

EagleBurgmann®

Rely on excellence

BT-Burgmann Mechanical Seals



www.quangminhvn.com

BT-Burgmann in profile

BT-Burgmann S.p.A. was founded in 1966 to satisfy the requirements for mechanical seals of Italian pumps manufacturers.

The company has grown continuously and actually produces more than 8 million mechanical seals a year with around 70 employees. The parent company BT-Burgmann S.p.A. offers technical and commercial services while BT Tenute Meccaniche Rotanti S.p.A. is the group's production facility.

In 1998 BT joined the EagleBurgmann group. Initially structured as a small family owned company with a national market, BT-Burgmann has developed into a modern company oriented towards a global market with export sales of more than 45 % of the turnover. The company has two production plants (total area 5.400 square meters) in the industrial area of Arcugnano (Vicenza). BT-Burgmann is market leader for mass production mechanical seals in clean water applications. Our seals are regularly used in many applications such as:

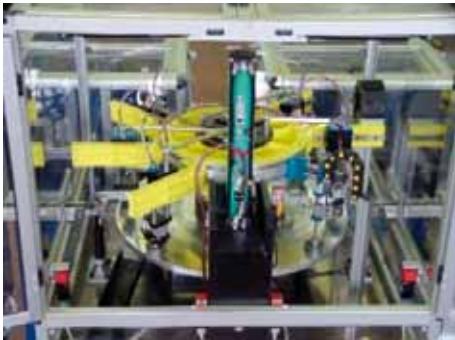
- Hot water and water pumps
- Swimming pool pumps
- Massage pumps in whirlpools
- Pumps for garden and ponds
- Submersible pumps
- Submersible well motors
- Waste water pumps
- Circulation pumps
- Pumps for dishwashers
- Shower pumps
- Building service systems
- Coffee machines

In addition, the BT-Burgmann range of products also embraces seals for light chemicals and food industry applications, for abrasive media and for pressures up to 40 bar.

The most valuable customers of BT-Burgmann are the largest European water pump manufacturers and many other well known worldwide pump producers.



BT-Burgmann SPA



Production

Quality

BT-Burgmann is a certified company having highly qualified technical personnel and the most advanced equipments for research, production and control in accordance with the highest international standards. Our certifications are:

- UNI EN ISO 9001 Quality Management System
- UNI EN ISO 14001 Environment Management System
- OHSAS 18001 Health and Safety Management System
- Conformity declaration of hygiene for water for human use (TIFQ Italian Institute – DM 174/04)



Test rig

Automation

Large investments into production processes and complete automation of many manufacturing phases allow to achieve the combined target of reasonable prices and high quality products.

Testing facilities

Different test rigs for life-tests and special equipments for submersible pumps ensure quality control as well as continuous development of new products. It's also possible to test specific customer solutions.



Scanning electron microscope

Research and development

A staff of qualified technicians is permanently employed developing innovative solutions. BT-Burgmann R&D and Lab departments are working with excellent equipments and advanced technologies:

- Flatness analysis system
- Thermal analysis equipment (research on rubber and carbon)
- Scanning electron microscope with EDX probe (material composition analysis)
- FT-IR spectrometer (organic chemical analysis)



BT Tenute Meccaniche Rotanti SPA

Type BT-AR



BT-AR

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

BT-AR

Mechanical seal for large series cold water pumps, produced in million of units per year. The BT-AR owes its success to the wide range of application, the short axial stuffing box (this allows to build the pump more economically, saving material) and to the best ratio quality/price. The elasticity of the bellows design permits to accept a more robust operation. The BT-AR seal materials are also available with the following approval specifications: KTW, W270, ACS, WRAS, NSF, DM174 (TIFQ) and FDA.

Ideal mechanical seal for the following applications:

- Domestic and garden pumps
- Whirlpool and swimming pool pumps
- Dishwasher pumps
- Submersible motors / pumps
- Water pumps

Multiple Seal

The BT-AR can also be used as a multiple seal in tandem or back-to-back arrangement when the product media cannot assure the lubrication or for sealing media with a higher content of solids. Installation proposals can be supplied on request.

BT-AR3

Seal faces with brazed tungsten carbide (U) for abrasive media. Elastomers and diameter range same as BT-AR.

The BT-AR3 is the right choice when the seal has to be used in high duty applications or where the seal faces could be damaged by abrasives (waste water).

Operating range

$d_1 = 6 \dots 60 \text{ mm}$
 $p_1 = 6 \text{ bar}$
 $t = -20 \dots 140 \text{ }^\circ\text{C}$
 $v_g = 10 \text{ m/s}$
Operating limits depend on $p \cdot v_g$ factor

Materials

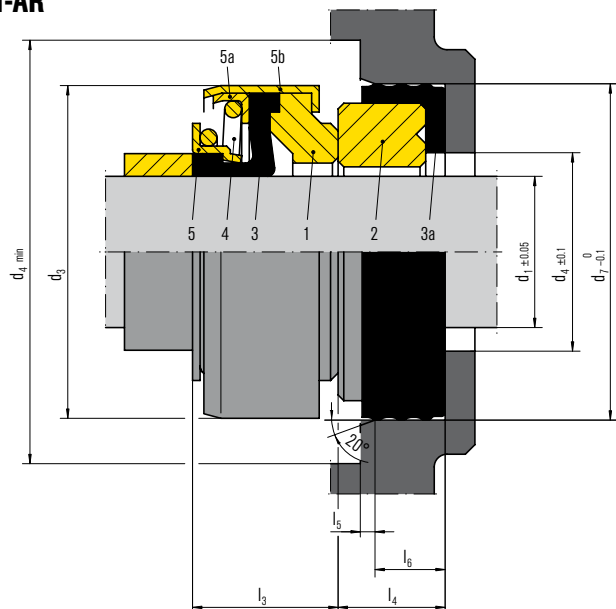
BT-AR

Seal face B, B3, A, Q1, Y, Y2
Stationary seat X, V, Q1, Q6, E, F, G, V1
Rubber parts P, E, V, P2, P4, P5, E2
Construction materials F, G
Standard combination BXPFF

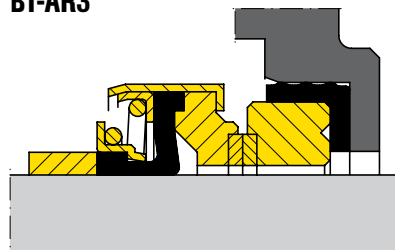
BT-AR3

Seal face U
Stationary seat U
Rubber parts P, V, E
Construction materials F, G, F1
Standard combination UUPFF1

BT-AR



BT-AR3



Item Designation

- 1 Seal face
- 2 Stationary seat
- 3 Bellows
- 3a Gasket
- 4 Compression spring
- 5 Ring
- 5a Locking ring
- 5b Collar

Dimensions (mm)

d ₁	d ₃	d ₄	d ₆	d ₇	l ₃	tol	l ₄	l ₅	l ₆
6	18	23	8	22.0	8.0	+0.5/0	4.0	0.5	3.5
8 _s	20	23	10	22.0	11.0	+0.5/0	4.0	0.5	3.5
8	24	27	10	26.0	11.0	+0.5/0	8.0	1.0	6.0 *
3/8"	24	27	12	25.4	11.0	+0.5/0	5.5	0.5	4.5
3/8"	24	27	12	25.4	11.0	+0.5/0	7.5	1.0	5.5
10	24	27	12	26.0	11.0	+0.5/0	8.0	1.0	6.0 *
11	24	27	13	26.0	11.0	+0.5/0	8.0	1.0	6.0 *
12 _c	24	27	14	26.0	11.0	+0.5/0	8.0	1.0	6.0 *
12	24	27	14	26.0	12.8	+0.7/0	8.0	1.0	6.0 *
1/2"	24	27	15	25.4	12.8	+0.7/0	7.5	1.0	5.5
13	24	27	15	26.0	12.8	+0.7/0	8.0	1.0	6.0 *
14 _s	28	30	18	28.5	12.8	+0.7/0	7.5	1.0	5.5
14 _l	28	30	18	28.5	15.3	± 0.8	7.5	1.0	5.5
14	32	35	16	29.5	12.8	+0.7/0	8.0	1.0	6.0
15	32	35	17	29.5	12.8	+0.7/0	8.0	1.0	6.0
16 _r	32	35	18	29.5	12.8	+0.7/0	8.0	1.0	6.0
16	39	43	18	38.0	12.8	+0.7/0	8.0	1.0	6.0
16	39	43	18	42.0	12.8	+0.7/0	8.0	1.0	6.0
17	39	43	19	42.0	12.8	+0.7/0	8.0	1.0	6.0
18	39	43	20	42.0	12.8	+0.7/0	8.0	1.0	6.0
19	39	43	21	42.0	12.8	+0.7/0	8.0	1.0	6.0
20	39	43	22	42.0	12.8	+0.7/0	8.0	1.0	6.0
20 _s	42	47	22	45.0	12.8	+0.7/0	10.0	1.0	8.0
22	42	47	24	45.0	12.8	+0.7/0	10.0	1.0	8.0
23	47	52	25	50.0	13.5	+1/0	10.0	1.0	8.0
24	47	52	26	50.0	13.5	+1/0	10.0	1.0	8.0
25 _r	42	52	27	50.0	13.5	+1/0	10.0	1.0	8.0
25	47	52	27	50.0	13.5	+1/0	10.0	1.0	8.0
26	47	52	29	50.0	13.5	+1/0	10.0	1.0	8.0
27	47	52	30	50.0	13.5	+1/0	10.0	1.0	8.0
28	54	60	31	57.0	15.0	+1/0	10.0	1.0	8.0
30	54	60	33	57.0	15.0	+1/0	10.0	1.0	8.0
32	54	60	35	57.0	15.0	+1/0	10.0	1.0	8.0
35	60	70	38	63.0	16.0	+1/0	10.0	1.0	8.0
38	65	75	41	68.0	18.0	+1/0	12.0	2.0	9.0
40	65	75	43	68.0	18.0	+1/0	12.0	2.0	9.0
45	70	80	48	73.0	20.0	+1/0	12.0	2.0	9.0
50	85	95	53	88.0	23.0	+1/0	15.0	2.0	12.0
60	105	115	63	110.0	30.0	+1/0	15.0	2.0	12.0

*Alternative seat $l_4 = 5.5/l_5 = 0.5/l_6 = 4.5$

Type BT-A2



BT-A2

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

BT-A2

Stationary mechanical seal in inch dimensions. World-wide spread, this type of mechanical seal has reached an unsurpassed quality level. The BT-A2 features all carbon or high quality resin impregnated carbon, aluminium oxide 96 %, stationary with rubber bellows glued on collar. Static air pressure test on 100 % production. Excellent solution for swimming pool pumps. The BT-A2 is suitable for circulation massage pumps for whirlpools and clean water pumps.

