pewag

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helevar

pewag winner inox stainless steel chain system G6

Ideas and solutions in stainless steel

NEW 2014


pewag HSWI 13-6

Content

pewag winner inox stainless steel chain system G6

pewag offers in fields of high grade stainless steel lifting gear a universal program of innovative quality products, service and solutions.

pewag, a long-established, global enterprise, combines centuries of experience in chain production, know-how in the stainless steel production with state-of-the-art production technology to meet the demands of the market, as well as end-users.

Technical changes and misprints are subject to alteration.

Welcome to the pewag group

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

Mission Statement

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

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

Principles of pewag group

Leading in Quality

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

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

Leading in Responsibility

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

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

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

Leading in Technology

We secure our technological leadership through highest product quality, constant improvements and innovations of products, as well as manufacturing processes.

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

Leading in Economics

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

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

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

pewag group – Innovation. Quality. Partnership.

History of the pewag group

Advantage through tradition

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

Timetable of important events

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

Lithography forging plant Brückl 1855

Anchor chain forge 1878

Chain forgers 1956

Quality management

Our main goal is customer satisfaction.

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

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

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

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

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

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

Business areas

Working with pewag products

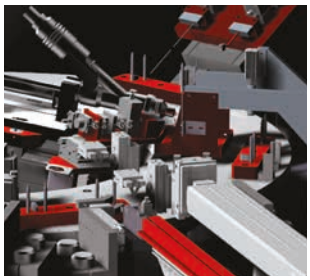
The pewag group has a substantial and diverse spectrum of products and services.

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

Segment A
Snow and forestry chains

Segment B
Hoist and conveyor chains

Segment C
Do-it-yourself



Segment D
Engineering

Segment F
Lifting and lashing chains and accessories

Segment G
Tire protection chains

Environment – we take responsibility

Ecological awareness in all areas

Our company's manufacturing location in Kapfenberg, Austria, has been used for iron and steel production for over 270 years. A second facility located in Brückl, Austria, was first documented in records dating back to 1479. Based on this long manufacturing tradition, we take serious responsibility for our products, employees and the environment at all our international locations. Hence, one of our major concerns is to improve energy efficiency and, in doing so, to minimise energy consumption over a long period of time with the development of new production technologies. An important goal is to increase energy efficiency and consequently lower energy demand. Consequently, we develop our products to achieve longer product life-cycles and lower weight but simultaneously, increasing their working load capacities and the safety for our customers. We are committed to upholding all relevant energy and environmental standards by setting clearly defined goals and continually improving our performance. To achieve this goal, we use modern manufacturing technologies. An important step is to provide the necessary resources and to include our employees in the process. We are convinced that well-informed and motivated employees can actively participate in environmental conservation.

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

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

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

Customer proximity

International presence

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

With 11 production and 31 sales and other locations on the continents of Europe, America, Africa and Australia pewag documented its claim as the world's number one chain manufacturer.

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

Production and sales locations

Europe	
Austria	pewag austria GmbH, Graz pewag austria GmbH, Kapfenberg pewag Schneeketten GmbH & Co KG, Graz pewag Schneeketten GmbH & Co KG, Brückl pewag engineering GmbH, Kapfenberg pewag austria Vertriebsgesellschaft mbH, Wien pewag Ketten GmbH, Klagenfurt pewag International GmbH, Klagenfurt
Germany	pewag Deutschland GmbH, Unna pewag Schneeketten Deutschland GmbH, Unna
France	pewag France SAS, Èchirolles/Grenoble Chaineries Limousines SAS, Bellac Chaineries Limousines SAS, Limoges
Italy	pewag italia srl, Andrian Acciaierie Valcanale Srl, Tarvisio
The Netherlands	pewag nederland BV, Hillegom APEX International BV, Hillegom
Poland	pewag polska Sp z o.o., Buczkowice
Portugal	pewag Portugal, Santo Antão do Tojal
Russia	OOO „PEWAG", Moscow OOO „pewag russia", Moscow
Kazakhstan	Representative office of pewag international GmbH, Almaty
Croatia	pewag croatia doo, Zagreb
Sweden	pewag sweden AB, Emmaboda

Europe	
Slovakia	pewag slovakia sro, Nitra
Czech Republic	pewag Snow Chains s.r.o., Vamberk pewag sro, Vamberk KOMAP Dědov sro, Dědov KOMAP Dědov sro, Chrudim
Ukraine	TOV pewag Ukraine, Lviv

North America	
USA	pewag Inc, Bolingbrook, Illinois pewag Inc, Rocklin, California pewag Traction Chain Inc, Pueblo
Mexico	pewag Mexico S.A. de C.V., Mexico

South America	
Brazil	pewag Brasil Comércio de Correntes Ltda., São Paulo

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

Australia	
Australia	pewag australia Pty Limited, Barrack Heights

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Innovation. Quality. Partnership.

Assembled system

Features and benefits

Unbeatable success with the variable pewag winner inox system

With pewag winner inox stainless steel chains and components, pewag provides an exchangeable basic lifting program, which is practicable, far-ranging and can be used in many applications. Moreover qualified people can assemble components in field.

The multitude of individual parts of all suppliers on the same quality, grade and tolerance level, can be selected, combined and applied by the user. There is no dependence on one manufacturer and single components can be replaced by products of other suppliers.

Based on the above-named conditions, foreign programs can be combined with pewag winner inox and the problem-solving abilities of the CWI Connex connector can be fully utilized. In that process pewag winner inox components are used in varying operational areas, like lifting, moving, locking and connecting.

Connex links can be used in combination with stainless steel wire rope, eye hooks and master links. In contrast to conventional lifting slings, pewag winner inox can be used in dissimilar corrosive mediums, as well as at elevated temperatures, in certain circumstances, even up to maximum +700°C.

Production of chains and components is based on high class materials 1.4571 (AISI 316 Ti)and 1.4404 (AISI 316 L) + 1.4462 (AISI 318 LN), in which proportion of carbon is limited.

pewag‘s quality management (ISO 9001) and continuous controlled production processes under the correct practices, assures an upper limit of safety and economic life-time.

According to the requirements of the users and the market, pewag winner inox program will be enhanced and adjusted to their need.

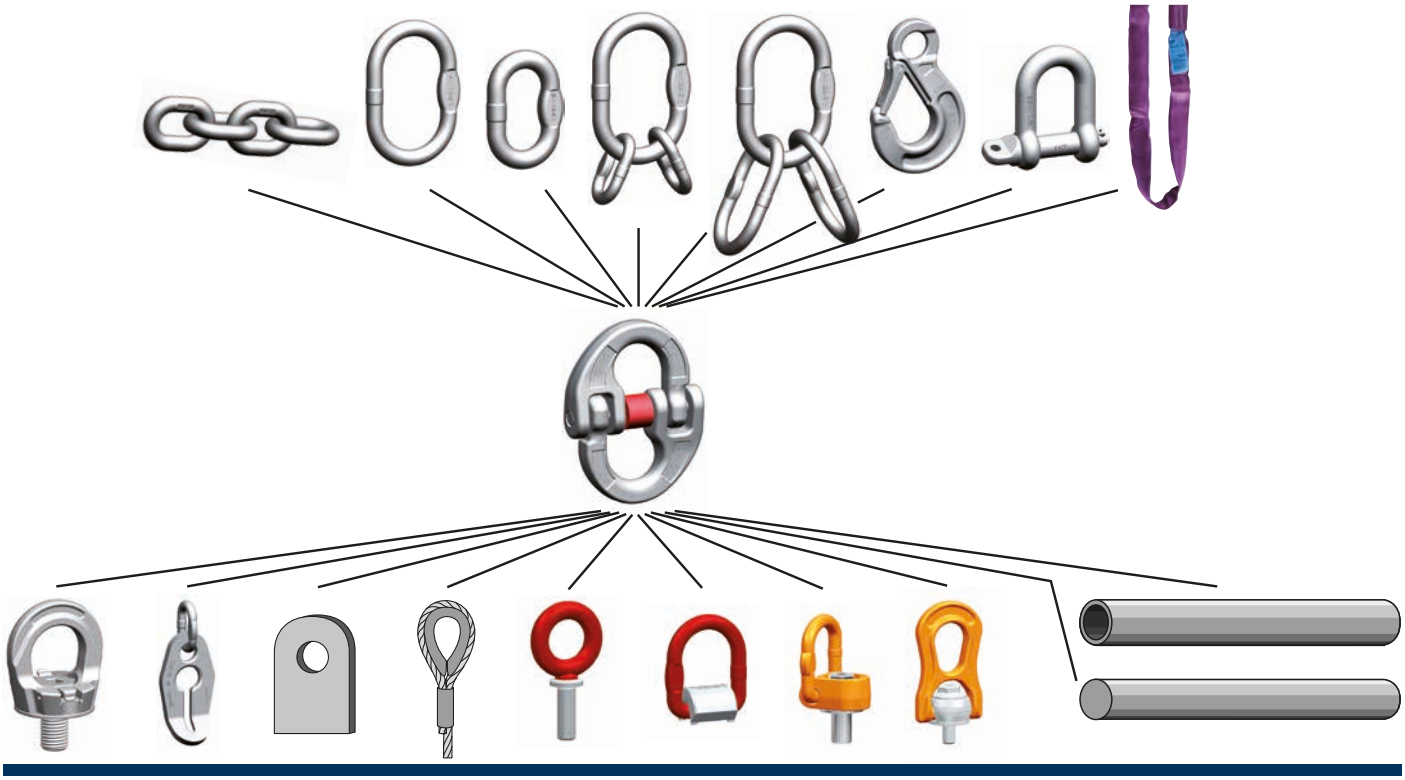
Summarized, pewag winner inox offers a well-founded and flexible solution.

