PML LIFTING
& Engineering Services

PRODUCT CATALOGUE 2020

pewag

WINNER PRO

Grade 12 Chain Slings

and

Grade 12 Load Lashing Systems

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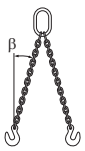
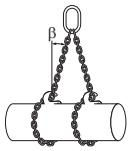
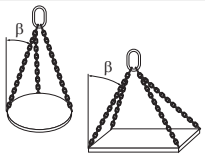
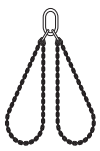
Load Capacities

The load capacities shown are the WORKING LOAD LIMITS of the various sling types, stated according to the standard (Uniform Load) method of rating.

Factor of safety			Single leg chains		2 leg chains				3 and 4 leg chains		Endless chains	Basket chains	
4													
Working angles			-	-	0° - 45°	45° - 60°	0° - 45°	45° - 60°	0° - 45°	45° - 60°	-	0° - 45°	0° - 45°
Load factor			1	0.8	1.4	1	1.12	0.8	2.1	1.5	1.6	1.4	2.1
Ref	Grade	Dia.	Working load limits (tonnes)										
WIN PRO 7	12	7mm	2.36	1.90	3.35	2.36	2.65	1.90	5.00	3.55	3.75	3.35	5.00
WIN PRO 8	12	8mm	3.00	2.36	4.25	3.00	3.35	2.36	6.30	4.50	4.75	4.25	6.30
WIN PRO 10	12	10mm	5.00	4.00	7.10	5.00	5.60	4.00	10.60	7.50	8.00	7.10	10.60
WIN PRO 13	12	13mm	8.00	6.30	11.20	8.00	9.00	6.30	17.00	11.80	12.50	11.20	17.00
WIN PRO 16	12	16mm	12.50	10.00	17.50	12.50	14.00	10.00	26.50	19.00	20.00	17.50	26.50

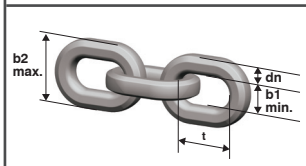
If the chain slings are used in severe conditions (e.g. high temperature, asymmetric load distribution, edge load, impact/shock loads) the maximum load capacity values in the table must be reduced by the load factors below. Please also note the user information on this topic.

Demanding conditions

Temperature	-60°C to 200°C	Above 200°C to 300°C	Above 300°C
Load factor Win Pro Flex 200	1	not permissible	not permissible
Load factor Win Pro Flex 300	1	0.6	not permissible
Asymmetric load distribution	The WLL has to be reduced by at least 1 leg. In case of any doubt only consider 1 leg as load-bearing.		
Edge loading	R = larger than 2 x chain diameter 	R = larger than chain diameter 	R = less than chain diameter 
Load factor	1	0.7	0.5
Shock Load factor	Slight shocks 1	Medium shocks 0.7	Strong shocks Not permissible

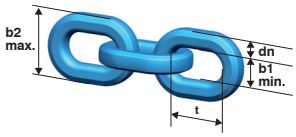
Winner Pro Flex 200 G12 chain - Working temperature range -40°C to 200°C

Grey painted finish.

WIN PRO FLEX 200 Profiled steel chain	Code	Nominal-diameter [d]	Standard delivery length [m]	Pitch [t]	Inside width [b1 min.]	Outside width [b2 max.]	WLL [tonnes]	Breaking force [kN]	Weight [kg/m]
	WINPROFLEX7/200	7	50	22	10	26	2.36	92.6	1.36
	WINPROFLEX8/200	8	50	25	11	29	3.00	118	1.64
	WINPROFLEX10/200	10	50	33	14	37	5.00	196	2.70
	WINPROFLEX13/200	13	50	41	19	50	8.00	314	4.80
	WINPROFLEX16/200	16	25	51	23	60	12.50	491	7.17

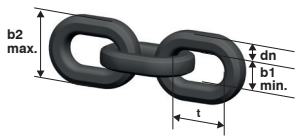
Winner Pro Flex 300 G12 chain - Working temperature range -60°C to 300°C

Blue painted finish.

WIN PRO FLEX 300 Profiled steel chain	Code	Nominal-diameter [d]	Standard delivery length [m]	Pitch [t]	Inside width [b1 min.]	Outside width [b2 max.]	WLL [tonnes]	Breaking force [kN]	Weight [kg/m]
	WINPROFLEX7/3B	7	50	22	10	26	2.36	92.6	1.36
	WINPROFLEX8/3B	8	50	25	11	29	3.00	118	1.64
	WINPROFLEX10/3B	10	50	33	14	37	5.00	196	2.70
	WINPROFLEX13/3B	13	50	41	19	50	8.00	314	4.80
	WINPROFLEX16/3B	16	25	51	23	60	12.50	491	7.17

Winner Pro Flex 300 G12 chain - Working temperature range -60°C to 300°C

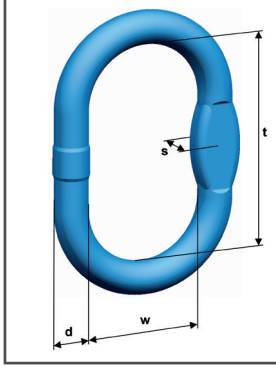
Black Pewag Corropro (PCP) finish.

