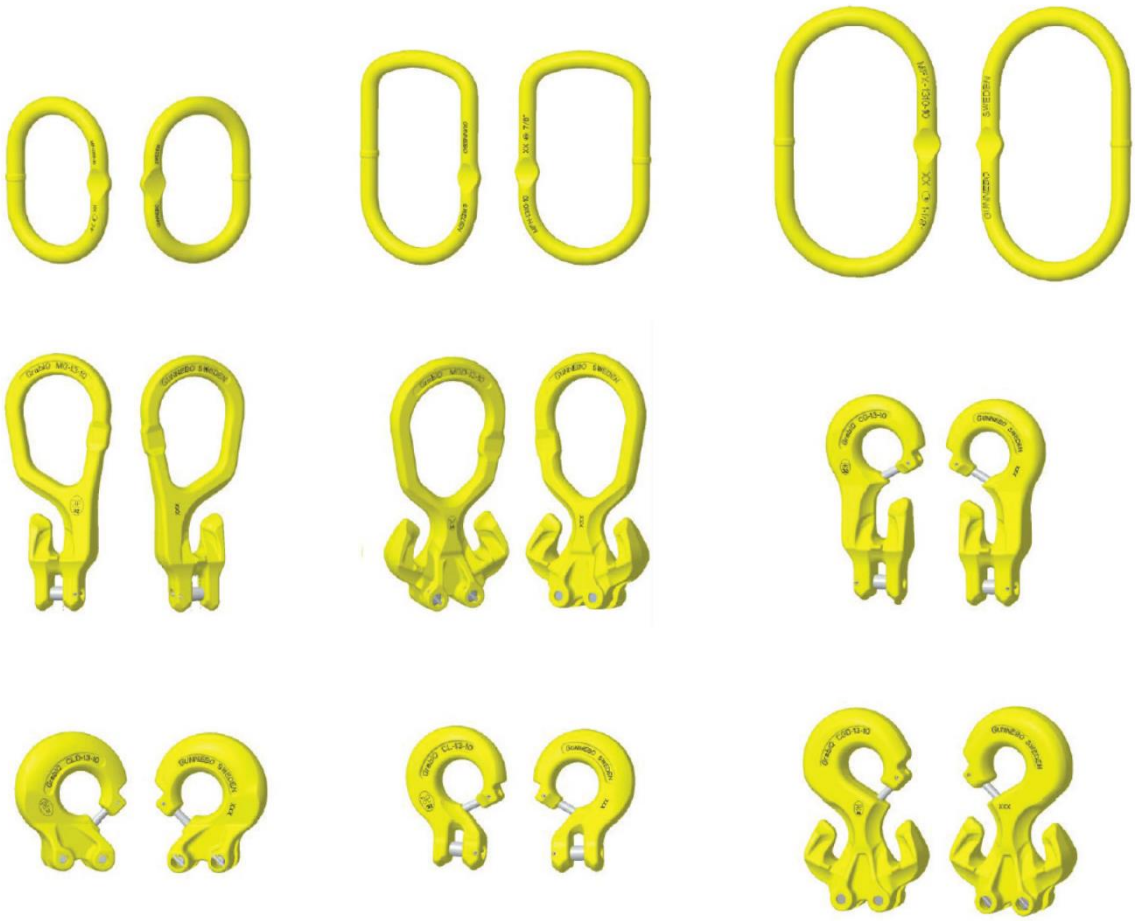
User Manual

GrabiQ Chain Sling System (Metric)



MF-13-10 | MFH-1310-10 | MFX-1310-10 | MG-13-10 |MGD-13-10

CG-13-10 | CGD-13-10 | CL-13-10 | CLD-13-10

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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.

It also meets the requirements in:
Standard EN 1677:1:2008 Components for slings - Safety - Part 1: Forged steel components.

This manual is valid for the GrabiQ chain sling system. See cover page for an overview of 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 Engineering 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 main use of the product 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 products are modified without approval from Gunnebo Industries, this declaration becomes invalid.

Växjö, December 2025

Fredrik Sandberg

Engineering Manager

1.2 Abbreviations

ISO	International Organization for Standardization
EC	European Commission
LRQA	Lloyd's Register Quality Assurance
WLL	Working Load Limit

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 is a competent person, with the knowledge to select correctly dimensioned lifting equipment, and to ensure its safe condition.

Before each lifting operation, check that the lifting system parts and connecting parts are correctly attached to each other.

2.3 Lifting precautions

Warning!

Keep a safe distance to overhead loads by staying outside the fall zone. Shattered crates and debris can injure or kill even at some distance from the impact area.

Warning!

Only authorized personnel are allowed inside the exclusion zone during the lifting procedure.

Warning!

Before each lifting operation, check that the lifting equipment aligns with the pull direction. Check that the lifting chain/steel wire/synthetic textile band is not twisted or rotated.

Warning!

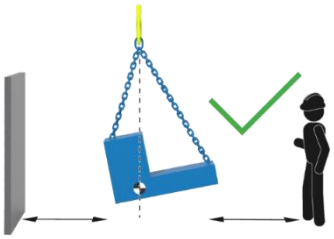
Side loading is not allowed on any lifting components. Side loading can cause the load to swing or cause the equipment to fail.

Warning!

Never point load the hook. Point loading can cause the hook to fail, or the load to drop.

Warning!
Never lift an object without checking that the latch is closed. Lifting without the latch closed can cause the load to drop.

Note!
Keep distance!



3. General description

GrabiQ is a flexible sling system for 1-4 legs. It is available for chain sizes 6, 8, 10, 13 and 16 mm in material Grade 10.

The lifting capacity starts at 1.5 ton for a single leg, 6 mm, and ends with 21 ton for a four-leg sling with 16 mm chain size.

With GrabiQ, the user can rebuild the sling, leg by leg, on site. Sling legs not required for the specific load, can be removed to increase safety.

The flexible assembly makes it possible to build 1-4 leg sling combinations combined with the same Master Link, with the parts described in this manual.

The GrabiQ sling can be adapted to work site requirements. In general, no tools are required. However, if the sling is used in the same configuration for a long period of time or in the case of special conditions such as rough weather, it is possible to secure it with an extra locking device that requires a pin and hammer.

To adjust the sling leg length, the shortening functionality is included in many of the GrabiQ components.

Each part is marked as follows:

- Manufacturer identification (GUNNEBO SWEDEN)
- Product name, chain size, material grade
- Batch/traceability code
- German professional worker association (BG H32)

The traceability code consists of letters and numbers that identify which plant the product was made in, the year and the batch. This enables tracing the product back through the manufacturing process, all the way back to the specific raw material.

