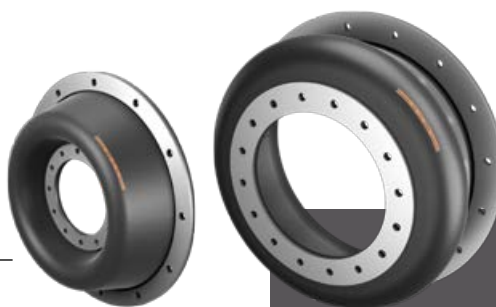


# RUBBER EXPANSION JOINT TYPE W-1, W-2

## WALL-SEALING EXPANSION JOINT DN 80 – DN 3400



### STRUCTURE TYPE W-1, W-2 / RUBBER BELLOWS PN 2,5

- **Type W-1:** Wall-sealing expansion joint consisting of a flat-convoluted rubber bellows with press-on retaining flanges
- **Type W-2:** Wall-sealing expansion joint consisting of a deep-convoluted rubber bellows with press-on retaining flanges. Suitable for large movements.
- Elastic robust bellows in various rubber grades
- Synthetic fibre reinforcement
- Bellows with flat convolution (type W-1) or deep convolution (type W-2)
- Full-faced self-sealing rubber flanges with drilling for through bolts
- Electrical impedance  $10^3$  to  $10^6$  Ohm (DIN IEC 93, VDE 0303-30)

|                      |   |                                |
|----------------------|---|--------------------------------|
| <b>Rubber grade*</b> | EPDM                                      | NBR                            |
| <b>Colour code</b>   | orange                                    | red                            |
| <b>Possible uses</b> | Cooling, sea, brackish water, acids, lyes | hydrocarbon containing liquids |

\*Check or inquire about the resistance of the rubber grade to temperature and medium.

| Technical design              |   |
|-------------------------------|---|
| Pressure rate                 | PN 2,5                                      |
| Max. perm. operating pressure | 2,5 bar*                                    |
| Max. perm. temperature        | +90 °C                                      |
| Bursting pressure             | ≥ 10 bar                                    |
| Vacuum operation              | with vacuum supporting ring (type W-1 only) |

Max. operating pressure to be set 30 % lower for shock loads.

\*Please consider a decrease of pressure due to temperature (see technical annex).

### FLANGES / VERSIONS

- Press-on retaining flanges
- Flange drilling for through bolts

|                             | Standard           | Others                            |
|-----------------------------|--------------------|-----------------------------------|
| <b>Materials</b>            | 1.0038 (S235JR)    | stainless steel etc.              |
| <b>Corrosion protection</b> | hot-dip galvanized | special varnish and coating, etc. |

### NOTE

Please comply with the general technical instructions regarding reaction force, moving force, fixed point load, installation instructions etc.

Subject to technical alterations and deviations resulting from the manufacturing process.

### APPLICATIONS

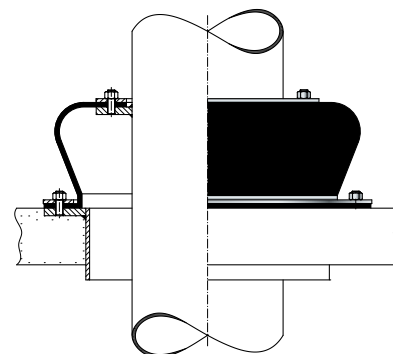
- to seal ducts on
  - vessels, or containers
  - wall ducts
- for compensating axial and lateral movement between pipe and wall duct
- for reliable sealing against ground-water
- process plant engineering
- power station technology
- cement industry

### CERTIFICATES

- CE (PED 2014/68/EU)

### ACCESSORIES

- Vacuum supporting ring (type W-1)



