

Wheels and castors guide

Material description for wheel treads

Rubber

Compared to polyurethane, plastic and metal, rubber treads offer a high level of operational comfort and outstanding floor surface preservation. On the other hand, their starting and rolling resistance is higher when compared to the other tread materials. In addition to their excellent quality standards, Blickle rubber treads provide specially-tailored mechanical properties depending on the type of rubber that is used. They are resistant to a wide variety of aggressive substances, with the exception of oils (see "Chemical resistance", page 50–51).

By combining rubber treads with different wheel centre materials, we can provide wheels that meet almost every application requirement in any application environment.



Thermoplastic rubber elastomer (TPE)

Thermoplastic rubber elastomers are non-marking, quiet and provide a relatively low level of rolling and swivel resistance. TPE treads contain a small amount of oil and could therefore staining sensitive surfaces.

Technical details:

- colour grey, non-marking
- hardness 85 ± 3 Shore A

Optional:

- electrically conductive, grey, non-marking, leak resistance ≤10⁴ Ω

Solid rubber

Solid rubber tyres can be used for a wide variety of applications. They are vibration-absorbing and impact-resistant. Black, standard, solid rubber can mark sensitive surfaces. A non-marking, grey, solid rubber tread can be used as an alternative in such cases.

Technical details:

- colour black
- hardness 80 +5 / -10 Shore A

Optional:

- colour grey, non-marking
- electrically conductive, leak resistance ≤10⁴ Ω
- high temperature resistant version up to +200 °C (VEHI series)
- high temperature resistant version up to +260 °C (VKHT series)

Soft rubber "Blickle Soft"

Our "Blickle Soft" soft rubber tyres are based on a specially-developed highly-elastic rubber compound. The tread is vibration-absorbing and has extremely good floor preservation properties. Our "Blickle Soft" soft rubber also provides outstanding operational comfort and low levels of starting and rolling resistance, even on challenging surfaces. It can therefore be used as a puncture-proof alternative to pneumatic tyres.

Technical details:

- colour black
- hardness 50 + 5 Shore A

Optional:

- colour grey, non-marking

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Rubber



Blickle Comfort

Two-component solid rubber "Blickle Comfort"

The "Blickle Comfort" two-component solid rubber tyre is vibration-absorbing, has good floor preservation properties and provides good operational comfort. The special design incorporates a solid rubber core and a highly elastic tread, giving the "Blickle Comfort" two-component solid rubber tyre a higher load capacity and a lower level of starting and rolling resistance than a traditional solid rubber tyre.

Technical details:

- colour black
- hardness 65 ± 4 Shore A (Rubber core 90 Shore A)

Optional:

- colour grey, non-marking (tread hardness: 56 ± 4 Shore A)



Blickle SoftMotion

Soft rubber "Blickle SoftMotion"

The "Blickle SoftMotion" soft rubber tyre has a special tread made of high-quality elastic solid rubber, which transforms rolling into a smooth gliding motion. The tread is vibration-absorbing and has extremely good floor preservation properties. The tyre is vulcanised onto the wheel centre. This allows the wheels to withstand even high levels of lateral stress. The thick tread, with its specially-designed contour and hardness of 55 Shore A, has a particularly high level of elasticity and low rolling resistance due to the use of a high-quality rubber compound.

Technical details:

- colour grey, non-marking
- hardness 55 ± 3 Shore A



Blickle EasyRoll

Elastic solid rubber "Blickle EasyRoll"

Elastic solid rubber tyres are based on a special rubber compound containing a high proportion of natural rubber. Alongside the traditional properties of a solid rubber tread, they provide increased operational comfort, a particularly high load capacity and extremely low starting and rolling resistance due to the elasticity of the Blickle elastic solid rubber tread.

Elastic solid rubber press-on bands are available in two different versions:

- The first is designed for smooth rolling. This version is resistant to abrasion and boasts a particularly low level of starting and rolling resistance.
- The second is designed for drive quality. This version maximises resistance to abrasion while maintaining a low level of starting and rolling resistance.

