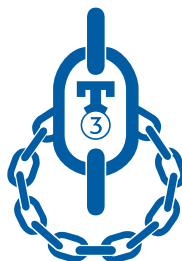




KWS
INC.



THIELE®



KWS CATALOG 6.0

Rev. 2

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

Business hours

Monday to Friday:
8:00 am – 5:00 pm Central Time

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

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*



CONTENT

	General Information.....	4
	THIELE-Lifting-Evolution.....	11
Lifting Technology	Lifting Products Grade 100.....	13
	Lifting Products Grade 80.....	51
	Offshore Lifting Products.....	93
	Lifting and Lashing Points.....	97
	Hoist Chains.....	117
	Load Lifting Equipment (Chain Blocks, Lever Blocks).....	125
Load Securing Technology	Lashing Products.....	133
Light Material Handling	Poultry Chains.....	161
	Farming Chains.....	167
Application Technology	Fishing Chains.....	171
	Safety Instructions and Requirements.....	173

Company Profile



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 environmental 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.



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:	<p>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.</p>  <p>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.</p>
THIELE Plant Standard (TWN)	THIELE products acc. to THIELE Plant Standards (TWN) fulfill the requirements of the EC-Machinery Directive  for Machines, particularly for the safety relevant components.
Disclaimer:	KWS Inc. conditions of sale apply error and omissions excepted.
Liability and Copyright:	All information given is based on our current knowledge and expertise and is supplied without obligations or commitments. This also applies to the patent rights of third parties. We do not give any obligatory warranty in the legal sense as to the properties of the products described in this publication. We expressly reserve the right to change our specifications in accordance with technical progress and company developments. This does not release the buyer from his obligation to inspect all incoming products. The quality of all our products is of course guaranteed in accordance with our general terms and conditions of sale. The copyright for the published objects remains exclusively at the author of this document. Any duplication or utilization of such graphics or texts in other electronic or printed publications are not allowed without any agreement of the author.



**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

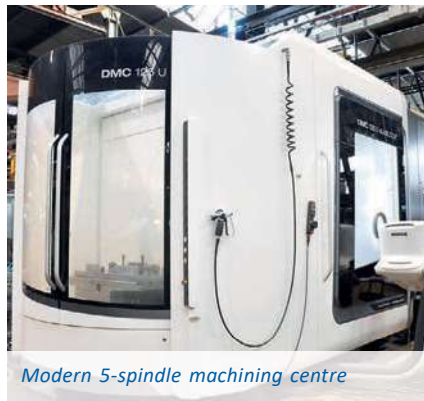
General Information



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

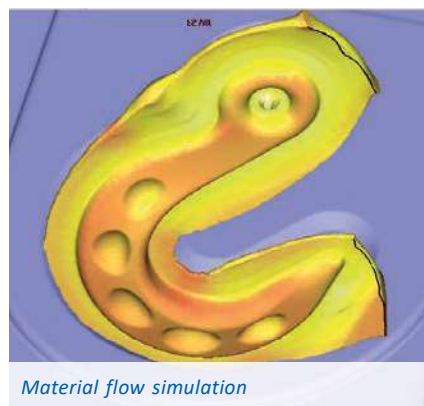
With precise calculations and the experience of our engineering team, we carry out stress analysis before production begins. This makes the product development process highly efficient and optimized to the maximum.



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



General Information



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.



General Information

KWS SERVICE

KWS Catalog 6.0

You can download our KWS Catalog.



*KWS Catalog 6.0
Rev. 2*

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.



