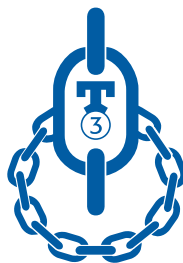




**KWS**  
INC.



**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

### 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](mailto: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](http://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](http://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 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

<b>Payment Terms:</b>	1% 10 days, net 30 days from date of invoice
<b>Delivery Terms:</b>	F.O.B. shipping point (within continental US only) Freight prepaid at lowest tariff rate on shipments of 2,000+ lbs.
<b>Cut Chain:</b>	A minimum charge of 20% per foot will be applied to each length of chain cut from stock
<b>Special Items:</b>	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.
<b>Returns:</b>	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.
<b>WARNINGS:</b>	Download and read operating instructions before usage! Please use the QR-code below to retrieve the files or go to <a href="http://www.kwschain.com">www.kwschain.com</a> . To prevent accidents, proper selection, application, and loading of chains and accessories is absolutely necessary.
	
	<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>
<b>THIELE Plant Standard (TWN)</b>	THIELE products acc. to THIELE Plant Standards (TWN) fulfill the requirements of the EC Machinery Directive  for Machines, particularly for the safety relevant components.
<b>Disclaimer:</b>	KWS Inc. conditions of sale apply error and omissions excepted.



**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.



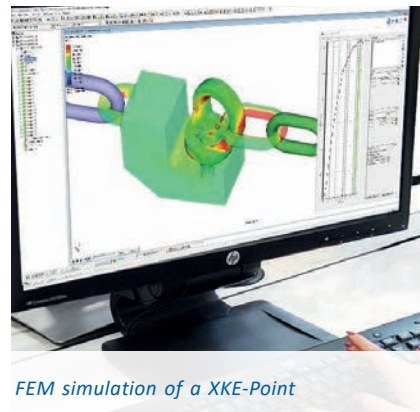
*Modern 5-spindle machining centre*



*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.

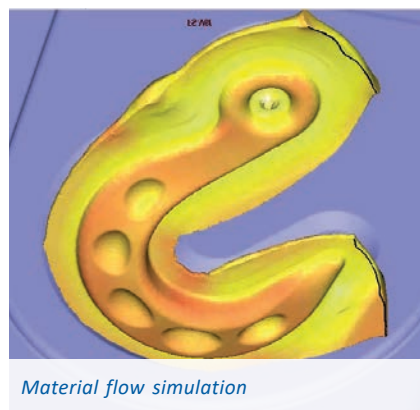


*FEM simulation of a XKE-Point*



### 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

### 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](http://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.



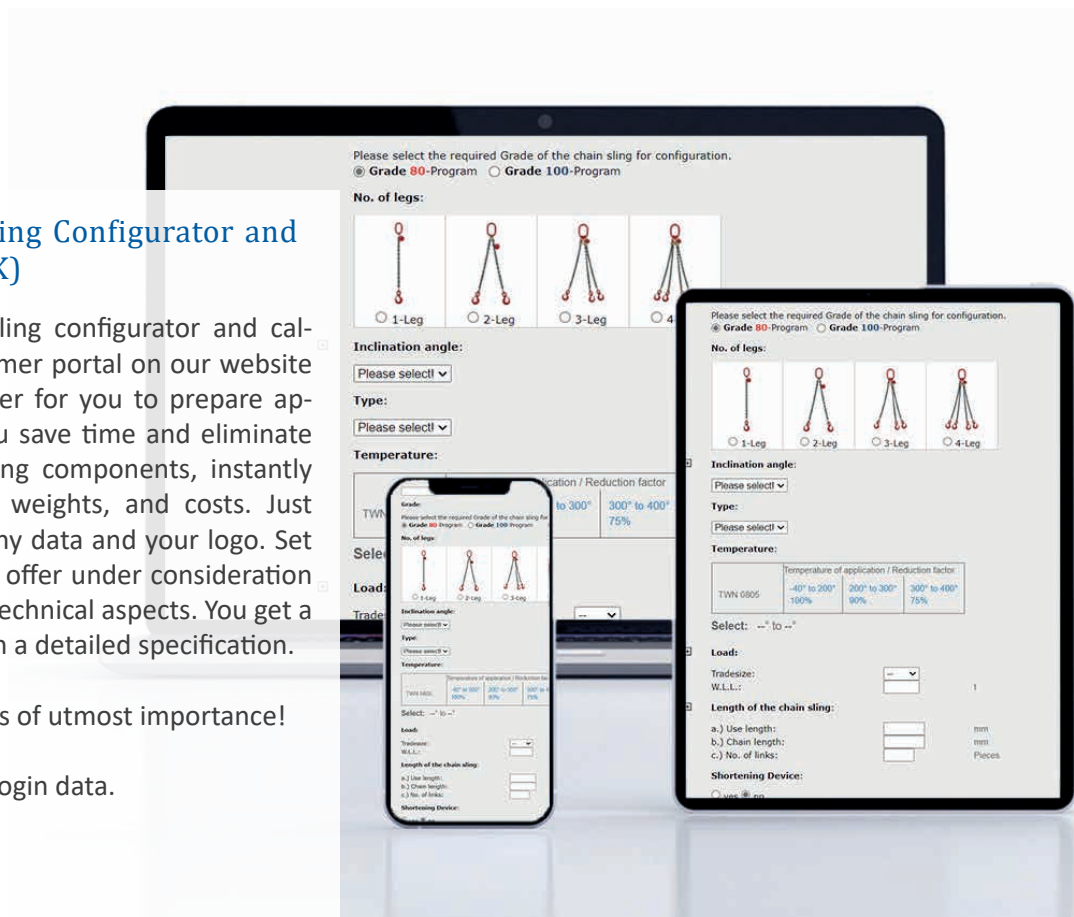
Operating and mounting instructions

### 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 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



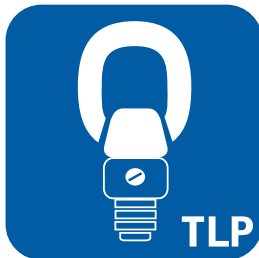
**Lifting Products  
Grade 100**



**Lifting Products  
Grade 80**



**Lifting Products  
Offshore**



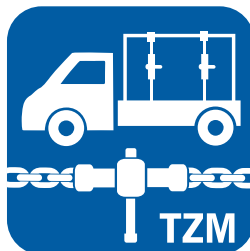
**Lifting Points**



**Hoist Chains**



**Load Lifting Equipment**



**Lashing Products**



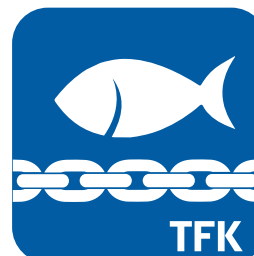
**Poultry Chains**



**Farming Chains**



**Chain Sprockets**



**Fishing Chains**



**Inspection Service**



**Engineering**





KWS

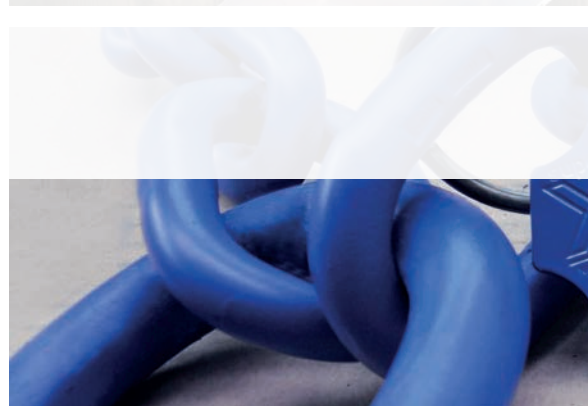


THIELE®



THIELE  
LIFTING PRODUCTS

Grade 100



TA10



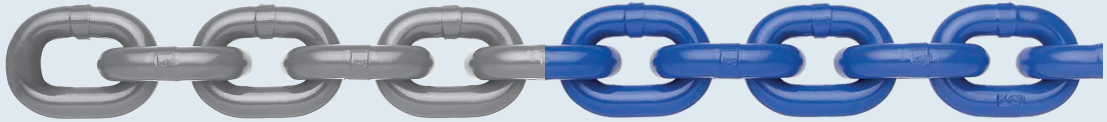


## Product Overview - Lifting Products Grade 100

Page  
24

### Round Steel Chains

TWN 0072A (XL200)



Pages  
25-31

### Suspension Components

TWN 1795



TWN 1803



TWN 1804



TWN 1817



TWN 1821



TWN 1822



TWN 1823



TWN 1810/1



TWN 1810/2



TWN 1810/4



TWN 1819



Pages  
31-32

### Connectors

TWN 1820




TWN 1847





## Product Overview - Lifting Products Grade 100

Pages 32-36	Hooks				
	TWN 1836	TWN 1837	TWN 1838	TWN 1840/1	TWN 1841/1
					
	TWN 1856	TWN 1899	TWN 1869	TWN 0869/1	
					

Pages 37-39	Shortening Components				
	TWN 1827	TWN 1827/1	TWN 1851/1	TWN 1852	TWN 1896
					

Page 39	Shackles				
	TWN 1871				
					

Page 40	Chain Tensioners				
	TWN 1454	TWN 1455			
					





## Product Overview - Lifting Products Grade 100

Pages  
40-41

### Special Sling Components

TWN 1812



TWN 1846



Page  
41

### Lashing Chains

TWN 1410



TWN 1411



Pages  
42-46

### Spare Parts and Accessories

TWN 0944



TWN 0945



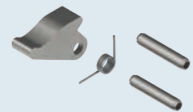
TWN 0968



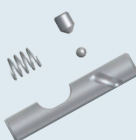
TWN 0969



TWN 0970



TWN 0971



TWN 1402



TWN 1904/0



TWN 1908/0



TWN 1921



TWN 1922



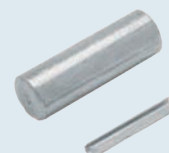
TWN 1930/0



TWN 1931/0



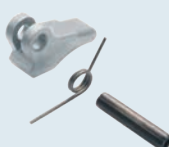
TWN 1933/0



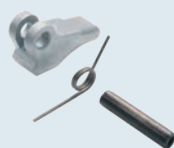
TWN 1933/0A



TWN 1935



TWN 1935A



TWN 1940A



TWN 1946









TWN 1950



# Product Overview - Lifting Products Grade 100

Pages 47-48	Chain Slings		
	TWN 1601 1-leg	TWN 1651 2-legs	TWN 1751 4-legs
			

Page 49	Shortening Options		
			

Page 50	Endless Chains		
	Form K11	Form K12	Form K22
			





## Comparison between Grade 80 and Grade 100

Up to 35 % weight reduction on a 2-leg Grade 100 chain sling compared to equivalent Grade 80 chain sling.



Article	THIELE Plant Standard	Pieces
Master Link	TWN 1803	1
XL-LOK	TWN 1820	2
6.5 ft. Round Steel Link Chain	TWN 0072	2
Clevis Sling Hook	TWN 1840/1	2

Working Load Limit [lbs]	TA8 Weight [lbs]	TA10 Weight [lbs]	Weight reduction [%]
9,900	20.5	14.3	-30
15,200	36.4	23.4	-35
26,000	59.0	40.7	-31

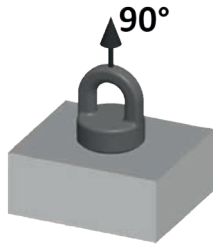
Properties	Grade	TA8	TA10 - XL200
Working Load Limit (WLL)			app. 25 % higher than Grade 80
Safety Factor		4	4
Elongation at break (completed finish)		min. 20 %	min. 20 %
Weight			reduced up to 35 %
Nominal Breaking Stress		800 N/mm <sup>2</sup>	1000 N/mm <sup>2</sup>
Component Strength		1150-1250 MPa <sup>1)</sup>	1450-1650 MPa <sup>1)</sup>
Temperature Application Range		-40 °F – 400 °F (-40 °C – 205 °C) = 100 % <sup>2)</sup> 400 °F – 572 °F (205 °C – 300 °C) = 90 % <sup>2)</sup> 572 °F – 752 °F (300 °C – 400 °C) = 75 % <sup>2)</sup>	-40 °F – 400 °F (-40 °C – 205 °C) = 100 % <sup>2)</sup>
Acids and Lyes		not permitted	not permitted
Compatibility with other systems		permitted	restricted
Colour Round Steel Link Chains (AQUA lacquer)		Black (RAL 9005)	Grey (RAL 7011) for sizes up to 5/82" and Blue (RAL 5002) for sizes 3/4" and bigger
Colour Components		Red powder coated (RAL 3003)	Ultramarine Blue powder coated (RAL 5002)
Standards		ASTM A391/ A391M, DIN EN 818, DIN EN 1677	ASTM A973/ A937M
Wear Resistance		standard	increased

<sup>1)</sup> Reference value

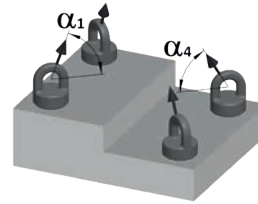
<sup>2)</sup> Related to Working Load Limit

## Selection criteria for chain slings

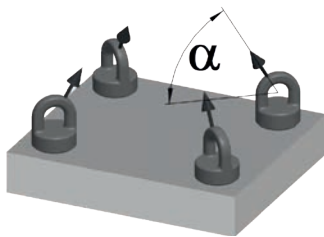
1. Determine the weight of the load to be lifted.



5. Consider that asymmetry may influence the load factor.



2. Determine number of chain-legs required (depending on the number of available lifting points).



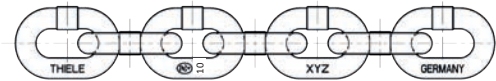
6. Specify the sling using components for the selected chain trade size.



3. Determine the trade size by taking the inclination angle into consideration (see table 1 and table 2 on page 22 and table 3 on page 23).



7. Determine the chain length for each strand by considering the required effective reaches.



4. Consider possible temperature impacts (see load reductions on page 27).



8. Control selected components and/or chain slings to ensure that they meet applicable safety laws and regulations (e.g. DGUV).



### Keep in Mind:

Please also consider special conditions of use, such as intermittent impacts on loads when selecting the grade 100 chain slings. If the chain slings were used above the maximum admissible temperature, they have to be immediately rejected. The THIELE-assembly systems must not be used with chemical influences such as acids and/or lyes.

THIELE-chain slings fulfill the requirements of the EC-Machinery Directive, represented by the EN 818-4, as well as the requirements of the ASTM A906/A906M-02.





## Chain Inspection Gauges

### Check of diameter



### TWN 1946

The THIELE chain measuring gauges TWN 1946 are used for the dimensional assessment of the state of wear and elongation of grade 100 round steel chains XL400 and XL200. It helps the user to inspect the round steel chains to ensure that they meet the requirements regarding to diameter, elongation and pitch tolerance.

### Check of pitch



### Check of permanent elongation



**KWS****THIELE®**

## Liability, Assembly, Material and Safety Information



The DGUV-approved round steel chains **XL400** are stamped with »10«, »XL400«, »Germany« and traceability code.

Round steel chains **XL200** are stamped with »T3-10«, »XL200«, »Germany« and traceability code.

### Liability

THIELE does not take over liability of Grade 100 slings being combined with products from other manufacturers.

### Assembly

The combination of different grades when mounting chain slings is prohibited.

Grade 100 round steel chains are only allowed to be assembled to original Grade 100 Components of the corresponding trade size.

Only original THIELE spare parts may be used when making repairs.

### Material

For the production of Grade 100 products, only alloy steels according to DIN 17115 are used.

### Safety Information

Our products are to be used only according to the prescribed guidelines.

Incorrect use, overload or damage can lead to injury or death! Installation and operation of chain slings only permitted by trained and skilled personnel. Before commissioning slings, please pay attention to the mounting and operating instructions. They may be found on our website [www.kwschain.com](http://www.kwschain.com).



*Operating and  
mounting  
instructions*

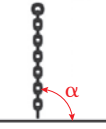
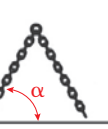
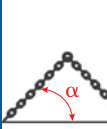
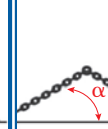
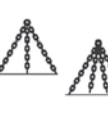
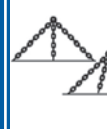
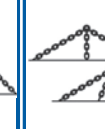
**TA10**





# Load Reduction Factors and Working Load Limit Tables

## Working Load Limit\* – Type: Direct Lift (Chain Slings)


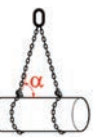

		1-Leg	2-Leg				3- and 4-Legs		
									
Inclination Angle		$\alpha = 90^\circ$	$60^\circ \leq \alpha \leq 75^\circ$	$45^\circ \leq \alpha \leq 60^\circ$	$30^\circ \leq \alpha \leq 45^\circ$	$60^\circ \leq \alpha \leq 75^\circ$	$45^\circ \leq \alpha \leq 60^\circ$	$30^\circ \leq \alpha \leq 45^\circ$	
Trade Size	Nominal Size [inch]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	
6-10	1/4	3,100	5,400	4,400	3,100	8,000	6,600	4,600	
7-10	9/32	4,300	7,400	6,100	4,300	11,200	9,100	6,400	
8-10	5/16	5,700	9,900	8,100	5,700	14,800	12,100	8,500	
10-10	3/8	8,800	15,200	12,400	8,800	22,900	18,700	13,200	
13-10	1/2	15,000	26,000	21,200	15,000	39,000	31,800	22,500	
16-10	5/8	22,600	39,100	32,000	22,600	58,700	47,900	33,900	
18-10	11/16	27,600	47,800	39,000	27,600	71,700	58,500	41,400	
20-10	3/4	35,300	61,100	49,900	35,300	91,700	74,900	53,000	
22-10	7/8	42,700	74,000	60,400	42,700	110,900	90,600	64,000	
26-10	1	59,700	103,400	84,400	59,700	155,100	126,600	89,500	
32-10	1-1/4	90,400	156,600	127,600	90,400	234,800	191,700	135,600	

THIELE chain slings are available in mounted and welded execution.

Table 1

\*WLL acc. to ASTM

## Working Load Limit\* – Type: Choke Hitch (Chain Slings)

		1-Leg	2-Legs				3-/4-Legs		
									
Inclination Angle		$\alpha = 90^\circ$	$60^\circ \leq \alpha < 90^\circ$	$45^\circ \leq \alpha < 60^\circ$	$30^\circ \leq \alpha < 45^\circ$	$60^\circ \leq \alpha < 90^\circ$	$45^\circ \leq \alpha < 60^\circ$	$30^\circ \leq \alpha < 45^\circ$	
Trade Size	Nominal Size [inch]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	
6-10	1/4	2,500	4,300	3,500	2,500	6,400	5,300	3,700	
7-10	9/32	3,400	6,000	4,900	3,400	8,900	7,300	5,100	
8-10	5/16	4,600	7,900	6,400	4,600	11,800	9,700	6,800	
10-10	3/8	7,000	12,200	10,000	7,000	18,300	14,900	10,500	
13-10	1/2	12,000	20,800	17,000	12,000	31,200	25,500	18,000	
16-10	5/8	18,100	31,300	25,600	18,100	47,000	38,300	27,100	
18-10	11/16	22,100	38,200	31,200	22,100	57,400	46,800	33,100	
20-10	3/4	28,200	48,900	39,900	28,200	73,400	59,900	42,300	
22-10	7/8	34,200	59,200	48,300	34,200	88,700	72,500	51,200	
26-10	1	47,800	82,700	67,500	47,800	124,100	101,300	71,600	
32-10	1-1/4	72,300	125,300	102,300	72,300	183,300	149,700	108,400	

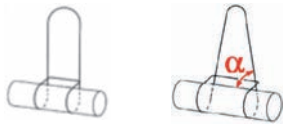
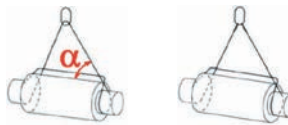
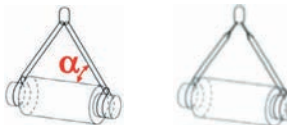
THIELE chain slings are available in mounted and welded execution.

Table 2

\*WLL acc. to ASTM

## Working Load Limit Tables

### Working Load Limit\* – Type: Choke Hitch (Endless Chains)

		K11		K12/K13		K22/K23	
							
Inclination Angle		$\alpha = 90^\circ$	$60^\circ \leq \alpha \leq 90^\circ$	$45^\circ \leq \alpha \leq 90^\circ$	$30^\circ \leq \alpha \leq 45^\circ$	$45^\circ \leq \alpha \leq 90^\circ$	$30^\circ \leq \alpha \leq 45^\circ$
Trade Size	Nominal Size [inch]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]
6-10	1/4	5,000	4,500	3,500	2,500	5,300	3,700
7-10	9/32	6,800	6,200	4,900	3,400	7,300	5,200
8-10	5/16	9,200	8,300	6,400	4,600	9,700	6,800
10-10	3/8	14,000	12,800	10,000	7,000	14,900	10,600
13-10	1/2	24,000	21,700	17,000	12,000	25,500	18,000
16-10	5/8	36,200	32,800	25,600	18,100	38,300	27,100
18-10	11/16	44,200	40,000	31,200	22,100	46,800	33,100
20-10	3/4	56,400	51,200	39,900	28,200	59,900	42,400
22-10	7/8	68,400	61,900	48,300	34,200	72,500	51,200
26-10	1	95,600	86,600	67,500	47,800	101,300	71,600
32-10	1-1/4	144,600	131,000	102,200	72,300	153,400	108,400

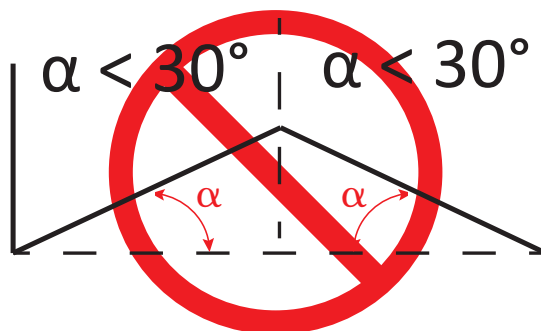
THIELE chain slings are available in mounted and welded execution.

Table 3

\*WLL acc. to ASTM

### Inclination Angle

Inclination angles less than  $30^\circ$  are prohibited



### Temperature Application Range of Lifting Chains XL200 Grade 100

Temperature Application Range	Working Load Limit
-40 °F to 400 °F (-40 °C to 205 °C)	100 %



# Lifting Chains XL200

## TWN 0072A

## Lifting Chains XL200

Grade 100 lifting chains XL200 TWN 0072A are made from CrNiMo alloyed steel and are used to assemble chain slings and lashing chains. The max. application temperature is 205 °C. The testing requirements for these high-quality lifting chains are based on DIN EN 818 and ASTM 973.

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TWN 0072A - XL200



Trade Size	Article-No.	Working Load Limit [lbs]	Nominal Size d <sub>n</sub> [inch]	Pitch p <sub>n</sub> [inch]	Inside Width w <sub>1</sub> min. [inch]	Outside Width w <sub>2</sub> max. [inch]	Weight app. [lbs/ft]
1/4"	F01616A	12,700	0.24	0.71	0.33	0.87	0.54
9/32"	F01621A	17,200	0.28	0.83	0.38	1.02	0.74
5/16"	F01617A	22,800	0.31	0.94	0.44	1.17	1.01
3/8"	F01618A	35,200	0.39	1.18	0.53	1.46	1.55
1/2"	F01619A	60,000	0.51	1.54	0.71	1.89	2.62
5/8"	F01620A	90,400	0.63	1.89	0.84	2.33	3.90
3/4"	F01638A	35,300	0.79	2.36	1.06	2.91	6.66
7/8"	F01650A	42,700	0.87	2.60	1.16	3.20	8.07
1"	F01660A	59,700	1.02	3.07	1.37	3.79	11.22
1-1/4"	F01670A	90,400	1.26	3.78	1.69	4.66	17.54

TWN 0072A sim. to ASTM 973

Elongation at break, self colored: min. 25%;

other surface finishes min. 20%.

Factor: Load- to Proof- to Breaking Stress 4 : 2 : 1

Finish: Grey, RAL 7011 or Blue, RAL 5002

### Standard lengths

Trade Size	1/4"	9/32"	5/16"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1-1/4"
Standard lengths [ft.]	800	800	500	400	200	150	100	100	50/100	50/100
Weight/ lengths app. [lbs.]	440	590	500	620	525	585	665	808	560/1.120	875/1.750

## Characteristics of Lifting Chains XL200 Grade 100

Properties	Chain Type	XL200
Standard		ASTM 973
Material		Alloy steel
Temperature Application Range		-40 °F - 400 °F (-40 °C - 205 °C)
Working Load Limit (WLL)		25 % higher than Grade 80
Manufacturers Proof Force (MPF)		min. 2 x WLL
Breaking Force (BF)		min. 4 x WLL
Elongation at break		min. 20 %
Charpy Notch Value		min. 36 J at -30 °C, min. 27 J at -40 °C
Deflection		min. 0,8 x d
Fatigue		No requirement
Material properties (stress corrosion)		No requirement
Finish		Galvanizing not permitted
Colour (solvent-free)		Grey (RAL 7011) for sizes up to 5/8" and Blue (RAL 5002) for sizes 3/4" and bigger
Marking		XL200; T3-10, Germany, ID-Code
Certification		THIELE
Market compliance		ASME, MD / EAC



## Suspension Components

### Oblong Master Link Form A for 1- and 2-leg Chain Slings

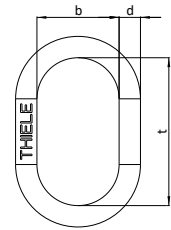
The oblong Master Link Form A TWN 1803 are designed to use for single- and double-leg Grade 100 Lifting chains acc. to ASTM A906/A906 M-02. The dimensions comply with DIN 5688-3. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 working load limits. The links are coated with the color RAL 5002 (blue). Master Links are also available with welded handles.

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Article-No.	Working Load Limit SF 5:1* [lbs]	Working Load Limit SF 4:1* [lbs]	Dimensions [inch]			Weight app. [lbs]	Tradesize for use in Chain Slings	
			d	t	b		1-Leg	2-Legs
F1803013	5,800	7,300	0.51	3.54	1.97	0.64	1/4 - 9/32	1/4
F1803016	9,000	11,300	0.63	4.33	2.36	1.18	5/16	9/32
F1803018	11,000	13,800	0.71	5.12	2.76	1.75	3/8	5/16
F1803020	13,200	16,600	0.79	5.51	3.15	2.36	-	-
F1803022	15,700	19,600	0.87	6.30	3.54	3.24	1/2	3/8
F1803026	23,300	29,100	1.02	7.09	3.94	5.11	5/8	1/2
F1803032	34,700	43,400	1.26	9.06	4.92	9.79	3/4	-
F1803036	44,100	55,200	1.42	9.84	5.51	13.60	7/8	5/8
F1803040	53,000	66,200	1.57	11.42	6.30	19.30	-	-
F1803045	69,000	86,200	1.77	12.60	6.89	27.00	1	3/4 - 7/8
F1803050	87,100	109,000	1.97	13.39	7.48	35.80	1-1/4	-
F1803056	111,000	138,000	2.20	14.96	8.27	50.10	-	1
F1803063	138,000	172,000	2.48	16.93	9.45	71.90	-	-
F1803070	175,000	218,000	2.76	18.50	10.24	97.00	-	1-1/4

\*considering a sling angle of  $\alpha = 60^\circ$

### TWN 1803



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### Master Link Assemblies for 3- and 4-leg Chain Slings

Master Link Assembly TWN 1804 are designed to use for 3- and 4-leg Grade 100 Lifting chains acc. to ASTM A906/A906 M-02. The dimensions comply with DIN 5688-3. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 working load limits. The links are coated with the color RAL 5002 (blue). Master Links are also available with welded handles.

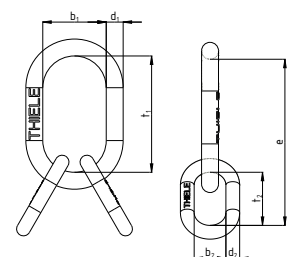
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Article-No.	Working Load Limit SF 4:1* [lbs.]	Dimensions [inch]							Weight app. [lbs.]	Trade Size for use in Chain Slings
		e	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>		
F1804016	9,700	6.69	0.63	4.33	2.36	0.51	2.36	1.18	2.08	1/4
F1804018	11,900	7.48	0.71	5.12	2.76	0.51	2.36	1.18	2.65	9/32
F1804020	14,900	8.27	0.79	5.51	3.15	0.63	2.76	1.38	3.96	5/16
F1804026	25,100	10.63	1.02	7.09	3.94	0.79	3.54	1.77	8.31	3/8
F1804032	38,900	13.78	1.26	9.06	4.92	1.02	4.72	2.36	16.97	1/2
F1804040	58,800	16.54	1.57	11.42	8.30	1.10	5.12	2.56	28.30	5/8
F1804050	94,100	19.69	1.97	13.39	7.48	1.42	6.3	3.15	54.28	3/4
F1804056	111,000	22.05	2.20	14.96	8.27	1.57	7.09	3.54	75.70	7/8
F1804063	155,000	24.80	2.48	16.93	9.45	1.77	7.87	3.94	79.30	1
F1804080	244,000	29.13	3.15	20.47	11.42	1.97	8.66	4.33	190.25	1-1/4

\*considering a sling angle of  $\alpha = 60^\circ$

### TWN 1804





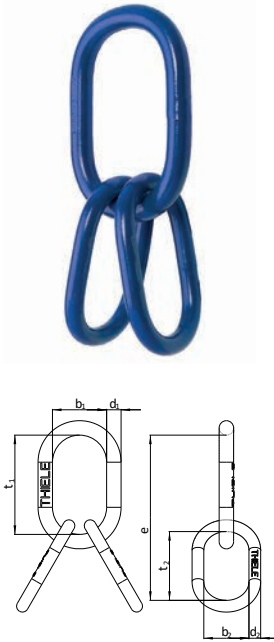
## Suspension Components

### TWN 1817

### Master Link Assemblies for 3- and 4-leg Rope Slings NEW

The Grade 100 master link assemblies TWN 1817 are used to assemble 3- and 4-leg wire rope slings. The extra large intermediate links enable an easy assembly of wire rope slings. The dimensions comply with DIN 5688-3. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 working load limits.

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Article-No.	Working Load Limit SF 4:1*	Working Load Limit SF 5:1*	Dimensions [inch]							Classification of the Wire Rope Diameter**		Weight app. [lbs.]
			d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	e	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>	Fiber [inch]	Steel [inch]	
F1817016	10,800	8,600	0.63	4.33	2.36	7.87	0.51	3.54	1.97	0.47	0.43	2.45
F1817018	13,700	11,000	0.71	5.12	2.76	9.45	0.63	4.33	2.36	0.55	0.55	4.08
F1817022	19,400	15,700	0.87	6.30	3.54	11.43	0.71	5.12	2.76	0.63	0.63	6.79
F1817026	28,900	23,100	1.02	7.09	3.94	13.42	0.87	6.30	3.54	0.79	0.71	11.68
F1817032	43,200	34,600	1.26	9.06	4.92	16.15	1.02	7.09	3.94	0.94	0.87	19.84
F1817036	55,100	44,100	1.42	9.84	5.51	18.90	1.26	9.06	4.92	1.10	1.10	33.07
F1817045	82,700	66,100	1.77	12.60	6.89	22.44	1.42	9.84	5.51	1.25	1.25	53.79
F1817050	109,000	87,100	1.97	13.39	7.48	25.99	1.77	12.60	6.89	1.57	1.57	88.18
F1817056	138,000	111,000	2.20	14.96	8.27	28.35	1.97	13.39	7.48	1.73	1.73	121.25
F1817063	172,000	138,000	2.48	16.93	9.45	31.89	2.20	14.96	8.27	2.05	1.89	174.17
F1817085	351,000	280,000	3.35	20.47	11.42	40.94	3.15	20.47	11.42	2.36	2.36	443.13

\*considering a sling angle of  $\alpha = 60^\circ$  \*\*Acc. to the DIN EN 13414-1 for 3- and 4-leg slings



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## Suspension Components

### Oversized Master Link Assemblies for 1-leg Chain Slings for Single Crane Hooks DIN 15401 (16 t, 25 t, 40 t) **NEW**

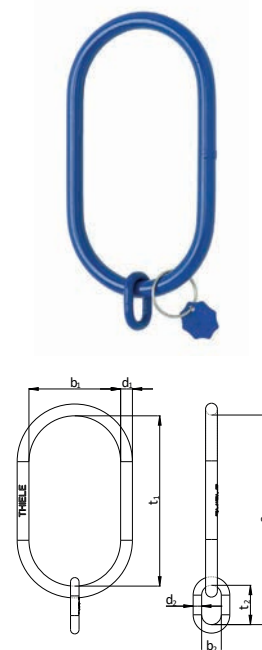
The Grade 100 oversized master link assemblies TWN 1821 are used to assemble 1-leg chain slings and are used with big crane hooks according to DIN 15401. The dimensions comply with DIN 5688-3. The intermediate links enable the use of connecting links, e.g. XL-LOKS TWN1820. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 working load limits.

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Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]							Crane Hooks acc. DIN 15401	Weight app. [lbs]
			e	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>		
1/4"	F18210616	6,900	12.60	0.71	10.24	5.51	0.51	2.36	1.18	16	3.68
1/4"	F18210625	7,400	15.75	0.79	13.39	7.09	0.51	2.36	1.18	25	5.60
1/4"	F18210640	8,000	19.29	0.87	16.93	8.66	0.51	2.36	1.18	40	8.21
5/16"	F18210816	12,600	12.99	0.87	10.24	5.51	0.63	2.76	1.38	16	5.73
5/16"	F18210825	7,400	15.75	0.79	13.39	7.09	0.51	2.36	1.18	25	5.60
5/16"	F18210840	8,000	19.29	0.87	16.93	8.66	0.51	2.36	1.18	40	8.21
3/8"	F18211016	12,600	12.99	0.87	10.24	5.51	0.63	2.76	1.38	16	5.73
3/8"	F18211025	12,700	16.14	0.94	13.39	7.09	0.63	2.76	1.38	25	8.32
3/8"	F18211040	13,200	19.69	1.02	16.93	8.66	0.63	2.76	1.38	40	11.76
1/2"*	F18211316*	20,800	10.24	1.02	10.24	5.51	-	-	-	16	7.00
1/2"	F18211325	19,400	16.14	1.10	16.93	7.09	0.63	2.76	1.38	25	11.17
1/2"	F18211340	19,400	19.69	1.18	16.93	8.66	0.63	2.76	1.38	40	15.55
5/8"*	F18211616*	31,900	10.24	1.18	10.24	5.51	-	-	-	16	9.47
5/8"	F18211625	29,400	16.93	1.26	13.39	7.09	0.79	3.54	1.77	25	15.32
5/8"	F18211640	29,400	20.47	1.34	16.93	8.66	0.79	3.54	1.77	40	20.74
11/16"	F18211816	48,500	14.57	1.42	9.84	5.51	1.02	4.72	2.36	16	17.20
11/16"	F18211825	35,300	17.32	1.57	13.39	7.09	0.87	3.94	1.97	25	24.14
11/16"	F18211840	35,300	20.87	1.65	16.93	8.66	0.87	3.94	1.97	40	31.95
3/4"*	F18212025*	58,900	13.39	1.57	13.39	7.09	-	-	-	25	21.99
3/4"*	F18212040*	55,700	16.93	1.65	16.93	8.66	-	-	-	40	29.81
7/8"*	F18212225*	58,900	13.39	1.57	13.39	7.09	-	-	-	25	21.99
7/8"*	F18212240*	55,700	16.93	1.65	16.93	8.66	-	-	-	40	29.81

\*This link is delivered without sub-link

#### TWN 1821


  
TA10

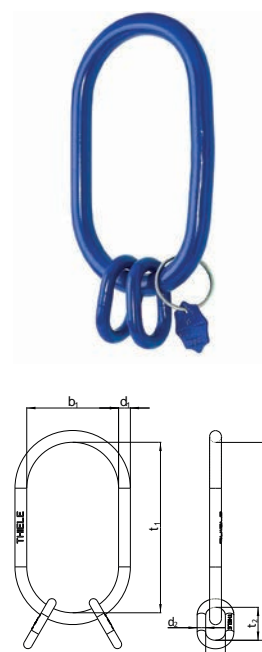
### Oversized Master Link Assemblies for 2-leg Chain Slings **NEW** for Single Crane Hook DIN 15401 (16 t, 25 t)

The Grade 100 oversized master link assemblies TWN 1822 are used to assemble 2-leg chain slings and are used with big crane hooks according to DIN 15401. The dimensions comply with DIN 5688-3. The intermediate links enable the use of connecting links, e.g. XL-LOKS TWN 1820. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 working load limits.

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Trade Size	Article-No.	Working Load Limit 60° ≤ α < 75° [lbs]	Dimensions [inch]							Crane Hooks acc. DIN 15401	Weight app. [lbs]
			e	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>		
5/16"	F18220816	10,800	12.99	0.87	10.24	5.51	0.63	2.76	1.38	16	6.53
5/16"	F18220825	10,800	16.14	0.94	13.39	7.09	0.63	2.76	1.38	25	9.13
3/8"	F18221025	17,400	16.14	1.12	13.39	7.09	0.63	2.76	1.38	25	11.98
1/2"	F18221325	26,000	16.93	1.26	13.39	7.09	0.79	3.54	1.77	25	16.92
5/8"	F18221625	50,900	17.32	1.57	13.39	7.09	0.87	3.94	1.97	25	26.28
3/4"	F18222025	72,500	18.90	1.77	13.39	7.09	1.26	5.51	2.76	25	41.08

#### TWN 1822





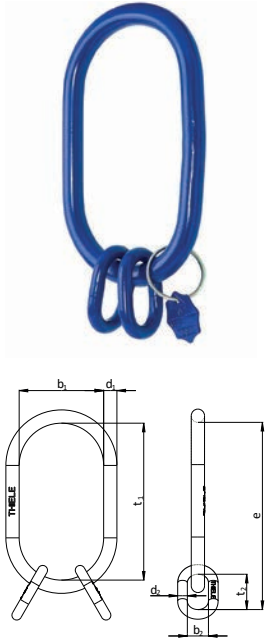
## TWN 1823

## Oversized Master Link Assemblies for 3- and 4-leg Chain Slings for Single Crane Hooks DIN 15401 (16 t, 25 t, 40 t) NEW

The Grade 100 oversized master link assemblies TWN 1823 are used to assemble 2-leg chain slings and are used with big crane hooks according to DIN 15401. The dimensions comply with DIN 5688-3. The intermediate links enable the use of connecting links, e.g. XL-LOKS TWN 1820. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 load capacities.

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Trade Size	Article-No.	Working Load Limit 60°≤ α ≤ 75° [lbs]	Dimensions [inch]							Crane Hooks acc. DIN 15401	Weight app. [lbs]
			e	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>		
1/4"	F18230616	10,800	12.60	0.87	10.24	5.51	0.51	2.36	1.18	16	5.82
1/4"	F18230625	10,800	15.75	0.94	13.39	7.09	0.51	2.36	1.18	25	8.42
1/4"	F18230640	11,500	19.29	1.02	16.93	8.66	0.51	2.36	1.18	40	11.86
5/16"	F18230816	17,900	12.99	1.02	10.24	5.51	0.63	2.76	1.38	16	8.60
5/16"	F18230825	17,400	16.14	1.10	13.39	7.09	0.63	2.76	1.38	25	11.97
5/16"	F18230840	17,400	19.69	1.18	16.93	8.66	0.63	2.76	1.38	40	16.36
3/8"	F18231016	27,600	13.78	1.18	10.24	5.51	0.79	3.54	1.77	16	12.68
3/8"	F18231025	26,000	16.93	1.26	13.39	7.09	0.79	3.54	1.77	25	16.93
3/8"	F18231040	25,600	20.47	1.34	16.93	8.66	0.79	3.54	1.77	40	22.34
1/2"	F18231316	47,600	14.57	1.42	9.84	5.51	1.02	4.72	2.36	16	20.79
1/2"	F18231325	45,600	17.32	1.57	13.39	7.09	0.87	3.94	1.97	25	26.28
1/2"	F18231340	45,600	20.87	1.65	16.93	8.66	0.87	3.94	1.97	40	34.10
5/8"	F18231616	62,800	14.57	1.42	9.84	5.51	1.02	4.72	2.36	16	24.25
5/8"	F18231625	58,900	18.11	1.57	13.39	7.09	1.02	4.72	2.36	25	31.75
5/8"	F18231640	59,300	21.65	1.65	16.93	8.66	1.02	4.72	2.36	40	41.65
11/16"	F18231840	81,400	22.44	1.89	16.93	8.66	1.26	5.51	2.76	40	71.27
3/4"	F18232025	108,000	23.23	2.17	16.93	8.66	1.42	6.30	3.15	25	55.91
7/8"	F18232240	115,000	23.23	2.17	16.93	8.66	1.42	6.30	3.15	40	73.34



## Suspension Components

### Intermediate Links Type B

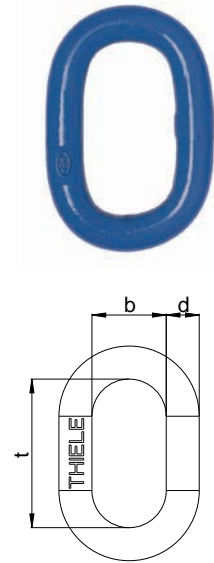
The Grade 100 intermediate links TWN 1795 are used to assemble chain slings. The dimensions are according to DIN 5688-3 and enable the use of connecting links, e.g. XL-LOKS TWN 1820. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 working load limits.

**SAFETY**  
4 : 1

**DGUV**  
ZERT

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]			Weight app. [lbs]
			d	t	b	
B8	F179508	3.100	0.31	1.42	0.71	0.11
B10	F179510	5.700	0.39	1.81	0.91	0.20
B13	F179513	8.800	0.51	2.36	1.18	0.44
B16	F179516	15.000	0.63	2.76	1.38	0.79
B20	F179520	22.600	0.79	3.54	1.77	1.61
B22	F179522	27.600	0.87	3.94	1.97	2.14
B26	F179526	35.300	1.02	4.72	2.36	3.53
B28	F179528	42.700	1.10	5.12	2.56	4.19
B32	F179532	59.700	1.26	5.51	2.76	6.39
B36	F179536	69.400	1.42	6.30	3.15	9.26
B40	F179540	88.200	1.57	7.09	3.54	12.79
B45	F179545	110.200	1.77	7.87	3.94	18.08

### TWN 1795



TA10

### Fixed Size Master Links TAA1 for 1-leg Chain Slings

The Grade 100 fixed size master links TWN 1810/1 are used to assemble 1-leg chain slings. The permanently installed ring shackles enable the assembly of lifting chains of the appropriate nominal size only. The dimensions of the fixed size master links type A comply with DIN 5688-3. Welded-in identification tags contain all the necessary data for the operator. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 working load limits.

