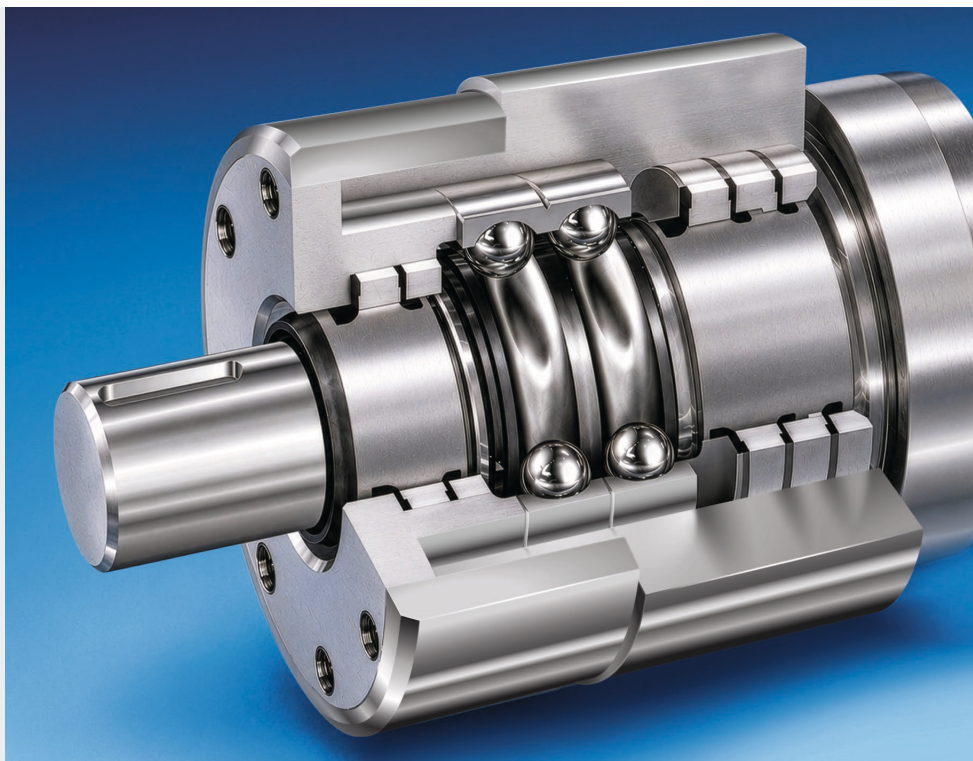
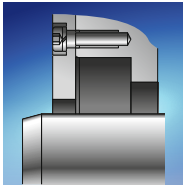
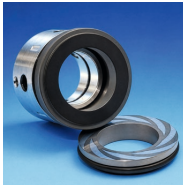
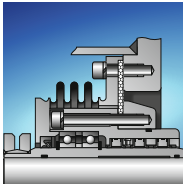
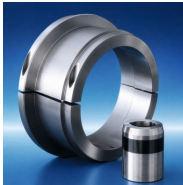


Technical Seals



**Solutions for complex
shaft seals**

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9		Universal Shaft Seal
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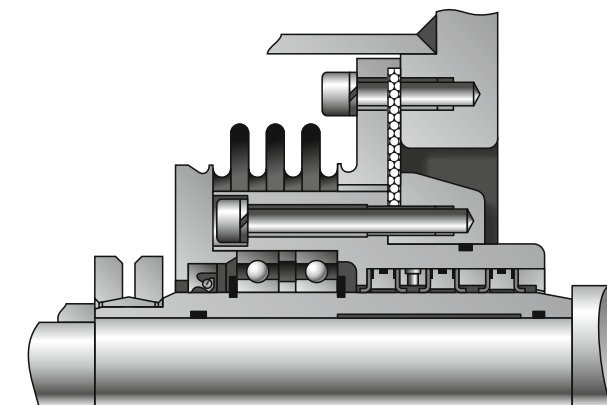
TEDIMA – Customised Sealing Solutions

Since 1983, TEDIMA has stood for individually developed sealing solutions in demanding industrial applications. Founded by Kurt H. Kiparski based on decades of experience in sealing technology, the company is today managed as a second-generation family business by Kurt R. Kiparski and Ralf Kiparski.

Our aim is to deliver precise solutions tailored exactly to the respective task. Technical know-how, personal

support, and the highest quality standards form the foundation of our work.

TEDIMA solutions are used, among others, in the chemical, pharmaceutical, and food industries, in mechanical and plant engineering, in environmental technology, as well as in mining. Manufactured from high-quality materials, they fulfill the highest quality and safety standards.



Everything from a Single Source

At TEDIMA, you receive a comprehensive service package for tailored sealing solutions:

- Customer-specific consulting and service – also directly on site
- Development and design of individual sealing solutions
- Production in Germany
- Inspection, repair, and maintenance of used sealing components
- Modern machinery
- 100% quality control prior to shipment
- Broad selection of proven solutions based on decades of experience in sealing technology

Expertise

Our expertise is applied whenever:

- Standard solutions are no longer sufficient
- Compliance with Clean Air Guidelines (TA-Luft) requires special demands
- Toxic media must be safely sealed
- Dead volume spots need to be avoided
- Shaft deflections require special sealing concepts

In these cases, we develop individual solutions, precisely tailored to the specific requirement.

Certified Solutions for Highest Demands

Depending on the field of application, we deliver our seals:

- for ATEX areas
- for the food industry according to **FDA** or **EU/EC guidelines**



TEDIMA MultiSeal

The High-Performance Shaft Seal



The thermoelastic high-performance seal MultiSeal offers an alternative to mechanical seals and braided packings.

- Advantages of MultiSeal:**
- Applicable under pressure and vacuum
 - Suitable for high peripheral speeds
 - Temperature resistant up to 260 °C
 - Excellent chemical media resistance
 - Suitable for use in the food and pharmaceutical sectors
 - Wear-resistant and low-friction
 - Good dry-running properties

- Typical Applications:**
- Centrifuges
 - Rotary valves
 - Mixers
 - Compressors
 - Agitators
 - Separators
 - Rotary feedthroughs
 - Screw conveyors
 - Pumps

- Product Designs:**
- MultiSeal Standard
 - MultiSeal Standard with Double Lip
 - MultiSeal Set of Lips
 - MultiSeal Special
 - MultiSeal Floating Seal

The thermoelastic high-performance seals MultiSeal work with a sealing lip made of modified PTFE with stopped cold flow. This material is manufactured in a special process under the brand name TEDEX. Sealing lips made of TEDEX feature a pronounced memory behavior, high elasticity, low friction, low wear behavior, and do not require a metallic spring element.

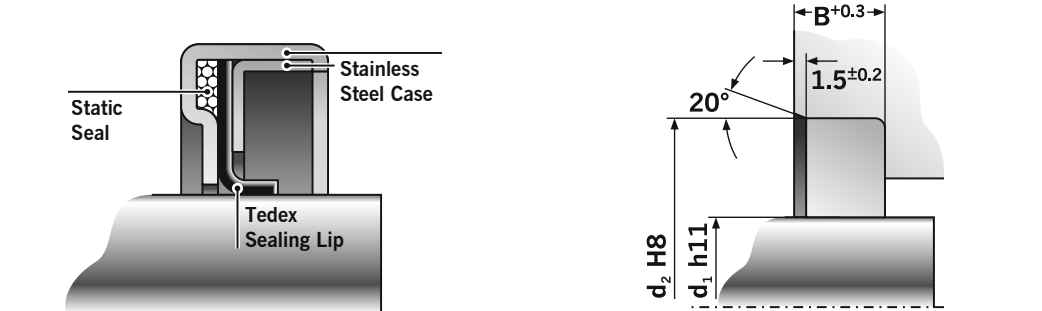
TEDIMA high-performance MultiSeals are manufactured specifically for the reliable sealing of rotating shafts under high pressures, peripheral speeds, temperatures, aggressive media, deficient lubrication, or dry running. In such applications, conventional radial shaft seal rings with elastomeric sealing lips can only be used to a limited extent or not at all.

Due to the manifold requirements in practical applications, the thermoelastic high-performance seal MultiSeal enables cost-effective solutions. TEDIMA therefore offers the user five different product designs ranging from off-the-shelf, ready-to-install standard seal rings to customized special constructions.

TEDIMA MultiSeal

Standard

The MultiSeal Standard is a ready-to-install high-performance radial shaft seal ring featuring a stainless steel housing (1.4571), a sealing lip made of TEDEX-Black, and a static elastomer made of Viton®.



Dimensions according to DIN 3760

d1	d2	B	d1	d2	B	d1	d2	B	d1	d2	B
10	25	7	30	42	8	35	55	8	42	60	10
12	25	7	25	47	7	35	55	10	42	62	8
12	28	8	25	47	8	38	55	7	42	62	10
15	30	8	28	47	7	38	55	10	43	60	8
17	28	6	28	47	10	38	60	10	45	60	8
17	28	8	30	47	7	40	55	7	45	60	10
17	35	8	30	47	8	40	55	8	45	62	7
18	35	7	30	47	10	40	55	10	45	62	8
20	35	7	32	47	10	40	60	8	45	62	10
20	35	8	35	47	7	40	60	10	45	65	8
22	40	8	35	47	8	40	62	6	45	65	10
24	40	8	35	47	10	40	62	7	48	65	10
25	42	7	35	50	8	40	62	8	50	65	8
25	42	8	35	50	10	40	62	10	50	65	10

d1	d2	B	d1	d2	B	d1	d2	B	d1	d2	B
50	68	8	62	80	10	90	110	10	110	130	12
50	70	8	65	85	8	90	110	12	110	130	13
50	70	10	65	85	10	90	120	12	110	140	12
50	72	8	70	90	7	95	120	12	110	140	13
50	72	10	70	90	10	100	120	8	115	140	10
55	72	8	70	100	10	100	120	10	115	140	12
55	72	10	75	100	10	100	120	12	115	140	13
55	75	8	80	100	7	100	125	10	120	140	13
55	80	8	80	100	10	100	125	12	135	165	12
55	80	10	85	100	10	100	130	10	140	165	10
60	75	8	80	110	10	100	130	12	140	165	13
60	80	8	85	110	10	100	130	13	145	165	13
60	80	10	85	110	12	105	130	10			
60	85	10	90	110	8	105	130	12			

Application in the Pharmaceutical and Food Industry

Both the MultiSeal Standard with single and double lip are generally intended for these applications. The sealing lip is made of TEDEX-White, an FDA-approved

material. These seal rings are produced in standard dimensions according to the MultiSeal Standard table and are available from stock at short notice.

