



STRAPPING

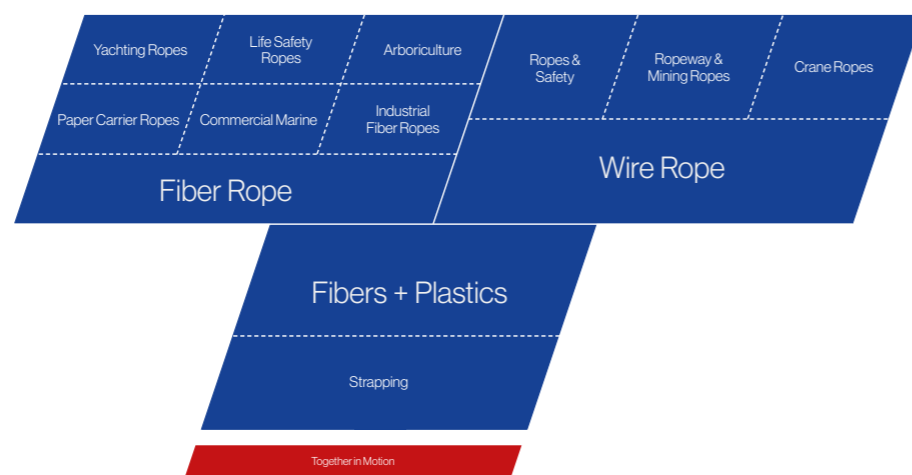
As individual as your product

EXPERTISE FROM MORE THAN 225 YEARS OF EXPERIENCE

What started back in 1790 as a simple shop making hemp ropes has since evolved into a globally successful group of enterprises specializing in the development and production of fiber and steel wire ropes as well as strapping.

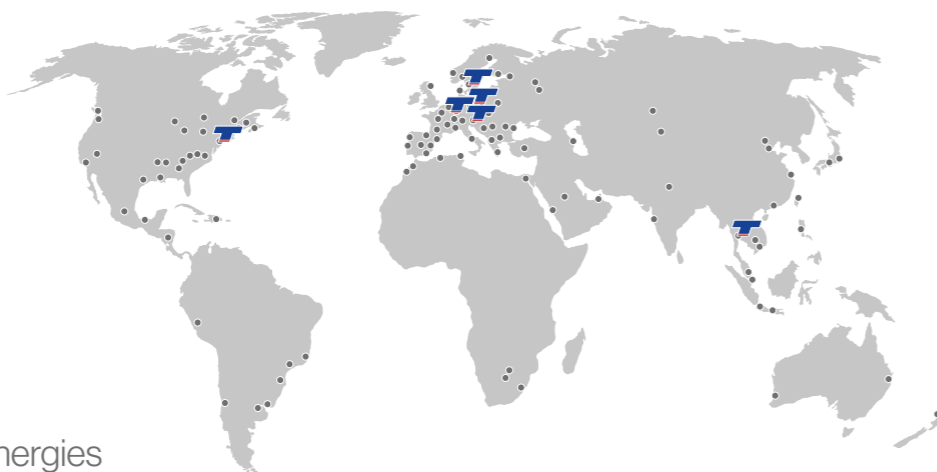
Great diversity

TEUFELBERGER's products and services are destined for a wide variety of applications ranging from cranes and marine applications to packaging and through to personal protection. The continuity and stability of a family enterprise makes us a reliable partner who, competently and effectively, supports you in mastering your day-to-day challenges.



Global presence and customer proximity

Manufacturing operations in various countries allow us to meet local quality and certification standards as well as customer requirements without difficulty. From our sites in Austria, the Czech Republic, the U.S., Sweden, and Thailand, and backed by a close-knit global network of distribution partners, we continue to satisfy the expectations of our customers.



Innovative solutions through synergies

TEUFELBERGER is a leading specialist for fiber and steel wire ropes as well as strapping. The spectrum of technologies in TEUFELBERGER's portfolio generates various synergies between the extrusion of thermoplastics, braiding of high performance fibers, and processing of wires into ropes and strapping.

