pewag

WORLD'S STRONGEST CHAIN

www.pewag.com

pewag winner pro
Chain system in G12

Lifting and Lashing

Content

Strength through innovative profile

pewag is the technological innovator and first manufacturer world-wide to offer a G12 lifting chain program since 2003 with its unique and intelligent profile design in highest quality.

The pewag winner pro chain system can be used for overhead lifting, lashing applications and for severe applications.

Welcome to the pewag group

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

Determination to innovate

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

Driven by our determination to innovate, we at pewag manufacture the world's best chains today and in the future. The high quality of our products and services as well as the passionate commitment of our employees guarantee safety for moving people and goods. Our customers set the benchmark for our achievements.

Principles of pewag group

Brands
The values of our premium brands are demonstrated by our first class quality and innovations and are communicated consistently and coherently. We anticipate market demands and changes in the environment and adapt our strategies, organization and actions accordingly.

Due diligence
In all our processes we use due diligent business practices and efficiency and strive to improve these continuously. In the long run, high profits secure the future of the organization and the growth of the corporate group.

Technological leadership
We secure our technological leadership through highest product quality, constant improvements and innovations of products, as well as manufacturing processes. We commit ourselves to careful treatment of the environment by reducing the use of energy and raw materials, ensuring the longevity of our products and making them recyclable.

People within our group
We value open, honest and team-oriented work-style, which is based on transparent communication. The ideas, opinions and experience of our employees are valuable inputs for our decision making process. We strive for stable and fair partnerships with our customers, suppliers and other business partners. Social aspects are considered when making business decisions.

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

pewag group – Innovation. Quality. Partnership.

History of the pewag group

Advantage through tradition

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

Timetable of important events

1479 First documented references of a forging plant in Brückl
1787 Foundation of a chain forgery in Kapfenberg
1803 Foundation of a chain forgery in Graz
1836 Establishment of an iron casting plant in Brückl
1912 Production of the First Snow Chain worldwide
1923 Merger of plants in Graz and Kapfenberg – Creation of the name "pewag"
1972 Foundation of a sales company in Germany
1975 Foundation of a sales company in the USA
1993 Foundation of pewag austria GmbH
1994 Foundation of the first subsidiary in Czech Repbulic
1999 Acquisition of the Weissenfels Group
2003 Separation from the Weissenfels Group
2005 Reorganization into 2 groups:
Schneeketten Beteiligungs AG Group – Snow Chains
pewag austria GmbH Group – Technical Chains
2009 Acquisition of Chaineries Limousines S.A.S.

Lithography forging plant Brückl 1855

Anchor chain forgery 1878

Chain forgers 1956

Quality management

Our ultimate goal is to achieve customer satisfaction

To reach this goal, the quality management of the pewag group is determined by the principle: "We supply our customers with high-quality products which fully meet technological standards and its usage requirements," this is summarized in the four following mandatory principles:

Market oriented quality
To maintain and improve its competitive position, the quality of products and services of the pewag group must meet both the specifications of our customers and the standards one can expect from the technological leader in the industry.

Economic quality
As a profit-oriented company the quality is also determined by the material used, labor costs and financial possibilities, i.e. also within the framework awarded by the customer.

Responsibility for Quality
Quality management is the task and obligation of executives at all levels. Every employee of the pewag group has to be integrated by management in the preparations, execution and evaluation of the quality management measures.

Every employee takes the responsibility for the quality of his work.

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

Business areas

Working with pewag products

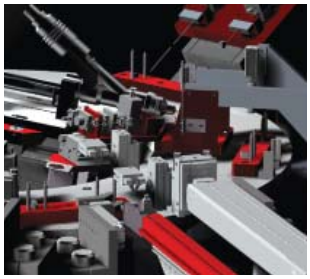
The pewag group has a substantial and diverse spectrum of products and services.

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

Segment A
Snow and forestry chains

Segment B
Hoist and conveyor chains

Segment C
Do-it-yourself



Segment D
Engineering

Segment F
Lifting and lashing chains and accessories

Segment G
Tire protection chains

Environment – we take responsibility

Ecological awareness in all areas

We continuously strive to keep the influence of our business on the environment as low as possible. Our production and warehousing is organized so that all legal requirements on environmental protection are fulfilled. Furthermore, we consider ecological aspects for our product development, processes and distribution channels and include these in our business planning.

Consequently, we are permanently striving for a continuous improvement and development of our established products to reach higher load capacities and safety for our customers with lighter weights and longer life spans.

Wherever we cannot avoid an environmental impact, we strive to reduce the use of energy, environmentally harmful emissions and keep the production of waste to a minimum. When investing in new machines we consider the technically most adequate and economically feasible state-of-the-art designs for their designated area of use.

Our environmental management is certified according to ISO 14001:2004. Regular internal audits assist to supervise compliance, test the effectiveness of our set standards and serve as a basis to determine improvement potentials.

Out of this long-lasting tradition we take responsibility for our products, employees, our sites and the environment very seriously.

We commit to comply with all environment-related regulations and continually improve our performance for the environment by defined goals. For that purpose we use modern production technologies. We enhance the ecological awareness of our employees by regular trainings.

We engage with our customers, neighbors and government agencies in an open communication and inform them about our environmental management wherever appropriate.

By providing advice, we want to inform our customers about the environmental aspects related to the use of our products – especially their long life spans. We are striving to motivate our customers and suppliers to consider environmental protection in their sphere of influence and use the same environmental standards as we do.

Customer proximity

International presence

After a changing history pewag has established itself today as one of the world's leading chain manufacturers with 22 sales locations and 6 production sites on two continents - Europe and North America.

pewag as an international corporate group is supported by a strong and professional partner network. This cooperation allows for optimized customer service and support.

Production and sales locations

Europe	
Austria	pewag austria GmbH, Graz pewag austria GmbH, Kapfenberg pewag Schneeketten GmbH & Co KG, Graz pewag Schneeketten GmbH & Co KG, Brückl pewag engineering, Kapfenberg AMW Grünberger Handelsgesellschaft mbH, Wien
Germany	pewag Deutschland GmbH, Unna pewag Schneeketten Deutschland GmbH, Unna
France	J3C S.A.S. pewag France, Seyssins Chaineries Limousines S.A.S., Bellac
Italy	pewag italia s.r.l., Andrian
Netherlands	pewag nederland B.V., Hillegom APEX International BV, Hillegom

Europe	
Poland	pewag polska Sp. z o.o., Buczkowice
Russia	OOO „pewag", Moscow
Sweden	pewag sweden AB, Emmaboda
Slovakia	pewag slovakia s.r.o., Kršk̆any
Czech Republic	Řetězárna Česká Třebová s.r.o., Česká Třebová pewag s.r.o, Vamberk
Ukraine	TOV „pewag Ukraine", Lviv

North America	
USA	pewag Inc., Bolingbrook, Illinois pewag Inc., Rocklin, California

pewag group presents
itself on the internet.
More ...

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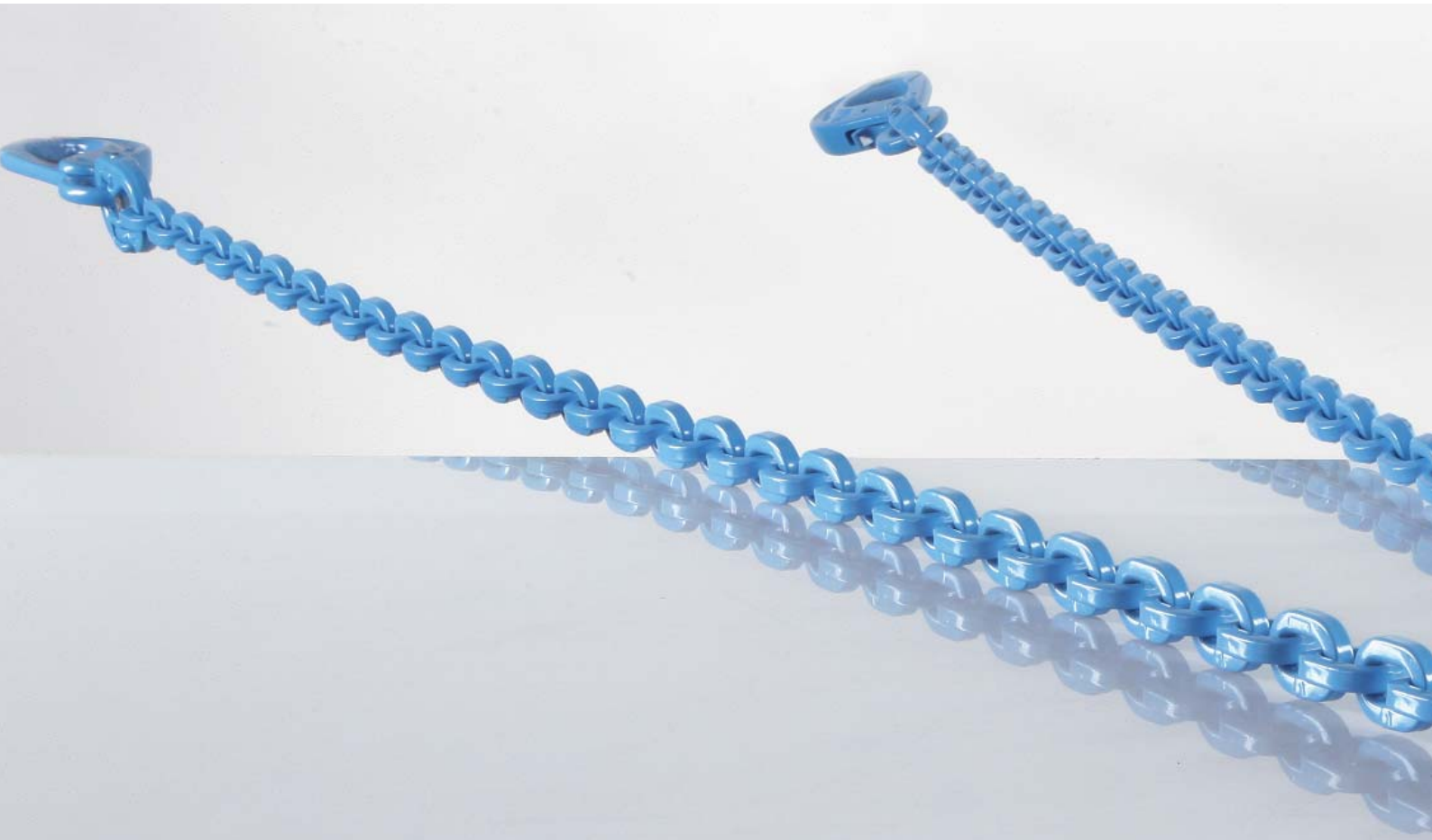
www.pewag.com



