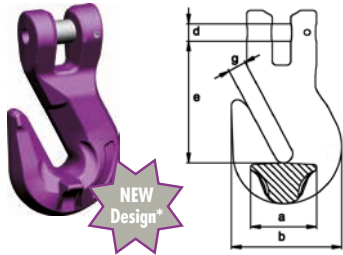


Original operating manual for Clevis Grab Hook PK/S

| Clevis Grab Hook PK/S | | | | | | | | | | |
|-----------------------|------|------------|------------|-----|------|----|----|--------|--------------------|--|
| Chain | | Code | Dimensions | | | | | Weight | Working Load Limit | |
| | | | e | b | d | g | a | | | |
| mm | inch | | mm | | | | | kg | kg | |
| 6 | 1/4 | PK/S 6 * | 47 | 42 | 7.4 | 7 | 26 | 0.17 | 1,400 | |
| 7 | 9/32 | PK/S 7 * | 63 | 56 | 9 | 9 | 35 | 0.44 | 1,900 | |
| 8 | 5/16 | PK/S 8 * | 63 | 56 | 10 | 9 | 35 | 0.44 | 2,500 | |
| 10 | 3/8 | PK/S 10 * | 78 | 70 | 12.5 | 12 | 46 | 0.85 | 4,000 | |
| 13 | 1/2 | PK/S 13 * | 93 | 92 | 16 | 15 | 60 | 1.75 | 6,700 | |
| 16 | 5/8 | PK/S 16 * | 115 | 113 | 20 | 19 | 70 | 3.30 | 10,000 | |
| 19/20 | 3/4 | PK/S 19/20 | 141 | 150 | 24 | 25 | 84 | 6.15 | 16,000 | |
| 22 | 7/8 | PK/S 22 | 158 | 165 | 27 | 27 | 91 | 9.00 | 19,000 | |



For shortening and for slings that must not tighten. Reduction of load capacity not required due to 4-fold safety.

These Clevis Grab Hooks PK/S are designed for the mounting of chain slings and after reading the operating manual as well as the current national norms for the shortening of chain legs, the building of loops that must not tighten, and for lifting and transporting purposes. 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 Clevis Grab Hooks PK/S 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: these Clevis Grab Hooks PK/S serve as shortening hooks for lifting chains with the same nominal size. They can also be used for building loops (choke hitch). For this purpose, a chain link of the same nominal size will be hooked into the slot of the hook.

Load: the loading of the hook must act through the chain of the same nominal size. The chain will, therefore, be hooked into the slot of the hook. The hook must be free to be aligned in the direction of the load. Working load limits (WLL) given in the table above must not be exceeded.

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

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

- Clevis Grab Hooks PK/S must only be used by competent personnel
- Clevis Grab Hooks PK/S must be checked before each use for visible signs of damage

Restrictions of use

Under certain conditions, the use of Clevis Grab Hooks PK/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 | 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!

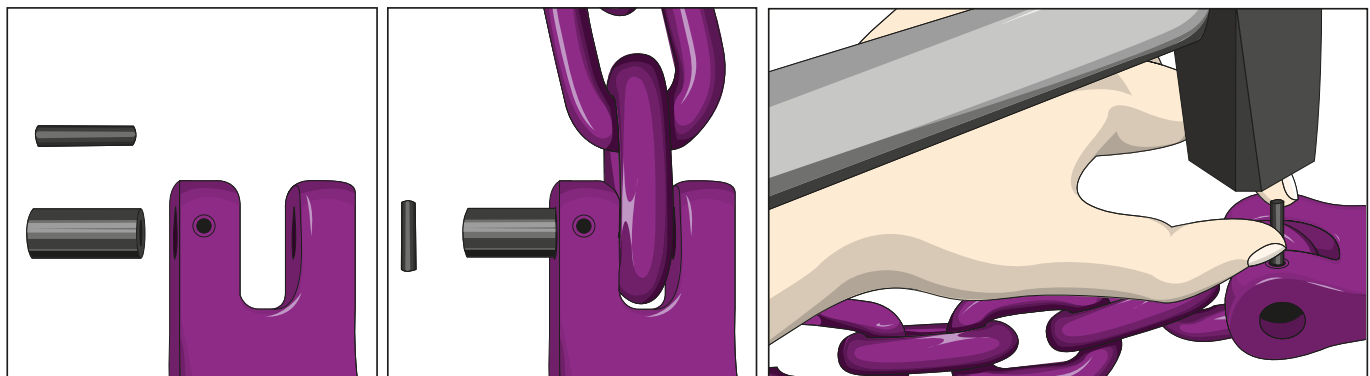
All instructions given in this operating manual assume the absence of extremely dangerous conditions. Such extremely dangerous conditions include offshore activities, lifting of people and potentially dangerous loads, such as liquid metals or nuclear material. In these cases, the admissibility and extent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

