NUY DUAL SEALS

Standard Cartridge Metal Bellows Seals

Product Description

1. Dual seal configuration
2. Balanced design
3. Independent of direction of rotation
4. Cartridge construction
5. Metal bellows design
6. Designed with integrated pumping device for increased efficiency in circulation
7. Stationary O-ring design
8. Seals with API Plan 52 and API Plan 53/54

Technical Features

1. Ideal for use in process pump standardization
2. O-ring is dynamically loaded to prevent shaft damage.
3. Dimensional modification of the stuffing box chamber is not required due to short radial installation height
4. Ideal to convert and retrofit pumps with packings and large volume OEM production
5. Cartridge unit factory assembled for easy installation, which reduces down-time
6. Rugged design for long operating life
7. Bellows design efficiently ensure self-cleaning
8. Suitable for high temperature applications

Typical Industrial Applications

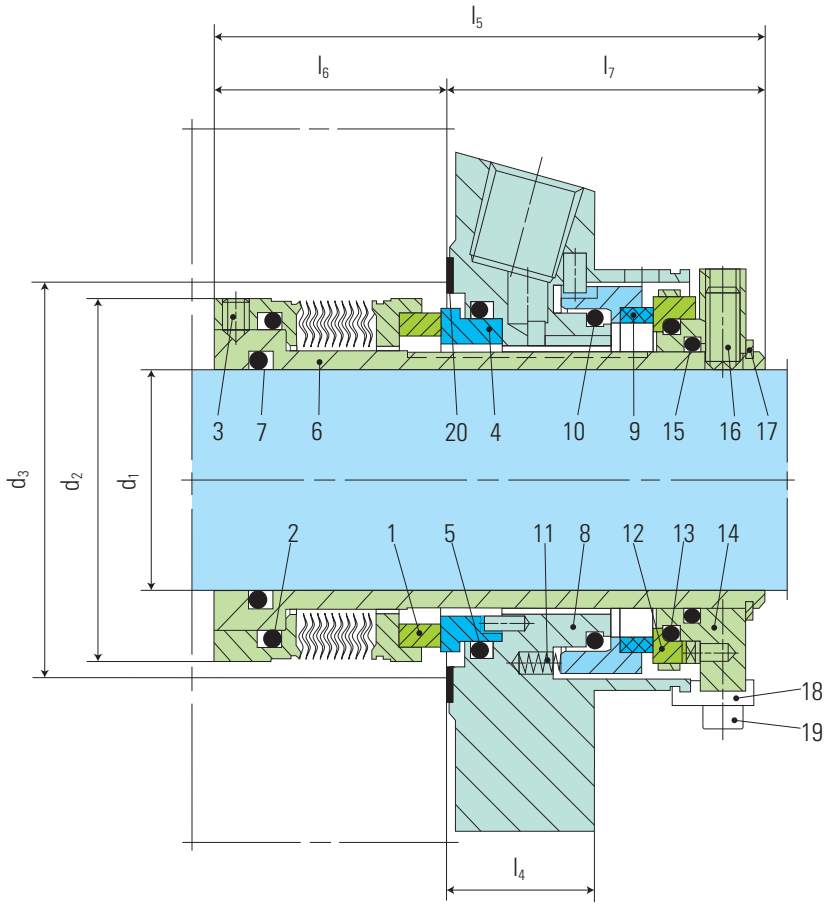
Refining technology
Petrochemical industry
Hot media
Cold media
Highly viscous media
Pumps
Special rotating equipment

Materials

Seal face: Carbon graphite (A),
Silicon carbide (Q1)
Seat: Silicon carbide (Q1),
Tungsten carbide (U2)
Secondary seals: FPM (V), EPDM (E), FFKM (K)
Bellows: Inconel® 718 (M6)
Springs: Hastelloy® C-4 (M)
Metal parts: CrNiMo steel (G), Duplex (G1)

Performance Capabilities

Shaft diameter: d_1 = 25 ... 80 mm (1" … 3.15")
Temperature : t* = – 40 °C ... + 220 °C
(– 40 °F ... + 428 °F)
Pressure: p_1 = 25 bar (232 PSI)
Speed = 20 m/s (66 ft/s)
Barrier fluid circulation system:
$p_3$max = 16 bar (232 PSI)
Δp (p_3–p_1) ideal = 2 … 3 bar (29 … 44 PSI)
Δp (p_3–p_1) max.
= 10 bar (145 PSI) at <120 °C (<248 °F)
= 5 bar (73 PSI) at < 220 °C (< 232 °F)
API Plan 52 (53/54)
Pump startup:
Δp (p_3–p_1) max.16 bar (232 PSI) allowed
* Operating limits of O-rings to be observed

