FLOWSERVE

Flow Solutions Division

Mixerpac Standard wet lubricated mixer seals

According to DIN and special designs

Mechanical seals for mixers, agitators and reactors

Mixerpac mixer seals

The whole range of seals for mixers, agitators, stirrers, kneaders, dryers, filters

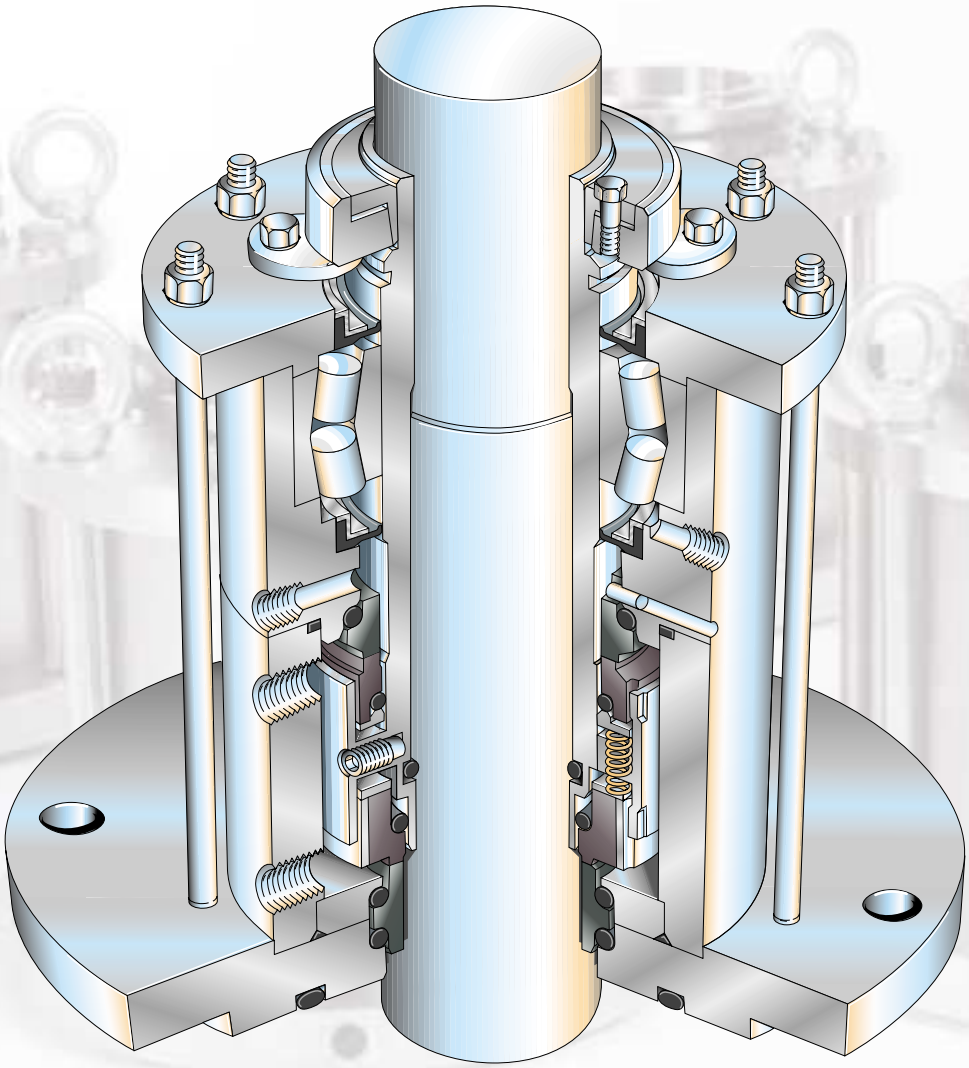
Since the sixties mixer mechanical seals are successfully used in mixer vessels of various construction and fulfill the required sealing tasks in the chemical, pharmaceutical and food industry as well as in the bio process engineering in a predominant number to the most complete satisfaction of the operaters. In process plants, diverse systems are employed for agitating, blending, kneading and drying products.

The units require low maintenance operation and safety, both, to protect the environment and the workplace. The mechanical seal design must provide excellent performance in the application, allowing for axial and radial shaft movements and shaft deflections.

We have the right solution to seal your machines safe and enomical. And we have a well-trained and motivated staff to support you. Nearby as well as worldwide.

Flowserve FSD is focused specifically to provide the best mixer sealing solutions:

- Liquid lubricated 256x range is a cost-effective sealing solution
- Modular design allows easy part replacement
- Cartridge designs with and without a bearing (2561-2566)
- Top and side mounted
- Accommodation for sanitary gland/debris catcher for applications requiring steam cleaning
- Reverse-pressure capability and emergency sealing solutions
- Cooling flange option
- Designs, engineered to fit major OEM's
- Designs, engineered according to DIN
- Ability to handle significant radial and axial run-outs
- Materials, selected for corrosion resistance and long seal life
- Split mixer seal designs to allow easy installation
- Sterilizable designs available
- Auxiliary systems, to enhance reliability
- Knowledgeable and experienced mixer seal team support
- Ability, to design to customer specification



