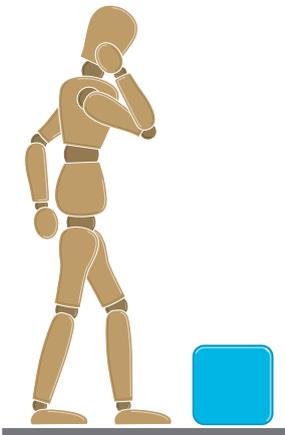


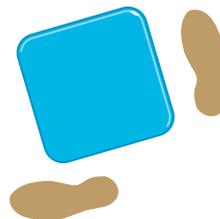
# Manual handling at work

## A brief guide

Here are some practical tips to assist you in conducting safe manual handling during maintenance or pontoon operations.



**Think before lifting/handling.** Plan the lift. Can handling aids be used? Where is the load going to be placed? Will help be needed with the load? Remove obstructions such as discarded wrapping materials. For a long lift, consider resting the load midway on a table or bench to change grip.



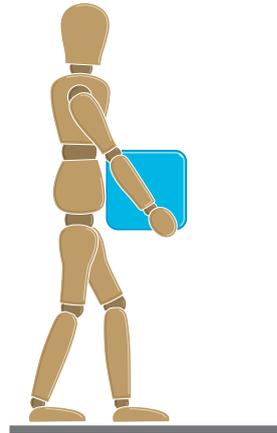
**Adopt a stable position.** The feet should be apart with one leg slightly forward to maintain balance (alongside the load, if it is on the ground). The worker should be prepared to move their feet during the lift to maintain their stability. Avoid tight clothing or unsuitable footwear, which may make this difficult.



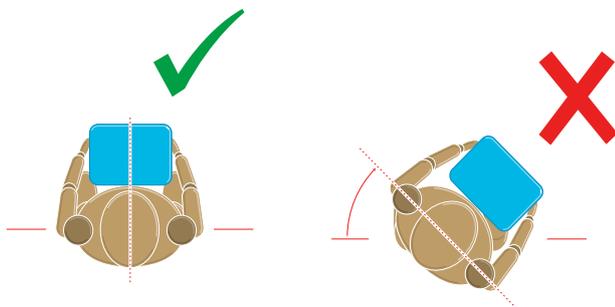
**Get a good hold.** Where possible, the load should be hugged as close as possible to the body. This may be better than gripping it tightly with hands only.

**Start in a good posture.** At the start of the lift, slight bending of the back, hips and knees is preferable to fully flexing the back (stooping) or fully flexing the hips and knees (squatting).

**Don't flex the back any further while lifting.** This can happen if the legs begin to straighten before starting to raise the load.

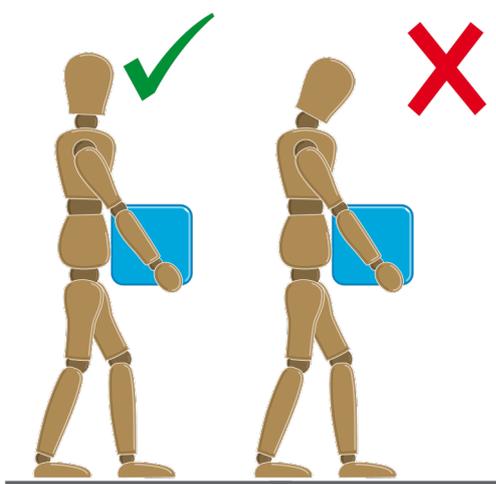


**Keep the load close to the waist.** Keep the load close to the body for as long as possible while lifting. Keep the heaviest side of the load next to the body. If a close approach to the load is not possible, try to slide it towards the body before attempting to lift it.



