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.
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.
Pressure resistance	Design according to customer specification, max. 25 bar operating pressure.
Vacuum resistance	Vacuum-proof due to vulcanised supporting rings at the corrugation foot.
Approvals/conformity	Drinking water conform, FDA and EG 1935/2004 conform (Detailed overview on page 5.)
Accessories	- 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		Bellow design				Permissible operating data									
Colour code	Colour marking	Core (inner)	Reinforcement	Cover (outer)	Max. temperature °C	°C	bar	°C	bar	°C	bar	°C	bar	°C	bar
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	Expansion joints will designed according to your operating parameters.									
white-blue-red		EPDM beige	Aramid	EPDM	100										
orange-blue-orange		EPDM HT	Aramid	EPDM HT	120										
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										

WILLBRANDT **Rubber Expansion Joint Type 42**

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 drinking water conform.

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 +120 °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, 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!

WILLBRANDT **Rubber Expansion Joint Type 42**

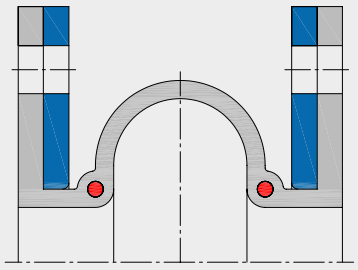
Versions

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.

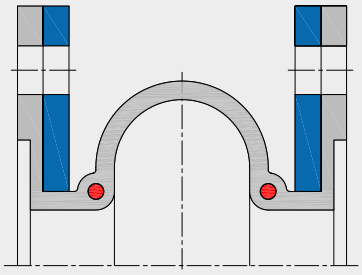
Version 1

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



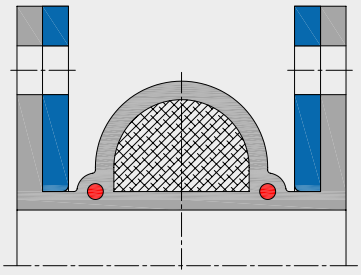
Version 2

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



Version 3

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



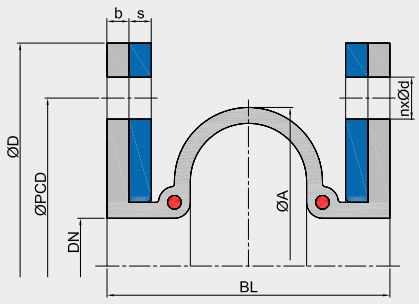
WILLBRANDT **Rubber Expansion Joint Type 42**

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 1)



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

DN	Length	Bellow			Flange PN 10*3					Movement absorption*4			
	BL*1	ØA	b	WF*2	ØD	ØPCD	Ød	n	s	axial +	axial -	lateral ±	angular ±
	mm	mm	mm	mm²	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 Length range 150 mm to 500 mm. For larger lengths the feasibility must be checked. For smaller 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 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. Regarding the bracing, please refer to the information in the technical appendix (page 99 - 102).

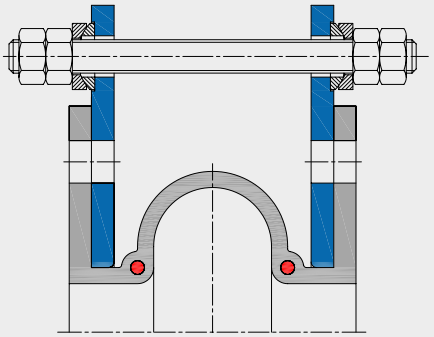
WILLBRANDT **Rubber Expansion Joint Type 42**

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.

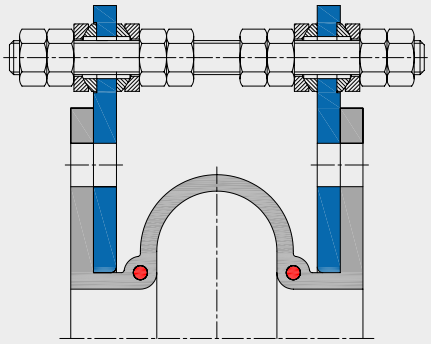


Design M - with tie rods/thrust limiters

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