

PRODUCT

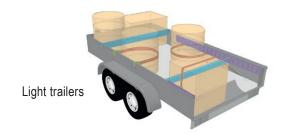
CONFIGURATOR

Sicherheit Made in Germany Customized load securing solutions



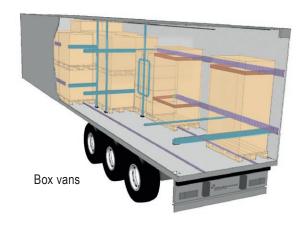
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We reserve the right to make technical changes at any time































Success is a matter of values

For more than 50 years allsafe consequently follows their own way. We will keep on reflecting and re-inventing ourselves.

Detlef Lohmann, Managing Director



Dear sir, dear madam,

thank you for taking time for reading our catalogue. We appreciate your faith in us!

Customer focus, innovation, fairness and responsibility are the basic values on which we base our actions. We have made radical changes to many things, but mostly to ourselves.

We forge new paths with enthusiasm in order to give our customers the best. And we decided to give you our all:change-promise that guarantees an attractive offer for maintenance and repair of shoring elements and decking beams.

We repair worn out or defect products for a fixed price. This reduces consumption of resources and is a benefit for the environment and your budget.

It is our promise to support your success with visible attitude and support. Our brand guarantees best quality and safety "made in Germany". Every day we're driven by our passion for innovation and improvement.

allsafe - company from a different perspective.



What you get for your money at allsafe









Safety

- 100 % certified safety
- 100 % guaranteed quality assurance according to 6σ-standards
- 100 % reliable delivery from select German and European suppliers.
- 100 % guaranteed safe driving with allsafe load restraint equipment

Made in Germany

- 40 select employees provide first-class engineering skills
- Customized and flexible one-piece flow
- Production of 3.000.000 meters of tracks on 13-CNC-machines
- 6-time award winner "Top Job 100 best employers" in Germany with 260 employees

Brand name product

- 2 year product warranty
- all:service-promise: we preserve values
- all:change service, maintanance and repair for all Faktor-4-products
- Fool-proof usability of all allsafe products
- Our production facility produces well over 250.000 shoring elements and 1.000.000 KERLs yearly

Flexibility

- Customization at no additional cost and 24 h production-time
- Individualized products with your own part number and logo
- Production of over 10.000 different variations from 30 different base products in a production facility in Engen and Fürstenwalde which covers more than 15.800 square meters
- The product configurator is your allsafe product tool



An allsafe story









A typical discussion about prices with one of our customers:
"I would really like to purchase again at allsafe: our packing staff and our drivers love your products because of their easy handling and usability.
My company appreciates your madein-Germany-strategy and the perfect

service of your staff. But your products just are too expensive compared with your competitors."

We ask for details: What happened to the old allsafe-products, are they still in use? They still exist, but they are not in use anymore: Somewhere in a dark corner of the facility there are a lot of damaged or worn-out KIM and decking beams that should be scrapped.

The customer gets information about all:change, our program for maintenance and repair of load securing devices. We offer a fixed price for that – and it is cheaper than the price for most no-name-products made in low-cost-countries.

The customer is enthused about it – and he can hardly believe that we also repair the decking beams that he purchased somewhere else.

We can do it all, however extra-ordinary

allsafe custom-made



Faktor 4





KIM	KIM	
44 Profi	46	
flexible	skinny	

usage

page 13

skinny mini

mını page 14-15 KIM 55

resilient and light

page 16-17

KIM 4x4

quadratic and practical

page 18-21

KIM 5x7

robust and variable

page 22-25





Shoring elements custom-made





KIM Decking SAM PAT KAT 7x9 beams safe, quick wide range variable to and reliable meet the blocking capacity with higher extra anchor highest demands loading capacity points page 36-43 page 28-31 page 32-35 page 26 page 44-49

KIM – Shoring poles custom-made

Which KIM for which application:



KIM 44 Profi

flexible usage

- red locking knob ▶ lightening-fast adjustment
- long telescope large adjustment range
- spring-loaded on top for vertical use buser-friendly

KIM 46

skinny mini

- configurable builtable for all current vehicle and types of tracks
- with pull stap ▶ ergonomical handling
- available with protective sleeve > avoids damages to goods

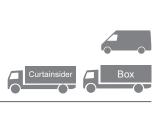
KIM 55

resilient and light

- ergonomic operating lever for easy clamping and release
- telescope function ▶ only one crossbar required for all positions within the vehicle
- horizontal installation possible maximum flexibility



















KIM – Shoring poles custom-made

Which KIM for which application:



KIM 4x4

quadratic and practical

- configurable ▶ suitable for all current vehicle and types of tracks
- optional anti-twist fixation befor flexible use in Airline tracks
- New Airline insert ▶ allows for many different possibilities

KIM 5x7

robust and variable

- high-strength squared aluminum main tube more blocking force to meet the highest expectations
- longer floor bolt for levering loads
- main tube with integrated Airline milling ▶ stronger building blocks
- optional anti-twist fixation by for flexible use in Airline tracks
- profi hand grip ▶ ergonomic and safe

KIM 7x9

strong and removable

- very robust for continuous loading and unloading
- ergonomically adjustable little physical strain



















Your customized KIM. Compose it yourself:



Total length

Configure your KIM for your vehicle. We produce your KIM to fit your exact internal dimensions.

Adjustment range (only with KIM Profi)

KIM Profi has a large adjustment range, meaning that it can be used horizontally or vertically. It can also be used in vehicles with various interior dimensions. With just one look at the telescope insert you can tell which blocking force applies for your current working length. The new lever mechanism allows for a very ergonomic fitting and removal.



End pieces

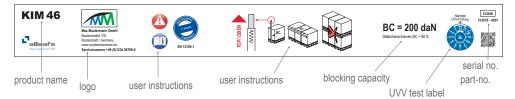


KIMs can be configurated with 19 or 24 Ø mm slotted or solid bolts which fit perfectly in 20 or 25 Ø mm Airline or round hole tracks. Slots are also compatible with pin tracks.

Load protection

Accessories for preventing damage to fragile goods. KIM 46 and KIM 46 Profi can be configurated with a protection sleeve which is mounted during production.

Product identification sticker



All KIMs are supplied with a certified load capacity specification on our product labels. Another one of our top standards is our QR Code which shows all important information about your Faktor-4 product. Use the allsafe-app to easily proof, calculate and manage your allsafe products.

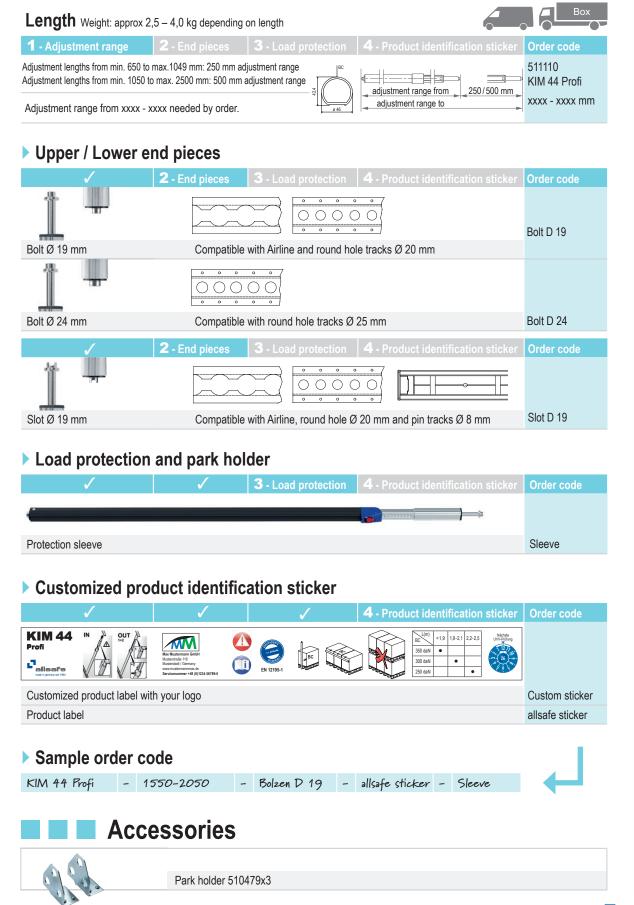
all:change

KIM is covered by our all:change-promise. That means we maintain and repair damaged or worn-out KIM for a fixed price. Annual safety check, pick-up and delivery are included.



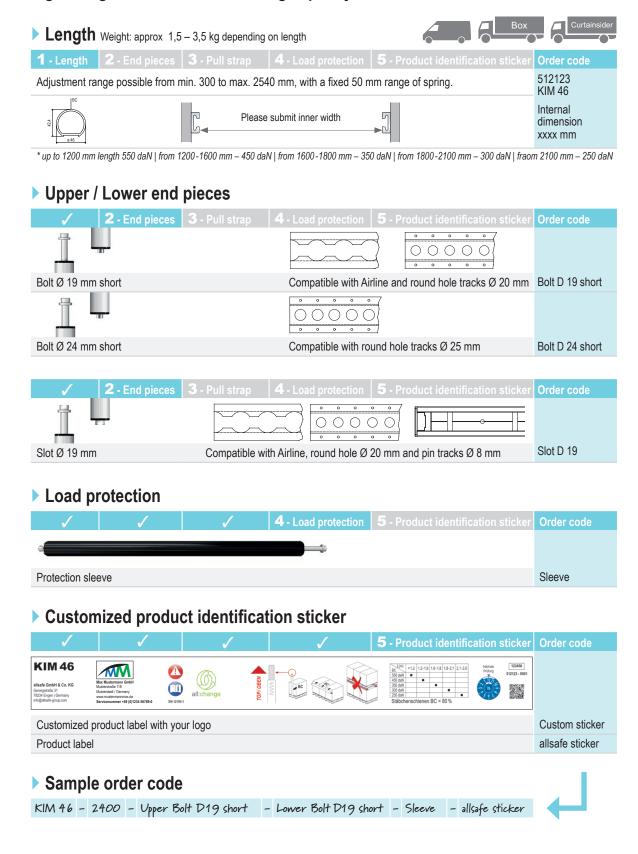


Variable length. Ideal for vertical use.





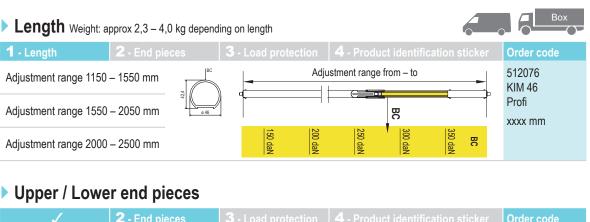
Light-weight with 450 daN blocking capacity*.

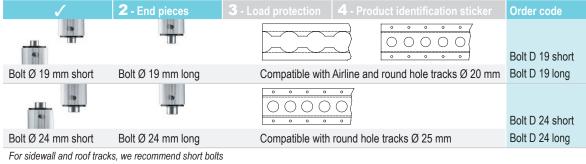


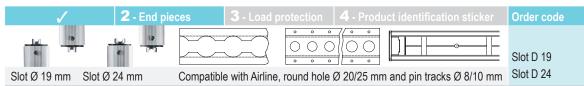


KIM 46 Profi

Blocking capacity of 350 daN with variable lengths.



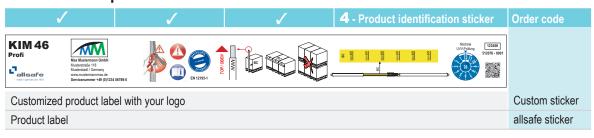




Load protection



▶ Customized product identification sticker



Sample order code

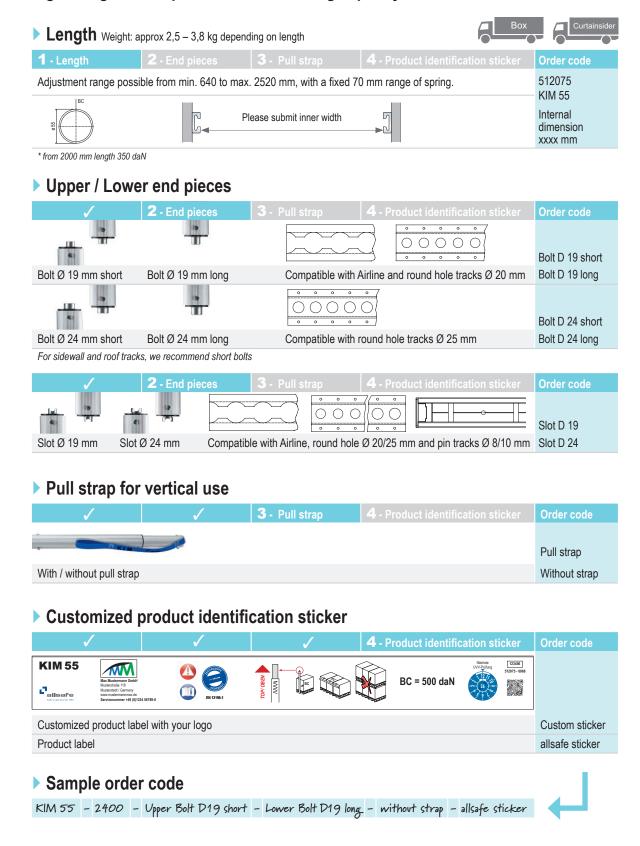
KIM 46 Profi - 1550-2050 - Upper Bolt D19 short - Lower Bolt D19 long - allsafe sticker





KIM 55

Light-weight with up to 450 daN* blocking capacity.

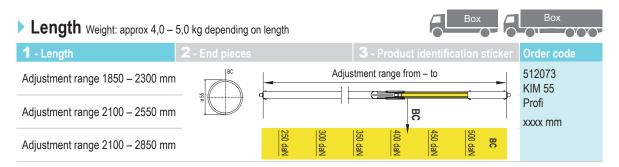




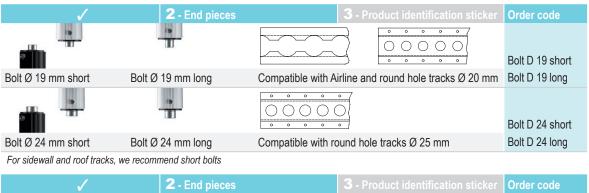
KIM 55 Profi 🛑 🚭

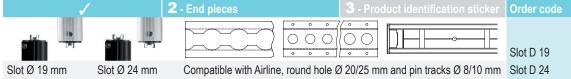


Blocking capacity of 500 daN with variable lengths.

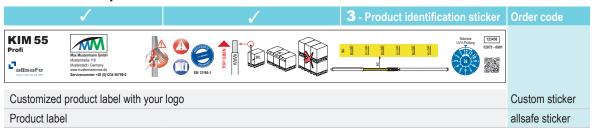


Upper / Lower end pieces





Customized product identification sticker



Sample order code

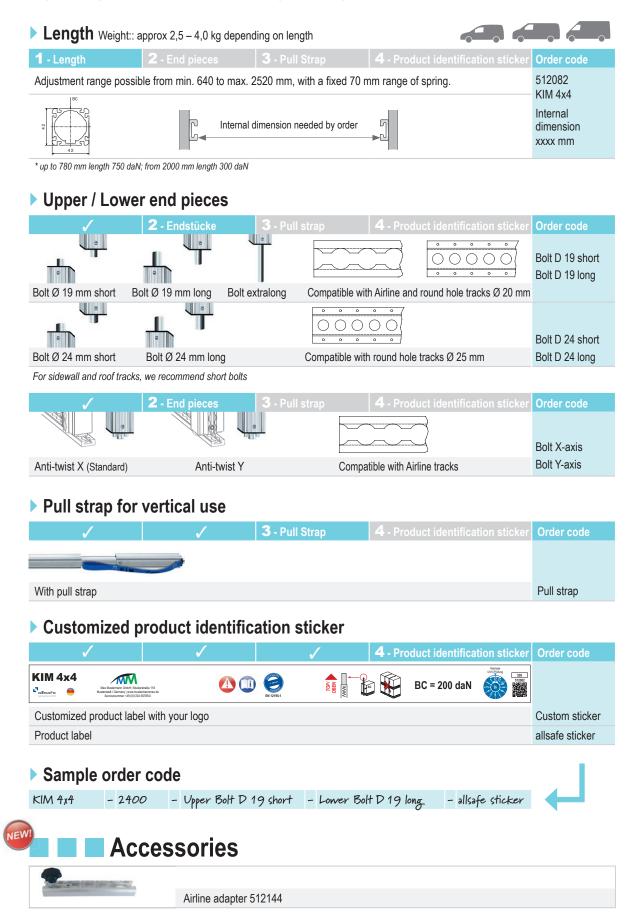
KIM 55 Profi - 2100-2550 - Upper Bolt D 19 short - Lower Bolt D 19 long - allsafe sticker







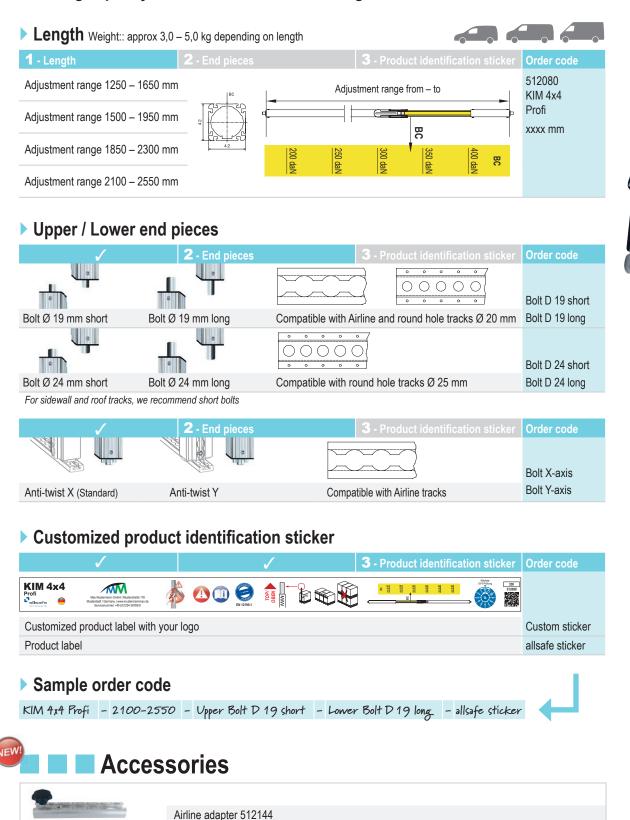
Light-weight with 400 daN blocking capacity*.



Optional anti-twist fixation

KIM 4x4 Profi

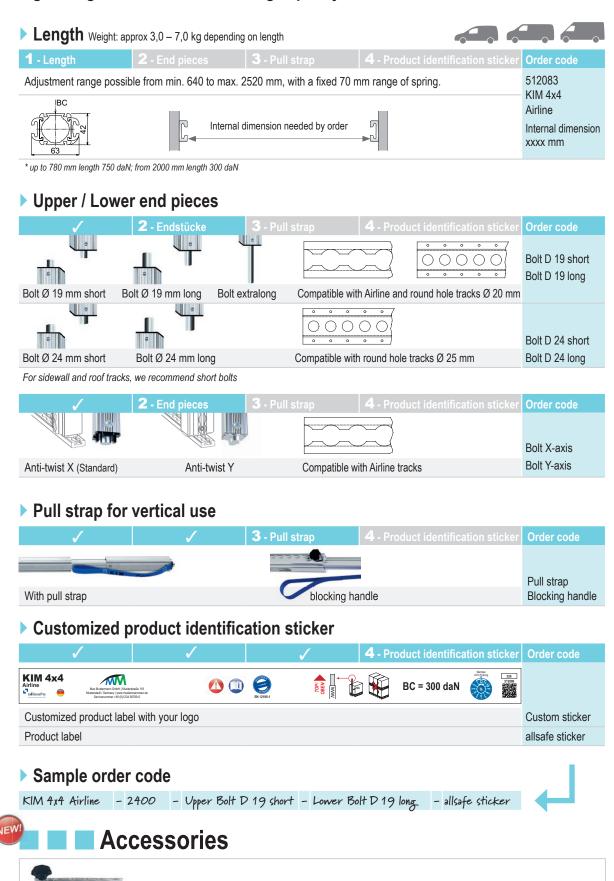
Blocking capactly of 400 daN with variable lengths.



allsafe made in germany seit 1964

💶 🔳 KIM 4x4 Airline 🛑 🎫

Light-weight with 400 daN blocking capacity*.



