

The best in chain technology

ICE[®]

120

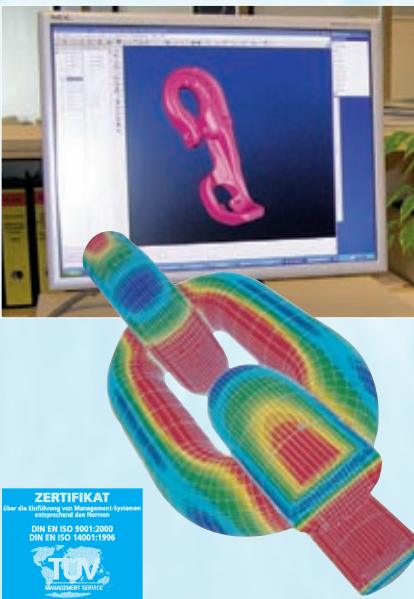


Continuous innovation – of the highest quality!



Our innovation strategy

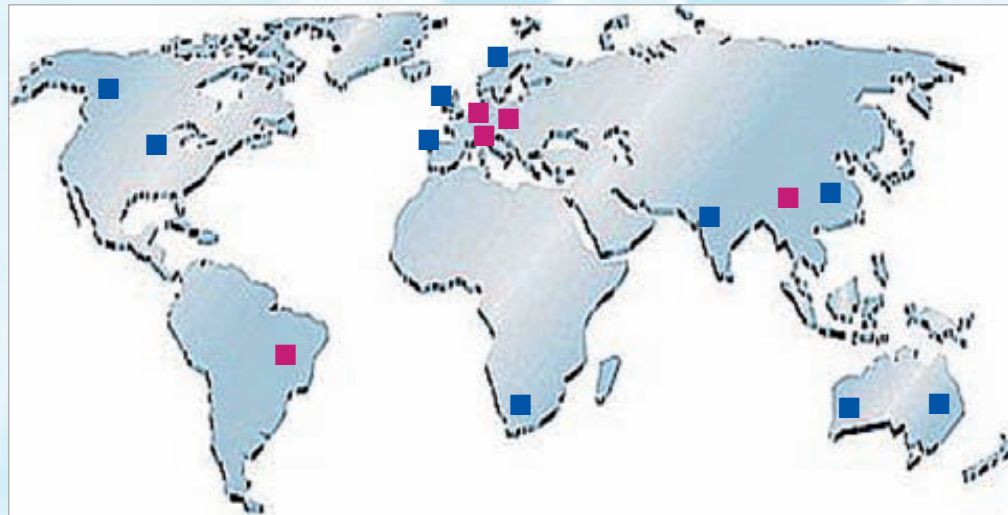
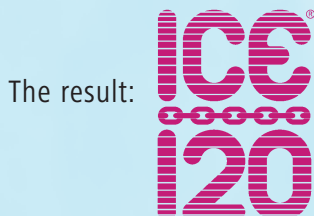
We set the new technological standards. One of the defining elements of our business strategy and vision is leading the field in technological innovation.



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

The successful 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 "a 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 = Public Available Specification		
2007	Approval of Grade 120	

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



RUD is the first manufacturer to receive approval by the German BG Metal North/South to stamp "D" for Grade 120.



The BG Metal and surface treatment Technical Committee have tested and issued – Test certificate PZNM.

BG = Employer's liability insurance association.

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



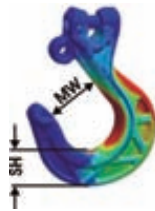
Insensitive to hydrogen embrittlement like Grade 80.

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



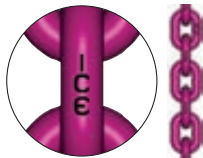
The high quality ICE-chains and components get a special ICE-Pink-Powder Coating (colour: traffic purple).

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



Due to FEM-supported design construction optimizing, 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

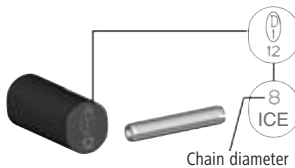


Fool-proof:

- 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!



- **Master links with a 40° inclined flattening...**

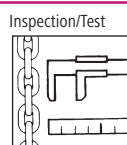
... only with ICE – suitable for the assembly of the ICE-Connector and the ICE-Shortening Coupler!



- **X-(ISO-Grade 120) shaped identification tag...**

... with integrated and patented testing gauge!

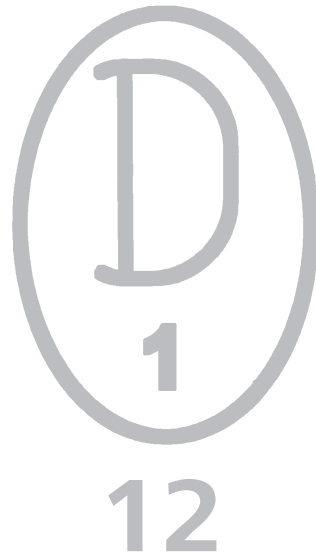
Function see page 11.



➔ **See user's manual**

for RUD-ICE lifting chains in Grade 120.

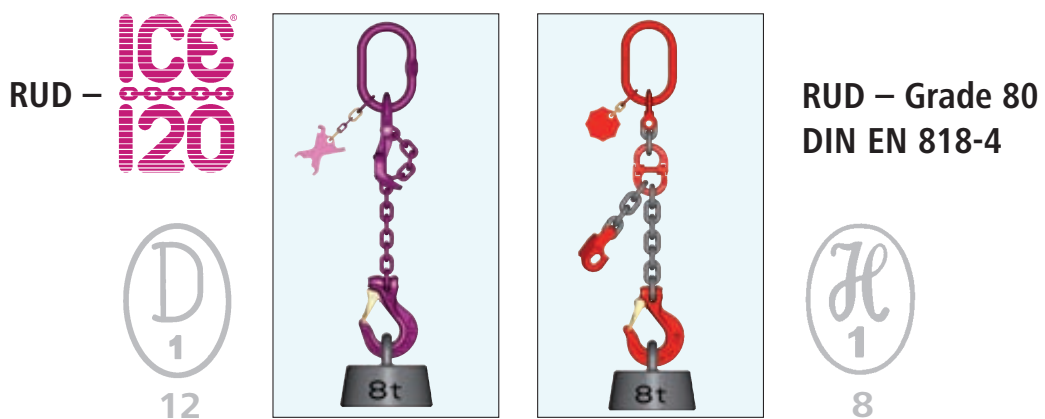
The best in chain technology!



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 "class of its own".

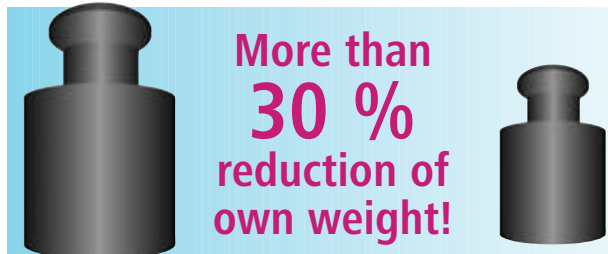
Comparison of own weight: single leg chain sling with shortener H1-V, working length = 3000 mm



WLL	8 t	8 t
Chain diameter	13 mm	16 mm
Component	IAK-SC-13	AK 1-16 + 3 links + VS-16 + 3 links + V16
	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	20.7 kg = 100 %	26.8 kg = 130 %
Price gross	100 %	130 %

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

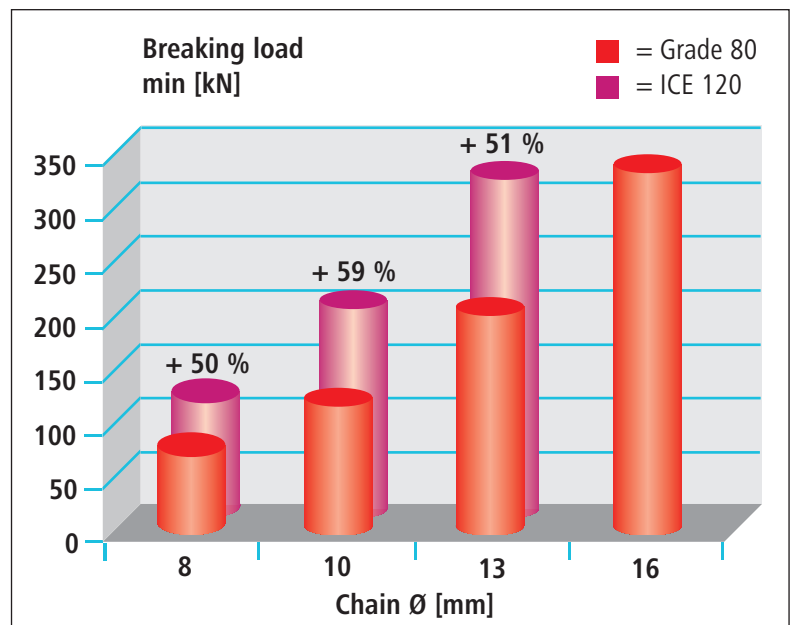
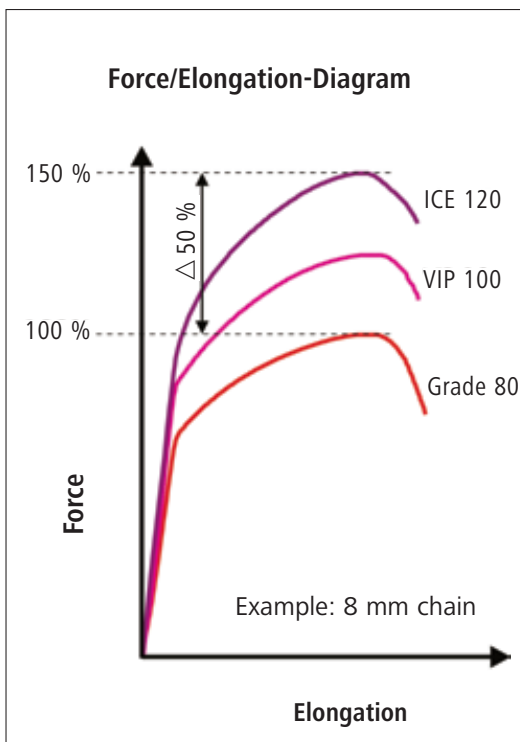
The decisive ICE-advantages – always one diameter thinner than Grade 80!

Chain diameter mm	WLL in kg	
	Grade 80	ICE
8	–	3000
10	3150	5000
13	5300	8000
16	8000	–

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

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

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

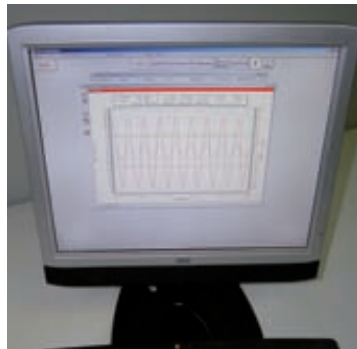


Quality class 12 – Grade 120 – Breaking strength = 1200 N/mm²



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!

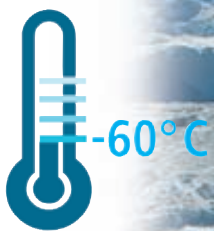
Elongation at break with ICE-Pink Powder coating ≥ 20 %.



Fatigue test limit guarantees minimum 20,000 load cycles at 50 % overload!

In permanent operation, e.g. in connection with hoist devices and cranes with high dynamic applications - > 20,000 load cycles, the WLL must be determined according to EN 818-7 Mechanism group 1 Bm (M3), a nominal stress of 160 N/mm² that means, for example, a larger chain diameter.

This chain does not freeze!



Ideal for Polar and Arctic use;
Extremely temperature resistant -60° up to +300°
Ductile-to-brittle transition temperature < -70°C.

Most economical due to special ICE-Hardening!

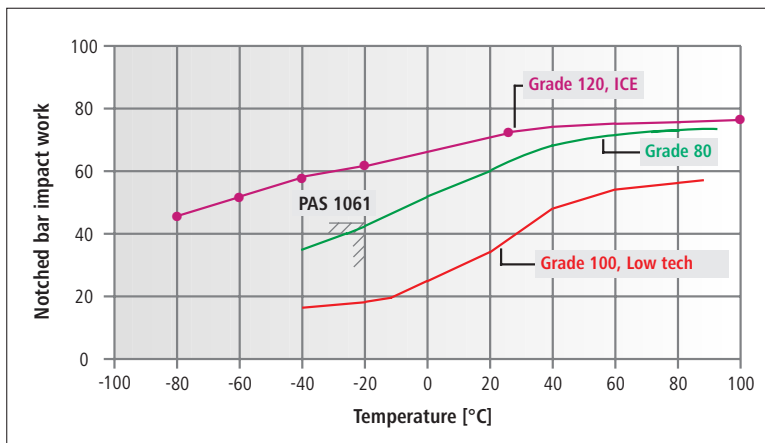


When it's sharp edged and rough



The patented material and special RUD ICE-Hardening make the ICE chain ideal in tough demanding applications, especially when used choked around sectional steel or in basket slings. This offers great benefits for the user. The damage on the ICE chain caused by the sharp edge is reduced considerably compared with a chain with a lower strength.

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



Notched bar impact testing

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 very important at extreme strains.

Overheating indicator

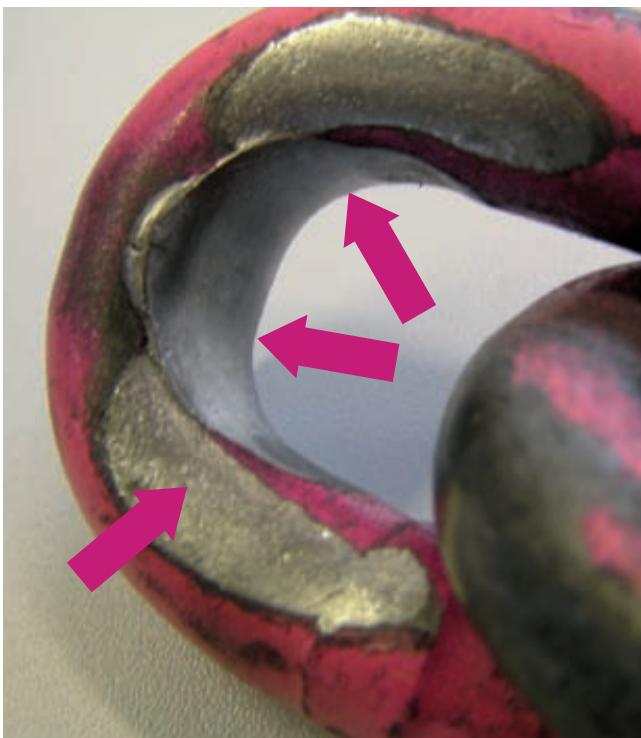
EP 677681 (European Patent)



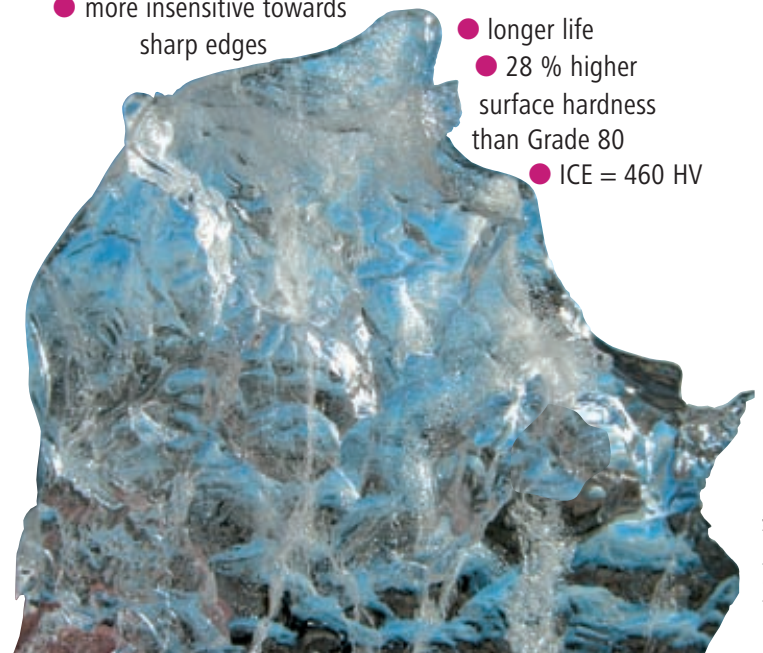
The special ICE-Pink-Powder Coating shows the effects of temperature in which the chain can be safely used. It is prohibited to use the ICE-Pink chain in temperatures of more than 300°C. This is clearly displayed by ICE-Pink colour turning brown-black.

