



ЕЛЕКТРОФЛУКС
Electroflux
SERVICE FACTORY EXPORT-IMPORT





Quality policy

Our Major postulates

- We highly regard our customers, we understand their needs and expectations as well as the needs and expectations of our deliverers, employees, owners and society.

We coordinate our efforts with intention to completely satisfy all sides and to reach best performance.

- We continuously create and develop a unique vision of our company, by increasing key values when it comes to our employees behavior, in order to make our vision come true.

- We constantly include our employees in company development, we use their knowledge, experience and ideas, and we recognize their contribution by creating more suitable environment motivating them to reach their full potential.

- We fully accept “process approach” in our business management and we run our processes as with unique system of mutually connected processes, which leads us to a company goals come true.

- We provide certain environment in which every person is motivated to constantly increase its efficiency and effectiveness of our products, processes and our managing system, with maximal use of their knowledge and experience and motivation for their continuous promotion.

- We establish our decision on logical and intuitive analysis of gathered data, measuring precisely our products characteristics, processes and system.

- We develop strong relationships with our deliverers and work with them side by side thus reaching better performance.

- We coordinate and develop our company business and management according to domestic and world standards with respect to law regulative and protection of environment.

Mechanical seals



The function of a mechanical seal is to prevent the loss of media and to:

- protect environment
- protect the expensive equipment
- stop lose the expensive media

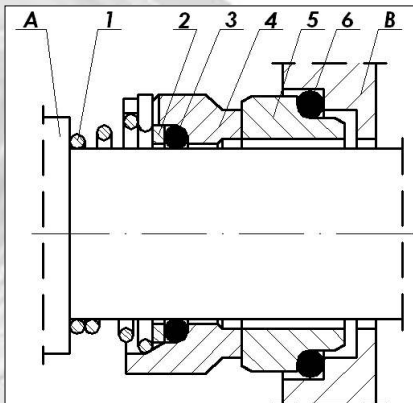
Therefore, designing of mechanical seal doesn't allow mistakes.

Whether it is refinery, chemical process pump, mixer, boiler feed pump, pump in brewery or food industry, mechanical seal is very important for safety and efficiency

All mechanical seal components must be selected and applied properly, but most important are seal faces.

Seal faces are always exposed to the product, which may be:

- at very high or low temperature
- corrosive
- abrasive
- flammable, etc



Seal components:

- A - shaft
- B - housing
- 1 - spring
- 2 - thrust ring
- 3 - O-ring
- 4 - rotating seal face
- 5 - stationary seat
- 6 - O-ring



Seal face material	advantages	disadvantages
Carbon-graphite (A,B,C)	corrosion resistance selflubricity acceptable price	low abrasion resistance
Silicon carbide (Q1, Q2,Q11)	abrasion resistance stiffness corrosion resistance high PV value	brittleness high price
Tungsten carbide (U1,U2)	toughness abrasion resistance stiffness	low corrosion resistance high price
Alumina (Al ₂ O ₃) (V)	abrasion resistance stiffness	thermal shock
Metal	simple machining low price stiffness toughness	low PV values

Mechanical seal types



Mechanical seals with conical rotating spring

- NT - 1 (Mechanical seal with single rotating spring)
- NT - 2 (Mechanical seal with single rotating spring)



Mechanical seals with springs in metal case

- NV - 1 (Mechanical seal with multiple rotating springs)
- NV - 2 (Mechanical seal with single spring)
- NV - 3 (Mechanical seal with wave spring)



Elastomer bellows mechanical seals

- NM - 1 (Elastomer bellows mechanical seal)
- NM - 2 (Elastomer bellows mechanical seals)



Metal bellows mechanical seal

- NMM - 1



PTFE bellows mechanical seal

- CHEM NM - 3



Mechanical seal for aggressive media

- CHEM NV - 4



Balanced mechanical seals

- BT - 1 (Balanced mechanical seal with single rotating spring)
- BV - 1 (Balanced mechanical seal with multiple rotating springs)
- BV - 2 (Balanced mechanical seal with multiple rotating springs)

NT-1

DIN 24960

Mechanical seal with conical rotating spring



- Mechanical seal, type NT-1 is mostly used for circulating water pumps and heating systems, pumps for milk, beer, juice etc.
- Seal faces materials depend on working conditions and pumping media
- Secondary sealing by O-rings
- Other metal parts Cr-Ni steel

Face materials:

Rotating seal:

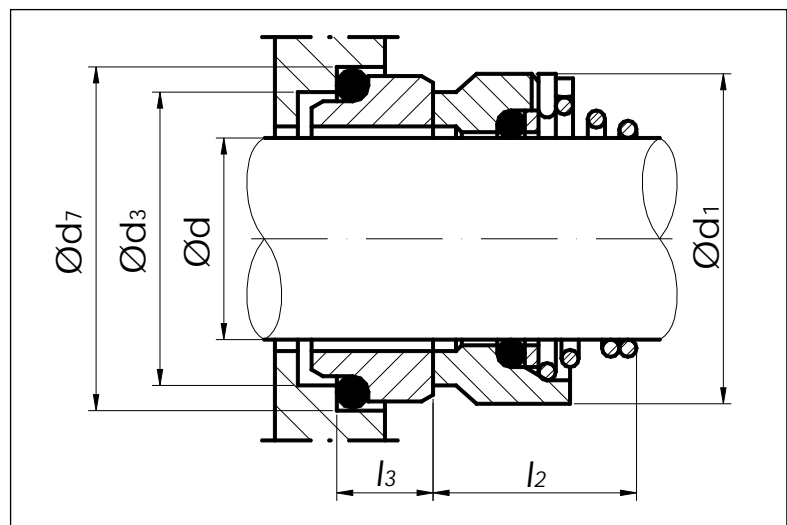
- carbon-graphite

Stationary seal:

