

Lashing information



The correct selection and use of lashings is an important issue.

Unitex is one of the world's leading brand manufacturers fulfilling this important issue.

Fundamentals:

To the load securing of cargo transport vehicles are a row of EN 12195ff to be applied. Additional applicable in Germany are the VDI guideline 2700ff and accident prevention rules like "Stand der Technik".

The aim of load securing is: to protect the life and health of humans and animals, just as to protect the load for damaging.

The threats for the involved are mentioned in the various appendix of the EN 12195ff, so that an intended use can be guaranteed.

In Part 2 of EN 12195-2 lashing made of fibers (edition December 2000) in Appendix A, the following Hazards listed (summary):

- The load must not slip, roll over or tip over by loading, transporting and unloading due to improper load securing
- The direct and indirect danger for man and animal must be ruled out.
- Even the secured transportation needs to be guaranteed by the various modes of transport and among the various accelerations.

Vehicles must, taking into account the load distribution and load capacity of the loading area, connection rings, side walls, end walls, etc., absorb the resulting forces (EN 12195-1 under 4 Acceleration).

If the transport vehicle is not in a position to take the required forces, then lashing systems according to EN 12195-2 and 3, and tools for example anti-slip mats (UTX-ARM) are required. The variety of tools today is very large.

Unitex offers his customers not only a large and comprehensive program, but the customers can also qualify through training.



Lashing information

Basic information to load securing:

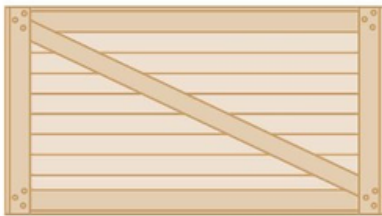
During the transportation process forces put pressure on the load, as well as on the individual load securing. The mass and friction forces needs to be taken into account.

What everyone needs to know:

We make the set with an example:

We are loading a box of 10 t.

Centre of gravity is in the middle and the load is not in risk of tilting



For a concept for load securing certain procedures has to be followed. Unitex would like to introduce an example of 4 stages:

1. stage:

- a) Drivers log in into dispatch department and receive a shipper-briefings
- b) Personal put on personal protective equipment
- c) Make sure the floor of the load area is clean
- d) Make sure intact lashing (web lashing, chain lashing, etc.) and additional tools (anti-slip mats, connecting rings etc.) is ready
- e) Prepare the vehicle body for loading

2. stage:

- a) Talk over the way of loading with the truck driver
- b) Positioning (load dividing)of the load to be discussed with the driver
- c) Under layers of wood to be placed, so that the vehicle will not be damaged by overload.
- d) The way of lashing (closing form, closing force or in a combination) to be discuss with the driver

3. stage:

- a) Safe putting on of the load with a crane or
- b) Taking the load safely in forklift operation
- c) achieve closing form to the front f.e. through vehicle set up, connection rings, under layers of wood or head sling
- d) load may be dropped to anti slip mat



Lashing information

4. stage:

- a) prepare lashings (web lashing, chain lashing, etc.) and additional tools for selected way of lashing and calculation for load securing
- b) decline the load securing by the shipper
- c) the driver is made aware of the fact that the load securing can be inspected along the road
- d) The vehicle structure will be closed if needed

TIP: Unitex offers you the service to introduce load securing in your company.

In the 4 phases following actions are mentioned:

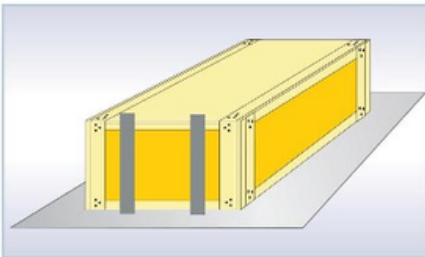
We load the 10t box under the load dividing on the truck.

1. Question we ask ourselves:

Which method of load securing can be used?

We make a split between form fitting and force fitting load securing.

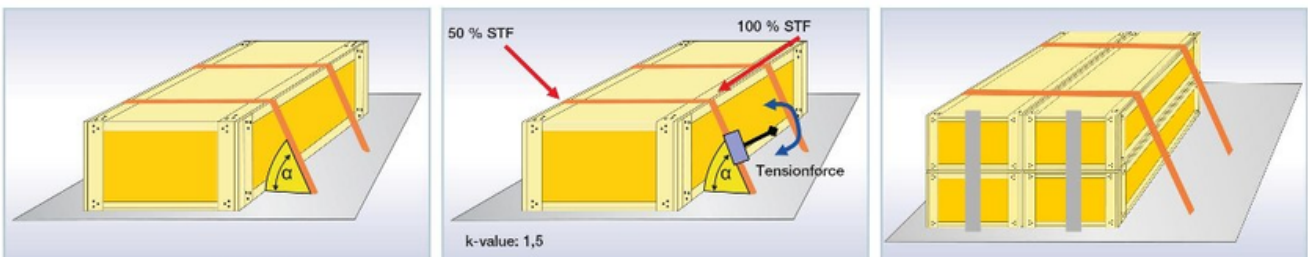
closing form load securing:



Buttress of the load against connecting rings, front wall, side walls etc. The securing can be made through a direct connection of the load or indirect connection of the load due to direct lashing f.e. diagonal lashing, hypotenuse lashing, circumference lashing and head lashing.

