

45 ton axle load compact tapered bearing unit for heavy freight

A next-generation, heavy haul bearing solution to increase axle loads, reliability and the bottom line

Benefits

Compared to standard Class G heavy haul bearings, the new generation of compact tapered roller bearing units (CTBU) for heavy haul applications delivers:

- Increased axle load
- Higher freight capacity
- Twice the calculated L_{10} life
- Reduced risk of bearing failure
- Extended maintenance intervals
- Reduced maintenance and operating costs
- Increased safety and reliability

Driven by relentless pressure to increase production, heavy haul freight cars in the mining industry are often overloaded by several tons. The impact on axle bearings can be costly, as excessive loading may lead to premature failures, unplanned stops, accidents, repairs, and ultimately, reduced profitability.

To help cut the risks and operating costs of wagon overloading, SKF developed a new generation of CTBU. Designed to allow railway fleets to carry more product with the same train configuration, this specialized CTBU delivers a substantially higher load rating and double the L_{10} life rating of existing Class G wheelset bearings.

Take axle loads up to 45 tons

While standard-offer Class G axle bearings are typically load-rated to 35.5 tons, the new CTBU for heavy haul applications can handle up to 45 tons. The increased axle load allows cars to carry more product, more safely and reliably than ever before, for greater profitability.



Roll twice as long as Class G bearings

The higher load rating of the new generation CTBU for freight helps the unit achieve a calculated life rating that's 2X longer than Class G wheelset bearings under the same application conditions.

The extended bearing life means less risk of failures from fatigue, in turn lessening the risk of derailment and the high costs in repairs and shipping delays that can follow. Longer bearing life also means fewer bearing replacements, thereby reducing maintenance demands and costs.



Engineered and tested to last

Design of the new generation compact tapered bearing unit began in response to market demand for a higher performance heavy haul bearing. Testing performed during development indicates that the new bearing delivers next-generation heavy haul performance.

L_{10} bearing life calculations show that the new generation bearing will last up to twice as long as competitive Class G wheelset bearings under the same application conditions. During quasi-static performance trials conducted on railway bearing test rigs, the bearing units fulfilled all European Standard railway requirements for temperature acceptance, mechanical acceptance, and physico-chemical acceptance.

Design features

- P-spacer
- Low-friction, high-efficiency seals
- Polyamide cage
- Long life grease

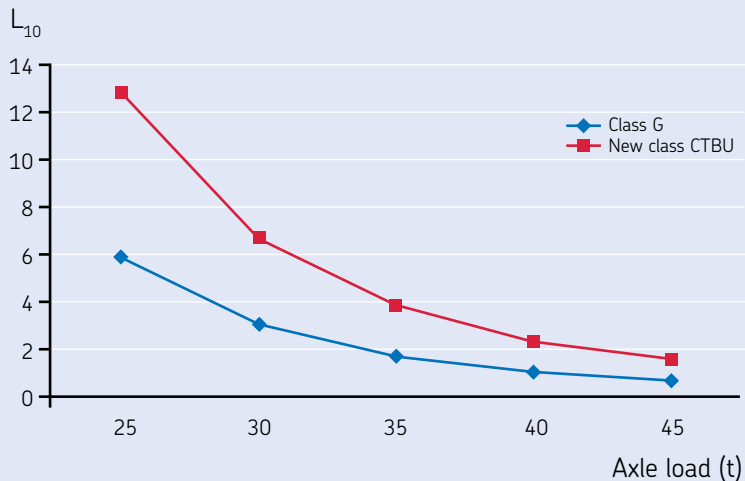
Performance specifications

- Axle load: 45 tons
- Bearing radial load: 213 kN
- Dynamic load rating C (ISO 281:1990): 1 400 kN
- C/P straight: 6,9
- C/P curve: 5,8
- Speed: max. 85 km/h = 484 rpm
- Ambient temperature: 0 to 50 deg C



L_{10} bearing life comparison – Class G and 45 ton CTBU

	25 t	30 t	35 t	40 t	45 t
Class G	6.7	3.5	2	1.3	0.9
	4.7	2.5	1.5	0.9	0.6
Class G	5.9	3.1	1.8	1.1	0.8
45 ton CTBU	14	7.3	4.3	2.7	1.8
	10.7	5.6	3.3	2.1	1.4
45 ton CTBU	13	7	4	2.5	1.6



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