



# **DROPS**

**DROPPED OBJECTS PREVENTION SCHEME**

- **Eliminate injury to people and damage sustained to equipment due to dropped objects throughout the full supply chain;**
- **Ultimately to deliver a **‘second-nature’** dropped objects prevention strategy for all industry sectors.**

- **BEST PRACTICE**
- **RECOMMENDATIONS**
- **GUIDANCE**

- **COMMITMENT**
- **POLICIES**
- **RESOURCES**

**COMMON DROPS OBJECTIVES**





- MEMBER FUNDED, MEMBER DRIVEN
- GLOBAL REPRESENTATION
- REGIONAL CHAPTERS AND COMMITTEES



# Collating 'Best in Class' DROPS Guidance

**DROPS Global**

**Regional Chapters**

**STEERING COMMITTEE**

**WORK GROUPS**

- Chaired by Operator(s)
- Representation from Major Drilling Contractors and Service Partners
- Industry Bodies and Specialists

- Quarterly Meetings
- Communications
- Local Events
- Topics and Projects

THE WORLD



## Dropped Object Prevention Scheme Recommended Practice

[www.dropsonline.org](http://www.dropsonline.org)

REVISION  
**02**

- DEFINITIONS
- RISK ASSESSMENTS
- CONTROLS
- ROLES
- SMS BRIDGING
- ZONE MANAGEMENT
- MONITORING
- TRAINING
- SURVEY & INSPECTION
- WORKSITE HAZARD MANAGEMENT
- HUMAN PERFORMANCE
- REPORTING
- GAP ASSESSMENT

**APPLICATION**  
IDENTIFICATION, ASSESSMENT  
AND IMPLEMENTATION



**COMMON APPROACH**





## Dropped Object Prevention Scheme Recommended Practice

[www.dropsonline.org](http://www.dropsonline.org)

REVISION  
**02**

# APPLICATION

IDENTIFICATION, ASSESSMENT  
AND IMPLEMENTATION

Sets out the minimum recommended practices that support the development of dropped object prevention policy and procedure for Company SMSs.

It illustrates the foundations of a DROPS Management System.

Application is risk-based, additional guidance is included, and principles are applicable to all industries.

# OPERATION

PREVENTIVE AND MITIGATING CONTROLS

# COMMON APPROACH





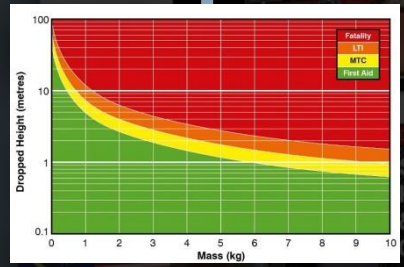
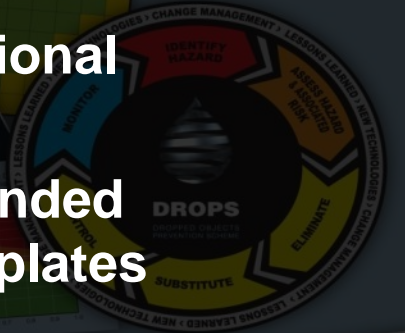
Dropped Object Prevention Scheme Recommended Practice

REVISION 02

www.dropsonline.org

Best Practice and Functional Recommendations.  
Linked references, appended guidance materials, templates and checklists.

