

### 1. Definitions

1. **Manual Transportation Work** - any type of transporting or supporting of objects, materials, or loads by one or more workers, including work such as lifting, hoisting, stacking, pushing, shoving, etc.
2. **Odd job** (short-temporarily task) - work in which manual handling of objects, loads or materials occurs no more than 4 times per hour.
3. **Constant work** - work that is performed **regularly** in one shift.
4. **Auxiliary equipment** - these are means to reduce hazards and annoyances associated with manual handling of objects, loads or materials and to facilitate these activities, they include e.g. belts, ropes, slings, levers, grippers, rollers, tongs, baskets, wheelbarrows, carts, etc.

### 2. General informations

1. When organizing work, remember to provide employees with:
  - a) take breaks during physical activity,
  - b) eliminate prolonged strain on the musculoskeletal system, particularly the spine,
  - c) reduce manual handling distances to a minimum,
  - d) ergonomic workstation.
2. During manual handling operations, arrange for properly selected auxiliary equipment.
3. The net energy expenditure required to perform physical work involving lifting, carrying and physical exertion shall not exceed during a work shift for:
  - women 5000 kJ, and in odd job 20 kJ/min,
  - men 8400 kJ and in odd job work 30 kJ/min.

*The energy expenditure consists of the sum of the products of the time of performing individual activities (in minutes) during a work shift and the unit energy expenditure specified in the unit of kilojoules / minute (kJ / min) or kilocalories / minute (kcal / min).*

4. When planning manual handling operations, consider the need to avoid manual handling when:
  - a) load is too heavy, unstable or of an unusual shape,
  - b) texture of the load may cause injury to a worker,
  - c) transport can only be carried out in a twisted trunk position,
  - d) floor or work surface has different levels and there is no sufficiently stable foot rest, it must be level and not slippery,
  - e) object being transported limits the worker's field of vision.
5. When moving, provide enough space for the worker to maintain proper body position.
6. Sharp, protruding fragments of transported loads must be protected against possible injury to employees or bystanders.
7. The packaging of the item being carried should be of suitable material for the weight. If the load is difficult to grasp, packaging should be provided with auxiliary grips.
8. It is forbidden to carry or roll objects on ramps not connected with the building with a slope angle exceeding 15° and stairs with a slope exceeding 60°.
9. It is prohibited for an employee to move between pads during transport.

#### Remember!

The object must remain stable during movement.

When performing manual handling work, the most vulnerable parts of the body to injury are:

- spine,
- shoulders,
- wrists,
- feet and hands.

Remember to pick up objects from the floor with your knees bent, your back straight, and to carry them with your arms bent at the elbow. Always carry the object as close to your body as possible, so that it does not obstruct your path. This way you will save unnecessary pain to your spine.



### 3. Manual handling of objects by one worker

#### 1. Table of standards during manual handling

No.	Transfer method	Women	Men
1.	The weight of objects carried by one worker must not exceed more than	12 kg – regular job	30 kg – regular job
		20 kg – odd job	50 kg – odd job
2.	The weight of objects carried by one employee at bar rim height shall not exceed more than	8 kg – regular job	21 kg – regular job
		14 kg – odd job	35 kg – odd job
3.	Carrying of a load by one worker for a distance longer than 25m	12 kg	30 kg
4.	When objects are carried uphill by a single worker on an uneven surface, ramp, or stairway whose maximum angle of inclination does not exceed 30 and whose height exceeds 4 meters, regardless of the length over which the objects are carried, the weight of the objects shall not exceed	8 kg – regular job	20 kg – regular job
		12 kg – odd job	30 kg – odd job
5.	It is permissible to manually roll or roll round shaped objects (especially barrels, pipes with large diameters) on a horizontal, hard and smooth surface. The weight of the objects must not exceed	80 kg	200 kg
6.	Manual rolling and shovelling of round-shaped objects (especially barrels, pipes with large diameters) on sloping terrain is permissible and may not exceed	20 kg	50 kg
7.	During two-handed handling of objects, the force required by a worker to initiate movement of an object, measured parallel to the ground, must not exceed the value <b>when pushing</b>	120 N	300 N
8.	During two-handed movement of objects, the force used by a worker to initiate movement of an object, measured parallel to the ground, must not exceed the value <b>when pulling</b>	100 N	250 N

#### Remember!



The right way to lift and carrying the item by the employee.

The surface of the transport roads should be hardened, smooth, wear-resistant and have good adhesion. Transport routes should be permanently marked horizontally (lanes) and vertically (signs, boards, banners, lighting).

The width of the transport road depends on its intended use (for means of transport, for pedestrian traffic or both) and cannot be less than 120 cm.

The weight should be transferred with the **hands lowered** - carrying a weight with the elbows bent at the joint increases the load on the muscles involved twice. The packaging of the carried object should be strong, not presenting any potential threats with its shape or edges.