WIN PRO FLEX 300 Profiled steel chain	Code	Nominal-diameter [d]	Standard delivery length [m]	Pitch [t]	Inside width [b1 min.]	Outside width [b2 max.]	WLL [tonnes]	Breaking force [kN]	Weight [kg/m]
	WINPROFLEX7/3P	7	50	22	10	26	2.36	92.6	1.36
	WINPROFLEX8/3P	8	50	25	11	29	3.00	118	1.64
	WINPROFLEX10/3P	10	50	33	14	37	5.00	196	2.70
	WINPROFLEX13/3P	13	50	41	19	50	8.00	314	4.80
	WINPROFLEX16/3P	16	25	51	23	60	12.50	491	7.17

Winner Pro G12 components

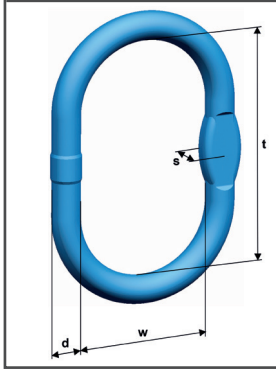
Proof load tested to 2.5 x WLL
Fatigue tested to 1.5 x WLL for 20,000 cycles
100% Magnaflux crack detected

AWP
Master link
(BS EN 1677-4 with mechanical values for G12)



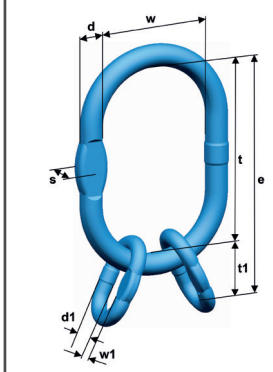
Code	WLL 0–45° [tonnes]	Can be used up to single DIN 15401 specification hook No.	d [mm]	t [mm]	w [mm]	s [mm]	Weight [kg/pc.]	Master link for chain Ø 1 leg [mm]	Master link for chain Ø 2 leg [mm]
AWP 13	2.36	2.5	13	110	60	10	0.37	7	-
AWP 16	3.50	2.5	17	110	60	14	0.55	8	7
AWP 18	5.30	5	19	135	75	14	0.86	10	8
AWP 22	8.00	6	23	160	90	17	1.60	13	10
AWP 27	12.50	10	28	200	110	21	2.92	16	13
AWP 33	17.50	10	33	200	110	21	4.14	-	16

MWP
Enlarged master link
(BS EN 1677-4 with mechanical values for G12)



Code	WLL 0–45° [tonnes]	Can be used up to single DIN 15401 specification hook No.	d [mm]	t [mm]	w [mm]	s [mm]	Weight [kg/pc.]	Master link for chain Ø 1 leg [mm]	Master link for chain Ø 2 leg [mm]
MWP 13	2.36	4	14	120	70	10	0.46	7	-
MWP 16	3.20	5	17	140	80	13	0.74	8	-
MWP 18	5.00	6	19	160	95	14	1.05	10	-
MWP 26	10.10	10	27	190	110	20	2.47	13	-
MWP 30	12.50	10	30	190	110	-	3.33	16	-
MWP 36	17.50	10	38	275	150	29	7.48	-	16

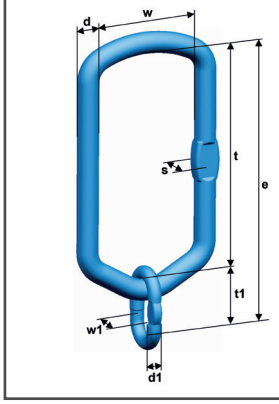
VMWP
Enlarged quad master assembly
(BS EN 1677-4 with mechanical values for G12)



Code	Can be used up to single DIN 15401 specification hook No.	WLL 0–45° [tonnes]	e [mm]	d [mm]	t [mm]	w [mm]	d1 [mm]	t1 [mm]	w1 [mm]	Weight [kg/pc.]	For 2 leg slings	For 3 & 4 leg slings
VMWP7/8	6	4.25	214	19	160	95	13	54	25	1.47	7+8	-
VMWP10/7/8	10	8.80	260	27	190	110	17	70	34	3.45	10	7+8
VMWP13/10	12	12.30	315	33	230	130	20	85	40	6.28	13	10
VMWP-/13	20	21.20	415	38	275	150	27	140	65	11.50	-	13
VMWP-/16	20	26.50	425	38	275	150	33	150	70	13.80	-	16

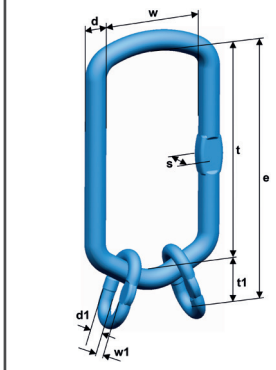
Please note that all dimensions stated are nominal and subject to change without prior notice!

VLWP 1
Oversized master link assembly (BS EN 1677-4 with mechanical values for G12)



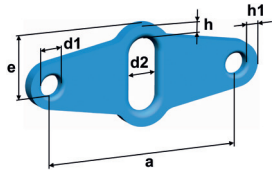
Code	Can be used up to single DIN 15401 specification hook No.	WLL 0–45° [tonnes]	e [mm]	d [mm]	t [mm]	w [mm]	d1 [mm]	t1 [mm]	w1 [mm]	Weight [kg/pc.]	For single leg slings
VLWP1-7/8	25	3.00	394	23	340	155	13	54	25	3.37	7+8
VLWP1-10	25	5.00	410	26	340	155	17	70	34	3.56	10
VLWP1-13	25	8.00	340	28	340	155	-	-	-	4.40	13
VLWP1-16	25	12.50	340	33	340	155	-	-	-	6.60	16

