

Functionality

Machine Skates



Made in Germany

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Understanding the functionality of machine skates

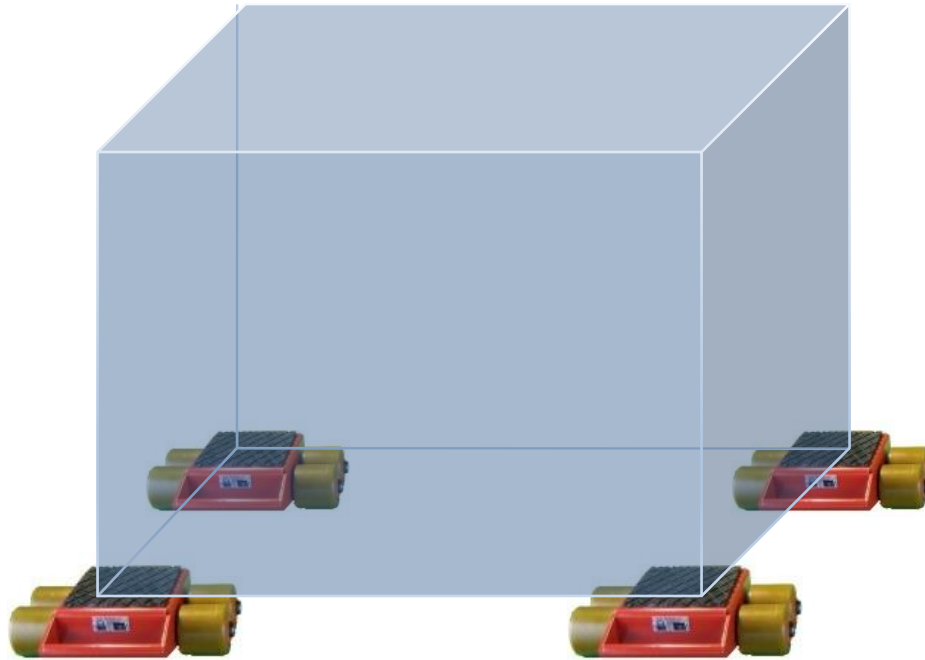
4-point



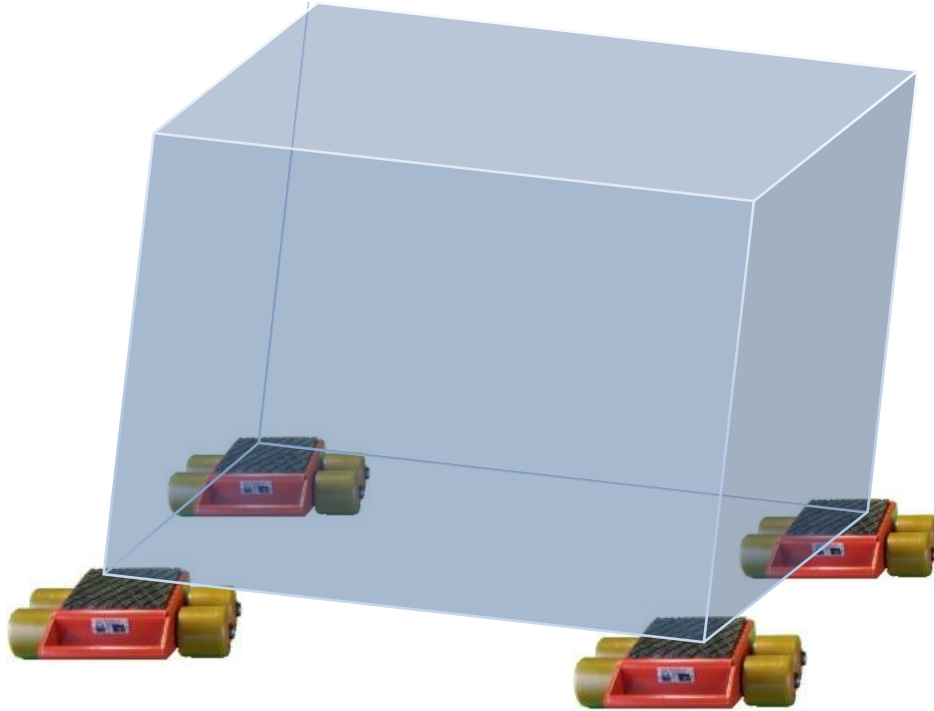
vs.

3-point

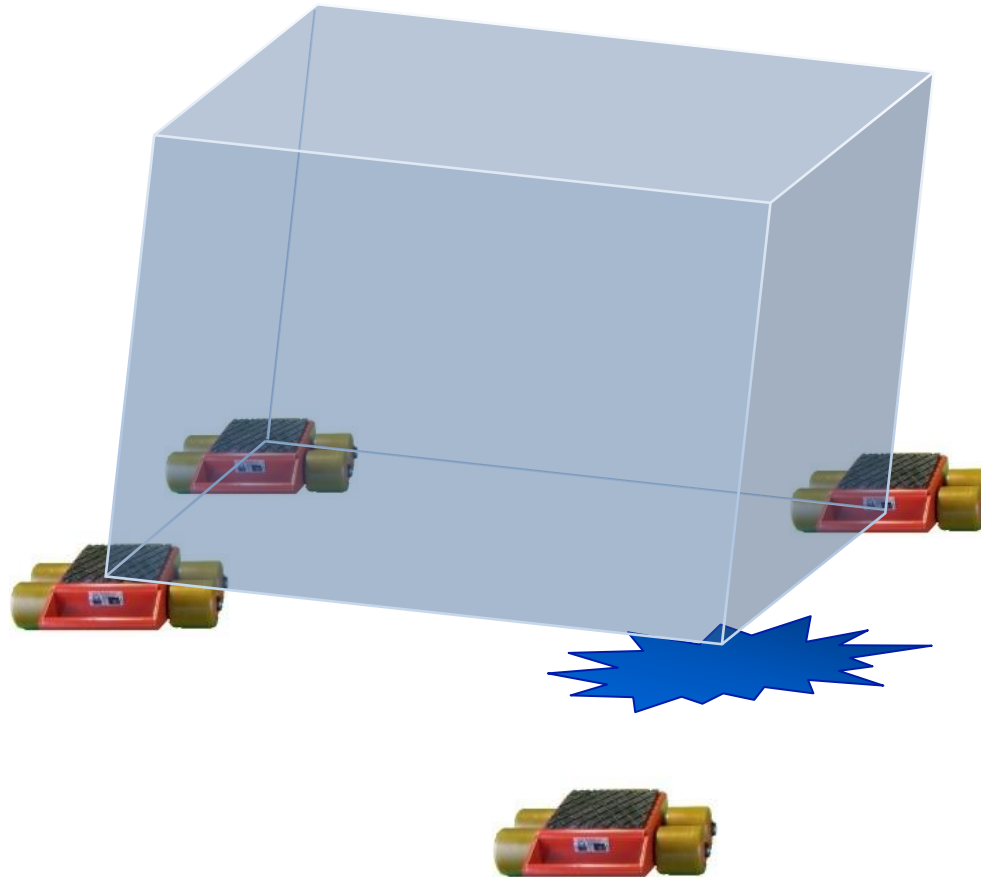




Placing your load on four machine skates seems like the most logical thing to do, but there is a problem with this mode of transport.



If you are traveling over an uneven surface, your load will rock just like a 4-legged chair on uneven ground.



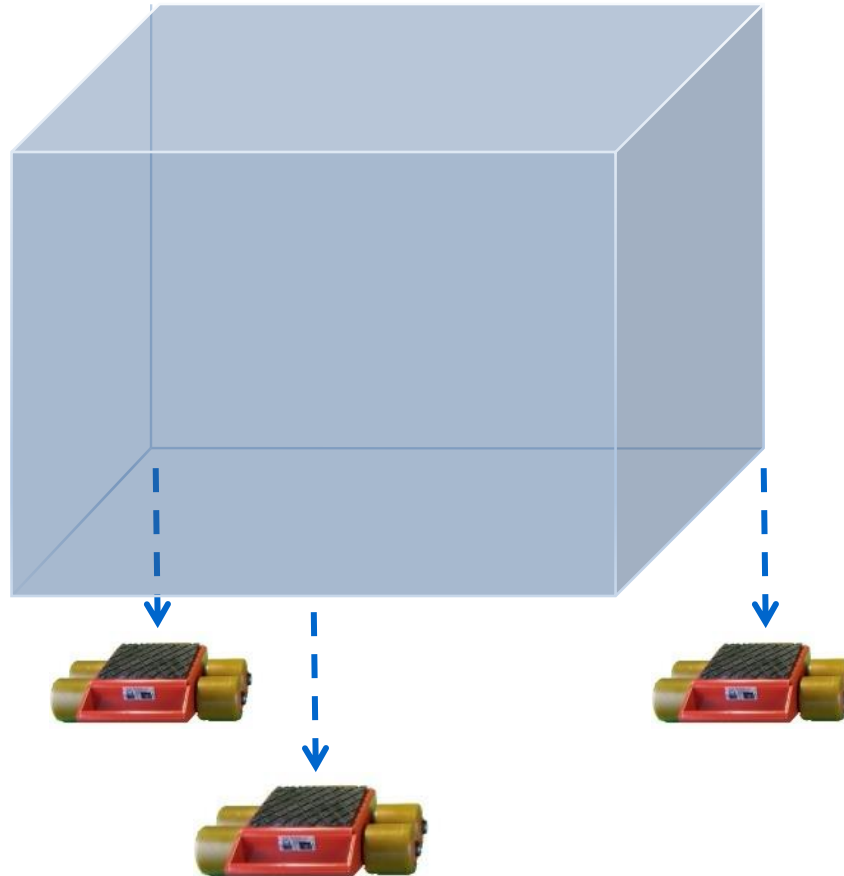
When the load rocks on machine skates that are not attached, the weight is lifted off one skate and it slips out. The load can plummet to the floor - or worse, an operator can get hurt.