Especially fiber and steel wire products have brought about valuable synergies with regard to both application and manufacturing technologies, which have benefited our customers tremendously. This makes TEUFELBERGER your ideal partner right from the project planning phase.

5% of TEUFELBERGER's employees are active in research and development and make sure that our customers have access to the latest innovative rope technologies. 10% of the entire investment volume is committed to development and quality assurance.

CONTENTS

This is what matters	4
<hr/>	
Cost-effective and efficient strapping	
Quality is not a matter of chance	5
<hr/>	
From the raw material to the finished product; with user know-how to trouble-free strapping solutions	
TEWE®	6
<hr/>	
The convincing polypropylene strapping	
TYCOON®	10
<hr/>	
The trouble-free polyester strapping	
HQ Printing Solutions	18
<hr/>	
The multifunctional strapping	
TYCOON® and TEWE® keep the world in motion	22

WARNING!

Using these products may involve hazards. Therefore, never use our products for any purposes other than those they are designed for. Customers must ensure that all users are familiar with their correct use and the necessary safety precautions. Please keep in mind that any of the products may cause damage or harm when misused or overloaded.

TEUFELBERGER®, TYCOON® and TEWE® are internationally registered trademarks of the TEUFELBERGER Group. Subject to technical modifications, typesetting and printing errors.

THIS IS WHAT MATTERS!

In order to package and transport products made of different materials and in varying sizes and shapes securely, you need a stable and reliable transport packaging solution. Together with you, we develop the ideal strapping solution for your specific application.

LOW-MAINTENANCE AND TROUBLE-FREE STRAPPING PROCESSES

By using TEWE® PP strapping and TYCOON® PET strapping we ensure low-maintenance and trouble-free strapping processes in your manufacturing facility. Due to a consistently high quality, smallest manufacturing tolerances, and high conveying stiffness we can ensure that TEUFELBERGER strapping is smoothly processed both on fully automatic strapping machines and hand tools.

RELIABLE PROTECTION OF YOUR PACKAGED GOODS

The first thing your customer will notice is your transport package. Therefore, it is all the more important to leave a good first impression by delivering the product packaged in a stable and reliable way. External influences during storage and transport such as vibrations, temperature differences, and sunlight may affect your packaging. The ideal shock reserve offered by TEUFELBERGER TEWE® PP and TYCOON® PET strapping absorbs dynamic loads during transport.



SMART SUPPLY MANAGEMENT FROM ORDER PLACEMENT TO DELIVERY

Smart supply management at TEUFELBERGER ensures that you get your goods on time. Due to our large warehouse our strapping is constantly available. To enable our customers to supply their clients quickly, we offer direct delivery, express delivery and defined delivery plans to help you supply your customers as swiftly as possible. Our competent team will be happy to provide advice in several languages.

THE ECONOMICALLY AND TECHNICALLY BEST SOLUTION FOR YOUR APPLICATION

Our vast range of PP and PET strapping products enables us to find, together with you, the economically and technically best solution. Addressing the challenge to develop customized solutions deviating from the standards is a pleasure for us. Our application engineers are at your disposal to provide quick and unbureaucratic technical support. We analyze your specific situation at your site, carry out technical evaluations, make adaptations to existing strapping systems where necessary, and carry out a sample service and conduct field tests.

QUALITY IS NOT A MATTER OF CHANCE

From the raw material to the finished product

Being a premium supplier of PP and PET strapping, we offer you a constantly high quality. This is the only way to guarantee smooth and worry-free strapping processes in your production lines.

During the selection of our raw material suppliers, we already attach the utmost importance to ensuring that what we get is PP granules and PET flakes of flawless quality. Testing of the new material starts with first initial samples and extends to large-scale testing in our production facilities. Our tests and analyses are based on our own very strict raw material specifications. We also conduct regular audits at strategically important partners to ensure a continuous quality management.

Even if a supplier of polyester and polypropylene materials is listed with us, 100% of his deliveries are tested in our house. In order to meet our small manufacturing tolerances, regular checks of random samples according to the two-man rule will be conducted during the manufacturing process. Ultimately, final tests and inspections of the finished products will be carried out by our 24/7 quality assurance team.

