

# Carbon floating ring seals

Seal rings



WD-Series – Split housing



WKA-Series – Chamber seal



Shaft sleeves





# Pioneering supplier of sealing systems

## Customized sealing systems

EagleBurgmann Espey designs and manufactures seals and sealing systems for use in the oil and gas, chemical and petrochemical sectors, in power plant engineering, shipbuilding and in the industry in general.

Our seals offer reliable solutions for sealing a wide range of gases, gaseous mixtures, powders, vapour and water in machines and plants such as turbines, fans, compressors, centrifuges and mills. Among our customers are OEM's, operators and engineering companies from around the world.

In close consultation with our customers, we design seals and systems customized to suit individual applications and installations in a wide range of situations. In addition we provide extensive standard sealings to our customers.

EagleBurgmann Espey innovations are renowned for their added value. Wherever machines and systems require sealing, our products make a major contribution towards boosting performance, durability and efficiency.

Our professional advice and suggested solutions, underpinned by our versatile production facilities, aim to optimize the availability and economic potential of your plant. EagleBurgmann Espey has set itself the goal of significantly shortening delivery times and reliably increasing on-schedule delivery. To achieve these aims, our manufacturing facilities are fitted with the latest production monitoring systems.

## EagleBurgmann Espey GmbH

The company was founded by Gustav Espey in Berlin 1888 as a factory for metal stuffing box packings. With the onset of industrialization, the company moved to the upcoming Ruhr region in 1927.

The company has been located on the Moers-Genend industrial estate since 2005 and currently employs nearly 100 staffs.

Today the company belongs to the EagleBurgmann Group. EagleBurgmann is an independent business group within the Freudenberg corporation; it manufactures, distributes mechanical seals, packings and static seals, as well as special products for a range of applications and branches of industry, and thus is one of the leading global companies in this field.

Freudenberg is a family-owned global corporation. With its 14 business groups, the company is active in various sectors and markets.

Creativity, diversity and innovation are the cornerstones of its philosophy. Reliability and responsible conduct characterize the company's 160-year history. Freudenberg focuses on partnership with its customers, on the long-term perspective, not to mention on financial stability and the excellence of its approx. 32,000 employees in 55 countries around the globe.



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#### Important note

All the technical specifications are based on extensive tests and our many years of experience. However, the diversity of possible applications means that they can serve as guide values only.

It should be noted that the extremal values of each operating parameter cannot be applied at the same time because of their interaction. Furthermore, the operating range of each specific product depends on the respective shaft diameter, materials used, mode of operation and on the medium to be sealed.

A guarantee can only be given in the individual case if the exact conditions of application are known and these are confirmed in a special agreement. When critical conditions of operation are involved, we recommend consulting with our specialist engineers.

Subject to change

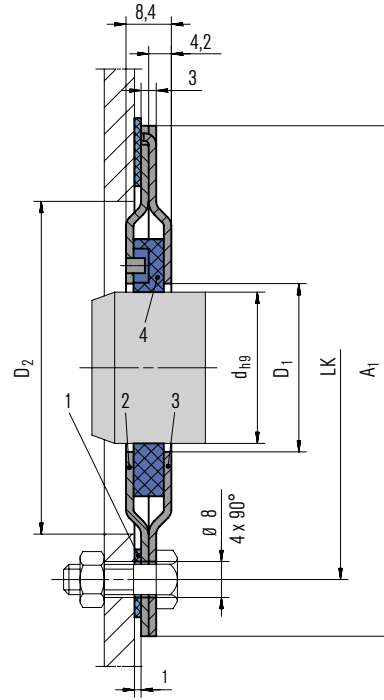
# 1 Product overview and fields of application

Series	Standard shaft diameter	Operating pressure	Temperature	Sliding velocity	2-parts housing	Chamber design	Seal ring design			Port variants		
							1-piece	multi part	S	A	F	
<b>WKA3</b>	28 ... 80 mm (1.1 ... 3.15")	≤ 1,075 bar (16 PSI)	≤ 200 °C (392 °F)	≤ 40 m/s (131 ft/s)		x	x					
<b>WD100</b>	40 ... 340 mm (1.57 ... 13.39")	≤ 2 bar (29 PSI)	≤ 500 °C (932 °F)	≤ 150 m/s (492 ft/s)	x			x				
	<b>WDS</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 20 bar (290 PSI)	≤ 800 °C (1472 °F)	≤ 150 m/s (492 ft/s)	x					x		
	<b>WDA</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 20 bar (290 PSI)	≤ 800 °C (1472 °F)	≤ 150 m/s (492 ft/s)	x						x	
	<b>WDSA</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 20 bar (290 PSI)	≤ 800 °C (1472 °F)	≤ 150 m/s (492 ft/s)	x				x		x	x
<b>WD200</b>	<b>WDK</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 20 bar (290 PSI)	≤ 800 °C (1472 °F)	≤ 150 m/s (492 ft/s)	x							x
	<b>WDKF</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 20 bar (290 PSI)	≤ 800 °C (1472 °F)	≤ 150 m/s (492 ft/s)	x							x
	<b>WDKS</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 20 bar (290 PSI)	≤ 800 °C (1472 °F)	≤ 150 m/s (492 ft/s)	x					x		
	<b>WDKSF</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 20 bar (290 PSI)	≤ 800 °C (1472 °F)	≤ 150 m/s (492 ft/s)	x				x		x	x
<b>WDK-BHS</b>	40 ... 800 mm (1.57 ... 31.5")	≤ 3 bar (44 PSI)	≤ 225 °C (437 °F)	≤ 40 m/s (131 ft/s)	x					x		
<b>WDKS-Eco</b>	45 ... 160 mm (1.77 ... 6.3")	≤ 1.5 bar (22 PSI)	≤ 500 °C (932 °F)	≤ 150 m/s (492 ft/s)	x						x	
	<b>WDS</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 3 bar (44 PSI)	≤ 700 °C (1292 °F)	≤ 40 m/s (131 ft/s)	x					x		x
<b>WD500</b>	<b>WDA</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 3 bar (44 PSI)	≤ 700 °C (1292 °F)	≤ 40 m/s (131 ft/s)	x							x
	<b>WDK</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 3 bar (44 PSI)	≤ 700 °C (1292 °F)	≤ 40 m/s (131 ft/s)	x							
	<b>1S1</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 3 bar (44 PSI)	≤ 500 °C (932 °F)	≤ 40 m/s (131 ft/s)	x					x		
<b>WD200/500</b>	<b>1S2</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 3 bar (44 PSI)	≤ 500 °C (932 °F)	≤ 40 m/s (131 ft/s)	x						x	
	<b>1S3</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 3 bar (44 PSI)	≤ 500 °C (932 °F)	≤ 40 m/s (131 ft/s)	x						x	
	<b>1S2A1</b> 45 ... 340 mm (1.77 ... 13.39")	≤ 3 bar (44 PSI)	≤ 500 °C (932 °F)	≤ 40 m/s (131 ft/s)	x					x	x	x
<b>WDMS500</b>	40 ... 220 mm (1.57 ... 8.66")	≤ 6 bar (87 PSI)	≤ 500 °C (932 °F)	≤ 5 m/s (16 ft/s)	x						x	o
<b>WKA300</b>	20 ... 300 mm (0.79 ... 11.81")	≤ 0.5 bar (7 PSI)	≤ 500 °C (932 °F)	≤ 150 m/s (492 ft/s)			x				x	o
<b>WKA250ND</b>	20 ... 300 mm (0.79 ... 11.81")	≤ 15 bar (218 PSI)	≤ 500 °C (932 °F)	≤ 240 m/s (787 ft/s)			x				x	o
<b>WKA400HD</b>	20 ... 300 mm (0.79 ... 11.81")	≤ 75 bar (1,088 PSI)	≤ 500 °C (932 °F)	≤ 240 m/s (787 ft/s)			x				x	o
<b>WKA700</b>	50 ... 340 mm (1.79 ... 13.39")	≤ 65 bar (942.75 PSI)	≤ 225 °C (437 °F)	≤ 240 m/s (787 ft/s)			x	x				o
<b>WKA802HD</b>	20 ... 200 mm (0.79 ... 7.87")	≤ 140 bar (2,030 PSI)	≤ 225 °C (437 °F)	≤ 240 m/s (787 ft/s)			x	x				o
<b>WKA1100HP</b>	20 ... 200 mm (0.79 ... 7.87")	≤ 250 bar (3,626 PSI)	≤ 225 °C (437 °F)	≤ 240 m/s (787 ft/s)			x	x				o

S = buffer gas port, A = suction, F = grease barrier, o = possible depending on design

Series	Fan/Blower	Compressor	Centrifuge	Turbine	Mixer	Gear/Motor	Dryer	Bulkhead	Mill
<b>WKA3</b>	x								
<b>WD100</b>	x								
<b>WD200</b>	x			x		x		x	
<b>WDK-BHS</b>								x	
<b>WDKS-Eco</b>	x								
<b>WD500</b>			x			x	x		x
<b>WDMS500</b>					x				
<b>WD200/500</b>			x		x		x		x
<b>WKA300</b>	x								
<b>WKA250ND</b>		x		x					
<b>WKA400HD</b>		x		x					
<b>WKA700</b>		x							
<b>WKA802HD</b>		x		x					
<b>WKA1100HP</b>		x							





### Features

- Cartridge seal
- Standardized dimensions
- Short axial installation length (8.4 mm)
- Dry running
- Seal ring bears radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power
- One-piece seal ring (initial delivery)

### Advantages

- Easy installation
- High reliability
- Maintainability
- Long-term operation time
- Alternative to radial shaft seal ring

### Operating range (see note on page 3)

Shaft diameter:  $d = 28 \dots 80 \text{ mm}$  (1.10" ... 3.15")  
 Operating pressure:  $p = 1.075 \text{ bar}$  (16 PSI) abs.  
 Operating temperature:  $t = \text{max. } +200 \text{ }^\circ\text{C}$  (392 °F)  
 Sliding velocity:  $v_g = \text{max. } 40 \text{ m/s}$  (131 ft/s)  
 Radial play:  $2.0 \dots 4.0 \text{ mm}$  (0.08" ... 0.16")  
 Axial movement: theoretically unlimited

### Item Description

- |   |              |
|---|--------------|
| 1 | Flat seal    |
| 2 | Housing half |
| 3 | Housing half |
| 4 | Seal ring    |

### Recommended applications

- Chemical industry
- Food processing industry
- Machinery and plant building
- Pulp and paper industry
- Metal production and processing
- Small and medium-sized fans/blowers
- Air regulating devices
- Bearing seals
- Clean gases\*

### Materials

Seal ring: PTFE compound  
 Housing: 1.4301  
 Tension spring: 1.4571 (replacement)

### Standards and approvals

- FDA

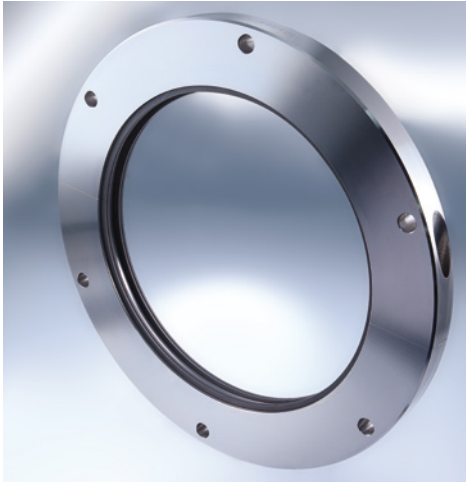
\* Not applicable for toxic, solids containing gases and exhaust gas and fluid

### Dimensions in mm

$d_{h9}$	$D_1$	$D_2$	$A_1$	LK	RB	RC
28	36	70	100	90	35	30
30	36	70	100	90	35	30
32	36	70	100	90	35	30
38	46	80	110	100	40	35
40	46	80	110	100	40	35
42	46	80	110	100	40	35
50	56	94	130	120	45	40
60	66	104	140	130	50	45
70	76	114	150	140	55	50
80	86	124	160	150	60	55

RB, RC = flanging radii

# 1 Espey WD100



## Features

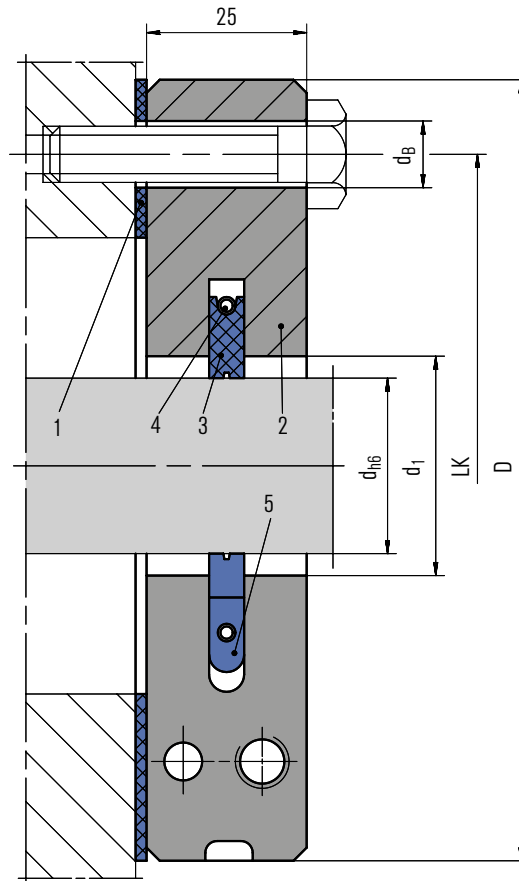
- Split housing design
- Multi-part seal rings, radially cut
- Very small operation gap – low leakage
- Dry running
- Self-adjusting seal rings
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power

## Advantages

- Easy installation by split housing design (shaft removal not required)
- Long-term operation time
- Maintainability
- Segmented seal rings for easy replacement

## Operating range (see note on page 3)

Shaft diameter:  $d = 40 \dots 340 \text{ mm}$  (1.57" ... 13.39")  
 Operating pressure:  $p = \text{vacuum} \dots 2 \text{ bar abs.}$  (29 PSI)  
 Operating temperature:  $t = -120 \text{ }^\circ\text{C} \dots +500 \text{ }^\circ\text{C}$   
 ( $-184 \text{ }^\circ\text{F} \dots +932 \text{ }^\circ\text{F}$ ) for carbon,  
 max.  $225 \text{ }^\circ\text{C}$  (437  $^\circ\text{F}$ ) for PTFE compound  
 Sliding velocity:  $v_g = \text{max. } 150 \text{ m/s}$  (492 ft/s) for carbon,  
 max.  $40 \text{ m/s}$  (131 ft/s) for PTFE compound  
 Radial play:  $2.5 \dots 5.0 \text{ mm}$  (0.1" ... 0.2")  
 Axial movement: theoretically unlimited  
 Recommended wear guard:  $> 300 \text{ HB}$



## Item Description

Item	Description
1	Flat seal
2	Housing, 2-piece
3	Seal ring
4	Tension spring
5	Detent

## Materials

Seal ring: Carbon, PTFE compound  
 Housing: 1.4021, 1.4571, Hastelloy™, Titan, Inconel™, others  
 Tension spring/detent: 1.4571, Hastelloy™, Titan, Inconel™

## Standards and approvals

- FDA

## Recommended applications

- Chemical industry
- Waste incineration and removal industry
- Petrochemical industry
- Food processing industry
- Metal production and processing
- Clean gases\*
- Water
- Medium-sized and large fans/blowers
- Mixers, agitators, mills, dryers

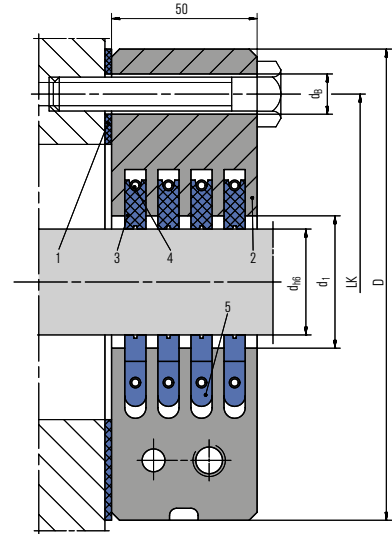
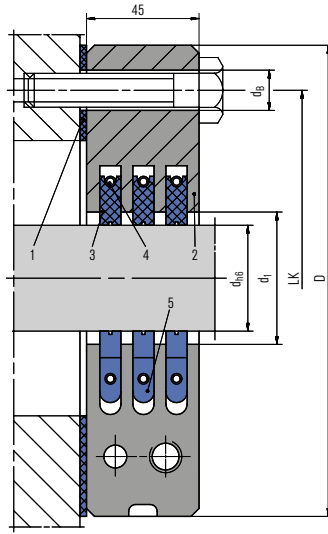
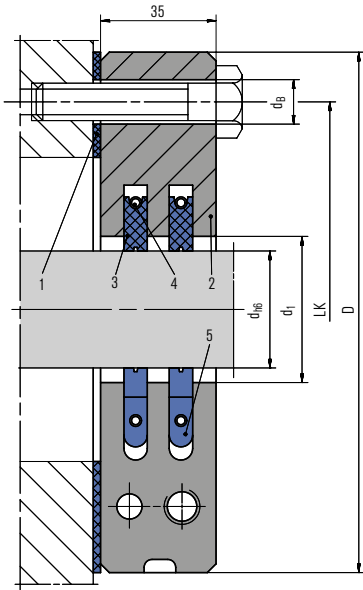
\* Not applicable for toxic, solids containing gases and exhaust gas

