

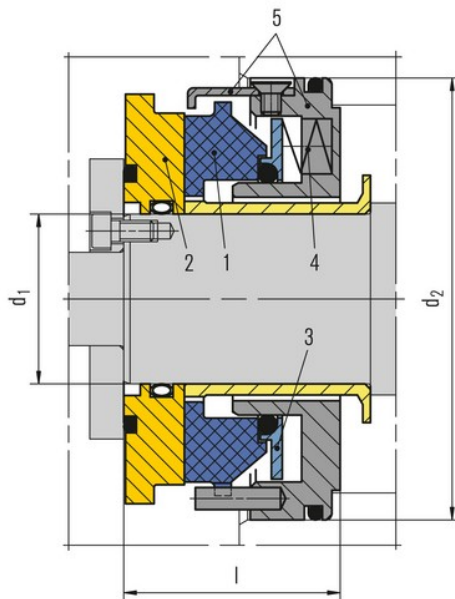
# MDGS

## Features

- Gas-lubricated
- Bi-directional
- Ready-to-fit cartridge unit
- Single, double, tandem seal and tandem with intermediate labyrinth available

## Advantages

The rotating ductile ring with a high performance coating is the main distinctive feature to other dry gas seals. It offers outstanding wear resistance in low speed conditions e.g. coast down or turning where contacting of seal faces is inevitable. The required radial space of this seal is smaller than existing Dry Gas Seals and the seal fits into small seal cavities, as you find them in process gas screw compressors, without making any compromise with regard to seal reliability. The stationary spring loaded unit is supplied as a sub cartridge in combination with a rotating ductile seat integrating secondary functions such as centring and secondary sealing by means of an O-Ring allow the use of this seal as a component seal.



## Item Description

- 1 Seal face, stationary
  - 2 Seat, rotating
  - 3 Thrust ring
  - 4 Spring
  - 5 Housing of standardized stationary sub-cartridge
  - 6 Shaft sleeve, intermediate sleeve
  - 7, 8 Housing (adapted in size to the installation space)
  - 9 Carbon ring type separation seal
  - 10 Intermediate labyrinth
- A Product flushing  
B Flare  
C Buffer gas  
D Separating gas  
S Vent

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# MDGS (2)

## Recommended applications

- Oil and gas industry
- Refining technology
- Petrochemical industry
- Hydrocarbon gas
- Nitrogen
- Air
- Centrifugal compressors
- Dry process gas screw compressors
- Blowers

## Standards and approvals

- NACE

## Operating range

Shaft diameter:  $d_1 = 40 \dots 280 \text{ mm}$  (1.57" ... 8.66")

Pressure:  $p = 0 \dots 50 \text{ bar}$  (0 ... 725 PSI)

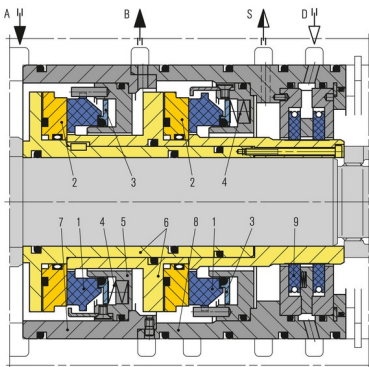
Temperature:  $t = -20 \text{ }^\circ\text{C} \dots 200 \text{ }^\circ\text{C}$  (-4 °F ... +392 °F)

Sliding velocity:  $v_g = 0.6 \dots 200 \text{ m/s}$  (2 ... 656 ft/s)

## Materials

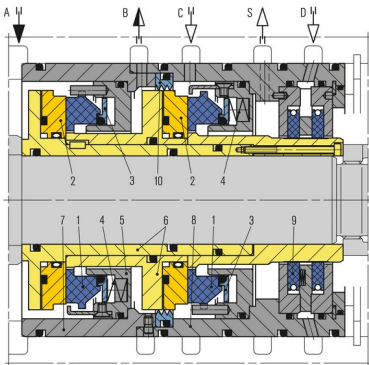
Seal face: Carbon graphite impregnated  
Seat: Ductile stainless steel with DM-TiN coating  
Secondary seals: FKM (V) or other materials depending on product gas composition  
Metal parts: 1.4006 or other stainless steels.

## Product variants



### MDGS Tandem seal

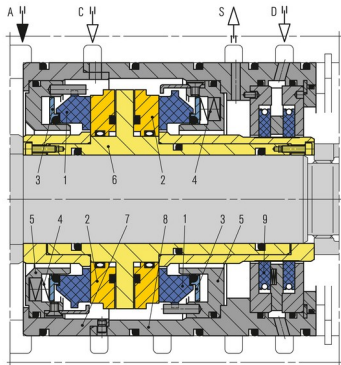
Application: Where small product leakages of process gas are admissible, e.g. on gas pipeline compressors. Seal on the atmosphere side acting as a safety seal. The tandem arrangement provides a particularly high degree of operational safety. The seal on the product side and the seal on the atmosphere side are able to absorb the complete pressure differential. Under normal operating conditions the full pressure is reduced only by the seal on the product side. The space between the seal on the product side and the seal on the atmosphere side is cleared by a connection "B" to the flare. The pressure differential to be sealed by the seal on the atmosphere side equals the flare pressure, so the leakage to the atmosphere side or to the vent is very low. If the main seal fails, the second seal acts as a safety seal.



### MDGS Tandem seal with intermediate labyrinth

Application: Where product leakages to the atmosphere as well as buffer gas leakages to the product are inadmissible, e.g. on  $\text{H}_2$ , ethylene or propylene compressors. With this version the product pressure to be sealed is reduced via the seal on the product side. The entire process gas leakage is discharged via connection "B" to the flare. The seal on the atmosphere side is pressurized with buffer gas (nitrogen) via connection "C". The pressure of the buffer gas ensures that a current flows via the labyrinth to the primary vent outlet.

# MDGS (3)



## MDGS Dual Seal

Application: Where product leakages to the atmosphere are inadmissible and tandem arrangements are not suitable because of too small product gas pressures. Buffer gas leakages into the product must be admissible (buffer pressure  $p_3 > p_1$ ). This seal is used when a neutral buffer gas of suitable pressure is available. Typical applications are to be found mainly in the chemical industry, e.g. on HC gas compressors. A buffer gas, e.g. nitrogen, is fed between the seals via connection "C" at a higher pressure than the product pressure. One part of the buffer gas leakage escapes to the atmosphere side and the other part to the product.

### Dimensions

$D_N$	$d_1$	$d_2$	$l$
40	40	80	34
45	45	86	34
50	50	92	34
55	55	97	34
60	60	100.5	34
65	65	106.5	34
70	70	112.5	34
75	75	122	39
80	80	127	39
85	85	133	39
90	90	138	39
95	95	144	39
100	100	149	40.5
105	105	154	40.5
110	110	159	40.5
115	115	164	40.5
120	120	170	42.5
125	125	175	42.5
130	130	180	42.5
135	135	186	42.5
140	140	195	42.5
145	145	201	42.5
150	150	208	46.5
160	160	218	46.5
170	170	229	46.5
180	180	241	46.5
190	190	250	50
200	200	261	50
210	210	271	50
220	220	282	50
230	230	296	55
240	240	307	55
250	250	318	55
260	260	330	55
270	270	341	55
280	280	352	60