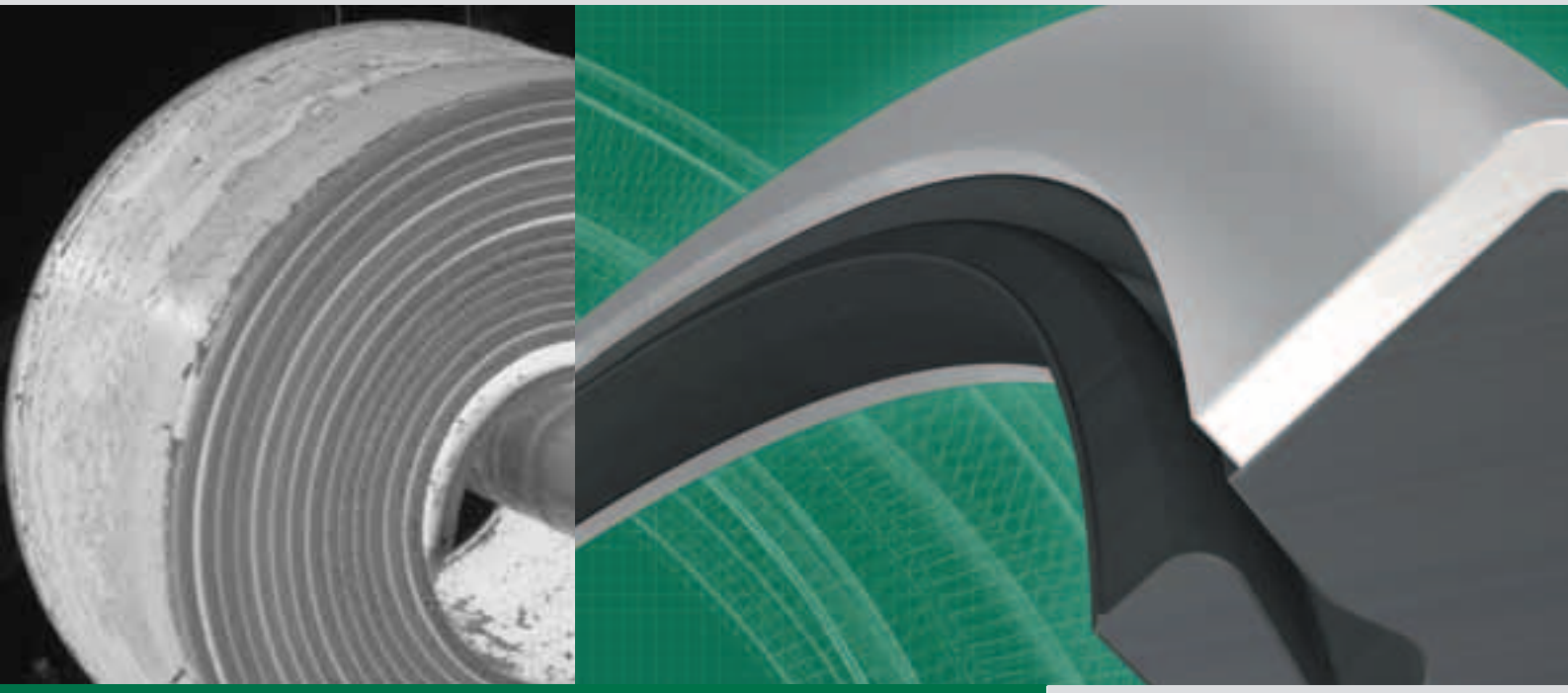
CR LARGE DIAMETER SEALS

Powerful performance for heavy industry



The SKF brand now stands for more than ever before, and means more to you as a valued customer.

While SKF maintains its leadership as the hallmark of quality bearings throughout the world, new dimensions in technical advances, product support and services have evolved SKF into a truly solutions-oriented supplier, creating greater value for customers.

These solutions encompass ways to bring greater productivity to customers, not only with breakthrough application-specific products, but also through leading-edge design simulation tools and consultancy services, plant asset efficiency maintenance programs, and the industry's most advanced supply management techniques.

The SKF brand still stands for the very best in rolling bearings, but it now stands for much more.

SKF – The knowledge engineering company

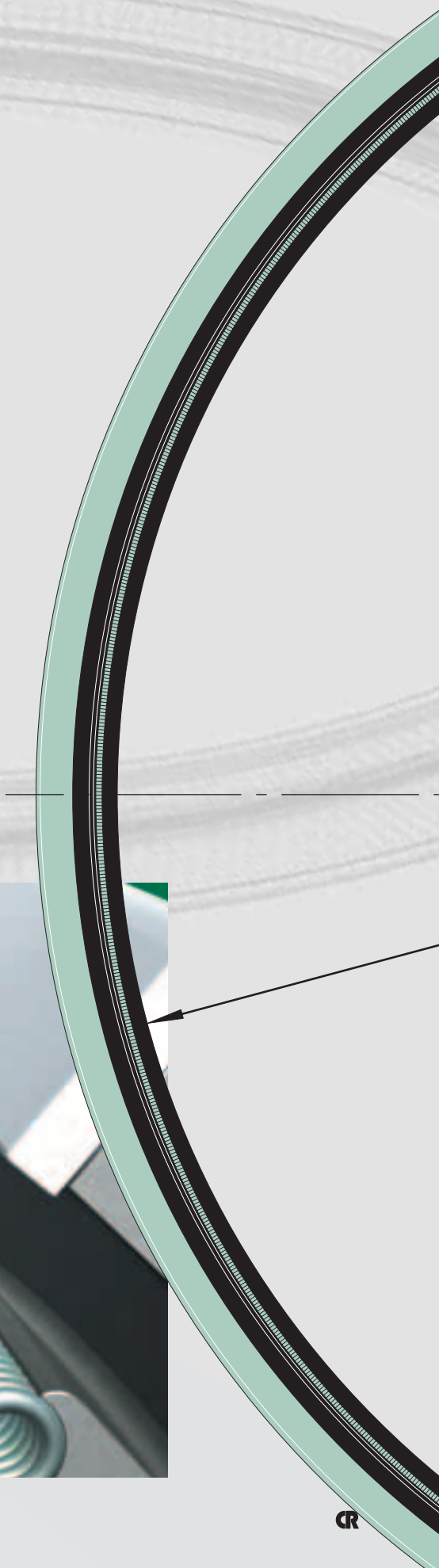
CONTENTS

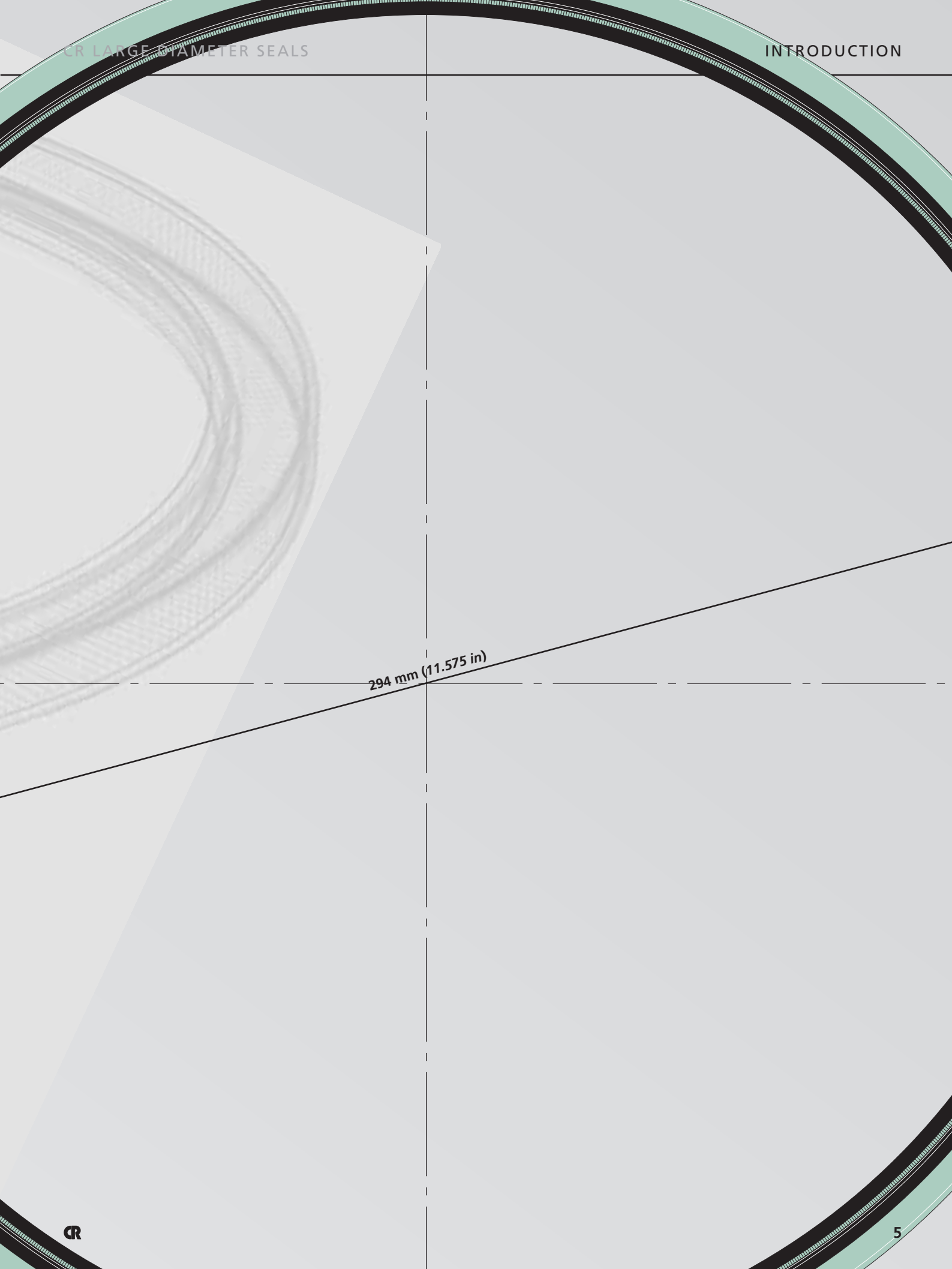
CR LARGE DIAMETER SEALS

A wide range of sealing solutions for heavy industry

General
Heavy basic industries such as primary metals, construction, wind energy, forestry, mining and pulp and paper, provide a challenging environment for radial shaft seals. Operating in a wide range of speeds, temperatures and environmental conditions, shaft seals are asked to reliably retain lubrication while avoiding harsh contamination from penetrating and potentially damaging capital equipment. Generally, seals for shaft diameters larger than 200 mm or 8 in are known as large diameter seals (LDS).

CR LDS are available from SKF in a variety of heavy-duty styles, configurations and materials. Several large diameter designs are available: HD metal clad designs, including the HDL ultra-high performance series, the technologically advanced EP-2000 grease seal and the dependable HDS series; all-rubber seals like the premium SBF seal and the HSF fabric reinforced series, solid or split.




294 mm (11.575 in)

METAL CLAD SEAL FAMILY

Designed for heavy-duty applications

General
The most popular seal group in the CR LDS line is the metal clad seal family with the HD seal designs.

The HD designs include the highly engineered EP-2000, the ultra-high performance HDL and the reliable HDS1, HDS2 and HDS3 seal. CR HD seals are specifically designed to withstand the extreme conditions encountered in heavy-duty applications.

The seals perform exceptionally well in the highly contaminated environment of metal rolling mills, the high speed and high temperature environment of paper mills, as well as more universal applications such as industrial gearboxes. The metal clad seal family has a product to perform in almost any industrial application.

EP-2000 (HDS7)
The newest member of the HD seal family is the EP-2000 ("Extra Performance" construction type HDS7).

Water and solid contamination particles are common causes for bearing failures. CR has developed the EP-2000 as a grease seal with enhanced exclusion capabilities.

The highly engineered EP-2000 features a computer optimized, springless lip profile designed to retain lubricants and aggressively pump contamination away from the lip. The increased ability of the EP-2000 to exclude contamination makes it an ideal equipment protector in heavily contaminated environments such as the water and scale present in rolling mill applications.

The springless lip concept of the EP-2000 also reduces radial load. Radial load can be thought of as the 'squeeze' force that the seal exerts on the shaft. High radial load can lead to increased seal wear and elevated underlip temperatures decreasing seal life.

Current customers are reporting easier installation, fewer seal replacements (translating into longer seal life) and an increase in process run time.

The EP-2000 is available in a nitrile lip material for common applications, Duratemp® (**page 22**) for higher temperature conditions and Duralip® (**page 22**) for applications where extra abrasion resistance is necessary.

It is important to note that the EP-2000 is not available in LongLife® material (**page 23**).

The EP-2000 is available in all shaft sizes ranging from 200 to 1 575 mm (8 to 62 in). Spacer lugs are available for any configuration, see **page 19** for further information.

EP-2000 (HDS7)

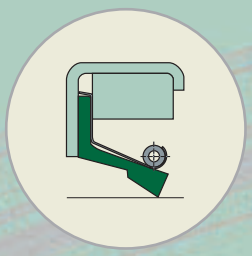
HDL seals

The HDL is a premium metal clad oil seal that is especially designed to operate in severe conditions including high speeds and temperatures, high run-out and high misalignment. The excellent high-speed performance characteristics of the HDL make it the preferred design in the severe environment encountered in the rolls of the papermaking machines.

The HDL features a stainless steel garter spring that is entrapped by individual finger springs, also made of stainless steel, around the entire circumference of the seal.

The spring combination allows the seal to compensate for severe conditions in order to maintain high levels of sealing performance, operational life and equipment reliability.

The HDL is available in nitrile, Duratemp and LongLife (**pages 22** and **23**), ensuring that the HDL will perform regardless of speed or temperature. Spacer lugs are available for all products within the HDL line. Available HDL sizes can be found in the product tables (**page 42** to **56**).



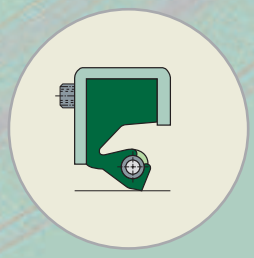
HDL

HDS1, HDS2 and HDS3
The most commonly used metal clad seal is the HDS series for general purpose applications. HDS seals are divided into the HDS1, HDS2 and HDS3 categories.

All three seal versions are encased in a heavy-duty steel shell and a SAE 302 series stainless steel spring is standard.

The basic HDS1 has its stainless steel spring mounted in a protective Spring-Lock groove. Where blind installations may increase the risk of spring displacement, the type HDS2 adds a Spring-Kover that bonds the spring into the groove. The HDS3 adds a spark-free inner diameter, standard Duralip material and adjustable spacer lugs. The adjustable lugs are optional on all other HDS models, as are fixed width lugs (**page 19**).

The HDS seal product line is available in a wide variety of rubber materials in all sizes ranging from 200 to 1 575 mm (8 to 62 in) (**Table 1, page 26** and **Table 3, page 27**). Nitrile is standard on all HDS seals (with the exception of the HDS3 where Duralip is standard), however all seal types can also be ordered in Duralip, Duratemp or LongLife elastomers (**page 22** and **23**).



HDS1

HDS2

HDS3

HD metal clad seal options
For enhanced exclusion performance, the HD metal clad seals are available in different styles to best meet the needs of your application. Each style is primarily based on HDS1, HDS2, HDS3 or EP-2000 and is available with auxiliary elements for special applications.

HDSA, HDSB and HDSC
These seals are designed with a single rubber sealing element and an auxiliary exclusion element. For shaft sizes up to 550 mm (21.750 in), the excluder lip is made of Duralip material. Leather is used for larger shafts. These styles are generally used where there is insufficient space for more than one seal.

The HDSA, HDSB and HDSC seal product lines are available in sizes ranging from 203 to 1 016 mm (8 to 40 in) (**Table 1** on **page 26**).

HDSA

HDSB

HDSC

HDSD
The HDSD seal types are designed with dual sealing elements with lips facing in opposite directions. This style is used for applications requiring the separation of two fluids. When using an HDSD seal, it is very important to provide a means to lubricate the sealing elements (i.e. the cavity between the sealing elements may be packed with grease or holes may be drilled from the outer diameter into the cavity between the lips).

HDSE
This style features dual elements with lips facing in the same direction. This seal type is used where a back-up seal is desired for retention or exclusion purposes. As with the HDSD type, a means of lubricating the seals is necessary for a proper sealing function.

Available sizes
The HDSD and HDSE seal product lines are available in sizes ranging from 203 to 1 346 mm (8 to 53 in) (**Table 1** on **page 26**).

HDSD

HDSE

ALL-RUBBER SEAL FAMILY

Rubber covered designs

General
The CR family of all-rubber seals includes metal inserted (SBF), fabric-reinforced (HSF) and all-rubber (HS) products. The fabric-reinforced and all-rubber versions are available as solid round or with an open joint or split.

The all-rubber seal family offers designers and operators of rotating equipment a number of important operating and installation benefits. All-rubber seals do not score the bore even after repeated installations and extractions. This prevents damage to the metal that can cause bypass leakage. All-rubber seals accept rougher bore finishes, reducing machining costs. They are especially helpful for split housings. They resist corrosion and will not seize in the bore even years after assembly.

Due to lower press-in forces, rubber covered seals are often easier to install particularly in the field or confined spaces. They can be fitted by hand or with simple hand tools even when the diameters are very large. Further, in the case of split seals there is no need to dismount the shaft or other machine components.

SBF seals
The SBF seal design is a new rubber OD seal with a flexible metal stiffening ring that allows mounting without the use of a cover plate. The SBF seal can be used as an upgrade to rubber fabric seals in many applications that are either grease or oil lubricated. The SBF seals are available in both NBR and LongLife (FKM) materials with optional Spring-Kover (**page 20**).

Available SBF sizes can be found in the product tables (**page 58** to **59**).

SBF

HDS4 and HDS6
Also new are two rubber covered seals, the HDS4 and HDS6. The HDS4 features a patented molded-in garter spring, which cannot be displaced during difficult installations and provides superior oil sealability while minimizing wear. The HDS6 is a springless version designed for grease retention and contamination exclusion. Nitrile rubber is standard and can be ordered in the full range of HDS rubber compounds.

Both HDS4 and HDS6 are equipped with moulded 12,7 mm (0.5 in) spacer lugs, which can be trimmed or removed if necessary. The HDS4 and HDS6 are stocked in a limited range of sizes; see **Table 3** on **page 27** or contact us for information on availability and new size additions.

HDS4

HDS6

Fabric-reinforced seals series HSF
The HSF seal types consist of the HSF5, HSF6, HSF7 and HSF8 solid seal styles and their split versions HSF1, HSF2, HSF3 and HSF4. There is also a pressure profile HSF9 in solid version only. These seal styles are mainly used in heavy-duty applications such as gear drives, propeller shafts, cold and hot mill work rolls, pumps, paper machinery, etc.

The HSF5, HSF6 and HSF7 are fabric-reinforced seals that have a strong, flexible, textile rubber back instead of a metal case. The HSF5 is the standard single lip rubber fabric seal. The HSF6 adds radial lubrication grooves in the back of the seal and the HSF7 adds a circumferential lubrication groove. The HSF8 offers a dust-lip version of the standard seal.

To attain optimum sealing performance, a retaining or cover plate is necessary to properly install and apply all HSF seal types. The plate creates an axial preload that ensures reliable static sealing performance of the seal. The plate should also be designed to avoid seal distortion upon assembly. The HSF seal types are available in NBR and FKM material.

Available HSF sizes can be found in the product tables (**page 60** to **87**).

HSF5 (solid)
HSF1 (split)

HSF6 (solid)
HSF2 (split)

HSF7 (solid)
HSF3 (split)

HS designs
Type HS seals, available in solid round and split designs, are all-rubber, large diameter seals designed without an outer shell or metal case. Some types are available in solid and split designs. The HS style seals featured in this brochure are HS3, HS4, HS5, HS6, HS7, HS8 and HS9, see **Table 1**, **page 18**.

HS solid and split large diameter seals are cataloged by shaft size and priced by the dimensions of the bore for which they are designed. The actual seal outside diameter is approximately 0,5 % to 2 % larger than the seal housing bore. Actual seal width is approximately 0,4 to 0,8 mm (0.016 to 0.031 in) wider than the bore depth. A cover plate is required to compress the seal within the cavity, helping seal the split joint and prevent leakage.

A garter-type spring embedded in the sealing element reinforces lip pressure against the shaft.

HS solid seal types
HS solid seals can be made as standard types from 203 mm (8 in) up to unlimited shaft size. There are three types:

HS3
HS3 seals are all-rubber solid seals with a single spring-loaded element. The spring is held in an open groove; Spring-Kover is not available. HS3 is recommended for vertical and horizontal shafts. For proper fit, a cover plate is required.

HS4
HS4 seal is an all-rubber solid seal with a single spring-loaded element. It features a Spring-Lock (page 20) and is recommended for vertical and horizontal shafts. For proper fit, a cover plate is required.

HS5
HS5 is the same as HS4 with the addition of a Spring-Kover (page 20) for added protection against spring pop-out and contamination.

The HS solid seal product line is available in sizes ranging from 203 to 4 572 mm (8 to 180 in) (**Table 2** on **page 27**).

HS3

HS4

HS5

HS split seal types
Where downtime is critical and shaft removal is impractical, type HS all-rubber split seals are ideal. They are simply placed around the shaft and pushed into the seal bore, then held firmly by a cover plate, which compresses the split joint together. HS split seals perform best with grease or heavy lubricants as well as with light lubricants, placed no higher than the shaft centreline. Horizontal shafts are preferred with the split placed in the 12 o'clock position. HS split seals are available in a wide variety of types, styles and materials.

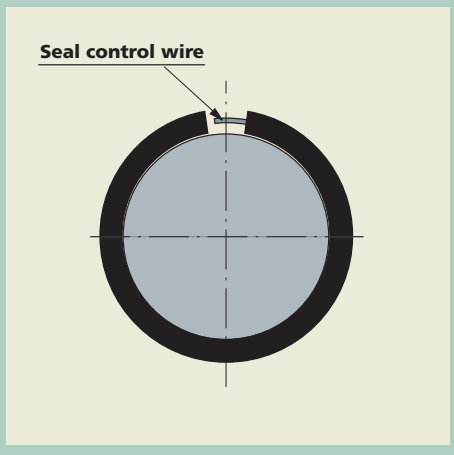
HS6
HS6 is an all-rubber split seal with a single spring-loaded element and a Spring-Lock (**page 20**). HS6 features a separate loose spring and a positive spring connection. Generally, the spring connection is of the hook-and-eye type for shafts over 457 mm (18 in) and a threaded-type connection for smaller sizes. For proper fit, a cover plate is required.

HS7
HS7 is an all-rubber split seal with a single spring-loaded element, which has both a Spring-Lock and a Spring-Kover (**page 20**). A control-wire spring connector is used to join the seal together (see figure below). HS7 does not have the high performance as other HS types, but it is the easiest to install. The spring is completely enclosed and the connection is simply made by running the control wire into the center of the spring coil across the split (butt joint). Spring tension to hold the sealing lip on the shaft is built-in at the factory. For proper fit, a cover plate is required. Due to the unique design that permits easier installation, please note that a gap may occur at the joint even after the cover plate is installed. Special attention to place the gap at the 12 o'clock position during installation is necessary.

HS6

HS7

Seal control wire feature, used on HS7



HS8
HS8 is an all-rubber split seal with a single spring-loaded element, Spring-Lock, Spring-Kover (**page 20**) and a positive spring connection. The spring is entirely enclosed except for a small portion on either side of the split. HS8 provides the most positive seal of all the split types and is the preferred design for use with lighter lubricant retention and water exclusion. HS8 performs best on horizontal shafts, but may also be used on vertical shafts. For proper fit, a cover plate is required.

HS9
HS9 is the same as HS3 except that HS9 is a split design. HS9 is not available with Spring-Kover. It is recommended for grease retention on horizontal shafts. For proper fit, a cover plate is required. The HS9 has limited size availability. For new applications, HS8 is recommended.

The HS split seal product line is available in sizes ranging from 203 to 4 572 mm (8 to 180 in) (**Table 2** on **page 27**).

HS8

HS9

ADDITIONAL DESIGN FEATURES

Spring connections for split seal types
The SAE 302 stainless steel garter springs are supplied loosely (separately) in the HS6 and HS9 styles. The springs are factory-installed and encased with Spring-Kover (**page 20**) in the HS7 and HS8 styles. In styles HS6, HS8 and HS9, the spring connection is generally of the hook-and-eye type for shafts over 457 mm (18 in) in diameter (**fig 1**) and of the threaded type for smaller sizes (**fig 2**). It is recommended for sealing light oils as well as heavy greases.

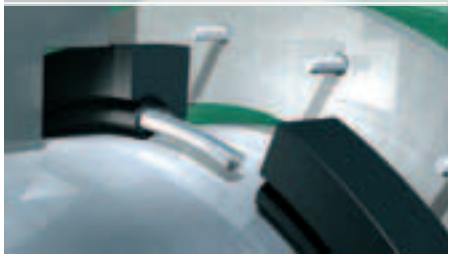
The special control-wire type is available only in the HS7 design for all shaft sizes and recommended for grease only. Where positive spring connections are made, the connection should be offset to the left or right of the split for maximum efficiency.

Hook-and-eye spring connection

Fig 1

Threaded spring connection

Fig 2



HS seals selection chart

Table 1

Features		Solid types HS3	HS4	HS5	Split types HS6	HS7	HS8	HS9
Spring groove type		Open groove	Spring-Lock	Spring-Lock	Spring-Lock	Spring-Lock	Spring-Lock	Open groove
Spring connection		Factory made	Factory made	Factory made	Threaded/ Hook-and-Eye	Control wire	Threaded/ Hook-and-Eye	Threaded/ Hook-and-Eye
Spring-Kover		Not available	None	100% covered	None	100% covered	Covered except ends	Not available
Ability to seal light lubes		Good	Good	Good	Good	Poor	Good	Fair
Misalignment tolerance (STBM)	mm	1,57	1,57	1,57	1,57	1,57	1,57	1,57
	in	*0.062*	*0.062*	*0.062*	*0.062*	*0.062*	*0.062*	*0.062*
Eccentricity tolerance (TIR)	mm	2,36	2,36	2,36	2,36	2,36	2,36	2,36
	in	*0.093*	*0.093*	*0.093*	*0.093*	*0.093*	*0.093*	*0.093*
Maximum speed	m/s	10,1	15,2	12,7	10,1	7,6	10,1	7,6
	ft/min	*2 000*	*3 000*	*2 500*	*2 000*	*1 500*	*2 000*	*1 500*
Pressure tolerance		Fair	Good	Good	Poor	Poor	Poor	Poor

Spacer lugs

Spacer lugs may be furnished on all metal clad designs to separate seals in multiple installations and provide space for lubrication. (**fig 3**).

The traditional fixed-width lugs are 9,5 mm (0.375 in) in diameter and are available in widths from 4,9 mm (0.125 in) to 12,7 mm (0.5 in) in increments of 1,6 mm (0.0625 in). The fixed-width lug is an available option on all metal clad seals except HDS3. All HDS3 style seals come standard with adjustable lugs. This new concept allows the user to adjust lug widths on the spot to suit individual requirements.

All adjustable lugs are 9,5 mm (0.375 in) in diameter and 12,7 mm (0.5 in) in width. They may be adjusted to smaller widths in 1,6 mm (0.0625 in) increments simply by removing the steel washers. Also, the lugs may be removed entirely.

Certain small cross sections may require special narrow diameter 5,33 mm (0.210 in) lugs with a width range of 1,6 to 3,2 mm (0.0625 to 0.125 in)

The lugs are placed around the heel of the seal in four, six or eight equally-spaced locations, depending on the seal outer diameter (**Table 2**).

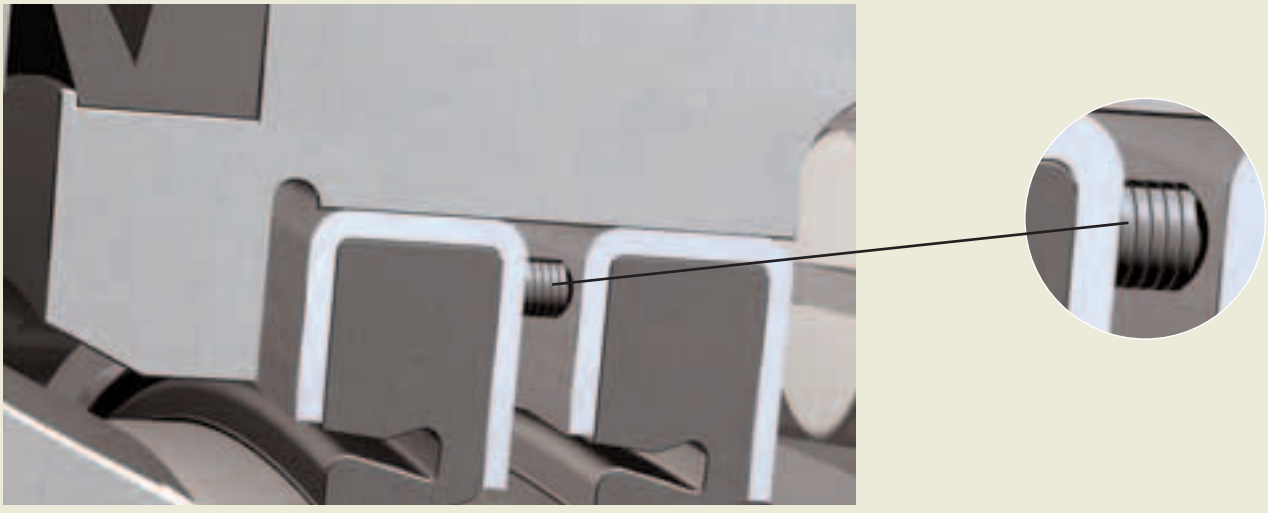
Number of spacer lugs needed

Table **2**

Spacer lugs	Seal outer diameter from	incl.	from	incl.
pcs.	mm		in	
4		762		30
6	762	1 143	30	45
8	1 143		45	

Spacer lug

Fig **3**



Spring-Lock
Spring-Lock is a sealing lip feature that surrounds 270° of the garter spring's diameter (**fig 4**). The Spring-Lock helps hold the spring in position during seal handling, installation and removal. It is standard on all HDS and HS seals (except for the HS3 and HS9 styles which have an open groove).

Spring-Kover
In applications where dirt, water or other contaminants may pose serious problems or where installation could jar the spring out of place, CR Spring-Kover can be specified. Spring-Kover is a flexible covering over the exposed portion of the stainless steel garter spring (**fig 5**). It protects the spring without adversely affecting the spring's capability. Spring-Kover is available on all seals except HS3 and HS9.

Bore-Tite®
Bore-Tite is a water based acrylate sealant that is an option available on most CR metal clad seals. The sealant is used as a coating on the outside diameter of the seal (**fig 6**). The Bore-Tite layer is pliable with a thickness of 0,03 to 0,07 mm (0.0012 to 0.0028 in), allowing the sealant to help fill small imperfections in the housing bore. Bore-Tite can be used at temperatures up to 200 °C (392 °F) and is compatible with most oils, greases, aqueous acids and alkalis, alcohols and glycols. Please note that Bore-Tite is not compatible with aromatics, ketones and esters. Incidental contact with these substances will have little to no effect if wiped off quickly.

Spring-Lock

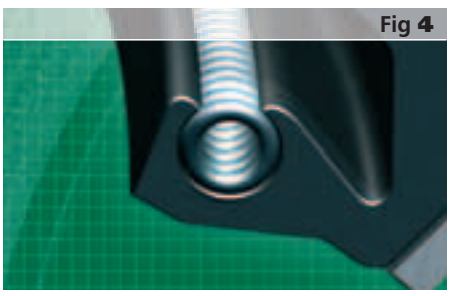


Fig **4**

Spring-Kover

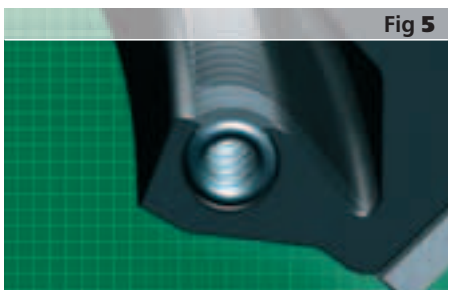


Fig **5**

Bore-Tite


Fig **6**

SEALING LIP MATERIALS

General
In additional to seal design, the seal lip material significantly contributes to seal performance and reliability.

