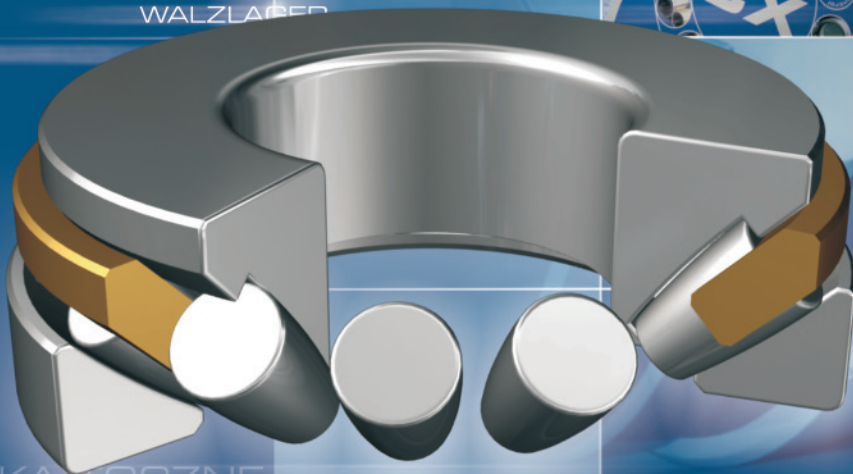


# 12. SPHERICAL ROLLER THRUST BEARINGS

ROLLING BEARINGS

ŁOZYSKA TOCZNE

WALZLARBEIT



SKA TOCZNE

ŁOZYSKA TOCZ

## TABLES:

## 12. SPHERICAL ROLLER THRUST BEARINGS

## 12.1. Spherical roller thrust bearings

## INTRODUCTION:

## 12. Spherical roller thrust bearings

## 12.1 Dimension series

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## 12.2. Structure

Spherical roller thrust bearings are single-row detachable bearings consisting of a cage, which holds a set of asymmetrically arranged spherical rollers and is not separable from the inner ring, and of a free outer ring. Owing to such construction the mounting of the inner ring together with a set of spherical rollers and the mounting of the outer ring can be carried out separately.

## 12.3. Cages

Cages of spherical roller thrust bearings are mostly made of brass and occasionally of steel.

## 12.4. Features

Spherical roller thrust bearings carry loads obliquely to the bearing axis from one track to the other. These bearings are also suitable – in contrast with other thrust bearings – for accommodating radial loads with simultaneously acting axial loads. The other important feature is also the self-alignment ability, connected with the resistance to shaft deflection and errors of alignment. Depending on the bearing-series, load, rotational speed and the fact which ring rotates, the ability of angular displacement ranges from  $1^\circ$  to  $3^\circ$ . A sine qua

non of effective performance of spherical roller thrust bearings is that the level of axial load must exceed 55% of the radial load value. If external load and the weight of machine parts leaning on the bearing are smaller than the minimal required axial load, additional axial load must be applied, e.g. with the help of springs.

## 12.5. Application

Unique features – extremely high load carrying capacity and, at the same time, the ability to support high velocities – result in charging spherical roller thrust bearings more than once with very responsible tasks. They are applied in heavy industry (machine industry), iron and steel industry and extractive industry in the first place.

## 12.6. Comparing features of thrust ball bearings and spherical roller thrust bearings

Parameters / Bearing type	53320	29320
Dynamic capacity [kN]	236	408
Rotational speed (grease) [r./min.]	940	1500

The table shown above serves as a comparison of capabilities of thrust ball bearings and spherical roller thrust bearings. In that case both load capacity parameters and parameters describing rotational speed of spherical roller bearings are better. Also, one shall not forget that spherical roller thrust bearings, on account of the oblique placement of spherical rollers in relation to the bearing axis, are able to carry both types of loads.



Fig.39 Spherical roller thrust bearing

TZ1201