

1.0 Scope

This Technical Information Note (TIN) deals with the issues associated with the lifting of loads with integral lifting points on construction sites.

2.0 Introduction

Loads such as plant, equipment and materials with integral lifting points are frequently lifted on construction sites. Questions frequently raised include:

- What is the distinction between an integral lifting point and a lifting accessory?
- Should integral lifting points be thoroughly examined under LOLER?
- What type of inspections should be undertaken on integral lifting points, who should undertake the inspections, what is the scope of the inspections, how often should they be completed?
- When should a written record of an inspection be retained?
- What would constitute a suitable pre-use inspection prior to lifting?
- Should integral lifting points be UKCA/CE marked?
- To what design codes or standards should integral lifting points be designed and constructed?
- Do integral lifting points have to be overload tested (proof load tested) before first use?

This TIN seeks to provide answers to the above questions.

3.0 Examples of loads with integral lifting points



Intermediate Bulk Containers



Gas Bottles



Trench Boxes



Glass Stillages



Generators



Bracing Struts



Mini-excavators



Site Cabins



Concrete Skips

4.0 Distinction between integral lifting points and lifting accessories

An integral lifting point is a dedicated part of a load provided for the sole purpose of the attachment of lifting accessories such as slings. Integral lifting points are typically either formed within the structure of the load, permanently attached by weld, or require the use of tools and skill to remove. Examples of integral lifting points include:

- Fabricated lugs, loops, eyes, holes, or openings in the structure of the load;
- Pad eyes bolted or welded to the load;
- Eye bolts welded to the load.

Integral lifting points could be provided by the original manufacturer or fitted afterwards by others.

NOTE: *Integral lifting points are also known as “Engineered Lifting Points”.*

A lifting accessory is an item that is used to attach the load to a crane and removed after use.

5.0 Lift Planning

Regulation 8 of the Lifting Equipment and Lifting Equipment Regulations 1998 (LOLER) requires lifting operations to be properly planned by a competent person, appropriately supervised, and carried out safely.

As part of the planning process, the competent person (appointed person) should undertake a risk assessment that considers both the hazards associated with the load and the hazards associated with the environment in which the load is to be lifted. The assessment should consider precautions or measures that can be taken to eliminate or reduce the risks identified. A record of the outcome of the risk assessment should be retained with the lift plan.

The risk assessment undertaken for items to be lifted with integral lifting points should consider the consequence if the load were to be dropped. The consequence of failure will vary depending on the nature of the item being lifted, the environment in which the lift is to be undertaken and the lifting equipment and accessories selected.

Load Considerations:

- Does the load contain hazardous chemicals, gases, explosive materials, fluids, flammable materials, or other hazardous substances?
- Does the load contain loose materials that could be released during failure?
- Are instructions provided by the manufacturer/supplier/designer for lifting the load?

Environment Considerations

- Is the lifting operation being undertaken overhead or in the close vicinity of persons?
- Is the lifting operation being undertaken within or close to an area of exceptional hazards?

Lifting Equipment and Accessories

- The type and size of crane selected;
- The lifting accessories and configuration selected to connect the integral lifting point and the crane.

The likelihood of failure will be reduced if:

- The integral lifting points have been designed by a competent person to a recognised design code or standard with an appropriate factor of safety against failure;
- There is evidence that lifting points have been subject to appropriate static overload load test following manufacture;
- Instructions provided by the supplier as to how the load is to be slung and any special precautions that should be taken are followed;
- The persons undertaking the lift are provided with appropriate lifting accessories and instructions as to how they should be used to attach the load;
- The slinger has been appropriately trained, holds a recognised qualification/certification for slinging, has been assessed as competent and is appropriately supervised;
- Pre-use inspections of integral lifting points and lifting accessories are completed by the slinger prior to every lift;
- A test lift is undertaken every time a load is to be lifted;
- The integral lifting points are periodically inspected by a competent person.

6.0 Maintenance and Inspection of Integral Lifting Points

Regulation 5(1) of the Provision and Use of Work Equipment Regulations 1998 (PUWER) requires that work equipment is maintained in an efficient working order and in good repair. Guidance to Regulation 5 of PUWER includes:

“75. Where safety-critical parts could fail and cause the equipment, guards or other protection devices to fail and lead to immediate or hidden potential risks, a formal system of planned preventative or condition-based maintenance is needed...”

77. If items of plant and equipment are hired, it is important for both the hire company and the person responsible for hiring the equipment to establish who will carry out safety-related maintenance. This is particularly important when equipment is on long-term hire. The terms of the agreement should be set out or recorded in writing...

81. Inspection does not normally include the checks that are a part of the maintenance activity although certain aspects may be common. For the purpose of this regulation, inspection does not include a pre-use check that an operator makes before using the work equipment. While inspections need to be recorded, pre-use checks do not.”

Regulation 6(2) of the PUWER requires work equipment to be inspected where the safe operation is critically dependent on its condition in use and deterioration would lead to a significant risk to persons.

Regulation 6(3) of PUWER requires a record to be retained of an inspection completed under Regulation 6(2).

