D210x (B/E/C/S/R/K/L)

NB 32 – NB 500

- **Type D210x** (B/E/C/S/R/K/L)
  without vacuum support ring
- **Type D211x** (B/E/C/S/R/K/L)
  with internal vacuum support ring

Type key ▶ page 20

D2 1 0 S
- Tie rod variant
- Support ring variant
- Number of arches
- Type

Lateral expansion joint with one arch

Design: Single-arch rubber bellows with self-sealing rubber bulges and backing flanges with threaded holes and tie rods

Nominal diameters: NB 32 to NB 500

Installation length: L_E = 100 or 110 mm (▶ page 224–225)

Pressure: Depending on the nominal diameter up to 25 bar
Vacuum-proof up to max. 0.8 bar absolute, with vacuum support ring up to 0.05 bar absolute
Design in accordance with Pressure Equipment Directive PED 97/23/EC

Movement: For lateral movements (▶ page 224–225)

Application:
Cooling water systems, desalination plants, drinking water supply, plant construction, e. g. in pipelines, on pumps, as dismantling joints, on condensers and vessels

CE PED 97/23/EC · KTW · FDA · Ω <10⁵ Ohm · EX · TÜV DIN 4809 (Standard sizes) · Shipbuilding certification (Standard sizes)

Rubber bellows

Rubber grades			Carrier
up to 110 °C:	EPDM	Hot water, very high-temperature water dilute chlorine compounds	Nylon fabric Nomex fabric
up to 90 °C:	IIR, drinking water approved	Drinking water, hot water, cold water, seawater, wastewater	
	CSM	Strong acids, bases, chemicals	
	NBR	City gas, natural gas, fuels, lubricants	
up to 80 °C:	NBR, bright, food grade	Oil, fatty foods	

Flanges

Design: Single-part backing flanges with threaded holes, groove to accommodate the rubber bulges and holder for tie rods (control unit type B, E, C, S)

Single-part, round backing flanges with threaded holes, groove to accommodate the rubber bulges and control unit plates (control unit type R, K, L)

Flange norms: DIN, ANSI, AWWA, BS, JIS, special measurements (▶ page 282)

Materials: Carbon steel: 1.0038 (S235JRG2)
Other materials on request

Coating: Galvanised, yellow-neutralized

Optional accessories

Protective hood: UV protection cover
Ground protective cover
Fire protection cover
(▶ page 50)

Flow liners: Cylindrical flow liner
Conical flow liner
Telescoping flow liner
(▶ page 49)

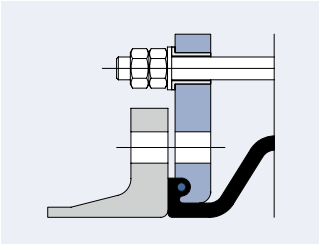
Tie rods

Example:
Type D210C

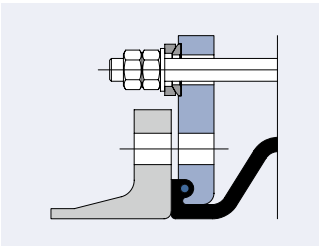
Design: Dimensioning according to design pressure (test pressure) based on the Pressure Equipment Directive

Materials: Carbon steel in strength class 8.8 or stainless steel

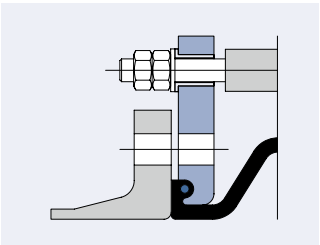
Coating: Spherical bearings and ball disks PTFE-coated
Tie rods galvanised or hot-dip galvanised



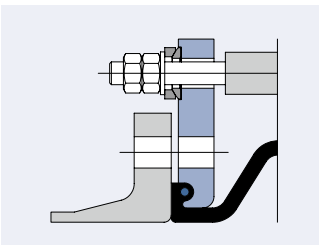
Type D210B
Tie rods mounted outside in rubber bushing to accommodate reaction forces in the event of pressure (up to NB 300)



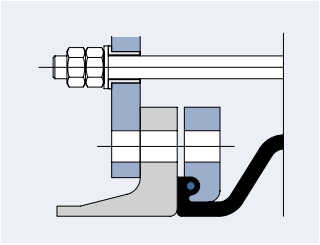
Type D210E
Tie rods mounted outside in spherical bearings and ball disks to accommodate the reaction forces in the event of pressure



