User Manual

# Master Link D

**D-22-10**

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Part number: KCG-UM-010-A
Version 2025 March

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# 1 Introduction and EC declaration

This manual is an original instruction in accordance with:

Directive 2006/42/EC on machinery, section 1.7.4 Instructions and Annex II Declarations.

This manual is valid for the Master Link D. See General Description for an overview of the included variants.

This manual is valid together with Gunnebo Industries' instruction for slings and lifting guide.

All manuals are continuously updated and are only valid in their latest version, which can be downloaded from www.kitocrosby.com.

## 1.1 EC declaration of conformity

The R&D Manager is the authorized person to compile the technical file.

We declare that the lifting component described in this user manual fulfils all the relevant provisions of the Directive 2006/42/EC as a partly completed machine.

The product's main use is to be incorporated as part of a CE-marked lifting assembly but must not be put into service until the final lifting assembly has been declared to be in conformity with the provisions of the Directive 2006/42/EC.

Our quality management system complies with ISO 9001:2015 and is certified by LRQA Sverige AB for and on behalf of Lloyd's Register Quality Assurance Limited (certificate identity number: 10140613).

Information about harmonized and national standards/technical specifications that apply, and the valid version of this user instruction are available at www.kitocrosby.com.

If the Master Link D is modified without approval from Gunnebo Industries, this declaration becomes invalid.

Växjö, March 2025

Fredrik Sandberg

Engineering Manager

## 1.2 Abbreviations

| | |
|---|---|
| **EC** | European Commission |
| **LRQA** | Lloyd's Register Quality Assurance |
| **WLL** | Working Load Limit |
| **WLP** | Weldable Lifting Point |
| **SLP** | Screw-on Lifting Point |

*Table 1 - Abbreviations*

# 2 Safety precautions

## 2.1 Warnings, cautions and notes

Carefully read the instructions before using the lifting equipment.

The following signs are used in the instructions, to alert about potential dangers and safety related issues.

**Warning!**

A warning alerts about a situation which, if not avoided, could result in injury, or death.

**Caution!**

A caution alerts about a situation which, if not avoided, could result in minor or moderate injury, or damage to the equipment or other property.

**Note!**

Notes are added to give more information.

## 2.2 General safety precautions

The rigger is responsible for the lifting operation, and for following all related safety regulations. The rigger must understand the limitations of the equipment.

The rigger is a competent person, able to judge the condition of the sling and ensure that it is correct dimensioned to the demands of the lifting object.

## 2.3 Lifting precautions

**Warning!**

Do not overload.

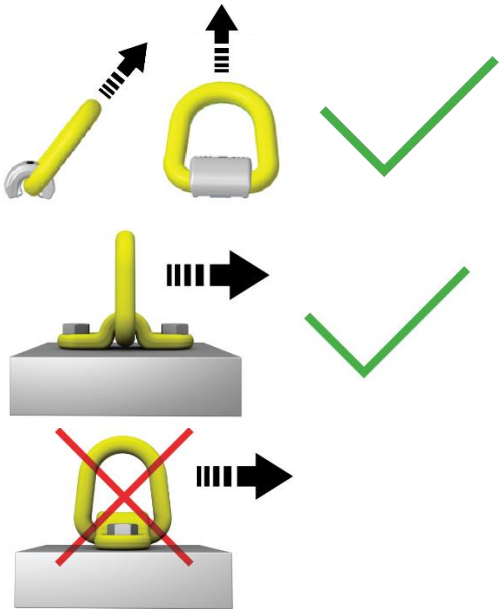
**Warning!**

Keep your hands away from the D Master Link during lift.

**Warning!**

Visual function check:
Before each operation, check that the Master Link D can rotate 180 degrees and that there is no visible damage.

**Warning!**
The Master Link D must be able to rotate and align with the pull force.
Do not side load.



**Warning!**

Make sure that the Master Link D and sling leg align with the pull direction. Check that the lifting chain and textile sling are not twisted or rotated.

**Warning!**
Adapt the size of the connecting object. The connecting object for lifting or lashing must rest comfortably inside the D-Ring without being pinched.

**Warning!**
Do not force a lifting/lashing connecting object into the Master Link D. Use an object with a larger opening instead.

**Warning!**
Only insert one object into the Master Link D. In the case of more than one object, the rigger must make a risk assessment.

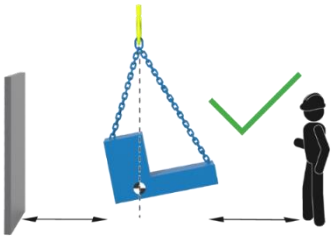
**Warning!**
Do not block the Master Link D when loaded. The Master Link D must be able to align.

**Caution!**

Protect the Master Link D from damage and wear.

**Note!**

When lifting asymmetric loads, be aware of sudden movement of the load. Keep distance.



