TYPE 53

TYPE 53
RUBBER EXPANSION JOINT



DN 20 to DN 600
Type 53 is a low-corrugated, highly elastic Rubber Expansion Joint. Its low corrugation helps to achieve very low flow resistance. It reduces up to 70% of the incoming energy. It is also characterise by very high movement absorption in all directions and variety of rubber qualities, which means that a suitable rubber compound is available for every application. Type 53 is used in building technology, plant engineering, water and wastewater technology, engine construction, shipbuilding, and in solar and wind plant engineering. It is especially used to absorb expansion and vibration, and to insulate sound.

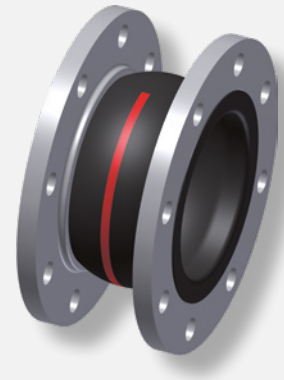
Bellow design
Low-corrugated Rubber Bellow with reinforcement and shaped sealing bead with core ring, self-sealing (no additional seals required). Suitable for accommodating swiveling flanges.

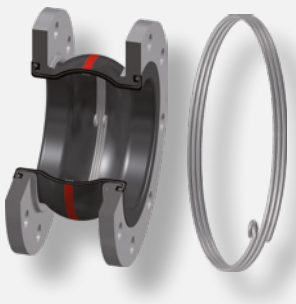
Flange Version
Both sides with swiveling flange made of galvanized steel with clearance holes, drilled according to DIN PN 10 (standard). Other materials and dimensions are possible.

Vacuum resistance
- DN 20 to 50 vacuum-resistant without additional accessories
- DN 65 to 250 without additional accessories to -300 mbar and with vacuum supporting spiral for full vacuum
- DN 300 to DN 600 only vacuumre-sistant with vacuum supporting ring

Accessories
- Guide sleeves
- Potential equalisation
- Flame-resistant protective covers
- Dust and splash protection covers
- Earth cover / sun protection hoods
- Segment tie rods

Important information
For aggressive media, please see the resistance table (which is available on request). The Bellows should not be painted or insulated. Please refer to the installation instructions, which is available on request.
We will be happy to send you further information on the individual types and designs.





Vacuum support

Belman

TYPE 53

SPECIFICATIONS
FOR DN 20 - DN 400

BELLOW		BELLOW DESIGN			PERMISSIBLE OPERATING DATA									SURFACE RESISTANCE RO
Colour code	Colour marking	Core (inner)	Rein-forcement	Cover (outer)	°C	bar	°C	bar	°C	bar	°C	bar	Short-term °C	Ohm x cm
Red EPDM		EPDM	Polyamide	EPDM	-30	10	50	16	70	12	90	10	100	3×10^5
Yellow NBR		NBR	Polyamide	CR	-20	10	50	16	70	12	90	10	100	2×10^2
Grey		CR	Polyamide	CR	-20	10	50	16	70	12	80	10	100	8×10^{11}

Bursting pressure DN 20 - 400 > 48 bar

For pressure loss see technical appendix (which is available on request)

SPECIFICATIONS
FOR DN 450 - DN 600

BELLOW		BELLOW DESIGN			PERMISSIBLE OPERATING DATA									SURFACE RESISTANCE RO
Colour code	Colour marking	Core (inner)	Rein-forcement	Cover (outer)	°C	bar	°C	bar	°C	bar	°C	bar	Short-term °C	Ohm x cm
Red EPDM		EPDM	Polyamide	EPDM	-30	8	50	10	70	8	90	6	100	3×10^5
Yellow NBR		NBR	Polyamide	CR	-20	8	50	10	70	8	90	6	100	2×10^2
Grey		CR	Polyamide	CR	-20	8	50	10	70	8	80	6	100	8×10^{11}

Bursting pressure DN 450 - 600 > 30 bar

For pressure loss see technical appendix (which is available on request)

APPLICATION

Type 53 Red EPDM
For cold and hot water (up to 90°C), also with the addition of chemicals for water treatment. Industrial water, acids, lyes, alcohols, esters and ketones. Not suitable for oil-related media.

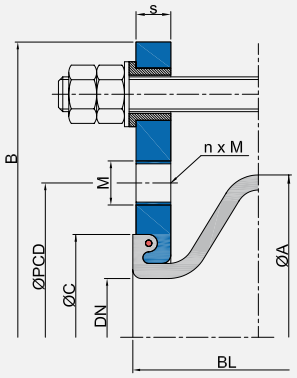
Type 53 Yellow
For oils, lubricants, gases, city and natural gas (not liquefied).

