

A GUIDE TO MANUAL HANDLING IN THE FOOD INDUSTRY

3RD EDITION

APRIL 2006

MANUFACTURING



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The information presented in *A Guide to Manual Handling in the Food Industry* is intended for general use only. It should not be viewed as a definitive guide to the law, and should be read in conjunction with the *Occupational Health and Safety Act 2004*. Whilst every effort has been made to ensure the accuracy of this Guide, the advice contained herein may not apply in every circumstance. Accordingly, the Victorian WorkCover Authority cannot be held responsible, and extends no warranties as to:

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WorkSafe Victoria is a division of the Victorian WorkCover Authority.

FOREWORD

The food industry employs over 60,000 workers and generates on average 900 claims a year. It is labour intensive and many workers suffer unnecessary injuries by being exposed to hazardous manual handling. Hazardous manual handling continues to be a long-standing issue within the industry and contributes to over 60% of the claims generated each year.

Significant work still needs to be done to reduce this number. This Guide assists by detailing common manual handling tasks and providing practical solutions to enable workers to complete these type of tasks safely.

WorkSafe encourages everyone involved in food manufacturing to read this Guide and take action to incorporate the recommended safe work practices.

WorkSafe acknowledges the Food Industry OHS Working Party, Ergonomics Unit and the many individuals who have contributed to the development of this publication for their continual dedication to improving health and safety in the food industry.

INTRODUCTION

Information contained in this Guide is derived from the 2003 guide *Manual Handling in the Food Industry* and from a workshop held during Work Safe Week 2005. The workshop brought together unions, workers, industry associations, employers, training organisations, ergonomists, industry safety consultants and health and safety representatives to share ideas for addressing the risks in the food industry due to manual handling tasks.

The Guide demonstrates both WorkSafe's and the industry's expectations on how to best reduce the risk of musculoskeletal disorders arising from manual handling in the food industry.

MANUAL HANDLING AND MUSCULOSKELETAL DISORDERS

Manual handling

For the food industry, manual handling covers a wide range of activities such as handling raw materials or packaging, handling containers both empty and full on and off conveyors, and packing and inspecting product. Many of these tasks can result in musculoskeletal disorders and other types of injury; however, not all manual handling is hazardous. Hazardous manual handling refers to manual handling with any of the following characteristics:

- Repetitive or sustained application of force
- Repetitive or sustained awkward posture
- Repetitive or sustained movement
- Application of high force
- Exposure to sustained vibration
- Manual handling of live persons or animals
- Unstable or unbalanced loads or loads which are difficult to grasp or hold.

Musculoskeletal disorders (MSD)

MSD are often referred to as 'sprains and strains'. It is a term used to describe a wide variety of injuries to the musculoskeletal system. This includes injuries to joints, ligaments, intervertebral discs and other structures in the back and injuries to joints, ligaments, tendons and nerves in the wrists, arms, shoulders, neck, abdomen and legs. Some of these conditions are sometimes described as repetitive strain injury (RSI), occupational overuse syndrome (OOS), cumulative trauma disorder (CTD) and work-related musculoskeletal disorder (WRMSD).

In the *Occupational Health and Safety (Manual Handling) Regulations 1999 (Manual Handling Regulations)*, all of these conditions are referred to as musculoskeletal disorders (MSD).

THE LEGAL FRAMEWORK

There is a legislative framework around controlling risk and consultation in the workplace. This Guide shows ways to comply primarily with the *Occupational Health and Safety (Manual Handling) Regulations 1999*.

Consultation

From 1 January 2006, all employers were required to consult their employees, so far as reasonably practicable, on matters that may directly affect employees' health, safety or welfare.

The duty to consult is based on recognition that employee input and participation improves decision-making about health and safety matters. Consultation between employers and employees is an essential part of effectively managing health and safety at work. It should not be viewed just as a legal requirement, but as a valuable means of improving the employer's decision-making about health and safety matters.

Through consultation, employers can become more aware of hazards and OHS issues experienced by employees. Employees can provide suggestions about how to solve OHS problems. This participation enables employees to contribute to determining how the work can be achieved safely.

For more information on the duty to consult, please refer to the WorkSafe Guides *Talking Safety Together* and *Consultation – A User's Guide. Information for Employees on Health and Safety* and *Information for Health and Safety Representatives* also contain specific information for employees and health and safety representatives.

The *OHS (Manual Handling) Regulations 1999*

Under the Manual Handling Regulations the employer has a duty to:

- Identify tasks involving hazardous manual handling
- Assess the risk of developing a musculoskeletal disorder associated with the task
- Control the risk by eliminating or reducing the risk so far as is practicable.

Hazard identification

This Guide identifies **28** manual handling tasks that the food industry agrees are hazardous and have resulted in MSD.

Risk assessment

Guidance is given based on the common risk factors seen in the food industry. This Guide follows the risk assessment format as used in the WorkSafe publication *Manual Handling (Code of Practice No. 25, 2000)*. It will give you some indication as to which risk factors may be in your workplace. In particular it demonstrates those that result in high risk work practices that put people at risk of developing MSD.

This Guide cannot replace the requirement for risk assessment and risk control under the Manual Handling Regulations as the risk of developing MSD will vary depending on the circumstances in your workplace.

INTRODUCTION

Risk control

Risk controls are shown in this Guide. The duty of an employer to carry out risk control under the Manual Handling Regulations requires the following actions to be taken:

1. eliminate the risk (e.g., automate or redesign to eliminate handling), or
2. if it is not practicable to eliminate the risk, reduce the risk so far as is practicable.

In either case, the risk can be controlled by any of the following ways:

- a. altering the workplace or environmental conditions (e.g., using overhead hoists)
- b. altering the systems of work (e.g., adjusting work rates, regular maintenance on equipment, job rotation, team handling)
- c. changing the objects (e.g., changing the delivery method from a bag to a bulk system)
- d. using mechanical aids (e.g., pallet lifters, height adjustable trolleys, overhead hoists or forklift attachments).

Provision of information, training and instruction in manual handling techniques cannot be used as the sole or primary way of controlling the risk unless all other ways to control risk are not practicable.

A combination of controls often gives the best solution.

Consulting employees and trialling the proposed solution can help decide if it is right for your workplace or whether further adjustments or controls are required.

You should always check the legislation referred to in this Guide and make your own judgement about what action you may need to take to ensure you have complied with the law.

Note: This Guide should be used in conjunction with the *Occupational Health and Safety (Manual Handling) Regulations 1999* and the WorkSafe publication *Manual Handling (Code of Practice No. 25, 2000)*.

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'REASONABLY PRACTICABLE' CONTROL MEASURES

The *Occupational Health and Safety Act 2004* explains what you must take into account when deciding if something is 'reasonably practicable'. In general terms, the factors to be taken into account are:

- The likelihood of the hazard or risk eventuating
- The degree of harm that would result if the hazard or risk eventuated
- What you know, or ought reasonably to know, about the hazard or risk and any ways of eliminating or reducing the hazard or risk
- The availability and suitability of ways to eliminate or reduce the hazard or risk
- The cost of eliminating or reducing the hazard or risk.

This Guide has persuasive status on what you know, or ought reasonably to know, and therefore what you should reasonably do. It is expected that employers, employees and WorkSafe inspectors will use this Guide to form an opinion about suitable health and safety risk controls, under the test of 'reasonably practicable'.

PLANT AND OTHER HAZARDS

Ensure that the introduction of risk controls to reduce risk of MSD from manual handling does not introduce other risks into your system of work. For example:

- The introduction of a forklift will require implementation of a traffic management plan to segregate pedestrians from forklifts
- When using cranes to handle items, ensure loads are carried within the manufacturer's specified working load limit (WLL) and implement a program to monitor damage to slings and cranes, etc
- Changes to equipment will require that a plant risk assessment is conducted to ensure that employees are not injured by newly introduced hazards such as trapping points or in-running nip points and that controls are put in place if risk is present.

