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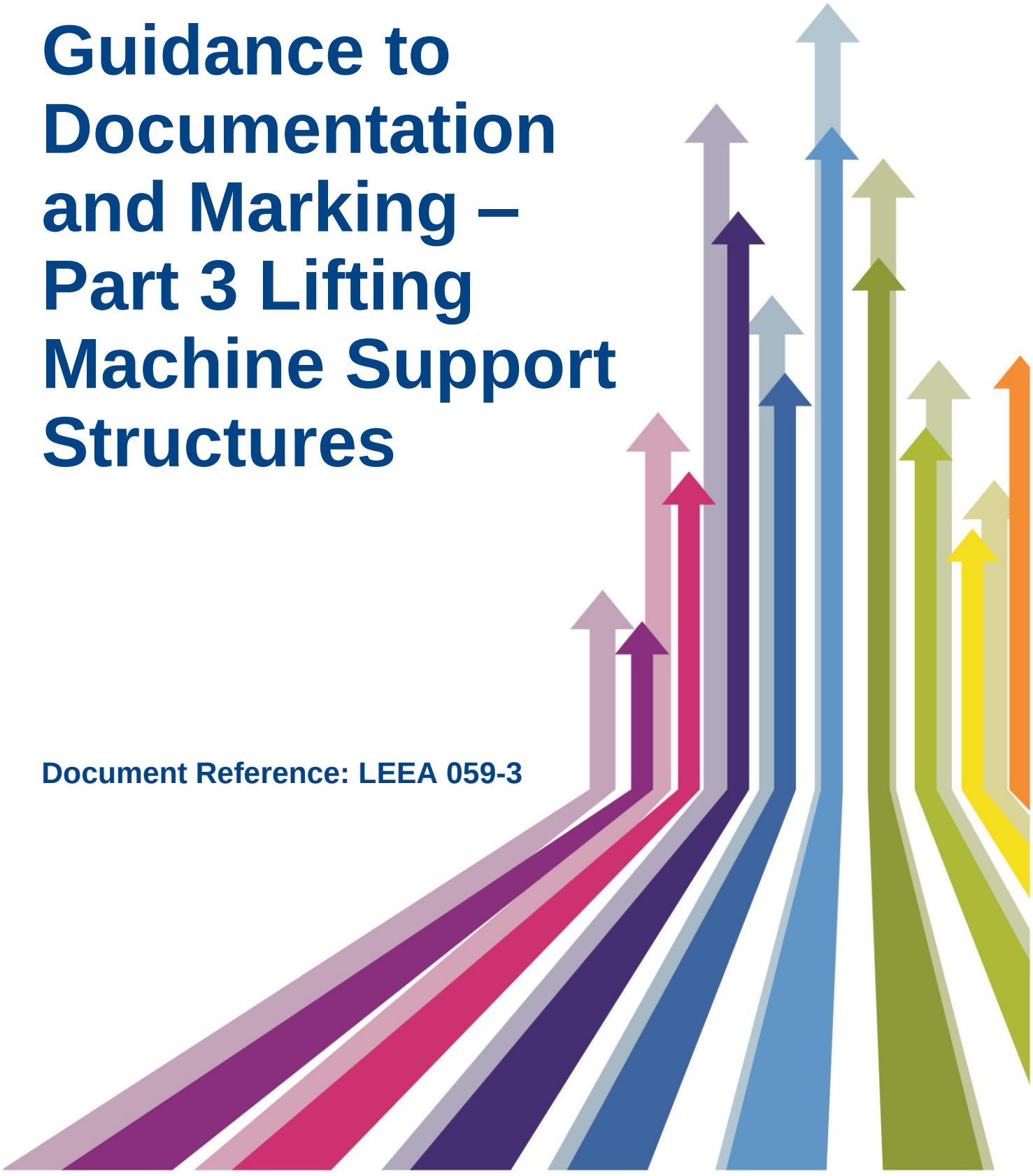
LEEA

Guidance to Documentation and Marking – Part 3 Lifting Machine Support Structures



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Guide to Documentation and Marking – Part 3 Lifting Machine Support Structures

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1.0 Introduction

This guide is aimed at LEEA Members, and manufacturers. It has been developed as a quick reference guide to ensure that lifting equipment is supplied with the correct documentation and marking as required by national legislative requirements, standards, and best practice guidance.

