

pewag

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IS NOT
ENOUGH**
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pewag winner offshore

For extreme lifting applications

**DNV 2.7-1
approved**



Offshore Lifting – pewag winner offshore

Lifting equipment for container transportation and offshore lifting operations often produce high dynamic forces and excessive impact loadings especially in rough seas. Low temperatures also affect the resilience of the materials causing unsuitable material to become brittle leading to equipment failures.

In addition products that are used offshore tend to corrode due to permanent high air humidity, particularly in warmer sea areas, this may lead to increases in stress corrosion cracking.

The pewag winner offshore programme has been specially developed for use in these extreme conditions, the products being manufactured from higher alloyed materials with special heat treatments to give long service life even at temperatures down to -40°C.

pewag has consistently set industry leading high standards with innovative design, with the focus clearly on manufacturing products with safety, reliability and functionality as the prime motive.

DNV 2.7-1 approved

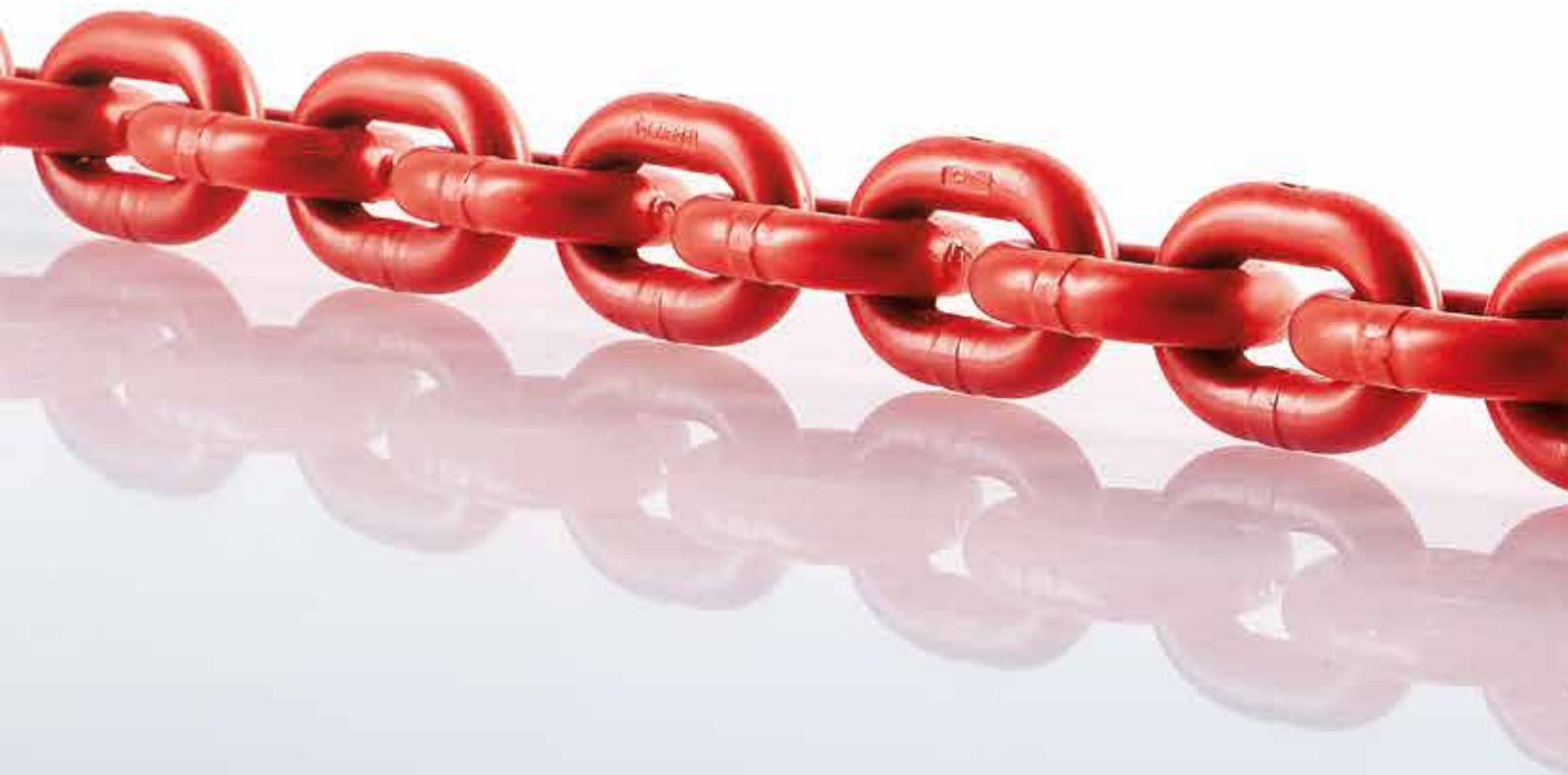
All individual parts of a chain sling or wire rope sling for lifting offshore containers must be checked and certified by DNV in accordance with the Standard for Certification 2.7-1. This is possible through extensive case-by-case tests and approvals (costly and time consuming often means a longer delivery time), or by subjecting the products to a type approval by DNV beforehand.

