



**BOSCH**

Invented for life

- Rubber compounds and extrusion
- Metal stamping and bending
- E-coating and wet coating
- Assembly
- Engineering



## Bosch Manufacturing and Services Belgium



# Local service and expertise

## Bosch Manufacturing and Services Belgium

Our site in Tienen, Belgium, was founded in 1974 and currently counts around 900 employees. It forms, within Bosch, a specialized **knowledge and development center** for processes, products and manufacturing.

As **global Lead Plant**, we also support the production sites in Asia, Europe and South America. We are originally known for our high expertise in wiper blade development and production but can offer the same in depth knowledge and expertise in a wide range of other products and applications.

### Our core competencies:

- o Rubber: compounding, extrusion and injection molding, coating
- o Metal stamping with high geometrical accuracy and surface quality
- o Coating technology with surface treatment, immersion techniques and spray painting
- o Assembly technologies
- o Tension free metal bending

Our extended experience in the development and manufacturing of wipersystems also offers key benefits for other markets and applications such as construction, household appliances, industrial products, etc.

We have the full range of expertise in house for our customers. From the production of a single **component** in rubber, a metal stamped and/or painted part up to R&D, engineering and industrialization of a high quality **finished product**.

### Research and Development


New innovations are based on a long-term vision and the analysis of customer needs. Bosch uses a tried and tested method to develop new products through an innovation funnel and structured stage gate process. This way of working is also used in the development of products for new market areas.

State-of-the-art simulations, based on self-developed models are used to predict future product characteristics and 3D printing is used for fast prototyping.

As of the first moment in the development phase of a new or improved product, a multi-disciplinary team is set up to coordinate both product and process development. All competencies are available on site.