CR seals are therefore produced as standard with a variety of materials for the sealing lip, shell (casing) and garter spring, to cater for the different demands of applications.

The sealing lips of CR seals are generally made of elastomer materials. However, thermoplastic materials such as polytetrafluoro-ethylene (PTFE) are gaining in importance. PTFE is mainly used for special seals intended for particular applications where there are demands for high thermal or chemical resistance. Seals made from leather or felt are now seldom used.

CR Large Diameter Seals are generally produced from the materials listed in **Table 1**. These materials have characteristic properties making them particularly suitable for specific applications; they are briefly described in the following.

By changing the actual formulation and blending it is possible to modify the characteristics of elastomers regarding

- resistance to swelling,
- elasticity,
- chemical resistance,
- thermal resistance,
- behavior in the cold,
- gas permeability.

Details about the chemical resistance of the seal materials to the various media encountered in operation will be found in the section “Chemical resistance”, page 27 in CR Publication 457010.

A code is used to identify the material of the sealing lip of CR seals, see table below. The codes also appear in the designations of the metric radial shaft seals. For seals where a combination of materials is used, a combination of the code letters is used, e.g. RD (nitrile rubber with Duralip).

Table 1

Composition of basic material	Designation according to CR	ISO1629 ISO1043.1 DIN 7728 Part 1	ASTM D1418 ASTM D1600
Acrylonitrile butadiene rubber (nitrile rubber)	R	NBR	NBR
Hydrogenated acrylonitrile butadiene rubber (Duratemp)	H	HNBR	NEM
Carboxylated nitrile rubber (Duralip)	D	X-NBR	X-NBR
Fluoro rubber (LongLife)	V	FPM	FKM
Polytetrafluoro-ethylene (PTFE)	T	PTFE	PTFE

Sealing lip materials

Nitrile rubber (R)
The term nitrile rubber is used in this catalog for acrylonitrile butadiene rubber. This material has very good engineering properties and is the universal seal material. It is a copolymer produced from acrylonitrile and butadiene. It shows good resistance to the following media:

- most mineral oils and greases with a mineral oil base,
- normal fuels: gasoline, diesel and light heating oils,
- animal and vegetable oils and fats and hot water.

It also tolerates short-term dry running of the sealing lip. The permissible operating temperature range is –50 to +100 °C (–58 to +212 °F); for brief periods temperatures of up to +120 °C (+248 °F) can be tolerated. At higher temperatures the material hardens.

CR Duralip (D)
Duralip is a carboxylated nitrile rubber developed by CR, which combines the good technical properties of nitrile rubber with a particularly high resistance to wear. It is mainly used for large seals having a bore diameter of 200 mm (8 in) or more. Seals of this material should be chosen when abrasive substances such as sand, soil, scale etc. could reach the surface on which the sealing lip runs.

CR Duratemp (H)
Duratemp is a hydrogenated nitrile rubber, which has appreciably improved wear resistance compared to nitrile rubber so that seals made of Duratemp have longer life. Duratemp is also more resistant to heat, aging and hardening in hot oil or ozone. Mixtures of oil in air may have a negative effect. The upper operating temperature limit is +150 °C (+302 °F), which is appreciably higher than that of ordinary nitrile rubber. Duratemp is suitable for large radial shaft seals.

CR LongLife (V)
LongLife is characterised by its high thermal and chemical resistance. Its resistance to aging and ozone is also very good and its gas permeability is very slight.

CR LongLife seals have exceptionally good properties even under harsh environmental conditions and can withstand operating temperatures of up to +200 °C (+392 °F). The seals are also resistant to oils and hydraulic fluids, fuels and lubricants, mineral acids and aliphatics as well as aromatic hydrocarbons which would cause seals made of other materials to fail. They will also tolerate dry running of the lip for short periods. The seals should not be used in the presence of esters, ethers, ketones, certain amines and hot anhydrous hydrofluorides. Because of their useful properties, CR produces seals in LongLife material for all common shaft diameters from 200 mm to 1 575 mm (8 to 62 in).

At temperatures above +300 °C (+572 °F), fluoro elastomers give off dangerous fumes. This can occur, for example, if a welding torch is used when dismounting a bearing. Although the fumes are only produced at high temperatures, once heated, the seals will be dangerous to handle even when they have cooled down.

If it is necessary to handle fluoro elastomer seals, which have been subjected to excess temperatures, the following should be observed:

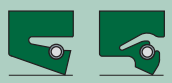
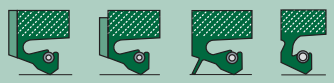
- protective goggles and gloves should always be worn;
- the remains of seals should be put in an airtight plastic container which should be marked with a suitable symbol “material will etch”;
- respect the information given on the appropriate safety data sheet

If there is unintentional contact, hands should be washed with soap and plenty of water and water should also be used as an eye bath. A doctor should always be consulted. This also applies if, during heating of the seals, the vapors have been inhaled. SKF takes no responsibility for the improper handling of fluoro elastomer seals nor for any injury resulting therefrom. The user is responsible for the correct use of the product during its service life and its proper disposal.

Polytetrafluoro-ethylene (PTFE)
PTFE is a thermoplastic polymer. The chemical resistance is far superior to that of any other material. The operating temperature range extends from –70 to +200 °C (–94 to +392 °F) and may go up to +260 °C (+500 °F). The effects of overheating are as described under CR LongLife.

PTFE has a smooth dirt-resistant surface and a very low coefficient of friction. The seals will tolerate dry running and also provide insulation against the passage of electric current.

CR seals of PTFE, or with PTFE sealing lips are made to special order and represent tailored solutions to specific problems.

Standard design (preferred design)	Other basic line designs	Lip code	Operating temperature range	
			°C	°F
 HDS7	 HDS6 HDS4	R D H	–40 to +121 –54 to +107 –40 to +149	–40 to +250 –65 to +225 –40 to +300
 HDL	 HDLA	R H V	–40 to +121 –40 to +149 –40 to +204	–40 to +250 –40 to +300 –40 to +400
 SBF		R V	–40 to +121 –40 to +204	–40 to +250 –40 to +400
 HDS2	 HDS1 HDS3	R D H V	–40 to +121 –54 to +107 –40 to +149 –40 to +204	–40 to +250 –65 to +225 –40 to +300 –40 to +400
 HDSA2	 HDSA1 HDSB2 HDSB1 HDSC2 HDSC1	R D H V	–40 to +121 –54 to +107 –40 to +149 –40 to +204	–40 to +250 –65 to +225 –40 to +300 –40 to +400
 HDSE2	 HDSE1 HDSD2 HDSD1	R D H V	–40 to +121 –54 to +107 –40 to +149 –40 to +204	–40 to +250 –65 to +225 –40 to +300 –40 to +400
 HS SolidHS5  HS3	 HS4	R D H V	–40 to +121 –54 to +107 –40 to +149 –40 to +204	–40 to +250 –65 to +225 –40 to +300 –40 to +400
 HS Split  HS6	 HS9	R D H V	–40 to +121 –54 to +107 –40 to +149 –40 to +204	–40 to +250 –65 to +225 –40 to +300 –40 to +400
 HS7 HS8				
 HSF Solid  HSF5	 HSF6 HSF7 HSF8 HSF9	R V	–40 to +121 –40 to +204	–40 to +250 –40 to +400
 HSF Split  HSF1	 HSF2 HSF3 HSF4	R V	–40 to +121 –40 to +204	–40 to +250 –40 to +400

Pressure tolerance	Shaft to bore mis-alignment (STBM)	Maximum shaft dyna-mic run-out (DRO)	Maximum shaft surface speed	Ease of installation	Ability to seal light lubes and excluding water
MPa (PSI)	mm (in)	mm (in TIR)	m/s (ft/min)		
0,07 to 0,103 (10 to 15)	1,57 (0.062)	2,36 (0.093)	25,4 (>5 000) depending on ope-rating conditions	Excellent	Highly effective exclusion of water and particle contamin-ation and excellent retention of grease
0,07 to 0,103 (10 to 15)	2,5 (0.098)	2,36 (0.093)	25,4 (5 000) nitrile and Duratemp 35,5 (7 000) LongLife rubber	Good	Excellent, inluding retention of light oils at high surface speeds and misalignment
0,07 to 0,103 (10 to 15)	1,5 (0.060)	2,36 (0.093)	25,4	Excellent	Excellent for oil and grease
0,07 to 0,103 (10 to 15)	1,57 (0.062)	2,36 (0.093)	25,4 (>5 000)	Excellent (HDS2, HDS3) Good (HDS1)	Excellent for oil and grease
0,07 to 0,103 (10 to 15)	1,57 (0.062)	2,36 (0.093)	25,4 (>5 000)	Excellent too good, varies with equipment design	Excellent for oil or grease with exclu-sion of light to moderate contamin-ation (HDSA/B). Good grease retention with increased protection from contamination (HDSC).
0,07 to 0,103 (10 to 15)	1,57 (0.062)	2,36 (0.093)	25,4 (>5 000)	Excellent (HDSD & HDSE2) Good (HDSD & HDSE1)	Excellent for oli or grase with exclu-sion of light to moderate contamin-ation (HDSD) or separation of dual media. Good grease retention with in-creased protection from contamination (HDSE).
0,07 to 0,103 (10 to 15) for HS4 & HS5 HS3 to 0,03 (5)	1,57 (0.062)	2,36 (0.093)	HS3 10,2 (2 000) HS4 15,2 (3 000) HS5 12,7 (2 500)	Excellent (HS4, HS5) Good (HS3)	Excellent (HS4, HS5) Good (HS3)
Not recommended	1,57 (0.062)	2,36 (0.093)	HS6 10,2 (2 000) HS7 7,62 (1 500) HS8 10,2 (2 000) HS9 7,62 (1 500)	Fair (HS6, HS9) Excellent (HS7) Good (HS8)	Good to excellent for oil or grease (HS6, HS8) Good (grease only HS7) Fair to good (HS9)
0,03 Max (5)	1,5 (0.060)	2,36 (0.093)	15,2 (>3 000) Depeding on the operating conditions	Good to excellent depending on mounting space	Excellent
Not recommended	1,5 (0.060)	2,36 (0.093)	15,2 (>3 000) depending on the operating conditions	Fair to good depending on mounting space	Good to excellent

CUSTOMIZED SEALING SOLUTIONS

Size options of HDS metal clad seals
CR offers a wide range of LDS products to provide the right seal for optimum performance in the hottest, fastest and most extreme environments in modern industry. To accommodate almost every application, HDS seal designs are available on a "made-to-order basis".

Please see **Table 1** for the available sizes and cross sections of the different types and contact us for further information about delivery time.

Preferred standard metal clad seals sections

Table 1

Seal type	Bore diameter[1]		Shaft size[2]		Difference between bore and shaft		Width	
	from	to	from	to	from	to	from	to
–	mm (*in*)							
HDS7	234,95 *9.250*	1 638,30 *64.500*	203,20 *8.000*	1 574,80 *62.00*	31,75 *1.250*	63,5 *2.500*	15,88 *0.625*	31,75 *1.250*
HDS1, HDS2, HDS3	234,34 *9.226*	1 651 *65.000*	203,20 *8.000*	1 574,80 *62.000*	31,14 *1.226*	76,20 *3.000*	15,88 *0.625*	38,01 *1.500*
HDSA, HDSB, HDSC	234,34 *9.226*	1 092 *43.000*	203,20 *8.000*	1 016 *40.000*	31,14 *1.226*	76,20 *3.000*	22,23 *0.875*	38,10 *1.500*
HDSD, HDSE	234,43 *9.226*	1 346 *53.000*	203,20 *8.000*	1 346 *53.000*	31,14 *1.226*	76,20 *3.000*	31,75 *1.250*	50,80 *2.000*

[1] Bore tolerance H8

[2] Shaft tolerance h11

Size options of HS seals
HS seal sizes are not listed in this brochure but are available in standard cross sections and widths according to **Table 2**. For other cross sections please contact us for availability.

Size listing of HDS4 and HDS6
The rubber covered HDS4 and HDS6 seals are currently stocked in the range of sizes listed in **Table 3**. Please contact us for availability and new size additions.

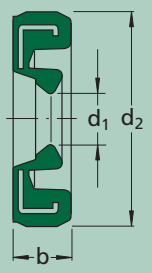
Table 2

Difference between bore and shaft	Bore diameter[1]		Shaft diameter[2]		Bore depth[3]
	from	to	from	to	
mm (*in*)					
25,40 ***1.000***	228,60 *9.000*	1 854 *73.000*	203,20 *8.000*	1 829 *72.000*	12,70; 15,88 *0.500; 0.625*
31,75 ***1.250***	234,95 *9.250*	1 301 *51.250*	203,20 *8.000*	1 829 *50.000*	15,88 *0.625*
38,10 ***1.500***	279,40 *11.000*	4 610 *181.500*	241,30 *9.500*	4 572 *180.00*	15,88; 17,48; 19,05 *0.625; 0.688; 0.750*
50,80 ***2.000***	330,00 *13.000*	4 622 *182.000*	279,40 *11.000*	4 572 *180.000*	20,70 *0.815*

[1] Bore tolerance H8 [2] Shaft tolerance h11 [3] Tolerance ±0,1

Size options of HS seals

Table 3



Dimensions d_1	d_2	b	d_1	d_2	b
mm			*in*		
406,4	457,2	20,65	***16.000***	*18.000*	*0.813*
419,1	469,9	20,65	***16.500***	*18.500*	*0.813*
457,2	508	22,2	***18.000***	*20.000*	*0.875*
533,4	584,2	19,05	***21.000***	*23.000*	*0.750*
558,8	609,6	22,23	***22.000***	*24.000*	*0.875*
698,5	749,3	22,23	***27.500***	*29.500*	*0.875*

Available sizes of HDS4 and HDS6

SHAFT REQUIREMENTS

General
To achieve reliable sealing and sufficiently long service life, the counterface for radial shaft seals on the shaft should meet the requirements outlined in the following. The counterface is considered to be the extent of the surface of a shaft, or sleeve mounted on a shaft, over which the edge of the sealing lip can run, taking into account all permissible deviations and movements – surface "SL", (**Table 1**), as well as an additional surface SL' which may be required in the case of repairs or inspection.

Tolerances
The diameter of the shaft d_1 at the counterface should be machined to the tolerances given in **Tables 2** and **3**.

If components which are to be mounted with an interference fit are to be passed over the counterface the shaft diameter should be reduced by 0,2 mm. The seal which was originally chosen can still be used without its sealing properties being impaired.

Surface finish
The surface roughness to ISO 4288 (DIN 4768) of the counterface for radial shaft seals should be kept within the following limits:

R_a 0,2 to 0,8 µm
R_z 1 to 4 µm
R_{max} 6,3 µm

The lower values for R_a and R_z are minimum values as otherwise lubricant supply to the sealing lip will be affected. The temperature rise caused by inadequate lubrication, particularly at high circumferential speeds, would lead to hardening and cracking of the lip and thus to premature seal failure. If the surfaces are too rough there will be excessive seal lip wear and seal life will be shortened. If the value R_{max} is exceeded leakage may occur.

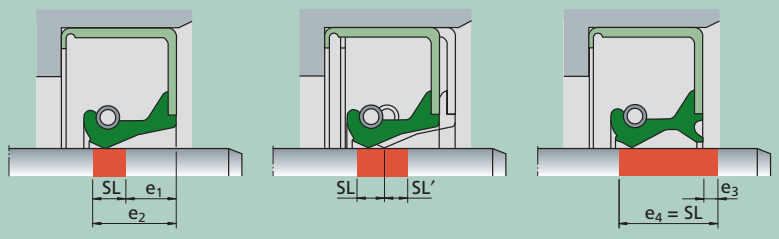
It is also important that the machining operation does not leave any directionality behind on the counterface, as this could lead to leakage by pumping action, depending on the direction of rotation. A suitable surface can be achieved by plunge grinding; whole number ratios of the grinding wheel speed to the workpiece speed should be avoided. The grinding wheel should be dressed using a cluster head dressing tool and the smallest possible lateral feed, or a profile dressing roll without lateral feed. The negative influence of directionality in any particular case only be ascertained by test running under conditions of alternating rotation.

The counterface should be free of any damage such as bruises, scratches, cracks, rust or raised sections. It is therefore important that it be properly protected until final mounting takes place. Such protection can, for instance, be provided by threading a cardboard tube over the counterface, or preferably over the whole shaft.

Hardness and surface treatment
The surface hardness of the counterface should normally be at least 55 HRC or 600 HV and the hardened depth should be at least 0,3 mm. Under certain conditions, e.g. where speeds are low, lubrication good and contamination absent, counterfaces having a lower hardness than 55 HRC may be suitable. Surfaces which are nitrided, phosphated or have a galvanised layer may also be suitable in special cases, but this must be determined for each specific case.

Large diameter wear sleeve, LDSLV
In case the counterface cannot meet the demands outlined above, the use of a CR LDSLV is recommended. These wear sleeves are made of stainless steels, chrome plated with a hardness of ≈ 50 HRC and a surface roughness R_a or 0,25 to 0,5 µm.

Table 1



Seal width b from	incl.	Counterface[1] e1	e2 min	e3	e4 min
mm		mm			
7	**7,938**	3,5	6,1	1,5	7,6
–	**8**	3,5	6,8	1,5	8,3
9,525	**10**	4,5	8,5	2	10,5
11,112	**12**	5	10	2	12
–	**12,7**	5	11	2	13
14,288	**15**	6	12	3	15
20	**–**	9	16,5	3	19,5

[1] SL' ≈ washer width

Counterfaces for standard radial shaft seals

Detailed information on the LDSLV is found in the section starting on **page 38**.

Lead-in chamfers

In order to be able to install radial shaft seals without damaging the seal lip it is recommended that the shaft ends or shoulders should be chamfered or rounded (**Table 4**).

If the direction of installation is according to Z the values given in **Table 4** should be kept to. If the direction of installation is Y then the shaft end may be either rounded or chamfered.

If seals are to be installed over shaft shoulders or ends which have not been rounded or chamfered it is recommended that a mounting sleeve be used. For further information, please contact our technical department.

Counterface tolerances for inch-size seals

Table 3

Shaft diameter Nominal d1 over	incl.	Diameter tolerance (h11) Deviation high	low	Circularity tolerance (IT8) Deviation max
in	in	in		in
–	**4**	+0.003	–0.003	0.002
4	**6**	+0.004	–0.004	0.002
6	**10**	+0.005	–0.005	0.003

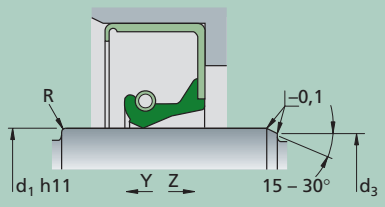
Counterface tolerances for metric seals

Table 2

Shaft diameter Nominal d_1 over	incl.	Diameter tolerance (h11) Deviation high	low	Circularity tolerance (IT8) Deviation max
mm		µm		µm
180	**250**	0	–290	72
250	**315**	0	–320	81
315	**400**	0	–360	89
400	**500**	0	–400	97
500	**630**	0	–440	110
630	**800**	0	–500	125
800	**1 000**	0	–560	140
1 000	**1 250**	0	–660	165
1 250	**1 600**	0	–780	195
1 600	**2 000**	0	–920	230
2 000	**2 500**	0	–1 100	280
2 500	**3 150**	0	–1 350	330
3 150	**4 000**	0	–1 650	410

Shaft shoulder chamfers and radii

Table 4



Shaft diameter Nominal d_1 over	incl.	Diameter difference[1] $d_1 - d_3$	Radii Seal without dust lip R min	Seal with dust lip R min
mm		mm		
130	**240**	7	1	2
240	**500**	11	2	3
500		13	5	5

[1] If the corner is blended rather than chamfered, the blended section should not be smaller than the difference in diameters $d_1 - d_3$

HOUSING BORE REQUIREMENTS

General
The following requirements are designed to guarantee the requisite interference fit for the seal, the necessary static sealing and proper installation.

Housing bores for seals with steel shells
To ensure that the seal can be installed without damaging it, the housing bore should have a 5 to 10° lead-in chamfer. The transition should be free from burrs and the transition between the seal seating and the shoulder should have a radius not exceeding 0,8 mm.

The depth of the housing bore (t_2) should be at least 0,3 mm greater than the seal width b. The cylindrical section (t_1) of the bore should have a width of at least 0,85 b, (**fig 2**).

Recesses in the housing shoulder, which must be considered at the design stage, considerably facilitate removal of a seal from the housing bore, (**Table 1**).

Housing bores and end covers for HS and HSF seals of elastomers
To ease installation and prevent damage to the seals during mounting, the housing bore should have a lead-in chamfer of 5 to 10°, **fig 2**. The transition should be free of burrs and the transition between seal seating and housing shoulder should have a radius which does not exceed R = 0,8 mm.

In contrast to the other radial shaft seals the non-split and split HS and HSF seals must be axially clamped in the housing bore. This is usually achieved by an end cover screwed to the housing wall. The real width of the seal is between 0,4 and 0,8 mm larger than the nominal width of the seal housing groove (t_2). The axial clamping so achieved gives the HS and HSF seal the requisite firm fit in the housing and the correct form for efficient sealing.

The actual seal outside diameter is approximately 0,5 % to 2 % larger than the seal housing bore.

The end cover should be sufficiently thick-walled, depending on diameter and the axial clamping distance, wall thicknesses of between 6 and 12 mm have been found appropriate. The cover should be screwed to the machined housing wall following the recommendations given in **fig 13**. To provide additional protection to the sealing lip against coarse contaminants the inside diameter of the cover should be some 6 to 8 mm larger than the shaft diameter d_1. There are no limits regarding the outside diameter of the cover. To ease mounting and any subsequent seal replacement, it is recommended that the cover be made in two halves and an even number of screws used.

The end face should be made plane parallel and the machined housing wall should be at right angles to the housing bore.

Tolerances
The bore diameter d_2 in the housing should be machined to tolerance H8 (**Table 1**). The circularity (out-of-round) should be 1 to 2 tolerance grades better than H8, depending on the conditions.

Surface finish
The surface roughness (to ISO 4288 or DIN 4768) of the housing bore should be kept within the limits specified below. These limits apply for radial shaft seals with an elastomeric outside diameter, or a metal case coated with Bore-Tite, as well as the HS seals made of elastomer.

R_a 1,6 to 6,3 µm
R_z 10 to 25 µm
R_{max} 25 µm

For seals with a steel shell without Bore-Tite or similar coating, the limits are

R_a 0,8 to 3,2 µm
R_z 6,3 to 10 µm
R_{max} 10 µm

Recommended dimensions for HS seals

Fig 1

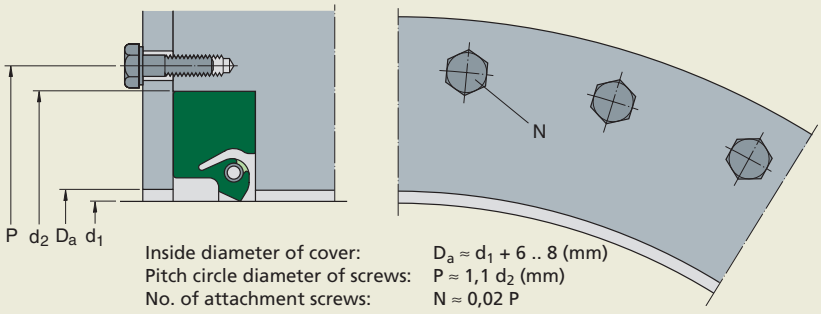
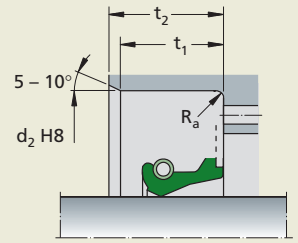


Fig **2**



Recommended dimensions for HS seals

	HS / HSF	Other designs
t_1	0,85 b	0,85 b
t_2	b + 0,3	b

(b = nominal seal width)

Housing bore tolerances

Table **1**

Housing bore for metric size seals					Housing bore for inch size seals				
Nominal diameter d_2		**Housing bore (ISO tolerance H8)** Deviation		**Chamfer** R	**Nominal diameter** d_2		**Housing bore** Deviation		**Chamfer** R
over	incl.	high	low	max	over	incl.	high	low	max
mm		µm		mm	in		in		in
180	**250**	+72	0	0,8	**6**	**10**	+0.002	–0.002	1/32
250	**315**	+81	0	0,8	**10**	**20**	+0.002	–0.004	1/32
315	**400**	+89	0	0,8	**20**	**40**	+0.002	–0.006	1/32
400	**500**	+97	0	0,8	**40**	**60**	+0.002	–0.010	1/32
500	**630**	+110	0	0,8					
630	**800**	+125	0	0,8					
800	**1 000**	+140	0	0,8					
1 000	**1 250**	+165	0	0,8					
1 250	**1 600**	+195	0	0,8					
1 600	**2 000**	+230	0	0,8					
2 000	**2 500**	+280	0	0,8					
2 500	**3 150**	+330	0	0,8					
3 150	**4 000**	+410	0	0,8					
4 000	**5 000**	+500	0	0,8					

MOUNTING LARGE DIAMETER SEALS

General
For the installation of large diameter metal or rubber-covered seals such as the HDS designs, first check the bore for proper specification and condition. Second, coat both the seal and bore lightly with lubricant (preferably the same lubricant as that to be retained by the seal). With large diameter seals the production of a special mounting tool may not be practical. In such cases, direct impacts on the seal case or elements must be avoided, as this could damage the case or make the sealing lip unserviceable. Therefore, if no suitable press tool is available, the use of a wooden block, long enough to span the seal outer diameter, is recommended. It is important, when using this method, that hammer blows are applied evenly and sequentially to the wood piece around the seal circumference, to prevent the seal from tilting or skewing. CR also recommends the use of a dead blow hammer for full energy transfer with less shock (**fig 1**).

In some applications, the hardware is designed for two seals in tandem, or a seal might have to be recessed further into the bore depth. In those cases the seal is first set flush with the housing using the method above. Then a shorter piece of wood should be used to drive it deeper into the bore utilizing a sequential pattern (**fig 2**).

Fig 1

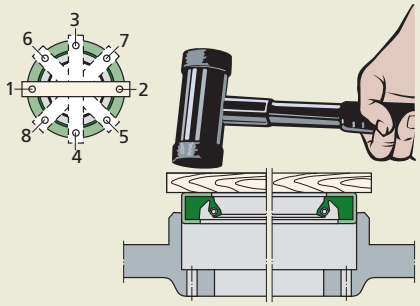
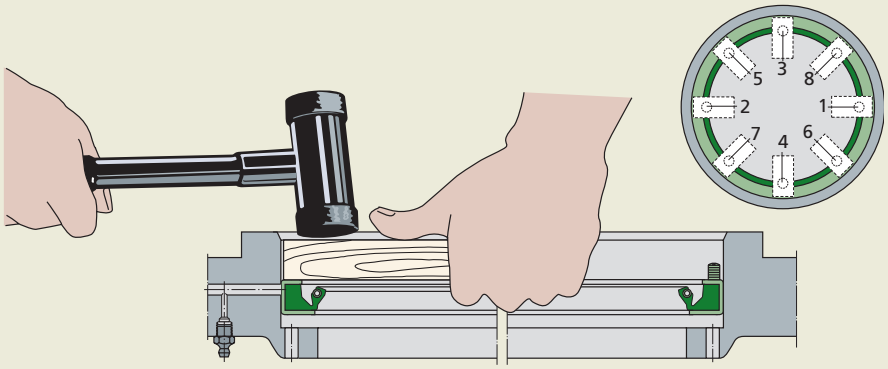
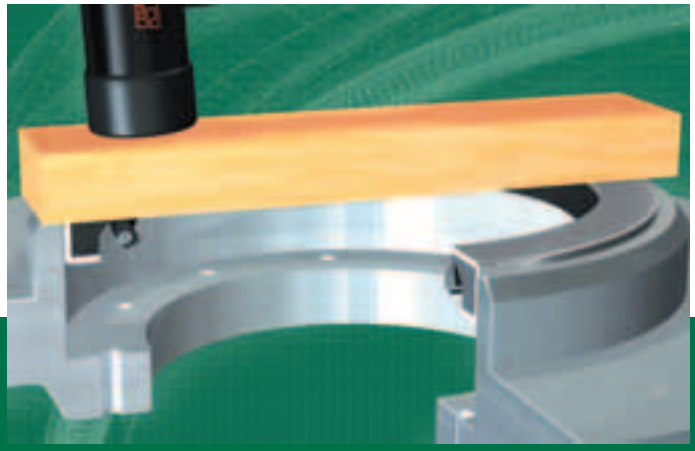


Fig 2





Mounting split HS seals
Coat the HS seal and shaft counterface with lubricant, preferably the same as that to be retained by the seal (**A, fig 3**).

Where appropriate, insert the spring in the Spring-Lock groove and position the spring connection, so that it is displaced with regard to the seal joint (**B**).

Put the HS seal in the correct position on the shaft. If necessary and if portable vulcanisation equipment is available, use this to join the ends of the HS seal, making sure that the ends are accurately aligned (**C**).

Join the ends of the garter spring in two different ways depending on the type of spring connector (**D**):

Threaded spring connector: Turn the spring ends through approximately three turns, one in the opposite direction to the other. Insert the one end into the other and, because they have already been turned, the ends will screw into position. Further tightening is possible if required, although the connection will hold even if the thin section is not completely screwed into the other end.

Hook-and-eye spring connector: Draw the ends of the spring together and insert the hook into the eye, taking care not to over-stretch the spring in the process, as this might impair seal performance. Springs with control wire connector: draw the ends of the seal together and insert the control wire into the other end of the spring.

Position the seal joint on the shaft so that it is in the 12 o'clock position and push the joint into the housing bore (**E**).

Starting at the 3 and 9 o'clock positions, push the rest of the seal into position (**E**), finishing simultaneously at the 6 and 12 o'clock positions. For shaft diameters of 1 200 mm (47 in) and above it may be preferable to fix the seal in the 12, 3, 6 and 9 o'clock positions before pushing home the remaining sections of the seal.

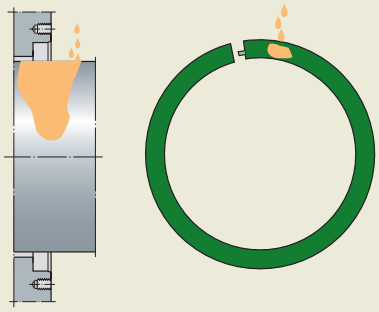
The seal in the housing bore is pushed until it contacts the housing shoulder, e.g. using a small block of wood.

Check the seal condition, particularly at the joint.

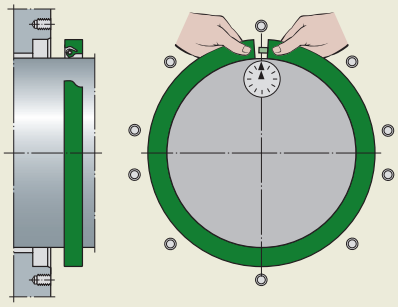
Put the end cover in position on the housing wall using the screws. Tighten the screws in turns, tightening opposite screws together, until the end cover abuts the housing wall (**F** and **G**) .

