# **Elastomer Bellows Seals**



#### Focusing on the customer

EagleBurgmann offers an extensive selection of elastomer bellows seals, providing the right solution for your particular application. We know from experience that it is only when you get down to the details that you fully understand the exact product requirements profile. Regardless of whether economic, design or technical aspects are your priority, our goal is to give you the best possible leading-edge solution. If you are looking for a specially engineered solution, we would be pleased to supply the right seal. That is what we mean by customer focus.

# Technological expertise that you can rely on

Our seals are key components for our customers. These seals make a vital contribution to operational reliability and business performance. You get sophisticated, top-class products which you can rely on in day-to-day applications. EagleBurgmann is known for the reliability, safety and resilience of its products. This gives you peace of mind and lets you concentrate on your core business. We produce our elastomer bellows and mechanical seals inhouse to ensure that you get the quality and precision that you expect. We make no compromises on any component. Our technological expertise and quality standards are an obligation as well as an incentive. There is good reason why EagleBurgmann repeatedly gets top marks in comparative tests. That is something you can count on.

# Commitment at every step along the way

The most interesting aspect of a seal is often not the product itself but rather the problem it solves. Not only do we produce first-class products, we also fine-tune every step in the process which can have an influence on the product that we deliver to you. Many things have to come together to ensure that a product is the perfect solution for the particular application. It takes courage, creativity and singlemindedness to nurture new (and sometimes "counterintuitive") ideas and turn them into real products, but it is worth the effort in the end. We deliver the things that are important to customers. We take an innovative approach that opens the door to new applications. Our product range satisfies virtually every need. Our quality and service portfolio makes EagleBurgmann your industrial sealing technology partner which you can rely on in any situation. What we do, we do very well.

Successful pumps have one thing in common – EagleBurgmann elastomer bellows seals.

# Versatile, robust and proven millions of times

Our wide range of elastomer bellows seals fits both pump manufacturers and operators requirements. The seals are available "off the shelf", are easy to install, have a long service life and do not need excessive service. They have been performing effectively in a wide range of industries for decades. Our elastomer bellows seals are the first choice in both demanding or standard applications and where a high level of safety, reliability and economy is required.

#### Simple installation

Elastomer bellows seals are compact, which means they can be handled safely and easily. They consist of only two subassemblies: the spring-loaded unit and the seat. Installation is performed simply by pushing it onto the shaft.

#### **Protected pump shaft**

Firstly, the bellows successfully protects the shaft from the impact of the product medium. Secondly, torque is transmitted from the shaft to the bellows unit with the spring-loaded seal face through frictional locking. This means access holes and the like are not required.

#### Long service life

The bellows is the heart of the seal. Due to its ingenious geometry, it performs several functions at the same time: it is a seal face carrier, drive unit and secondary sealing element. In addition, it is free from torsional loads, which means that material fatigue is effectively avoided.

#### Quality, right from the beginning

One factor is all important for ensuring the sustained function of pumps: components of the highest quality. Therefore, EagleBurgmann relies on the best when selecting materials. Every new material is initially subjected to comprehensive testing in our Research and Development department before being released for use. For some seal ranges, we produce the sliding faces ourselves.

#### Adapted to your pump

Axial shaft movements are compensated for without problems by the bellows as well as the special characteristics of the springs. Elastomer bellows do not have a dynamic O-ring; therefore there is virtually no caking on the shaft, eliminating any problems with settlement of the seal.

Also direction of rotation of the pump has no effect on the function of the seals: they are independent from the direction of rotation.

#### Single and multiple seals

Most of the EagleBurgmann elastomer bellows seals are available as single seals and multiple seals. This is advisable as when the product media cannot assure lubrication or the content of solids is high. The seals also have good chemical resistance because of the metal-free product side.

# The right seal for your application.

## **Application areas**

			Standa Rotating	rd seals concept		
	MG1*	MG9	EA560	EA100	BT-AR	BT-PN
			00		0	00
Diameter range	10 100 mm	10 100 mm (0.375" 4.000")	8 50 mm (0.375" 2.000")	8 20 mm	6 60 mm	8 30 mm
· Water applications						
• Waste water	****	•••	•••	•		•••
• Hot water (80 °C 120 °C)	****		•••	•		••
Drinking water	****		••••	••••		
Anti-freeze, water glycol	****		•••	••	•••	
· Paper applications						••
· Chemical applications	****	••	••	•	•	•
· Oil applications	****			•	•	-
• Food & beverage applications		•••	•••	••	•••	•••

The table covers the basic categories. Individual applications must be checked in detail.

# **Application areas**

	Stationary concept	Special seals   Multipl	e seals
	EH700	ED560	MG9-D
	0		OND
Diameter range	15 35 mm	13 50 mm	10 100 mm (0.375" 4.000")
· Water applications			
Waste water			
• Hot water (80 °C 120 °C)			
Drinking water			
• Anti-freeze, water glycol	***	••	••
Paper applications	0	•	•
- Chemical applications			
- Oil applications	•		
• Food & beverage applications			

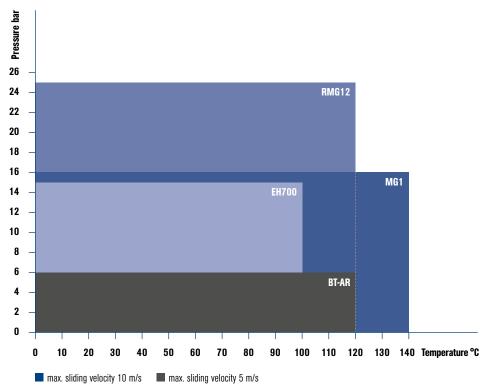
#### Important note:

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 guarantee for a specific case. Subject to change.

possible → recommended

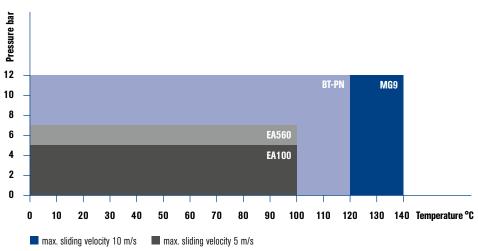
<sup>\*</sup> MG1 is also available as a multiple seal.

## Operating limits for bellows and stationary design



This chart shows max. operating conditions. They can change depending on size, medium and materials.

## Operating limits for bellows diaphragm design



This chart shows max. operating conditions. They can change depending on size, medium and materials.



# All-rounder for a wide range of applications

The MG1 displays its advantages not only in classic applications but also in demanding applications such as sealing media containing abrasive and solids. Millions of MG1 seals have proven their effectiveness in practice, providing the best possible protection for the shaft against chemicals or deposits. This is made possible because of the special bellows that covers the shaft over the entire seal length.

The vibration damper that is directly connected to the seal face also prevents a built-up in the bellows unit. At the same time, it protects the seal face during installation. The MG1 has a high level of axial mobility, making it easy to compensate shaft movements. This is based on the S-shape of the bellows as well as the special spring characteristic.

