Blickle®

Expertise in rubber-elastomers

we innovate mobility

Blickle®

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We work for you. And with you.
Blickle – A company in motion.

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We have been one of the leading manufacturers of wheels and castors in the world for decades because of our reliability, innovation and close customer relationships.

The name Blickle stands for uncompromising quality, high availability, delivery performance and global presence. Our motivated employees develop optimal products for diverse applications. Their tools: good ideas, creativity and inventiveness, years of experience and high competence in materials and manufacturing.

Customer collaboration is our highest priority. A continuous dialogue with users is the basis not only for our unique standard range of wheels and castors but also for countless individual solutions. This experience, paired with our own “Made in Germany” manufacturing facilities, guarantees you one thing for certain: “we innovate mobility”.

- About 1,300 employees worldwide, with over 900 based at the headquarters in Rosenfeld, Germany
- 20 international sales subsidiaries in Europe, North America, Asia and Australia
- Sales partners and representatives in over 120 countries around the world
- Certifications according to DIN EN ISO 9001, DIN EN ISO 14001, DIN EN ISO 45001 and DIN EN ISO 50001

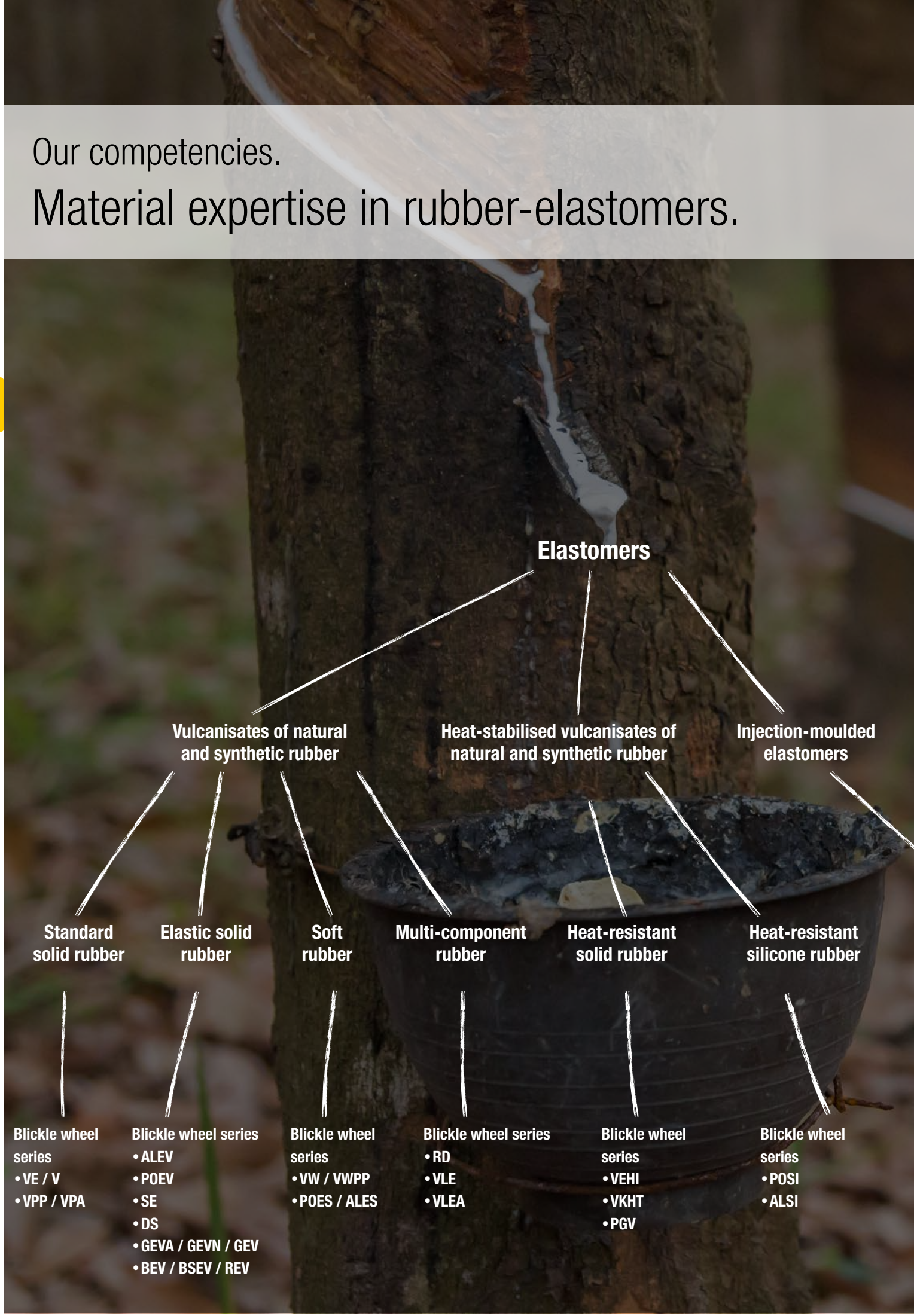
As a family company, Blickle places value on continuity – alongside Reinhold and Denise Blickle, the third generation of the family is now active in the company with Dr. Sarah Blickle-Fenner and David Blickle.

