

pewag textile lashing straps and textile lifting slings

Lashing and lifting





Content

pewag textile straps and round slings, professional solutions for securing and elevating loads

With our polyester straps, you can deal with the high demands of load securing and hoisting technology in an economical and efficient way.

The pewag textile program comprises of a series of tested products which make the securing of your cargo easier. Our extra service: competent advice and training for dealers and users provided directly by the manufacturer.

pewag group

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pewag textile lashing straps

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pewag textile lifting slings

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Welcome to the pewag group

We are an internationally operating group of companies. Our track record goes back to the year 1479.

Mission Statement

pewag group's Mission Statement expresses the goals of our actions as follows:

With our joy for innovation, we ensure that all products of the pewag group are the best in the respective markets, both now and in the future. The high quality of our products and services as well as our employees' passionate dedication are the foundation to our pursuit of outstanding services and complete customer satisfaction.

Principles of pewag group

Leading in Quality

The values of our product brands are demonstrated by our first-class quality and innovations and are communicated consistently and coherently.

We anticipate market demands and changes in the environment and adapt our strategies, organizations and actions accordingly to satisfy our customers' needs through providing the best value for the money; timely delivery; efficient and obliging service.

Leading in Responsibility

We commit ourselves to careful treatment of the environment, by reducing the use of energy and raw materials, ensuring the longevity of our products and making them recyclable.

We value an open, honest and team-oriented work-style, which is based on transparent communication honoring ideas, opinions and experience of our employees as valuable inputs for our decision making process.

We strive for stable and fair partnerships with our employees, customers, suppliers and other business partners and take social aspects into consideration when making business decisions.

Leading in Technology

We secure our technological strength by striving for product quality, constant improvements and innovations of products, as well as manufacturing processes.

We are dedicated to keep on top of product technology. This ensures that our customers always have the best solutions available and that we expand and protect our market position.

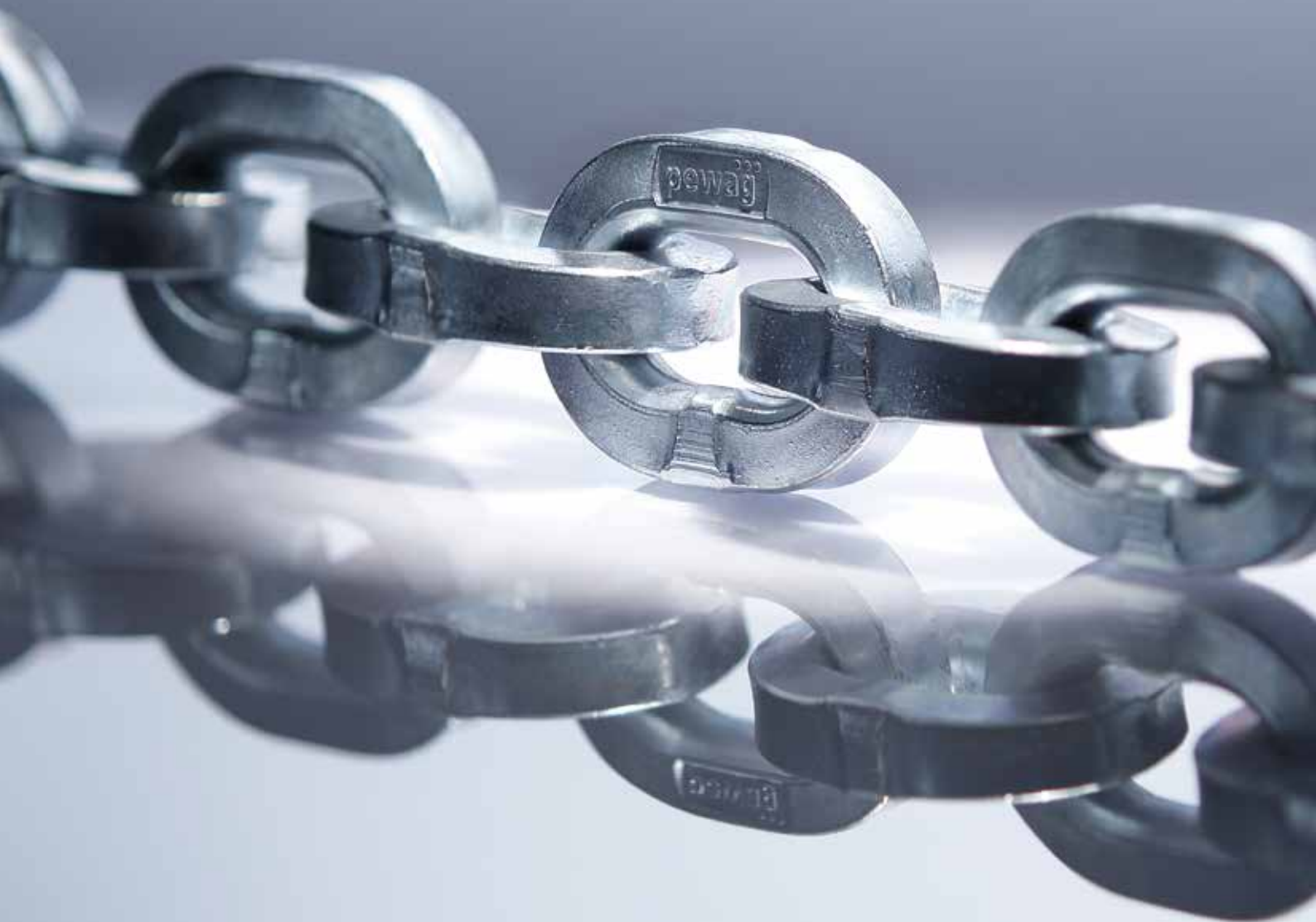
Leading in Economics

In all our processes we use due diligent business practices and efficiency and strive to improve these continuously.

In the long-term, we will continuously increase our economic performance to raise corporate value, achieve sustained growth and thus secure a successful future of the organization.

We are a modern group of companies which looks back to a tradition and experience of more than 500 years. Since our founding years, a lot has changed, but the values that made our success possible from the beginning remain.

**pewag group –
Innovation. Quality. Partnership.**



History of the pewag group

Advantage through tradition

The history of pewag group goes back to the 15th century and therefore makes us the oldest chain manufacturer worldwide. With our experience we are ready for the future.

Timetable of important events

- 1479** First documented references of a forging plant in Brückl
- 1787** Foundation of a chain forge in Kapfenberg
- 1803** Foundation of a chain forge in Graz
- 1836** Establishment of an iron casting plant in Brückl
- 1912** Production of the first pewag snow chain
- 1923** Merger of plants in Graz and Kapfenberg –
Creation of the name “pewag”
- 1972** Foundation of a sales company in Germany
- 1975** Foundation of a sales company in the USA
- 1993** Foundation of pewag austria GmbH
- 1994** Foundation of the first subsidiary in Czech Republic
- 1999** Acquisition of the Weissenfels Group
- 2003** Separation from the Weissenfels Group
- 2005** Reorganization into 2 groups:
Schneeketten Beteiligungs AG Group – Snow Chains
pewag austria GmbH Group – Technical Chains
- 2009** Acquisition of Chaineries Limousines S.A.S.
- 2012** Foundation of the first manufacturing company
in the USA
- 2013** Foundation of various international sales companies



Lithography forging plant Brückl 1855



Anchor chain forge 1878



Chain forgers 1956

Quality management

Our main goal is customer satisfaction.

In this instance, quality means that only those products and services are developed, manufactured and delivered which completely and without compromise satisfy the customer. The pewag group's quality policy, is underlined by the following basic principle: **“we supply high-end products and services to our customers that conform to the technical standards and requirements”**, can be summarised in the subsequent four points.

Market-oriented Quality

In order to maintain and to widen the competitive position of the pewag group, the quality of finished goods and services must be consistent with the specifications of the customer and also with their expectations of one of the leading companies. No product should ever pose a danger to people or the environment.

Economic Quality

As a profit-oriented company, quality is achieved by taking into consideration the material, personnel and financial resources; this means that we establish an appropriate best price/performance ratio for the customer within the acknowledged framework.

Quality Responsibility

Stringent demands are placed on all employees to ensure high standards of quality. No matter what hierarchical level, all managers are in charge of managing quality. Every employee within the pewag group should be educated, motivated and instructed by the management team. It is important for promoting high quality awareness that the education and training of employees is at the forefront, as each employee is responsible for the quality of his/her own work.

For each of our employees, the statement **“QUALITY STARTS WITH ME”** must be true!

Process-oriented Quality

The close interaction between sales, product development, production and customer service is regulated within the individual companies by fixed processes and activities, as well as responsibilities with the aim to reach and maintain the defined quality standards.



Business areas

Working with pewag products

The pewag group has a substantial and diverse spectrum of products and services.

Our range of products varies from traction chains for tires (snow chains for passenger cars, trucks and special-purpose vehicles, tire protection chains for mining vehicles) over different industrial chains to products for the do-it-yourself sector (light chains, belts, etc.)



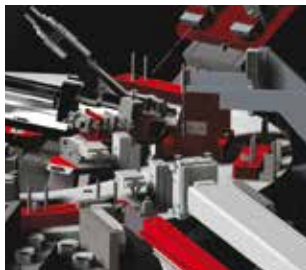
Segment A
Snow and forestry chains



Segment B
Hoist and conveyor chains



Segment C
Do-it-yourself



Segment D
Engineering



Segment F
Lifting and lashing chains and accessories



Segment G
Tire protection chains

Environment – we take responsibility

Ecological awareness in all areas



Our company's manufacturing location in Kapfenberg, Austria, has been used for iron and steel production for over 270 years. A second facility located in Brückl, Austria, was first documented in records dating back to 1479.

Based on this long manufacturing tradition, we take serious responsibility for our products, employees and the environment at all our international locations. Hence, one of our major concerns is to improve energy efficiency and, in doing so, to minimise energy consumption over a long period of time with the development of new production technologies. An important goal is to increase energy efficiency and consequently lower energy demand. Consequently, we develop our products to achieve longer product life-cycles and lower weight but simultaneously, increasing their working load capacities and the safety for our customers. We are committed to upholding all relevant energy and environmental standards by setting clearly defined goals and continually improving our performance. To achieve this goal, we use modern manufacturing technologies. An important step is to provide the necessary resources and to include our employees in the process. We are convinced that well-informed and motivated employees can actively participate in environmental conservation.

Wherever we are unable to avoid an environmental impact, we have set ourselves the goal to continually reduce our energy consumption, waste and environmentally harmful emissions. When purchasing new equipment, we strive to find the best and most efficient technical solution possible. It is important for us to promote the purchase of energy efficient products and services.

