



William Hackett

OFFSHORE CHAIN SLINGS

DNV-GL-STE271-2.7-1

Welded Chain Sling

DNV-GL-STE271-2.7-1

Mechanically Assembled Chain Sling

**Marine Grade 8 Offshore Mechanically
Assembled Chain Sling**

DNV-GL TYPE APPROVALS

TAS000013X Rev. 1

TAS00001RH

TAS00002DV



Offshore Chain Slings

DNV-GL Type Approvals - Fully welded chain slings - Grade 8 chain and Grade 8 components

Working in conjunction with our supply chain partners and industry stakeholders, William Hackett Lifting Products have brought to market a number of chain slings, chain and components that are focused for use in the offshore environment. As part of the qualifying process, all of these products have under-gone full assessment by DNV-GL and subsequently issued with DNV-GL Type Approval Certificates.

DNV-GL

Certificate No:
TAS00001RH

TYPE APPROVAL CERTIFICATE

This is to certify:
That the Lifting set for Offshore containers and Portable Offshore Units

with type designation(s)
Chain sling assemblies (Zinc Tough) - OSWDNVxxxxxxxZT

Issued to
**Scaw South Africa (Pty) Limited - McKinnon Chain
Gauteng, South Africa**

is found to comply with
**DNV GL standard DNVGL-ST-E271 – 2.7-1 Offshore containers, August 2017
DNV GL standard DNVGL-ST-E273 – 2.7-3 Portable offshore units, December 2016
EN 818-4 Short link chain for lifting purposes – Safety – Part 4: Chain slings – Grade 8
ISO 10855-2:2018 Offshore containers and associated liftings sets – Part 2: Design,
manufacture and testing of lifting sets
IMO/MSC Circular 860**

Application :
**1-, 2-, 3- & 4-Part Lifting Sets, with forerunner where fitted, for Lifting of Offshore Containers
or Portable Offshore Units**

Issued at **Høvik** on **2018-10-02**

This Certificate is valid until **2023-09-24**.

DNV GL local station: **Cape Town**

Approval Engineer: **Nina Thorvaldsen Moberg**

for **DNV GL**

**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.



Form code: TA 251

Revision: 2016-12

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DNV-GL

Certificate No:
TAS000013Z
Revision No:
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TYPE APPROVAL CERTIFICATE

This is to certify:
That the Lifting set for Offshore containers and Portable Offshore Units

with type designation(s)
**Master links (standard) - OMLxxxDNV
Sub assemblies (standard) - OSAXxxDNV**

Issued to
**Scaw South Africa (Pty) Limited - McKinnon Chain
Gauteng, South Africa**

is found to comply with
**DNV GL standard DNVGL-ST-E271 – 2.7-1 Offshore containers, August 2017
DNV GL standard DNVGL-ST-E273 – 2.7-3 Portable offshore units, December 2016
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**

Application :
Grade 8 Links for Lifting Sets for Offshore Containers and Portable Offshore Units

Issued at **Høvik** on **2018-10-02**

This Certificate is valid until **2021-06-29**.

DNV GL local station: **Cape Town**

Approval Engineer: **Nina Thorvaldsen Moberg**

for **DNV GL**

**Inger-Helene Hals
Head of Section**

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Form code: TA 251

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DNV-GL Type Approval	Description
TAS00001RH	Welded Chain Sling Assemblies ZINC-TOUGH™ technology
TAS000013X	Welded Chain Sling Assemblies Painted
TAS000013Y	Grade 8 Short Link Chain
TAS00001BN Rev. 2	HA Master Links / Quad Assemblies ZINC TOUGH™ technology
TAS000013Z Rev. 3	HA Master Links / Quad Assemblies Painted
TAS00002DV	Mechanically Assembled Chain Lifting Sets
TAS000005Z Rev. 3	DA Master Links / Master Link Assemblies
TAS000015G	DA Omega Links
TAS000011K	DA Self Locking Hooks
TAS0000241	DA Grade 8 Safety Bow Shackles

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ZINC-TOUGH™ TECHNOLOGY

The ZINC-TOUGH™ range of chain, supplied by William Hackett Lifting Products provides superior corrosion protection whilst complementing the steel's inherent resistance to Hydrogen Embrittlement and Stress Corrosion Cracking, making it ideal for use in both Marine and Aquaculture applications within an offshore environment.

