

## Characteristics of the series F 1 Convolution



| CHARACTERISTICS     |                 |                   |         |        |       |           |                      |         |           |                  |
|---------------------|-----------------|-------------------|---------|--------|-------|-----------|----------------------|---------|-----------|------------------|
| Style               | φMax. 7 Bar mm. | Standard Fixation |         |        |       |           | Fijación Alternativa |         |           | Min. Height (mm) |
|                     |                 | type              | a (mm.) | b (mm) | d(mm) | Number of |                      | a (mm.) | Number of |                  |
| <a href="#">10</a>  | 140             | <a href="#">A</a> | 44,5    |        | 120   |           | <a href="#">D</a>    | 114,3   | M8X6      | 50               |
| <a href="#">20</a>  | 165             | <a href="#">A</a> | 44,5    |        | 120   |           | <a href="#">D</a>    | 114,3   | M8X6      | 50               |
| <a href="#">25</a>  | 195             | <a href="#">A</a> | 44,5    |        | 120   |           | <a href="#">D</a>    | 114,3   | M8X6      | 50               |
| <a href="#">25E</a> | 190             | <a href="#">A</a> | 44,5    |        | 120   |           | <a href="#">D</a>    | 114,3   | M8X6      | 50               |
| <a href="#">30</a>  | 215             | <a href="#">A</a> | 70      |        | 135   |           | <a href="#">E</a>    | 134,9   | M8X6      | 50               |
|                     |                 |                   |         |        |       |           |                      |         |           |                  |
| <a href="#">35</a>  | 260             | <a href="#">C</a> | 88,9    | 44,5   | 160   |           | <a href="#">E</a>    | 160,3   | M8X8      | 50               |
| <a href="#">35E</a> | 244             | <a href="#">C</a> | 88,9    | 44,5   | 160   |           | <a href="#">E</a>    | 160,3   | M8X8      | 50               |
| <a href="#">40</a>  | 310             | <a href="#">C</a> | 157,5   | 72,9   | 229   |           | <a href="#">E</a>    | 228,6   | M8X12     | 50               |
| <a href="#">45</a>  | 378             | <a href="#">B</a> | 158,8   |        | 287   |           | <a href="#">E</a>    | 287,3   | M8X12     | 50               |
| <a href="#">48</a>  | 410             | <a href="#">D</a> | 350,8   |        | 384   | M10X18    |                      |         |           | 50               |
| <a href="#">60</a>  | 515             | <a href="#">D</a> | 419,1   |        | 451   | M10X24    |                      |         |           | 50               |
| <a href="#">65</a>  | 590             | <a href="#">D</a> | 482,6   |        | 517   | M10X24    |                      |         |           | 50               |
| <a href="#">50</a>  | 707             | <a href="#">D</a> | 597     |        | 638   | M10X32    |                      |         |           | 50               |

