

Lashing chains in Quality Grade 10-VIP VIP-VSK

RUD VIP lashing combinations must only be used for lashing applications.



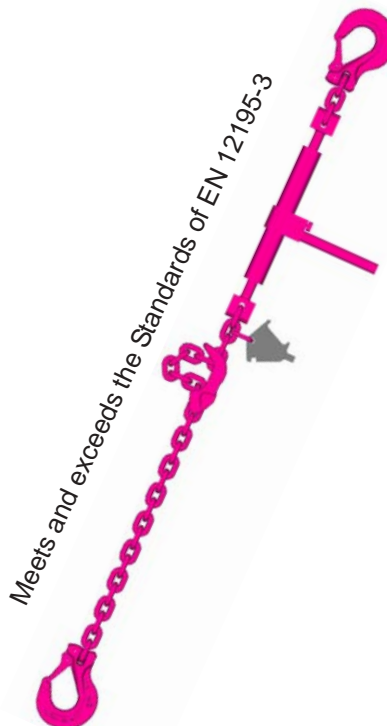
User instructions

This safety instruction / declaration of the manufacturer has to be kept on file for the whole lifetime of the product.



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Herstellereklärung

Hiermit erklären wir (unterstützt durch die Zertifizierung nach ISO 9001), daß die nachfolgend bezeichnete Ausrüstung aufgrund ihrer Konzipierung und Bauart, sowie der von uns in Verkehr gebrachten Ausführung, den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der betreffenden europäischen Norm EN 12195-Teil 3 entspricht. Bei einer nicht mit uns abgestimmten Änderung der Ausrüstung verliert diese Erklärung ihre Gültigkeit. Weiterhin verliert diese Erklärung ihre Gültigkeit, wenn die Ausrüstung nicht entsprechend den in der Betriebsanleitung aufgezeigten bestimmungsmäßigen Fällen eingesetzt wird und die regelmäßig durchzuführenden Überprüfungen entsprechend DIN EN 12195 und der VDI-Richtlinie 2701 nicht vorgenommen werden.

Déclaration du fabricant

Nous déclarons (conformément à la certification ISO 9001) que l'équipement suivant correspond aux demandes appropriées fondamentales de sécurité et santé de la directive CE respectives dans la version vendue par nous, grâce à sa construction. En cas d'une modification de l'équipement sans notre accord, cette déclaration perd sa validité. En outre, cette déclaration ne sera plus valable dans le cas où l'équipement n'est pas utilisé conformément aux applications indiquées dans le guide d'opération et dans le cas où les vérifications ne sont pas réalisées régulièrement selon EN 12195.

Declaration of the manufacturer

We hereby declare (supported by certification as per ISO 9001) that the equipment, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC regulation in the design as it is sold by us, because of its design and construction. In case of any modification of the equipment, not being agreed upon with us, this declaration becomes invalid. Furthermore, this declaration will become invalid if the equipment is not used according to the prescriptions mentioned in the manual and if the necessary examinations are not carried out regularly as per EN 12195.

Bezeichnung der Ausrüstung:

Zurrkette

Type: **VIP-VSK**

Herstellerzeichen:

Désignation de l'équipement:

VIP-VSK

signe du fabricant:

Designation of the equipment:

Lashing chain

Type: **VIP-VSK**

Manufacturer's sign:

1. Selection of the Lashing chain.

1.1 For the selection and the use of lashing chain system, the min. tension force and the lashing application has to be taken into consideration. The size, shape and the weight of the load determine the correct selection as well as the lashing application, the environment and the kind of load.

Round steel long link chains having a pitch between 3d and 6d are only focused for the transportation of long wood and may not be used for general lashing.

1.2 The selected lashing chain must be strong and long enough for the intended lashing purpose, and must have the right length for the specific lashing method. Make plans for the lashing itself and special for the opening. Keep in mind the internal load moving during the transportation and based on this the stored energy. Calculate the number of lashing chains according EN 12195-3 and VDI 270-2 or use the RUD Multi-Lashing Master, the RUD-CD-Rom or www.rud.com, click: Lifting Means/ Lashing Systems VIP

1.3 Due to different reactions and variations of the length under loaded conditions, combinations of the lashing means such as lashing chains, synthetic lashing systems or wire ropes are not allowed to use together to secure the same load in the same lashing direction. Pay attention when using different connecting elements that they will have the same characteristics.