Chain and Accessory System in G12

Advantages and information

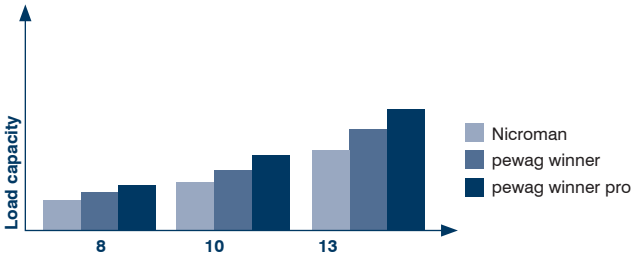
Features and benefits of pewag lifting chains in G12 quality

The higher Working Load Limits (WLL) of the pewag winner G12 program (50% more compared to G8 programs) allows significant weight reduction. Reducing the weight of the chain sling makes the assembly easier to use for the end-user. Additionally, the profile of the chain improves the bending resistance of the chain. This is significant when loading the chain over a corner.

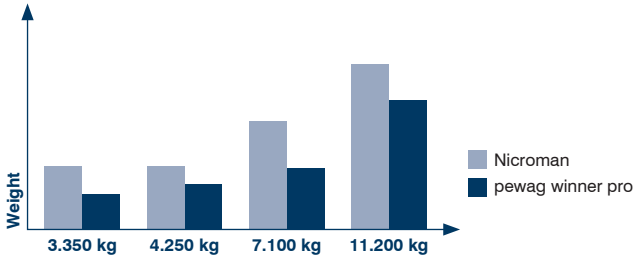
- **Intelligent profile** – because of the intelligent use of material, the major characteristics of the chain (i.e. fatigue resistance and bending resistance) were improved in a remarkable way, when you compare the same cross section of the profile chain versus the round steel chain. In order to reach the best mechanical performance, the material use was optimized on effective areas (blue area) and reduced on less relevant areas (red area).

- **Optimized bending resistance:** The section modulus which is important for preventing undesirable bending deformation is up to 16% higher with the profile chain compared to round steel chain with the same cross section. Therefore the max. stress in the chain is reduced (no red areas).

- **50% higher load capacity** compared to G8, **20% higher load capacity** compared to G10.



- **Obvious weight** reduction and consequently easier handling.



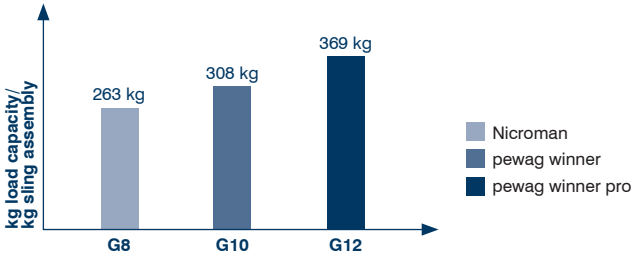
Load capacity [kg]	Previous chain weight [kg]	pewag winner pro chain weight [kg]	% Reduction
3.350	16,60	9,37	44%
4.250	16,60	11,80	29%
7.100	28,53	19,19	33%
11.200	43,61	34,10	22%

- **One dimension smaller** compared to G8 and G10 chain slings for many load ranges – thus providing excellent value.

Load capacity [kg]	Previous chain-ø	pewag winner pro chain-ø
4.250	10 mm	8 mm
7.100	13 mm	10 mm
11.200	16 mm	13 mm

- **Patent-registered material** with optimized strength and toughness properties at both high and low temperatures.

- **Weight based performance** – pewag winner pro represents the „Formula 1“ of technical chains.



- **Longer lasting** due to higher wear resistance and less abrasion.

- **Innovative chain system** that due to its ruggedness can be used for many applications not just for lifting or lashing.

- **Complete traceability –** chains and components are stamped with an identification mark so that the whole production process can be tracked.

- **Easy visual identification** due to profiled chain and G12 marking on every link.

- **Corrosion protection** by means of light blue powder coating of chains and components. pewag offers as an alternative the proven corropro coating (PCP) for pewag winner pro G12 chains for a maximum corrosion protection. Please find further details in our special folder.

- **Maximum security** due to novel identification tag made from stainless steel with warning notes.

- **Quality approved European production** by an ISO 9001 certified company.

- **Worldwide distribution network –** easy delivery of spare parts - premium service.

- **Experience –** pewag is the first supplier of an innovative G12 chain system.

pewag winner pro Data

- **Chain quality:** pewag winner pro meets the PAS 1061 standard with modifications (higher mechanical and impact strength values, reduced application temperature)
- **Stress at load capacity limit:** 300 N/mm²
- **Fatigue test:** 20.000 cycles at 450 N/mm² nominal stress
- **Test stress:** 750 N/mm²
- **Breaking stress:** 1.200 N/mm²
- **Breaking elongation:** min. 20% regardless of surface
- **Bending:** 0,8 x d
- **Stress corrosion:** Harmless against stress crack corrosion acc. to PAS 1061
- **Impact strength toughness:** 42J at -60°C
- **Admissible operating temperature:** -60°C – 300°C (please note WLL reduction at high temperatures)
- **Quality grade stamping:** pewag winner pro chain –120 at a distance of 300 mm apart and 12 on the back of each link pewag winner pro components – 12
- **Manufacturer's Name or Symbol:** D16 and/or pewag
- **Surface:**
  Chain – light blue powdercoated – RAL 5012 or
  black corropro (PCP) coated – similar to RAL 9005
  Components – light blue powdercoated – RAL 5012
- **Working load tag:** Identification tag: all the required data is shown on the tag. A specially shaped tag was created for easy identification and avoidance of confusion.
- **Compatibility:** pewag winner pro chains and components have only limited compatibility with chains and components of other suppliers. Compatibility should be checked in advance with the manufacturer.

pewag winner pro History

1997 Commencement of development of a profiled and case-hardened hoist chain

1998 Approval of profile hoist chain by German employer's liability insurance association in accordance with EN 818-7 for chain type DAT with H16 as the first manufacturer worldwide

2000 Use of profile hoist chain in series production

2001 Development of the next generation of chains and accessories in G12

2003 G12 program was established successfully in the US market - first company worldwide

2004 Patent specification for high-performance chain steel for manufacturing G12-chains PCT/CH 2004/000568

2004 Pinnacle Award - prestige award for the most innovative product in the lifting industry from the renowned US magazine „Lift&Access"

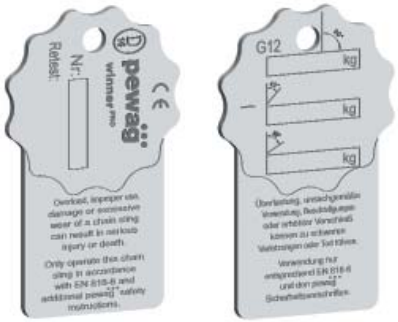
2004 Utility model specification no. AT 006 802 U1 for lifting chains with break stress of 1.200 N/mm²

2008 Approval of pewag winner pro chain system G12 by German employer's liability insurance association - Authorization for marking „D16"

2008 5th anniversary of G12 program on the occasion of CeMAT 2008 in Hannover

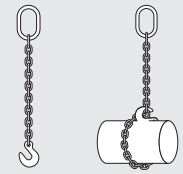
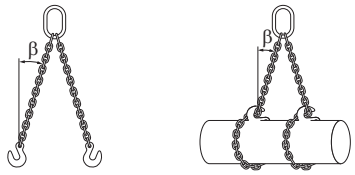
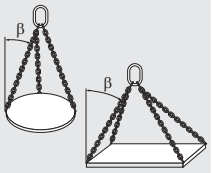
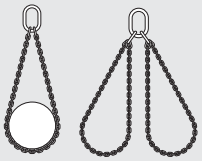
pewag winner pro Identification

Novel working load tags with warning information made of stainless steel material which guarantee a longer lasting than standard working load tags and therefore increases the safety of the sling chain.



pewag winner pro
Load capacities

The load capacities listed are 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				III- + IV-leg chains		Endless chain sling	Loop chains	
												