Overview liquid-lubricated mixer seals

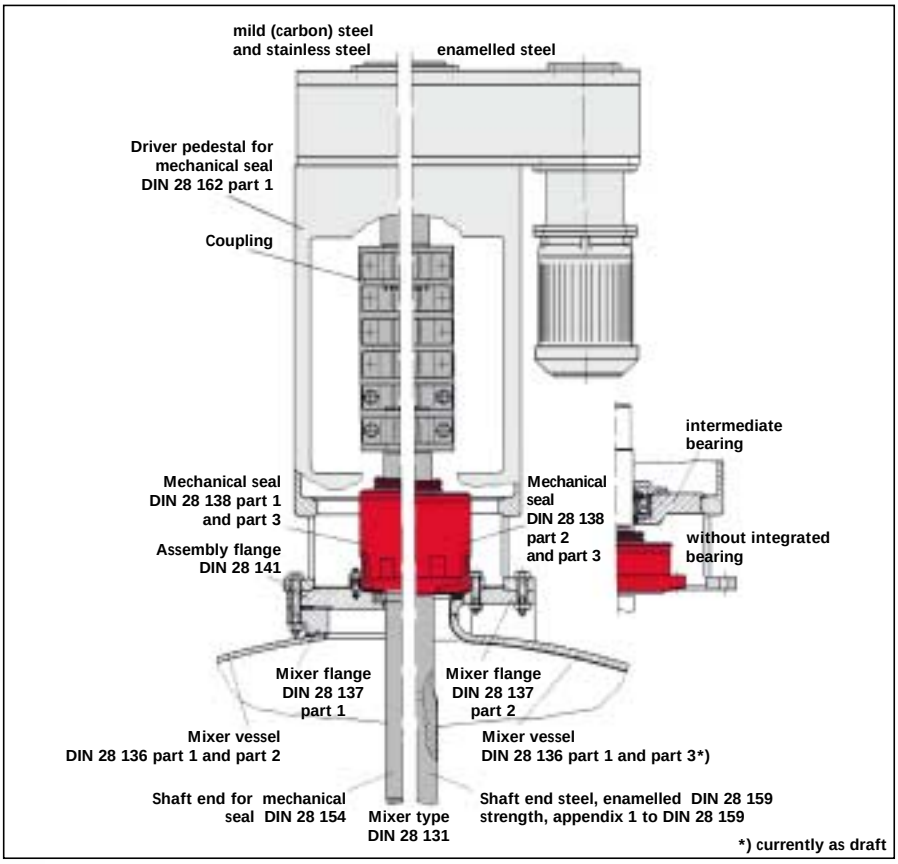
	Type	Page	Product Features: Standard Cartridge Single&Double	Lubrication	Flange	Connections to DIN: Shaft, Flange, Seal	Bearing	Pmax in the vessel [bar]	Remarks
MIXERPAC 2560-2566 according to DIN	2560	6	Cart Dbl	wet	glass-lined	DIN 28 159 DIN 28 137 part 2 DIN 28138 part 2+3	Bearing	6	Top entry
	2561	4	Cart Sgl	wet	stainless steel	DIN 28 154 DIN 28 138 part 1+3 DIN 28 141		6	Top entry
	2562	4	Cart Sgl	wet	stainless steel		Bearing	6	Top entry
	2563	5	Cart Dbl	wet	stainless steel			16	Top entry
	2564	5	Cart Dbl	wet	stainless steel		Bearing	16	Top entry
	2565	5	Cart Dbl	wet	stainless steel			6	Top entry, easy to clean
	2566	5	Cart Dbl	wet	stainless steel		Bearing	6	Top entry, easy to clean
Semi standard /Custom designed MIXERPAC	577	9	Cart Dbl	wet	Upon request		Bearing		Top entry, sterile
	580	7	Cart Dbl	wet			Bearing	40	High pressure
	581	7	Cart Dbl	wet			Bearing	250	High pressure
	585	8	Cart Dbl	wet				6	Bio reactors
	586	8	Cart Dbl	wet			Bearing	6	Bio reactors
	587	8	Cart Dbl	wet				10	Side entry
	588	8	Cart Dbl	wet			Bearing	10	Side entry
Accessories		9							
Auxiliaries		11							

For Flowserve **Mixerpac M-series** (wet and dry running) please see separate brochure.

DIN - Mixer drives

Mixer drive
- **Overview** — **DIN 28 130 part 3**
- **Explanations** — **appendix 1 to DIN 28 130 part 3**
- **Demands** — **DIN 28 161**

Mixer vessel with mixer description — **DIN 28 130**



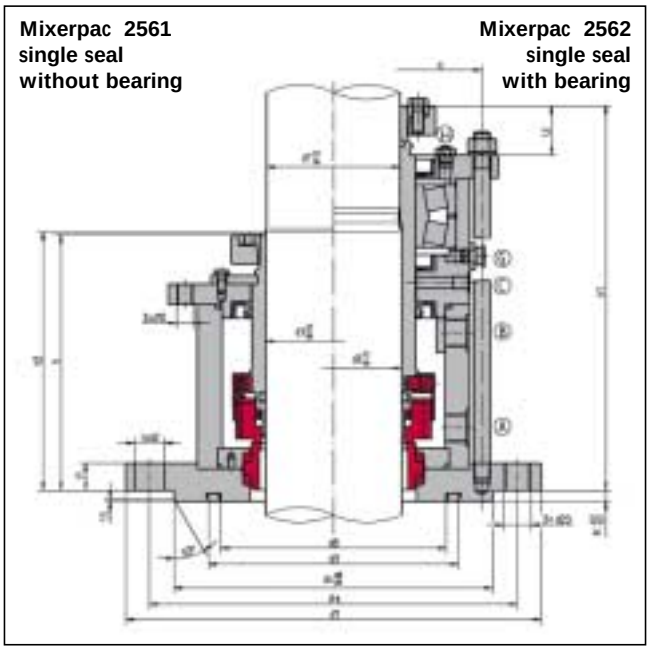
Mixerpac 2561-2562

Liquid lubricated, top entry according to DIN

Cost-efficient liquid lubricated mixer mechanical seal, for low duties.
These seals serie 256x is based on the DIN standard. They are equipped with standard parts for liquid lubricated seals. One housing for all varieties. Available as single (2561/62) and as double seal (2563/64), with bearing (2562/64) or without bearing (2561/2563).
The Mixerpac 2564 features a liquid lubricated double seal and a bearing, it is designed for steel vessels. The Mixerpac 2560 is equipped with a glass-lined flange. The Mixerpac 2565, 2566 is designed for easy-to-clean applications.

