

TORAFLEX® RUBBER JOINTS

S20 Double Sphere Type

Attributes of Design



8 Light and easy to install, little installation space required, easy maintenance of replaceable bellows.

1 Double sphere design allow greater axial, lateral and angular movements subject to less effort and material wearing down during movements.

2 Precision injection moulded of synthetic rubber and nylon.

7 - 4 different allowable movements: axial compression and expansion, lateral and angular deflection.



6 Loose flanges for easy assembly, specially machined to accept the full turned rubber, with standard execution in zinc plated steel.

3 Outer layer protects the bellows surface from eventual ozone attack, strikes and other environmental aggressions.

5 Full turned rubber design, self-sealing, no additional gaskets are required prevents electrolytic corrosion.

4 Rugged design with high burst pressure, to absorb noise and vibration and withstand water hammers to a certain extent by:

- Inner Reinforcement placed in between the outer and inner layers. Made of Nylon plaited fabrics as standard, which provide high shell moulding resistance.
- End Bellows Reinforcement. Hardened steel wires to provide a greater consistence to the bellows outer neck.

9 Lot number punched for full traceability purpose.



10 Rubber material identification and maximum service temperature.



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Parts and Materials

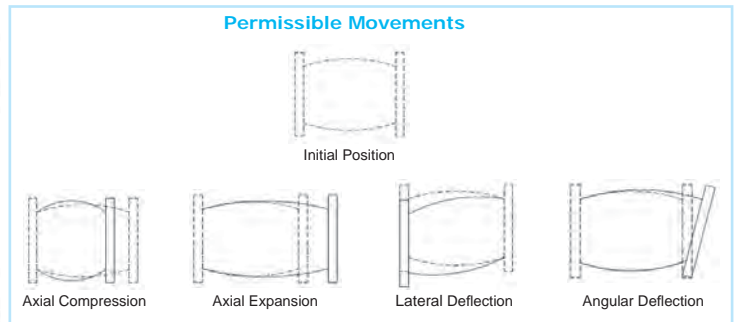
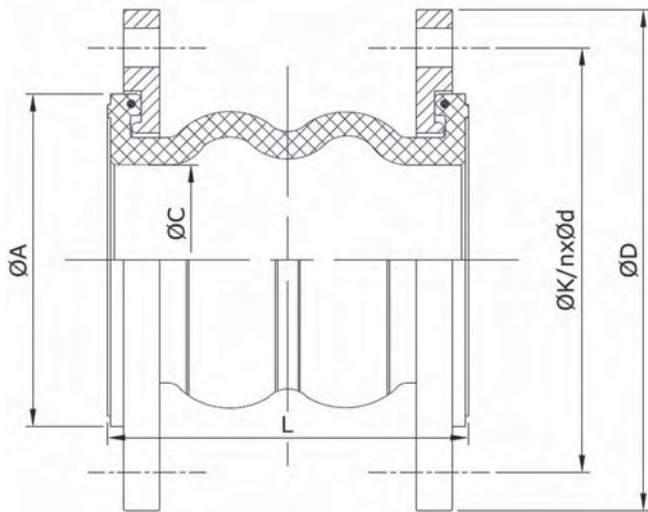


1- Vulcanised Rubber Bellow:	1.1 Rubber core (inner)
	1.2 Nylon tire cord
	1.3 Rubber cover (outer)
	1.4 Hard Steel Wire
Rubber options: EPDM, NBR, Hypalon, Neoprene, Viton, Butyl Rubber, Natural Rubber, PTFE/EPDM	
2- Loose Flanges:	
Standard Material: Carbon Steel Zinc Plated S235JR to EN10025 (old St 37-2 to DIN 17100)	
Flange Options: Stainless Steel AISI 304, AISI 316, etc.	