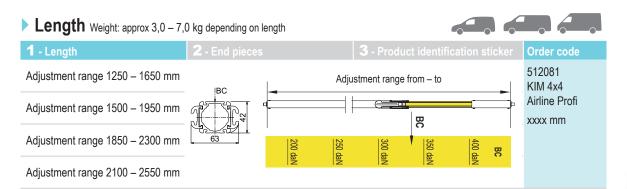
Optional anti-twist fixation

Airline adapter 512144

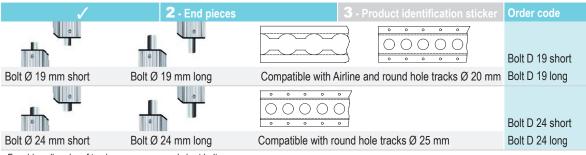
KIM 4x4 Airline Profi



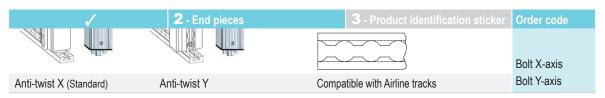
Blocking capactly of 400 daN with variable lengths.



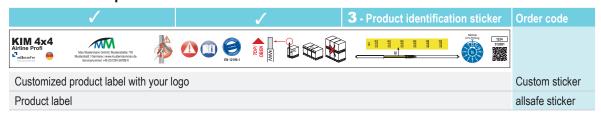
Upper / Lower end pieces



For sidewall and roof tracks, we recommend short bolts



Customized product identification sticker



▶ Sample order code

KIM 4x4 Airline Profi - 2100-2550 - Upper Bolt D19 short - Lower Bolt D19 long - allsafe sticker





Airline adapter 512144

allsafe

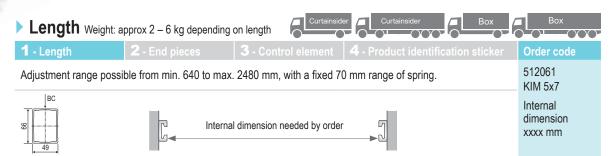
Optional anti-twist fixation



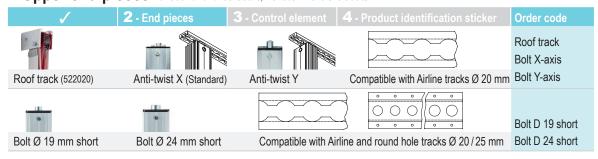
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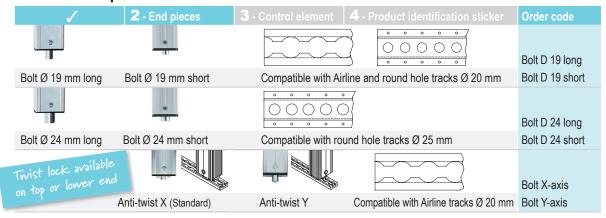
Light-weight with 750 daN blocking force.



▶ Upper end pieces For sidewall and roof tracks, we recommend short bolts



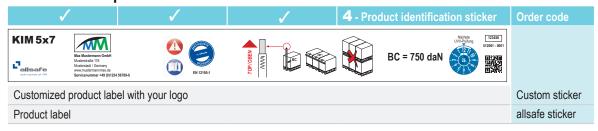
Lower end pieces For sidewall and roof tracks, we recommend short bolts



▶ Handle for a better handling / accessories



Customized product identification sticker



Sample order code

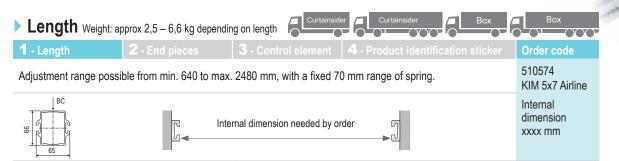
KIM 5x7 - 2400 - Upper bolt @ 19 short - Lower bolt @ 19 long - allsafe-sticker

0

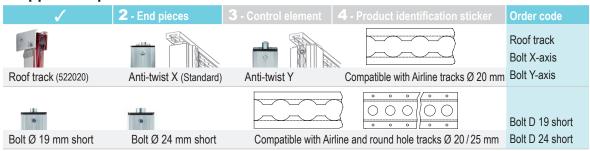
KIM 5x7 Airline



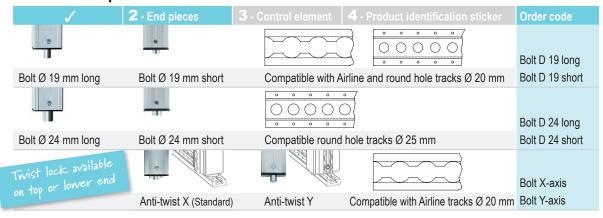
The ultimate upgrade with Airline milling.



▶ Upper end pieces For sidewall and roof tracks, we recommend short bolts



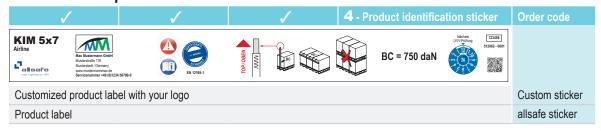
Lower end pieces For sidewall and roof tracks, we recommend short bolts



Handle for a better handling / accessories



Customized product identification sticker



Sample order code

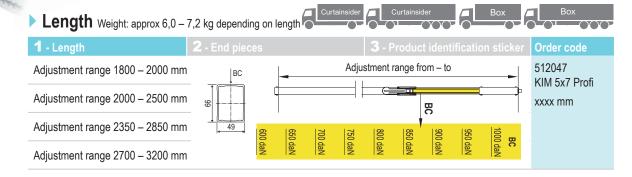
KIM 5x7 Airline - 1800 - Upper bolt Ø 19 short - Lower bolt Ø 19 long - Handle - allsafe sticker



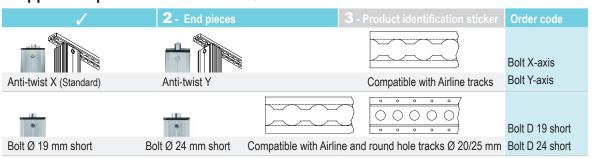
Optional anti-twist fixation



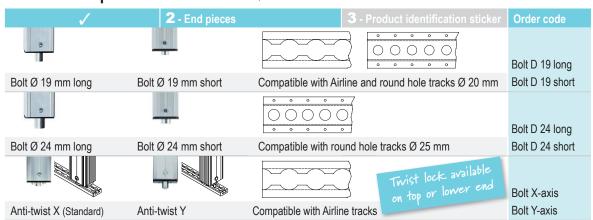
1000 daN with variable lengths.



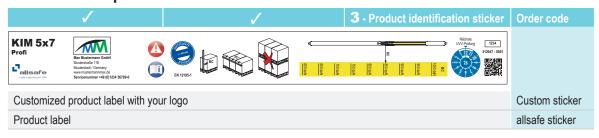
Upper end pieces For sidewall and roof tracks, we recommend short bolts



Lower end pieces For sidewall and roof tracks, we recommend short bolts



Customized product identification sticker



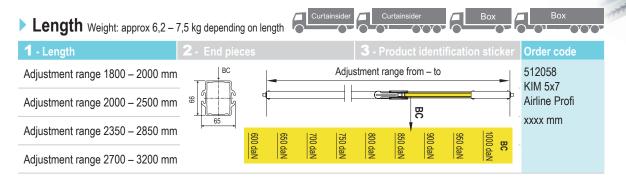
Sample order code

KIM 5x7 Profi - 2350-2850 - Upper bolt 19 short - Lower bolt 19 long - allsafe-sticker

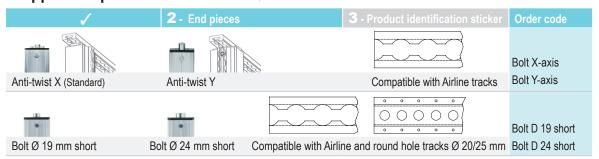
KIM 5x7 Airline Profi



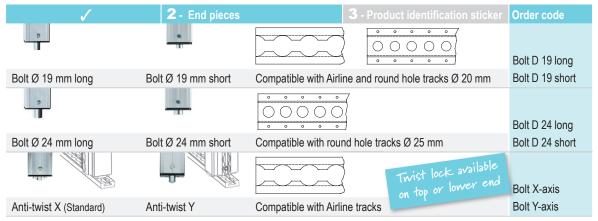
Unlimited possibilities with the highest BC.



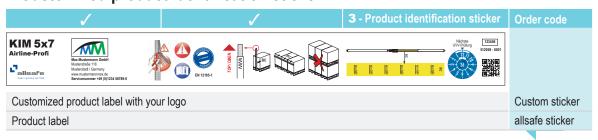
▶ Upper end pieces For sidewall and roof tracks, we recommend short bolts



▶ Lower end pieces For sidewall and roof tracks, we recommend short bolts



▶ Customized product identification sticker

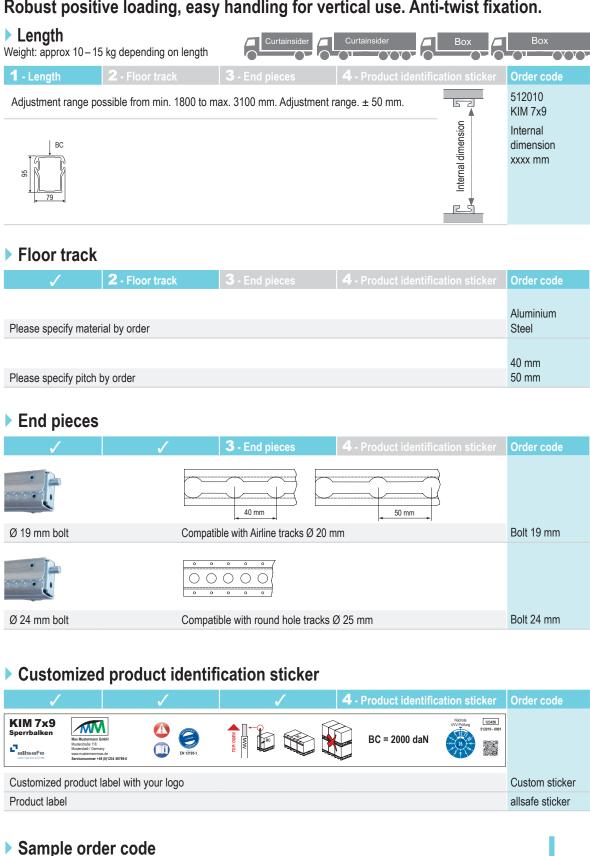


▶ Sample order code

KIM 5x7 Airline Profi - 1800-2300 - Upper bolt X-axis - Lower bolt 19 long - allsafe-sticker

KIM 7x9

Robust positive loading, easy handling for vertical use. Anti-twist fixation.



KIM 7x9

- 2200

- 19 mm bolt

- allsafe sticker

- Steel 40 mm

Application example KIM 5x7 Airline Profi

▶ TRS load restraint system





SAM – Cargo bars custom-made

Reliable with a wide adjustment range. Load restraint without tracks.



SAM 55 Profi

The standard for box vehicles

SAM 46 Profi

The light-weight for transporters









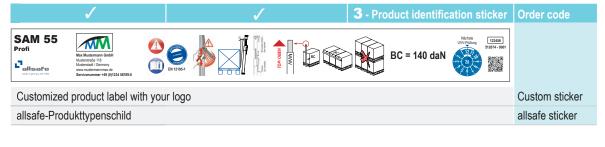






SAM 55 Profi The standard for box vans. ▶ **Length** Weight: approx 4,0 – 5,0 kg depending on length Adjustment range 1850 - 2300 mm Adjustment range 2100 - 2550 mm Adjustment range 2100 - 2850 mm End pieces 2 - End pieces Rubber foot Rubber foot blue Compatible with Airline and round hole tracks Ø 20/25 mm Bolt 19 mm Bolt 24 mm

Customized product identification sticker



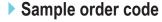
Order code 512074

SAM 55 Profi Profi

Order code Upper xxx Lower xxx (Choose

between rubber feet on both sides or 19 or 24 mm bolts on either side)

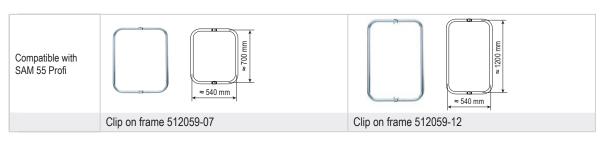
xxxx mm



SAM 55 Profi - 2100-2550 - Upper Bolt D19 - Lower Rubber foot - allsafe sticker

Need bolts on both sides? KIM makes your wish come true!

Accessories





000 S 1 000 S 1000 S 10

SAM 46 Profi 🛑 🎫 🚾







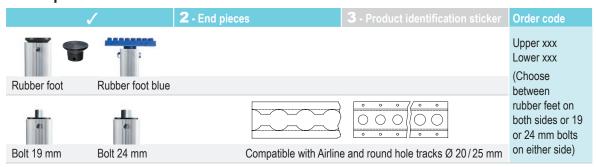
The light-weight for transporters.



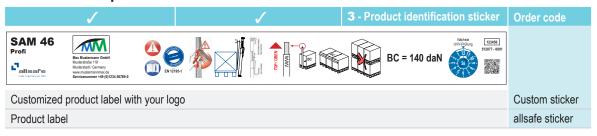
Length Weight: approx 2,3 – 4	,0 kg depending on length			
1 - Length	2 - End pieces	3 - Product identification sticker	Order code	
Adjustment range 1150 – 1550 mm*	Bc		512077 SAM 46	
Adjustment range 1550 – 2050 mm*			Profi xxxx mm	
Adjustment range 2000 – 2500 mm*	9.46			

^{*} up to 1550 mm length 140 daN; from 1550 mm length 120 daN

End pieces



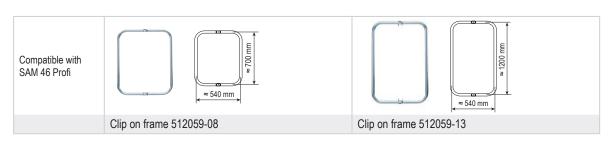
Customized product identification sticker



Sample order code



Accessories





PAT – © © Clamp-shoring beams custom-made

Patented and unique.





the strongest











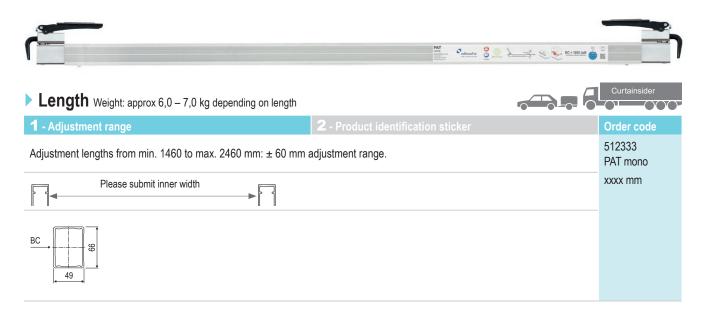




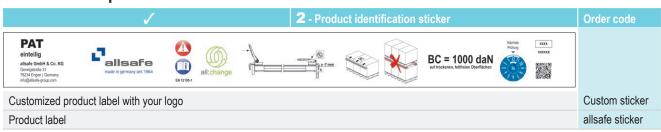




One-piece beam. 1000 daN blocking capacity. For 18-30 mm side boards.



Customized product identification sticker



▶ Sample order code

PAT mono - 1460-1520 - allsafe sticker



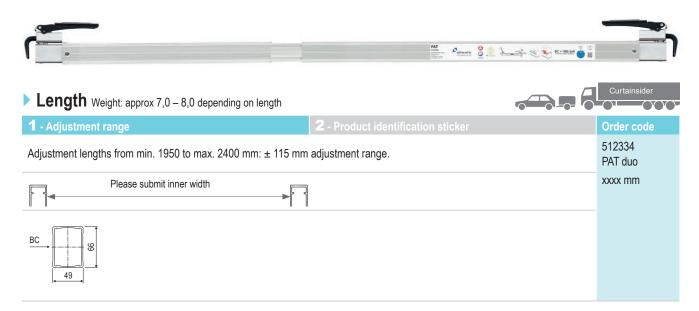




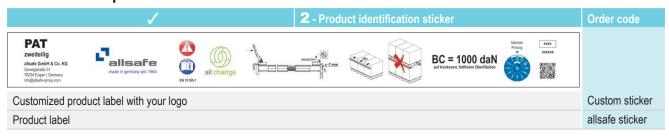




Two-piece beam. 1000 daN blocking capacity. For 18-30 mm side boards.



Customized product identification sticker



▶ Sample order code

PAT duo 2000-2150 - allsafe sticker





KAT – Shoring beams custom-made

For various tracks.



KAT	Combi	
he original		

KAT Airline	
for Airline tracks	

KAT	5 L		
for garment tra	ansport		

KAT AJS _______
for curtainsiders

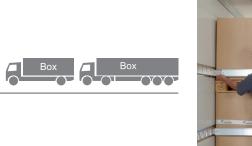


























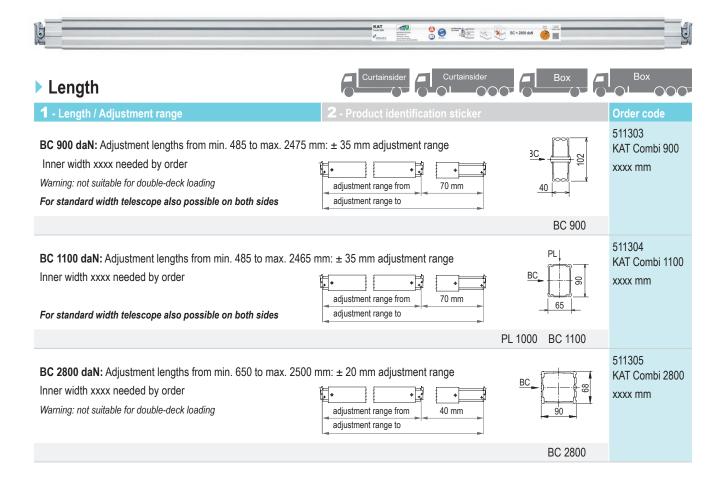




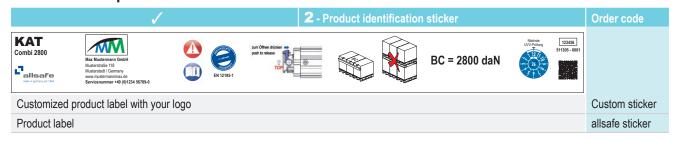




For combi tracks. For horizontal use.



Customized product identification sticker



Sample order code

KAT Combi 2800 - 2480-2520 - allsafe sticker



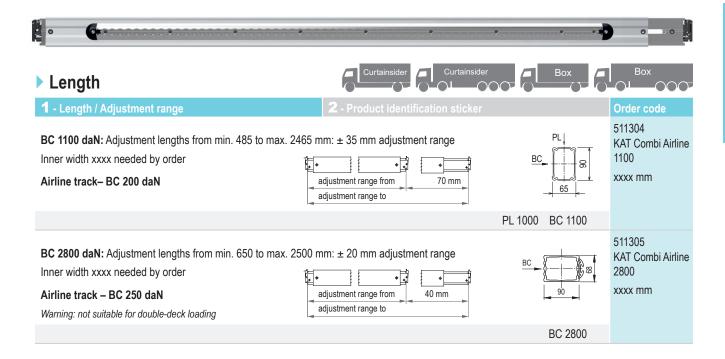


KAT Combi Airline 🛑 🖦 🚾

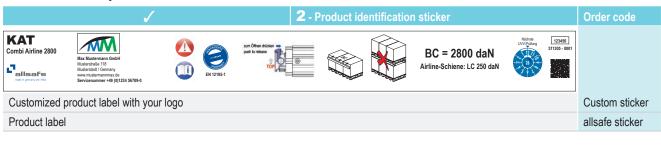




Combi track approved. With Airline track for almost every application.



