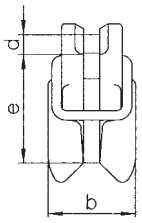
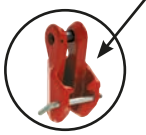
KWB
Safety in action

Original operating manual for Clevis Shortening Clutch VKL

Clevis Shortening Clutch VKL





Chain		Code	Measurements			Weight	Working Load Limit
			e	b	d		
mm	inch		mm			kg	kg
6	1/4	VKL 06.8	45	36	7.4	0.27	1,120
7	9/32	VKL 07.8	58	44	9	0.50	1,500
8	5/16	VKL 08.8	58	44	10	0.50	2,000
10	3/8	VKL 10.8	70	55	12.5	0.80	3,150
13	1/2	VKL 13.8 [1]	90	70	16	1.53	5,300

[1] clevis connector with bent hitch pin, see figure

Warning Instructions:
- only load the inside chain
- only to be used with safety device
- make sure that the chain fits properly

Static test coefficient = 2.5; Safety factor = 4

These Clevis Shortening Clutches VKL are designed for the assembly of chain slings and after reading the operating manual as well as the current national norms for shortening chain legs, for building loops that must not tighten, as well as 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 Shortening Clutches VKL 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

Purpose of use: these Clevis Shortening Clutches VKL serve as shortening elements for lifting chains of the same nominal size. They are also designed for building loops. For this purpose, a chain link of the same nominal size will be hooked into the clutch of the connector.
Load: the Clevis Shortening Clutch VKL must only be loaded by a chain of the same nominal size. The correct connection to the chain is described below (see Assembly instructions). The Clevis Shortening Clutch VKL must be aligned in the direction of the load. The loading must not exceed the value described in the table above.
Admissible operating temperature: -40 °C to 200 °C.
Impacts: the load must be applied without any impact or shock loading.
- Clevis Shortening Clutches VKL must only be used by competent personnel
- Clevis Shortening Clutches VKL must be checked before each use for visible signs of damage

Restrictions of use

Under certain conditions, the use of Clevis Shortening Clutches VKL 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 400 °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 400 °C is forbidden!

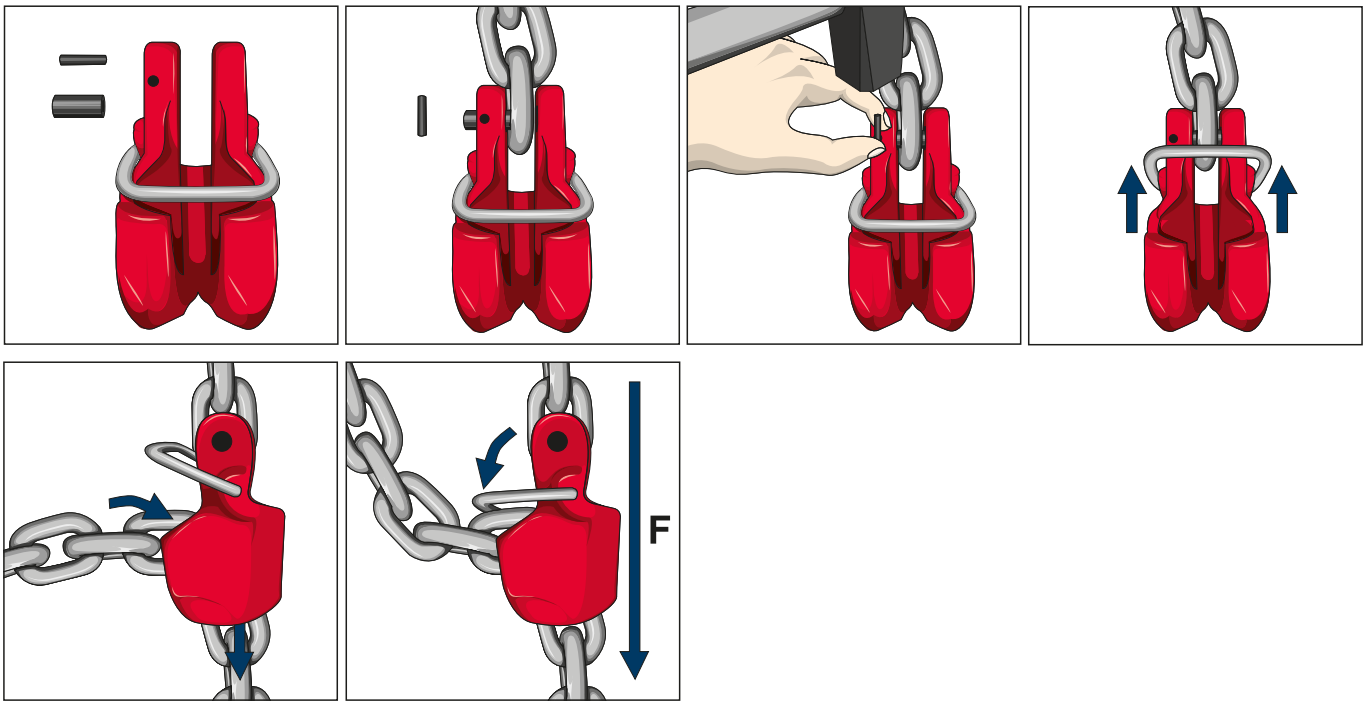
All instructions given in this operating manual assume the absence of extremely dangerous conditions. Such extremely dangerous conditions include offshore activities, lifting of people and potentially dangerous loads, such as liquid metals or nuclear material. In these cases, the admissibility and extent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

