

Promoting R&D into products that contribute to lower environmental impact

Reducing environmental impact from the development stages

NTN places high priority in product R&D on reducing environmental impact, and strives to research and develop products driven by environmentally friendly technologies. The major themes of our R&D are to increase product life, and reduce weight and torque in our primary products, particularly bearings and constant velocity joints.

NTN high-load capacity tapered roller bearings win Encouragement Award

“High-load capacity tapered roller bearings” developed by NTN received the Encouragement Award presented at the “2009 CHO MONODZUKURI Innovative Components Awards” sponsored by the Conference for the Promotion of MONODZUKURI and the Nikkan Kogyo Shimbun Ltd. These awards focus on parts and materials that are a source of competitiveness in the field of “Monozukuri” (“manufacturing”). High-load capacity tapered roller bearings are products in which we increased the number of rollers to their utmost by adopting a special cage, thus boosting the bearing’s load carrying capacity. The result of this more compact size is a product that contributes to better fuel economy in vehicles, making it viable in a wide range of global markets.



Product development through meticulous adjustments made together with on-site crew

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The key development point was to create a specialized retainer that would allow us to increase the number of roller bearings while maintaining strength. This required us at the design stage to devise a number of ways to achieve post-assembly precision. When it came to mass production, we took great pains to be on the ground at operating sites to check the manufacturing process, management methods and inspections for the retainer. This was truly a product developed through meticulous adjustments made in close cooperation with our on-site crew.

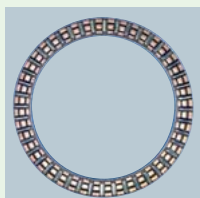
Low friction hub bearings for realizing energy savings

NTN has developed “low friction hub bearings”, products that can considerably reduce the axle friction of a car when it is moving in a straight line. The new product is designed to have two different radii or curvatures for the inner and outer races along which the balls roll. This allows the axle unit not only to offer reduced friction during straight-line vehicle operation, but also helps to assure durability. This innovation, coupled with unit assembly improvements in combination with a low-torque seal, has contributed to lowering straight-driving friction by a maximum 40% from conventional products. Also, this invention is expected to improve fuel efficiency by up to 1.5%, thus making it specifically environment friendly.



Low-torque thrust needle roller bearings reduce torque by half

NTN has developed “low-torque thrust bearings” for automotive transmissions that reduce rotational torque by 50% compared to conventional products. In thrust needle roller bearings, the rolling distance of the rolling elements differ for the inner and outer circumference of the bearing. Reducing this gap helps to control slippage loss from the rolling elements and the raceway. The result is a reduction in both rotational torque and loss within the transmission process, contributing to better fuel efficiency for automobiles.



Highly greased ball bearings with ability to prevent grease leakage

NTN has developed “highly greased ball bearings” with enhanced greasing and sealing properties. After analyzing the behavior of grease as bearings rotate, we adopted a specially shaped bearing cage that better controls grease flow. This innovation has made possible an approximately 30% increase in the volume of grease that can be sealed into bearings, effectively doubling the life of the grease. Furthermore, when the load on the bearing is light, these bearings, which are smaller than conventional bearing types, enable longer-lasting lubricated bearing life, leading to the downsizing and weight reduction of equipment.