With user know-how to worry-free strapping solutions

Being the biggest system independent producer of strapping worldwide we make sure to always be up to speed in terms of strapping systems. Therefore, TEUFELBERGER operates its own technical test laboratory which is equipped with all standard strapping machines and hand tools.

Before being launched on the market, each strapping is extensively tested on the customary strapping systems available in our house. Thus we guarantee that the chosen solution works smoothly on your machines.

Moreover, we analyze the strapping currently used by you. On the basis of these results we then propose the technically and economically best TEUFELBERGER solution.



The strongest link in the chain

TEWE® - THE CONVINCING POLYPROPYLENE STRAPPING

We offer you all common polypropylene strapping types, but we also develop customized solutions beyond the standard. TEWE® PP strapping features consistently high quality, high breaking strength, and small manufacturing tolerances. This is how we guarantee a smooth strapping process. The excellent rigidity of the strapping and perfect running characteristics prepare the ground for high speeds and optimized cycle times. Thanks to special embossing techniques, TEWE® PP strapping will run on your machines with close-to-zero abrasion.

TEWE® polypropylene strapping

- ✓ features low maintenance and trouble-free strapping processes
- ✓ is the economically and technically best solution for your application
- ✓ offers reliable protection of your packaged goods
- ✓ offers a smart supply management (from order placement to delivery)



TEWE® S-BAND 4-6 MM



TEUFELBERGER is one of the world's biggest producers of narrow polypropylene strapping. Thanks to its high and consistent quality, TEWE® S-Band is perfect for the printing, corrugated board, and logistics industries.

The benefits of TEWE® S-Band are:

- ✓ ideal running characteristics
- ✓ high availability of the strapping process
- ✓ ideal for fully automatic applications

TEWE® S-Band comes in the following dimensions:

Width		Thickness		Strapping colors	Core		Breaking strength		Elongation %	Surface
mm	inch	mm	inch		mm	inch	kg	lbs		
4 - 6	1/6" - 1/4"	0,32-0,66	0.013 - 0.026"	white	150 x 160	6 x 7"	44-99	97 - 218	up to 18	embossed
				black	184 x 150	7.5 x 6"				
				blue	200 x 160	8 x 7"				
				yellow	200 x 190	8 x 8"				
					280 x 190	11 x 8"				

* other strapping parameters on request

TEWE® A-BAND 7-19 MM



TEWE® A-Band is suited for all kinds of conventional strapping machines. This high quality strapping comes in a wide variety of dimensions, colors, and packaging units.

The benefits of TEWE® A-Band are:

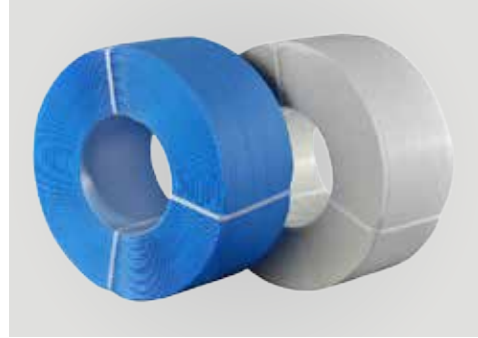
- ✓ suited for all semi-automatic and fully automatic strapping machines
- ✓ ideal for all types of shipping packaging
- ✓ trouble-free strapping processes due to perfect running characteristics

TEWE® A-Band comes in the following dimensions:

Width		Thickness		Strapping colors	Core		Breaking strength		Elongation %	Surface
mm	inch	mm	inch		mm	inch	kg	lbs		
7 - 19	1/4" - 3/4"	0,30 - 0,95	0.012 - 0.037"	white	150 x 160	6 x 6"	72 - 527	159 - 1,162	up to 18	embossed
				black	200 x 190	8 x 8"				
				blue	230 x 190	9 x 8"				
				yellow	280 x 190	11 x 8"				
					406 x 145	16 x 6"				
					406 x 155					
					406 x 185	16 x 7.5"				