In addition, not only are high-quality materials used, it also possesses important approvals such as FDA, WRAS, KTW, ACS, W270, NST. A wide range of seat geometries simplifies the connection in the pump housing.

#### Multiple seal

The MG1 can also be used as a multiple seal in tandem or in a back-to-back arrangements. Installation proposals can be supplied on request.

## **Operating limits**

 $d_1 = 10 ... 100 \text{ mm}$ 

p<sub>1</sub>\* = 12 (16) bar *(170 (230) PSI)* Vacuum up to 0.5 bar

(up to 1 bar with seat locking)

 $t^* = -20 \dots +120 (140) ^{\circ}C$  $(-4 ^{\circ}F \dots +250 (284) ^{\circ}F)$ 

 $v_0 = 10 \text{ m/s} (33 \text{ ft/s})$ 

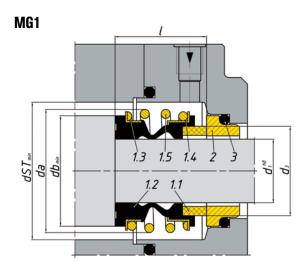
Permissible axial movement: up to 2 mm

\*) depending on medium, size and material

#### **Materials**

Seat	Seal face	Elastomer	Metal
Silicon carbide (Q1, Q2) Tungsten carbide (U3)	Carbon graphite, antimony-impregnated (A) Carbon graphite, resin-impregnated (B)	NBR (P) EPDM (E)	1.4571 (G) Hastelloy® C4
Special cast chromium- Molybdenum steel (S)	Silicon carbide (Q1)	FKM (V)	
Aluminium oxide (V)	Tungsten carbide (U3)	HNBR (X4)	

Designations in brackets according to EN 12756.



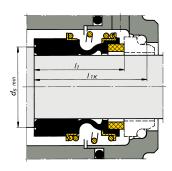
Pos.	Part no. DIN 24250	Designation
1.1	472	Seal face
1.2	481	Bellows
1.3	484.2	Spring collar
1.4	484.1	Spring collar
1.5	477	Spring
2	475	Seat
3	412	O-ring or corner sleeve

#### **Dimensions (mm)**

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d <sub>1</sub>	$d_3$	$d_6$	d <sub>7</sub>	d <sub>8</sub>	d <sub>11</sub>	d <sub>12</sub>	d <sub>14</sub>	d <sub>16</sub>	da	d <sub>b</sub> *)	d <sub>m</sub> *)	$d_s^*$ )	d <sub>st</sub>	- 1	l <sub>1</sub>	I <sub>1k</sub>	IIn	I <sub>1s</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>5</sub>	16	l <sub>7</sub>	l <sub>8</sub>	<b>l</b> g	I <sub>10</sub>	I <sub>12</sub>	I <sub>14</sub>	I <sub>15</sub> I <sub>1</sub>	6 l <sub>1</sub>	7 I	28	l <sub>29</sub>	R
10	15.7	17	21	3	15.5	19.2	11.0	24.60	22.5	20.5	18	18	24	14.5	25.9	32.5	40	34.0	33.4	25	1.5	4	8.5	17.5	10.0	7.5	7.5	6.6	1.2 3.	8 7.	5 6	6.6	9.0	1.2
12	17.7	19	23	3	17.5	21.6	13.5	27.80	25.0	22.5	20	20	26	15.0	25.9	32.5	40	34.0	33.4	25	1.5	4	8.5	17.5	10.0	7.5	6.5	5.6	1.2 3.	8 7.	5 6	.6	9.0	1.2
14	19.7	21	25	3	20.5		17.0		28.5	26.5	22	22	30	17.0	28.4										10.0	7.5	6.5		1.2 3.			6.6 1	10.5	1.2
15	20.8	-		-	20.5	24.6	17.0		28.5		22	22	30	17.0				35.5								-	7.5	6.6	1.2 3.	8 9.	-		10.5	1.2
16	21.0	23	27	3	22.0	28.0	17.0		28.5	26.5	22	22	30												10.0		8.5		1.5 5.				10.5	
18	23.7	27	33	3	24.0	30.0		34.15			29	26	33											19.5	11.5	8.5	9.0	8.0	1.5 5.				10.5	
19	26.7	-	-	-	-	-		34.15		33.0	33	28	38	21.5				35.5						-	-	-	-	-		٠.	-		10.5	
20	26.7	29	35			35.0		35.70		33.0	33	28	38												11.5		8.5		1.5 5.				10.5	
22	27.7	31	37			35.0		37.30		33.0	33	28	38												11.5		8.5		1.5 5.				10.5	
24	31.2		39		32.0			40.50			38	32	44												11.5		8.5		1.5 5.				10.5	
25	31.2	34	40	3		38.0		40.50		38.0	38	32	44												11.5		8.5		1.5 5.				10.5	
28	35.0	37	43	3	36.0				49.0	44.0	37	37	50												11.5		10.0		1.5 5.				12.0	
30	37.0	39	45	3	39.2			50.80		44.0	37	37	50												11.5			10.5					12.0	
32	40.2	42		-	42.2			50.80		46.0	41	41													11.5			10.5					12.0	
33	40.2	42	48	3	44.2				53.5	46.0	41	41	55															11.0					12.0	
35	43.2		50		46.2			54.00		50.0	44	44	59															11.0					12.0	
38	46.2	49	56		49.2				59.0	53.0	53	47	61															10.3					12.0	
40	48.8	51	00	4	02.2				62.0	55.0	55	49	64															10.8					12.0	
42	51.8	-		-	53.3	62.0		63.50		58.0	53	53	67		36.0			53.0						-				12.0					12.0 2	
43	51.8	54	61	4				63.50			53	53	67															12.0					12.0 2	
45	53.8	56	63	4	55.3	64.0			68.0	60.0	55	55	70															11.6					12.0	
48 50	56.8 58.8	59 62	66 70		59.7 60.8	68.4 69.3		66.70 69.85		63.0 65.0	58 60	58	74 77															11.6						
53	62.2			_	63.8			73.05		70.0	63	60 63	81															11.6 12.3						
55	64.2	67	75			75.4		76.20		70.0	65	65	83															13.3						
58	67.2		78		69.5			79.40			68	68	88															13.3						
60	70.0	72	80		71.5	80.4			88.5		70	70	91															13.3						
65	75.0		85	_		85.4		92.10		84.0	77	77	96															13.0						
68	78.0	81	90		82.7	91.5			96.5	88.0	80	80	00															13.7						
70	80.0	83			83.0			95.25			82	82																13.0						
75	85.5	88	97		90.2			101.60			87	87																14.0						
80	90.5	95						114.30				92																15.0						
85		100						117.50				97																14.8						
90	102.0							123.85																				14.8						
95	107.0							127.00																				15.8						
								133.35																										
100	112.0	110	120	7	117.0	120.0	100.0	100.00	101.0	127.0	117	11-7	170	71.0	01.0	30.0	00	JZ.U	10.0	UZ	0.0		3.0	20.2	11.2	70.0	77.0	10.0	2.0 0.	0 10	.0 1-	1.0 Z	.0.0	0

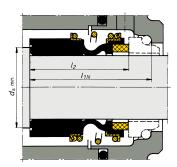
Fitting length/axial movement tolerances:  $d_1$  10 ... 12 mm  $\pm$ 0.5;  $d_1$  14 ... 18 mm  $\pm$ 1.0;  $d_1$  20 ... 26 mm  $\pm$ 1.5;  $d_1$  = 28 ... 100 mm  $\pm$ 2.0 Dimension adaptations for specific conditions, e.g. shaft in inches or special seat dimensions are available on request. \*) Minimum diameter of the mating collar.

