATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-------------------------|-------|-------|-------|-------|-------|----------|
| Load [kN] | 2,6 | 3,5 | 4,4 | 5,4 | 6,2 | 0,6 |
| Spring rate [N/mm] | 152 | 197 | 242 | 287 | 332 | |
| Natural frequency [Hz] | 3,86 | 3,74 | 3,70 | 3,66 | 3,65 | |
| Isolation rate at 10 Hz | 82,5% | 83,7% | 84,2% | 84,5% | 84,7% | |

Values at recommended design height H : 90 mm -----

STATIC CHARACTERISTICS FOR USE AS ACTUATOR

| Pressure [bar] | | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-----------------|-----|-----|-----|-----|------|------|----------|
| Height H [mm] | 60 | 5,1 | 6,8 | 8,5 | 10,3 | 12,0 | 0,3 |
| | 70 | 4,2 | 5,7 | 7,1 | 8,6 | 10,0 | 0,4 |
| | 80 | 3,4 | 4,6 | 5,8 | 7,0 | 8,1 | 0,5 |
| | 90 | 2,6 | 3,5 | 4,4 | 5,4 | 6,2 | 0,6 |
| | 100 | 1,7 | 2,4 | 3,1 | 3,8 | 4,4 | 0,7 |

Force values [kN]