Customized product identification sticker

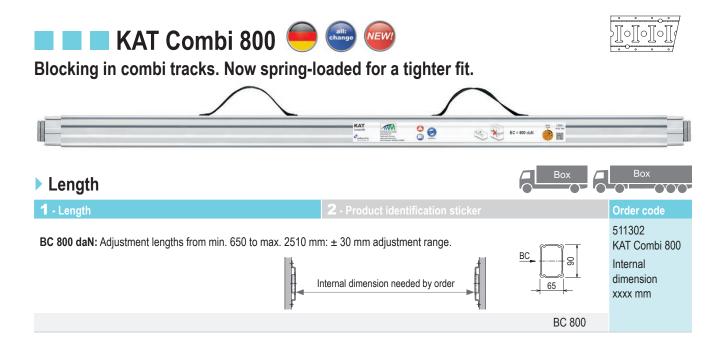


Sample order code

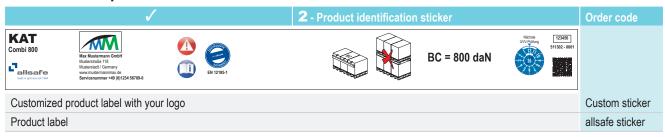
KAT Combi Airline 2800 - 2480-2520 - allsafe sticker







Customized product identification sticker

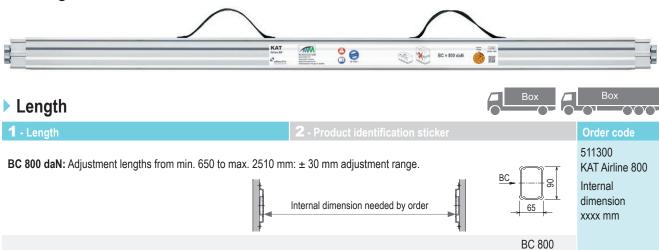




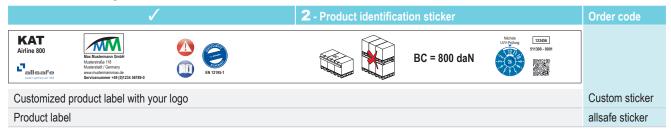
📕 📕 KAT Airline 800 🔴 🖦



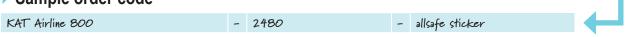
Blocking in Airline tracks. Elastic force for sturdiness in box vehicles.



▶ Customized product identification sticker



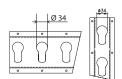
▶ Sample order code

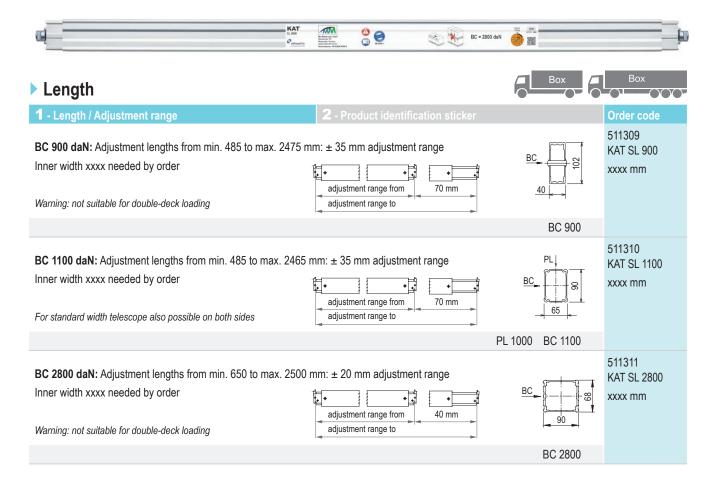




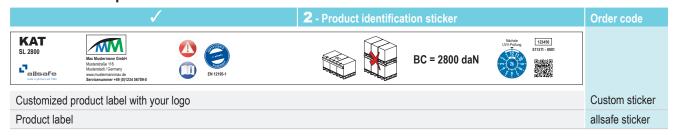








Customized product identification sticker



Sample order code

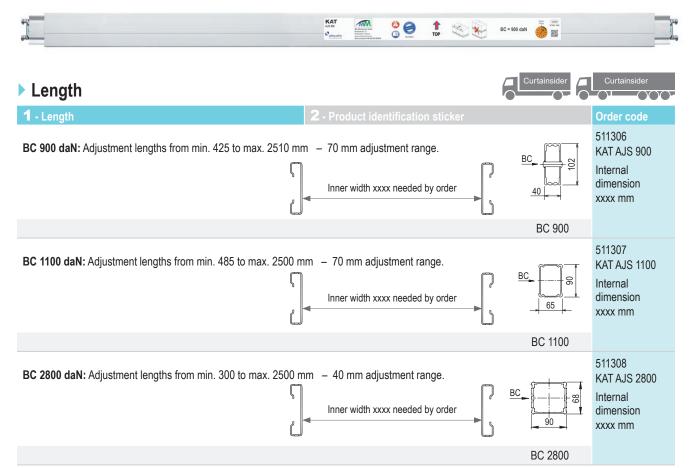
KAT SL 2800 2480-2520 allsafe sticker



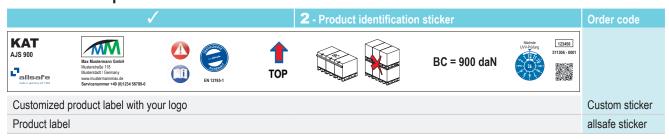


For AJS lashing profiles. For horizontal use.





Customized product identification sticker



Sample order code

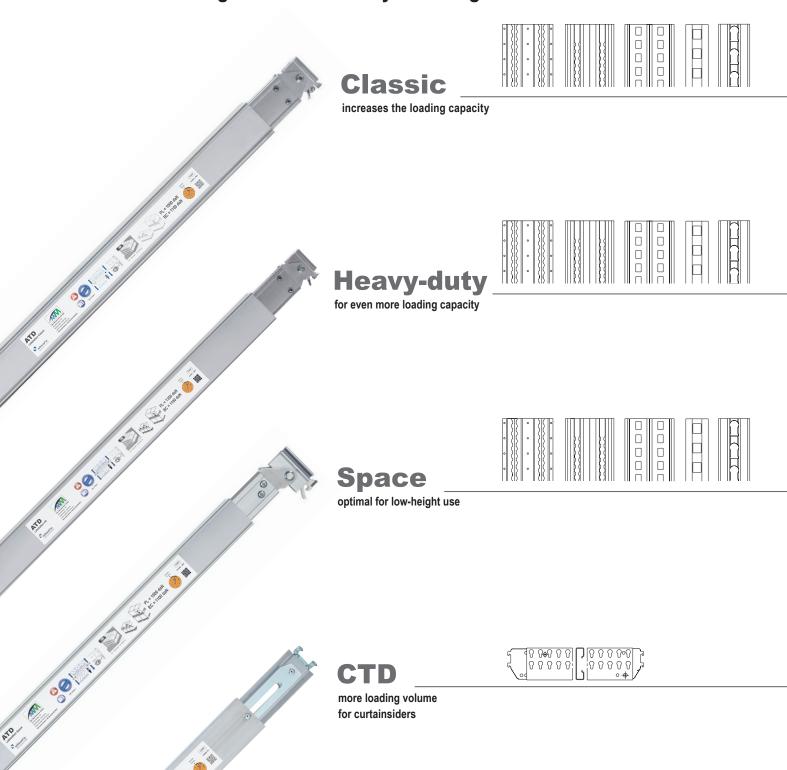
KAT AJS 900 - 2480 - allsafe sticker



Decking beams custom-made



For more loading volume and easy handling.







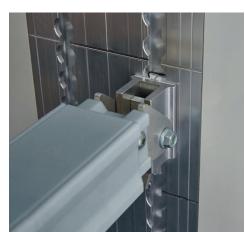




















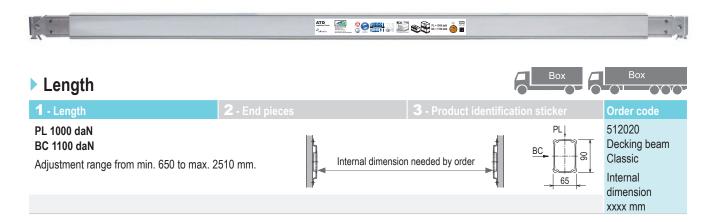
Decking beams Classic 🛑 📟 🕬



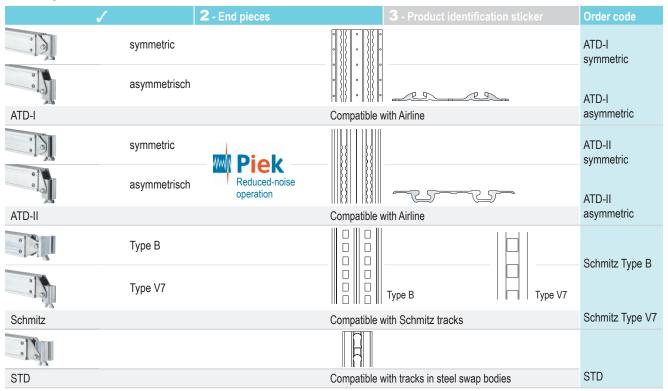




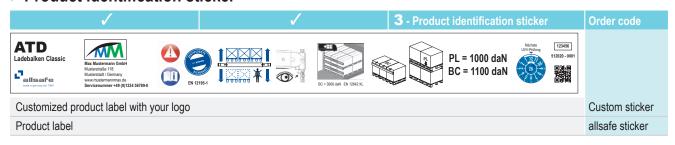
Positive locking in the double-deck tracks.



End pieces



Product identification sticker



Sample order code

Decking beam Classic 2000 ATD-1 asymmetric allsafe-sticker



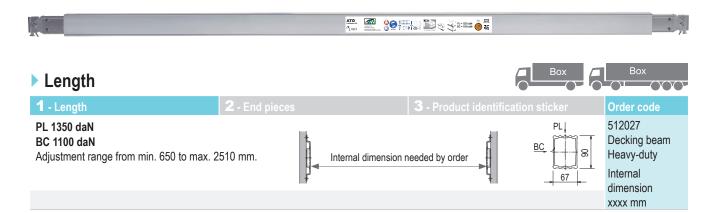
Decking beams Heavy-duty 🛑 🔤 🐷



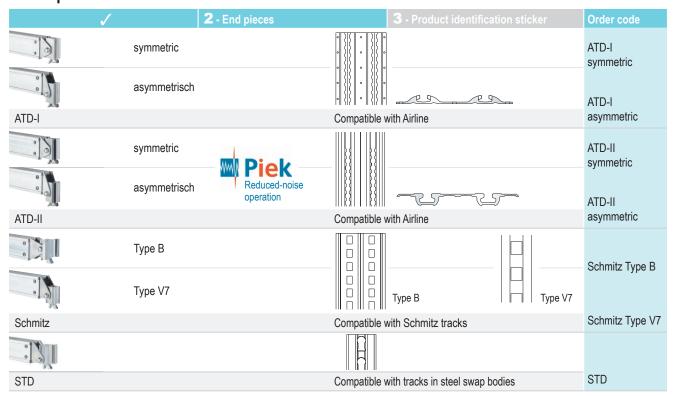




For heaviest loads in double-deck loadings.



End pieces



Product identification sticker



Sample order code

Decking beam Heavy-duty - Custom sticker 2200 - ATD-11 symmetric



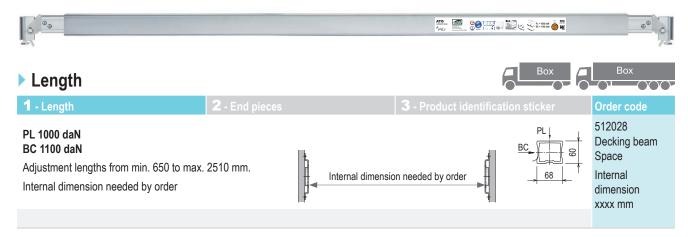
Decking beams Space



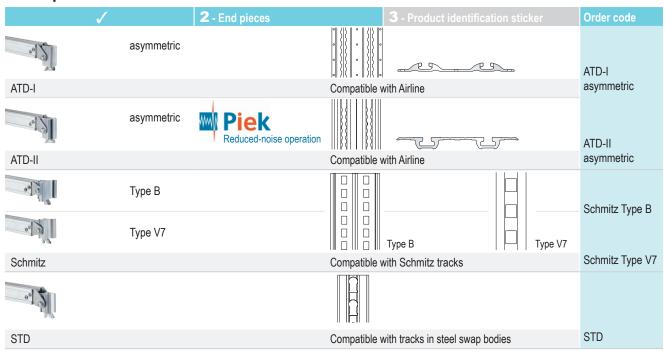




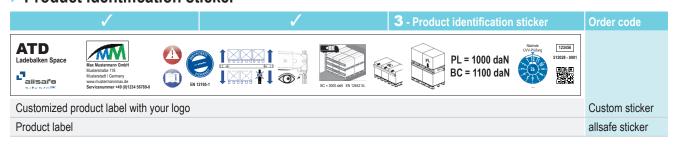
Double-deck with maximum usable hight.



End pieces



Product identification sticker



Sample order code





Decking beams CTD 🛑 🔤



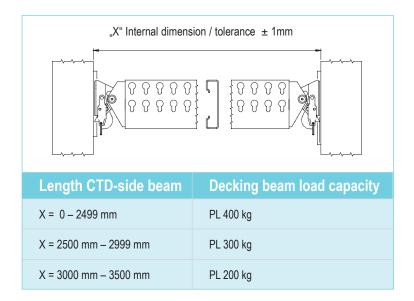


Positive locking in the curtainsider.





The max. loading capacity of this decking beam depends on the length of the side beams (x dimension).



▶ Load capacity PL



1 - Load capacity	2 - Product identification sticker	Order code
BC 800 daN Adjustment range from 2210 to 2530 mm.	PL BC BC BC	Internal dimension xxxx mm
PL 400 kg per Europallet space		510800-10
PL 300 kg per Europallet space		510800-11
PL 200 kg per Europallet space		510800-12

▶ Product identification sticker

	√	/	2 - Product identification sticker	Order code
Ladebalken	Max Musternann GmbH Musterstraße 118 Musterstadt / Germany www.musternannax.de Servicenummer +49 (0)1234 56789-0	EN 12198-1	PL 2400 daN	
Customized p	product label with yo	our logo		Custom sticker
Product label			6	allsafe sticker

▶ Sample order code

510800-10 - allsafe sticker



KERL

used as

Lashing point

always in the right spot

page 54-55

used as

Holder

the icing on the cake for every system

page 55-56







Modular fittings

used as

Screw fitting

installed fast & safely

page 59

for

Special applications

the specialists

page 57-58, 60-63







KERL





used as lashing point

- shape and load capacity according to standards → official lashing point
- different load capacities ▶ suitable for many applications
- 100% made in Germany best quality, high safety level



KERL

used as holder

- standard dimensions ▶ flexible usability
- for keyhole tracks compatible with AJS and CTD
- for Airline tracks ▶ compatible with ATD and CRS

KERL

used as screw fitting

- high-strength material high load capacity



KERL

for special applications

- adjustable in two and three dimensions ▶ load capacity always in the right direction
- lockable versions available ▶ prevents unauthorized operation
- permanent installation or removable bedepending on application





















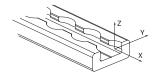






KERL · Lashing points for Airline tracks

KERL 500 and 1000 provide lashing points in combination with Airline tracks with a \emptyset 20 mm, 25 mm or 25.4 mm pitch. Thread straps through it or use appropriate hooks.



▶ KERL used as lashing point for Airline tracks

	9 ролин тол т			
				Order code
	KERL 500		steel zinc-plated, plastic	310275
KERL 500 slide:	KERL 500 V2A	Stainless!	stainless steel, plastic	310280
KERL SUC III	KERL 500 slide	non-removable	steel zinc-plated, plastic	310289
S	## ## ## ## ## ## ## ## ## ## ## ## ##		Ø 25 mm opening Load capacity: ** 500 daN in compliance with ISO 27956	Set of - 0012 pcs. - 0040 pcs. - 0080 pcs.
	KERL 1000		steel zinc-plated, plastic	511228
	80 35	EUR	Ø 25 mm opening Load capacity: ** 1000 daN in compliance with EN 12640	Set of - 0004 pcs. - 0012 pcs. - 0040 pcs.
	KERL 2000		steel zinc-plated, plastic	511227
	72 53	EUR	Ø 25 x 40 mm opening Load capacity: ** 2000 daN in compliance with EN 12640	Set of - 0004 pcs. - 0012 pcs. - 0040 pcs.

▶ KERL as a lashing point for wooden floors and threaded inserts



^{**} maximum value for the fitting. Usable capacity depending on type of track used and type of fixation.

Sample order code

511227



■ ■ KERL · Lashing points for AJS and CTD keyhole

KERL AJS 1000 provide lashing points in combination with AJS and CTD keyhole tracks. Thread straps through it or use appropriate hooks.





■ Holder for Airline tracks

▶ KERL universal holder

				Order code
	KERL Butler		steel zinc-plated, plastic	310287
KERL Butler slide: alidable in track	KERL Butler slide	non-removable	steel zinc-plated, plastic	310290
alidable	26 04 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		Load capacity: ** 50 daN	Set of - 0012 pcs. - 0040 pcs. - 0080 pcs.

^{**} maximum value for the fitting. Usable capacity depending on type of track used and type of fixation.

▶ Sample order code

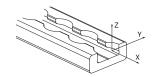
511242





■ ■ Holder for Airline tracks

KERL 25 accommodates all standard 25 mm thick slats made of wood, aluminum or steel and can be used with all Airline tracks with \varnothing 20 mm holes, \varnothing 25 mm holes or a one inch pitch.



▶ KERL used as holder for slats, square timbre and keyhole fittings

	•	-		
				Order code
	KERL 25		aluminium, steel zinc-plated	512200
900	88 27 27 SN	La coccocco	Load capacity: ** X: 1000 daN Y: 400 daN	Set of - 0004 pcs. - 0012 pcs. - 0040 pcs.
	KERL 65		steel zinc-plated, plastic	511230
	65 8 72 42		Load capacity: ** 800 daN with aluminium profile	Set of - 0004 pcs. - 0012 pcs. - 0040 pcs.
	Aluminium profile for	KERL 65		521615
	KERL Airline AJS sli	No	aluminium, steel zinc-plated	511629
	1115	T	for KAT, AJS or CTD loading beams	Set of - 0004 pcs. - 0012 pcs. - 0040 pcs.

Holder for AJS and CTD keyhole

KERL AJS 25 accommodates all standard 25 mm thick slats made of wood, aluminum or steel and is compatible with all AJS and CTD keyhole tracks.



▶ Holder for slats

				Order code
	KERL AJS 25		steel zinc-plated	512191
Cy Cs	77	99998	for AJS lashing profiles or CTD pillars Load capacity: ** Y: 400 daN Z: 1000 daN	Set of - 0004 pcs. - 0012 pcs. - 0040 pcs.

^{**} maximum value for the fitting. Usable capacity depending on type of track used and type of fixation.

▶ Sample order code

511230



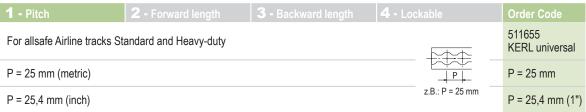


KERL universal

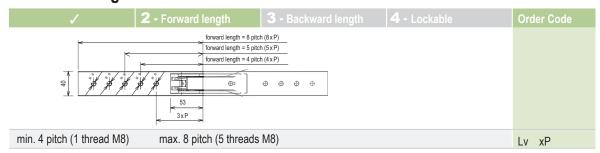
For seat attachment and with individual length. Can be certified as per M1.



