# Summary



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**Press Release :**

# SNR ROULEMENTS received the 2008 Mechatronics Awards Grand prix for its ASB3® load sensor technology

**After the international success of ASB® and its velocity measurement, SNR innovates again in the mechatronics field with the ASB3® load sensor. Its technology, previewed at the SCS Fair of Paris, received the Grand Prix all categories of 2008 Mechatronics Awards.**

Mechatronics Awards are the first mechatronics trophies created within the framework of the mechatronics SCS Fair (specialized in mechatronics, electric technologies, automation for industrial performance and energy of companies) which took place on 2nd December 2008 in Paris. It is a great innovation for this transverse technology which concerns all the markets. Organized by ARTEMA, CETIM, SCS and THESAME, the trophies were awarded by a jury composed of technical experts and specialized media journalists.

The all categories Grand Prix was awarded to SNR innovation for its 3rd generation of instrumented bearing load sensor. Faced with high competition, this trophy is a new strong mechatronics innovation for SNR. The company already boasts the success of ASB®, become a world standard for wheel speed, today equipping 8 of 10 most sold vehicles in Europe.

**To know more about the ASB3® load sensor**
SNR developed a bearing integrating gauges measuring, under operation, the micro-distortions around the ring, generated by the loads.
What for? Let us take the example of automotive where embarked electronics spreads: ASB3® bearing measures the loads distributed on each wheel (from 500 to 800 kg) and thus the tyre road contact. This information improves the efficiency of the trajectory control system (ESP). Several SNR patents were deposited to protect this concept.

Beyond the automotive market, this technology could also apply to other industrial sectors such as construction machines, robotics or even wind mills. In all cases, such innovation requires mechanical know-how, but also in electric, electronic and embarked software fields: a scientific mix of competences which SNR proved it had.

**Focus on chassis control**
The ESP Calculator detects the abnormal trajectories of the vehicle and corrects them by activating the brakes of certain wheels. The ASB3® load sensor technology measures the loads on the wheels. This information (in addition to information of measurement of angles of wheel, speed and rotation of the wheels) makes it possible to optimize the ESP operation.
This technology was designed to improve quality and safety of driving. The aim is finally to protect the drivers.

# Focus on ASB3® load sensor, applied to automotive

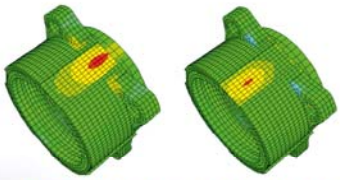
## Innovation, our drivers: measure load on wheel for safety, chassis control and comfort

**ASB3 bearing is able to deliver a real time measures of forces and moments applied to the wheel along 3 directions. It allows control, powertrain management:**

- Vertical comfort or chassis control
- Horizontal comfort or cornering control
- Active safety and stability
- Driving agreement or motricity


### Measure principle

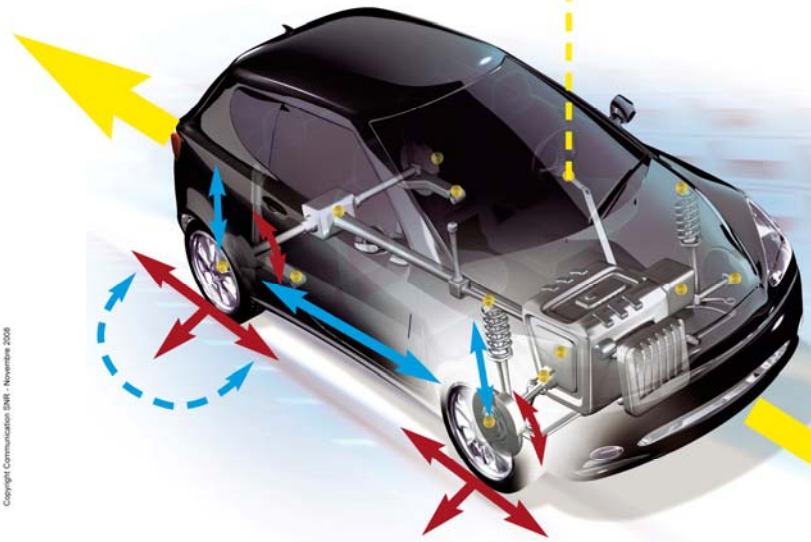
Gauges on the outer ring measure outer ring deformations due to tyre road contact.
An embedded ECU calculates the loads based on those information.