**SAFETY**  
4 : 1

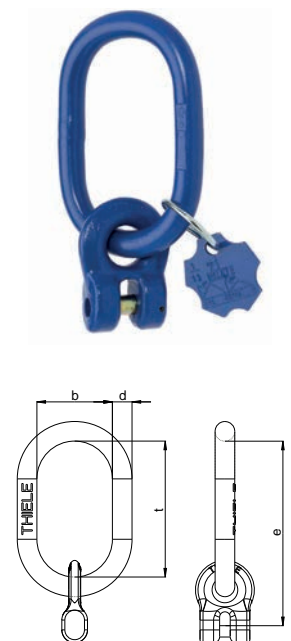
**DGUV**  
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**100 %**  


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			d	t	b	e	
1/4"	F1810106	3,100	0.51	3.54	1.97	4.76	0.88
5/16"	F1810108	5,700	0.63	4.33	2.36	5.79	1.57
3/8"	F1810110	8,800	0.71	5.12	2.76	6.93	2.65
1/2"	F1810113	15,000	0.87	6.30	3.54	8.62	5.14
5/8"	F1810116	22,600	1.02	7.09	3.94	10.08	8.60
7/8"*	<b>NEW</b> F1810122	42,700	1.42	9.84	5.51	13.78	22.27

\*On request

### TWN 1810/1



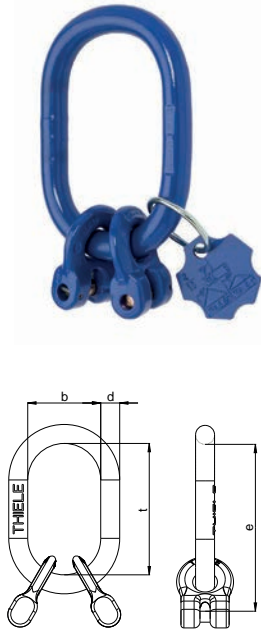


## Suspension Components

### TWN 1810/2

#### Fixed-Size Master Links TAA2 for 2-leg Chain Slings

The Grade 100 fixed size master links TWN 1810/2 are used to assemble 2-leg chain slings. The permanently installed ring shackles allow the assembly of lifting chains of the appropriate nominal size only. The dimensions of the fixed size master links type A comply with DIN 5688-3. Welded-in identification tags contain all the necessary data for the operator. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 working load limits.



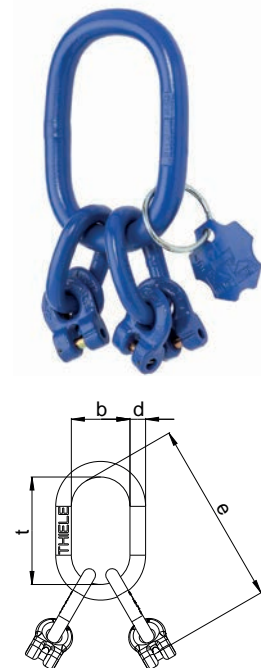
Trade Size	Article-No.	Working Load Limit $\alpha = 60^\circ$ [lbs]	Dimensions [inch]				Weight app. [lbs]
			d	t	b	e	
1/4"	F1810206	3,100	0.51	3.54	1.97	4.76	1.10
5/16"	F1810208	5,700	0.71	5.12	2.76	6.57	2.65
3/8"	F1810210	8,800	0.79	5.51	3.15	7.32	4.19
1/2"	F1810213	15,000	1.02	7.09	3.94	9.41	8.82
5/8"	F1810216	22,600	1.26	9.06	4.92	11.65	16.76
7/8"*	<b>NEW</b> F1810222	42,700	1.77	12.60	6.89	16.54	43.65

\*On request

### TWN 1810/4

#### Fixed-Size Master Links TAA4 for 3- and 4-leg Chain Slings

The Grade 100 fixed size master links TWN 1810/4 are used to assemble 3- and 4-leg chain slings. The permanently installed ring shackles allow the assembly of lifting chains of the appropriate nominal size only. The dimensions of the fixed size master links type A comply with DIN 5688-3. Welded-in identification tags contain all the necessary data for the operator. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit $60^\circ \leq \alpha < 75^\circ$ [lbs]	Dimensions [inch]				Weight app. [lbs]
			d	t	b	e	
1/4"	F1810406	8,000	0.63	4.33	2.36	7.91	3.09
5/16"	F1810408	14,800	0.79	5.51	3.15	9.72	5.95
3/8"	F1810410	22,900	1.02	7.09	3.94	12.44	11.90
1/2"	F1810413	39,000	1.26	9.06	4.92	16.10	24.69
5/8"	F1810416	58,700	1.57	11.42	6.30	19.49	42.77
7/8"*	<b>NEW</b> F1810422	110,900	1.97	13.39	7.48	24.41	95.24

\*On request



## Suspension Components/ Connectors

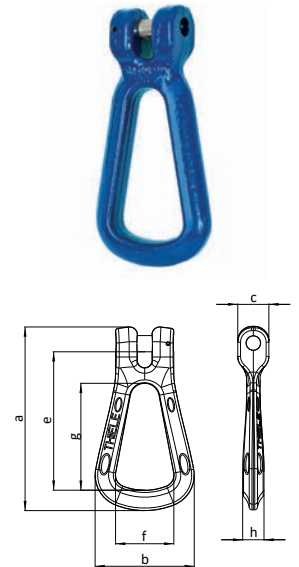
### Clevis Master Links

The Grade 100 clevis master links TWN 1819 are predominantly used to assemble basket slings for bundling of loads. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]							Weight app. [lbs]
			a	b	c	e	f	g	h	
1/2"	F31025	15,000	7.44	4.02	1.26	5.61	2.36	4.33	0.87	2.45

### TWN 1819



## Connectors

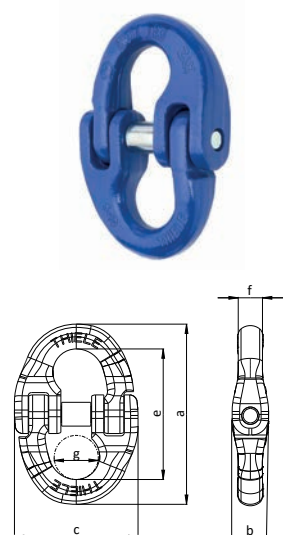
### XL-LOK Connecting Links

The Grade 100 XL-LOK connecting links TWN 1820 are used to connect lifting chains with sling components to assemble chain slings and lashing chains. The manufacturing and testing requirements are based on the ASTM A952/A952M, ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			a	b	c	e	f	g	
1/4"	F30807	3,100	2.40	0.47	1.52	1.77	0.31	0.55	0.15
9/32"	<div>NEW</div> F308090	4,300	2.80	0.55	1.85	1.99	0.35	0.63	0.31
5/16"	F30817	5,700	3.35	0.63	2.17	2.44	0.39	0.75	0.44
3/8"	F30827	8,800	3.82	0.71	2.62	2.83	0.51	0.94	0.77
1/2"	F30837	15,000	4.92	0.91	3.25	3.43	0.67	1.10	1.63
5/8"	F30847	22,600	5.75	1.24	4.29	4.13	0.83	1.34	2.65
3/4"	<div>NEW</div> F308570	35,300	7.03	1.46	5.65	5.02	0.98	1.77	6.17
7/8"	<div>NEW</div> F308670	42,700	7.74	1.59	5.93	5.53	1.08	1.77	7.72
1"	<div>NEW</div> F308770	59,700	9.13	1.87	7.01	6.54	1.30	2.20	12.79
1-1/4"	<div>NEW</div> F308870	88,200	11.24	2.30	8.68	8.03	1.57	2.76	24.03

### TWN 1820



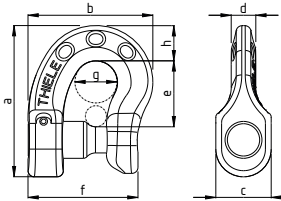


## Connectors/ Hooks

### TWN 1847

### Open Ring Shackles NEW

The innovative Grade 100 open ring shackles TWN 1847 are used as a fixed size connection of lifting chains with sling components to assemble chain slings. For the correct assignment of the nominal size of the suspension links, the ring shackles are provided with a diameter indication forged on the body. The ring shackles provide an optimized, almost non-interchangeable and safe connection option for the simple assembly of chain slings. The manufacturing and testing requirements are based on the ASTM A952/A952M, DIN EN 1677-1 and ISO 8539, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]								Weight app. [lbs]
			a	b	c	e	f	g	d	h	
1/4"*	F31705	3,100	-	-	-	-	-	-	-	-	0.55
5/16"*	F31715	5,700	-	-	-	-	-	-	-	-	0.66
3/8"	F31725	8,800	2.99	2.52	1.10	1.34	2.24	0.83	0.55	0.75	0.82
1/2"	F31735	15,000	3.90	3.23	1.42	1.69	2.83	1.06	0.63	0.91	1.70
5/8"*	F31745	22,600	-	-	-	-	-	-	-	-	2.20

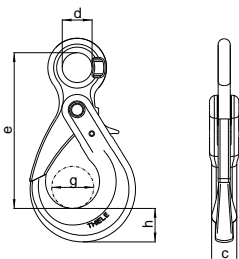
\*On request

## Hooks

### TWN 1836

### Eye Self-Locking Hooks NEW

The Grade 100 eye self-locking hooks TWN 1836 are used to assemble chain slings and are also used in the construction industry. The round steel chains may be assembled with connecting links, e.g. XL-LOKs TWN 1820. When the hooks are under load, they lock automatically. They may only be reopened manually, when the hooks are not under load anymore. The manufacturing and testing requirements comply with DIN EN 1677-3 under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]					Weight app. [lbs]
			d	e	c	g	h	
1/4"	F092003	3,100	0.87	4.21	0.71	1.10	0.87	1.15
9/32"-5/16"	F092103	5,700	0.94	5.24	0.91	1.30	0.98	1.94
3/8"	F092303	8,800	1.26	6.57	1.06	1.77	1.34	3.59
1/2"	F092403	15,000	1.54	8.07	1.34	2.05	1.57	7.05
5/8"	F092503	22,600	1.57	8.23	1.28	2.11	1.59	6.44
3/4"	F092603	35,300	1.93	10.31	1.69	2.52	2.09	13.96
7/8"	F092703	42,700	1.97	10.00	1.50	2.44	1.99	12.83

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## Hooks

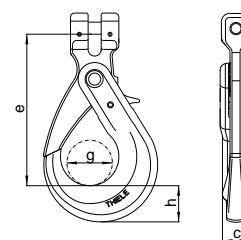
### Clevis Self-Locking Hooks **NEW**

The Grade 100 clevis self-locking hooks TWN 1837 are used to assemble chain slings and are often used in the construction industry. The clevis design enables the direct attachment to the chain legs. When the hooks are under load, they lock automatically. They may only be reopened manually when the hooks are not under load anymore. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1 and DIN 5692, under consideration of Grade 100 under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	c	g	h	
1/4"	F0920031	3,100	3.86	0.71	1.10	0.87	1.30
9/32"	F0920033	4,300	4.72	0.91	1.30	0.98	2.07
5/16"	F092013	5,700	4.72	0.91	1.30	0.98	2.07
3/8"	F092023	8,800	5.91	1.06	1.77	1.34	3.81
1/2"	F092033	15,000	7.28	1.34	2.05	1.57	7.36
5/8"	F092043	22,600	7.17	1.28	2.11	1.59	6.61
3/4"	F092053	35,300	8.66	1.69	2.52	2.09	14.51
7/8"	F092063	42,700	8.54	1.50	2.44	1.99	13.05

### TWN 1837

**TA10**

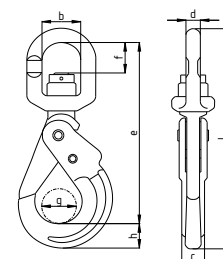
### Swivel Self-Locking Hooks **NEW**

The Grade 100 swivel self-locking hooks TWN 1838 are used to assemble chain- and wire rope- slings and are often used in the construction industry. The swivel with ball-bearing allows the operator to swivel the load under load. When the hooks are under load, they lock automatically. They may only be reopened manually when the hooks are not under load anymore. The self-locking hooks comply with the ASTM A952/A952M, DIN EN 1677-3 under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]								Weight app. [lbs]
			e	c	g	b	d	f	h	l	
1/4"	F0923003	3,100	4.72	0.65	1.10	1.18	0.41	0.73	0.98	7.09	1.32
5/16"	F092313	5,700	7.91	0.91	1.30	1.69	0.55	1.30	0.98	9.53	2.20
3/8"	F092323	8,800	9.45	1.06	1.77	1.93	0.63	1.50	1.34	11.38	4.41
1/2"	F092333	15,000	11.93	1.34	2.05	2.24	0.83	1.93	1.57	14.29	8.38
5/8"	F092343	22,600	13.39	1.69	2.52	2.36	0.91	1.93	2.09	16.14	15.43
3/4"	F092353	35,300	14.96	1.93	3.03	3.15	1.06	2.68	2.13	18.50	21.16
7/8"	F092363	42,700	18.54	2.24	3.62	3.90	1.30	3.90	2.91	22.56	28.66

### TWN 1838



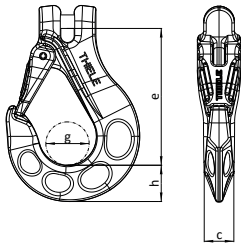




## TWN 1840/1

### Clevis Sling Hooks with Forged Safety Latch

The Grade 100 clevis sling hooks TWN 1840/1 with latch are used to assemble standard chain slings and lashing chains. The clevis design enables the direct attachment to the lifting chain. Forged-in measuring points of the max. limit values of the hook opening enables easy control. The forged heavy duty safety latch prevents an unintentional detachment from the load. The sling hooks comply with the ASTM A952/A952M, ISO 7597 and DIN EN 1677-2, under consideration of Grade 100 working load limits.

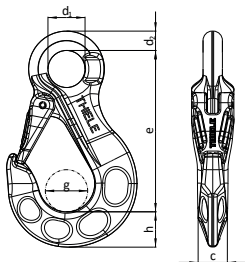


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	h	c	
1/4"	F336050	3,100	2.99	0.94	0.79	0.67	0.79
9/32"	<b>NEW</b> F336070	4,300	3.58	1.04	0.87	0.79	1.17
5/16"	F336150	5,700	3.70	1.18	0.98	0.87	1.68
3/8"	F336250	8,800	4.49	1.46	1.26	1.10	3.11
1/2"	F336350	15,000	5.28	1.65	1.61	1.38	5.47
5/8"	F336450	22,600	6.38	2.01	1.97	1.61	9.70
3/4"	<b>NEW</b> F336550	35,300	7.91	2.40	2.28	2.01	18.96
7/8"	<b>NEW</b> F33664	42,700	8.78	2.76	2.44	2.17	25.35

## TWN 1841/1

### Sling Hooks with Eye and Forged Safety Latch

The Grade 100 eye sling hooks TWN 1841/1 with latch are used to assemble standard chain slings. The round steel chains are assembled by using connecting links, e.g. XL-LOKs TWN 1820. Forged-in measuring points of the max. limit values of the hook opening enable easy control. The forged heavy duty safety latches prevent unintentional detachment from the load. The sling hooks comply with the ASTM A952/A952M, ISO 7597 and DIN EN 1677-2, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [t]	Dimensions [mm]							Weight app. [kgs]
			e	d <sub>1</sub>	d <sub>2</sub>	g	h	c	f	
1/4"	F32905	3,100	3.62	0.83 <sup>1)</sup>	0.43	0.94	0.79	0.67	-	0.79
9/32" - 5/16"	F32915	5,700	4.65	1.10 <sup>1)</sup>	0.55	1.18	0.98	0.79	-	1.68
3/8"	F32925	8,800	5.75	1.42 <sup>1)</sup>	0.71	1.46	1.26	1.14	-	3.31
1/2"	F32935	15,000	6.61	1.65 <sup>1)</sup>	0.83	1.65	1.61	1.38	-	5.62
5/8"	F32945	22,600	8.27	2.13 <sup>1)</sup>	0.98	2.01	1.97	1.61	-	10.25
3/4"	<b>NEW</b> F32965	35,300	9.61	2.28 <sup>1)</sup>	1.06	2.44	2.32	2.01	-	16.78
7/8"	F32975	42,700	10.67	2.56 <sup>1)</sup>	1.18	2.76	2.44	2.17	-	22.49
1"	F32985	59,700	11.89	2.76	1.30	2.95	2.80	2.36	3.19	33.07
1-1/4"	<b>NEW</b> F32995	88,200	13.78	3.15	1.50	3.54	3.31	2.76	3.90	53.57

# Hooks

## Eye Foundry Hooks

NEW

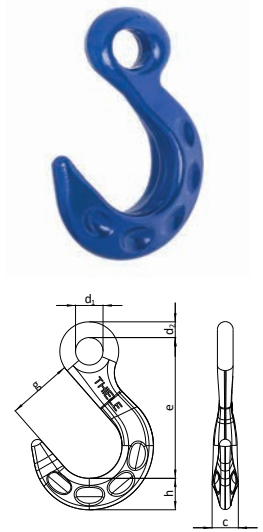
The Grade 100 eye foundry hooks TWN 1856 with enlarged eye are used to assemble chain slings predominantly for foundries. The round steel chains are assembled by using connecting links, e.g. XL-LOKS TWN 1820. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 working load limits.

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100 %  


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			d <sub>1</sub>	d <sub>2</sub>	e	c	g	h	
1/4"	F32353	3,100	0.83	0.47	4.25	0.79	1.97	0.94	0.97
9/32"-5/16"	F32363	5,700	1.10	0.55	5.31	1.02	2.60	1.30	2.14
3/8"	F32373	8,800	1.26	0.71	6.34	1.28	2.99	1.38	3.44
1/2"	F32383	15,000	1.65	0.83	7.72	1.50	3.50	1.65	6.53
5/8"	F32395	22,600	2.13	0.91	9.02	1.77	4.02	1.89	10.38
11/16"-3/4"	F32405	35,300	2.32	1.06	10.20	2.30	4.49	2.48	17.53
7/8"	F32413	42,700	2.56	1.18	11.34	2.56	5.00	2.76	23.99
1"	F32423	59,700	2.99	1.38	12.95	2.95	5.35	3.19	36.35
1-1/4"	F32443	88,200	3.35	1.65	14.09	3.27	5.98	3.82	57.76

## TWN 1856



TA10

## Clevis Skip Suspension Hooks

NEW

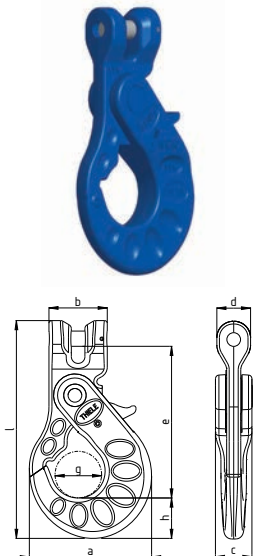
The Grade 100 skip suspension hooks TWN 1899 connect chain slings with the pivot of containers, e.g. containers according to DIN 30720. The shape of the hook opening is designed to fit container lifting pivots. The clevis design enables the direct attachment to the chain. The hooks lock automatically when load and may only be reopened manually if not under load anymore. The skip suspension hooks comply with DIN EN 1677-3, under consideration of Grade 100 working load limits.

SAFETY  
4 : 1

100 %  


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]								Weight app. [lbs]
			e	c	g	h	d	b	a	l	
1/2"	F335100	15,000	6.54	1.57	2.01	1.65	1.46	2.52	5.31	9.41	7.36

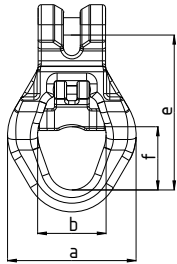
## TWN 1899





## Hooks/ Shortening Components

### TWN 1869



### Clevis Skip Suspension Links for One-Hand Operation and Forged Safety Latch **NEW**

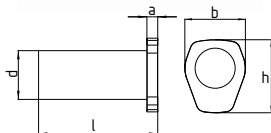
The Grade 100 skip suspension links TWN 1869 connect chain slings with the pivots on containers, e.g. containers according to DIN EN 30720. The shape of the eyelet is designed to fit container suspension pivots. The clevis design enables the direct attachment to the chain. The forged safety latch enables a one-hand operation. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 working load limits.

**SAFETY**  
4 : 1



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	f	b	a	
1/2"	F313805	15,000	5.59	2.26	2.56	4.80	4.28

### TWN 0869/1



### Container Pivots

The container pivots TWN 0869/1 are welded to containers and serve as lifting points for attaching skip suspension hooks and links.

Trade Size	Article-No.	Dimensions [inch]					Weight app. [lbs]
		a	d	b	l	h	
M12	F31410	0.39	1.77	2.68	4.33	3.23	3.53





## Shortening Components

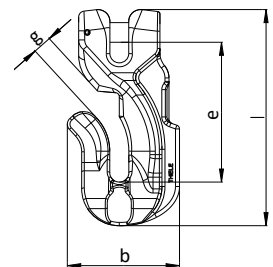
### Clevis Shortening Hooks

The Grade 100 clevis shortening hooks TWN 1827 are used to adjust the leg lengths of chain slings and lashing chains. The clevis design enables the direct attachment to the chain. The shortening hook has been tested in combination with the lifting chain. The extra wide chain support ensures a particularly firm fit of the inserted chain link. At the same time the link is protected from getting damaged. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1 and DIN 5692, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	l	b	
9/32" <b>NEW</b>	F33203	4,300	2.70	0.33	4.04	2.13	1.10
5/16"	F33204	5,700	2.80	0.37	4.33	2.20	1.17
3/8"	F33214	8,800	3.27	0.49	5.20	2.64	2.05
1/2"	F33224	15,000	4.29	0.61	6.61	3.27	4.39
5/8"	F33234	22,600	5.39	0.73	8.19	3.98	7.98
3/4" <b>NEW</b>	F33236	35,300	6.69	0.93	10.24	5.00	16.27
7/8" <b>NEW</b>	F33238	42,700	7.32	1.00	11.26	5.47	21.94
1" <b>NEW</b>	F33242	59,700	8.66	1.18	13.27	6.46	33.64
1-1/4" <b>NEW</b>	F33244	88,200	10.67	1.46	16.34	7.95	62.13

### TWN 1827



TA10

### Clevis Shortening Hooks with Safety Pin

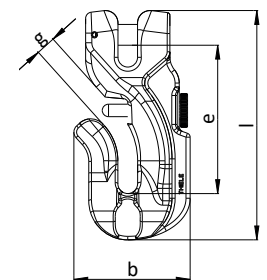
The Grade 100 clevis shortening hooks TWN 1827/1 with safety pin are used to adjust the leg lengths of chain slings and lashing chains. The clevis design enables the direct attachment to the chain. The safety pin prevents the chain strand from accidental release. The shortening hook has been tested in combination with the lifting chain. The extra wide chain support ensures a particularly firm fit for the inserted chain link. At the same time the link is protected from getting damaged. The safety bolt enables the use in lashing chains according to DIN EN 12195-3. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1 and DIN 5692, under consideration of Grade 100 working load limits.



**NEW:**  
Application and assembly video for the shortening hook with safety pin on YouTube!

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	l	b	
9/32" <b>NEW</b>	F332022	4,300	2.69	0.33	4.04	2.13	1.10
5/16"	F33205	5,700	2.80	0.37	4.33	2.20	1.19
3/8"	F33215	8,800	3.26	0.49	5.20	2.64	2.07
1/2"	F33225	15,000	4.29	0.61	6.61	3.27	4.41
5/8"	F33235	22,600	5.39	0.73	8.19	3.98	8.02
3/4" <b>NEW</b>	F33237	35,300	6.69	0.93	10.24	5.00	16.36
7/8" <b>NEW</b>	F33239	42,700	7.32	1.00	11.26	5.47	22.05
1" <b>NEW</b>	F33243	59,700	8.66	1.18	13.27	6.46	33.89
1-1/4" <b>NEW</b>	F33247	88,200	10.67	1.46	16.34	7.87	62.37

### TWN 1827/1



## TWN 1851/1

### Clevis Shortening Claws with Safety Pin

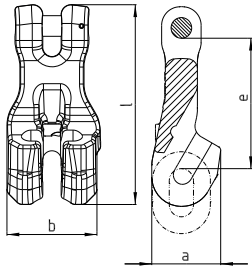
NEW



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DGUV  
ZERT

100 %  

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	a	b	l	
1/4"	F349141	3,100	2.01	1.06	1.46	3.07	0.55
5/16"	F349241	5,700	2.56	1.34	1.81	3.94	1.10
3/8"	F349341	8,800	3.19	1.69	2.20	4.88	2.07
1/2"	F349441	15,000	4.17	2.20	2.87	6.38	4.48
5/8"	F349551	22,600	5.12	2.68	3.46	7.80	7.96
3/4"	F349661	35,300	6.34	3.35	4.29	9.69	15.61
7/8"	F349771	42,700	6.97	3.70	4.72	10.67	20.99
1"	F349881	59,700	7.72	4.29	5.31	12.09	29.10
1-1/4"	F349991	88,200	9.45	5.31	6.54	14.57	54.01

\*On request

## TWN 1852

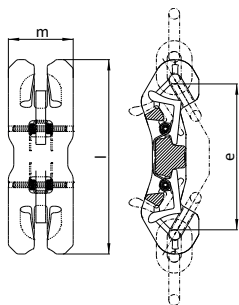
### RAPID® Shortening Claws



SAFETY  
4 : 1

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100 %  

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]			Weight app. [lbs]
			e	l	m	
5/16"	F34775	5,700	4.37	5.83	1.89	2.45
3/8"	F34780	8,800	5.28	7.09	2.36	4.61
1/2"	F34785	15,000	7.05	9.45	3.07	10.49
5/8"	F34790	22,600	8.82	11.65	3.78	20.00

## Shortening Components/ Shackles

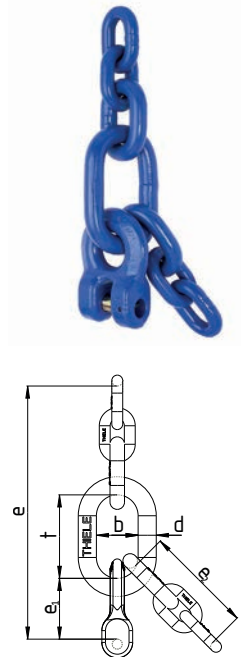
### Shortening Devices for Fixed Size Master Links

The Grade 100 shortening devices TWN 1896 for fixed size master links are used in chain slings and enable the leg lengths to be adapted to the conditions of use. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit	Dimensions [inch]						Weight app.
			e	e <sub>1</sub>	e <sub>2</sub>	B-Link			
						d	t	b	
[lbs]									[lbs]
1/4"	F189606	3,100	5.39	1.22	2.36	0.39	1.81	0.91	0.71
5/16"	F189608	5,700	6.89	1.50	3.07	0.51	2.36	1.18	1.54
3/8"	F189610	8,800	8.46	1.81	3.90	0.63	2.76	1.38	3.09
1/2"	F189613	15,000	10.63	2.32	4.96	0.71	3.35	1.57	5.73
5/8"	F189616	22,600	12.83	2.99	5.91	0.87	3.94	1.97	11.02

### TWN 1896



## Shackles

### Bolt Shackles Type C with Nut and Roll Pin

The Grade 100 shackles type C TWN 1871 with bolt, nut and roll pin are used as end fittings in chain slings. The dimensions of the type C shackles comply with DIN 82101. The manufacturing and testing requirements are based on DIN EN 1677-1, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			d <sub>1</sub>	d <sub>2</sub>	d <sub>4</sub>	b <sub>1</sub>	b <sub>2</sub>	h <sub>1</sub>	
1/4"*	<b>NEW</b> F303000	3,100	0.35	0.51	0.79	0.50	1.10	1.10	0.24
5/16"*	<b>NEW</b> F303005	5,700	0.47	0.55	1.02	0.67	1.50	1.50	0.42
3/8"	F303100	8,800	0.59	0.63	1.26	0.83	1.85	1.93	0.99
1/2"	F303200	15,000	0.75	0.79	1.57	1.09	2.44	2.40	1.85
5/8"	F303300	22,600	0.91	0.94	1.89	1.30	2.95	2.87	3.28
3/4"*	<b>NEW</b> F303400	35,300	1.18	1.18	2.52	1.65	3.74	3.58	6.83
7/8"	F303500	42,700	1.30	1.42	2.83	1.85	4.21	4.37	10.12

\*On request

### TWN 1871





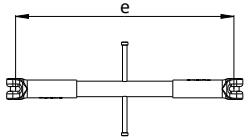


## Chain Tensioners/ Special Sling Components

### TWN 1454

#### Chain Tensioners with Toggle (Large Lift)

The Grade 100 chain tensioners TWN 1454 with toggle are used as tensioning elements in lashing chains. The chain tensioners can also be used in chain slings for stepless adjustment of strand lengths when lifting loads. These chain tensioners have a particularly large lift. The chain tensioners with toggle and trapezoidal thread achieve a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 lashing capacities.

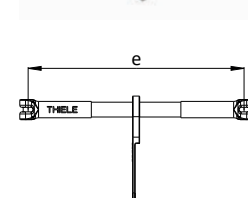


Trade Size	Article-No.	Normal straight load [daN] min.	Tensioner under straight load [daN] max.	Dimensions [inch]			Weight app. [lbs]
				e <sub>max</sub>	e <sub>min</sub>	lift	
1/2"	F341877	2,600	13,000	26.57	17.52	9.06	15.85
5/8"	F341977	3,100	20,000	32.68	21.65	11.02	26.01

### TWN 1455

#### Chain Tensioners with Ratchet (Large Lift)

The Grade 100 chain tensioners TWN 1455 with ratchet are used as tensioning elements in lashing chains. The chain tensioners can also be used in chain slings for stepless adjustment of strand lengths when lifting loads. The chain tensioners have a particularly large lift. The chain tensioners with ratchet and trapezoidal thread achieve a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 lashing capacities.



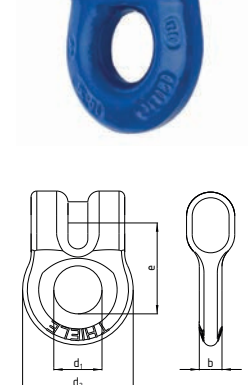
Trade Size	Article-No.	Normal straight load [daN] min.	Tensioner under straight load [daN] max.	Dimensions [inch]			Weight app. [lbs]
				e <sub>max</sub>	e <sub>min</sub>	lift	
1/2"	F341878	2,600	13,000	26.57	17.52	9.06	18.52

## Special Sling Components

### TWN 1812

#### Ring Shackles

The Grade 100 ring shackles TWN 1812 are used to connect chains to sling components to assemble chain slings. The manufacturing and testing requirements are based on the ASTM A952/A952M, ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	d <sub>1</sub>	d <sub>2</sub>	b	
1/4"	F31704	3,100	1.22	0.67	1.54	0.31	0.22
5/16"	F31714	5,700	1.46	0.83	1.97	0.43	0.51
3/8"	F31724	8,800	1.81	1.02	2.44	0.55	1.06
1/2"	F31734	15,000	2.32	1.30	3.11	0.71	1.87
5/8"	F31744	22,600	2.99	1.65	3.94	0.91	3.51

## Special Sling Components/ Lashing Chains

### Swivel Adapters NEW

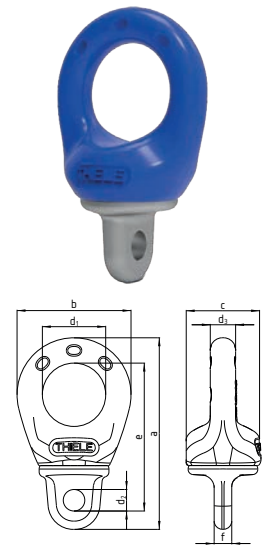
The Grade 100 swivel adapters TWN 1846 with ball-bearing supplement components with clevis design and align the individual suspension strands without twisting. The swivel adapter is fixed to the clevis design of the end link, e.g. a sling hook. The large eyelet enables e.g. a connection to chain or rope strands as well as textile slings. The manufacturing and testing requirements comply with DIN EN 1677-1 and ISO 8539, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]								Weight app. [lbs]
			e	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	b	c	a	f	
5/16"*	F32820	5,700	3.70	1.77	0.63	0.63	3.03	2.05	4.61	0.33	1.63
3/8"	F32825	8,800	3.82	1.77	0.63	0.63	3.03	2.05	4.88	0.43	1.74
1/2"*	F32830	15,000	4.61	1.97	0.79	0.79	3.54	2.32	5.94	0.55	3.15
5/8"	F32835	22,600	5.75	2.56	0.98	0.98	4.53	2.87	7.44	0.67	6.00

\*On request

### TWN 1846



TA10

## Lashing Chains

### Lashing Chains with Tensioner

The Grade 100 lashing chains TWN 1410 with toggle and adjustable lashing chain have a standard length of 3,5 m and are used for heavy-duty lashing applications. The chain tensioners with toggle and trapezoidal thread achieve a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on DIN EN 12195-3, under consideration of Grade 100 lashing capacities.



Trade Size	Article-No.	Normal straight load [daN] min.	Weight app. [lbs]
3/8"	F34183	13,000	62.59
5/8"	F34184	20,000	102.35

Other lengths available on request.

### TWN 1410



### Lashing Chains with Ratchet

The Grade 100 lashing chains TWN 1411 with ratchet and shortenable lashing chain have a standard length of 3,5 m and are used in the heavy-duty area for lashing loads in road traffic. The chain tensioners with ratchet and trapezoidal thread achieves a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on DIN EN 12195-3, under consideration of Grade 100 lashing capacities.



Trade Size	Article-No.	Normal straight load [daN] min.	Weight app. [lbs]
1/2"	F34183R	13,000	46.30

Other lengths available on request.

### TWN 1411





## Spare Parts and Accessories

### TWN 0944



#### Chain File

The chain file TWN 0944 is used for documentation of chain inspections.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
-	Z04575	1 pc.	0.02

### TWN 0945



#### Assembly Kit

The assembly kit TWN 0945 is used for easy disassembly of bolts and dowel pins of clevis connections.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
-	Z03303	1 set	1.32

### TWN 0968



#### Spare Part Sets for Skip Suspension Hooks and Links

**NEW**

The spare part sets TWN 0968 consist of bolt, roll pins and are suitable for the clevis connections of the skip suspension hooks TWN 1399 and TWN 1899 and skip suspension links TWN 0869 and TWN 1869.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/2"	F480131	1 set	0.15
5/8"	F480161	1 set	0.26

### TWN 0969



#### Spare Part Sets for Skip Suspension Links

The spare part sets TWN 0969 consist of bolt, roll pins and are suitable for the clevis connections of the skip suspension hooks TWN 1399 and TWN 1899 and skip suspension links TWN 0869 and TWN 1869.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/2" (G100/G80)	F314081	1 set	0.44



## Spare Parts and Accessories

### Spare Part Sets for Skip Loader Hooks **NEW**

The spare part sets TWN 0970 consist of a retainer, spring and dowel pin and are suitable for skip loader hooks TWN 1399 and TWN 1899.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/2-5/8"	F48332	1 set	0.24



  
TA10

### Spare Part Sets for Clevis Shortening Claws **NEW**

The spare part sets TWN 0971 consist of locking pin, threaded pin, spring and bearing are suitable for the clevis shortening hooks with safety pin TWN 0851/1 and TWN 1851/1.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4" (G100/G80)	F483110	1 set	0.02
5/16" (G100/G80)	F483112	1 set	0.02
3/8" (G100/G80)	F483113	1 set	0.04
1/2" (G100/G80)	F483114	1 set	0.07
5/8" (G100/G80)	F483115	1 set	0.11
3/4" (G100/G80)	F483117	1 set	0.15
7/8" (G100/G80)	F483118	1 set	0.20
1" (G100/G80)	F483119	1 set	0.26
1-1/4" (G100/G80)	F483120	1 set	0.17



### Identification Tag for Lashing Chains

The identification tags TWN 1402 are used to identify lashing chains and provide important information for operation. Lashing chains may not be used without identification tag.

Article-No.	Packing Units	Weight app. [lbs]
Z07264	1 pc.	0.11

### TWN 1402



### Spare Part Sets for Clevis Design

The spare part sets TWN 1904/0 consist of a bolt and dowel pins and are suitable for THIELE products with the Grade 100 fixed size clevis design.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4"	F48686	1 set	0.04
9/32" <b>NEW</b>	F486861	1 set	0.07
5/16"	F48687	1 set	0.07
3/8"	F48688	1 set	0.11
1/2"	F48689	1 set	0.22
5/8"	F48690	1 set	0.35
3/4" <b>NEW</b>	F48692	1 set	0.62
7/8" <b>NEW</b>	F48693	1 set	0.82
1" <b>NEW</b>	F486931	1 set	1.26
1-1/4" <b>NEW</b>	F486933	1 set	2.29





## Spare Parts and Accessories

### TWN 1908/0

#### Spare Part Sets for Hooks

The spare part sets TWN 1908/0 consist of a safety latch, spring and 2 dowel pins and are suitable for Grade 100 sling hooks TWN 1835/1, TWN 1840/1, TWN 1841/1 and also fit the Grade 80 sling hooks TWN 0835/1, TWN 0850/1, TWN 1340/1 and TWN 0858/1.



Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4" (G100/G80)	F48731	1 set	0,05
9/32"-5/16" (G100/G80) <b>NEW</b>	F48733	1 set	0,08
3/8" (G100/G80)	F48735	1 set	0,14
1/2" (G100/G80)	F48737	1 set	0,31
5/8" (G100/G80)	F48739	1 set	0,38
11/64"-3/4" (G100/G80)	F48743	1 set	0,71
7/8" (G100/G80)	F48745	1 set	0,89
1" (G100/G80)	F48748	1 set	1,41
1-1/4" (G100/G80) <b>NEW</b>	F48749	1 set	1,77

### TWN 1921

#### Spare Part Sets for XL-LOK Connectors

The spare part sets TWN 1921 consist of a bolt and clamping bush and are suitable for XL-LOK TWN 1820 connecting links.



Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4"	F486013	1 set	0.02
9/32"-1/4"	F486043	1 set	0.04
3/8"	F486073	1 set	0.09
1/2"	F486103	1 set	0.13
5/8"	F486133	1 set	0.26
7/8"	F486191	1 set	1.01

### TWN 1922

#### Spare Part Sets for XL-LOK Connectors **NEW**

The spare part sets TWN 1922 consist of a bolt and clamping bush and are suitable for XL-LOK TWN 1820 connecting links.



Trade Size	Article-No.	Packing Units	Weight app. [lbs]
3/4"	F486105	1 set	0.55
7/8"	F486106	1 set	0.71
1"	F486107	1 set	1.21
1-1/4"	F486108	1 set	2.18

### TWN 1930/0

#### Spare Part Sets for Shackles Type C

The spare part sets TWN 1930/0 consist of a head bolt, nut and splint and are suitable for Grade 100 shackles type C TWN 1871.



Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4" <b>NEW</b>	F304310	1 set	0.07
5/16" <b>NEW</b>	F304410	1 set	0.18
3/8"	F304510	1 set	0.29
1/2"	F304610	1 set	0.55
5/8"	F304710	1 set	1.04
3/4" <b>NEW</b>	F304810	1 set	2.47
7/8" <b>NEW</b>	F304910	1 set	2.89

## Spare Parts and Accessories

### Spare Part Sets for RAPID®-Shortening Claws

The trigger sets TWN 1931/0 consist of 2 retainers, springs and roll pins and are suitable for Grade 100 RAPID® shortening claws TWN 1852.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
5/16"	F347750	1 set	0.05
3/8"	F347800	1 set	0.19
1/2"	F347850	1 set	0.19
5/8"	F347900	1 set	0.37

### TWN 1931/0



### Spare Part Sets for Clevis Self-Locking Hooks NEW

The spare part sets TWN 1933/0 consist of a bolt and a roll pin and are suitable for grade 100 self-locking hooks with clevis design TWN 1837.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4"	F487800	1 set	0.02
9/32"	F487801	1 set	0.02
5/16"	F487802	1 set	0.04
3/8"	F487803	1 set	0.09
1/2"	F487804	1 set	0.18
5/8"	F487805	1 set	0.35
3/4"	F487806	1 set	0.68
7/8"	F487807	1 set	1.01

### TWN 1933/0



### Spare Part Sets for Clevis Self-Locking Hooks

The spare part sets TWN 1933/0A consist of bolt and 2 roll pins and are suitable for Grade 100 self-locking hooks with clevis design TWN 1837A.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4"	Z10118	1 set	0.02
5/16"	Z10119	1 set	0.04
3/8"	Z10120	1 set	0.09
1/2"	Z10121	1 set	0.18
5/8"	Z10122	1 set	0.33
7/8"	Z10125	1 set	1.01

### TWN 1933/0A



### Spare Part Sets for Self Locking Hooks NEW

The trigger sets TWN 1935 consist of a retainer, spring and dowel pin. The trigger sets are suitable for Grade 100 self-locking hooks TWN 1836, TWN 1837 and TWN 1838.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4"	F487810	1 set	0.04
9/32"	F487811	1 set	0.04
5/16"	F487812	1 set	0.09
3/8"	F487813	1 set	0.11
1/2"	F487814	1 set	0.40
5/8"	F487815	1 set	0.42
3/4"	F487816	1 set	0.51
7/8"	F487817	1 set	0.55

### TWN 1935







## Spare Parts and Accessories

### TWN 1935A

#### Spare Part Sets for Self Locking Hooks (old version till Dec 2023)

The trigger sets TWN 1935A consist of a retainer, spring and dowel pin. The trigger sets are suitable for Grade 100 self-locking hooks TWN 1836A and TWN 1837A.

