

The best in chain technology



ICE®
i20



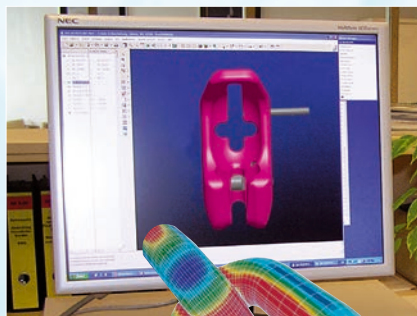
**Continuous innovation –
of the highest quality!**



Our innovation strategy

We set the new technological standards.

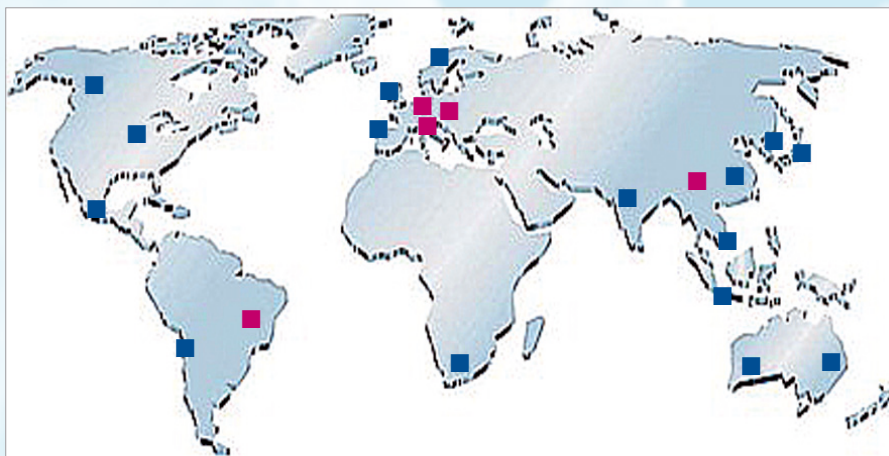
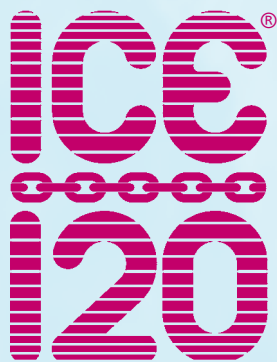
One of the defining elements of our business strategy and vision is leading the field in technological innovation.



Certified as the first chain manufacturer with integrated quality and environmental management system according to ISO 9001/14001.

The success story of > pink < goes on!

The r(evolution) in chain steel (patented), combined with special design and production processes (ICE-hardened) enables the quantum leap to a new class of its own.



- RUD production ■ and sales units ■ worldwide.
- RUD is always a pioneer in decisive product developments.
- All our products have in common: advanced technology and highest quality.
- Currently we have nearly 500 German and International patents and trade marks.

1953

As the first chain manufacturer, RUD receives the inspection stamping H1 for high tensile chains



1967

Approval of Grade 50



1972

Approval of Grade 80



1994

Approval of Grade 100



2006

Approval of Grade 100 acc. to PAS 1061*

*PAS = Publicity Available Specification



2007

Approval of Grade 120



| | |
|---|--------------|
| I | = Innovative |
| C | = Chain |
| E | = Evolution |

The r(evolution) in chain steel (patented) and in the production process (ICE-hardened) enables the quantum leap to a new "class of its own".

The fool proof assembly system ICE Grade 120

| | | |
|--|---|---------|
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RUD – the first chain manufacturer with approval of Grade 120 – many ideas ahead!



RUD has received from the responsible employer's insurance association (BG Metall Nord Süd) as first chain manufacturer the permittance stamp "D" for round steel link chains in the **quality grade 120**.

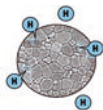
Special field wood and metal test and certification department surface technology and lifting means at DGUV test.

Every ICE chain and component will be marked with the new stamp D1 – 12.



RUD is officially approved by Germanischer Lloyd (meanwhile firming under the name DNV GL) as manufacturer of studless chains and chain

accessories for Lifting, Lashing and Towing in accordance with GL Rules for Metallic Materials (Certificate WZ 1218 HH 3).



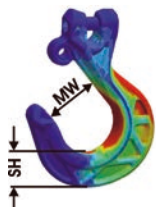
Insensitive to hydrogen embrittlement.

Stress crack corrosion – the resistance is according to PAS 1061.



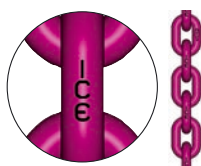
The high quality ICE-chains and components get a special ICE-Pink-Powder Coating (colour: traffic purple).

Due to the double coating system (pre-treatment and ICE-Pink-Powder Coating) there is a considerably better surface protection than with an oiled or galvanized finished chain.



Due to FEM-supported design construction optimising, up to 25 % less weight than the next larger hook in Grade 80 with the same throat opening and base thickness.

| Grade | 80 | 120 |
|-------------------|------|------|
| Chain Ø | 13 | 10 |
| WLL/kg | 5000 | 5000 |
| Throat opening/mm | 40 | 40 |
| Base thickness/mm | 37 | 37 |
| Weight/kg | 2.5 | 1.7 |

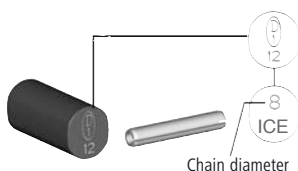


Fool-proof:

- Every link is stamped with ICE on the reverse side
- Every component is clearly marked with ICE

● Colour: ICE-Pink → traffic purple

● **Clear distinction** compared with VIP-Magenta-Pink Grade 100 and Grade 80 Red



The successful and often copied RUD clevis system will continue with ICE-Grade 120. Due to its dimensioning and colour coding, there is a fool-proof connection with the right chain diameter.

ICE- Load pin – oval shaped – cannot be combined with other RUD-Grades!
Fool-proof!



Ice Masterlinks are equipped with an allside flexible weld-in clevis connection.

This leads to a fool-proof connection in regard of the chain diameter and number of legs.

The masterlink is completed with an X-shaped (stands for ISO Grade 120) with an integrated, patented chain gauge.



Testing and documentation of chain slings and components becomes quite easy with the **RFID-technology** (Radio Frequency Identification).

See instructions at page 8 and 9

The decisive ICE-advantages – always one diameter thinner than Grade 80!

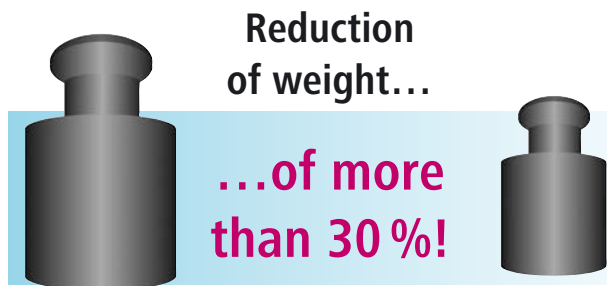
| Chain diameter mm | WLL in kg | |
|----------------------|-----------|-------|
| | Grade 80 | ICE |
| 6 | – | 1800 |
| 8 | 2000 | 3000 |
| 10 | 3150 | 5000 |
| 13 | 5300 | 8000 |
| 16 | 8000 | 12500 |
| 20 | 12500 | – |

Due to the enormous high durability of the patented ICE-material, we are able, for the first time, to continuously utilise a chain diameter smaller compared with Grade 80 on diameters ≤ 16 mm. This means that, no matter which diameter, whether lifting of lashing, an ICE lifting or lashing chain is able to replace a Grade 80 chain of the next larger size.

The reduction in weight of more than 30 % is a considerable factor in work ergonomics.

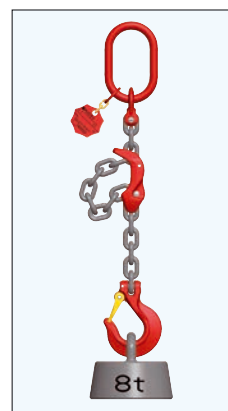
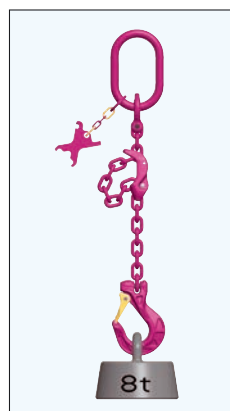
Reduction of weight = extremely light construction

- Clearly less material
- Less energy used
- Easier handling due to light construction



- Environmentally-friendly
- Health and safety advantages because of lighter construction

Comparison: single leg chain sling terminating in a sling hook H1-V, EWL = 3000



RUD – Grade 80
DIN EN 818-4



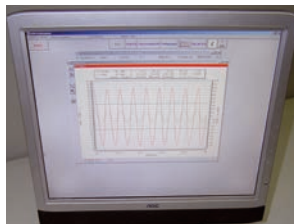
| | | |
|----------------|---------------------|------------------------|
| WLL | 8 t | 8 t |
| Chain diameter | 13 mm | 16 mm |
| Component | IAK-RG-13 + IMVK-13 | AK 1-16 + BSEK |
| | ICE-Chain 13 x 39 | Chain 16 x 48 Grade 80 |
| | Length 3.000 mm | Length 3.000 mm |
| | ICE-STAR-Hook 13 | GSH 16 |
| Weight | 20.5 kg = 100 % | 27.0 kg = 130 % |

Quality class 12 – Grade 120 – Breaking strength = 1200 N/mm²



Despite ICE having a considerably higher breaking strength = 1200 N/mm² compared with Quality grade 80 – 800 N/mm² the elongation at break remains the same!

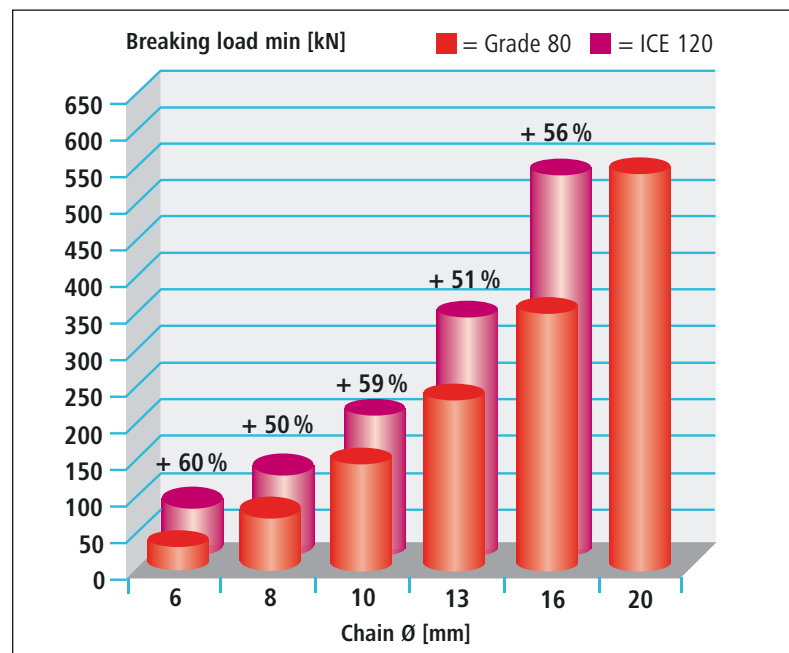
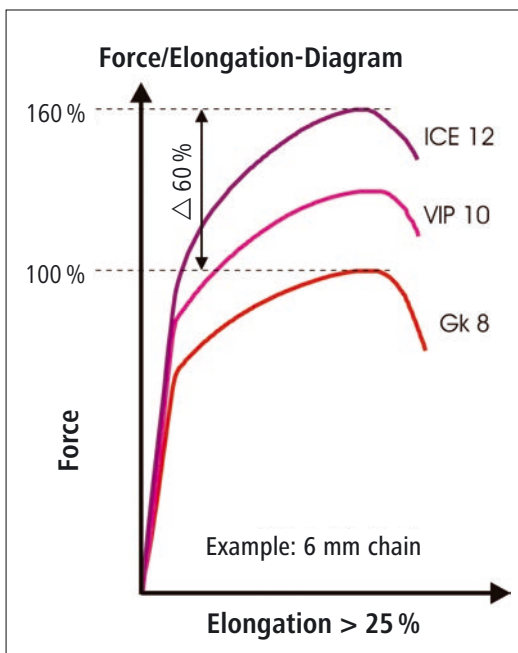
The elongation at break is guaranteed with $\geq 25\%$ in natural black condition. When pink powder coated, the elongation is $\geq 20\%$.



Dynamic test results conduct guaranteed at least 20,000 load cycles, tested with 50 % overload!

In permanent operation, e.g. in connection with hoist devices and cranes with high dynamic applications > 20000 load cycles, the WLL must be determined according to EN 818-7 Mechanism group 1 Bm (M3), a mean stress of 160 N/mm² that means, for example, a larger chain diameter.

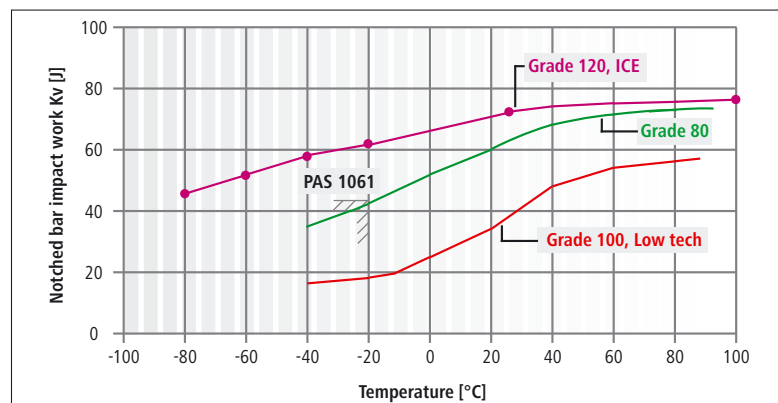
ICE → up to 60 % higher Breaking Force/WLL than Grade 80!



Considerably improved toughness and impact value > 55 J at -60 °C!!!



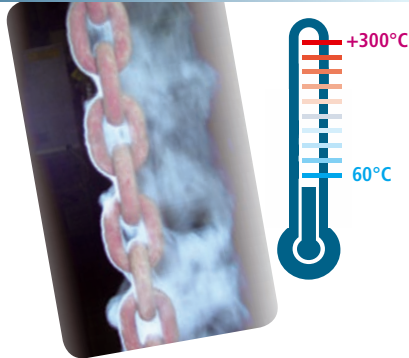
With an impact test, it can be shown if the chain has enough toughness when it is exposed to severe conditions. Compared with a chain Grade 80 = 40 J at -20 °C, the RUD-ICE-Chain has => 55 J at -60 °C. This is a very important property when there are extreme demands!



Temperature

Hot or cold –
ICE is the best!

Ideal for Polar and
Arctic use;
Extremely tempera-
ture resistant
-60°C up to +300°C
Resistance to brittle
fracture < -70°C.



Overheating indicator EP 677681 (European Patent)



Most economical due to special hardness!



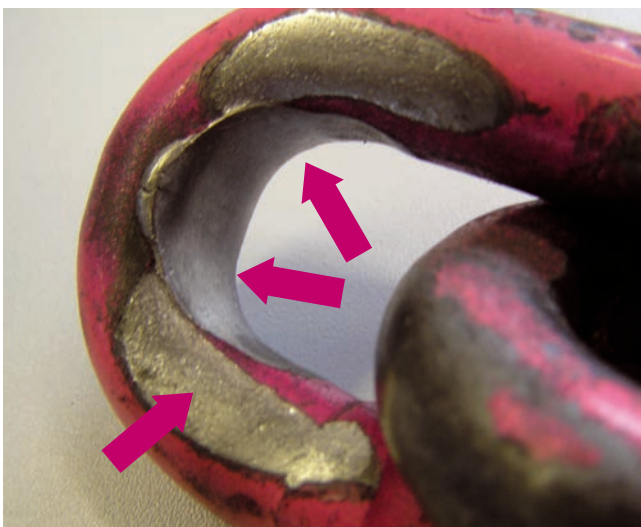
When it's sharp
edged and rough



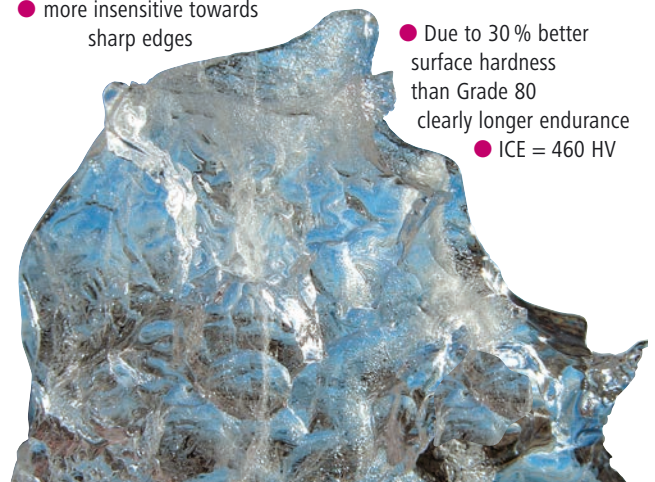
No matter whether it's hot or cold, when the usage is extreme, especially material handling at ports or usage at construction sites etc., the patented material and the special RUD-ICE hardening provides advantages to the user.

Damages on the chain caused by sharp edges will be reduced compared to chain with lower hardness due to the increased strength.

Longer life due to special heat treatment and patented material



- higher abrasion toughness
- more insensitive towards sharp edges
- Due to 30 % better surface hardness than Grade 80 clearly longer endurance
- ICE = 460 HV



RUD ID System®

Inspection and documentation made easy!



Regular inspections of lifting applications are an essential requirement to ensure the highest standard of safety is met. Dated methods of inspections involve copious amounts of paper work and time consuming manual processes.

But due to the **RFID-technology** (Radio-Frequency-Identification) these time consuming methods and huge amount of paper work become history.

RFID technology has been specifically designed to track and identify applications quickly and effortlessly making inspections and documentation of products a quick and easy process.

Radio Frequency Identification (RFID) continues to evolve as a major technology – modernizing the way documentation and inventory management is done



RUD-ID-POINT®

The components are equipped with the **RUD-ID-POINT®** (RFID chip) and can be identified by the unique chip number.

Size comparison:



RUD-ID-READER

The robust RUD reading devices capture the identification number of the **RUD-ID-POINT®** and transfer it to the **RUD-ID-NET®** application (software) or alternatively to your PC applications (e.g. WordPad, MS Word, MS Excel, SAP) etc.



RUD-ID-NET®

The resourceful **RUD-ID-NET®** application (software) will support your product administration and documentation.



RUD ID System®

RUD-ID-Points®



Reference no.:
7902580



Reference no.:
7998881



Reference no.:
7903680



Reference no.:
7901001

The innovative and unrivalled **RUD-ID-POINT®** performs in varied conditions ranging from -80 °C temperatures to an astonishing +270 °C. They hold a high level of water and pollution resistance and are extremely robust against damage. The RFID-chip does not harm the capability of the components.

RUD-ID-POINT® 8 mm or 4 mm (13.56 MHz HF):

Press-fit transponder (in metal). No glue necessary.

Size: 8 mm x 3.25 mm or 4 mm x 3.50 mm.

The usage of **RFID-Chips** embedded into a component is a patented technological innovation.

RUD-ID-LINK (13.56 MHz HF)

Connecting link with integrated transponder for chains, wire ropes, etc.

Size: dia. 8 mm x 35 mm open

RUD-ID-GLUE® (13.56 MHz HF)

Adhesive metal transponder for many other working means, subject to regular checking (clamps, grippers, cross bars, etc)

Size: dia. 19 mm x 4.5 mm

Additional colors and design on request.

RUD-ID-READER



Reference no.: 7903364



Reference no.: 7901524 (Bluetooth)

The **RUD-ID-EASY-CHECK®** readers are compatible with the **RUD-ID-POINTS®** as well as with common high frequency transponders/chips (ISO 15693). The transfer of the identification number is carried out either by USB or Bluetooth and can be linked up with the **RUD-ID-NET®** application (software), almost all Office applications (WordPad, MS Word, MS Excel, Open Office) and also with SAP or other programs.

RUD-ID-BETTER-CHECK® (13.56 MHz):

USB-reader for identifying the unique number of the **RUD-ID-POINT®**.

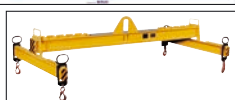
RUD-ID-DISPLAY-CHECK® (13.56 MHz):

The unique identification number is shown on the **RUD-ID-POINT®** which is then displayed on the integrated LCD-display. The data can be transferred to any end device capable for Bluetooth 15 metres away. Now with improved handling and an easier store – and forward plus connecting function.

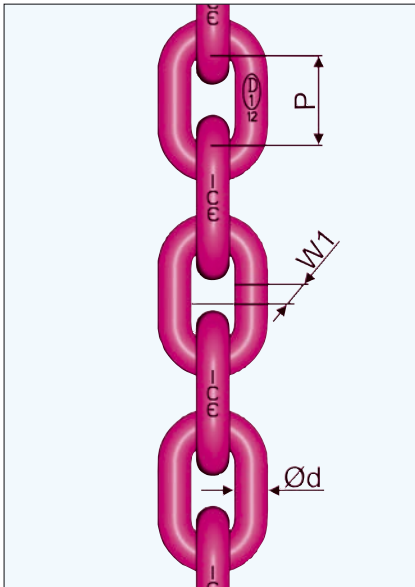
The **RUD-ID-NET®** application (software) has many advantages; it is easy to use, requires no digital maintenance and ensures you manage inspections of products effectively.

