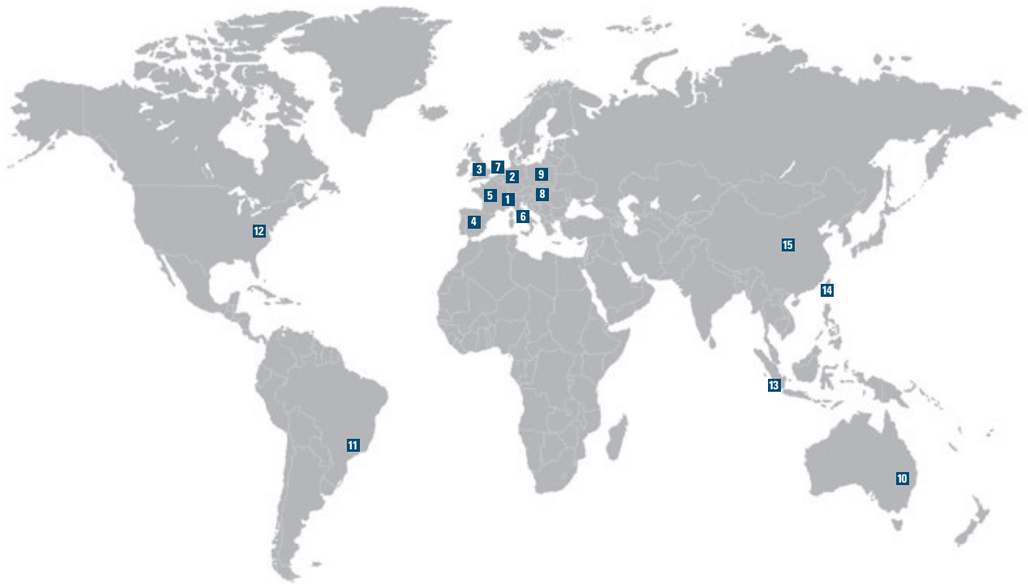
SpanSet®

03

Height Safety
Lifting
Load Control
Safety Management

SpanSet worldwide



1 Switzerland, 2 Germany, 3 United Kingdom, 4 Spain, 5 France,
6 Italy, 7 Netherlands, 8 Hungary, 9 Poland, 10 Australia, 11 Brazil,
12 USA, 13 Indonesia, 14 Taiwan, 15 China

Key

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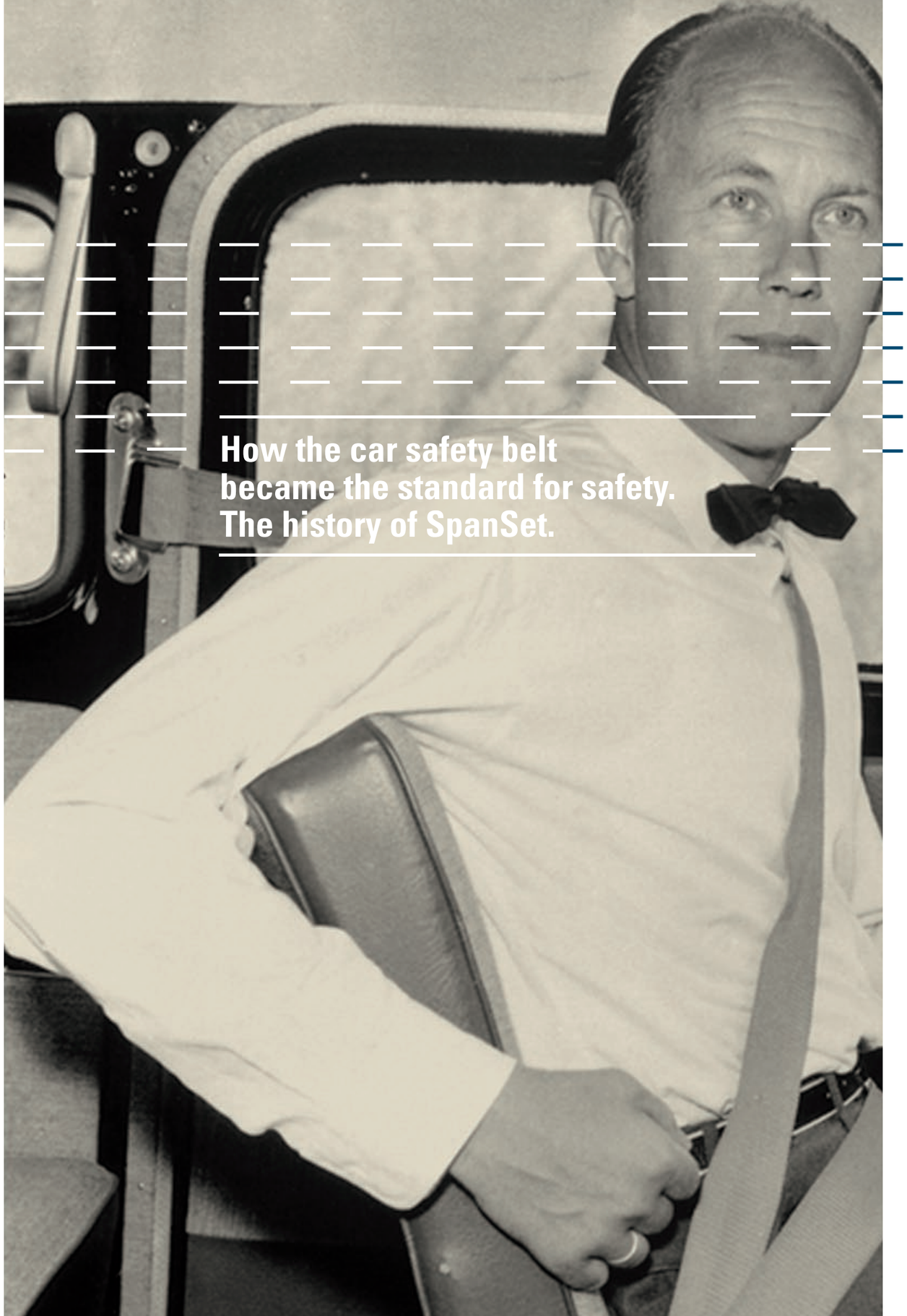


How the car safety belt became the standard for safety. The history of SpanSet.

The foundation: the development of the vehicle safety belt.
It is hard to imagine, but just 50 years ago cars had no safety belts. At that time, little consideration was given to accident prevention and many accidents had fatal consequences where those involved would now escape unharmed. In the late 1950s, in order to improve the safety of those travelling in cars, the automotive manufacturer Volvo contacted the ribbon weaving company AB Textilkonst & Klippan with a commission to develop a safety belt for Volvo vehicles. The time had come for the small Swedish belt weaving company. Working together with Volvo engineers, it developed the world's first vehicle safety belt from high-strength fabric ribbon. In 1959, these belts were fitted in the Amazon and 544 models, and initially met with widespread astonishment from the public. However, as we know, they soon became a great success.

1966 – SpanSet Germany is founded.
Due to the high level of demand, Erik Ehnimb, the co-owner of Klippan, founded the SpanSet company in Malmö in 1966. The straps produced by SpanSet were quickly put to use in many other areas where chains and wire cables had previously been used. In particular, customers valued the extremely high loading capacity of the new lashing and lifting straps. The same year then saw the foundation of SpanSet GmbH & Co. KG in Germany, and this was followed just one year on by the establishment of SpanSet AG in Hombrechtikon, in the South East of the canton of Zurich. These start-ups were soon followed by further subsidiaries in Europe, Asia, the US and Australia, and remain part of a global production and sales network to this day.

Innovations in load control and lifting.
The development of the car safety belt was only the first of many innovative products that SpanSet brought onto the market over the course of the decades. In the 1970s, a lashing strap system for controlling loads of cars on car transporters was developed in collaboration with the Ford plants. In addition, the secutex coating for lifting straps and protective sleeves, developed within SpanSet secutex GmbH, a company that was founded somewhat later, marked an important step in lifting technology. For the first time, lifting straps and round slings could now be used to lift and turn rough and sharp-edged loads.

Continuous further developments during the 1980s.
In 1984, the first ever ratchet tensioner with a pre-tensioning measuring display was showcased worldwide,in the form of the Ergo ratchet. A new generation of roundslings came onto the market, with textile fibre reinforcement in the protective casing, which increased the tear resistance of the casing. Moreover, for the first time, the knowledge and experience that had been built up in the areas of load control and lifting was passed on through training sessions.

ABS ratchets conquer the market.
The 1990s marked the appearance of another innovation: the ABS ratchet. This product enabled gradual release of the tensioned ratchet for the first time, for example in order to catch goods at risk of tipping over in good time. Due to a great reception from users, the Ergo tensioning ratchet was later also equipped with the ABS system. In 1994, TÜV Rheinland certified that SpanSet had a quality management system managed in accordance with DIN ISO 9002/ EN 29002. What is more, the SpanSet quality management system is now certified in accordance with DIN EN ISO 9001:2000. In addition, the late 1990s saw SpanSet begin manufacturing and selling personal protective equipment to protect against falls.

The tensioning ratchet with integrated pre-tensioning display.
At the start of the new millennium, the drive to make load control even safer and more economical for our customers led us to bring a tensioning ratchet with an integrated pre-tensioning display onto the market. The unique Tension Force Indicator (TFI) is the first product to show the actual pre-tensioning force achieved directly on the ratchet and thereby ensures a higher level of safety and cost-effectiveness when using lashing systems.

With over 15 production and sales companies and almost 1,000 employees, the SpanSet Group looks back on its history with pride – ultimately, the decades of research and development work have contributed to increased safety, easier working practices, fewer accidents and lower operating costs throughout the world. SpanSet is now facing up to the challenges of the future, supported by a foundation of constant innovations and new technologies.

SpanSet – Certified Safety

How SpanSet ensures the highest levels of safety in areas other than load control.

Height safety technology

When height safety is mentioned, people generally think of work carried out at vertigo-inducing heights, for example during construction of new offshore facilities – yet there is also a danger of falls in the load control sector, even from low heights. When loading and unloading trucks, people may fall from the load area and injure themselves. Consequently, some years ago, SpanSet was the driving force in the development of special retention systems that offer an extremely high level of safety in such cases.

In addition to load control solutions, SpanSet also offers a wide range of products for height safety. We always work closely with our customers to develop our height safety products. The best example of this is Safeline, a fixed-line roof fall arrest system made from rustproof steel that is used for horizontal and vertical fall arrest and is manufactured in line with customers' requirements for the specific application. We find highly-specialised solutions even for very complex applications. Our international focus is an advantage for us here. Customers throughout the world benefit from the close collaboration within the SpanSet Group. With a close eye on the EN standards at all times, we know what users need and what demands the legislation places on those using personal protective equipment.

Lifting

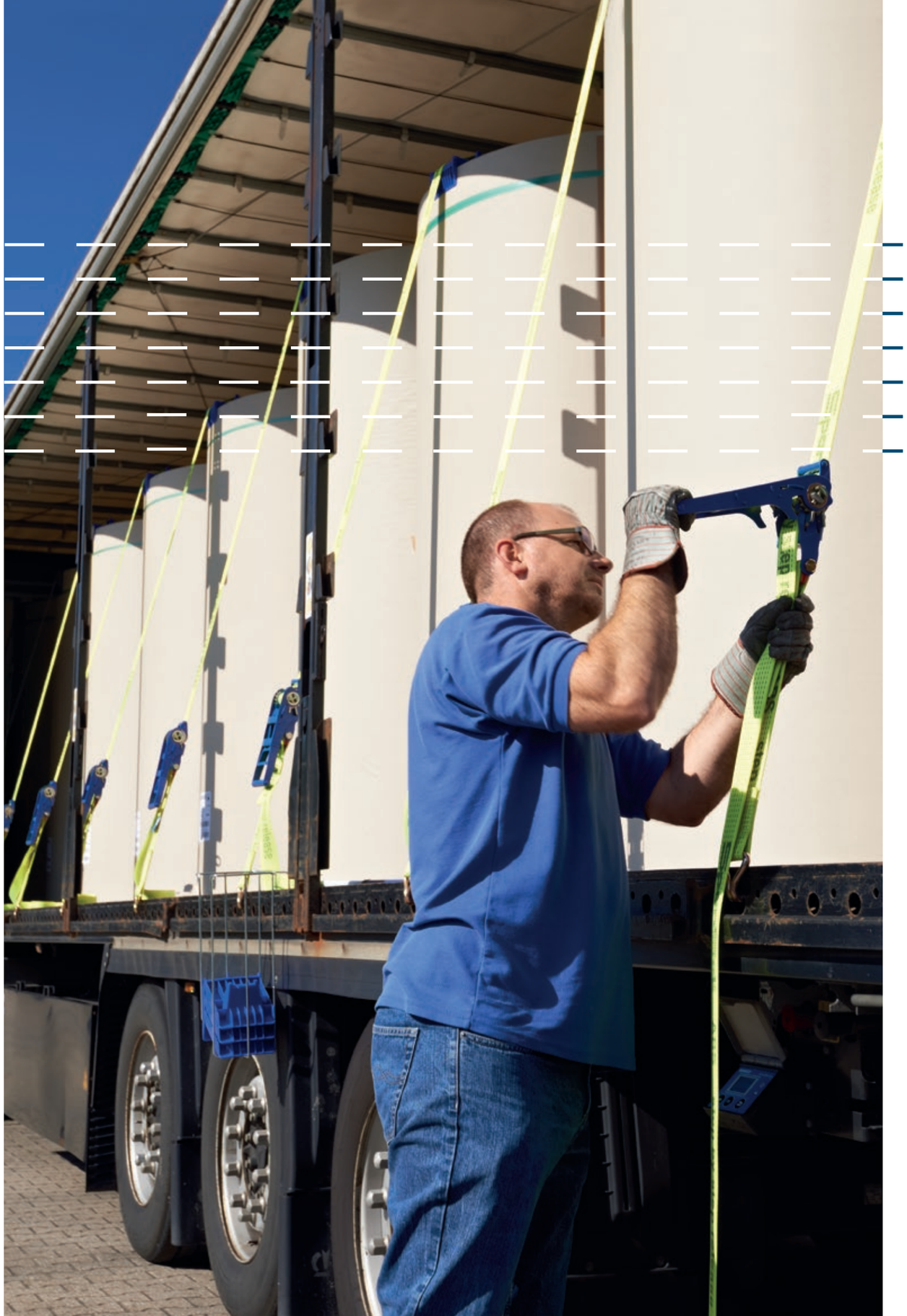
A truck with a well-secured load arrives at its destination on time. Now the goods being transported must be unloaded again by crane. So as to guarantee safe transport of the goods, among other things, it is also vital to select the right slings when it comes to lifting technology. SpanSet is one of the pioneers in the area of lifting with textile slings.

In the late 1960s, unwieldy chains or hemp ropes were used to lift heavy loads. At this time, SpanSet developed new solutions made from high-strength artificial fibres. Today, SpanSet's textile lifting straps and roundslings are used throughout the world to tackle difficult tasks. The ISO-certified lifting straps and roundslings from SpanSet have been used to lift antique works of art, whole roofs of sports stands and ships - after all, you can rely on the high-tech slings that are „made in Germany". SpanSet became the market leader thanks to constant innovations and a quality assurance standard certified in accordance with ISO. Numerous patents and a constant flow of new, practical improvements are a clear sign of our unique knowledge and expertise in lifting technology.

Safety Management

It is 4.30 pm and another successful load control seminar is coming to an end. From tomorrow, the seminar participants will be able to put their newly-acquired theoretical and practical knowledge to good use in their companies and pass this on to their colleagues. The fact that the safety provisions change regularly is just one reason why it is important to be up to date at all times when this forms part of your day-to-day work.

As your partner, we want to be more than just your supplier of high-quality products. We want to support you in effective risk prevention. Of course, this includes the provision of competent, specialised advice, a testing and repair service and further services that improve and simplify the tasks of working at height, lifting loads or controlling loads in a sustainable manner. For this reason, SpanSet offers many training and further training options in our „STZ" safety training centre in Übach-Palenberg and at 15 other sites in Germany and Austria. These courses enable you to deepen your specialist knowledge and learn new things from our certified and trained speakers. Place your trust in our knowledge, expertise and experience – and make it easier to concentrate on the key aspects of your work.



LOAD CONTROL

How we protect people and loads against the dangers of accidents and ensure optimal protection for the equipment.

When it comes to the transport of goods and the protection of all those involved in this work, safety is of utmost important for you and for us. Not only does this provide a feeling of reassurance, it is also prescribed by law. With our load control equipment, you can effectively guard against dangers and accidents while complying fully with the statutory requirements.

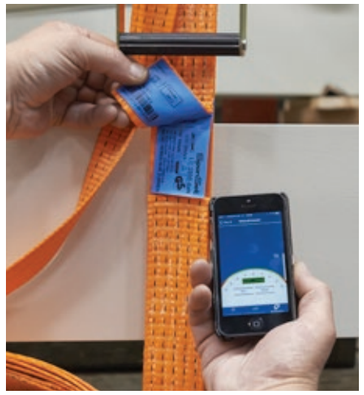
Our customers include companies and organisations with the most stringent safety requirements. For example, automotive and aerospace manufacturers, the chemical, steel and paper industries, energy suppliers, haulage companies, fire brigades and aid organisations all rely on our quality products. Pressure and tensioning ratchets for the very heaviest loads, from 125/250 daN to 12,500/25,000 daN LC, load control nets for quick use with constantly changing freight and an extensive range of accessories, such as our edge protectors for delicate goods, have been raising safety standards in the load control sector for decades now.

100% quality - 100% safety
From the material selection to the quality test, from exact calculations to intelligent application – we give 100% at every stage. We weave the majority of our straps ourselves – in Germany. In order to ensure that you receive only completely reliable and practical load control equipment, we employ experts from the various sectors and develop new products in collaboration with universities of applied science and other institutions.

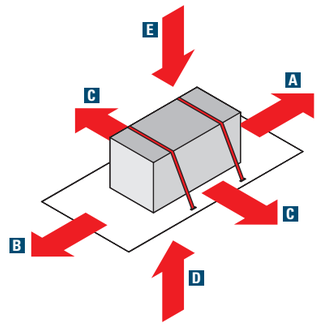
Tested and certified
Our quality management system involves ongoing tests of materials and end products. These materials and end products are subject to continuous checks in our in-house laboratory and in external test series. We test the maximum load, strength and durability. For many years, well-known institutions such as the employers' liability insurance association, DEKRA, TÜV and DNV GL have been carrying out regular testing and certification of our products and the manner in which our quality management system is organised.

By using SpanSet quality products, you are doing everything possible to guarantee the safety of people and of the goods being transported in terms of load control.

SpanSet – Certified Safety



Determining the acceleration values



Acceleration (in g)		Truck	Train	Ship
A	To the front (Cx)	0,8	4,0	0,4
B	To the back (C_X)	0,5	4,0	0,4
C	To the side (C_Y)	0,5	0,5	0,8
D	Upwards (C_Z)	–	0,3	0,8
E	Downwards (C_Z)	1,0	1,0	1,0

Characteristics of the modes of transport
Take into account the load distribution, the carrying capacity of the load area, stanchions and carrier's sides, but also the different forces that occur when transporting by ship, truck or train. The first step towards security is selecting the right lashing equipment for your cargo.

An incredible number of goods are transported on our roads, seas and inland waterways, in the air and by rail every day. These goods must be secured to the load areas so that transport does not present a risk to anyone.

There are three regulations governing the calculation of load control in Germany:
1. Calculation of securing forces VDI 2700 Sheet 2 from July 2014
2. Calculation of securing forces DIN EN 12195-1 in the version from April 2004
3. Calculation of securing forces DIN EN 12195-1 in the version from June 2011

DIN EN 12195-1:2011 is valid throughout Europe. This is rejected in Germany, as it partly reduces the requirements pertaining to safety parameters. However, due to being referenced in the dangerous goods regulations (ADR), it is also indirectly relevant for load control within Germany. The valid regulation in Germany is DIN EN 12195-1:2004 in conjunction with VDI 2700 Sheet 2/2014, as these constitute the currently accepted good engineering practices.

In the section below, the formulae enabling comparison of the two standards are given.

Form-fitting load security
Form-fitting load securing takes place when the cargo can support itself against bulkheads, ship's walls or stanchions. Here, the bulkheads, ship's walls and stanchions must be able to absorb the forces generated.

Transverse and diagonal lashing constitutes another type of form-fitting load securing. With this method, the lashing equipment and lashing/attachment points must be able to absorb the forces generated. The objective is always to hold the cargo in position.

Use form-fitting load security whenever you have the opportunity, as this form of load security is particularly efficient and safe.