Gunnebo Industries issues a manufacturer´s certificate according to EN 1677-1 and a 3.1 material certificate according to EN 10204.

Summary of standards /norms applied:

- EN 1677:2008 (WLL+25%)
- ISO 8539:2009
- ASTM A952/A952M-02
- AS 3775:2014
- AS 3776:2015

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

3.1 Components covered in the manual

- Master Links MF, MFH, MFX
- Master Grab MG, MGD
- Master Link couplings CL, CLD, CG and CGD

To understand and use the GrabiQ chain sling system, carefully read and understand this user manual. All parts in the GrabiQ sling must be from Gunnebo Industries to ensure the full safety of the sling.

The lifting chain should be Gunnebo, type KLA, size 6, 8, 10, 13 or 16 and Grade 10.

The leg end sling components depend on the type of load and load connection possibilities such as the Gunnebo GrabiQ Eye Hooks, RH Hook, and G-coupler. See their separate user guides.

This user manual only includes specific GrabiQ sling parts.

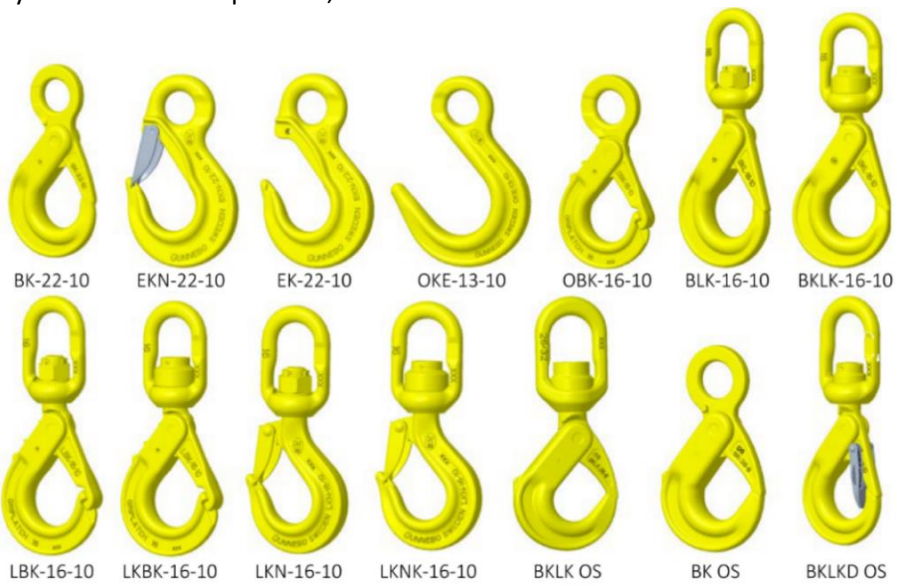
Chain size		MF	MFH	MFX	MG	MGD	CG	CGD	CL	CLD
Grade		10	10	10	10	10	10	10	10	10
Metric	**Imperial**									
(mm)	**(inch)**									
6		X	X	X	X	X	X	X	X	X
8	**5/16**	X	X	X	X	X	X	X	X	X
10	**3/8**	X	X	X	X	X	X	X	X	X
13	**1/2**	X	X	X	X	X	X	X	X	X
16	**5/8**	X	X	X	X	X	X	X	X	X

Table 2: GrabiQ components

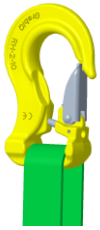
3.2 Other components for combination with GrabiQ

Other Grade 10 parts that can be combined with the GrabiQ sling are for example:

- Eye Hook chain couplers BK, EK:



- Round sling RH Hook:



- G-Coupler:

These are described in more detail in separate user manuals.

The main measurements of the components listed below, and technical data are available at www.kitocrosby.com or in the Gunnebo Product Catalog.

3.3 Master Links MF, MFH, MFX

There are three different types of top link series included in the GrabiQ chain sling system. MF is the most common. MFH and MFX are for larger crane hooks.

Figure 1: Master Links MF, MFH, MFX (in order of appearance)

Master Link MF is designed for use together with Couplers CL, CLD, CG, CGD for 1-4 leg chain slings. See Figure 1 above for illustration.

The **Master Link MFH** has a more squared space for the crane hook than the MF. It fits crane hook types described in DIN 15401/402. It is designed to be used together with Couplers CL, CLD, CG, CGD for 1-4 leg chain sling. The flatter side must be positioned up, as shown in the image, to not damage the crane hook or Master Link. It is not compatible with chain size 6. See Figure 1 above for illustration.

The **Master Link MFX** is a bigger Master Link than the MFH and is used for 1 or 2-leg slings. It is designed for Couplers CL, CLD, CG or CGD, and is not compatible with chain size 6. See Figure 1 above for illustration.

Each Master Link series is available for different loads.

The Master Links are matched with sling couplers so they fit correctly. Verify that the Master Link is compatible with the chain sizes planned for use in the sling.

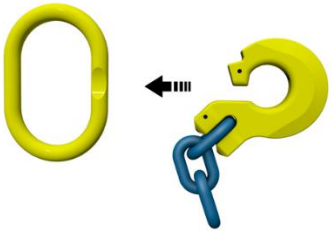


Figure 2: Master Link and Coupler

3.4 Master Grab MG and MGD

The Master Grab series MG and MGD can be used instead of a Master Link. It is both a Master Link and a chain coupler with shortening function. Compared to a Master Link chain sling, the number of chain legs configured with a Master Grab sling cannot be changed.

Figure 3: Master Grab MG and Master Grab Duo MGD (in order of appearance)

Master Grab MG is a 1-leg Master link with shortening function. See Figure 4 below.

Master Grab Duo MGD is a 2-leg top Master Link with shortening function. See Figure 4 below.

There are several other combination possibilities for the Master Grab apart from use as a top link connected to the crane hook.

Figure 4: Master Grab for choke and basket lift

3.5 Couplers C-lok CL, CLD and C-Grab CG, CGD

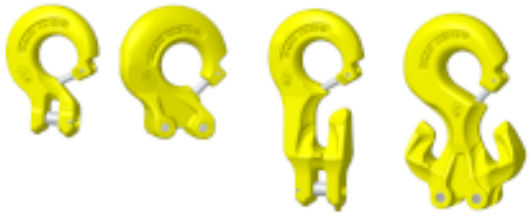


Figure 5: Couplers C-lok CL, Duo CLD and C-Grab CG, CGD (in order of appearance)

C-lok CL is a 1-leg flexible coupler used as an end component to connect an eye hook or to rig a choke. It can also be connected at the top with Master Link MF, MFH or MFX.

The **C-lok CL** has no shortening function. If shortening is needed at the top, use a CG. If shortening is needed at the end of the chain legs, combine the CL with Mid Grab MIG available for chain size 8, 10, 13.

