Multi-shortening claw
>IMVK<, >VMVK<, >VV<, >BSEK<

Assembly instructions
These assembly instructions/manufacturer’s declaration must be kept for the time during which the unit is used.

Translation of the ORIGINAL ASSEMBLY INSTRUCTIONS
These assembly instructions apply in addition to the operating instructions for RUD sling chains (ICE-no. 7995555 or VIP/grade-80-no. 7101649).

Multi-shortening claw
IMVK - ICE
Grade 12

VMVK - VV
VIP Grade 10

BSEK
Grade 8

Simple testing, administration and documentation of work equipment and components subject to testing.

RUD Ketten
Rieger & Dietz GmbH u. Co. KG
73428 Aalen
Tel. +49 7361 504-1370
Fax +49 7361 504-1460
sling@rud.com
www.rud.com

RUD BLUE-ID SYSTEM

shortening claw IMVK / VMVK / VV / BSEK
1 Safety information

WARNING
Incorrectly mounted or damaged lifting and lashing means and improper use can lead to injuries and damage to objects after a fall. Check all lifting and lashing means carefully every time before use.

- Remove all body parts (fingers, hands, arms etc.) from the danger zone during the lifting process (risk of crushing).
- Take extreme circumstances or impact loads into consideration when choosing the used shortening claw and the components.
- Only RUD round steel link chains of the associated nominal thickness and associated grade must be suspended from the multi-shortening claw.
- No technical modifications must be made to the multi-shortening claw.
- No persons are allowed in the danger zone.
- Staying under suspended loads is prohibited.
- Ensure a stable position of the load during lifting. Swinging must be avoided.
- Damaged or worn multi-shortening claws must not be used.
- The multi-shortening claws may only be used by authorised and instructed persons in compliance with the DGUV Regulations 100-500 chapter 2.8 (BGR 500) and in compliance with any valid national regulations if used outside Germany.

2 Intended use

The described multi-shortening claws must only be used for lifting, lashing or transporting loads.

Please note that the multi-shortening claw can align itself in the load direction (see fig. 16).

Only RUD round steel link chains of the associated nominal thickness and associated grade must be suspended from the multi-shortening claw (see fig. 5-7).

The multi-shortening claws are designed according to DIN 5692 (round steel link chains - forged steel components - chain shorteners).

3 Instructions for assembly and use

3.1 General information

- Temperature suitability ICE components (IMVK): When used at temperatures exceeding 200°C, the load bearing capacities of the ICE multi-shortening claws must be reduced as follows:
  - -60°C bis 200°C no reduction
  - 200°C bis 250°C minus 10 %
  - 250°C bis 300°C minus 40 %
  - temperatures above 300°C are not allowed!
• Temperature suitability **VIP components (VMVK / VV)**: When used at temperatures exceeding 200°C, the load bearing capacities of the VIP multi-shortening claws must be reduced as follows:
  - -40°C bis 200°C no reduction
  - 200°C bis 300°C minus 10 %
  - 300°C bis 380°C minus 40 %
  - temperatures above 380°C are not allowed!

• Temperature suitability **Grade 80 components (BSEK)**: When used at temperatures exceeding 200°C, the load bearing capacities of the Grade-80 multi-shortening claws must be reduced as follows:
  - -40°C bis 200°C no reduction
  - 200°C bis 300°C minus 10 %
  - 300°C bis 400°C minus 25 %
  - temperatures above 400°C are not allowed!

• Multi-shortening claws may not be allowed to come into contact with aggressive chemicals, acids and their vapours.

• The load bearing capacities of the components depend on the following variables:
  - Grade of the component (fig. 4)
  - Nominal size of the component (table 2)
  - Present load case (suspension)

The permissible load bearing capacities can be found in the relevant ICE and VIP/Grade-80 operating instructions (or www.rud.de).

**NOTE**
When using the multi-shortening claw, the chain rated load bearing capacity does not have to be reduced.

### 3.3 Assembly instructions

When assembling the multi-shortening claws pay attention to the correct assignment of chain to component. The grades/nominal sizes of the components can be identified by the labelling/stamping on the component/bolt/chain or by the colour:

**ATTENTION**
It is important to pay attention to the grade assignment of the components.

- Mount **ICE components (IMVK)** only with grade 120 chains (ICE) from RUD.
- Mount **VIP components (VMVK/VV)** only with grade 100 (VIP) from RUD.
- Mount **Grade-80 components (BSEK)** only with grade 80 chains (grade 80) from RUD.

Mixing of system parts of different grades/nominal sizes is not permitted.