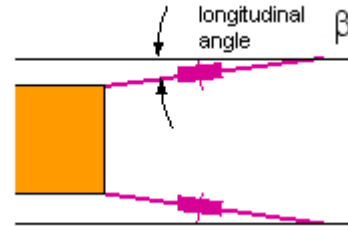
1.4 Chains and components of lower quality classes are not allowed to be used for complete assembled lashing systems of higher quality classes such as VIP H1 8S (Grade 100, VIP or DUR). Lashing chains of higher quality classes can only be used if the chains and components are supplied from the same manufacturer.

1.5 The appropriate lashing chain for the requested securing load?

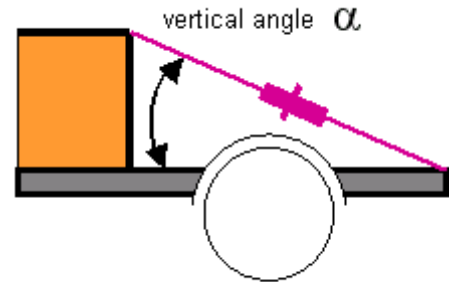
Friction coefficient μ (examples of additional material combinations see VDI 2700)

Combination	dry	wet	Oiled/reasy
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	0,10-0,25	0,01-0,10
Concrete / wood	0,30-0,60	0,30-0,50	0,10-0,20

Chart 2



Picture 1



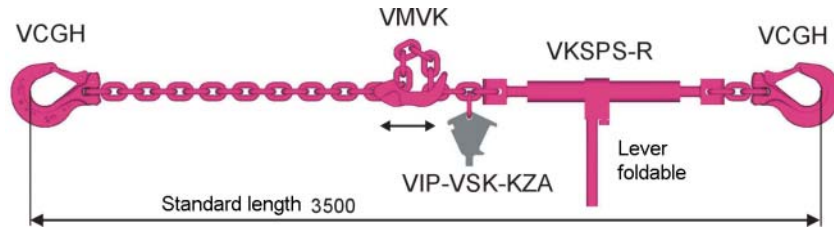
Picture 2

Diagonal lashing with round steel link chains Grade 100

Chain type Nominal chain size	LC Lashing capacity daN	Max. Load weight in kg (Longitudinal angle $\beta = 20^\circ - 45^\circ$ and use of 2 lashing chains in and contrary the direction of travel)									
		$\alpha = 45^\circ - 60^\circ$ Vertical angle					$\alpha = 0^\circ - 45^\circ$ Vertical angle				
		$\mu=0$	$\mu=0,1$	$\mu=0,2$	$\mu=0,3$	$\mu=0,4$	$\mu=0$	$\mu=0,1$	$\mu=0,2$	$\mu=0,3$	$\mu=0,4$
VIP-VSK 6	3000	2600	3772	5267	7360	10499	3750	4892	6414	8546	11743
VIP-VSK 8	5000	4400	6288	8779	12264	17499	6250	8153	10690	14243	19571
VIP-VSK 10	8000	7000	10061	14047	19628	27999	10000	13045	17105	22788	31314
VIP-VSK 13	10000	11500	16349	22826	31895	45498	16250	21198	27795	37031	50885
VIP-VSK 16	20000	17700	25152	35117	49046	69996	25000	32612	42761	56971	78284

