

# NTN-SNR: A POWERFUL ENGINE FOR INNOVATION

**#PERFORMANCEINSIDE** 

**#SECURITY**INSIDE

**#RELIABILITY**INSIDE



## **PRESS KIT**

OCTOBER  $15^{\text{th}} - 19^{\text{th}}$  2019 PARIS EXPO - PORTE DE VERSAILLES

STAND E030, HALL 1





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After more than 10 years, what a joy to be back in the automotive aftermarket and how proud I am that this comeback is with the NTN-SNR aftermarket teams!

Since July 1<sup>st</sup>, I have discovered this group with its impressive industrial power. **The third largest Japanese investor in France, the European leader in automotive bearings**, an premium OE manufacturer, NTN-SNR is a major player driven by innovation and always in motion.

Spearhead of the group's competitiveness, our R&D focuses on the changes that shape the future of the automotive market. CO2 emissions reduction, development of electrification, change of consumption behavior (Pure Leasing or with intention of purchase), evolution of system geometry, new processes for a better performance, safety and reliability... Within the NTN group, 800 people dedicated to R&D in the world prepare the automotive market of tomorrow.

To that end, we constantly find new innovative solutions for our 3 modules POWERTRAIN, CHASSIS, DRIVELINE, and expose on the show, for the first time in France, our lastest innovation awarded by Magna POWERTRAIN and finalist of the Grand Prix of the innovation EQUIP AUTO 2019: **the absolute angle sensor bearing for electric motor.** 

Our challenge: to give NTN-SNR its legitimate place in the automotive aftermarket, based on our 100 years of know-how and the innovations of our R&D department.

True partner of all players in the automotive ecosystem, NTN-SNR is also proposing innovative services to be close to its customers, as the new version of the TechScaN'R. It allows mechanics to quickly identify, from their mobile phone, the part they need and to find associated assembly videos

NTN-SNR is proud to share with you its vision of the market and to welcome you on its stand. With the virtual reality space offering a trip to the center of the 14,600 m2 assembly line of our 4.0 factory in Alès and live demonstrations, we lead you to the heart of our expertise: **the design of tomorrow's standards.** "

Jean-François DEBROSSE Vice president Automotive Aftermarket Europe & Africa

## NTN-SNR AT THE HEART OF INNOVATION

**PIONEER** and expert in mechatronics, premium original manufacturer guaranteeing the original quality in automotive aftermarket spare parts, inventor of the **ASB**® and the LIDAR, creator of the automatic tensioner roller with variable damping mechanism ... NTN-SNR today meets the challenges of tomorrow. Proof of this is this year with its invention presented on its booth at EQUIP AUTO 2019, and finalist of the Grand Prix of Innovation: **the absolute angle sensor bearing for electric motors.** 

## NTN-SNR at EQUIP AUTO 2019 fair



### PRODUCT INNOVATION

## Absolute angle sensor bearing for electric motors

It's a fact: environmental requirements are compelling, the evolution of energy performance and the tightening of European regulatory standards in the automotive sector are accelerating the shift towards the electric and hybrid market.

To anticipate tomorrow, and true to its expertise in mechatronics, NTN-SNR has designed and developed, in partnership with EFI, a new sensor bearing dedicated to the control of electric motors. **Winner of the first 2018 innovation award** in the "electrification" category, by Magna POWERTRAIN (the specialist in e-mobility solutions), this innovation marks a breakthrough in the automotive industry.

#### How does it work?

Displayed at the Welcome Desk of the NTN-SNR booth at EQUIP AUTO 2019, this integrated solution is made of a magnetic ring -

with an innovative patented pattern - mounted on a high-speed ball bearing and a Hall effect sensor providing direct angle measurement. It's target? It measures rotor angle with 1° magnetic precision to guarantee optimal control of the electric motor.

This integration also guarantees easy assembly and optimal precision after mounting, reliable angular measurement no longer depends on the quality of the motor shaft's mounting. Integrating the sensor function into the bearing reduces its axial space compared with existing solutions. It's also lighter by several hundred grams, a huge gain in the current race to make vehicles lighter. With this invention, NTN-SNR once again confirms its leading position in the evolution of electric motors.