APPLICATION  
IDENTIFICATION, ASSESSMENT AND IMPLEMENTATION



www.dropsonline.org

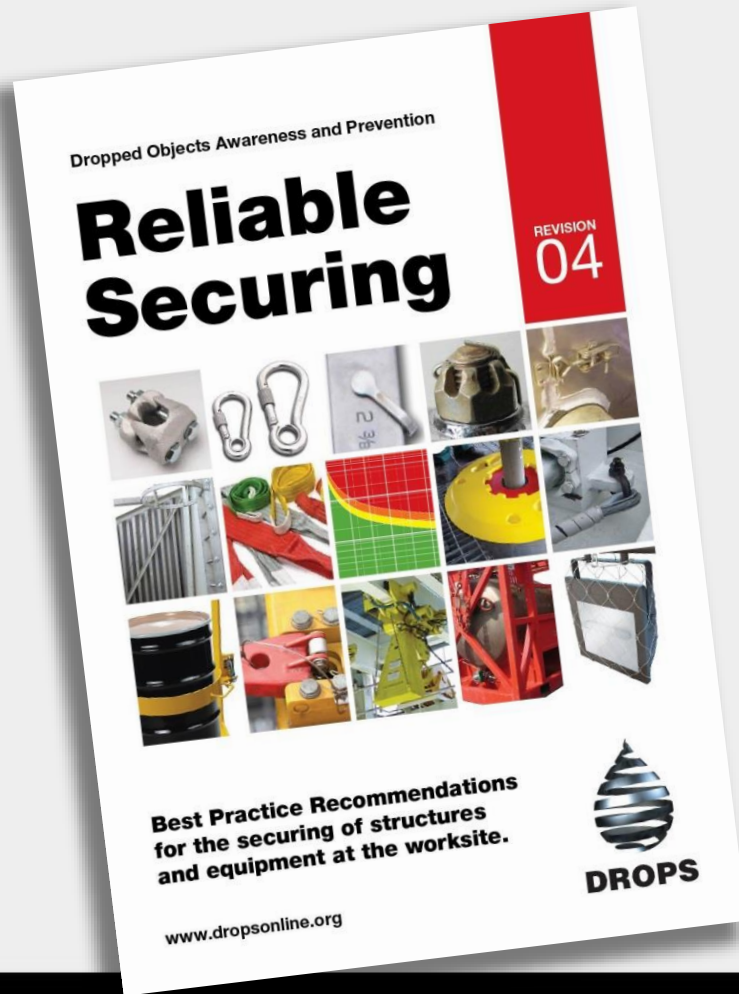
COMMUNITY, RESOURCES AND INTERACTION

OPERATION  
PREVENTIVE AND MITIGATING CONTROLS

COMMON FREE RESOURCE



# FUNCTIONAL RECOMMENDATIONS



- Risk Assessment Guidance
- Worksite Best Practice
- Standardised Definitions
- Lifecycle Opportunities
- Technical Reference
- Training Resource
- Readily Adaptable
- **FREE DOWNLOAD**

**CONSOLIDATED GUIDANCE**





# DROPS METRIC CALCULATOR

Classification Dropped Objects  
Potential Consequences  
0.1m to 100m / 0kg to 10kg



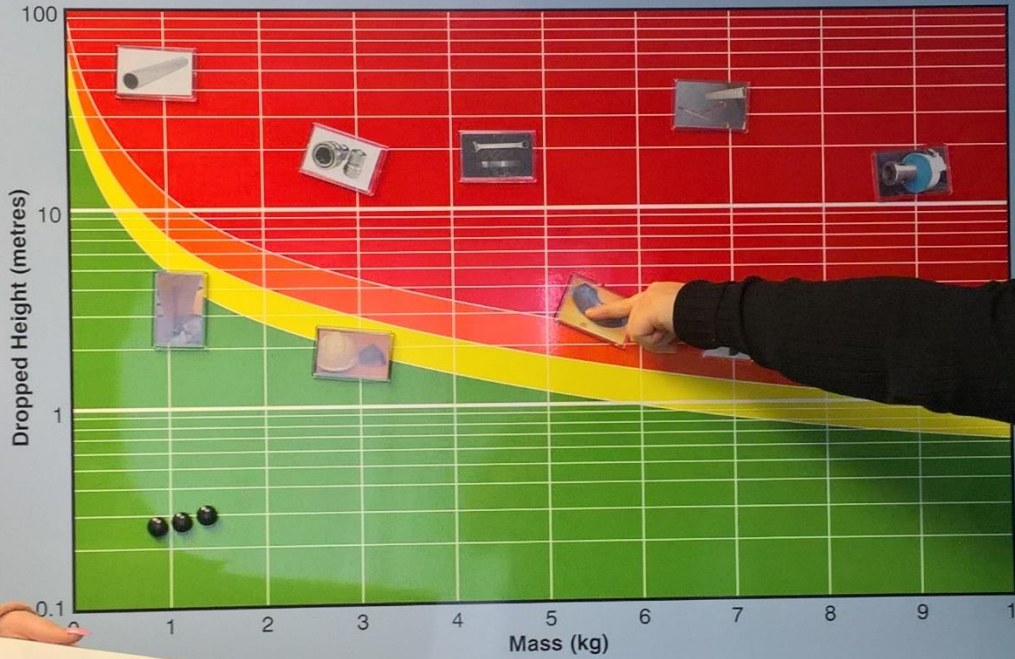
**DROPS**  
DROPPED OBJECTS  
PREVENTION SCHEME

This Calculator provides a common benchmark in the classification of the potential consequences of a dropped object.

One of a number of similar tools, the DROPS Calculator is endorsed by the OPCS International and endorsed by HSE, Department, and other organisations. They all share the same principle - placing the mass of a dropped object against the distance it falls to determine its potential consequences.

**Considerations**

Many safety systems (e.g. A top) is a key influencing factor in the effect of an object falling from the site and should be considered in the assessment.



Fate  
L1  
MT  
First  
www.drop



**TRAINING AND AWARENESS**



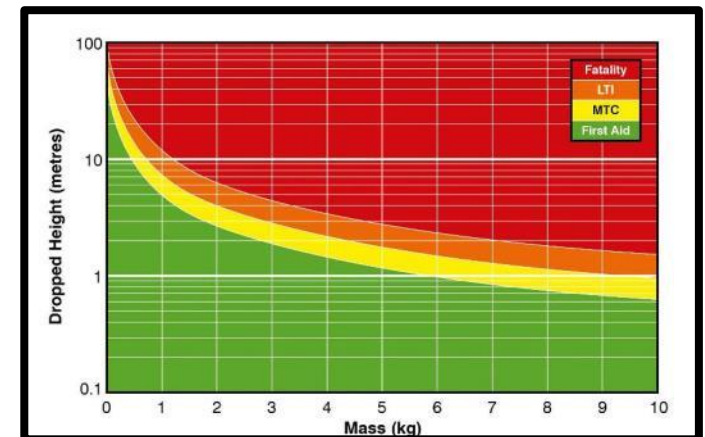


# WORKING AT HEIGHT

All Personnel. All Activities.



