

## Industrial shaft seals



## Unit conversions

| Quantity         | Unit    | Conversion             |  |                |  |
|------------------|---------|------------------------|--|----------------|--|
| Length           | 1 mm    | inch                   | 0.039 in                                     | 1 in           | 25,40 mm                                 |
|                  | 1 m     | foot                   | 3.281 ft                                     | 1 ft           | 0,3048 m                                 |
|                  | 1 m     | yard                   | 1.094 yd                                     | 1 yd           | 0,9144 m                                 |
|                  | 1 km    | mile                   | 0.6214 mile                                  | 1 mile         | 1,609 km                                 |
| Velocity, speed  | 1 m/s   | foot per second        | 3.28 ft/s                                    | 1 ft/s         | 0,30480 m/s                              |
|                  | 1 m/s   | foot per minute        | 196.8504 ft/min                              | 1 ft/min       | 0,00508 m/s                              |
|                  | 1 km/h  | mile per hour          | 0.6214 mile/h (mph)                          | 1 mile/h (mph) | 1,609 km/h                               |
| Force            | 1 N     | pound-force            | 0.225 lbf                                    | 1 lbf          | 4,4482 N                                 |
| Pressure, stress | 1 MPa   | pounds per square inch | 145 psi                                      | 1 psi          | 6,8948 × 10 <sup>3</sup> Pa              |
| Temperature      | Celsius | ° (degree)             | t <sub>C</sub> = 0,555 (t <sub>F</sub> – 32) | Fahrenheit     | t <sub>F</sub> = 1,8 t <sub>C</sub> + 32 |



## SKF mobile app

SKF Seal Select is an online seal and accessory selection tool. Through several different input parameters you can easily find a suitable SKF sealing solution for a specific application. SKF Seal Select currently offers a selection tool for:

- SKF Speedi-Sleeve
- V-ring seals
- Radial shaft seals



Apple App Store

## This catalogue as PDF

To download a PDF document of this catalogue and for information about important updates, go to **skf.com/go/18729**. Please note product data in this printed catalogue was accurate on the day of printing. The latest and most accurate product data is always available for you on skf.com.



Catalogue as PDF

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Website



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# Foreword

This edition of the Industrial shaft seals catalogue supersedes the one published in June 2013 (publication number 10919/2). For this new edition, numerous revisions, additions and enhancements have been made to provide an even more comprehensive guide. Though the aim of this catalogue is to cover a very wide seal assortment, it still only includes a selection of our complete assortment of shaft seals and accessories.

The data in this catalogue may differ from that provided in earlier catalogues because of redesign, technological developments or revised methods of calculation. SKF reserves the right to make continuing improvements to SKF products without prior notice with respect to materials, design and manufacturing methods, as well as changes necessitated by technological developments.

## Catalogue overview

In order to emphasize the importance of studying the operating conditions of each application before selecting a sealing solution, this catalogue outlines the most important factors to consider. These are provided in the chapter Product data – general, along with basic shaft and housing bore requirements.

SKF industrial shaft seals and accessories are divided into three main groups:

- Radial shaft seals
- Axial shaft seals and
- Wear sleeves.

Different seal types within these groups are described with their respective design, materials and applications.

Product descriptions are followed by product tables. It should be noted, however, that these tables only cover a selection of available sizes.

## CR Seals®

Founded in 1878 as Chicago Rawhide, CR Seals has one of the longest histories in the seal industry. For the last 110 years, CR Seals has been setting performance and service life standards for industrial shaft seals.

CR Seals has also been part of SKF since 1990, a span during which we've developed new materials, manufacturing processes and designs to create some of the most robust seals on the market.



### Contact

Always contact your SKF sales representative for complete and updated availability information.

### The SKF Interactive Engineering Catalogue

SKF provides this catalogue in electronic format, the SKF Interactive Engineering Catalogue, online at [www.skf.com](http://www.skf.com).

### Units

The units in this catalogue are in accordance with ISO (International Organization for Standardization) standard 1000:1992, and SI (Système International d'Unités).



# SKF industrial shaft seals and accessories

A

Radial shaft seals

Seals for general industrial applications

Seals for heavy industrial applications

Cassette seals

B

Wear sleeves

SKF Speedi-Sleeve

Wear sleeves for heavy industrial applications (LDSLVS)

C

Axial shaft seals

Track pin seals

Metal face seals

V-ring seals

Axial clamp seals

# Important product updates

## HSS

HSS seals constitute a range of seals with a variety of design features and combinations of these, including solid and split versions, SKF Springlock, SKF Springcover, different spring connections and lubrications grooves.

The flexible manufacturing process enables the customization of sizes without minimum quantity and virtually without upper limits for both metric and inch sizes. This flexibility enables the same short delivery times for customized dimensions as for standard seals.



## HRS

HRS seals are machined seals and specially designed to cope with the harsh conditions of main shafts. They offer lubricant retention and contamination exclusion to reduce the risks of lubrication or contaminant-related bearing failures and their consequences, such as production downtime and repair costs. HRS seals are made of G-ECOPUR, a polyurethane with excellent abrasion resistance and tear strength.



## MUD11

SKF Mudblock seal design MUD11 is a new generation of cassette seals, specifically developed for oil-lubricated heavy-duty applications in harsh environments and tough operating conditions.

SKF Mudblock new generation seals last up to 50% longer and operate with up to 20% less friction than the competitor's seal. Yet SKF Mudblock seals also offer superior oil retention and contamination exclusion in the harshest, most contaminated conditions.



