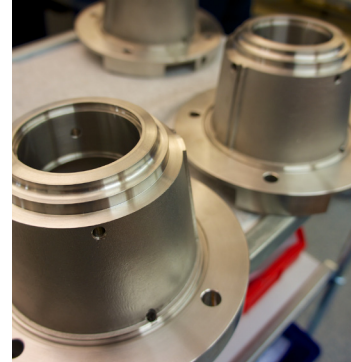
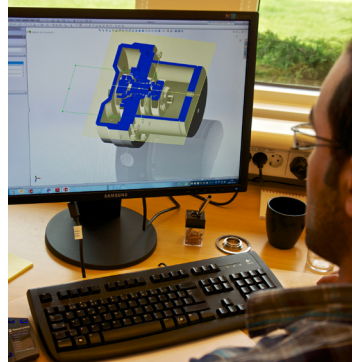




E series

Mechanical Seals designed
for the process industry

A quality conscious organization



ISO 9001
Quality
ISO14001
Environment
OHSAS 18001
Working environment



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Meccanotecnica
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a Story of Excellence

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stamp

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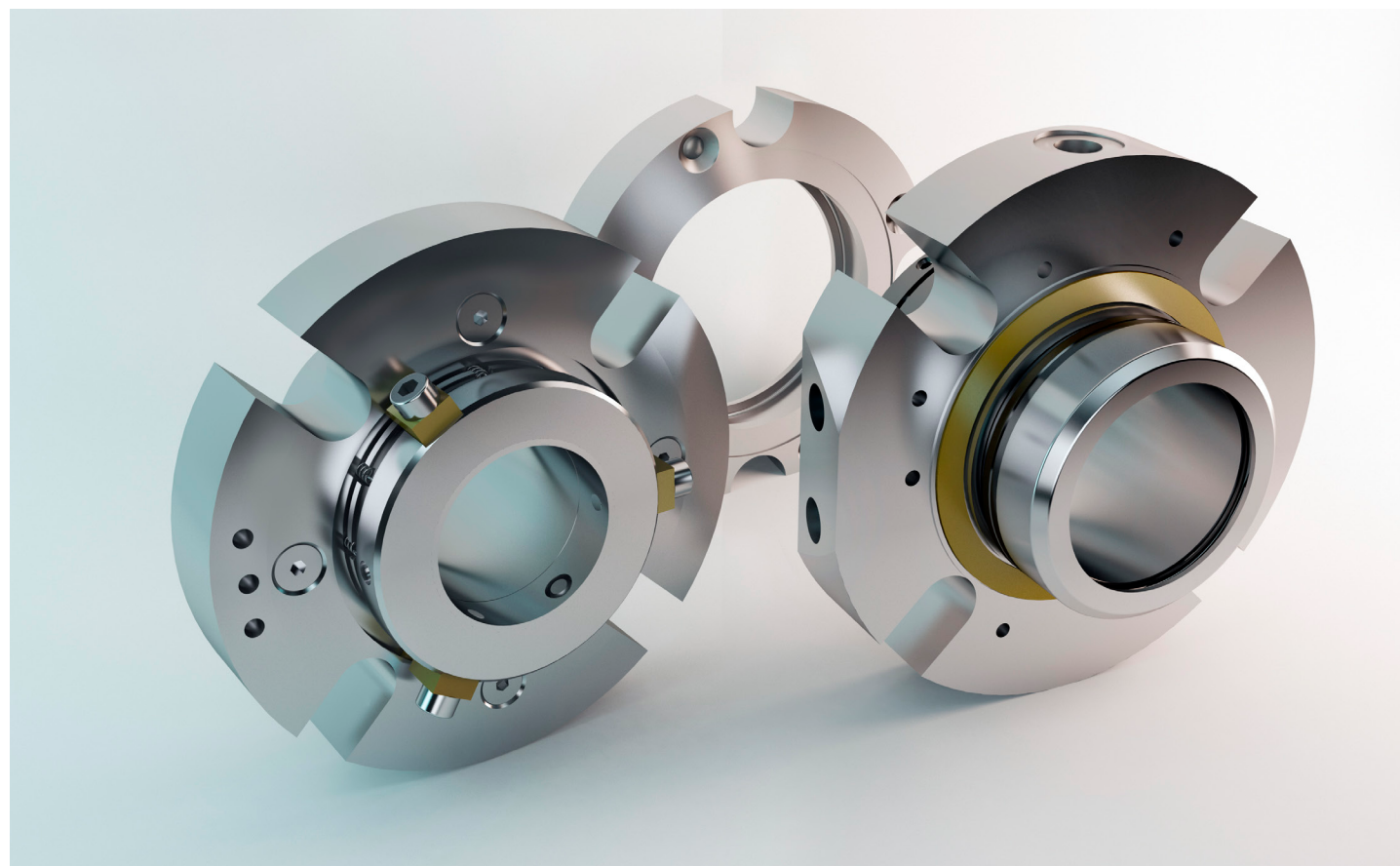
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Made in Sweden