C-lok Duo CLD is a 2-leg coupler that connects with Master Link MF, MFH or MFX. The CLD has no shortening function. If shortening is needed, use a CGD.

Master Grab CG is a 1-leg coupler for Master Link MF, MFH, or MFX, with shortening function.

Master Grab CGD is a 2-leg coupler for Master Link MF, MFH or MFX, with shortening function.

All couplers connect to Master links MF, MFH, and MFX. The CL and CG are also used as end couplers to connect an eye hook or to make a choke sling, for example.

CG and CGD have shortening function. The CGD and CLD connect two chain legs to the Master Link.

Not more than two couplers should be connected to one master link.

The opening gap is matched to the Master Links MF, MFH, and MFX. It means that a coupler that is too small cannot be assembled on some master links.

For more information see Table 4: Master Link MF sling configurations.

It is possible to mix couplers of different types (CL, CLD, CG, CGD) but only with the same chain size when connected to a Master Link, as long as not more than two are connected to the same Master Link.

For all couplers, the chain is locked in the same way with a load pin and a retainer. For the opening gap B (see Figure 6 below), a pin with retainer is delivered as well. The main measurements of the components listed below, and technical data are available at www.kitocrosby.com or in the Gunnebo Product Catalog.

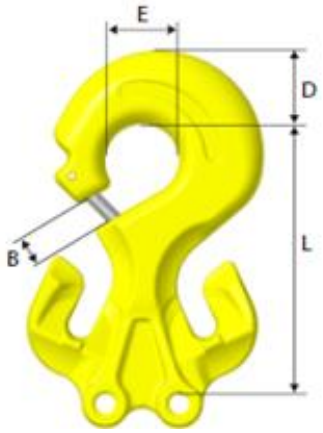


Figure 6: Example coupler (C-Grab Duo CGD)

3.5.1 QuickPin

All the C-Grab and C-lok variants can be equipped with a QuickPin. The QuickPin makes it possible to open and close the gap B without tools. The spring clip secures the QuickPin to the Coupler.

The QuickPin is a good choice for easy handling and rigging. The number of chain legs or end components can be changed without any tool.

The QuickPin is mechanically locked and will not fall off. A spring function holds the pin in open or closed position.

If the sling is to be used for the same application or if other demands require that the coupler should be more permanently locked, use the enclosed standard pin with retainer.

Figure 7: QuickPin and Spring clip

Figure 8: C-lok with a QuickPin

The table below lists article numbers for QuickPin and compatible spring clip.

Chain size	QuickPin set Code	Compatibility
6	Z101010	CL, CLD, CG, CGD
8	Z101011	CL, CLD, CG, CGD
10	Z101012	CL, CLD, CG, CGD
13	Z101013	CL, CLD, CG, CGD
16	Z101014	CL, CLD, CG, CGD

Table 3: QuickPin article numbers

4. Intended use and restrictions

The GrabiQ Chain sling system has a load capacity range (WLL) from 1.5 to 21 ton according to EN 1677 / EN 818. The lifting performance depends on the number of legs and chain size.

The GrabiQ chain sling system is available for five chain sizes 6, 8, 10, 13, and 16 mm. Use only Gunnebo KLA Grade 10 chain.

4.1 Master Links and couplers

The GrabiQ Chain sling system enables a broad variety of combinations that make it possible to adapt to different lifting challenges.

Figure 9: Master Link MF rebuilt as a 1-leg, 2-leg, 3-leg, or 4-leg sling with CG, and CGD couplers

CG and CGD have a built-in shortening pocket for each chain leg. If no shortening function is needed, use the CL and CLD coupler.

Figure 10: Master Link MF rebuilt as 1, 2, 3, or a 4-leg sling with CL and CLD coupler

Combining the CL(D) coupler with the CG(D) coupler is possible for the same chain size. Add two extra chain links to the CL coupler to get equal leg length.

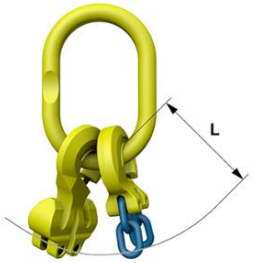


Figure 11: CL or CLD with two extra chain links have the same length as a CGD or a CG

Never attach more than two couplers to a Master Link. Always secure the opening with a QuickPin or a pin and retainer. Only use Gunnebo chain of type KLA Grade 10.

For component measurement, lifting capacity, and other technical data see the Gunnebo website or the product catalogue.

The Master Links MF, MFH, and MFX can be combined with couplers CG, CGD, CL and CLD.

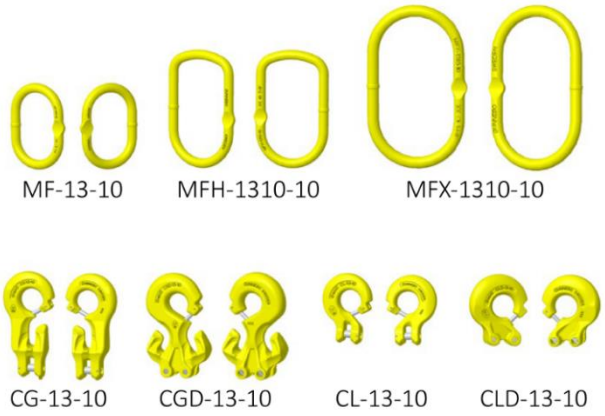


Figure 12: Combinations of Master Links and Couplers

Limitation Master Links: The MFX is only to be used for 1 or 2-leg slings. Both MFX and MFH are not adapted for chain size 6 mm.

4.2 Master Grab

Another possibility for 1- and 2-leg slings is to use the Master Grab. See Figure 3 above. The Master Grab can replace the Master Link and the top coupler. It has a shortening pocket for each chain leg and is available for 1 or 2-leg slings.

Limitation Master Links and Master Grab: Check that the crane Hook fits well together with the chosen Master Link or Master Grab.

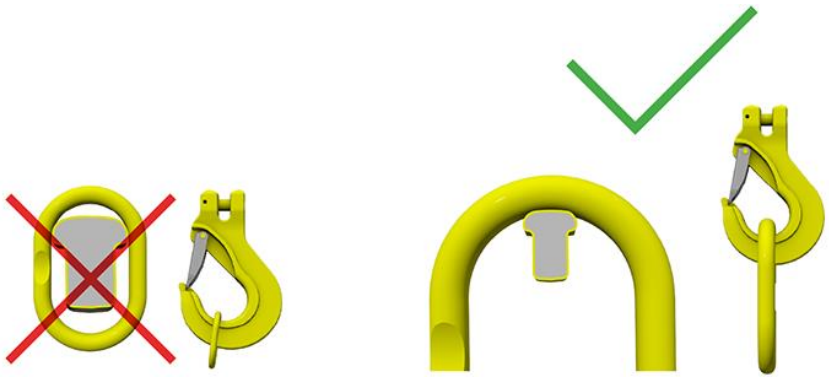


Figure 13: Example of poor fit and a better fit (with a larger Master Link or a smaller hook)

The Master Grab MG and MGD, have the same length (L), see Figure 14 below.