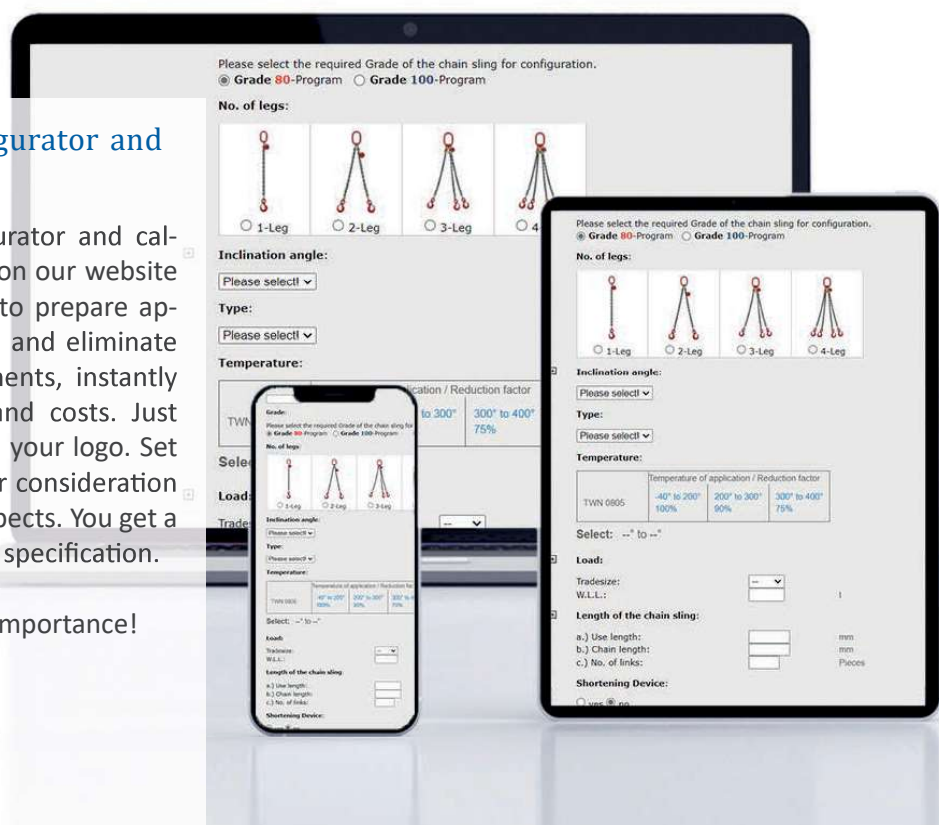
*Operating and mounting
instructions*

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



is the brand feature of the THIELE Lifting components.



All new THIELE lifting components offered by KWS Inc. are developed with a new 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



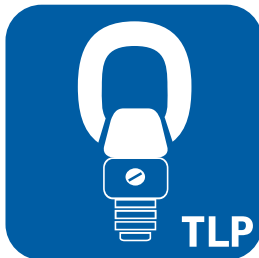
**Lifting Products
Grade 100**



**Lifting Products
Grade 80**



**Lifting Products
Offshore**



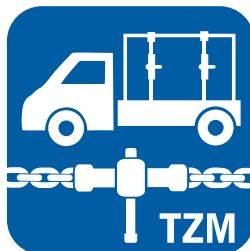
Lifting Points



Hoist Chains



Load Lifting Equipment



Lashing Products



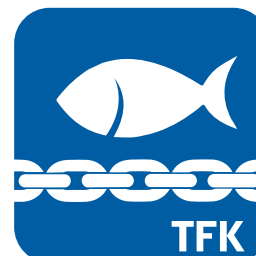
Poultry Chains



Farming Chains



Chain Sprockets



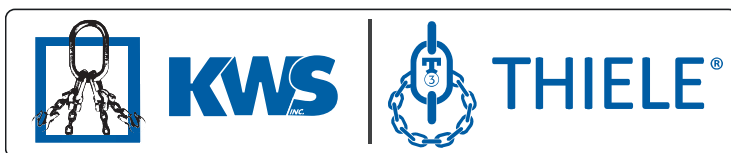
Fishing Chains



Inspection Service



Engineering



THIELE HOIST CHAINS

Types T, DAT and DT



Hoist Chains

Production of THIELE Hoist Chains:

THIELE hoist chains according to the DIN EN 818-7 are manufactured on modern digital controlled production lines. The high dimension accuracy enables high performance hoists a faultless run of the chain over the sprocket. The heat treatment is being done in modern and continuous heat treatment facilities. Therefore, THIELE hoist chains have a homogenous high tensile strength with an outstanding core ductility along the legs and roundings.