### 3.2 Component overview

- **Locking slot**
- **Clamping pin**
- **Securing bolt**
- **Spring for securing bolt**
- **Recessed seat**

**Fig. 2: VMVK (IMVK, BSEK)**

**Fig. 3: VV**

**Fig. 4: Overview of chains**

**Fig. 5:**
- **Grade 120**
  - ICE chain, IMVK
  - ICE pink stamping D1-12 on the back

**Fig. 6:**
- **Grade 100**
  - VIP chain, VMVK, VIP
  - VIP pink/magenta stamping H1-10 on the back

**Fig. 7:**
- **Grade 80**
  - Grade-80 chain (black) BSEK
  - red stamping H1-8 on the back
The following always applies:
- Use the clamping pins and locking pins only once.
- Use only original RUD replacement parts.
- Pay attention to the following points for multi-strand suspensions:
  - Ensure that the hooks point outwards with multi-strand hook suspensions (if necessary use swivel element).
  - Mount the multi-shortening claws in 2-strand suspensions for easier use in the position "back to back" (see fig. 8).

3.4 Multi-shortening claw for casket chains
Pay attention to the following points for casket chains:
- Avoid edge loads and protect the load against damage (fig. 9)
- Mount the multi-shortening claw only in the free not shortened chain strand (fig. 10).
- For casket chains the shortest shortening possibility is as follows (fig. 11):
  - recessed seating: last chain link
  - locking slot: penultimate chain link

3.5 Assembly of the multi-shortening claw in the chain strand

![ATENTION](image)

ATTENTION
Only RUD round steel link chains of the associated nominal thickness and associated grade must be used in the corresponding multi-shortening claw.

For the assembly proceed as follows:
1. It is important to pay attention to the correct grade and nominal thickness assignment of the components (see section 3.3).
2. Pull the loose chain strand through the chain cross of the multi-shortening claw.
3. Push the chain through the chain cross all the way to the front into the locking slot (until the stop).
4. Insert the locking pin flush so that it does not protrude. Like this the multi-shortening claw is firmly fixed in the chain strand.

3.6 Shortening with the multi-shortening claw
1. Make sure that the multi-shortening claw is firmly fixed with the locking pin/clamping sleeve in the chain strand (see section 3.5)

ATTENTION
Shortening with the multi-shortening claw is permitted only when the chain is slack!

2. Keep the securing bolt pressed.
3. Place the desired chain link of the strand to be loaded into the recessed seating.
4. Pull the chain strand into the recessed seating.
5. Let go of the securing bolt.
   The securing bolt engages in the chain strand.

5. Finally check if the multi-shortening claw is firmly fixed by the locking pin in the chain strand.

ATTENTION
Ensure that the locking pin is inserted behind the chain link (and not inside a chain link).

WARNING
The usage of the Multi-Shortening Claw without securing pin is generally not intended. If you use the Multi-Shortening-Claw though, without securing pin, make sure before each use that the chain is completely engaged into the locking groove (Pic. 2). During pulling or lifting of the shortened strand, chain must be always fully engaged into the locking groove. If this is not the case, a misusage of the chain resp. the shortened unit can lead to a malfunction of the whole system. If an operator uses the shortener without the securing pin we recommend to create a work instruction (where appropriate with a risk assessment). The securing pin must only be assembled or disassembled by a competent person (with appropriate knowledge) considering this instruction.

WARNING
When using the multi-shortening claw, the chain must always be placed in the recessed seating and secured. This is also necessary even for a minimum shortening (see fig. 17).

6. Finally check the locking system. The chain must be held by the securing bolt in the recessed seating.
3.7 Loosening the multi-shortening claw
The multi-shortening claw is loosened in reverse order.

**ATTENTION**
Loosening the multi-shortening claw is permitted only when the chain is slack!

1. Keep the securing bolt pressed.
2. Pull the chain strand upwards out of the recessed seating.

4 Instructions for use

- Before using a VV multi-shortening claw check that prior to each load the clamping pin for the clevis pin and the clevis pins itself is inserted completely (see fig. 2/3)
- Makes sure that the flow of forces happens in the straight strand without twisting, buckling or kinking.
- At regular intervals and every time before commissioning, check the entire attachment material to ensure that it is still suitable for its purpose, for heavy corrosion, wear, deformations etc. (see section 6 testing/repairs).

**WARNING**
Incorrectly mounted or damaged lifting and lashing means and improper use can lead to injuries and damage to objects after a fall.
Check all lifting and lashing means carefully every time before use.

**WARNING**
The following sample applications are prohibited, since the significantly limit the safe use of the multi-shortening claw!

Below there are merely examples for possible misapplications. In general, the multi-shortening claw must be used strictly in accordance with the descriptions of the operating instructions!