Identification of static and dynamic dropped object hazards and risk assessment shall be documented during all Pre-Task activities and JSAs (e.g. tools and equipment at height, collision checks, environmental factors, housekeeping, removal/replacement of equipment at height, concurrent operations and application of **DROPS Calculator** in the assessment process).



# TOOLS AND EQUIPMENT AT HEIGHT REGISTER

Brief Description Of Work		Start	Finish
		Date:	Date:
Person Performing Work		Time:	Time:
		Date:	Time:
Name:	Sign:		
Drops Tools Required Aloft	Non-Drops Tools Required Aloft	Securing Method for Non-Drops Tools	
		Sign:	
Tools Issuing Supervisor	Name:	Securing Method	
Equipment Taken Aloft			
All Tools And Equipment Taken Aloft Have Been Inspected And All Securing Methods Used Are Confirmed Suitable.			
Task Supervisor		Name:	Sign:
Tools And Equipment Returned To Deck Level		Securing Method	
State Any Difference To Items Taken Aloft And Returned To Deck Level			
The Work Is Complete. All Tools And Equipment Have Been Inspected And Returned To Dedicated Storage (If Applicable) Or Quarantined If Not Fit For Use.			
Person Performing Work:		Sign	
Task Supervisor:			
Tools Issuing Supervisor:			

Note: If work is handed over the work area must be made safe. At handover all tools and equipment must be accounted for, secured at the worksite or returned to deck level.



# TOOLS & EQUIPMENT AT HEIGHT



# General Tips for Object Free Work

Before starting any task, consider the environment where you will be working and the activities that may be going on around you.

- Pay particular attention to environmental factors such as wind, ground conditions, helicopter downdrafts, heave, surge and swell.
- Before commencing the task, inspect the work area for dropped object hazards such as items and debris.
- Check all equipment and structure in the area to ensure that all fastenings, clips, covers, panels, hatch covers, guardrails etc are properly secured.
- Check all secondary retention devices in place (eg split / cotter pins, lock washers etc).
- Check all safety securing devices are in place, secured to sound structure.

**Dynamic Dropped Objects**  
Combining Gravity with Vibration and Loading. Pressurised Equipment for dynamic dropped objects source if possible. Ensure tool box talks, risk assessments



**CHOOSE YOUR FUTURE**  
For further information  
Email: a



**CHOOSE YOUR FUTURE**  
For further information  
Email: a

# Maintenance Best Practice

Detailed task planning and verification, intrusive inspection, repair or modification, reduce the potential for dropped objects during testing and operational modes.

- Prior to starting, review pre-outlets, task risk assessments, learnings relating to the task.
- Review the task steps to identify errors may be made (e.g. re-secured snagging hazard; tool inside/on top of equipment; tool safety securing device after completion).
- Identify all moving equipment and areas of significant exposure to that may cause dropped objects.
- Create an inventory of equipment and materials during maintenance to ensure they are removed from the work area on completion.
- Obtain all relevant drawings to ensure equipment manufacture and installation are up to date.

Ensure all dropped items removed by collisions, etc.

Always apply Hierarchy of Controls if a dropped object has been identified. Administrative controls and PPE are available immediately.

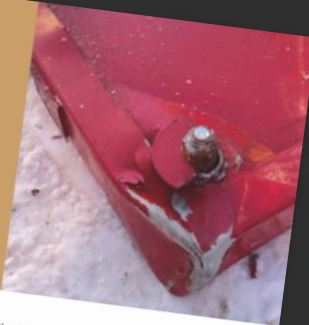
# Task Planning and Risk Assessment

Effective planning and risk assessment, identifying appropriate resources and personnel, and ensuring the task is planned to eliminate or reduce the likelihood of dropped objects.

- Always inspect the worksite prior to starting the job to eliminate pre-existing potential dropped objects, especially where recent activities have taken place. Consider the worksite has been exposed to environmental factors or dynamic forces.
- Understand each phase of the task and the equipment and tools being used, including associated hazards and controls (securing techniques, access etc).
- Ensure any pre-lift inspection checklist is available and understood.
- Identify and talk through task steps to ensure it is more likely that a dynamic force will not be prevented.
- Be realistic and specific in identifying potential dropped objects, including hardware, debris, hard hat etc.

# Dynamic Dropped Objects: Inspection Tips

Dynamic Dropped Objects are items that are dislodged or become disengaged due to applied force. Consider each of the following tips during all pre-task checks and inspections, and at any time where dynamic forces are prevalent.



- Walk through each step of the Task to identify where dynamic forces will affect fastenings, equipment and structure, ensuring that collision or snagging potential is identified and carefully managed. (See overleaf for dynamic forces).
- Where moving or moveable equipment is in direct contact with structure or other equipment, ensure all operational and parked positions are fully in accordance with asset procedures and all OEM instructions and recommendations.
- Conduct tactile checks of equipment or structure if safe to do so, request movement of any equipment that obstructs effective inspection.
- Immediately report any defects such as distortion, abrasions, corrosion (particularly where damage has caused coating or fabric deterioration).
- Any unusual sounds that might signify excessive vibration, wear, imbalances or shock loading should be reported to the equipment operator and / or Technical Authority immediately.
- Identify and check all primary fastenings and ensure appropriate secondary retention is in place and functioning correctly (e.g. split pins, washers, locking devices etc).
- Check applications and positions of all primary fastenings and secondary retention devices to ensure they cannot be dislodged or damaged by nearby equipment or other forces.
- Where safety securing devices such as nets and wires are applied, ensure these are appropriately rated, installed correctly and do not present a snagging hazard.
- During activities involving the use of lifting equipment, ensure collision checklists are developed and adapted as required to suit current environmental and worksite factors.
- Ensure all new or modified equipment is carefully risk assessed to ensure all fastenings, components and associated inspection criteria address the potential for dynamic forces to cause dropped objects.