pewag has followed the route of type approval and is now in a position to supply products at short notice (individual components or complete chain slings), which correspond to the Standard for Certification 2.7-1. Due to the type approval, pewag is authorised by DNV to certify/confirm to compliance with regulation.

Therefore, the risk of the case-by-case approval, namely that a product may not pass the test, is omitted.

pewag winner offshore

Chains

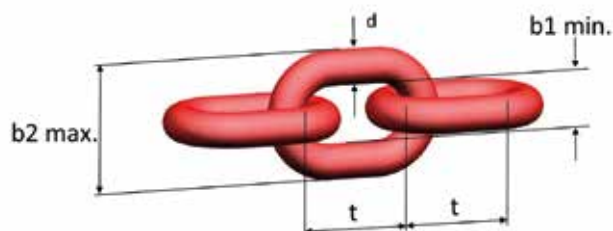


pewag winner offshore chains

With special heat treatment to increase toughness, crack detection tested, Charpy-V notch impact result min. 42J (27J in the weld) at -20 °C. Stated working load limit applies with safety factor 4. Proof tested at 2.5 x working load limit. Higher alloyed steel than required according to standard. Production according to EN 818-2 and DNV 2.7-1 and/or EN 12079-2.

OFFSH-DNV 2.7-1 Offshore lifting chain

For the assembly of chain slings for offshore container lifting procedures. Type approved in accordance with DNV 2.7-1. Type approval certificate no. S-8253.



Code	Working load limit [kg]	Breaking strength [kN]	Nominal diameter d [mm]	pitch t [mm]	Internal width b1 min. [mm]	External width b2 max. [mm]	Weight [kg/m]
OFFSH 10	3,150	126	10	30	14	36	2.30
OFFSH 13	5,300	212	13	39	18	47	4.20
OFFSH 16	8,000	322	16	48	22	58	5.90
OFFSH 19	11,200	454	19	57	27	69	8.40
OFFSH 22	15,000	608	22	66	30	79	11.20
OFFSH 26	21,200	849	26	78	35	94	15.50
OFFSH 32	31,500	1,290	32	96	43	115	24.10

pewag winner offshore

Master links and subassemblies



pewag winner offshore master links and subassemblies

With special heat treatment to increase toughness, crack tested, Charpy-V notch impact result min. 42 J (27 J in the weld) at -40 °C (DNV 2.7-1 only demands -20 °C). Stated working load limit applies at safety factor 4 and 5 (apart from BW-DNV 2.7-1, VW-DNV 2.7-1). Proof tested at 2.5 x working load limit. Higher alloyed steel than required according to standard. Production similar to EN 1677-4 and DNV 2.7-1 and/or EN 12079-2.

Stamped with DNV 2.7-1 for clear identification.



