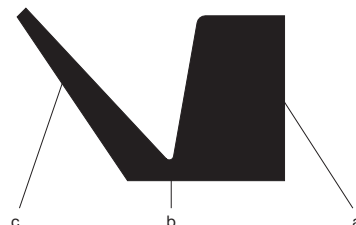


Description

The Frontseal® is an all elastomer axial seal for rotary shafts and bearings. It rotates with the shaft and seals axially against a stationary counterface perpendicular to the shaft. This type of seal has been used widely for several applications and has proved to be reliable and effective against dust, dirt, water and oil splash and other media.

The ring consists of three parts:

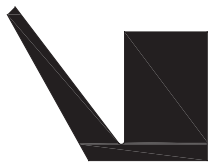


- a: the seal body, installed with interference to the shaft;
- b: the hinge, acting as a spring connection between the body and the lip;
- c: the conical and flexible sealing lip which provides the actual dynamic sealing against the counterface.

The counterface can be the side wall of the bearing, a washer or any housing.

Standard seal types

The Frontseal® is manufactured in different standard profiles:

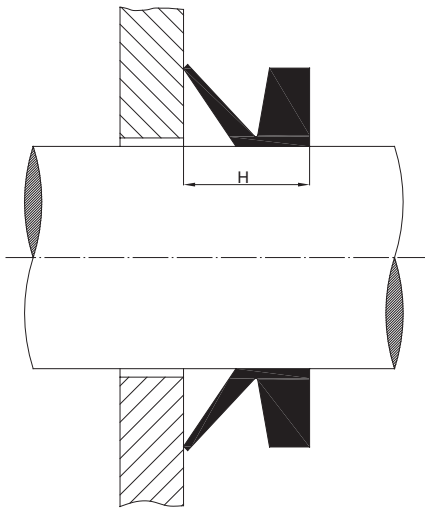
	VA	It's the most common profile. It has a perpendicular rear face. Wide range of sizes, from 3 to over 2000 [mm] shafts
	VS	Wide body to ensure higher radial force than VA type. Range of sizes from 5 to 199 [mm] shafts
	VL	This seal is intended for applications where available space is narrow. Range of sizes from 110 to over 1200 [mm] shafts
	VLX	This seal is more compact than VL type, commonly used in confined spaces. Size list available on request
	VE	It's a heavy-duty large diameter seal, used for instance in steel mills, paper mills and rolling mills as a dirt/water excluder seal. A clamping band can be used to improve axial fixation (see instruction IL03-02 and page 29). Range of sizes from 300 to over 2000 [mm] shafts
	VRME	This heavy-duty profile is also primarily designed for protecting high speed bearing arrangements in rolling mills, papermaking and large machine applications. A clamping band can be used to improve axial fixation. Size list available on request
	VAX	Heavy-duty Frontseal®, primarily designed for large high speed bearing arrangements, used for instance in rolling mills and papermaking machine applications. Additionally it can be used as secondary seal for heavy-duty applications where the primary seal has to be protected against water and/or particular contamination. Range of sizes from 200 to over 2000 [mm] shafts

Other types, modifications or larger diameters available upon request.

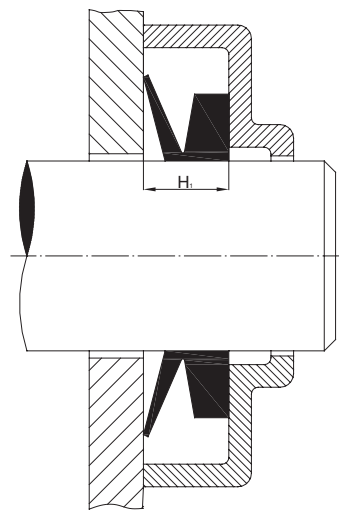
Installation and operation

Fitting

Fitting a Frontseal® is very simple. The ring must be slightly stretched and pushed along the shaft. It can either be done manually or with a simple tool, in a way that the distance to the counterface can be maintained constant over the circumference using little pressure. The lip of the Frontseal® should be lubricated with a thin film of grease or silicone oil. In case where friction must be reduced, coat the counterface with a low friction agent and do not apply grease to the lip. The shaft should be preferably dry and free from oil and grease.