* other strapping parameters on request

TEWE® OCEAN



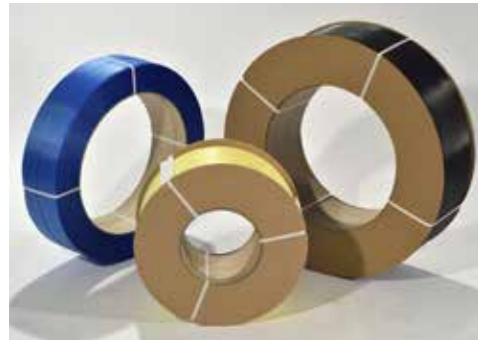
TEWE® Ocean was developed specifically for use in the fishing and seafood industry. This 12 mm polypropylene strapping = 12 mm PP strap (1/2") is provided with a plastic core.

Benefits of TEWE® Ocean:

- ✓ resistant to moisture and water
- ✓ less storage space required for the empty core; foldable
- ✓ 100 % recyclable

TEWE® SPECIAL BAND

TEWE® Special Band is a high quality PP strapping that was developed for special applications.



TEWE® HE/SHE: PP strapping with high (up to 28%) or extremely high (up to 40%) elongation, particularly suited for small packaging units or applications with shrinking package volumes and sharp edges.

TEWE® UV: strapping treated with special additives ensuring longer UV stability.

TEWE® LCE: PP strapping with low elongation, used primarily for goods that are compression-packaged.

TEWE® TAPE Protector: for perfect edge protection in the corrugated board industry.



TYCOON® - THE TROUBLE-FREE POLYESTER STRAPPING

To cope with the challenges caused by goods transport such as vibrations, temperature differences and sunlight we have developed a broad range of polyester (PET) strapping products from widths from 9 to 32 mm (3/8" to 1 1/4")

TYCOON® PET strapping

- ✓ features low maintenance and trouble-free strapping processes
- ✓ is the economically and technically best solution for your application
- ✓ offers reliable protection of your packaged goods
- ✓ offers a smart supply management (from order placement to delivery)

PET strapping replaces steel

With small manufacturing tolerances, consistently high quality and high breaking strength, our TYCOON® polyester strapping ensures smooth processing on fully automatic strapping machines and hand tools. In many applications, our PET strapping is suited to replace steel strapping and offers the following advantages over conventional steel strapping:

- ✓ protects the health and safety of your staff – no risk of injuries caused by the strapping
- ✓ no damage to the packaged goods
- ✓ easier & safer to handle
- ✓ no staining of the goods because of rust
- ✓ closure without clamps
- ✓ higher remaining strap tension



