



PEWAG WINNER PRO CHAIN SYSTEM G12



LiftingPlus
Hijzen met visie

Samen voor kwaliteit!



van den Berg Bros
Takeltechniek

pewag winner pro lifting in G12

Benefits and information

Content

- Advantages
- Key data, history
- Working load limits
- Reduction factors
- Sample orders



Lifting chains in G12 quality – a chain reaction meant to happen

pewag is deservedly proud of its pioneering role when it comes to the production of lifting chains. The pewag name rests on outstanding quality features that are also the core element of our G12 programme: The 50% increase in the lashing capacity with our G12 range compared to standard G8 programmes results in a significant weight reduction that gives rise to numerous advantages in daily lifting operations. Ease-of-use and compliance with all legal stipulations are an area of pride and the responsible foundation out of which all our products grow. But our G12 products are still capable of more:

- **Intelligent profile:** Thanks to the intelligent use of material, the same cross-section achieves a marked improvement of the key characteristics of the chain, for instance fatigue resistance and bending resistance, compared to conventional round-steel chains. The use of material was optimised in key areas (blue sections) and reduced in less relevant areas (red sections) to achieve the best possible technical effects.



- **Higher bending resistance:**

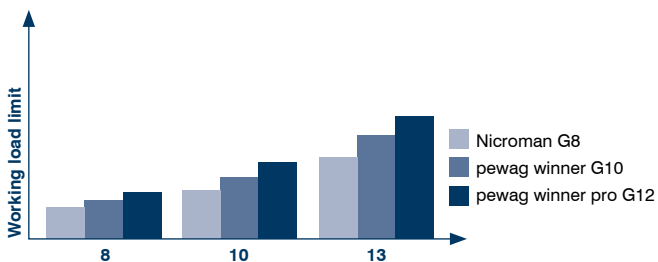
The moment of inertia that is crucial for the properties of the chain is up to 6% higher in a profile chain than in a round-link chain with the same cross-section. For the user, this results in a higher degree of safety in case of edge-loading, which in practice is frequently misjudged, resulting in the failure of the chain.

In addition, the tensions within the chain are reduced (no red areas - see image). This also has a positive effect for the user. Fatigue resistance and thus also the maximum number of possible loads (i.e. lifting operations) increases.

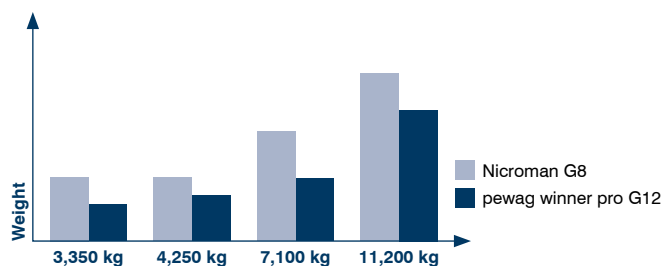


Other benefits at a glance:

- Approx. **50% higher working load limit** compared to G8, approx. **20% higher working load limit** compared to G10. This means that it is almost always possible to use a chain sling that is smaller by one nominal size compared to G8, saving weight and cost as well as making work processes easier.



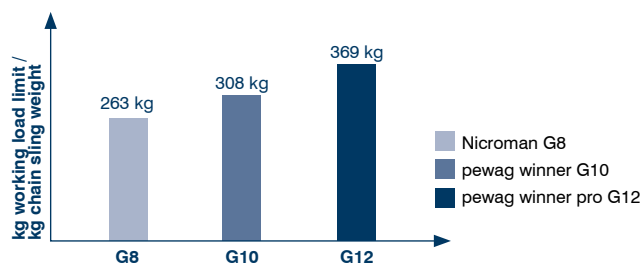
- **Significantly reduced weight** and easier handling with pewag winner pro



Working load limit	Weight of chain up to now [kg]	pewag winner pro chain weight [kg]	% Reduction
3,350	16.60	9.37	44 %
4,250	16.60	11.80	29 %
7,100	28.53	19.19	33 %
11,200	43.61	34.10	22 %

Working load limit	Chain ø up to now	Chain ø pewag winner pro
4,250	10 mm	8 mm
7,100	13 mm	10 mm
11,200	16 mm	13 mm

- Highly efficient for many load ranges, as the size of the chain slings is **reduced by one dimension** compared to G8 and G10 chain slings
- Optimised strength and toughness characteristics at high and low temperatures thanks to **patented material**
- pewag winner pro defines the "Formula 1" of technical chains thanks to its **weight-based performance**



- High stability and a low level of wear guarantee a **longer life span**
- **Innovative chain system** that may be used for lifting or lashing; also suitable for many other applications thanks to its robust design
- **Complete traceability** thanks to identification stamp on chains and components, enabling users to track the entire manufacturing process
- **Easy visual identification** thanks to profile chain and G12 stamp on each chain link
- Light blue powder coating of the WINPRO FLEX 300 chains and accessories provides **corrosion protection**, optionally also with the tried-and-tested coropro coating (PCP) for the highest level of corrosion resistance. See specialised brochure for more information. WINPRO FLEX 200 chains come with a light grey coat.

- **Maximum safety** thanks to innovative WLL tag made from rust-resistant material
- ISO 9001 certification as a testimony to **quality-assured, European manufacturing**
- Simple spare parts ordering system and top-quality service provided by a **global sales network**
- Pioneering role: pewag is the first manufacturer to have launched the innovative G12 chain system, based on a **wealth of experience**

pewag winner pro key data – focus on quality

Top of the range:

- **Chain quality:**
pewag WINPRO FLEX 200 – based on EN 818-2, modified in terms of dimensions, mechanical values according to G12, operating temperature 200 °C

pewag WINPRO FLEX 300 – based on PAS1061, modified in terms of dimensions, mechanical values according to G12, operating temperature 300 °C
- **Stress at working load limit:** 300 N/mm²
- **Test stress:** 750 N/mm²
- **Breaking stress:** 1,200 N/mm²
- **Breaking elongation:** min. 20%
- **Bending according to EN 818-2 and PAS 1061:** 0.8 x d
- **Operating temperature:**
pewag WINPRO FLEX 200: -40 °C – 200 °C
pewag WINPRO FLEX 300: -60 °C – 300 °C
- **Quality grade stamping:**
pewag WINPRO FLEX 200: “pewag 12” / “200” at a distance of 300 mm and 12 on the back of each link

pewag WINPRO FLEX 300: “pewag 12” / “300” at a distance of 300 mm and 12 on the back of each link

Components: 12
- **Manufacturer's name or symbol:** D16 and/or pewag
- **Surface:**
pewag WINPRO FLEX 200: with a light grey coat

pewag WINPRO FLEX 300: with a light blue powder coating or a black coropro (PCP) coating
Components: – light blue powder coating
- **Load capacity tag:** Lists all important data in accordance with EN818-4
- **Compatibility:** Please note that the compatibility of pewag winner pro chains and components with those of other grades and from other manufacturers is limited! For this reason, any combinations should be approved by pewag in advance.

pewag winner pro – a product makes history

- 1997** pewag first embarks on the development of a profiled, case-hardened hoist chain
- 1998** pewag is the first manufacturer worldwide to have its profile hoist chain approved by the German employer's liability insurance association in accordance with EN 818-7 for chain type DAT with H16
- 2000** Start of series production for hoist profile chains
- 2001** pewag embarks on the development of the next generation of chains and accessories in G12
- 2003** pewag is the first manufacturer worldwide to successfully launch a G12 lifting equipment range in the US
- 2004** Patent specification for high-performance chain steel for manufacturing G12-chains PCT/CH 2004/000568 is granted pewag receives the prestigious Pinnacle Award for the most innovative product in the lifting industry from renowned US magazine "Lift and Access"

Utility model specification no. AT 006 802 U1 for lifting chains with break stress of 1.200 N/mm² is completed
- 2008** pewag winner pro chain system G12 is approved by German employer's liability insurance association and authorised to use the "D16" mark



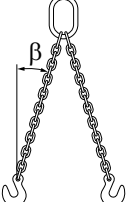
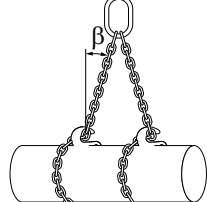
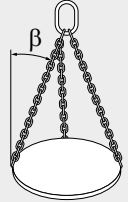
The G12 range celebrates its 5-year anniversary at the CeMAT 2008 in Hannover
- 2014** Product launch of the clevis hook
- 2016** Product launch of the winner pro FLEX profile Product launch of the winner pro FLEX 200 chain
- 2017** pewag embarks on a comprehensive extension project in order to become the largest supplier of a G12 product portfolio

Launch of the first VLWP oversize master link with integrated display of the angle of inclination
- 2019** Presentation of the KLHGWP clevis safety hook with integrated control markings and a new, patented trigger system

Introduction of the first CHWP container hook in grade 12 worldwide

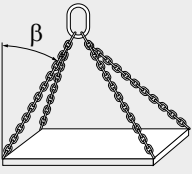
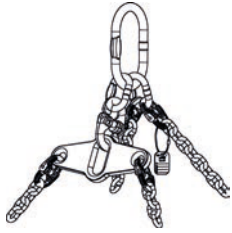


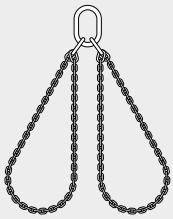
Load capacities of pewag winner pro

The working load limits as shown in the table are the maximum values of the various sling types, stated according to the standard (Uniform Load) method of rating.

Safety factor 4		I-leg chains		II-leg chains		II-leg chains		III + IV-leg chains
								
Angle of inclination β	-	-	$0^\circ - 45^\circ$	$45^\circ - 60^\circ$	$0^\circ - 45^\circ$	$45^\circ - 60^\circ$	$0^\circ - 45^\circ$	
Load factor	1	0.8	1.4	1	1.12	0.8	2.1	
Code	D	Working load limit [kg]						
WINPRO 7	7	2,360	1,900	3,350	2,360	2,650	1,900	5,000
WIN 7	7	1,900	1,500	2,650	1,900	2,120	1,500	4,000
Ni 7 G8	7	1,500	1,200	2,120	1,500	1,700	1,200	3,150
WINPRO 8	8	3,000	2,360	4,250	3,000	3,350	2,360	6,300
WIN 8	8	2,500	2,000	3,550	2,500	2,800	2,000	5,300
Ni 8 G8	8	2,000	1,600	2,800	2,000	2,240	1,600	4,250
WINPRO 10	10	5,000	4,000	7,100	5,000	5,600	4,000	10,600
WIN 10	10	4,000	3,150	5,600	4,000	4,250	3,150	8,000
Ni 10 G8	10	3,150	2,500	4,250	3,150	3,550	2,500	6,700
WINPRO 13	13	8,000	6,300	11,200	8,000	9,000	6,300	17,000
WIN 13	13	6,700	5,300	9,500	6,700	7,500	5,300	14,000
Ni 13 G8	13	5,300	4,250	7,500	5,300	5,900	4,250	11,200
WINPRO 16	16	12,500	10,000	17,500	12,500	14,000	10,000	26,500
WIN 16	16	10,000	8,000	14,000	10,000	11,200	8,000	21,200
Ni 16 G8	16	8,000	6,300	11,200	8,000	9,000	6,300	17,000

If the chain is subjected to extraordinarily severe conditions, the maximum working load limits as listed in the table must be reduced accordingly. Such conditions include high temperatures, asymmetrical loading, edge loading, impact loading etc. In these cases, the load reduction factors as listed on page 18 must be taken into account.




The operating manual also contains information on different conditions and their effects on the working load limits.

III + IV-leg chains	IV-leg chains with load distributor		Endless chain sling	Single lifting sling		Double lifting sling	
							
45° – 60°	0° – 45°	45° – 60°	-	0° – 45°	45° – 60°	0° – 45°	45° – 60°
1.5	2.8	2	1.6	1.4	1	2.1	1.5
3,550	6,700	4,750	3,750	3,350	2,360	5,000	3,550
2,800	5,300	3,750	3,000	2,650	1,900	4,000	2,800
2,240	4,000	3,000	2,500	2,120	1,500	3,150	2,240
4,500	8,500	6,000	4,750	4,250	3,000	6,300	4,500
3,750	7,100	5,000	4,000	3,550	2,500	5,300	3,750
3,000	5,600	4,000	3,150	2,800	2,000	4,250	3,000
7,500	14,000	10,000	8,000	7,100	5,000	10,600	7,500
6,000	11,200	8,000	6,300	5,600	4,000	8,000	6,000
4,750	8,500	6,300	5,000	4,250	3,150	6,700	4,750
11,800	-	-	12,500	11,200	8,000	17,000	11,800
10,000	-	-	10,600	9,500	6,700	14,000	10,000
8,000	-	-	8,500	7,500	5,300	11,200	8,000
19,000	-	-	20,000	17,500	12,500	26,500	19,000
15,000	-	-	16,000	14,000	10,000	21,200	15,000
11,800	-	-	12,500	11,200	8,000	17,000	11,800

Severe conditions and how to handle them

Even premium quality products will lose some of their working load limit when exposed to high temperatures, asymmetrical loading, edge loading, shocks or other severe conditions. Please refer to the operating manuals if you think that any of these conditions apply. The working load limits of the table above must be multiplied with any applicable load factor listed below to determine the working load limit for the respective application.

