

# WILLBRANDT Rubber Expansion Joint Type 59

DN 350 - DN 1500

Type 59 is a conical or eccentric-conical rubber expansion joint that achieves very low flow resistance because of its uncorrugated bellow geometry. It is suitable for conveying media that contain solids, even at high flow rates. It is also characterised by its variety of rubber qualities, which means that a suitable rubber compound is available for every application (see material descriptions on the following pages). Its design means that it can only absorb minimal expansion! Alternate installation lengths are possible in individual cases after prior examination.

Type 59 is used in plant engineering, water technology and wastewater technology, where it is used to absorb lateral movement and vibration and to insulate sound.



<b>Bellow design</b>	Smooth conical or eccentric rubber bellow with reinforcement with a moulded, pressure-resistant solid rubber flange on the small side and moulded sealing bead with a core ring on the other side (self-sealing - no additional seals required). Can also be constructed with both sides full faced rubber flange depending on the size and pressure. Suitable for backing/swiveling flanges.	<b>Flange version</b>	On one side a galvanized steel backing flange, on the other, a swiveling galvanized steel flange with clearance holes, drilled according to DIN PN 10 (standard) or with both sides galvanized steel backing flange. Other materials and dimensions are possible.
<b>Accessories</b>	<ul style="list-style-type: none"> <li>- Potential equalisation</li> <li>- Flame-resistant protective covers</li> <li>- Dust and splash protection covers</li> <li>- Earth cover / sun protection hoods</li> <li>- Segment tie rods</li> </ul>	<b>Vacuum resistance</b>	Only vacuum-resistant with a vulcanised vacuum supporting spiral.
		<b>Approvals/Conformity</b>	Drinking water approval, FDA and EG 1935/2004 conform

## Specifications

Bellow		Bellow design			Max. temperature °C	Permissible operating data									
Colour code	Colour marking	Core (inner)	Reinforcement	Cover (outer)		°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										
red		EPDM AF	Polyamide	EPDM	100										
green		CSM	Polyamide	CSM	100										
yellow-grey		NBR	Polyamide	CR	100										
white-grey		NBR beige	Polyamide	CR	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										
red-blue-red		EPDM AF	Aramid	EPDM	100										
green-blue-green		CSM	Aramid	CSM	100										
yellow-blue-grey		NBR	Aramid	CR	100										
white-blue-grey		NBR beige	Aramid	CR	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.

## Important information

For aggressive media, please see the resistance table (can be requested separately).  
 The bellows should not be painted or insulated. Please refer to the installation instructions.  
 ++++ We will be happy to send you further information on the individual types and designs. ++++

## WILLBRANDT Rubber Expansion Joint Type 59

### Application

#### Type 59 red (EPDM)

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

#### Type 59 blue (EPDM TW)

Like Type 59 red, but approved for drinking water.

#### Type 59 white-red (EPDM beige)

Like Type 59 red, but with light-coloured rubber in food-grade.

#### Type 59 red AF (EPDM AF)

Like Type 59 red, but with abrasion-resistant EPDM rubber compound.

#### Type 59 green (CSM)

For chemicals, aggressive, chemical wastewater and compressor air containing oil.

#### Type 59 yellow-grey (NBR)

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

#### Type 59 white-grey (NBR beige)

Like Type 59 yellow-grey, but with light-coloured internal rubber in food-grade. Not approval for drinking water!

#### Type 59 grey (CR)

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

#### Type 59 red-blue-red (EPDM/aramid)

Like Type 59 red, but with aramid fabric.

#### Type 59 blue-blue-blue AF (EPDM TW/aramid)

Like Type 59 blue, but with aramid fabric.

#### Type 59 white-blue-red AF (EPDM beige/aramid)

Like Type 59 white-red, but with aramid fabric

#### Type 59 orange-blue-orange AF (EPDM HT/aramid)

Like Type 59 red, but with aramid fabric and for temperatures up to +125 °C.

#### Type 59 red-blue-red AF (EPDM AF/aramid)

Like Type 59 red AF, but with aramid fabric.