The ICE-Chains must be taken out of service or sent back to the manufacturer for maintenance!

Longer life due to special heat treatment and patented material



- higher abrasion toughness
- more insensitive towards sharp edges
- longer life
- 28 % higher surface hardness than Grade 80
- ICE = 460 HV



Subject to technical modifications.

More economic due to practical coupling systems and less components!



Coupling system:

- less stock holding
- less components
- less time of assembly
- less inspection time and components, load and retaining elements.

Assembly

Handling:

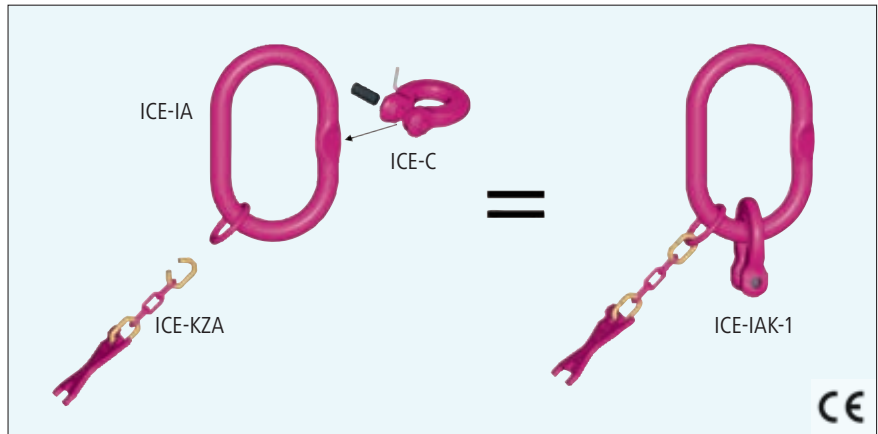
Chains and components of ICE-Grade 120 must not be combined with chains and components of other manufacturers or quality classes.

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 chapter 2.8, EU-Directives 2006/42/EG and manufacturer's manual.



RUD denies any liability for damage that results from disregarding these standards and safety information.

The Modular-Mecano System ICE Grade 120



ICE-Master links



ICE-Shortening Coupler



ICE-Connector

ICE-Connecting items



Shortening hook*



Double shortener*

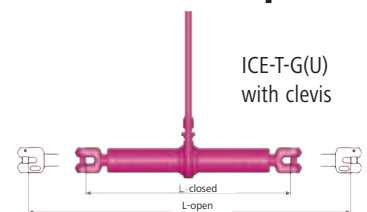


Clevis-shackle*



ICE-Star-Hook

Additional components



* = in preparation

ICE Grade 120 WLL chart [t]

	1-leg	2-leg		3- and 4-leg		endless
Nominal size of sling chain in mm						
Inclination- β	0°	0-45°	> 45-60°	0-45°	> 45-60°	-
Load factor	1	1.4	1	2.1	1.5	1.6
\emptyset 8	3.0	4.25	3.0	6.3	4.5	4.8
\emptyset 10	5.0	7.1	5.0	10.6	7.5	8.0
\emptyset 13	8.0	11.2	8.0	17.0	11.8	12.8
	In case of unsymmetrical loading, the WLL must be reduced by 50 %.					

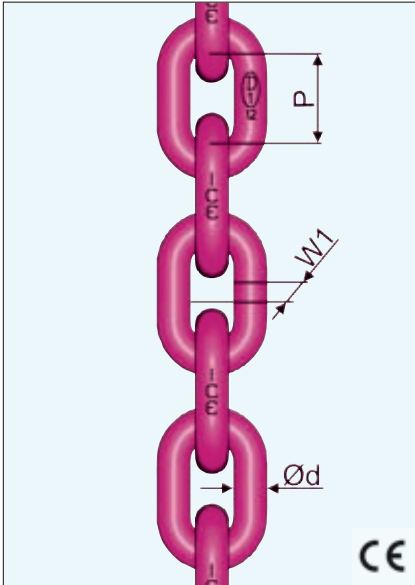
When requiring lower or higher WLL, up to 54 tons, please choose the corresponding chain from our VIP-Program.

	Endless chain				Choke hitch		
Nominal size of sling chain in mm							
	single		double		single	double	
	0-45°	> 45-60°	0-45°	> 45-60°	0°	0-45°	> 45-60°
Load factor	1.1	0.8	1.7	1.2	0.8	1.1	0.8
\emptyset 8	3.3	2.4	5.1	3.6	2.4	3.3	2.4
\emptyset 10	5.5	4.0	8.5	6.0	4.0	5.5	4.0
\emptyset 13	8.8	6.4	13.6	9.6	6.4	8.8	6.4
	In case of unsymmetrical loading, the WLL must be reduced by 50 %.						
Temperature °C	When using sling chains at temperatures beyond 200°C the permissible WLL has to be reduced. Working load in % at chain temperature of:						
	-60 up to +200° C		Over 200 up to 250° C		Over 250 up to 300° C		
	100 %		90 %		60 %		

RUD ICE-120-Chains and components conform fully to the requirements of EN 818 and 1677 for dynamic applications of 20,000 load cycles, with 50 % over load.

The German employer's liability assurance association requires: When there are dynamic applications with high load cycles (permanent operation) the bearing stress corresponding to the Mechanism group 1 Bm (M3 according to DIN EN 818-7) must be reduced, for example, by using a larger chain diameter.

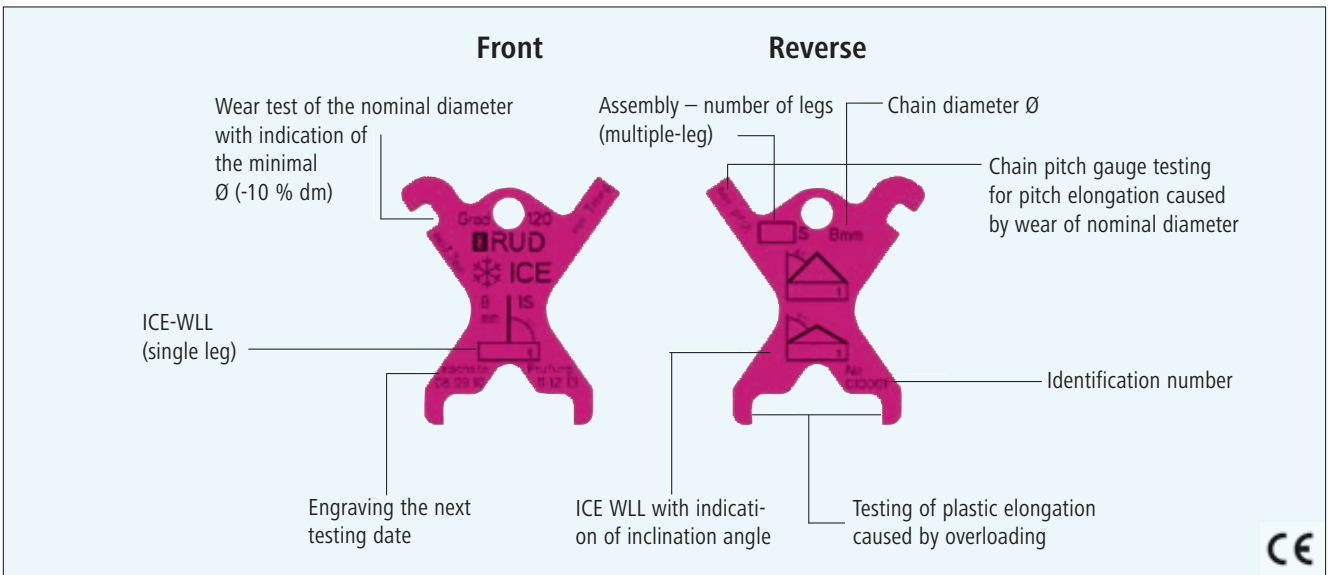
ICE-Round steel link chain in special quality 120



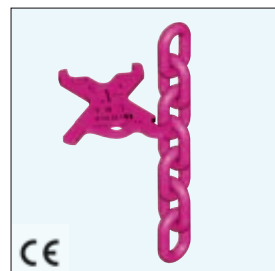
Size d in mm Ø	8	10	13
Pitch P in mm	24	30	39
Inside, width W1 bi min. mm	10.4	13	17
WLL in t	3.0	5.0	8.0
Proof load MPF in kN	73.5	123	196
Breaking load BF min. kN	118	196	314
Weight kg/m	1.66	2.62	4.25
Surface	pink powder coated ICE-Pink		
Order no.	7996116	7996117	7996118
Surface	phosphated in natural black		
Order no.	7996122	7996123	7996124

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

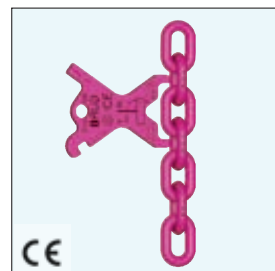
ICE identification tag with an integrated chain testing gauge – ICE-KZA



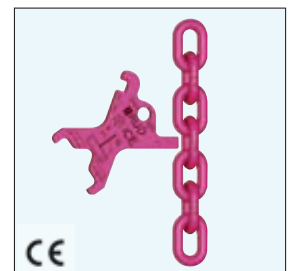
The patented idea!



Testing wear of nominal diameter

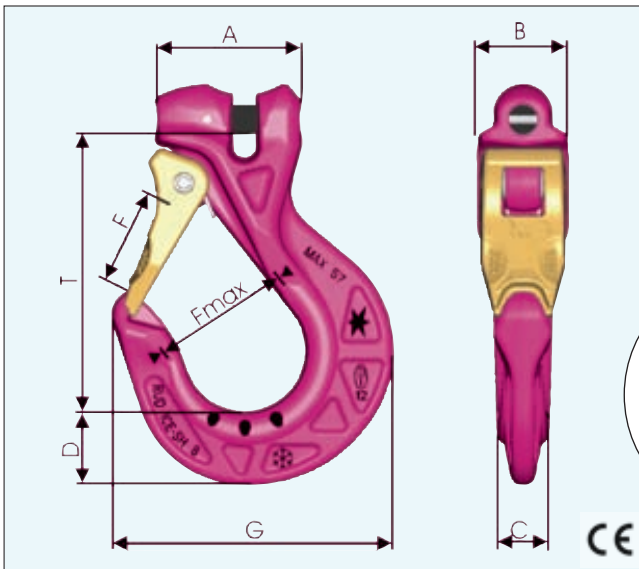


Testing of plastic elongation caused by overload



Testing for pitch elongation caused by wear of nominal diameter

ICE-SH ICE Star Hook



ICE Star Hook – suitable up 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 million fold 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.

All the benefits of the VIP-Cobra-Hook are included and improved:

- 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
- Thickened tip of the hook – prevents incorrect and dangerous use of the hook tip
- 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
- Marker points to check the width of the hook on inspection – (often copied)!
- Patented wear marks that, without measuring, show instantly when the hook has reached the statutory allowable wear limit and must be replaced

Chain	WLL t	Type	A	B	C	D	F	F _{max.}	G	T	kg/pc.	Ref. No.
8	3.0	ICE-SH-8	45	23	20	29	36	58	112	110	1.1	7995254
10	5.0	ICE-SH-10	56	29	25	37	41	66	135	127	1.9	7995255
13	8.0	ICE-SH-13	85	38	31	48	50	80	163	153	3.5	7995256

Safety Set



Chain	Type	kg/pc.	Ref. No.
8	Si-Set ICE-SH-8	0.09	7100301
10	Si-Set ICE-SH-10	0.15	7100302
13	Si-Set ICE-SH-13	0.24	7100303



Consisting of a forged safety latch, triple-coiled corrosion protected 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



ICE-AGH – suitable up to -60°C

Due to its innovative construction, the skeletal design IAGH is up to 30 % lighter than Grade 80 automatic hooks of the same WLL, i.e. the larger size.

The large width of the throat of the hook is the same dimensionally as the Grade 80 hook – **so not everything was reduced!**

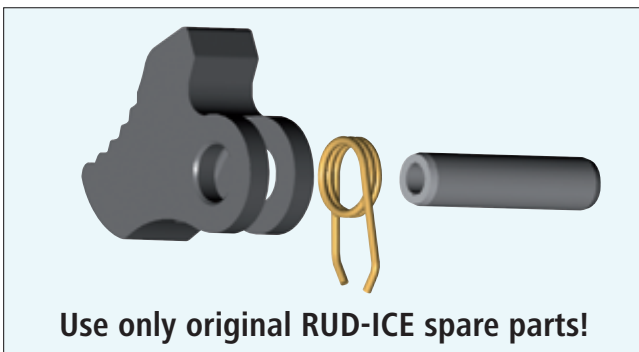


Locking device designed ergonomically, easy to handle with anti-slip surface – no danger of bruise.

- 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 reached the statutory allowed
- Proven marker points to check the width of the hook on inspection – (often copied)
- Wear ribs (dim. "B") which protect the first chain link into the clevis.

Chain	WLL t	Type	A	B	C	D	E	F	F _{max}	T	kg/pc.	Ref. No.
8	3,0	IAGH-8	40	31	29	32	106	47	65	124	1,2	7997691
10	5,0	IAGH-10	50	38	36	40	133	61	81	154	2,4	7997692
13	8,0	IAGH-13	65	49	46	51	173	78	105	200	4,9	7997693

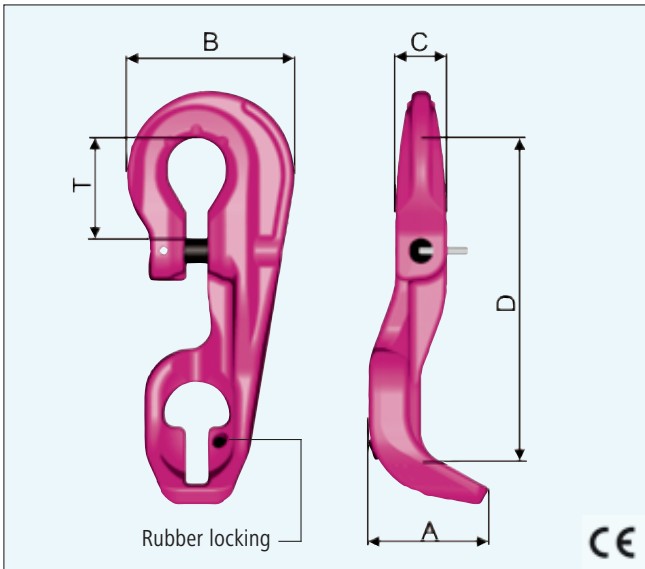
Safety Set



- Only available as a complete set
- Consisting of a locking device, a corrosion protected double-leg spring and a retaining pin
- Easy assembly and removal using only hammer and drift punch

Chain	Type	kg/pc.	Ref. No.
8	Si-Set IAGH-8	in preparation	
10	Si-Set IAGH-10	0.06	7998255
13	Si-Set IAGH-13	in preparation	

ICE-SC ICE Shortening Coupler



Successful optimization of the coupling system. Designed for use with original RUD-ICE-Master links with a 40° inclined flattened section (RUD original feature) to enable easy assembly of the coupling system.