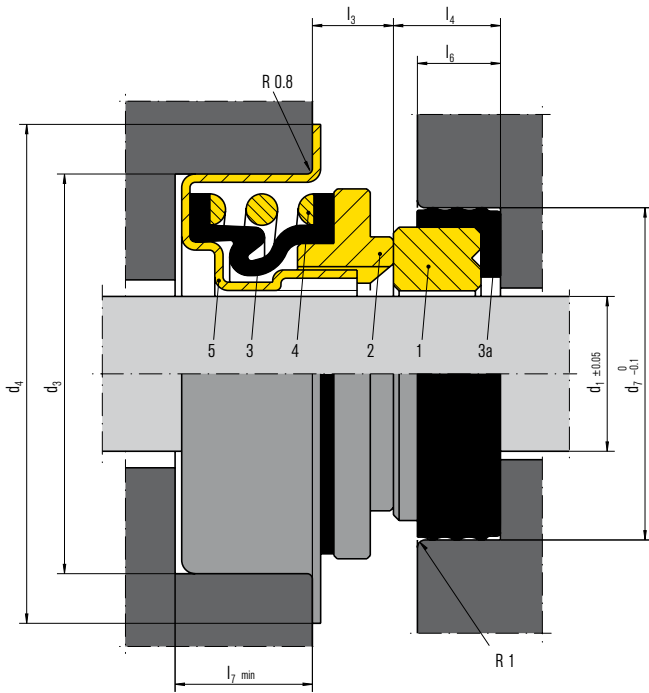
Materials

Seal face B, B3
Stationary seat V1
Rubber parts P
Construction materials F, G
Standard combination BV1PFF, B3V1PGG

Operating range

$d_1 = 1/2", 5/8", 3/4"$
 $p_1 = 4 \text{ bar}$
 $t = -20 \dots 90 \text{ }^\circ\text{C}$
 $v_g = 10 \text{ m/s}$
Operating limits depend on $p \cdot v_g$ factor

BT-A2



Item	Designation
1	Seal face
2	Stationary seat
3	Bellows
3a	Gasket
4	Compression spring
5	Collar

Dimensions (mm)

d_1^*	d_1	d_3	tol	d_4	d_7	l_3	tol	l_4	l_6	l_7
1/2"	12.70	28.55	+0.02	35.0	25.40	5.2	+0.5	8.0	6.0	10
5/8"	15.88	36.45	+0.02	41.0	31.75	6.8	+0.5	10.3	8.5	10
3/4"	19.05	40.00	+0.03	44.0	34.95	6.5	+0.5	10.3	8.0	11

* Dimensions in inch

Type BT-ARP



BT-ARP

- Rubber bellows mechanical seal
- Independent of direction of rotation
- Single spring, product protected

BT-ARP

BT-ARP mechanical seals are the ideal solution for media which are containing solids or are highly viscous. The spring is product protected, thus no sticking or clogging occurs. Reliable for a rugged operation in all kind of applications e.g. waste water treatment. Diameters and installations lengths available on request.

Materials

Seal face Q1, Q6, U
Stationary seat Q1, Q6, U
Rubber parts P, P4, V
Construction materials F, G

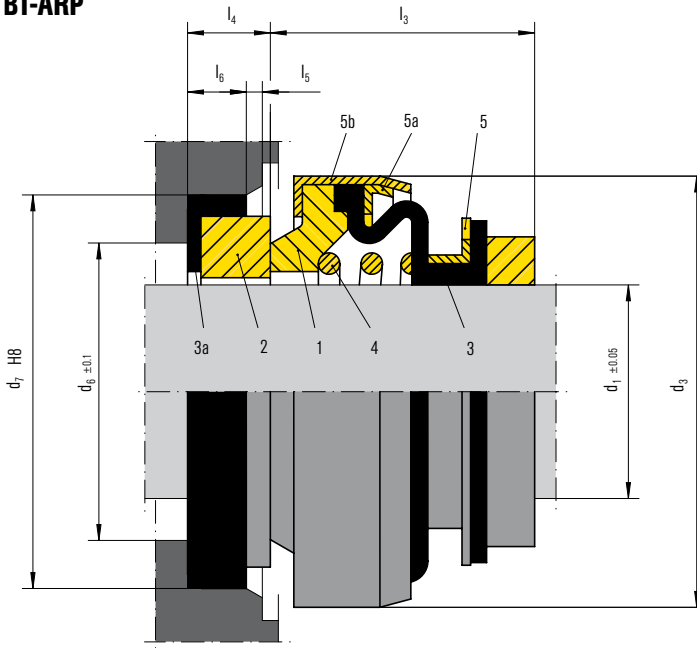
Operating range

$d_1 = 20$ and 30 mm *)
 $p = 6$ bar
 $t = \dots 90$ °C **)
 $v_g = 10$ m/s

*) other diameters according the AR series on request

**) depends on bellows material

BT-ARP



Item	Designation
1	Seal face
2	Stationary seat
3	Bellows
3a	Rubber cup
4	Spring
5	Ring
5a	Locking ring
5b	Collar

Type BT-PN/-PNL



BT-PN/-PNL

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

BT-PN

The BT-PN is a mechanical seal for large series with a simple but effective design, easy to assemble. The special spring arrangement allows a short axial installation length. This advantage is combined with an increased working pressure capability up to 12 bar, the spring is free from torque transmission. The BT-PN seal materials are also available with following approval specifications: KTW, W270, ACS, WRAS, NSF, FDA and DM174 (TIFQ).

BT-PNL

The small outer diameter of the BT-PNL allows its installation in small stuffing box chambers. Easy to assemble, the BT-PNL grants a long service life due to the good product turbulence and to the torque transmitted by rubber bellows. The BT-PNL seal materials are also available with the following approval specifications: KTW, W270, ACS, WRAS, NSF, FDA and DM 174 (TIFQ). Suitable for cold water pumps, submersible pumps and well water pumps.

Multiple seal

The BT-PN and BT-PNL can also be used as a multiple seal in tandem or back-to-back arrangement. This is advisable when the product media cannot assure lubrication or the content of solids is too high. Installation proposals can be supplied on request.

Materials

BT-PN

Seal face A, B, Q1, Q6
Stationary seat V, X, Q1, Q2, Q6
Rubber parts P, V, E, E2, P2
Construction materials F, G
Standard combination BVPPF

BT-PNL

Seal face A, B, Q1, Q6
Stationary seat V, X, Q1, Q2, Q6
Rubber parts P, V, E, E2, P2
Construction materials F, G
Standard combination BVPPF

Operating range

BT-PN

d_1^* = 8 ... 30 mm
 p_1 = 12 bar
 t = -20 ... 120 °C
 v_g = 10 m/s
Operating limits depend on $p \cdot v_g$ factor
* Other diameters on request

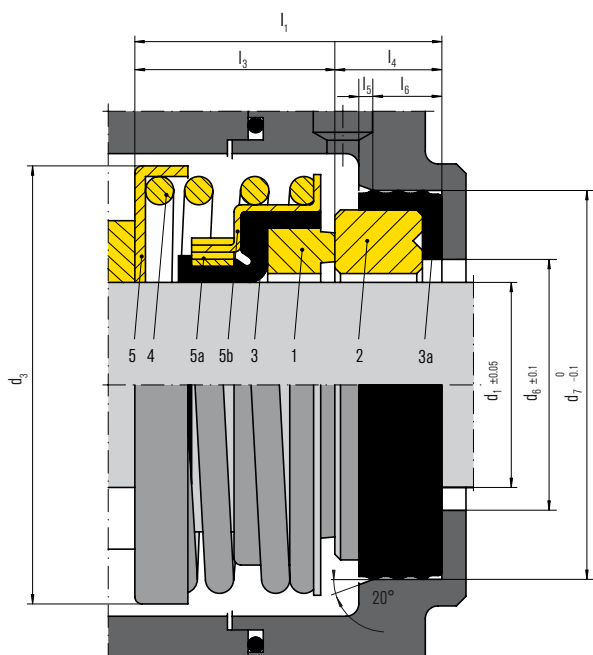
BT-PNL

d_1^* = 10 ... 40 mm
 p_1 = 12 bar
 t = -20 ... 120 °C
 v_g = 10 m/s
Operating limits depend on $p \cdot v_g$ factor
* Other diameters on request

Ideal for the following applications:

- 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

BT-PN



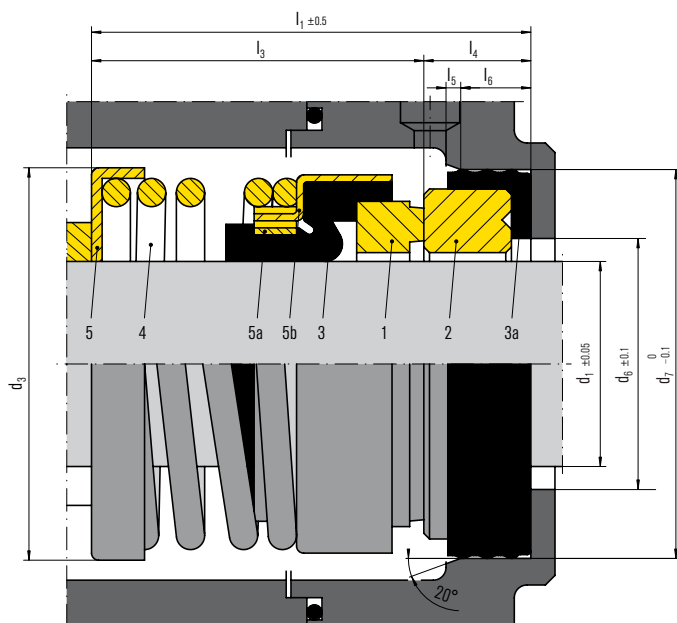
Item	Designation
1	Seal face
2	Stationary seat
3	Bellows
3a	Gasket
4	Compression spring
5	Ring
5a	Drive ring
5b	Collar

Dimensions (mm)

d ₁	d ₂	d ₅	d ₇	l ₁	l ₃	tol	l ₄	l ₅	l ₆
8.00	23	10	22.0	17.5	13.5	±1	4.0	0.5	3.5
8.00	23	10	25.4	19.0	13.5	±1	5.5	0.5	4.5
3/8"	23	12	25.4	19.0	13.5	±1	5.5	0.5	4.5
10.00	23	12	25.4	19.0	13.5	±1	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
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 ¹⁾	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	8.0	1.0	6.0
25.00	50	27	42.0	24.0	17.0	±1	7.0	1.0	5.0
30.00	60	33	52.0	32.0	22.0	±1	10.0	1.0	6.0