Calculating the required tensile force (minimum LC) with form-fitting load security: VDI 2700 Sheet 2:2014 and DIN EN 12195-1:2004

$$F_R = \frac{m \times g\,(C_x - \mu \times C_z)}{2\,(\cos\alpha \times \cos\beta + \mu \times \sin\alpha)}$$

F_R – min. LC (Lashing Capacity)
μ – Coefficient of friction
α – Vertical lashing angle (to load surface)
β – Horizontal lashing angle (to load surface)
C_x – Acceleration to front and back
C_z – Acceleration upwards and downwards
m – Mass
g – Weight

DIN EN 12195-1:2011

$$F_R = \frac{m \times g\,(C_x - \mu \times f_\mu \times C_z)}{2\,(\cos\alpha \times \cos\beta + \mu \times f_\mu \times \sin\alpha)}$$

F_R – min. LC (Lashing Capacity)
f_μ – 0.75
μ – Coefficient of friction
α – Vertical lashing angle (to load surface)
β – Horizontal lashing angle (to load surface)
C_x – Acceleration to front and back
C_z – Acceleration
m – Mass
g – Weight

With transverse and diagonal lashing, the lashing angles must be taken into consideration. Ideally, the vertical angle should be between 0° and 60°, and the horizontal angle in the longitudinal direction between 20° and 45°.

Indirect load security
Loads are secured against falling or sliding using friction lashing, i.e. by indirect load securing. In the case of friction lashing, two forces act together to secure the load: the pre-tensioning force and dynamic friction.

The lashing straps are used for applying the pre-tensioning force. The number of lashing straps to be used is determined depending on the pre-tensioning force required. The friction that results from the combination of the load and the load surface reduces the pre-tensioning force that is required to secure the cargo on the load surface. You can increase the dynamic friction by placing anti-slip matting under the cargo. SpanSet Grip, our premium anti-slip matting product, significantly reduces the pre-tensioning forces required.

Calculation of the number of lashing straps required for indirect load securing: VDI 2700 Sheet 2 and DIN EN 12195-1:2004

$$n = \frac{m \times g\,(C_x - \mu \times C_z)}{k \times \mu \times \sin\alpha \times STF}$$

DIN EN 12195-1:2011

$$n = \frac{m \times g\,(C_x - \mu \times C_z)}{2 \times \mu \times \sin\alpha \times STF} \times f_s$$

n – Number of straps
f_s – 1.1; for road transport in X = 1.25
k – Transfer coefficient (k-factor) (DIN 1.5; VDI 1.8)
μ – Coefficient of friction
α – Vertical lashing angle (to load surface)
C_x – Acceleration to front and back
C_z – Acceleration upwards and downwards
m – Mass
g – Weight

Tip:
For correct load control, use our lashing force app or the online calculator. Further information can be found on page 87.

Example:
Friction lashing with a load weighing 20t, placed on an anti-slip mat, m = 0.6, lashing angle at 80°, STF = 400 daN, k = 1.5, fs = 1.25

in accordance with **DIN EN 12195-1:2004**

$$n = \frac{20000\,(0{,}8 - 0{,}6)}{1{,}5 \times 0{,}6 \times \sin 80° \times 400}$$

11,28 = 12 lashing straps

in accordance with **DIN EN 12195-1:2011**

$$n = \frac{20000\,(0{,}8 - 0{,}6)}{2 \times 0{,}6 \times \sin 80° \times 400} \times f_s$$

10,58 = 11 lashing straps

Structure of textile lashing straps
The **one-piece lashing strap** consisting of tensioning device 1 and webbing 2 is used for strapping around the load and therefore does not need any end fittings such as eyes or hooks.

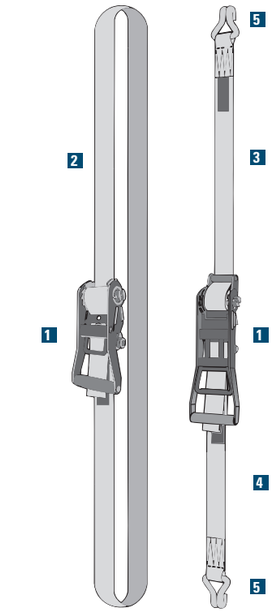
The t**wo-piece lashing strap** consists of a fixed end (FE) 4 an end fitting (EF) 5, a tensioning device (TD) 1 and an adjustable end (AE) 3 which is also equipped with an end fitting 5.

The label
According to the DIN EN 12195-2 standard, fixed and adjustable ends must both be identified using a safety label 6 that provides all of the technical details. The STF (Standard Tension Force) is stated on the label at the fixed end. If this information is missing, the lashing strap may not be used for friction lashing.

Lashing straps with a CE mark are a widespread problem. Article 7 of the German Product Safety Act [Produktsicherheitsgesetz - ProdSG] prohibits this marking, so a CE mark on the label of a lashing strap means that this lashing strap must be discarded.

Extremely durable
Lashing straps made from polyester can be used in a temperature range from -40°C to +100°C. Even caustic solutions and acids do not generally cause a problem – depending on the concentration and the duration of exposure.

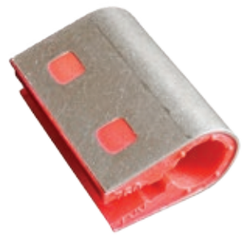
Testing and maintenance
Lashing straps must be tested at least once a year by a competent person. This may even need doing more frequently, depending on the conditions and frequency of use. Maintenance work may only be carried out by the manufacturer or by his representative.



6 Label with all mandatory information

- With the TFI, you can verify the pre-tensioning force that is actually attainable
- Verifies that up to 60% fewer lashing straps can be used
- For fixed and adjustable ends
- Very easy to read thanks to signal colour

Achieve the maximum pre-tensioning force in a cost-effective and precise manner.



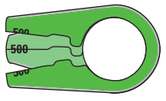


Abb. 1: TFI 500 daN

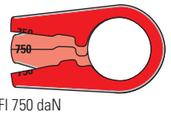


Abb. 2: TFI 750 daN

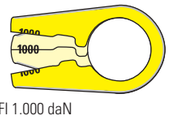


Abb. 3: TFI 1.000 daN

The TFI – Tension Force Indicator
Normally, when determining the pre-tensioning force, additional electronic devices are used. These are very accurate, but also expensive. More than ten years ago, SpanSet developed a unique mechanical aid – the Tension Force Indicator. The TFI reliably shows the pre-tensioning force that has been achieved – to do so, it is installed directly on the tensioning device. Well-protected and extremely easy to read! Many of our products have already been fitted with TFIs as standard, meaning that expensive measurements are now a thing of the past.

Achieve the maximum pre-tensioning force in a verifiable manner with the TFI
The TFI helps you to make the best possible use of your lashing straps, achieving maximum performance. The pre-tensioning force display makes it simple for you to measure the pre-tensioning force applied and to provide evidence of this with no problems in the event of a check. The two jaws of the TFI close when tension is added. Once the full pre-tensioning force has been reached, the jaws are pressed together (form fit). In this way, you can prove the pre-tensioning force applied in the system quickly and directly. If the lashing strap loses tension during the journey, the jaws of the TFI will not be fully closed, indicating that re-tensioning is necessary in the event of doubt.

The Tension Force Indicator, designed for 50 mm-lashing straps, is available in different versions, with 500 (green), 750 (red) and 1,000 (yellow) daN/STF pre-tensioning displays, tailored to the relevant lashing systems. As the TFI design uses signal colours, it also makes it easier to read the pre-tensioning force in poor light conditions.

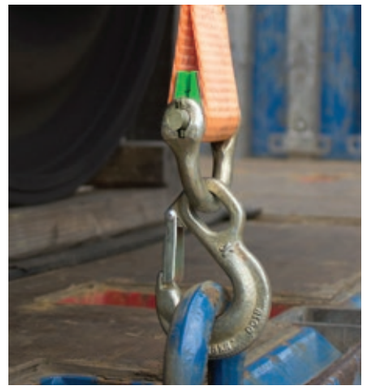
Additional use of TFI at adjustable end
In addition to the TFI at the fixed end, the TFI can also be used at the adjustable end. For this, there is an adaptor available for the TFI which can be integrated into the current end fittings. In addition, SpanSet has specially designed a delta hook to which the TFI can easily be attached. This results in an additional cost saving, as no adaptor is then required. Alongside the even higher verifiable pre-tensioning force, the K-factor (1.5) is no longer significant, as a lashing force can also be proven at the adjustable end. (Further information can be found on page 27.)

In addition to your own safety, the unique TFI guarantees the necessary traceability for the authorities and is also listed as a system component in the GS test descriptions. This means that not only does the Tension Force Indicator from SpanSet ensure greater cost-effectiveness, it also guarantees greater safety when using lashing systems.

SpanSet – Certified Safety

PRACTICAL GUIDELINES

TFI – Tension Force Indicator



Securing loads – reducing lashing equipment
Simply by using the Tension Force Indicator at the fixed end of the lashing equipment, you can reduce the number of lashing straps significantly. With additional use of the TFI at the adjustable end, it can be proved that up to as much as 60% fewer lashing straps can be used for securing the load. The 2.5t-ErgoABS tensioning ratchet – with a rated STF of 350 daN – is fitted with a TFI 750 at the fixed end as standard. If we consider the k-factor of 1.5, an STF of 1,125 daN is achieved with friction lashing. If an additional TFI 750 is used at the adjustable end, it is even possible to achieve and verify a pre-tensioning force of 1,500 daN.

The following table shows the different STF values with and without TFI, and with resulting number of lashing straps to be used with a 12t-load to be secured. The result of the calculations is convincing.

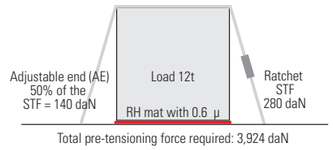
STF values for lashing systems with and without TFI

Lashing strap	LC single direct [daN]	LC strapped around the load [daN]	S_{TF} [daN] single direct	S_{TF} [daN] strapped around the load k = 1,5	S_{TF} [daN] **with TFI** single direct	S_{TF} [daN] **with TFI** strapped around the load k = 2	Number of lashing straps [12 t-load]
2t-lashing strap*	2.000	4.000	280	420	-	-	10
2,5t-lashing strap*	2.500	5.000	250	375	-	-	11
2t-lashing strap with TFI 500	2.000	4.000	-	-	**500**	**1.000**	**4**
2,5-t-lashing strap with TFI 500	2.500	5.000	-	-	**500**	**1.000**	**4**
2t-Ergo ABS	2.000	4.000	440	660	-	-	6
2,5t-Ergo ABS	2.500	5.000	350	525	-	-	8
2t-Ergo ABS with TFI 750	2.000	4.000	-	-	**750**	**1.500**	**3**
2,5t-Ergo ABS with TFI 750	2.500	5.000	-	-	**750**	**1.500**	**3**
ErgoMaster	2.000	4.000	720	1.080	-	-	4
ErgoMaster with TFI 1.000	2.000	4.000	-	-	**1.000**	**2.000**	**2**

The calculation was carried out with a = 0.8 g, μ = 0.6, a k-coefficient of 1.5 (without TFI) or 2 (with TFIs) and lashing angles between 83° and 90°. *Values relate to a commercially-available third-party product.

Use up to 60% less lashing equipment with the TFI

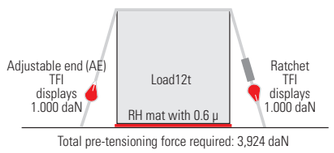
2 t-lashing strap, commercially available, without TFI



Total pre-tensioning force required: 3,924 daN

Result: The pre-tensioning force required is achieved with 10 commercially-available lashing straps

ErgoMaster 2 t with TFI at adjustable end and fixed end



Total pre-tensioning force required: 3,924 daN

Result: The pre-tensioning force required is achieved with 2 ErgoMaster tensioning ratchets!

DIN EN 12195-1, DIN EN 12195-2
and VDI Directive 2700 et seq.


3

Standards and directives in Germany and Europe

1 The SpanSet company standard, and therefore also our „seal of quality", stands for reliable test results based on DIN EN 12195-2.

2 The GS mark is used to certify that a product complies with the requirements set out in Article 21 of the Product Safety Act. These requirements are set out for textile lashing equipment in DIN EN 12195-2.

For textile lashing equipment, the European standard DIN EN 12195-1 „Calculation of securing forces" and -2, „Web lashing made from man-made fibres" applies. In addition, the information set out in Directive VDI 2700 Sheet 2 is applicable. This must be taken into account in Germany for securing loads with textile lashing systems, alongside the European standard.

For friction lashing, the principle is that the more force that can be applied to the load with a lashing system, the better. This rule of thumb presumes that the load withstands the forces and is not damaged by the webbing. Due to this finding, lashing systems are designed for a high pre-tensioning force STF (standard tension force) more and more frequently. In many cases, this makes it possible to use fewer tensioning devices to apply the securing force calculated.

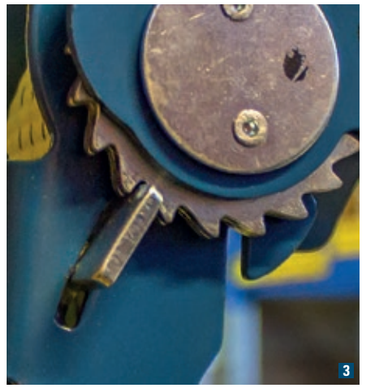
However, high forces also place strain on the webbing and the mechanics of the tensioning devices, and require better tempering of the sprockets. In DIN EN 12195-2, determination of the STF is described, under „6.5.1 Test of pre-tensioning capacity". Nonetheless, DIN EN 12195-2 also leaves scope for interpretation as far as its implementation is concerned, which may result in differing, non-comparable results, depending on how the standard is interpreted.

With regard to the standard DIN EN 12195-1:2011 „Load restraining on road vehicles – Calculation of securing forces", the current opinion in specialist circles is that the requirements pertaining to the safety parameters have been reduced. In certain key points, this standard does not correspond to the safety level that is usual in Germany, and is therefore not used.

Determination of STF value with 50 daN hand force
The secret of the high pre-tensioning force lies in the transmission of force. Long levers, smaller sprocket spacings, double sliders and special half-shafts are used, as is thin webbing. However, measures that make sense for 2 and 2.5 t-lashing systems lead to problems with lighter systems. The STF of a light-weight lashing system with an LC of 400 daN and a webbing width of 25 mm is determined with 50 daN hand force in the same test assembly. Here the standard makes no distinction. As a result, these lashing systems attain STF values that are more than 50% of the LC. This means that they no longer comply with the standard and, among other things, would not be awarded a GS 2.

Under the supervision of the Central Body of the German States for Safety Technology [Zentralstelle der Länder für Sicherheitstechnik - ZLS], the competent testing laboratory experience exchange group responded to this problem and reduced the hand force for light-weight lashing systems to 25 daN. Consequently, the GS mark can once again be awarded for these systems. However, the product must be labelled with the endorsement „based on the standard", as the standard still expressly stipulates that 50 daN of hand force be used to determine the STF. It is difficult to convey this background information to users, particularly as there are still some systems on the market that are incorrectly labelled or are missing the note „based on the standard".

SpanSet STF type testing
and company standard


3


4

The STF test in line with the standard
In the STF test, the system is first fixed at both ends, at a variable separation distance from 0.5 to 4.0 m. 1.25 turns of the webbing are then wound onto the spindle F, and the handle of the tensioning device is positioned at a right angle to the webbing and pre-tensioned with up to 5% of the LC (Lashing Capacity) for the system strength.

Using apparatus, a weight is then used to apply the SHF (Standard Hand Force) of 50 daN. The weight is let down onto the handle that is positioned horizontally. Following this, the weight is raised again and the ratchet handle is moved back to the horizontal position, where it is once again subjected to the force. This process is repeated until such time as it is no longer possible to apply force to the system 5.

Determining the STF value
The difference in force between two sprockets of the tensioning device may easily be 120 daN (sprockets of the tensioning device when caught 3 and at the tip 4. The value to be entered in the calculation is read off 10 seconds after the load is finally removed. Depending on the number of sprockets, the test is repeated five or six times. The maximum and minimum values must be removed from the results and an average must be taken. The STF is then indicated in 2% increments of the LC. If an average value of 385 daN has been determined in the test for a lashing system with an LC of 2,000 daN, a maximum STF of 360 daN can be indicated (increments of 40 daN). A lashing system may only be used for friction lashing if an STF of 10% to a maximum of 50% of the LC has been attained with the test assembly! The values are determined using a „force measuring device", which is currently understood to mean digital and calibrated load cells.

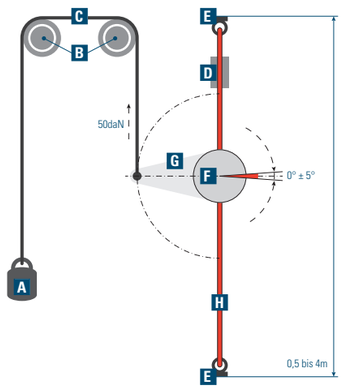
The company standard – standardised test
Standards are important and useful – this is no place for compromises. However, the state of the art is and will remain the benchmark. As an innovative company, SpanSet responds to requirements in the load control sector every day, by means of further developments and innovations in terms of technology and safety.

SpanSet has designed test facilities and drawn up test instructions that are used as the basis for carrying out the various standard tests. Documentation of the procedure creates transparency and results in reproducible and reliable performance data determined in accordance with the standard. The test principle and test facilities were developed in collaboration with RWTH Aachen University and agreed with the external test institutes. The outcome: a works standard 1 with reliable test results on the basis of DIN EN 12195-2!

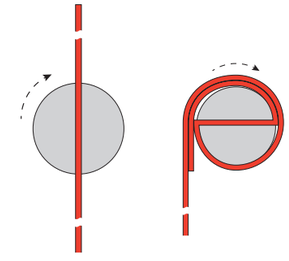
SpanSet – Certified Safety

STF value type testing

5 Execution of test to establish the pre-tensioning capacity (see DIN 12195-2)



A Weight
B Guide pulley
C Rope
D Force transducer
E Attachment point
F Winding shaft/spindle
G Hand lever
H Webbing



6 Winding on the webbing in the STF test

03.1

Heavy-duty ratchets

How to move easily and safely between construction sites

Today it is being used in road works on the A4 - tomorrow it will once again be on its way to a major construction site in an industrial area 100 kilometres away. An excavator is an expensive investment that is used every day. For the construction company Tholen GmbH, based in Geilenkirchen, transporting construction machinery to constantly-changing work locations is part of everyday life. In order to be in a position to face up to the new challenges in load control that arise on a daily basis, the company selected the SpanSet ABS heavy-duty ratchets. In this way, costly transport damage is avoided, vehicle checks can be faced calmly and, incidentally, the core service, punctual delivery, has also been improved!

In order to ensure that the excavator is not „unloaded involuntarily“, one factor is of utmost importance during transport from site to site: a high level of safety and security! SpanSet heavy-duty ratchets stand for quality and the very highest safety and security. Extremely robust, with high-quality machining, the „powerhouses“ are ideally suited to the requirements involved in transporting heavy construction equipment. An epoxy resin coating effectively protects the ratchet from the effects of the weather, prevents rust and ensures a long service life. The product label is protected by a transparent plastic sleeve. If the important safety information on the label is no longer legible or the label has been torn off, the product may no longer be used. A self-locking ratchet lever prevents unintentional opening while being transported and thereby increases the safety of all road users. Release of the heavy-duty lashings is facilitated by an ABS system, fitted as standard, which gradually opens the ratchet and thereby releases the force in individual steps.

Compared to other lashing equipment, SpanSet heavy-duty ratchets have a very low tare weight, which significantly improves their ergonomics and handling. Optional equipment possibilities such as a coating on the webbing or the fitting of RFID transponders to simplify test documentation are just a couple of examples from an innovative and extensive range of accessories.

With the SpanSet heavy-duty ratchets you can move from site to site in safety and security.

SpanSet – Certified Safety

ABS heavy-duty ratchet lashing strap 5,000/50

– Self-locking tensioning device, can be released gradually using ABS and equipped with double slider
– Low-stretch, wear-resistant webbing with cord edge and marking stripes
– Tensioning device coated with epoxy resin
– Robust label, resistant to being pulled out, protected by plastic sleeve and webbing insert
– Reliable lashing force of up to 5,000 daN
– Ideal for diagonal lashing of vehicles and machinery

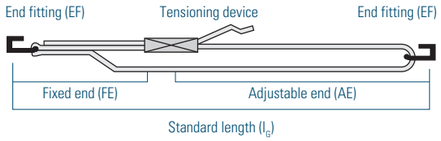
A KKA – Coupler

C TRI – Delta

B KKA-GSH safety hook

D LS – Delta hook

power-assisted



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface ✓ finished ○ coated	LC [daN]	Standard length FE [m]	Strap width b [mm]
D003606	4,0	3,8	A	○	5.000	0,5	50
D003599	4,0	3,8	A	✓	5.000	0,5	50
D003608	4,0	6,6	B	○	5.000	0,5	50
D003600	4,0	6,6	B	✓	5.000	0,5	50
D003610	4,0	3,9	C	○	5.000	0,5	50
D003603	4,0	3,9	C	✓	5.000	0,5	50
D003612	4,0	5,4	D	○	5.000	0,5	50
D003605	4,0	5,4	D	✓	5.000	0,5	50

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

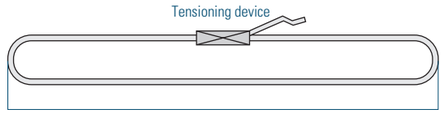
ABS EPX 4%

The explanations of the pictograms can be found on the flap.