Only **one weight saving designed** component combines a chain connection and fool proof shortening at any required position; **one load and retaining pin**.

Misuse of the pins is not possible. Faster inspection possible due to fewer load bearing components. Perfect pocket design fully supports the shortened chain link – no reduction of WLL in static and dynamic applications.

That means 100 % WLL and at least 20.000 load cycles even when the shortened chain is tested at 50 % overload! – including Polar applications!

Additional rubber locking device prevents an unintentional loosening of the chain.

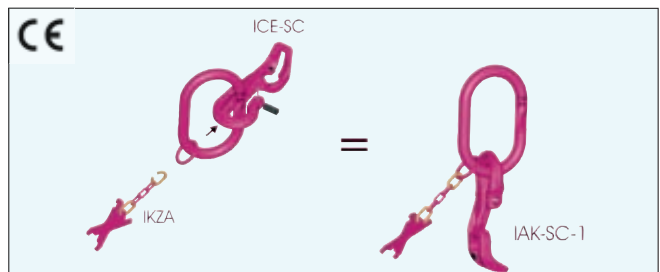
Please observe the user instructions!

Chain	WLL t	Type	A	B	C	D	T	kg/pc.	Ref. No.
8	3.0	ICE-SC-8	54	75	23.5	150	44	1.0	7995754
10	5.0	ICE-SC-10	67	94	29	187	54	1.9	7995755
13	8.0	ICE-SC-13	87	122	38	244	72	4.1	7995756

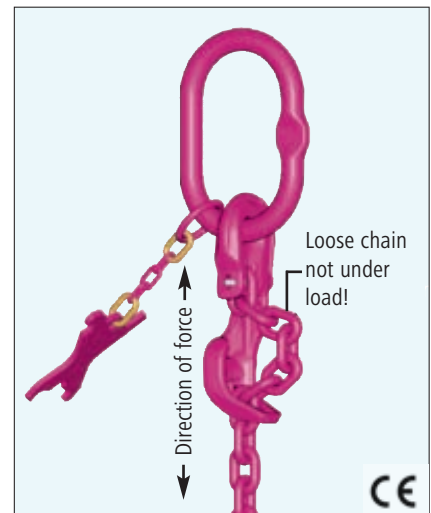
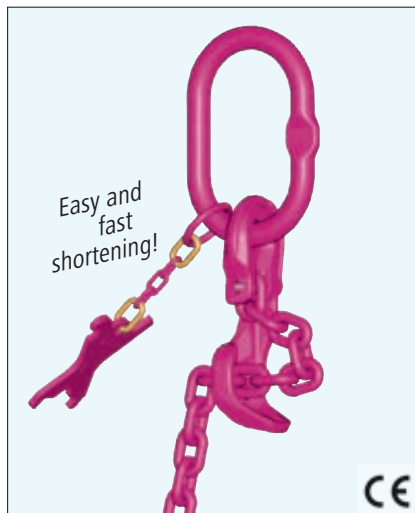
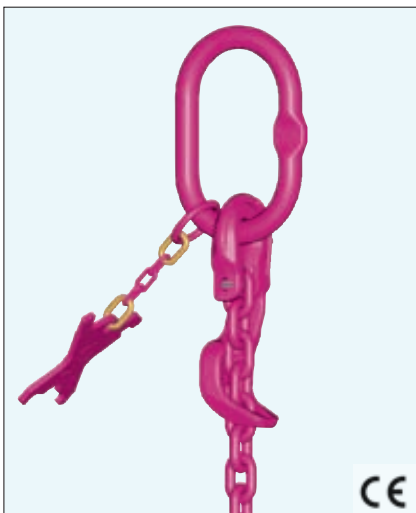
Simple assembly and disassembly

When preparing the coupling arrangement, always check that the right combination is used – number of legs, WLL and chain diameter!

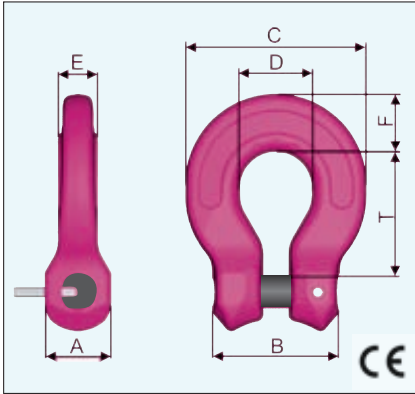
Only purchase from a RUD specialist dealer!



ICE-SC Use



ICE-C ICE-Connector (Connecting ring)



ICE connecting ring for the original RUD-ICE master link with a 40° inclined flattened section to enable easy fitting of the chain connecting element.

Can be used on the chain to attach foreign components such as flanges, lifting clamps and so on – comes complete with ICE load and retaining pin.

Fits on all sizes of RUD-ICE master links.

When preparing the coupling arrangement, always check that the right combination is used – number of legs, WLL and chain diameter!

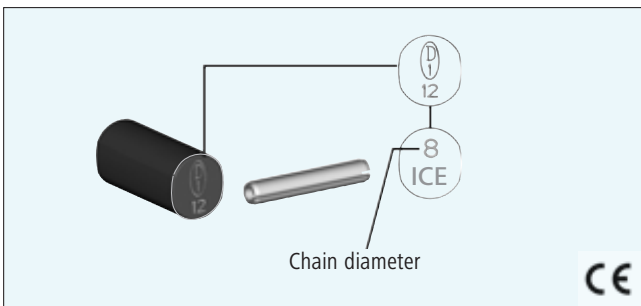
Chain	WLL t	Type	A	B	C	D	E	F	T	kg/pc.	Ref. No.
8	3.0	ICE-C-8	24	45	64	26	14	21	44	0.33	7995465
10	5.0	ICE-C-10	30	56	80	32	18	26	54	0.65	7995466
13	8.0	ICE-C-13	38	73	104	42	23	33	72	1.44	7995467

Spare parts



ICE identification tag with integrated testing gauge (without WLL stamp)

Chain	Type	Ref. No.
8	IKZA-8	7995552
10	IKZA-10	7995553
13	IKZA-13	7995554



ICE oval G-pin and retaining pin

Chain	Type	Ref. No.
8	IOG-8/Retaining pin 8	7995739
10	IOG-10/Retaining pin 10	7995740
13	IOG-13/Retaining pin 13	7995741

Only available in packs of 10.

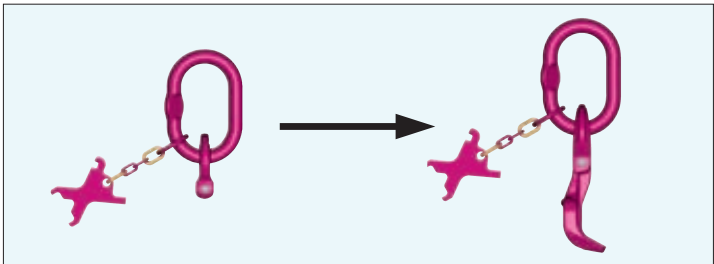
Only use original RUD-ICE parts.

Design of new load pin results in "Fool-proof" system compared with other RUD Grades.

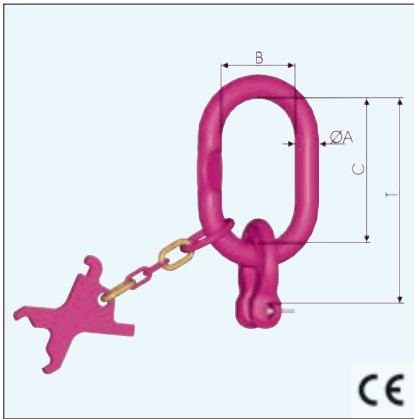
ICE-Master links – Example combinations using ICE Connector

	1-leg	2-leg	3/4-leg
IBK			
IAK			
ISAK	 	 	

Pending upon requirements, the ICE connector can be replaced with the ICE Shortening Coupler.



IBK-1 ICE Master link without shortener, 1-leg – for smaller hooks

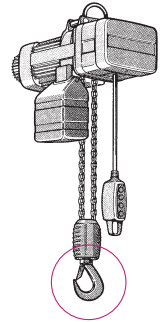


IBK-1 Master link complete with preassembled ICE-Connector.
The ICE load and retaining pins are preassembled.

Delivered complete with a flexible, 1-leg identification tag with integrated testing gauge.

Can also be delivered as end link (IA-1) – without identification tag.

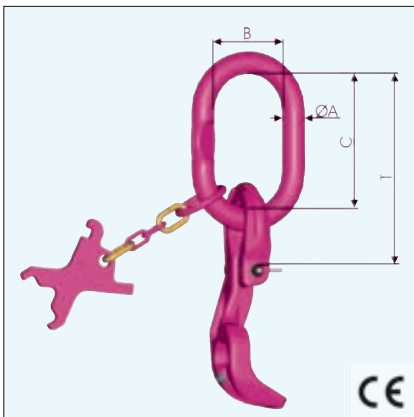
The internal width is sufficient for high tensile hoist hooks.



Chain	WLL t	Type	Ø A	B	C	T	kg/pc.	Ref. No.
8	3.0	IBK-1-8 (IB 1-8)	18	60	110	154	1.3 (1.1)	7995715 *(7996139)
10	5.0	IBK-1-10 (IB 1-10)	22	65	140	194	2.2 (2.0)	7995716 *(7996140)
13	8.0	IBK-1-13 (IB 1-13)	26	75	135	207	3.7 (3.3)	7995717 *(7996141)

*Ref.-Numbers in (.....) for End-links

IBK-SC-1 ICE Master link with shortener 1-leg – for smaller hooks

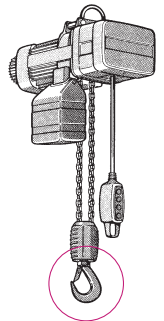


IBK-SC-1 Master link complete with preassembled ICE-Shortening Coupler.
Easy shortening of the sling chain, no reduction of the WLL.

Additional rubber locking device prevents an unintentional loosening of the chain.

Only **one load and retaining pin** necessary (preassembled).

Delivered complete with a flexible, 1-leg identification tag with integrated testing gauge.



Chain	WLL t	Type	Ø A	B	C	T	kg/pc.	Ref. No.
8	3.0	IBK-SC-1-8	18	60	110	154	1.8	7995766
10	5.0	IBK-SC-1-10	22	65	140	194	3.3	7995767
13	8.0	IBK-SC-1-13	26	75	135	207	6.3	7995768



ICE-IB 1/2-8 7995076
ICE-IB 1/2-10 7995077
ICE-IB 1/2-13 7995078

ICE-IB-1/2 leg master link without KZA-identification tag



ICE-C-8 7995465
ICE-C-10 7995466
ICE-C-13 7995467

ICE-Connector



ICE-SC-8 7995754
ICE-SC-10 7995755
ICE-SC-13 7995756

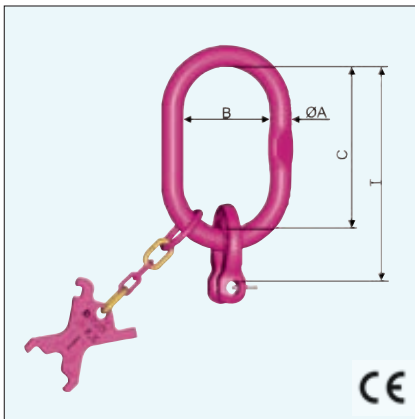
ICE-Shortening Coupler



ICE-KZA-8-1 7996286
ICE-KZA-10-1 7996289
ICE-KZA-13-1 7996293

1-leg identification tag with integrated testing gauge

IAK-1 ICE Master link without shortener, 1-leg – for standard crane hooks



IAK-1 Master link complete with preassembled ICE-Connector.
The ICE load and retaining pins are preassembled

Delivered complete with a flexible, 1-leg identification tag with integrated testing gauge.

Can also be delivered as end link (IA-1) – without identification tag.

Measurements correspond to the master link A according to DIN 5688 but one chain diameter larger.

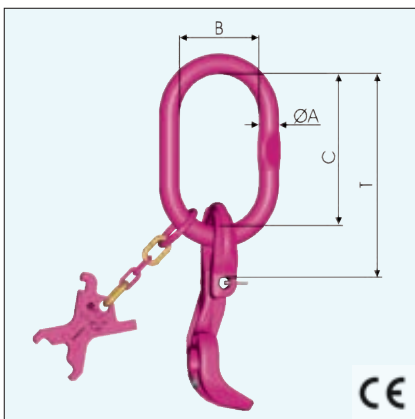
Master link – suitable for crane hooks No. DIN 15401

Size:	8 –	No. 5
	10 –	No. 6
	13 –	No. 8

Chain	WLL t	Type	Ø A	B	C	T	kg/pc.	Ref. No.
8	3.0	IAK-1-8 (IA 1-8)	18	75	135	179	1.4 (1.2)	7995561 *(7996133)
10	5.0	IAK-1-10 (IA 1-10/2-8)	22	90	160	214	2.5 (2.2)	7995562 *(7996134)
13	8.0	IAK-1-13 (IA 1-13/2-10)	26	100	180	252	4.2 (3.9)	7995563 *(7996135)

*Ref-Numbers in (.....) for End-links

IAK-SC-1 ICE Master link with shortener, 1-leg – for standard crane hooks



IAK-SC-1 Master link complete with preassembled ICE-Shortening Coupler.
Easy shortening of the sling chain, no reduction of the WLL.

Additional rubber locking device prevents an unintentional loosening of the chain.

Only **one load and retaining pin** necessary (preassembled).

Delivered complete with a flexible, 1-leg identification tag with integrated testing gauge.

Measurements correspond to the master link A according to DIN 5688 but one chain diameter larger.

Master link – suitable for crane hooks No. DIN 15401

Size:	8 –	No. 5
	10 –	No. 6
	13 –	No. 8

Chain	WLL t	Type	Ø A	B	C	T	kg/pc.	Ref. No.
8	3.0	IAK-SC-1-8	18	75	135	179	2.0	7995757
10	5.0	IAK-SC-1-10	22	90	160	214	3.6	7995758
13	8.0	IAK-SC-1-13	26	100	180	252	6.7	7995759



ICE-IA-1-8 7995061
ICE-IA-1-10/2-8 7995066
ICE-IA-1-13/2-10 7995067

ICE-IB-1/2 leg master link without KZA-identification tag



ICE-C-8 7995465
ICE-C-10 7995466
ICE-C-13 7995467

ICE-Connector



ICE-SC-8 7995754
ICE-SC-10 7995755
ICE-SC-13 7995756

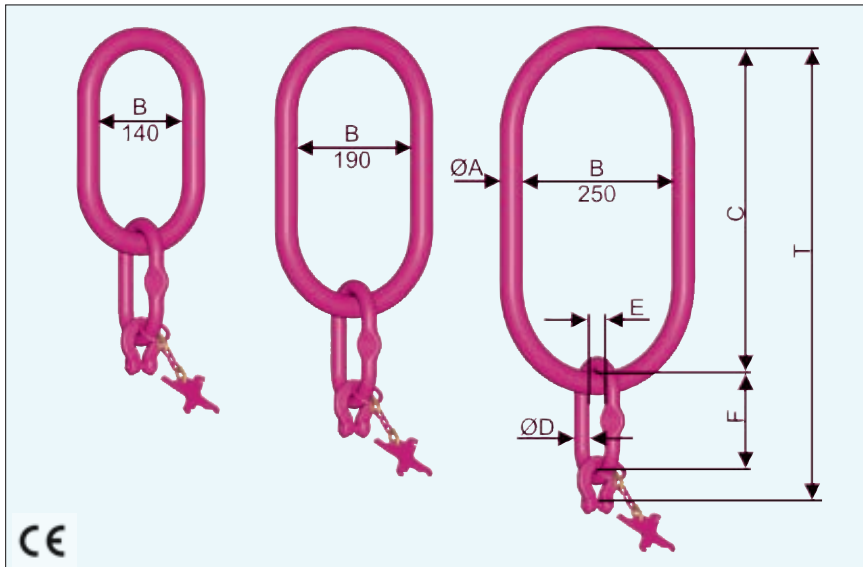
ICE-Shortening Coupler



ICE-KZA-8-1 7996286
ICE-KZA-10-1 7996289
ICE-KZA-13-1 7996293

1-leg identification tag with integrated testing gauge

ISAK-1 ICE Special master link without shortener 1-leg



ISAK-1-Master link with a preassembled ICE-Connector on the intermediate link.

