KWS INC. | THIELE®

KWS CATALOG 6.0

Rev. 1

Made in Germany

> Lifting Technology

> Load Securing Technology

> Light Material Handling

> Application Technology

CONTACT US

Sales & Service

Our friendly sales team is available for quotes, receiving & processing orders, and technical service.

Address

KWS Inc.
P.O. Box 470487
Tulsa, OK 74147
USA

Toll Free: +1 (800) 872-9313
Phone: +1 (539) 367-2274
Fax: +1 (539) 367-2278
email: sales@kwschain.com

Business hours

Monday to Friday:
8.00 am – 5:00 pm Central Time

WARNINGS:

Warning instructions are included in this catalog. Operating instructions for each product are either included with the products and / or are available at www.kwschain.com.
Manual instructions must always be reviewed before operation. Failure of the product can occur due to misapplication, abuse or improper maintenance, resulting in possible property damage, personal injury, or death.
Ratings shown are applicable to new products. Working Load Limits indicate the greatest force or load a product can take. Extraordinary conditions must be taken into account.
The working load limit of a chain sling must not exceed the working load limit of the weakest component in the system. The proof load on all items in this catalog is 2 times the working load limit unless otherwise shown.
Please also read the manual instructions and users guide on page 173-179 and download manuals using the QR-code below or from our website www.kwschain.com.

QR-Code for downloading operating and mounting instructions

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Company Profile

KWS INC.
A MEMBER OF THE THIELE-GROUP

Our parent Company

THIELE was established in Iserlohn-Kalthof, Germany more than 85 years ago and the company is now one of the world's leading manufacturers of chain systems. The forging of quality components has become our focus and our strength. Customers benefit from our established expertise in product design and manufacturing, with everything we supply being produced at our plant in Iserlohn, Germany.

In addition to supplying the traditional markets for conveying and lifting equipment, we also operate in new future-oriented sectors like mobility and renewable energies.

Our ultimate goal is customer satisfaction based on fulfillment of high quality products that exceed enviromental and safety requirements. THIELE has a quality management system certified according to ISO 9001 and an environmental management system certified according to ISO 14001.

THIELE is also certified according to ISO 50001 energy management system and ISO 45001 occupational health and safety management system.

The longevity of our high-quality products saves resources and protects the environment.

Therefore, they enjoy an excellent reputation among our customers worldwide.

KWS Inc.

In 1995 the company THIELE GmbH & Co. KG established operations in the United States specifically focused on the sales of the THIELE brand of overhead lifting chain and components. Since then, Conveying Chain, Fishing Chain, Lifting Points, Manual Cranes, Hoist Chains as well as Magnet Chain Slings have been added to the product line. New products are continually being added, most recently various fittings and additional trade sizes to the Grade 100-Product range. Today, KWS Inc., with its main warehouse in Beckley, WV and regional warehouses in Chicago, IL and Los Angeles, CA, is able to supply German-made quality products to its valuable customers quickly. Our commitment is: "You need it, we have it"! Our logistics system ensures stock availability of at least 6-month sales, unique in the industry! THIELE GmbH & Co. KG is an innovative manufacturer with a long tradition in the production of round steel chains and forged parts for the Lifting technology sector.

Still today the company is family-owned. In close cooperation with our customers we are always searching for better and more innovative solutions. We are also supported by renowned universities and leading research institutes. We are continuously researching new knowledge in material technique and shaping in order to develop lighter, more solid, and safer products.


DNV

MANAGEMENT SYSTEM
CERTIFICATE

This is to certify that the management system of
THIELE
Thiele GmbH & Co. KG
Werkstr. 3, 58640 Iserlohn / Kalthof, Germany

has been found to conform to the Energy Management System standard:
ISO 50001:2018

This certificate is valid for the following scope:
Design, Development, Production, Sales and Service of link and conveyor chains as well as components and accessories for:
- mining
- lifting technology
- debris handling

The scope of the system includes all processes and assets under the company's control at the certified site.

IAF

In addition to aforementioned companies, the following also belong to the THIELE-group:

Schlieper GmbH & Co. KG (GER)
RH THIELE GmbH & Co. KG (GER)
Reilloc Chain Ltd. (UK)
THIELE Asia Pte. (SIN)
RM Wilson Comp. (USA)
T-Con Ltd. (CN)

KWS Inc. Conditions of Sale & Limited Warranty

Payment Terms: 1% 10 days, net 30 days from date of invoice

Delivery Terms: F.O.B. shipping point (within continental US only)
Freight prepaid at lowest tariff rate on shipments of 2,000+ lbs.

Cut Chain: A minimum charge of 20% per foot will be applied to each length of chain cut from stock

Special Items: All orders for non-stock items will be accepted based on the understanding that the delivered quantity can vary plus or minus 10% from the original quantity and invoice will be issued accordingly.

Returns: Return requests will only be honored on standard items in new condition and within 90 days from original invoice date. The customer is responsible for return freight. If returned item is part of original prepaid shipment, a portion of original freight will also be assessed against the returned item. Minimum standard restocking charge is 20% or US$ 50.00 whichever is greater. If item is not in new condition, credit will not be issued and item will be discarded.

WARNINGS: Download and read operating instructions before usage! Please use the QR-code below to retrieve the files or go to www.kwschain.com.
To prevent accidents, proper selection, application, and loading of chains and accessories is absolutely necessary.

NEVER exceed the published working load limits of chains and accessories and NEVER use slings outside the specified temperature range.
Accessories must always have equal or higher working load limits than the chain.

THIELE Plant Standard (TWN) THIELE products acc. to THIELE Plant Standards (TWN) fulfill the requirements of the EC Machinery Directive CE for Machines, particularly for the safety relevant components.

Disclaimer: KWS Inc. conditions of sale apply error and omissions excepted.