William Hackett and McKinnon Chain have combined their technical knowledge and worked alongside a wide range of stakeholders, to develop **ZINC-TOUGH™ TECHNOLOGY**.

The **ZINC-TOUGH™ TECHNOLOGY** is a means of enhancing the corrosion resistance without compromising the inherent excellent mechanical and toughness properties whilst supporting an environmentally friendly manufacturing process.

All McKinnon **ZINC-TOUGH™** chain is manufactured from a high quality fine grained steel with very specific processing parameters in order to achieve an optimum balance between strength and toughness.

The combination of these properties will deliver exceptionally durable chain for use in the most extreme of conditions.

Benefits of ZINC-TOUGH™ TECHNOLOGY



Non-interference with metallurgical properties

The low temperature application of the coating process does not have any effect on the hardness and toughness of the steel.



Zero risk to Hydrogen Embrittlement

Many coating processes such as galvanizing and electro-plating bring with them the risk of embrittlement. This process poses a **zero risk** of Hydrogen Embrittlement.



Corrosion protection

The Zinc-Iron alloy coating provides galvanic protection and resistance to pitting.



Excellent bonding surface and spark free

The Zinc layers are spark free and provide an excellent bonding surface that is ideal for additional processing, such as powder coating.



Abrasion resistant

The coating of 30-40μ in thickness is highly abrasion resistant.



Environmentally friendly process

Zinc Thermal Diffusion is an environmental friendly process (a non-toxic, heavy metal free process with minimum waste).

COMPARISON TABLE

ZINC THERMAL DIFFUSION versus HOT DIP GALVANIZING

	CORROSION RESISTANCE	COATABILITY	GALLING RESISTANCE	ABRASION RESISTANCE	SURFACE HARDNESS	ENVIRONMENT
HDG	MODERATE	POOR	POOR	POOR	SOFT	ENVIRONMENT UNFRIENDLY
ZTD	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	42 HRC	ENVIRONMENT FRIENDLY

Offshore Chain Slings

Enhancement Factors

Container Rating kg	Enhancement Factor	Min. Required WLL tonnes	Recommended Chain Sling @ 30° to the vertical	Recommended Chain Sling @ 45° to the vertical
500		7.00	13mm diameter Double Leg (used as a pair) Four Leg Five Leg WLL 13.50 tonne	13mm diameter Double Leg (used as a pair) Four Leg Five Leg WLL 11.20 tonne
1000		7.00		
1500		7.00		
2000	3.500	7.00		
2500	2.880	7.20		
3000	2.600	7.80		
3500	2.403	8.41		
4000	2.207	8.83		
4500	1.962	8.83		
5000	1.766	8.83		
5500	1.766	9.71		
6000	1.766	10.59		
6500	1.733	11.26		
7000	1.700	11.90		
7500	1.666	12.50	16mm Diameter Double Leg (used as a pair) Four Leg Five Leg WLL 20.78 tonne	16mm diameter Double Leg (used as a pair) Four Leg Five Leg WLL 17.00 tonne
8000	1.633	13.07		
8500	1.600	13.60		
9000	1.567	14.10		
9500	1.534	14.57		
10000	1.501	15.01		
10500	1.479	15.53		
11000	1.457	16.02		
11500	1.435	16.50		
12000	1.413	16.95		
12500	1.391	17.38		
13000	1.368	17.79		
13500	1.346	18.18		
14000	1.324	18.54		
14500	1.302	18.88	20mm Diameter Double Leg (used as a pair) Four Leg Five Leg WLL 31.50 tonne	20mm diameter Double Leg (used as a pair) Four Leg Five Leg WLL 26.50 tonne
15000	1.280	19.20		
15500	1.267	19.64		
16000	1.254	20.06		
16500	1.240	20.47		
17000	1.227	20.86		
17500	1.214	21.24		
18000	1.201	21.61		
18500	1.188	21.97		
19000	1.174	22.31		
19500	1.616	22.64		
20000	1.148	22.96		
20500	1.143	23.44		
21000	1.139	23.92		
21500	1.135	24.39	22mm diameter Double Leg (used as a pair) Four Leg Five Leg WLL 31.50 tonne	22mm diameter Double Leg (used as a pair) Four Leg Five Leg WLL 31.50 tonne
22000	1.130	24.86		
22500	1.126	25.33		
23000	1.121	25.79		
23500	1.117	26.25		
24000	1.112	26.70		
24500	1.108	27.15		
25000	1.104	27.59		