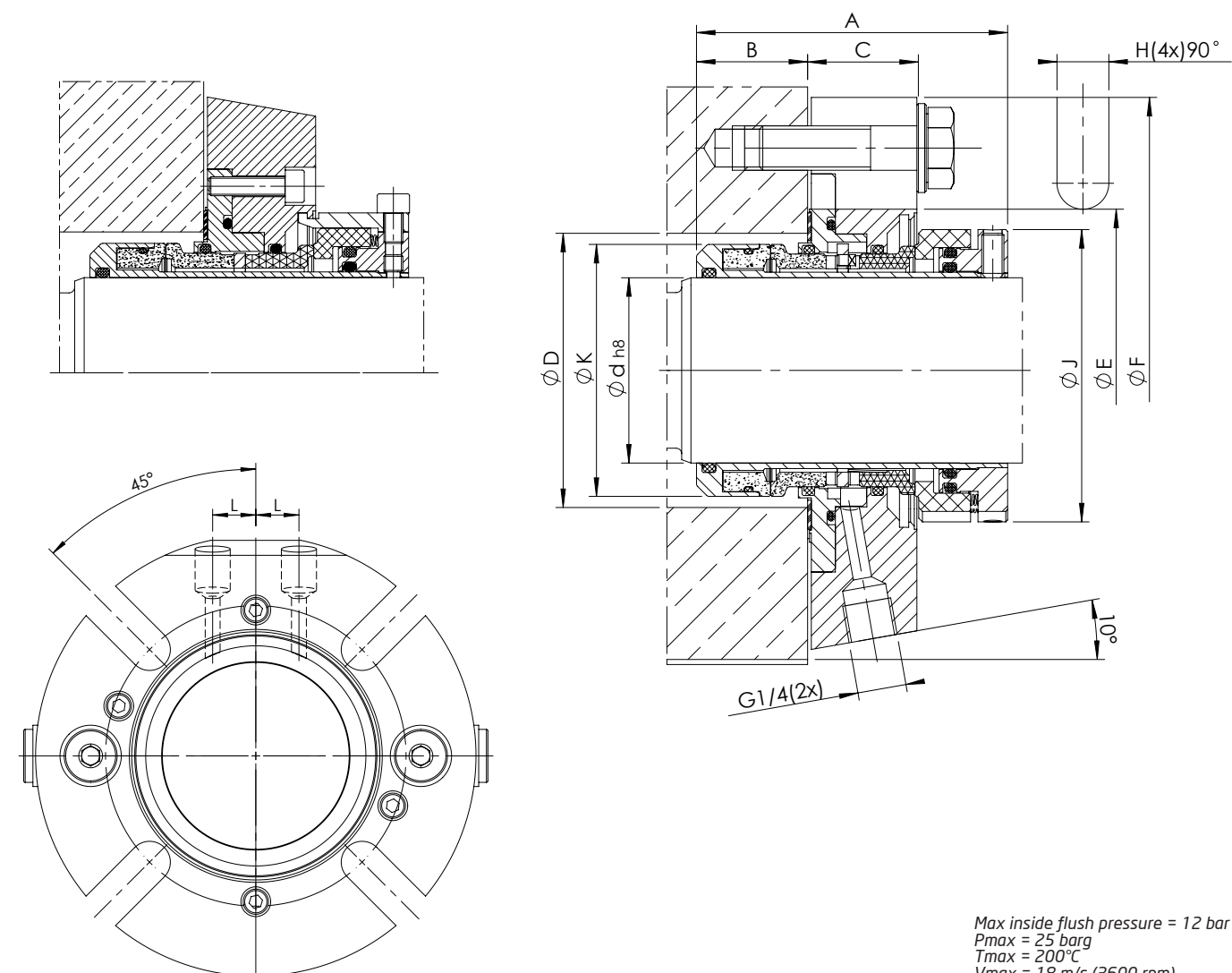


HUHNSEAL

- Excellent axial and radial flexibility
- Suitable for standardizing
- Spring packages isolated from product and buffer fluid
- Easy to install
- Radial and axial cooling channels
- Available in both metric and imperial sizes to suit ANSI pumps with large bores



The E-series are seal solutions designed for use in pumps, agitators and other rotating equipment within process industries such as pulp and paper, petrochemical, food and beverage, and power generation. The E-series offers high-quality and cost-effective seals with optimized