ABS heavy-duty ratchet lashing strap 5,000/75

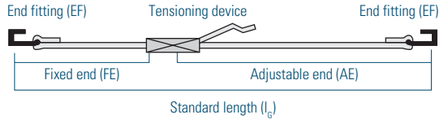
– Self-locking tensioning device, can be released gradually using ABS and equipped with double slider
– Low-stretch, wear-resistant webbing with cord edge
– Tensioning device coated with epoxy resin
– Robust label, resistant to being pulled out, protected by plastic sleeve and webbing insert
– Reliable lashing force of up to 5,000 daN
– With threading aid at adjustable end

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End-fittings (EF)	Surface finished	LC [daN]	Standard length FE [m]	Strap width b [mm]
D001584	4,0	4,3	A	✓	10.000	0,5	75
D008870	6,0	4,8	A	✓	10.000	0,5	75

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End-fittings (EF)	Surface finished	LC [daN]	Standard length FE [m]	Strap width b [mm]
D003615	4,0	6,8	A	✓	5.000	0,7	75
D011478	6,0	7,3	A	✓	5.000	0,7	75
D003616	4,0	8,7	B	✓	5.000	0,7	75
D011479	6,0	9,2	B	✓	5.000	0,7	75
D003617	4,0	5,6	C	✓	5.000	0,7	75
D008385	6,0	6,1	C	✓	5.000	0,7	75

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

ABS EPX

The explanations of the pictograms can be found on the flap.

A TRI – Delta

B LS – Delta hook

C SPH - Claw hook

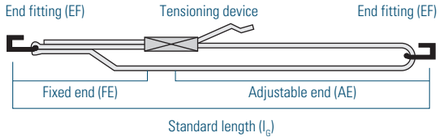
ABS heavy-duty ratchet lashing strap 10,000/75

– Tensioning device can be released gradually, self-locking and equipped with double slider
– Tensioning device coated with epoxy resin
– Robust label, resistant to being pulled out, protected by plastic sleeve and webbing insert
– Ideal for diagonal lashing of vehicles and machinery
– Reliable lashing force of up to 10,000 daN

A LS – Delta hook

B TRI - Delta

power-assisted



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	Standard length FE [m]	Strap width b [mm]
D003619	4,0	9,5	A	✓	10.000	0,7	75
D011549	6,0	10,5	A	✓	10.000	0,7	75
D003618	4,0	8,1	B	✓	10.000	0,7	75
D008189	6,0	9,1	B	✓	10.000	0,7	75

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

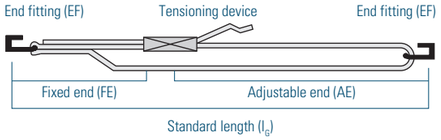
ABS EPX

The explanations of the pictograms can be found on the flap.

ABS high-performance ratchet lashing strap 12,500/75

– Tensioning device can be released gradually, self-locking and equipped with double slider
– Epoxy resin-coated tensioning device made from hardened material and with reinforced bars
– Robust label, resistant to being pulled out, protected by plastic sleeve and webbing insert
– Reliable lashing force of up to 12,500 daN
– With TFI as standard

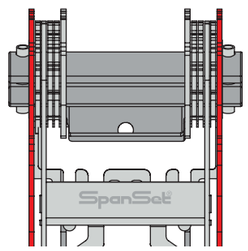
power-assisted



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	Standard length FE [m]	Strap width b [mm]
D012776	4,0	16,5	A	✓	12.500	0,7	75
D012777	6,0	17,5	A	✓	12.500	0,7	75

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

Reinforced bar



This high-performance ratchet is further reinforced by a double bar, meaning that the load is distributed between three points rather than just two. This results in extremely high loading capacity and stability.

ABS TFI EPX 4%

The explanations of the pictograms can be found on the flap.

A LS - Sicherheitshaken

Spannfix heavy-duty ratchet lashing strap 5,000/75

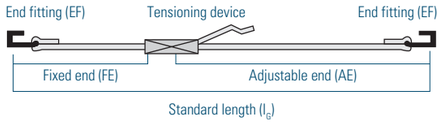
- Yellow chrome-plated tensioning device
- Self-locking ratchet lever
- Wear-resistant webbing
- Reliable lashing force of up to 5,000 daN
- Label that is resistant to being pulled out, protected by webbing insert

A SPH - Claw hook

B TRH - Triangle hook

C LS - Delta hook

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End-fittings (EF)	Surface finished	LC [daN]	Standard length FE [m]	Strap width b [mm]
D003638	4,0	6,2	A	✓	5.000	0,7	75
D046901	6,0	6,8	A	✓	5.000	0,7	75
D055743	4,0	8,8	B	✓	5.000	0,7	75
D055744	6,0	9,4	B	✓	5.000	0,7	75
D003644	4,0	8,3	C	✓	5.000	0,7	75
D003683	6,0	8,9	C	✓	5.000	0,7	75

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap.

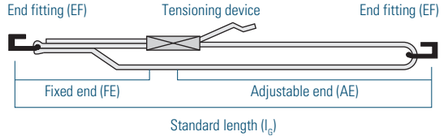
Spannfix heavy-duty ratchet lashing strap 10,000/75

- Yellow chrome-plated tensioning device
- Self-locking ratchet lever
- Wear-resistant webbing
- Reliable lashing force of up to 10,000 daN
- Label that is resistant to being pulled out, protected by webbing insert

A TS - Delta

B LS - Delta hook

power-assisted



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	Standard length FE [m]	Strap width b [mm]
D055936	4,0	10,0	A	✓	10.000	0,7	75
D055748	6,0	10,7	A	✓	10.000	0,7	75
D045712	4,0	12,2	B	✓	10.000	0,7	75
D052609	6,0	12,8	B	✓	10.000	0,7	75

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap.

How SpanSet secures 180 kilometres of reinforced concrete without great muscular power

Universalbeton Heringen GmbH & Co. KG is a manufacturer working in the field of pre-fabricated concrete parts. For the construction of the „German Unity 8" [Deutsche Einheit 8] transport project, a stretch of ICE high-speed rail track between Nuremberg, Erfurt, Halle and Berlin, the company was commissioned to manufacture concrete railway sleepers to act as supports for the track superstructure. In total, reinforced steel plates that added up to an overall length of 180 kilometres when placed end-to-end were required for the project. Following manufacture, the concrete parts were lashed to trucks using SpanSet ErgoABS pull-down ratchets and transported to the construction site. As well as the importance of attaining high pre-tensioning forces due to the weight of the goods being transported, quality and durability were of predominate importance to Universalbeton Heringen when choosing the lashing equipment. As there were over 35,000 pre-finished concrete parts required, the loaded trucks had to cover the distance between the company's premises and the construction site 7,000 times – with this intensive use, lower-quality lashing straps would not only have been uneconomical, they would also have posed an unnecessary risk.

When it comes to load control for heavy loads, you do not just need straps that you can rely on. You also require a solution that facilitates the work for you and makes the safety check quick and simple. Our pull-down ratchets are the perfect helpers here. The longer handle on the Ergo ratchets makes lashing significantly easier. You can attain high pre-tensioning forces with considerably less muscle force. With the extra-long lever, the tensioning ratchets, which were already kind to your back, now live up to the ergonomic requirements placed on them even more. With the unique TFI (Tension Force Indicator), you can verify the pre-tensioning force applied to the system quickly and directly. When the jaws of the TFI are completely closed, it shows you the maximum pre-tensioning force that can be attained. Intermediate stages can also be read off from the device. It could not be simpler.

SpanSet pull-down ratchets bring together the very highest levels of safety and security with the cost-effectiveness and efficiency of well-thought-out solutions. They make day-to-day life a lot easier and allow you to work more quickly – and therefore more profitably. What more could you want?

SpanSet – Certified Safety

ErgoABS pull-down ratchet lashing strap 2,000/50 with STF 440

- Fitted with TFI pre-tensioning display as standard, pre-tensioning force of 750 daN[1)] can be achieved and read off
- ABS ratchet can be released gradually, self-locking and equipped with double slider
- Tensioning principle and extended ratchet lever for ergonomic and improved transmission of force
- Low-stretch, wear-resistant webbing with cord edge and marking stripes
- Tensioning device coated with epoxy resin
- Robust label, resistant to being pulled out, protected by plastic sleeve and webbing insert

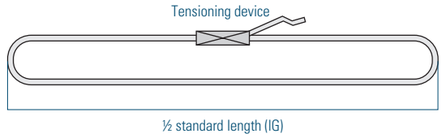
A TRH - Delta hook

B SPH - Claw hook

C SFH - Hook and keeper

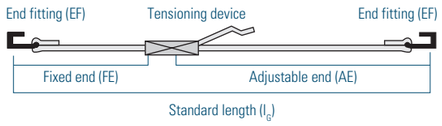
D KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001567	8,0	3,0	✓	4.000	50

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	STF [daN]	STF with 750er-TFI [daN]	Standard length FE [m]	Strap width b [mm]
D003546	8,0	4,1	A	✓	2.000	440	750	0,5	50
D003547	8,0	3,4	B	✓	2.000	440	750	0,5	50
D003549	8,0	3,7	C	✓	2.000	440	750	0,5	50
D003551	8,0	3,3	D	✓	2.000	440	750	0,5	50

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

750daN TFI · ABS · EPX · 4%

The explanations of the pictograms can be found on the flap. 1) simple, direct

ErgoABS pull-down ratchet lashing strap 2,500/50 with STF 350

- Fitted with TFI pre-tensioning display as standard, pre-tensioning force of 750 daN[1)] can be achieved and read off
- ABS ratchet can be released gradually, self-locking and equipped with double slider
- Tensioning principle and extended ratchet lever for ergonomic and improved transmission of force
- Low-stretch, wear-resistant webbing with cord edge and marking stripes
- Tensioning device coated with epoxy resin
- Robust label, resistant to being pulled out, protected by plastic sleeve and webbing insert

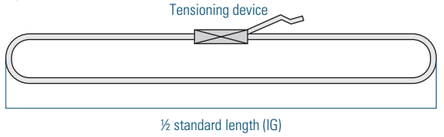
A TRH - Delta hook

B SPH - Claw hook

C SFH -Hook and keeper

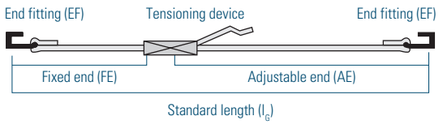
D KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001563	8,0	3,2	✓	5.000	50

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	STF [daN]	STF with 750er-TFI [daN]	Standard length FE [m]	Strap width b [mm]
D003541	8,0	4,3	A	✓	2.500	350	750	0,5	50
D003543	8,0	3,6	B	✓	2.500	350	750	0,5	50
D003544	8,0	3,9	C	✓	2.500	350	750	0,5	50
D003545	8,0	3,5	D	✓	2.500	350	750	0,5	50

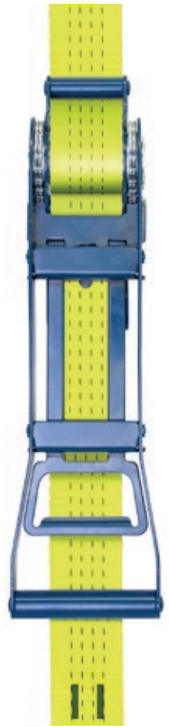
Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

750daN TFI · ABS · EPX · 4%

The explanations of the pictograms can be found on the flap. 1) simple, direct

ErgoMaster pull-down ratchet lashing strap 2,000/50 with S_{TF} 720

- serienmäßig mit Vorspannanzeige TFI, dadurch erreichbare und ablesbare Vorspannkraft von 1.000 daN[1)]
- ideale Kraftübertragung durch ein einzigartiges Schlitzwellensystem
- dehnungsarmes, verschleißfestes Gurtband mit Cordkante und Kennstreifen
- epoxidharzbeschichtetes Spannelement
- robustes, ausreißfestes Label, geschützt durch Folienschlauch und Gurtbandüberlappung



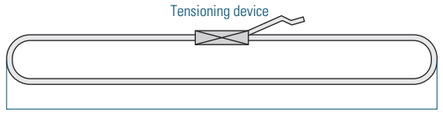
A SPH - pull-down

B TRH - pull-down

C SFH - Hook and keeper

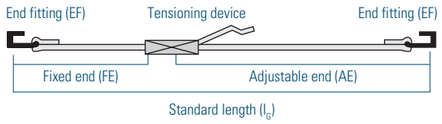
D KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D055686	8,0	3,9	✓	4.000	50

Two-piece



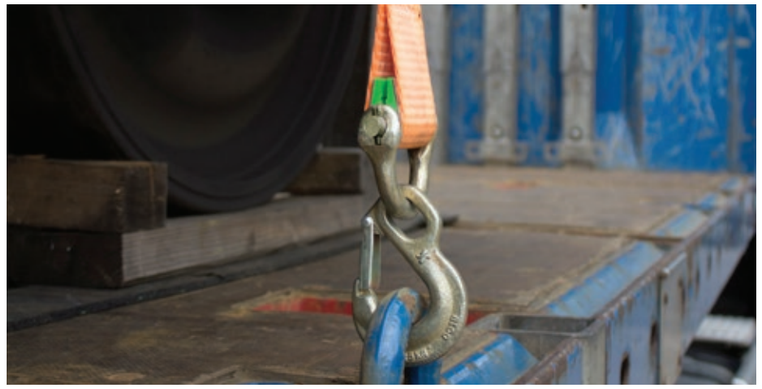
Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	S_{TF} [daN]	S_{TF} with 1.000er-TFI [daN]	Standard length FE [m]	Strap width b [mm]
D055682	8,0	3,4	A	✓	2.000	720	1.000	0,5	50
D055685	8,0	4,1	B	✓	2.000	720	1.000	0,5	50
D055684	8,0	3,7	C	✓	2.000	720	1.000	0,5	50
D055681	8,0	3,3	D	✓	2.000	720	1.000	0,5	50

ℹ Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

1.000 TFI · EPX · 4%

The explanations of the pictograms can be found on the flap. 1) simple, direct

TFI at adjustable end



- Available as an option for all 50 mm strap widths
- Proof of the actual pre-tensioning force
- Demonstrable use of less lashing equipment

TFI at adjustable end

When it comes to the pre-tensioning forces in your lashing strap systems, you need to make some careful calculations. According to DIN EN 12195-1:2004 you may usually only take 50% of the pre-tensioning force of the fixed end into account for the STF value of the fixed end and for the adjustable end. However, if you can prove that a higher pre-tensioning force is attained, you may take the actual force measured into account. This means, for example, that if you prove there are forces of 750 daN at both the adjustable end and the fixed end, you can incorporate this 1,500 daN of pre-tensioning force into your calculation. This is also enabled by our unique aid, the TFI, which can also be used at the adjustable end.

By means of a special adaptor **2**, the TFI can be integrated with all current end fittings. In addition, SpanSet has specially designed a delta hook **1** to which the TFI can easily be attached. This results in an additional cost saving.

When using the TFI, the STF that can be proven is significantly higher than that indicated on the label. This means that you save money when loading and unloading, as you need less lashing equipment.

STF values for lashing systems with and without TFI

Lashing system	LC single direct [daN]	LC strapped around the load [daN]	S_{TF} [daN] single direct	S_{TF} [daN] strapped around the load k = 1,5	S_{TF} [daN] **with TFI** single direct	S_{TF} [daN] **with TFI** strapped around the load k = 2	Number of lashing straps [12 t-load]
2t-lashing strap*	2.000	4.000	280	420	-	-	10
2,5t-lashing strap*	2.500	5.000	250	375	-	-	11
2-t-lashing strap with TFI 500	2.000	4.000	-	-	**500**	**1.000**	**4**
2,5-t-lashing strap with TFI 500	2.500	5.000	-	-	**500**	**1.000**	**4**
2t-Ergo ABS	2.000	4.000	440	660	-	-	6
2,5t-Ergo ABS	2.500	5.000	350	525	-	-	8
2t-Ergo ABS with TFI 750	2.000	4.000	-	-	**750**	**1.500**	**3**
2,5t-Ergo ABS with TFI 750	2.500	5.000	-	-	**750**	**1.500**	**3**
ErgoMaster	2.000	4.000	720	1.080	-	-	4
ErgoMaster with TFI 1.000	2.000	4.000	-	-	**1.000**	**2.000**	**2**

ℹ The calculation was carried out with a = 0.8 g, μ = 0.6, a k-coefficient of 1.5 (without TFI) or 2 (with TFIs) and lashing angles between 83° and 90°. *Values relate to a commercially-available third-party product.

1 SpanSet delta hook with TFI 750

2 TFI adaptor with TFI 750 for the adjustable end

Ergo pull-down ratchet lashing strap 2,500/50 with S_{TF} 500

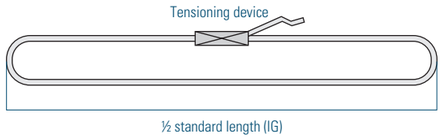
– Available with optional TFI pre-tensioning display, max. pre-tensioning force of 750 daN[1)] can be achieved and read off
– Self-locking ratchet lever
– Pull-down principle and extended ratchet handle for ergonomic and improved transmission of force
– Label that is resistant to being pulled out, protected by webbing insert

A SPH - Claw hook

B SFH - Hook and keeper

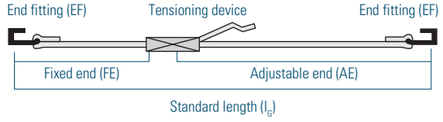
C KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D056549	8,0	3,0	✓	5.000	50

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF) TFI	Surface finished	LC [daN]	S_{TF} [daN]	S_{TF} with 750er-TFI [daN]	Standard length FE [m]	Strap width b [mm]
D059253	8,0	3,4	A	✓	2.500	500	-	0,5	50
D072831	8,0	3,4	A + TFI	✓	2.500	500	750	0,5	50
D059255	8,0	3,7	B	✓	2.500	500	-	0,5	50
D059257	8,0	3,7	B + TFI	✓	2.500	500	750	0,5	50
D059258	8,0	3,3	C	✓	2.500	500	-	0,5	50
D059259	8,0	3,3	C + TFI	✓	2.500	500	750	0,5	50

ℹ Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

750daN TFI

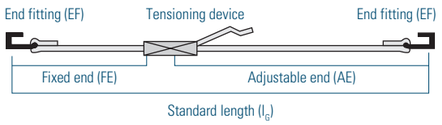
The explanations of the pictograms can be found on the flap. 1) simple, direct

Ergo pull-down ratchet lashing strap 2,500/50 with S_{TF} 500

– Self-locking ratchet lever
– Pull-down principle and extended ratchet lever for ergonomic and improved transmission of force
– Label that is resistant to being pulled out, protected by webbing insert

A SPH - Claw hook

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF) TFI	Surface finished	LC [daN]	S_{TF} [daN]	Standard length FE [m]	Strap width b [mm]
D070000	8,0	3,5	A	✓	2.500	500	0,5	50
D069196	9,0	3,5	A	✓	2.500	500	0,5	50

ℹ Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap. 1) simple, direct

03.3

Push-up ratchets

How the ABS ratchets are used in areas other than load control

Wavin is a manufacturer of plastic pipes for the construction industry. The pipes it produces are used in the water and gas supply and disposal sectors. Some pipelines designed for the field of sanitation are wound onto large reels, with the ends of these pipes being fixed with lashing equipment. As the winding process places the pipelines under a high level of tension, uncontrolled, hazardous situations previously occurred when releasing the lashing. SpanSet ABS ratchets with the anti-belt-slip procedure are used here to secure the cargo units. Thanks to the controlled, gradual release of the ABS systems, it has been possible to eliminate this cause of accidents and ensure safety on the construction sites. The minor transport damage of which some customers complained was a further problem. Abrasion and pressure points were found on the pipelines again and again. Nowadays, a ratchet support specially tailored to the application and a wrap-around sling that acts as the lashing point on the reel ensure that the products reach the end customer in top condition.