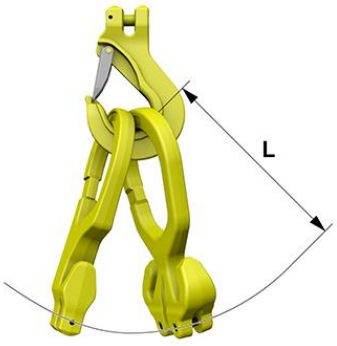


Figure 14: Length measurement

Limitation: Secure the Hook with the latch and do not exceed lifting angle 30 degrees (lifting angle to the vertical as described in EN 818).

4.2.1 Master Grab preassembled chain sling

The Master Grab can, in certain markets, be purchased pre-assembled with chain, end component, information (ID) tag, and certificate. The image below shows a pre-assembled chain sling with information tag, supplied with a certificate.

For information about possible pre-assembled combinations see the Gunnebo Product catalogue or www.kitocrosby.com.

Figure 15: Master Grab preassembled chain sling

4.3 GrabiQ chain sling system combinations with Master Link type MF

To dimension your GrabiQ chain sling system, estimate the maximum lifting capacity and check fit to crane hook.

When a Master Link is selected, it should be used together with a specific size of a GrabiQ coupler.

Example:

At www.kitocrosby.com or in the Gunnebo Industries product catalogue the following table for the Master Link series MF is available.

Compatibility	WLL	Sling	Sling	Sling
Master Link series MF	Master Link (ton)	1-leg chain size (ton)	2-leg chain size (ton)	3-4-leg chain size (ton)
MF-6-10	1.5	6		
MF-86-10	2.5	6.8	6	
MF-108-10	4.0	10	8	6
MF-1310-10	7.5	13	10	8
MF-1613-10	10	16	13	10
MF-2016-10	17	20	16	13
MF-2220-10	25	22	20	16

Table 4: Master Link MF sling configurations

- To use full chain capacity of a 3-4 leg sling with chain size 6, select the MF-108-10.
- The MF-108-10 can be used with a 1, 2, 3 or 4-leg sling combination for chain size 6. The capacity of the chain is lower than the Master Link's WLL 4.0 ton.
- The MF-86-10 can be used together with a two-leg sling with chain size 6 or 1-leg sling with chain size 6 or 8. The capacity of the Master Link is then higher than the selected chain size. A 3-4-leg sling of chain size 6 or 8 is not possible.
- MF-1310-10 cannot connect to a coupling with chain size 6. The opening in the GrabiQ coupling and the pressing on the Master Link are matched.
- MF-1613-10 cannot connect to a coupling with chain size 8. The opening in the GrabiQ coupling and the pressing on the Master Link are matched.
- The MF-108-10 can be used to connect 1, 2, and 3-4 chain legs of size 6.

The same rule applies for all Master Link sizes and for Master Link types MFH and MFX.

4.3.1 Limitations

- Only use one chain size at each lift in the sling.
- Check that the Couplers and Master Link are compatible according to the Gunnebo Master Link table found on the website or in the product catalogue.
- Never connect more than two couplers to a Master Link.
- Check that the fit to the crane hook does not make a dent in either the Master Link or the hook.
- Check that the sling legs can align freely in the pull direction i.e. no twisting or blocking object in the way.
- If lifting with the shortening pockets, make sure that the chain is fixed in the clevis connection.
- Check that all sling legs are equally stretched before lifting.
- If the chain legs are loaded unequally, determine reduced allowed asymmetric lifting load.
  If it is a 2-leg sling, treat it as a 1-leg.
  If 3 or 4-leg, treat it as 1 or 2- leg depending on position of center of gravity.

4.4 End components for combination with GrabiQ chain sling system

The following Gunnebo Grade 10 components (described in separate user manuals) can combine with the GrabiQ chain sling system.

4.4.1 Eye Safety Hooks BK, EGKN, EKN, OBK

These Eye Safety Hooks are often used as end components together with CL or CG. It is easier to change the hook type in these hooks than with Clevis Hooks, especially when QuickPin is used on CL/CG.

The Eye hook size follows the chain size. As an example, a CL-13-10 can be combined with Eye Hook BK-13-10. The QuickPin enables easy replacement with no tools required.