#### **MG12**



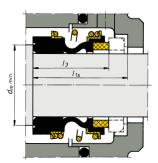
Dimensions, items and designations same as for MG1, but with an extended bellows tail to achieve the **fitting length I\_{1K}** according to EN 12756 in combination with seat G6 or G60. ( $d_a$  acc. to EN 12756 is exceeded).

#### **MG13**



Dimensions, items and designations same as for MG1, but with an extended bellows tail to achieve the **fitting length I\_{1N}** according to EN 12756 in combination with seat G6 or G60. ( $d_a$  acc. to EN 12756 is exceeded).

#### MG1S20



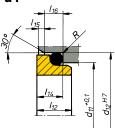
Dimensions, items and designations same as for MG1, but with an extended bellows tail to achieve the **special fitting length I\_{18}** in combination with seat G50.

#### RMG12 (not illustrated)

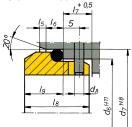
Identical to MG1, but with a special bellows surface on the shaft side. For use in hot water pumps up to 120 °C and 25 bar and/or 140 °C and 16 bar. Only in combination with seat G606 ( $d_1=12\dots38$  mm).

# Seats

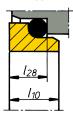
G4



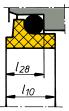
**G9** EN 12756



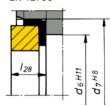
**G6\*** EN 12756

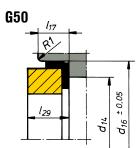


**G606\*** EN 12756



**G60\*** EN 12756





 $<sup>\</sup>ensuremath{^{\star}}$  omitted dimensions as for G9



#### Fits into any pump

The MG9 (US Patent No. 6.220.601) offers users great level of flexibility, since it is easy to implement any installation length. This is achieved using a modular principle comprising a bellows unit for each shaft diameter and a correspondingly long spring (tapered or cylindrical spring) for individual length compensation.

Furthermore, the MG9 has one of the smallest outer diameters, so it can fit into any installation space.

The seats in the MG9 series features a large number of geometries, so the right one can be selected from stock. Not only are the base materials of high quality, they also possess important approvals such as FDA, KTW, WRAS, W270, NSF, ACS.

The entire MG9 series is available in metric and inch sizes.

#### **Multiple seal**

The MG9 can also be used as a multiple seal in tandem or in a back-to-back arrangement. Installation proposals can be supplied on request.

#### **Operating limits**

 $d_1 = 10 \dots 100 \text{ mm } (0.375 \dots 4'')$ 

 $p_1^* = 8 (12) \text{ bar } (116 (174) PSI)$ 

Vacuum up to 0.5 bar

(up to 1 bar with seat locking)

 $t^* = -20 ... +90 (140) °C$ 

(-4 ... +194 (284) °F)v<sub>a</sub> = 10 m/s (33 ft/s)

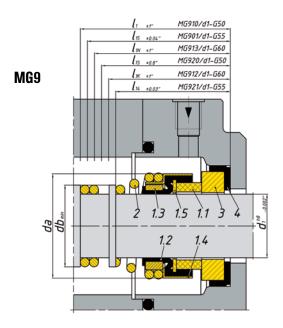
Permissible axial movement: ± 0.5 mm

\*) depending on medium, size and material

#### **Materials**

Seat	Seal face	Elastomer	Metal
Silicon carbide (Q1, Q2) Aluminium oxide (V)	Carbon graphite, antimony-impregnated (A) Carbon graphite, resin-impregnated (B) Silicon carbide (Q1)	NBR (P) EPDM (E) FKM (V) HNBR (X4)	1.4571 (G) 1.4301 (F) 1.4401 (G)

Designations in brackets according to EN 12756.



Pos.	Part no. DIN 24250	Designation
1.1	472	Seal face
1.2	481	Bellows
1.3	485	Drive collar
1.4	484.1	Spring collar
1.5	474	Washer
2	477	Spring
3	475	Seat
4	412	Corner sleeve