Hoist chains are designed for the following applications:

- | | |
|------------------|--|
| T-Type: | > for manual chain hoists and lever blocks
> for motor-driven, low-speed hoists |
| DAT-Type: | > motor-driven, high-speed hoists |
| DT-Type: | > motor-driven hoists |

Advantages of THIELE Hoist Chains:

- High dimension accuracy
- Homogenous high tensile strength
- Outstanding core ductility
- High resistance against brittle fracture (especially with the galvanized version)
- High wear resistance

Hoist Chains

Hoist Chains Type T

The hoist chains TWN 0062 (T-type) are used as load chains predominantly in manually operated hoists, e.g. in TM Chain Blocks and TM Lever Blocks. They are also used in motor-driven electric chain hoists that are used as maintenance hoists in wind turbines. The hoist chains are tempered, galvanized and comply with DIN EN 818-7.

TWN 0062

Dimension [mm]	Article-No.		Nominal Size		Pitch		Width		Working Load Limit [t]	Weight app. [lbs/ft]	Measuring Length	
	bright polished	electro galvanized	d _n [mm]	Tol. ± [mm]	p _n [mm]	Tol. ± [mm]	w ₁ [mm] min.	w ₂ [mm] max.			11 x p [mm]	Tol. ± [mm]
4 x 12	—	—	4.0	+0.20 / -0.20	12	+0.15 / -0.10	4.80	13.60	0.50	0.24	132.0	+0.40 / -0.20
4.2 x 12.2 ²⁾	—	—	4.2	+0.10 / -0.20	12	+0.15 / -0.10	4.80	13.70	0.50	0.26	134.2	+0.40 / -0.20
5 x 15	—	F09016	5.0	+0.20 / -0.20	15	+0.20 / -0.10	6.00	17.00	0.80	0.37	165.0	+0.50 / -0.30
5.3 x 15.2 ²⁾	—	—	5.3	+0.10 / -0.20	15	+0.20 / -0.10	5.90	16.90	0.80	0.42	167.2	+0.50 / -0.30
6 x 18	—	F09026	6.0	+0.20 / -0.20	18	+0.25 / -0.10	7.20	20.40	1.10	0.53	198.0	+0.60 / -0.30
7 x 21 ¹⁾	F09030	F09031	7.0	+0.10 / -0.28	21	+0.30 / -0.00	8.40	23.40	1.50	0.73	231.0	+0.70 / -0.00
7 x 22	—	F09036	7.0	+0.30 / -0.30	22	+0.30 / -0.15	8.40	23.80	1.50	0.71	242.0	+0.80 / -0.40
7.4 x 21.2	—	—	7.4	+0.10 / -0.30	21	+0.30 / -0.15	8.40	23.80	1.50	0.83	233.2	+1.70 / -0.70
8 x 24	—	F09046	8.0	+0.30 / -0.30	24	+0.30 / -0.15	10.20	27.20	2.00	0.95	264.0	+0.80 / -0.40
9 x 27 ¹⁾	F09050	F09051	9.0	+0.10 / -0.40	27	+0.25 / -0.10	10.80	30.40	2.50	1.20	297.0	+0.70 / -0.30
10 x 30	—	F09056	10.0	+0.40 / -0.40	30	+0.40 / -0.20	12.00	34.00	3.20	1.49	330.0	+1.00 / -0.50
11 x 31 ^{1) 2)}	F09060	F09061	11.0	+0.30 / -0.40	31	+0.30 / -0.15	13.20	36.50	3.80	1.85	341.0	+0.90 / -0.30
13 x 36 ¹⁾	F09065	F09066	13.0	+0.10 / -0.50	36	+0.35 / -0.15	15.20	42.90	5.30	2.60	396.0	+1.10 / -0.20
16 x 45 ¹⁾	F09070	F09071	16.0	+0.30 / -0.60	45	+0.45 / -0.25	18.20	52.80	8.00	3.91	495.0	+1.40 / -0.50
18 x 50	F09075	F09076	18.0	+0.90 / -0.90	50	+0.65 / -0.35	21.60	61.20	10.00	4.97	550.0	+1.75 / -0.85
22 x 66 ¹⁾	F09080	F09081	22.0	+0.80 / -1.10	66	+0.65 / -0.35	27.00	75.00	15.00	7.19	726.0	+2.00 / -0.70
3.5 x 90 ^{1) 2)}	F09085	F09086	31.5	+1.60 / -1.60	90	+1.20 / -0.60	37.80	107.10	31.50	15.06	990.0	+3.20 / -1.60

