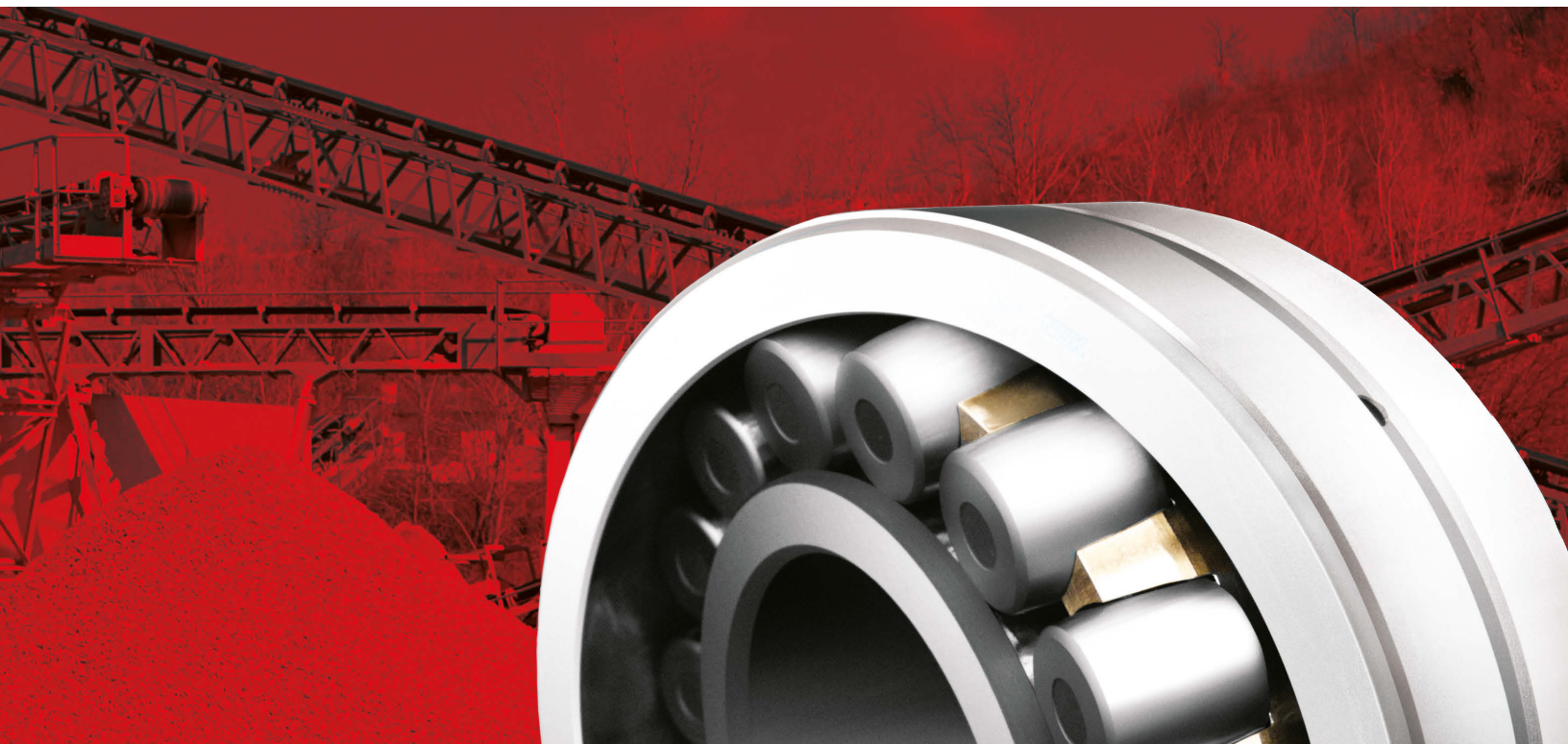


NSK

NSK TOUGH STEEL BEARINGS EXTENDED-LIFE SPHERICALS

