

Wheels and castors guide

A few steps to the optimal product

1 Select your product.

Wheels, swivel and fixed castors or press-on bands / tyres can be used depending on the application.

Swivel castors can rotate, while fixed castors run in a fixed direction. The castors can be attached using a top plate, bolt hole, stem, expander or plug-in pin.
(See page 44, 104–111 for more information)

Product type	Wheel	Swivel castor	Fixed castor	Press-on band / tyre	
Fixing	Top plate	Bolt hole	Stem	Expander	Plug-in pin

2 Determine the required load capacity.

The load capacity required for a wheel or castor is calculated by dividing the dead weight of the transport equipment and its additional weight by the number of supporting wheels or castors.

The result is then multiplied by a safety factor dependent on the application conditions.
(See page 46 for more information)

$$T = \frac{E+Z}{n} \times S$$

T = required load capacity per wheel or castor
E = dead weight of the transport equipment
Z = maximum additional weight
n = number of supporting wheels or castors
S = safety factor

3 Starting, rolling and swivel resistance. Manoeuvrability.

The starting, running and swivel resistance of a wheel or castor is largely dependent on the tread, wheel bearing, wheel Ø, overall load and the condition of the surface.
(See page 49 for more information)

The manoeuvrability of a transport equipment is dependent on the quantity and type of the castors which are used, as well as how they are arranged. These factors in turn affect load capacity, manoeuvrability, control, cornering and stability.
(See page 47 for more information)



Low rolling resistance

- large wheel Ø
- hard tread
- high tread elasticity
- ball bearing
- hard, smooth surface

Low swivel resistance (swivel castors)

- hard tread
- crowned tread
- large offset
- hard, smooth surface

4 Corrosion resistance. Temperature resistance. Chemical resistance.

The service life and functionality of a wheel or castor depends to a certain extent on how well the materials used or their surface finish are capable of withstanding corrosion, temperature changes and chemical substances. Temperature and the duration of exposure are the most important factors.

Information about the chemical resistance of the different materials we use is provided in the table on page 51.



Example: checking resistance to hydrolysis

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5 Select from a wide range of tread materials.

Hardness, shape and tread material have a significant impact on the operational comfort, smooth rolling performance and starting, rolling and swivel resistance of a wheel or castor. The tread (tyre) of a wheel should normally be softer than the surface. Otherwise the wheel may press into the surface and damage it. (See page 52–59 for more information)

Tread material	Tread and tyre hardness	Operating noise
Pneumatic tyre, soft rubber	■ □ □ □ □ □ □ □	■ ■ ■ ■ ■ ■ ■ ■
Elastic solid rubber, super-elastic solid rubber	■ ■ □ □ □ □ □ □ □ □	■ ■ ■ ■ ■ ■ ■ ■
Solid rubber, TPE, polyurethane 75 Shore A, silicone rubber	■ ■ ■ ■ □ □ □ □ □ □ □ □	■ ■ ■ ■ ■ ■ ■ ■
TPU, polyurethane 92 Shore A	■ ■ ■ ■ ■ □ □ □ □ □ □ □ □	■ ■ ■ ■ ■ ■ ■ ■
Steel, cast iron, nylon, polypropylene, phenolic resin	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■

soft → hard loud → quiet

6 Select a wheel bearing type.

Selecting a suitable bearing will depend on the speed, load, environmental factors and the force required to move the transport equipment.

Plain bores are simple, but have an unfavourable friction coefficient. However, they have the worst coefficient of friction, leading to a relatively high starting and rolling resistance.

Roller bearings are robust, have a low rolling resistance and a small radial bearing clearance.

Ball bearings have the best starting and rolling properties, the smallest bearing clearance, a high load capacity and are also suitable for high speeds. (See page 84–85 for more information)



Plain bore



Roller bearing



Ball bearing

7 Select a suitable bracket, version and options.

The suitable bracket for every application and all requirements. Pressed steel bracket in standard, stainless steel or heat-resistant version, welded steel heavy-duty bracket with or without suspension, or elegant synthetic bracket.

The functionality of wheels or castors can be enhanced by using different versions or options. Wheel and swivel head brakes to prevent swivel castors rolling and rotating, foot guard for avoiding foot injuries, electrically conductive treads for protection against electrostatic discharge and many more.

A detailed list of Blickle bracket series is available on page 86–102. All versions and options are listed on page 112–117.