pewag winner inox

CWI Connex connecting link, the link between chain, components and all other sling components

The benefits of Connex, vs. other kinds of connectors, are obvious:

- For connecting there are no special conditions like flattening sections necessary
- All the other lifting accessories, like hooks, master links, shortenings etc., do not have to fulfill extra requirements for combination
- Connex links can be mounted into eyes and openings or over shafts or tubes
- Additional assembling, back fitting or dismantling is no problem
- Due to the huge radii, Connex accommodates much space for interlinking in several scopes, also outside of the sling domain
- The possible combinations of Connex are set few limits



pewag winner inox G6 – Statement

pewag, the world's leading chain manufacturer, is further enhancing its expertise in the premium stainless steel chains segment for the lifting of loads. pewag is the first manufacturer to offer a "real" grade 6 programme on which the mechanical values really are based on a breaking tension of 630 N/mm. In the future, the complete product portfolio will offer lifting capacities from 200 kg up to 12.000 kg on individual chain strands.

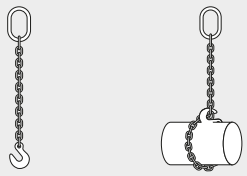
Benefits:

- Increase in carrying capacity of G6 by approx. 25% with the same nominal diameter as the G5; therefore more lifting capacity with similar weight.
- Eye hooks: higher lifting capacity in spite of larger hook mouth and narrower passage on the hook body for better fit in eyelets
- Lifting points etc. of the new, higher classifications through which the components in relation to the load become progressively smaller. The size of the pewag winner inox G6 remains the same despite the higher lifting capacity
- Master links due to wide dimensioning in G6 – compared to other classifications – are large dimensioned, therefore fit optimally into large crane hooks
- Even for small chain dimensions from 200 kg, pewag supplies master links that, due to their width, enable the best possible mounting to crane hooks

General lifting capacity increase as per the range expansion to 12 tonnes, pump chains from 200 – 12.000 kg!

Working load limits

The working load limits listed are maximum values of the various sling types, stated according to the standard (uniform load) method of rating.
Light grey values correspond to grade 5.

Safety factor 4		I-leg chains		II-leg chains			
1:4							
Angle of inclination		-	-	0°–45°	45°–60°	0°–45°	45°–60°
Load factor		1	0,8	1,4	1	1,12	0,8
Code	**d**	**Load capacity [kg]**					
WOX 4-6	4	400	320	560	400	450	320
WOX 4	4	320	256	450	320	355	256
WOX 5-6	5	630	500	850	630	700	500
WOX 5	5	500	400	700	500	560	400
WOX 6-6	6	900	720	1.250	900	1.000	720
WOX 6	6	750	600	1.000	750	800	600
WOX 7-6	7	1.250	1.000	1.750	1.250	1.400	1.000
WOX 7	7	1.000	800	1.400	1.000	1.120	800
WOX 8-6	8	1.600	1.280	2.200	1.600	1.800	1.280
WOX 8	8	1.250	1.000	1.700	1.250	1.400	1.000
WOX 10-6	10	2.500	2.000	3.500	2.500	2.800	2.000
WOX 10	10	2.000	1.600	2.800	2.000	2.240	1.600
WOX 13-6	13	4.250	3.400	5.950	4.250	4.750	3.400
WOX 13	13	3.200	2.560	4.500	3.200	3.550	2.560
WOX 16-6	16	6.300	5.040	8.800	6.300	7.050	5.040
WOX 16	16	5.000	4.000	7.100	5.000	5.600	4.000
WOX 20-5	20	8.000	6.400	11.200	8.000	-	-
WOX 26-4+	26	12.000	9.600	-	-	-	-

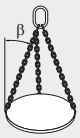
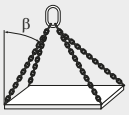
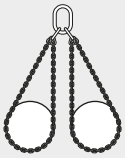
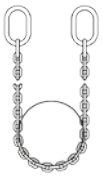
Possible adjustment variations see page 24 resp. 32 at assembled and welded slings.

Stainless steel lifting chains and accessories in G6

Data
Stress at working load limit: 160 N/mm²
Breaking stress: 630 N/mm²
Breaking elongation: min. 20%

Material
1.4571 (AISI 316 Ti), 1.4404 (AISI 316 L) and 1.4462 (AISI 318 LN)

Surface
Chain: bright polished
Components: pickled and blasted

III- + IV- leg chains		Endless chain sling	Single lifting sling		Double lifting sling		U-Shape
							
0°–45°	45°–60°	-	0°–45°	45°–60°	0°–45°	45°–60°	–
2,1	1,5	1,6	1,4	1	2,1	1,5	2
Load capacity [kg]							
840	600	640	560	400	840	600	800
670	475	512	450	320	670	475	640
1.300	940	1.000	850	630	1.300	940	1.260
1.050	750	800	700	500	1.050	750	1.000
1.850	1.350	1.400	1.250	900	1.850	1.350	1.800
1.600	1.120	1.200	1.000	750	1.600	1.120	1.500
2.600	1.850	2.000	1.750	1.250	2.600	1.850	2.500
2.100	1.500	1.600	1.400	1.000	2.100	1.500	2.500
3.350	2.400	2.500	2.220	1.600	3.350	2.400	3.200
2.650	1.800	2.000	1.700	1.250	2.650	1.800	2.500
5.250	3.750	4.000	3.500	2.500	5.250	3.750	5.000
4.250	3.000	3.200	2.800	2.000	4.250	3.000	4.000
8.900	6.350	6.800	5.950	4.250	8.900	6.350	8.500
6.700	4.750	5.120	4.500	3.200	6.700	4.750	6.400
13.200	9.400	10.000	8.800	6.300	13.200	9.400	12.600
10.000	7.500	8.000	7.100	5.000	10.000	7.500	10.000
-	-	12.800	11.200	8.000	-	-	16.000
-	-	19.200	-	-	-	-	24.000

Reduction factors

If the chain is exposed to severe conditions (e.g. high temperatures, asymmetric load distribution, edge loading, impact/ shock loads), the maximum working load limit values must be reduced according to the table (pages 14 & 15). For this purpose, the load factors indicated below must be taken into account. Please also take into consideration the data enclosed in the user information.

If chains are wound around support arms or other round-shaped loads, the diameter should be minimum 3x the chain pitch. For smaller diameters, the lifting capacity of the chains must be reduced by 50%.

The winner inox chain system G6 should not be used with temperatures over 350°C.

For applications with higher temperatures, we will gladly advise you.