- Cr - steel
- Cr - Ni steel
- Cr - Ni steel hard faced
- tungsten carbide
- silicon carbide
- Cr cast
- alumina (Al_2O_3)

Operating limits:

- $p = 10$ bar
- $t = -20 \dots 180^\circ C$
- $v = 15$ m/s



d	d₁	d₃	d₇	l₂	l₃
10	20	17	21	17	10
12	22	19	23	17	10
14	25	21	25	17	10
16	26	23	27	19	10
18	32	27	33	20	11
20	34	29	35	22	11
22	36	31	37	22	11
24	38	33	39	24	11
25	39	34	40	27	11
28	42	37	43	27	11
30	44	39	45	28	11

On the customer's request other dimensions could be supplied

NT-2

DIN 24960

Mechanical seal with conical rotating spring



- Mechanical seal type NT-2 is mainly used in submerged pumps, sewage pumps and water pumps; very rugged and reliable
- Combination of seal faces materials is designed for working condition and pumping media
- Secondary sealing: O-ring
- Other construction parts Cr-Ni steel



karbon-grafit

Face materials:

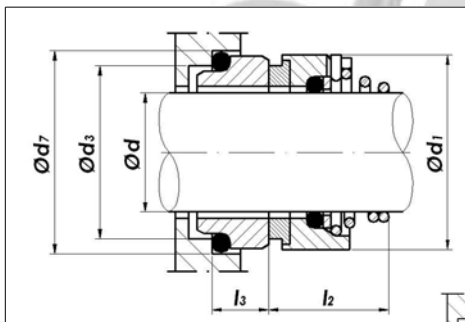
- carbon-graphite
- Cr - steel
- Cr - Ni steel
- Cr - Ni steel hard faced
- tungsten carbide
- silicon carbide
- alumina (Al_2O_3)

Operating limits:

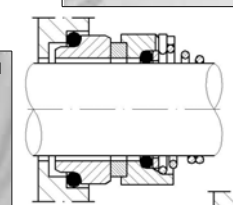
- $p = 10$ bar
- $t = -20 \dots 180^\circ C$
- $v = 15$ m/s



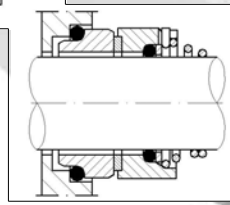
silicon carbide



NT-2.1 Carbon graphite seal face shrink-fitted into the seal face housing



NT-2.2 Silicon carbide seal face shrink-fitted into the seal face housing



NT-2.3 Tungsten carbide seal face brazed into the seal face housing



tungsten carbide

d	d ₁	d ₃	d ₇	l ₂	l ₃
10	20	17	21	15	10
12	22	19	23	16	10
14	24	21	25	17	10
16	26	23	27	19	10
18	32	27	33	20	11
20	34	29	35	22	11
22	36	31	37	22	11
24	38	33	39	24	11
25	39	34	40	27	11
28	42	37	43	27	11
30	44	39	45	28	11
32	46	42	48	28	11
33	47	42	48	28	11
35	49	44	50	30	11
38	54	49	56	34	11,5
40	56	51	58	35	11,5
43	59	54	61	38	11,5
45	61	56	63	38	11,5
48	64	59	66	45	11,5
50	66	62	70	46	12
53	69	65	73	48	12
55	71	67	75	49	12
58	78	70	78	55	14
60	80	72	80	55	14

On the customer's request other dimensions could be supplied

NV-1

DIN 24960

Mechanical seal with multiple rotating springs



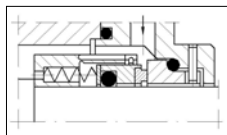
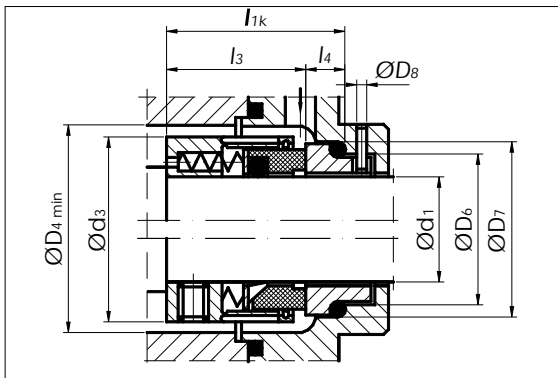
- Multiple springs mechanical seal type NV-1 is mainly used in petrochemical, oil refining and process industries
- Secondary sealing on a shaft with PTFE wedge or O-ring
- Seal arrangement allows fast and cheap reparation
- Mechanical seal type NV-1 is birotational

Face materials:

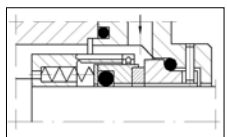
- carbon-graphite
- Cr - steel
- Cr - Ni steel
- Cr - Ni steel hard faced
- tungsten carbide
- silicon carbide
- alumina (Al_2O_3)

Operating limits:

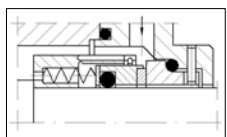
- $p = 16$ bar
- $t = -40 \dots 220^\circ C$
- $v = 20$ m/s