The following factors are classified as severe conditions:

Temperature range	-60 °C to -40 °C	-40 °C to 200 °C	above 200 °C to 300 °C	more than 300 °C
Load factor pewag winner pro 200	Not permitted	1	Not permitted	Not permitted
Load factor pewag winner pro 300	1	1	0.6	Not permitted
Asymmetrical distribution of loads	Reduce working load limit by at least 1 chain leg, e.g.: III- or IV-leg chain sling must be treated as II-leg chain sling. If in doubt, work on the assumption that the entire load is carried by a single leg.			
Edge loading*	R = larger than 2x d*	R = larger than d*		R = d* or smaller
				
Load factor	1	0.7		0.5
Shock loading	Light shocks	Moderate shocks		Strong shocks
Load factor	1	0.7		Not permitted

* d = Material thickness of the chain



Sample order texts for pewag winner pro lifting products

This is a sample order for a fully adjusted, commercially available pewag chain sling: a pewag winner pro 8 mm, II-leg chain sling with a shortening option and clevis safety hook, assembled with Connex connecting links, 3,500 mm long.

Connex systems:

WINPRO 8 FLEX 300 II VLWP - KLHGWP - PWP 3500 Connex

Nominal diameter	Number of legs	Master link	End hook	Shortening hook	Length [mm]	Connex-mounted
------------------	----------------	-------------	----------	-----------------	-------------	----------------



Chains in G12 lifting and lashing

Product overview

Content

pewag winner pro 300 lifting chains
pewag winner pro 200 lifting and lashing chains



pewag winner pro 300 lifting chains

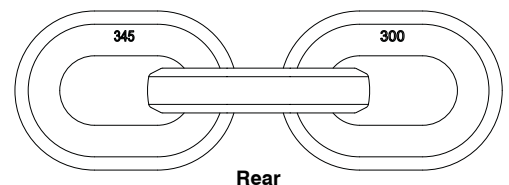
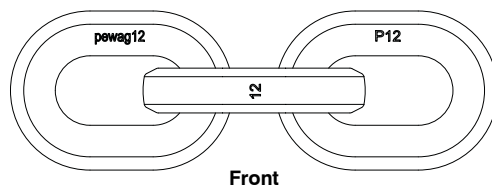
Taking robustness to a higher level.

This chain has an added working load limit of at least 50% compared to grade 8 and is manufactured in compliance with PAS 1061 (with modifications). A reduction of the chain dimension and thus also the weight of the chain sling is possible in almost any application. This high-performance chain comes with BG approval in grade 12 and also offers added resistance against edge loading thanks to its profile sections. The profiled steel chain in G12 is particularly robust and available with a light blue powder-coated surface and black coropro coating.



winner pro 300 lifting chains	Code	Nominal diameter dn [mm]	Standard delivery length [m]	Pitch t [mm]	Inner width b1 min. [mm]	Outer width b2 max. [mm]	Working load limit [kg]	Breaking force [kN]	Weight [kg/m]
WINPRO chain PC/B									
	WINPRO 7 FLEX 300	7	50	22	10	26	2,360	92.60	1.36
	WINPRO 8 FLEX 300	8	50	25	11.20	29	3,000	118	1.64
	WINPRO 10 FLEX 300	10	50	33	14.20	37	5,000	196	2.70
	WINPRO 13 FLEX 300	13	50	41	18.60	50	8,000	314	4.80
	WINPRO 16 FLEX 300	16	25	51	22.80	60	12,500	491	7.17
WINPRO chain PCP									
	WINPRO 7 FLEX 300 PCP	7	50	22	10	26	2,360	92.60	1.36
	WINPRO 8 FLEX 300 PCP	8	50	25	11.20	29	3,000	118	1.64
	WINPRO 10 FLEX 300 PCP	10	50	33	14.20	37	5,000	196	2.70
	WINPRO 13 FLEX 300 PCP	13	50	41	18.60	50	8,000	314	4.80
	WINPRO 16 FLEX 300 PCP	16	25	51	22.80	60	12,500	491	7.17

Stamps:
 Manufacturer: pewag
 Quality class 12
 Type: 300
 (max. operating temperature)
 Traceability code: P12345



pewag ^{***}pewag winner pro 200 lifting and lashing chains

Strong, flexible and efficient.

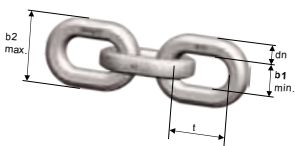
This new profile steel chain is manufactured according to the mechanical values of G12 and is suitable for a maximum operating temperature of 200 °C. Chamfered corners provide additional flexibility for the chain links and make the chain easier to handle. The chain really comes into its own during choke-hitch applications, due to the reduced impact of edges on the load and more grip compared to round-steel chains.

The winner pro FLEX 200 chain is available in light grey. Thanks to an improved resistance factor running across the symmetry axis, the chain is more robust when it comes to withstanding deformations in a longitudinal direction compared to round-link chains with the same diameter. The chain also stands for maximum efficiency as part of the comprehensive winner pro portfolio.

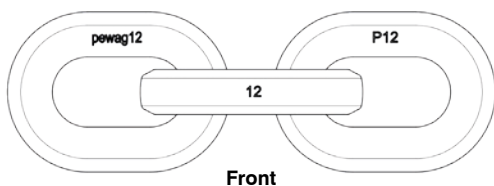
Note: The chain is available as a lifting and lashing chain.



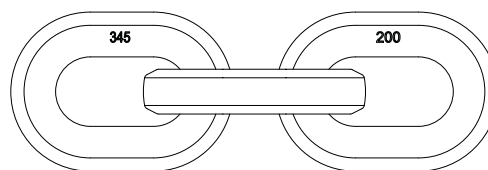
pewag winner pro 200 lifting and lashing chains	Code	Nominal diameter dn [mm]	Standard delivery length [m]	Pitch t [mm]	Inner width b1 min. [mm]	Outer width b2 max. [mm]	Working load limit [kg]	Lashing capacity LC [kN]	Breaking force [kN]	Weight [kg/m]
WINPRO FLEX 200 LAC/GY										
	WINPRO 7 FLEX 200	7	50	22	10	26	2,360	47	92.60	1.36
	WINPRO 8 FLEX 200	8	50	25	11.20	29	3,000	60	118	1.64
	WINPRO 10 FLEX 200	10	50	33	14.20	37	5,000	100	196	2.70
	WINPRO 13 FLEX 200	13	50	41	18.60	50	8,000	180	314	4.80
	WINPRO 16 FLEX 200	16	25	51	22.80	60	12,500	250	491	7.17



Stamps:
 Manufacturer: pewag
 Quality class 12
 Type: 200
 (max. operating temperature)
 Traceability code: P12345



Front



Rear

Master links and sub-assemblies in G12

Product overview

Content

- AWP Master link
- MWP Oversize master link
- VLWP 1 Oversize master link assembly
- VLWP 2/4 Oversize master link assembly
- VMWP Oversize master link assembly



Possibilities galore.

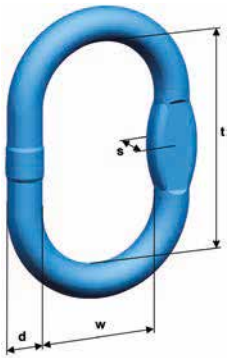
This is a standard master link to create I- and II-leg chain slings using the CWP Connex connecting links.

Thanks to the flattened sections incorporated in the design, this master link opens up universal connection possibilities and may also be used as an end link with the same classification as for I-leg chain slings. See table below for the correct chain dimensions and single hook size according to DIN 15401.

The master link is manufactured in accordance with EN 1677-4 with a working load limit according to G12 and comes with BG approval. The surface of the master link has a light blue powder coating.



AWP Master link



Code	Working load limit 0°-45° [kg]	For single hooks acc. to DIN 15401 no.	For double hooks acc. to DIN 15402 no.	For I-leg chain slings	For II-leg chain slings
AWP 13	2,360	2.50	4	7	-
AWP 16	3,500	2.50	4	8	7
AWP 18	5,300	5	6	10	8
AWP 22	8,000	6	8	13	10
AWP 27	12,500	10	12	16	13
AWP 33	17,500	10	12	-	16

Code	t [mm]	d [mm]	w [mm]	s [mm]	Weight [kg/unit]
AWP 13	110	13	60	10	0.37
AWP 16	110	17	60	14	0.55
AWP 18	135	19	75	14	0.86
AWP 22	160	23	90	17	1.60
AWP 27	200	28	110	21	2.92
AWP 33	200	33	110	21	4.14

What counts is the inner width.

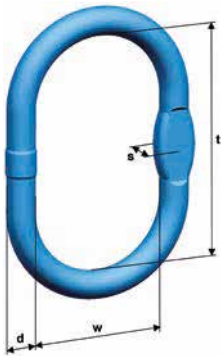
This master link corresponds to EN 1677-4 with the working load limit according to G12. It is used to create I- and II-leg chain slings using the Connex CWP connecting link and opens up universal connection possibilities thanks to the flattened section incorporated in its design. It may also be used as an end link in single- or multiple-leg chain slings.

With its extra-large inner width compared to the AWP master link, it is also suitable for larger single hooks according to DIN 15401 and double hooks according to DIN 15402. See table below for the correct chain dimensions and single hook size.

The oversize master link is manufactured according to EN 1677-4 with the mechanical values of G12 and comes with BG approval. The surface has a light blue powder coating.



MWP
Oversize master link



Code	Working load limit [kg]	For single hooks acc. to DIN 15401 no.	For double hooks acc. to DIN 15402 no.	For I-leg chain slings	For II-leg chain slings
MWP 13	2,360	4	5	7	-
MWP 16	3,200	5	6	8	-
MWP 18	5,000	6	8	10	-
MWP 26	10,100	10	12	13	-
MWP 30	12,500	10	-	16	-
MWP 36	17,500	10	25	-	16

Code	t [mm]	d [mm]	w [mm]	s [mm]	Weight [kg/unit]
MWP 13	120	14	70	10	0.46
MWP 16	140	17	80	13	0.74
MWP 18	160	19	95	14	1.05
MWP 26	190	27	110	20	2.47
MWP 30	190	30	110	-	3.33
MWP 36	275	38	150	29	7.48

pewag VLWP 1 Oversize master link assembly

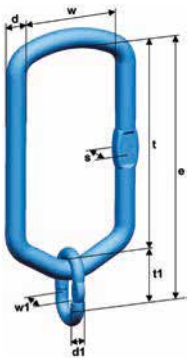
Optimised for extra strength.

This asymmetrical master link assembly is equipped with extra-large rings that are perfect for crane hooks according to DIN 15401 and up to no. 25. The new design of the upper curve ensures an optimised contact surface on the crane hook.

The master link is manufactured according to EN 1677-4 with mechanical values for G12. The product comes with BG approval.



VLWP 1 Oversize master link assembly



Code	Consists of	Working load limit [kg]	For single hooks acc. to DIN 15401 no.	For double hooks acc. to DIN 15402 no.	For I-leg chain slings
VLWP 1-7/8	LWP 22 + BWP 13	3,000	25	32	7 + 8
VLWP 1-10	LWP 26 + BWP 16	5,000	25	32	10
VLWP 1-13	LWP 26	8,000	25	32	13
VLWP 1-16	LWP 32	12,500	25	32	16

Code	e [mm]	d [mm]	t [mm]	w [mm]	d1 [mm]	t1 [mm]	w1 [mm]	s [mm]	Weight [kg/unit]
VLWP 1-7/8	394	23	340	155	13	54	25	16.50	3.37
VLWP 1-10	410	27	340	155	17	70	34	21	3.56
VLWP 1-13	340	27	340	155	-	-	-	21	4.40
VLWP 1-16	340	33	340	155	-	-	-	26	6.60

pewag VLWP 2/4 Oversize master link assembly

Asymmetrically precise.

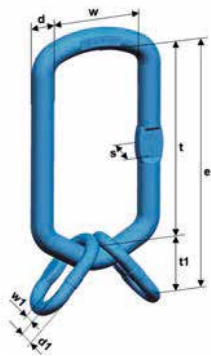
The new oversize lifting ring stands out for its asymmetrical shape and is suitable for the assembly of II- and IV-leg chain slings in the assembled system. The improved design of the upper curve optimises the contact surface of the assembly on the single hook, manufactured according to DIN 15401.

The great plus of this master link assembly is the geometry of the lower area, which, especially for II-leg chain slings, enables the easy, fast assessment of the working load limit based on the position of the attached transition links (see explanation below), thus greatly increasing safety and efficiency during day-to-day operations and making miscalculations a thing of the past.

The product comes with BG approval. Extra-large rings make this master link assembly the perfect partner for crane hooks according to DIN 15401 up to no. 25.



