


User information

for 4 mm Sling chains

Quality Grade 100-VIP



EC-Declaration of conformity

According to the EC-Machinery Directive 2006/42/EC, annex II A and amendments

Manufacturer: **RUD Ketten
Rieger & Dietz GmbH u. Co. KG**
Friedensinsel
73432 Aalen

We hereby declare that the equipment sold by us because of its design and construction, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC-Machinery Directive 2006/42/EC as well as to the below mentioned harmonized and national norms as well as technical specifications. In case of any modification of the equipment, not being agreed upon with us, this declaration becomes invalid.

Product name: Chain sling Grade 100 - VIP
ND 4-28 mm, adjustable/not adjustable

The following harmonized norms were applied:

EN 12100 : 2011-03	EN 1677-4 : 2009-03
EN 1677-2 : 2009-06	EN 1677-3 : 2009-06
EN 1677-4 : 2009-03	EN 818-1 : 2008-12
EN 818-2 : 2008-12	EN 818-4 : 2008-12
EN 818-6 : 2008-12	

The following national norms and technical specifications were applied:

BGR 500, KAP 2.8 : 2008-04	DIN 15428 : 1978-08
DIN 15429 : 1978-07	DIN 8688-3 : 2007-04
DIN 8682 : 2011-04	DIN 685 : 1981-11
PAS 1061 : 2006-04	

Authorized person for the configuration of the declaration documents:
Reinhard Smetz, RUD Ketten, 73432 Aalen

Aalen, den 27.06.2014 Dr.-Ing. Arne Kriegsmann (Prokurist/QMB) *Arne Kriegsmann*
Name, function and signature of the responsible person

Selection of sling chains

Use of sling chains

Inspection Test

Maintenance Repair

Documentation



Usage acc. Regulations: Recommended chain sling use

1. Selection of chain sling

- 1.1 Determine the load weight
- 1.2 Determine the center of gravity
- 1.3 Sling method

When using multiple strand slings the inclination angle from the vertical has to be between 15° and 60°. Inclination angles exceeding 60° result in an overloading of the sling chain. Inclination angles less than 15° cause instability. Where the sling is choked, the WLL must be reduced by 20 %.

When using a 4 leg sling or 4 Lifting Points there is a danger even with symmetrical load that in principle only the transversal chains strand are carrying the load.

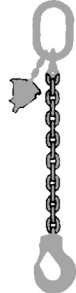
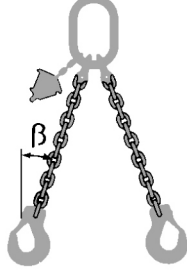
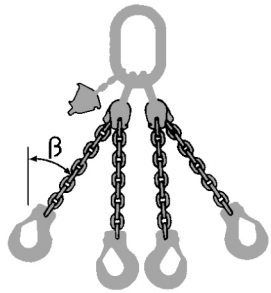
1.4 Unsymmetrical loads

When single legs of a multiple sling are shortened, this is a sign of an unequal load distribution to the single legs. Acc. to BGR 500 section 2.8 (DGUV 100-500), the WLL for single fall becomes valid when unsymmetrical load occurs at a multiple strand sling.

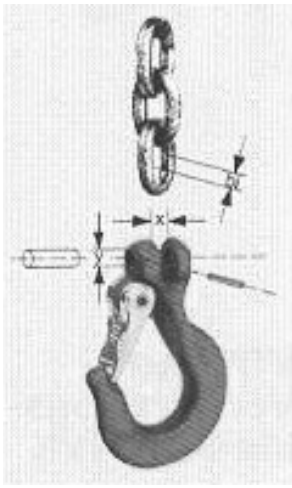
1.5 Working Load Limits in t at symmetrical load

DUR chains and components are designed for a dynamic load of 20.000 cycles according to DIN EN 818 and 1677 standard.

German Employer's insurance Association recommends: When high dynamic stress combines with high number of load cycles, the bearing stress must be reduced to Mechanism group 1B_m (M3 acc. to EN 818-7), for example by selecting the next larger chain size.