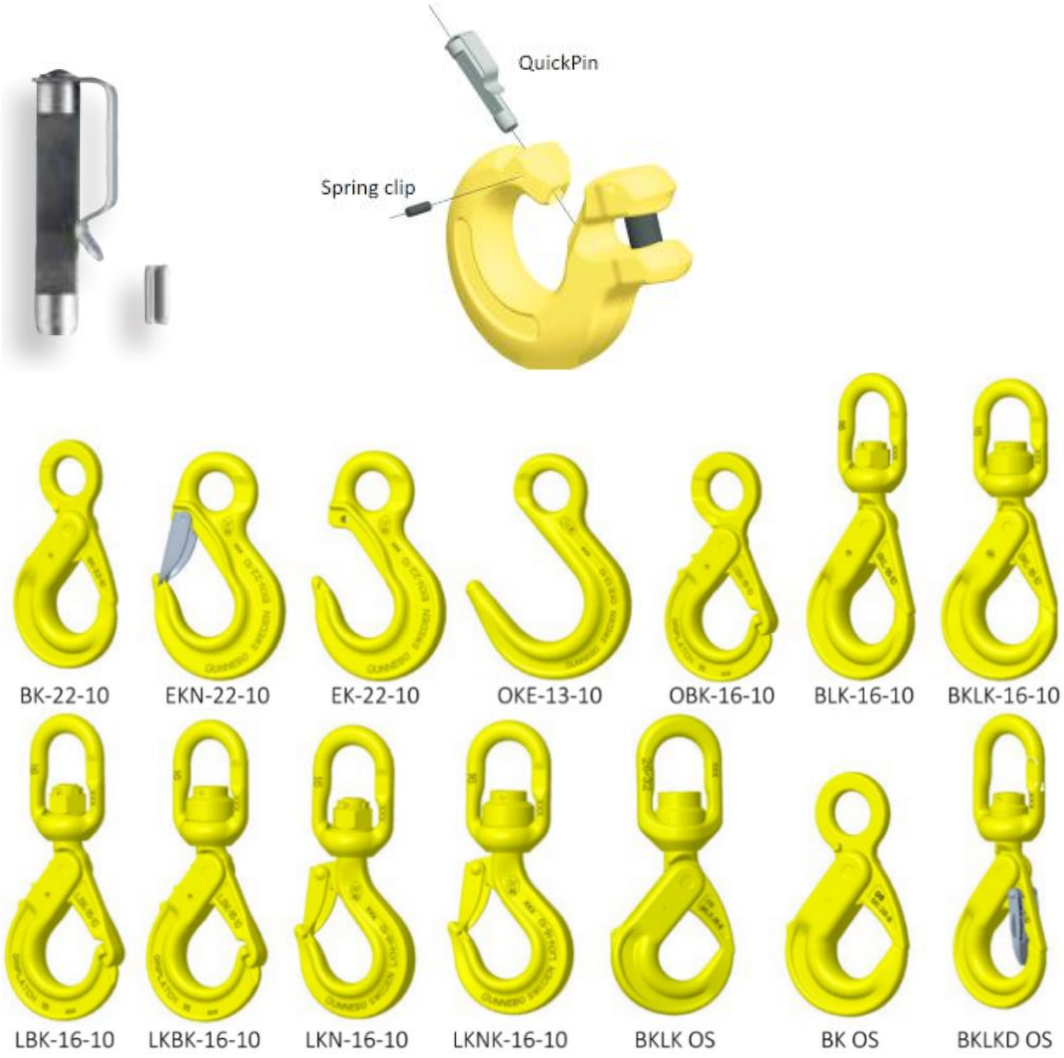


Figure 16: CL or CG with QuickPin combined with Eye Safety Hook

4.4.2 Clevis Safety Hooks

Clevis Safety Hooks are often used as an end component for a more permanent configuration of the hook compared to eye hooks. The Clevis hooks follow the chain size. For example, chain size 8; KLA-8-10 fits with Clevis Hook GBK-8-10. For assembly instructions of GrabiQ Coupler with Clevis connector see Assembly chapter.

The chain must be Gunnebo KLA of grade 10.

4.4.3 Synthetic textile sling Hook RH

The lower part of the chain sling can be attached to a textile sling (see Figure 17 below). The textile sling is for example connected to a load that is fragile or does not have any hook connection points.

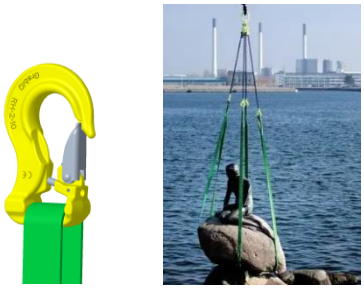


Figure 17: A sling attached to chain

The RH Hook does not follow the chain size but instead follows the lifting capacity of the textile webbing sling. Always check the lifting capacity of the RH Hook and ensure that it fits inside the CL/CG, eye, or clevis hook. As a rule of thumb ensure the RH Hook has at least the same lifting capacity as the sling leg.

4.4.4 Container Hook CH-3

The container Hook CH-3 is specially designed for lifting containers. The Container Hook CH-3 is only available for WLL 12.5 ton. This means that it cannot be combined with the GrabiQ chain sling system as it requires a chain size larger than 16 mm.

To use the Container Hook CH-3 instead, combine it with a Master Link of type M, MT, Coupling G and chain size 20. Chain KLA-20-10 has WLL 16 ton.

Figure 18: Container Hook CH-3

4.4.5 Chain shortening with MIG

The MIG can be mounted anywhere on a chain leg. Sometimes it may be convenient to shorten the chain close to the end component. The MIG follows the chain size. It is available for chain sizes 8, 10, and 13.

Figure 19: MIG

Figure 20: Shortening and adapting the chain leg close to the lifting object is possible with the MIG

Chain size		MF	MFH	MFX	MG	MGD	CG	CGD	CL	CLD
Grade		10	10	10	10	10	10	10	10	10
Metric	**Imperial**									
(mm)	**(inch)**									
6		X	X	X	X	X	X	X	X	X
8	**5/16**	X	X	X	X	X	X	X	X	X
10	**3/8**	X	X	X	X	X	X	X	X	X
13	**1/2**	X	X	X	X	X	X	X	X	X
16	**5/8**	X	X	X	X	X	X	X	X	X

Table 5: GrabiQ components

4.4.6 Coupling Link G

The Coupling Link (CL) G makes it possible to connect a Swivel Hook, such as BKLK directly, without a chain piece in between, to a Master Link for example, as shown in the images below.

Figure 21: Coupling Link (CL) G

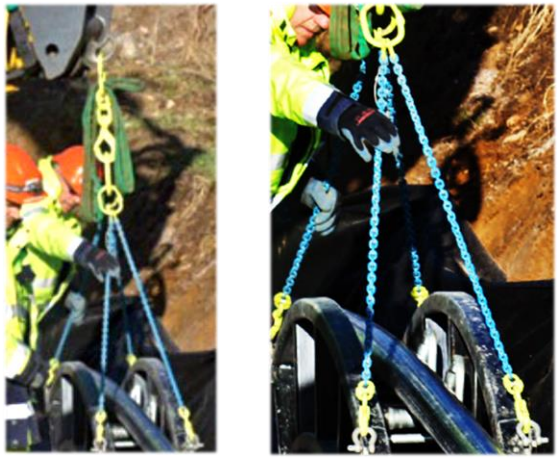


Figure 22: GrabiQ Chain lifting sling connected with swivel Hook BKLK, G-Coupling Link and top Master Link in crane hook

For more flexible assembly the swivel hook can be connected to the Master Link with a CL and a chain and a CL that connects to the Eye swivel Hook.

The Coupling link G connects the chain or components. The G Coupling follows the chain size.

4.5 Examples of use

Below are some examples of different possible GrabiQ chain sling configurations.

4.5.1 2-leg sling

Example: MG and MGD

- WLL 0-14 ton
- 2-legs
- shortening function
- no adaptation on number of sling legs.

The sling stays in one configuration, and is used with 1 or 2 legs, not possible to rebuild, max lifting capacity 14 ton (2-legs), shortening functionality included.

The GrabiQ chain sling system is a flexible sling system. It is possible to adapt the number of legs and end components on site without tools, but not for all components such as the MG and MGD.

Figure 23: MG and MGD

In this case you can use the Master Grab MG or MGD and connect directly to the crane hook.

The MG and MGD are not designed for frequent change of chain legs. They have been developed to replace the (top) Master Link, chain coupler, and include shortening functionality.

Check that the space for the crane hook is enough. If there is not enough space for the crane hook, use the conventional Master Link M and Coupling Link G. For chain shortening use MIG, OG or GG.