- It enriches your data by providing detailed product information, inspection dates, test reports and automatic test reminders to selected employees. The benefits are endless.
- Product information and documentation such as inspection reports and product data can be easily accessed via the RUD web portal.
- Upgradeable software for different work equipment which has to be inspected regularly (f.e. work platforms, roller shutter).

RUD-ID-NET®



ICE-Round steel link chain in special quality 120

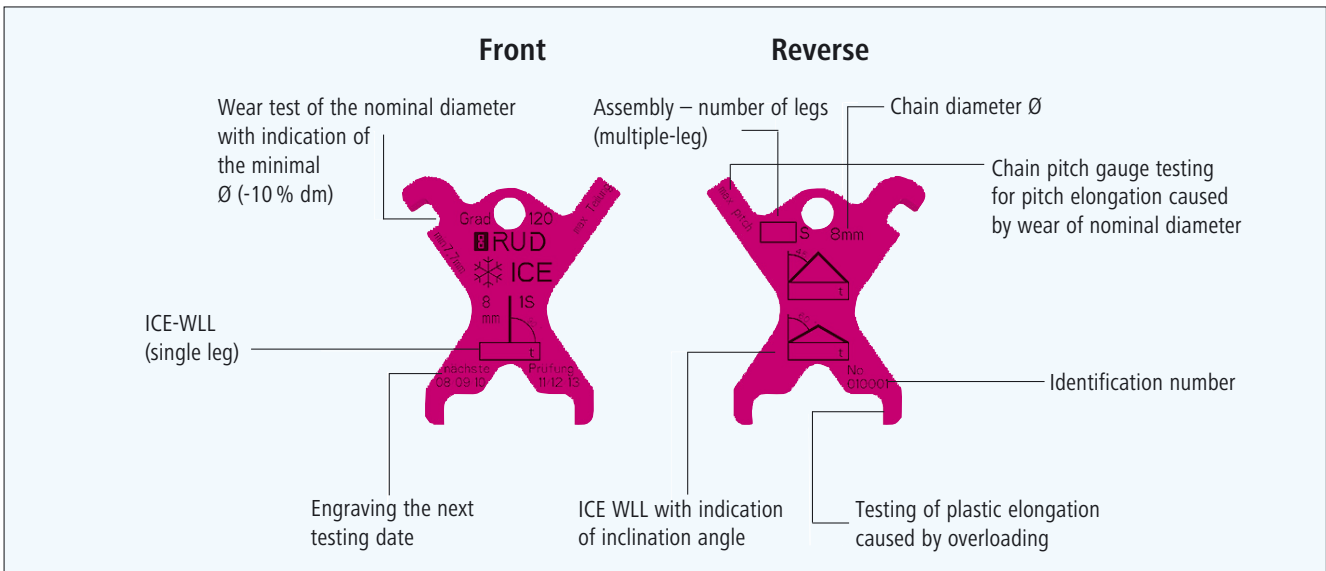


| Size d [mm Ø] | 4 | 6 | 8 | 10 | 13 | 16 |
|--------------------------------|-----------------------------|------------|------------|------------|------------|-------------|
| Pitch P [mm] | 12 | 18 | 24 | 30 | 39 | 48 |
| Inside. width W1 bi min. mm | 5.2 | 7.8 | 10.4 | 13 | 17 | 21 |
| WLL in [t] | 0.8 | 1.8 | 3.0 | 5.0 | 8.0 | 12.5 |
| Proof load MPF in. kN | 19.6 | 44.1 | 73.5 | 123 | 196 | 314 |
| Breaking load BF min. kN31 | 31.4 | 71 | 118 | 196 | 314 | 503 |
| Weight [kg/m] | 0.44 | 0.98 | 1.66 | 2.62 | 4.25 | 6.72 |
| Surface | pink powder coated ICE-Pink | | | | | |
| Order no. | 7904694 | 7998048 | 7996116 | 7996117 | 7996118 | 7998735 |
| Surface | phosphated in natural black | | | | | |
| Order no. | 7904581 | 7905283 | 7905284 | 7905285 | 7905286 | 7905287 |

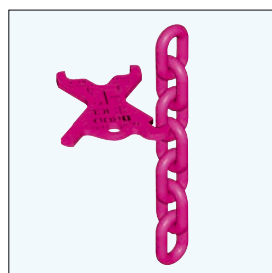
Minimal ultimate elongation: natural black $\geq 25\%$ ICE-PINK $\geq 20\%$

Stamped: ICE identification on every chain link, manufacturing number and the BG approval stamp < 0.5 m

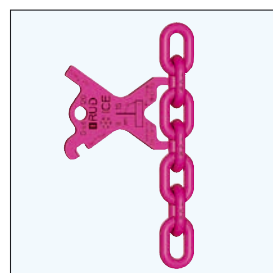
ICE identification tag with an integrated chain testing gauge – ICE-KZA



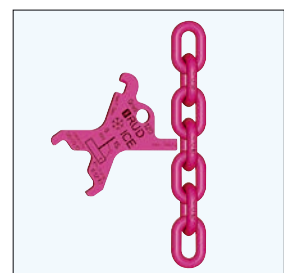
The patented idea!



Testing
wear of nominal diameter

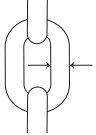

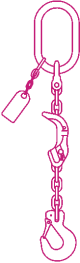

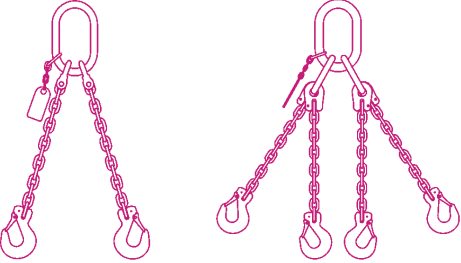


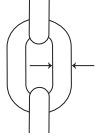
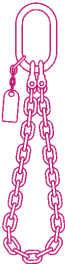
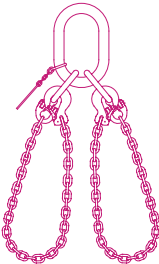
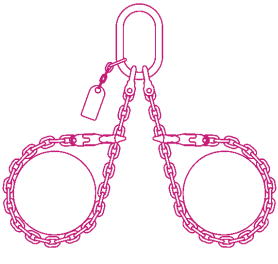
Testing
of plastic elongation caused
by overload



Testing
for pitch elongation caused
by wear of nominal diameter

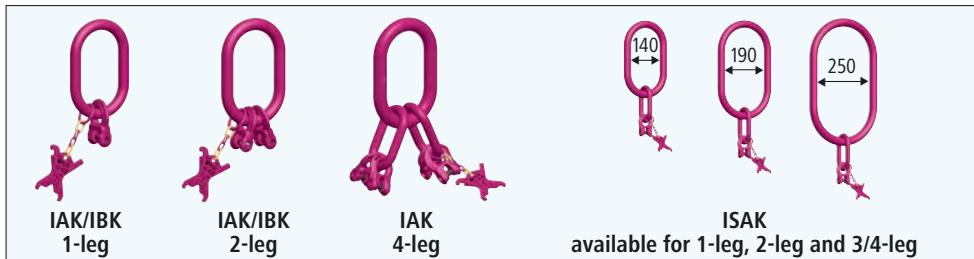
ICE Grade 120 WLL chart [t]

|  Chain Dia. (mm) | Single Leg Slings | | | Slings of 2, 3 or 4 Legs | | |
|---|---|---|---|--|------|------|
| |  |  |  |  | | |
| | Straight Sling | Adjustable Sling | Reeved Sling | Straight Multileg Slings | | |
| | | | | 60° | 90° | 120° |
| ICE 6 | 1.8 | 1.8 | 1.4 | 3.1 | 2.5 | 1.8 |
| ICE 8 | 3.0 | 3.0 | 2.3 | 5.2 | 4.2 | 3.0 |
| ICE 10 | 5.0 | 5.0 | 3.8 | 8.7 | 7.1 | 5.0 |
| ICE 13 | 8.0 | 8.0 | 6.0 | 13.8 | 11.3 | 8.0 |
| ICE 16 | 12.5 | 12.5 | 9.4 | 21.6 | 17.6 | 12.5 |
| Load Factor > | 1 | 1 | 0.75 | 1.73 | 1.41 | 1 |

|  Chain Dia. (mm) | Single Leg Slings | 2 Leg Slings | Slings of 2, 3 or 4 Legs |
|---|---|---|---|
| |  |  |  |
| | Basket Sling | Basket Sling | Reeved Sling |
| | 60° | 60° | 60° |
| ICE 6 | 2.3 | 4.1 | 2.3 |
| ICE 8 | 3.9 | 6.8 | 3.9 |
| ICE 10 | 6.5 | 11.3 | 6.5 |
| ICE 13 | 10.4 | 18.0 | 10.4 |
| ICE 16 | 16.3 | 28.1 | 16.3 |
| Load Factor > | 1.3 | 2.25 | 1.3 |

| Temperature Considerations | When using Chain Slings at temperatures >200°C (392°F), the WLL has to be reduced. Working Load in % at temperatures of: | | |
|----------------------------|---|--------------------|-------------------|
| | -60°C up to +200°C | 200°C up to +250°C | 250°C up to 300°C |
| | 100% | 90% | 60% |

ICE combinations variations – Sling assembly

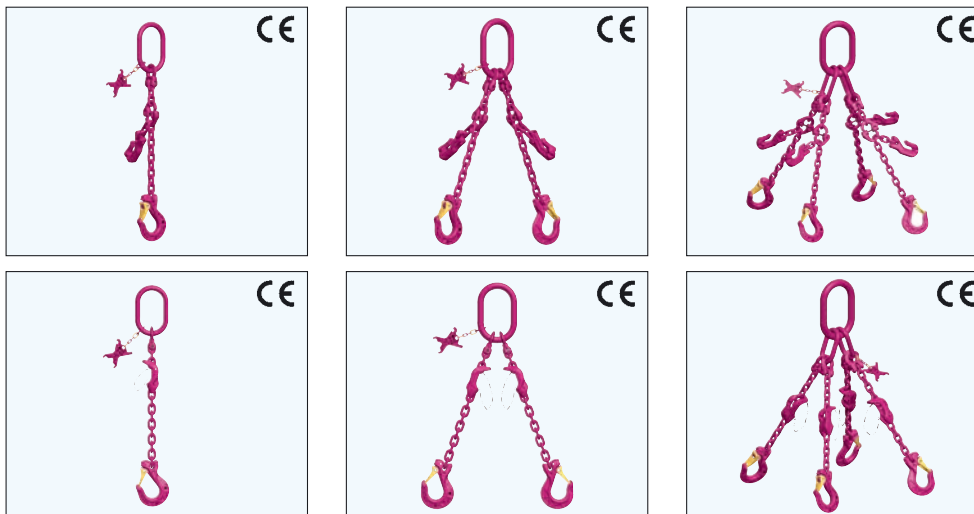


ICE Masterlinks
foolproof with
ICE clevis connector



Sling without
shortener

Shortening variations



Sling
shortened
with ICE-
shortening
hook IVH

Sling
shortened
with ICE-
Multishortening
claw IMVK

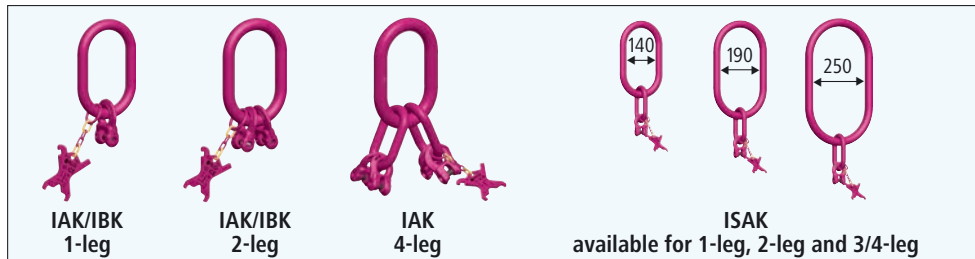


End fittings

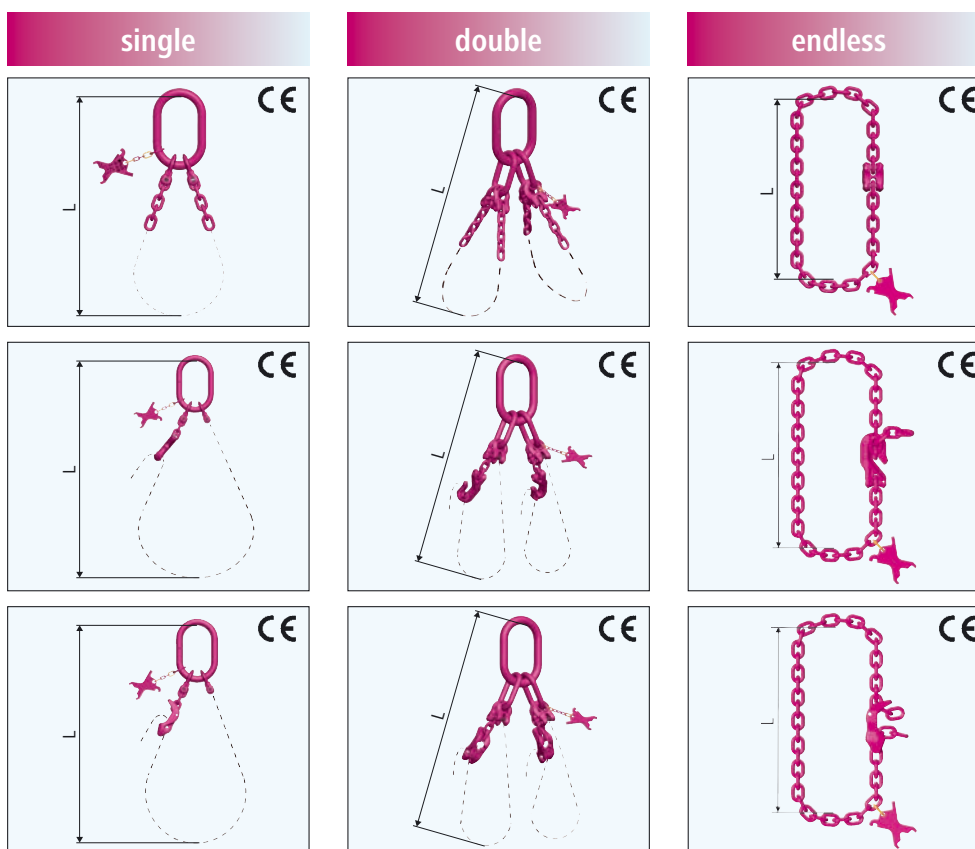
ICE-design resp. sample for denomination – complete sling assembly

| Example: | Quality grade | No. of strands | Masterlink | Shortening/ strands | Shortening/ component | End fitting | Chain diameter | Requested reach [mm] unshortened |
|---------------------|------------------------------|----------------|------------|---------------------|-----------------------|-------------|----------------|----------------------------------|
| | ICE | G1 | (IBK) | 1 | IMVK | ISH | 13 | 2000 |
| | ICE-G1(IBK)-IMVK-ISH/13x2000 | | | | | | | |

ICE combinations variations – Endless chain sling



ICE Masterlinks
foolproof with
ICE clevis connector



ICE-design resp. sample for denomination – endless chain sling

| Example: | Grade | Endless chain | Single (E)/ Double (D) | Without shortening (U)/ shortened (V) | Shortening/ component | Chain diameter | Requested reach [mm] unshortened |
|----------------------|-------|---------------|------------------------|---------------------------------------|-----------------------|----------------|----------------------------------|
| | ICE | KR | single = E | shortened = V | IVH | 8 | 2000 |
| ICE-KRE (IVH)-8x2000 | | | | | | | |

Handling:

Chains and components of ICE-Grade 120 must not be combined with chains and components of other manufacturers or quality classes.

Attention:

Incorrect handling and use of these lifting chains can lead to material and/or personal damage!

Important safety information must be observed:

DIN-EN 818, DIN-EN 1677, BGR 500/DGUV 100-500 chapter 2.8, EU-Directives 2006/42/EG and manufacturer's manual, BGI 556.

We do not assume liability for damage which in respect of disregard of these norms and safety information.

ICE-Standard-Master Links with ICE weld-in connector

All **masterlinks** shown at this page are equipped with an allside flexible clevis connector. This leads to a fool-proof connection in regard of the chain diameter and number of legs.

The **masterlink** is completed by an identification tag (**KZA**) with an integrated chain gauge function.

Inclusive RUD-ID-Point®.

IAK-RG-Masterlinks

The dimensions are according to masterlink shape A acc. to DIN 5688, but one size bigger.

IBK-RG-Masterlinks

The inside width fits high tensile load hooks from hoists.

| Chain | WLL [t] | Type | Ø A | B | C | T | Weight [kg/pc.] | Ref. No. |
|-------|---------|--------------------------|-----|-----|-----|-----|-----------------|-------------------|
| 4* | 0.8 | IAK-1/2-4 | 13 | 34 | 38 | 58 | 0.2 | 7905031 |
| 6 | 1.8 | IAK-RG-1-6 (IA-RG-1-6) | 13 | 60 | 110 | 144 | 0.57 (0.5) | 7903009 (7903090) |
| 8 | 3.0 | IAK-RG-1-8 (IA-RG-1-8) | 16 | 75 | 135 | 178 | 1.23 (1.1) | 7903010 (7903091) |
| 10 | 5.0 | IAK-RG-1-10 (IA-RG-1-10) | 22 | 90 | 160 | 213 | 2.19 (2.0) | 7903011 (7903092) |
| 13 | 8.0 | IAK-RG-1-13 (IA-RG-1-13) | 26 | 100 | 180 | 247 | 3.58 (3.4) | 7903012 (7903093) |
| 16 | 12.5 | IAK-RG-1-16 (IA-RG-1-16) | 32 | 140 | 260 | 343 | 7.20 (7.0) | 7903013 (7903094) |
| 6 | 1.8 | IBK-RG-1-6 (IB-RG-1-6) | 13 | 34 | 70 | 105 | 0.43 (0.35) | 7903041 (7903095) |
| 8 | 3.0 | IBK-RG-1-8 (IB-RG-1-8) | 18 | 40 | 85 | 129 | 0.92 (0.8) | 7903042 (7903096) |
| 10 | 5.0 | IBK-RG-1-10 (IB-RG-1-10) | 22 | 50 | 115 | 169 | 1.76 (1.5) | 7903043 (7903097) |
| 13 | 8.0 | IBK-RG-1-13 (IB-RG-1-13) | 26 | 65 | 140 | 207 | 3.0 (2.8) | 7903044 (7903098) |
| 16 | 12.5 | IBK-RG-1-16 (IB-RG-1-16) | 32 | 75 | 170 | 253 | 5.5 (5.3) | 7903045 (7903099) |

- ICE connecting bolts and securing sleeve pin pre-assembled
- Also available as end link (IA-1), without identification tag

IAK-RG-2- and IBK-RG-2-master link with two pre-assembled ICE-connectors

| Chain | WLL [t] | Type | Ø A | B | C | T | Weight [kg/pc.] | Ref. No. |
|-------|-----------|-------------|-----|-----|-----|-----|-----------------|----------|
| 4* | 1.12/0.8 | IAK-1/2-4 | 13 | 34 | 38 | 58 | 0.2 | 7905031 |
| 6 | 2.5/1.8 | IAK-RG-2-6 | 16 | 75 | 135 | 171 | 1.0 | 7903051 |
| 8 | 4.25/3.0 | IAK-RG-2-8 | 22 | 90 | 160 | 203 | 2.1 | 7903052 |
| 10 | 7.1/5.0 | IAK-RG-2-10 | 26 | 100 | 180 | 233 | 3.5 | 7903053 |
| 13 | 11.2/8.0 | IAK-RG-2-13 | 32 | 110 | 200 | 267 | 6.7 | 7903054 |
| 16 | 17.0/12.5 | IAK-RG-2-16 | 36 | 180 | 340 | 423 | 13.0 | 7903055 |
| 6 | 2.5/1.8 | IBK-RG-2-6 | 13 | 34 | 70 | 105 | 0.57 | 7903075 |
| 8 | 4.25/3.0 | IBK-RG-2-8 | 18 | 40 | 85 | 129 | 1.21 | 7903076 |
| 10 | 7.1/5.0 | IBK-RG-2-10 | 22 | 50 | 115 | 169 | 2.34 | 7903077 |
| 13 | 11.2/8.0 | IBK-RG-2-13 | 26 | 65 | 140 | 207 | 4.24 | 7903078 |
| 16 | 17.0/12.5 | IBK-RG-2-16 | 32 | 75 | 170 | 253 | 7.83 | 7903079 |