built-in dimensions, which makes it an excellent choice for standardization. The E-series has been designed focusing on increased flexibility, optimal performance and reliability as well as easy handling. E-series seals are easy to refurbish, can be configured in many material combinations and can have dimensions customized if required. Available versions of the "E" series for hygienic applications are in accordance with EHEDG and 3A.

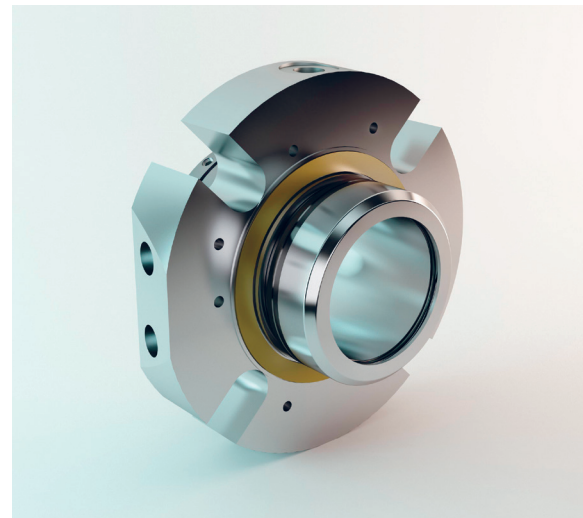


Max inside flush pressure = 12 bar
P_{max} = 25 barg
T_{max} = 200°C
V_{max} = 18 m/s (3600 rpm)
Axial movement: ±2,0 mm