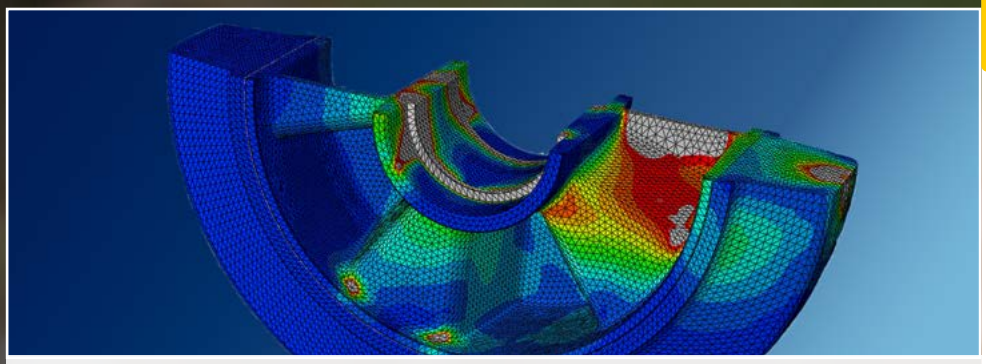
1

Our headquarters are in Rosenfeld, Germany. This demonstrates our commitment to quality and manufacturing products “Made in Germany”.

Our competencies.

Material expertise in rubber-elastomers.





From natural rubber to high-quality rubber-elastomers.
How one material can change the world.

The history of rubber begins as early as the third century AD, when the Maya made balls from the sap of the “weeping tree”. Rubber was in use worldwide from the 16th century onwards, although at that time the material could no longer be processed once it had dried out. It was not until the discovery of solvents and vulcanisation that the heat-sensitive natural material could be transformed into resistant rubber. Research into synthetic rubber also began in the nineteenth century. This research led to a versatile elastomer that is used alongside natural rubber to this day. Synthetic rubber was adopted quickly by every area of the economy, with new types of rubber coming onto the market all the time.

Even though they are often thought of as simple C-parts, rubber wheels and castors are actually a complex blend of various natural and synthetic rubbers as well as numerous other chemicals and base materials. Blickle has acquired a high level of expertise and experience in the production of this material over recent decades in close cooperation with leading rubber manufacturers and the chemical industry. Blickle has been spearheading the development of improved rubber compounds for many years, launching new wheel versions to facilitate the transport of a wide variety of goods.

Thermoplastic rubber-elastomers

Blickle wheel series
- **TPA**
- **TPS**
- **TPO**

Our competencies.
Rubber wheel production.

2

Constantly evolving:
Blickle is always at work developing new treads on the basis of its expertise and experience.

Formulas for rubber compounds are developed to suit a range of requirements with regard to abrasion, rolling resistance, grip, heat and cold resistance, oil resistance, resistance to aggressive substances, Shore hardness, colour, marking, electrical conductivity, recyclability, tear resistance, health hazards and cost aspects. Blickle's engineers take care to use high-quality materials and avoid toxic substances. The rubber compounds, which can include up to 20 components, are put through extensive stress tests in real-world applications. They are also tested on Blickle's own test rigs to investigate their dynamic properties and material hardness.

