

RELY ON EXCELLENCE

## LY9TCS

API 682 4th edition | Mechanical seals | Metal Bellow seals



### Features

- API 682 Category 2 and 3, Type C seal
- Balanced
- Cartridge unit
- Stationary metal bellows
- Shrink fitted seal rings and solid mating rings

### Advantages

- Suitable for higher speeds
- Good followability due to no influence from run-out, squareness or vibration of the shaft
- Compact design
- Also available in double ply design
- Suited for application with extreme high and low temperature
- Absence of dynamic O-ring eliminates/reduces seal face hang-up
- Bellows design minimizes variation in face load due to shaft expansion or face wear
- Resistant to abrasive particles in the medium, no shaft or sleeve fretting

### Operating range

Shaft diameter:

$d_1 = 20 \dots 110 \text{ mm}^* (0.79 \dots 4.33 \text{''}^*)$

Pressure single ply bellows:

$p = \text{vacuum} \dots 25 \text{ bar}^* (\dots 363 \text{ PSI}^*)$

Pressure double ply bellows:

$p = \text{vacuum} \dots 35 \text{ bar} (\dots 508 \text{ PSI})$

Temperature:

$t = -75 \text{ }^\circ\text{C}^* \dots +400 \text{ }^\circ\text{C} (-103 \text{ }^\circ\text{F}^* \dots 752 \text{ }^\circ\text{F})$

Sliding velocity:

$vg = \dots 50 \text{ m/s}^* (\dots 164 \text{ ft/s}^*)$

\* Please contact an EagleBurgmann engineering expert when the operating range of the required seal exceeds the range shown above.

### Materials

Seal ring: Blister resistant carbon (C4), RBSiC (Q2)

Mating ring: RBSiC (Q2)

Bellows: Inconel® 718 (M6)

Secondary seal: Graphite (G)

Metal parts: CrNiMo steel 316/316L (G),

Carpenter® 42 (T4)

### Standards and approvals

- API 682 / ISO 21049
- API 682 4th ed. Cat. 2/3
- Compliant to TA Luft (German Clean Air Act) (LY9TCS-T, LY9TCS-F)

### Recommended applications

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

### Recommended piping plans

**Process side (Dual seal / Single seal):**

[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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**Between seals (Dual seal):**

- API Plan 52
- API Plan 53A
- API Plan 53B
- API Plan 53C
- API Plan 54
- API Plan 55

**Atmospheric side (Dual seal):**

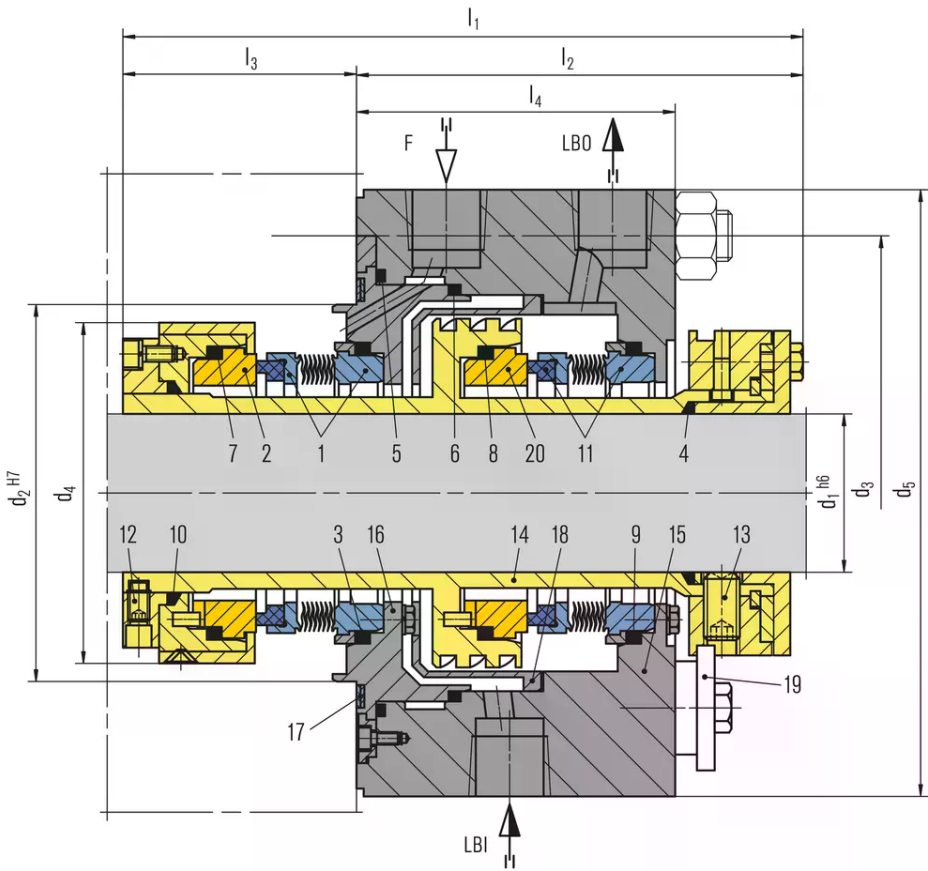
- API Plan 61
- API Plan 62
- API Plan 65A
- API Plan 65B

