



Mechanical Face Seals

6 good reasons for choosing GOETZE

- innovation
- product variety
- quality brand
- material competence
- customer service-oriented
- global presence



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GOETZE



Mechanical Face Seals

Mechanical Face Seals are designed to operate worldwide in harsh environments under extreme stresses from dust, sand, mud, stones and earth.

Static and dynamic sealing technology is concerned with providing sealing solutions for machinery applications in which conventional seals lack the required durability.

For decades, GOETZE®-branded Mechanical Face Seals have been utilized with outstanding success in transmissions, pumps, axles and drive mechanics. The special GOETZE cast iron materials have provided extraordinary wear-resistant solutions for a variety of demanding applications, such as construction machinery, agricultural equipment, mining machinery, drive mechanics for tracked vehicles and many other applications.

Continued technological advances in GOETZE sealing solutions guarantee our customers long durability / service life and maximum productivity of our customers' equipment.



Requirements

- Equipment operation in abrasive media such as dust, sand, mud, stones or dirt demands extreme wear resistance of the sealing system. High quality components like planet sets, wet brake disks, bearings, final drives and axle hubs need to be adequately protected against penetration of destructive media.
- Peripheral speeds of up to 10 m/sec must be handled.
- The seal faces must be continuously lubricated in order to prevent cold welding.
- Friction loss must be minimized.
- The adjustment forces within the sealing system must be tuned to the wear rate of contacting seal faces.
- The static and dynamic leak-tightness must be guaranteed.
- The created friction energy at the contact faces must be taken away with sufficient oil flow.
- Pressure difference must be balanced.



Mode of operation

The cast iron seal rings are preloaded by defined formed elastomer parts. As a result, the axial load closes the gap between the seal faces, which leads to the sealing function. The relative movement in circumferential direction is only taken place between the seal faces.

The resilience of the o-rings acts in a number of ways:

- Exertion of axial load on the metallic sealing faces.
- Transmission of the friction torque to the housing components.
- Static sealing between each seal ring and its housing bore.

The seal faces of the metallic rings are finely lapped.

The rings are designed in such a way that they open out from the seal faces towards the centre axis, forming a cone-shaped gap which has the following benefits:

- The lubricant is readily admitted to the seal faces by capillary action and centrifugal force.
- Adequate lubrication and cooling are assured and potential cold welding of the seal faces is avoided.
- As wear increases, the sealing face continuously shifts towards the centre axis. Therefore, the seal has considerable wear reserves which virtually only end when the inside diameter is reached.
- As a result of the system a slight oil film can appear on the outer sealing surface.



Lubrication and maintenance

Lubrication is absolutely essential for the function of the mechanical face seal.

Oil lubrication

The use of oil lubrication significantly expands the field of applications with respect to peripheral speed. This is due to the oils ability to transfer heat away from the seal area.

Transmission oils, grade SAE 80 and SAE 90, have proven to be quite suitable for typical face seal operation. If necessary, thinner lubricants like engine oil 20W- 20 can also be used. However, in cases where hydraulic fluids are to be used, our application engineers should be consulted.

The oil level after filling should be between the axis centreline and 2/3 of the seal diameter.

When filled to the correct level, the oil will generally suffice for the lifetime of the seal. The face seal requires no additional maintenance.

Grease lubrication

A lubrication of the mechanical face seal with grease is, in case of a low sliding speed, also suitable as a permanent lubrication. Please contact our application engineering team when the sliding speed exceeds 1 m/s.

If the internal seal cavity is not ventilated, the seal cavity should never be filled by using a grease gun, as the high pressure of the gun can dislodge the o-rings, thus resulting in a seal leak.

Designs



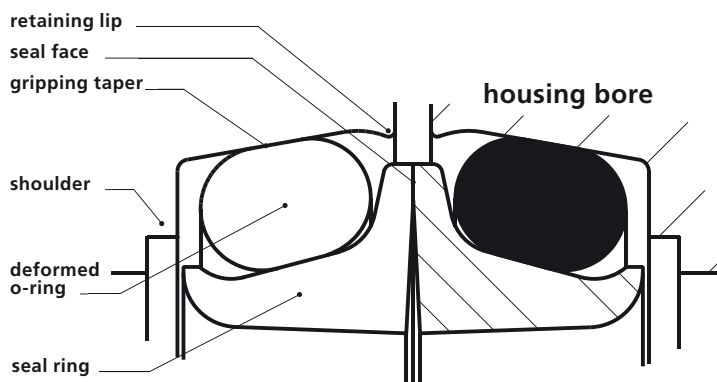
Mechanical Face Seal type 76.90H / 76.97H

The most common design of Mechanical Face Seals is the so called o-ring design. This design consists of two symmetrically tapered seal rings and two O-rings. The o-ring style has two versions, the 76.90H which has a ground profile, and the 76.97 which has an as-cast profile. In general, both versions are completely interchangeable.

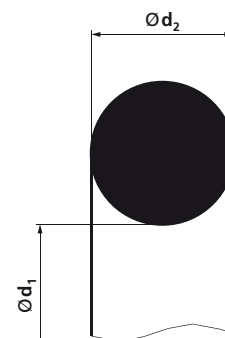
At installation, the o-rings are compressed between the tapered contact surfaces of the seal ring and housing. The o-rings undergo a calculated compression which is critical for proper operation of the sealing system (dimension "A"). Cleanliness of the o-rings and housing (free of oil and dirt) is of primary importance. Lubrication of the o-rings with oil or grease is not permitted during the installation process.

Design

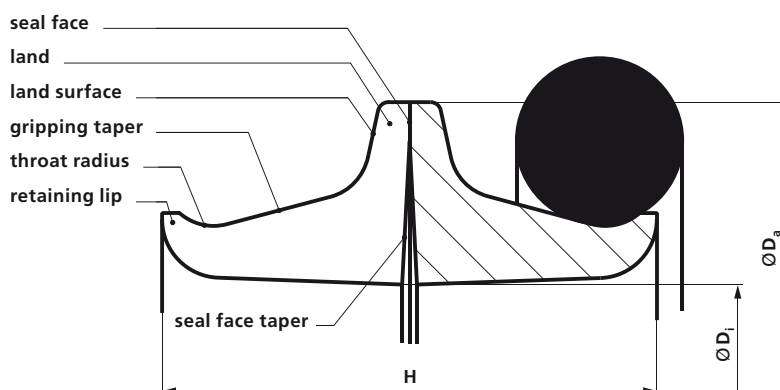
Installed condition



O-ring



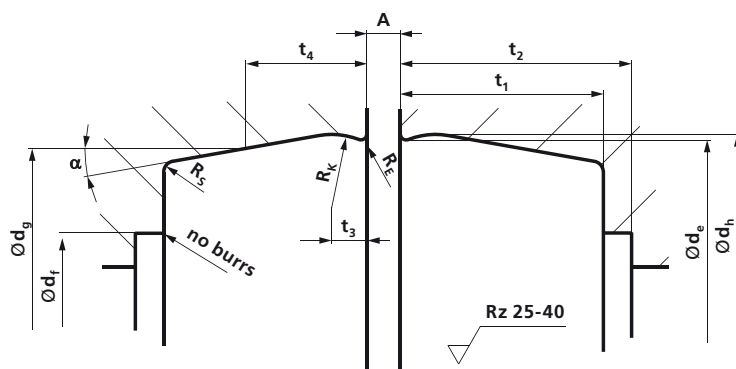
Seal rings with O-ring



Designations of dimensions

D_a	Seal ring outer $\varnothing$
D_i	Seal ring inner $\varnothing$
H	Seal set height
d_h	Retaining lip $\varnothing$
d_e	Installation $\varnothing$
d_g	Functional $\varnothing$
d_f	Shoulder $\varnothing$
t_1	Depth of shoulder
t_2	Complete depth
t_3	Depth of radius R_K
t_4	Measure depth - function- $\varnothing$
A	Clearance
R_E	Installation radius
R_K	Throat radius
R_S	Shoulder radius
α	Taper angle boring

Housing bore



Mechanical Face Seals



Type 76.95



Type 76.95H

The Mechanical Face Seal type 76.95 consists of two metallic angular seal rings with identical geometrical contours. The seal rings are assembled with trapezoid (rhomboidal) elastomer parts which are positioned against the particular housing bore.

Type 76.95 requires slightly less installation space in the axial direction than the standard o-ring style designs (76.90H / 76.97H). The geometry of the housing contour is easier to manufacture, and the seal installation does not require an installation tool. In comparison to the o-ring face seals, the spring characteristic of the trapezoid elastomer parts is usually stiffer. This leads to a limitation of permitted axial movement and tolerance.

Dimensional deviations have a bad influence on the resilience reserves.

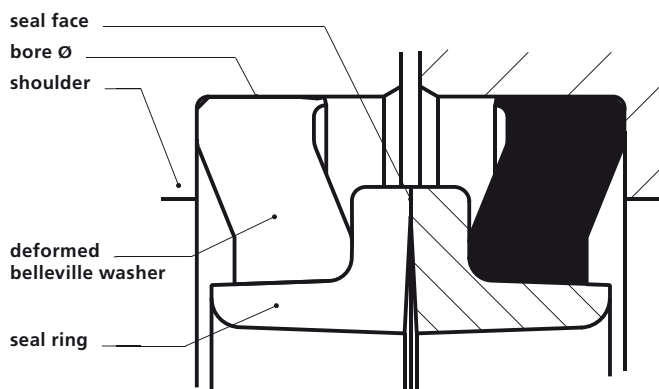
This version is a further development of the standard type 76.95. The advantage of using this sealing system is the prevention of axial displacement caused by dirt-encrusted elastomer parts. Furthermore, it prevents the metal and elastomer parts from spinning at higher break-away and friction torque.

In order to fulfil these requirements, a retaining lip is located on the back of the seal rings to support the trapezoid ring against axial displacement. Moreover, the seal rings are provided with pockets, which allow the elastomer parts to grip into the retaining lip in a positive-locking way.

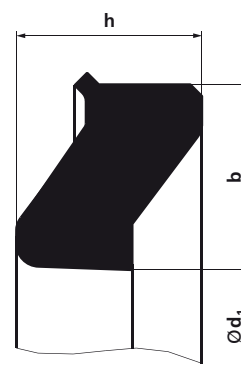
All other features correspond to the seal type 76.95.

Design

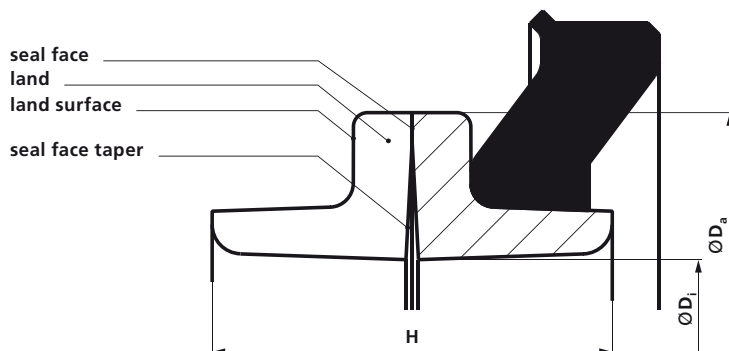
Installed condition



Trapezoid ring



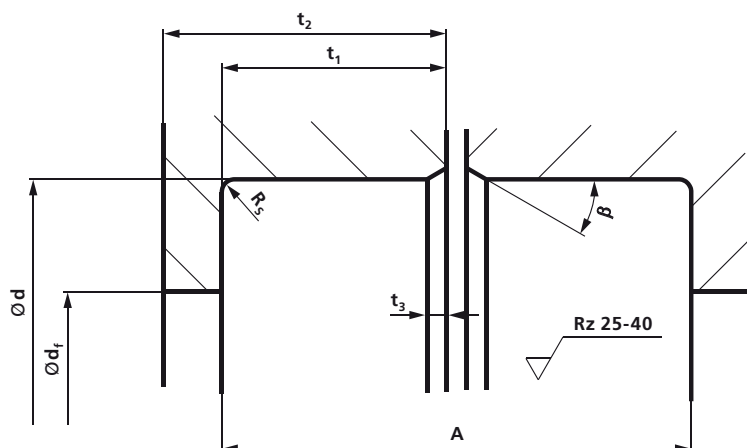
Seal rings with trapezoid ring



Designations of dimensions

D_a	Seal ring outer Ø
D_i	Seal ring inner Ø
H	Seal set height
d	Bore Ø
d_f	Shoulder Ø
t₁	Depth of bore
t₂	Complete depth
t₃	Chamfer depth
A	Clearance
R_s	Shoulder radius
β	Chamfer angle boring

Housing bore



Mechanical Face Seals

Special design type 76.93



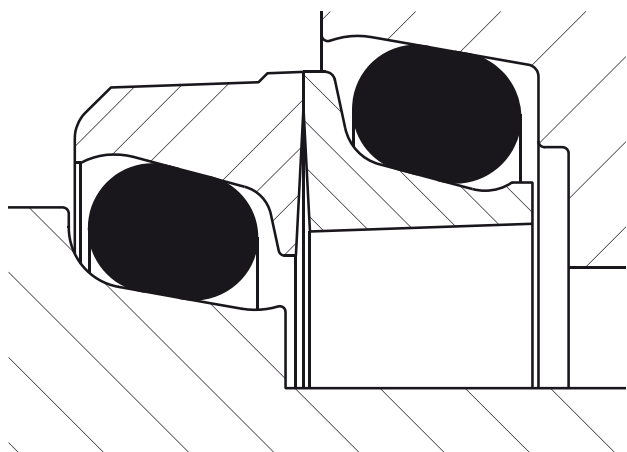
In the 60 year history of manufacturing Mechanical Face Seals, a number of designs have been developed for specific constructional and operational situations which can in principle be used for an extended range of applications. In all cases the seal sets have performed outstandingly well in rough daily operating conditions.

The table section on pages 38/39 contains an illustrated list of the available designs.

In particular the inverted seal ring design provides a considerable savings potential with respect to the cross section and the manufacturing technology.