Technical details:

- colour black
- hardness 65 ± 3 Shore A

Optional:

- colour grey, non-marking
- colour blue, non-marking
- friction wheel quality, 70 ± 5 Shore A
- electrically conductive, black leak resistance $\leq 10^4 \Omega$
- antistatic, grey, non-marking, leak resistance $\leq 10^7 \Omega$



Blickle TempLine® Comfort

Silicone rubber "TempLine® Comfort"

Heat-resistant silicone-elastomer is non-marking, abrasion-resistant, highly elastic, suitable for auto-claves, ageing resistant, odourless, physiologically harmless and resistant to UV radiation. However, it is not resistant to strong lyes, chlorinated hydrocarbons and aromatic hydrocarbons. While the mechanical properties are adequate, silicone-elastomers provide a high level of operational comfort and consistently low levels of deformation.

Heat-resistant silicone-elastomer can be used in temperatures between $-25 \text{ }^\circ\text{C}$ and $+250 \text{ }^\circ\text{C}$.

Technical details:

- colour black, non-marking
- hardness 75 ± 4 Shore A

Optional:

- colour grey, non-marking

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Rubber



Pneumatic tyre

Rubber pneumatic tyres are vibration-absorbing and have extremely good floor preservation properties. They also provide outstanding operational comfort and a low level of rolling resistance, even on poor quality surfaces. The thickness of the tyre is given in the form of a ply rating. Light tyres have a ply rating of between 2 and 4, while heavy tyres have a ply rating of between 6 and 10. To optimise performance and guarantee a long service life, we recommend maintaining the tyre pressure specified in the relevant table to prevent damage to the tyre.

The wheel and tyre dimensions provided here apply to new tyres that are not bearing a load. Their width and diameter may change when they are in use.

Technical details:

- colour black
- hardness 60 ± 5 Shore A

Optional:

- colour grey, non-marking

Super-elastic solid rubber

Super-elastic solid rubber tyres are multicomponent tyres. Their rubber core is made up of a tough rubber compound with reinforced steel-wires. This keeps the tyres seated securely on the rim, even under heavy loads.

A highly elastic cushion layer keeps tyre temperatures low, even when transporting heavy loads at high speed.

The thick, abrasion-resistant tread protects the tyre against external damage and ensures that they remain in service for a long time. This makes the tyre particularly suitable for challenging application conditions. Super-elastic solid rubber tyres also provide outstanding operational comfort and a low level of rolling resistance, even on poor quality surfaces. They are puncture-proof and maintenance-free, can be steered precisely and have an abrasion-resistant tread. All of these factors and their good structural integrity make them superior to pneumatic tyres.

The wheel and tyre dimensions provided here apply to new tyres that are not bearing a load. Their width and diameter may change when they are in use.

Technical details:

- colour black
- hardness 70 ± 4 Shore A

Optional:

- colour grey, non-marking
- antistatic, leak resistance $\leq 10^7 \Omega$

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Polyurethane

Polyurethane wheel treads are non-marking, non-staining, elastic, highly abrasion-resistant and have good floor preservation properties. They also have particularly long service lives and excellent resistance to a wide range of aggressive substances (see "Chemical resistance", page 50–51).

In addition to this, they have low levels of starting and rolling resistance and are also suitable for higher speeds.

Blickle develops its own reaction-casted polyurethanes by combining different diisocyanates, polyols and cross-linking agents. The properties of our products are affected by the type and proportion of raw materials that are used and the reaction conditions.



Thermoplastic polyurethane (TPU)

Blickle uses thermoplastic injection-moulded polyurethane-elastomer (TPU) in a wide range of wheels for varied applications. In addition to hard wheels (POTH series: heavy-duty design for transport equipment and heavy-duty applications, PATH series: lightweight design for light-duty and transport applications), Blickle also manufactures wheels with a soft tread, which are specifically designed for use in hygienic areas (POTHS series), as well as guide rollers (FPTH, FPU series). The soft version of the TPU provides a particularly high level of operational comfort and vibration absorption.