Temperature	-40°C – 350°C	-40°C – 350°C	above 350°C
Load factor	1	1	not permissible
Asymmetric load distribution	The WLL has to be reduced by at least I leg. In case of doubt only consider I leg as load-bearing.		
Edge load*	R = larger than 2x 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 inox
Example of order text

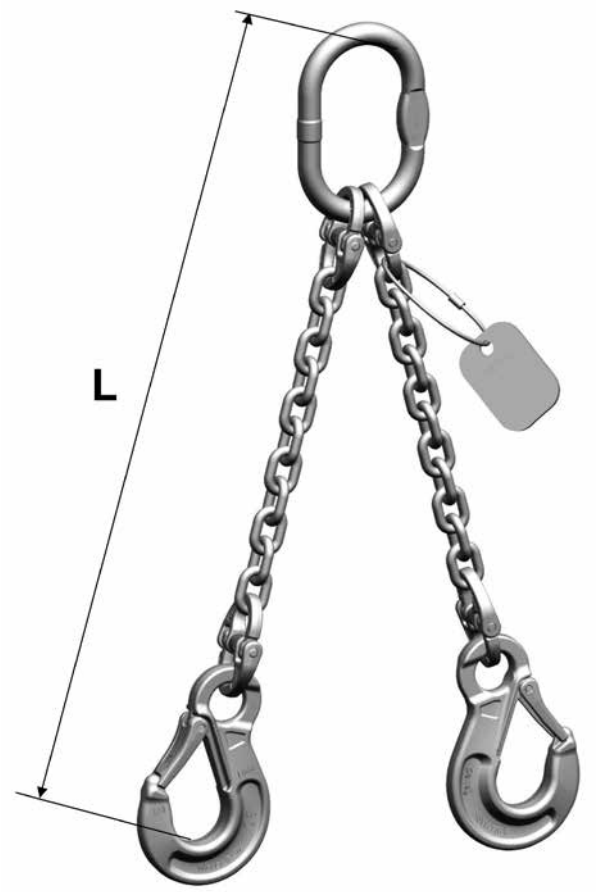
Below you can find a detailed ordering example of a complete composed and usual pewag winner inox chain sling.

pewag winner inox 10 mm, double-leg chain sling with eye sling hook, mounted with CWI Connex connecting link, Length 3.500 mm.

Connex system:

WOX 10-6 II AWI - HSWI 3.500 Connex

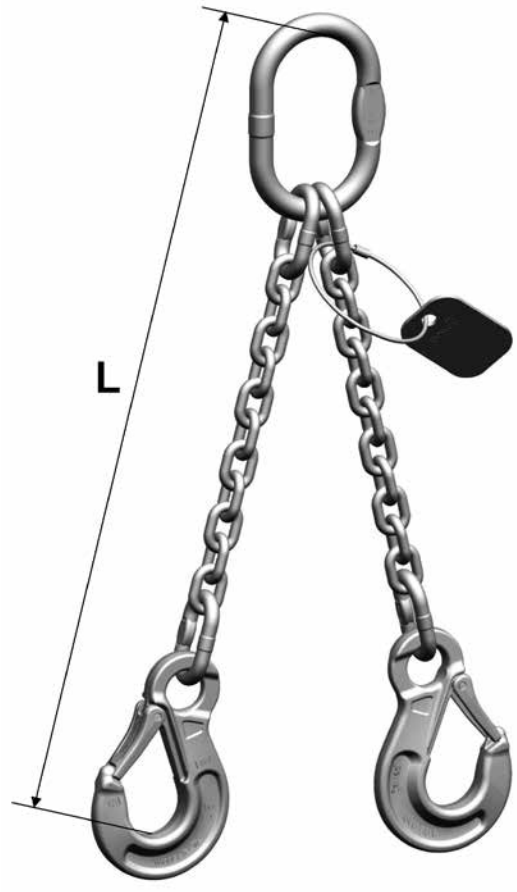
Nominal diameter		Number of legs	Master link	End hook	Length [mm]	Connex mounted



Welded system:

WOX 10-6 II AWI - HSWI 3.500

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



WOX Chain

Stainless steel lifting chain, electrically welded and stamped,
guaranteed compatible with CWI Connex connectors.
Similar DIN 5687-1 repr. EN 818-2. 100% tested.

WOX Chain	Code	Nominal diameter dn [mm]	Standard-delivery length [m]	Pitch t [mm]	Inside width b1 min. [mm]	Outside width b2 max. [mm]	WLL [kg]	Breaking force [kN]	Weight [kg/m]
	WOX 4-6	4	50 m	12	6,2	14,8	400	16,0	0,38
	WOX 5-6	5	50 m	15	7,5	18,5	630	25,0	0,58
	WOX 6-6	6	50 m	18	8,7	20,9	900	37,5	0,82
	WOX 7-6	7	50 m	21	9,5	25,2	1.250	50,0	1,11
	WOX 8-6	8	50 m	24	10,8	28,6	1.600	63,0	1,43
	WOX 10-6	10	50 m	30	13,5	36,0	2.500	100,0	2,25
	WOX 13-6	13	25 m	39	17,5	46,8	4.250	170,0	3,77
	WOX 16-6	16	25 m	48	21,5	57,6	6.300	250,0	5,62
	WOX 20-5	20	-	60	27	72	8.000	314,0	9,29
	WOX 26-4+	26	-	78	35,0	93,6	12.000	471,0	16,20

AWI Master link

Stainless steel master link, electrically welded, stamped,
for I- and II- legged chain and wire rope slings, (sim. DIN 3088-1989)
component for master link assemblies VWI also useable as endlink.
Similar DIN 5688-1. 100% tested.

AWI Master link	Code	WLL 0–45° [kg]	Usable up to sling hooks following DIN 15401 No.	d [mm]	t [mm]	w [mm]	s [mm]	Weight [kg/pc.]	For I-leg chain slings	For II-leg chain slings
	AWI 8-6	560	0,5	8	60	35	-	0,08	4	4
	AWI 10-6	850	1,6	10	80	50	-	0,14	5	5
	AWI 13-6	1.600	2,5	13	110	60	10	0,34	6/7/8	6
	AWI 16-6	2.600	2,5	16	110	60	14	0,53	10	7/8
	AWI 18-6	3.500	5	18	135	75	14	0,92	-	10
	AWI 22-6	6.300	6	23	160	90	17	1,60	13/16	13
	AWI 26-6	8.900	8	27	180	100	20	2,46	20	16
	AWI 32-6	13.200	10	32	200	110	26	4,14	-	20
	AWI 36-6	14.700	16	36	260	140	29	6,22	-	-
	AWI 45	12.000		45	340	180	**	12,82	26	-

Custom-made, also with flattening section available.

BWI Transition link

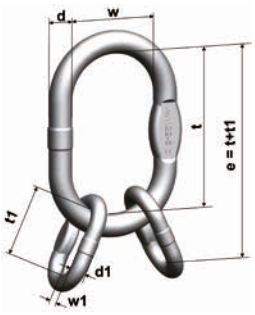
Stainless steel transition- and securing link, electrically welded, stamped, component of welded slings and by agreement useable as special link. Similar DIN 5688-1. 100% tested.

BWI Transition link	Code	WLL 0–45° [kg]	d [mm]	t [mm]	w [mm]	s [mm]	Weight [kg/pc.]	For I-leg chain slings	For II-leg chain slings
	BWI 7-6	900	7	36	16	-	0,03	5/6	5/6
	BWI 9-6	1.250	9	44	20	-	0,07	7	7
	BWI 10-6	1.600	10	44	20	-	0,09	8	8
	BWI 13-6	2.500	13	54	25	10	0,19	10	10
	BWI 16-6	4.250	16	70	34	14	0,36	13	13
	BWI 20-6	6.300	20	85	40	16	0,71	16	16
	BWI 22-6	8.000	23	115	50	17	1,16	20	-
	BWI 26-6	10.070	27	140	65	20	1,92	-	-
	BWI 32-6	12.000	32	150	70	26	3,18	26	-

Custom-made, also with flattening section available.

VWI Master link assembly

Stainless steel master link assembly, electrically welded and stamped, for III- and IV- legged chain slings. Similar DIN 5688-1.
100% tested.