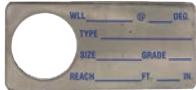


Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4"	Z10110	1 set	0.04
5/16"	Z10111	1 set	0.07
3/8"	Z10112	1 set	0.09
1/2"	Z10113	1 set	0.13
5/8"	Z10114	1 set	0.24
7/8"	Z10117	1 set	0.55

### TWN 1940A

#### Identification Tags for single- and multi-leg Chain Slings

The Grade 100 identification tags TWN 1940 are used to identify chain slings and provide important information for the operator. Chain slings may not be used without an identification tag.



Article-No.	Packing Units	Weight app. [lbs]
ChainID-Tag-KWS	1 pc.	0.22
ChainID-Tag-PLAIN	1 pc.	0.22

### TWN 1946

#### Chain Gauges

The chain measuring gauges TWN 1946 are used to measure the discard criteria of Grade 100 chain slings XL400 and XL200.



Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4"	F01690	1 pc.	0.15
5/16"	F01691	1 pc.	0.15
3/8"	F01692	1 pc.	0.20
1/2"	F01693	1 pc.	0.24
5/8"	F01694	1 pc.	0.31

### TWN 1950

#### Spare Part Sets for Shortening Hooks


The spare part sets TWN 1950 consist of locking pin, spring and knurled nut and are suitable for Grade 100 shortening hooks TWN 1827/1.








Trade Size	Article-No.	Packing Units	Weight app. [lbs]
9/32"-5/16"	<b>NEW</b> F48330	1 set	0.04
3/8"	F48328	1 set	0.09
1/2"	F483290	1 set	0.09
5/8"	F48339	1 set	0.13
3/4"	<b>NEW</b> F48340	1 set	0.24
7/8"	<b>NEW</b> F48341	1 set	0.26
1"	<b>NEW</b> F48343	1 set	0.64
1-1/4"	<b>NEW</b> F48344	1 set	0.75

## Examples for Chain Slings

### 1-Leg Chain Slings with XL-LOK Connection

TWN 1600	TWN 1601	TWN 1602	TWN 1603
			
TWN 1604			
			






### 2-Leg Chain Slings with XL-LOK Connection

TWN 1650	TWN 1651	TWN 1652	TWN 1653
			
TWN 1654			
			




## Examples for Chain Slings

### 4-Leg Chain Slings with XL-LOK Connection



TWN 1750	TWN 1751	TWN 1752	TWN 1753
			
TWN 1754			
			

### 1-Leg Chain Slings, Fixed Size

TWN 1631	TWN 1632	TWN 1681	TWN 1682
			

### 2-Leg Chain Slings, Fixed Size

### 4-Leg Chain Slings, Fixed Size

TWN 1781	TWN 1782
	

## Shortening Options

With Shortening Claws TWN 1851, TWN 1851/1 and TWN 1896



With RAPID®-Shortening Claws TWN 1852



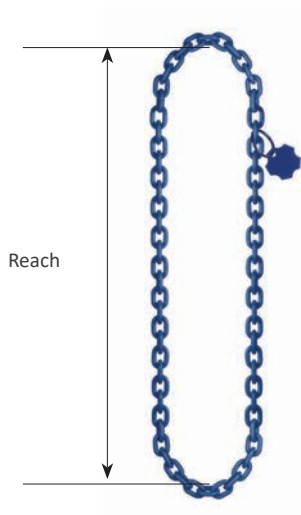
With Shortening Claws TWN 1851, TWN 1851/1 and TWN 1896





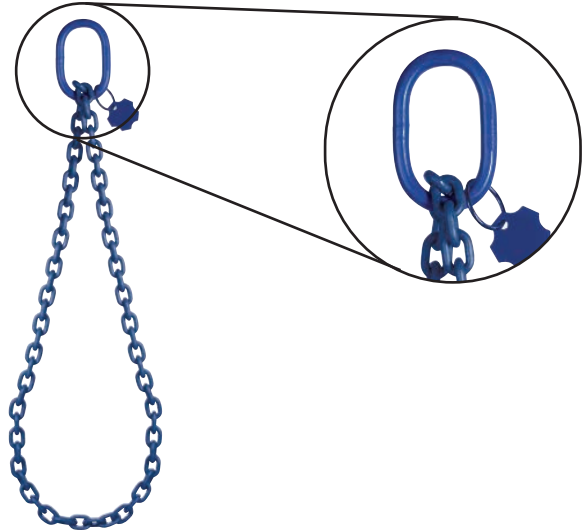


### Type K11

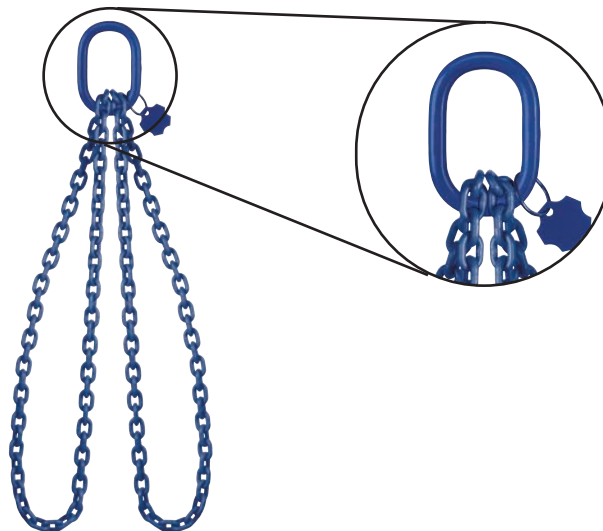


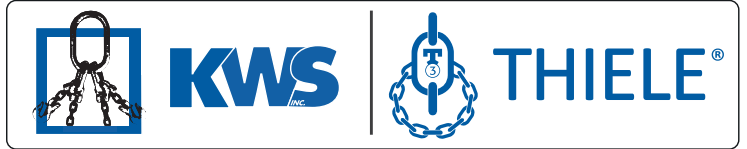
Circumference  $\approx 2 \times$  Reach

### Type K12



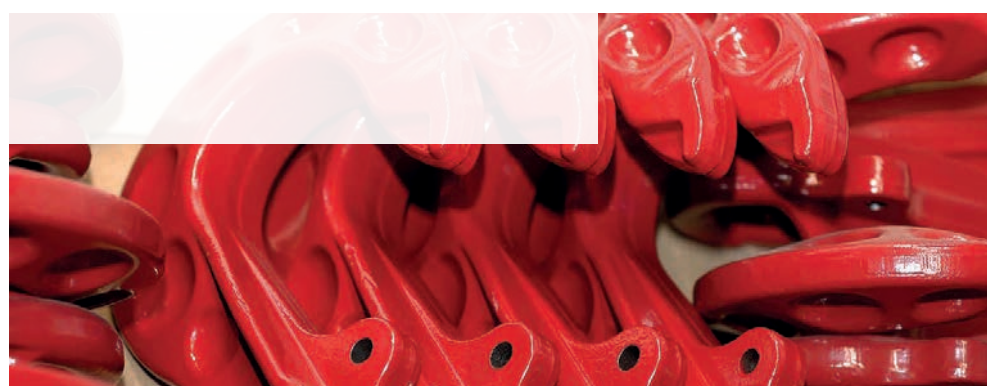
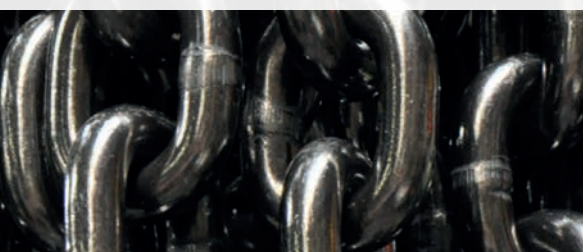
### Type K22





# THIELE LIFTING PRODUCTS

Grade 80







## Product Overview - Lifting Products Grade 80

Page  
60

### Round Steel Chains

TWN 0805A



Pages  
61-66

### Suspension Components

TWN 0795



TWN 0810/1



TWN 0810/2



TWN 0810/4



TWN 0815



TWN 0816



TWN 0817



TWN 0820



TWN 1303



TWN 1304



TWN 1317



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### Connectors

TWN 1320



## Product Overview - Lifting Products Grade 80

Pages 68-73	Hooks				
	TWN 0798	TWN 0799	TWN 0854	TWN 0855	TWN 0855/1
					
	TWN 0856	TWN 0856/1	TWN 0858/1	TWN 0859	TWN 0860
					
	TWN 0868	TWN 0872	TWN 0873	TWN 0889	TWN 1340/1
					
	TWN 1399	TWN 0869	TWN 0869/1		
					

Pages 74-75	Shortening Components				
	TWN 0827	TWN 0827/1	TWN 0851	TWN 0851/1	TWN 0896
					

Page 76	OCTA STAR				
	Wire gliding Hook with Safety latch	Clevis Shortening Hook	Eye Shortening Hook		
					





## Product Overview - Lifting Products Grade 80

Pages  
77-78

### Shackles

TWN 0861



TWN 0862



TWN 0870



TWN 0871



TWN 0897



Pages  
78-79

### Chain Tensioners

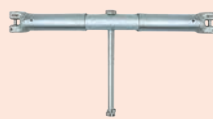
TWN 1450



TWN 1451



TWN 1452



Pages  
80-81

### Special Sling Components

TWN 0812



TWN 0845



TWN 0892



TWN 0893



TWN 0894



TWN 0601



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82

### Lashing Chains

TWN 1400









TWN 1401



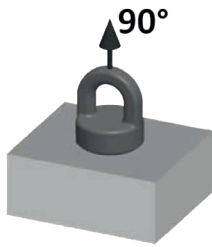
## Product Overview - Lifting Products Grade 80

Pages 83-88	Spare Parts and Accessories				
	TWN 0904/0	TWN 0905/0906	TWN 0920-0922	TWN 0930	TWN 1940A
					
	TWN 0944	TWN 0945	TWN 0946	TWN 0950-0952	TWN 0962
					
	TWN 0967/0	TWN 0967/1	TWN 0968	TWN 0969	TWN 0970
					
	TWN 0971	TWN 1402	TWN 1908/0	TWN 1920	
					

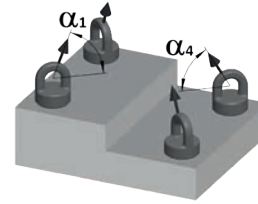
Page 89-94	Chain Slings				
	TWN 0449	TWN 0536	TWN 0710/1		
					

Page 89	Endless Chains				
	Type K11	Type K12	Type K22		
					

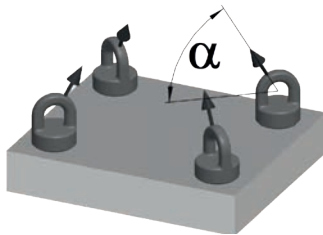
1. Determine the weight of the load to be lifted.



5. Consider that asymmetry may influence the load factor.



2. Check number of chain-legs required (depending on the number of available lifting points).



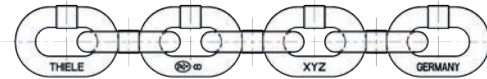
6. Specify the sling using components for the selected chain trade size.



3. Determine the trade size by taking the inclination angle into consideration (see table 1 on page 57 and table 2 on page 58 and table 3 on page 59).



7. Determine the chain length for each strand by considering the required effective reaches.



4. Consider possible temperature impacts (see load reductions on page 60).



8. Control selected lifting components and/ or chain slings to ensure that they meet applicable safety-laws and regulations (e.g. DGUV)



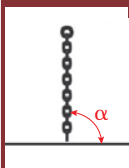
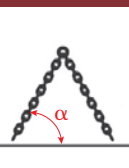
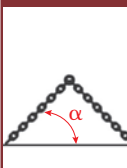
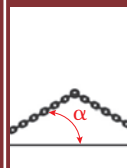
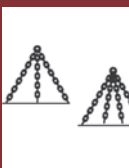
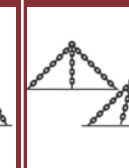
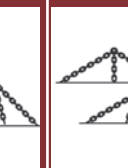
## Special Advices:

Please also consider special conditions of use, such as e.g. intermittent impacts on loads when selecting the grade 80 chain slings. If the chain slings were used above the maximum admissible temperature, they have to be immediately rejected. The THIELE-assembly systems must not be used with chemical influences such as acids and/or lyes.

THIELE-chain slings fulfill the requirements of the EC-Machinery Directive, represented by the EN 818-4, as well as the requirements of the ASTM A906/A906M-02.

# Working Load Limit Tables

## Working Load Limit<sup>1)</sup> – Type: Direct (Chain Slings)

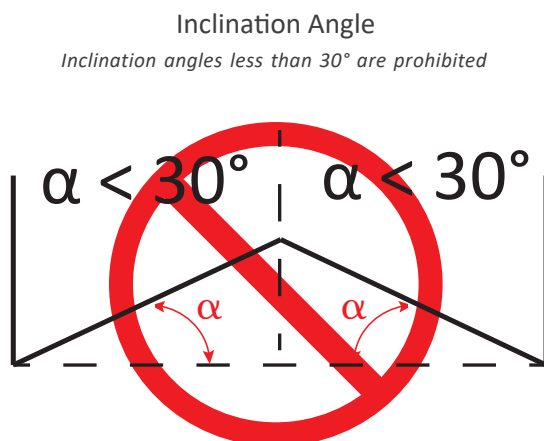
		1-leg	2-leg				3-/4-leg	
								
Inclination Angle		$\alpha = 90^\circ$	$60^\circ \leq \alpha \leq 75^\circ$	$45^\circ \leq \alpha < 60^\circ$	$30^\circ \leq \alpha < 45^\circ$	$60^\circ \leq \alpha \leq 75^\circ$	$45^\circ \leq \alpha < 60^\circ$	$30^\circ \leq \alpha < 45^\circ$
Trade Size	Nominal Size [inch]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]
6-8	1/4	2,500	4,300	3,500	2,500	6,500	5,300	3,700
7-8	9/32	3,500	6,100	4,900	3,500	9,100	7,400	5,200
8-8	5/16	4,500	7,800	6,400	4,500	11,700	9,500	6,800
10-8	3/8	7,100	12,300	10,000	7,100	18,400	15,100	10,600
13-8	1/2	12,000	20,800	17,000	12,000	31,200	25,500	18,000
16-8	5/8	18,100	31,300	25,600	18,100	47,000	38,400	27,100
18-8	11/16	22,000	38,100	31,100	22,000	57,100	46,600	33,000
20-8	3/4	28,300	49,000	40,000	28,300	73,500	60,000	42,400
22-8	7/8	34,200	59,200	48,400	34,200	88,900	72,500	51,300
26-8	1	47,700	82,600	67,400	47,700	123,900	101,200	71,500
28-8	1-1/8*	55,100	95,400	77,900	55,100	143,100	116,800	82,600
32-8	1-1/4	72,300	125,200	102,200	72,300	187,800	153,400	108,400
36-8	1-7/16	88,200	152,800	124,700	88,200	229,100	187,100	132,300
40-8	1-9/16	110,200	190,900	155,800	110,200	286,300	233,800	165,300
45-8	1-3/4*	138,900	240,600	196,400	138,900	360,900	294,600	208,300
50-8	2*	176,400	305,500	249,500	176,400	458,300	374,200	264,600
56-8	2-3/16*	220,500	381,900	311,800	220,500	572,900	467,700	330,700
63-8	2-1/2*	275,600	477,300	389,800	275,600	716,000	584,600	413,400
71-8	2-13/16*	352,700	610,900	498,800	352,700	916,300	748,200	529,000

<sup>1)</sup>WLL acc. to ASTM

THIELE chain slings are available in mounted and welded execution.

\*These trade sizes are available in welded execution only.

Table 1


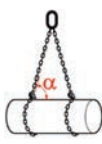
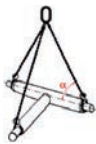






## Working Load Limit Tables

### Working Load Limit<sup>1)</sup> – Type: Choke Hitch (Chain Slings)

		1-leg	2-legs					
								
Inclination Angle		$\alpha = 90^\circ$	$60^\circ \leq \alpha < 90^\circ$	$45^\circ \leq \alpha < 60^\circ$	$30^\circ \leq \alpha < 45^\circ$	$60^\circ \leq \alpha < 90^\circ$	$45^\circ \leq \alpha < 60^\circ$	$30^\circ \leq \alpha < 45^\circ$
Trade Size	Nominal Size [inch]	[lbs.]	[lbs.]	[lbs.]	[lbs.]	[lbs.]	[lbs.]	[lbs.]
6-8	1/4	2,000	3,500	2,800	2,000	5,200	4,200	3,000
7-8	9/32	2,800	4,800	4,000	2,800	7,300	6,000	4,200
8-8	5/16	3,600	6,200	5,100	3,600	9,300	7,600	5,400
10-8	3/8	5,700	9,800	8,000	5,700	14,800	12,000	8,500
13-8	1/2	9,600	16,600	13,600	9,600	24,900	20,400	14,400
16-8	5/8	14,500	25,100	20,500	14,500	37,600	30,700	21,700
18-8	11/16	17,600	30,400	24,800	17,600	45,700	37,300	26,400
20-8	3/4	22,600	39,200	32,000	22,600	58,800	48,000	33,900
22-8	7/8	27,400	47,400	38,700	27,400	71,100	58,000	41,000
26-8	1	38,200	66,100	54,000	38,200	99,100	80,900	57,200
28-8	1-1/8*	44,100	76,300	62,300	44,100	114,500	93,500	66,100
32-8	1-1/4	57,800	100,200	81,800	57,800	150,300	122,700	86,700
36-8	1-7/16	70,600	122,200	99,800	70,600	183,300	149,700	105,800
40-8	1-9/16	88,200	152,700	124,700	88,200	229,000	187,000	132,200
45-8	1-3/4*	111,100	192,500	157,100	111,100	288,700	235,700	166,600
50-8	2*	141,100	244,400	199,600	141,100	366,600	299,400	211,600
56-8	2-3/16*	176,400	305,500	249,500	176,400	458,300	374,200	264,600
63-8	2-1/2*	220,500	381,900	311,800	220,500	572,800	467,700	330,700
71-8	2-13/16*	282,200	488,700	399,000	282,200	733,000	598,500	423,200

<sup>1)</sup> WLL acc. to ASTM

THIELE chain slings are available in mounted and welded execution.


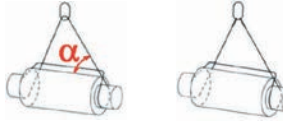
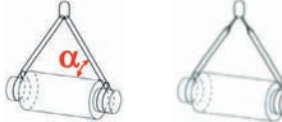
\*These trade sizes are available in welded execution only.

Table 2



# Working Load Limit Tables

## Working Load Limit <sup>1)</sup> – Type: Choke Hitch (Endless Chains)

		K11		K12/K13		K22/K23	
							
Inclination Angle		$\alpha = 90^\circ$	$65^\circ \leq \alpha \leq 90^\circ$	$45^\circ \leq \alpha \leq 90^\circ$	$30^\circ \leq \alpha < 45^\circ$	$45^\circ \leq \alpha \leq 90^\circ$	$30^\circ \leq \alpha < 45^\circ$
Trade Size	Nominal Size [inch]	[lbs.]	[lbs.]	[lbs.]	[lbs.]	[lbs.]	[lbs.]
6-8	1/4	4,000	3,600	2,800	2,000	4,200	3,000
7-8	9/32	5,600	5,100	4,000	2,800	5,900	4,200
8-8	5/16	7,200	6,500	5,100	3,600	7,600	5,400
10-8	3/8	11,400	10,300	8,000	5,700	12,000	8,500
13-8	1/2	19,200	17,400	13,600	9,600	20,400	14,400
16-8	5/8	29,000	26,200	20,500	14,500	30,700	21,700
18-8	11/16	35,200	31,900	24,800	17,600	37,300	26,400
20-8	3/4	45,200	41,000	32,000	22,600	48,000	34,000
22-8	7/8	54,800	49,600	38,700	27,400	58,000	41,000
26-8	1	76,400	69,200	54,000	38,200	80,900	57,200
28-8	1-1/8*	88,200	79,900	62,300	44,100	93,500	66,100
32-8	1-1/4	115,600	104,800	81,800	57,800	122,700	86,800
36-8	1-7/16	141,200	127,900	99,800	70,600	149,700	105,800
40-8	1-9/16	176,400	159,800	124,700	88,200	187,000	132,200
45-8	1-3/4*	222,200	201,400	157,100	111,100	235,700	166,700
50-8	2*	282,200	255,800	199,600	141,100	299,400	211,700
56-8	2-3/16*	352,800	319,700	249,500	176,400	374,200	264,600
63-8	2-1/2*	441,000	399,600	311,800	220,500	467,700	330,700
71-8	2-13/16*	564,400	511,400	399,000	282,200	598,500	423,200

<sup>1)</sup> WLL acc. to ASTM

THIELE chain slings are available in mounted and welded execution.

\*These trade sizes are available in welded execution only.

Table 3



Type K11



Type K12



Type K22



## Load Reductions/ Lifting Chains

### Temperature Application Range of Grade 80 Lifting Chains acc. to the ASTM A391/ A391/1 and DIN EN 818-2

Temperature Application Range	Working Load Limit
-40°F to 400°F (-40°C to 205°C)	100 %
400°F to 572°F (205°C to 300°C)	90 %
572°F to 752°F (300°C to 400°C)	75 %

If Grade 80 lifting chains are used at temperatures exceeding 200°C, then the working load limit has to be reduced.  
The manufacturer has to be consulted if lifting chains are used outside of the allowed temperature application range.

Table 4

### TWN 0805A 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.]	Nominal Size d <sub>n</sub> [inch]	Pitch p <sub>n</sub> [inch]	Inside Width w <sub>3</sub> min. [inch]	Outside Width w <sub>2</sub> max. [inch]	Weight app. [lbs/ft]
	self-coloured	RAL 9005 (black)	corrothiel	Electro-galvanized						
1/4"	F01452	F01453	F01454	F01448	2,500	0.24	0.71	0.31	0.87	0.55
9/32"	F01458	F01459	F01457	F014601	3,500	0.28	0.86	0.37	0.99	0.74
5/16"	F01464	F01465	F01429	F01433	4,500	0.31	0.94	0.43	1.17	0.98
3/8"	F01469	F01470	F01450	F01445	7,100	0.39	1.18	0.51	1.46	1.52
1/2"	F01474	F01475	F01476	F014781	12,000	0.51	1.54	0.69	1.89	2.53
5/8"	F01479	F01480	F01487	F014821	18,100	0.63	1.89	0.82	2.33	3.83
11/16"	F01484	F01485	F04580	F01484G	22,000	0.71	2.13	0.92	2.62	4.77
3/4"	F01494	F01495	F04606	F014944	35,300	0.79	2.36	1.02	2.91	6.05
7/8"	F01499	F01500	F04629	F015111	42,700	0.87	2.60	1.13	3.20	7.33
1"	F01514	F01515	F04695	—	47,700	1.02	3.07	1.33	3.79	10.22
1-1/8"	F01519	F01520	F01521	—	61,700	1.10	3.31	1.43	4.09	11.83
1-1/4"	F01524	F01525	F01526	F01527	72,600	1.26	3.78	1.64	4.65	15.46
1-7/16"	F01529	F01530	F04814	—	88,200	1.42	4.25	1.84	5.24	19.49
1-9/16"	F01534	F01535	F04838	—	110,200	1.57	4.72	2.05	5.83	24.20
1-3/4"	F01539	F01540	F04889	—	138,900	1.77	5.31	2.30	6.57	30.58
2"	F01545	F01546	F04900	—	176,400	1.97	5.91	2.56	7.28	37.64
2-3/16"	F01555	F01556	F04908	—	220,500	2.20	6.69	2.87	8.15	48.73
2-1/2"	—	F01566	—	—	275,600	2.48	7.48	3.22	9.17	59.82
2-13/16"	—	F01598	—	—	352,700	2.80	8.27	3.63	10.35	75.95

Additional finishes: Electrogalvanized, hot dipped galvanized, corrotherm coated and mangan phosphated. Priced upon request.

### Standard lengths

Trade Size	1/4"	9/32"	5/16"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1-1/4"	1-7/16"	1-9/16"	1-3/4"	2"
Standard lengths [ft.]	800	800	500	400	200	150	100	100	50/100	50/100	50/100	50/100	50/100	50/100
Weight per lengths app. [lbs.]	440	590	500	610	510	575	605	730	510/1.020	770/1540	975/1.950	1.210/2.420	1.530/3.060	1.880/3.760

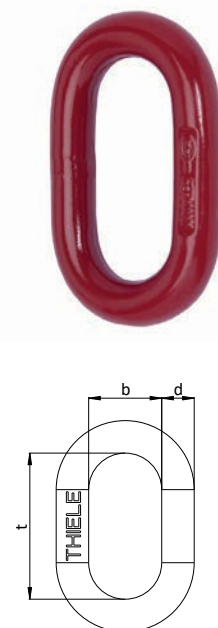
## Suspension Components

### Intermediate Links Type B

The Grade 80 intermediate links TWN 0795 are used to assemble chain slings. The dimensions comply with DIN 5688-3 and enable the use of connecting links, e.g. a THI-LOK® TWN 1320. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4.

### TWN 0795

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]			Weight app. [lbs]
			d	t	b	
B8	F122880	2,500	0.31	1.42	0.71	0.11
B10	F122890	4,500	0.39	1.81	0.91	0.20
B13	F122930	7,100	0.51	2.36	1.18	0.44
B16	F122970	12,000	0.63	2.76	1.38	0.79
B18	F123010	15,000	0.71	3.35	1.57	1.19
B20	F123030	18,100	0.79	3.54	1.77	1.61
B22	F123070	22,000	0.87	3.94	1.97	2.14
B26	F123090	27,600	1.02	4.72	2.36	3.53
B28	F123190	34,200	1.10	5.12	2.56	4.19
B32	F123110	47,700	1.26	5.51	2.76	6.39
B36	F123130	55,100	1.42	6.30	3.15	9.26
B40	F123150	72,300	1.57	7.09	3.54	12.79
B45	F123170	88,200	1.77	7.87	3.94	18.08
B50	F123210	110,200	1.97	8.66	4.33	24.25
B56	F123230	138,900	2.20	10.24	5.12	35.27
B63	F123270	176,400	2.48	11.02	5.51	48.50
B70	F123290	220,500	2.76	12.60	6.30	68.34
B80	F123300	275,600	3.15	14.17	7.09	102.51
B90	F123320	352,700	3.54	15.75	7.87	144.40

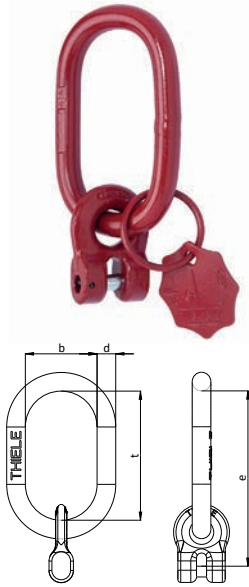




## TWN 0810/1

### Fixed-Size Master Links TAA1 for 1-leg Chain Slings

The Grade 80 fixed size master links TWN 0810/1 are used to assemble 1-leg chain slings. The fixed installed ring shackles only allow the assembly of lifting chains of the appropriate nominal size. An identification tag enables the entry of the necessary suspension data. The dimensions of the fixed size master links type A comply with DIN 5688-3. The manufacturing and testing requirements are based on the ASTM A952/A952M, DIN EN 1677 parts 1 and 4 and ISO 8539.

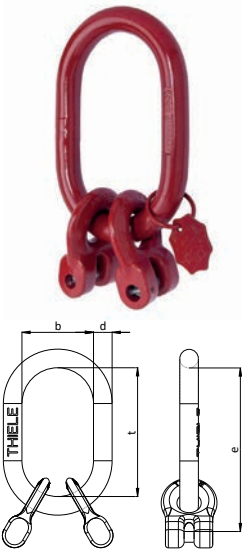


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	d	t	b	
1/4"	F08101068	2,500	4.76	0.51	3.54	1.97	0.88
5/16"	F08101088	4,500	5.79	0.63	4.33	2.36	2.20
3/8"	F08101108	7,100	6.93	0.71	5.12	2.76	2.65
1/2"	F08101138	12,000	8.62	0.87	6.30	3.54	5.07
5/8"	F08101168	18,100	10.04	1.02	7.09	3.94	8.82
7/8"	F08101228	34,200	13.78	1.42	9.84	5.51	22.05

## TWN 0810/2

### Fixed-Size Master Links TAA2 for 2-leg Chain Slings

The Grade 80 fixed size master links TWN 0810/2 are used to assemble 2-leg chain slings. The fixed installed ring shackles only allow the assembly of lifting chains of the appropriate nominal size. An identification tag enables the entry of the necessary suspension data. The dimensions of the fixed size master links type A comply with DIN 5688-3. The manufacturing and testing requirements are based on the ASTM A952/A952M, DIN EN 1677 parts 1 and 4 and ISO 8539.

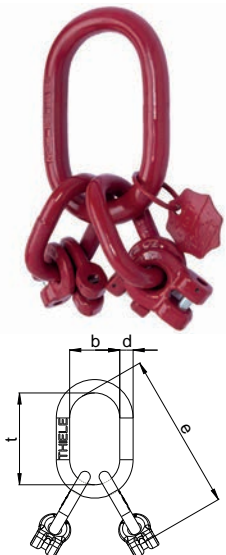


Trade Size	Article-No.	Working Load Limit $60^\circ \leq \alpha \leq 75^\circ$ [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	d	t	b	
1/4"	F08102068	4,300	47.64	5.12	35.43	19.69	1.10
5/16"	F08102088	7,800	65.75	7.09	51.18	27.56	2.65
3/8"	F08102108	12,300	73.23	7.87	55.12	31.50	4.19
1/2"	F08102138	20,800	94.09	10.24	70.87	39.37	8.82
5/8"	F08102168	31,300	120.08	12.60	90.55	49.21	16.76
7/8"	F08102228	59,200	165.35	17.72	125.98	68.90	43.21

## TWN 0810/4

### Fixed-Size Master Links TAA4 for 3- and 4-leg Chain Slings

The Grade 80 fixed size master links TWN 0810/4 are used to assemble 3- and 4-leg chain slings. The fixed installed ring shackles only allow the assembly of lifting chains of the appropriate nominal size. An identification tag enables the entry of the necessary suspension data. The dimensions of the fixed size master links type A comply with DIN 5688-3. The manufacturing and testing requirements are based on the ASTM A952/A952M, DIN EN 1677 parts 1 and 4 and ISO 8539.



Trade Size	Article-No.	Working Load Limit $60^\circ \leq \alpha \leq 75^\circ$ [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	d	t	b	
1/4"	F08104068	6,500	7.91	0.63	4.33	2.36	3.09
5/16"	F08104088	11,700	10.51	0.87	6.30	3.54	6.83
3/8"	F08104108	18,400	12.44	1.02	7.09	3.94	11.90
1/2"	F08104138	31,200	16.10	1.26	9.06	4.92	24.47
5/8"	F08104168	47,000	19.49	1.57	11.42	6.30	41.89
7/8"	F08104228	88,900	24.41	1.97	13.39	7.48	94.36

## Suspension Components

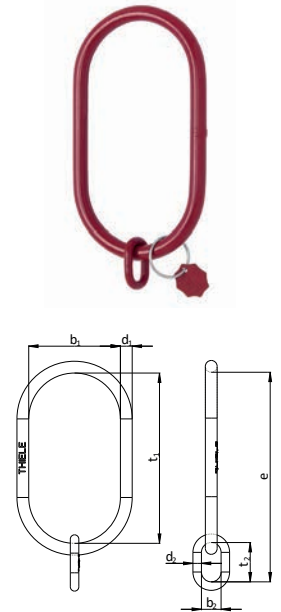
### Oversized Master Link Assemblies for 1-leg Chain Slings for Single Crane Hooks DIN 15401 (16 t, 25 t, 40 t)

The Grade 80 oversized master link assemblies TWN 0815 are used to assemble 1-leg chain slings and are used with big crane hooks according to DIN 15401. The intermediate links enable the use of connecting links, e.g. THI-LOK® TWN 1320. The dimensions comply with DIN 5688-3. The manufacturing and testing requirements are based on the ASTM A952/A952M, DIN EN 1677 parts 1 and 4 and ISO 8539.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [mm]							Crane Hooks acc. DIN 15401	Weight app. [lbs]
			e	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>		
1/4"	F08150616	2,500	12.60	0.71	10.24	5.51	0.51	2.36	1.18	16	3.68
5/16"	F08150816	4,500	12.99	0.87	10.24	5.51	0.63	2.76	1.38	16	5.73
3/8"	F08151016	7,100	12.99	0.87	10.24	5.51	0.63	2.76	1.38	16	5.73
1/2"*	F08151316*	12,000	10.24	1.02	10.24	5.51	-	-	-	16	6.99
5/8"*	F08151616*	18,100	10.24	1.18	10.24	5.51	-	-	-	16	9.48
11/16"	F08151816	22,000	14.57	1.42	9.84	5.51	1.02	4.72	2.36	16	17.20
1/4"	F08150625	2,500	15.75	0.79	13.39	7.09	0.51	2.36	1.18	25	5.60
5/16"	F08150825	4,500	15.75	0.79	13.39	7.09	0.51	2.36	1.18	25	5.60
3/8"	F08151025	7,100	16.14	0.94	13.39	7.09	0.63	2.76	1.38	25	8.33
1/2"	F08151325	12,000	16.14	1.10	13.39	7.09	0.63	2.76	1.38	25	11.18
5/8"	F08151625	18,100	16.93	1.26	13.39	7.09	0.79	3.54	1.77	25	15.32
11/16"	F08151825	22,000	17.32	1.57	13.39	7.09	0.87	3.94	1.97	25	24.03
3/4"*	F08152025*	28,300	13.39	1.57	13.39	7.09	-	-	-	25	22.05
7/8"*	F08152225*	34,200	13.39	1.57	13.39	7.09	-	-	-	25	22.05
1/4"	F08150640	2,500	19.29	0.87	16.93	8.66	0.51	2.36	1.18	40	8.22
5/16"	F08150840	4,500	19.29	0.87	16.93	8.66	0.51	2.36	1.18	40	8.22
3/8"	F08151040	7,100	19.69	1.02	16.93	8.66	0.63	2.76	1.38	40	11.75
1/2"	F08151340	12,000	19.69	1.18	16.93	8.66	0.63	2.76	1.38	40	15.54
5/8"	F08151640	18,100	20.47	1.34	16.93	8.66	0.79	3.54	1.77	40	20.75
11/16"	F08151840	22,000	20.87	1.65	16.93	8.66	0.87	3.94	1.97	40	31.97
3/4"*	F08152040*	28,300	16.93	1.65	16.93	8.66	-	-	-	40	29.76
7/8"*	F08152240*	34,200	16.93	1.65	16.93	8.66	-	-	-	40	29.81

\*This link is delivered without sub-link

### TWN 0815



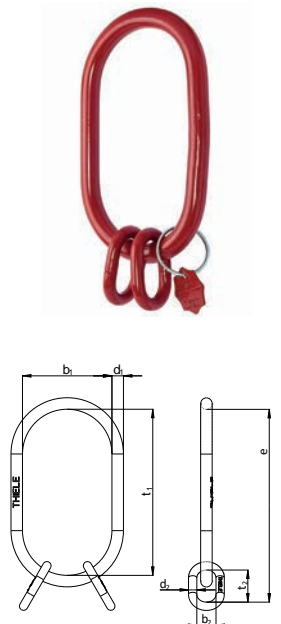
TA8

### Oversized Master Link Assemblies for 2-leg Chain Slings for Single Crane Hooks DIN 15401 (16 t, 25 t, 40 t)

The Grade 80 oversized master link assemblies TWN 0816 are used to assemble 2-leg chain slings and are used with big crane hooks according to DIN 15401. The intermediate links enable the use of connecting links, e.g. THI-LOK® TWN 1320. The dimensions comply with DIN 5688-3. The manufacturing and testing requirements are based on the ASTM A952/A952M, DIN EN 1677 parts 1 and 4 and ISO 8539.

Trade Size	Article-No.	Working Load Limit 60° ≤ α ≤ 75° [lbs]	Dimensions [inch]							Crane Hooks acc. DIN 15401	Weight app. [lbs]
			e	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>		
1/4"	F08160616	4,300	12.60	0.71	10.24	5.51	0.51	2.36	1.18	16	4.14
5/16"	F08160816	7,800	12.99	0.87	10.24	5.51	0.63	2.76	1.38	16	6.53
3/8"	F08161016	12,300	12.99	1.02	10.24	5.51	0.63	2.76	1.38	16	8.60
1/2"	F08161316	20,800	13.78	1.18	10.24	5.51	0.79	3.54	1.77	16	12.68
5/8"	F08161616	31,300	14.57	1.42	9.84	5.51	1.02	4.72	2.36	16	20.79
1/4"	F08160625	4,300	15.75	0.87	13.39	7.09	0.51	2.36	1.18	25	5.95
5/16"	F08160825	7,800	16.14	0.94	13.39	7.09	0.63	2.76	1.38	25	9.13
3/8"	F08161025	12,300	16.14	1.10	13.39	7.09	0.63	2.76	1.38	25	11.97
1/2"	F08161325	20,800	16.93	1.26	13.39	7.09	0.79	3.54	1.77	25	16.93
5/8"	F08161625	31,300	17.32	1.57	13.39	7.09	0.87	3.94	1.97	25	26.23
11/16"	F08161825	38,100	17.32	1.57	13.39	7.09	0.87	3.94	1.97	25	26.23
3/4"	F08162025	49,000	18.90	1.77	13.39	7.09	1.26	5.51	2.76	25	41.01
1/4"	F08160640	4,300	19.29	1.02	16.93	8.66	0.63	2.76	1.38	40	12.57
5/16"	F08160840	7,800	19.69	1.02	16.93	8.66	0.51	2.36	1.18	40	12.57
3/8"	F08161040	12,300	19.69	1.18	16.93	8.66	0.63	2.76	1.38	40	16.36
1/2"	F08161340	20,800	20.47	1.34	16.93	8.66	0.79	3.54	1.77	40	21.78
5/8"	F08161640	31,300	20.87	1.65	16.93	8.66	0.87	3.94	1.97	40	34.17
11/16"	F08161840	38,100	20.87	1.65	16.93	8.66	0.87	3.94	1.97	40	34.17
7/8"	F08162240	59,200	22.44	1.89	16.93	8.66	1.26	5.51	2.76	40	52.25

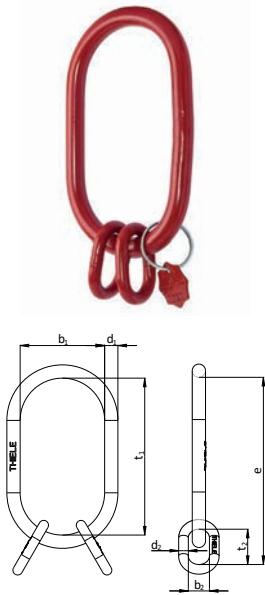
### TWN 0816



## TWN 0817

## Oversized Master Link Assemblies for 3- and 4-leg Chain Slings for Single Crane Hooks DIN 15401 (16 t, 25 t, 40 t)

The Grade 80 oversized master link assemblies TWN 0817 are used to assemble 3- and 4-leg chain slings and are used with big crane hooks according to DIN 15401. The intermediate links enable the use of connecting links, e.g. THI-LOK®s TWN 1320. An identification tag enables the entry of the necessary suspension data. The dimensions comply with DIN 5688-3. The manufacturing and testing requirements are based on the ASTM A952/A952M, DIN EN 1677 parts 1 and 4 and ISO 8539.



Trade Size	Article-No.	Working Load Limit 60° ≤ α ≤ 75° [lbs]	Dimensions [inch]							Crane Hooks acc. DIN 15401	Weight app. [lbs]
			e	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>		
1/4"	F08170616	6,500	12.60	0.87	10.24	5.51	0.51	2.36	1.18	16	6.53
5/16"	F08170816	11,700	12.99	1.02	10.24	5.51	0.63	2.76	1.38	16	8.60
3/8"	F08171016	18,400	13.78	1.18	10.24	5.51	0.79	3.54	1.77	16	12.68
1/2"	F08171316	31,200	14.57	1.42	9.84	5.51	1.02	4.72	2.36	16	20.79
5/8"	F08171616	47,000	14.57	1.42	9.84	5.51	1.02	4.72	2.36	16	20.79
1/4"	F08170625	6,500	15.75	0.94	13.39	7.09	0.51	2.36	1.18	25	9.13
5/16"	F08170825	11,700	16.14	1.10	13.39	7.09	0.63	2.76	1.38	25	11.97
3/8"	F08171025	18,400	16.93	1.26	13.39	7.09	0.79	3.54	1.77	25	16.93
1/2"	F08171325	31,200	17.32	1.57	13.39	7.09	0.87	3.94	1.97	25	26.23
5/8"	F08171625	47,000	18.11	1.57	13.39	7.09	1.02	4.72	2.36	25	29.10
3/4"	F08172025	73,500	23.23	2.17	16.93	8.66	1.42	6.30	3.15	25	71.21
1/4"	F08170640	6,500	19.29	1.02	16.93	8.66	0.51	2.36	1.18	40	12.57
5/16"	F08170840	11,700	19.69	1.18	16.93	8.66	0.63	2.76	1.38	40	16.36
3/8"	F08171040	18,400	20.47	1.34	16.93	8.66	0.79	3.54	1.77	40	22.27
1/2"	F08171340	31,200	20.87	1.65	16.93	8.66	0.87	3.94	1.97	40	34.17
5/8"	F08171640	47,000	21.65	1.65	16.93	8.66	1.02	4.72	2.36	40	37.04
11/16"	F08171840	57,100	22.44	1.89	16.93	8.66	1.26	5.51	2.76	40	52.25
7/8"	F08172240	88,900	23.23	2.17	16.93	8.66	1.42	6.30	3.15	40	71.21



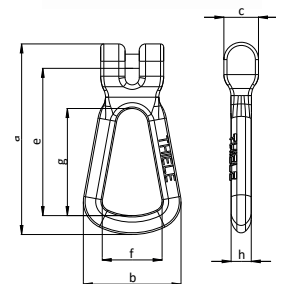
## Suspension Components

### Clevis Suspension Links

The Grade 80 clevis suspension links TWN 0820 are predominantly used to assemble 1-leg basket slings for bundling of loads. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]							Weight app. [lbs]
			e	f	g	a	c	h	b	
5/16"	F31000	4,500	3.68	1.50	2.68	4.76	0.87	0.51	2.44	0.79
3/8"	F31010	7,100	4.96	1.93	3.74	6.52	1.10	0.75	3.46	1.90
1/2"	F31020	12,000	6.24	2.36	4.72	8.15	1.46	0.87	4.09	3.53
5/8"	F31030	18,100	7.36	3.15	5.51	9.69	1.69	1.10	5.35	6.61

### TWN 0820

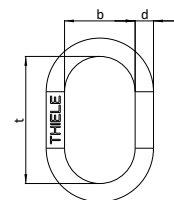


### Master Links Type A for 1- and 2-leg Chain Slings

The Grade 80 master links TWN 1303 are used to assemble 1- and 2-leg chain slings. The possibility of using the links for 1- and 2-leg chain slings offers a high flexibility and economical warehousing. The master links can be used e.g. to assemble wire rope slings according to DIN EN 13414-1. The dimensions comply with DIN 5688-3 and enable the use of connecting links, e.g. THI-LOK®s TWN 1320. The manufacturing and testing requirements comply to the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4.