Our process-oriented management system regulates the documentation concerning all environmental relevant procedures. It also encompasses preventative measures for possible failures, as well as behavioural instructions for regular and/or extraordinary operational procedures. By systematically monitoring and assessing our environmental activities, we are quickly able to resolve deviances and to take corrective action. This process extends throughout the whole organisation to optimise all business processes. We strive to engage in an open dialogue with our customers, neighbours and authorities to inform them of our energy and environmental engagements.

Through specific communication we want to inform our customers about the environmental aspects of our products – specifically inform them about the longevity of our products. Through meaningful communication, we strive to motivate our suppliers and customers to think – in turn – about their environmental footprint and to put into practice similar environmental standards in their businesses.

Customer proximity

International presence

In the ambitious five-hundred year history pewag has evolved from a small and modest company to a global organization with several subgroups.

With 12 production and 36 sales and other locations on all five continents, pewag documented its claim as one of the world's leading chain manufacturers.

In addition to the numerous locations pewag as an international company relies on his capillary, strong, and professional partner network. These collaborations provide optimal customer service in currently more than 100 countries around the world.

Production and sales locations

Europe

Austria	pewag austria GmbH, Graz pewag austria GmbH, Kapfenberg pewag Schneeketten GmbH & Co KG, Graz pewag Schneeketten GmbH & Co KG, Brückl pewag engineering GmbH, Kapfenberg pewag austria Vertriebsgesellschaft mbH, Graz pewag Ketten GmbH, Klagenfurt pewag International GmbH, Klagenfurt
Germany	pewag Deutschland GmbH, Unna pewag Schneeketten Deutschland GmbH, Unna
France	pewag France SAS, Echirolles/Grenoble Chaineries Limousines SAS, Bellac
Italy	pewag italia srl, Andrian Acciaierie Valcanale srl, Tarvisio
Croatia	pewag d.o.o., Kroatien, Zagreb
The Netherlands	pewag nederland BV, Hillegom APEX International BV, Hillegom APEX Automotive BV, Hillegom
Poland	pewag polska Sp z o.o., Buczkowice
Portugal	pewag Portugal - Comercio de Produtos e Equipamentos Industriais, Lda, Santo Antão do Tojal
Russia	OOO "PEWAG", Moscow
Sweden	pewag sweden AB, Emmaboda
Slovakia	pewag slovakia sro, Nitra
Czech Republic	pewag Czech sro, Vamberk pewag Snow Chains sro, Vamberk pewag sro, Vamberk pewag Czech sro, Trebová KOMAP Dědov sro, Dědov KOMAP Dědov sro, Chrudim

Europe

Ukraine	TOV pewag Ukraine GmbH, Lviv
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North America

USA	pewag Inc, Bolingbrook, Illinois pewag Inc, Rocklin, California pewag Traction Chain Inc, Pueblo, Colorado
Mexico	pewag Mexico SA de CV, Mexico

South America

Brazil	pewag Brasil Comércio de Correntes Ltda., São Paulo
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Africa

South Africa	pewag chain south africa (pty) ltd., Rivonia HVM Engineering (Pty) Ltd, Houghton Johannesburg
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Australia

Australia	pewag australia Pty Limited, Barrack Heights
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Asia

India	pewag India Private Limited, Bangalore
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pewag group presents
itself on the internet. More ...
www.pewag-group.com
www.pewag.com

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Innovation. Quality. Partnership.**



pewag textile lashing straps

Product overview

pewag textile lashing straps

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pewag textile lashing straps

pewag textile lashing strap systems for securing loads are produced according to EN 12195-2. Lashing straps are normally applied as a one-piece lashing strap for strapping or as a two-piece lashing strap composed of a fixed end with tensioning element and end fitting and a loose end with end fitting.

Our extensive range of products ranging from a strap width of 25 to 75 mm and a lashing capacity from 250 to 5,000 daN can be further extended to suit customer's individual needs. Each lashing strap is provided with essential technical data and user information, such like "Do not use for lifting purposes".

Lashing strap labels



Two-piece fixed ends



Two-piece loose ends



One-piece

User information



Load securing

In the last years, load securing has become an important issue within transportation in Europe. Since public institutions have tightened up controls, the enforcement of a correct load securing will become a statutory duty in future. pewag has been for years a competent reference person to suit customer requirements. For detailed information, we offer clients a full consultancy service.

Overview:

Types, length, order text

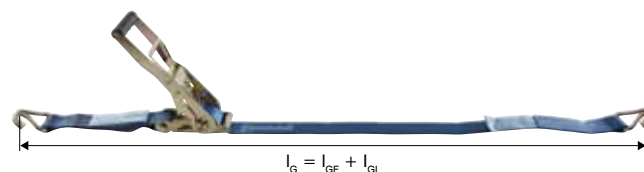
Two-piece lashing strap

One-piece lashing strap



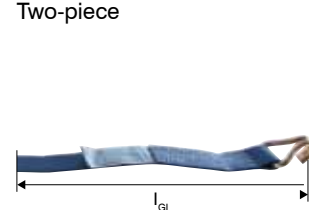
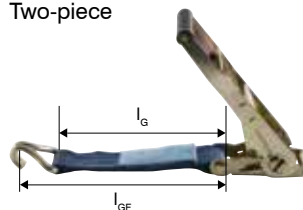
Lengths according to the corresponding standard for one- and two-piece lashing straps

Two-piece lashing strap

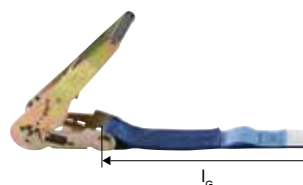


Fixed end to lashing strap
Two-piece

Loose end to lashing strap
Two-piece



One piece lashing strap
(in strapping)



Order text two-piece lashing strap: ZG 200 Z / 8,000 DZHS

Lashing strap system 200, two-piece lashing strap, with ratchet RA 200 and 2 units DZHS 200 as end fittings, strap width 75 mm
Length $l_G = 8,000 \text{ mm}$ ($l_G = l_{GF} + l_{GL}$)

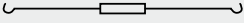
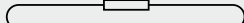
Order text one-part lashing strap: ZG 100 E / 4,000

Lashing strap system 100, one-piece lashing strap, with ratchet RA 100, strap width 50 mm, length $l_G = 4,000 \text{ mm}$

Lashing strap ZG 200

with ratchet RA 200

The high performance system for direct lashing of the heaviest loads covers perfectly the area between common lashing straps and lashing chains, thanks to the 75 mm width and special lengths according to customer's needs.

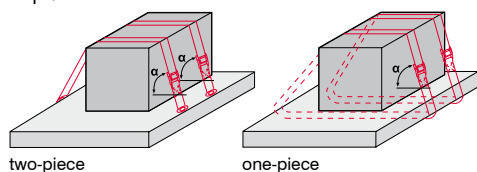
Strap width	75 mm
STF Standard tension force of the ratchet, important to determine the needed lashing strap.	-
LC – two-piece Allowed lashing capacity of the lashing strap, important to determine the needed lashing strap for direct lashing processes.	5,000 daN 
LC – one piece Allowed lashing capacity of the lashing strap, important to determine the needed in strapping.	10,000 daN 

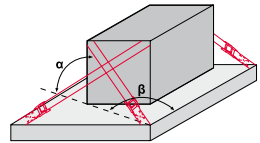


Road transport applications:

Frictional lashing

Lashing strap ZG 200 is not designed for lashing down according to EN 12195. For special applications, please contact our technical service department.



Direct lashing The load can be secured with 4 lashing straps	Angle		Dynamic friction factor						
			0.01	0.1	0.2	0.3	0.4	0.5	0.6
	α [°]	β [°]	The load can be secured with 4 lashing straps [daN ~ kg]						
 two-piece	15-35	21-30				17,600	23,450	32,150	49,550
	15-35	31-40	8,000	9,750	12,350	15,950	21,050	28,950	44,750
	15-35	41-50	6,700	8,300	10,650	13,950	18,100	25,000	38,800
	15-35	51-60	5,250	6,650	8,700	11,200	14,650	20,400	31,900
	36-50	21-30			11,800	15,700	21,550	31,300	50,800
	36-50	31-40	6,300	8,100	10,750	14,400	19,950	29,150	47,600
	36-50	41-50	5,300	6,950	9,400	12,850	17,950	26,500	43,600
	36-50	51-60		5,650	7,900	11,000	15,650	23,250	37,850

Accessories:

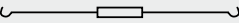
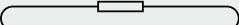


Lashing strap ZG ERGO DZ 100

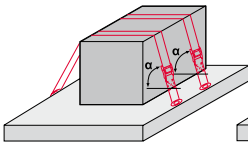
with ratchet RAE 100 DZ

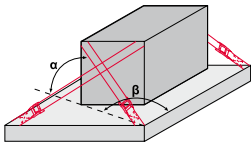
The user friendliest system for the lashing down of heavy loads now allows to be tensioned under pull thanks to the long lever ERGO-ratchet. The use of the maximal tensioning force (STF) reduces the required number of lashing straps and saves time loading. Labels are very durable due to their transparent protective covers.



Strap width	50 mm
STF Standard tension force of the ratchet, important to determine the needed lashing strap.	two-piece: 500 daN one-piece: 1,000 daN
LC – two-piece Allowed lashing capacity of the lashing strap, important to determine the needed strap in direct lashing processes.	2,500 daN 
LC – one-piece strap Allowed lashing capacity of the lashing strap in strapping.	5,000 daN 

Road transport applications:

Frictional lashing The load can be secured with 1 lashing strap		Angle		Dynamic friction factor					
				0.1	0.2	0.3	0.4	0.5	0.6
		α [°]		The load can be secured with 1 lashing strap [daN ~ kg]					
	two-piece	90	100	100	250	450	750	1,250	2,250
	one-piece	85	100	100	240	440	740	1,240	2,240
		80	100	100	240	440	730	1,230	2,210
		70	100	100	230	420	700	1,170	2,110
		60	90	90	210	380	640	1,080	1,940
		50	80	80	190	340	570	950	1,720
		40	60	60	160	280	480	800	1,440
		30	50	50	120	220	370	620	1,120

Direct lashing		Angle		Dynamic friction factor						
The load can be secured with 4 lashing straps				0.01	0.1	0.2	0.3	0.4	0.5	0.6
		α [°]	β [°]	The load can be secured with 4 lashing straps [daN ~ kg]						
 two-piece	15-35	21-30				8,800	11,700	16,050	24,750	
	15-35	31-40	4,000	4,850	6,150	7,950	10,500	14,450	22,350	
	15-35	41-50	3,350	4,150	5,300	6,950	9,050	12,500	19,400	
	15-35	51-60	2,600	3,300	4,350	5,600	7,300	10,200	15,950	
	36-50	21-30			5,900	7,850	10,750	15,650	25,400	
	36-50	31-40	3,150	4,050	5,350	7,200	9,950	14,550	23,800	
	36-50	41-50	2,650	3,450	4,700	6,400	8,950	13,250	21,800	
	36-50	51-60		2,800	3,950	5,500	7,800	11,600	18,900	

Accessories:



DHS 100 Delta link with eye sling hook



RH 100 Double J hook



RHS 100 Double J hook with safety device



D 100 Delta link



T 100 Claw hook



KHG 100 Twisted snap hook



KHF 100 Flat snap hook



FH 100 Flat hook



KSM Edge protector PVC



AS 38 Gummed protective sleeves

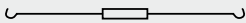



GS 60 Edge wear pads

Lashing strap ZG DOS 100

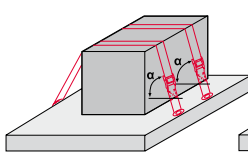
with ratchet RA 100 DOS

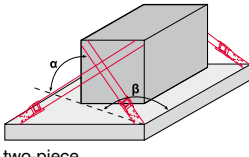
The recommended system for lashing down unstable loads allows a precise, gradual loosening of the pre-stressing force thanks to the special DOS-ratchet and impedes therefore a possible inclination of the load.