INTRODUCTION

HOW TO USE THIS GUIDE

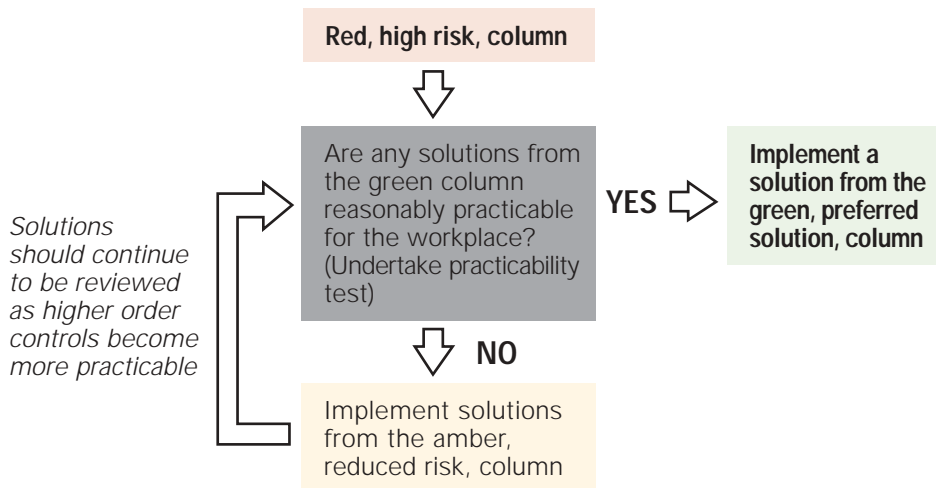
The red, amber and green or 'Traffic Light' format will help you identify high risk activities and assist your workplace to implement safer work practices. The rationale is simple: to reduce injury rates and compensation claims, high risk situations must be addressed.

Companies with work practices falling into the red, high risk area, who fail to implement risk control measures for these practices, are likely to be in breach of the legislation. More importantly they are placing the health and safety of their employees at risk. The red, high risk, column is split into two sections. One is for the actions (postures, movements or forces) that may give rise to the risk of MSD and the other is for potential sources of that risk. A better understanding about what is causing the risk of MSD (or the source of the risk) will result in more effective risk control. Potential sources of the risk are listed, although your workplace may discover other reasons why those actions are being undertaken and should control these accordingly.

If high risk practices are followed in your workplace, you should determine if you can implement the solutions in the green column. If this isn't practicable, put in place the comparable practice in the amber column as an interim solution. Within the amber and green columns, the solutions mentioned at the top are preferred and will generally be more effective than solutions at the bottom of the column.

The manual handling solutions in the amber and green sections in this Guide provide a number of different options. This is because the tasks, and hence the risk, will vary according to the specifics at your workplace. It's important to ensure that any controls that you implement address the risk factors in the task.

HIGH RISK	REDUCED RISK SOLUTION	PREFERRED SOLUTION
The practices in the red column should not be used in workplaces; an employer who allows these practices to be used is likely to be in breach of OHS legislation.	The solutions in the amber column are less effective in reducing risk, as compared to the green column, and would generally be treated as interim solutions.	The solutions in the green column are the most effective at reducing risk and should be regarded as the target for all workplaces.



Note: In most cases the solutions in the green column reflect the most effective control while the amber column provides interim solutions. However, if you are able to demonstrate that an appropriate risk assessment process has been undertaken and are able to verify that the 'reasonably practicable' test has been applied to the controls you implement, then control measures falling within the amber range may be practicable in some circumstances, although the interim solutions (amber) should be reviewed as higher order solutions (green) become more practicable.

For more information on how to identify and control these potential risks, refer to our website at www.worksafe.vic.gov.au or ring our Advisory Service on 1800 136 089.

1

HANDLING BAGS OF INGREDIENTS



Raw materials are often handled manually into hoppers, sieves, kettles and other processing plant. This plant frequently requires a material to be fed from the floor or an elevated work platform. This task can be made more difficult as contents in the bags often shift making them unbalanced and difficult to hold.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> Lifting and lowering of heavy loads. Lifting heavy loads in an awkward posture. 	<p>Pallet is located on the ground.</p>	<p>Use automated bag emptiers in combination with vacuum hoists or pallet lifters.</p> <p>Use height adjustable pallet lifters fitted with a turntable.</p>  <p><i>Rotating pallet lifter.</i></p>	<p>Replace bags with larger delivery systems such as bulk bags or intermediate bulk containers (IBC) and use automated feeding devices such as bulk feeders or suction feed devices or auger feed silos.</p>  <p><i>Forklift attachment for a bulk bag.</i></p>

HANDLING BAGS OF INGREDIENTS

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> • Lifting and lowering of heavy loads. • Lifting heavy loads in an awkward posture. 	<p>Pallet is located on the ground.</p>	<p>Provide a pallet stand or lifting aid to keep bags between knee and shoulder height.</p>  <p><i>Pallet stands.</i></p>	 <p><i>Suction feed.</i></p>  <p><i>An IBC.</i></p>  <p><i>Bulk delivery system. It can also measure or weigh the raw material, which eliminates manual handling.</i></p>

HANDLING BAGS OF INGREDIENTS

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> • Lifting and lowering of heavy loads. • Lifting heavy loads in an awkward posture. 	Pallet is located on the ground.	Reduced risk solution as per previous page.	<p>Use a vacuum lifter.</p>  <p><i>Vacuum lifter.</i></p> <p>Obtain premixed ingredients.</p>
	Pallet is on the ground and only one side of the pallet is accessible.	<p>Provide access to all sides of the pallet by providing a pallet ring to rotate the pallet allowing access from one location.</p> <p>Change orientation and/or position of pallet to allow access from at least two sides.</p> <p>Use narrow pallets or a pallet tilter mechanism to reduce reach distances.</p> <p>Note: These measures should be provided in combination with a pallet lifter keeping load between knee and shoulder height.</p>	Preferred solutions as above.
	Restraining a bag against the processing plant while being opened.	Provide height adjustable benches or a resting panel to sit bag on while being opened.	Preferred solutions as above.
	Weight of the bags.	Purchase lighter bags (the use of smaller or lighter bags may increase the frequency of handling and, depending on your circumstances, may not reduce the risk).	Preferred solutions as above.
	Tip in height requires lifting above shoulder height.	<p>Provide a platform to raise height of the worker.</p> <p>Provide a height adjustable work bench or trolley to take the bag up to the required height.</p>	<p>Preferred solutions as above.</p> <p>Use an automated tipper.</p>  <p><i>Automated tub tipping.</i></p>

Start implementing risk controls for your heaviest and/or highest volume products first.

2

HANDLING 205 LITRE DRUMS



Product is often provided in 205 litre drums. It is then decanted into smaller containers or poured directly from the drum.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> • Pushing and pulling objects that are hard to move or stop. • Lifting or lowering heavy loads. 	Weight and position of drum.	<p>Use a mechanical aid such as a drum mover or lifter with tipper if required.</p>  <p><i>Drum mover.</i></p>  <p><i>Mechanical bin tipper.</i></p> <p>Decant directly from the drum on the pallet into a container on a scissor trolley or use a drum pump.</p> <p>Use a drum truck, dolly or drum cradle.</p> <p>Use a drum tilting lever.</p>	<p>Change the delivery method; e.g., use an IBC with a funnel or tap to decant.</p>  <p><i>IBC with powered mechanical aid.</i></p> <p>Use a forklift attachment to lift and tip.</p>  <p><i>Forklift with drum attachment.</i></p>  <p><i>Forklift with drum tipper attachment.</i></p>




3

HANDLING TUBS OR CONTAINERS OF PRODUCT



Product is often required to be moved from one location to another for further processing. These products are often contained in tubs or containers. Sliding tubs of material over a wet floor can increase the risk of developing MSD as it involves exerting force in an awkward posture.