KWS | THIELE®

YOUR ONE-STOP PROVIDER

Our range of services:

- Bending
- Forging
- Different welding processes
- Laser, plasma and flame cutting
- Multi-spindle milling machines
- CNC machining
- Assembly and end production
- Heat treatment
- Painting and surface finishing

General Information

Product development

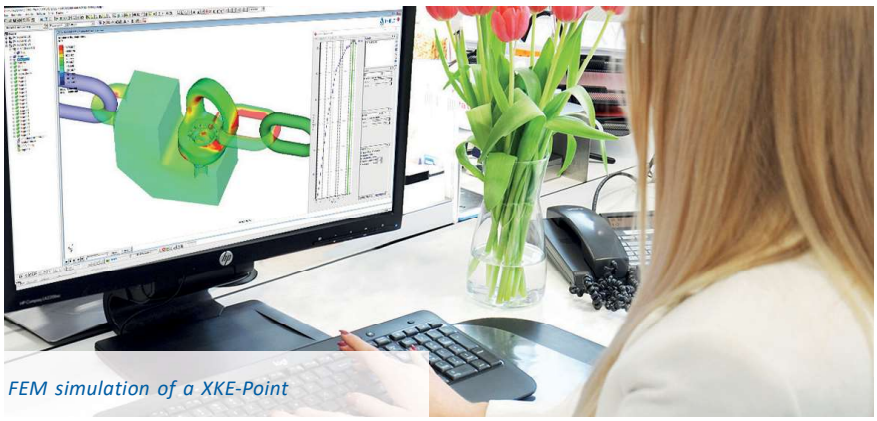
Our in-house manufacturing base covers the entire process from raw material through to the final product.
High-level expertise leads to short developing times, especially when new products are designed.

Modern 5-spindle machining centre

Manufacture of dies, trim dies and calibration tools

FEM simulation

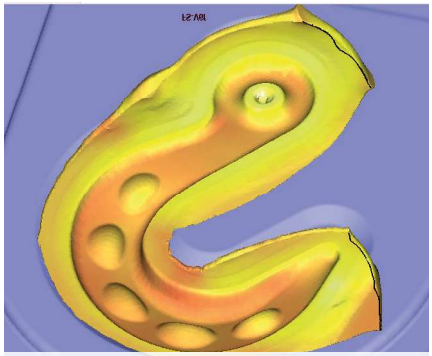
With precise calculations and the experience of our engineering team, we carry out stress analysis before production begins. This makes the product development process highly efficient and optimized to the maximum.



FEM simulation of a XKE-Point

Material flow simulation

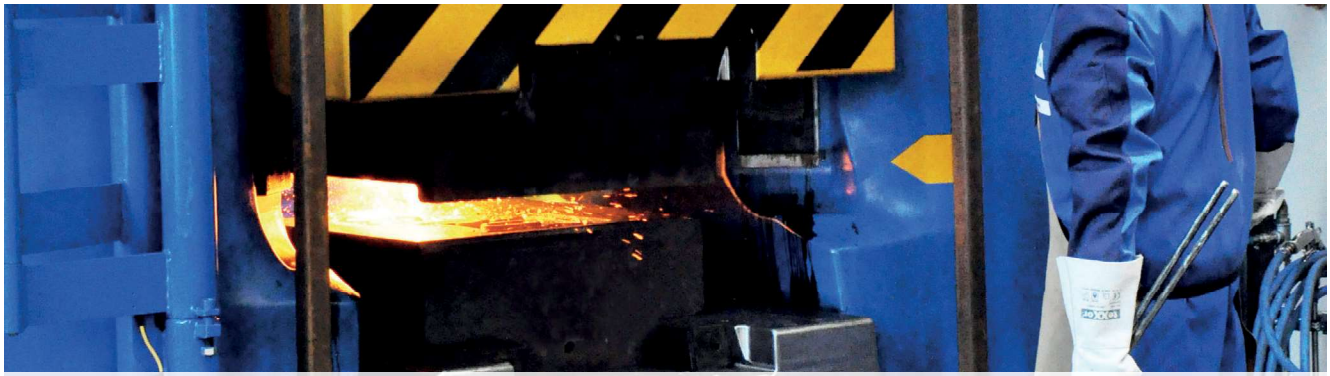
3D simulations optimize the forging process, enable precise volume calculations, increase efficiency and have a positive impact on the product quality.



Material flow simulation

CNC machining


Lasco



WHAT YOU CAN EXPECT FROM US

High added value and state-of-the-art forging aggregates

Our range services:

Forging machines (16 - 160 kJ) | forging presses (up to 1,600 t)
component weights from 100 g to 100 kgs | lengths up to 1,350 mm

Our forged products are based around a large selection of materials:

- Chain steels (DIN 17115)
- Non-alloy heat-treatable steels (DIN EN ISO 683-1)
- Alloy heat-treatable steels (DIN EN ISO 683-2)
- Case-hardened steels (DIN EN ISO 683-3)
- Non-alloy structural steels (DIN EN ISO 10025-2)

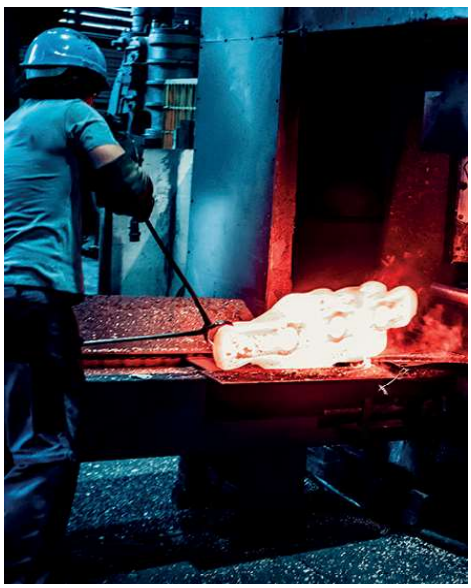
Special steels, e.g. high-alloy corrosion-resistant, heat-resistant and antimagnetic steels, are available on request.

Heat treatment:

A process-based heat treatment stage delivers the final product characteristics. Our state-of-the-art, fully automated heat treatment plant ensures that the end-products meet the highest mechanical requirements.