Strap width	50 mm
STF Standard tension force of the ratchet, important to determine the needed lashing strap.	two-piece: 350 daN one-piece: 700 daN
LC – two-piece Allowed lashing capacity of the strap; essential to determine the needed strap in direct lashing processes.	2,500 daN 
LC – one-piece Allowed lashing capacity of the lashing strap in strapping.	5,000 daN 



Road transport applications:

Frictional lashing The load can be secured with 1 lashing strap		Angle	Dynamic friction factor					
			0.1	0.2	0.3	0.4	0.5	0.6
		α [°]	The load can be secured with 1 lashing strap [daN ~ kg]					
	two-piece	90	70	170	310	520	870	1,570
	one-piece	85	70	170	310	520	870	1,560
		80	70	170	310	510	860	1,550
		70	70	160	290	490	820	1,480
		60	60	150	270	450	750	1,360
		50	50	130	240	400	670	1,200
		40	40	110	200	330	560	1,010
		30	30	80	150	260	430	780

Direct lashing		Angle		Dynamic friction factor						
The load can be secured with 4 lashing straps				0.01	0.1	0.2	0.3	0.4	0.5	0.6
		α [°]	β [°]	The load can be secured with 4 lashing straps [daN ~ kg]						
 two-piece	15-35	21-30				8,800	11,700	16,050	24,750	
	15-35	31-40	4,000	4,850	6,150	7,950	10,500	14,450	22,350	
	15-35	41-50	3,350	4,150	5,300	6,950	9,050	12,500	19,400	
	15-35	51-60	2,600	3,300	4,350	5,600	7,300	10,200	15,950	
	36-50	21-30			5,900	7,850	10,750	15,650	25,400	
	36-50	31-40	3,150	4,050	5,350	7,200	9,950	14,550	23,800	
	36-50	41-50	2,650	3,450	4,700	6,400	5,950	13,250	21,800	
	36-50	51-60		2,800	3,950	5,500	7,800	11,600	18,900	



Accessories:

					
DHS 100 Delta link with eye sling hook	RH 100 Double J hook	RHS 100 Double J hook with safety device	FPH 100 Single J hook with ratchet fitting	D 100 Delta link	T 100 Claw hook
					
KHG 100 Twisted snap hook	KHF 100 Flat snap hook	FH 100 Flat hook	KSM Edge protector PVC	AS 38 Gummed protective sleeves	GS 60 Edge wear pads

Lashing strap ZG 100

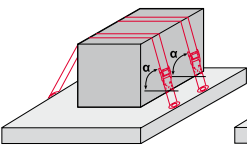
with ratchet RA 100

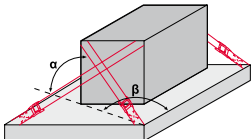
The most versatile system for friction lashing and economical direct lashing of heavy loads offers a high standard tension force (STF) and is the ideal 5-tones-strap for professional applications due to the special lengths and the extensive range of accessories.

Strap width	50 mm
STF Standard tension force of the ratchet; important to determine the needed lashing strap.	two-piece: 350 daN one-piece: 700 daN
LC – two-piece Allowed lashing capacity of the lashing strap; essential to determine the needed strap in direct lashing processes.	2,500 daN 
LC – einteilig Allowed lashing capacity of the lashing strap in strapping.	5,000 daN 



Road transport applications:

Frictional lashing The load can be secured with 1 lashing strap		Angle	Dynamic friction factor					
			0.1	0.2	0.3	0.4	0.5	0.6
		α [°]	The load can be secured with 1 lashing strap [daN ~ kg]					
	two-piece	90	70	170	310	520	870	1,570
	one-piece	85	70	170	310	520	870	1,560
		80	70	170	310	510	860	1,550
		70	70	160	290	490	820	1,480
		60	60	150	270	450	750	1,360
		50	50	130	240	400	670	1,200
		40	40	110	200	330	560	1,010
		30	30	80	150	260	430	780

<div>Direct lashing</div> <div>The load can be secured with 4 lashing straps</div>	Angle		Dynamic friction factor						
			0.01	0.1	0.2	0.3	0.4	0.5	0.6
	α [°]	β [°]	The load can be secured with 4 lashing straps [daN ~ kg]						
 <div>two-piece</div>	15-35	21-30				8,800	11,700	16,050	24,750
	15-35	31-40	4,000	4,850	6,150	7,950	10,500	14,450	22,350
	15-35	41-50	3,350	4,150	5,300	6,950	9,050	12,500	19,400
	15-35	51-60	2,600	3,300	4,350	5,600	7,300	10,200	15,950
	36-50	21-30			5,900	7,850	10,750	15,650	25,400
	36-50	31-40	3,150	4,050	5,350	7,200	9,950	14,550	23,800
	36-50	41-50	2,650	3,450	4,700	6,400	9,950	13,250	21,800
	36-50	51-60		2,800	3,950	5,500	7,800	11,600	18,900
Accessories:	36-50	51-60		2,800	3,950	5,500	7,800	11,600	18,900

Accessories:



DHS 100 Delta link with eye sling hook



RH 100 Double J hook



RHS 100 Double J hook with safety device



FPH 100 Single J hook with ratchet fitting



D 100 Delta link



T 100 Claw hook



KHG 100 Twisted snap hook



KHF 100 Flat snap hook



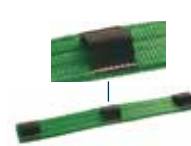
FH 100 Flat hook



KSM Edge protector PVC



AS 38 Gummied protective sleeves

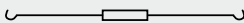
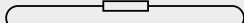


GS 60 Edge wear pads

Lashing strap ZG 80

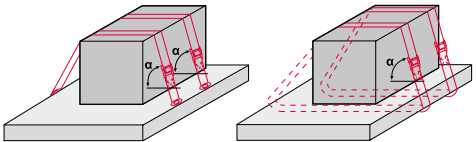
with ratchet RA 100

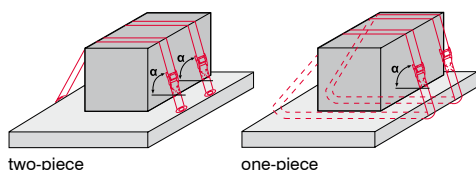
The classic system for lashing down medium heavy loads is the standard 4-tons-strap with double J hooks, ranging from a length of 8 m to 10 m. Available in stock.

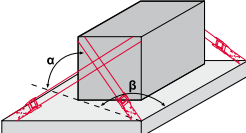
Strap width	50 mm
STF Standard tension force of the ratchet, important to determine the needed lashing strap	two-piece: 360 daN one-piece: 720 daN
LC – two-piece Allowed lashing capacity of the strap; essential to determine the needed strap in direct lashing processes.	2,000 daN 
LC – one-piece strap Allowed lashing capacity of the lashing strap in stripping	4,000 daN 

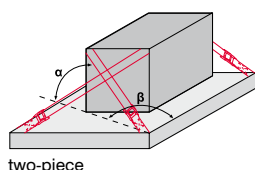


Road transport applications:

Frictional lashing The load can be secured with 1 lashing strap		Angle	Dynamic friction factor					
		0.1	0.2	0.3	0.4	0.5	0.6	
		α [°]	The load can be secured with 1 lashing strap [daN ~ kg]					
 two-piece one-piece		90	70	180	320	540	900	1,620
		85	70	170	320	530	890	1,610
		80	70	170	310	530	880	1,590
		70	70	160	300	500	840	1,520
		60	60	150	280	460	770	1,400
		50	50	130	240	410	680	1,240
		40	40	110	200	340	570	1,040
		30	30	90	160	270	450	800



<div>Direct lashing</div> <div>The load can be secured with 4 lashing straps</div> <div><div>two-piece</div></div>	Angle		Dynamic friction factor						
			0.01	0.1	0.2	0.3	0.4	0.5	0.6
	α [°]	β [°]	The load can be secured with 4 lashing straps [daN ~ kg]						
	15-35	21-30				7,050	9,350	12,850	19,800
	15-35	31-40	3,200	3,900	4,900	6,350	8,400	11,550	17,900
	15-35	41-50	2,650	3,300	4,250	5,550	7,200	10,000	15,500
	15-35	51-60	2,100	2,650	3,450	4,450	5,850	8,150	12,750
	36-50	21-30			4,700	6,250	8,600	12,500	20,300
	36-50	31-40	2,500	3,250	4,300	5,750	7,950	11,650	19,000
	36-50	41-50	2,100	2,750	3,750	5,100	7,150	10,600	17,450
	36-50	51-60		2,250	3,150	4,400	6,250	9,300	15,100



Accessories:





RH 100 Double J hook



Lashing strap ZG 40

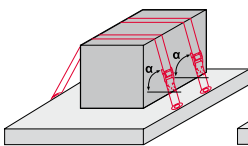
with ratchet RA 40

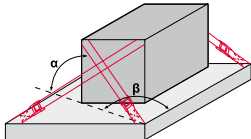
The handy system for lashing down and direct lashing of light loads for commercial purposes and light trailers is characterized by a smaller strap width. Normally used with double J hooks and a length of 6 m.