LEEA 059-3 is one of a series of guides related to documentation and marking of a range of generic forms of lifting equipment as listed below:

Part 1 – Manual Lifting Machines
Part 2 – Powered Lifting Machines
Part 3 – Crane Supporting Structures
Part 4 – Lifting Accessories, Non-fixed load lifting attachments.
Part 5 – Lifting Accessories, Slings
Part 6 – General accessories and Components for slings.

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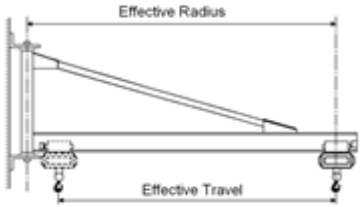
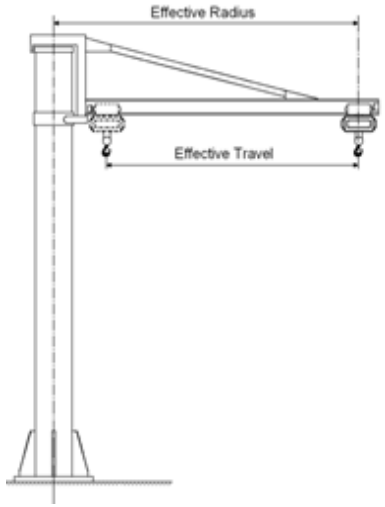
2.0 Item, legislative and standard requirements.
The following table identifies each common generic forms of powered lifting machines along with the information required by the applicable primary standards and legislation. The table also identifies the minimum documentation to be supplied with the equipment and the minimum information to be marked on it. To ensure that the correct equipment is supplied fit for purpose, it also identifies the information that should be exchanged between the user and the designer or supplier.

Item & Standard	***Required Information***
Manual slewing Jib Designed for use where a full overhead crane may be impractical. Only becomes a crane when fitted with a suitable hoist, hoist and trolley or similar lifting appliance. Jibs can be pillar or wall mounted types.  **Wall mounted Jib**	**Documents to be supplied in accordance with the relevant legislation & relevant standards:** - **Manufacturers Certificate (Guidance - LEEA-030.2e1 - 3 as applicable)** - **Manufacturer's instructions for use. (Guidance LEEA 062)** - **Other conformity declarations as required by legislation.** *Note 1: if supplied without a hoist unit, as above documentation, the jib crane will have to be thoroughly examined following installation & the fitting of a hoist. A report of thorough examination has to be issued for the assembly, refer to LEEA 030.1a for guidance.* *Note 2: if supplied complete with hoist unit, trolley & electrics, then for the UK and EU markets a declaration of conformity is required by the legislation, please refer to LEEA 030.1e1 - 9 as applicable for the complete assembly along with instructions for use.* *Note 3: if the jib crane has a powered slew, then for the UK and EU markets a declaration of conformity is required by the legislation, please refer to LEEA 030.1e1 - 9 as applicable for the complete assembly along with instructions for use . This is regardless of whether a hoist is fitted or not.* **Marking requirements:** - **Conformity mark if applicable, i.e., UKCA or CE marking for UK and EU markets** - **Identification mark(s). (If the manufacturer has not provided a unique serial number, then it is the responsibility of the user to add the identification mark to identify the equipment with the inspection and examination reports).** - **SWL. This should be marked on both sides of the jib arm in such a way that it is readily legible from the operating level.** - **Standard number, where applicable.**



Pillar Jib

Nationally recognized Standards

LEEA COPSULE – Section 10

- **If supplied without a lifting appliance. Maximum hoisting speed for powered hoists or else the words 'Manual Hoist'.**
- **Name of manufacturer or supplier.**
- **Classification designation**
- **Year of manufacture**

Information Which Should Be Exchanged Between the User & the Designer or Supplier