**01**




Rubber compounding  
Extrusion  
Injection moulding

**02**




Metal stamping  
Tension free bending

**03**



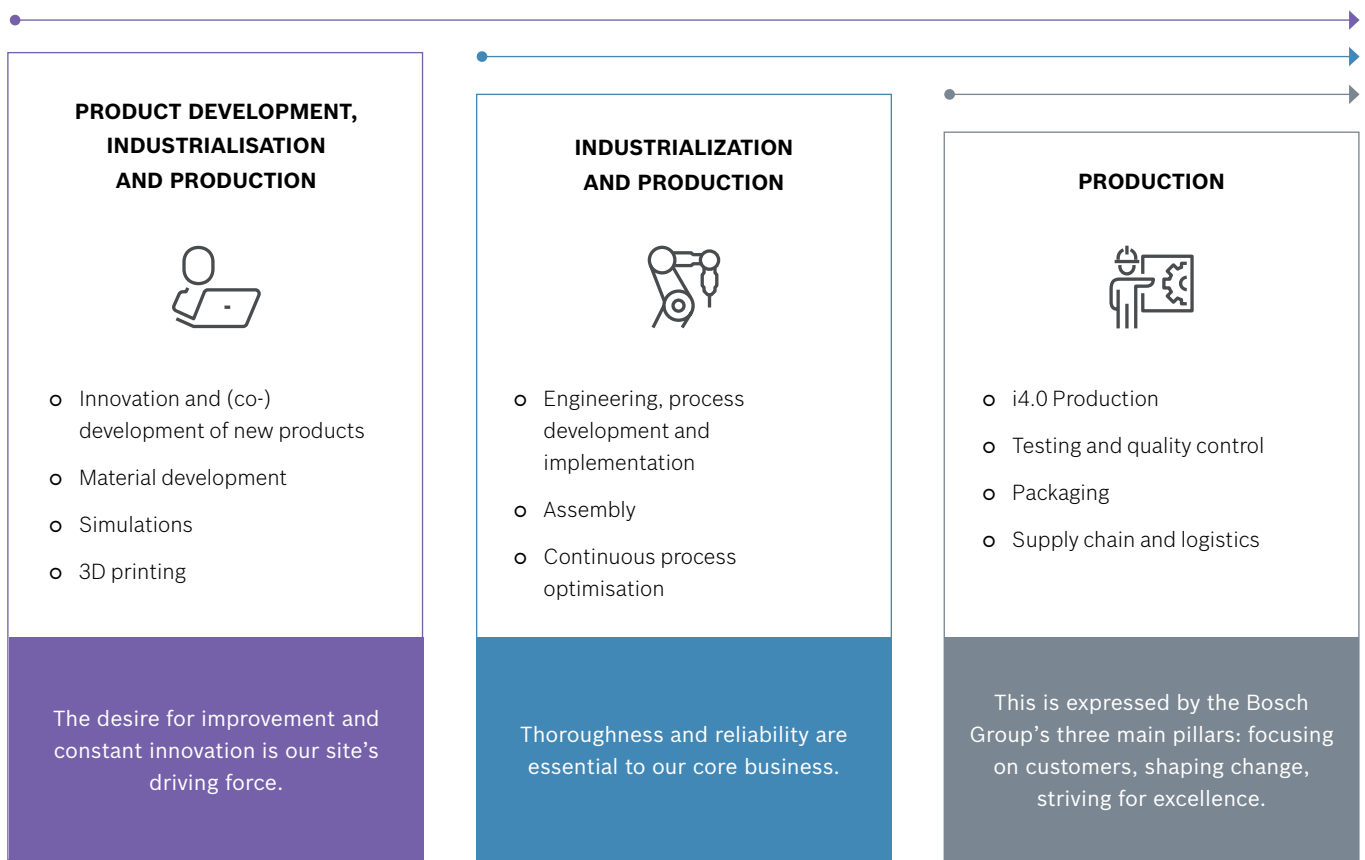
E-coat  
Wet coating

**04**



Assembly  
Packaging

## All expertise in-house



## Industry 4.0

### Production and assembly are ready for the future

In recent years we have also strongly focused on Industry 4.0, the entire production system is equipped with cameras and sensors. This means that production and machine data are processed immediately and are also immediately available to our employees. The advantages of this are huge, for example: correct and real-time data, remote monitoring, paperless factory, etc. This has led to the continuous improvement process becoming more efficient and effective.

In addition, we also use digital systems to guarantee our high quality standard. We use product and process data for automatic adjustment of our machines. In the assembly we ensure, for example via digital systems, that the right components are always supplied and assembled.

With product innovations, both highly automated lines and manual production lines are developed in order to make local for local production possible. At an early stage, the entire value chain from supplier to customer is mapped and optimized in a structured way in order to achieve a competitive product price.

This competence means that we have flexible, automated and high-tech production and assembly techniques. A great recognition that we received for this is the Factory of the Future Award, our production and assembly are ready for the future!

# Development and manufacturing of rubber compounds

## Our proven extended experience

For over 40 years we are developing and producing high quality rubbers in Tienen (Bosch Manufacturing and Services Belgium). Within the Bosch Group, we act as the global **Lead Plant** and take charge, not only when it comes to the **development** of new and optimized **rubber compounds** but also in the development and introduction of new and innovative **production processes**.