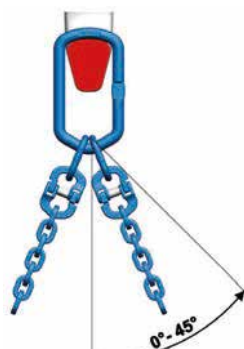
VLWP 2/4 Oversize master link assembly



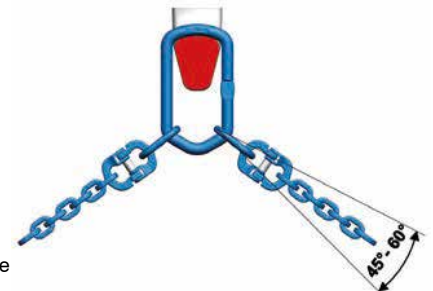
Code	Consists of	Working load limit 0°-45° [kg]	For single hooks acc. to DIN 15401 no.	For double hooks acc. to DIN 15402 no.	For II-leg chain slings	For III- and IV-leg chain slings
VLWP 2-7/8	LWP 22 + 2 BWP 13	4,250	25	32	7/8	-
VLWP 2-10/4-7/8	LWP 26 + 2 BWP 16	7,100	25	32	10	7/8
VLWP 2-13/4-10	LWP 32 + 2 BWP 20	11,200	25	32	13	10
VLWP 2-16	LWP 36	17,500	25	32	16	-
VLWP 4-13	LWP 36 + 2 BWP 26	17,000	25	32	-	13
VLWP 4-16	LWP 40 + 2 BWP 32	26,500	25	32	-	16

Code	e [mm]	d [mm]	t [mm]	w [mm]	d1 [mm]	t1 [mm]	w1 [mm]	s [mm]	Weight [kg/unit]
VLWP 2-7/8	394	23	340	155	13	54	25	16.50	3.60
VLWP 2-10/4-7/8	410	27	340	155	17	70	34	21	5.20
VLWP 2-13/4-10	425	33	340	155	20	85	40	26	8.00
VLWP 2-16	340	38	340	155	-	-	-	29	8.90
VLWP 4-13	480	38	340	155	27	140	65	29	12.80
VLWP 4-16	490	40	340	155	33	150	70	29	16.30

From 0° - 45°, the chain legs are positioned at the centre of the ring



Between 45° - 60°, the chain legs are positioned at the outer corners of the ring



pewag VMWP Oversize master link assembly

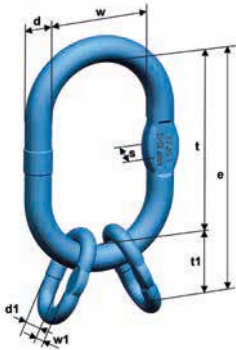
True greatness for your load.

A working load limit according to G12, BG approval and manufacturing according to EN 1677-4 are powerful arguments in favour of this universally usable master link assembly to create II-, III- and IV-leg chain slings for all chain dimensions.

The surface has a light blue powder coating. See table below for the correct chain dimension.



VMWP Oversize master link assembly



Code	Consists of	Working load limit 0°-45° [kg]	For single hooks acc. to DIN 15401 no.	For double hooks acc. to DIN 15402 no.	For II-leg chain slings	For III- and IV-leg chain slings
VMWP 2-7/8	MWP 18 + 2 BWP 13	4,250	6	8	7/8	-
VMWP 2-10/4-7/8	MWP 26 + 2 BWP 16	8,800	10	12	10	7/8
VMWP 2-13/4-10	MWP 32 + 2 BWP 20	12,300	12	16	13	10
VMWP 4-13	MWP 36 + 2 BWP 26	21,200	20	25	-	13
VMWP 4-16	MWP 36 + 2 BWP 32	26,500	20	25	-	16

Code	e [mm]	d [mm]	t [mm]	w [mm]	d1 [mm]	t1 [mm]	w1 [mm]	s [mm]	Weight [kg/unit]
VMWP 2-7/8	214	19	160	95	13	54	25	14	1.47
VMWP 2-10/4-7/8	260	27	190	110	17	70	34	20	3.45
VMWP 2-13/4-10	315	33	230	130	20	85	40	26	6.28
VMWP 4-13	415	38	275	150	27	140	65	29	11.50
VMWP 4-16	425	38	275	150	33	150	70	29	13.80

Accessories in G12 – lifting

Product overview

Content

CWP Connex connecting link
AGWP Load distributor
HSWP Eye sling hook
LHWP Safety hook
PWP Grab hook
PSWP Grab hook
ISWP Integrated shortening element
PTKWP Permanently load-bearing chain sling
CHWP Container hook set
RSKWP Load binder
KHSWP Clevis hook
KLHWP Clevis safety hook
KLHGWP Oversize clevis safety hook
KPWP Clevis grab hook



pewag CWP Connex connecting link

True light blue.

This is a universal connecting link that consists of two die-forged, identical halves, a pin and a safety sleeve.

It is manufactured according to EN 1677-1 with a working load limit according to G12. The connecting link is constructed in such a way that the PWP shortening hook may be adjusted in one half together with the chain, enabling the cost-efficient assembly of a chain sling with a shortener. The links may be mounted and dismantled by a competent person up to three times before the pin and the sleeve must be replaced (both are available as a spare parts set).

One of the many benefits of the Connex connecting link is that it comes with BG approval and serves to assemble pewag winner pro chains, master links, master link assemblies and accessory parts in a straightforward manner. The surface has a light blue powder coating.

Note: The CWP Connex connecting link may also be used for lashing. For more information, please contact the pewag customer service.



CWP Connex connecting link



Code	Working load limit [kg]	Lashing capacity LC [kN]	e [mm]	c [mm]	s [mm]	t [mm]	d [mm]	b [mm]	g [mm]	Weight [kg/unit]
CWP 7	2,360	47	63	11.50	13	15.50	9	51	17	0.24
CWP 8	3,000	60	62	14	15	20	10	58	20	0.27
CWP 10	5,000	100	78	18	21	25	13	66	22	0.57
CWP 13	8,000	160	107	22	25	34	17	84	25	1.43
CWP 16	12,500	250	128	27	31	41	21	120	48	2.26



The connecting link is wide enough to accommodate the shortener and the chain. The load-bearing part (chain or hook) is free to position itself at the centre, ensuring symmetrical loading of the connecting link.

Guaranteed to last the course.

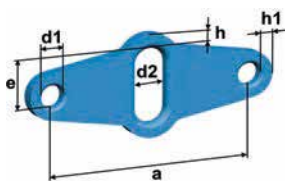
The AGWP load distributor is the perfect partner for the assembly of II- and IV-leg chain slings using Connex connecting links. It fulfills all the requirements of standard load distributors as well as ensuring optimised longitudinal compensation. The significantly improved load allows for a higher working load limit (min. 30 % with equal dimensions) as all legs of the chain sling are placed under load.

In IV-leg chain slings, the AGWP makes it possible to consider all four chains as load-bearing. If two II-leg chain slings are used and one of them is equipped with a load distributor, this system may also be used as a IV-leg chain sling with four load-bearing legs.

If elimination criteria apply, the load distributor may be rotated by 180°, thereby effectively doubling its lifespan. The full operating manual contains detailed information on this long-lasting product. Other dimensions available on request.



AGWP Load distributor



Code	Connecting link	Working load limit 0°-45° [kg]	Working load limit 45°-60° [kg]	Difference L1/L2 [Chain links]
AGWP 7/8	CWP 10	4,250	3,000	6 for 7 mm chains, 5 for 8 mm chains
AGWP 10	CWP 13	7,100	5,000	4

Code	a [mm]	e [mm]	d1 [mm]	d2 [mm]	h [mm]	h1 [mm]	s [mm]	Weight [kg/unit]
AGWP 7/8	210	51	22	25	15.50	14	15	1.75
AGWP 10	180	32	25	32	23	15.50	15	1.56

To mount the load distributor into the four-leg chain sling, please use the connecting links indicated in the table.



Movie clip AGWP

pewag[®] HSWP Eye sling hook

Better to wear out than to rust out.

This eye sling hook is universally usable and comes with a forged and galvanised safety catch that locks into the tip of the hook, thereby providing excellent protection against lateral shifts.

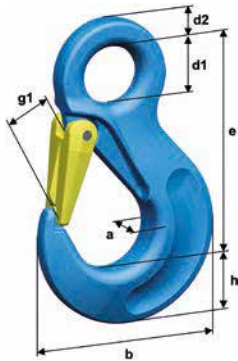
The safety catch with a latch, the safety pin and the rust-resistant spring are available as a spare parts set for each hook and easy and quick to replace by a competent person.

The hook is manufactured according to EN 1677-2 with the mechanical values of G12, comes with BG approval and a light blue powder coating (RAL 5012). In combination with the pewag winner pro Connex, it is simply unbeatable!

Note: The HSWP eye sling hook may also be used for lashing operations. For more information, please contact the pewag customer service.



HSWP Eye sling hook



Code	Working load limit [kg]	Lashing capacity LC [kN]	e [mm]	h [mm]	a [mm]	d1 [mm]	d2 [mm]	g1 [mm]	b [mm]	Weight [kg/unit]
HSWP 7/8	3,000	60	106	27	19	25	11	26	88	0.65
HSWP 10	5,000	100	131	33	26	34	16	31	108	1.29
HSWP 13	8,000	160	164	43	33	43	19	39	132	2.43

pewag LHPW Safety hook

Safety first.

This safety hook corresponds to EN 1677-3 with a working load limit according to G12 and closes and locks automatically when placed under load, thereby offering even greater safety.

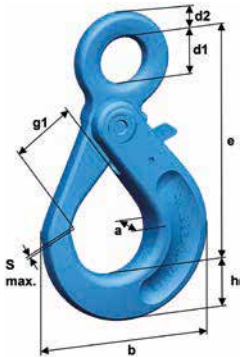
Thanks to the larger jaw size compared to the HSWP eye sling hook, this safety hook offers greater flexibility when it comes to possible combinations with the pewag winner pro Connex system.

Product comes with light blue powder coating. The hook may only be opened when it is not under load. The locking set on the back of the hook consists of a lever, safety pin and rust-resistant spring and is also available as a spare parts set. The parts are quick and easy to replace by a competent person. The hook also comes with BG approval.

Note: The LHPW safety hook may also be used for lashing operations. For more information, please contact the pewag customer service.



LHPW Safety hook



Code	Working load limit [kg]	Lashing capacity LC [kN]	e [mm]	h [mm]	a [mm]	b [mm]	d1 [mm]	d2 [mm]	g1 [mm]	s max. [mm]	Weight [kg/unit]
LHWP 7/8	3,000	60	126	25	25	89	25	14	34	1	0.91
LHWP 10	5,000	100	158	31	28	112	31	17	45	1.50	1.56
LHWP 13	8,000	160	205	41	34	145	40	22	54	2	3.50

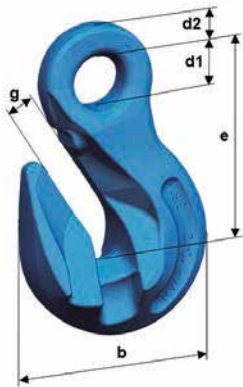
Perfect for chains and slings.

The standard shortening hook with BG approval in the G12 programme is perfect for the Connex system. A reduction of the working load limit when shortened is not required for this hook.

The hook corresponds to EN 1677-1 with the working load limits of G12 and is also available with a safety mechanism to prevent the accidental unhooking of the chain. The grab hook is suitable for the shortening of chains and the forming of slings that must not tighten.



PWP Grab hook



Code	Working load limit [kg]	e [mm]	b [mm]	d1 [mm]	d2 [mm]	g [mm]	Weight [kg/unit]
PWP 7/8	3,000	68	63	18	11	10	0.51
PWP 10	5,000	88	81	22	14	13	1.04
PWP 13	8,000	110	103	26	18	17	2.19

Safe shortening applications at all times.

This grab hook for the winner pro Connex system is the standard shortening hook with a safety pin in the G12 lashing programme. The hook prevents the accidental release of the chain.

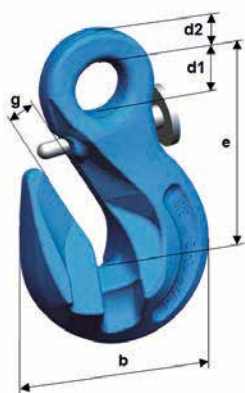
The special design of the chain contact fosters the ideal interplay between the chain and the hook – and it is not necessary to reduce the admissible lashing capacity when shortened.

The hook is manufactured according to EN 1677-1 with the lashing capacity of G12 and is visually striking thanks to its light blue, powder-coated surface.

Note: The PSWP grab hook may also be used for lashing operations. For more information, please contact the pewag customer service.



Code	Working load limit [kN]	Lashing capacity LC [kN]	e [mm]	b [mm]	d1 [mm]	d2 [mm]	g [mm]	Weight [kg/unit]
PSWP 7/8	3000	60	68	63	18	11	10	0.53
PSWP 10	5000	100	88	81	22	14	13	1.05
PSWP 13	8000	160	110	103	26	18	17	1.89



pewag ISWP Integrated shortening element

Perfectly integrated in the chain segment and the chain sling.

The ISWP integrated shortening element is mounted in the bottom third of the chain sling, making it possible to adjust the length from below without having to lower the whole sling.

The adjusting manoeuvre is completed directly in the chain sling and can be done with one hand after a bit of practice. The desired length can thus be achieved precisely and quickly, and the entire process is significantly faster and more precise than with standard chain slings with shortening elements.

The special design of the chain contact fosters the ideal interplay between the integrated shortening element with a clevis system and the actual chain, eliminating the need for reducing the working load limit.

The two-step mechanism protects the shortening element against the accidental release of the chain. An additional stopper on the last chain link prevents the ISWP from getting lost or sliding through the chain sling.

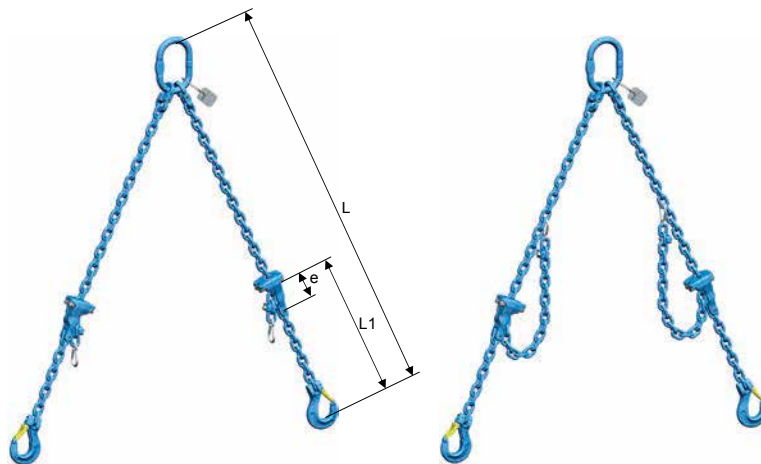
This shortener corresponds to EN 1677-1, with the working load limit according to G12.