**Question the robustness of all fastenings and devices that are subjected to continuous dynamic forces, including any internal components.**

In addition to routine visual inspections, consider how items and objects are affected by vibration, continuous loading and exposure to multiple factors in the local environment. Request assistance from Technical Authorities and Manufacturers in determining any requirements for enhanced inspection and preventive maintenance.



# WORKSITE BEST PRACTICE

For more info on DODI SEMS Dropped Object Prevention, please speak to the SDR or to your Supervisor.

**CHOOSE YOUR FUTURE MAKE A DIFFERENCE**



## DROPPED OBJECT INSPECTION CHECKLIST

WORK SITE / ASSET AREA DESCRIPTION	INSPECTED DATE
------------------------------------	----------------

**IMPORTANT NOTE:** Prior to undertaking any inspection, ensure that you have planned tools or personal equipment from pockets. Take a tool bag or other secure container from the worksite. Ensure that these inspection sheets and your pen or pencil is secured from the worksite. Ensure that these inspection sheets and your pen or pencil is secured from the worksite. Ensure that these inspection sheets and your pen or pencil is secured from the worksite. Ensure that these inspection sheets and your pen or pencil is secured from the worksite.

**REMEMBER TO CHECK ALL PAD EYES AND LIFTING EQUIPMENT FOR CERTIFICATION**

**GENERAL NOTE: REPORT ALL SIGNS OF COLLISION DAMAGE OR EXCESSIVE CORROSION**

**COMMON FAILURES:** Constant vibration, temperature change and other external tension in bolts, screws, clips and brackets. Poor design of mountings can lead to selected U-bolts or home-made clamps). General corrosion of structure can lead to accidental collision can lead to weakening of fixings

Please use reverse of sheet to record additional findings

ZONE	DESCRIPTION	PASS	FAIL	CORRECTIVE ACTION
1	<b>General Housekeeping</b> Check platforms, open rail ends and all beams and surfaces for loose or unnecessary items.			
2	<b>Tool Storage</b> • Check for home-made lifting equipment and tools • Check tool racks are secure • Check tool tethering systems are available and controlled • Move heavy items stored at height to lower levels			
3	<b>Equipment Storage</b> • Check all items stored are secured correctly and that any safety securing (eg chains, retaining bars) are in place • Check storage racks are secure, check bolts are in place • Check for damage /deformations			
4	<b>General Light Fixtures</b> • Look at light fixing and identify all securing screws, clips, brackets and bolts • Check that all components are in place and secure • Check security of cover clips • Check stanchion posts are secure, look for excessive wear or movement • Check welds on mountings for signs of fatigue/corrosion			
5	<b>Emergency Light Fixtures, Inc Aviation Warning Lights</b> • Look at lamp fixing and identify all securing screws, clips, brackets, mounts and bolts • Check that all components are in place and secure • Check condition of safety securing wires • Check welds on mountings for signs of fatigue/corrosion			

## DROPPED OBJECT INSPECTION CHECKLIST

6	<b>Communications Systems including CCTV, Telephones and Speakers</b> • Look at speaker horn and mounting and identify all securing screws, clips, brackets and bolts • Check that all components are in place and secure • Check condition of safety securing wires • Check welds on mountings for signs of fatigue/corrosion				
7	<b>Grating</b> • Look at grating and identify fixing method • Check that grating is secure • Check grating clips are secure • Look for excessive wear or damage • Check welds for signs of fatigue / corrosion				
8	<b>Guardrails and Gates (inc temporary work platforms)</b> • Check that swing gate hinges are in tact and operating correctly • Check hinge pins for safety pins/ split pins • Check for excessive wear or damage • Check removable sections of guardrail are secured with safety pin/ wire • Check weld points for damage or fatigue				
9	<b>LadSafe and Ladders</b> • Check that all bolts are secure in clamps • Check welds for signs of fatigue or damage				
10	<b>Access Platforms</b> • Check all parts of platform structure (rail cups, grating etc) • Remove all loose items				
11	<b>Temporary Equipment</b> • Check removable sections (covers/ panels) are secured • Check for signs of damage.				
12	<b>Emergency Equipment</b> • Check firefighting equipment is secure and mounting brackets are bolted correctly • Check alarm call points and secure on mounts • Check equipment boxes are secure. If rail or wall mounted, check brackets are secure				
13	<b>Signage</b> • Check all sign panels and plates are secure • Check fixings/clamps are in good order • Check for damage or corrosion • Consider opportunities to remove and replace with stencil or adhesive vinyl				