Angle of inclination		-	-	up to 45°	45°–60°	up to 45°	45°–60°	up to 45°	45°–60°	-	up to 45°	up to 45°
Load factor		1	0,8	1,4	1	1,12	0,8	2,1	1,5	1,6	1,4	2,1
Code	**d**	**Load capacity [kg]**										
WINPRO 7	7	2.360	1.900	3.350	2.360	2.650	1.900	5.000	3.550	3.750	3.350	5.000
WIN 7	7	1.900	1.500	2.650	1.900	2.120	1.500	4.000	2.800	3.000	2.650	4.000
NI 7	7	1.500	1.200	2.120	1.500	1.700	1.200	3.150	2.240	2.500	2.120	3.150
WINPRO 8	8	3.000	2.360	4.250	3.000	3.350	2.360	6.300	4.500	4.750	4.250	6.300
WIN 8	8	2.500	2.000	3.550	2.500	2.800	2.000	5.300	3.750	4.000	3.550	5.300
NI 8	8	2.000	1.600	2.800	2.000	2.240	1.600	4.250	3.000	3.150	2.800	4.250
WINPRO 10	10	5.000	4.000	7.100	5.000	5.600	4.000	10.600	7.500	8.000	7.100	10.600
WIN 10	10	4.000	3.150	5.600	4.000	4.250	3.150	8.000	6.000	6.300	5.600	8.000
NI 10	10	3.150	2.500	4.250	3.150	3.550	2.500	6.700	4.750	5.000	4.250	6.700
WINPRO 13	13	8.000	6.300	11.200	8.000	9.000	6.300	17.000	11.800	12.500	11.200	17.000
WIN 13	13	6.700	5.300	9.500	6.700	7.500	5.300	14.000	10.000	10.600	9.500	14.000
NI 13	13	5.300	4.250	7.500	5.300	5.900	4.250	11.200	8.000	8.500	7.500	11.200

If the chain slings are used in severe conditions (e.g. high temperature, asymmetric load distribution, edge load, impact/shock loads) the maximum load capacity values in the table must be reduced by the load factors below. Please also note the user information on this topic.

Demanding conditions

Temperature	-60°C – 200°C	201°C – 300°C	above 300°C
Load factor	1	0,6	not permissible
Asymmetric load distribution	The WLL has to be reduced by at least 1 leg. In case of doubt only consider 1 leg as load-bearing.		
Edge load *	R = larger than 2 x d 	R = larger than d 	R = smaller than d 
Load factor	1	0,7	0,5
Shock	slight shocks	medium shocks	strong shocks
Load factor	1	0,7	not permissible

* d = thickness of the material

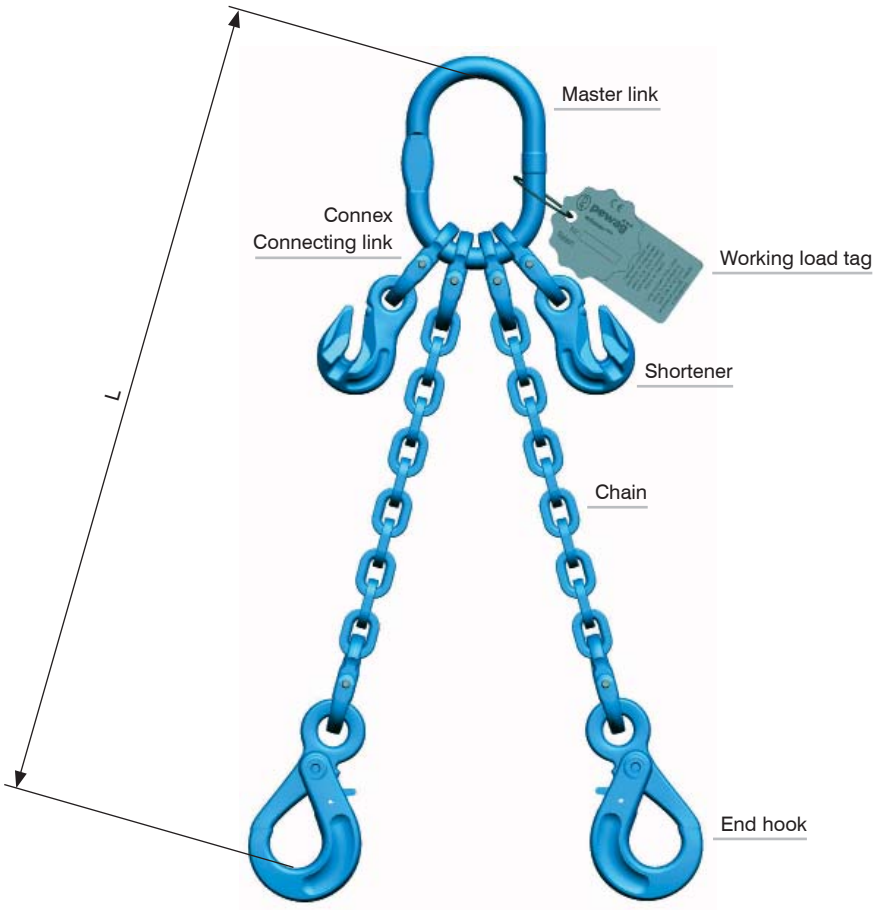
pewag winner pro Lifting
Example of order text

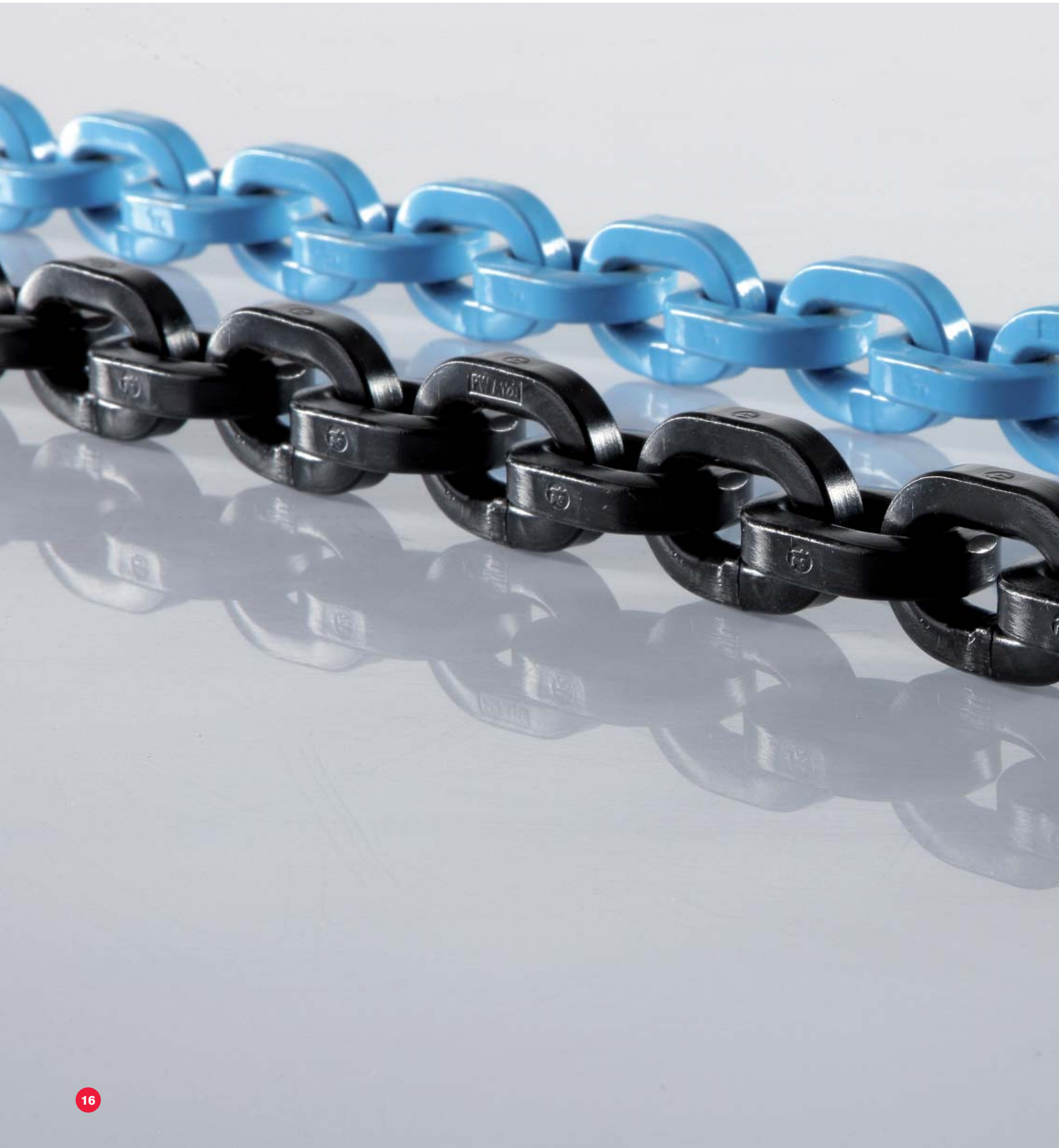
Below you will find an example of a finished pewag chain sling that can be commercially ordered.

pewag winner pro 8 mm – II-leg chain sling with shortener and safety hook, assembled with connex-connecting links
Length: 3.500 mm

WINPRO 8 II AWP – LHWP – PWP 3.500 Connex

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



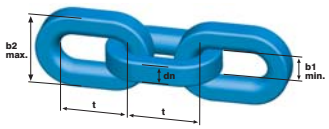


Chains in G12

Product overview

Lifting chain pewag winner pro

Corresponding to PAS 1061 with modifications.
The heavy duty chain in grade 12.
Specially rugged profile chain in G12.

