Lifting Equipment Engineers Association

Guide to Documentation and Marking – Part 5 Lifting Accessories, Slings

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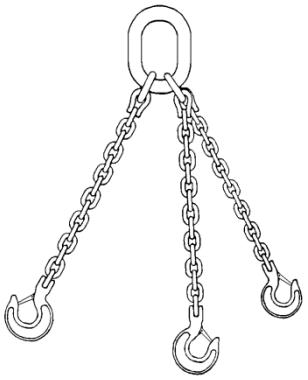
Introduction.

This guide is aimed at manufacturers, distributors and users of lifting equipment within the European Economic Area. 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 current legislation, standards and best practice guidance.

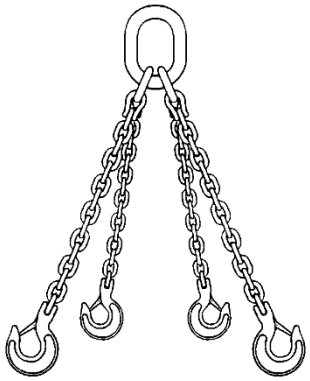
LEEA 059-5 is one of a series of guides related to documentation and marking of a range of generic forms of lifting equipment as listed below:

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

Item & Standard	*Required Information*
Chain Slings Assembly of one or more chains for attaching loads to the hook of a crane or other lifting  **Single leg sling**  **Two leg sling**	**Documents to be supplied in accordance with the relevant legislation & relevant standard:** - **EC Declaration of Conformity (guidance LEEA 080.1)** - **Manufacturers Certificate (guidance EN 818-4 / EN 818-5 clause 8)** - **Manufacturer's instructions for use (guidance LEEA SI.1.3 and EN 818-6)** *Note: the EC Declaration of Conformity & Manufacturers Certificate can be issued as a single document.* **Manufacturers Certificate** Each assembled chain sling shall be provided with a dated certificate stating conformance with EN 818-4 & giving a least the following minimum information: - Name of the chain sling manufacturer or supplier including date of issue of the certificate & authentication. - Number & part of the standard, eg EN 818-4 or EN 818-5 - The identification number or symbol of the chain sling - A description of the chain sling, to include a list of all component parts - The nominal size of the chain & the grade mark - The nominal length - The working load limit For chain slings of welded construction the following information is required in addition to the minimum information above: - The value of the manufacturing proof force(s) applied - The name of the person or establishment that carried out the manufacturing proof force test & final examination.



Three leg sling.



Four leg sling

BS EN 818-4 (G8)
BS EN 818-5 (G4)

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For chain slings joined by mechanical devices. In the case of chain slings the following information is required in addition to the minimum information above:

- In the case of chain slings proof tested following assembly the following information:
    1. The name of the person or establishment that carried out the manufacturing proof force test & final examination.
    2. The value of the manufacturing proof force applied.

- In the case of chain slings not proof tested following assembly, the name of the competent person or establishment that carried out the visual examination.

Marking requirements

Single leg sling.

- **CE Mark**
- **Sling manufacturers name or symbol**
- **Year of manufacture**
- **WLL in tonnes (t)**
- **Identification mark**
- **Sling grade**
- **Number of legs i.e. 1**

Multi-leg sling.

- **CE Mark**
- **Sling manufacturers name or symbol**
- **Year of manufacture**
- **WLL in tonnes (t) and range of angles.**
- **Identification mark**
- **Sling grade**
- **Number of legs**

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

In the case of multipurpose slings, only a general specification can be given, whereas for dedicated single purpose slings a more detailed exchange of information is necessary. In either case, the following is the minimum information which should be exchanged between the user and designer or supplier of the equipment:

