U110A 2P ⌀ 80 - 4,000 mm

- **Type U110A 2P**
  without vacuum ring
- **Type U111A 2P**
  with internal vacuum ring
- **Type U112A 2P**
  with embedded vacuum ring

Type key > page 22

U1 1 0 A 2P
- Tie rod variant
- Support ring variant
- Number of arches
- Type

Two ply testable rubber bellow

Design:

For critical services or when the rubber expansion joint reliability is utmost important two ply testable rubber bellows are an option for applications. In two ply testable bellows each bellow is designed for the full operating conditions. For this reason, bellows design incorporates a redundant pressure retaining ply combined with a leak detection hardware.

Typically the bellow is composed of two plies of a material that is capable of handling the full operating pressure alone. Both plies are vulcanized together in the flange. The expansion joint is also able to withstand vacuum with a support ring. The inner ply retains the pressure under normal circumstances. If the inner ply develops a leak, the outer ply then retains the pressure. If this happens the pressure between the plies is ported to a gauge that will then indicate a reading. This alerts personnel to take precautions to replace a failing bellows as soon as possible. The two ply testable rubber bellows also allows inspectors to pressure test the inner and outer ply during shutdowns.

Main benefits: early warning leak detection, two ply allow for 100% redundancy and the expansion joint will be working while a replacment can be arranged.

Application:
For refineries, chemical and pharmaceutical industry, ore dressing e.g. whenever critical media in pipelines, in pumps, to vessels or tanks are conveyed

CE PED 2014/68/EU · KTW WRAS · FDA · <10⁶ Ohm · EX

Request assembly instructions at:
www.ditec-adam.de/en/contact

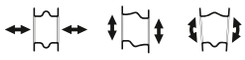
High elastic, streamlined, single wide arch rubber bellows with full faced rubber flanges, designed to compensate all-directional movements, have a cycle life in the tens of millions, constructed with a high-grade leak-proof tube, multiple layers of high-strength cord, a seamless cover, and backing flanges with support collar. Optional with vacuum ring. In compliance with PED 2014/68/EU, FSA Technical Handbook and ASTM F1123 - 87.

Diameters: ∅ 80 to 4,000 mm, custom diameters possible

Length: Standard L_E = 150 to 400 mm (> page 74–79)
Custom length on request

Pressure: Up to 100 bar depending on diameter and length
Vacuum stability on request, with vacuum ring up to 0.05 bar absolute

Movement: For large axial, lateral and angular movements
For approx. movement capabilities refer to type U110A (> page 74–79)



Bellows elastomers and reinforcements

Elastomer	Fabric	Marking	°C	Application
EPDM	Polyamid		-40 | +100	Cooling water, hot water, seawater, acids, dilute chlorine compounds
EPDM	Aramid		-40 | +100	Cooling water, hot water, seawater, acids, dilute chlorine compounds
EPDMht	Aramid		-40 | +120	Cooling water, hot water, seawater, acids, dilute chlorine compounds
EPDMwras	Polyamid		-40 | +100	Drinking water, foodstuffs
EPDMwras	Aramid		-40 | +100	Drinking water, foodstuffs
EPDMbeige	Polyamid		-40 | +100	Foodstuffs
EPDMbeige	Aramid		-40 | +100	Foodstuffs
IIR	Polyamid		-20 | +100	Hot water, acids, bases, gases
IIR	Aramid		-20 | +100	Hot water, acids, bases, gases
CSM	Polyamid		-20 | +100	Strong acids, bases, chemicals
CSM	Aramid		-20 | +100	Strong acids, bases, chemicals
NBR	Polyamid		-30 | +100	Oils, petrol, solvents, compressed air
NBR	Aramid		-30 | +100	Oils, petrol, solvents, compressed air
NBRbeige	Polyamid		-30 | +100	Oil, fatty foods
NBRbeige	Aramid		-30 | +100	Oil, fatty foods
CR	Polyamid		-20 | +90	Cooling water, slightly oily water, seawater
CR	Aramid		-20 | +90	Cooling water, slightly oily water, seawater
FPM	Aramid		-20 | +180	Corrosive chemicals, petroleum distillates
FPMbeige	Aramid		-20 | +180	Oil, fatty foods
NR	Polyamid		-20 | +70	Abrasive materials
Silicon	Aramid Glass		-60 | +200	Air, saltwater atmosphere, foodstuffs, medical technology

Backing flanges

Design: Single-part, round backing flanges with support collar and clearance holes

Flange norms: DIN, ANSI, EN, AWWA, BS, JIS, special measurements (> page 298)

Materials: Carbon steel, stainless steel or aluminium

Coating: Primed, hot-dip galvanised, special paint

Accessories

Protective covers: Ground protective shield
Protective shield or cover
Fire protective cover (> page 58)

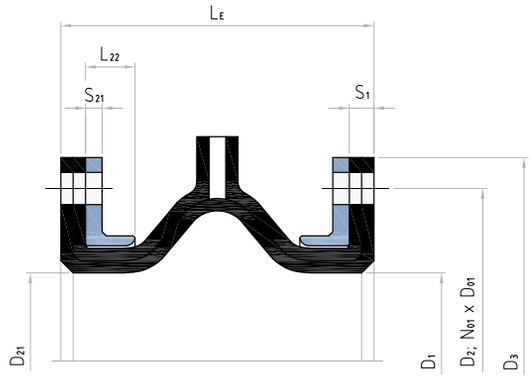
Flow liners: Cylindrical flow liner
Conical flow liner
Telescoping flow liner (> page 57)

Support rings

TYPE	Support rings	Vacuum ring	Pressure	Movement
U110A 2P		None	Depending on the diameter up to 100 bar, vacuum stability on request	> page 74
U111A 2P		Medium contact, inside the arch	Depending on the diameter up to 100 bar, for vacuum up to 0.05 bar absolute	> page 76
U112A 2P		No medium contact, embedded in the arch	Depending on the diameter up to 40 bar, for vacuum up to 0.05 bar absolute	> page 78

Materials		
Stainless steel	Carbon steel, rubberised	Carbon steel, embedded

Cross section U110A 2P



A moulded connection port

B pressure gauge

C bellows outer ply

D bellows inner ply

Homogen vulcanized two ply testable rubber bellow of size ∅ 300 mm
made from FPM rubber for a chemical plant