Strap width	35 mm
STF Standard tension force of the ratchet, important to determine the needed strap.	two-piece: 280 daN one-piece: 560 daN
LC – two-piece Allowed lashing capacity of the strap; essential to determine the needed strap in direct lashing processes.	1,000 daN 
LC – one-piece strap Allowed lashing capacity in strapping.	2,000 daN 



Road transport applications:

Frictional lashing The load can be secured with 1 lashing strap		Angle		Dynamic friction factor					
				0.1	0.2	0.3	0.4	0.5	0.6
		α [°]	The load can be secured with 1 lashing strap [daN ~ kg]						
	two-piece	90	60	140	250	420	700	1,260	
	one-piece	85	50	130	250	410	690	1,250	
		80	50	130	240	410	680	1,240	
		70	50	130	230	390	650	1,180	
		60	50	120	210	360	600	1,090	
		50	40	100	190	320	530	960	
		40	30	80	160	260	440	800	
		30	30	70	120	210	350	630	

Direct lashing		Angle		Dynamic friction factor						
The load can be secured with 4 lashing straps				0.01	0.1	0.2	0.3	0.4	0.5	0.6
		α [°]	β [°]	The load can be secured with 4 lashing straps [daN ~ kg]						
 two-piece	15-35	21-30				3,500	4,650	6,400	9,900	
	15-35	31-40	1,600	1,950	2,450	3,150	4,200	5,750	8,950	
	15-35	41-50	1,300	1,650	2,100	2,750	3,600	5,000	7,750	
	15-35	51-60	1,050	1,300	1,700	2,200	2,900	4,050	6,350	
	36-50	21-30			2,350	3,100	4,300	6,250	10,150	
	36-50	31-40	1,250	1,600	2,150	2,850	3,950	5,800	9,500	
	36-50	41-50	1,050	1,350	1,850	2,550	3,550	5,300	8,700	
	36-50	51-60		1,100	1,550	2,200	3,100	4,650	7,550	

Accessories:



DKR 50 Snap hook with triangular retainer



RH 50 Round hook



D 40 Triangular retainer



AS 25 Gummed protective sleeves

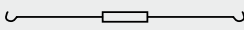
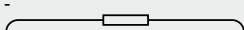


GS 50 Edge wear pads

Lashing strap ZG 20

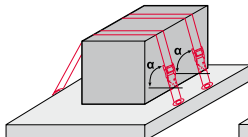
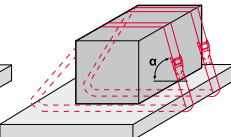
with ratchet RA 20

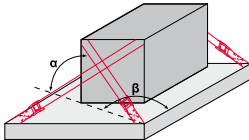
The special system for truck interior lashing of light loads between lashing rails by means of the E truck fitting is thanks to the ratchet also suitable for general applications if equipped with double J hooks.

Strap width	48 mm
STF Standard tension force of the ratchet, important to determine the needed lashing strap.	two-piece: 300 daN one-piece: 600 daN
LC – two-piece Allowed lashing capacity of the strap; essential to determine the needed strap in direct lashing processes.	800 daN 
LC – one-piece Allowed lashing capacity of the strap in strapping.	- 



Road transport applications:

Frictional lashing The load can be secured with 1 lashing strap		Angle	Dynamic friction factor					
			0.1	0.2	0.3	0.4	0.5	0.6
		α [°]	The load can be secured with 1 lashing strap [daN ~ kg]					
 two-piece	 one-piece	90	60	150	270	450	750	1,350
		85	60	140	260	440	740	1,340
		80	60	140	260	440	730	1,320
		70	60	140	250	420	700	1,260
		60	50	120	230	380	640	1,160
		50	40	110	200	340	570	1,030
		40	40	90	170	280	480	860
		30	30	70	130	220	370	670

Direct lashing		Angle		Dynamic friction factor						
The load can be secured with 4 lashing straps				0.01	0.1	0.2	0.3	0.4	0.5	0.6
		α [°]	β [°]	The load can be secured 4 lashing straps [daN ~ kg]						
 two-piece	15-35	21-30				2,800	3,750	5,150	7,900	
	15-35	31-40	1,250	1,550	1,950	2,550	3,350	4,600	7,150	
	15-35	41-50	1,050	1,300	1,700	2,200	2,850	4,000	6,200	
	15-35	51-60	800	1,050	1,350	1,750	2,300	3,250	5,100	
	36-50	21-30			1,850	2,500	3,450	5,000	8,100	
	36-50	31-40	1,000	1,300	1,700	2,300	3,150	4,650	7,600	
	36-50	41-50	850	1,100	1,500	2,050	2,850	4,200	6,950	
	36-50	51-60		900	1,250	1,750	2,500	3,700	6,050	

Accessories:



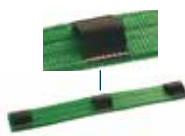
SZ E truck fitting



RH 100 Double J hook



AS 38 Gummed protective sleeves



GS 60 Edge wear pads


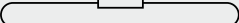


KSM Edge protector metal

Lashing strap ZG 20

with tightener SP 20

The special system with E truck fitting for truck interior lashing of light loads can be fixed between the lashing rails in a very short time thanks to the SP 20 tightener.

Strap width	48 mm
STF Standard tension force of the ratchet, important to determine the needed lashing strap.	-
LC – two-piece Allowed lashing capacity of the strap; essential to determine the needed strap in direct lashing processes.	800 daN 
LC – one-piece strap Allowed lashing capacity of the lashing strap in strapping.	- 



Accessories:



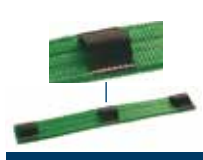
SZ E truck fitting



RH 100 Double J hook



AS 38 Gummed protective sleeves



GS 60 Edge wear pads

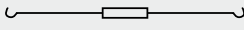
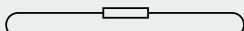


KSM Edge protector metal

Lashing strap ZG 14

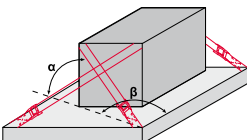
with cam buckle KL 14

The one-piece system with a strong cam buckle is suitable for securing and bundling very light loads in order to form loading units.

Strap width	35 mm
STF Standard tension force of the ratchet, important to determine the needed lashing strap.	-
LC – two-piece Allowed lashing capacity of the strap; essential to determine the needed strap in direct lashing processes.	- 
LC – one-piece Allowed lashing capacity of the strap in strapping.	700 daN 



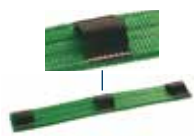
Road transport applications:

<div>Direct lashing</div> <div>The load can be secured with 4 lashing straps</div> <div></div> <div>one-piece</div>	Angle		Dynamic friction factor						
			0.01	0.1	0.2	0.3	0.4	0.5	0.6
	α [°]	β [°]	The load can be secured 4 lashing straps [daN ~ kg]						
	15-35	21-30				2,450	3,250	4,500	6,900
	15-35	31-40	1,100	1,350	1,700	2,200	2,950	4,050	6,250
	15-35	41-50	900	1,150	1,450	1,950	2,500	3,500	5,400
	15-35	51-60	700	900	1,200	1,550	2,050	2,850	4,450
	36-50	21-30			1,650	2,200	3,000	4,350	7,100
	36-50	31-40	850	1,100	1,500	2,000	2,750	4,050	6,650
	36-50	41-50	700	950	1,300	1,800	2,500	3,700	6,100
	36-50	51-60		750	1,100	1,500	2,150	3,250	5,300

Accessories:



AS 25 Gummed protective sleeves


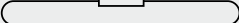


GS 50 Edge wear pads

Lashing strap ZG 10

with ratchet RA 10

Our space-saving lashing strap system is ideal for direct lashing of very light loads in cars and on roof racks providing also for private purposes safe transportation according to regulations. Available with double J hook and a length of 4 m or as one-piece lashing strap with a length of 5 m.

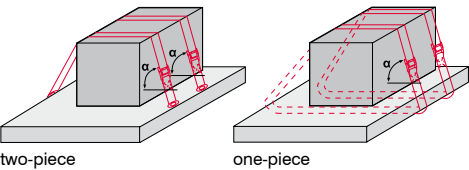
Strap width	25 mm
STF Standard tension force of the ratchet, important to determine the needed lashing strap.	-
LC – two-piece Allowed lashing capacity of the lashing strap, important to determine the needed lashing strap for direct lashing processes.	250 daN 
LC – one piece Allowed lashing capacity of the lashing strap in strapping.	500 daN 

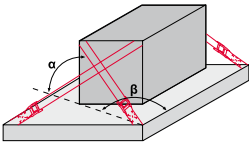


Road transport applications:

Frictional lashing

Lashing trap ZG 10 is not designed for lashing down according to EN 12195. For special applications, please refer to our technical service department.



Direct lashing The load can be secured with 4 lashing straps	Angle		Dynamic friction factor						
			0.01	0.1	0.2	0.3	0.4	0.5	0.6
	α [°]	β [°]	The load can be secured with 4 lashing straps [daN ~ kg]						
 two-piece	15-35	21-30				850	1,150	1,600	2,450
	15-35	31-40	400	450	600	750	1,050	1,400	2,200
	15-35	41-50	300	400	500	650	900	1,250	1,900
	15-35	51-60	250	300	400	550	700	1,000	1,550
	36-50	21-30			550	750	1,050	1,550	2,500
	36-50	31-40	300	400	500	700	950	1,450	2,350
	36-50	41-50	250	300	450	600	850	1,300	2,150
	36-50	51-60		250	350	550	750	1,150	1,850

Accessories:



RH 100 Double J hook

D 10 Delta link

AS 25 Gummed protective sleeves

Lashing strap ZG 5

with cam buckle KL 5

Our smallest lashing system according to load securing standards is ideal for securing and bundling very light loads in cars and for luggage lashing, available as a one-piece lashing strap with cam buckle and a length of 5 m.

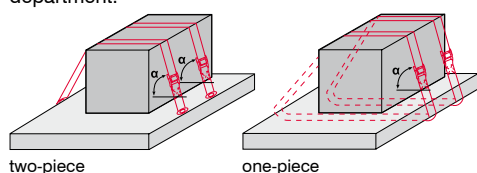
Strap width	25 mm
STF Standard tension force of the ratchet, important to determine the needed lashing strap.	-
LC – zweiteilig Allowed lashing capacity of the lashing strap, important to determine the needed lashing strap for direct lashing processes.	-
LC – einteilig Allowed lashing capacity of the lashing strap in strapping.	250 daN



Road transport applications:

Frictional lashing

Lashing trap ZG 10 is not designed for lashing down according to EN 12195. For special applications, please refer to our technical service department.