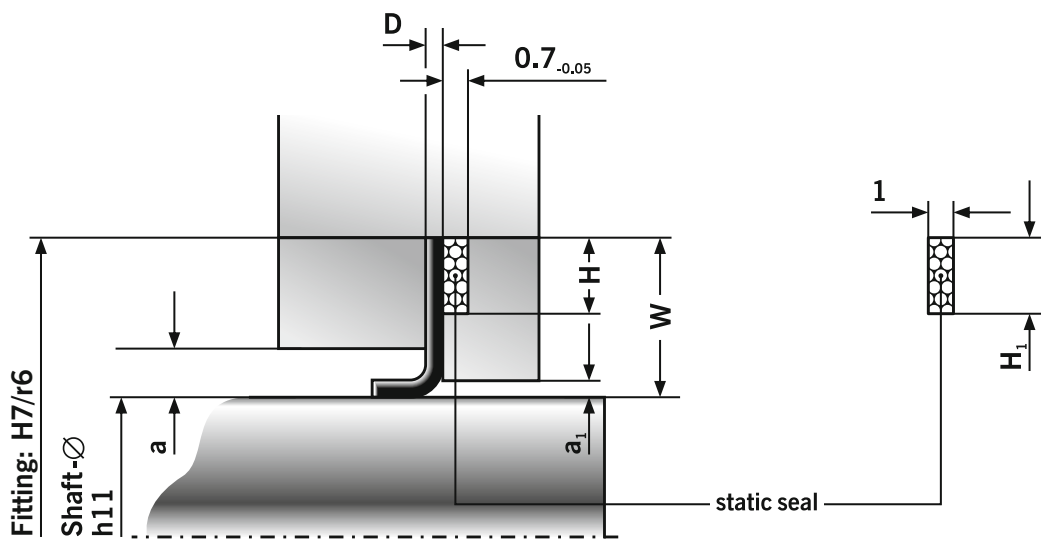


TEDIMA MultiSeal

Set of Lips

MultiSeal seal lips are applicable where ready-to-install MultiSeal Standard cannot be used due to installation conditions or constructional reasons. The ready-to-install set of lips consists of a thermoelastic TEDEX

seal lip and the appropriate static seal. Standard installation dimensions are shown in the below table, however, special dimensions are as well available on short notice.



Example for shaft-Ø 80: lip Ø 80 × 100 × 1, static seal Ø 93 × 100 × 1

Shaft-Ø	W	D	H	H1	a	5 bar a ₁	10 bar a ₁	25 bar a ₁
up to 19	6.0	0.8	2.5	2.0	2.0	2.0	0.5	0.2
20-49	7.5	0.8	3.5	2.5	2.5	2.5	0.5	0.2
50-149	10.0	1.0	4.5	3.5	3.0	3.0	0.5	0.2
150-299	12.5	1.0	6.0	4.5	3.0	3.0	0.5	0.2
300-500	15.0	1.0	8.0	6.0	3.0	3.0	0.5	0.2

Double lip, back-to-back



Double lip, tandem



Double lip, externally sealing



TEDIMA MultiSeal

Special

Where MultiSeal Standard or the MultiSeal set of lips are not first choice because of special installation reasons, TEDIMA offers still further solutions. The configuration of single and double-lip are dimensionally standardized and represent an economic seal for special solutions.

MultiSeal Special is available in several other materials than the standard ones.

Shaft-Ø	H	H ₁	B	5 bar a ₁	10 bar a ₁	25 bar a ₁
up to 19	8.0	10.0	8	2.2	0.5	0.2
20-64	11.0	12.5	10	2.5	0.5	0.2
65-119	14.0	15.0	10	3.0	0.5	0.2
120-199	15.0	17.0	12	3.0	0.5	0.2
200-299	17.5	20.0	15	3.0	0.5	0.2
300-450	20.0	25.0	20	3.0	0.5	0.2

Order example for shaft-Ø 80; 10 bar:

TEDIMA MultiSeal Special 80 × 108 × 10, 10 bar,

Order example with O-ring

TEDIMA MultiSeal Special 80 × 110 × 10, 10 bar with O-ring

Shaft-Ø	H	B	B ₁	5 bar a ₁	10 bar a ₁	25 bar a ₁
up to 19	10.0	14	16	2.2	0.5	0.2
20-64	12.5	17	19	2.5	0.5	0.2
65-119	15.0	18	20	3.0	0.5	0.2
120-199	17.0	20	24	3.0	0.5	0.2
200-299	20.0	23	26	3.0	0.5	0.2
300-450	25.0	25	30	3.0	0.5	0.2

Order example for shaft-Ø 80; 10 bar:

TEDIMA MultiSeal Special, double lip tandem

80 × 110 × 20, 10 bar with O-ring

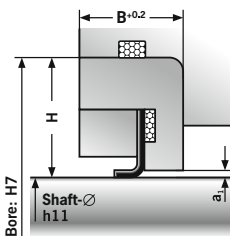
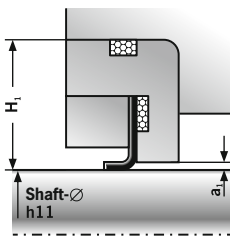
Shaft-Ø	OH	B	5 bar a ₁	10 bar a ₁	25 bar a ₁
up to 19	10.0	12	2.2	0.5	0.2
20-64	12.5	15	2.5	0.5	0.2
65-119	15.0	17	3.0	0.5	0.2
120-199	17.0	20	3.0	0.5	0.2
200-299	20.0	24	3.0	0.5	0.2
300-450	25.0	25	3.0	0.5	0.2

Order example for shaft-Ø 80; 10 bar:

TEDIMA MultiSeal Special, double lip tandem D-V

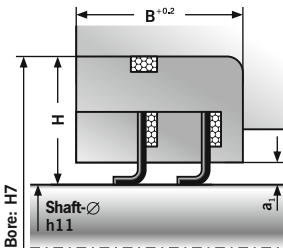
80 × 110 × 17, 10 bar with O-ring

MultiSeal Special, single lip

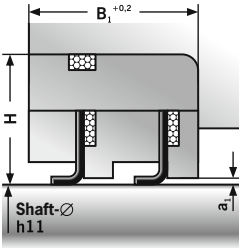


MultiSeal Special, double lip tandem

version
up to 5 bar

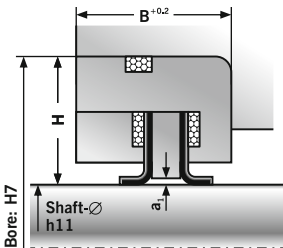


version
up to 25 bar



MultiSeal Special, double lip back-to-back

pressure/
vacuum



TEDIMA MultiSeal

Technical Data

Item Designation	Compound	FDA	EU/EG 1935–2004	USP CI VI	TST BSE, ADI-Free	GMP	ATEX	Base Material Temp.	Sealing Lip Temp.	Special Feature
TEDEX Black	Carbon/Graphitet						×	-90–+260 °C	-90–+235 °C	ATEX suitable
TEDEX White	Barium sulfate	×	×		×	×		-90–+260 °C	-90–+235 °C	high putty version
TEDEX Blue	Glas beads	×						-90–+260 °C	-90–+235 °C	for softer mating surfaces
TEDEX Eco	Econol	×						-90–+260 °C	-90–+235 °C	dry-running properties
TEDEX RL 64	special compound	×	×	×	×	×		-90–+260 °C	-90–+235 °C	highly abrasion resistant + USP CI VI
TEDEX Black 075A	Carbon/Graphite + LP	×					×	-90–+260 °C	-90–+235 °C	ATEX + FDA

Various materials are available for the cases of our MultiSeals, including stainless steel (e.g. material 1.4571) as well as highly corrosion-resistant alloys such as Hastelloy or titanium.

Mating Surface

Surface quality:	R _a	≤0.1	-0.4 μm	Machining of the mating surface must not exhibit lead (twist) orientation in order to rule out leaks caused by pumping action.
	R _z	≤0.65	-2.5 μm	
	R _{max}		-0.4 μm	
Surface hardness:	bis	1.5 bar	45 HRC	We recommend a coating with TMP70, TMP75, or TMP99 ground twist-free, polished and sealed with PTFE.
	über	1.5 bar	60 HRC	

Operating Limits

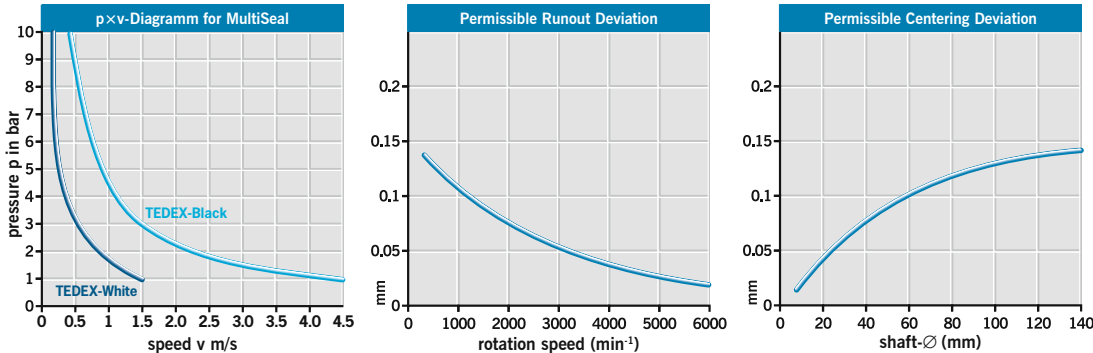
Pressure-Vacuum:	MultiSeal Standard	up to max. 10 bar
	MultiSeal Sealing Lip Set	up to max. 25 bar
	MultiSeal Special	up to max. 25 bar
Temperature: -90 °C up to +260 °C		Operating parameters such as pressure and circumferential speed influence the maximum permissible operating temperature and may require lowering these temperatures.