| Style               | Actuators       |                      |        |                     | Isolators                      |                    |                         |       |      |
|---------------------|-----------------|----------------------|--------|---------------------|--------------------------------|--------------------|-------------------------|-------|------|
|                     | Max Stroke (mm) | 7 Bars Force at (KN) |        | Design Height (mm.) | Natural Frequency 5,6 Bar (HZ) | Load min/max. (Kg) | % Of Isolation at Force |       |      |
|                     |                 | Initial              | Final  |                     |                                |                    | 400                     | 800   | 1500 |
| <a href="#">10</a>  | 38              | 9,00                 | 4,00   | 76                  | 3,95                           | 190-380            |                         | 90,3  | 97,4 |
| <a href="#">20</a>  | 50              | 9,00                 | 5,00   | 90                  | 3,02                           | 250-440            | 74,4                    | 94,6  | 98,5 |
| <a href="#">25</a>  | 80              | 14,00                | 5,00   | 114                 | 2,70                           | 300-640            | 80,2                    | 95,7  | 98,8 |
| <a href="#">25E</a> | 80              | 13,00                | 6,00   | 120                 | 2,60                           | 320-650            | 81,3                    | 96,8  | 99,3 |
| <a href="#">30</a>  | 75              | 18,00                | 8,00   | 115                 | 2,72                           | 290-620            | 80,2                    | 95,7  | 98,8 |
|                     |                 |                      |        |                     |                                |                    |                         |       |      |
| <a href="#">35</a>  | 80              | 26,00                | 12,00  | 114                 | 2,77                           | 420-860            | 79,1                    | 95,5  | 98,8 |
| <a href="#">35E</a> | 100             | 20,50                | 11,00  | 116                 | 2,71                           | 540-1020           | 80,3                    | 160,9 | 98,9 |
| <a href="#">40</a>  | 90              | 40,00                | 10,00  | 125                 | 2,60                           | 950-2000           | 82,1                    | 96,0  | 98,9 |
| <a href="#">45</a>  | 97              | 68,00                | 22,00  | 127                 | 2,50                           | 1580-3300          | 83,6                    | 96,4  | 99,0 |
| <a href="#">48</a>  | 110             | 71,00                | 22,00  | 125                 | 2,18                           | 2840-4050          | 84,3                    | 96,6  | 99,0 |
| <a href="#">60</a>  | 92              | 120,00               | 64,00  | 125                 | 2,37                           | 3000-6600          | 85,5                    | 96,7  | 99,1 |
| <a href="#">65</a>  | 110             | 154,00               | 91,00  | 125                 | 2,22                           | 5000-10000         | 87,5                    | 97,1  | 99,2 |
| <a href="#">50</a>  | 125             | 270,00               | 140,00 | 150                 | 2,07                           | 7200-14200         | 89,3                    | 97,5  | 99,3 |

Type of fixation dependant on the model (for fixations type A,B, and C: Turn fixation M10)

## Characteristics Of The Series F 2 Convolutions



| CHARACTERISTICS     |                |                   |         |        |       |           |                      |         |           |                  |
|---------------------|----------------|-------------------|---------|--------|-------|-----------|----------------------|---------|-----------|------------------|
| Style               | φMax.7 bar mm. | Standard Fixation |         |        |       |           | Fijación Alternativa |         |           | Min. Height (mm) |
|                     |                | Type              | a (mm.) | b (mm) | d(mm) | Number of |                      | a (mm.) | Number of |                  |
| <a href="#">70</a>  | 165            | <a href="#">A</a> | 44,5    |        | 120   |           |                      |         |           | 70               |
| <a href="#">80</a>  | 215            | <a href="#">A</a> | 70      |        | 135   |           | <a href="#">E</a>    | 134,9   | M8X6      | 77               |
|                     |                |                   |         |        |       |           |                      |         |           |                  |
| <a href="#">85</a>  | 260            | <a href="#">C</a> | 88,9    | 44,5   | 160   |           | <a href="#">E</a>    | 160,3   | M8X8      | 77               |
| <a href="#">85E</a> | 255            | <a href="#">C</a> | 88,9    | 44,5   | 160   |           | <a href="#">E</a>    | 160,3   | M8X8      | 77               |
| <a href="#">90</a>  | 310            | <a href="#">C</a> | 157,5   | 72,9   | 160   |           | <a href="#">E</a>    | 228,6   | M8X12     | 77               |
|                     |                |                   |         |        |       |           |                      |         |           |                  |
| <a href="#">100</a> | 378            | <a href="#">B</a> | 158,8   |        | 287   |           | <a href="#">E</a>    | 287,3   | M8X12     | 77               |
| <a href="#">110</a> | 410            | <a href="#">D</a> | 350,8   |        | 384   | M10X18    |                      |         |           | 83               |
|                     |                |                   |         |        |       |           |                      |         |           |                  |
| <a href="#">120</a> | 660            | <a href="#">D</a> | 558     |        | 600   | M10X24    |                      |         |           | 83               |
| <a href="#">130</a> | 707            | <a href="#">D</a> | 597     |        | 638   | M10X32    |                      |         |           | 83               |