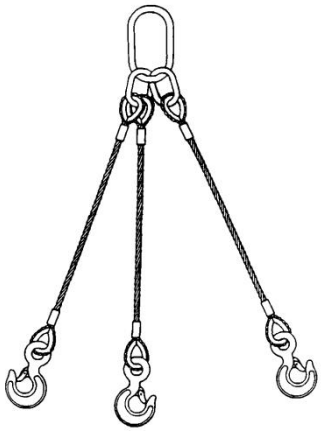
Multipurpose Slings

1. Details of the sling required, ie single leg, two leg etc, maximum load to be lifted, length of leg(s).
2. Slinging conditions, if the sling is to be used in choke hitch, if the sling is to be used at 0-45º or 45º-60º as well and the maximum load to be lifted in any of these conditions.
3. If shortening devices are required for sling adjustment.
4. The environmental conditions, including extremes of temperature and details of possible chemical attack.
5. The conditions of loading, including being subject to shock loads, if the nature of the load is inherently dangerous, eg hot metal or acids, if the load is to be transported over areas involving high risk, eg work areas.
6. Details of the largest and smallest crane hook onto which it is intended to place the upper terminal fitting.
7. Other technical requirements or any special requirements applicable on the site(s) where the sling is to be used.

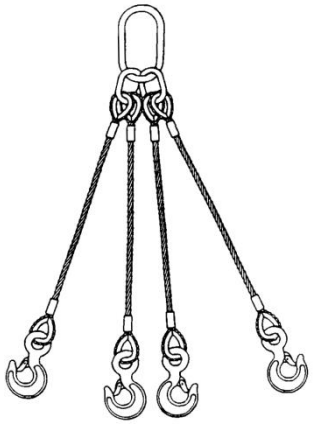
Single purpose slings.

1. All details of the load to be lifted, including the gross weight and dimensions together with the position of the centre of gravity and details of any permanently built in lifting points.
2. The environmental conditions, including extremes of temperature and details of possible chemical attack.
3. The conditions of loading, including being subject to shock loads, if the nature of the load is inherently dangerous, eg hot metal or acid, if the load is to be transported over areas involving high risk, eg work areas.
4. Details of the crane hook onto which the upper terminal fitting will be placed.
5. The headroom available.
6. Other technical requirements or special requirements applicable on the site(s) where the sling is to be used.
7.

Steel Wire Rope Slings	**Documents to be supplied in accordance with the relevant legislation & relevant standard:**
Assembly of one or more steel wire rope legs for attaching loads to the hook of a crane or other lifting machine  **Single leg sling**  **Two leg sling**	- **EC Declaration of Conformity (guidance LEEA 080.1)** - **Manufacturers Certificate (guidance EN 13414 -1, -2, -3)** - **Manufacturer's instructions for use. (guidance SI.2.3)** *Note: the EC Declaration of Conformity & Manufacturers Certificate can be issued as a single document.* **Manufacturers Certificate** The certificate shall contain at least the following information. - The name & address of the manufacturer or where applicable the authorized representative. - The number & part of this European Standard; i.e. EN 13414-1. - The description of the sling including all component parts. - The WLL & the appropriate angle(s) to the vertical for multi-leg slings. - The static test coefficient(s) used for design of component(s) (e.g. hook; link; shackle). Additional information for grommets to EN 13414-3. - Identification number of grommet - Nominal diameter - Direction of lay of grommet - Nominal mass of grommet - Nominal length of circumference - Description of the grommet including all component parts - Actual length or circumference - Actual diameter - Pin diameter (if specified by the purchaser) - Measuring load (if specified by the purchaser) Additional information for cable laid slings:



Three leg sling



Four Leg sling.

BS EN 13414 - Parts 1,2 & 3
LEEA COPSULE – Section 14

- Identification number of sling
- Nominal diameter
- Direction of lay of sling
- Nominal mas of sling
- Nominal length or circumference
- Description of the sling including component parts
- Actual length, stating whether under load or no load
- Actual diameter
- Eye length.
- Approximate splice length from beginning of eye to last tuck
- Tail length
- Length between last tucks
- Pin diameter
- Measuring load

Marking requirements:

Single leg sling (single part or endless)

- **CE Mark**
- **Manufacturers identifying mark**
- **Numbers and/or letters identifying the sling with the manufacturer's certificate.**
- **Working load limit**
- **Year of manufacture**
- **Material Grades**