**Product variants**

**Espey WD100-2 with 2 seal rings**

**Espey WD100-3 with 3 seal rings**

**Espey WD100-4 with 4 seal rings**

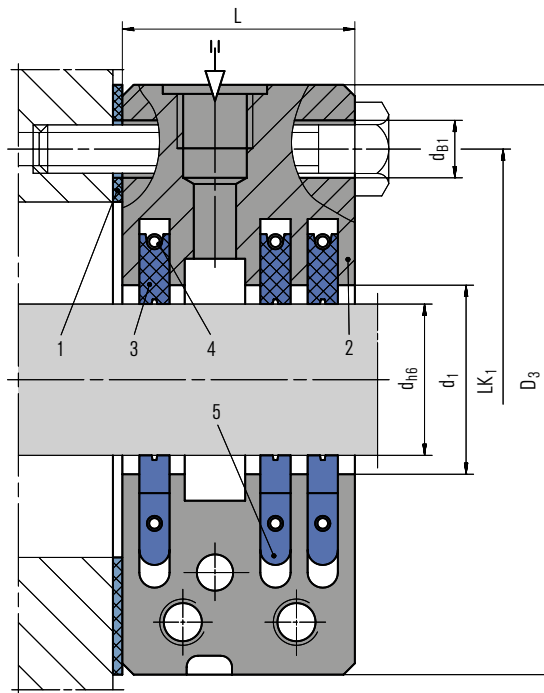
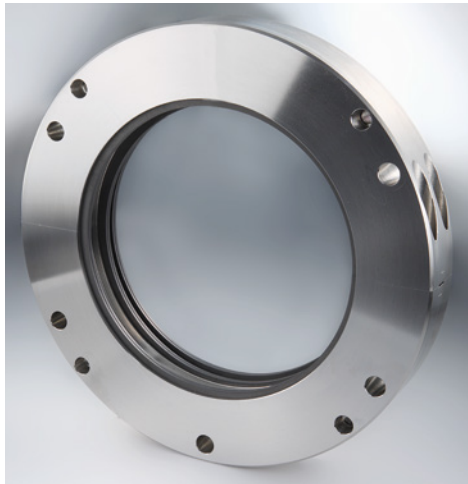


**Dimensions in mm**

$d_{h6}$	$d_{f1}$	D	$LK_1$	$d_B$	$n \times \varnothing d_B$
40	45	160	130	15	4
45	50	165	135	15	4
50	58	170	140	15	4
60	68	180	150	15	4
70	78	190	160	15	4
80	90	200	170	15	4
90	100	210	180	15	4
100	110	220	190	15	4
110	120	230	200	15	4
120	130	240	210	15	4
130	140	250	220	15	4
140	150	260	230	15	4
150	160	270	240	15	4
160	170	280	250	15	4
170	180	290	260	15	6
180	190	300	270	15	6
190	200	310	280	15	6
200	210	320	290	15	6
220	230	340	310	15	6
240	250	360	330	15	6
260	270	380	350	15	6
280	290	400	370	15	6
300	310	420	390	15	6
320	330	440	410	15	6
340	350	460	430	15	6

Special sizes on request.

# 1 Espey WD200



## Features

- Split housing design
- Multi-part seal rings, radially cut
- Very small operation gap – low leakage
- Dry running
- Self-adjusting seal rings
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power

## Advantages

- Easy installation by split housing design (shaft removal not required)
- Long-term operation time
- Maintainability
- Segmented seal rings for easy replacement

## Operating range (see note on page 3)

Shaft diameter:  $d = 45 \dots 340 \text{ mm}$  (1.77" ... 13.39")  
 Operating pressure:  $p = \text{vacuum} \dots 20 \text{ bar abs.}$  (290 PSI)  
 Operating temperature:  $t = -120 \text{ }^\circ\text{C} \dots +800 \text{ }^\circ\text{C}$   
 ( $-184 \text{ }^\circ\text{F} \dots +1.472 \text{ }^\circ\text{F}$ ) for carbon,  
 max.  $225 \text{ }^\circ\text{C}$  (437 °F) for PTFE compound  
 Sliding velocity:  $v_g = \text{max. } 150 \text{ m/s}$  (492 ft/s) for carbon,  
 max.  $40 \text{ m/s}$  (131 ft/s) for PTFE compound  
 Radial play:  $2.5 \dots 5.0 \text{ mm}$  (0.1" ... 0.2")  
 Axial movement: theoretically unlimited  
 Recommended wear guard:  $> 300 \text{ HB}$   
 (low pressure),  $> 58 \text{ HRC}$  (high pressure)

## Item Description

Item	Description
1	Flat seal
2	Housing, 2-piece
3	Seal ring
4	Tension spring
5	Detent

## Materials

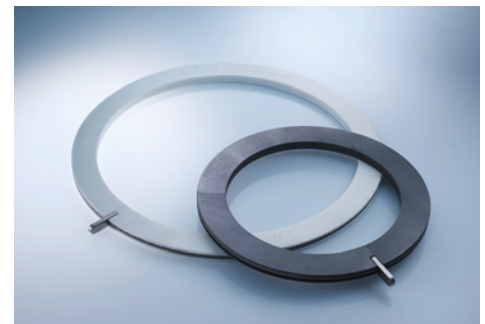
Seal ring: Carbon, PTFE compound  
 Housing: 1.4021, 1.4571, Hastelloy™, Titan, Inconel™, others  
 Tension spring/detent: 1.4571, Hastelloy™, Titan, Inconel™

## Standards and approvals

- FDA

## Recommended applications

- Chemical industry
- Waste incineration and removal industry
- Power plant technology
- Petrochemical industry
- Food processing industry
- Metal production and processing
- Gases
- Fumes and exhaust, solids containing, flammable (ATEX), acid containing and toxic gases
- (Solids containing) steams/liquid mist
- Oil mist/penetrating oil
- Water
- Medium-sized and large fans/blowers
- Bearing seals (gear box, motors)
- Steam turbines
- Mixers, agitators, mills, dryers



Seal rings Espey WD200  
 (3-part, radial cut) – carbon / PTFE compound



Espey WD 200, installed on a fan housing  
 Photo: Illinois Blower, Inc



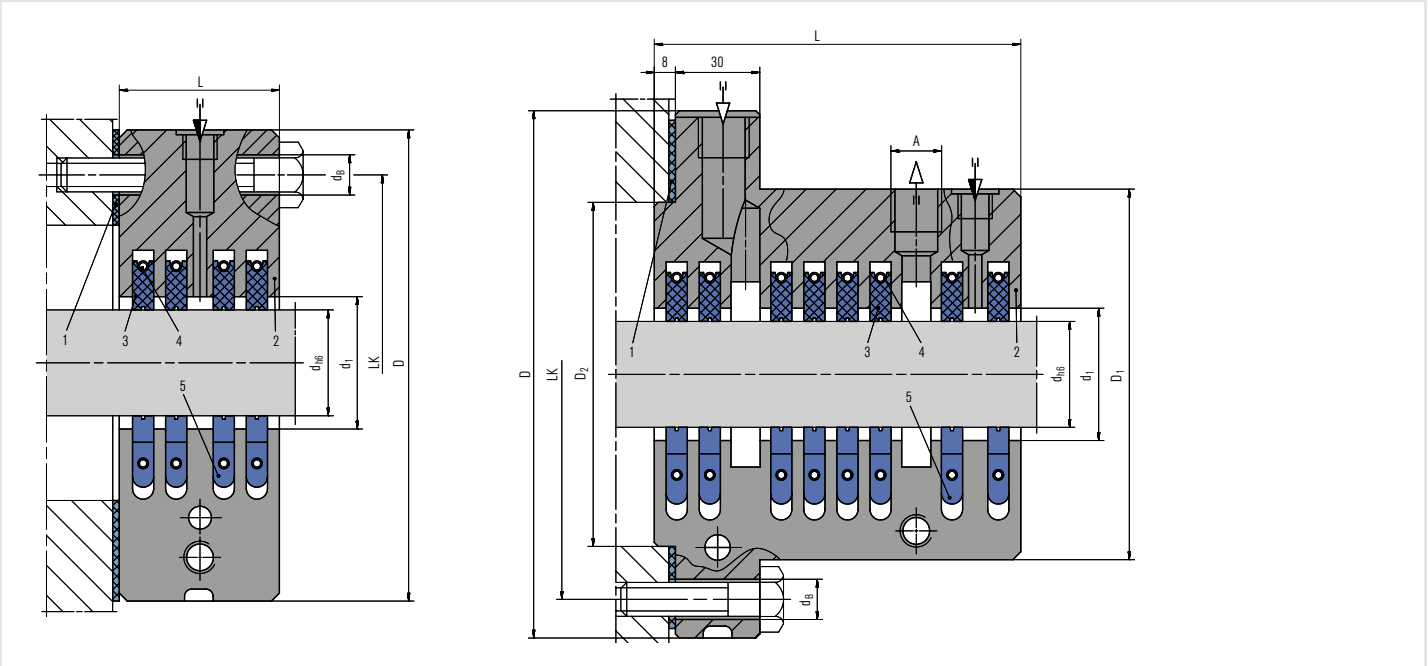
**Product variants**

**Espey WD200-WDK** with short design and grease barrier port – type WDKF in addition with reduced outside housing diameter (for clean media, not for solids containing gases).

**Espey WD200-WDSA** with barrier gas, suction and grease barrier port (for e. g. toxic and solids containing gases with condensate formation as well as Atex applications).

For toxic and solids containing gases as well as Atex applications type shaft seal

**Espey WD200-WDKS** with short design, reduced housing outside diameter and barrier gas port is used.



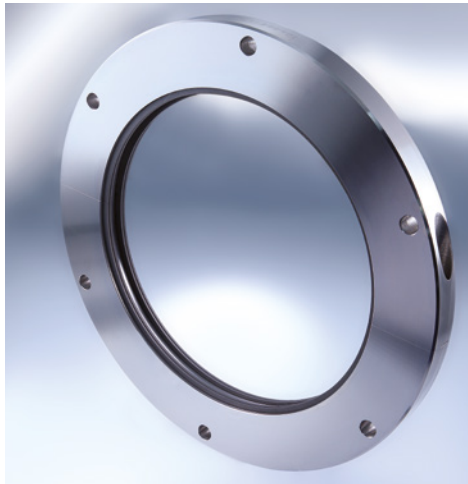
**Dimensions in mm**

For all types				For types WDK, WDS, WDA, WDSA							For types WDKS, WDKF			
d <sub>h6</sub> <sup>1)</sup>	d <sub>1 ND</sub> <sup>1)</sup>	d <sub>1 HD</sub> <sup>1)</sup>	D <sub>2</sub> <sup>2)</sup>	D <sub>1</sub> <sup>2)</sup>	D <sub>2</sub> <sup>2)</sup>	LK <sup>2)</sup>	A <sup>2)</sup>	d <sub>g</sub> <sup>2)</sup>	n x Ød <sub>B</sub>	D <sub>3</sub> <sup>3)</sup>	LK <sub>1</sub> <sup>3)</sup>	d <sub>B1</sub> <sup>3)</sup>	n x Ød <sub>B1</sub>	
40	50	48	210	140	115	175	G1/2	15	4	165	135	15	4	
50	58	54	220	150	125	185	G1/2	15	4	170	140	15	4	
60	68	64	230	160	135	195	G3/4	15	4	180	150	15	4	
70	78	74	240	170	145	205	G3/4	15	4	190	160	15	4	
80	90	84	260	180	155	220	G3/4	15	4	200	170	15	4	
90	100	94	270	190	165	230	G1	15	4	210	180	15	4	
100	110	104	280	200	175	240	G1	15	6	220	190	15	4	
110	120	114	290	210	185	250	G1	15	6	230	200	15	4	
120	130	124	300	220	195	260	G1	15	6	240	210	15	4	
130	140	134	310	230	205	270	G1	15	6	250	220	15	4	
140	150	144	320	240	215	280	G1	15	6	260	230	15	4	
150	160	154	330	250	225	290	G1	15	6	270	240	15	4	
160	170	164	340	260	235	300	G1	19	6	280	250	15	4	
170	180	174	350	270	245	310	G1	19	6	290	260	15	6	
180	190	184	360	280	255	320	G1	19	6	300	270	15	6	
190	200	194	370	290	265	330	G1	19	6	310	280	15	6	
200	210	204	420	310	275	365	G1	15	8	320	290	15	6	
220	230	224	440	330	295	385	G1	15	8	340	310	15	6	
240	250	244	450	350	315	405	G1	19	8	360	330	15	6	
260	270	264	460	370	335	425	G1	19	8	380	350	15	6	
280	290	284	500	390	355	445	G1	19	8	400	370	15	6	
300	310	304	520	410	375	465	G1	19	8	420	390	15	6	
320	330	324	540	430	395	485	G1	19	8	440	410	15	6	
340	350	344	560	450	415	505	G1	19	8	460	430	15	6	

1) For all types  
 2) For types WDK, WDS, WDA, WDSA  
 3) For types WDKS, WDKF  
 ND = low pressure  
 HD = high pressure  
 Special sizes on request.

Width L	2	3	4	5	6	7	8
Amount Seal rings							
WDKS	40	50	60	70	80	90	100
WDK, WDKF	30	40	50	60	70	80	90
WDS, WDA		65	75	85	93	103	113
WDSA				95	103	113	127

# 1 Espey WDK-BHS



## Features

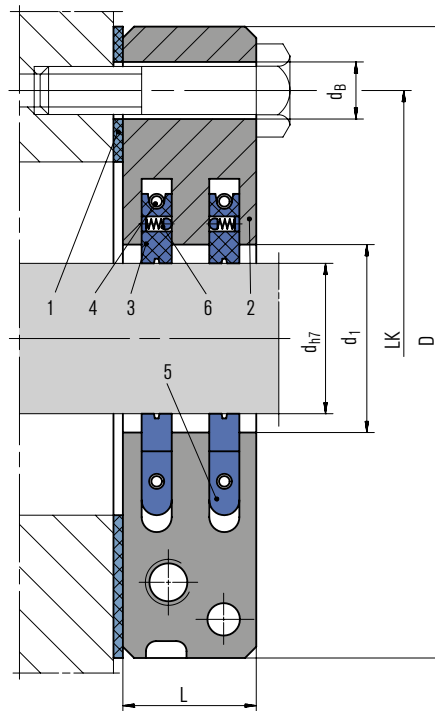
- Multi-part seal rings, radially cut
- Split housing design
- Short axial installation length (max. 36 mm)
- Very small operation gap
- Dry running
- Self-adjusting seal rings
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- Seals on both sides of the shaft
- Resistant to sea water
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power

## Advantages

- Easy installation by split housing design (shaft removal not required)
- Long-term operation time
- Maintainability
- Segmented seal rings for easy replacement

## Operating range (see note on page 3)

Shaft diameter:  $d = 40 \dots 800 \text{ mm}$  (1.57" ... 31.5")  
 Operating pressure:  $p = \text{vacuum} \dots 1.5 \text{ bar}$  (22 PSI) abs.  
 Operating temperature:  $t = \text{max. } 225 \text{ }^\circ\text{C}$  (437 °F)  
 Sliding velocity:  $v_g = \text{max. } 40 \text{ m/s}$  (131 ft/s)  
 Radial play:  $2.5 \dots 5.0 \text{ mm}$  (0.1" ... 0.2")  
 (depends on shaft diameter)  
 Axial movement: theoretically unlimited  
 Angular deviation:  $\pm 1^\circ \dots \pm 2^\circ$   
 (central installation, depends on shaft diameter)  
 Recommended wear guard:  $> 150 \text{ HB}$



## Item Description

Item	Description
1	Flat seal
2	Housing, 2-piece
3	Seal ring
4	Tension spring
5	Detent
6	Spring

## Materials

Seal ring: PTFE compound  
 Housing: 1.4571, others  
 Tension spring / Detent: 1.4571

## Standards and approvals

- ISO 9001
- American Bureau of Shipping (ABS), Bureau Veritas, Lloyd's Register EMEA, Det Norske Veritas, Russian Maritime Register of Shippings, Germanischer Lloyd and others

## Recommended applications

- Shipbuilding
- Drive shafts in ships, bulkheads
- Sea water, water

## Dimensions in mm

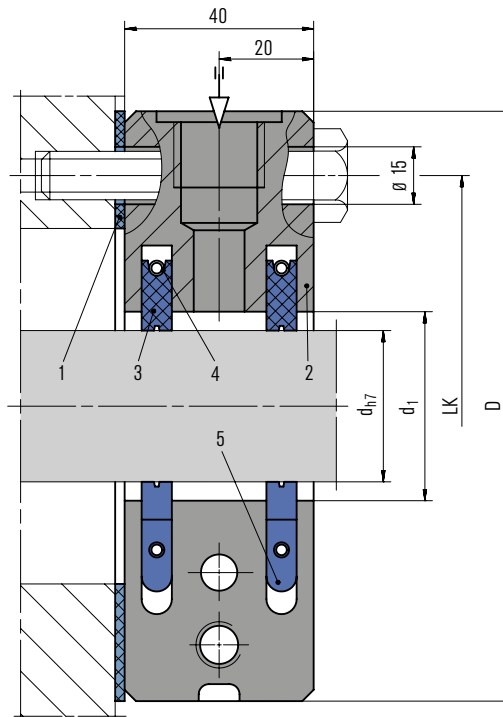
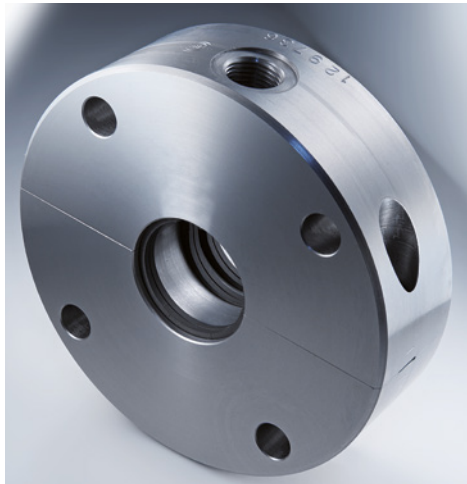
$d_{h7}$	$d_1$	D	L	LK	$d_B$	$n \times \theta d_B$
40	45	160	30	130	15	4
45	50	165	30	135	15	4
50	58	170	30	140	15	4
60	68	180	30	150	15	4
70	78	190	30	160	15	4
80	90	200	30	170	15	4
90	100	210	30	180	15	4
100	110	220	30	190	15	4
110	120	230	30	200	15	4
120	130	240	30	210	15	4
130	140	250	30	220	15	4
140	150	260	30	230	15	4
150	160	270	30	240	15	4
160	170	280	30	250	15	4
170	180	290	30	260	15	6
180	190	300	30	270	15	6
190	200	310	30	280	15	6
200	210	320	30	290	15	6
220	230	340	30	310	15	6
240	250	360	30	330	15	6
260	270	380	30	350	15	6
280	290	400	30	370	15	6
300	310	420	30	390	15	6
320	330	440	30	410	15	6
340	350	460	30	430	15	6
350	360	470	30	440	15	8
400	410	520	30	490	15	8
450	460	570	30	540	15	8
500	510	620	30	590	15	8
550	560	670	30	640	15	8
600	610	720	30	690	15	8
650	660	770	36	740	15	12
700	710	820	36	790	19	12
750	760	870	36	840	19	12
800	810	920	36	890	19	12

Special sizes on request.