IAK-RG-4 master link

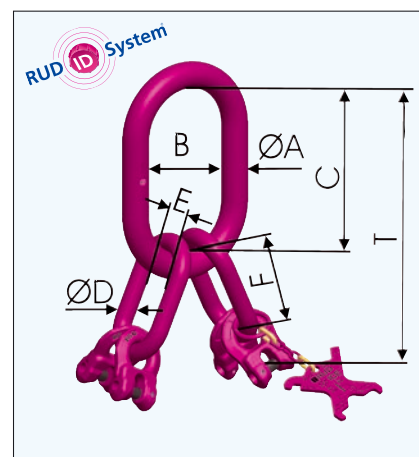
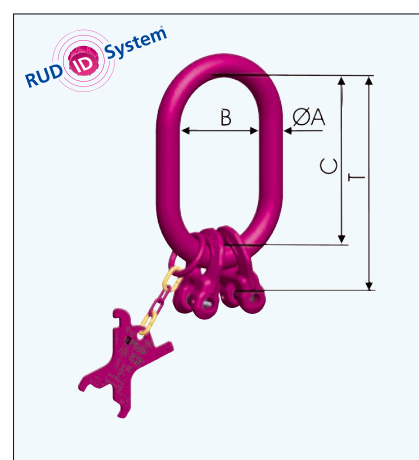
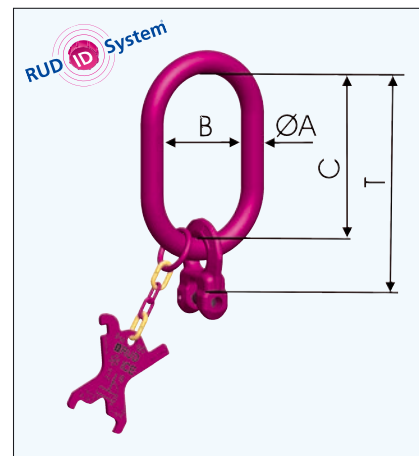
with 4 in 2 intermediate links pre-assembled ICE-connectors

| Chain | WLL [t] | Type | Ø A | B | C | Ø D | E | F | T | Weight [kg/pc.] | Ref. No. |
|-------|-----------|-------------|-----|-----|-----|-----|----|-----|-----|-----------------|----------|
| 4* | 1.7/1.18 | IAK-3/4-4 | 10 | 35 | 60 | — | — | — | 120 | 0.53 | 7905033 |
| 6 | 3.75/2.7 | IAK-RG-4-6 | 18 | 90 | 160 | 13 | 34 | 70 | 265 | 2.04 | 7903085 |
| 8 | 6.3/4.5 | IAK-RG-4-8 | 26 | 100 | 180 | 18 | 40 | 85 | 309 | 4.59 | 7903086 |
| 10 | 10.6/7.5 | IAK-RG-4-10 | 32 | 110 | 200 | 22 | 50 | 115 | 369 | 8.37 | 7903087 |
| 13 | 17.0/11.8 | IAK-RG-4-13 | 36 | 140 | 260 | 26 | 65 | 140 | 467 | 14.44 | 7903088 |
| 16 | 26.5/19.0 | IAK-RG-4-16 | 46 | 190 | 350 | 32 | 75 | 170 | 603 | 28.87 | 7903089 |

IAK-RG-master links:

suitable up to crane hook size no. (DIN 15401)

| Size | 6 | 8 | 10 | 13 | 16 |
|------------|---------|-------|--------|--------|--------|
| IAK-RG 1 | No. 2.5 | No. 5 | No. 6 | No. 8 | No. 16 |
| IAK-RG 2 | No. 5 | No. 6 | No. 8 | No. 10 | No. 25 |
| IAK-RG 3/4 | No. 6 | No. 8 | No. 10 | No. 16 | No. 32 |



* For detailed information to 4 mm ICE-Mini, see page 26/27.

ICE-Special Masterlinks with weld-in ICE-clevis connector

All **masterlinks** shown at this page are equipped with an allside flexible clevis connector. This leads to a fool-proof connection in regard of the chain diameter and number of legs.

The **masterlink** is completed by an identification tag (KZA) with an integrated chain gauge function.

Inclusive RUD-ID-Point®.

The bigger increment of the inside width "B" avoids an prohibited usage (BGR 500/DGUV 100-500, chapter 2.8) and reduces wear at the crane hook.

ISAK-RG-1-leg master link with a pre-assembled ICE-connector in the intermediate link

| Chain | WLL [t] | Type | Ø A | B | C | Ø D | E | F | T | Weight [kg/pc.] | Ref. No. |
|-------|------------|------------------|-----|-----|-----|-----|----|-----|-----|--------------------|----------|
| 6 | 1.8 | ISAK-RG-1-6/140 | 18 | 140 | 260 | 13 | 34 | 70 | 365 | 2.29 | 7903182 |
| 8 | 3.0 | ISAK-RG-1-8/140 | 22 | 140 | 260 | 18 | 40 | 85 | 389 | 3.94 | 7903183 |
| 10 | 5.0 | ISAK-RG-1-10/140 | 26 | 140 | 260 | 22 | 50 | 115 | 429 | 6.34 | 7903184 |
| 13 | 8.0 | ISAK-RG-1-13/140 | 32 | 140 | 260 | 26 | 65 | 140 | 467 | 9.44 | 7903185 |
| 6 | 1.8 | ISAK-RG-1-6/190 | 22 | 190 | 350 | 13 | 34 | 70 | 455 | 3.82 | 7903186 |
| 8 | 3.0 | ISAK-RG-1-8/190 | 26 | 190 | 350 | 18 | 40 | 85 | 479 | 6.03 | 7903187 |
| 10 | 5.0 | ISAK-RG-1-10/190 | 32 | 190 | 350 | 22 | 50 | 115 | 519 | 10.02 | 7903188 |
| 13 | 8.0 | ISAK-RG-1-13/190 | 36 | 190 | 350 | 26 | 65 | 140 | 557 | 13.90 | 7903189 |
| 8 | 3.0 | ISAK-RG-1-8/250 | 36 | 250 | 460 | 18 | 40 | 85 | 589 | 12.86 | 7903190 |
| 10 | 5.0 | ISAK-RG-1-10/250 | 36 | 250 | 460 | 22 | 50 | 115 | 629 | 14.32 | 7903191 |
| 13 | 8.0 | ISAK-RG-1-13/250 | 36 | 250 | 460 | 26 | 65 | 140 | 667 | 16.33 | 7903192 |
| 16 | 12.5 | ISAK-RG-1-16/250 | 40 | 250 | 460 | 32 | 75 | 170 | 713 | 23.14 | 7903193 |

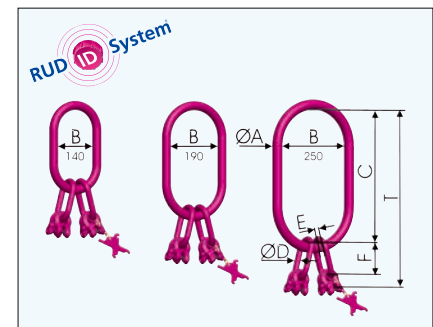
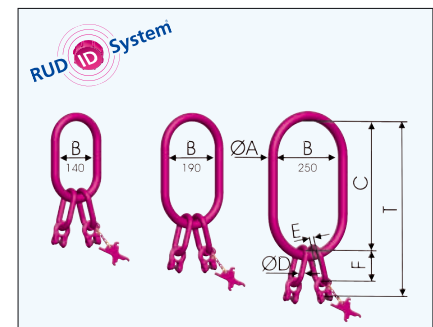
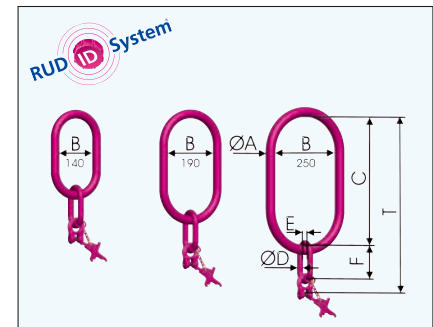
ISAK-RG-2-leg master link with 2 in each case pre-assembled ICE-connectors

| Chain | WLL [t] | Type | Ø A | B | C | Ø D | E | F | T | Weight [kg/pc.] | Ref. No. |
|-------|------------|------------------|-----|-----|-----|-----|----|-----|-----|--------------------|----------|
| 6 | 2.5/1.8 | ISAK-RG-2-6/140 | 18 | 140 | 260 | 13 | 34 | 70 | 365 | 2.36 | 7903194 |
| 8 | 4.25/3.0 | ISAK-RG-2-8/140 | 22 | 140 | 260 | 18 | 40 | 85 | 389 | 4.03 | 7903195 |
| 10 | 7.1/5.0 | ISAK-RG-2-10/140 | 26 | 140 | 260 | 22 | 50 | 115 | 429 | 6.63 | 7903196 |
| 13 | 11.2/8.0 | ISAK-RG-2-13/140 | 32 | 140 | 260 | 26 | 65 | 140 | 467 | 10.47 | 7903197 |
| 6 | 2.5/1.8 | ISAK-RG-2-6/190 | 22 | 190 | 350 | 13 | 34 | 70 | 455 | 3.89 | 7903198 |
| 8 | 4.25/3.0 | ISAK-RG-2-8/190 | 26 | 190 | 350 | 18 | 40 | 85 | 479 | 6.13 | 7903199 |
| 10 | 7.1/5.0 | ISAK-RG-2-10/190 | 32 | 190 | 350 | 22 | 50 | 115 | 519 | 10.30 | 7903200 |
| 13 | 11.2/8.0 | ISAK-RG-2-13/190 | 36 | 190 | 350 | 26 | 65 | 140 | 557 | 14.93 | 7903201 |
| 8 | 4.25/3.0 | ISAK-RG-2-8/250 | 36 | 250 | 460 | 18 | 40 | 85 | 589 | 12.95 | 7903202 |
| 10 | 7.1/5.0 | ISAK-RG-2-10/250 | 36 | 250 | 460 | 22 | 50 | 115 | 629 | 14.61 | 7903203 |
| 13 | 11.2/8.0 | ISAK-RG-2-13/250 | 36 | 250 | 460 | 26 | 65 | 140 | 667 | 17.37 | 7903204 |
| 16 | 17.0/12.5 | ISAK-RG-2-16/250 | 40 | 250 | 460 | 32 | 75 | 170 | 713 | 25.16 | 7903205 |

ISAK-RG-4-leg master link with 4 in 2 intermediate links pre-assembled ICE-connectors

| Chain | WLL [t] | Type | Ø A | B | C | Ø D | E | F | T | Weight [kg/pc.] | Ref. No. |
|-------|------------|------------------|-----|-----|-----|-----|----|-----|-----|--------------------|----------|
| 6 | 3.75/2.7 | ISAK-RG-4-6/140 | 22 | 140 | 260 | 13 | 34 | 70 | 365 | 3.24 | 7903206 |
| 8 | 6.3/4.5 | ISAK-RG-4-8/140 | 26 | 140 | 260 | 18 | 40 | 85 | 389 | 5.47 | 7903207 |
| 10 | 10.6/7.5 | ISAK-RG-4-10/140 | 32 | 140 | 260 | 22 | 50 | 115 | 429 | 9.70 | 7903208 |
| 6 | 3.75/2.7 | ISAK-RG-4-6/190 | 26 | 190 | 350 | 13 | 34 | 70 | 455 | 5.34 | 7903209 |
| 8 | 6.3/4.5 | ISAK-RG-4-8/190 | 32 | 190 | 350 | 18 | 40 | 85 | 479 | 9.14 | 7903210 |
| 10 | 10.6/7.5 | ISAK-RG-4-10/190 | 36 | 190 | 350 | 22 | 50 | 115 | 519 | 13.16 | 7903211 |
| 13 | 17.0/11.8 | ISAK-RG-4-13/190 | 40 | 190 | 350 | 26 | 65 | 140 | 557 | 19.14 | 7903212 |
| 8 | 6.3/4.5 | ISAK-RG-4-8/250 | 36 | 250 | 460 | 18 | 40 | 85 | 589 | 13.45 | 7903213 |
| 10 | 10.6/7.5 | ISAK-RG-4-10/250 | 36 | 250 | 460 | 22 | 50 | 115 | 629 | 15.60 | 7903214 |
| 13 | 17.0/11.8 | ISAK-RG-4-13/250 | 40 | 250 | 460 | 26 | 65 | 140 | 667 | 22.12 | 7903215 |
| 16 | 26.5/19.0 | ISAK-RG-4-16/250 | 47 | 250 | 460 | 32 | 75 | 170 | 713 | 32.98 | 7903216 |

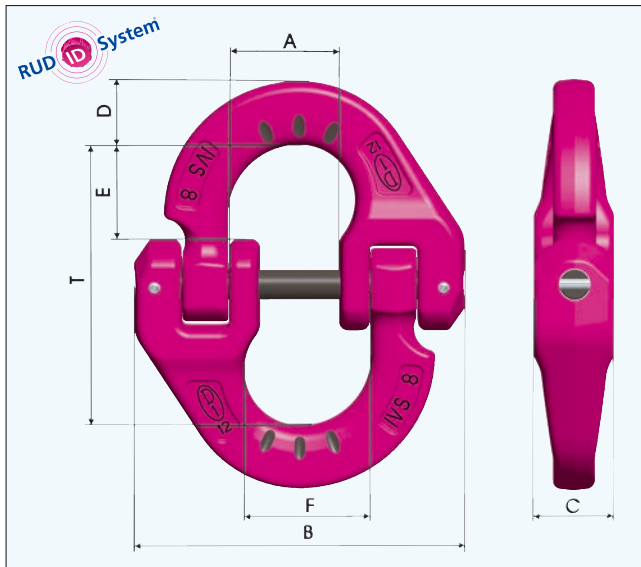
Attention: Master Links of the size 13 and 16 are equipped with a special identification tag.
A tag with gauge function will be additionally attached to the shipment for size 13 and 16.



ICE-RG special master links:
suitable up to simple hook Nr. (DIN 15401)

| | |
|---------------------|--------|
| ISAK-RG Maß B = 140 | No. 16 |
| ISAK-RG Maß B = 190 | No. 32 |
| ISAK-RG Maß B = 250 | No. 50 |

IVS – ICE-Connecting link

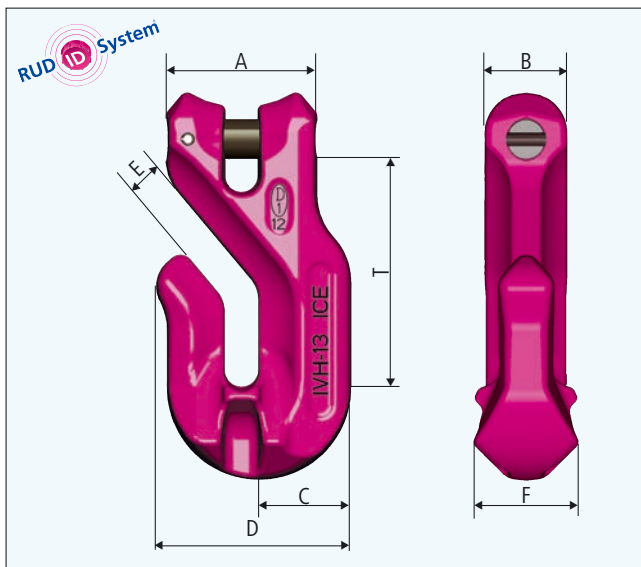


The all-purpose ICE-Connecting link

- Lifting points, shackles and plate clamps can be attached into the halves of the connecting link.
- Form and function are patent pending
- No kinking of pre-assembled chain possible.
- The halves are adjustable at will between each others.
- Patented wear markings.
- Inclusive RUD-ID-Point®.

| Chain | WLL [t] | Type | A | B | C | D | E | F | T | [kg/pc.] | Ref. No. |
|-------|---------|--------|----|-----|------|----|----|------|-----|----------|----------|
| 6 | 1.8 | IVS-6 | 18 | 55 | 13 | 11 | 17 | 21 | 46 | 0.12 | 7901471 |
| 8 | 3.0 | IVS-8 | 24 | 70 | 17.5 | 14 | 23 | 27.5 | 61 | 0.29 | 7901472 |
| 10 | 5.0 | IVS-10 | 28 | 88 | 22 | 17 | 27 | 32 | 74 | 0.57 | 7901473 |
| 13 | 8.0 | IVS-13 | 34 | 111 | 28 | 23 | 33 | 40 | 93 | 1.2 | 7901474 |
| 16 | 12.5 | IVS-16 | 39 | 130 | 33 | 27 | 37 | 46 | 108 | 2.0 | 7901475 |

IVH – ICE-VH-Shortening hook



- No reduction of ICE WLL.
- High dynamic strength.
- Due to offset leading-in groove chain hindered fall-out of slack chain.
- Enlarged tip of hook avoids incorrect use, i.e. attaching of chain.
- Acc. to Standard DIN 5692. Depth of chain groove > 5 x chain diameter.
- Completely assembled with connecting bolt and sleeve pin.
- Inclusive RUD-ID-Point®.

| Chain | WLL [t] | Type | A | B | C | D | E | F | T | [kg/pc.] | Ref. No. |
|-------|---------|--------|----|----|----|-----|------|----|-----|----------|----------|
| 6 | 1.8 | IVH-6 | 34 | 18 | 20 | 44 | 7.5 | 22 | 53 | 0.27 | 7900129 |
| 8 | 3.0 | IVH-8 | 43 | 24 | 26 | 55 | 9.5 | 29 | 67 | 0.5 | 7900133 |
| 10 | 5.0 | IVH-10 | 55 | 30 | 34 | 71 | 12 | 38 | 86 | 1.2 | 7900134 |
| 13 | 8.0 | IVH-13 | 70 | 38 | 43 | 90 | 15 | 48 | 105 | 2.5 | 7900136 |
| 16 | 12.5 | IVH-16 | 86 | 46 | 53 | 110 | 18.5 | 59 | 128 | 4.5 | 7900138 |

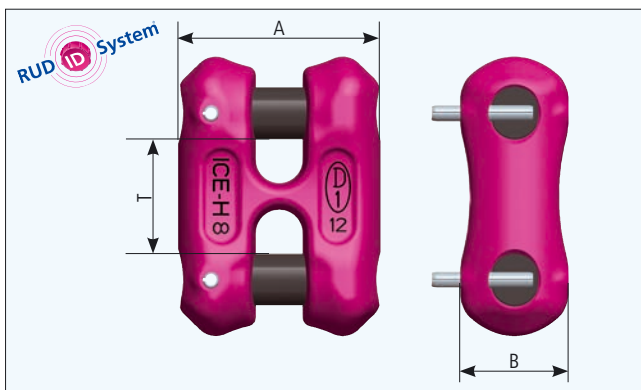
IH – ICE-H-Connector



Endless chain with H-Connector [WLL in t]

| ICE IKR-H | Ø 6 mm | Ø 8 mm | Ø 10 mm | Ø 13 mm | Ø 16 mm |
|------------------------------|--------|--------|---------|---------|---------|
| endless chain in choke hitch | 2.88 | 4.8 | 8.0 | 12.8 | 20.0 |
| 0-45° | 2.0 | 3.3 | 5.5 | 8.8 | 14.0 |
| 45-60° | 1.44 | 2.4 | 4.0 | 6.4 | 10.0 |

A reduction of 20 % for the choke hitch and bundling (sharp edge) is already within the calculation.

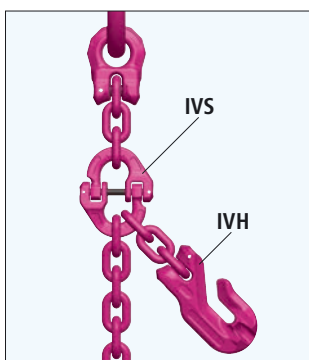


| Chain | Type | A | B | T | [kg/pc.] | Ref. No. |
|-------|-------|----|------|----|----------|----------|
| 6 | IH-6 | 34 | 19.6 | 18 | 0.11 | 7901922 |
| 8 | IH-8 | 45 | 25.5 | 24 | 0.26 | 7901453 |
| 10 | IH-10 | 56 | 31.5 | 30 | 0.55 | 7901454 |
| 13 | IH-13 | 73 | 40 | 39 | 1.16 | 7901455 |
| 16 | IH-16 | 89 | 49 | 48 | 2.16 | 7901924 |

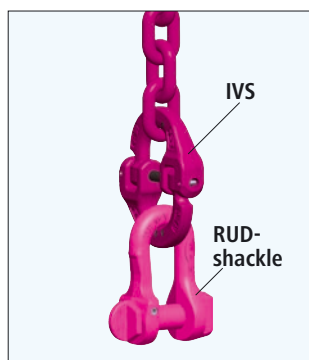
- Fast, easy and economical endless-making of chains
- Pitch of the H-Connector analogue chain pitch
- Suitable for the repairing of multiple strand slings
- More compact and therefore easier to handle than conventional chain locks
- Heat-treated body, therefore more wear resistant
- Economically formed
- Enhanced slide over corners
- Very jointed: adapts to the chain as to the component
- Inclusive RUD-ID-Point®.