WINPRO Chain PC/B	Code	Material thickness dn [mm]	Standard delivery length [m]	Pitch t [mm]	Inside width b1 min. [mm]	Outside width b2 max. [mm]	Load capacity [kg]	Breaking force [kN]	Weight [kg/m]
	WINPRO 7	7	50	22	10	26	2.360	92,60	1,22
	WINPRO 8	8	50	25	11	29	3.000	118,00	1,55
	WINPRO 10	10	50	33	14	37	5.000	196,00	2,53
	WINPRO 13	13	50	41	19	50	8.000	314,00	4,09

Lifting chain pewag winner pro

Corresponding to PAS 1061 with modifications.
The heavy duty chain in grade 12.
Specially rugged profile chain in G12.

WINPRO Chain PCP	Code	Material thickness dn [mm]	Standard delivery length [m]	Pitch t [mm]	Inside width b1 min. [mm]	Outside width b2 max. [mm]	Load capacity [kg]	Breaking force [kN]	Weight [kg/m]
	WINPRO 7	7	50	22	10	26	2.360	92,60	1,22
	WINPRO 8	8	50	25	11	29	3.000	118,00	1,55
	WINPRO 10	10	50	33	14	37	5.000	196,00	2,53
	WINPRO 13	13	50	41	19	50	8.000	314,00	4,09

As leading innovater pewag is the first supplier of a G12 chain system in an outstanding quality worldwide

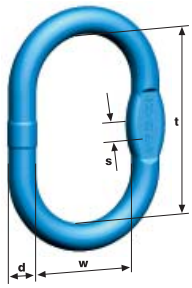
pewag winner pro Chain systems

Master links and Subassemblies in G12

Product overview

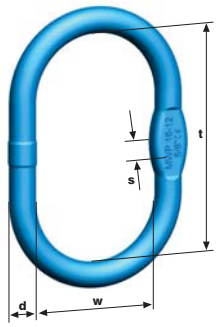
AWP Master link

Corresponds to chain dimension in table.
Masterlink for I-leg chain sling and for II-leg chain slings, also usable as end link.

AWP Master link	Code	WLL 0–45° [kg]	Usable up to single hooks following DIN 15401 No.	d [mm]	t [mm]	w [mm]	s [mm]	Weight [kg/pc.]	For 1-leg sling	For double leg sling
	AWP 13	2.360	2,5	13	110	60	10	0,34	7	-
	AWP 16	3.500	2,5	17	110	60	14	0,53	8	7
	AWP 18	5.300	5	19	135	75	14	0,92	10	8
	AWP 22	8.000	6	23	160	90	17	1,60	13	10
	AWP 27	11.200	10	28	200	110	21	2,85	-	13

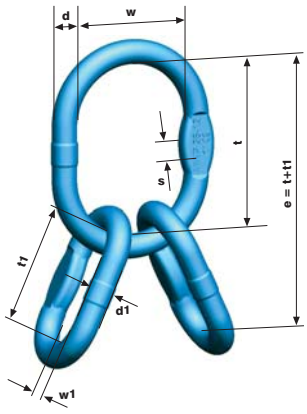
MWP Enlarged master link

Corresponds to EN 1677-4 with load capacity according to G12.
For pewag winner pro connex system. Larger inside dimensions than AWP.
Can be used as master and end link for I-leg chain slings according to table. Also usable as end link for II- and IV-leg chain slings.

MWP Enlarged master link	Code	WLL 0–45° [kg]	Usable up to single hooks following DIN 15401 No.	d [mm]	t [mm]	w [mm]	s [mm]	Weight [kg/pc.]	For 1-leg sling
	MWP 13	2.360	4	14	120	70	10	0,44	7
	MWP 16	3.200	5	17	140	80	13	0,67	8
	MWP 18	5.000	6	19	160	95	14	1,21	10
	MWP 26	10.100	10	27	190	110	20	2,65	13

VMWP Enlarged master link assembly

Corresponds to EN 1677-4 with load capacity according to G12.
For pewag winner pro connex systems. Enlarged master link assembly for assembling II-leg, III-leg and IV-leg chain slings with connecting links.
Appropriation to chain dimension according to table.

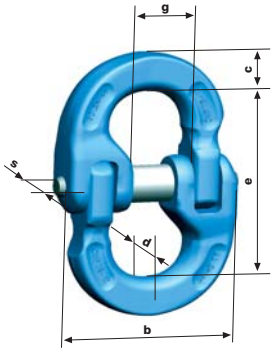
VMWP Enlarged master link assembly	Code	Consisting of	Usable up to single hooks following DIN 15401 No.	WLL 0–45° [kg]	e [mm]	d [mm]	t [mm]	w [mm]	d1 [mm]	t1 [mm]	w1 [mm]	Weight [kg/pc.]	For II-leg chain slings	For III- and IV-leg chain slings
	VMWP 7/8	MWP 18 + 2 BWP 13	6	4.250	214	19	160	95	13	54	25	1,55	7+8	-
	VMWP 10/7/8	MWP 26 + 2 BWP 16	10	8.800	260	27	190	110	17	70	34	3,37	10	7+8
	VMWP 13/10	MWP 32 + 2 BWP 20	12	12.300	315	33	230	130	20	85	40	6,00	13	10
	VMWP -/13	MWP 36 + 2 BWP 26	20	21.200	415	38	275	150	27	140	65	11,12	-	13

Accessories in G12 Lifting

Product overview

CWP Connex connecting link

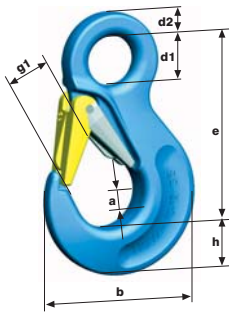
Corresponds to EN 1677-1 with load capacity according to G12.
For pewag winner pro connex system.
Connex connecting link for easy assembly of chains, master links, master link assemblies and components.



CWP Connex connecting link	Code	WLL [kg]	e [mm]	c [mm]	s [mm]	d [mm]	b [mm]	g [mm]	Weight [kg/pc.]
	CWP 7	2.360	63	11	13	9	47	17	0,12
	CWP 8	3.000	62	14	15	10	58	21	0,29
	CWP 10	5.000	70	16	20	13	66	22	0,33
	CWP 13	8.000	95	21	24	17	84	26	0,70

HSWP Eye sling hook

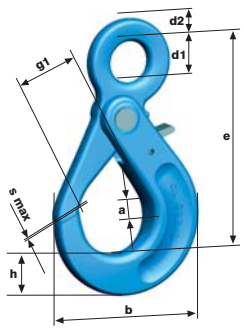
Corresponds to EN 1677-1 with load capacity according to G12.
For pewag winner pro connex system.
For general lifting applications. All hooks with forged and galvanised safety latch.



HSWP Eye sling hook	Code	WLL [kg]	e [mm]	h [mm]	a [mm]	d1 [mm]	d2 [mm]	g1 [mm]	b [mm]	Weight [kg/pc.]
	HSWP 7/8	3.000	106	27	19	25	11	26	88	0,50
	HSWP 10	5.000	131	33	26	34	16	31	108	1,10
	HSWP 13	8.000	164	43	33	43	19	39	132	2,20

LHWP Safety hook

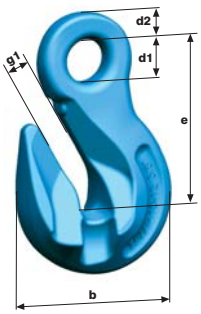
Corresponds to EN 1677-3 with load capacity according to G12.
For pewag winner pro connex system.
Safety hook with larger opening than the eye sling hook. Closes and locks automatically under load. Ensures high level of safety.



LHWP Safety hook	Code	WLL [kg]	e [mm]	h [mm]	a [mm]	b [mm]	d1 [mm]	d2 [mm]	g1 [mm]	s max. [mm]	Weight [kg/pc.]
	LHWP 7/8	3.000	126	25	24	89	25	14	34	1	0,90
	LHWP 10	5.000	158	31	28	112	31	17	45	2	1,60
	LHWP 13	8.000	205	41	34	145	40	22	54	2	3,30

PWP Grab hook

Corresponds to EN 1677-1 with load capacity according to G12.
For pewag winner pro connex system.
For shortening and for building baskets that must not tighten.
Special design of the chain contact area for optimal interaction between chain and hook.



PWP Grab hook	Code	WLL [kg]	e [mm]	b [mm]	d1 [mm]	d2 [mm]	g1 [mm]	Weight [kg/pc.]
	PWP 7/8	3.000	68	63	18	11	10	0,48
	PWP 10	5.000	88	81	22	14	13	1,03
	PWP 13	8.000	110	103	26	18	17	2,10

Lashing in G12

Advantages and information

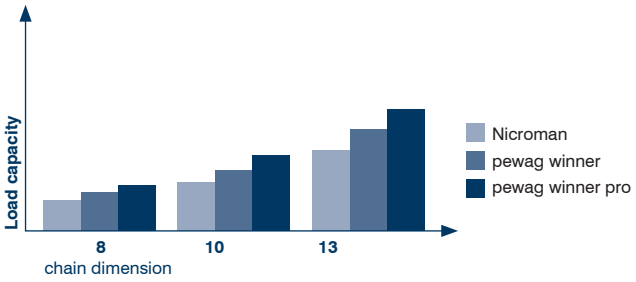
Features and benefits of pewag lashing chains in G12 quality

The higher Working Load Limits (WLL) of the pewag winner pro G12 program (50% more compared to G8 programs) allows significant weight reduction. Reducing the weight of the lashing chain assembly makes it easier to use for the end-user. Additionally, the profile of the chain improves the bending resistance of the chain. This is significant when loading the chain over a corner.