Blickle audits its supply chains to ensure that its raw materials are of a consistently high quality, while also monitoring compliance with environmental standards and working conditions. Blickle also guarantees the PAH conformity of its products. In addition to the quality of the rubber tread, the bond between the tread and the wheel body or rim is also essential. From material bonds through to positive and non-positive locking - workers at the Rosenfeld site ensures that the connection between the rubber tread and the wheel body or rim is secure at all times. Wheels made of thermoplastic rubber-elastomers are produced at the company's own plastics manufacturing facility using highly automated one- or two-component injection moulding processes.

Rubber materials.
Overview of treads.

Operational comfort, floor surface preservation, low rolling resistance or heat resistance.
Blickle provides rubber treads for a wide range of applications.

Compared to their polyurethane, plastic and metal counterparts, rubber treads offer a high level of operational comfort and outstanding floor surface preservation. In the past, high levels of rolling resistance were the price you had to pay for this. Blickle has succeeded in bringing rubber compounds to the market that combine the positive rolling characteristics of rubber with extremely low levels of rolling resistance. Blickle's elastic solid rubber wheels, for example, feature a rolling resistance of less than 1.2 percent, with the rolling resistance of comparable products being up to three times higher. In addition to the material composition, the contour has a significant impact on rubber treads. Contours can reduce the areas of peak stress in the tread, significantly increasing the service life of wheels, particularly those which are used to transport heavy loads. In addition to their excellent quality standards, Blickle rubber treads provide specially-tailored mechanical properties.

Blickle rubber treads:
- Thermoplastic rubber-elastomers
- Solid rubber / elastic solid rubber
- Soft rubber
- Two-component solid rubber
- Heat-resistant silicone-elastomer
- Super-elastic solid rubber

- Temperature resistant from -25 °C to +250 °C
- Wheels in sizes from 50 to 620 mm in diameter
- For load capacities up to 4,580 kg per wheel

Thermoplastic rubber-elastomer (TPE)

- Injection-moulded thermoplastic rubber-elastomer, 85 Shore A
- Combines the advantages of thermoplasts and elastomers
- Low-noise operation with relatively low rolling and swivel resistance
- Non-marking, but contains a small amount of oil
- Optional electrically conductive version
- **Main applications:** mobile devices and equipment, display stands, electric equipment, measuring and test equipment, work and assembly stations, industrial kitchens

Blickle StandardSolidRubber

- Black standard solid rubber, 80 Shore A
- Vibration-absorbing and impact-resistant
- Optional electrically conductive, non-marking grey and high temperature resistant versions (VEHI series)
- **Main applications:** hand-operated transport units, support wheels for trailers, agricultural equipment, welding equipment, compressors, waste containers (wet areas with synthetic rim)

Blickle Soft

- Specially developed highly elastic rubber compound, 50 Shore A
- Excellent floor preservation, vibration-absorbing and resistant to many aggressive substances
- Outstanding operational comfort, low starting and rolling resistance, even on poor surfaces
- Optional non-marking grey version
- **Main applications:** transport equipment for vibration-sensitive transport goods, sensitive machines and devices (wet areas with synthetic rim)

Blickle®

Rubber materials.
Overview of treads.

Blickle Comfort

- Two-component solid rubber “Blickle Comfort”
- Specially developed design with a hard rubber core (90 Shore A) and a highly elastic tread (65 Shore A)
- High level of operational comfort, excellent floor preservation and vibration-absorbing
- Higher load capacities and lower starting and rolling resistance compared to standard solid rubber tyres
- Optional non-marking grey version
- **Main applications:** hand-operated transport units, mobile operating and workshop equipment, glass and ceramic transport