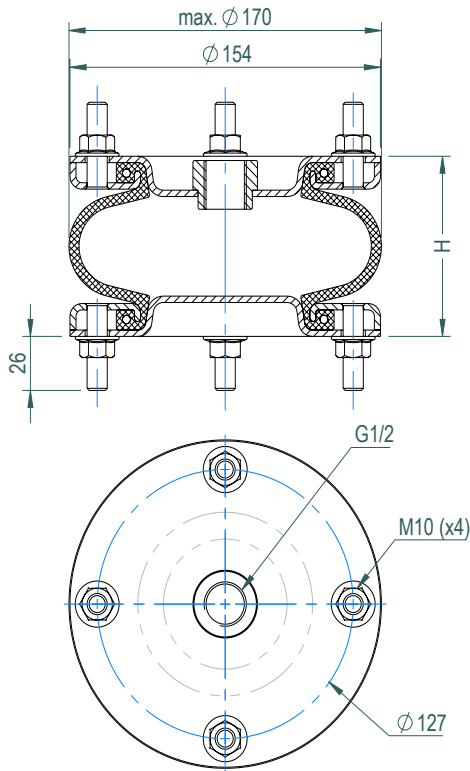
All Volume [l] values at 7 bar

D SERIES
Dismountable Design

6"x1 ST

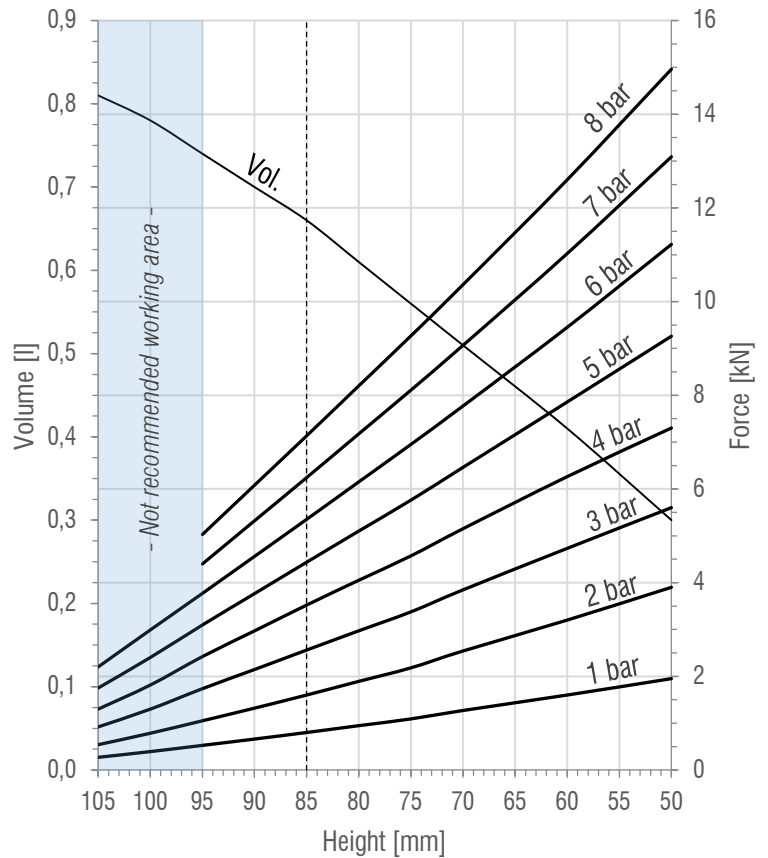
SINGLE
CONVOLUTION

DRAWING



M10=25 Nm **G1/2**=25 Nm

FORCE-HEIGHT CHART



TECHNICAL DATA

PRODUCT CHARACTERISTICS

| | |
|---|-----|
| Static diameter [mm] | 155 |
| Max. diameter [mm] | 170 |
| Required space diameter [mm] | 185 |
| Min. height [mm] | 50 |
| Static height [mm] | 80 |
| Design height [mm] | 85 |
| Max. usable height [mm] | 95 |
| Max. stroke [mm] | 45 |
| Force to compress to H_{min} at 0 bar [N] | 200 |
| Weight [kg] | 2,3 |

REFERENCES

| | |
|-----------------|-------------------------|
| 6x1_B | Rubber bellow only |
| 6x1_D_ST | With steel end closures |

Designs available with stainless steel and high temperature rubber compounds. Additional designs on request.

DYNAMIC CHARACTERISTICS FOR USE AS ISOLATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-------------------------|-------|-------|-------|-------|-------|----------|
| Load [kN] | 2,6 | 3,5 | 4,4 | 5,4 | 6,2 | 0,7 |
| Spring rate [N/mm] | 156 | 202 | 249 | 294 | 340 | |
| Natural frequency [Hz] | 3,91 | 3,79 | 3,74 | 3,71 | 3,69 | |
| Isolation rate at 10 Hz | 82,0% | 83,2% | 83,7% | 84,0% | 84,2% | |

Values at recommended design height H: 85 mm -----

STATIC CHARACTERISTICS FOR USE AS ACTUATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] | |
|----------------|-----|-----|-----|-----|------|----------|-----|
| Height H [mm] | 50 | 5,6 | 7,3 | 9,3 | 11,2 | 13,1 | 0,3 |
| | 60 | 4,7 | 6,3 | 7,9 | 9,5 | 11,0 | 0,4 |
| | 70 | 3,8 | 5,2 | 6,5 | 7,8 | 9,1 | 0,5 |
| | 80 | 3,0 | 4,1 | 5,1 | 6,2 | 7,2 | 0,6 |
| | 90 | 2,1 | 3,0 | 3,8 | 4,6 | 5,3 | 0,7 |
| | 100 | 1,3 | 1,8 | 2,4 | 3,0 | 0,0 | 0,8 |

Force values [kN]

