

O' mag

[O] THE NTN-SNR GROUP PARTNERS' MAGAZINE

N°10

MARKET 03

A NEW LOGISTIC PLATFORM FOR
AUTOMOTIVE AFTERMARKET

AROUND THE WORLD 06

ALGERIA, FIRST AFRICAN MARKET
FOR NTN-SNR

INNOVATION 10

AIRBUS HELICOPTERS,
A TOPFLIGHT PARTNERSHIP

Together,
further





Active partner of the «2 litres for 100 kilometres» vehicle

The French government has undertaken a major industrial project to market, by 2018, a car consuming 2 litres of petrol for 100 kilometres at an affordable price. World leader in bearings for wheels and preferred partner of French manufacturers, NTN-SNR actively supports this initiative.

As part of our Research and Innovation Plan, several projects are already part of this perspective. Our engineers create new designs and use new materials in order to reduce the weight of bearings and assemblies into which they are installed. The mass reduction can reach up to 4 to 8 kilos per vehicle, depending on the number of parts concerned. They are also looking to extend the use of bearings to other applications to reduce friction in the vehicle - for example by replacing plain bearings of cam shafts.

Some of these innovations have already been successfully tested. Thus, NTN-SNR's contribution has allowed the weight of the 208 Hybrid FE to be reduced by 6.6 kilos, the demonstrator of a hybrid vehicle consuming 1.9 litres for 100 kilometres, presented by Peugeot and Total a few months ago (see *O'Mag* no. 9). Friction losses have also been reduced, with a lowering of CO₂ emissions by about 2 % with respect to a mass-produced 208.

Other prototypes of «2 litres for 100» vehicles using NTN-SNR technologies will soon become available, without having to wait for 2018!

Christophe ULRICI
Original Equipment
Automobile Director



PLATEFORME LOGIS The automoti entering a ne

NTN-SNR has inaugurated near Anancy a logistics platform entirely dedicated to the automotive aftermarket. Everything has been thought out to optimise the processing of orders while respecting the environment.

On 21st February, 150 elected representatives and industrialists attended the inauguration of the European Distribution Center – Automobile (EDC-A), the new logistics centre of NTN-SNR dedicated to the automotive aftermarket, set up at Cran-Gevrier, near Anancy (Haute-Savoie). The visitors discovered on that day an ultramodern building of 12,000 square metres, designed to optimise the performance of logistics operations. «With this new infrastructure, we are in a position to deliver products within a period of 24 hours to three weeks in an area ranging from Russia to South America», Didier S p lchre de Cond , managing director of NTN-SNR Roulements was pleased to say.

THREE THOUSAND ORDERS PER DAY

L'EDC-A ships every day more than 40 tonnes of spare parts. About 40 employees prepare almost 3,000 orders registered every day on the computer system, which manages more than 7,000 references of spare parts marketed by NTN-SNR – wheel bearings, distribution kits, rollers and accessory belts (read *O'mag* no. 9), suspension kits, etc. To access the pallets,