Article-No.	Working Load Limit $\alpha = 60^\circ$ [lbs]	Dimensions [inch]			Weight app. [lbs]	Trade Size for use in Chain Slings		Crane Hooks acc. DIN 15401
		d	t	b		1-Leg	2-Leg	
F1303013	5,800	0.51	3.54	1.97	0.64	1/4" - 9/32" - 5/16"	1/4"	1,6
F1303016	9,000	0.63	4.33	2.36	1.17	1/4"	9/32"	2,5
F1303018	11,000	0.71	5.12	2.76	1.74	3/8"	5/16"	4
F1303020	13,200	0.79	5.51	3.15	2.43	1/2"		5
F1303022	15,700	0.87	6.30	3.54	3.31		3/8"	6
F1303026	23,300	1.02	7.09	3.94	5.07	5/8"	1/2"	8
F1303032	34,700	1.26	9.06	4.92	9.70	3/4" - 7/8"	5/8"	12
F1303036	44,100	1.42	9.84	5.51	13.67			16
F1303040	53,000	1.57	11.42	6.30	19.40	1"		20
F1303045	69,000	1.77	12.60	6.89	26.46		3/4" - 7/8"	25
F1303050	87,100	1.97	13.39	7.48	35.27	1-1/4"		25
F1303056	111,000	2.20	14.96	8.27	50.71	1-13/32"	1"	32
F1303063	138,000	2.48	16.93	9.45	72.75	1-9/16"		40
F1303070	175,000	2.76	18.50	10.24	97.00		1-1/4" - 1-7/16"	50
F1303080	234,000	3.15	20.47	11.42	141.10		1-9/16"	63
F1303085	280,000	3.35	20.47	11.42	160.94			63
F1303095	315,000	3.74	22.83	12.60	220.46			80
F1303110	412,000	4.33	26.77	14.96	352.74			100

### TWN 1303

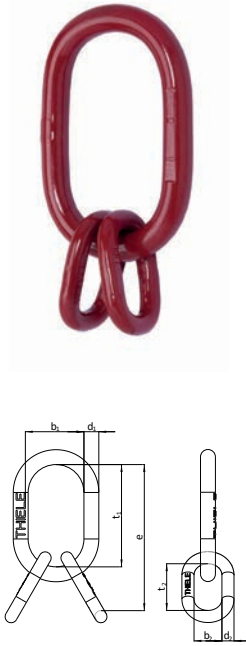




## TWN 1304

### Master Link Assemblies for 3- and 4-leg Chain Slings

The Grade 80 master link assemblies TWN 1304 are used to assemble 3- and 4-leg chain slings. Furthermore, the master link assemblies can be used e.g. to assemble wire rope slings according to DIN EN 13414-1. The dimensions comply with DIN 5688-3 and enable the use of connecting links, e.g. THI-LOK®s TWN 1320. The manufacturing and testing requirements comply to the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4.



Article-No.	Working Load Limit $\alpha = 60^\circ$ [lbs]	Dimensions [inch]							Weight app. [lbs]	Trade Size for use in Chain Slings
		e	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>		
F1304016	7,300	6.14	0.63	4.33	2.36	0.39	1.81	0.91	1.58	1/4"
F1304018	9,500	7.48	0.71	5.12	2.76	0.51	2.36	1.18	2.65	9/32"
F1304020	11,800	7.87	0.79	5.51	3.15	0.51	2.36	1.18	3.26	5/16"
F1304026	20,100	10.44	1.02	7.09	3.94	0.71	3.35	1.57	7.51	3/8"
F1304032	31,200	13.00	1.26	9.06	4.92	0.87	3.94	1.97	14.10	1/2"
F1304040	47,000	16.14	1.57	11.42	6.30	1.02	4.72	2.36	26.50	5/8"
F1304050	75,400	19.69	1.97	13.39	7.48	1.42	6.30	3.15	54.30	3/4"
F1304056	95,700	21.26	2.20	14.96	8.27	1.42	6.30	3.15	68.60	7/8"
F1304063	124,000	24.02	2.48	16.93	9.45	0.57	7.09	3.54	97.40	1"
F1314080	196,000	29.13	3.15	20.47	11.42	1.97	8.66	4.33	190.00	1-1/4"
F1314085	238,000	30.71	3.35	20.47	11.42	2.20	10.24	5.12	233.00	1-7/16"
F1314110	306,000	37.79	4.33	26.77	14.96	2.48	11.02	5.51	451.00	1-9/16"

## TWN 1317

### Master Link Assemblies for 3- and 4-leg Rope Slings

The Grade 80 master link assemblies TWN 1317 are used to assemble 3- and 4-leg wire rope slings. The extra large intermediate links enable easy assembly of wire rope slings. The manufacturing and testing requirements comply with the ASTM A952/A952M, ISO 8539 and DIN EN 1677 parts 1 and 4. The dimensions comply with DIN 5688-3.



Article-No.	Working Load Limit $0^\circ < \beta \leq 45^\circ$ SF = 5:1 [lbs]	Working Load Limit $0^\circ < \beta \leq 45^\circ$ SF = 4:1 [lbs]	Dimensions [inch]							Weight app. [lbs]	Classification of the Wire Rope Diameter*	
			e	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>		Fiber [mm]	Steel [mm]
F1317016	8,600	6,800	7.87	0.63	4.33	2.36	0.51	3.54	1.97	2.45	11	10
F1317018	11,000	8,800	9.45	0.71	5.12	2.76	0.63	4.33	2.36	4.08	13	12
F1317022	15,700	12,300	11.42	0.87	6.30	3.54	0.71	5.12	2.76	6.79	14	14
F1317026	23,100	18,500	13.39	1.02	7.09	3.94	0.87	6.30	3.54	11.68	18	16
F1317032	34,600	27,600	16.15	1.26	9.06	4.92	1.02	7.09	3.94	19.84	22	20
F1317036	44,100	35,300	18.90	1.42	9.84	5.51	1.26	9.06	4.92	33.07	26	24
F1317045	66,100	52,900	22.44	1.77	12.60	6.89	1.42	9.84	5.51	53.79	28	28
F1317050	87,100	69,700	25.99	1.97	13.39	7.48	1.77	12.60	6.89	88.18	36	36
F1317056	111,000	88,400	28.35	2.20	14.96	8.27	1.97	13.39	7.48	121.25	40	40
F1317063	138,000	110,000	31.89	2.48	16.93	9.45	2.20	14.96	8.27	174.17	44	44
F1317085	280,000	224,000	40.94	3.35	20.47	11.42	3.15	20.47	11.42	443.13	60	60

\*Acc. to the DIN EN 13414-1 for 3- and 4-leg slings.

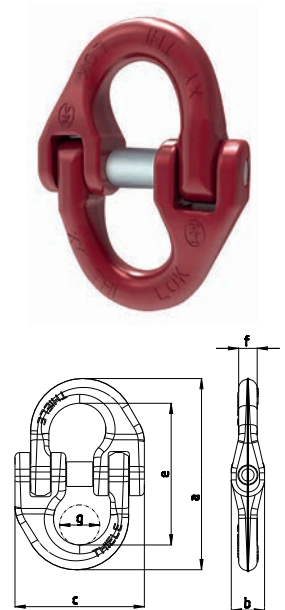
## Connectors

### THI-LOK® Connecting Links

The Grade 80 THI-LOK® connecting links TWN 1320 are used to connect lifting chains with lifting components to assemble chain slings. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	g	a	c	b	f	
1/4"	F308060	2,500	1.50	0.51	2.13	1.65	0.43	0.30	0.18
5/16"	F308160	4,500	2.13	0.71	2.95	2.32	0.59	0.35	0.44
3/8"	F308260	7,100	2.52	0.87	3.50	2.83	0.71	0.55	0.77
1/2"	F308360	12,000	3.39	1.02	4.72	3.46	0.94	0.67	1.37
5/8"	F308460	18,100	4.02	1.42	5.63	4.53	1.14	0.79	3.09
11/16"	F30850	22,000	4.80	1.42	6.50	4.33	1.22	0.87	4.10
3/4"	F30855	28,300	5.28	1.77	7.28	4.80	1.42	1.02	5.53
7/8"	F30860A	34,200	5.71	1.81	7.80	5.20	1.50	1.02	6.97
1"	F30870A	47,700	6.46	2.17	8.86	6.14	1.73	1.18	11.11
1-1/4"	F30880	72,300	7.56	2.56	10.55	7.56	2.17	1.46	20.22
1-7/16"	<b>NEW</b> F309061	88,200	9.04	3.15	12.64	9.61	2.60	1.73	32.96
1-9/16"	<b>NEW</b> F309161	110,200	9.04	3.15	12.64	9.61	2.60	1.73	32.96

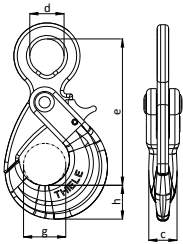
### TWN 1320



## TWN 0798

### Eye Self-Locking Hooks

The Grade 80 self-locking hooks TWN 0798 with eye are used to assemble chain slings and are often used in the construction industry. The associated lifting chains are assembled by using connecting links, e.g. THI-LOK®'s TWN 1320. The hooks lock automatically under load and may only be reopened manually if not under load anymore. The self-locking hooks comply with the ASTM A952/A952M and DIN EN 1677-3.

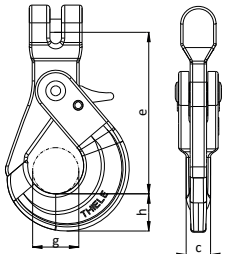


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]					Weight app. [lbs]
			e	d	g	h	c	
1/4"	Z07274	2,500	4.17	0.89	1.10	0.87	0.59	1.06
9/32"-5/16"	Z07275	4,500	5.24	0.94	1.38	0.98	0.79	1.81
3/8"	Z07276	7,100	6.57	1.26	1.77	1.38	1.06	3.64
1/2"	Z07277	12,000	8.19	1.54	2.13	1.61	1.30	6.88
5/8"	Z07278	18,100	9.84	1.93	2.64	2.13	1.54	12.96
11/16"-3/4"	F092255	28,300	10.12	2.36	2.91	2.24	1.69	16.16
7/8"	F092275	34,200	11.42	2.80	3.46	2.44	2.05	21.85

## TWN 0799

### Clevis Self-Locking Hooks

The Grade 80 clevis self-locking hooks TWN 0799 are used to assemble chain slings and are often used in the construction industry. The clevis design enables the direct attachment to the lifting chain. The hooks lock automatically under load and may only be reopened manually if not under load anymore. The self-locking hooks comply with the ASTM A952/A952M and DIN EN 1677-3.

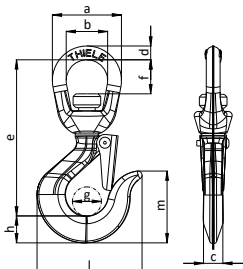


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	h	c	
1/4"	Z07279	2,500	3.86	1.10	0.87	0.59	1.26
5/16"	Z07280	4,500	4.80	1.30	0.98	0.79	2.05
3/8"	Z07281	7,100	5.91	1.77	1.38	1.06	3.86
1/2"	Z07282	12,000	7.32	2.13	1.61	1.30	7.17
5/8"	Z07296	18,100	8.46	2.64	2.13	1.54	13.67
11/16"-3/4"	F0922055	28,300	8.46	2.91	2.24	1.69	16.05

## TWN 0854

### Swivel Hooks

The Grade 80 swivel hooks TWN 0854 are used to assemble chain slings. The swivels enable the chain legs to be aligned without twisting. The lifting chains are assembled by using connecting links, e.g. THI-LOK®'s TWN 1320. The manufacturing and testing requirements comply with the ASTM A952/A952M and DIN EN 1677-2.



Trade Size	Article-No.	Working Load Limit 60° ≤ α ≤ 75° [lbs]	Dimensions [inch]										Weight app. [lbs]
			d	f	b	e	g	a	c	h	l	m	
0,75 t	F32103	1,650	0.39	0.98	1.18	4.47	0.75	1.97	0.51	0.55	2.46	1.67	0.82
1/4"	F32100	2,500	0.39	0.98	1.18	4.45	0.83	1.97	0.55	0.75	2.87	2.05	0.84
5/16"	F32110	4,500	0.63	1.65	1.73	6.10	0.98	2.99	0.75	0.96	3.46	2.68	2.20
3/8"	F32120	7,100	0.63	1.65	1.73	6.38	1.10	2.99	0.81	1.12	4.09	2.83	2.65
1/2"	F32130	12,000	0.75	1.69	2.01	7.48	1.34	3.50	1.10	1.30	4.72	3.43	4.59
5/8"	F32140	18,100	0.98	2.36	2.52	9.72	1.65	4.49	1.38	1.69	6.14	4.33	9.81

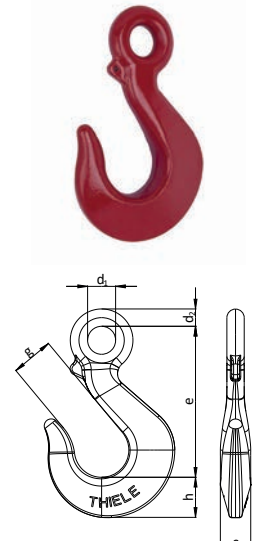
## Hooks

### Eye Sling Hooks

The Grade 80 eye sling hooks TWN 0855 are used to assemble chain slings. The lifting chains are assembled by using connecting links, e.g. THI-LOK®s TWN 1320. The manufacturing and testing requirements comply with the ASTM A952/A952M and DIN EN 1677-2.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	d <sub>1</sub>	g	h	c	d <sub>2</sub>	
1-7/16"	Z04079	88.200	15.28	2.83	4.29	4.06	3.07	1.75	69.45
1-9/16"	Z04083	110.200	17.40	3.31	4.88	4.57	3.50	1.99	101.41
1-3/4"	Z04080	138.900	19.45	3.54	5.43	5.12	3.90	2.20	138.89
2"	Z04081	176.400	24.02	4.02	6.10	5.71	4.33	2.48	176.37

#### TWN 0855



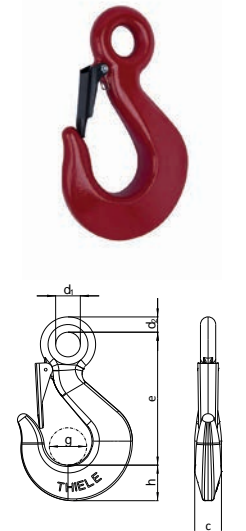
TAB  
TA8

### Eye Sling Hook with Safety Latch

The Grade 80 eye sling hooks TWN 0855/1 are used to assemble chain slings. The lifting chains are assembled by using connecting links, e.g. THI-LOK®s TWN 1320. The safety latch prevents unintentional detachment from the load. The sling hooks comply with the ASTM A952/A952M and DIN EN 1677-2.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	d <sub>1</sub>	g	h	c	d <sub>2</sub>	
1-7/16"	Z06159	88,200	15.28	2.83	3.54	4.06	3.07	1.75	71.21
1-9/16"	Z06160	110,200	17.40	3.31	4.06	4.57	3.50	1.99	103.62
1-3/4"	Z06161	138,900	19.45	3.54	4.49	5.12	3.90	2.20	141.98
2"	Z06162	176,400	24.02	4.02	5.16	5.71	4.33	2.48	180.56

#### TWN 0855/1

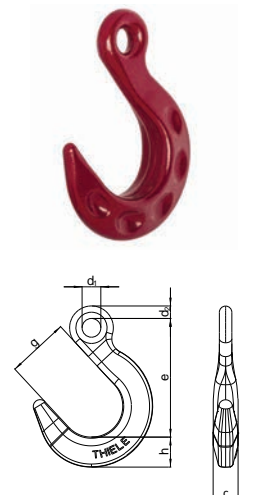


### Eye Foundry Hooks

The Grade 80 eye foundry hooks TWN 0856 are used to assemble chain slings, primarily for foundries. The associated lifting chains are assembled by using connecting links, e.g. THI-LOK®s TWN 1320. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	d <sub>1</sub>	g	h	c	d <sub>2</sub>	
1/4"	NEW F32354	2,500	4.25	0.83	1.97	0.94	0.79	0.47	0.97
5/16" <sup>1)</sup>	F32360	4,500	4.92	0.71	2.60	1.30	1.06	0.55	2.34
3/8" <sup>1)</sup>	F32370	7,100	5.75	0.79	2.99	1.38	1.26	0.65	3.66
1/2" <sup>1)</sup>	F32380	12,000	6.89	1.02	3.50	1.61	1.50	0.79	6.97
5/8"	NEW F32394	18,100	9.02	2.13	4.02	1.89	1.77	0.91	10.38
11/16"-3/4"	NEW F32404	28,300	10.20	2.32	4.49	2.48	2.30	1.06	17.53
7/8"	NEW F32414	34,200	11.34	2.56	5.00	2.76	2.56	1.18	23.99
1"	NEW F32424	47,700	12.95	2.99	5.35	3.19	2.95	1.38	36.35
1-1/4"	NEW F32444	72,300	14.09	3.35	5.98	3.82	3.27	1.65	57.76

#### TWN 0856



<sup>1)</sup>TWN 0856A

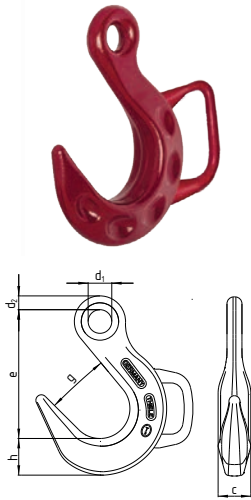


## TWN 0856/1

### Eye Foundry Hooks with Handle

NEW

The Grade 80 eye foundry hooks TWN 0856/1 with handle are used to assemble chain slings, primarily for foundries. The associated lifting chains are assembled by using connecting links, e.g. THI-LOK®s TWN 1320. The handle ensures an safe and easy handling. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.

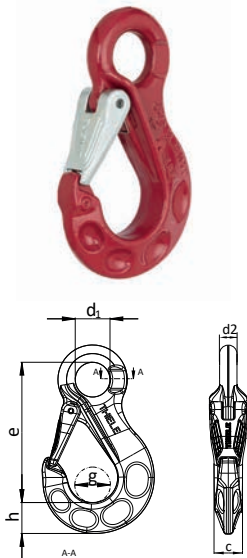


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	d <sub>1</sub>	g	h	c	d <sub>2</sub>	
5/8"	F32396	18,100	9.02	2.13	4.02	1.89	1.77	0.91	13.23
11/16"-3/4"	F32406	28,300	10.20	2.32	4.49	2.48	2.30	1.06	17.61

## TWN 0858/1

### SOLIDO® Eye Sling Hooks with forged Safety Latch

The Grade 80 eye sling hooks TWN 0858/1 with latch are used to assemble standard chain slings. The lifting chains are assembled by using connecting links, e.g. THI-LOK®s TWN 1320. The forged heavy duty safety latch prevents an unintentional detachment from the load. The sling hooks comply with the ASTM A952/A952M and DIN EN 1677-2.

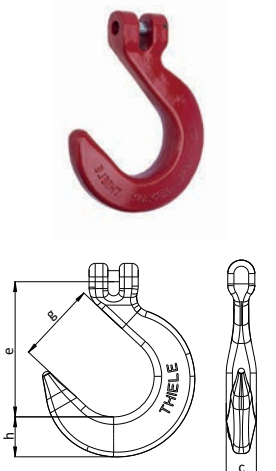


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]							Weight app. [lbs]
			e	d <sub>1</sub>	d <sub>2</sub>	g	h	c	f	
1/4"	F329010	2,500	3.62	0.83	0.43	0.94	0.79	0.67	-	0.79
5/16"	F329110	4,500	4.65	1.10	0.55	1.18	0.98	0.91	-	1.68
3/8"	F329210	7,100	5.75	1.42	0.71	1.46	1.26	1.14	-	3.31
1/2"	F329310	12,000	6.61	1.65	0.83	1.65	1.61	1.38	-	5.62
5/8"	F329410	18,100	8.27	2.13	0.98	2.01	1.97	1.61	-	10.25
11/16"-3/4"	F32951	28,300	10.63	2.44	1.18	2.56	2.28	2.17	-	19.18
7/8"	F329710	34,200	10.67	2.56	1.18	2.76	2.44	2.17	-	22.49
1"	F329810	47,700	11.89	2.76	1.30	2.95	2.80	2.36	3.19	33.07
1-1/4"	F329910	72,300	13.78	3.15	1.50	3.54	3.31	2.76	3.90	53.57

## TWN 0859

### Clevis Foundry Hooks

The Grade 80 clevis foundry hooks TWN 0859 are used to assemble chain slings, primarily for foundries. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	h	c	
5/16"	F33310	4,500	4.33	2.60	1.30	1.06	2.47
3/8"	F33320	7,100	5.24	2.99	1.38	1.26	3.55
1/2"	F33330	12,000	6.26	3.50	1.61	1.50	7.50
5/8"	F33340	18,100	7.44	4.02	1.89	1.77	12.13
3/4"	F33355	28,300	8.54	4.49	2.13	2.01	19.84
7/8"	F33360	34,200	9.61	4.88	2.36	2.20	26.46

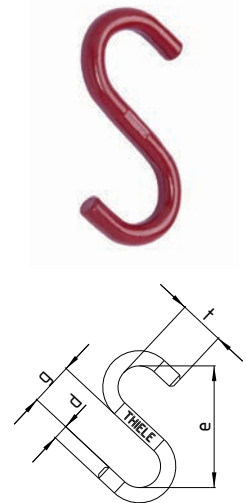
## Hooks

### S-Hooks

The Grade 80 S-hooks TWN 0860 can be used universally for lifting of loads, also in combination with chain slings. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	t	d	
	F18130	350	3.15	1.10	1.18	0.39	0.26
	F18160	550	3.94	1.42	1.50	0.47	0.46
	F18180	900	5.12	1.81	1.89	0.63	1.06
	F18200	1,800	6.30	2.20	2.28	0.79	2.01
1/4"	F18220	2,500	7.09	2.52	2.52	0.87	2.65
9/32"	F18230	3,500	7.87	2.76	2.76	1.02	4.19
5/16"	F18250	4,500	9.06	3.15	3.15	1.26	7.50
3/8"	F18260	7,100	10.24	3.54	3.54	1.42	10.58
	F18280	8,800	11.81	4.09	4.09	1.57	14.99
	F18290	9,900	13.78	4.80	4.76	1.77	22.05
1/2"	F18300	12,000	15.75	5.51	5.43	2.01	32.19
	F18310	13,200	17.72	6.22	6.06	2.24	45.19
5/8"	F18320	18,100	19.69	6.30	6.30	2.48	60.41
11/16"	F18330	22,000	21.65	6.54	6.61	2.83	85.98

### TWN 0860

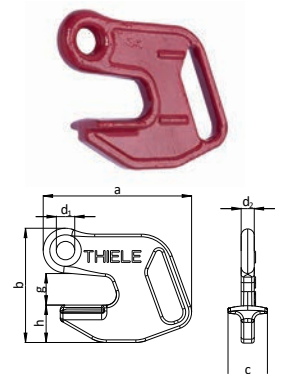


### Pipe Transport Hooks

The Grade 80 pipe transport hooks TWN 0868 are used as forged end fittings in 2-leg chain slings to lift pipes. The lifting chains are assembled by using connecting links, e.g. THI-LOK®'s TWN 1320. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]							Weight app. [lbs]
			b	a	d <sub>1</sub>	d <sub>2</sub>	g	h	c	
1/2"	F32608	12,000	6.85	8.90	1.10	0.79	1.93	2.24	2.36	6.83
7/8"	F32641	34,200	10.79	13.58	1.73	1.18	3.15	3.54	3.74	32.23

### TWN 0868

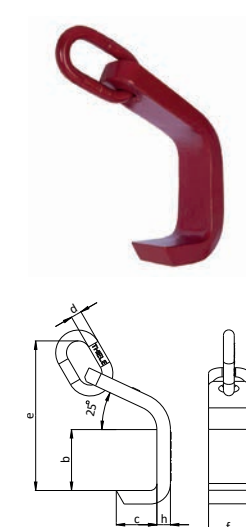


### Plate Hooks for Basket Chains

The Grade 80 plate hooks TWN 0872 with intermediate link are used as end fittings of chain slings for the horizontal transportation of thick-walled sheet metals in steel constructions. The intermediate links enable the connection of additional slings. The hooks are used in 2-leg basket chain slings, the max. inclination angle is  $\alpha = 60^\circ$ . The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Working Load Limit $60^\circ \leq \alpha \leq 75^\circ$ [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	b	c	d	f	h	
7/32"	F35500	4,300	8.70	3.54	2.36	0.63	2.36	0.79	5.51
5/16"	F35501	7,500	9.61	3.54	3.54	0.63	2.76	0.98	8.82
3/8"	F35502	12,300	13.07	5.51	3.74	0.71	3.15	1.18	22.22
1/2"	F35503	20,800	14.17	5.71	4.13	0.87	3.54	1.38	24.25
5/8"	F35504	31,300	15.91	6.10	4.72	1.02	4.33	1.77	37.04
3/4"	F35505	49,000	17.52	6.89	5.12	1.26	4.72	2.17	66.14
7/8"	F35506	59,200	20.08	8.07	5.31	1.42	5.51	2.36	88.85
1"	F35507	82,600	22.05	9.06	5.71	1.77	6.30	2.76	135.58
1-1/4"	F35508	125,200	24.45	10.04	6.30	1.97	7.09	3.35	188.50

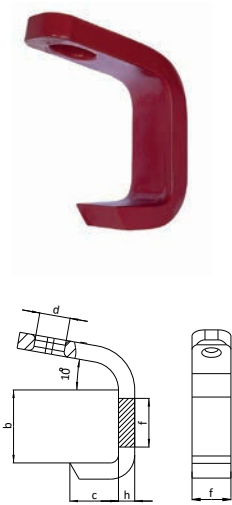
### TWN 0872



## TWN 0873

### Plate Hooks for Spreader Chains

The Grade 80 plate hooks TWN 0873 with eyelet are used as end fittings in chain slings for the horizontal transport of thick-walled sheet metals in steel constructions. The eyelet allows the chain to be passed through. The max. inclination angle is  $\alpha = 60^\circ$ . The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.

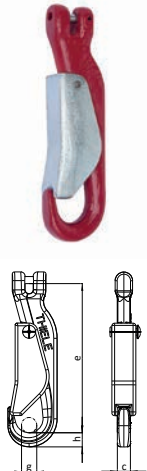


Trade Size	Article-No.	Working Load Limit $60^\circ \leq \alpha \leq 75^\circ$ [lbs]	Dimensions [inch]					Weight app. [lbs]
			b	c	d	f	h	
7/32"	F35600	4,300	3.54	2.36	1.50	2.36	0.79	5.29
5/16"	F35601	7,500	3.54	3.54	1.65	2.76	0.98	7.72
3/8"	F35602	12,300	5.51	3.74	1.97	3.15	1.18	17.64
1/2"	F35603	20,800	5.71	3.94	2.56	3.54	1.38	27.60
5/8"	F35604	31,300	6.10	4.72	3.07	4.33	1.77	48.50
3/4"	F35605	49,000	6.89	5.12	3.62	5.12	2.17	55.12
7/8"	F35606	59,200	8.07	5.31	3.94	5.51	2.36	74.96
1"	F35607	82,600	9.06	5.71	4.65	6.30	2.76	110.23
1-1/4"	F35608	125,200	10.04	6.30	5.59	7.48	3.35	152.12

## TWN 0889

### Engine-Transport Clevis Hooks

The Grade 80 engine-transport hooks TWN 0889 are used in chain slings as end fittings, predominantly for the transportation of engine blocks. The tip shape enables the attachment to small eyelets. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.



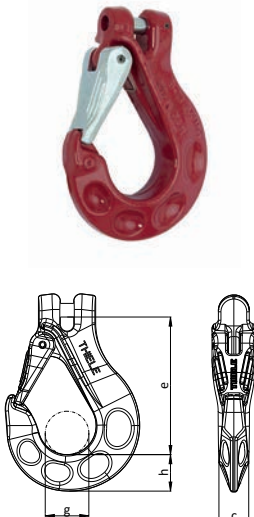
Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	h	c	
1/4"*	F33439	1,100	5.39	0.75	0.51	0.47	1.21

\*Compatible with trade size 6-8, but WLL limited to max 0,5 t.

## TWN 1340/1

### Clevis Sling Hooks with Forged Safety Latch

The Grade 80 clevis sling hooks TWN 1340/1 with latch are used to assemble universal chain slings and lashing chains. The clevis design enables the direct attachment to the lifting chain. The forged heavy duty safety latch prevents an unintentional detachment from the load. The sling hooks comply with the ASTM A952/A952M, ISO 7597 and DIN EN 1677-2.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	h	c	
1/4"	F336010	2,500	2.95	0.94	0.79	0.67	0.79
5/16"	F336110	4,500	3.62	1.18	0.98	0.87	1.68
3/8"	F336210	7,100	4.45	1.46	1.26	1.10	3.11
1/2"	F336310	12,000	5.24	1.65	1.61	1.38	5.45
5/8"	F336410	18,100	6.38	2.01	1.97	1.61	13.23
3/4" <sup>1)</sup>	F33656	28,300	8.66	2.56	2.28	2.17	21.34
7/8" <sup>1)</sup>	F33661	34,200	9.61	2.76	2.52	2.40	27.18

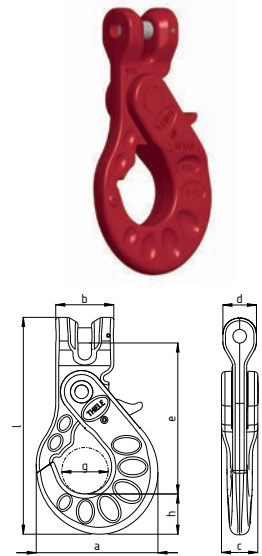
## Hooks

### Clevis Skip Suspension Hooks NEW

The Grade 80 skip suspension hooks TWN 1399 connect chain slings with the pivot of containers, e.g. containers according to DIN 30720. The shape of the hooks is designed to fit container lifting pivots. The clevis design enables the direct attachment to the lifting chain. The hooks lock automatically under load and may only be reopened manually if not under load anymore. The skip suspension hooks comply with DIN EN 1677-3.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]								Weight app. [lbs]
			e	c	g	h	d	b	a	l	
1/2"	F335000	12,000	65.75	15.75	20.08	16.54	14.57	25.20	53.15	94.09	7.36
5/8"	F335300	18,100	64.96	15.75	20.08	16.54	14.57	25.20	53.15	94.09	7.36

#### TWN 1399



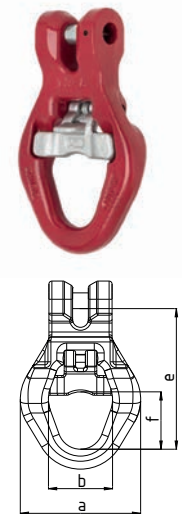
TA8

### Clevis Skip Suspension Links for One-Hand Operation and Forged Safety Latch

The Grade 80 skip suspension links TWN 0869 connect chain slings with the pivot of containers, e.g. containers according to DIN 30720. The shape of the eyelet is designed to fit container suspension pivots. The clevis design enables the direct attachment to the lifting chain. The forged safety latch allows a safe one-hand operation. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677 parts 1 and 4.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	f	b	a	
1/2"	F313800	12,000	5.59	2.26	2.56	4.80	4.23
5/8"	F313850	18,100	5.55	2.26	2.56	4.80	4.23

#### TWN 0869

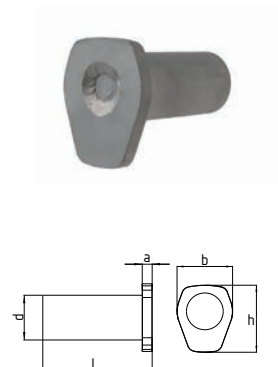


### Container Pivots

The container pivots TWN 0869/1 are welded to containers and serve as lifting points for attaching skip suspension hooks and links.

Trade Size	Article-No.	Dimensions [inch]					Weight app. [lbs]
		a	d	b	l	h	
M12	F31410	0.39	1.77	2.68	4.33	3.23	3.53

#### TWN 0869/1

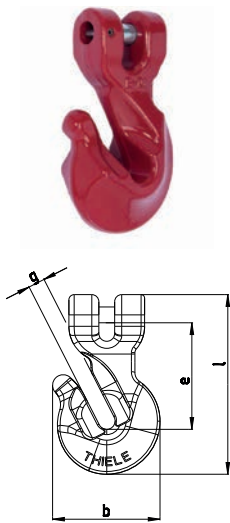




## TWN 0827

### Clevis Shortening Hooks

The Grade 80 clevis shortening hooks TWN 0827 are used to adjust the strand lengths of chain slings. The clevis design enables the direct attachment to the lifting chain. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539 and DIN EN 1677-1.

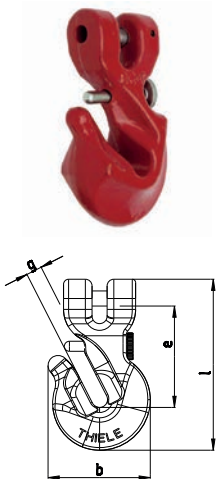


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	l	b	
5/16"	F33200	4,500	2.40	0.37	4.02	2.40	1.17
3/8"	F33210	7,100	2.87	0.47	4.92	2.95	2.14
1/2"	F33220	12,000	3.70	0.59	6.30	3.74	4.41
5/8"	F33230	18,100	4.41	0.71	7.40	4.72	7.50
3/4"	F33245	28,300	5.83	0.89	9.53	5.55	16.09

## TWN 0827/1

### Clevis Shortening Hooks with Safety Pin

The Grade 80 clevis shortening hooks with safety pin TWN 0827/1 are used to adjust the length of chain slings and lashing chains. The clevis design enables the direct attachment to the lifting chain. The safety pin prevents the chain from accidental release. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1 and DIN 5692.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	l	b	
5/16"	F33201	4,500	2.40	0.37	4.02	2.40	1.21
3/8"	F33211	7,100	2.87	0.47	4.92	2.95	2.22
1/2"	F33221	12,000	3.70	0.59	6.30	3.74	4.63
5/8"	F33231	18,100	4.41	0.71	7.40	4.72	7.75
3/4"	F33246	28,300	5.83	0.89	9.53	5.55	16.51

## TWN 0851

### Clevis Shortening Claws

The Grade 80 clevis shortening claws TWN 0851 are used to adjust the lengths of chain slings. The clevis design enables the direct attachment to the lifting chain. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539 and DIN EN 1677-1.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	l	b	a	
11/16"	F34960	22,000	6.38	9.49	3.86	2.72	11.90
3/4"	F34970	28,300	6.22	9.49	3.86	2.72	11.90
7/8"	F34980	34,200	7.80	11.61	4.65	3.31	19.44
1"	F34985	47,700	7.68	12.17	5.12	3.70	26.46
1-1/4"	F34990	72,300	9.45	15.00	6.30	4.53	52.69

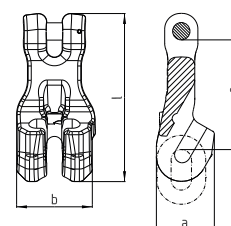
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## Shortening Components

### Clevis Shortening Claws with Safety Pin NEW

The Grade 80 clevis shortening claws TWN 0851/1 with safety pin are used to adjust the lengths of chain slings, lifting and lashing chains. The clevis design enables the direct attachment to the lifting chain. The safety pin prevents unintentional detachment of the chain. The shortening claws have been tested in interaction with lifting chain. The chain pockets ensure a particularly tight fit for the inserted chain link. The safety bolt enables the use in lashing chains according to DIN EN 12195-3. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1 and DIN 5692.

#### TWN 0851/1

**TA8**

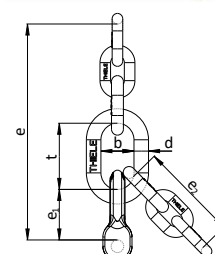
Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	a	b	l	
1/4"	F349101	2,500	2.01	1.06	1.46	3.07	0.55
5/16"	F349201	4,500	2.56	1.34	1.79	3.94	1.10
3/8"	F349301	7,100	3.19	1.69	2.20	4.88	2.05
1/2"	F349401	12,000	4.17	2.20	2.87	6.38	4.48
5/8"	F349501	18,100	5.12	2.68	3.46	7.60	7.94
3/4"*	F349601	28,300	6.34	3.35	4.29	9.69	13.23
7/4"*	F349701	34,200	6.97	3.70	4.72	10.67	17.64
1"*	F349801	47,700	7.72	4.29	5.31	12.09	29.10
1-1/4"*	F349901	72,300	9.45	5.31	6.54	14.80	53.84

\*on request

### Shortening Devices for Fixed Size Master Links

The Grade 80 shortening devices TWN 0896 for fixed size master links are used in chain slings and enable the lengths of the legs to be adapted to the conditions of use. The manufacturing and testing requirements are based on DIN EN 818-4 and comply with the ASTM A906/A906M-02, ASTM 952/A952A, ISO 8539, DIN EN 1677 parts 1 and 4 and DIN 5688-3.

#### TWN 0896



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	e <sub>1</sub>	e <sub>2</sub>	d	t	b	
1/4"	F0896068	2,500	5.39	1.22	2.36	0.39	1.81	0.91	0.71
5/16"	F0896088	4,500	6.93	1.50	3.07	0.51	2.36	1.18	1.54
3/8"	F0896108	7,100	8.46	1.81	3.90	0.63	2.76	1.38	3.09
1/2"	F0896138	12,000	10.63	2.32	4.96	0.71	3.35	1.57	5.73
5/8"	F0896168	18,100	12.83	2.99	5.91	0.87	3.94	1.97	9.92
11/16"	F0896188	28,300	13.66	3.11	6.61	0.87	3.94	1.97	13.67
7/8"	F0896228	34,200	17.72	3.94	8.27	1.26	5.51	2.76	26.46



OCTA STAR

## OCTA STAR



### Wire gliding Hook with Safety Latch

The Grade 80 OCTA STAR wire sliding hook are a sliding chocker hook with safety latch that prevents the slings from sliding back. The forged hooks are made out of alloy steel.

Wire Diameter		Article-No.	Lashing Capacity [daN]	Dimensions [inch]			Weight app. [lbs]
[mm]	[inch]			b	l	e	
9-13	0.35 - 0.51	Z08386	3,200	1.97	5.20	3.15	1.56
14-16	0.55 - 0.63	Z08387	4,000	2.50	5.95	3.74	2.89

## OCTA STAR



### Clevis Shortening Hook (Small)

The Grade 80 OCTA STAR clevis shortening hooks from our OCTA STAR product line are used to adjust the strand lengths of chain slings and lashing chains. The clevis design enables the direct attachment to the chain.

Trade Size [inch]	Article-No.	Working Load Limit $\alpha = 90^\circ$ [lbs]	Dimensions [inch]	Weight app. [lbs]
			e	
9/32 - 5/16	Z06911	4,500	2.05	0.88
3/8	Z06912	7,100	2.88	1.54
1/2	Z06913	12,000	3.47	2.87
5/8	Z06914	18,100	3.90	5.95

## OCTA STAR



### Eye Shortening Hook

The Grade 80 OCTA STAR eye type shortening hooks from our OCTA STAR product line are used to adjust the strand lengths of chain slings and lashing chains.

