

RELY ON EXCELLENCE

## CGSH-K

Mechanical seals | Mechanical seals for pumps | Gas-lubricated seals



### Features

- For stepped shafts
- Balanced
- Rotating spring
- Single or double seal available
- Standard version with U-grooves, V-grooves optional (dependent of direction of rotation)
- Gas-lubricated
- Does not open in the event of buffer pressure failure, self closing at pressure reversal

### Advantages

- Contact-free operation, no friction
- No differential pressure required with hard/soft material combination
- Applicable as containment seal acc. to API 682

### Operating range

Shaft diameter:  
 $d_1 = 28 \dots 125 \text{ mm} (1.10" \dots 4.92")$   
 Pressure:  $p_1 = 25 \text{ bar} (363 \text{ PSI})$   
 Temperature:  
 $t^* = -20 \text{ °C} \dots +170 \text{ °C} (-4 \text{ °F} \dots +338 \text{ °F})$   
 Sliding velocity:  
 $vg = 4 \dots 25 \text{ m/s} (13 \dots 82 \text{ ft/s})$

\* Depending on resistance of O-Rings

### Materials

Seal face: Carbon graphite antimony impregnated (A), Silicon carbide (Q2), alternatively: Carbon graphite resin impregnated (B), Silicon carbide (Q1)  
 Seat: Silicon carbide (Q1, Q2), Silicon carbide (Q19, Q29) with seal face in Q1 resp. Q2  
 Metal parts: CrNiMo steel (G)

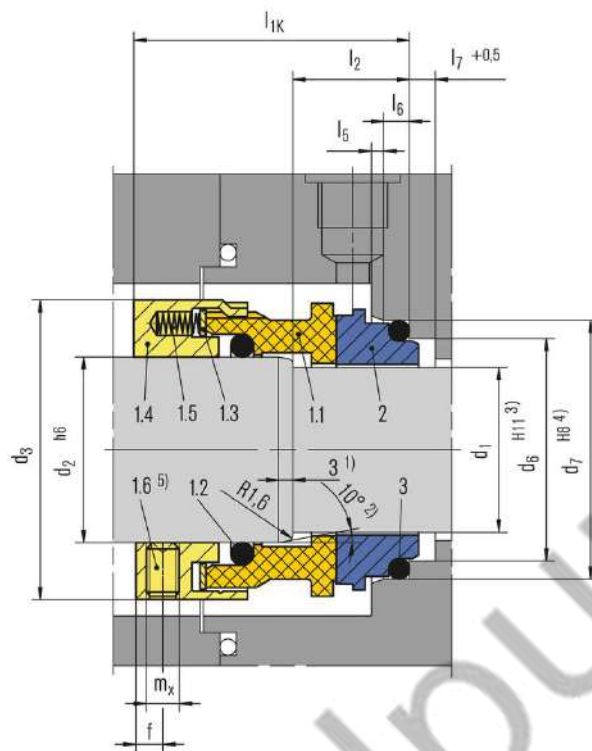
### Standards and approvals

- EN 12756
- API 682 / ISO 21049

### Recommended applications

- Chemical industry
- Refining technology
- Gases and liquids (single seals only gas)
- Gases and liquids which must not get into the atmosphere (dual seal)
- Gases not harmful to the environment (single seal)
- Fans
- Small steam turbines
- Blowers
- Roots compressors
- Pumps

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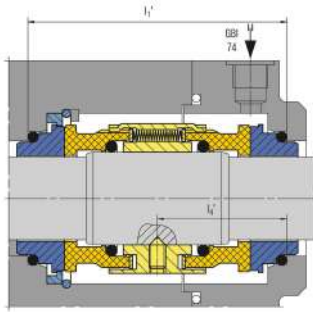


### Item Parts no. to Description DIN 24250

|                         |       |              |
|-------------------------|-------|--------------|
| 1.1                     | 472   | Sliding face |
| 1.2                     | 412.1 | O-Ring       |
| 1.3                     | 474   | Thrust ring  |
| 1.4                     | 485   | Drive collar |
| 1.5                     | 477   | Spring       |
| 1.6                     | 904   | Set screw    |
| 2                       | 475.1 | Seat         |
| 3                       | 412.3 | O-Ring       |
| 1) d1 > 105: 2 mm x 30° |       |              |
| 2) d1 > 105: 30°        |       |              |
| 3) d1 > 105: +0.1       |       |              |
| 4) d1 > 105: H7         |       |              |
| 5) 3 x 120°             |       |              |

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### Product variants



#### CGSH-KD

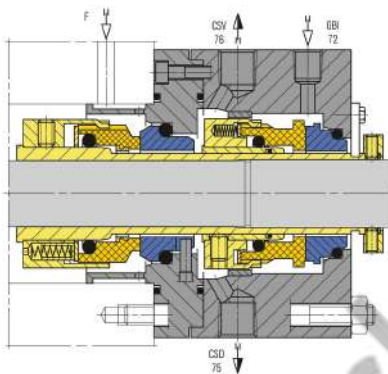
Double seal back-to-back, buffered with gas, according to API 682 configuration 3NC-BB, Plan 74. Items, descriptions and unspecified dimensions as for CGSH-K.

Pressure:  $p_1 = \dots 22 \text{ bar (319 PSI)}$ ,  $p_3 = \dots 25 \text{ bar (363 PSI)}$

(over the whole nominal diameter range, higher values on request).

Differential pressure  $\Delta p = \text{min. } 3 \text{ bar (44 PSI)}$

Other operating limits as CGSH-K.



#### CGSH Tandem arrangement

acc. to API 682 3rd Edition.

