

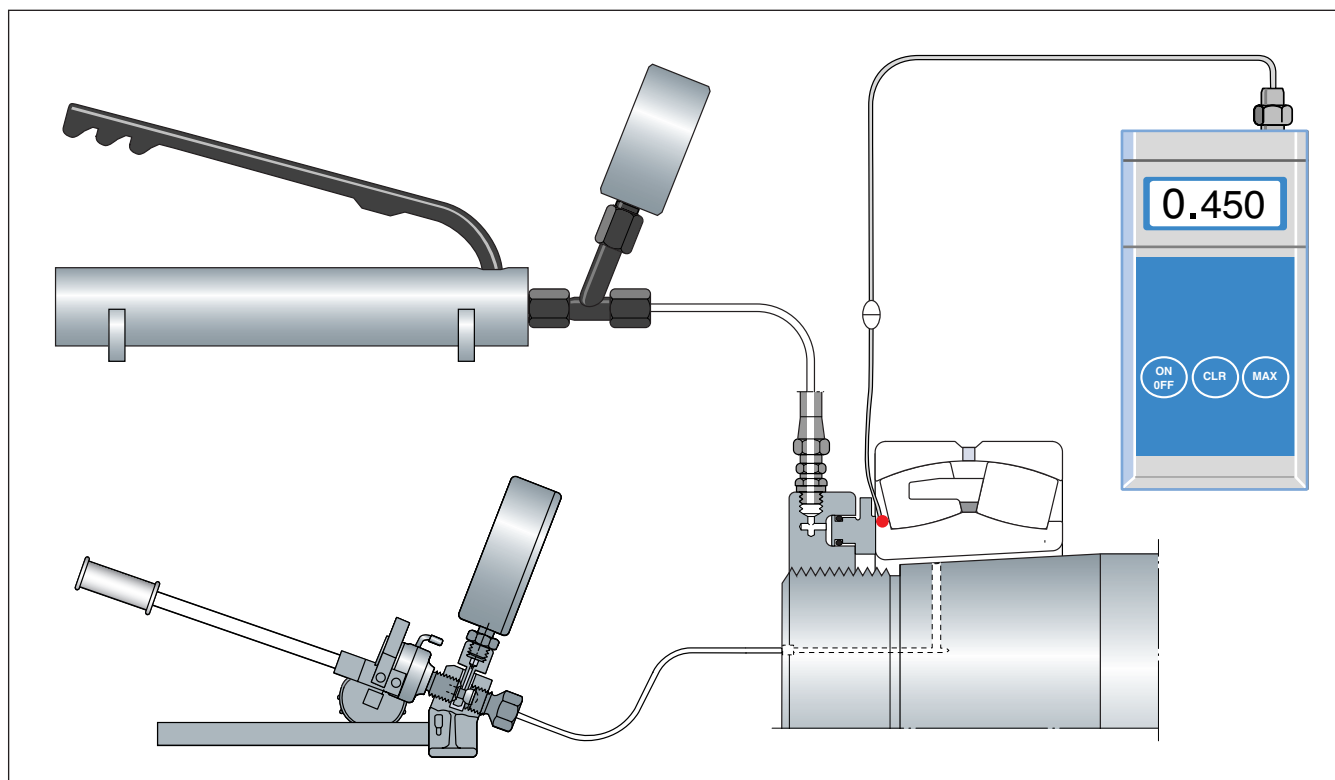
## SensorMount® for easy to use, fast and reliable drive-up on shaft seatings

The patented SensorMount® system allows large size, taper bore SKF spherical roller bearings of CAK design and CARB® to be mounted in an easy to use, fast and reliable way. The system comprises a bearing with an integrated sensor and a dedicated hand-held indicator.

Drive-up of bearing inner rings has always been a matter of great concern. The reason for this is that the expansion of the inner ring has been controlled indirectly by measuring axial displacement of the ring rather than the expansion. The surface roughness of the shaft seating, the injection oil viscosity and inaccuracies of mounting tools and in methods have been affecting the result.

That was yesterday. Now SKF offers the tool giving service engineers a high confidence level. As usual, the bearing is driven up the tapered seating using SKF's normal mounting tools. However, the SensorMount® system adds the feature of indicating exactly how much the inner ring expands, thus ensuring that the interference fit between the bearing and the shaft can be accurately achieved.

Details about the SensorMount® system are given on the following pages.



## Displayed value on the indicator

The information from the sensor is processed in the indicator which displays the inner ring expansion, see Figure 1. The indicated value is practically independent of bearing size, shaft material and whether the shaft is hollow or not.

The drive-up precision achieved by using the SensorMount® system is considerably better than that of the SKF drive-up method. The tolerance spread is more than halved which means very high reliability!

