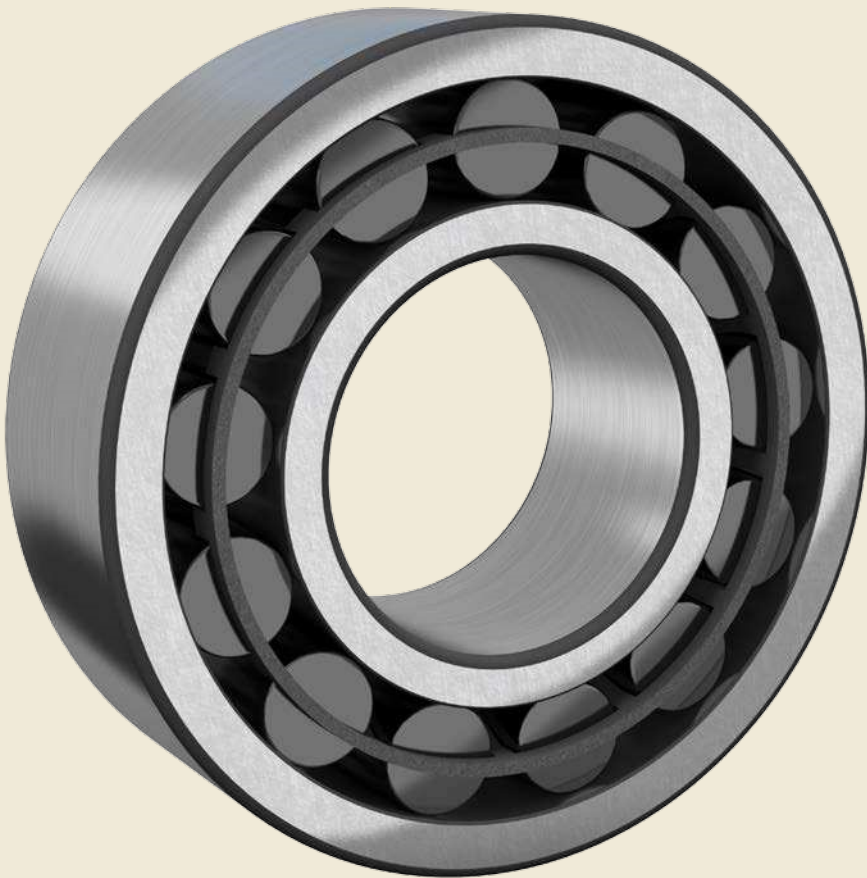




22

NoWear coated bearings



22 NoWear coated bearings

Designs and variants	1061
Cages	1061
Bearing data	1062
Bearing service life	1062
Loads	1062
Minimum load	1062
Load carrying capacity, equivalent bearing loads	1062
Temperature limits	1062
Permissible speed	1062
Lubrication	1062
Designation system	1062



22 NoWear coated bearings

More information

General bearing knowledge	17
Bearing selection process	59
Lubrication	109
Bearing interfaces	139
Seat tolerances for standard conditions	148
Selecting internal clearance or preload	182
Sealing, mounting and dismounting	193

NoWear is a wear-resistant carbon coating that can be applied to the rolling elements and inner ring raceway(s) of a bearing (designation suffix L7DA) or only the rolling elements (designation suffix L5DA) (**fig. 1**).

A physical vapour deposition process applies the wear-resistant carbon coating. Thickness of the coating ranges from 1 to 3 µm, depending on the size of the bearing. The hardness of the coating is 1 200 HV10.

NoWear coated bearing surfaces retain the toughness of the underlying material while adopting the hardness, improved friction properties and wear-resistance of the coating.

During the running-in period, minute amounts of the coating material are transferred to the counter-surfaces. This coating reduces friction and improves resistance against wear and smearing, even in bearings where only the rolling elements are coated.