| Style               | Actuators   |                      |        |                     | Isolators                      |                    |                         |      |      |
|---------------------|-------------|----------------------|--------|---------------------|--------------------------------|--------------------|-------------------------|------|------|
|                     | Max. Stroke | 7 Bars Force at (KN) |        | Design Height (mm.) | Natural Frecuency 5,6 Bar (HZ) | Load min/max. (Kg) | % Of Isolation at Force |      |      |
|                     |             | Initial              | Final  |                     |                                |                    | 400                     | 800  | 1500 |
| <a href="#">70</a>  | 90          | 10,40                | 4,55   | 140                 | 2,57                           | 210-420            | 82,5                    | 96,1 | 98,9 |
| <a href="#">80</a>  | 150         | 18,00                | 5,70   | 200                 | 1,85                           | 300-690            | 91,0                    | 98,0 | 99,4 |
|                     |             |                      |        |                     |                                |                    |                         |      |      |
| <a href="#">85</a>  | 175         | 27,00                | 10,00  | 216                 | 1,93                           | 450-970            | 90,7                    | 97,8 | 99,4 |
| <a href="#">85E</a> | 175         | 26,00                | 10,80  | 215                 | 1,92                           | 440-900            | 90,8                    | 98,0 | 99,5 |
| <a href="#">90</a>  | 200         | 40,00                | 12,00  | 240                 | 1,77                           | 930-1900           | 92,4                    | 98,2 | 99,5 |
|                     |             |                      |        |                     |                                |                    |                         |      |      |
| <a href="#">100</a> | 225         | 64,00                | 30,00  | 240                 | 1,75                           | 1450-3000          | 92,6                    | 98,3 | 99,5 |
| <a href="#">110</a> | 260         | 78,00                | 22,00  | 240                 | 1,68                           | 2100-4400          | 93,2                    | 98,4 | 99,5 |
|                     |             |                      |        |                     |                                |                    |                         |      |      |
| <a href="#">120</a> | 175         | 220,00               | 120,00 | 240                 | 1,55                           | 5900-12500         | 94,2                    | 98,6 | 99,6 |
| <a href="#">130</a> | 250         | 240,00               | 130,00 | 267                 | 1,43                           | 7200-14800         | 95,1                    | 98,8 | 99,7 |

Type of fixation depending on the model (for fixations type A, B, ando C: Turn fixation M10)

# Characteristics Of The Series F 3 Convolutions

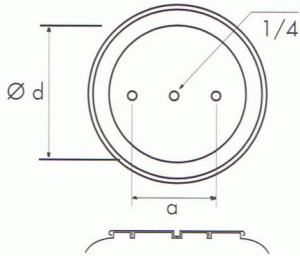


| CHARACTERISTICS     |                |                   |         |        |       |           |                      |         |           |                  |
|---------------------|----------------|-------------------|---------|--------|-------|-----------|----------------------|---------|-----------|------------------|
| Style               | φMax.7 bar mm. | Standard Fixation |         |        |       |           | Fijación Alternativa |         |           | Min. Height (mm) |
|                     |                | Type              | a (mm.) | b (mm) | d(mm) | Number of |                      | a (mm.) | Number of |                  |
| <a href="#">83</a>  | 220            | <a href="#">A</a> | 70      |        | 135   |           | <a href="#">E</a>    | 134,9   | M8X6      | 100              |
| <a href="#">88</a>  | 250            | <a href="#">C</a> | 88,9    | 44,5   | 160   |           | <a href="#">E</a>    | 160,3   | M8X8      | 100              |
| <a href="#">93</a>  | 310            | <a href="#">C</a> | 157,5   | 72,9   | 229   |           | <a href="#">E</a>    | 228,6   | M8X12     | 110              |
| <a href="#">103</a> | 375            | <a href="#">B</a> | 158,8   |        | 287   |           | <a href="#">E</a>    | 287,3   | M8X12     | 125              |
| <a href="#">113</a> | 435            | <a href="#">D</a> | 350,8   |        | 384   | M10X18    | <a href="#">E</a>    |         |           | 125              |