## DROPPED OBJECT INSPECTION CHECKLIST

14	<b>Sensors</b> • Check that all fixings are secure • Check that safety securing wires are installed correctly • Check for signs of collision				
15	<b>Junction Boxes</b> • Check cover is secure and all screws are in place • Check safety securing (eg lock wire) is in place where applicable • Check box is secured to mount • Check mounting bracket is secured to structure – all bolts in tact • Check for excessive wear or damage • Check weld points for damage or fatigue				
16	<b>Winchsock and Anemometers</b> • Check all components are secured • Check all screws and bolts are in place • Check for signs of corrosion or fatigue				
17	<b>General Structure and Major Equipment</b> • Check all equipment fixtures (clamps, hoods, grills, filter guards etc) are secure • Check for signs of fatigue/corrosion				
18	<b>Winches, Filters and Manifolds</b> • Check that bolts are tight and secured with lock nuts or other approved secondary retention • Check all clamps are secure • Check safety lines and whip checks are in place and secure				
19	<b>Rails, Beams and Hang Offs</b> • Check that all bolts and clamps are tight and secured with lock nuts or other approved secondary retention • Check for redundant or unused equipment • Check all equipment is certified and in good order • Check for home-made equipment • Check all shackles for safety securing pins • Check all surfaces and open rail ends for loose items				

# DROPS SURVEY & INSPECTION



## Introduction

This document is intended to help eliminate the risk of dropped objects. It embraces the requirement for worksite hazard management and illustrates best practice recommendations for Reliable Securing.

The content applies to all personnel, tools, equipment and structures associated with design, supply, transportation, installation, maintenance, operation and dismantlement activities across industry.

Reliable Securing is an independent publication developed in close collaboration with equipment suppliers and users. It's purpose is to disseminate knowledge and best practice.

In many cases, the recommendations presented in this handbook will identify opportunities for improvement.

Whilst it may be impracticable to adhere to all the recommendations, the content sets a standard we should aspire to.

Should you choose to adopt Reliable Securing best practice, the onus is on you to effectively manage any subsequent changes to existing equipment, systems and working practices.

The recommendations presented in this document do not affect, replace, or supersede any applicable industry Codes, Standards, Type Approvals or OEM Recommendations.



Please be advised:

- **Any modifications made to equipment, tools, structure or working methods - even if they provide a safer solution - will be subject to Management of Change.**
- **Always identify Original Equipment Manufacturer (OEM) recommendations with regard to securing.** (In many cases, appropriate retention methods may already be integrated or are available on request.)
- **Always identify all associated ownership, maintenance, inspection and certification of equipment, tools and structures.**
- **Always confirm that you have the authority, knowledge, experience and skills to proceed before applying any of the tools or techniques presented in this document.**

## What is Reliable Securing?

In simple terms, Reliable Securing is the appropriate selection, application and management of all fastenings and fixings. To achieve and assure the required levels of performance, these should be designed accurately, installed properly and maintained consistently.

**Reliable Securing** provides a safeguard against potential yielding, displacement or failure of fastenings which can lead to equipment or structure falling.

*This revised edition of DROPS Reliable Securing demonstrates dependable retention methods and technologies.*

**Reliable Securing** reduces the Probability of dropped objects through good design, planning, inspection and application of preventive controls and barriers.

**Reliable Securing** reduces the Consequences of dropped objects through implementation of appropriate safety securing systems, mitigating practices and processes.

**Reliable Securing** outlines the key factors that contribute to dropped objects and identifies opportunities to improve hazard identification and risk assessment processes.

### RELIABLE SECURING DEFINITIONS

#### Primary Fixing

The primary method by which an item is installed, mounted and secured to prevent the item falling. (eg bolted connections, screws, pins, buckles, clips, welds etc.)

#### Secondary Retention

The engineered method for securing the primary fixing to prevent loss of clamping force or displacement of fastening components. (eg locking washers, locking wire, split pins / cotter pins, etc.)

Also referred to as Second Barrier or Fail Safe feature in some engineering descriptions.

**Note: Double Lock-nutting or Dual Nutting is NOT recommended as a reliable method for retaining loads in tensioned bolting.**

#### Safety Securing

An additional mechanism for securing the item to the main structure, suitably selected to restrain the item or its components from falling should the primary fixing fail. (eg rated steel or synthetic nets, lanyards, baskets, wires, slings, chains etc.)



## Primary Fixing, Secondary Retention and Safety Securing

PRIMARY  
FIXINGS

Nuts, bolts, screws  
Clamps, Pins, Hinges

Brackets, Turnbuckles  
Welds

PREVENTIVE

SECONDARY  
RETENTION

Safety Pins  
Lock Wire

Locking Nuts  
Locking Washers

PREVENTIVE

SAFETY  
SECURING

Securing wire  
Connectors

Nets and Baskets  
Safety Chains

MITIGATING

**STANDARISED DEFINITIONS / PRINCIPLES**



### Bolted Connections

At present, bolts have been used in many applications and the improvement in their strength is always apparent. Achieving a reliable bolted connection requires a qualified evaluation of the following factors:

- Load design
- Choice of material with a correct mechanical properties and corrosion resistance
- Proper loading (pre-tensioning and use of the correct torque equipment)
- Any effects upon the integrity of the fasteners caused by the operational environment, Maintenance etc.

