

RELY ON EXCELLENCE

LL9DSUU

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



Features

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

Advantages

- Suitable for higher speeds
- Good followability due to no influence from run-out, squareness or vibration of the shaft
- 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: $p = 60 \text{ bar}$ (870 PSI)

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

Sliding velocity: $v_g = 50 \text{ m/s}$ (164 ft/s)

* Engineered up to $260 \text{ }^\circ\text{C}$ (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), Duplex (G1)

Standards and approvals

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

Recommended applications

- Light volatile hydrocarbons
- Refining technology
- Oil and gas industry
- Petrochemical industry
- Chemical industry
- Power plant technology
- CCUS
- Alternative fuels productio
- 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](#)

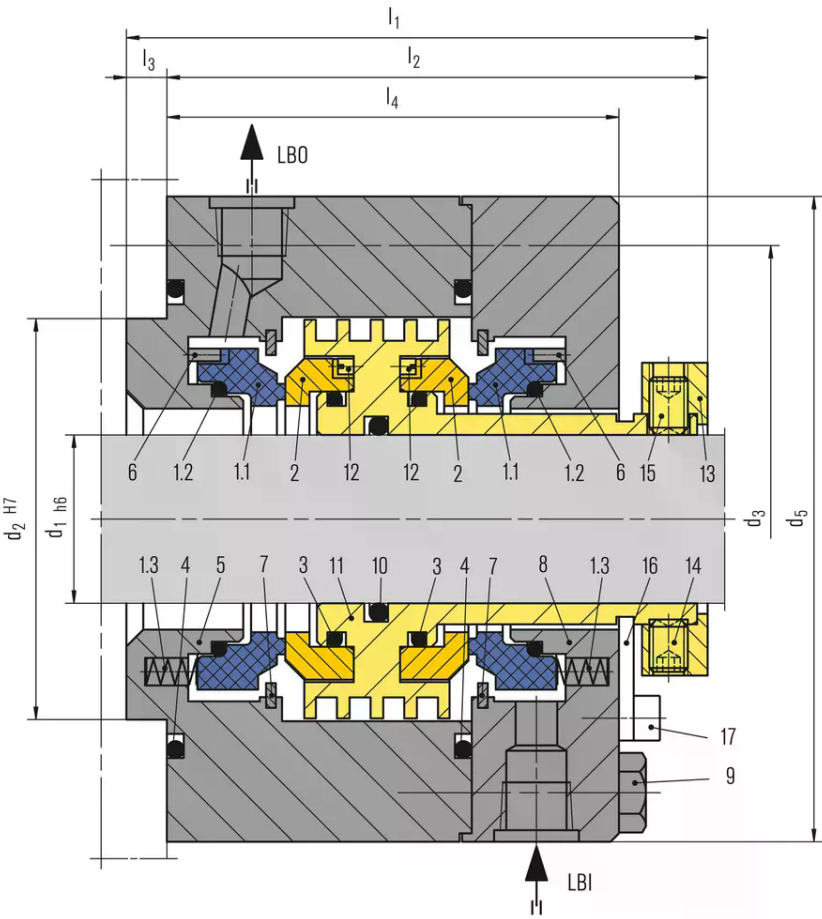
[API Plan 22](#)

[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
1.1	Seal ring
1.2, 3, 4, 10	O-Ring
1.3	Spring
2	Mating ring
5, 8	Gland plate
6	Pin
7	Retaining ring
9	Hexagon bolt
11	Seal sleeve
12	Drive screw
13	Drive collar
14, 15	Set screw
16	Setting device
17	HSH Cap screw

LBO Liquid barrier OUT
LBI Liquid barrier IN

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Dimensions

API/d ₁	API/d ₂	API/d ₃	d ₅	l ₁	l ₂	l ₃	l ₄
20	70	105	128	108	98	10	80
30	80	115	138	110	98	12	80
40	90	125	148	113	98	15	80
50	100	140	168	122	107	15	87
60	120	160	188	122	107	15	87
70	130	170	198	122	107	15	87
80	140	180	208	122	107	15	87
90	160	205	248	130	115	15	93
100	170	215	258	130	115	15	93
110	180	225	268	135	115	20	93

Dimensions in millimeter