FOR CONVEYOR APPLICATIONS

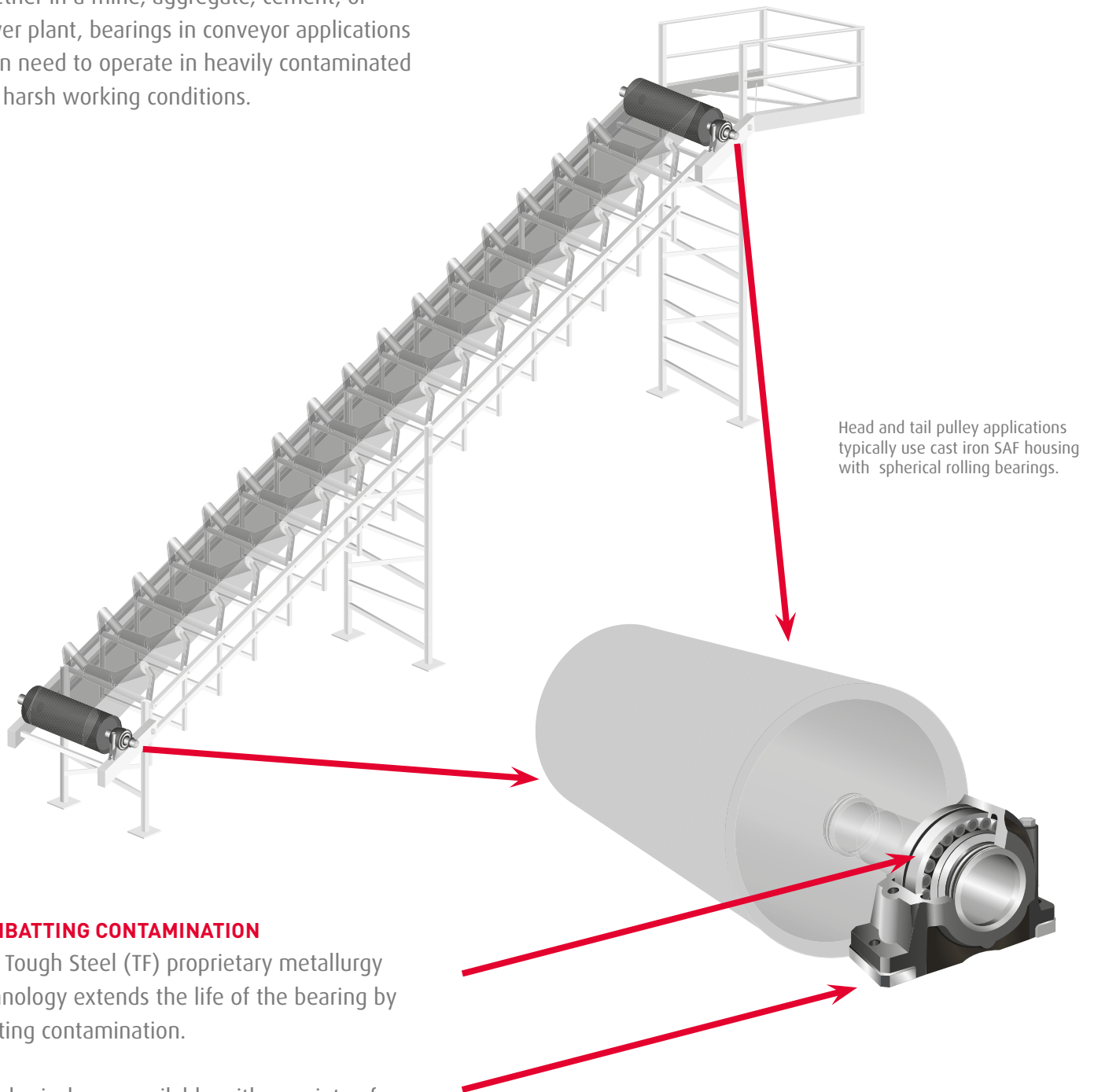


STAY IN MOTION. STAY IN CONTROL.