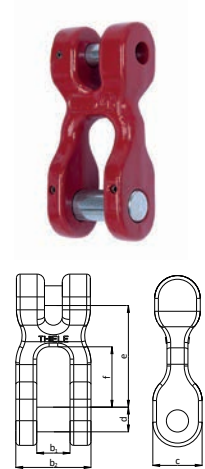
Trade Size [inch]	Article-No.	Working Load Limit $= 90^\circ$ [lbs]	Dimensions [inch]	Weight app. [lbs]
			e	
9/32 - 5/16	Z08010	4,500	2.13	0.68
3/8	Z08011	7,100	3.11	1.43
1/2	Z08012	12,000	3.90	3.09
5/8	Z08013	18,100	4.18	5.51

## Special Chain Coupling Links

The grade 80 special chain couplings TWN 0861 are used as end fittings in chain slings. The clevis design enables the direct attachment to the lifting chain. The special chain couplings may also be mounted directly on straps and traverses. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	d	c	f	b <sub>1</sub>	b <sub>2</sub>	
3/8"	F30601	7,100	2.56	0.63	1.26	1.46	0.83	1.85	1.28
1/2"	F30611	12,000	3.27	0.79	1.57	1.93	1.06	2.44	2.58
5/8"	F30621	18,100	3.94	0.94	1.89	2.24	1.34	2.99	4.70
11/16"	F30631	22,000	4.57	1.18	2.36	2.52	1.65	3.82	8.60

### TWN 0861

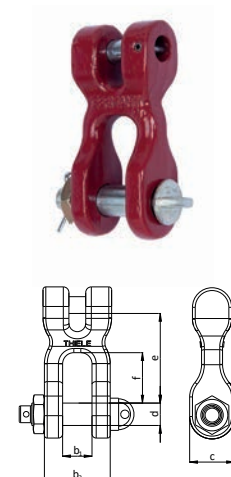


## Special Chain Coupling Links with Bolts, Nut and Pin

The Grade 80 special chain couplings TWN 0862 with bolts, nut and roll pin are used as end fittings in chain slings. The clevis design enables the direct attachment to the lifting chain. The special chain couplings may also be mounted directly on straps and traverses. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	d	c	f	b <sub>1</sub>	b <sub>2</sub>	
3/8"	F30600	7,100	2.56	0.63	1.26	1.46	0.83	1.85	1.46
1/2"	F30610	12,000	3.27	0.79	1.57	1.93	1.06	2.44	2.89
5/8"	F30620	18,100	3.94	0.94	1.89	2.24	1.34	2.99	5.14
11/16"	F30630	22,000	4.57	1.18	2.36	2.52	1.65	3.82	9.46

### TWN 0862

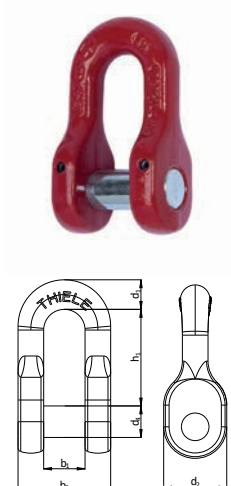


## Special Bolt Shackles

The Grade 80 shackles TWN 0870 with bolt are used as end fittings in chain slings. The shackles can be mounted directly on straps and traverses. The dimensions of the special shackles comply with DIN 82101. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Trade Size [DIN 82101]	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
				h <sub>1</sub>	d <sub>1</sub>	d <sub>2</sub>	d <sub>4</sub>	b <sub>1</sub>	b <sub>2</sub>	
3/8"	F30311	1	7,100	1.93	0.59	1.26	0.63	0.83	1.85	0.77
1/2"	F30321	1.6	12,000	2.40	0.75	1.57	0.79	1.06	2.40	1.57
5/8"	F30331	2.5	18,100	2.87	0.91	1.89	0.94	1.30	2.95	2.78
11/16"-3/4"	F30341	4	28,300	3.58	1.14	2.36	1.18	1.61	3.78	5.73
7/8"	F30351	5	34,200	4.37	1.30	2.83	1.42	1.85	4.21	8.82
1"	F30361	6	47,700	4.72	1.46	3.07	1.54	2.09	4.76	12.57
1-1/8"	F30371	8	55,100	5.51	1.61	3.54	1.77	2.36	5.35	22.05
1-1/4"	F30381	10	72,300	5.79	1.77	3.78	1.89	2.60	5.91	23.15
1-7/16"	F30391	12	88,200	6.22	1.97	4.09	2.05	2.87	6.57	30.64
1-9/16"	F30401	16	110,200	7.28	2.17	4.72	2.36	3.19	7.28	45.19
1-3/4"	F30411	20	138,900	8.31	2.40	5.35	2.68	3.54	8.11	61.93

### TWN 0870

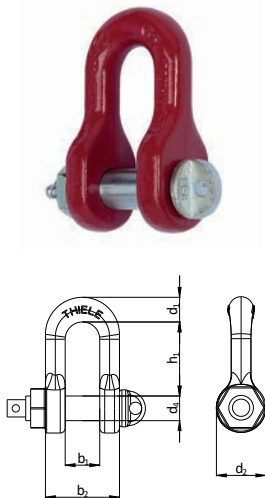




## TWN 0871

### Bolt Shackles Type C with Nut and Roll Pin

The Grade 80 shackles type C TWN 0871 with bolt, nut and roll pin are used as end fittings in chain slings. The shackles can be mounted directly on straps and traverses. The dimensions of the shackles type C comply with DIN 82101. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.



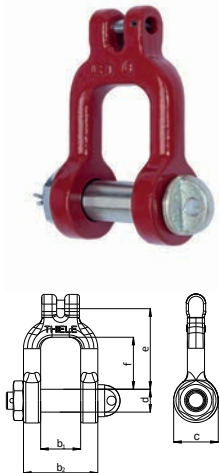
Trade Size	Article-No.	Trade Size [DIN 82101]	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
				$h_1$	$d_1$	$d_2$	$d_4$	$b_1$	$b_2$	
1/4"*	Z04147	0.4	2,500	1.18	0.39	0.79	0.39	0.55	1.18	0.22
5/16"	Z04145	0.6	4,500	1.30	0.47	0.94	0.47	0.63	1.46	0.44
3/8"	F30310	1.0	7,100	1.93	0.59	1.26	0.63	0.83	1.85	0.93
1/2"	F30320	1.6	12,000	2.40	0.75	1.57	0.79	1.06	2.40	1.85
5/8"	F30330	2.5	18,100	2.87	0.91	1.89	0.94	1.30	2.95	3.28
11/16"-3/4"	F30340	4.0	28,300	3.58	1.14	2.36	1.18	1.65	3.78	6.83
7/8"	F30350	5.0	34,200	4.37	1.30	2.83	1.42	1.85	4.21	9.92
1"	F30360	6.0	47,700	4.72	1.46	3.07	1.54	2.09	4.76	13.89
1-1/8"	F30370	8.0	55,100	5.51	1.61	3.54	1.77	2.36	5.35	22.27
1-1/4"	F30380	10.0	72,300	5.79	1.77	3.78	1.89	2.60	5.91	27.12
1-7/16"	F30390	12.0	88,200	6.22	1.97	4.09	2.05	2.87	6.57	33.58
1-9/16"	F30400	16.0	110,200	7.28	2.17	4.72	2.36	3.19	7.28	48.94
1-3/4"	F30410	20.0	138,900	8.31	2.40	5.35	2.68	3.54	8.11	68.03

\*Finish: electro galvanized, weld on nut

## TWN 0897

### Special Coupling Shackles with Bolt, Nut and Roller Pin

The Grade 80 special coupling shackles TWN 0897 with bolt, nut and roll pin are used as end fittings in chain slings. The clevis design enables the direct attachment to the lifting chain. The special coupling shackles can also be mounted directly on straps and traverses. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.



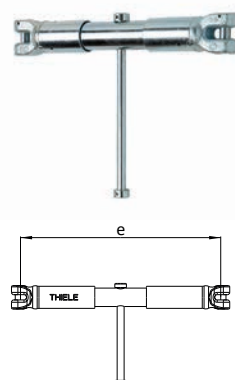
Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	d	c	f	$b_1$	$b_2$	
1/4"	F30586	2,500	154.32	44.09	85.98	101.41	77.16	143.30	1.50
5/16"	F30596	4,500	154.32	44.09	88.18	101.41	77.16	143.30	1.70

## Chain Tensioners

## TWN 1450

### Chain Tensioners with Toggle

The Grade 80 chain tensioners TWN 1450 with toggle are used as tensioning elements in lashing chains. The chain tensioners can also be used in chain slings for stepless adjustment of the strand lengths when lifting loads. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



Trade Size	Article-No.	Normal straight load [daN] min.	Tensioner under straight load (LC) [daN] max.	Dimensions [inch]			Weight app. [lbs]
				$e_{max}$	$e_{min}$	lift	
5/16"	F34179	1,800	4,000	13.58	10.63	2.95	4.63
3/8"	F34199	2,200	6,300	14.76	10.83	3.94	5.95
1/2"	F34189	2,600	10,000	18.11	12.99	5.12	8.82

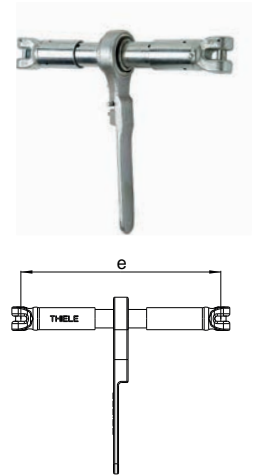
## Chain Tensioners/ Special Sling Components

### Chain Tensioners with Ratchet

The Grade 80 chain tensioners TWN 1451 with ratchet are used as tensioning elements in lashing chains. The chain tensioners can also be used in chain slings for stepless adjustment of the strand lengths when lifting loads. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Normal straight load [daN] min.	Tensioner under straight load (LC) [daN] max.	Dimensions [inch]			Weight app. [lbs]
				e <sub>max</sub>	e <sub>min</sub>	lift	
5/16"	F34175	1,800	4,000	13.58	10.63	2.95	5.51
3/8"	F34195	2,200	6,300	14.76	10.83	3.94	7.72
1/2"	F34185	2,600	10,000	18.11	12.99	5.12	11.02

TWN 1451

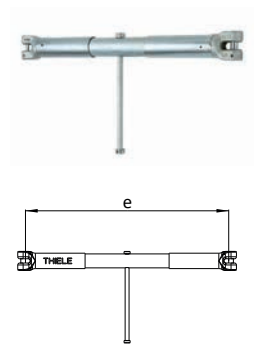


### Chain Tensioners with Toggle (Large Lift)

The Grade 80 chain tensioners TWN 1452 with toggle are used as tensioning elements in lashing chains. The chain tensioners can also be used in chain slings for stepless adjustment of the strand lengths when lifting loads. The chain tensioners have a particularly large lift. The chain tensioner with ratchet and trapezoidal thread achieve a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Normal straight load [daN] min.	Tensioner under straight load (LC) [daN] max.	Dimensions [inch]			Weight app. [lbs]
				e <sub>max</sub>	e <sub>min</sub>	lift	
1/2"	F341871	2,600	10,000	26.57	17.52	9.06	15.87
5/8"	F34197	3,100	16,000	32.68	21.65	11.02	26.01

TWN 1452

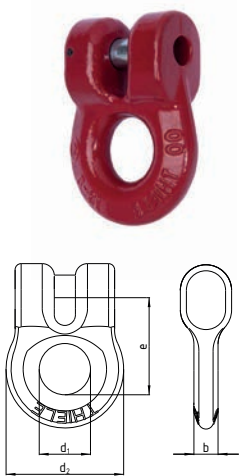


## TWN 0812

### Ring Shackles

The Grade 80 ring shackles TWN 0812 are used to connect lifting chains with sling components to assemble chain slings.

The manufacturing and testing requirements are based on the ASTM A952/A952M and DIN EN 1677-3.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	d <sub>1</sub>	d <sub>2</sub>	b	
1/4"	F31700	2,500	1.22	0.67	1.54	0.31	0.22
5/16"	F31710	4,500	1.46	0.83	1.97	0.43	0.51
3/8"	F31720	7,100	1.85	1.02	2.44	0.55	1.01
1/2"	F31730	12,000	2.32	1.30	3.11	0.71	1.92
5/8"	F31740	18,100	3.03	1.65	3.94	0.91	3.53
1 1/16"	F31750	22,000	3.11	1.85	4.37	0.98	5.51
7/8"	F31760	34,200	3.94	2.17	5.35	1.22	8.38

## TWN 0845

### Swivels

The Grade 80 swivels TWN 0845 are used to assemble chain slings. The swivels enable the chain legs to be aligned without twisting. The lifting chains are assembled by using connecting links, e.g. THI-LOK®s

TWN 1320. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.

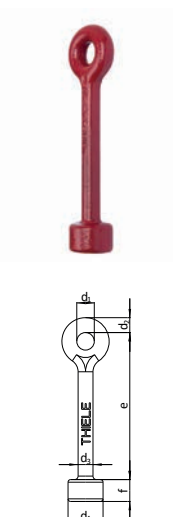


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	d	f	b	
1/4"	F34000	2,500	4.25	0.39	1.06	1.18	0.73
5/16"	F34010	4,500	6.61	0.63	1.73	1.73	2.93
3/8"	F34020	7,100	6.61	0.63	1.73	1.73	2.93
1/2"	F34030	12,000	7.24	0.75	1.81	2.01	4.63
5/8"	F34040	18,100	9.92	0.98	2.60	2.52	9.81

## TWN 0892

### Key Hooks

The Grade 80 key hooks TWN 0892 are used in chain slings as end fittings, predominantly for the transportation of metal sheets with keyhole openings. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	f	
3/8"	F34250	7,100	6.61	0.67	0.79	0.67	1.57	0.98	1.59

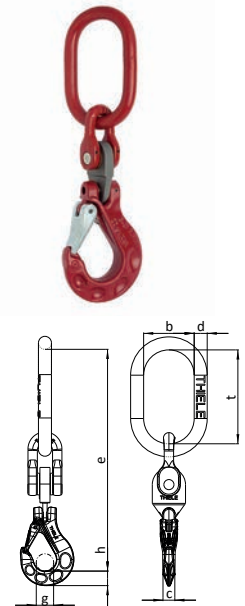
## Special Sling Components

### Isolation Assemblies

The Grade 80 isolation assemblies TWN 0893 are used for the transportation of components that require isolation to the crane hook. They isolate an electrical current flow up to a maximum of 1,000 volts. The manufacturing and testing requirements are based on DIN EN 818-4 and comply to ASTM A906/A906M-02.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]							Weight app. [lbs]
			e	d	c	b	g	t	h	
1/4"	F08904	2,500	12.20	0.71	0.67	2.76	0.94	5.12	0.79	3.75
5/16"	F08912	4,500	13.11	0.71	0.87	2.76	1.18	5.12	0.98	4.63
3/8"	F08898	7,100	14.80	0.71	1.10	2.76	1.46	5.12	1.26	7.17
1/2"	F08899	12,000	16.95	0.87	1.38	3.54	1.65	6.30	1.54	11.46

### TWN 0893



TA8

### T-Handle Chains

The Grade 80 T-handle chains TWN 0894 are predominantly used in civil engineering for the vertical transport of sheet piles. The manufacturing and testing requirements are based on DIN EN 818-4 and comply with ASTM A906/A906M-02.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			l	d	h	b	a	t	
3/8"	F08811	4,300	15.96	0.51	0.57	1.18	3.74	2.36	3.75
3/8"	F08812	4,300	26.59	0.51	0.57	1.18	3.74	2.36	5.07

### TWN 0894

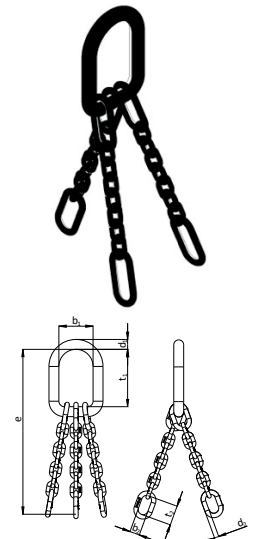


### Magnet Chain Slings

The grade 80 magnet chain slings TWN 0601 are welded 3-leg chain slings with a D-link at the top and are used for a fixed connection to electro magnets. Manufacturing and testing requirements are according to the ASTM A391/A391M.

Trade Size	Article-No.	Working Load Limit $0^\circ < \beta \leq 30^\circ$ [lbs]	Reach e [inch]		D-Link [inch]			Master-Link [inch]			Weight app. [lbs]
			$\alpha = 90^\circ$	$\alpha = 60^\circ$	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>	
5/8"	F08945	47,000	32.60	29.61	1.77	10.24	6.10	0.78	3.54	1.77	52.25
3/4"	F08946	73,500	37.01	33.43	2.01	10.24	6.10	0.87	3.94	1.97	78.30
7/8"	F08947	88,900	39.45	35.79	2.24	11.81	6.50	1.02	4.72	2.36	101.41
1"	F08948	123,900	44.33	39.96	2.24	11.81	6.50	1.26	5.51	2.76	141.10
1-1/4"	F08961	187,800	53.62	48.19	2.48	12.99	6.50	1.57	7.09	3.54	240.30

### TWN 0601







## TWN 1400



### Lashing Chains with Tensioner

The Grade 80 lashing chains TWN 1400 with toggle and shortenable lashing chains have a standard length of 3,5 m and are used for heavy-duty lashing applications. The chain tensioners with toggle and trapezoidal thread achieves a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on DIN EN 12195-3.

Trade Size	Article-No.	Lashing Capacity (LC) under straight load [daN] max.	Weight app. [lbs]
5/16"	F34171	4,000	18.74
3/8"	F34172	6,300	27.56
1/2"	F34173	10,000	46.30
5/8"	F34174	16,000	83.11

*Other lengths available on request.*

## TWN 1401



### Lashing Chains with Ratchet

The Grade 80 lashing chains TWN 1401 with ratchet and shortenable lashing chains have a standard length of 3,5 m and are used in the heavy-duty area for lashing loads in road traffic. The chain tensioners with ratchet and trapezoidal thread achieves a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on DIN EN 12195-3.

Trade Size	Article-No.	Lashing Capacity (LC) under straight load [daN] max.	Weight app. [lbs]
5/16"	F34171R	4,000	18.74
3/8"	F34172R	6,300	27.56
1/2"	F34173R	10,000	46.30

*Other lengths available on request.*

## Spare Parts and Accessories

### Spare Part Sets for Clevis Design

The spare part sets TWN 0904/0 consist of a bolt and dowel pin and are suitable for THIELE products with the Grade 80 fixed size clevis design.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4"	F48694	1 set	0.02
5/16"	F48352	1 set	0.02
3/8"	F48355	1 set	0.07
1/2"	F48358	1 set	0.15
5/8"	F48361	1 set	0.24
11/16"	F48364	1 set	0.44
3/4"	F48369	1 set	0.57
7/8"	F48367	1 set	0.68
1"	F48373	1 set	1.10
1-1/4"	F48371	1 set	2.01

### TWN 0904/0



### Spare Part Sets for Shackles

The spare part sets TWN 0905/ 0906 consist of a bolt and 2 dowel pins and are suitable for Grade 80 coupling shackles TWN 0861 and bolt shackles TWN 0870.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
3/8"	F48036	1 set	0.15
1/2"	F48039	1 set	0.31
5/8"	F48042	1 set	0.55
11/16"-3/4"	F48045	1 set	0.97
7/8"	F48048	1 set	1.72
1"	F48051	1 set	2.31
1-1/8"	F48054	1 set	3.53
1-1/4"	F48057	1 set	4.45
1-7/16"	F48060	1 set	5.73
1-9/16"	F48063	1 set	8.58

### TWN 0905 / 0906





## Spare Parts and Accessories

### TWN 0920 - 0922 Spare Part Sets for Sling Hooks



The spare part sets TWN 0920 - 0922 consist of a safety latch, spring and a semi-tubular rivet and are suitable for Grade 80 swivel hooks TWN 0854 and eye sling hooks TWN 0855/1.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
0,75 t	F48421	1 set	0.02
1/4"	F48420	1 set	0.04
5/16"	F48423	1 set	0.07
3/8"	F48426	1 set	0.09
1/2"	F48429	1 set	0.24
5/8"	F48469	1 set	0.42
1-7/16"	Z06163	1 set	1.76
1-9/16"	Z06164	1 set	2.20
1-3/4"	Z06165	1 set	3.09
2"	Z06166	1 set	4.19

### TWN 0930 Spare Part Sets for Shackles

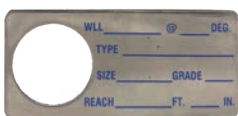


The spare part sets TWN 0930 consist of a head bolt, nut and splint and are suitable for Grade 80 chain coupling shackles TWN 0862 and shackles type C TWN 0871.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
3/8"	F30451	0.29	0,13
1/2"	F30461	0.55	0,25
5/8"	F30471	0.79	0,36
11/16"-3/4"	F30481	2.14	0,97
7/8"	F30491	2.89	1,31
1"	F30501	4.39	1,99
1-1/8"	F30511	6.37	2,89
1-1/4"	F30521	6.88	3,12
1-7/16"	F30531	9.88	4,48
1-9/16"	F30541	14.66	6,65
1-3/4"	F30551	18.08	8,20

### TWN 1940A

### Identification Tags for single- and multi-leg Chain Slings



The Grade 100 identification tags TWN 1940 are used to identify chain slings and provide important information for the operator. Chain slings may not be used without an identification tag.

Article-No.	Packing Units	Weight app. [lbs]
ChainID-Tag-KWS	1 pc.	0.22
ChainID-Tag-PLAIN	1 pc.	0.22

## Spare Parts and Accessories

### Chain File

The chain file TWN 0944 is used for documentation of chain inspections.

Article-No.	Packing Units	Weight app. [lbs]
Z04575	1 pc.	0.02

### TWN 0944



### Assembly Kit

The assembly kit TWN 0945 is used for easy disassembly of bolts and dowel pins of clevis connections.

Article-No.	Packing Units	Weight app. [lbs]
Z03303	1 set	1.32

### TWN 0945



### Chain Gauge Set

The chain gauge set TWN 0946 is used to check the discard criteria of Grade 80 chains.

Article-No.	Packing Units	Weight app. [lbs]
F48856	1 set	0.44

### TWN 0946



### Spare Part Sets for Shortening Hooks

The spare part sets TWN 0950 - 0952 consist of a locking pin, spring and knurled nut and are suitable for Grade 80 shortening hooks TWN 0827/1.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
5/16"	F48330	1 set	0.02
3/8"	F48328	1 set	0.04
1/2"	F48329	1 set	0.07
5/8"	F48339	1 set	0.11
3/4"	F48345	1 set	0.22

### TWN 0950 - 0952







## TWN 0962

### Spare Part Sets for Skip Suspension Links

Spare Part Sets for Skip Suspension Links TWN 0962 consist of a safety latch, spring and spin rolls. They are used on skip suspension links TWN 0869 (old version).



Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/2" - 5/8"	F31404	1 set	0.62

## TWN 0967/0

### Spare Part Sets for Self-Locking Hooks

The spare part sets TWN 0967/0 consist of a bolt and a dowel pin and are suitable for Grade 80 clevis self-locking hooks TWN 0799.



Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4"	F333700	1 set	0.02
5/16"	F333711	1 set	0.04
3/8"	F333721	1 set	0.07
1/2"	F333730	1 set	0.13
5/8"	F333741	1 set	0.37
1 1/16" - 3/4"	F0922057	1 set	0.62

## TWN 0967/1

### Spare Part Sets for Self-Locking Hooks

The trigger sets TWN 0967/1 consist of a retainer, spring and dowel pin and are suitable for Grade 80 self-locking hooks TWN 0798 and TWN 0799.



Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4"	F329090	1 set	0.04
5/16"	F329190	1 set	0.07
3/8"	F329290	1 set	0.09
1/2"	F329390	1 set	0.13
5/8"	F329490	1 set	0.24
1 1/16" - 3/4" - 7/8"	F0922056	1 set	0.40

## Spare Parts and Accessories

### Spare Part Sets for Skip Suspension Hooks and Links

NEW

The spare part sets TWN 0968 consist of bolt, roll pins and are suitable for the clevis connections of the skip suspension hooks TWN 1399 and TWN 1899 and skip suspension links TWN 0869 and TWN 1869.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/2"	F480131	1 set	0.15
5/8"	F480161	1 set	0.26

#### TWN 0968



### Spare Part Sets for Skip Suspension Links

The spare part sets TWN 0969 consist of a forged safety latch, spring and dowel pins and are suitable for the TWN 0869 and TWN 1869.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/2" - 5/8" (G100/G80)	F314081	1 set	0.44

#### TWN 0969



### Spare Part Sets for Skip Loader Hooks

NEW

The spare part sets TWN 0970 consist of a retainer, spring and dowel pin and are suitable for skip loader hooks TWN 1399 and TWN 1899.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/2" - 5/8"	F48332	1 set	0.24

#### TWN 0970



### Spare Part Sets for Clevis Shortening Claws

NEW

The spare part sets TWN 0971 consist of locking pin, threaded pin, spring and bearing are suitable for the clevis shortening hooks with safety pin TWN 0851/1 and TWN 1851/1.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4" (G100/G80)	F483110	1 set	0.02
5/16" (G100/G80)	F483112	1 set	0.02
3/8" (G100/G80)	F483113	1 set	0.04
1/2" (G100/G80)	F483114	1 set	0.07
5/8" (G100/G80)	F483115	1 set	0.11
3/4" (G100/G80)	F483117	1 set	0.15
7/8" (G100/G80)	F483118	1 set	0.20
1" (G100/G80)	F483119	1 set	0.26
1-1/4" (G100/G80)	F483120	1 set	0.17

#### TWN 0971



## TWN 1402



### Identification Tag for Lashing Chains

The identification tags TWN 1402 are used to identify lashing chains and provide important information for operation. Lashing chains may not be used without identification tag.

Article-No.	Packing Units	Weight app. [lbs]
Z07264	1 pc.	0.11

## TWN 1908/0



### Spare Part Sets for Hooks

The spare part sets TWN 1908/0 consist of a safety latch, spring and 2 dowel pins and are suitable for Grade 100 sling hooks TWN 1835/1, TWN 1840/1, TWN 1841/1 and also fit the Grade 80 sling hooks TWN 0835/1, TWN 0850/1, TWN 1340/1 and TWN 0858/1.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
1/4" (G100/G80)	F48731	1 set	0.11
9/32" - 5/16" (G100/G80)	F48733	1 set	0.18
3/8" (G100/G80)	F48735	1 set	0.31
1/2" (G100/G80)	F48737	1 set	0.68
5/8" (G100/G80)	F48739	1 set	0.84
11/64" - 3/4" (G100/G80)	F48743	1 set	1.57
7/8" (G100/G80)	F48745	1 set	1.96
1" (G100/G80)	F48748	1 set	3.11
1-1/4" (G100/G80)	F48749	1 set	3.90

## TWN 1920



### Spare Part Sets for THI-LOK® Connectors

The spare part sets TWN 1920 consist of a bolt and a clamping bush and are suitable for connecting links THI-LOK® TWN 1320.

Trade Size	Article-No.	Packing Units	Weight app. [lbs]
11/64"	F48615	1 set	0.42
3/4"	F48617	1 set	0.68
7/8"	F48619	1 set	0.71
1"	F48622	1 set	1.17
1-1/4"	F48625	1 set	2.09
1-7/16"	NEW F486224	1 set	3.64
1-9/16"	NEW F486224	1 set	3.64

# THIELE Design Key

## Mounted chain slings



  
**TAS**

## Endless Chains



Type K11



Type K12



Type K22





## Examples for Chain Slings

### 1-Leg Chain Slings

TWN 0449	TWN 0450/1	TWN 0455/1	TWN 0454















TWN 0456	TWN 0458	TWN 0459	TWN 0460

TWN 0461	TWN 0462	TWN 0473	TWN 0475

TWN 0477/1			

# Examples for Chain Slings

## 2-Leg Chain Slings

TWN 0529	TWN 0530/1	TWN 0535/1	TWN 0534
			
TWN 0536	TWN 0538	TWN 0539	TWN 0540
			
TWN 0541	TWN 0542	TWN 0545	TWN 0560
			
TWN 0563	TWN 0567/1		
			



## Examples for Chain Slings

### 4-Leg Chain Slings

TWN 0709	TWN 0710/1	TWN 0715/1	TWN 0714
TWN 0716	TWN 0718	TWN 0719	TWN 0720
TWN 0721	TWN 0722	TWN 0730	TWN 0731
TWN 0733	TWN 0736/1		



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TAO

# THIELE OFFSHORE LIFTING PRODUCTS

DNV-type approved Components





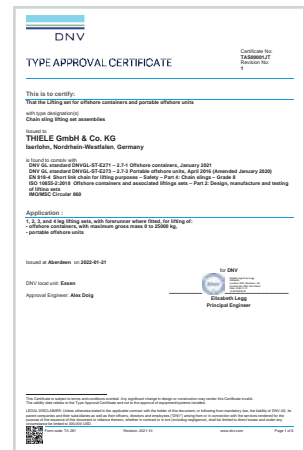
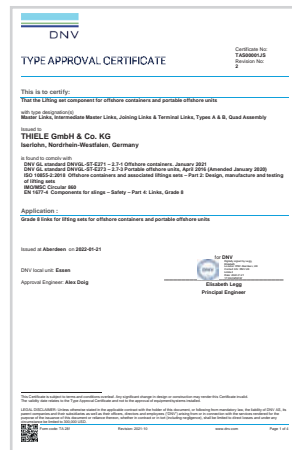
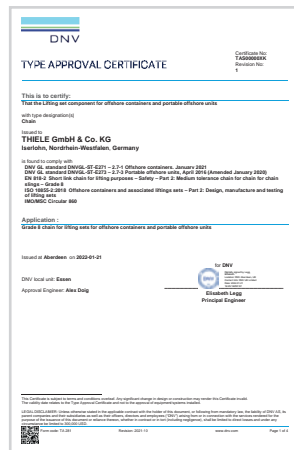
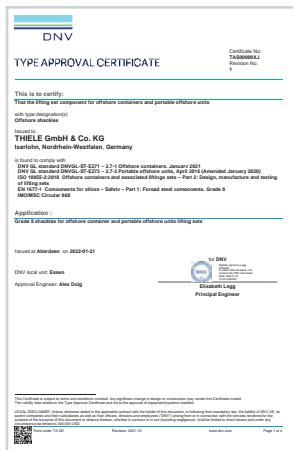
# DNV-type approved Components



## 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 <sub>n</sub> [inch]	Pitch p <sub>n</sub> [inch]	Inside Width w <sub>3</sub> [inch] min.	Outside Width w <sub>2</sub> [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

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# DNV-type approved Components

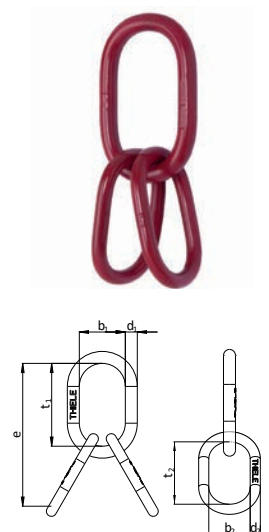
## Offshore Master Link Assemblies for Wire Rope Slings

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 (β = 45°) SF= 1:4 [t]	Dimensions [inch]							Weight app. [lbs]
			e	d <sub>1</sub>	t <sub>1</sub>	b <sub>1</sub>	d <sub>2</sub>	t <sub>2</sub>	b <sub>2</sub>	
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.

### TWN 0797



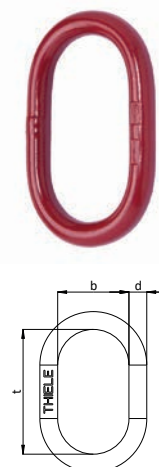
## Offshore Master Links Type A

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 comply 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 0803

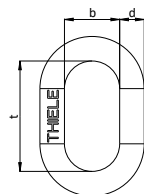


## TWN 0804

### 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.



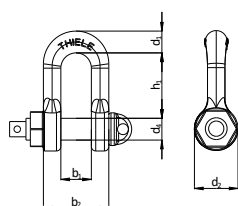
Trade Size	Article-No.	Working Load Limit [t]	Dimensions [inch]			Weight app. [lbs]
			d	t	b	
B13	F0804138	3.35	0.51	2.36	1.18	0.44
B16	F0804168	5.60	0.63	2.76	1.38	0.79
B20	F0804208	8.50	0.79	3.54	1.77	1.61
B22	F0804228	10.00	0.87	3.94	1.97	2.14
B26	F0804268	14.00	1.02	4.72	2.36	3.53
B28	F0804288	16.00	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 <sub>1</sub>	b <sub>1</sub>	b <sub>2</sub>	d <sub>1</sub>	d <sub>4</sub>	d <sub>2</sub>	
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

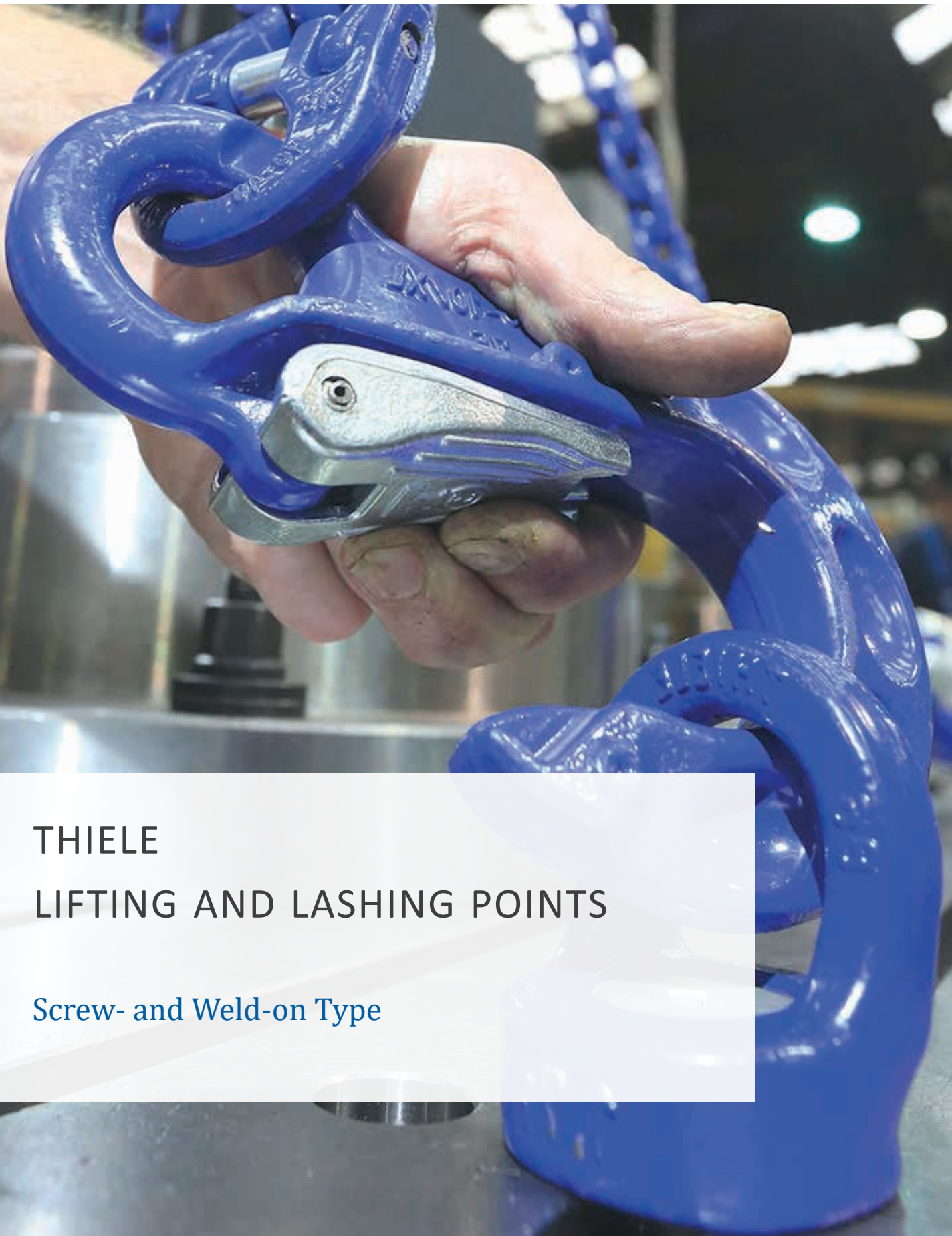
The load capacities, manufacturing and testing requirements comply with the DNV-ST-E271 and some exceed the requirements of the DIN EN 1677-1.



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# THIELE LIFTING AND LASHING POINTS

Screw- and Weld-on Type





## Product Overview - Lifting Points

Pages  
100-107

### Lifting Points, Screw-Type

TWN 0121



TWN 0122



TWN 0123



TWN 0127



TWN 1120



TWN 1830



TWN 1884



TWN 1890



Pages  
108-115

### Lifting Points, Weld-on Type

TWN 0119A



TWN 0124



TWN 0850/1



TWN 1908/0



TWN 0850/2



TWN 0913



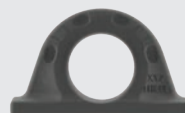
TWN 1380



TWN 0949



TWN 1490



TWN 1882



TWN 1473



TWN 1880



TWN 1477



TWN 1471



Page  
116

### Hitches

TWN 0301



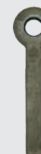
TWN 0302



TWN 0304



TWN 0308



TWN 0321



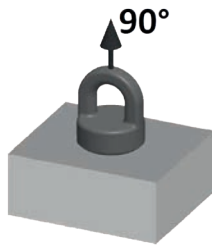
TWN 0323



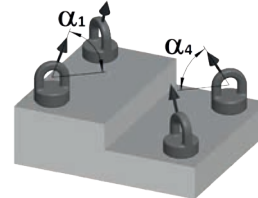
# Lifting Points

## Selection Criteria for Lifting Points

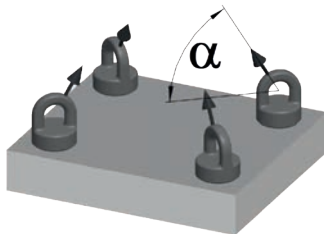
1. Determine the weight of the load to be lifted.



3. Determine the trade size by taking the inclination angle into consideration.



2. Determine the number of required lifting points, depending on the number of available legs of the chain slings and the number of available fitting positions (see pictographs on pages 100-103 and 108-109).



4. Select the suitable lifting point by taking the type of application and the determined working load limit under consideration.





# Lifting Points, Screw-Type



Working Load Limit Table for Lifting Points, Screw-Type

			TWN 0121 Swivel Lifting Points								TWN 0122 Screw-Type Lifting Points							
Application	Inclination Angle $\alpha$	Number of Legs																
			Working Load Limit [000 lbs]															
Nominal Working Load Limit					2,5	4,4	6,9	11,7			6.9	11.7	17.6	33.1	46.7	55.1	69.5	79.4
Screw Size					M16	M20	M24	M30			M16	M20	M30	M36	M42	M45	M56	M56
	90°	1			2.5	4.4	6.9	11.7			6.9	11.7	17.6	33.1	46.7	55.1	69.5	79.4
	90°	2			5	8.8	13.8	23.4			13.8	23.4	35.2	66.2	99.4	110.2	139	158.8
	90°	1			2.5	4.4	6.9	11.7			6.9	11.7	17.6	33.1	46.7	55.1	69.5	79.4
	90°	2			5	8.8	13.8	23.4			13.8	23.4	35.2	66.2	99.4	110.2	139	158.8
	30°≤ $\alpha$ < 45°	2			2.5	4.4	6.9	11.7			6.9	11.7	17.6	33.1	46.7	55.1	69.5	79.4
	45°≤ $\alpha$ < 60°	2			3.5	6.2	9.8	16.5			9.8	16.5	24.9	46.8	66	77.9	98.3	112.3
	60°≤ $\alpha$ < 75°	2			4.3	7.6	12	20.3			12	20.3	30.5	57.3	80.9	95.4	120.4	137.5
	asymmetry <sup>1)</sup>	2			2.5	4.4	6.9	11.7			6.9	11.7	17.6	33.1	46.7	55.1	69.5	79.4
	30°≤ $\alpha$ < 45°	3+4			3.7	6.6	10.3	17.5			10.3	17.5	26.4	49.6	70	82.6	104.2	119.1
	45°≤ $\alpha$ < 60°	3+4			5.3	9.3	14.6	24.8			14.6	24.8	37.3	70.2	99.1	116.9	147.4	168.4
	60°≤ $\alpha$ < 75°	3+4			6.5	11.4	17.9	30.4			17.9	30.4	45.7	86	121.3	143.2	180.6	206.3
	asymmetry <sup>1)</sup>	3+4			2.5	4.4	6.9	11.7			6.9	11.7	17.6	33.1	46.7	55.1	69.5	79.4

<sup>1)</sup> Reduced working load limit acc. to the DIN 685-5.

# Lifting Points, Screw-Type

**Working Load Limit Table for Lifting Points, Screw-Type**



TWN 0123 Screw-Type Lifting Points								TWN 0127 Screw Type Lifting Points MDB							
															
Working Load Limit [000 lbs]															
	2.5	2.5	4.4	4.4	6.9	6.9					6.9	11.7			
	M16	M16	M20	M20	M24	M24					M20	M24			
	2.5	2.5	4.4	4.4	6.9	6.9					6.9	11.7			
	5	5	8.8	8.8	13.8	13.8					13.8	23.4			
	2.5	2.5	4.4	4.4	6.9	6.9					6.9	11.7			
	5	5	8.8	8.8	13.8	13.8					13.8	23.4			
	2.5	2.5	4.4	4.4	6.9	6.9					6.9	11.7			
	3.5	3.5	6.2	6.2	9.8	9.8					9.8	16.5			
	4.3	4.3	7.6	7.6	12	12					12	20.3			
	2.5	2.5	4.4	4.4	6.9	6.9					6.9	11.7			
	3.7	3.7	6.6	6.6	10.3	10.3					10.3	17.5			
	5.3	5.3	9.3	9.3	14.6	14.6					14.6	24.8			
	6.5	6.5	11.4	11.4	17.9	17.9					17.9	30.4			
	2.5	2.5	4.4	4.4	6.9	6.9					6.9	11.7			





# Lifting Points, Screw-Type



Working Load Limit Table for Lifting Points, Screw-Type

			TWN 1120 X-TITAN Lifting Points										TWN 1830 X-TREME Lifting Points															
Application	Inclination Angle $\alpha$	Number of Legs																										
			Working Load Limit [000 lbs]																									
Working Load Limit			0.66	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	1.3	3.1	5.5	7.7	11.7	17.6	22	27.5	27.5	27.5	37.5	37.5	69.4	77.1	88.1	88.1	
Screw Size			M8	M10	M12	M16	M20	M24	M30	M36	M10	M12	M16	M20	M24	M30	M36	M42	M45	M48	M52	M56	M64	M72	M80	M90	M100	
	90°	1	0.66	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	2.6	6.2	11.7	15.4	22.0	33.0	39.7	44.1	44.1	44.1	61.7	61.7	110.2	110.2	110.2	110.2	
	90°	2	1.3	2.8	4.4	7.4	11.0	17.6	26.4	35.2	44.0	5.2	12.4	23.4	30.8	44.0	66.0	79.4	88.2	88.2	88.2	123.4	123.4	220.4	220.4	220.4	220.4	
	90°	1	0.7	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	1.6	3.7	6.2	8.8	13.9	20.9	28.7	33.1	35.3	35.3	48.5	48.5	88.2	105.8	110.2	110.2	
	90°	2	1.3	2.8	4.4	7.4	11.0	17.6	26.4	35.2	44.0	3.2	7.4	12.4	17.6	27.8	41.8	57.4	66.2	70.6	70.6	97	97	176.4	211.6	220.4	220.4	
	30° ≤ $\alpha$ < 45°	2	0.66	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	1.6	3.7	6.2	8.8	13.9	20.9	28.7	33.1	35.3	35.3	48.5	48.5	88.2	105.8	110.2	110.2	
	45° ≤ $\alpha$ < 60°	2	0.93	2.0	3.1	5.2	7.8	12.4	18.7	24.9	31.1	2.3	5.3	8.7	12.5	19.6	29.6	40.5	46.8	49.9	49.9	68.6	68.6	124.7	149.7	155.9	155.9	
	60° ≤ $\alpha$ < 75°	2	1.1	2.4	3.8	6.4	9.5	15.2	22.9	30.5	38.1	2.9	6.5	10.7	15.3	24.1	36.3	49.6	57.3	61.1	61.1	84	84	152.7	183.3	190.9	190.9	
	Asymmetry <sup>1)</sup>	2	0.66	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	1.6	3.7	6.2	8.8	13.9	20.9	28.7	33.1	35.3	35.3	48.5	48.5	88.2	105.8	110.2	110.2	
	30° ≤ $\alpha$ < 45°	3+4	1.0	2.1	3.3	5.5	8.2	13.2	19.8	26.4	33.0	2.5	5.6	9.3	13.2	20.8	31.4	43.0	49.6	52.9	52.9	72.8	72.8	132.3	158.7	165.3	165.3	
	45° ≤ $\alpha$ < 60°	3+4	1.4	3.0	4.7	7.8	11.7	18.7	28.0	37.3	46.7	3.5	8	13.1	18.7	29.5	44.4	60.8	70.2	74.8	74.8	102.9	102.9	187.1	224.5	233.8	233.8	
	60° ≤ $\alpha$ < 75°	3+4	1.7	3.6	5.7	9.6	14.3	22.9	34.3	45.7	57.2	4.3	9.7	16.0	22.9	36.1	54.4	74.5	85.9	91.6	91.6	126	126	229.1	274.9	286.4	286.4	
	Asymmetry <sup>1)</sup>	3+4	0.66	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	1.6	3.7	6.2	8.8	13.9	20.9	28.7	33.1	35.3	35.3	48.5	48.5	88.2	105.8	110.2	110.2	

<sup>1)</sup> Reduced working load limit acc. to DIN 685-5.