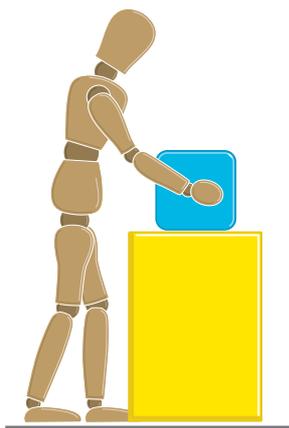
**Avoid twisting the back or leaning sideways,** especially while the back is bent. Shoulders should be kept level and facing in the same direction as the hips. Turning by moving the feet is better than twisting and lifting at the same time.

**Keep the head up when handling.** Look ahead, not down at the load, once it has been held securely.



**Move smoothly.** The load should not be jerked or snatched as this can make it harder to keep control and can increase the risk of injury.

**Don't lift or handle more than can be easily managed.** There is a difference between what people can lift and what they can safely lift. If in doubt, seek advice or get help.



**Put down, then adjust.** If precise positioning of the load is necessary, put it down first, then slide it into the desired position.

## Good handling technique for pushing and pulling

Here are some practical points to remember when loads are pushed or pulled.

**Handling devices.** Aids such as barrows and trolleys should have handle heights that are between the shoulder and waist. Devices should be well maintained with wheels that run smoothly. The law requires that equipment is maintained. When you buy new trolleys etc, make sure they are good quality with large diameter wheels made of suitable material and with castors, bearings etc which will last with minimum maintenance. Consulting your employees and safety representatives will help, as they know what works and what doesn't.

**Force.** As a rough guide the amount of force that needs to be applied to move a load over a flat, level surface using a well-maintained handling aid is at least 2% of the load weight. For example, if the load weight is 400 kg, then the force needed to move the load is 8 kg. The force needed will be larger, perhaps a lot larger, if conditions are not perfect (eg wheels not in the right position or a device that is poorly maintained). The operator should try to push rather than pull when moving a load, provided they can see over it and control steering and stopping.

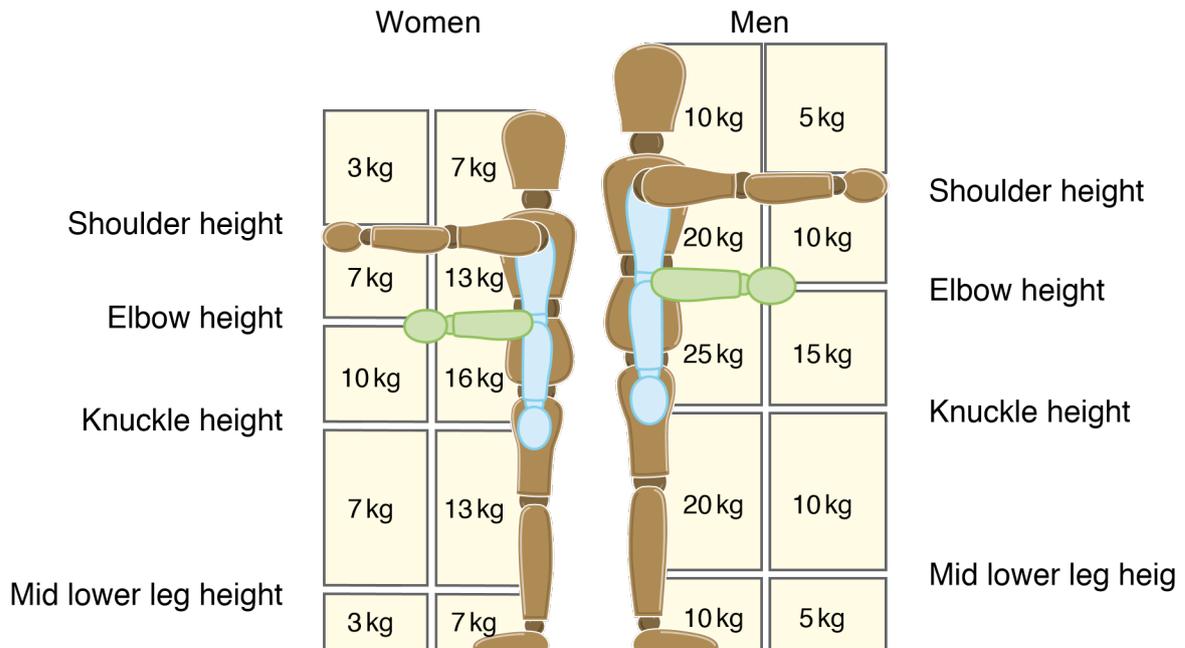
**Slopes.** Employees should get help from another worker whenever necessary, if they have to negotiate a slope or ramp, as pushing and pulling forces can be very high. For example, if a load of 400 kg is moved up a slope of 1 in 12 (about 5°), the required force is over 30 kg even in ideal conditions – good wheels and a smooth slope. This is above the guideline weight for men and well above the guideline weight for women.

