PRESS KIT

NTN-SNR

AT THE EQUIP'AUTO 2017

EXHIBITION

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Summary

PRESS RELEASE

From Villepinte to Porte de Versailles, NTN-SNR is Equip'Auto's long-term partner

NTN-SNR hydraulic accessories belt tensioner roller with a variable damping mechanism, an innovation acclaimed at the 2017 Equip'Auto trade show with its new line of speed sensors and services

NTN-SNR is presenting a ground-breaking innovation for Stop & Start engines at the 2017 Equip'Auto trade show: an hydraulic accessories belt tensioner roller with a variable damping mechanism. It won over the panel of judges for the Innovation Grand Prize in the "Parts, Equipment and Components" category. Its varied shock-absorption through double oil-flow provides a decrease in CO2 emissions, vehicle fuel consumption, and for prolonged component durability. NTN-SNR, as part of the Equip'Auto trade show from Villepinte to Porte de Versailles, will be presenting other innovations and new services offered to stakeholders in the independent spare parts industry- particularly garage professionals. NTN-SNR is now offering 250 types of wheel-speed sensors as well as accessories and newer versions of ASB®. This international gold standard created by NTN-SNR will soon celebrate its 20th anniversary. The latest developments for the TechScaN'R application will also be presented through installation and removal demos at a dedicated workshop in the stand area.

The hydraulic accessories belt tensioner roller with a variable damping mechanism: tomorrow's technology for Stop & Start engines

NTN-SNR has created hydraulic accessories belt tensioner roller with a variable shock-absorption mechanism for engines using the ISG (Integrated Starter Generator) Stop & Start function. This new solution, which allows for varied shock absorption using a dual-oil-passage, automatically adjusts the tension idler's tension level to optimum settings which respond to the engine's running conditions. Conventional tension idlers are unable to do this. This means that relatively low tension can be applied when driving, to reduce fuel consumption and pollutant emissions, and that a higher tension level can then be applied when the engine is restarted. The vehicle benefits from greater reliability at the point when the engine is re-started, while fuel consumption is also optimised and components benefit from greater longevity. This idler's design allows for it to be installed without changes being made to the engine design. Pre-series and reliability testing phases have been completed, and mass production can now begin.

Over 250 NTN-SNR speed sensors at the cutting edge of mechatronics

Mechatronics innovation

NTN-SNR will present 250 speed sensor models at its stand, which it is launching onto the independent spare parts market. This extensive line covers around 6,500 vehicle models and is soon to be enhanced by over a hundred new additions. The NTN-SNR range covers all sensor technologies currently on the market, whether passive, active with Hall effects or magneto-resistive sensors. NTN-SNR is the first wheel bearings manufacturer to venture into this space. NTN-SNR brings nearly 20 years of experience, starting with the launch of the ASB®, which has since become an international gold standard. This provided the path to development of the ABS and ESP, among other technologies. Its know-how in mechatronics, 100%-controlled reliable production, and expertise in the co-development of the sensor/coder pair with leading manufacturers enables NTN-SNR to guarantee full compatibility between wheel bearings and sensors.

Innovation within arm's reach of users

NTN-SNR offers a full exclusive catalogue of sensors with links to relevant wheel bearings kits which fulfil the needs of the independent spare parts market. A brochure, as well as a Technical Data sheet are also available. All sensor references can be found in the TechScaN'R smartphone app.

A space and tools designed with repair professionals and end-users clients

NTN-SNR will set up, on its stand, for the first time, a workshop space for technical demonstrations to inform end-users at Equip'Auto 2017. Installation and removal sessions for a variety of products (wheel bearings, engine distribution and constant velocity joints) will be hosted by NTN-SNR technicians four times a day. They will take this opportunity to show the full extent of options available through the TechScaN'R app, which has been enhanced and now offers more than 700 references, assembly videos and manufacturer specifications.