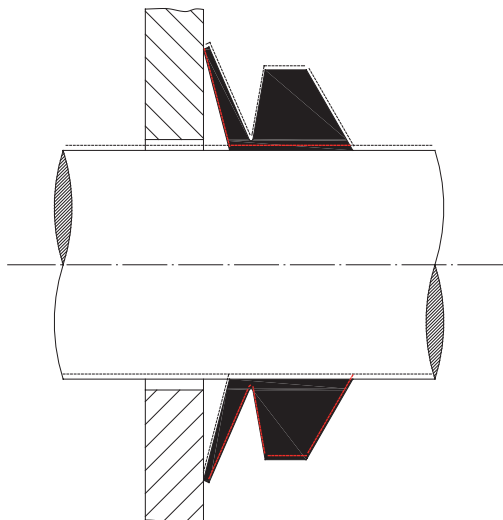
Frontseal® not preloaded



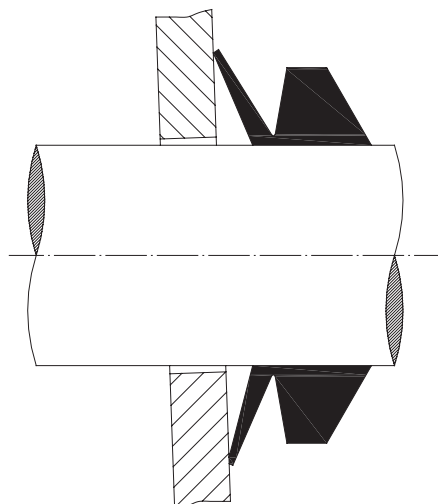
Frontseal® fitted with preloading using a tool

Eccentricity / Misalignment

The V-shape of the Frontseal® provides an effective and reliable sealing even with oval section, shaft run-out, eccentricity or shaft misalignment. Sealing is not even affected by a slightly tilted counterface (maximum permissible flatness deviation is usually defined as 0.4 [mm] per 100 [mm]).



oval and/or eccentrically turning shaft

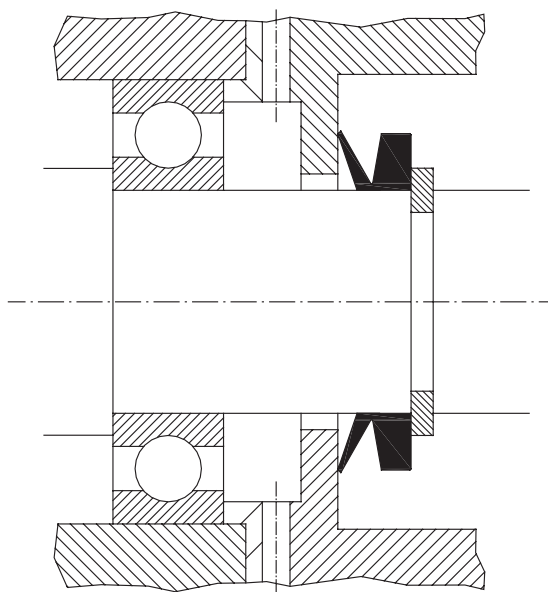


tilted counterface

Installation and operation

Counterface

The type of counterface finish is very important for an efficient sealing and for useful life of the seal. The surface must be smooth, free of scratches and sharp peaks. The choice of surface finish depends on the medium that has to be sealed and on the shaft speed. The choice of counterface materials is highly dependant on the medium too. For normal operating conditions, conventional mild steel of min 125 HB is sufficient. With an increase in speed and the presence of abrasive particles, the hardness of the counterface must also be increased. Surface treatment is suggested for water splashes or other corrosive media.

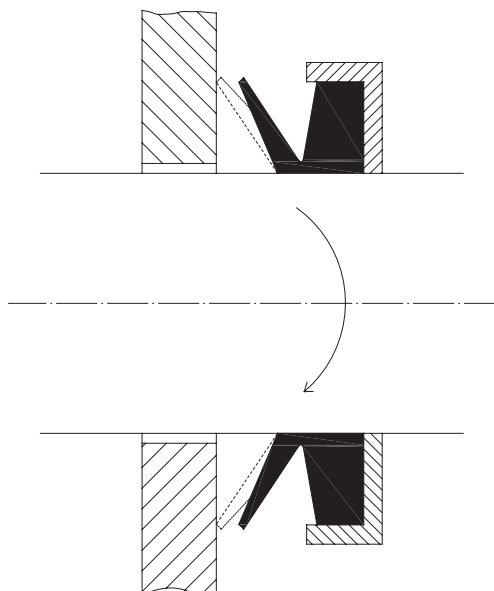


Peripheral speed

Due to the influence of the centrifugal force, the contact pressure of the lip decreases with increased speed.

At peripheral speed up to 8 [m/s] the lip of the Frontseal® has a good pressure against the counterface and it has the function of a light contact seal.