**DOUBLE MUTUAL FITTING**

Some of the most important safety facts about bolted connections are:

- Double nutting is not recommended for lifting and hoisting equipment.
- Double locking washers should be used in conjunction with double nuts.
- Double locking washers should be used in conjunction with double nuts.
- Double locking washers should be used in conjunction with double nuts.

### Reliable Securing of Bolted Connections

Fluting of bolted structures and alternative or shock loading in machinery can cause bolted joints to loosen, elongation or shear. Thermal cycling may also cause nuts and bolts to become loose.

Loose nuts and bolts can lead to part failure and dropped objects, resulting in possible accidents and structural damage.

To prevent nuts and bolts from becoming a safety hazard, an alternative method should be used:

- Use of secondary retention devices
- Use of secondary retention devices
- Use of secondary retention devices
- Use of secondary retention devices

To distinguish between bolt types and retention suitability, we have prepared the following recommendations in this program:

- Double connections where clamping force is critical (eg. tension, joint, etc.)
- Double connections where clamping force is not critical (eg. linear, axial, etc.)

Typically these facts will be verified by OEM recommendations, Experience and Safety Industry. These facts will be verified by OEM recommendations, Experience and Safety Industry. These facts will be verified by OEM recommendations, Experience and Safety Industry.

### Reliable Securing of Tension Joints

Here we illustrate the secondary retention for tensioned bolted connections, eg. nuts and bolts tightened with a suitable tool to the appropriate design load, typically used for the securing of mechanical and structural joints.

The following methods are recommended for mechanical and structural connections where maintaining the clamping force is critical:

- WIDE LOCK WASHERS**  
Design Lock washers with secure bolted joints against loosening caused by simple bearing vibration and shock loading.  
Welding technology secures bolted joints with an integral head of friction allowing adaptation to all assemblies and materials. The system consists of a cast iron washer that fits over the nut face and slides both on the nut face and the bolt head.
- MULTI-BOLT TENSIONERS**  
Available in both 1/2 inch and 3/4 inch diameters for use on replacement or original bolted assemblies. The only secure method for installation and removal without the need for welding. Their design makes them resistant to tampering, locking by means of a key.

These facts will be verified by OEM recommendations, Experience and Safety Industry. These facts will be verified by OEM recommendations, Experience and Safety Industry.

### Reliable Securing of Other Bolted Connections

Here we illustrate secondary retention for bolted connections typically used for securing of equipment components and other auxiliary items.

The following methods are recommended for bolted connections where maintaining the clamping force is incidental and non-critical:

- YELLOW PARENT BOLT**  
This nut includes a nylon collar insert. The collar deforms slightly as it is applied to the bolt. This increases friction between both ends of threads creating the required pressure for the connection.  
A suitable fastener for non-critical connections.
- PLATE TO BE NOT REMOVED**  
May rotate and loosen when exposed to dynamic loading or excessive VV rotation.
- METAL LOCKING WASHERS**  
Metal locking nuts may be used on all bolt dimensions. This type of nut comes in various forms and may feature a deformable friction lock or a ball bearing design. Purchase to be created by friction, cutting into the thread or compressing the ball bearing upon high pressure and correct torque.

These facts will be verified by OEM recommendations, Experience and Safety Industry. These facts will be verified by OEM recommendations, Experience and Safety Industry.

### Reliable Securing of Other Bolted Connections

CAUTION: Use provided a small and rotate method for locking bolted connections.

The nut lock washers are secured by a non-removable split pin inserted through a hole in the lock washers to prevent loosening.

Used on connections where clamping force is not required but the lock washers are required to prevent components from disassembling themselves.

May also be referred to as: Ball-bearing or Green nuts.

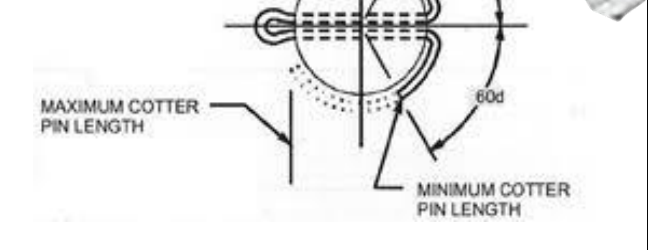
**These arrangements are only suitable for bolted connections exposed to shear forces.**

**SELF-LOCKING ROTATION BOLT**  
These nuts use the ball bearing method applied and tightened, and should only be applied over the standard nut. Once it has been correctly installed and tightened.

**Not suitable for re-use. Low-grade component.**  
Only may operate in marine environments.

**WARNINGS**  
These are various washer types and some are not suitable for use in specific applications. Always refer to the manufacturer's instructions for use.

**ADDITIONS**  
These locking compounds are primarily used where vibration is involved and the environment is not a non-critical one. In such cases, it is recommended to use a locking compound in conjunction with a safety lock pin or other locking device. Safety lock pins are available in various sizes and should be used in conjunction with the safety lock pin type, assembly and application procedures.



## Locking Wire

Locking wire should only be applied by competent persons specifically trained in its correct use.