VLWP 2/4
Oversized quad master assembly (BS EN 1677-4 with mechanical values for G12)



Code	Can be used up to single DIN 15401 specification hook No.	WLL 0–45° [tonnes]	e [mm]	d [mm]	t [mm]	w [mm]	d1 [mm]	t1 [mm]	w1 [mm]	Weight [kg/pc.]	For 2 leg slings	For 3 & 4 leg slings
VLWP2-7/8	25	4.25	394	23	340	155	13	54	25	3.60	7+8	-
VLWP2-10/ 4-7/8	25	7.10	410	27	340	155	17	70	34	5.20	10	7+8
VLWP2-13/ 4-10	25	11.20	425	33	340	155	20	85	40	8.00	13	10
VLWP4-13	25	17.00	480	38	340	155	27	140	65	12.80	-	13
VLWP2-16	25	17.50	340	38	340	-	-	-	-	8.90	16	-
VLWP4-16	25	26.50	490	40	340	-	33	150	70	16.3	-	16

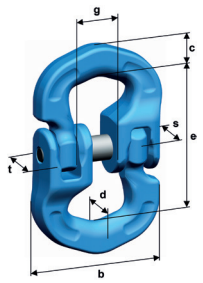
AGWP
Load distributor



Code	Connecting link	WLL 0–45° [tonnes]	WLL 45-60° [tonnes]	a [mm]	e [mm]	d1 [mm]	d2 [mm]	h [mm]	h1 [mm]	s [mm]	Difference L1/L2 [chain links]	Weight [kg/pc.]
AGWP 7/8	CWP10	4.25	3.00	210	51	22	25	15.5	14	15	6 for 7mm chain, 5 for 8mm chain	1.75
AGWP 10	CWP13	7.10	5.00	180	32	25	32	23	15.5	15	4	1.56

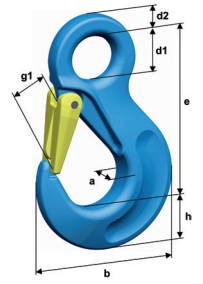
Please note that all dimensions stated are nominal and subject to change without prior notice!

CWP
Connex connecting link
(BS EN 1677-1 with mechanical values for G12)



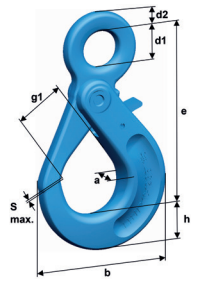
Code	WLL [tonnes]	e [mm]	c [mm]	s [mm]	t [mm]	d [mm]	b [mm]	g [mm]	Weight [kg/pc]
CWP 7	2.36	63	11.5	13	15.5	9	51	17	0.24
CWP 8	3.00	62	14	25	20	10	58	20	0.27
CWP 10	5.00	78	18	21	25	13	66	22	0.57
CWP 13	8.00	107	22	25	34	17	84	25	1.43
CWP 16	12.50	128	27	31	41	21	120	48	2.26

HSWP
Eye sling hook
(BS EN 1677-2 with mechanical values for G12)



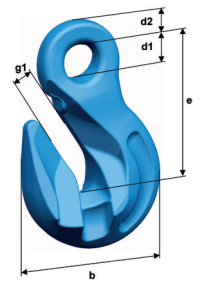
Code	WLL [tonnes]	e [mm]	h [mm]	a [mm]	d1 [mm]	d2 [mm]	g1 [mm]	b [mm]	Weight [kg/pc]
HSWP 7/8	3.00	106	27	19	25	11	26	88	0.65
HSWP 10	5.00	131	33	26	34	16	31	108	1.29
HSWP 13	8.00	164	43	33	43	19	39	132	2.43

LHWP
Eye safety hook
(BS EN 1677-3 with mechanical values for G12)



Code	WLL [tonnes]	e [mm]	h [mm]	a [mm]	b [mm]	d1 [mm]	d2 [mm]	g1 [mm]	s max. [mm]	Weight [kg/pc]
LHWP 7/8	3.00	126	25	25	89	25	14	34	1	0.91
LHWP 10	5.00	158	31	28	112	31	17	45	1.5	1.56
LHWP 13	8.00	205	41	34	145	40	22	54	2	3.50

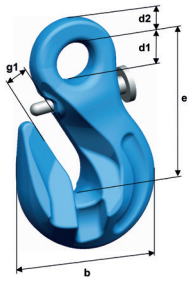
PWP
Eye grab hook
(BS EN 1677-1 with mechanical values for G12)



Code	WLL [tonnes]	e [mm]	b [mm]	d1 [mm]	d2 [mm]	g1 [mm]	Weight [kg/pc]
PWP 7/8	3.00	68	63	18	11	10	0.51
PWP 10	5.00	88	81	22	14	13	1.04
PWP 13	8.00	110	103	26	18	17	2.19

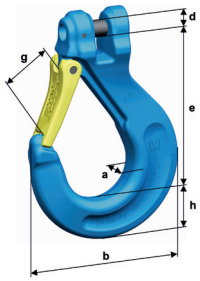
Please note that all dimensions stated are nominal and subject to change without prior notice!