A closing force load securing is always pre-pulling.

closing force load securing:



Over the top lashing is a force fitting load securing. By increasing the contact pressure it prevents the load from shifting. By under laying the anti slip mats the number of lashings can be reduced.

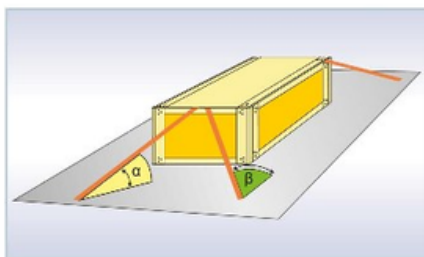
The number of lashing is depending on the mass (m), friction (μD), lashing angle α (alpha) and the standard tension force (STF) of the lashings.

closing form and closing force load securing can be used in combination.

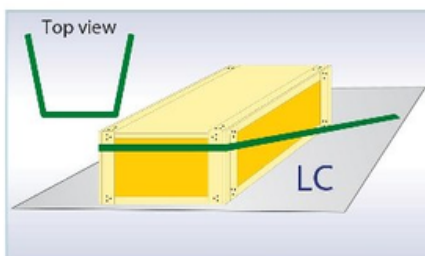


Lashing information

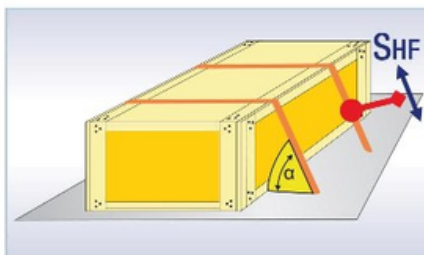
Important hold of the lashing:



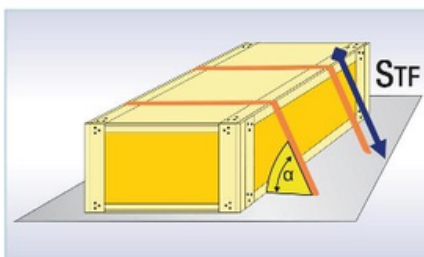
- LC:
- LC = Lashing Capacity - to lash
 - Lashing Capacity (LC) Lashing force diagonal lashing in straight line. f.e. LC 2000 daN



- LC:
- in circumference f.e. LC 4000 daN
 - Use by a head- and side sling



- S_{HF} :
- Standard Hand Force = Regular manual force (50 daN)
 - Tension will be put on the lashing system with this force



- S_{TF} :
- Standard Tension Force – pre tension force of the lashing system f.e. from 250 daN up to 550 daN for polyester lashing systems
 - With lashing chain systems from appr.1000 daN up to 2500 daN

TIP: Practical Advice on the use of lashings systems according to EN 12195-2:

In the selection and in the use of lashing systems it is necessary to take in mind the lashing forces, as well as way of use and the way it is working on the load.



Lashing information

2. Question:

How big are the expected forces?

According to EN 12195-1 the following forces contribute to road vehicles. These are calculated with support of the acceleration coefficient.

c = acceleration coefficient

- 0.8 in forward road direction (x)
- 0.5 opposite of the forward road direction (rear direction) (x)
- 0.5 side ways of the forward road direction by a stable load(y)
- 0.7 for non-tilt secured cargo (side)
- 1.0 cz (vertical)

We count with a wooden box:

10t (centre of gravity in the middle and no danger for tilting)

c = acceleration coefficient

- 0.8 in forward road direction
10t x 0.8 = 8t secured forces forwards
- 0.5 opposite of the forward road direction (x)
10t x 0.5 = 5t secured forces in rear direction
- 0.5 in side way direction (y)
10t x 0.5 = 5t secured forces side ways to the direction
- 1.0 cz (vertical)
10t x 1.0 = 10t vertical forces (load vehicle floor)

From the practice spoken in metric tons, we need to calculate in forward direction with 8 tons of backup power, in rear and side way direction with 5 tons securing forces.

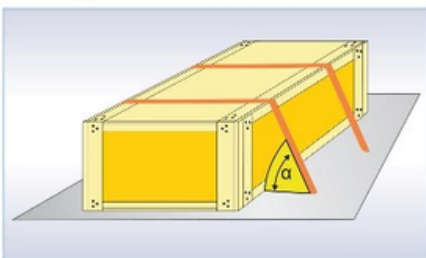
8 tons = 8000 kg x 9.81 m/s² = 78,480 N = 7848 daN securing forward road direction

5 t = 5000 kg x 9.81 m/s² = 49,05 N = 4905 daN securing force in rear and side way direction

3. Question:

What must be observed with closing force load securing?

1. Example:



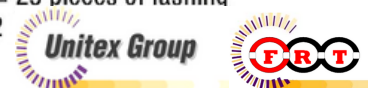
friction between the load and the transport vehicle with wooden floors $\mu_D = 0.3$.

