M0-EN.7 Manual Handling Assessment

Manual handling includes a broad variety of tasks such as lifting, lowering, pushing, pulling and carrying. If any of these tasks are not carried out safely then there is a risk of injury. More than a third of all reported injuries, which result in someone being off work for more than 3 days are caused by manual handling. Through the early reporting of symptoms, proper treatment and suitable return to work plans, most people recover from their injuries and return to their employment. However, for a number of persons, an injury may cause them to take long periods off work and perhaps even leave work permanently.

M0-EN.7.1 Legal Framework

According to the **Council Directive 90/269/EEC** of 29 May 1990 on the minimum health and safety requirements for the manual handling of loads where there is a risk particularly of back injury to workers (fourth individual Directive within the meaning of Article 16 (1) of Directive 89/391/EEC), 'manual handling of loads' means any transporting or supporting of a load, by one or more workers, including lifting, putting down, pushing, pulling, carrying or moving of a load, which, by reason of its characteristics or of unfavourable ergonomic conditions, involves a risk particularly of back injury to workers.

According to the Article 3 of the Directive:

- The employer shall take appropriate organizational measures, or shall use the appropriate means, in particular mechanical equipment, in order to avoid the need for the manual handling of loads by workers.
- Where the need for the manual handling of loads by workers cannot be avoided, the employer shall take the appropriate organizational measures, use the appropriate means or provide workers with such means in order to reduce the risk involved in the manual handling of such loads, having regard to different factors (see section M0-EN.7.3).

Article 4 of the Directive refers to the organization of workstations. Wherever the need for manual handling of loads by workers cannot be avoided, the employer shall organize workstations in such a way as to make such handling as safe and healthy as possible and:

- assess, in advance if possible, the health and safety conditions of the type of work involved, and in particular examine the characteristics of loads, taking into account the different factors (see section M0-EN.7.3);
- take care to avoid or reduce the risk particularly of back injury to workers, by taking appropriate measures, considering in particular the characteristics of the working environment and the requirements of the activity, taking account the different factors (see section M0-EN.7.3).

M0-EN.7.2 Organization and Realization of the Risk Assessment

The assessment can be carried out either by one individual or by teams in more complicated cases, especially when the assessment of the design of equipment or of

the layout has to be included. In all cases, the assessor/s need to have at least a good knowledge of:

- The nature of the handling operations
- A basic understanding of human capabilities
- The high risk activities in the workplace under assessment
- Practical means of reducing risk

For large workplaces with a variety of activities the assessment needs to be carried out on the basis of sections, job titles, processes, services provided or work stations. The information that the assessor/s need to collect prior to the on-site visit include:

- Past accident investigation reports (for accidents related to manual handling)
- Ill health records
- Operating procedures, safety handbooks that make a reference to manual handling activities and precautions

As in all cases of risk assessment sufficient time has to be spent on site, to look at the manual handling activities that take place. Issues that need to be noticed include:

- The handling techniques adopted by the employees
- The level and manner of use of handling aids and their effectiveness
- The physical conditions of the workplace (e.g. flooring, housekeeping, lighting, width of corridors)

During the discussions with the workforce itself, the assessor would need to acquire information concerning:

- The level of training of the employees on handling techniques
- The availability of assistance when needed
- The procedures being followed when the handling equipment or handling aids break down or are unavailable
- The extend of manual handling in the employees' working tasks

Furthermore, the assessor needs to get information on any possible working variations between the different working shifts, on seasonal variations or day-to-day variations

M0-EN.7.3 Factors to be considered during the manual handling risk assessment

It is impractical to say if one particular load is safe to lift or to set general weight limits for manual handling. Risk of an injury might be affected by several factors such as indicated in the following table.

Factors	The main issues to be taken into account
Nature of the Load	• Weight, size, shape, rigidity of the load • Bulk of the load (including the effects of wind on large loads, the possibility of loads hitting obstructions, or loads with offset centers of gravity) • Grip positions (inefficient grip positions could lead to loss of control of the load)

	• Instability of the load • Sharp edges, rough surfaces, hot or cold surfaces
Working Environment	• Space constraints (e.g. restricted headroom, low work surfaces) may result in unsatisfactory postures • Uneven, slippery or unstable floors • Moving workplaces (e.g. boats, trains, elevating work platforms) introduce unpredictability in footing • Flooring (e.g. steep slopes, steps, ladders), slipperiness of the flooring, Change of level of work surfaces • Temperature and/or humidity extremes • Inadequate ventilation or gusts of winds • Poor lighting
Individual Capability	• Gender • Age • Experience • Pregnancy • Disability • Previous injury or ill-health • Clothing, footwear
Task Related Factors	• Holding or manipulating loads at a distance from the trunk • Incorrect body movement or posture • Excessive lifting of loads • Excessive pushing or pulling
Work Organization	• Frequent or prolonged physical effort • Rate of work imposed by a process • Opportunities for rest and recovery
Training	• Type and frequency of training on good handling techniques (see below)

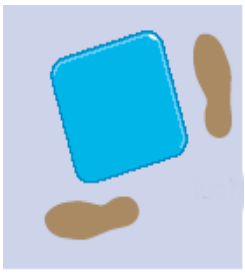
M0-EN.7.4 Good Handling Techniques for Safe Manual Handling

M0-EN.7.4.1 Safe Lifting

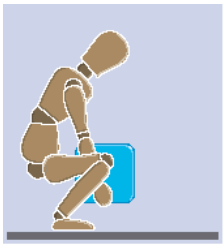
A good handling technique with a lifting operation as an example is given below. The advices are practical and suitable for use in training the employees on safe manual handling.

