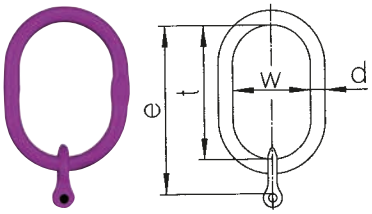
KWB
Safety in action

Original operating manual for Special Clevis Sub-Assembly GTKR/S

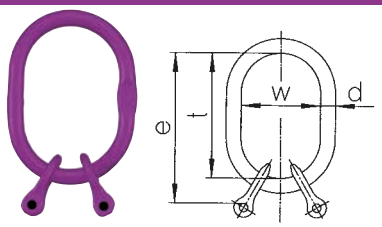
Special Clevis Sub-Assembly GTKR/S 1



For 1-leg slings.
Suitable for larger crane hooks and special hooks.

Chain ⌀ ⊥ mm	Chain ⌀ ⊥ inch	Code	Can be used to single hook acc. to DIN15401 no.	Dimensions d mm	Dimensions t mm	Dimensions w mm	Dimensions e mm	Weight kg	Working Load Limit kg
6	1/4	GTKR/S 1-6	4	14	120	70	151	0.52	1,400
8	5/16	GTKR/S 1-8	5	16	140	80	183	0.87	2,500
10	3/8	GTKR/S 1-10	6	19	160	95	211	1.67	4,000
13	1/2	GTKR/S 1-13	10	23	160	110	223	2.39	6,700
16	5/8	GTKR/S 1-16	10	27	190	110	264	3.82	10,000

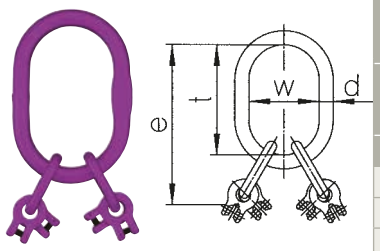
Special Clevis Sub-Assembly GTKR/S 2



For 2-leg slings.
Suitable for larger crane hooks and special hooks.

Chain ⌀ ⋀ mm	Chain ⌀ ⋀ inch	Code	Can be used to single hook acc, to DIN15401 no.	Dimensions d mm	Dimensions t mm	Dimensions w mm	Dimensions e mm	Weight kg	Working Load Limit ß up to 45° kg	Working Load Limit ß 45°-60° kg
6	1/4	GTKR/S 2-6	4	14	120	70	151	0.60	2,000	2,000
8	5/16	GTKR/S 2-8	6	19	160	95	203	1.49	3,550	3,550
10	3/8	GTKR/S 2-10	10	23	160	110	211	2.85	5,600	5,600
13	1/2	GTKR/S 2-13	10	27	190	110	253	4.05	9,500	9,500
16	5/8	GTKR/S 2-16	12	33	230	130	304	7.12	14,000	14,000

Special Clevis Sub-Assembly GTKR/S 4



For 3 and 4-leg slings.
Suitable for larger crane hooks and special hooks.

Chain ⌀ ⩚ mm	Chain ⌀ ⩚ inch	Code	Can be used to single hook acc, to DIN15401 no.	Dimensions d mm	Dimensions t mm	Dimensions w mm	Dimensions e mm	Weight kg	Working Load Limit ß up to 45° kg	Working Load Limit ß 45°-60° kg
6	1/4	GTKR/S 4-6	6	19	160	95	245	1.75	3,000	2,120
8	5/16	GTKR/S 4-8	10	23	160	110	273	3.21	5,300	3,750
10	3/8	GTKR/S 4-10	10	27	190	110	326	6.33	8,000	6,000
13	1/2	GTKR/S 4-13	12	33	230	130	408	9.90	14,000	10,000
16	5/8	GTKR/S 4-16	20	38	275	150	489	16.00	21,200	15,000

Static test coefficient = 2,5; Safety factor = 4

These Special Clevis Sub-Assemblies GTKR/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. Special Clevis Sub-Assemblies GTKR/S can be attached directly at the clevis connector to the chain. 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 special clevis sub-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.

Conditions of use

Use purposes: depending on the number of already adjusted coupling rings, between 1 and 4 chain legs will be attached to the special clevis sub-assembly. The permitted 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 figure after the hyphen indicates the dimensions of the chain. For example, GTKR/S 2-6 can be used as head master link for 2-leg chain slings with Star Alloy 6 mm chains. Special Clevis Sub-Assemblies GTKR/S serve as attachment of lifting chains to crane hook. The size of the biggest crane hook which an assembly can be attached to is defined in the table above. Special Clevis Sub-Assemblies GTKR/S can also be used as end links.
Load: the load must act in the longitudinal direction. The inclination angle of the adjusted chain legs must not exceed 60°. Work load limit values, dependent on the angle, are defined in the table above.
Special Clevis Sub-Assemblies GTKR/S must be freely aligned according to the acting forces.
Admissible operating temperature: -40 °C to 200 °C.
Impacts: the load must be applied without any impact or shock loading.