Reasonably foreseeable misuse

Clevis Grab Hooks PK/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 loading. When building loops, the chain must not hang slack or the hook be unloaded – risks of accidental unhooking. In such cases, use grab hooks with safety catch. Do not hook any other object than a chain link of the same nominal size into the slot of the hook. Tip loading of the hook is not permitted. 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 Clevis Grab Hooks PK/S are attached at the clevis connection to the chain – see figure below. When assembling, only use the original parts provided by KWB (bolts and safety pins). The assignment of the right chain dimension is determined by the product code (e.g. PK/S 13) and the grade (10), with which the Clevis Grab Hooks PK/S are also marked. For example, PK/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 indicates the grade.



When repairing Super Alloy chain slings (G8), Clevis Grab Hooks PK/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. Moreover, it is important to pay attention to the same length of the chain legs in multi-leg chain slings when the Clevis Grab Hooks PK/S are used as end hooks. Possibly, all Clevis Grab Hooks PK/S have to be replaced. It is also 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 clevis grab hook 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 Clevis Grab Hooks PK/S must not be assembled and used Clevis Grab Hooks PK/S 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 conditions with restrictions of use take place, 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 of the clevis grab hook. Other factors are unsatisfactory adjustment, incorrect use (tip loading of the hook), transgression of the permitted angle of inclination, strong vibrations with heavy load, transverse loading, and the use of uninspected Clevis Grab Hooks PK/S. In such cases, the load could fall causing injuries or fatalities among the workers who operate and work in the danger zone of the lifting equipment. When impact loading and/or impact unloading occurs, unhooking of the chain from the hook could also be possible. In these cases, use PS/S Eye Grab Hooks with safety catch.

How to act in case of accidents or damages

If the chain blocks or gets jammed in the hook, under no circumstances shall force be used to avoid damage on the hook or the chain. In this case, remove the load and eliminate the fault by means of hand force. After deformation of the clevis grab hook 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

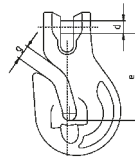
Maintenance: Clevis Grab Hooks PK/S shall be cleaned regularly, dried when in contact with wet atmospheres and protected from corrosion, e.g. lightly oiled.

Inspections: Clevis Grab Hooks PK/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 clevis grab hook condition is possible. When cleaning, do not subject Clevis Grab Hooks PK/S 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. Clevis Grab Hooks PK/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 Clevis Grab Hooks PK/S every two years to a crack test. There are different ways of crack testing: subjecting the clevis grab hook 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 Clevis Grab Hook PK/S
- 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 % |
| e | +5 % |
| g | +10 % |



Repair:

Clevis Grab Hooks PK/S are only to be repaired by a qualified person. Damaged accessories must be replaced by new, original replacement parts. Welding, heat treatments, as well as the straightening of bent Clevis Grab Hooks PK/S are not permitted. Inspections and repairs have to be documented and the corresponding reports have to be retained during the service life of the Clevis Grab Hook PK/S.

Storage

KWB Star Alloy Clevis Grab Hooks PK/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

KWB Ketten Austria GmbH
Stefan Duller

KWB Ketten Austria GmbH

A-9020 Klagenfurt, Schleppe-Platz 8

Phone: +43 463 4880-355

Fax: +43 463 4880-350

kwb@kwb-ketten.at, www.kwb-ketten.at

Technical changes and misprints are subject to alteration.