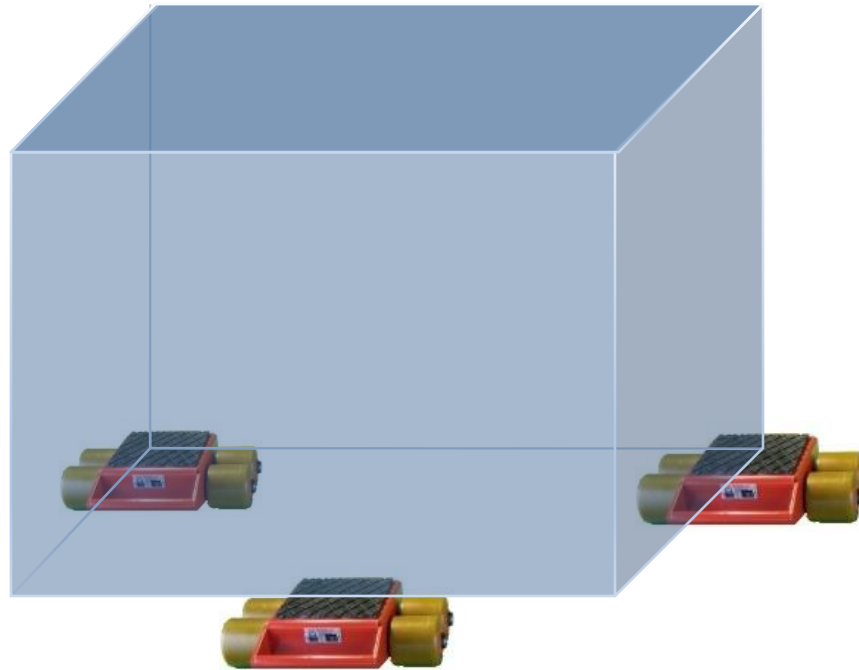
Loads almost never travel over perfectly level surfaces. Floors slant towards drains, concrete is often full of cracks, and there are often ledges to overcome.



Now imagine a 3-legged chair and place it on an uneven ground. The chair will not rock.



Setting your load on 3 skates will have the same effect; the load can't rock. Its weight is evenly distributed, pressing down onto the skates always and keeping the skates firmly in place.

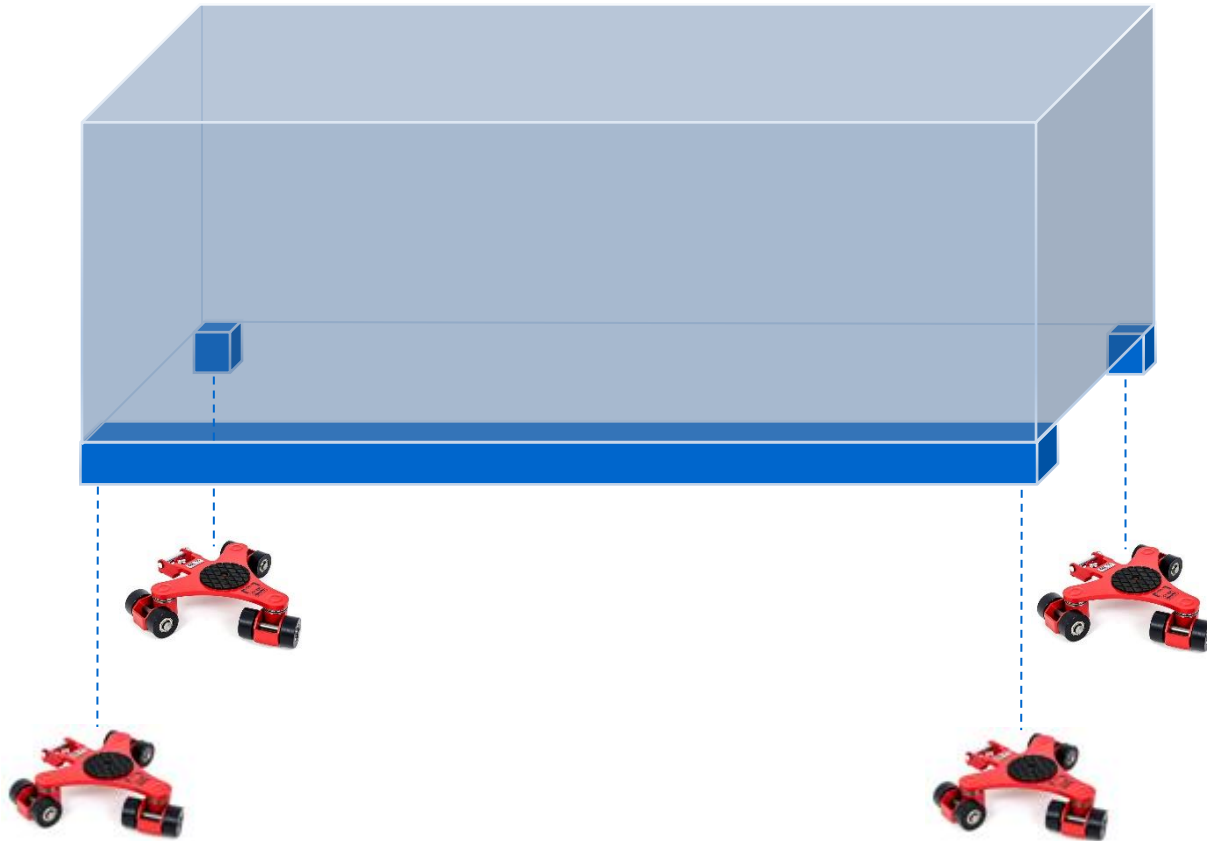


Now you can travel over uneven surfaces and not worry about the skates slipping, even under pulling and tugging action.

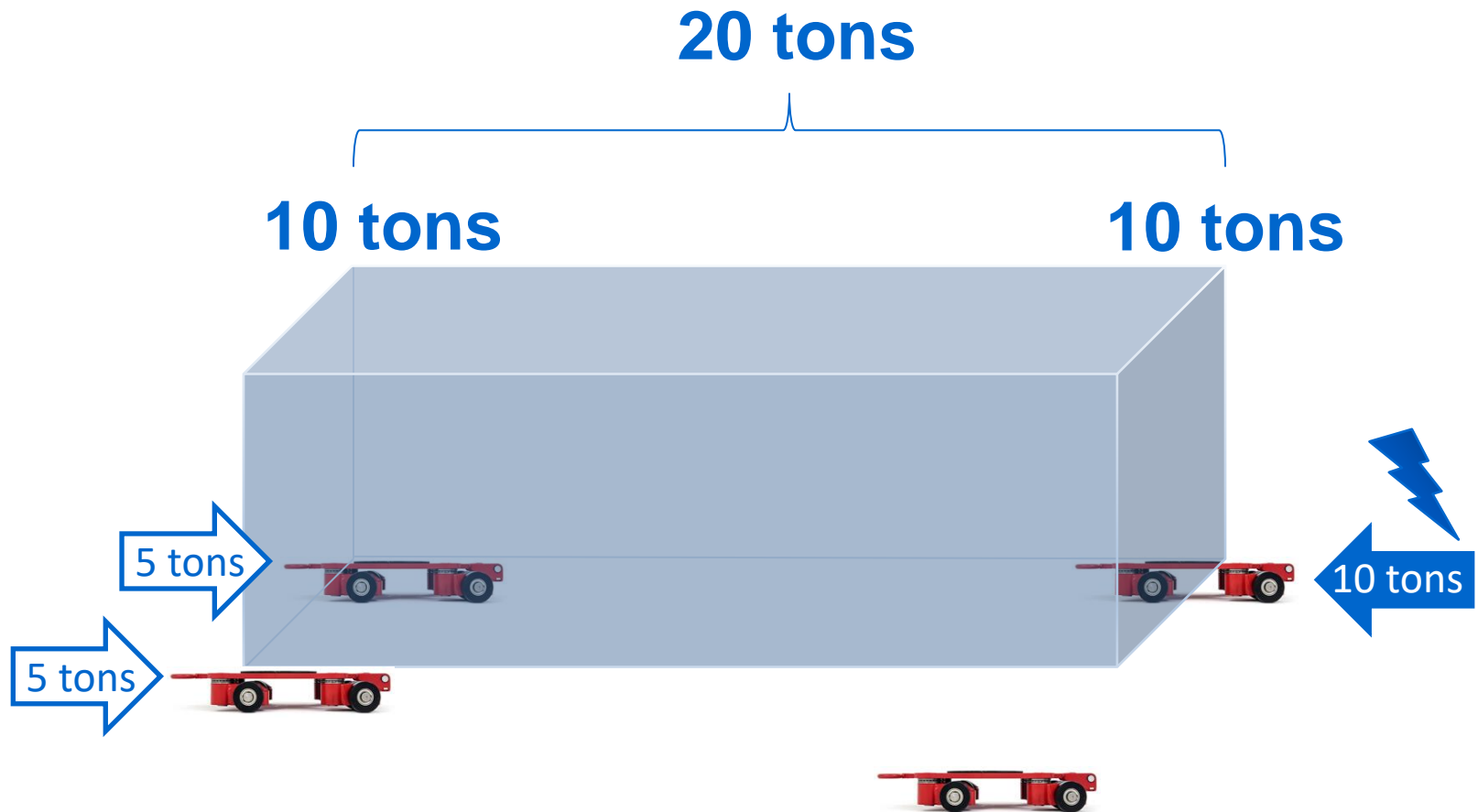
We therefore recommend using a 3-point system support.