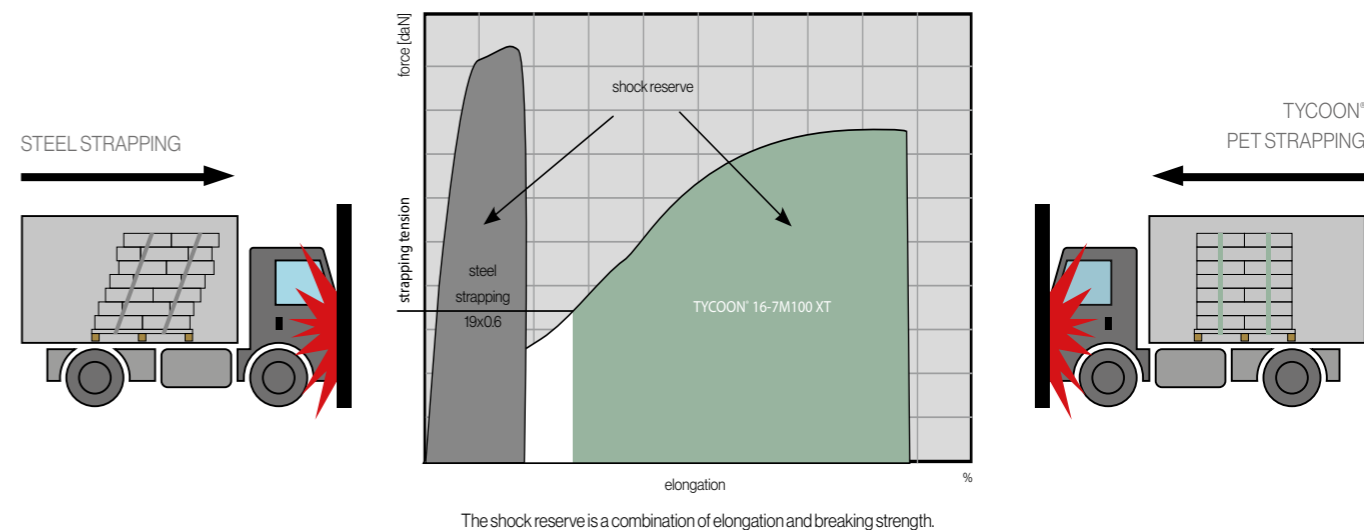
IT'S TIME FOR A NEW GREEN

Because of the great success of our new TYCOON® XTend product line, we decided to take a few already proven characteristics (e.g. improved splitting behavior) and incorporate them into our entire PET portfolio. The formulas have been modified to contain our patented additive, further improving the characteristics of the strapping. The visible sign for this development is our new opaque green (OGN).



SHOCK RESERVE

Dynamic loads caused, for example, by vibrations, by moving the goods several times or by reloading pallets will considerably affect the stability of the packaged goods. The strength of our TYCOON® polyester strapping becomes apparent especially when compared to steel strapping. Due to the high shock reserve in comparison with steel, strapped products are held together tightly.



TYCOON® GREEN PERFORMANCE

With TYCOON® GreenPerformance, you contribute to protecting our environment. On top of that, you benefit from lower costs. Compared to conventional PET strapping, TYCOON® Green Performance achieves a CO₂ reduction of 4,5 kg (9.9 lbs) per coil. For you, this means less waste and thus lower disposal costs.



Advantages of TYCOON® Green Performance

Easier handling

- ✓ lower coil weight
- ✓ easier coil change due to 1-2 Strap technology

Eco-friendliness

- ✓ made of recycled raw material and 100% recyclable
- ✓ greater transport efficiency (less CO₂) thanks to more meters per coil and pallet
- ✓ less waste per meter of strapping

Cost efficiency

- ✓ lower disposal costs due to lower amount of waste
- ✓ optimized utilization of transport and storage space thanks to optimized length of strapping per coil

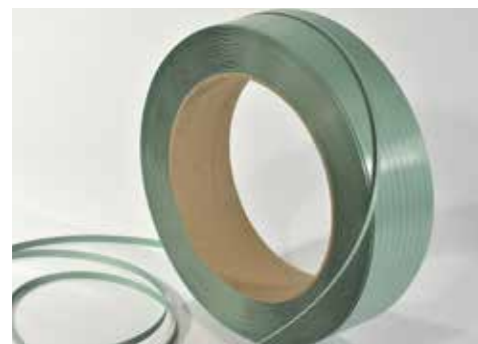
TYCOON® Green Performance strapping comes in the following versions:

Width		Thickness		Core		Breaking strength		Surface
mm	inch	mm	inch	mm	inch	kg	lbs	
12 - 19	1/2" - 3/4"	0,60 - 1,27	0.024 - 0.050"	406 x 148	16 x 6"	260 - 900	573 - 1,984	embossed
				406 x 155	16 x 6"			
				406 x 185	16 x 7,5"			

* other strapping parameters on request

TYCOON® HIGH TENSION

TYCOON® HighTension is suited for applications that require high strapping tension and where there exists an elevated risk of shock splitting (e.g. in the wood and timber industry). Furthermore, it is suited for sharp-edged products encountered, for example, in the metal or building supplies segments. Consequently, it guarantees trouble-free manufacturing processes on fully automatic strapping machines.



