



Manual task solutions - Trolleys

Using a trolley can reduce the risk of injury from manual tasks. However the trolley must suit:

- the task and the materials being loaded;
- the physical characteristics of the person using it; and
- the layout of the work space.

Trolleys are produced in a wide variety of shapes and sizes and it is important to select an appropriately designed trolley and it is used as intended by the designer and manufacturer.

Selecting a trolley

The selected design should suit the load, environment, task and workers using the trolley, otherwise they may introduce new risks.

What you need to consider when selecting a trolley

Factors to consider when selecting a trolley, for more specific guidelines see *Specific trolley design guidelines*.

Factors	Considerations	Design feature
Environment	Distance	<ul style="list-style-type: none"> • Mechanical assistance • Durable castors
	Floor gradient	<ul style="list-style-type: none"> • Mechanical assistance • Speed control in handles • Safety brakes • Straps to secure load
	Grip / smoothness of floor	<ul style="list-style-type: none"> • Castor material (air pressure) • Castor diameter • Spring castors • Safety brakes
	Stairs	<ul style="list-style-type: none"> • Specially designed stair trolleys taking into account, alternative solutions, practicability and results of risk assessment
	Space available	<ul style="list-style-type: none"> • Height and width of trolley
	Availability of storage	<ul style="list-style-type: none"> • Foldable/collapsible trolley • Weight of trolley (portability)
Task, organisation and work	Carrying items to/from vehicle	<ul style="list-style-type: none"> • Overall weight of trolley • Foldable/collapsible trolley • Size of castor (for outdoor use)

Factors	Considerations	Design feature
practices	Stacking items to move	<ul style="list-style-type: none"> • Height of trolley (visibility) • Height of platform (to minimise bending) • Number of platforms • Lockable castors
	Moving items from different heights	<ul style="list-style-type: none"> • Scissor-lift or hydraulic lift trolley
	Moving items around the workplace	<ul style="list-style-type: none"> • Height of platform (to suit pick up/drop off)
	Force (initial and sustained) required to push and pull	<ul style="list-style-type: none"> • Floor gradient • Castor design and material • Floor surface • Mechanisation
	Handling items on trolley	<ul style="list-style-type: none"> • Height and adjustability of platform (to minimise bending) • Spring-loaded base or insert
	Setting up/dismantling (collapsible)	<ul style="list-style-type: none"> • Height, length, width, weight • Catch points • Handles
	Organisation and work practices-administrative processes	<ul style="list-style-type: none"> • Testing • Trialling • Maintenance • Staff training • Storage
Nature of load	Varies in dimension	<ul style="list-style-type: none"> • Sides or detachable gates • Spring-loaded base or insert • Height of platform (to minimise bending)
	Heavy - difficult to manoeuvre	<ul style="list-style-type: none"> • Number, size and configuration of castors • Mesh or bars for visibility & weight • Handles to allow grip • Capacity of trolley
	Specific load characteristics - such as: <ul style="list-style-type: none"> • predictability-person or animal • shape and form (eg drums), • hazardous (eg gas cylinders), • fragility (eg glass), • extreme temperature (eg. hot food) • hygiene and sterility (eg clinical trolleys) 	<ul style="list-style-type: none"> • Product material • Position & dimension of platform • Availability of straps • Durability • Handle height and design • Use of dollies
Worker characteristics	Number of workers with variable height	<ul style="list-style-type: none"> • Vertical handles • Width and height (visibility)

Case example: Inappropriate use of standard shopping trolleys

Employees at a commercial laundry service were using a standard shopping trolley to transport laundry from a washing machine to a dryer. This increased the risk of back injuries to workers as they were repetitively twisting and bending to either pick up or place the laundry into the shopping trolley. The risk of injury was further increased as the trolleys were difficult to move and push, particularly when full, due to the small castors which frequently clogged with lint from the floor.

The risk of injury could be reduced by providing more appropriately designed trolleys.

Design features which would have been more suitable included:

- height-adjustable or spring-loaded platforms;
- caged trolleys with a removable side;
- appropriately sized and number of castors to improve the manoeuvrability.

When selecting trolleys at your workplace and the systems to support the use of trolleys, the process should consider the trolley design features to match several aspects of the manual task, including the:

- task, organisation and work practices
- environment
- load
- worker characteristics

What you will need to consider prior to purchasing

Will employees use the trolley?

The most effective risk controls allow workers to trial solutions before they are implemented. Where possible, trolleys should be trialled by the workers who will be using the equipment. During this period workers should be consulted on the suitability of the trolley for the task. Consider obtaining information from the supplier or manufacturer and your industry association in order to establish if a trolley is suitable for the workplace.

Will pushing the trolley increase injury risk?

The push/pull forces required to move a trolley must be kept within safe limits, in order to reduce the risk of strain injuries as well as the risk of slipping while trying to move and control a trolley. Prior to purchasing a trolley, consideration should be given to the environment and the loads being moved, since the push/pull forces required to move the trolley are influenced by the weight of the loaded trolley; the floor surface and gradient; and the castor material and design.

Where will the trolley be stored?

Consider where the trolley will be stored and how easy it will be for workers to retrieve the trolley when it is required (distance, obstructions such as doors or steps between storage and trolley use areas, etc.). Workers must be able to identify where the trolley is stored.

Can we adequately maintain the trolley?

When selecting a trolley, consider the likely cost, frequency and method and type of maintenance. For example:

- Is the trolley used in outdoor or wet environments? Is there a risk of rust building up, risk of wear and tear from rough surfaces?
- Is the floor surface likely to have contaminants (for example lint, metal shavings or chemicals) which may affect the castor manoeuvrability?
- What maintenance or repair can be undertaken internally without requiring external assistance?
- Can parts such as castors, spring-loaded bases or frames be replaced or retro-fitted?
- How easy is it to find spare parts, modifications, and add-ons etc. (e.g. whether the supplier is local or parts need to be ordered)?

It is recommended that employers establish a maintenance routine to ensure the trolley is maintained, for example implementing an inspection routine, maintenance schedule and reporting system to ensure faults or damage are identified and repaired; and establishing contacts for external maintenance support.

Training

Employers must ensure that training is provided to workers to provide the skills necessary to select and safely use trolleys in the workplace. Training is most effective when it involves hands-on practice with the equipment in the workplace. The training must also include reporting problems with the trolley and other manual task hazards.

Reference list

For more information about trolley design and selection please refer to these documents:

- Health and Safety Laboratory (2004) Review of the risks associated with pushing and pulling heavy loads Health and Safety Executive Research Report 228
- WorkSafe Victoria (2012) A guide to handling large, bulky or awkward items Edition 2

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