

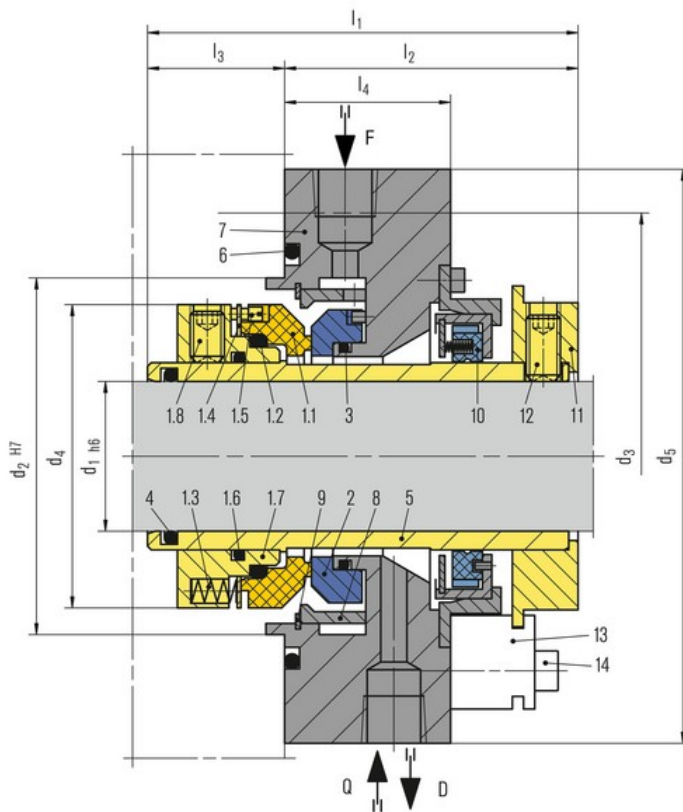
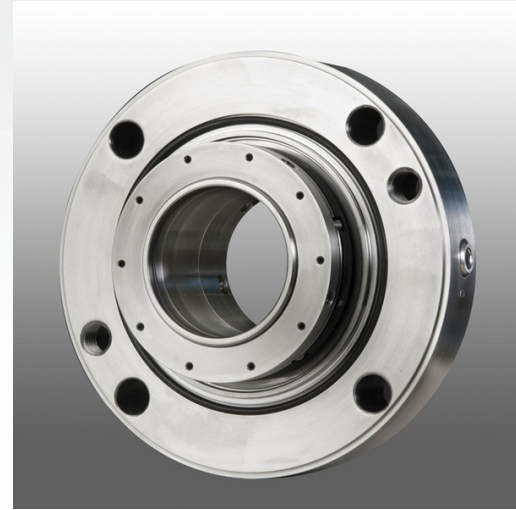
# LL9UC

## 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



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

# LL9UC (2)

## Recommended applications

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

## Operating range

Pressure: p = vacuum ... 42 bar (... 609 PSI)  
Temperature: t = -40 °C ... +176 °C (-40 °F ... 349 °F)\*  
Sliding velocity: vg ... 23 m/s (... 75 ft/s)  
Viscosity: ... 300 mPa·s  
Solids content: ... 0.5 wt.%

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

## Standards and approvals

- API 682 / ISO 21049

## 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)

## Recommended piping plans

Process side:  
01, 02, 11, 12, 13, 14, 21, 22, 23, 31, 32, 41  
Atmospheric side:  
51, 61, 62, 65A, 65B, 66A, 66B

## 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	238	117	86	31	50
100	170	215	150	248	128.6	88.5	40.1	50
110	180	225	163	258	120.2	88.5	31.7	50

03.07.2013 (c) EagleBurgmann