

Schaeffler Global Technology Solutions

Chemical and oil

Six-Figure Savings due to FAG Split Spherical Roller Bearings

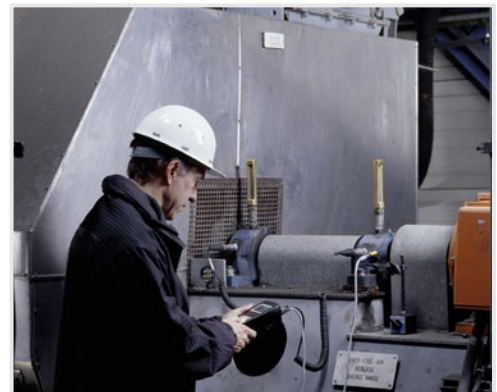
The customer is a globally-active specialty chemicals company based in Australia.

Challenge for Schaeffler

The exhaust gas fan failed in the processing facility of the chemical plant. The plant operator was forced to replace the rolling bearing quickly due to the toxic gases and the resulting explosive atmosphere that occurred in the chemical production process. However, it was very difficult to access the standard spherical roller bearing, with which the fan was originally fitted. Experience had shown that a mounting time of approximately 14 hours had to be expected in such cases.

Schaeffler Solution

In order to achieve optimum downtime periods and costs, Schaeffler recommended using an FAG split spherical roller bearing. These bearings can be fitted as a direct replacement for conventional spherical roller bearings and the corresponding adapter sleeve; the outside diameter, outer ring width and diameter of the shaft seat are the same. Schaeffler also provided the customer with support during mounting. All detailed planning work was coordinated in close collaboration between Schaeffler Australia and Schaeffler-mounting specialists as well as Schaeffler application engineers from Germany. An experienced Schaeffler technician assisted with the mounting and modification work on site.



Technical Information about the Fan

Fan type:

Radial fan

Drive

Direct drive with clutch

Speed:

1 180 RPM

Power:

315 kW

Volume of air:

15.94 m³/s at 0.12 bar

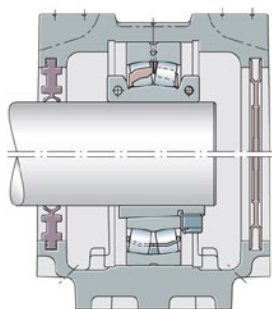
Temperature:

60 – 70 °C





FAG split spherical roller bearing



Split spherical roller bearings and unsplit bearings with adapter sleeve have the same design envelope



Split bearings fit in existing split plummer block housings

Customer Benefit

Downtimes during bearing replacement and fitting costs were significantly reduced due to the change from a standard spherical roller bearing to an FAG split spherical roller bearing.

Costs	Unsplit bearing	Split bearing
Downtime:	14 hours	3 hours
Costs of production stoppage (€ 20 000 per hour during stoppage of fan):	€ 280 000	€ 60 000
Man hours:	€ 2 632	€ 564
	(2 persons x 14 hrs/€ 94)	(2 persons x 3 hrs/€ 94)
Alignment:	€ 510	not required
	(3 hrs/€ 170)	
Crane hire:	€ 400	not required
	(4 hrs/ € 100)	
Replacement bearing (drive side, as a precaution):	€ 330	not required
Replacement bearing (fan side):	€ 330	€ 850
Total costs for bearing replacement:	€ 284 202	€ 61 414
Cost savings:		€ 222 788

Technical Information about the Solution

Existing bearing with sleeve:

22226-E1-K-C3 and H3126 on drive and fan side

New FAG split spherical roller bearing:

222SM115T

What's special

In addition to the direct savings, the use of FAG split spherical roller bearings also makes long-term savings possible, as future bearing replacements can be carried out more quickly. The benefits in terms of costs and time listed above can be achieved from the very beginning if split bearings are considered from the outset when designing new plant and machinery.