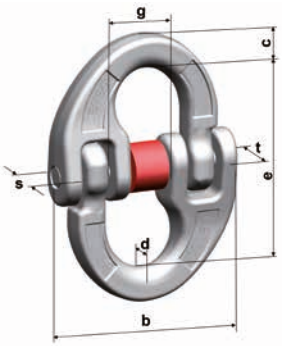


VWI Master link assembly	Code	Consisting of	Usable up to sling hooks following DIN 15401 No.	WLL 0–45° [kg]	e [mm]	d [mm]	t [mm]	w [mm]	d1 [mm]	t1 [mm]	w1 [mm]	Weight [kg/pc.]
	VWI 4-6	AWI 10-6 + 2 BWI 9-6	1,6	840	124	10	80	50	9	44	20	0,28
	VWI 5-6	AWI 13-6 + 2 BWI 10-6	2,5	1.300	154	13	110	60	10	44	20	0,52
	VWI 6/7-6	AWI 16-6 + 2 BWI 13-6	5	2.600	164	16	110	60	13	54	25	0,91
	VWI 8-6	AWI 18-6 + 2 BWI 16-6	6	3.350	205	18	135	75	16	70	34	1,64
	VWI 10-6	AWI 22-6 + 2 BWI 20-6	8	5.250	245	23	160	90	20	85	40	3,02
	VWI 13-6	AWI 26-6 + 2 BWI 22-6	10	8.900	295	27	180	100	23	115	50	4,78
	VWI 16-6	AWI 32-6 + 2 BWI 26-6	16	13.200	340	32	200	110	27	140	65	7,98

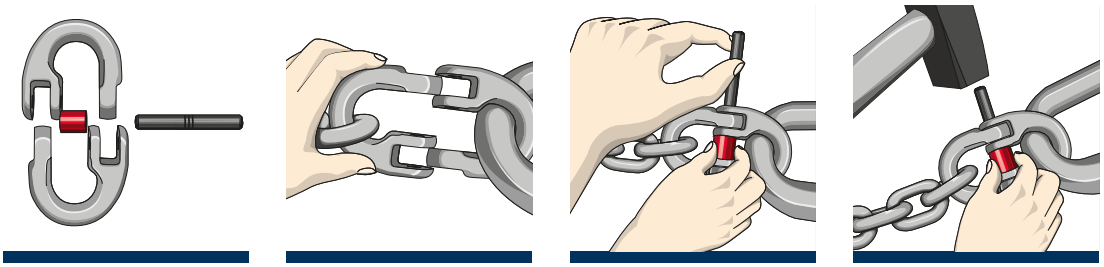
Custom-made, also with flattening section available.
Number close to code constitutes chain, used in combination with product.

CWI Connex connecting link

Stainless steel Connex connecting link, drop-forged, stamped, divisible, for universal assembly of chain slings, master links, enlarged master link assemblies, shortening, shackles and other accessories, guaranteed compatible with all pewag winner inox components of same nominal size. Suspension bolt is locked by stainless steel spiral spring (mat. 1.4571), within enlarged synthetic sleeve as practically mounting aid.
Similar EN 1677-1.

CWI Connex connecting link	Code	WLL [kg]	e [mm]	c [mm]	s [mm]	t [mm]	d [mm]	b [mm]	g [mm]	Weight [kg/pc.]
	CWI 5	630	36	7	10	11	7	34	13	0,06
	CWI 7	1.250	54	9	13	14	9	51	17	0,14
	CWI 10	2.500	73	13	18	18	13	70	25	0,37
	CWI 13	4.250	92	17	23	25	17	86	29	0,76
	CWI 16	6.300	104	21	32	28	20	105	37	1,41

Number close to code constitutes chain, used in combination with product.



HSWI Eye sling hook

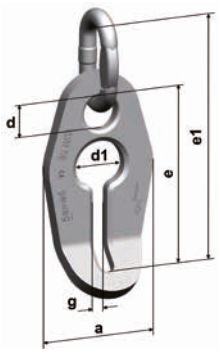
Stainless steel eye sling hook, drop-forged, stamped, for universal assembly of chain with lifting means via Connex link, for welding or use with stainless steel wire rope slings.
The compact designed model of the hook guarantees highest load with a minimum-weight, impact protection for safety latch and bolt, as well as large hook mouth realised by special designed latch.
Widened, to the trap adjusted, hook point ensures additional safety as it can prevent the danger of hooking onto the chain for example.
The safety latch with a strong spring, riveted on both sides, provides superior directional stability.

HSWI Eye sling hook	Code	WLL [kg]	e [mm]	h [mm]	a [mm]	d1 [mm]	d2 [mm]	g1 [mm]	b [mm]	Weight [kg/pc.]
	HSWI 5/6-6	630	84	20	14	21	8	22	67	0,25
	HSWI 7/8-6	1.600	112	29	20	27	13	32	98	0,70
	HSWI 10-6	2.500	133	33	28	37	15	39	115	1,35
	HSWI 13-6	4.250	172	43	35	48	18	51	147	2,60
	HSWI 16-6	6.300	213	51	44	55	24	66	182	4,80

Number close to code constitutes chain, accessories in combination with product.

VLWI Shortener

Stainless steel shortener for shortening of stainless steel chains, extremely convenient in application, in assembled system or for retrofitting.
Extremely safe application as, under no circumstance can the chain fall out – due to it's own weight, it will always be locked in place.

VLWI Shortening	Code	WLL [kg]	e [mm]	e1 [mm]	a [mm]	d [mm]	d1 [mm]	g [mm]	Weight [kg/pc.]
	VLWI 5/6-6	900	80	114	52	16	26	8	0,22
	VLWI 7/8-6	1.600	111	156	68	22	34	11	0,57
	VLWI 10-6	2.500	133	183	86	27	40	12	1,06
	VLWI 13-6	4.250	169	242	108	32	52	16	2,20
	VLWI 16-6	6.300	204	284	134	38	64	20	4,16

Number close to code constitutes chain, accessories in combination with product.

Correct application

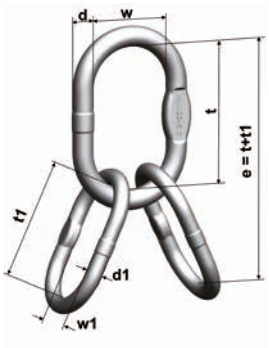
Correct application

Correct application

Wrong application

VAWI Special master link assembly for wire ropes – G5

Stainless steel special master link assembly for wire rope, electrically welded, stamped, for producing III- and IV- legged wire rope slings with enlarged transition links, which offer enough inner width to fit even two ropes. Similar DIN 3088-1989 respectively DIN 5688-1.
100% tested.

VAWI Special master link assembly for wire ropes	Code	Consisting of	Usable up to sling 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.]
	VAWI 6	AWI 18 + 2 AWI 13	2,5	1.600	245	19	135	75	13	110	60	1,60
	VAWI 7	AWI 18 + 2 AWI 16	5	2.100	245	19	135	75	16	110	60	1,98
	VAWI 8	AWI 22 + 2 AWI 18	6	3.000	295	23	160	90	19	135	75	3,44
	VAWI 10	AWI 26 + 2 AWI 22	8	4.800	340	27	180	100	23	160	90	5,66
	VAWI 13	AWI 32 + 2 AWI 26	10	7.100	380	33	200	110	27	180	100	9,06
	VAWI 16	AWI 36 + 2 AWI 32	16	10.500	460	36	260	140	33	200	110	14,50

Number close to code constitutes chain, used in combination with product and attribution of ropes under construction of WLL in accordance of relevant rules of rope slings.

SSWI Safety shackle

Stainless steel safety shackle, drop-forged, stamped, tested, with added suspension bolt useable as end fitting in chain- and wire rope slings and pump chains for lifting of submersible pumps and breathers, with maximum safety, also under vibration (not directly mountable onto chain).
S = with safety splint pin for securing
C = bolt adhesive for securing

SSWI Safety shackle	Code	WLL [kg]	e [mm]	a [mm]	b [mm]	d [mm]	d1 [mm]	c [mm]	Weight [kg/pc.]
	SSWI 0,5 t-S	500	33	8	18	8	9	18	0,07
	SSWI 1,25 t-S	1.250	40	12	25	12	13	25	0,22
	SSWI 2 t-S	2.000	60	16	32	16	17	32	0,52
	SSWI 3,2 t-S	3.200	78	19	41	19	21	47	0,80
	SSWI 5 t-S	5.000	109	25	56	25	29	60	2,2
	SSWI 26-C	13.000	152	34	76	34	38	75	7

Other sizes and special models available on request!
On request also stronger shackles available.

CBHWI Bolts and safety bush

Stainless steel safety-set matching to Connex connector, consisting of suspension bolt and spiral spring (Mat. 1.4571), within enlarged synthetic sleeve as practically fit-up aid, at which the spiral spring guarantees locking of suspension bolt.

CBHWI grade 6 correspond to the design of CBHWI grade 5 and can therefore be used as replacement parts for CWI grade 5. Please note, however, the modified material properties of grade 6.

The replacement set for grade 5 should not be used for CWI grade 6. Only bolts that have been stamped with grade 6 are allowed to be used.