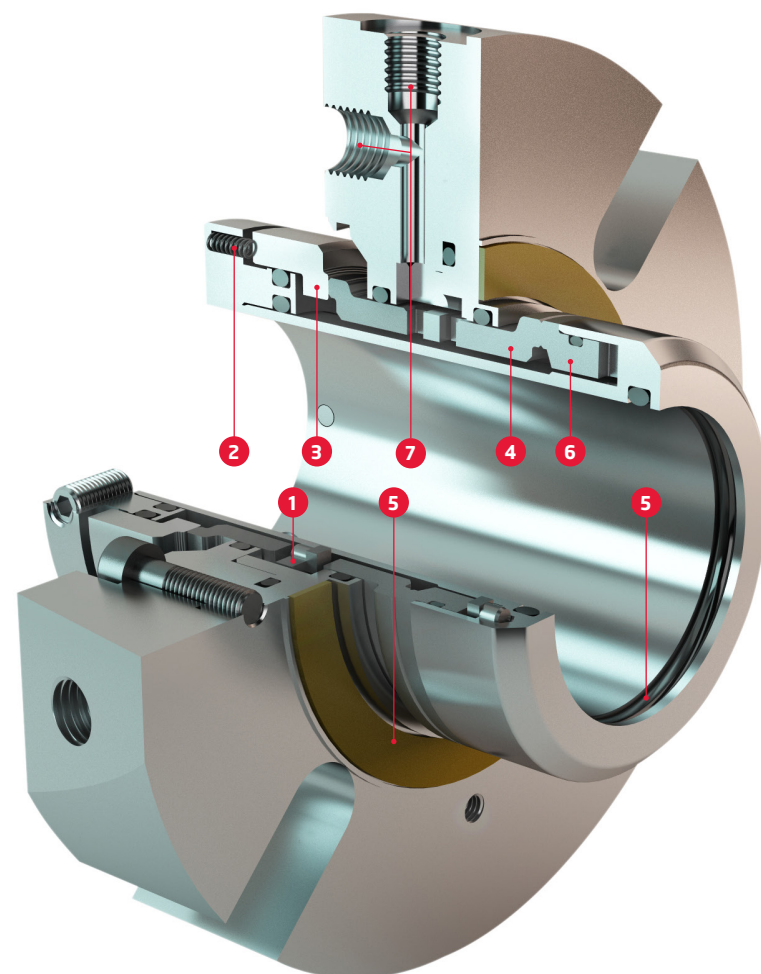
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33	84	30	29,5	52	62	70	23	110	59	14	51
35	84	30	29,5	54	64	72	24	112	61	14	53
38	84	30	29,5	57	67	75	25	122	64	14	56
40	84	30	29,5	59	69	77	25	122	66	14	58
43	84	30	29,5	62	72	80	26	132	69	14	61
45	84	30	29,5	64	74	82	27	138	71	14	63
48	84	30	29,5	67	77	85	27	138	74	14	66
50	84	30	29,5	69	79	87	29	148	76	18	68
55	84	30	29,5	74	84	93	31	148	81	18	73
57	84	30	29,5	79	92	102	33	157	86	18	78
60	84	30	29,5	79	92	102	33	157	86	18	78
65	84	30	29,5	84	99	109	35	163	91	18	83
70	84	30	29,5	89	108	118	37	178	96	18	88
75	100	35,5	31,5	101	118	129	41	190	110	18	100
80	100	35,5	31,5	106	124	135	43	194	115	18	105
85	100	35,5	31,5	111	128	139	45	198	120	22	110
90	100	35,5	31,5	116	135	145	47	204	125	22	115
95	100	35,5	31,5	121	138	148	49	208	130	22	120
100	100	35,5	31,5	126	144	154	50	218	135	22	125
110	103	38,5	31,5	136	154	164	55	238	145	22	135
120	103	38,5	31,5	146	164	174	58	268	155	22	145

ED Double balaced cartridge seal

Huhnseal ED is a double balanced cartridge seal maintaining sealing performance even during sudden pressure drops on the product side and/or the secondary side. The design of the seal is robust and rigid but at the same time flexible, with excellent radial and axial movement capabilities. The springs are located outside both the product and the flush minimizing risk for clogging.