## TPM

SKF Trackstar seal TPM is a new solution for track pin seals, formed with a polyurethane sealing lip, a rubber energizer and a metallic part for increased robustness. It has an increased seal life time and subsequent track life, as well as a positive impact on maintenance cost reduction.

The seal has also been engineered with an integrated mounting lip feature in the rubber element, enabling easy and safe mounting, as well as making it suitable for robotized mounting.



# How to use

This catalogue is divided into four main parts:

- Product data – general
- A

Radial shaft seals
- B

Wear sleeves
- C

Axial shaft seals

Please see paragraph *Catalogue overview* on **page 10** and **11**.

## Principles of seal selection

Selecting an appropriate seal design and material depends on the operating conditions of the application. Because the influence of one operating condition typically dominates the seal selection process, there are no universal rules for determining the appropriate seal type or design for a given application. **Pages 103 to 105** and **174 to 183** show the standard SKF radial shaft seals and their main features and permissible operating conditions

## Product register and index

The product register and index are marked with colored bars on the right edge of the page. The product index lists series designations, relates them to the seal type, and guides you to the relevant product section and product table. The text index lists entries in alphabetical order, including designation suffixes, and helps you locate information quickly (**page 407**).

## US Designation index

The catalogue contains a numerical size listing of US seal designations to identify our seal assortment fast and easy. The numerical listing include designation, seal design, material and dimensions. On the top corner you will find a overview line with the first and last designation on the page.

Product data – general

A

Radial shaft seals

A.1

Seals for general industrial applications

A.2

Seals for heavy industrial applications

A.3

Cassette seals

B

Wear sleeves

B.1

SKF Speedi-Sleeve

B.2

Wear sleeves for heavy industrial applications (LDSL)

C

Axial shaft seals

C.1

Track pin seals

C.2

Metal face seals

| Size<br>mm | Dynamic runout<br>(DR) TIR | Pressure differential |     | Maximum shaft surface speed |        |
|------------|----------------------------|-----------------------|-----|-----------------------------|--------|
|            |                            | MPa                   | psi | m/s                         | ft/min |
| 0.51       | 0.020                      | 0.05                  | 7   | 14                          | 2 755  |
| 0.51       | 0.020                      | 0.07                  | 10  | 18                          | 3 600  |
| 0.51       | 0.020                      | 0.07                  | 20  | 18                          | 3 600  |
| 13         | 0.005                      | 0.35                  | 50  | 10                          | 2 000  |
| 1          | 0.020                      | 0.07                  | 10  | 18                          | 3 600  |

|     |                   |                   |     |
|-----|-------------------|-------------------|-----|
| 116 | MUD9              | Laborte seal      | 228 |
| 116 | SKF Speedi-Sleeve | Cassette seal     | 228 |
| 116 | SL                | Cassette seal     | 228 |
| 154 | SLA               | Wear sleeve       | 236 |
| 154 | SLX               | Radial shaft seal | 154 |
| 154 | TL1               | Radial shaft seal | 154 |
| 154 | TL4               | Radial shaft seal | 154 |
| 154 | TL6               | Radial shaft seal | 154 |
| 154 | TL7               | Radial shaft seal | 158 |
| 154 | TP                | Radial shaft seal | 158 |
| 154 | TPM               | Radial shaft seal | 158 |
| 154 | VR1               | Track pin seal    | 158 |
| 154 | VR2               | Track pin seal    | 158 |
| 154 | VR3               | V-ring seal       | 278 |
| 154 | VR4               | V-ring seal       | 278 |
| 154 | VR6               | V-ring seal       | 278 |
| 154 | VA                | V-ring seal       | 278 |
| 154 | VE                | V-ring seal       | 278 |
| 154 | VL                | V-ring seal       | 278 |
| 154 | VS                | V-ring seal       | 278 |
| 154 | VRME              | V-ring seal       | 278 |
| 154 | X1                | Radial shaft seal | 166 |
| 154 | X12               | Radial shaft seal | 166 |
| 154 | X13               | Radial shaft seal | 166 |
| 154 | X14               | Radial shaft seal | 166 |
| 154 | X15               | Radial shaft seal | 166 |
| 154 | X16               | Radial shaft seal | 166 |

| Metric or inch value |       | Numerical Designation |       | Material |       | Inner diameter |  | Outer diameter |  | Width |  | Metric or inch value |  |
|----------------------|-------|-----------------------|-------|----------|-------|----------------|--|----------------|--|-------|--|----------------------|--|
| 14780                | CRSA1 | NBR                   | 1 491 | 2 191    | 0.250 | Inch           |  |                |  |       |  |                      |  |
| 14789                | CRW1  | NBR                   | 1 494 | 2 060    | 0.270 | Inch           |  |                |  |       |  |                      |  |
| 14804                | HM14  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14807                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14808                | HM14  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14809                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14810                | HM14  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14811                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14812                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14813                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14814                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14815                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14816                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14817                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14818                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14819                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14820                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14821                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14822                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14823                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14824                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14825                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14826                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14827                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14828                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14829                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14830                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14831                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14832                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14833                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14834                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14835                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14836                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14837                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14838                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14839                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14840                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14841                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14842                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14843                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14844                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14845                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14846                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14847                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14848                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14849                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14850                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14851                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14852                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14853                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14854                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14855                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14856                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14857                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14858                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14859                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14860                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14861                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14862                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |
| 14863                | CRW1  | NBR                   | 1 500 | 1 874    | 0.188 | Inch           |  |                |  |       |  |                      |  |