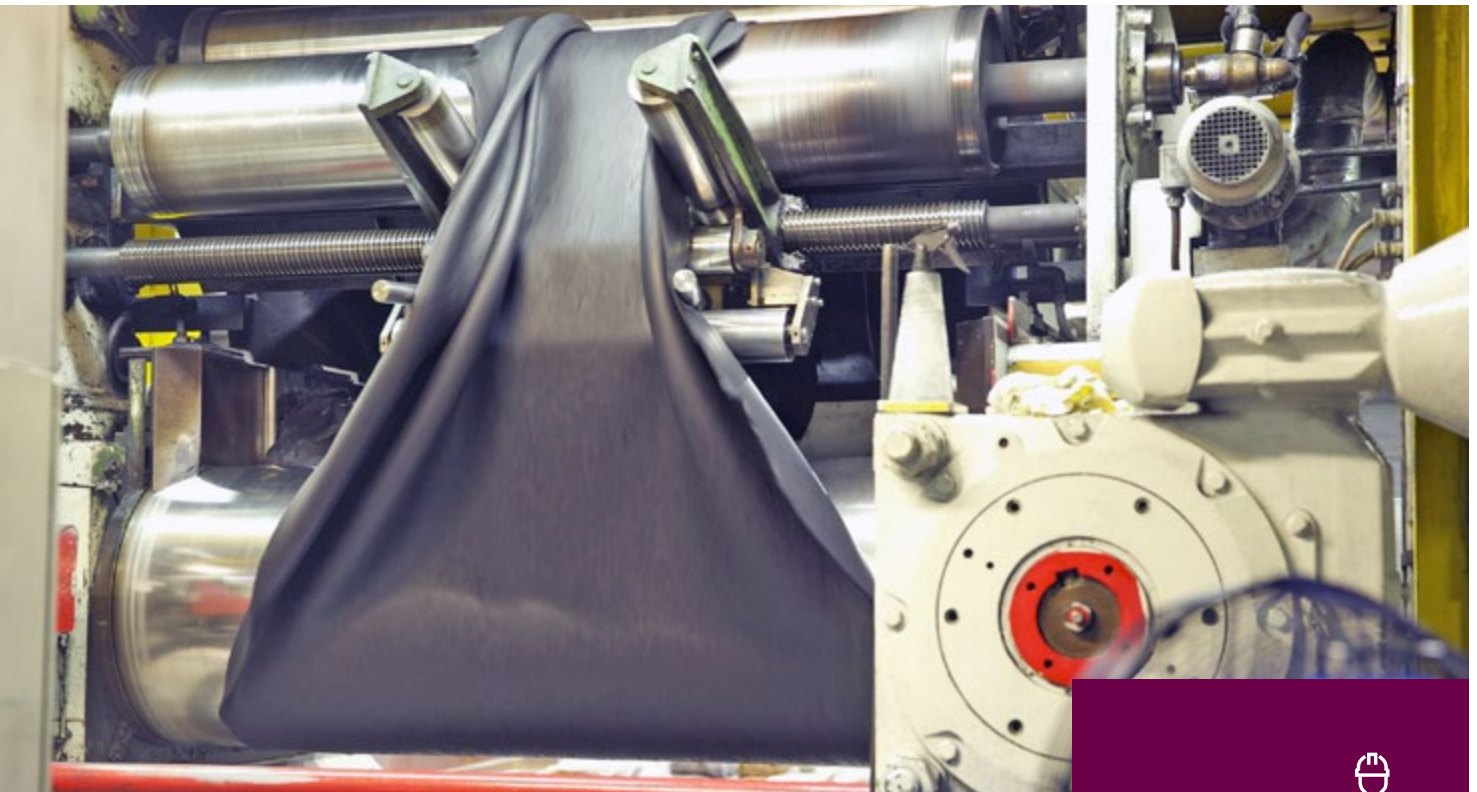
## Our specialties

We can rely on our well proven know how and experience in development and production of both **synthetic as natural rubbers** composing of polymers, carbon black and a wide range of possible additives.

- o EPDM
- o Chloroprene Rubber (CR)
- o Natural rubber (NR)

## Tailor made to our customers' needs

Having all this knowledge in-house offers the opportunity to specifically **design** the rubber compounds according to **the customer needs** and demands eg UV resistance, ozone,... From raw material to compound to end product with the required characteristics (heat resistance, compression set, sealing quality,...)



RAW MATERIALS



RUBBER COMPOUND



END PRODUCT



*The high level of process control and automation guarantee high quality compounds produced in a cost efficient way.*