PSWP
Eye grab hook with safety latch
(BS EN 1677-1 with mechanical values for G12)



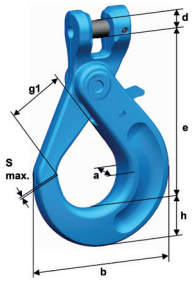
Code	WLL [tonnes]	e [mm]	b [mm]	d1 [mm]	d2 [mm]	g1 [mm]	Weight [kg/pc]
PSWP 7/8	3.00	68	63	18	11	10	0.53
PSWP 10	5.00	88	81	22	14	13	1.05
PSWP 13	8.00	110	103	26	18	17	1.89

KHSWP
Clevis sling hook
(BS EN 1677-2 with mechanical values for G12)



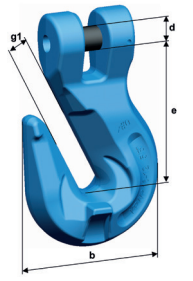
Code	WLL [tonnes]	e [mm]	h [mm]	a [mm]	d [mm]	g [mm]	b [mm]	Weight [kg/pc]
KHSWP 7	2.36	105	26	19	9.5	36	101	0.85
KHSWP 8	3.00	105	26	19	10.7	36	101	0.85
KHSWP 10	5.00	121	33	26	14	41	118	1.68
KHSWP 13	8.00	148	43	30	17.5	49	147	2.99
KHSWP 16	12.50	173	51	35	21	59	176	5.10

KLHWP
Clevis safety hook
(BS EN 1677-3 with mechanical values for G12)



Code	WLL [tonnes]	e [mm]	h [mm]	a [mm]	b [mm]	d [mm]	g [mm]	s max. [mm]	Weight [kg/pc]
KLHWP 7	2.36	116	24.5	23.6	90	9.5	32	1	0.89
KLHWP 8	3.00	115	24.5	23.6	90	10.7	32	1	0.90
KLHWP 10	5.00	136	31.5	27.8	113	14	45	1	1.60
KLHWP 13	8.00	179	39.8	33.7	146	17.5	54	1.5	3.42

KPWP
Clevis grab hook
(BS EN 1677-1 with mechanical values for G12)



Code	WLL [tonnes]	e [mm]	b [mm]	d [mm]	g1 [mm]	Weight [kg/pc]
KPWP 7	2.36	63	70	10	10	0.58
KPWP 8	3.00	62	70	11	10	0.58
KPWP 10	5.00	73	83	14	12	1.00
KPWP 13	8.00	98	104	18	16	2.29
KPWP 16	12.50	124	123	21	19	4.32

Please note that all dimensions stated are nominal and subject to change without prior notice!

Chain Load Lashing Systems For The Road Transport Industry

Load lashing or load restraint is a vital component for the safe transport of goods whether this be by road, rail or sea.

Outside forces applied to the load caused by the effects of breaking, accelerating or cornering have a dramatic effect on how the load is to be restrained.

In a similar way to how we select lifting equipment, the shape and type of load as well as the effects of the working angles of the lashings, can increase the forces considered and consequently these factors affect the choice of both the type of lashing that should be selected and the method of how they should be used (friction or direct lashing).

BS EN 12195 Parts 1 to 4 were introduced to provide a means of conforming to the essential safety requirements for lashing and load restraint in the Common European market and thus enabling the free movement of goods.

Lashing equipment supplied by Brindley Chains is of high quality.

We are able to offer lashing chains and components in various grades, from our LINX-8 Grade 8 system, to Pewag Grade 10 which offers the user a 25% increase in lashing capacity for the same size chain over G8 (as the minimum requirement under the standard), to the new Pewag Grade 12 profiled chain system (for further details please refer to the sales brochures for these systems).

Whatever Brindley chain system you choose, it will meet or exceed the British and European standards.

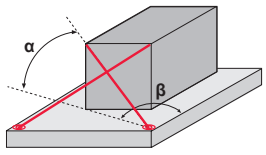
This brochure contains all the information necessary to select the correct type and grade of equipment to suit your specific requirements. Whether you require direct or friction lashings, this guide will assist you in making an informed decision for selecting and specifying all manner of chain lashing equipment. With the aid of pre-calculated selection charts you will be able to choose the correct chain size and number of lashings to safely restrain the load.

Further details of chains, components, lashing points and other ancillary equipment can also be found within the brochure as well as details of certification and maintenance criteria and other services offered by us to the transport industry.

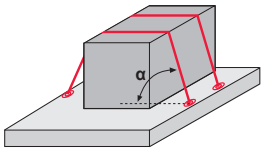
Common Materials With Dynamic Friction Factors Of 0.3μD

- Aluminium against sawn wood
- Steel sheets against sawn wood
- Cardboard against wooden pallet
- Large bags against wooden pallet
- Flat steel bars against sawn wood
- Unpainted rough steel against sawn wood
- Unpainted rough steel against unpainted rough steel
- Rubber tyre against sawn wood
- Rubber tyre against rough steel

For full details refer to BS EN 12195.



Example of direct lashing



Example of friction lashing

Direct Lashing Load Table (amended May 2018)

For materials with dynamic friction factors of 0.3μD with capacities based on FOUR equally loaded lashing chains