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Blickle SoftMotion

- Specially developed elastic soft rubber “Blickle SoftMotion”, 55 Shore A
- Extremely good floor preservation and vibration-absorbing properties
- Highly resistant to lateral loads
- Very high elasticity and low rolling resistance
- Specially adapted tread contour
- **Main applications:** transport units for vibration-sensitive transport goods, catering and serving trolleys, kitchen equipment, measuring devices, electronic equipment, glass and ceramic transport

ergonomic product
tested and recommended by
IGR Institut für Gesundheit und Ergonomie
www.igr-ev.de

Blickle EasyRoll

- Elastic solid rubber “Blickle EasyRoll”, 65 Shore A
- Highly elastic rubber compound with a high proportion of natural rubber
- Vibration-absorbing and impact-resistant
- Ultra-low starting and rolling resistance
- Optional non-marking grey or non-marking blue, electrically conductive and antistatic versions
- **Main applications:** push trolleys and platform trolleys, letter container trolleys, parcel roll containers, flight cases, workshop trolleys, fire brigade roll containers

Blickle TempLine®

- Heat-resistant silicone rubber, 75 Shore A, usable at temperatures up to 250 °C
- Excellent operational comfort
- Abrasion-resistant, highly elastic, suitable for autoclaves (POSI series), ageing resistant, odourless and resistant to UV radiation
- Optional non-marking grey version
- **Main applications:** racking trolleys, food production, transport trolleys used in the medical and pharmaceutical industry

Super-elastic solid rubber

- Multicomponent tyres with tough rubber core, highly elastic damping ring and a thick abrasion-resistant tread, 70 Shore A
- For extremely tough operating conditions with high loads and speeds
- Outstanding operational comfort and low rolling resistance, even on poor surfaces
- Puncture-proof and maintenance-free alternative to pneumatic tyres
- Optional non-marking grey and antistatic version
- **Main applications:** high-speed intralogistics trolleys, outdoor applications on paved and unpaved surfaces, cleaning and sweeping machines, airport logistics

Rubber materials.
Facts and figures at a glance.

		 Blickle StandardSolidRubber	 Blickle Soft	 Blickle Comfort	 Blickle SoftMotion
	Thermoplastic rubber-elastomers	**Standard solid rubber**	**Soft rubber ("Blickle Soft")**	**Two-component solid rubber ("Blickle Comfort")**	**Elastic soft rubber ("Blickle SoftMotion")**
Technical data *					
Hardness	85 Shore A	80 Shore A	50 Shore A	65 Shore A	55 Shore A
Abrasion resistance	140 mm^3	300 mm^3	150 mm^3	150 mm^3	150 mm^3
Rebound resilience	35 %	20 %	65 %	60 %	65 %
Rolling resistance **	1.3 % (Ø 200 mm, ball bearing)	3.1 % (Ø 200 mm, ball bearing)	1.3 % (Ø 200 mm, ball bearing)	1.6 % (Ø 200 mm, ball bearing)	1.2 % (Ø 200 mm, ball bearing)
Maximum speed	4 km/h	4 km/h	4 km/h	4 km/h	10 km/h
Application					
Heavy loads	■■■□□	■■■□□	■■□□□	■■■■□	■■■■□
Operational comfort / floor surface preservation	■■■□□	■■■■□	■■■■■	■■■■□	■■■■■
Wear resistance	■■□□□	■□□□□	■■□□□	■■□□□	■■■□□
Crossing obstacles	■■□□□	■■■□□	■■■■■	■■■■□	■■■■■
Suitability for autoclaves	–	–	–	–	–
Antistatic (-AS)	–	–	–	–	–
Electrically conductive (-EL)	optional	optional	–	–	–

* Technical data for guidance only.

** Tested at 2/3 of maximum load capacity and maximum load of 300 kg.

✔ Yes – No

■■■■■ Excellent ■■■■ Very good ■■■ Good ■■ Satisfactory ■ Adequate

Hardness
(DIN 53505 / ISO 868):
The hardness has a significant influence on the smooth rolling performance and operational comfort of a wheel. A soft tread also has a positive effect on ground contract pressure.

Rebound resilience
(DIN 53512 / ISO 4662):
The rebound resilience indicates how much energy is lost during the compression / extension process due to internal friction. The higher the rebound resilience, the lower the amount of energy lost by the wheel.