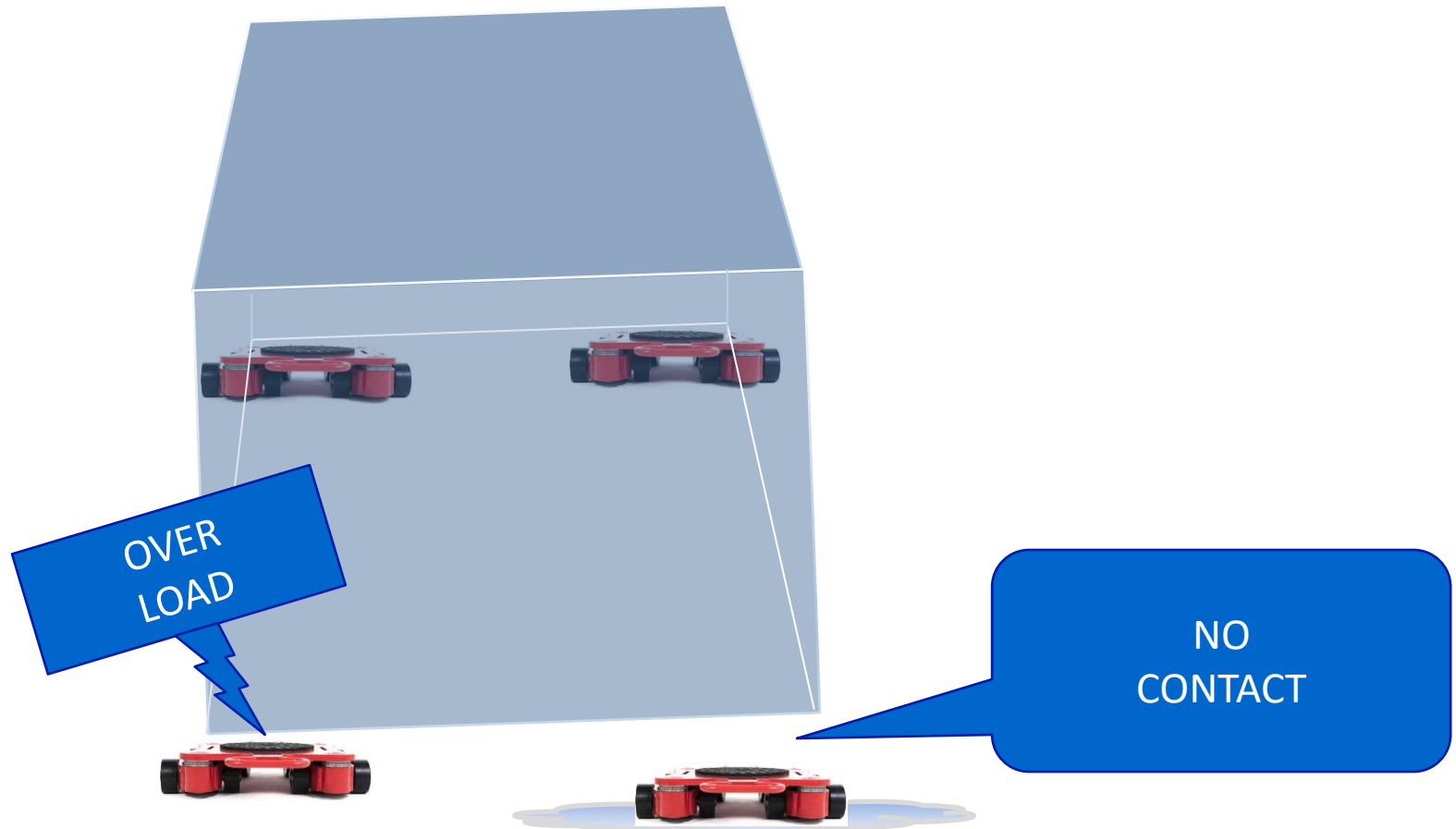
Our standard configurations consist of 3 roller skates to provide support on 3 points. This configuration is the most versatile and the safest.



If, however, your load sits on four legs or I-beams you may have to use a 4-point system.

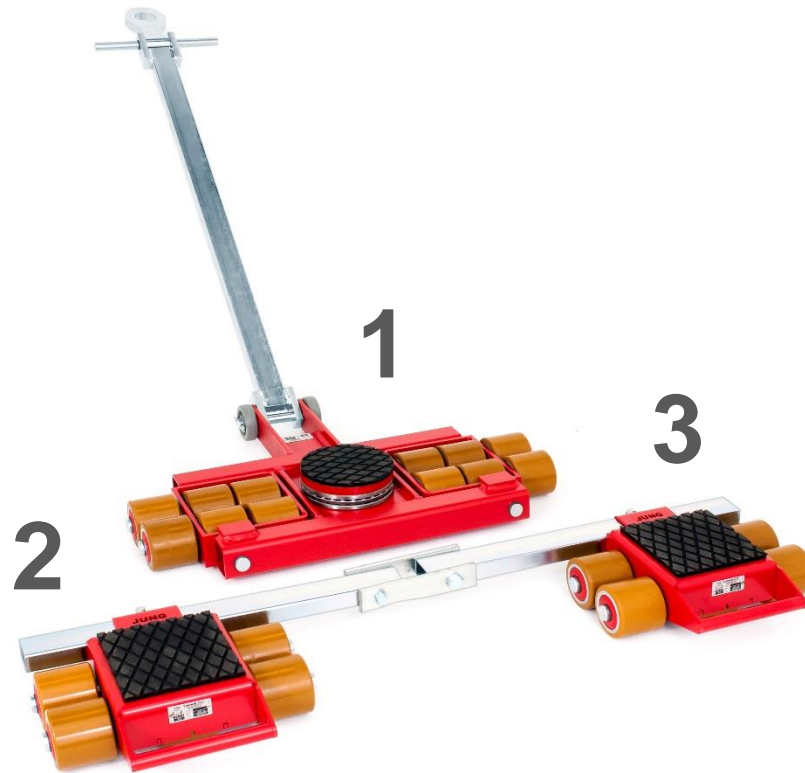


Remember that on longer loads the weight divides itself between the front and the back-end on longer loads. If one skate loses contact, the closest skate will be loaded with the extra weight.

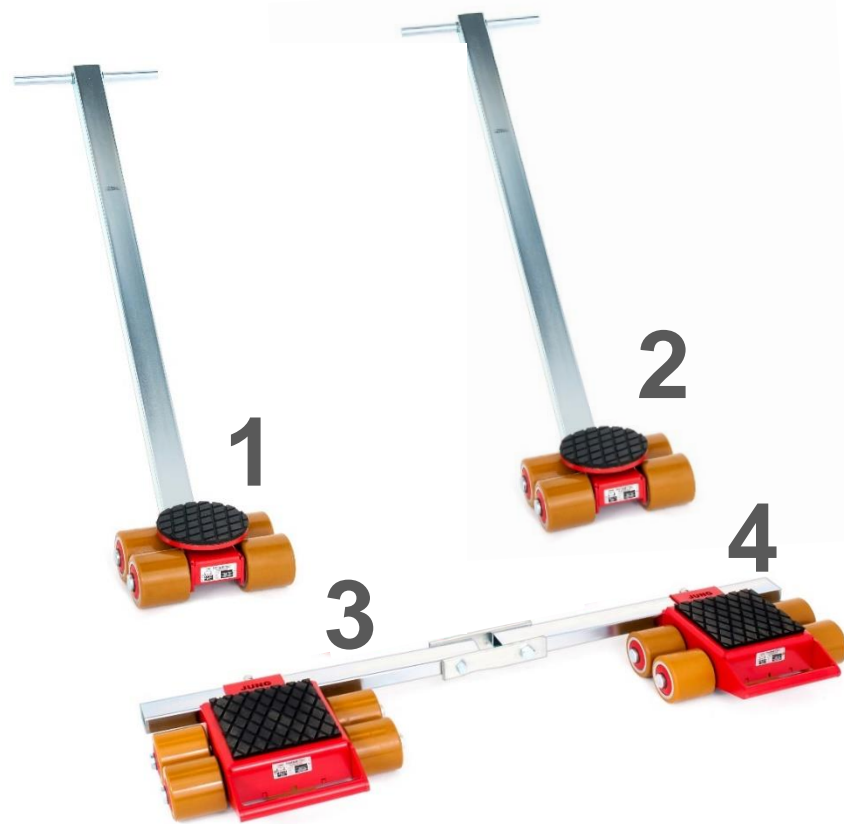


So, if using a 4-point machine skate system allow for extra safety capacity in case one skate loses contact.

Mix & Match



A standard configuration consists of 3 roller skates to provide support on 3 points. This configuration is the most versatile and the safest.



However, not every application allows for a 3-point support, and that is why our skates are interchangeable.



You can mix and match our machine skates and dollies in any configuration to meet your specific needs. Just choose skates of identical height.



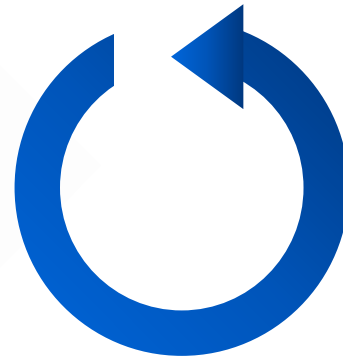
We sell each skate individually, allowing you to choose the configuration that matches your needs or to add onto an existing machine skate set.