¹⁾ 4" submersible motor

BT-PNL



Item	Designation
1	Seal face
2	Stationary seat
3	Bellows
3a	Gasket
4	Compression spring
5	Ring
5a	Drive ring
5b	Collar

Dimensions (mm)

d ₁	d ₂	d ₅	d ₇	l ₁	l ₃	l ₄	l ₅	l ₆
10.00	22	14	26.00	21.00	15.5	5.5	0.5	4.5
11.00	22	14	26.00	21.00	15.5	5.5	0.5	4.5
12.00	22	14	26.00	21.00	15.5	5.5	0.5	4.5
13.00	28	17	29.50	26.00	18.0	8.0	1.0	6.0
14.00	28	17	29.50	26.00	18.0	8.0	1.0	6.0
15.00	28	17	29.50	26.00	18.0	8.0	1.0	6.0
16.00	28	17	29.50	26.00	18.0	8.0	1.0	6.0
19.05	32	22	34.95	32.20	22.0	10.0	1.2	7.8
20.00	32	22	42.00	30.00	22.0	8.0	1.0	6.0
25.40 ²⁾	42	29	41.45	38.20	27.0	11.0	1.5	8.5
30.00	52	33	52.00	40.00	28.0	12.0	1.5	8.5
31.75	52	34	47.60	60.20	49.2	11.0	1.5	8.5
40.00	63	45	68.00	47.00	35.0	12.0	1.5	8.5

²⁾ 6" submersible motor

Type BT-PNT



BT-PNT

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

BT-PNT

The main design features of the BT-PNT are the metal joint torque transmission together with a rubber bellows. Easy to assemble, the BT-PNT grants a long service life due to good product turbulence. Suitable for swimming pool pumps, cold water pumps and pumps for home and garden.

The BT-PNT seal materials are also available with following approval specifications: KTW, W270, ACS, WRAS, NSF, FDA and DM174 (TIFQ).

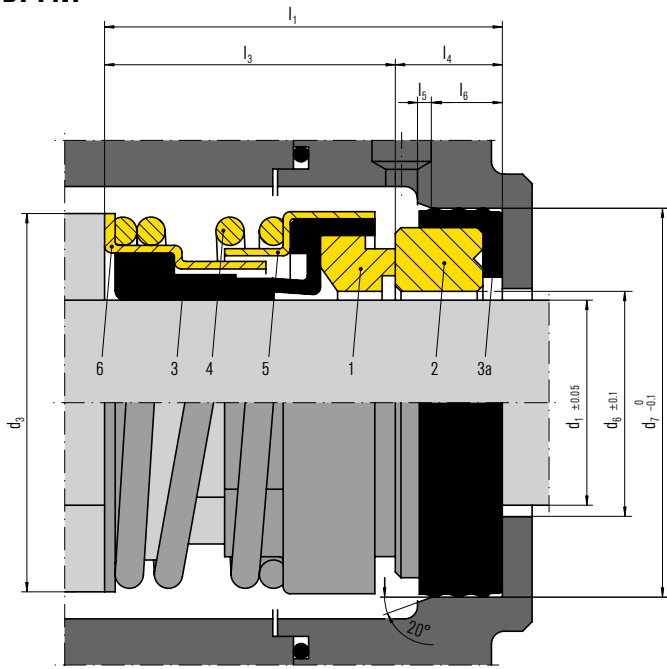
Materials

Seal face B, B3, Q1
Stationary seat V, Q1
Rubber parts P, E
Construction materials G, F
Standard combination BVPGG

Operating range

$d_1 = 15 \text{ mm, } 5/8", 3/4"$
 $p_1 = 12 \text{ bar}$
 $t = -20 \dots 120 \text{ }^\circ\text{C}$
 $v_g = 10 \text{ m/s}$
Operating limits depend on $p \cdot v_g$ factor

BT-PNT



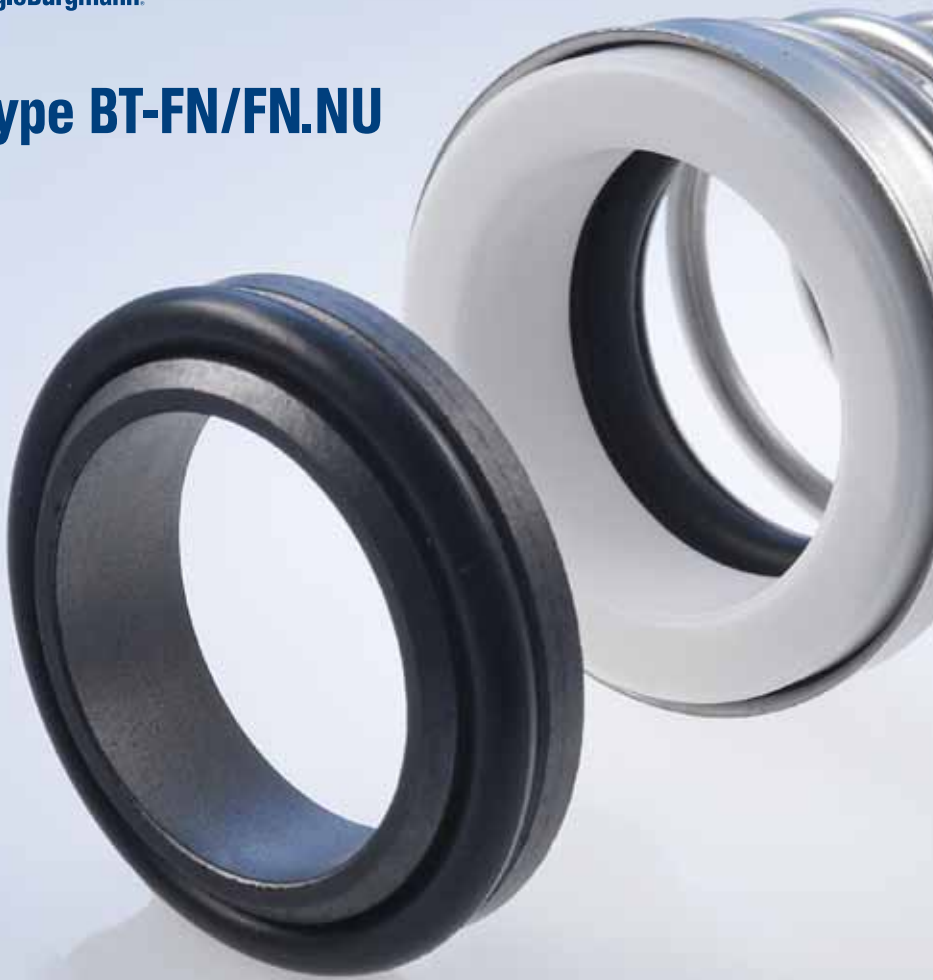
Item	Designation
1	Seal face
2	Stationary seat
3	Bellows
3a	Rubber cup
4	Spring
5	Housing
6	Driver

Dimensions (mm)

d_1	d_1	d_3	d_6	d_7	l_1	l_3	tol	l_4	l_5	l_6
	15.00	27.0	17	29.50	25.0	17.0	+0.5	8.0	1	6
	15.00	27.0	17	31.75	27.3	17.0	+0.5	10.3	1	8
5/8" *	15.88	29.8	18	31.75	28.6	18.3	± 0.5	10.3	1	8
3/4" *	19.05	32.0	21	35.00	29.2	19.0	± 0.5	10.2	1	8

* Dimensions in inch

Type BT-FN/FN.NU



BT-FN/FN.NU

- Single pusher type seal
- Unbalanced
- Conical spring
- Dependent on direction of rotation

BT-FN

The BT-FN combines a spring loaded ceramic face with the tradition of pusher mechanical seals. The competitive price and the wide range of applications have made the BT-FN a successful seal. Recommended for centrifugal pumps, clean water pumps, pumps for domestic applications and gardening.

The BT-FN is produced with punched metal parts that allow to have an economical design. For the heaviest applications BT-FH is recommended where the metal parts are machined.

The BT-FN mechanical seal is also the ideal solution for light chemicals media applications. To ensure best and reliable performances, sliding faces of hard materials and proper elastomeric O-rings are the recommended material combination.

The BT-FN seal materials are also available with following approval specifications: KTW, W270, ACS, WRAS, NSF, FDA and DM174 (TIFQ).

BT-FN.NU

As BT-FN but with length l_{1N} and dimensions according to EN 12756.

Materials

BT-FN

Seal face X, B, V, Q1, U1, Q6
Stationary seat B, X, V, Q1, U1, Q6
Rubber parts P, E, V, P2, E2
Construction materials G, F
Standard combination XBPGF

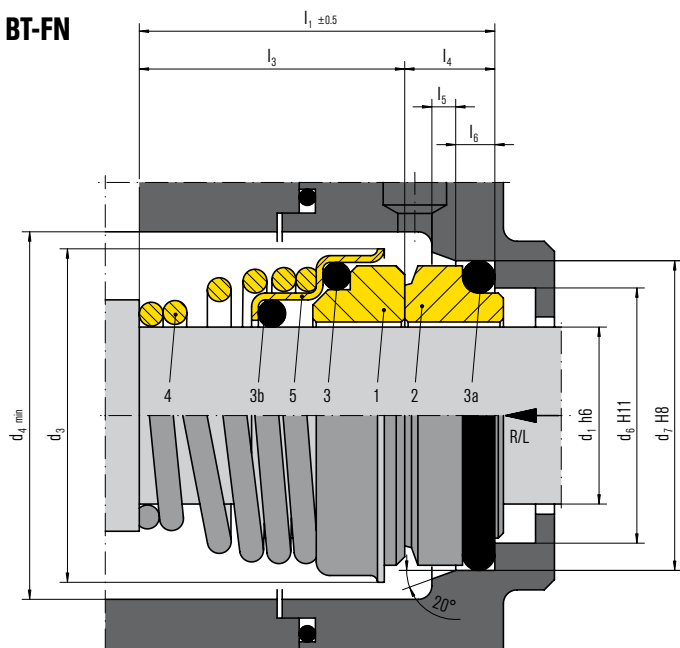
BT-FN.NU

Seal face X, B, V, Q1, U1, Q6
Stationary seat B, X, V, U1, Q6, Q1
Rubber parts P, E, V, P2, E2
Construction materials G, F
Standard combination XBPGF

Operating range

$d_1 = 10 \dots 40 \text{ mm}$
 $p_1 = 10 \text{ bar}$
 $t = -20 \dots 180 \text{ }^\circ\text{C}$
 $v_g = 20 \text{ m/s}$
Operating limits depend on $p \cdot v_g$ factor

