

RELY ON EXCELLENCE

BT-PN

Mechanical seals | Mechanical seals for pumps | Elastomer bellows seals



Features

- Rubber bellows mechanical seals
- Unbalanced
- Single spring
- Independent of direction of rotation

Advantages

The BT-PN is a large series mechanical seal with a simple yet effective design that is easy to assemble. The special spring arrangement allows a short axial installation length. This advantage is combined with an increased working pressure capability of up to 12 bar (174 PSI). The spring is free from torque transmission.

Operating range

Shaft diameter:
 $d1^* = 8 \dots 40 \text{ mm (0.31" ... 1.57")}$
 Pressure: $p1^{**} = 12 \text{ bar (174 PSI)}$,
 vacuum ... 0.5 bar (7.45 PSI)
 Temperature:
 $t^{**} = -20 \text{ °C ... +120 °C (-4 °F ... +248 °F)}$
 Sliding velocity: $v_g = 10 \text{ m/s (33 ft/s)}$

Operating limits depend on p·v_g factor

* Other diameters upon request

** Dependent on medium, size and material

Materials

Seal face:

Carbon graphite antimony impregnated (A),
 Carbon graphite resin impregnated (B),
 Silicon carbide (Q1, Q6)

Seat:

Aluminium oxide (V), Steatite (X), Silicon carbide (Q1, Q6, Q7)

Elastomers:

NBR (P), FKM (V), EPDM (E)

Metal parts: CrNi steel 1.4301 (F), CrNiMo steel 1.4401 (G)

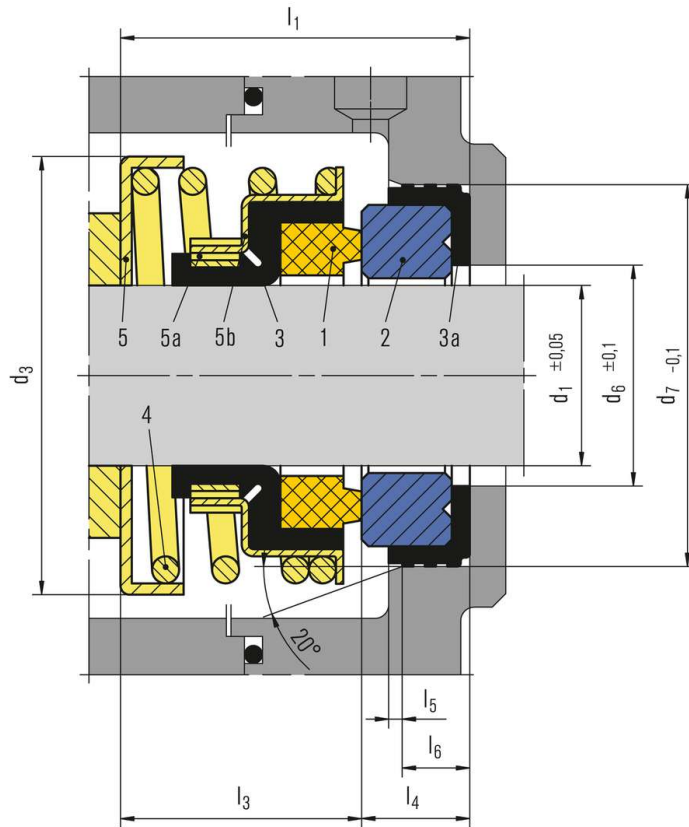
Standards and approvals

- KTW
- W270
- ACS
- WRAS
- NSF
- FDA
- DM 174/04

Recommended applications

- Food and beverage industry
- Water and waste water technology
- Pool and spa applications
- Household appliances
- Submersible oil filled motors (4" / 6")
- Submersible pumps, back-to-back installation
- Peripheral pumps for industrial applications
- Domestic and garden pumps
- Coffee machines
- Shower pumps

