

Choosing the right tug or mover

1 Determine the weight and incline of the load being moved

The nominal towing capacity of our tugs relates to the weight that can be pulled on a flat surface (with a friction coefficient of 0.5 such as dry concrete or bitumen).

The practical rule of thumb to determine which tug is right for your application is to get the pull force (in kilograms) required to start your load moving (on the worst case surface of your application) and divide it by 0.04. This will give you the pulling power required.

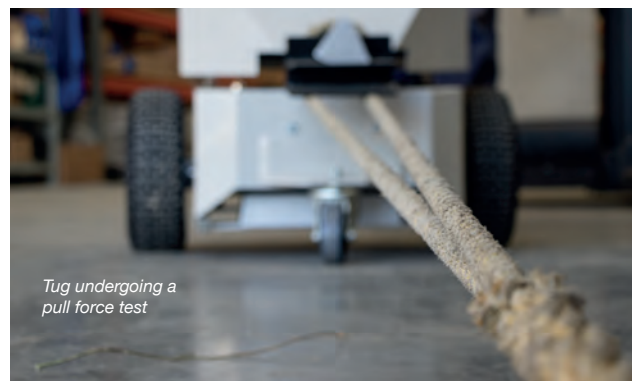
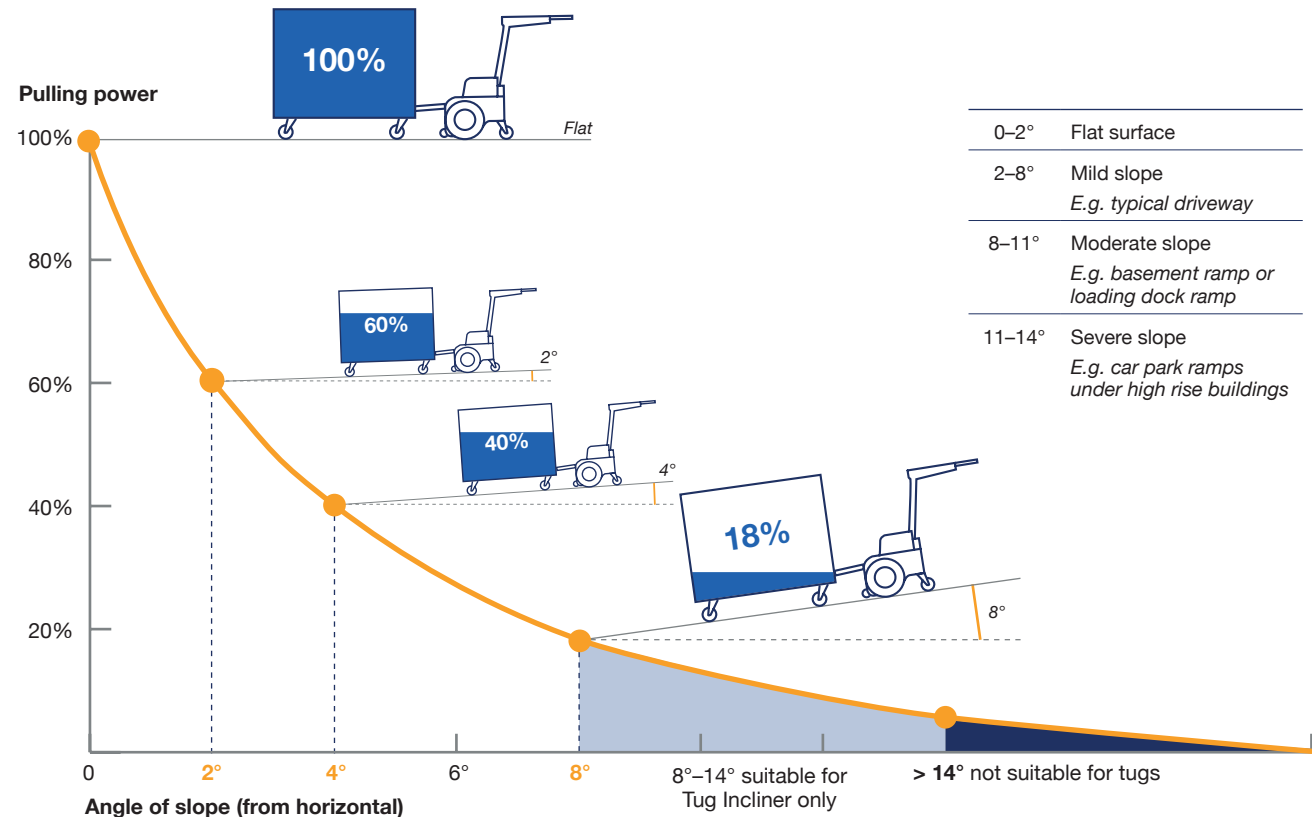
$$\frac{\text{Pull force (kg)}}{0.04} = \text{Pulling power (kg)}$$

