

Reduce costs with the SKF conveyor solution

SKF sealed spherical roller bearing

Sand and mineral processor extends bearing life and reduces costs with an SKF solution.

A leading worldwide manufacturer and supplier of industrial sand, industrial minerals, sodium silicate and products for cleaning water, air and gases processes more than 35 000 tonnes of sand annually at the company's main processing facility in Sweden.

The sand is moved from its source uphill to the processing facilities on 11 vertical and 11 horizontal conveyors.

Each conveyor was equipped with 4 open spherical roller bearings in the head and tail pulleys, for a total of 88 bearing positions. At every step of the way, the bearings were exposed to contamination from the ingress of sand, dust and grit. These contaminants continually damaged the housing seals, resulting in reduced bearing service life. Operators found it necessary to replace the bearings every 9 months, and the housings every 18 months. Downtime for planned maintenance took two hours, and twice that if a bearing failed unexpectedly. Costs for parts replacement, lost production and manpower were difficult to control.



SKF application specialists suggested testing an SKF conveyor solution, including a sealed spherical roller bearing, which is designed to protect the bearing from contaminants. As shown in the table overleaf, the test compared the cost and performance of the open bearing currently used, with an open bearing equipped with a taconite seal and an SKF sealed spherical roller bearing.

Over the 24-month test period, the open bearing failed every nine months. The open bearing with the taconite seal and the SKF sealed spherical roller bearing performed equally well and did not fail during the 24 month test period. In addition, the SKF sealed solution offered the advantages of lower overall costs, and trouble-free operation without the need for the expensive, environmentally unfriendly grease required with taconite seals.

Components	Basic designation	Original arrangement Open bearing (22211 EK)	Tested solution 1 Open bearing with taconite seal	Tested solution 2 SKF sealed spherical roller bearing (BS2-2211-2CSK/VT143)
–	–	(Euro)	(Euro)	(Euro)
Bearing	22211	87	87	136
Sleeve	H 311	19	19	24
Housing	SNL 511-609	84	84	84
Housing seal	TSN 511 L	10	0	10
Taconite seal	TSN 511 ND	0	128	0
Locating rings	2 × FRB 6.5/100	6	6	6
Cost for one unit		206	324	260
Cost over 24 months¹⁾		524²⁾	324	260
		Bearing service life 9 months	No bearing failure after 24 months	No bearing failure after 24 months

¹⁾ Over a 24-month period, three new bearings, sleeves and locating rings were required. Two new housings and housing seals were required
²⁾ 524 includes costs for replacing bearings, sleeves, housing, housing seal and locating ring over 24 months

Cost for 88 bearing units over 24 months (22 conveyors with 4 bearing positions each)

Open bearing	€ 46 112
SKF sealed spherical roller bearing	€ 22 880
Cost savings of SKF conveyor solution	€ 23 232

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