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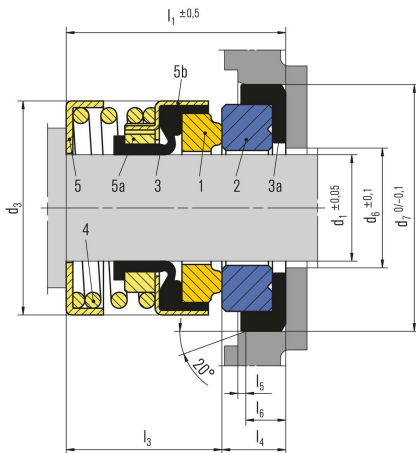


Item Description

- 1 Seal face
- 2 Stationary seat
- 3 Bellows
- 3a Gasket
- 4 Spring
- 5 Ring
- 5a Drive ring
- 5b Collar

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Product variants



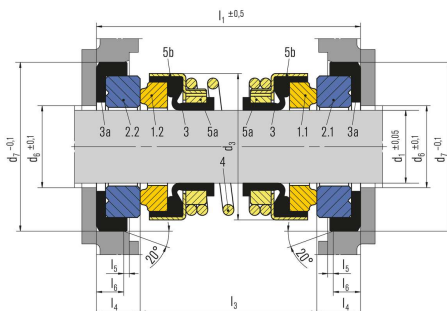
BT-PNL

The small outer diameter of the BT-PNL allows installation in small seal chambers. Easy to assemble, the BT-PNL guarantees a long service life due to good product turbulence and the torque transmitted by the rubber bellows.

Item Description

- 1 Seal face
- 2 Stationary seat
- 3 Bellows
- 3a Gasket
- 4 Spring
- 5 Ring
- 5a Drive ring
- 5b Collar

BT-PN and PNL double seal (back-to-back arrangement)



Both types of seal can also be used as a multiple seal in back-to-back arrangement. This is advisable when the product media cannot ensure lubrication or the solids content is too high (oil chamber). Installation proposals can be supplied upon request. In this configuration, the operating pressure (product side seal) must be limited to max. 2 bar (29 PSI).

Item Description

- 1.1 Seal face (product side)
- 1.2 Seal face (motor side)
- 2.1 Stationary seat (product side)
- 2.2 Stationary seat (motor side)
- 3 Bellows
- 3a Gasket
- 4 Spring
- 5a Drive ring
- 5b Collar

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Dimensions

| d ₁ | d ₃ | d ₆ | d ₇ | l ₁ | l ₃ | tol | l ₄ | l ₅ | l ₆ |
|----------------|----------------|----------------|----------------|----------------|----------------|--------|----------------|----------------|----------------|
| 8.00 | 23 | 10 | 22.0 | 17.5 | 13.5 | ±1.0 | 4.0 | 0.5 | 3.5 |
| 8.00 | 23 | 10 | 25.4 | 19.0 | 13.5 | ±1.0 | 5.5 | 0.5 | 4.5 |
| 9.53 | 23 | 12 | 25.4 | 19.0 | 13.5 | ±1.0 | 5.5 | 0.5 | 4.5 |
| 10.00 | 23 | 12 | 25.4 | 19.0 | 13.5 | ±1.0 | 5.5 | 0.5 | 4.5 |
| 13.00 | 32 | 17 | 29.5 | 20.8 | 12.8 | +0.7/0 | 8.0 | 1.0 | 6.0 |
| 13.00 | 32 | 17 | 29.5 | 20.8 | 12.8 | +0.7/0 | 8.0 | 1.0 | 6.0 |
| 14.00 | 32 | 17 | 29.5 | 20.8 | 12.8 | +0.7/0 | 8.0 | 1.0 | 6.0 |
| 15.00 | 32 | 17 | 29.5 | 20.8 | 12.8 | +0.7/0 | 8.0 | 1.0 | 6.0 |
| 16.00 | 32 | 17 | 29.5 | 20.8 | 12.8 | +0.7/0 | 8.0 | 1.0 | 6.0 |
| 16.00* | 32 | 17 | 29.5 | 24.3 | 16.3 | +0.7/0 | 8.0 | 1.0 | 6.0 |
| 16.00* | 32 | 17 | 29.5 | 24.3 | 16.3 | +0.7/0 | 8.0 | 1.0 | 6.0 |
| 20.00 | 44 | 22 | 42.0 | 22.0 | 14.0 | ±1.0 | 8.0 | 1.0 | 6.0 |
| 20.00 | 44 | 22 | 42.0 | 22.0 | 14.0 | ±1.0 | 8.0 | 1.0 | 6.0 |
| 25.00 | 50 | 27 | 45.0 | 27.0 | 17.0 | ±1.0 | 10.0 | 1.0 | 8.0 |
| 30.00 | 60 | 33 | 52.0 | 32.0 | 22.0 | ±1.0 | 10.0 | 1.0 | 6.0 |
| 30.00 | 60 | 33 | 52.0 | 34.0 | 22.0 | ±1.0 | 12.0 | 1.5 | 8.5 |