Check visually that the chain is in position in the shortening pocket.

Example: MF, MFX, MFH, CL, CLD, CG, CGD

- WLL 0-14 ton
- 2-legs
- shortening function
- adaptation on number of sling legs.

The sling can be adapted to a 2-leg sling as part of the GrabiQ Sling system. The MasterLink can be either MF, MFX or MFH for max lifting capacity 14 ton (2-legs), shortening functionality included.

Example: Master Link M and Coupling Link G

- WLL 0-56 ton
- 2-legs
- no shortening function
- not possible to rebuild

The sling stays in one configuration, 1- or 2-legs, lifting capacity above 14 ton (2-legs) up to 56 ton.

Use conventional sling, Master Link M and Coupling Link G. If chain shortening is needed use Grab Hook OG. If shortening functionality is needed, the MIG can be used for size 8, 10, and 13.

Figure 24: Master Link M and Coupling Link G

4.5.2 Conclusion 2-leg sling

As seen from examples above, a Gunnebo sling can be built in different ways.

To get the best configuration of your sling it should be adapted to its future use.

For example, if it is to be used by a mobile crane operator at a building with different lifting challenges at each lift, customize the sling accordingly.

4.5.3 3-4-leg sling

Example: Master Link MT and Coupling Link G

- WLL 0-84 ton
- 3 or 4-legs
- no shortening function
- not possible to rebuild.

The sling stays in one configuration, lifting capacity up to 84 ton (32 mm).

Figure 25: Master Link MT and Coupling Link G

Example: MF, MFX, MFH, CL, CLD, CG, CGD

- WLL 0-21 ton
- 3-4 legs
- shortening function
- possible to rebuild to 3 or 4-legs.

Figure 26: Examples

Conclusion 3-4 leg sling

The GrabiQ chain sling in example 5 can be rebuilt to a 1, 2, 3, or 4-leg with the same Master Link and chain size.

4.6 Use of the GrabiQ chain sling system

Sling lifting capacity ranges from:

- 1.5 ton for a single leg (6 mm) to
- 21 ton with 3 or 4-legs with 16 mm chain size.

It is not possible to rebuild the sling at the work site without tools.

With the GrabiQ chain sling system it is possible to get the following configurations:

Figure 27: Configurations

Typical user scenarios are mobile cranes, buildings sites, and industrial use that require a flexible sling with the possibility to adapt.

4.6.1 FlexiLeg

From one lift to the next on site, it is possible to rebuild, for example, a two leg to a four-leg sling. The lifting capacities for both variants are included on the Master link tag.

To rebuild to either a 1, 2, 3 or 4 leg, the following is needed:

- One Master Link adapted to chain size X
- 1 single leg with chain size X
- 2 two-leg with chain size X

FlexiLeg is the product name and refers to the ability to adapt on site the number of sling legs that the load requires. The same chain size and one Master Link can be used for 1-4-legs.

The preassembled sling legs have separate tags allowed to be used only together with one Master Link. The tag on the Master Link declares WLL for 1, 2, and 3-4 legs as function of lifting angle.

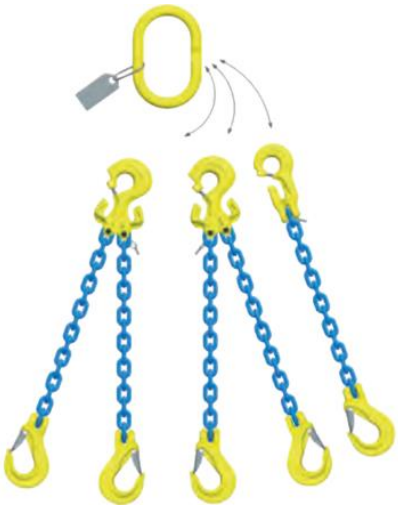


Figure 28: FlexiLeg

4.6.2 FlexiLeg compared to conventional sling built with Coupling Link G

- Safety: no loose chain legs unconnected to the load
- Handling rigger: If the sling is heavy, it can be divided and put leg by leg on the Master Link at crane hook
- Handling storage: Since the sling can be rebuilt leg by leg by the rigger, it is not heavy to move from the storage to the crane
- Storage space and cost: The same functionality for a conventional sling would require more parts.

4.6.3 FlexiLeg tag

The FlexiLeg ID tag shows WLL depending on the number of legs and lifting angle. For example, a 2-leg sling, chain size 10, with lifting angle 30 degrees has WLL = 5.6 ton. See tag below.

The back face of the tag has space for sling identification.

Each removable chain leg should be equipped with a sub-sling tag associated with the Master Link sling id.

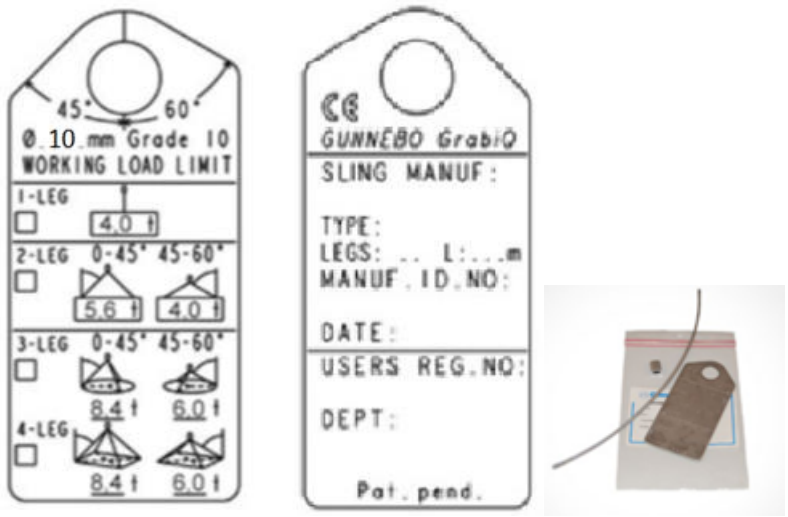


Figure 29: FlexiLeg ID tag for Master Link

4.6.4 FlexiLeg preassembled

It is possible to buy a preassembled FlexiLeg system in certain markets, consisting of 1 Master Link and preassembled chain legs. The preassembly will have ID tags for the Master Link and each chain leg.

For more information about possible preassemblies see the Gunnebo Product Catalogue or www.kitocrosby.com.

Limitation - FlexiLeg

The system parts must be kept together. The chain legs and the Master Link have both a common identification number to help identify that the combination is good to be used. Other parts not included in the FlexiLeg system marked on the Master Link and with the same id number are not to be used together.

4.6.5 MaxiLeg

Besides shortening and the ability to rebuild the sling from 1-4 legs with the same chain size, it is possible to rebuild the system with different chain sizes. The system parts should be kept together.