QR-Code to movie of Mr. Thiele making the first blow forge of the new forging hammer.

Square billets (edge length 50 to 120 mm) or round bar material (18.5 to 200 mm in diameter) can be used as raw material.



KWS SERVICE

KWS Catalog 6.0

You can download our KWS Catalog.

KWS Catalog 6.0

3D CAD Data

All user information, geometry data and CAD download can be found on the respective product pages of our website *www.kwschain.com*. Our website provides an excellent resource for engineer-friendly files!

Website/ Products

Operating and Mounting Instructions

The operating and assembly instructions for all THIELE lifting products contain important information for a safe operation in the sense of the EC Machinery Directive. They must be read before operation.

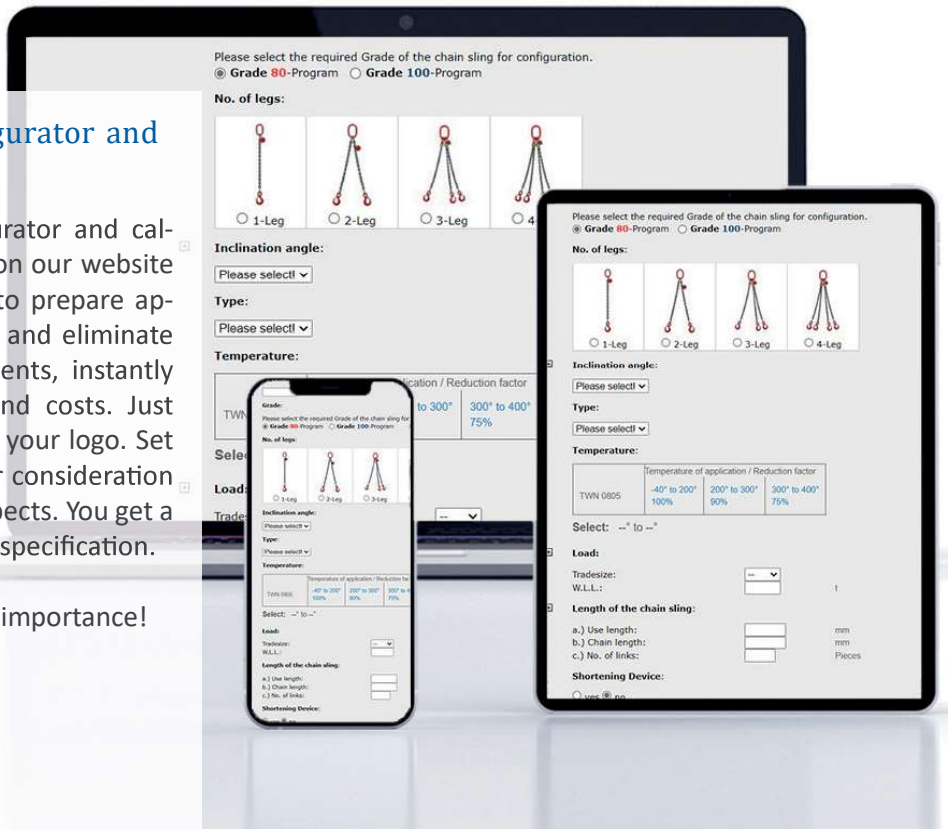
Operating and mounting instructions

THIELE Chain Sling Configurator and Calculator (TKGK)

The THIELE chain sling configurator and calculator in the customer portal on our website makes it much easier for you to prepare appropriate offers. You save time and eliminate errors when selecting components, instantly calculating lengths, weights, and costs. Just upload your company data and your logo. Set up your customized offer under consideration of commercial and technical aspects. You get a structured offer with a detailed specification.

At THIELE, SERVICE is of utmost importance!

Please ask for your login data.



THIELE-LIFTING-EVOLUTION

THIELE lifting evolution is the brand feature of the THIELE Lifting components.

All new THIELE lifting components offered by KWS Inc. are developed with a new patented design.
The design ensures you can differentiate THIELE products from the other brands.
For more than 85 years, THIELE stands for world class quality with our rugged design.
The ellipses style design adds value by improving consumer confidence while using THIELE components for their lifting application needs. Our in the field knowledge with lifting products have shown that the assured product properties are not always being upheld. Standards are often cited but not extensively fulfilled.
The requirements on safety for lifting products are more than a determination of a breaking force.

The intensity of intermediate quality controls within the production cycle creates a difference in the end result of the quality of the product. Our motto:
"At THIELE you always know, what you get!"
The ellipses style hooks will improve the orientation while in use. The enhanced design makes our product more modern, and dynamic compared to the competition. "Lifting, moving and securing of loads in shape". The improved design is a reflection of our consumers' expectations of THIELE for decades. We are committed to investing in our superior quality standards.
The result of years of experience with controlled and safer sophisticated processes in our production.
"MADE BY THIELE!"

Not available on Connectors, Master Links and Lifting Points.

Our Product Range

Lifting Products
Grade 100

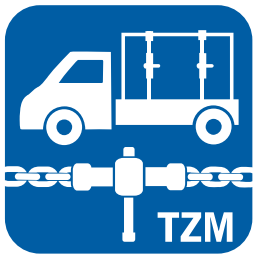
Lifting Products
Grade 80

Lifting Products
Offshore

Lifting Points

Hoist Chains

Load Lifting Equipment



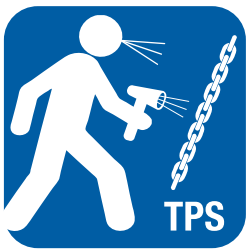
Lashing Products

Poultry Chains

Farming Chains

Chain Sprockets

Fishing Chains



Inspection Service

Engineering

THIELE
OFFSHORE LIFTING PRODUCTS

DNV-type approved Components

DNV-type approved Components

Offshore Components

In the Marine and Offshore industry, lifting chains are exposed to rough environmental conditions under strong dynamic loads. For this special application, THIELE as an authorized and certified manufacturer, supplies special calibrated welded lifting chains according to the DNV-ST-E271.