NV-1.1 Carbon graphite seal face shrink-fitted into the seal face carrier



NV-1.2 Silicon carbide seal face shrink-fitted into the seal face carrier



NV-1.3 Tungsten carbide seal face brazed into the seal face carrier

d ₁	d ₃	D ₄	D ₆	D ₇	D ₈	l ₃	l ₄	l _{ik}
18	32	34	27	33	3	26	11.5	37.5
20	34	36	29	35	3	26	11.5	37.5
22	36	38	31	37	3	26	11.5	37.5
24	38	40	33	39	3	28.5	11.5	40
25	39	41	34	Ø	3	28.5	11.5	40
28	42	44	37	43	3	31	11.5	42.5
30	44	46	39	45	3	31	11.5	42.5
32	46	48	42	48	3	31	11.5	42.5
33	47	49	42	48	3	31	11.5	42.5
35	49	51	44	50	3	31	11.5	42.5
38	54	58	49	56	4	31	14	45
40	56	60	51	58	4	31	14	45
43	59	63	54	61	4	31	14	45
45	61	65	56	63	4	31	14	45
48	64	68	59	66	4	31	14	45
50	66	70	62	70	4	32.5	15	47.5
53	69	73	65	73	4	32.5	15	47.5
55	71	75	67	75	4	32.5	15	47.5
58	78	83	70	78	4	37.5	15	52.5
60	80	85	72	80	4	37.5	15	52.5
63	83	88	75	83	4	37.5	15	52.5
65	85	90	77	85	4	37.5	15	52.5
68	88	93	81	90	4	37.5	15	52.5
70	90	95	83	92	4	43	17	60
75	99	104	88	97	4	43	17	60
80	104	109	95	105	4	43	17	60
85	109	114	100	110	4	43	17	60
90	114	119	105	115	4	48	17	65
95	119	124	110	120	4	48	17	65
100	124	129	115	125	4	48	17	65

On the customer's request other dimensions could be supplied

NV-2

DIN 24960

Mechanical seal with rotating spring in metal case

- Mechanical seal type NV - 2 is very similar to seal type NV - 1. The main difference is single spring instead of multiple springs. Reason is usage in high viscous media or media containing solids.
- Mechanical seal design with single spring prevents sticking and blocking of small multiple springs.
- Seal is very easy and cheap to repair.

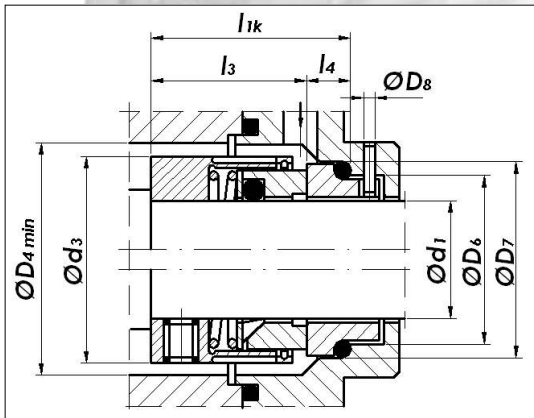


Face materials:

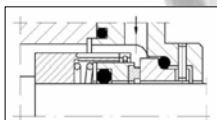
- carbon-graphite
- Cr - steel
- Cr - Ni steel
- Cr - Ni steel hard faced
- tungsten carbide
- silicon carbide
- alumina (Al₂O₃)

Operating limits:

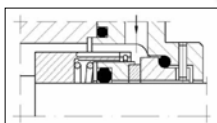
- p = 16 bar
- t = -40 ... 220°C
- v = 20 m/s



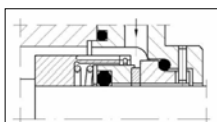
d ₁	d ₃	D ₄	D ₆	D ₇	D ₈	l ₃	l ₄	l _{1k}
18	32	34	27	33	3	26	11.5	37.5
20	34	36	29	35	3	26	11.5	37.5
22	36	38	31	37	3	26	11.5	37.5
24	38	40	33	39	3	28.5	11.5	40
25	39	41	34	40	3	28.5	11.5	40
28	42	44	37	43	3	31	11.5	42.5
30	44	46	39	45	3	31	11.5	42.5
32	46	48	42	48	3	31	11.5	42.5
33	47	49	42	48	3	31	11.5	42.5
35	49	51	44	50	3	31	11.5	42.5
38	54	58	49	56	4	31	14	45
40	56	60	51	58	4	31	14	45
43	59	63	54	61	4	31	14	45
45	61	65	56	63	4	31	14	45
48	64	68	59	66	4	31	14	45
50	66	70	62	70	4	32.5	15	47.5
53	69	73	65	73	4	32.5	15	47.5
55	71	75	67	75	4	32.5	15	47.5
58	78	83	70	78	4	37.5	15	52.5
60	80	85	72	80	4	37.5	15	52.5
63	83	88	75	83	4	37.5	15	52.5
65	85	90	77	85	4	37.5	15	52.5
68	88	93	81	90	4	37.5	15	52.5
70	90	95	83	92	4	43	17	60
75	99	104	88	97	4	43	17	60
80	104	109	95	105	4	43	17	60
85	109	114	100	110	4	43	17	60
90	114	119	105	115	4	48	17	65
95	119	124	110	120	4	48	17	65
100	124	129	115	125	4	48	17	65



NV-2.1 Carbon graphite seal face shrink-fitted into the seal face carrier



NV-2.2 Silicon carbide seal face shrink-fitted into the seal face carrier



NV-2.3 Tungsten carbide seal face brazed into the seal face carrier

On the customer's request other dimensions could be supplied

NV-3

DIN 24960

Mechanical seal with wave spring

- Wave spring mechanical seal type NV - 3 is very similar to seal types NV - 1 and NV - 2. Main difference is the wave spring instead of multiple springs or single spring. Reason is usage in high viscosity media or media containing solids.
- Mechanical seal design with wave spring prevents sticking and blocking of small multiple springs. Another advantage of wave springs is more uniform force on the seal face.
- A steep characteristics curve makes wave springs more sensitive and allow small axial space requirements.