# 1 Espey WDKS-Eco



## Features

- Multi-part seal rings, radially cut
- Split housing design
- Very small operation gap – low leakage
- Dry running
- Self-adjusting seal rings
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power

## Advantages

- Easy installation by split housing design (shaft removal not required)
- Long-term operation time
- Maintainability
- Segmented seal rings for easy replacement

## Operating range (see note on page 3)

Shaft diameter:  $d = 45 \dots 160 \text{ mm}$  (1.77" ... 6.3")  
 Operating pressure:  $p = \text{vacuum} \dots 1.5 \text{ bar}$  (22 PSI) abs.  
 Operating temperature:  $t = -120 \text{ }^\circ\text{C} \dots +500 \text{ }^\circ\text{C}$   
 (-184 °F ... +932 °F) for carbon,  
 max. 225 °C (437 °F) for PTFE compound,  
 max. 300 °C (572 °F) with grease barrier  
 Sliding velocity:  $v_g = \text{max. } 150 \text{ m/s}$  (492 ft/s)  
 for carbon, max. 40 m/s (131 ft/s) for PTFE compound  
 Radial play: 2.5 ... 5.0 mm (0.1" ... 0.2")  
 Axial movement: theoretically unlimited  
 Recommended wear guard: > 300 HB

## Item Description

Item	Description
1	Flat seal
2	Housing, 2-piece
3	Seal ring
4	Tension spring
5	Detent

## Materials

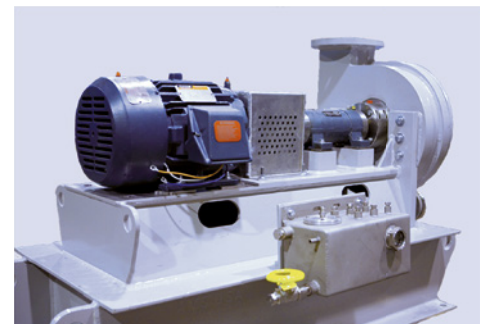
Seal ring: Carbon, PTFE compound  
 Housing: 1.4021, 1.4571, others  
 Tension spring / Detent: 1.4571

## Standards and approvals

- FDA

## Recommended applications

- Chemical industry
- Metal production and processing
- Pulp and paper industry
- Food processing industry
- Power plant technology
- (Solids containing) gases
- (Solids containing) steams/liquid mist
- Oil mist/penetrating oil
- Water
- Small and medium-sized fans/blowers
- Bearing seals (gear box, motors)
- Mixers, agitators, mills, dryers

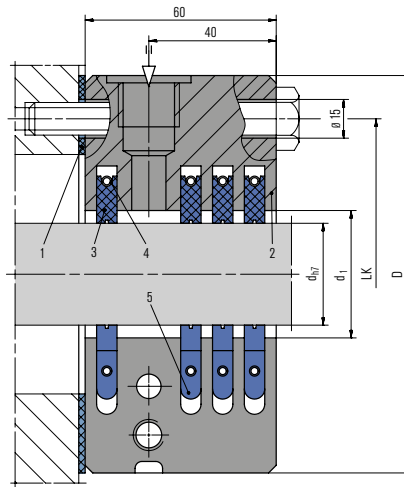
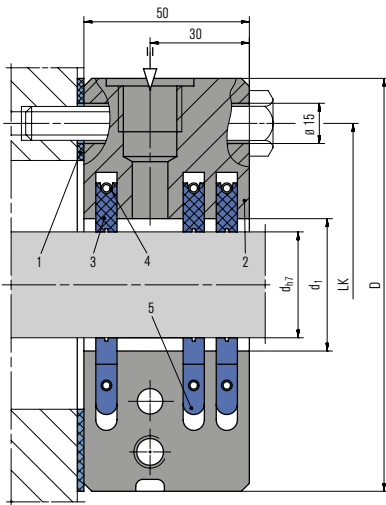


Fan  
 Photo: Illinois Blower, Inc.

## Product variants

**Espey WDKS-Eco with 3 seal rings.**

**Espey WDKS-Eco with 4 seal rings.**



## Dimensions in mm

$d_{h7}$	$d_1$	D	LK	$n \times \varnothing d_B$ ( $d_B = \varnothing 15$ )
45	50	165	135	4
50	58	170	140	4
60	68	180	150	4
70	78	190	160	4
80	90	200	170	4
90	100	210	180	4
100	110	220	190	4
110	120	230	200	4
120	130	240	210	4
130	140	250	220	4
140	150	260	230	4
150	160	270	240	4
160	170	280	250	4

Special sizes on request.

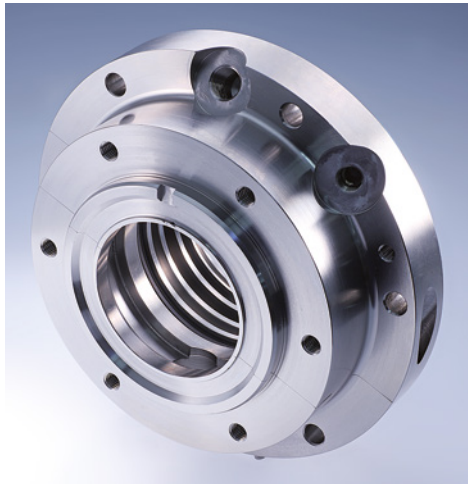


Espey WDKS-Eco, installed on a kiln housing  
Photo by courtesy of Aurubis AG



Continuous kilns' fan drives for the heat treatment of metal strips  
Photo by courtesy of Aurubis AG

# 1 Espey WD500



## Features

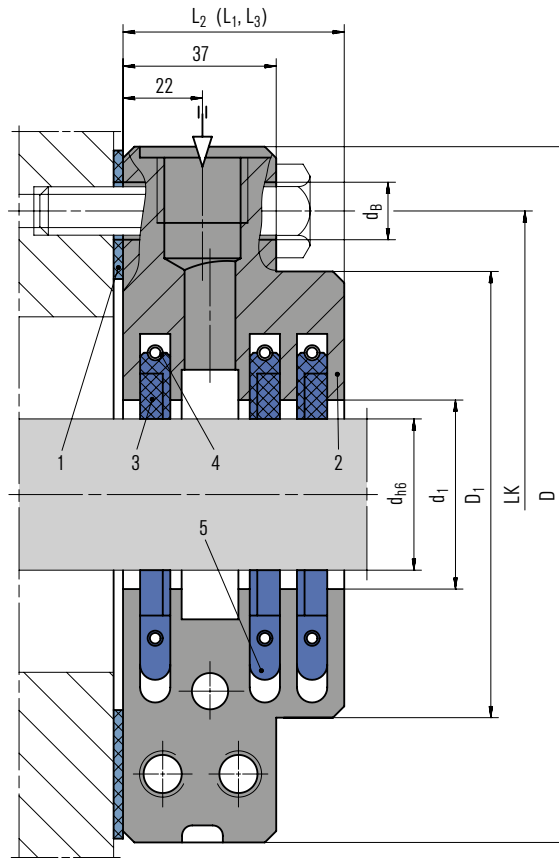
- Multi-part seal rings, overlapped mortised with gas tight joints (adjusting)
- Split housing design
- Lowest possible operation gap – lowest leakage
- Dry running
- Self-adjusting seal rings
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- Short axial installation length
- No sealing components mounted on the shaft and hence no additional shaft vibrations

## Advantages

- Easy installation by split housing design (shaft removal not required)
- Long-term operation time
- Maintainability
- Segmented seal rings for easy replacement

## Operating range (see note on page 3)

Shaft diameter:  $d = 45 \dots 340 \text{ mm}$  (1.77" ... 13.89")  
 Operating pressure:  $p = \text{vacuum} \dots 3 \text{ bar}$  (44 PSI) abs.  
 (depends on peripheral velocity)  
 Operating temperature:  $t = -120 \text{ °C} \dots +500 \text{ °C}$   
 (-184 °F ... +932 °F) for carbon  
 [700 °C (1,292 °F) for blast furnaces],  
 $-120 \text{ °C} \dots +150 \text{ °C}$  (-184 °F ... +302 °F)  
 for PTFE compound  
 Sliding velocity:  $v_g = \text{max. } 40 \text{ m/s}$  (131 ft/s)  
 Radial play:  $2.5 \dots 5.0 \text{ mm}$  (0.1" ... 0.2")  
 Axial movement: theoretically unlimited  
 Recommended wear guard:  $> 58 \text{ HRC}$



## Item Description

Item	Description
1	Flat seal
2	Housing, 2-piece
3	Seal ring
4	Tension spring
5	Detent

## Materials

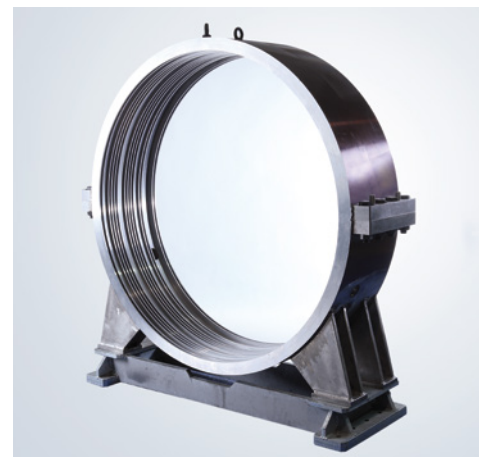
Seal ring: Carbon, PTFE compound  
 Housing: 1.4021, 1.4571, Hastelloy™, Titan, Inconel™, others  
 Tension spring / Detent: 1.4571, Hastelloy™, Titan, Inconel™

## Standards and approvals

- FDA

## Recommended applications

- Chemical industry
- Waste incineration and removal industry
- Pulp and paper industry
- Lime, cement and gypsum industry
- Mining industry
- Water and waste water technology
- Gases
- Fumes and exhaust, solids containing, flammable (ATEX), acid containing and toxic gases
- (Solids containing) steams/liquid mist
- Oil mist/penetrating oil
- Water
- Medium-sized and large fans/blowers
- Bearing seals (gear box, motors)
- Steam turbines
- Mixers, agitators, dryers
- Mills (ball, hammer, beater mills)
- Centrifuges



Espey WD500 Special with support base



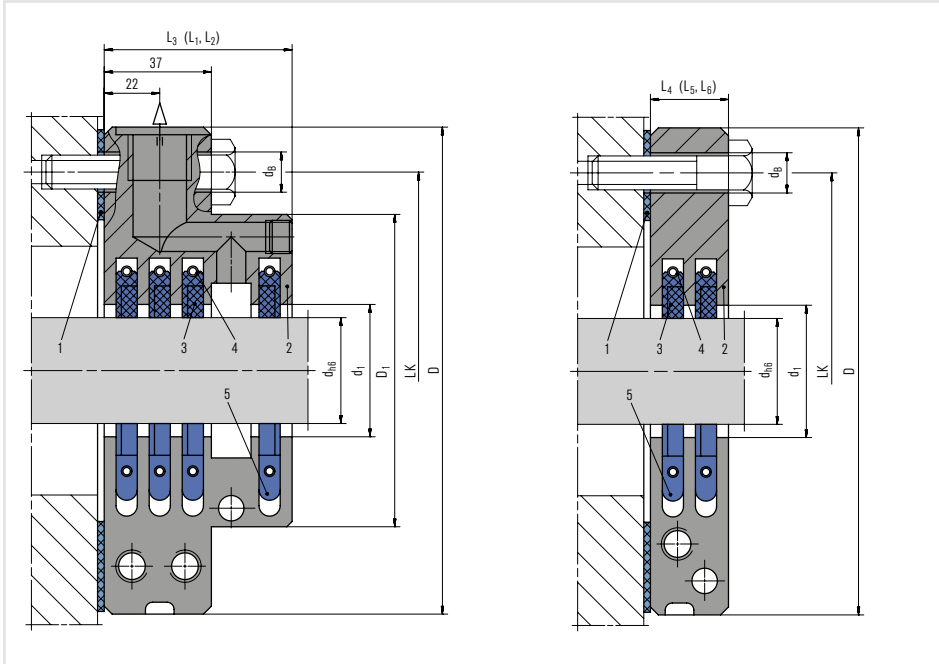
Ball mill for the cement production



**Product variants**

**Espey WD500-WDA** for applications involving condensate formation to enable directed throwing off to the outside of the housing (not for solids containing gases).