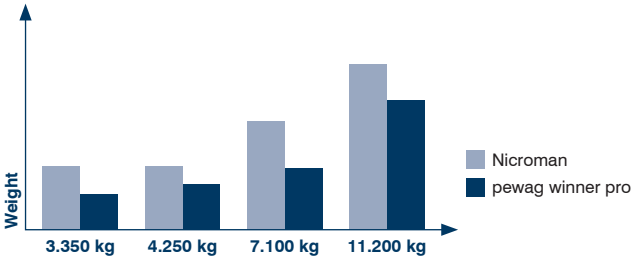
- **Intelligent profile –** because of the intelligent use of material, the major characteristics of the chain (i.e. fatigue resistance and bending resistance) were improved in a remarkable way, when you compare the same cross section of the profile chain versus the round steel chain. In order to reach the best mechanical performance, the material use was optimized on effective areas (blue area) and reduced on less relevant areas (red area).

- **Optimized bending resistance:** The section modulus which is important for preventing undesirable bending deformation is up to 16% higher with the profile chain compared to round steel chain with the same cross section. Therefore the max. stress in the chain is reduced (no red areas).

- **50 % higher lashing capacity** securing capacity compared to G80.



- **With the same chain dimension** it is possible to secure more and heavier loads. Plus 50% compared to G8 and 20% compared to G10 (direct lashing).



Lashing capacity LC	Previous chain weight	pewag winner pro chain weight	% Reduction
60	14,5	10,3	29%
100	26,1	15,6	40%
160	37,7	30,7	18%

- **A 7 mm chain is also provided** in the pewag winner pro program.
- **Patent-registered material** with optimized strength and toughness properties at both high and low temperatures.
- In most cases when direct lashing **you can downsize to a smaller chain dimension thus obviously reducing weight and costs.** Example of direct lashing: 8 mm (LC = 60kN) replaces 10 mm G8 (LC = 63kN)
- **When friction lashing** at the same securing capacity (STF) you can always downsize to a smaller chain dimension thus obviously reducing weight and costs.

Lashing capacity LC	Previous chain-ø	pewag winner pro chain-ø
60	10	8
100	13	10
160	16	13

- **Considerably lower weight** when using Winner Pro for lashing and therefore easier handling.
- **Maximum safety** due to special lashing tag made from stainless steel with separate area for periodic inspections.

pewag winner pro Lashing tag Identification

Novel lashing tags with warning marks made from stainless steel material which guarantee longer lasting than standard lashing tags and therefore increases the safety of the lashing system.

pewag winner pro Data

- **Chain quality:** pewag winner pro meets the PAS 1061 standard with modifications (higher mechanical and impact strength values, reduced application temperature)
- **Stress at lashing capacity:** 600 N/mm²
- **Fatigue test:** 20.000 cycles at 450 N/mm² nominal stress
- **Test stress:** 750 N/mm²
- **Breaking stress:** 1.200 N/mm²
- **Breaking elongation:** min. 20% regardless of surface
- **Bending:** 0,8 x d
- **Stress corrosion:** Harmless against stress crack corrosion acc. to PAS 1061
- **Impact strength toughness:** 42J at -60°C
- **Admissible operation temperature:** -60°C – 300°C (please note WLL reduction at high temperatures)
- **Quality grade stamping:** pewag winner pro chain – 120 at a distance of 300 mm and 12 on the back of each link pewag winner pro components – 12
- **Manufacturer's name or symbol:** D16 and/or pewag
- **Surface:**
  Chain – light blue powdercoated – RAL 5012 or
  black corropro (PCP) coated – similar to RAL 9005
  Components – light blue powdercoated – RAL 5012
- **Lashing tag:** All the required data are shown on the tag.
- **Compatibility:** pewag winner pro chains and components have only limited compatibility with chains and components of other suppliers. Combinations should be checked in advance with the manufacturer.

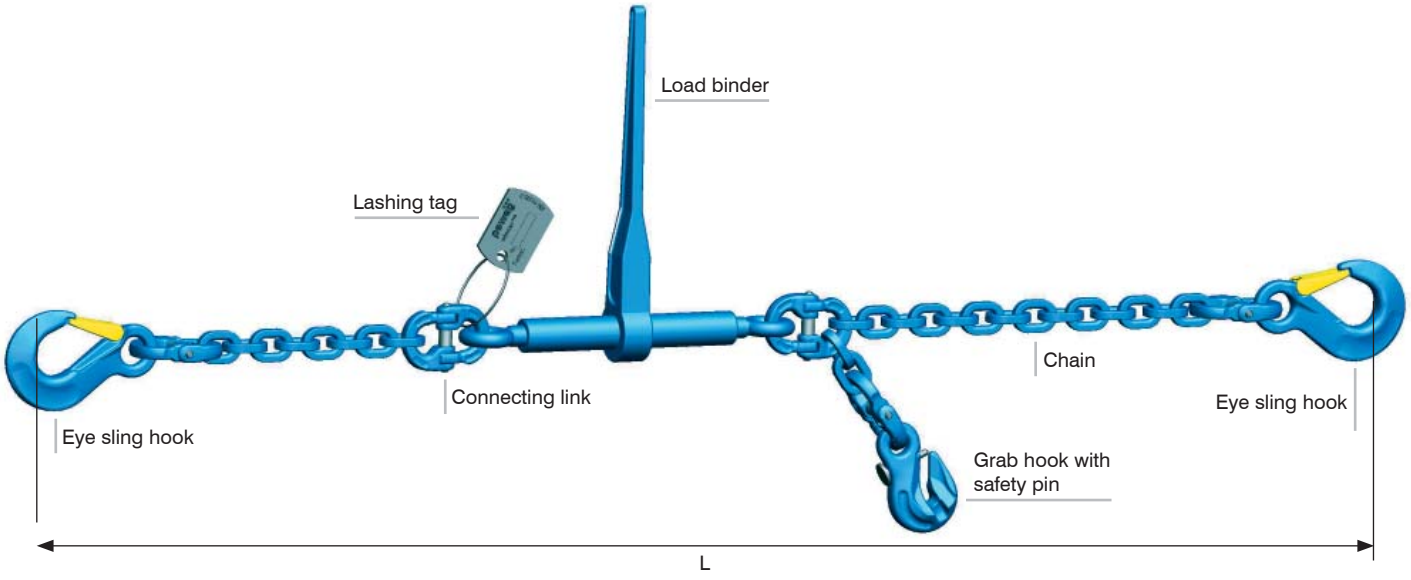
pewag winner pro Lashing Example of order text

Below you will find an example of a finished pewag lashing chain that can be commercially ordered.

pewag winner pro 8 mm – one-piece lashing chain with shortener and eye sling hook,assembled with connex-connecting links
Length: 3.500 mm

ZRSWP 8 I HSWP – HSWP – PSWP 3500 Connex

Nominal diameter		1-part	Eye sling hook	Eye sling hook	Grab hook with safety pin	Length (mm)	Connex mounted



Direct lashing

ZRSWP 7 with RSWP 7/8 Loadbinder marking: „pewag“, „Type A“

max. load α	max. load β	dynamic friction factor 0,01	0,1	0,2	0,3	0,4	0,5	0,6
15 - 35°	21 - 30°	-	-	-	16.550	22.050	30.250	46.600
15 - 35°	31 - 40°	7.500	9.150	11.600	15.000	19.800	27.200	42.050
15 - 35°	41 - 50°	6.300	7.800	10.000	13.100	17.000	23.500	36.450
15 - 35°	51 - 60°	4.900	6.250	8.200	10.500	13.750	19.150	29.950
36 - 50°	21 - 30°	-	-	11.100	14.750	20.250	29.400	47.750
36 - 50°	31 - 40°	5.950	7.600	10.100	13.550	18.750	27.400	44.700
36 - 50°	41 - 50°	5.000	6.550	8.850	12.050	16.900	24.900	41.000
36 - 50°	51 - 60°	-	5.300	7.400	10.350	14.750	21.850	35.550

ZRSWP 8 with RSWP 7/8 Loadbinder marking: „pewag“, „Type A“

max. load α	max. load β	dynamic friction factor 0,01	0,1	0,2	0,3	0,4	0,5	0,6
15 - 35°	21 - 30°	-	-	-	21.150	28.150	38.600	59.500
15 - 35°	31 - 40°	9.600	11.700	14.800	19.150	25.300	34.750	53.700
15 - 35°	41 - 50°	8.050	10.000	12.800	16.750	21.700	30.000	46.550
15 - 35°	51 - 60°	6.300	8.000	10.450	13.450	17.550	24.450	38.250
36 - 50°	21 - 30°	-	-	14.150	18.850	25.850	37.550	60.950
36 - 50°	31 - 40°	7.550	9.750	12.900	17.300	23.950	35.000	57.100
36 - 50°	41 - 50°	6.350	8.350	11.300	15.400	21.550	31.800	52.350
36 - 50°	51 - 60°	-	6.800	9.450	13.200	18.800	27.900	45.400