Mixerpac 2561
single seal
without bearing

Mixerpac 2562
single seal
with bearing



Reverse-pressure capability.
Left: Seal closed by barrier fluid
Right: Seal closed by vessel-side pressure

Operating parameters 2561-2564

Pressure: (in the vessel)
Vacuum to 16 bar
- 2563, 2564 shaft size up to 100 mm

Vacuum to 10 bar
- 2563, 2564 shaft size > 100 mm

Vacuum to 6 bar
- 2561, 2562 quenched seals

Temperature: (in the vessel)
Double seals
- -20 to +200°C
- up to 300°C with cooling flange 810

Single seals
- -20 to +150°C
- up to 250°C with cooling flange 810

Linear face speed: 4 m/s (Double seals)
2 m/s (Single seals)

Shaft sizes (d3): 40 to 220 mm

Materials 2561-2566

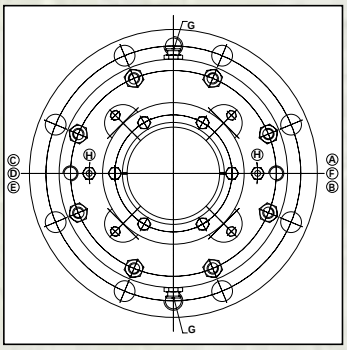
Seal faces: Resin-impregnated carbon / Silicon carbide
Silicon carbide / Silicon carbide (optional)

Metal parts: Product-wetted:
1.4571 (~ 316 TI stainless steel)
Non product wetted:
1.4122 (~AISI 431)

Gaskets: Elastomers, Non-elastomers, PTFE

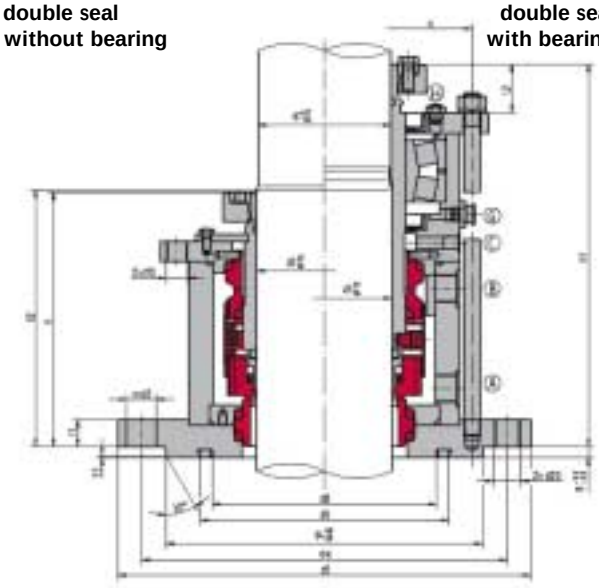
Supply Connections according to DIN 28 138 part 3

A Barrier liquid inlet
B Barrier liquid outlet
C Leakage control atmospheric side
D Leakage control product side
E Cooling inlet
F Cooling outlet
G Grease



Mixerpac 2563
double seal
without bearing

Mixerpac 2564
double seal
with bearing



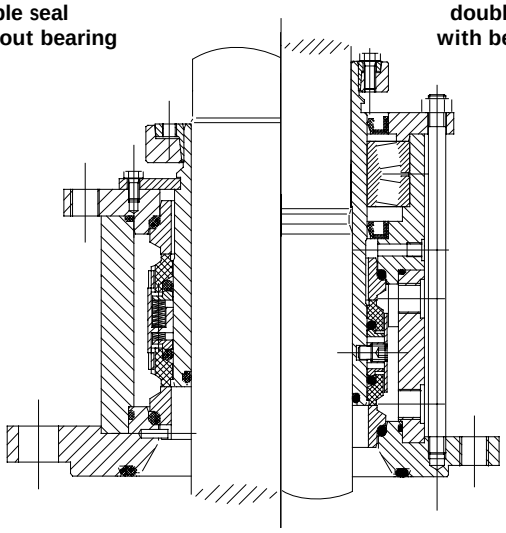
Features 2560-2566

- Modular construction Mixperpac 2560 to 2566
- Cartridge design
- Reverse pressure capability of the product side seal (Mixerpac 2560 - 2564)
- Pressure-tested unit with integrated self-aligning roller bearing (movable bearing) - Mixerpac 2562, 2564, 2566
- Fully equipped with PTFE gaskets (optional)
- Bi-directional rotation
- Barrier circulation bi-directional by baffle
- Connections according to DIN
- Torque transmission by means of a shrink disc

Mixerpac 2565, 2566 for vessels of carbon steel and stainless steel

Mixerpac 2565
double seal
without bearing

Mixerpac 2566
double seal
with bearing



Features 2565-2566

- Easy-to-clean design
- Modular construction: interchangeable with series 2561 - 2564
- Cartridge design
- Pressure-tested unit with integrated self-aligning roller bearing (movable bearing)
- Fully equipped with PTFE gaskets (optional)
- Bi-directional rotation
- Barrier circulation bi-directional by baffle
- Connections according to DIN
- Torque transmission by means of a shrink disc

Operating parameters 2565-2566

Pressure: Vacuum to 6 bar
(in the vessel)
Temperature: -20 to +150°C
(in the vessel)
Linear face speed: 4 m/s
Shaft sizes (d3): 40 to 220 mm

Dimensional data Mixerpac 2561-2566

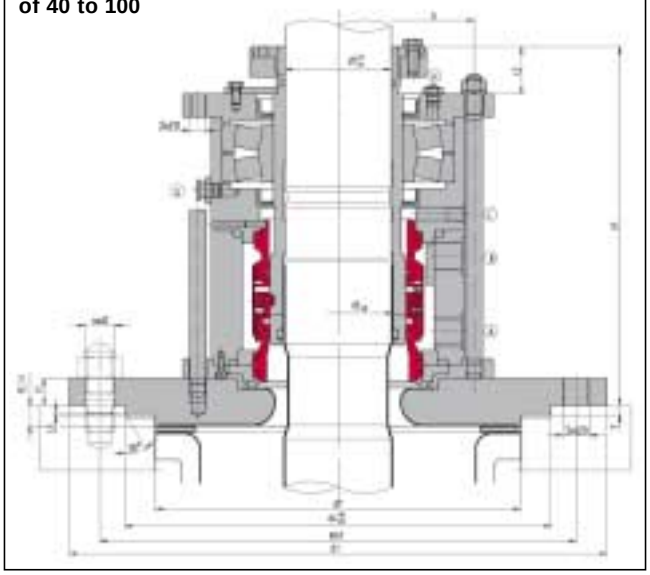
d_3	d_7	d_1	nxd_2	d_4	d_8	d_9	d_{10}	d_{20}	a	h_1	h_2	k	l_1	l_2	A,B	C
40	38	175	4x18	110	91	102,5	M12	M16	130	193	131	145	16	30	G3/8	G1/8
50	48	240	8x18	176	105.5	119	M12	M16	153	214,5	140	210	18	30	G3/8	G1/8
60	58	240	8x18	176	115.5	129	M12	M16	163	222	150	210	18	30	G3/8	G1/8
80	78	275	8x22	204	145	161	M16	M20	200	250	160	240	20	35	G1/2	G1/8
100	98	305	8x22	234	170	188	M16	M20	218	268	170	270	20	35	G1/2	G1/8
125	120	330	8x22	260	195	211	M20	M20	248	289,5	192,5	295	22	40	G1/2	G1/8
140	135	395	12x22	313	212	228	M20	M20	285	305	199	350	22	40	G1/2	G1/8
160	150	395	12x22	313	232	250	M20	M20	342	323	205	350	25	42	G1/2	G1/8
180	170	445	12x22	364	258	276	M24	M20	372	345,5	221	400	25	45	G1/2	G1/8
200	190	445	12x22	364	280	296	M24	M20	360	326,5	225	400	28	45	G1/2	G1/8
220	210	505	16x22	422	300	316	M24	M20	415	377	234,5	460	28	50	G1/2	G1/8