3-point Machine Skates



We carry four different skate types: 1. Our 3-point ***machine skates*** are the most versatile, giving you maneuverability like your car: The **front** steers and the **rear** follows in a straight line.

Rotating Dollies



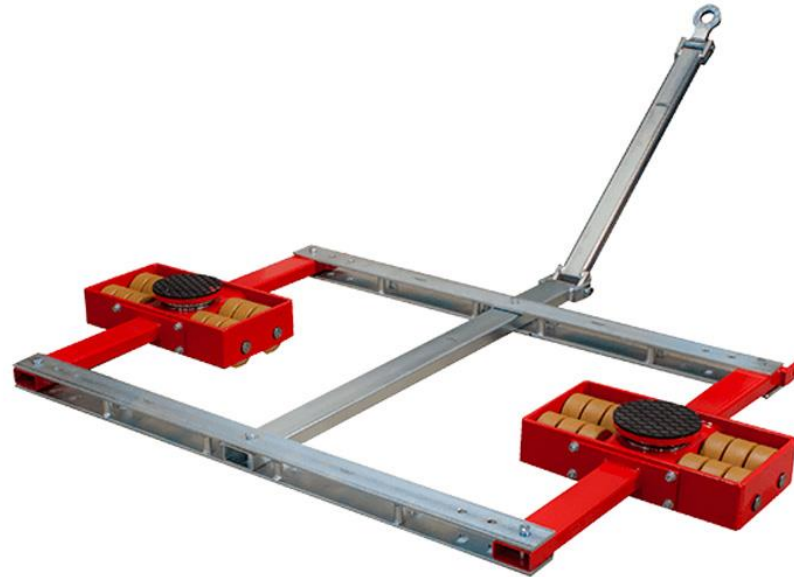
2. The ***rotating dollies*** provide 360-degree maneuverability for loads in confined spaces. These dollies are more expensive due to their advanced technology.

Directional Dollies



3. Our ***directional* dollies** hold direction without sideways creeping while maintaining slalom maneuverability. These dollies are ideal for use in production lines.

Tandem Dollies

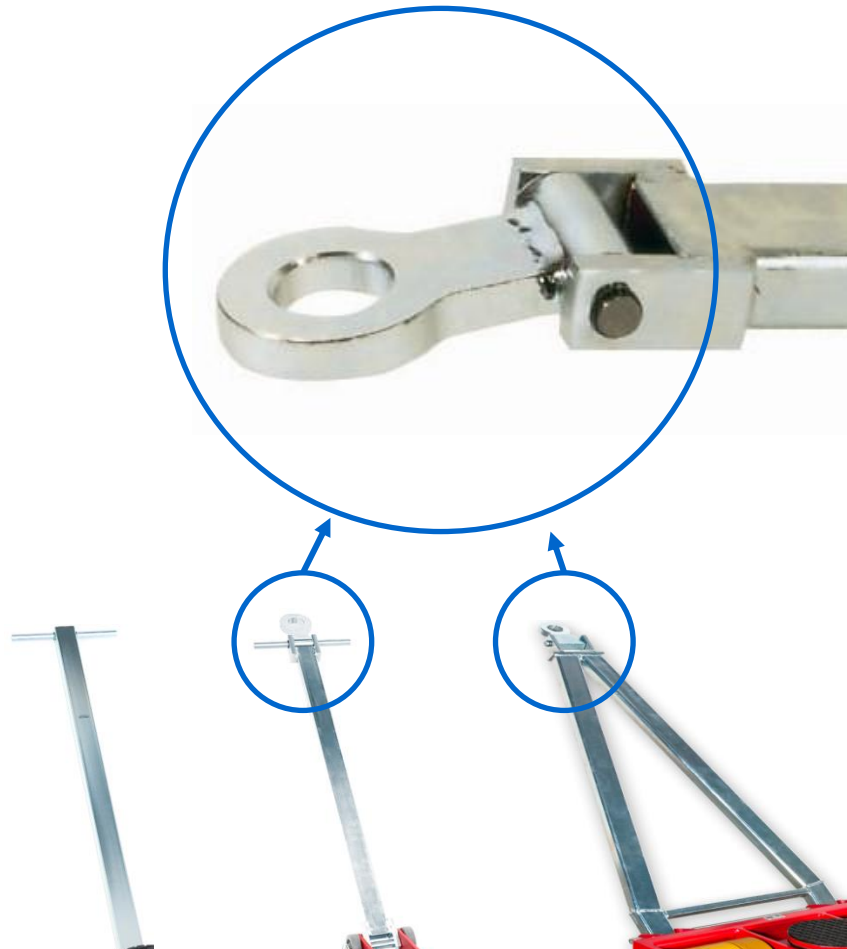


4. Our ***tandem dollies*** are designed for special applications, such as side-heavy loads or for added maneuverability on the back-end of the load.

