

Rubber Expansion Joint Type W55

Type W55 is a low corrugation bellows compensator with good sound insulating characteristics (structure- and liquid-borne noise). It is characterized by a high expansion absorption capability, in particular in the angular plane.

Design:

Low corrugation rubber bellows with reinforcing inserts and integral sealing bead (therefore self-sealing without additional gaskets) for accommodating the swivel flanges. The flanges are provided with through holes.



Specifications for DN20 - DN400

Bellow		Bellow design			Permissible operating data								Surface resistance Ro		
													Short-term	Core	Cover
					°C	bar	°C	bar	°C	bar	°C	bar	°C	Ohm x cm	Ohm x cm
red Sp	 	EPDM	PEEK	EPDM	-40	10	70	16	100	10	130	8	150	4 x 10 ³	4 x 10 ³
red		IIR	Polyamide	EPDM	-40	10	50	16	70	12	100	10	120	7 x 10 ⁶	1 x 10 ³
yellow		NBR	Polyamide	CR	-20	10	50	16	70	12	90	10	100	2 x 10 ²	1 x 10 ³
green		CSM	Polyamide	CSM	-20	10	50	16	70	12	100	10	110	7 x 10 ⁹	7 x 10 ⁹
yellow St	 	NBR	Steel cord	CR	-20	10	60	16	70	12	90	10	100	2 x 10 ²	5 x 10 ¹⁰

- Bursting pressure for DN 20 - 400: > 48 bar
 - DN 300 max. 10 bar working pressure

Specifications for DN450 - DN1000

Bellow		Bellow design			Permissible operating data								Surface resistance Ro		
Colour-code	Colour marking	Core (inner)	Reinforcement	Cover (outer)	°C		bar		°C		bar		Short-term °C	Core	Cover
											Ohm x cm	Ohm x cm			
red Sp		EPDM	PEEK	EPDM	-40	8	70	10	100	7.5	130	6	150	4 x 10 ³	4 x 10 ³
red		IIR	Polyamide	EPDM	-40	8	50	10	70	8.0	100	6	120	7 x 10 ⁶	1 x 10 ³
yellow		NBR	Polyamide	CR	-20	8	50	10	70	8.0	90	6	100	2 x 10 ²	1 x 10 ³
green		CSM	Polyamide	CSM	-20	8	50	10	70	8.0	100	6	110	7 x 10 ⁹	7 x 10 ⁹

- Bursting pressure for DN 450 - 1000: > 30 bar
 - The inner core of type 55 red DN 500 and DN 600 is made of EPDM

Flange: (Design A)

Swivel flanges both sides (design A) with integral rubber profile, so that additional gaskets are not required (self-sealing).

The flanges are drilled to DIN PN10 or PN16 as standard. Other specifications in accordance with DIN, ANSI, BS10, JIS. Special flanges are also available.

Flange material:

Standard S235 JRG2 (RSt 37-2) zinc-plated and yellow passivated. Other materials are available on request (flanges up to DN200 are partly provided with forged collars towards the bellows side.)

Note:

For aggressive media, see resistance table. The bellows must not be painted or insulated. Further installation information, see Annex.

Vacuum supporting rings:

Expansion joints type W55 are not vacuum-resistant. To prevent the compensator bellows being drawn together by suction at negative pressure, the insertion of a vacuum supporting spiral (up to DN300), or alternatively a vacuum supporting ring (from DN350), is necessary for a suction value above 2 m (-0.2 barG, 20% negative pressure).

Type W55 red SP

For heating systems according to [DIN 4809](#), with corrosion-proofed PEEK fabric inserts for permanent use in hot water and high temperature water, cooling water and hot air. Not suitable for oil emulsive media. Resistance to weather, ageing and ozone. Temperature range -40 up to +130°C, temporarily up to 150°C, surface area electrically conductive.

Type W55 red

For drinking water, hot water with DVGW W270 and ACS approval, as well as for sea water, cooling water with chemical additives for water treatment, low concentrated acids and lyes, salt solutions. Resistance to weather, ageing and ozone. Temperature range -40 up to +100°C, temporarily up to 120°C, surface area electrically conductive. Not suitable for oil products of all kinds, or cooling water with additives of oil emulsive mixtures.