Regulation 6(4) of PUWER requires that physical evidence is provided after an inspection is completed under PUWER 6(2). For large items of equipment for which inspection is necessary, the physical evidence can be a copy of the record of the last inspection that was carried out. For smaller items of equipment, a tagging, colour coding or labelling system can be used.

The purpose of the physical evidence is to help a user check easily:

- a) if an inspection has been carried out;
- b) whether or not it is current;
- c) to determine the results of that inspection, by being able to link back from the physical evidence to the records.

Where the risk assessment undertaken (see Section 5.0) has identified that:

- a) an item with integral lifting points will be lifted over persons, or;**
- b) lifted in close proximity to persons, or;**
- c) the lifting operation is to be undertaken within, or close to, an area of exceptional hazards;**

... then it is recommended that an inspection under PUWER Regulation 6(2) is completed.

It is recommended that the appointed person approaches the supplier of a load with integral lifting points to ascertain if the lifting points have been inspected, for example, during pre-delivery inspections or as part of a periodic inspection program. A record of outcome of this enquiry should be retained by the appointed person. If the supplier is unable to confirm that the item has been inspected, then additional inspections may be necessary before the item arrives at site. The scope of inspection should be determined by a competent person.

7.0 Thorough Examination

Regulation 9 of LOLER requires lifting equipment and accessories to be thoroughly examined prior to use by a competent person.

Lifting points that can easily be removed, such as screw in lifting eyes, should be treated as lifting accessories and subject to thorough examination.

Permanently attached integral lifting points on plant, equipment, and materials are treated by LOLER as being part of the load and do not have to be thoroughly examined.

8.0 Pre-use checks

Guidance to Regulation 8 of LOLER includes that users should have received appropriate training and instructions so that they are able to undertake pre-use checks.

It is recommended that the training and instruction provided includes the pre-use checks of integral lifting points for damage or deterioration.

9.0 Legislation applicable to the supply of items with integral lifting points

Section 6 of the Health and Safety at Work etc Act 1974 (HSWA) places duties on persons who design, supply manufacture, import or supply any article for use at work. The duties include:

- a) That the article is so designed and constructed that it will be safe and without risks to health at all times when it is being set, used, cleaned or maintained by a person at work;
- b) To carry out or arrange such testing and examination as may be necessary to satisfy a);
- c) To provide information on safe use.

HSWA Section 6 applies to integral lifting points provided at time of initial manufacture, supply or if retrofitted at a later stage.

The Supply of Machinery Safety Regulations require machinery, lifting equipment and accessories to be CE or UKCA marked and provided with a declaration of conformity.

The conformity assessment process should have included conformity assessment of any integral lifting points provided on machinery at point of supply. Examples of machinery that may be provided with integral lifting points at point of supply include air compressors, generators, pumps, excavators and mini cranes.

The Construction Products Regulations require construction products within the scope of the regulations to be CE or UKCA marked. The conformity assessment process should have included any integral lifting points provided at point of supply. Examples of construction products that may be provided with integral lifting points include pre-cast concrete products such as panels, beams, pipes, manhole rings, & tunnel linings.

NOTE: Integral lifting points supplied on equipment that is not covered by the Supply of Machinery Safety Regulations or the Construction Products Regulations are still covered by Section 6 of the HSWA.

10.0 Design Standards and Codes

It is essential that integral lifting points are designed and constructed so as they can withstand the stresses to which they could be subjected. Whether provided at point of first supply or fitted at a later point, integral lifting points should be designed with an appropriate factor of safety against failure due to overload and should take account of the environment and how the item is to be lifted.

CE or UKCA marked items of machinery, such as excavators, pumps or air compressors may be supplied with integral lifting points where lifting accessories may be attached. If the lifting points were provided by the original manufacturer at point of supply with instructions for use, it is reasonable to assume that they have been designed and constructed to an appropriate standard and fit for purpose.

If the integral lifting points are fitted after point of first supply, there are several design standards and codes that may be followed to ensure that they are appropriately designed, constructed, and fit for purpose. These include:

- BS EN 13155:2020, Crane Safety - Non-fixed load lifting attachments;
- BS 4278:1984, Specification for eyebolts for lifting purposes;
- BS EN 13001-1, Crane – General design – Part 1: General principles and requirements;
- BS EN 13001-2, Cranes safety – General design – Part 2: Load actions;
- BS EN 13001-3-1, Cranes safety – General design – Part 3-1 Limit states and proof of competence of steel structures;
- BS EN ISO 5817:2014, Welding – Fusion welded joints in steel, nickel, titanium, and their alloys (beam welding excluded) – Quality levels for imperfection;
- BS EN ISO 9606-1:2017, Qualification testing of welders – Fusion welding – Part 1: Steels;
- BS EN 1993 Design of steel structures - Eurocode EC3 series of standards.

10.1 Overload Load Testing

It is recommended that if integral lifting points are fitted after point of first supply, that they are subjected to an overload test (proof load test) prior to first use. After the test, the lifting points should be inspected for any permanent deformation or patent defect. The magnitude of the overload test should be determined by a competent person, taking account of the environment and how the item is to be lifted. A record of the test should be retained.