Reasonably foreseeable misuse

Clevis Shortening Clutches VKL 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 must also not be used under other circumstances as the one described in Conditions of use and Restrictions of use – e.g. transverse loading. The safety device against accidental unhooking of the load must not be loaded. 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 Super Alloy Clevis Shortening Clutches VKL are attached at the clevis part to the chain – see figure below. When assembling, only use the original accessories provided by KWB (bolt and safety pin). The assignment of the right chain dimension is determined by the product code (e.g. VKL 13.8) and the grade (8), with which the Clevis Shortening Clutches VKL are also marked. For example, VKL 13.8 must be used with Super Alloy 13 mm chains. 13 indicates the diameter of the material which the chains are made of, 8 points out the grade. ATTENTION! Since these Clevis Shortening Clutches VKL correspond to grade 8, the WLL and the marking of the lifting assembly on the identification tag must be adjusted according to grade 8 when used with G10 KWB Star Alloy chains and components. A grade



8 identification tag is to be used. When repairing KWB Star Alloy chain slings (G10), Clevis Shortening Clutches VKL 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 Shortening Clutches VKL are used as end hooks. Possibly, all Clevis Shortening Clutches VKL are to be replaced. In the case that chain legs are shortened, pay attention to the correct loading of the shortened chain (see figure). 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 Shortening Clutch VKL 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 Shortening Clutches VKL must not be assembled and used Clevis Shortening Clutches VKL must be inspected before the assembly process as described below under the section Maintenance, Inspections and Repairs.

Replacement part

Clevis load pins type KBG U.

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.

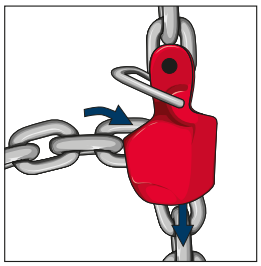
How to act in case of accidents or damages

If the chain blocks or gets jammed in the Clevis Shortening Clutch VKL, under no circumstances force shall be used to avoid damage on the Clevis Shortening Clutch VKL or the chain. In this case, remove the load and eliminate the fault by means of hand force. After deformation of the Clevis Shortening Clutch VKL because of overloading or other extraordinary events, take the lifting assembly out of service for inspection or repair by a qualified person.

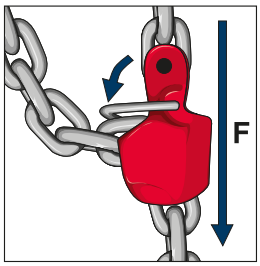
Residual risks

Overloading because of exceeding the working load limit or not reducing the working load limit when influences under severe conditions such as temperature, asymmetry or impact loading occur, can lead to failure of the Clevis Shortening Clutch VKL. Other factors are unsatisfactory adjustment, incorrectly use (see figures below), transgression of the permitted angle of inclination, high vibrations with heavy loads, transverse loading, and the use of uninspected Clevis Shortening Clutches VKL. 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.

Wrong attachment of the chain



Correct attachment of the chain



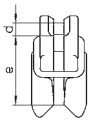
Maintenance, Inspections and Repairs

Maintenance: Clevis Shortening Clutches VKL shall be cleaned regularly, dried when exposed to wet atmospheres and protected from corrosion, e.g. lightly oiled.

Inspections: Clevis Shortening Clutches VKL 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 Shortening Clutch VKL condition is possible. When cleaning, do not subject Clevis Shortening Clutches VKL 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 Shortening Clutches VKL 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 also be shortened up 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 Shortening Clutches VKL every two years to a crack test. There are different ways of crack testing: subjecting the Clevis Shortening Clutch VKL 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 Shortening Clutch VKL
- Unrecognizable identification marking
- If wear or excessive corrosion occurs and the tolerable change of measurement is transgressed (see following table)

Measure	Max. permitted change
d	-10 %
e	+5 %



Repair: Clevis Shortening Clutches VKL 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 Shortening Clutches VKL 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 Shortening Clutch VKL.

Storage

KWB Super Alloy Clevis Shortening Clutches VKL 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:
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