The ease of pushing and pulling tubs and other containers can be influenced by variables such as the type of floor surface and the size and type of wheels.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
High force: • Pushing and pulling objects that are hard to move or stop.	Heavy trolley and load.	Reduce size of the container or alter trolley to reduce the force required to move the load: e.g., change diameter of the wheels (see table on trolley information on next page). Use team handling as an interim solution.	Use conveyors. Move containers or trolleys using a tug.
		 <p><i>Team handling.</i></p>	 <p><i>Tug to move product.</i></p>
	Requirement to transport product.	Use a trolley to transport product.	Preferred solutions as above.
		 <p><i>Scissor trolley.</i></p>	

HANDLING TUBS OR CONTAINERS OF PRODUCT

TROLLEY INFORMATION

	POTENTIAL HAZARD SOURCE	RISK CONTROL
Trolley design and number	Poor trolley design results in a high centre of gravity so pushing over uneven surfaces may tip trolley.	A height adjustable spring or scissor trolley will allow loading at a good height and provide a low centre of gravity for stability when pushing. Place heavier items at base to reduce centre of gravity.
	No handles provided or handles provided are too low so force is applied in awkward postures.	Good handles provided: e.g., vertical handles will fit a large range of users.
	Insufficient trolleys resulting in over-stacking the available ones: <ul style="list-style-type: none"> Stacking too high. Exceeding rated load. 	Sufficient number of trolleys also allows for maintenance. Limit height to which trolley can be stacked. Have load rating marked on trolley.
Caster choice	Flat tyres or flat spots make the trolley difficult to get moving when manually pushed or pulled.	Solid tyres or ones with adequate tyre pressure.
	Small diameter castors.	Large diameter castors. Low resistance bearings.
Floor surfaces	Cracked, uneven or non-smooth floors can make trolleys harder to move by increasing pushing forces.	Inspections and regular maintenance to keep floor surfaces clean, smooth and well maintained.
	Steep gradients on ramps increases force needed to move trolleys.	Ensure trolleys are handled on flat or low gradient surfaces.
	Wet floors create risk of slipping.	Ensure floor surfaces are suitable for wet areas.
Housekeeping	Dirty floors due to grease, residue, fats, oils, crumbs, etc, make it harder to move trolleys.	Regular housekeeping to keep work areas clean and free of obstructions and trip hazards.
Maintenance	Damaged trolleys and castors make moving trolley difficult.	Immediate removal for repair and replacement of damaged trolleys. Implementation of a systematic preventative maintenance system for trolleys and castors.





An example of a good reference guide on pushing trolleys is *The Ergonomics of Manual Material Handling – pushing and pulling tasks*. This is also known as the Darcor and Ergoweb white paper on trolleys. It may be viewed online at http://www.darcor.com/library_wp.htm

4




HANDLING SPINDLES AND ROLLS OF PACKAGING




Spindles are used during the manufacture of product and for the dispensing of packaging and labels. Spindles on their own can be heavy and awkward to handle; however, the risk of MSD is greater once they are loaded. Rolls of packaging can also be heavy, wide and often require handling to change their orientation prior to loading. Developments in spindle cradle systems have resulted in improved loading and unloading of these devices. New metal alloys have also reduced the weight of spindles.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> Lifting and lowering heavy loads. Exerting force while in an awkward posture. 	Location of spindle cradle.	<p>Use mechanical aids.</p>  <p><i>Height adjustable trolley assists in placing the roll in its awkward loading position.</i></p>  <p><i>Mechanical aid for packaging rolls.</i></p>	<p>Introduce an automatic system that can lift or remove a spindle from the cradle.</p>  <p><i>Overhead hoist with a purpose-built lifting head.</i></p>  <p><i>Overhead hoist.</i></p>

HANDLING SPINDLES AND ROLLS OF PACKAGING

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
High force: <ul style="list-style-type: none"> Lifting and lowering heavy loads. Exerting force while in an awkward posture. 	Location of spindle cradle.	 <p><i>Height adjustable lifter.</i></p>  <p><i>Packaging roll prong lifter with rollers for ease of roll movement.</i></p> <p>Modify the spindle cradle to reduce awkward postures.</p> <p>Use team handling as an interim solution to reduce force.</p> <p>Use steps or platforms to raise the worker(s) if appropriate.</p>	 <p><i>Overhead gantry with a reel turner changes the orientation of the roll from vertical to horizontal for loading.</i></p>
	Weight of spindle and roll.	<p>Reduce the weight of the spindle by replacing spindles with lightweight material or just two ends.</p> <p>Reduce the roll weight.</p>	

HANDLING SPINDLES AND ROLLS OF PACKAGING




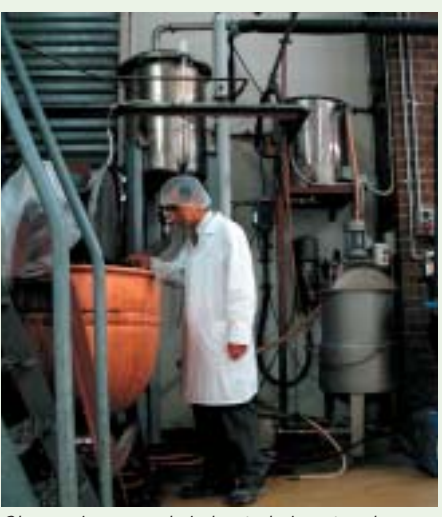
HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> Lifting and lowering heavy loads. Exerting force while in an awkward posture. 	<p>Replacement reels on pallets located on the ground.</p>	<p>Use height adjustable pallet lifters.</p> <p>Use a tool to change the orientation of the reel with a scissor trolley.</p>  <p><i>A simple tool to turn rolls horizontally for placement on a trolley.</i></p> <p>Store spare spindles in racks at waist level.</p>	<p>Use mechanical aids to lift and transfer packaging rolls.</p>

5




ADDING LIQUID INGREDIENTS





Adding liquid ingredients often involves the filling, lifting and tipping of buckets. This involves repetitive bending, lifting and awkward arm postures. Thick and sticky residue on the bottom of buckets from spills can also create unexpectedly high forces when attempting to lift buckets off surfaces.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Exerting force while in an awkward posture:</p> <ul style="list-style-type: none"> > twice per minute or > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>High force:</p> <ul style="list-style-type: none"> Lifting heavy loads. 	<p>Weight of the container and contents.</p> <p>Note: Thin bucket handles and poor grips can increase the risk of MSD.</p>	<p>Pumps can be used as an alternative to lifting and tipping ingredients.</p>  <p><i>Product is decanted from a 205 litre drum into the smaller tub on this trolley which is also fitted with an automated pump.</i></p> <p>Provide height adjustable benches or a resting panel to sit containers on while being tipped.</p>  <p><i>A bucket on a scissor trolley filled from an IBC.</i></p>	<p>Install an automated dispensing system for bulk liquid ingredients.</p>  <p><i>Automated dispensing system.</i></p> <p>Use drop in or other types of suction pumps to transfer liquid ingredients.</p>  <p><i>Glucose is pumped via heated pipes to where it is needed.</i></p>

ADDING LIQUID INGREDIENTS

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Exerting force while in an awkward posture:</p> <ul style="list-style-type: none"> • > twice per minute or • > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>High force:</p> <ul style="list-style-type: none"> • Lifting heavy loads. 	<p>Weight of the container and contents.</p> <p>Note: Thin bucket handles and poor grips can increase the risk of MSD.</p>	<p>Use smaller containers to reduce the weight. The use of smaller containers increases the frequency of handling and, depending on your circumstances, may not reduce the risk.</p>	 <p><i>IBC on a tilter with a pump attachment.</i></p> <p>Increase weight and size of bucket and use mechanical aids to tip.</p>  <p><i>Forklift attachment.</i></p>
	<p>Containers filled and lifted from ground level.</p>	<p>Raise containers by using:</p> <ul style="list-style-type: none"> • Pallet lifters (if product on pallets). • Adjustable benches/tables/stands. 	<p>Preferred solutions as above.</p> <p>Use an overhead crane.</p>  <p><i>Contents are being transferred from the mixer to a bowl which is then transferred by overhead crane.</i></p>

ADDING LIQUID INGREDIENTS



HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
As per previous page.	Containers filled and lifted from ground level.	Reduced risk solution as per previous page.	Use a mechanical aid.  <i>Mechanical aid to tip.</i>
	Height of opening into which contents are tipped.	Provide a stand or platform to support containers while being tipped. Provide a tipping aid. Provide a chute if opening too low.	Preferred solutions as above.
Carrying with one hand: <ul style="list-style-type: none">> twice per minute or> 30 seconds at a time with long duration (> 30 minutes continuously or > 2 hours over the whole shift). These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.	Buckets carried over a distance.	Store products close to use area. Use a trolley.  <i>Scissor trolley.</i>	Preferred solutions as above.
High force: <ul style="list-style-type: none">Applying sudden or unexpected forces.	Sticky residue from bucket spills increases the force to lift.	Implement cleaning regime to eliminate sticky spills.	Preferred solutions as above.