AW-DNV 2.7-1 Offshore master link

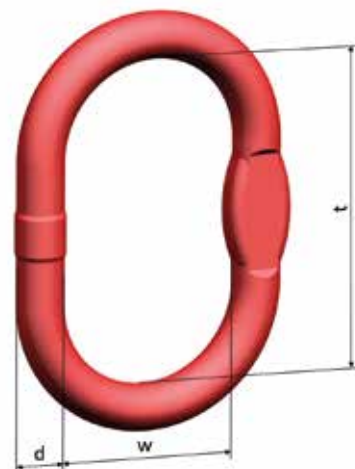
Master link for offshore container lifting purposes in welded chain slings/or wire rope slings.

For manufacture of I-leg and II-leg slings. Allocation to max. usable crane hooks according to DIN 15401 stated in table.

CE marking.

Type approved in accordance with DNV 2.7-1.

Type approval certificate no. S-8254.



Code	WLL* Standard EN [tons]	Test force [kN]	Breaking force SF 1:5 [kN]	Usable up to single hook in accordance with DIN 15401	d [mm]	t [mm]	w [mm]	Weight [kg/ piece]
AW 16-DNV 2.7-1	3.50	85.8	172	No. 2.5	16	110	60	0.58
AW 18-DNV 2.7-1	5.00	123	245	No. 5	19	135	75	0.92
AW 22-DNV 2.7-1	7.60	186	373	No. 6	23	160	90	1.59
AW 26-DNV 2.7-1	10.90	267	535	No. 8	27	180	100	2.46
AW 32-DNV 2.7-1	16.40	402	804	No. 10	33	200	110	4.04
AW 36-DNV 2.7-1	25.60	628	1,256	No. 16	36	260	140	6.22

* Stated working load limit applies at safety factor 4 and 5.

MW-DNV 2.7-1 Enlarged Offshore master link

Sometimes standard master links are too narrow for wire rope slings, meaning that wire rope thimbles don't have sufficient space and/or room. It can also be the case that rings are too narrow for large crane hooks.

Master link for offshore container lifting purposes in welded chain slings/or wire rope slings. Particularly suited for wire rope slings due to the larger width compared to AW-DNV 2.7-1, to give space for wire rope thimbles. Can be used for larger crane hooks as AW-DNV 2.7-1 with comparable thickness.

For manufacture of I-leg and II-leg slings. Allocation to max. usable crane hooks according to DIN 15401 stated in table.

CE marking.

Type approved in accordance with DNV 2.7-1.

Type approval certificate no. S-8254.



Code	WLL* Standard EN [tons]	Test force [kN]	Breaking force SF 1:5 [kN]	Usable up to single hook in accordance with DIN 15401	d [mm]	t [mm]	w [mm]	Weight [kg/ piece]
MW 18-DNV 2.7-1	4.20	103	206	No. 6	19	160	95	1.09
MW 22-DNV 2.7-1	6.70	164	329	No. 10	23	170	105	1.74
MW 26-DNV 2.7-1	10.60	260	520	No. 10	27	190	110	2.65
MW 32-DNV 2.7-1	16.00	392	785	No. 12	33	230	130	4.75
MW 36-DNV 2.7-1	24.00	589	1,177	No. 20	38	275	150	7.48

* Stated working load limit applies at safety factor 4 and 5.

AOS-DNV 2.7-1 Offshore master link

Sometimes standard master links are too narrow for wire rope slings, meaning that wire rope thimbles don't have sufficient space and/or room for manoeuvre. It can also be the case, that rings are too narrow for large crane hooks.

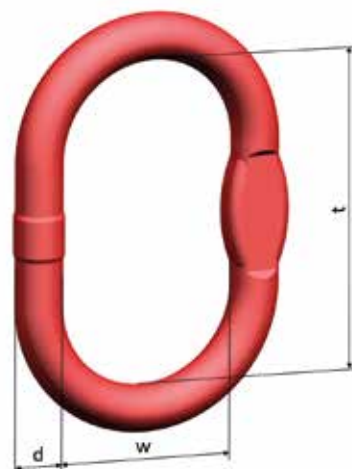
Master link for offshore container lifting purposes in welded chain slings/or wire rope slings. Particularly suited for wire rope slings due to the larger width compared to AW-DNV 2.7-1, to give space for wire rope thimbles. Can be used for larger crane hooks as AW-DNV 2.7-1 and MW-DNV 2.7-1 with comparable thickness.