The relation between the bearing clearance reduction and the displayed value is according to the formula:

$$\frac{\text{Clearance reduction in mm}}{\text{Bearing bore diameter in m (metre)}} = \text{Displayed indicator value}$$

## Mounting procedure

The simple storyboard on adjacent page shows the mounting procedure. This story board is also shown on a slip that is included in the bearing boxes – one version for spherical roller bearings and one for CARB®. This is the procedure step by step:

- 1 Clean and then lubricate the shaft seating lightly with a thin oil (See under Drive-up recommendations, Page 4).
- 2 Place the bearing on its seating . Unpack the sensor cable and mount the HMV nut and its hydraulic pump.
- 3 Connect an oil injector to the shaft duct.
- 4 Connect the sensor cable to the indicator cable.
- 5 a/ Switch on the indicator. b/ Zero the display.
- 6 Initially, drive up the bearing slightly on its seating to achieve full contact between the surfaces. Then continue by pressurising the oil injector and finally driving up the bearing on its seating. When the indicator displays the required value the drive-up is correct (See guideline values on Page 4).
- 7 Release the pressure from the oil injector but wait for some 20 minutes before releasing the oil pressure in the HMV nut.
- 8 Cut off the cable close to the sensor by means of a pair of



Figure 1

The value 0.450 shown on the display is a common value for normal operating conditions.

### Note!

#### Before starting the drive-up procedure...

the temperature of the bearing, the sensor, the indicator and the shaft should be the same!

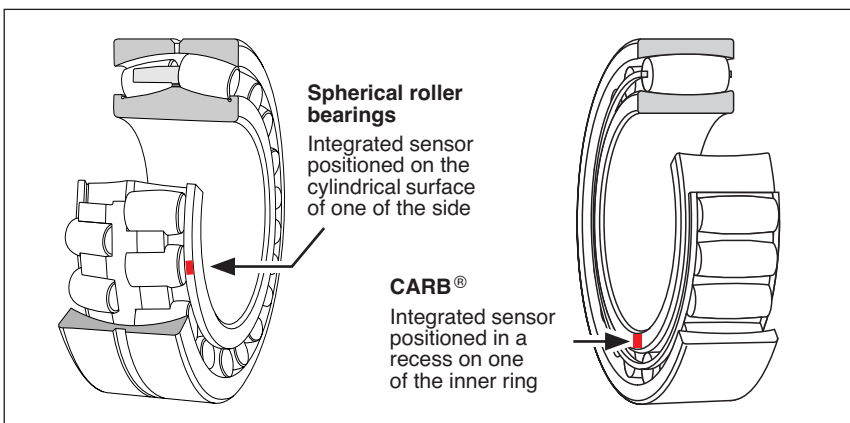
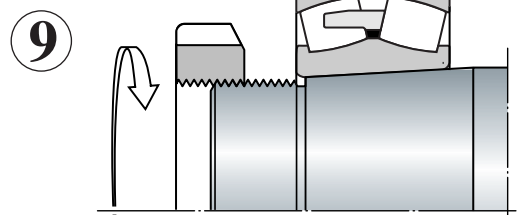
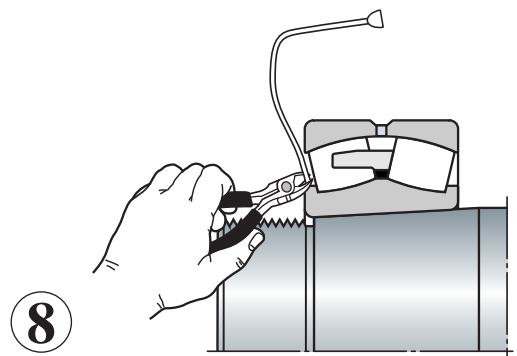
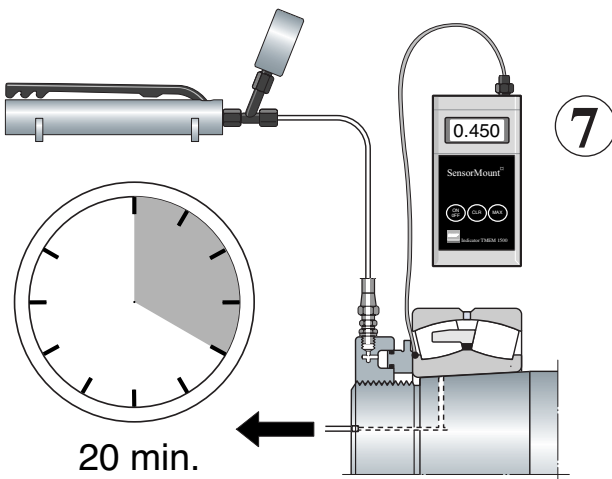
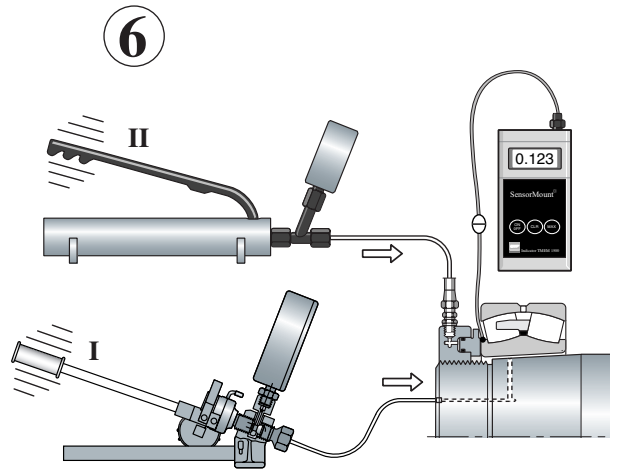
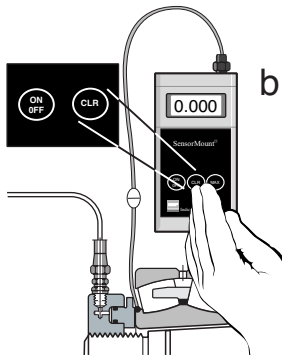
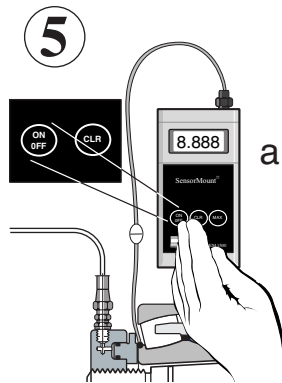
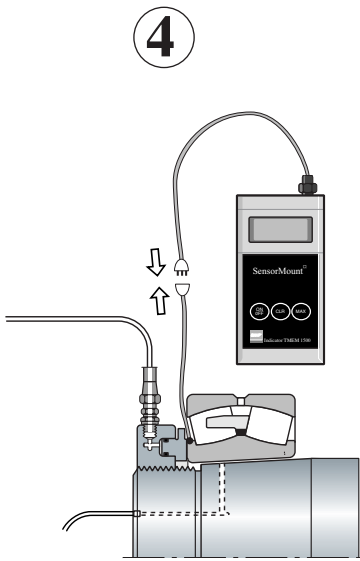
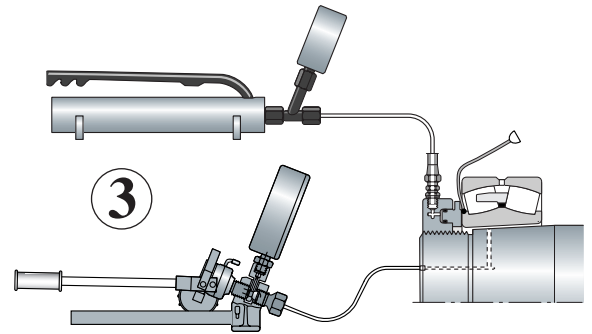
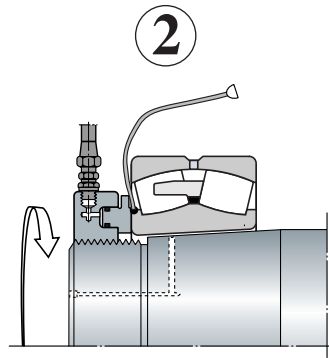
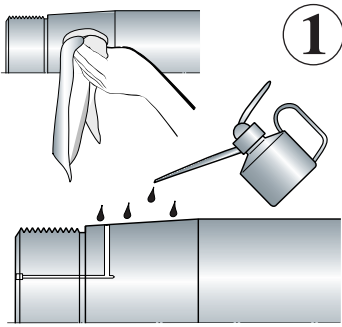


