

WILLBRANDT Rubber Expansion Joint Type 42

■ not in stock

DN 50 to DN 3000

Type 42 is a hand-made, corrugated rubber expansion joint whose corrugated shape enables a very low inherent resistance. It is characterised by its flexibility in length and the wide variety of rubber qualities, so that a suitable rubber compound is available for every application (see material descriptions on the following page).

Type 42 is mainly used in plant construction and in water and wastewater technology. Here it is used especially for repairs when the gap does not correspond to a standard installation length, which means that expensive conversion work on the pipe system can be avoided. It absorbs movements and vibrations and has a noise-damping effect.



| | | | |
|----------------------------|--|-----------------------------|--|
| Bellow design | Corrugated rubber bellows with reinforcement, vulcanised supporting rings at the corrugation foot and solid rubber flanges, self-sealing (no additional seals required). Suitable for backing flanges or vulcanised steel flanges. | Vacuum resistance | Vacuum-proof due to vulcanised supporting rings at the corrugation foot. |
| Flange version | Both sides with backing or vulcanised flange made of hot-dip galvanized steel, drilled according to DIN PN 10 (standard). Other materials and dimensions are possible. | Approvals/conformity | CE, drinking water conform, FDA and EG 1935/2004 conform (detailed overview on page 5) |
| Pressure resistance | Design according to customer specification, max. 25 bar operating pressure | Accessories | <ul style="list-style-type: none"> - Tie rods - Vacuum supporting rings - Guide sleeves - Potential equalisation - Flame-resistant protective covers - Dust and splash protection covers - Earth cover / sun protection cover Further information on page 99 - 105. |

Specifications

| Bellow | | Core (inner) | Bellow design | | Max. temperature °C | Permissible operating data | | | | | | |
|--------------------|----------------|--------------|---------------|---------------|---------------------|----------------------------|-----|----|-----|----|-----|----|
| Colour code | Colour marking | | Reinforcement | Cover (outer) | | °C | bar | °C | bar | °C | bar | °C |
| red | ■ | EPDM | Polyamide | EPDM | 100 | | | | | | | |
| blue | ■ | EPDM TW | Polyamide | EPDM | 100 | | | | | | | |
| white-red | □ ■ | EPDM beige | Polyamide | EPDM | 100 | | | | | | | |
| green | ■ | CSM | Polyamide | CSM | 100 | | | | | | | |
| yellow | ■ | NBR | Polyamide | NBR | 100 | | | | | | | |
| white | □ | NBR beige | Polyamide | NBR | 100 | | | | | | | |
| grey | □ | CR | Polyamide | CR | 90 | | | | | | | |
| red-blue-red | ■ ■ ■ | EPDM | Aramid | EPDM | 100 | | | | | | | |
| blue-blue-blue | ■ ■ ■ | EPDM TW | Aramid | EPDM | 100 | | | | | | | |
| white-blue-red | □ ■ ■ | EPDM beige | Aramid | EPDM | 100 | | | | | | | |
| orange-blue-orange | ■ ■ ■ | EPDM HT | Aramid | EPDM HT | 125 | | | | | | | |
| green-blue-green | ■ ■ ■ | CSM | Aramid | CSM | 100 | | | | | | | |
| yellow-blue-yellow | ■ ■ ■ | NBR | Aramid | NBR | 100 | | | | | | | |
| white-blue-white | □ ■ □ | NBR beige | Aramid | NBR | 100 | | | | | | | |
| grey-blue-grey | □ ■ □ | CR | Aramid | CR | 90 | | | | | | | |
| lilac-blue-lilac | ■ ■ ■ | FPM | Aramid | FPM | 180 | | | | | | | |
| - | - | Silicone | Aramid | Silicone | 180 | | | | | | | |
| - | - | Silicone | Glass fabric | Silicone | 200 | | | | | | | |

Expansion joints will be designed according to your operating parameters.

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Application

Type 42 red (EPDM)

For water, sea water, cooling water with glycol or other chemical additives for treating water, salt solutions, weak acids and weak alkalis. Unsuitable for aliphatic, aromatic and chlorinated hydrocarbons, oil or oily media.

Type 42 blue (EPDM TW)

Like type 42 red, but approved for drinking water.

Type 42 white-red (EPDM beige)

Like type 42 red, but with light-coloured rubber in food-grade (FDA and EG 1935/2004 conform). Not approved for drinking water.

Type 42 green (CSM)

For chemicals, aggressive, chemical waste water and compressor air containing oil.