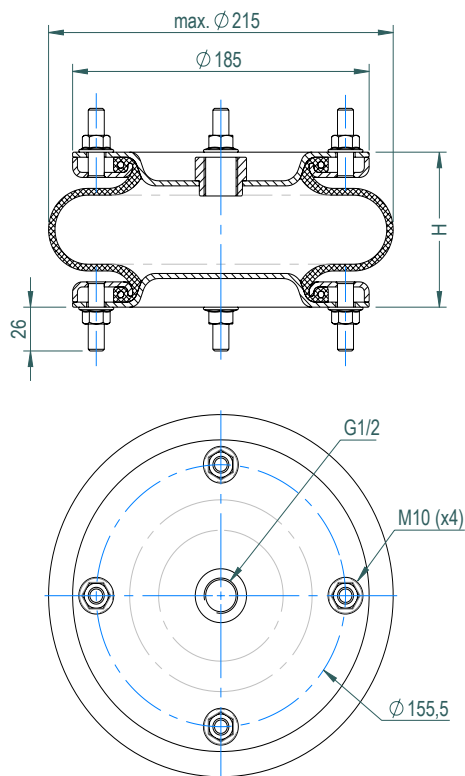
All Volume [l] values at 7 bar

D SERIES
Dismountable Design

8"x1

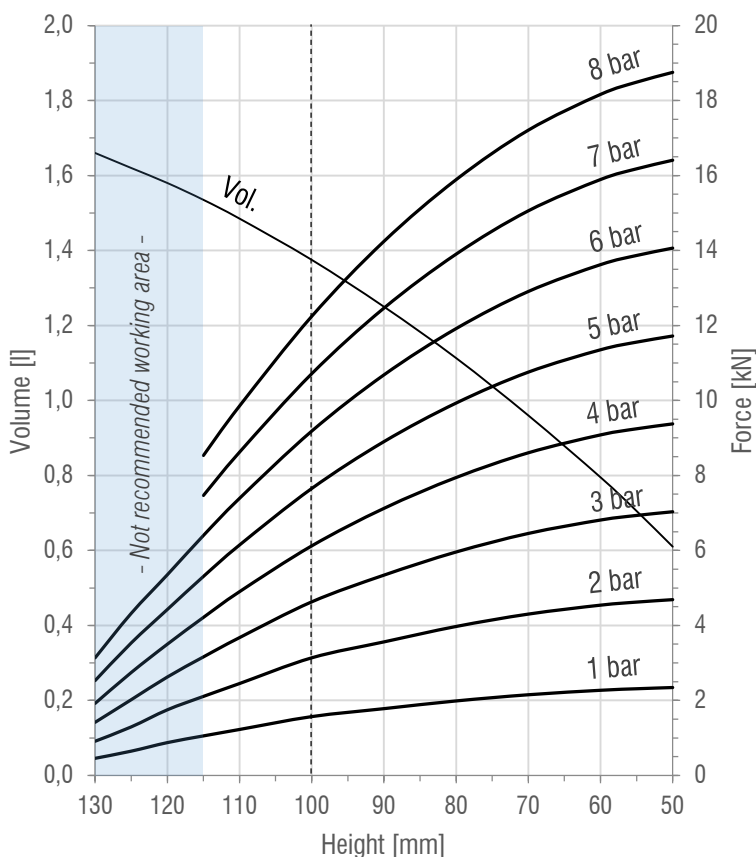
SINGLE
CONVOLUTION

DRAWING



M10=25 Nm **G1/2=25 Nm**

FORCE-HEIGHT CHART



TECHNICAL DATA

PRODUCT CHARACTERISTICS

| | |
|---|-----|
| Static diameter [mm] | 202 |
| Max. diameter [mm] | 215 |
| Required space diameter [mm] | 230 |
| Min. height [mm] | 50 |
| Static height [mm] | 85 |
| Design height [mm] | 100 |
| Max. usable height [mm] | 115 |
| Max. stroke [mm] | 65 |
| Force to compress to H_{min} at 0 bar [N] | 160 |
| Weight [kg] | 3,2 |

REFERENCES

| | |
|-------|-------------------------|
| 8x1_B | Rubber bellow only |
| 8x1_D | With steel end closures |

Designs available with stainless steel and high temperature rubber compounds. Additional designs on request.

DYNAMIC CHARACTERISTICS FOR USE AS ISOLATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-------------------------|-------|-------|-------|-------|-------|----------|
| Load [kN] | 4,6 | 6,1 | 7,7 | 9,2 | 10,7 | 1,4 |
| Spring rate [N/mm] | 158 | 205 | 250 | 296 | 342 | |
| Natural frequency [Hz] | 2,92 | 2,89 | 2,86 | 2,84 | 2,83 | |
| Isolation rate at 10 Hz | 90,7% | 90,9% | 91,1% | 91,2% | 91,3% | |

Values at recommended design height H : 100 mm -----

STATIC CHARACTERISTICS FOR USE AS ACTUATOR

| Pressure [bar] | | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-----------------|-----|-----|-----|------|------|------|----------|
| Height H [mm] | 50 | 7,0 | 9,4 | 11,7 | 14,1 | 16,4 | 0,6 |
| | 60 | 6,8 | 9,1 | 11,4 | 13,6 | 15,9 | 0,8 |
| | 70 | 6,5 | 8,6 | 10,8 | 12,9 | 15,1 | 1,0 |
| | 80 | 6,0 | 7,9 | 9,9 | 11,9 | 13,9 | 1,1 |
| | 90 | 5,3 | 7,1 | 8,9 | 10,7 | 12,5 | 1,3 |
| | 100 | 4,6 | 6,1 | 7,7 | 9,2 | 10,7 | 1,4 |
| | 110 | 3,7 | 4,9 | 6,1 | 7,4 | 8,6 | 1,5 |

Force values [kN]