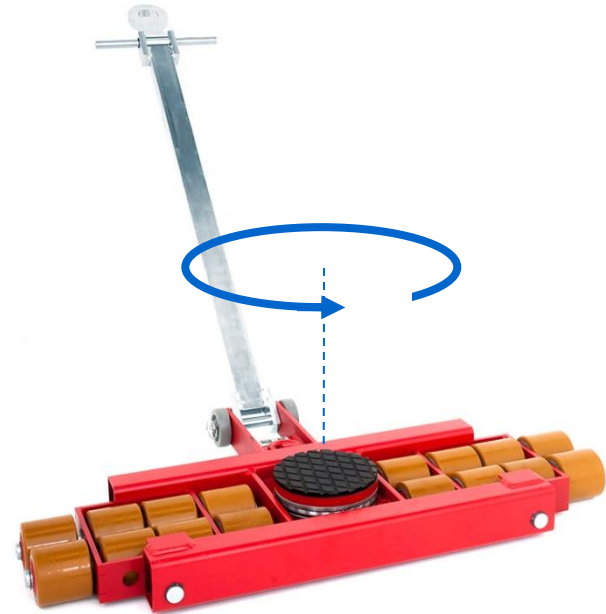
Functionality

Steerable Straight-line

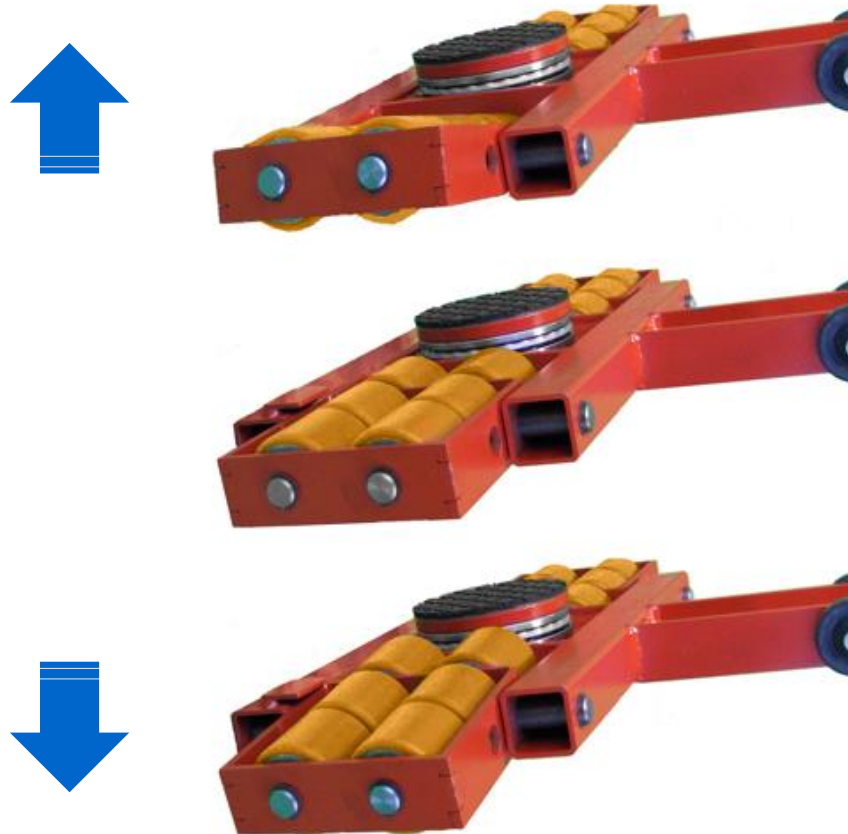




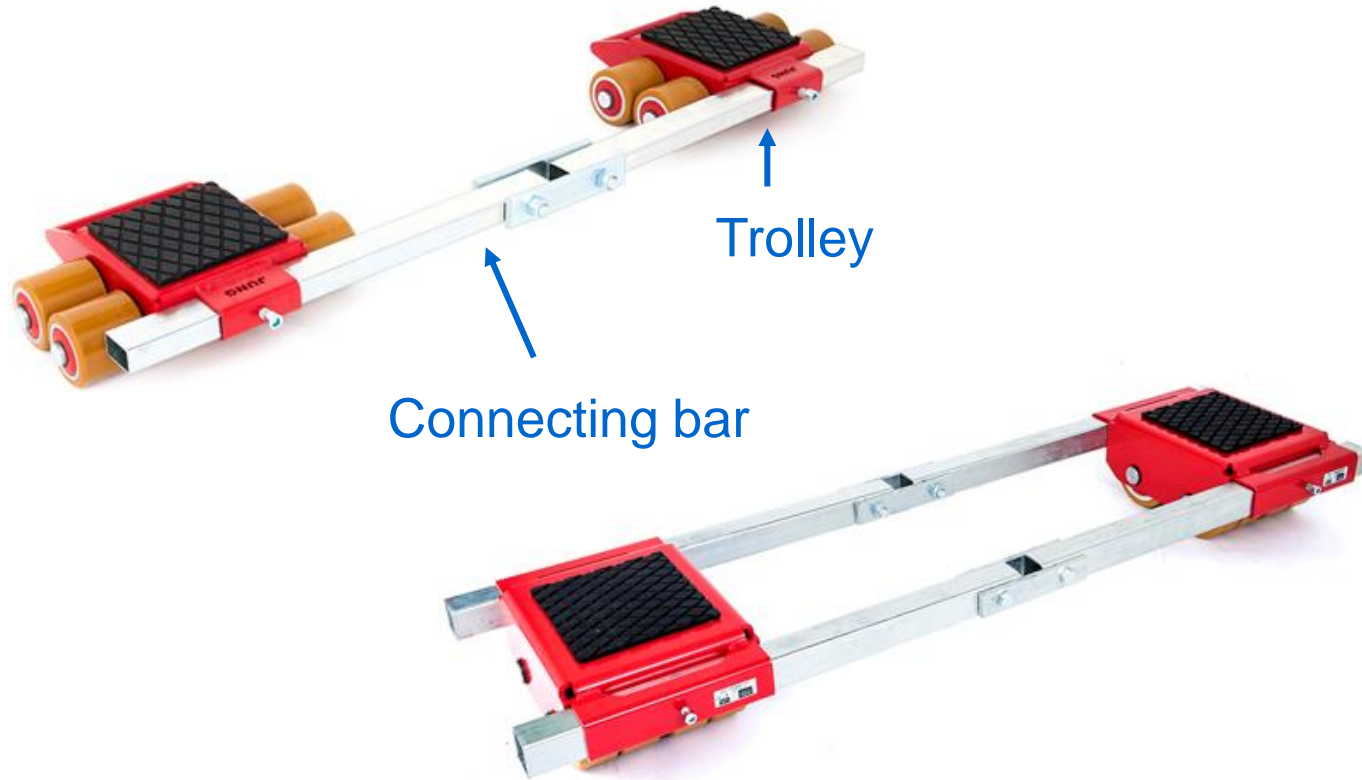
The steerable skate comes with a pulling handle which, on the larger dollies, also has a towing eye that allows for a connection to a forklift or other pulling vehicles.



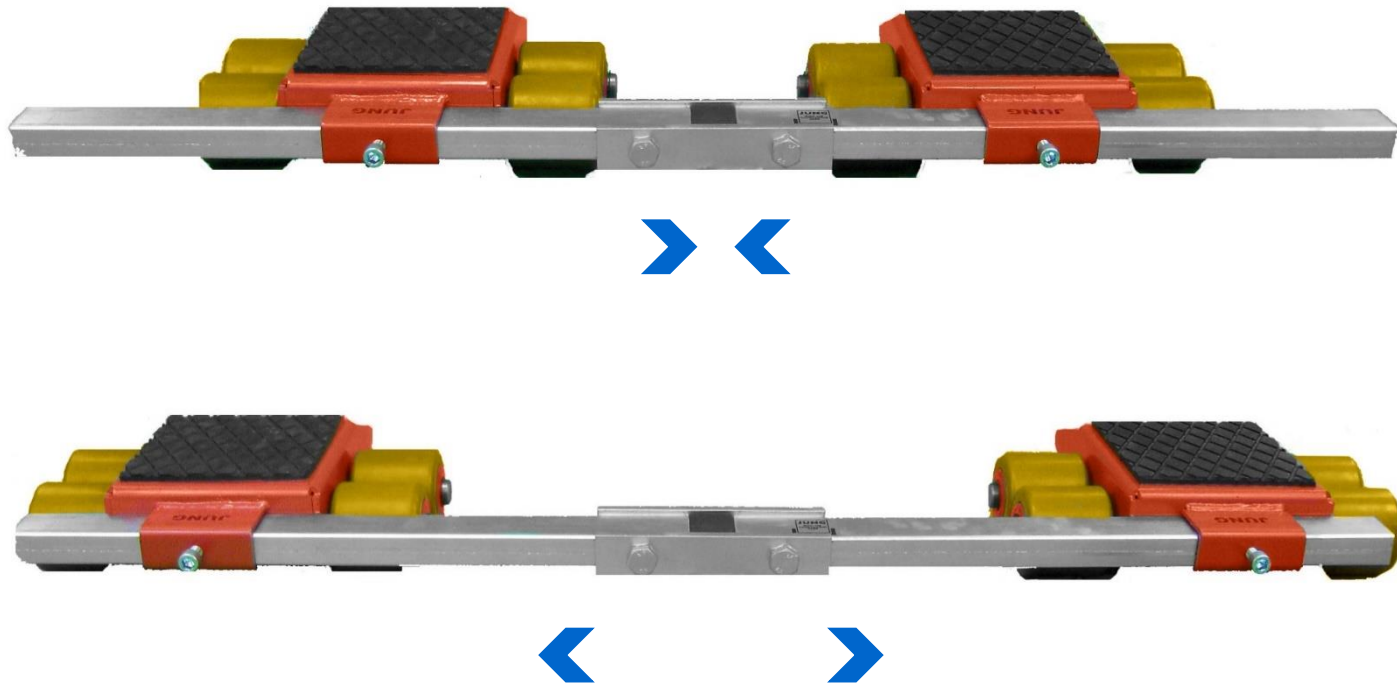
The loading platform consists of a 360 degrees swiveling turntable. It allows for easy turning and steering of the skate underneath the load. The skate spreads the weight out over a large footprint, and this reduced floor pressure facilitates easy turning.



On the larger dollies, the rollers sit in pivoting cassettes inside the frame. This design allows the rollers to dip down into recesses on the ground, staying in contact with uneven floors.

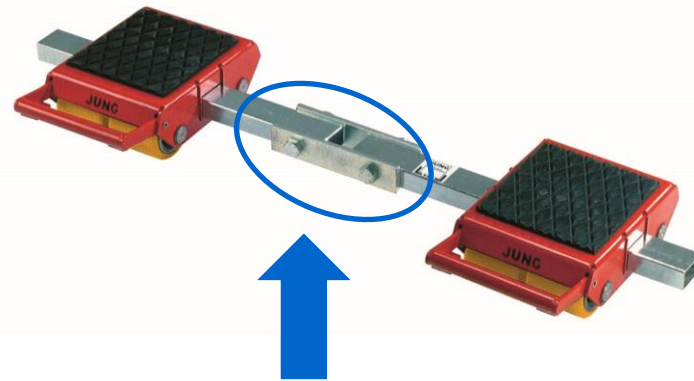


The straight-line skates come with connecting bars and a pair of trolleys.



The bar keeps the rollers of each trolley aligned in the same direction. The trolleys can be used without the connecting bar, but it's not recommended as the roller material can wear down like the tires on your car if out of alignment.

OLD Design



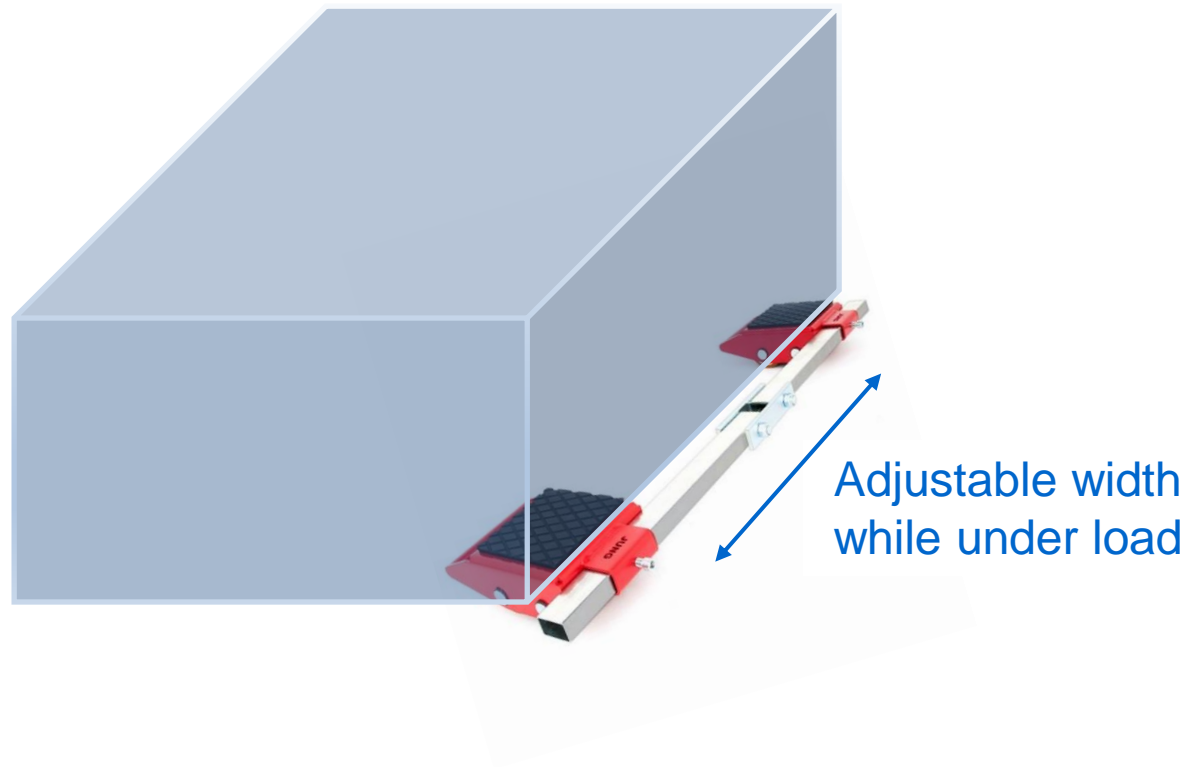
Difficult to adjust
in center

CURRENT Design



Adjustable
from
outside

The design of the connecting bar has been changed from the earlier models. It now attaches to the outside of the skate rather than through the middle. This design may seem a little strange, but ...