Working Angles		Lashing Size = 8mm			Lashing Size = 10mm			Lashing Size = 13mm		
α	β	Grade 8 LC = 40kN	Grade 10 LC = 50kN	Grade 12 LC = 60kN	Grade 8 LC = 63kN	Grade 10 LC = 80kN	Grade 12 LC = 100kN	Grade 8 LC = 100kN	Grade 10 LC = 134kN	Grade 12 LC = 160kN
20 to 35	21 - 30	11.65t	14.55t	17.45t	18.35t	23.30t	29.15t	29.15t	39.05t	46.65t
	31 - 40	10.50t	13.15t	15.75t	16.55t	21.05t	26.30t	26.30t	35.25t	42.10t
	41 - 50	9.10t	11.40t	13.65t	14.35t	18.20t	22.80t	22.80t	30.55t	36.45t
	51 - 60	7.45t	9.35t	11.20t	11.80t	14.95t	18.70t	18.70t	25.10t	29.95t
36 to 50	21 - 30	10.10t	12.65t	15.20t	15.95t	20.25t	25.35t	25.35t	33.95t	40.55t
	31 - 40	9.20t	11.55t	13.85t	14.55t	18.45t	23.10t	23.10t	30.95t	36.95t
	41 - 50	8.10t	10.15t	12.20t	12.80t	16.25t	20.35t	20.35t	27.25t	32.55t
	51 - 60	6.85t	8.55t	10.30t	10.80t	13.70t	17.15t	17.15t	23.00t	27.45t

The above table provides guidance information on how to get the best use from your chosen lashing system.

The table shows the maximum load that can be secured for road transport in a direct lashing arrangement with the load capacity of four equally loaded assemblies.

The table is formulated using a coefficient of dynamic friction of 0.3μD for the material on both the load and the bed of the vehicle and also the maximum forces which can occur in transit due to acceleration, braking and cornering (according to BS EN 12195-1 2010) have been taken in to account. Load figures are based upon a 50 daN (approx. 50kg) maximum hand force applied to the ratchet handle in accordance with BS EN 12195-1.

Using this table you can select the correct lashing system in both grade and chain diameter.

Friction Lashing Load Table

For materials with dynamic friction factors of 0.3μD with capacities based on EACH lashing chain assembly. (Minimum of 2 x lashing chains must be used). STF = standard tension force.

Working Angles α	Chain size 8mm diameter - G8	Chain size 8mm diameter - G10	Chain size 10mm diameter - G8	Chain size 10mm diameter - G10	Chain size 13mm diameter - G8	Chain size 13mm diameter - G10
	G8 STF value 1000 daN	G10 STF value 1900 daN	G8 STF value 1574 daN	G10 STF value 3000 daN	G8 STF value 1500 daN	G10 STF value 2500 daN
90°	900 kg	1710 kg	1420 kg	2700 kg	1350 kg	2250 kg
85°	895 kg	1700 kg	1410 kg	2680 kg	1340 kg	2240 kg
80°	885 kg	1680 kg	1395 kg	2650 kg	1325 kg	2210 kg
70°	840 kg	1600 kg	1330 kg	2530 kg	1265 kg	2110 kg
60°	780 kg	1480 kg	1225 kg	2330 kg	1160 kg	1940 kg
50°	685 kg	1600 kg	1085 kg	2060 kg	1030 kg	1720 kg
40°	575 kg	1090 kg	910 kg	1730 kg	865 kg	1440 kg
30°	450 kg	850 kg	710 kg	1350 kg	670 kg	1120 kg

The above table provides guidance information on how to get the best use from your chosen lashing system.

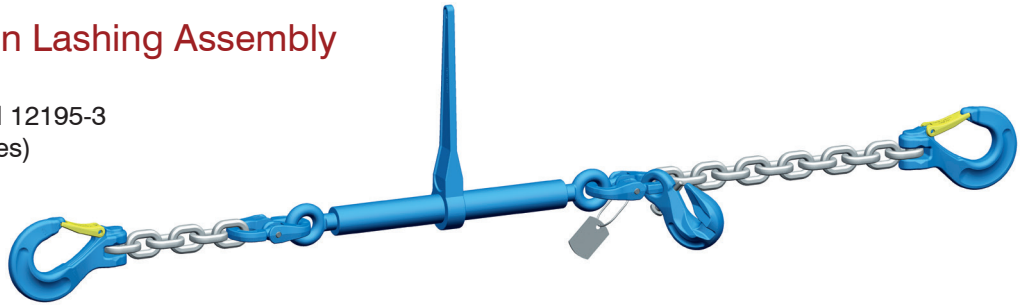
The table shows the maximum load that can be secured for road transport in a friction lashing arrangement with the load capacity for EACH assembly. Important note: a minimum of 2 x lashings must be applied per load.

The table is formulated using a coefficient of dynamic friction of 0.3μD for the material on both the load and the bed of the vehicle and also the maximum forces which can occur in transit due to acceleration, braking and cornering (according to BS EN 12195-1 2010) have been taken in to account. Load figures are based upon a 50 daN (approx. 50kg) maximum hand force applied to the ratchet handle in accordance with BS EN 12195-1.

Using this table you can select the correct lashing system in both grade and chain diameter and by a simple process of knowing the load weight divided by each lashing chain capacity value, you can determine the number of lashing assemblies required to secure the load.

Single Part Chain Lashing Assembly

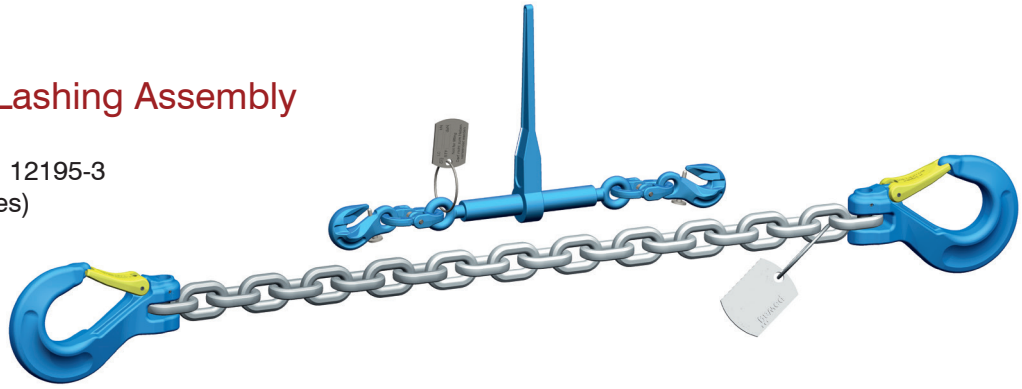
ZRSWP
In accordance with EN 12195-3
(Basic length 3.5 metres)