For manufacture of I-leg and II-leg slings. Allocation to max. usable crane hooks according to DIN 15401 stated in table.

CE marking.

Type approved in accordance with DNV 2.7-1.

Type approval certificate no. S-8254.



Code	WLL* Standard EN [tons]	Test force [kN]	Breaking force SF 1:5 [kN]	Usable up to single hook in accordance with DIN 15401	d [mm]	t [mm]	w [mm]	Weight [kg/ piece]
AOS 23	6.70	164	329	No. 16	23	270	140	2.51
AOS 25	8.90	218	437	No. 16	25	270	140	2.99
AOS 28	14.50	356	711	No. 16	28	270	140	3.80
AOS 33	17.80	437	873	No. 16	33	270	140	5.39
AOS 36	24.60	603	1,207	No. 16	36	270	140	6.50
AOS 40	32.00	785	1,570	No. 20	40	275	150	8.35
AOS 45	38.30	939	1,879	No. 25	45	340	180	12.90
AOS 50	45.40	1,113	2,227	No. 32	50	350	190	16.70
AOS 56	67.00	1,643	3,286	No. 32	56	400	200	23.28
AOS 70	85.00	2,085	4,169	No. 50	70	460	250	43.40

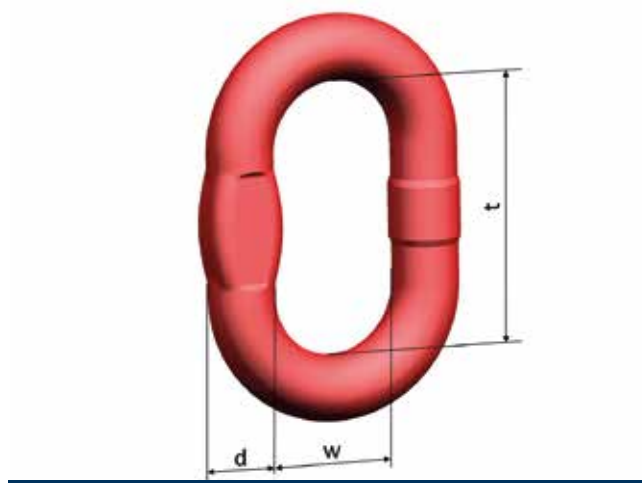
* Stated working load limit applies at safety factor 4 and 5.

BW-DNV 2.7-1 Offshore transition link

Transition link for offshore container lifting purposes in welded chain slings.

Connection link for individual chain legs and transition link in IV-leg master link assemblies VW-DNV 2.7-1.

Stated working load limit applies for safety factor 4.
Type approved in accordance with DNV 2.7-1.
Type approval certificate no. S-8254.



Code	WLL Standard EN [tons]	Test force [kN]	Breaking force SF 1:4 [kN]	d [mm]	t [mm]	w [mm]	Weight [kg/ piece]
BW 10-DNV 2.7-1	2.00	49.1	78.6	10	44	20	0.09
BW 13-DNV 2.7-1	3.15	77,3	124	13	54	25	0.17
BW 16-DNV 2.7-1	5.40	133	212	17	70	34	0.36
BW 20-DNV 2.7-1	8.50	208	334	20	85	40	0.68
BW 22-DNV 2.7-1	11.40	280	447	23	115	50	1.16
BW 26-DNV 2.7-1	16.00	392	628	27	140	65	1.92
BW 32-DNV 2.7-1	22.40	549	879	33	150	70	3.16
BW 36-DNV 2.7-1	30.00	736	1,177	36	170	75	4.12
BW 45-DNV 2.7-1	42.40	1,040	1,664	45	170	80	7.15
BW 50-DNV 2.7-1	63.00	1,545	2,472	50	200	100	10.8