**Espey WD500-WDK** with short design (for clean media, not for solids containing gases).

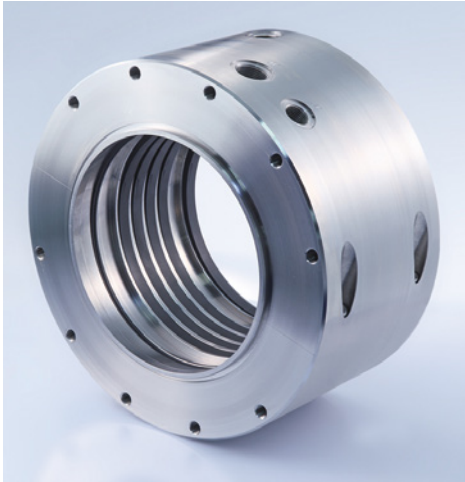


**Dimensions in mm**

For all types						For types WDS, WDA				For Type WDK			
Number of seal rings						2	3	4	n x Ød <sub>B</sub>	2	3	4	n x Ød <sub>B</sub>
d <sub>h6</sub>	d <sub>1</sub>	D	D <sub>1</sub>	d <sub>B</sub>	LK	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	n x Ød <sub>B</sub>	L <sub>4</sub>	L <sub>5</sub>	L <sub>6</sub>	n x Ød <sub>B</sub>
40	50	210	140	15	175	47	59	71	4	28	40	52	4
50	58	220	150	15	185	47	59	71	4	28	40	52	4
60	68	230	160	15	195	47	59	71	4	28	40	52	4
70	78	240	170	15	205	47	59	71	4	28	40	52	4
80	90	260	180	15	220	47	59	71	4	28	40	52	4
90	100	270	190	15	230	47	59	71	4	28	40	52	4
100	110	280	200	15	240	51	65	79	6	32	46	60	6
110	120	290	210	15	250	51	65	79	6	32	46	60	6
120	130	300	220	15	260	51	65	79	6	32	46	60	6
130	140	310	230	15	270	51	65	79	6	32	46	60	6
140	150	320	240	15	280	51	65	79	6	32	46	60	6
150	160	330	250	15	290	51	65	79	6	32	46	60	6
160	170	340	260	15	300	51	65	79	6	32	46	60	6
170	180	350	270	19	310	51	65	79	6	32	46	60	6
180	190	360	280	19	320	51	65	79	6	32	46	60	6
190	200	370	290	19	330	51	65	79	6	32	46	60	6
200	210	420	310	19	365	55	71	87	8	36	52	68	8
220	230	440	330	19	385	55	71	87	8	36	52	68	8
240	250	460	350	19	405	55	71	87	8	36	52	68	8
260	270	480	370	19	425	55	71	87	8	36	52	68	8
280	290	500	390	19	445	55	71	87	8	36	52	68	8
300	310	520	410	19	465	55	71	87	8	36	52	68	8
320	330	540	430	19	485	55	71	87	8	36	52	68	8
340	350	560	450	19	505	55	71	87	8	36	52	68	8

Special sizes on request. Special dimensions for e. g. blast furnaces, mills and dryers up to d = 4,000 mm

# 1 Espey WD200/500



## Features

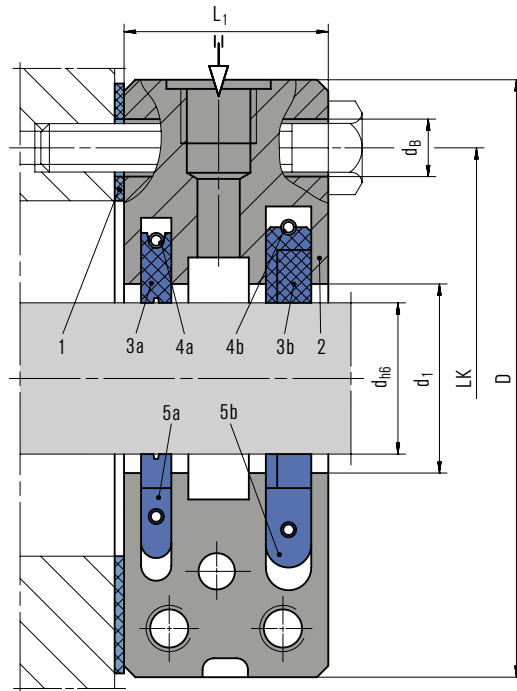
- Multi-part seal rings, radially cut on process side, overlapped mortised with gas tight joints on atmosphere side (adjusting)
- Split housing design
- Lowest possible operation gap – lowest leakage
- Dry running
- Self-adjusting seal rings
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- Short axial installation length
- No sealing components mounted on the shaft and hence no additional shaft vibrations

## Advantages

- Easy installation by split housing design (shaft removal not required)
- Long-term operation time
- Maintainability
- Segmented seal rings for easy replacement

## Operating range (see note on page 3)

Shaft diameter:  $d = 45 \dots 340 \text{ mm}$  (1.77" ... 13.89")  
 Operating pressure:  $p = \text{vacuum} \dots 3 \text{ bar}$  (44 PSI) abs. (depends on peripheral velocity)  
 Operating temperature:  $t = -120 \text{ °C} \dots +500 \text{ °C}$   
 (-184 °F ... +932 °F) for carbon,  $-120 \text{ °C} \dots +150 \text{ °C}$   
 (-184 °F ... +302 °F) for PTFE compound  
 Sliding velocity:  $v_g = \text{max. } 40 \text{ m/s}$  (131 ft/s)  
 Radial play: 2.5 ... 5.0 mm (0.1" ... 0.2")  
 Axial movement: theoretically unlimited  
 Recommended wear guard: > 58 HRC



## Item Description

Item	Description
1	Flat seal
2	Housing, 2-piece
3b	Seal ring WD500
4a	Tension spring WD200
4b	Tension spring WD500
5a	Detent WD200
5b	Detent WD500

## Materials

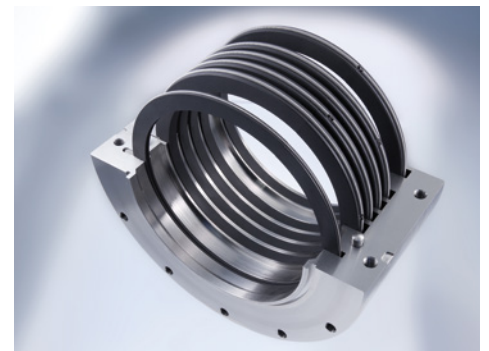
Seal ring: Carbon, PTFE compound  
 Housing: 1.4021, 1.4571, Hastelloy™, Titan, Inconel™, others  
 Tension spring / Detent: 1.4571, Hastelloy™, Titan, Inconel™

## Standards and approvals

- FDA

## Recommended applications

- Chemical industry
- Waste incineration and removal industry
- Metal production and processing
- Pulp and paper industry
- Lime, cement and gypsum industry
- Food processing industry
- Power plant technology
- Machinery and plant building
- Gases
- Fumes and exhaust, solids containing, flammable (ATEX), acid containing and toxic gases
- (Solids containing) steams/liquid mist
- Oil mist/penetrating oil
- Water
- Medium-sized and large fans/blowers
- Bearing seals (gear box, motors)
- Steam turbines
- Mixers, agitators, dryers
- Mills (ball, hammer, beater mills)
- Centrifuges
- Cantilever pumps



Espey WD200/500: upper housing half dismantled

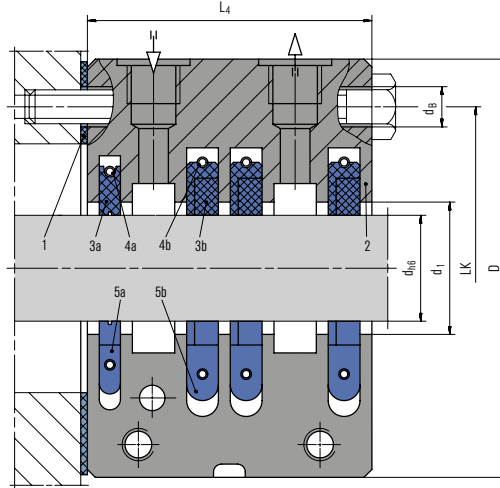
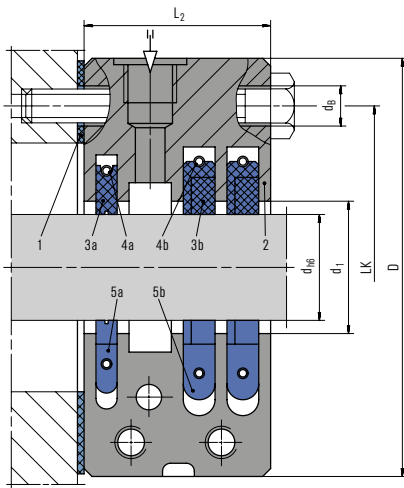


Centrifuge  
 Photo: Thomas Broadbent and Sons

**Product variants**

**Espey WD200/500-WD1S2** with barrier gas port.  
The arrangement guarantees a focused barrier gas flow to the process side and keeps gases, solids and mists off the sealing area. In addition the leakage to the outside is reduced.

**Espey WD200/500-WD1S2A1** with barrier gas port and recirculation. The arrangement guarantees a focused barrier gas flow to the process side and keeps gases, solids and mists off the sealing area. In addition the leakage to the outside is reduced and residual gases and condensates will be purged.



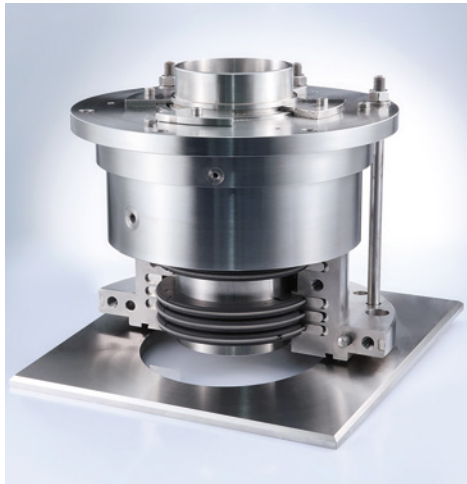
**Dimensions in mm**

Number of seal rings and ports									2 + S		3 + S		4 + S		4 + S + A	
d <sub>h6</sub>	d <sub>1</sub>	D	LK	d <sub>6</sub>	n x Ød <sub>B</sub>	S	A	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>					
45	50	175	135	15	4	1 x G1/2	1 x G1/2	45	55	70	85					
50	58	180	140	15	4	1 x G1/2	1 x G1/2	45	55	70	85					
60	70	190	150	15	4	1 x G1/2	1 x G1/2	45	55	70	85					
70	80	200	160	15	4	1 x G1/2	1 x G1/2	45	55	70	85					
80	90	210	170	15	4	1 x G1/2	1 x G1/2	45	55	70	85					
90	100	220	180	15	4	1 x G1/2	1 x G1/2	45	55	70	85					
100	110	230	190	15	4	1 x G1/2	1 x G1/2	50	60	75	90					
110	120	240	200	15	4	1 x G1/2	1 x G1/2	50	60	75	90					
120	130	250	210	15	4	1 x G1/2	1 x G1/2	50	60	75	90					
130	140	260	220	15	4	1 x G1/2	1 x G1/2	50	60	75	90					
140	150	270	230	15	4	1 x G1/2	1 x G1/2	50	60	75	90					
150	160	280	240	15	4	1 x G1/2	1 x G1/2	50	60	75	90					
160	170	290	250	15	4	1 x G1/2	1 x G1/2	50	60	75	90					
170	180	300	260	19	6	1 x G1/2	1 x G1/2	50	60	75	90					
180	190	310	270	19	6	1 x G1/2	1 x G1/2	50	60	75	90					
190	200	320	280	19	6	1 x G1/2	1 x G1/2	50	60	75	90					
200	210	340	290	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
210	220	350	300	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
220	230	360	310	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
230	240	370	320	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
240	250	380	330	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
250	260	390	340	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
260	270	400	350	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
270	280	410	360	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
280	290	420	370	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
290	300	430	380	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
300	310	440	390	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
310	320	450	400	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
320	330	460	410	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
330	340	470	420	19	6	2 x G1/2	1 x G1/2	50	65	80	95					
340	350	480	430	19	6	2 x G1/2	1 x G1/2	50	65	80	95					

S = Buffer gas port  
A = Recirculation  
Special sizes on request



# 1 Espey WDMS500



## Features

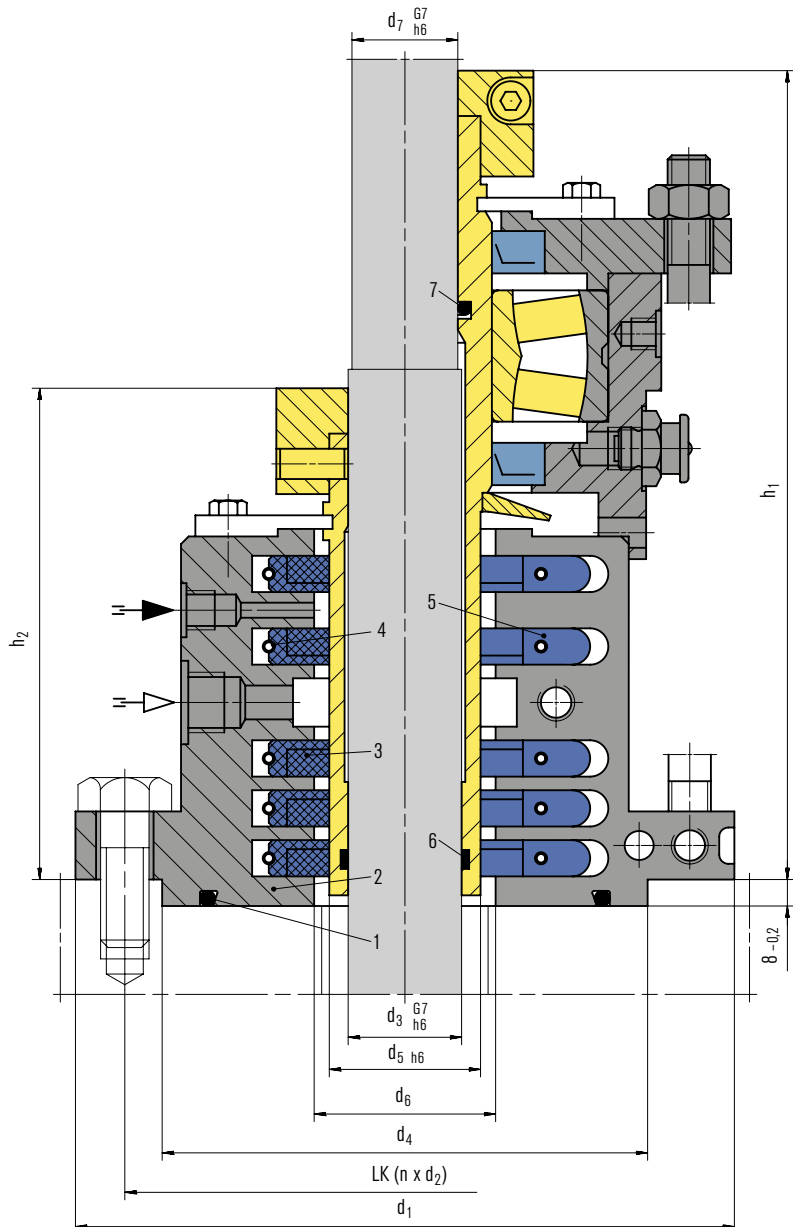
- Multipart seal rings, overlapped mortised with gas-tight joints
- Split housing design
- Lowest possible operation gap – lowest leakage
- Dry running
- Self-adjusting seal rings
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Cooling sealing area for high temperature applications not required

## Advantages

- Easy installation by split housing design (shaft removal not required)
- Long-term operation time
- Maintainability
- Segmented seal rings for easy replacement
- Robust

## Operating range (see note on page 3)

Shaft diameter:  $d = 40 \dots 220 \text{ mm}$  (1.57" ... 8.66")  
 Operating pressure:  $p = \text{vacuum} \dots 6 \text{ bar}$  (87 PSI) abs.  
 Operating temperature:  $t = -40 \text{ °C} \dots +500 \text{ °C}$   
 (-40 °F ... +932 °F) for carbon,  $-40 \text{ °C} \dots +200 \text{ °C}$   
 (-40 °F ... +392 °F) for PTFE compound  
 Sliding velocity:  $v_g = \text{max. } 5 \text{ m/s}$  (16 ft/s)  
 Radial play: 5.0 mm (0.2")  
 Axial movement: theoretically unlimited (version without bearing), 2.0 mm (0.08") (version with bearing)  
 Recommended wear guard: > 58 HRC



## Item Description

- | Item | Description         |
|------|---------------------|
| 1    | O-Ring flange       |
| 2    | Housing, 2-piece    |
| 3    | Seal ring           |
| 4    | Tension spring      |
| 5    | Detent              |
| 6    | O-Ring shaft sleeve |
| 7    | O-Ring bearing      |

## Recommended applications

- Chemical industry
- Petrochemical industry
- Food processing industry
- Water and waste water technology
- Gases\*
- Solids containing, flammable (ATEX), toxic gases\*
- (Solids containing) steams/liquid mist\*
- Oil mist/penetrating oil\*
- Dust/powder\*
- Agitators
- Mixers
- Dryers
- Filters

\* Sealing area

## Materials

Seal ring: Carbon, (PTFE compound)  
 Housing: 1.4571, others  
 Tension spring / Detent: 1.4571

## Standards and approvals

- DIN 28154
- DIN 28138
- FDA



Seal ring Espey WDMS500 (multi-part, overlapped mortised)

## Dimensions in mm

d <sub>3</sub>	d <sub>7</sub>	d <sub>5</sub>	d <sub>6</sub>	d <sub>4</sub>	d <sub>1</sub>	LK	n x d <sub>2</sub>	d <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>
40	38	50	58	110	175	145	4	18	213	135
50	48	60	68	176	240	210	8	18	221	140
60	58	70	78	176	240	210	8	18	235	150
80	78	90	100	204	275	240	8	22	260	160
100	98	110	120	234	305	270	8	22	283	165
125	120	140	150	260	330	295	8	22	309	170
140	135	160	170	313	395	350	12	22	337	185
160	150	180	190	313	395	350	12	22	337	185
180	170	200	210	364	445	400	12	22	369	195
200	190	220	230	364	445	400	12	22	381	195
220	210	240	250	422	505	460	16	22	401	205