# A Dimensions (mm)

$d_1$	$d_6$	d <sub>7</sub>	d <sub>14</sub>	d <sub>16</sub>	da	d <sub>b</sub>	I <sub>1</sub>	I <sub>1K</sub>	I <sub>1N</sub>	I <sub>1S</sub>	l <sub>5</sub>	I <sub>6</sub>	I <sub>17</sub>	l <sub>28</sub>	l <sub>29</sub>
10	17	21	11.0	24.60	19.6	13.0	53.0	32.5	40	34.0	1.5	4	7.5	6.6	9.0
12	19	23	13.5	27.80	21.6	15.0	53.0	32.5	40	34.0	1.5	4	7.5	6.6	9.0
14	21	25	17.0	30.95	24.0	18.0	54.5	35.0	40	35.5	1.5	4	9.0	6.6	10.5
15	-	-	17.0	30.95	25.0	19.0	54.5	-	-	35.5	-	-	9.0	-	10.5
16	23	27	17.0	30.95	26.5	20.0	54.5	35.0	40	35.5	1.5	4	9.0	6.6	10.5
18	27	33	20.0	34.15	29.0	22.0	54.5	37.5	45	35.5	2.0	5	9.0	7.5	10.5
20	29	35	21.5	35.70	31.5	24.5	54.5	37.5	45	35.5	2.0	5	9.0	7.5	10.5
22	31	37	23.0	37.30	33.0	27.0	54.5	37.5	45	35.5	2.0	5	9.0	7.5	10.5
24	33	39	26.5	40.50	37.0	29.0	54.5	40.0	50	35.5	2.0	5	9.0	7.5	10.5
25	34	40	26.5	40.50	38.0	30.0	54.5	40.0	50	35.5	2.0	5	9.0	7.5	10.5
28	37	43	29.5	47.65	41.0	34.0	72.0	42.5	50	45.0	2.0	5	10.5	7.5	12.0
30	39	45	32.5	50.80	43.0	36.0	72.0	42.5	50	45.0	2.0	5	10.5	7.5	12.0
32	42	48	32.5	50.80	45.0	38.0	72.0	42.5	55	45.0	2.0	5	10.5	7.5	12.0
33	42	48	36.5	54.00	46.0	39.0	72.0	42.5	55	45.0	2.0	5	10.5	7.5	12.0
35	44	50	36.5	54.00	48.0	41.0	72.0	42.5	55	45.0	2.0	5	10.5	7.5	12.0
38	49	56	39.5	57.15	52.5	44.5	72.0	45.0	55	45.0	2.0	6	10.5	9.0	12.0
40	51	58	42.5	60.35	55.5	47.5	72.0	45.0	55	45.0	2.0	6	10.5	9.0	12.0
43	54	61	46.0	63.50	58.5	50.5	83.0	45.0	60	53.0	2.0	6	10.5	9.0	12.0
45	56	63	46.0	63.50	60.5	52.5	83.0	45.0	60	53.0	2.0	6	10.5	9.0	12.0
48	59	66	49.0	66.70	64.0	56.0	83.0	45.0	60	53.0	2.0	6	10.5	9.0	12.0
50	62	70	52.0	69.85	66.0	58.0	84.5	47.5	60	54.5	2.5	6	12.0	9.5	13.5
53	65	73	55.5	73.05	69.0	61.0	84.5	47.5	70	54.5	2.5	6	12.0	11.0	13.5
55	67	75	58.5	76.20	71.0	63.0	84.5	47.5	70	54.5	2.5	6	12.0		13.5
58	70	78	61.5	79.40	76.0	66.0	84.5	52.5	70	54.5	2.5	6	12.0		13.5
60	72	80	61.5	79.40	78.0	68.0	84.5	52.5	70	54.5	2.5	6	12.0		13.5
63	75	83	65.0	82.55	82.0	71.5	84.5	52.5	70	54.5	2.5	6			13.5
65	77	85	68.0	92.10	84.0	73.5	86.0	52.5	80	65.0	2.5	6			16.0
68	81	90	71.0	95.25	87.0	76.5	86.0	52.5	80	65.0	2.5	7	14.5		16.0
70	83	92	71.0	95.25	89.0	79.0	86.0	60.0	80	65.0	2.5	7	14.5		16.0
75	88	97	77.5	101.60	95.0	85.0	89.0	60.0	80	68.0	2.5	7	14.5	11.3	
80	95	105	84.0	114.30	101.5	91.5	99.0	60.0	90	76.0	3.0	7	18.5	12.0	
85	100	110	87.0	117.50	107.0	97.0	99.0	60.0	90	76.0	3.0	7	18.5	14.0	
90	105	115	93.5	123.85	111.5	103.0	103.0	65.0	90	79.0	3.0	7	18.5	14.0	
95	110	120	96.5	127.00	118.0	108.0	103.0	65.0	90	79.0	3.0	7	18.5	14.0	
100	115	125	103.0	133.35	122.5	114.0	106.0	65.0	90	82.0	3.0	7	18.5	14.0	20.0

MG9 ... The alternative.

Burgmann*	Crane*	Sealol*	Dimensions	Table
MG910/d <sub>1</sub> -G50	1A	43 CE long	inch/mm	В
	1A	43 CE long	mm	Α
MG920/d <sub>1</sub> -G50	2	43 CE short	inch/mm	В
	2	43 CE short	mm	Α
MG901/d <sub>1</sub> -G55	1	43 CU long	inch (USA only)	С
MG921/d <sub>1</sub> -G55	2	43 CU short	inch (USA only)	С
	21	43 CU short	inch (USA only)	С
MG912/d <sub>1</sub> -G60	502	43 DIN	mm	Α
	521	43 DIN	mm	Α
	2100-I <sub>1K</sub>	43 DIN	mm	Α
MG913/d <sub>1</sub> -G60	2100-I <sub>1K</sub>		mm	

<sup>\*</sup> Connection dimensions identical

# **B** Dimensions (inches/mm)

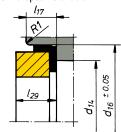
d <sub>1</sub>	d <sub>1</sub>	d <sub>14</sub>	d <sub>16</sub>	$d_a$	d <sub>b</sub>	l <sub>1</sub>	I <sub>1S</sub>	I <sub>17</sub>	l <sub>29</sub>
0.375"	9.53	11.0	24.60	18.8	12.5	53.0	34.0	7.5	9.0
0.500"	12.70	13.5	27.80	22.3	16.0	53.0	34.0	7.5	9.0
0.625"	15.88	17.0	30.95	26.5	20.0	54.5	35.5	9.0	10.5
0.750"	19.05	20.0	34.15	29.5	23.0	54.5	35.5	9.0	10.5
0.875"	22.23	23.0	37.30	33.0	27.0	54.5	35.5	9.0	10.5
1.000"	25.40	26.5	40.50	38.0	30.5	54.5	35.5	9.0	10.5
1.125"	28.58	29.5	47.65	41.5	34.5	72.0	45.0	10.5	12.0
1.250"	31.75	32.5	50.80	45.0	38.0	72.0	45.0	10.5	12.0
1.375"	34.93	36.5	54.00	48.0	41.0	72.0	45.0	10.5	12.0
1.500"	38.10	39.5	57.15	52.5	44.5	72.0	45.0	10.5	12.0
1.625"	41.28	42.5	60.35	57.0	48.5	72.0	45.0	10.5	12.0
1.750"	44.45	46.0	63.50	60.5	51.5	83.0	53.0	10.5	12.0
1.875"	47.63	49.0	66.70	64.0	55.0	83.0	53.0	10.5	12.0
2.000"	50.80	52.0	69.85	66.0	58.0	84.5	54.5	12.0	13.5
2.125"	53.98	55.5	73.05	71.0	61.5	84.5	54.5	12.0	13.5
2.250"	57.15	58.5	76.20	76.5	65.0	84.5	54.5	12.0	13.5
2.375"	60.33	61.5	79.40	78.5	68.5	84.5	54.5	12.0	13.5
2.500"	63.50	65.0	82.55	82.0	72.0	84.5	54.5	12.0	13.5
2.625"	66.68	68.0	92.10	84.0	75.0	86.0	65.0	14.5	16.0
2.750"	69.85	71.0	95.25	89.0	79.0	86.0	65.0	14.5	16.0
2.875"	73.03	74.5	98.45	92.5	82.0	89.0	68.0	14.5	16.0
3.000"	76.20	77.5	101.60	95.5	85.5	89.0	68.0	14.5	16.0
3.125"	79.38	80.5	111.15	101.5	91.0	99.0	76.0	18.5	20.0
3.250"	82.55	84.0	114.30	104.7	94.0	99.0	76.0	18.5	20.0
3.375"	85.73	87.0	117.50	107.0	98.0	99.0	76.0	18.5	20.0
3.500"	88.90	90.5	120.65	111.5	100.0	99.0	76.0	18.5	20.0
3.625"	92.08	93.5	123.85	114.5	104.0	103.0	79.0	18.5	20.0
3.750"	95.25	96.5	127.00	118.0	108.0	103.0	79.0	18.5	20.0
3.875"	98.43	100.0	130.20	121.0	112.0	106.0	82.0	18.5	20.0
4.000"	101.60	103.0	133.35	125.0	116.0	106.0	82.0	18.5	20.0