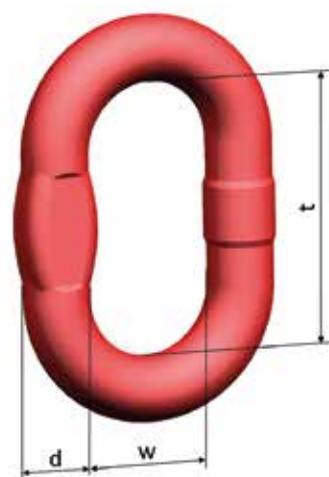
BOS-DNV 2.7-1 Offshore transition link

Standard transition links are mostly too narrow for wire rope slings, meaning that wire rope thimbles don't have sufficient space and/or room.

Transition link for offshore container lifting purposes in welded chain slings. Particularly suited for wire rope slings, due to the inner width to give space for wire rope thimbles.

Connection link for individual chain legs and transition link in IV-leg master link assemblies VOS-DNV 2.7-1.

Type approved in accordance with DNV 2.7-1.
Type approval certificate no. S-8254.



Code	WLL* Standard EN [tons]	Test force [kN]	Breaking force SF 1:5 [kN]	d [mm]	t [mm]	w [mm]	Weight [kg/ piece]
BOS 17	5.06	124	248	17	140	80	0.75
BOS 19	6.71	165	329	19	135	75	0.93
BOS 23	10.94	268	537	23	180	100	1.78
BOS 27	12.91	317	633	27	180	100	2.51
BOS 30	18.57	455	911	30	190	110	3.32

* Stated working load limit applies at safety factor 4 and 5.

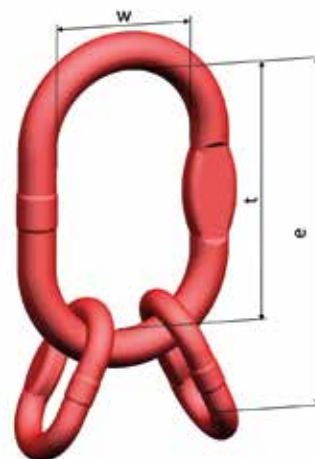
VW-DNV 2.7-1 Offshore master link assembly

Master link assembly for offshore container lifting purposes in welded chain slings.

For the manufacture of IV-leg chain slings. Allocation to max. usable crane hooks according to DIN 15401 stated in table.
Stated working load limit applies for safety factor 4.

CE marking.

Links type approved in accordance with DNV 2.7-1.
Type approval certificate no. S-8254.



Code	Consisting of	WLL Standard EN [tons]	Usable up to single hook in accordance with DIN 15401	e [mm]	t [mm]	w [mm]	Weight [kg/ piece]
VW 13-DNV 2.7-1	AW 32-DNV 2.7-1 + 2x BW 22-DNV 2.7-1	14.40	No. 10	315	200	110	6.36
VW 16-DNV 2.7-1	AW 36-DNV 2.7-1 + 2x BW 26-DNV 2.7-1	21.80	No. 16	400	260	140	10.06
VW 19-DNV 2.7-1	AW 50-DNV 2.7-1 + 2x BW 32-DNV 2.7-1	30.50	No. 32	500	350	190	22.87
VW 22-DNV 2.7-1	AW 50-DNV 2.7-1 + 2x BW 36-DNV 2.7-1	40.80	No. 32	520	350	190	24.79
VW 26-DNV 2.7-1	AW 56-DNV 2.7-1 + 2x BW 45-DNV 2.7-1	57.60	No. 32	570	400	200	37.61
VW 32-DNV 2.7-1	AW 72-DNV 2.7-1 + 2x BW 50-DNV 2.7-1	85.00	No. 50	660	460	250	64.71

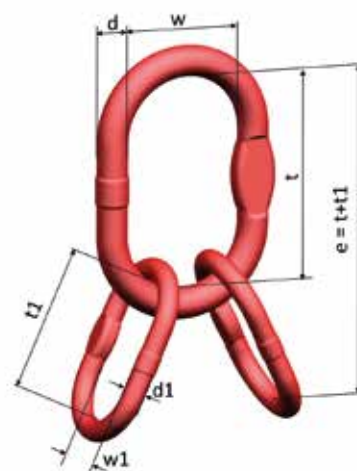
VAMW-DNV 2.7-1 Offshore master link assembly

Standard transition links are normally too narrow for wire rope slings, meaning that wire rope thimbles don't have sufficient space and/or room.