The permanently load-bearing chain sling is also available with a hook, without a hook and with a stopper set, which means that existing chain slings can be retrofitted with the ISWP.



ISWP Integrated shortening element

Code	Working load limit [kg]	e [mm]	a [mm]	b [mm]	d [mm]	g [mm]	Weight [kg/unit]
ISWP 10	5,000	100	99	78	14	12	2.42



Sample order for chain slings with ISWP:

Chain slings with L 3500 mm and standard length L1 (ISWP + end hook + 10 chain links – standard length doesn't have to be specified):

WINPRO 10 FLEX 300 II AWP-KHSWP-ISWP 3500

Chain slings with L = 3500 mm and special length L1 = 1000 mm:

WINPRO 10 FLEX 300 II AWP-KHSWP-ISWP 3500 P1000

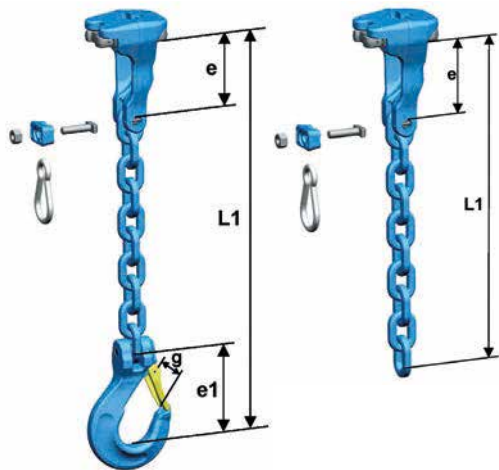
Permanently load-bearing chain leg with ISWP.

For chain slings with an ISWP shortening element, PTKWP permanently load-bearing chain legs are available. In the standard design, this refers to the ISWP with a pre-mounted, 10-link chain (WINPRO 200 or WINPRO 300) with or without end hooks. The SSWP stopper set for fixing the product to a chain sling is included in the delivery scope.

The PTKWP permanently load-bearing chain leg enables the straightforward retrofitting of existing chain slings and/or the speedy assembly of new chain slings. As they are part of a chain sling, they do not come with a WLL tag.



PTKWP



Code	Working load limit [kg]	L1 [mm]	e [mm]	e1 [mm]	Weight [kg/unit]
PTKWP 10 200	5,000	430	101	-	3.40
PTKWP 10 200 KHSWP	5,000	551	101	121	5.09
PTKWP 10 300	5,000	430	101	-	3.40
PTKWP 10 300 KHSWP	5,000	551	101	121	5.09

Order the PTKWP with different end hooks / in different lengths as follows:

PTKWP 10 (desired end hook) – e.g. PTKWP 10 HSWP with pre-mounted HSWP eye sling hook
 PTKWP 10 KHSWP (desired length) – e.g. PTKWP 10 KHSWP 1000, with L1 = 1000 mm

pewag CHWP Container hook

Connect four.


The CHWP container hooks fit on container hooks acc. to ISO1161. They come with a safety mechanism to prevent accidental unhooking. Available as types CHWP LH (left hook) and CHWP RH (right hook), which may be assembled into 2-leg chain slings together or connected with them.

The left/right designation refers to the position during lifting. CHWP LH is connected to the left-side corner of the container, CHWP RH with the right-side corner (see image). For easy identification, they are marked LH and RH. In addition, the safety lever of the CHWP RH comes with a red coating.

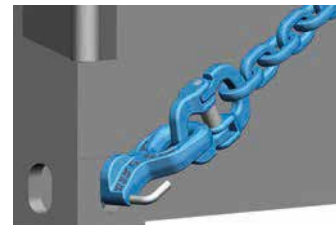
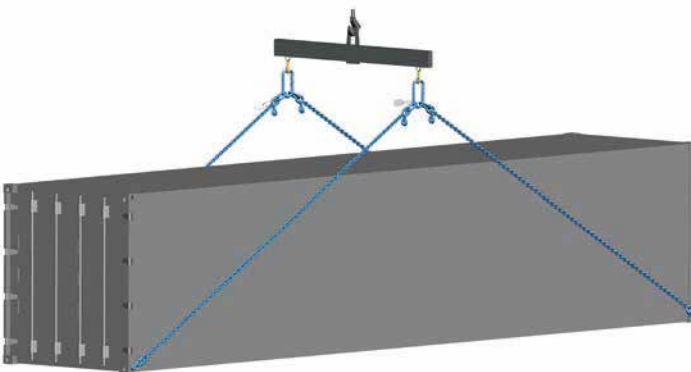
The hooks may either be connected directly with a chain sling using CWP 16, or connected using end hooks KHSWP 16 or KLGWSP 16.

The hooks may also be used in vertical chain legs. They are available as a set consisting of 2 CHWP LH and 2 CHWP RH units as well as individually.



CHWP Container hook	Code	Working load limit [kg]	Working load limit as a set (4 units) in case of vertical loading [kg]	Working load limit as a set (4 units) at max. 60° [kg]	Working load limit as a set (4 units) at max. 50° [kg]	Working load limit as a set (4 units) at max. 36° [kg]
	CHWP 16	-	50,000	25,000	32,000	40,000
	CHWP 16 LH	12,500	-	-	-	-
	CHWP 16 RH	12,500	-	-	-	-

Code	Working load limit [kg]	e [mm]	b [mm]	d [mm]	d1 [mm]	d2 [mm]	w [mm]	w1 [mm]	Weight [kg/set]
CHWP 16	-	95	166	49	35	35	48	61	18.80
CHWP 16 LH	12,500	95	166	49	35	35	48	61	4.70
CHWP 16 RH	12,500	95	166	49	35	35	48	61	4.70



Sample order:

For a 20-feet container, we recommend the following chain sling for the application shown: 2 x WINPRO 16 FLEX II VLWP-CHWP-PWP 4800 Connex

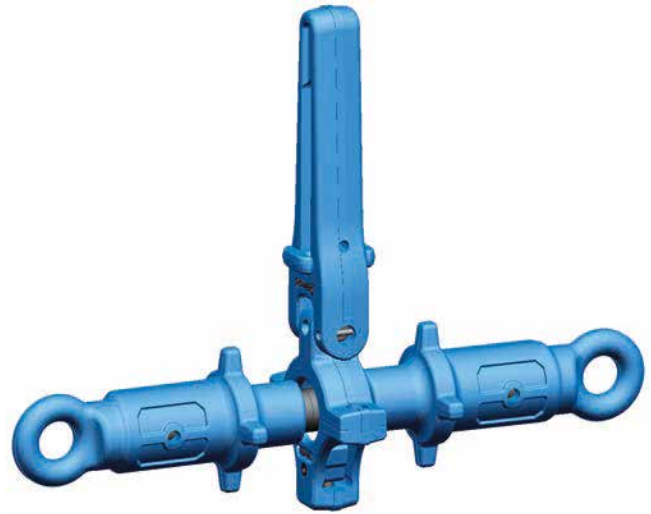
Assurance, double sure.

This load binder, newly developed by pewag, stands for safety at the highest level. It is suitable for direct lashing as well as for frictional lashing (always take note of the STF value) in the pewag winner pro Connex system.

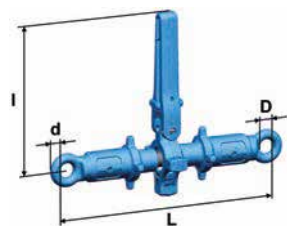
The slot on the lever snaps into place either between two nubs or over one nub, and the added safety catch ensures that the load binder remains in the correct position, offering double safety for the user as the unintended loosening of the lashing assembly is prevented. The flat design, obtained by folding down the lever, reduces the risk of injuries for users and prevents them from getting caught in the assembly. The load binder also comes with several additional advantages: it is easy to store and to transport and also offers theft protection as it may be locked using a separate shackle lock.

The long tension distance makes the load binder particularly easy to use, as the chain may be shortened and tensioned with a minimum amount of force. Thanks to the open system, the safety catch and the thread condition are easy to check and maintain as needed. The RSKWP load binder is manufactured according to EN 12195-3 with the mechanical values for G12 and comes with a full operating manual.

Note: The RSKWP load binder may also be used for lashing operations. Please contact pewag for more information.



RSKWP Load binder



Code	Working load limit [kg]	Length when closed L [mm]	Length when open L [mm]	Tension range [mm]	Lever length I [mm]	D [mm]	d [mm]	Weight [kg/unit]
RSKWP 7/8	3,000	360	536	176	237	23	16	5.20
RSKWP 10	5,000	360	536	176	360	23	16	5.50
RSKWP 13	8,000	569	894	325	411	35	23	8.40
RSKWP 16	12,500	569	894	325	411	35	23	8.40



Folding position



Anti-theft option

pewag KHSWP Clevis hook

All forged, all galvanised, all new.

This is a hook in the pewag winner pro G12 range with a considerably larger jaw size than the HSWP eye sling hook, with a comparatively low weight.

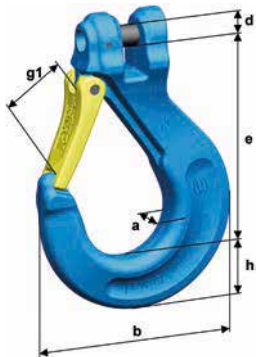
It is manufactured according to EN 1677-2 with the mechanical values of grade 12 and may be mounted directly in the chain in the pewag winner pro clevis system without the need for a connecting link. The forged safety catch locks into the tip of the hook, thereby providing excellent protection against lateral shifts. The safety catch mechanism and the clevis load pins are available as spare parts sets and easy and quick to exchange by a competent person.

The forged control markings make it easy to determine discard criteria – yet another great advantage offered by this clevis hook! The product comes with BG approval.

Note: The KHSWP clevis hook may also be used for lashing operations. For more information, please contact the pewag customer service.



KHSWP Clevis hook



Code	Working load limit [kg]	Lashing capacity LC [kN]	e [mm]	h [mm]	a [mm]	d [mm]	g1 [mm]	b [mm]	Weight [kg/unit]
KHSWP 7	2,360	47	105	26	19	9.50	36	101	0.85
KHSWP 8	3,000	60	105	26	19	10.70	36	101	0.85
KHSWP 10	5,000	100	121	33	26	14	41	118	1.68
KHSWP 13	8,000	160	148	43	30	17.50	49	147	2.99
KHSWP 16	12,500	250	173	51	35	21	59	176	5.10

pewag^{***} KLHWP Clevis safety hook

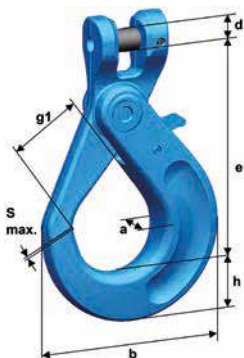
Specialises in: safety and strength.

The great advantage of this clevis safety hook is that it closes and locks automatically under load, thereby preventing unintentional opening while under load and providing additional safety during day-to-day operations. The larger jaw opening compared to the HSWP eye sling hook provides additional versatility and flexibility.

The clevis safety hook is manufactured according to EN 1677-3 with mechanical values for G12. The product comes with BG approval. The hook is suitable for straight pull only. Tip loading of the hooks or loading of the safety catch are not permissible. The hook is easy to assemble and does not require special tools or additional connecting links as it is placed directly in the chain. Please note that assembly must be performed by a competent person. The full operating manual contains detailed operation on the correct use of the product. The safety hook comes with CE marking and exchangeable spare components. The coupling pin and safety pin are available as a KBSWP spare parts set, as is the VLHWP locking set on the back of the hook.



KLHWP Clevis safety hook



Code	Working load limit [kg]	e [mm]	h [mm]	a [mm]	b [mm]	d [mm]	g [mm]	s max. [mm]	Weight [kg/unit]
KLHWP 7	2,360	116	24.50	23.60	90	9.50	32	1	0.89
KLHWP 8	3,000	115	24.50	23.60	90	10.70	32	1	0.90
KLHWP 10	5,000	136	31.50	27.80	113	14	45	1	1.60
KLHWP 13	8,000	179	39.80	33.70	146	17.50	54	1.50	3.42

pewag KLHGWP Oversize safety hook

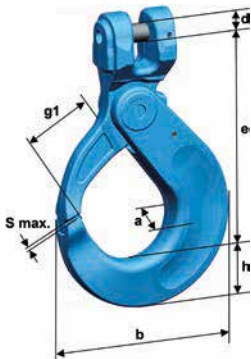
Innovative and versatile.

The KLHGWP oversize clevis safety hooks come with a range of innovative features that make handling and control easier and broaden the application range at the same time. Its large jaw opening ensures almost unlimited connection options for the hook and a wide range of loads.

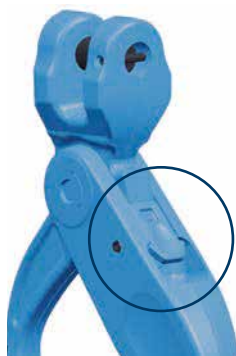
The low weight further emphasises all the benefits of grade 12 – straightforward handling thanks to lower weight.