Direct lashing The load can be secured with 4 lashing straps two-piece	Angle		Dynamic friction factor						
	α [°]	β [°]	0.01	0.1	0.2	0.3	0.4	0.5	0.6
			The load can be secured with 4 lashing straps [daN ~ kg]						
 zweiteilig	15-35	21-30				850	1,150	1,600	2,450
	15-35	31-40	400	450	600	750	1,050	1,400	2,200
	15-35	41-50	300	400	500	650	900	1,250	1,900
	15-35	51-60	250	300	400	550	700	1,000	1,550
	36-50	21-30			550	750	1,050	1,550	2,500
	36-50	31-40	300	400	500	700	950	1,450	2,350
	36-50	41-50	250	300	450	600	850	1,300	2,150
	36-50	51-60		250	350	550	750	1,150	1,850

Accessories:



AS 25 Gummed protective sleeves

pewag textile lifting slings

Product overview

pewag textile lifting slings

Information about pewag textile lifting means, round slings, webbing slings	26
Round slings	27
Webbing slings	28-30
Accessories	31-33
Webbing sling and round sling assemblies	34
Special articles from the pewag tex range	35





pewag textile lifting slings

pewag textile lifting slings for overhead lifting of loads are produced in conformance with the European Standards EN 1492-1 and EN 1492-2, as well as with the Machinery Safety Regulations 2010 (MSV) and the Machinery Directive 2006/42/CE. pewag textile lifting slings are made from high tensile polyester (PES), recognizable by the blue label. PES is suitable to be used and stored with temperatures ranging from -40° to +100°C and has no expiry date according to the law. Our wide range of round slings and webbing slings with working load limits ranging from 1,000 to 8,000 kg can be extended to suit special needs. Technical data and user information can be found on each sling; more detailed information is also provided by the user manual at the end of this catalog.

pewag textile round slings

pewag textile round slings are made from 100 % polyester (PES) and are ideal for heavyweight applications because of their lightness, flexibility and load friendliness. The test

in accordance with the EN 1492-2 and Machinery Safety Regulations 2010 (MSV), the colour coding and working load limit lines ensure the user friendliness and safeness of our webbing slings. The wide range of round slings goes up to working load limits of 100 tons. Consecutive numbered labels facilitate the documentation, e.g. for regular inspections.

pewag textile webbing slings

pewag textile webbing slings are made from 100 % polyester (PES) and produced in 3 different designs. The test in accordance with the EN 1492-2 and Machinery Safety Regulations 2010 (MSV), the colour coding and working load limit strips ensure the user friendliness and safeness of our webbing slings. The wide range of webbing slings comprising webbing slings with reinforced eyes, endless webbing slings and webbing slings with metal end fittings can be complemented with special webbing sling types and accessories to meet customer's requirements.




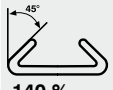
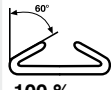
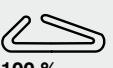


Round slings

according to EN 1492-2 and the Machinery Safety Regulations (MSV).



Working load limit table (kg) according to the type of sling:

Type	Colour coding	Endless sling  100 %	Choke hitch  80 %	 200 %	 140 %	 100 %	Asymmetrie  100 %	Stock length / effective working length [m]	Weight per circumferential length approx. [kg/m]
RS 1	purple	1,000	800	2,000	1,400	1,000	1,000	0.5 / 1 / 1.5 / 2 / 2.5 / 3 / 4 / 6	0.20
RS 2	green	2,000	1,600	4,000	2,800	2,000	2,000	0.5 / 1 / 1.5 / 2 / 2.5 / 3 / 4 / 5 / 6	0.25
RS 3	yellow	3,000	2,400	6,000	4,200	3,000	3,000	1 / 1.5 / 2 / 2.5 / 3 / 4 / 5 / 6	0.35
RS 4	gray	4,000	3,200	8,000	5,600	4,000	4,000	1 / 1.5 / 2 / 2.5 / 3 / 4 / 5 / 6	0.60
RS 6	brown	6,000	4,800	12,000	8,400	6,000	6,000	1 / 1.5 / 2 / 2.5 / 3 / 4 / 5 / 6	0.84
RS 8	blue	8,000	6,400	16,000	11,200	8,000	8,000	1 / 1.5 / 2 / 2.5 / 3 / 4 / 5 / 6 / 8 / 10	1.05
RS 10	orange	10,000	8,000	20,000	14,000	10,000	10,000	2 / 3 / 4 / 5 / 6	1.40
RS 12	orange	12,000	9,600	24,000	16,800	12,000	12,000	available in all effective working lengths up to 15 m	1.85
RS 15	orange	15,000	12,000	30,000	21,000	15,000	15,000	available in all effective working lengths up to 15 m	2.10
RS 20	orange	20,000	16,000	40,000	28,000	20,000	20,000	available in all effective working lengths up to 15 m	2.80
RS 25	orange	25,000	20,000	50,000	35,000	25,000	25,000	available in all effective working lengths up to 15 m	3.75

Available up to 100 tons

Order example:

Polyester round sling type RS 1 with an effective working length (L1) of 3,000 mm (circumferential length = 6,000 mm), according to EN 1492-2, working load limit in endless slings 1,000 kg.

Order text:

Round sling RS 1 x 3,000

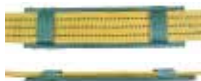
Accessories:



AS Protective sleeve



LS Leather protective sleeve



GS Edge wear pad





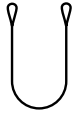


Edge protection angles made from Polyurethan

Webbing sling type B2

With reinforced eyes, manufactured according to the European standard EN 1492-1 and the Machinery Safety Regulations (MSV).



Working load limit table (kg) according to the type of sling:

Webbing width	Colour coding				45° 	60° 
[mm]		100 %	80 %	200 %	140 %	100 %
30	purple	1,000	800	2,000	1,400	1,000
60	green	2,000	1,600	4,000	2,800	2,000
90	yellow	3,000	2,400	6,000	4,200	3,000
120	gray	4,000	3,200	8,000	5,600	4,000
150	red	5,000	4,000	10,000	7,000	5,000
180	brown	6,000	4,800	12,000	8,400	6,000
240	blue	8,000	6,400	16,000	11,200	8,000

On request we provide webbing slings with higher working load limits (four-layer)

Order example:

Webbing sling according to EN1492-1 Form B2, two-layer webbing slings with reinforced eyes, webbing width 90 mm, effective working length L1 = 2,000 mm, made from polyester PES, working load limit for straight and direct lifting 3,000 kg

Order text:

Webbing sling B2 90 x 2,000 / 3,000

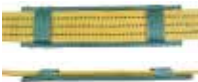
Accessories:



AS Protective sleeve



LS Leather protective sleeve



GS Edge wear pad



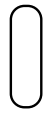


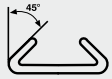
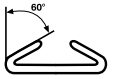
Edge protection angles made from Polyurethan

Webbing sling type A2

Endless webbing sling, according to EN 1492-1 and the Machinery Safety Regulations (MSV).



Working load limit table (kg) according to the type of sling:

Width	Colour coding				45° 	60° 
[mm]		100 %	80 %	200 %	140 %	100 %
30	purple	1,000	800	2,000	1,400	1,000
60	green	2,000	1,600	4,000	2,800	2,000
90	yellow	3,000	2,400	6,000	4,200	3,000
120	gray	4,000	3,200	8,000	5,600	4,000
150	red	5,000	4,000	10,000	7,000	5,000
180	brown	6,000	4,800	12,000	8,400	6,000
240	blue	8,000	6,400	16,000	11,200	8,000

Order example:

Endless webbing sling according to EN1492-1 type A2, one-layer webbing sling, width 150 mm, effective working length 3,000 (circumferential length L1 = 6,000 mm), made from polyester PES, working load limit in endless slings 5,000 kg.

Order text:

Webbing sling A2 150 x 3,000 / 5,000

Accessories:



AS Protective sleeve



LS Leather protective sleeve



GS Edge wear pad








Edge protection angles made from Polyurethan

Webbing sling type Cr2

According to EN 1492-1 and the Machinery Safety Regulations (MSV).



Working load limit table (kg) according to the type of sling:

Width	Colour coding	End fittings				45° 	60° 
[mm]			100 %	80 %	200 %	140 %	100 %
30	purple	ED 40	1,000	800	2,000	1,400	1,000
60	green	ED 75, EZD 60	2,000	1,600	4,000	2,800	2,000
90	yellow	ED 105, EZD 100	3,000	2,400	6,000	4,200	3,000
120	gray	ED 135, EZD 120	4,000	3,200	8,000	5,600	4,000
150	red	ED 165, EZD 150	5,000	4,000	10,000	7,000	5,000
180	brown	ED 195	6,000	4,800	12,000	8,400	6,000
240	blue	ED 265	8,000	6,400	16,000	11,200	8,000


Order example:

Endless webbing sling according to EN1492-1 type Cr2, two-layer webbing sling, width 90 mm, effective working length 4,000, made from polyester PES, WLL for straight and direct lifting 3,000 kg with high strength fittings EZD 100 on both sides.


Order text:

Webbing sling Cr2 90 x 4,000 / 3,000 EZD-EZD


Accessories:




ED high strength fitting




EZD high strength fitting




AS Protective sleeve



LS Leather protective sleeve



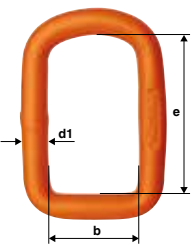
GS Edge wear pad

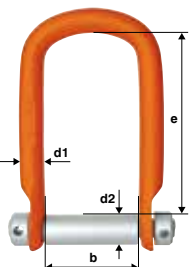


Edge protection angles made from Polyurethan

ED and EZD High strength fittings

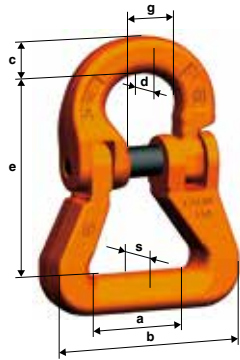
- Made from age-resistant, high-strength material; may be sent back for inspections and reuse to pewag
- Easy assembly and disassembly of the demountable fitting EZD, low wear of end fittings thanks to rotatable steel bolt
- Powder coating for protection against corrosion
- Can also be used in a choke hitch

ED High strength fitting	Type	Suitable for sling width	e [mm]	b [mm]	d ₁ [mm]	Working load limit [kg]	Weight [kg/pc.]
	ED 40	30	80	40	13	1,000	0.30
	ED 75	60	125	75	16	2,500	0.70
	ED 105	90	165	105	20	3,000	1.50
	ED 135	120	210	135	23	4,000	2.50
	ED 165	150	245	165	26	5,000	3.80
	ED 195	180	300	195	30	6,000	6.10
	ED 265	240	395	265	36	8,000	11.70

EZD High strength fitting	Type	Suitable for sling width	e [mm]	b [mm]	d ₁ [mm]	d ₂ [mm]	Working load limit [kg]	Weight [kg/pc.]
	EZD 60	60	110	60	16	20	2,000	0.70
	EZD 100	90	165	100	23	25	3,000	2.00
	EZD 120	120	185	120	23	25	4,000	2.50
	EZD 150	150	235	150	23	35	5,000	3.20