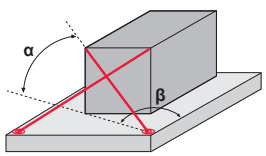
ZRSWP 10 with RSWP 10 Loadbinder marking: „pewag“, „Type B“

max. load α	max. load β	dynamic friction factor 0,01	0,1	0,2	0,3	0,4	0,5	0,6
15 - 35°	21 - 30°	-	-	-	35.250	46.900	64.350	99.150
15 - 35°	31 - 40°	16.000	19.550	24.700	31.950	42.150	57.950	89.500
15 - 35°	41 - 50°	13.450	16.650	21.350	27.900	36.200	50.000	77.600
15 - 35°	51 - 60°	10.500	13.300	17.450	22.400	29.300	40.800	63.800
36 - 50°	21 - 30°	-	-	23.650	31.450	43.150	62.600	101.600
36 - 50°	31 - 40°	12.650	16.250	21.500	28.850	39.900	58.350	95.200
36 - 50°	41 - 50°	10.650	13.950	18.850	25.700	35.950	53.050	87.250
36 - 50°	51 - 60°	-	11.350	15.800	22.000	31.350	46.550	75.700

ZRSWP 13 with RSWP 13 Loadbinder marking: „pewag“, „Type C“

max. load α	max. load β	dynamic friction factor 0,01	0,1	0,2	0,3	0,4	0,5	0,6
15 - 35°	21 - 30°	-	-	-	56.400	75.100	103.000	158.650
15 - 35°	31 - 40°	25.650	31.300	39.550	51.150	67.450	92.700	143.200
15 - 35°	41 - 50°	21.550	26.650	34.200	44.700	57.950	80.000	124.150
15 - 35°	51 - 60°	16.800	21.300	27.950	35.850	46.900	65.300	102.100
36 - 50°	21 - 30°	-	-	37.850	50.300	69.000	100.200	162.600
36 - 50°	31 - 40°	20.250	26.000	34.400	46.200	63.900	93.350	152.300
36 - 50°	41 - 50°	17.000	22.350	30.200	41.150	57.550	84.900	139.600
36 - 50°	51 - 60°	-	18.150	25.300	35.250	50.200	74.450	121.100

This table provides information on how to get the best use from the pewag lashing systems. This table also shows you the maximum load which can be secured with 4 equal lashing systems given the angles and dynamic friction factors referred to. Additional securing methods (i.e. wedges, or similar) have not been taken into account. These could be used to secure loads with even higher weights. Please contact our customer service. Every lashing system has its own table. The maximum forces occurring due to acceleration, braking and avoidance maneuvers in road traffic acc. EN 12195-1 were taken into account. Other tables are applicable for transport by rail and sea. Please contact our customer service.



Frictional lashing

ZRSWP 7 with RSWP 7/8 Loadbinder marking: „pewag“, „Type A“

angel to the surface	max. load/chain [daN]	dynamic friction factor 0,1	0,2	0,3	0,4	0,5	0,6
α	90	400	950	1.710	2.850	4.750	8.550
α	85	400	940	1.700	2.830	4.730	8.510
α	80	400	930	1.680	2.800	4.670	8.420
α	70	380	890	1.600	2.670	4.460	8.030
α	60	350	820	1.480	2.460	4.110	7.400
α	50	310	720	1.300	2.180	3.630	6.540
α	40	260	610	1.090	1.830	3.050	5.490
α	30	200	470	850	1.420	2.370	4.270

ZRSWP 8 with RSWP 7/8 Loadbinder marking: „pewag“, „Type A“

angel to the surface	max. load/chain [daN]	dynamic friction factor 0,1	0,2	0,3	0,4	0,5	0,6
α	90	400	950	1.710	2.850	4.750	8.550
α	85	400	940	1.700	2.830	4.730	8.510
α	80	400	930	1.680	2.800	4.670	8.420
α	70	380	890	1.600	2.670	4.460	8.030
α	60	350	820	1.480	2.460	4.110	7.400
α	50	310	720	1.300	2.180	3.630	6.540
α	40	260	610	1.090	1.830	3.050	5.490
α	30	200	470	850	1.420	2.370	4.270

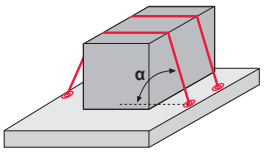
ZRSWP 10 with RSWP 10 Loadbinder marking: „pewag“, „Type B“

angel to the surface	max. load/chain [daN]	dynamic friction factor 0,1	0,2	0,3	0,4	0,5	0,6
α	90	640	1.500	2.700	4.500	7.500	13.500
α	85	640	1.490	2.680	4.480	7.470	13.440
α	80	630	1.470	2.650	4.430	7.380	13.290
α	70	600	1.400	2.530	4.220	7.040	12.680
α	60	550	1.290	2.330	3.890	6.490	11.690
α	50	490	1.140	2.060	3.440	5.740	10.340
α	40	410	960	1.730	2.890	4.820	8.670
α	30	320	750	1.350	2.250	3.750	6.750

ZRSWP 13 with RSWP 13 Loadbinder marking: „pewag“, „Type C“

angel to the surface	max. load/chain [daN]	dynamic friction factor 0,1	0,2	0,3	0,4	0,5	0,6
α	90	530	1.250	2.250	3.750	6.250	11.250
α	85	530	1.240	2.240	3.730	6.220	11.200
α	80	520	1.230	2.210	3.690	6.150	11.070
α	70	500	1.170	2.110	3.520	5.870	10.570
α	60	460	1.080	1.940	3.240	5.410	9.740
α	50	410	950	1.720	2.870	4.780	8.610
α	40	340	800	1.440	2.410	4.010	7.230
α	30	260	620	1.120	1.870	3.120	5.620

This table provides information on how to get the best use from the pewag lashing systems. This table also shows you the maximum load which can be secured with 1 lashing system given the angles and dynamic friction factors referred to. Please note that when friction lashing min. 2 lashing systems are needed. Additional securing methods (i.e. wedges, or similar) have not been taken into account. These could be used to secure loads with even higher weights. Please contact our customer service.The values in the table are applicable in the event that the same tension force (STF) is not effective in the lashing system on both sides of the load 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 - the value is shown on the lashing system's tag. Every lashing system has its own table.
The maximum forces occurring due to acceleration, braking and avoidance maneuvers in road traffic acc. EN 12195-1 were taken into account. Other tables are applicable for transport by rail and sea. Please contact our customer service.

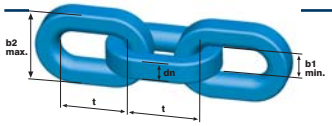


Accessories in G12 Lashing

Product overview

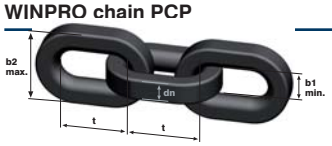
Profile chain pewag winner pro

Corresponds to PAS 1061 with modifications.
The high duty chain in grade 12.
Specially rugged profile chain in G12. Perfect for lashing

WINPRO chain PCP	Code	Material thickness dn [mm]	Standard delivery length [m]	Pitch t [mm]	Inside width b1 min. [mm]	Outside width b2 max. [mm]	Lashing capacity LC [kN]	Breaking force [kN]	Weight [kg/m]
	WINPRO 7	7	50	22	10	26	47	92,60	1,28
	WINPRO 8	8	50	25	11	29	60	118,00	1,64
	WINPRO 10	10	50	33	14	37	100	196,00	2,66
	WINPRO 13	13	50	41	19	50	160	314,00	4,59

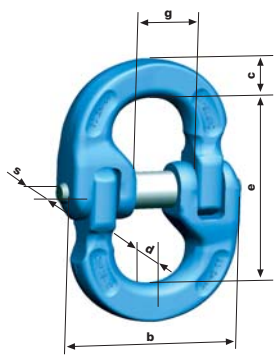
Profile chain pewag winner pro

Corresponds to PAS 1061 with modifications.
The high duty chain in grade 12.
Specially rugged profile chain in G12. Perfect for lashing

WINPRO chain PCP	Code	Material thickness dn [mm]	Standard delivery length [m]	Pitch t [mm]	Inside width b1 min. [mm]	Outside width b2 max. [mm]	Lashing capacity LC [kN]	Breaking force [kN]	Weight [kg/m]
	WINPRO 7	7	50	22	10	26	47	92,60	1,28
	WINPRO 8	8	50	25	11	29	60	118,00	1,64
	WINPRO 10	10	50	33	14	37	100	196,00	2,66
	WINPRO 13	13	50	41	19	50	160	314,00	4,59

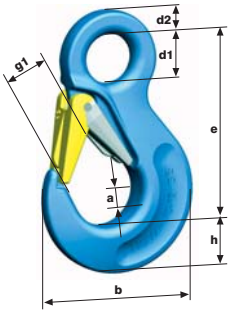
CWP Connex connecting link

Corresponds to EN 1677-1 with lashing force according to G12.
For pewag winner pro connex system.
Connex connecting link for easy assembly of chains and components.

CWP Connex connecting link	Code	Lashing capacity LC [kN]	e [mm]	c [mm]	s [mm]	d [mm]	b [mm]	g [mm]	Weight [kg/pc.]
	CWP 7	47	63	11	13	9	47	17	0,12
	CWP 8	60	62	14	15	10	58	21	0,29
	CWP 10	100	70	16	20	13	66	22	0,33
	CWP 13	160	95	21	24	17	84	26	0,70

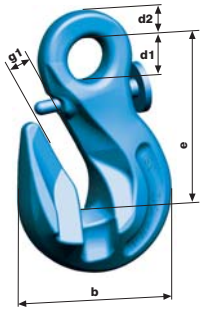
HSWP Eye sling hook

Corresponds to EN 1677-2 with lashing force according to G12.
For pewag winner pro connex system. For general lifting applications.
All hooks with forged and galvanised safety latch.