Chart 1

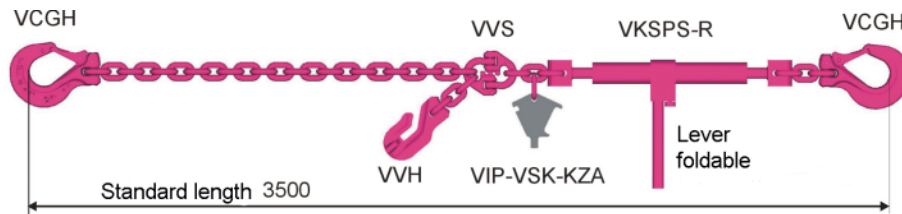
important: α as small as possible
 β between $20^\circ - 45^\circ$



nom. chain dia.	Type of chain complete	Lashing capacity LC (daN)	Tensioner TYP		Lmin mm	weight kg/St.	Ref.-No.	Type A (VMVK) VIP-VSK-...-A-VKSPS
			Reachable pre-tension force STF in daN					
6	VIP-VSK-6-A-VKSPS*	3000	VKSPS-6	1500	760	4,3	7100785	
6	VIP-VSK-6-A-VKSPS-R	3000	VKSPS-R-6	1500	760	4,5	7990249	
8	VIP-VSK-8-A-VKSPS*	5000	VKSPS-8	2500	900	8,5	7100786	
8	VIP-VSK-8-A-VKSPS-R	5000	VKSPS-R-8	2500	920	9,0	7987521	
10	VIP-VSk-10-A-VKSPS*	8000	VKSPS-10	2800	1075	12,0	7100787	
10	VIP-VSK-10-A-VKSPS-R	8000	VKSPS-R-10	2800	1075	12,2	7100813	
13	VIP-VSK-13-A-VKSPS*	13000	VKSPS-13	3600	1400	23,5	7100788	
13	VIP-VSK-13-A-VKSPS-R	13000	VKSPS-R-13	3600	1400	24,5	7100814	
16	VIP-VSK-16-A-VKSPS*	20000	VKSPS-16	3600	1750	36,0	7101309	
16	VIP-VSK-16-A-VKSPS-R	20000	VKSPS-R-16	3600	1750	37,0	7990250	

*Tensioner with driving through looking handle and securing chain

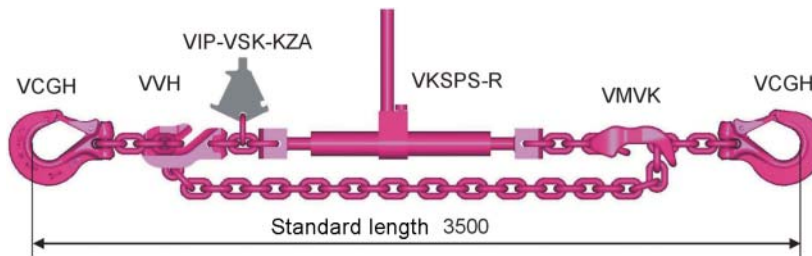
Chart 3



6	VIP-VSK-6-B-VKSPS*	3000	VKSPS-6	1500	840	4,0	7989511	Type B (VVK) VIP-VSK-...-B-VKSPS
6	VIP-VSK-6-B-VKSPS-R	3000	VKSPS-R-6	1500	840	4,2	7990247	
8	VIP-VSK-8-B-VKSPS*	5000	VKSPS-8	2500	1000	8,0	7989512	
8	VIP-VSK-8-B-VKSPS-R	5000	VKSPS-R-8	2500	1020	8,5	7989513	
10	VIP-VSk-10-B-VKSPS*	8000	VKSPS-10	2800	1215	12,0	7989514	
10	VIP-VSK-10-B-VKSPS-R	8000	VKSPS-R-10	2800	1215	12,2	7989515	
13	VIP-VSK-13-B-VKSPS*	13000	VKSPS-13	3600	1550	21,0	7989516	
13	VIP-VSK-13-B-VKSPS-R	13000	VKSPS-R-13	3600	1550	22,0	7989517	
16	VIP-VSK-16-B-VKSPS*	20000	VKSPS-16	3600	1950	35,0	7989518	
16	VIP-VSK-16-B-VKSPS-R	20000	VKSPS-R-16	3600	1950	36,0	7990248	