Materials

The simultaneous occurrence of various operating parameters such as pressure and circumferential speed makes a review of the operating limits necessary. The operating limits for TEDEX-Black and TEDEX-White can be found in the adjacent p×v diagram. The p×v values apply to full lubrication at approx. 100 °C operating temperature as well as for all MultiSeal designs up to 10 bar pressure rating.

Insufficient lubrication or dry running requires a significant reduction of the above-mentioned values and a coated mating surface, depending on conditions. Therefore, under these conditions, we recommend consulting our technical staff.

Slight parasitic friction is to be expected when using the seal lip.



Universal Shaft Seal Rings

Constructional Features

Universal shaft seal rings are produced without metal housing and do basically consist of three elements:

- fabric-reinforced Elastomer to secure the seal rings against the casing bore.
- seal lips made from a homogeneous Elastomer-mixture with addition of PTFE (minor friction!)
- stainless steel garter spring

Applications

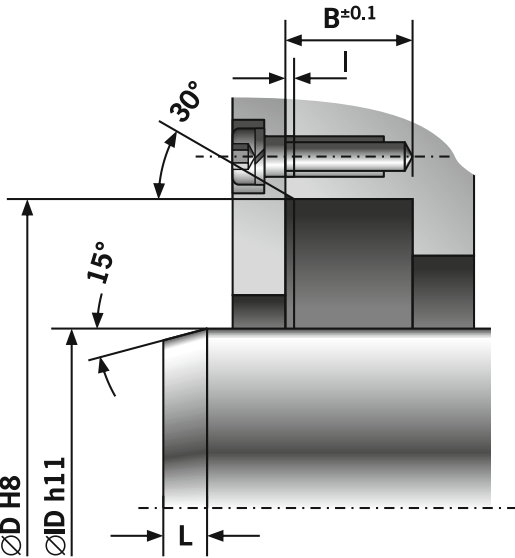
Universal shaft seal rings are generally used in mechanical engineering, particularly in heavy machinery and shipbuilding, e. g. in rolling mills, power transmission systems, propeller shafts and water turbines.

They are also suitable for applications where shaft seal rings with a metal housing cannot be installed.

Universal shaft seal rings are available in various types, in split and endless version.

Available dimensions

I.D. (mm)	l (mm)	L (mm)
up to 50	1.1	5.0
51–100	1.6	6.0
101–250	2.0	7.5
251–400	2.2	9.0
401–600	2.5	11.0
601–1800	3.2	20.0



Installation dimensions and tolerances

Type	Description	Design	Application	Shaft-Ø
	split shaft seal ring • with retaining ring for axial clamping • without fabric-reinforcement in joint line area for better sealing	seal lips with PTFE-share, fabric-reinforced back and stainless steel garter spring	general engine construction, heavy equipment, shipbuilding	up to 1,800 mm
	endless shaft seal ring • with retaining ring for axial clamping	seal lips with PTFE-share, fabric-reinforced back and stainless steel garter spring	general engine construction, heavy equipment, shipbuilding	up to 1,800 mm
	endless shaft seal ring • oversized outer diameter, therefore: • without retaining ring	seal lips with PTFE-share, fabric-reinforced back and stainless steel garter spring	general engine construction, heavy equipment, shipbuilding	up to 1,800 mm
	endless shaft seal ring • with retaining ring for axial clamping • pressure resistant because of PTFE back-up ring and modified profile	same as T51, but with additional back-up ring	general engine construction, heavy equipment, shipbuilding, water turbines	up to 1,800 mm

Universal Shaft Seal

Technical Data

Peripheral speed

With optimum operating conditions the universal shaft seal ring T51 can be used for peripheral speeds of max. 25 m/s. As for type T61, the allowed peripheral speed depends on the pressure load (Please see diagram).

Hardness of seal surface

Depending on the operating conditions 40–45 HRC.

Quality of seal surface

up to 10 m/s	R _a	0.5–0.6 mm
	R _{max}	2.0–3.0 mm
11–16 m/s	R _a	0.3–0.5 mm
	R _{max}	1.0–2.0 mm
over 16 m/s	R _a	0.2–0.3 mm
	R _{max}	0.8–1.0 mm

Grinding of the shaft surface must be plunge grinded.

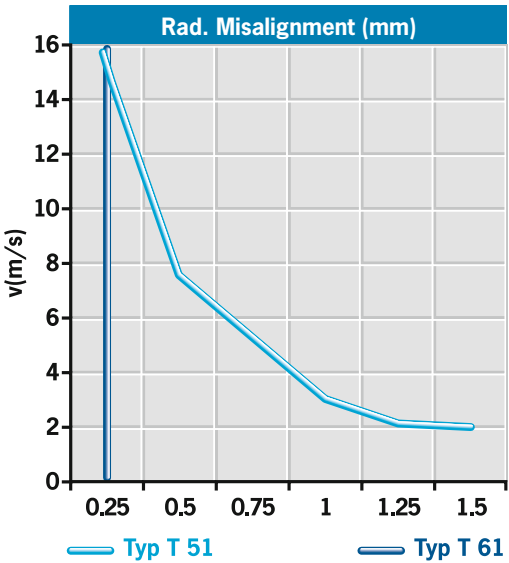
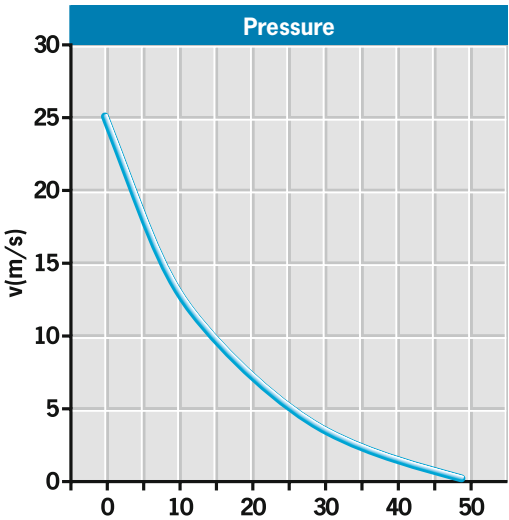
Pressure

The universal shaft seals T51 and T53 are only used in applications without pressure load. With pressure differences, type T52 can be used according to DIN 3769 depending on the rotating speed and peripheral Speed (max. 0.5 bar).

Run-out and misalignment

Because of their construction, the universal shaft seals are able to accept high rotation and concentric deviations in the radial direction. The diameter and the peripheral speed are the decisive parameters.

The data and recommendations of this brochure represent our up-to-date knowledge and experience. Since there is a wide variety of possible applications, these data can merely be considered as a guidance. Warranty claims cannot be deduced thereof.



Advanced Hygienic Sealing Technologies

Sealing Solutions for Hygienic and Aseptic Applications



Hygienic and Aseptic Seals – Keeping your process integrity at all time

The solution for controlled and reliable sealing of rotating movements with an absolute protection of (valuable) product, people and the environment. The dead-space free construction can be cleaned from the internal part of the seal by means of CIP and / or SIP.

It is also possible to provide the seal with a sterile barrier for use in high-care aseptic and pharmaceutical applications. The condition of the seal can be carefully checked and monitored during its lifetime. A compressed air or barrier-gas signal reports the integrity "health" of the seal. This makes it possible to

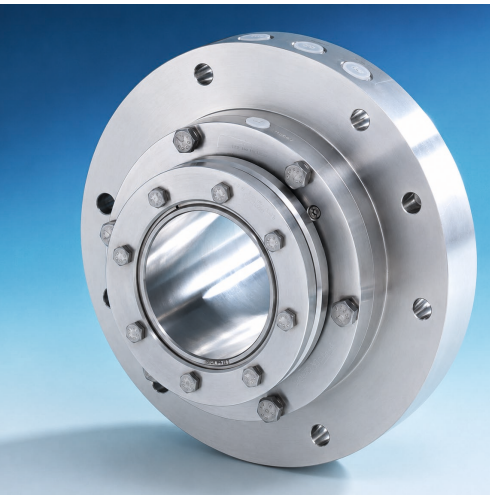
accurately monitor 24/7 the seal integrity and predict maintenance. No complex and costly subsystems are required, as is customary with traditional mechanical seal systems.