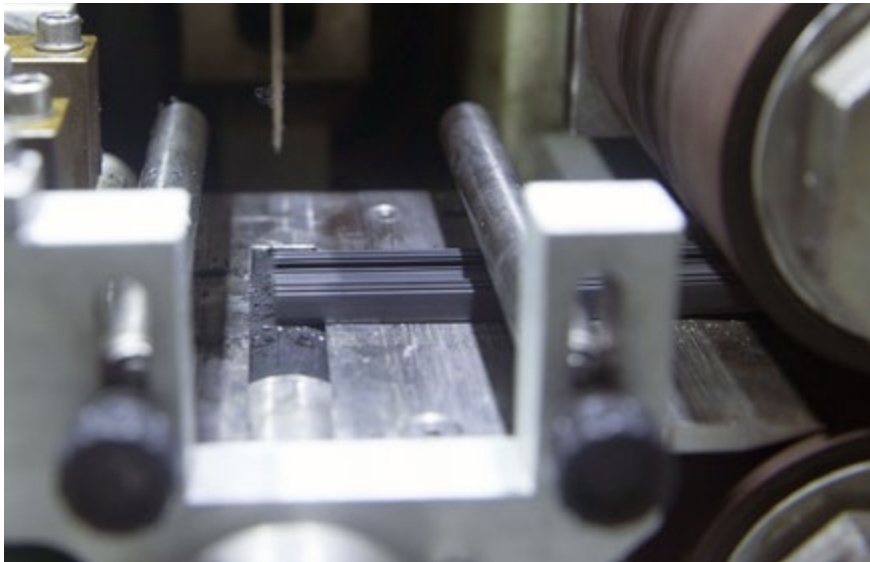


# Rubber extrusion and injection moulding

## Process and material knowhow

Having more than 4 decades of experience in rubber means that we can consult and cooperate with our customers when it comes to the development of both material and profile type to attain optimal results.

We produce EPDM, natural rubbers and chloroprene rubbers.



## Extrusion

EPDM offers very interesting benefits such as good sealing quality against wind and water, compression set, elasticity, dimensional stability and high resistance to heat, ozone and steam.

At Bosch Manufacturing and Services Belgium, we can safeguard a very high level of process control in our extrusion production lines because our vulcanization process is done in a salt bath. This way, we can produce **rubber profiles of a very consistent and high quality.**

Additional important benefits of our EPDM are:

- o **Co-extrusion:** we can produce 2 rubber types (eg hard and soft) into 1 final product
- o High **geometrical accuracy**
- o **High surface quality**
- o Can be **tailored** to customers' needs
- o Possibility to apply different types of **coatings** (our patented PPC coating, graphite coating or chlorinated).

## Patented rubber coating

Our special and **patented coating** reduces the friction of the rubber with the substrate, hereby increasing the lifespan of the rubber and decreasing the effort or forces needed to move the rubber in dynamic applications.

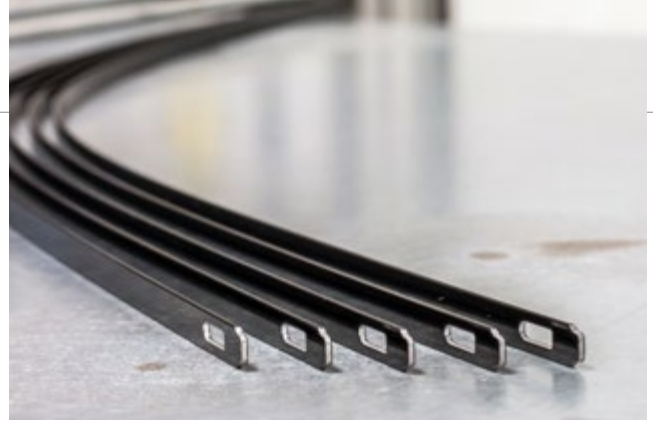


## Injection moulding

We have proven experience in (seamless) injection moulding, both on natural as synthetic rubber types. Tooling design is also done in-house.

# Metal works

## Metal stamping and tension free bending



Our Bosch quality standard can also be found back in our metal presswork and tension free bending. By transferring the standards of the highly demanding automotive industry when it comes to quality related issues, we can offer our customers a range of significant benefits:

- o Very high **surface quality** which means our part can also be used in visible applications
- o High **geometric accuracy** of the stamped parts => high and consistent level of compatibility with connecting parts.
- o **Different materials** can be stamped by us such as steel, aluminum, copper,... even if they are pre-painted
- o Possibility to produce **twisted parts**

## Our Service

- o Know-how and extended **experience** in engineering and production
- o Full in-house offer => tooling design, sampling (via 3D printer), laser cutting, testing, production, coating, quality control,...
- o Different **packaging possibilities** – sorted and oriented allowing automated picking

## Assembly

Technological innovation also means a combination of **new processes/ technologies and innovative product design in assembly**. We have for example developed our own new welding process with ultrasonic welding technology, which also eliminates offline batch processes.