Special sizes on request



Agitator in a chemical plant

# 1 Espey WKA300



## Features

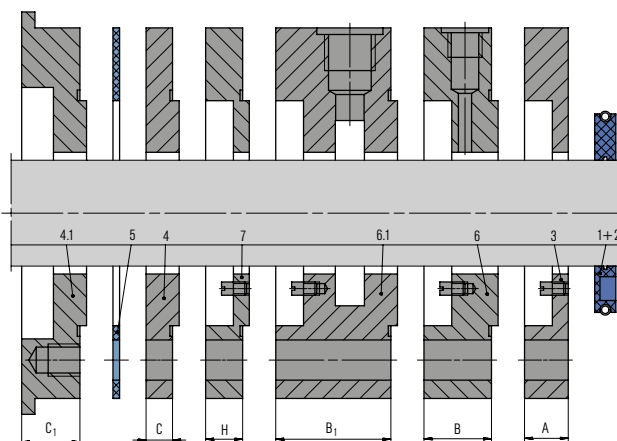
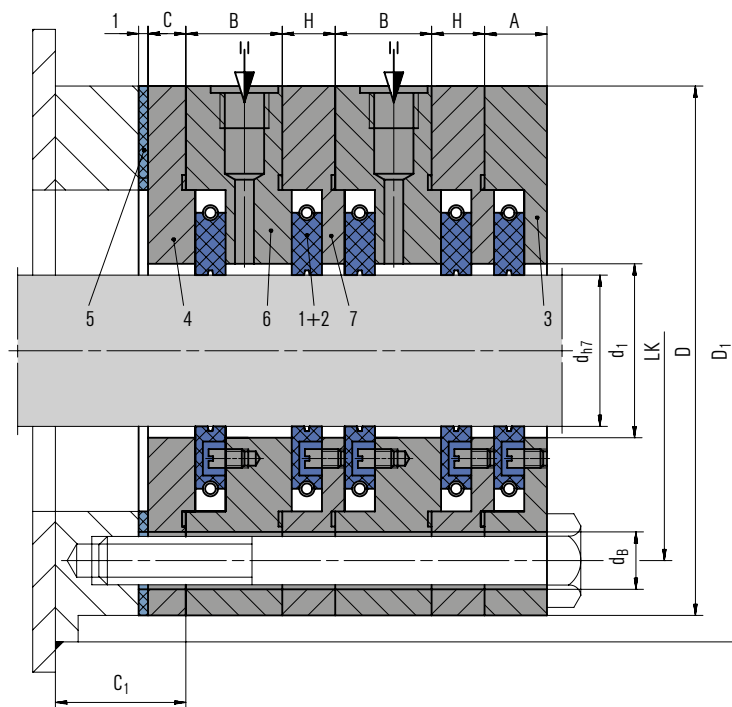
- Multi-part seal rings, radially cut
- Agitator in a chemical plant
- Very small operation gap – low leakage
- Dry running
- Self-adjusting seal rings
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power

## Advantages

- Segmented seal rings for easy replacement
- High reliability
- Long-term operation time
- Maintainability

## Operating range (see note on page 3)

Shaft diameter:  $d = 20 \dots 300 \text{ mm}$  (0.79" ... 11.81")  
 Operating pressure:  $p = \text{vacuum} \dots 1.5 \text{ bar}$  (22 PSI) abs.  
 Operating temperature:  $t = -120 \text{ °C} \dots +500 \text{ °C}$   
 (-184 °F ... +932 °F) for carbon,  
 max. 225 °C (437 °F) for PTFE compound,  
 max. 300 °C (572 °F) with grease barrier  
 Sliding velocity:  $v_g = \text{max. } 150 \text{ m/s}$  (492 ft/s) for carbon,  
 max. 40 m/s (131 ft/s) for PTFE compound  
 Radial play: 2.0 mm (0.08")  
 Axial movement: theoretically unlimited  
 Recommended wear guard: > 300 HB



Item	Description	Variable for width	Recommended applications
1	Seal ring		<ul style="list-style-type: none"> <li>• Chemical industry</li> <li>• Metal production and processing</li> <li>• Pulp and paper industry</li> <li>• Food processing industry</li> <li>• Power plant technology</li> <li>• Machinery and plant building</li> <li>• Gases</li> <li>• Fumes and exhaust, solids containing, flammable (ATEX), acid containing and toxic gases</li> <li>• (Solids containing) steams/liquid mist</li> <li>• Oil mist/penetrating oil</li> <li>• Water</li> <li>• Small and medium-sized fans/blowers</li> <li>• Bearing seals (gear box, motors)</li> <li>• Mixers, agitators, mills, dryers</li> </ul>
2	Tension spring		
3	Chamber	A	
4	End ring	C	
4.1	Welding ring (as alternative)	C1	
5	Flat seal		
6	Grease chamber	B	
6.1	Barrier gas, suction chamber	B1	
7	Intermediate chamber	H	

## Materials

Seal ring: Carbon, PTFE compound  
 Chamber parts: 1.4571, Hastelloy™, Titan, Inconel™, others  
 Tension spring: 1.4571, Hastelloy™, Titan, Inconel™

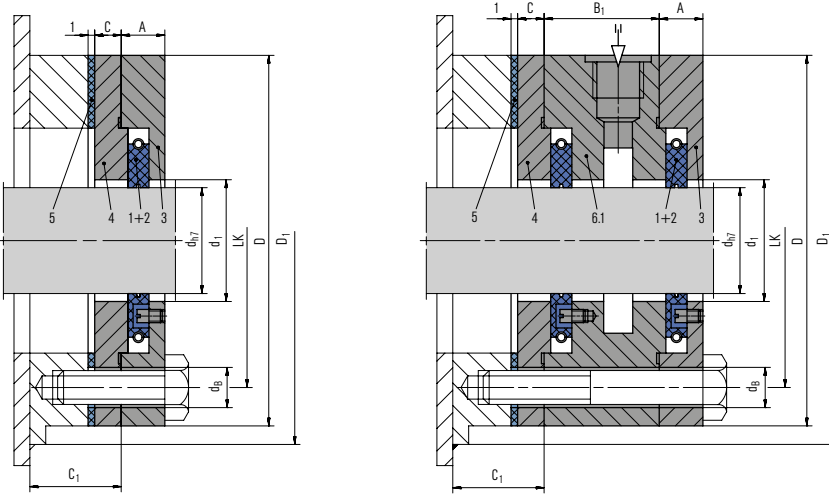
## Standards and approvals

- FDA

**Product variants**

**Espey WKA301/4** up to 225 °C (437 °F) or  
**Espey WKA302/4** up to 500 °C (932 °F) for clean  
 media, not for solids containing gases

**Espey WKA303.2/4** up to 225 °C (437 °F) or  
**Espey WKA304.2/4** up to 500 °C (932 °F) with barrier  
 gas port for toxic and solids containing media as well as  
 ATEX applications



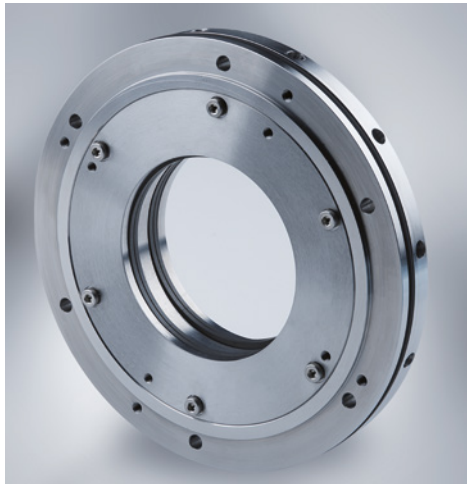
**Dimensions in mm**

dh7	d1	dB	n x ØdB	D	D1	LK	A	B	B1	C	C1	H
20	24	10	3	95	110	75	12	21	38	5	21	10
25	29	10	3	100	115	80	12	21	38	5	21	10
30	34	10	3	105	120	85	12	21	38	5	21	10
35	39	10	3	110	125	90	12	21	38	5	21	10
40	44	10	3	115	130	95	12	21	38	5	21	10
45	49	12	3	130	145	105	12	21	38	5	30	10
50	54	12	3	140	155	115	12	21	38	5	30	10
55	59	12	3	145	160	120	12	21	38	5	30	10
60	64	12	3	150	165	125	12	21	38	5	30	10
65	69	12	3	155	170	130	12	21	38	5	30	10
70	74	12	3	160	175	135	12	21	38	5	30	10
75	79	12	3	165	180	140	12	21	38	5	30	10
80	84	12	3	170	185	145	12	21	38	5	30	10
85	89	12	3	175	190	150	12	21	38	5	30	10
90	94	12	3	180	195	155	12	21	38	5	30	10
95	99	12	4	185	200	160	12	21	38	5	30	10
100	104	12	4	190	205	165	12	21	38	5	30	10
105	109	12	4	195	210	170	12	21	38	5	30	10
110	114	12	4	200	215	175	12	21	38	5	30	10
120	124	14	4	220	235	190	14	23	40	7	30	12
130	134	14	4	230	245	200	14	23	40	7	30	12
140	144	14	4	240	255	210	14	23	40	7	30	12
150	154	14	4	250	265	220	14	23	40	7	30	12
160	164	14	6	260	275	230	14	23	40	7	30	12
170	174	14	6	270	285	240	14	23	40	7	30	12
180	184	14	6	280	295	250	14	23	40	7	30	12
190	194	14	6	290	305	260	14	23	40	7	30	12
200	204	14	6	300	315	270	14	23	40	7	30	12
210	214	14	8	310	325	280	16	23	40	10	30	14
220	224	14	8	320	335	290	16	23	40	10	30	14
230	234	14	8	330	345	300	16	23	40	10	30	14
240	244	14	8	340	355	310	16	23	40	10	30	14
250	254	14	8	350	365	320	16	23	40	10	30	14
260	264	14	8	360	375	330	16	23	40	10	30	14
270	274	14	8	370	385	340	16	23	40	10	30	14
280	284	14	8	380	395	350	16	23	40	10	30	14
290	294	14	8	390	405	360	16	23	40	10	30	14
300	304	14	8	400	415	370	16	23	40	10	30	14

Special sizes on request.



# 1 Espey WKA250ND



## Features

- Chamber seal (modular design – can be combined in any order), optional with housing and lid
- Multi-part seal rings, radially cut
- Very small operation gap – low leakage
- Dry running
- Self-adjusting seal rings
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power
- Balanced seal ring inside chamber

## Advantages

- High reliability
- Long-term operation time
- Maintainability
- Segmented seal rings for easy replacement

## Operating range (see note on page 3)

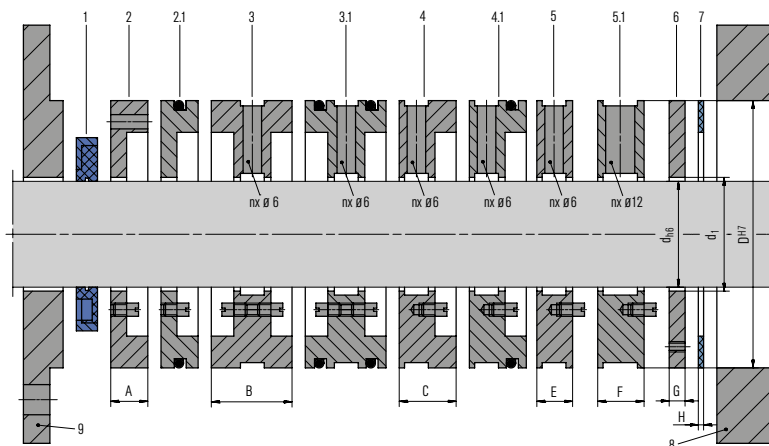
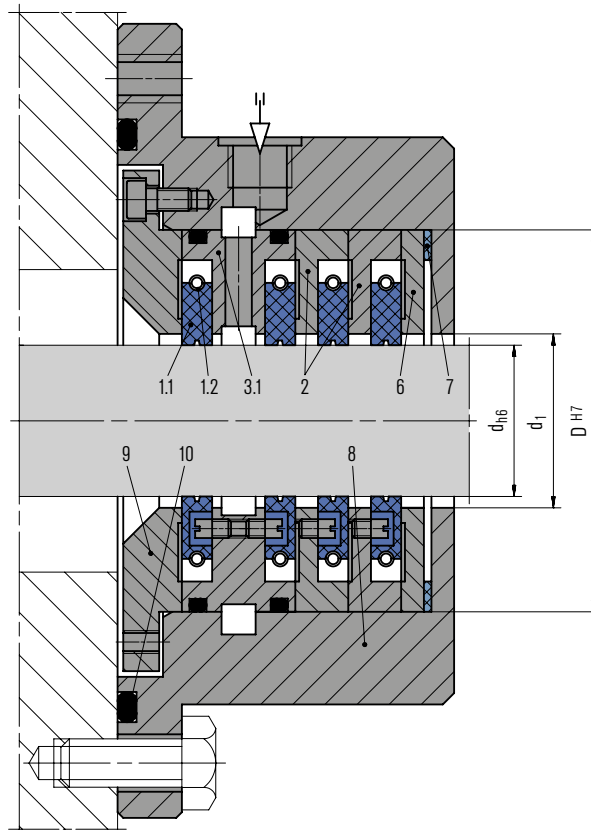
Shaft diameter:  $d = 20 \dots 300 \text{ mm}$  (0.79" ... 11.81")  
 Operating pressure:  $p = \text{vacuum} \dots 15 \text{ bar}$  (218 PSI) abs.  
 Operating temperature:  $t = -120 \text{ °C} \dots +500 \text{ °C}$   
 (-184 °F ... +932 °F) for carbon,  
 max. 225 °C (437 °F) for PTFE compound  
 Sliding velocity:  $v_g = \text{max. } 240 \text{ m/s}$  (787 ft/s) for carbon,  
 max. 40 m/s (131 ft/s) for PTFE compound  
 Radial play: 2.0 mm (0.08")  
 Axial movement: theoretically unlimited  
 Recommended wear guard: > 58 HB

## Materials

Seal ring: Carbon, PTFE compound  
 Chamber and housing parts: 1.4021, 1.4571, Hastelloy™, Titan, Inconel™, others  
 Tension spring: 1.4571, Hastelloy™, Titan, Inconel™  
 Secondary seal (elastomer): Fluorocarbon rubber (Viton™), Nitrile-butadiene-rubber (Perbunan™), Perfluorocarbon rubber (Kalrez™)  
 Secondary seal (gasket): Statotherm™-HT/HD, KSIL C 4400

## Standards and approvals

- FDA



Item	Description	Variable for width	Recommended applications
1.1	Seal ring		• Oil and gas industry
1.2	Tension spring		• Refining technology
2	Chamber	A	• Chemical industry
2.1	Chamber with O-Ring	A	• Petrochemical industry
3	Barrier gas chamber	B	• Pulp and paper industry
3.1	Barrier gas chamber with O-Rings	B	• Metal production and processing
4	Lantern chamber	C	• Power plant technology
4.1	Lantern chamber with O-Ring	C	• Gases
5	Lantern	E	• Fumes and exhaust, solids containing, flammable (ATEX), acid containing and toxic gases
6	End ring	G	• (Solids containing) steams/liquid mist
7	Flat seal	H	• Oil mist/penetrating oil
8*	Housing		• Water
9*	Lid		• Integral-gear compressors (one or multi-stage)
10*	O-Ring Housing		• Screw and chiller compressors
			• Steam turbines
			• Air regulating devices

\*On request

## Dimensions in mm

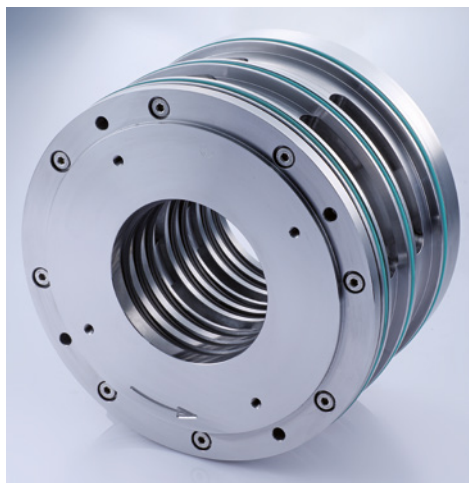
d <sub>h6</sub>	D <sup>H7</sup>	d <sub>1</sub>	A	B	C	E	F	G	H
20	60	24	8	21	16	11	-	5	1
25	65	29	8	21	16	11	-	5	1
30	70	34	8	21	16	11	-	5	1
35	75	39	8	21	16	11	-	5	1
40	80	44	8	21	16	11	-	5	1
45	90	49	8	21	16	11	-	5	1
50	100	54	8	21	16	11	17	5	1
55	105	59	8	21	16	11	17	5	1
60	110	64	8	21	16	11	17	5	1
65	115	69	8	21	16	11	17	5	1
70	120	74	8	21	16	11	17	5	1
75	125	79	8	21	16	11	17	5	1
80	130	84	8	21	16	11	17	5	1
85	135	89	8	21	16	11	17	5	1
90	140	94	8	21	16	11	17	5	1
95	145	99	8	21	16	11	17	5	1
100	150	104	8	21	16	11	17	5	1
105	155	109	8	21	16	11	17	5	1
110	160	114	8	21	16	11	17	5	1
115	165	119	8	21	16	11	17	5	1
120	190	125	10	27	21	15	20	8	2
130	200	135	10	27	21	15	20	8	2
140	210	145	10	27	21	15	20	8	2
150	220	155	10	27	21	15	20	8	2
160	230	165	10	27	21	15	20	8	2
170	240	175	10	27	21	15	20	8	2
180	250	185	10	27	21	15	20	8	2
190	260	195	10	27	21	15	20	8	2
200	270	205	10	27	21	15	20	8	2
210	280	215	10	27	21	15	20	8	2
220	290	225	10	27	21	15	20	8	2
230	300	235	10	27	21	15	20	8	2
240	310	245	10	27	21	15	20	8	2
250	320	255	10	27	21	15	20	8	2
260	330	265	10	27	21	15	20	8	2
270	340	275	10	27	21	15	20	8	2
280	350	285	10	27	21	15	20	8	2
290	360	295	10	27	21	15	20	8	2
300	370	305	10	27	21	15	20	8	2

Special sizes on request.