Application areas include process installations and machines where a rotating movement must be reliable, product-friendly and optimally sealed used in the following industries:

- Food industry
- Chemical industry
- Pharmaceutical industry

Advanced Hygienic Sealing Technologies

Sealing Solutions for Hygienic and Aseptic Applications



Product specifications

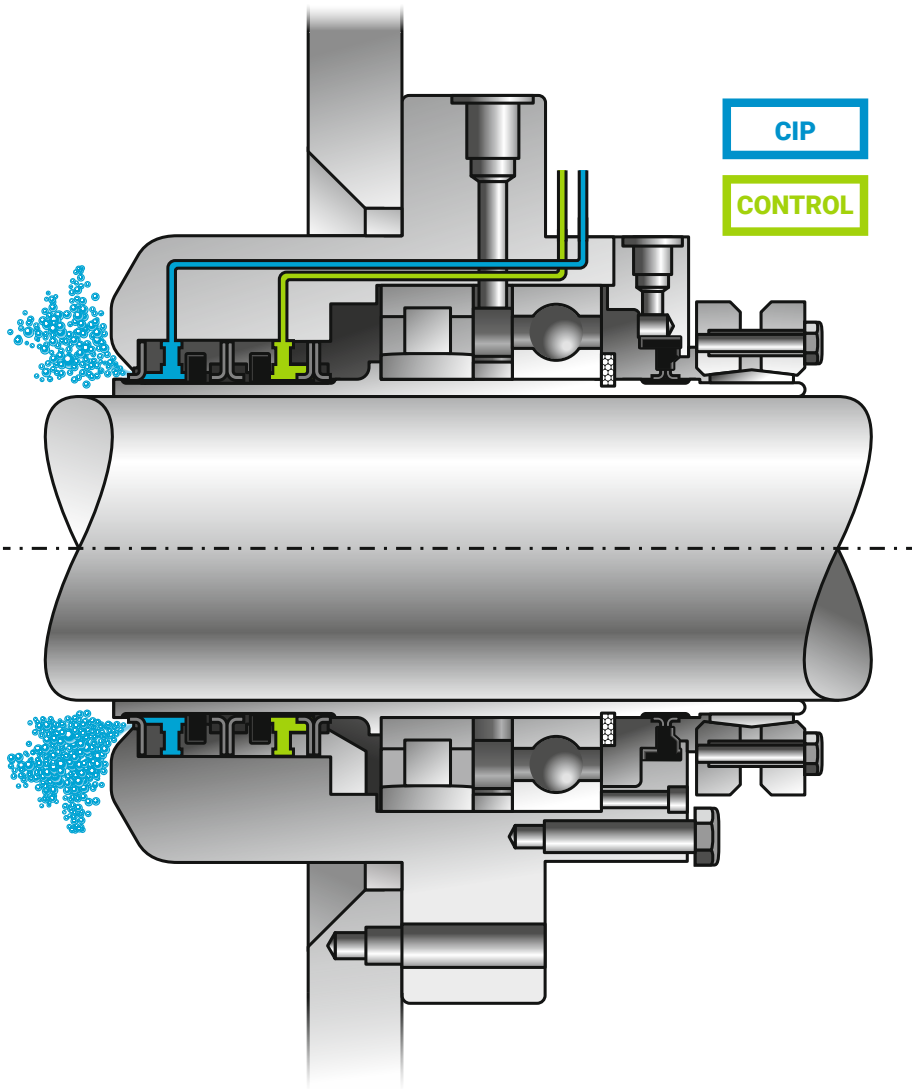
Available sizes	Ø 20–600 mm
Available design	Clamped, flanged or as swimming execution, with or without integrated support bearing
Design pressure	-1 up to +10 bar (25 bar)
Design temperature	-90 °C up to +220 °C
Housing	Standard Stainless Steel 1.4571 (316Ti), optional Duplex 1.4462, Hastelloy and Titan
Lip seals	TEDEX-White, FDA-EG1935-200
Elastomer	EPDM, Viton, NBR, Silicone etc.
Shaft protection	TMP70, TMP75 – FDA, EG1935-2004
Certification	CE1935/2004, EU10/2011 and FDA
ATEX	Available for ATEX gas and liquid applications
Design Classification	Aseptic Type EL-Aseptic CLASS I , Hygienic Type EL-CLASS I

Benefits and features

- Interchangeability with existing sealing systems
 - Dead-space free construction towards product
 - Cleanable with CIP/SIP, both internally and externally
 - Can be provided with a sterile barrier
 - Integrity controllable over the entire service life – Alert Status
 - Suitable for pressure, vacuum or combined pressure/vacuum application
- Simplicity – keep it simple for service and maintenance
 - Very attractive OPEX and TCO
 - Excellent chemical resistance
 - Wear-resistant and low frictional resistance
 - Excellent dry-running properties
 - No subsystems needed

Advanced Hygienic Sealing Technologies

Working principle



The CIP/SIP connection is connected to a controlled branch of the CIP/SIP main line and runs along with the normal cleaning process. Seal is hereby cleaned both internally and externally.

By means of the compressed air or barrier-gas control signal it is possible to check the integrity “health” of the seal 24/7.

If desired, one of the following predefined alert statuses can be set:

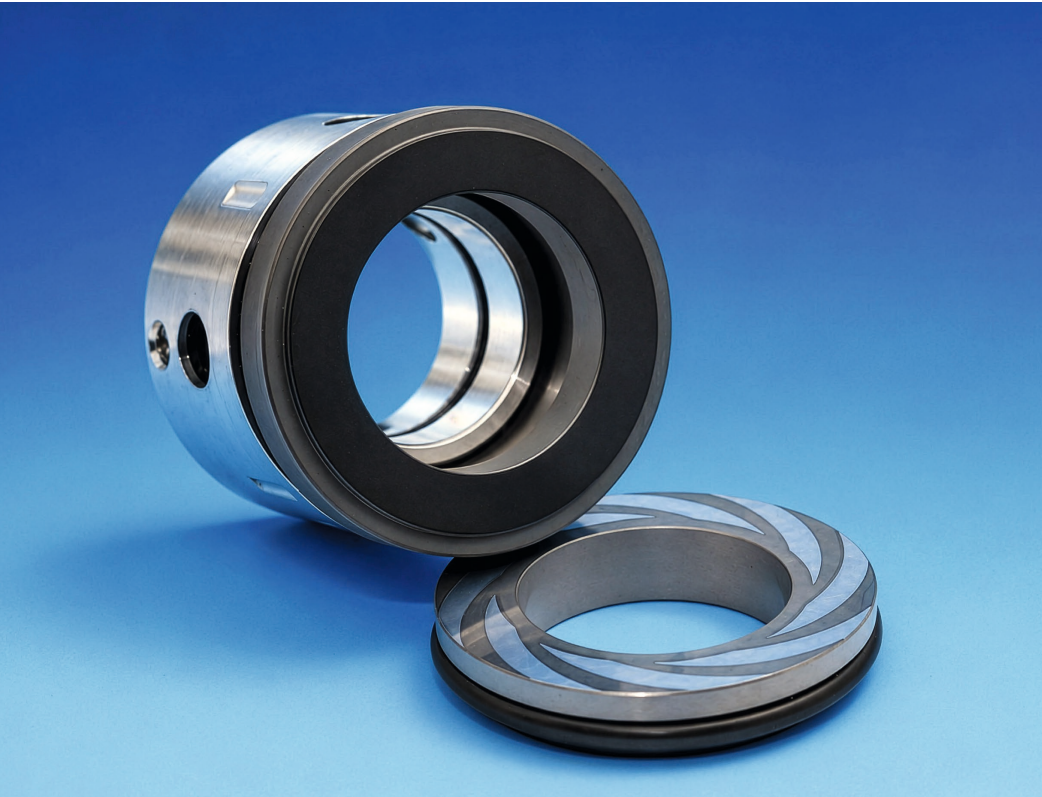
- **Low alarm:**
Warning – initial leakage detected
- **Medium alarm:**
Warning – maintenance required soon
- **High alarm:**
Warning – immediate maintenance required

Designed according to International guidelines



TEDIMA Mechanical Seals

Reliable standard and custom solutions



TEDIMA Mechanical Seals: Suitable standard solutions or customized designs

With our mechanical seal catalog, we provide you with a comprehensive overview of our product range. It supports you both in selecting suitable standard solutions and in the structured preparation of inquiries for customized designs taking into account the respective operating conditions.

Thanks to our many years of technical and material-related expertise in mechanical seal technology, we are able to realize reliable and cost-effective sealing concepts even for demanding applications. For complex or extraordinary requirements, we develop perfectly tailored solutions. .

Mechanical Seals

Material codes for single seals

SINGLE MECHANICAL SEALS – designation example

70US2 / A0 - A Q V M G

Shaft or sleeve diameter (mm)

Seal type

Stationary sealing ring type/special design

Rotating sealing ring material

Stationary sealing ring material

Secondary, flexible seal material

Spring material

Material of other elements

A4, A3L/R, V, VT, VS, VB, VBT, US, US2, E1
A1, A41, A1G, A10, A11, A12, A13, B12,
E2, W, VSK
BE2, BC, BD, BEQ, BP, BU, EP, M1, M1L,
MDZ, MS, USC, UST, USS

acc. to EN 12756 (DIN 24960)

1. For standard seals, type of stationary ring
A0, A5, E5, B0, E0, D0, F0, H0, H5
2. Number of special design for specific dimension: 01, 02, 03, ...

acc. to EN 12756 (DIN 24960)

A – Antimony impregnated carbon graphite
A1 – Antimony impregnated carbon graphite, resistant to blistering
A3 – Antimony impregnated carbon graphite, dry-running
B – Resin impregnated carbon graphite
B6 – Resin impregnated carbon graphite, FDA certified
B8 – Resin impregnated carbon graphite, dry-running, FDA certified
C6 – Electrographite, resistant to blistering, FDA certified
Q – Sintered silicon carbide (SiC)
Q1 – Reaction bonded silicon carbide (SiC-Si)
Q5 – Silicon carbide, diamond coated
R – CrNi cast iron
S – Special cast CrMo-steel (1.4136)
U – Tungsten carbide (Co-bonded)
U1 – Tungsten carbide (Ni-bonded)
U2 – Tungsten carbide (Co-bonded)
V – Al-Oxide ceramic (Al₂O₃ ; 99.5%)
V1 – Al-Oxide ceramic (Al₂O₃ ; 96.0%)
Y – Glass filled PTFE