Multi-leg sling

- **CE Mark**
- **Manufacturers identifying mark**
- **Numbers and/or letters identifying the sling with the manufacturer's certificate.**
- **Working load limit and the angles applicable.**
- **Year of manufacture**
- **Material grades**

	Information Which Should Be Exchanged Between the User & the Designer or Supplier As wire rope slings are frequently used for multi-purpose lifting applications, precise details of the load to be lifted are not always available. In these circumstances, only a general specification can be given but should, as far as possible, include the following information: 1. The maximum load to be lifted and, if available, dimensions of the load together with details of any permanently built-in lifting points. 2. The number of sling legs required and length. 3. If multi-leg, the range of angles for which the sling is to be rated (ie 0-45° or additionally 45°-60°). 4. The upper and lower terminal fittings required (if any) or type of eye, eg soft eye, thimbles. 5. Information on any adverse environmental conditions, eg exposure to chemical atmospheres, high or low temperatures, exposure to the elements etc. 6. The conditions of loading, including whether the sling is likely to be subjected to a shock load, whether the load to be lifted is inherently dangerous, eg hot metal or acid, whether the load is to be transported over areas involving high risk eg work areas. 7. The extent of the headroom available if known. 8. Other technical requirements or any special requirements applicable on the site(s) where the sling is to be used.
Textile Slings **Flat woven webbing slings** Assembly of one or more sewn webbing components for attaching loads to the hook of a crane or other lifting machine. Flat woven or endless round sling	**Documents to be supplied in accordance with the relevant legislation & relevant standard:** - **EC Declaration of Conformity (guidance LEEA 080.1)** - **Manufacturers Certificate (guidance BS EN 1492-1 clause 8)** - **Manufacturer's instructions for use. (guidance LEEA SI.3.4 and BS EN 1492-1 annex B)** *Note: the EC Declaration of Conformity & Manufacturers Certificate can be issued as a single document.* **Manufacturers Certificate** The certificate shall include at least the following information: - The manufacturers name & address, symbol or mark

Flat woven webbing sling

BS EN 1492 - 1
LEEA COPSULE – Section 15

- Working load limit for the sling & for multi-leg sling assemblies the range of angles to the vertical.
- Type, including eye, fitting, number of legs, nominal length & width.
- The expression ‘flat woven webbing sling’ or ‘flat woven sling assembly’.
- Material of the webbing
- Grade of fitting
- If fitted details of the reinforcements & protection against damage from edges & or abrasion.
- The number of the European standard, e.g. EN 1492-1
- test references, refer to clause 6 of EN 1492-1
- traceability code
- identification of the person authorised to sign the certificate on behalf of the manufacturer & date of the signature

Marking requirements

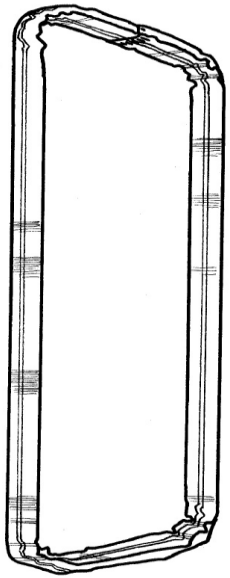
- **CE Mark**
- **Working load limit, in straight lift**
- **Material of the webbing**
- **Grade of fitting**
- **Nominal length in m**
- **Business name of the manufacturer or symbol, trade mark or other unambiguous identification**
- **Traceability code**
- **A reference to the standard to which it was made**
- **Year of manufacture**

Additional marking requirements for multi-leg slings. (to be marked on a round tag attached to the master link)

- **Maximum angle of use of any leg to the vertical**
- **Label on each leg must not show the WLL**