Example MaxiLeg

A rigger has chosen a conventional Grade 10 sling to get full usage of a 10T crane. With the sling it possible to lift 10T with one chain leg. However, lifts with more than 1-leg are most common. The rigger has therefore chosen a 4-leg sling with chain size 16.

A 16 mm conventional 4-leg sling is heavy for the rigger to handle.

With GrabiQ MaxiLeg the following sling setup would enable almost full use of the crane:

One 10T Master Link combined with either:

- 1 single leg with chain size 16, to get a 1-leg sling, WLL 10.3 ton or
- 1 two-leg with chain size 13, to get a 2- leg sling, WLL 9.5 ton or
- two-leg with chain size 10
- single leg with chain size 10, to be able to get both a 3-leg or a 4-leg sling, WLL 8.4 ton

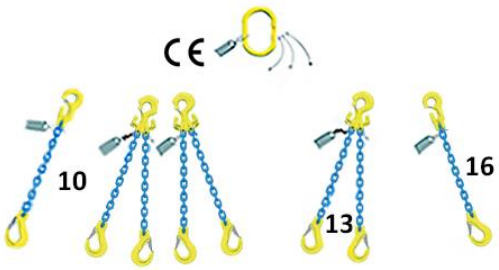


Figure 30: MaxiLeg, with chain size 10, 13, and 16 together with one Master Link

The pre-assembled sling legs have separate sub tags to be used together only with the combined Master Link id.

With this solution the handling of the sling is not very heavy, and one Master top Link can be used for three different chain sizes. The sling can be adapted to different loads.

4.6.6 MaxiLeg compared to FlexiLeg

The full capacity of the crane is used for both 1, 2, 3, and a 4-leg slings since different chain sizes fit the same Master Link.

MaxiLeg is the product name and refers to the ability to adapt the number of sling legs to the load with different chain sizes and still have full capacity use of the crane on site. The same Master Link can be used for different chain sizes.

4.6.7 MaxiLeg tag

The MaxiLeg ID tag shows WLL depending on number of legs, chain size, and lifting angle. For example, a 4-leg sling, chain size 10, with lifting angle 30 degrees has WLL = 8.4 ton. See tag below.

The back face of the tag has space for sling identification.

Each removable chain leg should be equipped with a sub sling tag associated with the Master Link sling ID.

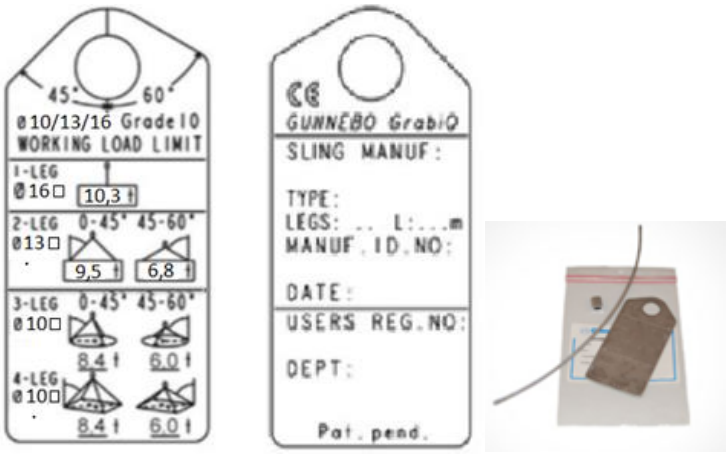


Figure 31: MaxiLeg ID tag for Master Link

MaxiLeg makes it possible to get full use of a crane with a single sling setup of combinable legs and 1 Master link on site.

As with FlexiLeg the rigging can be made leg by leg, onto the Master Link for easy handling with the components described in this manual.

4.6.8 Optimal application - FlexiLeg

If different loads are lifted frequently that require adaptation of the number of legs and leg length, the same Master Link can be chosen so that it can be used for 1-4 legs and one for each of the chain sizes 6, 8, 10, 13 and 16.

To select the most appropriate chain size for GrabiQ FlexiLeg as function of load capacity range, see the table.

Chain size/Master Link	1-leg (Ton, Metric)	2-leg[1] (Ton, Metric)	3 or 4-leg (Ton, Metric)	Sling Range (Ton, Metric)
Ø6 MF-108-10	1.5	2.1	3.1	**1.5-3.1**
Ø8 MF-1310-10 MFH-1310-10 MFX-108-10[2]	2.6	3.5	5.2	**2.6-5.2**
Ø10 MF-1613-10 MFH-1613-10 MFX-1310-10 [1]	4.0	5.6	8.4	**4.0-8.4**
Ø13 MF-2016-10 MFH-2016-10 MFX-1613-10[1]	6.8	9.5	14	**6.8-14**
Ø16 MF-2220-10 MFH-2220-10 MFX-2016-10[1]	10.3	14	21	**10.3-21**
Notes: [1] Lifting capacity for lifting angle 0-45° according to vertical as described in EN 818 [2] Only for 1 and 2-leg sling				

Table 6: Lifting range and limitations for FlexiLeg

Lifting performance with FlexiLeg: Master Link MF-1310-10 used for either 1, 2, 3 and 4-legs with chain size 8.

4.6.9 Optimal application - MaxiLeg

The optimal application applies if different loads are lifted frequently that require adaptation of the number of legs and leg length and more performance is needed for the 1 and 2-leg sling compared to FlexiLeg.

The same Master Link can be chosen so that it can be used for 1-4 legs and with chain size combinations 6, 8, 10 / 8, 10, 13; or 10, 13, 16.

MaxiLeg provides more lifting capacity for a 1 or 2-leg sling than FlexiLeg. For 1 and 2-leg sling a larger chain size is used than for the 3 and 4-leg.

MaxiLeg provides a more equal lifting performance when combined as a 1, 2, or 3, 4-leg sling than FlexiLeg.

To select the most appropriate size for a GrabiQ MaxiLeg chain sling system, see the table.

Chain size/Master Link	1-leg (Ton)	2-leg (Ton)	3 or 4-leg [3] (Ton)	Sling Range (Ton)
Ø6, Ø8, Ø10 MF-108-10	Ø10 4	Ø8 3.5	Ø6 3.4	3.4-4.0
Ø8, Ø10, Ø13 MF-1310-10 MFH-1310-10	Ø13 6.8	Ø10 5.6	Ø8 5.2	5.2-6.8
Ø10, Ø13, Ø16 MF-1613-10 MFH-1613-10	Ø16 10.3	Ø13 9.5	Ø10 14	9.5-14
Notes: [3] If not enough space for crane hook, use conventional Master Link M and Coupling Link G. For chain shortening use MIG, OG or GG.				