Bearing features

- **Long service life**
- **Withstand severe operating conditions**
 - increased risk of smearing
 - insufficient lubricating film
 - sudden load variations
 - light loads
 - rapid speed changes
 - vibration and oscillations

Applications

NoWear coated bearings may provide new possibilities for existing applications operating under severe conditions. They can provide new design possibilities while requiring no major design changes. Typical applications

Fig. 1

NoWear coated bearing



L5DA

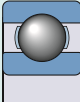
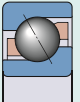
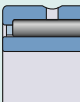
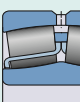
where NoWear coated bearings are used include:

- paper machines
- marine and offshore applications
- fans
- compressors
- hydraulic pumps
- gearboxes
- hydraulic motors

NoWear coated bearings are not intended for vacuum or other completely dry running applications. The coating does not act as a barrier against oxygen and is therefore not recommended as a corrosion inhibitor.

Table 1

NoWear coated bearings – standard assortment

Bearing type Symbol	Range	Available variants	
	Deep groove ball bearings d = 15 to 140 mm	L5DA	L7DA
	Angular contact ball bearings d = 15 to 140 mm	L5DA	L7DA
	Cylindrical roller bearings d = 15 to 220 mm d > 220 mm	L5DA L5DA	L7DA –
	Needle roller bearings d = 15 to 220 mm d > 220 mm	L5DA L5DA	L7DA –
	Spherical roller bearings d = 15 to 220 mm d > 220 mm	L5DA L5DA	L7DA –
	CARB toroidal roller bearings d = 15 to 220 mm d > 220 mm	L5DA L5DA	L7DA –
	Thrust ball bearings d = 15 to 110 mm	L5DA	–
	Spherical roller thrust bearings all sizes	L5DA	–

The ranges are general guidelines only and may vary between the dimension series. For additional information, contact SKF.

Designs and variants

The most commonly used NoWear coated bearings have a coating on only the rolling elements (designation suffix L5DA). They are recommended for applications where the bearing load is light to normal, or where vibration and oscillating movements occur.

NoWear coated bearings that have the inner ring raceway(s) and rolling elements coated (designation suffix L7DA) are recommended for any of the following operating conditions:

- abrasive contaminants that can cause premature wear
- heavy loads
- unusual lubrication conditions such as bearings lubricated by the process media

Most SKF rolling bearings can be supplied as NoWear coated bearings. For variants not listed in [table 1](#), contact SKF.

Cages

Refer to *Cages* in the relevant product section of the standard bearing.



Bearing data

Dimension standards, tolerances, internal clearance, permissible misalignment

Refer to *Bearing data* in the relevant product section of the standard bearing.

Bearing service life

The extended bearing service life that NoWear can provide in high-speed, lightly loaded applications is difficult to calculate and depends on a variety of factors. However, experience has shown a multifold improvement in bearing service life.

For greased bearings that operate at speeds near or above the permissible speed, or at high temperatures that shorten the grease life, using NoWear potentially extends re-lubrication intervals.

When operating under marginal lubrication conditions, NoWear can extend bearing service life.

Loads

Minimum load

Owing to the material combination of NoWear/steel in the contact area, the risk of smearing damage is reduced. NoWear coated bearings are recommended for applications with light loads in combination with high speeds, where smearing damage is an issue.

Load carrying capacity, equivalent bearing loads

Refer to *Loads* in the relevant product section of the standard bearing.

Temperature limits

For temperature limits of the bearing, refer to *Temperature limits* in the relevant product section of the standard bearing.

The NoWear coating withstands temperatures up to 350 °C (660 °F).

Permissible speed

Refer to *Permissible speed* in the relevant product section of the standard bearing.

Lubrication

In general, the same lubrication guidelines are valid for NoWear coated bearings as for standard bearings (*Lubrication*, page 110). However, NoWear coated bearings can operate reliably even where adequate surface separation cannot be achieved. NoWear acts as a protective layer and may reduce the need for EP and AW additives in the lubricant.

Designation system

Refer to *Designation system* in the relevant product section of the standard bearing.

The designation suffixes used to identify NoWear coated bearings are:

L5DA Coated rolling elements

L7DA Coated rolling elements and inner ring raceway(s)