# C Dimensions (inches)

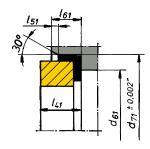
d <sub>1</sub>	d <sub>61</sub>	d <sub>71</sub>	da	d <sub>b</sub>	I <sub>14</sub>	I <sub>15</sub>	I <sub>41</sub>	I <sub>51</sub>	I <sub>61</sub>
0.375	0.625	0.875	0.740	0.492	1.125	1.500	0.313	0.050	0.250
0.500	0.750	1.000	0.878	0.630	1.125	1.500	0.313	0.050	0.250
0.625	0.937	1.250	1.043	0.787	1.281	1.718	0.406	0.050	0.344
0.750	1.062	1.375	1.161	0.905	1.281	1.718	0.406	0.050	0.344
0.875	1.187	1.500	1.299	1.063	1.343	1.781	0.406	0.050	0.344
1.000	1.312	1.625	1.496	1.200	1.437	2.000	0.437	0.050	0.375
1.125	1.437	1.750	1.634	1.358	1.500	2.062	0.437	0.050	0.375
1.250	1.563	1.875	1.772	1.496	1.500	2.062	0.437	0.050	0.375
1.375	1.687	2.000	1.890	1.614	1.562	2.124	0.437	0.050	0.375
1.500	1.813	2.125	2.067	1.752	1.562	2.124	0.437	0.050	0.375
1.625	2.000	2.375	2.244	1.909	1.875	2.500	0.500	0.050	0.437
1.750	2.125	2.500	2.382	2.028	1.875	2.500	0.500	0.050	0.437
1.875	2.250	2.625	2.520	2.165	2.000	2.625	0.500	0.050	0.437
2.000	2.375	2.750	2.598	2.283	2.000	2.625	0.500	0.050	0.437
2.125	2.375	3.000	2.795	2.421	2.249	2.937	0.562	0.050	0.500
2.250	2.437	3.125	2.992	2.559	2.249	2.937	0.562	0.050	0.500
2.375	2.563	3.250	3.071	2.697	2.375	3.062	0.562	0.050	0.500
2.500	2.687	3.375	3.228	2.834	2.375	3.062	0.562	0.050	0.500
2.625	2.812	3.375	3.307	2.953	2.562	3.375	0.625	0.100	0.562
2.750	2.937	3.500	3.504	3.110	2.562	3.375	0.625	0.100	0.562
2.875	3.062	3.750	3.642	3.228	2.687	3.500	0.625	0.100	0.562
3.000	3.187	3.875	3.760	3.366	2.687	3.500	0.625	0.100	0.562
3.125	3.312	4.000	4.000	3.583	2.968	3.906	0.781	0.100	0.656
3.250	3.437	4.125	4.122	3.700	2.968	3.906	0.781	0.100	0.656
3.375	3.562	4.250	4.213	3.858	2.968	3.906	0.781	0.100	0.656
3.500	3.687	4.375	4.390	3.937	2.968	3.906	0.781	0.100	0.656
3.625	3.812	4.500	4.508	4.095	3.093	4.031	0.781	0.100	0.656
3.750	3.937	4.625	4.646	4.252	3.093	4.031	0.781	0.100	0.656
3.875	4.062	4.750	4.704	4.409	3.218	4.156	0.781	0.100	0.656
4.000	4.187	4.875	4.921	4.567	3.218	4.156	0.781	0.100	0.656
4.000	4.187	4.875	4.921	4.567	3.218	4.156	0.781	0.100	0.656

# Seats

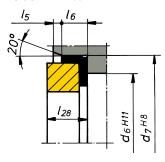
**G50** European standard



**G55** US standard



**G60** EN 12796





#### Benefits at a glance:

#### **EA560**

- Single seal
- Loosely inserted seal face provides self-adjusting capability
- In-house manufactured sliding parts

#### ED560

- Multiple seal
- Good chemical resistance and ability to handle solids
- In-house manufactured sliding parts

#### Successful in:

- Industrial pumps/equipment
- Submersible pumps
- Engine pumps
- Circulating pumps

#### The adaptability principle

The EA560 is self-adjusting to shaft misalignments and deflections because of the loosely inserted seal face in the carrier as well as the ability of the bellows to stretch and tighten.

The length of the contact area of the bellows with the shaft is an optimum compromise between ease of assembly (less friction) and sufficient adhesive force for torque transmission. Additionally the seal fulfills very specific leakage requirements.

Because the sliding parts are made in-house, a wide variety of special needs can be accommodated.

#### **Multiple seal**

The ED560 is a multiple seal in a back-to-back arrangement with an EA560 base. Therefore, the seal combines the advantages of the EA560 with the advantages of a multiple seal.

#### **Operating limits**

#### **EA560**

 $d_1 = 8 \dots 50 \text{ mm } (0.375 \dots 2^n)$ 

 $p_1 = 7 \text{ bar } (102 \text{ PSI})$ 

Vacuum up to 0.1 bar

 $t = -20 \dots +100 \,^{\circ}\text{C} (-4 \dots +212 \,^{\circ}F)$ 

 $v_g = 5 \text{ m/s} (16 \text{ ft/s})$ 

Permissible axial movement: ± 1 mm

#### **ED560**

 $d_1 = 13 ... 50 \text{ mm}$ 

 $p_1 = d \le 19 \text{ mm}$ : 2 bar (29 PSI)

d ≥ 20 mm: 3 bar *(44 PSI)* 

Vacuum up to 0.1 bar

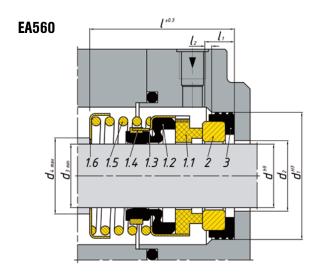
t = -a20 ... +70 °C

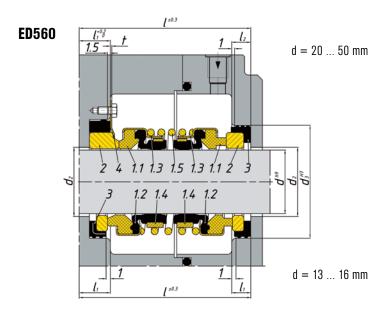
 $v_g = 5 \text{ m/s} (16 \text{ ft/s})$ 

Permissible axial movement: ± 1 mm

#### **Materials**

Seat	Seal face	Elastomer	Metal							
Aluminium oxide (V) Silicon carbide (Q1, Q2)	Carbon graphite, resin-impregnated (B) Silicon carbide (Q1, Q2)	NBR (P) FKM (V)	1.4301 (F)							
Designations in brackets according to EN 12756.										