- 1 Excellent axial movement**
The seal can move $\pm 2,0$ mm independent of the compression of the springs. The seal follows the movement of the shaft without influencing the compression of the springs. This feature is essential when sealing equipment with flexible bearing units.
- 2 Patented protected spring package**
The springs are located outside both the product and the flush. Minimizing the risk for clogging, which is one of the most common causes for seal failure. Patent No: 900912-2
- 3 Safe drive of rotating surface at the atmospheric side**
The rotating face on the atmospheric side is driven by three big drive pins machined into the sealing face. The pins are not in contact with the quench liquid, eliminating the risk of them being blocked axially by residues from the quench.
- 4 Excellent radial movement capabilities**
Through a new design the seal is able to compensate for angular deviation without generating stresses over the seal faces, which may influence sealing performance. This feature minimizes the effects of excessive shaft bending during operation against closed valves.
- 5 Hygienic applications**
Smooth surfaces without cavities or closed spaces make the seal suitable for food and drug applications. If required, the gasket may be replaced with O-rings according to EHEDG in order to achieve a hygienic designed seal suitable for CIP (Cleaning in Place).
- 6 H4 design**
The rotating sealing face on the product side has the new "H4-design". This means that the seal face is O-ring mounted and the outer diameter of the seal face is the same as of the holder. This prevents the forming of turbulent flows, which cause heavy wear in abrasive liquids.
- 7 Axial cooling channels**
Allow for installation of a double seal in applications with very limited space.



Features

- Cartridge mounted for easy assembly
- Balanced (ES) and double balanced (ED) design for minimum heat generation
- Both ES and ED have excellent axial and radial movement capabilities
- Suitable for standardization
- Robust construction materials as standard:
Acid resistant stainless steel
Graphite loaded sintered silicon carbide
Peroxide cured FPM for ES
FFPM for ED
- Easy and time efficient to recondition on site when required
- Protected spring package to minimize risk for clogging
- The seals may be equipped with a separate flange for flushing

Applications

	ED	ES	ESF
Clean fluids*		●	
Fluids with poor lubrication capabilities	●		●
Crystallizing fluids	●		●
Fluids reacting with air	●		
Sedimentary fluids	●		●
High temperature fluids (>100°C)	●		●
Fluids hazardous to health and enviroment	●		
Extra need of cooling / pressure balancing			●

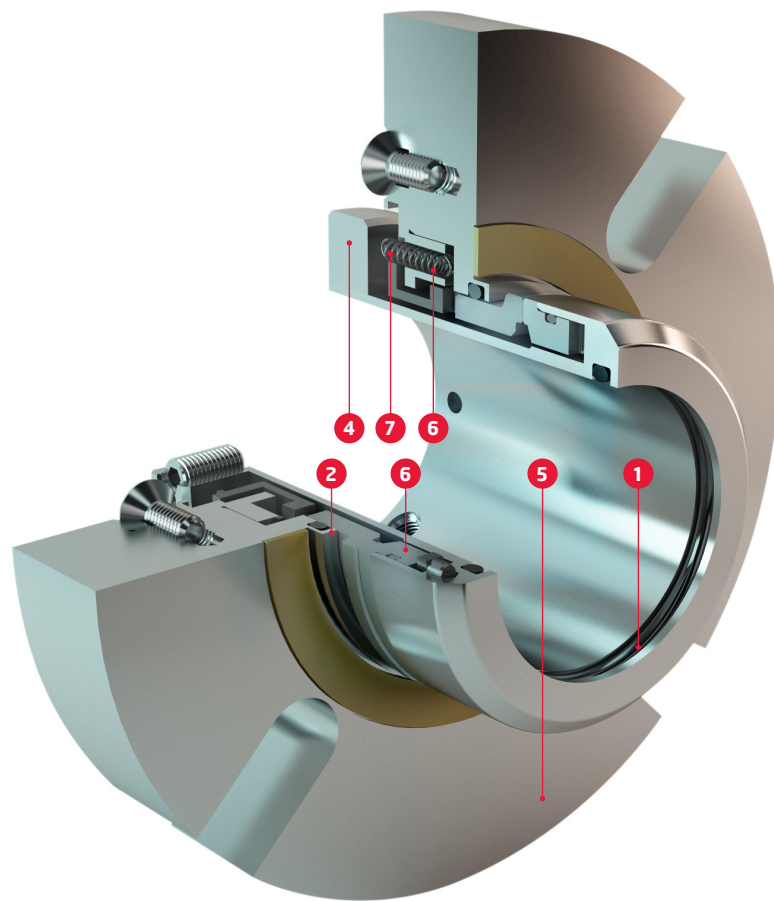
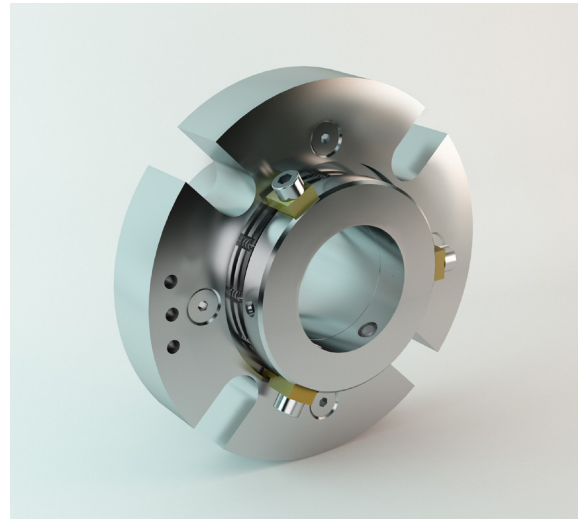
*Clean fluids: Low content of solid and abrasive particed. For example, less than 3% fiber content in Pulp & Paper.

