

GUNNEBO GRABIQ 8+

GrabIQ™



GUNNEBO
LIFTING



Gunnebo – Quality and Innovation

With the GrabiQ programme Gunnebo has taken considerable innovative steps to bring products with added value to the market. We provide future technology today and GrabiQ means:

- 25 % additional strength in new grade 8+, making chain slings lighter.
- All top assemblies consist of no more than three components.
- Shortening function of chain legs is integral with no extra components.

The GrabiQ programme continues the Gunnebo group's strong dedication to safety for persons and property.

Our products are approved by leading safety authorities such as BG (DE), AIB, SABS, MOD (UK), NATO and we are ISO 9001 certified by Lloyd's Register.

From the past to the Future

Gunnebo started its production as early as 1764. Today Gunnebo Industrier AB has three business units: Fastening, Lifting and Blocks. Business unit Lifting produces and sells chain and lifting components such as coupling links, hooks and master links, wire rope, soft slings, round slings, ratchets for lashing and goods anchorage. Our products are mainly manufactured in our own factories in Sweden.



Gunnebo's first factory in 1764.

WARNING

Failure to read, understand and comply with following instructions, working load limits and specifications in this publication could result in serious injury or damage to property.

Radical reengineering	3	Working Load Limits (tonnes)	13
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...the "good" old days...



15 components



7 components



4 components

4-legs

2-legs

1-leg

...the GrabiQ era...



3 components only!



1 component only!



1 component only!

...Which one do you prefer?

Economy

The cost for a product or complete lifting equipment can not only be isolated to the time of purchase, the total cost during the entire lifecycle must also be taken into consideration.

Due to the radical reengineering which GrabiQ offers, the total cost can be reduced! How can that be possible?

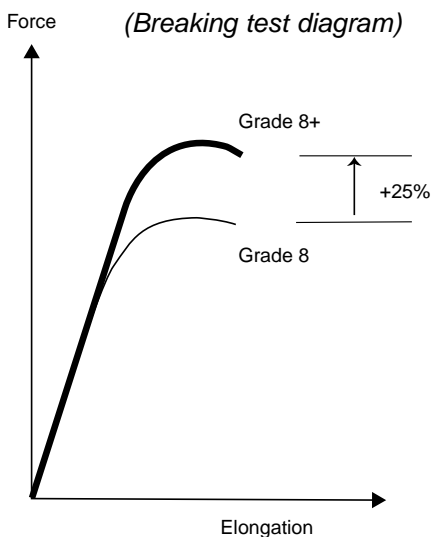
With the new innovative GrabiQ system the number of unique components has been reduced, which means:

1. Less components required.
2. Less components to assemble, requires less time.
3. Less wear points means less wear points to inspect.
4. Lower inventory required.
5. Multifunctional slings reduces the number of slings required to a minimum.
6. Increased lifting capacity

Strength

With the introduction of the new Grade 8+, we also set a new standard which exceeds the current Grade 8 standards with both the ultimate breaking force and working load limit increased by 25%.

Example: For a 10 mm chain the WLL increases from 3.15 tons for a Grade 8 chain to 4.0 tons for a Grade 8+ chain.



Grade 8+ vs Grade 8

Ød nom chain dim. (mm)	WLL Tonnes
6-8	1,12
6 GrabiQ 8+	1,50
8-8	2,00
8 GrabiQ 8+	2,50
10-8	3,15
10 GrabiQ 8+	4,00
13-8	5,30
13 GrabiQ 8+	6,50
16-8	8,00
16 GrabiQ 8+	10,00

Foolproof

The GrabiQ system has been designed with special care so that it should be easy to use correctly.



All clevis type connections are snugly matched to the correct size of chain and pin dimension, thereby eliminating any incorrect assembly.



With two extra chain links, CL and CLD will have the same effective length as CG and CGD.



Mastergrab single type MG and duo type MGD have the same length, which allow for equal leg length if they are united in the top end into a common shackle or crane hook.



With the GrabiQ design the outgoing chains from the shortening pocket are allowed on either side for loading, thereby eliminating misuse.