6

SEALING TOPS OF BOTTLES, JARS AND CONTAINERS



Large manufacturers usually operate automated systems; however, some smaller operators continue to undertake this task by hand. Corking or capping of bottles can be a highly repetitive task involving high force and/or awkward postures.



HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Excessive bending of the wrist while squeezing with the hands and holding a tool:</p> <ul style="list-style-type: none"> twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Force required to operate mechanism by hand.</p>	<p>Use a floor-mounted or bench-mounted corker/capper.</p> <p>Long handles on the capping device can reduce the force required to complete a cycle.</p> <p>Ensure good maintenance of the capping device's moving parts.</p> <p>Job rotation to a task that does not require similar hand and arm actions. For further information see WorkSafe's <i>Job rotation doesn't eliminate manual handling hazards</i> Guidance Note.</p>	<p>Use automatic capping and corking or sealing machines.</p>  <p><i>Cap automation.</i></p>  <p><i>Lid automation.</i></p> <p>Change the type of seal and automate the process.</p>
	<p>Workbench too high or low.</p>	<p>Provide workstations with height adjustable benches or height adjustable device stands.</p>	<p>Preferred solutions as above.</p>

7

FILLING, WEIGHING AND STITCHING SACKS OR BAGS



The process of filling, weighing and stitching bags or sacks is often completed in separate stages at different workstations. Bags often require lifting and lowering numerous times to complete the process, exposing workers to risk from repeatedly bending and twisting with heavy loads.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Back bending and application of sustained awkward posture:</p> <ul style="list-style-type: none"> • > twice per minute or • > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>High force:</p> <ul style="list-style-type: none"> • Lifting and lowering heavy loads. 	<p>Filling, weighing and stitching stations are at different heights and locations.</p>	<p>Elevate scales from the floor to reduce lifting and lowering from the weigh station, or place scales on a trolley to transport them between the filling and stitching station or fill bags on scales.</p> <p>Install a pneumatic lifter that lifts, lowers and supports bags to reduce manual lifting and lowering.</p>  <p><i>This lifter raises the bag for palletising after being filled and stitched.</i></p> <p>Reduce the weight in each sack in combination with other risk controls that improve posture and movement. Reducing the weight of bags may increase the frequency of handling and, depending on your circumstances, may not reduce the risk.</p>	<p>Fully automated bagging machines.</p> <p>Integrate weighing scales and an automatic stitching machine within the conveyor process by:</p> <ul style="list-style-type: none"> • Using a hopper or fill station that delivers a measured amount of produce, to eliminate the requirement to weigh separately. • Installing an automated or electronic shut off mechanism. • Providing a belt conveyor to transfer bags. • Using an automatic stitching machine.  <p><i>All three processes (filling, weighing and stitching) are in one conveyor system.</i></p>

FILLING, WEIGHING AND STITCHING SACKS OR BAGS




HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
As per previous page.	Filling, weighing and stitching stations are at different heights and locations.	Job rotation in combination with other risk controls that improve posture and movement.	 <p><i>Auto fill, weigh and seal with vacuum lift to palletise.</i></p>
<p>Holding a tool:</p> <ul style="list-style-type: none"> > 30 seconds at a time with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	Holding a stitcher.	Suspend or use counterbalance to support weight of stitcher.	<p>Use an automatic stitching machine.</p> <p>Use alternative sack sealing methods to eliminate the need for machine stitching.</p>
High force.	Filling, weighing and stitching stations are at different heights and locations.	Reduced risk solutions as above.	Preferred solutions as per previous page and above.
	Weight of bags.	Reduce weight in bags in combination with solutions as above. Reducing the weight of bags may increase the frequency of handling and, depending on your circumstances, may not reduce the risk.	Preferred solutions as per previous page and above.
	Manual operation of the chute open and close valve.	Extend the length of the lever and provide a padded hand grip.	Automate the chute open and close valve.

8


HANDLING EMPTY BOTTLES, JARS OR CONTAINERS



Removing empty bottles, jars and containers from pallets and placing them on to processing lines can involve repetitive bending with twisting and repetitive hand, finger and thumb grasping.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Back bending and twisting:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Pallet is located on the ground.</p>	<p>Provide height adjustable pallet lifter fitted with a turning ring to keep the load at a constant height.</p>  <p><i>Pallet lifter with turntable. A platform has also been provided to counter the height of the pallet lifter.</i></p> <p>Provide a pallet stand to keep bottles between knee and shoulder height.</p>	<p>Fully automate.</p>  <p><i>Fully automated system.</i></p> <p>Use a hoist.</p>  <p><i>Purpose-built hoist which caters for bottle necks of different shapes and sizes.</i></p>

HANDLING EMPTY BOTTLES, JARS OR CONTAINERS

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Back bending and twisting:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Pallet is on the ground and only one side of the pallet is accessible forcing reach or increasing reach distances.</p>	<p>Provide access to all sides of the pallet by providing a pallet ring to rotate the pallet allowing access from one location.</p> <p>Change orientation and/or position of pallet to allow access from at least two sides.</p> <p>Use narrow pallets or a pallet tilter mechanism to reduce reach distances.</p> <p>Note: These measures should be provided in combination with a pallet lifter keeping load between knee and shoulder height.</p>	<p>Preferred solutions as per previous page.</p>
<p>Gripping and working with the fingers close together and/or wide apart:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Manual placement of bottles/jars.</p>	<p>Change packaging to transfer containers in bulk.</p>  <p><i>One layer of plastic bottles is placed on to the start of the production line at a time. The plastic covering is then removed automatically.</i></p> <p>Implement job rotation in combination with other risk controls to reduce exposure to repetitive hand grasping.</p>	<p>Preferred solutions as per previous page.</p>

9

HANDLING FULL BOTTLES, JARS OR CONTAINERS



Handling full bottles, jars or containers on or off conveyors, in and out of storage containers/bins or on and off pallets or conveyors can involve repetitive back bending and repetitive hand, finger and thumb grasping.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
Back bending and twisting: <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.	Pallet is located on the ground.	Use a height adjustable pallet lifter fitted with a turntable.	Automate the process.
	Only one side of the pallet is accessible.	Use a height adjustable pallet lifter fitted with a turntable. Use narrow pallets to reduce reach distance. Use a pallet tilter mechanism to reduce reach distances. Note: These measures should be provided in combination with a pallet lifter keeping load between knee and shoulder height.	Preferred solutions as above.

HANDLING FULL BOTTLES, JARS OR CONTAINERS



HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Back bending and twisting:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Bin or stillage is located on the ground and the sides are rigid and cannot be dropped.</p>	<p>Provide a height adjustable pallet lifter fitted with a turning ring to keep load at a constant height. This may involve altering the sides of the bin or stillage; e.g., drop-down sides or changing the container used.</p>  <p><i>Plastic moulded layers have replaced the bins in this winery to allow a pallet lifter with turntable to be used. Job rotation is also used to reduce exposure to repetitive grasping and the workplace has also reduced the volume of bin stock by analysing the work process.</i></p> <p>Use a mechanical tilter.</p> <p>Job rotation in combination with other risk control measures which improve postures and movements.</p>	<p>Automate the process. This may involve changing the container or altering the type of shipper or box.</p> <p>Investigate changing to screw caps (if wine) as a replacement to cork to eliminate the need to bin stock.</p>
<p>Gripping and working with the fingers close together and/or wide apart:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Manual placement of bottles/jars.</p>	<p>In combination with other risk controls, implement job rotation to reduce exposure to repetitive hand grasping. Employees need to be rotated to jobs where gripping is minimised.</p>	<p>Preferred solutions as above.</p>