*Tensioner with driving through looking handle and securing chain

Chart 4



6	VIP-VSK-6-C-VKSPS*	3000	VKSPS-6	1500	840	5,7	7990981	Type C VIP-VSK-...-C-VKSPS
6	VIP-VSK-6-C-VKSPS-R	3000	VKSPS-R-6	1500	840	5,7	7990986	
8	VIP-VSK-8-C-VKSPS*	5000	VKSPS-8	2500	1000	11,4	7990982	
8	VIP-VSK-8-C-VKSPS-R	5000	VKSPS-R-8	2500	1020	11,6	7990987	
10	VIP-VSk-10-C-VKSPS*	8000	VKSPS-10	2800	1215	17,1	7990983	
10	VIP-VSK-10-C-VKSPS-R	8000	VKSPS-R-10	2800	1215	17,1	7990988	
13	VIP-VSK-13-C-VKSPS*	13000	VKSPS-13	3600	1550	32,3	7990984	
13	VIP-VSK-13-C-VKSPS-R	13000	VKSPS-R-13	3600	1550	32,4	7990989	
16	VIP-VSK-16-C-VKSPS*	20000	VKSPS-16	3600	1950	46	7990985	
16	VIP-VSK-16-C-VKSPS-R	20000	VKSPS-R-16	3600	1950	46	7990990	

*Tensioner with driving through looking handle and securing chain

Chart 5

1.6 **Diagonal lashing:** Formula to calculate the allowed lashing force LC (daN) of the required lashing means.

Inclusive friction in direction of travel

$$LC = \frac{G(daN) \times (c_x - \mu)}{(\sin \alpha \times \mu + \cos \alpha \times \cos \beta) \times n} (daN)$$

Inclusive friction transverse to direction of travel

Exclusive friction in direction of travel

$$LC = \frac{G(daN) \times c_x}{\cos \alpha \times \cos \beta \times n} (daN)$$

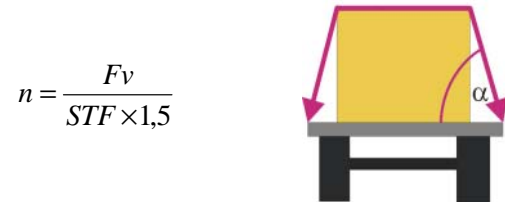
Exclusive friction transverse in direction of travel

$$LC = \frac{G(daN) \times c_y}{\cos \alpha \times \sin \beta \times n} (daN)$$

1.7 **Vertical lashing:** Formula to calculate the total pre tension force Fv (daN)

$$Fv = \frac{G \times (c_{x,y} - \mu)}{\mu \times \sin \alpha} (daN)$$

Number of the necessary systems for over top lashing



$$n = \frac{Fv}{STF \times 1,5}$$

- $c_{x,y}$ = acceleration factor
- c_x = longitudinal acceleration factor = 0,8
- c_x = longitudinal acceleration factor opposite of driving direction = 0,5
- c_y = longitudinal acceleration factor transverse to the driving direction = 0,5
- G = weight of the load in daN » Kg
- μ = Coefficient of friction (Chart 2)
- α = Vertical angle (Angle between the loading platform and the chain strand – Picture 2)
- β = Longitudinal angle (Picture 1)
- STF = Standard tension force (The reachable pre-tension force with SHF= Standard hand force of 50 daN)
- n = 2 = number of active lashing strands

Angle	sinus	cosinus
0	0	1
10°	0,17	0,98
20°	0,34	0,94
30°	0,50	0,87
40°	0,64	0,77
45°	0,71	0,71
50°	0,77	0,64
60°	0,87	0,50
70°	0,94	0,34
80°	0,98	0,17
90°	1	0

Chart 6

2. Fool-proof Mecano assembly system VIP in Quality Grade 10-VIP

2.1 The proven RUD – VIP clevis system with it's dimensional arrangement of chains and components assures a fool proof assembly.

Clevis dimension x eliminates the connection of a thicker RUD VIP chain (Picture 3).

The diameter of the load pin „size Y“ excludes the connection of the smaller VIP chain (Picture 3).

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

Attention:

Use and assemble only chains, components and load pins which are stamped with VIP-H1-10 or H1-8S.

Slot of the retaining pin must be visible from outside!

Use retaining pin only once!

Use only RUD original spare parts.