CBHWI Bolts and safety bush	Code	For connecting link
	CBHWI 5-6	CWI 5
	CBHWI 7-6	CWI 7
	CBHWI 10-6	CWI 10
	CBHWI 13-6	CWI 13
	CBHWI 16-6	CWI 16

SFGWI Safety catch

Stainless steel safety catch set with extra strong spring and rivetable safety pin.

SFGWI Safety catch	Code	For hook
	SFGWI 5	HSWI 5 stamped HSK 5 or HK 5
	SFGWI 7	HSWI 7 stamped HSK 7 or HK 7
	SFGWI 10	HSWI 10 stamped HSK 10 or HK 10
	SFGWI 13	HSWI 13 stamped HSK 13 or HK 13
	SFGWI 16	HSWI 16 stamped HSK 16 or HK 16
	SFGWI 5/6-6	HSWI 5/6 stamped HSWI 5/6
	SFGWI 7/8-6	HSWI 7/8 stamped HSWI 7/8
	SFGWI 10-6	HSWI 10 stamped HSWI 10
	SFGWI 13-6	HSWI 13 stamped HSWI 13
	SFGWI 16-6	HSWI 16 stamped HSWI 16

New rectangular lifting identification tags

During the first half of 2014, pewag will change the design of the lifting identification tags to a rectangular shape made of corrosion-resistant material attached to the sling with an undetachable, rustproof quick release fastener. Through this measure, pewag has taken another great step forward towards establishing better safety. Within all norm documents for lifting chains, the number of corners that the identification tag features corresponds to the grade category of the lifting chain. Many users of lifting chains use this and the chain dimensions to estimate the working load limit (WLL) of the lifting chain without taking the markings (stamping) on the identification tag into consideration. This can lead to more serious consequences; for example when a component of lower grade classification – and therefore of lower carrying capacity – or a component with differing characteristics than the recommended classification on the identification lable, e.g. operating temperature, is built in. We pursue the goal of continuously increasing the user's safety.

The benefits you will enjoy as a result of this new safety feature are:

- Looking at the indentification tag before each lifting procedure becomes unavoidable thus reducing erroneous assessments of the lifting chain's carrying capacity
- When the marking is not observed, the lifting chain will be classed as a maximum grade 4
- Corrosion-resistant: therefore resistant to solvents, acids, caustics and their vapours
- Easily replaceable due to the rustproof cable with quick fastener
- All information is engraved allowing for customer-specific markings
- Pre-stamped year dates for the periodic inspections make it immediately apparent when the last inspection took place. For the periodic inspection it is only necessary to stamp the month

ID Identification tag

Stainless steel identification tag set consisting of TKWI identification tag and mounting device. Further benefits: the customer name etc. can be engraved; inspection data entered; and for technicians: a plaque for different grade classifications!

ID Identification tag	Code	For lifting chains	Consisting of
* ** 	ID-Tag set neutral	I- and multi-leg slings	tag neutral + cable with quick release fastener + safety information
	* front side ** back side		

pewag winner inox stainless steel chain slings in assembled system

Pictured chain slings show a summary of different possibilities of the assembled system.
On demand different variations can be supplied.
If required, special systems according to the customer's specifications can be manufactured – please contact our customer service department.

	Dia-meter d	WLL l-leg	WLL 0–45°	WLL 45–60°	*Top fitting	**Possible end fittings				
					Master link	Eye sling hook	Master link	Tran-sition link	Shackle	Shorte-ning
	[mm]	[kg]	[kg]	[kg]	AWI	HSWI	AWI	BWI	SSWI	VLWI
I-leg chain sling										
	5	630	-	-	AWI 10-6	HSWI 5/6-6	AWI 10-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	7	1.250	-	-	AWI 13-6	HSWI 7/8-6	AWI 13-6	BWI 9-6	SSWI 1,25t-S	VLWI 7/8-6
	10	2.500	-	-	AWI 16-6	HSWI 10-6	AWI 16-6	BWI 13-6	SSWI 3,2t-S	VLWI 10-6
	13	4.250	-	-	AWI 22-6	HSWI 13-6	AWI 22-6	BWI 16-6	SSWI 5t-S	VLWI 13-6
	16	6.300	-	-	AWI 22-6	HSWI 16-6	AWI 22-6	BWI 20-6	SSWI 5t-S [1)]	VLWI 16-6
II-leg chain sling										
	5	-	850	630	AWI 10-6	HSWI 5/6-6	AWI 10-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	7	-	1.750	1.250	AWI 16-6	HSWI 7/8-6	AWI 13-6	BWI 9-6	SSWI 1,25t-S	VLWI 7/8-6
	10	-	3.500	2.500	AWI 18-6	HSWI 10-6	AWI 16-6	BWI 13-6	SSWI 3,2t-S	VLWI 10-6
	13	-	5.950	4.250	AWI 22-6	HSWI 13-6	AWI 22-6	BWI 16-6	SSWI 5t-S	VLWI 13-6
	16	-	8.800	6.300	AWI 26-6	HSWI 16-6	AWI 22-6	BWI 20-6	SSWI 5t-S [1)]	VLWI 16-6
III-leg chain sling										
	5	-	1.300	940	AWI 13-6	HSWI 5/6-6	AWI 10-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	7	-	2.600	1.850	AWI 16-6	HSWI 7/8-6	AWI 13-6	BWI 9-6	SSWI 1,25t-S	VLWI 7/8-6
	10	-	5.250	3.750	AWI 22-6	HSWI 10-6	AWI 16-6	BWI 13-6	SSWI 3,2t-S	VLWI 10-6
	13	-	8.900	6.350	AWI 26-6	HSWI 13-6	AWI 22-6	BWI 16-6	SSWI 5t-S	VLWI 13-6
	16	-	13.200	9.400	AWI 32-6	HSWI 16-6	AWI 22-6	BWI 20-6	SSWI 5t-S [1)]	VLWI 16-6
IV-leg chain sling										
	5	-	1.300	940	AWI 13-6	HSWI 5/6-6	AWI 10-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	7	-	2.600	1.850	AWI 16-6	HSWI 7/8-6	AWI 13-6	BWI 9-6	SSWI 1,25t-S	VLWI 7/8-6
	10	-	5.250	3.750	AWI 22-6	HSWI 10-6	AWI 16-6	BWI 13-6	SSWI 3,2t-S	VLWI 10-6
	13	-	8.900	6.350	AWI 26-6	HSWI 13-6	AWI 22-6	BWI 16-6	SSWI 5t-S	VLWI 13-6
	16	-	13.200	9.400	AWI 32-6	HSWI 16-6	AWI 22-6	BWI 20-6	SSWI 5t-S [1)]	VLWI 16-6

L = Effective working length according customer specification

1) WLL Reduction WOX 16 – SSWI 5 t–S:
On request also stronger shackles available.

I-leg chain	II-leg chain		III+IV-leg chain	
–	0-45°	45-60°	0-45°	45-60°
5.000	7.100	5.000	10.000	7.500

Application instructions for shortening


Correct application


Correct application


Correct application


Wrong application

Welded system

Welded system

Features and benefits

Welded chain slings in stainless steel for specific applications

The strength of a producer depends primarily on his ability to react and adjust to the market and to the customer's requirements or needs.

pewag a long establish global enterprise, combines centuries of experience in chain manufacture, with state of the art production technology, and new innovations to meet the demands of the markets worldwide.

Round link/profile chains together with master links and transition or joining links are welded using butt resistance or flash butt welding techniques on sophisticated welding machines, using electrical energy and mechanical upset forces to produce welds of a homogenizes finish, with 100% weld penetration.

Welding locations are fully penetration welded by 100%, so there is no hollow space and no cracks, in which for example water, chemicals or residue can accumulate.

Chains in welded system are used for example in hygienic applications, because of the clean surface of all components, chain, master and joining links. Persistent, profound pollution will remain minimal and chains can be cleaned easily.

If chain slings are used in applications with vibration, the welded system offers highest security and longest duration of life.

Welded chain constructions are used amongst others in:
- Water-, wastewater and pump industry
- Chemical and oil industry
- Clean technology and regenerative energy
- Food-, slaughterhouse, hygienic and fishing industry
- Powerplant and facilities (also in areas of higher temperatures)
- Surface treatment
- Marine and military
- Recreational and sport area

Chainmarking

Fast and flexible – stainless steel chain systems consisting of pewag winner inox components.