Mixerpac 2560

For glass lined vessels, according to DIN

Features 2560
- Modular construction
- Cartridge design w/o flange
- Can be dis-/mounted as cartridge, without glass-lined flange
- Reverse pressure capability
- Fully equipped with PTFE gaskets (optional)
- Pressure-tested unit with integrated self-aligning roller bearing (movable bearing)
- Connections according to DIN
- Torque transmission by means of a shrink disc

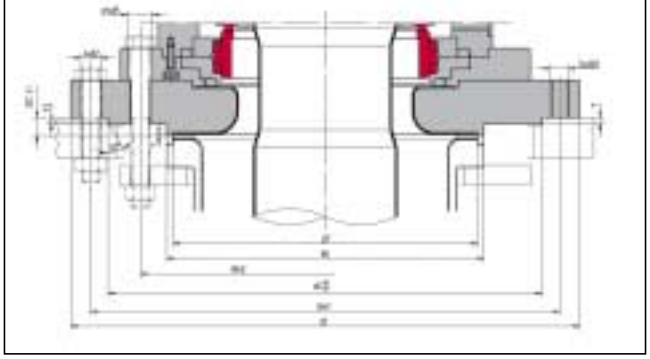
Double seal with bearing, glass-lined flange
Flange connection to DIN 28 138 part 2 for nominal sizes of 40 to 100



Operating parameters 2560

Pressure: Vacuum to 6 bar
(in the vessel)
Temperature: -25 to +200°C
(in the vessel)
Linear face speed: 4 m/s
Shaft sizes (d3): 40 to 160 mm

Flange connections to DIN 28 138 T 2 sizes 125 to 161



Materials 2560

Seal faces: Resin-impregnated carbon / Silicon carbide
Metal parts: Product-wetted:
glass-lined
Non product wetted:
1.4122 (~AISI 431)
Gaskets: Elastomers, Non-elastomers, PTFE

Dimensional data Mixerpac 2560

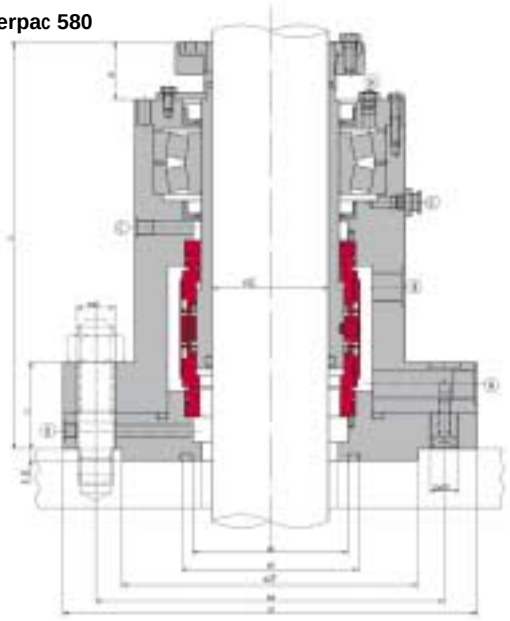
d_3 [1]	d_7 [1]	Nominal size	Flange size [2]	d_1	n x d_2	d_4	n x d_5	d_6	d_7	M_1	M_2	a	h	k_1	k_2	l_1	l_2	A, B	C
40	38	40	E 125	175	4x18	110	-	-	102	M12	M16	110	213	145	-	20	28	G3/8	G1/8
50	48	50	E 200	240	8x18	176	-	-	138	M12	M16	140	240	210	-	20	28	G3/8	G1/8
60	58	60	E 250	275	8x22	204	-	-	188	M12	M16	150	250	240	-	22	30	G3/8	G1/8
80	78	80	E 300	305	8x22	234	-	-	212	M16	M20	190	279	270	-	22	35	G1/2	G1/8
100	98	100	E 400	395	12x22	313	-	-	268	M16	M20	200	308	350	-	25	35	G1/2	G1/8
100	98	100	E 500	395	12x22	313	-	-	268	M16	M20	200	308	350	-	25	35	G1/2	G1/8
125	120	125	E 700	505	4x22	422	12x22	320	306	M20	M20	250	333	460	350	28	40	G1/2	G1/8
140	135	140	E 700	505	4x22	422	12x22	320	306	M20	M20	265	359	460	350	30	40	G1/2	G1/8
160	150	160	E 700	505	4x22	422	12x22	320	306	M16	M20	305	384	460	350	30	40	G1/2	G1/8
160	150	160	E 900	505	4x22	422	12x22	320	306	M16	M20	305	384	460	350	30	40	G1/2	G1/8
160	150	161	E 901	565	4x26	474	12x22	370	356	M16	M20	305	384	515	400	30	40	G1/2	G1/8

Measures in mm - [1]) Shaftdiameter d_3 and d_7 according to DIN 28 159
[2]) Flange size according to DIN 28 137 part 2