Fan installed in vapour compression plant  
Photo: Piller Industrieventilatoren GmbH

# 1 Espey WKA400HD



## Features

- Chamber seal (modular design – can be combined in any order), optional with housing and lid
- Very small operation gap – low leakage
- Multi-part seal rings, radially cut
- Dry running
- Self-adjusting seal rings
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power
- Balanced seal ring inside chamber

## Advantages

- High reliability
- Long-term operation time
- Maintainability
- Segmented seal rings for easy replacement

## Operating range (see note on page 3)

Shaft diameter:  $d = 20 \dots 300 \text{ mm}$  (0.79" ... 11.81")

Operating pressure:  $p = \text{vacuum} \dots 75 \text{ bar}$   
(1.088 PSI) abs.

Operating temperature:  $t = -120 \text{ }^\circ\text{C} \dots +500 \text{ }^\circ\text{C}$   
(-184 °F ... +932 °F)

Sliding velocity:  $v_g = \text{max. } 240 \text{ m/s}$  (787 ft/s)

Radial play:  $1.0 \dots 2.0 \text{ mm}$  (0.04" ... 0.08")

Axial movement: theoretically unlimited

Recommended wear guard:  $> 58 \text{ HRC}$

## Materials

Seal ring: Carbon

Chamber and housing parts: 1.4021, 1.4571, Hastelloy™, Titan, Inconel™, others

Tension spring: 1.4571, Hastelloy™, Titan, Inconel™

Secondary seal (elastomer): Fluorocarbon rubber (Viton™), Nitrile-butadiene-rubber

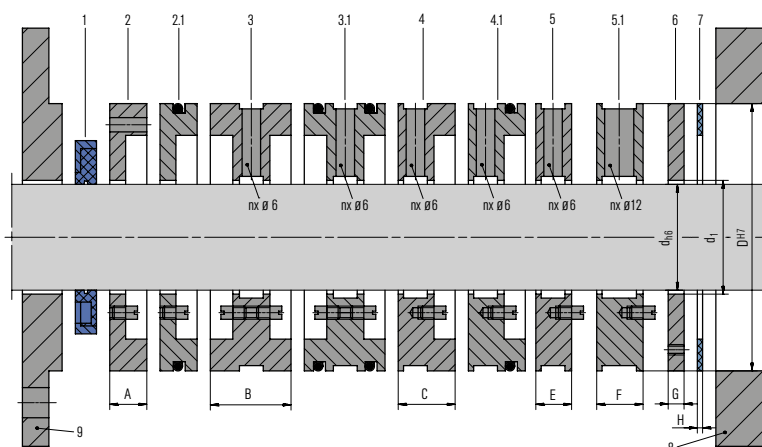
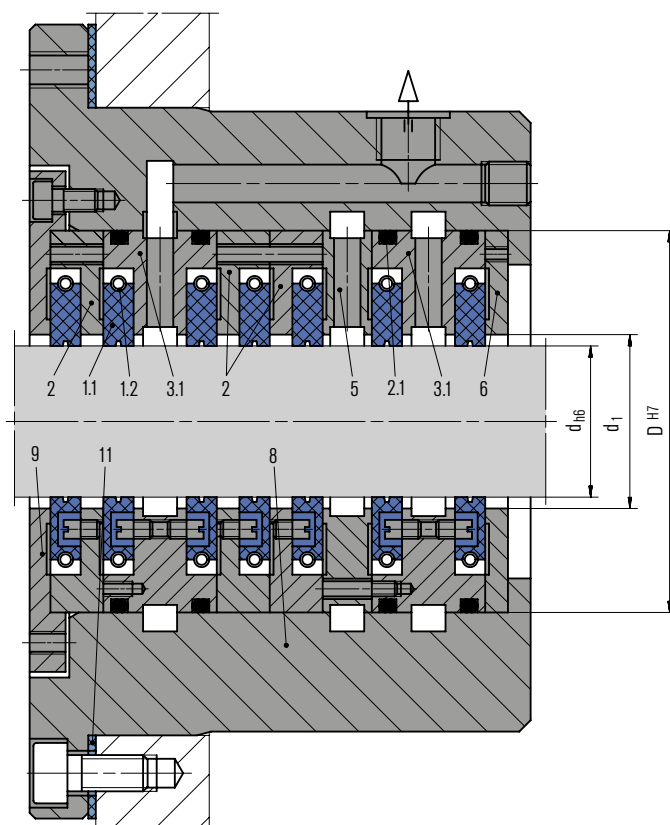
(Perbunan™), Perfluorocarbon rubber (Kalrez™)

Secondary seal (gasket):

Statotherm™-HT/HD, KSIL C 4400

## Standards and approvals

- FDA



Item	Description	Variable for width	Recommended applications
1.1	Seal ring		• Oil and gas industry
1.2	Tension spring		• Refining technology
2	Chamber	A	• Chemical industry
2.1	Chamber with O-Ring	A	• Petrochemical industry
3	Barrier gas chamber	B	• Pulp and paper industry
3.1	Barrier gas chamber with O-Rings	B	• Metal production and processing
4	Lantern chamber	C	• Power plant technology
4.1	Lantern chamber with O-Ring	C	• Gases
5	Lantern	E	• Fumes and exhaust, solids containing, flammable (ATEX), acid containing and toxic gases
5.1	Lantern with O-Ring	E	• (Solids containing) steams/liquid mist
6	End ring	G	• Oil mist/penetrating oil
7	Flat seal	H	• Water
8*	Housing		• Integral-gear compressors (one or multi-stage)
9*	Lid		• Screw and chiller compressors
11*	Flat seal housing		• Steam turbines
			• Air regulating devices

\*On request

## Dimensions in mm

$d_{h6}$	$D_{H7}$	$d_1$	A	B	C	E	F	G	H
20	60	22	10	21	16	11	-	5	1
25	65	27	10	21	16	11	-	5	1
30	70	32	10	21	16	11	-	5	1
35	75	37	10	21	16	11	-	5	1
40	80	42	10	21	16	11	-	5	1
45	90	47	10	21	16	11	-	5	1
50	100	52	10	21	16	11	17	5	1
55	105	57	10	21	16	11	17	5	1
60	110	62	10	21	16	11	17	5	1
65	115	67	10	21	16	11	17	5	1
70	120	72	10	21	16	11	17	5	1
75	125	77	10	21	16	11	17	5	1
80	130	82	10	21	16	11	17	5	1
85	135	87	10	21	16	11	17	5	1
90	140	92	10	21	16	11	17	5	1
95	145	97	10	21	16	11	17	5	1
100	150	102	10	21	16	11	17	5	1
105	155	107	10	21	16	11	17	5	1
110	160	112	10	21	16	11	17	5	1
115	165	117	10	21	16	11	17	5	1
120	190	123	12	27	21	15	20	8	2
130	200	133	12	27	21	15	20	8	2
140	210	143	12	27	21	15	20	8	2
150	220	153	12	27	21	15	20	8	2
160	230	163	12	27	21	15	20	8	2
170	240	173	12	27	21	15	20	8	2
180	250	183	12	27	21	15	20	8	2
190	260	193	12	27	21	15	20	8	2
200	270	203	12	27	21	15	20	8	2
210	280	213	12	27	21	15	20	8	2
220	290	223	12	27	21	15	20	8	2
230	300	233	12	27	21	15	20	8	2
240	310	243	12	27	21	15	20	8	2
250	320	253	12	27	21	15	20	8	2
260	330	263	12	27	21	15	20	8	2
270	340	273	12	27	21	15	20	8	2
280	350	283	12	27	21	15	20	8	2
290	360	293	12	27	21	15	20	8	2
300	370	303	12	27	21	15	20	8	2

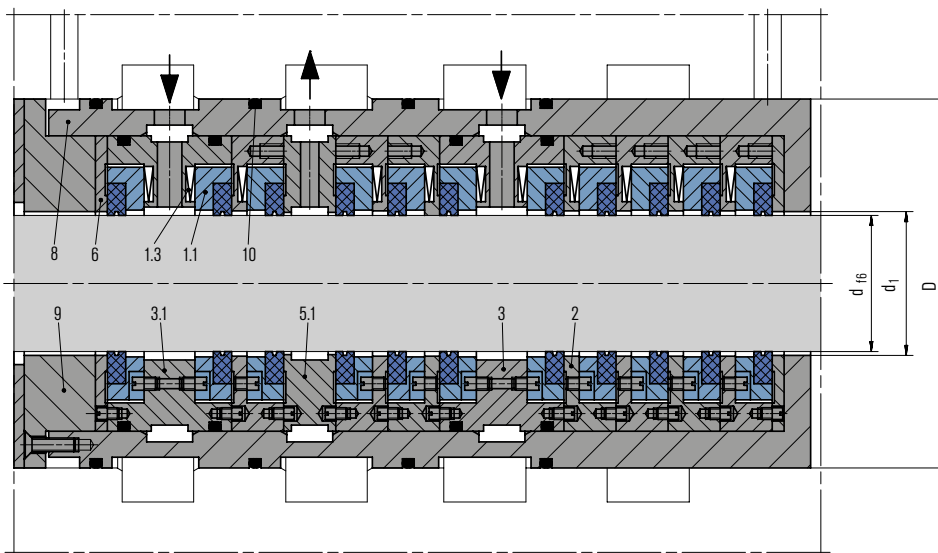
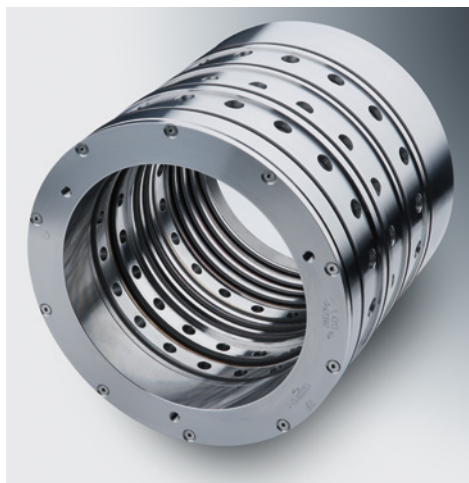
Special sizes on request.



Steam turbine, lignite-fired power plant



# 1 Espey WKA700



## Features

- Chamber seal (modular design – can be combined in any order), optional with housing and lid for screw compressors with one-part and horizontally split housing
- Very small operation gap – low leakage
- Dry running
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power
- One-piece seal ring with titanium bandage
- Both side balanced seal ring inside chamber for short-term backpressure operation
- Seal ring axially spring-loaded – no swinging up at pressure-less machine operation

## Advantages

- High reliability
- Long-term operation time
- Maintainability

## Operating range (see note on page 3)

Shaft diameter:  $d = 50 \dots 340 \text{ mm}$  (1.79" ... 13.39")

Operating pressure:  $p = \text{vacuum} \dots 65 \text{ bar}$  (942.75 PSI) abs.

Operating temperature:  $t = -120 \text{ °C} \dots +225 \text{ °C}$  (-184 °F ... +437 °F)

Sliding velocity:  $v_g = \text{max. } 240 \text{ m/s}$  (787 ft/s)

Radial play: 1.0 mm (0.04")

Axial movement: theoretically unlimited

Recommended wear guard:  $> 58 \text{ HRC}$

## Materials

Seal ring: Carbon with titanium bandage

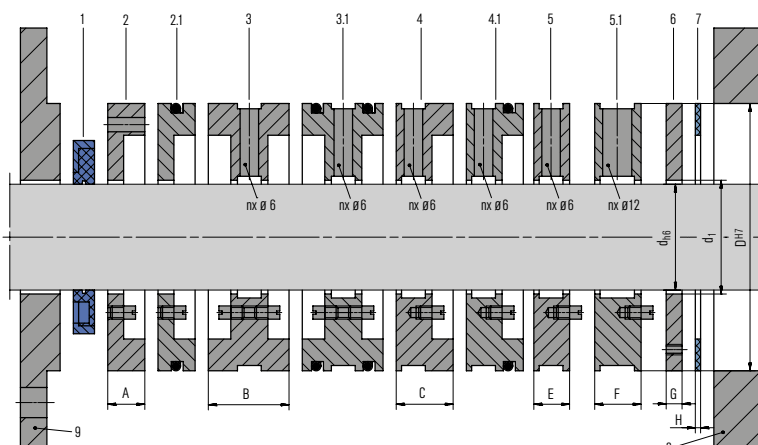
Chamber and housing parts: 1.4021, 1.4571, 1.4313 Hastelloy™, Titan, Inconel™, others

Secondary seal (elastomer): Fluorocarbon rubber (Viton™), Nitrile-butadiene-rubber (Perbunan™), Perfluorocarbon rubber (Kalrez™)

Secondary seal (gasket): Statotherm™-HT/HD, KSiL C 4400

## Standards and approvals

- FDA



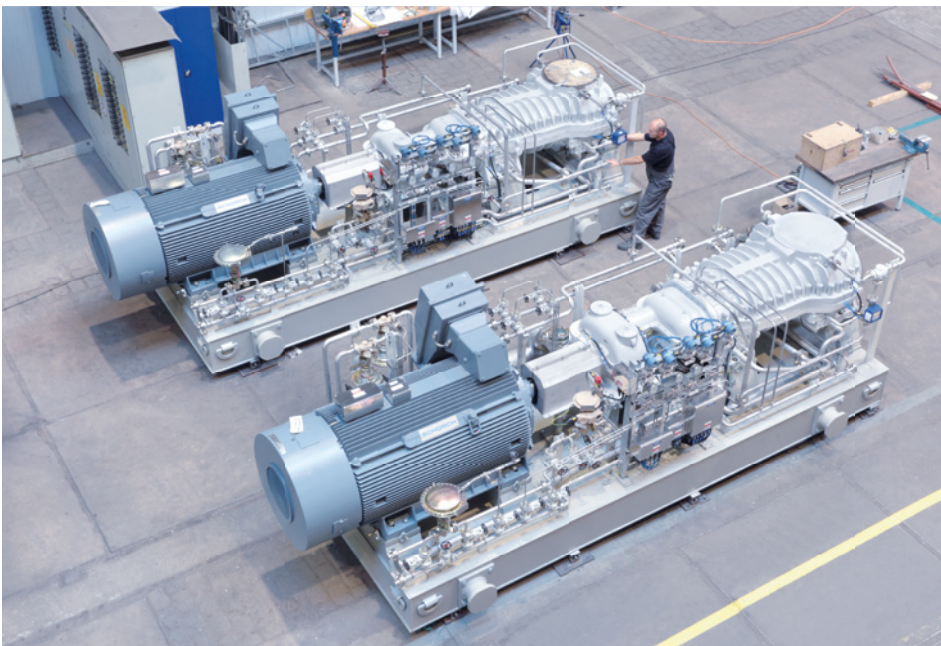
Item	Description	Variable for width	Recommended applications
1.1	Seal ring		• Oil and gas industry
1.3	Pressure spring		• Refining technology
2	Chamber	A	• Chemical industry
2.1	Chamber with O-Ring	A	• Petrochemical industry
3	Barrier gas chamber	B	• Pulp and paper industry
3.1	Barrier gas chamber with O-Rings	B	• Metal production and processing
4	Lantern chamber	C	• Power plant technology
4.1	Lantern chamber with O-Ring	C	• Gases
5.1	Lantern breit	F	• Fumes and exhaust, solids containing, acid containing and toxic gases
6	End ring	G	• (Solids containing) steams/liquid mist
7	Flat seal	H	• Oil mist/penetrating oil
8*	Housing		• Water
9*	Lid		• Screw compressors
10*	O-Ring Housing		

\*On request

**Dimensions in mm**

d <sub>h6</sub>	d <sub>1</sub>	D	A	B	C	F	G	H
50	52	100	15	36	26	20	5	1
55	57	105	15	36	26	20	5	1
60	62	110	15	36	26	20	5	1
65	67	115	15	36	26	20	5	1
70	72	120	15	36	26	20	5	1
75	77	125	15	36	26	20	5	1
80	82	130	15	36	26	20	5	1
85	87	135	15	36	26	20	5	1
90	92	140	15	36	26	20	5	1
95	97	145	15	36	26	20	5	1
100	102	150	15	36	26	20	5	1
105	107	155	15	36	26	20	5	1
110	112	160	15	36	26	20	5	1
115	117	165	15	36	26	20	5	1
120	122	180	15	36	26	20	5	1
130	132	190	15	36	26	20	5	1
140	142	200	15	36	26	20	5	1
150	152	210	15	36	26	20	5	1
160	162	220	15	36	26	20	5	1
170	172	230	15	36	26	20	5	1
180	182	240	15	36	26	20	5	1
190	192	250	15	36	26	20	5	1
200	202	260	15	36	26	20	5	1
220	222	290	15	36	26	20	5	1
240	242	310	15	36	26	20	5	1
260	262	330	15	36	26	20	5	1
280	282	350	15	36	26	20	5	1
300	302	370	15	36	26	20	5	1
320	322	390	15	36	26	20	5	1
340	342	410	15	36	26	20	5	1

Special sizes and smaller outside diameters on request.