* 4" submersible motor

BT-PN - Dimensions in millimeter

Dimensions

| d ₁ | d ₃ | d ₆ | d ₇ | l ₁ | l ₃ | l ₄ | l ₅ | l ₆ |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 10.00 | 22 | 14 | 26.0 | 21 | 15.5 | 5.5 | 0.5 | 4.5 |
| 11.00 | 22 | 14 | 26.0 | 21 | 15.5 | 5.5 | 0.5 | 4.5 |
| 12.00 | 22 | 14 | 26.0 | 21 | 15.5 | 5.5 | 0.5 | 4.5 |
| 13.00 | 28 | 17 | 29.5 | 26 | 18.0 | 8.0 | 1.0 | 6.0 |
| 14.00 | 28 | 17 | 29.5 | 26.0 | 18.0 | 8.0 | 1.0 | 6.0 |
| 15.00 | 28 | 17 | 29.5 | 26.0 | 18.0 | 8.0 | 1.0 | 6.0 |
| 16.00 | 28 | 17 | 29.5 | 26.0 | 18.0 | 8.0 | 1.0 | 6.0 |
| 19.05 | 32 | 22 | 34.95 | 32.3 | 22.0 | 10.3 | 1.2 | 7.8 |
| 20.00 | 32 | 22 | 42.0 | 30.0 | 22.0 | 8.0 | 1.0 | 6.0 |
| 25.00 | 42 | 27 | 45.0 | 37.0 | 27.0 | 10.0 | 1.0 | 8.0 |
| 25.40* | 42 | 29 | 41.25 | 38.2 | 27.0 | 11.0 | 1.5 | 8.5 |
| 30.00 | 52 | 33 | 52.0 | 40.0 | 28.0 | 12.0 | 1.5 | 8.5 |
| 31.75 | 52 | 34 | 47.6 | 60.2 | 49.2 | 11.0 | 1.5 | 8.5 |
| 40.00 | 63 | 45 | 68.0 | 47.0 | 35.0 | 12.0 | 1.5 | 8.5 |

* 6" submersible motor

BT-PNL - Dimensions in millimeter

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Dimensions

| d ₁ | d ₃ | d ₆ | d ₇ | l ₁ | l ₃ | l ₄ | l ₅ | l ₆ |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 12 | 22 | 14 | 26 | 39 | 28 | 5.5 | 0.5 | 4.5 |
| 14 | 24 | 16 | 26 | 34 | 24 | 5.0 | 0.5 | 4.0 |
| 15 | 28 | 17 | 28 | 38 | 26 | 6.0 | 1.0 | 4.5 |
| 16 | 28 | 18 | 28 | 38 | 26 | 6.0 | 1.0 | 4.5 |
| 18 | 32 | 20 | 33 | 45 | 30 | 7.5 | 2.0 | 5.0 |
| 20 | 32 | 22 | 35 | 45 | 30 | 7.5 | 2.0 | 5.0 |
| 22 | 39 | 24 | 37 | 46 | 31 | 7.5 | 2.0 | 5.0 |
| 25 | 42 | 27 | 40 | 47 | 32 | 7.5 | 2.0 | 5.0 |

BT-PNL Double seal - Dimensions in millimeter