**Uneven surfaces.** Moving an object over soft or uneven surfaces requires higher forces. On an uneven surface, the force needed to start the load moving could increase to 10% of the load weight, although this might be offset to some extent by using larger wheels. Soft ground may be even worse.

**Stance and pace.** To make it easier to push or pull, employees should keep their feet well away from the load and go no faster than walking speed. This will stop them becoming too tired too quickly.

**Below are guideline maximum loads for lifting and lowering.**

The guideline weights assume that the load is readily grasped with both hands and that the operation takes place in reasonable working conditions, with the lifter in a stable body position. They are for an average build person in good health and need to be adjusted downwards for those of slighter build, over 50s and those with health issues or disabilities that impact on load lifting.



**Figure 1** Lifting and lowering

**Twisting**

Reduce the guideline weights if the handler twists to the side during the operation. As a rough guide, reduce them by 10% if the handler twists beyond 45°, and by 20% if the handler twists beyond 90°.

**Frequent lifting and lowering**

The guideline weights are for infrequent operations – up to about 30 operations per hour – where the pace of work is not forced, adequate pauses to rest or use different muscles are possible, and the load is not supported by the handler for any length of time. Reduce the weights if the operation is repeated more often. As a rough guide, reduce the weights by 30% if the operation is repeated once or twice a minute, by 50% if it is repeated 5–8 times a minute, and by 80% where it is repeated more than 12 times a minute.

**Pushing and pulling**

The task is within the guidelines if the figures in Table 2 are not exceeded:

**Table 2**

	Men	Women
Force to stop or start the load	20 kg	15 kg
Sustained force to keep the load in motion	10 kg	7 kg

## **Basic principles of manual handling**

There are some basic principles that everyone should observe prior to carrying out a manual handling operation:

- ensure that the object is light enough to lift, is stable and unlikely to shift or move
- heavy or awkward loads should be moved using a handling aid
- make sure the route is clear of obstructions
- make sure there is somewhere to put the load down wherever it is to be moved to
- stand as close to the load as possible, and spread your feet to shoulder width
- bend your knees and try and keep the back's natural, upright posture
- grasp the load firmly as close to the body as you can
- use the legs to lift the load in a smooth motion as this offers more leverage reducing the strain on your back
- carry the load close to the body with the elbows tucked into the body
- avoid twisting the body as much as possible by turning your feet to position yourself with the load.

## **Lifting and handling in teams (This is pertinent to DSG when lifting Hansa/Access dinghies and outboards engines)**

Team lifting needs to be co-ordinated properly. Try and make sure that those lifting are around the same height and build, make sure one person is responsible for giving instructions, etc.. Make sure that everyone lifts, moves off, stops and places the load down at the same time.

Lifting in teams does not mean that the weight of the load can be doubled for each extra person in the team. For example, for a lifting team of two people the load should only be increased by two thirds the sums of their individual capabilities.

This means that if the risk assessment decided that it was okay for one person to lift a load of 20kg, using two people would mean that the load should not exceed around 26.6kg - not that it's okay to lift a load of 40kg.