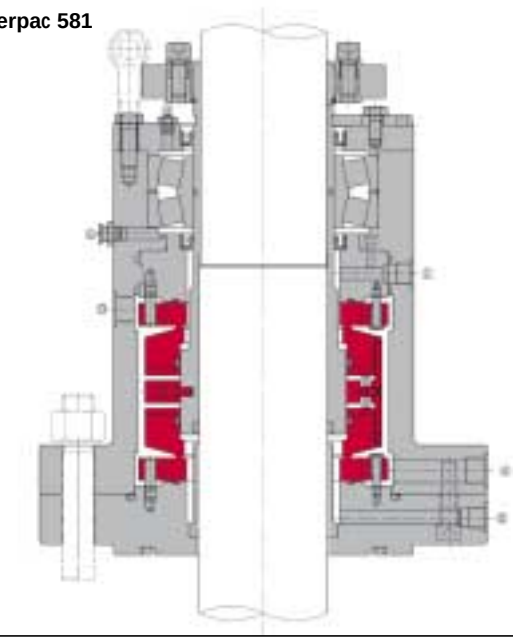
Mixerpac 580-581

For medium/high pressure applications

Mixerpac 580



Mixerpac 581



Features 580

Mechanical seals for medium pressure mixer vessels and reactors.

- Top entry
- Bi-directional
- Integrated self aligning spherical roller bearing as movable bearing configuration
- Fully equipped with PTFE gaskets (optional)
- Basic seal FEM (Finite-Element-Method) analysed

Materials 580-581

Seal faces 580:	Resin-impregnated carbon / Silicon carbide Silicon carbide / Silicon carbide (optional)
Seal faces 581:	Silicon carbide / Resin-impregnated carbon
Metal parts:	1.4571 (~ 316 TI stainless steel)
Gaskets:	Elastomers, Non-elastomers, PTFE

Features 581

Mechanical seals for high pressure mixer vessels and reactors.

- Hydraulically balanced mating rings
- Deformation resistant faces
- Fully equipped with PTFE gaskets (optional)
- Basic seal FEM (Finite-Element-Method) analysed

Operating parameters 580-581

	580	581
Pressure: (in the vessel)	Vacuum to 40 bar	Vacuum to 250 bar
Temperature: (in the vessel)	-20 to +200°C up to 300°C with cooling flange	-80 to +200°C
Linear face speed:	4 m/s	
Shaft sizes (d3):	20 to 220 mm; other sizes upon request	

Dimensional data Mixerpac 580

d_3	d_1	nxd_2	d_4	d_8	d_9	d_{20}	h	k	l_1	l_2	A, B	C, D
30	198	4x22	121	44	54	M16	212	160	50	26	G3/8	G1/8
40	198	4x22	121	52	64.5	M16	220	160	50	26	G3/8	G1/8
50	248	8x22	176	73.5	85.5	M16	248	210	55	30	G3/8	G1/8
60	248	8x22	176	83.5	95.5	M20	248	210	55	30	G3/8	G1/8
70	248	8x22	176	92	105.5	M20	260	210	55	38	G1/2	G1/8
80	285	8x26	204	107	121.5	M20	290	240	60	38	G1/2	G1/8
90	285	8x26	204	127.5	141.5	M20	300	240	60	38	G1/2	G1/8
100	320	8x30	234	138	153.5	M20	310	270	65	38	G1/2	G1/8
110	320	8x30	234	138	153.5	M20	325	270	65	45	G1/2	G1/8
120	345	8x30	260	162	178	M20	330	295	70	45	G1/2	G1/8
125	345	8x30	260	162	178	M20	348	295	70	45	G1/2	G1/8
130	345	8x30	260	162	178	M20	348	295	70	45	G1/2	G1/8
140	400	12x30	313	188	203.5	M20	355	350	75	45	G1/2	G1/8
150	400	12x30	313	188	203.5	M20	368	350	75	45	G1/2	G1/8
160	400	12x30	313	188	203.5	M20	375	350	75	45	G1/2	G1/8
170	400	12x30	313	225	240.5	M20	380	350	75	45	G1/2	G1/8
180	460	12x33	364	225	240.5	M20	398	400	80	50	G1/2	G1/8
190	460	12x33	364	238	253.5	M20	405	400	80	50	G1/2	G1/8
200	460	12x33	364	238	253.5	M20	410	400	80	50	G1/2	G1/8
210	520	16x33	422	264	279.5	M20	415	460	90	50	G1/2	G1/8
220	520	16x33	422	264	279.5	M20	415	460	90	50	G1/2	G1/8

Adaptive parts for 581 designed to seal chamber and machine dimensions

Mixerpac 585-588

For top/bottom/side entry

Features 585-586

Mechanical seals for bioreactors and others.

- Bottom entry
- Bi-directional
- Integrated self aligning spherical roller bearing as movable bearing configuration
- Rotating spring-loaded unit, including self-emptying features
- Guiding bushing provides proper barrier liquid circulation also to the product side faces for sufficient heat dissipation
- Construction with few gaps and crevices

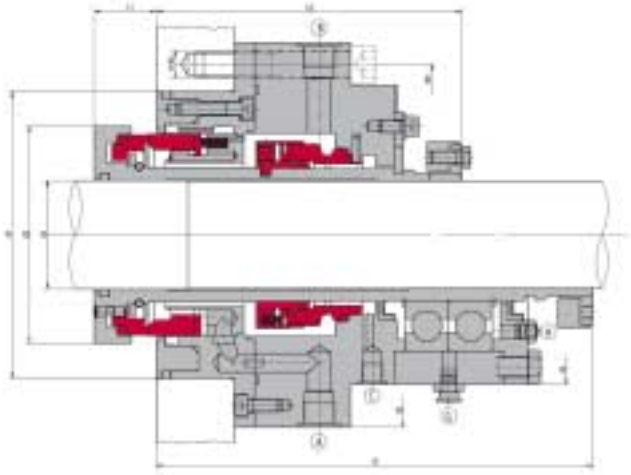
Features 587-588

- Side entry, top entry
- Mechanical seals for high viscous or pulverized products
- Guiding bushing provides proper barrier liquid circulation also to the product side faces for sufficient heat dissipation
- Construction with few gaps and crevices