Examples – IVS-IVH application



Connecting link with shortening hook



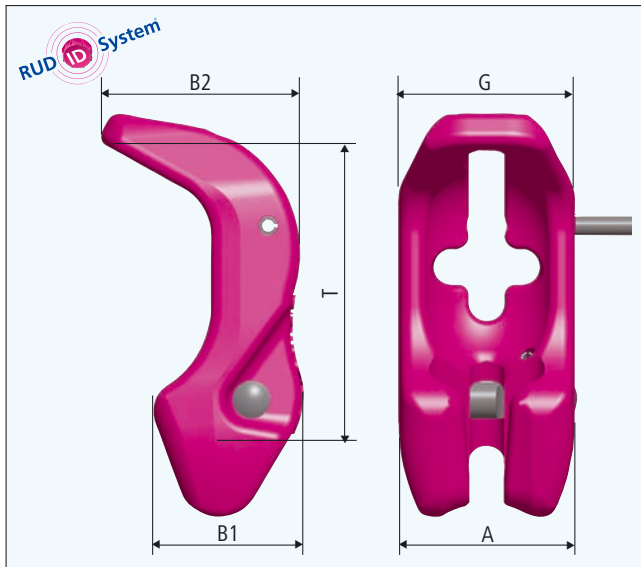
Connecting link with shackle



Slind chain with IVH

| Type | IVS-connection suitable to VIP shackle |
|--------|--|
| IVS-6 | VV-SCH 8 – 2.5 t up to VV-SCH 13 – 6.7 t |
| IVS-8 | VV-SCH 10 – 4 t up to VV-SCH 16 – 10 t |
| IVS-10 | VV-SCH 13 – 6.7 t up to VC-SCH 4.0 – 14 t |
| IVS-13 | VV-SCH 16 – 10 t up to VC-SCH 5,0 – 22.4 t |
| IVS-16 | VC-SCH 4 – 14 t up to VC-SCH 6.0 – 28.0 t |

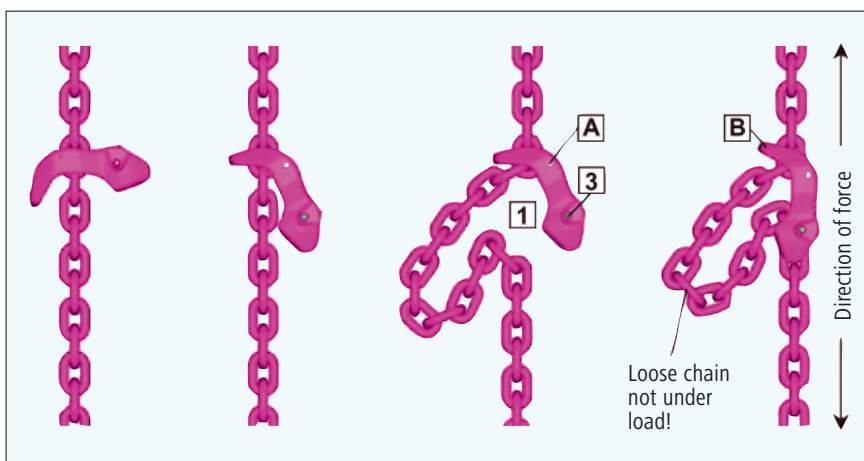
IMVK – ICE-Multishortening claw



- Improvement of the VMVK with modification to the ICE requirements.
- Assembled captive into through going chain strand
- Can be assembled relocatable at any place within the chain strand
- No additional chain or connection part necessary.
- Ideal support of chain due to chain link shaped pocket- therefore no reduction of WLL.
- The robust, spring supported securing pin avoids unintended loosening of attached chain when either loaded or not.
- Fulfills DIN 5692
- Inclusive RUD-ID-Point®.

| Chain | WLL [t] | Type | A | B1 | B2 | G | T | [kg/pc.] | Ref. No. |
|-------|---------|---------|----|----|-----|----|-----|----------|----------|
| 6 | 1.8 | IMVK-6 | 35 | 34 | 40 | 36 | 66 | 0.3 | 7900985 |
| 8 | 3.0 | IMVK-8 | 46 | 41 | 52 | 48 | 88 | 0.55 | 7900981 |
| 10 | 5.0 | IMVK-10 | 58 | 50 | 64 | 60 | 110 | 1.1 | 7900983 |
| 13 | 8.0 | IMVK-13 | 74 | 64 | 86 | 76 | 143 | 2.4 | 7900984 |
| 16 | 12.5 | IMVK-16 | 91 | 79 | 105 | 98 | 176 | 4.4 | 7900986 |

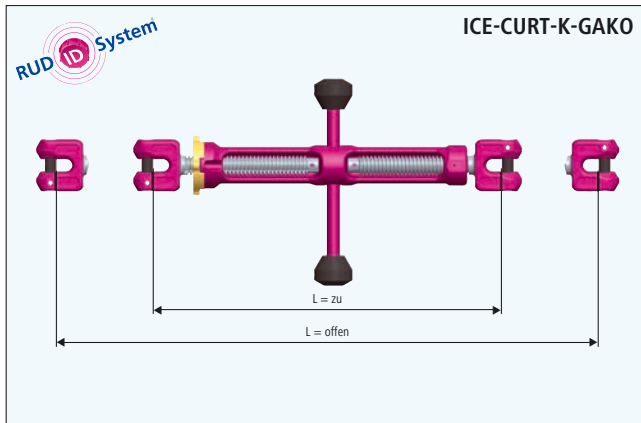
IMVK – Use



1. Attach loose chain strand through cross of IMVK and secure by hammering the sleeve pin A in.
2. When chain is unloaded, position chain link into pocket 1, press securing knob 3 and pull chain down.
3. Release securing knob and control locking.
4. Release, backwards (securing knob 3 must be pushed).

Attention: When IMVK is used without securing pin A, chain must be always totally engaged into the locking groove B. When pulling/lifting the shortened chain assembly attention must be paid to ensure that the chain remains in the locking slot!

ICE-CURT-K – Bar spindle tensioner with locking handle for lifting – light and robust

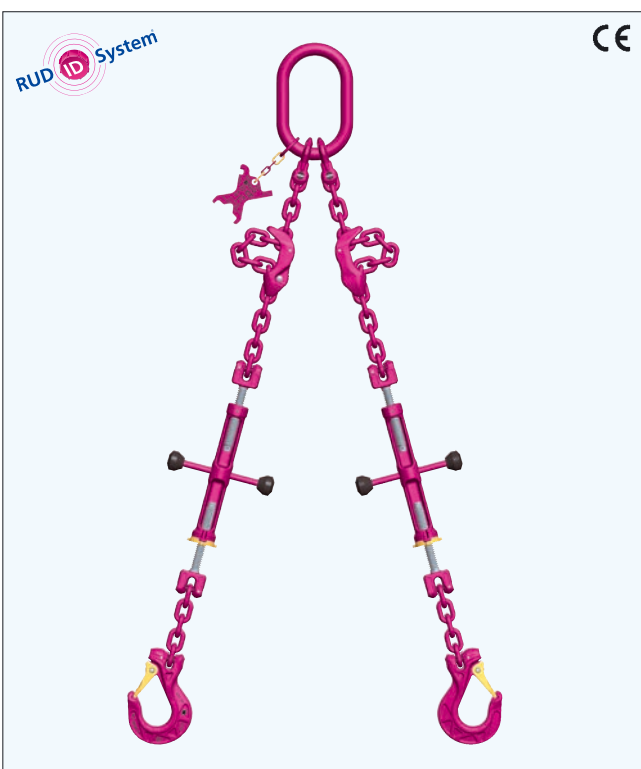


ICE-CURT-K-GAKO

- With user friendly and space-saving tensioning lever.
- User friendly turn-loose securing, providing theft protection done by padlock (e.g. type ABUS 85/40 HB), 100 % crack inspected, all load bearing parts drop forged.
- Easy to clean and lubricate, innovative forged design-light in weight and robust, Patent pending.
- Made in Germany, user friendly – even with gloves.
- It is only possible to adjust the tensioner unloaded.
- Inclusive RUD-ID-Point®.

| Chain Ø | Type | Lashing WLL [t] | L-open [mm] | L-closed [mm] | Reach [mm] | Weight [kg/pc.] | Ref. No. |
|---------|--------------------|-----------------|-------------|---------------|------------|-----------------|----------|
| 6 | ICE-CURT-K-6-GAKO | 1.8 | 400 | 260 | 140 | 1.8 | 7904448 |
| 8 | ICE-CURT-K-8-GAKO | 3.0 | 520 | 350 | 170 | 3.2 | 7904449 |
| 10 | ICE-CURT-K-10-GAKO | 5.0 | 532 | 362 | 170 | 3.6 | 7904450 |
| 13 | ICE-CURT-K-13-GAKO | 8.0 | 830 | 530 | 300 | 6.9 | 7904451 |
| 16 | ICE-CURT-K-16-GAKO | 12.5 | 962 | 612 | 350 | 12.2 | 7904452 |

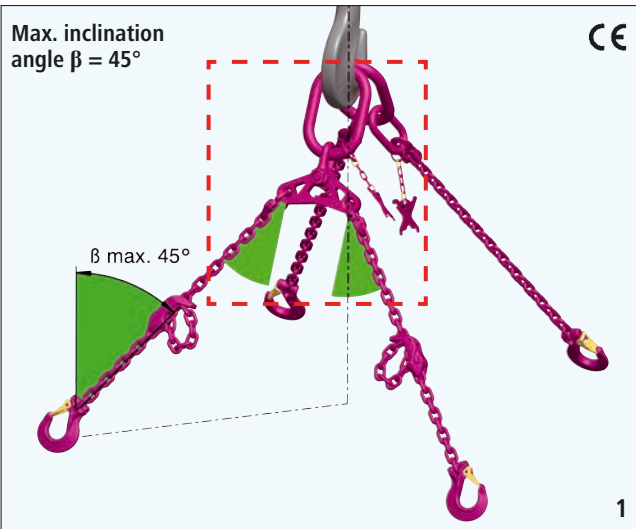
Millimeter accurate length adjustment with ICE-CURT-K-GAKO



- For an exact length adjustment on a chain sling.
- Length can be precisely adjusted by the right/left threaded spindles
- It must only be adjusted in unloaded condition!
- Lowering only
- Load cannot be lifted!



IW – ICE-Balancer



With a 4-leg assembly, maximum 3 legs can be considered as bearing only, in unfavourable cases 2 ones only

Our advice:

By using the ICE 2x2 assembly with Balancer in the shown configuration the **load will equally be distributed** to all 4 legs, resulting in a **33 % increased WLL** compared with a standard 4-leg assembly (refer to table).

Comparison ICE 4-leg assembly / ICE 2x 2-leg assembly with balancer

| Chain [mm] | WLL ICE 4-leg assembly | WLL (t) ICE 2x2-leg assembly with balancer up to angle $\beta = 45^\circ$ |
|------------|------------------------|---|
| 6 | 3.75 | 5.1 |
| 8 | 6.3 | 8.4 |
| 10 | 10.6 | 14.1 |
| 13 | 17 | 22.6 |
| 16 | 26.5 | 35.3 |

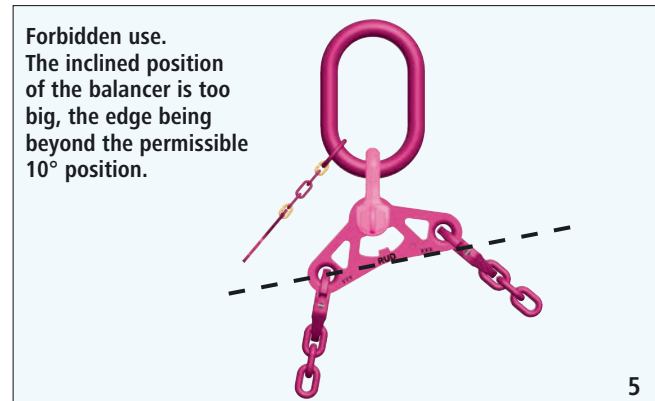
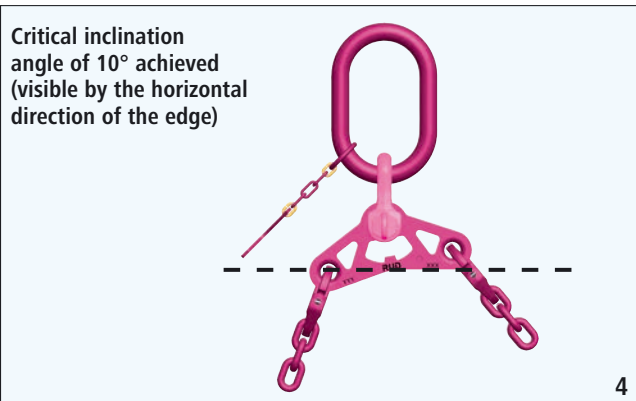
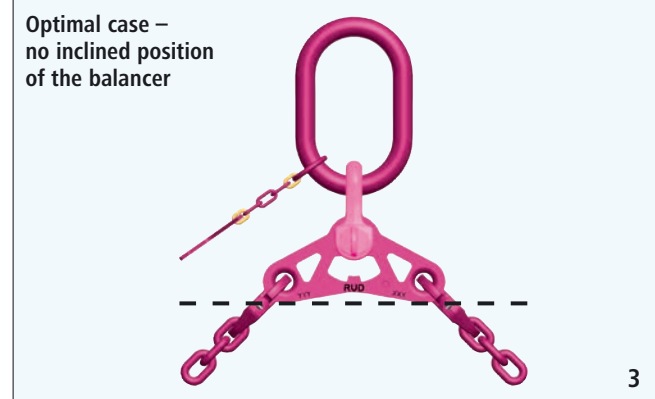
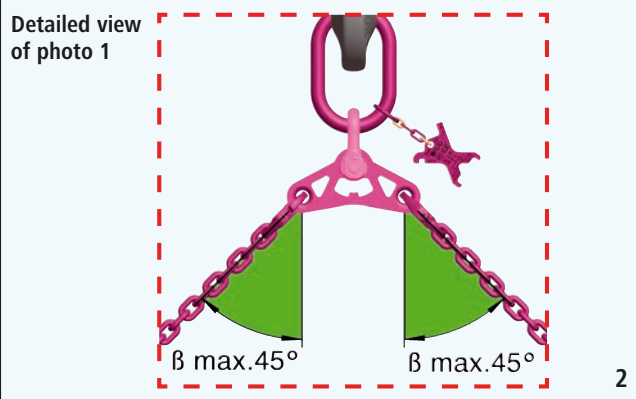
When using the ICE assembly with Balancer, you have to consider the following:

- The load has to be symmetrical
- The inclination angle β must not be beyond 45° (see graphics 1 and 2)
- The inclination position of the balancer must not exceed 10° (see graphics 3, 4 and 5)
- For detailed information on the ICE-Balancer, please refer to operation manual

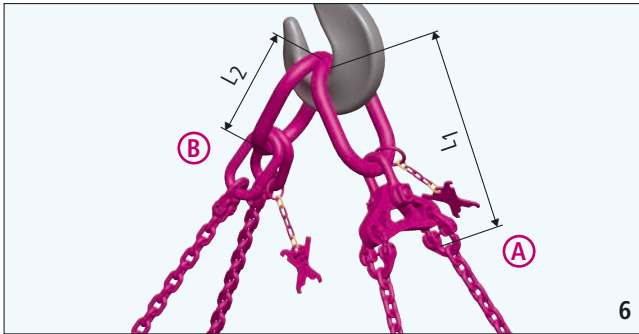
For higher WLL's with angle $\beta = 15^\circ$ or $\beta = 30^\circ$, please refer to operation manual.

Attention: The 2-leg assembly with balancer must not be used as 2-leg assembly in stand-alone version. Any working means used for lifting of loads have to avoid that the load may unintentionally shift in a dangerous way (see BetrSichV, annexe 1, paragr. 3.2.3).

In case of unsymmetrical loads, please contact the manufacturer. We will always be prepared to assist you!



Assembly of ICE-Balancing head



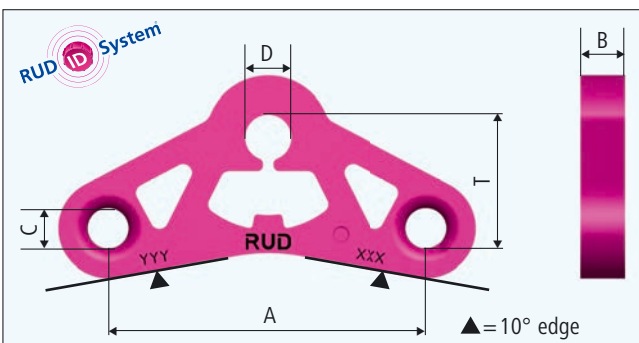
The ICE-Balancer head IWK-25 (A) comprises:

- IA link with identification tag
- VIP shackle
- ICE-Balancer
- 2 ICE-Connectors

| Chain [mm] | Type ICE-Balancer head (A) | Sizes IAK and IA link [mm] | Connection at top | Connection at bottom | Pitch of balancer head L1 [mm] | Weight of balancer head [kg/pc.] | Ref. No. ICE-Balancer head |
|------------|----------------------------|----------------------------|--------------------|----------------------|--------------------------------|----------------------------------|----------------------------|
| 6 | IWK-2S-6 | 18X90X160 | VV-SCH10 (4t) | IVS 6 | 301 | 2.33 | 7904654 |
| 8 | IWK-2S-8 | 26X100X180 | VV-SCH13 (6.7t) | IVS 8 | 363 | 5.39 | 7904655 |
| 10 | IWK-2S-10 | 32X110x200 | VV-SCH16 (10t) | IVS 10 | 423 | 9.99 | 7904656 |
| 13 | IWK-2S-13 | 36X140X260 | VC-SCH 5.0 (22.4t) | IVS13 | 555 | 17.5 | 7904657 |
| 16 | IWK-2S-16 | 46X190X350 | VC-SCH 6.0 (31.5t) | IVS16 | 698 | 37.54 | 7904658 |

| Chain [mm] | Type ICE 2-leg master link for assemblies with balancer (B) | Sizes IAK and IA link [mm] | Pitch 2-leg IAK L2 [mm] | Weight 2-leg IAK [kg/pc.] | Ref. No. 2-leg IAK |
|------------|---|----------------------------|-------------------------|---------------------------|--------------------|
| 6 | IAK 2S-6 | 18X90X160 | 265 | 1.8 | 7904659 |
| 8 | IAK 2S-8 | 26X100X180 | 309 | 4.09 | 7904660 |
| 10 | IAK 2S-10 | 32X110x200 | 369 | 7.37 | 7904661 |
| 13 | IAK 2S-13 | 36X140X260 | 467 | 12.44 | 7904662 |
| 16 | IAK 2S-16 | 46X190X350 | 603 | 24.87 | 7904663 |

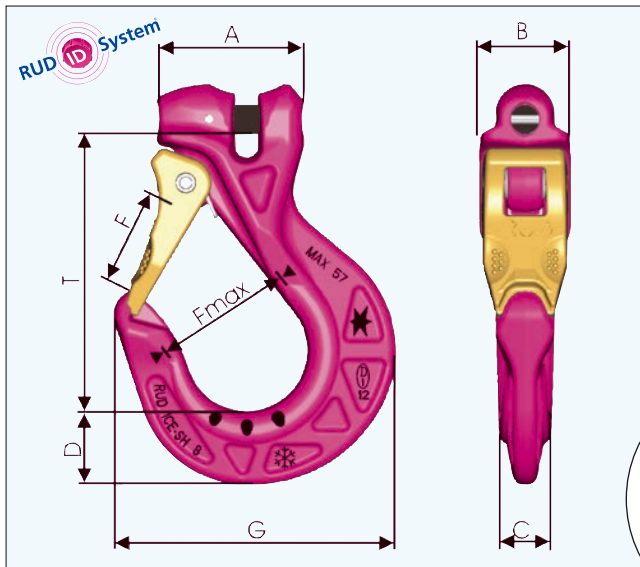
IW – ICE-Balancer



- Connection for balancer at top: connection by shackle
- Connection for balancer at bottom: ICE-Connectors
- Easy visibility of the critical inclined position of 10° by the special shape at the bottom side of the balancer
- Powder coated in ICE pink
- For detailed information regarding the ICE-Balancer, please refer to the operation manual
- Including RUD-ID-Point®.

| Chain [mm] | Type | WLL balancer 0-45° | T1 [mm] | T2 [mm] | B [mm] | Weight [kg] | Ref. No. |
|------------|-------|--------------------|---------|---------|--------|-------------|----------|
| 6 | IW-6 | 2.5 | 110 | 46 | 15 | 0.49 | 7904367 |
| 8 | IW-8 | 4.25 | 150 | 59 | 20 | 1.15 | 7904370 |
| 10 | IW-10 | 7.1 | 180 | 76 | 25 | 2.4 | 7904372 |
| 13 | IW-13 | 11.2 | 240 | 91 | 30 | 4.37 | 7904375 |
| 16 | IW-16 | 17 | 300 | 120 | 35 | 8.8 | 7904255 |

ISH – ICE-Star Hook



ICE Star Hook – suitable down to **-60 °C**.

- Due to its innovative construction, the skeletal design ICE-SH Star Hook is up to 25 % lighter than Grade 80 hooks of the same WLL, i.e. the next larger size.
- The large width of the throat of the hook is the same dimensionally as the millionfold successful Granit-Super Hook – of the next larger size – **so not everything was reduced!**
- The safety latch of the RUD-Hook family, the GSH, SH, Cobra and ICE-Star Hook are interchangeable.
(Make sure to select the correct diameter) – easy to supply spare parts.