	1 leg	2 legs		3- and 4 legs	
nominal size of sling chain in mm					
	inclination β	0°	0-45°	> 45-60°	0-45°
load factor	1	1,4	1	2,1	1,5
4 mm	0,63 t	0,88 t	0,63 t	1,32 t	0,95 t

Warning: Acc. to DGUV 100-500 section 2.8, the WLL for single fall becomes valid when unsymmetrical load occurs at a multiple strand sling.



1.6 Mechanical System construction kit Quality Grade 100-VIP

RUD-Masterlink with forged connector and therefore restricted connection for the chain and number of legs. Complete Identification tag with Working Load Limits. Special load pin and retaining pin are preassembled. The RUD-System-Basic-Forkhead and Basic-Pin are making the assembly easy.

The RUD Basic-Forkheadsystem yields, because of the tuned measurements to a foolproof, restricted cross-reference of the correct VIP chain size.

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The forkhead opening x prevents the connection of a bigger VIP chain.

Diameter of the load pin y prevents connection of a thinner VIP chain.

Only VIP chains and VIP components of the same nominal size can be assembled.

Warning:

Only chains, components embossed with H1-10 und load pins which are marked with H1-10 or H1-8S shall be used and assembled.

- Drive retaining pin for securing of the load pin with the slot to the outside

- Use retaining pin only once!

- **Use only original RUD spare parts**



= Marking with finished, assembled chain slings

= sign confirms that the technical requirements of the European Standard -CEN- are fulfilled.

Please pay attention to the following requirements:

EN 818-1 / EN 818-2 / EN 818-4 / EN 1677 / BGR 500 section 2.8 (DGUV-rule 100-500) and the corresponding regulations of each country.

We do not take any responsibility for damages occurred by nonrespecting these standards, regulations and above

2. Use of chain slings

When using chain slings the regulations of the Employer's Insurance Association BRG 500- chapter 2.8 „usage of load accepting devices in hoisting“ (DGUV rule 100-500), and the corresponding regulations of each country (out of Germany) must be observed. Hazardous area has always to be left. Do not leave lifted loads unattended at any time.

Before first use please make sure by visually examination that:

- The sling is according to the order.
- The test certificate 3.1 or the attest 2.1 (EN10204 with the datas of EN 814-4) As well as the declaration of conformity is present.
- That the values of the identification tag are according to the test certificate and the declaration of conformity
- the details are recorded in the lifting gear register for the first time. This register contains a description of the sling chain, and as well the identity detection (test certificate/ declaration of conformity/Ident-No.)

2.1 Handling

The slings must be used in straight lift. Make sure chain is not twisted, knotted or kinked before lifting the load. Do not point load hooks. Hooks must have safety latches to avoid dropping of load. Masterlinks should bear on the bowl of the hook and they must be moveable on the crane hook.

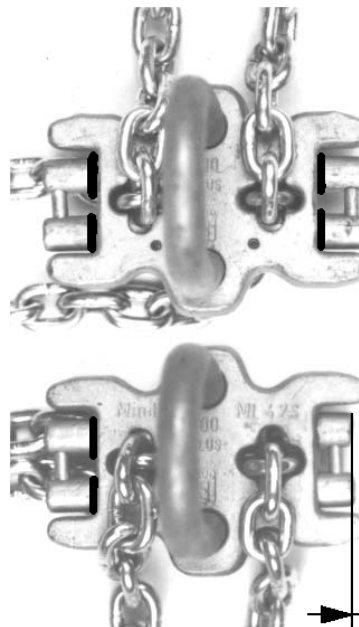
Avoid sudden jerks when lifting and lowering especially with slack chain. Protect chain with padding when lifting sharp edged loads, use next bigger chain size or reduce the WLL by 20 %!

In the VIP-Minilifter the chain strand must be secured by VIP endlink fitting VEA-4. The chain strands can only be adjusted separately. **Warning: Do not load slack chain and the separate ends of the chain.**

VEA-4



Warning: With each adjustment, the complete locking of the chain has to be checked.