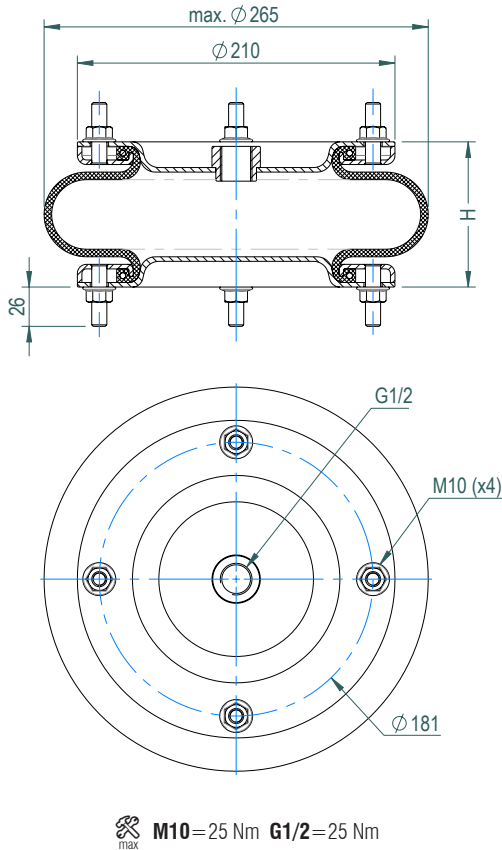
All Volume [l] values at 7 bar

D SERIES
Dismountable Design

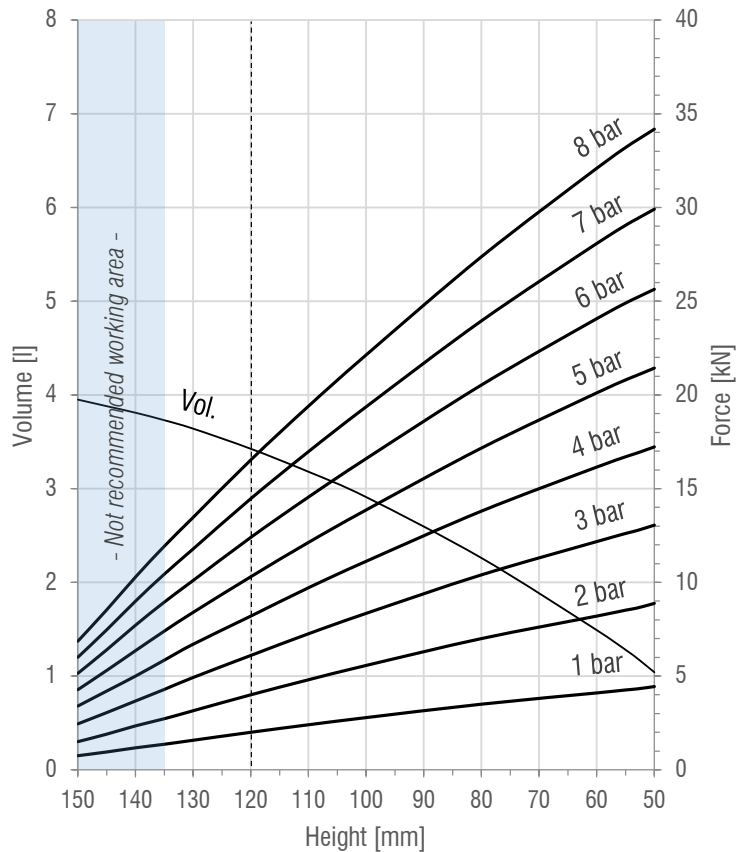
10"x1

SINGLE
CONVOLUTION

DRAWING



FORCE-HEIGHT CHART



TECHNICAL DATA

PRODUCT CHARACTERISTICS

| | |
|---|------|
| Static diameter [mm] | 252 |
| Max. diameter [mm] | 265 |
| Required space diameter [mm] | 295 |
| Min. height [mm] | 50 |
| Static height [mm] | 90 |
| Design height [mm] | 120 |
| Max. usable height [mm] | 135 |
| Max. stroke [mm] | 85 |
| Force to compress to H_{min} at 0 bar [N] | 70 |
| Weight [kg] | 3,95 |

REFERENCES

| | |
|--------|-------------------------|
| 10x1_B | Rubber bellow only |
| 10x1_D | With steel end closures |

Designs available with stainless steel and high temperature rubber compounds. Additional designs on request.

DYNAMIC CHARACTERISTICS FOR USE AS ISOLATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-------------------------|-------|-------|-------|-------|-------|----------|
| Load [kN] | 6,1 | 8,2 | 10,3 | 12,4 | 14,5 | 3,4 |
| Spring rate [N/mm] | 195 | 250 | 306 | 362 | 419 | |
| Natural frequency [Hz] | 2,83 | 2,76 | 2,72 | 2,70 | 2,69 | |
| Isolation rate at 10 Hz | 91,3% | 91,7% | 92,0% | 92,1% | 92,2% | |

Values at recommended design height H: 120 mm -----

STATIC CHARACTERISTICS FOR USE AS ACTUATOR

| Pressure [bar] | | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|----------------|-----|------|------|------|------|------|----------|
| Height H [mm] | 50 | 13,1 | 17,2 | 21,4 | 25,6 | 29,9 | 1,0 |
| | 60 | 12,2 | 16,2 | 20,1 | 24,1 | 28,1 | 1,5 |
| | 80 | 10,4 | 13,8 | 17,2 | 20,5 | 24,0 | 2,3 |
| | 100 | 8,3 | 11,1 | 13,9 | 16,6 | 19,4 | 2,9 |
| | 110 | 7,3 | 9,7 | 12,1 | 14,6 | 17,0 | 3,2 |
| | 120 | 6,1 | 8,2 | 10,3 | 12,4 | 14,5 | 3,4 |
| | 130 | 4,9 | 6,7 | 8,4 | 10,1 | 11,8 | 3,6 |