Over 8 [m/s] the seal must be axially supported and above 12 [m/s] radial retention is necessary, mounting the Frontseal® in an axial groove or applying an adequate support.



Clamping bands & clips for Frontseal® Type-VE in AISI430

When the Frontseal® is fitted on the shaft, the body of the ring is subject to a centrifugal force and can move from the shaft. For this reason the Frontseal® requires radial retention that can be supported by a clamping band.

Short description of technical features

The multi-range clamping bands are ideal for use in many different applications with a high mechanical load. With its tensile strength and the even tension force distribution it sets standards for reliable clamping. The clamping band perfectly fits on the VE Frontseal® and ensures an optimal tightness.

The clamping band has a width of 12 [mm] and a thickness of 0.8 [mm], perfectly fitting into the groove of DICHTA® Frontseal® Type VE which is 13 [mm] on all diameters. Both the clamping band and its clip are delivered in stainless steel AISI 430 (1.4016) material. Corrosion resistance in salt spray testing: min. 200 [h].

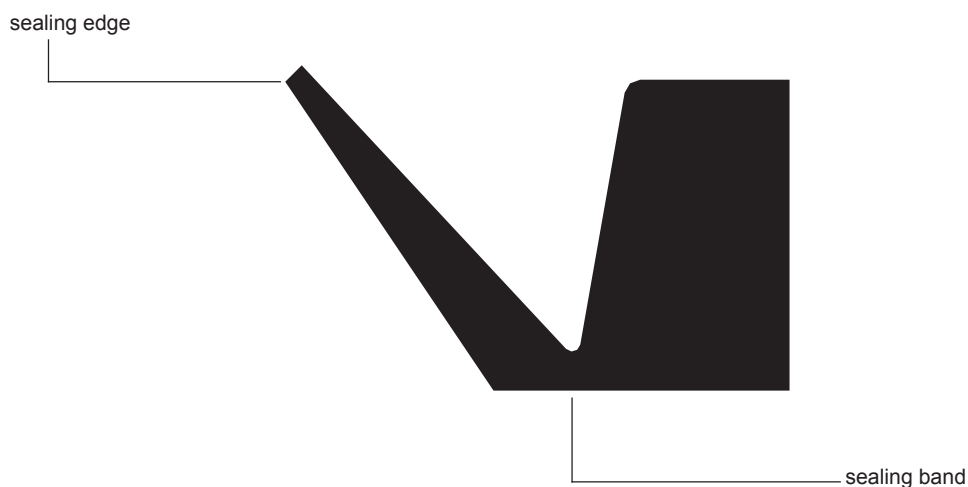
Clamping bands and supports for Frontseals® type VA are also available



Production and Quality assurance

Our Frontseal® is manufactured according to Quality Assurance Standards ISO 9001. All production phases are checked and all measurements are recorded and stored for tracing.

Our Frontseal® is individually inspected to ensure that sealing edge and sealing band are free from faults. Small cracks and shortcomings which could cause a split during installation or operation of the seal are also not accepted.



Storage and handling

Some storage precautions must be taken in order to avoid deterioration of the material. Frontseal® should be stored in a dust free and dry atmosphere and must be kept in its original packaging which should only be opened just before installation. Samples should be repacked after inspection.

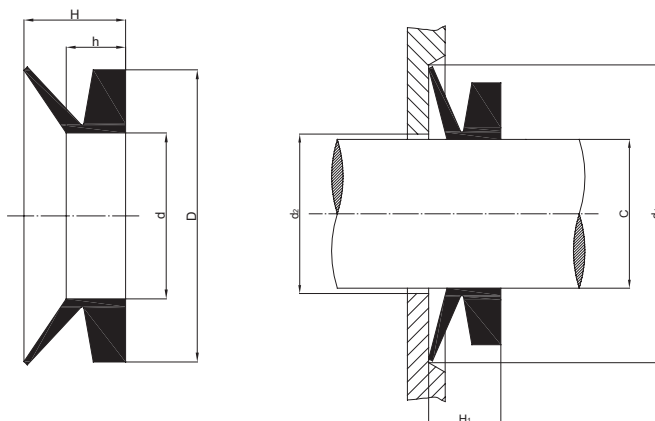
Do not drop Frontseal® on shelves or boxes, nor hang seals on hooks, wires or nails, since in either case the seal can be damaged.

Seals should be stored on a first-in first-out basis to avoid ageing on the shelf. Avoid storage near sources of heat or near electrical equipment that may generate ozone. Also keep away from direct sunlight.

Avoid unnecessary pressure on the lip during storage.