HSWP Eye sling hook	Code	Lashing capacity LC [kN]	e [mm]	h [mm]	a [mm]	d1 [mm]	d2 [mm]	g1 [mm]	b [mm]	Weight [kg/pc.]
	HSWP 7/8	60	106	27	19	25	11	26	88	0,50
	HSWP 10	100	131	33	26	34	16	31	109	1,10
	HSWP 13	160	164	44	33	43	19	39	132	2,20

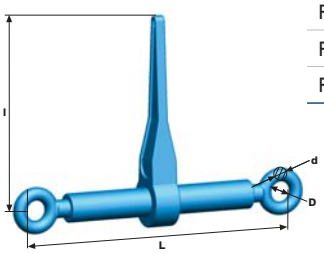
PSWP Grab hook with safety pin

Corresponds to EN 1677-1 with lashing force according to G12.
For pewag winner pro connex system. Hook for shortening which prevents the accidential release of the chain. Special design of the chain contact area for optimal interaction between chain and hook.

PSWP Grab hook with safety pin	Code	Lashing capacity LC [kN]	e [mm]	b [mm]	d1 [mm]	d2 [mm]	g1 [mm]	Weight [kg/pc.]
	PSWP 7/8	60	68	63	18	11	10	0,48
	PSWP 10	100	88	81	22	14	13	1,03
	PSWP 13	160	110	103	26	18	17	2,10

RSWP Loadbinder

Corresponds to EN 12195-3 with lashing force according to G12.
For pewag winner pro connex system. Load binder with optimized lever length.

RSWP Loadbinder	Code	Marking	Lashing capacity LC [kN]	Standard tension force STF [daN]	Length closed L [mm]	Length closed L	Tension range [mm]	Lever length l [mm]	D [mm]	d [mm]	Weight [kg/pc.]
	RSWP 7/8	Type A	60	1.900	355	500	145	237	20	16	3,20
	RSWP 10	Type B	100	3.000	365	510	145	355	26	18	3,80
	RSWP 13	Type C	160	2.500	576	866	290	359	31	22	9,90

Spare parts

Product overview

CBHWP Connex bolt and bushing set

Spare parts for CWP connex.

CBHWP Connex bolt and bushing set	Code	for connex type
	CBHWP 7	CWP 7
	CBHWP 8	CWP 8
	CBHWP 10	CWP 10
	CBHWP 13	CWP 13

SFGWP Forged safety latch set

Safety latch set for HSWP.

SFGWP Forged safety lath set	Code	for hook type
	SFGWP 7/8	HSWP 7/8
	SFGWP 10	HSWP 10
	SFGWP 13	HSWP 13

VLHWP Trigger set

Trigger set for LHWP safety hooks.

VLHWP Trigger sets	Code	for hook type
	VLHWP 7/8	LHWP 7/8
	VLHWP 10	LHWP 10
	VLHWP 13	LHWP 13

PSGWP Safety pin set

Spare parts for PSWP grab hooks with safety pin.

PSGWP Safety pin set	Code	for hook type
	PSGWP 7/8	PSWP 7/8
	PSGWP 10	PSWP 10
	PSGWP 13	PSWP 13

IDWP Tag sets for lifting

Tag sets for pewag winner pro lifting chains.

IDWP Tag sets for lifting	Code	for lifting chains
	IDWP Lifting	

IDWP Tag set for lashing

Tag set for pewag winner pro lashing chains.

IDWP Tag set for lashing	Code	for lashing chains
	IDWP Lashing	

User manual

for lifting and lashing in G12

User manual

User manual for assembly, use, storage and maintenance of pewag winner pro chain slings

General

The pewag winner pro chain system can be used in a wide range of applications. These applications must be checked for suitability by a competent authorized person, or by pewag itself in the event of doubt. One major application field of the pewag winner pro chain system is overhead lifting. The following information was prepared for this area in acc. with EN 818-6. The specifications for assembling chain slings and rating of the capacity only refer to the uniform load method with angle ranges of 0-45° and 45-60°.

In addition, there is also an alternative method of rating the capacity. This method should only be used where weight and distribution of the load and the angles of the sling legs are known. In such cases please contact our technical department as the information given in this catalogue does not include details for chain sling rating using this alternative rating method!
pewag winner pro lifting chains may only be assembled, tested and used by competent authorized people.

If used properly pewag winner pro lifting chains have a long service life and provide a high level of safety. Personal injury and damage to property can, however, only be prevented by proper use. It is, therefore, very important that you read and understand this user manual and act in a responsible and forward-thinking manner when using lifting equipment.

Limitations on use

The shape of the chain slings must not be modified – e.g. by bending, grinding, detaching individual parts, drilling, etc. The chain slings may also not be heated to above 300°C. Do not remove any safety components, such as latches, safety pins, safety catches, etc. Do not apply any surface coatings to pewag winner pro chain slings, e.g. do not subject them to hot dip galvanizing or electrogalvanizing. Dipping or removing the coating with chemicals is also dangerous and must be agreed upon with pewag.

If necessary, please contact our technical department who will be pleased to provide.

Assembling chain slings

pewag winner pro chains and accessories may only be assembled by competent authorized people using pewag winner pro chains and accessories from the pewag winner pro chain system. When modifying or repairing pewag winner pro chain slings use only original parts supplied by pewag (e.g. bolts, safety pins, screws, etc.). pewag Winner Pro chains and components have only limited compatibility with chains and components of other suppliers. Compatability should be checked in advance by competent authorized people. pewag will not be responsible for any damage arising as a result of combination with products from a different supplier.

At any rate it is imperative to adapt the WLL to the weakest link in the assembly. Appropriate marking/colouring must be used to prevent the user from misinterpreting the load capacity. pewag winner pro chain slings must be labelled with specially developed identification tags for identification purposes. This tag may only be used if the WLL of the chain slings used is referred to in the table on page 9. Deviating WLL (e.g. caused due to combination with products from a different supplier) must be highlighted with a separate tag (e.g. round shape).

Restrictions of use

due to hazardous or dangerous conditions (see table on page 14 of catalogue)

Effects of temperature
Reduction of the load capacity caused by high temperatures, as stated on page 9, ceases once the chain and/or lifting component returns to room temperature. pewag winner pro lifting accessories may not be used outside the temperature range stated. If this has nevertheless been the case, do not use the chain slings and remove them from service.

Effects of acids, caustics and chemicals
Do not subject pewag winner pro lifting accessories to acid or caustic solutions or use them in acid or caustic-laden atmospheres. Important: Certain production procedures release acids and/or fumes. Use of pewag winner pro lifting accessories in highly concentrated chemicals in combination with high temperatures is only permitted with explicit prior approval.

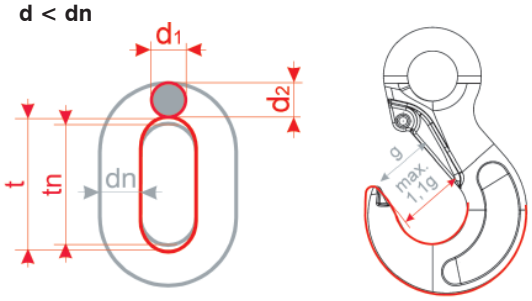
Working load limit
The working load limits in this catalogue and those on the chain sling have been determined on the basis that the loading of the chain sling is symmetrical and there are no particularly hazardous conditions. Such hazardous conditions would be offshore applications, the lifting of people and potentially dangerous loads, such as liquid metals, corrosive or caustic substances or nuclear material. If the chain sling is to be used for such purposes, the extent of the risk is to be assessed by an expert and the safe working load be adjusted accordingly.

Inspection and tests
Before using any lifting equipment for the first time, it should be ensured that:
- The chain sling corresponds exactly to the order;
- The inspection certificate or certificate of conformity has been supplied;
- Marking and load capacity stated on the chain sling correspond to
  the information given on the inspection certificate or certificate of conformity;
- All particularities of the chain sling have been entered into a register of lifting equipment, if required;
- Instructions for the proper use of chain sling has been supplied and read and understood by personnel.

Check the chain slings before each use for visible damage or signs of wear. In case of doubt or damage do not use the chain slings and have them inspected by a competent person.
After extraordinary, unusual events that could cause impairment of the chain sling, the chain sling must be checked by an expert (e.g. after exposure to uncontrolled heat). As per EN818 we recommend subjecting the chain sling every two years to a load test with 1.5 times the load capacity, followed by a visual inspection, or another type of crack test (fluxing).

Elimination criteria following visual inspection

- Broken part
- Missing or illegible marking of the chain sling, i.e. identification data and/or load capacity data
- Deformation of suspension or sling parts or the chain itself
- Elongation of the chain. The chain must be discarded if
  $t > 1{,}05\ t_n$
- Wear is determined as the mean value of two measurements of diameters d1 and d2 carried out at a right angle (see picture). The chain must be discarded if
  $dm = \frac{d_1 + d_2}{2} \leq 0{,}9\ dn$
- For wear at the profile edges the criteria for withdrawel is
  $d < dn$



- Cuts, notches, grooves, surface cracks, excessive corrosion, discoloration due to heat, signs of subsequent welding, bent or twisted links or other flaws.
- Cracks: Chains with cross-cracks that are visible to the naked eye must be discarded.
- Missing or non-functional safety device (safety latches if fitted) as well as signs of widening or twisting of hooks, i.e. noticeable enlargement of the opening or other forms of deformation. The enlargement of the opening must not exceed 10% of the nominal value. A jumped out safety catch shows an overload of the hook.