BT-FN

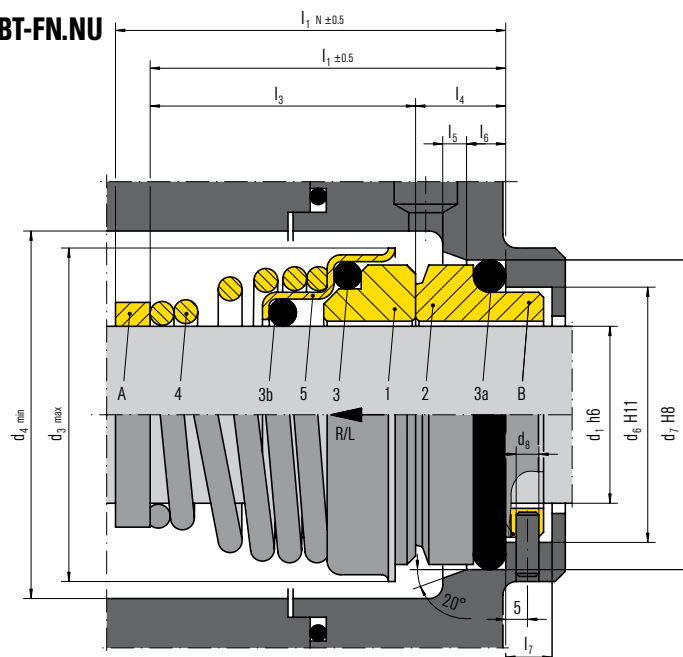


Item	Designation
1	Seal face
2	Stationary seat
3	O-Ring
3a	O-Ring
3b	O-Ring
4	Compression spring
5	Collar

Dimensions (mm)

d ₁	d ₃	d ₄	d ₆	d ₇	l ₁	l ₃	l ₄	l ₅	l ₆
10	19.5	22	14.0	18.1	20.5	15	5.5	1.2	3
11	22.5	25	16.5	20.6	23.5	18	5.5	1.2	3
12	22.5	25	16.5	20.6	23.5	18	5.5	1.2	3
13	24.5	28	19.0	23.1	28.0	22	6.0	1.2	3
14	24.5	28	19.0	23.1	28.0	22	6.0	1.2	3
15	29.0	32	21.0	26.9	29.0	22	7.0	1.5	4
16	29.0	32	21.0	26.9	30.0	23	7.0	1.5	4
17	29.0	32	21.0	26.9	30.0	23	7.0	1.5	4
18	32.5	36	25.0	30.9	32.0	24	8.0	1.5	4
19	32.5	36	25.0	30.9	33.0	25	8.0	1.5	4
20	32.5	36	25.0	30.9	33.0	25	8.0	1.5	4
22	37.5	42	30.0	35.4	33.0	25	8.0	2.0	4
24	37.5	42	30.0	35.4	35.0	27	8.0	2.0	4
25	40.0	45	33.0	38.2	35.5	27	8.5	2.0	4
28	46.0	51	38.0	43.3	38.0	29	9.0	2.0	4
30	46.0	51	38.0	43.3	39.0	30	9.0	2.0	4
32	46.0	51	38.0	43.3	39.0	30	9.0	2.0	4
35	50.0	55	45.0	53.5	50.5	39	11.5	2.0	6
38	58.0	68	52.0	60.5	50.5	39	11.5	2.0	6
40	58.0	68	52.0	60.5	50.5	39	11.5	2.0	6

BT-FN.NU



Item	Designation
1	Seal face
2	Stationary seat
3	O-Ring
3a	O-Ring
3b	O-Ring
4	Compression spring
5	Collar
A	Sleeve (on request)
B	Stationary seat with slot for radial pin (on request)

Dimensions (mm)

d ₁	d ₃	d ₄	d ₆	d ₇	d ₈	l _{1N}	l ₁	l ₃	l ₄	l ₅	l ₆	l ₇
10	20.0	22	17	21	3	40	22.0	15	7	1.5	4	8.5
12	22.5	26	19	23	3	40	25.0	18	7	1.5	4	8.5
14	24.5	28	21	25	3	40	29.0	22	7	1.5	4	8.5
16	29.0	32	23	27	3	40	30.0	23	7	1.5	4	8.5
18	32.5	36	27	33	3	45	34.0	24	10	2	5	9.0
20	32.5	36	29	35	3	45	35.0	25	10	2	5	9.0
22	37.5	40	31	37	3	45	35.0	25	10	2	5	9.0
24	37.5	40	33	39	3	50	37.0	27	10	2	5	9.0
25	40.0	42	34	40	3	50	37.0	27	10	2	5	9.0
28	46.0	48	37	43	3	50	39.0	29	10	2	5	9.0
30	46.0	48	39	45	3	50	40.0	30	10	2	5	9.0
32	46.0	48	42	48	3	55	40.0	30	10	2	5	9.0
35	50.0	53	44	50	3	55	49.0	39	10	2	5	9.0
38	58.0	68	49	56	4	55	52.0	39	13	2	6	9.0
40	58.0	68	51	58	4	55	52.0	39	13	2	6	9.0

d₃, d₄ dimensions not always according to EN 12756
 l_{1N} corresponds according to EN 12756

Type BT-FH



BT-FH

- Single pusher type seal
- Unbalanced
- Conical spring
- Dependent on direction of rotation

BT-FH

The BT-FH is produced for demanding applications. BT-FH is recommended where operating conditions in the pump require machined metal parts for the mechanical seal. The seals are available in the full range of diameters between 10 and 100 mm and especially in the most standard diameters for chemical applications as 12; 14; 16; 24; 28; 33; 43; 53 mm.

BT-FH6

As BT-FH but with PTFE secondary seal elements instead of elastomers. Mainly used in the chemical industry and for corrosive media.

BT-FHC

As BT-FH but with shorter installation length. (see l_{3c} in the dimension table)

BT-FH seal materials are also available with following approval specifications: KTW, W270, ACS, WRAS, NSF, FDA and DM174 (TIFQ)

Materials

BT-FH

Seal face V, U1, B, Q1
Stationary seat B, U1, Q1, V
Rubber parts P, V, E, E2, P2
Construction material G
Standard combination VBVG

BT-FH6

Seal face V
Stationary seat B, U1
Rubber parts T
Construction material G
Standard combination VBTGG

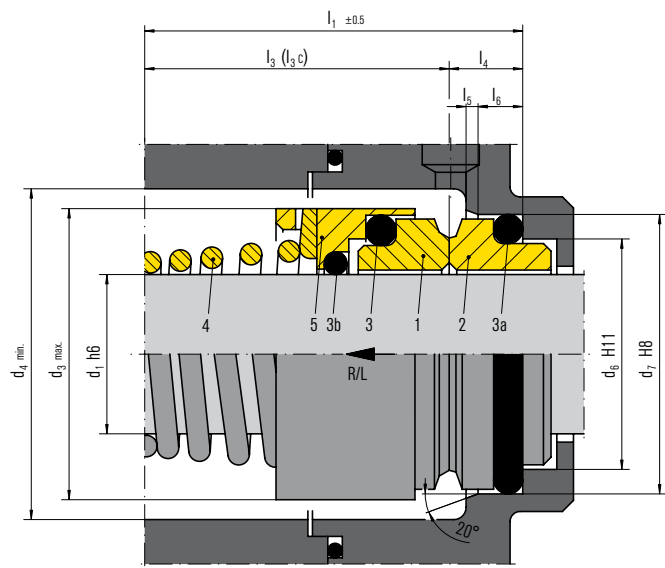
BT-FHC

Seal face V, U1, B, Q1
Stationary seat B, U1, Q1, V
Rubber parts V, E, P, E2, P2
Construction material G
Standard combination VBVG

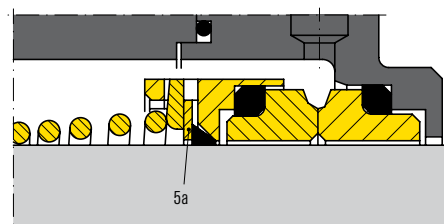
Operating range

$d_1 = 10 \dots 100 \text{ mm}$
 $p_1 = 10 \text{ bar}$
 $t = -70 \dots 200 \text{ }^\circ\text{C}$
 $v_g = 20 \text{ m/s}$
Operating limits depend on $p \cdot v_g$ factor

BT-FH



BT-FH6



Item	Designation
1	Seal face
2	Stationary seat
3	O-Ring
3a	O-Ring
3b	O-Ring
4	Compression spring
5	Collar
5a	Ring

Dimensions (mm)

d ₁	d ₃	d ₄	d ₆	d ₇	l ₁	l ₃	l ₄	l ₅	l ₆	l _{3c}
10	20	22	14.0	18.1	25.5	20	5.5	1.2	3	15
12	22	25	16.5	20.6	27.5	22	5.5	1.2	3	18
14	25	28	19.0	23.1	33.0	27	6.0	1.2	3	22
15	29	32	21.0	26.9	34.0	27	7.0	1.5	4	22
16	29	32	21.0	26.9	35.0	28	7.0	1.5	4	23
18	33	36	25.0	30.9	38.0	30	8.0	1.5	4	24
20	33	36	25.0	30.9	38.0	30	8.0	1.5	4	25
22	38	41	30.0	35.4	38.0	30	8.0	2.0	4	25
24	38	41	30.0	35.4	40.0	32	8.0	2.0	4	27
25	40	45	33.0	38.2	41.5	33	8.5	2.0	4	27
26	40	45	33.0	38.2	41.5	33	8.5	2.0	4	27
28	46	50	38.0	43.3	45.0	36	9.0	2.0	4	29
30	46	50	38.0	43.3	46.0	37	9.0	2.0	4	30
32	46	50	38.0	43.3	46.0	37	9.0	2.0	4	30
34	56	62	45.0	53.3	59.5	48	11.5	2.0	6	39
35	56	62	45.0	53.5	59.5	48	11.5	2.0	6	39
36	56	62	45.0	53.5	59.5	48	11.5	2.0	6	39
38	63	70	52.0	60.5	59.5	48	11.5	2.0	6	39
40	63	70	52.0	60.5	59.5	48	11.5	2.0	6	39
42	63	70	52.0	60.5	59.5	48	11.5	2.0	6	39
43	63	70	52.0	60.5	59.5	48	11.5	2.0	6	41
45	69	75	57.0	65.5	62.5	51	11.5	2.0	6	41
48	69	75	57.0	65.5	62.5	51	11.5	2.0	6	41
50	76	83	64.0	72.5	66.5	55	11.5	2.0	6	45
55	76	83	64.0	72.5	68.5	57	11.5	2.0	6	47
60	84	90	72.0	79.3	72.5	61	11.5	2.0	6	49
65	89	96	77.0	84.5	74.5	63	11.5	2.0	6	51
70	94	101	82.0	89.5	74.5	63	11.5	2.0	6	51
75	100	106	87.0	94.5	79.5	68	11.5	2.0	6	57
80	105	111	92.0	99.5	81.5	70	11.5	2.0	6	59
85	115	125	98.0	105.5	85.5	72	13.5	2.5	6	59
90	120	132	105.0	111.5	88.5	75	13.5	2.5	6	62
95	126	137	110.0	116.5	88.5	75	13.5	2.5	6	62
100	130	143	114.0	119.5	98.5	85	13.5	2.5	6	75

Type BT-RN/RN.NU



BT-RN/-RN.NU

- Single pusher type seal
- Unbalanced
- Conical spring
- Dependent on direction of rotation

BT-RN

BT-RN represents the traditional pusher seal. This type of mechanical seal is easy to install, covers a wide range of applications and its reliability is proven by millions of units worldwide in operation. This is a convenient solution for the widest range of applications: for clean water as well as chemical media. Can be also supplied with certification according DM174 (TIFQ).