Information Which Should Be Exchanged Between the User & the Designer or Supplier
As flat woven webbing slings are frequently used for multi-purpose lifting applications, precise details of the

	load to be lifted and mode of use are not always available. In these circumstances, only a general specification can be given but should, as far as possible, include the following information: 1. Type of sling required, ie single, two leg etc. 2. Details of soft eyes and eye protection OR if terminal fittings are required to be attached to the sewn webbing component, the type, eg choker eyeplates etc. 3. The gross weight and dimensions of the load to be lifted together with details of any permanently built in lifting points if known or alternatively, the maximum load to be lifted. 4. The effective working length of the sling. 5. The mode of use, ie whether the sling is to be used in choke hitch or basket hitch etc. In the absence of other information, the manufacturer will assume straight pull. 6. The environmental conditions, particularly if the temperature is outside the range of -40°C to +80°C, if there is any exposure to specific chemicals or liquids, if the sling will be exposed to strong sunlight for long periods. 7. The conditions of loading, including: (a) Whether the sling is likely to be subject to shock load. (b) Whether the load is to be transported over areas involving high risk, eg work areas. (This should not be done if it can be avoided.) (c) Whether the load itself is hazardous. 8. If any protective sleeves are required, the number, length and type of sleeves to be fitted. 9. If any moulded wear pads are to be fitted, the length, number and position. 10. The material of the sewn webbing component. 11. Material and grade of any terminal fittings. 12. If any special treatment or finish is to be applied to the sewn webbing component. 13. Any special instructions including any special marking requirements.

Round Slings	Documents to be supplied in accordance with the relevant legislation & relevant standard:
 **BS EN 1492-2** **LEEA COPSULE – Section 16**	- **EC Declaration of Conformity (guidance LEEA 080.1)** - **Manufacturers Certificate (guidance BS EN 1492-2)** - **Manufacturer's instructions for use. (guidance LEEA SI.4.4 and BS EN 1492-2 annex B)** *Note: the EC Declaration of Conformity & Manufacturers Certificate can be issued as a single document.* **Manufacturer's certificate.** The certificate shall include at least the following information: - the manufacturer's name & address, symbol or mark and, where applicable, the name & address of the authorized representative"; - WLL of the sling, & for multi-leg sling assemblies the range of angles to the vertical; - type, including fitting, number of legs & nominal length; - the expression 'roundsling' or 'roundsling assembly' - material of the roundsling; - grade of fitting - if fitted, details of protective sleeves - the number of the European Standard, i.e. EN 1492-2; - test references (see clause 6 of EN 1492-2); - traceability code; - identity of the person authorized to sign the certificate on behalf of the manufacturer & date of signature; - the static test coefficient(s) used for design of component(s) (e.g. hook; link; shackle)." **Marking requirements.** - **CE Mark** - **Working load limit** - **Material of the roundsling** - **Grade of fitting** - **Nominal length in m** - **Business name of the manufacturer, or symbol, trade mark or other unambiguous**

identification

- **Traceability code**
- **The standard number to which the sling was made.**
- **Year of manufacture**

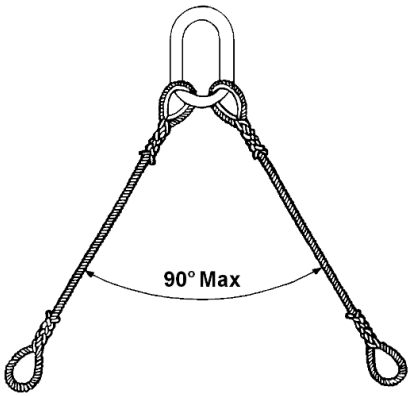
Additional marking requirements for multi-leg slings. (to be marked on a round tag attached to the master link)

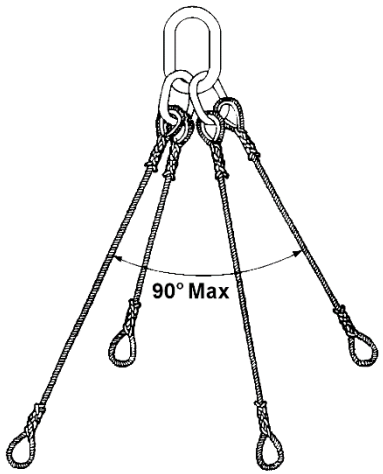
- **Maximum angle of use of any leg to the vertical**
- **Label on each leg must not show the WLL**