¹⁾ Limited tolerances. Also complies with RAG 726 300. | ²⁾ Similar to DIN EN 818-7



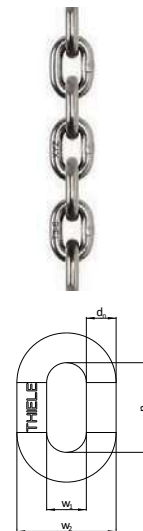
Hoist Chains Type DAT

The hoist chains TWN 0063 (DAT-Type) are used as load chains predominantly in electric chain hoists for universal industrial applications. The hoist chains are case-hardened, galvanized and comply with DIN EN 818-7.

TWN 0063

Dimension [mm]	Article-No.		Nominal Size		Pitch		Width		Working Load Limit [t]	Weight app. [lbs/ft]	Measuring Length	
	bright polished	electro galvanized	d _n [mm]	Tol. ± [mm]	p _n [mm]	Tol. ± [mm]	w ₁ [mm] min.	w ₂ [mm] max.			11 x p [mm]	Tol. ± [mm]
4 x 12	—	F09008	4.0	+0.20 / -0.20	12	+0.15 / -0.10	4.80	13.60	0.40	0.24	132.0	+0.40 / -0.20
4.2 x 12.2 ²⁾	—	—	4.2	+0.10 / -0.20	12	+0.15 / -0.10	4.80	13.70	0.40	0.26	134.2	+0.40 / -0.20
5 x 15	—	F09018	5.0	+0.20 / -0.20	15	+0.20 / -0.10	6.00	17.00	0.60	0.37	165.0	+0.50 / -0.30
5.3 x 15.2 ²⁾	—	—	5.3	+0.10 / -0.20	15	+0.20 / -0.10	5.90	16.90	0.60	0.42	167.2	+0.50 / -0.30
6 x 18	—	F09028	6.0	+0.20 / -0.20	18	+0.25 / -0.10	7.20	20.40	0.90	0.53	198.0	+0.60 / -0.30
7 x 21 ¹⁾	—	F09033	7.0	+0.10 / -0.28	21	+0.30 / -0.00	8.40	23.40	1.20	0.73	231.0	+0.70 / -0.00
7 x 22	—	F09038	7.0	+0.30 / -0.30	22	+0.30 / -0.15	8.40	23.80	1.20	0.71	242.0	+0.80 / -0.40
7.4 x 21.2 ²⁾	—	—	7.4	+0.10 / -0.30	21	+0.30 / -0.15	8.40	23.80	1.20	0.83	233.2	+1.70 / -0.70
8 x 24	—	F09048	8.0	+0.30 / -0.30	24	+0.30 / -0.15	10.20	27.20	1.60	0.95	264.0	+0.80 / -0.40
9 x 27 ¹⁾	—	F09053	9.0	+0.10 / -0.40	27	+0.25 / -0.10	10.80	30.40	2.00	1.20	297.0	+0.70 / -0.30
10 x 30	—	F09058	10.0	+0.40 / -0.40	30	+0.40 / -0.20	12.00	34.00	2.50	1.49	330.0	+1.00 / -0.50
11 x 31 ^{1) 2)}	—	F09063	11.0	+0.30 / -0.40	31	+0.30 / -0.15	13.20	36.50	3.00	1.85	341.0	+0.90 / -0.30
13 x 36 ¹⁾	—	—	13.0	+0.10 / -0.50	36	+0.35 / -0.15	15.20	42.90	4.20	2.60	396.0	+1.10 / -0.20
16 x 45 ¹⁾	—	—	16.0	+0.30 / -0.60	45	+0.45 / -0.25	18.20	52.80	6.30	3.91	495.0	+1.40 / -0.50
18 x 50	—	—	18.0	+0.90 / -0.90	50	+0.65 / -0.35	21.60	61.20	8.00	4.97	550.0	+1.75 / -0.85
22 x 66 ¹⁾	—	—	22.0	+0.80 / -1.10	66	+0.65 / -0.35	27.00	75.00	12.50	7.19	726.0	+2.00 / -0.70
31.5 x 90 ^{1) 2)}	—	—	31.5	+1.60 / -1.60	90	+1.20 / -0.60	37.80	107.10	31.50	15.06	990.0	+3.20 / -1.60