Type 42 yellow (NBR)

For oils, fats, gases, diesel fuels, kerosene and crude oil. Not suitable for aromatic and chlorinated hydrocarbons, esters and ketones.

Type 42 white (NBR beige)

Like type 42 yellow, but with light-coloured internal rubber in food-grade (FDA and EG 1935/2004 conform). Not approved for drinking water!

Type 42 grey (CR)

For water, waste water, swimming pool water, salt water, cooling water with anti-corrosive products containing oil, oil mixtures and compressed air containing oil.

Type 42 red-blue-red (EPDM/aramid)

Like type 42 red, but with aramid fabric.

Type 42 blue-blue-blue (EPDM TW/aramid)

Like type 42 blue, but with aramid fabric.

Type 42 white-blue-red (EPDM beige/aramid)

Like type 42 white-red, but with aramid fabric.

Type 42 orange-blue-orange (EPDM HT/aramid)

Like type 42 red, but with aramid fabric and for temperatures up to +125 °C.

Type 42 green-blue-green (CSM/aramid)

Like type 42 green, but with aramid fabric.

Type 42 yellow-blue-yellow (NBR/aramid)

Like type 42 yellow, but with aramid fabric.

Type 42 white-blue-white (NBR beige/aramid)

Like type 42 white-grey, but with aramid fabric.

Type 42 grey-blue-grey (CR/aramid)

Like type 42 grey, but with aramid fabric.

Type 42 lilac-blue-lilac (FPM/aramid)

For flue gas desulphurisation systems and bio-diesel. High chemical resistance to benzene, xylene, toluene, aromatic, chlorinated hydrocarbons, mineral acids and fuels with an aromatic content of more than 50 %. Temperatures of up to +180 °C.

Type 42 silicone (silicone/glass fabric or aramid)

Suitable for hot air, acetic acid. Satisfactory resistance to aliphatic engine and gear oils. Also available in foodstuff quality. Excellent resistance to ageing, UV, ozone and weather. Very good radiation resistance. Not for use with steam above 120 °C. No resistance to fuels.

Important information

For aggressive media, please have the material resistance checked by our engineers. The bellows must not be painted or insulated at media temperatures >50 °C. Please also observe the planning instructions and the tolerances according to the FSA manual (page 117) in the technical appendix!



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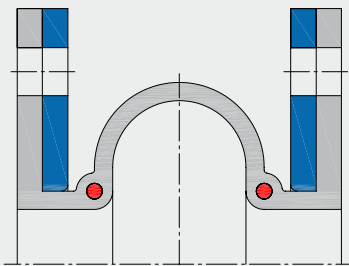
Versions

Type 42 is produced with solid rubber flanges. To ensure a tight connection to the pipe/assembly, the counter flange should be flat and have no raised face. If this is not possible, the expansion joint flange can be produced with a negative recess (see versions 2 and 4) in order to accommodate the raised face of the counter flange and ensure a flat connection.

Alternatively, spacer rings can be used.

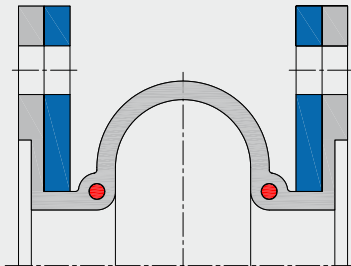
Version 1

Both sides with solid rubber flanges and vulcanised supporting rings at the corrugation foot.



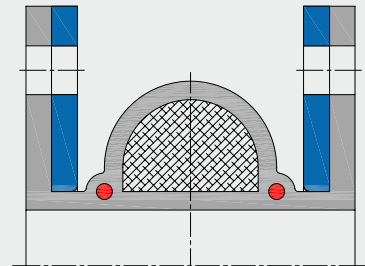
Version 2

Both sides with solid rubber flanges and negative recess for counter flanges with raised face and vulcanised supporting rings at the corrugation foot.



Version 3

Both sides with solid rubber flanges, with filled corrugation vulcanised supporting rings at the corrugation foot.



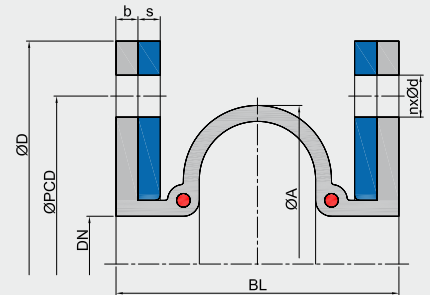
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Design A - without tie rods

Can be used for absorb movements in all directions (for combined movements, refer to the movement diagram in the technical appendix), for vibration and noise damping.