Force values [kN]

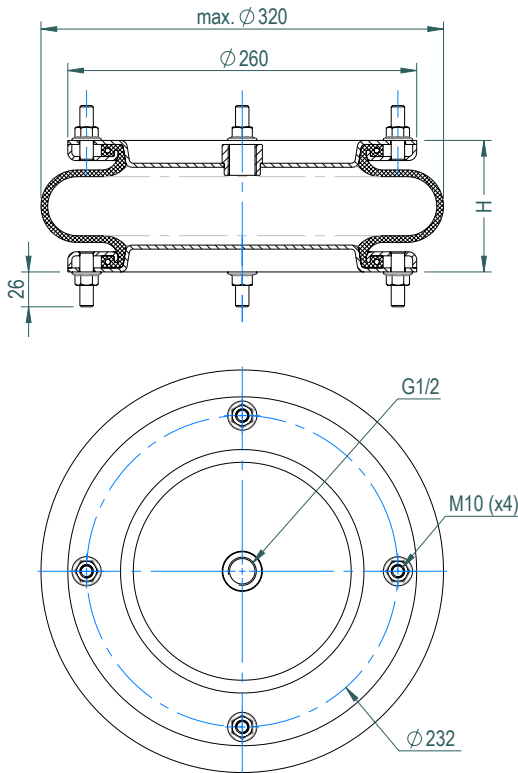
All Volume [l] values at 7 bar

D SERIES
Dismountable Design

12"x1

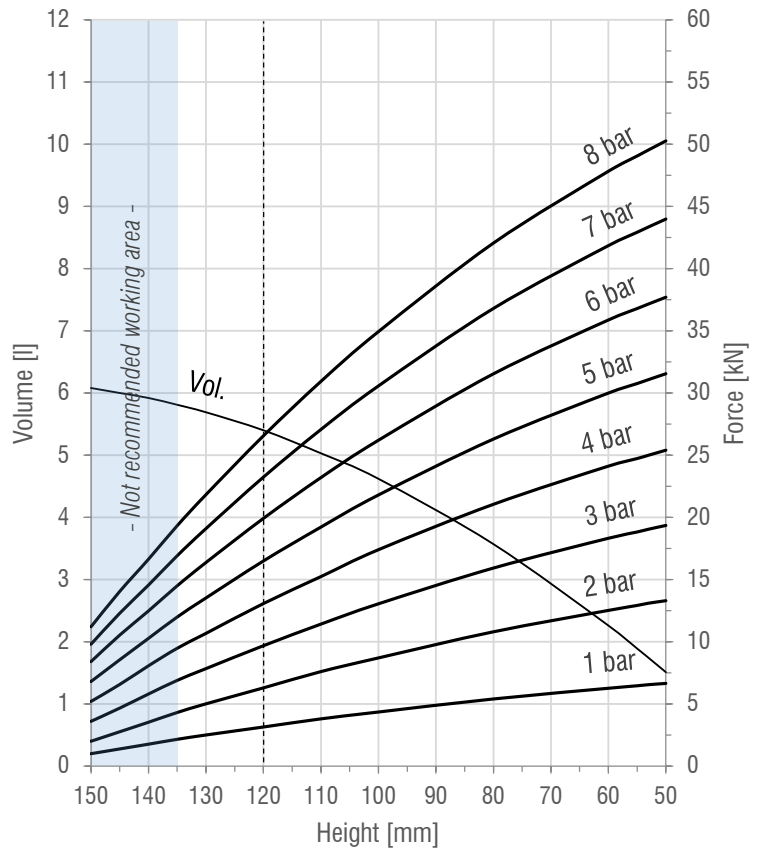
SINGLE
CONVOLUTION

DRAWING



M10=25 Nm **G1/2=25 Nm**

FORCE-HEIGHT CHART



TECHNICAL DATA

PRODUCT CHARACTERISTICS

| | |
|---|-----|
| Static diameter [mm] | 305 |
| Max. diameter [mm] | 320 |
| Required space diameter [mm] | 340 |
| Min. height [mm] | 50 |
| Static height [mm] | 95 |
| Design height [mm] | 120 |
| Max. usable height [mm] | 135 |
| Max. stroke [mm] | 85 |
| Force to compress to H_{min} at 0 bar [N] | 120 |
| Weight [kg] | 5,4 |

REFERENCES

| | |
|--------|-------------------------|
| 12x1_B | Rubber bellow only |
| 12x1_D | With steel end closures |

Designs available with stainless steel and high temperature rubber compounds. Additional designs on request.