There are also special designs of the seal type 76.95 available, which have been developed specifically for applications with extreme mud impact.

We recommend contacting our engineering team if you plan to use the type 76.93 in your application.



Adapter Rings

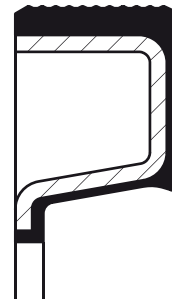
Type 76.91

In some sealing applications, the use of the standard design 76.90H / 76.97H is more complicated because of functional, construction or production-related reasons. This is the case, for example, when the seal type 76.90H / 76.97H is installed into cylindrical bores.

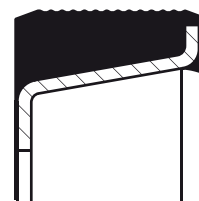
The 76.91 Adapter Rings are also an exceptional choice when a strong abrasive environment results in significant retaining lip wear on the housing contour. The 76.91 style rings eliminate the need to re-machine the housing, resulting in saving time and costs during scheduled maintenance activities.

The Adapter Ring, which is available in possible forms A and B, consists of deep-drawn sheet rings, which are encased in an oil-resistant elastomer material. The static sealing and transmission of torque is guaranteed by an outer wave-profile of elastomer, which also protects from corrosion.

Form A



Form B



Construction of the clearance

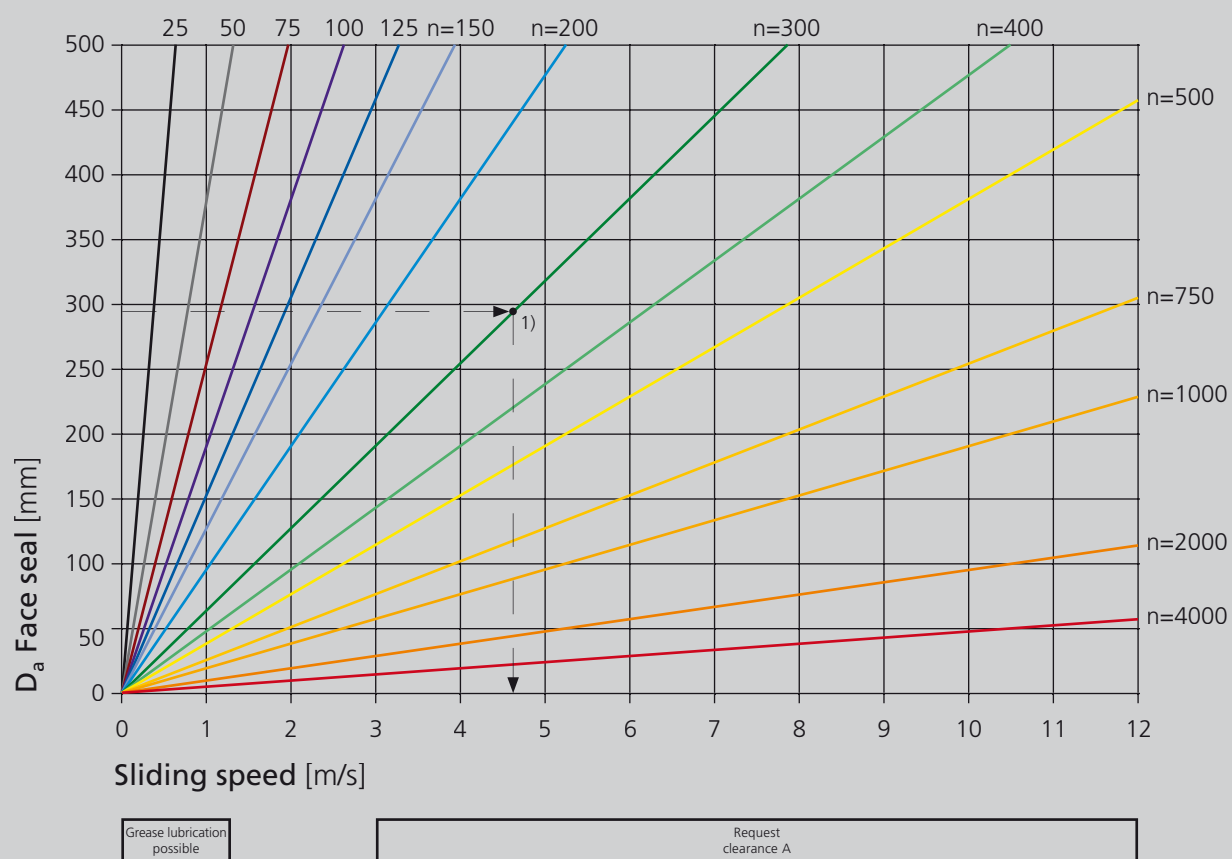
Setting-up clearance A

Mechanical Face Seal type 76.90H / 76.97H is designed such that the setting-up clearance A will be adequate for the majority of applications. This dimension determines the installed position of the seal rings and the compression of the o-rings, i.e. the optimum axial load.

The standard clearance must be increased for applications in which the continuous peripheral speed is more than 3 m/s. Under these conditions, the deformation of the elastomer parts is reduced and also decreases the initial axial compression on the seal face. In fast-rotating applications it is necessary to ensure a continuous oil lubrication and oil circulation.

As the standard o-ring is designed to a hardness of 60 Shore A, the clearance A must be adjusted in some cases, when using o-rings with a different hardness. In such cases please contact our engineers about the required clearance.

Chart for determining the sliding speed



¹⁾ e.g. 76.97H- 26 Ø, 293 mm, 300 U/min → 4.6 m/s

Materials

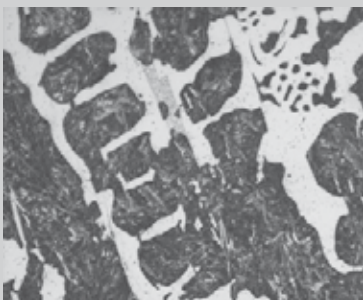
Seal rings

Wear and corrosion resistance are the two main requirements that have to be fulfilled by the material for a seal ring. Specifically for rough working conditions, which mining machines, construction machinery, etc., are exposed to, our metallurgists have developed special cast iron materials.

Due to selected alloying components, these cast iron materials show a good corrosion resistance. They are also exceptionally resistant to abrasive wear because of their strong hardness.

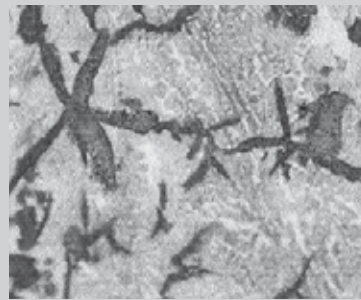
We also offer different coatings which provide optimum sealing solutions for higher sliding speeds, enhanced corrosion resistance for demanding environments, and reduced friction loss for higher speed applications. Please send us your special requirements for engineering review.

Duronit cast iron



The standard high performance material Duronit is very common in the cast iron seal market. This ledeburitic cast iron with fine graphite inclusions is known for its excellent wear resistance in connection with good tribological qualities. Customers appreciate the resistance against seizure and scoring.

Coronit cast iron



The latest material development is the high speed material Coronit. This material is also based on a ledeburitic structure, in which fine graphite is included. This successful combination exhibits excellent tribological characteristics and allows a sliding speed of up to 12 m/s. The reduced friction loss and the direct dissipation provide clear advantages for a long durability of the face seal, especially for high speed applications.



O-rings

High thermal resistance and low compression set are the essential criteria specified for the elastomer material in demanding applications.

Our standard design meets these requirements with the use of nitrile-butadiene rubber (NBR). For higher thermal stresses, the o-rings are constructed of HNBR, FPM or VMQ. The oil compatibility of several elastomers has to be checked.

The elastomer materials listed are offered in various degrees of hardness (Shore A) so that the o-ring can adequately perform its function of generating a permanent and consistent contact pressure within the sealing system.

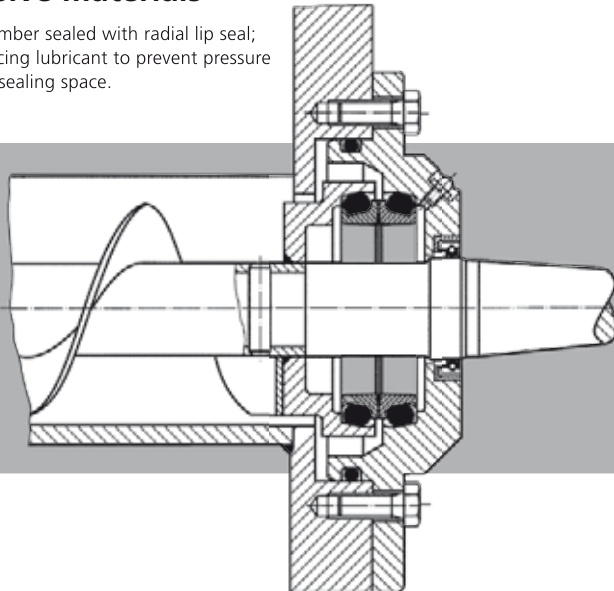
Material specifications for O-rings and similar parts										
	NBR (NB)		HNBR (HN)				VMQ (Si)		FPM (FP)	
Designation of elastomeric material	NBR 50	NBR 60	HNBR 50	HNBR 60	HNBR 60CF	HNBR 70	VMQ 60	VMQ 70	FPM 60	FPM 70
Basic elastomer	Nitrile-butadiene-rubber NBR		Hydrogenated nitrile-butadiene rubber HNBR				Silicone rubber VMQ		Fluorinated rubber FPM	
Colour	black		black				yellow	yellow	black	
Basic technological data										
Hardness (Shore A)	50 ± 5	60 ± 5	50 ± 5	60 ± 5	60 ± 5	70 ± 5	60 ± 5	70 ± 5	60 ± 5	70 ± 5
Tensile strength (MPa)	12 min.	12 min.	13 min.	14 min.	10 min.	17 min.	6 min.	6 min.	7 min.	10 min.
Elongation at break (%)	500 min.	300 min.	350 min.	350 min.	250 min.	250 min.	350 min.	200 min.	200 min.	175 min.
Density (g/cm³)	1.15	1.15	1.10	1.12	1.18	1.20	1.24	1.34	1.83	1.83
t _{min}	-36°C	-38°C	-26°C	-26°C	-35°C	-26°C	-55°C	-50°C	-10°C	-10°C
t _{max}	+100°C	+100°C	+150°C	+150°C	+150°C	+150°C	+200°C	+200°C	+180°C	+180°C
Note: The recommendations in this material specification are designed to provide the best advice available but should not be considered as a legally binding warranty. All rights in accordance with DIN 16016 are reserved.										

Typical applications

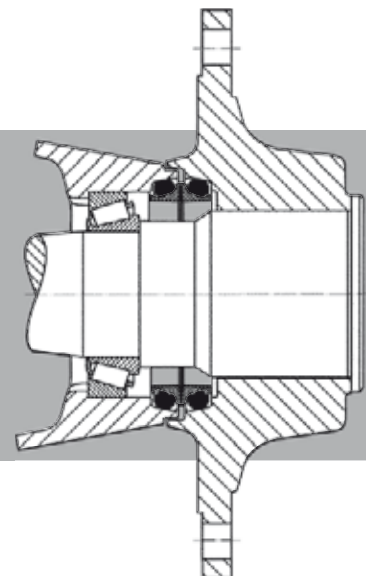
Mechanical Face Seal type 76.90H / 76.97H

Seal for screw conveyor for abrasive materials

Lubrication chamber sealed with radial lip seal;
back surface facing lubricant to prevent pressure
build-up in the sealing space.

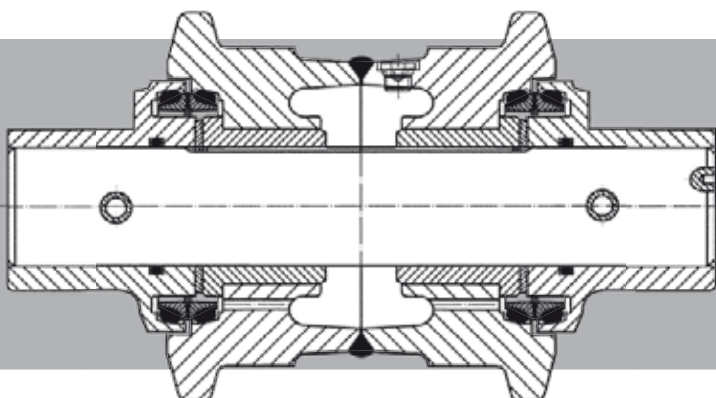


Seal for rigid axle of tractor



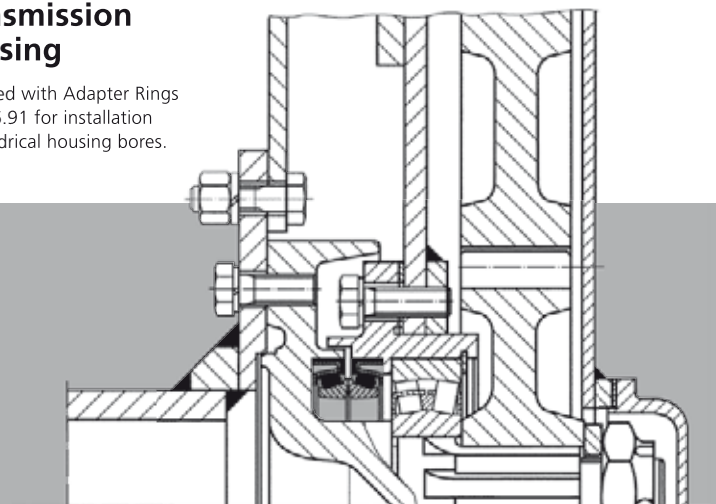
Mechanical Face Seal type 76.90H / 76.97H with Adapter Rings type 76.91

Seal for tread roller of excavator



Seal for transmission housing

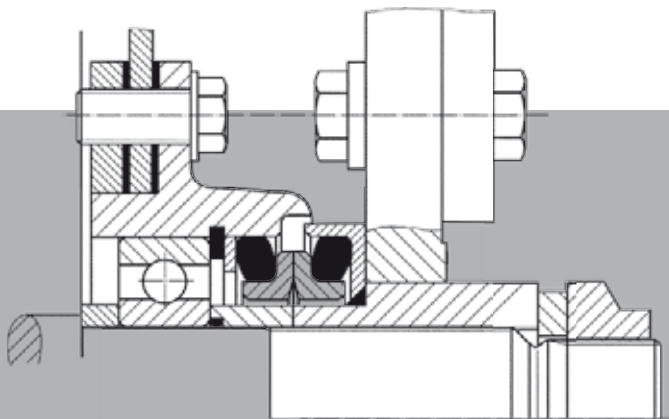
Designed with Adapter Rings
type 76.91 for installation
in cylindrical housing bores.



