

RELY ON EXCELLENCE

## BT-AR

Mechanical seals | Mechanical seals for pumps | Elastomer bellows seals



### Features

- Rubber bellows mechanical seal
- Unbalanced
- Single spring
- Independent of direction of rotation
- Short axial installation length

### Advantages

Mechanical seal for large-series cold water pumps, produced in millions of units per year. The BT-AR owes its success to the wide range of application, the short axial length (this allows for more economic pump construction and saves material), and the best quality/price ratio. The elasticity of the bellows design enables a more robust operation.

The BT-AR can also be used as a multiple seal in tandem or back-to-back arrangement when the product media cannot ensure lubrication, or when sealing media with a higher solids content. Installation proposals can be provided upon request.

### Operating range

Shaft diameter:  $d_1 = 6 \dots 70 \text{ mm}$  (0.24" ... 2.76")

Pressure:  $p_1^* = 6 \text{ bar}$  (87 PSI), vacuum ... 0.5 bar (7.45 PSI) up to 1 bar (14.5 PSI) with seat locking

Temperature:

$t^* = -20 \text{ °C} \dots +120 \text{ °C}$  (-4 °F ... +248 °F)

Sliding velocity:  $v_g = 10 \text{ m/s}$  (33 ft/s)

\* Dependent on medium, size and material

### Materials

Seal face:

Carbon graphite antimony impregnated (A), Carbon graphite resin impregnated (B), Carbon graphite, full carbon (B3), Silicon carbide (Q1, Q6), Tungsten carbide (U), PTFE glass fiber reinforced (Y)

Seat:

Steatite (X), Aluminium oxide (V, V1), Silicon carbide (Q1, Q6, Q7), Tungsten carbide (U), Cr steel (E), CrNi steel (F), CrNiMo steel (G)

Elastomers:

NBR (P), EPDM (E), FKM (V), HNBR (X4)

Metal parts:

CrNi steel 1.4301 (F), CrNiMo steel 1.4401 (G), CrNi steel 1.4057 (F1)

### Standards and approvals

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

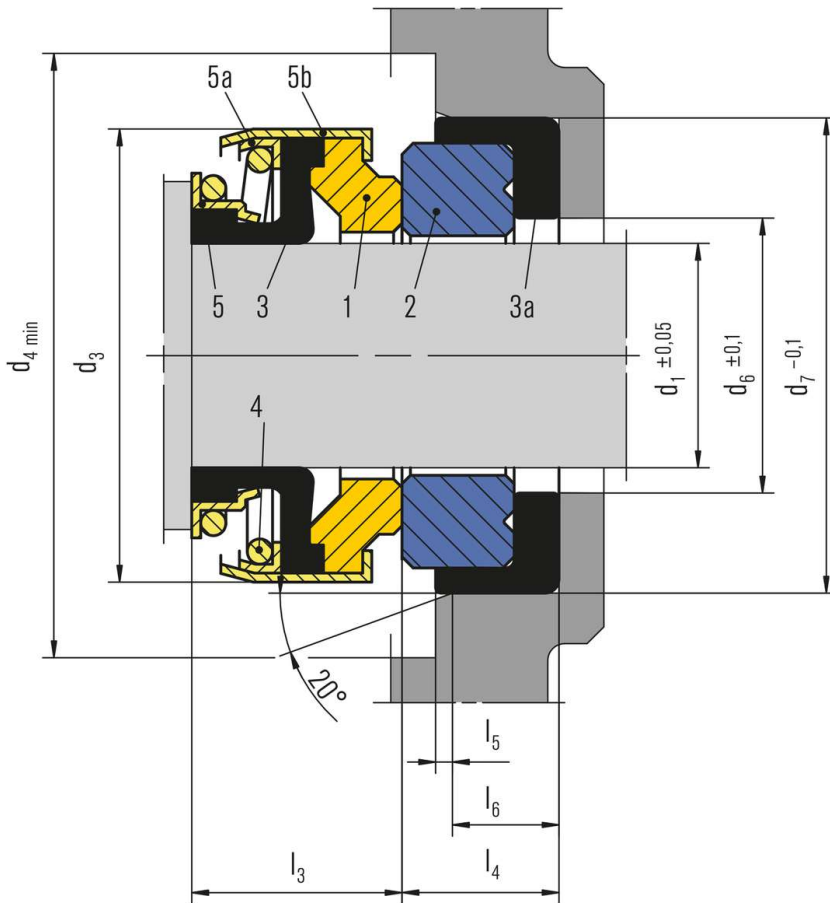
### Recommended applications

- Water and waste water technology
- Pool and spa applications
- Household appliances
- Domestic and garden pumps
- Whirlpool and swimming pool pumps
- Dishwasher pumps
- Submersible motors / pumps
- Water pumps / waste water pumps