Standard sizes

Frontseal® VA



Ref.	Shaft diameter [mm]			Ring dimensions [mm]				Mounting dimensions [mm]		
	C	d	D	h	H	d ₂	d ₁	H ₁		
VA 200	190 - 210	180	210	14,3	25	C + 10	C + 45	20 ± 4		
VA 220	210 - 235	198	228	14,3	25	C + 10	C + 45	20 ± 4		
VA 250	235 - 265	225	255	14,3	25	C + 10	C + 45	20 ± 4		
VA 275	265 - 290	247	277	14,3	25	C + 10	C + 45	20 ± 4		
VA 300	290 - 310	270	300	14,3	25	C + 10	C + 45	20 ± 4		
VA 325	310 - 335	292	322	14,3	25	C + 10	C + 45	20 ± 4		
VA 350	335 - 365	315	345	14,3	25	C + 10	C + 45	20 ± 4		
VA 375	365 - 390	337	367	14,3	25	C + 10	C + 45	20 ± 4		
VA 400	390 - 430	360	390	14,3	25	C + 10	C + 45	20 ± 4		
VA 450	430 - 480	405	435	14,3	25	C + 10	C + 45	20 ± 4		
VA 500	480 - 530	450	480	14,3	25	C + 10	C + 45	20 ± 4		
VA 550	530 - 580	495	525	14,3	25	C + 10	C + 45	20 ± 4		
VA 600	580 - 630	540	570	14,3	25	C + 10	C + 45	20 ± 4		
VA 650	630 - 665	600	630	14,3	25	C + 10	C + 45	20 ± 4		
VA 700	665 - 705	630	660	14,3	25	C + 10	C + 45	20 ± 4		
VA 725	705 - 745	670	700	14,3	25	C + 10	C + 45	20 ± 4		
VA 750	745 - 785	705	735	14,3	25	C + 10	C + 45	20 ± 4		
VA 800	785 - 830	745	775	14,3	25	C + 10	C + 45	20 ± 4		
VA 850	830 - 875	785	815	14,3	25	C + 10	C + 45	20 ± 4		
VA 900	875 - 920	825	855	14,3	25	C + 10	C + 45	20 ± 4		
VA 950	920 - 965	865	895	14,3	25	C + 10	C + 45	20 ± 4		
VA 1000	965 - 1015	910	940	14,3	25	C + 10	C + 45	20 ± 4		
VA 1050	1015 - 1065	955	985	14,3	25	C + 10	C + 45	20 ± 4		
VA 1100	1065 - 1115	1000	1030	14,3	25	C + 10	C + 45	20 ± 4		
VA 1150	1115 - 1165	1045	1075	14,3	25	C + 10	C + 45	20 ± 4		
VA 1200	1165 - 1215	1090	1120	14,3	25	C + 10	C + 45	20 ± 4		
VA 1250	1215 - 1270	1135	1165	14,3	25	C + 10	C + 45	20 ± 4		
VA 1300	1270 - 1320	1180	1210	14,3	25	C + 10	C + 45	20 ± 4		
VA 1350	1320 - 1370	1225	1255	14,3	25	C + 10	C + 45	20 ± 4		
VA 1400	1370 - 1420	1270	1300	14,3	25	C + 10	C + 45	20 ± 4		
VA 1450	1420 - 1470	1315	1345	14,3	25	C + 10	C + 45	20 ± 4		
VA 1500	1470 - 1520	1360	1390	14,3	25	C + 10	C + 45	20 ± 4		
VA 1550	1520 - 1570	1405	1435	14,3	25	C + 10	C + 45	20 ± 4		
VA 1600	1570 - 1620	1450	1480	14,3	25	C + 10	C + 45	20 ± 4		
VA 1650	1620 - 1670	1495	1525	14,3	25	C + 10	C + 45	20 ± 4		
VA 1700	1670 - 1720	1540	1570	14,3	25	C + 10	C + 45	20 ± 4		
VA 1750	1720 - 1770	1585	1615	14,3	25	C + 10	C + 45	20 ± 4		
VA 1800	1770 - 1820	1630	1660	14,3	25	C + 10	C + 45	20 ± 4		
VA 1850	1820 - 1870	1675	1705	14,3	25	C + 10	C + 45	20 ± 4		
VA 1900	1870 - 1920	1720	1750	14,3	25	C + 10	C + 45	20 ± 4		
VA 1950	1920 - 1970	1765	1795	14,3	25	C + 10	C + 45	20 ± 4		
VA 2000	1970 - 2020	1810	1840	14,3	25	C + 10	C + 45	20 ± 4		

Over 2000 [mm] available on request