... it allows you to place the skates under the load and adjust the connecting bar from the outside without having to reach underneath.



If you are using 4 skates to transport your load, we also recommend using the connecting bar. The connecting bar will keep the skates in place if the load rocks and one skate loses contact.

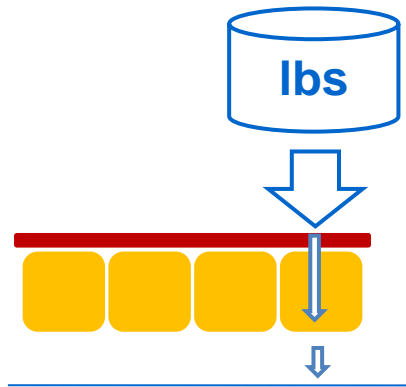


Connecting Bar



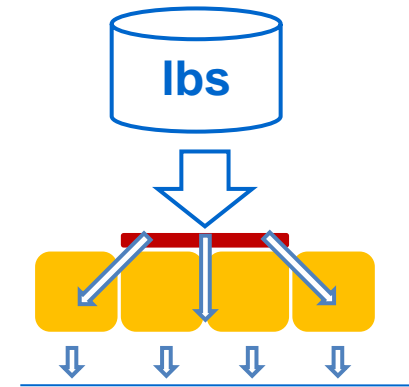
If you need a connecting bar that is longer than the one provided, you can easily build your own and clamp it into the fitting. The bar is made of standard 1x2 inch steel tubing.

OLD: wide



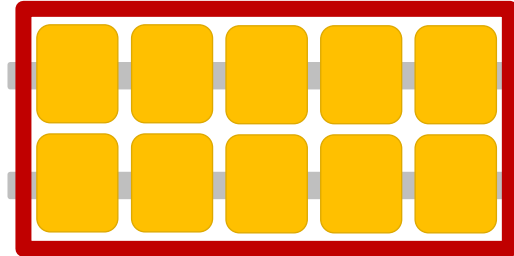
Loading
Platform

NEW: centered



Frame design has changed over the years. In **OLD** designs, uneven loads caused weight concentration on one side of the wide loading platform which overloaded the outside rollers. In **NEW** designs, the smaller centered loading platform now guarantees equal weight distribution across all rollers.

Old design:
Rollers contained inside frame



Skate
pre 2005



Furthermore, in **OLD** designs, rollers used to be contained within the frame. The thinking was that the rollers were better protected inside steel walls.



Rollers INSIDE frame



Rollers OUTSIDE frame



Prevents point
loading on ledges

However, axles and rollers were held ridged inside the frames resulting in point-loading of rollers on ledges. Therefore, skates now have free floating rollers outside and inside a frame so axles and rollers can adjust to uneven surfaces.



Using the steerable skates and straight-line trolleys together provides maneuverability like your car, as the front steers and the rear follows in a straight line. The front skate offers steerability of up to 90 degrees left or right.

Small —————> Large



The skate and roller sizes increase with higher capacities. This allows a heavy load to overcome small obstacles, cracks and seams in the floor with the same rolling resistance as a smaller load.



Full-size rollers



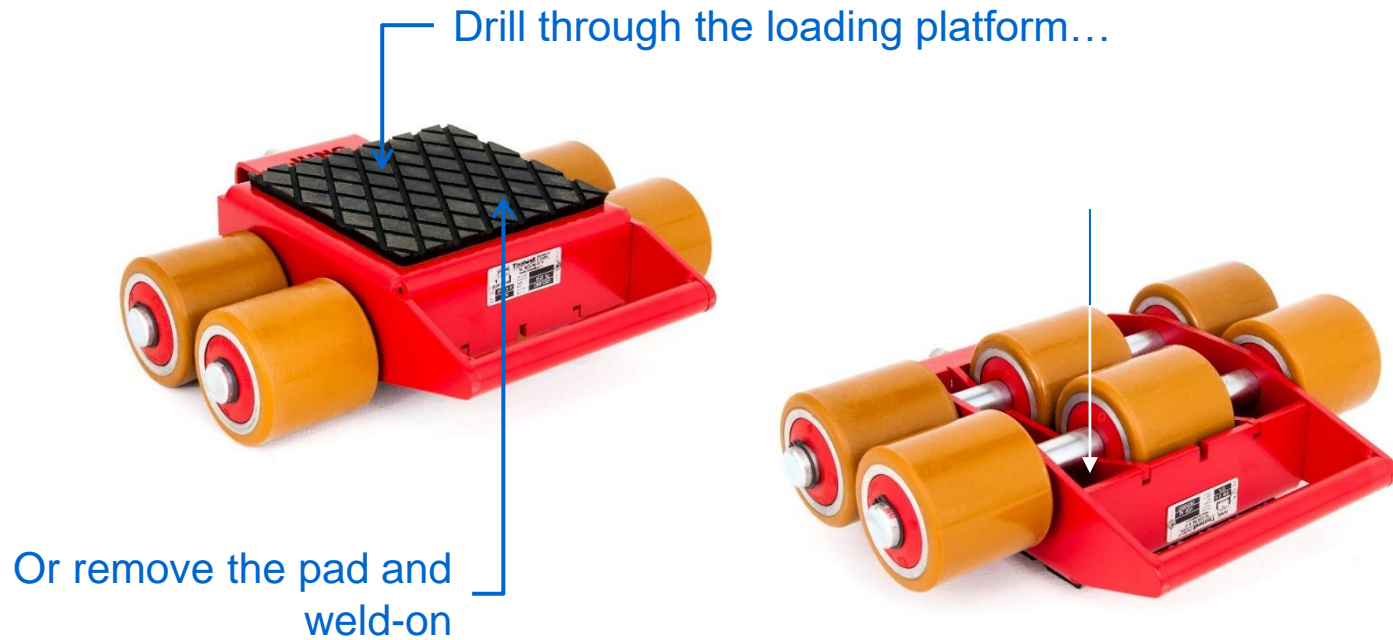
Half-size rollers



Some machine skates are outfitted with half-size rollers or have a combination of both half-sized and full-sized rollers to reduce the turning resistance.



The loading platform is steel with a rubber 1/4-inch heavy duty anti-slip load pad.



Customers who wish to affix the skates to their load have two options: You can drill through the loading platform to bolt a bracket or holding mechanism. You can also pry off the rubber pad and weld a holding mechanism to the exposed steel surface.



LOW Profile

Our machine skates have a very low profile. Loads are transported as close to the ground as possible for enhanced safety, low head clearance and short distance lifting requirement.

Impact Loading

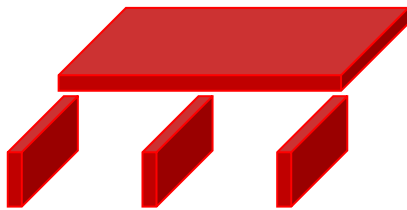


Absorb impact
force of

12 tons

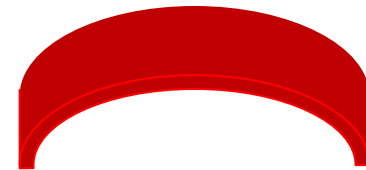
Our machine skates are made to withstand the impact force from loading.

OLD: Welded frame
using thick rigid
steel



Will snap
under shock

NEW: Frame created
by bending steel

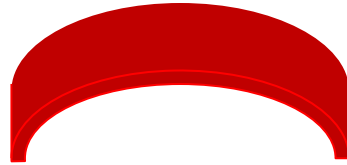


Absorbs shock
through higher
strength & elastic
construction

4-Way Steel Bending Technology

- The impact loading resistance is achieved through:
1. Steel bending technology that provides higher strength and elasticity ...

Welding Seams



Steel bending
reduces number
of welding seams

Welding robots
ensure higher
quality welds



... 2. Fewer welding seams and higher quality welding seams through use of welding robot ...

Shock resistant rollers



OLD: hard
brittle roller

Will crack
under shock



NEW:
elastic roller

Absorbs shock
through elasticity

... 3. Elastic shock absorbent roller material.

Rollers

JUWathan Rollers



Traditional Rollers

Nylon, Steel, Urethane, Composite



40+ years of development has led to a roller material called “JUWathan,” which is superior in performance and durability over traditional polyurethane, composite or steel rollers.