" Market evolutions in terms of energy efficiency, electrification, autonomous or shared vehicles, will allow us to develop our solutions. These are real opportunities for NTN-SNR because of our sensor bearing expertise"

Vincent POURROY-SOLARI
Innovation for mobility

#### NTN-SNR INNOVATIONS

**2019 Absolute Angle Sensor Bearing** for electric motors control.

 $1^{\rm st}$  prize in the "Supplier Innovation Challenge" in the "electrification" category by Magna POWERTRAIN

Finalist at the 2019 Grand Prix of Innovation, category "Original equipment" of EQUIP AUTO 2019

**2018 Ceramic ball wheel bearings** for Jaguar XE SV Project 8 Finalist at Automechanika Innovation Awards in Frankfurt, 2018

**2017** The automatic tensioner roller with variable damping mechanism Finalist at the Grand Prix of Innovation of EQUIP AUTO 2017

**LIDAR - Laser Imaging Dectection And Ranging** 

2016 The electric wheel-motor for the manufacturer Lazareth tricycle, the E-Wazuma

Reversed tapered bearing

2015 Electric wheel-motor

The PCS Hub Joint

Finalist at the Grand Prix of Innovation of EQUIP AUTO 2015

Dylico 2, CO<sup>2</sup> emissions modeling software

**1997 ASB**\*, Active Sensor Bearing – bearing equipped with the speed measuring sensor, then used for ABS, ESP, ASR, GPS Historical patent

#### INNOVATION SERVICES

To ensure an easy access to information for its customers and garages, NTN-SNR also innovates within its services. The new version of the **TechScaN'R** app on AppleStore and Google Play, offers 3 new product search processes:

- By scanning the vehicle's license plate
- By entering the European VIN number of the vehicle
- By entering the competing reference

#### PROCESS INNOVATION

NTN-SNR Cévennes has been awarded the **"Showcase for the industry of the future"** label for its latest-generation wheel bearing production plant.

Visit the  $14,600 \text{ m}^2$  of this unique site, as if you were there, thanks to a virtual reality experience on the stand NTN-SNR of EQUIP AUTO.

## POWERTRAIN MODULE

Timing and auxiliary

## **#PERFORMANCEINSIDE**

**MANUFACTURER** of original equipment, major supplier of automotive spare parts for the aftermarket, NTN-SNR is like the engine: it synchronizes its energy to deliver to its customers the best performance. Multi-specialist for timing and auxiliary products, one of the main manufacturers of pulleys in OEM, world leader in hydraulic tensioners (VAG, Toyota, Mercedes, Hyundai ...), NTN-SNR capitalizes on its manufacturing expertise to provide quality parts and offer one of the widest and most innovative ranges of the market. Proof of this with the launch of its **new range of timing chain kits**, presented for the first time in France at EQUIP AUTO 2019.



#### • 22 chain's kits and individual chain tensioners

The timing market is still mainly dominated by timing belts. However, new technological constraints mean that chain-driven timing systems have become more popular as new engines were designed. This solution, which has been growing rapidly for a few years, brings us to 2019, when out of factory nearly 1 out of 2 outgoing vehicles are equipped with timing chains. This implies that in 2020, 30 to 40% of the global car park is made up of engine with timing system by chain.

Although timing chains have a longer lifespan than timing belts, the parts are subject to significant wear; tensioners, guides, gears... failures that needs to be addressed by changing the complete system (70% of repairs are performed by the manufacturer). In order to meet those new requirements of the markets, NTN-SNR has expanded its timing range with:

- 6 individual chain tensioners for Subaru, Suzuki and Honda that are manufactured in the group's Japanese factories..
- 22 chain's kits composed of:
- . Chain made of high-quality steel to guarantee endurance and reliability
- . Hydraulic chain tensioners for perfect tension and optimum engine function
- . Guides made of very sturdy plastic to ensure the chain is guided with precision
- . Gears with a specific surface treatment to improve the resistance of the toothed areas

## 185 timing kits with water pump

The market trend is towards the growth of distribution kits with water pumps (compared to sales of water alone pumps, rather down). They currently account for 50% of the total distribution kits sold, with professionals turning more and more towards "full kit" offers. Attentive and responsive to the needs of the market, NTN-SNR thus expands its offer with 40 additional part numbers, bringing its range to more than 225 references by 2020



## **ZOOM ON...** The new Compact Chain Tensioner

10% saving in oil consumption compared to a standard tensioner, 18% reduction in size in the axial direction, more than 10% reduction in terms of weight, suppression of most of the noise... The new compact chain tensioner developed by NTN-SNR, contributes to improve the fuel consumption. This system is the future of hydraulic tensioners!