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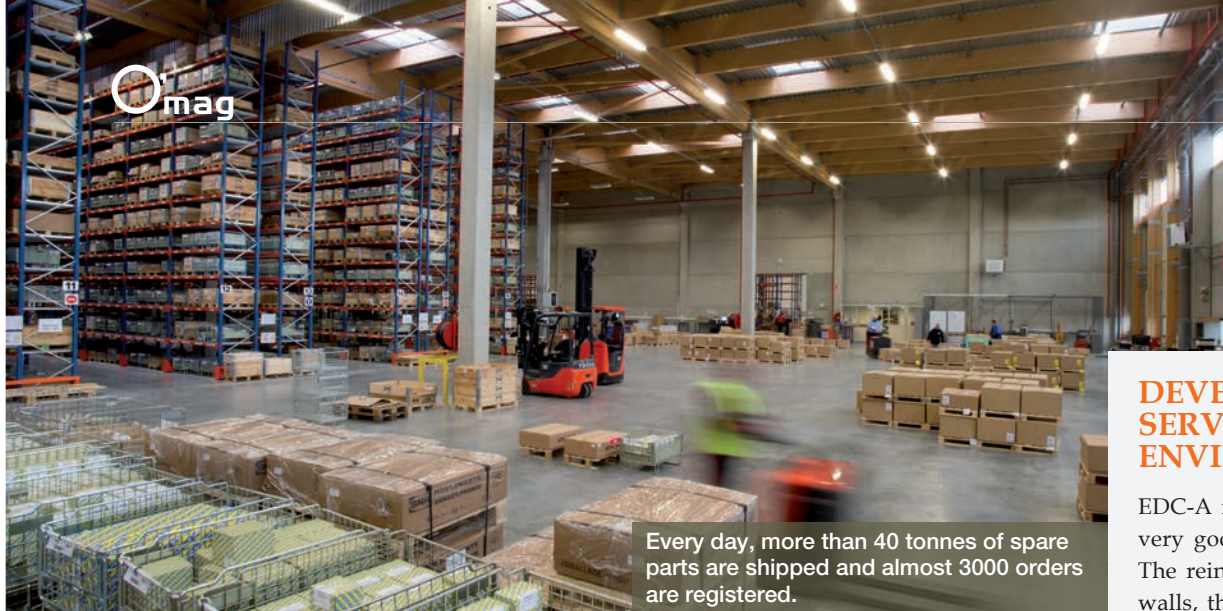


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Every day, more than 40 tonnes of spare parts are shipped and almost 3000 orders are registered.

DEVELOPMENTS AT THE SERVICE OF THE ENVIRONMENT

EDC-A is a building designed to offer very good environmental performance. The reinforced insulation on the apron walls, the siding and the roof maintain a temperature of between 12° and 14° in all seasons. The presence of windows overlooking each road promotes natural lighting. Artificial lighting is turned on only when necessary, by an automatic system that measures the ambient luminosity. The goods inflow is distributed within the building with the help of an electric tractor. Same environmental concern outside for the treatment of storm water, which is done by phyto-purification: macrophage plants are cultivated in tanks to absorb any traces of hydrocarbons.

TIQUE DE CRAN-GEVRIER ve aftermarket is w «sphere»

stored up to a height of 9.30 m, they use new generation lift trucks, equipped with tilting cabs and an altitude programming device. A weighing scale is integrated into the forks to check the weight picked up, which contributes to ensuring the conformity of the order. *«The use of the latest technologies allows us to optimise the processing of every order: everything is designed to meet the responsiveness required»*, explains Eric Malavasi, Director of Automotive Aftermarket and Distribution Logistics.

« Our logistics capacities are henceforth adapted to our aims. »

Eric Malavasi, director of Automotive Aftermarket and Distribution Logistics

SUSTAINABLE DEVELOPMENT

NTN-SNR has committed ten million Euros for the construction and equipment of EDC-A. With this investment, the group intends to accelerate its development on the automotive aftermarket. *«Our logistical capacities are henceforth adapted to our aims»*, declares Eric Malavasi, recalling that the NTN-SNR offer currently covers 80 000 vehicle models, i.e. 96 % of the European automobile fleet.

The project also assumes an environmental dimension: the transfer of logistics from Saint-Vulbas (Ain) to Cran-Gevrier (Haute-Savoie) enables the production, packaging, storage,

logistics and support functions to be concentrated over an area of several kilometres. *«This represents almost two million kilometres less on the roads every year»*, affirms Eric Malavasi. The design as well as the functioning of the building will also contribute to reducing NTN-SNR's carbon footprint (read opposite).