**Example misapplication 1:**
Chain installed in reverse direction in recessed seat and claw (“on the outside”)

**Example misapplication 2:**
Chain installed in reverse direction in recessed seat

**WARNING**
In accordance with DIN EN 818 and DIN EN 1677, RUD components are designed for a dynamic load of 20,000 stress cycles.
- Please note that during one lifting process there might be several stress cycles.
- Please not that due to the high dynamic load with high numbers of stress cycles there is the risk of damage to the product.
- The BG/DGUV recommends: At high dynamic load with high stress cycles (permanent operation), the working load must be reduced according to the engine group 1Bm (M3 according to DIN EN 818-7). Use a sling chain with a greater nominal size.
- If possible leave the immediate danger zone.
- Always supervise your suspended loads.
- For all lifting means/lashing equipment, pay attention to the operating instructions for RUD sling chains or the equivalent load bearing capacity (ICE grade 120, VIP grade 100 or grade 80).
6 Inspection / repair

6.1 Notes on regular inspection
The operator must determine and specify the nature and scope of the required inspections as well as the terms of periodic inspections by means of a risk assessment (see sections 6.2 and 6.3).

The continuous suitability of the multi-shortening claw must be checked at least 1x year by an expert. Depending on the application conditions, e.g. when used frequently or if there is a higher level of wear or corrosion, it may be necessary to carry out inspections at intervals of less than a year. This inspection is also absolutely necessary after damage and special incidents.

The inspection cycles must be specified by the operator.

6.2 Test criteria for the regular visual inspection by the user
- Completeness of the multi-shortening claw
- Complete, legible load-bearing information and manufacturer symbol
- Deformation of the multi-shortening claw
- Mechanical damage such as deep grooves, in particular in areas subject to tensile loads
- Securing bolt must be available and mobile (“locking” and “loosening” must be possible).
- Securing bolt, securing pin and clamping pin must be available.

6.3 Additional test criteria for the expert / repairer
- Cross-section changes due to wear > 10 %
- Heavy corrosion
- Additional inspections may be necessary, depending on the result of the risk assessment (e.g. check for cracks in load-bearing parts).
6.4 Regular oiling

To ensure the function, regularly oil the multi-shortening claw at the securing bolt with lube/multi-purpose grease.

Press the securing bolt several times after oiling to distribute the grease.

NOTE

The securing bolt does not need to be dismantled for this.

6.5 RFID

Use only original RUD replacement parts and enter the repairs carried out in the chain index card (of the complete lifting means) and use the AYE-D.NET system.

6.6 General information on replacement parts

- The multi-shortening claw replacement part set must be installed only by authorised persons (with appropriate skills).
- Use only original RUD replacement parts.
- The replacement part sets for the multi-shortening claws consist of the following components:

Fig. 28: components replacement part set IMVK/VMVK/ BSEK

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Table 1: Replacement part set
6.8 Replacement locking pin
Mount the locking pin always only in a suitable / matching multi-shortening claw (see marking of packaging / size assignment).

The bore for the locking pin is a stepped bore.
1. For easy dismantling, always remove the locking pin with the hammer as shown in fig. 30 (opposite to the bolt).

2. If used again, insert a new matching original RUD locking pin using a hammer (direction as in fig. 31).

NOTE
For each replacement use a new matching original RUD locking pin.

3. Finally verify the correct mounting of the securing pin.

6.9 Replacement securing bolt
Mount the securing bolt always only in a suitable multi-shortening claw (see marking of packaging / size assignment).

For the assembly proceed as follows:
1. Using a hammer, remove the clamping pin that secures the securing bolt.

2. Pull the securing bolt out of the bore and remove the inside spring.

Fig. 30

3. Clean / oil / grease the relevant points.
4. First insert a new spring into the bore.
5. Insert a new matching original RUD clamping pin.
6. Push a new securing bolt into the bore (Fig. 35).

NOTE
Pay attention to the following points:
- The frontal bore of the securing bolt must be inside the component (space for the spring).
- Align the securing bolt in such a way that the rounded recess is pointing downwards (fig. 35). Only then can the clamping pin to secure the securing bolt be inserted into the appropriate groove using a hammer.

Fig. 31

7. Press the securing bolt completely inside (against the spring).
8. Using a hammer, insert the pre-mounted RUD clamping pin.

NOTE
For each replacement use a new matching original RUD clamping pin.

9. Finally, check the mobility and function of the securing bolt.
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**Table 2: Dimensions table**

**NOTE**

The permissible load bearing capacities can be found in the relevant ICE and VIP/Grade-80 operating instructions (or www.rud.com).