

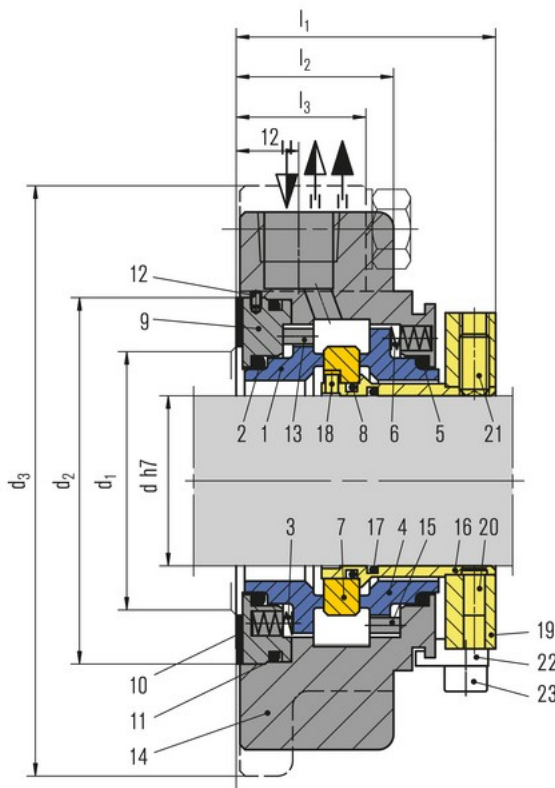
# MD291

## Features

- Cartridge design
- Balanced
- Ultra compact design
- Double seal
- Independent of direction of rotation
- Inboard seal can withstand both forward and back pressures
- Stationary, inside mounted type
- Springs do not contact the liquid

## Advantages

- Equipped with flushing, quenching, and drainports as standard
- The cooling system where the water is directly injected onto the seal faces provides the highest cooling efficiency



Item	Description
1, 4	Seal face
2, 5, 8, 11, 17	O-Ring
3, 6	Spring
7	Seat
9	Collar
10	Gasket
12, 21	Set screw
13, 15, 18, 20	Pin
14	Seal cover
16	Shaft sleeve
19	Drive collar
22	Assembly fixture
23	HSH cap screw

# MD291 (2)

## Recommended applications

- Process industry
- Refining technology
- Petrochemical industry
- Chemical industry
- Pharmaceutical industry
- Pulp and paper industry
- Water and waste water technology
- Food and beverage industry
- Metal production and processing
- Acids
- Alkaline solutions
- Salt solutions
- Low viscosity oils
- Monomers
- Hydrocarbons
- Water
- Seawater
- Chemical pumps
- Process pumps
- Universally applicable

## Operating range

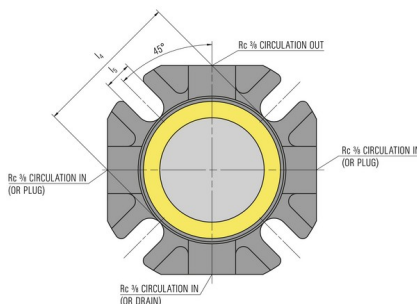
Pressure:  $p = \text{vacuum} \dots 10 \text{ bar (145 PSI)}$   
Temperature:  
 $t = -20 \text{ }^{\circ}\text{C} \dots 160 \text{ }^{\circ}\text{C} (-4 \text{ }^{\circ}\text{F} \dots 320 \text{ }^{\circ}\text{F})$  (oil),  
 $0 \text{ }^{\circ}\text{C} \dots 60 \text{ }^{\circ}\text{C} (32 \text{ }^{\circ}\text{F} \dots 140 \text{ }^{\circ}\text{F})$  (water)  
Sliding velocity:  $v_g = 20 \text{ m/s (66 ft/s)}$   
Viscosity:  $\dots 1 \text{ Pa}\cdot\text{s}$   
Solids content:  $\dots 10 \%$

## Materials

Seal face (inboard side): Silicon carbide (Q1)  
Seal face (atmosphere side): High density carbon graphite  
Seat: Silicon carbide (Q1)  
Metal parts: CrNiMo steel (G)  
Secondary seals: FKM (V)

## Installation, Details, Options

### Seal cover



# MD291 (3)

## Dimensions

d	d <sub>1</sub> min.	d <sub>1</sub> max	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	l <sub>5</sub>
20	35	51	58	104	42	23.5	18.5	60	12
25	40	51	58	104	42	23.5	18.5	60	12
30	45	56	63	108	42	23.9	18.9	65	12
35	50	66	73	118	42	23.9	16.9	75	14
40	55	66	73	118	42	23.9	16.9	75	14
45	60	71	78	128	42	23.9	16.9	80	14
50	65	81	88	138	44	23.5	16.5	90	14
55	70	81	88	138	44	23.5	16.5	90	14
60	77	96	103	164	46	23.0	14.0	105	18
65	82	96	103	164	46	23.0	14.0	105	18
70	87	102	109	178	46	23.0	14.0	111	18
75	94	114	121	193	49	23.0	14.0	123	18
80	99	114	121	193	49	23.0	14.0	123	18
85	104	124	131	208	49	23.0	13.0	133	20
90	109	124	131	208	49	23.0	13.0	133	20
95	114	134	141	218	49	23.0	13.0	143	20
100	119	134	141	218	49	23.0	13.0	143	20

Dimensions in Millimeter