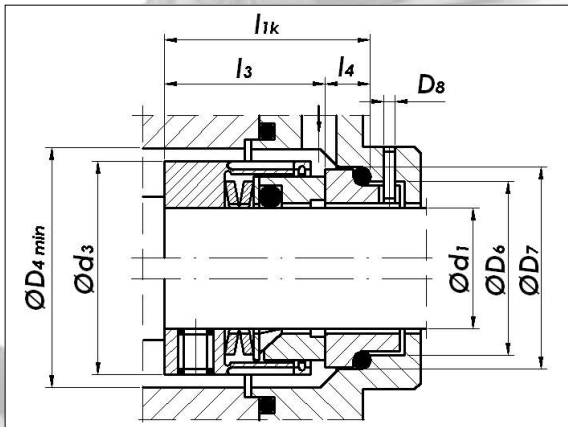


Face materials:

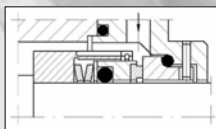
- carbon-graphite
- Cr - steel
- Cr - Ni steel
- Cr - Ni steel hard faced
- tungsten carbide
- silicon carbide
- alumina (Al₂O₃)

Operating limits:

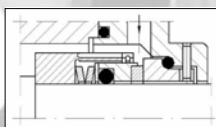
- p = 16 bar
- t = -40 ... 220°C
- v = 20 m/s



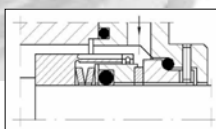
d ₁	d ₃	D ₄	D ₆	D ₇	D ₈	l ₃	l ₄	l _{1k}
18	32	34	27	33	3	26	11.5	37.5
20	34	36	29	35	3	26	11.5	37.5
22	36	38	31	37	3	26	11.5	37.5
24	38	40	33	39	3	28.5	11.5	40
25	39	41	34	40	3	28.5	11.5	40
28	42	44	37	43	3	31	11.5	42.5
30	44	46	39	45	3	31	11.5	42.5
32	46	48	42	48	3	31	11.5	42.5
33	47	49	42	48	3	31	11.5	42.5
35	49	51	44	50	3	31	11.5	42.5
38	54	58	49	56	4	31	14	45
40	56	60	51	58	4	31	14	45
43	59	63	54	61	4	31	14	45
45	61	65	56	63	4	31	14	45
48	64	68	59	66	4	31	14	45
50	66	70	62	70	4	32.5	15	47.5
53	69	73	65	73	4	32.5	15	47.5
55	71	75	67	75	4	32.5	15	47.5
58	78	83	70	78	4	37.5	15	52.5
60	80	85	72	80	4	37.5	15	52.5
63	83	88	75	83	4	37.5	15	52.5
65	85	90	77	85	4	37.5	15	52.5
68	88	93	81	90	4	37.5	15	52.5
70	90	95	83	92	4	43	17	60
75	99	104	88	97	4	43	17	60
80	104	109	95	105	4	43	17	60
85	109	114	100	110	4	43	17	60
90	114	119	105	115	4	48	17	65
95	119	124	110	120	4	48	17	65
100	124	129	115	125	4	48	17	65



NV-3.1 Carbon graphite seal face shrink-fitted into the seal face carrier



NV-3.2 Silicon carbide seal face shrink-fitted into the seal face carrier



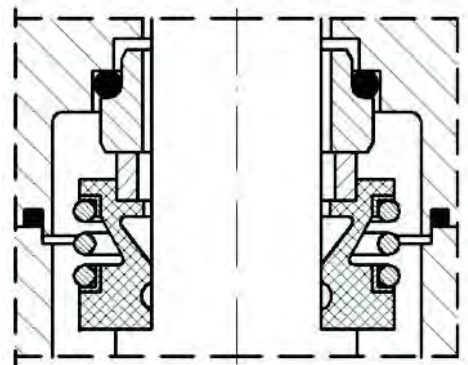
NV-3.3 Tungsten carbide seal face brazed into the seal face carrier

On the customer's request other dimensions could be supplied

Elastomer bellow mechanical seals

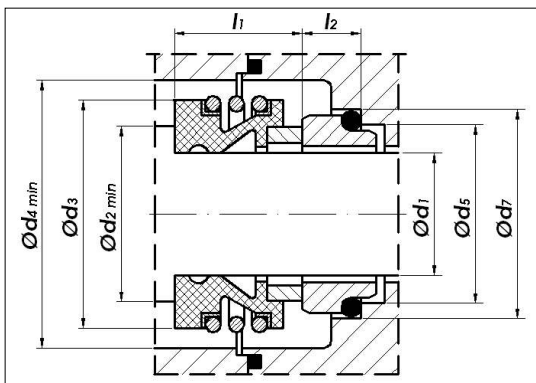


Elastomer bellow mechanical seals design is a very popular type of mechanical seals. Relatively cheap production introduces this type of mechanical seals as the bestseller among the all types. The main advantage of this design is that there is no elastomer with axial moving on the shaft. Bellow is secondary seal on the shaft, and it stand still all the time when you fix it. Design of the bellow allows to have shaft with lower surface finish. Fixing of the rotating part of the seal couldn't cause any damage on the shaft. Because of this big spring, dirt and solids in media couldn't cause failure of the seal. It's design is without any bonded parts, and because of this reparation of the seal is very easy and cheap.





- Design with elastomer bellows is frequent and among most commonly used
- NM-1 type has got very good secondary sealing on a shaft with elastomer bellows
- This type is highly recommended for sealing media with possibility of crystallization or containing solids in waste water or sewage application
- Constructions allow fast and cheap reparation because there is no boned joints
- NM-1 seals don't depend on the direction of shaft rotation
- All other metal parts are made of stainless steel