APPLICATION

CONTAMINATION ISSUES

Whether in a mine, aggregate, cement, or power plant, bearings in conveyor applications often need to operate in heavily contaminated and harsh working conditions.



COMBATTING CONTAMINATION

NSK Tough Steel (TF) proprietary metallurgy technology extends the life of the bearing by fighting contamination.

TF sphericals are available with a variety of sealing options depending on the level of contamination and protection needed.

OPEN TOUGH STEEL BEARINGS

SUCCESS STORY

Heavy contamination in a coal mining head pulley was causing bearing failures every 18 months leading to lost production and increased maintenance time. NSK Tough Steel bearings were installed and extended the bearing life to over 6 years.

Application: Coal Mine Head Pulley
4x life over standard material

Documented Cost Savings: \$5,050,880

OTHER SUCCESSES

Application: Coal Mine Head Pulley
2.25x life over standard material

Documented Cost Savings: \$3,367,250

REMOVABLE SEAL TOUGH STEEL BEARINGS

SUCCESS STORY

An iron ore mine was having contamination issues in their head and tail pulley bearings and was looking to extend their life. NSK proposed their Removable Seal Tough Steel Spherical Roller bearings to increase life due to extra protection against contamination while also improving performance through better installation practices.

Application: Iron Ore Mine Bend Pulley
7-10x life over standard material

Documented Cost Savings: \$415,146

OTHER SUCCESSES

Application: Iron Ore Mine Bend Pulley
3x life over standard material

Documented Cost Savings: \$177,920

Application: Iron Ore Mine Bend Pulley
3x life over standard material

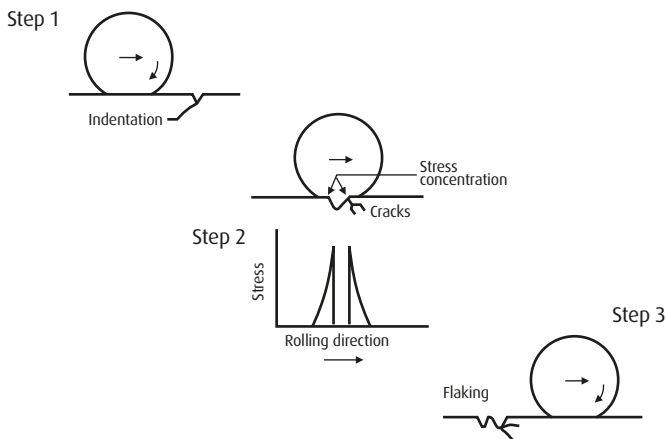
Documented Cost Savings: \$97,130



BEARING FEATURES

IMPROVE BEARING LIFE IN CONTAMINATED CONDITIONS WITH TOUGH STEEL

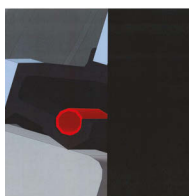
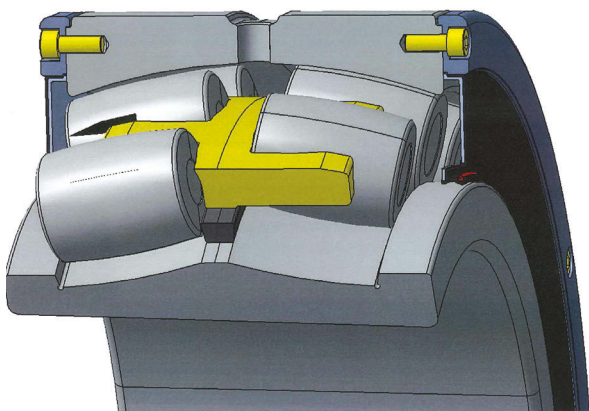
Contamination is the leading cause of premature bearing failure. In testing, NSK's Tough Steel has conclusively proven its longevity with over 7x life in contamination and 4.7x life in marginal lubrication (vs. carburized steel) and 1.5x life in clean conditions (vs. through hardened steel). The microstructure of Tough Steel prevents contamination indentations from creating flaking and spalling.