I. INNOVATION:

AUTOMATIC TENSIONER WITH VARIABLE DAMPING MECHANISM AND SPEED SENSORS

NTN-SNR's development strategy is based on three major axes: strong innovation; a presence in major strategic markets and a future supported by numerous investments. It is deploying a service based on quality and proximity to customers. The spearhead of NTN-SNR's competitiveness is its R&D and this has one main objective for the automotive market – reducing CO2 emissions. This is achieved through solutions that result in lower energy consumption and developments in the field of electric vehicles, as well as the development of smart bearings based on mechatronics. At the EQUIP AUTO 2017 exhibition, NTN-SNR is presenting its range of speed sensors developed from its expertise in mechatronics. This began with the creation of the ASB®, which has become an international standard, as well as the automatic tensioner with variable damping mechanism; the latter competed for the Grand Prix for Automotive Innovation at the exhibition and received a very positive response.

ASB® – Active Sensor Bearing

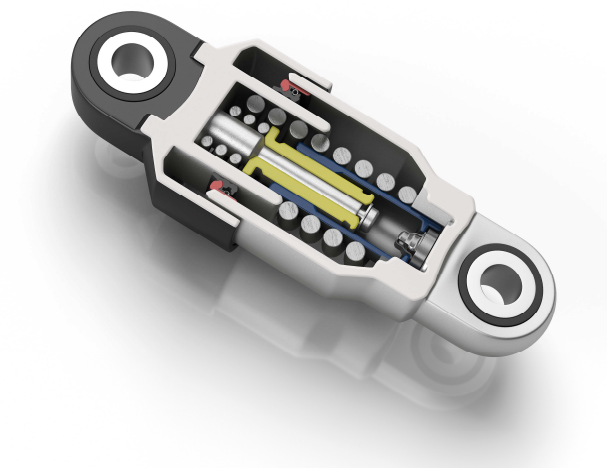
1. Automatic tensioner with variable damping mechanism

A future technology for Stop & Start engines

NTN-SNR has developed a hydraulic belt tensioner with a variable damping mechanism for engines using the Stop & Start function with ISG (Integrated Starter Generator). It was in the running for the EQUIP AUTO 2017 International Grands Prix for Automotive Innovation in the category "Parts, equipment and components" and received an extremely good response. This particularly innovative tensioner is now ready to be mass-produced.

An innovation for the future

NTN-SNR offers a tensioner with different operating modes to match the specific needs of tension belts during engine operating phases, predominantly constant speed and restart.



With a conventional tensioner

Less satisfactory compromises

The function of a conventional tensioner is to ensure constant tension of the belt and to regulate any variations in the belt tension.

The various operating phases of an engine, start-up and steady-state operation, have conflicting needs that ideally require different belt tensions.

A conventional tensioner can only provide one belt tension.

Therefore, a compromise has to be found that either penalizes the restart performance or the useful life of the elements, and which will increase fuel consumption.

A valve system allows oil flow to be varied depending upon the effort exerted on the tensioner. As a result, the damping can be varied, which makes the tensioner more or less rigid depending on the loads on the belt.

Innovative changes in tension for Stop & Start engines

This need to be able to apply different tensions is more pronounced with engines equipped with starter-alternators that provide Stop & Start functionality. These add to the conventional drive in the constant-speed phase of the belt through the crankshaft pulley, a drive using the starter-alternator in the restart phase, which generates instant peaks in tension that are both significant and repeated.

The NTN-SNR automatic tensioner with variable damping mechanism provides major improvements:

- A significant drop in fuel consumption and CO2 reductions as a result of reduced friction at constant speed.
- An increase in the useful life of the auxiliary components as a result of the constantly adjusting belt tension.
- Reliability guaranteed to be identical to the current systems.

Innovation ready for OEM production and the aftermarket

80% of the components of the NTN-SNR automatic tensioner with variable damping mechanism are identical to those of a conventional tensioner. Its general design is identical and the difference in weight is only 7 grams. These benefits enable ideal integration without any change in engine design, therefore ensuring perfect interchangeability. The pre-production phases and reliability tests are completed and series production can begin.

- **A contribution to a growing market**

With the increase in environmental standards, the equipment rate in Start & Stop engines dramatically increased. It is 60% in 2017 and is estimated to reach 80% by 2025.

- **Making life easier for repairers**

Repairers do not need any specific tools to work on the automatic tensioner with variable damping mechanism. Inspections and installation is exactly the same, without the need for additional training. This means there are no additional costs for the end user.