BT-RN3

Seal faces made of brazed tungsten carbide which is suitable for media with intermediate corrosive and abrasive characteristics.

BT-RN6

Variant of BT-RN with secondary seal elements in PTFE. This allows application for a wide range of media.

BT-RN.NU/-RN3.NU/-RN6.NU

As BT-RN/-RN3/-RN6, but with length l_{1N} and dimensions according to EN 12756.

Materials

BT-RN/-RN.NU

Seal face F, G, F1
Stationary seat B
Rubber parts P, V, E
Construction materials G, F
Standard combination F1BPGF1

BT-RN3/-RN3.NU

Seal face U
Stationary seat U
Rubber parts P, V, E
Construction materials G, F, F1
Standard combination UUPGF

BT-RN6/-RN6.NU

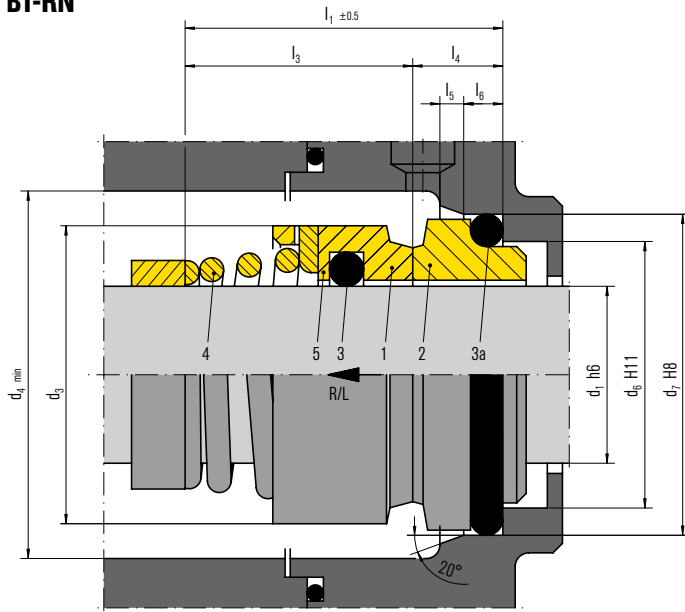
Seal face G
Stationary seat B
Rubber parts T
Construction material G
Standard combination GBTGG

Operating range

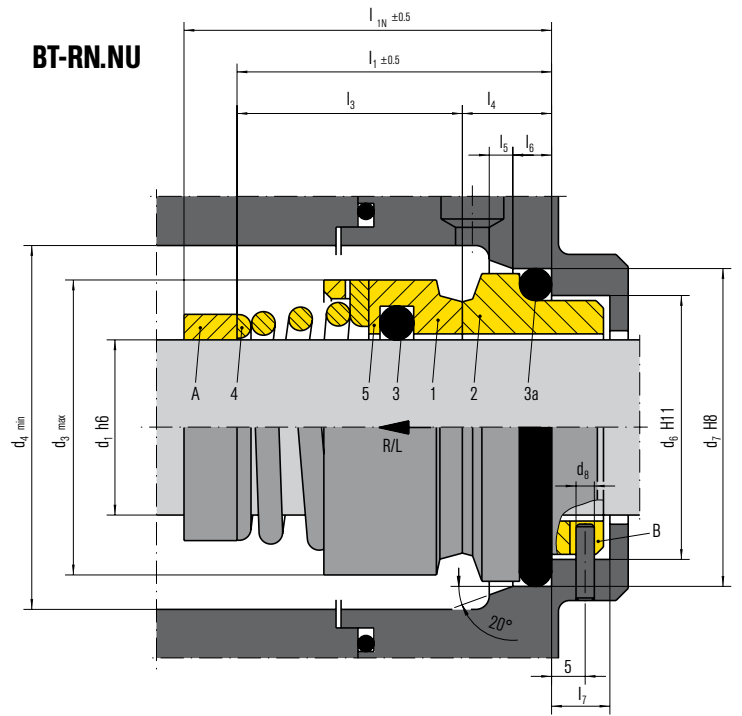
$d_1 = 6 \dots 110 \text{ mm}$ (RN, RN3, RN6)
 $10 \dots 100 \text{ mm}$ (RN.NU, RN3.NU)
on request (RN6.NU)
 $p_1 = 10 \text{ bar}$
 $t = -70 \dots 200 \text{ }^\circ\text{C}$
 $v_g = 20 \text{ m/s}$
Operating limits depend on $p \cdot v_g$ factor

Item	Designation
1	Seal face
2	Seat
3	O-Ring
3a	O-Ring
4	Compression spring
5	Collar
5a	Ring
A	Sleeve (on request)
B	Stationary seat with slot for radial pin (on request)

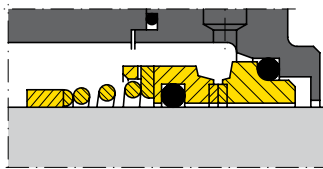
BT-RN



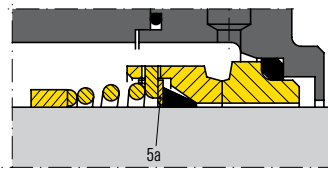
BT-RN.NU



BT-RN3 / BT-RN3.NU



BT-RN6 / BT-RN6.NU



Dimensions (mm)

d ₁	d ₂	d ₃	d ₄	d ₅	d ₇	l ₁	l ₃	l ₄	l ₅	l ₆
6	12	16	10.0	13.1	19.5	15	4.5	1.2	2	
8	16	20	13.0	17.1	20.5	15	5.5	1.2	3	
10	20	22	14.0	18.1	20.5	15	5.5	1.2	3	
11	20	24	16.5	20.6	23.5	18	5.5	1.2	3	
12	22	24	16.5	20.6	23.5	18	5.5	1.2	3	
13	22	26	19.0	23.1	28.0	22	6.0	1.2	3	
14	24	26	19.0	23.1	28.0	22	6.0	1.2	3	
15	24	31	21.0	26.9	29.0	22	7.0	1.5	4	
16	26	31	21.0	26.9	30.0	23	7.0	1.5	4	
17	26	31	21.0	26.9	30.0	23	7.0	1.5	4	
18	32	36	25.0	30.9	32.0	24	8.0	1.5	4	
19	32	36	25.0	30.9	33.0	25	8.0	1.5	4	
20	34	36	25.0	30.9	33.0	25	8.0	1.5	4	
22	36	41	30.0	35.4	33.0	25	8.0	2.0	4	
23	36	41	30.0	35.4	35.0	27	8.0	2.0	4	
24	38	41	30.0	35.4	35.0	27	8.0	2.0	4	
25	39	45	33.0	38.2	35.5	27	8.5	2.0	4	
26	39	45	33.0	38.2	35.5	27	8.5	2.0	4	
28	42	50	38.0	43.3	38.0	29	9.0	2.0	4	
30	44	50	38.0	43.3	39.0	30	9.0	2.0	4	
32	46	50	38.0	43.3	39.0	30	9.0	2.0	4	
33	47	60	45.0	53.5	50.5	39	11.5	2.0	6	
34	48	60	45.0	53.5	50.5	39	11.5	2.0	6	
35	49	60	45.0	53.5	50.5	39	11.5	2.0	6	
36	50	60	45.0	53.5	50.5	39	11.5	2.0	6	
38	54	68	52.0	60.5	50.5	39	11.5	2.0	6	
40	56	68	52.0	60.5	50.5	39	11.5	2.0	6	
42	59	68	52.0	60.5	50.5	39	11.5	2.0	6	
43	59	68	57.0	60.5	52.5	41	11.5	2.0	6	
44	60	72	57.0	65.5	52.5	41	11.5	2.0	6	
45	61	72	57.0	65.5	52.5	41	11.5	2.0	6	
48	64	72	57.0	65.5	52.5	41	11.5	2.0	6	
50	66	80	64.0	72.5	56.5	45	11.5	2.0	6	
55	71	80	64.0	72.5	58.5	47	11.5	2.0	6	
60	80	87	72.0	79.3	60.5	49	11.5	2.0	6	
65	85	92	77.0	84.5	62.5	51	11.5	2.0	6	
70	90	97	82.0	89.5	62.5	51	11.5	2.0	6	
75	99	102	87.0	94.5	68.5	57	11.5	2.0	6	
80	104	107	92.0	99.5	70.5	59	11.5	2.0	6	
85	109	113	98.0	105.5	72.5	59	13.5	2.5	6	
90	114	120	105.0	111.5	75.5	62	13.5	2.5	6	
95	119	130	110.0	116.5	75.5	62	13.5	2.5	6	
100	124	136	114.0	119.5	88.5	75	13.5	2.5	6	
110	143	150	124.0	132.2	92.5	75	17.5	4.0	7	