- **Workers must think before the lifting/handling.** It is good to plan the lift. Can they use handling aids? Where is the load going to be placed? Will they need help with the load? Any kind of obstructions such as discarded wrapping materials must be moved. For a long lift, they must consider resting the load midway on a table or bench to change grip.

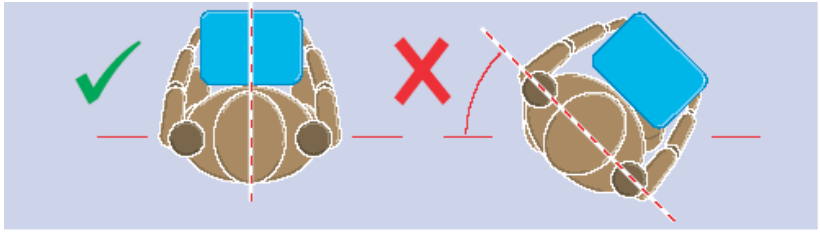
- **The load must be kept close to their waist.** The load must be close to the body for as long as possible while lifting. The heaviest side of the load must be kept next to the body. If a close approach to the load is not possible, they should try to slide it towards the body before attempting to lift it.



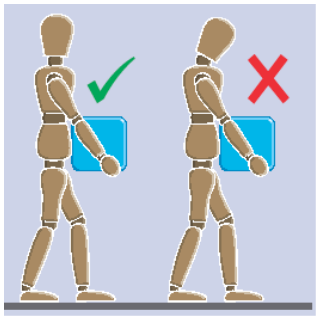
- **A stable position should be adopted.** Their feet should be apart with one leg slightly forward to maintain balance (alongside the load, if it is on the ground). The worker should be prepared to move their feet during the lift to maintain their stability. Tight clothing or unsuitable footwear is good to be avoided, because they might make this task difficult.
- **The worker must 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.
- **A good start is made with 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).

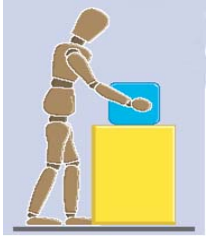


- **They must never flex the back any further while lifting.** This can happen if the legs begin to straighten before starting to raise the load.
- **It is better to avoid twisting their back or leaning sideways,** especially while the back is bent. Shoulders should be kept level and facing in the same direction as the hips. Turning by moving the feet is better than twisting and lifting at the same time.



- **The head must be kept up when handling.** The worker must look ahead, not down at the load, once it has been held securely.
- **Worker must 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.





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

- **It is important for workers to remember that they don't have to lift or handle more than they can easily manage.** There is a difference between what people can lift and what they can safely lift. If in doubt, they must always seek advice or get help.

M0-EN.7.4.2 Safe Pushing and Pulling

In general, pushing is safer over pulling, provided that the operator can see over the load and control steering and stopping. The workers should always use handling devices

- **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. When purchasing new trolleys etc, they must be of good quality with large diameter wheels, made of suitable material and with castors, bearings etc which will last with minimum maintenance. The 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 mass is 400 kg, then the force needed to move the load is 80 N. The force required is much larger if, for example, the wheels of the handling aid are not in the right position or the device is poorly maintained.
- **Slopes.** Employees should ask for help from another worker whenever necessary if they have to move a load over a slope or ramp, as pushing and pulling forces can be very high.
- **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.

M0-EN.7.5 Key Elements for Avoiding or Reducing the Risks

Measures	Means
Elimination of manual handling	• Redesign of processes or activities • Use of transport where possible
Automation or mechanization	• Use of mechanical handling solutions such as: mechanical lifting devices, manually operated lifting devices, powered conveyors, trolleys and trucks, lifting tools
Load-related measures	• Reduction of the load's size or weight • Making the load easier to grasp • Increase of the load's stability

Task-related measures	• Reduction of lifting and carrying by pushing, pulling, sliding or rolling techniques • Avoid the need for handling in seated positions • Allow loads to be held close to the body • Use leg muscles rather than arms or shoulders • Limit the frequency of lifting • Provide rest breaks • Introduce job rotation within work teams
Work environment related measures	• Provision of clear handling space • Provision of even and firm floors • Reduction of sharp changes on work levels • Provision of appropriate lighting • Provision of adequate thermal environment and ventilation