Delivered complete with a flexible, 1-leg identification tag with integrated testing gauge.

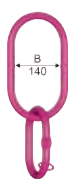
Due to the larger internal width dimension "B", improper use (according to BGR 500, 2.8) is eliminated and crane hook wear is minimized.

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	3.0	ISAK-1-8/140	22	140	260	18	60	110	414	4.2	7996025
10	5.0	ISAK-1-10/140	26	140	260	22	65	140	455	6.7	7996026
13	8.0	ISAK-1-13/140	32	140	260	26	75	135	467	9.8	7996027

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	3.0	ISAK-1-8/190	26	190	350	18	60	110	504	6.3	7996028
10	5.0	ISAK-1-10/190	32	190	350	22	65	140	545	10.4	7996029
13	8.0	ISAK-1-13/190	36	190	350	26	75	135	557	14.3	7996030

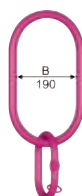
Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	3.0	ISAK-1-8/250	36	250	460	18	60	110	614	13.1	7996031
10	5.0	ISAK-1-10/250	36	250	460	22	65	140	655	14.7	7996032
13	8.0	ISAK-1-13/250	36	250	460	26	75	135	667	16.8	7996033

ISAK – size B = 140 ...suitable for use on crane hooks according to DIN 15401 up to... No. 16
 ISAK – size B = 190 ...suitable for use on crane hooks according to DIN 15401 up to... No. 32
 ISAK – size B = 250 ...suitable for use on crane hooks according to DIN 15401 up to... No. 50



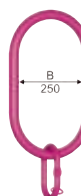
ICE-ISA-1-8/140 7996411
 ICE-ISA-1-10/140 7996414
 ICE-ISA-1-13/140 7996417

ICE-Special master link without KZA-identification tag



ICE-ISA-1-8/190 7996412
 ICE-ISA-1-10/190 7996415
 ICE-ISA-1-13/190 7996418

ICE-Special master link without KZA-identification tag



ICE-ISA-1-8/250 7996413
 ICE-ISA-1-10/250 7996416
 ICE-ISA-1-13/250 7996419

ICE-Special master link without KZA-identification tag



ICE-C-8 7995465
 ICE-C-10 7995466
 ICE-C-13 7995467

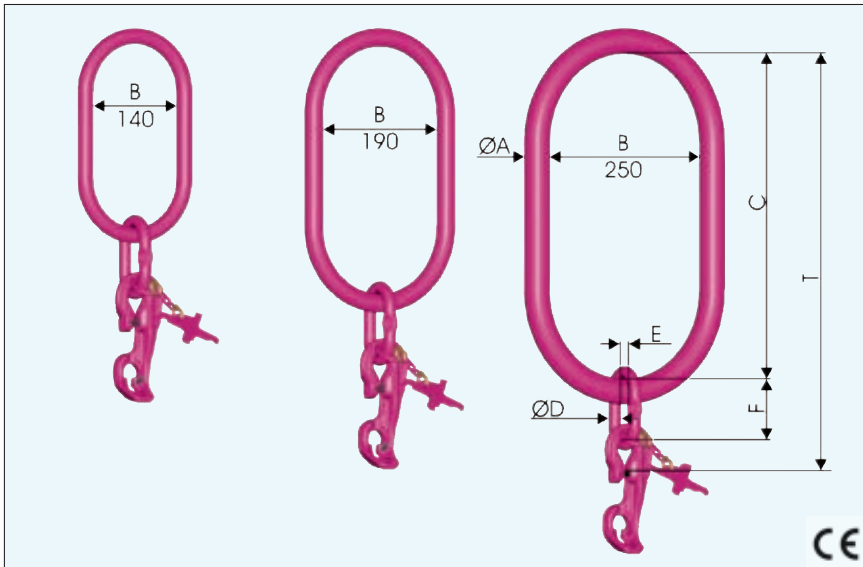
ICE-Connector



ICE-KZA-8-1 7996286
 ICE-KZA-10-1 7996289
 ICE-KZA-13-1 7996293

1-leg identification tag with integrated testing gauge

ISAK-SC-1 ICE Special master link with shortener 1-leg



ISAK-1-Master link with a preassembled ICE-Shortening coupler on the intermediate link. Easy shortening of the sling chain, no reduction of the WLL.

Additional rubber locking device prevents an unintentional loosening of the chain.

Only one load and retaining pin necessary (preassembled).

Delivered complete with a flexible, 1-leg identification tag with integrated testing gauge.

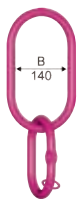
Due to the larger internal width dimension "B", improper use (according to BGR 500, 2.8) is eliminated and crane hook wear is minimized.

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	3.0	ISAK-SC-1-8/140	22	140	260	18	60	110	414	4.7	7996063
10	5.0	ISAK-SC-1-10/140	26	140	260	22	65	140	455	7.8	7996064
13	8.0	ISAK-SC-1-13/140	32	140	260	26	75	135	467	12.3	7996065

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	3.0	ISAK-SC-1-8/190	26	190	350	18	60	110	504	6.9	7996066
10	5.0	ISAK-SC-1-10/190	32	190	350	22	65	140	545	11.5	7996067
13	8.0	ISAK-SC-1-13/190	36	190	350	26	75	135	557	16.7	7996068

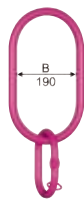
Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	3.0	ISAK-SC-1-8/250	36	250	460	18	60	110	614	13.7	7996069
10	5.0	ISAK-SC-1-10/250	36	250	460	22	65	140	655	15.8	7996070
13	8.0	ISAK-SC-1-13/250	36	250	460	26	75	135	667	19.2	7996071

ISAK – size B = 140 ...suitable for use on crane hooks according to DIN 15401 up to... No. 16
 ISAK – size B = 190 ...suitable for use on crane hooks according to DIN 15401 up to... No. 32
 ISAK – size B = 250 ...suitable for use on crane hooks according to DIN 15401 up to... No. 50



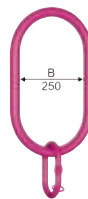
ICE-ISA-1-8/140 7996411
 ICE-ISA-1-10/140 7996414
 ICE-ISA-1-13/140 7996417

ICE-Special master link without KZA-identification tag



ICE-ISA-1-8/190 7996412
 ICE-ISA-1-10/190 7996415
 ICE-ISA-1-13/190 7996418

ICE-Special master link without KZA-identification tag



ICE-ISA-1-8/250 7996413
 ICE-ISA-1-10/250 7996416
 ICE-ISA-1-13/250 7996419

ICE-Special master link without KZA-identification tag



ICE-SC-8 7995754
 ICE-SC-10 7995755
 ICE-SC-13 7995756

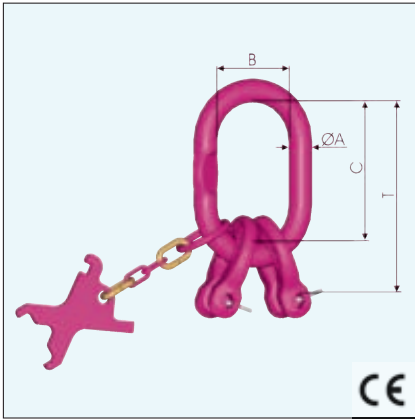
ICE-Shortening Coupler



ICE-KZA-8-1 7996286
 ICE-KZA-10-1 7996289
 ICE-KZA-13-1 7996293

1-leg identification tag with integrated testing gauge

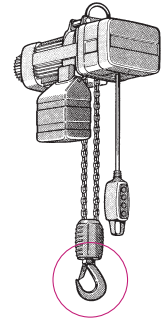
IBK-2 ICE Master link without shortener, 2-leg – for smaller hooks



IBK-2 Master link complete with two preassembled ICE-Connectors.
The ICE load and retaining pins are preassembled

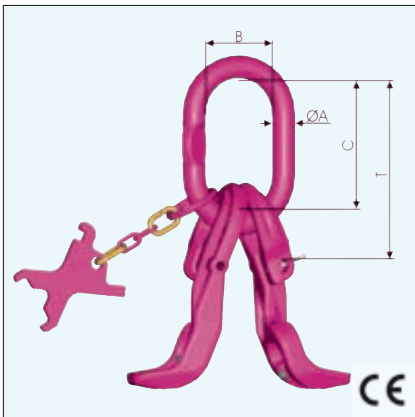
Delivered complete with a flexible, 2-leg identification tag with integrated testing gauge.

The internal width is sufficient for high tensile hoist hooks.



Chain	WLL t	Type	Ø A	B	C	T	kg/pc.	Ref. No.
8	4.25/3.0	IBK-2-8	18	60	110	154	1.6	7995718
10	7.1/5.0	IBK-2-10	22	65	140	194	2.1	7995719
13	11.2/8.0	IBK-2-13	26	75	135	207	5.1	7995720

IBK-SC-2 ICE Master link with shortener 2-leg – for smaller hooks

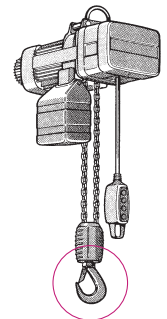


IBK-SC-2 Master link complete with preassembled ICE-Shortening Coupler.
Easy shortening of the sling chain, no reduction of the WLL.

Additional rubber locking device prevents an unintentional loosening of the chain.

Only **one load and retaining pin** necessary (preassembled).

Delivered complete with a flexible, 2-leg identification tag with integrated testing gauge.



Chain	WLL t	Type	Ø A	B	C	T	kg/pc.	Ref. No.
8	4.25/3.0	IBK-SC-2-8	18	60	110	154	2.7	7995769
10	7.1/5.0	IBK-SC-2-10	22	65	140	194	4.5	7995770
13	11.2/8.0	IBK-SC-2-13	26	75	135	207	10.2	7995771



ICE-IB 1/2-8	7995076
ICE-IB 1/2-10	7995077
ICE-IB 1/2-13	7995078

ICE-IB-1/2 leg master link without KZA-identification tag



ICE-C-8	7995465
ICE-C-10	7995466
ICE-C-13	7995467

ICE-Connector



ICE-SC-8	7995754
ICE-SC-10	7995755
ICE-SC-13	7995756

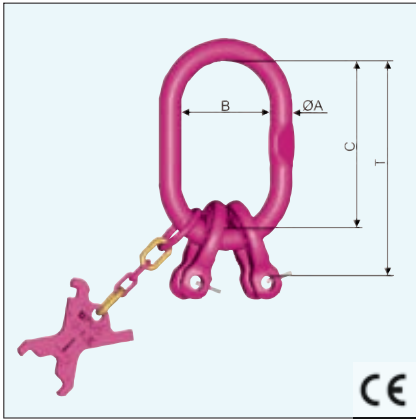
ICE-Shortening Coupler



ICE-KZA-8-2	7996287
ICE-KZA-10-2	7996290
ICE-KZA-13-2	7996294

2-leg identification tag with integrated testing gauge

IAK-2 ICE Master link without shortener, 2-leg – for standard crane hooks



IAK-2 Master link complete with preassembled ICE-Connector.
The ICE load and retaining pins are preassembled

Delivered complete with a flexible, 2-leg identification tag with integrated testing gauge.

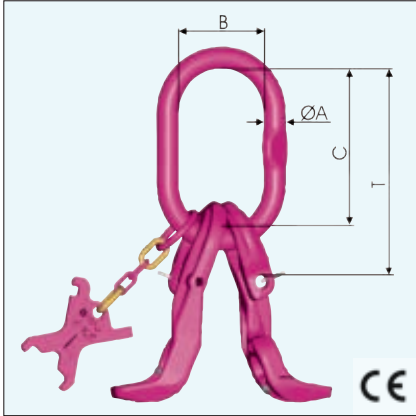
Measurements correspond to the master link A according to DIN 5688 but one chain diameter larger.

Master link – suitable for crane hooks
No. DIN 15401

Size:	8 –	No. 6
	10 –	No. 8
	13 –	No. 10

Chain	WLL t	Type	Ø A	B	C	T	kg/pc.	Ref. No.
8	4.25/3.0	IAK-2-8	22	90	160	204	2.4	7995565
10	7.1/5.0	IAK-2-10	26	100	180	234	4.0	7995566
13	11.2/8.0	IAK-2-13	32	110	200	272	7.5	7995567

IAK-SC-2 ICE Master link with shortener, 2-leg – for standard crane hooks



IAK-SC-2 Master link complete with preassembled ICE-Shortening Coupler.
Easy shortening of the sling chain, no reduction of the WLL.

Additional rubber locking device prevents an unintentional loosening of the chain.

Only one load and retaining pin necessary (preassembled).

Delivered complete with a flexible, 2-leg identification tag with integrated testing gauge.

Measurements correspond to the master link A according to DIN 5688 but one chain diameter larger.

Master link – suitable for crane hooks
No. DIN 15401

Size:	8 –	No. 6
	10 –	No. 8
	13 –	No. 10

Chain	WLL t	Type	Ø A	B	C	T	kg/pc.	Ref. No.
8	4.25/3.0	IAK-SC-2-8	22	90	160	204	3.6	7995760
10	7.1/5.0	IAK-SC-2-10	26	100	180	234	6.3	7995761
13	11.2/8.0	IAK-SC-2-13	32	110	200	272	12.4	7995762



ICE-IA-2-8/1-10 7995066
ICE-IA-2-10/1-13 7995067
ICE-IA-2-13 7995068

ICE-IB-1/2 leg master link without KZA-identification tag



ICE-C-8 7995465
ICE-C-10 7995466
ICE-C-13 7995467

ICE-Connector



ICE-SC-8 7995754
ICE-SC-10 7995755
ICE-SC-13 7995756

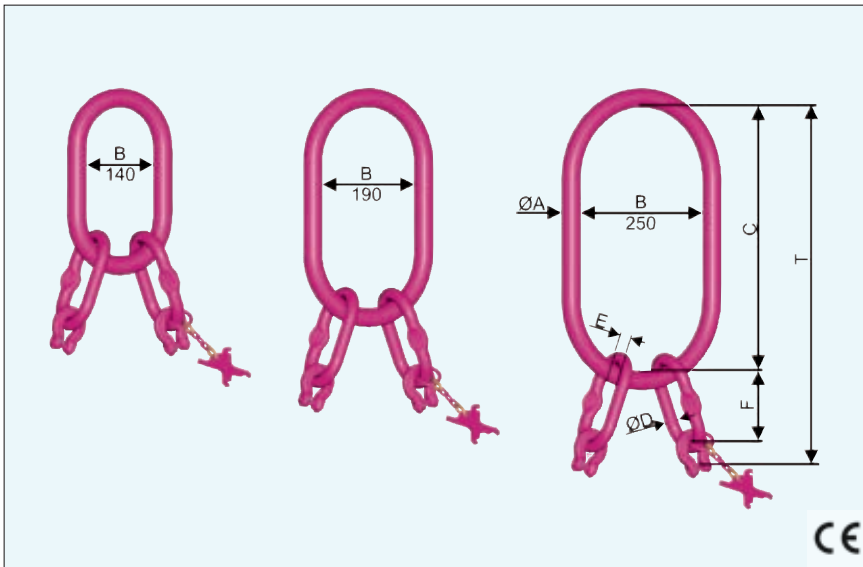
ICE-Shortening Coupler



ICE-KZA-8-2 7996287
ICE-KZA-10-2 7996290
ICE-KZA-13-2 7996294

2-leg identification tag with integrated testing gauge

ISAK-2 ICE Special master link without shortener 2-leg



ISAK-2-Master link with 2 preassembled ICE-Connectors on the intermediate link.