**Atmospheric side (Single seal):**

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

**LY9TCS-T**

Dual seal  
Arrangement: Face-to-back (Tandem),  
2CW-CW, 3CW-FB

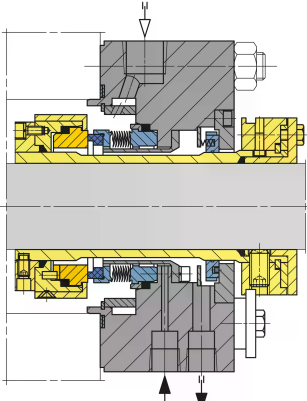


Item	Description
1, 11	Seal ring with bellows unit
3, 4, 5, 6, 7, 8, 9, 10	Graphite ring
2, 20	Mating ring
12, 13	Set screw
14	Seal sleeve with pumping screw
15	Gland plate
16	Adapter
17	Spiral wound gasket
18	Flow guide
19	Assembly fixture

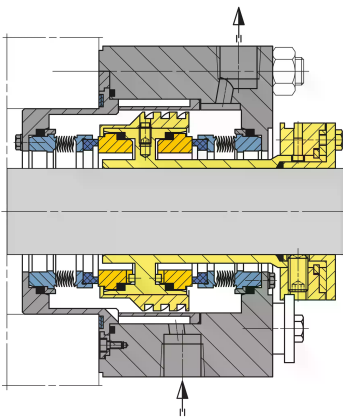
F Flush  
LBO Liquid buffer/barrier OUT  
LBI Liquid buffer/barrier IN

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### Product variants



**LY9TCS-S**  
Single seal  
Arrangement: 1CW-FL



**LY9TCS-F**  
Dual seal  
Arrangement: Face-to-face, 3CW-FF

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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	61	128	146	98	48	74
30	80	115	71.5	138	151	98	53	71.5
40	90	125	81	148	153.5	98	55.5	71.5
50	100	140	93	168	158.5	105.5	53	79
60	120	160	103	188	163.5	106	57.5	79.5
70	130	170	113	198	171	108	63	81.5
80	140	180	125.5	208	172.5	108	64.5	80
90	160	205	138	248	177	115	62	86
100	170	215	150	258	181	116.5	64.5	85.5
110	180	225	159	268	181	116.5	64.5	85.5

**\*\*LY9TCS-T\*\*** Dimensions in millimeter - for simple ply bellows. Dimensions for double ply bellows on request.

API/d~ 1~	API/d~ 2~	API/d~ 3~	d~ 4~	d~ 5~	l~ 1~	l~ 2~	l~ 3~	l~ 4~
20	70	105	61	128	132	82	50	58
30	80	115	71.5	138	122	84.5	37.5	58
40	90	125	81	148	123	84.5	38.5	58
50	100	140	93	168	125.5	84.5	41	58
60	120	160	103	188	128.5	89.5	39	63
70	130	170	113	198	132.5	89.5	43	63
80	140	180	125.5	208	134	91	43	63
90	160	205	138	248	136.5	92	44.5	63
100	170	215	150	258	139.5	94	45.5	63
110	180	225	159	268	139.5	94	45.5	63

**\*\*LY9TCS-S\*\*** Dimensions in millimeter - for simple ply bellows. Dimensions for double ply bellows on request.

API/d <sub>1</sub>	API/d <sub>2</sub>	API/d <sub>3</sub>	d <sub>4</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>
20	70	105	128	129	95	34	71
30	80	115	138	133.5	97	36.5	70.5
40	90	125	148	136.5	98	38.5	71.5
50	100	140	168	141.5	106	35.5	79.5
60	120	160	188	146.5	106	40.5	79.5
70	130	170	198	152.5	107	45.5	80.5
80	140	180	208	155	108	47	80
90	160	205	248	158	115	43	86
100	170	215	258	162	117	45	86
110	180	225	268	162	117	45	86

**\*\*LY9TCS-F\*\*** Dimensions in millimeter - for simple ply bellows. Dimensions for double ply bellows on request.