EDC-A IN NUMBERS

- ▶ **12,000 m²** surface area
- ▶ **30 km** of «stacks» (demarcation of storage areas)
- ▶ **14,000 m²** of slatted floor
- ▶ **22,000** pallet slots
- ▶ **8** loading platforms
- ▶ **7,000** product references
- ▶ **3,000** orders per day



On 21st February, Didier Sepulchre de Condé, managing director of NTN-SNR Roulements, inaugurated EDC-A in the presence of 150 elected representatives and industrialists.

A customised organisation for Ford

Main supplier to Ford for wheel bearings, NTN-SNR has set up a globalised collaboration method, adapted to the needs and requirements of the automobile manufacturer.



The bearings of Ford Fiesta (above), Kuga (in the centre) and EcoSport (below) are produced close to the manufacturer's plants. Above, Ford EcoSport.

NTN-SNR provides Ford every year with more than nine million bearings, designed for the four key models of the make: Fiesta, Focus, Kuga and EcoSport. These bearings are produced at the sites close to those of the manufacturer, in Europe, in the United States, in Brazil, in China, in Thailand and in India.

To be closer to the needs of Ford, NTN-SNR has set up a flexible and transverse organisation, with a «referent» engineer for each plant and design support provided by an R&D NTN engineer based at Iwata (Japan). This worldwide network is led and coordinated by a project manager and global application engineer based in France, Pierre Henryon.

An organisation modelled on Ford, where Fiesta, Focus, Kuga and EcoSport bearings are controlled by a global project manager operating from Cologne (Germany). «For every region, the referent engineer is in regular contact with his counterpart at Ford locally, which brings more fluidity in communication

and exchanges, and of course more responsiveness», emphasizes Pierre Henryon.

SCALING EFFECTS AND RESPONSIVENESS

An example: for its new model Fiesta, Ford needed a wheel bearing with a specific interface for its new axle, and thus a slightly modified design with respect to the existing NTN-SNR design. «We organised a teleconference, bringing together all our correspondents worldwide, so that each could share the same data and initial constraints before working on technical solutions», explains Pierre Henryon. The latter then summarised the various proposals with a view to retaining the most effective one, by taking into account the NTN and NTN-SNR factory processes involved. «This operation facilitates the standardisation of processes and products globally. With economies of scale and a strong capitalisation on technical experiences thrown in», observes Pierre Henryon.

This organisation enables great responsi-

veness, which meets the requirements of a customer like Ford. It also favours continuous improvement: ideas, good practices, difficulties, whether they crop up in Brazil or China, are collectively analysed and converted into global action plans. In view of its good results, this organisation in project mode on a worldwide scale may be extended to other manufacturers.

The six distributors of the BCC network (here Henrard) ensure deliveries two to four times per day all over Belgium.



« At BCC, we eliminate an intermediate level. »

Bart Van Gael, one of the administrators of BCC.

AUTOMOTIVE AFTERMARKET BCC, a partner who changes the situation in Belgium

NTN-SNR has been developing for the past two years on the automotive aftermarket in Belgium through a partnership with BCC, a group of wholesalers that is noted for the effectiveness of its logistics model.

At the beginning of April, NTN-SNR and Belgian Carpart Corporation (BCC) were present at the Auto Technica 2014 tradeshow in Brussels. On this occasion, the industrialist and the number three in the distribution of automotive spare parts in Belgium were able to assess the progress since their meeting at this same event two years ago. «We are looking to strengthen our presence on the Belgian market, points out Laurent Dumont, responsible for automotive aftermarket sales in France, Belgium, Luxembourg, NTN-SNR. This initial contact led to a distribution partnership for wheel bearings and the accessories range.»

On the Belgian automotive aftermarket, BCC displays many strengths. Created in 2005, this group of six independent distributors has

400 employees and covers the entire country with about fifteen storage sites. It proposes a highly professional service: delivery two to four times per day, 90 % to 95 % availability rate, free returns, with technical support, telephone assistance, troubleshooting, order facilities, etc. «Belgium is a small territory, highly urbanised, with a very dense road network. We must be able to deliver everywhere in record time», explains Bart Van Gael, one of the administrators of BCC.