Abrasion resistance
(DIN 53516 / ISO 4649):
Abrasion resistance is the ability of a material surface to resist mechanical stress caused by surfaces acting on each other. The abrasion resistance of elastomers or thermoplastic elastomers has an impact on the wear resistance of the wheels. Abrasion is measured based on the decrease in volume of a test specimen after wear under defined conditions.

Blickle EasyRoll

Blickle TempLine® Basic

Blickle TempLine® Special

Blickle TempLine® Comfort

Smooth rolling elastic solid rubber (“Blickle EasyRoll”)	**Super-elastic solid rubber**	**Heat-resistant solid rubber (Blickle TempLine® Basic)**	**Heat-resistant solid rubber (Blickle TempLine® Special)**	**Heat-resistant silicone rubber (Blickle TempLine® Comfort)**	**Heat-resistant elastic solid rubber (Progressus brand)**
65 Shore A	70 Shore A	80 Shore A	85 Shore A	75 Shore A	80 Shore A
150 mm^3	130 mm^3	200 mm^3	120 mm^3	160 mm^3	200 mm^3
60 %	50 %	45 %	40 %	55 %	45 %
1.2 % (Ø 200 mm, ball bearing)	2.5 % (Ø 250 mm, ball bearing)	3.4 % (Ø 200 mm, roller bearing)	4.5 % (Ø 100 mm, plain bore)	2.5 % (Ø 100 mm, ball bearing)	2.9 % (Ø 186 mm, ball bearing)
16 km/h	25 km/h	4 km/h	4 km/h	4 km/h	4 km/h
■■■■■	■■■■■	■■■□□	■□□□□	■□□□□	■■■□□
■■■■□	■■■■□	■■■■□	■■■□□	■■■■□	■■■■□
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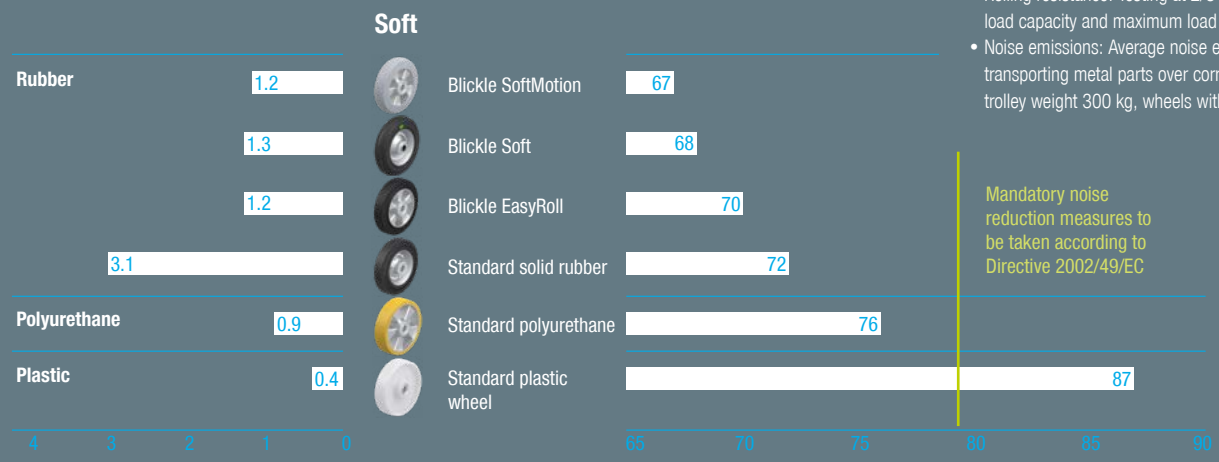
■■■■□	■■■■□	■■■□□	■■□□□	■■□□□	■■■□□
–	–	–	–	✔	✔
optional	optional	–	–	–	–
optional	–	–	–	–	optional

3

Rolling resistance and noise levels in comparison



Test conditions:
- Rolling resistance: Testing at 2/3 of maximum load capacity and maximum load of 300 kg.
- Noise emissions: Average noise emissions when transporting metal parts over corrugated plate, trolley weight 300 kg, wheels with Ø 125 mm.