**Bearing stationary ring =**
first stationary part from tyre/road contact

**Wheel bearing =**
High precision component

- No impact on vehicle user (wheel assembly and tyres remain unchanged…)
- Lab tests on test rig and vehicle confirm concepts





www.snr-bearings.com

## SNR ROULEMENTS in few words

The SNR history began in 1916 in Annecy (France) thanks to the desire and the energy of the pioneers. Today men and women have taken over with same passion. SNR became an international group of more than 4.000 people, present on the 5 continents. Creator of the ASB® bearing, world standard of the mechatronics bearing, SNR is recognized universally as an expert in innovation.

The company holds the pole position on the automotive market in Europe. Among its customers: FIAT-GM, Mercedes, PSA, Renault-Nissan, VAG, Honda…
SNR is the partner of the most ambitious aerospace programs: ARIANE 5, CFM56 engine for Airbus and Boeing, Eurocopter, Snecma, Bell Helicopter, Dassault, Pratt & Withney…
And SNR is a good answer for industry with its various applications: TGV, ski lifts, industrial robots, agricultural machinery…
SNR proposes high-tech and innovating products, adapted to the needs of each customer.

In April 2008, the great Japanese bearings manufacturer NTN became the first share-holder of SNR ROULEMENTS. Together, they are the third world bearing group.
The objective is to combine the complementarities (products, technology, geography) of both companies and to create synergies to build a group present on the 5 continents and on the 3 customers-markets: automotive, industry and aerospace.

**The key-points of the common strategy:**

- ONE voice to the customer : a single customer contact for the 2 brands in Europe
- ONE managing structure : 5 Strategic Business Units have been implemented, Automotive OEM, Automotive Aftermarket, Industry OEM, Industry Aftermarket, Aerospace.
- ONE R&D centre in Europe, based in Annecy (France)
- European manufacturing for European sales
- Purchasing : common sources
- Standardization of the IT systems and Logistics to move to a common European structure.

***SNR in figures***
**NTN Corporation employees *(including SNR)* :** 21 400
**SNR employees :** 4 000 people including 3 169 in France (2 758 in Haute-Savoie et 411 in Gard) – (figures on 2008, 1st of January)
**SNR 2007 turn-over :** 643,9 millions €
**R&D :** 4% of the turn-over
**Investments :** 3,9%du of the turn-over
**Training :** 5% of the wage bill

**The ASB3® load sensor bearing :** this is the last generation of wheel bearing, the outer ring is equipped with gauges. The electronics condition the electrical signals and an algorithm transforms them into loads that are continuously analyzed by the wheel.

## Tests in real conditions

SNR realized at the end of last september tests on the ASB3® load sensor bearing on the du Pôle de Mécanique circuit, in France (Gard). The objectives? To know more about the performances of the system in real operating conditions. With this intention, ASB3® load sensor bearings were assembled on a modified car, in particular the kingpin supports (castings supporting the bearing). On its board, a real small laboratory of measurements equipped with electronic devices of acquisition and data analysis. Over 3 days, the vehicle multiplied accelerations and braking operations, as well as the obstacles avoidances and driving in slipping zone. The R&D project team validated invaluable data which make it possible to say that this innovation “was well born” and promised to a great future.

On December 3, 2008, Frédéric Guerre-Chaley (SNR ASB3® project manager) et Hervé Brelaud (SNR R&D Director) received the 2008 Mechatronics Award Grand prix in Paris