Lashing angle α : 80 °, Stf: 550 daN

Calculating the number of lashings with over the top lashing (EN 12195-1, formula 5):

$$n \geq \frac{(C_{xy} - \mu_D * C_z) * m * g}{k * \mu_D * \sin(\alpha) * F_T}$$

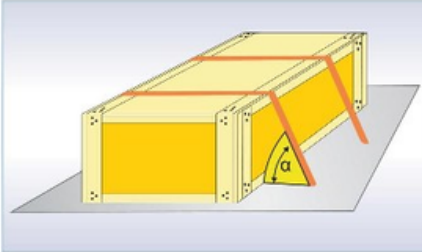
Results: We obtained a minimum number of lashings = 23 pieces of lashing systems with Ergo ratchet - STF 550 daN Type 50A / 2



Lashing information

2. Example:

Anti slip mats between the load and transport vehicle with $\mu_D = 0.6$.
Lashing angle α : 80 °, Stf: 550daN



Calculating the number of lashings by over the top lashing
(EN 12195-1, formula 5):

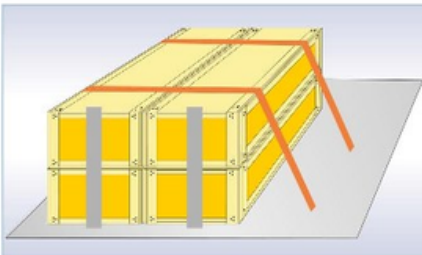
$$n \geq \frac{(C_{xy} - \mu_D * C_z) * m * g}{k * \mu_D * \sin(\alpha) * F_T}$$

Results:

We obtained a minimum number of lashings = 5 pieces of lashing systems with Ergo ratchet - STF 550daN Type 50A / 2 and anti slip mats.

TIP: Due to the use of anti slip mats from Technotex you will get an secured and practical load securing.

3. closing form by two connection rings with a total blocking force of 2000 daN



Example:

Anti slip mats between the load and transport vehicle with $\mu_D = 0.6$.
Lashing angle α : 80 °, Stf: 550 daN

Calculating the number of lashings by over the top lashing (EN 12195-1, formula 5):

$$n \geq \frac{(C_{xy} - \mu_D * C_z) * m * g}{k * \mu_D * \sin(\alpha) * F_T}$$

Results:

With the blocking force forwards with 2000 daN, we obtain a minimum number of lashing systems= 2 pieces of lashing systems with Ergo ratchet

- STF 550 daN Type 50A/2.und 2 pieces anti slip mats

Caution: The principle: By over the top lashing always use at least 2 lashing systems

Result of the load securing:




Example 2 and 3 can be implemented well in practice with products from Technotex. Still some important indications has to be respected!



25mm lashing systems








25MM LASHINGS WITH RATCHETS

	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	25B/1	1- part	800 daN	S_{TF} 240 daN	
	25B/2	2- parts	400 daN	S_{TF} 120 daN	2, 3, 4, 5, 8, 10

	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	25A/1	1- part	1500 daN	S_{TF} 270 daN	
	25A/2	2-part	750 daN	S_{TF} 135 daN	3, 4, 5, 10

Tüv approval for lashings with hook No. 2 and 3




 Art.nr 23.208	 Art.nr 23.207	 Art.nr 23.301	 Art.nr 23.525	 Art.nr 23.219	 *Maximum Lc Capacity 340 daN Art.nr 23.229	 Art.nr 23.204
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25mm lashing systems

25MM LASHINGS WITH CAMBUCKLE




	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the endfitting
	IG25/1	1-part	250 daN		
	IG25/2	2-parts	125 daN		2, 3, 4, 5, 8, 10






35mm lashing systems

35MM LASHING WITH RATCHETS



	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the endfitting
	35B/1	1-part	2000 daN	S_{TF} 360 daN	
	35B/2	2-parts	1000 daN	S_{TF} 180 daN	1, 2, 3, 4, 5*, 10*

	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the endfitting
	35A/1	1-part	3000 daN	S_{TF} 360 daN	
	35A/2	2-parts	1500 daN	S_{TF} 180 daN	1, 2, 3, 4, 5*

Tüv approval for lashings with hook No. 2 and 3



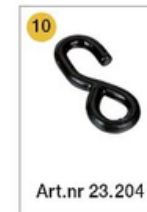
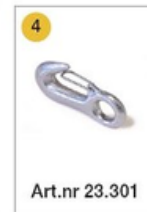
 Art.nr 23.305	 Art.nr 23.303	 Art.nr 23.202	 Art.nr 23.301	 *Maximum Lc Capacity 750 daN Art.nr 23.525	 *Maximum Lc Capacity 750 daN Art.nr 23.204
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35mm lashing systems




35MM LASHINGS WITH CAMBUCKLE




	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	IG35/1	1-part	500 daN		
	IG35/2	2-parts	250 daN		1, 2, 3, 4, 5, 10