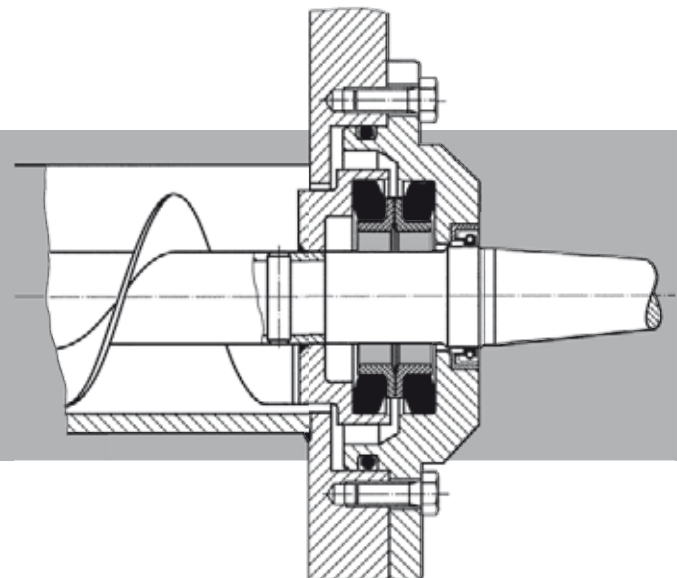


Mechanical Face Seal type 76.95

Seal for cutting shaft of crop harvester



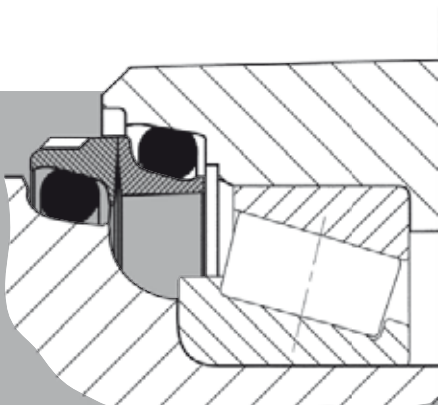
Seal for screw conveyor for abrasive materials



Mechanical Face Seal special design type 76.93

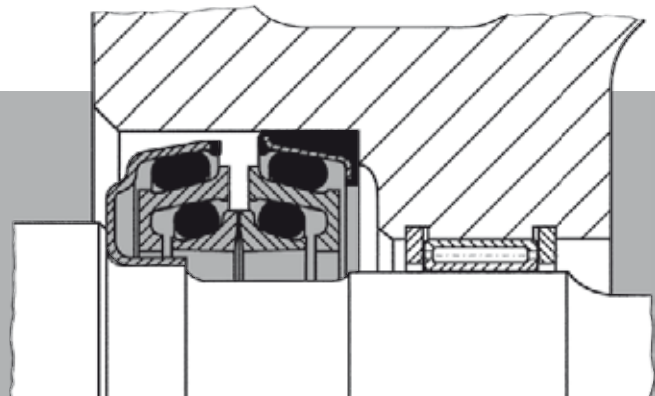
Seal for wheel bearing axle

The inner tapered ring enables the housing contour to be machined directly on the shaft.



Seal for steering drive axle

Steering movements cause an axial displacement of the floating axle of about 5 mm. This movement is compensated by the double configuration of the seal.



Installation

Installation tools

A slotted plastic ring, slipped around the seal ring, can be used to aid installation. The step (d) locates between the elastomer ring and the land of the seal ring. When inserting the seal, pressure is therefore applied directly on the O-ring.

Installation tools are currently available for the following Mechanical Face Seals; further tools may be obtained upon request.

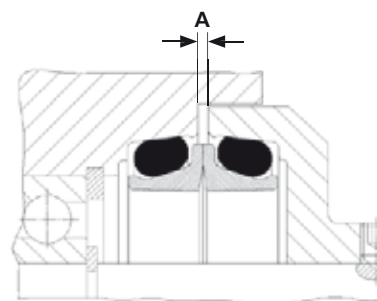
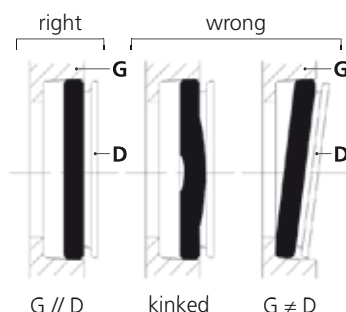
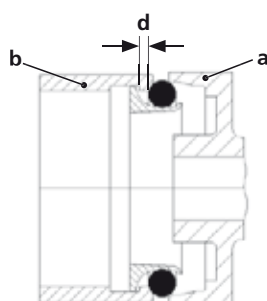
Installation tools for Mechanical Face Seals					
Face seal	Part no. tool		Face seal	Part no. tool	
H- 02	00 100 022		H- 21	00 100 045	
H- 02 A1	00 100 093		H- 22	00 100 012	
H- 04	00 100 008		H- 22 A1	00 100 037	
H- 05	00 100 072		H- 22 A2	00 100 084	
H- 05 A2	00 100 116		H- 23	00 100 000	
H- 06	00 100 009		H- 24	00 100 001	
H- 07	00 100 036		H- 24 A3	00 100 002	
H- 07 A2	00 100 062		H- 25	00 100 028	
H- 08	00 100 010		H- 26	00 100 007	
H- 08 A4	00 100 054		H- 26 A1	00 100 044	
H- 08 A5	00 100 026		H- 27	00 100 034	
H- 08 A11/A12	00 100 096		H- 28	00 100 005	
H- 09/A1/A3	00 100 024		H- 28 A4 /A6	00 100 059	
H-09A2 / H-52	00 100 106		H- 28 A5	00 100 089	
H-10	00 100 076		H- 30/A1	00 100 030	
H- 11	00 100 105		H- 39	00 100 035	
H- 12 A3	00 100 090		H- 40	00 100 060	
H- 12/A6	00 100 016		H- 41	00 100 018	
H- 13	00 100 027		H- 45 A1	00 100 122	
H- 14	00 100 004		H- 47	00 100 101	
H- 15	00 100 094		H- 50	00 100 104	
H- 15 A3	00 100 080		H- 55 A1	00 100 115	
H- 16	00 100 011		H- 56	00 100 074	
H- 16 A1	00 100 058		H- 57	00 100 117	
H- 16 A3	00 100 092		H- 60	00 100 013	
H- 16 A8	00 100 119		H- 61	00 100 014	
H- 17	00 100 061		H- 62	00 100 050	
H- 17 A3	00 100 095		H- 65	00 100 052	
H- 18	00 100 031		H- 65 A1	00 100 040	
H- 20	00 100 006		H- 65 A2	00 100 103	
			H- 70	00 100 003	
			H- 74	00 100 017	
			H75	00 100 053	
			H- 75 A2/A3	00 100 047	
			H- 76	00 100 056	
			H- 80	00 100 051	
			H- 80 A1	00 100 082	
			H- 81	00 100 057	
			H- 82	00 100 055	
			H- 83	00 100 038	
			H- 86	00 100 043	
			H- 89	00 100 041	
			H- 90	00 100 083	
			H- 93	00 100 079	
			H- 94	00 100 081	
			H- 99 A1/158	00 100 085	
			H- 102	00 100 112	
			H- 104	00 100 109	
			H- 124	00 100 069	
			H- 127A1/A2	00 100 063	
			H-130	00 100 120	
			H- 142	00 100 098	
			H- 143	00 100 099	
			H- 144	00 100 100	
			H- 146	00 100 075	
			H- 148	00 100 070	
			H-148 A2	00 100 108	
			HNO- 149	00 100 086	
			HNO- 150	00 100 087	
			H-168	00 100 110	

Installation guide

Mechanical Face Seals types 76.90H / 76.97H are precision components made of chilled cast iron. This material is very brittle and care must be taken to avoid sharp blows and impacts.

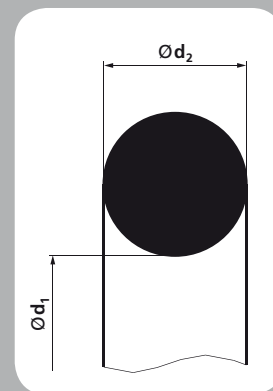
The correct way to handle face seals is as follows:

1. Keep the seal in the original packaging until just before installation. Once unpacked, be especially careful to protect the fine-finished seal faces of the metallic rings and the elastomer rings from damage and contamination.
2. The seal housing (a) must be clean and free from machining debris and all edges of the housing bore must be rounded.
3. Install the seal using the special tool (b) and applying pressure directly on the elastomer ring. For easier assembly, moisten the bore and elastomer ring with white spirit or ethanol – Never use oil, grease or any similar products.
4. Press the seal ring into the housing like a snap fastener. Ensure that afterwards the housing face "G" is parallel to the seal face "D". The O-rings must not sit undulated in the housing bore or bulge out of the bore like a hose.
5. Before tensioning the seal rings to the set-up clearance, clean the seal faces and apply a film of oil. For best results, the use of a lint free cloth is highly recommended.
6. Check the clearance A after complete installation.



If the seal set is taken apart in the course of repairs, a new set will have to be installed even if the wear limit is not yet reached. The mating faces will have run in on a common line after a relatively short time, and there is no certainty of re-assembling them in exactly the same position. The wear paths of the seal faces would no longer match, and unacceptable leakage would occur until the faces have run in again.

Dimensions types 76.90 / 76.97



Mechanical Face Seals types 76.90 / 76.97 (sorted by $\varnothing D_i$)

Drawing no.		Seal set			O-Ring		Housing bore													
76.90  76.97 	A	ØD _i	ØD _a	H	Ød ₁	Ød ₂	Ød _h *	Ød _e *	Ød _f	Ød _g *	t ₁	t _{2 min}	t ₃	t ₄	R _E	R _K	R _S	α	± Tol. for *	
		[mm]			[mm]		[mm]													
 H- 50	3	38	51	20	41	6	53.7	53	46	52.5	9	11	1.8	5.5	0.5	2	1	10°	0.1	
 H- 50 A1	3	38	51	20	40	6.7	53.7	53	46	52.5	10	11.5	1.8	5.5	0.5	2	1	10°	0.1	
 H- 021	3	45	58	21	48	6.1	61.6	60.8	53.4	59.67	10	12	1.8	7.5	0.3	2.5	1	10°	0.1	
 H- 01	3	46.0	59.0	20.0	47.5	6.5	62.5	61.8	56.0	61.4	8.5	10.5	1.8	5.0	0.5	2	1	10°	0.1	
 H- 019	3	48	62.15	25	50	7.5	68	67.2	58	66.15	12	14	2	7.5	0.4	3	1	10°	0.1	
 H- 32	3	55.5	70	22	58	7.5	73.8	73.1	65.5	72.7	10	11.5	2.4	6	0.5	5	1	10°	0.1	
 H- 32	3	55.5	70	22	58	7.5	73.8	73.1	65.5	72.7	10	11.5	2.4	6	0.5	5	1	10°	0.1	
 H- 32 A1	3	55.5	70	22	58	8	74.8	74.1	65.5	73.7	10	11.5	2.4	6	0.5	5	1	10°	0.1	
 H- 32 A2	3	55.5	70	22	58	7.5	73.8	73.1	65.5	72.7	10	11.5	2.4	6	0.5	5	1	10°	0.1	
 H- 57	3	60.2	73	20	60	6.5	76.5	75.8	69	75.4	8.5	10.5	1.8	5	0.5	2	1	10°	0.1	
 H- 53	3	63	80.5	26	66	8	84	83.2	72	82.9	11.5	13	2.5	6	0.5	5	1	10°	0.1	
 H- 02	3	63.5	82.4	32	66	9.5	87	86	74.5	85.5	14.5	17.5	2.8	7.5	0.5	5	1	10°	0.1	
 H- 020	3	64	78	25	66	8.2	84.6	83.8	74	82.4	12.5	14.5	2	7.5	0.4	3	1	12°	0.1	
 H- 01 A1	3	67.0	80.0	20.0	68.5	6.5	83.4	82.7	76.8	82.3	8.5	10.5	1.8	5.0	0.5	2	1	10°	0.1	
 H- 03	3	67.5	86.5	31.8	71	9.5	91	90	78	89.5	14.5	17	2.8	7.5	0.5	5	1	10°	0.15	
 H- 05	3	68.5	89	24	75	8	92.5	91.5	83	91	11	13.5	2.8	7.5	0.5	5	1	10°	0.1	
 H- 02 A1	3	71	84	20	72.5	6.5	87.4	86.7	80.8	86.3	8.5	10.5	1.8	5	0.5	2	1	10°	0.1	
 H- 04	3	73	92	32	75.7	9.5	96.5	95.5	84	95	14.5	17.5	2.8	7.5	0.5	5	1	10°	0.15	
 H- 003	3	79.0	100.0	30.0	85.0	9.5	105.2	104.2	92.0	103.5	15.0	17.0	2.5	7.5	0.7	3	1	10°	0.2	
 H- 45	3	79.5	92.5	20	81	6.5	96	95.3	88	94.9	8.5	10.5	1.8	5	0.5	2	1	10°	0.1	
 H- 016	3	80	100	29	83	9	104	103.2	92	102.15	14.5	16.5	2	7.5	0.4	3	1	10°	0.1	
 H- 39	3	81	98	28	82	8	102.3	101.3	91	100.8	12.5	14.5	2.8	7.5	0.5	5	1	10°	0.1	
 H- 07	3	83	102	28	87	8.5	105.5	104.5	94	104	12.5	15	2.8	7.5	0.5	5	1	10°	0.1	
 H- 05 A2	3	88	108	24	93	8	111.5	110.5	102	110	11	13.5	2.8	7.5	0.5	5	1	10°	0.1	