10

REMOVING SOLID PRODUCT FROM MIXING BOWLS



Removing dough or other solid products from mixing bowls may involve repetitive awkward postures. Modern mixing equipment incorporates bowl lifters and tippers to address risks associated with this potentially hazardous manual handling task.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Back bending and twisting:</p> <ul style="list-style-type: none"> • > twice per minute or • > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Bowl height.</p>	<p>Raise the mixing machine and/or bowl height. (Note: Do not create a new hazard associated with adding raw materials to the bowl!)</p> <p>Where smaller batches are being removed from a bowl keep the containers on an adjacent trolley.</p>	<p>Use an overturnable or self-tipping bowl mixer.</p>  <p><i>Self-tipping mixer.</i></p> <p>Use a bowl tipper if you have removable bowls.</p>  <p><i>Bowl hoist.</i></p>

REMOVING SOLID PRODUCT FROM MIXING BOWLS



HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Back bending and twisting:</p> <ul style="list-style-type: none"> • > twice per minute or • > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	Bowl height.	Reduced risk solution as per previous page.	 <p><i>This cement-type mixer tilts for easier removal of product.</i></p> <p>Investigate whether a mechanical aid can be used to raise and tilt the mixer and/or bowl to enable better access to the work area.</p>

11

REMOVING PRODUCT FROM LARGE STILLAGES OR CONTAINERS



Large stillages or containers are frequently used to transfer product between processors and within a plant from one stage to the next. These stillages are normally constructed to a standard pallet footprint and stand up to 100cm high.


HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Back bending and twisting:</p> <ul style="list-style-type: none"> • > twice per minute or • > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Stillage or container located on the ground.</p>	<p>Use a purpose-built stillage lifter and tipper.</p>  <p><i>Stillage lifter. Hand tools such as a rake can be used to reach product and drag forward in combination with the lifter and tipper.</i></p> <p>Use stillages with drop-down sides in combination with a pallet lifter. Hand tools such as a rake can be used to reach product and drag forward in combination with the raised product.</p>	<p>Change the container; e.g., use a funnelled intermediate bulk container (IBC) where the product comes out the bottom.</p> <p>Use an automated tipper.</p>  <p><i>Automated tub tipping.</i></p>

12

PIPING PRODUCT



Various types of products need to be piped including sausage roll, quiche and cannelloni fillings, or icing on cakes. These tasks can require static postures and sustained application of force with one hand.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Excessive bending of the wrist and squeezing with one or both hands:</p> <ul style="list-style-type: none"> > twice per minute or > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Squeezing product out of the piping bag with one hand.</p>	<p>Use hand-operated automatic feeder machines.</p>  <p><i>Automatic icing feeder with turntable so the cake can be rotated.</i></p> <p>Clamp or tie the ends of piping bags. As product is pushed out of the bag, roll and re-clamp the top of the piping bag.</p> <p>Use a piping nozzle of sufficient diameter and ensure product is at the right consistency.</p> <p>Introduce appropriately designed job rotation in combination with other risk controls which improve postures and movement. For further information see WorkSafe's <i>Job rotation doesn't eliminate manual handling hazards</i> Guidance Note.</p>	<p>Install automatic depositing or piping machines. Some can fill liquid or chunky product, in both small and large portions.</p>

PIPING PRODUCT



HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending back and neck forwards or sideways more than 20 degrees:</p> <ul style="list-style-type: none"> > 30 seconds at a time with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work</p>	Height of workstation.	<p>Provide workstations with height adjustable seating fitted with a back rest.</p> <p>Provide height adjustable benches or stands with turntables with or without a tilting mechanism.</p> <p>Arm supports can be provided for fine decoration of cakes.</p> <p>Ensure lighting is adequate for the task.</p> <p>Introduce appropriately designed job rotation in combination with other risk controls which improve postures and movement. For further information see WorkSafe's <i>Job rotation doesn't eliminate manual handling hazards</i> Guidance Note.</p>	Preferred solutions as per previous page.

13

HANDLING AND REMOVING PRODUCT FROM TRAYS, RACKS OR TINS



Removing product from trays, racks or tins can be difficult in the food industry. It often results in banging or hitting of trays or tins to remove the product which can lead to MSD over time. Many racks and trays are hot and they are often quite large and heavy making them difficult to handle.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Excessive bending of the wrist and very fast movements (tray hitting) and holding an object:</p> <ul style="list-style-type: none"> > twice per minute or > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>Also high force actions (hitting).</p>	<p>Product sticks to trays.</p>	<p>Tray and tin coatings such as baking paper, spray-on lubricants or non-stick surfaces can be used to ease the removal of product. Non-stick surfaces may require regular maintenance and recoating.</p> <p>Introduce appropriately designed job rotation in combination with other risk controls which improve posture and movement. Ensure that rotation does not include other jobs with hitting actions. For further information see WorkSafe's <i>Job rotation doesn't eliminate manual handling hazards</i> Guidance Note.</p>	<p>Automate the process.</p>  <p><i>Automated product removal.</i></p> <p>Grease trays so product can slide.</p>  <p><i>Trays are greased so product can slide.</i></p>

HANDLING AND REMOVING PRODUCT FROM TRAYS, RACKS OR TINS


HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Excessive bending of the wrist and very fast movements (tray hitting) and holding an object:</p> <ul style="list-style-type: none"> • > twice per minute or • > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>Also high force actions (hitting).</p>	Weight of trays.	Reduce the size and weight of trays.	Preferred solutions as per previous page.
<p>Carrying a load:</p> <ul style="list-style-type: none"> • > twice per minute or • > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	Requirement to transport trays.	<p>Stack trays on trolleys for transporting from one process to the next.</p> <p>Use detachable handles to improve gripping and reduce exposure to hot trays.</p>	Introduce conveyors or roller beds to move trays from one production process to another.

14

LIFTING PROCESS VESSEL LIDS



Many manufacturers use kettles, cooking pots or mixing pots. These are often raised up off the floor and can be fitted with heavy lids that need to be opened when introducing ingredients, for inspection and during cleaning. Many lids are constructed of stainless steel and are therefore very heavy.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
High force: <ul style="list-style-type: none"> Lifting and lowering. Exerting high force in an awkward posture. 	Weight of the lid.	Install a counterbalance to assist lifting and lowering in combination with reducing the frequency of lifting and lowering by: <ul style="list-style-type: none"> Installing inspection windows to eliminate the need to lift kettle lids for tasks such as inspection. Installing hatches within lids to introduce ingredients. Installing an automatic material-feed system so the kettle is only opened for cleaning. 	Automate lid raising and lowering by fitting a pneumatic ram to kettle lids in combination with a counterbalance to lift and lower lids. Install a locking hinge or purpose-built restraining device so workers are not required to hold the lid.  <i>Counterbalanced and lockable hinge.</i>
	Lid in awkward position.	Provide clear access to vessels and ensure movements required are performed above knee level and below shoulder height by elevating the vessel or by adding a platform to raise the worker. Allow lid to open up past vertical and be supported in that position.	Preferred solutions as above.



15

PACKING AND INSPECTING PRODUCT



Most industries require packing of product from a conveyor line. Frequently this involves repetitive reaching, twisting and lifting to pack individual items into tins, racks, boxes, packets or other containers. The task often also involves a quality inspection where workers are required to remove any product that does not match quality requirements.