The expansion joint's reaction force must be absorbed through appropriate pipeline guidance (see planning instructions in the appendix).

(Example illustration - version 3)



Dimensions for design A (Example values - may vary depending on specification)

| DN | Overall length BL*1 | Bellows | | | Flange PN 10*3 | | | | | Movement absorption*4 | | | |
|------|------------------------|---------|----|-----------------|----------------|------|----|----|----|-----------------------|------------|--------------|--------------|
| | | ØA | b | WF*2 | ØD | ØPCD | Ød | n | s | axial + | axial - | lateral ± | angular ± |
| | mm | mm | mm | mm ² | mm | mm | mm | | mm | mm | mm | mm | ∠° |
| 50 | 200 | 110 | 10 | 6360 | 165 | 125 | 18 | 4 | 20 | 10 | 20 | 15 | 10.0 |
| 65 | 200 | 125 | 10 | 8650 | 185 | 145 | 18 | 8 | 20 | 10 | 20 | 15 | 10.0 |
| 80 | 200 | 140 | 10 | 11300 | 200 | 160 | 18 | 8 | 20 | 10 | 20 | 15 | 10.0 |
| 100 | 200 | 160 | 10 | 15400 | 220 | 180 | 18 | 8 | 20 | 14 | 34 | 15 | 15.6 |
| 125 | 200 | 185 | 10 | 21370 | 250 | 210 | 18 | 8 | 20 | 10 | 34 | 15 | 12.6 |
| 150 | 200 | 210 | 10 | 28830 | 285 | 240 | 22 | 8 | 20 | 10 | 34 | 15 | 10.6 |
| 200 | 250 | 280 | 10 | 53066 | 340 | 295 | 22 | 8 | 25 | 20 | 34 | 26 | 8.0 |
| 250 | 250 | 330 | 10 | 75439 | 395 | 350 | 22 | 12 | 25 | 20 | 34 | 26 | 6.4 |
| 300 | 250 | 384 | 10 | 104009 | 445 | 400 | 22 | 12 | 25 | 20 | 34 | 28 | 5.3 |
| 350 | 250 | 432 | 10 | 133249 | 505 | 460 | 22 | 16 | 25 | 20 | 34 | 27 | 4.6 |
| 400 | 250 | 484 | 13 | 169007 | 565 | 515 | 26 | 16 | 25 | 20 | 34 | 27 | 4.0 |
| 450 | 250 | 532 | 13 | 197823 | 615 | 565 | 26 | 20 | 30 | 20 | 34 | 27 | 3.6 |
| 500 | 250 | 585 | 13 | 241800 | 670 | 620 | 26 | 20 | 30 | 20 | 34 | 27 | 3.2 |
| 600 | 250 | 685 | 13 | 336785 | 780 | 725 | 30 | 20 | 30 | 20 | 34 | 27 | 2.9 |
| 700 | 250 | 786 | 13 | 448656 | 895 | 840 | 30 | 24 | 30 | 20 | 34 | 26 | 2.7 |
| 800 | 300 | 917 | 13 | 617614 | 1015 | 950 | 33 | 24 | 30 | 22 | 41 | 34 | 3.1 |
| 900 | 300 | 1017 | 13 | 764723 | 1115 | 1050 | 33 | 28 | 30 | 22 | 41 | 33 | 2.8 |
| 1000 | 300 | 1117 | 13 | 927532 | 1230 | 1160 | 36 | 28 | 30 | 22 | 41 | 33 | 2.5 |
| 1100 | 300 | 1217 | 13 | 1106041 | 1345 | 1270 | 36 | 32 | 30 | 22 | 41 | 33 | 2.3 |
| 1200 | 300 | 1317 | 13 | 1300250 | 1455 | 1380 | 39 | 32 | 30 | 22 | 41 | 32 | 2.1 |
| 1300 | 300 | 1417 | 13 | 1510159 | 1565 | 1485 | 42 | 32 | 30 | 22 | 41 | 32 | 1.9 |
| 1400 | 300 | 1517 | 13 | 1735768 | 1675 | 1590 | 42 | 36 | 30 | 22 | 41 | 31 | 1.8 |
| 1500 | 300 | 1617 | 13 | 1977077 | 1795 | 1705 | 48 | 36 | 30 | 22 | 41 | 31 | 1.7 |
| 1600 | 300 | 1717 | 13 | 2234086 | 1915 | 1820 | 48 | 40 | 30 | 22 | 41 | 31 | 1.6 |
| 1700 | 300 | 1817 | 13 | 2478817 | 2015 | 1920 | 48 | 44 | 35 | 22 | 41 | 30 | 1.5 |
| 1800 | 300 | 1917 | 13 | 2765656 | 2115 | 2020 | 48 | 44 | 35 | 22 | 41 | 30 | 1.4 |
| 1900 | 300 | 2017 | 13 | 3068195 | 2220 | 2125 | 48 | 48 | 35 | 22 | 41 | 29 | 1.3 |
| 2000 | 300 | 2117 | 13 | 3386434 | 2325 | 2230 | 48 | 48 | 35 | 22 | 41 | 29 | 1.3 |
| 2100 | 350 | 2255 | 13 | 3851387 | 2440 | 2335 | 56 | 48 | 35 | 24 | 47 | 38 | 1.4 |
| 2200 | 350 | 2355 | 13 | 4206992 | 2550 | 2440 | 56 | 52 | 35 | 24 | 47 | 37 | 1.3 |
| 2400 | 350 | 2555 | 13 | 4965302 | 2760 | 2650 | 56 | 56 | 35 | 24 | 47 | 36 | 1.1 |
| 2500 | 350 | 2655 | 13 | 5368007 | 2860 | 2750 | 56 | 56 | 35 | 24 | 47 | 36 | 1.1 |
| 2600 | 350 | 2755 | 13 | 5786412 | 2960 | 2850 | 56 | 60 | 35 | 24 | 47 | 35 | 1.1 |
| 2800 | 350 | 2955 | 13 | 6670322 | 3180 | 3070 | 56 | 64 | 35 | 24 | 47 | 34 | 1.0 |
| 3000 | 350 | 3155 | 13 | 7617032 | 3405 | 3290 | 62 | 68 | 35 | 24 | 47 | 33 | 0.9 |