Delivered complete with a flexible, 2-leg identification tag with integrated testing gauge.

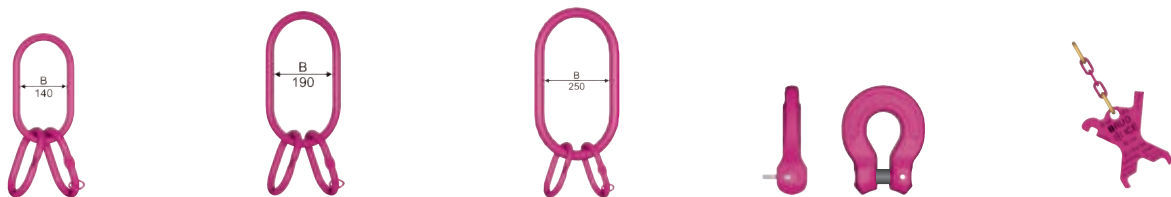
Due to the larger internal width dimension "B", improper use (according to BGR 500, 2.8) is eliminated and crane hook wear is minimized.

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	4.25/3.0	ISAK-2-8/140	22	140	260	18	60	110	414	4.5	7996037
10	7.1/5.0	ISAK-2-10/140	26	140	260	22	65	140	455	7.4	7996038
13	11.2/8.0	ISAK-2-13/140	32	140	260	26	75	135	467	11.3	7996039

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	4.25/3.0	ISAK-2-8/190	26	190	350	18	60	110	504	6.6	7996040
10	7.1/5.0	ISAK-2-10/190	32	190	350	22	65	140	545	10.1	7996041
13	11.2/8.0	ISAK-2-13/190	36	190	350	26	75	135	557	15.8	7996042

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	4.25/3.0	ISAK-2-8/250	36	250	460	18	60	110	614	13.5	7996043
10	7.1/5.0	ISAK-2-10/250	36	250	460	22	65	140	655	15.4	7996044
13	11.2/8.0	ISAK-2-13/250	36	250	460	26	75	135	667	18.2	7996045

ISAK – size **B** = 140 ...suitable for use on crane hooks according to DIN 15401 up to... No. 16
 ISAK – size **B** = 190 ...suitable for use on crane hooks according to DIN 15401 up to... No. 32
 ISAK – size **B** = 250 ...suitable for use on crane hooks according to DIN 15401 up to... No. 50



ICE-ISA-2-8/140 7996008
 ICE-ISA-2-10/140 7996011
 ICE-ISA-2-13/140 7996014

ICE-Special master link without KZA-identification tag

ICE-ISA-2-8/190 7996009
 ICE-ISA-2-10/190 7996012
 ICE-ISA-2-13/190 7996015

ICE-Special master link without KZA-identification tag

ICE-ISA-2-8/250 7996019
 ICE-ISA-2-10/250 7996022
 ICE-ISA-2-13/250 7996016

ICE-Special master link without KZA-identification tag

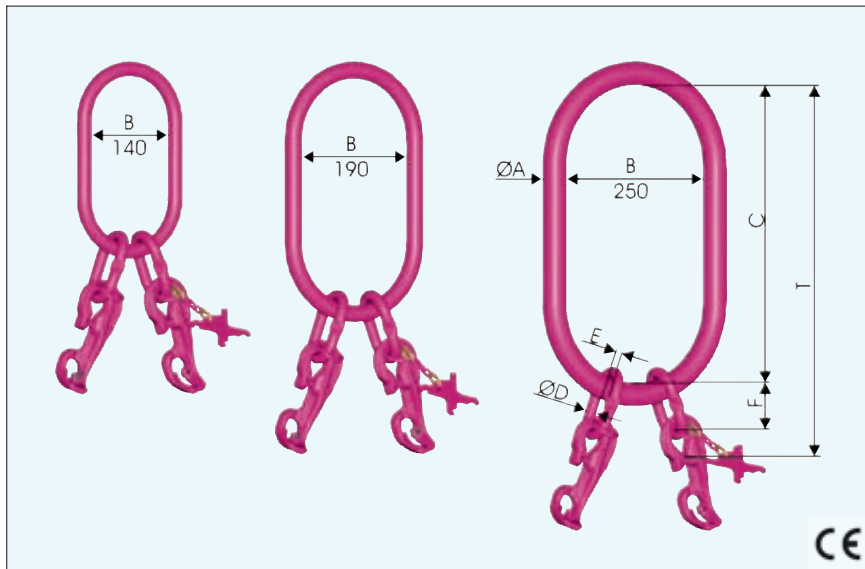
ICE-C-8 7995465
 ICE-C-10 7996466
 ICE-C-13 7996467

ICE-Connector

ICE-KZA-8-2 7996287
 ICE-KZA-10-2 7996290
 ICE-KZA-13-2 7996294

2-leg identification tag with integrated testing gauge

ISAK-SC-2 ICE Special master link with shortener 2-leg



ISAK-SC-2-Master link with 2 preassembled ICE-Shortening coupler on the intermediate link.

Easy shortening of the sling chain, no reduction of the WLL.

Additional rubber locking device prevents an unintentional loosening of the chain.

Only one load and retaining pin necessary (preassembled).

Due to the larger internal width dimension "B", improper use (according to BGR 500, 2.8) is eliminated and crane hook wear is minimized.

Delivered complete with a flexible, 2-leg identification tag with integrated testing gauge.

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	4.25/3.0	ISAK-SC-2-8/140	22	140	260	18	60	110	414	5.7	7996072
10	7.1/5.0	ISAK-SC-2-10/140	26	140	260	22	65	140	455	9.7	7996073
13	11.2/8.0	ISAK-SC-2-13/140	32	140	260	26	75	135	467	16.2	7996074

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	4.25/3.0	ISAK-SC-2-8/190	26	190	350	18	60	110	504	7.8	7996075
10	7.1/5.0	ISAK-SC-2-10/190	32	190	350	22	65	140	545	13.3	7996076
13	11.2/8.0	ISAK-SC-2-13/190	36	190	350	26	75	135	557	20.6	7996077

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	4.25/3.0	ISAK-SC-2-8/250	36	250	460	18	60	110	614	14.5	7996078
10	7.1/5.0	ISAK-SC-2-10/250	36	250	460	22	65	140	655	17.6	7996079
13	11.2/8.0	ISAK-SC-2-13/250	36	250	460	26	75	135	667	23.1	7996080

ISAK – size **B** = 140 ...suitable for use on crane hooks according to DIN 15401 up to... No. 16
 ISAK – size **B** = 190 ...suitable for use on crane hooks according to DIN 15401 up to... No. 32
 ISAK – size **B** = 250 ...suitable for use on crane hooks according to DIN 15401 up to... No. 50



ICE-ISA-2-8/140 7996008
 ICE-ISA-2-10/140 7996011
 ICE-ISA-2-13/140 7996014

ICE-Special master link
without KZA-
identification tag

ICE-ISA-2-8/190 7996009
 ICE-ISA-2-10/190 7996012
 ICE-ISA-2-13/190 7996015

ICE-Special master link
without KZA-
identification tag

ICE-ISA-2-8/250 7996019
 ICE-ISA-2-10/250 7996022
 ICE-ISA-2-13/250 7996016

ICE-Special master link
without KZA-
identification tag

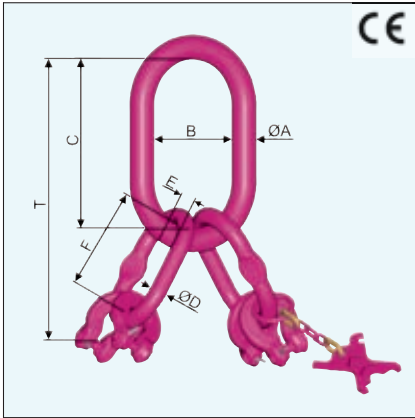
ICE-SC-8 7995754
 ICE-SC-10 7995755
 ICE-SC-13 7995756

ICE-Shortening Coupler

ICE-KZA-8-2 7996287
 ICE-KZA-10-2 7996290
 ICE-KZA-13-2 7996294

2-leg
identification tag with
integrated testing gauge

IAK-3/4 ICE Master link without shortener, 3 or 4-leg – for standard crane hooks



IAK-3/4 Master link complete with 3 or 4 pre-assembled ICE-Connectors.

The ICE load and retaining pins are preassembled

Delivered complete with a flexible, 3/4-leg identification tag with integrated testing gauge.

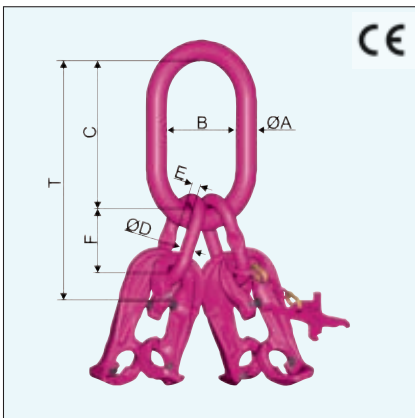
Measurements correspond to the master link A according to DIN 5688 but one chain diameter larger.

Master link – suitable for crane hooks No. DIN 15401

Size:	8 –	No. 8
	10 –	No.10
	13 –	No.16

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	6.3/4.5	IAK-4-8 (IAK-3-8)	26	100	180	18	60	110	334	5.4 (5.0)	7995568 (7996321)
10	10.6/7.5	IAK-4-10 (IAK-3-10)	32	110	200	22	65	140	394	9.7 (9.0)	7995569 (7996322)
13	17.0/11.8	IAK-4-13 (IAK-3-13)	36	140	260	26	75	135	467	16.6 (15.1)	7995570 (7996323)

IAK-SC-3/4 ICE Master link with shortener 3 or 4-leg – for smaller hooks



IBK-SC-3/4 Master link complete with pre-assembled ICE-Shortening Coupler.

Easy shortening of the sling chain, no reduction of the WLL.

Additional rubber locking device prevents an unintentional loosening of the chain.

Only one load and retaining pin necessary (preassembled).

Delivered complete with a flexible, 3/4-leg identification tag with integrated testing gauge.

Master link – suitable for crane hooks No. DIN 15401

Size:	8 –	No. 8
	10 –	No.10
	13 –	No.16

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	6.3/4.5	IAK-SC-4-8 (IAK-SC-3-8)	26	100	180	18	60	110	334	7.7 (6.8)	7995763 (7996324)
10	10.6/7.5	IAK-SC-4-10 (IAK-SC-3-10)	32	110	200	22	65	140	394	14.3 (12.5)	7995764 (7996325)
13	17.0/11.8	IAK-SC-4-13 (IAK-SC-3-13)	36	140	260	26	75	135	467	26.8 (22.8)	7995765 (7996326)



ICE-IA-3/4-8 7995071
ICE-IA-3/4-10 7995072
ICE-IA-3/4-13 7995073

ICE-3/4 led master link without KZA-identification tag



ICE-C-8 7995465
ICE-C-10 7995466
ICE-C-13 7995467

ICE-Connector



ICE-SC-8 7995754
ICE-SC-10 7995755
ICE-SC-13 7995756

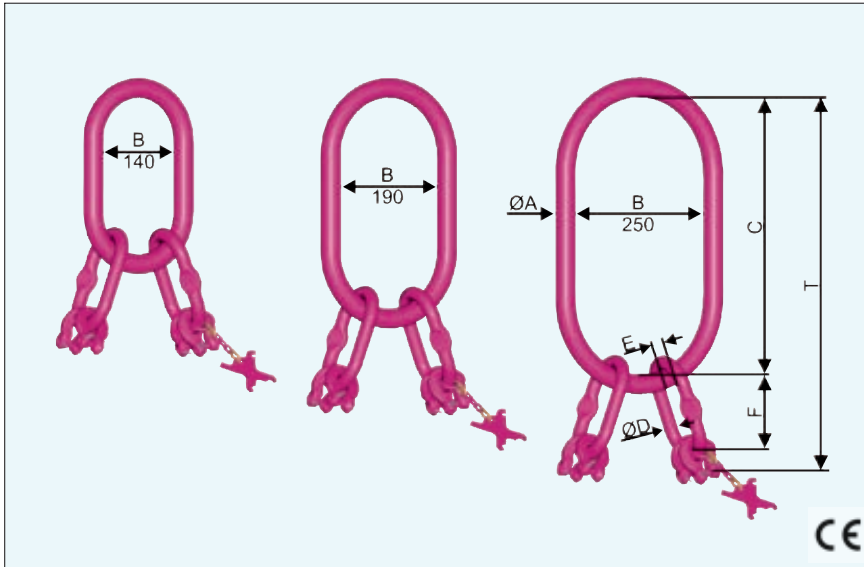
ICE-Shortening Coupler



ICE-KZA-8-3/4 7996288
ICE-KZA-10-3/4 7996291
ICE-KZA-13-3/4 7996295

3/4-leg identification tag with integrated testing gauge

ISAK-3/4 ICE Special master link without shortener 3 or 4-leg



ISAK-3/4-Master link with 3 or 4 preassembled ICE-Connectors on the intermediate link.

Delivered complete with a flexible, 3/4-leg identification tag with integrated testing gauge.

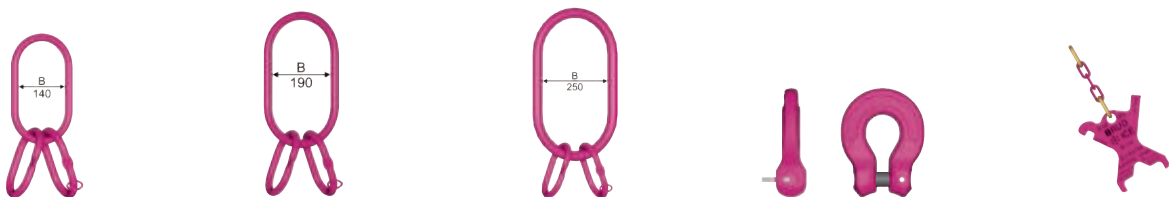
Due to the larger internal width dimension "B", improper use (according to BGR 500, 2.8) is eliminated and crane hook wear is minimized.