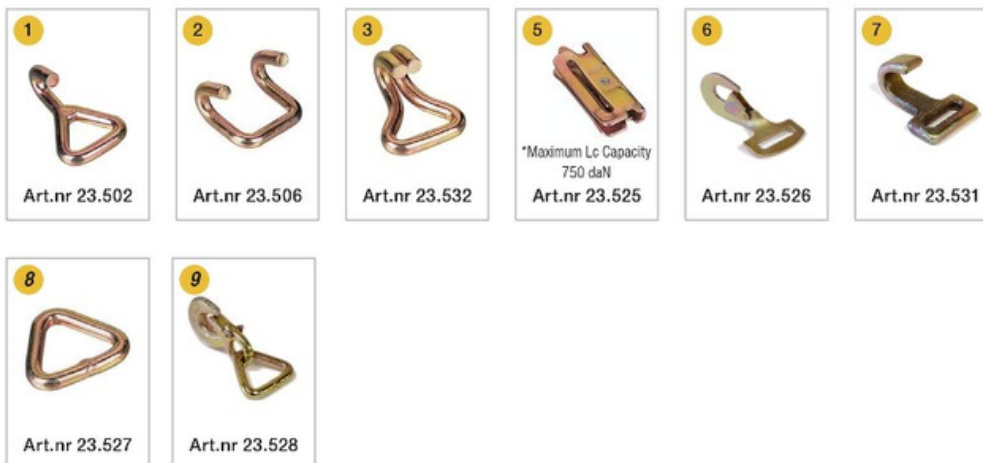


50mm lashing systems

50MM LASHINGS WITH RATCHETS

	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	50L/1	1-part	2000 daN	S_{TF} 360 daN	
	50L/2	2-parts	1000 daN	S_{TF} 180 daN	1, 2, 3, 5*, 6, 7, 8, 9

	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	50C/1	1-part	3000 daN	S_{TF} 420 daN	
	50C/2	2-parts	1500 daN	S_{TF} 210 daN	1, 2, 3, 5*, 6, 7, 8, 9






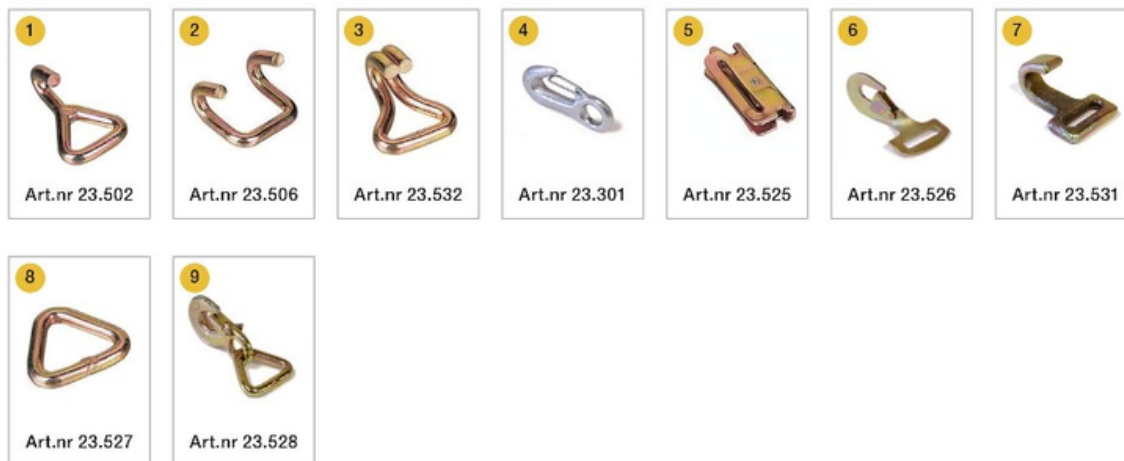
Tüv approval for lashings with hook No. 2 and 3



50mm lashing systems

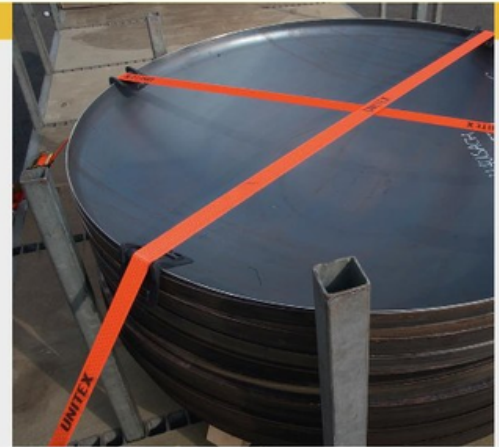
50MM LASHINGS 1-PART WITH CAMBUCKLE




	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	IG50/1	1-part	1200 daN		
	IG50/2	2-parts	600 daN		1, 2, 3, 4, 5, 6, 7, 8, 9






50mm lashing 2000/4000 daN systems

50MM LASHINGS WITH RATCHETS








	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	50BS/1	1-part	4000 daN	S_{TF} 400 daN	
	50BS/2	2-parts	2000 daN	S_{TF} 200 daN	1, 2, 3, 6, 7, 8, 9

	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	50B/1	1-part	4000 daN	S_{TF} 640 daN	
	50B/2	2-parts	2000 daN	S_{TF} 320 daN	1, 2, 3, 6, 7, 8, 9