Benefits of TYCOON® High Tension:

- ✓ trouble-free strapping for challenging applications
- ✓ compact product packaging through high strapping tension
- ✓ reliable strapping of pallets at constantly high remaining strap tension

TYCOON® High Tension strapping comes in the following dimensions:

Width		Thickness		Core		Breaking strength		Surface
mm	inch	mm	inch	mm	inch	kg	lbs	
8 - 25	1/3" - 1"	0,51 - 1,30	0.020 - 0.050"	406 x 148	16 x 6"	180 - 1.170	397 - 2,579	embossed/smooth
				406 x 155				
				406 x 185	16 x 7,5"			

* other strapping parameters on request



TYCOON® XTEND

In many cases, standard strapping technologies no longer live up to the increasing demands of heavy duty applications in the building supplies, wood&timber, metal, and baling industries. By launching TYCOON® XTend, TEUFELBERGER introduced a type of strapping into the market that offers enhanced functionality and high quality. And all that without compromises when it comes to the safety and stability of your packaging.



Benefits of TYCOON® XTend:

XTended Tenacity

- ✓ increased edge strength
- ✓ free from shock splitting – improved characteristics with regard to shock splitting, even at low ambient temperatures

XTended shock reserve

- ✓ capable of absorbing even extremely high shock loads
- ✓ ideal combination of high breaking strength and 16% elongation

XTended weldability

- ✓ higher weld joint strength, even at low ambient temperatures
- ✓ fewer outliers

TYCOON® XTend – better performance with identical dimensions!

Upgraded manufacturing technology, an improved raw material process, and, most of all, a new formula including a patented additive form the basis for the new generation of TYCOON® XTend strapping products. A leap in performance in our new green.

TYCOON® XTend strapping comes in the following dimensions:

Width		Thickness		Core		Breaking strength		Surface
mm	inch	mm	inch	mm	inch	kg	lbs	
16 - 32	5/8 - 1 1/4"	0,80 - 1,50	0.030 - 0.060"	406 x 148	16 x 6"	500-1.800	1,100 - 4,000	embossed/smooth
				406 x 155				
				406 x 185	16 x 7,5"			
				406 x 250	16 x 10"			
				406 x 300	16 x 12"			

* other strapping parameters on request

TYCOON® XTEND SIGMA



TYCOON® XTend Sigma strapping models are members of our TYCOON® XTend family and offer you all its benefits combined with a smooth surface. What are the advantages of the smooth surface? The strapping runs flawlessly on standard Signode® brand strapping machines and hand tools without requiring any modifications. It is ideal for extremely demanding heavy duty applications in sectors such as building supplies, wood and timber, metals, and baling, and makes no compromises when it comes to the safety and stability of your packaging.

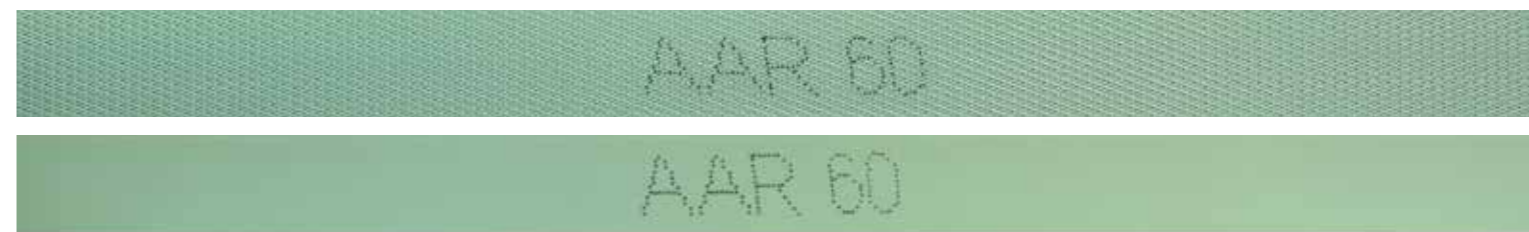
TYCOON® XTend Sigma strapping comes in the following versions:

Width		Thickness		Core		Breaking strength		Surface
mm	inch	mm	inch	mm	inch	kg	lbs	
16 - 32	5/8 - 1 1/4"	0,80 - 1,50	0.030 - 0.060"	406 x 148	16 x 6"	500-1.800	1,100 - 4,000	smooth
				406 x 155				
				406 x 185	16 x 7,5"			
				406 x 250	16 x 10"			
				406 x 300	16 x 12"			

* other strapping parameters on request

AAR CERTIFICATION

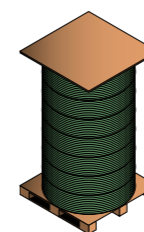
Our TYCOON® XTend PET strapping has been certified and approved by the AAR (Association of American Railroads) for open top rail transport (Open Top Loading Rules). In the NAFTA zone, securing cargo on railroad wagons by means of strapping is permitted only with this special printed strapping with high breaking strength. AAR marking is applied on the strapping by using our HQ Inkjet printing process.