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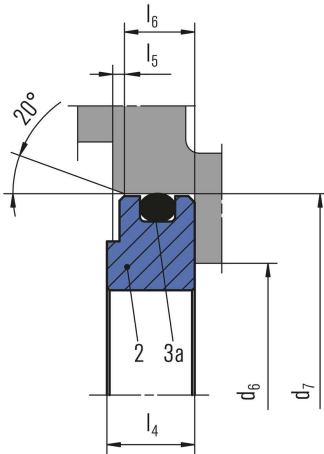
### Item Description

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



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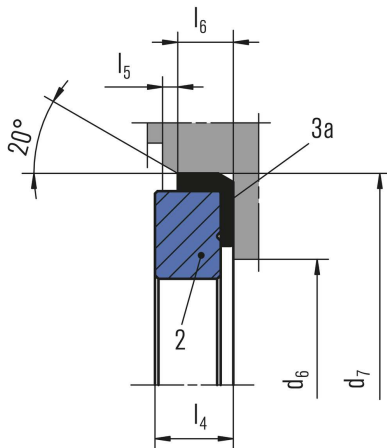
## Seat alternatives



**PF A**

**Item Description**

- 2 Stationary seat
- 3a O-Ring



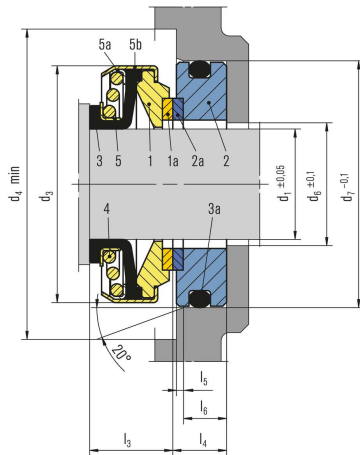
**PF C**

**Item Description**

- 2 Stationary seat
- 3a Gasket

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## Product variants



### BT-AR3

Seal faces with brazed tungsten carbide (U) for abrasive media. Elastomers and diameter range the same as BT-AR. The BT-AR3 is the right choice of seal for use in high duty applications or when abrasives (e.g. waste water) could damage the seal faces.

#### Item Description

- 1 Seal face housing
- 1a Brazed seal face
- 2 Stationary seat housing
- 2a Brazed stationary seat
- 3 Bellows
- 3a O-Ring
- 4 Spring
- 5 Ring
- 5a Locking ring
- 5b Collar