Chains and components simply combinable according to your wishes.

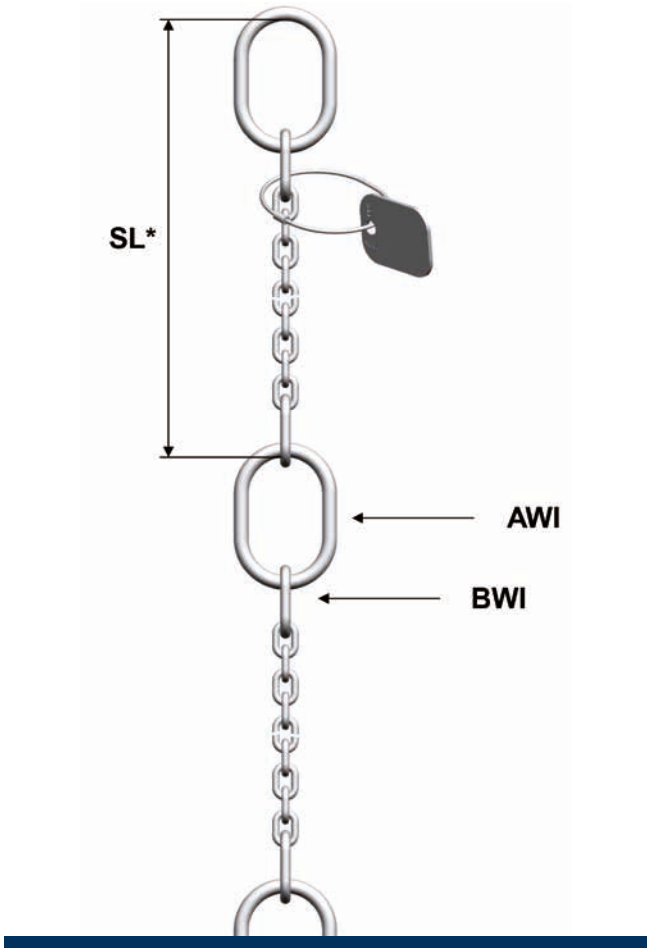
PCWI Stainless steel pump chain

From 200 kg to max. 12.000 kg load capacity.

pewag PCWI pump chains type in welded systems are, because of their construction and range of components, suitable for submersible pumps and breathers in the water and waste water area. Every chain sling is tested and serialized with identification tag and a test certificate will be added.
Master links at the beginning, in segment distances and at the end allow the users to lift up, to lower or lock the pump chain in steps.

Additional to standard design, customer-made variations are possible:
- Two legged system with “Y” for pumps equipped with 2 eye screws
- Alternative end fittings, like eye hooks, joining links or shackles
- Available with additional stabilization chain
- Variational of standard segment length, also in different sections possible
- Special constructions
- Stainless steel hoist chains for pump stations by request

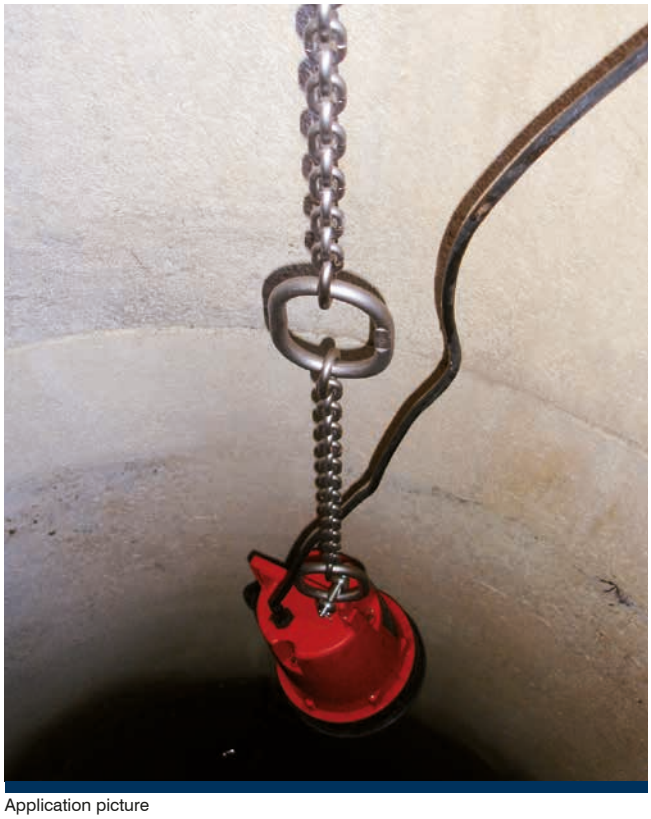
For joining pumps and chains, we suggest safety shackles type SSWI (page 22).
When ordering, please request desired total length of chain or number of segments and specify the kind of endfitting (i.e. AWI master link). Total length conforms a multiple of segment length plus pitch of end fitting.



Type [mm]	WLL [kg]	Master link	Dimensions AWI [mm]	Transition link	Dimensions BWI [mm]	Chain type	SL* Number of links	Segment length SL* [mm]	Length of master links/end links [mm]	Weight SL* [kg]
PCWI 4/200	200	AWI 6	6x60x35			WOX 4x12	77	984	60	0,39
PCWI 4/400	400	AWI 8	8x60x35	BWI 5	5x26x13	WOX 4x12	73	988	60	0,43
PCWI 5/560	560	AWI 8	8x60x35	BWI 7	7x36x16	WOX 5x15	53	943	60	0,62
PCWI 5/630	630	AWI 10	10x80x50	BWI 7	7x36x16	WOX 5x15	53	963	80	0,68
PCWI 6	850	AWI 10	10x80x50	BWI 7	7x36x16	WOX 6x18	47	998	80	0,90
PCWI 7	1.250	AWI 13	13x110x60	BWI 9	9x44x20	WOX 7x21	37	975	110	1,35
PCWI 8	1.600	AWI 13	13x110x60	BWI 10	10x44x20	WOX 8x24	33	990	110	1,70
PCWI 10	2.500	AWI 16	16x110x60	BWI 13	13x54x25	WOX 10x30	25	968	110	2,6
PCWI 13	3.500	AWI 18	18x135x75	BWI 16	17x70x34	WOX 13x39	19	1.016	160	4,50
PCWI 16	6.300	AWI 22	23x160x90	BWI 20	20x85x40	WOX 16x48	15	1.050	135	8,00
PCWI 20**	8.000	AWI 26	27x180x100	BWI 22	23x115x50	WOX 20x60	27	2.030	180	21
PCWI 26**	12.000	AWI 45	45x340x180	BWI 32	32x150x70	WOX 26x78	19	2.122	340	43,20

* SL consisting of 1 x AWI, 2 x BWI, WOX chain in standard length. PCWI 4/200 manufactured without transition links BWI.
** made to order.

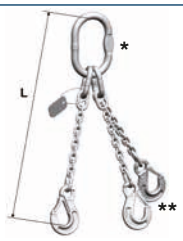
Application picture



Application picture

pewag winner inox stainless steel chain slings and endless chains in welded system

Pictured chain slings and endless chains show
a summary of different possibilities of the welded system.
On demand different variations can be supplied.