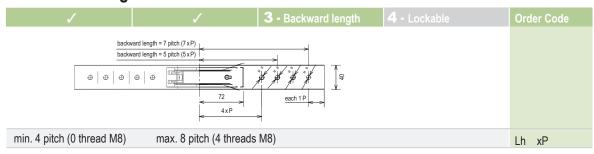
Pitch



▶ Forward length



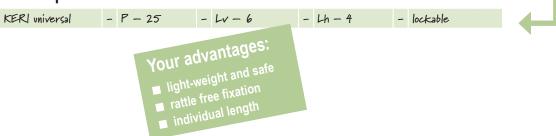
Backward length



Lockable



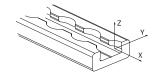
▶ Example Order Code



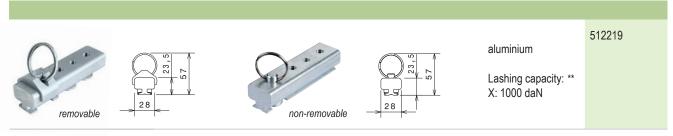


■ ■ KERL universal light

Proven design can now be configured to your specific needs: Select number of studs and 25,0 mm or 25,4 mm pitch. As an additional option, choose the undetachable (non-removable) and theft-proof fixing version. Pitch, number of threads and mounting holes can be defined by yourself!



▶ KERL light



^{**} maximum value for the fitting. Usable capacity depending on type of track used and type of fixation.

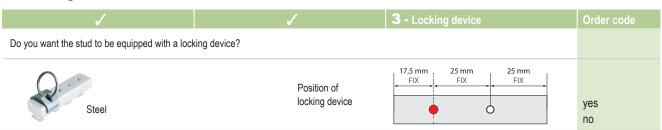
▶ Pitch

1 - Pitch	2 - Mounting holes	3 - Locking device	Order code
Please specify pitch			
P = 25 mm		P	P = 25 mm
P = 25,4 mm (inch)		z.B.: P = 25 mn	P = 25,4 mm (1")
Non-removable			non-removable

▶ Number of Mounting holes

√	2 - Mounting h	oles	3 - Locking device	Order code
ease select number of mounting holes.	This defines the length of	your KERL		
)				3
17,5 mm 25 mm Pitch (min. 20 mm) (mz	25 mm FIX	Example: Shortest KERL version with 1mounting hole	17,5 mm 25 mm 25 mm FIX FIX	
6				M 6
8				M 8

Locking device



▶ Sample order code

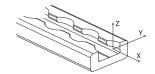






■ ■ KERL · Screw fitting for Airline tracks

Screw fittings for a strong connection of components and attachments to \emptyset 20 mm Airline track with a 25 mm or 25.4 mm pitch.

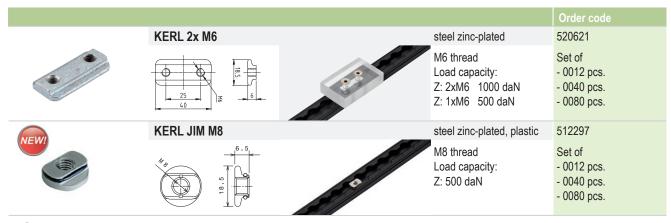


▶ KERL with threaded bolt

			Order code
KERL M8 x 6 x 10 x 20	x 30*	steel zinc-plated	310002 -
M8		M8 thread Load capacity: ** X: 200 daN Y: 200 daN Z: 1000 daN	-19 M8x6* L24 K0-6 -20 M8x10* L30 K0-10 -21 M8x20* L40 K0-20 -22 M8x30* L50 K0-30
KERL M8 x 4S* x 12S* x	x 22S* x 32S*	steel zinc-plated, plastic	310276 -
		M8 thread Load capacity: ** X: 200 daN Y: 200 daN Z: 1000 daN	- 47 M8x4S* K 0 - 4 - 48 M8x12S* K 0 - 12 - 49 M8x22S* K 0 - 22 - 50 M8x32S* K 0 - 32
KERL M8 x 20 S		steel zinc-plated	511330 -
M8 ×		M8 thread Load capacity: ** Y: 1000 daN Z: 1000 daN	-10 M8x24S* K0-20
KERL M10 x 5 x 12 x 22	2 x 32 x 52*	steel zinc-plated	510003 -
M10x1		M10x1 thread Load capacity: ** X: 500 daN Y: 500 daN Z: 2000 daN	-09 M10x5* L23 K0-5 -10 M10x12* L30 K0-12 -20 M10x22* L40 K0-22 -30 M10x32* L50 K0-32 -40 M10x52* L70 K0-52
KERL M10 x 5S x 12S x	22S x 32S x 52S*	steel zinc-plated, plastic	510001 -
#10x1 K minmax.		M10x1 thread Load capacity: ** X: 500 daN Y: 500 daN Z: 2000 daN	- 10 M10x5S* K0-5 - 20 M10x12S* K3-12 - 30 M10x22S* K13-22 - 40 M10x32S* K23-32 - 50 M10x52S* K43-52

 $^{^{\}star}$ Length specifies clamping range \mathbf{K} (see drawing, showing usage with a standard track). Clamping range may vary by \pm 2 mm when used with other tracks.

KERL with female thread



▶ Sample order code

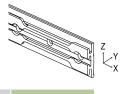
520621



^{**} maximum value for the fitting. Usable capacity depending on type of track used and type of fixation.

KERL JF snap

KERL JF snap is positioned in a form-fitting manner in the airline rail in a grid of 12.5 mm. Suitable for JF rail (522020).



▶ Width



1 - Width		2 - Removability		Order code
81	92		for roll containers with up to 25 mm bars Load capacity: ** x 600 daN y 500 daN BC according to EN 12195-1	512285-0001 KERL JF snap 25 mm non-removable
81	35		for roll containers with up to 35 mm bars Load capacity: ** x 600 daN y 500 daN BC according to EN 12195-1	512285-0002 KERL JF snap 35 mm non-removable
81	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		for roll containers with up to 45 mm bars Load capacity: ** x 600 daN y 500 daN BC according to EN 12195-1	512285-0003 KERL JF snap 45 mm non-removable

^{**} maximum value for the fitting. Usable capacity depending on type of track used and type of fixation.

▶ Sample order code

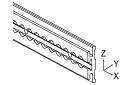
KERL JF snap 512285-0001 - 25 mm



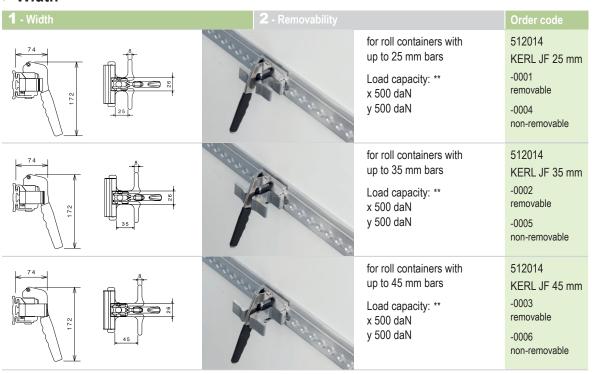


KERL JF

Load restraint for roll containers in cooling and distribution vehicles.

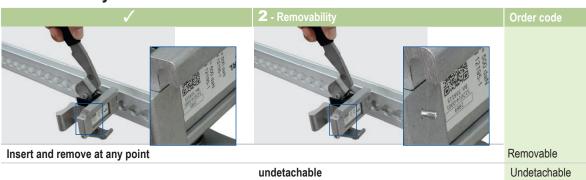


▶ Width



^{**} maximum value for the fitting. Usable capacity depending on type of track used and type of fixation.

▶ Removability



▶ Sample order code

KERL JF 512014 - 35 mm - Removable







KERL JF fix

End fitting system solution for the first roll container towards the bulkhead.

Z Z Y X

▶ Width



1 - Width		Order code
\$ 2	for roll containers with up to 25 mm bars Load capacity: ** 500 daN	512017-0001 KERL JF fix 25 mm
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	for roll containers with up to 35 mm bars Load capacity: ** 500 daN	512017-0002 KERL JF fix 35 mm
115 115	for roll containers with up to 45 mm bars Load capacity: ** 500 daN	512017-0003 KERL JF fix 45 mm

^{**} maximum value for the fitting. Usable capacity depending on type of track used and type of fixation.

► Sample order code

KERL JF fix 512017-0002

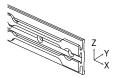
35 mm



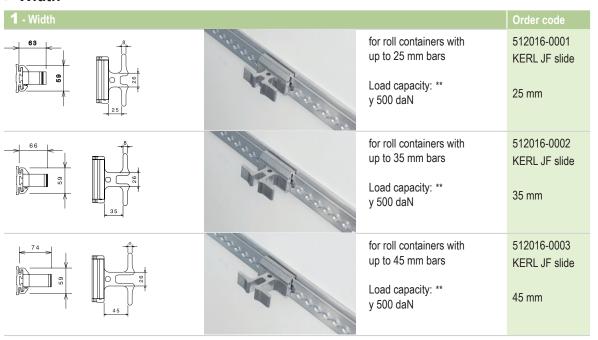


■ ■ KERL JF slide

Middle fitting for light-weight roll containers – only in combination with KERL JF.



Width



^{**} maximum value for the fitting. Usable capacity depending on type of track used and type of fixation.

Sample order code

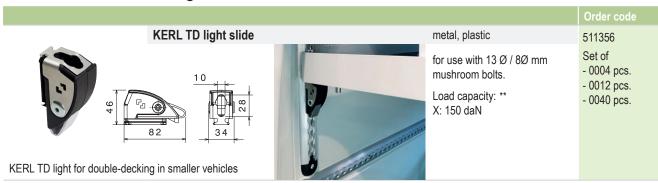
KERL JF slide 512016 - 35 mm



KERL TD light slide

KERL TD light is the perfect match between airline track and upper load floor. Easy to adjust without tools!

▶ For double deck loading in LCV





Lashings





Lashing straps • custom-made

Special straps





Lashing straps

The right strap for your application



Transporter ____

Solid light-weights.

- Made in Germany

 developed, tested and manufactured in Engen, Germany
- freely configurable perfect for your application



Box

Built for tough applications. Developed for rough applications.

- in compliance with DIN EN 12195-2 ▶ maximum safety for you
- compatible with the new KERL fitting product family fits almost all vehicles
- highest pre-tensioning forces high safety with less lashing straps



Special

If it's not available, it doesn't exist.

- in-house development and manufacturing high-quality even for special products
- large selection of components → endless possibilities for custom-made straps
- your strap > your part number standard at allsafe





















Your customized lashing strap. Compose it yourself:



End fittings



Compose your end fittings to suit your needs. No matter if you use Airline tracks or lashing points we have something for all load capacities. Always with a corrosion-resistant surface. By the way: you can also configure your straps with two different end fittings.

Lock



Choose a lock from our large product range to suit your load, lashing needs, required pretensioning force and load capacity. If it's not available, it doesn't exist yet.

Strap appearance



Not just the technical aspects can be selected, but also the visual aspects. Select your favorite colour and we'll take care of the rest.

Strap and label printig



You'd like to have your company name and logo printed on your straps? No Problem. Customized label? We can do it. And all that with a minimum order quantity of one strap! With our standardized QR-Code and our allsafe-App you can easily proof, manage and property calculate your load.

Extras + accessories





Protection pads for the lock protects loads with fragile surfaces, protective sleeves with different properties protect the edges of your load. You select it, we make it.

































25 mm lashing straps



Ideal use in transporters and vans.

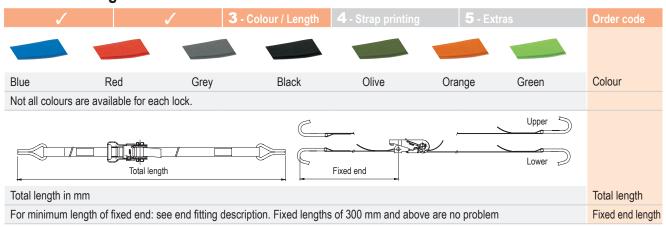
▶ End fitting (different end fitting for loose and fixed end) 1 - End fitting LC 500 daN, L_{min} = 140 mm LC 1000 daN, L_{min} = 170 mm LC 300 daN, L_{min} = 140 mm 511275 standard: 310275; stainless: 310280 511228 LC 550 daN, L_{min} = 190 mm LC 650 daN, L_{min}= 120 mm LC 750 daN, L_{min} = 160 mm LC 750 daN, L_{min} = 130 mm 77 034 71 049 71 038 with safe guard: 71 026; without: 71 349 aluminium! 10 0 0/ LC 1100 daN, L_{min} = 180 mm LC 300 daN, $L_{\rm min}$ = 110 mm LC 1250 daN, L_{min}= 170 mm LC 500 daN, L_{min} = 180 mm 71 028 71 104 75 008 71 412 stainless LC 445 daN, L_{min}= 110 mm LC 300 daN, L_{min}= 120 mm loop 200 mm 511263 75012 (bushing 75570) 121008 71 756 + Item no. L_{min} means the minimal length of the fixed end.

Lock





▶ Colour / Length



Strap and label printing



Extras

√	✓	√	√	5 - Extras	Order code
Protective lock pad	Label protector (min. fixed end: 400 mm)	Fold-back (avoids unthreading)	Abrasion protection sleeve, blue	Abrasion protection sleeve, purple	

▶ Sample order code

511263 -	71038	- 71234	- Blue	- 3800	- 400	_	Strap print	-	Label protector + Fold-back			
25 mm lashing	End fitting	Lock	Colour	Total length	Fixed end length		Strap printing		Extras			
I.C. Take the minimum I.C. of lock and end fitting to get the overall I.C. of your lashing strap												

Accessories





Ideal use in transporters & boxes – the optimal medium size.



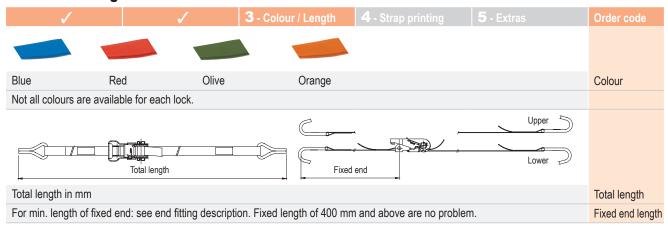
* AJS: AJS- and CTD-keyhole / AL: Airline track

Lock

2 - Lock LC 1500 daN, STF 225 daN LC 225 daN 77 131 71 039 Item no.



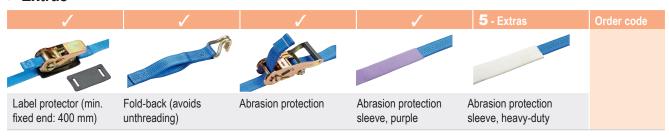
▶ Colour / Length



Strap and label printing



Extras



Sample order code

511265	_	71022	_	71039	_	Blue	-	3800	-	400	_	Strap print	-	Label protector
35 mm lashing strap		End fitting		Lock		Colour		Total length		Fixed end length		Strap printing		Extras
LC: Take the minimum LC of lock and end fitting to get the overall LC of your lashing strap.														

Accessories





■ ■ 45/50 mm lashing straps



Ideal use in box vans.

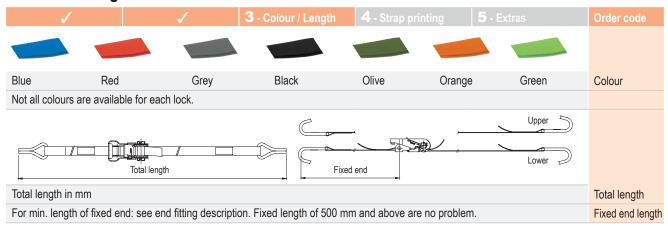


Lock





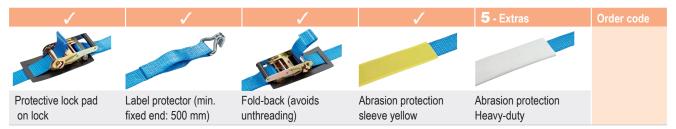
▶ Colour / Length



Strap and label printing



Extras



▶ Sample order code

511266 -	71047	-	71056	_	Blue	-	3800	-	500	-	Strap print	-	Label protector	•
45/50 mm lashing	End fitting		Lock		Colour		Total length		Fixed end length		Strap printing		Extras	
LC: Take the minimum LC of lock and end fitting to get the overall LC of your lashing strap.														

Accessories





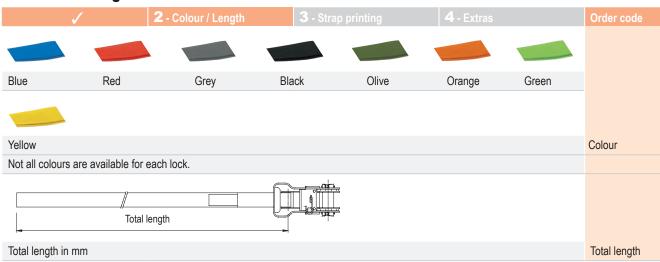
∣22 / 25 mm loop strap 🥌



Ideal use in transporters and vans.

Lock LC 800 daN*, STF 390 daN* LC 1300 daN*, STF 400 daN* LC 2000 daN*, STF 340 daN* Yellow passivated: 71 234; Silver passivated: 360 013-10 71 036 Blue powder coated: 560 438-10 Yellow passivated: 77 036 LC 600 daN* LC 250 daN* LC 250 daN* 511264 522406 512132-10 512132-20 + Item no.

▶ Colour / Length



Strap and label printing

\checkmark	✓	3 - Strap printing	3 - Strap printing 4 - Extras									
A sample of a customized strap and la		Management and the second of t										
Your individual print on the loose	end (allsafe print also ava	ilable)		Strap print								
No strap print				No print								
Your individual print on the label				Label print								



^{*} Load capacity (LC) for strapping

Extras



▶ Sample order code

•											
511264	_	71036	_	Blue	_	3800	_	Strap print	_	Label protector	
25 mm lashing		Lock		Colour		Total length		Strap printing		Extras	
LC: Take the mi	inimu	m LC of lock an	id en	d fitting to	get th	ne overall LC	of yo	our lashing strap.			

Accessories





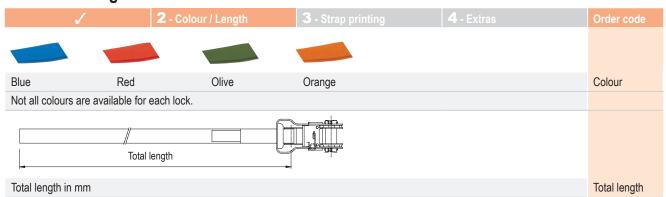
■ ■ 35 mm loop strap



The ideal intermediate size – now also for loop straps.

LC 3000 daN*, STF 450 daN* 1 - Lock 2 - Colour / Length 3 - Strap printing 4 - Extras Order code LC 3000 daN*, STF 450 daN* 511387 71 131 71 039 + Item no.

Colour / Length



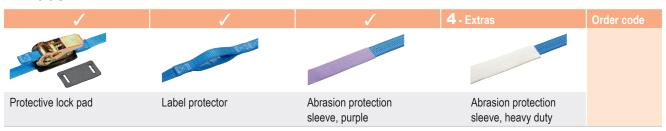
Strap and label printing





^{*} Load capacity (LC) for strapping

Extras



▶ Sample order code

512003	_	71039	_	Blue	_	3800	_	Strap print	_	Label protector	
25 mm lashing		Lock		Colour		Total length		Strap printing		Extras	
LC: Take the minimum LC of lock and end fitting to get the overall LC of your lashing strap.											