TÜV approval for lashings with hook No. 2 and 3






 Art.nr 23.502	 Art.nr 23.506	 Art.nr 23.532	 Art.nr 23.526	 Art.nr 23.531	 Art.nr 23.527	 Art.nr 23.528
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50mm lashing 2000/4000 daN systems



50MM LASHINGS WITH LONG-HANDLE ERGO RATCHETS






	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	50BE/1	1-part	4000 daN	S_{TF} 960 daN	
	50BE/2	2-parts	2000 daN	S_{TF} 480 daN	1, 2, 3, 6, 7, 8, 9

50MM LASHINGS WITH EASY RELEASE RATCHETS

	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	50BER/1	1-part	4000 daN	S_{TF} 800 daN	
	50BER/2	2-parts	2000 daN	S_{TF} 400 daN	1, 2, 3, 6, 7, 8, 9

Tüv approval for lashings with hook No. 2 and 3









 Art.nr 23.502	 Art.nr 23.506	 Art.nr 23.532	 Art.nr 23.526	 Art.nr 23.531	 Art.nr 23.527	 Art.nr 23.528
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50mm lashing 2500/5000 daN systems

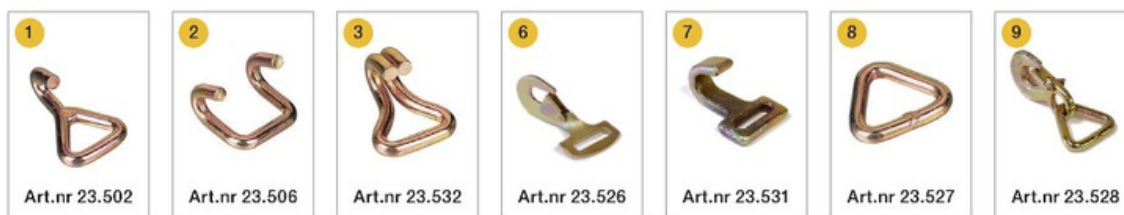
50MM LASHINGS WITH RATCHETS



	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	50AS/1	1-part	5000 daN	S_{TF} 500daN	
	50AS/2	2-parts	2500 daN	S_{TF} 250 daN	1, 2, 3, 6, 7, 8, 9




	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	50A/1	1-part	5000 daN	S_{TF} 700 daN	
	50A/2	2-parts	2500 daN	S_{TF} 350 daN	1, 2, 3, 6, 7, 8, 9

TÜV approval for lashings with hook No. 2 and 3






50mm lashing 2500/5000 daN systems

50MM LASHINGS WITH LONG-HANDLE ERGO RATCHETS

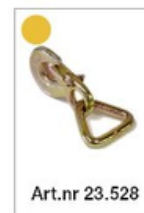
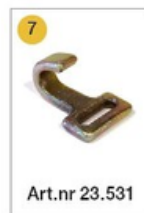
	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	50AE/1	1-part	5000 daN	S_{TF} 1100 daN	
	50AE/2	2-parts	2500 daN	S_{TF} 550 daN	1, 2, 3, 6, 7, 8, 9



50MM LASHINGS WITH EASY RELEASE RATCHETS

	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	50AER/1	1-part	5000 daN	S_{TF} 800 daN	
	50AER/2	2-parts	2500 daN	S_{TF} 400 daN	1, 2, 3, 6, 7, 8, 9




Tüv approval for lashings with hook No. 2 and 3






75/100 mm lashing systems

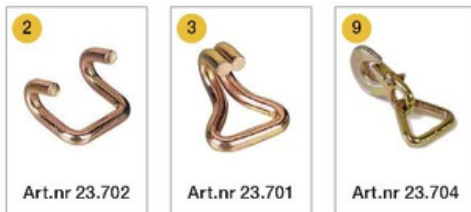
75MM LASHING WITH RATCHET



	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	75A/1	1-part	10000 daN	S_{TF} 1000 daN	
	75A/2	2-parts	5000 daN	S_{TF} 500 daN	2, 3, 9
























100MM LASHING WITH RATCHET

	Type	1 or 2 part	Lashing capacity	Standard Tension Force (S_{TF}) by S_{HF} 50 daN	Nr. of the end-fitting
	100A/1	1-part	10000 daN	S_{TF} 1000 daN	
	100A/2	2-parts	5000 daN	S_{TF} 500 daN	2, 3, 9



Lashings hooks

LASHING HOOKS (PARTS)