Blickle®

Rubber materials.
Wheel centre selection.

Optimising the interaction between the tread and the wheel body / rim can significantly improve the performance of a wheel. Even the most impressive rubber material will only perform at its best when combined with the wheel body that is most suitable for the respective application.

Wheel solutions with a synthetic wheel body are often an effective and inexpensive solution for light-duty applications involving moderate loads. Demanding applications with high loads and speeds, on the other hand, tend to require more robust metal wheel centres. All of Blickle's solutions have one thing in common - an outstanding level of workmanship which ensures an effective and resilient bond between the tread and the wheel centre / rim. Blickle's extensive standard range includes press-on bands with varying levels of smooth rolling quality.



	Plastic		
	Polypropylene	**Nylon**	**Highly heat-resistant thermoplastic**
Technical data			
Description	high-quality polypropylene (PP), impact-resistant	high-quality nylon (PA 6), impact-resistant	highly heat-resistant thermoplastic
Colour versions	silver grey, white, black	silver grey, black	silver grey, black, dark grey
Bonding to tread	VPP series - positive locking TPA series - chemically bonded	vulcanised	vulcanised (VKHT series - positive locking)
Temperature resistance*	■□□□□	■■□□□	■■■□□
Corrosion resistance	■■■■■	■■■■■	■■■■■
Weight reduction	■■■■■	■■■■■	■■■■■
Speed up to	4 km/h	4 km/h	4 km/h

* Passivation / colour can change at high temperatures.

■■■■■ Excellent ■■■■ Very good ■■■ Good ■■ Satisfactory ■ Adequate




Metal			
Aluminium	**Pressed steel**	**Welded steel design**	**Grey cast iron**
die-cast aluminium	pressed steel, bolted or pressed, zinc-plated, blue passivated, Cr6-free	thick-walled pressed steel, extremely stable welded steel construction, lacquered	rugged grey cast iron, lacquered
silver grey	blue-passivated	anthracite, silver	silver
vulcanised	positive locking	DS series - non-positive SE series - vulcanised	non-positive or vulcanised
■■■■□	■■■■■	■■■■■	■■■■■
■■■■□	■■■□□	■■□□□	■■□□□
■■■□□	■■■□□	■■□□□	■□□□□
10 km/h	25 km/h	10 km/h	16 km/h

Rubber materials.
Tailored versions.

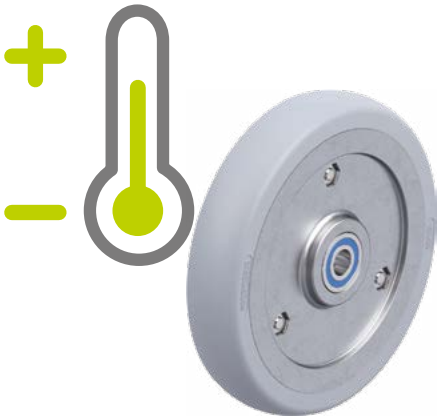
Electrical conductivity

Electrically conductive wheels and castors are important system components, for example in medical technology, the electrical and semiconductor industry, the automotive industry or in hospitals. They are used on transport trolleys and on sensitive equipment. They prevent painful electrostatic discharges which are caused by the trolley or the transported goods and also protect sensitive goods from damage. In the past, electrically conducting wheels with solid rubber tyres only came in the colour black. However, these leave unwanted tracks on the ground. Blickle's elastic solid rubber ALEV series has a unique antistatic version with a non-marking grey tyre, making it an ideal solution for safety and cleanliness.

3

Heat and cold

Extreme temperature conditions such as sustained high temperatures in ovens, changing conditions in autoclaves or long periods of cold weather can greatly affect the performance of standard rubber. To meet these conditions, Blickle uses a wide range of rubber compounds for extreme temperatures. Blickle's heat-resistant rubber wheel series retain their excellent floor surface preservation, vibration damping, low rolling resistance and smooth running properties at temperatures ranging from -25 °C to +250 °C. Blickle has developed a special elastic solid rubber, the PGV series, which is designed precisely for these operating conditions, particularly for use in autoclaves in which the wheels are exposed to high temperatures and moisture under high loads for long periods of time.