Screw compressors  
Photo: MAN Diesel & Turbo SE

# 1 Espey WKA802HD



## Features

- Chamber seal (modular design – can be combined in any order), optional with housing and lid
- Very small operation gap – low leakage
- Dry running
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power
- One-piece seal ring with titanium bandage
- Balanced seal ring inside chamber
- Seal ring axially spring-loaded – no swinging up at pressure-less machine operation

## Advantages

- High reliability
- Long-term operation time
- Maintainability

## Operating range (see note on page 3)

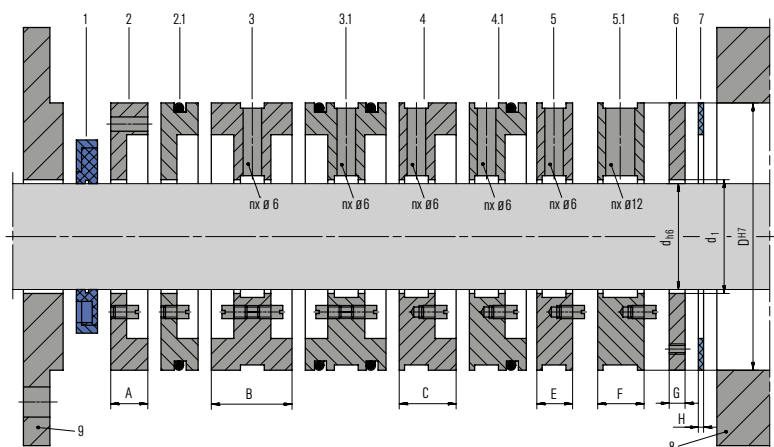
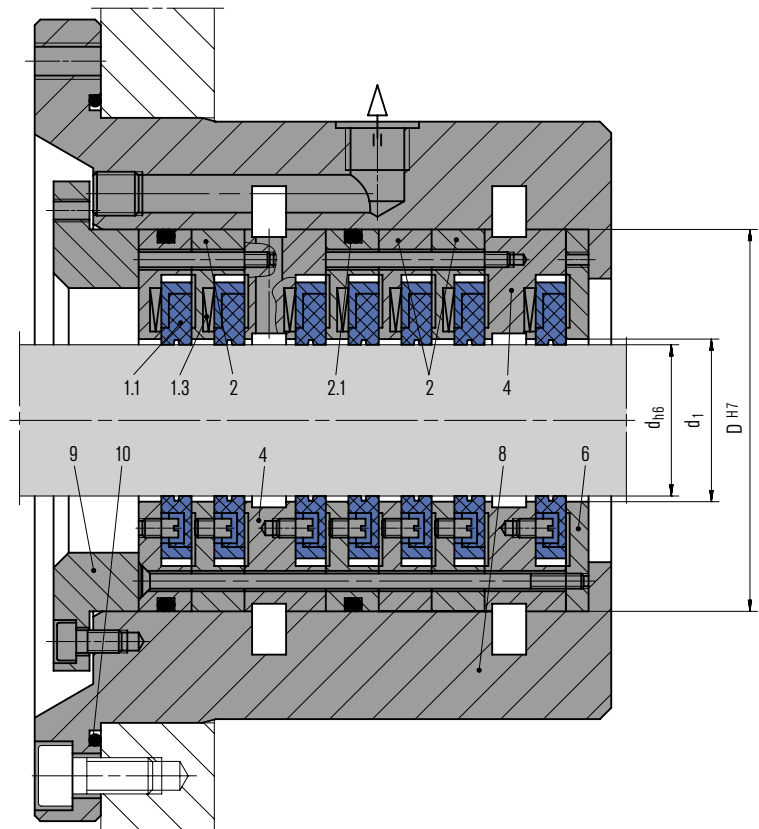
Shaft diameter:  $d = 20 \dots 200 \text{ mm}$  (0.79" ... 7.87")  
 Operating pressure:  
 $p = \text{vacuum} \dots 140 \text{ bar}$  (2,031 PSI) abs.  
 Operating temperature:  $t = -120 \text{ }^\circ\text{C} \dots +225 \text{ }^\circ\text{C}$   
 (-184 °F ... +437 °F)  
 Sliding velocity:  $v_g = \text{max. } 240 \text{ m/s}$  (787 ft/s)  
 Radial play: 1.0 mm (0.04")  
 Axial movement: theoretically unlimited  
 Recommended wear guard: > 58 HRC

## Materials

Seal ring: Carbon with titanium bandage  
 Chamber and housing parts: 1.4021, 1.4571, Hastelloy™, Titan, Inconel™, others  
 Secondary seal (elastomer): Fluorocarbon rubber (Viton™), Nitrile-butadiene-rubber (Perbunan™), Perfluorocarbon rubber (Kalrez™)  
 Secondary seal (gasket): Statotherm™-HT/HD, KSIL C 4400

## Standards and approvals

- FDA



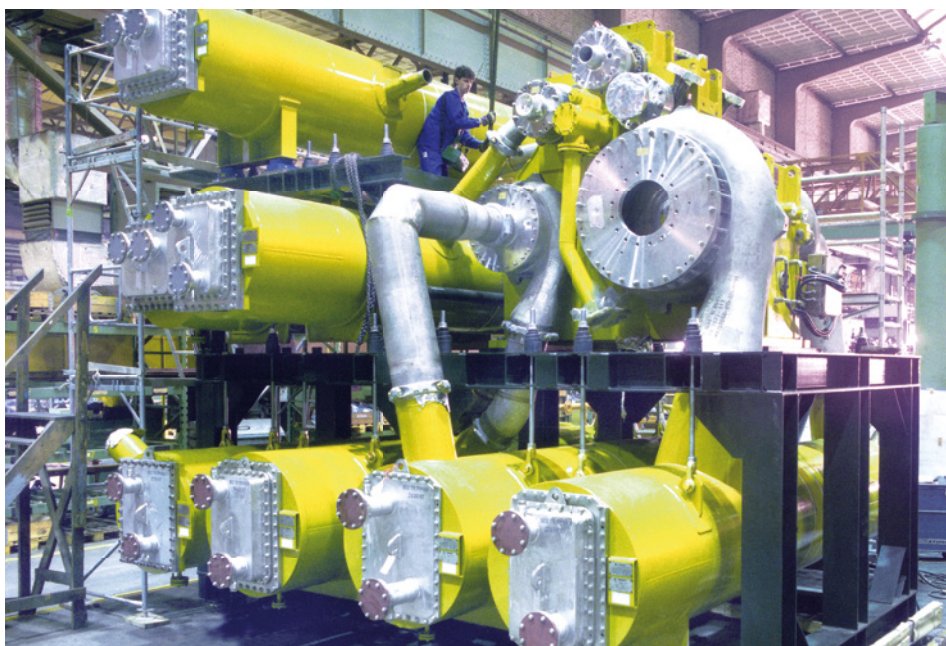
Item	Description	Variable for width	Recommended applications
1.1	Seal ring		• Oil and gas industry
1.3	Pressure spring		• Refining technology
2	Chamber	A	• Chemical industry
2.1	Chamber with O-Ring	A	• Petrochemical industry
3	Barrier gas chamber	B	• Pulp and paper industry
3.1	Barrier gas chamber with O-Rings	B	• Metal production and processing
4	Lantern chamber	C	• Power plant technology
4.1	Lantern chamber with O-Ring	C	• Gases
5	Lantern schmal	E	• Fumes and exhaust, solids containing, acid containing and toxic gases
5.1	Lantern breit	F	• (Solids containing) steams/liquid mist
6	End ring	G	• Oil mist/penetrating oil
7	Flat seal	H	• Water
8*	Housing		• Integral-gear compressors (one or multi-stage)
9*	Lid		• Screw and chiller compressors
10*	O-Ring Housing		• Steam turbines
11*	Flat seal housing		• Air regulating devices

\*On request

## Dimensions in mm

$d_{h6}$	$D^{H7}$	$d_1$	A	B	C	E	F	G	H
20	80	22	10	21	16	11	17	5	1
25	85	27	10	21	16	11	17	5	1
30	90	32	10	21	16	11	17	5	1
35	95	37	10	21	16	11	17	5	1
40	100	42	10	21	16	11	17	5	1
45	105	47	10	21	16	11	17	5	1
50	110	52	10	21	16	11	17	5	1
55	115	57	10	21	16	11	17	5	1
60	120	62	10	21	16	11	17	5	1
65	125	67	10	21	16	11	17	5	1
70	130	72	10	21	16	11	17	5	1
75	135	77	10	21	16	11	17	5	1
80	140	82	10	21	16	11	17	5	1
85	145	87	10	21	16	11	17	5	1
90	150	92	10	21	16	11	17	5	1
95	155	97	10	21	16	11	17	5	1
100	160	102	10	21	16	11	17	5	1
105	165	107	10	21	16	11	17	5	1
110	170	112	10	21	16	11	17	5	1
115	175	117	10	21	16	11	17	5	1
120	190	122	12	27	19	15	20	8	2
130	200	132	12	27	19	15	20	8	2
140	210	142	12	27	19	15	20	8	2
150	220	152	12	27	19	15	20	8	2
160	230	162	14	31	21	15	20	8	2
170	240	172	14	31	21	15	20	8	2
180	250	182	14	31	21	15	20	8	2
190	260	192	14	31	21	15	20	8	2
200	270	202	14	31	21	15	20	8	2

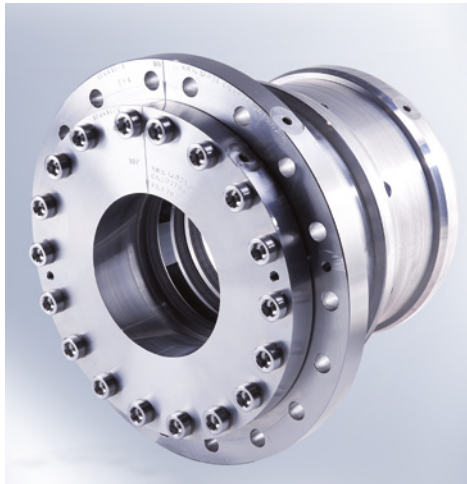
Special sizes on request.



Multi-stage gear compressor  
Photo: MAN Diesel & Turbo SE



# 1 Espey WKA1100HP



## Features

- Chamber seal (modular design – can be combined in any order), optional with housing and lid
- Very small operation gap – low leakage
- Dry running
- Seal rings bear radial shaft movements
- Compensates axial shaft movements
- No sealing components mounted on the shaft and hence no additional shaft vibrations
- Seal rings running contact-free – sliding faces and machine consume no additional power
- One-piece seal ring with titanium bandage
- Both side balanced seal ring inside chamber for short-term backpressure operation
- Seal ring axially spring-loaded – no swinging up at pressure-less machine operation

## Advantages

- High reliability
- Long-term operation time
- Maintainability

## Operating range (see note on page 3)

Shaft diameter:  $d = 20 \dots 200 \text{ mm}$  (0.79" ... 7.87")

Operating pressure:

$p = \text{vacuum} \dots 250 \text{ bar}$  (3,626 PSI) abs.

Operating temperature:  $t = -120 \text{ }^\circ\text{C} \dots +225 \text{ }^\circ\text{C}$   
(-184 °F ... +437 °F)

Sliding velocity:  $v_g = \text{max. } 240 \text{ m/s}$  (787 ft/s)

Radial play: 1.0 mm (0.04")

Axial movement: theoretically unlimited

Recommended wear guard:  $> 58 \text{ HRC}$

## Materials

Seal ring: Carbon with titanium bandage

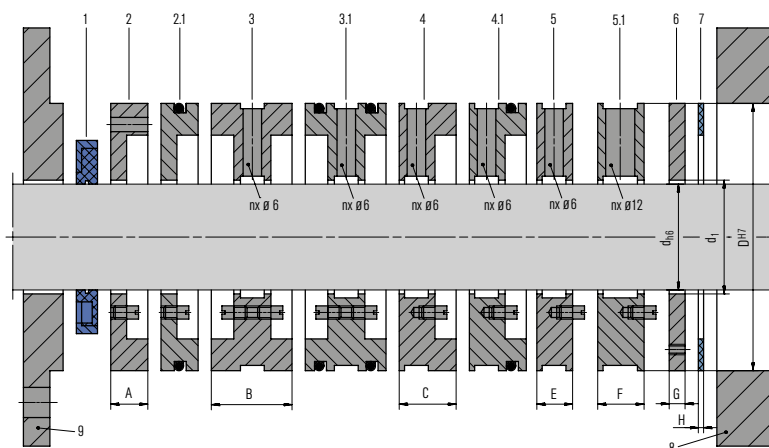
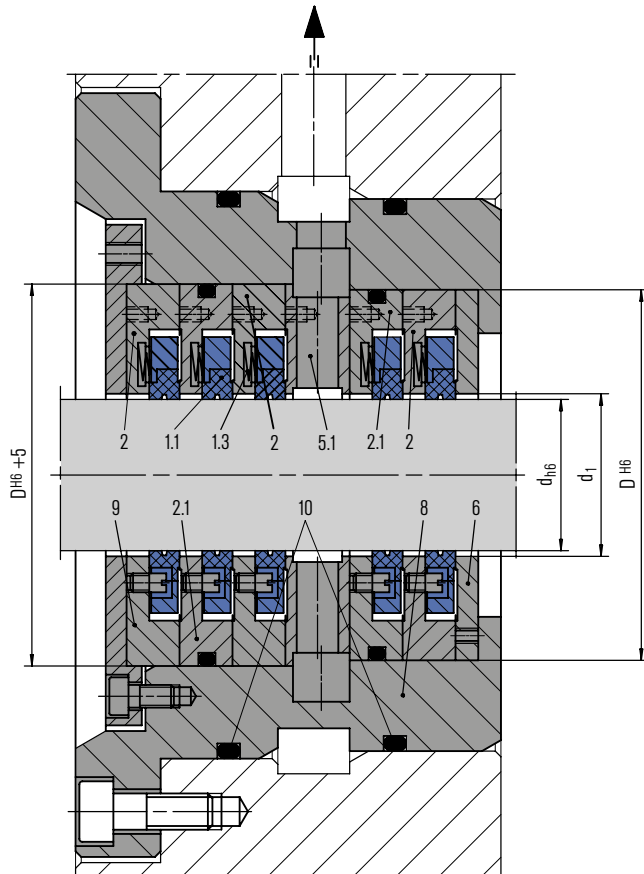
Chamber and housing parts: 1.4021, 1.4571, Hastelloy™, Titan, Inconel™, others

Secondary seal (elastomer): Fluorocarbon rubber (Viton™), Nitrile-butadiene-rubber (Perbunan™), Perfluorocarbon rubber (Kalrez™)

Secondary seal (gasket): Statotherm™-HT/HD, KSIL C 4400

## Standards and approvals

- FDA



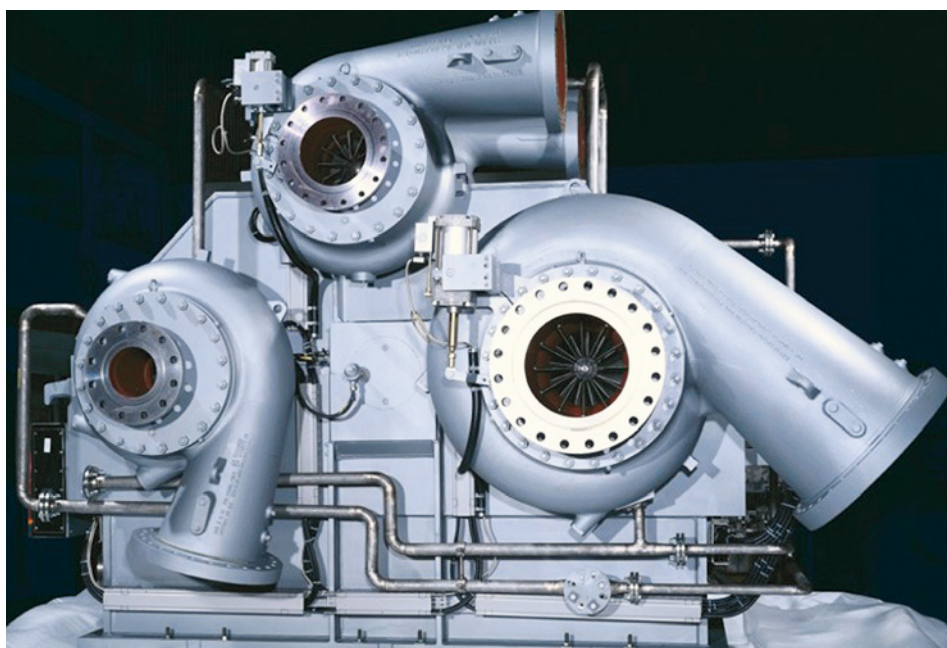
Item	Description	Variable for width	Recommended applications
1.1	Seal ring		• Oil and gas industry
1.3	Pressure spring		• Refining technology
2	Chamber	A	• Chemical industry
2.1	Chamber with O-Ring	A	• Petrochemical industry
3	Barrier gas chamber	B	• Pulp and paper industry
3.1	Barrier gas chamber with O-Rings	B	• Metal production and processing
4	Lantern chamber	C	• Power plant technology
4.1	Lantern chamber with O-Ring	C	• Gases
5	Lantern schmal	E	• Fumes and exhaust, solids containing, acid containing and toxic gases
5.1	Lantern breit	F	• (Solids containing) steams/liquid mist
6	End ring	G	• Oil mist/penetrating oil
7	Flat seal	H	• Water
8*	Housing		• Integral-gear compressors (one or multi-stage)
9*	Lid		• Screw and chiller compressors
10*	O-Ring Housing		

\*On request

## Dimensions in mm

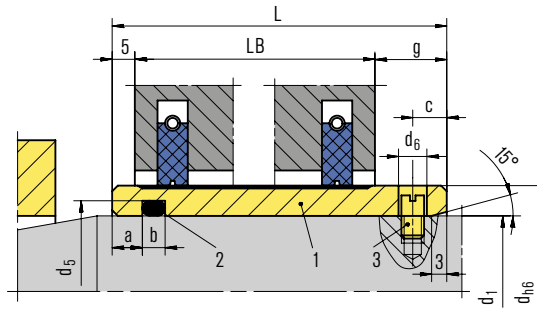
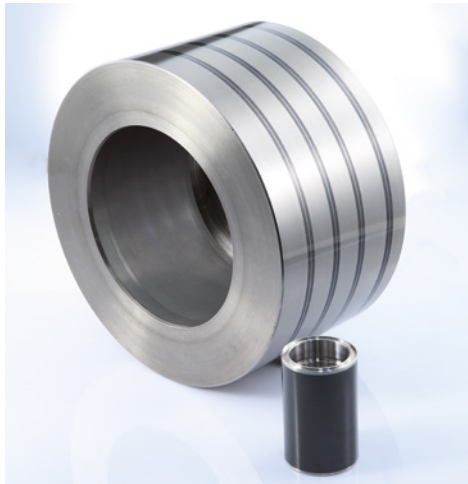
$d_{h6}$	D	$d_1$	A	G	H
20	85	22	11	5	1
25	90	27	11	5	1
30	95	32	11	5	1
35	100	37	11	5	1
40	105	42	11	5	1
45	110	47	11	5	1
50	115	52	11	5	1
55	120	57	11	5	1
60	125	62	11	5	1
65	130	67	11	5	1
70	135	72	11	5	1
75	140	77	11	5	1
80	145	82	11	5	1
85	150	87	11	5	1
90	155	92	11	5	1
95	160	97	11	5	1
100	165	102	11	5	1
105	170	107	11	5	1
110	175	112	11	5	1
115	180	117	11	5	1
120	185	122	13	5	1
130	195	132	13	5	1
140	205	142	13	5	1
150	215	152	13	5	1
160	225	162	13	5	1
170	235	172	13	5	1
175	240	177	13	5	1
180	245	182	13	5	1
190	255	192	13	5	1
200	265	202	13	5	1

Special sizes on request.