The C-parts allow for correct size of wire rope thimble and opens the way for new ideal combinations of chain and steel wire rope slings.



All GrabiQ components are uniformly marked with the equivalent chain size, grade, traceable code, manufacturer's name and designation, for positive identification.



The roundslings hooks are colour coded in order to match the corresponding size of the roundslings.
Yellow=3T / Green=2T / Violet=1T

Quality

We are known as the No 1 quality manufacturer in the world and GrabiQ is certainly not an exception to that. We have collected all our knowledge from the past to create the product range for the future and this is available today.

Systematic quality control in every manufacturing stage from raw material to the finished product guarantees a high level of safety and long life.

Type testing

In order to prove the design, material, heat treatment and method of manufacture, each size of component and chain in the finished condition has been type tested in order to demonstrate that the component and chain possess the required mechanical properties. The following testing procedures are particularly relevant.

Test for deformation

The Manufacturing Proof Force (MPF) for the relevant size of the component is applied and released. The dimensions after proof loading shall not alter from the original dimensions within the tolerances prescribed in the international standards.

Static tensile test

The Breaking Force (BF) for each component and size is verified. The verified value shall be at least equal to the Minimum Breaking Force (MBF) value. The MBF value is equal to the Working Load Limit (WLL) multiplied by the safety factor.

Fatigue test

By fatigue testing in pulsator testing machines the toughest service conditions are simulated.

Manufacture testing

During manufacture, continuous manufacturing tests are carried out according to the requirements of the latest international standards.

The following testing procedures are particularly relevant.

Non destructive test/inspection

3% of every production batch of forged components are subject to magnetic particle or dye penetrating examination.

Visual inspection is carried out on each chain link and forged component to eliminate defects.

Proof force

Each individual component and chain link is tested to the Manufacturing Proof Force (MPF) level before delivery. The MPF level is 2,5 times the WLL, equal to 62,5% of the Minimum Breaking Force.

Static tensile test and ultimate elongation test

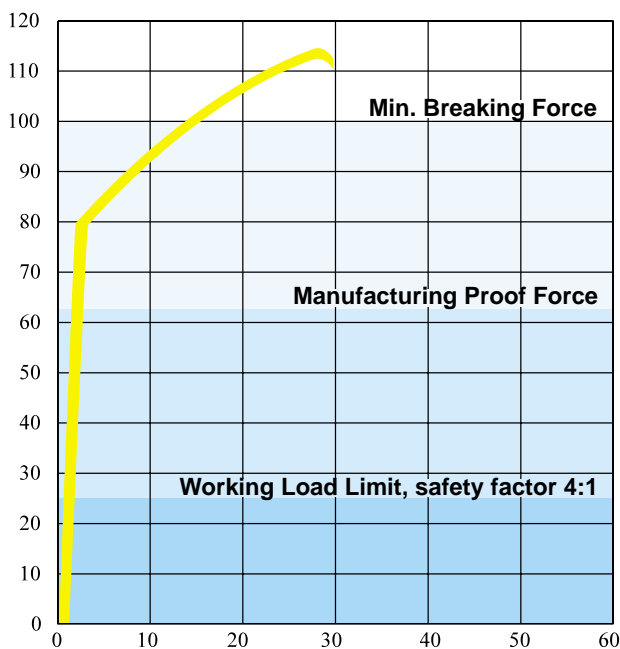
During manufacture of chain and master links, samples are tested and the Minimum Breaking Force (MBF) value and the total ultimate elongation are verified.

Bending deflection

During manufacture of chain and master links, samples are taken and the minimum bend deflection verified.