	d₁	d₂	d₃	d₄	d₅	d₇	l₁	l₂
10	20.5	22	24	17	21	14.5	6.5	
12	22.5	24.5	26	19	23	15	6.5	
14	26.5	28	30	21	25	17	6.5	
16	26.5	28	30	23	27	17	6.5	
18	29	32.5	33	27	33	19.5	7.5	
20	33	37	38	29	35	21.5	7.5	
22	33	37	38	31	37	21.5	7.5	
24	38	42.5	44	33	39	22.5	7.5	
25	38	42.5	44	34	40	23	7.5	
28	44	49	50	37	43	26.5	8.5	
30	44	49	50	39	45	26.5	8.5	
32	46	53.5	55	42	48	27.5	8.5	
33	46	53.5	55	42	48	27.5	8.5	
35	50	57	59	44	50	28.5	8.5	
38	53	59	61	49	56	30	8.5	
40	55	62	64	51	58	30	8.5	
43	58	65.5	67	54	61	30	8.5	
45	60	68	70	56	63	30	8.5	
48	63	70	74	59	66	30.5	8.5	
50	65	74	77	62	70	30.5	11	
53	70	78	81	65	73	33	11	
55	72	81	83	67	75	35	11	
58	75	85	88	70	78	37	11	
60	79	88	91	72	80	38	11	
65	84	93	96	77	85	40	11	
68	88	96	100	81	90	40	11	
70	90	99	103	83	92	40	11	
75	95	107	110	88	97	40	11	
80	100	112	116	95	105	40	14	
85	107	120	124	100	110	41	14	
90	114	128	131	105	115	45	14	
95	119	132	136	110	120	46	14	

Face materials:

- carbon-graphite
- Cr - steel
- Cr - Ni steel
- Cr - Ni steel hard faced
- tungsten carbide
- silicon carbide
- alumina (Al₂O₃)

Operating limits:

- p = 12 bar
- t = - 20 ... 120 °C
- v = 10 m/s

On the customer's request other dimensions could be supplied

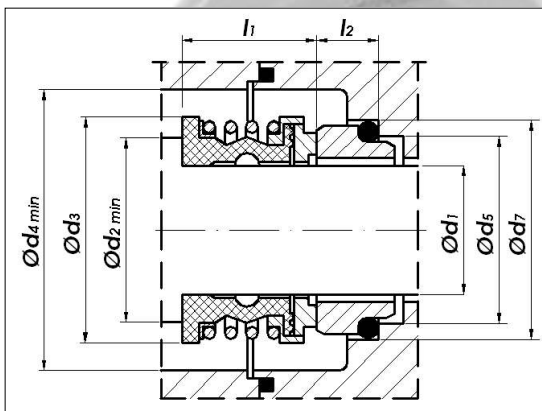
NM-2

DIN 24960

Elastomer bellows mechanical seal



- NM-2 type is very similar to NM-1 type
- Design of NM-2 allows excessive shaft end play and there is no possibility for the seal face to rotate in elastomer bellows holder
- Construction allows fast and cheap repair because there are no bended joints
- All other metal parts are made of stainless steel
- All measures meet DIN 24960 standard



Face materials:

- carbon-graphite
- Cr - steel
- Cr - Ni steel
- Cr - Ni steel hard faced
- tungsten carbide
- silicon carbide
- alumina (Al_2O_3)

Operating limits:

- $p = 12$ bar
- $t = -20 \dots 120$ °C
- $v = 10$ m/s

d_1	d_2	d_3	d_4	d_5	d_7	l_1	l_2
10	20.5	21	22	17	21	14.5	6.5
12	22.5	23	24	19	23	15	6.5
14	26.5	25	26	21	25	17	6.5
16	26.5	27	28	23	27	17	6.5
18	29	33	34	27	33	19.5	7.5
20	33	35	36	29	35	21.5	7.5
22	33	37	38	31	37	21.5	7.5
24	38	39	40	33	39	22.5	7.5
25	38	40	41	34	40	23	7.5
28	44	43	44	37	43	26.5	8.5
30	44	45	46	39	45	26.5	8.5
32	46	47	48	42	48	27.5	8.5
33	46	48	49	42	48	27.5	8.5
35	50	50	51	44	50	28.5	8.5
38	53	57	58	49	56	30	8.5
40	55	59	60	51	58	30	8.5
43	58	62	63	54	61	30	8.5
45	60	64	65	56	63	30	8.5
48	63	67	68	59	66	30.5	8.5
50	65	69	70	62	70	30.5	11
53	70	72	73	65	73	33	11
55	72	74	75	67	75	35	11
58	75	82	83	70	78	37	11
60	79	84	85	72	80	38	11
65	84	89	90	77	85	40	11
68	88	92	93	81	90	40	11
70	90	94	95	83	92	40	11
75	95	103	104	88	97	40	11
80	100	108	109	95	105	40	14
85	107	113	114	100	110	41	14
90	114	118	119	105	115	45	14
95	119	123	124	110	120	46	14

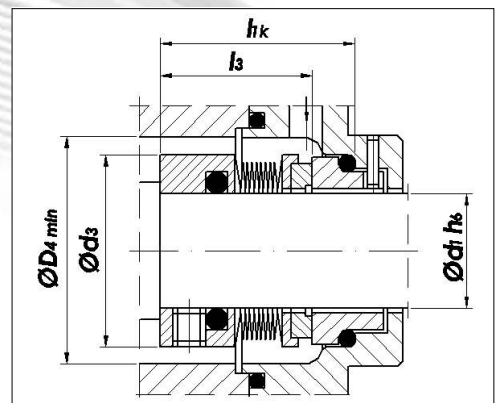
On the customer's request other dimensions could be supplied

NMM-1

Metal bellows mechanical seal

Metal bellows mechanical seal has a very wide field of application, but because of high price we use it for extreme conditions, like very high temperature, aggressive and dirty media.