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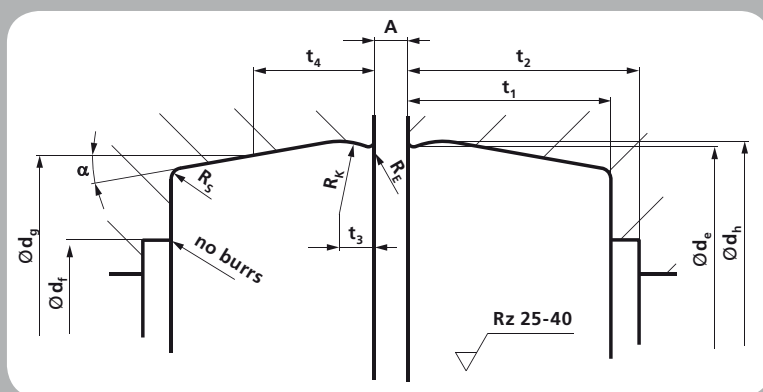
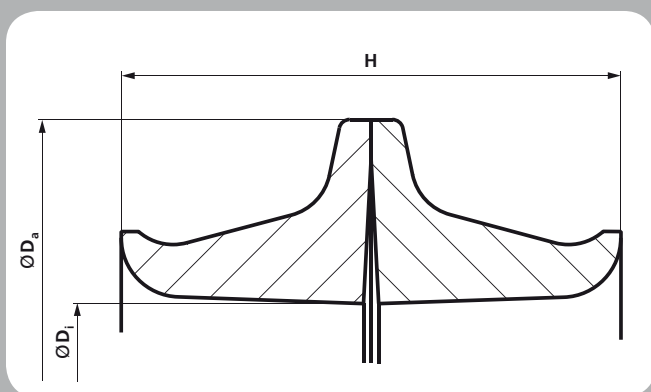
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¹⁾ Ask for clearance A

³⁾ Material = Cororint

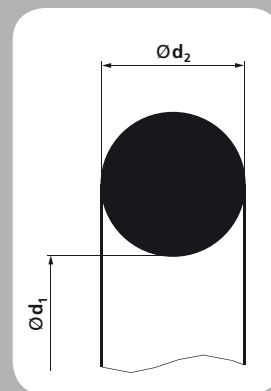
²⁾ sandblasted

⁴⁾ also available in material Cororint



Seal weight [g]	Part no.										Drawing no. 76.90 ☐ 76.97 ☐
	NB50	NB60	NB70 ¹⁾	FP60	FP70 ¹⁾	HN60	HN60CF	HN70 ¹⁾	Si60	Si70 ¹⁾	
76		11000211									☒ H- 50
78		11000187									☒ H- 50 A1
103		11000803									☐ H- 021
95		11000001		11000582	11000386	11201250			11200886		☐ H- 01
148		11000790									☐ H- 019
110		11000065							11200887		☐ H- 32
135		11000213		11000567							☒ H- 32
138		11000526									☒ H- 32 A1
135		11200787									☐ H- 32 A2
115		11000130									☐ H- 57
207		11000073							11200888		☐ H- 53
268		11000114			11000199				11000745	11000740	☒ H- 02
183		11000802 ²⁾									☐ H- 020
131		11000002		11200659							☐ H- 01 A1
285		11000010									☐ H- 03
239		11000125	11200844	11000630							☒ H- 05
138		11000007		11000819		11200909		11201177	11000904		☐ H- 02 A1
331		11000112		11001045					11000297		☒ H- 04
400				11200928 ²⁾					11000831		☐ H- 003
153		11000101									☐ H- 45
340		11000788		11001150							☐ H- 016
293		11000287		11000823					11200889		☒ H- 39
322		11000019									☐ H- 07
352		11000016		11201258							☐ H- 05 A2

Dimensions types 76.90 / 76.97



Mechanical Face Seals types 76.90 / 76.97 (sorted by $\varnothing D_i$)

Drawing no.	A	Seal set			O-Ring		Housing bore											α	$\pm$ Tol. for *
		$\varnothing D_i$	$\varnothing D_a$	H	$\varnothing d_1$	$\varnothing d_2$	$\varnothing d_h^*$	$\varnothing d_e^*$	$\varnothing d_f$	$\varnothing d_g^*$	t_1	$t_{2\min}$	t_3	t_4	R_E	R_K	R_S		
76.90 		[mm]			[mm]		[mm]												
 H- 05 A3	3	90.5	104.5	26	93	6.3	107.4	106.6	100.4	105.9	11.8	14.2	2.9	7.5	1.2	2.8	1	10°	0.1
 H- 06	3	90.5	109.5	32	93.2	9.5	114	113	101.5	112.5	14.5	17.5	2.8	7.5	0.5	5	1	10°	0.15
 H- 06 A3 ³⁾	3	91	110	32	93.5	9.2	114	113	101.5	112.5	14.5	17.5	2.8	7.5	0.5	5	1	10°	0.1
 H- 08 A5	3	96.2	111	24	99	7.7	115.6	114.8	108	114	11	12.5	1.8	6.5	0.5	2	1	10°	0.1
 H- 08 A12 ³⁾	3	97	116	32	99	10	120.5	119.5	108	119	14.5	17.5	2.8	7.5	0.5	5	1	10°	0.15
 H- 08 A3	3	99	120	28	105	8.5	123.5	122.5	112	122	12.5	14.5	2.8	7.5	0.5	5	1	10°	0.1
 H- 08	3	100	119	32	102.8	9.5	123.5	122.5	111	122	14.5	17.5	2.8	7.5	0.5	5	1	10°	0.15
 H- 45 A1	3	103	117	20	105	6.5	119.8	119	112.5	118.7	9	11	1.8	5	0.5	2	1	10°	0.1
 H- 08 A2	3	104	125	28	110	8.5	128.5	127.5	117	127	12.5	14	2.8	7.5	0.5	5	1	10°	0.1
 H- 08 A13	3	107	123	23	110	6.5	125.5	125.1	117.5	124.3	9.5	11.5	1.8	5.5	0.7	3	1	10°	0.1
 H- 08 A4	3	107	125	24	110	8.5	130.4	129.4	119.5	128.9	11	13.5	2.8	7.5	0.5	5	1	10°	0.1
 H- 017	3	110	128	32	113	9.2	133	132	121	131	15	17	2.5	7.5	0.7	3	1	12°	0.1
 H- 16 A8	3	114.5	129	21	117	7	134.1	133.1	126	132.9	9.2	10	2.3	6	0.5	3	1	10°	0.1
 H- 09 A2	3	117	140	29	124	8.7	142.5	141.5	132	141	13	14	2.8	7.5	0.5	5	1	10°	0.15
 H- 52	3	118.5	139.5	28	124	8.5	143	142	131.5	141.5	12.5	15	2.8	7.5	0.5	5	1	10°	0.1
 H- 09 A3	3	120	138	32	124.3	9	143	142	132	141.5	14.5	17	2.8	7.5	0.5	5	1	10°	0.15
 H- 09 A6	3	120	138	32	124	8.7	142.5	141.5	132	141	14.5	17	2.8	7.5	0.5	5	1	10°	0.1
 H- 09 A1	3	120	139	31.8	123.5	9.5	143.8	142.8	132	142.3	14.5	17	2.8	7.5	0.5	5	1	10°	0.15
 H- 022	4	120	142	38	122	11.3	149	148	133	146.8	17	19	2.5	9	0.7	3	1	10°	0.1
 H- 11	3	125	144	31.8	128.5	9.5	148.5	147.5	136	147	14.5	17	2.8	7.5	0.5	5	1	10°	0.15
 H- 12 A6	3	127	140.7	25	130	6	144	143.2	135	142.4	12.7	15.2	2.7	7.5	1.0	2.8	1	10°	0.1
 H- 12	3	127	141	29	130	6	144	143	136	142.2	12	14.5	2.3	7.5	0.5	3	1	10°	0.1
 H- 12 A3	3	127	141	29	125	8.3	148	147	138	146.5	13	15.5	2.8	7.5	0.5	5	1	10°	0.1
 H- 12 A5	3	127	141	29	124.3	9	148.2	147.2	135	146.7	13.2	15.5	2.8	7.5	0.5	5	1	10°	0.15

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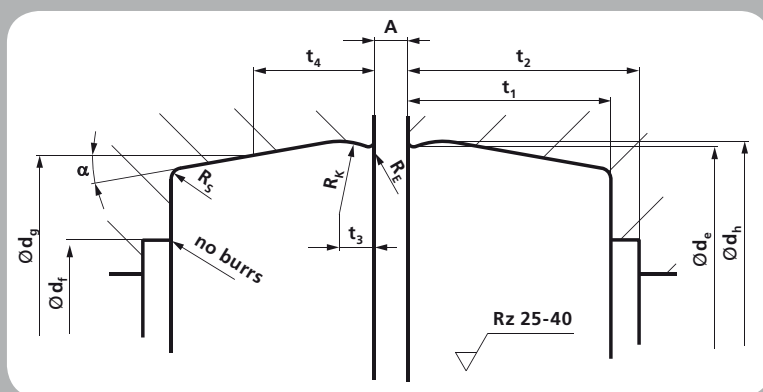
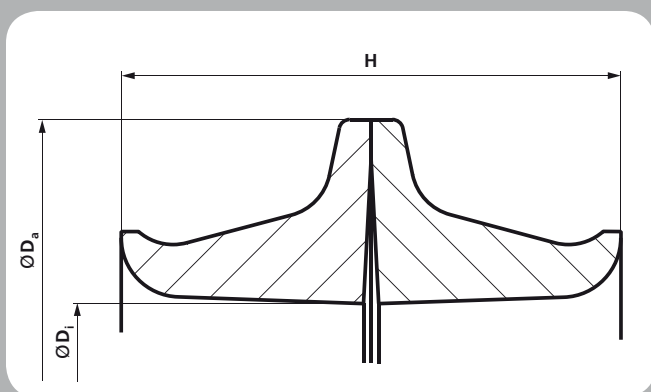
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¹⁾ Ask for clearance A

³⁾ Material = Cororint

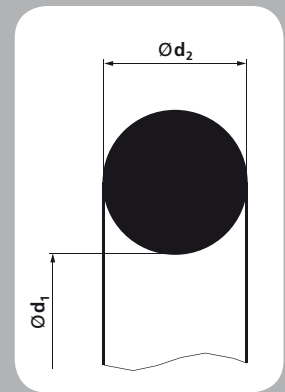
²⁾ sandblasted

⁴⁾ also available in material Cororint



Seal weight [g]	Part no.										Drawing no. 76.90 ☐ 76.97 ☐
	NB50	NB60	NB70 ¹⁾	FP60	FP70 ¹⁾	HN60	HN60CF	HN70 ¹⁾	Si60	Si70 ¹⁾	
230		11000253									☐ H- 05 A3
377		11000113		11001036	11000198	11000948	11200841				☒ H- 06
376		11201050									☒ H- 06 A3 ³⁾
295		11000025			11000413						☐ H- 08 A5
465						11201090					☒ H- 08 A12 ³⁾
446		11000208		11200654							☒ H- 08 A3
411		11000110		11000983	11000188	11001040	11200842		11000579		☒ H- 08
222		11000514		11200772							☐ H- 45 A1
473		11000022							11200890		☐ H- 08 A2
296		11201252									☐ H- 08 A13
360		11000024		11000653		11200702	11200944	11000536	11200893		☐ H- 08 A4
430		11000786 ²⁾							11200855 ²⁾		☐ H- 017
300		11000583							11000830		☐ H- 16 A8
595		11000028									☐ H- 09 A2
533		11000237									☒ H- 52
512		11000146									☒ H- 09 A3
457		11201267									☒ H- 09 A6
488		11000558									☒ H- 09 A1
682		11000804									☐ H- 022
505		11000031		11001075					11000833		☐ H- 11
316		11000264					11200940				☐ H- 12 A6
380		11000200		11000571							☒ H- 12
388		11000224									☒ H- 12 A3
397		11000181									☒ H- 12 A5

Dimensions types 76.90 / 76.97



Mechanical Face Seals types 76.90 / 76.97 (sorted by $\varnothing D_i$)