Stress/elongation diagram

Chain grade 8+, type KL
% of min. Breaking Force



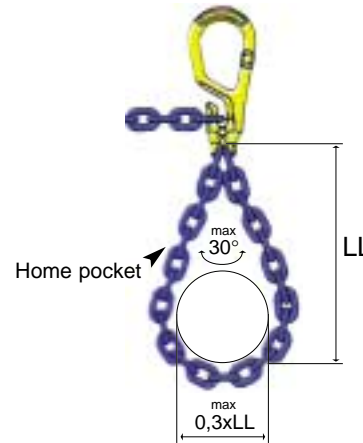
GrabiQ chain – load level

Ød nom (mm)	WLL Tonnes	Manufacturer Proof Force (kN)	Min. Breaking Force (kN)
6	1,5	37	60
8	2,5	62	100
10	4	100	160
13	6,5	162	260
16	10	250	400

Rules for proper load rating

The WLL of choke hitch slings shall be reduced by 20% (see page 13).

Home pocket loop shall have an internal loop top angle of max. 30°. Rule of thumb: Cross dimension of load shall be max 0,3 times loop length (LL).



Definition: The home pocket is the shortening pocket of the top component to which the chain is connected.

Asymmetric loading conditions

For unequally loaded chain slings we recommend that the Working Load Limits are determined as follows:

- 2-leg slings calculated as the corresponding 1-leg sling.
- 3- and 4-leg slings calculated as the corresponding 1-leg sling. If it is certain that two legs are equally carrying the major part of the load, then the WLL for the corresponding 2-leg sling can be allowed.

Alternative method of rating

An alternative method of rating may be used for a specific lifting application. It is essential that the Working Load Limit for each single component of the sling should never be exceeded. For further information contact your Gunnebo dealer.

Severe environment

- Grade 8+ chain and components must not be used in alkaline or acidic conditions.
- Comprehensive and regular examination must be carried out when using Grade 8+ equipment in severe or corrosion inducing environments.
- In uncertain situations consult your distributor.

Plating

Hot dip galvanizing or plating is not allowed outside the control of the manufacturer.

Extreme temperatures

The "in-service" temperature of the whole or part of the chain sling affects the Working Load Limit as follows.

Temperature of slings	Reduction in Working Load Limit
-40° to +200°C	None
+200° to +300°C	10%
+300° to +400°C	25%

Upon return to normal temperature the sling reverts to its full capacity. GrabiQ chain slings should not be used above or below these temperatures.

Advice for safe use

1. Never exceed the working load limit.
2. Do not use a sling with a greater top angle than 60° from the vertical (see page 13).
3. In case of multileg home pocket loop, the angle to the vertical should not exceed 45° (see page 13, home pocket loop).
4. Do not use greater home pocket in-loop angle than 30° (see picture page 6).
5. Keep a register of all slings in use.
6. Use suitable lifting equipment for each lifting operation.
7. Never lift with a twisted chain.
8. Chain slings should be shortened in the GrabiQ home pocket, never by knotting.
9. Protect the chain from sharp edges by proper padding.
10. Never point load a hook, the load should always seat correctly in the bowl of the hook.
11. Always use the correct size sling for the load, allowing for the included angle and the possibility of unequal loading.
12. The masterlink should always be able to move freely on the crane hook.
13. Avoid snatch loading at all times.

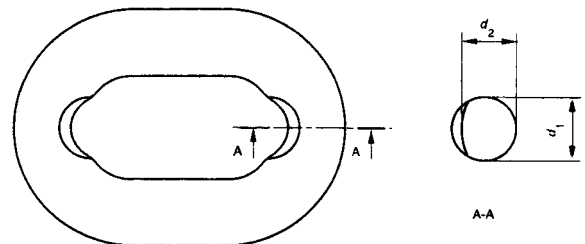
Good thorough examination practice

Periodic thorough examination must be carried out at least every 12 months or more frequently according to statutory regulations, type of use and past experience.