Installation drawing type W-1

## DIMENSIONS STANDARD PROGRAM TYPE W-1 / BL 150

| DN<br>Pipe-<br>line | DN<br>Wall<br>duct | Pres-<br>sure<br>rate<br><br>bar | Bellows  |   | Wall duct  |  |   | Pipeline   |  |   |   | $\Delta$ ax<br>Axial<br>move-<br>ment<br><br>$\pm$ mm | $\Delta$ lat<br>Lateral<br>move-<br>ment<br><br>$\pm$ mm | Weight<br><br>approx.<br>kg |
|---------------------|--------------------|----------------------------------|--|---|--|--|---|--|--|---|---|---|--|-----------------------------|
|                     |                    |                                  | $\varnothing$ D<br>Bellows<br>inner<br>$\varnothing$<br><br>mm | h<br>Rubber<br>flange<br>thick-<br>ness<br>mm | $\varnothing$ d <sub>a</sub><br>Flange<br>outer<br>$\varnothing$<br><br>mm | $\varnothing$ K <sub>1</sub><br>PCD<br>$\varnothing$<br><br>mm | n <sub>1</sub> x $\varnothing$ d <sub>1</sub><br>Drilling<br><br>mm | $\varnothing$ d <sub>i</sub><br>Flange<br>inner<br>$\varnothing$<br><br>mm | $\varnothing$ K <sub>2</sub><br>PCD<br>$\varnothing$<br><br>mm | n <sub>2</sub> x $\varnothing$ d <sub>2</sub><br>Drilling<br><br>mm | b<br>Flange<br>thick-<br>ness<br><br>mm |   |  |                             |
| 80                  | 250                | 2.5                              | 290  | 8   | 430  | 380  | 8x14  | 120  | 160  | 8x14  | 10                                      | 20  | 30   | 10.0                        |
| 100                 | 250                | 2.5                              | 290  | 8   | 430  | 380  | 8x14  | 140  | 190  | 8x14  | 10                                      | 20  | 30   | 11.5                        |
| 150                 | 300                | 2.5                              | 440  | 12  | 640  | 560  | 12x23   | 185  | 265  | 8x23  | 10                                      | 20  | 30   | 23.5                        |
| 200                 | 400                | 2.5                              | 495  | 12  | 695  | 615  | 12x23   | 240  | 320  | 12x23   | 10                                      | 20  | 30   | 26.5                        |
| 250                 | 450                | 2.5                              | 570  | 12  | 770  | 690  | 12x23   | 315  | 395  | 12x23   | 10                                      | 20  | 30   | 29.5                        |
| 250                 | 500                | 2.5                              | 570  | 12  | 770  | 690  | 12x23   | 285  | 365  | 12x23   | 10                                      | 20  | 30   | 29.5                        |
| 300                 | 500                | 2.5                              | 570  | 12  | 770  | 690  | 12x23   | 350  | 430  | 12x23   | 10                                      | 20  | 30   | 31.5                        |
| 400                 | 600                | 2.5                              | 665  | 12  | 865  | 785  | 16x23   | 430  | 510  | 16x23   | 10                                      | 20  | 30   | 36.5                        |
| 500                 | 700                | 2.5                              | 770  | 12  | 970  | 890  | 16x23   | 535  | 615  | 16x23   | 10                                      | 20  | 30   | 43.0                        |
| 600                 | 800                | 2.5                              | 870  | 12  | 1070   | 990  | 16x23   | 635  | 715  | 16x23   | 10                                      | 20  | 30   | 48.5                        |
| 700                 | 900                | 2.5                              | 975  | 12  | 1175   | 1095   | 24x23   | 730  | 810  | 24x23   | 15                                      | 20  | 30   | 64.5                        |
| 800                 | 1000               | 2.5                              | 1050   | 12  | 1280   | 1200   | 24x23   | 840  | 920  | 24x23   | 15                                      | 20  | 30   | 73.5                        |
| 900                 | 1100               | 2.5                              | 1180   | 12  | 1380   | 1300   | 24x23   | 940  | 1020   | 24x23   | 15                                      | 20  | 30   | 73.5                        |
| 1000                | 1200               | 2.5                              | 1280   | 12  | 1480   | 1400   | 24x23   | 1040   | 1120   | 24x23   | 15                                      | 20  | 30   | 95.0                        |
| 1100                | 1300               | 2.5                              | 1380   | 12  | 1580   | 1500   | 24x23   | 1140   | 1220   | 24x23   | 15                                      | 20  | 30   | 105.0                       |
| 1200                | 1400               | 2.5                              | 1490   | 12  | 1690   | 1610   | 24x23   | 1250   | 1330   | 24x23   | 15                                      | 20  | 30   | 114.5                       |
| 1400                | 1600               | 2.5                              | 1636   | 12  | 1880   | 1800   | 24x23   | 1440   | 1520   | 24x23   | 15                                      | 20  | 30   | 161.5                       |
| 1600                | 1800               | 2.5                              | 1880   | 15  | 2080   | 2000   | 28x23   | 1640   | 1720   | 28x23   | 15                                      | 20  | 30   | 148.5                       |
| 1800                | 2000               | 2.5                              | 2080   | 15  | 2280   | 2200   | 32x23   | 1840   | 1920   | 32x23   | 15                                      | 20  | 30   | 165.0                       |
| 2000                | 2200               | 2.5                              | 2280   | 15  | 2480   | 2400   | 36x23   | 2060   | 2140   | 36x23   | 15                                      | 20  | 30   | 179.0                       |
| 2200                | 2400               | 2.5                              | 2480   | 15  | 2680   | 2600   | 36x23   | 2260   | 2340   | 36x23   | 15                                      | 20  | 30   | 196.0                       |
| 2400                | 2600               | 2.5                              | 2665   | 15  | 2880   | 2780   | 48x23   | 2460   | 2540   | 48x23   | 15                                      | 20  | 30   | 210.0                       |
| 2500                | 2700               | 2.5                              | 2785   | 15  | 2980   | 2900   | 48x23   | 2560   | 2640   | 36x23   | 15                                      | 20  | 30   | 220.0                       |
| 3000                | 3200               | 2.5                              | 3280   | 15  | 3490   | 3410   | 48x23   | 3050   | 3130   | 48x23   | 15                                      | 20  | 30   | 270.0                       |
| 3400                | 3600               | 2.5                              | 3610   | 20  | 3830   | 3750   | 108x23  | 3450   | 3530   | 108x23  | 15                                      | 20  | 30   | 330.0                       |

