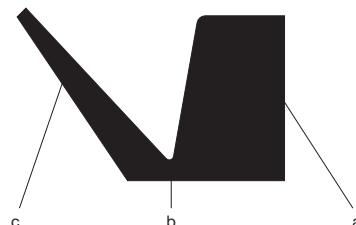


Description

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:

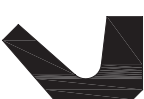


- a: the seal body, installed with interference to the shaft;
- b: the hinge, acting as a spring connection between the body and the lip;
- c: the conical and flexible sealing lip which provides the actual dynamic sealing against the counterface.

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:

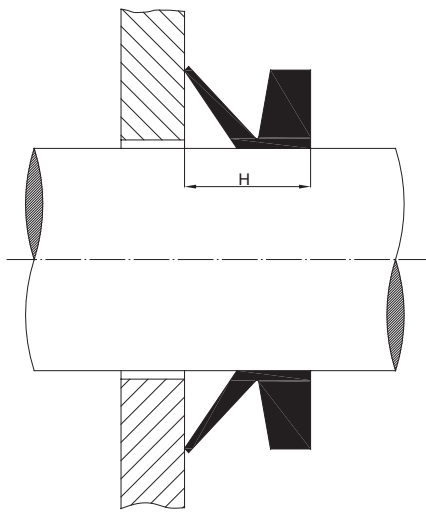
- | | | |
|---|-------------|--|
|  | VA | It's the most common profile. It has a perpendicular rear face. Wide range of sizes, from 3 to over 2000 [mm] shafts |
|  | VS | Wide body to ensure higher radial force than VA type. Range of sizes from 5 to 199 [mm] shafts |
|  | VL | This seal is intended 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.

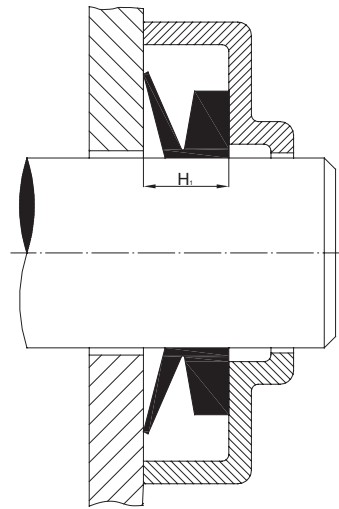
Installation and operation

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.



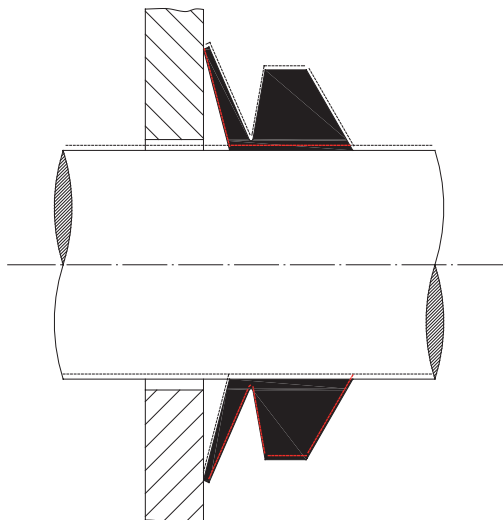
Frontseal® not preloaded



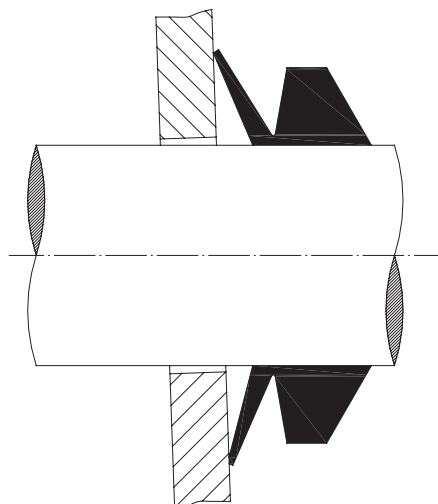
Frontseal® fitted with preloading using a tool

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

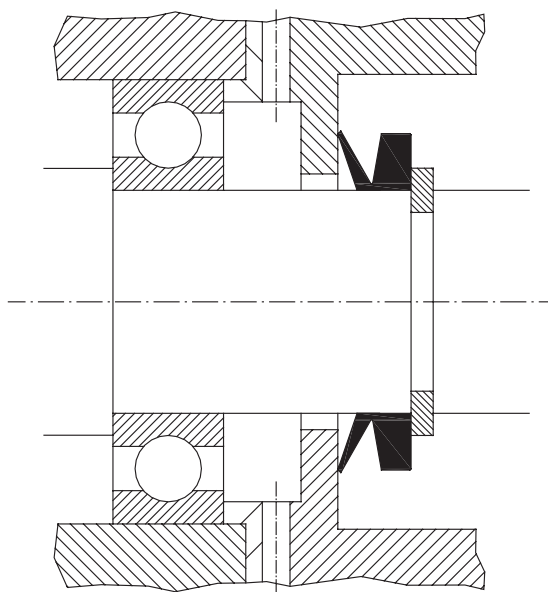


tilted counterface

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.