Code	Lashing capacity kN	Ratchet length (closed) mm	Ratchet length (open) mm	Tensioning range mm	Standard tension force (STF) daN	Hook jaw opening mm
ZRSWP7ENG12/3.5	47	355	500	145	1900	36
ZRSWP8ENG12/3.5	60	355	500	145	1900	36
ZRSWP10ENG12/3.5	100	365	510	145	3000	41
ZRSWP13ENG12/3.5	160	576	866	290	2500	49

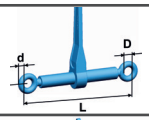
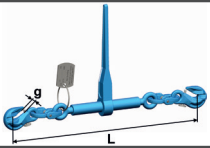
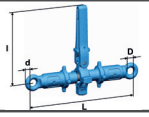
Two Part Chain Lashing Assembly

ZKWP
In accordance with EN 12195-3
(Basic length 3.5 metres)



Code	Lashing capacity kN	Ratchet length (closed) mm	Ratchet length (open) mm	Tensioning range mm	Standard tension force (STF) daN	Hook jaw opening mm
ZKWP7ENG10/3.5	47	586	741	155	1900	36
ZKWP8ENG10/3.5	60	600	755	155	1900	36
ZKWP10ENG10/3.5	100	674	829	155	3000	41
ZKWP13ENG10/3.5	160	981	1278	297	2500	49

Pewag G12 Lashing Accessories

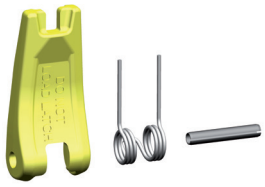
RSWP / RSPSWP / RSKWP Ratchet load binder / Turnbuckle (BS EN 12195)	Code	Lashing capacity [kN]	Length closed L [mm]	Length open L [mm]	Tension range [mm]	D [mm]	d [mm]	Weight [kg/pc.]
	RSWP 7/8	60	355	500	145	20	16	3.20
	RSWP 10	100	365	510	145	26	18	3.80
	RSWP 13	160	576	866	290	31	22	9.90
	RSPSWP 7	47	586	741	155	-	-	4.60
	RSPSWP 8	60	600	755	155	-	-	4.90
	RSPSWP 10	100	674	829	155	-	-	6.70
	RSPSWP 13	160	981	1278	297	-	-	15.70
	RSKWP 7/8	60	536	176	360	23	16	5.20
	RSKWP 10	100	536	176	360	23	16	5.50

ID Tag & Attachment Wire	Code	application
	LASHTAG	Load lashing assemblies (any grade)
	TAGWIRE	Use with tag

ID Tag & Attachment Wire	Code	Application
		
	IDWP LIFTING	SINGLE & MULTI LEG G12 CHAIN SLINGS
	TAGWIRE	USE WITH ALL TAGS (SELF LOCKING)

KBSWP Clevis load pins	Code	For hook type
	KBSWP 7	KHSWP 7
	KBSWP 8	KHSWP 8
	KBSWP 10	KHSWP 10
	KBSWP 13	KHSWP 13
	KBSWP 16	KHSWP 16

SFGWP Forged safety catch	Code	For hook type
	SFGWP 7/8	HSWP 7/8
	SFGWP 10	HSWP 10
	SFGWP 13	HSWP 13

SFGWP-K Forged safety catch	Code	For hook type
	SFGWP-K 7/8	KHSWP 7 + KHSWP 8
	SFGWP-K 10	KHSWP 10
	SFGWP-K 13	KHSWP 13
	SFGWP-K 16	KHSWP 16

CBHW / CBH Connex bolts & retaining sleeve	Code	For part
	CBHWP 7	CWP 7
	CBHWP 8	CWP 8
	CBHWP 10	CWP 10
	CBHWP 13	CWP 13
	CBHWP 16	CWP 16

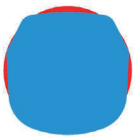
VLHWP Trigger sets	Code	For part
	VLHWP 7/8	LHWP 7/8 / KLHWP 7 / KLHWP 8
	VLHWP 10	LHWP 10 / KLHWP 10
	VLHWP 13	LHWP 13 / KLHWP 13

PSGWP Safety catches	Code	For part
	PSGWP 7/8	PSWP 7/8
	PSGWP 10	PSWP 10
	PSGWP 13	PSWP 10

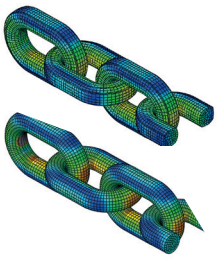
Features & Benefits Of Pewag Winner Pro G12 Chain Slings

Pewag is deservedly proud of its pioneering role when it comes to the production of lifting chains. The Pewag name rests on outstanding quality features that are also the core element of our G12 programme. Given the 50 % increase in load capacity compared to the standard G8 programme, the G12 range
is significantly lighter, resulting in numerous advantages for routine lifting operations.
Ease of use and compliance with all legal stipulations are par for the course and the rock solid foundation out of which all our products grow. But our G12 products are capable of more! The specially developed chain profile leads to a markedly improved bending resistance, which is particularly helpful when loading the chain over a corner.

