

NSK

NSK CASE STUDY

INDUSTRY

QUARRY, MINING & CONSTRUCTION

APPLICATION

CONVEYOR PULLEY

COST SAVINGS: \$72,846

At an iron ore facility, a bend pulley on a critical conveyor needed change out after only 12 months of operation. This was due to heavy ingress of iron ore particles in the lubricant, leading to severe bearing material wear. The short operating life required regular maintenance that was costly, both in man hours and lost production.

VALUE PROPOSAL

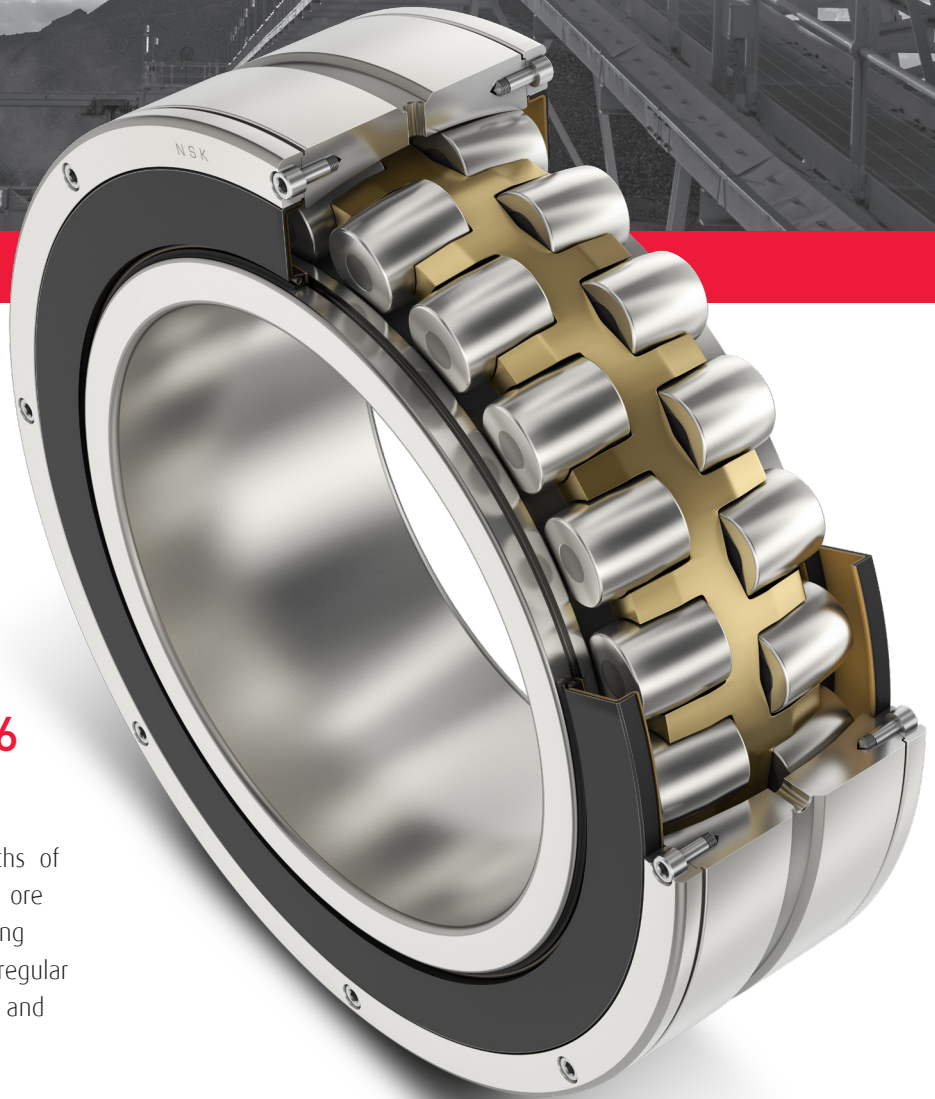
NSK Engineering designed a Sealed Spherical Roller Bearing for the conveyor application that offered a Hi-TF Tough Steel technology solution and removable nitrile (HNBR) garter sprung seals to extend operating life. Hi-TF Tough Steel is an effective countermeasure to the wear commonly found on the outer ring raceway, where the fixed load zone material wears under fine particle ingress.