	Dia-meter d [mm]	WLL I-leg [kg]	WLL 0–45° [kg]	WLL 45–60° [kg]	*Top fitting	**Possible end fittings				
					Master link AWI	Eye sling hook HSWI	Master link AWI	Transition link BWI	Shackle SSWI	Shorte-ning VLWI
I-leg chain sling										
	4	400	-	-	AWI 8-6	-	AWI 8-6	BWI 5-6	SSWI 0,5t-S	-
	5	630	-	-	AWI 10-6	HSWI 5/6-6	AWI 10-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	6	900	-	-	AWI 13-6	HSWI 5/6-6	AWI 13-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	7	1.250	-	-	AWI 13-6	HSWI 7/8-6	AWI 13-6	BWI 9-6	SSWI 1,25t-S	VLWI 7/8-6
	8	1.600	-	-	AWI 13-6	HSWI 7/8-6	AWI 13-6	BWI 10-6	SSWI 2t-S	VLWI 7/8-6
	10	2.500	-	-	AWI 16-6	HSWI 10-6	AWI 16-6	BWI 13-6	SSWI 3,2t-S	VLWI 10-6
	13	4.250	-	-	AWI 22-6	HSWI 13-6	AWI 22-6	BWI 16-6	SSWI 5t-S	VLWI 13-6
	16	6.300	-	-	AWI 22-6	HSWI 16-6	AWI 22-6	BWI 20-6	SSWI 5t-S [1)]	VLWI 16-6
	20	8.000	-	-	AWI 26-6	-	AWI 26-6	BWI 26-6	SSWI 26-C	-
	26	12.000	-	-	AWI 45-6	-	AWI 45-6	BWI 32-6	SSWI 26-C	-
II-leg chain sling										
	4	-	560	400	AWI 8-6	-	AWI 8-6	BWI 5-6	SSWI 0,5t-S	-
	5	-	850	630	AWI 10-6	HSWI 5/6-6	AWI 10-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	6	-	1.250	900	AWI 13-6	HSWI 5/6-6	AWI 13-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	7	-	1.750	1.250	AWI 16-6	HSWI 7/8-6	AWI 13-6	BWI 9-6	SSWI 1,25t-S	VLWI 7/8-6
	8	-	2.200	1.600	AWI 16-6	HSWI 7/8-6	AWI 13-6	BWI 10-6	SSWI 2t-S	VLWI 7/8-6
	10	-	3.500	2.500	AWI 18-6	HSWI 10-6	AWI 16-6	BWI 13-6	SSWI 3,2t-S	VLWI 10-6
	13	-	5.950	4.250	AWI 22-6	HSWI 13-6	AWI 22-6	BWI 16-6	SSWI 5t-S	VLWI 13-6
	16	-	8.800	6.300	AWI 26-6	HSWI 16-6	AWI 22-6	BWI 20-6	SSWI 5t-S [1)]	VLWI 16-6
	20	-	11.200	8.000	AWI 32-6	-	AWI 26-6	BWI 26-6	SSWI 26-C	-
III-leg chain sling										
	4	-	840	600	VWI 4-6	-	AWI 8-6	BWI 5-6	SSWI 0,5t-S	-
	5	-	1.300	940	VWI 5/6-6	HSWI 5/6-6	AWI 10-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	6	-	1850	1350	VWI 5/6-6	HSWI 5/6-6	AWI 13-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	7	-	2.600	1.850	VWI 5/6-6	HSWI 7/8-6	AWI 13-6	BWI 9-6	SSWI 1,25t-S	VLWI 7/8-6
	8	-	3350	2400	VWI 8-6	HSWI 7/8-6	AWI 13-6	BWI 10-6	SSWI 2t-S	VLWI 7/8-6
	10	-	5.250	3.750	VWI 10-6	HSWI 10-6	AWI 16-6	BWI 13-6	SSWI 3,2t-S	VLWI 10-6
	13	-	8.900	6.350	VWI 13-6	HSWI 13-6	AWI 22-6	BWI 16-6	SSWI 5t-S	VLWI 13-6
	16	-	13.200	9.400	VWI 16-6	HSWI 16-6	AWI 22-6	BWI 20-6	SSWI 5t-S[1)]	VLWI 16-6
IV-leg chain sling										
	4	-	840	600	VWI 4-6	-	AWI 8-6	BWI 5-6	SSWI 0,5t-S	-
	5	-	1.300	940	VWI 5/6-6	HSWI 5/6-6	AWI 10-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	6	-	1850	1350	VWI 5/6-6	HSWI 5/6-6	AWI 13-6	BWI 7-6	SSWI 1,25t-S	VLWI 5/6-6
	7	-	2.600	1.850	VWI 5/6-6	HSWI 7/8-6	AWI 13-6	BWI 9-6	SSWI 1,25t-S	VLWI 7/8-6
	8	-	3350	2400	VWI 8-6	HSWI 7/8-6	AWI 13-6	BWI 10-6	SSWI 2t-S	VLWI 7/8-6
	10	-	5.250	3.750	VWI 10-6	HSWI 10-6	AWI 16-6	BWI 13-6	SSWI 3,2t-S	VLWI 10-6
	13	-	8.900	6.350	VWI 13-6	HSWI 13-6	AWI 22-6	BWI 16-6	SSWI 5t-S	VLWI 13-6
	16	-	13.200	9.400	VWI 16-6	HSWI 16-6	AWI 22-6	BWI 20-6	SSWI 5t-S [1)]	VLWI 16-6

L = Effective working length according customer specification.

1) WLL Reduction WOX 16 – SSWI 5 t–S:

On request also stronger shackles available.

I-leg chain	II-leg chain		III+IV-leg chain	
–	0-45°	45-60°	0-45°	45-60°
5.000	7.100	5.000	10.000	7.500

Chain slings assembled with CWI Connex connectors are additionally possible in self-construction by technical experts.

Please consider a maximum working temperature of 350°C for such slings. As top end fittings for welded chain slings, basis version is master link respective master link assembly.
Bottom ends, customer can choose between HSWI Eye hook, AWI Master link, BWI Transition link or SSWI Shackle.
For reduction of a single chain leg, shortener VLWI is available.

HSWI Eye sling hook	AWI Master link	BWI Transition link	SSWI Shackle	VLWI Shortener
				

Application instructions for shortening


Correct application


Correct application


Correct application


Wrong application

Basically chain slings and endless chains in welded system are serialized with an identification tag and a test certificate will be added.

	Code	Diameter d [mm]	WLL laced [kg]
SWI Endless chain Stainless steel endless chains, electrically welded, with same link dimension like the chain, 100% tested.			
	SWI 4	4	640
	SWI 5	5	1.000
	SWI 6	6	1.400
	SWI 7	7	2.000
	SWI 8	8	2.500
	SWI 10	10	4.000
	SWI 13	13	6.800
	SWI 16	16	10.000

Order example: WOX 7-6 mm SWI 4.000 endless chain with a circumferential length of 4 m.

User manual

For stainless steel chain system

User manual

Information for use, storage and maintenance of pewag winner inox chain slings.

General

pewag winner inox lifting accessories can be used for general lifting purposes covering a wide range of designs, loads and slings. Detailed information of all chain, components and chain slings are given in this catalogue and follow the uniformed load method of rating as standard. In addition, there is also an alternative method of rating the capacity of chain slings (trigonmetric method). This method should only be used where the weight and distribution of the load and the angles of the chain sling legs are known, and when the lift has been carefully planned and is supervised by a competent person. In such applications please contact our technical department, as the information given in this catalogue does not include details on chain sling rating using this alternative method of rating!

Chain slings shall be used only by qualified personnel. If properly used, pewag winner inox chain slings have a long service life and offer a high degree of safety. Personal injury and damage to property can only be prevented by proper use. It is therefore highly important that you read and understand this user information and act in a responsible and forward-thinking manner when using lifting equipment.

Limitations on use

When modifying or repairing pewag winner inox chain slings use only pewag supplied original parts (e.g. bolts, safety pins, screws, etc.). The shape of the slings must not be modified – e.g. by bending, grinding, separating individual parts, drilling, etc. Avoid heating of the chains to more than 350°C. Do not remove any safety components, such as safety latches, safety pins, etc. Do not apply any surface coatings to pewag winner inox chain slings, i.e. do not subject them to hot galvanizing or electro galvanizing. Dipping or removing the coating with chemicals is also dangerous and must be agreed upon by pewag. If required please contact our technical department who will be pleased to provide information.

Restrictions of use

Due to hazardous or dangerous conditions (see table on page 16 of catalogue)

Temperature
The reduction of working load limit caused by high temperatures, as stated on page 16, ceases once the chain and/or lifting component reaches room temperature again. pewag winner inox lifting accessories must not be used outside the stated temperature range. In the event of temperatures outside this range, do not use the chain slings, and remove from service.

Effects of acids, caustic solutions and chemicals
pewag winner inox lifting accessories can only be subjected to chemicals (f.e. acids, caustic solutions and their vapours) under certain conditions.
Special caution is also necessary when used in combination with groceries, cosmetical or pharmaceutical products and use is only permitted with explicit prior approval by pewag. Please also take a close look at the table on page 39.

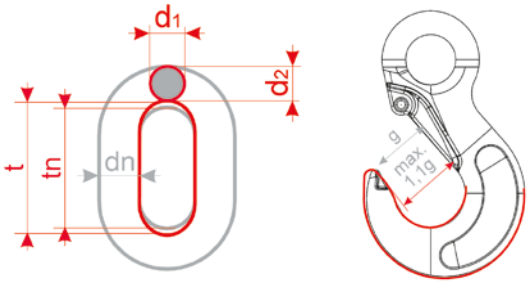
Working load limit
The working load limits in this catalogue and those on the chain sling have been determined on the basis that the loading of the chain sling is symmetrical and there are no particularly hazardous conditions. Such hazardous conditions would be offshore applications, the lifting of people 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 (see page 16 for recommendations).