If workers are standing, anti-fatigue matting or comparable shoe insoles should be provided. If they are seated, an appropriate seat should be provided with a foot-rest so that the feet are supported with sufficient leg space beneath conveyors or benches.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending the back more than 20 degrees and reaching more than 30cm from the body:</p> <ul style="list-style-type: none"> > twice per minute or > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Conveyor too wide.</p>	<p>Bring the product closer to the worker to reduce the reach distances.</p>  <p><i>A paddle arm has been added to bring product closer to the employee.</i></p>	<p>Automate the task.</p>  <p><i>Automated packing of product into outers.</i></p>

PACKING AND INSPECTING PRODUCT

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending the back more than 20 degrees and reaching more than 30cm from the body:</p> <ul style="list-style-type: none"> • > twice per minute or • > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Conveyor too wide.</p>	<p>Use two operators, one on either side of the conveyor, to reduce reach distances.</p>  <p><i>For this wide conveyor, an employee is positioned on either side, reducing excessive bending and reaching.</i></p> <p>Introduce appropriately designed job rotation, in combination with other risk controls.</p>	<p>Preferred solutions as per previous page.</p>
	<p>Conveyor, or container being packed, is too low.</p>	<p>Raise the height of the conveyor and/or container into which the worker is packing.</p>  <p><i>Height adjustable stands on either side of the production line.</i></p>  <p><i>Simple screw lock adjustment point.</i></p>	

PACKING AND INSPECTING PRODUCT

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
As per previous page.	Reject product requiring double handling.	Introduce appropriately designed job rotation, in combination with other risk controls.	Improve mechanics of machinery to prevent quality issues. Use robotics or electronic inspection.
<p>Twisting the back more than 20 degrees:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	Position of seated or standing workstation in relation to conveyor and boxes.	<p>Place the tins or boxes in front of the operator to minimise any twisting.</p>  <p><i>The outer is above the conveyor line, in front of the employee with a tilt to improve access. Good seat and foot support are provided.</i></p>  <p><i>On this line, an employee is situated on either side of the line to reduce reaching to the side. The outer is tilted and in front of the employee at a good height.</i></p> <p>Introduce appropriately designed job rotation, in combination with other risk controls.</p>	Preferred solutions as above.

PACKING AND INSPECTING PRODUCT

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Excessive bending of the wrist and lifting and lowering:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Position of box or container is too high.</p>	<p>Reduce the height of the box or container or reduce the height of the stand/table/bench it is sitting on.</p> <p>Have adjustable height stand/table/benches to cater for all sizes of containers.</p> <p>Change the system of work.</p>  <p><i>Putting the shipper around the stacked product rather than packing into the box.</i></p> <p>Tilt the tin or box towards the operator to improve wrist postures during packing.</p>	<p>Preferred solutions as per previous page.</p>
	<p>Box flaps stand up.</p>	<p>Create a wedge or fixture to hold the box in place, holding the flap down.</p>	
<p>Repetitive and very fast movements:</p> <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p>	<p>Employees unable to keep up with production line speed.</p>	<p>Ensure there are enough employees to perform the task, including enough employees to cover absenteeism.</p> <p>Regularly consult with employees in order to alter the production speed if required.</p> <p>Implement rest breaks.</p> <p>Use appropriately designed job rotation in combination with other risk controls.</p> <p>Introduce buffers to allow a safe area for product to rest whilst employees catch up.</p>  <p><i>Buffer turntable.</i></p>	<p>Preferred solutions as per previous page.</p>

16

WEIGHING PRODUCT



Placing product on and removing product from scales involves repetitive lifting and lowering and is an unnecessary 'double-handling' of product.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending the back more than 20 degrees, lifting or lowering and repetitive grasping:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Scales on the ground or below work height.</p>	<p>Raise the height of the scales to the level of the benchtop so that product can be slid on and off.</p> <p>Raise the product to the height of the scales.</p>  <p><i>Scales incorporating rollers used in conjunction with a scissor trolley. Note: Trolley positioned above for illustrative purposes only. Normal operation is with trolley at the end of rollers.</i></p>	<p>Automate the process; e.g., underweight products are rejected by robotic arm.</p> <p>Integrate weighing scales within the conveyor process.</p>  <p><i>Conveyor with a built-in weigh station means product doesn't have to be taken off and put back on the line to be weighed.</i></p>

WEIGHING PRODUCT




HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> Lifting, lowering or carrying heavy loads. Exerting high force while in an awkward posture. 	<p>Scales on the ground or below work height.</p>	<p>Reduced risk solutions as per previous page.</p>	 <p>Where conveyors meet at corners the product can be pushed along automatically after weighing. Pusher shown here by blue plate.</p>  <p>This conveyor fills, weighs and stitches without the need to manually handle the bags.</p> <p>Use a pallet jack with integrated pallet weigher.</p>  <p>Pallet jack with a built-in weighing scale means the product can be weighed without taking it off the pallet.</p>

17


HANDLING PACKAGING MATERIALS



Boxes are often delivered as heavy packets of collapsed or flat boxes. These are often stored on pallets on the ground and the flat packs are fed manually into a packaging unit that is machine-paced.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending the back more than 20 degrees, twisting or turning, actions with the hands or arms, lifting or lowering and exerting force while in an awkward posture:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Boxes on a pallet on the ground.</p>	<p>Raise the height of a pallet by using a pallet lifter or a combination lifter and mover.</p>  <p><i>Pallet lifter.</i></p> <p>Raise the height of the pallet by using a stand.</p>  <p><i>Pallet stands.</i></p>	<p>Introduce an automated box assembler.</p>  <p><i>This automated box assembler eliminates handling of flat packs and the need for manual box construction.</i></p>

HANDLING PACKAGING MATERIALS



HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending the back more than 20 degrees, twisting or turning, actions with the hands or arms, lifting or lowering and exerting force while in an awkward posture:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	Boxes on a pallet on the ground.	<p>Raise the height of the pallet by using spare pallets.</p>  <p><i>Spare pallets raise the load.</i></p> <p>Raise the height of the pallet by using a stand.</p>	Preferred solutions as per previous page.
<p>High force:</p> <ul style="list-style-type: none"> Lifting, lowering or carrying heavy loads. Exerting high force while in an awkward posture. 	Heavy packs of cartons.	Request supplier to provide fewer flat packs in each packet.	<p>Preferred solutions as per previous page.</p> <p>Use a vacuum lifter.</p>

18

LABELLING PACKAGES



There are many types of repetitive manual labelling techniques used in the food manufacturing industry. This often involves poor wrist and forearm postures and movements, and high hand forces.



HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Twisting or turning actions with the hands or arms, exerting force with one hand or one side of the body, awkward wrist postures and holding or supporting a tool:</p> <ul style="list-style-type: none"> > twice per minute or > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Requirement to hold the labelling gun.</p> <p>Position on box for label to be applied.</p> <p>Position of product delivered to the labelling station.</p>	<p>Provide labelling guns designed to reduce force required on the trigger and use a counterbalance.</p> <p>Label the carton prior to assembly.</p> <p>Ensure that the package is labelled at a height and position to keep wrist and forearms as neutral as possible.</p> <p>Provide product at the labelling station in the easiest orientation for labelling.</p> <p>Introduce appropriately designed job rotation, in combination with other risk controls which improve postures and movements. For further information see WorkSafe's <i>Job rotation doesn't eliminate manual handling hazards</i> Guidance Note.</p>	<p>Provide pre-labelled cartons and packages or use an automatic printer that can print barcodes.</p>  <p><i>Automated labelling process.</i></p>  <p><i>These cartons have been supplied with labels and marking.</i></p>

19

CLEANING LARGE FOOD-MIXING BOWLS



Large food-mixing bowls are cleaned on a regular basis. This often involves handling and tipping the bowl to empty the contents after washing.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> Lifting, or lowering heavy loads. Using an open-handed grip to handle a heavy and large load. Exerting high force while in an awkward posture. 	<p>Heavy bowl or heavy bowl and contents.</p> <p>Requirement to tip to empty.</p>	<p>Reduce the weight of the bowl.</p> <p>Decant the contents of the mixing bowl.</p> <p>Use team handling to tip the mixing bowl.</p>	<p>Install a drainage valve in the base to drain contents using gravity, without having to 'tip' the mixing bowl.</p>  <p><i>Position the drainage valve within easy reach.</i></p>  <p><i>A drainage valve outlet in the base of the mixing bowl allows contents to be drained using gravity.</i></p> <p>Use mechanical tilters to empty bowls.</p>

20





PALLETISING PRODUCT






Most industries require the palletising of product. Frequently this involves bending and twisting when transferring product from racks, trolleys or the production line to pallets for despatch.

Introducing pallet lifters can sometimes raise the height of the product so high that product is required to be placed above shoulder height, which increases the risk of injury.