# 3 General description

All measurments shown in images, and technical data can be found on the website www.kitocrosby.com.

| | D-14-10 | D-17-10 | D-22-10 | D-27-10 | D-32-10 |
|---|---|---|---|---|---|
| **WLL (ton, Metric)** | 2.5 | 4 | 7 | 10 | 16 |

*Table 2: Overview of Included variants*

The Master Link D is a forged link. The safety factor is 4:1. It can be used in Lifting operations as well as for Lashing.

For Lashing LC = 2 times WLL (when used for Lashing, twice the WLL can be used).
WLL (Working Load Limit) refers to the maximum working load a lifting accessory or lifting assembly can be subjected to.

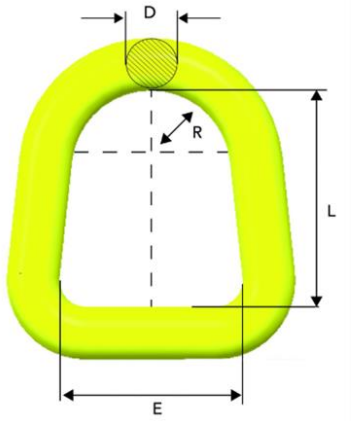



*Figure 1: D-22-10*

Each Master Link D is marked as follows:

- Manufacturer identification (GUNNEBO SWEDEN)
- Product name, chain size, material grade
- Batch/traceability code
  The traceability code consists of letters and numbers that identify exactly which plant the product was made in, the year, and batch. This enables tracing the product back through the manufacturing process, all the way back to the specific raw material.
- German professional worker association (BG H32)
- CE-mark

Gunnebo Industries issue:

- manufacturer´s certificate according to EN 1677-1 and
- 3.1 material certificate acc. to EN 10204

Authorized resellers may provide their own documentation and will be able to provide the original certificates upon request.

# 4 Intended use and restrictions

## 4.1 Intended use

The Master Link D, was developed to enable a safe connection point to lash or lift an object.

There are many different applications for the Master Link D. It can be combined with other parts and used to secure load during transport. It is also possible to combine with other parts to pinpoint a dedicated lifting position for an object.

Since the WLL is not noted on the Master Link D it must be marked on other ingoing parts that together form an assembly with the Master Link D. For example, as marked on the Weldable Lifting Point WLP.

*Figure 2: WLP (Weldable Lifting Point)*

The use of the Master Link D is flexible. It is important to dimension the complete lifting or lashing installation.

A complete installation consists of:

- Master Link D
- Block/ bracket fixed with weld/bolts
- Surrounding structure

When the Master Link D is part of a machine, it must be dimensioned together with the machine. The structure and block/bracket are not included since the design of the surrounding structure must be studied from case to case.

A competent person responsible for the lifting operation must read and understand this manual before using the Master Link D.

*Figure 3: Master Link D-22-10 with welding block marked with WLL for lifting 7t*

The Master Link D can only be used for lifting when the user has a valid certificate.

Authorized resellers may provide their own documentation and will be able to provide the original certificates upon request.

## 4.2 General limitations of use

- Never modify, repair, or reshape the product by welding, heating or bending as this will affect the nominal WLL.
- Never heat-treat the product as this may affect the WLL.
- Do not galvanize or subject the product to any plating or coating process without approval of the manufacturer.
- Do not use the product in alkaline or acidic conditions.
- Do not expose the product to aggressive chemicals, such as acids, alkalines and their vapors.

## 4.3 Use in exceptionally hazardous conditions

The rating of lifting accessories in European Standards assumes the absence of exceptionally hazardous conditions.

Exceptionally hazardous conditions include offshore activities, the lifting of persons, and lifting of potentially dangerous loads such as molten metals, corrosive materials, or fissile materials.

In such cases a competent person should assess the degree of hazard and adjust the WLL (working load limit) accordingly.

## 4.4 WLL reduction at elevated temperatures

The general service temperature for the Master Link D is -40 °C/-40 °F to +200 °C/392 °F.

For temperatures higher than +200 °C/392 °F, the following applies:

| **Service temperature (Only for the D Master Link, not the textile sling)** | **New load capacity in % of original WLL** |
|---|---|
| 200-300 °C<br>392-572 °F | 90% |
| 300-400 °C<br>572-752 °F | 75% |
| > 400 °C<br>> 752 °F | Not allowed |

*Table 3: WLL reduction at elevated temperatures*

## 4.5 Fatigue

It is important to understand that fatigue failure can occur even if the prescribed WLL is not exceeded.

Scenarios in which the Master Link D is subjected to variable load over a prolonged period of time, will carry the risk of fatigue. Consider this when dimensioning and deciding service intervals.

The Master Link D is designed for a maximum of 20 000 load cycles.

## 4.6 Additional marking

If markings such as project code, and serial number are added, it must be done in a way that does not reduce the strength, corrosion resistance, or the legibility of the manufacturer's own marking.

The following methods are recommended for marking:

- marking tape
- engraving tool
- low stress punches

*Figure 4: Recommended position for punched or engraved marking*

# 5 Instructions prior to use

Read and understand this manual before using the Master Link D. Read the Safety precautions. For further recommendations regarding safe use of the Master Link D in sling applications, see Gunnebo Industries' instruction for safe use of slings and lifting guide. Download the Lifting guide and Instructions for slings at www.kitocrosby.com.