TYCOON® JUMBO MAKE-UP

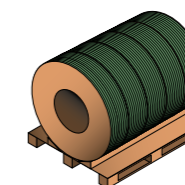
JUMBO - H

70kg/coil



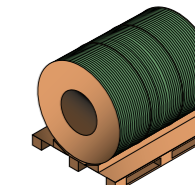
JUMBO - V

70kg/coil



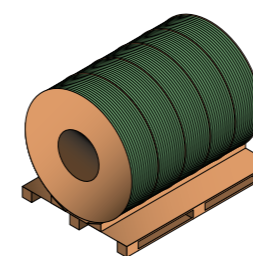
SUPERJumbo - V

110kg/coil



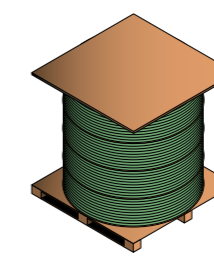
MEGAJumbo - V

150kg/coil



ULTRA Jumbo -H

330kg/coil



TYCOON® SPEED

TYCOON® Speed is our ideal alternative to PP strapping in high speed applications with high throughput. Compared to polypropylene strapping, this polyester strapping facilitates significantly higher remaining strap tension and results in a more cost-effective packaging of a higher quality. For the permanently stable packaging of your products.



Benefits of TYCOON® Speed

Speed

- ✓ up to 40% more meters per coil - fewer coil changes
- ✓ faster coil changes due to 1-2 Strap technology
- ✓ developed for fully automatic high-throughput strapping machines

Greater packaging stability

- ✓ 60% higher remaining strap tension
- ✓ increased UV stability as compared to polypropylene

Quality

- ✓ more stable surface and thus less abrasion
- ✓ cost-effectiveness
- ✓ cost-friendly and higher-quality alternative to polypropylene

TYCOON® Speed strapping comes in the following dimensions:

Width		Thickness		Core		Breaking strength		Surface
mm	inch	mm	inch	mm	inch	kg	lbs	
8 - 12	1/3" - 1/2"	0,36 - 0,60	0.014 - 0.024"	200 x 190	8 x 8"	85 - 200	187 - 485	embossed
				280 x 190	11 x 8"			
				406 x 148	16 x 6"			
				406 x 185	16 x 7.5"			

* other strapping parameters on request



HQ PRINTING SOLUTIONS – MULTIFUNCTIONAL STRAPPING

Using printed strapping from TEUFELBERGER even allows you to brand your goods for transport. This way, you can convey your marketing messages to the general public. Apart from printed brand logos, printed polyester or polypropylene strapping can also feature proof-of-origin information for the foodstuffs industry. Furthermore, it is used as a means to prevent theft while the goods are transported to shops but also in the shops themselves.

Our HQ Printing solution will convince you

- ✓ Your individual message on the strap - customize your own strapping
- ✓ Theft protection - protect your product against counterfeiting and theft
- ✓ Proof of origin - indicate where your products are coming from, and make sure that their quality can be easily identified

In order to best cater to the different needs of customers, we offer you three options for printing information on strapping.



HQ DIGITAL



HQ Digital allows you to print customized designs on your PP or PET strapping in one or several colors. There are virtually no limits to designing the layout. Logos in your company colors (whether in 2, 3, or more colors) and multicolored illustrations, photos, or serial numbers – you name it, we got it. Our printing technology is unparalleled in the market and also constitutes a great way to stand out from your competitors. HQ Digital is particularly suited for small quantities from 24 coils on up in order to convey seasonal advertising messages or information about special offers.