To propose its services under competitive conditions, BCC has developed a partnership policy with manufacturers, from whom it purchases directly. «Our rivals in Belgium operate with a three level distribution. At BCC, we eliminate an intermediate level», emphasises Bart Van Gael.

ANNUAL GROWTH OF 10 % TO 15 %

An outsider to its creation, BCC has seen its sales grow regularly by 10 % to 15 % every year. With a result of 85 M€ in 2013, the group is henceforth credited with 20 % of the market share – a performance that is that much more remarkable in a context of economic crisis.

NTN-SNR benefits from this dynamic «In a few months, we have achieved a turnover of hundreds of thousands of Euros», points out Laurent Dumont. Success also linked to the technical and marketing support provided to the group - which includes documentation in Dutch, French and German. The presence of the two companies at Auto Technica also vouches for the quality of the cooperation. The two partners also plan to expand their agreement to further references.

In 2013, half the cars in Algeria were equipped with NTN-SNR products.



Algeria, first African market for NTN-SNR

In Algeria, NTN-SNR has been developing at a sustained pace on the automotive aftermarket as well as on the industrial bearings market. An expansion made easier, particularly by setting up a consistent and dynamic sales network.

NTN-SNR has been present in Algeria for more than 60 years: SNR bearings have been equipping Peugeot and Renault vehicles for many years, which still represent today a large part of the national automotive fleet. This influence has increased with the merger of SNR and NTN, supplier of several Asian brands booming on the African markets. Result: in 2013, half the cars of the country were equipped with products of the Group. «This strong position on original parts determines the spare parts. Even more so in Algeria, where people deploy ingenuity to maintain, repair and preserve their cars for as long as possible», observes Alain Monserand, NTN-SNR export manager for Algeria.

This mechanical engineering takes place within a specific circuit. The car mechanic doesn't provide the spare parts himself. After diagnosing the fault or maintenance to be carried out, he gives the list to the customer, who then gets them from «part shops», bringing together several hundred stalls specialised by make or product type. «Bearing streets» can thus be found at Algiers, Oran or Constantine, where highly specialised traders officiate, to track down bearings of the Peugeot 205, 1992 model as well as those of a latest Toyota model. These shops obtain their supplies from distributors, who in turn get them from importers, who are direct customers of NTN-SNR.

SEVEN APPROVED IMPORTERS

The structuring of this network is therefore decisive. «It took a while to rebuild after the civil war that ravaged the country between 1991 and 2001. During this period, we could no longer operate on-the-spot and we had to content ourselves with a ad-hoc activity, through

exporters», recounts Alain Monserand. Back in Algeria, after this dark decade, his team faces a major challenge «At the first trade show Equip Auto, in 2006, at Algiers, distributors and resellers always asked us the same two questions: from where can I obtain genuine SNR bearings? And how much do they cost?», recalls Alain Monserand. The market had been flooded with counterfeits, and the proliferation of a fierce rivalry had created tremendous tariff imbalances.

Some references from among the 300 sold on the Algerian market.





Bay of Algiers.



« We have invested a lot in traceability. »

Alain Monserand, Export manager for Algeria

To restore normality, NTN-SNR first selected and approved seven importers - two in the Oran region, three in Algiers and two in Constantine - appointed official representatives - very important in Africa - and beneficiaries of a consistent tariff policy. At the same time, the Group established a partnership with a local representation office, KTRI, responsible in particular for promoting approved importers and determining the most suitable wholesalers and retailers. Finally, the local team was able to capitalise on regulatory changes in the country. In particular, the law of 25th February 2009, which makes it mandatory for imported products to have a label in Arabic identifying the supplier. «We have invested heavily in the implementation of this traceability, which contributes significantly to the stabilisation of the market», specifies Alain Monserand.

