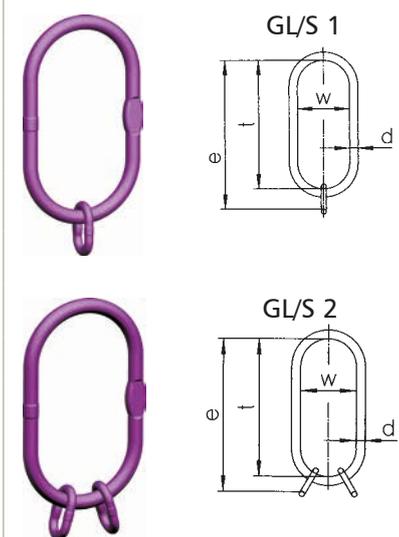


# Original operating manual for Special Master Link Assembly GL/S

Special Master Link Assembly GL/S												
	Chain Ø			Code	Consisting of	Dimensions				Can be used to single hook acc. to DIN15401 no.	Weight	Working Load Limit 0°-45°
	⊥	∧	∧			d	t	w	e			
	mm	mm	mm			mm						
	10			GL/S 1-10	L/S27+B/S16	27	340	180	410	25	4.80	4,000
	13			GL/S 1-13	L/S27	27	340	180	340	25	4.40	6,700
	16			GL/S 1-16	L/S32	33	340	180	340	25	6.70	10,000
	19+22			GL/S 1-19/22	L/S40	40	340	180	340	25	10.00	19,000
												0°-45°*
		6+7+8	6	GL/S 2-6/7/8/4-6	L/S 22+2B/S13	23	340	180	394	25	3.50	3,550
		10	7+8	GL/S 2-10/4-7/8	L/S 27+2B/S16	27	340	180	410	25	5.10	5,600
		13	10	GL/S 2-13/4-10	L/S 32+2B/S20	33	340	180	425	25	8.00	9,500
		16	13	GL/S 2-16/4-13	L/S 40+2B/S22	40	340	180	455	25	12.30	14,000
		19	16	GL/S 2-19/4-16	L/S 40+2B/S26	40	340	180	480	25	13.80	21,200

Static test coefficient = 2.5 x the WLL of each section of the sling; Safety factor = 4

These Special Master Link Assemblies GL/S are designed for the assembly of chain slings and after reading the operating manual as well as the current national norms for lifting and transporting purposes. It is Special Master Link Assembly GL/S size that makes it possible to attach these assemblies to large crane hooks. Special Master Link Assemblies GL/S can be combined with suitable components (Star Alloy chains, connecting links and hooks) to build chain slings. This product meets the requirements of the EU Machinery Directive 2006/42/EC and is only to be used when taking into consideration the declaration of incorporation and after reading and understanding the operating manual. The operating manual must always be available to the user until the assemblies are discarded. It is updated continuously and is only valid in its latest version, which can be downloaded from the following link [www.kwb-ketten.at](http://www.kwb-ketten.at).

## Conditions of use

**Use purposes:** Special Master Link Assemblies GL/S are used as head master links in 3- and 4-leg chain slings. They serve as attachment of the lifting chain to crane hooks No. 25 (single hooks according to DIN 15401). Analogously, they can be attached to wire rope slings.

**Load:** the load must act in the longitudinal direction and in the plane of the link. The inclination angle of the adjusted chain legs in multi-leg chain slings must not exceed 60°. Working load limit values are described in the table above – note that for wire rope slings the working load limit value defined for safety factor 4 is valid. Every ring must move freely and be aligned in the load direction.

**Admissible operating temperature:** -40 °C to 200 °C.

**Impacts:** the load must be applied without any impact or shock loading.

- Special Master Link Assemblies GL/S must only be used by competent personnel
- Special Master Link Assemblies GL/S must be checked before each use for visible signs of damage

## Restrictions of use

Under certain conditions, the use of Special Master Link Assemblies GL/S is restricted (see table below). The table below describes certain loads with their corresponding reduction factors. Safe working load values are calculated by multiplying the working load limit with the reduction factor defined in the table. If more restrictions of use are applicable during a lifting process, all corresponding reduction factors must be taken into account.

Reduction factors			
Temperature*	-40 °C to 200 °C	above 200 °C to 300 °C	above 300 °C to 380 °C
Reduction factor	1	0.9	0.75
Impact Load	<b>Slight impacts</b> created, for example, when accelerating during the lifting or lowering movement	<b>Medium impacts</b> created, for example, when the chain is loaded but it slips while adjusting to the shape of the load	<b>Strong impacts</b> created, for example, when the load falls onto an unloaded chain
Reduction factor	1	0.7	Impermissible

\* The use at temperatures below -40 °C and above 380 °C is forbidden!

All instructions given in this operating manual assume the absence of extremely dangerous conditions. Such extremely dangerous conditions include offshore activities, lifting of people and potentially dangerous loads, such as liquid metals or nuclear material. In these cases, the admissibility and extent of the risks are to be assessed by KWB.

## Reasonably foreseeable misuse

Special Master Link Assemblies GL/S are not designed to be used with food, cosmetics or pharmaceutical products, and must not be subjected to severe corrosive influences (e.g. acids, sewage...). They must not be used in explosion-protected areas or exposed to the fumes released by acids or chemicals. They also must not be used under other circumstances as the one described in Conditions of use and Restrictions of use – e.g. transverse or flexural loading. Do not apply any surface coating procedure with damaging effects on the materials (e.g. hot galvanizing or electrogalvanizing) and do not subject them to heat, welding or drilling processes.

