RUD

Original operating instructions

for hoist chains

Contents

RUD chains

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1 Description and intended use Use

1.1 General

The RUD hoist chain is a complete machine within the meaning of the European Machinery Directive 2006/42/EC. The assembly instructions contained in this manual comply with the EC Machinery Directive 2006/42/EC Annex VI and must be kept with the technical documentation of the machine in which this component is installed.

RUD hoist chains in accordance with DIN EN 818-7 are used for lifting loads and are intended for use in manually or motor-driven chain hoists.

RUD hoist chains are manufactured in accordance with the relevant requirements of DIN EN 818-7 in the T (hardened and tempered) and DAT or DT (case-hardened) versions.

The hoist chains may only be used

- In conjunction with suitable chain hoists,
- Within the permissible load capacities,
- With maximum limit stresses according to DIN 818-7 Table B.1,
- Within the permissible temperature limits,
- By instructed and authorized persons

The labeling of RUD hoist chains includes information on design, quality class, manufacturer's mark and traceability.

1.2 Intended use Use

The RUD hoist chain is used as a load-bearing device for lifting loads in hoists.
The maximum load capacity and permissible load of the chain are formulated in DIN EN 818-7.
Any use beyond this, e.g. a higher load capacity or higher additional dynamic force, is considered improper use. Intended use also includes observing these installation and operating instructions and complying with the inspection and maintenance regulations.

The manufacturer is not liable for damage resulting from improper use. The user alone bears the risk for this.

2 Safety instructions

RUD hoist chains are manufactured in accordance with the state of the art and recognized safety regulations and are safe to use. Nevertheless, improper handling and improper use may result in danger to life and limb of the user or third parties, damage to the system or damage to property.

- Specific regulations must be taken into account if the operating country is outside the Federal Republic of Germany.
- The availability of the listed documentation, instructions on safety, assembly, operation, testing and installation from these instructions must be guaranteed to the relevant persons.
- The instructions must be kept close to the product while it is in use. If you need a replacement, please contact the manufacturer.
- Assembly, disassembly, repairs and maintenance as well as wear measurements may only be carried out by qualified persons who are familiar with the operating instructions and have received instruction.
- Only carry out maintenance and installation work when the main switch is switched off.

- Before starting maintenance work, inform the operating personnel and appoint a supervisor.
- Secure the machine against unintentional switch-on.
- Secure the chain strand against movement during assembly and disassembly.
- Secure the work area against falling loads.
- Never lift loads over people.
- Structural modifications must never be made to hoist chains (e.g. welding, bending, galvanizing).
- Wear your personal protective equipment for all activities.
- Wear fall protection when working at great heights.
- **In the movement area of the load (danger zone), you must ensure that you and other persons are not located there.**
- For assembly work above head height, use the platforms and safety-related climbing aids provided for this purpose.
- Unless otherwise specified, all components must generally be installed or removed with the power disconnected.
- Any working method that may compromise safety must be avoided.
- In the event of malfunctions, stop the machine immediately and secure it.
- In addition to these instructions, generally applicable, statutory and other binding regulations on accident prevention and environmental protection must be observed and ensured.
- RUD hoist chains must not be used as sling chains.

3 Initial commissioning

When commissioning for the first time, make sure that:

- the delivered components correspond to the order and are undamaged,
- the test certificate, the declaration of conformity and the operating instructions are available,
- the labeling and documentation are correct,
- inspection deadlines have been set and qualified persons have been appointed for the inspections,
- A visual and functional inspection is carried out and properly documented,
- the proper storage of the documentation is guaranteed.

Please dispose of the packaging in an environmentally friendly manner in accordance with current local regulations.

4 Characteristics

The information on technological properties, dimensions and article numbers for ordering spare parts is recorded in the corresponding test certificate.

5 Installation and Operating instructions

The classification of hoist chains in DIN EN 818-7 requires the absence of particularly hazardous conditions. For particularly hazardous applications, such as offshore, stage technology, personnel lifting or the lifting of hazardous loads (e.g. liquid metals, corrosive substances, nuclear material), an expert must assess the hazard and adjust the load-bearing capacity accordingly.

5.1 Before Commissioning

- Hoist chains may only be installed once the test certificate, an EC declaration of conformity from the manufacturer and the instructions for use have been received.
- The chain size and design must be selected in accordance with DIN EN 818-7.
- RUD hoist chains may only be driven and deflected with pocket wheels that are precisely matched to the chain and the chain tolerances.
- RUD hoist chains must not be guided over round deflection rollers without prior consultation and approval by RUD.
- Before using the chain for the first time, it should be completely lubricated with creeping lubricant to lubricate all joints and prevent premature wear. No chain link should be overlooked.
  If abrasive substances are present in the environment, the hoist chain manufacturer must be consulted for a suitable lubricant.