Chemical resistance

Blickle's special rubber compounds set the benchmark in sectors such as the chemical, food production, pharmaceutical and medical technology industries, where rubber wheels are frequently exposed to chemical substances like cleaning agents and disinfectants. The food production industry uses a particularly large amount of aggressive cleaning agents and disinfectants to keep on top of pathogens when incubating eggs. Ordinary rubber wheels would become brittle or swell prematurely under these conditions. Blickle has a special solution that prevents this from happening while ensuring that the elastic solid rubber retains the best possible rolling characteristics.

Applications.

Intralogistics.

Companies have to be able to move goods and materials effortlessly and economically within their own production and logistics facilities. Blickle rubber wheels and castors play an important role in a number of different processes to ensure that materials are transported efficiently, safely and reliably within a company. Typical applications of rubber wheels include industrial trucks, tuggers, transport trolleys, dollies and assembly trolleys. Wheels and castors used for this purpose are subject to a wide variety of requirements due to the significant differences between the logistical procedures involved in different sectors and production processes. However, aspects such as reliability, floor surface preservation, operational comfort and ergonomics also play an essential role. Blickle provides wheels and castors with rubber treads which meet these requirements. Wheels with the proven “Blickle EasyRoll” and “Blickle SoftMotion” treads, for example, are ideal for applications that require low rolling resistance, shock absorption for transported goods and a significant reduction in noise levels.

Applications.

Mobile devices and equipment.

4

Mobility is a pressing issue in both domestic and workplace environments. Demand for highly mobile devices and appliances is constantly on the rise. They make life easier and processes more efficient, while maximising flexibility in every area. Applications for Blickle wheels and castors range from furniture, cage containers for transporting laundry, beds used by emergency and care services, equipment for the event industry, buggy boards for prams, factory and workshop equipment through to hand trucks for moving drums of hazardous material. These wheels and castors are subject to a wide range of requirements. Some of these can be met by simple light duty castors, but complex special solutions are frequently required. Low noise levels, smooth rolling, electrical conductivity and good manoeuvrability can all play a central role. Thanks to the high-quality rubber treads in its portfolio, Blickle has a proven track record of finding solutions together with its customers that optimally meet the criteria of design, economy, safety and durability.

Applications.
Conveyor technology.

When it comes to conveyor technology, it's all about reliability, traction and resilience. Blickle's range of standard and special solutions has everything buyers need to meet the requirements of specialised applications, from the ability to handle unusual climatic conditions through to optimal traction, resilience and vibration damping. Low rolling resistances improve the energy efficiency of systems and help to fulfil environmental conditions. Blickle draws on decades of experience and works in close coordination with customers to find the right rubber compound to meet their requirements.

Blickle®

Applications.
Machine and systems engineering.

Blickle's wheels and castors are made from advanced rubber compounds and have been used as standard components in a wide variety of machines and systems for decades. Blickle's designers and developers face the challenge of implementing special requests for customers every day. The company's rubber wheels can be found in everything from machine tools through to manufacturing equipment, construction and sweeping machines and snow ploughs. The grip, traction, durability and reliability of the rubber compound also play an important role in different environmental conditions.

4

Applications.

Hygiene / medicine / design.

Blickle's rubber compounds are in high demand from customers looking for contemporary designs or improved mobility in commercial kitchens, healthcare settings or the food production sector. They meet the most demanding hygiene standards and can be seamlessly integrated into end products thanks to their design language. Blickle sets the standard in these areas too. Our extensive product portfolio of corrosion resistant and cold or heat resistant castors contains the right product for every application, such as the "Blickle TempLine®" series. Blickle keeps loads moving smoothly on transport trolleys for food transport, medical equipment or rack trolleys in the baking industry as well as in wet applications or in autoclaves. Blickle's excellent global reputation and design awards are evidence of the company's outstanding expertise in this segment. The company offers special rubber solutions which are particularly resistant to aggressive cleaning agents and disinfectants for applications where these substances are frequently used for reasons of hygiene.