Mixerpac 585
without bearing

Mixerpac 586
with bearing

Mixerpac 587
without bearing



Mixerpac 588
with bearing

Operating parameters 585-588

Pressure:	Vacuum to 6 bar (585, 586)
(in the vessel)	Vacuum to 10 bar (587, 588)
(balanced seal)	Higher pressures upon request
Temperature:	-20 to +180°C (585, 586)
(in the vessel)	-20 to +200°C (587, 588)
Linear face speed:	4 m/s (585, 586), 10 m/s (587, 588)
Shaft sizes (d3):	40 to 220 mm (585, 586); other sizes 40 to 200 mm (587, 588); upon request

Materials 585-588

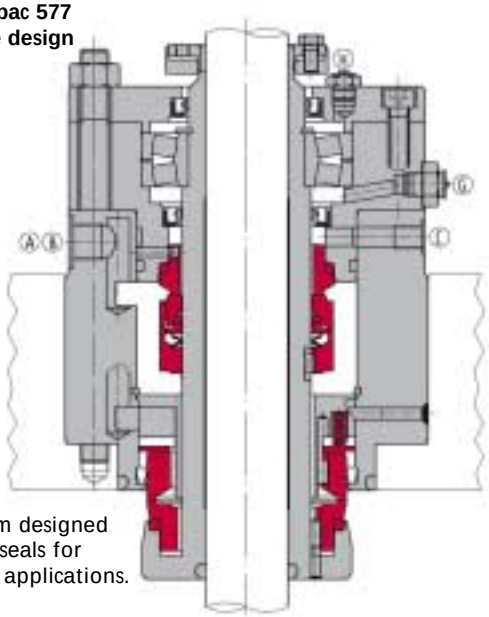
Seal faces:	Silicon carbide / Resin or antimony impregnated carbon Silicon carbide / Silicon carbide Tungsten carbide / Tungsten carbide (587, 588)
Metal parts:	1.4571 (~ 316 TI stainless steel)
Gaskets:	Elastomers, Non-elastomers, PTFE

Dimensional data Mixerpac 585-588

d_3	d_2	d_1	d_4	d_5	d_6	d_7	d_8	k	n	l_1	l_2	l_3	l_4	l_5	l_6	A,B	C
40	80	130	150	190	11	85	100	170	8	42	170	210	22	158	200	G3/8	G1/8
50	100	150	170	225	11	105	120	195	8	42	180	240	55	168	228	G3/8	G1/8
60	120	160	190	245	11	125	140	205	8	45	190	250	60	175	235	G3/8	G1/8
80	150	220	240	300	14	160	180	250	8	48	210	270	65	195	225	G1/2	G1/4
100	170	240	260	320	14	180	200	270	8	48	230	300	65	215	285	G1/2	G1/4
110	190	250	270	330	14	200	220	280	8	52	240	320	70	225	300	G1/2	G1/4
125	205	265	295	385	18	215	235	330	8	52	250	330	70	232	310	91/2	G1/4
140	230	290	310	400	18	240	260	345	8	55	255	350	75	235	330	91/2	G1/4
160	245	300	320	410	18	260	280	355	8	60	260	360	80	240	340	91/2	G1/4
180	255	320	345	430	18	270	300	375	12	60	270	370	80	250	350	91/2	G1/4
200	270	350	360	440	18	285	320	395	12	65	290	410	90	265	385	91/2	G1/4

Adaptive parts designed to seal chamber and machine dimensions

Mixerpac 577
Sterile design



Custom designed mixer seals for sterile applications.

Cleaning-Sterilization

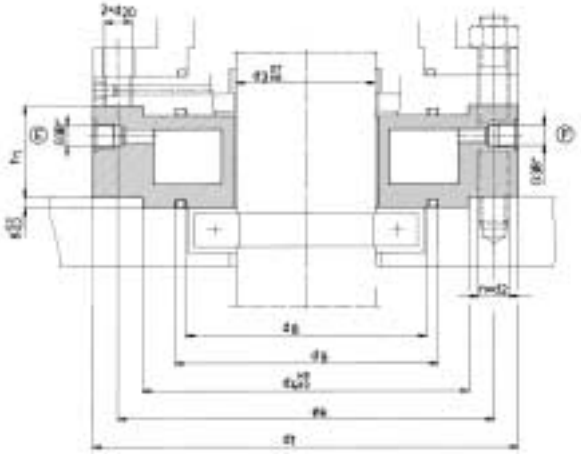
- Methods:
  - CIP = Cleaning in Place, i.e. the installed mechanical seals are cleaned with a washing solution of 2% nitric acid and flushed with a 5% caustic soda lye (up to pH = 14). This is done at a temperature of t = 60°C to 80°C over a period of approx. 15 minutes.
  - SIP = Sterilization in Place, i.e. the installed mechanical seals are sterilized at stationary shaft with steam at about 135°C and a pressure of p = 3,5 to 4 bar for a period of approx. 30 minutes.
- Frequently used terms related to sterilization:
  - FDA = Food and Drug Administration, Division of the US Department of Health, Education and Welfare. Supervises food, drug and cosmetics to the protection of the population.
  - GMP = Good Manufacturing Practices. Basic principles for the production and quality control of drugs published for the first time in 1968 by the World Health Organization.
  - QHD = Qualified Hygienic Design. Guidelines for sterilization from VDMA.

Requirements on mixer mechanical seals

- Construction with few gaps and crevices
- Good possibility to clean/sterilize
- Non-abrasive materials for faces and gaskets
- Smooth, rounded surface contour on the product side
- High surface quality of the product touched parts (Ra < 0,8 µm)
- Good resistance against steam, hot water, disinfectant also with CIP
- Non-poisonous materials, being non-ageing and non-corroding, colorless and tasteless, light and ozone resistant.