*1 Overall length range 150 mm to 500 mm. For larger overall lengths the feasibility must be checked. For smaller overall lengths, please also refer to our types 49, 50 and 55.

*2 The effective area (WF), the rubber flange thickness (b) and the outer diameter of the corrugation (ØA) may vary depending on the design.

*3 Other standards/dimensions possible.

*4 Movement absorption can be increased by changing the corrugated and overall length.

- Maximum size DN 5000.

- Table values correspond to a bellows design with 6 bar operating pressure at 60 °C.

Important information

Please note the appropriate fixed point constructions and plain bearings in your piping system, as well as the tolerances as per the FSA Handbook (see the technical appendix on page 117)! Information on this can be found in our planning instruction (page 107 - 117). Regarding the bracing, please refer to the information in the technical appendix.

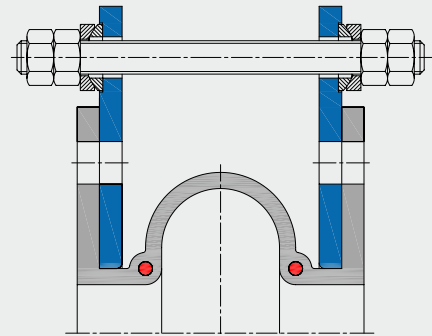
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Design E - with tie rods

For absorbing the expansion joint's reaction force in the direction of expansion while also absorbing high lateral movement.

The use of PTFE-coated spherical washers and conical sockets reduces the frictional force considerably during lateral movement. Can be used for vibration insulation and absorbing lateral movement.

Note: The number of tie rods is calculated from the available design data.

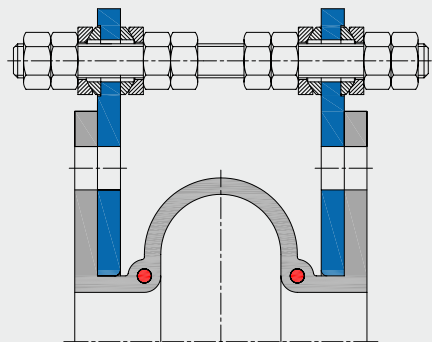


Design M - with tie rods/thrust limiters

For absorbing the expansion joint's reaction force in the direction of expansion while also absorbing high lateral movement and preventing the bellows from strong compression. The use of PTFE-coated spherical washers and conical sockets reduces the frictional force considerably during lateral movement.

Can be used for vibration insulation and absorbing lateral movement. This design can also be used without spherical washers and conical sockets for dismantling (design T).

Note: The number of tie rods is calculated from the available design data.



Design A - without tie rods, with filled corrugation

Can be used for movement absorption in any direction (for combined movements, see the movement diagram in the technical appendix), noise and vibration insulation.

The expansion joint's reaction force must be absorbed via suitable piping (see fitting instructions in the appendix).

Note: Limited movement absorption