2. NTN-SNR range of 250 speed sensors

NTN-SNR is the leading manufacturer of wheel bearings to launch a range of 250 wheel speed sensors to complete its Automotive Aftermarket range. 65% of these products are active sensors and 35% of them are passive sensors, meaning we are able to cover all of the technologies on the market including the Hall Effect sensors and solenoid technologies. This wide range is suitable for over 6,500 vehicular applications and will soon be expanded with more than 100 additional products. Understanding mechatronics, 100% inspected production reliability and expertise in the co-development of the sensor/encoder unit with major manufacturers means that NTN-SNR can now ensure full compatibility between the wheel bearing and the sensor.

A growing market in speed sensors

Today, more than 90% of vehicles on the road have wheel speed sensors. A vehicle is equipped with between two and four sensors of this type, which are most often mounted in front of the bearing. 100% of 3rd generation bearings are equipped with this technology, requiring four sensors to be installed on each vehicle

Other factors influence the market

• Stability control (ESP) has been compulsory since September 2011 in the United States and since the end of 2014 in EU member countries.

• Strong growth in ABS and ESP systems has been seen in developed countries over the last 10 years. Similar growth has been noted in emerging markets such as China, India and Brazil.

• ABS system production, which was 45.7 million units in 2009, rising to 100 million in 2017.

NTN-SNR: 30 years of patents and expertise in mechatronics

ACTIVE SENSOR

The main advantage of active technology is having a constant amplitude signal, including low speed or zero speed. This uses more precise rotary speed signal and better functioning of all the systems linked to this signal. Active sensors are predominantly used in front of a magnetic encoder (located on the wheel bearing): ASB® technology. Some active sensors are also used with a gearwheel.

There are 3 different types of active sensors

- **HALL EFFECT SENSOR:** The sensor consists of a semiconductor coupled to an electronic circuit. As a result, it produces an alternating current. The electronic part of the sensor converts the analogue signal into a digital signal.

Expertise and reliability

NTN-SNR's speed sensors provide

▪ Know-how in the field of original manufacturers' equipment

▪ Expertise in this technology based on 30 years of patents

▪ Expertise through co-developing the sensor/encoder unit with leading manufacturers

▪ Security in development: test benches for the sensors in NTN-SNR factories (thermal resistance tests (-40°C to +150°C), sealing tests, vibrations, mechanical resistance, etc.)

▪ R&D teams in France

▪ 100% inspections on manufactured products

▪ A perfect complement to the leading range

- **HALL EFFECT SENSOR IN CONJUNCTION WITH A MAGNETICALLY CODED SEAL ON THE WHEEL BEARING**: the magnetic field is produced by the north and south poles of the magnetically coded seal moving in front of the sensor. The gearwheel is replaced by a magnetic encoder.
- **MAGNETO-RESISTIVE ACTIVE SENSOR:** This technology allows a signal to be detected in complex structures where the sensor would be further away from the encoded seal.

20 years of ASB® - Active Sensor Bearing

ASB® equipped with a speed sensor was launched in 1997 and is emblematic NTN-SNR's innovative capabilities.

A major innovation

With needs linked to the growth in the 1980s of assisted braking systems, SNR had the idea to develop an encoder sensor that was coupled to the bearing to measure the speed of the wheels. A patent was filed in 1984. With the ASB® incorporated into the sealing joint, a magnetic crown allows for highly accurate measurements of wheel rotation speed. This information is used in all applications of onboard electronics: ABS, ASR, ESP, GPS, etc.

An international professional standard

1988 saw the start of the first development phase, and then from 1992 onwards, SNR implemented an original innovation and marketing strategy that resulted in creating an open professional standard. It then built up a coalition of car manufacturers and also integrated other bearings manufacturers. Launched in 1997, ASB® can therefore be adopted by many major manufacturers and, through an iterative process, has established itself as the global standard for measuring wheel speed.

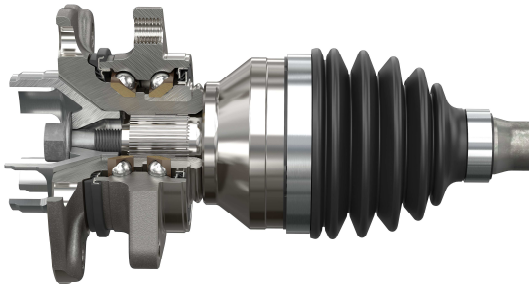
3. Other NTN-SNR innovations for the automobile market

Anticipating technological changes in the automotive sector, the technical teams at NTN-SNR are involved in various research and development projects intended to meet the challenges of the future. Their main objective is reducing CO2 emissions. This is achieved through solutions for lower energy consumption and developments in the field of electric vehicles. It is all about optimising the performance and therefore the useful life of the products, as well as developing products' innate intelligence.