**LOCKING WIRE / SAFETY WIRE**

Wire locking of bolts is a method adopted from the aviation industry. In brief, the method involves threading a wire through holes in bolt heads to prevent loosening due to vibration and other forces. The wire is twisted before being threaded and is locked to the next bolt.

**Areas of use:**  
Used extensively for locking external bolted connections on machinery and equipment, in particular where there are no through-bolts. The presence of locking or safety wire may also serve to indicate fasteners have been properly tensioned.

**BEST PRACTICE RECOMMENDATIONS:**

- No more than three bolts should be lock wired together and span between bolts should not exceed 150mm
- Lock wire should be at least steel suitable for the operational environment
- Lock wire diameter should suit application and respective bolt size.

May stretch, break or corrode if not properly fitted, allowing fastener rotation and loosening when exposed to dynamic loading.

## Split Pins / Cotter Pins

A split pin is a metal fastener with two 'lines' or 'prongs' that are bent during installation. Also known as a cotter pin or cotter key (USA), these are used to secure other fasteners such as bolts, nuts and clevis pins.

**BEST PRACTICE RECOMMENDATIONS:**

- Split pins should be the correct diameter and length for the application and should be bent (or splayed) sufficiently to prevent them from being knocked out, as shown in the image above.
- Extended Prong type pins should be used on 4 part shackles
- Split pins should be made of a stainless steel suitable for the operational environment
- Split pins should only be used once and should be inspected regularly and replaced when they no longer function as intended.

**Split Pins should only be used as a secondary retention method (ie. to retain nut on a shackle, to retain castle / crown nut etc).**

**Linch Pins, R-Clips, Spring or Roll Pins, Nappy Pins, or any other type of pin device that can spring or be knocked out should be avoided when used on lifting and hoisting equipment or for securing of equipment or structure at height.**

**LINCH PIN**    **SPRING PIN**    **R-CLIP**    **NAPPY PIN**

# SECONDARY RETENTION





Let height should have integrated secondary... (spring pins etc.)

- All connections using bolted... (All connections should be made...)
- Connections should be made... (Connections should be made...)
- Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

Connections should be made... (Connections should be made...)

# Safety Nets and Meshes

These safety securing devices fully enclose equipment fixed at height that presents a high risk of becoming a dropped object.

Designed to be easily installed, they are particularly well suited to applications where equipment or its components are assessed to be at risk of failure due to factors such as numerous components, design quality, internal or external corrosion, vibration and so on.



## BEST PRACTICE RECOMMENDATIONS:

- Always refer to net or mesh manufacturer's recommendations for appropriate selection, installation, maintenance and product life limitations
- Ensure product is suitable for the operation and the environment, with due regard to potential galvanic corrosion
- Detailed risk assessment should consider catastrophic failure of primary fixings both with and without safety nets, meshes or safety wires
- The operational integrity of any electrical equipment should not be compromised or impeded by the introduction of safety nets or meshes
- As with all other safety securing devices, safety nets and meshes should be regularly inspected and replaced if they no longer perform their intended function
- Carefully assess any impact on other activities such as general maintenance access or snagging hazards.



# Reliable Securing

REVISION 04

### Dropped Objects Awareness and Prevention



## Best Practice Recommendations for the securing of structures and equipment at the worksite.



[www.dropsonline.org](http://www.dropsonline.org)

# Backloading



Best Practice recommendations for backloading inbound

www.dropsonline.org

## Inbound Pocket Container/Basket

CCU Number: \_\_\_\_\_

### Cargo Checks

- Have all potential dropped objects been removed or secured? (Please check on top of units, all horizontal and vertical structures including grating floors, eg gas racks, and inside forklift pockets.)
- Are the deck lifts basket/container still within certification?
- Are all items detailed on the Consignment Note in the basket/container?
- Has all material within the basket/container been adequately secured for sea transportation?
- Are the container door locking mechanisms fully engaged?
- Have all the container doors been tie-wrapped?
- Is the container in good condition? Any defects to be reported and appropriate action taken.
- Is the lifting bridle in good condition and shackles secure with split pins in place?

Name (please print clearly) \_\_\_\_\_

Company: \_\_\_\_\_

Signature: \_\_\_\_\_

DROPS Backloading

## BRINE/FLUID TANK



- Ensure any handrails on top are secure or removed
- Check lids are secure
- Check unit for potential dropped objects

- Check valves for damage. Ensure they are closed and sealed
- Ensure drip tray is empty. Check unit for leaks

DROPS Backloading



## RUBBISH SKIP

- Check top for potential dropped objects
- Check unit for potential dropped objects

- Ensure doors are closed and latches secured
- Ensure forklift pockets are clear of debris, rocks

- Ensure electrical and air supplies are disconnected

## COMPACTOR

DROPS Backloading

## CLOSED DOOR CONTAINER

- A) Ensure drums are labelled if required, and not leaking.
- B) Ensure cargo is segregated by weight, heaviest on bottom, and if there are shelves that these are not overloaded.
- C) Ensure cargo cannot shift in transit, is strapped to pallet etc, and netting/tarpaulin is in place and secure.



