

RELY ON EXCELLENCE

## LL9UC

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



### Features

- API 682 Category 2 and 3, Type A, Arrangement 1 seal
- Single 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
- Extended selection of materials
- Metal parts also in special materials available

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

Sliding velocity:  $v_g \dots 23 \text{ m/s}$  (... 75 ft/s)

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

### Materials

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

Mating ring:

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 - 1CW-FL

### Recommended applications

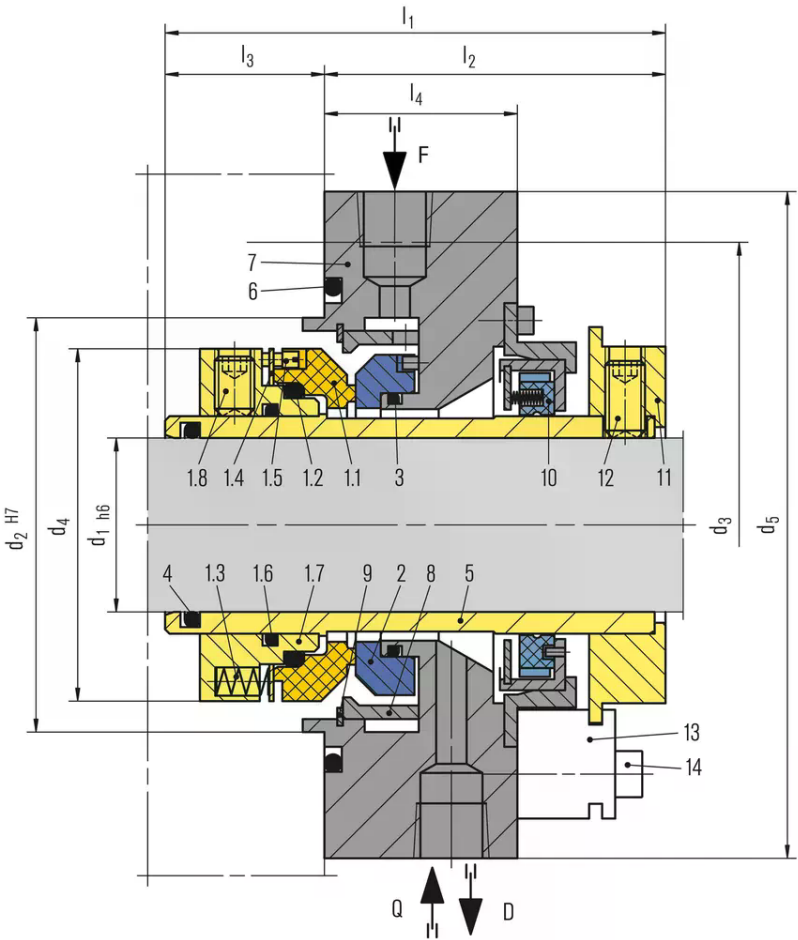
- Light volatile hydrocarbons
- Refining technology
- Oil and gas industry
- Petrochemical industry
- Chemical industry
- Power plant technology
- CCUS
- Hydrogen
- Alternative fuels production
- LPG plants
- API 610 / ISO 13709 pumps
- Process pumps

### 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 23
- API Plan 31
- API Plan 32
- API Plan 41

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**Atmospheric side:**

- API Plan 51
- API Plan 61
- API Plan 62
- API Plan 65A
- API Plan 65B
- API Plan 66A
- API Plan 66B

Item	Description
1.1	Seal ring
1.2, 1.6, 3, 4, 6	O-Ring
1.3	Spring
1.4	Thrust ring
1.5	Drive screw
1.7	Collar
1.8, 12	Set screw
2	Mating ring
5	Seal sleeve
7	Gland plate
8	Flow distributor
9	Retaining ring
10	Throttle bushing
11	Drive collar
13	Setting device
14	HSH Cap screw

F Flush  
 Q Quench  
 D Drain

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## Dimensions

API/d <sub>1</sub>	API/d <sub>2</sub>	API/d <sub>3</sub>	d <sub>4</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	69	138	102	77	25	45
40	90	125	79	148	102	77	25	45
50	100	140	89	168	102	77	25	45
60	120	160	105	188	107	79	28	45
70	130	170	115	198	108	79	29	45
80	140	180	125	208	108	79	29	45
90	160	205	137	248	117	86	31	50
100	170	215	150	258	128.6	88.5	40.1	50
110	180	225	163	268	120.2	88.5	31.7	50

Dimensions in millimeter