- Edge protection – increased section at the side and top of the hook for the safety latch
- Wear ribs – which protect the first chain link into the clevis
- No protruding hook tip
- Patented wear marks that, without measuring, show instantly when the hook has reached the statutory allowable wear limit and must be replaced

- All the benefits of the VIP-Cobra-Hook are included and improved:
- Marker points to check the width of the hook on inspection – (often copied)!
- Forged, tempered and ergonomic safety latch with a triple-coiled, double-leg spring in stainless steel. Exceeds by far, the EN standard values for side loading
- Inclusive RUD-ID-Point®.

| Chain | WLL [t] | Type | A | B | C | D | F | Fmax. | G | T | [kg/pc.] | Ref. No. |
|-------|---------|--------|----|----|----|------|----|-------|-----|-----|----------|----------|
| 4 | 0.8 | ISH-4 | 22 | 15 | 13 | 14.5 | 20 | — | 53 | 55 | 0.16 | 7904693 |
| 6 | 1.8 | ISH-6 | 48 | 28 | 18 | 26 | 30 | 51 | 97 | 97 | 0.69 | 7998179 |
| 8 | 3.0 | ISH-8 | 45 | 36 | 20 | 29 | 36 | 58 | 112 | 110 | 1.1 | 7995254 |
| 10 | 5.0 | ISH-10 | 71 | 43 | 25 | 37 | 41 | 66 | 135 | 127 | 1.9 | 7995255 |
| 13 | 8.0 | ISH-13 | 85 | 52 | 31 | 48 | 50 | 80 | 163 | 153 | 3.5 | 7995256 |
| 16 | 12.5 | ISH-16 | 94 | 58 | 38 | 56 | 58 | 96 | 196 | 184 | 5.5 | 7995257 |

Safety Set



| Chain | Type | [kg/pc.] | Ref. No. |
|-------|------------------|----------|----------|
| 4 | Si-Set ICE-SH-4 | 0.02 | 7987901 |
| 6 | Si-Set ICE-SH-6 | 0.09 | 7100300 |
| 8 | Si-Set ICE-SH-8 | 0.11 | 7100301 |
| 10 | Si-Set ICE-SH-10 | 0.15 | 7100302 |
| 13 | Si-Set ICE-SH-13 | 0.24 | 7100303 |
| 16 | Si-Set ICE-SH-16 | 0.40 | 7900419 |



Consisting of a forged safety latch, triple-coiled corrosion resistant double-leg spring and a retaining pin.

Only available as a complete set.

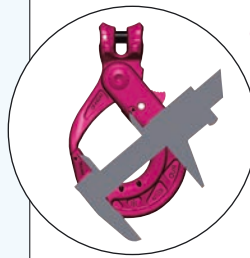
Easy assembly and removal using only hammer and drift punch.

IAGH – ICE-Clevis self locking hook



IAGH – suitable to -60 °C.

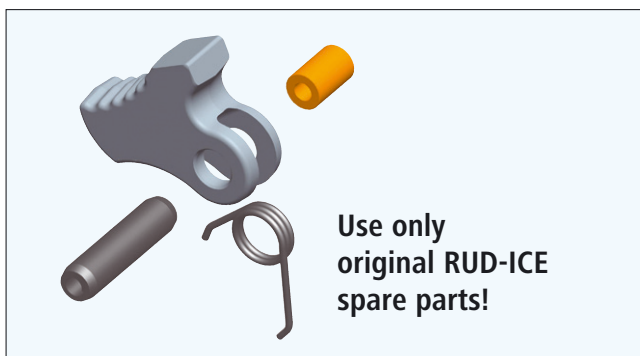
- Due to its innovative construction, the skeletal design ICE-SH Star Hook is up to 30 % lighter than Grade 80 hooks of the same WLL, i.e. the next larger size.
- The large width of the throat of the hook has the same dimension like the Grade 80 hook.
- Locking device designed ergonomically, easy to handle with anti-slip surface – no danger of squeezing.
- Marker points to check the width of the hook on inspection – (often copied)!



- Wear ribs – which protect the first chain link into the clevis
- Thickened tip of the hook – prevents incorrect and dangerous use of the hook tip
- Patented wear marks that, without measuring, show instantly when the hook has to be taken out of service.
- Inclusive RUD-ID-Point®.

| Chain | WLL [t] | Type | A | B | C | D | E | F | F _{max.} | T | [kg/pc.] | Ref. No. |
|-------|---------|----------|----|----|----|----|-----|----|-------------------|-----|----------|----------|
| 6 | 1.8 | IAGH-6 | 34 | 24 | 27 | 28 | 97 | 44 | 60 | 113 | 0.9 | 7900085 |
| 8 | 3.0 | IAGH-8 | 45 | 31 | 30 | 31 | 106 | 48 | 66 | 124 | 1.2 | 7997691 |
| 10 | 5.0 | IAGH-10* | 50 | 38 | 36 | 40 | 136 | 61 | 81 | 154 | 2.4 | 7997692 |
| 13 | 8.0 | IAGH-13* | 73 | 50 | 44 | 51 | 173 | 78 | 107 | 200 | 4.9 | 7997693 |
| 16 | 12.5 | IAGH-16 | 90 | 61 | 49 | 53 | 192 | 85 | 121 | 232 | 7.4 | 7900086 |

*For applications at dump trucks see page 24 IMAGH-10 and 13.

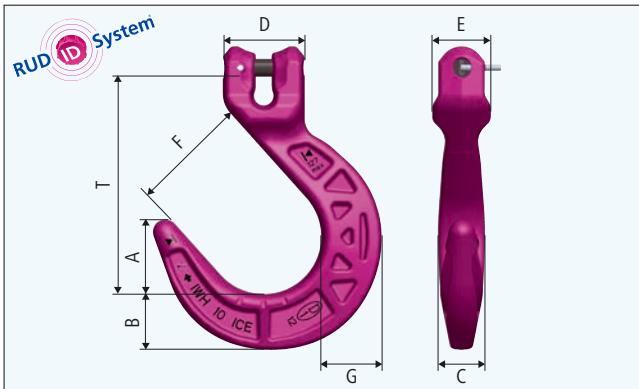


- Only available as a complete set.
- Consisting of a drop forged locking device, a double coiled stainless spring, a retaining pin plus mounting sleeve.
- Easy assembly and removal using only hammer and drift punch.

| Chain | Type | [kg/pc.] | Ref. No. |
|-------|------------------|----------|----------|
| 6 | Si-Set IAGH-6 | 0.03 | 8503759 |
| 8 | Si-Set IAGH-8 | 0.04 | 8503713 |
| 10 | Si-Set IAGH-10** | 0.06 | 7998255 |
| 13 | Si-Set IAGH-13 | 0.14 | 8503714 |
| 16 | Si-Set IAGH-16 | 0.2 | 8503760 |

**also for IMAGH 10 and 13.

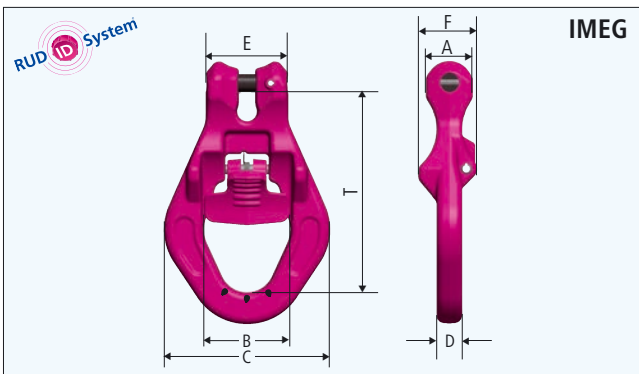
IWH – ICE-Foundry Hook



- Optimized in terms of weight in Skeleton technique
- With fool-proof clevis connection
- Robust cross section (sizes C and G) against increased bending forces
- Protection- and wear edges (size E)
- $F_{max.}$ = distance of the marking points
- Patented wear marks in the hook ground
- Use only where an unintentional unhooking is impossible (evaluation of danger)
- Including RUD-ID-Point®.

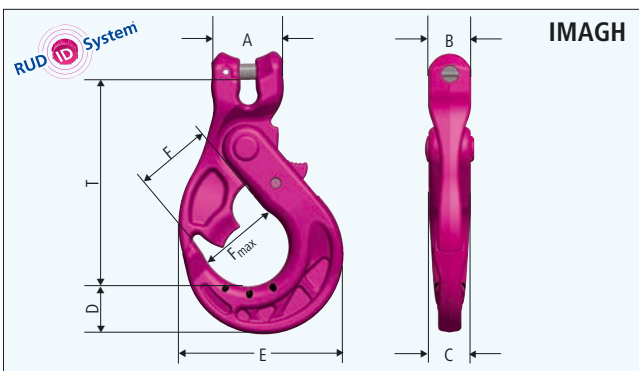
| Typ | WLL [t] | A | B | C | D | E | F | G | T | [kg/pc.] | Ref. No. |
|--------|---------|----|----|----|----|----|-----|----|-----|----------|----------|
| IWH-6 | 1.8 | 41 | 31 | 24 | 42 | 29 | 64 | 32 | 121 | 1 | 7904360 |
| IWH-8 | 3.0 | 49 | 37 | 29 | 50 | 36 | 76 | 40 | 143 | 1.76 | 7904361 |
| IWH-10 | 5.0 | 58 | 44 | 31 | 64 | 46 | 90 | 47 | 168 | 3.0 | 7903847 |
| IWH-13 | 8.0 | 66 | 50 | 39 | 75 | 56 | 100 | 55 | 193 | 4.7 | 7904362 |
| IWH-16 | 12.5 | 75 | 56 | 43 | 90 | 58 | 114 | 61 | 208 | 6.5 | 7904363 |

IMEG – ICE-Dumper truck suspension-ring



- Quick, robust and user friendly
- Quick attachment, without separate unlatching
- Simplified hinge and unhinge of the suspension ring by ergonomic designed locking latch
- Locking latch with slide resistant shape
- Protection ribs to prevent the locking latch from damage and impact shocks
- Suitable for standardised dump truck studs acc. to DIN/EN 30720
- Inclusive RUD-ID-Point®.

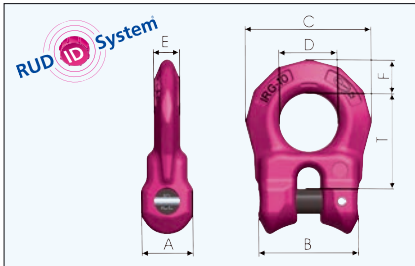
IMAGH – ICE-Dump truck-Automatic-Clevis hook



- Suitable for standardised dump truck studs acc. to DIN/EN 30720
- Easy operation of the pin and hook securing
- Chain connection without danger of confusion
- Markings for the inspection of the hook width
- Patented wear markings, which show the wear, without using a caliper
- Slide resistant operation of the securing lever without risk of injury
- Inclusive RUD-ID-Point®.

| Chain | WLL [t] | Type | A | B | C | D | E | F | $F_{max.}$ | T | [kg/pc.] | Ref. No. |
|-------|---------|----------|----|----|-----|----|-----|----|------------|-----|----------|----------|
| 10 | 5.0 | IMEG-10 | 37 | 66 | 128 | 20 | 64 | 46 | — | 153 | 2.2 | 7901607 |
| 13 | 8.0 | IMEG-13 | 38 | 66 | 128 | 19 | 72 | 46 | — | 147 | 2.2 | 8504471 |
| 10 | 5.0 | IMAGH-10 | 61 | 37 | 36 | 40 | 137 | 50 | 81 | 171 | 3.0 | 7902113 |
| 13 | 8.0 | IMAGH-13 | 70 | 37 | 40 | 40 | 140 | 50 | 81 | 167 | 3.6 | 7906216 |

IRG – ICE-Clevis connector

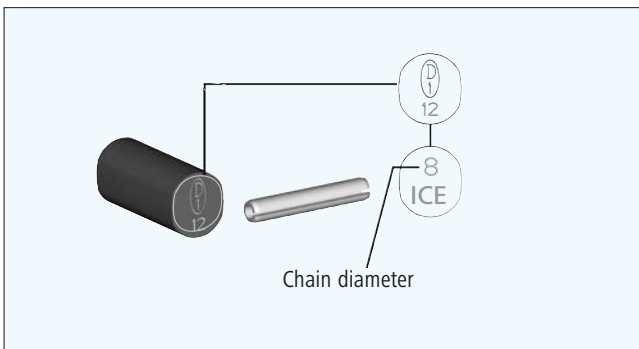


As single part for the connection of Non-RUD parts at clevis connections, flanges etc., completed with ICE-connection pin and sleeve pin, pre-assembled.

Inclusive RUD-ID-Point®.

| Chain | WLL [t] | Type | A | B | C | D | E | F | T | [kg/pc.] | Ref. No. |
|-------|---------|--------|----|----|-----|----|----|----|----|----------|----------|
| 6 | 1.8 | IRG-6 | 19 | 34 | 44 | 21 | 9 | 12 | 36 | 0.12 | 7902998 |
| 8 | 3.0 | IRG-8 | 24 | 45 | 56 | 27 | 12 | 15 | 43 | 0.25 | 7902999 |
| 10 | 5.0 | IRG-10 | 30 | 56 | 70 | 32 | 15 | 19 | 53 | 0.5 | 7903000 |
| 13 | 8.0 | IRG-13 | 38 | 73 | 88 | 38 | 18 | 25 | 67 | 1.0 | 7903001 |
| 16 | 12.5 | IRG-16 | 47 | 90 | 109 | 48 | 23 | 31 | 83 | 2.0 | 7903002 |

ICE-oval-G-pin



ICE-oval G-pin and retaining pin

| Chain | Type | Ref. No. |
|-------|-------------------------|----------|
| 4 | IOG-4/Retaining pin 4 | 7905626 |
| 6 | IOG-6/Retaining pin 6 | 7998740 |
| 8 | IOG-8/Retaining pin 8 | 7995739 |
| 10 | IOG-10/Retaining pin 10 | 7995740 |
| 13 | IOG-13/Retaining pin 13 | 7995741 |
| 16 | IOG-16/Retaining pin 16 | 7999102* |

Only available in packs of 10 (*packs of 4).

Only use original RUD-ICE parts. Design of load pin results in "Fool-proof" system compared with other RUD Grades.

ICE Identification tag



ICE Identification tag **IKZA** with integrated chain gauge

| Chain | Type | 1-leg | 2-leg | 3-/4-leg | without WLL stamping |
|-------|-----------------|---------|---------|----------|----------------------|
| 4 | IKZA-...Strg-4 | 7905223 | 7905223 | 7906302 | — |
| 6 | IKZA-...Strg-6 | 7998743 | 7998744 | 7998745 | 7998736 |
| 8 | IKZA-...Strg-8 | 7996286 | 7996287 | 7996288 | 7995552 |
| 10 | IKZA-...Strg-10 | 7996289 | 7996290 | 7996291 | 7995553 |



ICE Identification tag **IKZA** (universal size)

| Chain | Type | 1-leg | 2-leg | 3-/4-leg | Universal-KZA without WLL stamping |
|-------|-----------------|---------|---------|----------|------------------------------------|
| 13 | IKZA-...Strg-13 | 7902488 | 7902489 | 7902490 | 7901059 |
| 16 | IKZA-...Strg-16 | 7902491 | 7902492 | 7902493 | 7901059 |



ICE Identification tag as a chain gauge*

| Chain | Type | Ref. No. |
|-------|---------|----------|
| 4 | IKPL-4 | 7904970 |
| 6 | IKPL-6 | 7998167 |
| 8 | IKPL-8 | 7995525 |
| 10 | IKPL-10 | 7995521 |
| 13* | IKPL-13 | 7995530 |
| 16* | IKPL-16 | 7998949 |

*Will be attached to each masterlink in the specific size.

Mecano – Components for Slings

| | | | |
|--|------------------|--------------------------|--|
| <p>IAK 1/2-4</p> | <p>IAK 3/4-4</p> | <p>ISH-4 (IMH-4)</p> | <p>ICE-Chain 4x12</p> |
| <p>IML 2-4</p> <p>Shortening fast as lightning by pressing a button.</p> | <p>IML 4-4</p> | <p>IEA-4</p> | <p>IMKS-4*</p> <p>* in preparation</p> |

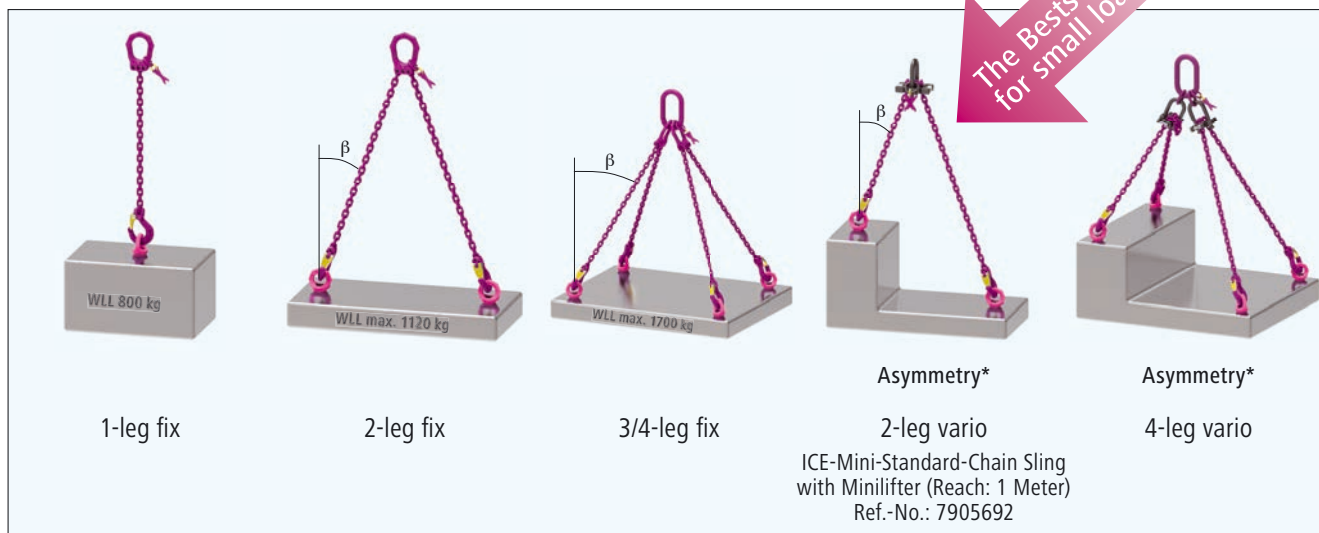


Components – Technical Data

| Type | Ø [mm] | WLL [t] | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | F [mm] | T [mm] | Weight [kg/pcs.] | Ref. No. |
|----------------|-----------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------------|----------|
| IAK 1/2 | 4 | 0.8 | 13 | 34 | 38 | 22.5 | 8 | — | 58 | 0.2 | 7905031 |
| IAK 3/4 | 4 | 1.7/1.18 | 10 | 35 | 60 | — | — | — | 120 | 0.5 | 7905033 |
| ISH-4 (IMH) | 4 | 0.8 | 22 | 15 | 13 | 14.5 | 16.5 | 20 | 55 | 0.16 | 7904693 |
| ICE-Chain 4x12 | 4 | 0.8 | — | 5.2 | — | 4 | — | — | 12 | 0.44 kg/m | 7904694 |
| IML-2 | 4 | 1.12/0.8 | 10 | 30 | — | — | — | — | 66 | 0.35 | 7905075 |
| IML-4 | 4 | 1.7/1.18 | 10 | 35 | 60 | — | — | — | 150 | 0.85 | 7905076 |
| IEA-4 | 4 | — | — | — | — | — | — | — | — | 0.04 | 7905039 |
| IMKS-4* | 4 | * in preparation | | | | | | | | | |

Subject to technical modifications

Slings – fix | vario (adjustable)

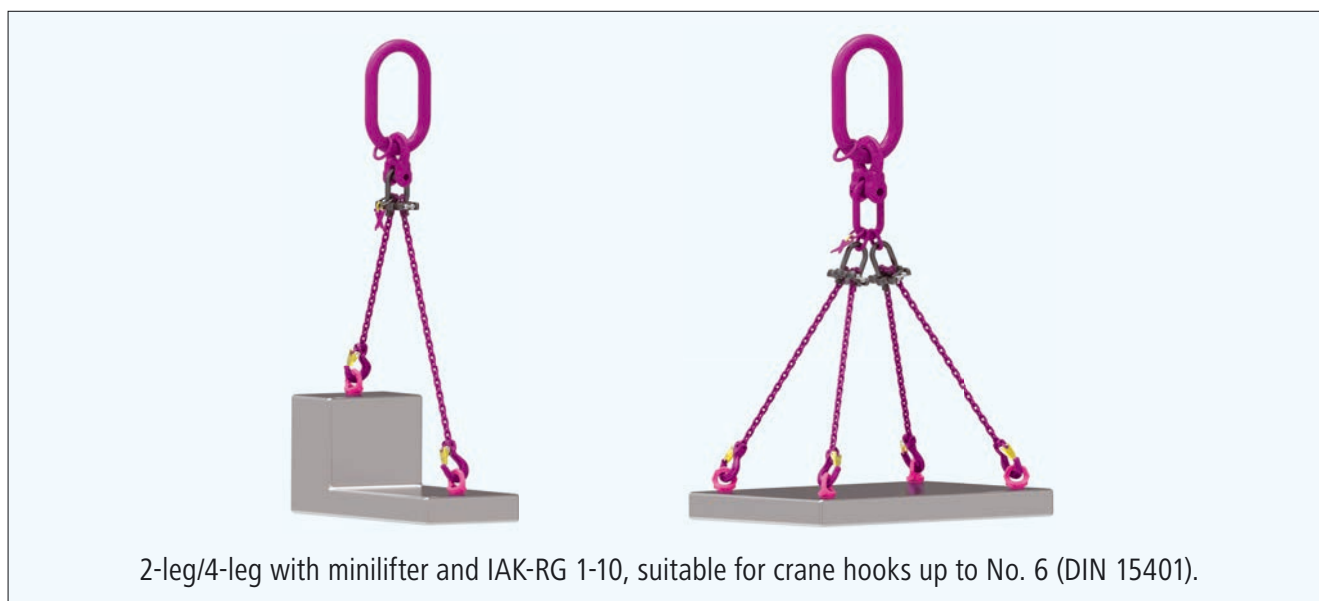


| Inclination $\angle \beta$ | 1-leg | 2-leg | | 3/4-leg | |
|----------------------------|-------|-------|----------|---------|----------|
| | 0° | 0–45° | > 45–60° | 0–45° | > 45–60° |
| Factor | 1 | 1.4 | 1 | 2.1 | 1.5 |
| WLL [kg] ICE-Mini 4 mm | 800 | 1120 | 800 | 1700 | 1180 |

* Acc. to BGR/DGUV 100-500, section 2,8, the WLL for single fall becomes valid when unsymmetrical load occurs at a multiple strand sling.