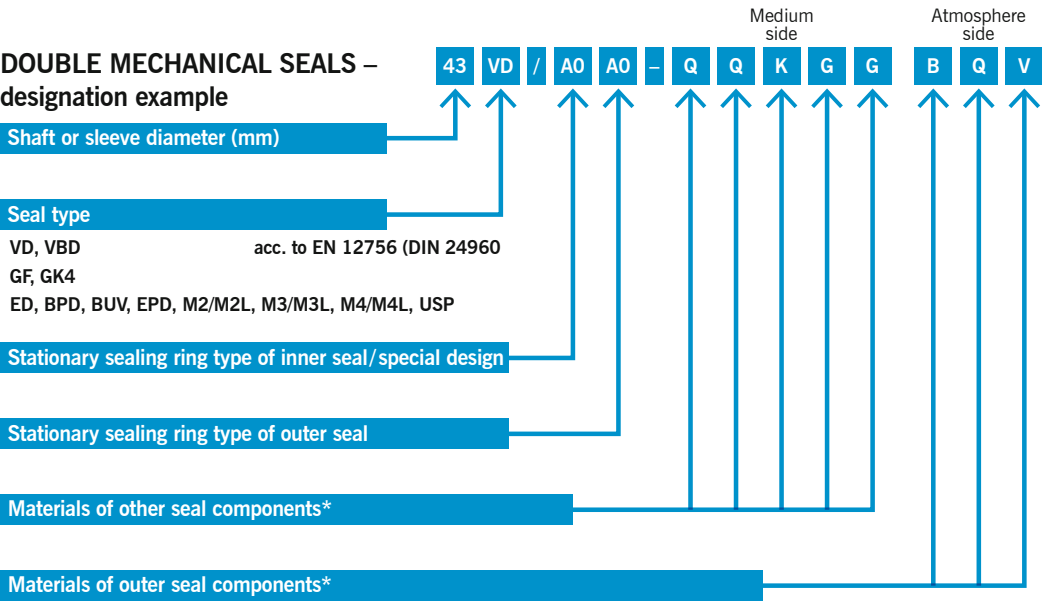
E – Ethylene-propylene elastomer (EPDM)
E3 – Ethylene-propylene elastomer, FDA certified
E4 – Ethylene-propylene elastomer, for hot water, FDA cert
K – Perfluorocarbon elastomer (FFKM)
K9 – Perfluorocarbon elastomer, FDA certified
N – Chloroprene elastomer (CR)
P – Nitrile elastomer (NBR)
P3 – Nitrile elastomer, FDA certified
S – Silicone elastomer (MVQ)
V – Fluorocarbon elastomer (FKM)
V3 – Fluorocarbon elastomer, FDA certified
M – Fluorocarbon elastomer + PTFE-encapsulated (FKM/PTFE)
G – Graphite
T – PTFE Teflon® (PTFE)

G – rostfreier Stahl (1.4310)
M – Hastelloy® C-4 (2.4610)

F – Stainless steel (1.4541)
G – Stainless steel (1.4571)
G1 – Stainless steel URANUS® (1.4539)
G2 – Stainless steel „Duplex“ (1.4462)
G4 – Stainless steel „Super Duplex“ (1.4410)
M – Hastelloy® C-4 (2.4610)
M1 – Monel® (2.4360)
T2 – Titanium (3.7033)

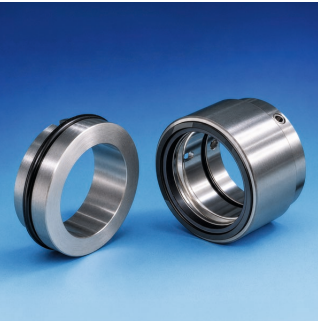
Mechanical Seals

Material codes for double seals



* Materials of double mechanical seals are indicated in sequence as for single mechanical seals.

Mechanical seal – types



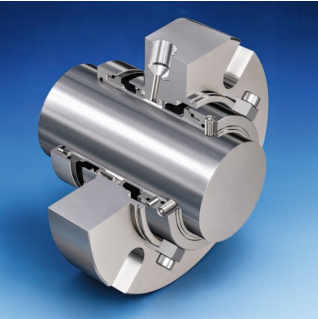
US – single-acting



US2 – single-acting



BC – single-acting



BED – double-acting



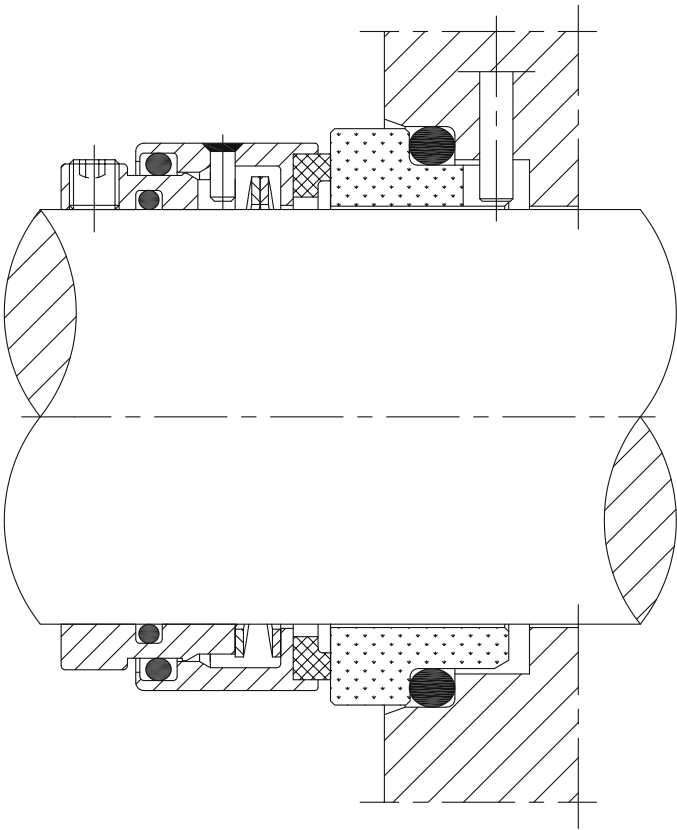
M1, M1L – double-acting



M3, M3L – double-acting

Mechanical Seals

Type US – single-acting



Operating Limits

Pressure	pmax	2.0 MP a
Temperature	tmax	200 °C
Sliding speed	vmax	20 m/s

Area of Application

The US mechanical seal is a universally applicable solution for a wide range of applications. It is suitable for reliable operation in water, oils, fuels, mildly aggressive chemical media, and liquids containing solids. Thanks to its choice of materials, it is ideally suited for use in most media within the food industry.

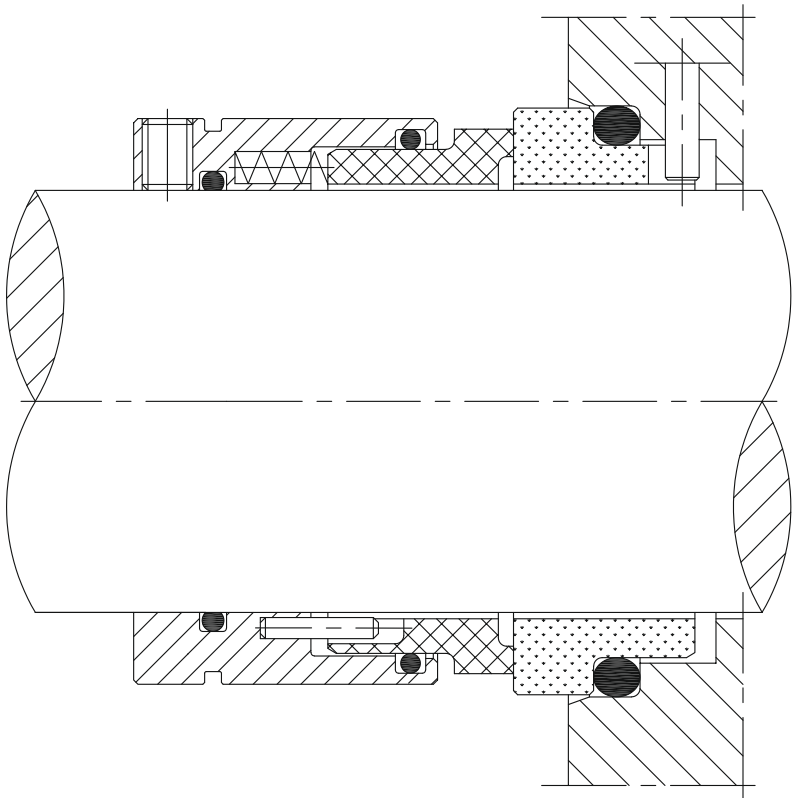
Materials

Component	Code
Rotating ring	A, B, U, Q
Stationary ring	U2, Q
Secondary seal	E, K, V
Spring	G, M
Other metal parts	G, M

- Single acting seal
- Balanced
- Independent of direction of rotation
- With sinusoidal spring (no contact with the product)

Mechanical Seals

Type US2 – single-acting



- Single acting seal
- Balanced
- Independent of direction of rotation
- Multiple spring configuration