Materials

	Standard	On request
Rotating face product side	SSiC+C	TC
Stationary face product side	SSiC	TC
Rotating face atmospheric side	TC	-
Stationary face atmospheric side	Carbon	SSiC
Elastomer	EPDM / FPM / FFPM	-
Springs	HASTELLOY C™, EN 1.4401	-
Metal parts	EN 1.4404	Titanium / EN 1.4462

ES Balanced cartridge seal

Huhnseal ES is a balanced single mechanical seal with a unique and modern design. The springs are not placed directly behind the stationary face, this being the most common competitor solution, but have been located on a larger diameter further away from the critical O-ring and seal face gap in order to reduce risk for clogging. Due to the relocation of the springs, more robust springs may be used enabling to change from compression to tension springs. The robust tension spring design gives the seal better performance since it is more difficult for particles and fibers from the product to reach and clog up the springs. Additionally the relatively long springs with larger wire diameter increase the axial and radial movement capabilities of the seal. First-class materials from carefully selected suppliers ensure optimized performance at minimized built-in dimensions.



1 Hygienic solutions

Smooth surfaces without cavities or closed spaces make the seal suitable for food and drug application. If required the gasket may be replaced with O-rings in execution according to EHEDG to achieve a hygienic designed seal suitable for CIP (Cleaning in Place).

2 Excellent angular movement capabilities

Advantage when operating against closed valves, causing shaft bending.

3 H4 design

The rotating sealing face on the product side has the new "H4-design". This means that the seal is O-ring mounted and the outer diameter of the seal face is the same as of the holder. This prevents the forming of turbulent flows, which cause heavy wear in abrasive liquids.

4 Advantagous built-in dimensions

Fits in most standard pump stuffing boxes.

