

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Lifting set for Offshore containers and Portable Offshore Units**with type designation(s)  
**Masterlinks type AW, AOS and MW**  
**Transition links type BW and BOS**Issued to  
**PEWAG Austria GmbH**  
**Graz Steiermark, Austria**is found to comply with  
**DNV 2.7-1 Offshore Containers (2013)**  
**EN 12079-2 Offshore containers and associated lifting sets Part 2: Lifting sets Design, manufacture and marking**  
**IMO/MSC Circular 860**  
**EN 1677-4 Components for slings - Safety - Part 4: Links, Grade 8**  
**DNV Standard for Certification No. 2.7-3 Portable Offshore Units (2011)****Application :****Grade 8 Links for Lifting Sets for Offshore Containers and Portable Offshore Units**This Certificate is valid until **2018-06-30**.Issued at **Høvik** on **2014-11-06**DNV GL local station: **Essen**Approval Engineer: **Nina Thorvaldsen**for **DNV GL**

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**Inger-Helene Hals**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed. If any person suffers loss or damage which is proven to have been caused by any negligent act or omission of the Society, then the Society shall pay compensation to such person for his proven direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million. In this provision the "Society" shall mean DNV GL AS as well as all its direct and indirect owners, affiliates, subsidiaries, directors, officers, employees, agents and any other person or entity acting on behalf of DNV GL AS.

Certificate No: **S-8254**  
File No: **911.53**  
Job Id: **262.1-017149-1**

## Product description

This Type Approval Certificate replaces Type Approval Certificate S-6212.

Links for use in Lifting Sets for Offshore Containers certified to DNV 2.7-1 Offshore Containers or Portable Offshore Units certified according to DNV 2.7-3 Portable Offshore Units.

Detailed product information and range of certified products covered by this Type Approval are listed in Appendix 1 of this Type Approval Certificate.

DNV GL has accepted some components with internal dimension smaller than table 2 in EN 1677-4. These are marked in Appendix 1.

## Manufactured by

Pewag s.r.o., Vamberk, Czech Republic  
Local office: DNV GL Czech Republic

Acciaierie Valcanale, Tarvisio, Italy  
Local office: DNV GL Venice

Pewag Austria GmbH takes responsibility that both design and production are in compliance with the Rules, Standards and/or Regulations listed on page 1 of this Type Approval Certificate.

## Application/Limitation

Tests to be carried out:

- Production testing: According to DNV Standard for Certification No. 2.7-1 and EN 1677-4 "Components for slings Safety - Part 4; Links, Grade 8" in agreement with the DNV GL surveyor.
- Material to be impact tested by Charpy impact method according to DNV 2.7-1 Offshore Containers, Chapter 8.4 or 2.7-3 Portable Offshore Units Chapter 7.4.

For application of links the minimum working load limit (WLL) shall be decided according to the strength requirements for lifting sets on offshore containers as given in DNV 2.7-1 Offshore Containers, Chapter 8 and .

The manufacturer shall issue product certificates according to Sec. 8.5 in DNV 2.7-1, using the certificate form 01-2AD.04.13/G-F\_components. This certificate form is only to be used for links certified according to this Type Approval.

Links covered by this Type Approval certificate may be delivered with design temperature of -20°C or -40°C. Links with design temperature -40°C will have special marking.

### **For links manufactured according to DNV 2.7-3 Portable Offshore Units**

Prior to selection of links the minimum required working load limit (WLL) shall be decided according to the strength requirements for lifting sets on portable offshore units as given in DNV 2.7-3, Chapter 7.3.5. Resulting sling force (RSF) can be found in the Design Verification Report (DVR) issued by DNV GL for the Portable Offshore Unit.

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## Type Approval documentation

<b>Drawing No.</b>	<b>Rev.</b>	
10706-1	98.04.08.	Document folder from Pewag Austria US master links type M-PWH grade 8
	Reviewed 2010.06.10	Updated product description for chains, links and transition links
01-2AD.04.13/G- F_components		Inspection Certificate acc. to EN 10204 3.1 for type approved chains, rings and assemblies for Offshore containers and Portable Offshore Units
QU1530710/01 QU1530710/03		ISO 9001:2008 and ISO 14001:2009 by TÜV SÜD for Graz ISO 9001:2008 and ISO 14001:2009 by TÜV SÜD for Varmberk
86074-2010-AQ-ITA- SINCERT		ISO 9001:2008 by DNV for Acciaierie Valcanale
18095-3	3	Master links AW (..)-DNV 2.7-1 for Offshore
18096-2	2	Master links MW (..)-DNV 2.7-1 for Offshore
5719-22	22	Transition Links BW G10
19508-4	4	Master Links BOS and AOS for Offshore
16433-7	7	Assemblies Type VAMW (..)-DNV 2.7-1 acc. to DNV for Offshore
10558-16	16	Assemblies Type VW G10
19509-3	3	Assemblies Type VOS (..)-DNV 2.7-1 acc. to DNV for Offshore
PWDNV001	0	Offshore Lifting Set Components Pewag -Links- grade 8