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

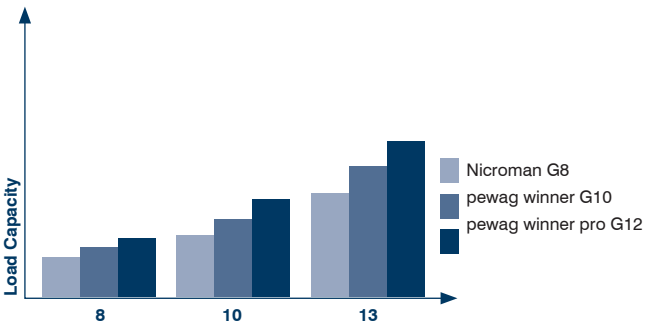


- **Optimised bending resistance:** This crucial resistance factor that protects the chain from undesirable bending is up to 6 % higher with the profile chain than with a round-link chain that has the same cross-section. This reduces the maximum tension in the chain (no red sections)

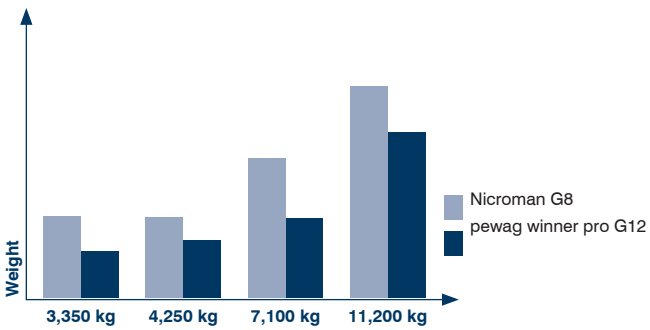


Your benefits at a glance:

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



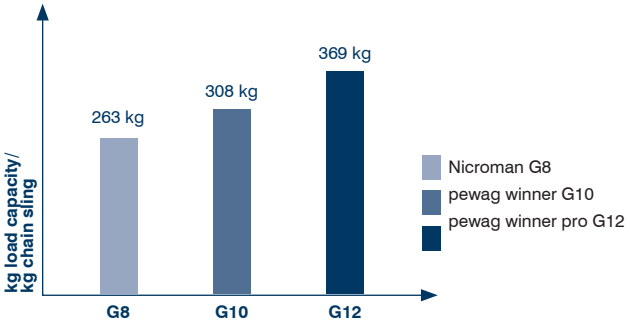
- **Significantly reduced weight** and easier handling with pewag winner pro



Load capacity	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 %

Load capacity	chains up to ø	pewag winner pro chains ø
4,250	10 mm	8 mm
7,100	13 mm	10 mm
11,200	16 mm	13 mm

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



- High stability and a low level of wear guarantee a **longer life span**
- **Innovative chain system** that may be used for lifting or lashing; also suitable for many other applications thanks to its robust design
- **Complete traceability** thanks to identification stamp on chain and components, enabling users to track the entire manufacturing process
- **Easy visual identification** thanks to profile chain and G12 stamp on each chain link
- Light blue powder coating on chains and components for **corrosion protection,** optionally also available with the tried-and-tested corropro coating (PCP) for maximum corrosion resistance (for further information, see specialised brochure). WINPRO 200 chains are painted in light grey
- **Maximum safety** thanks to innovative load capacity tag made from rust-resistant material and including safety warnings
- ISO 9001 certification as a testimony to **quality-assured, European manufacturing**
- Simple spare parts ordering system and top-quality service provided by a **global sales network**
- Pioneering role: pewag is the first manufacturer to have launched the innovative G12 chain system, based on **its wealth of experience**

Pewag Winner Pro G12 Data

- **Chain qualities:**
  pewag WINPRO FLEX 200 – based on EN 818-2 with modifications (profile, higher load capacity, reduced operating temperature)
  pewag WINPRO FLEX 300 – based on PAS 1061 with modifications (profile, higher load capacity, reduced operating temperature)

- **Stress at load capacity limit:** 300 N/mm²

- **Test stress:** 750 N/mm²

- **Breaking stress:** 1,200 N/mm²

- **Breaking elongation:** min. 20 %

- **Bending according EN 818-2 and PAS 1061:** 0.8 x d

- **Admissible operating temperature:**
  pewag WINPRO FLEX 200: -40 °C – 200 °C
  pewag WINPRO FLEX 300: -60 °C – 300 °C

- **Quality grade stamping**
  pewag WINPRO FLEX 200: „PEWAG12“ / „200“ on every 20th link and 12 on the back of each link
  pewag WINPRO FLEX 300: „PEWAG12“ every 300 mm and 12 on the back of each link
  Components: 12

- **Manufacturer’s name or symbol:** D16 and/or pewag

- **Surface:**
  pewag WINPRO FLEX 200: light grey coating
  pewag WINPRO FLEX 300: light blue powder-coating – or black corropro (PCP) coating
  Components: light blue powder-coating

- **Sling tag:** Shows required data according EN 818-4

- **Compatibility:**
  Please note that the compatibility of pewag winner pro chains and components with those of other grades and from other manufacturers is limited! For this reason, any combinations shall be approved by pewag in advance.

All dimensions in this catalog are nominal and subject to change without prior notice.
Depending on the manufacturing process they are subject to various manufacturing tolerances.

