

# Wheels and castors guide

## Load capacity

### Dynamic load capacity

The load capacity listed for a wheel or castor is the load capacity which that wheel or castor was capable of withstanding when tested on a rotating bench in accordance with DIN EN 12527–12533 (ISO 22878–22884).

In order to determine the load capacity that a wheel or castor needs to have, it is important to know the dead weight of the transport equipment, the maximum additional weight and the number of supporting wheels or castors. When using four or more wheels or castors, the load on each individual wheel or castor may vary. The necessary load capacity is calculated as follows:

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

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

Wheels and castors with ball bearings are capable of exceeding speeds of 4 km/h with a reduced load capacity.

### Recommended safety factors for different applications

The safety factor S is used to account for deviations from the standard application conditions (smooth surface, walking speed of 4 km/h, equal load distribution, travelling straight, ambient temperature of between 15 °C and 28 °C). The safety factor is affected by the speed of movement and the ratio of wheel Ø to the height of the obstacle. There are four different categories (see table).

Safety factors do not take tread wear into consideration.

#### Determining safety factor S

|   | Transport | Environment | Height of the obstacle | Safety factor |
|---|-----------|-------------|------------------------|---------------|
|  | manual    | indoors     | < 5 % of wheel Ø       | 1.0–1.5       |
|  | manual    | outdoors    | > 5 % of wheel Ø       | 1.5–2.2       |
|  | motorized | indoors     | < 5 % of wheel Ø       | 1.4–2.0       |
|  | motorized | outdoors    | > 5 % of wheel Ø       | 2.0–3.0       |

### Static load capacity

If a wheel or castor is exposed to mainly static loads, its static load capacity is tested in accordance with ISO 22878. One of the criteria that this test looks at is the extent to which the tread flattens after a specific period.

Information about the static load capacity of our products is available in our product data sheets. You can contact us directly to request them or download them from [www.blickle.com](http://www.blickle.com).