PRESENCE ON THE GROUND

To these measures is added a daily investment on the ground. «In Algeria, a lot depends on personal confidence and keeping promises. This is why, it is important to be present on location, to meet the professionals and always keep the promises made», emphasises the export manager for Algeria.

The results are tangible. The sales of NTN-SNR automotive bearings on the Algerian market have doubled in four years and will reach six million Euros in 2014. The Group currently markets more than 300 references, i.e. three times more than in 2007, with a strong increase in bearings for suspension and gearbox in particular. «At the last Equip Auto trade show in March, no questions were asked about counterfeits and prices, but there were many about our development projects and partnerships», concludes Alain Monserand.

NTN-SNR ALSO WINS OVER INDUSTRIALISTS

Bearing sales for the industry have more than doubled between 2011 and 2013 in Algeria, to reach 1.6 million Euros. NTN-SNR has developed in a variety of sectors: cement, petrochemicals, energy, food processing, textile, brickworks, etc. To achieve this breakthrough in a highly competitive market, the Group has implemented an aggressive pricing policy, expanded and revitalised its network of distributors. In addition, it has partnered with a local sales agency - KTRI, which also promotes automotive bearings of the brand. «Our growth is driven both by the needs of domestic industries and major maintenance contracts (MRO), signed globally and adapted locally», specifies Matthieu Onfray, export manager. In Algeria, the Group ensures the supply of NTN-SNR bearings to MRO customers such as Lafarge and GICA (Cement) or ArcelorMittal (steel). In the medium term, it intends to grow stronger on the original equipment market. «We have already won several contracts with Algerian companies, such as Etrag (tractors) or German (forklifts)», emphasises Matthieu Onfray. The story has just begun.



NTN-SNR supplies its MRO customers, particularly in the cement industry, steel industry and mining.



A longer service life, reduced maintenance and lubrication requirements.

ULTAGE in sealed version

A year after the launch of high performance ULTAGE spherical roller bearings (see *O'Mag* no. 9), the range has expanded: 16 references from the 22200 series are henceforth available in sealed version, for outside diameters of 52 to 180 mm. «They include a new seal concept developed by NTN-SNR, which guarantees a constant pressure of the lip and protects the bearing from polluted environments even in the case of misalignment», points out Yann Genty, NTN-SNR product manager.

Upon arrival, a longer service life, extended maintenance intervals and less frequent, or even zero lubrication. Enough to meet the most demanding applications on a wide range of markets: steel, paper, mining and quarrying, textile, handling appliance, elevators, etc. «Additional protection may be obtained by mounting the sealed bearings in a SNC plummer block» specifies Yann Genty. Deployed gradually, the range, including stock, will be fully available from January 2015.

PoliPump : the «plug and play» lubrication station

At the beginning of April, NTN-SNR launched a simple and compact multipoint lubricator named PoliPump, to lubricate up to 35 lubrication points.