KLHGWP Oversize safety hook



Code	Working load limit [kg]	e [mm]	h [mm]	a [mm]	b [mm]	d [mm]	g1 [mm]	s max. [mm]	Weight [kg/unit]
KLHGWP 7	2,360	131	27	21	107	9.5	48	1	1.10
KLHGWP 8	3,000	130	27	21	107	10.7	48	1	1.10
KLHGWP 10	5,000	166	35	26	137	14	61	1	2.16
KLHGWP 13	8,000	208	44	32	175	17.5	78	1.5	4.33
KLHGWP 16	12,500	237	54	37	195	21	86	2	7.70



The recessed trigger prevents accidental opening, and the special design makes opening as a result of impact stress practically impossible (patent pending).



The special shape of the tip of the hook prevents the accidental unhooking even of thin lifting accessories. In addition, they offer a greater level of protection against lateral loading in case of improper use.



New condition



Limit reached

The markings on the tip of the hook show when the deformation limit is reached, without the need for further measurements.

Perfect for chains and slings.

The standard shortening hook with BG approval in the G12 programme is perfect for the clevis system. A reduction of the working load limit when shortened is not required for this hook.

This hook corresponds to EN 1677-1 with the working load limit according to G12. The grab hook is suitable for the shortening of chains and the forming of slings that must not tighten.



KPWP Clevis grab hook



Code	Working load limit [kg]	e [mm]	b [mm]	d [mm]	g [mm]	Weight [kg/unit]
KPWP 7	2,360	63	70	10	10	0.58
KPWP 8	3,000	62	70	11	10	0.58
KPWP 10	5,000	73	83	14	12	1.00
KPWP 13	8,000	98	104	18	16	2.29
KPWP 16	12,500	124	123	21	19	4.32

pewag winner pro – lashing in G12

Benefits and information

Content

Benefits, labelling
Key data, sample order
Table for direct lashing
Table for frictional lashing

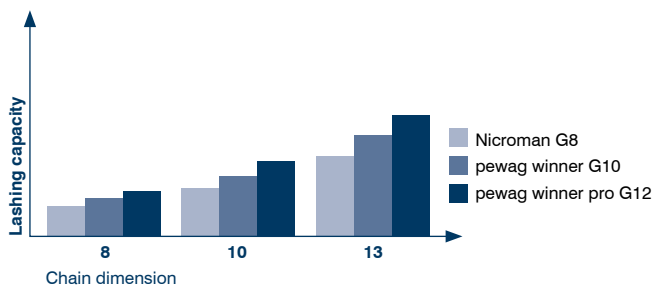


pewag lashing chains in G12 quality – benefits that speak for themselves.

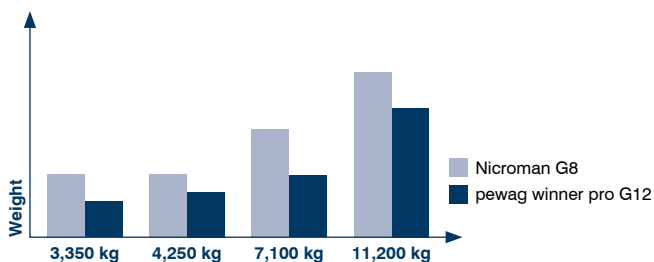
pewag winner pro lashing chains stand out for their high lashing capacities and significantly lower weight, thereby ensuring the highest level of safety as well as ease of handling.

Your benefits at a glance:

- **50% increase in lashing capacity** and therefore also in load-securing capacity compared to G8



- **The same chain dimension** secures a heavier and/or bulkier load, with a performance increase of no less than 50% compared to direct lashing in G8 and 20% compared to G10!



Admissible lashing capacity LC	G8 chain weight [kg]	pewag winner pro chain weight [kg]	% reduction
60	14.5	10.3	29 %
100	26.1	15.6	40 %
160	37.7	30.7	18 %

Admissible lashing capacity LC	chains up to now-ø	pewag winner pro chain-ø
60	10	8
100	13	10
160	16	13

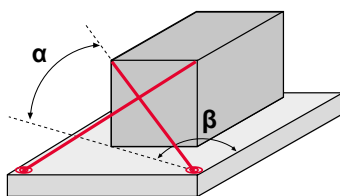
- **Frictional lashing:** To obtain the same STF value, the chain dimension may be reduced by one dimension compared to grade 8 when using winner pro (G12)
- Lashing operations using pewag winner pro result in **significantly reduced weight** and ease of handling
- **Maximum safety** thanks to special lashing tag made from rust-resistant material with separate area for regular inspection data entry

What does it mean in practice?

An overview of pewag lashing chains in G8, G10 and G12

With lashing chains in G12, it is almost always possible to go down one chain dimension.

Direct lashing of loads on trucks



	Maximum loading weight (when using 4 lashing chains $\alpha = 35^\circ$, $\beta = 30^\circ$, friction coefficient $\mu = 0.3$)		
	ZRS G8	ZRSW G10	ZRSWP G12
Lashing chain 8 mm	11.65 t	14.55 t	17.45 t
Lashing chain 10 mm	18.35 t	23.30 t	29.15 t
Lashing chain 13 mm	29.15 t	39.05 t	46.65 t
Lashing chain 16 mm	46.65 t	58.30 t	72.90 t

pewag winner pro key data - facts that speak for themselves.

Top ranking:

- **pewag WINPRO FLEX 200** – based on EN 818-2, modified in terms of dimensions, mechanical values according to G12, operating temperature 200 °C
- **Test stress:** 750 N/mm²
- **Breaking stress:** 1,200 N/mm²
- **Breaking elongation:** min. 20%
- **Bending according to EN 818-2 and PAS 1061:** 0.8 x d
- **Operating temperature:**
pewag WINPRO FLEX 200: -40 °C to +200 °C
- **Quality grade stamping:**
pewag WINPRO FLEX 200: “pewag 12” / “200” every 300 mm and 12 on the back of each link

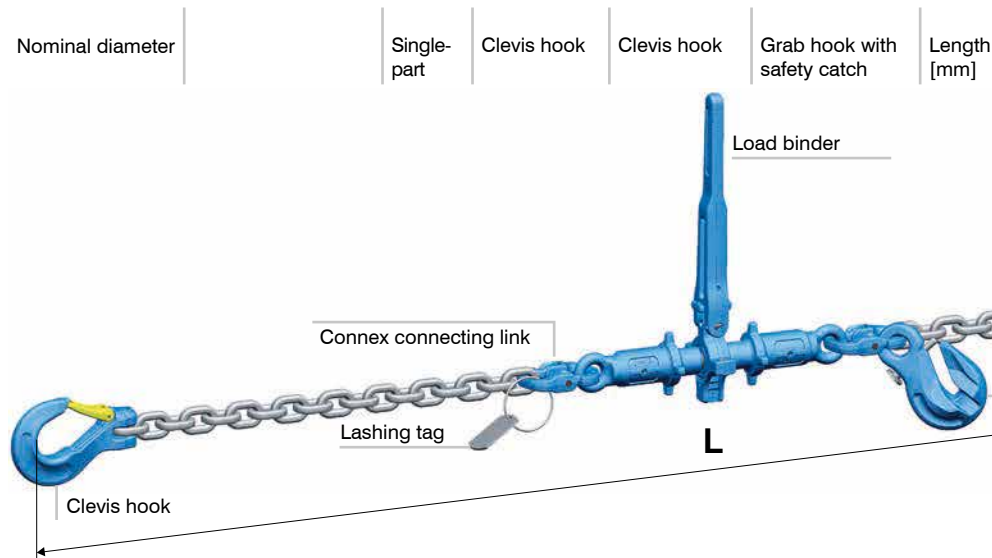
Components: 12

- **Manufacturer's name or symbol:** D16 and/or pewag
- **Surface:**
pewag WINPRO FLEX 200: with a light grey coat
Components: light blue powder coating
- **Lashing tag:** Contains all important user data according to EN 12195-3
- **Compatibility:** Please note that the compatibility of pewag winner pro chains and components with those of other grades and from other manufacturers is limited! For this reason, any combinations should be approved by pewag in advance.

Sample order texts for pewag winner pro lashing products

Below you will find a detailed example of an order for a finished and commercially available pewag lashing chain (equivalent to pewag winner pro 8 mm – single lashing chain with shortening components and clevis hook, mounted with Connex connecting links (length: 3.500 mm).

ZRSKWP 8 FLEX 200 | KHSWP – KHSWP – PSWP 3500



Direct lashing

Lashing system: WINPRO 7 chain with dimension 7 load binder (LC 47 kN; for 4 lashing chains)

Angle α	Angle β	Max. load with dynamic friction coefficient						
		0.01	0.1	0.2	0.3	0.4	0.5	0.6
20 - 35°	21 - 30°	-	-	10,150	13,700	16,550	20,400	25,950
20 - 35°	31 - 40°	7,450	8,650	10,300	12,350	15,000	18,600	23,450
20 - 35°	41 - 50°	6,250	7,350	8,850	10,700	13,100	16,150	20,350
20 - 35°	51 - 60°	4,900	5,850	7,150	8,800	10,750	13,200	16,750
36 - 50°	21 - 30°	-	-	9,250	11,900	14,750	18,650	24,200
36 - 50°	31 - 40°	-	7,100	8,750	10,850	13,550	17,200	22,450
36 - 50°	41 - 50°	4,950	6,100	7,600	9,550	12,050	15,450	20,350
36 - 50°	51 - 60°	-	4,900	6,300	8,050	10,350	13,450	17,850

Lashing system: WINPRO 8 chain with dimension 8 load binder (LC 60 kN; for 4 lashing chains)

Angle α	Angle β	Max. load with dynamic friction coefficient						
		0.01	0.1	0.2	0.3	0.4	0.5	0.6
20 - 35°	21 - 30°	-	-	13,000	17,450	21,150	26,100	33,150
20 - 35°	31 - 40°	9,550	11,050	13,150	15,750	19,150	23,750	29,950
20 - 35°	41 - 50°	8,000	9,400	11,300	13,650	16,750	20,650	25,950
20 - 35°	51 - 60°	6,250	7,450	9,100	11,200	13,700	16,850	21,350
36 - 50°	21 - 30°	-	-	11,800	15,200	18,850	23,800	30,900
36 - 50°	31 - 40°	-	9,100	11,200	13,850	17,300	22,000	28,700
36 - 50°	41 - 50°	6,300	7,750	9,700	12,200	15,400	19,750	25,950
36 - 50°	51 - 60°	-	6,250	8,050	10,300	13,200	17,150	22,800

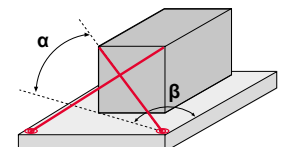
Lashing system: WINPRO 10 chain with dimension 10 load binder (LC 100 kN; for 4 lashing chains)

Angle α	Angle β	Max. load with dynamic friction coefficient						
		0.01	0.1	0.2	0.3	0.4	0.5	0.6
20 - 35°	21 - 30°	-	-	21,650	29,150	35,250	43,500	55,250
20 - 35°	31 - 40°	15,900	18,450	21,950	26,300	31,950	39,650	49,900
20 - 35°	41 - 50°	13,350	15,700	18,800	22,800	27,900	34,450	43,300
20 - 35°	51 - 60°	10,400	12,450	15,200	18,700	22,850	28,100	35,600
36 - 50°	21 - 30°	-	-	19,700	25,350	31,450	39,700	51,500
36 - 50°	31 - 40°	-	15,150	18,650	23,100	28,850	36,650	47,800
36 - 50°	41 - 50°	10,550	12,950	16,200	20,350	25,700	32,950	43,300
36 - 50°	51 - 60°	-	10,450	13,400	17,150	22,000	28,600	38,050

Lashing system: WINPRO 13 chain with dimension 13 load binder (LC 160 kN; for 4 lashing chains)

Angle α	Angle β	Max. load with dynamic friction coefficient						
		0.01	0.1	0.2	0.3	0.4	0.5	0.6
20 - 35°	21 - 30°	-	-	34,700	46,650	56,400	69,600	88,450
20 - 35°	31 - 40°	25,500	29,550	35,100	42,100	51,150	63,400	79,850
20 - 35°	41 - 50°	21,400	25,100	30,150	36,450	44,700	55,100	69,250
20 - 35°	51 - 60°	16,700	19,950	24,350	29,950	36,600	45,000	57,000
36 - 50°	21 - 30°	-	-	31,550	40,550	50,300	63,500	82,400
36 - 50°	31 - 40°	-	24,250	29,850	36,950	46,200	58,700	76,500
36 - 50°	41 - 50°	16,900	20,750	25,950	32,550	41,150	52,700	69,250
36 - 50°	51 - 60°	-	16,700	21,450	27,450	35,250	45,800	60,900

This table provides information on how to get the best use from the pewag lashing systems. The loads specified are maximum loads that may be secured using four equal lashing chains and given the specified angles and dynamic friction factors. Additional securing methods (i.e. wedges or similar) that may be used to secure even heavier weights have not been taken into account. Please contact our customer service for more information. Every pewag lashing product has its own table. The maximum forces resulting from acceleration, braking and avoidance manoeuvres in road traffic acc. to EN 12195-1 were taken into account. Different tables apply for transport by rail and sea. Our customer service team will be pleased to provide additional information.