1. Chains with bent links, cracks or gouges in the link should be replaced, as should deformed components such as bent masterlinks, opened up hooks and any fitting showing signs of damage.
2. The wear of the chain and components shall in no place exceed 10% of the original dimensions. The chain link wear – max 10% – is defined as the reduction of the mean diameter measured in two directions. $(d_1+d_2) / 2$, should be greater than:

- KLA-6-8+ 5,9 mm
- KLA-8-8+ 7,9 mm
- KLA-10-8+ 9,9 mm
- KLA-13-8+ 12,9 mm
- KLA-16-8+ 15,9 mm

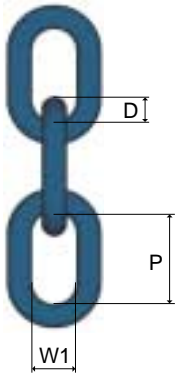
$$\frac{d_1+d_2}{2} > 0,9d_n$$



3. If the diameter of the load pin in any direction is reduced due to wear it should be replaced if the diameter is below:

- CLS-6-8+ 7,4 mm
- CLS-8-8+ 9,6 mm
- CLS-10-8+ 12,0 mm
- CLS-13-8+ 15,6 mm
- CLS-16-8+ 19,2 mm

4. Overloaded chain slings must be taken out of service.
5. Always use Gunnebo original Grade 8+ chain, components, load pins and other original spare parts throughout the whole sling.



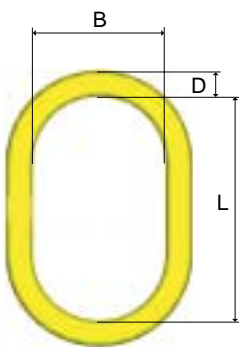
Chain type KLA 8+ Grade 8+

Code	WLL Tonnes*	ØD mm (nom)	P	W1	Weight kgs/m
KLA 6-8+	1,5	6	18	8	1,0
KLA 8-8+	2,5	8	24	11	1,7
KLA 10-8+	4	10	30	14	2,6
KLA 13-8+	6,5	13	39	18	4,5
KLA 16-8+	10	16	48	22	6,6



Master Link, MF

For 1-, 2-, 3- and 4 leg slings, with C-grab and C-lok.

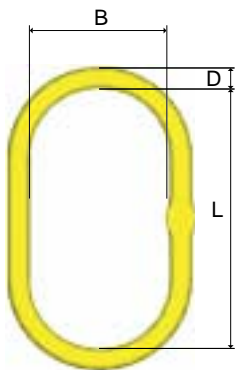


Code	WLL Tonnes*	For chain size, mm			L	B	D	Weight kgs
		1-leg	2-leg	3-4-leg				
MF 86-8+	2,5	6, 8	6	-	120	70	14	0,4
MF 108-8+	4,0	10	8	6	140	80	17	0,7
MF 1310-8+	7,5	13	10	8	160	95	22	1,5
MF 1613-8+	10,0	16	13	10	190	110	25	2,2
MF 2016-8+	17,0	-	16	13	240	140	34	5,1
MF 2220-8+	25,0	-	-	16	250	150	38	7,2



Master Link, MFX

Oversized, for 1- and 2-leg sling.

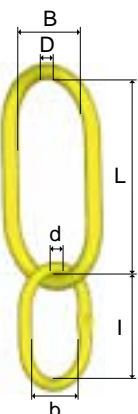


Code	WLL Tonnes*	For chain size, mm		L	B	D	Weight kgs
		1-leg	2-leg				
MFX 108-8+	4,0	8, 10	8	340	180	25	3,7
MFX 1310-8+	6,5	13	10	340	180	28	4,7
MFX 1613-8+	10,0	16	13	340	180	34	7,0
MFX 1916-8+	14,4	-	16	340	180	38	8,9



Master Link, MTX

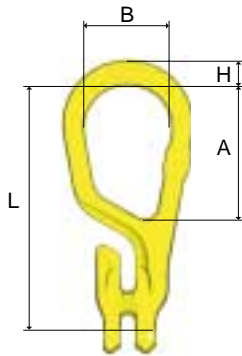
Oversized, for 3- and 4-leg sling.



Code	WLL Tonnes*	For chain size mm	L	B	D	I	b	d	Weight kgs
MTX 8-8+	5,2	8	340	180	28	160	95	22	6,2
MTX 10-8+	8,4	10	340	180	34	200	120	30	10,5
MTX 13-8+	13,6	13	340	180	38	200	120	32	12,9
MTX 16-8+	21,0	16	340	180	45	-	-	-	13,7



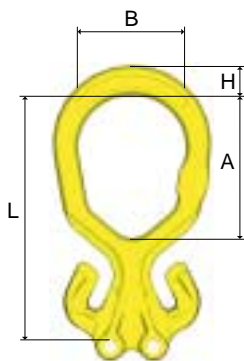
*Safety factor 4:1



Master Grab, MG

All-in-one compact top link. Also reeveable.