Our products meet the highest quality standards and are certified by the DNV.

TWN 0805A Offshore Lifting Chains

The Grade 80 lifting chains TWN 0805 are made from CrNiMo alloy steel and are used to assemble chain slings and lashing chains. The max. application temperature is 752 °F (400 °C). The manufacturing and testing requirements of this lashing chains are based on the ASTM A973/A973M, ASTM A391/A391M, DIN EN 818-2 and also comply with the German Statutory Accident Insurance test principle GS-HM 37.

Trade Size	Article-No.				Working Load Limit [lbs]	Working Load Limit [t]	Nominal Size d_n [inch]	Pitch p_n [inch]	Inside Width w_3 [inch] min.	Outside Width w_2 [inch] max.	Weight app. [lbs/ft]
	Self-coloured	RAL 9005 (black)	corrothiel	Electro galvanized							
1/4"	F01452	F01453	F01454	F01448	2,500	1.12	0.24	0.71	0.31	0.87	0.55
9/32"	F01458	F01459	F01457	F014601	3,500	1.50	0.28	0.86	0.37	0.99	0.74
5/16"	F01464	F01465	F01429	F01433	4,500	2.00	0.31	0.94	0.43	1.17	0.98
3/8"	F01469	F01470	F01450	F01445	7,100	3.15	0.39	1.18	0.51	1.46	1.52
1/2"	F01474	F01475	F01476	F014781	12,000	5.30	0.51	1.54	0.69	1.89	2.53
5/8"	F01479	F01480	F01487	F014821	18,100	8.00	0.63	1.89	0.82	2.33	3.83
11/16"	F01484	F01485	F04580	F01484G	22,000	10.00	0.71	2.13	0.92	2.62	4.77
3/4"	F01494	F01495	F04606	F014944	35,300	12.50	0.79	2.36	1.02	2.91	6.05
7/8"	F01499	F01500	F04629	F015111	42,700	15.00	0.87	2.60	1.13	3.20	7.33
1"	F01514	F01515	F04695	–	47,700	21.20	1.02	3.07	1.33	3.79	10.22
1-1/8"	F01519	F01520	F01521	–	61,700	25.00	1.10	3.31	1.43	4.09	11.83
1-1/4"	F01524	F01525	F01526	F01527	72,600	31.50	1.26	3.78	1.64	4.65	15.46
1-7/16"	F01529	F01530	F04814	–	88,200	40.00	1.42	4.25	1.84	5.24	19.49
1-9/16"	F01534	F01535	F04838	–	110,200	50.00	1.57	4.72	2.05	5.83	24.20
1-3/4"	F01539	F01540	F04889	–	138,900	63.00	1.77	5.31	2.30	6.57	30.58
2"	F01545	F01546	F04900	–	176,400	80.00	1.97	5.91	2.56	7.28	37.64
2-3/16"	F01555	F01556	F04908	–	220,500	100.00	2.20	6.69	2.87	8.15	48.73
2-1/2"	–	F01566	–	–	275,600	125.00	2.48	7.48	3.22	9.17	59.82
2-13/16"	–	F01598	–	–	352,700	160.00	2.80	8.27	3.63	10.35	75.95

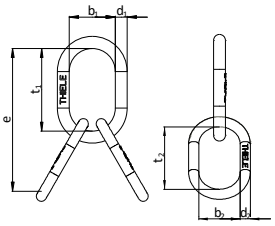
On request

DNV-type approved Components

Offshore Master Link Assemblies for Wire Rope Slings

TWN 0797

The Grade 80 master link assemblies TWN 0797 are used to assemble 3- and 4-leg wire rope slings for offshore applications. The extra-large intermediate links enable easy assembly of the sling ropes.
The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4. The dimensions comply to DIN 5688-3. The assemblies are DNV-type approved.



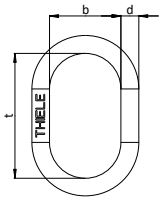
Trade Size	Article-No.	Working Load Limit (ß = 45°) SF= 1:4 [t]	Dimensions [inch]							Weight app. [lbs]
			e	d_1	t_1	b_1	d_2	t_2	b_2	
26/22	F0797268	7.90	13.39	1.02	7.09	3.94	0.87	6.30	3.54	11.90
32/26	F0797328	11.30	16.14	1.26	9.06	4.92	1.02	7.09	3.94	20.06
36/32	F0797368	16.00	18.90	1.42	9.84	5.51	1.26	9.06	4.92	33.29
45/36	F0797458	22.60	22.44	1.77	12.60	6.89	1.42	9.84	5.51	55.12
50/45	F0797508	26.80	25.98	1.97	13.39	7.48	1.77	12.60	6.89	92.59
56/50	F0797568	40.00	28.35	2.20	14.96	8.27	1.97	13.39	7.48	125.66
63/56	F0797638	50.00	31.89	2.48	16.93	9.45	2.20	14.96	8.27	174.16

The load capacities, manufacturing and testing requirements comply with the DNV-ST-E271 and some exceed the requirements of the DIN EN 1677-1 and EN 1677-4.

Offshore Master Links Type A

TWN 0803

The Grade 80 offshore master links TWN 0803 are used to assemble 1- and 2-leg chain slings for offshore applications. The manufacturing and testing requirements comly with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4. The dimensions comply with DIN 5688-3. The master links can also be used to manufacture wire rope slings according to DIN EN 13414-1. The master links are DNV-type approved.

