

No more wear and vibration problems in fan after upgrading to CARB™

The Australian mineral resources company RGC Mineral Sands experienced bearing service lives of only four to six weeks in a 130 kW fluid bed drier fan equipped with spherical roller bearings. This service life of course gave unacceptable production losses and maintenance costs.

In cooperation with the local SKF office, SKF spherical roller bearings, adapter sleeves and housings were fitted – the result was that bearing temperatures were reduced by 28 °C, vibration levels were lower and after four months of operation the fan was still running.

However, due to the light and variable loads and loose fits in the housings, the outer ring of the impeller end (non-located) bearing was spinning in the housing, so it was decided to upgrade further, to the new optimum bearing solution, using the toroidal roller bearing CARB at the non-locating position. The outer rings of the bearings could then have tight fits in the housings, eliminating any problems with wear and vibration, and with no risk of axial cross location forces between the bearings.

The result was that the vibration levels at the impeller end bearing assembly were reduced from 11,5 to 3,4 mm/s RMS in the horizontal direction, from 6,6 to 2,7 mm/s RMS in the vertical direction, and from 4,0 to 2,8 mm/s RMS in the axial direction. Bearing temperatures were reduced by a further 14 °C (non-locating bearing) and 10 °C (locating bearing).

The fan has now been running with the upgraded bearing arrangement since April 1998 with no sign of any problems. This is one more case proving that a toroidal roller bearing in combination with a spherical roller or self-aligning ball bearing is the best solution for industrial fans, providing optimum performance, highest reliability and minimum operating costs.

Operating conditions

| | |
|------------------|------------------------------|
| Bearing: | C 2216 K + H 316 |
| Bearing housing: | SNH 516 |
| Speed: | 3 000 r/min |
| Temp. ambient: | varies from 19 to 37 °C |
| Temp. bearing: | 27 °C at 23 °C ambient temp. |
| Bearing load: | ~1 000 N |
| Lubrication: | lithium grease, NLGI 2 |

CARB™ advantages

- reduced vibration
- reduced bearing temperature
- no wear in housing
- increased service life
- less machine down time
- reduced maintenance cost

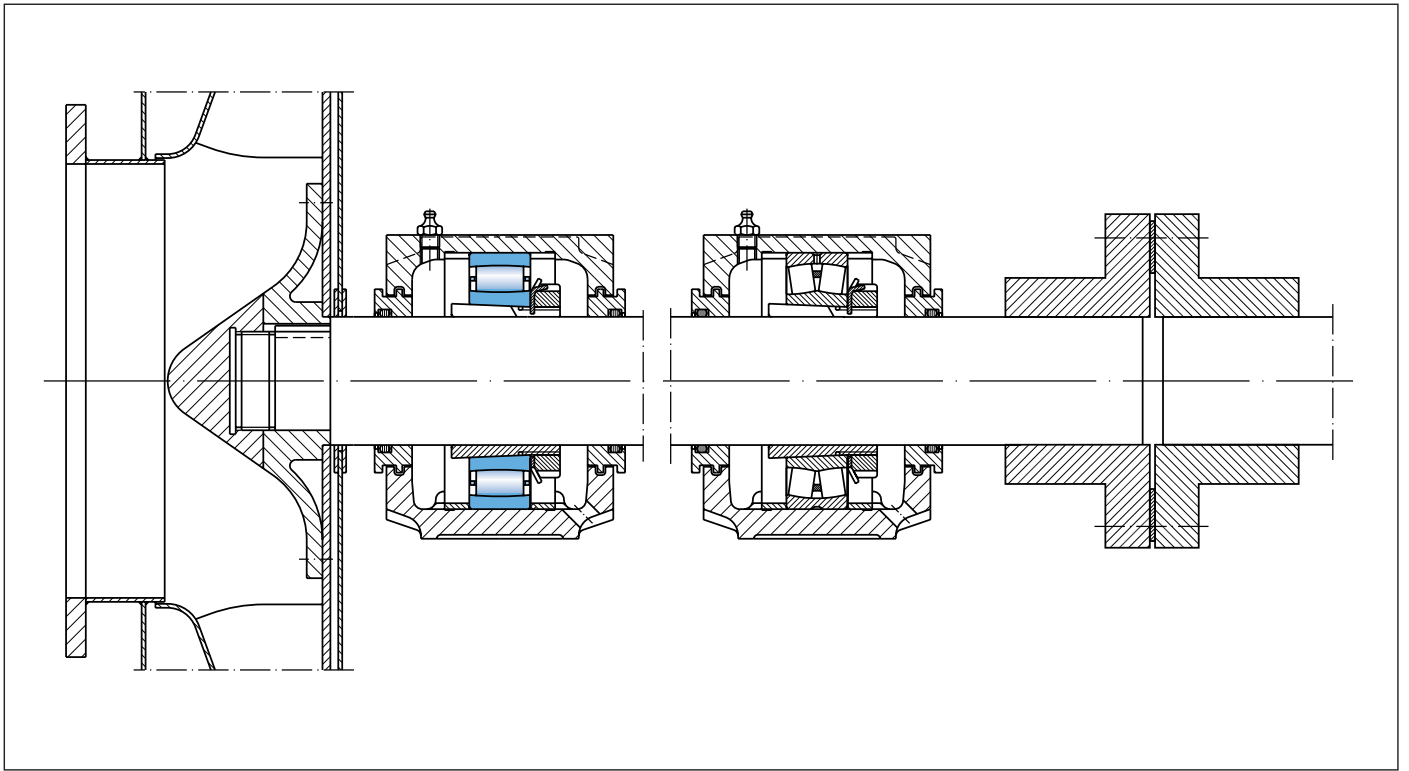


View of the fan

Please turn over!

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Sketch of the fan bearing arrangement