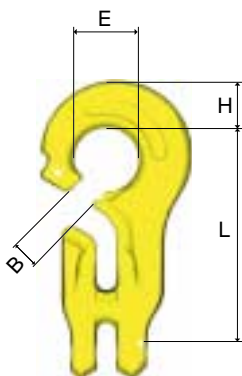
Code	WLL Tonnes*	L	A	B	H	Weight kgs
MG 6-8+	1,5	145	85	60	15	0,5
MG 8-8+	2,5	171	95	60	18	1,0
MG 10-8+	4	211	115	75	22	1,8
MG 13-8+	6,5	261	138	90	26	3,5
MG 16-8+	10	311	162	105	30	5,8



Master Grab Duo, MGD

All-in-one compact top link for 2-leg slings.

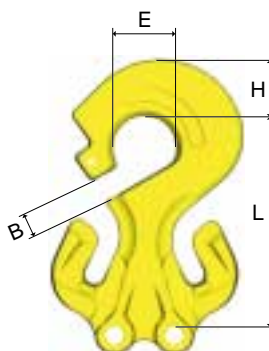
Code	WLL Tonnes*	L	A	B	H	Weight kgs
MGD 6-8+	2,1	144	90	60	17	0,7
MGD 8-8+	3,5	171	100	75	21	1,4
MGD 10-8+	5,6	211	124	90	24	2,5
MGD 13-8+	9,1	262	148	105	29	5
MGD 16-8+	14	309	175	120	35	8,9



C-Grab, CG

For use with master links and choke.

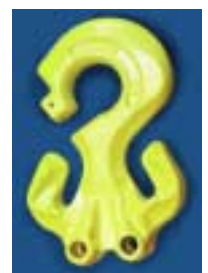
Code	WLL Tonnes*	L	B	E	H	Weight kgs
CG 6-8+	1,5	80	11	24	19	0,3
CG 8-8+	2,5	107	12	32	24	0,8
CG 10-8+	4	134	15	40	29	1,5
CG 13-8+	6,5	172	18	52	38	3,2
CG 16-8+	10	215	22	64	47	6,1



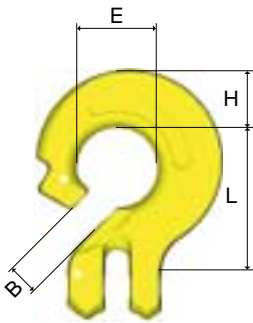
C-Grab Duo, CGD

For use with master links.

Code	WLL Tonnes*	L	B	E	H	Weight kgs
CGD 6-8+	2,1	79	11	24	20	0,5
CGD 8-8+	3,5	106	12	32	29	1,3
CGD 10-8+	5,6	133	15	40	37	2,5
CGD 13-8+	9,1	173	18	52	46	5,5
CGD 16-8+	14	215	22	64	57	10,2



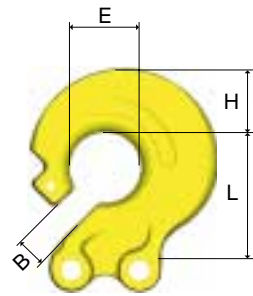
*Safety factor 4:1



C-Lok, CL

For use with master links and choke.