The SpanSet range of push-up ratchets offers solutions for an extremely wide range of applications. For example, the „made in Germany“ ABS ratchets are real all-rounders and, in combination with various aids, are ideally suitable for a huge variety of uses – including diagonal lashing. Self-locking ratchet handle that can be released in stages, TFI pre-tensioning display as standard, resulting in maximum attainable and readable pre-tensioning force and low-stretch, wear-resistant webbing with marking stripes – just an extract from the advantages of ABS ratchets. Our 2 and 2.5 t Spannfix ratchets have also already proved their worth more than 100,000 times and are now available with an extended ratchet handle. Handy 1 t lashing systems and „light-duties“, the 400 kg ratchet lashing straps, complete our range of push-up ratchets. This means you have access to the appropriate lashing equipment for any application.

SpanSet – Certified Safety

ABS ratchet lashing strap 2,000/50 with S_{TF} 400

- Tensioning device coated with epoxy resin
- Robust label, resistant to being pulled out, protected by plastic sleeve and webbing insert
- Ratchet can be released gradually, self-locking and equipped with double slider
- Low-stretch, wear-resistant webbing with cord edge and marking stripes
- FItted with TFI pre-tensioning display as standard, pre-tensioning force of 500 daN[1)] can be achieved and read off

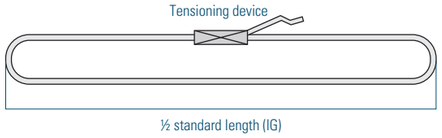
A TRH - Triangle hook

B SPH - Claw hook

C SFH - Hook and keeper

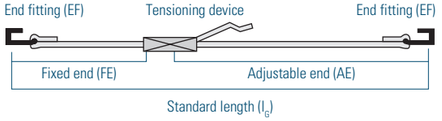
D KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001574	8,0	2,5	✓	4.000	50

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	S_{TF} [daN]	S_{TF} with 500er-TFI [daN]	Standard length FE [m]	Strap width b [mm]
D003581	8,0	3,5	A	✓	2.000	400	500	0,5	50
D003582	8,0	3,0	B	✓	2.000	400	500	0,5	50
D003583	8,0	3,3	C	✓	2.000	400	500	0,5	50
D003584	8,0	2,8	D	✓	2.000	400	500	0,5	50

ℹ Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

500daN TFI ABS EPX 4%

The explanations of the pictograms can be found on the flap. 1) simple, direct

ABS ratchet lashing strap 2,500/50 with S_{TF} 350

- Tensioning device coated with epoxy resin
- Robust label, resistant to being pulled out, protected by plastic sleeve and webbing insert
- Ratchet can be released gradually, self-locking and equipped with double slider
- Low-stretch, wear-resistant webbing with cord edge and marking stripes
- Fitted with TFI pre-tensioning display as standard, pre-tensioning force of 500 daN[1)] can be achieved and read off

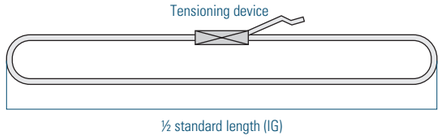
A TRH - Triangle hook

B SPH - Claw hook

C SFH - Hook and keeper

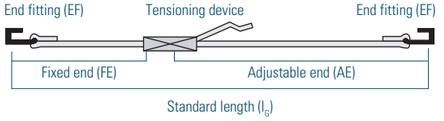
D KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001570	8,0	2,8	✓	5.000	50

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	S_{TF} [daN]	S_{TF} with 500er-TFI [daN]	Standard length FE [m]	Strap width b [mm]
D003573	8,0	3,8	A	✓	2.500	350	500	0,5	50
D003574	8,0	3,3	B	✓	2.500	350	500	0,5	50
D003575	8,0	3,6	C	✓	2.500	350	500	0,5	50
D003576	8,0	3,1	D	✓	2.500	350	500	0,5	50

ℹ Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

500daN TFI ABS EPX 4%

The explanations of the pictograms can be found on the flap. 1) simple, direct

Spannfix ratchet lashing strap 2,000/50 with STF 440

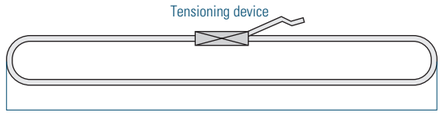
- The self-locking ratchet lever rules out subsequent springing open during transport
- Label that is resistant to being pulled out, protected by webbing overlap
- Available with optional TFI pre-tensioning display, pre-tensioning force of 500 daN[1)] can be achieved and read off
- High pre-tensioning force thanks to extended ratchet lever
- Robust webbing with marking stripes

A SPH - Claw hook

B SFH - Hook and keeper

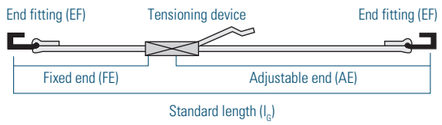
C KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D059395	8,0	2,1	✓	4.000	50
D060234	10,0	2,3	✓	4.000	50

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	STF [daN]	optional with 500er-TFI [daN]	Standard length FE [m]	Strap width b [mm]
D059314	8,0	2,6	A	✓	2.000	440	500	0,5	50
D059310	10,0	2,8	A	✓	2.000	440	500	0,5	50
D059315	8,0	2,9	B	✓	2.000	440	500	0,5	50
D062060	10,0	3,1	B	✓	2.000	440	500	0,5	50
D059316	8,0	2,4	C	✓	2.000	440	500	0,5	50
D071059	10,0	2,6	C	✓	2.000	440	500	0,5	50

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap. 1) simple, direct

Spannfix ratchet lashing strap 2,500/50 with STF 400

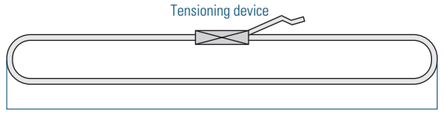
- The self-locking ratchet lever rules out subsequent springing open during transport
- Label that is resistant to being pulled out, protected by webbing overlap
- Available with optional TFI pre-tensioning display, pre-tensioning force of 500 daN[1)] can be achieved and read off
- High pre-tensioning force thanks to extended ratchet lever
- Robust webbing with marking stripes

A SPH - Claw hook

B SFH - Hook and keeper

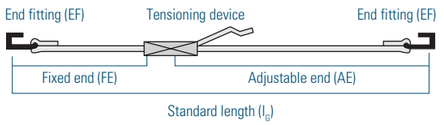
C KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D059396	8,0	2,4	✓	5.000	50
D063746	10,0	2,6	✓	5.000	50

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	STF [daN]	Standard length FE [m]	optional with 500er-TFI [daN]	Strap width b [mm]
D059164	8,0	2,9	A	✓	2.500	400	0,5	500	50
D056544	10,0	3,1	A	✓	2.500	400	0,5	500	50
D059110	8,0	3,1	B	✓	2.500	400	0,5	500	50
D065682	10,0	3,3	B	✓	2.500	400	0,5	500	50
D059366	8,0	2,7	C	✓	2.500	400	0,5	500	50
D056548	10,0	2,9	C	✓	2.500	400	0,5	500	50

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap. 1) simple, direct

Quality ratchet lashing strap
1,000/35 with S_{TF} 440

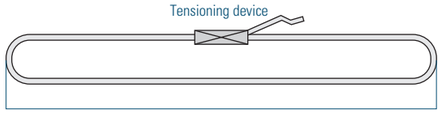
- Tensioning device coated with epoxy resin
- Extra-wide ratchet handle for especially good ergonomics
- Robust label, resistant to being pulled out, protected by plastic sleeve and webbing overlap
- Robust webbing with marking stripes

A KBH - Snap hook

B SPH - Claw hook

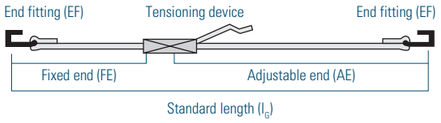
C KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001564	4,0	0,7	✓	2.000	35
D003221	6,0	0,7	✓	2.000	35

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	S_{TF} [daN]	Standard length FE [m]	Strap width b [mm]
D003567	4,0	1,0	A	✓	1.000	440	0,3	35
D003726	6,0	1,0	A	✓	1.000	440	0,3	35
D003554	4,0	1,2	B	✓	1.000	440	0,3	35
D003725	6,0	1,2	B	✓	1.000	440	0,3	35
D003559	4,0	0,9	C	✓	1.000	440	0,3	35
D005991	6,0	0,9	C	✓	1.000	440	0,3	35

ℹ Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

EPX

The explanations of the pictograms can be found on the flap.

Spannfix ratchet lashing strap
1,000/35 with S_{TF} 260

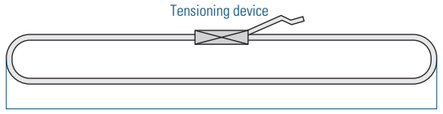
- Extra-wide ratchet handle for especially good ergonomics
- Label that is resistant to being pulled out, protected by webbing overlap
- Robust webbing with marking stripes

A KBH - Snap hook

B SPH - Claw hook

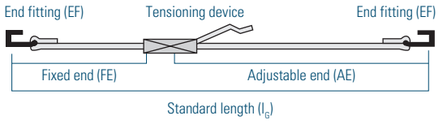
C KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001589	4,0	0,7	✓	2.000	35

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	S_{TF} [daN]	Standard length FE [m]	Strap width b [mm]
D006096	4,0	1,0	A	✓	1.000	260	0,3	35
D007086	4,0	1,2	B	✓	1.000	260	0,3	35
D003664	4,0	0,9	C	✓	1.000	260	0,3	35

ℹ Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap.

Spannfix ratchet lashing strap
600/50 with STF 228

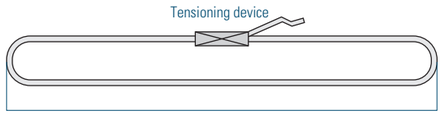
- **New:** Now with 20% increased LC
- Extra-wide ratchet handle
- Label that is resistant to being pulled out, protected by webbing insert
- Robust webbing

A KBH - Snap hook

B SPH - Claw hook

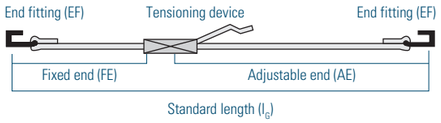
C KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D056657	4,0	0,7	✓	1.200	50
D056658	6,0	0,7	✓	1.200	50

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	S_{TF} [daN]	Standard length FE [m]	Strap width b [mm]
D059627	4,0	1,0	A	✓	600	228	0,3	50
D056660	6,0	1,0	A	✓	600	228	0,3	50
D059629	4,0	1,1	B	✓	600	228	0,3	50
D061117	6,0	1,1	B	✓	600	228	0,3	50
D059628	4,0	1,0	C	✓	600	228	0,3	50
D067069	6,0	1,0	C	✓	600	228	0,3	50

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap.

Quality ratchet lashing strap
500/25 with STF 160

- Tensioning device coated with epoxy resin
- Robust label, resistant to being pulled out, protected by plastic sleeve and webbing insert

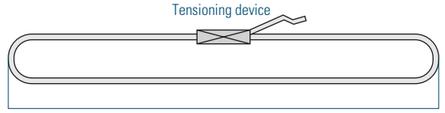
A KBH - Snap hook

B SPH - Claw hook

C KH – Rave hook

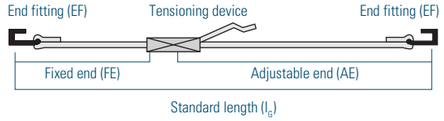
D FTR - Anchor plate

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001576	4,0	0,5	✓	1.000	25
D003216	6,0	0,5	✓	1.000	25

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	S_{TF} [daN]	Standard length FE [m]	Strap width b [mm]
D003529	4,0	0,8	A	✓	500	160	0,3	25
D011492	6,0	0,8	A	✓	500	160	0,3	25
D003528	4,0	0,7	B	✓	500	160	0,3	25
D008365	6,0	0,7	B	✓	500	160	0,3	25
D003525	4,0	0,7	C	✓	500	160	0,3	25
D011491	6,0	0,7	C	✓	500	160	0,3	25
D003526	4,0	0,6	D	✓	500	160	0,3	25
D006977	6,0	0,6	D	✓	500	160	0,3	25

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

EPX

The explanations of the pictograms can be found on the flap.

Ratchet lashing strap Niro 400/25
with S_{TF} 140

– Niro ratchet made from steel with 13% chrome, for permanent protection against rust
– Label that is resistant to being pulled out, protected by webbing insert

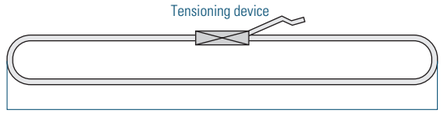
A SH -S hook

B SPH - Claw hook

C KBH -Snap hook

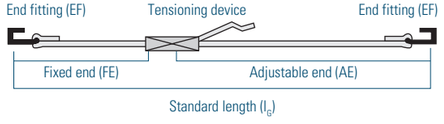
D FTR - Anchor plate

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001580	4,0	0,4	✓	800	25
D011556	6,0	0,4	✓	800	25

Two-piece

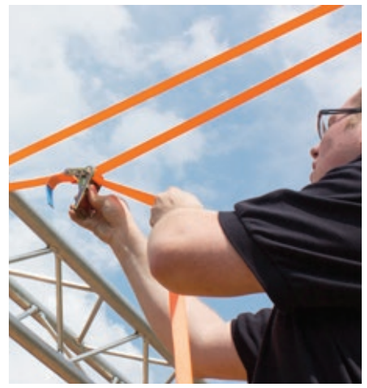


Product code	Type	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	S_{TF} [daN]	Standard length FE [m]	Strap width b [mm]
D003530	Niro	4,0	0,6	A	✓	400	140	0,3	25
D013480	Niro	6,0	0,6	A	✓	400	140	0,3	25
D003531	Niro	4,0	0,6	B	✓	400	140	0,3	25
D011054	Niro	6,0	0,6	B	✓	400	140	0,3	25
D003533	Niro	4,0	0,7	C	✓	400	140	0,3	25
D011558	Niro	6,0	0,7	C	✓	400	140	0,3	25
D003535	Niro	4,0	0,5	D	✓	400	140	0,3	25
D011557	Niro	6,0	0,5	D	✓	400	140	0,3	25

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

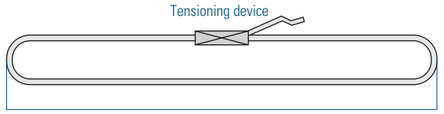
The explanations of the pictograms can be found on the flap.

Ratchet lashing strap 400/25
with S_{TF} 140



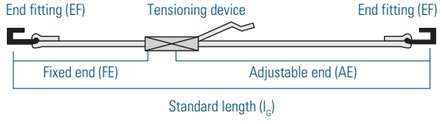
– Label that is resistant to being pulled out, protected by webbing insert
– Tensioning device is yellow chrome-plated or coated with epoxy resin

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]	Bandbreite b [mm]
D001583 D016083	yellow chom. blue	4,0	0,4	✓	800	25
D001585 D005034	yellow chom. blue	6,0	0,4	✓	800	25

Two-piece



Product code	Type	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	S_{TF} [daN]	Standard length FE [m]	Strap width b [mm]
D003872 D003631	yellow chrom blue	4,0	0,6	A	✓	400	140	0,3	25
D003873 D013481	yellow chrom blue	6,0	0,6	A	✓	400	140	0,3	25
D003883 D003633	yellow chrom blue	4,0	0,6	B	✓	400	140	0,3	25
D003876 D003732	yellow chrom blue	6,0	0,6	B	✓	400	140	0,3	25
D003882 D003637	yellow chrom blue	4,0	0,7	C	✓	400	140	0,3	25
D003881 D011498	yellow chrom blue	6,0	0,7	C	✓	400	140	0,3	25
D012900 D003641	yellow chrom blue	4,0	0,5	D	✓	400	140	0,3	25
D031212 D011496	yellow chrom blue	6,0	0,5	D	✓	400	140	0,3	25

A SH -S hook

B SPH - Claw hook

C KBH -Snap hook

D FTR - Anchor plate

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

EPX

The explanations of the pictograms can be found on the flap.

03.4

Cam buckle lashing

How the cam buckle lashing strap ensures greater safety and security while on the road

In 1931, Arist Dethleffs built the German counterpart to the British caravan for his family, creating the first German mobile home. The vehicle immediately caused a commotion, resulting in the company Dethleffs being founded in the Allgäu region of Southern Germany shortly afterwards. The mobile homes and caravans are still manufactured at this site up to the present day. Dethleffs wants you to feel completely safe in your caravan or mobile home, and for this reason it relies on professional safety equipment. Of course, this includes securing the commercially-available gas canisters weighing 5 or 11 kg each that are used for tasks such as operating the stoves, refrigerators and heating in the caravans. For many years now, Dethleffs has been using SpanSet cam buckle straps to ensure that the gas canisters remain safely in place while on the road. Proven SpanSet quality, fast and simple attachment of the cam buckle strap and a good price-performance ratio guarantee a safe journey.

Our cam buckle lashing straps can be used for a wide range of applications. Fixing, bundling, securing, transverse and diagonal lashing – all these are no problem for the light-weight, all-purpose tools. The economical straps have proved their worth in many uses, such as securing gas canisters in mobile homes or roller containers in retail outlets, bundling together various construction materials or securing luggage in the boots of cars. The rust-resistant, cast aluminium cam buckles are easy to handle and are available in widths of 25, 35 and 50 millimetres, with a range of strap lengths and end fittings. What is more, the SpanSet cam buckle straps are characterised by a high fitting accuracy, thanks to the optimal width and thickness of the webbing, which is tailored to the cam buckle in question. They are equipped with the SpanSet „folded label“, with all the important information protected on this safety label that is resistant to being pulled out.

SpanSet – Certified Safety

Cam buckle lashing strap 125/25

– High fitting accuracy thanks to the optimal width and thickness of the webbing, which is tailored to the cam buckle in question
– Protected label that is resistant to being pulled out

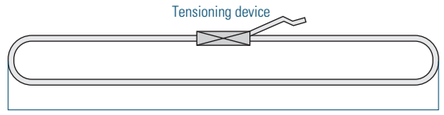
A SH - S hook

B FH - Pallet hook

C FTR - Anchor plate

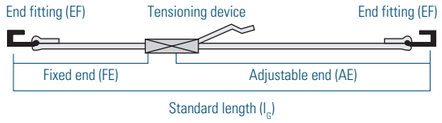
D KBH - Snap hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001592	4,0	0,2	✓	250	25
D001593	6,0	0,3	✓	250	25

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	Standard length FE [m]	Strap width b [mm]
D003569	4,0	0,4	A	✓	125	0,3	25
D003646	6,0	0,5	A	✓	125	0,3	25
D003587	4,0	0,4	B	✓	125	0,3	25
D011501	6,0	0,5	B	✓	125	0,3	25
D003588	4,0	0,3	C	✓	125	0,3	25
D003730	6,0	0,4	C	✓	125	0,3	25
D003589	4,0	0,5	D	✓	125	0,3	25
D011502	6,0	0,6	D	✓	125	0,3	25

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap.

Cam buckle lashing strap 250/25

– High fitting accuracy thanks to the optimal width and thickness of the webbing, which is tailored to the cam buckle in question
– Protected label that is resistant to being pulled out

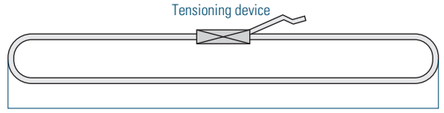
A KBH - Snap hook

B SPH - Claw hook

C SH - S hook

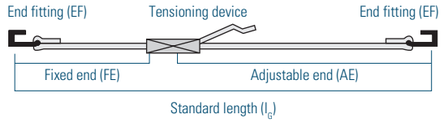
D FH - Pallet hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D053009	4,0	0,3	✓	500	25
D053010	6,0	0,4	✓	500	25

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	Standard length FE [m]	Strap width b [mm]
D053014	4,0	0,6	A	✓	250	0,3	25
D053019	6,0	0,7	A	✓	250	0,3	25
D053016	4,0	0,5	B	✓	250	0,3	25
D053021	6,0	0,6	B	✓	250	0,3	25
D053012	4,0	0,5	C	✓	250	0,3	25
D053017	6,0	0,6	C	✓	250	0,3	25
D055721	4,0	0,5	D	✓	250	0,3	25
D056522	6,0	0,6	D	✓	250	0,3	25

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap.

Cam buckle lashing strap 375/35

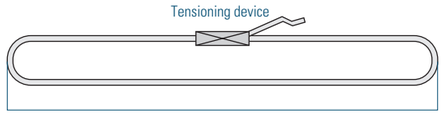
– High fitting accuracy thanks to the optimal width and thickness of the webbing, which is tailored to the cam buckle in question
– Protected label that is resistant to being pulled out

A KBH - Snap hook

B SPH -Claw hook

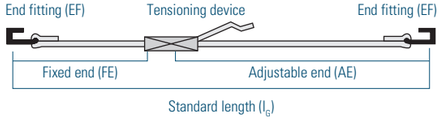
C KH - Rave hook

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001578	4,0	0,4	✓	750	35
D011503	6,0	0,5	✓	750	35

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	Standard length FE [m]	Strap width b [mm]
D003609	4,0	0,7	A	✓	375	0,3	35
D011504	6,0	0,8	A	✓	375	0,3	35
D003611	4,0	0,9	B	✓	375	0,3	35
D011505	6,0	1,0	B	✓	375	0,3	35
D003613	4,0	0,6	C	✓	375	0,3	35
D011506	6,0	0,7	C	✓	375	0,3	35

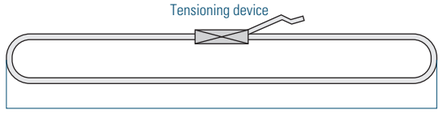
Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap.