Wheels with a TPU tread in the FPTH series are also hydrolysis resistant.

Technical details:

- colour:
 - blue (POTHS series)
 - dark grey (PATH, POTH, FPTH series)
 - brown (FPU series)
- hardness:
 - 80 ± 5 Shore A (POTHS series);
 - 92 ± 3 Shore A (FPTH series);
 - 94 ± 3 Shore A (PATH, POTH series);
 - 98 ± 2 Shore A (FPU series)

Optional:

- electrically conductive, grey, non-marking, leak resistance $\leq 10^4 \Omega$



Polyurethane-elastomer
Blickle Extrathane®

Blickle Extrathane® is a reaction-casted, hard polyurethane-elastomer. It is particularly resistant to cut and tear propagation, and provides a low level of starting and rolling resistance. Blickle Extrathane® is provided in a non-marking light brown or grey (antistatic version) as standard, and has a hardness of 92 ± 3 Shore A. Blickle can also provide other colours and hardness levels if adequate quantities are required.

Technical details:

- colour light brown
- hardness 92 ± 3 Shore A

Optional:

- antistatic, grey, non-marking, leak resistance $\leq 10^7 \Omega$
- extra crowned tread



Polyurethane-elastomer
Blickle Softthane®

Blickle Softthane® is a reaction-casted, soft polyurethane-elastomer. It is particularly good at absorbing vibrations and preserving floor surfaces. It also offers a low level of starting and rolling resistance. Blickle Softthane® is provided in a non-marking green or grey (antistatic version) as standard, and has a hardness of 75 ± 5 Shore A. Blickle can also provide other colours and hardness levels if adequate quantities are required.

Technical details:

- colour green
- hardness 75 ± 5 Shore A

Optional:

- antistatic, grey, non-marking, leak resistance $\leq 10^7 \Omega$
- extra crowned tread

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Polyurethane



 Blickle Besthane®



 Blickle Besthane® Soft



Polyurethane-elastomer Blickle Besthane®

Blickle Besthane® is a reaction-casted, hard polyurethane-elastomer. Blickle Besthane® offers a lower level of starting and rolling resistance than Blickle Extrathane®, in addition to being hydrolysis resistant. Wheels with a Blickle Besthane® tread are highly resistant to heat buildup under dynamic load and are particularly suitable for higher speeds of up to 16 km/h. This tread is available in brown as standard and has a hardness of 92 ± 3 Shore A. Other colours, hardness levels and electrically conductive versions are available if adequate quantities are required.

Technical details:

- colour brown
- hardness 92 ± 3 Shore A
- hydrolysis resistant

Optional:

- crowned tread (ALB series)

Polyurethane-elastomer Blickle Besthane® Soft

Blickle Besthane® Soft is a reaction-casted, soft polyurethane-elastomer. Blickle Besthane® Soft offers a lower level of starting and rolling resistance than Blickle Softhane®, in addition to being hydrolysis resistant. Wheels with a Blickle Besthane® Soft tread are resistant to heat buildup under dynamic load and are particularly suitable for higher speeds of up to 16 km/h. This tread is available in blue as standard and has a hardness of 75 + 5 Shore A. Other colours and hardness levels are available if adequate quantities are required.

Technical details:

- colour blue
- hardness 75 + 5 Shore A
- hydrolysis resistant

Optional:

- extra crowned tread

Vulkollan®

Vulkollan® is a reaction-casted, hard polyurethane-elastomer with similar properties to Blickle Besthane®. They are particularly resistant to dynamic loads. Due to its mechanical properties, Vulkollan® is primarily used for guide rollers in conveying systems and for drive wheels in industrial trucks.

Vulkollan® will change colour when exposed to UV radiation.