Drawing no.		Seal set			O-Ring		Housing bore													α	± Tol. for *
76.90  76.97 	A	∅D _i	∅D _a	H	∅d ₁	∅d ₂	∅d _h *	∅d _e *	∅d _f	∅d _g *	t ₁	t _{2 min}	t ₃	t ₄	R _E	R _K	R _S				
		[mm]			[mm]		[mm]														
 H- 10	3	127	146	32	130	9.5	150.5	149.5	138	149	14.5	17.5	2.8	7.5	0.5	5	1	10°	0.15		
 H- 10 A1	3	127	146	31	130	9.5	150.2	149.4	137	148.6	14.5	16.5	2.6	7.5	0.5	5	1	10°	0.15		
 H- 12 A2	3	135.5	154.5	28	139	8.3	158.3	157.3	146.5	156.8	12.5	14	2.8	7.5	0.5	5	1	10°	0.15		
 H- 14	3	143	157	27	145	6.3	160	159	152	158.3	12	14.5	2.3	7.5	0.5	3	1	10°	0.1		
 H- 13	3	143	160	27	145.7	8.3	164	163	154	162.5	12	14.5	2.8	7.5	0.5	5	1	10°	0.1		
 H- 18	3	146	172	38	147	12.7	177	176	159	175.1	18	20.5	3.1	9	0.5	6.5	1	10°	0.2		
 H- 15	3	150	167	28	153.8	8.5	171	170	160	169.5	13	15.5	2.8	7.5	0.5	5	1	10°	0.1		
 H- 023	4	150	172	40	151	11.2	179	178	165	177.33	18	20	2.5	7.5	0.7	3	1	10°	0.1		
 H- 15 A3	3	153	171.5	28	157	8.3	176.3	175.3	164.5	174.8	12.5	14.5	2.8	7.5	0.5	5	1	10°	0.1		
 H- 16	3	154	168	27	158	6	171	170	162.5	169.3	12	14.5	2.3	7.5	0.5	3	1	10°	0.1		
 H- 16 A4	3	154	168	27	150	6.5	171	170	163	169.3	12	14.5	2.3	7.5	0.5	3	1	10°	0.1		
 H- 16 A3	3	154	169	22	158.1	7	174.5	173.5	166	173.3	9.5	11	2.3	6	0.5	3	1	10°	0.1		
 H- 16 A9	3	154	169	22	158.1	7	174.5	173.5	166	173.3	9.2	11	2.3	6	0.5	3	1	10°	0.1		
 H- 16 A1	3	154	170	21	158.1	7	175.1	174.1	167	173.9	9.2	11	2.3	6	0.5	3	1	10°	0.1		
 H- 17	3	154	173.5	32	155	9.65	178	177	166	176.5	14.5	17	2.8	7.5	0.5	5	1	10°	0.15		
 H- 168	3	154	180	38	156	12.7	185	184	167	183.1	18	20.5	3.1	9	0.5	6.5	1	10°	0.2		
 H- 20	3	163	191.5	38	166	12.7	196.5	195.5	178.5	194.6	18	20.5	3.1	9	0.5	6.5	1	10°	0.2		
 H- 55	3	164	189	30	170	9.5	193.5	192.5	179	192	14.5	17	2.8	7.5	0.5	5	1	10°	0.15		
 H- 17 A3	3	165	180.5	27	170	7	185	184	176.5	183.3	12	14.5	2.3	7.5	0.5	3	1	10°	0.1		
 H- 124	3	172	194.4	31.8	175	9.5	198.9	197.9	186	197.4	14.5	16.5	2.8	7.5	0.5	5	1	10°	0.15		
 H- 47	3	176	195	28	182	8.3	199.8	198.8	188	198.3	12.5	14.5	2.8	7.5	0.5	5	1	10°	0.1		
 H- 21	3	177	200	30	184	9.5	204.5	203.5	191	203	14.5	17	2.8	7.5	0.5	5	1	10°	0.15		
 H- 56	3	178	199	32	184	9.5	203.6	202.6	190	202.1	14.5	17	2.8	7.5	0.5	5	1	10°	0.15		
 HNO- 150	4	178	205	38	178	12.7	210.6	209.6	192	209	19	21	3	8	0.8	4	1	10°	0.1		

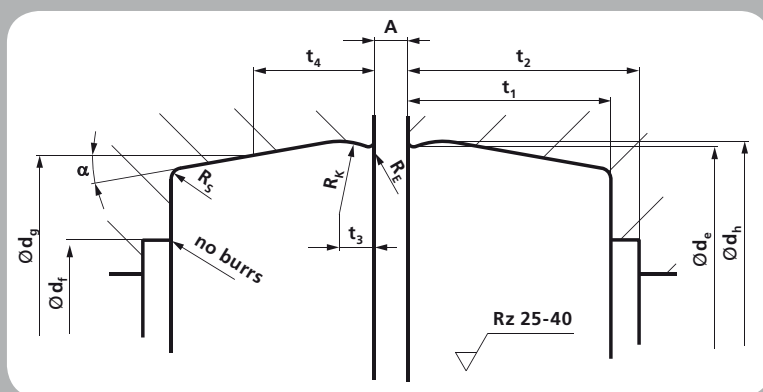
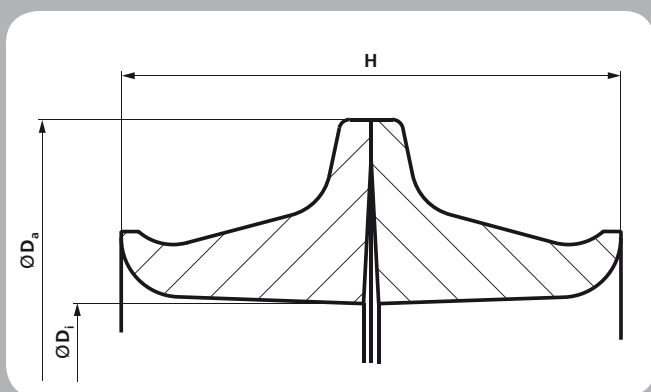
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¹⁾ Ask for clearance A

³⁾ Material = Cororint

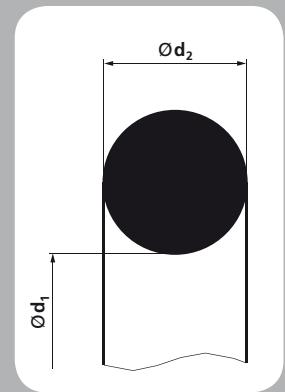
²⁾ sandblasted

⁴⁾ also available in material Cororint



Seal weight [g]	Part no.										Drawing no. 76.90 ☐ 76.97 ☐
	NB50	NB60	NB70 ¹⁾	FP60	FP70 ¹⁾	HN60	HN60CF	HN70 ¹⁾	Si60	Si70 ¹⁾	
509	11000750	11000169			11000197						☒ H- 10
453		11000129									☐ H- 10 A1
558		11000034				11201259					☐ H- 12 A2
403		11000147		11000530			11200943		11200812		☒ H- 14
465		11000210			11000342				11201014		☒ H- 13
887		11000152		11000695	11000390			11000404	11000402		☒ H- 18
494		11000173		11000805					11201024		☒ H- 15
911		11000813									☐ H- 023
632		11000041				11200985			11201084		☐ H- 15 A3
424		11000239									☒ H- 16
440		11200904				11200798			11200911	11200990	☐ H- 16 A4
439		11000044			11000482			11201130			☐ H- 16 A3
466					11000769						☐ H- 16 A9
470		11000043					11200941				☐ H- 16 A1
660		11000171		11000731		11000726			11000941		☒ H- 17
920									11201149		☐ H- 168
1182		11000209		11200936	11000436	11001041			11000710		☒ H- 20
1003		11000131				11200907					☐ H- 55
572		11000578		11201099		11000714			11200993		☐ H- 17 A3
918									11001020		☐ H- 124
744		11000165			11201107			11201100			☐ H- 47
954		11000351				11000885			11000768		☒ H- 21
863		11000172		11200669	11000288		11201137		11000586		☒ H- 56
1153			11200892								☐ HNO- 150

Dimensions types 76.90 / 76.97



Mechanical Face Seals types 76.90 / 76.97 (sorted by $\varnothing D_i$)

Drawing no.		Seal set			O-Ring		Housing bore												α	± Tol. for *
76.90  76.97 	A	ØD _i	ØD _a	H	Ød ₁	Ød ₂	Ød _h *	Ød _e *	Ød _f	Ød _g *	t ₁	t _{2 min}	t ₃	t ₄	R _E	R _K	R _S			
		[mm]			[mm]		[mm]													
 H- 22	3	182	210.5	38	185	12.7	215.5	214.5	197.5	213.6	18	20.5	3.1	9	0.5	6.5	1	10°	0.2	
 H- 22 A2	3	191	210	28	190	8.5	214	213	203	212.5	12.5	14.5	2.8	7.5	0.5	5	1	10°	0.1	
 H- 94	3	192	209	30	190	9.5	213.5	212.5	200	212	14.5	17	2.8	7.5	0.5	5	1	10°	0.15	
 H- 22 A1 ⁴⁾	3	195	216.5	31.8	198	9.5	221	220	207	219.5	14.5	17	2.8	7.5	0.5	5	1	10°	0.15	
 H- 25	3	200	228.5	38	205.5	13	233.5	232.5	215.5	231.6	18	20.5	3.1	9	0.5	6.5	1	10°	0.2	
 H- 23	3	205	227	30	210	9.5	231.5	230.5	219	230	14.5	17	2.8	7.5	0.5	5	1	10°	0.15	
 H- 23 ⁴⁾	3	205	227	30	210	9.5	231.5	230.5	219	230	14.5	17	2.8	7.5	0.5	5	1	10°	0.15	
 H- 81	3	208.7	222.8	26	208	6.2	225.4	224.4	217	224.1	11.5	13.5	2.2	6	0.5	2.5	1	10°	0.1	
 H- 93	3	216	237	30	218	9.5	241.5	240.5	229	240	14.5	17	2.8	7.5	0.5	5	1	10°	0.15	
 H- 24 A3 ⁴⁾	3	220	239.5	31.8	224	9.5	244	243	232	242.5	14.5	16.5	2.8	7.5	0.5	5	1	10°	0.15	
 H- 109	3	220	241.4	25	226	7.7	244.7	244	233.5	243.3	11	13.5	2.2	6.5	0.5	4	1	10°	0.1	
 H- 24	3	223	251.5	38	226	12.7	256.5	255.5	238.5	254.6	18	20.5	3.1	9	0.5	6.5	1	10°	0.2	
 H- 104 ⁴⁾	5	235	259.7	38	235	12.7	264.7	263.7	247	262.8	18	20.5	3.1	9	0.5	6.5	1	10°	0.2	
 H- 40	3	238	261	31.8	245	9.5	265.5	264.5	254	264	14.5	17	2.8	7.5	0.5	5	1	10°	0.15	
 H- 41	3	240	262.8	38	243	13	273.5	272.5	255.5	271.6	18	20.5	3.1	9	0.5	6.5	1	10°	0.2	
 H- 41 A1	3	242	262.8	40	243	13	273.5	272.5	255.5	271.6	18	20.5	3.1	9	0.5	6.5	1	10°	0.2	
 H- 130	3	250	270	30	250	9.5	274.7	273.7	262	273.2	14	15.5	2.8	7.5	0.5	5	1	10°	0.2	
 H- 62	3	252	280.5	38	255	12.7	285.5	284.5	267.5	283.6	18	20.5	3.1	9	0.5	6.5	1	10°	0.2	
 H- 142	7	262	288	40	266	12	294	293	276	292	17	20	3.8	10	1.2	6	3	10°	0.15	
 H- 26	3	265	293	38	268	12.7	298	297	280	296.1	18	20.5	3.1	9	0.5	6.5	1	10°	0.2	
 H- 26 A1	3	275	303	38	278	12.7	308	307	290	306.1	18	20.5	3.1	9	0.5	6.5	1	10°	0.2	
 H- 27	3	300	324.65	38	305	12.7	335.5	334.5	318	333.3	17.5	20.5	3.1	10	0.5	6.5	1	10°	0.2	
 H- 27 A4	3	300	325	38	305	12.7	336.5	335.5	318	334.3	17.5	20.5	3.1	10	0.5	6.5	1	10°	0.2	
 H- 042	4	300	328	38	300	12.7	333	332	315	330.8	19.5	22	3	9.5	0.8	4	1	10°	0.2	

Please contact us, if you require new sizes or existing sizes with different materials, which are not contained in the dimension list.

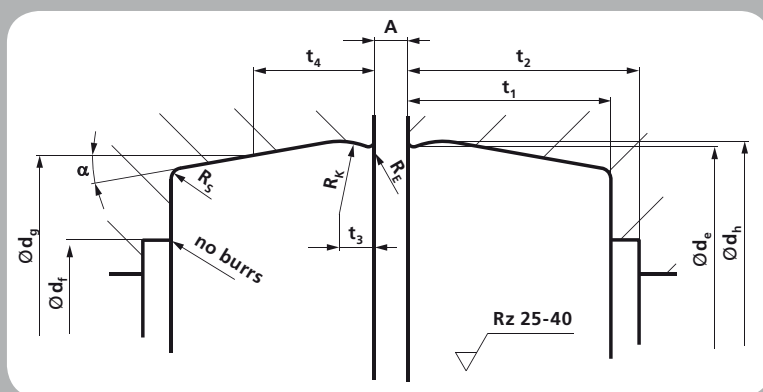
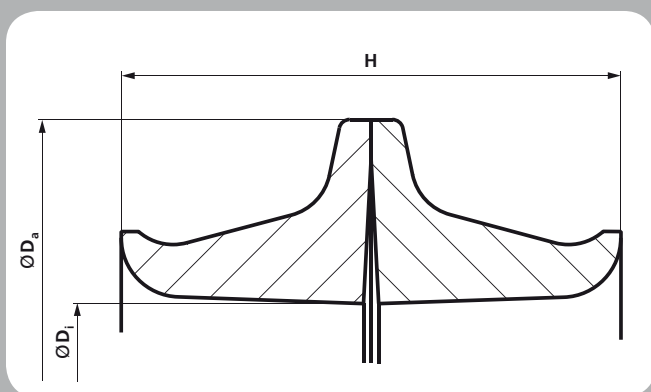
We are pleased to assist you in any individual sealing solution.