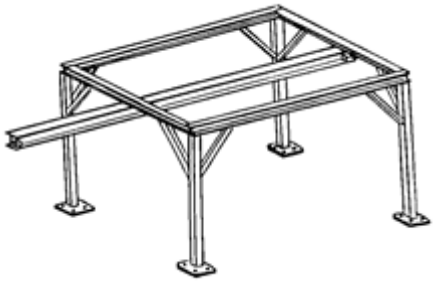
As the variation of design is wide and jib cranes can be made to suit the application within a broad range of standard components, the exchange of information should be as detailed as possible. Wherever possible, a detailed drawing of the intended location, showing any existing installations and possible obstructions such as trunking, ducting and suspended lighting, should be provided by the user. A visit by the supplier to survey the site should always be considered as this will minimise the necessary information exchange and reduce the chance of incorrect selection. The information exchange should therefore include the following:

1. Type and style of jib crane required i.e. wall/column mounted or free standing, over braced or underbraced.
2. Details of the load to be lifted or SWL.
3. Type of lifting appliance to be used.
4. Effective radius and minimum radius, thereby giving the effective travel.
5. Height to underside of arm or effective height required.
6. Total headroom available for the installation.
7. Slewing angle required.
8. Classification of the crane. (See note 2)
9. If electric power feed equipment is to be supplied, the type required. This should be accompanied with details of the power supply available, including voltage, phase(s) and frequency.
10. If pneumatic power feed equipment is to be supplied, the type required. This should be accompanied with details of the air supply available, including pressure and rate of delivery.
11. If free standing jib crane:
    - (a) Size of support column.
    - (b) Fixing details, bolt type, grade and size and PCD.
    - (c) Minimum foundation size (length, breadth and depth).
    - (d) Downward reaction.
    - (e) Turning moment acting on foundation at effective radius.

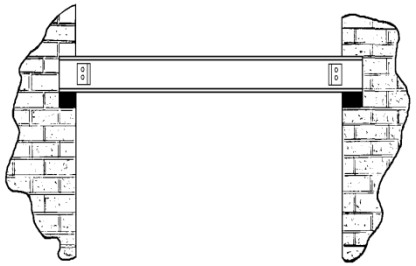
	12. If wall or column mounting jib crane: (a) Type of bracket and fixing details. (b) Maximum reaction on top bracket. (c) Maximum reaction on bottom bracket. 13. Environmental conditions, e.g. indoor or outdoor, use within corrosive atmosphere, use in hazardous areas, use with dangerous loads etc. 14. Details of finish, e.g. any special paint or protective finish required, taking cognisance of BS 466 with regard to the use of distinctive colours. 15. Any special conditions or technical requirements, e.g. flame proofed. 16. Full installation and maintenance instructions. **Notes:** 1. Items 11 and 12 are given by the supplier to enable the suitably qualified competent person to confirm the suitability of fixings and complete the foundation details. 2. Current standards for jib cranes use a classification system. If the classification is not known, then sufficient information must be given for the supplier to determine the classification. The following is required: (1) Utilization (a) Number of lifts per hour. (b) Operating hours per day. (c) Operating hours per month. (2) Loadings (a) Number of lifts at full load. (b) Number of lifts at 75% of full load. (c) Number of lifts at 50% of full load. (d) Number of lifts at 25% of full load. (3) Weight of lifting appliance if known. (4) Intended design life in years. Where insufficient detailed information is available, the user should seek the supplier's advice and recommendations as to the most suitable crane. Any restrictions or recommendations on the use must be adhered to.

Runways

Generally manufactured from rolled steel sections or special track section systems. Designed to provide a track upon which a lifting appliance is fitted to



Free Standing Structure



Building Supported Runway

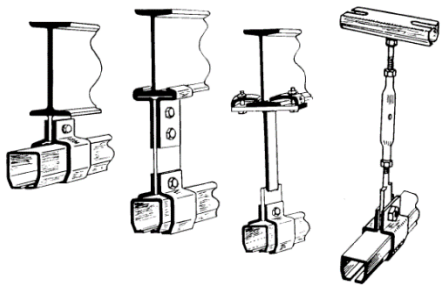
Documents to be supplied in accordance with the relevant legislation & relevant standards:

- **Manufacturers Certificate (Guidance - LEEA-030.2e1 - 3 as applicable)**
- **Certificate of test and thorough examination.**
- **Manufacturer's instructions for use. (Guidance LEEA 062)**
- **Other conformity declarations as required by legislation.**

Certificate of test and thorough examination.