#### Pos. Designation

- 1.1 Seal face
- 1.2 Bellows
- 1.3 Spring collar
- 1.4 Drive collar
- 1.5 Spring
- 1.6 Spring holder
- 2 Seat
- 3 Corner sleeve

#### Pos. Designation

- 1.1 Seal face
- 1.2 Bellows
- 1.3 Spring collar
- 1.4 Drive collar
- 1.5 Spring
- 2 Seat
- 3 Corner sleeve
- 4 Washer

# **Dimensions EA560 (mm)**

d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	$d_4$		I <sub>1</sub>	l <sub>2</sub>
8	21	13	12	20.0	18	7	2
9	24	16	13	21.0	23	7	2
10	24	16	14	23.5	23	7	2
11	24	16	15	23.5	23	7	2
12	26	17	16	26.0	24	7	2
13	26	17	17	26.0	24	7	2
14	28	21	18	28.0	25	7	2
15	28	21	18	28.0	25	7	2
16	32	22	20	30.0	27	8	2
17	32	22	21	30.0	27	8	2
18	35	25	22	32.5	26	8	2
19	35	25	23	32.5	26	8	2
20	38	27	24	35.5	28	8	2
22	40	29	26	37.5	28	8	2
25	44	32	29	42.0	29	9	2
28	46	34	32	45.5	30	9	2
30	50	38	35	48.0	31	9	2
32	54	40	37	50.0	33	9	2
35	58	44	40	54.5	36	10	2
38	60	46	43	58.5	37	10	2
40	64	48	45	62.5	38	10	2
45	66	52	50	66.5	40	10	2
50	72	58	55	72.5	42	10	2

## **Dimensions ED560 (mm)**

d	d <sub>1</sub>	$d_2$	d <sub>3</sub>	$d_4$	$d_5$		l <sub>1</sub>	l <sub>2</sub>	t
13	25	17	-	-	-	36	5	-	-
14	30	20	-	-	-	36	5		-
15	30	20	-	-	-	36	5	-	-
16	30	20	-	-	-	36	5	-	-
20	44	23	38	60	72	49	7	7	1.0
25	50	28	44	60	72	51	9	8	1.0
30	57	33	50	70	82	59	9	8	1.0
35	65	38	58	80	94	61	9	9	1.2
40	70	43	64	85	100	64.5	11	9	1.2
45	70	48	66	90	105	65	10	9	1.0
50	80	53	72	95	109	69 5	10	9	12

## **Dimensions EA560 (inches)**

d	d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	$d_4$	I	I <sub>1</sub>	l <sub>2</sub>	
0.375	9.525	22.225	14.3	12.7	23.5	28.6	6.4	1	
0.500	12.700	25.400	17.5	15.9	26.0	28.6	6.4	1	
0.625	15.875	31.750	20.6	19.1	30.0	32.5	8.7	1	
0.750	19.050	34.925	23.8	22.2	32.5	32.5	8.7	1	
0.875	22.225	38.100	27.0	25.4	37.5	34.1	8.7	1	
1.000	25.400	41.275	30.2	28.6	44.0	36.5	9.5	1	
1.125	28.575	44.450	33.3	31.8	48.0	38.1	9.5	1	
1.250	31.750	47.625	36.5	34.9	50.0	38.1	9.5	1	
1.375	34.925	50.800	39.7	38.1	54.5	39.7	9.5	1	
1.500	38.100	53.975	42.9	41.3	58.5	39.7	9.5	1	
1.625	41.275	60.325	46.0	44.5	64.0	47.6	11.1	1	
1.750	44.450	63.500	49.2	47.6	67.0	47.6	11.1	1	
1.875	47.625	66.675	52.4	50.8	71.0	50.8	11.1	1	
2.000	50.800	69.850	55.6	54.0	73.5	50.8	11.1	1	



# The specialist for low duty applications

The EA100 is one of our historic and best-selling seals in this sector. The seal is easy to handle and quick to install. An incorporated garter spring assures a good grip of the bellows on the shaft and enhances satisfactory sealing performance.

With the ability of the bellows to stretch and tighten, the EA100 is insensitive to shaft movements.

The seal design is available in 3 types, each with a different impeller connection:

- EA102 is with a collar.
- EA103 is without a collar.
- EA104 provides a different coil spring installation.

More information on EA103 and EA104 is available on request.

#### **Operating limits**

 $d_1 = 8 ... 20 \text{ mm}$ 

 $p_1 = 5 \text{ bar } (73 \text{ PSI})$ 

Vacuum up to 0.1 bar

= -20 ... +100 °C (-4 ... +212 °F)

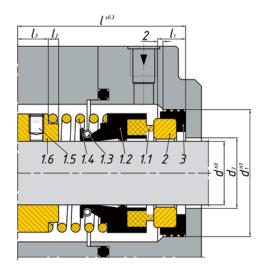
 $v_g = 5 \text{ m/s} (16 \text{ ft/s})$ 

Permissible axial movement: ±2 mm

#### **Materials**

Seat	Seal face	Elastomer	Metal
Aluminium oxide (V)	Carbon graphite, resin-impregnated (B)	NBR (P)	1.4301 (F)
Designations in brackets according	a to EN 12756.		

# EA102



# **Pos. Designation** 1.1 Seal face

- Bellows 1.2
- Garter spring 1.3
- 1.4
- Spring Set screw 1.5
- 1.6 Collar
- 2 Seat
- 3 Corner sleeve

# Dimensions (mm)

		•	,				
d	d <sub>1</sub>	$d_2$	$d_3$	I	I <sub>1</sub>	l <sub>2</sub>	L <sub>3</sub>
8	21	13	18.5	26	7	2	8
9	24	16	22.5	31	7	2	8
10	24	16	22.5	31	7	2	8
11	24	16	22.5	31	7	2	8
12	26	17	24.5	32	7	2	8
13	26	17	24.5	32	7	2	9
14	28	21	28.5	34	7	3	9
15	28	21	28.5	34	7	3	9
16	32	22	30.5	26	8	3	9
17	32	22	30.5	36	8	3	9
18	35	25	33.5	39	8	3	10
19	35	25	33.5	39	8	3	10
20	38	27	35.5	41	8	3	10



# The small seal for large pump series

The BT-AR is a mechanical seal for mass produced water pumps. Its key feature is the short axial installation length. This allows pumps to be built economically.

The compact design of BT-AR seals assures reliable and durable sealing. The elasticity of the bellows design makes it possible to cope with robust operating conditions.

The BT-AR seal materials are also available with the following approval specifications: KTW, W270, ACS, WRAS, NSF61 and FDA.

#### BT-AR3

Seal faces made of tungsten carbide (U). 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).

#### Multiple seal

The BT-AR can also be used as a multiple seal in tandem or back-to-back arrangement. Installation proposals can be supplied on request.