DYNAMIC CHARACTERISTICS FOR USE AS ISOLATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-------------------------|-------|-------|-------|-------|-------|----------|
| Load [kN] | 9,7 | 13,1 | 16,5 | 19,9 | 23,2 | 5,4 |
| Spring rate [N/mm] | 294 | 373 | 460 | 548 | 634 | |
| Natural frequency [Hz] | 2,76 | 2,67 | 2,64 | 2,62 | 2,61 | |
| Isolation rate at 10 Hz | 91,8% | 92,3% | 92,5% | 92,6% | 92,7% | |

Values at recommended design height H : 120 mm -----

STATIC CHARACTERISTICS FOR USE AS ACTUATOR

| Pressure [bar] | | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-----------------|-----|------|------|------|------|------|----------|
| Height H [mm] | 50 | 19,4 | 25,4 | 31,6 | 37,7 | 44,0 | 1,5 |
| | 60 | 18,3 | 24,1 | 30,0 | 35,9 | 41,8 | 2,3 |
| | 80 | 15,9 | 21,1 | 26,3 | 31,5 | 36,8 | 3,6 |
| | 100 | 13,1 | 17,4 | 21,8 | 26,2 | 30,6 | 4,6 |
| | 110 | 11,4 | 15,2 | 19,2 | 23,2 | 27,1 | 5,0 |
| | 120 | 9,7 | 13,1 | 16,5 | 19,9 | 23,2 | 5,4 |
| | 130 | 7,8 | 10,7 | 13,5 | 16,4 | 19,1 | 5,7 |

Force values [kN]