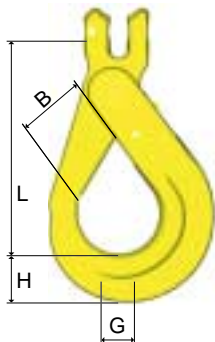
Code	WLL Tonnes*	L	B	E	H	Weight kgs
CL 6-8+	1,5	43	11	24	18	0,2
CL 8-8+	2,5	59	12	32	24	0,5
CL 10-8+	4	74	15	40	29	0,9
CL 13-8+	6,5	96	18	52	38	2
CL 16-8+	10	119	22	64	48	3,8



C-Lok Duo, CLD

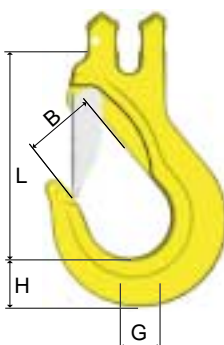
For use with master links.

Code	WLL Tonnes*	L	B	E	H	Weight kgs
CLD 6-8+	2,1	43	11	24	22	0,3
CLD 8-8+	3,5	57	12	32	29	0,8
CLD 10-8+	5,6	71	15	40	37	1,5
CLD 13-8+	9,1	93	18	52	46	3,2
CLD 16-8+	14	115	25	64	57	6



Safety hook, BKG

Code	WLL Tonnes*	L	B	G	H	Weight kgs
BKG 6-8+	1,5	91	29	15	21	0,5
BKG 8-8+	2,5	120	36	20	27	1,0
BKG 10-8+	4	142	44	25	33	1,8
BKG 13-8+	6,5	178	54	32	40	3,1
BKG 16-8+	10	216	61	39	51	5,6

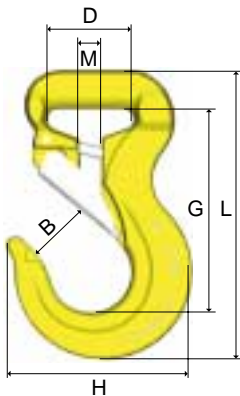


Sling hook, EGKN

Code	WLL Tonnes*	L	B	G	H	Weight kgs
EGKN 6-8+	1,5	86	27	17	20	0,4
EGKN 8-8+	2,5	95	31	17	22	0,5
EGKN 10-8+	4	121	41	23	30	1,0
EGKN 13-8+	6,5	145	49	28	38	2,0
EGKN 16-8+	10	170	59	36	45	3,8



*Safety factor 4:1

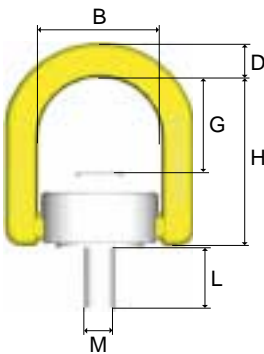


Roundsling Hook, RH

Code	WLL Tonnes*	L	B	D	G	H	M	Weight kgs
RH 1-8+	1,0	116	24,0	35	84	73	8	0,4
RH 2-8+	2,0	137	28,3	40	96	86	10	0,7
RH 3-8+	3,0	168	33,6	47	117	108	12	1,4



Rotating Lifting Point, RLP



Code	WLL Tonnes*	L1/L2	M	B	D	G	H	Weight kgs
RLP M8-8+	0,3**	15/26	M8	42	12	35	60	0,3
RLP M10-8+	0,5**	20/31	M10	42	12	34	60	0,3
RLP M12-8+	0,75**	19/40	M12	57	19	46,5	85	0,9
RLP M16-8+	1,5**	24/50	M16	57	19	44	85	0,9
RLP M20-8+	2,5**	32/67	M20	83	28	56	111	2,8
RLP M24-8+	3,5**	37/77	M24	83	28	53	111	2,8



*Safety factor 4:1

L1 standard

L2 can be supplied on special request

**The WLL of the RLP may be double in case of 1-leg applications provided only axial loading takes place, i.e. No bending force applied in the direction of the thread.