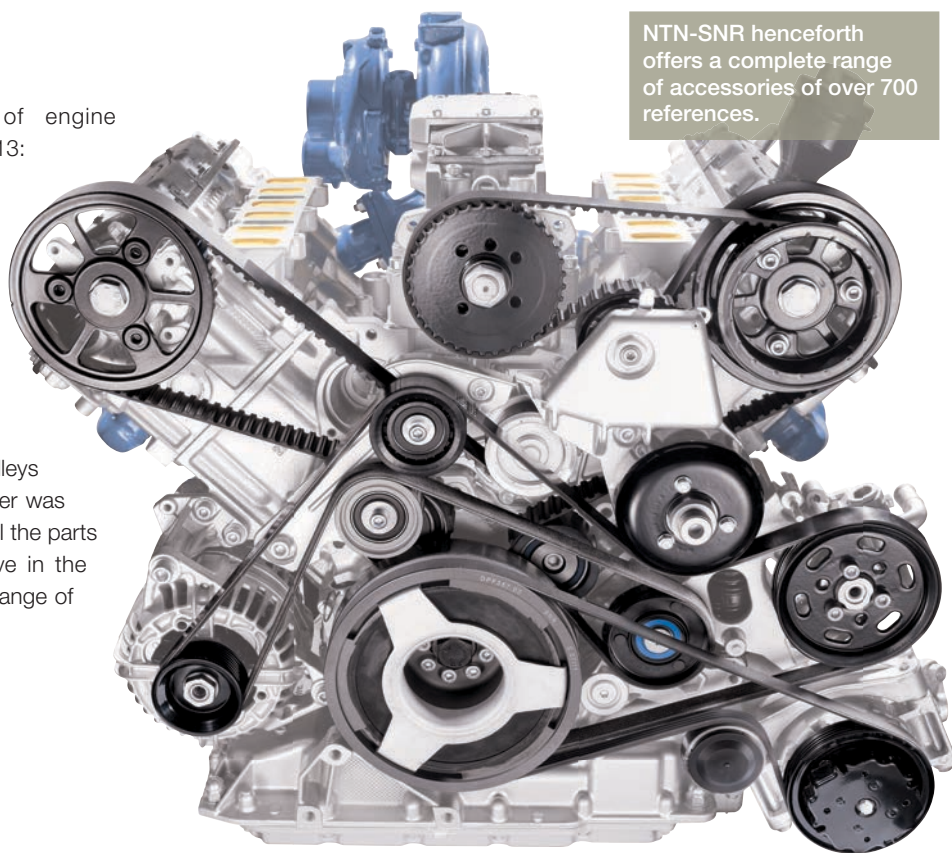
In practice, the user selects the type and number of injectors to be installed on the pump from among six models - of 0.02 to 0.13 cm³ of grease per cycle. Once these elements are connected to the points to be lubricated situated at a distance of up to 20 meters, only the desired frequency cycle needs to be programmed. «A 'plug and play' solution that covers a wide range of lubrication needs from some standard elements,» emphasises Olivier Hautreux, NTN-SNR Experts&Tools product manager. Complementing Ready, Drive and Smart Booster single-point lubricators, PoliPump provides a convenient and economical alternative to lubrication stations reserved for complex configurations.



PoliPump simultaneously enables the lubrication of up to 35 lubrication points.

The Accessories engine range is enriched

NTN-SNR has expanded its range of engine Accessories by a hundred references in 2013: the new catalogue, available in June 2014, provides access to a wide range of products covering almost 95% of the fleet of all European and Asian makes - Volkswagen, Toyota, Hyundai, Mercedes, PSA, etc. «All NTN-SNR parts guarantee the original quality to distributors,» says Christophe Espine, Automotive After-market Marketing manager. The Group offers a full range: accessory belts (over 700 references), idler and tension pulleys, overrunning alternator pulleys and crankshaft pulleys. The accessory belt kits offer was also expanded and has 72 references containing all the parts necessary for complete replacement. Long active in the engine environment, NTN-SNR has expanded its range of accessories by 25% in two years.



NTN-SNR henceforth offers a complete range of accessories of over 700 references.



The EMTR range proposes silent bearings for electric motors.

EMTR range: silence, it's running!

Less than 5 dB on an average, i.e. two times less noise than standard equivalent series: with the EMTR range, NTN-SNR proposes silent ball bearings to electric motor manufacturers at competitive prices. This is the result of research conducted to optimise their geometrical precision and reduce friction during operation. «The roughness of the raceway was reduced by 25 % with respect to our standard, specifies Fanny Martins, NTN-SNR market manager. The balls are subjected to a vibration test and the raceways show a circularity tolerance

reduced by 20 %.» Quieter, the products of the EMTR range also consume less energy (reduction of friction forces). Their service life is also optimised due to the quality of steel used. Designed for the original equipment industry, the range includes three series – 6000, 6200 and 6300 – for bore diameters ranging from 10 to 30 mm.



Lubrication problems, mechanical overloads.... bearings for helicopters are designed to resist all challenges !