Multi-stage gear compressor  
Photo: Siemens AG

# 2 Espey WDB200



### Features

- Torque transmission depending on application with set screw or as shrink fit
- Metallic coating (FMP 84)  
basically for applications without high oxidation
- Ceramic coating (EMP 98)  
basically for applications with high oxidation
- Design one- or two-piece

### Advantages

- Easy installation by split design (2-piece version)
- High reliability
- Long-term operation time
- Maintainability

### Item Description

Item	Description
1	Shaft sleeve
2	O-Ring
3	Set screw

### Materials

1.4021-FMP, 1.4086, 1.4462-FMP, 1.4571-FMP, others

### Operating range (see note on page 3)

#### FMP 84 (metallic coating)

General description: chromium carbide

Coating process: flame spray technique

(no influence on material structure)

Shrink acceptability: very good

Shaft diameter:  $d = 45 \dots 340 \text{ mm}$  (1.77" ... 13.39")

Operating temperature:  $t = \text{max. } 1.000 \text{ }^\circ\text{C}$  (1,832 °F)

Peripheral velocity:  $v_u = \text{max. } 240 \text{ m/s}$  (787 ft/s)

Hardness: > 65 HRC

#### EMP 98/FMP 130 (ceramic coating)

General description: chromium oxide (ceramic)

Coating process: flame spray technique

(no influence on material structure)

Shrink acceptability: with restrictions

Shaft diameter:  $d = 45 \dots 340 \text{ mm}$  (1.77" ... 13.39")

Operating temperature:  $t = \text{max. } 600 \text{ }^\circ\text{C}$  (1,112 °F)

Peripheral velocity:  $v_u = \text{max. } 150 \text{ m/s}$  (492 ft/s)

Hardness: > 58 HRC



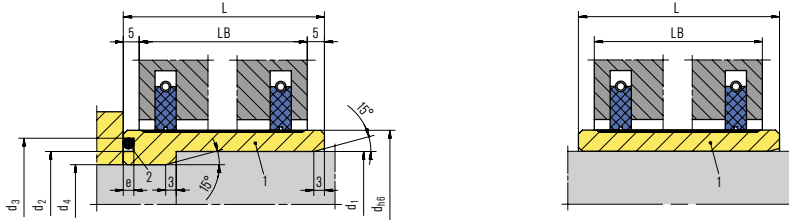
2-part shaft sleeve

**Product variants**

**Espey WDB212/4** with fit bore shaft sleeve/diameter shaft H6/h6 for low loaded seals e. g. in slow running fans, agitators or shaft sleeve

**Espey WDB215/4** with fit bore shaft sleeve/diameter shaft M5/h6 for high loaded seals e. g. in turbo compressors, turbines

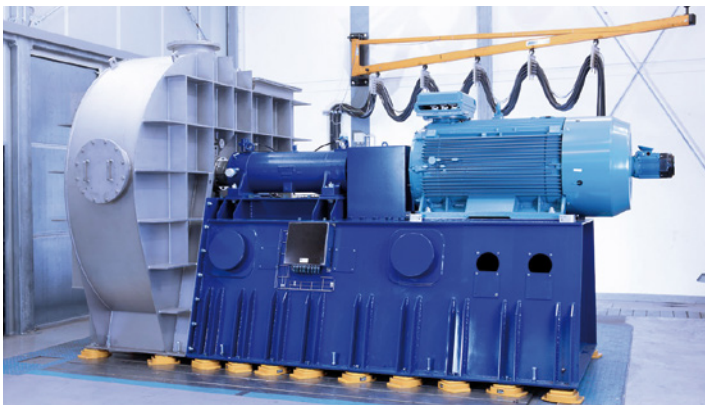
**Espey WDB216/4** with fit bore shaft sleeve/diameter shaft according to operating conditions and customer specifications e. g. for high pressure turbo compressors and turbines.



**Dimensions in mm**

d <sub>h6</sub>	d <sub>1</sub> *	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	a	b	c	e	f	g
45	35	37	42	25.5	38.5	6	5	3	8	1.5	20	15
50	40	42	47	30.5	43.5	6	5	3	8	1.5	20	15
60	50	52	57	40.5	53.5	6	5	3	8	1.5	20	15
70	55	60	67	45.5	60.4	6	5	4	8	2.4	20	15
80	65	70	77	55.5	70.4	6	5	4	8	2.4	20	15
90	75	80	87	65.5	80.4	6	5	4	8	2.4	20	15
100	85	89	97	75.5	91.3	6	7	4.5	8.5	2.8	20	17
110	90	99	107	75.5	96.3	7	7	4.5	8.5	2.8	20	17
120	100	109	117	85.5	106.3	7	7	4.5	8.5	2.8	20	17
130	110	119	127	95.5	116.3	7	7	4.5	8.5	2.8	20	17
140	120	129	137	105.5	126.3	7	7	4.5	8.5	2.8	20	17
150	130	138	146	115.5	136.3	7	7	4.5	8.5	2.8	20	17
160	140	148	156	125.5	146.3	9	7	4.5	9.5	2.8	20	19
170	150	158	166	135.5	156.3	9	7	4.5	9.5	2.8	20	19
180	160	168	176	145.5	166.3	9	7	4.5	9.5	2.8	20	19
190	170	178	186	155.5	176.3	9	7	4.5	9.5	2.8	20	19
200	180	188	196	165.5	186.3	9	7	4.5	9.5	2.8	20	19
220	195	206	215	175.5	202.2	11	8	5	11	3.2	25	22
240	215	226	235	195.5	222.2	11	8	5	11	3.2	25	22
260	235	246	255	215.5	242.2	11	8	5	11	3.2	25	22
280	255	266	275	235.5	262.2	11	8	5	11	3.2	25	22
300	275	286	295	255.5	282.2	11	8	5	11	3.2	30	22
320	295	306	315	275.5	302.2	11	8	5	11	3.2	30	22
340	315	326	335	295.5	322.2	11	8	5	11	3.2	30	22

Special sizes on request.  
\* Consider selection of fits



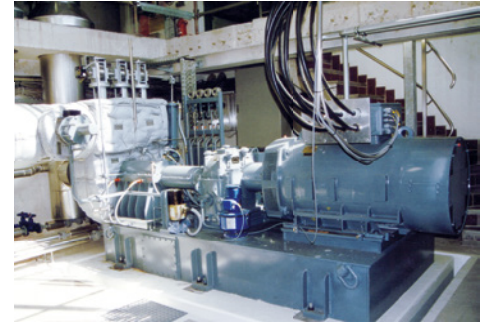
Vapour compression  
Photo: Piller Industrieventilatoren GmbH



# 3 Application examples carbon floating ring seals

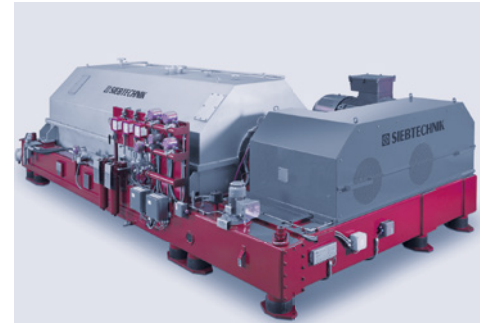
## Applications fan/blower

- Metal production and processing: inert gas circulation at metal heat treatment, hot gas circulation in industrial furnaces
- Petrochemical industry/refining technology: gas conveyance, process gas compression, sulphur recovery
- Food processing industry: mechanical vapour compression in creameries
- Power plant technology: exhaust gas neutralization in thermal power plants
- Clean technology: waste air purification in incineration plants
- Chemical industry: solvent recovery



## Applications mixer, dryer

- Chemical industry: mixing chloride powders for making herbicides, post-condensation in SSP reactor for PET manufacturing
- Food processing industry: cooking oil production

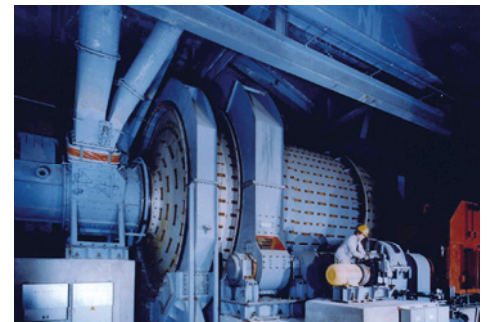
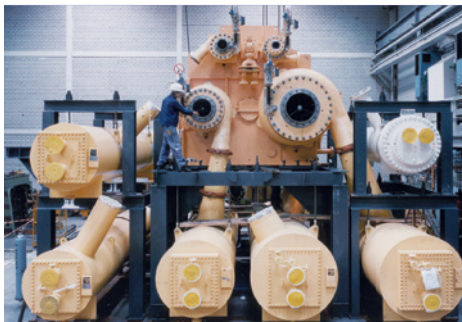


## Applications compressor

- Chemical industry: fertilizer manufacturing, air separation
- Oil and gas industry: gas reinjection, gas-oil separation, gas liquefaction
- Power plant technology: energy recovery

## Applications mill

- Cement and lime industry: crushing limestone in ball mills
- Power plant technology: crushing coal for firing steam generators in coal-fired power stations
- Mining industry: grinding resources in mills with gas flow
- Chemical industry: pulverization HDPE granules



## Applications centrifuge

- Chemical industry: solid-liquid separation e.g. PE-hexane separation
- Clean technology: dewatering and densification of sludge
- Mining industry: dewatering of sludge
- Food processing industry: phases separation e.g. precipitation of milk sugar



## Applications steam turbine

- Power plant technology: wood pellet manufacture for power generation
- Food processing industry: malt boiling in breweries, vapour compression e.g. in the sugar manufacturing
- Power plant technology: combined heat and power
- Pulp and paper industry: paper drying

## Other applications

- Shipbuilding: bulkhead seal e.g. in FPSO oil production ships
- Power plant technology: sealing shut-off valves for steam regulation in nuclear power plants with the special seal Espey WKA600
- Power plant technology: sealing oil-lubricated bearing in railway electric converter station

Photos: Piller Industrieventilatoren GmbH, MAN Diesel & Turbo SE, Siebtechnik GmbH and others





## Quality management

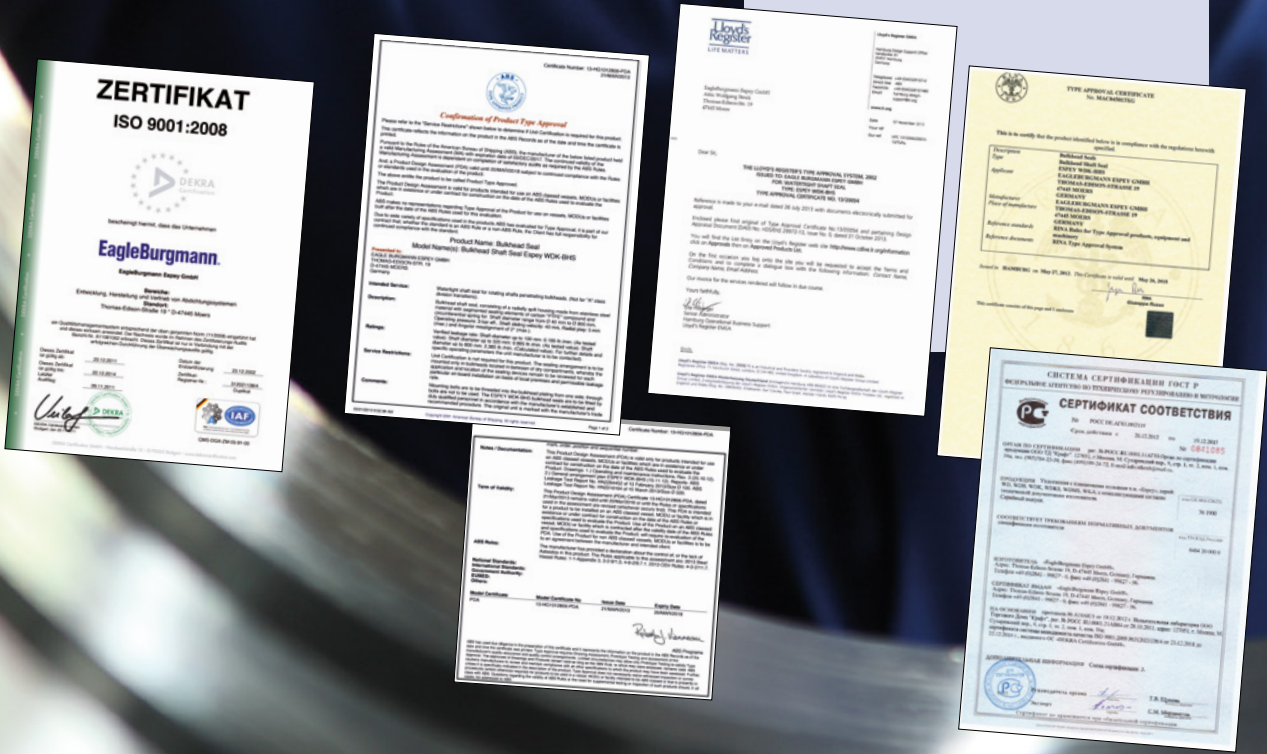
The high standards we set ourselves not only drive us to produce innovative solutions, but are also reflected in the quality of our products. EagleBurgmann Espey maintains close relations to customers, suppliers and employees as a base for professional, trustful and efficient partnerships. We manufacture along the DIN EN ISO 9001:2008 to attain highest production standards to guarantee the high quality standards of our products and services. This is confirmed by successful operations stretching back over decades and many satisfied customers.

## Health and safety management

At EagleBurgmann Espey occupational health and safety is of paramount importance. OHSAS 18001:2007 regulates the reduction of occupational accidents and improvement of employee working conditions. DIN EN ISO 14001:2004+Cor1:2009 regulates environmentally friendly business and human resources management at EagleBurgmann Espey, not to mention environmental awareness concerning the adherence to environmental legislation.

## Maritime and naval licences

EagleBurgmann Espey has been awarded various licences for the Espey™ WDK-BHS bulkhead seal in both aluminium and stainless steel by maritime and naval organisations (including Lloyd's Register EMEA, Bureau Veritas, Russian Maritime Register of Shipping, Germanischer Lloyd, Rina and the ABS - American Bureau of Shipping).



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EagleBurgmann is one of the internationally leading companies for industrial sealing technology. Our products are used everywhere where safety and reliability are important: in the oil and gas industry, refining technology, the petrochemical, chemical and pharmaceutical industries, food processing, power, water, mining, pulp & paper, aerospace and many other spheres. Every day, more than 6,000 employees contribute their ideas, solutions and commitment towards ensuring that customers all over the world can rely on our seals. Our modular TotalSealCare service underlines our strong customer orientation and offers tailor-made services for every application.

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