### **POWERTRAN** in numbers

- 10 million of pulleys manufactured per year
- 40 million of bearings for pulleys manufactured per year and 100% controlled
- 650 timing kits + timing kits with water pump
- Over 600 timing pulleys, hydraulic, tensioners & idlers
- Over 700 auxiliary belts
- Over 200 dampers & dampers kits

**NTN-SNR offers a wide range** of auxiliary kits, overrunning alternator pulleys and bearings for air conditioning & alternators.



NTN-SNR expects a 25% increase in its turnover by 2025, on the POWERTRAIN business

## **More info**

**NTN-SNR is the exclusive supplier** for hydraulic tensioner for TDI VAG engines and offers them for the aftermarket.



"With our 3 manufacturing sites (Iwata, Nagano in Japan & Mettmann in Germany), NTN-SNR is a major company for the Timing & Auxiliary market. We manufacture each year 10 Million pulleys as well as 40 Millions of bearings for the pulleys, all 100% approved. Our know-how in this area also allows us to develop new products for future markets (i.e.: Stop & Start)"

Elise WARE - Product Line Manager, EMEA Automotive Aftermarket NTN-SNR

## CHASSIS MODULE

Wheel bearing, sensor bearing, suspension components, brake discs & CV joints

## **#SECURITY**INSIDE

**DESIGNER, MANUFACTURER & WORLDWIDE LEADER** in wheel bearing technology, European leader in suspension kits, n°2 worldwide for CVJ product range, inventor of the **ASB**® technology 20 years ago, NTN-SNR relies on its recognized technical and mechatronic know-how to continually pursue its research and development. Manufacturer of innovative solutions for road handling and braking, its range of the CHASSIS module always provide more security. Whether in original equipment or automotive aftermarket, NTN-SNR guarantee a premium quality because of its OEM know-how but also by "identifying" today the requirements of tomorrow.

#### Over 100 new references of wheel speed sensors launched in 2019

With more than 100 million wheel's bearings manufactured per year, 30 years of patents and mechatronics knowledge, NTN-SNR is the leader in wheel bearing, especially 3rd generation. With each generation, new functions and technological evolutions that NTN-SNR has anticipated. Proof of that, **NTN-SNR was the first bearing manufacturer to launch its range of wheel speed sensor** (in 2018).

Today, NTN-SNR offers a range for all the technologies on the market (65% active sensors, 35% passive sensors), and launches its first catalog combining the wheel bearing kits and sensors.



"The legitimacy of the bearing manufacturer who has developed the **ASB**® is unique because it is the speed of the wheel bearing that is measured by the sensor."

Mélanie MANIA Product Line Manager, EMEA Automotive Aftermarket NTN-SNR

#### CV Joints "made in France"

With more than 100 new references till the end of 2019 and the launching of a new catalogue, the n. 2 in the world in the production of OEM CV joint kits is continuing the development of its range.

With more than 40 million CV joints per year manufactured in 15 factories around the world (of which – 6 million exclusively in Europe), NTN-SNR is one of the major players having the range to support this new segment of the aftermarket. Partner designer and supplier of the major European and Asian manufacturers (Renault, Mercedes, Mini, Jeep, Opel, Nissan, Toyota, Fiat, Ford, Volvo, BMW...), the group widens its range of CV joints with more than **100 new references** divided into 3 families:

- Complete transmission kit
- Wheel side seal kit
- Boots kit

These new products enjoy the quality "made in France" since they are manufactured on the site NTN-SNR of Le Mans, in Sarthe. If 50% of them are dedicated to the aftermarket on the vehicles manufactured before 2010, the other half of these new products aims to be "first to market", for the more recent vehicles. A real asset on the market!

True to its pioneering, the group intends to continue its development and launch more than 50 new references by the end of the year, always with the aim of greater safety and better acoustic performance in mind. Its 8-ball joint technology is the most recent example...

Find all these products in the new catalog!

"Trust a worldwide leader, choose quality!"

Maxime BRAUT
R & D manager

### Strut bearing: "a bearing like no other"

Between OEM and aftermarket, there are nearly **30 million suspension parts** produced each year in the factory of Seynod (France). Strut bearings for automotive aftermarket benefit from the know-how and quality of the OEM experience of NTN-SNR, one of the leaders in this market with 35% market share in Europe.