- **The tapered reverse bearing** for automotive applications is a patented innovation that provides a reduction in friction and contributes to a reduction in CO_2 emissions. This bearing is in the test and study phase with major European automobile constructors.

- In 2016, the NTN-SNR **electric wheel motor** allowed Lazareth, a constructor based in Haute-Savoie, France, to develop an electric version of their famous sport trike, the E-Wazuma. NTN-SNR had already worked with the same constructor to develop a small urban vehicle which won an award at Automechanica in Frankfurt in 2012.

- The PCS Hub Joint is an NTN-SNR innovation that works with a system of strictly adjusted grooves to improve the link between the transmission and the bearing hub, resulting in significant weight savings and greater compactness for the equivalent power. After winning the Silver Trophy in the Grand Prix for Automotive Innovation at the EQUIP AUTO 2015 exhibition, the PCS Hub Joint is in a pre-production prototype phase with a major manufacturer, which is the step prior to production for equipping series vehicles.



- **The Dylico2**, modelling software for CO_2 emissions can generate extremely reliably calculations for variations in vehicular CO_2 emissions, depending on what type of bearing is present in the vehicle.

The Annecy Research and Development Centre

NTN-SNR has a European R&D centre based in Annecy (Haute-Savoie, France), equipped with significant human resources and cutting-edge devices: 400 people work on preparing the bearings and sub-assemblies of the future in different laboratories (metrology, analysis of organic materials, analysis of metallic materials). It also possesses 'best in class' simulation tools and a test centre with more than 200 test benches. Annecy works closely with the NTN centre for R&D in Kuwana, Japan, in particularly fruitful pooling of knowledge and techniques.

II. TWO NEW RANGES FOR THE AUTOMOTIVE AFTERMARKET PASSENGER CARS AND HEAVY DUTY VEHICLES

NTN-SNR offers two new strategic offerings on the aftermarket. First of all NTN-SNR launched transmission kit production intended for the automotive aftermarket in 2017. At the same time, NTN-SNR – already a major OEM partner for leading manufacturers of trucks in Europe (as well as NTN in Japan) – has launched a range of gearbox bearings as spare parts, something that has been eagerly anticipated by the market and which has strongly expanded its line of wheel bearings.

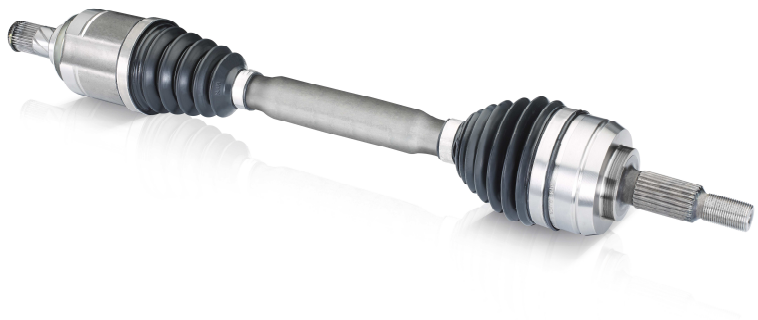
1. Original equipment guarantee for spare parts

A range of constant-velocity joint spare parts

Relying on the expertise of NTN Transmissions Europe, NTN-SNR launched its range of constant-velocity joints for the automotive aftermarket. The NTN group is now the No. 2 worldwide producer of OE transmissions with 40 million items manufactured per year in 14 factories worldwide. In Europe, more than 5 million transmissions per year are manufactured as original equipment, primarily in the factory in Le Mans (France, 72). These products demonstrate NTN-SNR's expertise, particularly when it comes to the technology used in its 8-ball joints that helps reduce bulk around the transmission and provides better acoustic performance.

The first phase of this launch focuses on Europe. The range includes three product families:

- **Complete transmission kit** (shaft, constant-velocity joints on the gear box and wheel sides)
- **Constant-velocity joint kit** for the wheel side (bowl assembled with boots)
- **Boots kit** (2 sides).