4

Standard product or a tailored approach?
We can provide the perfect solution.

Your requirement is our challenge. Blickle is a creative team and finds new solutions every day.

Our aim is to develop the perfect castor and the best possible wheel for every application. Blickle develops customised solutions for customers who cannot find what they are looking for in the standard product range. Our teams of experienced designers, chemists and test engineers know exactly how to create perfect products to meet customer requirements.

The ideal wheels for every application can be designed and produced by adjusting individual process parameters or formulas. These wheels deliver top marks in terms of their flexibility over a wide temperature range, high wear resistance, compressive and tear strength, resilience, dynamic load capacity as well as resistance to weather, oil, grease and solvents. Our sophisticated combination of efficient mass produced series and highly-flexible, small-scale production abilities allow us to develop customising solutions in a quick and cost-effective manner.

BLICKLE. BEST IN

Product Variety

> More than **30,000 standard products** provide the perfect solution for almost any situation.

> **Fast and inexpensive** solutions thanks to Blickle's modular design principle.

> Flexibility in **special solutions**: Together with you, we will develop a solution customised to the individual application.

Quality and Production

> **A high level of vertical** integration and production at the headquarters ensure complete control over all work steps.

> High **Blickle quality standard** by combining state-of-the-art machines with precise manual work throughout the entire production process.

> State-of-the-art, automated production and testing facilities guarantee **high process reliability** and **"Made in Germany" quality.**

> Our products are designed for **long service lives**.

Service

Responsibility

> **Fairness, loyalty, respect and trust** are at the heart of all of our interactions with our customers, suppliers and employees.

> **We are committed to acting responsibly** both at our headquarters in Rosenfeld and also at our international subsidiaries.

> Recognised as a **climate-neutral company** and a **sustainable enterprise.**

SILVER 2023 ecovadis Sustainability Rating

KLIMANEUTRALES UNTERNEHMEN certified by Fokus Zukunft

Cooper-ation

> Decades of experience and competence in **all industries** as one of the leading manufacturers of wheels and castors worldwide.

> **For us progress is a tradition:** A family company now in the 3rd generation.

> Close customer support through network of **specialist advisors in over 120 countries** worldwide.

If you want to be a leader in the market, you have to keep getting better. We want to be the best. For you. For your success. As a solution partner and service provider, we want to help make you successful. That is why, in addition to our extensive standard range, we attach great importance to the development of customised solutions. If a gap appears in our portfolio, we fill it.

Our vertical integration and “Made in Germany” production give us complete control over the entire manufacturing process, from the material to the final assembly. We are also proud of our delivery performance. More than 24,000 different products are ready for dispatch in one to two days from one of the most modern logistics centres in the industry. Our quality standards are extremely high – in all areas!

Innovation

- **Intelligent drive solutions** that provide support wherever human strength is no longer sufficient (e-mobility solutions).
- High proportion of **customer-specific solutions.**
- Experienced, **specialised teams of experts** enable special solutions to be implemented quickly.
- By **working with renowned scientific institutes and universities**, Blickle developers get new ideas rolling.
- **Continuous optimisation** of the existing product range.
- Around **1,500 successful customer-specific solutions** per year.

Delivery Performance

- **Expert advice** from personal customer contacts **worldwide.**
- Informative Blickle website with **product finder and online shop.**
- **E-commerce and e-procurement solutions.**
- Presence at **international trade fairs** worldwide.
- **Blickle Academy:** Training events for employees and dealers.

Production: Germany.
Sales: Worldwide.

We export our products to over 120 countries worldwide. With 20 sales companies in Europe, North America, Asia and Australia as well as sales partners all over the world we ensure that our international customers are well looked after.

- More than **24,000 different products** ready to ship in one to two days.
- **Items available for delivery at short notice** from local warehouses or directly from our central warehouse in Rosenfeld.
- First-class delivery performance thanks to a **state-of-the-art logistics centre.**

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