Working Load Limits (tonnes)





No. of legs	1	1	2	2	2 symmetric		3 and 4 symmetric	
Load factor	0°	90°	0°	90°	0-45°	45-60°	0-45°	45-60°
Product code: RLP-M 8-8+	0,60	0,30	1,20	0,60	0,42	0,30	0,63	0,45
RLP-M10-8+	1,00	0,50	2,00	1,00	0,70	0,50	1,05	0,75
RLP-M12-8+	1,50	0,75	3,00	1,50	1,00	0,75	1,60	1,13
RLP-M16-8+	3,00	1,50	6,00	3,00	2,10	1,50	3,15	2,25
RLP-M20-8+	5,00	2,50	10,00	5,00	3,50	2,50	5,25	3,75
RLP-M24-8+	7,00	3,50	14,00	7,00	4,90	3,50	7,35	5,25

RLP- Rotating Lifting Point, Grade 8+

The patented new design of the RLP makes it suitable also in applications where a conventional Lifting point would not be fully adequate. Intended to be used as a Lifting point, Lashing point or Towing attachment.

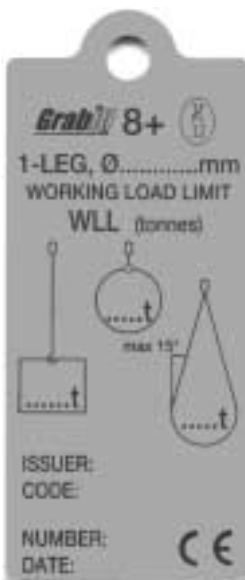
- Dismountable open D-ring. Enables assembly of roundsliding, master link, link or hook directly onto the RLP.
- Hexagon-headed screw for easy assembly/disassembly by means of an ordinary wrench.
- RLP can rotate 360° and articulate 180°.
- Forged in Grade 8+ material permits higher WLL than Grade 8 and DIN 580 eyebolts.

Spare Parts

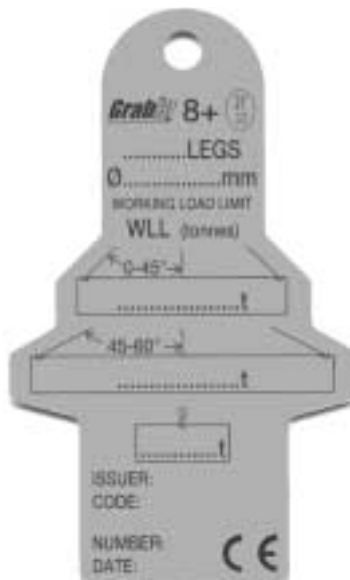
<p>The C-connection set for CG, CGD, CL and CLD consist of one solid blocking pin, one spring retaining pin (for dismountable) and one spring type self-retaining blocking pin (for permanent connection).</p>  <p>Code CS/CP-6 CS/CP-8 (RH 1-8+ and RH 2-8+) CS/CP-10 (RH 3-8+) CS/CP-13 CS/CP-16</p>	<p>The clevis connections set consist of one special alloy steel grade 8+ load pin and one spring retaining pin. Same for all GrabiQ components.</p>  <p>Code CLS-6 CLS-8 CLS-10 CLS-13 CLS-16</p>
<p>RDBK, spare part set for safety hook BKG.</p>  <p>Code RDBK-6 RDBK-8 RDBK-10 RDBK-13 RDBK-16</p>	<p>RDEKN, spare part set for sling hook EGKN and RH.</p>  <p>Code RDEKN-6 (RH 1-8+) RDEKN-8 (RH 2-8+) RDEKN-10 (RH 3-8+) RDEKN-13 RDEKN-16</p>