CARW Round sling connecting link

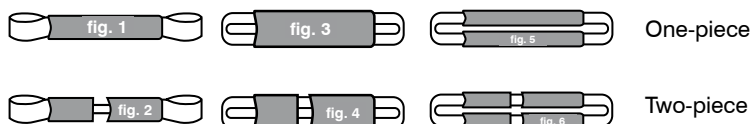
- For easy assembly of multi-leg webbing slings / round slings
- Thanks to wide surface suitable for round slings / webbing slings, no need of reducing the working load limit
- Supplied with Connex halves, bolt and safety bush

CARW Round sling connecting link	Code	for Webbing sling / Round sling	Working load limit [kg]	a [mm]	e [mm]	c [mm]	d [mm]	b [mm]	s [mm]	g [mm]	Weight [kg/pc.]
	CARW 8	30/60 // 1 / 2	2,500	29	66	12	10	65	18	18	0.40
	CARW 10	90/120 // 3 / 4	4,000	40	81	15	13	82	21	24	0.55
	CARW 13	150 // 6	6,700	50	104	20	17	100	28	28	1.20
	CARW 16	180 // 8	10,000	47	113	21	21	110	40	33	2.00
	CARW 22	240 // 10 / 12 / 15	19,000	109	178	29	27	215	59	48	6.50

AS Gummed protective sleeve


- Gummed, ideal for rough surfaces
- For sharp edges, we recommend to use an edge protector or a edge wear pad GS
- The standard design can be moved along the sling, that is not sewed on the material of the sling. On request also available sewed on the material of the sling

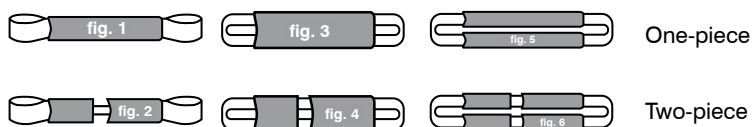
	Protective sleeve	Webbing slings B2 / Cr2 with EZD fig. 1 + 2	Round slings fig. 3 + 4	Round slings Webbing slings A fig. 5 + 6
AS Protective sleeve				
	AS 38	30	RS 1	RS 1 / RS 2 / HB 30
	AS 52	60	RS 2 / RS 3	RS 3 / RS 4 / HB 60
	AS 65	-	RS 4 / RS 6	RS 6 / RS 8
	AS 75	90	RS 8	HB 90
	AS 102	120	RS 10 / RS 12	RS 10 / RS 12 / HB 120
	AS 110	150	RS 15 / RS 20	RS 15 / RS 20 / HB 150
	AS 125	180	RS 25	RS 25 / HB 180



LS Leather protective sleeve


- Detachable and reusable
- Standard length = 500 mm
- Special lengths and widths upon request

	Protective sleeve	Webbing slings A2 / B2 / Cr2 fig. 1 + 2	Round slings fig. 3 + 4	Round slings fig. 5 + 6
LS Leather protective sleeve				
	LS 90	30	-	-
	LS 110	-	RS 1	RS 1 / RS 2
	LS 130	-	RS 2	RS 3 / RS 4
	LS 150	60	RS 3 / RS 4	RS 6 / RS 8
	LS 210	90	RS 6	-
	LS 250	-	-	RS 10 / RS 12
	LS 270	120	RS 8	-
	LS 330	150	RS 10	RS 15 / RS 20
	LS 400	180	RS 12	-
	LS 500	240	RS 15 / RS 20	-



GS Edge wear pad

- Three-layer, therefore very effective
- Please specify on the order text if the edge wear pad will be used for webbing slings or round slings
- Length 500 mm, special lengths and special widths on upon request

GS Edge wear pad	Type	Webbing slings	Round slings
	GS 50	30	-
	GS 90	60	RS 1
	GS 120	90	RS 2 / RS 3
	GS 150	120	RS 4 / RS 6
	GS 180	150	RS 8
	GS 240	180	RS 10

Edge corners made from polyurethane (PU)

- For webbing slings and round slings
- Available with or without magnet
- Different designs and delivery time upon request



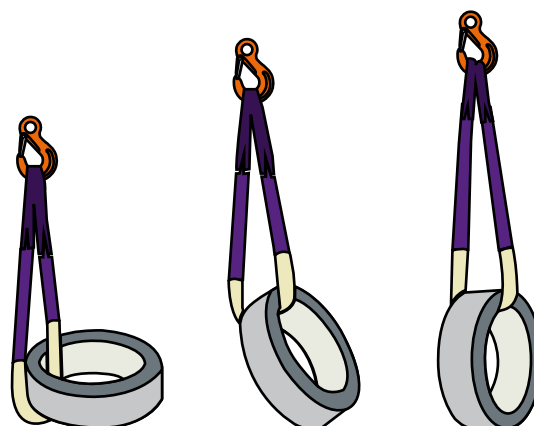
Polyurethane coating


- We recommend polyurethane-coated lifting slings for extremely tough applications
- Coating on one or both sides
- A range of special versions is available upon request



Edge protection profile sleeve

- Excellent protection against wear and tear for textile lifting accessories and lashing straps
- Good resistance even with sharp edges and rough load surfaces
- Standard version may be used on two sides; other special versions are available upon request

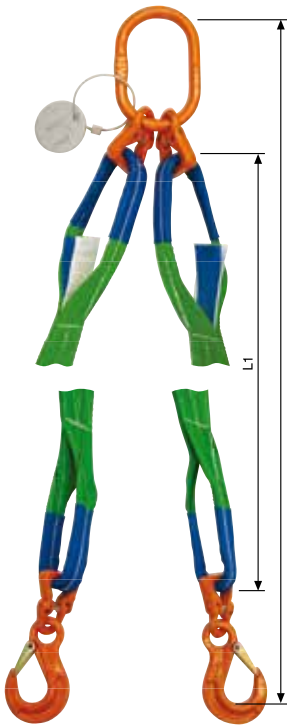


Edge protection profile sleeve	Code	for lifting sling	for round sling
	KS-PU Edge protection sleeve 60 / 1 T	60 mm	1 t
	KS-PU Edge protection sleeve 90 / 3 T	90 mm	3 t
	KS-PU Edge protection sleeve 120 / 4 T	120 mm	4 t
	KS-PU Edge protection sleeve 150 / 6 T	150 mm	6 t

Webbing and round sling assemblies

Standard design according to EN 1492-1

Thanks to coupling system renewable –
easy assembly by competent personnel.

Webbing and round sling assemblies	Type	Working load limit	Webbing sling B2 Width	Round sling RS Tons	Master link Diam.	Round sling connecting sling CARW Diam.	Eye sling hook HSW Diam.	Total length Accessories
		[kg]						[mm]
	1-leg	1,000	30	1	MW 10	8	5-6	310
	1-leg	2,000	60	2	MW 13	8	7-8	360
	1-leg	3,000	90	3	MW 16	10	10	430
	1-leg	4,000	120	4	MW 18	10	10	450
	1-leg	6,000	x	6	MW 22	13	13	550
	1-leg	8,000	x	8	AW 26	16	16	720
	1-leg	10,000	x	10	AW 26	22	16	590
	Angle of inclination β to 45° / to 60°							
	2-leg	1,400 / 1,000	30	1	MW 10	8	5-6	310
	2-leg	2,800 / 2,000	60	2	MW 16	8	7-8	380
	2-leg	4,200 / 3,000	90	3	MW 18	10	10	450
	2-leg	5,600 / 4,000	120	4	MW 22	10	10	450
	2-leg	8,400 / 6,000	x	6	AW 26	13	13	570
	2-leg	11,200 / 8,000	x	8	AW 32	16	16	740
	2-leg	14,000 / 10,000	x	10	AW 32	22	16	610
	Angle of inclination β to 45° / to 60°							
	3+4-leg	2,100 / 1,500	30	1	VMW 6	8	5-6	430
	3+4-leg	4,200 / 3,000	60	2	VMW 6	8	7-8	450
	3+4-leg	6,300 / 4,500	90	3	VW 7-8	10	10	520
	3+4-leg	8,400 / 6,000	120	4	VW 10	10	10	560
	3+4-leg	12,600 / 9,000	x	6	VW 13	13	13	710
	3+4-leg	16,800 / 12,000	x	8	VW 16	16	16	940
	3+4-leg	21,000 / 15,000	x	10	VW 16	22	16	810

The dimensions of the hooks and other accessories can be found in the pewag winner catalog.

Advantages:

- Handy combination of load fiendly round slings / webbing straps and high strength accessories
- Fast assembly thanks to coupling parts
- Optional: round sling legs and webbing slings legs with protective sleeves

Round sling assemblies:

Total length: L = standard stock length RS + accessories according to the table

Webbing sling assemblies:

Total length: L = webbing sling length L1 + accessories according to the table, available in all lengths

Order example:

Standard webbing sling assembly, 4-leg, working load limit: 4,200 kg, webbing sling length: 2.5 m

Order text:

HB 60 IV VMW-HSW 2,500 (webbing sling length)

Order example:

Standard round sling assembly, 2-leg, working load limit: 2,800 kg, round sling length: 2.5 m

Order text:

RS 2 II M8W-HSW 2,500 (round sling length)

Special assemblies and lengths upon request.

Special articles from the pewag tex range

To complete our extensive range, we also offer additional quality products upon request. Ask our customer service team for customised solutions!

Single-use lifting sling made of polyester PES

For lifting operations as part of the once-only transportation of goods, from production to the final customer. Single-use lifting slings must not be reused and should be destroyed at the end of the transport chain. Depending on the model, the single-use lifting slings offer a 7-fold safety factor according to ÖNORM EN 1492-1 or a 5-fold safety factor according to DIN 60005 (orange labels).



Round sling pewag PRO

Round sling made from polyester, manufactured according to EN 1492-2 but with an extremely robust protective sleeve. Significantly longer lifespan due to excellent resistance to wear and tear and abrasion.



Lashing winch with lashing strap

Incl. crank. To secure loads according to EN 12195, especially long timber. Tensioning rod and ratchet are available upon request.



Lashing strap with tension force indicator

With ergo ratchet in an extra-robust design, gradual release mechanism and integrated tension force indicator.



Extras for standard lashing straps to ensure a longer lifespan

Protective sleeve for labels add-on
Label stitched on to the strap flat



User manual

Product overview

User manual

User manual for pewag textile lashing straps	38-39
Explanation of pewag tables	40-41
Dynamic friction factors	41-42
User manual for pewag textile webbing slings and round slings made from polyester	42-43





pewag

08.2010/HL5214
Nr.10/BE0071656
POLYESTER/EN12196-2

Stp = 2800 daN
S_{MF} = 50 daN
C = 1000 daN
C = 2000 daN

DARF NICHT ZUM HEBEN
VERWENDET WERDEN
letzte Prüfung
11121314

User manual

This user manual provides information about the use, storage, inspection and maintenance of pewag textile lashing straps.