Cam buckle lashing strap 500/50

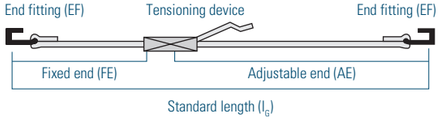
– High fitting accuracy thanks to the optimal width and thickness of the webbing, which is tailored to the cam buckle in question
– Protected label that is resistant to being pulled out
– Robust webbing

One-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	Surface finished	LC [daN]	Strap width b [mm]
D001571	4,0	0,5	✓	1.000	50
D011513	6,0	0,6	✓	1.000	50

Two-piece



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)	Surface finished	LC [daN]	Standard length FE [m]	Strap width b [mm]
D003592	4,0	0,8	A	✓	500	0,3	50
D011514	6,0	0,9	A	✓	500	0,3	50
D003594	4,0	0,8	B	✓	500	0,3	50
D011515	6,0	0,9	B	✓	500	0,3	50
D003598	4,0	0,9	C	✓	500	0,3	50
D008438	6,0	1,0	C	✓	500	0,3	50

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on webbing.

The explanations of the pictograms can be found on the flap.

A KBH - Snap hook

B SPH -Claw hook

C FH - Flat J hook

03.5

Anti-slip matting

How the ball-bearing effect has no chance with the Grip-S anti-slip matting

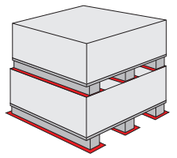
Goldeck is one of the driving forces in commercial and municipal structural engineering, focusing on the design, construction and management of office buildings, halls and car parks. The company manufactures many of the components it requires, such as lattice girders, in-house. To ensure that these extremely heavy girders, loaded on a telescopic trailer, reach the construction site undamaged, Goldbeck leaves no aspect of load control to chance. Besides the SpanSet quality ratchets for lashing the components, SpanSet Grip-S anti-slip mats are also used during transport. Many static tests were carried out with different angles of inclination – ultimately, the SpanSet Grip-S was the only one of the anti-slip materials tested to impress Goldbeck. In addition to its high stability, which effectively prevents any components from being displaced or breaking loose and avoids the well-known „ball-bearing effect", the certified high friction coefficients with various material combinations were of vital importance. The loading instructions issued by SpanSet with the Grip-S remain in force for Goldbeck today.

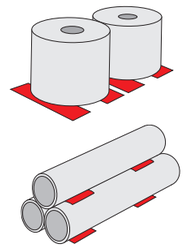
If the cargo begins to slide, the load control mechanism has failed, as sliding loads are difficult to stop, cannot be controlled and may result in far-reaching consequences on the road. The anti-slip mats from SpanSet significantly reduce these source of danger – for a very low outlay. The premium anti-slip mat SpanSet Grip-S, offers another positive economic effect due to the fact that it can be reused, in addition to its high friction coefficients and extreme stability. Alongside this premium product, the SpanSet range includes further anti-slip mats that comply with VDI 2700 et seq. Beside the traditional granulate mats, there are the secugrip 30 anti-slip pads and the secugrip 95 spray coating from secutex. This means SpanSet can offer the right anti-slip material for any application.

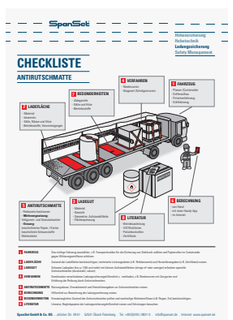
SpanSet – Certified Safety

SpanSet Grip-S
Solid rubber mat

– Optimal addition for friction lashing
– Can be reused many times
– Highly resistant to operating materials
– High material strength
– Individual sizes possible
– Complies with VDI directive 2700 et seq.







You can find all the points to be taken into consideration when using anti-slip mats in the SpanSet ARM checklist, which is available to download free of charge at www.spanset.de.

Anti-slip mats – for your added safety and security

Increased dynamic friction coefficients
With the SpanSet Grip-S anti-slip mat, you increase the dynamic friction – irrespective of the material combination between the freight and the vehicle floor. This is perfect for preventing the cargo sliding. We carry out tests of friction coefficients in our own test laboratory, using calibrated equipment. We will also be happy to test other material combinations for you on request.

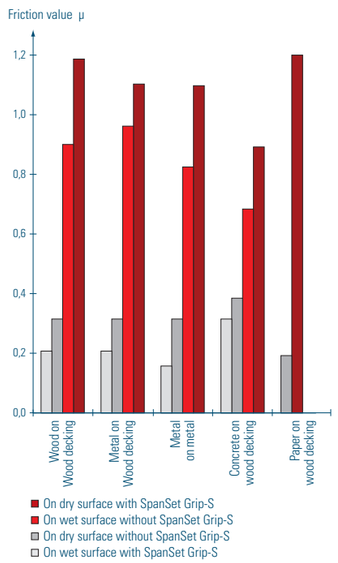
The correct material
Highly-compressed, low-fibre solid rubber with a closed surface structure – this is what makes our anti-slip matting so effective. There are no loose parts and therefore no „ball-bearing effect" where the friction material slides between the cargo and the mat and reduces the friction coefficient.

More efficient loading
Less risk of sliding, for you this means: simply place SpanSet Grip-S under your cargo and you will not need to use nearly as much load control equipment. In this way you can load much more efficiently, saving time and money. Particularly because SpanSet Grip-S can be reused multiple times.

Thin matting, high effective
Using the anti-slip matting that is only 2 mm thick, you can prevent the risk of sliding in an optimum manner in almost all transport situations. However, for particularly heavy loads, we also offer the SpanSet Grip-S in a 9 mm thickness. This ensures that the mat does not allow anything to slide in spite of strong compression, even with the heaviest loads where the surface pressure exceeds 100 t.

Only as much as required
The anti-slip matting is particularly efficient as it only needs to be laid where contact between the freight and load surface is broken. In the case of pallets, two narrow strips are sufficient, and with an engine block, all you need is one mat under the part that makes contact with the load surface. Accordingly, small cut sections are sometimes enough to secure the entire cargo against sliding. This is also why the SpanSet Grip-S mats are not only available in standard dimensions, but also cut to your required size upon request.

Certified friction coefficients of Grip-S*



* 1.76 t/m2 surface pressure and material 9 mm thick

03.5 ANTI-SLIP MATTING

SpanSet Grip-S
Solid rubber mat

– Robust, particularly resistant solid rubber mat
– Friction coefficients tested and certified by TÜV Rheinland
– Material 9 mm thick, for surface pressures of many hundred tonnes when transporting heavy loads

SpanSet Grip-S – the reusable anti-slip matting

For frictional load control, the greater the friction between the load and the load area, the fewer lashing straps you require. Without the use of anti-slip mats, it is generally not possible to secure loads in a cost-effective manner using friction lashing.

For this reason we developed SpanSet Grip-S, an anti-slip mat that demonstrably allows you to increase the friction coefficient μ to 0.6 and more for various friction combinations. Even friction values of up to μ 1.2 are possible, depending on the material combination, the surface pressure and the weather conditions, such as humidity. These values have been tested and certified by TÜV Rheinland 1 .

On request, we will provide a copy of the certificates showing the friction coefficients for SpanSet Grip-S. If you carry these documents with you, you can produce evidence of the friction coefficients for the Grip-S at any time and show the basis for your load control calculations. Naturally, the Grip-S from

SpanSet complies fully with VDI 2700 parts 14 and 15. SpanSet Grip-S therefore proves to be the ideal addition for friction lashing. The anti-slip matting is resistant against operating materials and easy to clean. Even with a material thickness of just 2 mm, the robust anti-slip matting withstands the stresses of daily use and, of course, can be reused.

Product code	Format [mm]	Thickness [mm]	Weight [kg]
SpanSet Grip-S – cut section			
D000165	200 × 200	2,0	0,1
D000167	5.000 × 266	2,0	3,0
D000173	20.000 × 150	2,0	6,7
D000166	200 × 200	9,0	0,4
D000168	5.000 × 266	9,0	13,7

You can also find more information at: www.spanset-grip.de
Special dimensions available on request.

secugrip 95 und secugrip 30
Coating and moulded parts

– secugrip is resistant to acids, caustic solutions and UV light
– Reusable

1 secugrip-90 pray coating on wooden beams

2 secugrip 30 – anti-slip pads

secugrip 90 and secugrip 30

secugrip 90 – spray coating
Load carriers, beams and pallets can be coated with the new secugrip 90 spray coating to create a permanent anti-slip effect. The coloured coating is applied to a thickness of approximately 2 mm. Where necessary, the spraying process can be repeated to increase the coating thickness. With common material combinations, secugrip 90 achieves a friction coefficient of 0.6 µ and is particularly robust and durable.

secugrip 30 – anti-slip pads
The material composition of the new secugrip 30 was configured for high friction coefficients and designed to bridge uneven spots on the loading area, with a material thickness of 10 mm. secugrip 30 achieves a friction coefficient of 0.6 µ.

In order to draw up a specific quotation we require information on the size, condition and material of your load carriers. Do not hesitate to contact us – we will be please to help you!

Product code	Format [mm]	Thickness [mm]	Weight [kg]
secugrip 30 – cut section			
D056284	200 x 200	10	0,4
D056289	1200 x 100	10	1,4
D056293	800 x 150	10	1,4

i Other sizes on request;
Certificates, an enquiry form and further information can be found at www.spanset.de.

SpanSet Grip-G
Granulate matting

– Complies with VDI 2700 et seq.
– Friction value of µ 0.6 for the common material combinations
– Individual sizes possible

SpanSet Grip-G – granulate matting

The popular anti-slip matting made from granulated rubber is manufactured to a consistently high quality, complies with VDI 2700 et seq. and is universally usable. For the common material combinations, friction values of µ 0.6 and more are attained and documented by test certificates.

In the manufacturing process, rubber granules of a defined quality and size are bonded together and processed to create anti-slip matting. In addition to the standard cut sizes, customer-specific anti-slip mats can be produced in various sizes and thicknesses.

Product code	Format [mm]	Thickness [mm]	Weight [kg]
granulate matting – cut section			
D000162	200 × 200	8	0,3
D000163	5.000 × 250	8	8,2
D002119	20.000 × 150	3	7,7

i Special dimensions available on request; further information at www.spanset.de

03.6

Load control and covering nets

How the PaXafe load control nets secure various goods

Square, practical packages are no longer the norm for DPD. So how does one deal with tyres, exhaust systems, canisters, dangerous goods and the many other types of cargo? As a carrier, DPD is aware of its responsibility and therefore considered this issue in collaboration with SpanSet and its delivery drivers. The outcome: a webbing net that is ideally suited to everyday use. The webbing net includes four end fittings used to attach the net to the two load restraint tracks on each side. The two aluminium tubes incorporated into the net on the right and left-hand sides ensure greater basic stability, which simplifies the process of mounting and removing the separation net. The net can be „unbuttoned" in the middle, making it possible to remove the packages and the various cargo objects. To enable this, the separation net is equipped with rings and snap hooks. In the course of a normal day's deliveries, the net is unbuttoned countless times and pushed forward within the rail over and over again. This means that the cargo is always protected by form-fitting load security in the shape of the separation net. An advantage that the delivery drivers have learned to value.

No matter whether its a car, box-body vehicle, transporter or truck – with the load control and separation nets, you can protect all road users and the cargo equally. The SpanSet load control nets comply with VDI 2700 part 3.3, can be combined in the modular system and are GS-tested. SpanSet offers individual net and mesh sizes for the different load securing methods, guaranteeing perfect adaptation to the goods being transported in each case. No matter whether you wish to secure your cargo using form-fitting or indirect frictional methods, SpanSet offers many tried-and-tested nets based on the modular system and also individual solutions. Combined with our robust long edge protectors, the indestructible SpanSet Grip anti-slip mats made from solid rubber or the many other useful accessory items, we have a safe hold on your load at all times.

PaXafe nets stand for durability and the best quality machining of all individual parts, comply with VDI 2700 part 3.3, are GS-tested, easy to handle and manufactured in Germany.

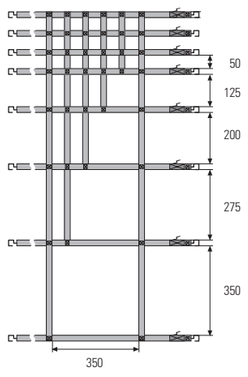
SpanSet – Certified Safety

PackNet separation nets

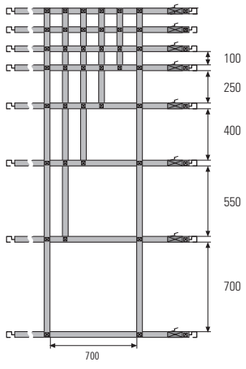
- Individual mesh size
- Individual certification as load securing net
- Satisfy all requirements of the VDI Directive 2700 part 3.3
- Protected label that is resistant to being pulled out

Individual mesh size

Open mesh size in mm for 25 mm webbing



Open mesh size in mm for 50 mm webbing



Individual separation nets – linked safety customised to your requirements

Loose goods such as packages and small packets are secured in an optimal manner within the vehicle using the SpanSet PackNet. PackNet prevents the cargo from sliding, without damaging it. PackNet webbing nets are anchored with the end fittings in the lashing tracks and secured with alternative tensioning devices. In between there is a whole range of variations for individual box-body vehicles, cargo spaces and luggage compartments.

Allow SpanSet to put together the ideal combination of webbing width (25 mm or 50 mm), mesh size, end fittings and tensioning devices for your application.

Simply copy this page, enter the required dimensions and equipment into the table and fax to +49 (0)2451-4831207. You will receive your non-binding offer without delay.

End fittings and tensioning devices that can be combined

Tensioning devices (TD)

D000214
Cam buckle
for 25 mm

D001518
Ratchet
for 25 mm

D000227
Ratchet
for 50 mm

D000213
Cam buckle
for 50 mm

End fittings (EF)

D000618
for track with
small bars

D001151
for track with
slotted holes

D005329
for keyhole

D002001
for round hole
(20 mm)

D000315
for various

We require the following information in your enquiry:

Total Width [cm]	Total Height [cm]	Webbing Width [mm]	Mesh Width [mm]	Gap Mesh Size [mm]	Tensioning Device (TD)	End Fitting (EF)	Number (TD)	Number (EF)
Example:								
237	205	50	100	100	D000214	D001151	3	6

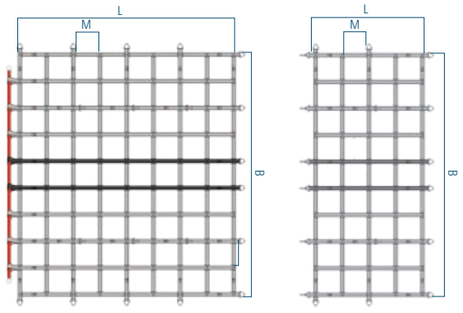
Technical data sheet for the tensioning devices and end fittings available at: www.spanset.de

PaXafe load control net for truck + trailer

- Complete set including tie-bar and quick-action strap
- Mesh size: 250 x 250 mm
- BG-certified as load control net
- Satisfy all requirements of the VDI Directive 2700 part 3.3
- Protected label that is resistant to being pulled out
- Whole net: LC 3,000 daN

PaXafe load control net for truck + trailer

PaXafe truck nets are universal load control equipment that you can use to secure split loads and loads on pallets quickly and easily. The load control nets can be used in both the friction lashing and direct lashing procedures. The nets consist of the basic net, a tie-bar for form-fitting and Spannfix lashing straps, equipped with snap hooks on the vehicle side and claw hooks on the net side. All basic nets can be extended by the relevant additional nets, giving an accurate fit and without the need for additional tools. Their size can also be replaced easily by doubling them up.



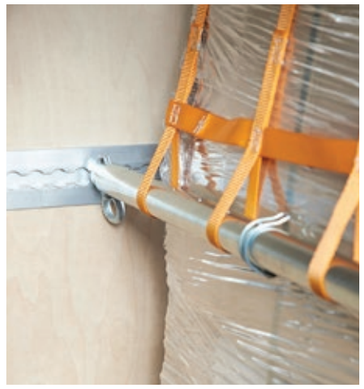
Product code	Net	Webbing width [mm]	Mesh size M [mm]	Mesh	External dimensions [mm] L x B	Attachment point	Total LC [daN]	Fixing point LC [daN]	Number of Spannfix Ratchets
Basic net including Spannfix lashing straps 2 t/50 mm and tie-bar									
D043098	LKW 1	50	250	8 x 9	2450 x 2750	20 claw hook	3000	1600	6
D043101	LKW 2	50	250	10 x 10	3050 x 3050	44 claw hook	3000	1600	8
Load control net including Spannfix lashing straps 2 t/50 mm, without tie-bar									
D043425	LKW 3	50	250	8 x 9	2450 x 2750	28 claw hook	3000	1600	6
Additional nets for LKW 1, LKW 2 and LKW 3									
D043099	E1.1 für LKW 1 u. 3	50	250	4 x 9	1250 x 2750	12 claw hooks, 6 snap hooks	3000	1600	2
D043100	E1.2 für LKW 1 u. 3	50	250	8 x 9	2450 x 2750	20 claw hooks, 6 snap hooks	3000	1600	4
D043102	E2.1 für LKW 2	50	250	4 x 10	1250 x 3050	18 claw hooks, 6 snap hooks	3000	1600	2
D043103	E2.2 für LKW 2	50	250	8 x 10	2450 x 3050	30 claw hooks, 6 snap hooks	3000	1600	4

Spannfix lashing strap with snap hooks and claw hooks can also be order separately.
Technical data sheet for the tensioning devices and end fittings available at: www.spanset.de
Special lengths available on request; optional printing on webbing.

1 Spannfix lashing strap 2 t, 50 mm
2 Tie-bar for truck nets

PaXafe load control net for box-body vehicles

- Complete set including tie-bar and 4 quick-action straps
- Material: sewn 25 mm lashing strap
- Mesh size: 200 x 200 mm
- Satisfy all requirements of the VDI Directive 2700 part 3.3
- BG-certified as load control net
- Whole net: LC 800 daN



03.6 LOAD CONTROL
AND COVERING NETS

PaXafe load control net for transporters and flat-bed trucks

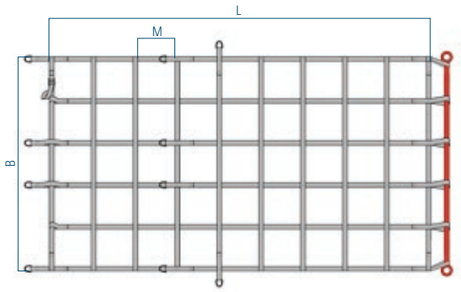
- Complete set including tie-bar and 4 quick-action straps
- Material: sewn 25 mm lashing strap
- Mesh size: 200 x 200 mm
- Satisfy all requirements of the VDI Directive 2700 part 3.3
- BG-certified as a load control net and identified with the corresponding label.
- Whole net: LC 800 daN

1 Carlash quick-action strap
2 Tie-bar

PaXafe load control net for cars with box bodies

Box-body vehicles are extremely flexible when it comes to the types of loads they can carry. This is combined with their manoeuvrability and the resulting high levels of dynamic strain placed on their loads. We offer the optimal solution with the load control nets for cars with box bodies.

The load control net consists of 4 quick-action straps, the net itself and one tie-bar, enabling you to use the form-fitting load securing method whether or not there is a bulkhead.