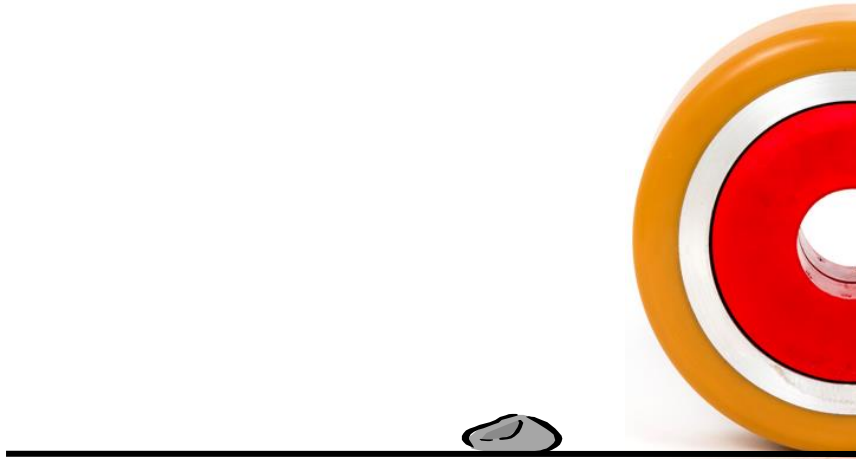
Here is why:



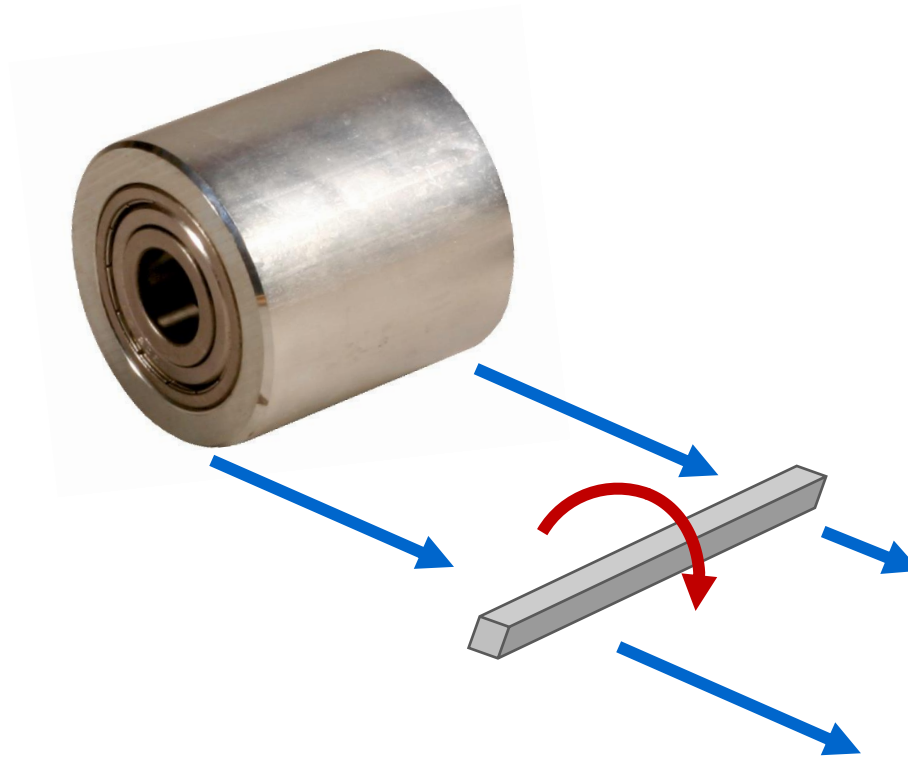
1. Traditional polyurethane rollers get punctured by metal shavings, nails or rocks. The debris can become embedded in the roller, wearing down the material and resulting in a short life expectancy.



Our patented JUWathan material is elastic and will mold around obstacles on the ground like the tires on your car.



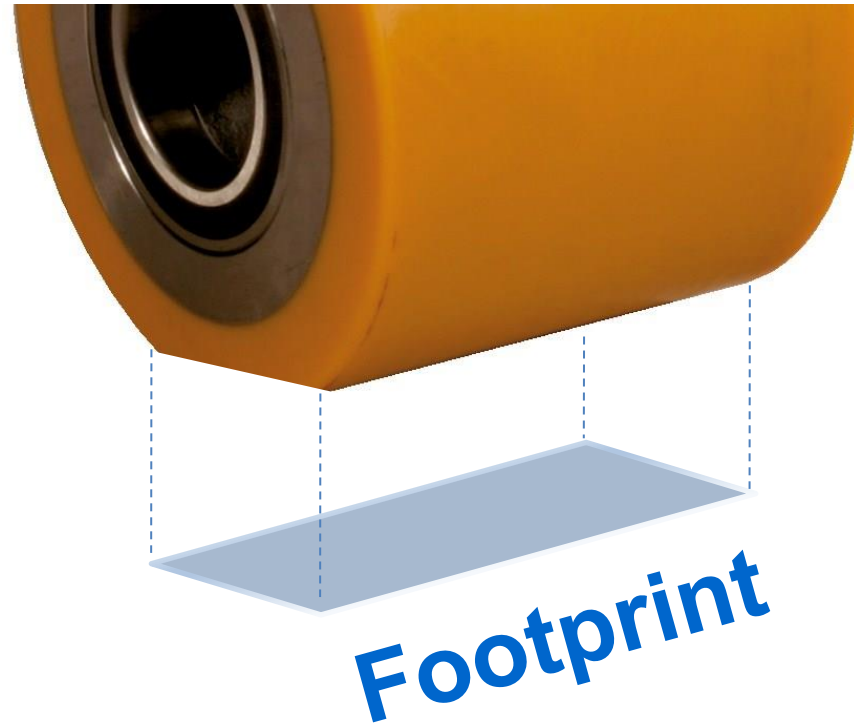
Obstacles will not puncture or become imbedded in the rollers and therefore cannot break down the material. The result is a roller with much higher durability.



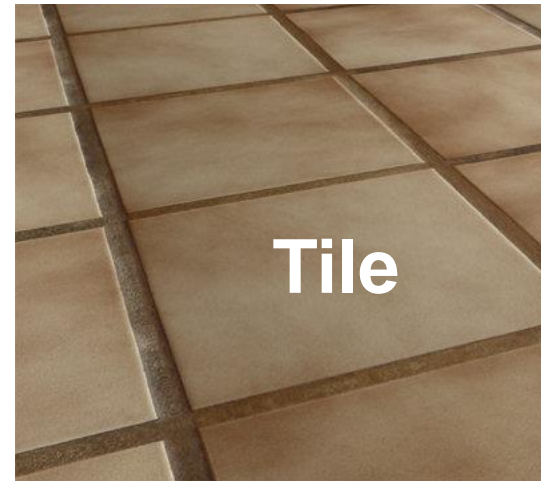
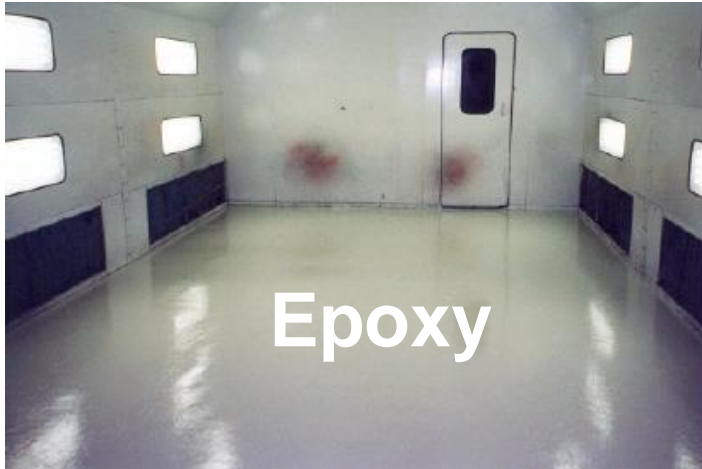
2. In addition, this elasticity means that the rollers do not have to get up and over the obstacle. Loads are not stopped as they would be with steel, nylon or hard polyurethane rollers.



3. Traditional rollers have a small footprint because only a small surface area touches the ground.



The elastic JUWathan spreads out under the weight to increase the contact area with the floor. The larger footprint of each skate divides the weight over a larger area so that the pressure onto the floor is reduced.



Radically reduced floor pressure means that even under extreme loads the rollers are: **1. Non-marking & 2. Non-damaging**
You can take the machine skates over tiled floor or sensitive epoxy without damaging or marking the floor.

Steering 

Move forward 

Break-out  from standstill

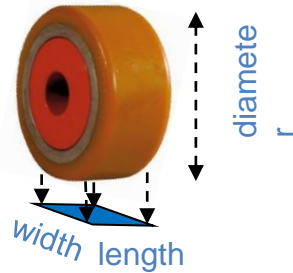
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Less Manpower

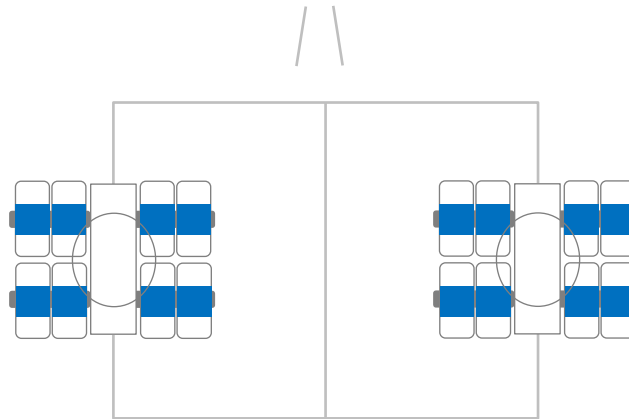
Reduced pressure on the ground also means:

- **Easy steering** • **Easy rolling** • **Easy break out** from standstill
...which translates into fewer manpower requirements.