# Lifting Points, Screw-Type

Working Load Limit Table for Lifting Points, Screw-Type

TWN 1884 Screw Type XKE-Points											TWN 1890 Screw Type XS-Points									
																				
Working Load Limit [000 lbs]																				
0.7	1.1	2.2	3.7	5.7	7.7	13.2	17.6	25.4	28.7	32.0	0.66	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	
M8	M10	M12	M16	M20	M24	M30	M36	M42	M45	M48	M8	M10	M12	M16	M20	M24	M30	M36	M42	
0.7	1.1	2.2	3.7	5.7	7.7	13.2	17.6	25.4	28.7	32.0	0.66	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	
1.3	2.2	4.4	7.5	11.5	15.4	26.5	35.3	50.7	57.3	63.9	1.3	2.8	4.4	7.4	11.0	17.6	26.4	35.2	44.0	
0.7	1.1	2.2	3.7	5.7	7.7	13.2	17.6	25.4	28.7	32.0	0.7	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	
1.3	2.2	4.4	7.5	11.5	15.4	26.5	35.3	50.7	57.3	63.9	1.3	2.8	4.4	7.4	11.0	17.6	26.4	35.2	44.0	
0.7	1.1	2.2	3.7	5.7	7.7	13.2	17.6	25.4	28.7	32.0	0.66	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	
0.9	1.6	3.1	5.3	8.1	10.9	18.7	24.9	35.9	40.5	45.2	0.93	2.0	3.1	5.2	7.8	12.4	18.7	24.9	31.1	
1.1	1.9	3.8	6.5	9.9	13.4	22.9	30.5	43.9	49.6	55.4	1.1	2.4	3.8	6.4	9.5	15.2	22.9	30.5	38.1	
0.7	1.1	2.2	3.7	5.7	7.7	13.2	17.6	25.4	28.7	32.0	0.66	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	
1.0	1.7	3.3	5.6	8.6	11.6	19.8	26.5	38.0	43.0	48.0	1.0	2.1	3.3	5.5	8.2	13.2	19.8	26.4	33.0	
1.4	2.3	4.7	8.0	12.2	16.4	28.1	37.4	53.8	60.8	67.8	1.4	3.0	4.7	7.8	11.7	18.7	28.0	37.3	46.7	
1.7	2.9	5.7	9.7	14.9	20.0	34.4	45.8	65.9	74.5	83.1	1.7	3.6	5.7	9.6	14.3	22.9	34.3	45.7	57.2	
0.7	1.1	2.2	3.7	5.7	7.7	13.2	17.6	25.4	28.7	32.0	0.66	1.4	2.2	3.7	5.5	8.8	13.2	17.6	22.0	

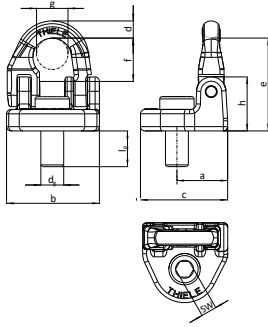


## Lifting Points, Screw-Type

### TWN 0121

### Swivel Lifting Points NEW

The screw-type rotating lifting points TWN 0121 are predominantly used in the mold- and tool-making industry. The sliding disc enables a twist-free alignment of the chain strands. The eyelet allows easy assembling with other lifting components. The manufacturing and testing requirements are based on DIN EN 1677-1 and ISO 8539.



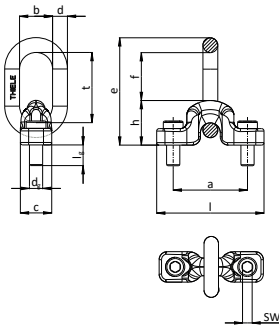
Screw Size d <sub>g</sub> [mm]	Article-No.	Working Load Limit [lbs]	Thread Length l <sub>g</sub> [inch]	Dimensions [inch]									Weight app.
				e	f	c	b	h	g	d	SW	a	[lbs]
M16 <sup>1)</sup>	F35000	2,500	0.98	2.56	1.18	2.40	2.56	1.50	0.87	0.47	0.47	1.42	1.54
M20	NEW F350100	4,500	1.26	3.15	1.34	3.07	3.54	1.93	1.10	0.67	0.55	1.77	3.44
M24 <sup>1)</sup>	F35020	7,100	1.42	3.86	1.77	3.62	3.98	2.32	1.30	0.75	0.67	2.05	5.73
M30 <sup>1)</sup>	F35030	12,000	2.01	4.72	2.17	4.45	4.92	2.83	1.77	0.98	0.87	2.44	10.14

<sup>1)</sup> TWN 0121/1

### TWN 0122

### Screw-type Lifting Points

The screw lifting points TWN 0122 are predominantly used for the transportation of heavy moulds, tools, dies, machine elements and steel constructions. The intermediate links allow an easy assembling with other lifting components. The manufacturing and testing requirements comply with DIN EN 1677-1 and ISO 8539.



Screw Size $d_g$ [mm]	Article-No.	Working Load Limit [lbs]	Thread Length $l_g$ [inch]	Dimensions [inch]										Weight app. [lbs]
				e	f	a	b	l	d	h	t	c	SW	
M16	F35070	7,100	0.98	4.41	2.24	3.54	1.57	5.12	0.71	2.17	3.35	1.50	0.47	3.24
M20	F35075	12,000	1.42	5.87	3.15	4.53	1.97	6.50	0.87	2.72	4.53	1.77	0.55	5.95
M30	F35080	18,100	1.97	7.20	3.66	5.91	2.56	8.35	1.02	3.50	5.51	2.17	0.87	13.10
M36	F35095	34,200	2.09	8.54	4.13	6.89	3.15	10.04	1.42	4.41	6.30	2.83	1.06	24.43
M42	F35098	47,700	2.64	10.31	5.20	7.87	3.94	11.61	1.77	5.12	7.87	3.54	1.26	44.29
M45	F35101	55,100	2.64	10.31	5.20	7.87	3.94	11.61	1.77	5.12	7.87	3.54	1.26	45.30
M56	F35102	72,300	3.46	13.23	7.60	9.06	4.33	12.99	1.89	5.63	10.63	3.94	1.42	69.67
M56	F35285	79,400	3.46	13.23	7.60	9.06	4.33	12.99	1.89	5.63	10.63	3.94	1.42	69.67

# Lifting Points, Screw-Type

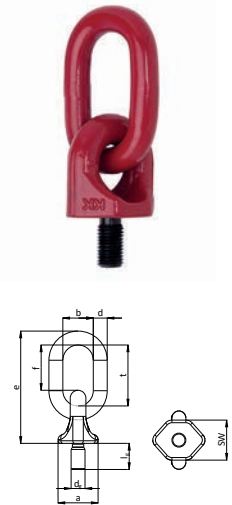
## Screw-type Lifting Points

The screw-type lifting points TWN 0123 are predominantly used for the transportation of moulds, tools, dies, machine parts and steel constructions. The intermediate links allow an easy assembling with other lifting components. The manufacturing and testing requirements comply with DIN EN 1677-1 and ISO 8539.



Screw Size $d_g$ [mm]	Article-No.	Working Load Limit [lbs]	Thread Length $l_g$ [inch]	Dimensions [inch]							Weight app. [lbs]
				e	f	d	t	b	SW	a	
M16	F34110	2,500	1.18	4.45	2.05	0.63	2.76	1.38	1.81	2.36	1.83
M16	F34115	2,500	1.18	6.02	3.62	0.63	4.33	2.36	1.81	2.36	2.20
M20	F34120	4,500	1.50	4.45	2.05	0.63	2.76	1.38	1.81	2.36	1.92
M20	F34121	4,500	1.50	6.02	3.62	0.63	4.33	2.36	1.81	2.36	2.31
M24	F34130	7,100	1.38	5.04	2.64	0.71	3.35	1.57	1.81	2.36	2.38
M24	F34131	7,100	1.77	6.02	3.62	0.71	4.33	2.36	1.81	2.36	2.78

TWN 0123



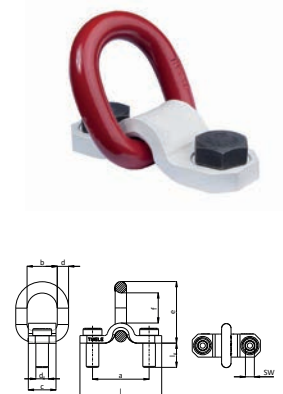
## MDB Lifting Points

The screw-type lifting points TWN 0127 are predominantly used for the transportation of moulds, tools, dies, machine elements and steel constructions. The D-links enable an easy assembling to lifting components. The manufacturing and testing requirements comply with DIN EN 1677-1 and ISO 8539.



Screw Size $d_g$ [mm]	Article-No.	Working Load Limit [lbs]	Thread Length $l_g$ [inch]	Dimensions [inch]								Weight app. [lbs]
				e	f	c	b	l	d	SW	a	
M20	F35157	7,100	1.54	2.68	1.89	1.73	1.89	5.12	0.71	1.18	3.54	2.43
M24	F35158	12,000	1.42	4.45	2.72	2.36	2.60	6.30	0.94	1.42	4.33	5.95

TWN 0127



## X-TITAN Lifting Points

The screw-type X-TITAN lifting points TWN 1120 are predominantly used for the transportation of moulds, tools, dies, machine elements and steel constructions. The intermediate links allow an easy assembling to other lifting components. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1.



Screw Size $d_g$ [mm]	Article-No.	Working Load Limit [lbs]	Thread Length $l_g$ [inch]	Dimensions [inch]								Weight app. [lbs]
				e	f	b	t	d	h	SW	a	
M10	F34390	1,000	0.75	3.74	1.57	1.10	1.97	0.39	2.17	0.63	1.69	0.90
M12	F34395	1,300	0.94	3.74	1.57	1.10	1.97	0.39	2.17	0.71	1.69	0.95
M16	F34400	3,100	1.14	3.74	1.57	1.10	1.97	0.39	2.17	0.94	1.69	1.06
M20	F34410	5,500	1.30	4.53	1.93	1.34	2.36	0.47	2.60	1.18	2.13	1.74
M24	F34420	7,700	1.57	5.31	2.17	1.57	2.76	0.63	3.15	1.42	2.56	3.31
M30	F34430	15,000	2.05	6.57	2.60	1.97	3.35	0.71	3.98	1.81	3.35	6.57
M36	F34440	18,100	2.60	8.35	3.62	1.97	4.53	0.87	4.72	2.17	3.78	10.58

TWN 1120



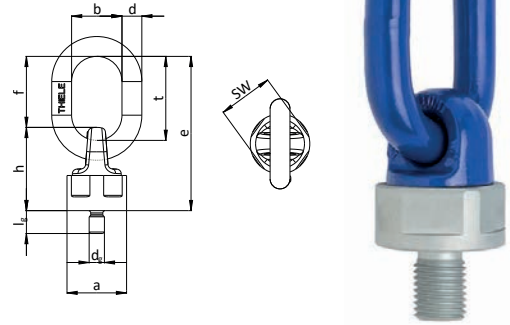




## Lifting Points, Screw-Type

### TWN 1830 X-TREME Lifting Points

The screw-type X-TREME lifting points TWN 1830 with ball-bearing are predominantly used in the mold- and tool-making industries. The ball-bearing allows the load to be rotated and turned under load. The intermediate link allows easy assembling to other components. The manufacturing and testing requirements are based on DIN EN 1677-1 and ISO 8539.



Screw Size $d_g$ [mm]	Article-No.	Working Load Limit [lbs]			Thread Length $l_g$ [inch]	Dimensions [inch]								Weight app. [lbs]
		vertical $\beta_1 = \pm 5^\circ$ Y	extreme $5^\circ < \beta_1 \leq 45^\circ$ Z	folded $5^\circ < \beta_2 \leq 105^\circ$ X		e	f	b	t	d	h	SW	a	
M10	F34306	2,000	1,000	1,300	0.59	3.98	1.85	1.30	2.17	0.51	2.17	1.42	1.54	1.06
M12	F34307	2,600	1,300	1,700	0.71	3.98	1.85	1.30	2.17	0.51	2.17	1.42	1.54	1.08
M16	F34300	6,200	3,100	3,700	0.79	3.98	1.85	1.30	2.17	0.51	2.17	1.42	1.54	1.10
M20	F34310	11,700	5,500	6,200	0.98	4.76	2.32	1.34	2.76	0.63	2.48	1.81	1.97	2.07
M20	F34312	11,700	5,500	6,200	1.97	4.76	2.32	1.34	2.76	0.63	2.48	1.81	1.97	2.25
M24	F34320	15,400	7,700	8,800	1.18	5.83	2.83	1.57	3.35	0.71	2.99	1.97	2.24	3.31
M24	F34321	15,400	7,700	8,800	3.54	5.83	2.83	1.57	3.35	0.71	2.99	1.97	2.24	3.70
M30	F34330	22,000	11,700	13,900	1.57	6.73	3.27	1.97	3.94	0.87	3.46	2.56	2.87	6.00
M36	F34340	33,100	17,600	22,000	1.97	7.05	3.19	1.97	3.94	0.87	3.86	2.76	3.27	7.87
M36	F34341	33,100	17,600	22,000	2.48	7.05	3.19	1.97	3.94	0.87	3.86	2.76	3.27	8.09
M36	F34343	33,100	17,600	22,000	2.76	7.05	3.19	1.97	3.94	0.87	3.86	2.76	3.27	8.38
M42	F34350	37,700	22,000	27,700	2.36	9.61	4.57	2.76	5.51	1.26	5.04	3.74	4.17	18.30
M45	F34353	44,100	27,600	33,100	2.56	9.61	4.57	2.76	5.51	1.26	5.04	3.74	4.17	18.63
M48	F34355	44,100	27,600	35,300	2.68	9.61	4.57	2.76	5.51	1.26	5.04	3.74	4.17	18.96
M56	F34360	61,700	37,500	48,500	3.07	9.88	4.57	2.76	5.51	1.26	5.31	3.74	4.57	22.22
M64	F34363	61,700	37,500	55,100	3.78	9.88	4.57	2.76	5.51	1.26	5.31	3.74	4.57	25.09
M72	NEW F34380	110,200	69,400	88,200	4.25	14.92	6.97	4.33	8.66	1.77	7.95	5.71	6.69	69.27
M80	NEW F34383	110,200	77,200	105,800	4.72	14.92	6.97	4.33	8.66	1.77	7.95	5.71	6.69	72.02
M90	NEW F34385	110,200	88,200	110,200	5.31	14.92	6.97	4.33	8.66	1.77	7.95	5.71	6.69	76.37
M100	NEW F34388	110,200	88,200	110,200	5.91	14.92	6.97	4.33	8.66	1.77	7.95	5.71	6.69	81.79

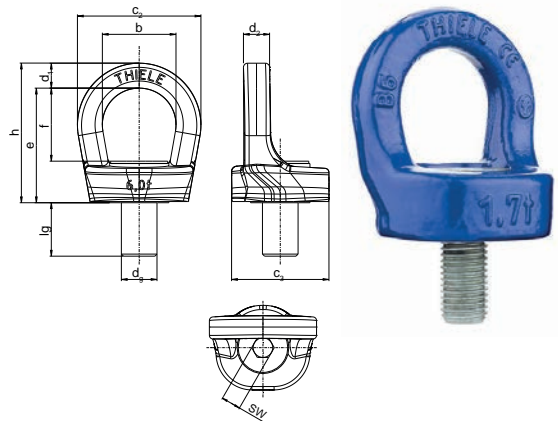
Variable screw lengths available up to 5 x d standard screw lengths for thread diameters M20, M24, M30 and M36.



# Lifting Points, Screw-Type

## TWN 1884 XKE-Points

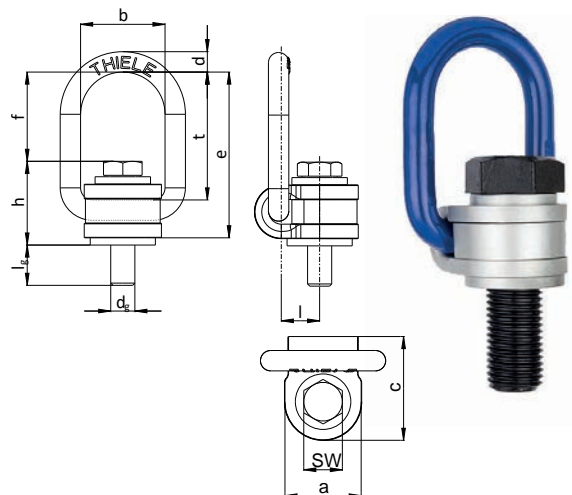
The screw-on XKE-Points TWN 1884 with ball-bearing are predominantly used in molds- and tool-making. The ball-bearing allows the load to be rotated and turned under load. The eccentrically positioned eye makes it easy to connect lifting equipment. The XKE-points have a multiple times higher load capacity than DIN 580-eye bolts and can be loaded in every direction. The eccentrically arranged eyelet enables an easy assembly with a standard allen key. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



Screw Size $d_g$ [mm]	Article-No.	Working Load Limit [lbs]	Thread Length $l_g$ [inch]	Dimensions [inch]										Weight app. [lbs]
				b	$c_2$	$c_3$	e	f	h	$d_1$	$d_2$	l	SW	
M8	NEW F38005	700	0.63	1.02	1.77	1.46	1.57	1.02	1.97	0.37	0.37	0.31	0.24	0.40
M10	NEW F38006	1.100	0.63	1.02	1.77	1.46	1.57	1.02	1.97	0.37	0.37	0.31	0.24	0.40
M12	NEW F38007	2.200	0.71	1.18	2.01	1.69	1.85	1.18	2.24	0.41	0.41	0.39	0.31	0.64
M16	F38010	3.700	1.06	1.50	2.60	2.20	2.44	1.50	2.99	0.55	0.55	0.51	0.39	1.46
M20	F38020	5.700	1.30	1.65	2.91	2.40	2.76	1.65	3.39	0.63	0.63	0.59	0.47	2.18
M24	NEW F38030	7.700	1.54	2.01	3.35	2.56	3.23	2.01	3.90	0.67	0.71	0.63	0.55	2.95
M30	NEW F38040	13.200	1.77	2.44	4.09	3.23	3.82	2.44	4.65	0.83	0.87	0.79	0.75	5.05
M36	NEW F38050	17.600	2.17	2.95	5.16	3.62	4.57	2.95	5.67	1.10	1.10	0.98	0.75	9.19
M42	NEW F38060	25.400	2.52	3.74	6.81	4.80	5.59	3.74	7.13	1.54	1.54	1.30	0.87	19.60
M45	NEW F38070	28.700	2.91	3.74	6.81	4.80	5.59	3.74	7.13	1.54	1.54	1.30	0.94	20.04
M48	NEW F38080	32.000	2.91	3.74	6.81	4.80	5.59	3.74	7.13	1.54	1.54	1.30	1.06	20.24

## TWN 1890 XS-Points

The screw-type XS-Points TWN 1890 are predominantly used in mold making, tool making and vehicle construction. The extra large D-links enable an easy assembling to other lifting components. The bracket can be easily aligned in direction of force. The shape of the XS-Points allows the use of variable screw lengths. The manufacturing and testing requirements are based on the IOS 8539 and DIN EN 1677-1.





Screw Size $d_g$ [mm]	Article-No.	Working Load Limit [lbs]	Thread Length $l_g$ [inch]	Dimensions [inch]										Weight app. [lbs]
				e	f	c	l	t	b	h	d	SW	a	
M8	NEW F352398	660	17	71	38	43	17	53	35	35	9	-	32	0.29
M10	F35243	1.400	17	71	37	43	17	53	35	35	9	16	32	0.29
M12	F35244	2.100	22	71	36	43	17	53	35	36	9	18	32	0.31
M16	F35245	3.800	28	98	46	64	25	70	50	52	13	24	48	0.96
M20	F35246	5.500	38	98	44	64	26	70	50	54	13	30	48	1.05
M24	F35247	8.800	40	135	70	71	28	102	58	65	16	36	50	1.69
M30	F35249	13.200	44	149	73	88	35	110	70	75	20	46	65	3.07
M36	F35250	18.100	64	149	70	88	35	110	70	79	20	55	67	3.55
M42	F35251	22.600	74	191	98	106	43	145	84	93	24	65	81	6.10
M48*	F35252	-	-	-	-	-	-	-	-	-	-	-	-	-

\*On request




## Lifting Points, Weld-on Type

Working Load Limit Table for Lifting Points, Weld-on Type

			TWN 0119A Weld-on type Lifting Points								TWN 0124 Weld-on type Lifting Points with Springs							
Application	Inclination Angle $\alpha$	Number of Legs																
			Working Load Limits [000 lbs]															
Working Load Limit			2.5	4.5	7.1	12.0	18.1	34.2	72.3	110.2			2.5	4.5	7.1	12.0	18.1	
	90°	1	2.5	4.5	7.1	12.0	18.1	34.2	72.3	110.2			2.5	4.5	7.1	12.0	18.1	
	90°	2	5.0	9.0	14.2	24.0	36.2	68.4	144.6	220.4			5.0	9.0	14.2	24.0	36.2	
	90°	1	2.5	4.5	7.1	12.0	18.1	34.2	72.3	110.2			2.5	4.5	7.1	12.0	18.1	
	90°	2	5.0	9.0	14.2	24.0	36.2	68.4	144.6	220.4			5.0	9.0	14.2	24.0	36.2	
	30°≤ $\alpha$ < 45°	2	2.5	4.5	7.1	12.0	18.1	34.2	72.3	110.2			2.5	4.5	7.1	12.0	18.1	
	45°≤ $\alpha$ < 60°	2	3.5	6.4	10.0	17.0	25.6	48.4	102.2	155.8			3.5	6.4	10.0	17.0	25.6	
	60°≤ $\alpha$ < 75°	2	4.3	7.8	12.3	20.8	31.4	59.2	125.2	190.9			4.3	7.8	12.3	20.8	31.4	
	asymmetry	2	2.5	4.5	7.1	12.0	18.1	34.2	72.3	110.2			2.5	4.5	7.1	12.0	18.1	
	30°≤ $\alpha$ < 45°	3+4	3.8	6.8	10.7	18.0	27.2	51.3	108.5	165.3			3.8	6.8	10.7	18.0	27.2	
	45°≤ $\alpha$ < 60°	3+4	5.3	9.5	15.1	25.5	38.4	72.5	153.4	233.8			5.3	9.5	15.1	25.5	38.4	
	60°≤ $\alpha$ < 75°	3+4	6.5	11.7	18.4	31.2	47.0	88.9	187.8	286.3			6.5	11.7	18.4	31.2	47.0	
	asymmetry	3+4	2.5	4.5	7.1	12.0	18.1	34.2	72.3	110.2			2.5	4.5	7.1	12.0	18.1	

# Lifting Points, Weld-on Type

Working Load Limit Table for Lifting Points, Weld-on Type

TWN 1882 COMPACT Lifting Points with Spring							
							
Working Load Limit [000 lbs]							
		3.3	5.5	8.8	15.0	22.6	
		3.3	5.5	8.8	15.0	22.6	
		6.6	11.0	17.6	30.0	45.2	
		3.3	5.5	8.8	15.0	22.6	
		6.6	11.0	17.6	30.0	45.2	
		3.3	5.5	8.8	15.0	22.6	
		4.7	7.8	12.5	21.2	32.0	
		5.7	9.5	15.3	26.0	39.1	
		3.3	5.5	8.8	15.0	22.6	
		5.0	8.3	13.2	22.5	33.9	
		7.0	11.7	18.7	31.8	47.9	
		8.6	14.3	22.9	38.9	58.7	
		3.3	5.5	8.8	15.0	22.6	



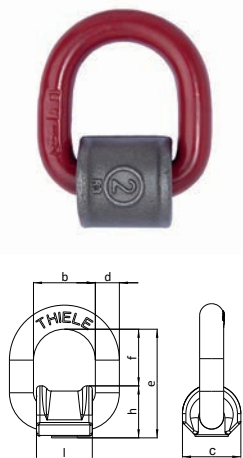


## Lifting Points, Weld-on Type

### TWN 0119A

### Weld-on type Lifting Points

The weld-on lifting points TWN 0119 are used for universal lifting, moving and lashing of loads. The lifting points are often welded to machine frames, steel structures, lifting beams and housings. The manufacturing and testing requirements are based on DIN EN 1677-1 and ISO 8539.



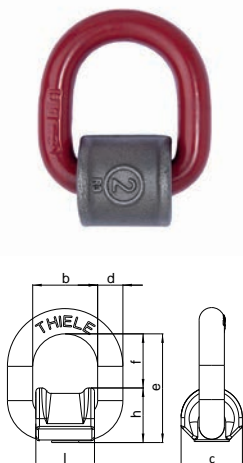
Trade Size	Article-No.	Working Load Limit [lbs]	Lashing Capacity (LC) [daN]	Dimensions [inch]							Weight app. [lbs]
				e*	f*	c	l	b	h	d	
1/4"	F35103A	2,500	2,200	2.32	1.22	1.26	1.26	1.42	1.10	0.47	0.53
5/16"	F35113A	4,500	4,000	2.72	1.42	1.50	1.50	1.65	1.30	0.55	1.01
3/8"	F35123A	7,100	6,300	3.35	1.81	1.77	1.73	1.89	1.50	0.71	1.59
1/2"	F35133A	12,000	10,600	4.72	2.72	2.36	2.36	2.60	2.01	0.94	4.25
5/8"	F35143A	18,100	16,000	5.00	2.60	2.68	2.56	2.83	2.40	1.10	5.89
7/8"	F35163A	34,200	-	7.01	3.86	3.78	4.29	4.72	3.15	1.54	17.84
1-1/4"	F35183	72,300	-	11.50	6.85	5.71	6.50	7.09	4.65	2.20	60.19
1-9/16"	F35193	110,200	-	14.61	8.78	7.32	8.27	9.06	5.71	2.83	132.28

\*e- and f-Dimension vertical to the welding level.

### TWN 0124

### Weld-on type Lifting Points with Spring

The weld-on lifting points TWN 0124 with spring are used for general lifting, moving and lashing of loads. The lifting points are often welded onto machine frames, steel constructions, lifting beams and housings. The D-ring is being held in position by a spring. The manufacturing and testing requirements comply with DIN EN 1677-1 and ISO 8539.



Trade Size	Article-No.	Working Load Limit [lbs]	Lashing Capacity (LC) [daN]	Dimensions [inch]							Weight app. [lbs]
				e*	f*	c	l	b	h	d	
1/4"	F35107	2,500	2,200	2.24	1.14	1.26	1.26	1.42	1.10	0.47	0.53
5/16"	F35110	4,500	4,000	2.64	1.34	1.50	1.50	1.65	1.30	0.55	1.01
3/8"	F35124	7,100	6,300	3.19	1.69	1.77	1.73	1.89	1.50	0.71	1.59
1/2"	F35139	12,000	10,600	4.61	2.60	2.36	2.36	2.60	2.13	0.94	3.55
5/8"	F35144	18,100	16,000	4.80	2.40	2.68	2.56	2.83	2.40	1.10	5.89

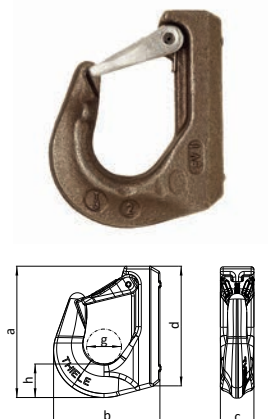
\*e- and f-Dimension vertical to the welding level.

### TWN 0850/1

### Weld-on Hooks

The weld-on hooks TWN 0850/1 are primarily welded onto earth-moving machines, buckets, shovels and traverses for lifting, moving and securing loads. The forged safety latches prevent unintentional detachment from the load.

The manufacturing and testing requirements are based on the DGV testing principle GS-HM 35.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			a	c	g	b	h	d	
1	F32751	2,500	3.70	0.94	1.02	3.03	0.94	3.35	1.15
2	F32752	4,500	4.72	1.18	1.30	3.82	1.10	4.23	1.85

# Lifting Points, Weld-on Type

## Spare Part Sets for Weld-on Type Hooks

The spare part sets TWN 1908/0 consist of a safety latch, spring and dowel pin and are suitable for the weld-on hooks TWN 0850/1.

Trade Size	Article-No.	Packing Unit	Weight app. [lbs]
1	F48731	1 set	0.11
2	F48733	1 set	0.18

## TWN 1908/0



## Weld-on Hooks NEW

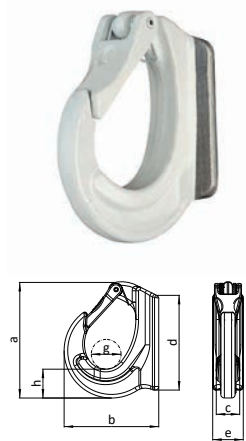
The weld-on hooks TWN 0850/2 are primarily welded onto earth-moving machines, buckets, shovels and traverses for lifting, moving and securing loads. The forged safety latches prevent unintentional detachment from the load.

The manufacturing and testing requirements are based on the DGUV testing principle GS-HM 35.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]							Weight app. [lbs]
			e	a	c	g	b	h	d	
1	F32770	1,00	1.02	4.25	0.75	0.98	2.83	1.10	3.07	1.15
2	F32771	2,00	1.34	4.49	0.79	1.30	3.62	1.10	3.35	1.54
3	F32772	3,00	1.34	5.08	1.02	1.30	4.13	1.26	4.09	2.54
5	F32773	5,00	1.73	6.57	1.10	1.69	5.43	1.81	5.91	5.20
8	F32774	8,00	2.01	6.81	1.65	1.69	5.71	2.09	5.83	7.32
10	F32775	10,00	2.64	8.86	1.85	2.36	7.05	2.40	7.76	14.20

## TWN 0850/2



## Spare Part Sets for Weld-on Type Hooks

The spare part sets TWN 0913 consist of a safety latch, spring and dowel pin and are suitable for the weld-on hooks TWN 0850/2.

Trade Size	Article-No.	Packing Unit	Weight app. [lbs]
1, 2, 3	Z04496	1 set	0.13
5, 8	Z10614	1 set	0.44
10	Z05842	1 set	0.97

## TWN 0913



## Weld-on Hooks NEW

The weld-on hooks TWN 1380 are designed for lifting and moving loads and are mainly welded onto earth-moving machines, e.g. shovels. The weld-on hooks consist of a forged hook and a spring-loaded safety latch. They are painted yellow, the areas for the welds are bright.

The design and construction are based on the ISO 8539, DIN EN 1677-1 and the DGUV testing principle GS-HM 35.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]							Weight app. [lbs]
			a	b	c	d	e	g	h	
1	F328701	2,200	4.92	3.19	0.87	2.76	1.26	0.79	2.76	2.18
2,5	F328702	5,500	6.42	4.13	1.02	3.54	1.65	1.10	3.54	4.48
5	F328705	11,000	7.72	5.08	1.50	4.25	2.05	1.26	4.33	9.08
7,5	F328707	16,500	10.04	6.34	1.81	5.51	2.95	1.77	5.71	18.81
12,5	F328712	27,600	11.61	7.01	2.05	6.69	3.15	1.77	5.71	27.76

## TWN 1380





## Lifting Points, Weld-on Type

### TWN 0949

### Spare Part Sets for Weld-on Type Hooks NEW

The spare part sets TWN 0949 consist of a safety latch, spring and dowel pin and are suitable for the weld-on hooks TWN 1380.

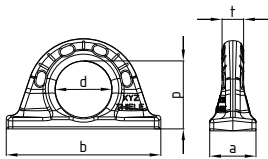


Trade Size	Article-No.	Packing Unit	Weight app. [lbs]
1	F48316	1 set	0.11
2	F48317	1 set	0.18
5	F48318	1 set	0.40
7/12	F48320	1 set	0.68

### TWN 1490

### Lifting points THI-EYE, weld-on type NEW

The weld-on type lifting points THI-EYE TWN 1490 are used for lifting, moving, and securing of loads, primarily to get welded onto earth-moving machines, shovels, grabs and traverses. The lifting points may be used with 100% WLL in all directions, are crack tested and feature angle indicators to optimize alignment during the rigging process. The manufacturing and testing requirements are based on the DGUV testing principal GS-HM 35, ISO 8539 and DIN EN 1677-1.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]					Weight app. [lbs]
			a	b	t	d	p	
3,2	F32300	7,100	1.61	5.39	0.75	1.97	2.36	2.20
5	F32301	11,000	2.01	6.77	1.02	2.36	2.87	4.85
10	F32302	22,000	2.76	8.98	1.46	3.15	3.86	11.46
20	F32303	44,100	3.54	10.71	1.97	4.53	5.51	23.15
31,5	F32304	72,300	4.25	12.60	2.44	5.12	6.30	40.79



## Lashing Points, Weld-on Type

### COMPACT Lifting Points with Spring

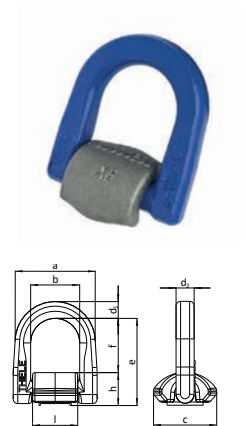
The weld-on COMPACT lifting points TWN 1882 with fixing spring are used for lifting and moving of loads. The lifting points are predominantly welded on machine frames, steel constructions, trusses and housings. The compact design allows a small installation space. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]									Weight app. [lbs]
			d <sub>1</sub>	d <sub>2</sub>	b	a	l	e*	h	c	f	
1/4"	F352041	3,300	0.51	0.55	1.50	2.56	1.38	2.68	1.02	1.97	1.65	0.90
5/16"	F352051	5,500	0.59	0.59	1.77	2.99	1.65	2.87	1.06	1.97	1.81	1.26
3/8"	F352061	8,800	0.67	0.67	1.97	3.35	1.81	3.43	1.22	2.20	2.20	1.85
1/2"	F352071	15,000	0.91	0.91	2.68	4.57	2.48	4.80	1.73	3.07	3.07	4.83
5/8"	F352081	22,600	1.06	1.06	2.72	5.12	2.48	4.96	2.13	3.62	2.83	7.39

\* Upright standing ring

### TWN 1882



### Lashing Points with two weld-on Brackets

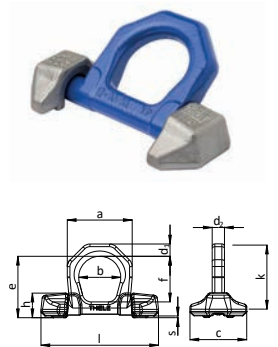
The weld-on lashing points TWN 1473 with two weld-on brackets are used for lashing of loads. The lashing points are predominantly welded to the vehicle frame (semi-trailers, trailers). The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



Trade Size	Article-No.	Article-No. (Ring only)	Lashing Capacity (LC) [daN] max.	Dimensions [inch]											Weight app. [lbs]
				d <sub>1</sub>	d <sub>2</sub>	b	a	l	e*	k	h	c	s	f	
3/8"	F352001	F352002	8,000	0.55	0.55	1.89	2.91	5.28	2.91	2.91	1.10	2.56	0.08	2.24	1.74
1/2"	F352011	F352012	13,500	0.79	0.79	2.36	3.94	6.69	3.35	3.66	1.46	3.15	0.08	2.40	3.81

\* Upright standing ring

### TWN 1473



### COMPACT Lashing Points with Spring

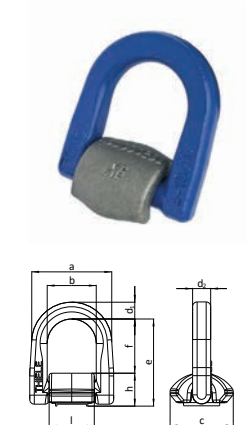
The weld-on COMPACT lashing points TWN 1880 with fixing springs are used for securing of loads. The lashing points are predominantly welded in recessed skip fittings and on vehicle frames (semi-trailers, trailers). The compact design allows a small installation space. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



Trade Size	Article-No.	Lashing Capacity (LC) [daN]	Dimensions [inch]									Weight app. [lbs]
			d <sub>1</sub>	d <sub>2</sub>	b	a	l	e*	h	c	f	
1/4"	F35204	3,000	0.51	0.55	1.50	2.56	1.38	2.68	1.02	1.97	1.65	0.90
5/16"	F35205	5,000	0.59	0.59	1.77	2.99	1.65	2.87	1.06	1.97	1.81	1.26
3/8"	F35206	8,000	0.67	0.67	1.97	3.35	1.81	3.43	1.22	2.17	2.20	1.85
1/2"	F35207	13,500	0.91	0.91	2.68	4.57	2.48	4.80	1.73	3.03	3.07	4.83
5/8"	F35208	20,000	1.06	1.06	2.72	5.12	2.48	4.96	2.13	3.62	2.83	7.39

\* Upright standing ring

### TWN 1880







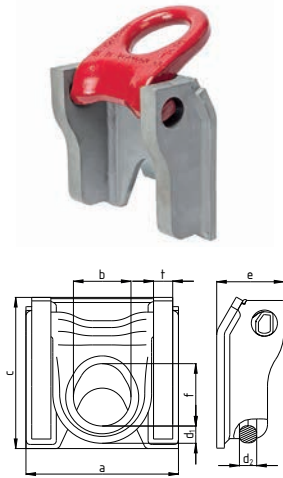
# Lashing Points, Weld-on Type

## TWN 1477

## ZKS-Modules

NEW

The weld-on ZKS-modules TWN 1477 are predominantly installed in C-shaped side frames of low-loaders and trailers. The large swivel range also allows the securing of overhanging loads. The pivotable large lashing eyelet built into the cassette enables a fixed mounting position for easy connection with the lashing equipment. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



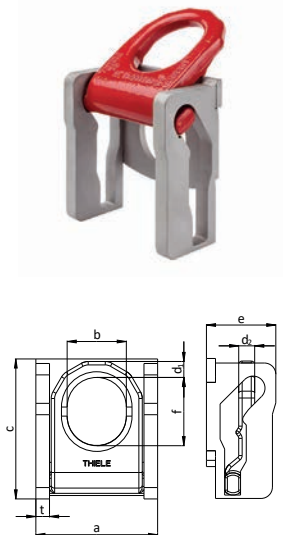
Trade Size	Article-No.	Lashing Capacity (LC) [daN]	Dimensions [inch]								Weight app. [lbs]
			d <sub>1</sub>	d <sub>2</sub>	b	a	t	e	c	f	
10	F352376	10,600	0.71	0.71	2.36	6.26	0.79	2.76	6.20	2.56	10.91

## TWN 1471

## ZK-Modules with Stressless Lashing®

NEW

The weld-on ZK-modules TWN 1471 are predominantly installed in C-shaped side frames of low-loaders and trailers. The large swivel range also allows the securing of overhanging loads. A newly developed, patented cassette design enables a fixed mounting position for easy connection to the lashing equipment. Stressless Lashing® in perfection. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



NEW:  
YouTube video of the ZK-module

Trade Size	Article-No.	Execution*	Lashing Capacity (LC) [daN] max.	Dimensions [inch]								Weight app. [lbs]
				d <sub>1</sub>	d <sub>2</sub>	b	a	t	e	c	f	
5	F352390	N	5,000	0.55	0.55	2.05	4.21	0.47	2.40	4.69	2.36	4.23
5	F352395	S	5,000	0.55	0.55	2.05	4.21	0.47	2.40	4.69	2.36	4.30
10	F352380	N	10,600	0.71	0.71	2.44	5.39	0.59	2.87	5.67	3.07	7.61
10	F352385	S	10,600	0.71	0.71	2.44	5.39	0.59	2.87	5.67	3.07	7.63

\* The sheets of the lashing cassette in the execution „N“ (=Normal) are produced in micro-alloyed steel. The execution „S“ (=Special) are produced from special steel and are therefore capable to get be hot dip galvanized (up to 500°C) with the vehicle frame.

## General information

The standard DIN EN 12640 specifies the minimum testing requirements for lashing points on road trucks and trailers with flatbed bodies and a permissible total weight of more than 3,5 t for mixed cargo transportation. Lashing points are devices to attach lashing gear. A lashing point can be an oval link, hook, lug or lashing rail. These types of lashing points may lead to safety issues when in operation.

