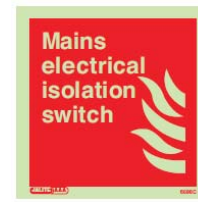


Dry powder fixed installation



10 MANUAL HANDLING

10.1 Introduction

10.1.1 This chapter identifies some areas that may require attention in respect of manual handling. In all cases, a risk assessment should be used as the basis for appropriate control measures, which should be put in place to protect those who may be affected.

10.1.2 The assessment should take full account not only of the characteristics of the load and the physical effort required but also of the working environment (e.g. ship movement, confined space, high or low temperature, physical obstacles such as steps or gangways) and any other relevant factors (e.g. the age and health of the person, the frequency and duration of the work). A fuller list of factors to be considered is given in Annex 10.1.

10.2 General

10.2.1 The term ‘manual handling’ is used to describe any operation that includes any transporting or supporting of a load, lifting, putting down, pushing, pulling, carrying or moving by hand or bodily force. This guidance is generally concerned with preventing musculoskeletal injury.

10.2.2 There may, of course, be other hazards to those handling loads (e.g. from leakage of a hazardous substance from a package that is being moved) but these are dealt with in other relevant chapters.

10.2.3 Musculoskeletal injuries can occur as a result of accident, poor organisation or an unsatisfactory working method.

10.3 Role of the Company

S.I. 1998/2857, Reg. 5 and MGN 90(M+F)

10.3.1 So far as reasonably practicable, the Company is required to take appropriate measures or provide the means to:

Assess the risk of injury from any hazardous manual-handling activity.

Avoid the need for any hazardous manual-handling operations, which may cause injury to seafarers, e.g. by re-organisation of the work, or automating or mechanising the operation.

Reduce the risk of injury from hazardous manual handling.

Provide information on the weight of each load and, if appropriate, which side is heaviest.

Train seafarers in appropriate manual-handling techniques. Before instructing personnel to lift or carry by hand, where there is a risk of injury, Companies should consider whether alternative means of doing the same job would reduce this risk.

10.3.2 Means of reducing the risk of injury may include:

- re-organisation of the workplace (to enable seafarers to maintain good posture while lifting or carrying); and
- taking account of an individual's capabilities when allocating tasks.

10.3.3 There are often limitations in a ship on the improvements that can be made but the Company should ensure that, as far as reasonably practicable, risks have been minimised.

10.3.4 Instruction for personnel should involve experienced and properly trained seafarers demonstrating best practice, especially to new recruits.

Advice to seafarers

You should make full and proper use of any system of work provided by the Company.

Reg. 6

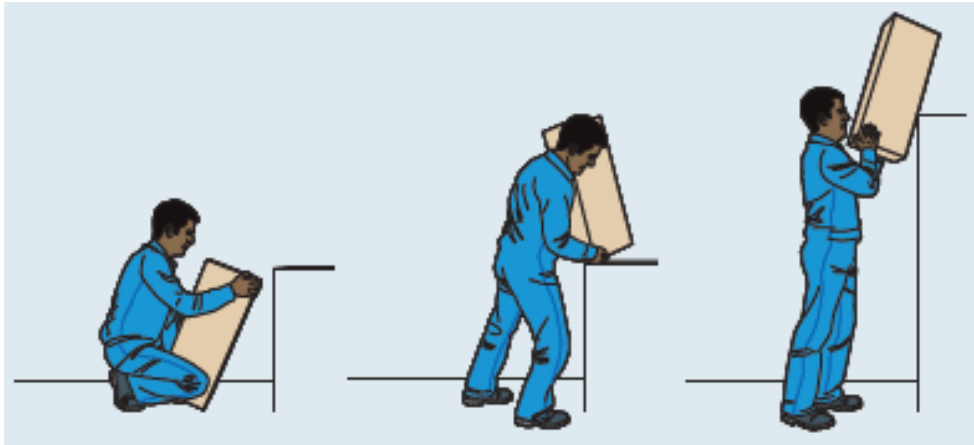
You should:

- use any mechanical aids provided;
- follow appropriate systems of work laid down for your health and safety;
- take sensible precautions to ensure that you are aware of any risk of injury from a load before picking it up;
- cooperate on all health and safety matters;
- inform your line manager if you identify hazardous handling activities;
- plan the lift – where is the load to be placed?

consider whether you need any help with the load. Some loads require two or more people to lift safely. Are there appropriate handling aids you could use?