- Special Clevis Sub-Assemblies GTKR/S must only be used by competent personnel
- Special Clevis Sub-Assemblies GTKR/S must be checked before each use for visible signs of damage

Restrictions of use

Under certain conditions, the use of special clevis sub-assemblies 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	**Slight impacts** created, for example, when accelerating during the lifting or lowering movement	**Medium impacts** created, for example, when the chain is loaded but it slips while adjusting to the shape of the load	**Strong impacts** 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!

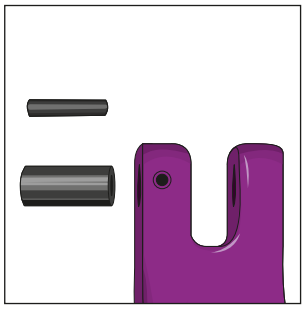
All instructions given in this operating manual assume the absence of extremely dangerous conditions. Such extremely dangerous conditions include offshore activities, lifting of people and potentially dangerous loads, such as liquid metals or nuclear material. In these cases, the admissibility and extent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

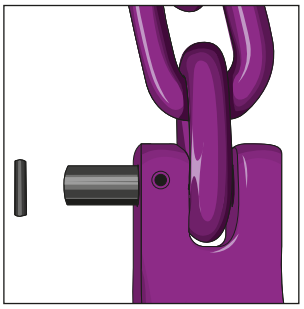
Reasonably foreseeable misuse

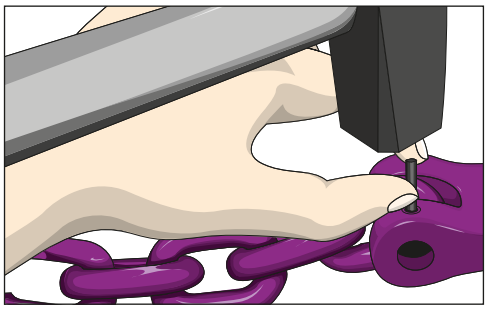
Special Clevis Sub-Assemblies GTKR/S are not designed to be used with food, cosmetics or pharmaceutical products, and must not be subjected to severe corrosive influences (e.g. acids, sewage…). They must not be used in explosion-protected areas or exposed to the fumes released by acids or chemicals. 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 since they cannot be aligned to the direction of the load. They must not be attached to oversize hooks or similar. Additional chain legs must not be attached – e.g. by means of connecting links. 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

KWB Star Alloy Special Clevis Sub-Assemblies GTKR/S are only to be assembled with original accessories provided by KWB (bolts and safety pins). The assignment of the right chain dimension is determined by the product code on the coupling ring (e.g. KR/S 13) and the grade (10), with which the parts are also marked. For example, KR/S 13 must be used with Star Alloy 13 mm chains. 13 indicates the diameter of the material which the chains are made of, 10 points out the grade.







When repairing Super Alloy chain slings (G8), Special Clevis Sub-Assemblies GTKR/S can also 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 clevis sub-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 clevis sub-assemblies must not be used and used special clevis sub-assemblies must be inspected before the assembly process as described below under the section Maintenance, Inspections and Repairs.

Replacement part

Clevis load pins type KBG/S.

Safety precautions to be taken by the user

Gloves must be worn during the whole process. When using special clevis sub-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 clevis sub-assembly. Other factors are unsatisfactory adjustment, transgression of the permitted angle of inclination, strong vibrations with heavy load, transverse loading or the use of uninspected special clevis sub-assemblies. In such cases, the load could fall causing injuries or fatalities among the workers who operate or work near the lifting equipment.

How to act in case of accidents or damages

After deformation of the special clevis sub-assembly because of overloading or other extraordinary events, take the lifting assembly out of service for inspection or repair by a qualified person.

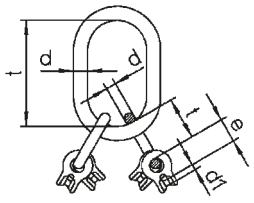
Maintenance, Inspections and Repairs

Maintenance: Special Clevis Sub-Assemblies GTKR/S shall be cleaned regularly, dried when in contact with wet atmospheres and protected from corrosion, e.g. lightly oiled.

Inspections: Special Clevis Sub-Assemblies GTKR/S including their bolts and safety pins 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 special clevis sub-assembly condition is possible. When cleaning, do not subject special clevis sub-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 Clevis Sub-Assemblies GTKR/S must be checked before each use for visible signs of damage. Once a year an inspection of the special clevis sub-assembly – including its bolts – 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 special clevis sub-assemblies every two years to a crack test. There are different ways of crack testing: subjecting the special clevis sub-assembly 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 clevis sub-assembly
- Unrecognizable identification marking
- If wear or excessive corrosion occurs and the tolerable change of measurement is transgressed (see following table)
- Bolts that are not completely assembled or secured by the safety pin

Measure	Maximal permitted change
d	-10 %
t	+10 %
d_1	-10 %
e	+5 %



Repair:
Special Clevis Sub-Assemblies GTKR/S are only to be repaired by a qualified person. Components that are damaged can be replaced by new, original replacement components. Welding, heat treatments, as well as the straightening of bent special clevis sub-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 Clevis Sub-Assembly GTKR/S.

Storage

KWB Star Alloy Special Clevis Sub-Assemblies GTKR/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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