	Art.nr 23.207 25mm Double "J" hook for lashing system sb25A and B Maximum LC Capacity 750 daN		Art.nr 23.202 35mm Double "J" hook MBL 3000 kgs for lashing system sb35A and B Maximum LC Capacity 1500 daN		Art.nr 23.532 50mm Double "J" hook MBL 5000 kgs for lashing system SB50A and SB50A Maximum LC Capacity 2500 daN
	Art.nr 23.540 50mm Double "J" hook with keeper MBL 5000 kgs for lashing system sb50A and B Maximum LC Capacity 2500 daN		Art.nr 23.701 75mm Double "J" hook MBL 10000 kgs for lashing system SB75A Maximum LC Capacity 5000 daN		Art.nr 23.208 25mm U-Hook MBL 1000 kgs for lashing system IG25 and SB25B Maximum LC Capacity 500 daN
	Art.nr 23.303 35mm U-hook MBL 3000 kgs for lashing system sb35A and B Maximum LC Capacity 1500 daN		Art.nr 23.506 50mm U-hook MBL 5000 kgs for lashing system sb50A and B Maximum LC Capacity 2500 daN		Art.nr 23.702 75mm U-Hook MBL 10000 kgs for lashing system SB75A Maximum LC Capacity 5000 daN
	Art.nr 23.305 35mm single J-hook MBL 3000 kgs for lashing system sb35A and B Maximum LC Capacity 1500 daN		Art.nr 23.502 50mm single J-hook MBL 5000 kgs for lashing system sb35A and B Maximum LC Capacity 2500 daN		Art.nr 23.229 25mm S-hook MBL 680 kgs for lashing system SBIG25 Maximum LC Capacity 340 daN
	Art.nr 23.204 25mm S-Hook MBL 1500 kgs for lashing systems SBIG35, SBIG50, SB25A and B Maximum LC capacity 750 daN		Art.nr 23.525 50mm end track spring fitting MBL 1500 kgs for lashing systems SBIG35, SBIG50 SB25A and B SB35B SB50C Maximum LC Capacity 750 daN		Art.nr 23.526 50mm Twisted Snap Hook MBL 5000 kgs for lashing systems SB50A and B Maximum LC capacity 2500 daN
	Art.nr 23.505 50mm Flat Snap Hhook MBL 5000 kgs for lashing systems SB50A and B Maximum LC capacity 2500 daN		Art.nr 23.531 50mm Forged Flat Hook MBL 5000 kgs for lashing systems SB50A and B Maximum LC capacity 2500 daN		Art.nr 23.528 50mm Triangel Forged Hook MBL 5000 kgs for lashing systems SB50A And B Maximum LC capacity 2500 daN
	Art.nr 23.704 75mm Triangel Forged Hook MBL 10000 kgs for lashing systems SB75A Maximum LC capacity 5000 daN		Art.nr 23.301 Forged Hook with Keeper MBL 2500 kgs for lashing systems SBIG, SB25 SB35B Maximum LC capacity 1250 daN		Art.nr 23.219 25mm D-Ring MBL 800 kgs for lashing systems SBIG25 and B25B Maximum LC capacity 400 daN
	Art.nr 23.527 50mm D-Ring MBL 5000 kgs for lashing systems SB50A And B Maximum LC capacity 2500 daN		Art.nr 23.558 50mm Flat D-Ring MBL 5000 kgs for lashing systems SB50A and B Maximum LC capacity 2500 daN		



Ratchets

RATCHETS

1	Art.nr 23.706 75mm Ratchet for system sb75 Maximum LC Capacity 5000 daN
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2	Art.nr 23.509 50mm Ergo-Ratchet for system sb50A and B Maximum LC Capacity 2500 daN
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3	Art.nr 23.513 50mm Easy-Release-Ratchet for system sb50A and B Maximum LC Capacity 2500 daN
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1	Art.nr 23.503 50mm Ratchet for system sb50A and B Maximum LC Capacity 2500 daN
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4	Art.nr 23.507 50mm Short- Ratchet for system sb50A and B Maximum LC Capacity 2500 daN
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5	Art.nr 23.504 50mm Ligh Duty Ratchet for system sb50L Maximum LC Capacity 1000 daN
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1	Art.nr 23.315 35mm Ratchet for system sb35A Maximum LC Capacity 1500 daN
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1	Art.nr 23.314 35mm Ratchet for system sb35B Maximum LC Capacity 1000 daN
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1	Art.nr 23.202 25mm Ratchet for system sb25A Maximum LC Capacity 750 daN
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6	Art.nr 23.316 25mm Stainless steel Ratchet for system sb25A Maximum LC Capacity 750 daN
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1	Art.nr 23.201 25mm Ratchet for system sb25B Maximum LC Capacity 400 daN
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7	Art.nr 23.203 25mm Black Ratchet for system sb25B Maximum LC Capacity 400 daN
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1	Art.nr 23.524 50mm Cambuckle for system sbig50 Maximum LC Capacity 600 daN
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1	Art.nr 23.300 35mm Cambuckle for system sbig35 Maximum LC Capacity 250 daN
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1	Art.nr 23.218 25mm Cambuckle for system sbig25 Maximum LC Capacity 125 daN
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One Way Lashing

The UNIFIXX One-way lashing systems offers a lashing solution by combining low cost with safe transport.

The UNIFIXX solution is much better than the traditional way of securing loads and over the last decades it has replaced traditional products such as ropes and chains. The UNIFIXX one-way lashing systems are light weight load securing solutions avoiding damage risk on heavy and expensive loads. Our high tenacity products are extremely suitable for securing loads on crates, pallets, in containers, flattracks and on wagons. The UNIFIXX One-way lashing webbing is supplied in combination with buckles and tensioners.