Picture 3

3. How to use Lashing chain systems

3.1 The usage only should be carried out by skilled and instructed persons.

3.2 Visual inspection must be carried out before every use. Paying particular attention of any exterior defects, such as bent chain links, twisted chain links, damages of the components, notches and the completeness of the identification.

3.3 Please follow the specific instructions and regulations for the usage of lashing systems:

EN 12195-1 Load restraint assemblies on road vehicles - Safety- Part 1: Calculation of lashing forces

EN 12195-3 Load restraint assemblies on road vehicles - Safety- Part 3: Lashing chains

VDI-Guideline 2700-Load securing on street vehicles, all parts of Standard

Loading instructions and recommendation of the railway organization DB AG

3.4 Lashing chain systems **must not be used** for lifting purposes.

3.5 Lashing chain systems **must not be used** under aggressive chemicals and acids.

3.6 Please ensure before the first use, that:

-The lashing system corresponds to the ordered ones.

-The test certification / declaration of the manufacturer is present.

-The indications on the identification tags of the lashing system are conform with the notes on the test certificate / declaration of the manufacturer.

3.7 Use only lashing chains with well readable and marked identification tag. Avoid damaging those ID-tag in keeping those away from load frame edges and from the load itself.

3.8 Lashing chains may only be used in straight pull strand, without knots, twisted chains and bended links. It is not allowed to connect lashing chains by knots or bolt application. Do not load the hook on the tip. Hooks must be equipped with safety latches to avoid unintentional unhooking.

3.9 Remove lifting chain systems before starting the tie down job.

3.10 During the loading and unloading process pay attention to overhead wiring.

3.11 Lashing chains never should be overloaded: the max. hand force SHF (Standard Hand Force) of 50 daN may only be brought up with one hand. Mechanical auxiliary means such as bars or lever arms are not allowed except they are part of the complete means.

3.12 Please pay attention that lashing chain systems may not be damaged by sharp corners of the load. Protect the lashing chain systems and the corners of the load by using edge protection solutions.

3.13 Opening of the lashing: Assure before opening that the load will still sit proper and persons will not be injured from falling down objects. If it is necessary use additional application to secure the load, to continue transportation.

3.14 Before unloading, the lashing chain system must be released and the load sits by its own.

3.15 Handling

1. Opening of the tensioner until to block.
2. Connect VIP Cobra hook, endlink or end fitting to the designated lashing point.
3. Pre-adjust the required length in securing the chain in the locking pocket of the VIP Multi shortening claw (see picture 4) resp. shortening hook VVH. Close the tensioner by turning in the direction of the arrow + „ZU“, or switch the pivot button.



Picture 4

4. After use fold the ratchet lever arm down resp. secure the fully captive tension lever.
5. After a short trip check the lashing and if necessary re-adjust the lashings.

4. Inspection and test

4.1 For controlling regular inspection by an expert have to be carried out within the period of one year or sooner depending on the condition. The examination has to be recorded in the chain card life. Protocols on tests and any other records have to be kept.

Should any of the following damage occur then the lashing system should immediately be taken out for service:

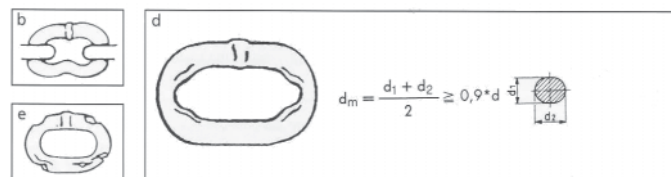
- a) The identification on the tag is unreadable or the tag is missing.
- b) Twisting, deformation and breakage of components and master / end links.
- c) Lengthening of the chain by a plastic elongation (deformation) of individual links by more than 5% referred to the pitch of 3d. (Picture 5)



Picture 5

Patented VIP-Lashing Chain inspection gauge for simple testing of c) and d)

- d) Wear occurs at chain links caused by abrasion on the outside and between chain links hanging together. For measuring the wear with a caliber the chain must be loose. A wear up to 10% (dm) is permissible.