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DNV-GL WELDED CHAIN SLINGS

DNV-GL-STE271-2.7-1

Offshore Containers August 2017

DNV-GL-STE273-2.7-3

Portable Offshore Units December 2016

**EN818-4 Short Link Chain for Lifting
Purposes – Safety – Part 4:
Chain Slings – Grade 8**

**ISO 10855-2:2018 Offshore Containers
and Associated Lifting Sets – Part 2:
Design, manufacture and testing of
lifting sets**

DNV-GL TYPE APPROVALS

TAS000013X Rev. 1

TAS00001RH



Offshore Chain Slings

DNV-GL Welded Chain Slings

The working load limit of DNV-GL 2.7-1 compliant chain slings that are used with DNV-GL 2.7-1 containers are adjusted using the enhancement factors detailed below to give the maximum gross weight of the container to be lifted.

William Hackett design and supply DNV-GL Grade 8 welded chain slings that can be provided for bespoke design and as standard configurations from stock. DNV-GL welded chain slings are designed and manufactured in accordance with:

- DNV-GL-ST-E271-2.7-1
Offshore Containers August 2017
- DNV-GL-ST-E273-2.7-3
Portable Offshore Units December 2016
- EN818-4 Short Link Chain for Lifting Purposes – Safety – Part 4:
Chain Slings – Grade 8
- ISO 10855-2:2018 Offshore Containers and Associated Lifting Sets – Part 2:
Design, manufacture and testing of lifting sets

Welded Chain Sling Working Load Limits (WLL)

Description	Angle	Maximum WLL tonnes	Enhancement Factor	Container MGW kg
13mm x 2 leg Set (2 x 2 leg)	30°	13.76	1.586	8,700
13mm x 2 leg Set (2 x 2 leg)	45°	11.26	1.732	6,500
16mm x 2 leg Set (2 x 2 leg)	30°	20.78	1.230	16,900
16mm x 2 leg Set (2 x 2 leg)	45°	16.95	1.413	12,000
20mm x 2 leg Set (2 x 2 leg)	30°	27.59	1.104	25,000
20mm x 2 leg Set (2 x 2 leg)	45°	26.50	1.114	23,800
4 leg				
13mm x 4 leg	30°	13.76	1.586	8,700
13mm x 4 leg	45°	11.26	1.732	6,500
16mm x 4 leg	30°	20.78	1.230	16,900
16mm x 4 leg	45°	16.95	1.413	12,000
20mm x 4 leg	30°	27.59	1.104	25,000
20mm x 4 leg	45°	26.50	1.114	23,800
5 leg				
13mm x 5 leg	30°	13.76	1.586	8,700
13mm x 5 leg	45°	11.26	1.732	6,500
16mm x 5 leg	30°	20.78	1.230	16,900
16mm x 5 leg	45°	16.95	1.413	12,000
20mm x 5 leg	30°	27.59	1.104	25,000
20mm x 5 leg	45°	26.50	1.114	23,800

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William Hackett

DNV-GL MECHANICALLY ASSEMBLED CHAIN SLINGS

DNV-GL-ST-E271-2.7-1

Offshore Containers August 2017

DNV-GL-ST-E273-2.7.3

Portable Offshore Units December 2016

**EN818-4 Short Link Chain for Lifting
Purposes – Safety – Part 4:
Chain Slings – Grade 8**

**ISO 10855-2:2018 Offshore Containers
and Associated Lifting Sets – Part 2:
Design, manufacture and testing of
lifting sets**

DNV-GL TYPE APPROVALS

TAS00002DV



Offshore Chain Slings

DNV-GL Mechanically Assembled Chain Slings

The working load limit of DNV-GL 2.7-1 compliant chain slings that are used with DNV-GL 2.7-1 containers are adjusted using the enhancement factors detailed below to give the maximum gross weight of the container to be lifted.