#### Type 59 green-blue-green (CSM/aramid)

Like Type 59 green, but with aramid fabric.

#### Type 59 yellow-blue-grey (NBR/aramid)

Like Type 59 yellow-grey, but with aramid.

#### Type 59 white-blue-grey (NBR white/aramid)

Like Type 59 white-grey, but with aramid fabric.

#### Type 59 grey-blue-grey (CR/aramid)

Like Type 59 grey, but with aramid fabric.

#### Type 59 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 %. For temperatures of up to +180 °C.

#### Type 59 silicone (silicone/glass fibre 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.

#### Note!

Detailed material descriptions on pages 5 - 7.

### 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 118)! You can find information on this in our installation instructions (p. 97 - 116).

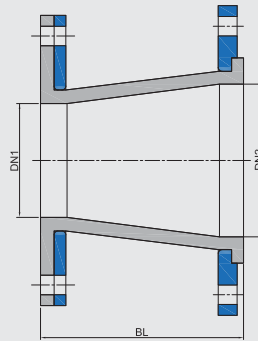
++++ We will be happy to send you further information on the individual types and designs. +++++

# WILLBRANDT Rubber Expansion Joint Type 59

## Design A - concentric, without tie rods

Can be used to absorb compression and lateral movement, as well as to absorb vibration and insulate sound.

Can only absorb minimal expansion.



## Dimensions - Design A, concentric

DN1	DN2	Length BL mm	Bellow WF* mm <sup>2</sup>	Movement absorption	
				axial - mm	lateral ± mm
350	400	300	125600	4	7
350	500	350	196250	10	12
400	500	400	196250	7	8
400	600	650	282600	13	13
500	600	340	282600	7	8
500	700	650	384650	13	13
500	800	900	502400	20	17
500	900	1150	635850	26	21
500	1000	1400	785000	33	25
500	1100	1650	949850	41	29
500	1200	1900	1130400	48	32
600	700	400	384650	8	8
600	800	650	502400	14	12
600	900	900	635850	21	16
600	1000	1150	785000	28	20
600	1100	1400	949850	35	24
600	1200	1650	1130400	42	28
700	800	400	502400	8	8
700	900	650	635850	15	12
700	1000	900	785000	21	16
700	1100	1150	949850	28	20
700	1200	1400	1130400	36	24
700	1300	1650	1326650	43	27
800	900	400	635850	8	7
800	1000	650	785000	15	12
800	1100	900	949850	22	16
800	1200	1150	1130400	29	20
800	1300	1400	1326650	37	23

\* WF = effective area

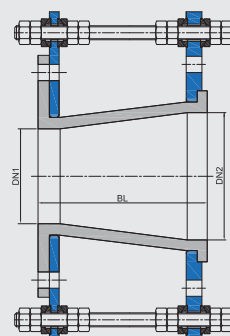
DN1	DN2	Length BL mm	Bellow WF* mm <sup>2</sup>	Movement absorption	
				axial - mm	lateral ± mm
800	1400	1650	1538600	45	27
900	1000	400	785000	8	7
900	1100	650	949850	15	11
900	1200	900	1130400	23	15
900	1300	1150	1326650	30	19
900	1400	1400	1538600	38	23
900	1500	1650	1766250	46	27
1000	1100	400	949850	9	7
1000	1200	650	1130400	16	11
1000	1300	900	1326650	23	15
1000	1400	1150	1538600	31	19
1000	1500	1400	1766250	39	22
1000	1600	1650	2009600	47	26
1100	1200	400	1130400	9	7
1100	1300	650	1326650	16	11
1100	1400	900	1538600	24	15
1100	1500	1150	1766250	32	18
1100	1600	1400	2009600	40	22
1200	1300	400	1326650	9	7
1200	1400	650	1538600	17	11
1200	1500	900	1766250	25	14
1200	1600	1150	2009600	33	18
1300	1400	400	1538600	9	7
1300	1500	650	1766250	17	10
1300	1600	900	2009600	25	14
1400	1500	400	1766250	9	6
1400	1600	650	2009600	17	10
1500	1600	400	2009600	10	6

- Movement absorption is for a bellow design with 6 bar operating pressure.
- Other flange connection dimensions available on request.
- Special overall lengths and nominal diameter are possible in individual cases.