NSK TF steel mitigates sharp edges (r), caused by debris denting, that lead to high concentrations of stress and eventual flaking and spalling.

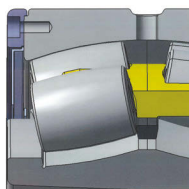
SEALED HTF BEARINGS FOR EXTREME ENVIRONMENTS*

NSK's unique seal design allows for removal of the seal for clearance measurement. Combined with Tough Steel technology, this bearing has an increased load rating to maximize life and minimize downtime.



Garter spring

NSK adopts the garter spring on the seal in order to keep constant pressure on the seal lip which can compensate for misalignment.



Seal holder

NSK adopts a removable seal holder which allows you to check the bearing residual clearance after mounting using a feeler gauge.

* Available in limited 231 and 222 sizes. Contact NSK for inquiries outside of 231 and 222 series.

SPLIT HOUSING FEATURES



NSK split housings are available with NSK's new OLB seal for the most protection in contaminated environments. This seal performs well in both grease and oil applications. Compared to standard TER designs, the OLB seal is narrower and requires no maintenance.

SEAL CHARACTERISTICS

CHARACTERISTICS	PERFORMANCE
Grease lubrication	excellent
Oil lubrication	excellent
Friction torque	very good
Speed	equal to bearing rating
Temperature range	up to 400° F
	PROTECTION
Dust	excellent
Large particles	excellent
Water	very good

SAF GREASE FILL AND CAP BOLT INFORMATION

SAF 2-Bolt	SAF 4-Bolt	Cap Bolts			Initial Lube Fill (oz)	
		Bolt Size	Qty	T (Ft-lbs)	Low Spd ⁽¹⁾	Hi Spd ⁽²⁾
SAF509		3/8-16UNC x 2	2	26	2.2	1.8
SAF510		3/8-16UNC x 2	2	26	2.8	2.0
SAF511		1/2-13UNC x 2-1/4	2	50	3.7	2.5
SAF513	FSAF513	1/2-13UNC x 2-1/4	2	50	6.5	4.0
SAF515	FSAF515	1/2-13UNC x 2-1/4	2	50	8.3	5.0
SAF516	FSAF516	1/2-13UNC x 2-1/4	4	50	10.0	6.0
SAF517	FSAF517	1/2-13UNC x 3	4	50	12.0	7.0
SAF518	FSAF518	1/2-13UNC x 3	4	50	16.0	7.5
SAF520	FSAF520	5/8-11UNC x 3-1/2	4	100	23.0	15.0
	SAF522	5/8-11UNC x 3-1/2	4	100	31.0	20.0
	SAF524	5/8-11UNC x 4	4	100	37.0	22.0
	SAF526	3/4-10UNC x 4-1/2	4	175	40.0	28.0
	SAF528	3/4-10UNC x 4-1/2	4	175	52.0	32.0
	SAF530	3/4-10UNC x 5	4	175	62.0	34.0
	SAF532	3/4-10UNC x 5	4	175	75.0	40.0
	SAF534	1-8UNC x 6-1/2	4	245	90.0	55.0
	SAF536	1-8UNC x 6-1/2	4	245	120.0	65.0
	SAF538	1-8UNC x 6-1/2	4	245	150.0	75.0
	SAF540	1-8UNC x 7	4	245	200.0	85.0
	SAF544	1-8UNC x 7-1/2	4	245	250.0	125.0

For other Series SAF Blocks, contact NSK.

⁽¹⁾ Low speed applications generally involve conveyors. Bearings exposed to weather are better off relatively full to deter moisture from entering.

⁽²⁾ Higher speed applications do not require as much grease, as purging of excess will occur at the seals naturally.



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