Special Cylindrical Roller Bearings in Rotor Bearing Arrangement of a Tubular Strander with 93 Metres Length

FAG

Examples of Application Engineering

WL 17 524 EA

Manufacturer: SKET Verseilmaschinenbau GmbH · Operator: KISWIRE, Malaysia

The tubular strander SRW1+48x630 of the SKET Verseilmaschinenbau GmbH in Magdeburg, Germany, is the longest of its kind in the world. The rotating stranding tube is approximately 93 m in length and is made up of 24 tubular segments, which are supported in cylindrical roller bearings. 48 wires are stranded to a strand of 41 mm diameter maximum with this machine.

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Operating data

The machine is driven by a frequency-controlled three-phase motor.
The rotor speed of the SRW1+48×630 is 500 min^{-1} which corresponds to a bearing speed index of $n \cdot d_m \approx 525\,000\ min^{-1} \cdot mm$.

Bearings

Cylindrical roller bearing	FAG **F-803618.ZL**
Dimension (d×D×B)	950×1150×90 mm

Bearing design

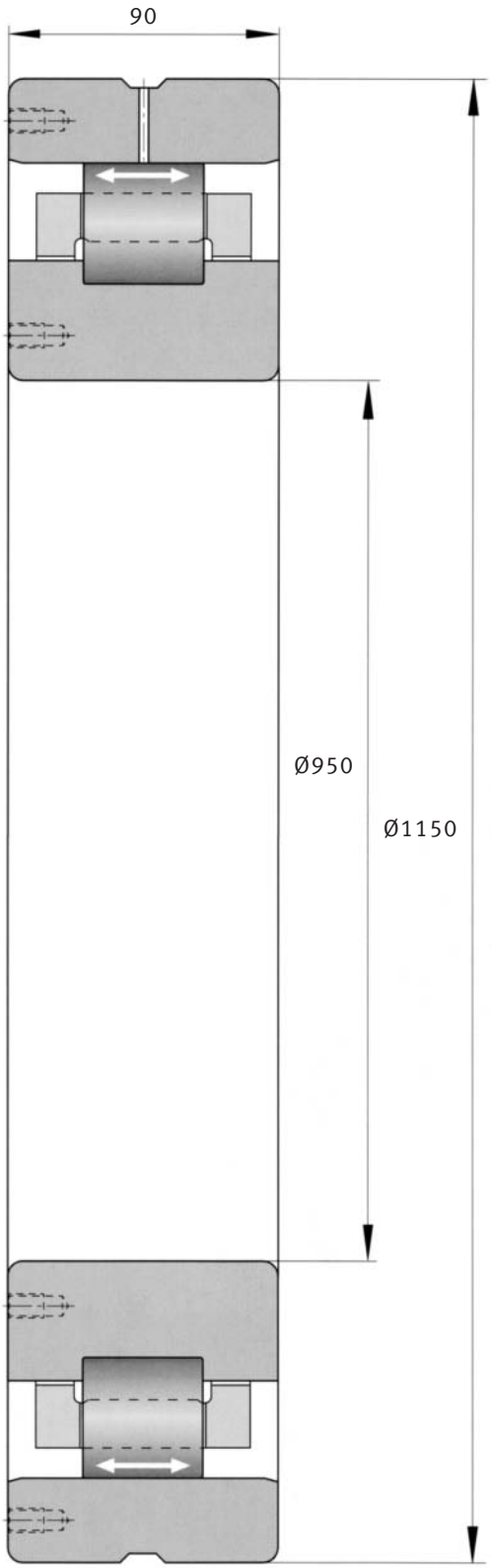
Temperature differences cause great axial length variations of the rotor. They are easily compensated for by the cylindrical roller bearings.

The long cylindrical raceway of the bearing outer ring allows axial displacement of ± 20,5 mm.

The outside diameter profile of the cylindrical rollers is suitable adapted to the case of application in question and compensates for any misalignment which may arise. With a load of $P/C \leq 0{,}2$, the compensation of misalignment is 4 angular minutes at a maximum.
The robust solid cage is guided on the inner ring lips.

Fits and mounting

The inner rings increase in width due to the high speed. They therefore have a tight fit on the shaft.
The tolerance of the housing bore is designed for easy mounting and dismounting.
The inner and outer rings have tapped holes on one face to accommodate the eye bolts for mounting.



Lubrication

An oil of viscosity class ISO VG 32 is used for lubricating the bearings. They are connected to a central lubricating system. 17 cm^3 of oil is fed directly to the rolling contact areas per minute through lubricating holes in the bearing outer rings. The lipless outer rings allow the oil to exit without obstruction which is a very important factor with such high speeds.

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