Test report from DNV Linz, Ord.No. 21860033.

Tests reports No. 1363 to 1368 dated 2001-08-30, witnessed by DNV.

Tests reports No. 2688 and 2689 dated 2006-02-15, witnessed by DNV.

Type Approval Survey Report, ESN-10-31050-4 endorsed by DNV Essen, dated 2010-05-19

Type Approval Survey Report, ESN-14-30071-2 endorsed by DNV GL Essen, dated 2014-06-17

Test report from DNV GL Venice, dated 2014-06-10.

Test reports No. 01/OF/2014 to 21/OF/2014, witnessed by DNV GL Venice

Type Approval Survey Report, endorsed by DNV GL Venice, dated 2010-06-10

Type Approval Survey Report, endorsed by DNV GL Ostrava, dated 2014-06-29

## Tests carried out

Prototype strength tested according to DNV 2.7-1 and EN1677-4.

## Marking of product

Marking should be according to DNV 2.7-1 Offshore Containers, Chapter 8 or DNV 2.7-3 Portable Offshore Units Chapter 7 and EN 1677-4 "Components for slings Safety - Part 4; Links, Grade 8".

## Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform a survey every 6 months and before the expiry date of this certificate to verify that the type approval is complied with.

END OF CERTIFICATE

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## Appendix 1

Product description and details

### Master links type AW

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
AW 16-DNV 2.7-1	16,5	3,5	85,8	137
AW 18-DNV 2.7-1	19	5	123	196
AW 22-DNV 2.7-1	23	7,6	186	298
AW 26-DNV 2.7-1 *	27	10,9	267	428
AW 32-DNV 2.7-1 *	33	16,4	402	644
AW 36-DNV 2.7-1	36	25,6	628	1005
AW 45-DNV 2.7-1	45	38,3	939	1503
AW 50-DNV 2.7-1	50	50,56	1240	1984
AW 56-DNV 2.7-1 *	56	67	1643	2629
AW 72-DNV 2.7-1	70	85	2085	3335

\*) Non-standard sizes, see comment under Product Description.

### Master links type MW

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
MW 18-DNV 2.7-1	19	4,2	103	165
MW 22-DNV 2.7-1	23	6,7	164	263
MW 26-DNV 2.7-1	27	10,6	260	416
MW 32-DNV 2.7-1 *	33	16	392	628
MW 36-DNV 2.7-1 *	38	24	589	942

\*) Non-standard sizes, see comment under Product Description.

### Master links type AOS

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
AOS 23	23	6,7	164	263
AOS 25	25	8,9	218	349
AOS 28	28	14,5	356	569
AOS 33 *	33	24,15	592	948
AOS 36	36	28,91	709	1134
AOS 40	40	34,27	840	1345
AOS 45	45	38,3	939	1503
AOS 50	50	50,56	1240	1984
AOS 56 *	56	67	1643	2629
AOS 70	70	85	2085	3335

\*) Non-standard sizes, see comment under Product Description.

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**Transition links (terminal links) type BW:**

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
BW 10	10	2,0	49,1	78,6
BW 13	12,7	3,15	77,3	124
BW 16	16,5	5,4	133	212
BW 20	19,5	8,5	208	334
BW 22	23	11,4	280	447
BW 23	23	11,4	280	447
BW 26	27	16,0	392	628
BW 27	27	16,0	392	628
BW 32	33	22,4	549	879
BW 36	36	30,0	736	1177
BW 40	40	42,4	1040	1664
BW 45	45	42,4	1040	1664
BW 50	50	63,0	1545	2472

**Transition links type BOS:**

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
BOS 17	17	5,06	124	199
BOS 19	19	6,17	165	263
BOS 23	23	10,94	268	429
BOS 27	27	12,91	317	507
BOS 30	30	18,57	455	729