At nine months of operation the pulley lagging failed, resulting in the pulley being removed from service. Under normal pulley repair procedures, the pulley is removed from site and overhauled with new bearings and sleeves. With the use of NSK's proven removable garter sprung seals, pulley repairers were able to inspect the bearings, and after consultation with NSK, declare them suitable for reuse.

The bearings were reinstalled and have returned to service for an additional two years operation. **The material substitution and additional removable garter sprung seals have increased operating life by 21 months.**

STAY IN MOTION. STAY IN CONTROL.

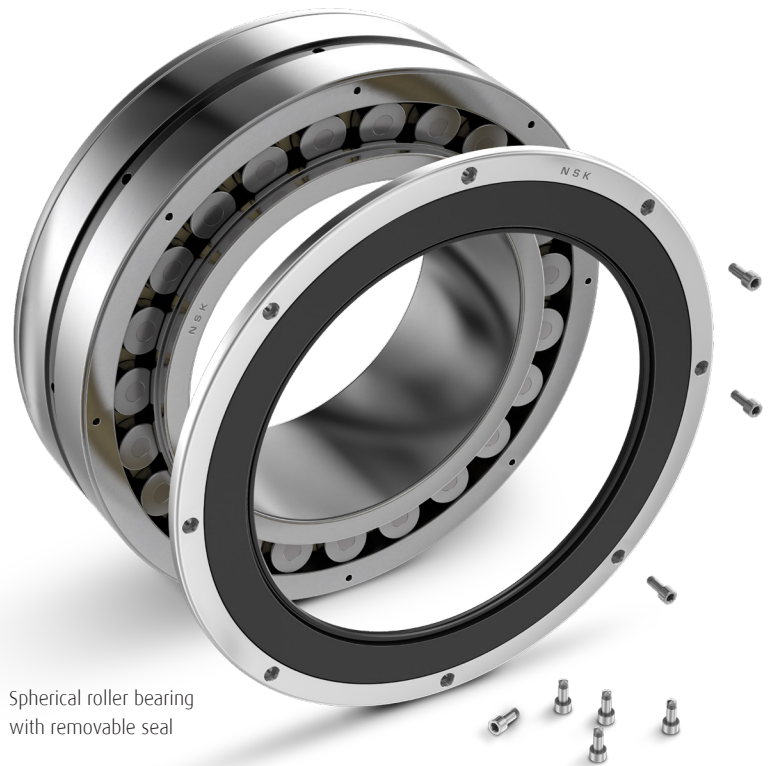
CONTACT NSK ▶





PRODUCT HIGHLIGHTS

- › Dimensionally interchangeable with standard designs
- › Manufactured with Hi-TF long-life steel
- › Integral garter spring ensures high seal performance and compensation for bearing misalignment
- › Seal lip contacts on the bearing inner ring, with easy, bolt-fastened installation of the removable seal holder to the bearing outer ring
- › Rubber seal material is suitable for operating temperatures up to 100°C
- › Equipped with a heavy-duty machined brass cage
- › Tapered bore standard
- › With outer-ring lubrication groove and holes



Spherical roller bearing with removable seal

COST-SAVING BREAKDOWN

BEFORE	COST	NSK SOLUTION	COST
Product Cost - 3 sets (2 per pulley)	\$14,782	Product Cost - 1 set (2 per pulley)	\$8,312
Loss of Production - 36 hours x \$2,700/hr	\$97,200	Loss of Production - 24 hours x \$2,700/hr	\$64,800
Engineering / Maintenance	\$102,488	Engineering / Maintenance	\$68,512
Total	\$214,470	Total	\$141,624

TOTAL COST SAVING

\$72,846

YOUR PARTNER FOR MACHINE OPTIMIZATION

Our AIP Added Value Program is based around a simple proposition: 'improvement pays'. By working with you throughout the AIP Value Cycle, we will help you achieve improvements in machine reliability, productivity and performance, all of which carry a tangible and measurable cost benefit – and we have the tools to prove it! That's what we mean by **improvement pays**.