Master link assembly for offshore container lifting purposes in welded chain slings and/or wire rope slings. Enlarged offshore master links MW-DNV 2.7-1 are used as transition links. Particularly suited to wire rope slings, due to the inner width to give space for wire rope thimbles.

For the manufacture of IV-leg chain and wire rope slings. Allocation to max. usable crane hooks according to DIN 15401 stated in table.

CE marking.
Links type approved in accordance with DNV 2.7-1. Type approval certificate no. S-8254.



Code	Consisting of	WLL* Standard EN [tons]	Usable up to single hook in accordance with DIN 15401	e [mm]	d [mm]	t [mm]	w [mm]	d1 [mm]	t1 [mm]	w1 [mm]	Weight [kg/ piece]
VAMW 10-DNV 2.7-1	AW 32-DNV 2.7-1 + 2x MW 22-DNV 2.7-1	8.80	No. 10	370	33	200	110	23	170	105	7.52
VAMW 13-DNV 2.7-1	AW 36-DNV 2.7-1 + 2x MW 26-DNV 2.7-1	14.00	No. 16	450	36	260	140	27	190	110	11.52
VAMW 16-DNV 2.7-1	AW 45-DNV 2.7-1 + 2x MW 32-DNV 2.7-1	21.20	No. 25	570	45	340	180	33	230	130	22.32
VAMW 19-DNV 2.7-1	AW 50-DNV 2.7-1 + 2x MW 36-DNV 2.7-1	31.80	No. 32	625	50	350	190	38	275	150	31.51

* Stated working load limit applies at safety factor 4 and 5.

VOS-DNV 2.7-1 Offshore master link assembly

Standard master links are normally too narrow, meaning that they don't fit correctly/optimally on large crane hooks. Standard transition links are mostly too narrow for wire rope slings, meaning that wire rope thimbles don't have sufficient space and/or room.

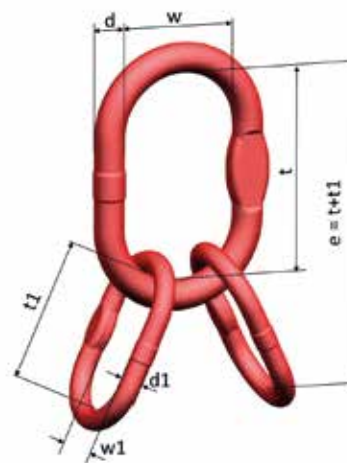
Master link assembly for offshore container lifting purposes in welded chain slings and/or wire rope slings. AOS type master links are used as the main link. Therefore, they can mostly be used for larger crane hooks than in VW-DNV 2.7-1 and VAMW-DNV 2.7-1 with comparable thickness. BOS are used as transition links. Particularly suited to wire rope slings, due to the inner width to give space for wire rope thimbles.

For the manufacture of IV-leg chain and wire rope slings. Allocation to max. usable crane hooks according to DIN 15401 stated in table.

CE marking.

Links type approved in accordance with DNV 2.7-1.

Type approval certificate no. S-8254.