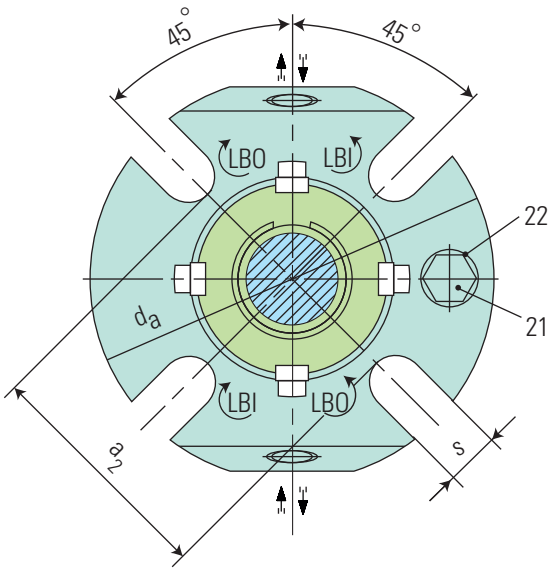


Note: The item numbers as depicted above are based on our technical experience and knowledge and are placed in the chronological order of their assembly procedure.

Item	Description
1	Bellows unit
2, 5, 7,10, 13, 15	O-ring
3, 16	Set screw
4	Seat
6	Shaft sleeve
8	Cover
9	Seal face
11	Spring

Item	Description
12	Seat
14	Drive collar
17	Retaining ring
18	Assembly fixture
19	HSH Cap Screw
20	Gasket
21	Screw Plug
22	Gasket

Installation, Details, Options



Product Variants

MTX9-DN

Dimensions, items and descriptions as for MTX-DN, but with optimized seal face geometry for pressurized operation according to API Plan 53/54. A barrier fluid system (e.g. Sealmatic BFS2000) is necessary.

Pressure: p_1 = 10 bar (145 PSI)

Speed = 20 m/s (66 ft/s)

Barrier fluid circulation system:

$p_3$max = 16 bar (232 PSI)

Δp ($p_3 - p_1$) ideal = 2 … 3 bar (29 … 44 PSI)

Δp ($p_3 - p_1$) max = 16 bar (232 PSI)

API Plan 53/54

Pump startup:

Δp ($p_3 - p_1$) max = 16 bar (232 PSI) allowed

Dimensional Data

Dimensions in millimeter

d_1	d_2	d_3 min.	d_3 max.	l_4	l_5	l_6	l_7	d_a	a_2	s
25	45.0	47.0	51.0	25.4	87.0	33.6	53.4	105.0	62.0	13.2
30	49.4	52.0	56.0	25.4	86.5	33.1	53.4	105.0	67.0	13.2
32	52.3	54.5	57.0	25.4	86.5	33.1	53.4	108.0	70.0	13.2
33	52.3	54.5	57.0	25.4	86.5	33.1	53.4	108.0	70.0	13.2
35	54.8	58.0	61.5	25.4	86.5	33.1	53.4	113.0	72.0	13.2
38	57.5	60.0	66.0	25.4	86.5	33.1	53.4	123.0	75.0	14.0
40	58.8	62.0	68.0	25.4	86.3	32.9	53.4	123.0	77.0	14.2
43	61.9	64.5	70.5	25.4	86.5	33.1	53.4	133.0	80.0	14.2
45	65.0	68.5	73.0	25.4	86.5	33.1	53.4	138.0	82.0	14.2
48	68.4	71.0	75.0	25.4	86.8	33.4	53.4	138.0	85.0	14.2
50	70.0	73.0	78.0	25.4	87.2	33.8	53.4	148.0	87.0	14.2
53	71.9	75.0	87.0	25.4	87.4	34.0	53.4	148.0	97.0	18.0
55	74.6	77.0	83.0	25.4	87.0	33.6	53.4	148.0	92.0	18.0
60	83.9	87.0	91.0	25.4	88.2	34.8	53.4	157.0	102.0	18.0
65	87.5	90.0	98.5	25.4	88.1	34.7	53.4	163.0	109.3	18.0
70	93.0	98.0	108.0	25.4	89.6	36.2	53.4	178.0	118.3	18.0
75	96.8	101.6	118.0	28.0	107.4	43.5	63.9	190.0	129.0	18.0
80	104.7	108.0	124.0	28.0	106.8	42.9	63.9	195.0	135.0	18.0

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