Type W55 yellow

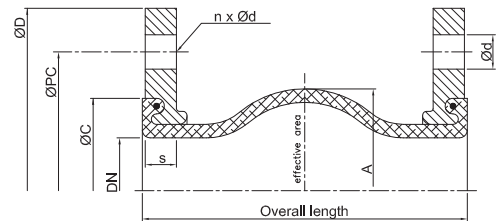
For oil, fuel, gas, fuel-ethanol mixture and DIN EN-fuel with up to 50% aromatic content. Natural and town gas with the exception of liquid gas. Resistance to weather, ageing and ozone. Temperature range -20°C up to +90°C, temporarily up to 100°C, electrically conductive.

Type W55 yellow ST

For oil, fuel, gas, fuel-ethanol mixture and DIN EN-fuel with up to 50% aromatic content. Natural and town gas with the exception of liquid gas. Resistance to weather, ageing and ozone. Temperature range -20°C up to +90°C, temporarily up to 100°C, flame-resistant up to 30 minutes at 800°C, electrically conductive.

Type W55 green

Especially for chemicals and aggressive chemicals, waste water, oil emulsive compressor air. Regarding the media it is essential to pay attention to the media resistance tables. Resistance to weather, ageing and ozone. Temperature range -20°C up to +100°C, temporarily up to 110°C, electrically insulating.



DN	Overall length mm	Bellows		Flange PN 10					Movement absorption				ØC mm
		ØA mm	Eff. area cm ²	ØD mm	ØPC mm	Ød mm	n	s mm	ax + mm	ax - mm	lat +/- mm	∠ ° +/-	
32	125	81	17	140	100	18	4	15	30	30	30	30	65
40	125	86	18	150	110	18	4	15	30	30	30	30	74
50	125	96	32	165	125	18	4	16	30	30	30	30	86
65	125	110	53	185	145	18	4	16	30	30	30	30	105
80	150	122	85	200	160	18	8	18	30	30	30	30	118
100	150	142	128	220	180	18	8	18	30	30	30	20	137
125	150	170	187	250	210	18	8	18	30	30	30	20	166
150	150	196	259	285	240	22	8	18	30	30	30	20	192
200	175	256	409	340	295	22	8	20	30	30	30	12	245
250	175	306	599	395	350	22	12	20	30	30	30	12	295
300	200	410	822	445	400	22	12	22	30	30	30	12	354
350	200	470	1176	505	460	22	16	24	30	40	30	8	412
400	200	480	1547	565	515	26	16	25	30	50	30	8	470
450	250	545	2279	615	565	26	20	25	20	40	30	6	512
500	250	595	2038	670	620	26	20	30	20	40	30	6	570
600	250	695	3310	780	725	30	20	30	20	40	30	6	675
700	275	800	4342	895	840	30	24	35	30	50	30	8	780
800	250	880	5274	1015	950	33	24	40	30	50	30	6	887
900	300	981	7379	1115	1050	33	28	40	30	50	30	5	985
1000	300	1086	8894	1230	1160	36	28	40	30	50	30	5	1085

Permissible % of indicated movement relative to temperature:

up to 50°C ~ 100%

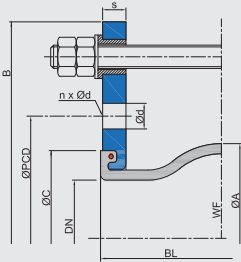
up to 70°C ~ 75%

up to 90°C ~ 60%

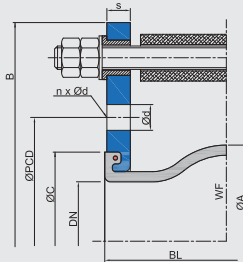
Length limiters

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

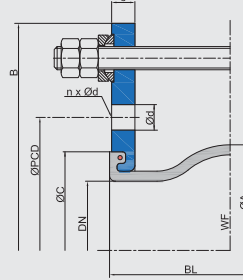
Design B*
with tie rods



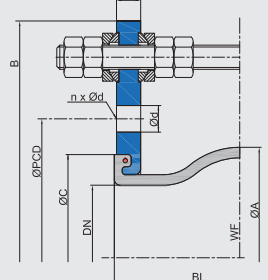
Design C*
with tie rod/thrust limiters



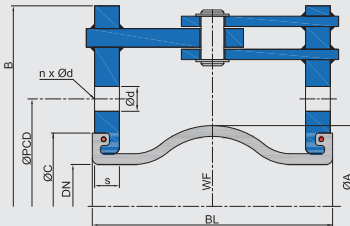
Design E
with tie rods and spherical washers/conical sockets



