

Customer reference case

Mineral industry

SKF sealed spherical roller bearing



Reduce costs with the SKF conveyor solution

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

Askania is a leading worldwide manufacturer and supplier of industrial sand, industrial minerals, sodium silicate and products for cleaning water, air and gases. At the company's main processing facility in Sweden, more than 35 000 000 kg of sand are processed annually.

11 vertical conveyors and 11 horizontal conveyors move the sand from its source up hill and over to the processing facilities.

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 bearing seals, resulting in reduced bearing service life. Askania 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 that Askania test an SKF conveyor solution including a sealed spherical roller bearing, which is designed to protect the bearing from contaminants. As shown in the chart below, the Askania 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 unsealed 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 months test period. However, 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	Design	Customer solution Open bearing (22211 EK)	Tested solution 1 Open bearing with taconite seal (22211 EI)	Tested solution 2 SKF sealed spherical roller bearing (BS2-2211-2CSK)
		(Euro)	(Euro)	(Euro)
Bearing	22211	87	87	136
Sleeve	H311E	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
Guide rings	2 × FRB 8/100	6	6	6
Cost for one unit		206	324	260
Cost over 24 months¹⁾		524²⁾	324	260
		Bearing life 9 months.	No bearing failure after 24 months	No bearing failure after 24 months

¹⁾ Over a 24-month period, 3 new bearings, sleeves and guide rings were required. Two new housings and housing seals were required (3 bearings @ 17 ea., 3 sleeves @ 4 ea., 2 housings @ 16 ea., 2 seals @ 3 ea., and 3 guide rings @ 1,5 ea.)
²⁾ 107 includes costs for replacing bearings, sleeves, housing, housing seal and guide ring over 24 months

**Cost for 88 bearing units over 24 months
(22 conveyors @ 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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