HQ MONO



We developed HQ Mono specifically for medium-sized and large PP quantities, where customers want single-color printing. Thus, our customers not only protect their products (theft protection and proof of origin), but also convey an advertising message.

HQ INKJET



This technology is particularly suited for customers who want to provide large quantities of strapping with simple marks or running numbers. HQ Inkjet technology makes it possible to print black text or numbers onto PET strapping. In this segment, we also offer AAR (Association of American Railways) approved strapping. This polyester strapping was certified and approved by an external organization specifically for open top rail transport in the U.S.

OUR HQ PRINTING SOLUTIONS IN DETAIL




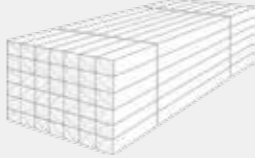

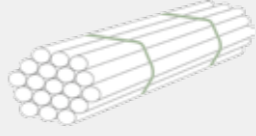


	HQ Inkjet		HQ Mono		HQ Digital	
Material	TYCOON®PET		TEWE®PP		TEWE®PP TYCOON® PET embossed	
Color of strapping	opaque-green		white, black, blue, yellow		white, blue, yellow (PP) opaque-green (PET)	
Printing color(s)	black		single-colored (limited list)		all	
Printing length/repeat	unlimited		385 mm 15.6"		unlimited	
Use of cliché	not necessary		necessary		not necessary	
Dimensions of strapping	9 - 32 mm	3/8" - 1 1/4"	8, 9, 12, 12.7, 15, 16 mm	1/3", 3/8", 1/2", 9/16", 5/8"	8-16 mm	1/3" - 5/8"
Core	406 x 148 mm	16 x 6"	200 x 190 mm 280 x 190 mm 406 x 145 mm	8 x 8" 11 x 8" 16 x 6"	200 x 190 mm 280 x 190 mm 406 x 145 mm	8 x 8" 11 x 8" 16 x 6"
Features						
Text	✓		✓		✓	
Logos			✓		✓	
Illustrations					✓	
Photorealistic images					✓	
Running numbers	✓				✓	

The quick and easy way to your individualized layout

By means of our online tool www.teufelberger-configurator.com you can quickly and easily prepare your individualized layout. This way, you will get a better idea of what the finished product will look like. We'll be happy to design a printing layout for your unique strapping.



TYCOON® AND TEWE® KEEP THE WORLD IN MOTION

	Bales	Building materials	Cans & bottles	Wood & timber	Logistics	Metals	Print	Corrugated board
TYCOON® PET strapping								
TYCOON® Speed		✓		✓	✓		✓	
Tycoon® Green Performance		✓	✓	✓	✓		✓	✓
TYCOON® High Tension	✓	✓	✓	✓	✓	✓		✓
TYCOON® XTend	✓	✓		✓		✓		
TYCOON® XTend Sigma	✓	✓	✓	✓		✓		✓
TYCOON® PP strapping								
TEWE® S-Band, 4-6 mm = (1/6''-1/4'')					✓		✓	✓
TEWE® A-Band, 7-19 mm = (1/4''-3/4'')			✓	✓	✓	✓	✓	✓
TEWE® Special Band		✓	✓		✓		✓	✓

For all standard strapping machines:

TYCOON® PET strapping is suited for use on all standard strapping machines (fully automatic strapping machines and hand strappers) from manufacturers such as Columbia, Fromm, Itatools, Messersi, Orgapack, Strapex, Signode®, CMR, Cyklop, Delonca, Itipack, Mosca, OMS, Reisopack, Sander, SMB, Titan, or Samuel.

TEWE® polypropylene strapping is suited for all standard strapping machines such as those from CMR, Cyklop, Delonca, Endra, Itipack, Messersi, Mosca, OMS, Reisopack, Sander, Signode®, SMB, SOB, Strapack, Strapex, Titan, or Transpak.

TEUFELBERGER GmbH

Vogelweiderstraße 50

4600 Wels, Austria

Phone: +43 (0) 7242 413-0

Fax: +43 (0) 7242 413-169

fibersplastics@teufelberger.com

www.teufelberger.com