Each piece produced is of premium quality and is made of hardened steels, specific plastics, premium rubbers and greases.

It's a more technical piece than it seems - there are several generations of strut bearings with new functions with each evolution. The strut bearing is a real interface with the shock absorber and the spring allowing the rotation of the assembly. A real know-how of bearing manufacturer is essential to guarantee the safety of the consumers.

"Did you know that a worn suspension can result in 15% more braking distance? Thus, the suspension parts that ensures that the wheels remain in continuous contact with the road surface, should not be neglected"

Mélanie MANIA Product Line Manager, EMEA Automotive Aftermarket NTN-SNR

#### **NUMBERS**

- 100 million bearings manufactured each year by the NTN group
- 30 million strut bearings manufactured each year by the NTN group
- 40 million CV Joints manufactured each year by the NTN group
- Over 3 000 part numbers
- Applications for over 60 car manufacturers

#### **CHASSIS MODULE**

- Wheel bearings: + 1800 part numbers
- Wheel speed sensors: 300 part numbers
- Brake disc with integrated bearings: 100% coverage
- Strut bearings: 500 part numbers
- Constant velocity Joints (CVJ): + 500 part numbers



## DRIVELINE MODULE

Gearbox bearings and clutch release bearings

## #RELIABILITYINSIDE

**OEM QUALITY.** For the aftermarket of the gearbox bearings and clutch release bearings, NTN-SNR offers the same quality, reliability, performance and durability as those supplied to car manufacturers. These are the are the strength of an OEM manufacturer!

In order to meet the specific environmental constraints and requirements of these highly technical parts (mechanical strength, efficiency, acoustics), **100% of the NTN-SNR OEM references** are also available for the aftermarket. Thus, the **160 million** gearbox bearings and clutch release bearings produced each year, are all produced in the NTN-SNR plants.

## **Gearbox bearings**

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+ 400 part numbers
200 different gearboxes for European and Asian vehicles



## Focus on clutch release bearings

NTN-SNR, world leader in bearings, is one of the world's leading manufacturers of clutch release bearing (unitary) or complete clutch release, in terms of production volume. The group is also a major supplier of the market and its range covers 11 brands of vehicles (Mitsubishi, Nissan, Mazda, Honda, Suzuki, Subaru, Daihatsu, Renault, Dacia, Fiat, Lancia). Angular contact bearing, polyamide cage suitable for acceleration effort, seal designed to increase service life... All these advanced technologies, offered in OEM & Aftermarket, ensure reliability and performance.





"In an environment with multiple constraints: high temperatures, an enclosed environment, oil polluted with metallic particles, "the bearing is critical for life of the transmission". With such extreme conditions, reliability is the key word for NTN-SNR bearings: #RELIABILITYINSIDE."

Romain PETELLAZ Product Line Manager, EMEA Automotive Aftermarket NTN-SNR

## THE TRUCK RANGE



**MAJOR SUPPLIER** of the main truck manufacturers in Europe (Mercedes-Benz, Volvo Trucks ...), NTN-SNR is also present in original equipment, with the NTN group, at many manufacturers of smaller trucks and utility vehicles in Japan (Isuzu) and in the United States (Mack, Ford, ).

## TRUCK RANGE EXTENSION

To meet market requests and offer a better coverage of recent vehicles, the NTN-SNR Truck range is growing significantly this year, especially for European truck applications such as Mercedes-Benz, MAN, Volvo and Scania.

The extension of the range will be done in two steps with an extension of about forty references in November and another forty in February 2020. The goal: continue to develop the offer Wheel and Gearbox / Differential of the truck range.

The extension concerns 82 part numbers:

- 14 references for differential
- 46 references for gearbox
- 22 references for wheel bearing

"The goal is to reach 500 references within 1 year, following market trends and positioning ourselves as a major supplier of heavy truck bearings on the European market. We are also exploring the possibility of diversifying the range with the addition of a new family of products: tensioners pulleys."

Romain PETELLAZ Product Line Manager, EMEA Automotive Aftermarket NTN-SNR

### They trust NTN-SNR

Mercedes-Benz / Volvo Trucks / Isuzu Motors / UD Trucks /

Mitsubishi Fuso Truck / Hino Motors Bower

Using Bower brand: Arvin Meritor, Dana/Eaton, GMC, Rockwell, Mack.