5 Optional additional flange for flushing

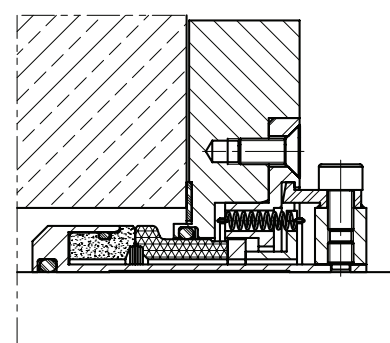
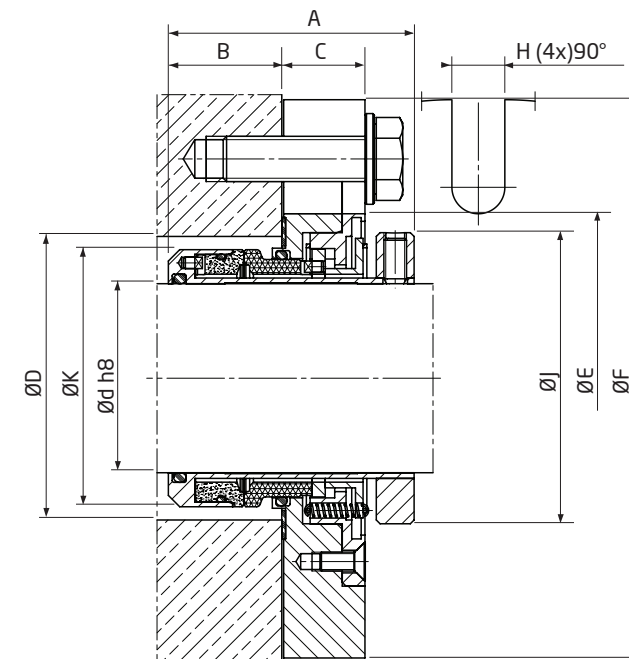
The seal may be equipped with an extra flange when flushing into the media is needed. The standard design is without flange since the chamber with a small gap given by the flushing flange may encourage material build-up if flush is not connected.

6 Spring package located on the outside of the flange

This design is better protected against fiber and particle build-up, which eventually causes clogged-up springs.

7 Patented tension springs

Allow for an excellent axial movement of $\pm 2,0$ mm. Patent No: 9803436-6

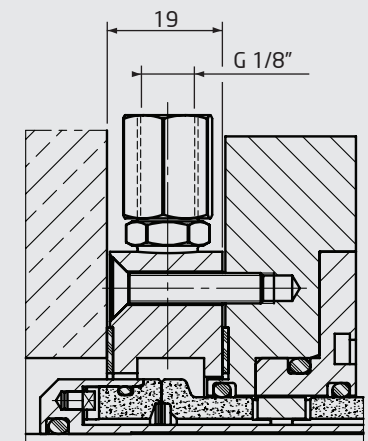


$P_{max} = 25$ bar
 $T_{max} = 100^{\circ}\text{C}$
 $V_{max} = 18$ m/s (3600 rpm)
Axial movement: $\pm 2,0$ mm

d	A	B	C	Dmin	Dmax	E	F	H	J	K
25	66	30	22	44	54	62	105	14	52	43
28	66	30	22	47	57	65	105	14	55	46
30	66	30	22	49	59	67	105	14	57	48
32	66	30	22	51	61	70	110	14	9	50
33	66	30	22	52	62	70	110	14	60	51
35	66	30	22	54	64	72	112	14	62	53
38	66	30	22	57	67	75	122	14	65	56
40	66	30	22	59	69	77	122	14	67	58
43	66	30	22	62	72	80	132	14	70	61
45	66	30	22	64	74	82	138	14	72	63
48	66	30	22	67	77	85	138	14	75	66
50	66	30	22	69	79	87	148	14	77	68
55	66	30	22	74	84	93	148	18	82	73
60	66	30	22	79	92	102	157	18	87	78
65	66	30	22	84	99	109	163	18	92	83
70	66	30	22	89	108	118	178	18	97	88
75	75	35,5	25	101	118	129	190	18	108	100
80	75	35,5	25	106	124	135	194	18	113	105
85	75	35,5	25	111	128	139	198	22	118	110
90	75	35,5	25	116	135	145	204	22	123	115
95	75	35,5	25	121	138	148	208	22	128	120
100	75	35,5	25	126	144	154	218	22	133	125

ESF - Single Seal with optional Flushing Flange

Depending on the application, the seals may be equipped with an additional flange in order to achieve balanced pressure, flushing and/or additional cooling. This will increase the lifetime of the seal.



The axial built-in measurement increases with 19 mm irrespective of the shaft dimension.