Product code	Net	Webbing width [mm]	Mesh size M [mm]	Mesh	External dimensions [mm] L x B	Attachment point	Total LC [daN]	Fixing point LC [daN]	Number of quick-action straps
Basic net including Carlash quick-action straps and tie-bar									
D043093	PKW K1	25	200	9 x 5	2050 x 1150	10 claw hooks	800	400	4

Tie-bar
Galvanised steel

Product code	Length (m)	Dimension [mm]	Attachment
D043365	1	1000 x 35	2 ring nuts

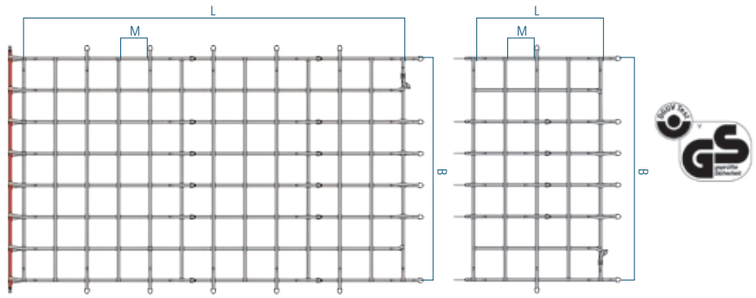
Carlash quick-action strap
with snap hook and claw hook

Product code	Length [mm]	LC [daN]	Width [mm]
D043107	2000	750	35

i Technical data sheet for the tensioning devices and end fittings available at: www.spanset.de
Cam buckle strap in accordance with DIN EN 12195-2; special lengths available on request; optional printing on

PaXafe load control net for transporters and flat-bed trucks

The PaXafe nets for transporters and flat-bed trucks can be used to divide areas of the load surface as well as to lash down large, bulky loads. What is more, additional nets can be attached to the basic nets. This means that your load control procedures are as flexible as your day-to-day work requires. The corresponding light-weight, stable tie-bar ensures greater stability and enables form-fitting securing, even with larger stowage gaps. These tie-bars are universally suitable for 19 and 24 mm slotted-hole track and the current track with bars.



Product code	Net	Webbing width [mm]	Mesh size M [mm]	Mesh	External dimensions [mm] L x B	Attachment point	Total LC [daN]	Fixing point LC [daN]	Number of quick-action straps
Basic net including Carlash quick-action strap and tie-bar									
D043094	KEP 1	25	200 x 200	8 x 7	1825 x 1600	18 claw hooks	800	400	4
D043095	KEP 2	25	200 x 200	12 x 7	2725 x 1600	28 claw hooks	800	400	4
Additional nets including Carlash quick-action strap									
D043096	KEP E1	25	200	4 x 7	925 x 1600	12 claw hooks, 6 snap hooks	800	400	2
D043097	KEP E2	25	200	8 x 7	1825 x 1600	18 claw hooks, 6 snap hooks	800	400	2

Carlash quick-action strap
with snap hook and claw hook

Product code	Length [mm]	LC [daN]	Width [mm]
D043107	2000	750	35

Telescopic rod
for 19 and 24 mm slotted-hole rails and current rails with rods

Product code	Typ	Length [mm]
D043368	Vario-TS telescopic rod	1500 -1800 (adjustable)
D043440	Adaptor strap for Vario telescopic rod, with snap hooks on both sides	14

1 Telescopic rod with adaptor
2 Carlash quick-action strap
3 Adaptor strap

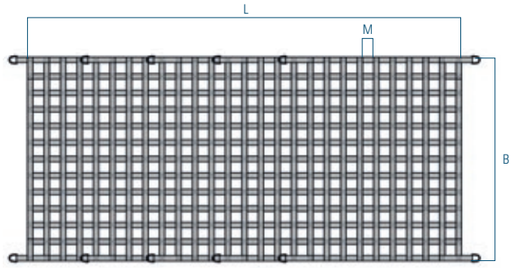
PaXafe modular net components for cars and vans

- Complete set including 4 cam buckle straps
- Material: sewn 25 mm lashing strap
- Mesh size: 50 x 50 mm and 125 x 125 mm
- Satisfy all requirements of the VDI Directive 2700 part 3.3
- BG-certified as load control net
- LC 800 daN overall
- Protected label that is resistant to being pulled out

PaXafe load control net for cars and vans

Using the PaXafe nets for cars and vans, you can create cargo units and thereby achieve form-fitting load control. The load control nets are available in two sizes and two mesh widths and ensure safe and secure transport, even for loads consisting of small parts.

Complete set including 4 lashing straps that enable the net to be fitted quickly and easily. The cam buckle lashing strap has a claw hook on one side and a snap hook on the other.



Product code	Net [mm]	Webbing width [mm]	Mesh size M L x B	Mesh [daN]	External dimensions [mm] [daN]	Attachment point straps	Total LC	Fixing point LC	Number of quick-action
D043089	PKW 1	25	50 x 50	16 x 12	1225 x 925	8 triangles	800	400	4
D043090	PKW 2	25	125 x 125	8 x 6	1225 x 925	8 triangles	800	400	4
D043091	PKW 3	25	50 x 50	26 x 12	1975 x 925	12 triangles	800	400	4
D043092	PKW 4	25	125 x 125	13 x 6	1975 x 925	12 triangles	800	400	4

Carlash cam buckle strap
with snap hook and claw hook

Product code	Length [mm]	LC [daN]	Width [mm]
D043108	1000	750	25

Technical data sheet for the tensioning devices and end fittings available at: **www.spanset.de**
Ratchet lashing strap in accordance with DIN EN 12195-2; special designs available on request; optional printing on

PaXafe Light – knotted covering net

- DEKRA-certified as a covering net and identified with the corresponding label.
- Material: braided polyethylene
- Edge stitching: 8 mm

Knotted covering net – so nothing can fly around

The knotted PaXafe covering nets made from water-resistant polyethylene ensure rapid load control. They are certified by DEKRA and equipped with an identification label that is firmly sewn on. The robust covering nets are available in various sizes and have a knot strength of 74.25 daN, as well as a static mesh breaking strength of 200 daN. Whether you use them for your car or van, trailer, flat-bed truck or container, you can travel in safety with the knotted PaXafe nets. They can easily be combined with the load control nets and constitute a useful addition to the PaXafe modular nets.

Product code	External dimensions [mm]	Mesh size [mm]	Material thickness [mm]	Colour
Covering net including 4 cam buckle straps				
D004074	1300 x 1600	45	2,5	black
Covering net without cam buckles				
D004080	1500 x 2200	45	2,5	green
D004081	1500 x 2700	45	2,5	green
D004082	2500 x 3500	45	2,5	green
D017544	3500 x 5000	45	2,5	green
D017545	3500 x 6000	45	2,5	green

Further information at: **www.spanset.de**

1 PaXafe Light covering net including 4 cam buckle straps

2 PaXafe Light covering net without cam buckle straps

03.7

EasyLash

How nothing floats around with EasyLash, even on the roughest seas

One of the world's largest manufacturers of steel coils, based in Korea, chose the SpanSet Dynamic Load System on the grounds of quality and cost. Over a period of two years, in-depth examinations and tests were carried out on systems from various manufacturers. At the end, the SpanSet system, which consists of a 40 mm-wide fabric band combined with the Dynamic Load Ratchet, was chosen. At present, 15 cargo ships are in transit between Korea and Japan using the SpanSet system. In future, the company expects to extend the system to up to 50 cargo ships. According to those responsible, the key advantage is the reusability and the option of re-tensioning, which does not work with traditional systems. Even on the roughest seas, the SpanSet system has proved to be a reliable partner.

The EasyLash range is ideally suited for worldwide transport of goods by container, rail and ship, allowing you to secure your products in the best possible manner for export. The high-quality components are a cost-effective solution for a secure single-use lashing system. The principle is as simple as it is well thought out: the heat-set straps and buckles that are required for strapping around the load travel with it, the tensioning devices stay with you. This version is ideal if the cargo simply has to arrive safely at its destination and the securing equipment will then no longer be required. For multiple uses, SpanSet has developed the Dynamic Load System with reusable ratchet. Here, the ratchet is threaded onto the webbing and remains on the load during transport. At the destination, the ratchet can then be released without cutting the webbing and is then available once again for the next transport.

Yet irrespective of whether they are used for single or multiple-use lashing or as a Dynamic Load System – all EasyLash products combine high quality with easy handling and a good price-performance ratio. Secure your cargo easily and reliably, particularly in containers and on rail transport – with SpanSet EasyLash.

SpanSet – Certified Safety

EasyLashtex

- Ideally suited for transporting goods in containers, trains and ships
- Protects delicate goods
- Resistant to weathering and corrosion-free
- System strengths of up to 7,500 daN
- High strength with low tare weight
- Easy handling

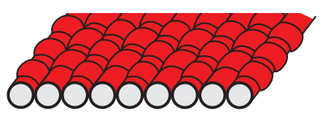


Fig.: Cross section of a webbing strap: the heat setting reduces the stretch in the material to below 7%.

EasyLashtex – woven webbing

The ideal alternative to steel straps
The EasyLashtex webbing straps are woven from high-strength PES fibres and designed to handle the very highest levels of strain during transport.

Thanks to their woven structure and the weather-resistant heat setting, EasyLashtex attains the same strength as steel straps, but is significantly lighter. At the same time, handling is considerably more user friendly, as there is no risk of injuries caused by sharp metal edges or steel straps springing back when attaching and removing the straps.

The woven webbing straps are even suitable for the most delicate surfaces. While steel straps frequently dirty the surfaces of the cargo with flecks of rust, fabric straps cannot corrode. In this way it is possible to minimise the costs of transport damage.

The heat setting ensures a low degree of stretch, below 7%. With the appropriate end fittings, you can achieve system strengths of up to 7,500 daN, thanks to the high-strength woven structure of EasyLashtex. Strap tensioners and ratchets to tension the webbing, together with the appropriate end fittings, can be found on pages 67/68.

Product code	Name	Strap width [mm]	Bandfestigkeit [daN]	with strap buckle	EF [Back]	Run length per bag [m]	Weight per EF [kg]
D041745	EL 25 MBL	25	1200	B8, 80005, 1422	1	400	10,5
D048539	EL 35 MBL	35	3000	BF 10, 80009	1	300	21,5
D041748	EL 40 MBL orange	40	5000	01436	1	200	20,2
D041747	EL 49 MBL 1900	49	1900	01950, 80010	1	300	12,0
D041750	EL 49 MBL 4800	49	4800	80010, 1421	1	200	18,9
D053980	EL 49 MBL 6000	49	6000	01433	1	200	23,4

i Optional printing on the webbing available on request. Further information at: **www.spanset.de**

Mechanical strap tensioner EasyLash buckles

- Easy handling
- Resistant to weathering and corrosion-free
- With integrated cutting device

Mechanical strap tensioner

One device for both tensioning and cutting
In order to achieve the necessary pre-tensioning forces, you require a reliable strap tensioner, as generally it is only the webbing strap that travels with the load. The ideal mechanical advantage of our strap tensioners allows you to achieve high pre-tensioning forces by exerting low force. The tensioners have a cutting device and are suitable for the 25, 40 or 50 mm strap widths, depending on the version.

Product code	Name	for max. strap width [mm]	Dimensions [mm]	Weight [kg]	Integrated cutting device
D002763	Spanner 25	25	320 x 185 x 105	1,5	ja
D015580	Spanner 40	40	330 x 180 x 95	2,5	ja
D000152	Spanner 50	50	320 x 185 x 105	2,6	ja

EasyLash buckles

Powerful, robust and corrosion-resistant
With the EasyLash buckles, you can attain the highest-possible system strength of the webbing straps. The clamping buckles are made from a single, robust metal pin. There are therefore no burrs or welds that could rub on the webbing strap. The frame buckles consist of curved, welded round steel or of punched, pressed sheet metal and allow the strap to lie in the ideal position. With this buckle shape you can achieve significantly higher strengths. Thanks to their surface treatment, all EasyLash buckles are also protected against corrosion and weather-resistant.

Product code	Suitable for strap type	Strap strength [daN]	Strap width [mm]	Surface	Qty [Box]	Weight per box [kg]
D000151	EL 25 MBL	1200	25	galvanized	250	9,0
D002003	EL 25 MBL	1200	25	powder-coated	200	6,0
D003772	EL 25 MBL	1200	25	chromated	300	16,2
D003260	EL 35 MBL	3000	35	phosphated	125	11,2
D015794	EL 35 MBL	3000	35	chromated	200	18,8
D013976	EL 40 MBL	5000	40	chromated	30	8,4
D002104	EL 49 MBL	1900	49	powder-coated	50	1,2
D000248	EL 49 MBL	1900/4800	49	chromated	125	22,5
D000300	EL 49 MBL	4800	49	chromated	1	0,23
D000249	EL 49 MBL	6000	49	chromated	50	19,5


D000151


D002003


D003772


D003260


D015794


D013976


D002104


D000248


D000300


D000249

i Technical data sheet for the tensioning devices and end fittings and further EasyLash accessories available online at: **www.spanset.de**

Dynamic Load System

– Can be re-tensioned at any time
– Reusable tensioning device
– Strap does not have to be cut off when opening
– Low tare weight

Dynamic Load System

The reusable lashing system
With the Dynamic Load System, lashing becomes easier and quicker. The yellow chrome-plated Dynamic Load Ratchet is a good alternative to the commonly-used strap tensioners. It has a grooved spindle into which the strap can easily be threaded.

Unlike the strap tensioner, the ratchet travels with the load when it is transported. This means that you are in a position to carry out re-tensioning at any time. What is more, you do not need any additional buckles to connect the webbing strap when wrapping it around the load.

The Dynamic Load System, consisting of the Dynamic Load Ratchet and the orange EasyLashtex webbing strap, has a minimum breaking strength of 6,000 daN when strapped around the load. Individual printing on the strap is possible upon request. This system is outstandingly well-suited to such applications as securing coils on board ships. In the case of packed coils, the strap can even be used without an additional protective sleeve.

Product code	Name	for max. strap width [mm]	Dimensions [mm]	Weight (kg)	Strap strength [daN]	Web length per bag [m]
Dynamic Load System						
D053305	Dynamic Load Ratchet with adaptor	40	198 x 85 x 54	1,0	-	-
D041748	EL 40 MBL orange	-	40	20,2	5000	200

EasyLashNet
EasyLash drum retention

– Special solutions for containers and drums on pallets
– Quick and easy to attach
– Cost-effective solution
– Can be reused
– Drum retention in accordance with DIN EN 12195-2

EasyLashNet container net

Protection against falling cargo
After loading, a stowage gap frequently remains between the freight and the container wall and cannot be filled in any other manner – not even with airbags. In the worst case scenario, the unsecured cargo then falls against the container doors. When these doors are opened, at the latest, this can lead to material damage and, in the worst case, also to personal injury. With EasyLashNet it is very easy to prevent this. The straps that are tensioned like a net prevent the load as a whole from sliding, blocking the container door or being endangered.

Usage is quick and simple: with the carabiner hooks you secure the four strap ends to the available attachment points in the container. Then you adjust the transverse straps to the correct length and tie them down – finished.

For tensioning the container net, the transverse straps are available in versions with robust buckles that must be tensioned using a strap tensioner. Alternatively, we offer the system with integrated ratchets that simplifies handling, as the transverse straps can be tensioned without any tools.

Product code	Name	Height [m]	Number of transverse straps	Weight Unit qty [kg]	VE [Piece]
D015882	EasyLashNet-s with buckles	2,4	2	1,82	1
D015881	EasyLashNet-c with ratchets	2,5	2	2,67	1

ℹ Special designs available on request.

EasyLash drum retention

Securing drums to a pallet
The EasyLash drum retention device is a simple and economical product for securing drums to pallets. It is available in both single-use and multiple-use versions. The product consists of a loose ratchet and a 3.5m-long webbing strap that is positioned around the ratchet pin and sewn in place. The retention device is passed around the drum twice and two layers of the strap are fed into the ratchet spindle. The „double layer“ polyester lashing strap complies with DIN EN 12195-2 and is ideally suited for securing 200 litre steel drums.

Product code	Name	Strap width [mm]	LC [daN]	S_{TF} [daN]	Length [m]
D032234	Drum retention	50	1000	420	3,5

03.8

AIRBAGS

How airbags enable quick and secure form-fitting loading

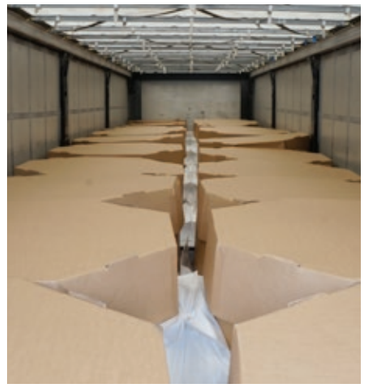
Every day, the vehicles operated by the Dutch transport company Janssen Landgraaf travel on Europe's roads to transport plastic granulates for DuPont, one of the world's leading companies in the field of market-based science and innovations. The granulates, packed in octabins, were previously secured with lashing straps, which frequently resulted in damaged packages – in the worst cases, the granulates spilled out onto the load area. So as to avoid this, those at DuPont, in collaboration with SpanSet and Janssen Landgraaf decided to add airbags to their loads and close the stowage gaps between the octabins. In combination with TruXafe side slats and locking beams, and with diagonal lashing, this solution guarantees a form-fitting load. The multi-use „AirflexPoly" airbags are used for transport as they are required every day. Since this system solution was introduced, damaged packages and sliding loads are a thing of the past for DuPont.

The particularly robust airbags from SpanSet protect against the damage that can be caused by sliding or moving and constitute a professional alternative to time and cost-intensive wooden structures. The airbags are inserted in the gaps between the pallets or piece goods and inflated by air pressure in a matter of seconds, using a filling pistol. In this way, the airbags can adjust to fill the stowage gaps perfectly. No matter whether we consider the single-use or reusable variants – the SpanSet airbags are exactly the right aids to fill stowage gaps in a form-fitting manner over a large area.

SpanSet – Certified Safety

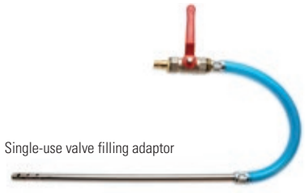
AirflexPoly

- Can be used without additional area protection, thanks to the extremely robust, coated PP woven membrane.
- Time-saving due to simple and secure valve technology
- Can be used multiple times due to the unique reusable valve
- UV-resistant



AirflexPaper

- High loading capacity thanks to particularly strong kraft paper
- Use airbags in a time-saving and effective manner
- Airtight polyethylene inner film



1 Single-use valve filling adaptor

2 Optional reusable valve for multi-layer airbags

3 Reusable valve filling adaptor

Universally suitable for use in transport by road, rail and sea

As a universal load securing device, the Airflex-Poly offers simple and intuitive handling combined with optimal impact and vibration damping. Designed for a filling pressure between 0.08 and 0.2 bar, it effectively prevents the cargo from sliding and is also suitable for transport through different climate zones.

Use once – use multiple times!
Choose between single and multiple use. For multiple use, the unique reusable valve **2** with bayonet adaptor connection and extra-large air opening is available. This increases the efficiency when filling and emptying the airbag.

Product code	Dimensions [mm]	Stowage gap [mm]	Filling pressure [bar]	Burst pressure* [bar]	Qty per pallet / Weight [kg]
AirflexPoly PE, 1-layer					
D002919	600 x 1000	150	0,08	0,4/ 0,8	500 / 205
D002902	900 x 1200	200	0,08	0,4/ 0,8	400 / 285
D002903	900 x 2100	200	0,08	0,4/ 0,8	250 / 310
D002904	1200 x 1800	300	0,08	0,4/ 0,8	250 / 350
D003924	1500 x 2400	300	0,08	0,4/ 0,8	180 / 390
D003925	1800 x 2400	400	0,08	0,4/ 0,8	150 / 416
AirflexPoly PP, 2-layer**					
D003000	600 x 1000	150	0,2	0,4/ 0,8	400 / 170
D002907	1000 x 1200	250	0,2	0,4/ 0,8	300 / 242
D016490	1000 x 2100	250	0,2	0,4/ 0,8	200 / 278
D002910	1200 x 1800	300	0,2	0,4/ 0,8	200 / 285
D002911	1500 x 2400	300	0,2	0,4/ 0,8	150 / 350
D017048	1800 x 2400	400	0,2	0,4/ 0,8	130 / 365

* Burst pressure: without/with counter pressure; ** Multiple use with appropriate reusable valve.

Befülladapter für AirflexPoly-Staupolster

Select the appropriate single-use **1** or reusable filling adaptor **3** for your AirflexPoly airbag. The appropriate reusable valve **2** is available for the reusable filling adaptor.

Product code	Version	Value
D000176	Single-use	Pressure
D000177	Multi-use	Pressure

i Further filling adaptors and airbags, including 4-layer airbags, can be found online at: **www.spanset.de**. Special designs and printing are available on request.

Kraft paper airbag with PE inner lining

The AirflexPaper airbag is a universal and economical load securing device offering simple and intuitive handling with optimal impact and vibration damping. The airbags, which are designed for a maximum pressure of 0.6 bar, consist of an airtight polyethylene inner lining that is fitted with a valve. This is covered by one of more layers of kraft paper. With the right amount of air and when used in the correct position between the cargo, the airbag ensures that a large area of the stowage gap is filled and therefore secures the load against sliding.