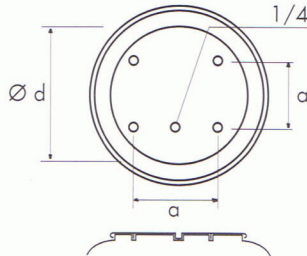
| Style               | Actuators        |                      |       |                     | Isolators                      |                    |                         |     |      |
|---------------------|------------------|----------------------|-------|---------------------|--------------------------------|--------------------|-------------------------|-----|------|
|                     | Max. Stroke (mm) | 7 Bars Force at (KN) |       | Design Height (mm.) | Natural Frecuency 5,6 Bar (HZ) | Load min/max. (Kg) | % Of Isolation at Force |     |      |
|                     |                  | Initial              | Final |                     |                                |                    | 400                     | 800 | 1500 |
| <a href="#">83</a>  | 240              | 19,00                | 5,00  |                     |                                |                    |                         |     |      |
| <a href="#">88</a>  | 250              | 30,00                | 10,00 |                     |                                |                    |                         |     |      |
| <a href="#">93</a>  | 250              | 41,00                | 16,00 |                     |                                |                    |                         |     |      |
| <a href="#">103</a> | 325              | 69,00                | 30,00 |                     |                                |                    |                         |     |      |
| <a href="#">113</a> | 350              | 72,00                | 34,00 |                     |                                |                    |                         |     |      |

Type of fixation depending on the model (for fixations type A, B, and C: Turn fixation M10)