The certificate of test and through examination should contain the following minimal information:

- The date on which the proof load was applied and the thorough examination made.
- Date of the report.
- Report number.
- Name and address of employer for whom the thorough examination was made.
- Address of the premises at which the examination was made.
- Description and identification of the equipment which must include its distinguishing number or mark and grades of steel, its size and length.
- The position and magnitude of the deflections obtained during the traversing of the test at SWL and the proof load.
- The maximum safe working load.
- That the runway beam conforms in all respects to the relevant national standard used
- Date of manufacture.
- Reason for the examination, i.e. after first installation and before being used for the first time.
- Particulars of any defect found during the examination and affecting the maximum safe working load and the particulars of the steps taken to remedy such defect.
- A statement stating that the equipment is safe to operate or not
- A statement indicating clearly that it applies to the runway beam only and not to any trolley or lifting appliance that may be fitted.
- Date of next thorough examination.
- Name, signature and qualifications of the person making the report.
- Name and signature of person authenticating the report
- Name and address of the employer of persons making and authenticating this report.



Special Runway Sections

Nationally recognized Standards

LEEA COPSULE – Section 11

Marking requirements:

- **Identification mark(s). (If the manufacturer has not provided a unique serial number, then it is the responsibility of the user to add the identification mark to identify the equipment with the inspection and examination reports).**
- **SWL. This should be marked on both sides of the runway in such a way that it is readily legible from the operating position.**
- **Any limiting conditions marked on the runway must be clearly visible. (i.e. reduced capacity towards the end of a cantilever).**
- **Maximum hoisting speed for powered hoists or else the words 'Manual Hoist'.**
- **Year of manufacture and installation.**
- **Name of manufacturer or supplier.**

Information Which Should Be Exchanged Between the User & Designer or Supplier

In the case of a dedicated runway, the exchange of information should be as detailed as possible. Where the runway is to be used for miscellaneous lifting duties, precise details of the load to be lifted are not always available. In these circumstances, only a general specification can be given & this should include the following information:

1. Type & style of runway, e.g. free standing, built into the building or suspended from the building structure, including the track section, suspension & fixing details & details of any cantilevered jib sections. Normally a layout drawing will be provided.
2. Type of appliance & trolley to be used, e.g. manual or power operated, including the lifting medium, e.g. wire rope or chain. In the case of power operated equipment, this should include details of the power source, isolation & supply system etc & voltage, phase(s) & frequency or pressure & delivery rate. If more than one appliance is to be fitted, details of the number permitted in a single span or the minimum load centres at which they are to operate.
3. SWL or maximum load to be lifted. In the case of a dedicated runway, full details of the load including weight & dimensions & the slinging method to be used.
4. Details of the supporting structure &/or building to which the runway is to be installed. This should include details of any obstructions which may affect the design or operation of the runway.
5. If the runway is to be attached to the building or an existing structure, details of attachment brackets & any additional supporting gantries, columns etc that may be necessary & the position of any stiffening brace members. This should include details of the resultant loads at the attachment points & column bases.

	6. If the runway is to be free standing, details of the supporting structure, including the size & position of supporting gantries, columns & foundation base plates etc. This should include details of the loads imposed on the building floor or foundation. 7. Minimum headroom required or height to underside of runway. In the case of free standing structures, the overall height should also be given. 8. Effective lifting height of the appliance. 9. Environmental conditions, e.g. indoor or outdoor, use within corrosive atmosphere, use in hazardous area, use with dangerous loads etc. 10. Details of finish, e.g. special painted or protective finish. 11. Any special conditions or technical requirements, e.g. flame proofed. 12. Details of access to the location of the proposed runway for erection & testing purposes. Full installation & maintenance instructions. This usually calls for an initial site visit by the supplier to survey the area & assess the practicality of the project. In the majority of cases, this type of installation will be carried out by the supplier who will require the structural engineer's confirmation of the acceptability of the proposed attachment &/or foundation details. The information exchanged should therefore include sufficient details to enable full loading calculations to be made.