We also use state-of-the-art production technologies that make it possible to maintain the enormous variety of products. The total supply chain from supplier to customer was redefined and the complexity optimized.





# Our Coating solutions

## E-Coating

We invested in new state-of-the-art e-coating equipment so that we could meet the stringent requirements that our automotive customers have when it comes to corrosion resistance. In addition, this process is very environmentally friendly.

As a result of this investment, our Tienen plant is certified Tier 1 supplier to the automotive industry but this **high quality technology can also be used for other products and applications.**

## Wet coating

We have built a totally new electrostatic spray paint line equipped with rotary atomisers. This equipment gives metal wiper arms a **high quality appearance** and meets the requirements of the most demanding manufacturers, as well as having **high UV resistance.**

This **high-quality machine park** is currently used for the coating of wiper arms for windshield wipers in the automotive industry but can **also offer very important and similar advantages for other products or applications.**



PRE-TREATMENT



E-COATING



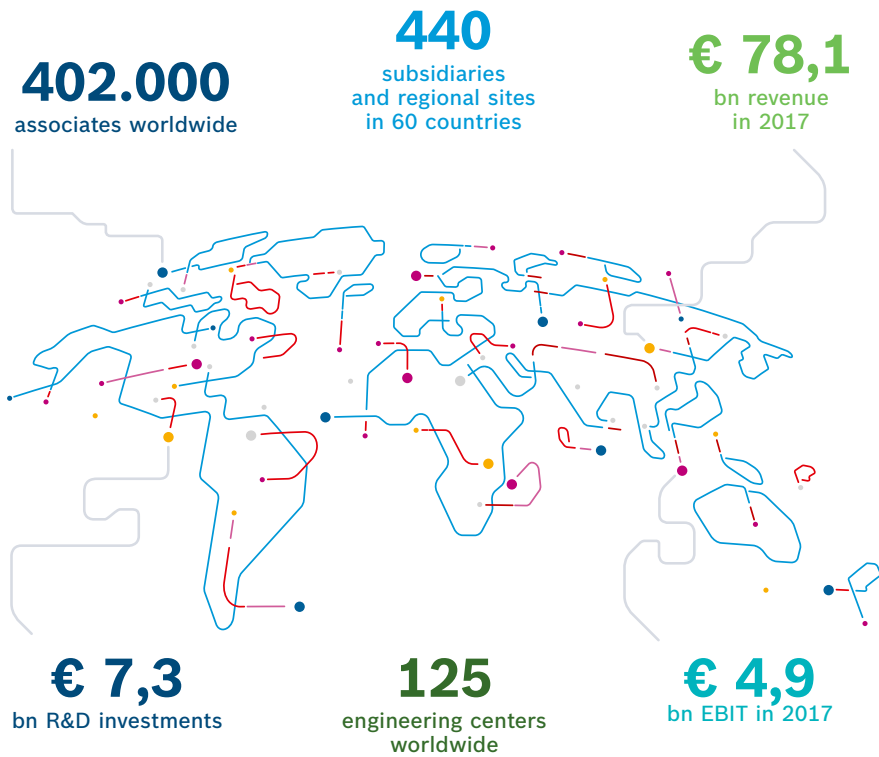
WET COATING

# Bosch Global network Invented for Life

Our site is part of the worldwide and well known Bosch Group. The activities of our Group can be divided into 4 Business sectors:

- o Mobility Solutions,
- o Industrial technology,
- o Consumer goods
- o Energy and building technology

Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life."



## Contact us

Please contact us via e-mail on [New.Business@be.bosch.com](mailto:New.Business@be.bosch.com) to discover the possibilities and benefits for your application.

Bosch Manufacturing and Services Belgium



[www.bosch.be/tienen/](http://www.bosch.be/tienen/)



## Our Certifications



## Our Awards

- o Factory of the Future
- o Customer awards



## Our Strengths

- o In-house R&D
- o In-house process development
- o New materials development
- o Product development tailored to the customers' needs
- o Focus on quality
- o Industry 4.0 production and assembly
- o Reliable partner
- o Product testing
- o Flexible supply chain and logistics
- o Located in the center of Belgium and Europe

## Bosch Manufacturing and Services Belgium

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