Inspections 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 working load limit stated on the chain 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 slings has been supplied, 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 qualified person.

After extraordinary 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). We recommend subjecting the chain sling every two years to a load test with 1.5 times the working load limit, followed by a visual inspection, or another type of crack test. This inspection interval may vary due to country-specific regulations.

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:
  $\mathbf{t > 1{,}05\ t_n}$
- Wear is determined as the mean value of two measurements of diameters d_1 and d_2 carried out at a right angle (see picture). The chain must be discarded if:
  $$\mathbf{dm = \frac{d_1 + d_2}{2} < 0{,}9\ d_n}$$



- Cuts, notches, grooves, surface cracks, excessive corrosion, discoloration due to heat, signs of subsequent welding, bent or twisted links or other flaws
- When wear a chemical abrasion (example pitting) or a permissable wear tolerance has been reached per the table attached
- 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 approved dimensional change:

Designation	Dimensions	Admissible deviation
Chain	dm	-10%
	t	+5%
Links	d	-10%
	t	+10%
Hooks	e	+5%
	d_2 and h	-10%
	g	+10%
CWI	Halves loose	No changing admissible
	e	+5%
	c	-10%
Shackles	Bolt loose	No changing admissible
	e	+5%
	d, d_1 and M	-10%
Connex bolts	d	-10%

Repair
pewag winner inox 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.

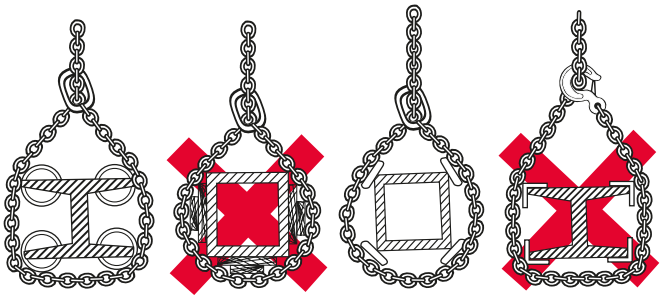
Storage
pewag winner inox sling chains should be stored in cleaned and dried condition and protected from corrosion, e.g. lubricate stainless.

Correct use of pewag winner inox chain slings

Angle of inclination – sling points
Select slinging points and chain type in such a way that the angles of inclination of all chain strands (legs) lie within the data given on the identification tag. 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 working load limit of pewag winner inox 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 wrong use see picture below:



If chains are guided over edges without proper protection, their working load limit is reduced. For the corresponding load factors please refer to the table on page 16. But if chains looped around a beam or other round shaped loads the diameter should be minimum 3 times the chain pitch. For smaller diameters the WLL of the chains must be reduced by 50%.

Impact
The maximum working load limit of pewag winner inox 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 16 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
- Strong impact: created, for example, when the load falls into the unloaded chain

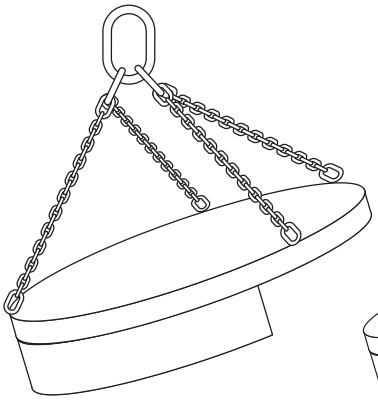
Vibrations
pewag winner inox lifting chains and components are approved dimensioned for 20.000 cycles. In case of high dynamic stress there is a risk of damage. According to the insurance association Metall Nord Süd the stress at working load limit can be reduced by using higher dimensioned chains and components.

Symmetrical loading
The working load limits of pewag winner inox chain slings are defined with the assumption that the load of the individual chain strands (legs) is symmetrically distributed. Lifting of the load then

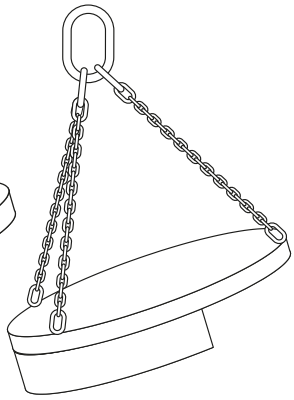
leads to identical angles of inclination, and the individual strands (legs) are symmetrical to each other.
The load can still be considered symmetrical when the following conditions are met:

- The load is smaller than 80% of the stated working load limit (WLL)
- The chain sling leg angles to the vertical 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
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 working load limit please refer to the working load table.



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



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

Use of pewag winner inox 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 working load table to find out the working load limit.

In case of doubt or as an alternative, change the working load limit according to the following table.

Type of chain sling	Number of individual strands (legs) used	Use factor in relation to the working load limit given on the tag
Two-stranded (II-leg)	1	1/2
Three- and four-stranded (II/IV-leg)	2	2/3
Three- and four-stranded (II/IV-leg)	1	1/3
2x single stranded (single leg)	2	1,4 up to 0°–45°
2x two-stranded (II leg)	3 or 4	1,5 up to 0°–45° and 45°–60°

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.

NEW **Detailed original operating manuals for individual products are available for download at www.pewag.com.
Manuals underlie an ongoing improvement process and are only valid in their latest version.**

Resistance

Values for resistance in different media

Material no.	DIN-shortname	Cr %	Ni %	Mo %	Ti
1.4571 (AISI 316 Ti)	X6 CrNiMoTi 17 12 2	16,5 - 18,5	10,5 - 13,5	2,0 - 2,5	Addition
1.4404 (AISI 316 L)	X2 CrNiMo 18 10	16,0 - 18,0	10,0 - 13,0	2,0 - 2,5	–

Corroding media	Concentration %	Temperature °C	Resistance
Atmosph. corrosion*			0
Benzine		20/boiling	0
Formic - acid HCOOH	10-50 80	20 boiling 20 boiling	0 1 0 3
Ammonia NH4OH		20/boiling	0
Ammoniumnitrat NH4NO3	hydrous, cold saturated solvent	20/boiling	0
Chloride	hydrous solvent	20	1-3 P
Acetit-acid CH3COOH	10 10-50 80	20 boiling boiling	0 0 1 P
Fatty-acid (oil)		150	0
Hydrofluoric acid	10 40	20 20	2 P 3
Tannic-acid	50	20/boiling	0
Potassium hydroxide KOH	hot saturated	120	1 S
Lime milk Ca(OH)2 (Calciumhydroxid)		20/boiling	0
Seawater		20 boiling	0 P 1
Phosphor-acid H3PO4	1 50 80 concentrated	20 boiling boiling boiling	0 1 2 3

A measurement for corrosion – constant corrosion over the complet space is required – results from the weight-difference of the material after a certain time, weight before and after the corrosion. The loss of weight will be shown in gramm/m² and hour. This figure approximately corresponding the denutation mm/year.

Exact compulsary details only after corresponding tests for exact defined corrosion causing chemicals without pollusion.

Used in:
Food-sector (dairy, slaughtery etc.), chemical industry and in many fields of lifting, conveying and securing.

Corroding media	Concentration %	Temperature °C	Resistance
Nitric acid HNO3	1-90 50	20 boiling	0 1
Hydrochloric acid HCl	0,2-0,5 1 2	20 50 20 50 20-50	0 P 1 P 0 P 1 P 1 P
Sulfuric acid H2SO4	0,1 1 5 10	boiling 20 80 boiling 20 50 boiling 20 50 80 boiling	0 0 1 1 0 1 2 0 1 2 2
Trichlorethylene CHCI:CCl2		20/boiling	0 P

* The complete resistance depends on kind, composition and the water-content of the atmosphere and is in industrial areas and near the coast considerably less than in the highlands or in dry regions.

0 = completely resistent
1 = practically resistent
2 = little resistent
3 = theoretically non-resistent
P = pitting
S = stress corrosion

	g/m²h
0 corresp. to a weight-loss up to	0,1
1 corresp. to a weight-loss from	0,1 - 1,0
2 corresp. to a weight-loss from	1,0 - 10,0
3 corresp. to a weight-loss over	10,0
Completely non-resistent	-

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