- Check lifting equipment for damage and that shackles are secured correctly
- Ensure unit is in test and sufficient validity remains for proposed use
- Check top surfaces for loose equipment
- Check unit is not overloaded

- Remove old hazard labels. Ensure CORRECT hazard labels (if required) on all four sides

- Check unit for excessive corrosion and/or deformation

- Check doors, hinges, seals and locks for damage

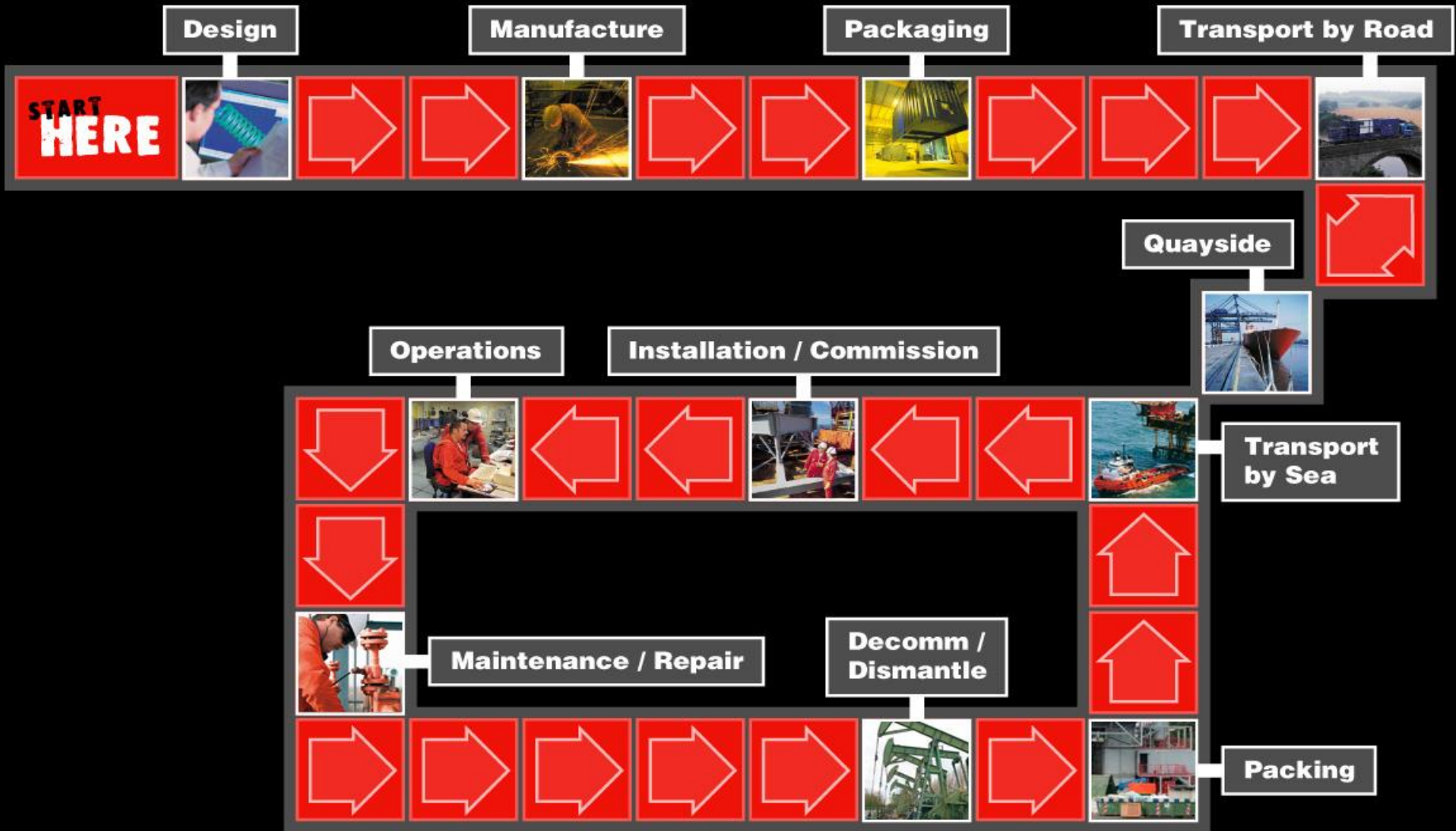
- Ensure forklift pockets (transverse and longitudinal) are clear of debris
- Check latches on both doors are secured by heavy tie-wrap or similar
- Ensure dogs (cams/claws) top and bottom fully engaged on BOTH doors

If stored on storeys/oft surface there may be debris caught underneath unit

DROPS Backloading

# WORKGROUP OUTPUTS





# ADDRESSING DROPS EXPOSURE





- **GET INVOLVED**

- **Continually raise awareness of dropped object hazards throughout Supply Chain**
- **Exploit DROPS Guidance to inform Task Risk Assessment and apply Hierarchy of Control**
- **Review task specific assessments (*and procedures*) to ensure all dropped object hazards are identified and eliminated or controlled**
- **Question robustness of securing devices**
- **Keep DROPS at the forefront of the Business.**

**ACTIVE & ENGAGING LEADERSHIP**



**DROPPED OBJECTS**

**STILL HARMING**  
**STILL KILLING**



**Thank You**

**DROPS**

DROPPED OBJECTS PREVENTION SCHEME

[www.dropsonline.org](http://www.dropsonline.org)