Mobile Gantries

Generally designed as a temporary runway structure and used in conjunction with a hand or powered lifting appliance. Not generally intended for movement under load.

Fixed frame mobile gantry

Documents to be supplied in accordance with the relevant legislation & relevant standards:

- **Manufacturers Certificate (Guidance - LEEA-030.2e1 - 3 as applicable)**
- **Certificate of test and thorough examination.**
- **Manufacturer's instructions for use. (Guidance LEEA 062)**
- **Other conformity declarations as required by legislation.**

Certificate of test and thorough examination.

The certificate of test and thorough examination should contain the following minimal information:

- The date on which the proof load was applied and the thorough examination made.
- Date of the report.
- Report number.
- Name and address of employer for whom the thorough examination was made.
- Address of the premises at which the examination was made.
- Description and identification of the equipment which must include its distinguishing number or mark and grades of steel, its size and length.
- The position and magnitude of the deflections obtained during the traversing of the test at SWL and the proof load.
- The maximum safe working load.
- That the runway beam conforms in all respects to the relevant national standard used
- Date of manufacture.
- Reason for the examination, i.e. after first installation and before being used for the first time.
- Particulars of any defect found during the examination and affecting the maximum safe working load and the particulars of the steps taken to remedy such defect.
- A statement stating that the equipment is safe to operate or not
- A statement indicating clearly that it applies to the runway beam only and not to any trolley or lifting appliance that may be fitted.
- Date of next thorough examination.
- Name, signature and qualifications of the person making the report.
- Name and signature of person authenticating the report
- Name and address of the employer of persons making and authenticating this report.

Adjustable Height Mobile gantry

Nationally recognized Standards

LEEA COPSULE – Section 12

Marking requirements:

- **Identification mark(s). (If the manufacturer has not provided a unique serial number, then it is the responsibility of the user to add the identification mark to identify the equipment with the inspection and examination reports).**
- **SWL. This should be marked on both sides of the gantry in such a way that it is readily legible from the operating position.**
- **Maximum hoisting speed for powered hoists or else the words 'Manual Hoist'.**
- **Year of manufacture.**
- **Name of manufacturer or supplier.**
- **In addition, it is advisable that the weight of the structure is marked or otherwise made readily available.**

Although not required by legislation, new Gantries will usually be issued with a manufacturer's record of proof load testing in addition to, although possibly combined with, the manufacturers certificate. This document forms an important part of the record of the clamp. It should be retained & cross referenced to the gantry's historical records for inspection by a Competent Person or relevant enforcing authority.

Information Which Should Be Exchanged Between the User & Designer or Supplier

Mobile gantries are readily available in a wide range of designs, sizes & duty classifications, & may of course be purpose built to suit a particular application or include various special features. The exchange of information should be as detailed as possible. As by their nature mobile gantries are often moved from site to site & used to handle a wide variety of loads, precise details are not always available. In these cases, only a general specification can be
given. In many cases, the requirements will be basic & the information easily exchanged. Where special site conditions apply or where special circumstances exist, a visit by the supplier to survey the site should be considered as this will minimize the necessary exchange of information. In all cases, the following minimum information should be exchanged.

1. Safe working load. Where possible, full details of the load to be lifted, including dimensions & weight.
2. Type of mobile gantry, (e.g. goalpost, adjustable, self-erecting), including maximum wheel &/or jack loadings.
3. Duty type, i.e. heavy duty, or light duty.

	4. Details of working dimensions, e.g. height, span, effective length etc, including any necessary clearances. This information should also include the details of any obstructions which may affect the design of the structure. Outline drawings may be used for this purpose. 5. Details of bracing, e.g. internal or external 6. Type of lifting appliance to be used, including its connecting device. 7. If electric power feed equipment is to be supplied, the type required, which must include provision of earth leads. This should be accompanied by details of the power supply available, including voltage, phase(s), frequency & details of the method of connection to the power source. 8. If pneumatic power feed equipment is to be supplied, the type required. This should be accompanied with details of the air supply available, including pressure, rate of delivery & method of connection to the air supply. 9. Type of castors, including details of the floor conditions & any other factors affecting the choice of type. 10. If jacks are required, the type & details of permissible loading duties. 11. If wheel brakes & /or rotational locks are required, the type. 12. Environmental conditions, e.g. indoor or outdoor use, use with corrosive atmosphere, use in hazardous areas, use with dangerous loads. 13. Details of finish, including any special paint or protective finish required taking account of BS 466 with regard to the use of distinctive colours. 14. Weight of the structure. 15. Any special features or technical requirements, including if the gantry is to be moved under load. 16. Full erection, operational and maintenance instructions.