Sling Tags

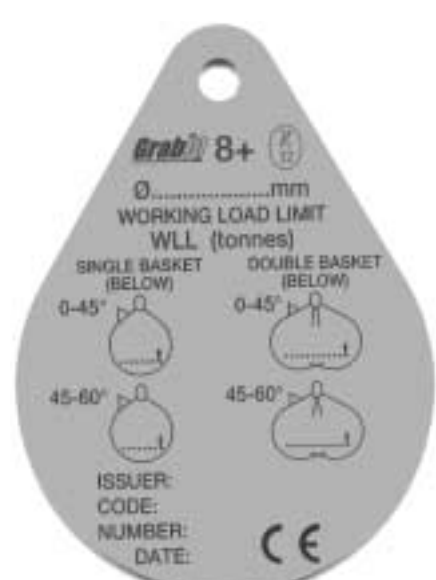
Front
1-leg



Front
2- to 4-leg



Front
Basket



Sling type	1-leg	2-leg				3- and 4-leg			
Condition of use	Straight	0-45°	45-60°	Assymmetrical load	Single point lift	0-45°	45-60°	Assymmetrical load	Single point lift
Load factor	1	1.4	1	1	1	2.1	1.5	1	1
Chain size									
6	1.5	2.1	1.5	1.5	1.5	3.1	2.2	1.5	1.5
8	2.5	3.5	2.5	2.5	2.5	5.2	3.7	2.5	2.5
10	4.0	5.6	4.0	4.0	4.0	8.4	6.0	4.0	4.0
13	6.5	9.1	6.5	6.5	6.5	13.6	9.7	6.5	6.5
16	10.0	14.0	10.0	10.0	10.0	21.0	15.0	10.0	10.0

Sling type	1-leg	Choke hitch				Home pocket loop			
Condition of use	Straight	0-45°	45-60°	Assymmetrical load	Single point lift	0-15°	0-45°	0-45°	0-45°
Load factor	0.8	1.1	0.8	0.8	0.8	1	1.4	2.1	2.1
Chain size									
6	1.2	1.6	1.2	1.2	1.2	1.5	2.1	3.1	3.1
8	2.0	2.7	2.0	2.0	2.0	2.5	3.5	5.2	5.2
10	3.2	4.4	3.2	3.2	3.2	4.0	5.6	8.4	8.4
13	5.2	7.1	5.2	5.2	5.2	6.5	9.1	13.6	13.6
16	8.0	11.0	8.0	8.0	8.0	10.0	14.0	21.0	21.0

Note: "Max 30° – every in-loop topangle"

Sling type	Basket slings				Endless choke sling
	Single 2-leg top assembly		Double 4-leg assembly		
Condition of use	0-45°	45-60°	0-45°	45-60°	
Load factor	1.1	0.8	1.7	1.2	1.5
Chain size					
6	1.6	1.2	2.5	1.8	2.2
8	2.7	2.0	4.2	3.0	3.7
10	4.4	3.2	6.8	4.8	6.0
13	7.1	5.2	11.0	7.8	9.7
16	11.0	8.0	17.0	12.0	15.0

MG1-BKG



MG2-BKG



TG3-BKG



TG4-BKG



TG1-CL



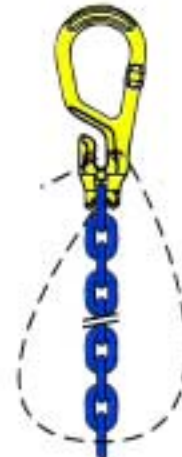
TG2-CG



MG1-MG



MG1-Z



BDGG







*We learn from the past...
the benefits, the advantages
...to create the future*

Foolproof

- No mismatching of master link with chain connectors and shorteners as they are already integrated.
- All top assemblies are available on request in permanent version (P), i.e. C-grab and C-lok cannot be dismantled from the master link, unless abused.
- Only the correct size chain fits to the clevis connection part.
- Built-in shortening pocket guarantees matching size of shortener and chain.
- Chain can be loaded safely from either side of the shortening pocket, eliminating risk of misuse.

Versatile

- The option of shortening is always there.
- Every chain leg can instantly be altered from straight lift to a loop sling.
- With C-lok as terminal fitting the sling can be altered between choke hitch, basket hitch and leg extension with flattened links.
- Oversized master links are ideal for use with large crane hooks.

Economical

- The number of components is drastically reduced. Any top assembly requires maximum three components.
- Faster/cheaper sling shop assembly.
- The need for purpose-designed slings can be reduced to a minimum on a working site due to the flexibility of the GrabiQ system.
- Fewer connecting components give less internal wear and thus longer sling lifetime.
- Fewer wearpoints gives easier inspection.
- Lower inventory value gives saving on capital cost.

GUNNEBO reserves the right to make changes in design and/or performance, without prior notice.

Worldwide patent rights apply to major parts of the GrabiQ system.