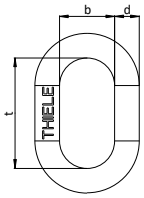


Trade Size	Article-No.	Working Load Limit [t]	Dimensions [inch]			Weight app. [lbs]
			d	t	b	
20	F0803208	4.75	0.79	5.51	3.15	2.43
22	F0803228	5.60	0.87	6.30	3.54	3.31
26	F0803268	8.00	1.02	7.09	3.94	5.07
32	F0803328	12.50	1.26	9.06	4.92	9.70
36	F0803368	16.00	1.42	9.84	5.51	13.67
40	F0803408	19.00	1.57	11.42	6.30	19.40
45	F0803458	25.00	1.77	12.60	6.89	26.46
50	F0803508	31.50	1.97	13.39	7.48	35.27
56	F0803568	40.00	2.20	14.96	8.27	50.71
63	F0803638	50.00	2.48	16.93	9.45	72.75
70	F0803708	63.00	2.76	18.50	10.24	97.00
80	F0803808	80.00	3.15	20.47	11.42	141.10

The load capacities, manufacturing and testing requirements comply with the DNV-ST-E271 and some exceed the requirements of the DIN EN 1677-1 and EN 1677-4.

TWN 0804

Offshore Intermediate Links Type B



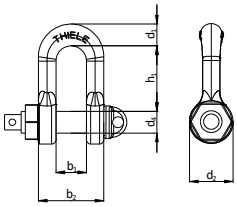
The Grade 80 offshore intermediate links TWN 0804 are used in welded type chain slings for offshore applications. The dimensions comply with DIN 5688-3. The intermediate links are DNV-type approved.
The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4.

Trade Size	Article-No.	Working Load Limit [t]	Dimensions [inch]			Weight app. [lbs]
			d	t	b	
B13	F0804138	3.35	0.51	2.36	1.18	0.44
B16	F0804168	5.60	0.63	2.76	1.38	0.79
B20	F0804208	8.50	0.79	3.54	1.77	1.61
B22	F0804228	10.00	0.87	3.94	1.97	2.14
B26	F0804268	14.00	1.02	4.72	2.36	3.53
B28	F0804288	16.00	1.10	5.12	2.56	4.19
B32	F0804328	22.40	1.26	5.51	2.76	6.39
B36	F0804368	28.00	1.42	6.30	3.15	9.26
B40	F0804408	33.50	1.57	7.09	3.54	12.79
B45	F0804458	42.50	1.77	7.87	3.94	18.08
B50	F0804508	53.00	1.97	8.66	4.33	24.25

The load capacities, manufacturing and testing requirements comply with the DNV-ST-E271 and some exceed the requirements of the DIN EN 1677-1 and DIN EN 1677-4.

TWN 0818

Offshore Bolt Shackles Type C

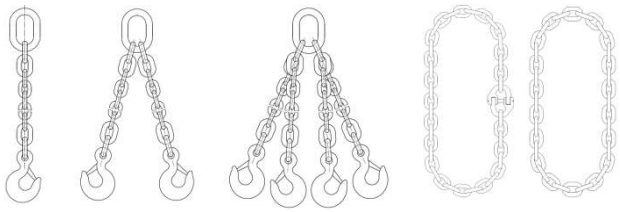


The shackles type C with bolt, nut and dowel pin TWN 0818 are intended to use in "Lifting Sets" for offshore containers acc. to DNVGL-ST-E271 and are used in portable offshore units acc. to DNV-ST-E273. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Trade Size [DIN 82101]	Working Load Limit [t]	Dimensions [inch]						Weight app. [lbs]
				h_1	b_1	b_2	d_1	d_4	d_2	
10-8	F30310NV	1,0	3.15	1.93	0.83	1.85	0.59	0.63	1.26	0.93
13-8	F30320NV	1,6	5.30	2.40	1.06	2.40	0.75	0.79	1.57	1.85
16-8	F30330NV	2,5	8.00	2.87	1.30	2.95	0.91	0.94	1.89	3.28
18/20-8	F30340NV	4,0	12.50	3.58	1.65	3.78	1.14	1.18	2.36	6.83
22-8	F30350NV	5,0	15.00	4.37	1.85	4.21	1.30	1.42	2.83	9.92
26-8	F30360NV	6,0	21.20	4.72	2.09	8.35	1.46	1.54	3.07	13.89
28-8	F30370NV	8,0	25.00	5.51	2.36	5.35	1.61	1.77	3.54	22.27
32-8	F30380NV	10,0	31.50	5.87	2.60	5.98	1.81	1.89	3.74	28.22
36-8	F30390NV	12,0	40.00	6.22	2.87	6.57	1.97	2.05	4.09	34.39
40-8	F30400NV	16,0	50.00	7.28	3.19	7.28	2.17	2.36	4.72	48.94
45-8	F30410NV	20,0	63.00	8.31	3.54	8.11	2.40	2.68	5.35	57.98

The load capacities, manufacturing and testing requirements comply with the DNV-ST-E271 and some exceed the requirements of the DIN EN 1677-1.

Safety Instructions and Requirements (Vers. B11082-C US 01.20)



WARNING

The following Operating Instructions must always be followed to avoid the risk of personal injury or property damage.

Do not use a chain sling before reading these Operating Instructions.

1. ABOUT THIS INSTRUCTION

This Operating Instruction describes in particular how sling chains according to TWN 0805A grade 80, TWN 0072 and TWN 1805 grade 100 (TWN = THIELE Shop Standard) are to be safely used for lifting purposes.
The instruction applies analogously to components of the identical design.
To comply with these instructions is essential to help avoid hazards and increases the reliability and service life of the chain slings.

DANGER! Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING! Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION! Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE! Is used to address practices not related to physical injury.

Safety Instructions signs indicate specific safety-related instructions or procedures.

Chains and accessories marked with the American nominal size 7/32" already corresponded to the European nominal size 6 mm. In order to achieve a better match, the previous nominal size 7/32" is now converted to the new nominal size 15/64". The working load limits have now also been adjusted. #

DEFINITIONS

Clevis

A U-shaped fitting with pin.

Working Load Limit (WLL)

The maximum load which a chain sling is designed to support in direct tension without shock loading at a designated sling angle of lift.

NOTICE

Read ASME B30.9 "Slings", Chapters 9-0 and 9-1.

Read ASME B30.10 "Hooks".

Read ASME B30.26 "Rigging Hardware", Chapters 26-0, 26-1, 26-4.