Dimensions (mm)

d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	d ₈	l _{1N}	l ₁	l ₃	l ₄	l ₅	l ₆	l ₇
10	20	22	17	21	3	40	22	15	7	1.5	4	8.5	
12	22	24	19	23	3	40	25	18	7	1.5	4	8.5	
14	24	26	21	25	3	40	29	22	7	1.5	4	8.5	
16	26	28	23	27	3	40	30	23	7	1.5	4	8.5	
18	32	34	27	33	3	45	34	24	10	2	5	9	
20	34	36	29	35	3	45	35	25	10	2	5	9	
22	36	38	31	37	3	45	35	25	10	2	5	9	
24	38	40	33	39	3	50	37	27	10	2	5	9	
25	39	41	34	40	3	50	37	27	10	2	5	9	
28	42	44	37	43	3	50	39	29	10	2	5	9	
30	44	46	39	45	3	50	40	30	10	2	5	9	
32	46	48	42	48	3	55	40	30	10	2	5	9	
33	47	49	42	48	3	55	49	39	10	2	5	9	
35	49	51	44	50	3	55	49	39	10	2	5	9	
38	54	58	49	56	4	55	55	42	13	2	6	9	
40	56	60	51	58	4	55	55	42	13	2	6	9	
43	59	63	54	61	4	60	60	47	13	2	6	9	
45	61	65	56	63	4	60	60	47	13	2	6	9	
48	64	68	59	66	4	60	60	47	13	2	6	9	
50	66	70	62	70	4	60	60	46	14	2.5	6	9	
53	69	73	65	73	4	70	70	56	14	2.5	6	9	
55	71	75	67	75	4	70	70	56	14	2.5	6	9	
58	78	83	70	78	4	70	70	56	14	2.5	6	9	
60	80	85	72	80	4	70	70	56	14	2.5	6	9	
63	83	88	75	83	4	70	70	56	14	2.5	6	9	
65	85	90	77	85	4	80	80	66	14	2.5	6	9	
68	88	93	81	90	4	80	80	64	16	2.5	7	9	
70	90	95	83	92	4	80	80	64	16	2.5	7	9	
75	99	104	88	97	4	80	80	64	16	2.5	7	9	
80	104	109	95	105	4	90	90	72	18	3	7	9	
85	109	114	100	110	4	90	90	72	18	3	7	9	
90	114	119	105	115	4	90	90	72	18	3	7	9	
95	119	124	110	120	4	90	90	72	18	3	7	9	
100	124	129	115	125	4	90	90	72	18	3	7	9	

BT-RN.NU, RN3.NU, RN6.NU. Dimensions and length l_{1N} according to EN 12756.

Type BT-RN.NB



BT-RN.NB

- Single pusher type seal
- Balanced
- Conical spring
- Dependent on direction of rotation

BT-RN.NB

Represents like the BT-RN, the traditional pusher seal. Special feature of the BT-RN.NB is the balanced design for higher pressure range and clean water. Length and dimensions according to EN 12756.

BT-RN3.NB

Seal faces made of brazed tungsten carbide which is suitable for media with intermediate corrosive and abrasive characteristics.

Materials

BT-RN.NB

Seal face F, F1, G
Stationary seat B
Rubber parts P, E, V
Construction materials G, F, F1
Standard combination F1BPGF1

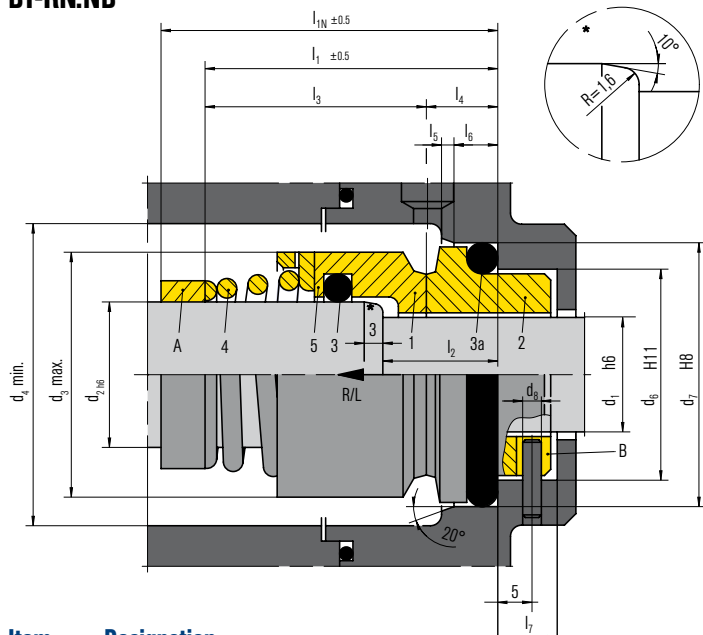
BT-RN3.NB

Seal face U
Stationary seat U
Rubber parts P, E, V
Construction materials G, F, F1
Standard combination UUPGF

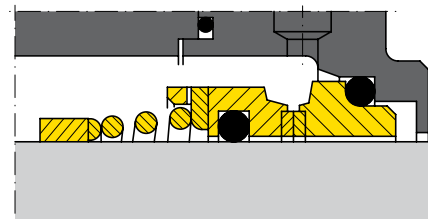
Operating range

$d_1 = 10 \dots 100 \text{ mm}$
 $p_1 = 40 \text{ bar}$
 $t = -20 \dots 180 \text{ }^\circ\text{C}$
 $v_g = 20 \text{ m/s}$
Operating limits depend on $p \cdot v_g$ factor

BT-RN.NB



BT-RN3.NB



- | Item | Designation |
|------|---|
| 1 | Seal face |
| 2 | Stationary seat |
| 3 | O-Ring |
| 3a | O-Ring |
| 4 | Compression spring |
| 5 | Collar |
| A | Sleeve (on request) |
| B | Stationary seat with slot for radial pin (on request) |

Dimensions (mm)

d_1	d_2	d_3	d_4	d_6	d_7	d_8	l_{1N}	l_1	l_2	l_3	l_4	l_5	l_6	l_7
10	14	24	26	17	21	3	50	50	18	43	7	1.5	4	8.5
12	16	26	28	19	23	3	50	50	18	43	7	1.5	4	8.5
14	18	32	34	21	25	3	55	46	18	39	7	1.5	4	8.5
16	20	34	36	23	27	3	55	47	18	40	7	1.5	4	8.5
18	22	36	38	27	33	3	55	51	20	41	10	2.0	5	9.0
20	24	38	40	29	35	3	60	53	20	43	10	2.0	5	9.0
22	26	40	42	31	37	3	60	53	20	43	10	2.0	5	9.0
24	28	42	44	33	39	3	60	60	20	50	10	2.0	5	9.0
25	30	44	46	34	40	3	60	60	20	50	10	2.0	5	9.0
28	33	47	49	37	43	3	65	65	20	55	10	2.0	5	9.0
30	35	49	51	39	45	3	65	65	20	55	10	2.0	5	9.0
32	38	54	58	42	48	3	65	65	20	55	10	2.0	5	9.0
33	38	54	58	42	48	3	65	65	20	55	10	2.0	5	9.0
35	40	56	60	44	50	3	65	65	20	55	10	2.0	5	9.0
38	43	59	63	49	56	4	75	75	23	62	13	2.0	6	9.0
40	45	61	65	51	58	4	75	75	23	62	13	2.0	6	9.0
43	48	64	68	54	61	4	75	75	23	62	13	2.0	6	9.0
45	50	66	70	56	63	4	75	75	23	62	13	2.0	6	9.0
48	53	69	73	59	66	4	85	85	23	72	13	2.0	6	9.0
50	55	71	75	62	70	4	85	85	25	71	14	2.5	6	9.0
53	58	78	83	65	73	4	85	85	25	71	14	2.5	6	9.0
55	60	80	85	67	75	4	85	85	25	71	14	2.5	6	9.0
58	63	83	88	70	78	4	85	85	25	71	14	2.5	6	9.0
60	65	85	90	72	80	4	95	95	25	81	14	2.5	6	9.0
63	68	88	93	75	83	4	95	95	25	81	14	2.5	6	9.0
65	70	90	95	77	85	4	95	95	25	81	14	2.5	6	9.0
70	75	99	104	83	92	4	95	95	28	79	16	2.5	7	9.0
75	80	104	109	88	97	4	105	105	28	89	16	2.5	7	9.0
80	85	109	114	95	105	4	105	105	28	87	18	3.0	7	9.0
85	90	114	119	100	110	4	105	105	28	87	18	3.0	7	9.0
90	95	119	124	105	115	4	105	105	28	87	18	3.0	7	9.0
95	100	124	129	110	120	4	105	105	28	87	18	3.0	7	9.0
100	105	129	134	115	125	4	105	105	28	87	18	3.0	7	9.0

Dimensions and length l_{1N} according to EN 12756

Type BT-C5



BT-C5

- Single pusher type seal
- Unbalanced (KU)
- Balanced (KB)
- Multiple springs
- Independent of direction of rotation

BT-C5.KU

The BT-C5.KU is available in many material combinations, and has therefore various application possibilities, especially in chemical applications. Torque transmission by set screws. Length according to EN12756.

BT-C5.KB

The balanced version of the BT-C5.KU. Suitable for a higher pressure range. Length according to EN 12756.

BT-C56.KU(KB)

Secondary seal elements in PTFE instead of elastomers.

Materials

BT-C5.KU(KB)

Seal face B2
Stationary seat V, Q1
Rubber parts P, V, E
Construction material G
Standard combination B2VPGG

BT-C56.KU(KB)

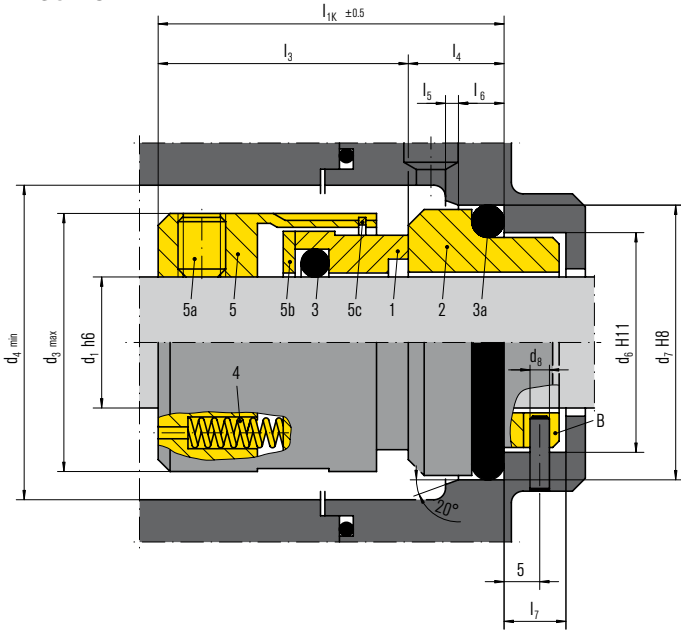
Seal face B2
Stationary seat V, Q1
Rubber parts T
Construction material G
Standard combination B2VTGG