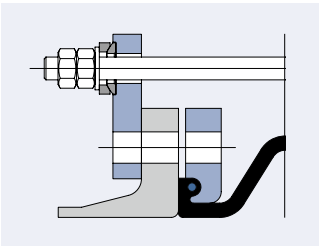
Type D210C
Tie rods mounted outside in rubber bushing and inside in the thrust limiter to accommodate stresses in the event of pressure and vacuum (up to NB 300)



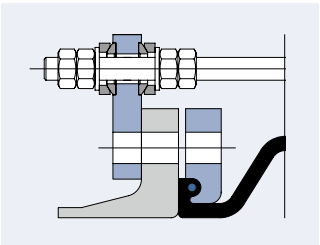
Type D210S
Tie rods mounted outside in spherical bearings and ball disks and inside in thrust limiters to accommodate stresses in the event of pressure and vacuum



Type D210R
Control unit plates: Tie rods mounted outside in rubber bushing to accommodate reaction forces in the event of pressure (up to NB 300)

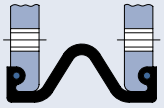
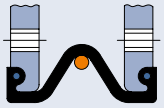


Type D210K
Control unit plates: Tie rods mounted outside in spherical bearings and ball disks to accommodate the reaction forces in the event of pressure



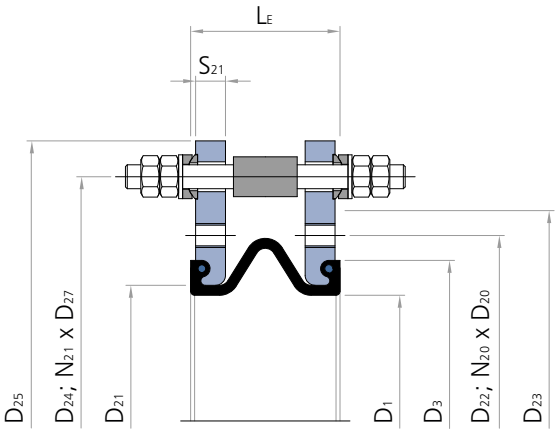
Type D210L
Control unit plates:Tie rods mounted outside and inside in spherical bearings and ball disks to accommodate the reaction forces in the event of pressure and vacuum

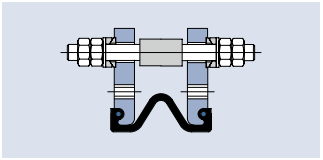
Support rings

TYPE		Vacuum support ring	Pressure	Movement
D210x (B/E/C/S/ R/K/L)		Without	Depending on the nominal diameter up to 25 bar, for vacuum up to 0.8 bar absolute	▶ page 224
D211x (B/E/C/S/ R/K/L)		Vacuum support ring spiral, medium contact, inside the arch apex	Depending on the nominal diameter up to 25 bar, for vacuum up to 0.05 bar absolute	▶ page 225

Materials		
Stainless steel:	1.4310 (X12 CrNi 17 7)	Other materials on request

Planning help D210S





D210x (B/E/C/M/R/K/L)

▶ without vacuum support ring

Installation length (L_E) at design pressure

NB	up to 10 bar L_E = 100 mm higher pressures on request					up to 10 bar L_E = 110 mm				
	Movement				A	Movement				A
	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²
32	30	20	30	0	18					
40	30	20	30	0	18					
50	30	20	30	0	35					
65	30	20	30	0	56					
80	30	20	30	0	87					
100	30	20	30	0	130					
125	30	20	30	0	190					
150	30	20	30	0	263					
175	30	20	30	0	334					
200	30	20	30	0	416					
250	30	20	30	0	607					
300	30	20	30	0	830					
350	30	20	30	0	1,100					
400						30	20	30	0	1,385
500						30	20	30	0	2,091

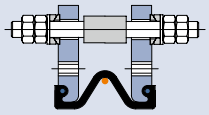
Recommended sizes

In the event of lateral displacement and simultaneous axial extension (due to installation gap tolerance) the above movements are reduced (▶ page 29).