Larger Crane hooks?

In addition to the Minilifter, just simply use the appropriate ICE master link IAK-RG-1



The ideal aid with smaller loads up to 1.7 t, in goods receiving departments, in tool and die shops!

RUD Lashing chain ICE-CURT with highest LC (lashing capacity)

The proven, technical advantages of the **VIP**-program have been retained and further improved. Tensioning, connecting and shortening element have been improved considerably in weight and functionality.

ICE – in ICE-Pink (traffic purple) powder coated – means significant weight saving for the user. The standard equivalent Grade 80 commercial lashing chains are on average 60 % heavier.

This improved ergonomic design, enables faster fitting and heightened safety.

It is possible to use one diameter thinner than Grade 80 <16 mm Ø.

Up to 60 % higher Lashing Capacity (LC) than Grade 80 – also up to -60°C even in Arctic applications.

All values (conditions) of EN 12195-3 are fulfilled and the essential requirements are easily exceeded. All for the health and safety of the user!

ICE-CURT

Ratchet tensioner version with an integrated fast shortener, which is assembled captive in the chain strand. As an alternative there is a clevis type available also.

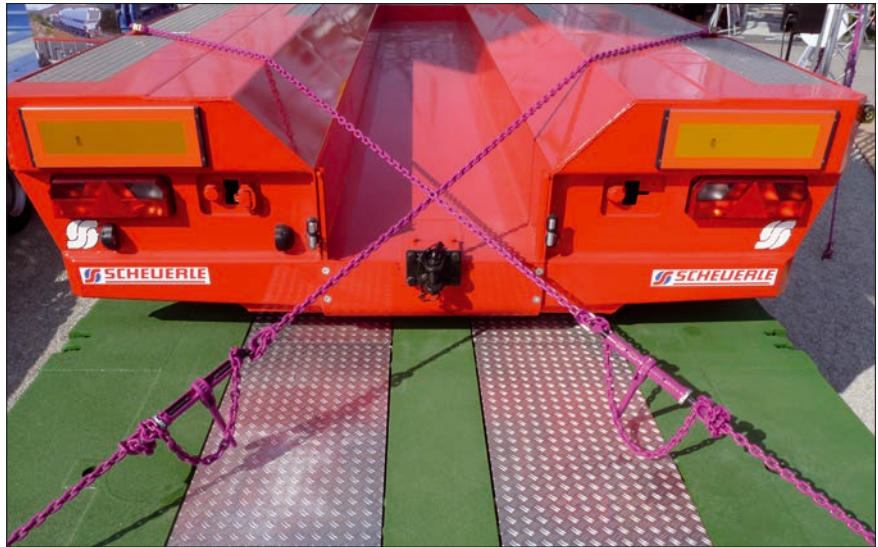
Patented:

"Secured against release by a magnet blocking clutch which can be secured with a lock. Theft protection of lashing chain and transporting goods."

Thread tube now in an open and innovative form – robust, light in weight and due to the trapezoid thread easy to clean, check and lubricate.

Made in Germany.

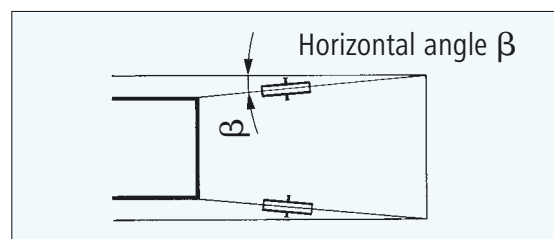
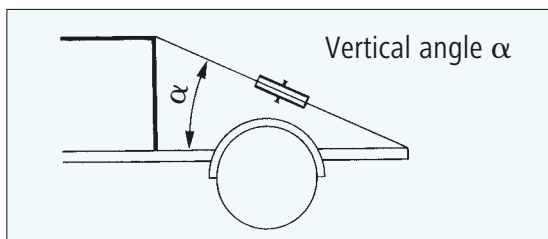
All pieces drop forged, quenched and tempered and 100 % crack inspected.



ICE sets new benchmarks in lashing chain technology!
Up to 60 % more LC-Lashing Capacity than Grade 80 – with decisive handling benefits!

Which lashing chain for which load?

| Diagonal lashing | | | | | | | | | | | | | |
|------------------|----------|---|-----------|-----------|-----------|-----------|-----------|-----------------------------------|-----------|-----------|-----------|-----------|-----------|
| Lashing chain | LC [daN] | Max. load weight [t] (horizontal angle β : 20°-45°; 2 lashing chains per direction) | | | | | | | | | | | |
| | | Vertical angle α : 0°-30° | | | | | | Vertical angle α : 30°-60° | | | | | |
| | | $\mu=0.1$ | $\mu=0.2$ | $\mu=0.3$ | $\mu=0.4$ | $\mu=0.5$ | $\mu=0.6$ | $\mu=0.1$ | $\mu=0.2$ | $\mu=0.3$ | $\mu=0.4$ | $\mu=0.5$ | $\mu=0.6$ |
| ICE-VSK 6 | 3600 | 6.2 | 8.4 | 10.4 | 13.0 | 17.4 | 26.2 | 4.5 | 6.3 | 9.0 | 12.8 | 19.2 | 32.0 |
| ICE-VSK 8 | 6000 | 10.5 | 14.0 | 17.4 | 21.8 | 29.1 | 43.9 | 7.6 | 10.7 | 15.0 | 21.4 | 32.0 | 53.4 |
| ICE-VSK 10 | 10000 | 17.5 | 23.4 | 29.0 | 36.4 | 48.6 | 73.1 | 12.8 | 17.9 | 25.0 | 35.6 | 53.4 | 89.0 |
| ICE-VSK 13 | 16000 | 28.0 | 37.5 | 46.4 | 58.2 | 77.8 | 117.0 | 20.5 | 28.6 | 40.0 | 57.1 | 85.5 | 142.4 |
| ICE-VSK 16 | 20000 | 43.7 | 58.6 | 72.6 | 91.0 | 121.6 | 182.8 | 32.0 | 44.7 | 62.5 | 89.1 | 133.6 | 222.5 |

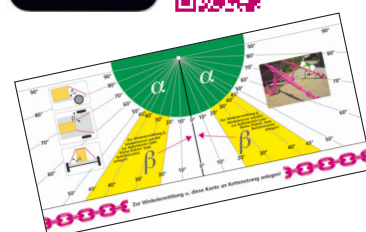


| Frictional lashing | | | | | | | | | | | | | |
|--------------------|-----------|---|-----------|-----------|-----------|-----------|-----------|-----------------------------------|-----------|-----------|-----------|-----------|-----------|
| RUD Lashing chain | STF [daN] | = required number of ICE lashing chains (number of lashing chains = factor from Table X load weight [t]) | | | | | | | | | | | |
| | | Vertical angle α : 60°-90° | | | | | | Vertical angle α : 30°-60° | | | | | |
| | | $\mu=0.1$ | $\mu=0.2$ | $\mu=0.3$ | $\mu=0.4$ | $\mu=0.5$ | $\mu=0.6$ | $\mu=0.1$ | $\mu=0.2$ | $\mu=0.3$ | $\mu=0.4$ | $\mu=0.5$ | $\mu=0.6$ |
| ICE-VSK 6 | 1500 | 3.6 x | 1.6 x | 0.9 x | 0.6 x | 0.4 x | 0.2 x | 6.3 x | 2.7 x | 1.5 x | 0.9 x | 0.6 x | 0.3 x |
| ICE-VSK 8 | 2800 | 2.0 x | 0.9 x | 0.5 x | 0.3 x | 0.2 x | 0.1 x | 3.4 x | 1.5 x | 0.8 x | 0.5 x | 0.3 x | 0.2 x |
| ICE-VSK 10 | 2800 | 2.0 x | 0.9 x | 0.5 x | 0.3 x | 0.2 x | 0.1 x | 3.4 x | 1.5 x | 0.8 x | 0.5 x | 0.3 x | 0.2 x |
| ICE-VSK 13 | 2800 | 2.0 x | 0.9 x | 0.5 x | 0.3 x | 0.2 x | 0.1 x | 3.4 x | 1.5 x | 0.8 x | 0.5 x | 0.3 x | 0.2 x |

Values of both tables refer to: stable load. road transport. no combination with other lashing or securing methods!

| Slide-coefficient of friction μ | | | |
|-------------------------------------|-----------|-----------|-----------|
| Materials | dry | wet | greasy |
| Wood/wood | 0.20-0.50 | 0.20-0.25 | 0.05-0.15 |
| Metal/wood | 0.20-0.50 | 0.20-0.25 | 0.02-0.10 |
| Metal/metal | 0.10-0.25 | 0.10-0.20 | 0.01-0.10 |

If there is a clear deviation from the indicated lashing angles, then it is necessary to add some safety measures.

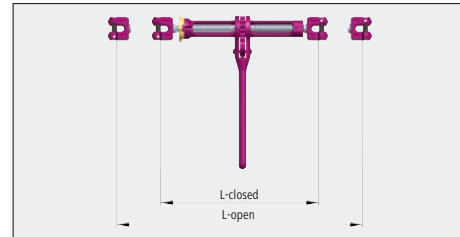


Download of the essay "Optimal load securing"
under: www.rud.com

ICE-Lashing chains with ICE-CURT-Ratched spindle tensioner (vertical lashing and direct lashing)*

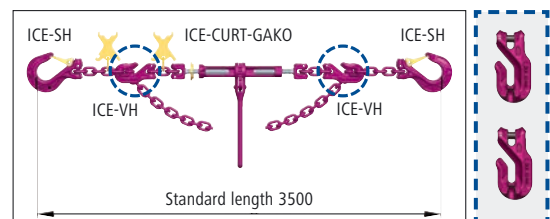
Ratchet tensioner

| Chain dia. [mm] | Type ratchet tensioner | Permissible LC | Obtainable pre-tension force | Hub [mm] | L-open [mm] | L-closed [mm] | Ref. No. Ratchet tensioner |
|-----------------|------------------------|----------------|------------------------------|----------|-------------|---------------|----------------------------|
| 6 | ICE-CURT-6-GAKO | 3600 | 1500 | 140 | 400 | 260 | 7903439 |
| 8 | ICE-CURT-8-GAKO | 6000 | 2800 | 170 | 520 | 350 | 7901125 |
| 10 | ICE-CURT-10-GAKO | 10000 | 2800 | 170 | 532 | 362 | 7901126 |
| 13 | ICE-CURT-13-GAKO | 16000 | 2800 | 300 | 830 | 530 | 7902624 |
| 16 | ICE-CURT-16-GAKO | 25000 | — | 350 | 962 | 612 | 7902625 |

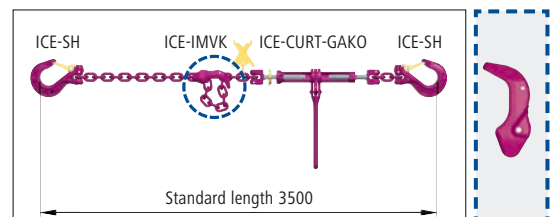


| Chain dia. mm | Type lashing chain ICE-VSK-CURT-IVH | Permissible LC | Obtainable pre-tension force | L-min [mm] | Weight kgs (chain + ratchet tensioner) | Ref. No. Lashing chain |
|---------------|-------------------------------------|----------------|------------------------------|------------|--|------------------------|
| 6 | ICE-VSK-6-CURT-IVH | 3600 | 1500 | 780 | 4.8 + 2.2 | 7903443 |
| 8 | ICE-VSK-8-CURT-IVH | 6000 | 2800 | 1040 | 8.0 + 5.2 | 7901129 |
| 10 | ICE-VSK-10-CURT-IVH | 10000 | 2800 | 1210 | 13.0 + 7.1 | 7901130 |
| 13 | ICE-VSK-13-CURT-IVH | 16000 | 2800 | 1600 | 21.9 + 13.6 | 7902626 |
| 16 | ICE-VSK-16-CURT-IVH | 25000 | — | 1910 | 34.5 + 24.3 | 7902627 |

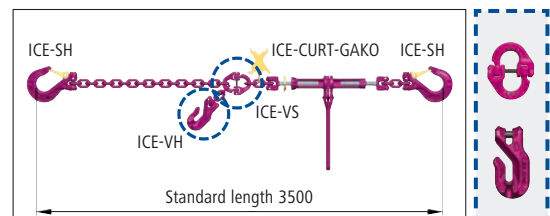
Tensioner moveable within the chain strand



| Chain dia. mm | Type lashing chain ICE-VSK-CURT-IMVK | Permissible LC | Obtainable pre-tension force | L-min [mm] | Weight kgs (chain + ratchet tensioner) | Ref. No. Lashing chain |
|---------------|--------------------------------------|----------------|------------------------------|------------|--|------------------------|
| 6 | ICE-VSK-6-CURT-IMVK | 3600 | 1500 | 770 | 6.3 | 7904614 |
| 8 | ICE-VSK-8-CURT-IMVK | 6000 | 2800 | 1010 | 11.7 | 7904615 |
| 10 | ICE-VSK-10-CURT-IMVK | 10000 | 2800 | 1170 | 17.0 | 7904616 |
| 13 | ICE-VSK-13-CURT-IMVK | 16000 | 2800 | 1540 | 28.6 | 7904617 |
| 16 | ICE-VSK-16-CURT-IMVK | 25000 | — | 1840 | 46.0 | 7904618 |

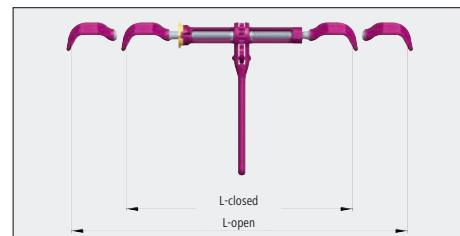


| Chain dia. mm | Type lashing chain ICE-VSK-CURT-IVS | Permissible LC | Obtainable pre-tension force | L-min [mm] | Weight kgs (chain + ratchet tensioner) | Ref. No. Lashing chain |
|---------------|-------------------------------------|----------------|------------------------------|------------|--|------------------------|
| 6 | ICE-VSK-6-CURT-IVS | 3600 | 1500 | 680 | 6.4 | 7904602 |
| 8 | ICE-VSK-8-CURT-IVS | 6000 | 2800 | 870 | 11.9 | 7904603 |
| 10 | ICE-VSK-10-CURT-IVS | 10000 | 2800 | 1000 | 17.7 | 7904604 |
| 13 | ICE-VSK-13-CURT-IVS | 16000 | 2800 | 1330 | 29.9 | 7904605 |
| 16 | ICE-VSK-16-CURT-IVS | 25000 | — | 1590 | 48.8 | 7904606 |



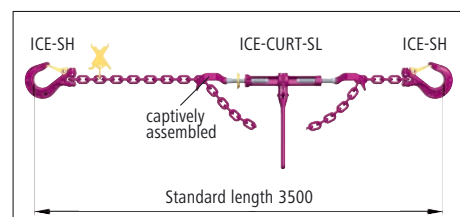
Ratchet tensioner

| Chain dia. [mm] | Type ratchet tensioner | Permissible LC | Obtainable pre-tension force | Hub [mm] | L-open [mm] | L-closed [mm] | Ref. No. Ratchet tensioner |
|-----------------|------------------------|----------------|------------------------------|----------|-------------|---------------|----------------------------|
| 6 | ICE-CURT-6-SL | 3600 | 1500 | 140 | 470 | 330 | 7903441 |
| 8 | ICE-CURT-8-SL | 6000 | 2800 | 170 | 623 | 453 | 7999435 |
| 10 | ICE-CURT-10-SL | 10000 | 2800 | 170 | 671 | 501 | 7999436 |



| Chain dia. mm | Type lashing chain ICE-VSK-CURT-SL | Permissible LC | Obtainable pre-tension force | L-min [mm] | Weight kgs (chain + ratchet tensioner) | Ref. No. Lashing chain |
|---------------|------------------------------------|----------------|------------------------------|------------|--|------------------------|
| 6 | ICE-VSK-6-CURT-SL | 3600 | 1500 | 640 | 6.5 | 7903444 |
| 8 | ICE-VSK-8-CURT-SL | 6000 | 2800 | 817 | 12.6 | 7900026 |
| 10 | ICE-VSK-10-CURT-SL | 10000 | 2800 | 935 | 18.1 | 7900027 |

Captive tensioner moveable within the chain strand

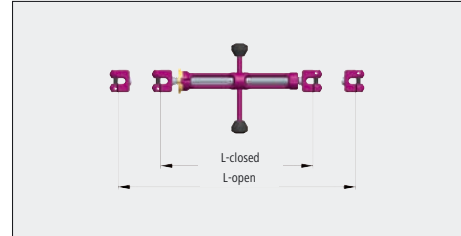


*The shown types are corresponding to lashing chains for the securing of loads.