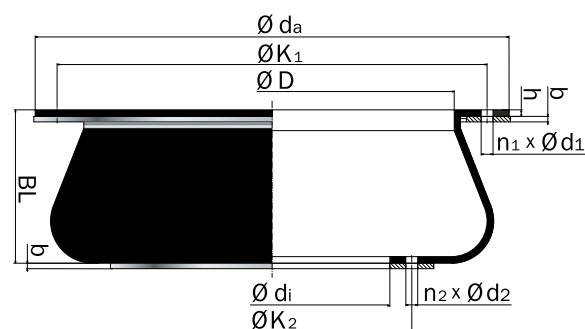
## DIMENSIONS STANDARD PROGRAM TYPE W-1 / BL 280

|      |      |     |      |    |      |      |       |      |      |       |    |    |    |       |
|------|------|-----|------|----|------|------|-------|------|------|-------|----|----|----|-------|
| 2200 | 2400 | 2.5 | 2480 | 15 | 2680 | 2600 | 36x23 | 2260 | 2340 | 36x23 | 15 | 40 | 60 | 226.0 |
|------|------|-----|------|----|------|------|-------|------|------|-------|----|----|----|-------|

## DIMENSIONS STANDARD PROGRAM TYPE W-2

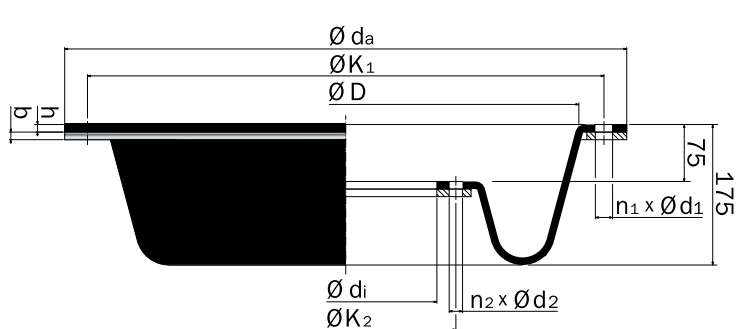
| DN<br>Pipe-<br>line | DN<br>Wall<br>duct | Pres-<br>sure<br>rate<br><br>bar | Bellows  |   | Wall duct  |  |   | Pipeline   |  |   |   | $\Delta$ ax<br>Axial<br>move-<br>ment<br><br>$\pm$ mm | $\Delta$ lat<br>Lateral<br>move-<br>ment<br><br>$\pm$ mm | Weight<br><br>approx.<br>kg |
|---------------------|--------------------|----------------------------------|--|---|--|--|---|--|--|---|---|---|--|-----------------------------|
|                     |                    |                                  | $\varnothing$ D<br>Bellows<br>inner<br>$\varnothing$<br><br>mm | h<br>Rubber<br>flange<br>thick-<br>ness<br>mm | $\varnothing$ d <sub>a</sub><br>Flange<br>outer<br>$\varnothing$<br><br>mm | $\varnothing$ K <sub>1</sub><br>PCD<br>$\varnothing$<br><br>mm | n <sub>1</sub> x $\varnothing$ d <sub>1</sub><br>Drilling<br><br>mm | $\varnothing$ d <sub>i</sub><br>Flange<br>inner<br>$\varnothing$<br><br>mm | $\varnothing$ K <sub>2</sub><br>PCD<br>$\varnothing$<br><br>mm | n <sub>2</sub> x $\varnothing$ d <sub>2</sub><br>Drilling<br><br>mm | b<br>Flange<br>thick-<br>ness<br><br>mm |   |  |                             |
| 200                 | 450                | 2.5                              | 610  | 10  | 740  | 680  | 12x23   | 240  | 290  | 12x18   | 10                                      | 80  | 80   | 19.5                        |
| 400                 | 800                | 2.5                              | 890  | 12  | 1025   | 965  | 16x23   | 490  | 550  | 16x23   | 10                                      | 80  | 80   | 34.0                        |
| 500                 | 900                | 2.5                              | 1020   | 12  | 1175   | 1115   | 24x23   | 620  | 680  | 24x23   | 12                                      | 80  | 80   | 48.0                        |
| 800                 | 1300               | 2.5                              | 1260   | 15  | 1480   | 1420   | 24x23   | 850  | 910  | 24x23   | 15                                      | 80  | 90   | 93.0                        |

## VERSIONS



**Type W-1**

Wall-sealing expansion joint, flat-convoluted



**Type W-2**

Wall-sealing expansion joint, deep-convoluted, for large movements