## AT YOUR SERVICE!

**PARTNER OF OUR CUSTOMERS AND GARAGISTS,** NTN-SNR makes proximity and customer relations one of its engines. Aware of their constantly renewed needs in terms of information, recommendations, analyzes, technics ... the group develops and adapts its support, its services and its aids to the attention of those who trust it.

NTN-SNR more than a supplier, a real co-pilot

## TechScaN'R v.4 : the easy app!

New version for the NTN-SNR application! Available on AppleStore and Google Play, TechScaN'R gives customers and mechanics easy access to technical information of all NTN-SNR references.

If the application already provided access through recognition of the NTN-SNR part number listed on the box, in catalogues, or on any other type of support, it now offers 3 new product search processes.

- By scanning the vehicle's license plate
- By entering the European VIN number of the vehicle
- By entering the competing reference

4 quick and easy ways to access all the necessary data: technical videos, augmented reality display of the part, assembly (step-by-step) or maintenance instructions, vehicle applications, catalog, new product ... TechScan'R is the ideal tool for mechanics to find the right part and all associated technical materials.



### Tech'Infos : new one !





NTN-SNR constantly create and pile on new technical data sheets accessible via the TechScaN'R application, TecDoc or on its website. Dozens of multilingual Tech'infos are available to distributors and garages to guide and advise them in the assembly and disassembly of POWERTRAIN, CHASSIS and DRIVELINE products. NTN-SNR offers a preventive approach that guarantees the optimal use of its components.

Also available, the failures booklet & posters offering an analysis of the most common failures in the ranges Wheels and Timing/auxiliary.

## The E-shop

Completely redesigned in 2017, the NTN-SNR website is also a source of information and an online ordering tool (B to B). Each customer, using his account, can consult all the products and catalogs of the group, order and follow in real time both product availability and delivery tracking.



### **NEW CATALOGS**

Real practical working tools with their search system by vehicle application, OE reference or NTN-SNR reference, the new catalogs (available in paper version or PDF in 9 languages) integrate the latest references of the group.

This year, 3 new catalogs are published:

#### Wheel & Sensors 2020 #SECURITYINSIDE

Until then divided into 2 separate catalogs, the sensors logically join the wheel references since NTN-SNR is the only manufacturer to have developed the wheel speed sensor range. With more than 1,800 bearings and nearly 300 sensors, this new format is a real help and saves time for mechanics.







#### CVJ 2020 #SECURITYINSIDE

Over 450 references for the constant velocity joints range (CVJ) composed of ready to use driveshafts, boot kits for both sides.

#### **Distribution 2019 #PERFORMANCEINSIDE**

700 pages, over 1200 reference including 127 new products among tensioner and idler pulleys, timing kits, timing kits for belt in oil engine, new range of chain timing kits.

## **NEW**: NTN-SNR in virtual reality

Innovation and new technologies are at the heart of NTN-SNR, always looking for improvement and evolution. Proof of this is with the **first time presentation on the booth of EQUIP AUTO 2019**, of a new immersive video of the group.

This experience transports the user to the NTN-SNR plant 4.0 in Alès (Gard), certified "Showcase for the Industry of the Future". It allows to follow and live the production stages of an NTN-SNR wheel bearing, in a real environment. VR Helmet on the head, the immersion is total, educational and informative.

This video will not only be dedicated to people outside the group, but will also be used internally in the process of integrating and training new employees. Available in French and English for EQUIP AUTO, this video will then be translated into 7 other languages.



## TECHNICAL TUTORIALS: New videos of assembly/disassembly

To facilitate the work of mechanics, NTN-SNR provides them with mounting and dismounting videos. Two new creations, presented on the stand of the EQUIP AUTO Show, join the 9 already existing:

Timing: Need to change a timing system? Here are NTN-SNR best practices

Wheel sensor: Detection of sensor failures and its replacement

### CORPORATE VIDEO AUTOMOTIVE AFTERMARKET

NTN-SNR presents its new corporate automotive aftermarket video! In 1 minute and a half, discover the advantages of the Business Unit, the quality and width of the NTN-SNR products' ranges and services offer on the 3 CHASSIS, POWERTRAIN and DRIVELINE modules.

## NTN-SNR, THE POWER OF A GLOBAL GROUP

**LEADER** in precision mechanics, NTN-SNR designs, develops and industrializes its products. Its brands are a reference for both OEM and aftermarkets markets. Innovation remains at the heart of its concerns, whether in automotive, industry or aeronautics business.