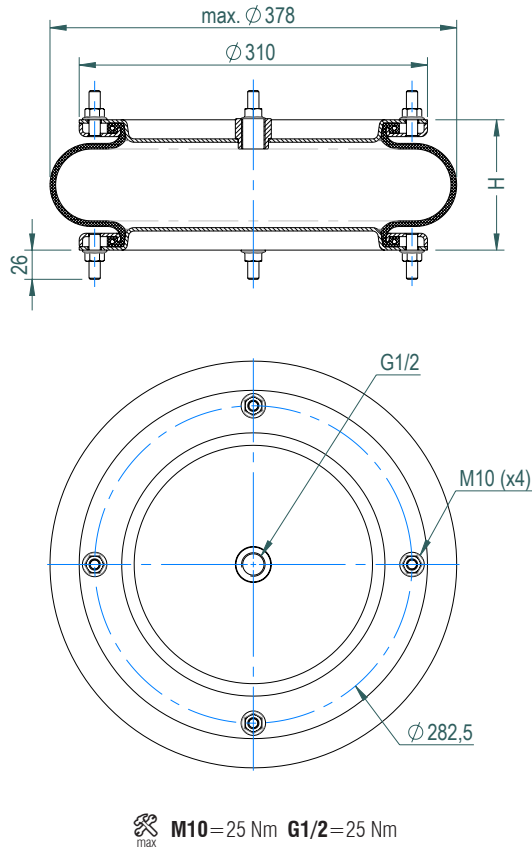
All Volume [l] values at 7 bar

D SERIES
Dismountable Design

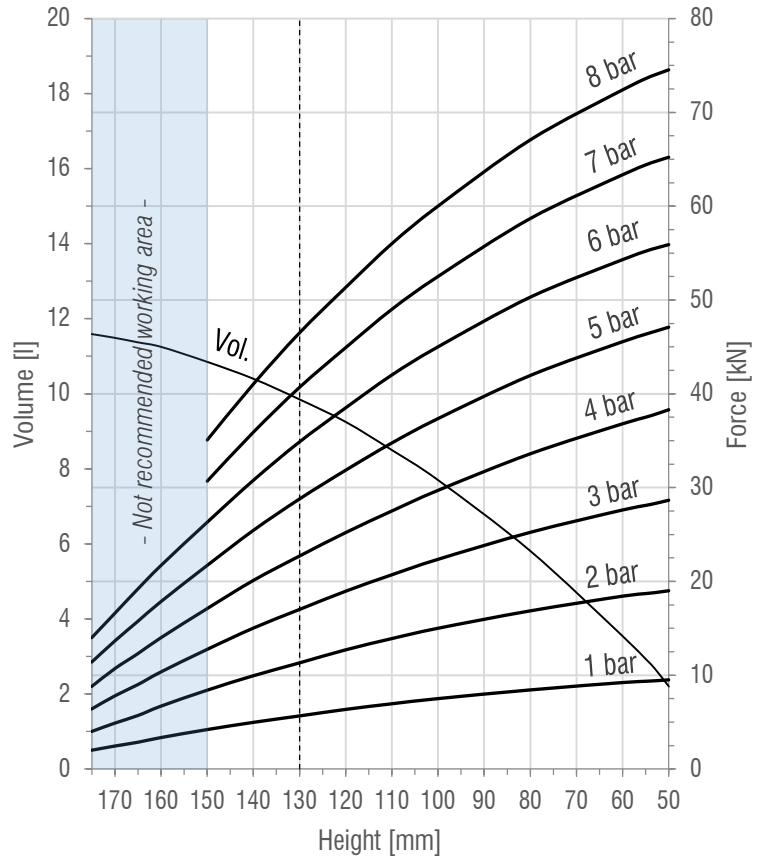
14½"x1

SINGLE
CONVOLUTION

DRAWING



FORCE-HEIGHT CHART



TECHNICAL DATA

PRODUCT CHARACTERISTICS

| | |
|---|------|
| Static diameter [mm] | 365 |
| Max. diameter [mm] | 380 |
| Required space diameter [mm] | 405 |
| Min. height [mm] | 50 |
| Static height [mm] | 110 |
| Design height [mm] | 130 |
| Max. usable height [mm] | 150 |
| Max. stroke [mm] | 100 |
| Force to compress to H_{min} at 0 bar [N] | 90 |
| Weight [kg] | 7,36 |

REFERENCES

| | |
|--------|-------------------------|
| 14x1_B | Rubber bellow only |
| 14x1_D | With steel end closures |

Designs available with stainless steel and high temperature rubber compounds. Additional designs on request.

DYNAMIC CHARACTERISTICS FOR USE AS ISOLATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-------------------------|-------|-------|-------|-------|-------|----------|
| Load [kN] | 17,0 | 22,7 | 28,8 | 34,9 | 40,7 | 9,9 |
| Spring rate [N/mm] | 384 | 489 | 605 | 720 | 832 | |
| Natural frequency [Hz] | 2,38 | 2,32 | 2,29 | 2,27 | 2,26 | |
| Isolation rate at 10 Hz | 94,0% | 94,3% | 94,5% | 94,6% | 94,6% | |

Values at recommended design height H: 130 mm -----

STATIC CHARACTERISTICS FOR USE AS ACTUATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] | |
|----------------|-----|------|------|------|------|----------|------|
| Height H [mm] | 60 | 27,6 | 36,8 | 45,6 | 54,3 | 63,4 | 3,5 |
| | 80 | 25,2 | 33,6 | 42,0 | 50,3 | 58,7 | 5,8 |
| | 100 | 22,4 | 29,7 | 37,4 | 45,0 | 52,5 | 7,7 |
| | 120 | 19,0 | 25,2 | 31,9 | 38,5 | 44,9 | 9,3 |
| | 140 | 15,0 | 20,1 | 25,4 | 30,8 | 35,9 | 10,4 |
| | 150 | 12,7 | 17,1 | 21,7 | 26,3 | 30,7 | 10,9 |

Force values [kN]