This offer is supplemented by all the marketing materials that support existing ranges, brochures, and technical information brochures (see service section) that are useful to both distributors as well as repairers.

NTN-SNR integrates this transmission kit offer in its chassis offer, including the wheel bearings kits, suspension parts and brake discs with integrated bearings.

An expanded lorry range

NTN-SNR is a major partner to leading truck manufacturers in Europe for gearbox bearings and differentials as original equipment. It is a leading supplier to Mercedes-Benz and Volvo trucks. It also offers, along with the NTN group, original equipment to many Japanese manufacturers of small trucks and vans such as Isuzu. With these new aftermarket products, NTN-SNR is responding to the strong expectations of the market.

- **Bearings for gearboxes**

NTN-SNR offers more than 220 products for gearbox bearings. It publishes a catalogue and other media. In the current second phase, it offers bearings for Asian applications.

- **Expansion of the wheel bearings range**

NTN-SNR now provides 142 truck wheel bearing products to the aftermarket. Among these bearings are HDS* bearings; these are used to fit as original equipment various premium models of trucks, like the Actros from Mercedes-Benz.

*HDS: Heavy Duty Specific

III. SERVICE PRIORITY

NTN-SNR's strategy focuses on high-quality service and customer proximity in addition to technical innovation. NTN-SNR provides a range of innovative services to the automotive aftermarket industry, as well as brochures on failure analysis, technical bulletins, installation recommendations, and a new, more ergonomic and intuitive online catalogue. In addition, for each innovation or new product proposed, NTN-SNR integrates it in TechScaN'R and publishes a catalogue and good practice guides. In parallel, the e-shop site has been completely redesigned. This site facilitates online ordering with immediate information about product availability. NTN-SNR offers these growing services as a partner to its customers, both now and in the long term.

1.Innovation and support

A space dedicated to repairers at EQUIP AUTO 2017

NTN-SNR has created a workshop at its stand for to technical demonstrations at Equip ‘Auto 2017 to raise customer awareness of its products and methods. Assembly and disassembly sessions for various products (wheel bearings, timing kit, CVJ) are led by NTN-SNR technicians and are held four times a day. These help illustrate the scope of the TechScaN’R application.

This stand is testament to the ability of NTN-SNR to visit and train at its customers' sites.

Innovations in services

- **Two innovations for the automotive industry services**
  - **TechScaN’R**

The application is available in the App Store and on Google Play. It provides access to information about a component by recognising the NTN-SNR reference listed on the label of the box, in catalogues, or any other type of media, without any other additions, links or additional markers. A simple reading of the reference is enough to be able to direct the reader to all the NTN-SNR technical information they need. Since its inception, TechScaN'R has continued to evolve to offer more services and more references to users.

- **Video tutorials** of installation by NTN-SNR (covers more than 800 references) for wheel bearings, the distribution kit, suspension kit, constant-velocity joints
- **Vision in augmented reality** of targeted references
- **Installation notes** comprising all constructor data and replacement intervals
- **Installation assistance** step-by-step with simple diagrams
- **Vehicle applications** for each of the references

TechScaN'R has been enhanced: it now covers all products in the NTN-SNR range and incorporates manufacturers’ recommendations.

- **The e-shop**

The NTN-SNR website has been completely redesigned in 2017 and now includes the new version e-shop, its on-line ordering site (B2B) .This displays all of the brands in the group, new products, and updates to catalogues for the major lines of activity of the NTN-SNR Group. NTN-SNR customers have secure access to place their orders online when they want, benefiting from real-time information about the availability of products and order tracking. E-shop is available in 8 languages (German, English, Portuguese, Spanish, French, Italian, Polish and Russian). Its usage rate ranges from 20% to 80%, depending on the country.

A wide range of services for vehicles

- **Tech'Infos and technical sheets to prevent failure in vehicles**

NTN-SNR provides garage owners and distributors with technical data sheets – Tech'Infos – on installation and disassembly. These provide preventive lifetime approach by providing comprehensive technical information on all the steps taken for the assembly and optimal use of components. **250 Tech'Infos are now available in various languages for 70 references in the chassis, engine and transmission families.**

NTN-SNR has also published two technical documents on failure analysis which are helpful with its products. These analyses cover Wheels and Distribution/Accessories ranges and sets out the top 20 most common failures, while providing a preventive approach.