Cooling flange 810 for Mixerpac 2561, 2562, 2563, 2564

Optional with/without leakage cup



Operating parameters 810

Pressure: 16 bar
Temperature: 300°C Double seals
250°C Single seals

Cooling flanges for other seals upon request

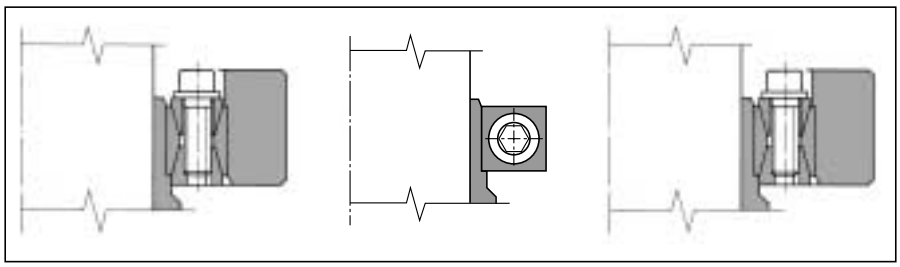
Leakage cup (optional)

The leakage cup drains the leakage.

Dimensional data 810

d_3	d_1	n x d_2	d_4	d_8	d_9	d_{20}	h_1	k
40	175	4x18	110	91	105	M16	58	145
50	240	8x18	176	106	121	M16	58	210
60	240	8x18	176	116	131	M16	58	210
80	275	8x22	204	145	163	M20	60	240
100	305	8x22	234	170	188	M20	65	270
125	330	8x22	260	195	213	M20	65	295
140	395	12x22	313	212	230	M20	65	350
160	395	12x22	313	232	250	M20	75	350
180	445	12x22	364	258	276	M20	75	400
200	445	12x22	364	280	298	M20	75	400
220	505	16x22	422	300	318	M20	75	460

Clamping devices for securing the seal on the shaft

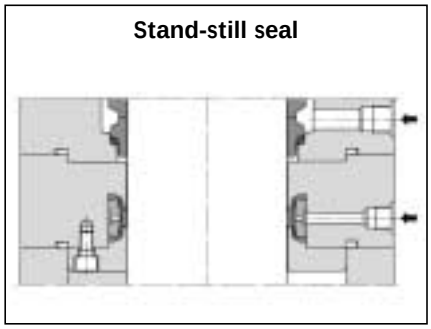


Torque transmission by means of a shrink disc

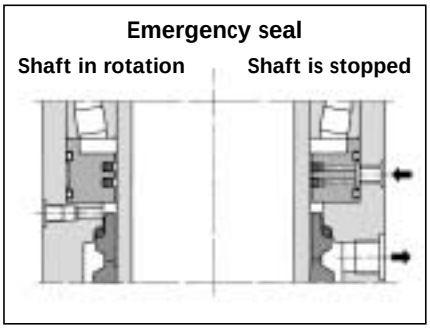
Torque transmission by means of a clamping-ring unit

Torque transmission by means of a split clamping-ring unit

Stand-still seals



Possibility to change the seal with the vessel loaded



Not activated during shaft rotation; activated during stand-still

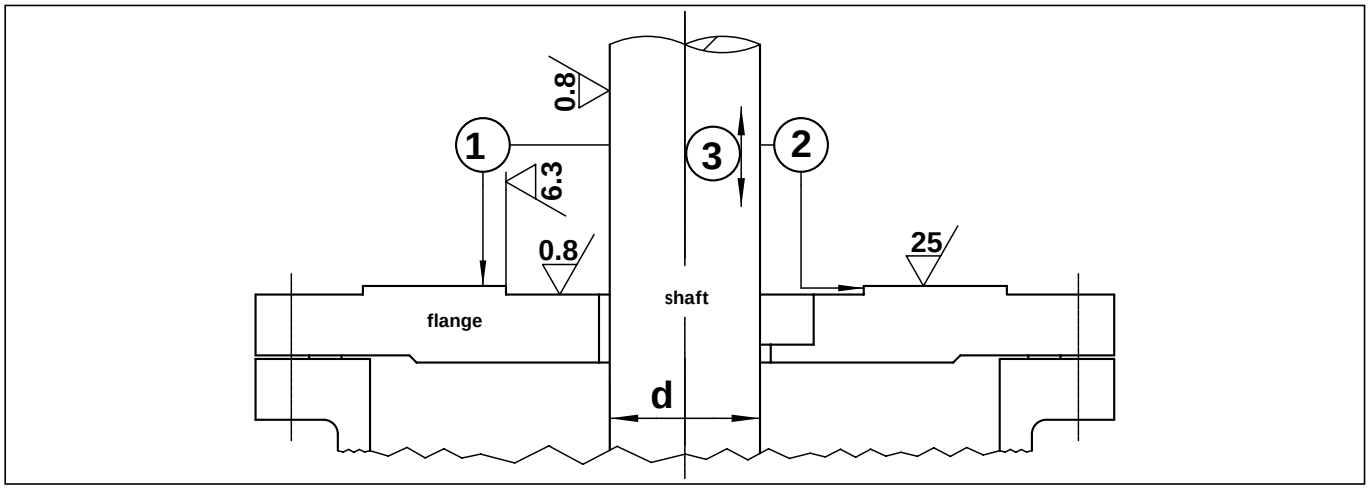
Demands on barrier liquids

Barrier liquids must be clean, free from solid particles, of low viscosity, be product compatible, temperature resistant and must not attack materials in use. Water and oils are most frequently used as barrier liquid. The following must be adhered to:

Water: On account of its good heat conductivity water is very suitable as a barrier.
The high solubility of salts and gases in water however, proves detrimental. Frequently the deposition of salts and other solid particles at hot surfaces e.g. in sealing gaps, is the result.
In order to avoid this a prepared, softened or distilled water or condensate is preferred. An antifreeze without additives like e.g. glycols may be added if freezing risk is given.

Oil: Useful is mineral oil or synthetic oil with a viscosity of 15 to max. 50 mm²/s (cSt) at working temperature. In addition the oil must be resistant to aging and, even in contact with the product, not tend to paste or coke.