Most pallet lifters also require mechanical aids to place and remove pallets. There are mechanical aids available that can replace forklifts in work areas. If forklifts are introduced to move pallets into areas where people work, a traffic management plan needs to be implemented to ensure pedestrians and forklifts are separated.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending and twisting the back more than 20 degrees, lifting and lowering and exerting force while in an awkward posture:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>High force:</p> <ul style="list-style-type: none"> Lifting, lowering or carrying heavy loads. Exerting high force while in an awkward posture. 	<p>Pallets on the ground.</p>	<p>Use mechanical aids.</p>  <p><i>Pallet lifters with turntables alongside a conveyor.</i></p> <p>Put the pallet on a stand to keep handling between knee and shoulder height.</p>  <p><i>Pallet stands.</i></p>	<p>Automate the process.</p>  <p><i>This robot palletises bags.</i></p>  <p><i>This robot palletises boxes.</i></p>

PALLETISING PRODUCT

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
As per previous page.	Pallets on the ground.	<p>Ensure that empty pallets are placed under the pallet being filled to keep handling between knee and shoulder height. This requires a mechanical aid, such as a walkie-stacker or straddle-lifter, to raise or adjust the height of the working pallet.</p>  <p><i>Empty pallets used to raise work height.</i></p>	<p>Use a vacuum lifting device.</p>  <p><i>Vacuum lifter.</i></p>
<p>Working with one or both hands above shoulder height:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>High force:</p> <ul style="list-style-type: none"> Exerting high force while in an awkward posture. 	Introduction of a pallet lifter raises the height of product for placing and retrieving above shoulder height.	<p>Reduce the height of product on the pallet by eliminating a layer or layers.</p> <p>Introduce a purpose-built platform area or provide mobile steps and a platform to bring the employee up to the appropriate height. If using steps whilst carrying product creates a hazard, transfer product using mechanical aids.</p>  <p><i>A platform around the employee's workstation compensates for the height of the pallet lifter.</i></p> <p>Introduce low-profile lifters that don't raise the pallet as high. Ramps can also be used with low-profile lifters to allow pallet jacks to be used.</p>	Preferred solutions as above.

PALLETISING PRODUCT

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Working with one or both hands above shoulder height:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>High force:</p> <ul style="list-style-type: none"> Exerting high force while in an awkward posture. 	<p>Introduction of a pallet lifter raises the height of product for placing and retrieving above shoulder height.</p>	  <p><i>Ramps and low-profile lifters allow pallet jacks to be used.</i></p>  <p><i>U-shaped lifters allow pallet jacks to be used. Recess the pallet lifter into the floor.</i></p>  <p><i>This workplace has cut concrete to allow for height adjustable pallet lifters. The guarding has temporarily been removed in order to illustrate this.</i></p>	<p>Preferred solutions as per previous page.</p>


Start implementing risk controls for your heaviest and/or highest volume products first.

21

STRETCHWRAPPING PALLETS



Stretchwrapping pallets manually requires poor postures and movements and often high force. Most manufacturers have moved to automatic or semi-automatic units.



HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending the back and/or neck more than 20 degrees and exerting force in an awkward posture:</p> <ul style="list-style-type: none"> • > twice per minute or • > 30 seconds at a time <p>with long duration (> 30 minutes continuously or > 2 hours over the whole shift).</p> <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Pallets on the ground.</p>	<p>Manually apply the stretchwrap while the pallet is on an automated scissor lift and turntable combination to improve postures and movements.</p>	<p>Install an automated pallet wrapper.</p>  <p><i>An automated stretchwrapper eliminates the manual task.</i></p> <p>Use a semi-automatic stretchwrapping machine.</p> <p>Use a vacuum-sealing or shrinkwrapping device to wrap pallets.</p>
<p>High force:</p> <ul style="list-style-type: none"> • Exerting high force while in an awkward posture. 	<p>Wrap needs to be stretched.</p>	<p>Use an alternative packing product such as tape-wrapping.</p>	<p>Preferred solutions as above.</p>

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TRANSFERRING PRODUCT BETWEEN WOODEN AND PLASTIC PALLETS



In the food industry, it is a requirement for only non-wooden pallets to be used in food production areas. As a result, considerable time and effort is often spent relocating materials from wooden to plastic pallets, and vice versa.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending and twisting the back more than 20 degrees, lifting or lowering, exerting force while in an awkward posture:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Pallets on the ground.</p>	<p>Place both pallets on scissor lifts and turntables to reduce the height variation of the work surface.</p>  <p><i>Pallet lifter with turntable.</i></p>	<p>Get product supplied on plastic pallets.</p> <p>Use slipsheets to transfer product from pallet to pallet.</p>  <p><i>Forklift with push/pull attachment for slipsheeted pallets.</i></p>

TRANSFERRING PRODUCT BETWEEN WOODEN AND PLASTIC PALLETS


HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> Lifting, lowering or carrying heavy loads. Exerting high force while in an awkward posture. 	Pallets on the ground.	Reduced risk solution as per previous page.	<p>Install a pallet inverter, which transfers the product from one pallet to another.</p>  <p><i>Pallet inverter.</i></p> <p>Use an automated layer picker to transfer product.</p>  <p><i>Layer picker.</i></p> <p>Use a vacuum lifting device or manipulator.</p>

23

HANDLING EMPTY PALLETS



Wooden pallets are the most common method for moving product and material. Handling empty pallets manually requires high force, poor postures and movements and often results in injury.



HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending the back and/or neck more than 20 degrees, twisting, turning, grabbing, picking or wringing actions with the fingers, hands or arms, pushing, pulling or dragging:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>High force:</p> <ul style="list-style-type: none"> Exerting high force while in an awkward posture. 	<p>Pallets moved manually.</p>	<p>Use hand pallet jacks.</p> <p>Use lighter weight softwood or plastic pallets.</p> <p>Use a hook to pull lighter weight pallets up to vertical.</p> <p>Team handling.</p>	<p>Install a mechanical pallet stacker.</p>  <p><i>This mechanical pallet stacker eliminates the manual task of handling and stacking empty pallets.</i></p> <p>Use forklifts, overhead cranes or other mechanical aid such as a wide straddle pallet mover and lifter.</p> <p>Use slipsheets instead of pallets.</p>

24

OPENING AND CLOSING HEAVY DOORS



Opening and closing large refrigerator doors is often difficult. These doors are often large enough to allow forklift traffic and are usually found in coolrooms. The doors are heavy and thick and, without a good maintenance program, the bearings or gliders of the doors can jam, so that the force required to operate them increases.


HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> Applying uneven, fast or jerky forces during pushing and pulling. Exerting high force while in an awkward posture. 	<p>Door heavy and difficult to move.</p>	<p>Introduce a thorough maintenance program that examines and maintains the wheels, bearings or gliders.</p>	<p>Power the current door.</p> <p>Install a mechanical aid, such as an automatic roll-fast PVC door.</p>  <p><i>This automatic roll-fast PVC door eliminates the manual task.</i></p>  <p><i>Flexible door.</i></p>

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HANDLING PRODUCT IN AND OUT OF STORAGE SHELVING OR RACKING



Most workplaces have a large variety of products that are stored on shelves. Heavy or hard-to-reach products can create a risk of MSD occurring, particularly if they are stored above shoulder height or below knee height. Product is often also double-handled both in and out of shelves or on and off low trolleys which, as well as being inefficient, can lead to increased risk.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending the back forwards or sideways more than 20 degrees, working with one or both hands above shoulder height, reaching forwards or sideways more than 30cm from the body, lifting and lowering and exerting force while in an awkward posture:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Product stored above shoulder height and below knee height.</p>	<p>Organise shelves with heavier and more frequently used stock between knee and shoulder height. Place lighter, less frequently used stock above and below the heavier, more frequently used stock. See WorkSafe's publication <i>A Guide to Manual Order Picking</i> for further information.</p> <p>Use height adjustable trolleys to transfer product.</p> <p>Provide order picking trolleys.</p> <p>Put the whole pallet in the rack to eliminate double-handling.</p>	<p>Provide high volume stock in bulk. Use a hopper or silo system with inbuilt weighing or dosing system if required.</p>  <p><i>This workplace has flour delivered in bulk. The system also weighs the raw material, which eliminates extra handling.</i></p> <p>Store product in a carousel.</p> <p>Use hydraulic lifters or order pickers to raise the person.</p>

HANDLING PRODUCT IN AND OUT OF STORAGE SHELVING OR RACKING

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> Lifting, lowering or carrying heavy loads. Using a finger-grip, a pinch-grip or an open-handed grip to handle a heavy or large load. Exerting high force while in an awkward posture. 	Weight of product.	Contact supplier to reduce weight of product; e.g., have 12.5kg bags delivered instead of 25kg bags. Note: This will usually increase the frequency of the handling, so ensure that this is done in combination with other risk controls which improve postures and movements.	Obtain frequently used or high volume stock in bulk. Use a hopper or silo system with inbuilt weighing or dosing system if required.
	Product stored below knee height or above shoulder height.	Reduced risk solutions as above.	Preferred solutions as above.
	Product stored at long reach distance; e.g., in deep shelves. Product unable to be slid closer prior to lifting.	Only stock front part of shelving for heavier products. Rotate pallets using mechanical aids to ensure manual handling is only from the front half of the pallet.	Reduce depth of shelving.
	Shelf racking close together forcing back bending to reach in.	Raise shelf racking to allow access without bending.	