Operating Limits

Pressure	pmax	20 bar
Temperature	tmax	200 °C
Sliding speed	vmax	20 m/s

Area of Application

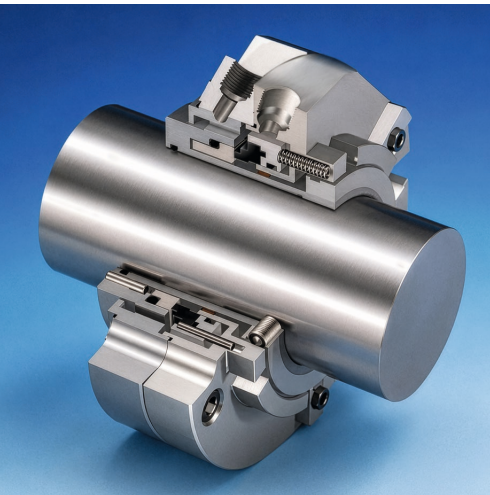
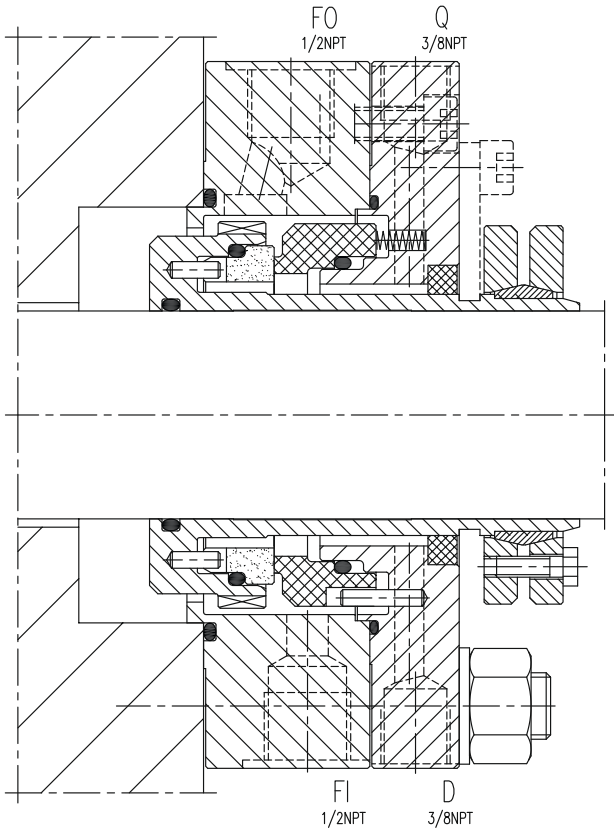
The US2 mechanical seal is designed for reliable operation in water, oils, mildly aggressive chemical media, sludges, and liquids containing solids. It is used in centrifugal pumps in the petrochemical and chemical industries, as well as in the pulp, paper, and sugar industries, and in wastewater treatment plants.

Materials

Component	Code
Rotating ring	A, B, Q
Stationary ring	U2, Q, V, S
Secondary seal	E, P, K, V
Spring	G, M
Other metal parts	G, M

Mechanical Seals

Type BC – single-acting



Operating Limits

Pressure	pmax	60 bar
Temperature	tmax	200 °C
Sliding speed	vmax	25 m/s

Area of Application

The BC mechanical seal is specifically designed for hot water applications. It ensures a reliable hot water supply and is predominantly used in power plants.

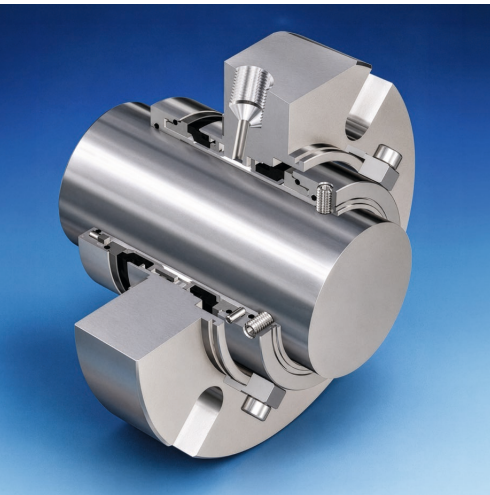
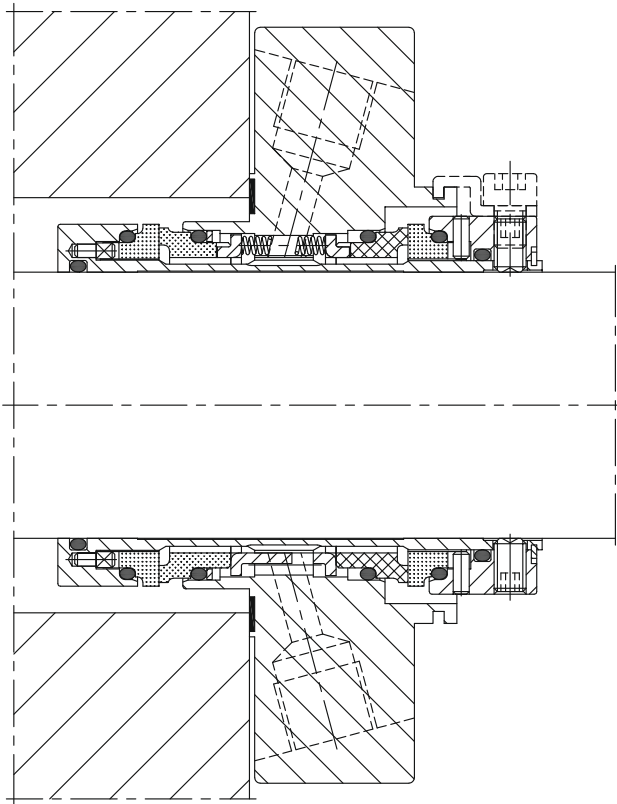
Materials

Component	Code
Rotating ring	A, B, U, Q
Stationary ring	A, B, U, Q
Secondary seal	E, P, K, V
Spring	M
Other metal parts	G

- Single acting seal
- Cartridge-mounted
- Balanced
- Independent of direction of rotation
- Multiple spring configuration

Mechanical Seals

Type BED – double-acting



- Double acting seal
- Cartridge-mounted
- Balanced
- Independent of direction of rotation
- Multiple spring configuration
- Optionally available with flush or barrier fluid system

Operating Limits

Pressure	pmax	16 bar
Temperature	tmax	200 °C
Sliding speed	vmax	12.5 m/s

Area of Application

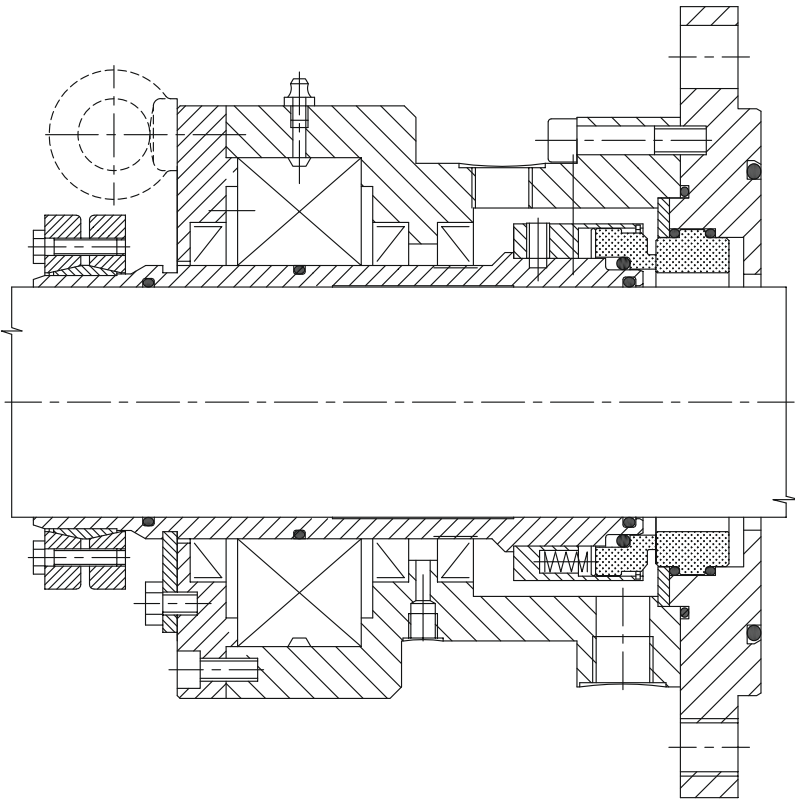
BED mechanical seals are designed for a wide range of applications. They are particularly suitable for media loaded with solids such as ash, ores, or cement, ensuring reliable operation even under demanding conditions.

Materials

Component	Code
Rotating ring	A, B, U, Q
Stationary ring	A, B, U, Q
Secondary seal	E, P, K, V
Spring	M
Other metal parts	G

Mechanical Seals

Type M1, M1L – single-acting



Operating Limits

Pressure	pmax	6 bar
Temperature	tmax	200 °C
Sliding speed	vmax	4 m/s

Area of Application

The M1 and M1L type mechanical seals are used for the reliable sealing of agitators and reactors. They are designed for applications with non-aggressive and non-hazardous media. Operation takes place with unpressurized flushing and cooling liquid; upon request, a version for operation with barrier fluid is available.