The UNIFIXX One-way lashing systems are approved by the Germanischer Lloyd, one of the toughest approvals. The allowable working loads vary from 500daN to 4.000 daN with a width variation from 30mm to 50mm. The lashings are produced in-house ensuring a high flexibility regarding individuals wishes. UNIFIXX can be manufactured, personalized and packed to your individual specifications.



Type	Width (mm)	MBS Lashing (daN)	Packing (plastic bags)	System Strength (daN)- Buckle
W323	32	2300	250 mtr.	4000 - B3030
W435	40	3500	200 mtr.	6000 - B4040
W450	40	5000	200 mtr.	7500 - B4040
W523	50	2300	300 mtr.	3000 - B5020
W550	50	5000	200 mtr.	9000 - B5050
W560	50	6000	150 mtr.	9500 - B5050
W575	50	7500	150 mtr.	10000 - B5050

Type	Width (mm)	
B3030	30	
B4040	40	
B5050	50	
B3030S	30	
B5020	50	
B4050W	50	
B5050W		
H5050	50	
SB10-7	32 mm	
SB12-7	40 mm	
SB12-8	40 mm	
SBF10-7	32 mm	
SBF12-7	40 mm	
SBF12-8	40 mm	



TENS26



PTENS01



UR5050



One Way Lashing

USER INSTRUCTIONS UNIFIXX ONE WAY LASHING



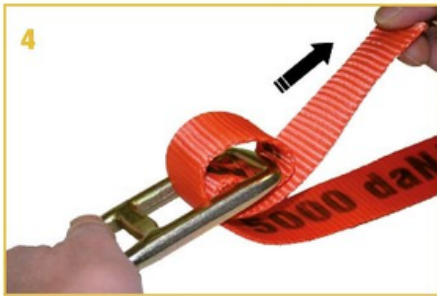
1 Thread one end of the lashing webbing through the middle of the buckle



2 Make a loop around one end and insert the lashing webbing under the looped end



3 Lead the end back through the middle of the buckle



4 Pull the lashing webbing away from the buckle



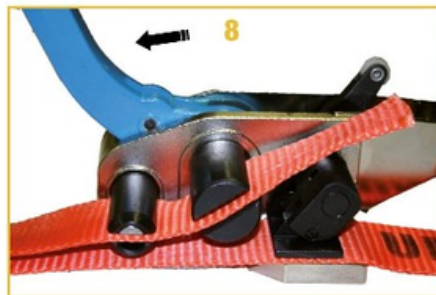
5 Repeat step 1 - 4 with the opposite end



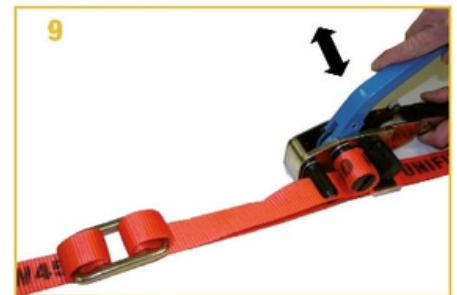
6 Pull tight and allow a min. overlap of 25 cm for tensioner use



7 Squeeze the handle of the tensioner and lead the webbing under the break lever



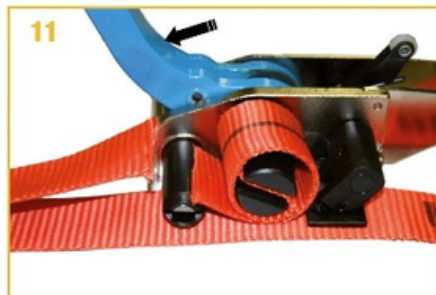
8 Pull the handle wide open and place the top lashing webbing part through the cutter and tensioner slot



9 Move the handle up and down to tension the lashing webbing; keep min. 8 cm overlap from the buckle



10 Squeeze the handle to cut the lashing webbing (10), release the break (11) and remove the ter



11 release the break (11) and remove the ter



12 remove the ter

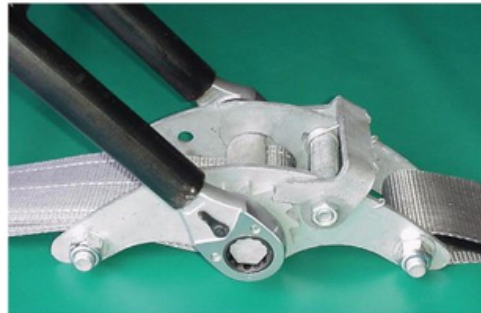


TURTLE MAX Timber Lashing System

Professional securing system for timber deck cargo
(in compliance with IMO 275E
"Code of Safe Practice for Ships Carrying Timber Deck Cargoes")

Specifications:

Safe working load	: 133 kN	MBL	: 200 kN
Temperature range	: of -40°C to +100°C	Weight	: 10 kg
Webbing	: Polyester < 5% elongation, measured from the pre-tension load of 27 to 106.4 kN		
Width	: 100 mm	Length	: variable
Take up	: + 2 m	Handling	: one man operation
Certificates	: Germanischer Lloyd	End connectors	: hook, shackles or customised
Minimum pre-tension	: 2.700 kg	Maintenance	: very low



The main advantages of Turtle Max timber lashing systems are:

- load restraint using a tensioning device (ratchet)
- effective and safe control of load whilst in transportation
- extremely and efficient tie-down and release of load thus saving time
- no damage to the load being tied down



TURTLE MAX Timber Lashing System

SINGLE AND DOUBLE WINCH ARRANGEMENT.