If chain slings are used with lifting magnets, read ASME B30.20 "Below-the Hook-Lifting-Devices", Chapter 20-4.

2. BASIC SAFETY REQUIREMENTS

WARNING

To prevent the risk of injury never walk or stay under lifted loads!

The Working Load Limit must not be exceeded!

Only use lifting and attachment means free from defects!

Working under the influence of drugs, medications impairing the sense and/or alcohol is strictly forbidden!

SAFETY INSTRUCTIONS

- Operators, fitters and maintenance personnel must in particular observe the Operating Instructions as well as standards ASTM A 906/A 906 M (Standard Specification for Grade 80 and Grade 100 Alloy Steel Chain Slings for Overhead Lifting), ASTM A 952/A 952 M (Standard Specification for Forged Grade 80 and Grade 100 Steel Lifting Components and Welded Attachment Links), ISO 3056 (Non-calibrated round steel link lifting chain and chain slings; Use and maintenance), ISO 7593 (Chain slings assembled by methods other than welding; Grade T(8)) and ISO 4778 (Round steel short link chains for lifting purposes – Chains slings of welded construction – Grade 8).

Safety Instructions and Requirements (Vers. B11082-C US 01.20)

SAFETY INSTRUCTIONS

- The specific safety and operating regulations and standards issued locally in the country where the items are used must be observed.
- The directions given in these Operating Instructions and specified documentations relating to safety, assembly, operation, inspection, and maintenance must be made available to persons operating and using the sling chains.
- These Operating Instructions must be available in a place near the product during the time the equipment is used. Please contact the manufacturer if replacements are needed. Also see chapter 13.
- During operation work, wear your personal protective equipment!
- **Improper assembly and use may cause personal injury and/or damage to property.**
- Assembly and removal as well as inspections and maintenance must exclusively be carried out by skilled, qualified, trained and authorized persons only.
- Structural changes are impermissible (e.g. welding, bending).
- **Operators must carry out a visual inspection and, if necessary, a functional test of the safety equipment before each use.**
- Never use worn-out, bent or damaged chain slings.
- Only lift loads that do not exceed the Working Load Limit of the sling chain assembly.
- Never expose chains to loads exceeding the specified Working Load Limits.
- Position the load hook above the load's center of gravity.
- Do not use force when mounting/positioning the attachment components.
- The load must resist and tolerate the forces to be applied without suffering deformation.
- Do not tip-load a hook.
- Do not twist or knot the chains together.
- When using shortening elements without additional safety means (e.g. TWN 0827, TWN 1827, TWN 0851 or TWN 1851), special care must be taken and the correct position of the chain in the shortening element is to be verified for each individual lifting operation.
- Avoid sharp edges. Use edge protectors or reduce the Working Load Limit by 20 %.
- The Working Load Limit must be reduced in the following cases
  - if the load is not balanced symmetrically,
  - if the chain is used in choke hitch applications,
  - when higher temperatures prevail,
  - when high dynamic and cyclic loads arise (automated or multi-shift operation),
  - when lifting magnets are employed.
- In case of multi-leg chain slings never allow sling angles of less than 30° and in excess of 75°. #
- Hooks shall have well-functioning safety latches.
- Attach unused chain legs to the suspension link.
- Suspension links must be allowed to move freely in the crane hook.
- Only lift loads that are freely movable and not attached or fastened.
- Do not bend loads to act on chain links and components.
- Safety elements must not be stressed or strained operationally.
- Use only shortening/grab hooks or claws for chain shortening purposes.
- Shortening hooks must not be attached directly to loads, e.g. metal sheets.
- For shortening claws, only the chain coming out of the bottom of the claw pocket must be loaded.
- Only chain legs and shortening elements of the same nominal size and grade may be connected.
- Shortening elements must be allowed to move freely in all tensile directions.
- Safeguard chain slings to prevent slipping when using the basket hitch application method.
- Do not start lifting before you have made sure the load has been correctly attached and balanced.
- **No one including you (operator) must be in the way of the moving load (hazard area).**
- During lifting your hands or other body parts must not come into contact with lifting means. Only remove lifting means manually (use your hands).
- Avoid impacts, e.g. due to abruptly lifting loads with chain in slack condition.
- Never move a suspended load over persons.
- Never cause suspended loads to swing.
- Always monitor a suspended load.
- Put the load down only in flat places/sites where it can be safely deposited.
- Do not allow the sling chain assembly getting caught under the load.
- Assume for sufficient space for the personnel to move when choosing the route of transportation and storage location. Danger to life and risk of injury by crushing hazards!
- In the event of doubts or concerns about the proper and safe use, inspection, maintenance or similar things contact your safety officer or the manufacturer.

SAFETY INSTRUCTIONS

THIELE is not responsible for damage caused by non-observance of the instructions, rules, standards and notes indicated!

As regard grade 100, THIELE does not give its approval to the assembly of components sourced from different manufacturers!

As a rule, chain slings are not permitted for the transportation of persons.

3. DESCRIPTION AND INTENDED USE

THIELE sling chains and attachment components form part of chain slings and are intended for a safe transportation of loads.

This Operating Instructions describe in particular how sling chains according to TWN 0805A grade 80, TWN 0072 and TWN 1805 grade 100 (TWN = THIELE Shop Standard) are to be safely used for lifting purposes.

THIELE chain slings of the following design configurations are available:

- assembled with clevis fastening system,
- assembled with connecting links,
- assembled with clevis fastening system and connecting links,
- as welded sling chain assembly,
- as welded endless chain, #
- as endless chain with mounted connector. #

THIELE sling chains and chain slings meet EG Machinery Directive 2006/42/EG requirements and feature a safety factor of at least 4 based on Working Load Limit.

Sling chains and pertinent components are marked with nominal chain size and grade data, manufacturer's symbol and traceability code.

THIELE chain slings and attachment elements are designed to withstand 20,000 dynamic load changes under maximum load conditions. In the event of higher loads (e.g. multi-shift/automatic operation, magnetic spreaders), the Working Load Limit must be reduced.