IV. RESPONSIBLE PRODUCTION AT THE CUTTING EDGE OF TECHNOLOGY

NTN-SNR continuously invests in ensuring its production units remain at the cutting edge of technology and competitiveness. Heavily involved in a 'factory of the future' approach that combines robotics, digitisation, workstation ergonomics and lean management, NTN-SNR has also structured a CSR approach around social, environmental and societal performance, as well as adherence to a set of ethical standards. This is reflected in the certifications obtained by different production sites.

1. Modernising and investing in means of production

Permanent investments in the automotive market

- **Alès is an approved "showcase of future industry"**

A large part of the production of automotive components at NTN-SNR is carried out in France where there are two major production centres, one in Annecy (74) and the other in Alès (30, France), where NTN-SNR invested 20 million euros. It inaugurated a 7,000 m^2 production facility at the end of 2013 dedicated entirely to 3rd generation bearings. This strategic investment was made in response to the massive spread technological change among all major European, Asian and American manufacturers. This factory was awarded the designation "showcase of future industry" in 2016.

- **Success of Sibiu in Romania**

The NTN-SNR factory at Sibiu in Romania significantly increased its production capabilities in 2014 and 2015 It has emerged as a major supplier of bearings and transmission elements for Dacia and General Motors in Romania.

- **Le Mans provides transmission spare parts**

The NTN Transmissions Europe factory in Le Mans, which produces most of the 5 million transmissions a year destined for Europe, has seen its production capacity increased in 2016 with 3 additional blocks of 15 lines.

Reducing production's environmental footprint

- **ISO 14001 certification for all production sites**

All NTN-SNR manufacturing facilities around the world are ISO 14001 certified. This standard is based on the principle of continuous improvement of environmental performance by controlling the impacts associated with the activity of the company.

- **ISO 50001 certification for all French sites**

NTN-SNR obtained ISO 50001 certification for all its French sites in January 2016. This certification is related to energy performance. This certification is recognition of the dedicated work undertaken on lowering energy consumption and the reduction of greenhouse gas emissions. The company intends to integrate three NTN-SNR non-French sites into the ISO 50001 certification.

V. NTN-SNR, A KEY PLAYER IN MOTION

NTN-SNR ROULEMENTS is headquartered in Annecy (Haute-Savoie, France). It is part of the Japanese group, NTN Corporation, a global leader in bearings. NTN-SNR manages and develops all NTN activities for the EMEA region and Brazil. As a key player in design, development and manufacturing of bearings and sub-assemblies for industry, and the aeronautics and automotive industries, NTN-SNR rounds out its offering with service and maintenance solutions. NTN-SNR has 4,379 employees and nine production sites, including six in France, as well as 18 sales offices. Its development strategy focuses on three major axes: strong innovation; a presence in major strategic markets supported by major investments; the deployment of a service offering based on quality and proximity to customers.

1. NTN-SNR activities within the automotive sector

NTN-SNR, a leader in the automotive sector

70% of NTN-SNR's turnover is in the automotive sector. The company supplies almost all manufacturers in the world. It is a leading multi-specialist in original equipment and spare parts. NTN-SNR offers its 3rd generation wheel bearings, high performance distribution idlers and gearbox bearings and parts for chassis, engine and transmission families. A leader in the European vehicle market, NTN-SNR has become a supplier to Asian brand vehicles in Europe, both as OEM and spare parts for original products. NTN-SNR is also partner for electric vehicle development programmes and future innovations with the goal of reducing CO_2 emissions of combustion-powered vehicles. Within this context it has devised an electric wheel motor that is used on various prototype vehicles. It developed the PCS Hub Joint, a 2015 award-winning innovation, which significantly reduces the weight and bulk of the transmission.

A comprehensive and clear automotive product range

NTN-SNR provides the market with more than 7,000 products. It constantly expands its lines with 400 to 500 additional products a year. In 2016, it offered more than 1,000 products for the sensors, constant-velocity joints and truck ranges. The NTN-SNR ranges for automotive spare parts cover 80,000 vehicle models, comprising 96% of the European vehicle fleet.