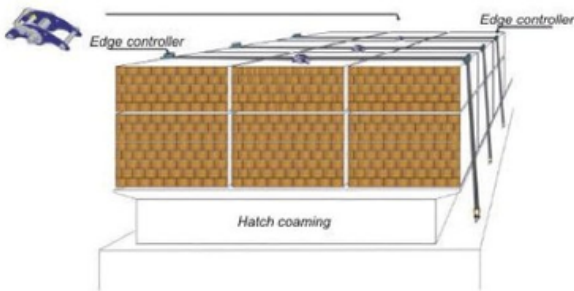
single winch arrangement



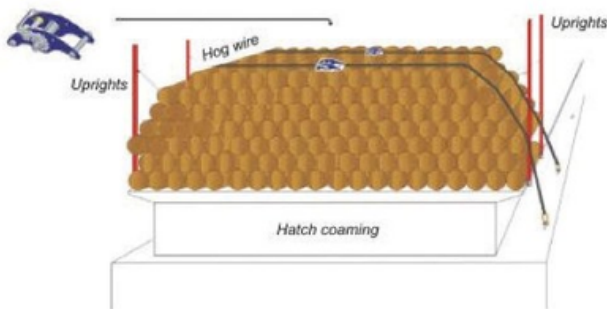
Components of each system

- 1 x Ratchet Winch
- 1 x Web band 100% PES, fixed end / 1 reinforced eye / 1 soft eye
- 1 x Web band 100% PES, loose end / 1 reinforced eye / 1 open end
- 2 x shackles

Lashing arrangement for unitized/package timber



Lashing arrangement for logs



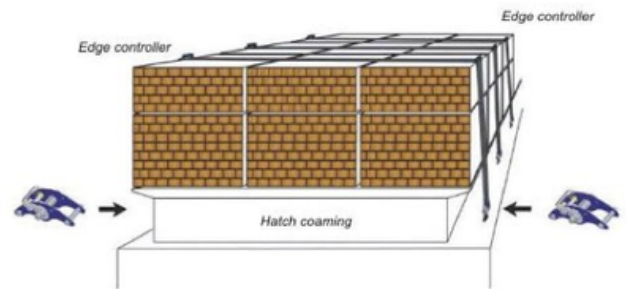
double winch arrangement



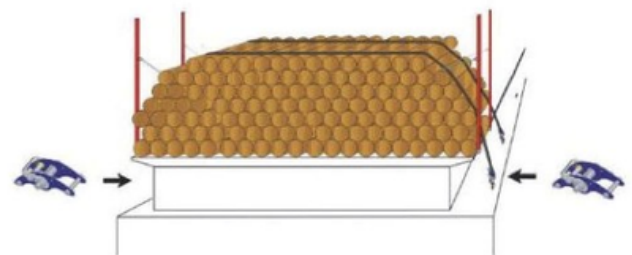
Components of each system

- 2 x Ratchet Winch with 1 steel adapter each
- 1 x Web band 100% PES, loose end, variable length
- 2 x Edge controller (web band protector) - Optional

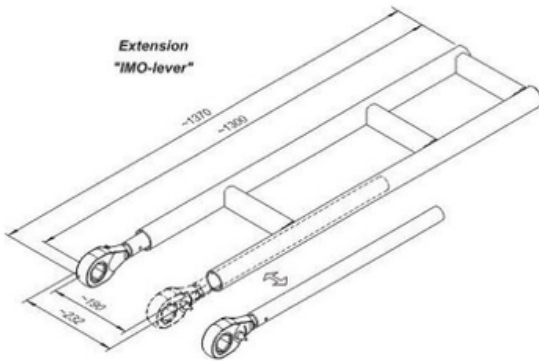
Lashing arrangement for unitized/package timber



Lashing arrangement for logs



TURTLE MAX Timber Lashing System



Ratched handle with
32 mm box spanner

Specification

- Light weight design
- IMO-lever hot dip galvanized
- High quality stainless steel ratchet
- One set consists of two ratchets and one extension
- Low budget solution for narrow working space is available on request

SPECIFICATIONS TURTLE MAX TIMBER LASHING SYSTEM, SINGLE WINCH ARRANGEMENT

Specification of Item	M.S.L KN	Test Load KN	M.B.L. KN	PCS
Turtle Max Web system TurtleWinch Nrs: 043401 - 043410 2 x Connector bolt and nut, lock and slip device, tensioner	100	95	200	10
Turtle fixed Side strop L=2.00 m PW 100/240 semi Duplex fl.cyc/flcyc 0,35 m 100% Polyester, t = 5 mm	140	95	220	10
Turtle Variable Side strop L=23.00 m PW 100/240 semi Duplex fl.cyc/flcyc 0,35 m 100% Polyester, t = 5 mm	140	95	220	10
Timber Max Lashing Shackle Red-Pin galvanized Pin 25 mm/ Bow 19 mm	140	95	270	20