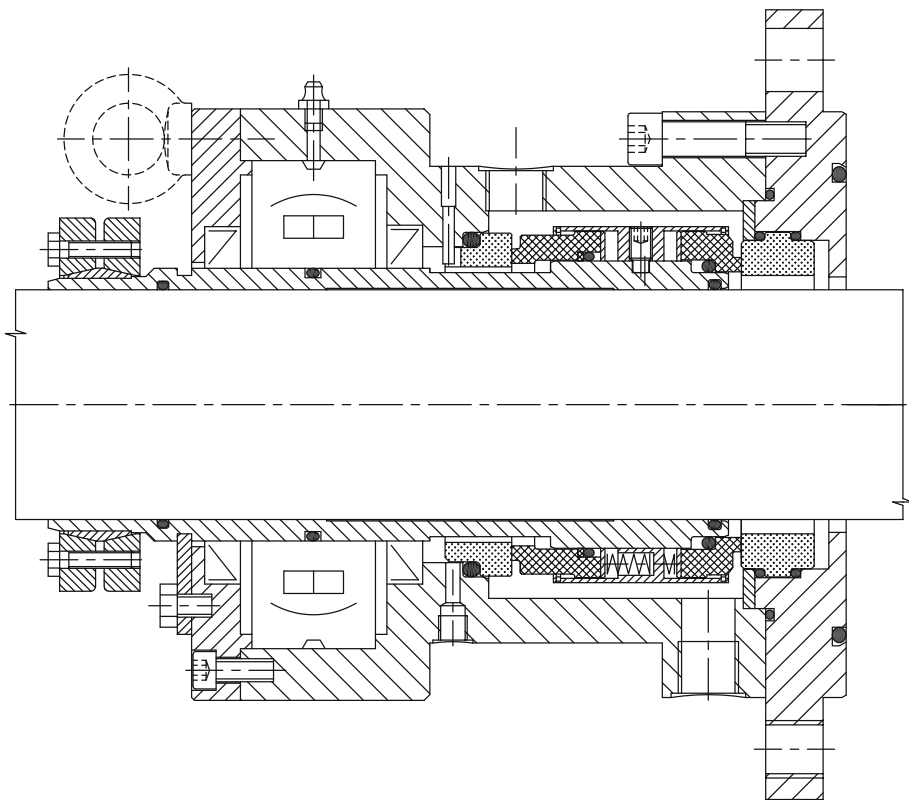
Materials

Component	Code
Rotating ring	A, B, Q
Stationary ring	V, S, U2, Q
Secondary seal	E, M, K, V
Spring	M
Other metal parts	G

- Single acting seal
- Balanced
- Independent of direction of rotation
- Multiple spring configuration
- M1 (without bearing), M1L (with bearing)

Mechanical Seals

Type M3, M3L – double-acting



- Double acting seal
- Balanced
- Independent of direction of rotation
- Multiple spring configuration
- M3 (without bearing), M3L (with bearing)

Operating Limits

Pressure	pmax	16 bar
Temperature	tmax	200 °C
Sliding speed	vmax	12.5 m/s

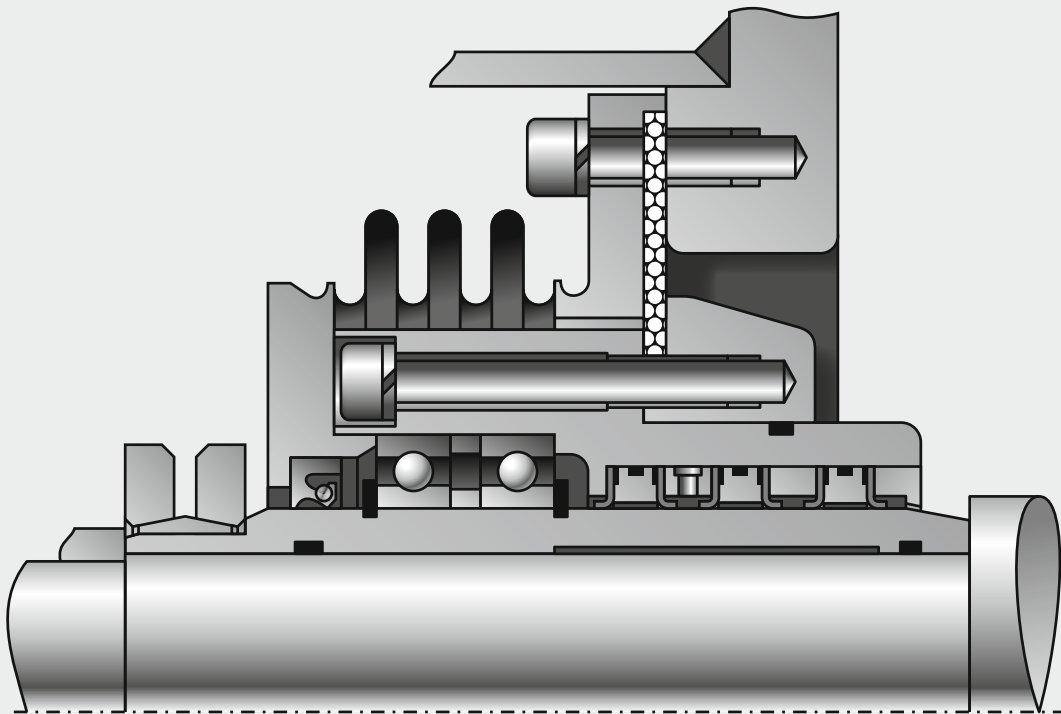
Area of Application

The M3 and M3L type mechanical seals are used for the reliable sealing of agitators and reactors. They are designed for applications with aggressive and toxic media. Operation takes place with unpressurized flushing and cooling liquid.

Materials

Component	Code
Rotating ring	A, B, Q
Stationary ring	V, S, U2, Q
Secondary seal	E, M, K, V
Spring	M
Other metal parts	G

Solutions for complex shaft seals

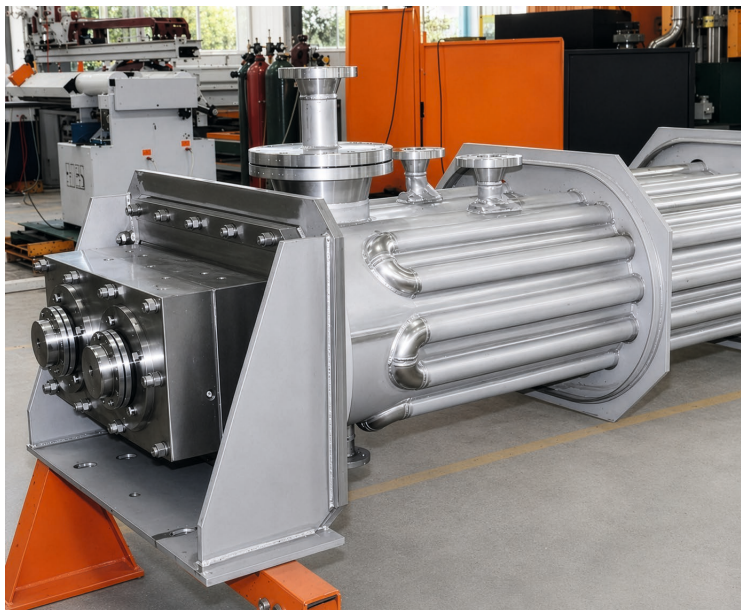
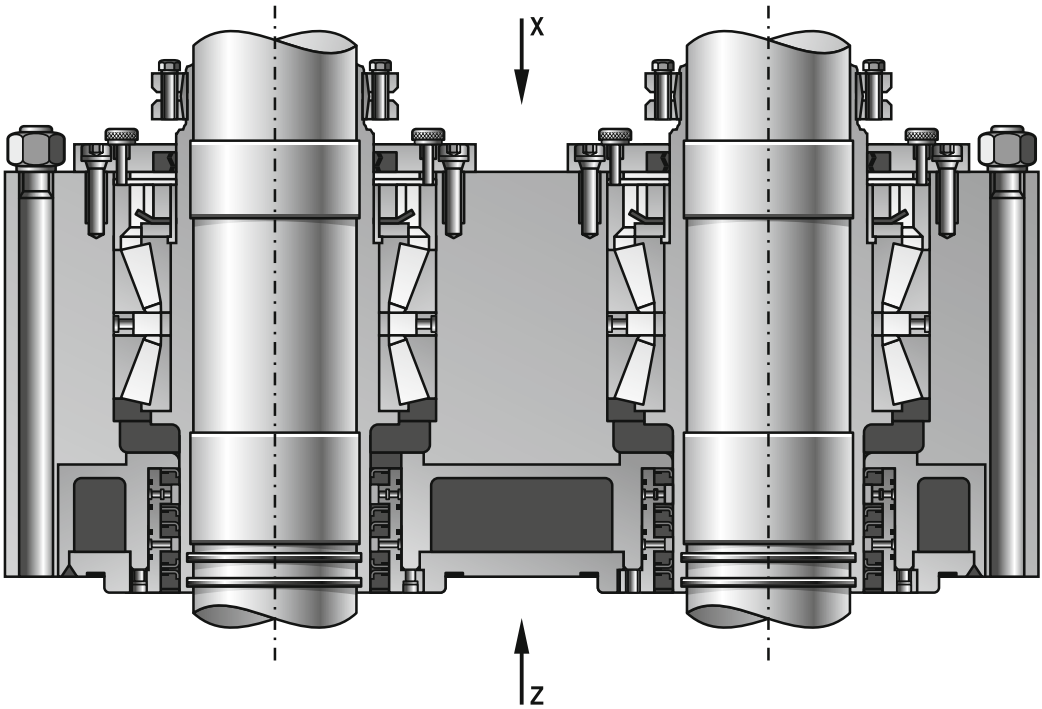


With decades of experience, TEDIMA provides reliable solutions for complex shaft sealing applications.

Without the need to modify the existing installation space, TEDIMA seals solve your problems quickly and permanently.