Design M
with tie rods/thrust limiters with spherical washers/conical sockets



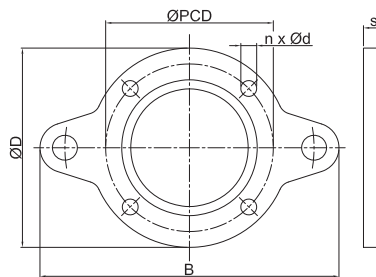
Design F
with hinge



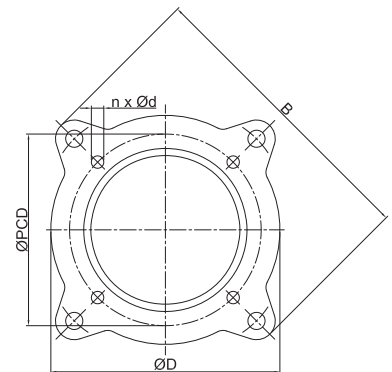
*Note: For Designs B and C the lateral movement absorption is reduced by around 50 %.

Flange dimensions for designs with tie rods

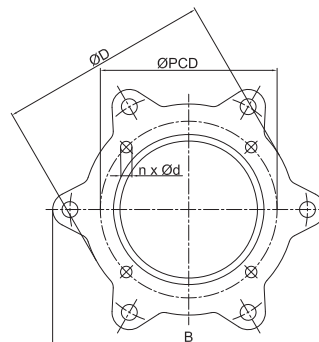
DN	Overall length BL mm	Flange PN 10 (example dimensions)						
		B	ØD	ØPCD	Ød	n	s	ØC
	mm	mm	mm	mm	mm		mm	mm
20	125	189	105	75	12	4	14	66
25	125	205	115	85	14	4	14	66
32	125	230	140	100	18	4	15	66
40	125	240	150	110	18	4	15	74
50	125	255	165	125	18	4	16	86
65	125	275	185	145	18	8	16	106
80	150	290	200	160	18	8	18	118
100	150	310	220	180	18	8	18	138
125	150	340	250	210	18	8	18	166
150	150	375	285	240	22	8	18	192
200	175	440	340	295	22	8	20	252
250	175	509	395	350	22	12	20	304
300	200	559	445	400	22	12	22	354
350	200	619	505	460	22	16	24	412
400	200	700	565	515	26	16	25	470
450	250	760	615	565	26	20	30	520
500	250	810	670	620	26	20	30	570
600	250	930	780	725	30	20	30	675
700	275	1045	895	840	30	24	35	780
800	290	1175	1015	950	33	24	40	887
900	300	1285	1115	1050	33	28	40	987
1000	300	1400	1230	1160	36	28	40	1087



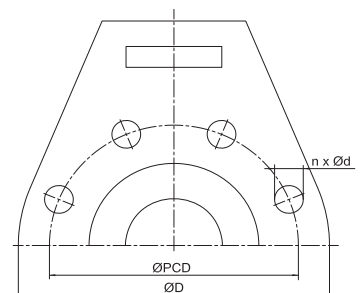
DN 32 - 200



DN 250 - 900



DN 1000



DN 50 - 1000 (Design F)

Since the rubber bellows is a soft flexible component, under pressure, the compensator will always try to move in the axial direction because of its reaction force (bellows cross sectional area x working pressure).

Pipework must be properly anchored and guided (with roller bearings, restraining or anchor points) ; and tie bars fitted on the compensator so that any over-extension of the bellows is avoided. See our range of tie bars above.

Vacuum resistance



- DN 20 to 50 vacuum-resistant without additional accessories
- DN 65 to 250 up to -200 mbar without additional accessories
- DN 300 to 1000 not vacuum-resistant without additional accessories
- DN 65 to 1000 vacuum-resistant with vacuum supporting spiral/ring

Accessories

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