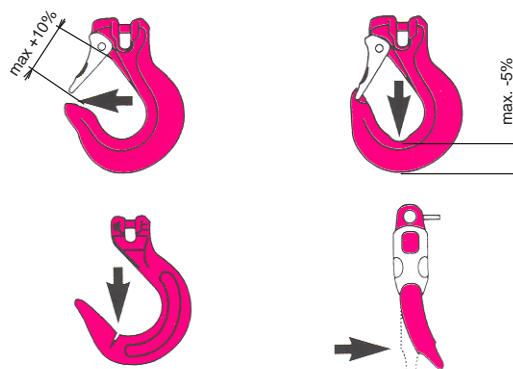
Picture 6

- e) Cuts, grooves, notches, failures, increased corrosion, discoloring due to heat, bent or twisted chains and components, especially deep notches in pulling tension force areas or transverse cracks are inadmissible.

- f) At the lifting hook, the widening of the hook must not exceed 10% of the nominal value. The hook securing (safety latch) must still slip into the hook tip in order to assure a form closure.

Carefully examine bowl of the hook for notches. Maximum allowed wear in the bowl of hook = 5%

- g) Max. permissible wear of the loading pin = 10%



Picture 7

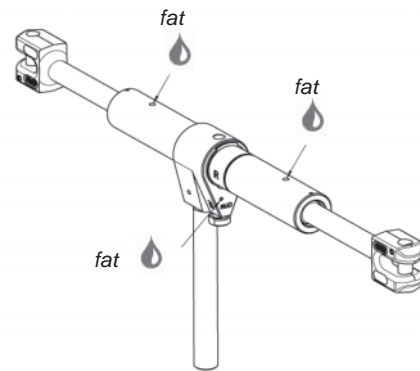
5. Repair and Maintenance

Opened, bended, twisted and heavily deformed chains and components had to be replaced. If one link is showing any of the pre named damages the whole strand had to be replaced. Small damages such as notches or grooves can be grinded out carefully. (Pay attention to notch impact effect.) The cross section may not be reduced by more than 10%. Welding on chains and components are not allowed. Always use for replacement only RUD components and original spare parts such as new load and retaining pins.

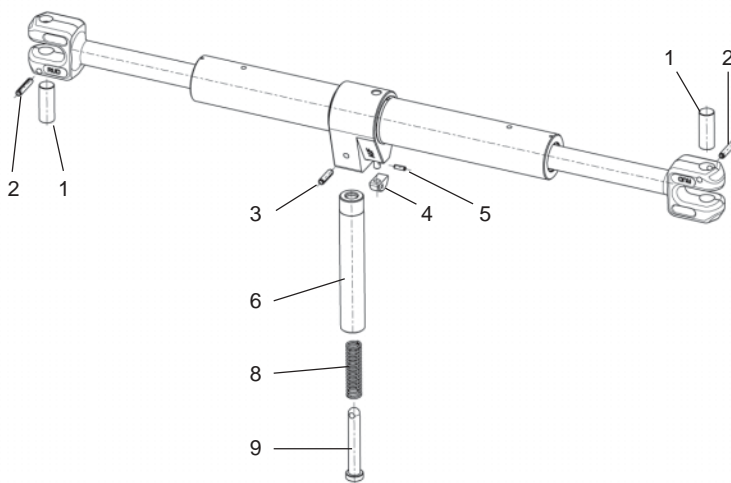
Repair works have only be done by experts disposing of the knowledge and skills required.

Any repairs / maintenance carried out have to be recorded in the chain card file.