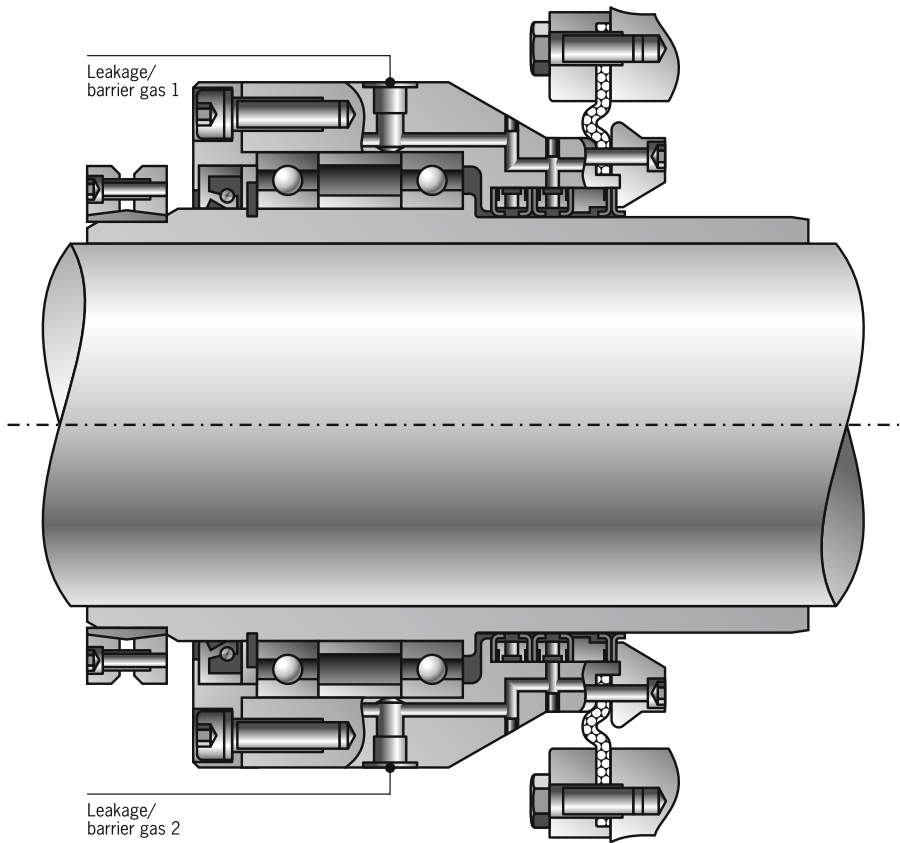
TEDIMA seal conversions go beyond simple replacement or repair – they improve the cost-effectiveness of your processes. Machine downtime is considerably reduced. In addition, significantly lower emissions contribute to better environmental performance.

Screw Conveyor Seal



Twin-shaft paddle heating screw conveyor	
Product	solvent-based solids
Pressure	from -1 bar up to 6 bar
Temperature	220 °C
	floating bearing axial movement 15 mm in total

Seals for Mixing Machines



Medium	Isophetan, 5% chrome solution in Toluol Diethylethoxyaluminium
Grain size of product	micro and coarse-grained particles
Product information	drying of the powdery product up to 0.1 % of the final moisture
Pressure	50 mbar abs., up to 2 bar abs.
Temperature	120 °C, product is filled with 120 °C
Gas	Nitrogen
Rotating speed	42-21 rpm
Radial movement	max. 3 mm in total
Axial movement	max. 5 mm in total
Axial offset with installation	max. ±2,5 mm

Alteration from packing
to floatingly mounted
seal lip construction

Shaft Protection Sleeves

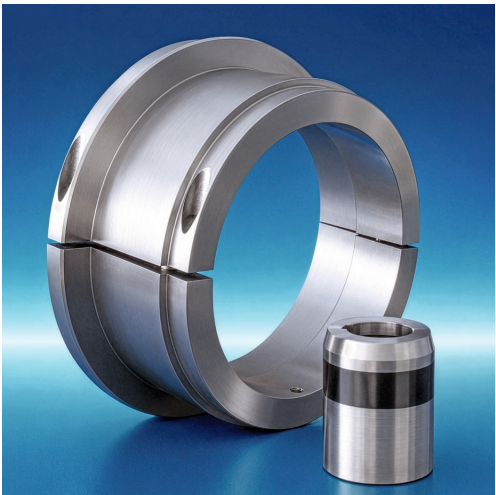
TEDIMA TWB-2

Shaft protection sleeves are used to protect the shaft, particularly in the area of the running surface of the shaft seal, from damage and abrasive wear.

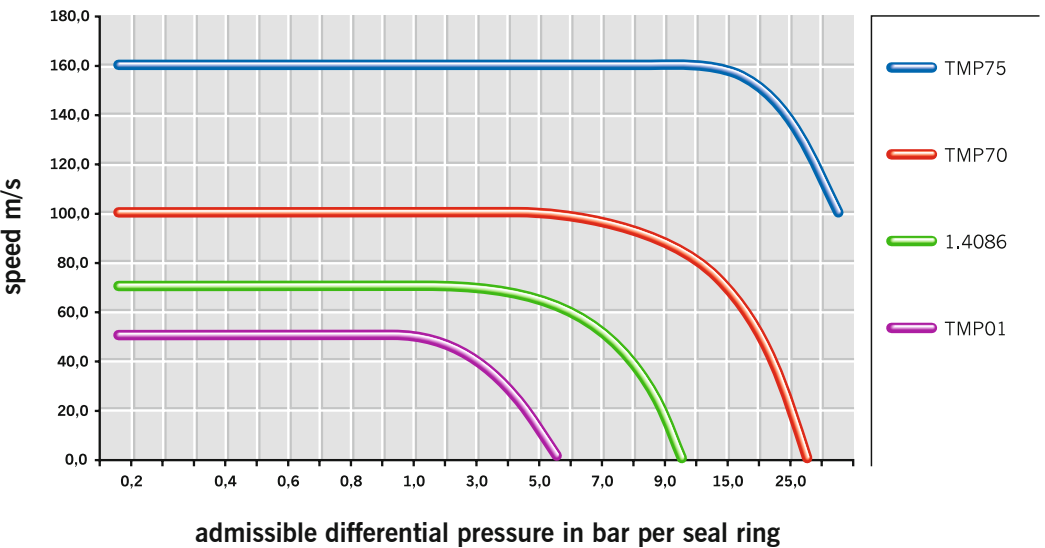
Insufficient hardness of the shaft surface may require the use of a shaft protection sleeve.

When selecting a shaft protection sleeve, it should be ensured that the coefficients of thermal expansion α of the shaft and the shaft protection sleeve are approximately equal.

By selecting a suitable shaft protection sleeve material, the chemical resistance of a steel shaft can be improved to a level comparable to that of stainless steel.

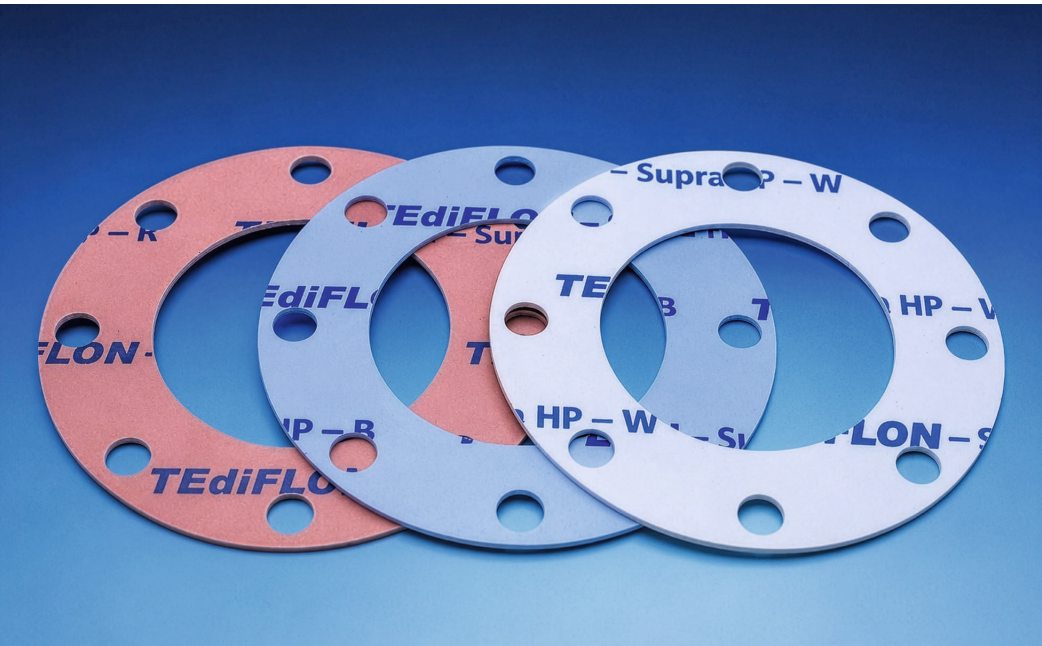


Rating chart for shaft protection sleeves TWB-2 with different surface coatings



TEDIMA

PTFE High-performance gaskets



Flat gaskets made of high-quality, multidirectionally aligned PTFE-based sealing material combine precision, durability, and versatility.

Whether aggressive media or high temperatures – they ensure long-term, reliable sealing.

Material			Tediflon Supra HP-R	Tediflon Supra HP-W	Tediflon Supra HP-B
Color			Red	White	Blue
Filler			Silicate	Barium sulfate	Micro hollow glass sphere

Technical Data	Remark	Test standards			
Density	g/cm ³	DIN 53479	2.2	2.9	1.4
Compressibility	%	ASTM F 36 A/J	8	8	35
Recovery	%	ASTM F 36 A/J	42	43	40
Stress relaxation	bar	DIN 52913/175 °C	250	240	300

Qsmax RT	bar	prEN 13555–2014/2005	>220	>220	>220
PQR RT	B	prEN 13555	0.74	0.6	0.72
Supply sizes			1,500 × 1,500	1,500 × 1,500	1,500 × 1,500
Thicknesses			0.75 mm–3.2 mm	0.75 mm–3.2 mm	0.75 mm–3.2 mm

tmax	°C		+260	+260	+260
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TEDIMA

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Important note: The data provided are based on laboratory tests using standard test specimens and are non-binding reference values.

Deviations in finished parts may occur. The buyer is responsible for carrying out its own tests regarding suitability, conformity and approval for the intended application.

Our recommendations are made to the best of our knowledge; however, no warranties are given and no liability is assumed.