Main advantage is that there is no dynamic O-ring or elastomer part. All elastomer parts have a high temperature usage limit, and when it is passed, mechanical seal failed. Metal bellows mechanical seals work in high temperature, high aggressive and high viscosity media without fail. Because of metal bellows design, seal could work with media containing solids.



d_1	d_3	D_{4min}	l_s	l_k
20	34	36	25.5	37.5
22	36	38	25.5	37.5
24	38	40	28	40
25	39	41	28	40
28	42	44	30.5	42.5
30	44	46	30.5	42.5
32	46	48	30.5	42.5
33	47	49	30.5	42.5
35	49	51	30.5	42.5
38	52.5	56	32	45
40	54.5	58	32	45
43	58	62	32	45
45	60	64	32	45
48	63	67	32	45
50	66	70	34	47.5
53	69	73	34	47.5
55	71	75	34	47.5
58	74	78	39	52.5
60	76.5	80	39	52.5
63	79.5	84	39	52.5
65	81.5	85	39	52.5
68	85	89	39	52.5
70	88	92	45.5	60
75	93.5	98	45.5	60
80	98.5	103	45	60
85	105	110	45	60
90	110	115	50	65
95	115	120	50	65
100	120	125	50	65

Face materials:

- carbon-graphite
- Cr - steel
- Cr - Ni steel
- silicone carbide
- tungsten carbide
- ceramics (Al_2O_3)

Operating limits:

- $p = 15$ bar
- $t = -40 \dots 220^\circ C$
- $v = 25$ m/s

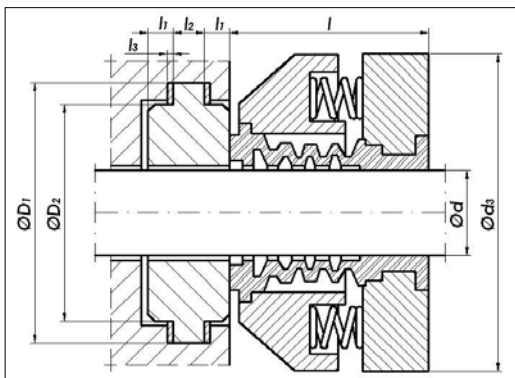
On the customer's request other dimensions could be supplied

CHEM NM-3

PTFE bellows mechanical seal



Mechanical seal metal part incompatibility to media is common problem when sealing aggressive, corrosive media. Mechanical seal type CHEM NM-3 with no metal parts in contact with media is strongly recommended and common choice in chemical industry. Poor resistance of elastomers to acids is avoided by application of PTFE bellows. Mechanical seals type CHEM NM-3 are independent on direction of shaft rotation. Seal arrangement enables maximum fluid film stability. Seal arrangement and choice of seal faces material make mechanical seal type CHEM NM-3 best choice for sealing aggressive corrosive media.



Face materials:

Stationary seat:

- carbon-graphite
- silicone carbide
- ceramics (Al_2O_3)

Rotating seal:

- PTFE glass impregnated
- PTFE carbon impregnated

Operating limits:

- $p = 8$ bar
- $t = -40 \dots 160^\circ\text{C}$
- $v = 10$ m/s

d	D ₁	D ₂	d ₃	l	l ₁	l ₂	l ₃
16	49	38,0	54	32	5,0	8,0	1,0
18	49	38,0	54	32	5,0	8,0	1,0
20	52	41,0	57	32	5,0	8,0	1,0
22	52	41,0	57	32	5,0	8,0	1,0
24	55	44,0	61	34	5,0	8,0	1,0
25	55	44,0	61	34	5,0	8,0	1,0
28	66	52,0	67	37	8,0	11,0	1,5
30	69	55,0	70	38	8,0	11,0	1,5
32	69	55,0	70	38	8,0	11,0	1,5
33	72	58,0	73	39	8,0	11,0	1,5
35	72	58,0	73	39	8,0	11,0	1,5
38	79	65,0	76	39	8,0	11,0	1,5
40	82	68,0	80	41	8,0	11,0	1,5
43	85	71,0	83	41	8,0	11,0	1,5
45	85	71,0	83	41	8,0	11,0	1,5
48	98	80,0	89	44	10,0	14,0	1,5
50	98	80,0	89	44	10,0	14,0	1,5
53	101	84,0	103	54	10,0	14,0	1,5
55	104	87,0	107	54	10,0	14,0	1,5
58	106	90,0	110	54	10,0	14,0	1,5
60	106	90,0	110	54	10,0	14,0	1,5
63	111	93,0	113	54	10,0	14,0	1,5
65	114	96,0	116	54	10,0	14,0	1,5
68	117	99,0	118	54	10,0	14,0	1,5
70	117	99,0	118	54	10,0	14,0	1,5
75	122	104,0	126	54	10,0	14,0	1,5
80	133	115,0	150	74	10,0	14,0	1,5
85	139	122,0	156	74	10,0	14,0	1,5
90	145	128,0	163	74	10,0	14,0	1,5
95	145	128,0	163	74	10,0	14,0	1,5
100	152	134,0	169	74	10,0	14,0	1,5
105	158	141,0	175	74	10,0	14,0	1,5
110	184	160,0	182	74	10,0	14,0	1,5
115	190	166,0	188	74	10,0	14,0	1,5
120	190	166,0	188	74	10,0	16,0	1,5
125	196	172,0	194	74	10,0	16,0	1,5
130	203	179,0	201	74	10,0	16,0	1,5
135	209	185,0	207	74	10,0	16,0	1,5
140	215	191,0	213	74	10,0	16,0	1,5
145	215	191,0	213	74	10,0	16,0	1,5
150	228	201,0	220	74	10,0	16,0	1,5
155	234	207,0	226	74	10,0	16,0	1,5
160	241	214,0	232	74	10,0	16,0	1,5
165	241	214,0	232	74	10,0	16,0	1,5