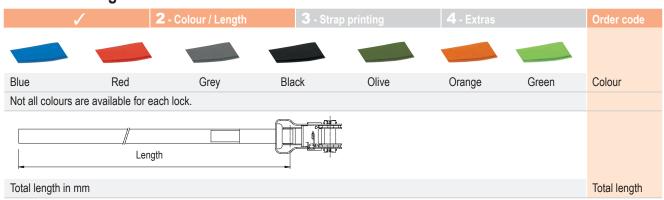


The perfect size for box vans – now also for loop straps.



^{*} Load capacity (LC) for strapping

Colour / Length

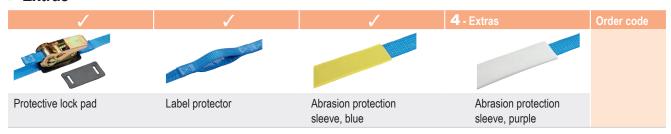




▶ Strap and label printing

√	✓	3 - Strap printing	4 - Extras	Order code
A sample of a customized strap and l		Manual Control and		
Your individual print on the loose	end (allsafe print also ava	ilable)		Strap print
No strap print				No print
Your individual print on the label				Label print

Extras



▶ Sample order code

512004	_	71056	_	Blue	_	3800	_	Strap print	_	Label protector	4
50 mm lashing		Lock		Colour		Total length		Strap printing		Extras	
LC: Take the minimum LC of lock and end fitting to get the overall LC of your lashing strap.											

Accessories





■ ■ Lashing straps · Special requirements

Are you looking for a lashing strap solution for a special requirement? No problem! Talk to us – we'll make it happen. We manufacture everything in Germany, in our own factory. This allows us to offer a large selection of locks and fittings for our straps – custom-made for your specific application.

Special requirements: Challenge us!



▶ ROLF · Load restraint system for cylindrical loads

	Artikel		Order code
ROLF-Set 1		to be used for cylindrical loads: 4 x round harnesses (50 mm webbing) with 4 snap hooks 2 x matching ratchetbuckle straps (50 mm webbing) 2 x Y-strap	511686-10 diameter max. 105 cm height max. 185 cm
ROLF-Set 2		to be used for cylindrical loads: 4 x round harnesses (50 mm webbing) with rings 2 x matching ratchetbuckle straps (50 mm webbing) 2 x Y-strap	511686-30 diameter max. 105 cm height max. 185 cm
ROLF-Set 3		to be used for cylindrical loads with flange: 4 x round harnesses (50 mm webbing) with 4 flat hooks 2 x matching ratchetbuckle straps (50mm webbing) 2 x Y-strap	511686-20 diameter max. 105 cm height max. 185 cm



Load restraint at the touch of a button



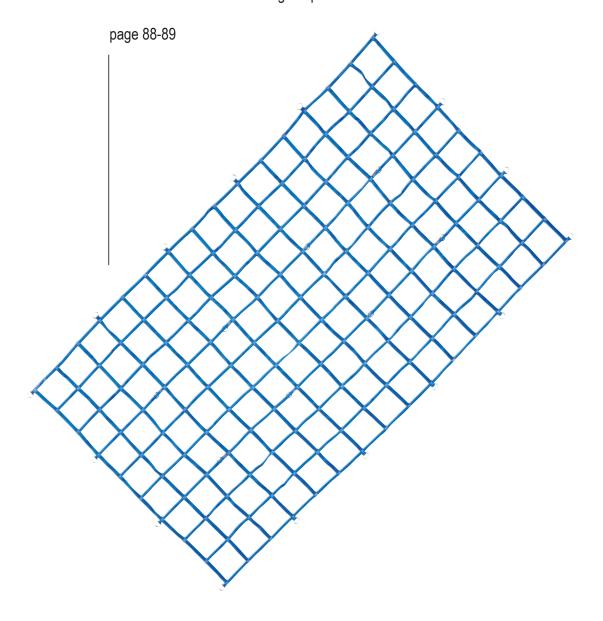




Nets

Trans**SAFE**_{net}

For almost all applications
Perfect match with our lashing straps

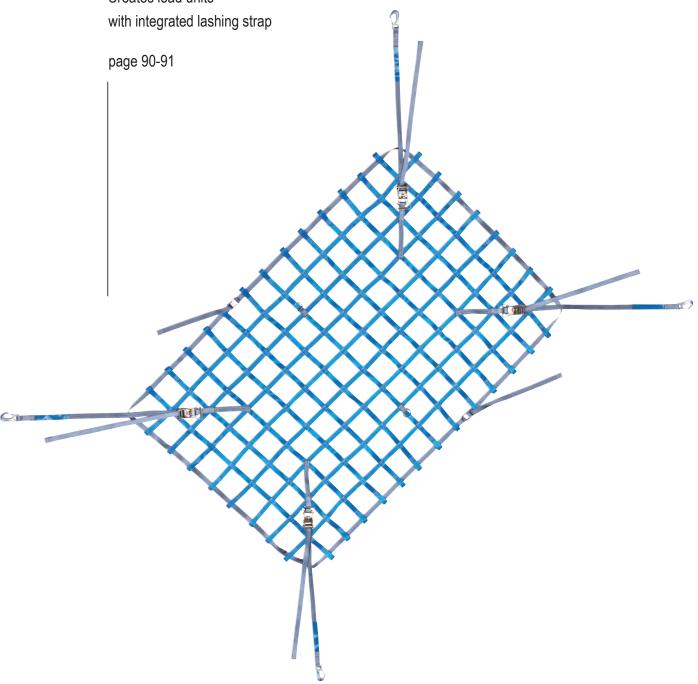




Nets custom-made •



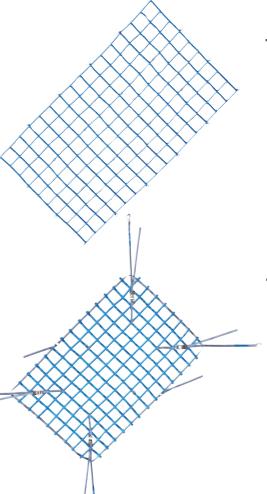
Trans**SAFE**_{net}+ Creates load units





Nets

The right net for your application:



Trans**SAFE**_{net}

The classic - universal and easy to handle

- wide selection of sizes and mesh dimensions ideal for every transportation task
- you determine net size and mesh width your made-to-order net even for an order of 1 unit
- compatible with our lashing straps → configure your own system

Trans**SAFE**_{net}*+

Our system net with even more features

- loop strap with lock reate one load unit for maximum safety
- optional lashing elements in the net combine positive locking with friction
- use of our strap fittings > no minimum order quantity required



Special Nets _____

Individual designs thanks to in-house development and production

- customized for special applications > we develop nets according to your specifications
- in-house development and manufacturing house development house house development house ho











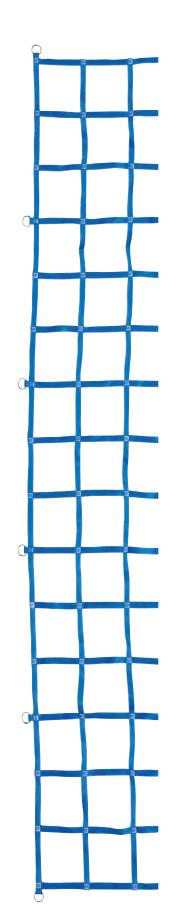




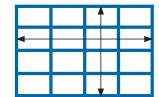




Your customized net. Compose yourself:



Net size



Whether it's for a van, a long transporter or a semitruck - only you know how big your net shoud be. Let us know, and we'll make it for you. To determine the optimal size, you need to know the size of your load space and the height of your load. A perfectly fitted net covers your load on the sides, front and back.

Mesh width



Small boxes or large crates? Select your mesh width so that it is smaller than your smallest load to ensure that nothing will slip through. 150 to 200 mm in width and height are the most popular sizes.

Webbing + Strap printing



Not just the technical aspects can be selected, but also the visual aspects. Select your favorite colour and we'll take care of the rest.

▶ End fitting



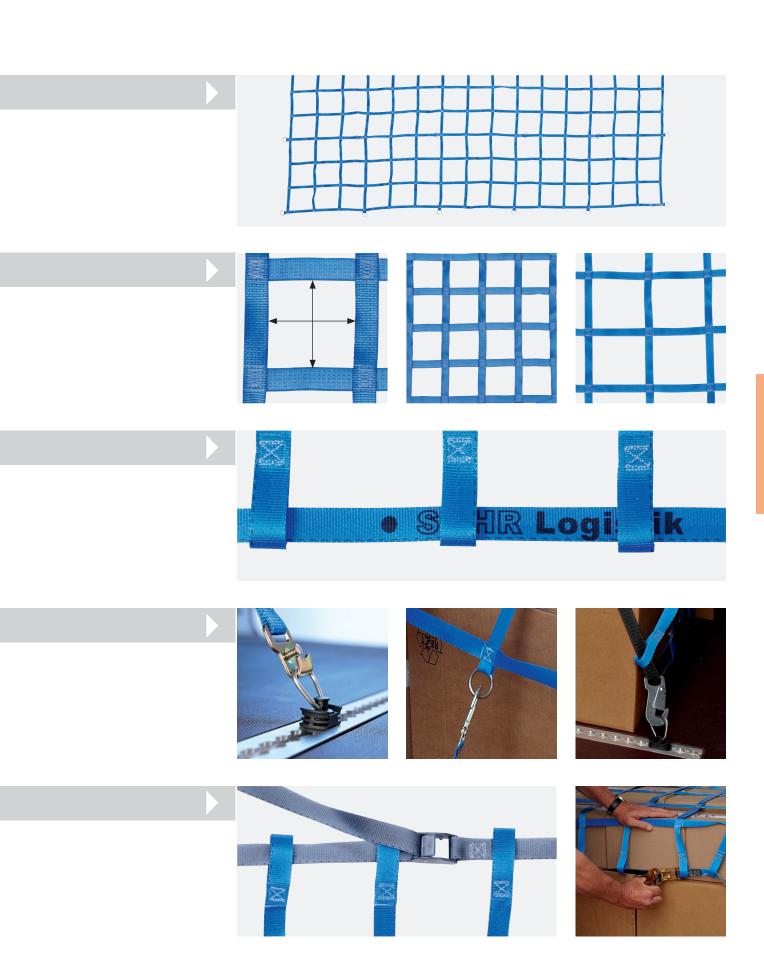
Select your end fittings to suit your needs. Whether you use Airline tracks or lashing points for all load capacities. Always with a corrosion-restraint.

Lock



Select a lock to suit your load, lashing needs, the required pre-tensioning force and load capacity. With your TransSAFE®net+ you can even combine different locks in a single net. If it's not available, it doesn't exist yet.









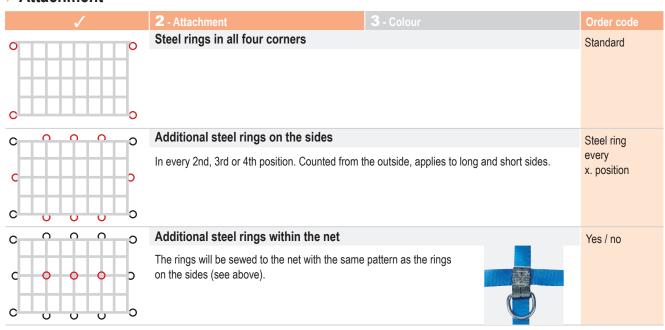
The classic. Flexible configuration, versatile and practical.

Dimensions



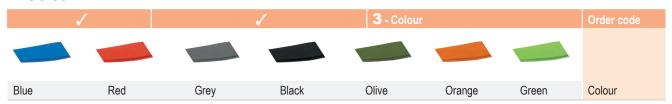
1 - Dimensions	2 - Attachment	3 - Colour	Order code
	Long side in mm		511260 +
4 +	Please note: depending on the mesh size select drawing dimensions.	red, it may not be possible to achieve exact	Long side dimensions xxxx
	Short side in mm		Short side
	Please note: depending on the mesh size select drawing dimensions.	red, it may not be possible to achieve exact	dimensions xxxx
1 1	Mesh size on long side in mm		Mesh size
-	A mesh size of 150-200 mm is most commonly,	min. 100 mm is however possible.	long side dimensions xxxx
	Mesh size on short side in mm		Mesh size
	A mesh size of 150-200 mm is most commonly,	min. 100 mm is however possible.	short side dimensions xxxx

Attachment





Colour



▶ Sample order code

•															
511260	_	4600	_	2500	_	175	_	170	_	4	_	yes	_	Olive	4
TransSAFE® net		Long side		Short side		Mesh size long side		Mesh size short side		Steel ring every 4. position		Extra steel rings		Colour	

The load capacity of the net is 500 daN with a flat load.

Accessories







Compose a positive locking, load building unit with tie-down straps: The net that can do it all.

Dimensions Long side in mm 511261 + Long side Please note: depending on the mesh size selected, it may not be possible to achieve the exact dimensions xxxx length and width request. Short side in mm Short side dimensions xxxx Please note: depending on the mesh size selected, it may not be possible to achieve the exact length and width request. Mesh size on long side in mm Mesh size long side A mesh size of 150-200 mm is most common a min. of 100 mm is however possible. dimensions xxxx Mesh size on short side in mm Mesh size short side A mesh size of 150-200 mm is most common a min. of 100 mm is however possible. dimensions xxxx

Attachment

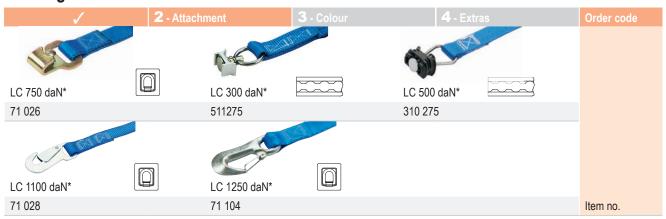
	2 - Attachment	3 - Colour	4 - Extras	Order code
\times	4 ratchet straps sewn on t	he corners		yes / no
	For lashing down. You can choo Ratchet strap blue, with carabir Ratchet strap grey, with carabir Ratchet strap blue, with KERL & Ratchet strap gray, with KERL &	ner hook ner hook 500 fitting for Airline tracks		511288-10 511288-20 511289-10 511289-20
g	Type and number of locks			Lock
	Select the lock from the product For net sizes of 2500 x 1500 m as shown on the left.	t range on the opposite page. m and above we recommend usir	ng a second lock	part no. xxx from page 93 Number of locks (1 or 2)
	Fitting for corners (Only possible in combinations	where no sewn ratchet straps on	the corners have been selected)	Fitting part no. xxx
	Select the fittings from the prod	uct range on the opposite page.		from page 93
0-0-6-0	Additional fittings on the s	sides (Only possible in combination	on with fittings on the corners)	End fitting
	In every 2nd, 3rd or 4th positio	n. Counted from the outside, appl	ies to long and short sides.	product no. xxx from page 93 every x. position (select 0 if not required)



▶ Lock for the loop strap



Fittings for corners and sides



^{*} The information refers to the load capacity of the entire net with flat load. The minimum LC of lock and end fitting gives you the LC of the net.

Colour

✓		√	3 - Colo	ur	4 - Extras		Order code
Blue	Red	Grey	Black	Olive	Orange	Green	Colour

Extras

✓	✓	✓	4 - Extras	Order code
	Strap and label printing	Customized strap print (allsafe	print also available)	Strap print
• S AIR Logi: ik	- For the loop strap	No strap print		No print
	NEW!	Individual print on the label		Label print
Note: around the net fastenings	the wording is covered by the stit	tching. We recommend using sho	ort words.	

► Sample order code

511261 -	1100 -	900 -	175	- 170	- yes	- 2 x 71234	- Olive/red	- No print	
TransSAFE®net+	Long side	Short side	Mesh size long side	Mesh size short side	4 ratchet straps sewn on the corners	Fitting	Colour	Without printing	



Tracks

Airline tracks



the right tracks for all requirements

page 100-111



Pin tracks



for box-sidewalls

page 112-117



Products custom-made

Combi tracks

for sidewalls and slats

page 118-121



Lashing points

for vehicle floors and headboards

page 122-125





Airline tracks





Light____

flexibel usage

- optimal dimensions builtable for all our needs
- slim wall thickness ▶ for flexible fitting contours
- intelligent design with optimum load capacity

Standard

resilient and light

- high-strength aluminum low-weight very high lashing capacity
- large variety of profiles right solution for all your needs
- flexibel accessories individual and very practical

Heavy-duty _____

high-strength

- special alloy ▶ for maximum strength
- pitch can either be 25 mm or one inch ▶ variabel for every application
- certified components safety guaranteed

Special _____

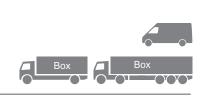
custom shapes

- individual shapes → custom-made for your individual needs
- appropriate lashing capacity
 guaranteed to be safe and easy
- precise engineering by driven by customer demand



























Your customized Airline track. Compose it yourself:



Total length

Compose your ready-to-install Airline track. We manufacture the tracks to any length required.

Mounting holes and starting point



Design the tracks with the appropriate mounting holes and the pitch required. The pitch of the mounting holes depend on the required load, direction of force and vehicle construction.

The diameter and number of mounting holes should be determined by testing.

Shape of the ends



Design the end of the track to fit the interior of the vehicle.

Load capacity

The Airline tracks can be qualified as lashing points in combination with KERLs comply with ISO 27955 (passenger vehicle), ISO 27956 (light commercial vehicle), DIN 75410-1 or EN 12640 (Intermodal loadung units and commercial vehicles) by body builders.

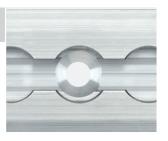
The maximum load capacities shown opposite can only be achieved under the following conditions:

- adequate load distribution into the vehicle structure
- mounting pitch max. 75/76,2 mm with the exception of Airline steel (which needs to be 50 mm), Special Airline rave track (300 mm), Special Airline track 24 mm floor (500 mm), or sufficient adhesion.
- Light Airline tracks must be mounted with M5 screws (quality 10.9)
- Standard, Special Airline tracks and HD must be mounted with M6 screws (quality 10.9)
- Special Airline track outer frame with M10 screw, property class 8.8

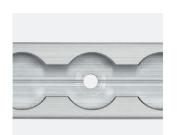












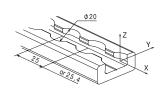






	Ultra light A	irline track	Light Air	line track	Standard Airline track, HD, Special**					
Standard			KERL 500	KERL 1000	KERL 500	KERL 1000				
ISO 27955			350 daN	350 daN	350 daN					
ISO 27956	Upon r	equest	400 daN	500 daN	500 daN	800 daN				
EN 12640			400 daN	400 daN	400 daN	1000 daN				

	Airline-Schie	ene Ultra light	Light Air	line track	Standard Airline track, HD, Special**					
Standard			KERL M8	KERL M10	KERL M8	KERL M10				
Χ			200 daN	500 daN	200 daN	500 daN				
Υ	Upon r	on request	200 daN	500 daN	200 daN	500 daN				
Z			500 daN	800 daN	1000 daN	2000 daN				

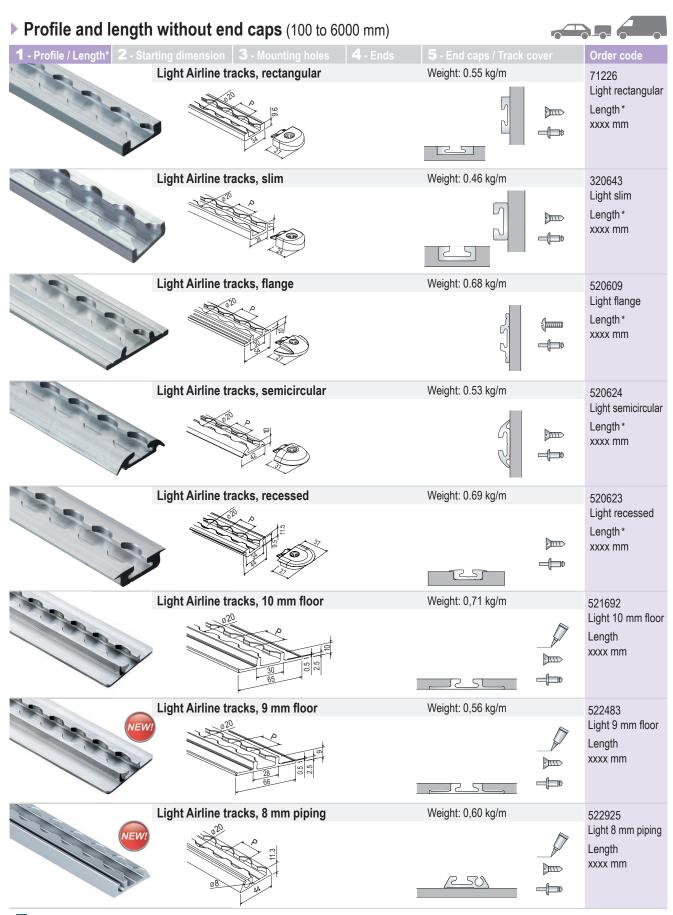


	Airline-Schie	ne Ultra light	Airline track 320357, 320646, 322138, 520224, 520266, 521476, 522020, 71206, 71207, 71209, 71224	Airline track 520223, 520531, 521453, 522566, 71223
Standard			KERL 2000	KERL 2000
ISO 27956	l laon r	a a u a a t	800 daN	800 daN 800 daN
EN 12640	Upon r	equesi	1000 daN	2000 daN *

^{*520223, 521453, 522566} and 71223 mounted with an M8 screw ** except lashing profile 71203

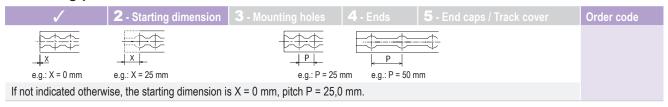


Made of aluminum – For mounting on wall/floor or recessed.