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	6.3/4.5	ISAK-4-8/140 (ISAK-3-8/140)	26	140	260	18	60	110	414	6.1 (5.8)	7996048 (7996303)
10	10.6/7.5	ISAK-4-10/140 (ISAK-3-10/140)	32	140	260	22	65	140	455	10.7 (10.1)	7996049 (7996304)

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	6.3/4.5	ISAK-4-8/190 (ISAK-3-8/190)	32	190	350	18	60	110	504	9.8 (9.5)	7996050 (7996305)
10	10.6/7.5	ISAK-4-10/190 (ISAK-3-10/190)	36	190	350	22	65	140	545	14.2 (13.5)	7996051 (7996306)
13	17.0/11.8	ISAK-4-13/190 (ISAK-3-13/190)	40	190	350	26	75	135	557	20.7 (19.3)	7996052 (7996308)

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	6.3/4.5	ISAK-4-8/250 (ISAK-3-8/250)	36	250	460	18	60	110	614	14.1 (13.8)	7996053 (7996309)
10	10.6/7.5	ISAK-4-10/250 (ISAK-3-10/250)	36	250	460	22	65	140	655	16.6 (16.0)	7996054 (7996310)
13	17.0/11.8	ISAK-4-13/250 (ISAK-3-13/250)	40	250	460	26	75	135	667	23.7 (22.2)	7996055 (7996311)

ISAK – size B = 140 ...suitable for use on crane hooks according to DIN 15401 up to... No. 16
 ISAK – size B = 190 ...suitable for use on crane hooks according to DIN 15401 up to... No. 32
 ISAK – size B = 250 ...suitable for use on crane hooks according to DIN 15401 up to... No. 50



ICE-ISA-3/4-8/140 7996017	ICE-ISA-3/4-8/190 7996018	ICE-ISA-3/4-8/250 7996019	ICE-C-8 7995465	ICE-KZA-8-3/4 7996288
ICE-ISA-3/4-10/140 7996020	ICE-ISA-3/4-10/190 7996021	ICE-ISA-3/4-10/250 7996022	ICE-C-10 7995466	ICE-KZA-10-3/4 7996291
	ICE-ISA-3/4-13/190 7996023	ICE-ISA-3/4-13/250 7996024	ICE-C-13 7995467	ICE-KZA-13-3/4 7996295

ICE-Special master link without KZA-identification tag

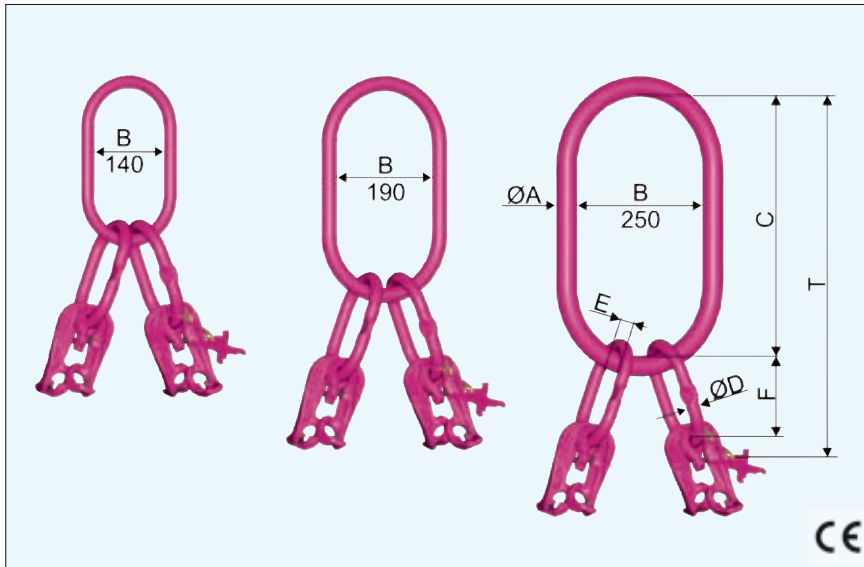
ICE-Special master link without KZA-identification tag

ICE-Special master link without KZA-identification tag

ICE-Connector

3/4-leg identification tag with integrated testing gauge

ISAK-SC-3/4 ICE Special master link with shortener 3 or 4-leg



ISAK-SC-3/4-Master link with 3 or 4 preassembled ICE-Shortening coupler on the intermediate link.

Only **one load and retaining pin** necessary (preassembled).

Easy shortening of the sling chain, no reduction of the WLL. Additional rubber locking device prevents an unintentional loosening of the chain.

Due to the larger internal width dimension "B", improper use (according to BGR 500, 2.8) is eliminated and crane hook wear is minimized.

Delivered complete with a flexible, 3/4-leg identification tag with integrated testing gauge.

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	6.3/4.5	ISAK-SC-4-8/140 (ISAK-SC-3-8/140)	26	140	260	18	60	110	414	8.4 (7.5)	7996081 (7996312)
10	10.6/7.5	ISAK-SC-4-10/140 (ISAK-SC-3-10/140)	32	140	260	22	65	140	455	15.3(13.5)	7996082 (7996313)

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	6.3/4.5	ISAK-SC-4-8/190 (ISAK-SC-3-8/190)	32	190	350	18	60	110	504	12.1 (11.2)	7996083 (7996314)
10	10.6/7.5	ISAK-SC-4-10/190 (ISAK-SC-3-10/190)	36	190	350	22	65	140	545	18.8 (17.0)	7996084 (7996315)
13	17.0/11.8	ISAK-SC-4-13/190 (ISAK-SC-3-13/190)	40	190	350	26	75	135	557	30.6 (26.7)	7996085(7996316)

Chain	WLL t	Type	Ø A	B	C	Ø D	E	F	T	kg/pc.	Ref. No.
8	6.3/4.5	ISAK-SC-4-8/250 (ISAK-SC-3-8/250)	36	250	460	18	60	110	614	14.1 (13.2)	7996086 (7996317)
10	10.6/7.5	ISAK-SC-4-10/250 (ISAK-SC-3-10/250)	36	250	460	22	65	140	655	21.2 (19.4)	7996087 (7996318)
13	17.0/11.8	ISAK-SC-4-13/250 (ISAK-SC-3-13/250)	40	250	460	26	75	135	667	33.6 (29.7)	7996088 (7996319)

ISAK – size **B** = 140 ...suitable for use on crane hooks according to DIN 15401 up to... No. 16
 ISAK – size **B** = 190 ...suitable for use on crane hooks according to DIN 15401 up to... No. 32
 ISAK – size **B** = 250 ...suitable for use on crane hooks according to DIN 15401 up to... No. 50



ICE-ISA-3/4-8/140 7996017
ICE-ISA-3/4-10/140 7996020

ICE-Special master link
without KZA-
identification tag

ICE-ISA-3/4-8/190 7996018
ICE-ISA-3/4-10/190 7996021
ICE-ISA-3/4-13/190 7996023

ICE-Special master link
without KZA-
identification tag

ICE-ISA-3/4-8/250 7996019
ICE-ISA-3/4-10/250 7996022
ICE-ISA-3/4-13/250 7996024

ICE-Special master link
without KZA-
identification tag

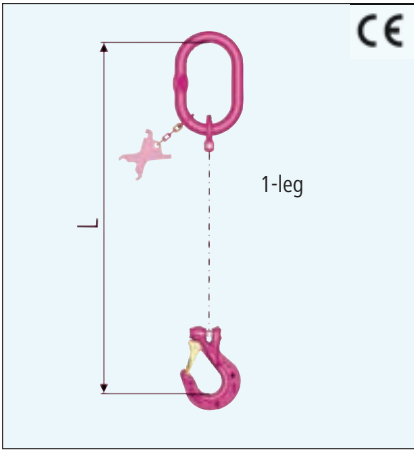
ICE-SC-8 7995754
ICE-SC-10 7995755
ICE-SC-13 7995766

ICE-Shortening Coupler

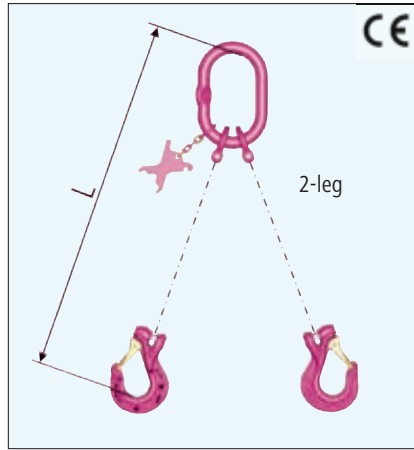
ICE-KZA-8-3/4 7996288
ICE-KZA-10-3/4 7996291
ICE-KZA-13-3/4 7996295

3/4-leg
identification tag with
integrated testing gauge

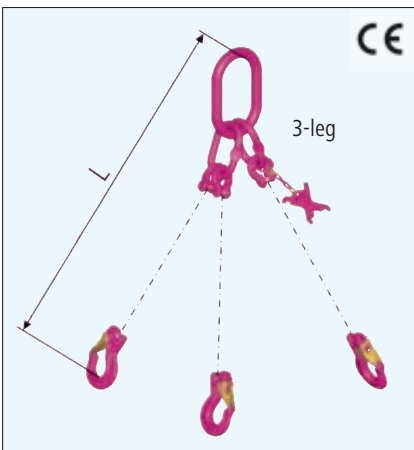
Examples of applications – complete slings – not adjustable



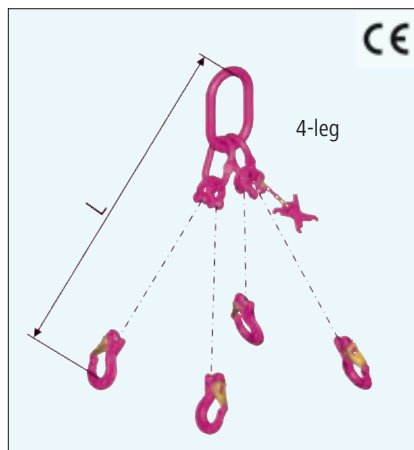
Order reference:
ICE-G1...



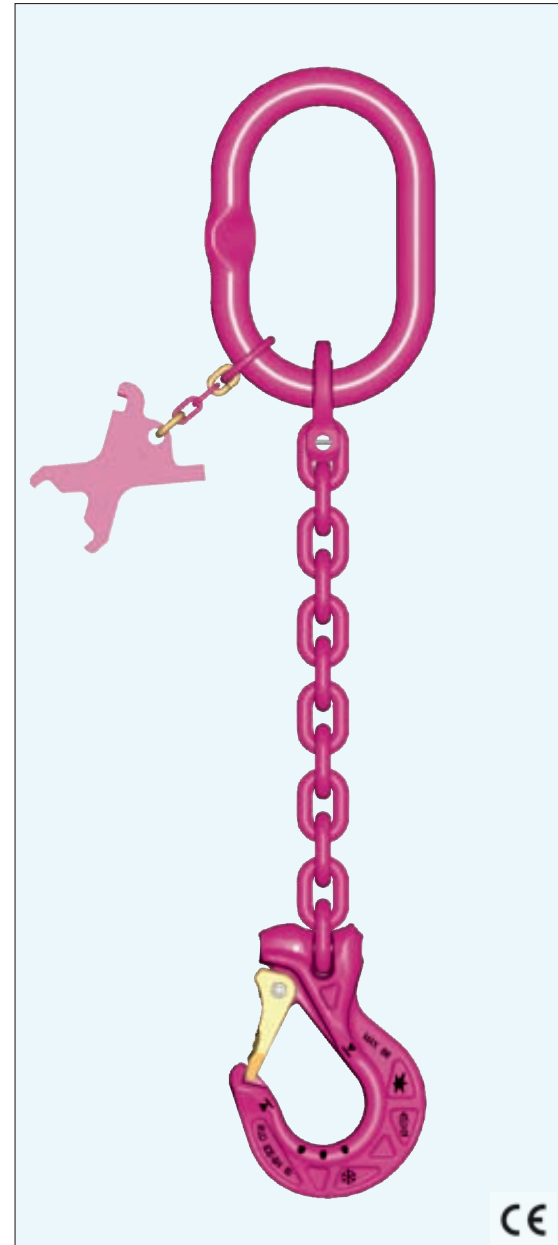
Order reference:
ICE-G2...



Order reference:
ICE-G3...



Order reference:
ICE-G4...

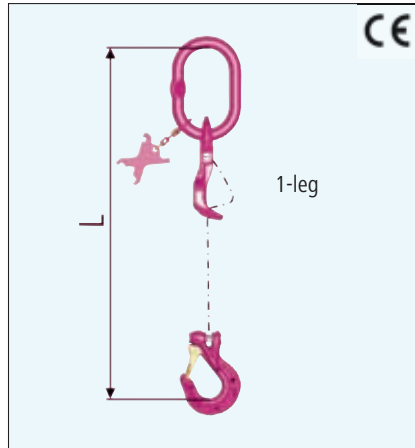


Order reference:
ICE-G1-ICE-SH/13x4500
= 1-leg in RUD-ICE-Grade 120
– not adjustable –
ICE-SH = End fitting/
13 = chain diameter, x 4500 = max. length
Measurements in mm.

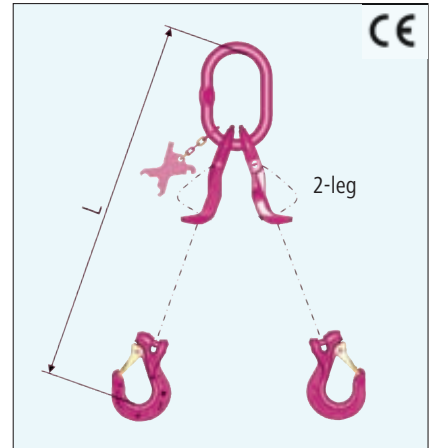
Examples of applications – complete slings – adjustable



Order reference:
ICE-G1-V1-ICE-SH/10x4000
= 1-leg in RUD-ICE-Grade 120
– adjustable –
ICE-SH = End fitting/
10 = chain diameter, x 4000 = max. length
Measurements in mm.



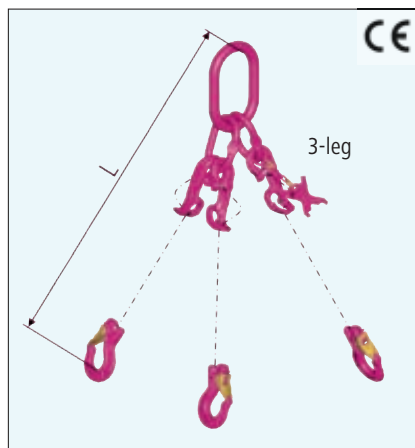
Order reference:
ICE-G1-V1...



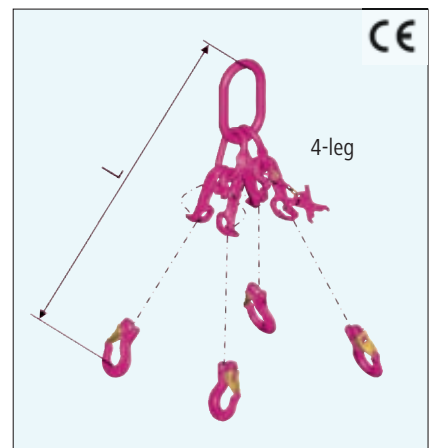
Order reference:
ICE-G2-V2...



◀ 2 x ICE-G2-V2- with ICE-STAR-Hook 8x3000
(not visible)
engaged in a double crane hook.

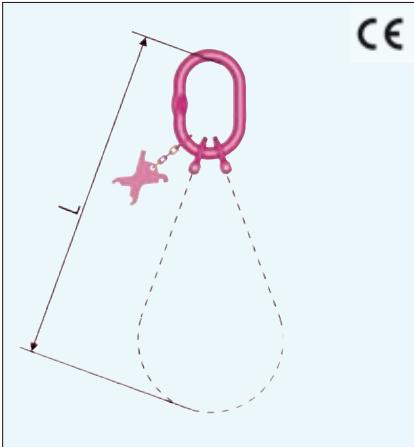


Order reference:
ICE-G3-V3...



Order reference:
ICE-G4-V4...