Frictional lashing

Tensioner with an STF value of: 1900 daN

Angle to surface α	Max. load/chain with dynamic friction coefficient					
	0.1	0.2	0.3	0.4	0.5	0.6
90	430	1,010	1,820	3,040	5,060	9,120
85	430	1,000	1,810	3,020	5,040	9,080
80	420	990	1,790	2,990	4,980	8,980
70	400	950	1,710	2,850	4,760	8,560
60	370	870	1,570	2,630	4,380	7,890
50	330	770	1,390	2,320	3,880	6,980
40	270	650	1,170	1,950	3,250	5,860
30	210	500	910	1,520	2,530	4,560

Tensioner with an STF value of: 2200 daN

Angle to surface α	Max. load/chain with dynamic friction coefficient					
	0.1	0.2	0.3	0.4	0.5	0.6
90	500	1,170	2,110	3,520	5,860	10,560
85	500	1,160	2,100	3,500	5,840	10,510
80	490	1,150	2,070	3,460	5,770	10,390
70	470	1,100	1,980	3,300	5,510	9,920
60	430	1,010	1,820	3,040	5,080	9,140
50	380	890	1,610	2,690	4,490	8,080
40	320	750	1,350	2,260	3,770	6,780
30	250	580	1,050	1,760	2,930	5,280

Tensioner with an STF value of: 2500 daN

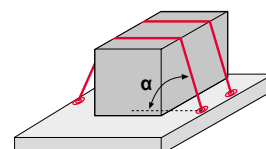
Angle to surface α	Max. load/chain with dynamic friction coefficient					
	0.1	0.2	0.3	0.4	0.5	0.6
90	570	1,330	2,400	4,000	6,660	12,000
85	560	1,320	2,390	3,980	6,640	11,950
80	560	1,310	2,360	3,930	6,560	11,810
70	530	1,250	2,250	3,750	6,260	11,270
60	490	1,150	2,070	3,460	5,770	10,390
50	430	1,020	1,830	3,060	5,100	9,190
40	360	850	1,540	2,570	4,280	7,710
30	280	660	1,200	2,000	3,330	6,000

Tensioner with an STF value of: 3000 daN

Angle to surface α	Max. load/chain with dynamic friction coefficient					
	0.1	0.2	0.3	0.4	0.5	0.6
90	680	1,600	2,880	4,800	8,000	14,400
85	680	1,590	2,860	4,780	7,960	14,340
80	670	1,570	2,830	4,720	7,870	14,180
70	640	1,500	2,700	4,510	7,510	13,530
60	590	1,380	2,490	4,150	6,920	12,470
50	520	1,220	2,200	3,670	6,120	11,030
40	440	1,020	1,850	3,080	5,140	9,250
30	340	800	1,440	2,400	4,000	7,200

This table provides information on how to get the best use from the pewag lashing systems. The loads specified are maximum loads that may be secured using four equal lashing chains and given the specified angles and dynamic friction factors. Caution: Use at least two lashing devices for frictional lashing operations! Additional securing methods (i.e. wedges, using the side panel as a blocker etc.) that may be used to secure even heavier weights have not been taken into account in the table. Please contact our customer service for more information.

The values specified in the table only apply to situations where the lashing system on both sides of the load is not subject to the same tension force (STF) due to the deflection and edges. If this can be determined (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, which is shown on the lashing system's tag. Every lashing system has its own table. The maximum forces resulting from acceleration, braking and avoidance manoeuvres in road traffic acc. to EN 12195-1 were taken into account. Different tables apply for transport by rail and sea. Our customer service team will be pleased to provide additional information.



Accessories in G12 – lashing and lashing chain systems

Product overview

Content

Product overview: lashing

RSKWP Load binder

RSWP Load binder

RPSWP Load binder

RSPSWP Load binder

KSPSWP Ratchet binder

ZRSWP | KHSWP - KHSWP - PSWP Lashing chain

ZKWP | KHSWP - KHSWP Lashing chain















Product overview: lashing

What accessories from the lifting programme are suitable for lashing operations?

This table provides an overview of the accessories from our lifting programme that are also recommended for lashing operations. Please be aware that because of different standard specifications, the maximum load for lashing operations is different to the working load limit for lifting applications.

The admissible lashing capacity as specified in the table below must be taken into account for lashing operations.

Dimension	7	8	10	13	16*
Lashing capacity LC [kN]	47	60	100	160	250
Lashing accessories					
WINPRO 200 	WINPRO 7	WINPRO 8	WINPRO 10	WINPRO 13	WINPRO 16
AWP 	AWP 13	AWP 16	AWP 18	AWP 22	AWP 27
MWP 	MWP 13	MWP 16	MWP 18	MWP 26	
CWP 	CWP 7	CWP 8	CWP 10	CWP 13	CWP 16
HSWP 	HSWP 7	HSWP 8	HSWP 10	HSWP 13	
LHWP 	LHWP 7	LHWP 8	LHWP 10	LHWP 13	
KHSWP 	KHSWP 7	KHSWP 8	KHSWP 10	KHSWP 13	KHSWP 16
KLHWP 	KLHWP 7	KLHWP 8	KLHWP 10	KLHWP 13	
KLHGWP 	KLHGWP 7	KLHGWP 8	KLHGWP 10	KLHGWP 13	KLHGWP 16
PSWP 	PSWP 7	PSWP 8	PSWP 10	PSWP 13	
KPSWP 	KPSWP 7*	KPSWP 8*	KPSWP 10*	KPSWP 13*	KPSWP 16*
ISWP 			ISWP 10		

* Possible upon request

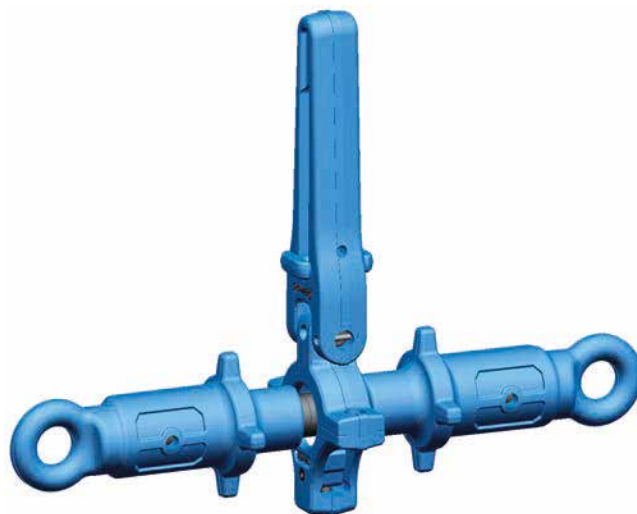
Assurance, double sure.

This load binder, newly developed by pewag, stands for safety at the highest level. It is suitable for direct lashing as well as for frictional lashing (always take note of the STF value) in the pewag winner pro Connex system.

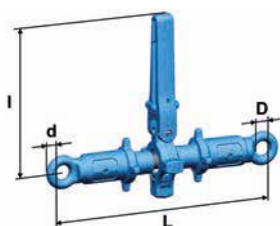
The slot on the the lever snaps into place either between two nubs or over one nub, and the added safety catch ensures that the load binder remains in the correct position, offering double safety for the user as the unintended loosening of the lashing assembly is prevented. The flat design, obtained by folding down the lever, reduces the risk of injuries for users and prevents them from getting caught in the assembly. The load binder also comes with several additional advantages: it is easy to store and to transport and also offers theft protection as it may be locked using a separate shackle lock.

The long tension range makes the load binder particularly easy to use, as the chain may be shortened and tensioned with a minimum amount of force. Thanks to the open system, the safety catch and the thread condition are easy to check and maintain as needed. The RSKWP load binder is manufactured according to EN 12195-3 with the mechanical values for G12 and comes with a full operating manual.

Note: The RSKWP load binder may also be used for lifting operations. Please contact the pewag customer service for more information.



RSKWP Load binder



Code	Lashing capacity LC [kN]	Standard tensioning force STF [daN]	Length when closed L [mm]	Length when open L [mm]	Tension range [mm]	Lever length l [mm]	D [mm]	d [mm]	Weight [kg/unit]
RSKWP 7/8	60	2,200	360	536	176	237	23	16	5.20
RSKWP 10	100	2,500	360	536	176	360	23	16	5.50
RSKWP 13	160	3,000	569	894	325	411	35	23	8.40
RSKWP 16	250	-	569	894	325	411	35	23	8.40



Folding position



Anti-theft option

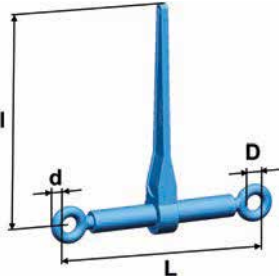
pewag^{RSWP} Load binder

Get some leverage.

This universal load binder with an optimised lever length for one- and two-part lashing chain systems is suitable for direct lashing as well as for frictional lashing in the pewag winner pro Connex system and corresponds to EN 12195-3, with the lashing capacity of G12.

Please refer to the tables on p. 52 and 53 for the correct selection of load binders and accessories, taking into account the load to be secured and the local conditions.



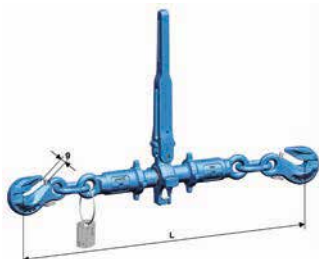
RSWP Load binder	Code	Marking/ stamps	Lashing capacity LC [kN]	Standard tensioning force STF [daN]	Length when closed L [mm]	Length when open L [mm]	Tension range [mm]	Lever length l [mm]	D [mm]	d [mm]	Weight [kg/unit]
	RSWP 7/8	Type A	60	1,900	355	497	142	237	20	16	3.20
	RSWP 10	Type B	100	3,000	365	505	140	355	26	18	3.80
	RSWP 13	Type C	160	2,500	576	865	289	359	31	22	9.90

Designed for two-part lashing systems.

Together with the ZKWP lashing chains on page 63, the RPSWP load binder was developed for two-part lashing systems. The benefits offered by the RSKWP thus also apply to these universal systems and include a long tension distance, a safety mechanism to prevent accidental loosening, the turndown lever that minimises risk potential, and the option to secure the load binder and thus the entire load against theft using a padlock.

In addition, these load binders offer at least a 50% higher lashing capacity than grade 8 load binders, and thus the option of downsizing to the next lower chain dimension.

Note: The RPSWP load binder is not a standard stock item and available upon request only.



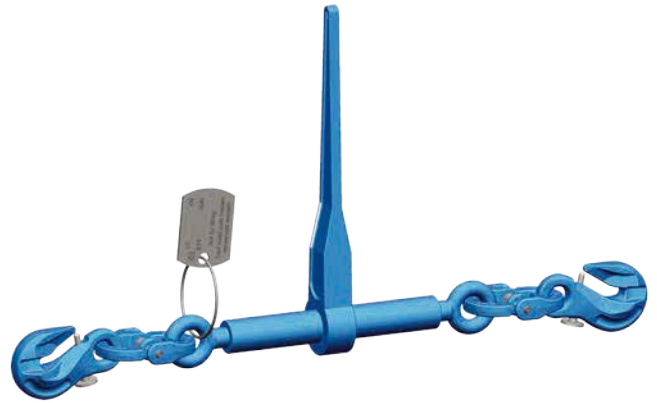
RPSWP Load binder	Code	Lashing capacity LC [kN]	Standard tensioning force STF	Length when closed L	Length when open L	Clamping range [mm]	Lever length l [mm]	Jaw size g [mm]	Weight [kg/unit]
			[daN]	[mm]	[mm]				
	RPSWP 7	47	2,200	604	780	176	237	10	6.60
	RPSWP 8	60	2,200	604	780	176	237	10	6.60
	RPSWP 10	100	2,500	676	852	176	360	13	8.32
	RPSWP 13	160	3,000	959	1,284	325	411	17	13.54

The element for tension

This load binder for two-part lashing chain systems in accordance with EN 12195-3 is intended for use with the ZKWP lashing chain. It includes the pre-mounted shortening hook including safety catch. Depending on the selected lever length (always take the STF value into account!), all sizes are also suitable for frictional lashing.

As specified in the full operating manual, this load binder is not suitable for lifting or attaching loads. The lashing capacity is at least 50% higher than for grade 8.

Thanks to the pre-mounted shortening hook, the load binder may be positioned anywhere in the ZKWP lashing chain - this element is bound to create some tension!

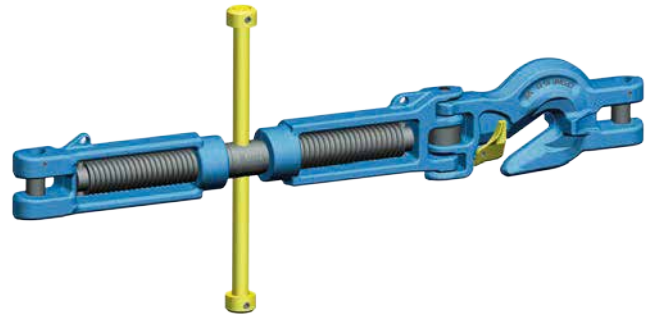


RSPSWP Load binder	Code	Lashing capacity LC [kN]	Standard tensioning force STF [daN]	Length when closed L [mm]	Length when open L [mm]	Tension range [mm]	Lever length l [mm]	Jaw size g [mm]	Weight [kg/unit]
	RSPSWP 7	47	1,900	618	760	142	237	10	4.60
	RSPSWP 8	60	1,900	617	759	142	237	10	4.90
	RSPSWP 10	100	3,000	697	837	140	355	13	6.70
	RSPSWP 13	160	2,500	1,009	1,298	289	359	17	15.70

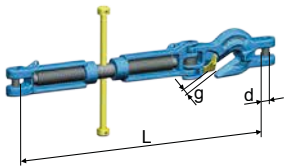
Tension you can rely on.