5.2 Installation and Commissioning

- The free movement of the chain links must not be hindered by dirt.
- The chain must not be twisted between the drive and return rollers or between the wheels and the connecting elements.
- Chain links that are installed in connecting components must not be subjected to bending loads.
- Connecting elements that are installed in chain links must not widen the chain link.
- The chain must not come loose from the drive or return sprockets under any circumstances. If necessary, a chain guide must be fitted above the wheels.
- Operating temperatures of RUD hoist chains:

Execution	Operating temperature range
T	-40 C° ≤ t ≤ 200C°
DAT	-20 C° ≤ t ≤ 200C°
DT	10 C° ≤ t ≤ 200C°

- RUD hoist chains must not be brought into contact with aggressive chemicals, acids or their vapors.
- RUD hoist chains must not be hot-dip galvanized or subjected to any galvanic treatment without the manufacturer's consent.
- If chain shortening is necessary, the chain links must be cut out using a cutting disk or bolt cutter without damaging the adjacent chain links.
- The chain drive must not be blocked by external influences.
- The operational approach of end positions to utilize the full travel distance is only permitted if an operational limit switch is connected upstream.

6 Maintenance and care

6.1 Maintenance

- To reduce joint wear and increase chain service life, the chain should be lubricated at regular intervals along its entire length with a penetrating oil.
- If abrasive substances are present in the environment, the hoist chain manufacturer must be consulted for a suitable lubricant.
- When lubricating, ensure that the lubricant penetrates the chain links subject to wear.

6.2 Monitoring

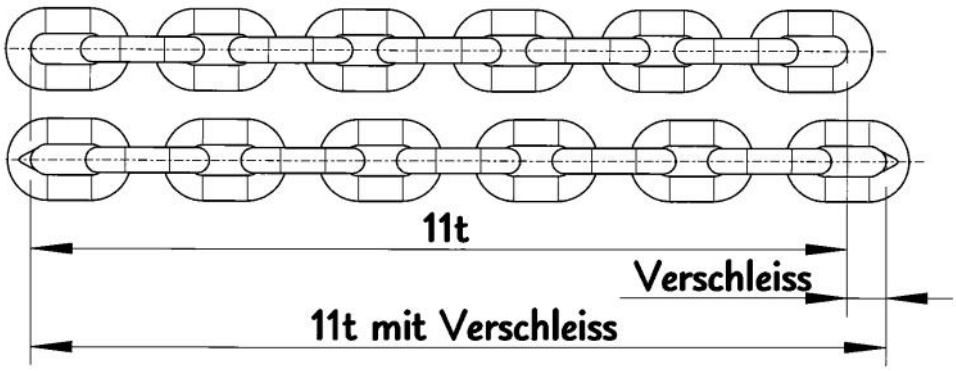
- Before each use, the hoist chain should be visually inspected for obvious damage or signs of wear. If any damage is found, an expert must be consulted.
- RUD hoist chains must be checked by an expert at regular intervals, but at least once a year, to ensure their continued suitability.
- Depending on the operating conditions, inspections may be required at shorter intervals than one year.
- Any defects found must be rectified immediately.
- The results of the tests must be documented in order to be able to assess the operating behavior of the chain.

6.3 Test criteria

During the inspection, the entire length of the chain must be inspected and the concealed parts must also be checked. Observe and check the following points before each commissioning, at regular intervals, after installation and after any special incidents:

- Mechanical damage
- Smooth running in the chain drive
- Interfering edges that protrude into the chain drive
- Wear on the chain links, especially on the inner chain link roundings. **Chain links in the changeover area must be checked particularly thoroughly, as these chain links are subject to particularly high loads due to dynamic vibrations.**
- Plastic deformation of the chain as a result of overloading
- Cracks or other damage
- Severe corrosion
- Sharp-edged notches on the chain surface
- Cracks on the chain surface
- Limited mobility of chain links
- Mobility of the individual chain links
- Decrease in the average wire diameter dm at any point of the chain link by more than 10% of the nominal thickness.
- Averaged wire diameter dm = (d1 + d2) : 2 <= 0.9d where the averaged wire diameter dm is calculated from two individual values d1 and d2 measured at 90° to each other.
- An increase in the chain pitch 1t by more than 5% of the original pitch

- Increase in chain pitch 11t due to wear by more than 2% of the original pitch for chains for motor-driven hoists and more than 3% for chains for manual hoists.



In the event of damage that directly or indirectly endangers the safety or operation of the system, the chains must always be replaced.

7 Disassembly and disposal

The materials used for hoist chains are steel, which poses no risk to the user or the environment during dismantling and any subsequent disposal. The chains can be scrapped.

EC Declaration of conformity

in compliance with EC Machinery Directive 2006/42/EC, appendix II A and its modifications.

Manufacturer:

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

We declare that the following stated machine, due to its design and construction, as well as the execution marketed by us, conforms to all relevant regulations of the EC machinery directive 2006/42/EC and the below mentioned harmonized and national standards and technical specifications. By any essential modification of the machine without our consultation this declaration will become void.

Product: round steel and profile steel chain, hoist chain

Following harmonized standards have been applied:

DIN EN ISO 12100	
DIN EN 818-1	
DIN EN 818-7	

Following national standards and technical specifications have been applied additionally:

DIN 685	BGR 500
DIN 5684-1	
DIN 5684-2	
DIN 5684-3	

Authorized persons for the assembly of the conformity documents:

Daniel Klose, RUD Ketten, 73432 Aalen

Aalen, July 3, 2018

Dr.-Ing. Arne Kriegsmann, (Prokurist/QMB)

Name, function and signature of person in charge