Chain slings shall be composed of sling chains and components of identical nominal chain size and grade. In case of deviating configurations the pertinent documentation (Operating Instructions etc.) must be suitably modified.

Sling chains according to TWN 0805A, TWN 0072 and TWN 1805 as well as the related attachment components and connecting links are intended for use as chain slings according to ASTM A 906/A 906M for lifting of loads.

WARNING

Chain slings must only be used

- if mass and center of gravity of the load are known or have been professionally estimated,
- within the limits of their permissible Working Load Limit,
- for permissible attachment methods and sling angles, #
- within the temperature limits prescribed,
- with suitable connecting links, attachment components or shortening elements,
- by trained and authorized persons.

Failure to do so may cause serious injury or property damage.

DANGER

Chain slings must not be employed for binding, rigging, lashing or as hoist chains.

Shortening elements must not be connected directly to the load!

4. COMMISSIONING

Prior to using the components for the first time assure that

- the components comply with the order and have not been damaged,
- test certificate and Operating Instructions are at hand,
- markings correspond with what is specified in the documentation,
- inspection deadlines and the qualified persons for examinations are determined,
- visibility and functional testings are carried out and documented,
- documentation is safely kept in an orderly manner.

Dispose of the packing in an environmentally compatible way according to local rule.

6. ASSEMBLY AND REMOVAL

6.1 Preparations

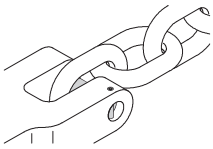
All components to be installed or used must be in perfect condition and the relevant Working Load Limits of all parts must accommodate the respective load to be handled.

6.2 Chain Assembly

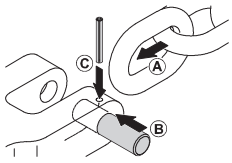
When assembling or disassembling chain slings the relevant assembly and Operating Instructions issued for the components must be observed.

6.3 Clevis Fastening System

The clevis fastening system only permits attachment of the nominal chain size that suits the attachment component.



6.3.1 ASSEMBLY



- If necessary, remove dowel pin and pin.
- (A) Place end of chain leg between the lateral clevis elements.
- (B) Push pin from the side fully into the clevis and through the last chain link of the leg.
- (C) Drive dowel pin fully in (must not project) to secure the pin. The slot must face away from the pin.

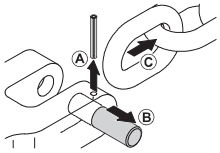
WARNING

Check whether the chain runs smoothly.

The dowel pins must only be installed once.

Only connect pins and attachment components of identical grades. Starting with Ø ½" the pins are marked on the front end.

6.3.2 DISASSEMBLY



- Slacken the respective chain leg.
- (A) Drive dowel pin out using hammer and drift punch [1].
- (B) Push pin out using a drift punch.
- (C) Remove the chain.

1) Suitable drift punches are available by Article No. Z03303.

7. CONDITIONS OF USE

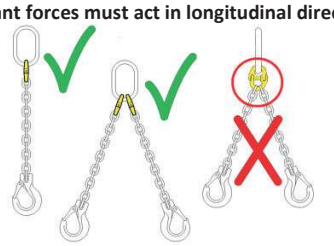
7.1 Normal Use

WARNING

When 4-leg chain slings are used there is a risk that the load will act on two oppositely located chain legs only. In such a case, check the Working Load Limit of the sling chain assembly and use an assembly that has a higher Working Load Limit.
Shortening individual chain legs is indicative of a non-symmetrical load distribution. In this case, the Working Load Limit must be reduced.
If choke hitch applications are involved the Working Load Limit is to be additionally reduced by 20 %.
When using hooks without safety latch, e.g. due to operational necessities, special care is to be taken, and a separate risk analysis must be carried out before operation.

DANGER

When attaching components, observe the correct position of the connecting links.
Relevant forces must act in longitudinal direction.



If two chain legs are assembled into one connecting link half for alternate use of the legs, only one chain leg must be subjected to loads!

If not all chain legs in a multi-leg sling chain assembly are used, the Working Load Limit is to be reduced according to the following table:

Total number of legs	Number of legs to be put to use	Use factor relevant to WLL specified
2	1	1/2
3 or 4	2	2/3
3 or 4	1	1/3

7.2 Influence of Temperature

WARNING

The respective temperature range limits must be considered for all components used. Using chain slings in high temperatures will cause the Working Load Limit to be reduced as indicated below.

	Temperature range	Remaining WLL
Grade 80 TWN 0805A	-40 °C ≤ t ≤ 205 °C -40 °F ≤ t ≤ 400 °F	100 %
	205 °C < t ≤ 300 °C# 400 °F < t ≤ 572 °F	90 %
	300 °C < t ≤ 400 °C 572 °F < t ≤ 752 °F	75 %
Grade 100 TWN 0072	-40 °C ≤ t ≤ 205 °C# -40 °F ≤ t ≤ 400 °F	100 %
Grade 100 TWN 1805	-30 °C ≤ t ≤ 205 °C# -22 °F ≤ t ≤ 400 °F	100 %

DANGER

If the chain slings have been exposed to temperatures exceeding the maximum values specified they must not be used furthermore.

7.3 Environmental Influence

WARNING

Chain slings must not be used in environments where acids, aggressive or corrosive chemicals or their fumes are present. Hot-dip galvanizing or a galvanic treatment is prohibited.

7.4 Special Hazardous Conditions

WARNING

The degree of danger when used in offshore applications, the lifting of hazardous loads, such as for example liquid metal or similar, risk potentials must be assessed by a competent person in the form of a risk analysis. Any additional rules and directives must be followed in this case.
For applications in abrasive blasting environments short inspection intervals must be scheduled. Selecting a welded sling chain assembly of the next bigger nominal size increases the permissible wear allowance.