¹⁾ Limited tolerances. Also complies with RAG 726 300. | ²⁾ Similar to DIN EN 818-7



Calibrated Hand Chain

Dimensions	Article-No.	Weight app. [lbs/ft]
5 x 25	Z02655*	0.31

*Execution: Electro galvanized



Nominal Stress

Type T	Type DAT	Type DT
[N/mm ²] min.	[N/mm ²] min.	[N/mm ²] min.
200*	160	100

*Only for hand-operated hoists. For motor-driven hoists see DIN EN 818-7.

Mechanical Properties

Nominal Size d_n [mm]	Manufacturing Proof Force (MPF) [kN] min.	Breaking Force (BF) [kN] min.
4	12.6	20.1
5	19.6	31.4
6	28.3	45.2
7	38.5	61.2
8	50.3	80.4
9	63.6	102.0
10	78.5	126.0
11	95.0	152.0
12	113.0	181.0
13	133.0	212.0
14	154.0	246.0
16	201.0	322.0
18	254.0	407.0
20	314.0	503.0
22	380.0	608.0

Elongation and Deflection

Properties Type	Elongation at Break A [%] min.	Deflection f [mm] min.
T	10	0.8 d_n
DAT	10	2.5 x WLL ¹⁾
DT	5	2.5 x WLL ¹⁾

¹⁾ Without surface cracks or visual damages

Surface Hardness

Surface Hardness ¹⁾ Type	$d_n < 7$ mm [HV5] min.	$d_n = 7-11$ mm [HV10] min.	$d_n > 11$ mm [HV10] min.
T	360	360	360
DAT	500	500	450
DT	550	500	500

¹⁾ At defined measuring points acc. to DIN EN 818-7.

Hardening Depth

Type	Hardening Depth at Nominal Size $d_n < 8$ mm [mm]	Hardening Depth at Nominal Size $d_n \geq 8$ mm [mm]
DAT	(0.04 ± 0.01) d_n	(0.03 ± 0.01) d_n
DT	(0.05 ± 0.01) d_n	(0.04 ± 0.01) d_n

Hoist Chains

Chemical Composition

The steel must contain nickel and at least one of the other alloying elements with the minimum contents indicated in the following table:

Type	Mass content according to cast analysis depending on grade		
	Nickel [%] min.	Chromium [%] min.	Molybdenum [%] min.
T	0.40	0.40	0.15
DAT	0.70	0.40	0.15
DT	0.90 ²⁾	0.40	0.15

²⁾ A higher surface hardness and/or higher hardening depth requires a higher nickel content in order to prevent embrittlement.

Fatigue Strength

THIELE Hoist chains of type T, DT and DAT must be capable of withstanding at least 2×10^6 cycles in the following stress range without failure.

Upper Stress (σ) [N/mm ²] max.	Medium Stress (σ) [N/mm ²]	Lower Stress (σ) [N/mm ²] min.
200	120	40

Operating Temperatures

THIELE hoist chains of type T, DT and DAT can be used at operating temperatures of up to 200 °C (392 °F). They are not allowed to be used at temperatures above 200 °C (392 °F).

Type	Lowest Temperature
	[°C]
T	-40
DAT	-20
DT	-10

Surface

THIELE Hoist Chains are produced as standard in either bright or galvanized finish. Other surface treatments, such as zinc-flake coating and thick-film passivation, are available on request. After the galvanizing, THIELE Hoist Chains are tested with a manufacturers proof force. This is designed to exclude any chains showing signs of material embrittlement.