Maximum appproved dimensional change:

Designation	Dimensions	Admissible deviation
chain	dn	-10%
	tn	+5%
	wear at edges	d = dn
links	d	-10%
	t	+10%
hooks	e	+5%
	d2 and h	-10%
	g	+10%
connecting links	halves must be moveable	must be given
	e	+5%
	c	-10%
	d	-10%

Maintenance and repair
pewag lifting accessories and chain slings should only be repaired by qualified personnel using genuine pewag parts.

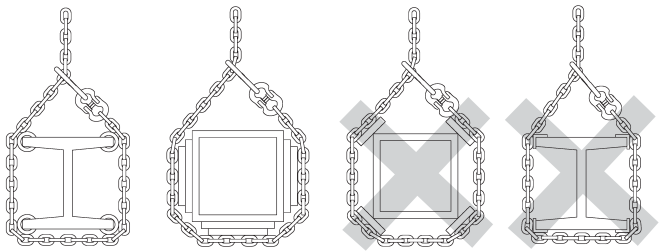
Documentation
Records of inspections, and in particular their findings, as well as details of repairs carried out must be kept on file during the entire service life the chain sling.

Storage
pewag chain sling should be stored in cleaned and dried condition and protected from corrosion, e.g. lightly lubricated.

Correct use of pewag winner pro chain sling

Angle of inclination – sling points
Select slinging points and chain sling type in such a way that the angles of inclination of all chain strands (legs) lie within the data given on the CE marked plate. All angles of inclination should preferably be the same. Avoid angles of inclination of less than 15°, because of the high risk of load instability. Never use chain slings with the angle of inclination exceeding 60°.

Edge load – protection of load and chain
The maximum load capacity of pewag chain slings was defined under the assumption that the individual chain legs are pulled straight under load, i.e. that they do not run over edges.
In the case of edge loading, load protection (packing) should to be used to avoid damage. For correct and incorrect use see below mentioned illustrations



If chains are guided over edges without proper protection, their load capacity is reduced. For the corresponding load factors please refer to the table on page 9. But if chains looped at a beam or other round shaped loads the diameter should be minimum twice or 3 times the chain pitch. For smaller diameters the WLL of the chains must be reduced by 50%.

Impact
The maximum load capacity of pewag chain slings are defined under the assumption that the load on the individual chain strands (legs) is applied without any impact or shock loading. In cases of possible impact/shock, the load factors on page 10 must be taken into consideration.

Impact/shock is defined as follows:

- Slight impact: created, for example, when accelerating the lifting or lowering movement
- Medium impact: created, for example, when the chain slips when adjusting to the shape of the load
- created, for example, when the load falls into the unloaded chain

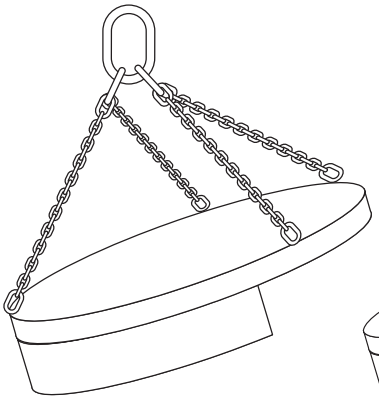
Vibrations
pewag winner pro chains and accessories are rated according to regulations for 20,000 load cycles. At high dynamic forces there may nevertheless be a risk of damage to the chain and accessories. According to the employer's liability insurance association Metall Nord Süd this risk may be prevented if the stress at load capacity limit is reduced by using a larger chain dimension.

Symmetrical loading
The load capacities of pewag chain slings are defined with the assumption that the load of the individual chain strands (legs) is symmetrically distributed. Lifting of the load then leads to identical angles of inclination, and the individual strands (legs) are symmetrical to each other.

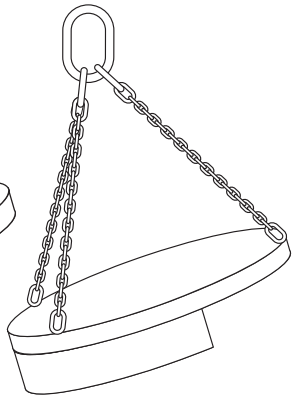
The load can still be considered symmetrical when the following conditions are met:

- The load is smaller than 80 % of the stated load capacity (WLL)
- The chain sling leg angles to the vertial are all not less than 15°
- The angles to the vertical of all chain legs are identical or deviate max. 15° from each other
- In the case of three and four strand sling chains, the corresponding plan angles are within 15° of each other.

Example of asymmetry



The majority of the load is carried by 1 strand (leg)



The majority of the load is carried by 2 strand (legs)

If all of the listed parameters are not met, load is considered to be asymmetric and an expert must be called in to assess the lifting process. In case of doubt, only one chain strand (leg) should be considered as load-bearing. For the corresponding load capacity please refer to the load capacity table.

Use of pewag chain slings for other than the intended purposes
Use chain slings only for the intended purpose. In cases where not all individual strands (legs) are used simultaneously or where several chain slings are used at the same time, please refer to the load capacity table to find out the load capacity. In case of doubt or as an alternative, change the load capacity according to the following table.

Type of chain sling	Number of individual strands used	Use factor in relation to the loadcapacity given on the tag
two-stranded (2-leg)	1	1/2
three- and four-stranded (3/4-leg)	2	2/3
three- and four-stranded (3/4-leg)	1	1/3
2x single-stranded (single leg)	2	1,4
2x two-stranded (2 leg)	3 or 4	1,5

Hang any individual strands (leg) 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 crane hook is big enough for all the master rings. Make sure that the master rings cannot fall out of the hook during lifting. No angles of inclination of more than 45° allowed. Use only chain slings of the same nominal thickness and grade at the same time.

Detailed user manuals are available for download at www.pewag.com. NEW

User manual

User manual for pewag winner pro lashing system

General

The information regarding the use of the pewag winner pro system for lifting can also be used by analogy for the lashing system. Attention must be paid to the following additional information:

pewag winner pro lashing chains have been developed for securing loads during transport. If properly used pewag winner pro lashing chains are have a long service life and offer a high level of safety. Personal injury and damage to property may result from improper use. It is therefore very important that you read and understand this user manual and act in a responsible and forward-thinking manner when using lashing equipment.

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 authorized people as defined by EN 12195-1 and 2 are allowed to assemble and use pewag Winner Pro lashing chain systems.

Important: 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 have the correct identification tag with the appropriate warning note.

The number of the lashing assemblies should be calculated according to EN 12195-1. Some impact loads may arise which will be balanced by the vehicle and by the flexibility of the lashing system.

Information on use

Lashing points
Choose lashing points so that the angles of the lashing chain assemblies are within the range given in our lashing table and so that the lashing chain assemblies are symmetrical to the driving direction. Use only lashing points with adequate strength. Deviations from this should only be considered after consulting our technical department.

Selection
Consider the lashing method required and the load that needs to be secured when selecting the lashing chain systems. Size, form and weight of the load as well as the intended usage category (friction lashing, direct lashing, …) and the transport environment (additional utilities, lashing points, …). determine proper selection.
Lashing chain systems should be used because of the high lashing capacity and the low elongation. We recommend to use the direct lashing method especially for the securing of heavy loads with the least possible lashing systems.

The number of the lashing systems should be calculated according to the EN standard 12195-1. In accordance with this standard pewag has integrated the commonly used lashing methods in an easy to use lashing table. Please look for more detailed info on pages 18 and 19.

Use at least two pairs of lashing chain systems for stability for the direct lashing method.

The chosen lashing chain systems must be strong and long enough for the intended purpose.

In case of doubt safety is a priority rather than overloading the lashing chain system. The connecting parts (hooks, links) of the lashing chain systems must be moveable in the lashing point and adjustable in the tensile direction. Bending stress on the accessories and tip loading of the hooks are not permissible. Hooks must be loaded at the bearing area. Please use either lashing chain systems or lashing straps for the load securing because of the different performance and elongation of different lashing equipment under load (e.g. lashing chains and lashing straps made of synthetic fibre). If required please contact our technical customer service department.

Use
Always consider proper lashing practice. Before lashing, plan the lashing and the release/opening of the lashing system. During a long trip consider possible partial unloading.

Pay attention to overhead lines during loading and unloading. Remove lifting equipment before lashing. The maximum hand force of 50 daN for tightening the tensioning device should only be applied manually. Use of mechanical utilities ie. Rods or levers is forbidden. Consider sufficient edge protection. During transport check the tension of the lashing chain system repeatedly. Before opening the lashing chain system make sure that the load is safe also without securing and the people who unload are not in danger through goods that fall off or topple down. If necessary assemble the lifting equipment for possible further transport on the load to avoid the goods falling off or toppling down. Release the lashing chain systems as appropriate so that the load is free standing.

Avoid the risk of the lashing chain getting caught during unloading.

Dynamic friction factor:
The dynamic friction factor depends on the combination of the various materials used. The following table gives several „Dynamic friction factor“ of different material pairings (in case of doubt, please consider the lower value as significant – poor adhesion).

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

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