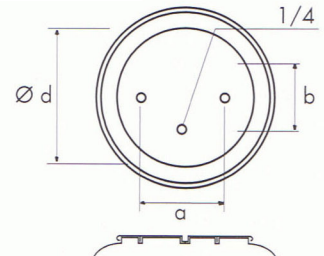
Type A , bead plate



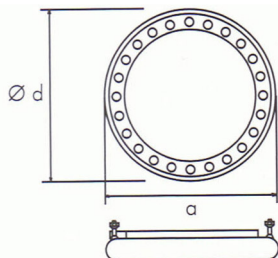
Type B , bead plate



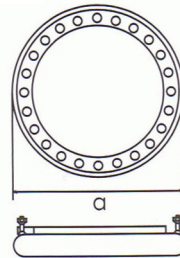
Type A , bead plate



Type D, Bead Ring



Type E, Bead Ring



## Characteristics Of The "D" Series



| Model                    | Materials | Height (mm.) |        |      | Carrera | φE  | φC  | φA  | φB  | φM  | φG   | GAS BSP | Pressure KP/cm <sup>2</sup> |       | 7 Bars force     |             |
|--------------------------|-----------|--------------|--------|------|---------|-----|-----|-----|-----|-----|------|---------|-----------------------------|-------|------------------|-------------|
|                          |           | Min.         | Static | Max. |         |     |     |     |     |     |      |         | Max.                        | Max.  | Explosion moment | min. Height |
| 2 3/4x1                  | Alu       | 50           | 60     | 70   | 20      | 80  | 60  | 78  | 36  | M6  | 1/4" | 8       | 20                          | 2,80  | 1,30             |             |
| 2 3/4x2                  | Alu       | 60           | 90     | 110  | 45      | 80  | 90  | 78  | 36  | M6  | 1/4" | 8       | 20                          | 2,40  | 0,7              |             |
| 2 3/4x3                  | Alu       | 80           | 110    | 140  | 60      | 80  | 110 | 78  | 36  | M6  | 1/4" | 8       | 20                          | 2,60  | 0,9              |             |
| <a href="#">4 1/2x1</a>  | Alu       | 50           | 65     | 90   | 45      | 120 | 110 | 110 | 93  | M6  | 3/8" | 8       | 20                          | 7,00  | 1,00             |             |
| <a href="#">4 1/2x2</a>  | Alu       | 65           | 100    | 145  | 80      | 120 | 110 | 110 | 93  | M6  | 3/8" | 8       | 20                          | 7,20  | 1,70             |             |
| <a href="#">6x1</a>      | Acero     | 50           | 80     | 100  | 60      | 162 | 155 | 152 | 127 | M8  | 1/2" | 8       | 30                          | 10,10 | 3,60             |             |
| <a href="#">6x1</a>      | Alu       | 50           | 80     | 100  | 50      | 162 | 155 | 152 | 127 | M8  | 1/2" | 8       | 30                          | 10,10 | 3,60             |             |
| <a href="#">6x2</a>      | Acero     | 70           | 130    | 200  | 130     | 162 | 155 | 152 | 127 | M8  | 1/2" | 8       | 30                          | 12,80 | 1,70             |             |
| <a href="#">6x2</a>      | Acero     | 70           | 130    | 200  | 130     | 162 | 155 | 152 | 127 | M8  | 1/2" | 8       | 30                          | 12,80 | 1,70             |             |
| 6x3                      | Acero     | 90           | 175    | 270  | 180     | 168 | 155 | 152 | 127 | M8  | 1/2" | 8       | 30                          | 12,10 | 2,70             |             |
| <a href="#">8x1</a>      | Acero     | 50           | 89     | 120  | 70      | 215 | 202 | 184 | 156 | M10 | 1/2" | 8       | 30                          | 18,00 | 5,16             |             |
| <a href="#">8x2</a>      | Acero     | 70           | 160    | 245  | 175     | 215 | 202 | 184 | 156 | M10 | 1/2" | 8       | 30                          | 19,50 | 2,90             |             |
| <a href="#">8x3</a>      | Acero     | 95           | 220    | 335  | 240     | 222 | 203 | 184 | 156 | M10 | 1/2" | 8       | 30                          | 19,00 | 5,30             |             |
| <a href="#">10x1</a>     | Acero     | 50           | 92     | 135  | 85      | 265 | 254 | 210 | 181 | M10 | 1/2" | 8       | 30                          | 25,50 | 10,10            |             |
| <a href="#">10x2</a>     | Acero     | 75           | 170    | 290  | 215     | 265 | 254 | 210 | 181 | M10 | 1/2" | 8       | 30                          | 27,10 | 4,60             |             |
| <a href="#">10x3</a>     | Acero     | 100          | 250    | 420  | 320     | 265 | 254 | 210 | 181 | M10 | 1/2" | 8       | 20                          | 31,00 | 3,20             |             |
| <a href="#">12x1</a>     | Acero     | 50           | 95     | 145  | 95      | 312 | 300 | 260 | 232 | M10 | 1/2" | 8       | 30                          | 41,20 | 11,55            |             |
| <a href="#">12x2</a>     | Acero     | 75           | 170    | 300  | 225     | 312 | 300 | 260 | 232 | M10 | 1/2" | 8       | 30                          | 43,00 | 4,80             |             |
| <a href="#">12x3</a>     | Acero     | 100          | 250    | 165  | 330     | 312 | 300 | 260 | 232 | M10 | 1/2" | 8       | 20                          | 44,50 | 24,90            |             |
| <a href="#">14 1/2x1</a> | Acero     | 50           | 110    | 165  | 115     | 378 | 365 | 310 | 283 | M10 | 1/2" | 8       | 30                          | 67,00 | 24,90            |             |
| <a href="#">14 1/2x2</a> | Acero     | 75           | 200    | 335  | 260     | 378 | 365 | 310 | 283 | M10 | 1/2" | 8       | 30                          | 69,00 | 21,00            |             |
| <a href="#">14 1/2x3</a> | Acero     | 100          | 285    | 430  | 380     | 378 | 365 | 310 | 283 | M10 | 1/2" | 8       | 20                          | 70,40 | 27,20            |             |
| <a href="#">16x1</a>     | Acero     | 50           | 130    | 190  | 140     | 406 | 395 | 310 | 283 | M10 | 1/2" | 8       | 20                          | 70,00 | 29,50            |             |
| <a href="#">16x2</a>     | Acero     | 75           | 225    | 340  | 265     | 406 | 395 | 310 | 283 | M10 | 1/2" | 8       | 20                          | 76,00 | 21,00            |             |
| <a href="#">16x3</a>     | Acero     | 100          | 285    | 470  | 370     | 410 | 395 | 310 | 283 | M10 | 1/2" | 8       | 20                          | 75,00 | 20,00            |             |

Rubber bellows and bead rings can be supplied separately

Angular capability: Angular motion of up to 15% is possible.

Aluminium bead plates from 4 1/2 x 1 a 6 x 2

Steel bead plates from 6 x 1 a 16 x 3