Installation
Tolerance check before fitting the Mixerpac seal

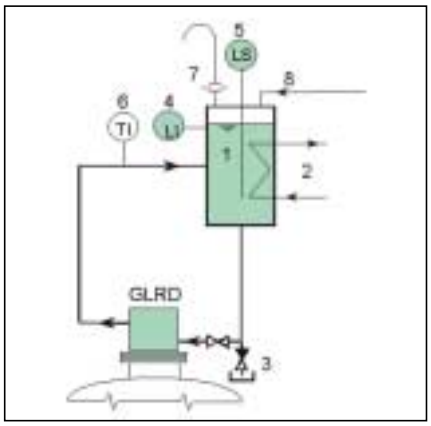


		d (mm)		
		40 50 60 80	100 125 140160	180 200 220
permissible	1	0,15	0,20	0,25
tolerances	2	0,20	0,25	0,30
	3	0,10	0,20	0,30

d acc. to DIN 28 144, DIN 28 154 and DIN 28 159

Piping schematic, unpressurized system, optional with heat exchanger

1 Vessel (pressureless)
2 Cooling coil
3 Drain
4 Level indicator
5 Level switch
6 Thermometer
7 Orifice to the vent
8 Filling connection

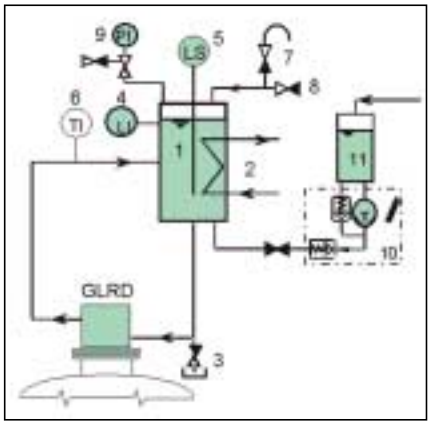


Quench fluid tank

Capacity	3l
Pressure	0 bar
Temperature	up to 200°C

Piping schematic, pressurized system, with heat exchanger, optional with forced circulation

1 Vessel
2 Cooling coil
3 Drain
4 Level indicator
5 Level switch
6 Thermometer
7 Vent
8 N_2-connection
9 Pressure gauge
10 Filling pump
11 Refill vessel

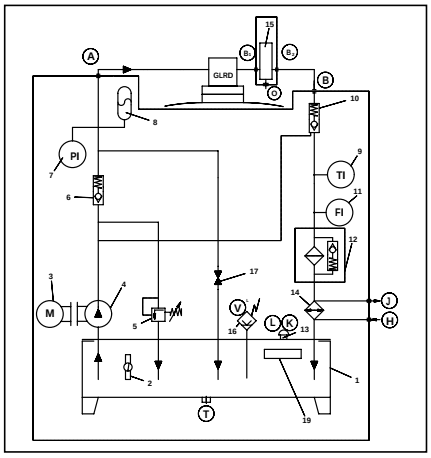


Thermosyphon pressure vessel

Capacity	6l	10l
Pressure		
standard	32 bar	20 bar
optional	40, 64bar	40, 64 bar
Temperature	up to 200°C	
Consumption		
capacity	1.8l	3.8l

Piping schematic, pressurized system, with heat exchanger, optional with forced circulation

1 Reservoir
2 Level gauge with temperature indicator
3 Motor
4 Gear pump
5 Safety relief valve
6 Non return valve
7 Pressure indicator
8 Accumulator
9 Temperature indicator
10 Non return valve
11 Flowmeter
12 Filter with bypass valve
13 Filler breather filter
14 Heat exchanger
15 Pressure control valve
16 Level switch
17 Valve
19 Identification plate

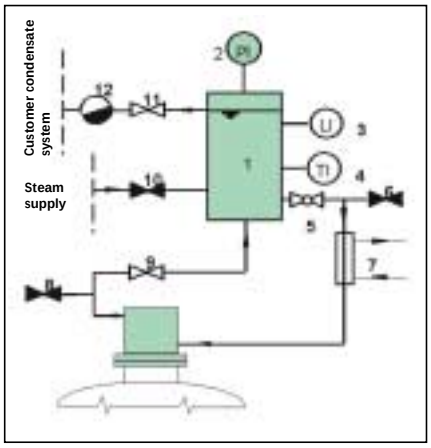


Pressure transmitter

Capacity	3l	6l
optional	15l	
Pressure		
standard	40 bar	32 bar
optional	64 bar	40, 64 bar
Temperature	up to 150 °C	
Consumption		
capacity	0.8l	1.3l
Cooling capacity at:		
Thermosyphon		
circulation	1 kw	1.5 kw
Forced		
circulation	2.5 kw	4 kw

Sealant systems for sterile applications

1 Vessel
2 Pressure indicator
3 Level gauge
4 Temperature indicator
5 Valve
6 Vent valve
7 Heat exchanger
8 Steam exhaust valve
9 Valve
10 Steam supply valve
11 Condensate valve
12 Condensate separator



Pressurizer with gear pump and self-acting pressure resistance, when motor fails

Pumpcapacity	6l/min	12l/min
Sealant pressure	10 to 50 bar	
Oil viscosity at 50°C	12mm²/s	90mm²/s
Tankcapacity	40l	70l
Dimensions:		
height	780mm	810mm
width	700mm	800mm
depth	440mm	505mm

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Flow Solutions Division

BW Seals
Durametallic Seals
Pacific Wietz Seals
Pac-Seal

Flowserve Dortmund facility

Flowserve Dortmund Mixer team

The Flowserve FSD Dortmund facility is specialized in sophisticated mechanical seals for mixers, compressors and pumps. At this location sealing solutions have been made since 1919 on a very high level.
The advantage of cooperation with Flowserve lies on the one hand in technically efficient, high quality, and long service life products, and on the other hand in the technical competence and commitment to advice and customer service.
The product range contains standard seals as well as custom engineered solutions. Whether liquid lubricated or lift-off technology - we deliver always the state of the art.
Flowserve FSD supports you by local sales engineers and by our special mixer support group in Dortmund. For your special requirements we have engineering capacity especially for mixer applications.
Our service for you includes service and repair centers all over the world (12 in Europe) and training and education of your personnel.

Flowserve Dortmund Mixer test stand

Products
- Standard seals
- Standard seals according to DIN
- Sterile design
- Custom engineered by using standard parts
- Custom engineered

Service
- Service Centers near-by to you
- Service Centers wordwide
- Repair of all mixer seals
- Full range of seals for mixers

Support
- Consulting by our engineers near-by to you
- Consulting by our mixer support group in our facilities in Dortmund and Kalamazoo
- Global engineering capacity
- Experience since 1919

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