Type 53 Grey
For water, wastewater, swimming pool water, salt water, cooling water with anti-corrosive products containing oil, oil mixtures and compressed air containing oil.

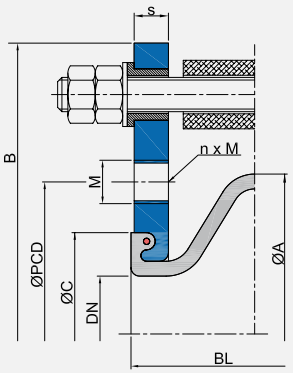
TYPE 53

LENGTH LIMITERS
DESIGN B / C / E / S

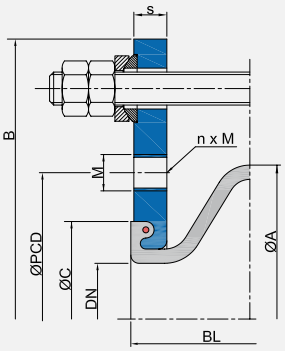
There is a selection of various length limiters / tie rods to absorb the reaction force and to protect the Bellow from overstretching or collapsing:



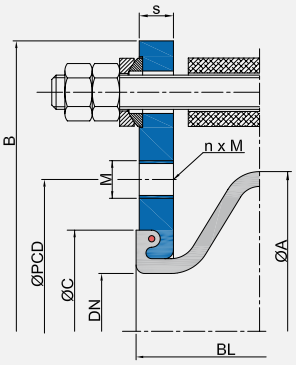
Design B*
with tie rods



Design C*
with tie rods/thrust limiters



Design E
with tie rods and spherical washers/conical sockets

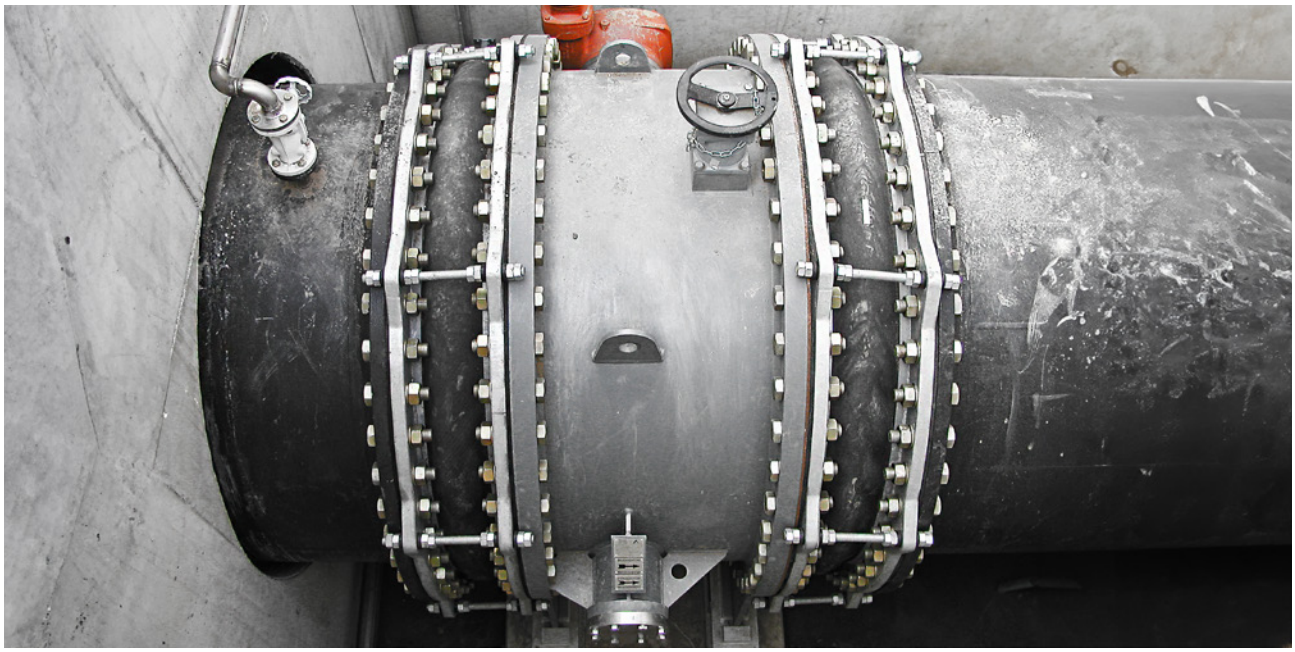


Design S
with tie rods/thrust limiters and spherical washers/conical sockets

*__Note:__ In Designs B and C the lateral movement absorption is reduced by around 50%.