It is also developing specific ranges for lorries that are continuously being improved with a doubling of the number of references since 2015, The end of 2016 saw the launch of a much wider range of bearings for lorries, as well as a full range of more than 220 lorry bearings products for transmission and gearboxes.

- **Chassis Family, #SecurityInside**

Wheel bearings, suspension, brake discs and transmissions

NTN-SNR is leader in wheel bearings, in particular 3rd generation bearings, and has developed expertise in brake discs with integrated bearings. These are frequently used in thrust bearings and suspension kits. A new offer of transmission kits is now becoming part of the family (full transmissions, constant-velocity joints, bellow kits). For all of these chassis components, NTN-SNR strives for perfect safety, ensuring how a vehicle behaves and therefore providing safety for the driver.

- **Engine Family, #PerformanceInside**

Distribution and accessories

Performance is the primary characteristic of engine items supplied by NTN-SNR. A major manufacturer of tensioners as OEM, NTN-SNR offers very high performance tensioners to meet the most demanding of requirements (a tensioner can turn at more than 15,000 rpm) and high quality belts. NTN-SNR offers a complete range for distribution and accessories: distribution kits and accessory kits, distribution kits with water pump, tensioners, accessory belts, damper pulleys and alternator freewheel pulleys.

- **Transmission Family, #ReliabilityInside**

  NTN-SNR offers extremely reliable bearings adapted to each type of box with very small tolerances to ensure the absence of any play. As OEM, NTN-SNR also provides clutch release bearings to the largest manufacturers and also offers this range to the aftermarket. NTN-SNR offers innovative and high performance mechatronic solutions: measurements of speed with its global standard ASB®*, angle measurements, or measurements of effort.

2. Other NTN-SNR industrial operations

Activities in the industrial sector

As the holder of the rail speed record at 574 km/h, NTN-SNR is recognised as a developer-partner of companies in the major target markets for bearings. In the rail industry, NTN-SNR has equipped high-speed trains for major manufacturers, including the Alstom TGV, as well as new programmes for regional trains. It is present in heavy equipment and machines used in construction/public works, as well as in mines and quarries. It developed very high-performance bearings including the ULTAGE® range for the steel industry. It is reinforcing its presence in the machine tools sector with a new investment in a production unit in Germany. In addition, it is also active in markets for agricultural machinery, agri-food, packaging and paper mills, as well as pumps, engines and turbines, and transmissions. NTN-SNR is a partner of major manufacturers of wind turbines and equips several solar power plants.

Activities in the aerospace sector

As a partner of the 1st flight of the Airbus A380, the largest passenger airplane in the world, NTN-SNR bearings are used in major aeronautical and space programmes. This includes the Ariane European launcher and the CFM 56 jet engine, which continues to be the number one seller for both Airbus and Boeing. It is a major player in the engines of tomorrow: NTN-SNR has developed components for the SNECMA LEAP engine. This engine first flew on the Airbus A320 neo in 2015 and the Boeing B737 MAX in January 2016. It is also a supplier to GTF engines from Pratt and Whitney and Trent 1000 and 7000 from Rolls Royce. NTN-SNR thus equips a great majority of all current aeronautical programmes. NTN-SNR is also a leader in helicopter transmissions, enjoying continuous growth in this market for several years. The company invested more than 27 million euros in 2015 to expand and modernise its aeronautics production unit in Argonay (Haute-Savoie, France) based on the "Factory of the Future" model.

PICTURES

Accessory.jpg

BoitesSNRNTN.jpg

BrasSuspensionEclate.jpg

ButeeSuspension.jpg

CONIQUE INVERSE-Eclate.jpg

CONIQUE INVERSE.jpg

Disque Frein.jpg

EWazuma_Moteur.jpg

GaletInovationHD.jpg

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Logo_20_ans_ASB_FR.jpg

Logo_20_ans_ASB_GB.jpg

PCS_coupe.jpg

PCSTroisQuart.jpg

Rlt ASB_eclat_capteur2.jpg

Roulement de roue.jpg

Service_TechScanR_Boite.jpg

Techscanr.jpg

Timing belt_waterPump kit.jpg

TRANSMISSION 3x4.jpg

TRANSMISSION NEW SOUFLET 3X4.jpg

TRANSMISSION NEW TETE 3X4+ombre.jpg

Truck_HDS 001.jpg

Truck_HDS 003.jpg

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