## Assembly instructions

The assembly process may only be executed by a qualified person. KWB Star Alloy Special Master Link Assemblies GL/S can be combined by means of connecting links with other Star Alloy (G10) chain sling components – especially Star Alloy chains – to form 3- or 4-leg chain slings (maximum 2 chain legs in each small link). The admitted number of chain legs and the assignment of the right chain dimension are determined by the product code. The first figure before the hyphen indicates the allowed number of chain legs; the figures after the hyphen indicate the dimensions of the chains. For example, GL/S 2-6/7/8/4-6 can be used as head master link for 2-leg chain slings with Star Alloy 6, 7 and 8 mm chains, as well as for 4-leg chain slings with Star Alloy 6 mm chains. When repairing Super Alloy grade 8 (G8) chain slings, Special Master Link Assemblies GL/S can be used as long as a misinterpretation of the right WLL by the user is excluded – e.g. by means of a unified coloration and correct identification. It is vital to pay attention to the right working load limit marking of the whole system (WLL on identification tag). The weakest part will determine the working load limit. The lifting accessory into which the special master link assembly is to be incorporated must be declared in conformity with the provisions of the Directive 2006/42/EC. Only non-damaged parts must be assembled. Defective Special Master Link Assemblies GL/S must not be used and used Special Master Link Assemblies GL/S must be inspected before the assembly process as described below under the section Maintenance, Inspections and Repairs.

## Safety precautions to be taken by the user

Gloves must be worn during the whole process. When using special master links assemblies under conditions with restrictions of use, working load limit values must be reduced by the above reduction factors in order to assure the required security level.

## Residual risks

Overloading because of exceeding the working load limit or not reducing the working load limit when influences under severe conditions such as temperature, asymmetry, edge load or impact occur, can lead to failure on the special master link assembly. Other factors are unsatisfactory adjustment, transgression of the permitted angle of inclination, strong vibrations with high load, transverse loading or the use of uninspected master link assemblies, etc. In such cases, the load could fall causing injuries or fatalities among the workers who operate and work near the lifting equipment.

## How to act in case of accidents or damages

After deformation of each part of the master link assembly because of overloading or other extraordinary events, take the lifting assembly out of service for inspection or repair by a qualified person.

## Maintenance, Inspections and Repairs

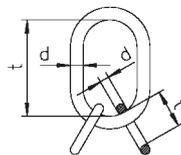
**Maintenance:** Special Master Link Assemblies GL/S shall be cleaned regularly, dried when in contact with wet atmospheres and protected from corrosion, e.g. lightly oiled.

**Inspections:** Special Master Link Assemblies GL/S need to be inspected in a clean condition – they must not contain oil, dirt or rust. Painting is only permissible if an evaluation of the master link assembly condition is possible. When cleaning, do not subject master link assemblies to processes which cause material embrittlement (e.g. pickling), overheating (e.g. flame cleaning), material abrasion (e.g. sand blasting), etc. Surface cracks or other defects must not be covered. Special Master Link Assemblies GL/S must be checked before each use for visible signs of damage. Once a year an inspection must be carried out by a competent person. However, this period must be shortened in view of the conditions of use – e.g. because of frequent use with maximum load capacity or under conditions with restrictions of use, wear or corrosion. It is recommended to subject master link assemblies every two years to a crack test. There are different ways of crack testing: subjecting the master link to a load test with 2 times the working load limit, followed by a visual inspection, a magnetic crack test or a dye-penetration method.

### Withdrawal:

- Broken parts, deformation, notches, cracks of all types
- Signs of heat (e.g. discoloration or coating-burn off)
- In the case of doubts about the safety and correct functioning of the special master link assemblies
- Unrecognizable identification marking
- If wear or excessive corrosion occurs and the tolerable change of measurement is transgressed (see following table)

Measure	Maximal permitted change
d	-10 %
t	+10 %



### Repair:

Special Master Link Assemblies GL/S are only to be repaired by a qualified person. Welding, heat treatments, as well as the straightening of bent master link assemblies are not permitted. Inspections and repairs have to be documented and the corresponding reports have to be retained during the service life of the Special Master Link Assembly GL/S.

## Storage

KWB Star Alloy Special Master Link Assemblies GL/S shall be stored cleaned, dried, protected from corrosion, e.g. lightly oiled. While stored, they must not be exposed to corrosive, mechanical or thermal influences.

## Declaration of incorporation

In accordance with the requirements established in Annex II, part B, of the EU Machinery Directive 2006/42/EC for components in lifting accessories:

This is to inform you that the product mentioned in this original operating manual is designed to be incorporated in lifting accessories complying with all essential requirements of the EU Machinery Directive 2006/42/EC. This product must not be put into service until the final lifting accessory into which it is to be incorporated has been declared in conformity with the provisions of the Directive 2006/42/EC. Moreover, it is a precondition that this operating manual has been read and understood. This declaration has no legal effect if any changes to the product are introduced without KWB's approval.

Following essential safety and health requirements of Annex I of the Directive are applied and fulfilled:  
1.1.3, 1.3.4, 1.5.4, 4.1.2.3, 4.1.2.5, 4.3, 4.4.1.

Additionally, we declare that the relevant technical documentation is compiled in accordance with part B of Annex VII and will be transmitted electronically due to a well-founded request by the national competent authority.

The person authorised to compile the technical documentation:  
DI Bernhard Oswald; Mariazeller Straße 143; A-8605 Kapfenberg

Klagenfurt, 2011-09-01

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Technical changes and misprints are subject to alteration.