Marking

The marking complies with the specifications of the DIN EN 818-1.

The quality markings for the hoist chain are 'T', 'DAT' or 'DT', according to type.

Hoist chains must bear the appropriate CE-marking in accordance with the EU-machinery directive, 2006/42/EC if supplied meterwide.

Test Certificates

THIELE Hoist Chains are delivered with the test certificates according to the DIN EN 10254. Declaration of conformity and operating instructions can be downloaded on www.thiele.de. The test certificates must meet the requirements of the DIN EN 818-1.



ISO-Mechanism Groups

Chain Type	Mechanism groups (according to ISO 4301)													
	M ₂		M ₃		M ₄		M ₅		M ₆		M ₇		M ₈	
	T&DAT	DT	T&DAT	DT	T&DAT	DT	T&DAT	DT	T&DAT	DT	T&DAT	DT	T&DAT	DT
Stress	[N/mm ²] min.		[N/mm ²] min.		[N/mm ²] min.		[N/mm ²] min.		[N/mm ²] min.		[N/mm ²] min.		[N/mm ²] min.	
Nominal stress (σ_B) at minimum breaking force (BF_{min})	800		800		800		800		800		800		800	
Nominal stress at manufacturing proof force (MPF)	500		500		500		500		500		500		500	
Nominal stress (σ_{lim}) at dynamic limit load (F_{lim})	225	200	200		180		160		140		125		112	
Nominal stress (σ_{cf}) at maximum permissible chain force (F_{cf})	160	100	160	100	140	90	125	80	112	70	100	63	90	56

The stress figures are obtained by dividing the force with the entire cross section of both legs of the link.

The stresses are not uniformly distributed; the local tensile stress is much greater, especially at the outer faces of the link.

Recommendation: In order to guarantee an optimised frictionless operation run between the sprocket and hoist chain, we recommend to send your sprocket hoist for on site testing.

Instructions for the correct use of Hoist Chains

1. Size Selection

Select the size and finish of the chain under consideration of the selection criteria according to the DIN EN 818-7.

2. Assembling

Pay attention to correct assembly of the chains into the hoist. The hoist chain must be properly guided and should enter and leave the pocket wheel without twisting.

In order to ensure that the hoist chain runs smoothly over the pocket wheels without any unusual shocks, the drive wheels and tail wheels must match the type of the chain.

The connector element for the hoist in the last link of the chain strand should not widen the profile of the link. There must be a clearance of at least 5 % at the inner width of the hoist chain.

3. Cleaning and Lubricating

In order to ensure a long service life, hoist chains must be properly lubricated, especially in joint areas. The hoist chain must not be exposed to any kind of contamination that could affect its free mobility.

4. Safety Note

Hoist chains are not allowed to be used as lifting chains. As well, a hoist chain fitted to a hoist must not be used for bridle hitch or choke hitch slinging.

Discard Criteria

Chain hoists should be immediately withdrawn from service if the chain exhibits any of the following defects:

- Deformation/stretch (also only individual chain links are effected)
- Sign of cut notches, cracks, incipient cracks, pinching, etc.
- Exposure to heat above the permitted temperature range
- Severe corrosion
- Wear in excess of 10 % (on the averaged thickness of chain link)
- Elongation of more than 5 % in the pitch of individual links
- Increase of pitch, dimension of more than 2 % for motor-driven hoists and 3% for hand-operated hoists (measured over 11 links)
- Illegible markings

Maintenance and Handling of Hoist Chains and Drive Wheels

Maintenance:

Hoist chains are subject to significant interlink wear due to the deflection on the drive wheel and, possibly, also on the tail wheels (e.g., lower block).

Further, wear is due to the frictional contact of the chain leg on the wheel pockets or even the guide elements. To keep this wear to a minimum, a hoist chain should be fully lubricated, if possible, as part of the initial startup.

The lubricating film on the hoist chain left from manufacturing processes or warehousing is not sufficient. When lubricating, make sure the lubricant also reaches the inner sides of each rounded area on every link. This increases the service life considerably.