Lifting and lowering of loads must be done smoothly and must be free from jerks.

The WLL (Working Load Limit) for the Master Link D is for vertical pull and 1-leg sling.

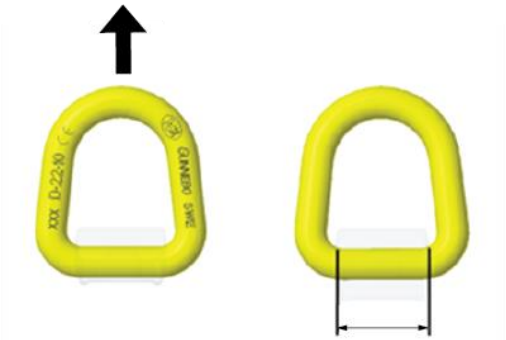


*Figure 5: Load direction for WLL combined with fixing of minimum half inner width of the Master Link D*

Adjust to the direction of pull before attaching to the means of lifting. Check that the Master Link D can align with the pull force.

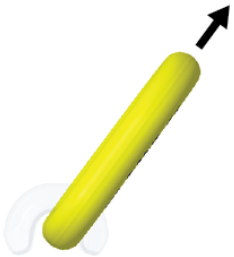


*Figure 6: Master Link D aligned with the pull force*

Adjust the WLL depending on the number of sling-legs and sling angle. See Gunnebo product catalogue and www.kitocrosby.com.

For lashing, double the WLL compared to lifting is allowed.

All fittings connected to the Master Link D should be free moving. When connecting and disconnecting the means of lifting (wire ropes, chain slings, round slings), avoid pinches and impacts. Avoid damage to lifting components caused by sharp corners.

## 5.1 Verification prior to first use

Before first use ensure that:

- The Master Link D is precisely as ordered.
- The manufacturer's certificate is in order

## 5.2 Inspection prior to each use

Inspect the Master Link D for obvious damage or deterioration before each use in accordance with local regulations.

Check also against the items listed under Inspection. If there is any doubt regarding meeting these criteria, do not use the Master Link D for lifting operation.

## 5.3 Before loading

- Determine the weight of the load and the center of gravity.
- Check the conformity of the load with the WLL of the lifting equipment for the specific working configuration.
- Ensure that the Master Link D has been correctly assembled in accordance with the Assembly instructions.
- Ensure that no obstacles obstruct the lift and prepare the landing site.

# 6 Assembly

Only a qualified person may assemble the Master Link D.

When the Master Link D is incorporated as part of a lifting assembly, it must be part of the certification and WLL rating of the complete assembly or machine.

To study possible assemblies, read the instruction manual for WLP or SLP (Weldable and Screw-on lifting points).

## General information

The Master Link D is delivered as follows.

The block:

- must be centered
- must fill up at least half of the inner width of the D-Ring

Verify that all markings are readable on the Master Link D.

WLP and SLP are examples of possible assemblies where the Master Link D is included.

# 7 Maintenance

When performing maintenance or inspection, always read and follow the Safety Precautions.

## 7.1 Inspection

During service, lifting equipment are subjected to conditions which affect their safety. Therefore ensure that the equipment is safe for continued use. See Safety Precautions.

Withdraw the Master Link D from service and refer the product to a competent person for thorough examination if any of the following is observed:

- The Master Link D markings are illegible.
- More than 10% reduction of dimension at any point.
- Cuts, nicks, gouges, cracks, excessive pitting or corrosion, heat discoloration, bends, distortion, or other defects.

## 7.2 Examination

A competent person should thoroughly examine the product at least once every year. The inspection should be carried out more frequently if deemed necessary, taking into consideration the following points.

- Local, national, or branch-specific regulation.
- The service condition of the Master Link D.
- Use in demanding environments (such as corrosive or extreme temperature).
- Use where the Master Link D is subjected to repeated loads that may induce metal fatigue.

Maintain records of examinations. Before examination, clean the Master Link D so it is free from oil, dirt, and rust.

Any cleaning method which does not damage the parent metal is acceptable. Methods to avoid are those using acids, overheating, removal of metal or movement of metal which may cover cracks or surface defects.

See also Safety Precautions.

## 7.3 Repair

A competent person with relevant knowledge and technical skills must do the repairs. The Master Link D shall only be returned to service after approval by a designated person.

Maintain records of repairs.

Any replacement component or part of the Master Link D should be in accordance with the appropriate European Standard for that component or part. Use only original Gunnebo spare parts.

Discard or replace components that are cracked, visibly distorted or twisted, severely corroded or have deposits which cannot be removed.

Remove minor damage such as nicks and gouges by careful grinding or filing. The surface should blend smoothly into the adjacent material without abrupt change in the section. The complete removal of the damage should not reduce the thickness of the section at that point to lesser than the manufacturer's specified minimum dimensions or by more than 10% of nominal thickness of the section.

## 7.4 End of use/Disposal

Recycle as general steel scrap.