## Length limiters / Tie rods

It is advisable to use tie rods / shear limiters on these expansion joints (Design M - see illustration). The conical bellow is inflated by the rise in pressure, which shortens the expansion joint and applies high tensile force to the connections.

It is also available with tie rods only (Design E).

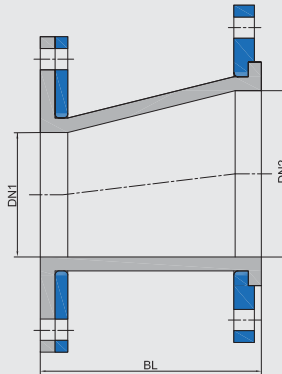


# WILLBRANDT Rubber Expansion Joint Type 59

## Design A - eccentric, without tie rods

Can be used to absorb compression and lateral movement, as well as to absorb vibration and insulate sound.

Can only absorb minimal expansion.



## Dimensions - Design A, eccentric

DN1	DN2	Length BL mm	Bellows WF* mm <sup>2</sup>	Movement absorption	
				axial - mm	lateral ± mm
350	400	350	1125600	5	8
350	500	650	196250	11	14
400	500	500	196250	8	11
400	600	750	282600	14	15
500	600	500	282600	8	10
500	700	750	384650	14	15
500	800	1050	502400	21	20
500	900	1300	635850	28	24
500	1000	1550	785000	35	28
500	1100	1850	949850	43	32
500	1200	2100	1130400	50	36
600	700	500	384650	9	10
600	800	800	502400	15	15
600	900	1050	635850	22	19
600	1000	1300	785000	29	23
600	1100	1600	949850	37	28
600	1200	1850	1130400	44	31
600	1300	2100	1326650	52	35
700	800	550	502400	9	10
700	900	800	635850	16	15
700	1000	1050	785000	23	19
700	1100	1350	949850	30	23
700	1200	1600	1130400	38	27
700	1300	1850	1326650	45	31
700	1400	2150	1538600	54	35
800	900	550	635850	10	10
800	1000	800	785000	16	14
800	1100	1100	949850	24	19

\* WF = effective area

DN1	DN2	Length BL mm	Bellows WF* mm <sup>2</sup>	Movement absorption	
				axial - mm	lateral ± mm
800	1200	1350	1130400	31	23
800	1300	1600	1326650	38	27
800	1400	1900	1538600	47	31
800	1500	2150	1766250	55	35
900	1000	550	785000	10	10
900	1100	850	949850	17	15
900	1200	1100	1130400	25	19
900	1300	1150	1326650	32	22
900	1400	1650	1538600	40	27
900	1500	1900	1766250	48	31
900	1600	2150	2009600	57	34
1000	1100	600	949850	11	10
1000	1200	850	1130400	18	14
1100	1200	600	1130400	11	10
1100	1300	850	1326650	18	14
1100	1400	1150	1538600	27	19
1100	1500	1400	1766250	34	22
1100	1600	16500	2009600	42	26
1200	1300	600	1326650	11	10
1200	1400	900	1538600	19	15
1200	1500	1150	1766250	27	18
1200	1600	1400	2009600	35	22
1300	1400	650	1538600	12	11
1300	1500	900	1766250	20	14
1300	1600	1150	2009600	28	18
1400	1500	650	1766250	12	10
1400	1600	900	2009600	20	14
1500	1600	650	2009600	12	10

- Movement absorption is for a bellows design with 6 bar operating pressure.
- Other flange connection dimensions available on request.
- Special overall lengths and nominal diameter are possible in individual cases.

## Length limiters / Tie rods

It is advisable to use tie rods/shear limiters on these expansion joints (Design M - see illustration), as the conical bellows is inflated by the rise in pressure, which shortens the expansion joint and applies high tensile force to the connections.

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