

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Chain, shackles, swivels, sockets**

with type designation(s)

Issued to

De Haan Special Equipment BV
Stadskanaal Groningen, Netherlands

is found to comply with

DNV GL standard DNVGL-ST-0378 – Standard for offshore and platform lifting appliances**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2018-02-21**This Certificate is valid until **2023-02-20**.DNV GL local station: **Rotterdam, Product Certification /Verification**for **DNV GL**Approval Engineer: **Zrinka Cizmek**

Aldo Matteucci
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.



Product description

- Open spelter sockets (OSS) with pin; MBL = 8 to 2500 mT
- Open spelter sockets (OSS) with safety pin; MBL = 8 to 2500 mT
- Closed spelter sockets (CSS); MBL = 8 to 2500 mT
- Closed sockets (CR); MBL = 140 to 1250 mT
- Design temperature: -40 degC

Relevant parts of the following standards have been used for reference:

- EN 13411-4: 2002
- EN 12385-1: 2002
- ISO 3189/1: 1985

Application/Limitation

- Socketing procedure to be according to EN13411-4.
- If used as end termination for spiral rope, the socketed rope shall be tested in accordance with EN 13411-4 Annex C.
- The arrangement connecting to the pin/bolt in the open spelter sockets shall be such that equally distributed load on the pin is ensured.
- All materials are to be delivered with 3.1 certificates (EN 10204:2004), documenting mechanical properties and chemical composition in accordance with the type approval documentation, and shall comply with DNVGL-ST-0378 "Standard for offshore and platform lifting appliances" May 2016, Section 3.
- NDT requirements as per DNVGL-OS-E304 Ch 2 Sec 5 2.2.

Wire rope diameters, fill factors and minimum breaking strength of the assembly:

The use of the sockets, corrosion and difference between onshore/offshore is given by De Haan and is not evaluated by DNVGL.

Open Spelter Socket (OSS) with Pin		Offshore, Galvanised or Painted / Onshore, Painted or Galvanised		
Nominal Diameter or wire rope		2160 MBL	WLL	Fill factor
Nr	mm	[tons]	[tons]	
192	6 - 7	8	1,6	0,79
194	8 - 10	12	2,4	0,79
196	11 - 13	20	4	0,79
198	14 - 16	30	6	0,79
100	17 - 19	40	8	0,79
104	20 - 22	60	12	0,79
108	23 - 26	75	15	0,79
111	27 - 30	100	20	0,79
115	31 - 36	125	25	0,79
118	37 - 39	150	30	0,79
120	40 - 42	180	36	0,79
125	43 - 48	230	46	0,79
128	49 - 54	280	56	0,79
130	55 - 60	375	75	0,79
132	61 - 68	425	85	0,79

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135	69 - 75	500	100	0,79
138	76 - 80	600	120	0,79
140	81 - 86	700	140	0,79
142	87 - 93	750	150	0,79
144	94 - 102	950	190	0,79
146	108 - 115	1200	240	0,79
150	122 - 130	1400	280	0,79
160	140 - 155	2000	400	0,79
170	158 - 167	2500	500	0,79

Open Spelter Socket (OSS) with Safety Pin	Offshore, Galvanised or Painted / Onshore, Painted or Galvanised
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Nominal Diameter or wire rope		2160 MBL	WLL	Fill factor
Nr	mm	[tons]	[tons]	
192	6 - 7	8	1,6	0,79
194	8 - 10	12	2,4	0,79
196	11 - 13	20	4	0,79
198	14 - 16	30	6	0,79
100	17 - 19	40	8	0,79
104	20 - 22	60	12	0,79
108	23 - 26	75	15	0,79
111	27 - 30	100	20	0,79
115	31 - 36	125	25	0,79
118	37 - 39	150	30	0,75
120	40 - 42	180	36	0,75
125	43 - 48	230	46	0,75
128	49 - 54	280	56	0,75
130	55 - 60	375	75	0,75
132	61 - 68	425	85	0,75
135	69 - 75	500	100	0,64
138	76 - 80	600	120	0,64
140	81 - 86	700	140	0,64
142	87 - 93	750	150	0,64
144	94 - 102	950	190	0,64
146	108 - 115	1200	240	0,64
150	122 - 130	1400	280	0,64
160	140 - 155	2000	400	0,79
170	158 - 167	2500	500	0,79

Closed Spelter Socket (CSS)	Offshore, Galvanised or Painted / Onshore, Painted or
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	Galvanised
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Nominal Diameter or wire rope		2160 MBL	WLL	Fill factor
Nr	mm	[tons]	[tons]	
290	6 - 7	8	1,6	0,79
292	8 - 10	12	2,4	0,79
294	11 - 13	20	4	0,79
296	14 - 16	30	6	0,79
298	17 - 19	40	8	0,79
201	20 - 22	60	12	0,79
204	23 - 26	75	15	0,79
207	27 - 30	100	20	0,79
212	31 - 36	125	25	0,79
215	37 - 39	150	30	0,75
217	40 - 42	180	36	0,75
219	43 - 48	230	46	0,75
222	49 - 54	280	56	0,75
224	55 - 60	375	75	0,75
226	61 - 68	425	85	0,75
227	69 - 75	500	100	0,64
228	76 - 80	600	120	0,64
229	81 - 86	700	140	0,64
230	87 - 93	750	150	0,64
231	94 - 102	950	190	0,64
233	108 - 115	1200	240	0,64
240	122 - 130	1400	280	0,64
250	140 - 155	2000	400	0,79
260	158 - 167	2500	500	0,79

CR Socket	Offshore, Galvanised or Painted / Onshore, Painted or Galvanised
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Nominal Diameter or wire rope		2160 MBL	WLL	Fill factor
Nr	mm	[tons]	[tons]	
512	31 - 36	140	28	0,79
517	40 - 42	160	32	0,75
519	43 - 48	200	40	0,75
522	49 - 54	250	50	0,75
524	55 - 60	300	60	0,75
526	61 - 68	400	80	0,75
527	69 - 75	500	100	0,64

528	76 - 80	600	120	0,64
529	81 - 86	700	140	0,64
530	87 - 93	800	160	0,64
531	94 - 102	900	180	0,64
533	108 - 115	1000	200	0,64
540	122 - 130	1250	250	0,64

Type Approval documentation

Tests carried out

Prototype testing for Open spelter sockets (OSS), following procedure according to ISO3189-1985, 6.1.1 and 6.2.1, and relevant parts of EN 12385-1-2002, was performed 14-08-2017.

Prototype testing for Closed spelter socket (CSS) and CR sockets is to be performed according to ISO 3189/1.

Serial production load testing for all socket types according to ISO 3189/1.

- The reference test force shall be based on the 90% of the minimum breaking load of the rope/socket.
- The reference test force should be based on the rope with the highest tensile grade expected to be used together with the socket.

Testing to be witnessed by a DNV GL Surveyor.

Marking of product

Each connector shall be marked according to DNVGL-ST-0378 "Standard for offshore and platform lifting appliances" May 2016, Section 14.

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform periodical assessment after two years (+/-90 days) and after 3.5 years (+/-90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.

END OF CERTIFICATE