Table 7: Lifting range and limitations for MaxiLeg

Lifting Performance with MaxiLeg: Master Link MF-1310-10 used for chain size Ø13, 1-leg, Ø10, 2-legs, Ø13, 3 or 4-legs.

FlexiLeg and MaxiLeg in Construction

The building industry has different lifting challenges and can adapt the sling on site.

For a mobile crane it is optimal to be able to use the full crane capacity with one lifting sling.

4.7 General limitations of use

- Always use the latch. Before using GrabiQ, make a risk assessment.
- Use only Gunnebo short link chain, KLA Grade 10.
- 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.
- The product must not be galvanized or subject to any plating process without the approval of the manufacturer.
- Do not use the product in alkaline or acidic conditions.
- Do not expose the product to aggressive chemicals, acids and vapors.

4.8 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 the working load limit should be adjusted accordingly.

4.9 WLL reduction at elevated temperatures

The general service temperature is:
-40 °C/-40 °F to +200 °C/392 °F.

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

Service temperature	New load capacity in % of original WLL
200-300 °C 392-572 °F	90%
300-400 °C 572-752 °F	75%
> 400 °C > 752 °F	Not allowed

Table 8: WLL reduction at elevated temperatures

4.10 Fatigue

It is important to realize that fatigue failure can occur even if the prescribed WLL (the maximum working load a lifting accessory or lifting assembly can be subjected to) is not exceeded.

Scenarios in which the GrabiQ sling 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 GrabiQ chain sling system is designed for a maximum of 20,000 load cycles.

4.11 Additional marking

If markings such as project code, and serial numbers 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 or
- low stress punches

5. Instructions prior to use

Read and understand this manual before using the GrabiQ chain sling system.

For further recommendations regarding safe use of the GrabiQ System in sling applications, see the Gunnebo Industries' instruction for safe use of slings and lifting guide. Download the lifting guide and instructions for slings from www.kitocrosby.com.

5.1 Verification prior to first use

Before first use ensure that:

- the GrabiQ chain system is precisely as ordered
- the manufacturer's certificate is in order

5.2 Inspection prior to each use

Inspect the GrabiQ chain sling system for obvious damage or deterioration before each use.

The inspection should be done in accordance with local regulations. Check also against the items listed under Inspection. If there is any difficulty meeting these criteria, do not use the GrabiQ for a 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 GrabiQ chain sling system has been correctly assembled in accordance with Assembly.
- Ensure that no obstacles obstruct the lift and prepare the landing site.

6. Assembly

The GrabiQ chain sling must have a valid certificate from the manufacturer at delivery. It should state the WLL and standards used for verification.

Only a qualified person may execute the assembly of GrabiQ sling. A qualified person understands the limitations of the system and can make a secure assembly that follows the regulations for the specific usage.

6.1 Assembly instruction for FlexiLeg and MaxiLeg

Select the proper GrabiQ components to be used in the sling system. See earlier sections for guidance and technical information in the Gunnebo product Catalogue or website.

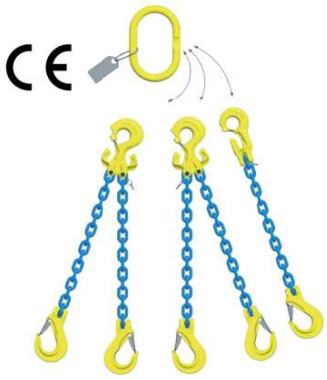


Figure 32: GrabiQ chain system FlexiLeg

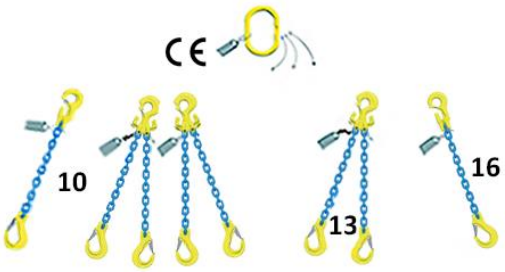


Figure 33: GrabiQ chain system MaxiLeg , with chain size 10, 13, and 16 together with one Master Link

All parts in the system are assembled/disassembled in the same way.

To assamble the FlexiLeg or MaxiLeg:

Prerequisites:

- A hammer
- A load pin and a retainer pin, or a QuickPin
- An ID tag with the unique sling number
- A Flexi or Maxi main Master Link ID tag.

1. Attach the chain in the Clevis fixation of the chosen Coupler.

! **Note!**
Make sure the clevis is secured with both locking pin and retainer.

2. Attach the ID tag with the unique sling number to identify ingoing parts in the certified complete lifting sling system.

3. Insert the chain leg at the Master Link pressing.

4. Secure the opening B in the Coupler with either a locking pin and retainer, or the QuickPin.

5. Attach either a Flexi or Maxi main Master Link ID tag.

Disassembly

Put the lifting component on a solid support. Position a pin tool smaller in diameter than the retainer. Tap gently to drive the retainer pin out of position.

Assembly of GrabiQ Coupler connected with Clevis connector

Clevis principle for GrabiQ chain Couplers to connect chain.

Prerequisites:

- A hammer
- A load pin
- A retainer pin.

6. Put the chain in position.	
7. Insert load pin.	
8. Assamble the saftey retainer with a hammer.	
9. Make sure both the load pin and the retainer pin are secured. Make sure that all markings are readable on the connected parts.	

Disassembly

Put the lifting component on a solid support. Position a pin tool smaller in diameter than the retainer. Tap gently to drive the retainer pin out of position.	

6.2 Accessories

QucikPin

For information about QucikPin see QuickPin in General Description chapter.

FlexiLeg ID tag

See article numbers in the product catalogue or website. The FlexiLeg ID tag has punched markings in a stainless-steel plate included with steel wire and wire lock.

6.3 Spare parts CS

C-connection set for CL, CG, CLD and CGD consists of one load pin and one safety retainer.

See www.kitocrosby.com for article numbers or the Gunnebo Industries Product Catalogue.

6.4 Limitation placement

Only use the components described in this instruction in the GrabiQ sling chain system.

7. Maintenance

When performing maintenance or inspection, always read and follow the Safety Precautions (2).

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 (2).

The GrabiQ chain sling system should be withdrawn from service and referred to a competent person for thorough examination if any of the following are observed:

- The markings are illegible
- More than 10 % reduction of dimension at any point
- Cuts, nicks, gouges, cracks, excessive pitting or corrosion, heat discoloration, bent or distorted or any other defects

7.2 Thorough 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 product
- Use in demanding environments (such as corrosive, or in extreme temperatures).

7.3 Repair

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

Maintain records of repairs.

Any replacement component or part of the product 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.