## RELY ON EXCELLENCE

### Dimensions

Type	d <sub>1</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>6</sub>	d <sub>7</sub>	l <sub>3</sub>	tol	l <sub>4</sub>	l <sub>5</sub>	l <sub>6</sub>	Note
6	6	18	23	8	22.0	8.0	+0.5/0	4.0	0.5	3.5	
					18.0	8.0	+0.5/0	4.8	0.5	3.5	*
8S	8	20	23	10	22.0	11.0	+0.5/0	4.8	0.5	3.5	
8	8	24	27	10	26.0	11.0	+0.5/0	8.0	1.0	6.0	
					26.0	11.0	+0.5/0	5.5	0.5	4.5	*
10	10	24	27	12	26.0	11.0	+0.5/0	8.0	1.0	6.0	
					26.0	11.0	+0.5/0	5.5	0.5	4.5	*
11	11	24	27	13	26.0	11.0	+0.5/0	8.0	1.0	6.0	
					26.0	11.0	+0.5/0	5.5	0.5	4.5	*
12C	12	24	27	14	26.0	11.0	+0.5/0	8.0	1.0	6.0	
					26.0	11.0	+0.5/0	5.5	0.5	4.5	*
12	12	24	27	14	26.0	12.8	+0.7/0	8.0	1.0	6.0	
					26.0	12.8	+0.7/0	5.0	0.5	4.5	*
					25.0	12.8	+0.7/0	5.0	0.5	4.0	*
13	13	24	27	15	26.0	12.8	+0.7/0	8.0	1.0	6.0	
					26.0	12.8	+0.7/0	5.5	0.5	4.5	*
14S	14	28	30	18	28.5	12.8	+0.7/0	7.5	1.0	5.5	
					29.5	12.8	+0.7/0	8.0	1.0	6.0	*
14L	14	28	30	18	28.5	15.3	±0.8	7.5	1.0	5.5	
14	14	32	35	16	29.5	12.8	+0.7/0	8.0	1.0	6.0	
15	15	32	35	17	29.5	12.8	+0.7/0	8.0	1.0	6.0	
					30.0	12.8	+0.7/0	6.0	1.0	4.0	*
16R	16	32	35	18	29.5	12.8	+0.7/0	8.0	1.0	6.0	
					30.0	12.8	+0.7/0	6.0	1.0	4.0	*
					38.0	12.8	+0.7/0	8.0	1.0	6.0	*
16	16	39	43	18	42.0	12.8	+0.7/0	8.0	1.0	6.0	
17	17	39	43	19	42.0	12.8	+0.7/0	8.0	1.0	6.0	
18	18	39	43	20	42.0	12.8	+0.7/0	8.0	1.0	6.0	
19	19	39	43	21	42.0	12.8	+0.7/0	8.0	1.0	6.0	
20R	20	35	39	22	35.0	17.8	±0.7	7.5	1.0	5.5	
20	20	39	43	22	42.0	12.8	+0.7/0	8.0	1.0	6.0	
20S	20	42	47	22	45.0	12.8	+0.7/0	10.0	1.0	8.0	
22	22	42	47	24	45.0	12.8	+0.7/0	10.0	1.0	8.0	
23	23	47	52	25	50.0	13.5	+1/0	10.0	1.0	8.0	
24	24	47	52	26	50.0	13.5	+1/0	10.0	1.0	8.0	
25R	25	42	52	27	50.0	13.5	+1/0	10.0	1.0	8.0	
					45.0	13.5	+1/0	10.0	1.0	8.0	*
25	25	47	52	27	50.0	13.5	+1/0	10.0	1.0	8.0	
26	26	47	52	29	50.0	13.5	+1/0	10.0	1.0	8.0	
27	27	47	52	30	50.0	13.5	+1/0	10.0	1.0	8.0	
28	28	54	60	31	57.0	15.0	+1/0	10.0	1.0	8.0	
30	30	54	60	33	57.0	15.0	+1/0	10.0	1.0	8.0	
32	32	54	60	35	57.0	15.0	+1/0	10.0	1.0	8.0	
35	35	60	70	38	63.0	16.0	+1/0	10.0	1.0	8.0	
38	38	65	75	41	68.0	18.0	+1/0	12.0	2.0	9.0	
40	40	65	75	43	68.0	18.0	+1/0	12.0	2.0	9.0	
45	45	70	80	48	73.0	20.0	+1/0	12.0	2.0	9.0	
50	50	85	95	53	88.0	23.0	+1/0	15.0	2.0	12.0	

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Type	d <sub>1</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>6</sub>	d <sub>7</sub>	l <sub>3</sub>	tol	l <sub>4</sub>	l <sub>5</sub>	l <sub>6</sub>	Note
60	60	105	115	63	110.0	30.0	+1/0	15.0	2.0	12.0	
70	70	105	115	73	110.0	32.0	+1/0	15.0	2.0	12.0	

\* Alternative seat dimensions

BT-AR - Dimensions in millimeter

## Dimensions

d <sub>1</sub>	d <sub>1</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>6</sub>	d <sub>7</sub>	l <sub>3</sub>	tol	l <sub>4</sub>	l <sub>5</sub>	l <sub>6</sub>	Note
0.375"	9.53	24	27	12	25.40	11.0	+0.5/0	5.5	0.5	4.5	
					25.40	11.0	+0.5/0	7.5	1.0	5.5	*
0.500"	12.70	24	27	15	25.40	12.8	+0.7/0	7.5	1.0	5.5	
0.625"	15.88	32	36	18	31.75	12.8	+0.7/0	10.3	1.0	8.0	

\* Alternative seat dimensions

BT-AR - Dimensions in inch / millimeter