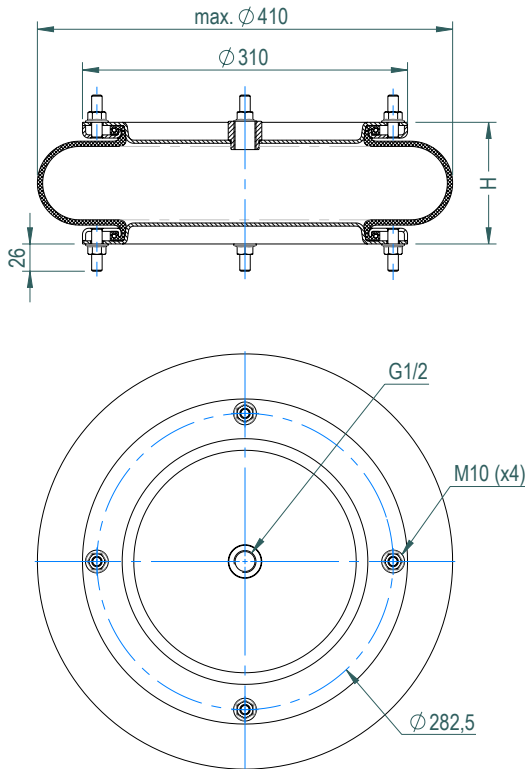
All Volume [l] values at 7 bar

D SERIES
Dismountable Design

16"x1

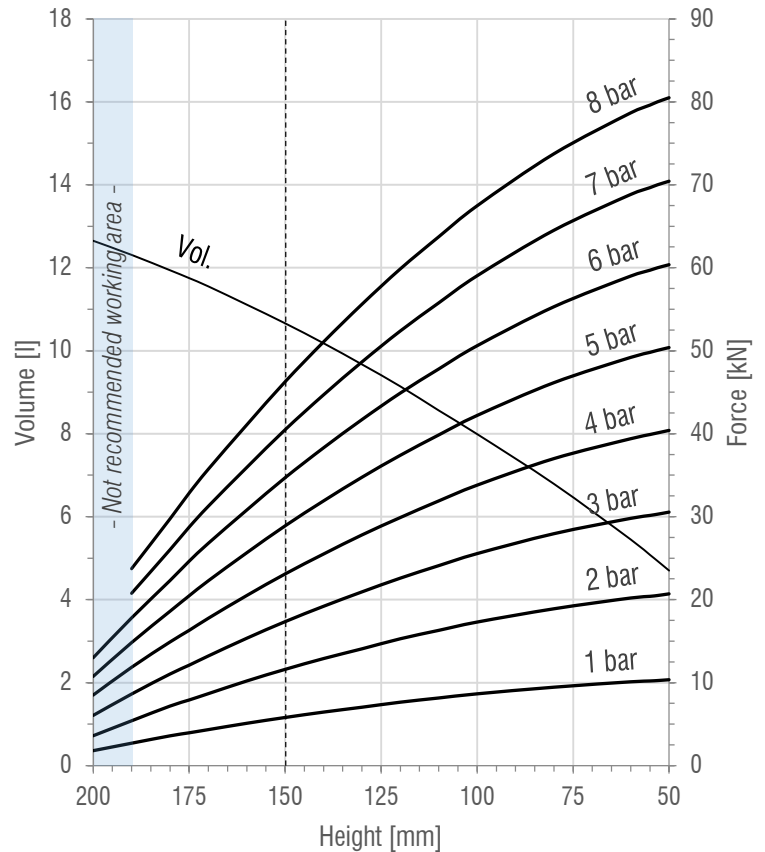
SINGLE
CONVOLUTION

DRAWING



M10=25 Nm **G1/2=25 Nm**

FORCE-HEIGHT CHART



TECHNICAL DATA

PRODUCT CHARACTERISTICS

| | |
|---|------|
| Static diameter [mm] | 400 |
| Max. diameter [mm] | 410 |
| Required space diameter [mm] | 435 |
| Min. height [mm] | 50 |
| Static height [mm] | 110 |
| Design height [mm] | 150 |
| Max. usable height [mm] | 190 |
| Max. stroke [mm] | 140 |
| Force to compress to H_{min} at 0 bar [N] | 50 |
| Weight [kg] | 7,54 |

REFERENCES

| | |
|--------|-------------------------|
| 16x1_B | Rubber bellow only |
| 16x1_D | With steel end closures |

Designs available with stainless steel and high temperature rubber compounds. Additional designs on request.

DYNAMIC CHARACTERISTICS FOR USE AS ISOLATOR

| Pressure [bar] | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|-------------------------|-------|-------|-------|-------|-------|----------|
| Load [kN] | 17,4 | 23,1 | 28,9 | 34,7 | 40,5 | 10,7 |
| Spring rate [N/mm] | 334 | 426 | 524 | 622 | 719 | |
| Natural frequency [Hz] | 2,19 | 2,15 | 2,13 | 2,12 | 2,11 | |
| Isolation rate at 10 Hz | 94,9% | 95,2% | 95,3% | 95,3% | 95,4% | |

Values at recommended design height H: 150 mm -----

STATIC CHARACTERISTICS FOR USE AS ACTUATOR

| Pressure [bar] | | 3 | 4 | 5 | 6 | 7 | Vol. [l] |
|----------------|-----|------|------|------|------|------|----------|
| Height H [mm] | 60 | 29,8 | 39,4 | 49,2 | 59,0 | 68,8 | 5,5 |
| | 80 | 28,0 | 37,0 | 46,2 | 55,3 | 64,5 | 6,8 |
| | 100 | 25,6 | 33,8 | 42,2 | 50,6 | 59,0 | 8,0 |
| | 120 | 22,6 | 29,9 | 37,4 | 44,9 | 52,4 | 9,1 |
| | 140 | 19,2 | 25,5 | 31,9 | 38,3 | 44,7 | 10,2 |
| | 160 | 15,4 | 20,5 | 25,7 | 30,8 | 35,9 | 11,1 |
| | 180 | 11,0 | 14,9 | 18,6 | 22,3 | 26,0 | 11,9 |

Force values [kN]

All Volume [l] values at 7 bar