¹⁾ Ask for clearance A

³⁾ Material = Cororit

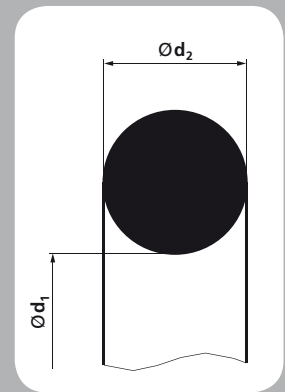
²⁾ sandblasted

⁴⁾ also available in material Cororit



Seal weight [g]	Part no.										Drawing no. 76.90 ■ 76.97 ■
	NB50	NB60	NB70 ¹⁾	FP60	FP70 ¹⁾	HN60	HN60CF	HN70 ¹⁾	Si60	Si70 ¹⁾	
1380		11000162			11000341				11000311		■ H- 22
764		11000054				11201087	11200946				■ H- 22 A2
650		11000679				11001091					■ H- 94
964		11000053		11201081	11000136	11000708					■ H- 22 A1 ⁴⁾
1484		11000060		11200935	11000360	11201004					■ H- 25
1022		11000201		11000657	11200896	11000658			11000542		■ H- 23
1022	11200803	11200766				11201057			11200768		■ H- 23 ⁴⁾
541		11000263				11000990		11000481	11000590		■ H- 81
1007		11000681					11201281				■ H- 93
910		11000059			11000308	11201102			11000541		■ H- 24 A3 ⁴⁾
1200		11200773									■ H- 109
1593		11000184		11000577		11000799			11000667		■ H- 24
670		11200776									■ H- 104 ⁴⁾
1311		11000142				11201058					■ H- 40
1610		11000067		11000970	11000259	11000646			11000635		■ H- 41
1426		11200652		11001033							■ H- 41 A1
1048		11200808									■ H- 130
1813	11000843	11000194		11200895		11201066	11200947				■ H- 62
1948						11200740					■ H- 142
1818		11000186		11000524	11000405	11000742	11201278		11000553		■ H- 26
1900		11000139			11000418	11000814			11001084		■ H- 26 A1
2243	11001127	11000062		11000712		11000766					■ H- 27
2240		11000884									■ H- 27 A4
2047		11200727		11201145							■ H- 042

Dimensions types 76.90 / 76.97



Mechanical Face Seals types 76.90 / 76.97 (sorted by $\varnothing D_i$)

Drawing no. 76.90  76.97 	A	Seal set			O-Ring		Housing bore												$\pm$ Tol. for *
		$\varnothing D_i$	$\varnothing D_a$	H	$\varnothing d_1$	$\varnothing d_2$	$\varnothing d_h^*$	$\varnothing d_e^*$	$\varnothing d_f$	$\varnothing d_g^*$	t_1	$t_{2 \min}$	t_3	t_4	R_E	R_K	R_S	α	
		[mm]			[mm]		[mm]												
 H- 28	3	318	341	38	315	12.7	351.5	350.5	334	349.3	17.5	20.5	3.1	10	0.5	6.5	1	10°	0.2
 H- 28 A4	3	318	346	38	315	12.7	351.5	350.5	334	349.3	18	20.5	3.1	10	0.5	6.5	1	10°	0.2
 H- 161	3	326	354	30	334	9.5	358.7	357.7	346	357.2	15	16.5	2.8	7.5	0.5	5	1	10°	0.2
 H- 99 A1	3	340	368.5	38	338	13.1	374.8	373.2	358	372.8	19	21.5	3	9	0.5	4	1	10°	0.2
 H- 30	3	350	375	38	355	12.7	385.5	384.5	368	383.3	17.5	20.5	3.1	10	0.5	6.5	1	10°	0.2
 H- 30 A1	3	355	375	38	355	12.7	385.5	384.5	368	383.3	17.5	20.5	3.1	10	0.5	6.5	1	10°	0.2
 H- 60	3	366	394.4	38	359.5	12.7	399.5	398.6	381	397.4	17.5	20.5	3	9.5	0.5	6.5	1	10°	0.2
 H- 60 A2	6	366	394.4	40	359.5	12.7	399.5	398.6	381	397.4	17.5	20.5	3	9.5	0.5	6.5	1	10°	0.2
 H- 60 A3	3	370	398	38	370	12.7	403.5	402.6	385	401.4	17.5	20.5	3	9.5	0.5	6.5	1	10°	0.2
 H- 143	6	382	405	40	377	12	412	411	395	410.4	17	22	3.8	9	1.1	6	3	10°	0.15
 H- 70 ⁴⁾	3	388	415	38	385	12.7	420.3	419.4	402	418.2	17.5	20.5	3	9.5	0.5	6.5	1	10°	0.25
 H- 70 A1	3	388	416.2	38	385	12.7	421.6	420.7	402	419.5	17.5	20.5	3	9.5	0.5	6.5	1	10°	0.25
 H- 61 ⁴⁾	3	430	457	38	420	12.7	462.3	461.3	444	460.2	17.5	20.5	3	9.5	0.5	6.5	1	10°	0.25
 H- 61 A4	3	430	459.2	38	420	12.7	464.5	463.5	444	462.4	17.5	20.5	3	9.5	0.5	6.5	1	10°	0.25
 H- 65 A1	3	450	480	50	454	16	492.2	490.2	470	489.2	23.5	25.5	4	13	0.5	6	1	10°	0.4
 H- 65 A2	3	465	495	43.6	460	12.7	500.7	498.5	482.9	498.9	21.2	22.9	4.7	10.5	0.7	7	1	10°	0.25
 H- 65 A5	3	465	497.2	43.6	460	12.7	503.1	500.9	482.9	501.3	21.2	23	4.7	10.5	0.7	7	1	10°	0.25
 H- 65	3	470	500	50	474	16	512.2	510.2	490	509.3	23.5	25.5	4	13	0.5	6	1	10°	0.4
 H- 74 ⁴⁾	6	505	533.4	43.6	493	12.7	538.4	537.4	521	536.8	19.7	21.7	4	9	1.3	6.5	1	10°	0.25
 H- 74 A2	3	505	535.8	43.6	493	12.7	541.8	539.7	521	540.3	19.7	21.7	4.2	9	0.5	6.5	1	10°	0.25
 H- 144	15	508	548	60	510	18	553	551.5	528	550.5	22	26	5	13	1.1	9	3	10°	0.4
 H- 89	3	530	560	50	530	16	572.2	570.2	545	569.2	23.5	25.5	4	13	0.5	6	1	10°	0.4
 H- 146	6	538	566.8	43.6	535	12.7	572.2	571.2	554	570.6	19.7	21.7	4	9	1.3	6.5	1	10°	0.25
 H- 82	3	559	590	50	560	16	602.2	600.2	575	599.2	23.5	25.5	4	13	0.5	6	1	10°	0.4

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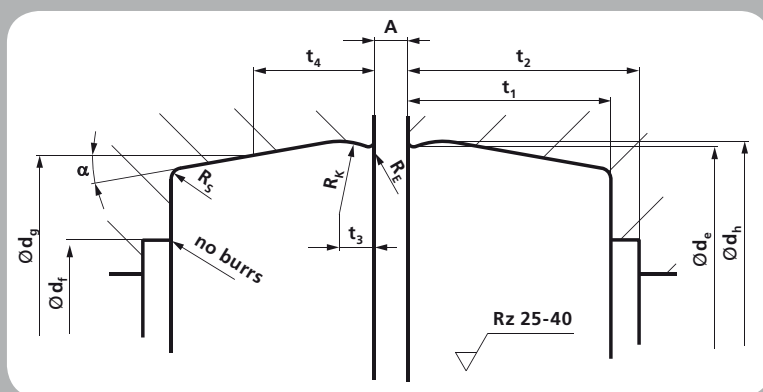
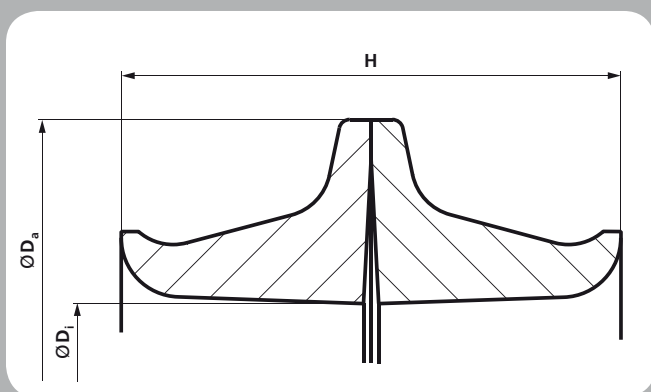
We are pleased to assist you in any individual sealing solution.

¹⁾ Ask for clearance A

³⁾ Material = Cororint

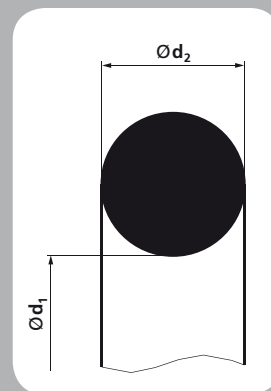
²⁾ sandblasted

⁴⁾ also available in material Cororint



Seal weight [g]	Part no.										Drawing no. 76.90 ☐ 76.97 ☐
	NB50	NB60	NB70 ¹⁾	FP60	FP70 ¹⁾	HN60	HN60CF	HN70 ¹⁾	Si60	Si70 ¹⁾	
2098		11200753			11200754	11200755	11200948		11200756		☐ H- 28
2195		11201276		11001115		11000852			11200821		☐ H- 28 A4
2426		11201108				11201256					☐ H- 161
2470	11000785					11201287					☐ H- 99 A1
2664		11000064		11000600	11000343	11000651			11000652		☐ H- 30
1872		11000347							11201120		☐ H- 30 A1
2545	11000314	11000104		11000525	11000278	11000797			11000606		☐ H- 60
2824							11000989		11001050		☐ H- 60 A2
2538						11201065			11001022		☐ H- 60 A3
2256						11200741			11201006		☐ H- 143
2448		11000143		11001109	11000258	11201067	11201284		11201122		☐ H- 70 ⁴⁾
2662		11000777									☐ H- 70 A1
2693	11000315	11000105	11201023	11000821	11000353	11001140		11201227 ²⁾	11000522		☐ H- 61 ⁴⁾
3135		11000772							11201240		☐ H- 61 A4
4927		11000279				11200979			11000389		☐ H- 65 A1
4536		11000456		11201285							☐ H- 65 A2
5004		11000771									☐ H- 65 A5
5141		11000144			11000306				11000984		☐ H- 65
4845	11000316	11000231		11000565		11200998		11201002	11000605	11200738 ²⁾	☐ H- 74 ⁴⁾
5048		11000778									☐ H- 74 A2
7508						11200742					☐ H- 144
5783	11201043	11000384		11000634		11000776					☐ H- 89
5501		11200774									☐ H- 146
6425		11000385		11000633		11200806			11001038		☐ H- 82

Dimensions types 76.90 / 76.97



Mechanical Face Seals types 76.90 / 76.97 (sorted by $\varnothing D_i$)

Drawing no.		Seal set			O-Ring		Housing bore												α	± Tol. for *
76.90  76.97 	A	ØD _i	ØD _a	H	Ød ₁	Ød ₂	Ød _h *	Ød _e *	Ød _f	Ød _g *	t ₁	t _{2 min}	t ₃	t ₄	R _E	R _K	R _S			
		[mm]			[mm]		[mm]													
 H- 83	6	576	608	43.6	582	12.7	613	612	596	611.4	19.7	21.7	4	9	1.3	6.5	1	10°	0.25	
 H- 83 A2	6	581.5	608	43.6	582	12.7	613	612	596	611.4	19.7	21.7	4	9	1.3	6.5	1	10°	0.25	
 H- 76	5,25	591	623	50	595	16	635.2	633.2	613	632.2	23.5	25.5	4	13	0.5	6	1	10°	0.4	
 H- 90	5,25	596	628	50	595	16	640.2	638.2	618	637.2	23.5	25.5	4	13	0.5	6	1	10°	0.4	
 H- 75	13	660	695	53	665	16	705.3	703.3	680	703.2	20	22.5	4	10.5	0.5	6	1	10°	0.4	
 H- 75 A2	9	667	700	43.6	660	12.7	705.6	704.3	687	703.2	21.3	24	3.7	11	0.7	6.3	1	10°	0.25	
 H- 75 A3	12	667	700	50	660	12.7	705.6	704.7	687.7	703.2	21.3	26.2	3.7	11	1.2	6.3	1	10°	0.13	
 H- 86	3	718	750	50	722	16	762.2	760.2	740	759.2	23.5	25.5	4	13	0.5	6	1	10°	0.4	
 H- 162	17	740	801	80	745	20.5	816.9	815.9	784	812.8	34.5	39.5	4.4	17	1.1	10	1	10°	0.4	
 H- 80 A1	17	770	826	80	780	20.5	831.9	830.9	800	827.8	34.5	39.5	4.4	17	1.1	10	1	10°	0.4	
 H- 154	17	780	836	80	790	20.5	841.9	840.9	810	837.8	34.5	39.5	4.4	17	1.1	10	1	10°	0.4	
 HEL- 127 A1	12	817	865	46.6	830	12.7	870.6	869.7	852.7	868.2	21.3	26.2	3.8	11	1.2	6.3	1	10°	0.13	
 HEL- 127 A2	11	825	865.3	48	819	12.7	870.6	869.7	852.7	867.8	18.4	23.3	3.7	12	1.2	6.3	1	10°	0.13	
 H- 80	17	834	886	80	840	20.5	891.9	890.9	860	887.8	34.5	39.5	4.5	17	1.1	10	1	10°	0.4	
 H- 163	17	890	951	80	895	20.5	956.9	955.9	924	952.8	30	34	4.4	17	1.1	10	5	10°	0.4	
 H- 141	16	902	941	60	897	16.25	946.3	945.2	922.4	943.4	23.8	25.2	4.65	13.5	1.4	8	1	10°	0.4	
 H- 155	17	920	976	80	930	20.5	981.9	980.9	950	977.8	34.5	39.5	4.4	17	1.1	10	1	10°	0.4	
 H- 106 A2	17	1030	1085	80	1020	20.5	1090.9	1089.9	1058	1086.8	34.5	39.5	4.4	17	1.1	10	1	10°	0.4	
 H- 106 A4 ⁴⁾	17	1044	1105	80	1050	20.5	1110.9	1109.9	1078	1106.8	34.5	39.5	4.4	17	1.1	10	1	10°	0.4	
 H- 156 ³⁾	26	1175	1236	80	1170	20.5	1241.9	1240.4	1209	1237.8	32.5	37.5	4.4	17	0.5	10	1	10°	0.4	
 H- 147 ³⁾	26	1372	1425	80	1350	20.5	1430.9	1429.9	1398	1426.8	32.5	37.5	4.4	17	1.1	10	1	10°	0.4	