APPENDIX 1

The following appendix has been developed as a guide to support the requirements of LEEA 059 (1 – 6)

Further information can be found within your national supply legislation.

Examples of this are:

- EU Machinery Directive 2006/42/EC (and national regulations that implement it)
- UK Supply of Machinery (Safety) Regulations 2008 (SOM(S)R 2008)
- UAE - Regulation IO – 11.0 Lifting Equipment Protocol
- Nigeria Factories Act 1987
- (Japan) Ordinance of the Ministry of Health, Labour and Welfare
- Canada Occupational Health and Safety Regulations - SOR/86-304 (in English and French)
- US Department of Labor - Occupational Safety and Health Administration (OHSA)
- Safe Work Australia Act 2008

It is emphasised that this guidance applies to legal requirements only. If the equipment or service provided is to a standard or other specification, additional documents or marking may be required. For each product type within the guidance these marking requirements have been specified.

Lifting equipment includes any manual or power operated lifting machine and any lifting accessory which can connect the load to the lifting machine or the lifting machine to its supporting structure.

The guiding principle for all documentation and marking is that they must be legible, complete, and accurate. Information which is untrue can result in prosecution. In particular, the traditional practice of ‘back-to-back’ documentation is unacceptable.

NEW EQUIPMENT
Manufacturers of lifting equipment, or other responsible persons with the duty of a manufacturer, must comply with applicable national supply legislation. The mandatory information to be contained in the documentation, instructions for use and the marking requirements are defined within the guidance for each product type.

Note: Some machinery and safety components are subject to special attestation procedures carried out by government recognised bodies. In general, such special procedures only apply to lifting equipment if it is to be used for lifting persons or for use in hazardous areas.

In many countries, employers, those responsible for the control of work equipment and self-employed persons, have duties under use of work equipment legislation. Fundamentally this means that employers are assumed to be responsible for ensuring that work equipment complies with any requirements relating to its design or construction, that it is regularly inspected, maintained, thoroughly examined and is selected and used correctly for the required task.

Following any inspection/examination, the competent person carrying out the task has a duty to make a legible, written report. A report of a thorough examination (also known as a report of thorough inspection or report of periodic inspection) is a report issued by the Competent Person giving the results of the thorough examination, which will detail the defects found or include a statement that the item is fit for continued use. Where the Competent Person has carried out a test as part of the inspection/examination, the report will also contain details of the test. The information to be contained in this report can be found in the LEEA Report of Thorough Examination templates.

Note:
(1) The report of thorough examination must be retained as part of the lifting equipment records.
(2) In some cases, a reference to the test report appears as an appendix to the thorough examination.

The simplest solution
In most cases, the simplest way to comply with the legal requirements is for the manufacturer to issue the relevant Manufacturers Certificate or Statement of Conformity documentation where applicable and provide instructions for use. If the equipment is not supplied direct to the end user, those in the supply chain should pass on the original documents and not alter any markings. The end user should obtain and keep the original or copies of the original documents.

If an exemption applies, the equipment can be put into use. If, at the point of being put into use, the exemption no longer applies or if safety depends on the installation conditions, the employer should have it thoroughly examined by a competent person and obtain and keep the report of that examination. Provided the report states that it is safe to operate, the equipment can be put into use.

Problems and alternative solutions

(1) Your supplier has not provided the Manufacturers Certificate or Statement of Conformity

The equipment should be rejected until it is provided.

(2) The supplied documentation covers a bulk supply which you will sell on in smaller quantities

Provide a copy of the required documentation to your customer regardless of how small a quantity is supplied.