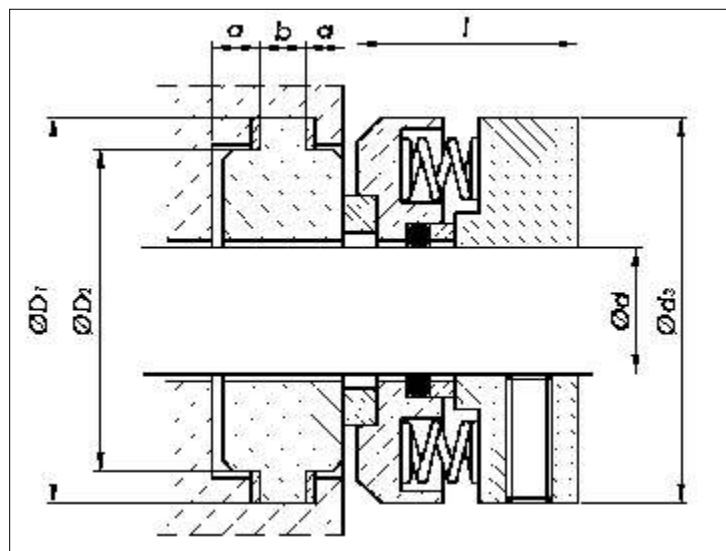
On the customer's request other dimensions could be supplied

CHEM NV-4

Mechanical seal for aggressive media



Mechanical seal type CHEM NV - 4 is mostly used in processing aggressive media. Mechanical seal is independent of direction of rotation. Secondary seal depend on processing media.



d	D ₁	D ₂	d ₃	a	b	l
25	53	42	60	5,0	8	42
30	60	49	65	7,5	11	42
35	68	54	70	7,5	11	42
45	81	67	80	7,5	11	42
50	86	72	85	7,5	11	42

On the customer's request other dimensions could be supplied

BT-1

Balanced mechanical seal with rotating spring

DIN 24960

When we are designing the mechanical seal with sleeve on a shaft or making a stepped shaft, we balance the forces which are acting on the sliding surfaces. By that we could arrange higher P-v values. We call this the "balanced mechanical seal"

- BT-1 type is mostly used in water pumps and central heating pumps and it's very rugged and reliable
- Combination of seal face materials is designed for working condition and pumping media
- Secondary sealing by O-ring
- Other construction parts are made of stainless steel

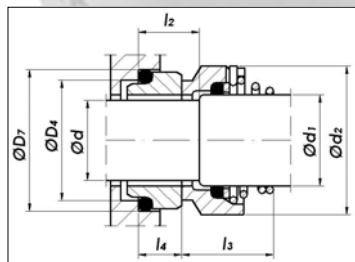


Face materials:

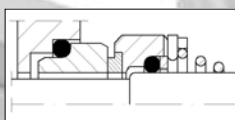
- carbon-graphite
- Cr - steel
- Cr - Ni steel
- Cr - Ni steel hard faced
- tungsten carbide
- silicon carbide
- alumina (Al_2O_3)

Operating limits:

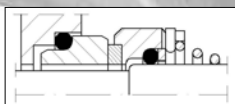
- p = 25 bar
- t = -20 ... 180 °C
- v = 15 m/s



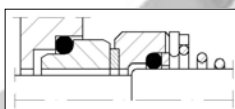
d	d ₁	d ₂	D ₄	D ₇	l ₂	l ₃	l ₄
10	14	24	17	21	18	26	10
12	16	26	19	23	18	27	10
14	18	31	21	25	18	30	10
16	20	34	23	27	18	32	10
18	22	36	27	33	20	33	11
20	24	38	29	35	20	33	11
22	26	40	31	37	20	33	11
24	28	42	33	39	20	33	11
25	30	44	34	40	20	34	11
28	33	47	37	43	20	36	11
30	35	49	39	45	20	36	11
32	38	54	42	48	20	40	11
33	38	54	42	48	20	40	11
35	40	56	44	50	20	44	11
38	43	59	49	56	23	47	11.5
40	45	61	51	58	23	48	11.5
43	48	64	54	61	23	50	11.5
45	50	66	56	63	23	53	11.5
48	53	69	59	66	23	53	11.5
50	55	71	62	70	25	58	12
53	58	78	65	73	25	58	14
55	60	80	67	75	25	60	14
58	63	83	70	78	25	60	14
60	65	85	72	80	25	60	14



BT-1.1 Carbon graphite seal face shrink-fitted into the seal face housing



BT-1.2 Silicon carbide seal face shrink-fitted into the seal face housing



BT-1.3 Tungsten carbide seal face brazed into the seal face housing

On the customer's request other dimensions could be supplied

BV-2

DIN 24960

Multiple springs mechanical seal

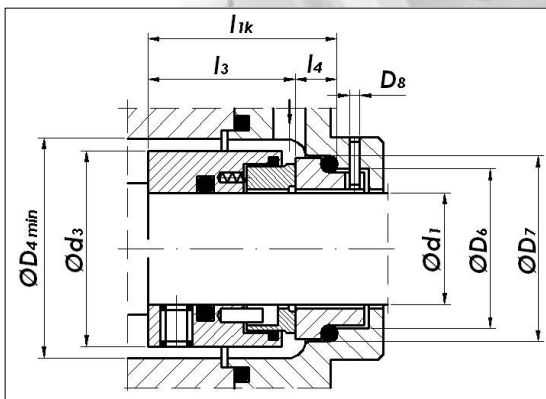


In BV-2 seal design springs are not emerged in operating fluid. In that manner spring blocking and material incompatibility problems are eliminated.

In BV-2 seal design rotating part O-ring is in static state all the time, even during operation. Seal face wear is compensated by springs, therefore O-ring is never under dynamical load.

Mechanical seal type BV-2 can be applied in conditions of pressure up to 40 bar due to shaped seal face cross-section.