Starting point

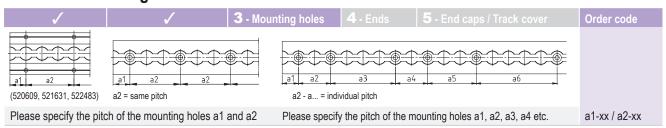


Mounting holes

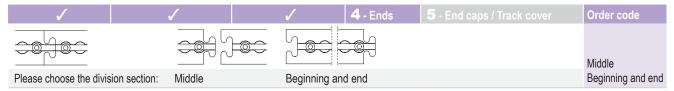
√		√		(3 - Mo	ountin	g hol	es	4.	Ends		5 - E	nd ca	ps / Tr	ack c	over		Order cod
W°	M5			S 4	S 5	S 6	S 8	N 4	N 5	N 6	D 5,0	D 5,5	D 6,6	D 8,5	M5	M6	FB 5	
d d	M6 M	FB5 . D .	W	90°	90°	90°	90°	120°	120°	120°								
			D	9	11	13	17,2	10,1	12,0	13,0							10,0	
- d		d d	d	4,6*	5,6*	6,7*	9,1*	4,3	5,05	6,7*	5,0	5,5	6,6	8,5			5,0	
Please select the type	o of mount	ing holos (S =	Count	oreunk	corow	N - C	ountors	unk riv	ot D -	Cylind	ric hold	M – I	ntornal	throad	ER - 0	Ston di	rilling)	ea: \$5

^{*} Size d can be smaller than indicated in case of low material thickness

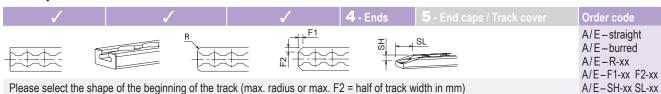
▶ Pitch of mounting holes



▶ Two-piece tracks



▶ Shape of ends



▶ End caps / Track cover



▶ Sample order code

Airline Light flange - 1497* - 55 - 21-25/22-75 - Middle - A-straight - E-straight - End caps



Standard Airline tracks



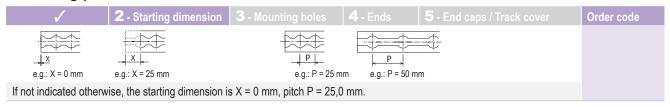
Made of aluminum – For mounting on wall/floor or recessed.

▶ Profile and length w	ithout end caps (100 to 6000 mm)		Box	Box
1 - Profile / Length* 2 - Starting	dimension 3 - Mounting holes 4 - Ends Airline track, rectangular	5 - End caps / Track of Weight: 0.90 kg/m	over	Order code 71206 rectangular Length* xxxx mm
	Airline track, flange	Weight: 0.80 kg/m		71209 flange Length * xxxx mm
	Airline track, glueable	Weight: 0.61 kg/m		320357 glueable Length xxxx mm
A STATE OF THE PARTY OF THE PAR	Airline track, with wing	Weight: 0.70 kg/m		71207 wing Length xxxx mm
	Airline track, semicircular	Weight: 0.71 kg/m		71224 semicircular Length* xxxx mm
	Airline track, recessed	Weight: 0.98 kg/m		71223 recessed Length* xxxx mm
	Airline track, roof track	Weight: 1.43 kg/m		520377 roof track Length xxxx mm
0	Airline track, rubber cord	Weight: 0.65 kg/m		521476 rubber cord Length* xxxx mm
Available only with end caps				





Starting point

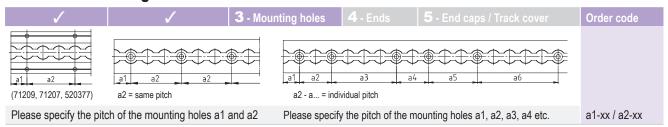


Mounting holes

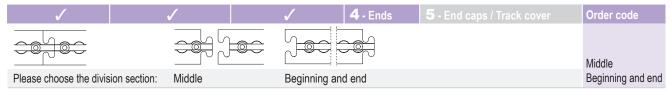
	✓		√			3 - Mo	ountin	g hol	es	4.	Ends		5 - E	nd ca	ps / Tr	ack c	over	
	W°	M 5			S 4	S 5	S 6	S 8	N 4	N 5	N 6	D 5,0	D 5,5	D 6,6	D 8,5	M5	M6	FB 5
	- d	М6 м	FB5	W	90°	90°	90°	90°	120°	120°	120°							
4				D	9	11	13	17,2	10,1	12,0	13,0							10,0
-	d 201 1277		d	d	4,6*	5,6*	6,7*	9,1*	4,3	5,05	6,7*	5,0	5,5	6,6	8,5			5,0

Please select the type of mounting holes (S = Countersunk screw, N = Countersunk rivet, D = Cylindric hole, M = Internal thread, FB = Step drilling) e. g.: S 5

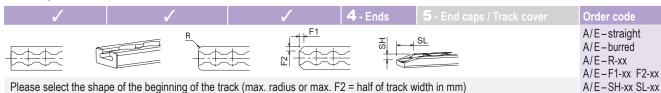
▶ Pitch of mounting holes



▶ Two-piece tracks



▶ Shape of ends



▶ End caps / Track cover



Sample order code

Airline semicircular - 1497* - D 6 - 21-25/22-75 - Middle - A-straight - E-straight - End caps



^{*} Size d can be smaller than indicated in case of low material thickness

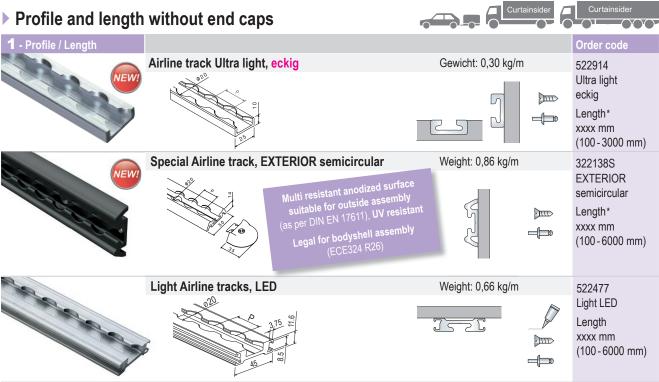
Made of aluminum – For mounting on floor or recessed.



▶ Profile and length	n without end caps	Box	Box
1 - Profile / Length* 2 - Sta	arting dimension 3 - Mounting holes	4 - Ends 5 - End caps / Track cover	Order code
100	HD Airline tracks, semicircular	Weight: 0,76 kg/m	520224
		J.	HD semicircular Length* xxxx mm (100 - 6000 mm)
The same	HD Airline tracks, recessed	Weight: 1,00 kg/m	520223
		for seat fixation	HD recessed Length* xxxx mm (100 - 6000 mm)
200	HD Airline tracks, floor track	Weight: 1,16 kg/m	320646
	020 0 0 0 0 0 0		HD floor track Length xxxx mm (100 - 6000 mm)
	HD Airline tracks, 34x16	Weight: 0,88 kg/m	522566
			HD 34x16 Length* xxxx mm (100 - 5800 mm)

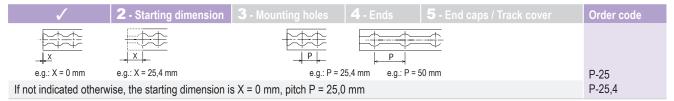
🔳 🔳 Special Airline tracks 🥮

Made of aluminum





Starting dimension

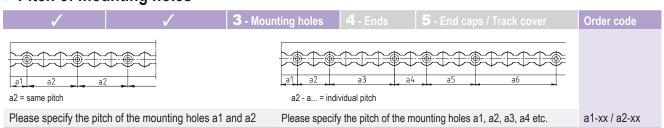


Mounting holes

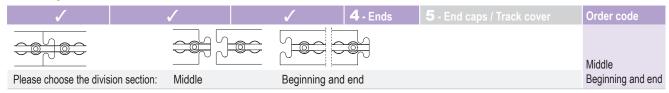
	✓		/			3 - Mo	ountin	g hol	es	4-	Ends		5 - E	nd ca	ps / Tr	ack c	over	
	N°	M5			S 4	S 5	S 6	S 8	N 4	N 5	N 6	D 5,0	D 5,5	D 6,6	D 8,5	M5	M6	FB 5
$\langle r \rangle$		M6 M	FB5 D	W	90°	90°	90°	90°	120°	120°	120°							
				D	9	11	13	17,2	10,1	12,0	13,0							10,0
_	q <u>-</u>		d	d	4,6*	5,6*	6,7*	9,1*	4,3	5,05	6,7*	5,0	5,5	6,6	8,5			5,0

Please select the type of mounting holes (S = Countersunk screw, N = Countersunk rivet, D = Cylindric hole, M = Internal thread, FB = Step drilling) e. g.: S 5

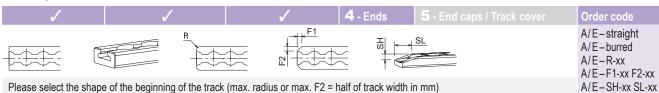
▶ Pitch of mounting holes



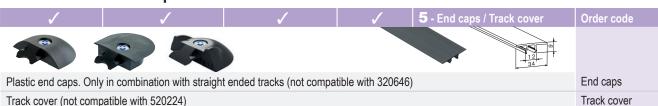
▶ Two-piece tracks



▶ Shape of ends



▶ Track cover / End caps



▶ Sample order code

EXTERIOR semicircular - 1497* - Y-25 - D6 - a1-25/a2-75 - Middle - A-straight - E-straight - End caps

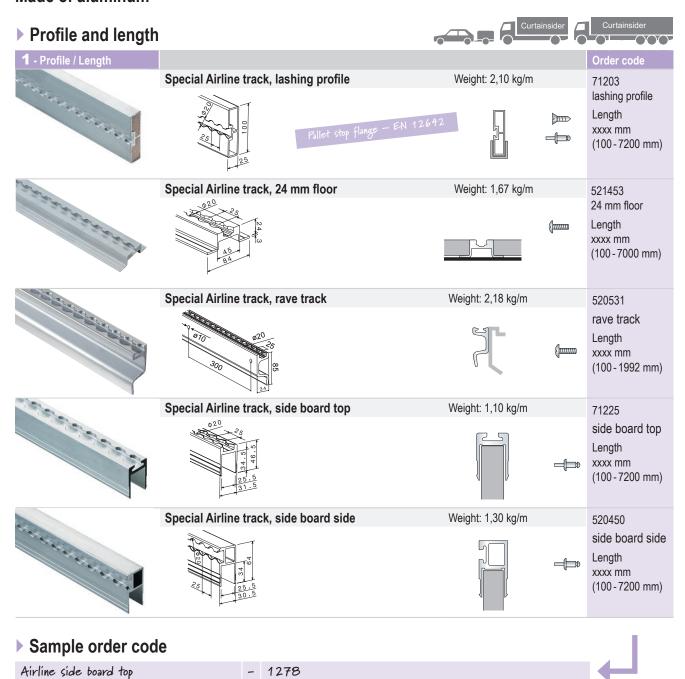




^{*} Size d can be smaller than indicated in case of low material thickness

Special Airline tracks

Made of aluminum



Customized Airline track and end caps

We design the Airline track and end caps you require, customized to your specifications.



Airline guide track

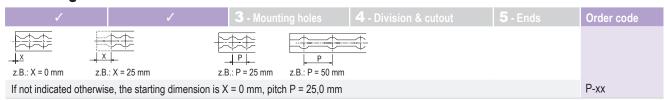
Made of aluminum

▶ Profile and length (100 to 7000 mm)





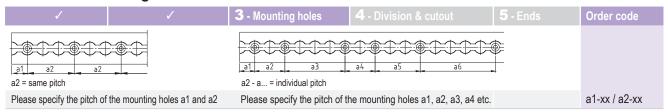
Starting dimension



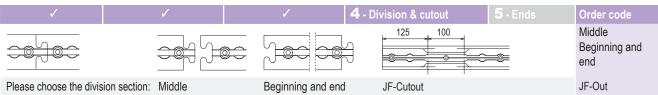
Mounting holes

✓ ✓ ✓		3 - Mo	unting	holes							5 - E			Order code
W°		S 5	S 6	S 8	N 4	N 5	N 6	D 5,5	D 6,6	D 8,5	M 5	M 6	FB 5	
FB5	W	90°	90°	90°	120°	120°	120°							
	D	11	13	17,2	10,1	12,0	13,0						10,0	
		5,6	6,7	9,1	4,3	5,05	6,7	5,5	6,6	8,5			5,0	

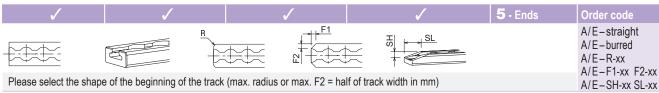
▶ Pitch of mounting holes



▶ Two-piece tracks and JF-Cutout



Shape of ends



▶ Sample order code

Airline guide track - 6800 - N 6 - a1-25/a2-75 - Middle - JF-Out - A-straight - E-straight



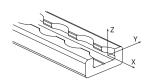


Accessories for Airline Light tracks



End caps made of plastic

▶ End caps



		~
		Order code
	for Light, rectangular (71226)	521500
		Set of - 0012 pcs. - 0040 pcs. - 0080 pcs. - 0500 pcs.
	for Light, slim (320643)	521495
		Set of - 0012 pcs. - 0040 pcs. - 0080 pcs. - 0500 pcs.
	for Light, flange (520609)	521501
		Set of - 0012 pcs. - 0040 pcs. - 0080 pcs. - 0500 pcs.
	for Light, semicircular (520624)	521494
		Set of - 0012 pcs. - 0040 pcs. - 0080 pcs. - 0500 pcs.
	for Light, recessed (520623)	521502
		Set of - 0012 pcs. - 0040 pcs. - 0080 pcs. - 0500 pcs.
	for Light, LED (522477)	522849
		Set of - 0012 pcs. - 0040 pcs. - 0080 pcs. - 0500 pcs.
	for Airline guide track (522020)	522891
NEW		Set of - 0012 pcs. - 0040 pcs. - 0080 pcs. - 0500 pcs.

▶ **Track cover** (100 to 3000 mm)

	Order code
12 of 12 of 13 of	
(not compatible with 320643 and 520624)	71380

▶ Sample order code

End cap, Light, semicircular Track cover





Accessories for Airline track Standard/Heavy-duty



End caps made of plastic

▶ End caps



▶ **Track cover** (100 to 3000 mm)

	Order code
$\begin{array}{c} -1 \\ -12 \\ -34 \end{array}$	
(not compatible with 71224, 520224, 520377 and 5214760)	71380

Sample order code

End cap, Standard, rectangular - 0040 - Track cover





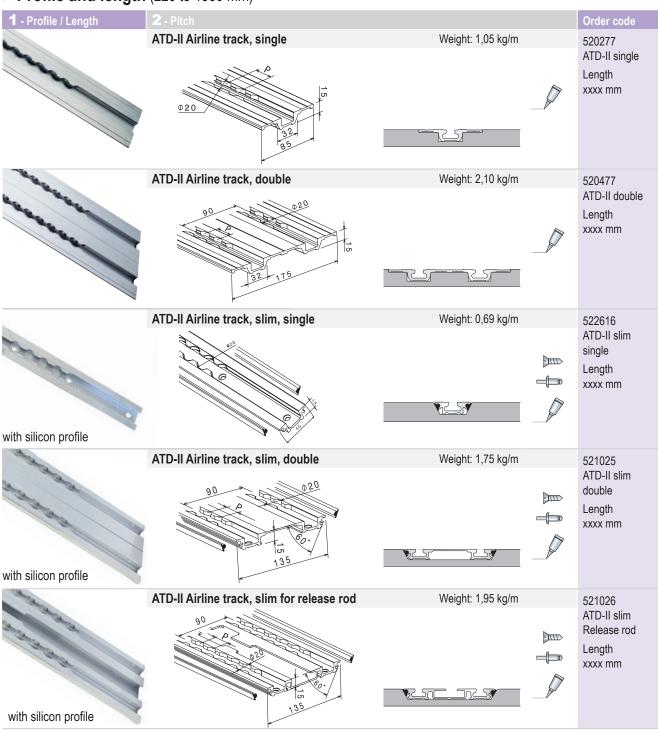
ATD Airline tracks



Made of aluminum – For vertical mounting with double-deck systems

▶ Profile and length	(220 to 1960 mm)	Bo	ox G	Box
1 - Profile / Length	2 - Pitch			Order code
3	ATD-I Airline track, single	Weight: 1,12 kg/m		520077
	φ ₅	e 9		ATD-I single Length xxxx mm
8 8	ATD-I Airline track, double	Weight: 2,09 kg/m		520177
	78 90 020 05 000 000 000 000 000 000 000 000 000			ATD-I double Length xxxx mm
The same of the sa	ATD-I Airline track, glueable single	Weight: 1,02 kg/m		520820
The state of the s	80 20		_\$	ATD-I glueable single Length xxxx mm
6 3	ATD-I Airline track, glueable double	Weight: 2,19 kg/m		520821
The state of the s	90			ATD-I glueable double Length xxxx mm
•	ATD-F Airline track, single	Weight: 0,88 kg/m		520421
	φ <u>20</u>			ATD-F single Length xxxx mm
4	ATD-F Airline track, double	Weight: 1,83 kg/m		520422
	90 020 Ion		Le	ATD-F double Length xxxx mm
A STATE OF THE STA	ATD-F Airline track for release rod	Weight: 1,90 kg/m		521309
	90 020 118 167			ATD-F Release rod Length xxxx mm

▶ Profile and length (220 to 1960 mm)



Pitch

•	2 - Pitch	Order code
P	P	
e.g.: P = 25 mm	e.g.: P = 50 mm	P-25
If not indicated	otherwise, the pitch is P = 25,0 mm.	P-50

▶ Sample order code

Airline ATD-11 double - 1960 - P-25



Pin tracks





resilient and light

- very compact optimal for small spaces
- high lashing capacity safety guaranteed
- protection inserts hthe solution for fragile goods

60 mm _____

versatile

- 60 mm high-strength aluminum → the standard for boxes
- for riveting, screwing, glueing ▶ suitable for mounting on all surfaces

Special _____

customized fit

■ recessed ▶ for smooth interior walls





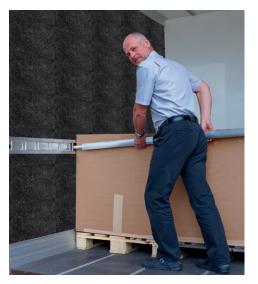
















Your customized pin track. Compose it yourself:



Total length Compose your ready-to-install pin track. We manufacture the tracks in any length required at no additional costs. Pin pitch Compose your track with the spacing you require between the pins. **Mounting holes** Choose the diameter for the mounting holes. **Mounting hole pitch** The mounting hole pitch depend on the required load, load direction force and the vehicle construction. The diameter and number of mounting holes should be determined by testing. **Protective insert**

To protect your load, fit the tracks with a protective insert and appropriate end caps.