Code	Consisting of	WLL* Standard EN [tons]	Usable up to single hook in accordance with DIN 15401	e [mm]	d [mm]	t [mm]	w [mm]	d1 [mm]	t1 [mm]	w1 [mm]	Weight [kg/ piece]
VOS 23/17	AOS 23 + 2x BOS 17	6.70	No. 16	410	23	270	140	17	140	80	4.03
VOS 25/19	AOS 25 + 2x BOS 19	8.90	No. 16	405	25	270	140	19	135	75	4.84
VOS 28/23	AOS 28 + 2x BOS 23	14.50	No. 16	450	28	270	140	23	180	100	7.37
VOS 33/27	AOS 33 + 2x BOS 27	17.10	No. 16	450	33	270	140	27	180	100	10.41
VOS 36/30	AOS 36 + 2x BOS 30	24.10	No. 16	460	36	270	140	30	190	110	13.15
VOS 40/33	AOS 40 + 2x AOS 33	28.10	No. 20	545	40	275	150	33	270	140	19.14
VOS 45/36	AOS 45 + 2x AOS 36	38.30	No. 25	610	45	340	180	36	270	140	25.81
VOS 50/40	AOS 50 + 2x AOS 40	45.00	No. 32	625	50	350	190	40	275	150	33.26
VOS 56/50	AOS 56 + 2x AOS 50	67.00	No. 32	750	56	400	200	50	350	190	56.39
VOS 70/56	AOS 70 + 2x AOS 56	85.00	No. 50	860	70	460	250	56	400	200	89.62

* Stated working load limit applies at safety factor 4 and 5.

pewag winner offshore

Chain slings

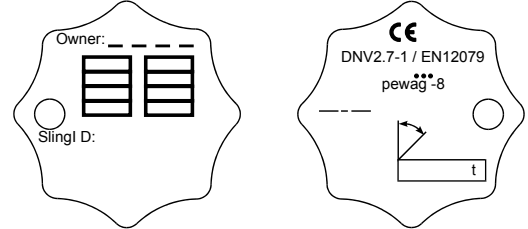


pewag winner offshore standard chain slings

Chain slings for lifting containers in offshore use, welded.

With special heat treatment to increase toughness, crack detection tested, Charpy-V notch impact result min. 42 J (27 J in the weld) at -20 °C . Proof tested at 2.5 x working load limit. Higher alloyed steel than required according to standard. Production similar to EN 818-4 and DNV 2.7-1 and/or EN 12079-2.

Supplied with complete documentation in accordance with DNV 2.7-1. CE marking.
Type approved in accordance with DNV 2.7-1.
Type approval certificate no. S-8255.

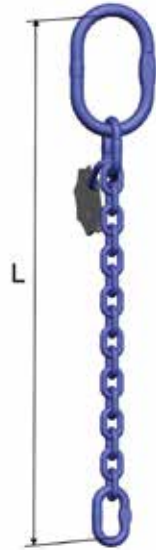


		I-leg and forerunner	II-leg chains					IV-leg chains and 2 x II-leg chains				
Inclination angle	-	45°	40°	35°	30°	25°	45°	40°	35°	30°	25°	
Code	d	Sling working load limit based on EN 818-4 (kg)										
OFFSH 10	10	3,150	4,500	4,800	5,200	5,500	5,700	6,700	7,240	7,700	8,200	8,600
OFFSH 13	13	5,300	7,500	8,100	8,700	9,200	9,600	11,200	12,200	13,000	13,800	14,400
OFFSH 16	16	8,000	11,300	12,300	13,100	13,900	14,500	17,000	18,400	19,700	20,800	21,800
OFFSH 19	19	11,200	15,800	17,200	18,300	19,400	20,300	23,800	25,700	27,500	29,100	30,500
OFFSH 22	22	15,000	21,200	23,000	24,600	26,000	27,200	31,800	34,500	36,900	39,000	40,800
OFFSH 26	26	21,200	30,000	32,500	34,700	36,700	38,400	45,000	48,700	52,100	55,100	57,600
OFFSH 32	32	31,500	44,500	48,300	51,600	54,600	57,100	66,800	72,400	77,400	81,800	85,000