Operating range

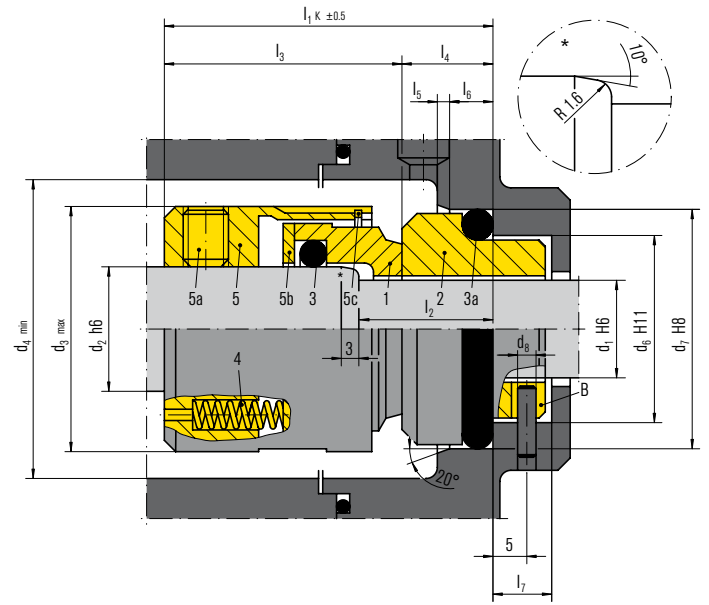
$d_1 = 20 \dots 100 \text{ mm}$ (C5.KU/KB)
on request (C56.KU/KB)
 $p_1 = 12 \text{ bar}$ (C5/C56.KU)
 40 bar (C5/C56.KB)
 $t = -70 \dots 200 \text{ }^\circ\text{C}$
 $v_g = 20 \text{ m/s}$
Operating limits depend on $p \cdot v_g$ factor

Item	Designation
1	Seal face
2	Stationary seat
3	O-Ring
3a	O-Ring
4	Compression spring
5	Collar
5a	Set screw
5b	Ring
5c	Locking ring
B	Stationary seat with slot for radial pin (on request)

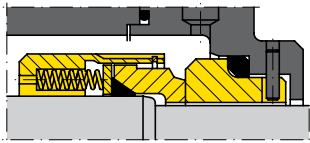
BT-C5.KU



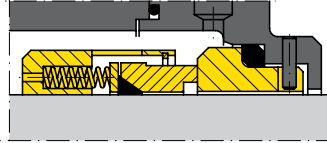
BT-C5.KB



BT-C56.KB



BT-C56.KU



Dimensions (mm)

d_1	d_2	d_3	d_4	d_5	d_6	d_7	d_8	l_{1K}	l_1	l_3	l_4	l_5	l_6	l_7
20	34	36	29	35	3	37.5	34.0	24.0	10.0	2.0	5	9		
22	36	38	31	37	3	37.5	34.0	24.0	10.0	2.0	5	9		
24	38	40	33	39	3	40.0	37.0	27.0	10.0	2.0	5	9		
25	39	41	34	40	3	40.0	37.0	27.0	10.0	2.0	5	9		
28	42	44	37	43	3	42.5	40.0	30.0	10.0	2.0	5	9		
30	44	46	39	45	3	42.5	40.0	30.0	10.0	2.0	5	9		
32	46	48	42	48	3	42.5	40.0	30.0	10.0	2.0	5	9		
33	47	49	42	48	3	42.5	40.0	30.0	10.0	2.0	5	9		
35	49	51	44	50	3	42.5	40.0	30.0	10.0	2.0	5	9		
38	54	58	49	56	4	45.0	43.0	32.0	11.0	2.0	6	9		
40	56	60	51	58	4	45.0	43.0	32.0	11.0	2.0	6	9		
43	59	63	54	61	4	45.0	43.0	32.0	11.0	2.0	6	9		
45	61	65	56	63	4	45.0	43.0	32.0	11.0	2.0	6	9		
48	64	68	59	66	4	45.0	43.0	32.0	11.0	2.0	6	9		
50	66	70	62	70	4	47.5	47.5	34.5	13.0	2.5	6	9		
53	69	73	65	73	4	47.5	47.5	34.5	13.0	2.5	6	9		
55	71	75	67	75	4	47.5	47.5	34.5	13.0	2.5	6	9		
58	78	83	70	78	4	52.5	52.5	39.5	13.0	2.5	6	9		
60	80	85	72	80	4	52.5	52.5	39.5	13.0	2.5	6	9		
63	83	88	75	83	4	52.5	52.5	39.5	13.0	2.5	6	9		
65	85	90	77	85	4	52.5	52.5	39.5	13.0	2.5	6	9		
68	88	93	81	90	4	52.5	52.5	37.5	15.0	2.5	7	9		
70	90	95	83	92	4	60.0	60.0	45.0	15.0	2.5	7	9		
75	99	104	88	97	4	60.0	60.0	45.0	15.0	2.5	7	9		
80	104	109	95	105	4	60.0	60.0	44.5	15.5	3.0	7	9		
85	109	114	100	110	4	60.0	60.0	44.5	15.5	3.0	7	9		
90	114	119	105	115	4	65.0	65.0	49.5	15.5	3.0	7	9		
95	119	124	110	120	4	65.0	65.0	49.5	15.5	3.0	7	9		
100	124	129	115	125	4	65.0	65.0	49.5	15.5	3.0	7	9		

BT-C5(56).KU. l_{1K} according to EN 12756 (l_1 KB)

Dimensions (mm)

d_1	d_2	d_3	d_4	d_5	d_6	d_7	d_8	l_{1K}	l_2	l_3	l_4	l_5	l_6	l_7
18	22	36	38	27	33	3	45.0	20	35.0	10.0	2.0	5	9	
20	24	38	40	29	35	3	45.0	20	35.0	10.0	2.0	5	9	
22	26	40	42	31	37	3	45.0	20	35.0	10.0	2.0	5	9	
24	28	42	44	33	39	3	47.5	20	37.5	10.0	2.0	5	9	
25	30	44	46	34	40	3	47.5	20	37.5	10.0	2.0	5	9	
28	33	47	49	37	43	3	50.0	20	40.0	10.0	2.0	5	9	
30	35	49	51	39	45	3	50.0	20	40.0	10.0	2.0	5	9	
32	38	54	58	42	48	3	50.0	20	40.0	10.0	2.0	5	9	
33	38	54	58	42	48	3	50.0	20	40.0	10.0	2.0	5	9	
35	40	56	60	44	50	3	50.0	20	40.0	10.0	2.0	5	9	
38	43	59	63	49	56	4	52.5	23	41.5	11.0	2.0	6	9	
40	45	61	65	51	58	4	52.5	23	41.5	11.0	2.0	6	9	
43	48	64	68	54	61	4	52.5	23	41.5	11.0	2.0	6	9	
45	50	66	70	56	63	4	52.5	23	41.5	11.0	2.0	6	9	
48	53	69	73	59	66	4	52.5	23	41.5	11.0	2.0	6	9	
50	55	71	75	62	70	4	57.5	25	44.5	13.0	2.5	6	9	
53	58	78	83	65	73	4	57.5	25	44.5	13.0	2.5	6	9	
55	60	80	85	67	75	4	57.5	25	44.5	13.0	2.5	6	9	
58	63	83	88	70	78	4	62.5	25	49.5	13.0	2.5	6	9	
60	65	85	90	72	80	4	62.5	25	49.5	13.0	2.5	6	9	
63	68	88	93	75	83	4	62.5	25	49.5	13.0	2.5	6	9	
65	70	90	95	77	85	4	62.5	25	49.5	13.0	2.5	6	9	
70	75	99	104	83	92	4	70.0	28	55.0	15.0	2.5	7	9	
75	80	104	109	88	97	4	70.0	28	55.0	15.0	2.5	7	9	
80	85	109	114	95	105	4	70.0	28	54.5	15.5	3.0	7	9	
85	90	114	119	100	110	4	75.0	28	59.5	15.5	3.0	7	9	
90	95	119	124	105	115	4	75.0	28	59.5	15.5	3.0	7	9	
95	100	124	129	110	120	4	75.0	28	59.5	15.5	3.0	7	9	
100	105	129	134	115	125	4	75.0	28	59.5	15.5	3.0	7	9	

BT-C5(56).KB. l_{1K} according to EN 12756 (l_1 KB)

Type BT-C5E



BT-C5E

- Single pusher type seal
- Multiple springs
- Independent of direction of rotation
- External mounting
- For high viscosity media

BT-C5E

The BT-C5E is designed for external mounting, it has a short installation length. The seal mounted outside of the product has the advantage that all the metal parts, including springs, are not in contact with the media. Torque transmission by robust axial notches on the metal collar. The collar is fixed on the shaft with set screws. Typical applications are volumetric lobe pumps for food, cosmetics and pharma and for sticky and high viscous media (e.g. paste, paints).

BT-C53E

Seal faces made of brazed tungsten carbide. This version is suitable for media with abrasive characteristics. Installation dimensions same as BT-C5E.

Materials

BT-C5E

Seal face B2, Y
Stationary seat V, Q1, G
Rubber parts P, V, E
Construction material G
Standard combination B2VPGG

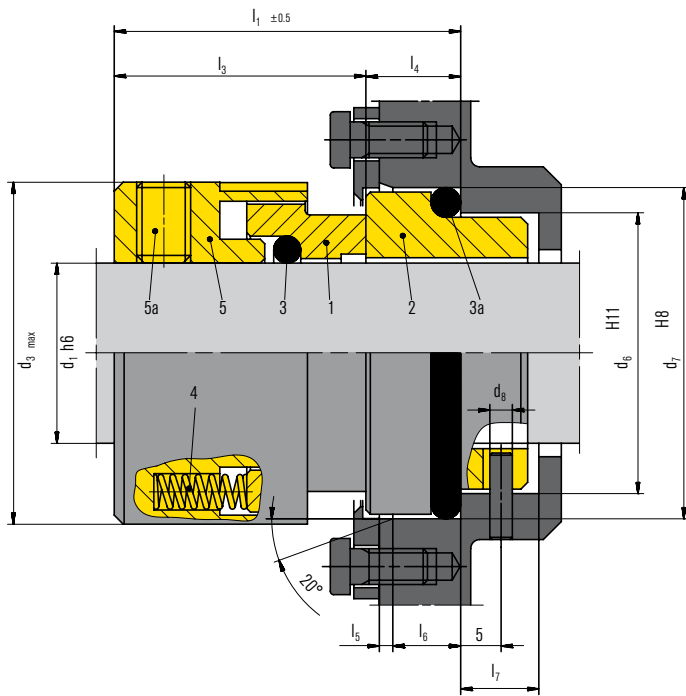
BT-C53E

Seal face U
Stationary seat U
Rubber parts P, V, E
Construction material G
Standard combination UUPGG