## **Operating limits**

 $d_1 = 6 ... 60 \text{ mm}$ 

 $p_1^* = 6 \text{ bar } (87 \text{ PSI})$ 

Vacuum up to 0.5 bar

(up to 1 bar with seat locking)

t\* = -20 ... +120 °C (-4 ... +248 °F)

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

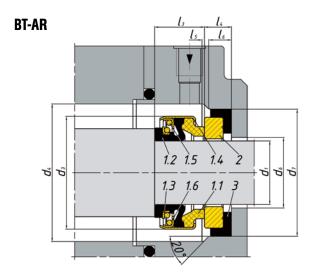
\*) depending on medium, size and material

#### **Materials**

Seat	Seal face	Elastomer	Metal
Steatite (X) Aluminium oxide (V, V1) Silicon carbide (Q1, Q6) Tungsten carbide (U)*	Carbon graphite, antimony-impregnated (A) Carbon graphite, resin-impregnated (B) Carbon graphite, full carbon (B3) Silicon carbide (Q1, Q6) Tungsten carbide (U)* PTFE, glass fibre reinforced (Y)	NBR (P) EPDM (E) FKM (V) HNBR (X <sub>4</sub> )	1.4571 (G) 1.4301 (F) 1.4401 (G) 1.4057 (F1)*

\* Only for BT-AR3

Designations in brackets according to EN 12756.



#### Pos. Designation

- Seal face
- Bellows 1.2
- 1.3 Drive collar
- Collar 1.4
- 1.5 Spring
- 1.6 Locking ring
- 2 Seat
- 3 Corner sleeve

# **Dimensions (mm)**

d <sub>1</sub>	d <sub>3</sub>	$d_4$	$d_6$	d <sub>7</sub>	l <sub>3</sub>	toll	I <sub>4</sub>	I <sub>5</sub>	l <sub>6</sub>	
6	18	23	8	22.0	8.0	+0.5/0	4.0	0.5	3.6	
8 <sub>S</sub>	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	
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 <sub>C</sub>	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	
13	24	27	15	26.0	12.8	+0.7/0	8.0	1.0	6.0	
14 <sub>S</sub>	28	30	18	28.5	12.8	+0.7/0	7.5	1.0	5.5	
14 <sub>L</sub>	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 <sub>R</sub>	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	
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 <sub>S</sub>	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 <sub>R</sub>	42	52	27	50.0	13.5	+1/0	10.0	1.0	8.0	
25	47	57	27	50.0	13.5	+1/0	10.0	1.0	8.0	
26	47	52	39	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	

$$\begin{split} R = & \text{ reduced outer diameter for the rotary part.} & S = same \text{ meaning as ",R"} \\ L = & \text{ long: longer bellows for longer installation length.} & C = short: short installation length \end{split}$$

# **Dimensions (inches)**

d <sub>1</sub>	$d_3$	$d_4$	$d_6$	d <sub>7</sub>	l <sub>3</sub>	toli	$I_4$	l <sub>5</sub>	l <sub>6</sub>	
0.375	24	27	12	25.4	11.0	+0.5/0	5.5	0.5	4.5	
0.500	24	27	15	25.4	12.8	+0.7/0	7.5	1.0	5.5	

# Alternative seats (mm)

d <sub>1</sub>	d <sub>7</sub>	l <sub>3</sub>	toll	I <sub>4</sub>	l <sub>5</sub>	I <sub>6</sub>	
10	26.0	-	-	5.5	0.5	4.5	
11	26.0	-	-	5.5	0.5	4.5	
12 <sub>C</sub>	26.0	-	-	5.5	0.5	4.5	
12	26.0	-	-	5.5	0.5	4.5	
13	26.0	-	-	5.5	0.5	4.5	
16	42.0	12.8	+0.7/0	8.0	1.0	6.0	



# The small seal for increased pressure

The BT-PN is a mechanical seal with a simple but effective design for mass-produced pumps. The special spring arrangement allows a short axial installation length. This advantage is combined with an increased working pressure capability and because the spring is free from torque transmission.

The BT-PN seal materials are also available with the following approval specifications: KTW, W270, ACS, WRAS, NSF61 and FDA.

### **Multiple seal**

The BT-PN can also be used as a multiple seal in tandem or back-to-back arrangement. Installation proposals can be supplied on request.

## **Operating limits**

 $d_1 = 8 ... 30 \text{ mm}$ 

 $p_1^* = 12 \text{ bar } (170 \text{ PSI})$ 

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

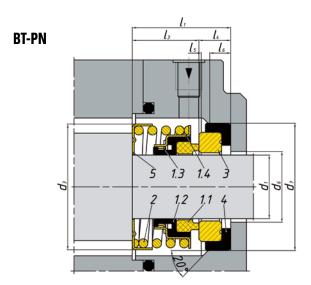
 $v_g = 10 \text{ m/s} (33 \text{ ft/s})$ 

\*) depending on medium, size and material

#### **Materials**

Seat	Seal face	Elastomer	Metal
Steatite (X)	Carbon graphite, resin-impregnated (B)	NBR (P)	1.4301 (F)
Aluminium oxide (V)	Carbon graphite, full carbon (B <sub>3</sub> )	EPDM (E)	1.4571 (G)
Silicon carbide (Q1, Q6)	Silicon carbide (Q1, Q6)	FKM (V)	1.4401 (G)
Designations in brackets accord	ling to EN 12756.		

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#### Pos. Designation

- 1.1 Seal face
- 1.2 Bellows
- 1.3 Drive collar
- 1.4 Collar
- 2 Spring
- 3 Seat
- 4 Corner sleeve
- 5 Ring

# Dimensions (mm)

$d_1$	d <sub>3</sub>	$d_6$	d <sub>7</sub>	l <sub>3</sub>	toll	I <sub>4</sub>	l <sub>5</sub>	I <sub>6</sub>
8	23	10	22.0	13.5	±1	4.0	0.5	3.5
10	23	12	25.4	13.5	±1	5.5	0.5	4.5
13	32	17	29.5	12.8	+0.7/0	8.0	1.0	6.0
14	32	17	29.5	12.8	+0.7/0	8.0	1.0	6.0
15	32	17	29.5	12.8	+0.7/0	8.0	1.0	6.0
16	32	17	29.5	12.8	+0.7/0	8.0	1.0	6.0
16 <sub>L</sub>	32	17	29.5	16.3	+0.7/0	8.0	1.0	6.0
20	44	22	42.0	14.0	±1	8.0	1.0	6.0
25	50	27	42.0	17.0	±1	7.0	1.0	5.0
30	60	33	57.0	22.0	±1	10.0	1.0	6.0

 $L = different size for L_3$ 

# **Dimensions (inches)**

d <sub>1</sub>	d <sub>3</sub>	d <sub>6</sub>	d <sub>7</sub>	l <sub>3</sub>	toll	I <sub>4</sub>	l <sub>5</sub>	I <sub>6</sub>
3/8"	23	12	25.4	13.5	±1	5.5	0.5	4.5

#### **Alternative seats (mm)**

			(	,	,	
d <sub>1</sub>	d <sub>7</sub>	l <sub>3</sub>	toli	I <sub>4</sub>	l <sub>5</sub>	I <sub>6</sub>
8.0	25.4	13.5	±1	5.5	5.0	4.5



## For stationary applications

The EH700 is based on a unique stationary springloaded unit that enables the seal to operate under high speed and high pressure.

