SKF hub units

Equipped with tapered roller bearings

A passion for innovation

Solutions for the demands of today and tomorrow

SKF has always been known as a leader in the development of innovative bearing solutions. Nowhere is this more evident than in the automotive industry, where these solutions have made significant contributions towards improved reliability, driving comfort and economy.

As early as 1936, SKF developed the forerunner of today's car hub unit, which is now available in its third generation as HBU3, incorporating an integral ABS sensor. Since the beginning of the 1990s, SKF has also offered truck hub units. Originally developed for trucks and trailers, these integrated wheel bearing units offer a number of advantages which all result in improved overall economy and enhanced reliability.

Due to the positive experience gained in the commercial vehicle sector, the SKF truck hub unit have also been used in construction and agricultural vehicles and as the cutter head supports in tunneling machines. Over and over again, new application opportunities are being discovered. See for yourself the advantages offered by the SKF hub units and how you can benefit from them.

Single TRB

TMU

THU1

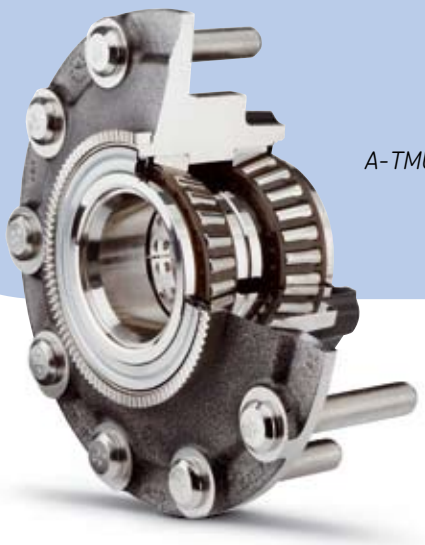
THU2

From tapered roller bearings to integrated units

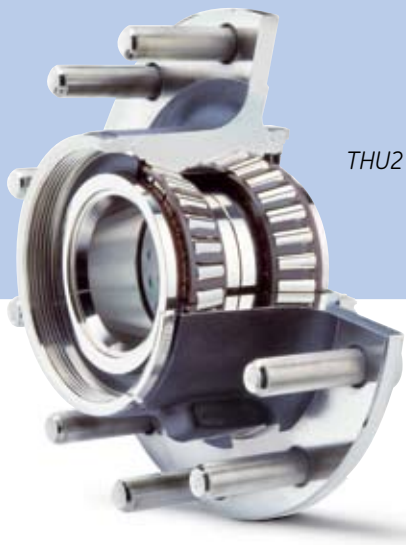
Truck hub units are wheel bearing units for commercial vehicles and machines that incorporate all the required components for their specific function: These units, which contain two tapered roller bearings, are pre-adjusted, greased and sealed at the factory for easy installation. An impulse ring for anti-lock brake systems or for an integrated positioning system, is also available. These maintenance-free* bearing units are designed to withstand the most arduous operating conditions.

THU2 S

A-TMU



THU2 FF



* Maintenance-free does not imply that they should not undergo periodic inspection for proper operation.

Integration stages:

Single Tapered Roller Bearing (TRB)
Single tapered roller bearing with seals and lubricant for assembly by the customer.

Truck Matched Unit (TMU)
Two paired tapered roller bearings with loose seals for assembly by the customer.

Truck Hub Unit 1 (THU1)
Truck hub unit 1, pre-assembled, greased and sealed for long life.

Truck Hub Unit 2 (THU2) with ABS
Truck hub unit 2, pre-assembled, greased and sealed for long life, with an integrated flange and ABS impulse ring.

Stepped Truck Hub Unit 2 (THU2)
Truck hub unit 2, pre-assembled, greased and sealed for long life, with an integrated flange for stepped spindles.

Assembled Truck Matched Unit (A-TMU)
Truck matched unit, pre-assembled and mounted in a flanged cast iron hub, greased and sealed for long life, with wheel bolts and ABS impulse ring.

Truck Hub Unit 2 Full Flange (THU 2 FF)
Truck hub unit 2, pre-assembled, greased and sealed for long life, with large integrated flange, wheel bolts and ABS impulse ring.

SKF hub units

Trucks and trailers

In view of ever tougher competition in the commercial haulage sector, reliability is key. Unplanned maintenance and downtime can literally throw a spanner in the works for a haulage company. After all, vehicles are only profitable when they are on the road.

To improve reliability, reduce maintenance and decrease downtime, SKF designed and developed the first truck hub units. These units were specially developed to withstand the tough operating conditions of commercial vehicles. These maintenance-free wheel bearing units are pre-adjusted, lubricated and sealed at the factory to reduce installation time and virtually eliminate installation errors, a major cause of wheel bearing failures. The integrated impulse ring makes these units suitable for use with the latest ABS systems.