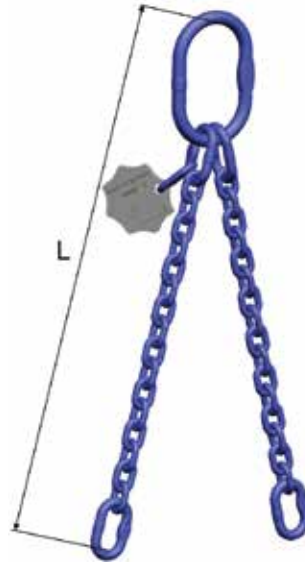
		45°	40°	35°	30°	25°	45°	40°	35°	30°	25°	
Inclination angle	-	Sling working load limit in accordance with EN 818-4 divided by enhancement factor in accordance with DNV 2.7-1 table 8-1 = max. container weight										
Code	d											
OFFSH 10	10	-	-	-	-	-	-	2,500	2,900	3,300	3,700	
OFFSH 13	13	-	2,700	3,200	3,800	4,300	4,800	6,400	7,200	7,900	8,700	9,300
OFFSH 16	16	3,100	6,500	7,300	8,000	8,800	9,400	12,000	13,800	15,500	16,900	18,200
OFFSH 19	19	6,400	10,700	12,200	13,600	15,200	16,200	20,800	22,900	24,800	26,300	27,600
OFFSH 22	22	9,900	17,400	20,000	21,700	23,200	24,500	28,800	31,200	33,400	35,300	36,900
OFFSH 26	26	17,400	27,100	29,400	31,400	33,200	34,700	40,700	44,100	47,100	49,900	52,100
OFFSH 32	32	28,500	40,300	43,700	46,700	49,400	51,700	60,500	65,500	70,100	74,100	77,000

pewag winner offshore standard chain slings

The types shown are common offshore container chain slings. For the desired length, the usual tolerance is +2 chain links. Special solutions on request.



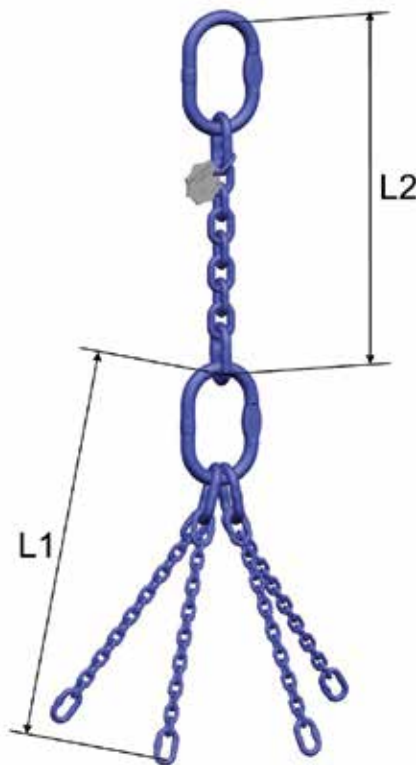
OFFSH I A-B



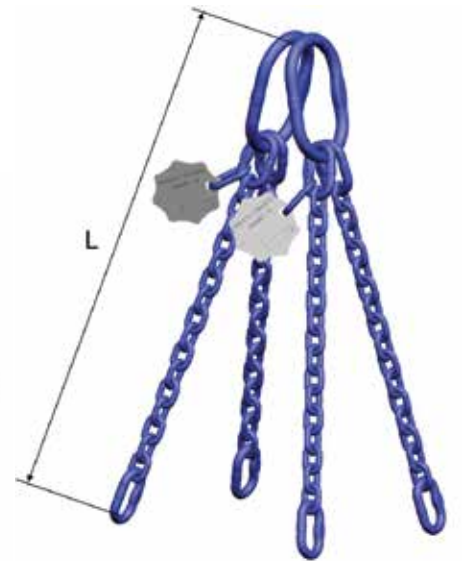
OFFSH II A-B



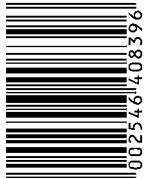
OFFSH IV A-B



OFFSH IV A-B with forerunner



OFFSH II A-B used in pairs



FO/14/00186



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