Load capacity

Pin tracks in combination with flat hooks can be qualified as an anchorage point according to ISO 27955 (passenger vehicle) or ISO 27956 (light commercial vehicle) by body builders.

The maximum load capacities shown opposite can only be achieved under the following conditions:

- adequate load distribution to the vehicle structure
- glue or screws mounted every 200 mm







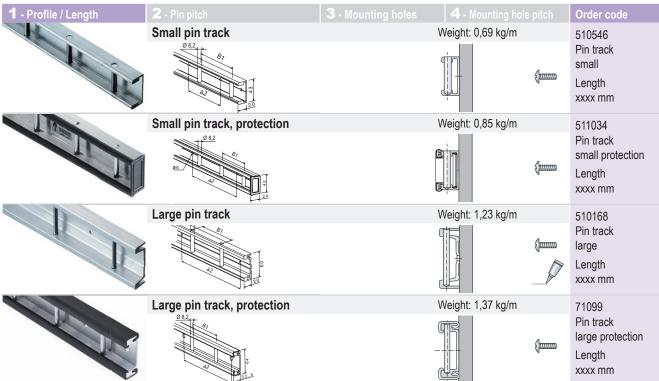
■ ■ Pin tracks



Made of aluminum – For mounting on wall.

▶ Profile and length (220 to 6000 mm)





▶ Pin pitch

✓	2 - Pin pitch	3 - Mounting holes		Order code
B2 B1 O	Good results have been achieved with Pin pitch B1 = 100 mm, B2 = 50 mm B2 min. 50 mm - max. 150 mm			B1 xxx
Please select the pin pitch B1 a	B2 xxx			

Mounting holes

✓	√		3 - Mounting holes	4 - Mounting hole pitch		Order code
- d			D 5	D 6		
	d		5,0	6,0		
Please select the diameter of the	e mounting holes					D 5 or D 6

Mounting hole pitch

✓	√	✓	4 - Mounting hole pitch	Order code		
a2	Good results have been achieved w Mounting hole pitch a2 = 200 mm a2 = B1 or multiple integrals of B1	vith:				
Please select the a2 mounting hole pitch						

▶ Sample order code

Pin track large - 1270 - D5 - B1-100 / B2-50 / a2-20

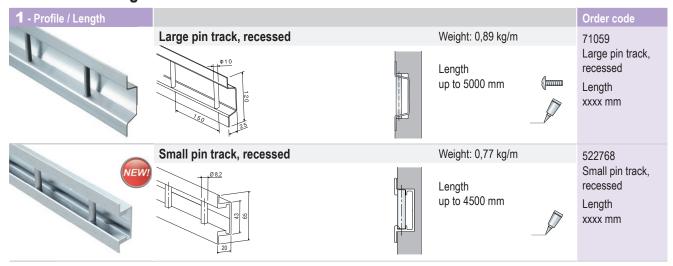






Made of aluminum - Recessed in side walls.

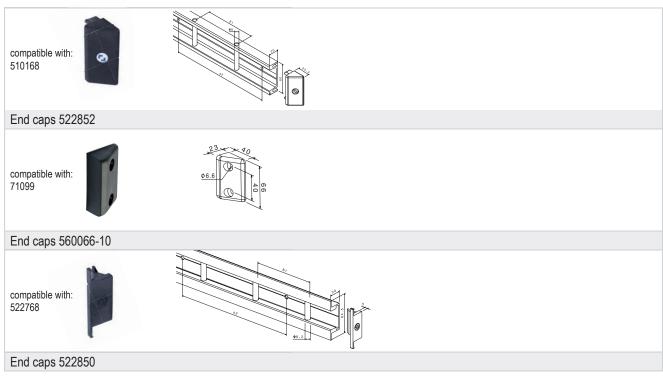
▶ Profile and length



▶ Sample order code

Large pin track, recessed - 4100







Combi tracks



Combi tracks

well proven for sidewalls of boxes

- with e-tracks and round holes

 compatible with all Faktor 4 products
- a range of materials ➤ the right track for every requirement

Round hole tracks

for boxes

- strong hold structural element for roof and floor
- various designs

 compatible with Ø 19 mm and Ø 24 mm bolts

Lashing profiles

indispensible for setting up slats

- low-weight high safety level minimal payload loss
- intelligent design ▶ solid base for KERLs and Faktor 4
- quality certified according to VDI 2700 ▶ safe driving guaranteed

Airline tracks Made of steel

Optimized dimensions with minimum wall thickness

- for welding or riveting ▶ ideal for steel construction
- Various lashing points flexibility for the user
- high-strength steel high load capacity























Combi and Round hole tracks

For mounting on wall.

Profile and length THE Order code - Profile / Length Combi track, galvanized steel, Ø 20 mm Weight: 2,30 kg/m 71004 Combi 20 Length: Length 220 to 3000 mm xxxx mm Combi track, galvanized steel, Ø 25 mm Weight: 2,20 kg/m 71219 Combi 25 Length: 220 to 3000 mm Length duning 3 xxxx mm Combi track, aluminum, Ø 20 mm Weight: 0,97 kg/m 71005 Combi alu 20 Length: Length 220 to 3000 mm Ammun } xxxx mm Tollollellelle Combi track, aluminum, Ø 25 mm Weight: 0,97 kg/m 77225 Combi alu 25 Length: Length 220 to 3000 mm xxxx mm Round hole roof track, galvanized, Ø 20 mm Weight: 3,00 kg/m 552081 Round hole Length: roof track *(mmm)* 220 to 7608 mm Length xxxx mm TILLY floor track, galvanized, Ø 20 mm Weight: 3,20 kg/m 512145 TILLY Length: floor track 220 to 7608 mm Length 22 xxxx mm

▶ Sample order code

Combi alu 20



Accessories

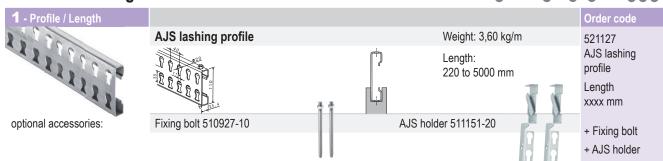
compatible with: 71004. 71005. 71219, 77225, End caps 71414

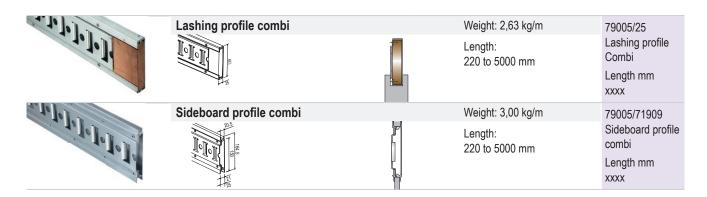


Lashing profiles

For setting up roof bows.

▶ Profile and length



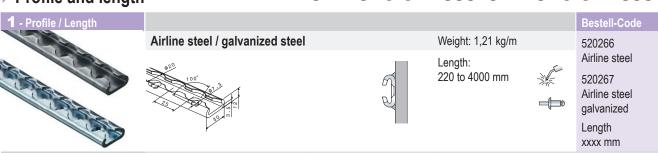


■ ■ Airline tracks



Made of steel.

Profile and length



Sample order code

Airline galvanized steel - 3508



Lashing points



Recessed lashing rings

for screwing

- many designs suitable for every space
- comply with EN / ISO standards parallel quality and safety guaranteed
- very strong tried and tested



Recessed lashing rings Lashing plates _____

for screwing

- light-weight but high lashing capacity ▶ small dimensions, big safety
- comply with EN / ISO standards puality and safety guaranteed
- functional design ▶ very presentable

















Recessed lashing rings

Recessed lashing rings you can depend on. When heavy weights need to be anchored, allsafe lashing rings are the first choice.

They provide customized lashing points suitable for every load capacity. Discreetly integrated into the frame of the vehicle or the vehicle floor, they are extremely effective. The recessed lashing rings comply to relevant standards.

▶ Recessed lashing rings for screwing or riveting

		Order code
Recessed lashing ring 1 000	Galvanized steel	510024-10
92 71 58 58 13 46.5	Lashing capacity: 1000 daN 800 daN EN 12640	
Recessed lashing ring 500	Galvanized steel	511063-10
Ø 84 Ø 100	Lashing capacity: 500 daN ISO 27956 600 daN EN 12640	
Recessed lashing ring 350	Galvanized steel	71100
85 B C S2 S2 S2 S2 S3 S5	Lashing capacity: 350 daN ISO 27956	
Recessed lashing ring 800	Galvanized steel	71101
B C 155 155 155 155 155 155 155 155 155 1	Lashing capacity: 800 daN ISO 27956 400 daN EN 12640	
Recessed lashing ring 300	Galvanized steel	560151-10
<u>210</u> 27	Lashing capacity: 300 daN ISO 27956	

▶ Sample order code

Recessed lashing ring 2500

- 71102



124 Status 02_2025

Lashing rings for screwing or riveting

	screwing or riveling			
				Order code
	Anchor plates 500		Aluminum	71106
E C	ig 10 25.4 44.5	75	Lashing capacity: 500 daN ISO 27956 400 daN EN 12640	
	Anchor plates Ø 20 mm		Aluminum	322060
	965.5		compatible with shoring poles with end fittings 19 mm	
	25.4	75	not compatible with KERL	
	Anchor plates 500 black		Aluminum	520153-21
	\$ \\ \frac{10}{\text{\$4.5}} \\ \frac{25.4}{\text{\$4.5}} \\ \frac{44.5}{\text{\$4.5}} \\ \frac{10}{\text{\$4.5}} \\ \frac{10}	7-5	Lashing capacity: 500 daN ISO 27956	
	Anchor plates 800		Aluminum	520197-40
Tu Tu	11.6 920		Lashing capacity: 800 daN ISO 27956 800 daN EN 12640	

▶ Sample order code

Anchor plates 500 - 71106





Introduction to load restraint

Who is responsible in Germany?

The shipping agent, the vehicle owner and the driver. The shipping agent (shipping either for himself or for third parties) is responsible for roadworthy loads. The owner (the person who owns the vehicle and has control of it) is responsible for the suitability of the vehicle. The driver is the person who knowingly operates or controls a vehicle and is responsible for roadworthy stowage of the load and making sure load platform, bodywork and any load securing equipment are in sound and serviceable condition. Everybody has responsibilities.

▶ Duties of shipper, vehicle owner and driver in Germany

§ 22 of the German Road Traffic Act states: the load, including load restraint equipment, should be stowed and secured that it cannot slide, roll-over in any direction, wander because of vibration, fall off vehicle or make the vehicle tip over or produce avoidable noise, even during heavy braking or dangerous maneuvers. Generally accepted technical rules should be followed. § 37 (4) of the German Accident Prevention Regulations states that the load should be secured to hinder cargo from falling over and to prevent avoidable noises.

§ 412 of the German Commercial Code: Unless circumstances or common usage dictates otherwise, the dispatcher must load, stow, secure and unload the goods safely. The carrier is responsible for safe loading. § 823 of the German Civil Code define compensation. § 831 of the German Civil Code contains definitions of liability.

 \S 30 of the German Road Traffic Licensing Regulations governs the requirements relating to the condition of vehicles; \S 31 of the same legislation stipulates that responsibility for vehicle operation lies with the owner and driver. The vehicles must be safe to operate, for example, show no technical defects and all load restraint required for the intended journey must be available. The vehicle must also be roadworthy, which includes the vehicle operator being trained accordingly to secure the load adequately (\S 30 + \S 31).

► EN 12 195 Part 1 – Calculation of securing forces

Vehicles over 3.5 t total weight, use various securing methods such as blocking, lashing or a combination thereof for securing loads in road vehicles which are defined in part 1.

Information about the blocking force "BC in daN" of shoring elements is important for the calculation (BC = blocking capacity).

► Recognized technical rules in Germany – VDI 2700 ff

In addition to EN 12 195-1, VDI Guideline 2700 ff provides a summary of physical principles and specific examples for load restraint.

The guidelines make many references to the relevant statutory rules and standards. The list of specific examples of load restraint is being extended continuously. The training requirements for people responsible for the load restraint is also described.

The VDI guidelines are definitive in legal disputes in Germany.

► EN 12 195 Part 2 – Lashing straps

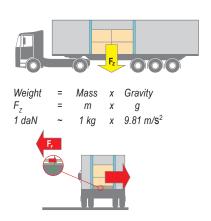
- ▶ EN 12195-2 regulates the labeling and handling of lashing straps.
- ▶ All lashing straps must be marked with a legible label.
- If label is no longer attached or if it is no longer legible, the strap can not be used.
- Straps can not be used if they show clear signs of damage, e.g. tears, cuts stitching breakage or corrosion
- It is not permitted to knot the straps.
- The driver must carry at least one set of instructions for use (supplied with the product) and be able to provide these upon request.
- There is no general expiration date for lashing straps.

▶ Standards for securing loads

ISO 27955	ISO 27956	EN 12 640	EN 12 641	EN 12 642	EN 283/284	EN 12 195	EN 12 195	additionally: VDI 2700 ff
Lashing points	Lashing points	Lashing points	Trailers	Trailers	Trailers	Load restraint		
Passenger vehicle, wagon, light commercial vehicle	Light commercial vehicle	Flatbed trucks - > 3.5t	Tarpaulin		Swap bodies	Section 1: Calculating securing forces	Section 2: Lashing strap made from synthetic fibers	Recognized regulations for securing loads



■ Physical principles









Inertia = Mass x Acceleration coefficient x Gravity $F_{XY} = m x c_{xy} x g$



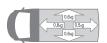
Friction = Weight

 F_z

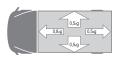
MPW > 2.0 t

Friction coefficient

μ

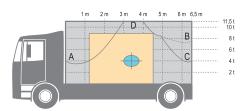


MPW 2.0 - 3.5 t



MPW > 3.5 t

Acceleration value c_{xy} depending on MPW



Limited by:

A = permissible front axle load B = permissible rear axle load C = safe steerability

D = maximum permissible weight

▶ Weight

The load applies a downward force on the load space of weight F_z Forces like weight are measured in Newton (N). The weight of mass of 1 kg is approximately 9,81 N which for practical purposes can be rounded off to 10 N or 1 decaNewton (daN).

The weight of 1 kg of mass is 1 daN.

▶ Friction

Friction hinders movement of the load and helps to secure it by working against the force of inertia. Friction forces depend on the mutual cargo and truck bed surface. The rougher the surface is, the higher the friction.

Friction can be calculated by multiplying the weight F_z by μ which stands for friction coefficient.

► Longitudinal and transverse force of load in relation to the maximum permissible weight (MPW)

Acceleration tends to cause the load to slide backwards.

As a result of the retarding force when braking, the load tends to slide forwards. This vehicle movement is in the direction of the longitudinal axis (x-axis).

Centrifugal forces on the vehicle and its load occur when driving around bends. This vehicle movement exerts a force in the direction of the transverse axis (y-axis).

Centrifugal forces try to tilt the vehicle and push the cargo to the outside of the curve. Movement of the load while driving around a bend can cause the vehicle to topple over.

Based on the driving dynamics of vehicles with different total masses, different longitudinal and diagonal acceleration takes place in practice, see illustration.

Starting from a standstill position, the load acts with an inertia force directed towards the rear of the vehicle equal to 0,5 times the weight of the load. When braking, the inertial force directed towards the vehicle may equal 0,8 times the weight of the load. When cornering, the lateral inertia force may reach 0,5 times the weight of the load.

These longitudinal and transverse accelerations exert longitudinal force F_x or lateral force F_y on the load.

Mass x Acceleration coefficient x gravity = Inertia

Load distribution

Guideline VDI 2700 sheet 4 requires the load to be stowed so that the center of gravity of the entire load is along the longitudinal centerline of the vehicle if possible. Even weight and load distribution for partial loads is also desirable.

Positive locking is not usually achieved with heavy weights as you cannot load from the front bulkhead to the rear due to the vehicle's axle loads. This produces gaps in the cargo and suitable load restraint equipment must therefore be used. Shoring elements can secure against large forces, especially in the direction of travel.



■ Securing loads using positive locking with Faktor 4



Fig. 1: Positive locking in all directions

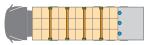


Fig. 3: Positive locking in all directions



Fig. 5:



Fig. 2: Positive locking in all directions



Fig. 4: Positive locking forwards, to the back and laterally

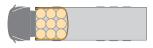


Fig. 6: Forward lashing

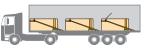


Fig. 7: Load secured using positive locking with head nooses

The symbols used below, along with the graphics are part of the EN 12195.

F, = Weight

m = Mass

 $F_{x,y}$ = Mass force forward, rearward or laterally

 $c_{x,y}$ = lateral, forwards or rearward acceleration

 μ = Friction value

F_s = Securing force

 $F_F = Friction$

BC = Blocking force shoring beams

X = Number of shoring beams

Simplified formula for calculating securing force

Rearward inertia

 $F_{x,y} = c_{x,y} \cdot F_{z}$

 $F_{x,y} = 0.5 \cdot 4000 \text{ daN} = 2000 \text{ daN}$

Friction force

 $F_F = \mu \cdot F_Z$

 $F_r = 0.25 \cdot 4000 \, daN = 1000 \, daN$

Required securing force

 $F_s = F - F_R$

F_s = 2 000 daN - 1 000 daN = 1 000 daN

F_s 1 000 daN

X = ---- = 1 shoring beam BC 1 000 daN

BC 1 000 daN

F_s 1 000 daN

X = ---- = 2 shoring beams BC 500 daN

BC 500 daN

Load restraint by means of positive locking is where the load is tightly packed towards a part of the vehicle such as the headboard. As a result, there is no room for movement.

The simplest case is shown in Figure 1, where the load space is completely filled with stable load units.

Figure 2 shows positive locking to the front and side using the vehicle body and to the back using shoring poles.

Figure 3 shows positive locking with shoring poles to the front and to the back. This is especially desirable when large blocking forces are needed. There is no force exerted on the front wall in the direction of movement

Figure 4 illustrates positive locking to the back using shoring poles (horizontal and vertical). The gap allows further positive locking to the front using horizontal shoring poles.

Positive locking can also be achieved with different load heights withhelp of shoring poles as shown in Figure 5.

Shoring poles are usually used to secure loads with positive locking. Figures 6 and 7 show positive locking using lashing straps.

The spring lashing shown in Figure 7 can also be used to build an artificial front wall, for example with an upright pallet in front of the load, which is then strapped to the back.

▶ Calculation

In addition to the specified friction (FF = FZ \cdot μ), the blocking capacity BC of the load restraint counteracts the inert mass. The system is balanced, i.e. the cargo does not slide, if:

BC > $(c_{x,y} - \mu) m \cdot g$

How to determine possible load weights

Using the blocking force of the shoring poles and beams (information on sticker), the following load weights can be secured for vehicles with maximum permissible weight (MPW) > 3.5 t: The load should be secured laterally and towards the rear with 0.5 g. With a load of 4.0 tons and a friction value of μ = 0.25, the following sample calculation is the result (gravity is rounded to 10 for simplification): with BC 1000 daN, a 4000 kg load can be secured towards the rear and laterally.