For further information on manual order picking please see the WorkSafe publication *A Guide to Manual Order Picking*.

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HANDLING RACKS OF PRODUCT



Racks are used frequently in the food industry and can be heavy or difficult to move. The filling and emptying of racks with trays often involves repetitive bending or work above shoulder height. High trolley racks can also restrict workers' visibility.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending the back forwards or sideways more than 20 degrees, working with one or both hands above shoulder height, grabbing, actions with the fingers, hands and arms, lifting and lowering and exerting force while in an awkward posture:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Trays need to be manually placed into and out of racks below knee height and above shoulder height.</p>	<p>Reduce rack size and height to improve stability, visibility and to reduce pushing forces.</p> <p>Use an appropriate, well-maintained rack with suitable handle design and configuration. Vertical handles can cater for employees of differing height.</p> <p>Put in place a system where trays are not stacked below knee height or above shoulder height. Ensure a higher centre of gravity does not cause the rack to become unstable.</p>	<p>Install a conveyor system to replace trolleys.</p>
		<p><i>This workplace implemented a system where trays were not placed shoulder height and below knee height.</i></p>	

HANDLING RACKS OF PRODUCT

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Bending the back forwards or sideways more than 20 degrees, working with one or both hands above shoulder height, grabbing, actions with the fingers, hands and arms, lifting and lowering and exerting force while in an awkward posture:</p> <ul style="list-style-type: none"> > twice per minute with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p>	<p>Extra product stored on top of rack.</p>	<p>Place an angled surface on top of the rack to ensure no goods are stored on top of it (above shoulder height).</p> <p>If sight is a problem when transporting full racks, allow for sight lines by not placing product in those rows.</p>	<p>Preferred solutions as per previous page.</p>
<p>High force:</p> <ul style="list-style-type: none"> Applying fast or jerky forces during pushing or pulling. Pushing or pulling objects that are hard to move or to stop. 	<p>Weight of fully laden rack.</p>	<p>Ensure racks have suitable wheels for the floor surface and they are regularly cleaned and maintained. The configuration of the wheels and the placement of swivel wheels can also help to reduce force.</p> <p>Ensure floor surfaces are even and free of obstacles.</p>	<p>Use mechanical 'tugs'.</p>

For further information on trolleys refer to table "Trolley Information" on page 12.

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USING TROLLEYS



Most food manufacturing sites use trolleys of various designs to safely transport materials and finished product. Trolleys can get heavy and difficult to push increasing the risk of developing a musculoskeletal disorder. Floors may be slippery from residual water or spilt product, which makes it difficult to generate sufficient force to move a trolley. Steep ramps or floors that are uneven can also increase the force required to move a trolley.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
<p>Action</p> <p>Pushing, pulling or dragging objects that are hard to move or to stop:</p> <ul style="list-style-type: none"> > 30 seconds at a time with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>High force:</p> <ul style="list-style-type: none"> Applying uneven, fast or jerky forces. Pushing or pulling. 	<p>Potential source of risk</p> <p>Heavy fully laden trolley.</p> <p>Various sources of risk as outlined in the table on page 12, such as:</p> <ul style="list-style-type: none"> Inappropriate wheel or castor type or size. Inappropriate handle placement. Damaged floor surfaces. Poor housekeeping. Lack of maintenance. 	<p>Reduce the weight of the trolley by:</p> <ul style="list-style-type: none"> Changing to a lighter weight trolley. Reducing the amount of product on the trolley. <p>Ensure the trolley is designed for the specific task.</p>  <p><i>Four-wheeled tub trolley.</i></p>	<p>Mechanised 'tugs' can be used to transport substantial weights.</p>  <p><i>Mechanised 'tug' to transport loads.</i></p>

USING TROLLEYS

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>Pushing, pulling or dragging objects that are hard to move or to stop:</p> <ul style="list-style-type: none"> > 30 seconds at a time with long duration (> 30 minutes continuously or > 2 hours over the whole shift). <p>These actions may occur in the situations listed under 'source of risk' or in combination with other work activities.</p> <p>High force:</p> <ul style="list-style-type: none"> Applying uneven, fast or jerky forces. Pushing or pulling. 	<p>Heavy fully laden trolley.</p> <p>Various sources of risk as outlined in the table on page 12, such as:</p> <ul style="list-style-type: none"> Inappropriate wheel or castor type or size. Inappropriate handle placement. Damaged floor surfaces. Poor housekeeping. Lack of maintenance. 	 <p><i>Four-wheeled reclining trolley.</i></p>  <p><i>Scissor trolley.</i></p> <p>Ensure that ramps are not too steep. See ramp information below.</p> <p>Introduce appropriately designed job rotation in combination with other risk controls.</p>	<p>Change how the product is moved; e.g., change to a container that can be moved mechanically.</p> <p>Use overhead cranes or other mechanical aids for moving product between close work areas.</p> <p>Introduce automated or manual conveyors.</p>  <p><i>This floor conveyor, for moving trays of product, reduces the forces and improves postures during handling.</i></p> <p>Use motorised mechanised trolleys.</p>


For further information on trolleys refer to table "Trolley Information" on page 12.

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LOADING WASTE INTO LARGE WASTE SKIPS



Most manufacturing processes result in waste that needs to be removed. Bins are often stored in the manufacturing area and are then emptied into large waste skips. Often the entire bin or container is tilted to empty it. Emptying waste has an added problem in that often the weight of the bin and its contents is unknown until it is picked up. This can result in unexpected forces on the body.

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
<p>High force:</p> <ul style="list-style-type: none"> • Applying uneven, fast or jerky forces during pushing and pulling. • Exerting high force while in an awkward posture. 	<p>Weight of the bin and its contents.</p>	<p>Reduce waste container size to reduce fill height. This may involve increasing the frequency of rubbish removal.</p>	<p>Automate the tipping process. This may require changing the type of container being used.</p>  <p><i>Automated rubbish bin tipper.</i></p>

LOADING WASTE INTO LARGE WASTE SKIPS

HIGH RISK		REDUCED RISK SOLUTION	PREFERRED SOLUTION
Action	Potential source of risk		
High force: <ul style="list-style-type: none"> • Applying uneven, fast or jerky forces during pushing and pulling. • Exerting high force while in an awkward posture. 	Weight of the bin and its contents.	Reduced risk solution as per previous page.	Use a forklift with a tipper attachment.  <i>A forklift tipping a skip into a large recycling bin.</i> Use conveyor systems.
	Height of the dumpster sides.	Provide waste skips with lower sides. Provide an elevated platform beside the waste skip.	Preferred solutions as above.

OTHER USEFUL GUIDANCE MATERIAL

WorkSafe Victoria

A Guide to Handling Large, Bulky and Awkward Items

A Guide to Manual Order Picking

A Guide to Preventing Injury from Packing and Unpacking Shipping Containers and Enclosed Trailers

Cement Bag Handling – Guidance Note

Delivering Large Gas Cylinders – A Guide to Manual Handling

Manual Handling in the Automotive Industry

Manual Handling Solutions in the Sawmilling Industry

Manual Handling Solutions in the Textile Industry

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