General information

pewag textile lashing straps are designed for securing the load during its transport. If properly used, pewag textile lashing straps have a long service life and offer a high degree of safety. Nevertheless, personal injury and material damage can only be prevented by proper use. It is therefore of vital importance to read and understand this manual before the product is put into service. However, this does not exclude a responsible and attentive use of textile lashing straps when securing the load. Although pewag offers the necessary help means for the correct selection and application of lashing straps, adequate professional knowledge is required. pewag textile lashing straps must therefore only be used by competent personnel.

Modification of the original condition

A modification of the original condition of this product is not permitted – e.g. by bending, grinding, dividing parts, boring, etc. Moreover, they must not be subjected to temperature influences above 100°C.

For safety reasons, it is not permitted to remove safety devices like triggers, safety pins, safety catches, safety bushes, etc. Surface coating procedures like hot dip galvanizing or electrogalvanizing are not permitted. Stripping and pickling are also dangerous processes and must not be carried out without the approval of pewag. In case of doubt, please contact our technical service department.

Storage

pewag textile lashing straps must be stored clean, dry and protected from corrosion.

Inspections

Before the first use, following criteria must be satisfied:

- the delivered lashing strap corresponds to the ordered product
- the information given by the marking and the lashing capacity on the label coincide with the designated application
- the lashing strap is provided with the corresponding file
- this operating manual is available and was read and understood by the user

Lashing straps must be checked before each use for visible signs of damage or wear. In the case of doubt or damage, they must be taken out of service and inspected by a competent person.

An inspection according to national regulations must be carried out at least once a year by a competent person. However, this period must be shortened in view of the conditions of use – e.g. in case of frequent or rough use.

After extraordinary events (e.g. uncontrolled temperature influence, emergency braking, etc.) which could affect the safe working condition, the lashing strap must be inspected by a qualified person.

Withdrawal criteria for the visual inspection

The lashing strap must be taken out of service if one or more of the following criteria are met:

- Broken parts or broken fibres / seams
- Missing or illegible marking on the label
- Deformation of accessories
- Lashing straps must be discarded if wear has reached 10 % of the cross section
- Cuts, nicks, gouges, cracks, excessive corrosion, coating-burn off, signs of welding processes
- If the ratches, cam buckles or tighteners are not working correctly
- Lashing straps with knots
- If the safety catch is missing or not working correctly, as well as signs of enlarged throat opening of the hooks or other deformations. The enlargement of the hook opening must not exceed 10 % of the nominal size

Repair

Lashing straps must not be repaired.

Documentation

Records of inspections, especially the corresponding results, must be retained during the entire service life of the lashing strap.



Use of lashing straps

Limitations on use due to adverse environmental influences or hazardous conditions.

Edge load

The maximum lashing capacity of pewag textile lashing straps was defined under the assumption that the tension force is set in straight pull, i.e. redirected free of bending influences (edges). In case of edge load, edge protectors or intermediate layers must be used to prevent damages. Edge load appears if the edge radius is smaller than the strap thickness.

Impacts

Edge load lashing strap	Reduction factor
$R = \text{bigger than strap thickness}$ 	1
$R = \text{smaller than strap thickness}$ 	not allowed

If the lashing process is carried out according to the European Standard EN 12195-1, occasional impact loads do not need to be considered since they will be balanced out by the shock absorber system of the vehicle and the elasticity of the lashing strap.

Temperature influence

pewag lashing straps may not be used outside the temperature range -40°C up to +100°C. If this has nevertheless been the case, they must be immediately taken out of service.

Influence of acids / alkalis and chemicals

Do not subject pewag lashing straps to acids, alkalis or their vapors.

Hazardous conditions

The categorization of the maximum lashing capacity assumes the absence of extremely dangerous conditions. Such extremely dangerous conditions include securing potentially dangerous loads, such as liquid metals, caustic or nuclear material. In these cases, the extent of the risks and the correct lashing capacity are to be assessed by competent personnel.

Use of pewag textile lashing straps for other than the intended purposes

pewag textile lashing straps must only be used for lashing purposes. For other than the intended purposes, please contact our technical service. Do not use lashing straps for lifting purposes.

General information:

Lashing points

Choose lashing points so that the angles of the lashing straps are within the range given in our help tables and symmetrical to the driving direction. Only use lashing points with adequate strength. Any other applications are only permitted with prior approval of our technical service department.

Selection

The lashing strap must be selected according to the required lashing method and the load that needs to be secured. The size, form and weight of the load, as well as the intended lashing method (friction lashing, direct lashing...) and transport environment (additional utilities, lashing points...) are essential to enable the proper selection of the lashing strap. For friction lashing, please use only those lashing straps where a STF value is given on the label.

We recommend using direct lashing for securing heavy loads in order to use as few as possible lashing straps.

The number of lashing straps must be calculated according to EN 12195-1. In accordance with this standard, pewag has integrated commonly used lashing methods in the selection tables of this catalog. Please find more detailed information below.

For stability reasons, use at least two lashing straps for friction lashing and at least two pairs for direct lashing.

The chosen lashing strap must be strong and long enough for the intended purpose. In case of doubt, opt for safety rather than for overloading the lashing strap. The connecting parts of the lashing strap (hooks, links) must be free to move in the lashing point and be aligned in the pull direction. Bending stress on the accessories and tip loading of the hooks is not permitted.

Hooks must be loaded at their bearing point. Please use

either lashing chain systems or lashing straps for securing the load because of their different performance and elongation under load (e.g. lashing chains and lashing straps made from synthetic fibre). If required, please contact our technical service department.

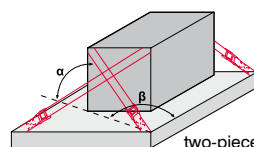
Use

For correct lashing practice, the lashing method as well as opening of the lashing strap must be planned before the lashing process. Consider possible partial unloading during long trips. Pay attention to overhead lines during loading and unloading. Remove possible lifting equipment before starting the lashing process. The maximum hand force of 50 daN for tightening the tension device must only be applied manually. Do not use mechanical devices such as rods or levers. Use sufficient edge protectors or edge wear pads. Please take into consideration that lashing straps could swing and rub due to winds. During transport, check the tension of the lashing strap repeatedly. Increasing temperatures can lead to a decreasing of the tension force in the lashing strap. Before opening the lashing strap, the load must be checked to ensure that it is properly supported and stable without the lashing system. It must also be guaranteed that there are no people in danger because of the load falling or toppling over. If necessary, assemble possible lifting equipment on the load before the transport to avoid falling off or toppling down. Special ratchets which allow a gradual loosening of the tension force are also very helpful in these cases. Before unloading, loose the lashing straps in such a way that the load stays on itself.

Explanation of pewag tables

Direct lashing

- The table provides information on how to use pewag textile lashing straps in an optimal way
- It also provides the maximum load which can be secured with 4 equal lashing straps using the angles and dynamic friction factors defined in the table. Additional securing methods (i.e. wedges, or similar) have not been taken into account. These could be used to secure loads with even higher weights. In such cases, please contact our customer service.
- Every lashing strap has its own table
- The maximum forces occurring due to acceleration, braking and avoidance maneuvers in road traffic according to EN 12195-1 were taken into account. This table is not applicable for rail and sea transport. In such cases, please contact our customer service
- When using lashing straps, please consider if the values defined in the tables are valid for one-piece lashing straps (in strapping) or two-piece lashing straps (direct lashing) – see figures. For one-piece lashing straps, the corresponding tabular values for two-piece lashing straps of the same system can be doubled



Maximum loading weight using 4 lashing straps ZG ERGO DZ 100, direct lashing method:

Angle		Dynamic friction factor						
		0.01	0.1	0.2	0.3	0.4	0.5	0.6
α [°]	β [°]	Load that can be secured with 4 straps [daN ~ kg]						
15-35	21-30				8,800	11,700	16,050	24,750
15-35	31-40	4,000	4,850	6,150	7,950	10,500	14,450	22,350
15-35	41-50	3,350	4,150	5,300	6,950	9,050	12,500	19,400
15-35	51-60	2,600	3,300	4,350	5,600	7,300	10,200	15,950
36-50	21-30			5,900	7,850	10,750	15,650	25,400
36-50	31-40	3,150	4,050	5,350	7,200	9,950	14,550	23,800
36-50	41-50	2,650	3,450	4,700	6,400	8,950	13,250	21,800
36-50	51-60		2,800	3,950	5,500	7,800	11,600	18,900

α is the angle formed between the lashing strap and the supporting area.

β is the angle formed between the lashing strap, if it would lie on the supporting area (angle $\alpha=0$), and the driving direction.

How can I use the table?

Method 1:

- Determine the dynamic friction factor – for reference values, please see below
- Please verify with help of the table if the load can be secured safely with the chosen lashing strap and the determined friction factor (if not, please choose a different lashing strap or increase the friction, e.g. with anti-slide mats)
- Please verify if the lashing strap can be attached correctly using the specified angles. Use only those angles where the tabular value "load that can be secured using 4 straps" is higher than the real load

Example:

Lashing mean = lashing strap ZG ERGO DZ 100; load = steel part, 5,000 kg, loading area = steel

The dynamic friction factor is 0.2. As shown in the table, there are more angles which can be used for securing a 5,000 kg load with a ZG ERGO DZ 100 lashing strap and the mentioned dynamic friction factor. Please check now if the four lashing straps can be attached with these angles. Attention: As shown in the table, ZG ERGO DZ 100 is not enough to secure the load if the dynamic friction factor is lower. Please make sure that the load and the loading area are clean on the contact surface and that dirt does not reduce the friction factor.

Method 2:

- Determine the dynamic friction factor – for reference values, please see below
- Determine at which angles the load can be safely secured on the carrier
- Check with help of the table if the load can be safely secured with the determined dynamic friction factor and angles. If this is not the case, please choose a stronger lashing strap

Example:

Lashing mean = lashing strap ZG ERGO DZ 100; Load = steel part, 5,000 kg; loading area = steel; two lashing points with possible angles: Lashing point 1: $\alpha = 31^\circ$, $\beta = 56^\circ$; lashing point 2: $\alpha = 21^\circ$, $\beta = 45^\circ$.

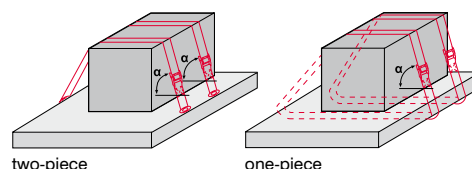
The dynamic friction factor is 0.2. At the angles from lashing point 1, the maximum loading weight with factor 0.2 is 4,350 daN. This lashing point is, therefore, not allowed to be used with ZG ERGO DZ 100 lashing straps. At lashing point 2, the max. loading weight is 5,300 daN. This lashing point can be used.