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

As roundslings are frequently used for multi-purpose lifting applications, precise details of the load to be lifted are not always available. In these circumstances, only a general specification can be given but should, as far as possible, include the following information:

1. The gross weight and dimensions of the load to be lifted together with details of any permanently built in lifting points.
2. The environmental conditions, particularly if the temperature is outside of the range -40°C to +80°C, if there is any exposure to specific chemicals or liquids, if the sling will be exposed to strong sunlight for long periods.
3. The conditions of loading including:
   (a) Whether the sling is likely to be subjected to shock load.
   (b) Whether the load is to be transported over areas involving high risk eg work areas. (This should not be done if it can be avoided)
   (c) Whether the load itself is hazardous.
4. The effective working length of the sling.
5. The mode of use, ie whether the roundsling is to be used in choke hitch, basket hitch etc.
6. The material of construction.
7. If additional protective sleeves are required, the length and number of sleeves to be fitted.
8. Material and grade of any fittings or coupling devices.
9. Any special instructions including any special marking requirements.

Natural & Man Made Fibre Ropes	Documents to be supplied in accordance with the relevant legislation & relevant standard:
 **Single leg sling**  **2 leg sling**	- **EC Declaration of Conformity (guidance LEEA 080.1)** - **Manufacturers Certificate (guidance BS EN 1492-4)** - **Manufacturer's instructions for use. (guidance LEEA SI.5.3 and BS EN 1492-4 annex A)** *Note: the EC Declaration of Conformity & Manufacturers Certificate can be issued as a single document.* **Manufacturer's certificate.** The certificate shall include at least the following information: - Manufacturer's name, address, symbol or mark & where applicable the name & address of the authorized representative. - WLL of the sling, & for multi-leg sling assemblies the angle to the vertical; - Type, including eye, fitting, number of legs & nominal length; - Nominal diameter or reference number of rope, the rope material & type of construction; - Grade of fittings; - Number of the European Standard, i.e. EN 1492-4:2004; - Traceability code; - Identity of the person authorized to sign the certificate on behalf of the manufacturer & date of signature; - The static test coefficient(s) used for design of component(s) (e.g. hook; link; shackle). **Marking requirements** - **CE Mark** - **Working load limit in straight lift in the case of single leg or endless slings or for multi-legs with an angle of 0 – 45 degrees** - **Material of the rope** - **Reference number of the rope and grade of fittings** - **Nominal length in m** - **Business name, symbol, trade mark or other unambiguous identification**



4 leg sling

BS EN 1492 – 4
COPSULE Section 18

- **Traceability code**
- **Number and part of this standard.**
- **Year of manufacture.**

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

As fibre rope slings are frequently used for multi-purpose lifting applications, precise details of the load to be lifted and mode of use are not always available. In these circumstances, only a general specification can be given but should, as far as possible, include the following information:

1. Type of sling required, eg single leg, endless.
2. Type of eye, eg soft eyes, or if fittings are required, details of the fittings, eg hook.
3. Gross weight and dimensions of the load to be lifted together with details of any permanently built-in lifting points or the maximum load to be lifted.
4. Effective working length of the sling.
5. The mode of use, eg whether the sling is to be used in choke hitch, basket hitch etc.
6. The environmental conditions, particularly if the temperature is outside the range of - 40°C to 80°C or if there is any exposure to specific chemicals, liquids or gases.
7. The conditions of loading including:
   (a) Whether the sling is likely to be subject to shock load.
   (b) Whether the load is to be transported over areas involving high risk, eg work areas. (This should not be done if it can be avoided.)
   (c) Whether the load itself is hazardous.
8. Material from which the sling is to be manufactured.
9. If any protective sleeves are required, the length and number of sleeves to be fitted.
10. Any special instructions including any special marking requirements.

Note: In the absence of any specific information, the supplier will assume that the circumstances of use are suitable for the sling to be used at its maximum safe working load and the sling(s) will be marked and certified on that basis.