"Our experience with SKF truck hub units is absolutely positive. In the past we used to equip our vehicles with conventional wheel bearing sets consisting of up to twelve individual parts. It's plain to see that this SKF unit has enabled us to significantly reduce our costs in mounting and storage as well as in purchasing. But our customers benefit as well: Time and cost savings during brake maintenance clearly contribute to the enhanced overall economy of our trucks," emphasizes the production manager of a renowned truck manufacturer.

SKF hub units

Railway vehicles

In trucks and trailers, SKF truck hub units have demonstrated their technical and economic benefits a million times over. Today they are also increasingly used in other areas – for instance in railway vehicles. As axlebox bearing units, they are among the most important and at the same time the most stressed safety-relevant components. These units must be able to travel millions of kilometers at high speeds, while accommodating vibrations and high loads when cornering.

Working in a similar fashion to the ABS impulse ring in a truck hub unit, these axlebox bearing units can integrate sensors to monitor speed, direction of rotation and bearing condition – all important safety factors for manufacturers and operators of railway vehicles.

To make these axlebox bearing units successful, SKF specialists work closely with customers throughout the design and development process to be sure that the final product meets the needs of the application and its operating conditions.

SKF hub units

Construction machinery and agricultural vehicles

Shock loads, dirt, water, mud, abrasive contaminants, uneven terrain – these are the every day operating conditions for construction machines and agricultural vehicles. In addition, they often have to manœuvre in a minimum of space. No problem for SKF hub units: Here the special logarithmic profile of the raceways ensures the efficient use of the contact zone under different stress conditions. Detrimental edge loading is thus avoided.

Sealed and greased for long life, the units are ideally adapted to the operating conditions and offer various decisive advantages over conventional tapered roller bearings, including insensitivity to contamination, easy mounting, maintenance-free use and long life.

SKF hub units

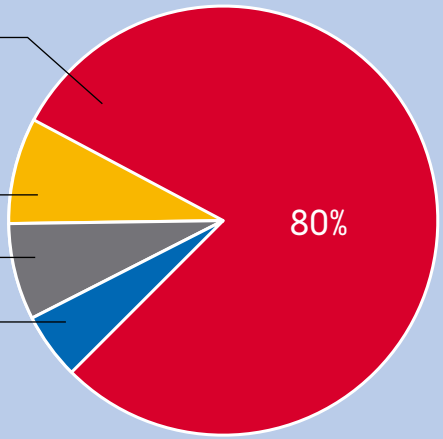
Mechanical engineering

Tunnelling machines operate up to 20 hours a day, five days a week. During this time the machines are subjected to heavy vibration and in many cases, high shock loads. Moreover there is dirt, dust and water spray for wetting the ground – not exactly ideal operating conditions for conventional bearings. But the SKF hub unit (THU1) in the cutter head of this tunnelling machine is well protected against these extreme operating conditions. Highly efficient integral seals reliably retain the lubricant in the bearing and prevent the intrusion of water and contaminants.

The challenge

Why do conventional wheel bearings fail?

- **80 % Poor adjustment**
  - excessive clearance/preload
  - damage due to incorrect handling, assembly and adjustment process
- **8 % Seal damage during installation**
- **7 % Seal failure**
- **5 % Other reasons**
  - clearance increase through settling and wear
  - non-conformance of abutting components
  - incorrect installation or wrong design
  - poor lubrication



The solution

Less space and improved service life!

SKF hub units are:

- application specific, ready-to-mount and maintenance-free* systems solutions
- pre-adjusted to the optimum clearance/preload range
- lubricated with specially developed high performance grease
- sealed for long life

* Maintenance-free does not imply that they should not undergo periodic inspection for proper operation.

The benefits

SKF hub unit vs. single tapered roller bearing

Compactness

- smaller boundary dimensions
- reduced size of associated parts
- overall weight savings (hub and axle)

Design advantages

- new hub design possible
- one shaft diameter, one fit
- integrated seals

Fewer components, reduced costs

- purchasing and logistics
- packaging and storage
- material and quality control

Environmentally friendly

- greased and sealed for long life

Easy, reliable and cost-effective mounting process

Reliable operation

Longer service life

- accurate preload setting
- increased shaft stiffness
- logarithmic profiles
- improved frictional behaviour
- improved running accuracy
- cleanliness
- optimum grease selection
- little risk of damage

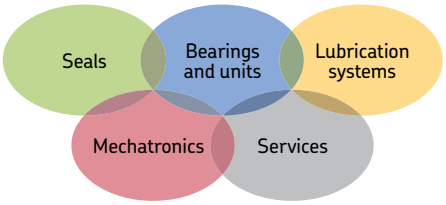
Powerful service

Now, what can we do for you?

Our application engineers can find the ideal solution for your application too – put us to the test!

For further information please contact:

www.skf.com
E-mail: TRB.info@skf.com



The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide.

These five competence areas include bearings and units, seals, lubrication systems, mechatronics (combining mechanical and electronics into intelligent systems), and a wide range of services, from 3D computer modeling to advanced condition monitoring and reliability systems.

A global presence provide SKF customers uniform quality standards and universal product availability.

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