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Joint Dimensions and Permissible Movements



DN		BUILDING LENGTH (mm)		MAX. PERMISSIBLE MOVEMENTS FROM INITIAL POSITION*				ΦA (mm)	ΦC (mm)	Approx. Weight (kg)	
Inch	mm	INITIAL (L)	TOLERANCE INSTALLED (min-max)	AXIAL COMPRESSION (mm)	AXIAL EXPANSION (mm)	LATERAL DEFLECTION (mm)	ANGULAR DEFLECTION			PN10	PN16/ASA150
1.1/4"	32	175	168-178	50	30	35	40°	68	35	3,5	3,5
1.1/2"	40	175	168-178	50	30	35	40°	68	37	4	4
2"	50	175	168-178	50	30	35	40°	86	50	5,5	5,5
2.1/2"	65	175	168-178	50	30	35	40°	106	65	6	6
3"	80	175	168-178	50	30	35	40°	118	77	8	8
4"	100	225	218-228	57	35	40	35°	152	98	9	9
5"	125	225	218-228	57	35	40	35°	182	122	12	12
6"	150	225	218-228	57	35	40	35°	213	146	14	14
8"	200	325	318-328	63	35	45	30°	262	194	20	21
10"	250	325	318-328	63	35	45	30°	323	245	26	29
12"	300	325	318-328	63	35	45	30°	372	295	32	35
14"	350	350	344-353	40	30	30	20°	410	330	42	50
16"	400	350	344-353	40	30	30	20°	473	380	54	67
18"	450	350	344-353	40	30	30	20°	522	428	62	77
20"	500	350	344-353	40	30	30	20°	570	476	77	119
24"	600	350	344-353	40	30	30	20°	690	596	82	147

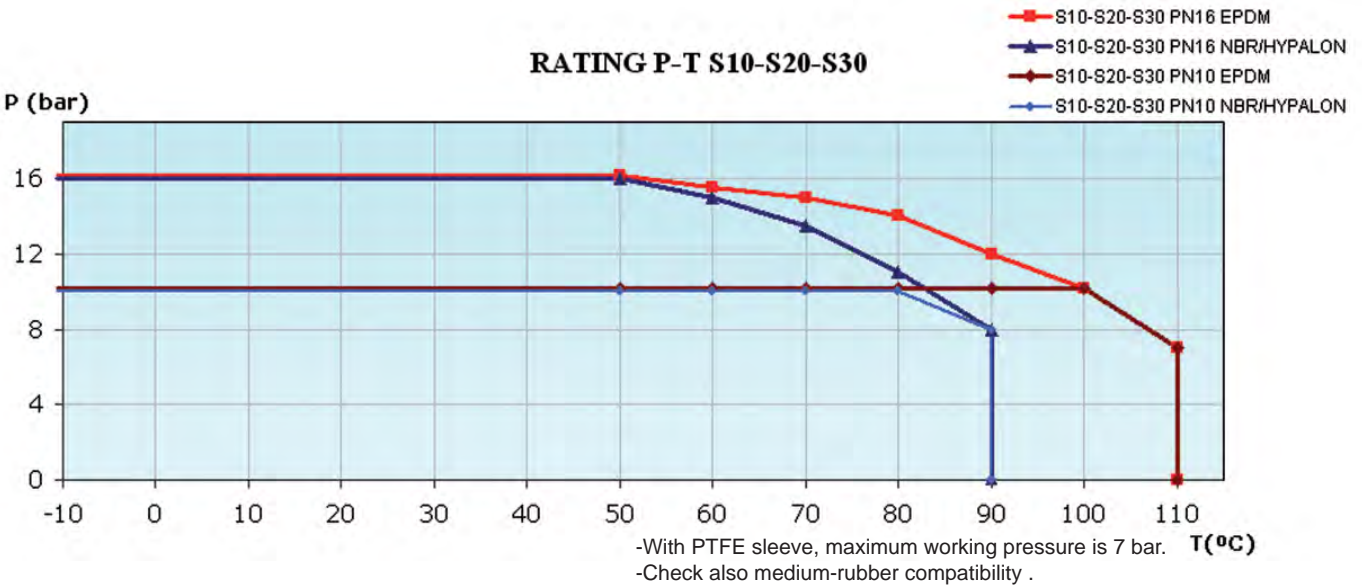
Dimensions are expressed in mm, and subjected to manufacturing tolerances. Data can be altered without notice by our Design Department for the product benefit.
 * The stated movements are solely valid with the joint subject to a single movement direction. Values are proportionally reduced along with the movement combination.
 * Increasing temperatures reduce the permissible movements capacity and number of cycles.