A non-appropriate dimensioning and use of non-suitable lashing points, as well as the damage of the lashing points and frames of the vehicle, shows a high potential danger in traffic. In operation, oval links are often exposed to unforeseen torque which may cause a damage to the body-work of the vehicles. Very often required inclination angles are not properly considered. Further, oval links can cause unnecessary noise exposure in traffic. The developed THIELE ZK-Modules (lashing ring with cassette) may be easily fitted and adopted at the side frames of trailers.

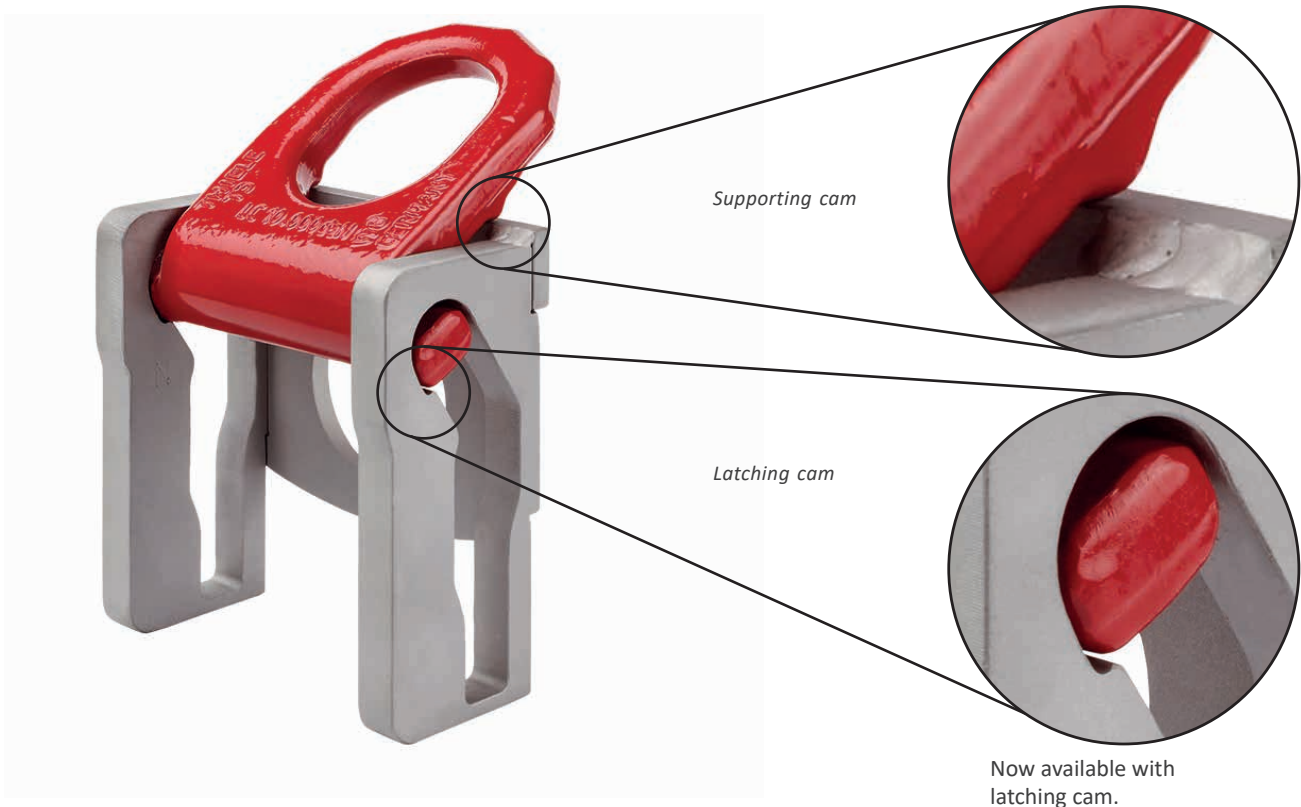
The ZK-Modules are marked with permissible lashing capacity (LC), manufacturer name (THIELE) and standard number (DIN EN 12640). Official agencies may easily check the correct installation. The ZK-Modules made by THIELE provides highest safety for load securing in the heavy-duty road traffic.

## Lashing Points, Weld-on Type

TWN 1471 ZK-Modules with Stressless Lashing® **NEW**



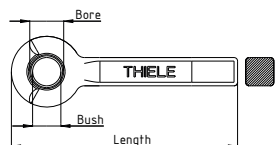
YouTube video of the ZK-module



### Positions:



## TWN 0301 - 0304 Towing Eyes acc. to DIN 74054

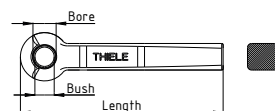


The weld-on towing eyes TWN 0301 - 0304 with shaft serve as coupling elements primarily for drawbars and on central axle trailers for the connection with the pins or trailer hitches. The bore dimensions comply with the DIN 74054 parts 1 and 2.

TWN	Article-No.	Type	Length [mm]	Bush [mm]	Bore [mm]	Weight app. [kgs]
0301	F27100	C	320	–	40	3,70
	F27101	A	320	40	48	3,70
0302	F27110	C	350	–	40	4,00
	F27111	A	350	40	48	4,00
0304	F27130	C	360	–	40	5,10
	F27131	A	360	40	48	5,10

## TWN 0308

## Towing Eyes acc. to DIN 74054

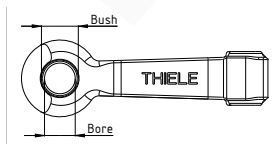


The weld-on towing eyes TWN 0321 with shaft serve as coupling elements primarily for drawbars and on central axle trailers for the connection with the pins or trailer hitches. The bore dimensions comply with DIN 74054 parts 1 and 2.

Article-No.	Type	Length [mm]	Bush [mm]	Bore [mm]	Weight app. [kgs]
F27180	C	420	–	40	8,50
F27181	A	420	40	48	8,50
F27182	D	420	-	48	8,50

## TWN 0321

## Towing Eyes acc. to DIN 74054

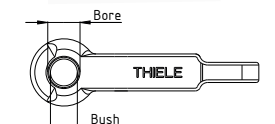


The weld-on towing eyes with shaft TWN 0321 serve as coupling elements primarily for drawbars and central axle trailers for the connection with the pins or trailer hitches. The bore dimensions comply with the DIN 74054 parts 1 and 2.

Article-No.	Type	Bush [mm]	Bore [mm]	Weight app. [kgs]
F27300	C	–	40	7,30
F27301	A	40	48	7,30

## TWN 0323

## Towing Eyes acc. to DIN 74054



The weld-on towing eyes TWN 0321 with shaft serve as coupling elements primarily for drawbars and on central axle trailers for the connection with the pins or trailer hitches. The bore dimensions comply with DIN 74054 parts 1 and 2.

Article-No.	Type	Bush [mm]	Bore [mm]	Weight app. [kgs]
F27320	C	–	40	6,40
F27321	A	40	48	6,40



**KWS**  
INC.



**THIELE**<sup>®</sup>



THK

# THIELE HOIST CHAINS

Types T, DAT and DT





## Hoist Chains

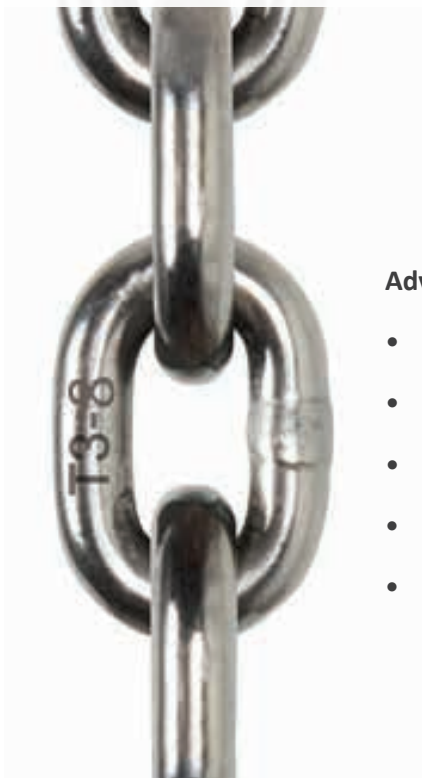


### Production of THIELE Hoist Chains:

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:

- |                  |  |
|------------------|--|
| <b>T-Type:</b>   | > for manual chain hoists and lever blocks<br>> for motor-driven, low-speed hoists |
| <b>DAT-Type:</b> | > motor-driven, high-speed hoists  |
| <b>DT-Type:</b>  | > 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 as maintenance hoists. 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 <sub>n</sub> [mm]	Tol. ± [mm]	p <sub>n</sub> [mm]	Tol. ± [mm]	w <sub>1</sub> [mm] min.	w <sub>2</sub> [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 <sup>2)</sup>	—	—	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 <sup>2)</sup>	—	—	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 <sup>1)</sup>	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 <sup>1)</sup>	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 <sup>1) 2)</sup>	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 <sup>1)</sup>	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 <sup>1)</sup>	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 <sup>1)</sup>	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
31,5 x 90 <sup>1) 2)</sup>	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

<sup>1)</sup> Limited tolerances. Also complies with RAG 726 300. | <sup>2)</sup> 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 <sub>n</sub> [mm]	Tol. ± [mm]	p <sub>n</sub> [mm]	Tol. ± [mm]	w <sub>1</sub> [mm] min.	w <sub>2</sub> [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 <sup>2)</sup>	—	—	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 <sup>2)</sup>	—	—	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 <sup>1)</sup>	—	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 <sup>2)</sup>	—	—	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 <sup>1)</sup>	—	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 <sup>1) 2)</sup>	—	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 <sup>1)</sup>	—	—	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 <sup>1)</sup>	—	—	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 <sup>1)</sup>	—	—	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 <sup>1) 2)</sup>	—	—	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

<sup>1)</sup> Limited tolerances. Also complies with RAG 726 300. | <sup>2)</sup> 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 <sup>2</sup> ] min.	[N/mm <sup>2</sup> ] min.	[N/mm <sup>2</sup> ] 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 <sup>1)</sup>
DT	5	2,5 x WLL <sup>1)</sup>

<sup>1)</sup> Without surface cracks or visual damages

## Surface Hardness

Surface Hardness <sup>1)</sup> 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

<sup>1)</sup> 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 <sup>2)</sup>	0,40	0,15

<sup>2)</sup> 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  $2 \times 10^6$  cycles in the following stress range without failure.

Upper Stress ( $\sigma$ ) [N/mm <sup>2</sup> ] max.	Medium Stress ( $\sigma$ ) [N/mm <sup>2</sup> ]	Lower Stress ( $\sigma$ ) [N/mm <sup>2</sup> ] min.
200	120	120

## Operating Temperatures

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

Type	Lowest Temperature [°C] max.
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](http://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 <sub>2</sub>		M <sub>3</sub>		M <sub>4</sub>		M <sub>5</sub>		M <sub>6</sub>		M <sub>7</sub>		M <sub>8</sub>	
	T&DAT	DT	T&DAT	DT	T&DAT	DT	T&DAT	DT	T&DAT	DT	T&DAT	DT	T&DAT	DT
Stress	[N/mm <sup>2</sup> ] min.		[N/mm <sup>2</sup> ] min.		[N/mm <sup>2</sup> ] min.		[N/mm <sup>2</sup> ] min.		[N/mm <sup>2</sup> ] min.		[N/mm <sup>2</sup> ] min.		[N/mm <sup>2</sup> ] min.	
Nominal stress ( $\sigma_a$ ) at minimum breaking force (BF <sub>min</sub> )	800		800		800		800		800		800		800	
Nominal stress at manufacturing proof force (MPF)	500		500		500		500		500		500		500	
Nominal stress ( $\sigma_{lim}$ ) at dynamic limit load (F <sub>lim</sub> )	225	200	200		180		160		140		125		112	
Nominal stress ( $\sigma_{cr}$ ) at maximum permissible chain force (F <sub>cr</sub> )	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 start-up.

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, DIN EN 818-7, 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:

Store hoist chains must be stored in a dry location at temperatures between 0 and 40 °C.



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**KWS**



**THIELE®**



# THIELE LOAD LIFTING EQUIPMENT

TM Chain Blocks, TM Lever Blocks  
and TM Girder Clamps



TLA



## Chain Blocks and Lever Blocks

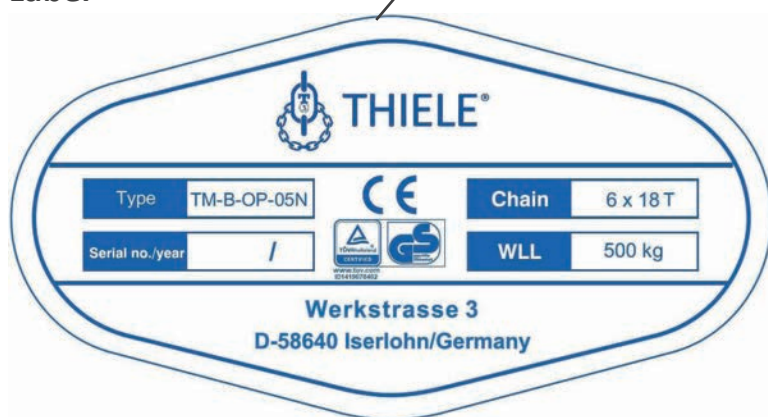
The THIELE Chain Blocks and Lever Blocks<sup>1)</sup> are equipped with an Overload Protection.

### Advantages of the Overload Protection:

- Protects the operator from injury
- Protects the hoists from damages
- Extends the service life compared to no overload protection devices
- Complies with the DIN EN 13157, DGUV 54 und GPSG



### Label



<sup>1)</sup> Except TM-LB 025 Lever Block



# Chain Blocks and Lever Blocks

## Properties:

- With overload protection
- Light weight robust steel construction
- THIELE alloy load chain according to the DIN EN 818-7-T
- Minimized headroom
- Minimum effort to raise maximum load
- Hooks with strong casted safety latches
- Approved for tensioning according to the DIN EN 12195-3 (TM Lever Blocks only)
- Fully enclosed gear train (TM Chain Blocks only)
- Protected automatic weston brake with twin pawls
- Galvanized hand chains (TM Chain Blocks only)
- Corrosion protection of galvanized load chains
- Durable baked enamel paint protection
- Standard spare parts available
- TÜV / GS / CE approved
- Supplied with THIELE test certificates
- Manuals available in 7 languages

**TWN 1000**  
**TM Chain Blocks**  
Capacities 500 kg  
to 5 tonnes

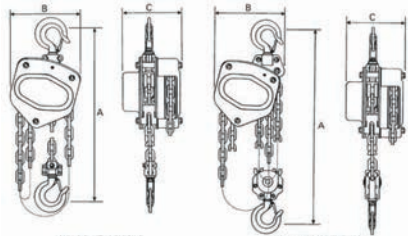


**TWN 1001**  
**TM Lever Blocks**  
Capacities 250 kg  
to 6 tonnes





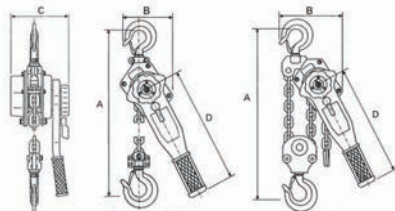
## Chain Blocks and Lever Blocks



### TWN 1000 TM Chain Blocks

The TM chain blocks TWN 1000 are handoperated portable devices for pulling, lifting and moving of loads. The integrated slipping clutch works as an overload protection. The galvanized and calibrated THIELE-hoist chains TWN 0062 comply with the requirements of DIN EN 818-7.

	Unit	TM-B-OP 05N	TM-B-OP 10N	TM-B-OP 20N	TM-B-OP 30N	TM-B-OP 50N
Working Load Limit	[t]	0.5	1.0	2.0	3.0	5.0
Lift app. 10ft. (3.05m)	[Article-No.]	F063511	F063611	F063711	F063811	F063911
Lift app. 15ft. (4.60m)	[Article-No.]	F063512	F063612	F063712	F063812	F063912
Lift app. 20ft. (6.10m)	[Article-No.]	F063513	F063613	F063713	F063813	F063913
Lift app. 30ft. (9.10m)	[Article-No.]	F063514	F063614	F063714	F063814	F063914
Lift app. 40ft. (12.20m)	[Article-No.]	F063515	F063615	F063715	F063815	F063915
Chain strands	[pieces]	1	1	1	2	2
Effort to lift for max. Working Load	[lbs]	51	66	77	60	90
Load chain diameter	[inch]	0.24	0.24	0.31	0.31	0.39
Headroom (A)	[inch]	10.63	12.48	16.30	18.31	25.04
Width (B)	[inch]	5.00	6.22	7.36	8.27	11.34
Depth (C)	[inch]	5.16	5.51	6.34	6.34	7.48
Hook opening (top)	[inch]	1.42	1.65	1.81	2.13	2.52
Hook opening (bottom)	[inch]	1.42	1.65	1.81	2.13	2.52
Net weight (for lift 3.00 m)	[lbs]	30.05	35.34	52.38	66.05	63.05
Chain Block only	[Article-No.]	F06353	F06363	F06373	F06383	F06393



### TWN 1001 TM Lever Blocks

The TM lever blocks TWN 1001 are hand operated portable devices for pulling, lifting and moving of loads.

They can also be used as lashing devices in accordance to DIN EN 12195-3. The integrated slipping clutch works as an overload protection. The galvanized and calibrated THIELE-hoist chains TWN 0062 comply with the requirements of DIN EN 818-7.

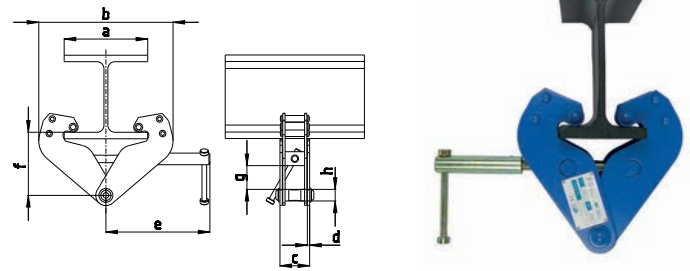
	Unit	TM-LB 025*	TM-LB-OP 075N	TM-LB-OP 150N	TM-LB-OP 300N	TM-LB-OP 600N
Working Load Limit (Lashing Capacity)	[t]	0.25	0.75	1.5	3.0	6.0
Lift app. 5ft. (1.50m)	[Article-No.]	F061901	F062411	F062511	F062611	F062711
Lift app. 10ft. (3.05m)	[Article-No.]	F061902	F062412	F062512	F062612	F062712
Lift app. 15ft. (4.60m)	[Article-No.]	F061903	F062413	F062513	F062613	F062713
Lift app. 20ft. (6.10m)	[Article-No.]	F061904	F062414	F062514	F062614	F062714
Chain strands	[pieces]	1	1	1	1	2
Effort to lift for max. Working Load	[lbs]	5.51	30.86	48.50	70.55	74.96
Load chain diameter	[inch]	0.16	0.24	0.31	0.39	0.39
Length of lever handle (D)	[inch]	6.30	11.02	16.14	16.14	16.14
Headroom (A)	[inch]	9.06	12.80	14.96	18.90	24.41
Width (B)	[inch]	3.35	5.35	6.30	7.09	9.25
Depth (C)	[inch]	3.62	5.83	6.77	7.87	7.87
Hook opening (top)	[inch]	0.98	1.65	1.81	2.13	2.44
Hook opening (bottom)	[inch]	0.98	1.65	1.81	2.13	2.44
Net weight (for lift 1.50 m)	[lbs]	5.22	15.65	29.10	47.95	72.69
Lever block only	[Article-No.]	F06192	F06243	F06253	F06263	F06273

\*TM-LB 025 without overload protection

## Girder Clamps and Displays

### TWN 0899 TM Girder Clamps

The TM girder clamps TWN 0899 are predominantly used as attachment points for lifting gears, e.g. TM chain blocks and TM lever blocks, on steel beam profiles. The girder clamps are fastened over a wide flange width range using spindles.

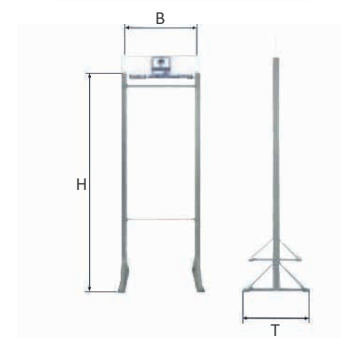


Trade Size	Article-No.	Working Load Limit  [t]	Dimensions [inch]										Adjustable beam width [inch]	Weight app.  [lbs]
			a	b		c	d	e	f		g	h		
				min.	max.				min.	max.				
1	Z08133	1.00	10.24	7.87	14.17	2.52	0.20	8.46	4.02	6.10	0.98	0.73	2,95-9,06	9.70
2	Z08134	2.00	10.24	7.87	14.17	2.91	0.24	8.46	4.02	6.10	0.98	0.87	2,95-9,06	11.24
3	Z08135	3.00	13.94	9.25	19.29	4.06	0.31	10.24	5.51	8.86	1.77	0.94	3,15-12,60	22.27
5	Z08136	5.00	13.94	9.25	19.29	4.33	0.39	10.24	5.51	8.86	1.77	1.10	3,15-12,60	26.01

### TM Displays

Modular plug-in unit to display e.g. TM Chain and TM Lever Blocks.

Article-No.	Dimensions [inch]			Weight app. [lbs]
	B	H	T	
F918186	25.19	66.92	19.29	46.30





## Spare Parts for TM Chain Blocks TWN 1000

### TWN 1010



### Ratchet Discs T.17

The ratchet discs TWN 1010 are used as spare parts for TM chain blocks TWN 1000.

Article-No.	for TM Chain Block Type	Weight app. [lbs]
Z06928	TM-B-OP 05N	0.13
Z06929	TM-B-OP 10N	0.20
Z06930	TM-B-OP 20N	0.33
Z06931	TM-B-OP 30N	0.33
Z06932	TM-B-OP 50N	0.42

### TWN 1011



### Friction Discs T.16

The friction discs TWN 1011 are used as spare parts for TM chain blocks TWN 1000.

Article-No.	for TM Chain Block Type	Weight app. [lbs]
Z06934	TM-B-OP 05N	0.02
Z06935	TM-B-OP 10N	0.04
Z06936	TM-B-OP 20N	0.07
Z06937	TM-B-OP 30N	0.07
Z06938	TM-B-OP 50N	0.07

### TWN 1013



### Safety Latch Sets T.7N

The safety latch sets TWN 1013 consist of safety latch, spring, screw and nut and are used in load hooks of the TM chain blocks TWN 1000.

Article-No.	for TM Chain Block Type	Weight app. [lbs]
Z09944	TM-B-OP 05N	0.04
Z09945	TM-B-OP 10N	0.07
Z09946	TM-B-OP 20N	0.09
Z09947	TM-B-OP 30N	0.11
Z09948	TM-B-OP 50N	0.22

### TWN 1015



### Top Load Hooks T.6N

The load hooks with attachments TWN 1015 are used as top load hooks in TM chain blocks TWN 1000.

Article-No.	for TM Chain Block Type	Working Load Limit [t] max.	Weight app. [lbs]
Z09939	TM-B-OP 05N	0.50	0.75
Z09940	TM-B-OP 10N	1.00	1.15
Z09941	TM-B-OP 20N	2.00	1.79
Z09942	TM-B-OP 30N	3.00	4.19
Z09943	TM-B-OP 50N	5.00	25.35

### TWN 1017



### Bottom Load Hooks T.8N

The load hooks with attachments TWN 1017 are used as bottom load hooks in TM chain blocks TWN 1000.

Article-No.	for TM Chain Block Type	Working Load Limit [t] max.	Weight app. [lbs]
Z09949	TM-B-OP 05N	0.50	0.77
Z09950	TM-B-OP 10N	1.00	1.28
Z09951	TM-B-OP 20N	2.00	1.87
Z09952	TM-B-OP 30N	3.00	4.48
Z09953	TM-B-OP 50N	5,00	30.64

## Spare Parts and Accessories

### Spare Parts for TM Lever Blocks TWN 1001

#### Friction Disk and Ratchet Disc Sets T.21N

The friction and ratchet discs TWN 1012 are used as spare clutches for the integrated overload protection of the TM lever blocks TWN 1001.

Article-No.	for TM Lever Block Type	Weight app. [lbs]
Z09455	TM-LB-OP 075N	0.29
Z09454	TM-LB-OP 150N	0.44
Z09456	TM-LB-OP 300N/600N	0.55

#### TWN 1012



#### Safety Latch Sets T.9N

The safety latch sets TWN 1014 consist of safety latch, spring, screw and nut and are used in load hooks of the TM lever blocks TWN 1001.

Article-No.	for TM Lever Block Type	Weight app. [lbs]
Z09976	TM-LB-OP 075N	0.07
Z09977	TM-LB-OP 150N	0.09
Z09978	TM-LB-OP 300N	0.11
Z09979	TM-LB-OP 600N	0.13

#### TWN 1014



#### Top Load Hooks T.8N

The load hooks with attachments TWN 1016 are used as top load hooks in TM lever blocks TWN 1001.

Article-No.	for TM Lever Block Type	Working Load Limit [t] max.	Weight app. [lbs]
Z09968	TM-LB-OP 075N	0,75	1.08
Z09969	TM-LB-OP 150N	1,50	1.94
Z09970	TM-LB-OP 300N	3,00	4.85
Z09971	TM-LB-OP 600N	6,00	9.92

#### TWN 1016



#### Bottom Load Hooks T.10N

The load hooks with attachments TWN 1018 are used as bottom load hooks in TM lever blocks TWN 1001.

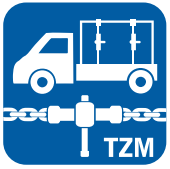
Article-No.	for TM Lever Block Type	Working Load Limit [t] max.	Weight app. [lbs]
Z09972	TM-LB-OP 075N	0.50	1.10
Z09973	TM-LB-OP 150N	1.50	2.09
Z09974	TM-LB-OP 300N	3.00	5.51
Z09975	TM-LB-OP 600N	6.00	14.77

#### TWN 1018





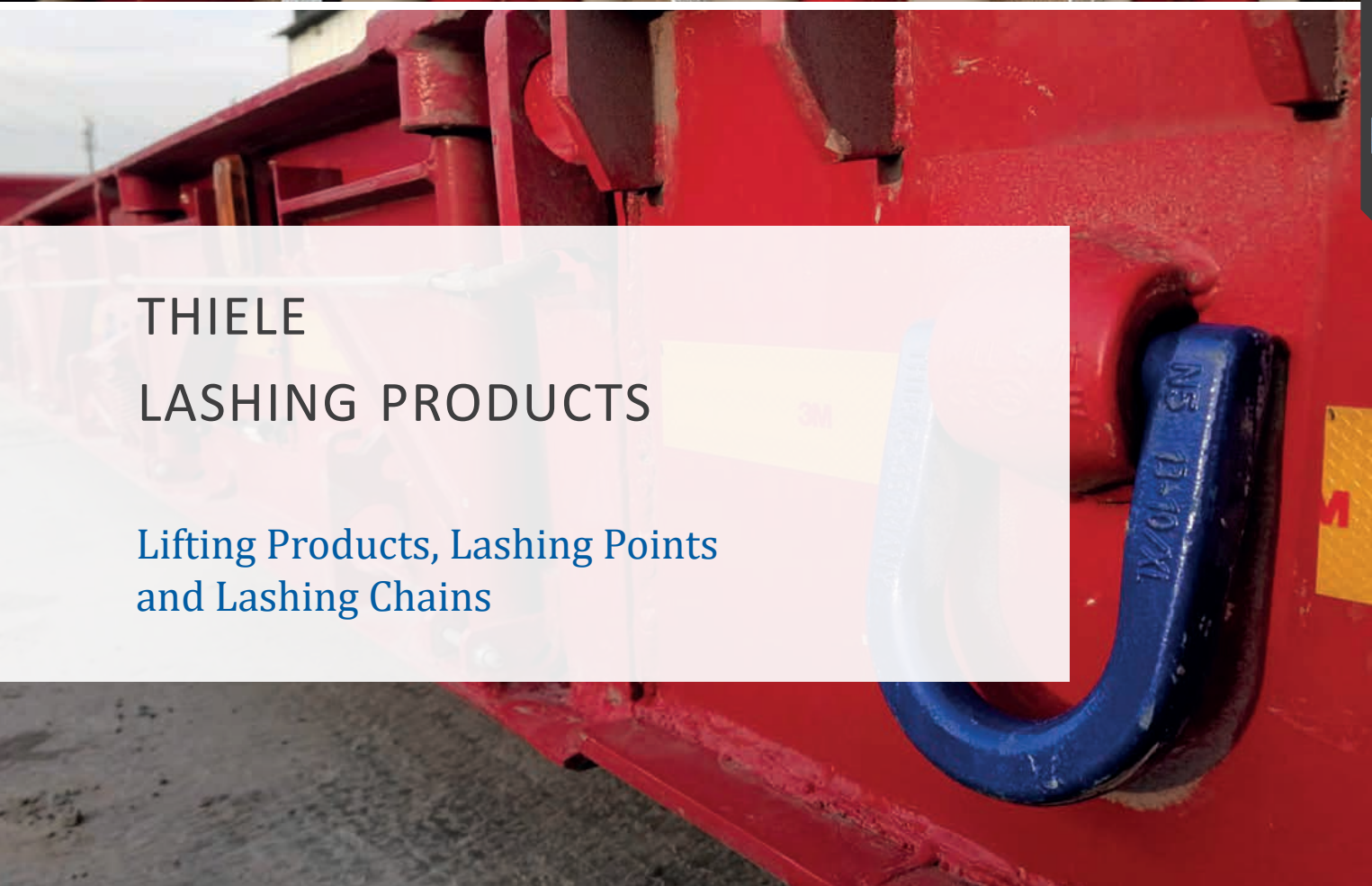
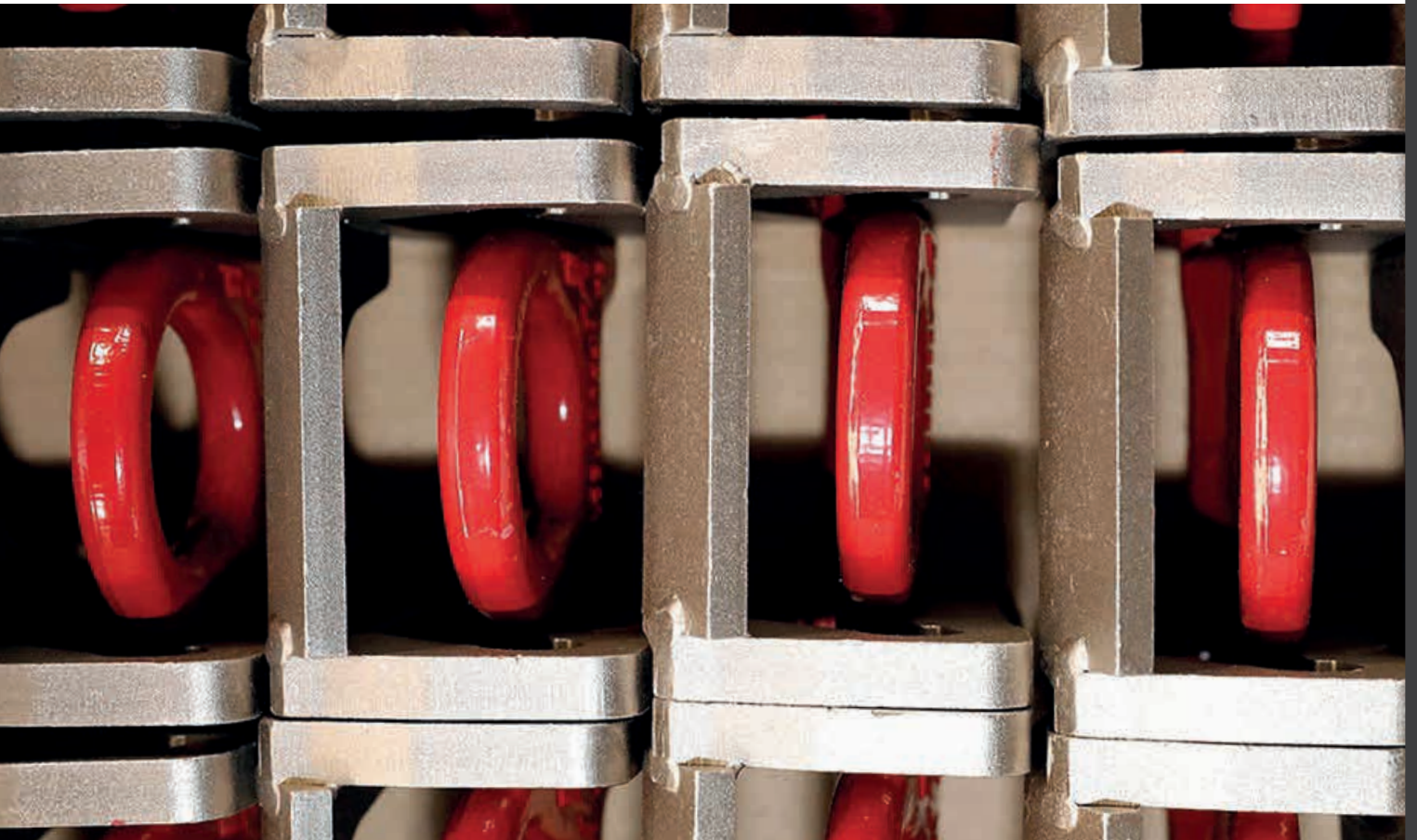
This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



**KWS**  
INC.



**THIELE**®



TLA

# THIELE LASHING PRODUCTS

Lifting Products, Lashing Points  
and Lashing Chains



## Product Overview of Lashing Products

Pages  
146-152

### Grade 100 Lashing Chains and Components

TWN 1410 / TWN 1411



TWN 0072A



TWN 1454



TWN 1455



TWN 1460



TWN 1473



TWN 1474



TWN 1820



TWN 1827/1



TWN 1840/1



TWN 1851/1



TWN 1852



TWN 1869



TWN 1880



TWN 1890



TWN 1899



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### Grade 80 Lashing Chains and Components

TWN 1400 / TWN 1401



TWN 0805A



TWN 1479



TWN 1450



TWN 1451



TWN 1452



TWN 0119A



TWN 0124



TWN 1477



TWN 1471



TWN 1320



TWN 0827/1



TWN 0851/1



TWN 0869



TWN 1340/1



TWN 1399



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### Tensioning Components

TWN 1001



## General Information

### General Information

Load securing protects the load against the physical forces of movement that occur during transport.

Vehicles that are carrying insufficiently secured loads are encountered in traffic every day. Changes in speed or direction produce forces causing the cargo to no longer stay in position and to move on the vehicle.

To avoid this risk, every load has to be secured properly on the carrier regardless of whether it is light or heavy and even when the vehicle runs at low speed. The conditions for load securing are derived from "normal" driving operations. At "normal" driving operation, however, is not only to be understood as a foresighted and quiet driving. Normal traffic conditions also include, e.g. emergency braking, uneven road surfaces, extreme evasive maneuvers, etc.

When securing loads, all these influences must be taken into consideration. If securing proves ineffective, insurance coverage may be lost partly or even entirely. In such a case, the responsible person and company must bear the costs which may then often lead to economic ruin.

Many dedicated persons are not aware that the responsibility for load securing does not only lie on driver of a vehicle but also with all other parties involved (e.g. vehicle owner, sender, carrier, hauler, etc.).

### Physical Basics

In the event of an emergency braking operation of the vehicle down to zero speed, deceleration rates of up to  $8\text{m/s}^2$  may arise which means that 80% of the weight of a given cargo component has to be absorbed by load securing to prevent the load from shifting.

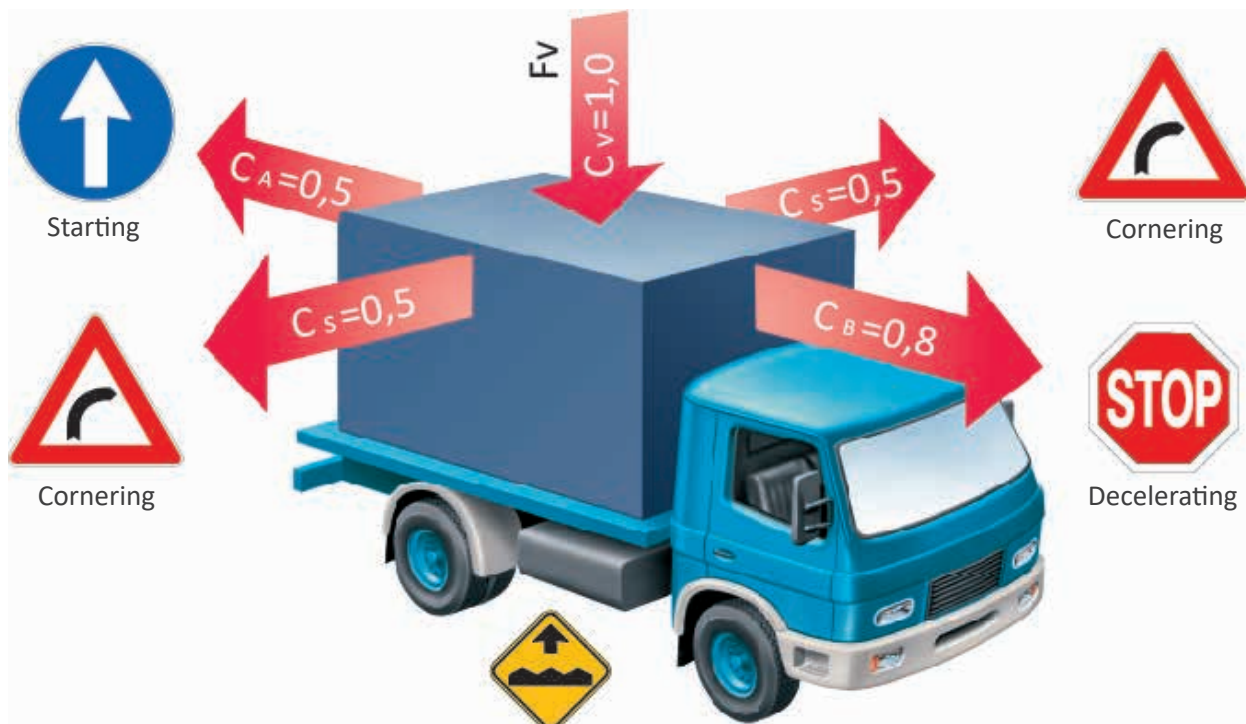
The centrifugal forces acting transversely to the direction of travel must be taken into consideration. The design of commercial vehicles permits building acceleration rates up to  $5\text{m/s}^2$ . This means that 50% of the cargo weight has to be secured transversely to the direction of travel.





### Arising Forces in Driving Operation

Vertical forces when driving



#### Starting

Weight forces (acceleration forces) to the rear

$$F_A = 0.5 \times F_V = 50\% \text{ of the cargo weight}$$

#### Decelerating

Weight forces (deceleration forces / negative accelerations) to the front

$$F_B = 0.8 \times F_V = 80\% \text{ of the cargo weight}$$

#### Cornering

Weight forces (centrifugal forces) acting sideways

$$F_S = 0.5 \times F_V = 50\% \text{ of the cargo weight}$$

### Forces of Cargo

Assuming a cargo weight of  $m = 15.000$  kgs then the vertical force of cargo  $F_V$  is 15,000 daN.

All these forces must be retained by means of load securing and lashing devices.

Cargo Weight	Forces of Cargo	Force
[%]		[daN] min.
100	Vertical force of cargo	$F_V = 15.000$
80	Longitudinal forward force	$F_B = 12.000$
50	Transverse force of cargo (right/left)	$F_S = 7.500$
50	Longitudinal rearward force	$F_A = 7.500$



## General Information

### Methods of Load Securing

In general a distinction between force- and form-closed cargo securing is to be made:



### Tie-down Lashing

The most common type of load securing is the tie-down lashing (pictures 1 and 2 on pages 142 and 143). The load securing devices are put over the cargo, attached to lashing points and tightened by using maximum hand force.

The pre-tensioning force presses the cargo onto the load area and thereby applies frictional forces. The sum of the weight itself and the pressing forces take effect in all directions. This is the major advantage of the tie-down lashing method.

The vertical angle  $\alpha$  primarily determines the effectiveness of the tie-down lashing method. When using a 90° angle, 100% of the force is introduced into the lashing system. At 30° it is only 50%.

Therefore the lashing angle  $\beta$  should not exceed 30°.

#### Following points should be considered for tie-down lashing operations:

- A high degree of friction must exist between the cargo and the loading surface as well as amongst the individual loading units.
- The sliding friction coefficient must be known or estimated.
- The cargo must be able to withstand the pre-tensioning force.
- The lashing points on the vehicle must be designed to take the arising loads.
- Due to the so called settling processes, the pre-tension of the load securing devices must be regularly checked during transit in order to rule out that pre-tensioning forces will decrease and no longer be adequate.

The magnitude of the frictional force depends on the characteristics of the materials that come into contact with each other. It is clearly evident that a piece of metal will easier slide on a metal surface than on a surface consisting of rubber.

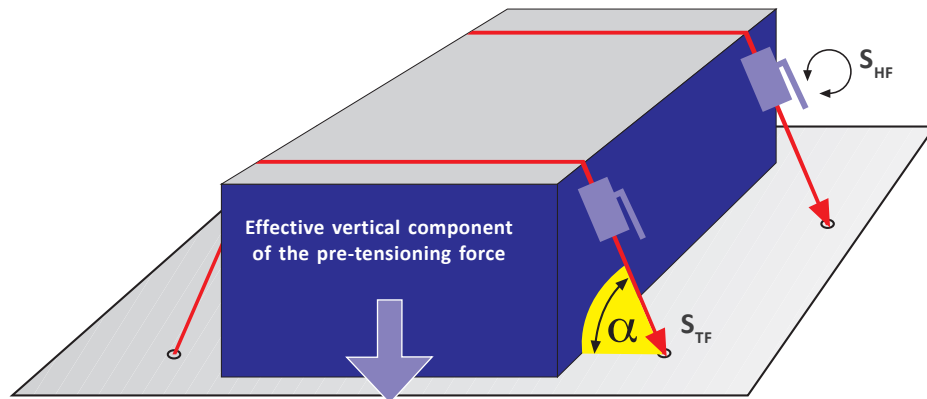
In practical tests on load surfaces as well as in laboratory tests a multitude of so called sliding friction coefficients have been determined which serve as calculation basis for cargo securing purposes.