User guide for assembly, use, storage and maintenance of pewag winner chain slings.

General

pewag 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 follows 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 sling legs are known, and when the lift has be 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 trained personnel. If properly used, pewag 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 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 300°C (WINPROFLEX 300) or 200°C (WINPROFLEX 200). Do not remove any safety components, such as latches, safety pins, safety catches, etc.
Do not apply any surface coatings to pewag chain slings, i.e. do not subject them to hot galvanizing or electrogalvanizing.
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 4)

Effects of temperature

Reduction of the load capacity caused by high temperatures, as stated on page 4, 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:

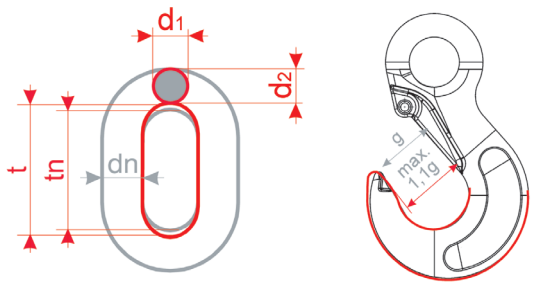
- The chain sling corresponds exactly to the order;
- The inspection certificate or certificate of conformity has been supplied;
- Marking and load capacity stated on the chain sling correspond to the information given on the inspection certificate or certificate of conformity;
- All particularities 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 $dm = \frac{d_1 + d_2}{2} \leq 0{,}9\, dn$
- 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 catches 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.



Maximal approved dimensional change:

Designation	Dimensions	Admissible deviation
Chain	d_n	-10%
	t_n	+5%
	wear at edges	$d = d_n$
Rings	d	-10%
	t	+10%
Hooks	e	+5%
	d_2 and h	-10%
	g	+10%
Connecting links	Halves must be moveable	no deviation admissible
	e	+5%
	c	-10%
	d	-10%
Clevis and Connex bolts	d	-10%

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

Correct use of Pewag Winner Pro G12 chain slings

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 the illustrations below.

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 4.

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 4 must be taken into consideration.

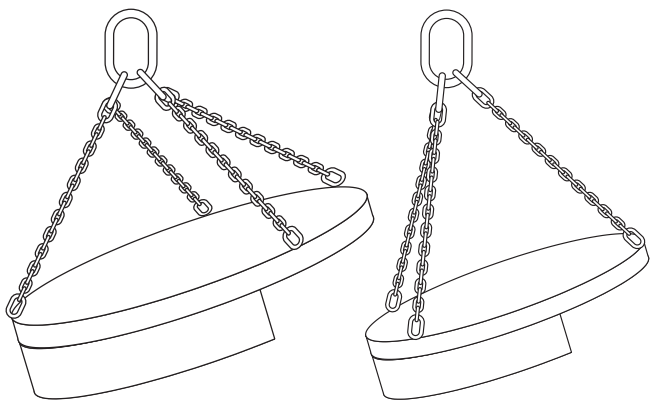
Impact/shock is defined as follows:
- Slight impact: created, for example, when accelerating the lifting or lowering movement
- Medium impact: created, for example, when the chain slips when adjusting to the shape of the load
- Heavy impact: created, for example, when the load falls into the unloaded chain

Vibrations
pewag winner 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
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.



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

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

Use of pewag chain slings for other than the intended purposes.
Use chain sling only for the intended purpose. In cases where not all individual strands (legs) are used simultaneously or where several sling chains 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 rating tags of the following table.

Type of sling chain	Number of individual strands used	Use factor in relation to the load capacity 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
2 x single-stranded (single leg)	2	1,4 up to 45°
2 x two-stranded (2 leg)	3 or 4	1,5 from 45°–60°

Precautions
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.

User information for pewag winner lashing system

General information

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

- pewag winner pro lashing chains were developed to secure loads during transport. If used correctly, the lashing chains have a long lifespan and provide the highest possible safety standards Personal and material damage are best prevented by ensuring correct use. Please note that pewag winner lashing chains may only be used once the user information has been read and understood in full. A responsible, provident approach towards load-securing is crucial at all times

- We offer tools to assist with selection and proper usage of the lashing chain assemblies. Nevertheless, adequate experience of load securing and use of lashing equipment is indispensable

- Only authorised and competent persons as defined by EN 12195-1 and 2 are allowed to assemble and use pewag winner pro lashing chain systems

- Important: lashing chains have safety factor = 2, lifting chains have safety factor = 4! This means that, for safety reasons, lashing chains must never used as lifting chains!
  To ensure safe handling, lashing chains must always have the correct identification tag with the appropriate warning

- When the number of the lashing assemblies is calculated according to EN 12195-1, some impact loads may arise that are not reflected in the calculation but which will be balanced by the vehicle and by the flexibility of the lashing system

Information for use

Lashing points
Choose lashing points in such a way that the angles of the lashing chain assemblies are within the range given in our lashing table and the lashing chain assemblies are symmetrical to the driving direction. Use only lashing points with adequate strength. Any deviations are subject to prior consultation with the pewag technical service department.

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

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

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

In accordance with this standard, pewag has integrated **the most commonly used lashing methods** in easy-to-use lashing tables. For more detailed information, please refer to pages 11 and 12.

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

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

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

Proper Use

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

The **maximum manual force** of 50 daN applied during the tensioning of the tensioning equipment may only be applied by hand!
Do not use mechanical auxiliary devices such as levers or bars. Ensure sufficient edge protection/friction protection.

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

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

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

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

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