William Hackett are the first to be type approved by DNV-GL for the design and supply of DNV-GL Grade 8 mechanically assembled chain slings into the harsh offshore environment worldwide. DNV-GL Grade 8 mechanically assembled chain slings can be supplied against bespoke designs from stock in the UK in both 2 leg and 4 leg configurations in sizes 13mm – 20mm up to a container mass gross weight of 25 tonnes. DNV-GL Grade 8 mechanically assembled chain slings are:

- Designed and manufactured in accordance with DNV-GL Type Approval TAS00002DV
- DNV-GL-ST-E271-2.7-1
Offshore Containers August 2017
- DNV-GL-ST-E273-2.7-3
Portable Offshore Units December 2016
- EN818-4 Short Link Chain for Lifting Purposes – Safety – Part 4:
Chain Slings – Grade 8
- ISO 10855-2:2018 Offshore Containers and Associated Lifting Sets – Part 2:
Design, manufacture and testing of lifting sets

Mechanically Assembled Chain Slings Working Load Limits (WLL)

Description	Angle	Maximum WLL tonnes	Enhancement Factor	Container MGW kg
13mm x 2 leg Set (2 x 2 leg)	30°	13.76	1.586	8,700
13mm x 2 leg Set (2 x 2 leg)	45°	11.26	1.732	6,500
16mm x 2 leg Set (2 x 2 leg)	30°	20.78	1.230	16,900
16mm x 2 leg Set (2 x 2 leg)	45°	16.95	1.413	12,000
20mm x 2 leg Set (2 x 2 leg)	30°	27.59	1.104	25,000
20mm x 2 leg Set (2 x 2 leg)	45°	25.45	1.114	22,600
4 leg				
13mm x 4 leg	30°	13.76	1.586	8,700
13mm x 4 leg	45°	11.26	1.732	6,500
16mm x 4 leg	30°	20.78	1.230	16,900
16mm x 4 leg	45°	16.95	1.413	12,000
20mm x 4 leg	30°	27.59	1.104	25,000
20mm x 4 leg	45°	26.50	1.114	23,800

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William Hackett

OFFSHORE GRADE 8 CHAIN SLINGS

*EN818-4 Short Link Chain for Lifting
Purposes – Safety – Part 4:
Chain Slings – Grade 8*

DNV-GL TYPE APPROVALS

TAS000013Y - Grade 8 Short Link Chain
TAS00005Z Rev. 3 - DA Master Links
TAS000015G - DA Omega Links
TAS000011K - DA Self-Locking Hooks
TAS0000241 - Grade 8 Safety Bow Shackles



Offshore Chain Slings

Grade 8 Chain Slings

William Hackett have been manufacturing Grade 8 mechanically assembled chain slings for many years from our facility based in the United Kingdom. As individual markets have been developed William Hackett have been increasing asked to supply Grade 8 chain slings and assemblies for lifting and lashing into a variety of applications in the harsh offshore environment worldwide. We have therefore developed specialised offshore marine Grade 8 short link chain with ZINC-TOUGH™ technology corrosion protection properties that are best suited for the challenges of working in the offshore and marine environment. Together with DNV-GL type approved Grade 8 master links, hooks and corrosion protected Grade 8 components these chain assemblies can withstand the harshest of environments. The Grade 8 chain slings can be supplied against bespoke designs from stock in the UK in both single, two, three and four leg configurations in sizes 13mm – 32mm up to a working load limit of 67 tonnes.