#### Industry: NTN-SNR partner & designer

Railroad (speed recorder with 574 km / h), mines and quarries (high-performance **ULTAGE**. rolling stock), wind energy and solar power plants, steel, robotics ... NTN-SNR, bearing market leader, is the partner-developer for industries and their most challenging applications. With more than 22,000 product references available in its European distribution center (entirely dedicated to industry), NTN-SNR meets all the needs of its customers and has a range of services, technical & marketing supports that makes every day work easier.

### Aerospace: at the cutting edge of innovation

Aircraft engines, transmissions and helicopter rotors, equipment and specific products, NTN-SNR bearings take off the air and space professions. Present on all new single-aisle aircraft, the largest engine manufacturers use NTN-SNR solutions (Safran, Pratt & Whitney, Rolls Royce, General Electric). Leader in helicopter transmission and rotor bearings, NTN-SNR is also at the heart of the

space adventure with the turbopumps fitted to Ariane 5. Always at the forefront of technology, the group inaugurated in 2018 its **"factory of the future"** in Argonay, Haute-Savoie (France), entirely dedicated to the production of bearings for aeronautics. It is also on this site that **NTN-SNR** has just announced the launch of its new specific **LEARN** training course on **November 18** (see page 15)

## Did you know it?

Every 3 seconds, a plane taking off around the world contains an NTN-SNR component.

### IN NUMBERS

### **NTN-SNR Europe**

- 1,5 Md€ turnover
- 6 921 people
- 3,3 % of turnover invested in R&D
- 15 production plants
- 26 sales areas

#### **NTN-SNR** worldwide

- 5,72 Md€ turnover
- 25 493 people
- 76 production plants
- 97 sales areas

### **KEY DATES**

**1918** Start of activities at SRO in Annecy, France Establishment of NTN in Japan

**1946** Acquisition of the Société Nouvelle de Roulements by Renault-Création

**2000** All SNR sites certified according to ISO14001

2007 NTN holds a share of the capital of SNR

2008 NTN becomes majority shareholder with 51% of the capital of SNR

2010 NTN increases its share of SNR's capital to 80% SNR ROULEMENTS becomes

NTN-SNR ROULEMENTS

**2018** 100<sup>th</sup> anniversary of the NTN Corporation and NTN-SNR

#### NTN-SNR: Certified responsible company

ISO 140001 certification: all production plants worldwide

This standard is based on the principle of continuous improvement of the environmental performance by controlling the impacts related to the activity of the company.

ISO 50001 certification: all French sites

If all the Group's French sites have obtained this certification, recognizing NTN-SNR's commitment to reducing energy consumption and reducing greenhouse gas emissions, the target is now to integrate the three sites located internationally.





#### **Training program LEARN**

In order to respond to an increase in demand for labour, the NTN-SNR Group decided to create L'Ecole des Applications des Roulements NTN-SNR (LEARN) or the "NTN-SNR school for bearing applications". It will open its gates in November the 18th. Located at the heart of its aerospace site in Haute-Savoie, this unique "school" is open to everyone.

No CV is requested during the recruitment phase, made up of practical logical-reasoning and mounting tests, followed by an interview to discuss the candidate's aims.

Target: To welcome, train and integrate the company's future certified grinders and mounters.

If today, this training course of 13 months, ending in a "equivalent metalworking qualification certificate" (CQPM) is exclusively for aeronautics, it should be applicable to the automotive aftermarket **in 2020**.

To be followed...

### LEARN IN FIGURES

- 280 m<sup>2</sup> of workshops and a teaching platform
- 140-hours core course
- 13 months of training in total
- 3 recruitment rounds per year
- 2 experts trainers dedicated to NTN-SNR



Former department manager, I decided to change everything. I joined NTN-SNR which allowed me to go through a complete professional path. What I like the most? To be in aeronautics and be able to work on high precision parts. It is a job that is not monotonous, which requires meticulousness and autonomy. You have to be curious, to think and be passionate."

Sandrine GAY Grinder

## PRESS CONTACT

NTN-SNR

Communication Officer

**Carol Donat** 

carol.donat@ntn-snr.fr

Mobile: +33 6 77 02 87 04

Writing: Agence Sogo Com

www.ntn-snr.com