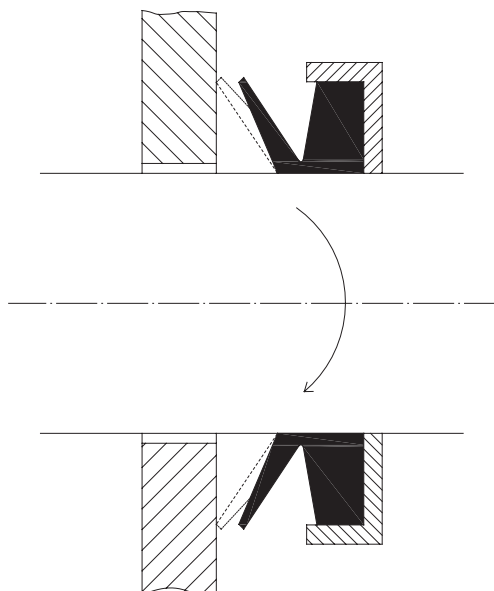


Peripheral speed

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].

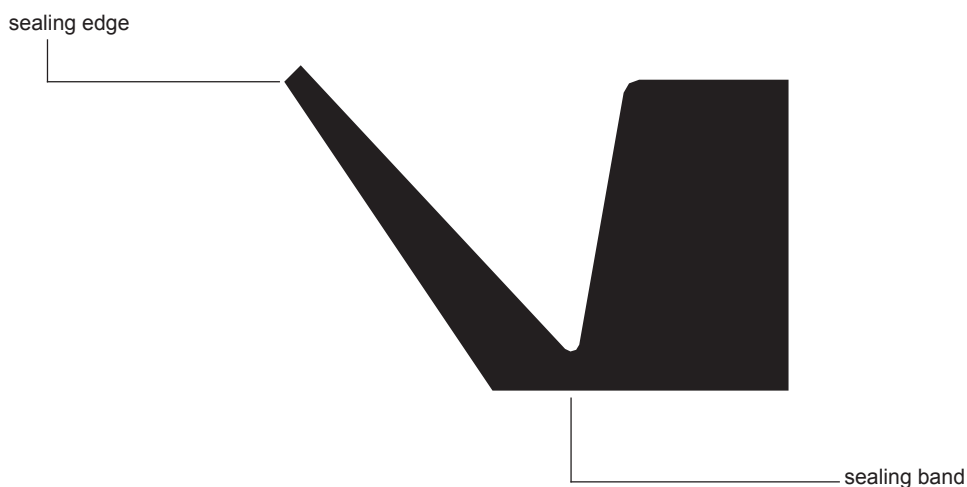
Clamping bands and supports for Frontseals® type VA are also available



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.

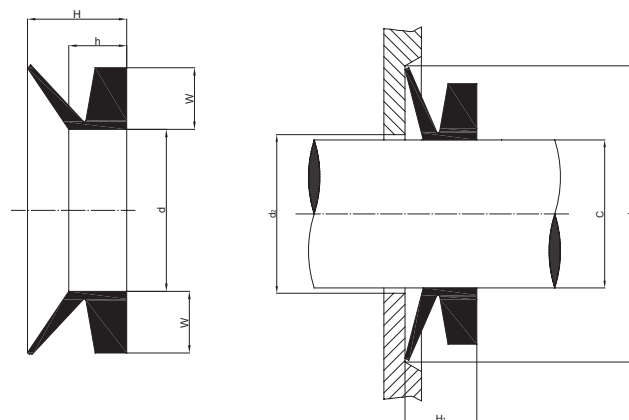
Avoid unnecessary pressure on the lip during storage.

Standard sizes

Frontseal® VL

Ring dimensions
 $H = 10,5$ [mm]
 $h = 6,0$ [mm]
 $W = 6,5$ [mm]

Assembling dimensions
 $H1 = 8 \pm 1,5$ [mm]
 $d2 \max = C + 5$ [mm]
 $d1 \min = C + 20$ [mm]



Reference	Shaft diameter [mm]	d [mm]
VL 110	105 - 115	99
VL 120	115 - 125	108
VL 130	125 - 135	117
VL 140	135 - 145	126
VL 150	145 - 155	135
VL 160	155 - 165	144
VL 170	165 - 175	153
VL 180	175 - 185	162
VL 190	185 - 195	171
VL 200	195 - 210	182
VL 220	210 - 233	198
VL 250	233 - 260	225
VL 275	260 - 285	247
VL 300	285 - 310	270
VL 325	310 - 335	292
VL 350	335 - 365	315
VL 375	365 - 385	337
VL 400	385 - 410	360
VL 425	410 - 440	382
VL 450	440 - 475	405
VL 500	475 - 510	450
VL 525	510 - 540	472
VL 550	540 - 565	495
VL 575	565 - 585	517
VL 600	585 - 625	540
VL 650	625 - 675	600
VL 700	675 - 710	630
VL 725	710 - 740	670
VL 750	740 - 775	705
VL 800	775 - 825	745
VL 850	825 - 875	785
VL 900	875 - 925	825
VL 950	925 - 975	865
VL 1000	975 - 1025	910
VL 1050	1025 - 1075	955
VL 1100	1075 - 1125	1000
VL 1150	1125 - 1175	1045
VL 1200	1175 - 1225	1090

Over 1200 [mm] available on request