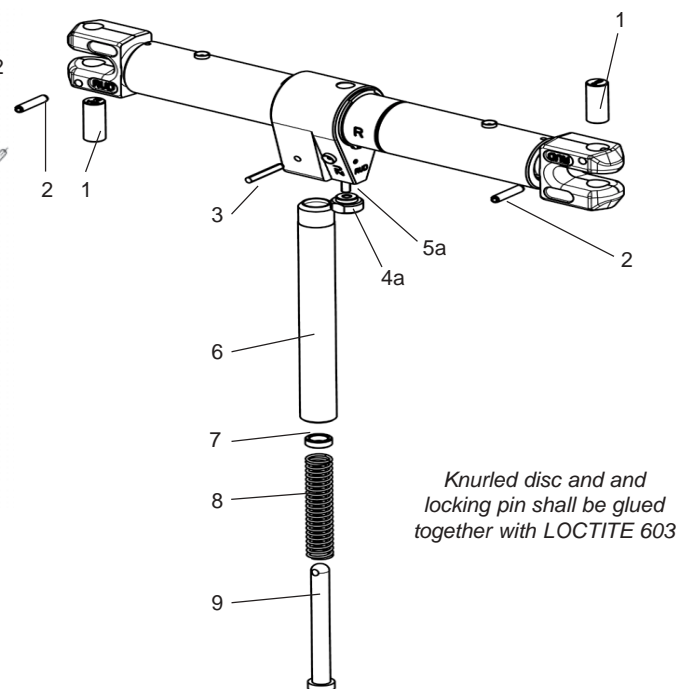
5.1 The VIP compact spindle and ratchet tensioner should be greased regular at the lubricating point, to guarantee the running characteristics. To carry out the greasing turn out the spindle / tensioner to the stud then grease and turn back.



Nominal size 6,13 and 16 mm:



Nominal size 8 and 10 mm:



Spare part list	VSK 6	VSK 8	VSK 10	VSK 13	VSK 16
Connecting + retaining pin for VIP components (*10 pcs a box/**4 pcs a box)	7985639*	7985640*	7985641*	7985642*	7985643**
Safety latch set for VCGH (latch + spring + load- and retaining bolt)	7100299	7100300	7100301	7100302	7100303
VSK-identification tag with connecting link	7988623	7988624	7988625	7988626	7988627
Replacement safety pin set for VMVK (complete-set)	7987080	7987081	7987082	7991182	7991183
Spare parts VKSPSR					
1+2 Load and safety pin	7985639*	7985640*	7985641*	7985642*	7985643**
3 Cylindric grooved pin	8801095	8801092	8801092	8801094	8801094
4 Reversing pin	7990163	-	-	7990125	7990125
5 Retaining pin	8801046	-	-	51303	51303
4a Knurled disc	-	7993175	7993175	-	-
5a Locking ring	-	7993173	7993173	-	-
6 Handle bar	7990168	7990750	7990750	7990123	7990123
7 Pressure disc	-	7986278	7986278	-	-
8 Pressure spring	53871	7986314	7986314	7990131	7990131
9 Pin rod	7990160	7990026	7990026	7990117	7990117