Grade 8 Chain Slings Working Load Limits (WLL)

Chain Size mm	Single Leg	Two Leg		Three and Four Leg	
		0-45°	45-60°	0-45°	45-60°
13	5.30	7.50	5.30	11.20	8.00
16	8.00	11.20	8.00	17.00	11.80
20	12.50	17.00	12.50	26.50	19.00
22	15.00	21.20	15.00	31.50	22.40
26	21.20	30.00	21.20	45.00	31.50
32	31.50	45.00	31.50	67.00	47.50

All loads shown in tonnes

Enterprise Resource Planning (ERP)

ERP systems deliver :

Internal Benefits

- Integration of a single source of data
- Common data definition
- A real-time system
- Increased productivity
- Reduced operating costs
- Improved internal communication
- Foundation for future improvement

External Benefits

- Improved customer service and order fulfillment
- Improved communication with suppliers and customers
- Enhanced competitive position
- Increased sales and profits

Adopts a set of "best practices" for carrying out all business processes.

Facilitates company-wide integrated information systems, covering all functional areas. An end to end, front to back real time dashboard.

Assure definition






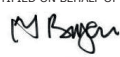
William Hackett's continual drive for innovation and customer service excellence through its' lifting centre of excellence in Alnwick has led to the development 'Assure'. This industry leading enterprise resource planning and real time production and risk management platform transforms the historic paradigms of customer service, delivery logistics, supply chain integration, risk mitigation and disaster recovery.

Assure controls, manages and reports real time on the end to end business processes involved in our supply chain, manufacturing, logistics and customer documentation to deliver customer support services that are specifically designed for the exacting requirement of the onshore and offshore lifting industry's expectations.

"Assure is the lifting industry's leading enterprise management system by far!"

Chain Hoist Assembly

- Manufacturing/assembly service provided. All chain hoists are assembled by trained and qualified staff.
- All William Hackett chain hoists are fully compliant with BS EN13157:2004.
- All calibrated load chain is fully compliant:
Grade T (8) to BS EN818-7
- Next day delivery service available on request.
- 500 kg – 50 tonnes available from stock

 William Hackett Lifting Products Limited		   		DUAL PURPOSE DOCUMENT EC DECLARATION OF CONFORMITY DECLARATION I DECLARE THAT THE ITEMS DESCRIBED ON THIS DOCUMENT COMPLY WITH THE REQUIREMENTS OF THE MACHINERY DIRECTIVE 2006/42/EC		A		
Delivery Address WILLIAM HACKETT LIFTING PRODUCTS OAK DRIVE LIONHEART ENTERPRISE PARK ALNWICK NORTHUMBERLAND, NE66 2EU		Supplied To: HAC001 Certificate Number: L081918 Customer Order No: 123456 Date Received: 25/08/2020		MANUFACTURER'S CERTIFICATE CERTIFIED ON BEHALF OF THE COMPANY  T.J. BURGESS 25/08/2020		B		
Authorised person for the configuration of the declaration documents: Tim Burgess, William Hackett Lifting Products, Alnwick, UK								
A/B	Batch	Lot No / Serial No	Product	Description	Qty	Working Load Limit	Proof Load	Min Breaking Load
A	Q61584	MCK10252	HNW13.43008.73002TB	13mm Four Leg, 3 metre Grade 8 Welded Chain Sling to DNV2.7-1 **Zinc Tough & Blue Painted Finish**	1	8.7 T @ 30° To Vertical		
A	P01234	612345	HNMA13.403.15	13mm Four Leg, 3 metre Grade 8 Mechanically Assembled Chain Sling to DNV2.7-1 & EN818-4 Comprising of: 1 x DA-007F-32 Quad Assembly 8 x DA-018-13 Omega Links AS1.130.5.DNV Chain 4 x DA-808-22 6.5t Safety Pin Bow Shackles	1	6.5 T @ 45° To Vertical		
OAK DRIVE, LIONHEART ENTERPRISE PARK, ALNWICK, NORTHUMBERLAND NE66 2EU Tel. + 44 (0) 1665 604200 Fax. + 44 (0) 1665 604204 Email: info@williamhackett.co.uk Website: www.williamhackett.co.uk Co. Registration No. 09679580 VAT Reg. No. 217 3508 23								
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