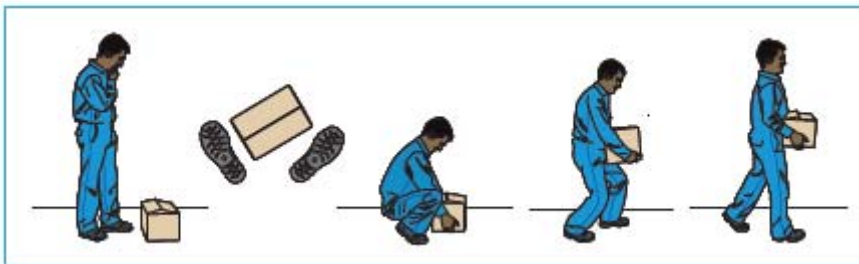
For a long lift, such as deck to shoulder height, consider resting the load midway

in order to change grip;



- assess the load to be lifted, taking account of any information provided (see guidance textbox in Annex 10.1);
- look for sharp edges, protruding nails or splinters, surfaces that are greasy or otherwise difficult to grip and for any other features that may prove awkward or dangerous, e.g. sacks of ship's stores may be difficult to get off the deck;
- ensure that the deck or area over which the load is to be moved is free from obstructions, especially in narrow accesses, and is not slippery; and
- check the final stowage location to ensure that it is clear and suitable for the load.

10.4 Good manual-handling techniques



10.4.1 The diagram illustrates some important points in lifting techniques:

- The load and the lift should be assessed before lifting.
- A firm, stable and balanced stance should be taken, close to the load with the feet apart but not too wide, with one leg slightly forward to maintain balance, so that the lift is as straight as possible.
- At the start of the lift and when lifting from a low level or deck, a crouching position should be adopted, with knees and hips bent, whilst maintaining the natural curve of the

back to ensure that the legs do the work. It helps to tuck in the chin while gripping the load and then raise the chin as the lift begins.

- The load should be gripped with the whole of the hand, not fingers only. If there is insufficient room under a heavy load to do this, a piece of wood should be put underneath first. A hook grip is less tiring than keeping the fingers straight. If the grip needs to be varied as the lift proceeds, this should be done as smoothly as possible.
- The load should be lifted by straightening the legs, keeping it close to the body. The heaviest side should be kept closest to the trunk. The shoulders should be kept level and facing the same direction as the hips. Turning by moving the feet is better than twisting and lifting at the same time. Look ahead, not down at the load, once it is held securely.

10.4.2 When two or more people are handling a load, it is preferable that they should be of similar stature. The actions of lifting, lowering and carrying should, as far as possible, be carried out in unison to prevent strain and any tendency for either person to overbalance.



10.4.3 The procedure for putting a load down is the reverse of that for lifting: the legs should do the work of lowering with knees bent, back straight and the load close to the body. Care should be taken not to trap fingers. The load should not be put down in a position where it is unstable. If precise positioning is necessary, the load should be put down first and then slid into the desired position.

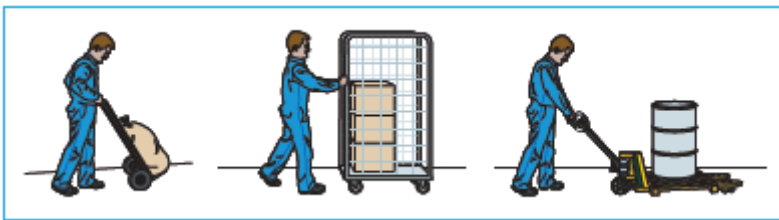
10.4.4 A load should always be carried in such a way that it does not obscure vision, so allowing any obstruction to be seen.

10.4.5 The risk of injury may be reduced if lifting can be replaced by controlled pushing or pulling. For example, it may be possible to slide the load or roll it along. However,

uncontrolled sliding or rolling, particularly of large or heavy loads, may introduce fresh risks of injury. Particular care must be taken if:

- stooping, stretching or twisting is likely;
- hands on the load are not between waist and shoulder height;
- the deck area is insecure or slippery;
- force is applied at an angle to the body;
- the load makes sudden or unexpected movements; and
- if the vessel is rolling or pitching.