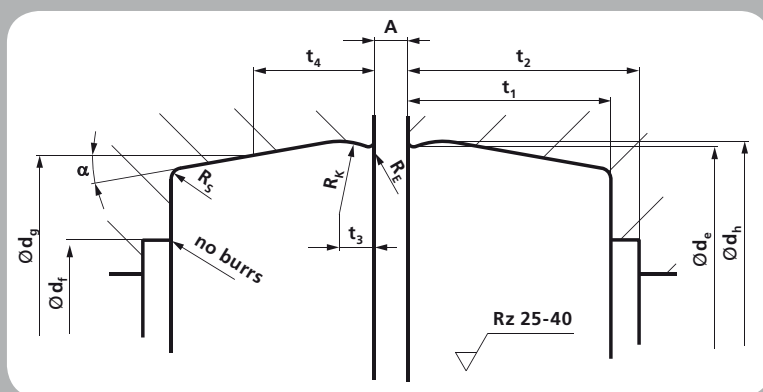
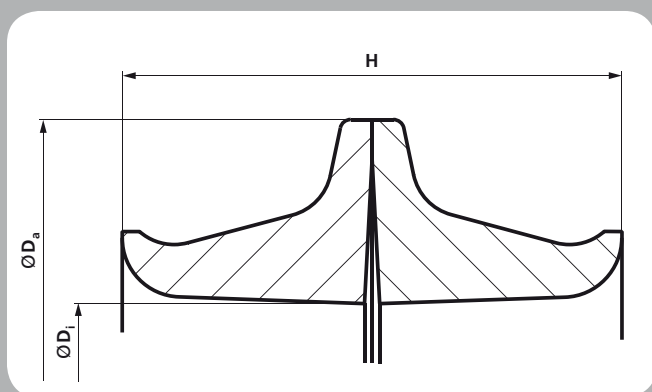
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¹⁾ Ask for clearance A

³⁾ Material = Cororit

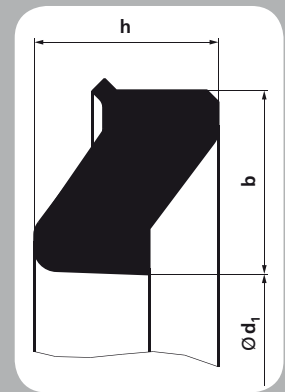
²⁾ sandblasted

⁴⁾ also available in material Cororit



Seal weight [g]	Part no.										Drawing no. 76.90  76.97 
	NB50	NB60	NB70 ¹⁾	FP60	FP70 ¹⁾	HN60	HN60CF	HN70 ¹⁾	Si60	Si70 ¹⁾	
6196	11000747	11000383									 H- 83
4556	11200867 ²⁾	11201076									 H- 83 A2
7270		11000381				11201197					 H- 76
7298		11000458			11000483	11200862		11201009			 H- 90
9056	11201201	11000382			11000556						 H- 75
7376		11000754 ²⁾						11001071 ²⁾	11200899 ²⁾	11000758 ²⁾	 H- 75 A2
9120				11200933 ²⁾			11200762 ²⁾				 H- 75 A3
8603		11000346		11001092		11000915					 H- 86
26540	11201118										 H- 162
24372				11200781		11200861		11201010			 H- 80 A1
25254		11200996									 H- 154
4568					11200953					11200725	 HEL- 127 A1
13050						11200763 ²⁾					 HEL- 127 A2
26642		11200693		11200760		11200863			11200790		 H- 80
30780	11201119										 H- 163
14412		11200709									 H- 141
30063		11200997									 H- 155
32221		11200695							11201111		 H- 106 A2
33013	11001090	11001044									 H- 106 A4 ⁴⁾
43955	11201033										 H- 156 ³⁾
37498	11201110	11201042									 H- 147 ³⁾

Dimensions type 76.95



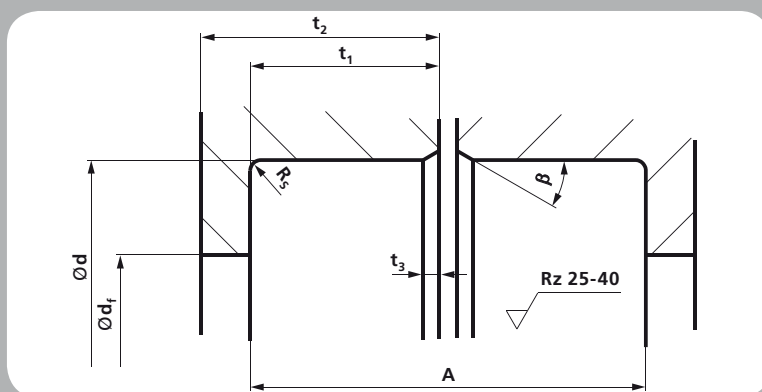
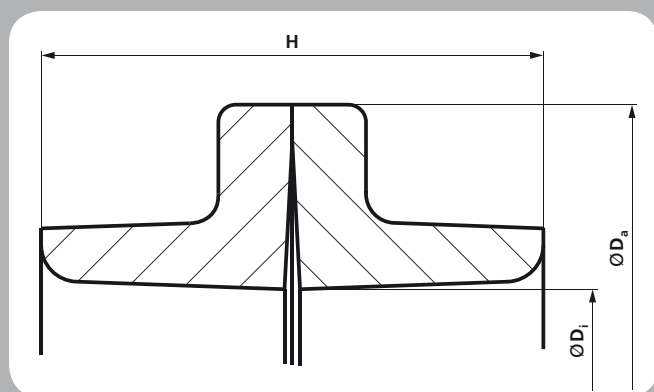
Mechanical Face Seals types 76.95 without retaining lip (sorted by ØD₁)

76.95	Drawing no.	Seal set			Trapezoid ring			Housing bore									
	A	ØD ₁	ØD _a	H	Ød ₁	b	h	Ød	Ød _f	t ₁	t ₂	t ₃	R _s	β	± Tol. for A	± Tol. for d	
			[mm]			[mm]							[mm]				
-45	24.7	45	65	22	50	9.5	11.3	70.1	58.0	11.5	12.1	1.5	1.0	30°	0.3	0.06	
-28	22.7	48.5	62.5	25.6	52	11.2	10.3	76.3	62.9	10.6	14.0	1.6	1.0	30°	0.3	0.1	
-55	22.9	56	76	21	60.5	10.5	10.25	82.6	70.1	10.6	11.7	1.0	1.0	30°	0.3	0.1	
-30	28.0	60	80	24	65.5	9.4	13.2	85.0	70.0	10.5	10.5	1.0	1.0	30°	0.3	0.06	
-27	23.3	73.5	93	20	80	10.2	10.8	102.4	88.4	10.8	11.2	1.0	1.0	30°	0.3	0.1	
-53	18.0	76	90	17	80.5	6.25	8.5	95.0	83.0	8.0	9.5	1.0	1.0	30°	0.3	0.06	
-21	20.0	88	104	19	92	9.5	9.5	113.0	98.0	8.0	9.5	1.0	1.0	20°	0.3	0.06	
-29	27.8	94	120	25	99.5	12.5	12.7	125.8	109.1	13.0	13.6	1.5	1.0	30°	0.3	0.1	
-33	33.5	115	141	28	120.5	14.7	15.3	152.4	131.4	15.9	15.9	1.5	1.0	30°	0.5	0.1	
-35 A1	34.0	132	158	31	138	15.4	14.7	171.5	151.8	15.4	15.9	1.5	1.5	30°	0.3	0.15	
-73	27.7	142.5	161	24	147	11.7	12.9	173.0	139.7	11.1	11.3	1.5	1.0	30°	0.3	0.1	
-40	34.7	148	172	29	154.5	13.5	15	184.5	164.7	16.5	16.5	1.5	1.5	30°	0.3	0.1	
-102 2)	32.2	192	218	32	198	15	15	231.0	206.0	15.2	17.1	1.0	1.5	30°	0.3	0.1	
-47	44.5	201	238	36	210	20.7	20.3	254.0	235.5	21.2	21.2	1.0	1.5	30°	0.5	0.2	
-47 A1	32.0	213.5	238	27.4	219	16	15	254.0	240.0	13.7	13.7	1.5	1.0	30°	0.3	0.15	
-56	48.9	225	265	40	235.5	19.4	19.6	277.1	247.8	23.7	23.7	1.5	1.5	30°	0.5	0.15	
-76	33.8	235.7	265	30	244.5	12.75	14.6	273.1	230.0	15.6	15.7	1.5	1.0	30°	0.3	0.1	
-58	36.5	239	264	34	244.5	15.8	16	279.4	261.9	17.5	18.2	1.6	1.0	45°	0.5	0.15	
-85	32.8	256	282	30	262	13.4	13.8	292.1	276.2	15.6	16.2	1.5	1.0	30°	0.3	0.1	
-48	39.1	283	319	34	290	17.7	16.7	329.4	307.3	18.5	18.5	1.5	1.0	45°	0.5	0.15	
-68	42.1	319	353	36	322	17.7	17.8	365.1	343.7	20.0	20.0	1.6	1.5	30°	0.5	0.15	

Please contact us, if you require new sizes or existing sizes with different materials, which are not contained in the dimension list.
We are pleased to assist you in any individual sealing solution.

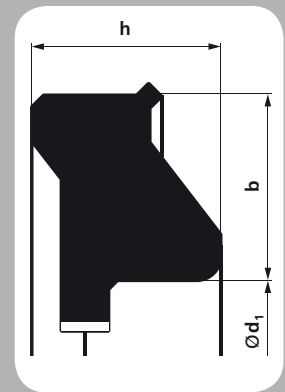
¹⁾ Material = Cororint

²⁾ also available in material Cororint



Seal weight [g]	Part no.									Drawing no. 76.95
	NB50	NB50SO	NB60	NB60SO	FP55	FP60	HN50	HN60	HN60CF	
157			11000265							-45
135	11000363									-28
195			11000489							-55
232	11000140									-30
263			11000247	11201048					11200876	-27
166	11000380			11201189			11200839		11200846	-53
228	11200807			11201190			11200838		11200845	-21
450			11000510	11201049						-29
639			11000243							-33
863			11000244							-35 A1
1300	11001066									-73
834			11000292							-40
1180	11201229									-102 ²⁾
2108	11000268				11201121					-47
1200	11001064				11200796					-47 A1
2764			11200675							-56
1620			11001132							-76
1585	11200651									-58
1551	11200744				11200835					-85
2495	11000931									-48
2860	11200681							11201282		-68

Dimensions type 76.95H



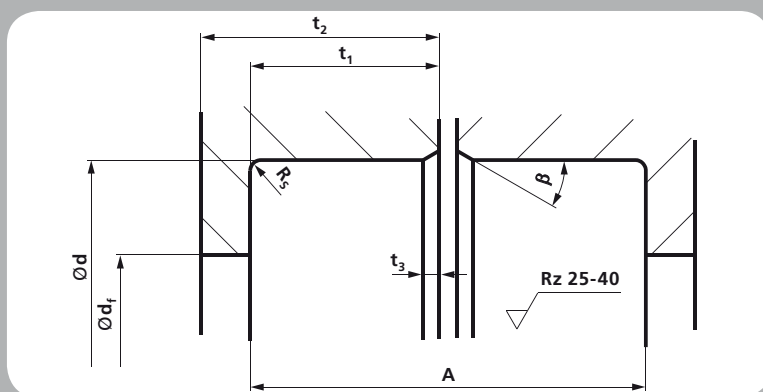
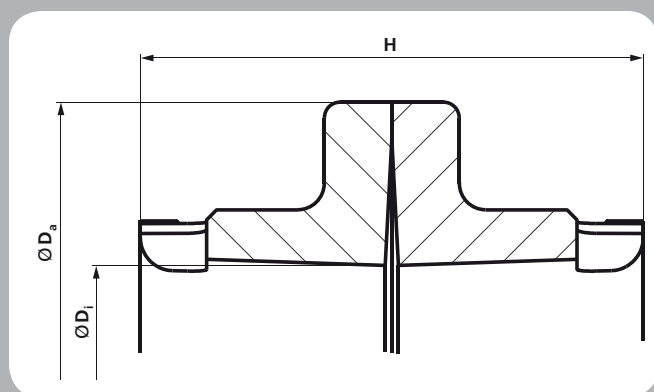
Mechanical Face Seals types 76.95H with retaining lip (sorted by ØD_i)

Drawing no.		Seal set			Trapezoid ring			Housing bore									± Tol. for A	± Tol. for d
76.95H	A	ØD _i	ØD _a	H	Ød _i	b	h	Ød	Ød _f	t ₁	t ₂	t ₃	R _s	β				
		[mm]			[mm]			[mm]										
- 28	22.7	48.75	62.5	22	53	11.25	11.5	76.3	62.9	10.6	12.2	1.6	1	30°	0.3	0.1		
NO- 78	25.4	73.75	93	26	79.5	10.2	11.2	101.6	92.1	11.7	14.0	1.5	1	30°	0.3	0.1		
- 32	25.8	84.25	106	26	90	11.1	11.4	114.3	97.4	12.1	14.2	2	0.5	30°	0.3	0.1		
- 29	27.8	94	115	27.5	99.5	12.5	12.5	125.8	109.1	13.0	14.8	1.5	1	30°	0.3	0.1		
- 14	27.8	104	126	26	112	10.5	12.2	135.1	118.0	11.8	12.9	2	1	30°	0.3	0.1		
- 88 ²⁾	38.7	124	143	34	128	18.7	15.5	162.6	149.9	17.8	17.8	2	1.5	30°	0.5	0.15		
- 103 ¹⁾	38.0	124	149	30.4	128	15.8	14.9	162.6	155.5	17.8	17.8	5	1.5	30°	0.5	0.15		
- 49	32.1	167.25	192.5	34	174	15.1	14.6	206.3	191.9	15.2	18.1	1.5	1	30°	0.3	0.15		
- 42 A1	42.1	194	222	34	200	18	18.9	238.8	214.2	20.1	20.1	1.5	1	30°	0.5	0.15		
- 47 A1	32.0	213.5	238	31	219	16	15	254.0	240.0	13.7	15.2	1.5	1	30°	0.3	0.15		
- 91 ²⁾	22.9	238.5	256	22	240	12.95	12	269.9	256.0	10.7	12.2	1	1	30°	0.3	0.1		
- 58	36.5	239	264	38	244.5	15.8	16	279.4	261.9	17.5	20.2	1.57	1	30°	0.5	0.15		
- 85 ²⁾	32.8	256.25	282	35	262	13.4	13.8	292.1	276.2	15.6	18.7	1.5	1	30°	0.3	0.1		
- 54 ²⁾	47.6	354.5	392	42	362	18	20.5	401.8	380.6	23.0	23.0	1.5	2	30°	0.5	0.15		
- 86 ²⁾	47.6	378.25	414	42	384	18	21	424.1	402.9	23.0	23.0	1.5	2	30°	0.5	0.15		
- 64 ²⁾	38.9	441.25	478	42	447	17.25	16.7	488.7	467.4	18.4	21.9	1.5	1	30°	0.5	0.15		
- 80 ²⁾	41.7	500	534	42	503	18.1	18	546.1	532.1	19.9	22.1	1.5	1	30°	0.5	0.15		
- 97 ¹⁾	44.7	578	620	40	580	17	18.6	624	600.0	21.4	21.4	2	1	45°	0.5	0.15		
- 75 ²⁾	54.0	617.25	670	52	620	26.5	23.5	682.5	649.0	25.9	26.9	1.5	2	30°	0.5	0.2		
- 79 ¹⁾	58.0	752	800	56	760	22.5	25	812.8	779.0	26.1	27.1	1.5	2	30°	0.5	0.2		

Please contact us, if you require new sizes or existing sizes with different materials, which are not contained in the dimension list.
We are pleased to assist you in any individual sealing solution.