Configuration: 2CW-CS, [API Plan 72](#), [API Plan 75](#), [API Plan 76](#).

For media with a gaseous leakage. H75VN on the product side. In case of a failure, the CGSH on the atmosphere side works as a liquid seal.

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### Dimensions

| d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | d <sub>6</sub> | d <sub>7</sub> | l <sub>1K</sub> | l <sub>1'</sub> | l <sub>2</sub> | l <sub>4'</sub> | l <sub>5</sub> | l <sub>6</sub> | l <sub>7</sub> | f | m <sub>x</sub> |
|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|----------------|-----------------|----------------|----------------|----------------|---|----------------|
| 28*            | 33             | 53             | 37.0           | 43.0           | 50.0            | 89              | 20             | 44.5            | 2.0            | 5              | 9              | 5 | M6             |
| 30*            | 35             | 55             | 39.0           | 45.0           | 50.0            | 89              | 20             | 44.5            | 2.0            | 5              | 9              | 5 | M6             |
| 32*            | 38             | 60             | 42.0           | 48.0           | 50.0            | 89              | 20             | 44.5            | 2.0            | 5              | 9              | 5 | M6             |
| 33*            | 38             | 60             | 42.0           | 48.0           | 50.0            | 89              | 20             | 44.5            | 2.0            | 5              | 9              | 5 | M6             |
| 35*            | 40             | 62             | 44.0           | 50.0           | 50.0            | 89              | 20             | 44.5            | 2.0            | 5              | 9              | 5 | M6             |
| 38*            | 43             | 65             | 49.0           | 56.0           | 52.5            | 95              | 23             | 47.5            | 2.0            | 6              | 9              | 5 | M6             |
| 40*            | 45             | 67             | 51.0           | 58.0           | 52.5            | 95              | 23             | 47.5            | 2.0            | 6              | 9              | 5 | M6             |
| 43*            | 48             | 70             | 54.0           | 61.0           | 52.5            | 95              | 23             | 47.5            | 2.0            | 6              | 9              | 5 | M6             |
| 45*            | 50             | 72             | 56.0           | 63.0           | 52.5            | 95              | 23             | 47.5            | 2.0            | 6              | 9              | 5 | M6             |
| 48*            | 53             | 75             | 59.0           | 66.0           | 52.5            | 95              | 23             | 47.5            | 2.0            | 6              | 9              | 5 | M6             |
| 50*            | 55             | 77             | 62.0           | 70.0           | 57.5            | 104             | 25             | 52.0            | 2.5            | 6              | 9              | 5 | M6             |
| 53*            | 58             | 84             | 65.0           | 73.0           | 57.5            | 104             | 25             | 52.0            | 2.5            | 6              | 9              | 5 | M6             |
| 55*            | 60             | 86             | 67.0           | 75.0           | 57.5            | 106             | 25             | 53.0            | 2.5            | 6              | 9              | 5 | M6             |
| 58*            | 63             | 89             | 70.0           | 78.0           | 62.5            | 112             | 25             | 56.0            | 2.5            | 6              | 9              | 7 | M8             |
| 60*            | 65             | 91             | 72.0           | 80.0           | 62.5            | 112             | 25             | 56.0            | 2.5            | 6              | 9              | 7 | M8             |
| 63*            | 68             | 94             | 75.0           | 83.0           | 62.5            | 112             | 25             | 56.0            | 2.5            | 6              | 9              | 7 | M8             |
| 65*            | 70             | 97             | 77.0           | 85.0           | 62.5            | 112             | 25             | 56.0            | 2.5            | 6              | 9              | 7 | M8             |
| 70*            | 75             | 104            | 83.0           | 92.0           | 70.0            | 126             | 28             | 63.0            | 2.5            | 7              | 9              | 7 | M8             |
| 75*            | 80             | 109            | 88.0           | 97.0           | 70.0            | 126             | 28             | 63.0            | 2.5            | 7              | 9              | 7 | M8             |
| 80*            | 85             | 114            | 95.0           | 105.0          | 70.0            | 126             | 28             | 63.0            | 3.0            | 7              | 9              | 7 | M8             |
| 85*            | 90             | 119            | 100.0          | 110.0          | 75.0            | 126             | 28             | 63.0            | 3.0            | 7              | 9              | 7 | M8             |
| 90*            | 95             | 124            | 105.0          | 115.0          | 75.0            | 126             | 28             | 63.0            | 3.0            | 7              | 9              | 7 | M8             |
| 95*            | 100            | 129            | 110.0          | 120.0          | 75.0            | 126             | 28             | 63.0            | 3.0            | 7              | 9              | 7 | M8             |
| 100*           | 105            | 132            | 115.0          | 125.0          | 75.0            | 126             | 28             | 63.0            | 3.0            | 7              | 9              | 7 | M8             |
| 105*           | 115            | 153            | 122.2          | 134.3          | 73.0            | 136             | 32             | 68.0            | 2.0            | 10             | –              | 7 | M8             |
| 110*           | 120            | 158            | 128.2          | 140.3          | 73.0            | 136             | 32             | 68.0            | 2.0            | 10             | –              | 7 | M8             |
| 115*           | 125            | 163            | 136.2          | 148.3          | 73.0            | 136             | 32             | 68.0            | 2.0            | 10             | –              | 7 | M8             |
| 120*           | 130            | 168            | 138.2          | 150.3          | 73.0            | 136             | 32             | 68.0            | 2.0            | 10             | –              | 7 | M8             |
| 125*           | 135            | 173            | 142.2          | 154.3          | 73.0            | 136             | 32             | 68.0            | 2.0            | 10             | –              | 7 | M8             |

Dimensions in millimeter

\* EN 12756