The KSPSWP ratchet binder was developed for direct lashing applications in single-part lashing systems. The grab hook is attached directly to the binder, making very short lengths possible. The latch is easier to operate than in previous safety systems and the binder comes with a long tension range, ensuring sufficient tension at all times.

A safety chain and safety catch mechanism are available as spare parts. For more information, please contact the pewag customer service.



KSPSWP
Ratchet binder



Code	Lashing capacity LC [kN]	Standard tensioning force STF [daN]	Length when closed L [mm]	Length when open L [mm]	Tension range [mm]	d [mm]	g [mm]	Weight [kg/unit]
KSPSWP 10	100	-	440	621	181	14	12.5	4.10

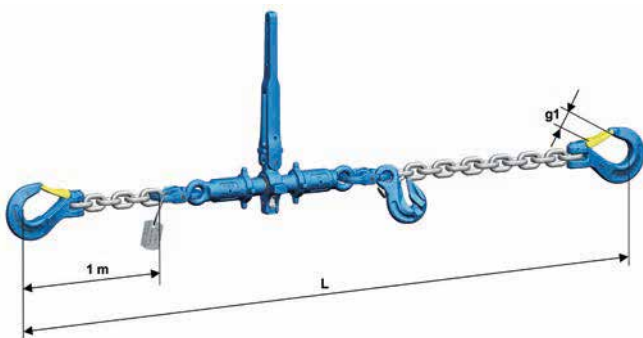
Higher lashing capacity, bigger loads.

This lashing chain surpasses the requirements of EN 12195-3 as it has a 50 % higher lashing capacity than standard G8 lashing chains, allowing you to downsize to the next lower chain and saving weight and cost in the process. It comes in a modular design, a standard length of 3,500 mm and is also suitable for frictional lashing, provided that the STF value is taken into account. Thanks to the clevis hooks with a jaw size that is larger by 10 mm and the shorter length compared to eye sling hooks and Connex, this chain is more flexible and opens up more universal application possibilities. Other end fittings/combinations and delivery lengths are available upon request and with short delivery times.

Please note that the product must not be used for lifting or attaching loads. A full operating manual tells you all you need to know on how to use the chain to its best advantage. For a better overview, please refer to the tables "direct lashing" and "frictional lashing" on pages 52 and 53.



Code	Lashing capacity LC [kN]	Standard tensioning force STF [daN]	Length when closed L [mm]	Tension range [mm]	Jaw size g1 [mm]	Weight [kg/unit]
ZRSKWP 7 200 I KHSWP-KHSWP-PSWP 3500 Connex	47	2,200	3,500	176	36	11.72
ZRSKWP 8 200 I KHSWP-KHSWP-PSWP 3500 Connex	60	2,200	3,500	176	36	12.57
ZRSKWP 10 200 I KHSWP-KHSWP-PSWP 3500 Connex	100	2,500	3,500	176	41	18.47
ZRSKWP 13 200 I KHSWP-KHSWP-PSWP 3500 Connex	160	3,000	3,500	325	49	30.75



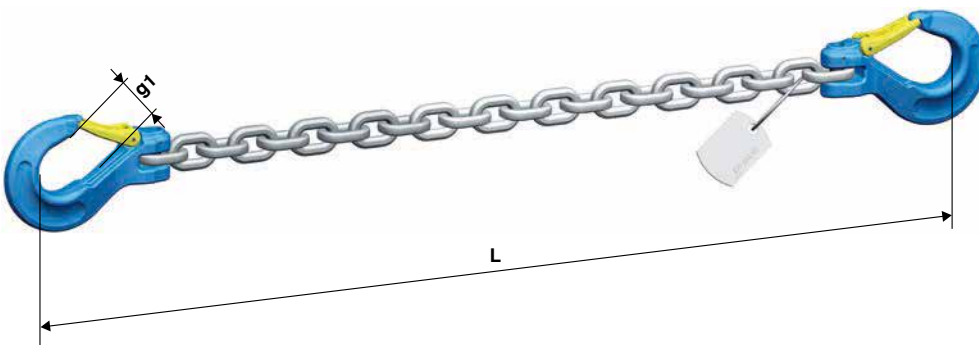
Two parts for perfect strength.

This lashing chain is manufactured according to EN 12195-3 and comes with a 50 % higher admissible lashing capacity than standard lashing chains in G8, allowing you to downsize to the next lower chain and saving weight and cost in the process. It is thus perfect for securing loads and intended as a lashing chain for a two-part, modular system, in a standard length of 3,500 mm, to be used either with the RPSWP or RSPSWP load binder. Thanks to the clevis hooks with a jaw size that is larger by 10 mm and the shorter length compared to eye sling hooks and Connex, this chain is more flexible and opens up more universal application possibilities.

Other end fittings/combinations and delivery lengths are available upon request and with short delivery times. Please note that the product must not be used for lifting or attaching loads. A full operating manual tells you all you need to know on how to use the chain to its best advantage. For a better overview, please refer to the tables “direct lashing” and “frictional lashing” on pages 52 and 53.



Code	Lashing capacity LC [kN]	L [mm]	Jaw size g1 [mm]	Weight [kg/unit]
ZKWP 7 200 I KHSWP-KHSWP 3500	47	3,500	36	6.15
ZKWP 8 200 I KHSWP-KHSWP 3500	60	3,500	36	7.05
ZKWP 10 200 I KHSWP-KHSWP 3500	100	3,500	41	11.82
ZKWP 13 200 I KHSWP-KHSWP 3500	160	3,500	49	21.08



Spare parts

Product overview

Content

CBHWP Bolt + safety bush
SFGWP Safety catch set
SFGWP-K Safety catch set
KBSWP Clevis load pin
VLHWP Trigger sets
VLHGWP Trigger sets
PSGWP Safety pin set
SSWP Stopper set
SIWP Safety catch set
FEGWP Spring set
SBSWP-LH and RH Safety catches
IDWP Tag sets for lifting
IDWP Tag set for lashing



pewag ^{***} CBHWP Bolts + safety bush

CBHWP Bolts + safety bush



Code

For Connex connecting link

CBHWP 7	CWP 7
CBHWP 8	CWP 8
CBHWP 10	CWP 10
CBHWP 13	CWP 13
CBHWP 16	CWP 16

pewag ^{***} SFGWP Safety catch set

SFGWP Safety catch set



Code

For hook type

SFGWP 7/8	HSWP 7/8
SFGWP 10	HSWP 10
SFGWP 13	HSWP 13

pewag ^{***} SFGWP-K Safety catch set

SFGWP-K Safety catch set



Code

For hook type

SFGWP-K 7/8	KHSWP 7 + KHSWP 8
SFGWP-K 10	KHSWP 10
SFGWP-K 13	KHSWP 13
SFGWP-K 16	KHSWP 16

pewag^{***} KBSWP Clevis load pin

KBSWP Clevis load pin



Code	For hook type
KBSWP 7	KHSWP 7, KLHWP 7, KLHGWP 7, KPWP 7
KBSWP 8	KHSWP 8, KLHWP 8, KLHGWP 8, KPWP 8
KBSWP 10	KHSWP 10, KLHWP 10, KLHGWP 10, KPWP 10, ISWP 10
KBSWP 13	KHSWP 13, KLHWP 13, KLHGWP 13, KPWP 13
KBSWP 16	KHSWP 16, KLHGWP 16, KPWP 16

pewag^{***} VLHWP Trigger set

VLHWP Trigger set



Code	For hook type
VLHWP 7/8	LHWP 7/8, KLHWP 7, KLHWP 8
VLHWP 10	LHWP 10, KLHWP 10
VLHWP 13	LHWP 13, KLHWP 13

pewag^{***} VLHGWP Trigger sets

VLHGWP Trigger set



Code	For hook type
VLHGWP 7/8	KLHGWP 7, KLHGWP 8
VLHGWP 10	KLHGWP 10
VLHGWP 13	KLHGWP 13
VLHGWP 16	KLHGWP 16

pewag[®] PSGWP Safety pin set

PSGWP Safety pin set



Code

PSGWP 7/8
PSGWP 10
PSGWP 13

For hook type

PSWP 7/8
PSWP 10
PSWP 13

pewag[®] SSWP Stopper set

SSWP Stopper set



Code

SSWP 10

For hook type

ISWP 10

pewag[®] SIWP Safety pin set

SIWP Safety pin set



Code

SIWP 10

For hook type

ISWP 10

pewag^{***} FEGWP Spring set

FEGWP Spring set



Code

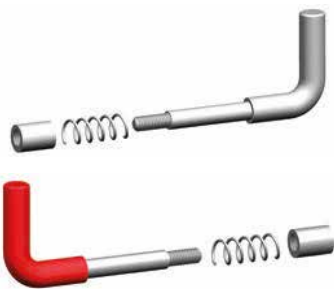
FEGWP 10

For hook type

ISWP 10

pewag^{***} SBSWP Safety catches

SBSWP Safety catches



Code

SBSWP-LH 16

SBSWP-RH 16

For hook type

CHWP 16 LH

CHWP 16 RH

pewag^{***} IDWP Tag sets for lifting

IDWP Tag sets for lifting



Code

IDWP Tag set neutral

For lifting chains

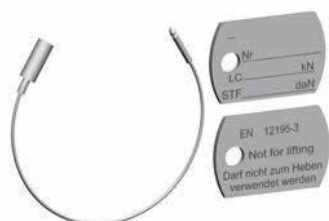
I- and multi-leg

Consists of

Tag neutral + rope with quick fastening mechanism

pewag^{***} IDWP tag set for lashing

IDWP tag set for lashing



Code

IDWP Lashing

Consists of

Tag neutral + rope with quick fastening mechanism

User information

for lifting and lashing in G12

Content

User information for pewag lifting equipment
User information for pewag lashing equipment
Notes



User information

General and safety-specific information on usage, storage, inspection and maintenance of pewag lifting equipment

General information

Like many other pewag quality products, the pewag winner pro chain system stands out for its versatility and flexible application modes when it comes to lifting loads. Prior to use, a competent person must determine whether the equipment is suitable for the intended application. If in doubt, please consult pewag directly. All information on the area of application is based on EN 818-6. All information on the assembly of chain slings and their working load limit refer without exception to the standard method of rating (Uniform Load) with the angle ranges 0–45° and 45–60°.

There is also an alternative method in existence for rating the product's working load limit, for which the specific application scenario of the chain and all operating conditions must be known. In such a case, please contact the pewag Technical Service team, as the information contained in the catalogues does not apply to such processes. pewag winner pro lifting chains may only be adjusted, inspected and serviced by competent personnel.

Responsibility is key

If pewag lifting equipment is used correctly and by competent persons, they have a long lifespan and provide the highest possible safety standards.

Material and personal damage can be avoided by reading this user information carefully and handling all lifting processes in a responsible, provident manner.

Changes to the condition as delivered

Modifying the original condition of the lifting accessories by bending, grinding, removal of parts, welding, drilling, stamping etc. means exposing yourself and others to unnecessary danger. In such a case, safety can no longer be guaranteed and usage becomes dangerous. Such potentially hazardous modifications include heating products to a temperature of more than 200 °C and removing safety parts such as safety pins, sleeves, catches etc. Do not apply any surface coatings to the pewag winner pro chain system, i.e. do not subject products to hot galvanizing or electrogalvanizing. Dipping or removing a coating with chemicals are potentially dangerous processes that may give rise to hazards.

We urgently recommend customers to check with the pewag technical team first.

Assembly of chain slings

pewag winner pro chains and accessories may only be assembled by competent persons using exclusively original parts included in the scope of delivery, i.e. bolts, safety pins etc. When pewag winner pro chains and components are to be combined with chains and components of other suppliers, each individual case must be assessed by a competent person. Please note that pewag accepts not liability for damage resulting from such combinations.

Please ensure that the working load limit is based on the weakest link in the assembly during every application. Labelling and/or colour-coding help prevent situations where the working load limit is misjudged - for pewag, this is one of the key safety areas.

Restrictions of use

For hazardous or dangerous conditions, please refer to the table on page 18.

Temperature effects

The table on page 18 lists the load reduction values in case of extreme temperatures. These apply until the chain and/or the lifting accessories have once again reached a temperature of less than 200 °C. pewag winner pro lifting accessories must on no account be used outside the indicated temperature range. If this has been the case, the chains must be removed from service.

Exposure to acids, caustic solutions or chemicals

pewag winner pro lifting equipment must not be used in acids or caustic solutions or be exposed to their vapours. Caution: Certain manufacturing methods release acids and/or vapours! If the use of pewag winner pro lifting equipment with highly concentrated chemicals cannot be avoided, please make sure to obtain the express approval of such usage by a pewag expert.

Hazardous conditions

The working load limits as defined in this catalogue do not apply to hazardous conditions. Hazardous conditions e.g. are present when lifting accessories are used offshore, in potentially explosive areas or for the lifting of persons or potentially dangerous goods such as liquid metal, corrosive or caustic substances or nuclear material. If lifting equipment is to be used for such purposes, the extent of the risk is to be assessed by an expert, the working load limit must be adjusted accordingly and incorrect usage in hazardous conditions must be avoided at all cost. As a rule, usage in hazardous conditions should be avoided.

Prevention is better than cure!

Before using any lifting accessory, several inspections must be performed:

- Does the lifting chain correspond to the order?
- Has the inspection certificate or certificate of conformity been supplied?