¹⁾ Material = Cororint

²⁾ also available in material Cororint



Seal weight [g]	Part no.									Drawing no. 76.95H
	NB50	NB50SO	NB60	NB60SO	FP55	FP60	HN50	HN60	HN60CF	
114	11200965									- 28
305			11201055							NO- 78
205				11200913		11200952			11200973	- 32
582						11200960			11200944	- 29
482				11200857						- 14
680		11201221								- 88 ²⁾
854		11201239								- 103 ¹⁾
1140			11201241							- 49
1484	11200809									- 42 A1
1200			11200873							- 47 A1
749	11200967									- 91 ²⁾
1725	11200858									- 58
1847			11200802			11200805				- 85 ²⁾
3340	11200843									- 54 ²⁾
3959	11200749	11201273			11200804					- 86 ²⁾
4999	11200718				11200810					- 64 ²⁾
4622	11200711				11200801					- 80 ²⁾
6090			11201195					11201101		- 97 ¹⁾
11000			11200674		11200833			11201196		- 75 ²⁾
13662							11201105			- 79 ¹⁾

Dimensions type 76.93 versions A and B

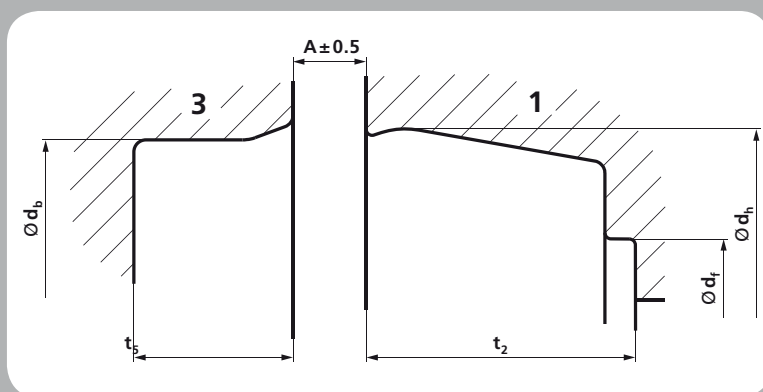
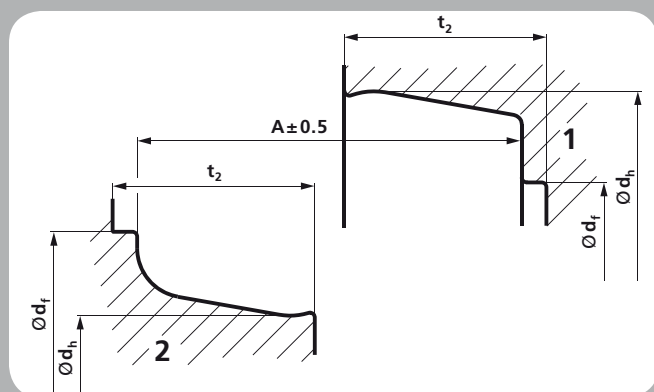


Mechanical Face Seals special design type 76.93 version A (sorted by $\varnothing D_i$)

Drawing no.		Part no.	Seal set			Housing bore part 1			Seal weight [g]	Housing bore part 2		
76.93 Version A	A		$\varnothing D_i$	$\varnothing D_a$ [mm]	H	$\varnothing d_h^*$	$\varnothing d_f$ [mm]	$t_{2 \min}$		$\varnothing d_h^*$	$\varnothing d_f$ [mm]	$t_{2 \min}$
76.93- 98 HN60CF	31	11000715	177	209	8.875	213.5	200	17	963	172.5	186	17
76.93- 126 A3 HN60CF	32	11000836	192	220	30.5	213.8	198	17	709	196.9	213	14
76.93- 97 HN60CF	31	11000716	205	237	31	241.7	229	17	1253	200.5	213	17
76.93- 148 NB60	31	11001057	238	270	31	274.5	262	17	1390	233.5	246	15.4
76.93- 119 A1 HN60CF	39	11001004	242	262.8	39.5	273.5	255.5	20.5	1563	228.2	248	20.5
76.93- 128 A3 HN60CF	39	11001003	292	322.5	38	327.5	310	20.5	2052	283	300	20.5

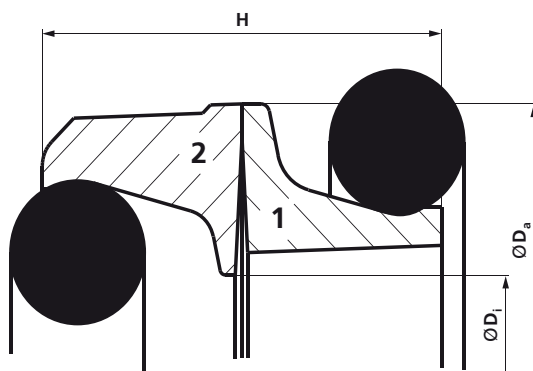
Mechanical Face Seals special design type 76.93 version B (sorted by $\varnothing D_i$)

Drawing no.		Part no.	Seal set			Housing bore part 1			Seal weight [g]	Housing bore part 3	
76.93 Version B	A		$\varnothing D_i$	$\varnothing D_a$ [mm]	H	$\varnothing d_h^*$	$\varnothing d_f$ [mm]	$t_{2 \min}$		$\varnothing d_b$ [mm]	t_5
76.93- 97 A2 HN60CF	3	11200864	216	237	24	241.7	229	17	1310	238	7.5
76.93- 173 NB60	4.5	11200917	223	251.5	29	256.5	238.5	20.5	1339	252.5	7
76.93- 185 HN60CF	2	11201003	250	270	25	274.7	262	15.5	1064	271	9.5
76.93- 153 HN60CF	2.65	11001134	326	354	33.5	360	342	22	2350	358.2	13
76.93- 153 NB60	2.65	11200981	326	354	33.5	360	342	22	2350	358.2	13
76.93- 205 GLI NB60	8.2	11201207	660	695	43.5	705.2	680	24	7790	698	15



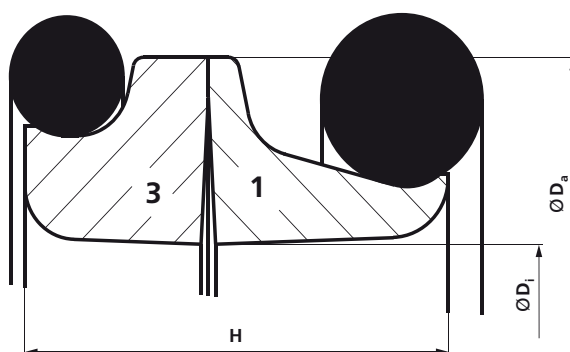
Drawing no.
76.93 Version A
76.93- 98 HN60
76.93- 126 A3 HN60CF
76.93- 97 HN60
76.93- 148 NB60
76.93- 119 A1 HN60
76.93- 128 A3 HN60CF

Version A



Drawing no.
76.93 Version B
76.93- 97 A2 HN60CF
76.93- 173 NB60
76.93- 185 HN60CF
76.93- 153 HN60CF
76.93- 153 NB60
76.93- 205 GLI NB60

Version B



Dimensions Adapter Rings type 76.91



Adapter Rings type 76.91

Drawing no.	Form		Size				Housing bore				Part number		
	A	B	$\varnothing d_f$	$\varnothing d_a$	$\varnothing d_b$	t	$\varnothing d_a$	$\varnothing D_b$	a	b	Form „A“ NB	Form „B“ FP	Form „B“ FP
76.91													
76.91-04		■	84	–	104	17.5		104	17.5	1.5		00341506	
76.91-05		■	83	–	100	13.5		100	13.5	1.5		00341501	
76.91-07	■		94	121	–	15	121		15	1.5	00341471		
76.91-08	■		111	144.7	–	17.5	144.7		17.5	1.5	00341350		
76.91-09A1	■		132	165	–	17	165		17	1.5	00341376		
76.91-12		■	138.5	–	154	14.5		154	14.5	1.5		00341514	
76.91-17	■		166	195	–	16.3	195		16.3	1.5	00341312		
76.91-18		■	159	–	188	20.5		188	20.5	1.5	00341617		00341507
76.91-23		■	219	255	243	17	255	243	20.5	1.5		00341519	
76.91-25		■	215.5	–	245	19.5		245	19.5	2		00341439	00341521
76.91-26		■	280	–	310	20.5		310	20.5	2		00341520	
76.91-27		■	318	–	360	20.5		360	20.5	2		00341512	
76.91-41		■	255	–	285	20.5		285	20.5	2		00341502	
76.91-60		■	381	–	420	20.5		381	20.5	2		00341522	
76.91-61		■	444	–	478	20.5		478	20.5	2		00341616	

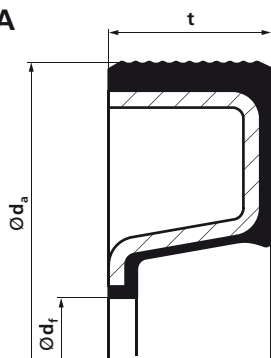
Please take note of the installation guide lines on page 21.

Example to order:

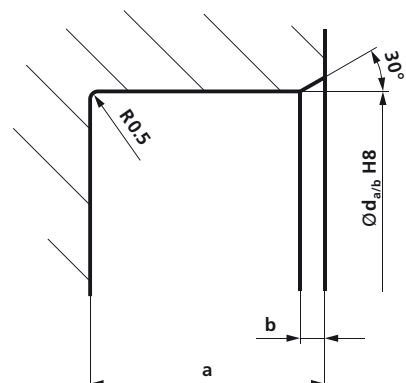
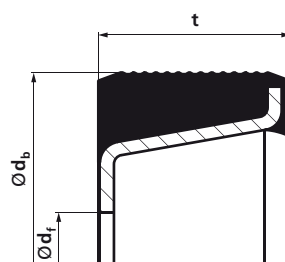
Adapter for Mechanical Face Seal **76.97H-26: 76.91-26 NB - Part no. 00341520**

Please contact us, if you require Adapter Rings for other seals.

Form A



Form B



Requirements profile

Requirements profile – GOETZE Mechanical Face Seals		
Details to be supplied with enquiries and orders		
Company		
Company name		We can best advise you if you attach a drawing of the sealing location. Using our experience we can then suggest to you the best type and size of GOETZE Mechanical Face Seal, made from the most suitable material.
Address		
Contact		
Phone		
Fax		
Cell-phone		
E-mail		
Project name		
Seal location		
(track roller, carrier, idler, gearbox etc.)		
Dimensions (Shaft/Axle)		
Outer diameter max.		
Inner diameter min.		
Axial height max.		
Speed or speed range [rpm]		
Eccentricity		
Axial movement, change of length		
Lubrication		
Grease	☐	
Gearbox oil	☐	
Motor oil	☐	
Hydraulic oil	☐	
Hypoid oil	☐	
Discription		
Service requirements		
Type and composition of the medium to be sealed (grain size, dry, wet etc.)		
Pressure outside the sealing chamber [bar]		
External temperature [°C]		
Test procedure		
Describe any test procedure that the seal must perform		
Additional data		
(intermittent operation, periodic dry operation, pressure pulses, oscillations etc.)		
Dimensions of the mounting space available, sketches		

Notes

[illegible]

Federal-Mogul / Goetze, your worldwide specialist for Mechanical Face Seals.

Annotation

This catalogue sets out to the description of our products.

The information it contains is not designed as a statement of warranties, warranted characteristics or any warranty for fitness in regard to definite or assumed applications. The catalogue shall not be considered as a guarantee in whatever way. The loading capacity and the wear performance of Mechanical Face Seals are governed by the prevailing peripheral influences, and all calculations can only ever be approximate. The products must always be individually tested by the user in the envisaged application. We reserve the right to undertake technical changes and improvements at any time without notice and to adapt our products to changing standards and guidelines. The contractual agreements which are entered into, especially the agreed specifications, drawings and other data are binding only and shall prevail.

Any liability deriving from the contents of this catalogue is hereby excluded.



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