10.4.6 For pulling and pushing, a secure footing should be ensured, and hands applied to the load at a height between waist and shoulder wherever possible. Wheels on barrows and trolleys should run smoothly, and the supervisor or safety officer should be informed if the equipment provided is not suitable, or is in poor condition.



A further option, where other safety considerations allow, is to push with the worker's back against the load, using the strong leg muscles to exert the force.



10.4.7 Even a gentle uphill slope dramatically increases the force needed to push an object, so help may be necessary when moving a load up a slope or ramp. Care should be taken with unbraked trolleys and sack trucks on a moving/rolling deck, because sudden changes in the

angle of deck and direction of the slope may result in loss of control and injury. If a trolley becomes loose, do not try to stop it by standing in its way, but get behind it and try to act as a brake.

10.4.8 Care must be taken with the laying out of heavy mooring ropes and wire ropes/hawsers. This duty requires a good technique initially in lifting the heavy eye of the rope, followed by a good pulling technique. Crews should make sure that there are enough people available to do the task safely.

10.4.9 When moving a load, such as a barrel or drum, rolling the load may be a safer operation than lifting it. Care must still be taken, and the use of a trolley should be considered for heavy or large barrels or drums.



10.4.10 Suitable shoes or boots should be worn for the job. Protective toecaps help to guard toes from crushing if the load slips.

10.4.11 Clothing that does not catch in the load and gives some body protection should be worn.

10.4.12 Where the work is very strenuous (e.g. due to load weight, repetitive effort over a period or environmental factors, such as a confined space or an extreme of temperature), rest

should be taken at suitable intervals to allow muscles, heart and lungs to recover. Fatigue makes accidents more likely on work of this type.

10.4.13 Whenever possible, manual lifting and carrying should be organised in such a way that each person has some control over their own rate of work.

ANNEX 10.1 FACTORS TO BE CONSIDERED

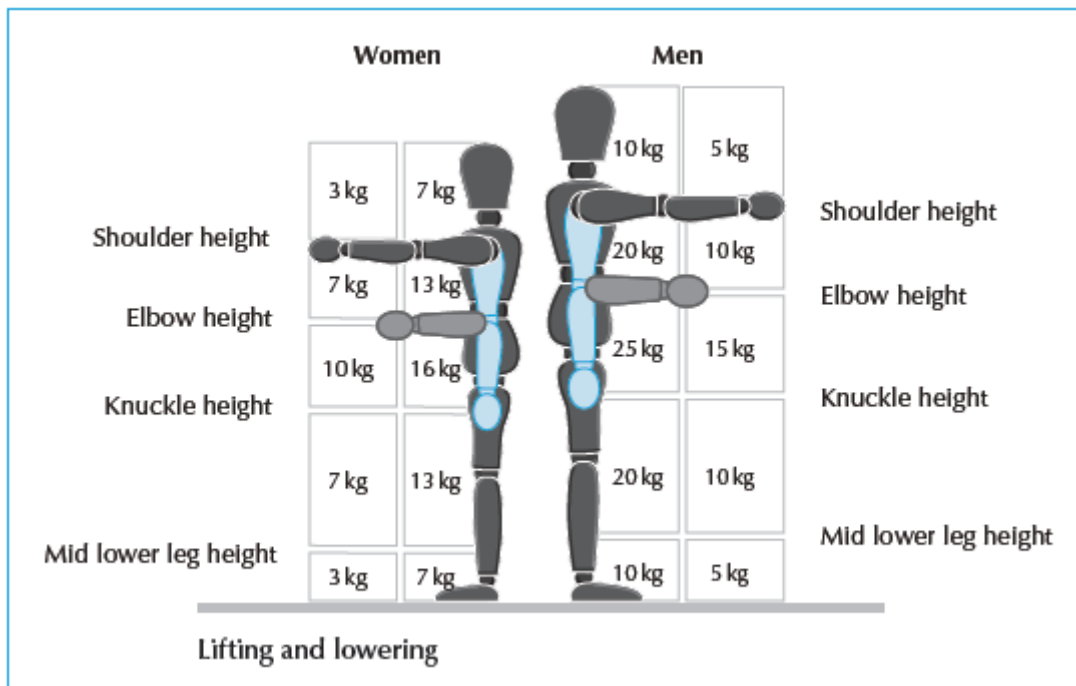
The following are examples of the factors to which the Company should have regard, and the questions they should consider when making an assessment of manual-handling operations or providing instruction for personnel.