TYPE
53

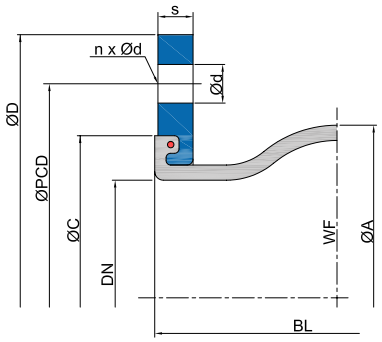
DESIGN A
WITHOUT TIE RODS

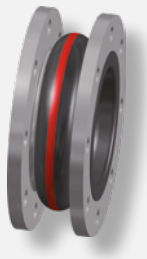


DESIGN A - WITHOUT TIE RODS

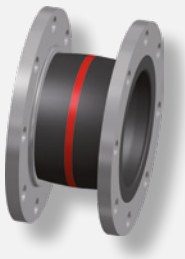
Can be used for movement absorption in any direction (for combined movements, see the movement diagram in the technical appendix, which is available on request), noise and vibration insulation.

The Expansion Joint's reaction force must be absorbed via suitable piping.

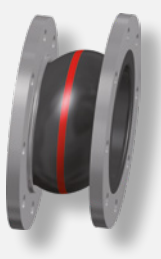




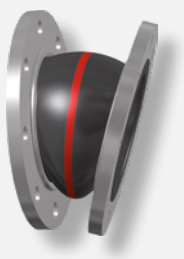
axial -



axial +



lateral +/-



angular +/-

Belman

TYPE 53

DIMENSIONS FOR **DESIGN A (PN 10)**

DN	LENGTH	BELLOW		FLANGE PN 10*2						MOVEMENT ABSORPTION (POLYAMIDE CORD)				WEIGHT
	BL mm	ØA mm	WF*1 mm²	ØD mm	ØPCD mm	Ød mm	n	s mm	ØC mm	AX + mm	AX - mm	LA +/- mm	AN +/- ∠°	kg
20	**130**	81	1700	105	75	12	4	14	66	30	30	30	30	1.5
25	**130**	81	1700	115	85	14	4	14	66	30	30	30	30	1.9
32	**130**	81	1700	140	100	18	4	15	66	30	30	30	30	3.1
40	**130**	86	1800	150	110	18	4	15	74	30	30	30	30	3.5
50	**130**	96	3200	165	125	18	4	16	86	30	30	30	30	3.7
65	**130**	111	5300	185	145	18	8	16	106	30	30	30	30	5.3
80	**130**	122	8500	200	160	18	8	18	118	30	30	30	30	6.8
100	**130**	142	12800	220	180	18	8	18	138	30	30	30	20	7.9
125	**130**	168	18700	250	210	18	8	18	166	30	30	30	20	9.6
150	**130**	192	25900	285	240	22	8	18	192	30	30	30	20	12.9
200	**130**	252	41000	340	295	22	8	20	252	30	30	30	12	16.2
250	**130**	302	59600	395	350	22	12	20	304	30	30	30	12	21.5
300	**130**	354	82200	445	400	22	12	22	354	30	30	30	12	24.5
350	**200**	420	117600	505	460	22	16	24	412	30	50	30	8	38.3
400	**200**	480	154700	565	515	26	16	25	470	30	50	30	8	38.0
450	**200**	530	204200	615	565	26	20	30	520	30	50	30	8	47.2
500	**200**	580	227900	670	620	26	20	30	570	30	50	30	8	56.5
600	**200**	680	311500	780	725	30	20	30	675	30	50	30	8	75.2

*1: WF = effective area

*2: Other standards/dimensions possible.

Permissible degree of utilisation for movement areas:

- up to 50°C: Utilisation ~ 100%
- up to 70°C: Utilisation ~ 75%
- up to 90°C: Utilisation ~ 60%

Important information
Please note the appropriate fix point constructions and plain bearings in your piping system! For more information please refer to our installation instructions, which is available on request.

For information on the tie rods, please see the technical appendix (which is available on request).
We will be happy to send you further information on the individual types and designs.