Product code	Dimensions [mm]	Stowage gap [mm]	Filling pressure [bar]	Burst pressure* [bar]	Qty per pallet / Weight [kg]
Kraft paper airbag, 2-layer with PE inner lining					
D000179	900 x 1200	400	0,2	0,6	250/230
D002892	900 x 1500	400	0,2	0,6	250/325
D000181	900 x 1800	400	0,2	0,6	200/265
D000183	900 x 2100	400	0,2	0,6	175/275
Kraft paper airbag, 4-layer with PE inner lining					
D002895	900 x 1200	400	0,4	1,2	175/255
D002958	900 x 1500	400	0,4	1,2	150/260
D002897	900 x 1800	400	0,4	1,2	150/315
D002899	900 x 2100	400	0,4	1,2	125/310

Air guns for AirflexPaper airbags

There are two variants of air guns available for the kraft paper airbags. Choose between the standard version **2** and the air gun with manometer **1** (pressure gauge).

Product code	Version
D002140	Filling adaptor with manometer
D002139	Filling adaptor without manometer

i Further filling adaptors and airbags, including 6-layer airbags, can be found online at: **www.spanset.de**. Printing available on request.

1 Filling adaptor with manometer for paper airbag

2 Filling adaptor without manometer

03.9

Load control for curtainsiders

How TruXafe secures PET bottles on curtain-sided vehicles using the form-fitting method

Nortmoor-based Carl Büttner Spedition GmbH, founded in 1853, can rely on over 150 years of experience in the transport industry. In the family company, the safety and security of the driver and cargo are of prime importance. When it came to transporting loads of drinks in PET bottles on Düsseldorf pallets, form-fitting loading was not sufficient due to the 5t headboard. Some years ago, the haulage company therefore retro-fitted its C 745 swap bodies with SpanSet TruXafe in accordance with DIN EN 283 and 284. The locking beams make it possible to set up cargo compartments, relieving the strain on the swap body headboard – it is also possible to implement form-fitting securing of partial loads in this way. Special driving tests were carried out on the haulage company's premises in order to test the suitability of the load control system for this special cargo. Georg Markus Bromisch, the Managing Director of the company, is convinced by TruXafe: „Since we have been using TruXafe, there has not been a single negative incident with the cargo, and the checks now also run quickly and smoothly. For us, TruXafe is the best system on the market – simple, practical and good!"

Securing loads on curtain-sided transport vehicles is a particular challenge, as the structure is often too weak to secure heavy or high loads using form fitting at the side walls. The side bars scarcely offer any resistance to stop the load slipping! However, loads that are not dimensionally stable and cannot be secured by friction lashing must be held in place by means of form fitting, for example using the structure. Here, SpanSet developed the DEKRA-certified TruXafe system for curtain-sided vehicles, which gives curtainsiders extremely secure and stable structural behaviour. Practical, light-weight and robust – these are the characteristics that distinguish all TruXafe system components. These components include aluminium side slats, locking beams and tensioning straps. Using these three components, you can secure almost any cargo of your choice in accordance with the state of the art – drums, „Big Bags" and octabins are some examples. These transfer the lateral forces that occur into the vehicle floor and thereby bring about a significant increase in the lateral retention forces.

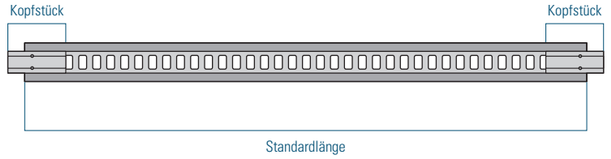
The system components are quick to install and will withstand tough day-to-day transport conditions for many years. You will value TruXafe not only as a transport solution that complies with the legislation, but also as one that is cost-effective.

SpanSet - Certified Safety

TruXafe side slat

- Secures loads weighing up to 2 t per 1 m of structural length
- Quick to install, easy to store
- DEKRA certified: complies with all the requirements of the Germany Road Traffic Ordinance [StVO], e.g. Article 22, paragraph 1, with Directive 2700 et seq. and with DIN EN 12195-1 /2
- Satisfies all the requirements through form fitting

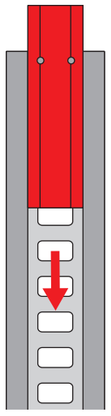
TruXafe side slat



Product code	Standard length [mm]	Height [mm]	Depth [mm]	Weight [kg]	Point load in centre [daN]	Surface load [daN]	Long top part [mm]
D006777	3.050	175	35	11,7	400	800	270

High-strength side slat

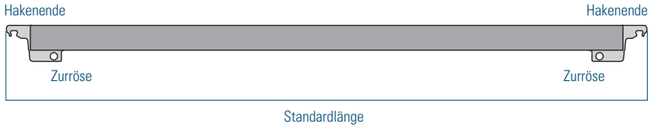
Stabilising side walls: for the TruXafe side slat, that means absorbing up to four times as much load as conventional side slats. In concrete terms, that can be a central point load of **400 daN and a surface load of 800 daN**. Despite this, the robust aluminium side slat is easy for you to handle, weighing only 11.7 kg. Thanks to the top parts that are connected with screws, the length of the side slats can be adjusted to your vehicle.



TruXafe locking beam

- Secures loads weighing up to 2 t per 1 m of structural length
- Quick to install, easy to store
- DEKRA certified: complies with all the requirements of the Germany Road Traffic Ordinance [StVO], e.g. Article 22, paragraph 1, with Directive 2700 et seq. and with DIN EN 12195-1 /2
- Satisfies all the requirements through form fitting

TruXafe locking beam



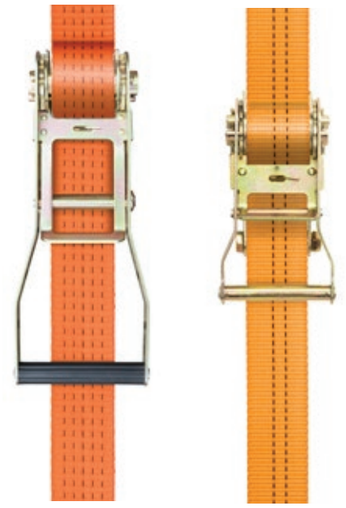
Product code	Standard length [mm]	Height [mm]	Depth [mm]	Weight [kg]	Surface load [daN]
D006458	2.540	127	80	11,5	2.500

Locking beam as reinforcement

As well as the side slats, the TruXafe locking beams are available to give your load additional hold. They can take loads of up to 2,500 daN. The beams weigh just under 12 kg and can be mounted easily with the hook ends in the cutouts of the side slat. With this arrangement, you ensure the transfer of force in the direction of travel as well as at right angles to that direction.

TruXafe diagonal lashing

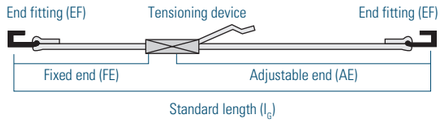
– Tension side slats and locking beams safely and securely
– Tried-and-tested tensioning strap design
– DEKRA certified: complies with all the requirements of the Germany Road Traffic Ordinance [StVO], e.g. Article 22, paragraph 1, with Directive 2700 et seq. and with DIN EN 12195-1 /2
– Significant increase in structural strength



A SPH – Claw hook

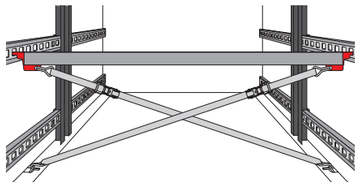
B KH – Rave hook

TruXafe diagonal lashing



Product code	Standard length l_G [m]	Weight for l_G [kg]	End fittings (EF)**	Surface finished	LC [daN]	Colour Webbing	Standard length FE [m]	Strap width b [mm]
D013332	3,5	1,8	A		1.500	orange	0,3	35
D013333	3,5	1,5	A+B		1.500	orange	0,3	35
D006470	3,5	3,4	A		2.500	orange	0,5	50
D012074	3,5	3,0	A+B		2.500	orange	0,5	50

Technical data sheet for the tensioning devices and end fittings available at: www.spanset.de
Ratchet lashing strap in accordance with DIN EN 12195-2; special lengths available on request; optional printing on webbing.



Deflecting forces diagonally

You can take the final step to optimise your load control with the TruXafe diagonal lashing straps. They are very easy to attach: at the top in the standard suspension eyes of the locking beams and at the bottom in the lashing point or at the outer edge of the load surface. Tensioned diagonally, they transfer the lateral loads into the vehicle floor and thereby relieve the strain on the side slats and stanchions.

TruXafe certificates

TruXafe certificates

Certified safety
SpanSet TruXafe not only impresses customers with its efficiency and cost-effectiveness – when it comes to safety and security, TruXafe also satisfies the stringent requirements for load control on curtainsiders. At present, SpanSet holds around a dozen individual approvals for TruXafe in accordance with DIN EN 12642, Annex B. An extremely wide range of loads have successfully been submitted to dynamic tests in test runs and certified by means of various reports

Palletized goods
Drums
„Big Bags“
Tissue paper
Rolls of soft paper
Drinks of Euro pallets
30 l + 50 l barrels of drinks
IBC corrugated board
Octabins
Bagged goods on pallets
Swap containers

All TruXafe certificates can be found on our website at www.spanset.de. There you can also watch the TruXafe film showing some test drives. Simply scan the QR code.

3.10

ACCESSORIES

How we improve load control in dialogue with the users

At the Tivoli stadium in Aachen, hundreds of eyes are intently trained on the truck loaded with rolls of paper that is currently taking a sharp right-hand bend at high speed – but nothing happens! It is just as well, as the truck, loaded with several tonnes of paper, has just successfully demonstrated in a test drive how safe and secure the transport of paper rolls can and should be. In addition to the right lashing systems and anti-slip mats, one aid above all was vital for the safe test drive – the KaSi Plus edge protector. This edge protector was specially developed for the paper industry and, thanks to its cutout, protects the sensitive edges of the paper rolls from pressure points and damage. At SpanSet, regular discussions are held with users and experts from the relevant associations, authorities and companies to determine how we can make transports like this, and many others, as safe, cost-effective and kind on the products as possible. All the parties collaborate on ideas and demonstrate these visually, for example in workshops. Again and again, this results in innovative new developments that make a decisive contribution to improving load control.

SpanSet offers an extensive range of aids and accessories to make load control even safer, easier and more cost-effective. Besides the KaSi Plus device for transporting paper rolls without damage, the range also includes a selection of different protective sleeves that are used to protect both the webbing strap and the cargo. With us, load control calculations are also carried out in a conventional and modern way, for example with the SpanSet lashing force app. This app, based on the tried-and-tested lashing force controller, makes calculating the lashing equipment required child's play for the user. Furthermore, SpanSet has led the way when it comes to the product tests prescribed within the context of accident prevention, and has developed IDXpert. This system, consisting of both hardware and software, simplifies and speeds up testing and documentation.

In future, you can rely on the fact that, at SpanSet, we will always be working on new technologies and aids, and will not simply react to the ever-changing requirements within the load control sector, but instead will continue to set new trends as the leading company on the market.

SpanSet – Certified Safety

KaSi Plus edge protector

- Avoid pressure points on the paper roll
- For lashing systems with webbing straps measuring 50 mm in width
- Accessory for positioning and storage

1 The KaSi Plus edge protector

2 Telescopic rod and positioning device

3 KaSi Plus rack

KaSi Plus edge protectors

Edge protection for the transport of paper rolls
Thanks to a cutout, the innovative KaSi Plus edge protector 1 protects the delicate edge of the paper roll during transport with lashing straps. The guides for the webbing strap above the edge deflectors that bend inwards and the raised upper strap deflector also take the strain off the delicate edge of the paper roll and distribute the surface pressure over a larger contact area. In this way, pressure points and damage to the paper rolls are effectively avoided. Plastic ribs reinforce the structure of the robust edge protect, which is resistant to frost and cold.

Simply place in position
The telescopic rod with corresponding positioning device 2 enables easy fitting of the KaSi Plus when positioning at higher points is required. The KaSi Plus is simply fitted onto the positioning device and then attached at the relevant height using the telescopic pole.

Tidy load surface
The KaSi Plus is designed to be stackable and therefore space-saving. What is more, with the KaSi Plus rack 3, your load surface is always tidy. Simply fill the rack, which has space for up to 10 KaSi Plus edge protectors, and hang it on the side slat, for example.

Product code	Name	Webbing width (mm)	Length x Width x Height (mm)	Weight (kg)
D055985	KaSi Plus edge protector	55	200 x 150 x 145	0,3
D040504	KaSi Plus telescopic rod	-	-	0,4
D040289	KaSi Plus positioning device for telescopic rod	-	-	0,1
D040272	KaSi Plus rack	-	465 x 220 x 210	0,9

UWI and UWI Plus edge protectors

- Universal edge protectors for straight load edges
- For lashing systems with webbing straps measuring 50 mm in width
- Protects the webbing strap from rough surfaces and sharp edges, and the cargo from pressure points caused by the webbing strap

UWI edge protectors

The universal edge protector
The UWI is an especially economical edge protector for everyday applications in the transport sector. It is quick to attach and protects the fabric of the webbing strap from sharp edges and rough surfaces, and the cargo from pressure points caused by the webbing. The UWI is particularly suitable for relieving the strain on the load edge for straight loads where the securing forces are transferred over a large area. In addition, the smooth, polished webbing strap deflector improves the manner in which the securing force is transferred.

Product code	Name	Webbing width (mm)	Length x Width x Height (mm)	Weight (kg)
D020992	UWI edge protector	50	145 x 135 x 90	0,1

4 UWI edge protector

UWI Plus edge protector

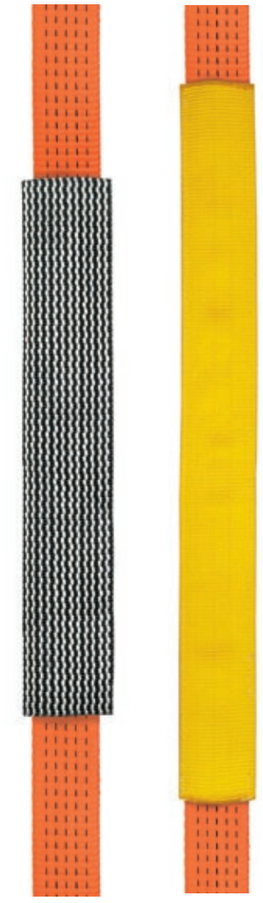
Edge protection for straight loads
The UWI Plus was specially developed for particularly sensitive loads. The interior cutout of the edge protector provides particular protection for the delicate edges of your cargo. The practical webbing strap guide simplifies handling and ensures optimal transfer of force and force distribution. The UWI Plus is suitable for lashing systems using webbing straps that are 50 mm wide. What is more, the edge protector can be stored in a particularly space-saving manner as it is stackable – a perfect aid for delicate loads.

Product code	Name	Webbing width (mm)	Length x Width x Height (mm)	Weight (kg)
D055848	UWI Plus edge protector	50	200 x 150 x 145	0,3
D040504	UWI Plus telescopic pole	-	-	0,4
D040289	UWI Plus positioning device for telescopic pole	-	-	0,1
D040272	UWI Plus-Rack	-	465 x 220 x 210	0,9

5 UWI Plus edge protector

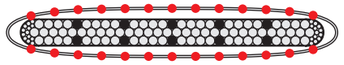
sliP and PF/2 protective sleeves

- sliP – the patented protective sleeve, reinforced with high-performance fibres
- PF/2 – the protective sleeve with especially low friction, allows straps to slide extremely easily
- Light-weight and flexible
- Can be rolled up together with the webbing strap



sliP - slide-protection protective sleeve

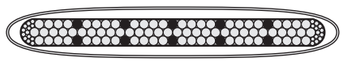
The protective sleeve with skids
The sliP – slide protection – lashing strap protective sleeve provides high cut resistance due to the use of a high-performance fibre, and thereby protects the webbing strap against sharp-edged loads. The webbing strap glides over the load edge without abrasion on the skids that are woven into the sleeve. The sliP protective sleeve is very easy to attach and is suitable for all 35 mm and 50 mm webbing straps.



Product code	Name	Max. usable webbing strap width [mm]	EF length [mm]
D007194	sliP-50	50	5000

PF/2 protective sleeve

A quick solution to abrasion protection: Thanks to its especially smooth, low-abrasion interior, the PF/2 can quickly be pushed onto any webbing strap. On rough edges or on stones or concrete slabs, the PF/2 provides extremely effective protection against fraying and damage to the strap. You can roll up the PF/2 with the webbing strap so that you immediately have it to hand for the next use. It could scarcely be easier.



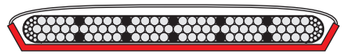
Product code	Name	Max. usable webbing strap width [mm]	EF length [mm]
D013546	PF/2-35	35	1000
D013545	PF/2-50	50	1000
D013544	PF/2-75	75	1000

LSP-SF1 protective sleeve
SC protective clip

- Protects the webbing strap from sharp edges
- Resistant to cutting and abrasion
- Easy handling
- Good transfer of force due to the low-friction textile surface within the sleeve

LSP-SF1 protective sleeve

This protective sleeve is equipped with a robust polyurethane coating on one side, which protects the webbing strap effectively from sharp edges and rough surfaces. The polyurethane side is placed against the cargo and protects the lashing strap from fraying and damage. The LSP-SF1 remains on the strap and is simply rolled up along with it. This product allows you to protect webbing straps measuring up to 75 mm in width effectively from abrasion and cutting. The LSP-SF1 proves to be particularly useful when transporting pre-cast concrete parts, steel or metal components, or similar sharp-edged goods.



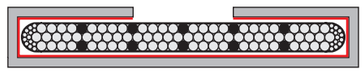
Product code	Name	Max. usable webbing strap width [mm]	EF length [mm]
D000777	LSP-SF1-25	25	5000
D000778	LSP-SF1-35	35	5000
D000780	LSP-SF1-50	50	5000
D000841	LSP-SF1-75	75	5000

Auch individueller Zuschnitt möglich

Schutzclip SC

Protection for webbing strap and load
This protective clip protects the lashing equipment and load while making life even easier for you. Thanks to its coated fabric layer and the opening slot at the rear, it can quickly be pushed onto a strap and removed again. The lashing strap slides better in the fabric, making it easier to secure the load. The SC protective clip should preferably be used where the decision on whether to use protective sleeves is taken on a case by case basis.

The SC protective clip with fabric can be attached to webbing straps measuring 35, 50 and 75 mm in width, quickly and easily.



Product code	Length [cm]	Max. usable webbing strap width [mm]
D013538	50	35
D013539	100	35
D013540	50	50
D013541	100	50
D013542	50	75
D013543	100	75

LaWi long edge protector

– Easy handling thanks to large contact sur face and optional webbing strap guide
– Protects webbing strap and load
– Helps to bridge gaps in the load

1 LaWi 1636 long edge protector

2 LaWi 1637 long edge protector

3 Webbing strap guide for LaWi 1637

LaWi long edge protector – how a loose bundle of cargo becomes a solid package

Thanks to the special honeycomb structure, the polyethylene long edge protector is very torsionally stiff and can even be used to bridge gaps in the load. It is also suitable for delicate cargoes such as roof tiles, pre-cast concrete parts, planed wooden beams or palletised drums, etc. The inner cutout in the edge protector protects the edge of the load, while the large rounded edge protects the webbing strap and increases the pre-tensioning force due to a better transfer of force. The large contact area means that it is easy to attach the edge protector to the cargo. The LaWi can also be shortened for smaller loads.

The LaWi 1637 long edge protector 2 also has an optional 3 webbing strap guide that is simply inserted into the long edge protector.

Product code	Name	Coöour	Length** [mm]	Height x Width [mm]	Inner contact surface	Weight*** approx. [kg]
D031069	LaWi 1636	black	800	210 x 120	180 x 90	2,0
D030586	LaWi 1636	black	1200	210 x 120	180 x 90	3,0
D031071	LaWi 1636	black	2400	210 x 120	180 x 90	6,0
D031074	LaWi 1637	red	800	140 x 100	120 x 80	1,1
D030588	LaWi 1637	red	1200	140 x 100	120 x 80	1,6
D031075	LaWi 1637	red	2400	140 x 100	120 x 80	3,3
D034509	LaWi 1637* webbing strap guide,	blue		-	-	-

*4 items per package; **Observe tolerance of +/- 20 mm; ***Please observe weight tolerance of 20%.

CTUXafe and clamping bar

– Ensures a form-fitting load
– Also suitable for separating the cargo area
– Easy assembly
– Low tare weight


1

CTUXafe – Container door protection

Before opening a door, the locking bars of both doors are connected to one another using a one-piece lashing strap with a clip buckle. If the door is under pressure from the inside after unlocking, the strap prevents the door from being opened wider than a small gap. The door is restrained by the CTUXafe safety strap 1. This allows the user to take appropriate securing action to open the doors safely. Afterwards, the strap is released and removed from the doors.

Advantage of CTUXafe:
It is easily and quickly attached. CTUXafe is cost-effective and – unlike the diagonal securing mechanism – can be attached without other aids.

Requirements that SpanSet CTUXafe meets
– The strap has a breaking force of 1,8 t and thus a maximum retention force of 3.6 t when strapped around the load. It is thus wholly sufficient.
– It should be possible to quickly attach the strap.
– It should not be possible to release the strap under load to prevent a container door that is slightly ajar from being opened uncontrolled under tension.