Plain text gives the general factors and questions to be considered in the risk assessment carried out under the regulations. *Additional specific factors that may be found on board ship are included for guidance (text in italics).*

Factors	Questions
1. The tasks	<p>Do they involve:</p> <ul style="list-style-type: none"> ● activity that is too strenuous? ● holding or manipulating loads at distance from trunk? ● unsatisfactory or unstable bodily movement or posture, especially: <ul style="list-style-type: none"> – twisting the trunk? – stooping? – reaching upward? ● excessive movement of loads, especially: <ul style="list-style-type: none"> – excessive lifting or lowering distances? – excessive carrying distances? ● risk of sudden movement of loads? ● frequent or prolonged physical effort, particularly affecting the spine? ● insufficient rest or recovery periods? ● a rate of work imposed by a process? ● <i>climbing up or down stairs?</i> ● <i>handling while seated?</i> ● <i>use of special equipment?</i> ● <i>team handling?</i>
2. The loads	<p>Are they:</p> <ul style="list-style-type: none"> ● heavy? ● bulky or unwieldy, or difficult to grasp? ● unstable or with contents that are likely to shift? ● likely, because of the contours and/or consistency, to injure workers, particularly if the individual collides with someone or something?

	<ul style="list-style-type: none"> ● <i>wet, slippery, very cold or hot and, therefore, difficult to hold?</i> ● <i>sharp?</i> ● <i>potentially damaging/dangerous if dropped?</i>
3. The working environment	<ul style="list-style-type: none"> ● <i>Are there space constraints preventing the handling of loads at a safe height or with good posture?</i> ● <i>Is there an uneven, slippery or unstable deck surface?</i> ● <i>Are there variations in level of deck surfaces (e.g. door sills) or work surfaces?</i> ● <i>Are there extremes of temperature or humidity?</i> ● <i>Has account been taken of the sea state, wind speed and the unpredictable movement of the vessel?</i> ● <i>Are there steps, stairs or ladders or self-closing doors to be negotiated?</i> ● <i>Is the area adequately lit?</i> ● <i>Is movement or posture hindered by personal protective equipment or by clothing?</i>
4. Individual capability	<p>Is the individual:</p> <ul style="list-style-type: none"> ● <i>physically unsuited to carrying out the task, either because of the nature of the task or because of a need to protect an individual from a danger that specifically affects them?</i> <ul style="list-style-type: none"> – <i>i.e. does the job require unusual strength, height, etc.?</i> – <i>is there a hazard to those who might reasonably be considered unsuited to the task?</i> – <i>does it pose a risk to those who are pregnant or have a health problem?</i> ● <i>wearing unsuitable clothing, footwear or other personal effects?</i> ● <i>inadequately experienced or trained?</i> ● <i>inadequately equipped?</i>

The diagram below shows guidelines for safe weights for manual handling.



The guidelines for safe weight vary depending on the capacity of the individual and also the position in which the weight is held. Subject to risk assessment, lighter weights may be safely lifted with arms extended or at high or low levels. The diagram above gives guidelines, which will reduce the risk of harm. The safe weight is reduced if the seafarer has to twist or carry out the lift repeatedly (say more than 30 times per hour). Consideration should also be given to the movement of the vessel during the risk assessment for the task. If the load moves through more than one box, use the lower weight as the safe weight.

11 SAFE MOVEMENT ON BOARD SHIP

11.1 Introduction

11.1.1 Providing conditions for safe movement on board ship is considered to be an integral part of ensuring a safe working environment on board, as required by the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997, regulation 5(2)(e).

Following the principles and guidance in this chapter will generally be considered to demonstrate compliance with the duty to ensure a safe working environment on board ship. Where different measures are taken to provide a safe movement, these alternative measures must provide at least an equivalent level of safety in the operating conditions at the time.