Universal expansion joint, type D110A
in a GRP-pipe
NB 250, 16 bar

D211x (B/E/C/M/R/K/L)

▶ with internal vacuum support ring

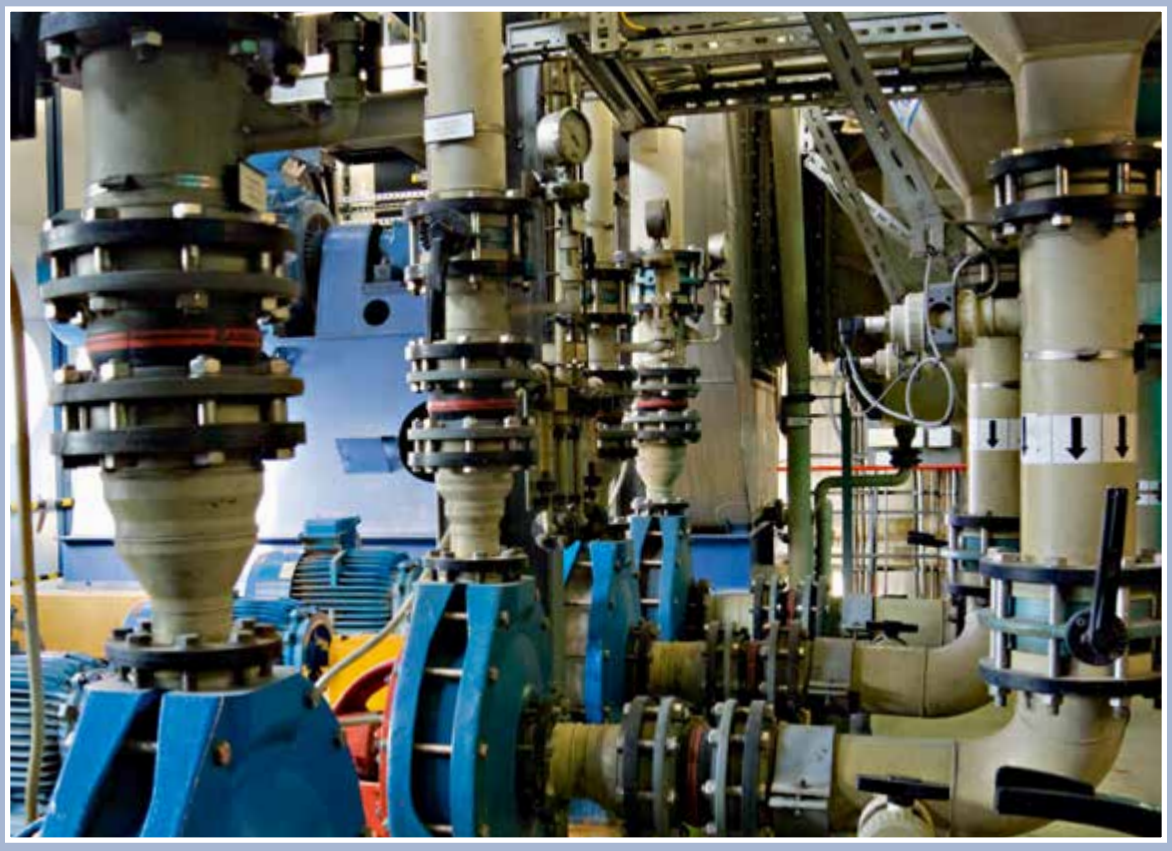


Installation length (L_E) at design pressure

NB	up to 10 bar L_E = 100 mm higher pressures on request					up to 10 bar L_E = 110 mm higher pressures on request				
	Movement				A	Movement				A
	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²
32	30	5	30	0	18					
40	30	5	30	0	18					
50	30	5	30	0	35					
65	30	5	30	0	56					
80	30	5	30	0	87					
100	30	5	30	0	130					
125	30	5	30	0	190					
150	30	5	30	0	263					
175	30	5	30	0	334					
200	30	5	30	0	416					
250	30	5	30	0	607					
300	30	5	30	0	830					
350	30	5	30	0	1,100					
400						30	5	30	0	1,385
500						30	5	30	0	2,091

Recommended sizes

In the event of lateral displacement and simultaneous axial extension (due to installation gap tolerance) the above movements are reduced (▶ page 29).



Universal expansion joint, type D110A
on the pump suction side NB 250, 10 bar
on the pump discharge side NB 150, 10 bar