AIRBUS HELICOPTERS

A topflight partnership

NTN-SNR has been collaborating for over 30 years with Airbus Helicopters (formerly Eurocopter), world's leading manufacturer of civil helicopters.

NTN-SNR's collaboration with Airbus Helicopters (formerly Eurocopter) began in the 1970s, particularly on the Super Puma programme - a civilian transport helicopter, a version of which is still in production. For this prestigious customer, the world leader in civil helicopters, NTN-SNR produces «high performance» bearings, designed for gearboxes and rotors. They must meet the performance and quality criteria as strict as those for aircraft... and more: «*In case of technical failure, an aircraft can still count on the other engine to reach an airport, and its wings allow it to glide. This is not the case for a helicopter*» explains Olivier Blanchin, manager of the NTN-SNR aeronautical design office.

HIGH POWER

These bearings must withstand all tests: lubrication faults, mechanical overloads, etc. Their reliability is tested extensively before mass production. NTN-SNR is involved in this test phase and provides test benches to Airbus Helicopters from its R&D centre at Annecy (Haute-Savoie).

These «high power» components are always developed specifically for an application: «*The performance of a bearing is closely linked to the environment in which it operates*», explains Olivier Blanchin, «*That is why Airbus Helicopters involved us very early on in the development of a new type of transmission.*»

NTN-SNR is also working on «hybrid» bearings, made of steel rings and ceramic balls. These could be assessed on new programmes such as the X4, a device that marks a break with earlier helicopter technology and which is to follow on from the Dauphin helicopter family by 2016. «*These new bearings will provide greater safety in case of oil cut-off and significant gains in mass,*» explains Olivier Blanchin.

« SAFETY ABOVE ALL »

«*Our partnership with NTN-SNR is strong. Their teams provide us with their expertise and perfectly integrate our requirements of competitiveness and safety. In the past, we have conducted risk elimination tests upstream of the development process, as well as technical comparisons and validation/qualification tests in their R&D centre at Annecy. The quality of this collaboration allows us to remain focussed on our core business, on the programmes that we develop.*»



Laurent Zamponi, manager of transmission systems design office at Airbus Helicopters

YOU

ARE NOT ALONE
IN IMPROVING
EFFICIENCY



In a world where performance depends on regularity, you wish to improve the efficiency of your operation. From design to technical assistance, NTN-SNR's expertise provides support to your equipment at all times. Development of high reliability bearings, monitoring and prevention of faults, proximity and availability of our teams, unfailing logistics...meet our sense of efficiency. NTN-SNR's spirit of partnership moves everywhere with you.

NTN-SNR With you



www.ntn-snr.com

With You



How many bearings are there on a train?

On all bogies of a train, there are four axle bearings - one per wheel - of 130 to 160 mm bore, 240 to 270 mm outer diameter and weighing 35 kg. They are subjected to extensive testing as their failure can cause a derailment.

Motored bogies have additional bearings. These may be found in the engines themselves, of about 60 mm bore. They can be insulated by a ceramic or polymer coating to prevent any current flow that could weaken them.

There are also bearings at the transmission levels that act as reduction gears between the motor output and the axle. Of about 180 mm bore, they may have conical, cylindrical or ball rollers with four contact points.

To know how many bearings exist on a train, one must know the type of bogies, the number and type of bearings per bogie and then use a calculator! Here are some examples:

- A TGV (France) train with 2 locomotives and 8 carriages has 140 bearings: 52 axle bearings, 24 motor bearings and 64 transmission bearings;
- An ETR 1000 train (Italy) with 8 carriages has 144 bearings: 64 axle bearings, 80 transmission and motor bearings;
- A Flexity II tram unit (Bombardier) with 3 carriages (3 motored bogies) has 64 bearings: 12 axle bearings, 12 motor bearings and 42 transmission bearings.

- Motors
- Transmissions
- Axles

