



### Product Description

1. Single and Dual seal configuration
2. Balanced design
3. For stepped shafts
4. Rotary unit with multiple springs
5. Designed to remain in closed position in the event of buffer pressure failure
6. Can accommodate reverse pressure
7. Gas-lubricated design
8. Gas grooves design is available in V-grooves and U-grooves (independent of direction of rotation)

### Technical Features

1. Seal faces are designed to be non-contacting during operation
2. Designed for environmental protection with high efficiency
3. Due to non-contacting design there is no friction on the seal faces and there is no heat generated at the seal or in the medium
4. Trouble free operations as complex components are not required to dissipate frictional heat
5. Differential pressure not required with hard/soft material combination
6. Conforms to containment seal in accordance with API 682

### Typical Industrial Applications

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

### Performance Capabilities

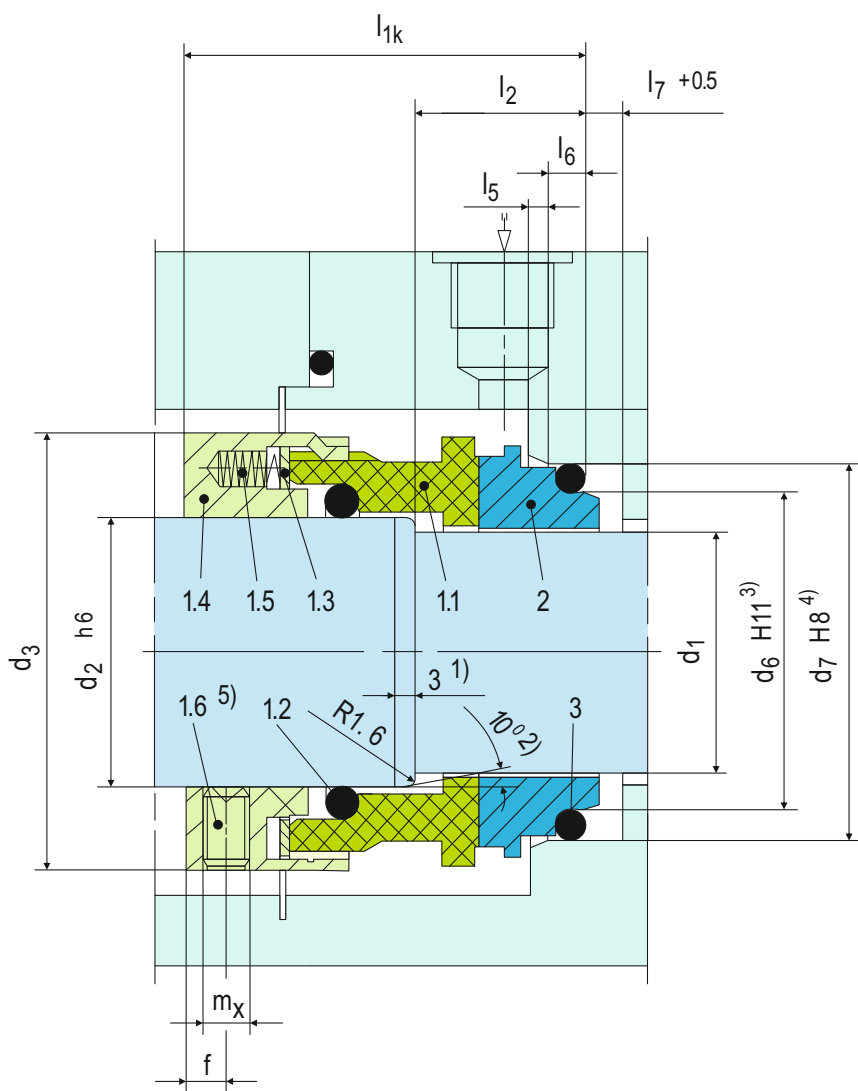
Shaft diameter:  $d_1 = 28 \dots 125 \text{ mm}$  (1.10" ... 4.92")  
 Pressure:  $p_1 = 25 \text{ bar}$  (363 PSI)  
 Temperature:  $t^* = -20 \text{ }^\circ\text{C} \dots +170 \text{ }^\circ\text{C}$  (-4 °F...+338 °F)  
 Sliding velocity:  $v_g = 4 \dots 25 \text{ m/s}$  (13 ... 82 ft/s)  
 \* Depending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

EN 12756  
 API 682 / ISO 21049



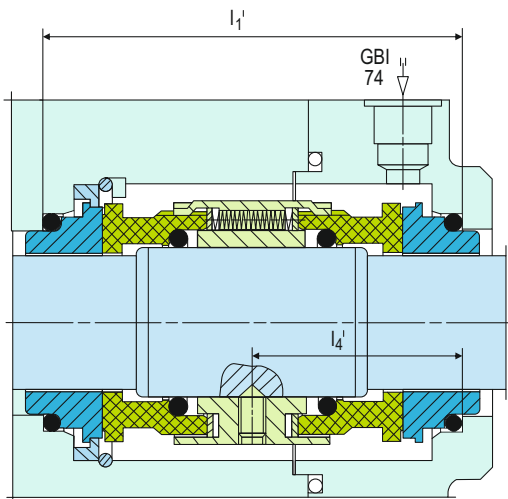
**Note:** The item numbers as depicted above are based on our technical experience and knowledge and are placed in the chronological order of their assembly procedure.

| Item | Part no. | Description  |
|------|----------|--------------|
| 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       |

### DIN 24250

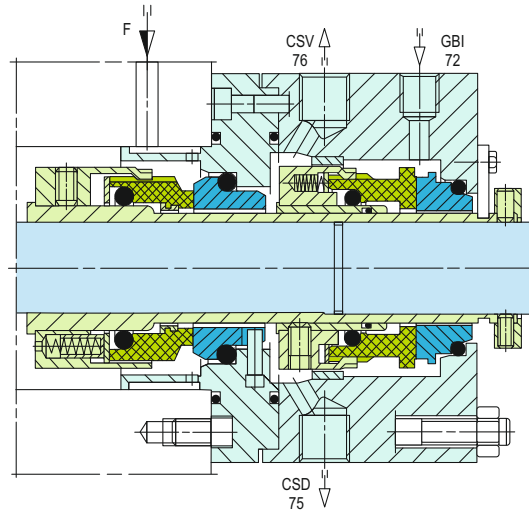
|   |
|---|
| <sup>1)</sup> $d_1 > 105: 2 \text{ mm} \times 30^\circ$ |
| <sup>2)</sup> $d_1 > 105: 30^\circ$                     |
| <sup>3)</sup> $d_1 > 105: +0.1$                         |
| <sup>4)</sup> $d_1 > 105: H7$                           |
| <sup>5)</sup> $3 \times 120^\circ$                      |

## Design Variations



### GSPH-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 GSPH-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 GSPH-K.



### GSPH Tandem arrangement

According to API 682 Configuration: 2CW-CS, Plan 72, 75, 76. For media with a gaseous leakage. B750VN on the product side. In case of a failure, the GSPH on the atmosphere side works as a liquid seal.

## Dimensional Data

### Dimensions in millimeter

| 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             |

\* EN 12756

inch size available from size 1.125" to 5.000"

Note: Additional technical & dimensional information will be provided on request.