(3) Your supplier will sell direct to your customer, so you do not wish to reveal your source

The marking requirements of modern legislation for lifting appliances, include the name and address of the manufacturer. For lifting accessories, it includes identification of the manufacturer. You cannot therefore legally hide this information. If your supplier is not the manufacturer but has passed on the original documents, the simplest solution applies. If your supplier is the manufacturer, 'own brand' it as in (4) below.

(4) Equipment made by others but sold in your name

This is known as 'own branding'. **Legislation guidance is that if you appear to be the manufacturer you must accept all the obligations of a manufacturer including assembly of the technical file, a statement of conformity, marking and compliance with the essential safety requirements**. If you are not in possession of the technical file you must have a written mandate from the manufacturer that authorises you as their legal representative and details explicitly which legal obligations are entrusted to you. As a minimum you must be made responsible for compiling the technical file and making it available to the authorities if requested during market surveillance.

Note: The technical file need not be paper based, electronic records are acceptable and only an Enforcing Authority can expect to have sight of it following a substantiated request.

(5) Equipment assembled from several items or modified

The person assembling equipment is regarded as the manufacturer of the assembly. If items within the assembly have a statement of conformity or similar, that forms part of the technical file for the assembly. Similarly, anyone modifying equipment and/or changing its intended use is regarded as the real manufacturer. In both cases the obligations include assembly of the technical file, issuing of the statement of conformity or similar, marking and compliance with the essential requirements including provision of instructions.

(6) Equipment made by others which you are asked to test and certify

Be cautious about what you are being asked to do. Traditionally a certificate of test and examination was all that was required to take the equipment into service. Now it is only one ingredient of the technical file. **Test reports are not legal documents** that allow the equipment to be used. If you are testing it on behalf of the manufacturer as part of his verification process, then he should provide a test specification for you to work to after which you should simply report the results.

However, new, and second-hand lifting equipment may have been purchased without any documentation, and customers will send such equipment or even homemade equipment, expecting you to test and certify it as safe to use. In general, equipment which may need to be conformity marked and have a statement of conformity or similar but has not, should be referred back to the manufacturer. If you go beyond simply testing, examining, and reporting the results, you will be taking a risk.

If it is a test and examination of a new installation and safety depends upon the installation conditions, a Report of Thorough Examination or inspection report is also required. Check also that your customer has the relevant documentation from the manufacturer(s) and that the equipment has been installed in accordance with their instructions. If it is an assembly of items or includes a modified item, check who is responsible for the assembly or modification. See (5) above.

(7) Equipment supplied without instructions
Lifting equipment is to be accompanied by instructions for use. Therefore, as a general rule, the equipment should be rejected until such instructions are supplied. If it is general purpose equipment, without any characteristics particular to the design, then generic instructions are an acceptable alternative.

(8) Equipment supplied without Conformity marking
National Legislation of certain countries require that complete items of lifting equipment are to be conformity marked. They must also have the minimum marking required by the nationally approved standard that the equipment has been made to. Sub-assemblies and components are not usually marked as such. Also, some items, such as shackles, may be made for non-lifting applications. If the item is supplied complete and is intended for lifting applications yet not marked, reject it.

(9) Equipment with a statement of incorporation
National Legislation of certain countries require a statement of incorporation or similar. This is a device to legally market machinery which can function but is not complete and may not be safe until assembly. It is a statement that the machinery is not to be used until incorporated into an assembly for which a statement of conformity is issued. If you buy and incorporate such machinery, you have the obligations of the manufacturer of the finished assembly.

IN-SERVICE EQUIPMENT
Generally, an employer has a legal duty to have any lifting equipment in their custody thoroughly examined or inspected. This may be at specified maximum periods, or in accordance with an examination scheme, or after any exceptional circumstances which are liable to jeopardise the safety of the equipment. Following any thorough examination/inspection, the person carrying this out, has a duty to make a report of the examination/inspection irrespective of whether or not the equipment is found to be safe to use.

The report must be made to the employer and any person from whom the equipment has been hired or leased. If the person making the examination is of the opinion that there is a defect involving an immediate or imminent risk of serious personal injury, he has a duty to send a copy of his report to the relevant enforcing authority. LEEA have produced example templates for this. Please contact LEEA for copies.
If you have any queries, please contact LEEA through technicaladvice@leeaint.com