8. GENERAL NOTES ON ATTACHMENT COMPONENTS

8.1 Connecting Links

WARNING

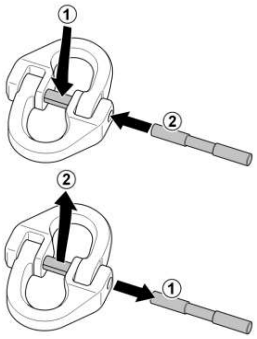
In mounted chain slings the chains are, for example, joined to other components by the use of connecting links. In this way, components can be mounted the nominal size of which deviates from that of the chain.

Sizes and grades of sling chains and connecting links must always coincide!

8.1.1 ASSEMBLY

Install the connecting link halves in the components to be connected and join both halves.

1. Position split sleeve as shown.
2. Push pin up to the split sleeve, align pin bevels to suit split sleeve and drive the pin in using a hammer.
3. Check to make sure split sleeve safely embraces the pin centrally.



8.1.2 DISASSEMBLY

1. Use drift to drive pin out.
2. Remove the split sleeve.
3. Separate connecting link halves from the components they joined.

A set of drifts according to TWN 0945 is available by Article No. Z03303.

The split sleeves must only be installed once.

The components to be connected must be able to move freely within the connecting link half they are placed in.

8.2 Shortening Elements

A shortening element within a chain leg is intended only to shorten the effective length to optimize the balance of the whole system.

When using shortening elements, such as for example shortening hooks or claws, please read the respective separate operating and/or assembly instructions.

9. IDENTIFICATION/MARKING

An identification tag must be attached to the chain sling adjacent to the master link.

The identification tag must show

- name or trademark of manufacturer
- nominal chain size
- grade
- number of legs
- rated load and corresponding sling angle
- length/reach
- individual identification/serial number

10. INSPECTION, MAINTENANCE, DISPOSAL

10.1 General

WARNING

Inspections and maintenance must be arranged by the owner!

Inspection intervals shall be determined by the owner!

Visual inspections must be regularly carried out and documented by competent and trained persons, at least once a year or more frequently if the chain slings are in heavy duty service. After three years at the latest they must additionally be examined for cracks. A load test is not a substitute for this examination.

The results of the inspections shall be kept in a file that has to be set up for each sling chain before first use. The register shall show characteristic data of the chains and components as well as identity details.

Immediately stop using chain slings that show the following defects:

- missing or illegible identification/marking,
- deformation, elongation or fractures of chain links or components,
- cuts, notches, cracks, incipient cracks, pinching,
- links heated beyond permissible limit,
- severe corrosion,
- pitch elongation of individual chain links by more than 5 % each,
- reduction of the average diameter of more than 10 % as mean value of measurements taken perpendicularly towards each other,
- impaired or missing safety systems, for example if the hooks' safety latch is defect,
- widening of the hook opening by more than 10 % or if the safe seating of the hook safety latch is no longer ensured
- limited hinging capability of connecting links (e.g. halves get stuck),
- wear in excess of 10%, e.g. in the receiving area of the connecting link halves or of the pin diameter,
- missing or damaged pin locks or removal of preventing guards

WARNING

Cleaning (e.g. prior to inspections) must not take place by using flames or methods that might cause hydrogen embrittlement (e.g. pickling or immersion in acidic solutions).

The following chain gauges are available to be used during chain inspections:

Nominal size		Article No.
Grade 80		F48856
15/64#	Grade 100	F01690
5/16	Grade 100	F01691
3/8	Grade 100	F01692
1/2	Grade 100	F01693
5/8	Grade 100	F01694

10.2 Inspection Service

THIELE offers inspection, maintenance and repair services by trained and competent personnel.

10.3 Maintenance and Repair

DANGER

Maintenance and repair work must only be performed by competent and trained persons.

WARNING

Do not repair or replace individual chain links but replace complete chain legs only.
If the safety latch of hooks does not engage properly with the tip of the hook, probably not only the hook but also the corresponding chain leg has been overloaded. In all such cases, all items used in the respective leg must be replaced (chain, shortening element, ring shackle etc.).

Minor notches and cracks may be eliminated by careful grinding, observing the maximum cross section reduction requirement of max. 10 % and avoid making more severe cuts or scores.

Welded chain slings must exclusively be repaired by the manufacturer.
All maintenance and repair activities must be documented properly.

10.4 Disposal

NOTICE

All steel components and accessories taken out of service must be scrapped in accordance with local regulations and provisions.

11. SPARE PARTS - ARTICLE NUMBERS FOR SLING CHAINS AND OTHER COMPONENTS

WARNING

Use only original spare parts.

11. Article Numbers for Sling Chains and other Components

Detailed information on spare parts for other THIELE-components can be found in the respective component instructions that are available for download on www.thiele.de, www.kwschain.com or upon request.

12. STORAGE

NOTICE

Chain slings must be stored properly sorted, suspended and in dry conditions at temperatures between 32 °F and 104 °F.

Do not store in a manner that causes mechanical damage.

13. THIELE OPERATING AND MOUNTING INSTRUCTIONS

NOTICE

All operating and mounting instructions are available in the download-center on our website www.kwschain.com and www.thiele.de.

14. PUBLISHING INFORMATION

Distributor:
KWS Inc.
P.O. Box 470487 | Tulsa, OK 74147 | USA

Toll Free:	+1 (800) 872-9313
Phone:	+1 (539) 367-2274
Fax:	+1 (539) 367-2278
Email:	sales@kwschain.com
Web:	www.kwschain.com

Manufacturer:
THIELE GmbH & Co. KG
Werkstraße 3 | 58640 Iserlohn | Germany

Phone:	+49 2371 947-0
Fax:	+49 2371 947-241
Email:	info@thiele.de
Web:	www.thiele.de

KWS Inc.

P.O. Box 470487
Tulsa, OK 74147
USA

Toll Free: +1 (800) 872-9313
Phone: +1 (539) 367-2274
Fax: +1 (539) 367-2278
Email: sales@kwschain.com
Website: www.kwschain.com

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