- Do the markings and working load limit stated on the lifting chain correspond to the information given on the inspection certificate or certificate of conformity?
- Have all the particularities of the chain sling been entered into a register of lifting equipment, if required?
- Has the operating manual outlining the correct use of lifting chains been read and understood by the user?

Please check the lifting accessories for visible signs of damage or wear prior to each use and follow these guidelines: In case of any doubt or damage, do not use the lifting devices and have them inspected by a competent person.

Inspections by a competent person must be performed in accordance with national legislation, but at least once every 12 months. If the lifting chain is frequently used at the working load limit, more frequent inspections are required! Please note that the lifting chain must also be inspected after unusual events, for instance uncontrolled exposure to heat, overloading or collision.

We recommend subjecting the lifting chain to a performance test with 2 times the working load limit every two years, followed by a visual inspection or another type of crack test.

Visual inspection criteria

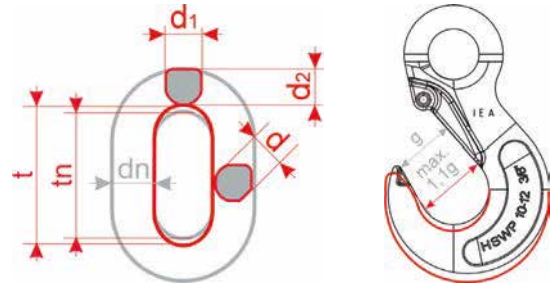
If at least once of the criteria listed below manifests itself during the visual inspection, all parts must be removed from service.

- Breakage of a component
- Illegible or missing marking of the chain sling (i.e. information on identification data and/or working load limit)
- Deformation of suspension or sling parts or the chain itself
- Elongation of the chain resulting in $t > 1.05 t_n$
- Wear as determined by the mean value of two measurements of diameters d_1 and d_2 carried out at a right angle as shown.

The chain must be replaced when any of the following conditions apply:

$$dm = \frac{d_1 + d_2}{2} \leq 0.9 dn$$

- Wear of edges if $d < dn$
- Visible damage such as cuts, notches, grooves, surface cracks, discolouration due to excessive heat exposure, signs of subsequent welding, bent or twisted links or other flaws
- Cracks and cross-cracks that are visible to the naked eye
- Missing or non-functional safety device as well as signs of widening or twisting of hooks, i.e. noticeable enlargement of the opening or other forms of deformation. The critical point is reached when the enlargement of the opening exceeds 10% of the nominal value. If the safety catch is open, as this indicates that the hook is overloaded.



Correct maintenance

Please note that all maintenance activities of pewag lifting accessories must be handled by competent persons. Only pewag winner pro spare parts may be used to minimise the risk of improper use.

Precise documentation

All inspections and their results must be recorded and these records be kept throughout the service life of the lifting chains.

Maximum admissible dimensional change (based on the nominal dimension):

Designation	Dimension	Maximum deviation
Chain	dn	-10 %
	t_n	+5 %
	Wear at edges	$d = dn$
Rings	d	-10 %
	t	+10 %
Hooks	e	+5 %
	d_2 and h	-10 %
	g	+10 %
	a	-10 %
LHWP, KLHWP, KLHGWP	Tip opening s	smaller 2x s_{max} .
Connecting links	Halves must be	able to move
	e	+5 %
	c	-10 %
Clevis and Connex pins	d	-10 %

Precise records of this sort constitute the best basis for effective maintenance.

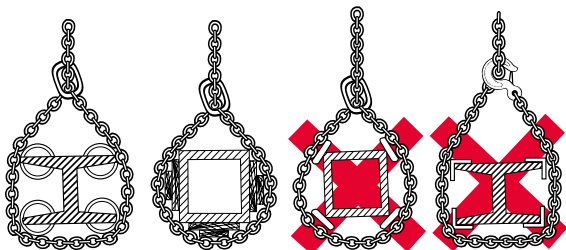
Clean storage

pewag lifting chains must always be stored in a clean and dried condition and protected against corrosion, i.e. slightly lubricated.

Correct use of lifting chains

The right angle of inclination

To ensure safe handling, the slinging points and chain types must be selected in such a way that the angles of inclination of all chain strands (legs) lie within the data given on the WLL tag. Preferably, all angles of inclination should be the same. Avoid angles of inclination of less than 15° because of the high risk of load instability. Never use lifting chains with the angle of inclination exceeding 60°!



Edge-loading - know your limits

The maximum working load limit of pewag winner pro lifting chains assumes that the individual chain legs are pulled straight under load, i.e. that they do not run over edges. However, if edge-loading is unavoidable, load protection (padding) should be used to avoid damage (see illustration): If chains are guided over edges without proper protection, their working load limit is significantly reduced and safe usage can no longer be guaranteed. See the table on page 18 for the corresponding load factors. Where chains have to be looped around beams or other round-shaped loads, the diameter should be at least 3 times the chain pitch. For smaller diameters, the working load limit of the chains must be reduced by 50%.

Impact-/shock-loading

For the working load limits of pewag winner pro lifting chains to apply, it is assumed that the individual chain strands are not subjected to impact- or shock-loading. In cases of possible impact/shock, the load factors on page 18 apply for determining the exact working load limit.

Classification of impacts

- Slight impact may result from accelerated lifting or lowering operations.
- Medium impact may result from the chain slipping while adjusting itself to the shape of the load.
- Strong impact results for instance from the load falling into the unloaded chain.

Vibrations

If they are used correctly, pewag winner pro lifting chains and accessories withstand high load cycles. In case of high dynamic loads, there is a risk of the chain or components getting damaged.

The Berufsgenossenschaft Metall Nord Süd recommends reducing stress at WLL by using a larger nominal thickness/size in such a case.

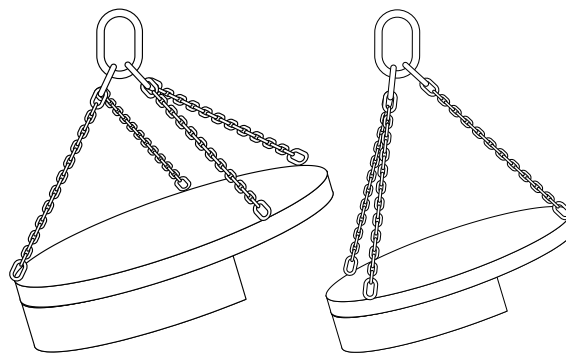
Symmetrical loading

For the working load limits of pewag winner pro lifting chains to apply, it is assumed that the individual chain strands are placed under load symmetrically. When the load is lifted, this results in equal angles of inclination and the individual strands are symmetrical to each other.

The load may be considered symmetrical when all of the following conditions apply:

- The load is less than 80% of the indicated working load limit (WLL).
- The angles of inclination of all chain strands are not lower than 15° and are very similar (i.e. only differ by a maximum of 15°).
- For three- and four-stranded lifting chains, it must be ensured that the corresponding plane angles are within 15° of each other.

Be careful!



The main part of the load is carried by just one leg.

The main part of the load is carried by two legs.

If not all of these parameters are complied with, the load cannot be considered symmetrical and the classification of the lifting operation must be left to an expert. In case of doubt, only one chain strand (leg) should be considered as load-bearing. For the corresponding working load limits, please refer to the table on page 16-17.

Improper use defeats the purpose

pewag winner pro lifting chains offer perfect quality standards if they are used according to their intended purpose. In cases where not all individual legs are used simultaneously or where several lifting chains are used at the same time, different working load limits apply as outlined in the table on page 18. Alternatively, or in cases of doubt regarding the proper classification, the working load limit as indicated on the WLL tag may be modified according to the following table:

Type of lifting chain	Number of individual legs used	Use factor in relation to the WLL given on the tag
II-leg	1	1/2
III- and IV-leg	2	2/3
III- and IV-leg	1	1/3
2x I-leg	2	1.4
2x II-leg	3 or 4	1.5

Precautions

- Hang any individual strands that you do not use back into the master link to prevent hazards caused by freely swinging chains or unintended hooking.
- Before using several chain slings at the same time, make sure that the hook is big enough for all the master rings. Make sure that the master rings cannot fall out of the hook during lifting.
- Angles of inclination of more than 45° must be avoided.
- Use only chain slings of the same nominal thickness and grade at the same time.

Detailed original operating manuals for all the premium pewag products are available for download at www.pewag.com. Our manuals are subject to a continuous improvement process to ensure that they are always up to date. For this reason, always refer to the latest version of a manual.

User information

User information on pewag winner lashing equipment

General information

In general, the same information applies to the pewag winner pro chain system if used as lashing equipment as to lifting purposes. However, the following additional information must be taken into account:

- pewag winner pro lashing chains were developed to secure loads during transport. If used correctly, the lashing chains have a long lifespan and provide the highest possible safety standards. Personal and material damage are best prevented by ensuring correct use. Please note that pewag winner pro lashing chains may only be used once the user information has been read and understood in full. A responsible, provident approach towards load-securing is crucial at all times.
- We offer tools to assist with selection and proper usage of the lashing chain assemblies. Nevertheless, adequate experience of load securing and use of lashing equipment is indispensable.
- Only authorised and competent persons as defined by EN 12195-1 and -2 are allowed to assemble and use pewag winner pro lashing chain systems.
- Caution: Lashing chains have safety factor = 2, lifting chains have safety factor = 4. This means that, for safety reasons, lashing chains must not be used as lifting chains! Therefore, lashing chains must always have the correct identification tag with the appropriate warning.
- When the number of the lashing assemblies is calculated according to EN 12195-1, occasional impact loads are acceptable. They will be balanced by the vehicle's suspension system and by the flexibility of the lashing system.

Information on use

Lashing points

Choose lashing points in such a way that the angles of the lashing chain assemblies are within the range given in our lashing table and the lashing chain assemblies are symmetrical to the driving direction. Use only lashing points with adequate strength.

Safe selection

When selecting the appropriate lashing chain system, consider the lashing method required and the load that needs to be secured. Size, shape and weight of the load as well as the intended usage category (frictional lashing, direct lashing,...) and the transport environment (additional utilities, lashing points,...). must be taken into account for selecting the appropriate system.

For **frictional lashing**, we recommend using lashing straps because of their low weight and higher elongation. Only select lashing equipment where the label or tag specifies an STF value.

For **direct lashing**, we recommend using lashing chains because of the high lashing capacity and low elongation. To ensure that the minimum number of lashing systems is used, we recommend direct lashing to secure loads, especially for heavy loads. The number of lashing systems may be calculated according to EN12195-1.

In accordance with this standard, pewag has integrated **the most commonly used lashing methods** in easy-to-use lashing tables that facilitate the choice of the right lashing chain. For more detailed information, please refer to pages 52 and 53.

For optimal stability, always use at least two lashing chains for frictional lashing and two pairs of lashing chains for diagonal lashing. Always ensure that the lashing chains are both long and strong enough for the application you have in mind! When in doubt, always opt for a **higher level of safety** to prevent overloading the chains.

All connecting parts of the lashing chains such as hooks and rings must be **free to move** within the lashing point and **adjustable in the direction of pull**. Bending stress on the accessories and tip loading of the hooks are not permissible. Hooks may only be loaded at the bearing area.

Lashing chains should never be used in conjunction with lashing straps as different lashing devices display different behaviours and elongation properties under load. If you have any further questions or require information on possible exceptions, please contact the pewag technical customer service.

Proper use

Proper and correct lashing practice is at the centre of any safe application. Before lashing, plan the lashing process and the release/opening of the lashing system. During a longer trip, consider possible partial unloading. Watch out for overhead lines during loading and unloading and remove all lifting devices before starting the lashing process.

The maximum manual force of 50 daN applied during the tensioning of the tensioning equipment may only be applied by hand. Do not use mechanical auxiliary devices such as levers or bars. Be sure to sufficiently protect edges.

Also check the **tension of the lashing chain** regularly during transport. Before opening the lashing chain system, always check that the load is safe and that there is no risk of goods falling off or falling over. Where required, attach any lifting equipment for further transport to the load immediately.

Prior to unloading, the lashing chains must be released far enough to ensure that the load is free-standing. Always ensure that there is no risk of the lashing chain getting tangled up during unloading.

Dynamic friction coefficient

Different dynamic friction coefficients apply to different material pairs, as shown in the following table: If in doubt, apply the lower value with the worse adhesion factor.

Material	dry	wet	oiled
Wood/Metal	0.20 – 0.50	0.20 – 0.25	0.05 – 0.15
Metal/Wood	0.20 – 0.50	0.20 – 0.25	0.02 – 0.10
Metal/Metal	0.10 – 0.25	0.10 – 0.20	0.01 – 0.10
Concrete/Wood	0.30 – 0.60	0.30 – 0.50	0.10 – 0.20

All dimensions given in this catalogue are nominal and subject to different production tolerances that result from the manufacturing process. Please contact our customer service for more information.

Waar kunt u ons vinden?

Voor uw dichtstbijzijnde vestiging kunt u kijken op **samenvoorkwaliteit.nl**

Wij zijn 24/7 bereikbaar in geval van calamiteiten.



LiftingPlus
Hijsen met visie

samenvoorkwaliteit.nl

NB van den Berg Bros
Takeltechniek

LiftingPlus BV

Eekhorstweg 21
7942 JC Meppel

T 0522 82 09 05

E info@liftingplus.nl

LiftingPlus Twente BV

Kleibultweg 88a
7575 BX Oldenzaal

T 0541 82 02 80

E info@liftingplus.nl

liftingplus.nl

Van den Berg Bros Takeltechniek BV

Einsteinstraat 8a
8606 JR SNEEK

T 0515 41 44 40

E info@vandenbergbros.nl

takeltechniek.nl