An additional advantage of the seal is the balanced design, which ensures good sealing performance in high-load conditions.

# **Operating limits**

 $d_1 = 15 ... 35 \text{ mm}$ 

 $p_1 = 15 \text{ bar } (218 \text{ PSI})$ 

Vacuum up to 0.1 bar

 $t = -20 \dots +100 \,^{\circ}\text{C} (-4 \dots +212 \,^{\circ}\text{F})$ 

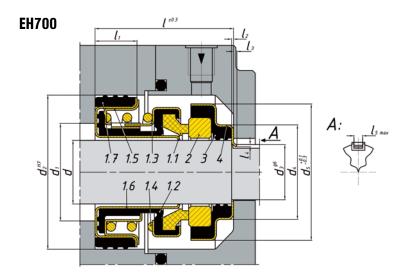
 $v_g = 10 \text{ m/s} (33 \text{ ft/s})$ 

Permissible axial movement: ±1 mm

#### **Materials**

Seat	Seal face	Elastomer	Metal
Aluminium oxide (V) Silicon carbide (Q1, Q2)	Carbon graphite, resin-impregnated (B)	NBR (P) FKM (V)	1.4301 (F)

Designations in brackets according to EN 12756.



# **Pos. Designation** 1.1 Seal face

- Bellows 1.2
- 1.3 Spring collar
- 1.4 Spring
- Spring holder Cartridge 1.5
- 1.6
- 1.7 Seat ring
- 2 Seat
- 3 Corner sleeve
- Case

# Dimensions (mm)

d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	$d_4$	$d_5$		I <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	I <sub>4</sub>	I <sub>5</sub>
15				22							
20	30	45	12	27.2	45	31	11	0.6	2	1	3.4
25	35	52	22	33.6	52	37	11.5	0.8	2.5	1	4.2
25	45	22	20	126	23	/1 G	12.5	nΩ	1	1	F 2



#### TotalSealCare™ service modules

The modular seal service offered through TotalSealCare™ is as individual as are the demands of our customers. The range of services spans complete maintenance of all installed seals, through to stock management, as well as engineering, training and electronic data documentation.

Our TotalSealCare™ services consist of individual modules from which we assemble individualized service packages.

You can benefit from our many years of experience and expertise in all areas of seal technology, and our major store of practical knowledge.

#### **Consulting & engineering**

After establishing and analyzing all of the seals in a system, we work out standardization concepts based on the as-is status. The results we are hoping for are to reduce the number of seal types, sizes and materials used, and to improve the key figures of the system. We advise you relating to codes of practice and statutory regulations, and indicate what actions need to be taken.

#### Maintenance

In the plant or in the service center, qualified fitters and technicians look after all the aspects of seal maintenance: installation, startup, servicing, conversion, overhaul and repair. We record and document functionally relevant data (fault causes, measures for repair, costs). This means it is possible to assess seal operating times and maintenance costs on a continuous basis, thereby defining measures for extending service intervals.

#### **On-site service**

Our on-site service includes the components of an overhaul service, conversions and service container. We deploy a service unit directly on your premises: equipped with the basic suite of seals or a stock of seals discussed with you in advance, and staffed by qualified personnel. On-site, our work includes producing the necessary gaskets, ensuring that the documentation is complete and advising our customers on selecting and installing seals. Our range of services is rounded off by complete conversions (e.g. acc. to TA-Luft).

#### Stock management

Based on your individual requirements and the applicable quality regulations, we develop a concept for stock management of complete seals and spare parts. Furthermore, we optimize stocking on site or in the EagleBurgmann service center. In this way, you can reduce your administration overhead and concentrate on your key operations.

#### **Seminars & training**

We offer an extensive range of continuing education programs in seal technology. For service and maintenance personnel, skilled staff and engineers from various branches of industry such as refining, chemicals, power generation, foodstuffs, paper and pharmaceuticals. Our range includes group seminars, individual training and seminars specifically tailored to your requirements. At our premises or at a location of your choice.

#### **Technical analysis & support**

A team of seal specialists is responsible for rectifying process malfunctions or "bad actors". The latest methods such as thermography or data logging are used for diagnosing positions that are critical for the operation of the system and for working out measures to rectify them. In our research and development centers, we perform realistic tests on test rigs or in original pumps. The objective is to extend the MTBF and to increase system serviceability by individual and constructive solutions.

#### Service agreements

We offer our customers specific agreements that can be combined from the six service modules. Whether for individual seal systems, critical process elements, specific system areas or an extensive seal service for complete plants: the modular structure of our service makes it possible to satisfy individual requirements. With our tried-and-tested monitoring instrument, SEPRO, we can also record all data relevant for the seals for documentation and evaluation purposes.



#### **Professionals rely on EagleBurgmann**

Elastomer bellows seals from EagleBurgmann have proven their effectiveness millions of times over in a wide variety of industries. More than 100 well-known pump manufacturers all over the world rely on seal solutions from EagleBurgmann. After all, we are **your** reliable and experienced partner for mature standard solutions, industry-specific sealing solutions and for developing individualized solutions.

#### Water and wastewater applications

#### **Application examples:**

- Swimming pool water circulation.
- Oxygen enrichment of sewage basins.
- Pumping of pure water and water contaminated with solids e.g. wastewater, sewage and sludge (solid particle content 5 % by weight).
- Flow acceleration and mixing of activation basins in sewage works.
- Cool/hot water or anti-freeze liquid circulation ( $\leq$  90 °C).
- Pumping and disposal of sand in the sand catcher of sewage treatment plants.
- Macerating solid materials such as wood, textiles, plastics, glass etc. in wastewater and wastewater sludge.
- Head pumping station to the aeration tank in sewage treatment plants.
- Building technology.



#### **Pulp and paper applications**

#### **Application examples:**

- Paper finishing.
- Treatment and transportation of finished pulp (up to 4 % abs. dry).
- Pulp transport.
- Coating (latex) slurries.



#### **Chemical and oil applications**

#### **Application examples:**

- Conveying sulfide slurries.
- Production of bioethanol e.g. conveying of thin slop, mash with low viscosity, enzyme or yeast solutions.
- Manufacturing of pressed crude oil in the production of biodiesel.
- Liquid fuel (kerosene, light oil, heavy oil) supply pumps.
- Hydraulic pumps.



# Food and beverage applications

#### **Application examples:**

- Washing soiled fruits and vegetables.
- Production of thick juice in the sugar industry over multi-stage evaporator stations.
- Sterile processes, e.g. conveying fruits, dairy products, beer etc.



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EagleBurgmann is one of the internationally leading companies for industrial sealing technology. Our products are used everywhere where safety and reliability are important: in the oil and gas industry, refining technology, the petrochemical, chemical and pharmaceutical industries, food processing, energy, water, mining, pulp & paper, aerospace and many other spheres. Every day, more than 5,500 employees contribute their ideas, solutions and commitment towards ensuring that customers all over the world can rely on our seals. Our modular TotalSealCare service underlines our strong customer orientation and offers tailor-made services for every application.

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