ICE-Lashing chains with ICE-CURT-K – Bar spindle tensioner (direct lashing only)**

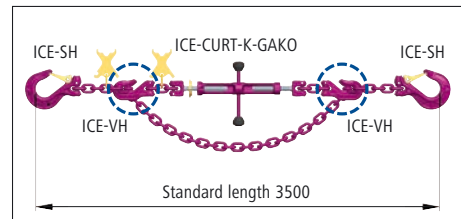
Tensioner with locking handle

| Chain dia. [mm] | Type Bar spindle tensioner | Permissible LC | Obtainable pre-tension force | Hub [mm] | L-open [mm] | L-closed [mm] | Ref. No. Tensioner with locking handle |
|-----------------|-------------------------------|----------------|------------------------------|----------|-------------|---------------|---|
| 6 | ICE-CURT-K-6-GAKO | 3600 | direct lashing only | 140 | 400 | 260 | 7904448 |
| 8 | ICE-CURT-K-8-GAKO | 6000 | direct lashing only | 170 | 520 | 350 | 7904449 |
| 10 | ICE-CURT-K-10-GAKO | 10000 | direct lashing only | 170 | 532 | 362 | 7904450 |
| 13 | ICE-CURT-K-13-GAKO | 16000 | direct lashing only | 300 | 830 | 530 | 7904451 |
| 16 | ICE-CURT-K-16-GAKO | 25000 | direct lashing only | 350 | 962 | 612 | 7904452 |

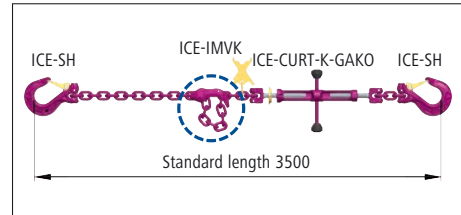


| Chain dia. mm | Type lashing chain ICE-VSK-CURT-IVH | Permissible LC | Obtainable pre-tension force | L-min [mm] | Weight kgs (chain + Bar spindle tensioner) | Ref. No. Lashing chain |
|---------------|---|----------------|------------------------------|------------|---|---------------------------|
| 6 | ICE-VSK-6-CURT-K-IVH | 3600 | direct lashing only | 780 | 4.8 + 2.5 | 7904493 |
| 8 | ICE-VSK-8-CURT-K-IVH | 6000 | direct lashing only | 1040 | 8.0 + 4.5 | 7904494 |
| 10 | ICE-VSK-10-CURT-K-IVH | 10000 | direct lashing only | 1210 | 13.0 + 6.4 | 7904495 |
| 13 | ICE-VSK-13-CURT-K-IVH | 16000 | direct lashing only | 1600 | 21.9 + 12.6 | 7904496 |
| 16 | ICE-VSK-16-CURT-K-IVH | 25000 | direct lashing only | 1910 | 34.5 + 23.2 | 7904497 |

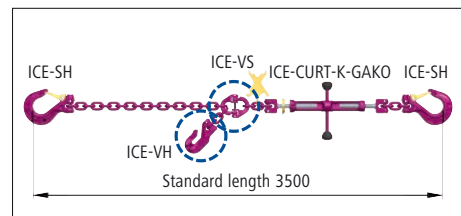
Tensioner moveable within the chain strand



| Chain dia. mm | Type lashing chain ICE-VSK-CURT-IMVK | Permissible LC | Obtainable pre-tension force | L-min [mm] | Weight kgs (chain + Bar spindle tensioner) | Ref. No. Lashing chain |
|---------------|--|----------------|------------------------------|------------|---|---------------------------|
| 6 | ICE-VSK-6-CURT-K-IMVK | 3600 | direct lashing only | 770 | 6.6 | 7904608 |
| 8 | ICE-VSK-8-CURT-K-IMVK | 6000 | direct lashing only | 1010 | 11.0 | 7904610 |
| 10 | ICE-VSK-10-CURT-K-IMVK | 10000 | direct lashing only | 1170 | 16.3 | 7904611 |
| 13 | ICE-VSK-13-CURT-K-IMVK | 16000 | direct lashing only | 1540 | 27.6 | 7904612 |
| 16 | ICE-VSK-16-CURT-K-IMVK | 25000 | direct lashing only | 1840 | 44.9 | 7904613 |

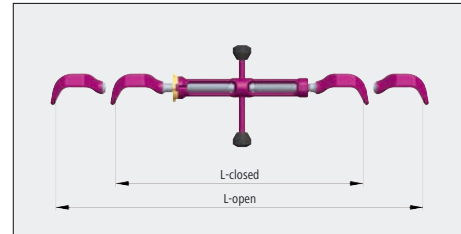


| Chain dia. mm | Type lashing chain ICE-VSK-CURT-IVS | Permissible LC | Obtainable pre-tension force | L-min [mm] | Weight kgs (chain + Bar spindle tensioner) | Ref. No. Lashing chain |
|---------------|---|----------------|------------------------------|------------|---|---------------------------|
| 6 | ICE-VSK-6-CURT-K-IVS | 3600 | direct lashing only | 680 | 6.7 | 7904596 |
| 8 | ICE-VSK-8-CURT-K-IVS | 6000 | direct lashing only | 870 | 11.2 | 7904598 |
| 10 | ICE-VSK-10-CURT-K-IVS | 10000 | direct lashing only | 1000 | 17.0 | 7904599 |
| 13 | ICE-VSK-13-CURT-K-IVS | 16000 | direct lashing only | 1330 | 28.9 | 7904600 |
| 16 | ICE-VSK-16-CURT-K-IVS | 25000 | direct lashing only | 1590 | 47.7 | 7904601 |



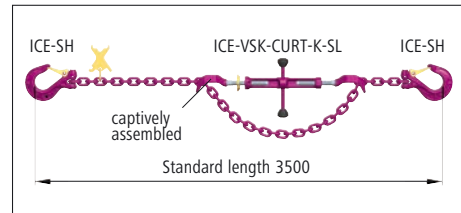
Tensioner with locking handle

| Chain dia. [mm] | Type tensioner with locking handle | Permissible LC | Obtainable pre-tension force | Hub [mm] | L-open [mm] | L-closed [mm] | Ref. No. (chain + Bar spindle tensioner) |
|-----------------|---------------------------------------|----------------|------------------------------|----------|-------------|---------------|---|
| 6 | ICE-CURT-K-6-SL | 3600 | direct lashing only | 140 | 470 | 330 | 7904453 |
| 8 | ICE-CURT-K-8-SL | 6000 | direct lashing only | 170 | 623 | 453 | 7994454 |
| 10 | ICE-CURT-K-10-SL | 10000 | direct lashing only | 170 | 671 | 501 | 7994455 |



| Chain dia. mm | Type lashing chain ICE-VSK-CURT-SL | Permissible LC | Obtainable pre-tension force | L-min [mm] | Weight kgs (chain + Bar spindle tensioner) | Ref. No. Lashing chain |
|---------------|--|----------------|------------------------------|------------|---|---------------------------|
| 6 | ICE-VSK-6-CURT-K-SL | 3600 | direct lashing only | 640 | 6.8 | 7904498 |
| 8 | ICE-VSK-8-CURT-K-SL | 6000 | direct lashing only | 817 | 11.7 | 7904499 |
| 10 | ICE-VSK-10-CURT-K-SL | 10000 | direct lashing only | 935 | 17.3 | 7904500 |

Captive tensioner moveable within the chain strand



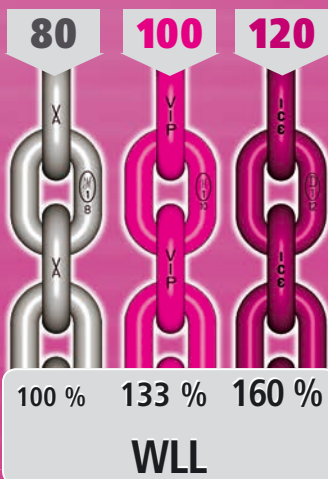
**The shown types are corresponding to lashing chains for the securing of loads.
For the usage of Bar spindle tensioners for lifting purposes see page 19.

RUD-Quality in PIN

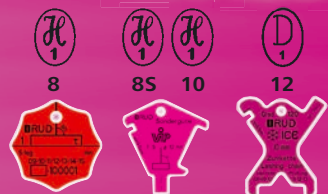


Grade 80, Grade 100 (VIP) and
WLL »in metric tons« of sling
According to inclination angle at symm

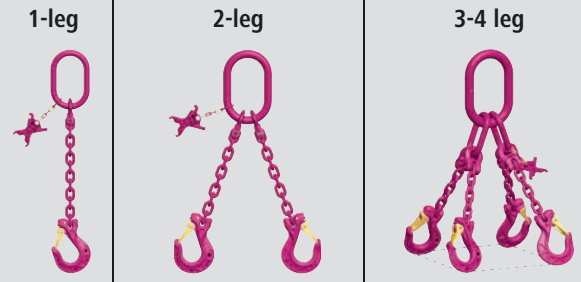
RUD quality grades



Grade 80 VIP 100 ICE 120



RUD ID System Methods of sling



| | | 1-leg | | 2-leg | | 3-4 leg | |
|----------------------------|----------|---------------|------|-------|-------|----------|--|
| inclination angle: β | | 0 | | 0-45° | | > 45-60° | |
| load factor | | 1.0 | | 1.4 | | 1.0 | |
| Diam. of chains | | Quality grade | | | | | |
| Ø 4 | VIP | 0.63 | 0.88 | 0.63 | 1.32 | 0.95 | |
| | ICE | 0.80 | 1.12 | 0.80 | 1.70 | 1.18 | |
| Ø 6 | Grade 80 | 1.12 | 1.6 | 1.12 | 2.36 | 1.7 | |
| | VIP | 1.5 | 2.1 | 1.5 | 3.15 | 2.25 | |
| | ICE | 1.8 | 2.5 | 1.8 | 3.75 | 2.7 | |
| Ø 8 | Grade 80 | 2.0 | 2.8 | 2.0 | 4.25 | 3.0 | |
| | VIP | 2.5 | 3.5 | 2.5 | 5.25 | 3.75 | |
| | ICE | 3.0 | 4.25 | 3.0 | 6.3 | 4.5 | |
| Ø 10 | Grade 80 | 3.15 | 4.25 | 3.15 | 6.7 | 4.75 | |
| | VIP | 4.0 | 5.6 | 4.0 | 8.4 | 6.0 | |
| | ICE | 5.0 | 7.0 | 5.0 | 10.5 | 7.5 | |
| Ø 13 | Grade 80 | 5.3 | 7.5 | 5.3 | 11.2 | 8.0 | |
| | VIP | 6.7 | 9.5 | 6.7 | 14.0 | 10.0 | |
| | ICE | 8.0 | 11.2 | 8.0 | 17.0 | 11.8 | |
| Ø 16 | Grade 80 | 8.0 | 11.2 | 8.0 | 17.0 | 11.8 | |
| | VIP | 10.0 | 14.0 | 10.0 | 21.2 | 15.0 | |
| | ICE | 12.5 | 17.0 | 12.5 | 26.5 | 19.0 | |
| Ø 18 | Grade 80 | 10.0 | 14.0 | 10.0 | 21.2 | 15.0 | |
| | VIP | 12.5 | 17.0 | 12.5 | 26.5 | 19.0 | |
| Ø 20 | Grade 80 | 12.5 | 17.0 | 12.5 | 26.5 | 19.0 | |
| | VIP | 16.0 | 22.4 | 16.0 | 33.6 | 24.0 | |
| Ø 22 | Grade 80 | 15.0 | 21.2 | 15.0 | 31.5 | 22.4 | |
| | VIP | 20.0 | 28.0 | 20.0 | 42.0 | 30.0 | |
| Ø 26 | Grade 80 | 21.2 | 30.0 | 21.2 | 45.0 | 31.5 | |
| | VIP | 31.5 | 45.0 | 31.5 | 67.0* | 47.5* | |
| Ø 28 | Grade 80 | 21.2 | 30.0 | 21.2 | 45.0 | 31.5 | |
| | VIP | 31.5 | 45.0 | 31.5 | 67.0* | 47.5* | |
| Ø 32 | Grade 80 | 31.5 | 45.0 | 31.5 | 67.0 | 47.5 | |
| | VIP | 42.0 | 58.8 | 42.0 | 89.4 | 63.0 | |



Attention:

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



Temperature
°C / °F

Subject to technical modifications! *Only 2 x 2-leg type available.

K!

and Grade 120 (ICE)

g chains

metric loading



| endless** Basket sling chain with choke hitch | Basket sling chain** | | | | Choke hitch** | | |
|---|--|----------|--|----------|--|--------|----------|
| | single | | double | | single | double | |
| | | | | | | | |
| - | 0-45° | > 45-60° | 0-45° | > 45-60° | 0 | 0-45° | > 45-60° |
| 1.6 | 1.1 | 0.8 | 1.7 | 1.2 | 0.8 | 1.1 | 0.8 |
| 1.0 | 0.69 | 0.5 | 1.1 | 0.75 | 0.5 | 0.69 | 0.5 |
| 1.25 | 0.88 | 0.64 | 1.36 | 0.96 | 0.64 | 0.88 | 0.64 |
| 1.8 | 1.2 | 0.9 | 1.9 | 1.3 | 0.9 | 1.2 | 0.9 |
| 2.4 | 1.65 | 1.2 | 2.55 | 1.8 | 1.2 | 1.65 | 1.2 |
| 2.88 | 2.0 | 1.44 | 3.1 | 2.1 | 1.44 | 2.0 | 1.44 |
| 3.2 | 2.2 | 1.6 | 3.4 | 2.4 | 1.6 | 2.2 | 1.6 |
| 4.0 | 2.75 | 2.0 | 4.25 | 3.0 | 2.0 | 2.75 | 2.0 |
| 4.8 | 3.3 | 2.4 | 5.1 | 3.6 | 2.4 | 3.3 | 2.4 |
| 5.0 | 3.5 | 2.5 | 5.3 | 3.8 | 2.5 | 3.5 | 2.5 |
| 6.4 | 4.4 | 3.2 | 6.8 | 4.8 | 3.2 | 4.4 | 3.2 |
| 8.0 | 5.5 | 4.0 | 8.5 | 6.0 | 4.0 | 5.5 | 4.0 |
| 8.5 | 5.8 | 4.0 | 9.0 | 6.0 | 4.0 | 5.8 | 4.0 |
| 10.6 | 7.5 | 5.3 | 11.2 | 8.0 | 5.3 | 7.5 | 5.3 |
| 12.5 | 8.8 | 6.4 | 13.6 | 9.6 | 6.4 | 8.8 | 6.4 |
| 12.5 | 8.8 | 6.4 | 13.6 | 9.6 | 6.4 | 8.8 | 6.4 |
| 16.0 | 11.0 | 8.0 | 17.0 | 12.0 | 8.0 | 11.0 | 8.0 |
| 20.0 | 14.0 | 10.0 | 21.2 | 15.0 | 10.0 | 14.0 | 10.0 |
| 25.6 | 17.6 | 12.8 | 27.2 | 19.2 | 12.8 | 17.6 | 12.8 |
| 23.6 | 16.5 | 12.0 | 25.5 | 18.0 | 12.0 | 16.5 | 12.0 |
| 32.0 | 22.0 | 16.0 | 34.0 | 24.0 | 16.0 | 22.0 | 16.0 |
| 33.5 | 23.3 | 17.0 | 36.0 | 25.4 | 17.0 | 23.0 | 17.0 |
| 50.0 | 35.5 | 25.0 | 53.0* | 37.5* | 25.0 | 35.5 | 25.0 |
| 50.0 | 35.5 | 25.0 | 53.0 | 37.5 | 25.0 | 35.5 | 25.0 |
| Grade 80 | -40° up to +200° C (+40° up to +392° F) | | higher 200° up to 300° C (higher 392° up to 572° F) | | higher 300° up to 400° C (higher 572° up to 752° F) | | |
| | 100 % | | 90 % | | 75 % | | |
| VIP 100 | -40° up to +200° C (+40° up to +392° F) | | higher 200° up to 300° C (higher 392° up to 572° F) | | higher 300° up to 380° C (higher 572° up to 716° F) | | |
| | 100 % | | 90 % | | 60 % | | |
| ICE 120 | -60° up to +200° C (-76° up to +392° F) | | higher 200° up to 250° C (higher 392° up to 482° F) | | higher 250° up to 300° C (higher 482° up to 572° F) | | |
| | 100 % | | 90 % | | 60 % | | |















**20 % reduction
for basket chains,
due to sharp edges,
is considered.



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Friedensinsel
73432 Aalen/Germany
Tel.: +49 7361 504-1316-1370-1224
Fax: +49 7361 504-1460
sling@rud.com · www.rud.com



The suitable range of modern and safe Lifting Points – for bolting

| Thread sizes M 6- M 150 Imperial (UNC....) and special lengths on request  | | | PP-S (Vario) PowerPoint-Star | | | PP-B (Vario) PowerPoint-B | | | PP-VIP (Vario) PowerPoint-VIP | | | ICE-LBG-SR Load Ring Super Rotation  | | | | | | | | | | | | | | | | VLBG Load Ring (Vario)   | | | | | | | | | | | | | | | | | | | |
|---|----------------|----------------|---------------------------------|------|-------------|------------------------------|------------|----------|----------------------------------|----------|-----------------|---|---------------|-----------------|-----------------|---------------|---------------|---------------|----------------|----------------|----------------|------------|-------------|----------|------------|------------|----------|---|----------|----------------|----------|-----------|-----------|-----------|-------------------|-------------------|--|--|--|--|--|--|--|--|--|--|--|
| | Number of legs | Load direction | Thread size | Type | PP-S 0.63 t | PP-S 1.5 t | PP-S 2.5 t | PP-S 4 t | PP-S 5 t | PP-S 8 t | ICE-LBG-SR 0.3t | ICE-LBG-SR 0.63t | ICE-LBG-SR 1t | ICE-LBG-SR 1.5t | ICE-LBG-SR 2.5t | ICE-LBG-SR 4t | ICE-LBG-SR 5t | ICE-LBG-SR 8t | ICE-LBG-SR 10t | ICE-LBG-SR 15t | ICE-LBG-SR 20t | VLBG 0.3 t | VLBG 0.63 t | VLBG 1 t | VLBG 1.5 t | VLBG 2.5 t | VLBG 4 t | VLBG 4 t | VLBG 5 t | VLBG 7 t Sond. | VLBG 8 t | VLBG 10 t | VLBG 15 t | VLBG 20 t | VLBG(3) M16 RS 1t | VLBG(3) M20 RS 2t | | | | | | | | | | | |
| | | | M 12 | M 16 | M 20 | M 24 | M 30 | M 36 | M 8 | M 10 | M 12 | M 16 | M 20 | M 24 | M 30 | M 36 | M 42 | M 42 | M 48 | M 8 | M 10 | M 12 | M 16 | M 20 | M 24 | M 27 | M 30 | M 36 | M 36 | M 42 | M 42 | M 48 | M 16 | M 20 | | | | | | | | | | | | | |
|  | 1 | 0° | | | 0.6 | 1.5 | 2.5 | 4 | 6.7 | 10 | 0.3 | 0.63 | 1 | 1.5 | 2.5 | 4 | 5 | 8 | 10 | 15 | 20 | 0.3 | 0.6 | 1 | 1.5 | 2.5 | 4 | 4 | 5 | 7 | 8 | 10 | 15 | 20 | 1 | 2 | | | | | | | | | | | |
|  | 2 | 0° | | | 1.2 | 3 | 5 | 8 | 13.4 | 20 | 0.6 | 1.26 | 2 | 3 | 5 | 8 | 10 | 16 | 20 | 30 | 40 | 0.6 | 1.2 | 2 | 3 | 5 | 8 | 8 | 10 | 14 | 16 | 20 | 30 | 40 | 2 | 4 | | | | | | | | | | | |
|  | 1 | 90° | | | 0.6 | 1.5 | 2.5 | 4 | 5 | 8 | 0.3 | 0.63 | 1 | 1.5 | 2.5 | 4 | 5 | 8 | 10 | 15 | 20 | 0.3 | 0.6 | 1 | 1.5 | 2.5 | 4 | 4 | 5 | 7 | 8 | 10 | 15 | 20 | 1 | 2 | | | | | | | | | | | |
|  | 2 | 90° | | | 1.2 | 3 | 5 | 8 | 10 | 16 | 0.6 | 1.26 | 2 | 3 | 5 | 8 | 10 | 16 | 20 | 30 | 40 | 0.6 | 1.2 | 2 | 3 | 5 | 8 | 8 | 10 | 14 | 16 | 20 | 30 | 40 | 2 | 4 | | | | | | | | | | | |
|  | 2 | 0-45° | | | 0.8 | 2.1 | 3.5 | 5.6 | 7.1 | 11.2 | 0.42 | 0.88 | 1.4 | 2.1 | 3.5 | 5.6 | 7 | 11.2 | 14 | 21 | 28 | 0.4 | 0.8 | 1.4 | 2.1 | 3.5 | 5.6 | 5.6 | 7 | 9.8 | 11.2 | 14 | 21 | 28 | 1.4 | 2.8 | | | | | | | | | | | |
|  | 2 | 45-60° | | | 0.6 | 1.5 | 2.5 | 4 | 5 | 8 | 0.3 | 0.63 | 1 | 1.5 | 2.5 | 4 | 5 | 8 | 10 | 15 | 20 | 0.3 | 0.6 | 1 | 1.5 | 2.5 | 4 | 4 | 5 | 7 | 8 | 10 | 15 | 20 | 1 | 2 | | | | | | | | | | | |
|  | 2 | unsymmetrical | | | 0.6 | 1.5 | 2.5 | 4 | 5 | 8 | 0.3 | 0.63 | 1 | 1.5 | 2.5 | 4 | 5 | 8 | 10 | 15 | 20 | 0.3 | 0.6 | 1 | 1.5 | 2.5 | 4 | 4 | 5 | 7 | 8 | 10 | 15 | 20 | 1 | 2 | | | | | | | | | | | |
|  | 3+4 | 0-45° | | | 1.3 | 3.2 | 5.3 | 8.4 | 10.5 | 16.8 | 0.63 | 1.32 | 2.1 | 3.15 | 5.25 | 8.4 | 10.5 | 16.8 | 21 | 31.5 | 42 | 0.6 | 1.3 | 2.1 | 3.1 | 5.2 | 8.4 | 8.4 | 10.5 | 14.7 | 16.8 | 21 | 31.5 | 42 | 2.1 | 4.2 | | | | | | | | | | | |
|  | 3+4 | 45-60° | | | 0.9 | 2.2 | 3.8 | 6 | 7.5 | 12 | 0.45 | 0.95 | 1.5 | 2.25 | 3.75 | 6 | 7.5 | 12 | 15 | 22.5 | 30 | 0.4 | 0.9 | 1.5 | 2.2 | 3.7 | 6 | 6 | 7.5 | 10.4 | 12 | 15 | 22.5 | 30 | 1.5 | 3 | | | | | | | | | | | |
|  | 3+4 | unsymmetrical | | | 0.6 | 1.5 | 2.5 | 4 | 5 | 8 | 0.3 | 0.63 | 1 | 1.5 | 2.5 | 4 | 5 | 8 | 10 | 15 | 20 | 0.3 | 0.6 | 1 | 1.5 | 2.5 | 4 | 4 | 5 | 7 | 8 | 10 | 15 | 20 | 1 | 2 | | | | | | | | | | | |
| | | Thread size | M 12 | M 16 | M 20 | M 24 | M 30 | M 36 | | | M 8 | M 10 | M 12 | M 16 | M 20 | M 24 | M 30 | M 36 | M 42 | M 42 | M 48 | M 8 | M 10 | M 12 | M 16 | M 20 | M 24 | M 27 | M 30 | M 36 | M 36 | M 42 | M 42 | M 48 | M 16 | M 20 | | | | | | | | | | | |

Maximum transport weight "G" in [tonnes] with different lifting methods

- All parts are either 100 % crack detected or proof loaded accord. to EN 1677.
- All original bolts from RUD are 100 % crack detected.
- Safety factor 4:1 in any direction.
- The types VRS, VRM, INOX-STAR and VLBG have to be adjusted to the load direction.
- Low installation height, high dynamic and static strength.
- RUD features such as clamping spring (VLBS) for noise reduction and distance lugs for a perfect root pass weld increase the ease of use.