Correct:

Ribbed beams and Locking Pin must be at the same level,

Green marking on the locking pin visible.

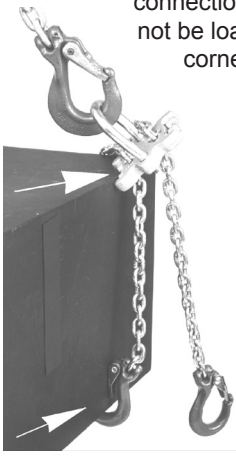
Wrong!

Green marking on the locking pin not visible.

Locking pins are below level of Ribbed beams.

Chain is not locked!

Chain connections must not be loaded on corners.



Load hooks must not be loaded on the tip.

Prohibited



When two Minilifters are used in one hoist hook, automatic release can occur. Use the original 4 leg Mini-Lifter VML-4.

2.2 Multiple chain sling, where of not all legs are in usage

Type of lifting mean	Number of used legs	Load factor of nominal load (WLL)
2 legs	1	1 / 2
3- and 4 legs	2	2 / 3
3- and 4 legs	1	1 / 3

2.3 Storage of sling chains:

Sling chains should be hang up on A frames in clean and dry places.

2.4 Influence of High- and Low temperatures

If sling chain are used in temperature areas higher than 200° C (for example in forging companies or foundries) the WLL has to be lowered acc. to the following chart.

Reduced WLL in % at chain temperature of:

°C	from -40° C up to + 200° C	higher than 200°C up to 300° C	higher than 300°C up to 380° C
%	100 %	90 %	60 %

At lower temperatures chain slings cannot be used due the danger of sensibility of brittle fracture. Temperatures higher 380° C are prohibited.

The special fluorescent pink powder coating shows permanently the maximum temperature in which the VIP chain was used. When used prohibited, in temperature >400°C (>750°F), the pink colour turns into deep black and bubbles occur. VIP chain and components have to be replaced or send to the manufacturer for inspection.

2.5 Chemical influences

VIP Sling Chains of Quality Grade 10 must not be used under chemical influences such as acids, lyes and their steams, for example etchor pickling baths or hot dip galvanising plants.

At this places the specific requirements of the Employer's Insurance Association, BGR 150 have to be attended, respectively the domestic requirements.

2.6 Other influences

Before using Sling Chains in chemical environments the chain manufacturer must be questioned indicating the concentration, period of reaction and temperature of use.

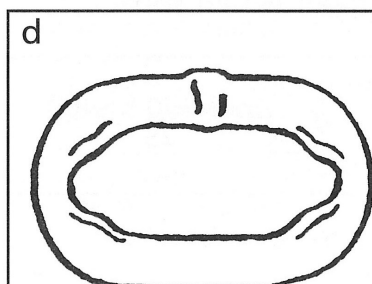
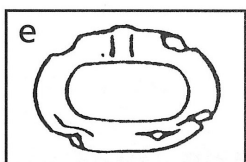
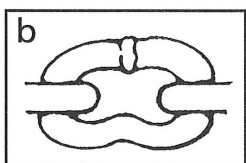
3. Inspection and Testing

3.1 Visual Inspection and functional test

For the controlling of the Sling Chain usage, regular inspections by an authorized person have to be carried out within the period of 12 months. Depending on the usage, for example at continuous operation, increased wear or corrosion these test must be carried out in shorter terms then one year. The authorized person has to write down the results of the examination into the chain card file. Keep the records of the test and the protocols. Should any of the following damages occur, the chain sling should immediately be taken out of usage.

- The identification tag cannot be read or is missing
- Twisting, deformation and failure of chains, components and masterlinks.
- Lengthening of chain caused by plastical deformation of individual links by more than 5 %, referred to the pitch of 3 x diameter.
- Wear occurs at chain links caused by abrasion on the outside and at the interlink zone.