Footprint



$$\text{Pressure (psi)} = \frac{\text{Load weight (lbs) per dolly}}{\text{Footprint (in}^2\text{) per dolly}}$$



If you are travelling over thin floors (like on a submarine) and are worried about breaking through, please consult our guide to calculate the exerted pressure per square inch. You will find the information under the link [“Pressure for Thin Floors.”](#)

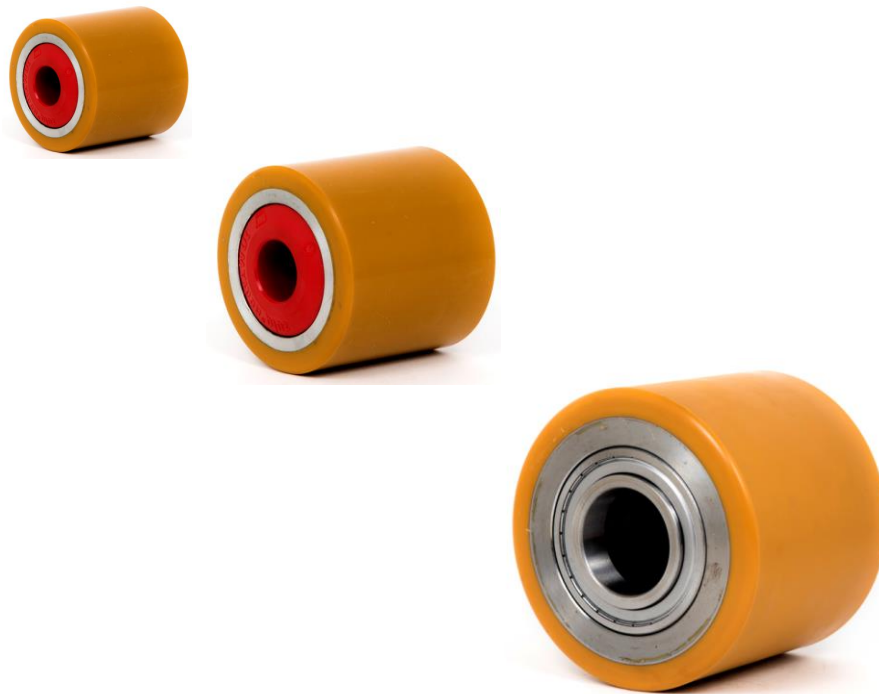
Parking



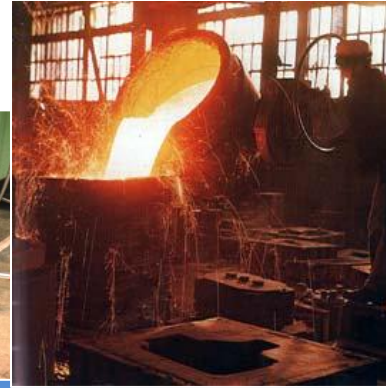
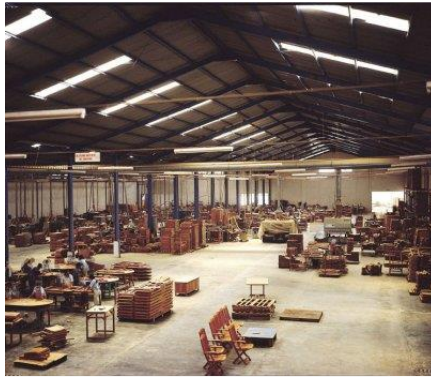
You can leave your load sitting on top of the skates for extended periods of time. This will not damage the skates or rollers. The rollers will begin to sag until the load starts moving, and then the roller material will return to its original shape.



To maintain the round shape without warping over time, the roller has an aluminum or steel core (depending on the skate size). Two precision ball bearings are held inside.



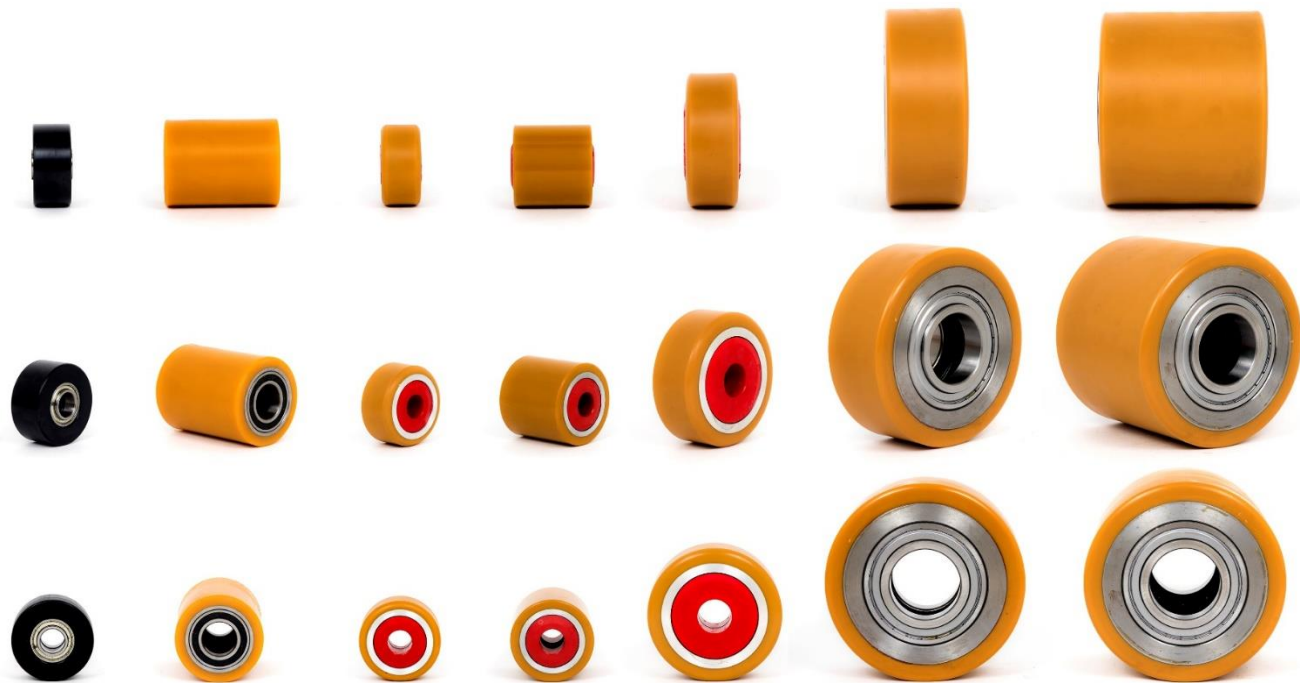
The rollers become larger for heavier loads, compensating for the difficulty of getting over obstacles. All our skates maintain the ability to bridge small ledges, gaps and obstacles.



Because of their elasticity, the rollers perform well both inside and outside: In workshop facilities with metal scrap on the floor, on rough parking lots, over cracks in concrete or even over countersunk rail tracks.



However, the rollers are designed for low profile applications so they're small in size. The skates will get stuck in gravel or soft surfaces, like grass... so use the skates only on hard surfaces.



Rain. Snow. Ice. Sand.
All our rollers have sealed ball bearings against
contamination to ensure long life.

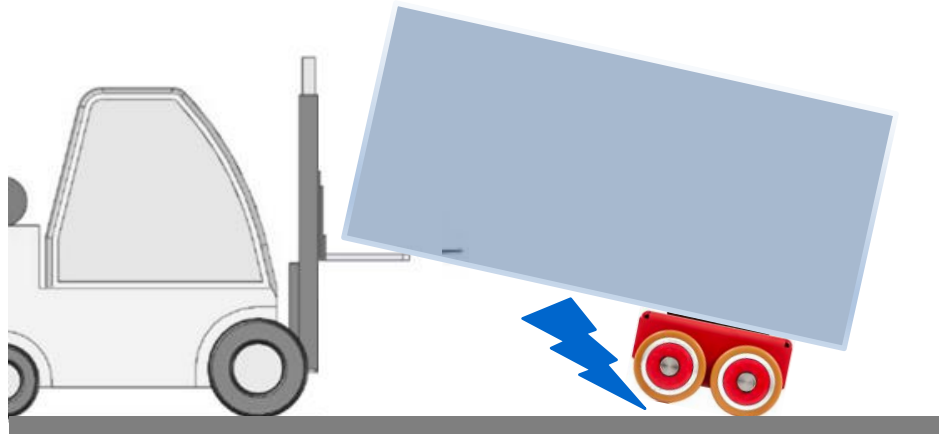
Load Capacity



SAFETY FACTOR

All our skates have a significant safety capacity above and beyond the rated load bearing capacity. So even if you max out the allowed weight, you will maintain maneuverability and the skates will not break.

Exaggeration



Please use caution when using a forklift to support one end of a load and the skates under the other. The height difference will tilt the skates and lift-up one row of rollers, overloading the remaining ones. For this, please use a skate with twice the load capacity.

SET Load Capacity

10
tons



If you are choosing a standard 3-point system, please refer to the “**SET** load capacity” listed on the website.

**5
tons**

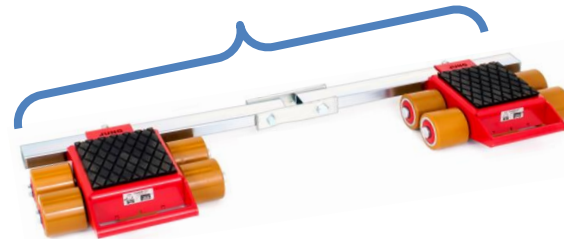


**5
tons**



**Load Capacity
EACH**

10 tons



If you are planning on mixing and matching the machine skates, please refer to the “load capacity **each**” on the website.



If you are also looking for a solution for lifting your load onto the skates, please see our toe jacks.



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