### 4. Team manual handling of objects

1. The transport of objects whose length is greater than 4 m and whose weight exceeds 30 kg for men and 20 kg for women should be done in teams. It is a condition that the weight per employee does not exceed:
  - a) **regular job:**
    - 10 kg for women,
    - 25 kg for men.
  - b) **odd job:**
    - 17 kg for women,
    - 42 kg for men.
2. It is **unacceptable** to manually move loads **over a distance of more than 25 m** or weighing **200 kg for women, 500 kg for men**.
3. Moving long and heavy objects must be carried out with the use of auxiliary equipment and with the smallest possible elevation above the ground level.
4. When carrying items in a team on the shoulders, it is important that workers obey the instructions at the same time and use personal protective equipment to protect the arms.

### 5. Movement of harmful and hazardous materials

1. One worker is not allowed to carry liquid materials, e.g. hot, corrosive or harmful to health, the weight of which, together with the packaging, exceeds 10 kg for women and 25 kg for men.
2. Loads in glass vessels with corrosive substances should be transported on special trolleys. In exceptional situations, it is allowed to carry such loads by two employees, provided that the baskets are sufficiently strong.

### 6. Moving loads using manually operated cranes

1. Cranes must have clear, legible markings indicating their acceptability.
2. Winches shall have serviceable brakes and devices to allow reverse movement of the shaft and drum.
3. Winches shall be securely anchored to the floor to prevent movement.
4. Pulleys and ropes used should be selected so that it is impossible to jam or slip the rope. Elements of towing systems used during transport should meet the requirements set out in the EU Standards.
5. It is not permissible to use damaged ropes and chains in or of improper length.
6. The method used to secure the load to the hook must prevent it from sliding rapidly to the ground.
7. Lifting and lowering of loads in the place where workers are present shall be preceded by a warning signal. Passing under suspended loads is not permitted.

The employee is obliged to read the operating manual of the device and other necessary documentation. It is forbidden to use defective devices or their damaged parts. Conditions for inspecting the technical condition of slings and other transport accessories are described in standard 3.2.

#### Remember!

Remember to select employees for manual transport in terms of height, physical fitness and age, and to ensure the supervision of an experienced person. There should be a distance of 0.75 m between workers and the use of appropriate auxiliary equipment.

It is unacceptable to carry corrosive substances in glass packages on the back or in front of you.

Transport of items longer than 4 m should be done as a team.



Remember to initially assess the weight. If it exceeds the standards and your abilities - **DO NOT LIFT IT!**

If you carry the goods in one hand (e.g. a bag), the goods should be evenly distributed between two hands to prevent overload of the musculoskeletal system.

### 7. Moving loads with manually operated trolleys and wheelbarrows

1. The maximum weight of the transported load together with the weight of the trolley on flat terrain and smooth surface must not exceed:

No.	Conditions for the movement of loads	Women		Men	
		2-wheel trolleys	3- and more wheeled trolleys	2-wheel trolleys	3- and more wheeled trolleys
1.	Moving on terrain with a slope not exceeding 5%	140 kg	180 kg	350 kg	450 kg
2.	Moving on terrain with a slope exceeding 5%	250 kg	350 kg	250 kg	350 kg

2. If the transport will take place on uneven or unpaved terrain, remember that the total weight together with the trolley does not exceed 60% of the values described in point 1.
3. Trolleys should ensure stability during loading and unloading. Additionally, wheeled carriages moved on slopes must have efficient brakes.
4. The load loaded on the trolley should be evenly and steadily distributed over the trolley so that there is no possibility of the trolley tipping over due to overloading on either side.
5. The weight of the load moved on the wheelbarrow along with its weight should not exceed:
  - a) flat and smooth terrain
  - b) not exceeding 5% - 40 kg for women, 100 kg for men,
  - c) more than 5% - 30 kg for women, 75 kg for men.
  - d) uneven terrain - 60% of the values described in point 1.
6. It is not allowed to manually move items on a wheelbarrow across the terrain with a slope of more than 8% and for a distance longer than 200m.



Team transport of an item using a pallet truck

#### Remember!

Situations in which items cannot be moved:

- the item is too heavy, too large, bulky or difficult to hold,
- the item is unstable or its contents may move,
- the item is unstable or its contents may move,
- the shape or structure of the object may cause injuries to the worker, especially in the event of a collision,
- there may be sudden movements of the object,
- the workplace or its surroundings make it impossible to move the object at a height ensuring safety or with the correct body position of the employee,
- the surface is uneven, hazardous to movement, or is slippery in contact with the bottom of the employee's shoes,
- the floor and the working surface have different levels, which forces objects to be moved at different heights,
- the floor or footrest is unstable,
- the object restricts the field of view of the employee.