Fig 3

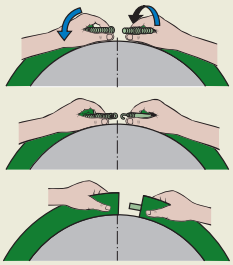
A



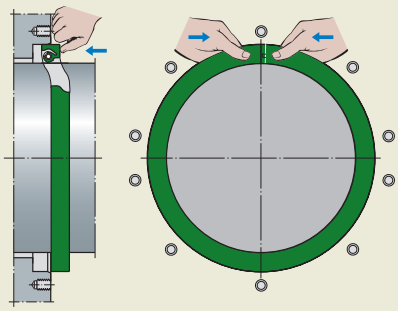
B



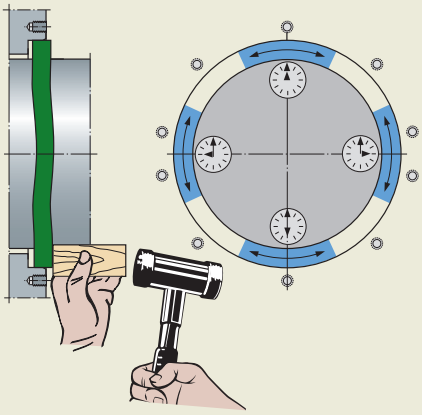
C



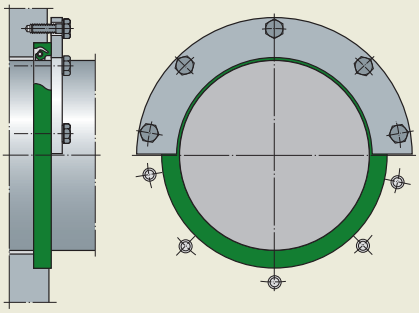
D



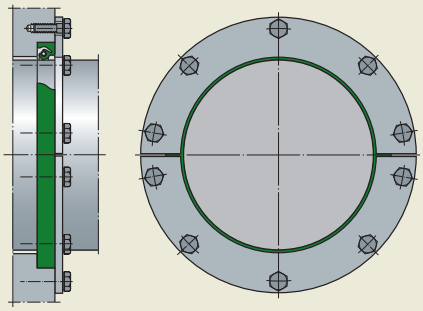
E



F



G



Different ways of mounting HS seals
HS seals are mounted in different ways depending on which purpose they are supposed to fulfil. The can e.g. either be mounted to retain lubricants or to exclude foreign materials (**fig 4**).

Multiple seal installation
When mounting two split seals in one cavity, the locations of the split joints should be staggered 30° to 60°. This will minimize the risk of leakage through the joint. The splits should be located towards the top of the bore. Grease the cavity between the seals to provide lip lubrication for the outer seal.

Paired mounting
If two radial shaft seals are to be mounted in a common housing bore either in tandem or in a back-to-back arrangement, care must be taken to see that neither of the sealing lips can run dry at any time. To eliminate any risk of dry running, the free space between the seals or sealing lips should be filled with a suitable lubricating grease.

To guarantee lubricant supply to the sealing lips in operation and to prevent dry running, the use of a spacing ring between the two seals is recommended. This ring should be provided with lubrication holes (**fig 5**), so that grease can be supplied to the space between the sealing lips, e.g. via a grease nipple. No spacer ring is required when using HDS3 seals as these have spacer lugs built into the large side face (**fig 6**).

Where two HS seals made of elastomer are to be mounted in the same housing bore it has been found advantageous to mount a spacing washer between the two seals (**fig 7** and **8**). Suitable washer dimensions can be determined based on the inside and outside diameters of the seal, d_1 and d_2 respectively:

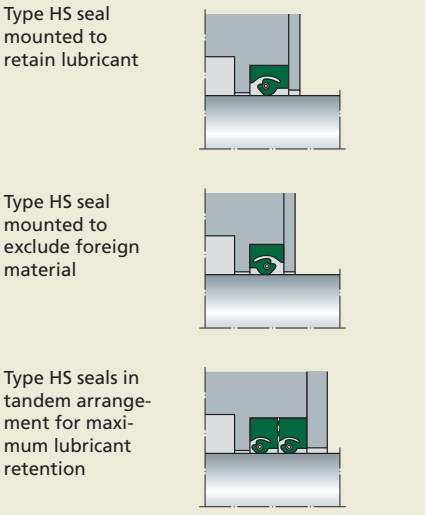
washer inside diameter
= d_1 + 6 to 10 mm

washer outside diameter
= d_2 – 0,5 to 1,5 mm

The washer width must be determined with reference to the conditions but should always be such that lubrication holes can be provided in the circumference, or lubrication grooves in one side face (**fig 9**) to permit grease to be supplied from outside to the sealing lips, e.g. via a grease nipple. When determining washer width and the depth of the housing bore it is also necessary to take into consideration the axial displacement required when clamping the seals.

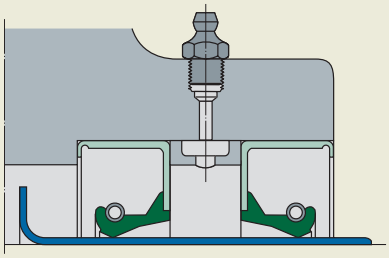
Examples of HS seal applications

Fig 4



Spacing ring

Fig 5



Spacer lugs

Fig 6

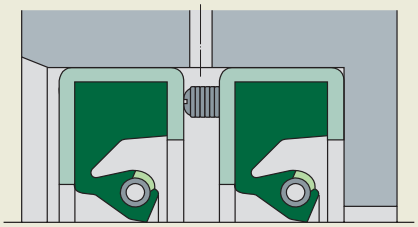
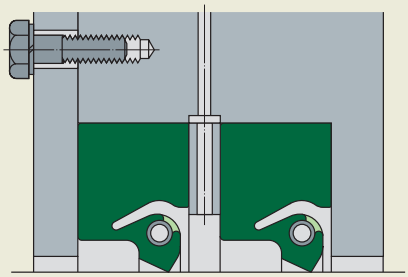


Fig 7



Spacing washer

Cover plates

All HS type seals, split and solid are 0,4 to 0,8 mm (0.016 to 0.031 in) wider than the bore depth and have outside diameters that are 2 % to 5 % larger than the seal housing bore. The end user is required to fabricate and use a cover plate for proper fit. The cover plate provides axial compression and supplements radial press fit to ensure maximum seal performance. It should be thick enough not to bend or distort. Generally, a thickness of 6,35 to 12,7 mm (0.250 to 0.500 in) is sufficient.

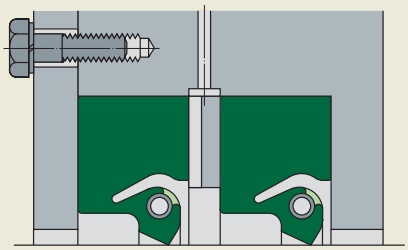
The plate should be secured with bolts, no more than 150 mm (6 in) apart, on a bolt circle located as close to the seal housing bore as practical. The cover plate should be flat and the housing bore depth uniform. Splitting the cover plate at 180° will make seal replacement easier, particularly in confined areas.

To block surges of lubricant towards the seal from the inside and to protect the seal from damage from the outside, it is recommended that the cover plate inner diameter. be as close as practical to the shaft. Generally, 6,35 mm (0.250 in) over shaft diameter is sufficient in the presence of shaft misalignment and run out.

Sometimes, supplementary sealing needs to be added. It is impractical to machine the original housing to provide the seal cavity required. In such instances, the seal cavity may be incorporated into a new plate, which is bolted into place as illustrated (**fig 10**).

Spacing washer

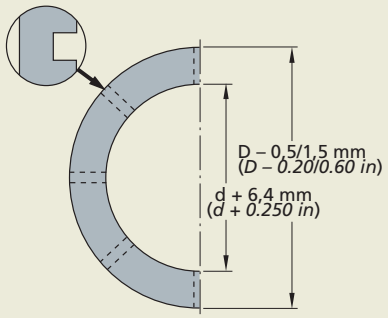
Fig 8



Details of spacer for central lubrication

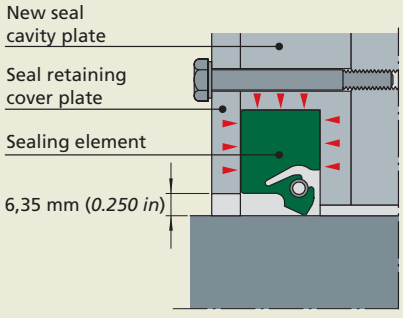
A separator between two seals can be a slotted washer to provide lubrication circulation.

Fig 9



New seal cavity plate

Fig 10



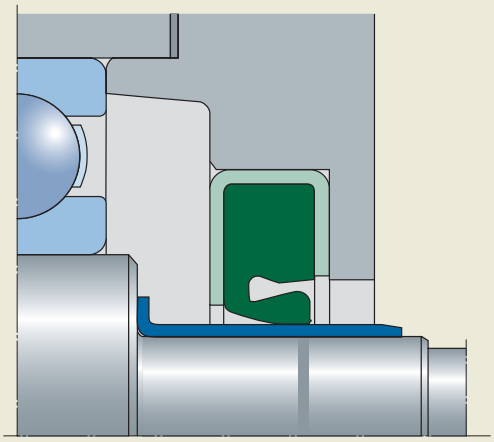
LARGE DIAMETER WEAR SLEEVES

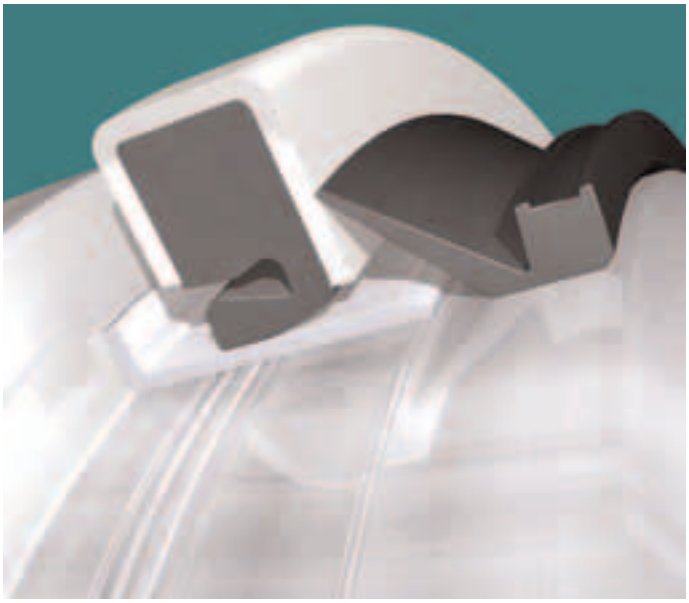
General
Large Diameter Wear Sleeves, (LDSLV), are used primarily for applications where no Speedi-Sleeve is available, i.e. for shafts in the diameter range 203 to 1 150 mm (8 to 45 in). Two designs of LDSLV are produced: the LDSLV3 with a flange (**fig 1**) and the flangeless LDSLV4 (**fig 2**). Their use is recommended in all cases where the operating conditions for the seals are difficult, particularly where solid contaminants can reach the seal lip, e.g. in rolling mills and chemical plants. These are cases where seal wear and damage of the counterface on the shaft can be expected.

It is recommended that LDSLV are designed into the application from the outset. During repairs, it will then not be necessary to rework the shaft and the original seal size can always be used as the replacement.

LDSLV3 with a flange

Fig **1**





Product features
LDSLV are made of stainless steels, chrome plated with a hardness of ≈ 50 HRC and a surface roughness R_a or 0,25 to 0,5 µm. The wall thickness of the standard sleeves is 2,54 mm (0.100 in). The sliding surface for the seal is fine machined and chromium plated to enhance the wear and corrosion resistance.

The width of the counterface for the seal on the LDSLV3 is 6,4 mm (0.250 in) narrower than the total width B of the sleeve. The flange height is 12,7 mm (0.500 in) for all sizes. Details of the possible diameters and widths of the sleeves will be found in **Table 1**, **page 40**, together with the sleeve and shaft tolerances.

LDSLV4 are intended for applications where a flange (to ease mounting) is in the way, or where a wider sliding surface for the seal is required. The dimensions, tolerance recommendations etc. are otherwise the same as those quoted for the LDSLV3.

Flangeless LDSLV 4

Fig **2**

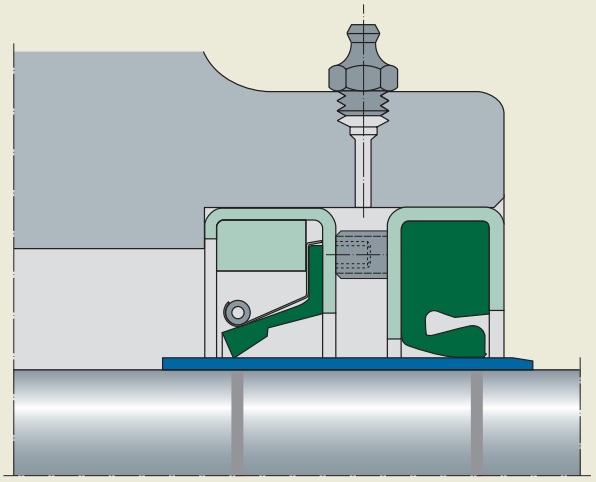
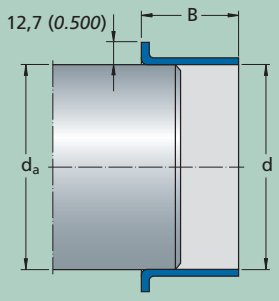
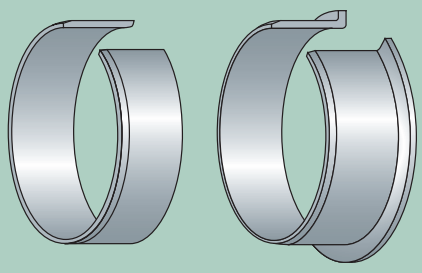


Table 1





LDSLV3 LDSLV4

Diameter nominal d over	incl.	Sleeve bore diameter d deviation high	low	Width b min LDSLV3	min LDSLV4	Shaft diameter d_a deviation high	low	Probable interference min	max
mm/*in*		µm		mm/*in*			µm		µm	
203,2 *8*	304,8 *12*	–127	–305	63,5 *2.500*	17,5 *0.680*	12,7 *0.500*	+50	–50	+57	+355
304,8 *12*	508 *20*	–150	–400	63,5 *2.500*	17,5 *0.680*	12,7 *0.500*	+100	–50	+100	+500
508 *20*	762 *30*	–150	–400	63,5 *2.500*	17,5 *0.680*	12,7 *0.500*	+200	–50	+100	+600
762 *30*	1 016 *40*	–150	–400	63,5 *2.500*	25,4 *1.000*	19,05 *0.750*	+200	–50	+100	+600
1 016 *40*		–150	–450	63,5 *2.500*	25,4 *1.000*	19,05 *0.750*	+250	–50	+100	+700

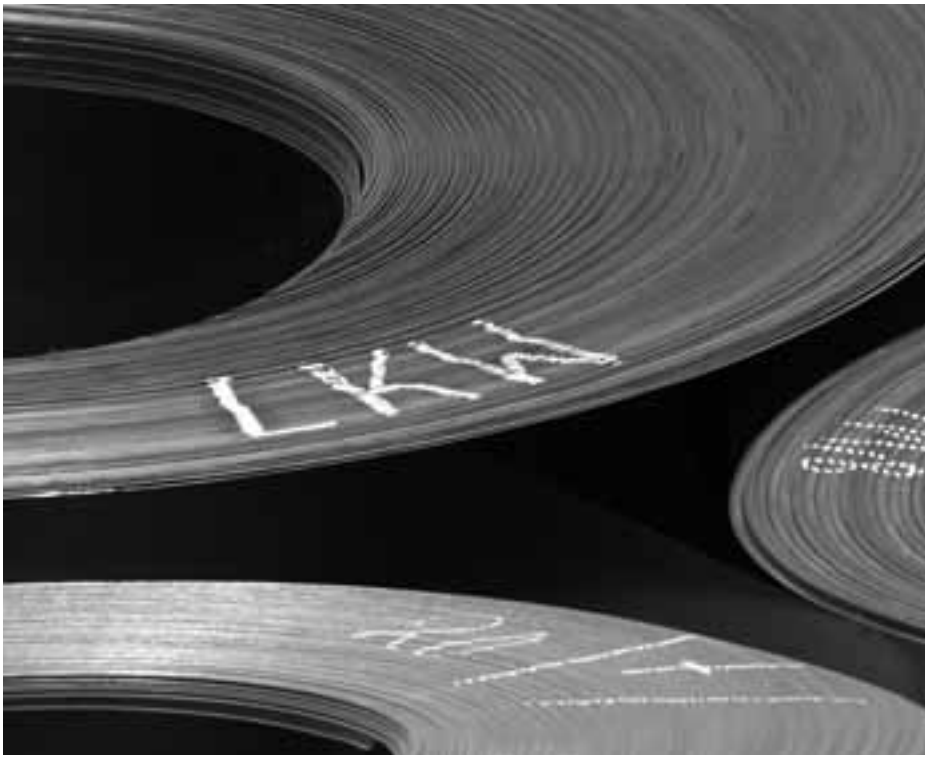
Please contact us for recommendations concerning Large Diameter Wear Sleeves that will operate in systems with sustained oil sump temperatures of 75 °C (170 °F) and speeds in excess of 20 m/s (4 000 ft/min).

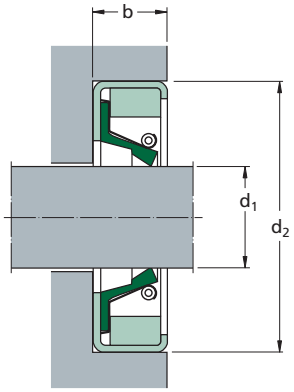
Use
There are two alternative ways of using LDSLV for shaft repairs. Either the sleeve can be pushed along the shaft until it covers the damaged part and a seal which has a 4,8 mm (0.180 in) larger bore diameter than the original is used, or the shaft can be machined down 4,8 mm (0.180 in) and the original seal size used. The reworked shaft seating for the sleeve should have a surface roughness value of between 2,5 and 3,2 µm R_a (100 to 125 µin)

Mounting
LDSLV are mounted with an interference fit on the shaft. It is therefore recommended that they are heated prior to mounting. Temperatures of up to 180 °C (356 °F) are permitted; on no account should the sleeve be heated (to) above 200 °C (392 °F). The types of heating arrangements normally used for bearings are suitable, e.g. heating cabinets, oil baths or induction heaters.

The thin-walled sleeves should be mounted immediately after heating as they cool rapidly. This is particularly true of the LDSLV4.

Dismounting
To dismount the sleeves it is recommended first to either heat them or to expand them by light hammer blows. The flange of the LDSLV3 should first be cut through at one point.





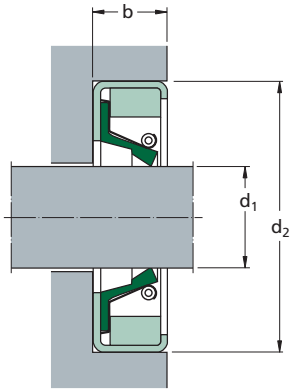
Housing dimensions shaft d_1	bore d_2	width b	Lip material	SKF designation
mm			–	
200	240	20	R	**CR 200×240×20 HDL R**
			V	**CR 200×240×20 HDL V**
220	250	18	R	**CR 220×250×18 HDL R**
			V	**CR 220×250×18 HDL V**
232	269,87	17,45	R	**CR 232×269.87×17.45 HDL R**
			V	**CR 232×269.87×17.45 HDL V**
240	270	15	R	**CR 240×270×15 HDL R**
			V	**CR 240×270×15 HDL V**
240	280	20	R	**CR 240×280×20 HDL R**
			V	**CR 240×280×20 HDL V**
270	308	17,45	R	**CR 270×308×17.45 HDL R**
			V	**CR 270×308×17.45 HDL V**
280	320	19,98	R	**CR 280×320×19.98 HDL R**
			V	**CR 280×320×19.98 HDL V**
280	340	20,62	R	**CR 280×340×20.62 HDL R**
			V	**CR 280×340×20.62 HDL V**
330	370	18	R	**CR 330×370×18 HDL R**
			V	**CR 330×370×18 HDL V**
360	404	17,45	R	**CR 360×404×17.45 HDL R**
			V	**CR 360×404×17.45 HDL V**
390	430	16	R	**CR 390×430×16 HDL R**
			V	**CR 390×430×16 HDL V**
400	450	17,45	R	**CR 400×450×17.45 HDL R**
			V	**CR 400×450×17.45 HDL V**
400	440	20	R	**CR 400×440×20 HDL R**
			V	**CR 400×440×20 HDL V**
420	460	17,45	R	**CR 420×460×17.45 HDL R**
			V	**CR 420×460×17.45 HDL V**
420	470	17,45	R	**CR 420×470×17.45 HDL R**
			V	**CR 420×470×17.45 HDL V**
420	460	20	R	**CR 420×460×20 HDL R**
			V	**CR 420×460×20 HDL V**

Housing dimensions shaft d_1	bore d_2	width b	Lip material	SKF designation
mm			–	
440	480	20	R	**CR 440×480×20 HDL R**
			V	**CR 440×480×20 HDL V**
470	520	22	R	**CR 470×520×22 HDL R**
			V	**CR 470×520×22 HDL V**
480	520	20	R	**CR 480×520×20 HDL R**
			V	**CR 480×520×20 HDL V**
485	535	19	R	**CR 485×535×19 HDL R**
			V	**CR 485×535×19 HDL V**
500	550	19	R	**CR 500×550×19 HDL R**
			V	**CR 500×550×19 HDL V**
508	560	25	R	**CR 508×560×25 HDL R**
			V	**CR 508×560×25 HDL V**
513	543	16	R	**CR 513×543×16 HDL R**
			V	**CR 513×543×16 HDL V**
520	560	18	R	**CR 520×560×18 HDL R**
			V	**CR 520×560×18 HDL V**
520	570	22	R	**CR 520×570×22 HDL R**
			V	**CR 520×570×22 HDL V**
530	580	20,62	R	**CR 530×580×20.62 HDL R**
			V	**CR 530×580×20.62 HDL V**
540	590	24,98	R	**CR 540×590×24.98 HDL R**
			V	**CR 540×590×24.98 HDL V**
560	610	20	R	**CR 560×610×20 HDL R**
			V	**CR 560×610×20 HDL V**
565	601	20	R	**CR 565×601×20 HDL R**
			V	**CR 565×601×20 HDL V**
600	640	20	R	**CR 600×640×20 HDL R**
			V	**CR 600×640×20 HDL V**
630	670	20	R	**CR 630×670×20 HDL R**
			V	**CR 630×670×20 HDL V**
640	680	20	R	**CR 640×680×20 HDL R**
			V	**CR 640×680×20 HDL V**

Type HDL is also available on request with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).

Housing dimensions shaft d_1	bore d_2	width b	Lip material-	SKF designation
mm			–	
650	714	25	R	**CR 650×714×25 HDL R**
			V	**CR 650×714×25 HDL V**
668	706	25,4	R	**CR 668×706×25.4 HDL R**
			V	**CR 668×706×25.4 HDL V**
750	814	25	R	**CR 750×814×25 HDL R**
			V	**CR 750×814×25 HDL V**
760	804	18	R	**CR 760×804×18 HDL R**
			V	**CR 760×804×18 HDL V**
780	844	25	R	**CR 780×844×25 HDL R**
			V	**CR 780×844×25 HDL V**
790	854	25	R	**CR 790×854×25 HDL R**
			V	**CR 790×854×25 HDL V**
837	889	22,22	R	**CR 837×889×22.22 HDL R**
			V	**CR 837×889×22.22 HDL V**
838,1	881	20	R	**CR 838.1×881×20 HDL R**
			V	**CR 838.1×881×20 HDL V**
840	904	25	R	**CR 840×904×25 HDL R**
			V	**CR 840×904×25 HDL V**
920	958,01	19,05	R	**CR 920×958.01×19.05 HDL R**
			V	**CR 920×958.01×19.05 HDL V**
930	980	22,22	R	**CR 930×980×22.22 HDL R**
			V	**CR 930×980×22.22 HDL V**
990	1 040	25	R	**CR 990×1040×25 HDL R**
			V	**CR 990×1040×25 HDL V**
1000	1 050	22,22	R	**CR 1000×1050×22.22 HDL R**
			V	**CR 1000×1050×22.22 HDL V**
1 055	1 100	25	R	**CR 1055×1100×25 HDL R**
			V	**CR 1055×1100×25 HDL V**
1 105	1 160	22	R	**CR 1105×1160×22 HDL R**
			V	**CR 1105×1160×22 HDL V**
1 350	1 414	22	R	**CR 1350×1414×22 HDL R**
			V	**CR 1350×1414×22 HDL V**
1 350	1 415	25	R	**CR 1350×1415×25 HDL R**
			V	**CR 1350×1415×25 HDL V**
1 380	1 440	25	R	**CR 1380×1440×25 HDL R**
			V	**CR 1380×1440×25 HDL V**

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).



Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
6.125	7.625	0.687	**CR HDL 1299 R**	**CR HDL 1299 V**
155,57	*193,67*	*17,45*		
7.125	8.250	0.750	**CR HDL 3011 R**	**CR HDL 3011 V**
180,97	*209,55*	*19,05*		
7.875	9.375	0.687	**CR HDL 9176 R**	**CR HDL 9176 V**
200,02	*238,12*	*17,45*		
8.000	9.500	0.687	**CR HDL 3921 R**	**CR HDL 3921 V**
203,20	*241,30*	*17,45*		
8.125	10.125	0.687	**CR HDL 9712 R**	**CR HDL 9712 V**
206,37	*257,17*	*17,45*		
8.250	10.250	0.812	**CR HDL 4499 R**	**CR HDL 4499 V**
209,55	*260,35*	*20,62*		
8.375	9.875	0.687	**CR HDL 3933 R**	**CR HDL 3933 V**
212,72	*250,82*	*17,45*		
	10.375	0.812	**CR HDL 4500 R**	**CR HDL 4500 V**
	263,52	*20,62*		
8.500	9.750	0.562	**CR HDL 1705 R**	**CR HDL 1705 V**
215,90	*247,65*	*14,28*		
	9.750	0.652	**CR HDL 6384 R**	**CR HDL 6384 V**
	247,65	*16,56*		
	10.000	0.687	**CR HDL 8453 R**	**CR HDL 8453 V**
	254,00	*17,45*		
	10.500	0.812	**CR HDL 3938 R**	**CR HDL 3938 V**
	266,70	*20,62*		
8.625	10.125	0.687	**CR HDL 3939 R**	**CR HDL 3939 V**
219,07	*257,17*	*17,45*		
	10.260	0.687	**CR HDL 2736 R**	**CR HDL 2736 V**
	260,60	*17,45*		
	10.750	0.812	**CR HDL 7718 R**	**CR HDL 7718 V**
	273,05	*20,62*		
8.750	10.250	0.687	**CR HDL 3946 R**	**CR HDL 3946 V**
222,25	*260,35*	*17,45*		
	10.500	0.687	**CR HDL 9911 R**	**CR HDL 9911 V**
	266,70	*17,45*		
	10.750	0.812	**CR HDL 3952 R**	**CR HDL 3952 V**
	273,05	*20,62*		
8.875	10.875	0.812	**CR HDL 3953 R**	**CR HDL 3953 V**
225,42	*276,22*	*20,62*		

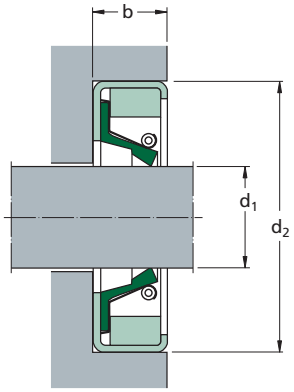
Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
9.000	10.500	0.687	**CR HDL 3954 R**	**CR HDL 3954 V**
228,60	*266,70*	*17,45*		
	11.000	0.812	**CR HDL 3955 R**	**CR HDL 3955 V**
	279,40	*20,62*		
9.125	10.625	0.687	**CR HDL 3957 R**	**CR HDL 3957 V**
231,77	*269,87*	*17,45*		
	11.125	0.812	**CR HDL 3962 R**	**CR HDL 3962 V**
	282,57	*20,62*		
9.250	10.750	0.687	**CR HDL 3963 R**	**CR HDL 3963 V**
234,95	*273,05*	*17,45*		
	11.250	0.687	**CR HDL 9706 R**	**CR HDL 9706 V**
	285,75	*17,45*		
9.375	11.375	0.812	**CR HDL 4610 R**	**CR HDL 4610 V**
238,12	*288,92*	*20,62*		
9.500	10.750	0.562	**CR HDL 3145 R**	**CR HDL 3145 V**
241,30	*273,05*	*14,28*		
	11.250	0.750	**CR HDL 3981 R**	**CR HDL 3981 V**
	285,75	*19,05*		
	11.500	0.812	**CR HDL 3984 R**	**CR HDL 3984 V**
	292,10	*20,62*		
9.750	11.125	0.562	**CR HDL 1692 R**	**CR HDL 1692 V**
247,65	*282,57*	*14,28*		
	11.250	0.687	**CR HDL 3985 R**	**CR HDL 3985 V**
	285,75	*17,45*		
	11.750	0.687	**CR HDL 9425 R**	**CR HDL 9425 V**
	298,45	*17,45*		
10.000	11.500	0.687	**CR HDL 3992 R**	**CR HDL 3992 V**
254,00	*292,10*	*17,45*		
	11.750	0.750	**CR HDL 3994 R**	**CR HDL 3994 V**
	298,45	*19,05*		
	12.000	0.812	**CR HDL 3997 R**	**CR HDL 3997 V**
	304,80	*20,62*		
	12.000	0.875	**CR HDL 3998 R**	**CR HDL 3998 V**
	304,80	*22,22*		
	12.250	0.812	**CR HDL 3669 R**	**CR HDL 3669 V**
	311,15	*20,62*		
10.125	11.625	0.687	**CR HDL 3999 R**	**CR HDL 3999 V**
257,17	*295,27*	*17,45*		
	11.750	0.687	**CR HDL 5989 R**	**CR HDL 5989 V**
	298,45	*17,45*		

Type HDL is also available on request with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
10.250	11.750	0.687	**CR HDL 4004 R**	**CR HDL 4004 V**
260,35	*298,45*	*17,45*		
	12.250	0.812	**CR HDL 4009 R**	**CR HDL 4009 V**
	311,15	*20,62*		
	12.500	0.812	**CR HDL 4015 R**	**CR HDL 4015 V**
	317,50	*20,62*		
10.500	12.000	0.687	**CR HDL 4011 R**	**CR HDL 4011 V**
266,70	*304,80*	*17,45*		
	12.500	0.812	**CR HDL 4017 R**	**CR HDL 4017 V**
	317,50	*20,62*		
10.750	12.250	0.687	**CR HDL 4023 R**	**CR HDL 4023 V**
273,05	*311,15*	*17,45*		
	12.500	0.875	**CR HDL 4033 R**	**CR HDL 4033 V**
	317,50	*22,22*		
	12.750	0.625	**CR HDL 3014 R**	**CR HDL 3014 V**
	323,85	*15,87*		
	12.750	0.812	**CR HDL 4031 R**	**CR HDL 4031 V**
	323,85	*20,62*		
	13.000	0.812	**CR HDL 4022 R**	**CR HDL 4022 V**
	330,20	*20,62*		
	13.250	0.812	**CR HDL 4026 R**	**CR HDL 4026 V**
	336,55	*20,62*		
10.875	12.375	0.687	**CR HDL 4027 R**	**CR HDL 4027 V**
276,22	*314,32*	*17,45*		
	12.500	0.687	**CR HDL 4028 R**	**CR HDL 4028 V**
	317,50	*17,45*		
11.000	12.250	0.562	**CR HDL 3135 R**	**CR HDL 3135 V**
279,40	*311,15*	*14,28*		
	12.500	0.687	**CR HDL 4611 R**	**CR HDL 4611 V**
	317,50	*17,45*		
	13.000	0.687	**CR HDL 6034 R**	**CR HDL 6034 V**
	330,20	*17,45*		
	13.000	0.812	**CR HDL 4036 R**	**CR HDL 4036 V**
	330,20	*20,62*		
11.125	13.000	0.687	**CR HDL 3699 R**	**CR HDL 3699 V**
282,57	*330,20*	*17,45*		
	13.250	0.812	**CR HDL 3700 R**	**CR HDL 3700 V**
	336,55	*20,62*		

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
11.250	12.750	0.687	**CR HDL 4527 R**	**CR HDL 4527 V**
285,75	*323,85*	*17,45*		
	13.250	0.687	**CR HDL 8778 R**	**CR HDL 8778 V**
	336,55	*17,45*		
	13.250	0.812	**CR HDL 4047 R**	**CR HDL 4047 V**
	336,55	*20,62*		
11.375	13.375	0.812	**CR HDL 4052 R**	**CR HDL 4052 V**
288,92	*339,72*	*20,62*		
11.500	13.000	0.687	**CR HDL 4057 R**	**CR HDL 4057 V**
292,10	*330,20*	*17,45*		
	13.500	0.812	**CR HDL 4063 R**	**CR HDL 4063 V**
	342,90	*20,62*		
11.750	13.250	0.687	**CR HDL 4064 R**	**CR HDL 4064 V**
298,45	*336,55*	*17,45*		
12.000	13.500	0.687	**CR HDL 4612 R**	**CR HDL 4612 V**
304,80	*342,90*	*17,45*		
	13.625	0.687	**CR HDL 8523 R**	**CR HDL 8523 V**
	346,07	*17,45*		
	13.750	0.687	**CR HDL 3701 R**	**CR HDL 3701 V**
	349,25	*17,45*		
	14.000	0.687	**CR HDL 5838 R**	**CR HDL 5838 V**
	355,60	*17,45*		
	14.000	0.750	**CR HDL 4071 R**	**CR HDL 4071 V**
	355,60	*19,05*		
	14.000	0.812	**CR HDL 4072 R**	**CR HDL 4072 V**
	355,60	*20,62*		
	14.750	0.812	**CR HDL 3702 R**	**CR HDL 3702 V**
	374,65	*20,62*		
12.125	13.875	0.687	**CR HDL 4053 R**	**CR HDL 4053 V**
307,97	*352,42*	*17,45*		
12.250	13.750	0.687	**CR HDL 4613 R**	**CR HDL 4613 V**
311,15	*349,25*	*17,45*		
	13.750	0.875	**CR HDL 4614 R**	**CR HDL 4614 V**
	349,25	*22,22*		
	14.000	0.687	**CR HDL 4055 R**	**CR HDL 4055 V**
	355,60	*17,45*		
	14.250	0.812	**CR HDL 4075 R**	**CR HDL 4075 V**
	361,95	*20,62*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).



Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
12.375	13.875	0.687	**CR HDL 4076 R**	**CR HDL 4076 V**
314,32	*352,42*	*17,45*		
	14.000	0.687	**CR HDL 4056 R**	**CR HDL 4056 V**
	355,60	*17,45*		
	14.375	0.687	**CR HDL 4097 R**	**CR HDL 4097 V**
	365,12	*17,45*		
	14.500	0.812	**CR HDL 4106 R**	**CR HDL 4106 V**
	368,30	*20,62*		
12.500	14.000	0.687	**CR HDL 4079 R**	**CR HDL 4079 V**
317,50	*355,60*	*17,45*		
	14.500	0.750	**CR HDL 4082 R**	**CR HDL 4082 V**
	368,30	*19,05*		
	14.500	0.812	**CR HDL 4083 R**	**CR HDL 4083 V**
	368,30	*20,62*		
	15.000	0.812	**CR HDL 4084 R**	**CR HDL 4084 V**
	381,00	*20,62*		
12.625	14.125	0.687	**CR HDL 4081 R**	**CR HDL 4081 V**
320,67	*358,77*	*17,45*		
	14.500	0.687	**CR HDL 3716 R**	**CR HDL 3716 V**
	368,30	*17,45*		
12.687	14.750	0.812	**CR HDL 9766 R**	**CR HDL 9766 V**
322,24	*374,65*	*20,62*		
12.750	14.250	0.687	**CR HDL 4089 R**	**CR HDL 4089 V**
323,85	*361,95*	*17,45*		
	14.750	0.687	**CR HDL 7652 R**	**CR HDL 7652 V**
	374,65	*17,45*		
	15.000	0.812	**CR HDL 4092 R**	**CR HDL 4092 V**
	381,00	*20,62*		
12.875	15.000	0.812	**CR HDL 5404 R**	**CR HDL 5404 V**
327,02	*381,00*	*20,62*		
13.000	14.500	0.687	**CR HDL 4093 R**	**CR HDL 4093 V**
330,20	*368,30*	*17,45*		
	14.875	0.687	**CR HDL 4096 R**	**CR HDL 4096 V**
	377,82	*17,45*		
	15.000	0.812	**CR HDL 4099 R**	**CR HDL 4099 V**
	381,00	*20,62*		

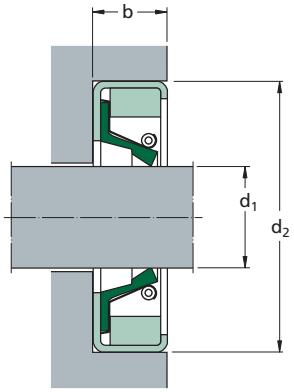
Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
13.250	14.750	0.687	**CR HDL 4101 R**	**CR HDL 4101 V**
336,55	*374,65*	*17,45*		
	14.875	0.687	**CR HDL 7734 R**	**CR HDL 7734 V**
	377,82	*17,45*		
	15.000	0.687	**CR HDL 7169 R**	**CR HDL 7169 V**
	381,00	*17,45*		
	15.125	0.687	**CR HDL 4105 R**	**CR HDL 4105 V**
	384,17	*17,45*		
	15.250	0.687	**CR HDL 6294 R**	**CR HDL 6294 V**
	387,35	*17,45*		
	15.250	0.812	**CR HDL 4779 R**	**CR HDL 4779 V**
	387,35	*20,62*		
13.500	15.000	0.687	**CR HDL 4121 R**	**CR HDL 4121 V**
342,90	*381,00*	*17,45*		
	15.500	0.812	**CR HDL 4128 R**	**CR HDL 4128 V**
	393,70	*20,62*		
	15.750	0.812	**CR HDL 4123 R**	**CR HDL 4123 V**
	400,05	*20,62*		
13.625	15.500	0.687	**CR HDL 4120 R**	**CR HDL 4120 V**
346,07	*393,70*	*17,45*		
13.750	15.250	0.687	**CR HDL 4529 R**	**CR HDL 4529 V**
349,25	*387,35*	*17,45*		
	15.500	0.750	**CR HDL 4531 R**	**CR HDL 4531 V**
	393,70	*19,05*		
	15.750	0.812	**CR HDL 4129 R**	**CR HDL 4129 V**
	400,05	*20,62*		
	16.000	0.812	**CR HDL 4119 R**	**CR HDL 4119 V**
	406,40	*20,62*		
13.813	16.000	0.812	**CR HDL 4108 R**	**CR HDL 4108 V**
350,85	*406,40*	*20,62*		
13.875	16.000	0.812	**CR HDL 4110 R**	**CR HDL 4110 V**
352,42	*406,40*	*20,62*		
13.937	15.437	0.687	**CR HDL 4130 R**	**CR HDL 4130 V**
353,99	*392,09*	*17,45*		
13.938	15.500	0.687	**CR HDL 4111 R**	**CR HDL 4111 V**
354,02	*393,70*	*17,45*		
	16.000	0.687	**CR HDL 4112 R**	**CR HDL 4112 V**
	406,40	*17,45*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
14.000	15.500	0.687	**CR HDL 4131 R**	**CR HDL 4131 V**
355,60	*393,70*	*17,45*		
	15.750	0.687	**CR HDL 5991 R**	**CR HDL 5991 V**
	400,05	*17,45*		
	15.750	0.750	**CR HDL 4134 R**	**CR HDL 4134 V**
	400,05	*19,05*		
	16.000	0.812	**CR HDL 4135 R**	**CR HDL 4135 V**
	406,40	*20,62*		
	16.250	0.812	**CR HDL 5382 R**	**CR HDL 5382 V**
	412,75	*20,62*		
	16.500	0.812	**CR HDL 7535 R**	**CR HDL 7535 V**
	419,10	*20,62*		
14.187	16.732	0.812	**CR HDL 9280 R**	**CR HDL 9280 V**
360,34	*424,99*	*20,62*		
14.250	15.750	0.687	**CR HDL 4118 R**	**CR HDL 4118 V**
361,95	*400,05*	*17,45*		
	16.000	0.687	**CR HDL 4139 R**	**CR HDL 4139 V**
	406,40	*17,45*		
	16.250	0.812	**CR HDL 4140 R**	**CR HDL 4140 V**
	412,75	*20,62*		
	16.500	0.812	**CR HDL 3855 R**	**CR HDL 3855 V**
	419,10	*20,62*		
14.375	16.000	0.687	**CR HDL 5481 R**	**CR HDL 5481 V**
365,12	*406,40*	*17,45*		
14.500	16.000	0.687	**CR HDL 4142 R**	**CR HDL 4142 V**
368,30	*406,40*	*17,45*		
	16.500	0.812	**CR HDL 4145 R**	**CR HDL 4145 V**
	419,10	*20,62*		
14.625	16.250	0.687	**CR HDL 3856 R**	**CR HDL 3856 V**
371,47	*412,75*	*17,45*		
	16.750	0.812	**CR HDL 3857 R**	**CR HDL 3857 V**
	425,45	*20,62*		
14.750	16.250	0.687	**CR HDL 4147 R**	**CR HDL 4147 V**
374,65	*412,75*	*17,45*		
	16.500	0.687	**CR HDL 5990 R**	**CR HDL 5990 V**
	419,10	*17,45*		

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
14.875	16.500	0.687	**CR HDL 3858 R**	**CR HDL 3858 V**
377,82	*419,10*	*17,45*		
	16.750	0.687	**CR HDL 3859 R**	**CR HDL 3859 V**
	425,45	*17,45*		
	16.875	0.937	**CR HDL 2622 R**	**CR HDL 2622 V**
	428,62	*23,79*		
	16.875	1.000	**CR HDL 4150 R**	**CR HDL 4150 V**
	428,62	*25,40*		
	17.000	0.812	**CR HDL 3860 R**	**CR HDL 3860 V**
	431,80	*20,62*		
14.906	17.000	0.812	**CR HDL 3861 R**	**CR HDL 3861 V**
378,61	*431,80*	*20,62*		
15.000	16.500	0.687	**CR HDL 4151 R**	**CR HDL 4151 V**
381,00	*419,10*	*17,45*		
	17.000	0.812	**CR HDL 4156 R**	**CR HDL 4156 V**
	431,80	*20,62*		
	17.250	0.812	**CR HDL 3862 R**	**CR HDL 3862 V**
	438,15	*20,62*		
	17.250	0.812	**CR HDL 8508 R**	**CR HDL 8508 V**
	438,15	*20,62*		
	17.500	0.812	**CR HDL 9637 R**	**CR HDL 9637 V**
	444,50	*20,62*		
	17.750	0.812	**CR HDL 3862 R**	**CR HDL 3862 V**
	450,85	*20,62*		
15.125	16.750	0.687	**CR HDL 4165 R**	**CR HDL 4165 V**
384,17	*425,45*	*17,45*		
15.250	16.750	0.687	**CR HDL 4615 R**	**CR HDL 4615 V**
387,35	*425,45*	*17,45*		
	17.250	0.812	**CR HDL 4476 R**	**CR HDL 4476 V**
	438,15	*20,62*		
	17.250	0.875	**CR HDL 3030 R**	**CR HDL 3030 V**
	438,15	*22,22*		
15.312	16.875	0.687	**CR HDL 4158 R**	**CR HDL 4158 V**
388,92	*428,62*	*17,45*		
	17.312	0.687	**CR HDL 5992 R**	**CR HDL 5992 V**
	439,72	*17,45*		
15.359	17.717	0.687	**CR HDL 4166 R**	**CR HDL 4166 V**
390,11	*450,01*	*17,45*		
15.375	17.250	0.687	**CR HDL 4167 R**	**CR HDL 4167 V**
390,52	*438,15*	*17,45*		
	17.375	0.812	**CR HDL 4159 R**	**CR HDL 4159 V**
	441,32	*20,62*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).



Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
15.500	17.496	0.812	**CR HDL 4163 R**	**CR HDL 4163 V**
393,70	*444,40*	*20,62*		
	17.750	0.812	**CR HDL 6771 R**	**CR HDL 6771 V**
	450,85	*20,62*		
	18.000	0.812	**CR HDL 4168 R**	**CR HDL 4168 V**
	457,20	*20,62*		
15.750	17.165	0.687	**CR HDL 9986 R**	**CR HDL 9986 V**
400,05	*436,00*	*17,45*		
	17.250	0.687	**CR HDL 4170 R**	**CR HDL 4170 V**
	438,15	*17,45*		
	17.312	0.687	**CR HDL 9271 R**	**CR HDL 9271 V**
	439,72	*17,45*		
	17.500	0.687	**CR HDL 4171 R**	**CR HDL 4171 V**
	444,50	*17,45*		
	17.750	0.687	**CR HDL 6874 R**	**CR HDL 6874 V**
	450,85	*17,45*		
	18.000	0.812	**CR HDL 4172 R**	**CR HDL 4172 V**
	457,20	*20,62*		
	18.500	1.000	**CR HDL 4175 R**	**CR HDL 4175 V**
	469,90	*25,40*		
15.875	17.875	0.812	**CR HDL 4176 R**	**CR HDL 4176 V**
403,22	*454,02*	*20,62*		
16.000	17.500	0.687	**CR HDL 4177 R**	**CR HDL 4177 V**
406,40	*444,50*	*17,45*		
	17.625	0.687	**CR HDL 4173 R**	**CR HDL 4173 V**
	447,67	*17,45*		
	18.000	0.812	**CR HDL 4180 R**	**CR HDL 4180 V**
	457,20	*20,62*		
	18.000	0.875	**CR HDL 5077 R**	**CR HDL 5077 V**
	457,20	*22,22*		
	18.500	0.812	**CR HDL 5995 R**	**CR HDL 5995 V**
	469,90	*20,62*		
16.250	17.750	0.687	**CR HDL 4181 R**	**CR HDL 4181 V**
412,75	*450,85*	*17,45*		
	18.000	0.687	**CR HDL 8217 R**	**CR HDL 8217 V**
	457,20	*17,45*		
	18.000	0.750	**CR HDL 4184 R**	**CR HDL 4184 V**
	457,20	*19,05*		
	18.250	0.687	**CR HDL 9892 R**	**CR HDL 9892 V**
	463,55	*17,45*		
	18.500	0.812	**CR HDL 4174 R**	**CR HDL 4174 V**
	469,90	*20,62*		
16.375	17.875	0.687	**CR HDL 4179 R**	**CR HDL 4179 V**
415,92	*454,02*	*17,45*		

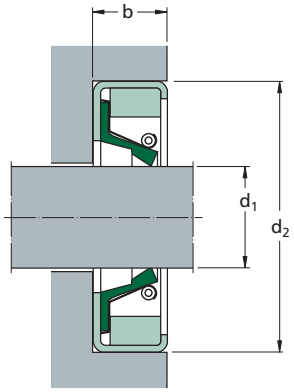
Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
16.500	18.000	0.687	**CR HDL 9863 R**	**CR HDL 9863 V**
419,10	*457,20*	*17,45*		
	18.500	0.687	**CR HDL 4187 R**	**CR HDL 4187 V**
	469,90	*17,45*		
	18.500	0.812	**CR HDL 4186 R**	**CR HDL 4186 V**
	469,90	*20,62*		
	19.000	0.812	**CR HDL 4183 R**	**CR HDL 4183 V**
	482,60	*20,62*		
16.535	18.504	0.875	**CR HDL 1929 R**	**CR HDL 1929 V**
419,98	*470,00*	*22,22*		
16.750	18.250	0.687	**CR HDL 3744 R**	**CR HDL 3744 V**
425,45	*463,55*	*17,45*		
	18.500	0.687	**CR HDL 8862 R**	**CR HDL 8862 V**
	469,90	*17,45*		
	19.000	0.812	**CR HDL 3748 R**	**CR HDL 3748 V**
	482,60	*20,62*		
16.937	19.291	0.812	**CR HDL 9695 R**	**CR HDL 9695 V**
430,19	*489,99*	*20,62*		
17.000	18.500	0.687	**CR HDL 4188 R**	**CR HDL 4188 V**
431,80	*469,90*	*17,45*		
	19.000	0.812	**CR HDL 4190 R**	**CR HDL 4190 V**
	482,60	*20,62*		
	19.250	0.812	**CR HDL 4191 R**	**CR HDL 4191 V**
	488,95	*20,62*		
	19.500	0.812	**CR HDL 3750 R**	**CR HDL 3750 V**
	495,30	*20,62*		
17.250	18.750	0.687	**CR HDL 3751 R**	**CR HDL 3751 V**
438,15	*476,25*	*17,45*		
	18.750	0.750	**CR HDL 6967 R**	**CR HDL 6967 V**
	476,25	*19,05*		
17.500	19.000	0.687	**CR HDL 4194 R**	**CR HDL 4194 V**
444,50	*482,60*	*17,45*		
	19.250	0.687	**CR HDL 5054 R**	**CR HDL 5054 V**
	488,95	*17,45*		
	19.250	1.000	**CR HDL 3005 R**	**CR HDL 3005 V**
	488,95	*25,40*		
	19.500	0.687	**CR HDL 4198 R**	**CR HDL 4198 V**
	495,30	*17,45*		
	19.750	0.812	**CR HDL 4197 R**	**CR HDL 4197 V**
	501,65	*20,62*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
17.625	19.250	0.687	**CR HDL 4199 R**	**CR HDL 4199 V**
447,67	*488,95*	*17,45*		
	19.625	0.687	**CR HDL 6850 R**	**CR HDL 6850 V**
	498,47	*17,45*		
17.750	19.750	0.812	**CR HDL 4200 R**	**CR HDL 4200 V**
450,85	*501,65*	*20,62*		
	20.078	0.875	**CR HDL 9084 R**	**CR HDL 9084 V**
	509,98	*22,22*		
17.875	19.875	0.812	**CR HDL 4204 R**	**CR HDL 4204 V**
454,02	*504,82*	*20,62*		
18.000	19.500	0.687	**CR HDL 4206 R**	**CR HDL 4206 V**
457,20	*495,30*	*17,45*		
	19.750	0.687	**CR HDL 5728 R**	**CR HDL 5728 V**
	501,65	*17,45*		
	19.875	0.687	**CR HDL 4203 R**	**CR HDL 4203 V**
	504,82	*17,45*		
	20.000	0.750	**CR HDL 4209 R**	**CR HDL 4209 V**
	508,00	*19,05*		
	20.000	0.875	**CR HDL 4210 R**	**CR HDL 4210 V**
	508,00	*22,22*		
	20.500	0.875	**CR HDL 3752 R**	**CR HDL 3752 V**
	520,70	*22,22*		
	21.000	0.875	**CR HDL 3753 R**	**CR HDL 3753 V**
	533,40	*22,22*		
18.120	20.500	0.875	**CR HDL 3754 R**	**CR HDL 3754 V**
460,24	*520,70*	*22,22*		
18.125	20.500	0.875	**CR HDL 3756 R**	**CR HDL 3756 V**
460,37	*520,70*	*22,22*		
18.250	19.750	0.687	**CR HDL 3757 R**	**CR HDL 3757 V**
463,55	*501,65*	*17,45*		
	19.875	0.687	**CR HDL 3765 R**	**CR HDL 3765 V**
	504,82	*17,45*		
18.375	19.875	0.687	**CR HDL 4213 R**	**CR HDL 4213 V**
466,72	*504,82*	*17,45*		
	19.937	0.687	**CR HDL 7103 R**	**CR HDL 7103 V**
	506,39	*17,45*		
	20.000	0.750	**CR HDL 4215 R**	**CR HDL 4215 V**
	508,00	*19,05*		
	20.375	0.812	**CR HDL 6740 R**	**CR HDL 6740 V**
	517,52	*20,62*		
	20.500	0.750	**CR HDL 3767 R**	**CR HDL 3767 V**
	520,70	*19,05*		

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
18.500	20.000	0.687	**CR HDL 3768 R**	**CR HDL 3768 V**
469,90	*508,00*	*17,45*		
	20.250	0.687	**CR HDL 3772 R**	**CR HDL 3772 V**
	514,35	*17,45*		
	20.500	0.875	**CR HDL 4216 R**	**CR HDL 4216 V**
	520,70	*22,22*		
19.000	20.500	0.750	**CR HDL 4218 R**	**CR HDL 4218 V**
482,60	*520,70*	*19,05*		
	21.000	0.875	**CR HDL 4219 R**	**CR HDL 4219 V**
	533,40	*22,22*		
	21.500	0.875	**CR HDL 3773 R**	**CR HDL 3773 V**
	546,10	*22,22*		
19.250	20.750	0.750	**CR HDL 4617 R**	**CR HDL 4617 V**
488,95	*527,05*	*19,05*		
	21.000	0.750	**CR HDL 3777 R**	**CR HDL 3777 V**
	533,40	*19,05*		
	21.250	0.750	**CR HDL 5485 R**	**CR HDL 5485 V**
	539,75	*19,05*		
19.375	21.000	0.750	**CR HDL 3778 R**	**CR HDL 3778 V**
492,12	*533,40*	*19,05*		
19.500	21.000	0.750	**CR HDL 3779 R**	**CR HDL 3779 V**
495,30	*533,40*	*19,05*		
	21.500	0.875	**CR HDL 4221 R**	**CR HDL 4221 V**
	546,10	*22,22*		
	21.688	0.875	**CR HDL 3783 R**	**CR HDL 3783 V**
	550,87	*22,22*		
19.750	21.750	0.875	**CR HDL 4228 R**	**CR HDL 4228 V**
501,65	*552,45*	*22,22*		
	22.125	0.875	**CR HDL 7400 R**	**CR HDL 7400 V**
	561,97	*22,22*		
	22.250	0.875	**CR HDL 3785 R**	**CR HDL 3785 V**
	565,15	*22,22*		
19.875	22.000	0.875	**CR HDL 3788 R**	**CR HDL 3788 V**
504,82	*558,80*	*22,22*		
19.937	21.687	0.625	**CR HDL 4233 R**	**CR HDL 4233 V**
506,39	*550,84*	*15,87*		
19.938	21.500	0.750	**CR HDL 3789 R**	**CR HDL 3789 V**
506,42	*546,10*	*19,05*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).



Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
20.000	21.500	0.750	**CR HDL 4235 R**	**CR HDL 4235 V**
508,00	*546,10*	*19,05*		
	21.750	0.750	**CR HDL 4236 R**	**CR HDL 4236 V**
	552,45	*19,05*		
	22.000	0.875	**CR HDL 4237 R**	**CR HDL 4237 V**
	558,80	*22,22*		
	22.500	0.875	**CR HDL 3790 R**	**CR HDL 3790 V**
	571,50	*22,22*		
20.143	22.250	0.875	**CR HDL 3792 R**	**CR HDL 3792 V**
511,63	*565,15*	*22,22*		
20.250	21.750	0.750	**CR HDL 4239 R**	**CR HDL 4239 V**
514,35	*552,45*	*19,05*		
	22.245	0.875	**CR HDL 8231 R**	**CR HDL 8231 V**
	565,02	*22,22*		
	22.250	0.875	**CR HDL 4240 R**	**CR HDL 4240 V**
	565,15	*22,22*		
	22.375	0.750	**CR HDL 4241 R**	**CR HDL 4241 V**
	568,32	*19,05*		
	22.500	0.875	**CR HDL 8770 R**	**CR HDL 8770 V**
	571,50	*22,22*		
20.438	22.500	0.812	**CR HDL 4242 R**	**CR HDL 4242 V**
519,12	*571,50*	*20,62*		
20.500	22.000	0.750	**CR HDL 4619 R**	**CR HDL 4619 V**
520,70	*558,80*	*19,05*		
	22.250	0.812	**CR HDL 4245 R**	**CR HDL 4245 V**
	565,15	*20,62*		
	22.500	0.875	**CR HDL 4246 R**	**CR HDL 4246 V**
	571,50	*22,22*		
	22.750	0.875	**CR HDL 6287 R**	**CR HDL 6287 V**
	577,85	*22,22*		
20.625	22.625	0.812	**CR HDL 9893 R**	**CR HDL 9893 V**
523,87	*574,67*	*20,62*		
20.750	22.750	0.875	**CR HDL 4248 R**	**CR HDL 4248 V**
527,05	*577,85*	*22,22*		
	23.000	0.812	**CR HDL 4243 R**	**CR HDL 4243 V**
	584,20	*20,62*		
20.875	22.875	0.875	**CR HDL 4250 R**	**CR HDL 4250 V**
530,22	*581,02*	*22,22*		
	23.228	0.875	**CR HDL 6417 R**	**CR HDL 6417 V**
	589,99	*22,22*		

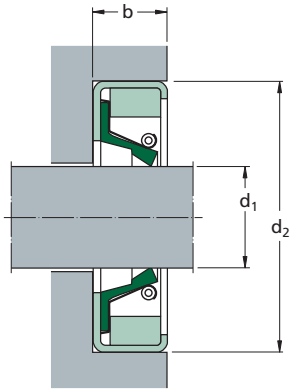
Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
21.000	22.500	0.750	**CR HDL 5259 R**	**CR HDL 5259 V**
533,40	*571,50*	*19,05*		
	22.750	0.750	**CR HDL 5312 R**	**CR HDL 5312 V**
	577,85	*19,05*		
	23.000	0.812	**CR HDL 6535 R**	**CR HDL 6535 V**
	584,20	*20,62*		
	23.000	0.875	**CR HDL 4253 R**	**CR HDL 4253 V**
	584,20	*22,22*		
	23.250	0.812	**CR HDL 4251 R**	**CR HDL 4251 V**
	590,55	*20,62*		
	23.500	0.875	**CR HDL 9772 R**	**CR HDL 9772 V**
	596,90	*22,22*		
21.250	23.000	0.750	**CR HDL 4255 R**	**CR HDL 4255 V**
539,75	*584,20*	*19,05*		
	23.250	0.875	**CR HDL 4254 R**	**CR HDL 4254 V**
	590,55	*22,22*		
21.437	23.187	0.750	**CR HDL 4256 R**	**CR HDL 4256 V**
544,49	*588,94*	*19,05*		
21.500	23.250	0.750	**CR HDL 4257 R**	**CR HDL 4257 V**
546,10	*590,55*	*19,05*		
	23.500	0.812	**CR HDL 7407 R**	**CR HDL 7407 V**
	596,90	*20,62*		
	23.500	0.875	**CR HDL 4259 R**	**CR HDL 4259 V**
	596,90	*22,22*		
	23.625	0.875	**CR HDL 6493 R**	**CR HDL 6493 V**
	600,07	*22,22*		
	24.000	0.875	**CR HDL 6779 R**	**CR HDL 6779 V**
	609,60	*22,22*		
21.625	23.375	0.750	**CR HDL 4261 R**	**CR HDL 4261 V**
549,27	*593,72*	*19,05*		
	23.625	0.875	**CR HDL 4263 R**	**CR HDL 4263 V**
	600,07	*22,22*		
21.750	23.250	0.750	**CR HDL 4621 R**	**CR HDL 4621 V**
552,45	*590,55*	*19,05*		
	23.750	0.875	**CR HDL 4265 R**	**CR HDL 4265 V**
	603,25	*22,22*		
	24.000	0.875	**CR HDL 5276 R**	**CR HDL 5276 V**
	609,60	*22,22*		
	24.250	0.875	**CR HDL 8675 R**	**CR HDL 8675 V**
	615,95	*22,22*		
	24.500	0.875	**CR HDL 4260 R**	**CR HDL 4260 V**
	622,30	*22,22*		
	24.750	0.875	**CR HDL 4262 R**	**CR HDL 4262 V**
	628,65	*22,22*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
22.000	23.500	0.750	**CR HDL 4269 R**	**CR HDL 4269 V**
558,80	*596,90*	*19,05*		
	24.000	0.875	**CR HDL 4270 R**	**CR HDL 4270 V**
	609,60	*22,22*		
	24.250	0.812	**CR HDL 9082 R**	**CR HDL 9082 V**
	615,95	*20,62*		
	24.250	0.875	**CR HDL 3763 R**	**CR HDL 3763 V**
	615,95	*22,22*		
	24.500	0.875	**CR HDL 6295 R**	**CR HDL 6295 V**
	622,30	*22,22*		
22.250	24.250	0.875	**CR HDL 3764 R**	**CR HDL 3764 V**
565,15	*615,95*	*22,22*		
22.375	24.250	0.750	**CR HDL 4268 R**	**CR HDL 4268 V**
568,32	*615,95*	*19,05*		
	24.375	0.750	**CR HDL 6999 R**	**CR HDL 6999 V**
	619,12	*19,05*		
	24.375	0.875	**CR HDL 2576 R**	**CR HDL 2576 V**
	619,12	*22,22*		
22.437	24.000	0.750	**CR HDL 4275 R**	**CR HDL 4275 V**
569,89	*609,60*	*19,05*		
	24.250	0.750	**CR HDL 4276 R**	**CR HDL 4276 V**
	615,95	*19,05*		
	24.437	0.750	**CR HDL 6480 R**	**CR HDL 6480 V**
	620,69	*19,05*		
	24.437	0.875	**CR HDL 1915 R**	**CR HDL 1915 V**
	620,69	*22,22*		
	24.500	0.750	**CR HDL 9840 R**	**CR HDL 9840 V**
	622,30	*19,05*		
22.500	24.000	0.750	**CR HDL 4271 R**	**CR HDL 4271 V**
571,50	*609,60*	*19,05*		
	24.250	0.750	**CR HDL 4272 R**	**CR HDL 4272 V**
	615,95	*19,05*		
	24.500	0.875	**CR HDL 4279 R**	**CR HDL 4279 V**
	622,30	*22,22*		
	24.750	0.875	**CR HDL 4273 R**	**CR HDL 4273 V**
	628,65	*22,22*		
	25.000	0.875	**CR HDL 4274 R**	**CR HDL 4274 V**
	635,00	*22,22*		
22.750	24.750	0.875	**CR HDL 4281 R**	**CR HDL 4281 V**
577,85	*628,65*	*22,22*		
	25.000	0.875	**CR HDL 6843 R**	**CR HDL 6843 V**
	635,00	*22,22*		

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
23.000	24.500	0.750	**CR HDL 4283 R**	**CR HDL 4283 V**
584,20	*622,30*	*19,05*		
	24.750	0.750	**CR HDL 5421 R**	**CR HDL 5421 V**
	628,65	*19,05*		
	25.000	0.875	**CR HDL 4284 R**	**CR HDL 4284 V**
	635,00	*22,22*		
	25.375	0.875	**CR HDL 4277 R**	**CR HDL 4277 V**
	644,52	*22,22*		
	25.500	0.875	**CR HDL 4285 R**	**CR HDL 4285 V**
	647,70	*22,22*		
23.250	25.000	0.750	**CR HDL 4286 R**	**CR HDL 4286 V**
590,55	*635,00*	*19,05*		
	25.250	0.750	**CR HDL 9371 R**	**CR HDL 9371 V**
	641,35	*19,05*		
	25.250	0.812	**CR HDL 6910 R**	**CR HDL 6910 V**
	641,35	*20,62*		
23.375	25.375	0.875	**CR HDL 4287 R**	**CR HDL 4287 V**
593,72	*644,52*	*22,22*		
23.500	24.681	0.591	**CR HDL 3033 R**	**CR HDL 3033 V**
596,90	*626,90*	*15,00*		
	25.250	0.750	**CR HDL 5547 R**	**CR HDL 5547 V**
	641,35	*19,05*		
	25.500	0.875	**CR HDL 4288 R**	**CR HDL 4288 V**
	647,70	*22,22*		
23.562	25.250	0.750	**CR HDL 4290 R**	**CR HDL 4290 V**
598,47	*641,35*	*19,05*		
	25.375	0.750	**CR HDL 4291 R**	**CR HDL 4291 V**
	644,52	*19,05*		
23.625	26.000	0.875	**CR HDL 4292 R**	**CR HDL 4292 V**
600,07	*660,40*	*22,22*		
23.750	25.250	1.000	**CR HDL 6239 R**	**CR HDL 6239 V**
603,25	*641,35*	*25,40*		
23.875	26.000	0.875	**CR HDL 4293 R**	**CR HDL 4293 V**
606,42	*660,40*	*22,22*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).



Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
24.000	25.500	0.750	**CR HDL 4623 R**	**CR HDL 4623 V**
609,60	*647,70*	*19,05*		
	26.000	0.750	**CR HDL 9988 R**	**CR HDL 9988 V**
	660,40	*19,05*		
	26.000	0.812	**CR HDL 4295 R**	**CR HDL 4295 V**
	660,40	*20,62*		
	26.000	0.875	**CR HDL 4294 R**	**CR HDL 4294 V**
	660,40	*22,22*		
	26.250	0.875	**CR HDL 6293 R**	**CR HDL 6293 V**
	666,75	*22,22*		
	26.500	0.875	**CR HDL 4297 R**	**CR HDL 4297 V**
	673,10	*22,22*		
	27.000	0.875	**CR HDL 5644 R**	**CR HDL 5644 V**
	685,80	*22,22*		
24.250	26.250	0.875	**CR HDL 4301 R**	**CR HDL 4301 V**
615,95	*666,75*	*22,22*		
	26.250	1.000	**CR HDL 3770 R**	**CR HDL 3770 V**
	666,75	*25,40*		
24.437	26.000	0.750	**CR HDL 4302 R**	**CR HDL 4302 V**
620,69	*660,40*	*19,05*		
	26.437	0.750	**CR HDL 4304 R**	**CR HDL 4304 V**
	671,49	*19,05*		
	26.935	1.000	**CR HDL 9990 R**	**CR HDL 9990 V**
	684,15	*25,40*		
24.500	26.500	0.875	**CR HDL 4305 R**	**CR HDL 4305 V**
622,30	*673,10*	*22,22*		
25.000	26.500	0.750	**CR HDL 4308 R**	**CR HDL 4308 V**
635,00	*673,10*	*19,05*		
	27.000	0.875	**CR HDL 3774 R**	**CR HDL 3774 V**
	685,80	*22,22*		
	27.000	1.000	**CR HDL 4309 R**	**CR HDL 4309 V**
	685,80	*25,40*		
	27.250	0.875	**CR HDL 6421 R**	**CR HDL 6421 V**
	692,15	*22,22*		
	27.482	0.875	**CR HDL 5997 R**	**CR HDL 5997 V**
	698,05	*22,22*		
25.187	26.875	0.750	**CR HDL 4311 R**	**CR HDL 4311 V**
639,74	*682,62*	*19,05*		
	26.937	0.750	**CR HDL 5994 R**	**CR HDL 5994 V**
	684,19	*19,05*		
25.250	27.250	0.750	**CR HDL 4299 R**	**CR HDL 4299 V**
641,35	*692,15*	*19,05*		

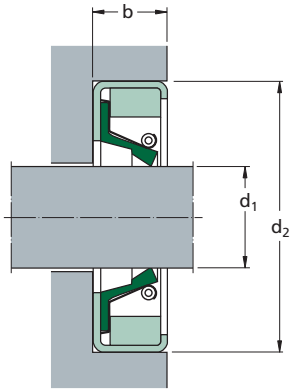
Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
25.500	26.750	0.750	**CR HDL 3022 R**	**CR HDL 3022 V**
647,70	*679,45*	*19,05*		
	27.000	0.875	**CR HDL 4300 R**	**CR HDL 4300 V**
	685,80	*22,22*		
	27.500	0.875	**CR HDL 4318 R**	**CR HDL 4318 V**
	698,50	*22,22*		
25.750	27.500	0.750	**CR HDL 6998 R**	**CR HDL 6998 V**
654,05	*698,50*	*19,05*		
25.875	28.000	0.875	**CR HDL 4303 R**	**CR HDL 4303 V**
657,22	*711,20*	*22,22*		
25.988	27.625	0.750	**CR HDL 4306 R**	**CR HDL 4306 V**
660,09	*701,67*	*19,05*		
26.000	27.625	0.750	**CR HDL 5921 R**	**CR HDL 5921 V**
660,40	*701,67*	*19,05*		
	28.000	0.875	**CR HDL 4325 R**	**CR HDL 4325 V**
	711,20	*22,22*		
	28.125	0.875	**CR HDL 9402 R**	**CR HDL 9402 V**
	714,37	*22,22*		
	28.500	0.875	**CR HDL 4794 R**	**CR HDL 4794 V**
	723,90	*22,22*		
26.125	27.625	0.750	**CR HDL 4329 R**	**CR HDL 4329 V**
663,57	*701,67*	*19,05*		
	28.125	0.875	**CR HDL 4330 R**	**CR HDL 4330 V**
	714,37	*22,22*		
26.375	28.188	0.875	**CR HDL 4307 R**	**CR HDL 4307 V**
669,92	*715,97*	*22,22*		
	28.250	0.875	**CR HDL 4312 R**	**CR HDL 4312 V**
	717,55	*22,22*		
26.500	28.000	0.750	**CR HDL 4533 R**	**CR HDL 4533 V**
673,10	*711,20*	*19,05*		
	28.500	0.875	**CR HDL 4313 R**	**CR HDL 4313 V**
	723,90	*22,22*		
27.000	29.000	0.875	**CR HDL 4333 R**	**CR HDL 4333 V**
685,80	*736,60*	*22,22*		
	29.500	0.875	**CR HDL 8031 R**	**CR HDL 8031 V**
	749,30	*22,22*		
	30.000	0.875	**CR HDL 9984 R**	**CR HDL 9984 V**
	762,00	*22,22*		
27.250	29.250	0.875	**CR HDL 4626 R**	**CR HDL 4626 V**
692,15	*742,95*	*22,22*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
27.500	29.000	0.750	**CR HDL 4315 R**	**CR HDL 4315 V**
698,50	*736,60*	*19,05*		
	29.500	0.875	**CR HDL 4339 R**	**CR HDL 4339 V**
	749,30	*22,22*		
27.625	29.625	0.750	**CR HDL 5001 R**	**CR HDL 5001 V**
701,67	*752,47*	*19,05*		
	29.500	0.750	**CR HDL 4336 R**	**CR HDL 4336 V**
	749,30	*19,05*		
27.875	29.812	0.875	**CR HDL 4341 R**	**CR HDL 4341 V**
708,02	*757,22*	*22,22*		
28.000	29.500	0.750	**CR HDL 4343 R**	**CR HDL 4343 V**
711,20	*749,30*	*19,05*		
	29.625	0.750	**CR HDL 7828 R**	**CR HDL 7828 V**
	752,47	*19,05*		
	29.813	0.750	**CR HDL 4316 R**	**CR HDL 4316 V**
	757,25	*19,05*		
	30.000	0.875	**CR HDL 4344 R**	**CR HDL 4344 V**
	762,00	*22,22*		
	30.250	0.812	**CR HDL 4320 R**	**CR HDL 4320 V**
	768,35	*20,62*		
	30.500	0.875	**CR HDL 3878 R**	**CR HDL 3878 V**
	774,70	*22,22*		
	31.000	0.875	**CR HDL 5998 R**	**CR HDL 5998 V**
	787,40	*22,22*		
28.438	31.000	0.875	**CR HDL 4321 R**	**CR HDL 4321 V**
722,32	*787,40*	*22,22*		
28.500	30.500	0.875	**CR HDL 4346 R**	**CR HDL 4346 V**
723,90	*774,70*	*22,22*		
	31.000	0.875	**CR HDL 4534 R**	**CR HDL 4534 V**
	787,40	*22,22*		
28.750	30.750	0.875	**CR HDL 4628 R**	**CR HDL 4628 V**
730,25	*781,05*	*22,22*		
29.000	30.500	0.750	**CR HDL 4347 R**	**CR HDL 4347 V**
736,60	*774,70*	*19,05*		
	31.000	0.875	**CR HDL 4348 R**	**CR HDL 4348 V**
	787,40	*22,22*		
	31.500	1.000	**CR HDL 8793 R**	**CR HDL 8793 V**
	800,10	*25,40*		
	32.000	0.875	**CR HDL 4537 R**	**CR HDL 4537 V**
	812,80	*22,22*		

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
29.500	31.500	0.875	**CR HDL 4352 R**	**CR HDL 4352 V**
749,30	*800,10*	*22,22*		
	31.500	1.000	**CR HDL 3791 R**	**CR HDL 3791 V**
	800,10	*25,40*		
	32.000	0.875	**CR HDL 4538 R**	**CR HDL 4538 V**
	812,80	*22,22*		
	32.250	0.875	**CR HDL 4322 R**	**CR HDL 4322 V**
	819,15	*22,22*		
	32.500	0.875	**CR HDL 4539 R**	**CR HDL 4539 V**
	825,50	*22,22*		
30.000	31.500	0.750	**CR HDL 4356 R**	**CR HDL 4356 V**
762,00	*800,10*	*19,05*		
	31.616	0.750	**CR HDL 5000 R**	**CR HDL 5000 V**
	803,04	*19,05*		
	31.625	0.750	**CR HDL 7870 R**	**CR HDL 7870 V**
	803,27	*19,05*		
	32.000	0.875	**CR HDL 4357 R**	**CR HDL 4357 V**
	812,80	*22,22*		
	32.250	0.875	**CR HDL 4323 R**	**CR HDL 4323 V**
	819,15	*22,22*		
	32.500	0.875	**CR HDL 4358 R**	**CR HDL 4358 V**
	825,50	*22,22*		
	32.500	1.000	**CR HDL 3797 R**	**CR HDL 3797 V**
	825,50	*25,40*		
	32.750	0.875	**CR HDL 4359 R**	**CR HDL 4359 V**
	831,85	*22,22*		
	33.000	0.875	**CR HDL 4360 R**	**CR HDL 4360 V**
	838,20	*22,22*		
30.250	32.500	0.875	**CR HDL 4906 R**	**CR HDL 4906 V**
768,35	*825,50*	*22,22*		
30.312	32.375	0.875	**CR HDL 4361 R**	**CR HDL 4361 V**
769,92	*822,32*	*22,22*		
30.500	32.500	0.875	**CR HDL 4365 R**	**CR HDL 4365 V**
774,70	*825,50*	*22,22*		
	33.000	0.875	**CR HDL 8577 R**	**CR HDL 8577 V**
	838,20	*22,22*		
	33.500	0.875	**CR HDL 8230 R**	**CR HDL 8230 V**
	850,90	*22,22*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).



Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
31.000	32.500	0.750	**CR HDL 5739 R**	**CR HDL 5739 V**
787,40	*825,50*	*19,05*		
	33.000	0.875	**CR HDL 4367 R**	**CR HDL 4367 V**
	838,20	*22,22*		
	33.500	0.875	**CR HDL 4540 R**	**CR HDL 4540 V**
	850,90	*22,22*		
	34.000	0.875	**CR HDL 4541 R**	**CR HDL 4541 V**
	863,60	*22,22*		
31.250	32.750	0.750	**CR HDL 4631 R**	**CR HDL 4631 V**
793,75	*831,85*	*19,05*		
	33.250	0.750	**CR HDL 5033 R**	**CR HDL 5033 V**
	844,55	*19,05*		
31.750	33.750	0.875	**CR HDL 5016 R**	**CR HDL 5016 V**
806,45	*857,25*	*22,22*		
32.000	33.500	0.750	**CR HDL 3023 R**	**CR HDL 3023 V**
812,80	*850,90*	*19,05*		
	34.000	0.875	**CR HDL 4632 R**	**CR HDL 4632 V**
	863,60	*22,22*		
	34.500	0.875	**CR HDL 8407 R**	**CR HDL 8407 V**
	876,30	*22,22*		
32.125	34.125	0.875	**CR HDL 4371 R**	**CR HDL 4371 V**
815,97	*866,77*	*22,22*		
	34.625	0.875	**CR HDL 7537 R**	**CR HDL 7537 V**
	879,47	*22,22*		
	34.125	0.750	**CR HDL 3002 R**	**CR HDL 3002 V**
	866,77	*19,05*		
32.312	34.500	0.875	**CR HDL 4373 R**	**CR HDL 4373 V**
820,72	*876,30*	*22,22*		
32.500	34.500	0.875	**CR HDL 4377 R**	**CR HDL 4377 V**
825,50	*876,30*	*22,22*		
32.750	34.250	0.750	**CR HDL 4542 R**	**CR HDL 4542 V**
831,85	*869,95*	*19,05*		
	35.000	0.875	**CR HDL 8289 R**	**CR HDL 8289 V**
	889,00	*22,22*		

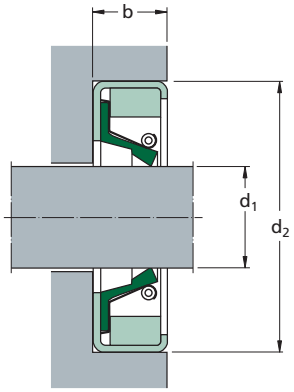
Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
33.000	34.500	0.750	**CR HDL 4381 R**	**CR HDL 4381 V**
838,20	*876,30*	*19,05*		
	34.625	0.750	**CR HDL 6787 R**	**CR HDL 6787 V**
	879,47	*19,05*		
	34.650	0.787	**CR HDL 4634 R**	**CR HDL 4634 V**
	880,10	*20,00*		
	34.687	0.750	**CR HDL 6152 R**	**CR HDL 6152 V**
	881,04	*19,05*		
	35.000	0.875	**CR HDL 4382 R**	**CR HDL 4382 V**
	889,00	*22,22*		
	35.250	0.875	**CR HDL 4326 R**	**CR HDL 4326 V**
	895,35	*22,22*		
	35.500	0.875	**CR HDL 4544 R**	**CR HDL 4544 V**
	901,70	*22,22*		
33.500	35.000	0.875	**CR HDL 9504 R**	**CR HDL 9504 V**
850,90	*889,00*	*22,22*		
	35.500	0.875	**CR HDL 4389 R**	**CR HDL 4389 V**
	901,70	*22,22*		
	35.625	0.875	**CR HDL 4548 R**	**CR HDL 4548 V**
	904,87	*22,22*		
	35.625	0.875	**CR HDL 4327 R**	**CR HDL 4327 V**
	904,87	*22,22*		
	35.750	0.875	**CR HDL 4549 R**	**CR HDL 4549 V**
	908,05	*22,22*		
	36.000	0.875	**CR HDL 4550 R**	**CR HDL 4550 V**
	914,40	*22,22*		
	36.417	0.875	**CR HDL 4552 R**	**CR HDL 4552 V**
	924,99	*22,22*		
33.625	35.625	0.875	**CR HDL 4328 R**	**CR HDL 4328 V**
854,07	*904,87*	*22,22*		
34.000	35.625	0.875	**CR HDL 4331 R**	**CR HDL 4331 V**
863,60	*904,87*	*22,22*		
	36.000	0.875	**CR HDL 4399 R**	**CR HDL 4399 V**
	914,40	*22,22*		
	36.500	0.875	**CR HDL 4400 R**	**CR HDL 4400 V**
	927,10	*22,22*		
	37.000	0.875	**CR HDL 4332 R**	**CR HDL 4332 V**
	939,80	*22,22*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
34.250	36.000	0.750	**CR HDL 3017 R**	**CR HDL 3017 V**
869,95	*914,40*	*19,05*		
	36.250	0.875	**CR HDL 4401 R**	**CR HDL 4401 V**
	920,75	*22,22*		
	36.750	0.875	**CR HDL 4335 R**	**CR HDL 4335 V**
	933,45	*22,22*		
	37.500	0.875	**CR HDL 4338 R**	**CR HDL 4338 V**
	952,50	*22,22*		
34.500	36.000	0.750	**CR HDL 6908 R**	**CR HDL 6908 V**
876,30	*914,40*	*19,05*		
	36.500	0.875	**CR HDL 4405 R**	**CR HDL 4405 V**
	927,10	*22,22*		
	36.500	1.000	**CR HDL 3021 R**	**CR HDL 3021 V**
	927,10	*25,40*		
	37.500	0.875	**CR HDL 4338 R**	**CR HDL 4338 V**
	952,50	*22,22*		
34.750	36.750	0.875	**CR HDL 3831 R**	**CR HDL 3831 V**
882,65	*933,45*	*22,22*		
35.000	37.000	0.875	**CR HDL 3835 R**	**CR HDL 3835 V**
889,00	*939,80*	*22,22*		
	37.500	0.875	**CR HDL 3836 R**	**CR HDL 3836 V**
	952,50	*22,22*		
	38.000	0.875	**CR HDL 3837 R**	**CR HDL 3837 V**
	965,20	*22,22*		
35.250	37.250	0.875	**CR HDL 4416 R**	**CR HDL 4416 V**
895,35	*946,15*	*22,22*		
	38.250	0.812	**CR HDL 4647 R**	**CR HDL 4647 V**
	971,55	*20,62*		
35.375	37.375	0.875	**CR HDL 4417 R**	**CR HDL 4417 V**
898,52	*949,32*	*22,22*		
35.437	38.583	0.875	**CR HDL 9079 R**	**CR HDL 9079 V**
900,09	*980,00*	*22,22*		
35.496	37.996	0.984	**CR HDL 3001 R**	**CR HDL 3001 V**
901,60	*965,10*	*25,00*		
35.500	37.500	0.875	**CR HDL 4553 R**	**CR HDL 4553 V**
901,70	*952,50*	*22,22*		
35.827	38.077	0.687	**CR HDL 3003 R**	**CR HDL 3003 V**
910,00	*967,15*	*17,45*		

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in (*mm*)			–	
36.000	38.000	0.875	**CR HDL 4421 R**	**CR HDL 4421 V**
914,40	*965,20*	*22,22*		
	38.500	1.000	**CR HDL 9993 R**	**CR HDL 9993 V**
	977,90	*25,40*		
36.500	38.000	0.750	**CR HDL 4429 R**	**CR HDL 4429 V**
927,10	*965,20*	*19,05*		
	38.500	0.875	**CR HDL 4430 R**	**CR HDL 4430 V**
	977,90	*22,22*		
36.750	38.750	0.875	**CR HDL 4432 R**	**CR HDL 4432 V**
933,45	*984,25*	*22,22*		
	39.250	0.875	**CR HDL 7428 R**	**CR HDL 7428 V**
	996,95	*22,22*		
37.000	39.000	0.875	**CR HDL 4434 R**	**CR HDL 4434 V**
939,80	*990,60*	*22,22*		
37.250	39.250	0.875	**CR HDL 4436 R**	**CR HDL 4436 V**
946,15	*996,95*	*22,22*		
37.374	39.500	0.875	**CR HDL 4425 R**	**CR HDL 4425 V**
949,30	*1 003,30*	*22,22*		
37.437	39.500	0.875	**CR HDL 3847 R**	**CR HDL 3847 V**
950,89	*1 003,30*	*22,22*		
37.500	39.000	0.750	**CR HDL 9411 R**	**CR HDL 9411 V**
952,50	*990,60*	*19,05*		
	39.500	0.875	**CR HDL 4438 R**	**CR HDL 4438 V**
	1 003,30	*22,22*		
38.000	39.500	0.750	**CR HDL 3004 R**	**CR HDL 3004 V**
965,20	*1 003,30*	*19,05*		
	40.000	0.875	**CR HDL 4448 R**	**CR HDL 4448 V**
	1 016,00	*22,22*		
	41.000	0.875	**CR HDL 4340 R**	**CR HDL 4340 V**
	1 041,40	*22,22*		
38.250	40.250	0.875	**CR HDL 4454 R**	**CR HDL 4454 V**
971,55	*1 022,35*	*22,22*		
	40.750	0.875	**CR HDL 4567 R**	**CR HDL 4567 V**
	1 035,05	*22,22*		
	41.250	0.875	**CR HDL 4569 R**	**CR HDL 4569 V**
	1 047,75	*22,22*		
38.258	40.750	0.875	**CR HDL 4342 R**	**CR HDL 4342 V**
971,75	*1 035,05*	*22,22*		

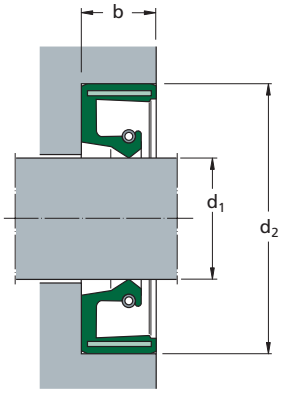
Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).



Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
38.500	41.000	0.875	**CR HDL 4349 R**	**CR HDL 4349 V**
977,90	*1 041,40*	*22,22*		
38.750	40.750	0.875	**CR HDL 4456 R**	**CR HDL 4456 V**
984,25	*1 035,05*	*22,22*		
	41.000	0.875	**CR HDL 4570 R**	**CR HDL 4570 V**
	1 041,40	*22,22*		
38.937	41.000	0.875	**CR HDL 4462 R**	**CR HDL 4462 V**
988,99	*1 041,40*	*22,22*		
39.000	41.000	0.875	**CR HDL 4465 R**	**CR HDL 4465 V**
990,60	*1 041,40*	*22,22*		
	41.500	0.875	**CR HDL 4350 R**	**CR HDL 4350 V**
	1 054,10	*22,22*		
	42.250	0.875	**CR HDL 4577 R**	**CR HDL 4577 V**
	1 073,15	*22,22*		
39.750	42.250	0.875	**CR HDL 7538 R**	**CR HDL 7538 V**
1 009,65	*1 073,15*	*22,22*		
40.000	42.000	0.875	**CR HDL 4467 R**	**CR HDL 4467 V**
1 016,00	*1 066,80*	*22,22*		
	42.500	0.875	**CR HDL 8791 R**	**CR HDL 8791 V**
	1 079,50	*22,22*		
	42.500	1.000	**CR HDL 8599 R**	**CR HDL 8599 V**
	1 079,50	*25,40*		
40.500	42.500	0.875	**CR HDL 4468 R**	**CR HDL 4468 V**
1 028,70	*1 079,50*	*22,22*		
	43.000	0.875	**CR HDL 7300 R**	**CR HDL 7300 V**
	1 092,20	*22,22*		
	43.020	0.875	**CR HDL 1964 R**	**CR HDL 1964 V**
	1 092,70	*22,22*		
41.500	43.500	0.875	**CR HDL 4635 R**	**CR HDL 4635 V**
1 054,10	*1 104,90*	*22,22*		
41.875	43.500	1.000	**CR HDL 8628 R**	**CR HDL 8628 V**
1 063,62	*1 104,90*	*25,40*		
42.248	44.248	1.000	**CR HDL 4470 R**	**CR HDL 4470 V**
1 073,10	*1 123,90*	*25,40*		

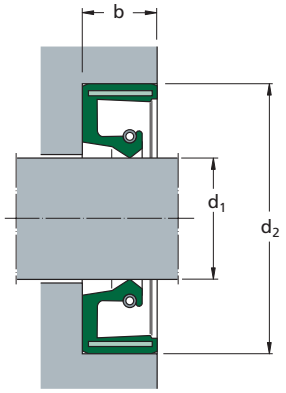
Housing dimensions shaft d_1	bore d_2	width b	Designation Lip material R	V
in (*mm*)			–	
42.500	44.250	0.875	**CR HDL 5555 R**	**CR HDL 5555 V**
1 079,50	*1 123,95*	*22,22*		
	45.000	0.875	**CR HDL 4473 R**	**CR HDL 4473 V**
	1 143,00	*22,22*		
	45.500	0.875	**CR HDL 6269 R**	**CR HDL 6269 V**
	1 155,70	*22,22*		
43.000	45.500	0.875	**CR HDL 7189 R**	**CR HDL 7189 V**
1 092,20	*1 155,70*	*22,22*		
	45.500	1.000	**CR HDL 9994 R**	**CR HDL 9994 V**
	1 155,70	*25,40*		
43.500	45.500	0.875	**CR HDL 4637 R**	**CR HDL 4637 V**
1 104,90	*1 155,70*	*22,22*		
43.750	45.750	0.875	**CR HDL 4638 R**	**CR HDL 4638 V**
1 111,25	*1 162,05*	*22,22*		
44.000	46.000	0.875	**CR HDL 7087 R**	**CR HDL 7087 V**
1 117,60	*1 168,40*	*22,22*		
	46.500	0.875	**CR HDL 4475 R**	**CR HDL 4475 V**
	1 181,10	*22,22*		
	46.500	1.000	**CR HDL 3024 R**	**CR HDL 3024 V**
	1 181,10	*25,40*		
44.500	46.000	0.750	**CR HDL 4563 R**	**CR HDL 4563 V**
1 130,30	*1 168,40*	*19,05*		
	46.625	1.000	**CR HDL 8903 R**	**CR HDL 8903 V**
	1 184,27	*25,40*		
46.004	47.500	0.750	**CR HDL 3006 R**	**CR HDL 3006 V**
1 168,50	*1 206,50*	*19,05*		
46.500	48.500	0.875	**CR HDL 4578 R**	**CR HDL 4578 V**
1 181,10	*1 231,90*	*22,22*		
46.850	48.819	0.875	**CR HDL 8317 R**	**CR HDL 8317 V**
1 189,99	*1 240,00*	*22,22*		
48.000	50.000	0.875	**CR HDL 8579 R**	**CR HDL 8579 V**
1 219,20	*1 270,00*	*22,22*		
48.250	50.250	0.875	**CR HDL 4639 R**	**CR HDL 4639 V**
1 225,55	*1 276,35*	*22,22*		
51.248	53.289	0.875	**CR HDL 6747 R**	**CR HDL 6747 V**
1 301,71	*1 353,55*	*22,22*		
51.250	53.300	0.875	**CR HDL 1914 R**	**CR HDL 1914 V**
1 301,75	*1 353,82*	*22,22*		

Type HDL available on request also with dust lip (HDLP Type) and with execution for high pressure (HDLHP Type).

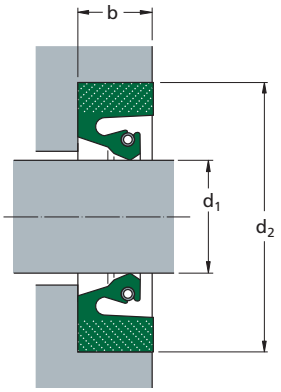


Housing dimensions shaft d_1	bore d_2	width b	Lip material	Designation
mm			–	
175	205	15	R	**CR 175×205×15 SBF R**
			V	**CR 175×205×15 SBF V**
230	260	15	R	**CR 230×260×15 SBF R**
			V	**CR 230×260×15 SBF V**
240	270	15	R	**CR 240×270×15 SBF R**
			V	**CR 240×270×15 SBF V**
240	280	16	R	**CR 240×280×16 SBF R**
			V	**CR 240×280×16 SBF V**
245	275	16	R	**CR 245×275×16 SBF R**
			V	**CR 245×275×16 SBF V**
260	290	16	R	**CR 260×290×16 SBF R**
			V	**CR 260×290×16 SBF V**
260	310	16	R	**CR 260×310×16 SBF R**
			V	**CR 260×310×16 SBF V**
270	235	16	R	**CR 270×235×16 SBF R**
			V	**CR 270×235×16 SBF V**
290	330	18	R	**CR 290×330×18 SBF R**
			V	**CR 290×330×18 SBF V**
290	334	20	R	**CR 290×334×20 SBF R**
			V	**CR 290×334×20 SBF V**
300	344	20	R	**CR 300×344×20 SBF R**
			V	**CR 300×344×20 SBF V**
316	360	20	R	**CR 316×360×20 SBF R**
			V	**CR 316×360×20 SBF V**
325	365	16	R	**CR 325×365×16 SBF R**
			V	**CR 325×365×16 SBF V**
340	380	20	R	**CR 340×380×20 SBF R**
			V	**CR 340×380×20 SBF V**
360	400	20	R	**CR 360×400×20 SBF R**
			V	**CR 360×400×20 SBF V**
385	430	25	R	**CR 385×430×25 SBF R**
			V	**CR 385×430×25 SBF V**
390	430	20	R	**CR 390×430×20 SBF R**
			V	**CR 390×430×20 SBF V**

Housing dimensions shaft d_1	bore d_2	width b	Lip material	Designation
mm			–	
400	440	20	R	**CR 400×440×20 SBF R**
			V	**CR 400×440×20 SBF V**
430	480	22	R	**CR 430×480×22 SBF R**
			V	**CR 430×480×22 SBF V**
440	490	25	R	**CR 440×490×25 SBF R**
			V	**CR 440×490×25 SBF V**
450	500	25	R	**CR 450×500×25 SBF R**
			V	**CR 450×500×25 SBF V**
900	960	27	R	**CR 900×960×27 SBF R**
			V	**CR 900×960×27 SBF V**

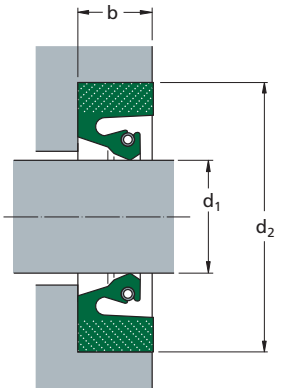


Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	V
in/(*mm*)			–	
11.000 *279,4*	12.500 *317,5*	0.625 *15,88*	**CR SBF 5809 R**	**CR SBF 5809 V**
20.500 *520,7*	22.500 *571,5*	0.875 *22,23*	**CR SBF 7083 R**	**CR SBF 7083 V**
21.500 *546,1*	23.469 *596,11*	0.875 *22,23*	**CR SBF 7175 R**	**CR SBF 7175 V**
23.000 *584,2*	24.500 *622,3*	0.750 *19,05*	**CR SBF 7270 R**	**CR SBF 7270 V**
27.500 *698,5*	29.500 *749,3*	1.000 *25,4*	**CR SBF 7406 R**	**CR SBF 7406 V**



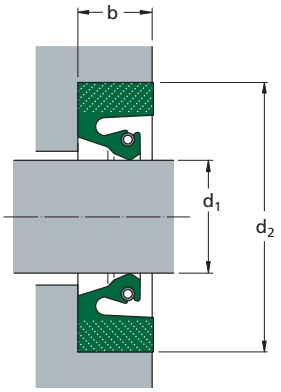
Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
40	60	10	**CR 40×60×10 HSF1 R** **CR 40×60×10 HSF1 V**	**CR 40×60×10 HSF5 R** **CR 40×60×10 HSF5 V**
55	80	12,2	**CR 55×80×12.2 HSF1 R** **CR 55×80×12.2 HSF1 V**	**CR 55×80×12.2 HSF5 R** **CR 55×80×12.2 HSF5 V**
60	80	10	**CR 60×80×10 HSF1 R** **CR 60×80×10 HSF1 V**	**CR 60×80×10 HSF5 R** **CR 60×80×10 HSF5 V**
70	102	12,5	**CR 70×102×12.5 HSF1 R** **CR 70×102×12.5 HSF1 V**	**CR 70×102×12.5 HSF5 R** **CR 70×102×12.5 HSF5 V**
80	100	8	**CR 80×100×8 HSF1 R** **CR 80×100×8 HSF1 V**	**CR 80×100×8 HSF5 R** **CR 80×100×8 HSF5 V**
	100	10	**CR 80×100×10 HSF1 R** **CR 80×100×10 HSF1 V**	**CR 80×100×10 HSF5 R** **CR 80×100×10 HSF5 V**
	112	12,5	**CR 80×112×12.5 HSF1 R** **CR 80×112×12.5 HSF1 V**	**CR 80×112×12.5 HSF5 R** **CR 80×112×12.5 HSF5 V**
84	100	8	**CR 84×100×8 HSF1 R** **CR 84×100×8 HSF1 V**	**CR 84×100×8 HSF5 R** **CR 84×100×8 HSF5 V**
85	101	8	**CR 85×101×8 HSF1 R** **CR 85×101×8 HSF1 V**	**CR 85×101×8 HSF5 R** **CR 85×101×8 HSF5 V**
	109	12	**CR 85×109×12 HSF1 R** **CR 85×109×12 HSF1 V**	**CR 85×109×12 HSF5 R** **CR 85×109×12 HSF5 V**
	120	12	**CR 85×120×12 HSF1 R** **CR 85×120×12 HSF1 V**	**CR 85×120×12 HSF5 R** **CR 85×120×12 HSF5 V**
90	110	12	**CR 90×110×12 HSF1 R** **CR 90×110×12 HSF1 V**	**CR 90×110×12 HSF5 R** **CR 90×110×12 HSF5 V**
	122	12,5	**CR 90×122×12.5 HSF1 R** **CR 90×122×12.5 HSF1 V**	**CR 90×122×12.5 HSF5 R** **CR 90×122×12.5 HSF5 V**
100	116	8	**CR 100×116×8 HSF1 R** **CR 100×116×8 HSF1 V**	**CR 100×116×8 HSF5 R** **CR 100×116×8 HSF5 V**
	125	10	**CR 100×125×10 HSF1 R** **CR 100×125×10 HSF1 V**	**CR 100×125×10 HSF5 R** **CR 100×125×10 HSF5 V**
	130	10	**CR 100×130×10 HSF1 R** **CR 100×130×10 HSF1 V**	**CR 100×130×10 HSF5 R** **CR 100×130×10 HSF5 V**
110	130	12	**CR 110×130×12 HSF1 R** **CR 110×130×12 HSF1 V**	**CR 110×130×12 HSF5 R** **CR 110×130×12 HSF5 V**
	140	13	**CR 110×140×13 HSF1 R** **CR 110×140×13 HSF1 V**	**CR 110×140×13 HSF5 R** **CR 110×140×13 HSF5 V**
120	150	13	**CR 120×150×13 HSF1 R** **CR 120×150×13 HSF1 V**	**CR 120×150×13 HSF5 R** **CR 120×150×13 HSF5 V**
	160	16	**CR 120×160×16 HSF1 R** **CR 120×160×16 HSF1 V**	**CR 120×160×16 HSF5 R** **CR 120×160×16 HSF5 V**

Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
125	155	12,5	**CR 125×155×12.5 HSF1 R**	**CR 125×155×12.5 HSF5 R**
			CR 125×155×12.5 HSF1 V	**CR 125×155×12.5 HSF5 V**
	157	12,5	**CR 125×157×12.5 HSF1 R**	**CR 125×157×12.5 HSF5 R**
			CR 125×157×12.5 HSF1 V	**CR 125×157×12.5 HSF5 V**
	160	12	**CR 125×160×12 HSF1 R**	**CR 125×160×12 HSF5 R**
			CR 125×160×12 HSF1 V	**CR 125×160×12 HSF5 V**
127	146,05	11,11	**CR 127×146.05×11.11 HSF1 R**	**CR 127×146.05×11.11 HSF5 R**
			CR 127×146.05×11.11 HSF1 V	**CR 127×146.05×11.11 HSF5 V**
	165	16	**CR 127×165×16 HSF1 R**	**CR 127×165×16 HSF5 R**
			CR 127×165×16 HSF1 V	**CR 127×165×16 HSF5 V**
135	160	12	**CR 135×160×12 HSF1 R**	**CR 135×160×12 HSF5 R**
			CR 135×160×12 HSF1 V	**CR 135×160×12 HSF5 V**
	170	16,5	**CR 135×170×16.5 HSF1 R**	**CR 135×170×16.5 HSF5 R**
			CR 135×170×16.5 HSF1 V	**CR 135×170×16.5 HSF5 V**
140	170	12	**CR 140×170×12 HSF1 R**	**CR 140×170×12 HSF5 R**
			CR 140×170×12 HSF1 V	**CR 140×170×12 HSF5 V**
	170	15	**CR 140×170×15 HSF1 R**	**CR 140×170×15 HSF5 R**
			CR 140×170×15 HSF1 V	**CR 140×170×15 HSF5 V**
145	180	14	**CR 145×180×14 HSF1 R**	**CR 145×180×14 HSF5 R**
			CR 145×180×14 HSF1 V	**CR 145×180×14 HSF5 V**
150	180	12	**CR 150×180×12 HSF1 R**	**CR 150×180×12 HSF5 R**
			CR 150×180×12 HSF1 V	**CR 150×180×12 HSF5 V**
160	190	15	**CR 160×190×15 HSF1 R**	**CR 160×190×15 HSF5 R**
			CR 160×190×15 HSF1 V	**CR 160×190×15 HSF5 V**
	190	16,5	**CR 160×190×16.5 HSF1 R**	**CR 160×190×16.5 HSF5 R**
			CR 160×190×16.5 HSF1 V	**CR 160×190×16.5 HSF5 V**
	200	10	**CR 160×200×10 HSF1 R**	**CR 160×200×10 HSF5 R**
			CR 160×200×10 HSF1 V	**CR 160×200×10 HSF5 V**
	200	16	**CR 160×200×16 HSF1 R**	**CR 160×200×16 HSF5 R**
			CR 160×200×16 HSF1 V	**CR 160×200×16 HSF5 V**
170	200	12	**CR 170×200×12 HSF1 R**	**CR 170×200×12 HSF5 R**
			CR 170×200×12 HSF1 V	**CR 170×200×12 HSF5 V**
	200	16	**CR 170×200×16 HSF1 R**	**CR 170×200×16 HSF5 R**
			CR 170×200×16 HSF1 V	**CR 170×200×16 HSF5 V**
	210	16	**CR 170×210×16 HSF1 R**	**CR 170×210×16 HSF5 R**
			CR 170×210×16 HSF1 V	**CR 170×210×16 HSF5 V**
	211	16	**CR 170×211×16 HSF1 R**	**CR 170×211×16 HSF5 R**
			CR 170×211×16 HSF1 V	**CR 170×211×16 HSF5 V**
175	200	15	**CR 175×200×15 HSF1 R**	**CR 175×200×15 HSF5 R**
			CR 175×200×15 HSF1 V	**CR 175×200×15 HSF5 V**



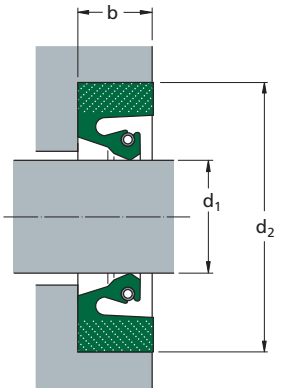
Housing dimensions shaft d_1	bore d_2	width b	Designation Split version Lip material R Lip material V	Solid version Lip material R Lip material V
mm			–	
180	200	15	**CR 180×200×15 HSF1 R**	**CR 180×200×15 HSF5 R**
			CR 180×200×15 HSF1 V	**CR 180×200×15 HSF5 V**
	210	15	**CR 180×210×15 HSF1 R**	**CR 180×210×15 HSF5 R**
			CR 180×210×15 HSF1 V	**CR 180×210×15 HSF5 V**
	222	16	**CR 180×222×16 HSF1 R**	**CR 180×222×16 HSF5 R**
			CR 180×222×16 HSF1 V	**CR 180×222×16 HSF5 V**
185	225	16	**CR 185×225×16 HSF1 R**	**CR 185×225×16 HSF5 R**
			CR 185×225×16 HSF1 V	**CR 185×225×16 HSF5 V**
190	150	16	**CR 190×150×16 HSF1 R**	**CR 190×150×16 HSF5 R**
			CR 190×150×16 HSF1 V	**CR 190×150×16 HSF5 V**
	220	15	**CR 190×220×15 HSF1 R**	**CR 190×220×15 HSF5 R**
			CR 190×220×15 HSF1 V	**CR 190×220×15 HSF5 V**
	225	18	**CR 190×225×18 HSF1 R**	**CR 190×225×18 HSF5 R**
			CR 190×225×18 HSF1 V	**CR 190×225×18 HSF5 V**
	230	10	**CR 190×230×10 HSF1 R**	**CR 190×230×10 HSF5 R**
			CR 190×230×10 HSF1 V	**CR 190×230×10 HSF5 V**
	230	16	**CR 190×230×16 HSF1 R**	**CR 190×230×16 HSF5 R**
			CR 190×230×16 HSF1 V	**CR 190×230×16 HSF5 V**
200	240	16	**CR 200×240×16 HSF1 R**	**CR 200×240×16 HSF5 R**
			CR 200×240×16 HSF1 V	**CR 200×240×16 HSF5 V**
	250	18	**CR 200×250×18 HSF1 R**	**CR 200×250×18 HSF5 R**
			CR 200×250×18 HSF1 V	**CR 200×250×18 HSF5 V**
210	240	12	**CR 210×240×12 HSF1 R**	**CR 210×240×12 HSF5 R**
			CR 210×240×12 HSF1 V	**CR 210×240×12 HSF5 V**
	245	18,2	**CR 210×245×18.2 HSF1 R**	**CR 210×245×18.2 HSF5 R**
			CR 210×245×18.2 HSF1 V	**CR 210×245×18.2 HSF5 V**
	250	16	**CR 210×250×16 HSF1 R**	**CR 210×250×16 HSF5 R**
			CR 210×250×16 HSF1 V	**CR 210×250×16 HSF5 V**
215	248	15	**CR 215×248×15 HSF1 R**	**CR 215×248×15 HSF5 R**
			CR 215×248×15 HSF1 V	**CR 215×248×15 HSF5 V**
	250	16	**CR 215×250×16 HSF1 R**	**CR 215×250×16 HSF5 R**
			CR 215×250×16 HSF1 V	**CR 215×250×16 HSF5 V**
220	180	16	**CR 220×180×16 HSF1 R**	**CR 220×180×16 HSF5 R**
			CR 220×180×16 HSF1 V	**CR 220×180×16 HSF5 V**
	255	18	**CR 220×255×18 HSF1 R**	**CR 220×255×18 HSF5 R**
			CR 220×255×18 HSF1 V	**CR 220×255×18 HSF5 V**
	260	16	**CR 220×260×16 HSF1 R**	**CR 220×260×16 HSF5 R**
			CR 220×260×16 HSF1 V	**CR 220×260×16 HSF5 V**
	260	16,5	**CR 220×260×16.5 HSF1 R**	**CR 220×260×16.5 HSF5 R**
			CR 220×260×16.5 HSF1 V	**CR 220×260×16.5 HSF5 V**
226	276	22,22	**CR 226×276×22.22 HSF1 R**	**CR 226×276×22.22 HSF5 R**
			CR 226×276×22.22 HSF1 V	**CR 226×276×22.22 HSF5 V**

Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
230	260	15	**CR 230×260×15 HSF1 R**	**CR 230×260×15 HSF5 R**
			CR 230×260×15 HSF1 V	**CR 230×260×15 HSF5 V**
	265	18	**CR 230×265×18 HSF1 R**	**CR 230×265×18 HSF5 R**
			CR 230×265×18 HSF1 V	**CR 230×265×18 HSF5 V**
	270	16	**CR 230×270×16 HSF1 R**	**CR 230×270×16 HSF5 R**
			CR 230×270×16 HSF1 V	**CR 230×270×16 HSF5 V**
235	265	15	**CR 235×265×15 HSF1 R**	**CR 235×265×15 HSF5 R**
			CR 235×265×15 HSF1 V	**CR 235×265×15 HSF5 V**
	275	20	**CR 235×275×20 HSF1 R**	**CR 235×275×20 HSF5 R**
			CR 235×275×20 HSF1 V	**CR 235×275×20 HSF5 V**
236	276	16	**CR 236×276×16 HSF1 R**	**CR 236×276×16 HSF5 R**
			CR 236×276×16 HSF1 V	**CR 236×276×16 HSF5 V**
240	275	18	**CR 240×275×18 HSF1 R**	**CR 240×275×18 HSF5 R**
			CR 240×275×18 HSF1 V	**CR 240×275×18 HSF5 V**
	280	16	**CR 240×280×16 HSF1 R**	**CR 240×280×16 HSF5 R**
			CR 240×280×16 HSF1 V	**CR 240×280×16 HSF5 V**
	280	18	**CR 240×280×18 HSF1 R**	**CR 240×280×18 HSF5 R**
			CR 240×280×18 HSF1 V	**CR 240×280×18 HSF5 V**
	290	16	**CR 240×290×16 HSF1 R**	**CR 240×290×16 HSF5 R**
			CR 240×290×16 HSF1 V	**CR 240×290×16 HSF5 V**
	290	25	**CR 240×290×25 HSF1 R**	**CR 240×290×25 HSF5 R**
			CR 240×290×25 HSF1 V	**CR 240×290×25 HSF5 V**
250	280	15	**CR 250×280×15 HSF1 R**	**CR 250×280×15 HSF5 R**
			CR 250×280×15 HSF1 V	**CR 250×280×15 HSF5 V**
	285	18	**CR 250×285×18 HSF1 R**	**CR 250×285×18 HSF5 R**
			CR 250×285×18 HSF1 V	**CR 250×285×18 HSF5 V**
	290	16,5	**CR 250×290×16.5 HSF1 R**	**CR 250×290×16.5 HSF5 R**
			CR 250×290×16.5 HSF1 V	**CR 250×290×16.5 HSF5 V**
	290	18	**CR 250×290×18 HSF1 R**	**CR 250×290×18 HSF5 R**
			CR 250×290×18 HSF1 V	**CR 250×290×18 HSF5 V**
260	290	16	**CR 260×290×16 HSF1 R**	**CR 260×290×16 HSF5 R**
			CR 260×290×16 HSF1 V	**CR 260×290×16 HSF5 V**
	300	18	**CR 260×300×18 HSF1 R**	**CR 260×300×18 HSF5 R**
			CR 260×300×18 HSF1 V	**CR 260×300×18 HSF5 V**
	304	20	**CR 260×304×20 HSF1 R**	**CR 260×304×20 HSF5 R**
			CR 260×304×20 HSF1 V	**CR 260×304×20 HSF5 V**
270	310	15	**CR 270×310×15 HSF1 R**	**CR 270×310×15 HSF5 R**
			CR 270×310×15 HSF1 V	**CR 270×310×15 HSF5 V**
	314	20	**CR 270×314×20 HSF1 R**	**CR 270×314×20 HSF5 R**
			CR 270×314×20 HSF1 V	**CR 270×314×20 HSF5 V**
275	315	20	**CR 275×315×20 HSF1 R**	**CR 275×315×20 HSF5 R**
			CR 275×315×20 HSF1 V	**CR 275×315×20 HSF5 V**



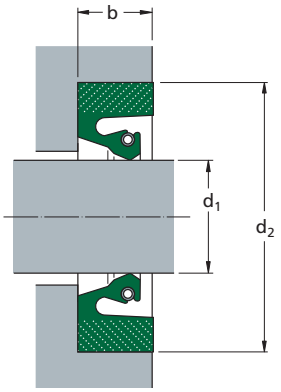
Housing dimensions shaft d_1	bore d_2	width b	Designation Split version Lip material R Lip material V	Solid version Lip material R Lip material V
mm			–	
280	320	16	**CR 280×320×16 HSF1 R**	**CR 280×320×16 HSF5 R**
			CR 280×320×16 HSF1 V	**CR 280×320×16 HSF5 V**
	320	18	**CR 280×320×18 HSF1 R**	**CR 280×320×18 HSF5 R**
			CR 280×320×18 HSF1 V	**CR 280×320×18 HSF5 V**
	320	20	**CR 280×320×20 HSF1 R**	**CR 280×320×20 HSF5 R**
			CR 280×320×20 HSF1 V	**CR 280×320×20 HSF5 V**
	320	24	**CR 280×320×24 HSF1 R**	**CR 280×320×24 HSF5 R**
			CR 280×320×24 HSF1 V	**CR 280×320×24 HSF5 V**
	324	20	**CR 280×324×20 HSF1 R**	**CR 280×324×20 HSF5 R**
			CR 280×324×20 HSF1 V	**CR 280×324×20 HSF5 V**
	350	16	**CR 280×350×16 HSF1 R**	**CR 280×350×16 HSF5 R**
			CR 280×350×16 HSF1 V	**CR 280×350×16 HSF5 V**
285	310	15	**CR 285×310×15 HSF1 R**	**CR 285×310×15 HSF5 R**
			CR 285×310×15 HSF1 V	**CR 285×310×15 HSF5 V**
289	327	19	**CR 289×327×19 HSF1 R**	**CR 289×327×19 HSF5 R**
			CR 289×327×19 HSF1 V	**CR 289×327×19 HSF5 V**
290	330	20	**CR 290×330×20 HSF1 R**	**CR 290×330×20 HSF5 R**
			CR 290×330×20 HSF1 V	**CR 290×330×20 HSF5 V**
	330	20,3	**CR 290×330×20.3 HSF1 R**	**CR 290×330×20.3 HSF5 R**
			CR 290×330×20.3 HSF1 V	**CR 290×330×20.3 HSF5 V**
	334	20	**CR 290×334×20 HSF1 R**	**CR 290×334×20 HSF5 R**
			CR 290×334×20 HSF1 V	**CR 290×334×20 HSF5 V**
292	330	15,87	**CR 292×330×15.87 HSF1 R**	**CR 292×330×15.87 HSF5 R**
			CR 292×330×15.87 HSF1 V	**CR 292×330×15.87 HSF5 V**
300	340	16,5	**CR 300×340×16.5 HSF1 R**	**CR 300×340×16.5 HSF5 R**
			CR 300×340×16.5 HSF1 V	**CR 300×340×16.5 HSF5 V**
	340	18	**CR 300×340×18 HSF1 R**	**CR 300×340×18 HSF5 R**
			CR 300×340×18 HSF1 V	**CR 300×340×18 HSF5 V**
	340	20	**CR 300×340×20 HSF1 R**	**CR 300×340×20 HSF5 R**
			CR 300×340×20 HSF1 V	**CR 300×340×20 HSF5 V**
	344	20	**CR 300×344×20 HSF1 R**	**CR 300×344×20 HSF5 R**
			CR 300×344×20 HSF1 V	**CR 300×344×20 HSF5 V**
304	348	20	**CR 304×348×20 HSF1 R**	**CR 304×348×20 HSF5 R**
			CR 304×348×20 HSF1 V	**CR 304×348×20 HSF5 V**
308	352	20	**CR 308×352×20 HSF1 R**	**CR 308×352×20 HSF5 R**
			CR 308×352×20 HSF1 V	**CR 308×352×20 HSF5 V**

Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
310	345	18	**CR 310×345×18 HSF1 R**	**CR 310×345×18 HSF5 R**
			CR 310×345×18 HSF1 V	**CR 310×345×18 HSF5 V**
	354	20	**CR 310×354×20 HSF1 R**	**CR 310×354×20 HSF5 R**
			CR 310×354×20 HSF1 V	**CR 310×354×20 HSF5 V**
	354	20,5	**CR 310×354×20.5 HSF1 R**	**CR 310×354×20.5 HSF5 R**
			CR 310×354×20.5 HSF1 V	**CR 310×354×20.5 HSF5 V**
	360	22	**CR 310×360×22 HSF1 R**	**CR 310×360×22 HSF5 R**
			CR 310×360×22 HSF1 V	**CR 310×360×22 HSF5 V**
311	345	18,3	**CR 311×345×18.3 HSF1 R**	**CR 311×345×18.3 HSF5 R**
			CR 311×345×18.3 HSF1 V	**CR 311×345×18.3 HSF5 V**
314	355	20	**CR 314×355×20 HSF1 R**	**CR 314×355×20 HSF5 R**
			CR 314×355×20 HSF1 V	**CR 314×355×20 HSF5 V**
316	360	20	**CR 316×360×20 HSF1 R**	**CR 316×360×20 HSF5 R**
			CR 316×360×20 HSF1 V	**CR 316×360×20 HSF5 V**
320	350	15	**CR 320×350×15 HSF1 R**	**CR 320×350×15 HSF5 R**
			CR 320×350×15 HSF1 V	**CR 320×350×15 HSF5 V**
	350	15,4	**CR 320×350×15.4 HSF1 R**	**CR 320×350×15.4 HSF5 R**
			CR 320×350×15.4 HSF1 V	**CR 320×350×15.4 HSF5 V**
	360	18	**CR 320×360×18 HSF1 R**	**CR 320×360×18 HSF5 R**
			CR 320×360×18 HSF1 V	**CR 320×360×18 HSF5 V**
	360	20	**CR 320×360×20 HSF1 R**	**CR 320×360×20 HSF5 R**
			CR 320×360×20 HSF1 V	**CR 320×360×20 HSF5 V**
328	372	20,2	**CR 328×372×20.2 HSF1 R**	**CR 328×372×20.2 HSF5 R**
			CR 328×372×20.2 HSF1 V	**CR 328×372×20.2 HSF5 V**
330	370	18	**CR 330×370×18 HSF1 R**	**CR 330×370×18 HSF5 R**
			CR 330×370×18 HSF1 V	**CR 330×370×18 HSF5 V**
	370	20	**CR 330×370×20 HSF1 R**	**CR 330×370×20 HSF5 R**
			CR 330×370×20 HSF1 V	**CR 330×370×20 HSF5 V**
	374	20	**CR 330×374×20 HSF1 R**	**CR 330×374×20 HSF5 R**
			CR 330×374×20 HSF1 V	**CR 330×374×20 HSF5 V**
	380,8	20,62	**CR 330×380.8×20.62 HSF1 R**	**CR 330×380.8×20.62 HSF5 R**
			CR 330×380.8×20.62 HSF1 V	**CR 330×380.8×20.62 HSF5 V**
335	373	19	**CR 335×373×19 HSF1 R**	**CR 335×373×19 HSF5 R**
			CR 335×373×19 HSF1 V	**CR 335×373×19 HSF5 V**
340	380	16	**CR 340×380×16 HSF1 R**	**CR 340×380×16 HSF5 R**
			CR 340×380×16 HSF1 V	**CR 340×380×16 HSF5 V**
	380	18	**CR 340×380×18 HSF1 R**	**CR 340×380×18 HSF5 R**
			CR 340×380×18 HSF1 V	**CR 340×380×18 HSF5 V**
	380	20	**CR 340×380×20 HSF1 R**	**CR 340×380×20 HSF5 R**
			CR 340×380×20 HSF1 V	**CR 340×380×20 HSF5 V**
	384	20	**CR 340×384×20 HSF1 R**	**CR 340×384×20 HSF5 R**
			CR 340×384×20 HSF1 V	**CR 340×384×20 HSF5 V**



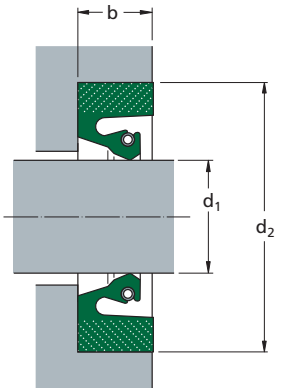
Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
350	380	17,7	**CR 350×380×17.7 HSF1 R**	**CR 350×380×17.7 HSF5 R**
			CR 350×380×17.7 HSF1 V	**CR 350×380×17.7 HSF5 V**
	390	20	**CR 350×390×20 HSF1 R**	**CR 350×390×20 HSF5 R**
			CR 350×390×20 HSF1 V	**CR 350×390×20 HSF5 V**
	394	20	**CR 350×394×20 HSF1 R**	**CR 350×394×20 HSF5 R**
			CR 350×394×20 HSF1 V	**CR 350×394×20 HSF5 V**
360	404	20	**CR 360×404×20 HSF1 R**	**CR 360×404×20 HSF5 R**
			CR 360×404×20 HSF1 V	**CR 360×404×20 HSF5 V**
	410	20	**CR 360×410×20 HSF1 R**	**CR 360×410×20 HSF5 R**
			CR 360×410×20 HSF1 V	**CR 360×410×20 HSF5 V**
362	400	20	**CR 362×400×20 HSF1 R**	**CR 362×400×20 HSF5 R**
			CR 362×400×20 HSF1 V	**CR 362×400×20 HSF5 V**
	406	19,8	**CR 362×406×19.8 HSF1 R**	**CR 362×406×19.8 HSF5 R**
			CR 362×406×19.8 HSF1 V	**CR 362×406×19.8 HSF5 V**
	406	22	**CR 362×406×22 HSF1 R**	**CR 362×406×22 HSF5 R**
			CR 362×406×22 HSF1 V	**CR 362×406×22 HSF5 V**
370	410	20	**CR 370×410×20 HSF1 R**	**CR 370×410×20 HSF5 R**
			CR 370×410×20 HSF1 V	**CR 370×410×20 HSF5 V**
	414	20	**CR 370×414×20 HSF1 R**	**CR 370×414×20 HSF5 R**
			CR 370×414×20 HSF1 V	**CR 370×414×20 HSF5 V**
380	420	20	**CR 380×420×20 HSF1 R**	**CR 380×420×20 HSF5 R**
			CR 380×420×20 HSF1 V	**CR 380×420×20 HSF5 V**
387	431	22,5	**CR 387×431×22.5 HSF1 R**	**CR 387×431×22.5 HSF5 R**
			CR 387×431×22.5 HSF1 V	**CR 387×431×22.5 HSF5 V**
	438	25,4	**CR 387×438×25.4 HSF1 R**	**CR 387×438×25.4 HSF5 R**
			CR 387×438×25.4 HSF1 V	**CR 387×438×25.4 HSF5 V**
390	430	20	**CR 390×430×20 HSF1 R**	**CR 390×430×20 HSF5 R**
			CR 390×430×20 HSF1 V	**CR 390×430×20 HSF5 V**
395	439	20	**CR 395×439×20 HSF1 R**	**CR 395×439×20 HSF5 R**
			CR 395×439×20 HSF1 V	**CR 395×439×20 HSF5 V**
	439	20,5	**CR 395×439×20.5 HSF1 R**	**CR 395×439×20.5 HSF5 R**
			CR 395×439×20.5 HSF1 V	**CR 395×439×20.5 HSF5 V**
400	440	20	**CR 400×440×20 HSF1 R**	**CR 400×440×20 HSF5 R**
			CR 400×440×20 HSF1 V	**CR 400×440×20 HSF5 V**
	444	20	**CR 400×444×20 HSF1 R**	**CR 400×444×20 HSF5 R**
			CR 400×444×20 HSF1 V	**CR 400×444×20 HSF5 V**
	450	22	**CR 400×450×22 HSF1 R**	**CR 400×450×22 HSF5 R**
			CR 400×450×22 HSF1 V	**CR 400×450×22 HSF5 V**

Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
420	460	20	**CR 420×460×20 HSF1 R**	**CR 420×460×20 HSF5 R**
			CR 420×460×20 HSF1 V	**CR 420×460×20 HSF5 V**
	470	22	**CR 420×470×22 HSF1 R**	**CR 420×470×22 HSF5 R**
			CR 420×470×22 HSF1 V	**CR 420×470×22 HSF5 V**
	470	25	**CR 420×470×25 HSF1 R**	**CR 420×470×25 HSF5 R**
			CR 420×470×25 HSF1 V	**CR 420×470×25 HSF5 V**
430	480	25	**CR 430×480×25 HSF1 R**	**CR 430×480×25 HSF5 R**
			CR 430×480×25 HSF1 V	**CR 430×480×25 HSF5 V**
435	485	22	**CR 435×485×22 HSF1 R**	**CR 435×485×22 HSF5 R**
			CR 435×485×22 HSF1 V	**CR 435×485×22 HSF5 V**
438	476	24	**CR 438×476×24 HSF1 R**	**CR 438×476×24 HSF5 R**
			CR 438×476×24 HSF1 V	**CR 438×476×24 HSF5 V**
440	480	20	**CR 440×480×20 HSF1 R**	**CR 440×480×20 HSF5 R**
			CR 440×480×20 HSF1 V	**CR 440×480×20 HSF5 V**
	480	26	**CR 440×480×26 HSF1 R**	**CR 440×480×26 HSF5 R**
			CR 440×480×26 HSF1 V	**CR 440×480×26 HSF5 V**
	490	20	**CR 440×490×20 HSF1 R**	**CR 440×490×20 HSF5 R**
			CR 440×490×20 HSF1 V	**CR 440×490×20 HSF5 V**
	490	25	**CR 440×490×25 HSF1 R**	**CR 440×490×25 HSF5 R**
			CR 440×490×25 HSF1 V	**CR 440×490×25 HSF5 V**
446	486	16,5	**CR 446×486×16.5 HSF1 R**	**CR 446×486×16.5 HSF5 R**
			CR 446×486×16.5 HSF1 V	**CR 446×486×16.5 HSF5 V**
450	490	18	**CR 450×490×18 HSF1 R**	**CR 450×490×18 HSF5 R**
			CR 450×490×18 HSF1 V	**CR 450×490×18 HSF5 V**
	500	20	**CR 450×500×20 HSF1 R**	**CR 450×500×20 HSF5 R**
			CR 450×500×20 HSF1 V	**CR 450×500×20 HSF5 V**
	500	22	**CR 450×500×22 HSF1 R**	**CR 450×500×22 HSF5 R**
			CR 450×500×22 HSF1 V	**CR 450×500×22 HSF5 V**
	500	25	**CR 450×500×25 HSF1 R**	**CR 450×500×25 HSF5 R**
			CR 450×500×25 HSF1 V	**CR 450×500×25 HSF5 V**
460	510	22	**CR 460×510×22 HSF1 R**	**CR 460×510×22 HSF5 R**
			CR 460×510×22 HSF1 V	**CR 460×510×22 HSF5 V**
	510	25	**CR 460×510×25 HSF1 R**	**CR 460×510×25 HSF5 R**
			CR 460×510×25 HSF1 V	**CR 460×510×25 HSF5 V**
470	520	25	**CR 470×520×25 HSF1 R**	**CR 470×520×25 HSF5 R**
			CR 470×520×25 HSF1 V	**CR 470×520×25 HSF5 V**



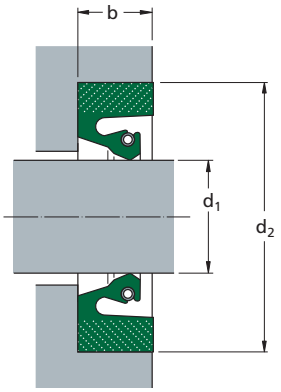
Housing dimensions shaft d_1	bore d_2	width b	Designation Split version Lip material R Lip material V	Solid version Lip material R Lip material V
mm			–	
480	520	18	**CR 480×520×18 HSF1 R**	**CR 480×520×18 HSF5 R**
			CR 480×520×18 HSF1 V	**CR 480×520×18 HSF5 V**
	520	20	**CR 480×520×20 HSF1 R**	**CR 480×520×20 HSF5 R**
			CR 480×520×20 HSF1 V	**CR 480×520×20 HSF5 V**
	530	22	**CR 480×530×22 HSF1 R**	**CR 480×530×22 HSF5 R**
			CR 480×530×22 HSF1 V	**CR 480×530×22 HSF5 V**
	530	25	**CR 480×530×25 HSF1 R**	**CR 480×530×25 HSF5 R**
			CR 480×530×25 HSF1 V	**CR 480×530×25 HSF5 V**
	550	25	**CR 480×550×25 HSF1 R**	**CR 480×550×25 HSF5 R**
			CR 480×550×25 HSF1 V	**CR 480×550×25 HSF5 V**
495	545	22	**CR 495×545×22 HSF1 R**	**CR 495×545×22 HSF5 R**
			CR 495×545×22 HSF1 V	**CR 495×545×22 HSF5 V**
500	540	10	**CR 500×540×10 HSF1 R**	**CR 500×540×10 HSF5 R**
			CR 500×540×10 HSF1 V	**CR 500×540×10 HSF5 V**
	540	20	**CR 500×540×20 HSF1 R**	**CR 500×540×20 HSF5 R**
			CR 500×540×20 HSF1 V	**CR 500×540×20 HSF5 V**
	550	20	**CR 500×550×20 HSF1 R**	**CR 500×550×20 HSF5 R**
			CR 500×550×20 HSF1 V	**CR 500×550×20 HSF5 V**
	564	25	**CR 500×564×25 HSF1 R**	**CR 500×564×25 HSF5 R**
			CR 500×564×25 HSF1 V	**CR 500×564×25 HSF5 V**
520	560	18	**CR 520×560×18 HSF1 R**	**CR 520×560×18 HSF5 R**
			CR 520×560×18 HSF1 V	**CR 520×560×18 HSF5 V**
	560	20	**CR 520×560×20 HSF1 R**	**CR 520×560×20 HSF5 R**
			CR 520×560×20 HSF1 V	**CR 520×560×20 HSF5 V**
525	575	22	**CR 525×575×22 HSF1 R**	**CR 525×575×22 HSF5 R**
			CR 525×575×22 HSF1 V	**CR 525×575×22 HSF5 V**
530	580	22	**CR 530×580×22 HSF1 R**	**CR 530×580×22 HSF5 R**
			CR 530×580×22 HSF1 V	**CR 530×580×22 HSF5 V**
	580	22,3	**CR 530×580×22.3 HSF1 R**	**CR 530×580×22.3 HSF5 R**
			CR 530×580×22.3 HSF1 V	**CR 530×580×22.3 HSF5 V**
	580	25	**CR 530×580×25 HSF1 R**	**CR 530×580×25 HSF5 R**
			CR 530×580×25 HSF1 V	**CR 530×580×25 HSF5 V**
	620	22	**CR 530×620×22 HSF1 R**	**CR 530×620×22 HSF5 R**
			CR 530×620×22 HSF1 V	**CR 530×620×22 HSF5 V**
535	585	22	**CR 535×585×22 HSF1 R**	**CR 535×585×22 HSF5 R**
			CR 535×585×22 HSF1 V	**CR 535×585×22 HSF5 V**
540	590	22	**CR 540×590×22 HSF1 R**	**CR 540×590×22 HSF5 R**
			CR 540×590×22 HSF1 V	**CR 540×590×22 HSF5 V**
	590	30	**CR 540×590×30 HSF1 R**	**CR 540×590×30 HSF5 R**
			CR 540×590×30 HSF1 V	**CR 540×590×30 HSF5 V**
550	600	22,3	**CR 550×600×22.3 HSF1 R**	**CR 550×600×22.3 HSF5 R**
			CR 550×600×22.3 HSF1 V	**CR 550×600×22.3 HSF5 V**

Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
560	604	20	**CR 560×604×20 HSF1 R** **CR 560×604×20 HSF1 V**	**CR 560×604×20 HSF5 R** **CR 560×604×20 HSF5 V**
	610	20	**CR 560×610×20 HSF1 R** **CR 560×610×20 HSF1 V**	**CR 560×610×20 HSF5 R** **CR 560×610×20 HSF5 V**
	610	22,3	**CR 560×610×22.3 HSF1 R** **CR 560×610×22.3 HSF1 V**	**CR 560×610×22.3 HSF5 R** **CR 560×610×22.3 HSF5 V**
	610	25	**CR 560×610×25 HSF1 R** **CR 560×610×25 HSF1 V**	**CR 560×610×25 HSF5 R** **CR 560×610×25 HSF5 V**
570	616	19	**CR 570×616×19 HSF1 R** **CR 570×616×19 HSF1 V**	**CR 570×616×19 HSF5 R** **CR 570×616×19 HSF5 V**
	620	25	**CR 570×620×25 HSF1 R** **CR 570×620×25 HSF1 V**	**CR 570×620×25 HSF5 R** **CR 570×620×25 HSF5 V**
575	625	22	**CR 575×625×22 HSF1 R** **CR 575×625×22 HSF1 V**	**CR 575×625×22 HSF5 R** **CR 575×625×22 HSF5 V**
580	630	22	**CR 580×630×22 HSF1 R** **CR 580×630×22 HSF1 V**	**CR 580×630×22 HSF5 R** **CR 580×630×22 HSF5 V**
600	650	22	**CR 600×650×22 HSF1 R** **CR 600×650×22 HSF1 V**	**CR 600×650×22 HSF5 R** **CR 600×650×22 HSF5 V**
620	670	22	**CR 620×670×22 HSF1 R** **CR 620×670×22 HSF1 V**	**CR 620×670×22 HSF5 R** **CR 620×670×22 HSF5 V**
	684	25	**CR 620×684×25 HSF1 R** **CR 620×684×25 HSF1 V**	**CR 620×684×25 HSF5 R** **CR 620×684×25 HSF5 V**
625	689	25	**CR 625×689×25 HSF1 R** **CR 625×689×25 HSF1 V**	**CR 625×689×25 HSF5 R** **CR 625×689×25 HSF5 V**
630	690	30	**CR 630×690×30 HSF1 R** **CR 630×690×30 HSF1 V**	**CR 630×690×30 HSF5 R** **CR 630×690×30 HSF5 V**
635	705	30	**CR 635×705×30 HSF1 R** **CR 635×705×30 HSF1 V**	**CR 635×705×30 HSF5 R** **CR 635×705×30 HSF5 V**
650	690	18	**CR 650×690×18 HSF1 R** **CR 650×690×18 HSF1 V**	**CR 650×690×18 HSF5 R** **CR 650×690×18 HSF5 V**
660	724	25	**CR 660×724×25 HSF1 R** **CR 660×724×25 HSF1 V**	**CR 660×724×25 HSF5 R** **CR 660×724×25 HSF5 V**
670	734	25	**CR 670×734×25 HSF1 R** **CR 670×734×25 HSF1 V**	**CR 670×734×25 HSF5 R** **CR 670×734×25 HSF5 V**
685	749	25	**CR 685×749×25 HSF1 R** **CR 685×749×25 HSF1 V**	**CR 685×749×25 HSF5 R** **CR 685×749×25 HSF5 V**



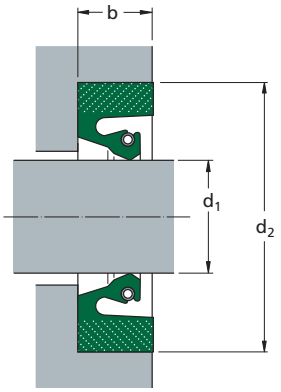
Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
700	760	30	**CR 700×760×30 HSF1 R** **CR 700×760×30 HSF1 V**	**CR 700×760×30 HSF5 R** **CR 700×760×30 HSF5 V**
710	770	30	**CR 710×770×30 HSF1 R** **CR 710×770×30 HSF1 V**	**CR 710×770×30 HSF5 R** **CR 710×770×30 HSF5 V**
	774	25	**CR 710×774×25 HSF1 R** **CR 710×774×25 HSF1 V**	**CR 710×774×25 HSF5 R** **CR 710×774×25 HSF5 V**
730	794	25	**CR 730×794×25 HSF1 R** **CR 730×794×25 HSF1 V**	**CR 730×794×25 HSF5 R** **CR 730×794×25 HSF5 V**
736	800	25	**CR 736×800×25 HSF1 R** **CR 736×800×25 HSF1 V**	**CR 736×800×25 HSF5 R** **CR 736×800×25 HSF5 V**
740	785	18	**CR 740×785×18 HSF1 R** **CR 740×785×18 HSF1 V**	**CR 740×785×18 HSF5 R** **CR 740×785×18 HSF5 V**
744	808	25	**CR 744×808×25 HSF1 R** **CR 744×808×25 HSF1 V**	**CR 744×808×25 HSF5 R** **CR 744×808×25 HSF5 V**
750	810	30	**CR 750×810×30 HSF1 R** **CR 750×810×30 HSF1 V**	**CR 750×810×30 HSF5 R** **CR 750×810×30 HSF5 V**
	814	25	**CR 750×814×25 HSF1 R** **CR 750×814×25 HSF1 V**	**CR 750×814×25 HSF5 R** **CR 750×814×25 HSF5 V**
760	820	30	**CR 760×820×30 HSF1 R** **CR 760×820×30 HSF1 V**	**CR 760×820×30 HSF5 R** **CR 760×820×30 HSF5 V**
770	834	25	**CR 770×834×25 HSF1 R** **CR 770×834×25 HSF1 V**	**CR 770×834×25 HSF5 R** **CR 770×834×25 HSF5 V**
780	844	25	**CR 780×844×25 HSF1 R** **CR 780×844×25 HSF1 V**	**CR 780×844×25 HSF5 R** **CR 780×844×25 HSF5 V**
790	850	30	**CR 790×850×30 HSF1 R** **CR 790×850×30 HSF1 V**	**CR 790×850×30 HSF5 R** **CR 790×850×30 HSF5 V**
800	860	30	**CR 800×860×30 HSF1 R** **CR 800×860×30 HSF1 V**	**CR 800×860×30 HSF5 R** **CR 800×860×30 HSF5 V**
	865	25	**CR 800×865×25 HSF1 R** **CR 800×865×25 HSF1 V**	**CR 800×865×25 HSF5 R** **CR 800×865×25 HSF5 V**
810	860	25	**CR 810×860×25 HSF1 R** **CR 810×860×25 HSF1 V**	**CR 810×860×25 HSF5 R** **CR 810×860×25 HSF5 V**
	874	22	**CR 810×874×22 HSF1 R** **CR 810×874×22 HSF1 V**	**CR 810×874×22 HSF5 R** **CR 810×874×22 HSF5 V**
840	904	25	**CR 840×904×25 HSF1 R** **CR 840×904×25 HSF1 V**	**CR 840×904×25 HSF5 R** **CR 840×904×25 HSF5 V**

Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
850	900	22	**CR 850×900×22 HSF1 R** **CR 850×900×22 HSF1 V**	**CR 850×900×22 HSF5 R** **CR 850×900×22 HSF5 V**
	904	25	**CR 850×904×25 HSF1 R** **CR 850×904×25 HSF1 V**	**CR 850×904×25 HSF5 R** **CR 850×904×25 HSF5 V**
	910	30	**CR 850×910×30 HSF1 R** **CR 850×910×30 HSF1 V**	**CR 850×910×30 HSF5 R** **CR 850×910×30 HSF5 V**
900	960	30	**CR 900×960×30 HSF1 R** **CR 900×960×30 HSF1 V**	**CR 900×960×30 HSF5 R** **CR 900×960×30 HSF5 V**
	964	32	**CR 900×964×32 HSF1 R** **CR 900×964×32 HSF1 V**	**CR 900×964×32 HSF5 R** **CR 900×964×32 HSF5 V**
910	974	25	**CR 910×974×25 HSF1 R** **CR 910×974×25 HSF1 V**	**CR 910×974×25 HSF5 R** **CR 910×974×25 HSF5 V**
	974	25,4	**CR 910×974×25.4 HSF1 R** **CR 910×974×25.4 HSF1 V**	**CR 910×974×25.4 HSF5 R** **CR 910×974×25.4 HSF5 V**
920	984	25	**CR 920×984×25 HSF1 R** **CR 920×984×25 HSF1 V**	**CR 920×984×25 HSF5 R** **CR 920×984×25 HSF5 V**
950	1 000	25	**CR 950×1000×25 HSF1 R** **CR 950×1000×25 HSF1 V**	**CR 950×1000×25 HSF5 R** **CR 950×1000×25 HSF5 V**
	1 010	30	**CR 950×1010×30 HSF1 R** **CR 950×1010×30 HSF1 V**	**CR 950×1010×30 HSF5 R** **CR 950×1010×30 HSF5 V**
960	1 024	25	**CR 960×1024×25 HSF1 R** **CR 960×1024×25 HSF1 V**	**CR 960×1024×25 HSF5 R** **CR 960×1024×25 HSF5 V**
970	1 020	25	**CR 970×1020×25 HSF1 R** **CR 970×1020×25 HSF1 V**	**CR 970×1020×25 HSF5 R** **CR 970×1020×25 HSF5 V**
	1 034	25	**CR 970×1034×25 HSF1 R** **CR 970×1034×25 HSF1 V**	**CR 970×1034×25 HSF5 R** **CR 970×1034×25 HSF5 V**
1 000	1 064	25	**CR 1000×1064×25 HSF1 R** **CR 1000×1064×25 HSF1 V**	**CR 1000×1064×25 HSF5 R** **CR 1000×1064×25 HSF5 V**
1 016	1 043,1	13,7	**CR 1016×1043.1×13.7 HSF1 R** **CR 1016×1043.1×13.7 HSF1 V**	**CR 1016×1043.1×13.7 HSF5 R** **CR 1016×1043.1×13.7 HSF5 V**
1 110	1 174	25	**CR 1110×1174×25 HSF1 R** **CR 1110×1174×25 HSF1 V**	**CR 1110×1174×25 HSF5 R** **CR 1110×1174×25 HSF5 V**



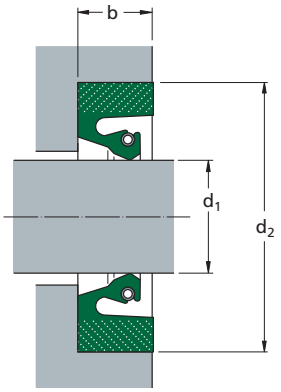
Housing dimensions shaft d_1	bore d_2	width b	**Designation Split version** Lip material R	Lip material V	**Solid version** Lip material R	Lip material V
in/*mm*			–			
1.000 *25,4*	1.874 *47,6*	0.375 *9,5*	**CR HSF1 5001 R**	**CR HSF1 5001 V**	**CR HSF5 5001 R**	**CR HSF5 5001 V**
2.750 *69,9*	3.375 *85,7*	0.312 *7,9*	**CR HSF1 5156 R**	**CR HSF1 5156 V**	**CR HSF5 5156 R**	**CR HSF5 5156 V**
3.248 *82,5*	4.500 *114,3*	0.500 *12,7*	**CR HSF1 5225 R**	**CR HSF1 5225 V**	**CR HSF5 5225 R**	**CR HSF5 5225 V**
3.500 *88,9*	4.500 *114,3*	0.500 *12,7*	**CR HSF1 5252 R**	**CR HSF1 5252 V**	**CR HSF5 5252 R**	**CR HSF5 5252 V**
3.874 *98,4*	4.878 *123,9*	0.500 *12,7*	**CR HSF1 5265 R**	**CR HSF1 5265 V**	**CR HSF5 5265 R**	**CR HSF5 5265 V**
4.000 *101,6*	5.000 *127*	0.500 *12,7*	**CR HSF1 5310 R**	**CR HSF1 5310 V**	**CR HSF5 5310 R**	**CR HSF5 5310 V**
4.425 *112,4*	5.500 *139,7*	0.562 *14,3*	**CR HSF1 5353 R**	**CR HSF1 5353 V**	**CR HSF5 5353 R**	**CR HSF5 5353 V**
4.437 *112,7*	5.465 *138,8*	0.583 *14,8*	**CR HSF1 5351 R**	**CR HSF1 5351 V**	**CR HSF5 5351 R**	**CR HSF5 5351 V**
4.874 *123,8*	5.874 *149,2*	0.500 *12,7*	**CR HSF1 5391 R**	**CR HSF1 5391 V**	**CR HSF5 5391 R**	**CR HSF5 5391 V**
5.205 *132,2*	6.504 *165,2*	0.591 *15*	**CR HSF1 5431 R**	**CR HSF1 5431 V**	**CR HSF5 5431 R**	**CR HSF5 5431 V**
5.622 *142,8*	6.622 *168,2*	0.625 *15,9*	**CR HSF1 5471 R**	**CR HSF1 5471 V**	**CR HSF5 5471 R**	**CR HSF5 5471 V**
5.750 *146,1*	7.000 *177,8*	0.625 *15,9*	**CR HSF1 5489 R**	**CR HSF1 5489 V**	**CR HSF5 5489 R**	**CR HSF5 5489 V**
5.874 149,2	7.000 177,8	0.492 12,5	**CR HSF1 5498 R**	**CR HSF1 5498 V**	**CR HSF5 5498 R**	**CR HSF5 5498 V**
6.000 *152,4*	7.126 *181*	0.630 *16*	**CR HSF1 5509 R**	**CR HSF1 5509 V**	**CR HSF5 5509 R**	**CR HSF5 5509 V**
	7.500 *190,5*	0.625 *15,9*	**CR HSF1 5510 R**	**CR HSF1 5510 V**	**CR HSF5 5510 R**	**CR HSF5 5510 V**
6.500 *165,1*	8.000 *203,2*	0.750 *19,1*	**CR HSF1 5570 R**	**CR HSF1 5570 V**	**CR HSF5 5570 R**	**CR HSF5 5570 V**
6.748 *171,4*	7.750 *196,9*	0.750 *19,1*	**CR HSF1 5585 R**	**CR HSF1 5585 V**	**CR HSF5 5585 R**	**CR HSF5 5585 V**

Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R	Lip material V	**Solid version** Lip material R	Lip material V
in/*mm*			–			
7.000 *177,8*	8.000 *203,2*	0.437 *11,1*	**CR HSF1 5587 R**	**CR HSF1 5587 V**	**CR HSF5 5587 R**	**CR HSF5 5587 V**
	8.250 *209,6*	0.750 *19,1*	**CR HSF1 5600 R**	**CR HSF1 5600 V**	**CR HSF5 5600 R**	**CR HSF5 5600 V**
7.250 *184,2*	8.500 *215,9*	0.625 *15,9*	**CR HSF1 5624 R**	**CR HSF1 5624 V**	**CR HSF5 5624 R**	**CR HSF5 5624 V**
7.500 *190,5*	8.500 *215,9*	0.625 *15,9*	**CR HSF1 5662 R**	**CR HSF1 5662 V**	**CR HSF5 5662 R**	**CR HSF5 5662 V**
7.677 *195*	8.677 *220,4*	0.500 *12,7*	**CR HSF1 5667 R**	**CR HSF1 5667 V**	**CR HSF5 5667 R**	**CR HSF5 5667 V**
8.598 *218,4*	9.843 *250*	0.591 *15*	**CR HSF1 5764 R**	**CR HSF1 5764 V**	**CR HSF5 5764 R**	**CR HSF5 5764 V**
8.750 *222,3*	10.000 *254*	0.625 *15,9*	**CR HSF1 5790 R**	**CR HSF1 5790 V**	**CR HSF5 5790 R**	**CR HSF5 5790 V**
9.625 *244,5*	11.635 *295,5*	1.000 *25,4*	**CR HSF1 5878 R**	**CR HSF1 5878 V**	**CR HSF5 5878 R**	**CR HSF5 5878 V**
9.843 *250*	10.843 *275,4*	0.500 *12,7*	**CR HSF1 5885 R**	**CR HSF1 5885 V**	**CR HSF5 5885 R**	**CR HSF5 5885 V**
10.000 *254*	11.250 *285,8*	0.625 *15,9*	**CR HSF1 5910 R**	**CR HSF1 5910 V**	**CR HSF5 5910 R**	**CR HSF5 5910 V**
10.250 *260,4*	12.250 *311,2*	0.750 *19,1*	**CR HSF1 5950 R**	**CR HSF1 5950 V**	**CR HSF5 5950 R**	**CR HSF5 5950 V**
11.000 *279,4*	12.181 *309,4*	0.591 *15*	**CR HSF1 6000 R**	**CR HSF1 6000 V**	**CR HSF5 6000 R**	**CR HSF5 6000 V**
11.250 *285,8*	12.500 *317,5*	0.625 *15,9*	**CR HSF1 6040 R**	**CR HSF1 6040 V**	**CR HSF5 6040 R**	**CR HSF5 6040 V**
11.260 *286*	13.250 *336,6*	0.591 *15*	**CR HSF1 6049 R**	**CR HSF1 6049 V**	**CR HSF5 6049 R**	**CR HSF5 6049 V**
11.417 *290*	12.417 *315,4*	0.500 *12,7*	**CR HSF1 6055 R**	**CR HSF1 6055 V**	**CR HSF5 6055 R**	**CR HSF5 6055 V**
12.250 *311,2*	14.250 *362*	0.812 *20,6*	**CR HSF1 6150 R**	**CR HSF1 6150 V**	**CR HSF5 6150 R**	**CR HSF5 6150 V**
12.484 *317,1*	14.000 *355,6*	0.630 *16*	**CR HSF1 6172 R**	**CR HSF1 6172 V**	**CR HSF5 6172 R**	**CR HSF5 6172 V**

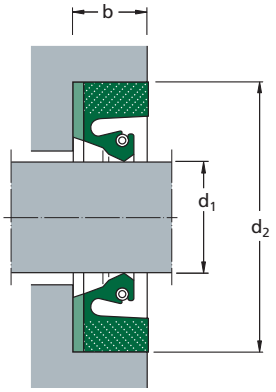


Housing dimensions shaft d_1	bore d_2	width b	**Designation Split version** Lip material R	Lip material V	**Solid version** Lip material R	Lip material V
in/*mm*			–			
12.500 *317,5*	14.000 *355,6*	0.750 *19,1*	**CR HSF1 6173 R**	**CR HSF1 6173 V**	**CR HSF5 6173 R**	**CR HSF5 6173 V**
12.504 *317,6*	14.000 *355,6*	0.687 *17,4*	**CR HSF1 6175 R**	**CR HSF1 6175 V**	**CR HSF5 6175 R**	**CR HSF5 6175 V**
12.746 *323,7*	14.248 *361,9*	0.687 *17,4*	**CR HSF1 6192 R**	**CR HSF1 6192 V**	**CR HSF5 6192 R**	**CR HSF5 6192 V**
	14.750 *374,7*	1.000 *25,4*	**CR HSF1 6195 R**	**CR HSF1 6195 V**	**CR HSF5 6195 R**	**CR HSF5 6195 V**
13.000 *330,2*	14.500 *368,3*	0.687 *17,4*	**CR HSF1 6230 R**	**CR HSF1 6230 V**	**CR HSF5 6230 R**	**CR HSF5 6230 V**
	14.500 *368,3*	0.687 *17,4*	**CR HSF1 6230 R**	**CR HSF1 6230 V**	**CR HSF5 6230 R**	**CR HSF5 6230 V**
13.500 *342,9*	15.000 *381*	0.750 *19,1*	**CR HSF1 6271 R**	**CR HSF1 6271 V**	**CR HSF5 6271 R**	**CR HSF5 6271 V**
14.370 *365*	16.118 *409,4*	0.750 *19,1*	**CR HSF1 6350 R**	**CR HSF1 6350 V**	**CR HSF5 6350 R**	**CR HSF5 6350 V**
14.500 *368,3*	16.250 *412,8*	0.625 *15,9*	**CR HSF1 6370 R**	**CR HSF1 6370 V**	**CR HSF5 6370 R**	**CR HSF5 6370 V**
14.961 *380*	16.961 *430,8*	0.812 *20,6*	**CR HSF1 6425 R**	**CR HSF1 6425 V**	**CR HSF5 6425 R**	**CR HSF5 6425 V**
15.250 *387,4*	17.250 *438,2*	0.875 *22,2*	**CR HSF1 6460 R**	**CR HSF1 6460 V**	**CR HSF5 6460 R**	**CR HSF5 6460 V**
15.992 *406,2*	17.500 *444,5*	0.687 *17,4*	**CR HSF1 6550 R**	**CR HSF1 6550 V**	**CR HSF5 6550 R**	**CR HSF5 6550 V**
16.000 *406,4*	18.000 *457,2*	0.750 *19,1*	**CR HSF1 6560 R**	**CR HSF1 6560 V**	**CR HSF5 6560 R**	**CR HSF5 6560 V**
	18.000 *457,2*	0.812 *20,6*	**CR HSF1 6565 R**	**CR HSF1 6565 V**	**CR HSF5 6565 R**	**CR HSF5 6565 V**
	18.000 *457,2*	0.906 *23*	**CR HSF1 6575 R**	**CR HSF1 6575 V**	**CR HSF5 6575 R**	**CR HSF5 6575 V**
16.226 *412,1*	17.750 *450,9*	0.687 *17,4*	**CR HSF1 6590 R**	**CR HSF1 6590 V**	**CR HSF5 6590 R**	**CR HSF5 6590 V**
16.500 *419,1*	17.750 *450,9*	0.750 *19,1*	**CR HSF1 6600 R**	**CR HSF1 6600 V**	**CR HSF5 6600 R**	**CR HSF5 6600 V**
17.000 *431,8*	19.000 *482,6*	0.812 *20,6*	**CR HSF1 6645 R**	**CR HSF1 6645 V**	**CR HSF5 6645 R**	**CR HSF5 6645 V**

Housing dimensions shaft d_1	bore d_2	width b	**Designation Split version** Lip material R	Lip material V	**Solid version** Lip material R	Lip material V
in/*mm*			–			
17.248 *438,1*	18.748 *476,2*	0.750 *19,1*	**CR HSF1 6656 R**	**CR HSF1 6656 V**	**CR HSF5 6656 R**	**CR HSF5 6656 V**
18.169 *461,5*	21.260 *540*	1.220 *31*	**CR HSF1 6734 R**	**CR HSF1 6734 V**	**CR HSF5 6734 R**	**CR HSF5 6734 V**
20.500 *520,7*	22.500 *571,5*	1.000 *25,4*	**CR HSF1 6890 R**	**CR HSF1 6890 V**	**CR HSF5 6890 R**	**CR HSF5 6890 V**
21.000 *533,4*	23.000 *584,2*	0.875 *22,2*	**CR HSF1 6930 R**	**CR HSF1 6930 V**	**CR HSF5 6930 R**	**CR HSF5 6930 V**
22.000 *558,8*	24.000 *609,6*	0.875 *22,2*	**CR HSF1 7000 R**	**CR HSF1 7000 V**	**CR HSF5 7000 R**	**CR HSF5 7000 V**
23.248 *590,5*	25.250 *641,4*	0.812 *20,6*	**CR HSF1 7100 R**	**CR HSF1 7100 V**	**CR HSF5 7100 R**	**CR HSF5 7100 V**
23.501 *596,9*	22.001 *558,8*	0.750 *19,1*	**CR HSF1 6990 R**	**CR HSF1 6990 V**	**CR HSF5 6990 R**	**CR HSF5 6990 V**
30.000 *762*	32.500 *825,5*	1.000 *25,4*	**CR HSF1 7520 R**	**CR HSF1 7520 V**	**CR HSF5 7520 R**	**CR HSF5 7520 V**
30.461 *773,7*	32.500 *825,5*	0.906 *23*	**CR HSF1 7525 R**	**CR HSF1 7525 V**	**CR HSF5 7525 R**	**CR HSF5 7525 V**
31.000 *787,4*	33.000 *838,2*	0.906 *23*	**CR HSF1 7570 R**	**CR HSF1 7570 V**	**CR HSF5 7570 R**	**CR HSF5 7570 V**
31.250 *793,8*	33.250 *844,6*	0.750 *19,1*	**CR HSF1 7580 R**	**CR HSF1 7580 V**	**CR HSF5 7580 R**	**CR HSF5 7580 V**
32.500 *825,5*	34.500 *876,3*	0.875 *22,2*	**CR HSF1 7700 R**	**CR HSF1 7700 V**	**CR HSF5 7700 R**	**CR HSF5 7700 V**
	34.500 *876,3*	1.000 *25,4*	**CR HSF1 7710 R**	**CR HSF1 7710 V**	**CR HSF5 7710 R**	**CR HSF5 7710 V**
33.000 *838,2*	35.000 *889*	0.906 *23*	**CR HSF1 7730 R**	**CR HSF1 7730 V**	**CR HSF5 7730 R**	**CR HSF5 7730 V**
34.375 *873,1*	36.875 *936,6*	1.250 *31,8*	**CR HSF1 7810 R**	**CR HSF1 7810 V**	**CR HSF5 7810 R**	**CR HSF5 7810 V**
36.500 *927,1*	39.000 *990,6*	1.250 *31,8*	**CR HSF1 7895 R**	**CR HSF1 7895 V**	**CR HSF5 7895 R**	**CR HSF5 7895 V**
36.748 *933,4*	38.749 *984,2*	0.875 *22,2*	**CR HSF1 7900 R**	**CR HSF1 7900 V**	**CR HSF5 7900 R**	**CR HSF5 7900 V**

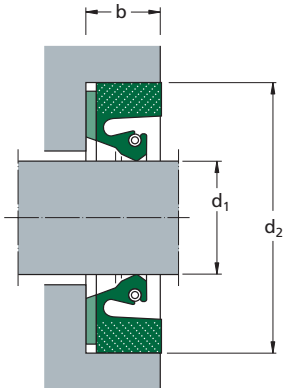


Housing dimensions shaft d_1	bore d_2	width b	**Designation Split version** Lip material R	Lip material V	**Solid version** Lip material R	Lip material V
in/*mm*			–			
38.000 *965,2*	40.000 *1 016*	0.875 *22,2*	**CR HSF1 7990 R**	**CR HSF1 7990 V**	**CR HSF5 7990 R**	**CR HSF5 7990 V**
39.118 *993,6*	40.000 *1 016*	0.500 *12,7*	**CR HSF1 8170 R**	**CR HSF1 8170 V**	**CR HSF5 8170 R**	**CR HSF5 8170 V**
48.000 *1 219,2*	49.000 *1 244,6*	1.260 *32*	**CR HSF1 8400 R**	**CR HSF1 8400 V**	**CR HSF5 8400 R**	**CR HSF5 8400 V**



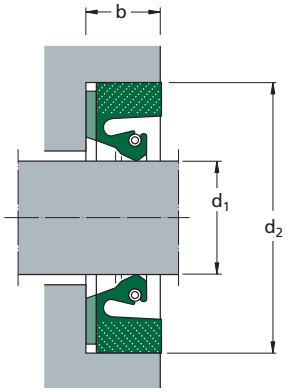
Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version (HSF2)** Lip material R Lip material V	**Solid version (HSF6)** Lip material R Lip material V
mm			–	
127	158,8	12,3	**CR 127×158.8×12.3 HSF2 R** **CR 127×158.8×12.3 HSF2 V**	**CR 127×158.8×12.3 HSF6 R** **CR 127×158.8×12.3 HSF6 V**
275	319,5	19	**CR 275×319.5×19 HSF2 R** **CR 275×319.5×19 HSF2 V**	**CR 275×319.5×19 HSF6 R** **CR 275×319.5×19 HSF6 V**
320	364	18	**CR 320×364×18 HSF2 R** **CR 320×364×18 HSF2 V**	**CR 320×364×18 HSF6 R** **CR 320×364×18 HSF6 V**
800	864	21,6	**CR 800×864×21.6 HSF2 R** **CR 800×864×21.6 HSF2 V**	**CR 800×864×21.6 HSF6 R** **CR 800×864×21.6 HSF6 V**

Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R	Lip material V	**Solid version** Lip material R	Lip material V
in/*mm*			–			
21.000 *533,40*	23.000 *584,20*	0.875 *22,23*	**CR HSF2 6930 R**	**CR HSF2 6930 V**	**CR HSF6 6930 R**	**CR HSF6 6930 V**



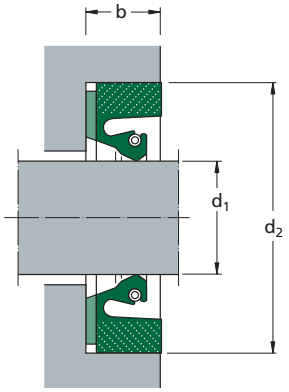
Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
80	95	10	**CR 80×95×10 HSF3 R** **CR 80×95×10 HSF3 V**	**CR 80×95×10 HSF7 R** **CR 80×95×10 HSF7 V**
100	130	12,5	**CR 100×130×12.5 HSF3 R** **CR 100×130×12.5 HSF3 V**	**CR 100×130×12.5 HSF7 R** **CR 100×130×12.5 HSF7 V**
140	180	16	**CR 140×180×16 HSF3 R** **CR 140×180×16 HSF3 V**	**CR 140×180×16 HSF7 R** **CR 140×180×16 HSF7 V**
150	190	16	**CR 150×190×16 HSF3 R** **CR 150×190×16 HSF3 V**	**CR 150×190×16 HSF7 R** **CR 150×190×16 HSF7 V**
160	200	16	**CR 160×200×16 HSF3 R** **CR 160×200×16 HSF3 V**	**CR 160×200×16 HSF7 R** **CR 160×200×16 HSF7 V**
165	195	15	**CR 165×195×15 HSF3 R** **CR 165×195×15 HSF3 V**	**CR 165×195×15 HSF7 R** **CR 165×195×15 HSF7 V**
220	250	15	**CR 220×250×15 HSF3 R** **CR 220×250×15 HSF3 V**	**CR 220×250×15 HSF7 R** **CR 220×250×15 HSF7 V**
	260	18	**CR 220×260×18 HSF3 R** **CR 220×260×18 HSF3 V**	**CR 220×260×18 HSF7 R** **CR 220×260×18 HSF7 V**
230	270	16	**CR 230×270×16 HSF3 R** **CR 230×270×16 HSF3 V**	**CR 230×270×16 HSF7 R** **CR 230×270×16 HSF7 V**
235	265	15,3	**CR 235×265×15.3 HSF3 R** **CR 235×265×15.3 HSF3 V**	**CR 235×265×15.3 HSF7 R** **CR 235×265×15.3 HSF7 V**
240	280	18	**CR 240×280×18 HSF3 R** **CR 240×280×18 HSF3 V**	**CR 240×280×18 HSF7 R** **CR 240×280×18 HSF7 V**
	290	25	**CR 240×290×25 HSF3 R** **CR 240×290×25 HSF3 V**	**CR 240×290×25 HSF7 R** **CR 240×290×25 HSF7 V**
245	285	16	**CR 245×285×16 HSF3 R** **CR 245×285×16 HSF3 V**	**CR 245×285×16 HSF7 R** **CR 245×285×16 HSF7 V**
250	280	16	**CR 250×280×16 HSF3 R** **CR 250×280×16 HSF3 V**	**CR 250×280×16 HSF7 R** **CR 250×280×16 HSF7 V**
	290	16,5	**CR 250×290×16.5 HSF3 R** **CR 250×290×16.5 HSF3 V**	**CR 250×290×16.5 HSF7 R** **CR 250×290×16.5 HSF7 V**
270	310	18	**CR 270×310×18 HSF3 R** **CR 270×310×18 HSF3 V**	**CR 270×310×18 HSF7 R** **CR 270×310×18 HSF7 V**
280	320	18	**CR 280×320×18 HSF3 R** **CR 280×320×18 HSF3 V**	**CR 280×320×18 HSF7 R** **CR 280×320×18 HSF7 V**
285	325	18	**CR 285×325×18 HSF3 R** **CR 285×325×18 HSF3 V**	**CR 285×325×18 HSF7 R** **CR 285×325×18 HSF7 V**

Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
290	334	20,3	**CR 290×334×20.3 HSF3 R**	**CR 290×334×20.3 HSF7 R**
			CR 290×334×20.3 HSF3 V	**CR 290×334×20.3 HSF7 V**
300	340	16,5	**CR 300×340×16.5 HSF3 R**	**CR 300×340×16.5 HSF7 R**
			CR 300×340×16.5 HSF3 V	**CR 300×340×16.5 HSF7 V**
	340	18	**CR 300×340×18 HSF3 R**	**CR 300×340×18 HSF7 R**
			CR 300×340×18 HSF3 V	**CR 300×340×18 HSF7 V**
	344	20	**CR 300×344×20 HSF3 R**	**CR 300×344×20 HSF7 R**
			CR 300×344×20 HSF3 V	**CR 300×344×20 HSF7 V**
310	353	20	**CR 310×353×20 HSF3 R**	**CR 310×353×20 HSF7 R**
			CR 310×353×20 HSF3 V	**CR 310×353×20 HSF7 V**
	354	20	**CR 310×354×20 HSF3 R**	**CR 310×354×20 HSF7 R**
			CR 310×354×20 HSF3 V	**CR 310×354×20 HSF7 V**
315	360	20	**CR 315×360×20 HSF3 R**	**CR 315×360×20 HSF7 R**
			CR 315×360×20 HSF3 V	**CR 315×360×20 HSF7 V**
320	350	15	**CR 320×350×15 HSF3 R**	**CR 320×350×15 HSF7 R**
			CR 320×350×15 HSF3 V	**CR 320×350×15 HSF7 V**
	360	17,7	**CR 320×360×17.7 HSF3 R**	**CR 320×360×17.7 HSF7 R**
			CR 320×360×17.7 HSF3 V	**CR 320×360×17.7 HSF7 V**
325	365	16	**CR 325×365×16 HSF3 R**	**CR 325×365×16 HSF7 R**
			CR 325×365×16 HSF3 V	**CR 325×365×16 HSF7 V**
330	370	20	**CR 330×370×20 HSF3 R**	**CR 330×370×20 HSF7 R**
			CR 330×370×20 HSF3 V	**CR 330×370×20 HSF7 V**
	374	20	**CR 330×374×20 HSF3 R**	**CR 330×374×20 HSF7 R**
			CR 330×374×20 HSF3 V	**CR 330×374×20 HSF7 V**
340	372	16	**CR 340×372×16 HSF3 R**	**CR 340×372×16 HSF7 R**
			CR 340×372×16 HSF3 V	**CR 340×372×16 HSF7 V**
345	389	20	**CR 345×389×20 HSF3 R**	**CR 345×389×20 HSF7 R**
			CR 345×389×20 HSF3 V	**CR 345×389×20 HSF7 V**
350	390	18	**CR 350×390×18 HSF3 R**	**CR 350×390×18 HSF7 R**
			CR 350×390×18 HSF3 V	**CR 350×390×18 HSF7 V**
	394	20	**CR 350×394×20 HSF3 R**	**CR 350×394×20 HSF7 R**
			CR 350×394×20 HSF3 V	**CR 350×394×20 HSF7 V**
	394	22	**CR 350×394×22 HSF3 R**	**CR 350×394×22 HSF7 R**
			CR 350×394×22 HSF3 V	**CR 350×394×22 HSF7 V**
360	404	20	**CR 360×404×20 HSF3 R**	**CR 360×404×20 HSF7 R**
			CR 360×404×20 HSF3 V	**CR 360×404×20 HSF7 V**
365	409,4	19,05	**CR 365×409.4×19.05 HSF3 R**	**CR 365×409.4×19.05 HSF7 R**
			CR 365×409.4×19.05 HSF3 V	**CR 365×409.4×19.05 HSF7 V**



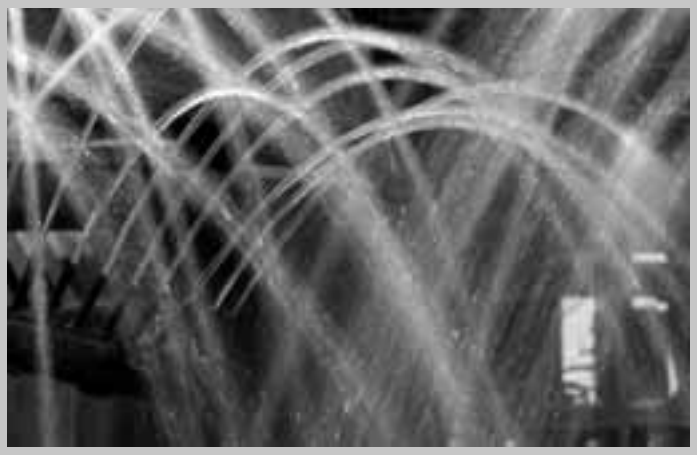
Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
366	410	20	**CR 366×410×20 HSF3 R** **CR 366×410×20 HSF3 V**	**CR 366×410×20 HSF7 R** **CR 366×410×20 HSF7 V**
370	410	18	**CR 370×410×18 HSF3 R** **CR 370×410×18 HSF3 V**	**CR 370×410×18 HSF7 R** **CR 370×410×18 HSF7 V**
380	419	24	**CR 380×419×24 HSF3 R** **CR 380×419×24 HSF3 V**	**CR 380×419×24 HSF7 R** **CR 380×419×24 HSF7 V**
	424	20	**CR 380×424×20 HSF3 R** **CR 380×424×20 HSF3 V**	**CR 380×424×20 HSF7 R** **CR 380×424×20 HSF7 V**
385	425	18,3	**CR 385×425×18.3 HSF3 R** **CR 385×425×18.3 HSF3 V**	**CR 385×425×18.3 HSF7 R** **CR 385×425×18.3 HSF7 V**
387	431	22,5	**CR 387×431×22.5 HSF3 R** **CR 387×431×22.5 HSF3 V**	**CR 387×431×22.5 HSF7 R** **CR 387×431×22.5 HSF7 V**
390	430	18	**CR 390×430×18 HSF3 R** **CR 390×430×18 HSF3 V**	**CR 390×430×18 HSF7 R** **CR 390×430×18 HSF7 V**
400	440	18	**CR 400×440×18 HSF3 R** **CR 400×440×18 HSF3 V**	**CR 400×440×18 HSF7 R** **CR 400×440×18 HSF7 V**
	440	22	**CR 400×440×22 HSF3 R** **CR 400×440×22 HSF3 V**	**CR 400×440×22 HSF7 R** **CR 400×440×22 HSF7 V**
	444	20	**CR 400×444×20 HSF3 R** **CR 400×444×20 HSF3 V**	**CR 400×444×20 HSF7 R** **CR 400×444×20 HSF7 V**
	450	22	**CR 400×450×22 HSF3 R** **CR 400×450×22 HSF3 V**	**CR 400×450×22 HSF7 R** **CR 400×450×22 HSF7 V**
420	470	22	**CR 420×470×22 HSF3 R** **CR 420×470×22 HSF3 V**	**CR 420×470×22 HSF7 R** **CR 420×470×22 HSF7 V**
430	480	22	**CR 430×480×22 HSF3 R** **CR 430×480×22 HSF3 V**	**CR 430×480×22 HSF7 R** **CR 430×480×22 HSF7 V**
440	490	22	**CR 440×490×22 HSF3 R** **CR 440×490×22 HSF3 V**	**CR 440×490×22 HSF7 R** **CR 440×490×22 HSF7 V**
450	494	20	**CR 450×494×20 HSF3 R** **CR 450×494×20 HSF3 V**	**CR 450×494×20 HSF7 R** **CR 450×494×20 HSF7 V**
460	510	22	**CR 460×510×22 HSF3 R** **CR 460×510×22 HSF3 V**	**CR 460×510×22 HSF7 R** **CR 460×510×22 HSF7 V**
	510	22	**CR 460×510×22 HSF3 R** **CR 460×510×22 HSF3 V**	**CR 460×510×22 HSF7 R** **CR 460×510×22 HSF7 V**
480	530	22	**CR 480×530×22 HSF3 R** **CR 480×530×22 HSF3 V**	**CR 480×530×22 HSF7 R** **CR 480×530×22 HSF7 V**

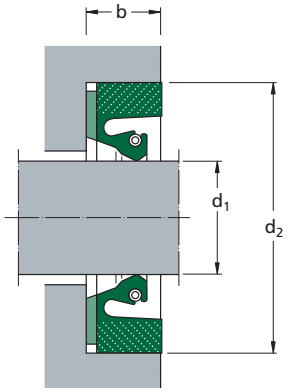
Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
500	544	20	**CR 500×544×20 HSF3 R** **CR 500×544×20 HSF3 V**	**CR 500×544×20 HSF7 R** **CR 500×544×20 HSF7 V**
515	555	20	**CR 515×555×20 HSF3 R** **CR 515×555×20 HSF3 V**	**CR 515×555×20 HSF7 R** **CR 515×555×20 HSF7 V**
520	564	20	**CR 520×564×20 HSF3 R** **CR 520×564×20 HSF3 V**	**CR 520×564×20 HSF7 R** **CR 520×564×20 HSF7 V**
	570	22	**CR 520×570×22 HSF3 R** **CR 520×570×22 HSF3 V**	**CR 520×570×22 HSF7 R** **CR 520×570×22 HSF7 V**
530	580	22	**CR 530×580×22 HSF3 R** **CR 530×580×22 HSF3 V**	**CR 530×580×22 HSF7 R** **CR 530×580×22 HSF7 V**
540	590	22	**CR 540×590×22 HSF3 R** **CR 540×590×22 HSF3 V**	**CR 540×590×22 HSF7 R** **CR 540×590×22 HSF7 V**
	590	25	**CR 540×590×25 HSF3 R** **CR 540×590×25 HSF3 V**	**CR 540×590×25 HSF7 R** **CR 540×590×25 HSF7 V**
545	596,9	19,05	**CR 545×596.9×19.05 HSF3 R** **CR 545×596.9×19.05 HSF3 V**	**CR 545×596.9×19.05 HSF7 R** **CR 545×596.9×19.05 HSF7 V**
550	600	22	**CR 550×600×22 HSF3 R** **CR 550×600×22 HSF3 V**	**CR 550×600×22 HSF7 R** **CR 550×600×22 HSF7 V**
560	603	20	**CR 560×603×20 HSF3 R** **CR 560×603×20 HSF3 V**	**CR 560×603×20 HSF7 R** **CR 560×603×20 HSF7 V**
	604	20	**CR 560×604×20 HSF3 R** **CR 560×604×20 HSF3 V**	**CR 560×604×20 HSF7 R** **CR 560×604×20 HSF7 V**
580	630	22	**CR 580×630×22 HSF3 R** **CR 580×630×22 HSF3 V**	**CR 580×630×22 HSF7 R** **CR 580×630×22 HSF7 V**
590	640	22	**CR 590×640×22 HSF3 R** **CR 590×640×22 HSF3 V**	**CR 590×640×22 HSF7 R** **CR 590×640×22 HSF7 V**
600	640	18	**CR 600×640×18 HSF3 R** **CR 600×640×18 HSF3 V**	**CR 600×640×18 HSF7 R** **CR 600×640×18 HSF7 V**
614	658	20	**CR 614×658×20 HSF3 R** **CR 614×658×20 HSF3 V**	**CR 614×658×20 HSF7 R** **CR 614×658×20 HSF7 V**
620	670	22	**CR 620×670×22 HSF3 R** **CR 620×670×22 HSF3 V**	**CR 620×670×22 HSF7 R** **CR 620×670×22 HSF7 V**
640	680	20	**CR 640×680×20 HSF3 R** **CR 640×680×20 HSF3 V**	**CR 640×680×20 HSF7 R** **CR 640×680×20 HSF7 V**
650	700	22	**CR 650×700×22 HSF3 R** **CR 650×700×22 HSF3 V**	**CR 650×700×22 HSF7 R** **CR 650×700×22 HSF7 V**



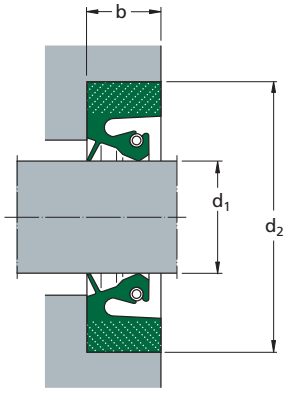
Housing dimensions shaft d_1	bore d_2	width b	**Designation** **Split version** Lip material R Lip material V	**Solid version** Lip material R Lip material V
mm			–	
660	700	18	**CR 660×700×18 HSF3 R** **CR 660×700×18 HSF3 V**	**CR 660×700×18 HSF7 R** **CR 660×700×18 HSF7 V**
665	715	22	**CR 665×715×22 HSF3 R** **CR 665×715×22 HSF3 V**	**CR 665×715×22 HSF7 R** **CR 665×715×22 HSF7 V**
670	714	22	**CR 670×714×22 HSF3 R** **CR 670×714×22 HSF3 V**	**CR 670×714×22 HSF7 R** **CR 670×714×22 HSF7 V**
700	764	25	**CR 700×764×25 HSF3 R** **CR 700×764×25 HSF3 V**	**CR 700×764×25 HSF7 R** **CR 700×764×25 HSF7 V**
710	774	25	**CR 710×774×25 HSF3 R** **CR 710×774×25 HSF3 V**	**CR 710×774×25 HSF7 R** **CR 710×774×25 HSF7 V**
724	775	22	**CR 724×775×22 HSF3 R** **CR 724×775×22 HSF3 V**	**CR 724×775×22 HSF7 R** **CR 724×775×22 HSF7 V**
740	780	16,5	**CR 740×780×16.5 HSF3 R** **CR 740×780×16.5 HSF3 V**	**CR 740×780×16.5 HSF7 R** **CR 740×780×16.5 HSF7 V**
750	814	28	**CR 750×814×28 HSF3 R** **CR 750×814×28 HSF3 V**	**CR 750×814×28 HSF7 R** **CR 750×814×28 HSF7 V**
775	839	25	**CR 775×839×25 HSF3 R** **CR 775×839×25 HSF3 V**	**CR 775×839×25 HSF7 R** **CR 775×839×25 HSF7 V**
790	834	25	**CR 790×834×25 HSF3 R** **CR 790×834×25 HSF3 V**	**CR 790×834×25 HSF7 R** **CR 790×834×25 HSF7 V**
	854	25	**CR 790×854×25 HSF3 R** **CR 790×854×25 HSF3 V**	**CR 790×854×25 HSF7 R** **CR 790×854×25 HSF7 V**
800	864	25	**CR 800×864×25 HSF3 R** **CR 800×864×25 HSF3 V**	**CR 800×864×25 HSF7 R** **CR 800×864×25 HSF7 V**
840	880	18	**CR 840×880×18 HSF3 R** **CR 840×880×18 HSF3 V**	**CR 840×880×18 HSF7 R** **CR 840×880×18 HSF7 V**
880	944	25,4	**CR 880×944×25.4 HSF3 R** **CR 880×944×25.4 HSF3 V**	**CR 880×944×25.4 HSF7 R** **CR 880×944×25.4 HSF7 V**
890	930	18	**CR 890×930×18 HSF3 R** **CR 890×930×18 HSF3 V**	**CR 890×930×18 HSF7 R** **CR 890×930×18 HSF7 V**
910	974	25	**CR 910×974×25 HSF3 R** **CR 910×974×25 HSF3 V**	**CR 910×974×25 HSF7 R** **CR 910×974×25 HSF7 V**
970	1 034	25	**CR 970×1034×25 HSF3 R** **CR 970×1034×25 HSF3 V**	**CR 970×1034×25 HSF7 R** **CR 970×1034×25 HSF7 V**

Housing dimensions			**Designation**	
shaft	bore	width	**Split version**	**Solid version**
			Lip material R	Lip material R
d_1	d_2	b	Lip material V	Lip material V
mm			–	
985	1 045	25	**CR 985×1045×25 HSF3 R** **CR 985×1045×25 HSF3 V**	**CR 985×1045×25 HSF7 R** **CR 985×1045×25 HSF7 V**
1 030	970	21,5	**CR 1030×970×21.5 HSF3 R** **CR 1030×970×21.5 HSF3 V**	**CR 1030×970×21.5 HSF7 R** **CR 1030×970×21.5 HSF7 V**





Housing dimensions shaft d_1	bore d_2	width b	**Designation Split version (HSF3)** Lip material R	Lip material V	**Solid version (HSF7)** Lip material R	Lip material V
in/*mm*			–			
8.500 *215,9*	9.750 *247,65*	0.812 *20,62*	**CR HSF3 5766 R**	**CR HSF3 5766 V**	**CR HSF7 5766 R**	**CR HSF7 5766 V**
10.000 *254,00*	11.500 *292,10*	0.630 *16,00*	**CR HSF3 5920 R**	**CR HSF3 5920 V**	**CR HSF7 5920 R**	**CR HSF7 5920 V**
11.500 *292,10*	13.780 *350,01*	0.630 *16,00*	**CR HSF3 6075 R**	**CR HSF3 6075 V**	**CR HSF7 6075 R**	**CR HSF7 6075 V**
12.250 *311,15*	14.250 *361,95*	0.812 *20,62*	**CR HSF3 6150 R**	**CR HSF3 6150 V**	**CR HSF7 6150 R**	**CR HSF7 6150 V**
14.500 *368,30*	16.500 *419,10*	0.812 *20,62*	**CR HSF3 6370 R**	**CR HSF3 6370 V**	**CR HSF7 6370 R**	**CR HSF7 6370 V**
	16.500 *419,10*	1.152 *29,26*	**CR HSF3 6375 R**	**CR HSF3 6375 V**	**CR HSF7 6375 R**	**CR HSF7 6375 V**
14.750 *374,65*	16.500 *419,10*	0.875 *22,23*	**CR HSF3 6395 R**	**CR HSF3 6395 V**	**CR HSF7 6395 R**	**CR HSF7 6395 V**
15.250 *387,35*	17.250 *438,15*	1.000 *25,40*	**CR HSF3 6465 R**	**CR HSF3 6465 V**	**CR HSF7 6465 R**	**CR HSF7 6465 V**
16.500 *419,10*	18.000 *457,20*	0.750 *19,05*	**CR HSF3 6611 R**	**CR HSF3 6611 V**	**CR HSF7 6611 R**	**CR HSF7 6611 V**
35.500 *901,70*	37.500 *952,50*	0.875 *22,23*	**CR HSF3 7860 R**	**CR HSF3 7860 V**	**CR HSF7 7860 R**	**CR HSF7 7860 V**
36.000 *914,40*	38.500 *977,90*	0.875 *22,23*	**CR HSF3 7890 R**	**CR HSF3 7890 V**	**CR HSF7 7890 R**	**CR HSF7 7890 V**
45.500 *1 155,70*	47.000 *1 193,80*	0.812 *20,62*	**CR HSF3 9000 R**	**CR HSF3 9000 V**	**CR HSF7 9000 R**	**CR HSF7 9000 V**



Housing dimensions shaft d_1	bore d_2	width b	Designation Split version Lip material R Lip material V	Solid version Lip material R Lip material V
mm			–	
75	107	12,5	**CR 75×107×12.5 HSF4 R** **CR 75×107×12.5 HSF4 V**	**CR 75×107×12.5 HSF8 R** **CR 75×107×12.5 HSF8 V**
105	145	16	**CR 105×145×16 HSF4 R** **CR 105×145×16 HSF4 V**	**CR 105×145×16 HSF8 R** **CR 105×145×16 HSF8 V**
215	250	16	**CR 215×250×16 HSF4 R** **CR 215×250×16 HSF4 V**	**CR 215×250×16 HSF8 R** **CR 215×250×16 HSF8 V**
	340	16	**CR 300×340×16 HSF4 R** **CR 300×340×16 HSF4 V**	**CR 300×340×16 HSF8 R** **CR 300×340×16 HSF8 V**
300	340	16	**CR 300×340×16 HSF4 R** **CR 300×340×16 HSF4 V**	**CR 300×340×16 HSF8 R** **CR 300×340×16 HSF8 V**
330	374	20	**CR 330×374×20 HSF4 R** **CR 330×374×20 HSF4 V**	**CR 330×374×20 HSF8 R** **CR 330×374×20 HSF8 V**
370	410	15	**CR 370×410×15 HSF4 R** **CR 370×410×15 HSF4 V**	**CR 370×410×15 HSF8 R** **CR 370×410×15 HSF8 V**
	420	20	**CR 380×420×20 HSF4 R** **CR 380×420×20 HSF4 V**	**CR 380×420×20 HSF8 R** **CR 380×420×20 HSF8 V**
380	420	22	**CR 380×420×22 HSF4 R** **CR 380×420×22 HSF4 V**	**CR 380×420×22 HSF8 R** **CR 380×420×22 HSF8 V**
	490	20	**CR 440×490×20 HSF4 R** **CR 440×490×20 HSF4 V**	**CR 440×490×20 HSF8 R** **CR 440×490×20 HSF8 V**
440	490	22	**CR 440×490×22 HSF4 R** **CR 440×490×22 HSF4 V**	**CR 440×490×22 HSF8 R** **CR 440×490×22 HSF8 V**
450	500	22	**CR 450×500×22 HSF4 R** **CR 450×500×22 HSF4 V**	**CR 450×500×22 HSF8 R** **CR 450×500×22 HSF8 V**
460	500	16	**CR 460×500×16 HSF4 R** **CR 460×500×16 HSF4 V**	**CR 460×500×16 HSF8 R** **CR 460×500×16 HSF8 V**
500	540	22	**CR 500×540×22 HSF4 R** **CR 500×540×22 HSF4 V**	**CR 500×540×22 HSF8 R** **CR 500×540×22 HSF8 V**
660	704	20	**CR 660×704×20 HSF4 R** **CR 660×704×20 HSF4 V**	**CR 660×704×20 HSF8 R** **CR 660×704×20 HSF8 V**
in/*mm*			–	
7.250 *184,15*	5.750 *146,05*	0.625 *15,88*	**HSF4 5490 R**	**HSF4 5490 V**	**HSF8 5490 R**	**HSF8 5490 V**
38.000 *965,2*	40.000 *1 016*	0.875 *22,23*	**HSF4 7990 R**	**HSF4 7990 V**	**HSF8 7990 R**	**HSF8 7990 V**

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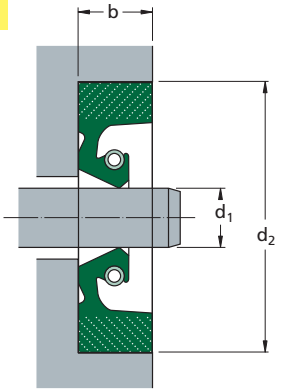

Housing dimensions shaft d_1	bore d_2	width b	**Designation** Lip material R	Lip material V
mm			–	
200	240	16,5	**CR 200×240×16.5 HSF9 R**	**CR 200×240×16.5 HSF9 V**
335	379	20	**CR 335×379×20 HSF9 R**	**CR 335×379×20 HSF9 V**
346	390	18	**CR 346×390×18 HSF9 R**	**CR 346×390×18 HSF9 V**
360	404	17,45	**CR 360×404×17.45 HSF9 R**	**CR 360×404×17.45 HSF9 V**
480	530	22	**CR 480×530×22 HSF9 R**	**CR 480×530×22 HSF9 V**
500	540	20	**CR 500×540×20 HSF9 R**	**CR 500×540×20 HSF9 V**
515	555	20	**CR 515×555×20 HSF9 R**	**CR 515×555×20 HSF9 V**
600	644	20	**CR 600×644×20 HSF9 R**	**CR 600×644×20 HSF9 V**
700	750	25	**CR 700×750×25 HSF9 R**	**CR 700×750×25 HSF9 V**
751	814	25,4	**CR 751×814×25.4 HSF9 R**	**CR 751×814×25.4 HSF9 V**
840	904	25	**CR 840×904×25 HSF9 R**	**CR 840×904×25 HSF9 V**
860	924	25	**CR 860×924×25 HSF9 R**	**CR 860×924×25 HSF9 V**

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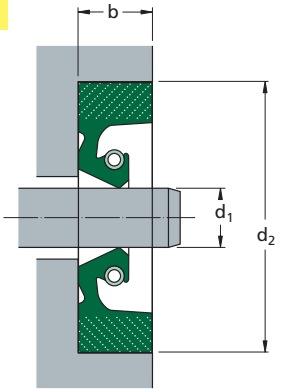
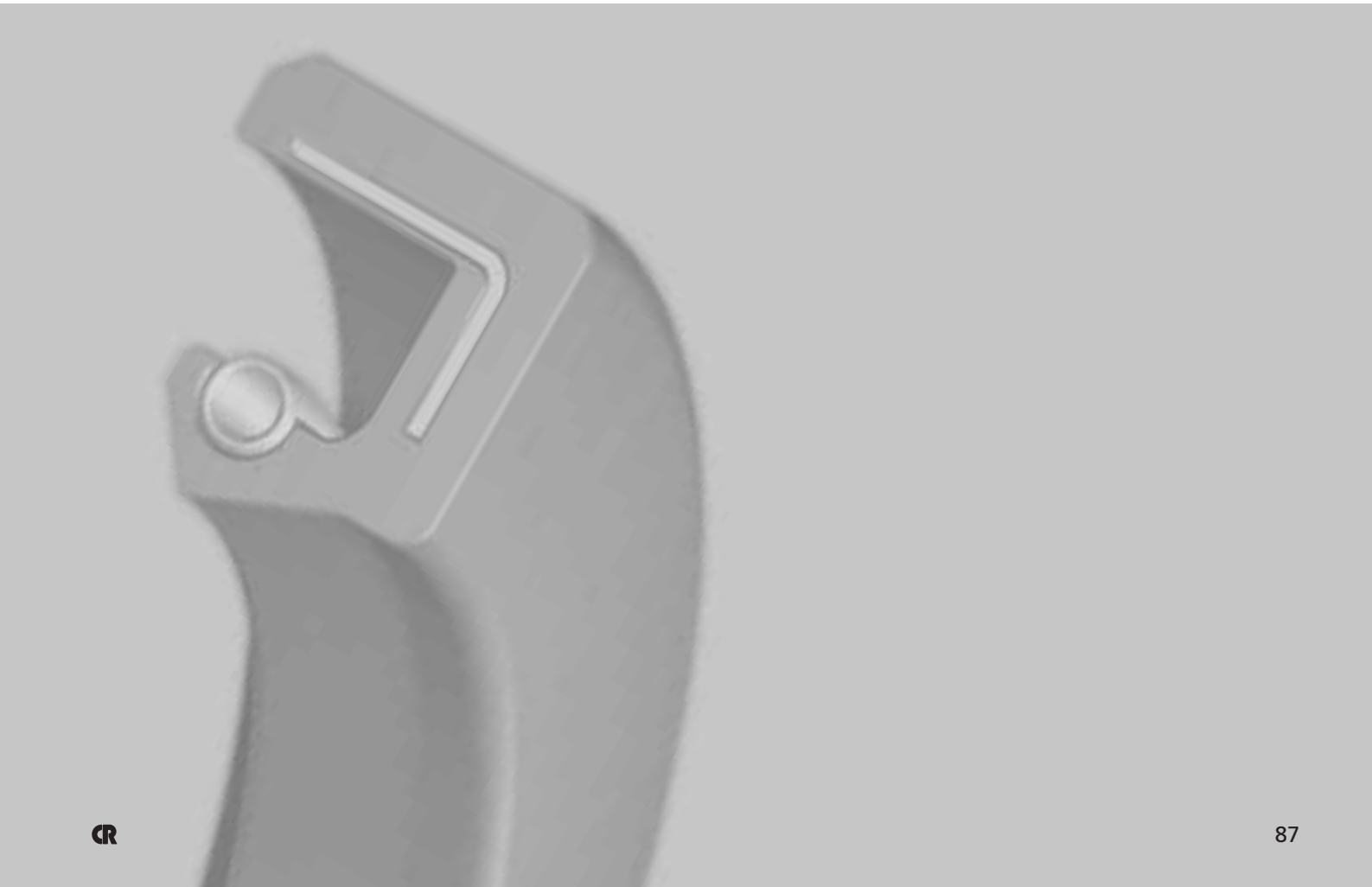


Housing dimensions shaft	bore	depth	**Designation** Lip material R	Lip material V
d_1	d_2	b		
mm			–	
17.875	19.850	0.812	**CR HSF9 6715 R**	**CR HSF9 6715 V**
454,03	504,19	20,62		
25.996	28.000	1.000	**CR HSF9 7233 R**	**CR HSF9 7233 V**
660,30	711,20	25,40		



SKF – THE KNOWLEDGE ENGINEERING COMPANY

The business of the SKF Group consists of the design, manufacture and marketing of the world's leading brand of rolling bearings, with a global leadership position in complementary products such as radial seals. SKF also holds an increasingly important position in the market for linear motion products, high precision aerospace bearings, machine tool spindles, plant maintenance services and is an established producer of high-quality bearing steel.

The SKF Group maintains specialized businesses to meet the needs of the global marketplace. SKF supports specific market segments with ongoing research and development efforts that have led to a growing number of innovations, new standards and new products.

SKF Group has global ISO 14001 environmental certification. Individual divisions have been approved for quality certification in accordance with either ISO 9000 or appropriate industry specific standards.

Some 80 manufacturing sites worldwide and sales companies in 70 countries make SKF a truly international corporation. In addition, our 7 000 distributor and dealer partners around the world, e-business marketplace and global distribution system put SKF close to customers for the supply of both products and services. In essence, SKF solutions are available wherever and whenever our customers need them.

Overall, the SKF brand now stands for more than ever before. It stands for the knowledge engineering company ready to serve you with world-class product competences, intellectual resources and the vision to help you succeed.

Harnessing wind power
The growing industry of wind-generated electric power provides an environmentally compatible source of electricity. SKF is working closely with global industry lead-ers to develop efficient and trouble-free turbines, using SKF knowledge to provide highly specialized bearings and condition monitoring systems to extend equipment life in the extreme and often remote environments of wind farms.

Developing a cleaner cleaner
The electric motor and its bearings are the heart of many household appliances. SKF works closely with appliance manufacturers to improve their product's performance, cut costs and reduce weight. A recent

example produced a new generation of vacuum cleaners with substantially more suction. SKF's knowledge in small bearing technology is also applied to manufacturers of power tools and office equipment.

Delivering asset efficiency optimization
To optimize efficiency and boost productivity, many industrial facilities outsource some or all of their maintenance services to SKF, often with guaranteed performance contracts. Through the specialized capabilities and knowledge available from SKF Reliability Systems, SKF provides a comprehensive range of asset efficiency services, from maintenance strategies and engineering assistance, to operator-driven reliability and machine maintenance programs.

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In the frigid winters of northern China, sub-zero temperatures can cause rail car wheel assemblies and their bearings to seize due to lubrication starvation. SKF created a new family of synthetic lubricants formulated to retain their lubrication viscosity even at these extreme bearing temperatures. SKF's knowledge of lubricants and friction are unmatched throughout the world.

Planning for sustainable growth
By their very nature, bearings make a positive contribution to the natural environment. Reduced friction enables machinery to operate more efficiently, consume less power and require less lubrication. SKF is continually raising the performance bar, enabling new generations of high-efficiency products and equipment. With an eye to the future, SKF's global policies and manufacturing techniques are planned and implemented to help protect and preserve the earth's limited natural resources. We remain committed to sustainable, environmentally responsible growth.

Evolving by-wire technology
SKF has unique expertize and knowledge in fast growing by-wire technology, from fly-by-wire, to drive-by-wire, to work-by-wire. SKF pioneered practical fly-by-wire technology and is a close working partner with all aerospace industry leaders. As an example, virtually all aircraft of the Airbus design use SKF by-wire systems for cockpit flight control. SKF is also a leader in automotive drive-by-wire, having jointly developed the revolutionary Filo and Novanta concept cars which employ SKF mechatronics for steering and braking. Further by-wire development has led SKF to produce an all-electric forklift truck which uses mechatronics rather than hydraulics for all controls.

Maintaining a 320 km/h R&D lab
In addition to SKF's renowned research and development facilities in Europe and the United States, Formula One car racing provides a unique environment for SKF to push the limits of bearing technology. For over 50 years, SKF products, engineering and knowledge have helped make Scuderia Ferrari a formidable force in F1 racing. (The average racing Ferrari utilizes more than 150 SKF components.) Lessons learned here are applied to the products we provide to automakers and the after-market worldwide.

SKF®

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