Faktor 4 shoring elements are labeled with BC (blocking force in daN) in accordance with EN 12 195-1.

Put simply, by using the formula "BC times 4= load weight" most common loads are sufficiently secured towards the sides and the back with our Faktor 4 products.

"BC times 2 = Load weight" secures loads sufficiently towards the front.



Practical examples of positive locking

▶ KIM for horizontal and vertical use

KIM is used horizontally in box vans in the sidewall tracks. Vertically, KIM can be used in box or curtainsider vehicles. For this purpose, KIM is fitted into the floor track next to the load. With help of the pull strap, the spring-loaded end is then fitted into the roof track. The spring-loaded end should always be placed in the roof track whereas it could spring out of the floor tracks.



KIM 44 Pro is the only shoring pole that can be used vertically and horizontally in a transporter.

KIM 55 with a BC of 500 daN x 4 gives you 2000 kg rear or lateral load restraint

▶ AJS System for securing loads in curtainsiders

Loads that are difficult to secure, such as bulky packages, Big Bags, octabins etc., can be safely secured by means of positive locking with the AJS system.

AJS lashing profiles are mounted laterally between the pillars. The load



is then secured laterally with KAT AJS beams.

This system is great for loading and unloading partial loads.

KAT AJS with its BC 2000 daN x 4 is able to restrain 8000 kg towards the back.

KAT for horizontal restraint

KAT Combi beams are locked into the Combi tracks by releasing the locking device, found at each end of the beam. To release the beam,



simply unlock the locking deviceon one side.

By lowering the beam on one side the opposite side unlocks and the beam can be easily removed.

KAT is also available for keyhole tracks

KAT Combi with its BC 800 daN x 4 is able to restrain 3200 kg towards the back.

Load restraint for LCV For better control over the vehicle



and to comply with weight distribution regulations, cargo should be loaded towards the back and in the middle of the floor surface.

Our solution is placing the load between four specially designed

between four specially designed KIM 5x7 Profi beams which restrain the load from the front and the back. The beams are placed as close to the goods as possible. The beams are fitted vertically into roof and floor tracks which creates positive locking.

Depending on the load, KIM 44 elements are inserted between the shoring beams.

Lateral restraint is provided by lashing straps, which can be connected to the Airline track on the KIM 5x7 Profi beam.

The patented load securing system is tested and certified in compliance with VDI 2700 for vehicles up to 3.5t MPW.

▶ PAT the high-strength beam for curtainsiders



PAT can be attached to longitunal laths, and drop boards. By applying slight pressure, PAT's closures tilt into the laths and create positive locking.

PAT 1000 with its BC 1000 daN x 4 is able to restrain 4000 kg towards the back.



Load restraint using force locking

The symbols, units and terms used are in compliance with DIN EN 12195:

F = Mass force of load towards the front, back and sides

= Weight (normal force)

 F_{τ} = Tension force lashing device

= Friction force

c = Front, rear or lateral acceleration

= Friction coefficient

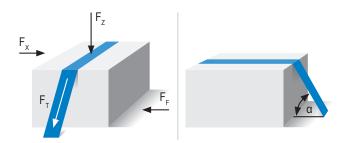
 $\sin \alpha = Angle$

STF = Standard tension force lashing strap

mGVM = Gross vehicle mass

Friction force ${\sf F_F}$ can be increased for example by top-over lashing. The load is balanced, meaning the load can not slide if the following applies:

Sum
$$F_F > F_X$$
, with sum $F_F = (F_Z + F_T) \cdot \mu$.



Simple calculation of necessary tension force for load securing with top-over-lashing at a 90° angle:

Standard tension force
$$F_T = \frac{F_Z \cdot (c_{X,Y} - \mu)}{\mu}$$

Calculation for number of straps required:

Number of straps =
$$\frac{F_{T}}{2 \cdot STF}$$

Example: mGVM 20.000 kg, friction coefficient μ = 0.25, load weight 4000 kg, restraint in direction of travel, over-lashing at 90° angle, standard tension force STF = 500 daN:

 $F_{\tau} = 4000 \cdot (0.8 - 0.25) : 0.25 = 8800 \text{ daN}$

Number of straps needed = 8800 daN / (2 · 500 daN) = 9

Calculation of necessary tension force for load restraint with top-over lashing at $<90^{\circ}$ angle (α):

Number of straps required =
$$\frac{F_z \cdot (c_{x,y} - \mu)}{F_\tau \cdot 2 \cdot \mu \cdot \sin \alpha}$$

Example: Friction coefficient μ = 0.25, load weight 4000 kg, restraint in direction of travel, over-lashing at 60° angle:

11 Straps =
$$\frac{4000 \cdot (0.8 - 0.25)}{500 \cdot 2 \cdot 0.25 \cdot \sin 60^{\circ}}$$

The friction coefficient between load and vehicle floor surface can be increased with force locking. The friction force can be increased with top-over-lashing or equipment that increases friction (e.g. friction mats). With stable loads this should be increased until the load is no longer able to slide, taking accelerating factors into account.

The standard tension force, not the lashing capacity of the strap, is relevant for the calculation of the number of straps needed!

To calculate the number of straps required, information about the strap itself and the load is required.

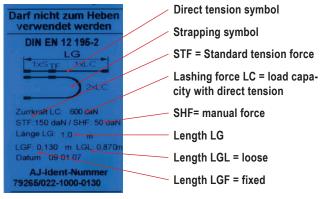
This information can be found on the label.

A standard tension force STF of 500 daN is displayed on the label of the "Ergo long-lever ratchet strap". To achieve this 500 daN standard tension force (STF) in the ratchet, a manual force (SHF) of 50 daN has to be applied.



In addition to practical instructions, indications of the need to replace components can be found. Potential damage which can occur to the strap can be taken from the label. The strap can be used as long as it does not show signs of the potential damages listed.

To calculate the number of straps required, information about the strap itself and the load is required. This information is always on the label.



Label (blue label)



Practical examples of friction restraint





► Load restraint with straps

When top-over lashing is used, the load is pressed against the floor. The pressure increases the friction force. This prevents the load from sliding.

Top-over-lashing is done with a lashing strap which is stretched over the top of the load. Together with the weight of the load, the lashing strap and the forces it exerts act on the load and the floor. To prevent the load from sliding, the tension forces and the weight of the load have to be coordinated. To increase the friction coefficient, the use of friction mats is recommended.

► Ergo long handle ratchets in accordance with EN 12195-2

Product benefits at a glance:

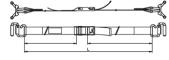
- Easier to use thanks to the ergonomic principle: pulling rather than pushing is easier on the back and delivers more tension with less effort.
- ▶ Tensioning force: 500 daN with direct tension, 750 daN with strapping.
- As a comparison, a standard ratchet (e.g. item no. 71056) provides 250 daN with direct tension or 375 daN by strapping.
- The tensioning force increases the friction resistance between the load and platform bed.

Practical applications of friction/positive locking combined









► TransSAFE®net – Load restraint net for individually packaged goods

The new TSN TransSAFE® net makes restraint of individual goods a breeze. When not in use, a net lift transports the net at the start position under the roof. The net can be stretched quickly and easily over the load from front to back.

The TSN is fixed with a strap that connects the net to the lashing point in the vehicle.

All straps can be handled from the side door or the rear door - awkward climbing around the load space is no longer necessary.

Annoying unraveling of the net is a thing of the past.

► TexGrip® – Belt fitting for side walls

Product benefits at a glance:

- ▶ Secure fastening for smaller loads on 20 30 mm thick side rails, especially suitable for flatbed trucks.
- No anchor points or tracks needed, can be used anywhere.
- Simple handling allows for quick lashing: End fitting provides automatic restraint when locked.
- No damage to board walls thanks to rubber end fittings.
- Load capacity of the strapping 200 daN, length 3.6 m.



■ ■ General Terms and Conditions of Sale and Supply (GTCSS) for Contracts outside the Webshop

1 General

- 1.1 These General Terms and Conditions of Sale and Supply are binding provided it is stated in a quote or in the order confirmation that they apply. Other terms and conditions of the customer shall not apply unless the supplier has expressly acknowledged them in writing.
- 1.2 No agreements and legally relevant declarations of the contractual partners shall be valid unless they have been made in writing.

2. Quotes and award of contract

- 2.1 The order signed by the customer is a binding offer. The contract is deemed to be concluded as soon as the supplier confirms acceptance in writing of an order after receipt of it.
- 2.2 The supplier's quotes are never binding.
- 2.3 Documents associated with the quote such as illustrations, drawings, weights and measurements are subject to change unless they are expressly described as binding. The supplier reserves retention of title to the documents which must not be disclosed to third parties.

3. Scope of supply, assembly

- 3.1 The confirmation of order shall define the scope and delivery of goods and performance of services. An additional charge shall be made for materials or services not contained therein.
- 3.2 The supplier shall be entitled to make part deliveries unless this represents an unreasonable inconvenience for the customer.

4. Prices and assembly costs

- 4.1 Unless otherwise agreed, the supplier's prices are net ex works, and exclusive of packaging, transport, insurance, assembly, installation and commissioning.
- 4.2 Installation costs shall be charged separately. The customer shall provide free of charge whatever resources and ancillary staff are necessary to assist the supplier's fitters. If a cost estimate is made, the supplier assumes no liability for the cost calculations on which the estimate is based.

5. Payment conditions

- 5.1 The supplier's invoices are immediately payable net.
- 5.2 The customer shall make payments without deducting expenses, taxes and charges of whatsoever type to the supplier's registered address.
- 5.3 In the event of payment arrears on the part of the customer, the supplier reserves the right, in addition to any statutory rights, to suspend scheduled deliveries immediately and to change the payment conditions.
- 5.4 The customer's right to offset its counterclaims against claims of the supplier is limited to those which are acknowledged in writing by the supplier or which came legally into force.

6. Retention of title

- 6.1 The supplier shall retain title to the object of supply until payment in full has been made. This retention of title covers all claims which the supplier acquires against the customer in connection with the supply, e.g. by virtue of repairs, assembly, delivery of spare parts or other services, including those made subsequently.
- 6.2 During the period in which retention of title applies, the customer shall take all necessary steps to protect the supplier's property and to inform the supplier promptly of any damage. Moreover, the customer shall eliminate any damage correctly and appropriately at its own expense.
- 6.3 The customer shall be authorised to sell the delivery item in the course of normal business. The customer herewith assigns to the supplier in advance the purchase price claim associated with this further sale limited to the amount of the final total on the supplier's invoice (including VAT).

- 6.4 For its part, the customer agrees to retain title to the object of sale if its customer does not pay in full at the latest by the time of hand-over of the delivery item.
- 6.5 In the event of the supplier's goods subject to retention of title being indissolubly associated with other objects, the supplier shall have joint title to such associated objects in terms of the invoice final total relating to the goods subject to retention of title compared with the purchase price of the other associated objects as the values were at the time of the said association.
- 6.6 The assignment of claims to secure the claims according to section 6.3 also includes those claims which the customer acquires against a third party as a result of an association of the goods subject to retention of title with another object
- 6.7 The retention of title shall also continue to apply to claims of the supplier arising from the business relationship until settlement of the claims associated with the sale.
 - At the request of the customer, the supplier shall waive the retention of title if the customer has incontestably settled all the claims associated with the object of sale and if an appropriate form of security is in place for the remaining claims arising from the ongoing business relationship.
- 6.8 At the request of the customer, the supplier shall release securities which it has provided to the supplier under this contract if they are no longer needed to secure the claims of the supplier arising from the ongoing business relationship, especially if they exceed the value of all secured claims by more than 20%.
- 6.9 Assertion of the retention of title and any attachment of the delivery item by the supplier shall not constitute withdrawal from the contract.

7. Delivery period and storage costs

- 7.1 The delivery period begins with order acceptance by the supplier and after settlement in full of the technical issues. The delivery period is deemed to have been respected if by the time it ends the supply has left the works or the customer has been notified of its readiness for despatch.
- 7.2 The delivery period can be prolonged as appropriate:
 - if the details required for execution of the order are not furnished to the supplier in good time or if they have been subsequently altered by the customer;
 - if payment dates are not met;
 - if obstacles occur which the supplier cannot remove despite exercising the requisite care, irrespective of whether such obstacles occur with the supplier, the customer or a third party. Examples of such obstacles are instances offorce majeure, for example epidemics, mobilisations, war, civil unrest, signi ficant operational breakdowns, accidents, labour disputes, delayed or faulty delivery of necessary raw materials or finished or semi-finished products, scrapping of significant parts, actions or omissions of authorities, natural events
- 7.3 If dispatch is delayed at the request of the customer, the supplier reserves the right to charge the customer for the storage costs incurred, to be not less than 0,5% of the invoice amount. The obligation to bear the storage costs shall begin one month from the date of notification of readiness to dispatch.

8. Delayed delivery

- 8.1 The customer shall be entitled to assert a claim for compensation for delayed delivery caused by circumstances not covered by section 7.2. The customer can claim compensation for delay if the delay in delivery is demonstrably the supplier's default and if the customer can prove it has suffered damage as a result of this delay. If the customer is given assistance through a replacement supply, the claim to compensation for delayed delivery shall lapse.
- 8.2 The compensation for delayed delivery shall not be more than 0.5 % for each full week of delay and shall not exceed in total 5 % of the contracted price for the part of the supply which is delayed. The first two weeks of delay do not create a claim to compensation f or delayed delivery.
- 8.3 The customer's rights and claims in respect of delayed supplies or services shall be limited to those expressly specified in sections 8.1 and 8.2.



9. Delivery, assumption of risk, transport and insurance

- 9.1 Delivery shall be made from the registered address of the supplier, which is also the place of fulfilment. At the request and expense of the customer, the goods can be sent to a different destination (sale by dispatch). Provided nothing to the contrary has been agreed, the supplier shall be entitled to decide for itself the type of dispatch (particularly the carriers, dispatch route, packaging).
- 9.2 The supplier shall pack the products carefully. Packaging charges at cost price will be charged to the customer. Particular requests regarding dispatch and insurance must be communicated to the supplier in due time. The risk of the accidental destruction or accidental deterioration of the goods shall be transferred to the customer at the latest on hand-over. This applies also to part deliveries or where the supplier renders other services, e.g. has agreed to pay the dis patch costs, undertake the carriage or assembly of the goods. The risk of accidental destruction or accidental deterioration of the goods, as well as the risk of delay, is already transferred at the time when the goods are delivered to the forwarding agent, the carrier or any other person or institution appointed to carry out the dispatch. If dispatch is delayed for reasons for which the customer is accountable, the risk shall be transferred to the customer from the date of notification of readiness to dispatch. The customer shall, immediately upon receipt of the supply or freight documents, address complaints regarding the transport to the last freight carrier.
- 9.3 The customer shall be responsible for arranging insurance against losses of whatsoever type. Insurance, even where it is arranged by the supplier, shall be at the expense of the customer.

10. Inspection and acceptance of the supply

- 10.1 If the customer is an entrepreneur, he must inspect the supply promptly after receipt of the shipment. If a defect is detected, a specific complaint must be lodged promptly.
- 10.2 The complaints period is one week. The decisive date is the date of receipt of the written complaint (fax included) by the supplier. If the defect becomes apparent later, the written notification must be made promptly upon discovery. Should the customer fail to make a proper inspection and/or defect notification, the supplier shall have no liability in respect of the unnotified defect (section 11).
- 10.3 The warranty rights of a corporate customer shall lapse if it fails to meet its obligations under sections 10.1 and 10.2.
- 10.4 A corporate customer must return the goods complained of in the original or equivalent appropriate packaging free of carriage charges to the supplier.

11. Warranty and liability

- 11.1 The supplier warrants that products it supplies are free of manufacturing and material defects.
- 11.2 The basis for any liability for defects shall be principally the agreement concerning the nature or quality of the goods. The agreement on the nature or quality of the goods shall be the product descriptions expressly designated as such and which were disclosed to the customer before the order was made, or which likewise were included in this contract as are these GTCSS. Assured characteristics shall be those, and no other, which are expressly described as such in the order confirmation or directions for use. The assurance of such characteristics will not apply beyond expiry of the warranty period.
- 11.3 If material defects become apparent, the supplier shall be entitled at its discretion to eliminate the defects or to make a replacement delivery. The supplier shall be granted a reasonable period of at least 20 working days to repair the defects. The supplier shall be entitled to make several attempts to repair the defects to the extent that the customer can reasonably be expected to accept this.
 - This applies also where the supplier has undertaken to the customer to carry out work within the meaning of § 631 et seq German Civil Code [BGB].
- 11.4 If a defect as specified in section 11.3 is not eliminated in due time, the customer can demand reduction of the purchase price, cancellation of the contract or compensation subject to the following provisions (11.5 and 11.6).
 - However, the customer shall have no right of withdrawal for only minor defects.
- 11.5 Compensation is limited to the foreseeable and direct average loss typical of this kind of contract related to the nature of the goods.
 This limitation does not seek to be large pricing form initiation to life. I the pricing the limit of the limit of

This limitation does not apply to claims arising from injuries to life, limb or health or other losses for which the supplier is accountable due to gross negligence or wilful damage on the part of the supplier.

- 11.6 If the customer chooses to withdraw from the contract because of a defect and failure to effect subsequent fulfilment, it shall not be entitled to claim compensation for the defect. § 325 German Civil Code [BGB] is waived in this respect.
- 11.7 The warranty shall expire prematurely if the customer or third parties make in appropriate modifications or repairs, if the customer does not follow the supplier's operation or servicing instructions or, where a defect has become apparent, does not immediately take all suitable action to minimise damage and fails to give the supplier the opportunity to correct the fault.
- 11.8 The warranty period is two years from delivery of the object.

All cases of breach of contract and their legal consequences and all claims of the customer, irrespective of the legal grounds on which they are based, are governed conclusively in these terms and conditions. In particular, all claims to compensation, price reduction, contract cancellation or withdrawal from the contract not explicitly named herein shall be excluded. Liability for consequential losses is not accepted unless mandatory statutory product liability provisions stipulate otherwise.

12. Applicable law

This contract is subject to German law.

The provisions of the UN Convention on the International Sale of Goods (CISG) shall not apply.

13. Place of jurisdiction

The place of jurisdiction is the registered address of the supplier.

The supplier may at its discretion also take legal action at the place of jurisdiction of the customer.

14. Severability clause

Should any of the above GTCSS be or prove to be invalid, the remaining provisions shall remain in force. In such a case, the parties shall make lawful agreements concerning the void provisions which on the one hand satisfy the statutory regulations and on the other come as close as possible to the purpose originally intended.

General Terms and Conditions of Sale and Supply (GTCSS) dated 1 August 2011

allsafe GmbH & Co. KG Gerwigstraße 31 D-78234 Engen



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Notice	



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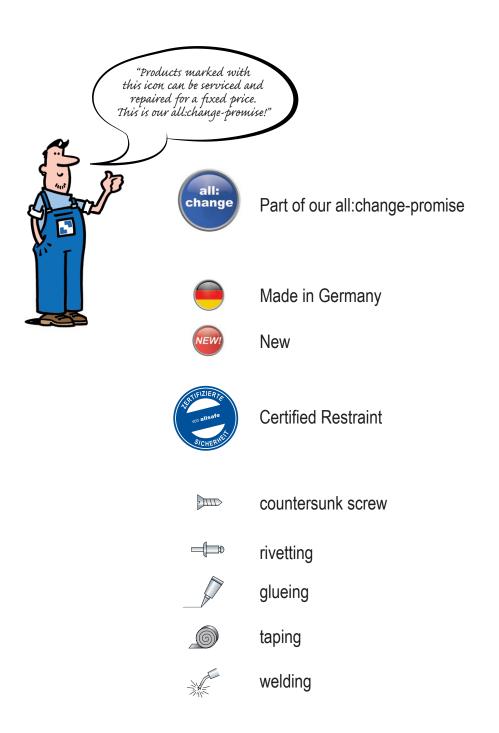
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What the icons mean







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