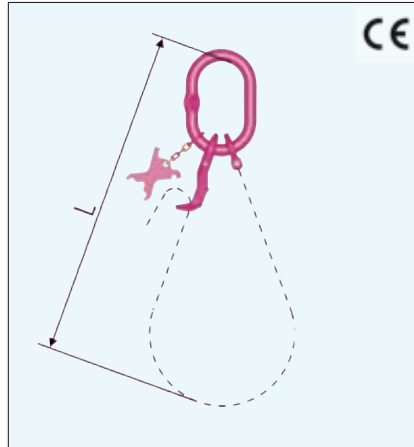
Examples of applications – endless chain –



CE

ICE-endless chain without shortener

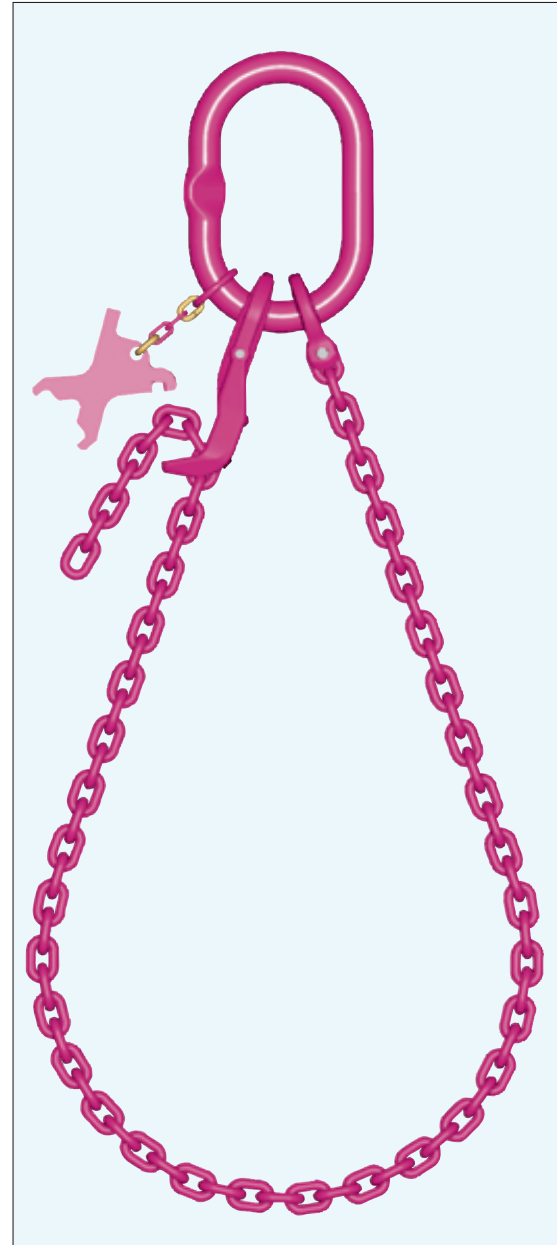
Order reference:
ICE-KRE...



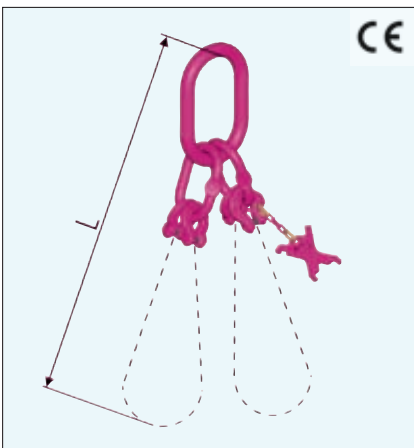
CE

ICE-endless chain with shortener

Order reference:
ICE-KREV...



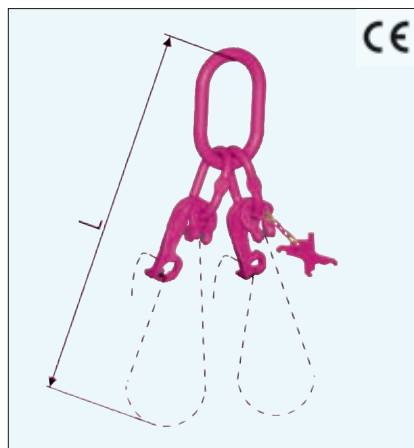
Order example:
ICE-KREV-8-2000
= Endless chain with shortener
in RUD-ICE Grade 120,
8 = chain diameter, x 2000 = max. length
Measurement L in mm.



CE

ICE-double endless chain without shortener

Order reference:
ICE-KRD...

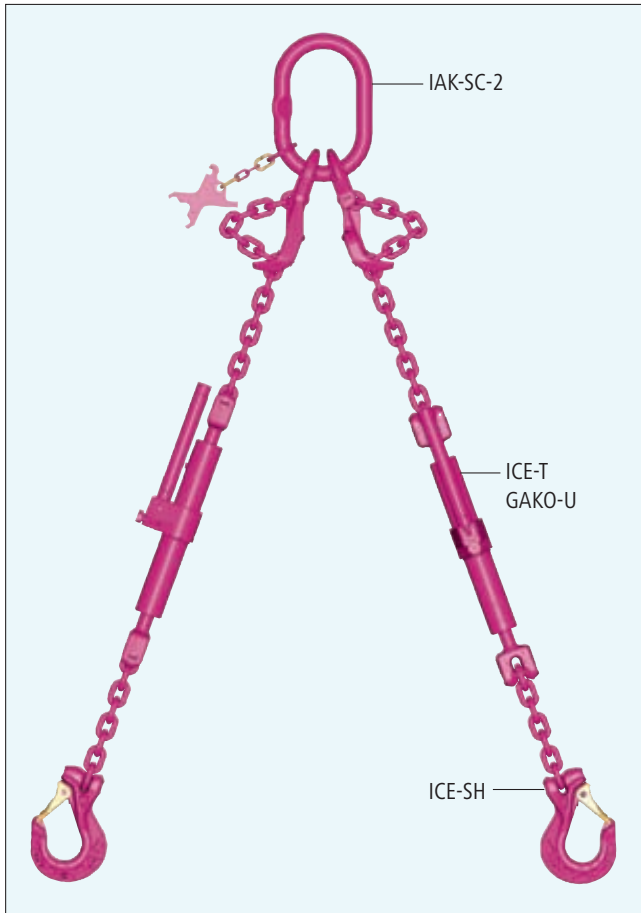


CE

ICE-double endless chain with shortener

Order reference:
ICE-KRDV...

Length adjustment to the exact millimeter with ICE



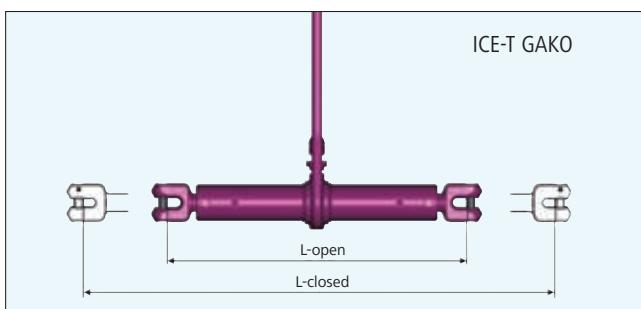
With clevis connection for exact length adjustment of the chain strands.

Length adjustment to the exact millimeter due to the right/ left running of the ratchet.

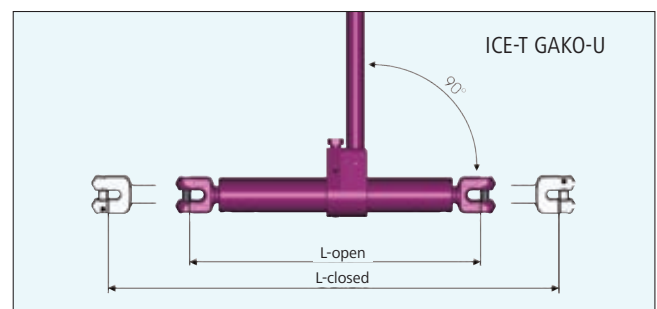
During loading it is only possible to elongate.

ICE-T SNAPPY with integrated fast shortener not permissible for lifting.

ICE-T GAKO ICE-T ratchet with clevis connection on both sides



Special robust design due to a solid threaded bar. Safety device to prevent unthreading and grease nipple and dirt sealing on both sides. Compact ratchet with lever.



Dirt sealing protects the thread. Compact ratchet with Right/left running. ICE-T GAKO-U with foldable ratchet and grease nipple.

Chains Ø ICE	Lifting WLL t	Lashing cap. LC daN	Type	L-open	L-closed	Reach mm	Pretension STF in daN [kp]	Weight kg/pc. (..U)	Ref. No.	
									GAKO	GAKO(..U)
8	3.0	6000	ICE-T-8 GAKO (..U)	483	308	175	2800	3.2 (3.4)	7995933	(7996398)
10	5.0	10000	ICE-T-10 GAKO (..U)	495	320	175	2800	3.6 (3.8)	7995934	(7996399)
13	8.0	16000	ICE-T-13 GAKO (..U)	695	445	250	2800	7.5 (8.0)	7995935	(7996400)

The strongest RUD-ICE-Lashing chain

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 smaller than Grade 80 <math>< 16\text{ mm } \varnothing</math>.

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-T-SNAPPY:

This is a type of a chain ratchet with integrated shortener, which is fully captive on the chain strand.

The integrated shorteners of the ICE-T-SNAPPY have the advantage that there is nearly no lost adjustment. That means there is additional adjustment as there is no need for a shortening hook or claw on the lashing assembly. The danger of an incorrect shortening is prevented. The ICE-lashing chain can be quickly shortened and tensioned effortlessly.

Patented identification tag with integrated testing gauge.

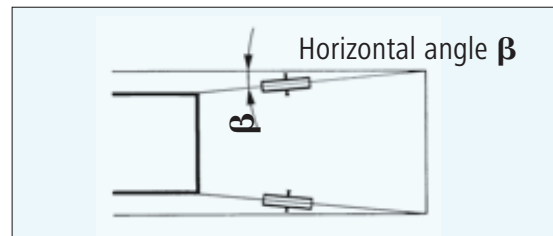
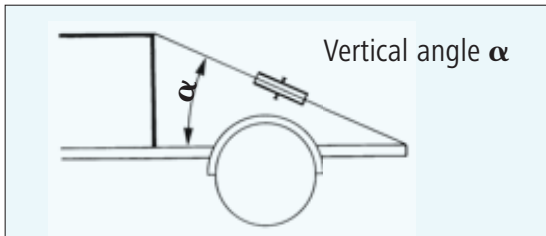
Lashing hook with a large throat opening – 25 % less weight with many advantages.



ICE sets 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°					
		$\mu=0,1$	$\mu=0,2$	$\mu=0,3$	$\mu=0,4$	$\mu=0,5$	$\mu=0,6$	$\mu=0,1$	$\mu=0,2$	$\mu=0,3$	$\mu=0,4$	$\mu=0,5$	$\mu=0,6$
VIP-VSK 6	3000	5,2	7,0	8,7	10,9	14,5	21,9	3,8	5,3	7,5	10,7	16,0	26,7
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
VIP-VSK 16	20000	35,0	46,9	58,1	72,8	97,3	146,3	25,6	35,8	50,0	71,3	106,9	178,0



Frictional lashing													
RUD-Lashing chain	STF [daN]	= required number of VIP + ICE lashing chains (number of lashing chains = factor from Table X load weight [t])											
		Vertical angle α : 60°-90°						Vertical angle α : 30°-60°					
		$\mu=0,1$	$\mu=0,2$	$\mu=0,3$	$\mu=0,4$	$\mu=0,5$	$\mu=0,6$	$\mu=0,1$	$\mu=0,2$	$\mu=0,3$	$\mu=0,4$	$\mu=0,5$	$\mu=0,6$
VIP-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
VIP-VSK 8	2500	2,2 x	1,0 x	0,6 x	0,4 x	0,2 x	0,2 x	3,8 x	1,6 x	0,9 x	0,6 x	0,4 x	0,2 x
VIP-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 8/10/13	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
VIP-VSK 13/16	3600	1,5 x	0,7 x	0,4 x	0,3 x	0,2 x	0,1 x	2,6 x	1,2 x	0,7 x	0,4 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 to VDI 2700-2			
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

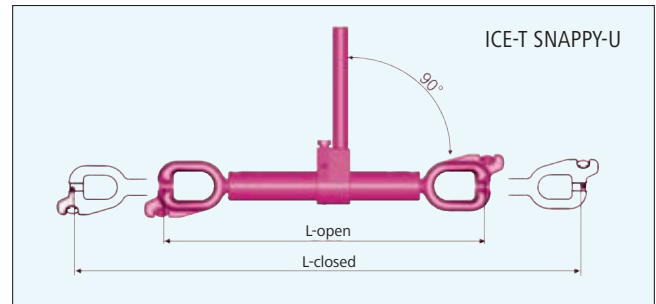
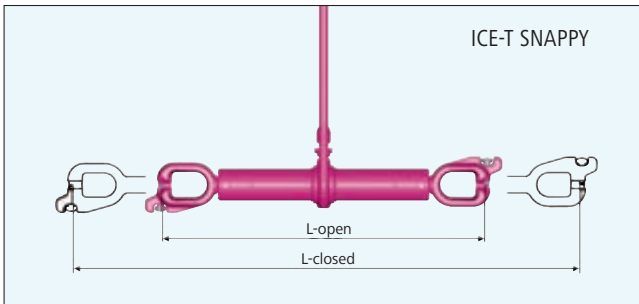
If there is a clear deviation from the indicated lashing angles, then it is necessary to add some safety measures (e.g. larger chain diameter, and/or chocks – friction increasing elements).

Heavy construction machinery should be positioned bucket first, tight against the step frame of the low loader.

Handbrake must be engaged and the vehicle left in gear.

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

ICE-T-SNAPPY ICE- Ratchet tensiing and shortening element



The tensioner is captive assembled on the chain strand with the chain passing through the shortening element. Special robust design due to a solid threaded bar. Safety device to prevent loosening and grease nipples on both sides.

Sealed housing protects the threads from dirt. Pretension STF according to EN. Compact ratchet with Right/left running. ICE-T-SNAPPY-U with foldable handle and grease nipples.

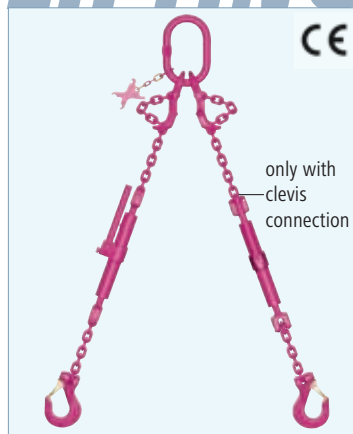
Chains Ø ICE	Lashing cap. LC daN	Type	L-open	L-closed	Reach mm	Pretension STF daN [kp]	Weight kg/pc. (..U)	Ref. No. (..U)
8	6000	ICE-T-8 SNAPPY (..U)	563	387	177	2800	3.7 (3.8)	7995906 (7996379)
10	10000	ICE-T-10 SNAPPY (..U)	594	418	177	2800	4.5 (4.6)	7995907 (7996380)
13	16000	ICE-T-13 SNAPPY (..U)	820	572	249	2800	9.5 (9.9)	7995908 (7996381)

Hint: Turnbuckles that are used for lashing mustn't be used for lifting! ICE-compact ratchet tensioner and fast shortening not permissible for lifting!

ICE- Length determination with ICE-T

LASHING LIFTING

Attention:
Safety factor when lashing 2 : 1.
Safety factor when lifting 4 : 1.



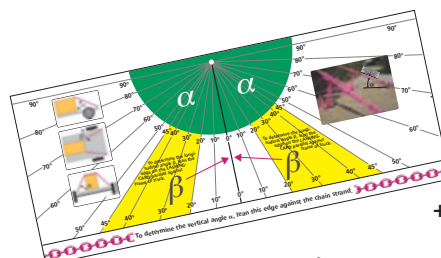
For an exact length adjustment on a chain sling. Due to right/left thread on the ratchet, adjustments to the mm can be performed.

Under load, it is only possible to elongate the chain strand.