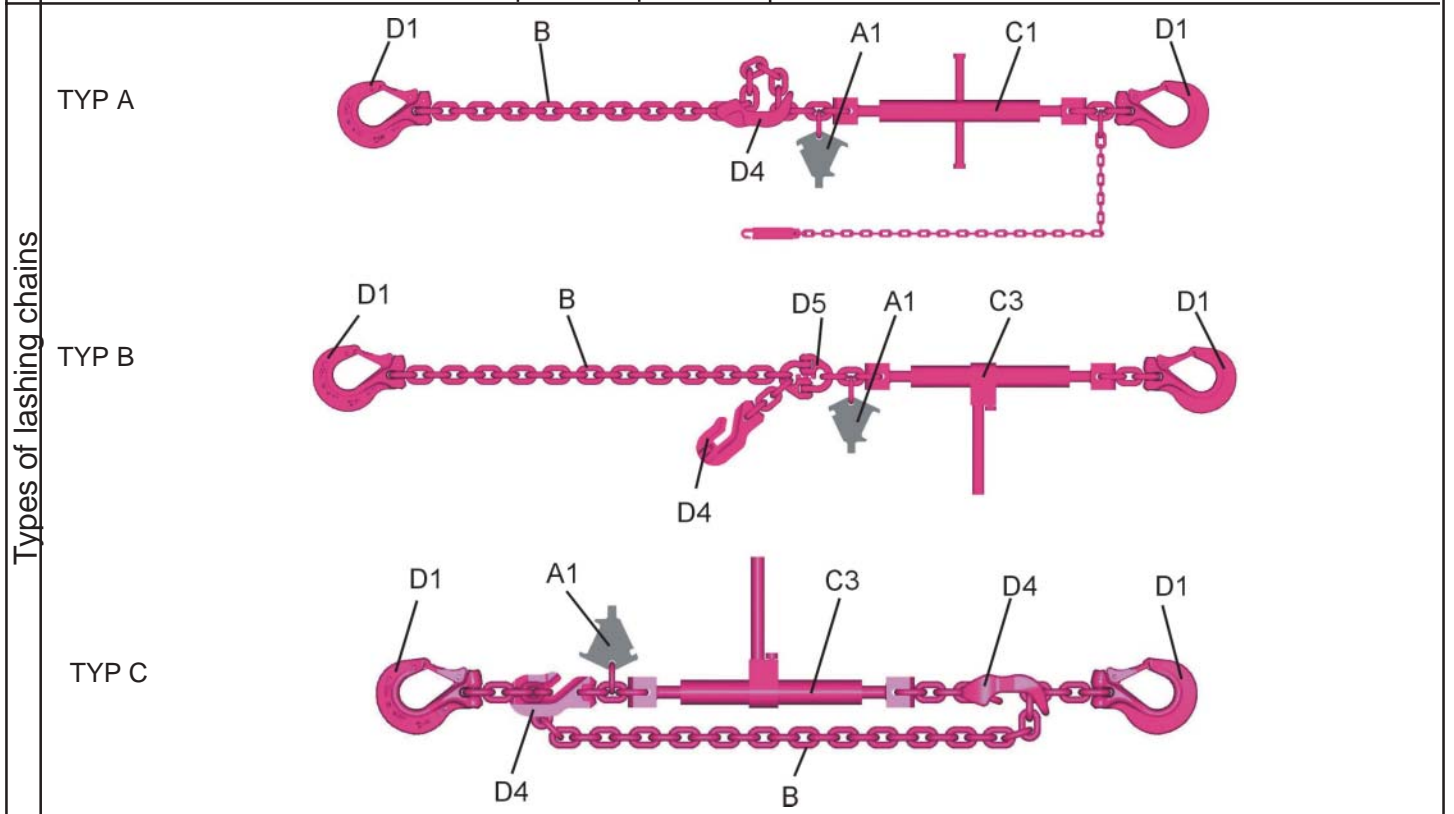
6. Documentation in a lashing chain card file

Recorded in the chain card file is the consecutive history of a lashing chain. Inclusive the original application, inspection – and testing dates as well as repair and maintenance notes.

Supervision during the usage				Chain card file for lashing chains	
I-Nr.	Inspection and testing - result	Repair		What kind of repair	Date Signature of the tester
		yes	no		
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					



A	Type :	max. Lashing capacity LC	reachable Pre-tension force STF
		_____ daN	_____ daN
A1	Identification tag VSK-KZA	Ident-no.:	Nom.length: _____ mm
All single parts such as tensioner, lashing hook, shortening element, connecting device, shackle, end link and overload indicator fulfill the higher VIP standards.			
All single parts as well as the chains are stamped with the certified stamp H1-8S or H1-10 and marked with VIP			
		<i>Manufacturer sign</i>	<i>Quality class</i>
B	Round link chain	<i>H</i> 1-VIP	10 / 8S
C	C1 Compact tensioner	<i>H</i> 1-VIP	10 / 8S
	C3 Kompakt ratchet tensioner	<i>H</i> 1-VIP	10 / 8S
D	D1 Lashing hook	<i>H</i> 1-VIP	10 / 8S
	D2 Endlink	<i>H</i> 1-VIP	10 / 8S
	D3 Shackle	<i>H</i> 1-VIP	10 / 8S
	D4 Shortening element	<i>H</i> 1-VIP	10 / 8S
	D5 Connecting device	<i>H</i> 1-VIP	10 / 8S
E	E1 Pre-tensioning indication		
	E2 overload control		



The original test certificates of the manufacturers are present. We hereby confirm that the assembly was carried out complete and correct.

The lashing chain was assembled by:

Location and date

Signature