For measuring the wear with a caliper, the chain must be loose. Wear up to 10 % (d_m = average thickness of chain diameter) is permissible.



d_m = average thickness of chain link diameter
 d_1/d_2 = actual measurements
 d = nominal size of diameter

$$d_m = \frac{d_1 + d_2}{2} \geq 0,9 \cdot d$$

e) Cuts, grooves, notches, cracks increased corrosion, discolouring due to heat, bent or twisted chains or components. Especially deep notches in the area of tensile stress and sharp notches crosswise are unacceptable.

f) At load hooks the „widening“ of the hook must not exceed the maximum nominal value. Distance between the markings must not exceed the maximum value embossed in the hook. The safety latch must engage into the tip of the hook, so that positive locking occurs. Check especially the bowl of the hook in regard of notches.

3.2 Crack inspection

Latest after three years the chain slings should be crack inspected. DUR Chains and DUR components should be magnetic crack inspected in principle.

For chains and components a proof load test instead of a magnetic crack inspection is not sufficient, because cracks can only be determined by a magnetic crack inspection.

4. Repair and Maintenance

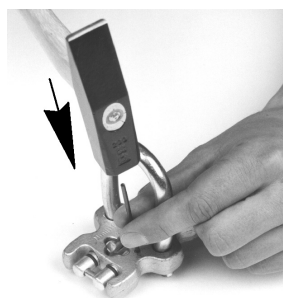
Repairing must only be done by authorized persons. Broken, bent, twisted and strongly deformed chains and components must be replaced immediately. The chain itself has to be replaced in total. Small damages like notches and grooves must be grinded out carefully (to avoid notch effect). The cross section of the material must not be reduced by more than 10 %! Any welding on the chains and components is prohibited!

The maximum allowed wear on the connecting pins is 10 %. Replace always bolts and pins at any component exchange. Use only original RUD-Spare Parts. DUR Chains must only be combined with DUR components (embossed with „DUR“). Any repairs/maintenance must to be recorded in the chain card file.

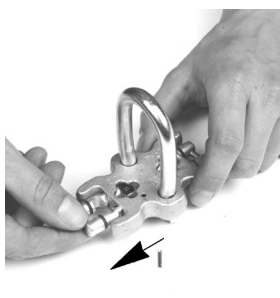
- Use only original RUD spare parts

Malfunctions caused by extreme pollution can be eliminated by an expert.

Required tools: Hammer and drift punch



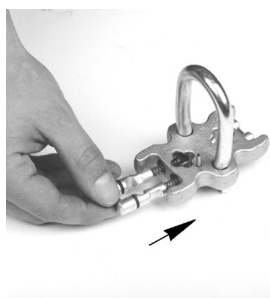
Hammer clamping sleeve out with drift punch



Pull out locking pin

Pressure springs, locking pins and the holes are then loose and can be cleaned.

Before reassembly we recommend to grease the bolts slightly.



Fix clamping sleeve and locking pins with the springs in the housing



Press locking pins and hammer in a new clamping sleeve.

Functional testing: When locking pins are released, they must completely and full lock the chain cross.

5. Documentation in a chain card file

The chain card file contains the continuous history of the chain sling. The contents are a first record (paragr. 2), inspection/test dates (paragr. 3) as well as repair and maintenance (paragr. 4). In case of repairs, the reason for that repair has to be indicated. The records in the chain card file give proof of steady supervision measurements of the user, during the use of sling chains. For the user this is as a urgent required verification against Health and Safety Inspection/ Employer's Insurance Association, to exhibit the observance of Worker's Protection Rules/ Accident avoiding Measures (EU-Machine Guidelines).

RUD-ID-NET®-Application

The MINI components will be equipped with a RUD-ID-Point® and can clearly be related by the identification number. This number can be determined with the RUD-ID-EASYCHECK® readers and data can be transferred into the RUD-ID-NET®-Application.



The application will support your product administration and documentation. For further information please go to the RUD webpage or ask your RUD authorized distributor.

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Translation of the Original instructions