Patented identification tag with integrated testing gauge

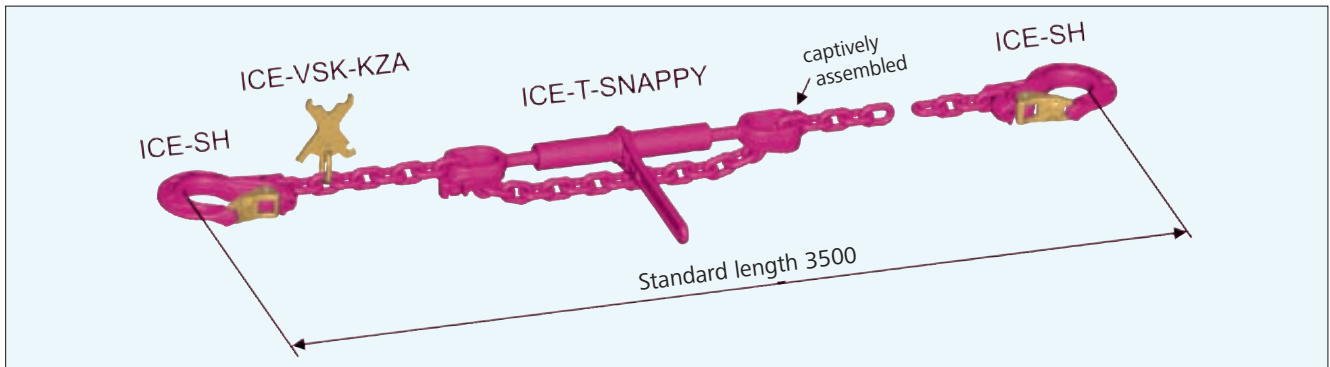
ICE-VSK-KZA	Ref. No. (with assembly link)
ICE-VSK-8	7995772
ICE-VSK-10	7995773
ICE-VSK-13	7995774



ICE-VIP-Lashing-Card
inclination angle measuring device + calculation chart.

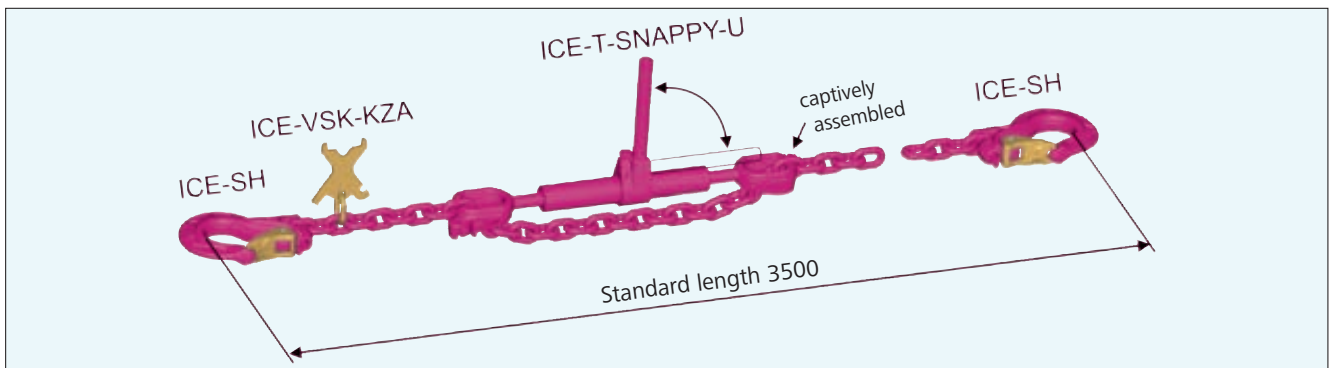
Ref. No.: 7997579

ICE-VSK ICE-Lashing chain with ICE-T-SNAPPY – rigid lever, captive chain leg, movable –



Chain Ø	Chain-Type	Lashing capacity daN	Tensioner		Lmin mm	Weight kg/pc.	Ref. No.
			Type	pretension force STF in daN [kp]			
8	ICE-VSK-8-C-ICE-T	6000	ICE-T-8-SNAPPY	2800	760	11.0	7996389
10	ICE-VSK-10-C-ICE-T	10000	ICE-T-10-SNAPPY	2800	850	16.2	7996390
13	ICE-VSK-13-C-ICE-T	16000	ICE-T-13-SNAPPY	2800	1120	24.1	7996391

ICE-VSK ICE-Lashing chain with ICE-T-SNAPPY – U – retractable lever

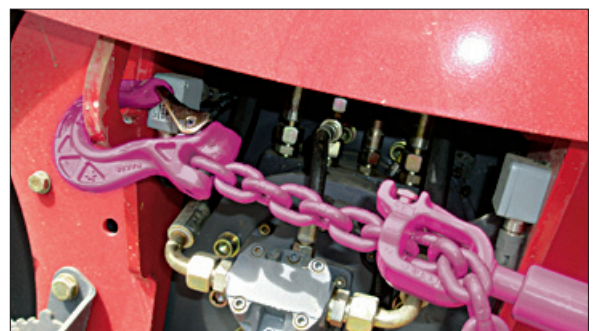


Chain Ø	Chain-Type	Lashing capacity daN	Tensioner		Lmin mm	Weight kg/pc.	Ref. No.
			Type	pretension force STF in daN [kp]			
8	ICE-VSK-8-C-ICE-T-U	6000	ICE-T-8-SNAPPY-U	2800	760	11.1	7996392
10	ICE-VSK-10-C-ICE-T-U	10000	ICE-T-10-SNAPPY-U	2800	850	16.3	7996393
13	ICE-VSK-13-C-ICE-T-U	16000	ICE-T-13-SNAPPY-U	2800	1120	24.5	7996394

Also suitable for tie down due to the high pretension on STF.



Lashing chain type C
◀ Captively assembled ▶



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











Thread sizes M 6- M 150 inch thread (UNC,...) and special lengths available on request		PP-S (Vario) PowerPoint-Star		PP-B (Vario) PowerPoint-B		PP-VIP (Vario) PowerPoint-VIP		VLBG-Load ring (Vario)												WBG-V Load ring (Vario)											
Number of legs Load direction	Thread size	Type						Type												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	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 special	VLBG 8 t	VLBG 10 t	VLBG 15 t	VLBG 20 t	VLBG (3) M16 RS 1 t	VLBG (3) M20 RS 2 t	WBG-V 0,3 t	WBG-V 0,45 t	WBG-V 0,6 t	WBG-V 1,0 t	WBG-V 1,3 t	WBG-V 1,8 t	WBG-V 2 t	WBG-V 3,5 t	WBG-V 5 t
		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 27	M 30	M 36	M 42	M 42	M 48	M 16	M 20	M 8	M 10	M 12	M 14	M 16	M 18	M 20	M 24	M 30	
	1 0°	0,6	1,5	2,5	4	6,7	10	0,3	0,6	1	1,5	2,5	4	4	5	7	8	10	15	20	1	2	0,3	0,45	0,6	1,0	1,3	1,8	2	3,5	5
	2 0°	1,2	3	5	8	13,4	20	0,6	1,2	2	3	5	8	8	10	14	16	20	30	40	2	4	1,2	1,8	2,4	4,0	5,2	7,2	8	14	20
	1 90°	0,6	1,5	2,5	4	5	8	0,3	0,6	1	1,5	2,5	4	4	5	7	8	10	15	20	1	2	0,3	0,45	0,6	1,0	1,3	1,8	2	3,5	5
	2 90°	1,2	3	5	8	10	16	0,6	1,2	2	3	5	8	8	10	14	16	20	30	40	2	4	0,6	0,9	1,2	2,0	2,6	3,6	4	7	10
	2 0-45°	0,8	2,1	3,5	5,6	7,1	11,2	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	0,4	0,6	0,8	1,4	1,8	2,5	2,8	4,9	7
	2 45-60°	0,6	1,5	2,5	4	5	8	0,3	0,6	1	1,5	2,5	4	4	5	7	8	10	15	20	1	2	0,3	0,4	0,6	1,0	1,3	1,8	2	3,5	5
	2 unsymmetrical	0,6	1,5	2,5	4	5	8	0,3	0,6	1	1,5	2,5	4	4	5	7	8	10	15	20	1	2	0,3	0,4	0,6	1,0	1,3	1,8	2	3,5	5
	3+4 0-45°	1,3	3,2	5,3	8,4	10,5	16,8	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	0,6	0,9	1,2	2,1	2,7	3,7	4,2	7,3	10,5
	3+4 45-60°	0,9	2,2	3,8	6	7,5	12	0,4	0,9	1,5	2,2	3,7	6	6	7,5	10,4	12	15	22,5	30	1,5	3	0,4	0,6	0,9	1,5	1,9	2,7	3	5,2	7,5
	3+4 unsymmetrical	0,6	1,5	2,5	4	5	8	0,3	0,6	1	1,5	2,5	4	4	5	7	8	10	15	20	1	2	0,3	0,4	0,6	1,0	1,3	1,8	2	3,5	5
	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 27	M 30	M 36	M 42	M 42	M 48	M 16	M 20	M 8	M 10	M 12	M 14	M 16	M 18	M 20	M 24	M 30	

- All parts are crack detected or proof loaded according to EN 1677.
- With bolt-on RUD Lifting Points also the bolts are 100 % crack detected.
- Safety factor 4:1, in any direction.

- Type VRS, VRM, INOX-STAR and VLBG have to be adjusted to the load direction.
- Low height, high dynamic and static toughness.

- RUD patented features, such as clamp spring (VLBS) for noise reduction and distance lugs for a perfect root pass weld increase the case of use.

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

  		 WPP-Serie PowerPoint rotation	 WPPH-Serie PowerPoint fixed	 VLBS Load ring for welding		 VRBS Eye plate for welding	 VRBSS Eye plate with locking drive	 VRBK Eye plate for corners 90°																										
 Number of legs Load directions	all variations WPP 0,63 t WPP 1,5 t WPP 2,5 t WPP 4 t WPP 5 t WPP 8 t WPPH 0,63 t WPPH 1,5 t WPPH 2,5 t WPPH 4 t WPPH 5 t WPPH 8 t VLBS 1,5 t VLBS 2,5 t VLBS 4 t VLBS 6,7 t VLBS 10 t VLBS 16 t LBS(1) RS 0,5 t LBS(3) RS 1 t LBS(5) RS 2 t VRBS 4 t VRBS 6,7 t VRBS 10 t VRBS 16 t VRBS 30 t VRBS 50 t VRBSS 6,7 t VRBSS 10 t VRBSS 16 t VRBK 4 t VRBK 6,7 t VRBK 10 t	all variations		all variations		all variations		all variations		all variations																								
		1	0°	0,6	1,5	2,5	4	6,7	10	0,6	1,5	2,5	4	6,7	10	1,5	2,5	4	6,7	10	16	0,5	1	2	4	6,7	10	16	30	50	6,7	10	16	4
2	0°	1,2	3	5	8	13,4	20	1,2	3	5	8	13,4	20	3	5,0	8	13,4	20	32	1	2	4	8	13,4	20	32	60	100	13,4	20	32	8	13,4	20
1	90°	0,6	1,5	2,5	4	5	8	0,6	1,5	2,5	4	5	8	1,5	2,5	4	6,7	10	16	0,5	1	2	4	6,7	10	16	30	50	6,7	10	16	4	6,7	10
2	90°	1,2	3	5	8	10	16	1,2	3	5	8	10	16	3	5,0	8	13,4	20	32	1	2	4	8	13,4	20	32	60	100	13,4	20	32	8	13,4	20
2	0-45°	0,8	2,1	3,5	5,6	7,1	11,2	0,8	2,1	3,5	5,6	7,1	11,2	2,1	3,5	5,6	9,38	14	22,4	0,7	1,4	2,8	5,6	9,38	14	22,4	42	70	9,38	14	22,4	5,6	9,38	14
2	45-60°	0,6	1,5	2,5	4	5	8	0,6	1,5	2,5	4	5	8	1,5	2,5	4	6,7	10	16	0,5	1	2	4	6,7	10	16	30	50	6,7	10	16	4	6,7	10
2	unsymmetrical	0,6	1,5	2,5	4	5	8	0,6	1,5	2,5	4	5	8	1,5	2,5	4	6,7	10	16	0,5	1	2	4	6,7	10	16	30	50	6,7	10	16	4	6,7	10
3+4	0-45°	1,3	3,2	5,3	8,4	10,5	16,8	1,3	3,2	5,3	8,4	10,5	16,8	3,15	5,25	8,4	14,1	21	33,6	1,05	2,1	4,2	8,4	14,1	21	33,6	63	105	14,1	21	33,6	8,4	14,1	21
3+4	45-60°	0,9	2,2	3,8	6	7,5	12	0,9	2,2	3,8	6	7,5	12	2,25	3,75	6	10,1	15	24	0,75	1,5	3	6	10,1	15	24	45	75	10,1	15	24	6	10,1	15
3+4	unsymmetrical	0,6	1,5	2,5	4	5	8	0,6	1,5	2,5	4	5	8	1,5	2,5	4	6,7	10	16	0,5	1	2	4	6,7	10	16	30	50	6,7	10	16	4	6,7	10
Weld		3,5	4,5	3+4,5	3+5	3+8	3+10	3,5	4,5	3+5	3+6	3+8	3+10	5+3	7+3	8+3	12+4	16+4	25+6	5+3	8+3	12+4	4+3	5,5+3	8,5+4	8,5+4	15+4	25+8	5,5+3	6+4	8,5+4	4+3	5+3	8+3

Examples



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Lifting chain poster,
 Size 60:80 cm for RUD
 chains of Grade 80,
 VIP and ICE.

Reference No.
7996432

www.rud.com
 klick—lifting means
 klick—ICE
 ...details correct at time
 of going to print!

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



„Made in Germany“



Methods of sling	1-leg		2-leg		3-4 leg		endless*	Basket sling chain*		Choke hitch*			
	single	double	single	double	single	double	single	double	single	double			
Inclination angle: β	0	0-45°	> 45-60°	0-45°	> 45-60°	—	0-45°	> 45-60°	0-45°	> 45-60°	0°	0-45°	> 45-60°
load factor	1,0	1,4	1,0	2,1	1,5	1,6	1,1	0,8	1,7	1,2	0,8	1,1	0,8
Diam. of chain	Quality grade												
Ø 4	VIP												
	0,63	0,84	0,63	1,32	0,95	1,0	0,69	0,4	1,1	0,75	0,5	0,69	0,5
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	1,2	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	1,65	1,2
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	2,2	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	2,75	2,0
	ICE												
	3,0	4,2	3,0	6,3	4,5	4,8	3,3	2,4	5,1	3,6	2,4	3,3	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	3,5	2,5
	VIP												
	4,0	5,6	4,0	8,4	6,0	6,4	4,4	3,2	6,8	4,8	3,2	4,4	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	5,5	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	5,8	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	7,5	5,3
	ICE												
	8,0	11,2	8,0	16,8	12,0	12,8	8,8	6,4	13,6	9,6	6,4	8,8	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	8,8	6,4
	VIP												
	10,0	14,0	10,0	21,0	15,0	16,0	11,0	8,0	17,0	12,0	8,0	11,0	8,0
Ø 18	Grade 80												
	10,0	14,0	10,0	21,0	15,0	16,0	11,0	8,0	17,0	12,0	8,0	11,0	8,0
	VIP												
	16,0	22,4	16,0	33,6	24,0	25,6	17,6	12,8	27,2	19,2	12,8	17,6	12,8
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	16,5	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	22,0	16,0
Ø 22	Grade 80												
	15,0	21,2	15,0	31,5	22,4	23,6	16,5	12,0	25,5	18,0	12,0	16,5	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	22,0	16,0
Ø 26	Grade 80												
	21,2	30,0	21,2	45,0	31,5	33,5	23,3	17,0	36,0	25,4	17,0	23,0	17,0

Attention:
 WLL has to be reduced by 50% when load is unsymmetrical!

Temperature °C	WLL in % at chain temperature of			
Grade 80	100	90	80	75
VIP 100	100	90	80	75
ICE 120	100	90	80	75

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

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