The suitable range of modern and safe Lifting Points – for bolting

| VWBG-V Load Ring (Vario) | | | | | | | | | | | VWBG Load Ring | | | | | | | | | | | | | | | | | | |
|--------------------------|---------------|---------------|---------------|---------------|--------------|---------------|---------------|--------------|--------------|----------------|----------------|--------------|--------------|----------------|----------------|----------------|----------------|----------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|--------------|--------------|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VWBG-V 0.3 t | VWBG-V 0.45 t | VWBG-V 0.6 t | VWBG-V 1.0 t | VWBG-V 1.3 t | VWBG-V 1.8 t | VWBG-V 2 t | VWBG-V 2 t | VWBG-V 3.5 t | VWBG-V 3.5 t | VWBG-V 5 t | VWBG 6 (7.5) | VWBG 8 (10) | VWBG 8 (10) | VWBG 12 (13) | VWBG 12 (13) | VWBG 12 (15) | VWBG 13 (16) | VWBG 13 (16) | VWBG 14 (20) | VWBG 16 (22) | VWBG 16 (22) | VWBG 16 (25) | VWBG 16 (25) | VWBG 31.5 (40) | VWBG 31.5 (40) | VWBG 35 (48) | VWBG 35 (48) | VWBG 40 (50) | VWBG 40 (50) |
| M 8 | M 10 | M 12 | M 14 | M 16 | M 18 | M 20 | M 22 | M 24 | M 27 | M 30 | M 33 | M 36 | M 36-39 | M 42 | M 42-45 | M 45 | M 48 | M 48-52 | M 52 | M 56 | M 56-62 | M 64 | M 64-76 | M 72 | M 72-76 | M 80 | M 80-85 | M 90 | M 90-150 |
| 0.6 | 0.9 | 1.2 | 2 | 2.6 | 3.6 | 4 | 4 | 7 | 7 | 10 | 15 | 15 | 15 | 17 | 17 | 18 | 18 | 18 | 25 | 28 | 28 | 28 | 28 | 50 | 50 | 50 | 50 | 50 | 50 |
| 1.2 | 1.8 | 2.4 | 4 | 5.2 | 7.2 | 8 | 8 | 14 | 14 | 20 | 30 | 30 | 30 | 34 | 34 | 36 | 36 | 36 | 50 | 56 | 56 | 56 | 56 | 100 | 100 | 100 | 100 | 100 | 100 |
| 0.3 (0.4) | 0.45 (0.6) | 0.6 (0.7) | 1 (1.25) | 1.3 (1.5) | 1.8 (2) | 2 (2.5) | 2 (2.5) | 3.5 (4) | 3.5 (4) | 5 (6) | 6 (7.5) | 8 (10) | 8 (10) | 12 (13) | 12 (13) | 12 (15) | 13 (16) | 13 (16) | 14 (20) | 16 (22) | 16 (22) | 16 (25) | 16 (25) | 31.5 (40) | 31.5 (40) | 35 (48) | 35 (48) | 40 (50) | 40 (50) |
| 0.6 (0.8) | 0.9 (1.2) | 1.2 (1.5) | 2 (2.5) | 2.6 (3) | 3.6 (4) | 4 (5) | 4 (5) | 7 (8) | 7 (8) | 10 (12) | 12 (15) | 16 (20) | 16 (20) | 24 (26) | 24 (26) | 24 (30) | 26 (32) | 26 (32) | 28 (40) | 32 (44) | 32 (44) | 32 (50) | 32 (50) | 63 (80) | 63 (80) | 70 (96) | 70 (96) | 80 (100) | 80 (100) |
| 0.4 (0.56) | 0.6 (0.84) | 0.8 (1.05) | 1.4 (1.75) | 1.8 (2.1) | 2.5 (2.8) | 2.8 (3.5) | 2.8 (3.5) | 4.9 (5.6) | 4.9 (5.6) | 7 (8.4) | 8.4 (10.5) | 11.2 (14) | 11.2 (14) | 16.8 (18.2) | 16.8 (18.2) | 16.8 (21) | 18.2 (22.4) | 18.2 (22.4) | 19.6 (28) | 22.4 (30.8) | 22.4 (30.8) | 22.4 (35) | 22.4 (35) | 44.1 (56) | 44.1 (56) | 49 (67.2) | 49 (67.2) | 56 (70) | 56 (70) |
| 0.3 (0.4) | 0.45 (0.6) | 0.6 (0.7) | 1 (1.25) | 1.3 (1.5) | 1.8 (2) | 2 (2.5) | 2 (2.5) | 3.5 (4) | 3.5 (4) | 5 (6) | 6 (7.5) | 8 (10) | 8 (10) | 12 (13) | 12 (13) | 12 (15) | 13 (16) | 13 (16) | 14 (20) | 16 (22) | 16 (22) | 16 (25) | 16 (25) | 31.5 (40) | 31.5 (40) | 35 (48) | 35 (48) | 40 (50) | 40 (50) |
| 0.3 (0.4) | 0.4 (0.6) | 0.6 (0.7) | 1 (1.25) | 1.3 (1.5) | 1.8 (2) | 2 (2.5) | 2 (2.5) | 3.5 (4) | 3.5 (4) | 5 (6) | 6 (7.5) | 8 (10) | 8 (10) | 12 (13) | 12 (13) | 12 (15) | 13 (16) | 13 (16) | 14 (20) | 16 (22) | 16 (22) | 16 (25) | 16 (25) | 31.5 (40) | 31.5 (40) | 35 (48) | 35 (48) | 40 (50) | 40 (50) |
| 0.6 (0.84) | 0.9 (1.26) | 1.2 (1.58) | 2.1 (2.62) | 2.7 (3.15) | 3.7 (4.2) | 4.2 (5.25) | 4.2 (5.25) | 7.3 (8.4) | 7.3 (8.4) | 10.5 (12.6) | 12.6 (15.7) | 16.8 (21) | 16.8 (21) | 25.2 (27.3) | 25.2 (27.3) | 25.2 (31.5) | 27.3 (33.6) | 27.3 (33.6) | 29.4 (42) | 33.6 (46.2) | 33.6 (46.2) | 33.6 (52.5) | 33.6 (52.5) | 66.15 (84) | 66.15 (84) | 73.5 (100) | 73.5 (100) | 84 (105) | 84 (105) |
| 0.4 (0.6) | 0.6 (0.9) | 0.9 (1.12) | 1.5 (1.87) | 1.9 (2.25) | 2.7 (3) | 3 (3.75) | 3 (3.75) | 5.2 (6) | 5.2 (6) | 7.5 (9) | 9 (11.2) | 12 (15) | 12 (15) | 18 (19.5) | 18 (19.5) | 18 (22.5) | 19.5 (24) | 19.5 (24) | 21 (30) | 24 (33) | 24 (33) | 24 (37.5) | 24 (37.5) | 47.25 (60) | 47.25 (60) | 52.5 (72) | 52.5 (72) | 60 (75) | 60 (75) |
| 0.3 (0.4) | 0.4 (0.6) | 0.6 (0.7) | 1 (1.25) | 1.3 (1.5) | 1.8 (2) | 2 (2.5) | 2 (2.5) | 3.5 (4) | 3.5 (4) | 5 (6) | 6 (7.5) | 8 (10) | 8 (10) | 12 (13) | 12 (13) | 12 (15) | 13 (16) | 13 (16) | 14 (20) | 16 (22) | 16 (22) | 16 (25) | 16 (25) | 31.5 (40) | 31.5 (40) | 35 (48) | 35 (48) | 40 (50) | 40 (50) |
| M 8 | M 10 | M 12 | M 14 | M 16 | M 18 | M 20 | M 22 | M 24 | M 27 | M 30 | M 33 | M 36 | M 36-39 | M 42 | M 42-45 | M 45 | M 48 | M 48-52 | M 52 | M 56 | M 56-60 | M 64 | M 64-76 | M 72 | M 72-76 | M 80 | M 80-85 | M 90 | M 90-150 |

Maximum transport weight "G" in [tonnes] with different lifting methods







■ RUD Lifting Point CD-ROM makes it easy to select the right Lifting Point.

■ RUD Lifting Points are designed to achieve at the dynamical stress test 20,000 load cycles, tested with 50 % overload.

■ In case of higher dynamic application please ask manufacturer.



The suitable range of modern and safe Lifting Points – for bolting



| Thread sizes M 6- M 150 Imperial (UNC....) and special lengths on request | | | Starpoint VRS (Vario) eyebolt | | Starpoint VRM eyenut | | INOX-STAR | | RS & RM High-tensile eyebolt / eye nut | | VRBG Load Ring | |
|---|--|--|---|--|---|--|--|--|--|--|---|--|
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| | | | * * * * * | | * * * * * | | | | | | | |
| | | | Type | | Type | | Type | | Type | | Type | |
| | | | Thread size | | Thread size | | Thread size | | Thread size | | Thread size | |
| | | | M 6 | | M 6 | | M 12 | | M 6 | | RBG 3 t | |
| | | | M 8 | | M 8 | | M 16 | | M 8 | | VRBG 10 t | |
| | | | M 10 | | M 10 | | M 20 | | M 10 | | VRBG 16 t | |
| | | | M 12 | | M 12 | | M 24 | | M 12 | | VRBG 31.5 t | |
| | | | M 16 | | M 16 | | M 30 | | M 14 | | VRBG 50 t | |
| | | | M 20 | | M 20 | | M 36 | | M 16 | | VRBG 80 t | |
| | | | M 24 | | M 24 | | M 42 | | M 20 | | VRBG 100 t | |
| | | | M 30 | | M 30 | | M 48 | | M 24 | | VRBG 200 t | |
| | | | M 36 | | M 36 | | | | M 30 | | | |
| | | | M 42 | | M 42 | | | | M 36 | | | |
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Maximum transport weight "G" in [tonnes] with different lifting methods

* The WLL values of the VRM are only valid with threaded bolts of quality 10.9.



The suitable product line of modern and safe lifting – and lashing points – weldable

| | | | PowerPoint WPP-series / WPPH-series rotation / fixed | | | | | | VLBS Load ring for welding (LPW in daN for lashing) | | | | | | VRBS-FIX (LRBS-FIX in daN for lashing) | | | | | | VRBK-FIX Eye Plate for corners 90° (LRBK-FIX in daN for lashing) | | | | ABA (L-ABA in daN for lashing) | | | | | |
|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|---|--|--|--|--|--|
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| | | | all variations | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | WPP / WPPH 0.63 t | | | | | | VLBS 1.5 t | | | | | | VRBS-FIX 4 t | | | | | | VRBK-FIX 4 t | | | | ABA 1.6 t | | | | | |
| | | | WPP / WPPH 1.5 t | | | | | | VLBS 2.5 t | | | | | | VRBS-FIX 6.7 t | | | | | | VRBK-FIX 6.7 t | | | | ABA 3.2 t | | | | | |
| | | | WPP / WPPH 2.5 t | | | | | | VLBS 4 t | | | | | | VRBS-FIX 10 t | | | | | | VRBK-FIX 10 t | | | | ABA 5 t | | | | | |
| | | | WPP / WPPH 4 t | | | | | | VLBS 6.7 t | | | | | | VRBS-FIX 16 t | | | | | | VRBK-FIX 16 t | | | | ABA 10 t | | | | | |
| | | | WPP / WPPH 5 t | | | | | | VLBS 10 t | | | | | | VRBS-FIX 31.5 t | | | | | | VRBK-FIX 31.5 t | | | | ABA 20 t | | | | | |
| | | | WPP / WPPH 8 t | | | | | | VLBS 16 t | | | | | | VRBS-FIX 50 t | | | | | | VRBK-FIX 50 t | | | | ABA 31.5 t | | | | | |
| | | | 3000 daN | | | | | | 5000 daN | | | | | | 8000 daN | | | | | | 8000 daN | | | | 3200 daN | | | | | |
| | | | 5000 daN | | | | | | 8000 daN | | | | | | 13400 daN | | | | | | 13400 daN | | | | 6400 daN | | | | | |
| | | | 8000 daN | | | | | | 13400 daN | | | | | | 20000 daN | | | | | | 20000 daN | | | | 10000 daN | | | | | |
| | | | 13400 daN | | | | | | 20000 daN | | | | | | 31.5 | | | | | | 31.5 | | | | 20000 daN | | | | | |
| | | | 20000 daN | | | | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | 20000 daN | | | | | |
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| | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | 20000 daN | | | | | |
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| | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | 20000 daN | | | | | |
| | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | 20000 daN | | | | | |
| | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | 20000 daN | | | | | |
| | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | 20000 daN | | | | | |
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| | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | 20000 daN | | | | | |
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| | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | 20000 daN | | | | | |
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| | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | 20000 daN | | | | | |
| | | | 31.5 | | | | | | 31.5 | | | | | | 31.5 | | | | | | | | | | | | | | | |

Maximum transport weight "G" in [tonnes] with different lifting methods





RUD Ketten
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Telefon +49 7361 504-1371
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Lifting chain poster,
for RUD
chains of Grade 80,
VIP and ICE.

www.rud.com
Click-lifting means
click-ICE



RUD-Quality in PINK!

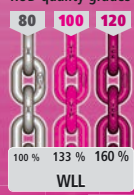
Grade 80, Grade 100 (VIP) and Grade 120 (ICE)

WLL »in metric tons« of sling chains

According to inclination angle at symmetric loading



RUD quality grades



| Inclination angle: β | 1-leg | | 2-leg | | 3-4 leg | | endless** Basket sling chain** | | Basket sling chain** | | Choke hitch** | |
|----------------------------|---------------|-------|-------|-------|---------|-------|-----------------------------------|-------|----------------------|--------|---------------|-------|
| | 0 | 0-45° | 0 | 0-45° | 0 | 0-45° | 0 | 0-45° | 0 | 0-45° | 0 | 0-45° |
| load factor | 1.0 | 1.4 | 1.0 | 2.1 | 1.5 | 1.6 | 1.1 | 0.8 | 1.7 | 0.8 | 1.1 | 0.8 |
| Dim. of chain | Quality grade | | | | | | | | | | | |
| Ø 4 | Grade 80 | 0.63 | 0.88 | 0.63 | 1.32 | 0.95 | 1.0 | 0.69 | 0.5 | 1.1 | 0.75 | 0.5 |
| | VIP | 0.80 | 1.12 | 0.80 | 1.70 | 1.18 | 1.25 | 0.88 | 0.64 | 1.36 | 0.96 | 0.64 |
| | ICE | 1.0 | 1.4 | 1.0 | 2.1 | 1.5 | 1.6 | 1.1 | 0.8 | 1.7 | 0.8 | 0.64 |
| Ø 6 | Grade 80 | 1.12 | 1.6 | 1.12 | 2.36 | 1.7 | 1.8 | 1.2 | 0.9 | 1.9 | 1.3 | 0.9 |
| | VIP | 1.5 | 2.1 | 1.5 | 3.15 | 2.25 | 2.4 | 1.65 | 1.2 | 2.55 | 1.8 | 1.2 |
| | ICE | 1.8 | 2.5 | 1.8 | 3.75 | 2.7 | 2.8 | 2.0 | 1.44 | 3.1 | 2.1 | 1.44 |
| Ø 8 | Grade 80 | 2.0 | 2.8 | 2.0 | 4.25 | 3.0 | 3.2 | 2.2 | 1.6 | 3.4 | 2.4 | 1.6 |
| | VIP | 2.5 | 3.5 | 2.5 | 5.25 | 3.75 | 4.0 | 2.75 | 2.0 | 4.25 | 3.0 | 2.0 |
| | ICE | 3.0 | 4.25 | 3.0 | 6.3 | 4.5 | 4.8 | 3.3 | 2.4 | 5.1 | 3.6 | 2.4 |
| Ø 10 | Grade 80 | 3.15 | 4.25 | 3.15 | 6.7 | 4.75 | 5.0 | 3.5 | 2.5 | 5.3 | 3.8 | 2.5 |
| | VIP | 4.0 | 5.5 | 4.0 | 8.4 | 6.0 | 6.4 | 4.4 | 3.2 | 6.8 | 4.8 | 3.2 |
| | ICE | 5.0 | 7.0 | 5.0 | 10.5 | 7.5 | 8.0 | 5.5 | 4.0 | 8.5 | 6.0 | 4.0 |
| Ø 13 | Grade 80 | 5.3 | 7.5 | 5.3 | 11.2 | 8.0 | 8.5 | 5.8 | 4.0 | 9.0 | 6.0 | 4.0 |
| | VIP | 6.7 | 9.5 | 6.7 | 14.0 | 10.0 | 10.6 | 7.5 | 5.3 | 11.2 | 8.0 | 5.3 |
| | ICE | 8.0 | 11.2 | 8.0 | 17.0 | 11.8 | 12.5 | 8.5 | 6.4 | 13.6 | 9.6 | 6.4 |
| Ø 16 | Grade 80 | 8.0 | 11.2 | 8.0 | 17.0 | 11.8 | 12.5 | 8.8 | 6.4 | 13.6 | 9.6 | 6.4 |
| | VIP | 10.0 | 14.0 | 10.0 | 21.0 | 14.0 | 15.0 | 10.0 | 7.2 | 17.0 | 12.0 | 8.0 |
| | ICE | 12.5 | 17.0 | 12.5 | 26.5 | 19.0 | 20.0 | 14.0 | 10.0 | 21.2 | 15.0 | 10.0 |
| Ø 18 | Grade 80 | 10.0 | 14.0 | 10.0 | 21.2 | 15.0 | 16.0 | 11.0 | 8.0 | 17.0 | 12.0 | 8.0 |
| | VIP | 12.5 | 17.0 | 12.5 | 26.5 | 19.0 | 20.0 | 14.0 | 10.0 | 21.2 | 15.0 | 10.0 |
| | ICE | 15.0 | 21.2 | 15.0 | 31.5 | 22.4 | 23.6 | 16.5 | 12.0 | 25.5 | 18.0 | 12.0 |
| Ø 20 | Grade 80 | 15.0 | 21.2 | 15.0 | 31.5 | 22.4 | 23.6 | 16.5 | 12.0 | 25.5 | 18.0 | 12.0 |
| | VIP | 20.0 | 28.0 | 20.0 | 42.0 | 30.0 | 32.0 | 22.0 | 16.0 | 34.0 | 24.0 | 16.0 |
| | ICE | 21.2 | 30.0 | 21.2 | 45.0 | 31.5 | 33.5 | 23.3 | 17.0 | 36.0 | 25.4 | 17.0 |
| Ø 22 | Grade 80 | 21.2 | 30.0 | 21.2 | 45.0 | 31.5 | 33.5 | 23.3 | 17.0 | 36.0 | 25.4 | 17.0 |
| | VIP | 31.5 | 45.0 | 31.5 | 67.0* | 47.5* | 50.0 | 35.5 | 25.0 | 53.0* | 37.5 | 25.0 |
| | ICE | 31.5 | 45.0 | 31.5 | 67.0 | 47.5 | 50.0 | 35.5 | 25.0 | 53.0 | 37.5 | 25.0 |
| Ø 26 | Grade 80 | 31.5 | 45.0 | 31.5 | 67.0 | 47.5 | 50.0 | 35.5 | 25.0 | 53.0 | 37.5 | 25.0 |
| | VIP | 45.0 | 63.0 | 45.0 | 90.0 | 63.0 | 67.0 | 47.5 | 33.0 | 75.0* | 52.5 | 33.0 |
| | ICE | 45.0 | 63.0 | 45.0 | 90.0 | 63.0 | 67.0 | 47.5 | 33.0 | 75.0 | 52.5 | 33.0 |
| Ø 32 | Grade 80 | 45.0 | 63.0 | 45.0 | 90.0 | 63.0 | 67.0 | 47.5 | 33.0 | 75.0 | 52.5 | 33.0 |
| | VIP | 63.0 | 90.0 | 63.0 | 126.0 | 90.0 | 95.0 | 67.0 | 47.5 | 105.0* | 75.0 | 47.5 |
| | ICE | 63.0 | 90.0 | 63.0 | 126.0 | 90.0 | 95.0 | 67.0 | 47.5 | 105.0 | 75.0 | 47.5 |

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

Subject to technical modifications! *Only 2 x 2-leg type available.



| Material | Grade 80 | Grade 100 (VIP) | Grade 120 (ICE) |
|------------------|----------|-----------------|-----------------|
| Min. temp. -10°C | Grade 80 | Grade 100 (VIP) | Grade 120 (ICE) |
| Max. temp. +10°C | Grade 80 | Grade 100 (VIP) | Grade 120 (ICE) |



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