Figure 2

The position of the sensor in the different bearings



## Designations

- Bearings with sensor for mounting on tapered shaft have the prefix **ZE**  
(The sensor is positioned on the small bore diameter side)
- Bearings with sensor for mounting on withdrawal sleeve have the prefix **ZEB**.  
(The sensor is positioned on the large bore diameter side)

*Example: ZE 23084 CAK/W33*

- The indicator is supplied separately and has its own designation, **TMEM 1500**.

## Bearing size range

We can offer CAK design bearings with an integrated sensor for most sizes with bore diameter  $\geq 340$  mm. The size range for CARB® is based on the CAK range which means that they are available in matching series and sizes.

## Availability

Bearings with sensor are supplied to special order. However, if the bearing itself is standard, the time of delivery is relatively short.

## Drive-up recommendations

It is recommended to use a hydraulic oil of approximately 300 mm<sup>2</sup>/s (cSt) at ambient temperature. A suitable oil is SKF LHM 300.

Drive-up values for individual applications must be chosen according to proven experience. As a guideline, Table 1 shows typical drive-up values for different load levels. It is advisable to consult SKF Engineering Services in cases where a very heavy drive-up is required.

**Table 1**

Guideline drive-up values for different load levels

Load level	Drive-up ‰
$P \leq 0,06C$	0,350
$P = 0,06C - 0,12C$	0,450
$P > 0,12C$	0,600