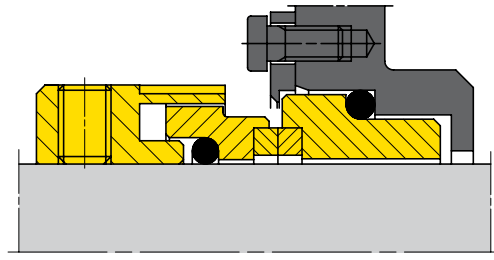
Operating range

$d_1 = 20 \dots 80 \text{ mm}$
 $p_1 = 12 \text{ bar}$
 $t = -35 \dots 180 \text{ °C}$
 $v_g = 15 \text{ m/s}$
Operating limits depend on $p \cdot v_g$ factor

BT-C5E



BT-C53E



Item	Designation
1	Seal face
2	Stationary seat
3	O-Ring
3a	O-Ring
4	Compression spring
5	Collar
5a	Set screw

Dimensions (mm)

d_1	d_3	d_6	d_7	d_8	l_1	l_3	l_4	l_5	l_6	l_7
20	36	29	35	3	29.0	19.0	10.0	2.0	5	9
25	41	34	40	3	29.0	19.0	10.0	2.0	5	9
30	46	39	45	3	29.0	19.0	10.0	2.0	5	9
35	51	44	50	3	29.0	19.0	10.0	2.0	5	9
40	59	51	58	4	34.0	23.0	11.0	2.0	6	9
45	60	56	63	4	34.0	23.0	11.0	2.0	6	9
50	66	62	70	4	35.0	22.0	13.0	2.5	6	9
60	80	72	80	4	39.5	26.5	13.0	2.5	6	9
65	86	77	85	4	39.5	26.5	13.0	2.5	6	9
80	105	95	105	4	42.5	26.5	16.0	3.0	7	9

Seat dimension (d_7) according to EN 12756

Face materials

Synthetic carbons

„Soft“ standard face material with best possible emergency running properties, but only suitable for media without any solid content.

- A Carbon graphite, antimony impregnated
- B Carbon graphite, resin impregnated
- B3 Carbon graphite without impregnation (full carbon)

Metals

In combination with carbon as a hard/soft combination: good emergency running properties for sealing clean/aggressive media, including food industry applications.

- E Cr-steel AISI 420 (1.4021; 1.4028)
- F1 CrNi-steel AISI 431 (1.4057)
- F CrNi-steel AISI 304 (1.4301)
- F CrNi-steel AISI 304L (1.4307)
- G CrNiMo-steel AISI 316 (1.4401)
- G CrNiMo-steel AISI 316L (1.4404)

Carbides

Special materials (highly wear resistant) for chemically aggressive and abrasive media, including high temperatures.

- U Tungsten carbide, Ni-binder, brazed (lower cost than solid version)
- U1 Tungsten carbide, Ni-binder, solid
- Q1 Silicon carbide, sintered pressureless (SiC)
- Q6 Silicon carbide, sintered pressureless with carbon (SiC-C)

Metal oxides (Ceramics)

Reasonably priced material with good chemical resistance, but limited resistance to temperature and thermal shock, only used in combination with a soft face material as a „hard/soft“ combination.

- X Steatite (Magnesium silicate Mg_2SiO_4)
- V Ceramic (Aluminium oxide 99,5 % Al_2O_3)
- V1 Ceramic (Aluminium oxide 96-98 % Al_2O_3)

Plastics

Soft face material, used mainly in chemical pumps. The medium must not contain any solid particles. PTFE is a typical face material for dish washing applications (low friction).

- Y PTFE glass fiber reinforced 25 %
- Y2 PTFE glass fiber reinforced 15 %

Secondary seal components

- P Nitrile-butadiene-rubber NBR, e.g. Perbunan®
- P2 Nitrile-butadiene-rubber NBR (drinking water approved)
- P4 Hydrogenated Nitrile-rubber (HNBR), e.g. Therban®
- P5 Nitrile-butadiene-rubber NBR (indicated for ozone applications)
- V Fluor carbon rubber FKM, e.g. Viton®
- E Ethylene-propylene-rubber EPDM
- E2 Ethylene-propylene-rubber EPDM (drinking water approved)
- T Polytetrafluorethylene PTFE, e.g. Teflon®
- X Perfluorcarbon rubber FFKM, e.g. Kalrez®, Chemraz®

Secondary seals of PTFE are wedge-shaped on the shaft side and are ideally suited for sealing aggressive media.

Please ask for possible drinking water approvals (WRAS, KTW, W270, ACS, NSF, DM174).

Spring materials

- F CrNi-steel AISI 304 (1.4310)
- G CrNiMo-steel AISI 316 (1.4401)

Construction materials

- E Cr-steel AISI 420 (1.4021; 1.4028)
- F1 CrNi-steel AISI 431 (1.4057)
- F CrNi-steel AISI 304 (1.4301)
- F CrNi-steel AISI 304L (1.4307)
- G CrNiMo-steel AISI 316 (1.4401)
- G CrNiMo-steel AISI 316L (1.4404)

Classification and limits of use

The operating limits shown in the table below are to be considered as a maximum because they directly depend on the $p \cdot v_g$ factor. The $p \cdot v_g$ factor is a term used to define in practice the operating limit of the mechanical seals and is the product of the pressure of the medium to be sealed and the surface speed referred to the average diameter of the seal faces. All technical specifications are based on extensive tests and our many years of experience. The diversity of possible applications means, however, that they can serve only as guide values. We must be notified of the exact conditions of application before we can provide any recommendation for a specific case. Subject to change.

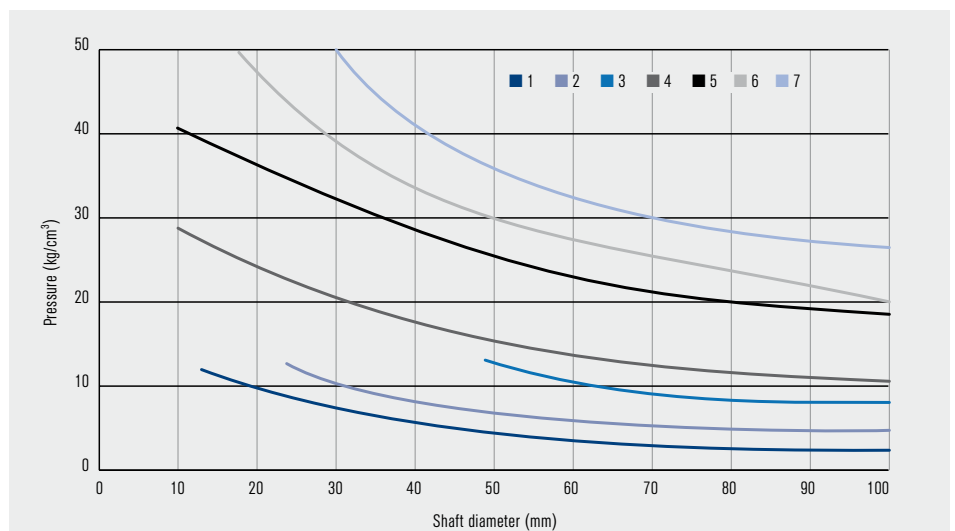
Temperature ranges for application of conventional O-rings

Materials		Temperature range (°C)
Nitrile rubber	P	-20 ... +90
Chloroprene	N	-30 ... +120
EP rubber not resistant to mineral greases and oils	E	-40 ... +140
Silicone rubber	S	-50 ... +200
Fluorine rubber (e.g. Viton®) with hot water only up to a maximum of 120 °C	V	-30 ... +120
Butyl rubber not resistant to mineral greases and oils	B	-40 ... +140
Perfluorcarbon rubber (e.g. Kalrez®)	X	+270
Fluorine containing solvents may result in swelling		
PTFE (e.g. Teflon®)	Y	-200 ... +250

Pressure limits

Face materials	n (g/min)	Medium	Form
1 Carbon/aluminium oxide	2950	water	U*
2 Carbon/tungsten carbide	2950	water	U*
3 Carbon/tungsten carbide	1450	lubricants	U*
4 Carbon/aluminium oxide	2950	water	B*
5 Carbon/tungsten carbide	2950	water	B*
6 Carbon/tungsten carbide	2950	lubricants	B*
7 Carbon/tungsten carbide	1450	lubricants	B*

U* - Unbalanced; B* - Balanced



Approximate $p \cdot v$ curves for generic mechanical seals, in water (or water solutions) and in other liquids, at temperature 20 °C.



TIFQ Istituto per la Qualità Igienica delle Tecnologie Alimentari	Definizione di conformità ai DM n.174/2004	Rev. 01 11/04/09 TIFQ-001EN/09/09
	Copia n. 1 consegnata a distributore autorizzato	

Vista la normativa vigente
Having regard to the current legislation

DM n.174 del 6 aprile 2004
"Implementazione concernente i materiali e gli oggetti che possono essere utilizzati negli impianti fissi di captazione, trattamento, adduzione e distribuzione delle acque destinate al consumo umano".
DECREE NO: 174 of 6 April 2004 on
Materials and objects used in fixed plants for the collection, treatment, supply and distribution of water intended for human consumption

TIFQ - Istituto per la Qualità Igienica delle Tecnologie Alimentari
come richiesto nell'Art. 2 comma 3 del suddetto decreto
as required under provisions Art.2 comma 3 of this decree

dichiara che gli oggetti prodotti e/o commercializzati dalla Società BT Tenute Meccaniche Rotanti Spa:
declares that undermentioned items produced and/or marketed by BT Tenute Meccaniche Rotanti spa:

tenute meccaniche a soffietto e tenute meccaniche con o-ring
rubber bellows mechanical seals and single pusher type seal

nelle famiglie commerciali indicate in Allegato I:
in business models listed in Annex I:

sono idonee al contatto con acqua destinata al consumo umano.
are fit for contact with water intended for human consumption.

Il Direttore
General Manager



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EagleBurgmann is one of the leading international companies for industrial sealing technology. Our products are used everywhere that safety and reliability are important: In the oil and gas industries, petroleum refining, pharmacy, chemicals, energy, food, paper, water, marine applications, aerospace and mining. Every day, more than 5000 employees contribute their ideas, solutions and commitment to ensuring that customers all over the world can rely on our seals. Our modular seal service, TotalSealCare™, underlines our commitment to customer orientation and our provision of tailor-made services for every application.

BT-Burgmann S.P.A.

Via Meucci, 58
I-36057 Arcugnano (Vi)
Tel: +39 0444 288 977
Fax: +39 0444 288 971
info@btburgmann.com
www.btburgmann.com

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