Manufacture Design Standards

- QA certified to EN ISO 9001 procedures.
- Testing procedure according to EN12266-1.
- Marking according to EN19.
- Flanges drilled to EN1092-1 PN10, PN16, or ASME B16.5 ASA150.
- Rubber Joints are excluded from the Pressure Equipment Directive PED 97/23/CE, according to its article 1.3-15.

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Rubber Bellows - Working Parameters



JOINT	BURST PRESSURE
S10-S20 DN32-200 (1.1/4"-8")	60 bar
S10-S20 DN200-600 (10"-24")	40 bar
S30 DN15-80 (1/2"-3")	30 bar

VACUUM APPLICATION

Rubber Joints are resistant to negative pressures to a certain extent. They can become wrinkled depending on vacuum suction degree; herewith the guidelines for vacuum applications:

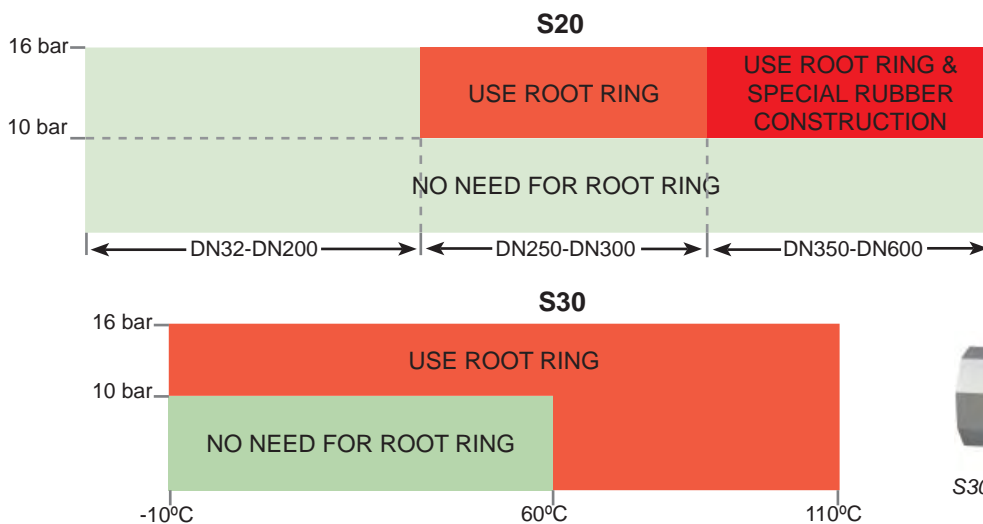
JOINT	TEMPORAL VACUUM LIMIT
S10 DN32-200 (1.1/4"-8")	-0,55 bar-g (0,45 bar-abs)
S10 DN250-600 (10"-24")	-0,25 bar-g (0,75 bar-abs)
S20 DN32-600 (1.1/4"-24")	-0,25 bar-g (0,75 bar-abs)
S30 DN15-80 (1/2"-3")	

For temporal vacuum service beyond these limits, or in case of permanent vacuum service at any value, use special joints with vacuum ring and limit rods assembled as shown in figure at left.



Limits rods for vacuum application in S10 and S20 Joints

USE OF ROOT RINGS FOR DOUBLE SPHERE RUBBER JOINTS



S20 with root ring split type



S30 with root ring integral type