Product code	Max. holding force at strapping [t]
D066781DU	3,6

Partition lock

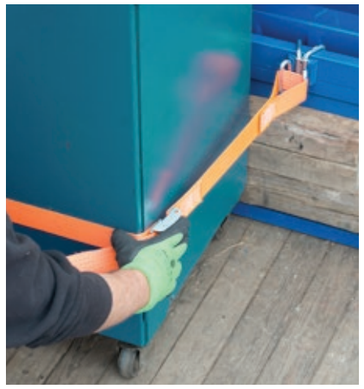
The aluminium partition lock 2 is ideally suited to form-fitting securing of dimensionally-stable loads on trucks and curtainsiders. The aluminium slat with fasteners at both ends can be adjusted to lengths of between 2,400 and 2,700 mm and has a low tare weight, at only 10.2 kg. It is easy to attach to the side slats and side walls of the vehicle, thereby ensuring effective load control.

Product code	Type	Length [mm]	Dimensions [mm]	Weight [kg]	Loading capacity
D038754	Partition lock	2400 - 2700	125 x 30	10,2	200 daN


2

SideClip ratchet support

– The cargo is protected from the tensioning device, for example to avoid paint damage
– Quick to attach and remove for efficient use
– Robust material for long service lives

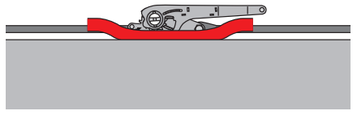


Ratchet support

Reliable protection for the ratchet
With the practical ratchet support, you can protect your cargo from pressure applied by the ratchet devices in contact with the cargo.

Movement during transport may result in marks, particularly on painted or polished surfaces. With the ratchet support made from robust polyethylene, you can prevent this in a simple and effective manner.

The ratchet support is easy to thread onto the ratchet in question and cannot slip during transport.



Product code	Length x Width [mm]	Usable strap width [mm]
D000195	170 x 90	35
D000196	205 x 96	50
D000197	295 x 125	75

SideClip

The SideClip is a useful aid in load control when it is a matter of securing smaller cargo units. The loops of the tensioning devices are inserted into the SideClip. The clip can then simply be attached in any location on the vehicle wall and side slats, using the wall clamps. The SideClip is designed for a loading capacity of 200 daN when the strap is passed around the load, and can be used for webbing straps measuring 50 mm in width.

Product code	Name	For webbing straps [mm]	Weight [kg]
D056333	SideClip	50	0,5

Lashing force app

– Calculation in line with the guidelines of VDI 2700 et seq. and DIN EN 12195
– A useful tool based on the tried-and-tested SpanSet lashing force controller
– For Android and iOS

How calculations for lashing straps become child's play

The useful app, based on the tried-and-tested SpanSet lashing force controller, provides a clear and easily-comprehensible user interface that makes calculating the lashing straps required child's play. Using the app, by moving the sliders or entering the dynamic friction coefficients, angle of inclination and pre-tensioning forces directly, as well as inputting the acceleration in the direction of travel and the K-factor, it is possible to display the number of lashing straps required for the specific pre-tensioning force (STF) directly, in just a few steps.

For the angle of inclination, there is even the option of calculating the angle or having it displayed using the level sensors in your smartphone. Calculation of the load control values takes place either in line with the guidelines of VDI 2700 et seq. and/or DIN EN 12195, as you choose. The additional option of documenting the load distribution plan means the lashing force calculator embodies mobile added value in the field of load control.

– Input of dynamic friction coefficients, angle of inclination, pre-tensioning forces
– And of the acceleration in the direction of travel and the K-factor
– Languages: German, English, Dutch, Italian, Portuguese, Spanish
– Easily-comprehensible user interface
– Documentation of the load distribution plan
– Calculation possible in line with the old and new versions of DIN EN 12195

Install now free of charge!

The free lashing force app is available to download under Google Play in the App Store.

3.11

Transport and rescue technology

How SafetyPlus brings movement back in play in the right place

Fotostudio Arnolds photographic studio is on the road for SpanSet once again. The aim is to photograph the SpanSet products that are currently in use within a large gravel plant. So that it is not necessary to carry all the equipment that is needed for this type of photo shoot for many kilometres, Arnolds has a Pinzgauer, an off-road vehicle, specially for such shoots, However, due to the bad weather, the mud is very soft and deep on this particular day, with the result that suddenly even the all-terrain vehicle becomes stuck. Yet Arnolds is well prepared, as photographer Peter Braatz always keeps a SpanSet SafetyPlus safety tension sling in the vehicle for situations like this. SafetyPlus is specially designed for pulling and rescuing loads. Thanks to a special safety sleeve on SafetyPlus, if the device is overloaded (and breaks), the sling will not lash out. It therefore guarantees considerably more safety when towing and rescuing loads weighing up to 50 tonnes. Using the device is also very simple, so the photo studio's all-terrain vehicle gets moving again in no time.

As well as the SafetyPlus rescue sling, the transport and rescue technology range also includes the towing sling, a safe aid for towing wheeled vehicles. So when nothing is moving, SpanSet is certain to be able to bring movement back into play where it is needed. What is more, Carfix, the car transport safety device, ensures that vehicles remain safely in place while they are being transported. The tried-and tested SpanSet system with a special strap controller for ensuring positional stability of the webbing strap on the tyres is an ideal aid when it comes to securing cars and light utility vehicles on car transporters, quickly and easily.

When the going gets tough, SpanSet transport and rescue technology guarantees secure hold, as well as movement in the right place.

SpanSet – Certified Safety

– Complies with DIN EN 12195-2
– Satisfies VDI Directive 2700 Sheet 8
– Other hook types are possible
– Also available with individual print on request

Carfix 35

Carfix 50

Strap controller

4 steps to your Carfix lashing strap

1,500 and 2,500 kg lashing capacity
SpanSet Carfix is available in versions with webbing straps measuring 35 mm or 50 mm in width, and with a lashing capacity of 1,500 or 2,500 daN, in a straight pull. The Carfix system has a particularly low webbing stretch (‘4%) and is therefore especially well-suited to transporting vehicles.

„Secured by 3 hooks“
With the right handling, the three-point attachment with hooks at the fixed end 1 , adjustable end 4 and running freely on the adjustable end guarantees fast, secure attachment and ease of use for the user. The moveable swivel hook that can be rotated through 360° or the traditional claw hook can be selected for attachment to the perforated plate. Other hook types are also available on request.

Stable grip and protection for the webbing strap
The strap controller 3 comes as standard with both lashing strap variants. During transport, the particularly pronounced profile on the underside of the strap controller grips very well to the tyre and remains in a stable position, while the webbing strap on the inside can glide perfectly during tensioning. In addition, the webbing strap controller protects both the webbing strap and the tyres of the vehicle. There is also the option of edge reinforcement (piped edge), which extends the durability of the controller. Simply select the lashing strap you require and your preferred hook, and put together your individual Carfix lashing straps easily using the tables (on the right).

A WH - Swivel hook **B** SPH -Claw hook

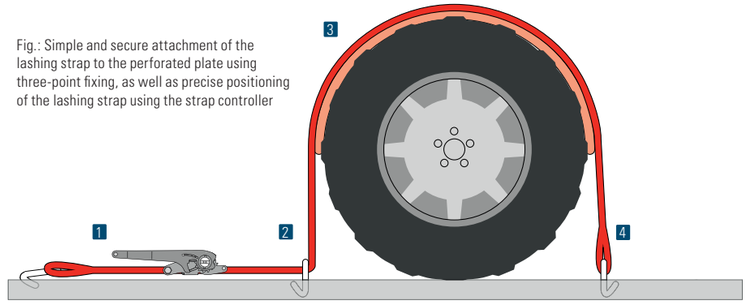


Fig.: Simple and secure attachment of the lashing strap to the perforated plate using three-point fixing, as well as precise positioning of the lashing strap using the strap controller

3.11 TRANSPORT AND RESCUE TECHNOLOGY

Carfix – Car transport safety device

Carfix 35

	Item	Product	Length [m]	Webbing width [mm]	LC [kg]	Product code
1	FE Carfix35 LC1500 WH	Fixed end + swivel hook	0,15	35	1.500	D052359
	FE Carfix35 LC1500 SPH	Fixed end + claw hook	0,15	35	1.500	D052732
2	WH Carfix35 LC1500	Swivel hook	-	35	1.500	D000562
	SPH Carfix35 LC1500	Claw hook	-	35	1.500	D000305
3	Carfix35 strap controller with c.*	Strap controller	0,75	-	-	D003897
	Carfix35 strap controller without c.	Strap controller	0,75	-	-	D051457
4	AE Carfix35 LC1500 2,8m WH**	Adjustable end + swivel hook	2,8	35	1.500	D051464
	AE Carfix35 LC1500 2,5m WH**	Adjustable end + swivel hook	2,5	35	1.500	D051465
	AE Carfix35 LC1500 2,8m SPH**	Adjustable end + claw hook	2,8	35	1.500	D051469
	AE Carfix35 LC1500 2,5m SPH**	Adjustable end + claw hook	2,5	35	1.500	D051470
	AE Carfix35 LC1500 2.5m SPH**	Adjustable end + claw hook	2.5	35	1,500	D051470

* Strap controller with edge reinforcement (piped edge) **Additional hooks and controllers are not threaded onto the strap.

Carfix 50

	Item	Product	Length [m]	Webbing width [mm]	LC [kg]	Product code
1	FE Carfix50 LC2500 WH	Fixed end + swivel hook	0,15	50	2.500	D052360
2	WH Carfix50 LC2500	Swivel hook	-	50	2.500	D000606
	Carfix50 Gurtcontroller m.K.*	Strap controller	0,75	-	-	D003932
3	Carfix50 Gurtcontroller ohne K.	Strap controller	0,75	-	-	D051462
	LE Carfix50 LC2500 2,5m WH**	Adjustable end + swivel hook	2,5	50	2.500	D051467
4	LE Carfix50 LC2500 5,0m WH**	Adjustable end + swivel hook	5,0	50	2.500	D051468
	AE Carfix35 LC1500 2.5m SPH**	Adjustable end + claw hook	2.5	35	1,500	D051470

* Strap controller with edge reinforcement (piped edge) **Additional hooks and controllers are not threaded onto the strap.

Protected label

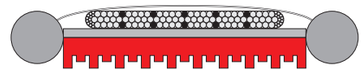
The label containing all the important information such as the date of manufacture, manufacturer and lashing capacity (LC) is securely sewn into the webbing strap and protected by an overlap of the webbing. In addition, an instruction label is integrated into the strap and aims to prevent usage errors.

Printable strap controller

Identify your Carfix system. Where required, the rear of the webbing strap controller can be printed individually for an extra charge, when purchasing 10 or more controllers.

Top: The webbing strap of the lashing equipment is simply fed loosely through the strap controller (fig. without reinforced edge).

Bottom: The particularly pronounced profile on the underside of the strap controller grips very well to the tyres during transport and therefore remains in position. The piped edge provides



SafetyPlus rescue slings

– Safety sleeve protects against uncontrolled recoil in the event of overloading
– Suitable for tensile loads of up to 50t
– Safety sleeve made from high-strength polyester

SafetyPlus – the rescue slings with safety sleeves

SafetyPlus is specially designed for pulling and rescuing loads. It is characterised by the fact that the part which absorbs the load is housed in a safety sleeve with suspension loops. In the event of overloading, this sleeve prevents the sling from recoiling uncontrollably and the associated risk of physical injury.

The significantly higher extension and compensation capacity of the safety sleeve, which is tailored to the loading capacity of the pulling sling, ensures that, if the pulling sling tears, the energy released will be absorbed in the safety sleeve and the device will not recoil uncontrollably. The actual pulling device is a roundsling that, like the safety sleeve and its suspension loops, is made of high-strength polyester.

SafetyPlus comes with a label that indicates to the user the maximum tensile force and the necessary safety instructions. The information regarding the tensile load is laid out in such a way that there is three fail-safe mechanisms in the system in the event of a break.

Product code	Name	Tensile load [kg]	Useful length [m]	Loop length [mm]	Approx. contact width of the loop [mm]
D009956	SafetyPlus 4t	4.000	6	200	60
D047661	SafetyPlus 4t	4.000	8	200	60
D008340	SafetyPlus 8t	8.000	6	200	70
D015289	SafetyPlus 8t	8.000	8	200	70
D017194	SafetyPlus 12t	12.000	6	300	90
D009963	SafetyPlus 12t	12.000	8	300	90
D009598	SafetyPlus 16t	16.000	6	300	90
D009685	SafetyPlus 16t	16.000	8	300	90
D007157	SafetyPlus 20t	20.000	6	400	100
D014072	SafetyPlus 20t	20.000	8	400	100
D015540	SafetyPlus 30t	30.000	6	400	120
D038596	SafetyPlus 30t	30.000	8	400	120
D047678	SafetyPlus 40t	40.000	6	400	140
D047679	SafetyPlus 40t	40.000	8	400	140
D041769	SafetyPlus 50t	50.000	6	400	160
D036107	SafetyPlus 50t	50.000	8	400	160

i Technical data sheet for SafetyPlus available at: **www.spanset.de**. Special designs available on request; optional printing possible.

SafetyPlus – the rescue slings with safety sleeves

– Manufactured on the basis of DIN EN 1492-2
– With signal flag securely sewn in
– Suitable for wheel vehicles up to 15 t

The towing sling – a safe aid for towing wheel loaders

The SpanSet towing sling is used when it is necessary to rescue and tow away wheeled vehicles, in particular trucks, construction machinery and agricultural vehicles.

Equipped with loops, the towing sling can simply be attached to the towing hitch on the vehicle or to the winch hook in the case of off-road vehicles. The towing sling is based on SpanSet roundslings which are equipped with full reinforcement in the loops. This reinforcement is securely sewn onto the robust sleeve, which holds the sling together as one strand and simultaneously serves to protect the towing sling from abrasion. An orange signal flag that is securely sewn on ensures that it is easier to make out the vehicle being towed.

The towing slip has a low tare weight, which facilitates handling. The unique marking with the recommended vehicle weight and the handling instructions prevent usage errors. What is more, with the towing sling, crushed fingers or injuries due to broken strands of wire cables are a thing of the past. This makes the towing sling a safe and light-weight

Product code	Breaking load [daN]	For wheeled vehicles [kg]	Useful length [m]	Loop length [mm]
D049212	21.000	bis 9.000	6	200
D049213	35.000	bis 15.000	6	200

i Technical data sheet for the towing sling available at: **www.spanset.de**.
Special designs available on request.

3.12

Load control seminars

How our load control seminars make your company that bit safer

For August Alborn GmbH & Co. KG, a specialised transport company based in Dortmund, the know-how and safety of employees is of ultimate importance despite all the pressure of deadlines and pricing. For many years now, the employees have therefore been participating in the SpanSet load control seminars at regular intervals. In these seminars, they are not just provided with the specialist knowledge in its theoretical form, but also learn through an extensive practical section. For Helmut Alborn, the Managing Director, it is important that employees are always up to date in the respective fields of activity. Due to the constantly-changing provisions and technical innovations, a regular „update" is indispensable. One benefit is that the training sessions are also offered as in-house seminars. This saves on hotel costs as well as meaning that the employees do not have to travel long distances.

As your partner in the load control sector, we want to be more than just a supplier of high-quality products. We want to support you and your employees in effective risk prevention. Consequently, SpanSet offers many training and further training opportunities in the field of load control. These are offered in our modern Safety Training Centre (STC) in Übach-Palenberg, at 14 other sites in Germany and at one site in Austria. Learn more about load control for heavy-duty transport, for example, or find out about the special requirements when transporting hazardous goods. Our certified and trained speakers all have a background in practice and, in the one and two-day seminars, they will help you to deepen your specialist knowledge, acquire new knowledge and understand the latest changes.

From now on, practical errors caused by ignorance will be a thing of the past. Make your company that bit safer with the SpanSet seminars – an investment that will pay off, and not only for your employees.

SpanSet – Certified Safety

Load control seminars

10 Benefits of the SpanSet seminars

1. The Safety Training Centre (STZ)
The modern STZ in Übach-Palenberg offers perfect conditions for intensive and learning closely based on practice.

2. Seminars at SpanSet sites
In order to ensure that you do not have to travel any further than necessary, our speakers are there for you at many sites in Germany, Luxembourg and Austria.

3. In-house seminars within your company
In this way you can bring your employees up to the same level of knowledge particularly efficiently and carry out mandatory training (for example in accordance with DGUV Regulation 1) in a cost-effective manner while saving time.

4. Individual seminar concepts
Together we will move your company forward in an especially targeted manner. Through in-depth analysis of your needs, we will draw up an individual training concept.

5. To hand at all times – the SpanSet ID card
As a seminar participant in our STZ, you will receive the bankcard-sized SpanSet ID card in addition to your certificates and attestations. This contains information on the training and qualifications you have received from SpanSet – meaning that you can provide proof of your specialist knowledge at any time, even when travelling.

6. Learn from the professionals
All seminars are given by qualified and certified speakers with many years of experience as applications engineers.

7. Seminars focused on practice
So as to give your employees a great deal of benefit in terms of their everyday work, our seminars are particularly focused on practice.

8. Extensive training documents
Our training documents will serve as an additional support for you in our seminars and are also a useful aid for your day-to-day work.

9. Refresh your knowledge
At SpanSet, certified refresher seminars also form part of the programme. Here you can brush up on your knowledge – provided that you have attended the relevant main seminar during the past 5 years.

10. Training atmosphere
Modern premises, air conditioning and the latest technology, coupled with attentive support and hospitality, ensure a successful seminar.

Load control seminars

Seminar No. SEM00003
Specialist seminar on load control
Training as an „expert" on load control in road transport

Objective
You will learn the correct, professional way to handle synthetic lashing equipment and how to calculate lashing forces. As an Authorised Person – following sufficient experience in your company – you will be in a position to assess the safe condition of load control equipment. You will also be able to carry out tests in line with the current rules and regulations.

Seminar No. SEM00057
Specialist seminar on load control in heavy transport
Training as an „expert" for load control equipment on road vehicles / large-area and heavy transports

Objective
You will learn to secure the load control of oversized loads or loads with a high mass on heavy-duty transporters, taking into account the current legislation and guidelines. You will finish the seminar as an expert in load control.

Seminar No. SEM00004
Practical seminar on load control VDI 2700a
Training as an „expert" for load control equipment in goods transport by road, using lashing equipment made from sythetic fibres, chains and wire cables in accordance with VDI 2700a

Objective
You will learn the correct way of handling lashing equipment and will be able to calculate lashing forces in theory and practice. You will be in a position to assess the safe condition of load control equipment in line with the current standards and regulations, and will be able to carry out the annual tests. You will finish the seminar as an expert in load control technology.

Seminar No. SEM00028
Practical seminar on CTU load control
Training in load control within containers in line with the CTU packing guidelines.

Objective
Load control within containers is a special case. We will explain the technical and physical context to this. In addition, you will learn which statutory provisions are important and what options you have for load control in containers. Furthermore, we will present the most important types of load control.

Seminar No. SEM00029
Practical seminar on load control of hazardous goods
Training as an „expert" for load control aids in the transport of hazardous goods, with evidence of training in line with VDI 2700a and attestation in accordance with Article 6 of the German Hazardous Goods Appointed Persons Ordinance [Gefahrgutbeauftragtenverordnung].

Objective
Alongside the basics from the two-day practical seminar on load control, we will familiarise you with special legal aspects concerning the transport of hazardous goods.

Seminar No. SEM00030
Practical seminar on load control in vans
Training as an „expert" in load control aids in vans

Objective
You will learn the correct way of handling synthetic load control equipement and will be able to calculate lashing forces in theory and implement these in practice. As a result of the appointment in your company, you will be authorised to assess the safe condition of lashing straps and load control equipment in accordance with the current standards and provisions. You will finish the seminar as an expert in load control technology in vans.

Why not book now?

It is easy to book SpanSet seminars online at www.spanset-seminare.de or by telephone on +49 (0) 2451 4831-230.

The catalogue of seminars

Further information on the individual seminars can be found in our 2018 Catalogue of Seminars or online at: **www.spanset-seminare.de**

How SpanSet is making load control safer throughout the world

SpanSet is used wherever someone relies on the highest quality in the field of load control. We find the right solution for each sector and its special requirements, working in close collaboration with our customers. In this way, we strive to make our contribution towards increased safety on all transport routes throughout the world, every day.

SpanSet – Certified Safety











Height Safety Catalogue

Lifting Catalogue

SiP No. 19

IDXpert brochure

PaXafe modular net system brochure

2018 Catalogue of Seminars

NoCut brochure

INDEX OF KEY WORDS

You will find the key with the explanations of the SpanSet benefits on the flap!

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Your SpanSet company representative