

RELY ON EXCELLENCE

## LL9DKUU

API 682 4th edition | Mechanical seals | Balanced pusher seals



### Features

- API 682 Category 2 and 3, Type A, Arrangement 3 seal
- Dual seal in back-to-back arrangement
- Same size of inboard and outboard seal
- Balanced
- Cartridge unit
- Rotating multiple springs
- Solid seal faces

### Advantages

- Compact design
- Low heat generation and power consumption due to narrow seal face width
- Longer seal life
- Pressure-balanced design prevents mating ring being forced out under reverse pressure
- No damage to shaft sleeve as dynamic O-Ring is not in direct contact with the sleeve

### Operating range

Shaft diameter:  $d_1 = 20 \dots 110 \text{ mm}$  (0.79" ... 4.33")

Pressure:  $p = \text{vacuum} \dots 42 \text{ bar}$  (... 609 PSI)

Temperature:  $t = -40 \text{ }^\circ\text{C} \dots +176 \text{ }^\circ\text{C}$  (-40 °F ... +349 °F)\*

\* Engineered up to 260 °C (500 °F) with FFKM (K) secondary seals.

### Materials

Seal rings: Blister resistant carbon, Silicon carbide SSiC (Q1), RBSiC (Q2)

Mating rings:

Silicon carbide SSiC (Q1), RBSiC (Q2)

Secondary seals:

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

Springs: Hastelloy® C-276 (M5)

Metal parts: CrNiMo steel 316 (G)

### Standards and approvals

- API 682 / ISO 21049
- API 682 4th ed. Cat. 2/3 - 3CW-BB

### Recommended applications

- Light volatile hydrocarbons
- Refining technology
- Oil and gas industry
- Petrochemical industry
- Chemical industry
- Power plant technology
- CCUS
- Alternative fuels production
- LPG plants
- API 610 / ISO 13709 pumps
- Process pumps

### Recommended piping plans

Process side:

[API Plan 01](#)

[API Plan 02](#)

[API Plan 03](#)

[API Plan 11](#)

[API Plan 12](#)

[API Plan 13](#)

[API Plan 14](#)

[API Plan 21](#)

[API Plan 22](#)

[API Plan 31](#)

[API Plan 32](#)

[API Plan 41](#)

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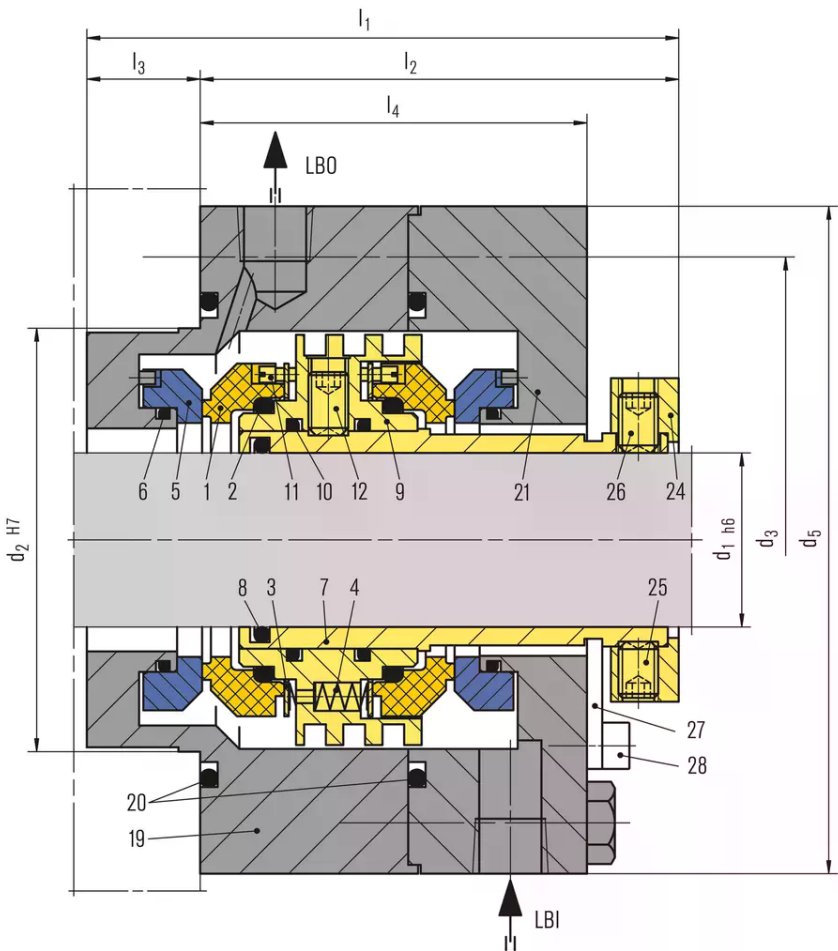
Between seals:

- API Plan 53A
- API Plan 53B
- API Plan 53C
- API Plan 54

Atmospheric side\*:

- API Plan 61
- API Plan 62
- API Plan 65A
- API Plan 65B

\* Throttle bushing on request.



Item	Description
1	Seal ring
2, 6, 8, 10, 20	O-Ring
3	Thrust ring
4	Spring
5	Mating ring
7	Seal sleeve
9	Pumping ring
11	Drive screw
12, 25, 26	Set screw
19, 21	Gland plate
24	Drive collar
27	Setting device
28	HSH Cap screw

LBO Liquid barrier OUT  
LBI Liquid barrier IN

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## Dimensions

API/d <sub>1</sub>	API/d <sub>2</sub>	API/d <sub>3</sub>	d <sub>5</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>
20	70	105	-	-	-	-	-
30	80	115	138	123	97	26	79
40	90	125	148	124	91	33	74
50	100	140	168	126	96	30	79
60	120	160	188	136	108	28	89
70	130	170	198	131	105	26	86
80	140	180	208	133	107	26	88
90	160	205	248	146	116	30	92
100	170	215	258	131	94	37	113
110	180	225	268	139.5	109.5	30	89

Dimensions in millimeter