Technical details:

- colour natural
- hardness 92 ± 3 Shore A

Optional:

- hardness 95 ± 3 Shore A

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Synthetic

Blickle's synthetic product range includes thermoplastic and thermoset substances. Nylon, cast nylon and polypropylene are thermoplastics. These are impact-resistant, non-marking, non-staining, corrosion-resistant and odourless. Their material properties vary significantly depending on the exact composition of the substance. They are therefore used for a wide range of applications. Phenolic resin is a thermoset substance with a particularly high level of heat resistance.



Polypropylene

Polypropylene is an injection-moulded thermoplastic material. It provides a low level of rolling resistance, does not absorb moisture and is resistant to a wide range of aggressive substances (see "Chemical resistance", page 50–51). Polypropylene has a lower load capacity than nylon.

Technical details:

- colour natural white (PPN series)
- colour black (PP series)
- hardness 60 ± 5 Shore D

Optional:

- electrically conductive, leak resistance $\leq 10^4 \Omega$

Nylon

Nylon is an injection-moulded thermoplastic material. It is hygienic, highly abrasion-resistant and has a very low level of starting and rolling resistance. They are also resistant to a wide variety of aggressive substances (see "Chemical resistance", page 50–51). Nylon can absorb and release moisture. Its dimensions can therefore fluctuate depending on the moisture and temperature in the area.

Special heat-resistant nylons are used in temperatures of up to 170 °C.

Technical details:

- colour natural white (PO series)
- colour black (POA series)
- hardness 70 ± 5 Shore D

Optional:

- electrically conductive, grey, non-marking, leak resistance $\leq 10^4 \Omega$
- colour blue
- heat-resistant version (colour natural, 85 ± 5 Shore D)

Cast nylon

Cast nylon is a thermoplastic, reaction-injected plastic. It is highly abrasion resistant, hygienic and resistant to a wide range of aggressive substances (see "Chemical resistance", page 50–51). It also provides a much lower level of starting and rolling resistance.

Cast nylon has a much higher load capacity than nylon.

The relatively high floor pressure of cast nylon should be taken into consideration if you intend to use it on pressure-sensitive floors.

Technical details:

- colour natural beige
- hardness 80 ± 3 Shore D

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Synthetic



Phenolic resin

Phenolic resin is a thermoset substance. It is capable of handling static loads and is suitable for thermally-challenging environments. Wheels made of phenolic resin are not particularly suitable for rough surfaces or crossing obstacles due to the high level of operation involved and their limited amount of mechanical resistance.

Phenolic resin can be used in temperatures between -35 °C and 260 °C. It is capable of withstanding 300 °C for a short time.

Technical details:

- colour black
- hardness 90 ± 3 Shore D

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Metal

Metal treads have an extremely high load capacity and maintain their tensile strength and hardness in a wide range of temperatures.

One disadvantage is that they exert a relatively high level of floor pressure. This should be taken into consideration if they are used on pressure.



Cast iron

Blickle cast iron wheels are made of robust lamellar EN-GJL-250 (GG 25) grey cast iron, which meets DIN EN 1561 / ISO 185 standards or EN-GJS-400-15 (GGG 40) ductile cast iron, which meets DIN EN 1563 / ISO 1083 standards. Cast iron is extremely robust and wear-resistant, and can be used in temperatures between -100 °C and +600 °C. The graphite component provides cast iron's established dry running properties for plain bores and increases corrosion resistance.

Technical details:

- colour silver (lacquered)
- hardness 180–220 HB
- electrically conductive, leak resistance $\leq 10^4 \Omega$

Steel

Steel wheels are made of heat-treatable steel that is particularly suitable for wheels.

They have a higher load capacity than wheels made of grey cast iron and are therefore more resistant to dynamic loads. However, steel wheels do exert more floor pressure than cast iron wheels.

Technical details:

- hardness 190–230 HB
- electrically conductive, leak resistance $\leq 10^4 \Omega$