Attention: Please make sure that the lashing capacity of the lashing point is high enough!

Explanation of pewag tables

Friction lashing

- This table provides information on how to use pewag textile lashing straps in an optimal way
- It also provides the maximum load which can be secured with one lashing strap and the specified angles and dynamic friction factors. Please note that for friction lashing methods, a minimum of 2 lashing systems are needed. Additional securing methods (e.g. wedges) have not been taken into account. These could be used to secure loads with even higher weights. In such cases, please contact our customer service.
- The values in the table are applicable in the event that the tension force (STF) in the lashing strap is not the same on both sides of the load due to edge loading. If this can be guaranteed (e.g. using a pretensioning gauge), the values in the table may be increased by a factor of 1.3
- The maximum loading weight depends on the STF value of the tensioning system – the value is shown on the lashing system's label. Each lashing tensioning system has its own table
- The maximum forces occurring due to acceleration, braking and avoidance maneuvers in road traffic according to EN 12195-1 were taken into account. Other tables are applicable for rail and sea transport. In such cases, please contact our customer service



ZG ERGO DZ 100 (STF = 500 daN), method friction lashing:

Angle		Dynamic friction factor					
		0.1	0.2	0.3	0.4	0.5	0.6
α [°]		Load that can be secured with 1 strap [daN ~ kg]					
90		100	250	450	750	1,250	2,250
85		100	240	440	740	1,240	2,240
80		100	240	440	730	1,230	2,210
70		100	230	420	700	1,170	2,110
60	90	210	380	640	1,080	1,940	
50	80	190	340	570	950	1,720	
40	60	160	280	480	800	1,440	
30	50	120	220	370	620	1,120	

α is the angle formed between the lashing trap and the supporting area

How can I use the table?

- Determine the dynamic friction factor – for reference values, please see below

- Please determine at which angle, α , the load can be safely secured on the carrier – the bigger the better
- For the given values (dynamic friction factor, angle), determine with help of the table the maximum loading weight that can be safely secured by a lashing strap. If the determined angle cannot be found in the table, please choose the next smallest one
- Determine how much bigger the real load in comparison with the tabular value is. This value, rounded up, constitutes the minimum number of lashing straps to be used. Please note that for friction lashing processes at least 2 lashing straps have to be used

Example:

Lashing strap = ZG ERGO DZ 100 (STF = 500 daN); load = 5,000 kg; dynamic friction factor = 0.4; the provided lashing points formed an angle $\alpha = 85^\circ$:

As seen in the table, at $\alpha = 85^\circ$ and with a dynamic friction factor of 0.4 - 740 kg can be secured with each lashing strap. I.e. for 5,000 kg ($5,000/740 = 6.8$) 7 lashing straps are needed. From this example, it can be seen that especially heavy loads should not be secured by friction lashing, since many lashing straps are required.

Dynamic friction factors of some usual goods

Combination of materials on the contact surface	Friction factor μ_D
Sawn wood	
Sawn wood against fabric base laminate / plywood	0.35
Sawn wood against grooved aluminium	0.30
Sawn wood against steel sheets	0.30
Sawn wood against crimped foils	0.20
Crimped foils	
Crimped foils against fabric base laminate / plywood	0.30
Crimped foils against grooved aluminium	0.30
Crimped foils against grooved aluminium steel sheets	0.30
Crimped foils against crimped foils	0.30
Cardboard boxes	
Cardboard box against cardboard box	0.35
Cardboard box against wood pallet	0.35
Large bags	
Large bags against wood pallet	0.30
Steel and metal sheets	
Oiled metal sheets against oiled metal sheets	0.10
Flat steel bars against sawn wood	0.35
Unpainted rough steel sheets against sawn wood	0.35
Painted rough steel sheets against sawn wood	0.35
Unpainted rough steel sheets against unpainted rough steel sheets	0.30
Painted rough steel sheets against painted rough steel sheets	0.20
Painted steel barrel against painted steel barrel	0.15
Concrete	
Wall on wall without intermediate layer (concrete / concrete)	0.50
Finished part with wooden intermediate layer on wood (concrete / wood / wood)	0.40
Ceiling on ceiling without intermediate layer (concrete / lattice girder)	0.60
Steel frame with wooden intermediate layer (steel / wood)	0.40
Ceiling on steel frame with wooden intermediate layer (concrete / wood / steel)	0.45
Pallets	
Resin bonded plywood, smooth – Europallet (wood)	0.20
Resin bonded plywood, smooth – box pallet (steel)	0.25
Resin bonded plywood, smooth – plastic pallet (PP)	0.20

Combination of materials in the contact surface	Friction factor μ_D
Pallets	
Resin bonded plywood, smooth – wooden pressboard pallets	0.15
Resin bonded plywood, sieve structure – Europallet (wood)	0.25
Resin bonded plywood, sieve structure – box pallet (steel)	0.25
Resin bonded plywood, sieve structure – plastic pallet (PP)	0.25
Resin bonded plywood, sieve structure – wooden pressboard pallets	0.20
Aluminium beams in the load-carrying platform (punched bars) – Europallet (wood)	0.25
Aluminium beams in the load-carrying platform (punched bars) – box pallet (steel)	0.35
Aluminium beams in the load-carrying platform (punched bars) – plastic pallet (PP)	0.25
Aluminium beams in the load-carrying platform (punched bars) – wooden pressboard pallets	0.20

- Friction coefficients according to the standard EN 12195-1, values are valid for clean surfaces under optimal conditions
- Warning: dirty, wet or icy surfaces reduce friction factors. Please consider that this can also happen during the transport depending on the season
- Please choose only those values which you can really guarantee. In case of doubt, choose the lower value – it is your own safety

User manual

This user manual provides information about the use, storage, inspection and maintenance of pewag textile webbing slings and round slings.

Conditions of use

pewag webbing slings and round slings are designed only for slinging and lifting loads according to the pertinent, European and national norms with exception of the limitations of use specified below. This product must only be used by qualified, competent personal in accordance with the European standard EN 1492, Part 1, Annex D or Part 2, Annex C, as well as with national regulations. Reading and understanding the operating manual is a precondition for putting this product into service.

Limitations on use

Due to adverse environmental influences or hazardous conditions

- Use with chemicals: the use with alkalis is not permitted (leaches). In case of suspicion of high concentrations of acids or alkalis (even in form of vapors), take the product out of service. In case of doubt, please contact the manufacturer, also for cleaning processes. Metal fitting elements must not be subjected to acid influences
- Permitted operating temperature: -40°C up to +100°C. Do not use humid webbing slings/round slings at low temperatures if there is danger of freezing
- When using round slings / webbing slings for securing loads with sharp edges or rough surfaces, please consider sufficient protection (edge protection corners when edge radius < webbing sling/round sling width; protective sleeves for rough surfaces)
- Avoid exposure to ultraviolet light and direct sunlight during use and storage

Before the first use

- Check that the delivered webbing sling / round sling corresponds to the ordered product
- Check that the manufacturer's certificate is provided with the product
- Check that the information given by the marking and the working load limit coincide with the certificate
- Check that this operating manual is available to the user and was read and understood by the corresponding personnel

Before each use

Visual check: during the visual inspection, pay attention to visible signs of damage and marking. In the case of doubt or if one or more of the following criteria are met, take the webbing sling / round sling out of service.

- Worn and rubbed parts, especially if they are localised
- Cuts
- Broken seams
- Visible core or damaged sheath of the round sling
- Softened or brittle fibers
- Shiny appearance because of overheating or melting
- Deformed or damaged end fittings
- Illegible or missing label

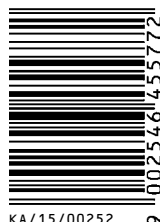
- Protect delicate loads against pressure by the webbing slings / round slings. Pay special attention to the acting forces when using a choke hitch
- The load must be set down carefully; it must not be set down directly on the webbing sling / round sling
- Do not pull out webbing slings / round slings under the load with the load lying on them
- Webbing slings / round slings must be stored clean, dry, correctly aired, far away from heat sources and in racks. Avoid contact with chemicals, flue gases, corroded surfaces, direct sun light and sources of ultraviolet light (also when stored). Do not store damaged webbing/round slings. After being in contact with acids and alkalis, neutralise them with water or other adequate means before storage. Hang wet webbing / round slings to dry down

Selection and use

- Determine the loading weight (mass) and centre of gravity. Choose the correct lashing points and type of sling
- The maximum working load limit (WLL) must not be exceeded. When using multi-leg slings, please use finished assemblies or contact the manufacturer for information about inclination angles and the working load limit of the entire assembly. When using pewag round slings / webbing slings under other circumstances than those described in Conditions of use (e.g. asymmetrical load distribution or choke hitch), a reduction of the WLL must be applied
- Round slings and webbing slings must be attached in a way so that the load is carried by the whole width of the textile sling (also on the crane hook). Pay special attention to crane hooks and sling parts: the angle formed with the loop of the sling must not exceed 20°. In case of doubt, do not use loop slings type B2 or too wide textile slings, use metal end fittings instead
- Use adequate lifting points with sufficient strength. Webbing slings / round slings must not be knotted, twisted or extended by means of a choke hitch. The opening angle of the end loop must not exceed 20°. Use only approved lifting techniques and take the max. WLL specified on the label into consideration, e.g. when using a choke hitch
- Seams and labels must be positioned on the straight part of the sling, never on the supporting area. Protect sensible loads against rubbing or pressure by using webbing slings / round slings. Do not pull loads with webbing slings and round slings over the ground or rough surfaces
- Ensure that the load is secured against falling down, sliding or tilting. Attach the webbing sling / round sling in a way so that the center of gravitation lays direct below the center of the hook bow
- Round slings / webbing slings must not be twisted or knotted
- Avoid shock loading
- Workers must abandon the danger zone during the lifting process. Hands and other parts of the body must be kept away to prevent injury as the slack webbing sling / round sling is taken up. The preparation and management of the lifting process, as well as safety work systems must be according to ISO 12480-1. The load must be raised slightly. In the cases where the load begins to tilt, set down the load, remove the fault and perform a new lifting test. Avoid rotation or collision with other objects

Inspections and repair

- The webbing sling / round sling must be put out of service if one or more of the criteria described in the section "before each use" are met. In case of doubt, discard the sling. Inspections must be carried out by a competent person. The period between the inspections has to be defined by an expert under consideration of the conditions of use. However, an inspection must be done at least once a year
- Records of inspections and inspection protocols must be retained during the entire service life of the webbing sling / round sling
- In no case must webbing slings / round slings be repaired by the user



KA/15/00252



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