If the chain is dirty and unlubricated, this can cause premature wear and subsequent chain failure.

Unless specified different by the chain hoist manufacturer, lubricate the chain, for example, with a mineral oil according to DIN 51502 CLP 220 or, in case of a dusty or dirty environment, with a dry-film lubricant such as UNIMOLY C 220 Spray.

Exceptions:

In rare cases, chain hoists are used in very dusty environments with abrasive media. Because of the lubricant the dust sticks to the chain and thus contributes to wear instead of preventing it. Here, the use of DAT hoist chains (deeper case depth) without lubrication is recommended.

Hoists are also used in food production. This requires the use of stainless steel chains and/ or food grade lubricant depending on the application.

Inspections:

The respective, valid regulations DGUV-54 as well as the stipulations of DIN 685-5 and DIN EN 818-7 must be observed, as well as the operating instructions of the hoist and any national or local rules and regulations.

The hoist chains should be checked at regular intervals according to the accident prevention rules and regulations. The minimum requirement here is an inspection within one year.

Depending on the operating and environmental conditions (multi-shift, automatic or continuous operation, corrosion, heat, etc.), the hoist chains should be checked at shorter intervals. Inspection intervals are to be defined by the operator in these cases.

The inspection should include checking the dimensional accuracy, deformation, and a visual inspection concerning any possible cracks, notches or similar visual aspects.

The inspection must include the entire chain length in order to be effective.

Defects must be repaired immediately, before further operation of the hoist.

After three years, at the latest, an additional inspection for cracks must also be carried out.

The hoist chain must be discarded if the average diameter (d_m) at any point of an individual chain link is less than the nominal thickness (d_n) by more than 10 %.

The formula for this is as follows:

$$d_m = (d_1 + d_2) / 2 < 0.9 \times d_n$$

(d_1 and d_2 are to be determined at an offset of 90° to one another in the same cross section)

The hoist chain must also be discarded if the inner pitch of a single chain link has become enlarged by more than 5 % or if any measurement distance across 11 chain links (sum across 11 internal pitches) has increased by more than 2 %.

Hoist manufacturers usually provide exact dimensional values in their operating instructions, or corresponding gauges are available.

The wear of the wheels should be checked if possible during a chain inspection.

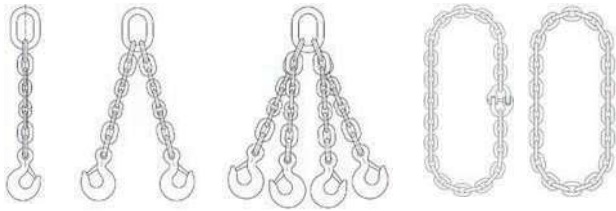


If the chain drive is maintained well, used chain wheels can certainly be used with a new hoist chain. However, it is to be assumed that the service life of new hoist chains with used wheels is lower than with new wheels.

Storage:

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.



Safety Instructions and Requirements (Vers. B11082-D US 07.23)

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

These operating instructions 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 1/4" #.

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.



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

Read ASME B30.10 "Hooks".

Read ASME B30.26 "Rigging Hardware",
pChapters 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

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!

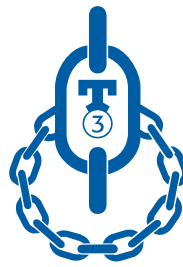
Working under the influence of drugs, medications impairing the sense and/or alcohol is strictly forbidden!



- 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).
- The specific safety and operating regulations and standards issued locally in the country where the items are used must be observed.



KWS
INC.



THIELE®

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

Follow us



Liability and Copyright

All information given is based on our current knowledge and expertise and is supplied without obligations or commitments. This also applies to the patent rights of third parties. We do not give any obligatory warranty in the legal sense as to the properties of the products described in this publication. We expressly reserve the right to change our specifications in accordance with technical progress and company developments. This does not release the buyer from his obligation to inspect all incoming products. The quality of all our products is of course guaranteed in accordance with our general terms and conditions of sale. The copyright for the published objects remains exclusively at the author of this document. Any duplication or utilization of such graphics or texts in other electronic or printed publications are not allowed without any agreement of the author.