So, for example, if it takes 30 kg of pull force to get your trolley moving on your intended surface, divide this by 0.04 to identify the pulling power required of 750 kg, meaning that you will need a tug that can pull more than the Tug Compact (500 kg), and would need the power of a Tug Evo 1T, which will exceed your pull force comfortably.

Measuring the pull force required to start the load moving can be done with a weight scale—of the type used to weigh produce at the green grocers, or the more modern digital luggage scales such as those shown in the photos above.

It is important to measure the pull force required on the worst case of your application. Perhaps a linen cart will need to follow a route that includes the flat internal hospital passageways on carpet, as well as an outside bitumen area with a 6 degree slope. Make sure you measure the worst case scenario—in this example, the outside inclined area when wet (to simulate the added slipperiness that occurs when raining).





A final ‘top tip’: measuring the incline can be done with a smart phone app. Go to your app store and search for “measure incline” or “measure slope” or “spirit level” and you’ll have many options to choose from for both Apple and Android smart phones.



Tug undergoing a pull force test



2 Determine whether it will be used in confined spaces

Suitable for confined spaces		
	Tug Compact	Very small footprint and turning circle
	Tug Evo 1T and 2T	Ideal for moving heavy weights from 1–3.5 Tonnes
	Tug Classic 3.5T	
	Tug Flex	Excellent for ramps such as steep basement driveways
	Gzunda bed movers	Perfect for navigating hospital corridors
	Transpak Powered Trolley	Great for moving multiple small objects
Suitable for open spaces		
	Tug Flex	Excellent for ramps and outdoor terrain
	Tug Flex	Perfect for moving very heavy loads over 3.5 Tonnes, and up to 20 Tonnes
	Tug Tough 10T and 20T	

3 Determine if the load will have existing hitch points

Tug hitches to suit the most popular trolleys



Pin hitch

Auto-latching hitch

Lock-tow hitch

Hitches that adapt to different trolley designs



Clamping hitch

Strap hitch

Hitches for bed movers



Strap hitch

Gripper hitch
Available in ranges
5–35 mm, 20–40 mm,
35–55 mm

Ratchet hitch

4 Determine the load's wheel configuration

Castor configuration will affect towing

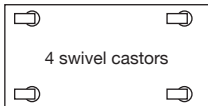
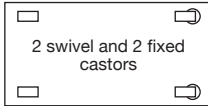
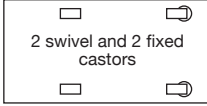
Four swivel castors will not trail properly behind the towing unit—they will cut corners rather than follow the unit. They will also tend to whip—over correct any sideways displacement and sway from side-to-side as they travel.

These problems become more acute if more trolleys are linked in a train. We offer fixed wheel skate hitch (pictured) accessories to correct this problem for situations where it's not feasible to replace two of the four swivel castors on an existing trolley fleet.



If two fixed castors are used at the rear of the trolley it eliminates the whip, and improves trailing and towing.

An ideal configuration is to mount 2 swivel castors 1/6 of the length of the trolley from the front of the trolley and two fixed castors 1/3 of the length of the trolley from the rear. This gives little whip, and good trailing. Note though, that such trolleys should not have a heavy load concentrated at the rear end or they will tip backwards.

DIRECTION OF TRAVEL →	Trailing	Whip	Stability
	Poor	Bad	Very good
	Good	Least	Very good
	Good	Little	Good