Standardized seal face dimensions allow simple application of wide range of seal face materials and easy component replacement.



d_1	d_3	D_4	D_6	D_7	D_8	l_3	l_4	l_{1k}
18	32	34	27	33	3	30	7.5	37.5
20	34	36	29	35	3	30	7.5	37.5
22	36	38	31	37	3	30	7.5	37.5
24	38	40	33	39	3	32.5	7.5	40
25	39	41	34	40	3	32.5	7.5	40
28	42	44	37	43	3	34	8.5	42.5
30	44	46	39	45	3	34	8.5	42.5
32	46	48	42	48	3	34	8.5	42.5
33	47	49	42	48	3	34	8.5	42.5
35	49	51	44	50	3	34	8.5	42.5
38	54	58	49	56	4	36.5	8.5	45
40	56	60	51	58	4	36.5	8.5	45
43	59	63	54	61	4	36.5	8.5	45
45	61	65	56	63	4	36.5	8.5	45
48	64	68	59	66	4	36.5	8.5	45
50	66	70	62	70	4	36.5	11	47.5
53	69	73	65	73	4	36.5	11	47.5
55	71	75	67	75	4	36.5	11	47.5
58	78	83	70	78	4	41.5	11	52.5
60	80	85	72	80	4	41.5	11	52.5
63	83	88	75	83	4	41.5	11	52.5
65	85	90	77	85	4	41.5	11	52.5
68	88	93	81	90	4	41.5	11	52.5
70	90	95	83	92	4	49	11	60
75	99	104	88	97	4	49	11	60
80	104	109	95	105	4	46	14	60
85	109	114	100	110	4	46	14	60
90	114	119	105	115	4	51	14	65
95	119	124	110	120	4	51	14	65
100	124	129	115	125	4	51	14	65

Face materials:

- carbon-graphite
- Cr - steel
- Cr - Ni steel
- Cr - Ni steel hard faced
- tungsten carbide
- silicon carbide
- alumina (Al_2O_3)

Operating limits:

- $p = 42$ bar
- $t = -20 \dots 180$ °C
- $v = 10$ m/s

On the customer's request other dimensions could be supplied

BV-1

Balanced mechanical seal with multiple rotating springs

DIN 24960



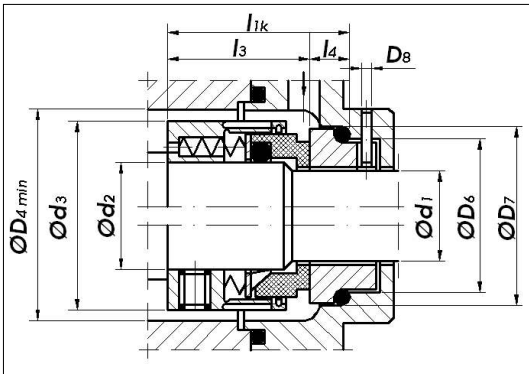
- BV-1 type is mostly used for pumps and compressors in oil refining and petrochemical industry
- It has got secondary shaft sealing with wedge or Oring
- All other metal parts are made of stainless steel
- BV-1 type is birotational and easy for reparation

Face materials:

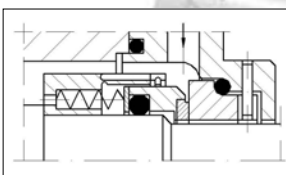
- carbon-graphite
- Cr - steel
- Cr - Ni steel
- Cr - Ni steel hard faced
- tungsten carbide
- silicon carbide
- alumina (Al₂O₃)

Operating limits:

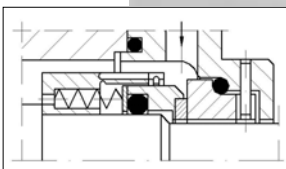
- p = 25 bar
- t = -20 ... 180 °C
- v = 15 m/s



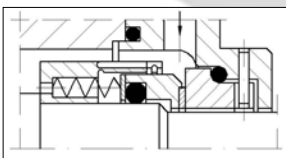
d ₁	d ₂	d ₃	D ₄	D ₆	D ₇	D ₈	l ₃	l ₄	l _{1k}
18	22	36	38	27	33	3	33.5	11.5	45
20	24	38	40	29	35	3	33.5	11.5	45
22	26	40	42	31	37	3	33.5	11.5	45
24	28	42	44	33	39	3	36.0	11.5	47.5
25	30	44	46	34	40	3	36.0	11.5	47.5
28	33	47	49	37	43	3	38.5	11.5	50
30	35	49	51	39	45	3	38.5	11.5	50
32	38	54	58	42	48	3	38.5	11.5	50
33	38	54	58	42	48	3	38.5	11.5	50
35	40	56	60	44	50	3	38.5	11.5	50
38	43	59	63	49	56	4	38.5	14.0	52.5
40	45	61	65	51	58	4	38.5	14.0	52.5
43	48	64	68	54	61	4	38.5	14.0	52.5
45	50	66	70	56	63	4	38.5	14.0	52.5
48	53	69	73	59	66	4	38.5	14.0	52.5
50	55	71	75	62	70	4	42.5	15.0	57.5
53	58	78	83	65	73	4	42.5	15.0	57.5
55	60	80	85	67	75	4	42.5	15.0	57.5
58	63	83	88	70	78	4	47.5	15.0	62.5
60	65	85	90	72	80	4	47.5	15.0	62.5
63	68	88	93	75	83	4	47.5	15.0	62.5
65	70	90	95	77	85	4	47.5	15.0	62.5
70	75	99	104	83	92	4	53.0	17.0	70
75	80	104	109	88	97	4	53.0	17.0	70
80	85	109	114	95	105	4	53.0	17.0	70
85	90	114	119	100	110	4	58.0	17.0	75
90	95	119	124	105	115	4	58.0	17.0	75
95	100	124	129	110	120	4	58.0	17.0	75
100	105	129	134	115	125	4	58.0	17.0	75



BV-1.1 Carbon graphite seal face shrink-fitted into the seal face housing



BV-1.2 Silicon carbide seal face shrink-fitted into the seal face housing



BV-1.3 Tungsten carbide seal face brazed into the seal face housing

On the customer's request other dimensions could be supplied