These coefficients are identified by the symbol  $\mu_D$ .

### Dynamic friction coefficients of common cargo

Material pairing	Sliding friction coefficient ( $\mu_D$ )
Steel on steel, oiled	0,10
Timber on steel plates	0,30
Steel on wood	0,40
Pre-cast concrete components with wood interlayer on wood (concrete/wood/wood)	0,40
Concrete on lattice beams	0,60

## Force introduction via the tensioning element



Picture 1

When lashing down, different pre-tensioning forces are required depending on the lashing angle.

- $S_{HF}$  = Standard Hand Force (max. 50 daN) applied to the lever of the ratchet or screw tensioner. Only if the tensioning element is tightened by hand ( $S_{HF}$ ) at 50 daN, the pretensioning force ( $S_{TF}$ ) indicated on the identification tag may be reached.
- $S_{TF}$  = Standard Tension Force is the remaining force after the lever of the tensioning device has been released; i.e. the real remaining force exerted by the load securing device.

The pre-tensioning force  $F_T$  is determined according to the following formula:

$$F_T \geq \frac{C_{A,S} - \mu_D}{\mu_D \times \sin \alpha} \times \frac{F_V}{k \times n} \quad [\text{daN}] \text{ max.}$$

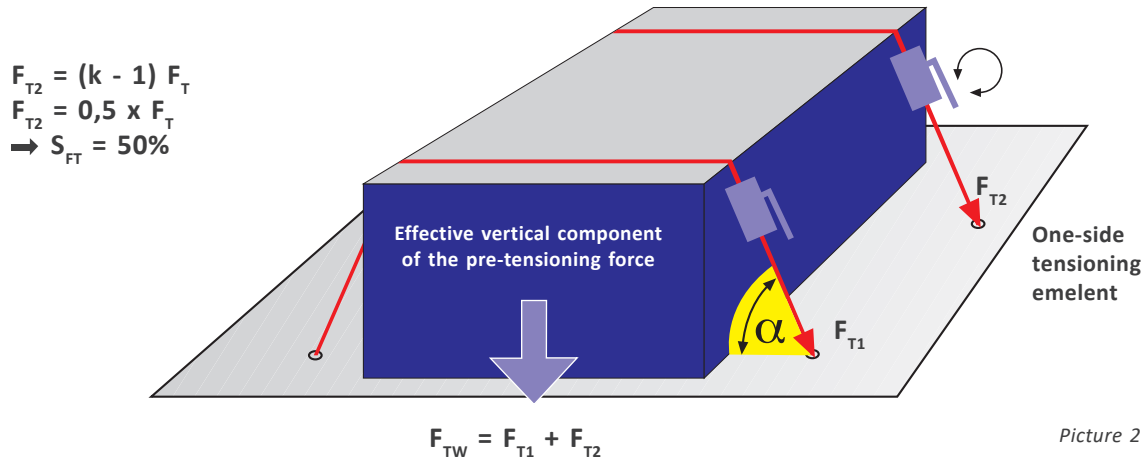
### The meaning of formula symbols:

- $C_{A,S}^*$  = Acceleration coefficient (in travel direction  $C_A = 0.8$ ; transversely and counter to the drive direction  $C_S = 0,5$ )
- $C_V^*$  = Acceleration coefficient, vertical
- $\mu_D$  = Dynamic friction coefficient (sliding friction coefficient)
- $\sin \alpha$  = Sine function of the lashing angle
- $F_V$  = Vertical force of the cargo (cargo weight); ( $F_V = m \times g \times C_V$ )
- $k$  = Transfer coefficient (loss of pre-tensioning force due to friction between the cargo and the load securing device)  
1,5 times if the load securing device is tightened by means of a tensioning device
- $n$  = Number of lashing devices

\*Assumption: Cargo on road trucks and trailers

# General Information

## Over-the-top lashing



### Pretensioning forces

Table 3 provides estimated pre-tensioning forces that are required to safely secured cargos. The data shown is based on material pairings listed in table 2. As shown in table 3, the sliding friction coefficients and lashing angles are decisive!

Cargo-weight (F <sub>v</sub> ) [daN] max.	Sliding-friction coefficient (μ <sub>D</sub> )	Lashing Angle (α)	Total pre-tensioning force (F <sub>T</sub> ) [daN] max.	Lashing Angle (α)	Total pre-tensioning force (F <sub>T</sub> ) [daN] max.
2.000	0,10	50°	12.185	80°	9.485
	0,40	50°	1.745	80°	1.355
	0,60	50°	580	80°	455
10.000	0,10	50°	60.925	80°	47.425
	0,40	50°	8.725	80°	6.775
	0,60	50°	2.900	80°	2.275
30.000	0,10	50°	182.775	80°	142.275
	0,40	50°	26.175	80°	20.325
	0,60	50°	8.700	80°	6.825

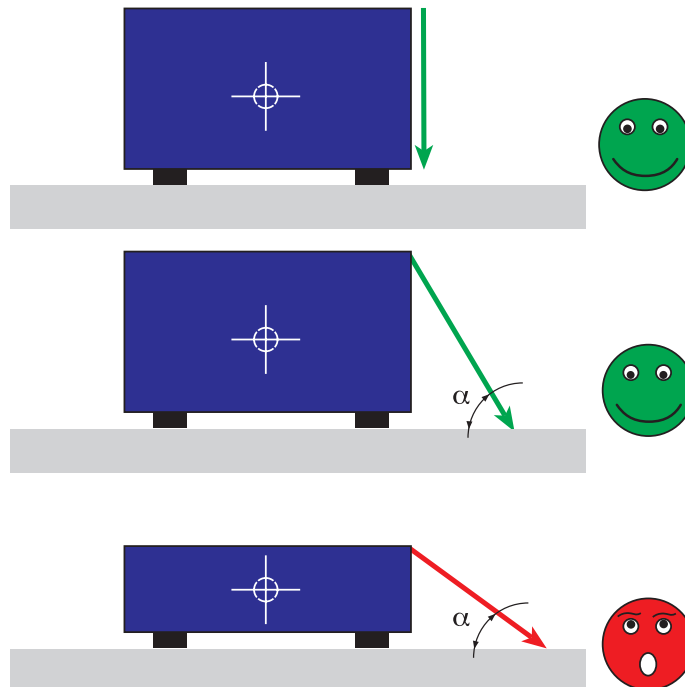
Table 3



TZM



### Pretensioning forces



Significantly high pre-tensioning forces are sometimes needed and it is obvious that such forces may only be applied with appropriately sized load securing devices.

The most important parameters of load securing devices are as follows:

➡ **Lashing Capacity (LC)**

➡ **Standard Tension Force ( $S_{TF}$ )**

$S_{TF\min.} = 0,25 \times LC$  for chains with diameter from 6 to 10 mm

$\min. = 0,15 \times LC$  for chains with diameter from 13 and 16 mm

$S_{TF\max.} = 0,50 \times LC$

Both characteristics may be found on the identification tags of the lashing chains. The Lashing Capacity (LC) is the largest force in straight pull, for which a lashing device is designed to use. The Standard Tension Force ( $S_{TF}$ ) is the force that remains in the load securing device when the tensioning lever has been released, i.e. the actual remaining force exerted by the system.

To determine how many lashing elements are needed, the calculated total pre-tensioning force must be divided by the standard tension force of the selected load securing devices. When using belt systems, a double-digit number of belts may be necessary for common loads which is unsuitable for practical purposes.

However, by using THIELE-lashing chains, you may reduce the required number of tensioning devices by a factor eight. It is generally recommended to use anti-slip mats for tie-down lashing and direct lashing to increase the coefficient of friction.

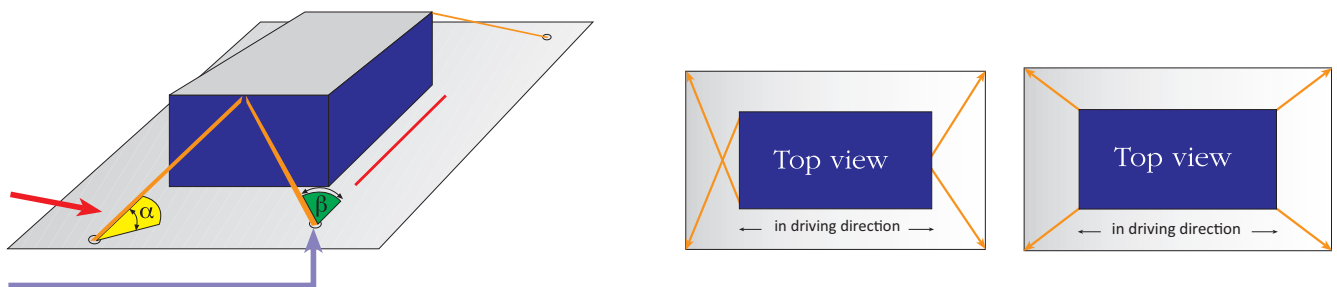
## General Information

### Direct Lashing

Direct lashing is a highly effective cargo securing method, as it makes use of the lashing capacity of the lashing device. Since the load securing device is not pretensioned, only little manual force is needed for tightening. The lashing device must be fixed to a lashing point at the load area and then at the cargo itself. It shall only be pretensioned by hand power in order to avoid sagging or swinging of the chain.

The force to be calculated for a chain to be used as a securing device must be smaller than the lashing capacity (LC). The lashing capacity is the decisive parameter for the chain size as well as for the related tensioning and connecting elements.

### Diagonal Lashing



For diagonal lashing, physical laws prescribe the limits according to which the lashing angles should be selected. Calculations show that it is recommended to keep horizontal angles in line between 20° and 45°. If the angle is smaller than 20° and the friction coefficient is smaller than 0.5, an additional dimensioning of the average lashing force against slipping during vehicle cornering is required. If the angle is larger than 60°, then the lashing capacity will increase disproportionately. Theoretically, they would even be infinitely larger with a 90° angle. Based on these considerations, it can be stated that a diagonal/cross-wise lashing method is not favorable for securing of loads in driving direction, at least in a extreme configuration (horizontal angle). There are also recommendable limits at the vertical angles to avoid disproportional increase of the forces in the tensioning device. The best use of the average lashing capacities is at a vertical angle between 0° and 20°.

The force of a chain must be calculated according to the following formular, considering the described factors:

$$LC \geq \frac{F_v \text{ [daN]} \times (C_{A,S} - \mu_D)}{(\sin \alpha \times \mu_D + \cos \alpha \times \cos \beta) \times n}$$

Based on the equation a lashing device that has at least the same admissible lashing capacity must be selected.

#### Symbols used in the equation:

- LC = Lashing Capacity
- $F_v$  = Vertical force of the cargo (cargo weight); ( $F_v = m \times g \times C_v$ )
- $\mu_D$  = Dynamic friction coefficient (sliding friction coefficient)
- $C_{A,S}^*$  = Acceleration coefficient (in driving direction  $C_A = 0,8$ ; transversely and counter to driving direction  $C_S = 0,5$ )
- $C_v^*$  = Acceleration coefficient, vertical
- $\alpha$  = Vertical angle of the lashing legs
- $\beta$  = Horizontal angle of the lashing legs
- $n$  = Number of lashing chains in the respective direction

\*Assumption: Cargo on road trucks and trailers





## General Information

Lashing chains are the best way to secure loads. They offer major advantages as their working capacity is known. This allows an exact calculation to secure the loads.

For standard lashing chains exclusively short link round steel chains acc. to DIN EN 818-2 or PAS1061/ ASTM973 must be used.

In your own interest as well as public safety, only shortening elements according to DIN EN 1677-1 that are approved by the manufacturer may be used. When using self-made shorteners, the capacity of the lashing devices can no longer be granted.

When using lashing hooks, all safety requirements of the DIN EN 1677-2 must be observed (hooks with safety latches) and taken into consideration.

Connecting and shortening components must have devices that are preventing the chain from unintentional release.

Screw tensioners must have a safety device (securing of screw removal) against unintentional release.

Multi purpose lever blocks must meet the DIN EN 13157 requirements.

**A complete Lashing Chain according to the DIN EN 12195-3 consists of:**

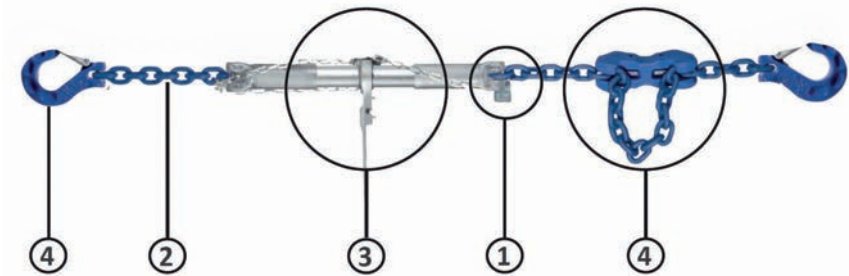
Load Securing Devices	Tensioning Elements	Connecting Elements	Identification Tags
Lashing chains	Tighteners, Tensioners, Multi purpose ratchet hoists	Hooks, Shackles, Chain shorteners, End-links	Metal tags



# General Information

## Inspection of Lashing Chains

Load securing devices are subject to wear and can be damaged by improper use. It is strictly required to inspect round steel chains and components by a qualified person in regular intervals in order to make sure that they are taken out of service or repaired without delay if damaged or worn out.



## Criteria for rejection from operation:

Component	Indicators
<b>1. Identification Tag</b> - Tag conforming to standard	> Missing or illegible tags
<b>2. Load Securing Device</b> - Lashing Chain	> Elongation of a single link at the outer length of more than 3% > Elongation of a single link in the pitch of more than 5% > Wear exceeding 10% of the nominal diameter > Deformation > Surface cracks
<b>3. Tensioning Element</b> - Tensioner - Tightener - Multi purpose ratchet hoist	> Deformation > Cracks > Severe signs of wear > Severe corrosion
<b>4. Component</b> - End link - Chain connector - Shackle - Shortening claw - Shortening hook - Lashing hook	> Deformation > Cracks > Severe signs of wear > Severe corrosion > Hook widening by more than 10%



### Inspection of Lashing Chains

#### Do NOT use...

##### ... round steel chains:

- with working load limit or lashing capacity lower than specified standards DIN EN 818-2/ PAS 1061/ ASTM 973
- without manufacturer identification

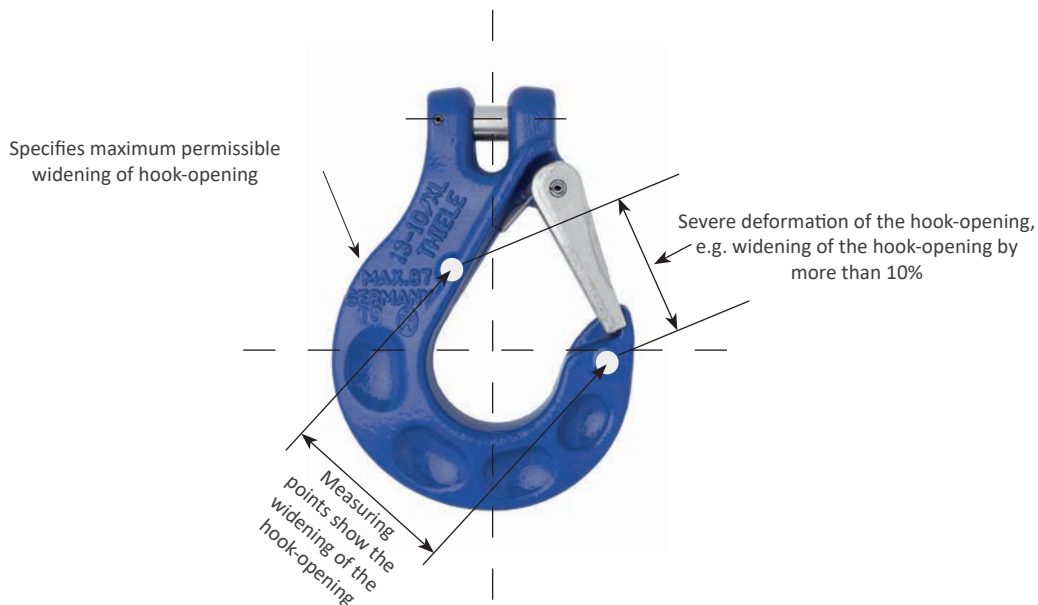
##### ... tensioning elements:

- without screw removal mechanism
- without manufacturer identification
- with long extended handles that are capable of producing a pre-tensioning force over 0.5 x LC

##### ... shortening components or lashing hooks:

- that may reduce the breaking force of the chain
- without safety latches or locking pins

### Lashing Hooks / Sling Hooks with Safety Latch



The embossed maximum permissible limit with measuring points enables an easy check of the hook-opening.

Repair work must exclusively be performed by qualified personnel. Only clearly identifiable lashing chains are allowed to be repaired.

THIELE offers regular in-house and on-site competence trainings.

More detailed information about the inspection of lashing chains are provided in the THIELE operating instructions.



All operating and mounting instructions are available in the download-center on our website [www.kwschain.com](http://www.kwschain.com).

# General Information

## Identification Tags

THIELE lashing chains are equipped with an identification tag that specifies the characteristics of the chain. A clear identification of the chain is given and mix-ups are avoided. The information on the tags according to the DIN EN 12195-3 is required.

### Identification Tag according to the DIN EN 12195-3:



Tags as per DIN EN 12195-3 show on their front the number of the standard specification, the name of the chain manufacturer, the inspection number, as well as a warning that the chain must not be used for lifting. On the back side of the tag the maximum permissible lashing capacity (LC) in kN and standard tensioning force (S<sub>TF</sub>) in daN is hard-stamped.

## How to use Lashing Chains

To ensure that lashing chains have a long service life, there are some aspects to be observed during operation:

- Do not overload lashing chains.
- The maximum hand force of 50 daN must only be applied manually.  
The use of bars, levers or similar is prohibited.
- Make sure the lashing chain cannot damage the cargo and vice versa.
- Make use of e.g. edge protectors to prevent damage to the cargo and wear to the chain.
- Never use chains with knots or chains connected by screws, bolts or similar.
- To shorten chains, only use the shortening components offered and approved by the chain manufacturer, otherwise the safety of the chain cannot be granted.

### TWN 1402



### Identification Tags for Lashing Chains

The identification tags TWN 1402 are used to identify lashing chains and provide important information for safe operation. Lashing chains and chain slings may not be operated without identification tags.

Article-No.	Packaging Unit	Weight app. [lbs]
Z07264	1 piece	0.11



## Grade 100 Lashing Chains and Components

### TWN 1410



#### Lashing Chains with Tensioner

The Grade 100 lashing chains TWN 1410 with toggle and adjustable lashing chain have a standard length of 3,5 m and are used for heavy-duty lashing applications. The chain tensioners with toggle and trapezoidal thread achieve a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on DIN EN 12195-3, under consideration of Grade 100 lashing capacities.

**SAFETY**  
2 : 1

Trade Size	Article-No.	Normal straight load [daN] min.	Weight app. [lbs]
3/8"	F34183	13,000	62.59
5/8"	F34184	20,000	102.35

*Other lengths available on request.*

### TWN 1411



#### Lashing Chains with Ratchet

The Grade 100 lashing chains TWN 1411 with ratchet and shortenable lashing chain have a standard length of 3,5 m and are used in the heavy-duty area for lashing loads in road traffic. The chain tensioners with ratchet and trapezoidal thread achieves a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on DIN EN 12195-3, under consideration of Grade 100 lashing capacities.

**SAFETY**  
2 : 1

Trade Size	Article-No.	Normal straight load [daN] min.	Weight app. [lbs]
1/2"	F34183R	13,000	46.30

*Other lengths available on request.*



# Grade 100 Lashing Chains and Components

## Lifting Chains XL200

Grade 100 lifting chains XL200 TWN0072 are made from CrNiMo alloyed steel and are used to assemble chain slings and lashing chains. The max. application temperature is 205°C. The testing requirements for these high-quality lifting chains are based on DIN EN 818 and ASTM 973.

**SAFETY**  
2 : 1

Trade Size	Article-No.	Lashing Capacity [lbs] max.	Nominal Size $d_n$ [inch]	Pitch $p_n$ [inch]	Inside Width $w_2$ [inch] min.	Outside Width $w_3$ [inch] max.	Weight app. [lbs/ft]
1/4"	F01616A	3,100	0.24	0.71	0.33	0.87	0.54
9/32"	F01621A	4,300	0.28	0.83	0.38	1.02	0.74
5/16"	F01617A	5,700	0.31	0.94	0.44	1.17	1.01
3/8"	F01618A	8,800	0.39	1.18	0.53	1.46	1.55
1/2"	F01619A	15,000	0.51	1.54	0.71	1.89	2.62
5/8"	F01620A	22,600	0.63	1.89	0.84	2.33	3.90

## TWN 0072A



## Chain Tensioners with Toggle (Large Lift)

The Grade 100 chain tensioners TWN 1454 with toggle are used as tensioning elements in lashing chains. The chain tensioners can also be used in chain slings for stepless adjustment of strand lengths when lifting loads. These chain tensioners have a particularly large lift. The chain tensioners with toggle and trapezoidal thread achieve a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 lashing capacities.

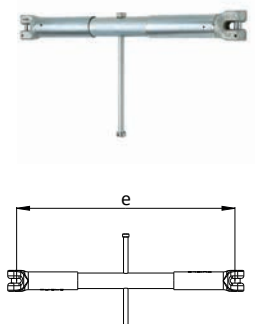
**SAFETY**  
2 : 1

**DGUV**  
**ZERT**

**100 %**  


Trade Size	Article-No.	Normal straight load [daN] min.	Lashing Capacity (LC) [daN] max.	Dimensions [inch]			Weight app. [lbs]
				$e_{max}$	$e_{min}$	lift	
1/2"	F341877	2,600	13,000	26.57	17.52	9.06	15.85
5/8"	F341977	3,100	20,000	32.68	21.65	11.02	26.01

## TWN 1454



## Chain Tensioners with Ratchet (Large Lift)

The Grade 100 chain tensioners TWN 1455 with ratchet are used as tensioning elements in lashing chains. The chain tensioners can also be used in chain slings for stepless adjustment of strand lengths when lifting loads. The chain tensioners have a particularly large lift. The chain tensioners with ratchet and trapezoidal thread achieve a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 lashing capacities.

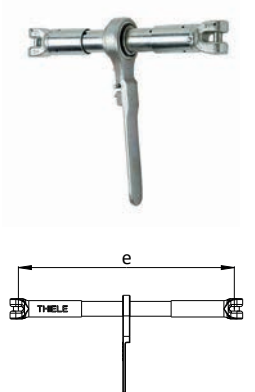
**SAFETY**  
2 : 1

**DGUV**  
**ZERT**

**100 %**  


Trade Size	Article-No.	Normal straight load [daN] min.	Lashing Capacity (LC) [daN] max.	Dimensions [inch]			Weight app. [lbs]
				$e_{max}$	$e_{min}$	lift	
1/2"	F341878	2,600	13,000	26.57	17.52	9.06	18.52

## TWN 1455



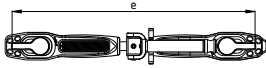


## Grade 100 Lashing Chains and Components

### TWN 1460

### Lashing Chain Tensioners NEW

The Grade 100 lashing chain tensioners TWN 1460 with shortening claws on both sides are used as tensioning elements in lashing chains. The chain tensioners can be positioned anywhere in the lashing chain and have a large clamping range. All functions (clamping, locking, unclamping) are carried out by the handy designed folding lever. Due to the folding lever, the chain tensioner is compact and requires little storage space. The chain tensioners enable a high pretensioning force with little effort due to the trapezoidal thread and comply with DIN EN 12195-3. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 lashing capacities.



**SAFETY**  
2 : 1

**DGUV**  
ZERT

**100 %**

Trade Size	Article-No.	Normal straight load [daN] min.	Tensioner under straight load [daN] max.	Dimensions [inch]			Weight app. [lbs]
				e <sub>max</sub>	e <sub>min</sub>	lift	
5/16"*	F34209	2,000	5,000	-	-	-	-
3/8"	F34210	2,600	8,000	1508	1080	428	10.41
1/2"*	F34211	3,000	13,400	-	-	-	-
5/8"	F34212	3,000	20,000	-	-	-	-

\*On request

### Patented anti-rotation safety device



### Compact due foldable handle (small storage room)



# Grade 100 Lashing Chains and Components

## Lashing Points with two weld-on Brackets

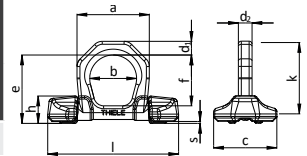
The weld-on lashing points TWN 1473 with two weld-on brackets are used for lashing of loads. The lashing points are predominantly welded to the vehicle frame (semi-trailers, trailers). The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



Trade Size	Article- No.	Article-No. (Ring only)	Lashing Capacity (LC) [daN] max.	Dimensions [inch]										Weight app.	
				d <sub>1</sub>	d <sub>2</sub>	b	a	l	e*	k	h	c	s	f	[lbs]
3/8"	F352001	F352002	8,000	0.55	0.55	1.89	2.91	5.28	2.91	2.91	1.10	2.56	0.08	2.24	1.74
1/2"	F352011	F352012	13,500	0.79	0.79	2.36	3.94	6.69	3.35	3.66	1.46	3.15	0.08	2.40	3.81

\*Upright standing ring

## TWN 1473



## Pluggable Lashing Points

The pluggable lashing points according to TWN 1474 are used to secure loads on trucks. They are intended for temporary installation at the loading area. The lashing points consist of a forged pivot with welded B-link and a safety system consisting of a bolt and spring pin.

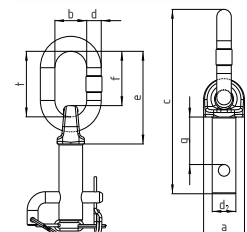
Installation for use is carried out by inserting the pin into the bearing bush from the loading area and securing it with the plug pin underneath the loading area.

When not in use, the lashing points are installed from underneath at the loading area, with the loading area being closed flush. The pin is marked with information of the maximum lashing capacity LC in daN, manufacturers identification and traceability code.

The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.

Article-No.	Lashing Capacity (LC) [daN] max.	Dimensions [inch]									Weight app. [lbs]
		d	f	t	b	e	d <sub>2</sub>	g	a	c	
F352255	8,000	0.63	2.28	2.76	1.38	3.90	1.02	2.01	1.77	7.76	2.18

## TWN 1474



## COMPACT Lashing Points with Spring

The weld-on COMPACT lashing points TWN 1880 with fixing springs are used for securing of loads. The lashing points are predominantly welded in recessed skip fittings and on vehicle frames (semi-trailers, trailers). The compact design allows a small installation space.

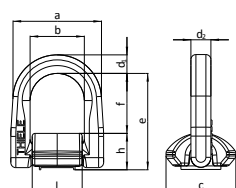
The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



Trade Size	Article-No.	Lashing Capacity (LC) [daN] max.	Dimensions [inch]									Weight app. [lbs]
			d <sub>1</sub>	d <sub>2</sub>	b	a	l	e*	h	c	f	
1/4"	F35204	3,000	0.51	0.55	1.50	2.56	1.38	2.68	1.02	1.97	1.65	0.90
5/16"	F35205	5,000	0.59	0.59	1.77	2.99	1.65	2.87	1.06	1.97	1.81	1.26
3/8"	F35206	8,000	0.67	0.67	1.97	3.35	1.81	3.43	1.22	2.17	2.20	1.85
1/2"	F35207	13,500	0.91	0.91	2.68	4.57	2.48	4.80	1.73	3.03	3.07	4.83
5/8"	F35208	20,000	1.06	1.06	2.72	5.12	2.48	4.96	2.13	3.62	2.83	7.39

\*Upright standing ring

## TWN 1880



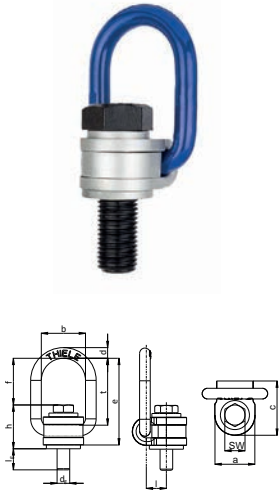


# Grade 100 Lashing Chains and Components

## TWN 1890

### XS-Points

The screw-type XS-Points TWN 1890 are predominantly used in mold making, tool making and vehicle construction. The extra large D-links enable an easy assembling to other lifting components. The bracket can be easily aligned in direction of force. The shape of the XS-Points allows the use of variable screw lengths. The manufacturing and testing requirements are based on the IOS 8539 and DIN EN 1677-1.



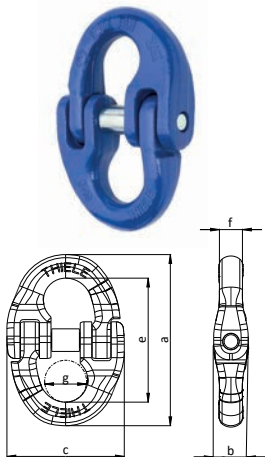
Screw Size d <sub>B</sub> [inch]	Article- No.	Working Load Limit [lbs]	Thread Length l <sub>B</sub> [inch]	Dimensions [inch]										Weight app. [lbs]
				e	f	c	l	t	b	h	d	SW	a	
M8 <b>NEW</b>	F352398	700	17	71	38	43	17	53	35	35	9	-	32	0.29
M10	F35243	1,400	17	71	37	43	17	53	35	35	9	16	32	0.29
M12	F35244	2,200	22	71	36	43	17	53	35	36	9	18	32	0.31
M16	F35245	3,700	28	98	46	64	25	70	50	52	13	24	48	0.96
M20	F35246	5,700	38	98	44	64	26	70	50	54	13	30	48	1.05
M24	F35247	8,800	40	135	70	71	28	102	58	65	16	36	50	1.69
M30	F35249	13,200	44	149	73	88	35	110	70	75	20	46	65	3.07
M36	F35250	18,100	64	149	70	88	35	110	70	79	20	55	67	3.55
M42	F35251	22,600	74	191	98	106	43	145	84	93	24	65	81	6.10
M48*	F35252	26,500	-	-	-	-	-	-	-	-	-	-	-	-

\*On request

## TWN 1820

### XL-LOK Connecting Links

The Grade 100 XL-LOK connecting links TWN 1820 are used to connect lifting chains with sling components to assemble chain slings and lashing chains. The manufacturing and testing requirements are based on the ASTM A952/A952M, ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 working load limits.

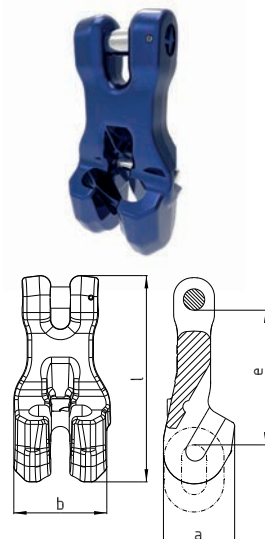


Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			a	b	c	e	f	g	
1/4"	F30807	3,100	2.40	0.47	1.52	1.77	0.31	0.55	0.15
9/32"	F308090	4,300	2.80	0.55	1.85	1.99	0.35	0.63	0.31
5/16"	F30817	5,700	3.35	0.63	2.17	2.44	0.39	0.75	0.44
3/8"	F30827	8,800	3.82	0.71	2.62	2.83	0.51	0.94	0.77
1/2"	F30837	15,000	4.92	0.91	3.25	3.43	0.67	1.10	1.63
5/8"	F30847	22,600	5.75	1.24	4.29	4.13	0.83	1.34	2.65

## TWN 1851/1

### Clevis Shortening Claws with Safety Pin **NEW**

The Grade 100 clevis shortening claws TWN 1851/1 with safety pin are used to adjust the strand lengths of chain slings and lashing chains. The clevis design enables the direct attachment to the chain. The safety pin prevents the chain from accidental release. The shortening claws have been tested in interaction with the lifting chain. The chain pockets ensure a particularly tight fit for the inserted chain link. The safety bolt enables the use in lashing chains according to DIN EN 12195-3. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1 and DIN 5692, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	a	b	l	
1/4"	F349141	3,100	2.01	1.06	1.46	3.07	0.55
5/16"	F349241	5,700	2.56	1.34	1.81	3.94	1.10
3/8"	F349341	8,800	3.19	1.69	2.20	4.88	2.07
1/2"	F349441	15,000	4.17	2.20	2.87	6.38	4.48
5/8"	F349551	22,600	5.12	2.68	3.46	7.80	7.96

## Grade 100 Lashing Chains and Components

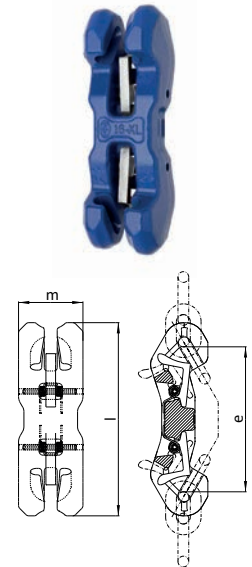
### RAPID® Shortening Claws

The Grade 100 RAPID® shortening claws TWN 1852 are used to adjust the leg lengths of chain slings and lashing chains. Due to the double claws, the RAPID® shortening claws can be universally integrated to existing chain legs without permanently mounting them into the chain sling. The shortening claws have been tested in interaction with the chain slings. The chain pockets ensure a tight fit of the inserted chain link. The safety bolt enables the use in lashing chains according to DIN EN 12195-3. RAPID® shortening claws can be installed quickly and subsequently in chain sling and lashing chains without tools. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1 and DIN 5692, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]			Weight app. [lbs]
			e	l	m	
5/16"	F34775	5,700	4.37	5.83	1.89	2.45
3/8"	F34780	8,800	5.28	7.09	2.36	4.61
1/2"	F34785	15,000	7.05	9.45	3.07	10.49
5/8"	F34790	22,600	8.82	11.65	3.78	20.00

### TWN 1852



### Clevis Shortening Hooks with Safety Pin

The Grade 100 clevis shortening hooks TWN 1827/1 with safety pin are used to adjust the leg lengths of chain slings and lashing chains. The clevis design enables the direct attachment to the chain. The safety pin prevents the chain strand from accidental release. The shortening hook has been tested in combination with the lifting chain. The extra wide chain support ensures a particularly firm fit for the inserted chain link. At the same time the link is protected from getting damaged. The safety bolt enables the use in lashing chains according to DIN EN 12195-3. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1 and DIN 5692, under consideration of Grade 100 working load limits.

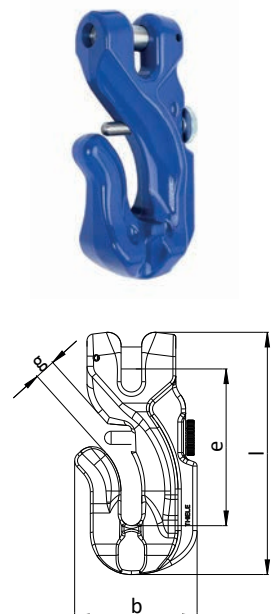


**NEW:**  
Application and assembly video for the shortening hook with safety pin on YouTube!

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	l	b	
9/32" <b>NEW</b>	F332022	4,300	2.69	0.33	4.04	2.13	1.10
5/16"	F33205	5,700	2.80	0.37	4.33	2.20	1.19
3/8"	F33215	8,800	3.26	0.49	5.20	2.64	2.07
1/2"	F33225	15,000	4.29	0.61	6.61	3.27	4.41
5/8"	F33235	22,600	5.39	0.73	8.19	3.98	8.02

\*on request

### TWN 1827/1



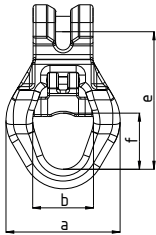
TZW





## Grade 100 Lashing Chains and Components

### TWN 1869



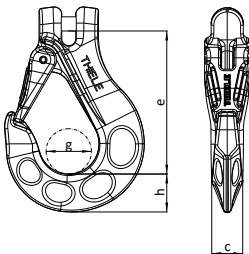
### Clevis Skip Suspension Links for One-Hand Operation and Forged Safety Latch

The Grade 100 skip suspension links TWN 1869 connect chain slings with the pivots on containers, e.g. containers according to DIN EN 30720. The shape of the eyelet is designed to fit container suspension pivots. The clevis design enables the direct attachment to the chain. The forged safety latch enables a one-hand operation. The manufacturing and testing requirements correspond to the ISO 8539 and DIN EN 1677-1, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	f	b	a	
1/2"	F313805	15,000	5.59	2.26	2.56	4.80	4.28

### TWN 1840/1



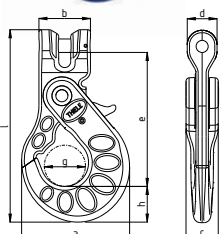
### Clevis Sling Hooks with Forged Safety Latch

The Grade 100 clevis sling hooks TWN 1840/1 with latch are used to assemble standard chain slings and lashing chains. The clevis design enables the direct attachment to the lifting chain. Forged-in measuring points of the max. limit values of the hook opening enables easy control. The forged heavy duty safety latch prevents an unintentional detachment from the load. The sling hooks comply with the ASTM A952/A952M, ISO 7597 and DIN EN 1677-2, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	h	c	
1/4"	F336050	3,100	2.99	0.94	0.79	0.67	0.79
9/32"	<b>NEW</b> F336070	4,300	3.58	1.04	0.87	0.79	1.17
5/16"	F336150	5,700	3.70	1.18	0.98	0.87	1.68
3/8"	F336250	8,800	4.49	1.46	1.26	1.10	3.11
1/2"	F336350	15,000	5.28	1.65	1.61	1.38	5.47
5/8"	F336450	22,600	6.38	2.01	1.97	1.61	9.70

### TWN 1899



### Clevis Skip Suspension Hooks **NEW**

The Grade 100 skip suspension hooks TWN 1899 connect chain slings with the pivot of containers, e.g. containers according to DIN 30720. The shape of the hook opening is designed to fit container lifting pivots. The clevis design enables the direct attachment to the chain. The hooks lock automatically when load and may only be reopened manually if not under load anymore. The skip suspension hooks comply with DIN EN 1677-3, under consideration of Grade 100 working load limits.



Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]								Weight app. [lbs]
			e	c	g	h	d	b	a	l	
1/2"	F335100	15,000	6.54	1.57	2.01	1.65	1.46	2.52	5.31	9.41	7.36

## Grade 80 Lashing Chains and Components

### Lashing Chains with Tensioner

The Grade 80 lashing chains TWN 1400 with toggle and shortenable lashing chains have a standard length of 3,5 m and are used for heavy-duty lashing applications. The chain tensioners with toggle and trapezoidal thread achieves a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on DIN EN 12195-3.

Trade Size	Article-No.	Lashing Capacity (LC) [daN] max.	Weight app. [lbs]
5/16"	F34171	4,000	18.74
3/8"	F34172	6,300	27.56
1/2"	F34173	10,000	46.30
5/8"	F34174	16,000	83.11

Other lengths available on request.

### TWN 1400



### Lashing Chains with Ratchet

The Grade 80 lashing chains TWN 1401 with ratchet and shortenable lashing chains have a standard length of 3,5 m and are used in the heavy-duty area for lashing loads in road traffic. The chain tensioners with ratchet and trapezoidal thread achieves a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on DIN EN 12195-3.

Trade Size	Article-No.	Lashing Capacity (LC) [daN] max.	Weight app. [lbs]
5/16"	F34171R	4,000	18.74
3/8"	F34172R	6,300	27.56
1/2"	F34173R	10,000	46.30

Other lengths available on request.

### TWN 1401





# Grade 80 Lashing Chains and Components

## TWN 0805A

### 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.

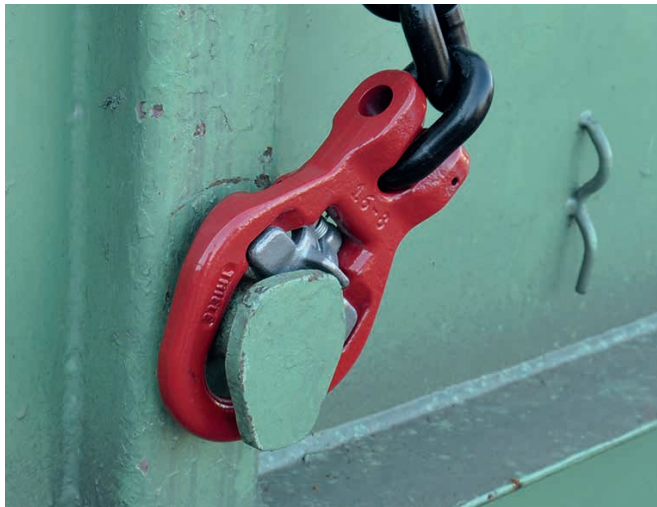


Trade Size	Article-No.				Lashing Capacity Limit [lbs] max.	Nominal Size d <sub>n</sub> [inch]	Pitch p <sub>n</sub> [inch]	Inside Width w <sub>2</sub> [inch] min.	Outside Width w <sub>3</sub> [inch] max.	Weight app. [lbs/ft]
	Self-coloured	RAL 9005	corrothiel	Electro galvanized						
1/4"	F01452	F01453	F01454	F01448	2,500	0.24	0.71	0.31	0.87	0.55
9/32"	F01458	F01459	F01457	F014601	3,500	0.28	0.86	0.37	0.99	0.74
5/16"	F01464	F01465	F01429	F01433	4,500	0.31	0.94	0.43	1.17	0.98
3/8"	F01469	F01470	F01450	F01445	7,100	0.39	1.18	0.51	1.46	1.52
1/2"	F01474	F01475	F01476	F014781	12,000	0.51	1.54	0.69	1.89	2.53
5/8"	F01479	F01480	F01487	F014821	18,100	0.63	1.89	0.82	2.33	3.83

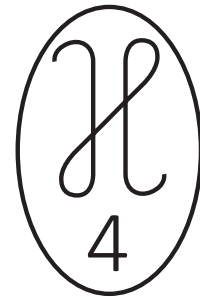
Lashing chains are identical in construction to sling chains of the same grade and trade size.

When using the sling chains as a lashing chain, the maximum lashing force LC (Lashing Capacity) results by doubling the load capacity WLL (Working Load Limit):  $LC = 2 \times WLL$ .

An alternative use of the chains as lashing and sling chains is not permitted!



THIELE manufacturer identification, also marked on THIELE-Chains



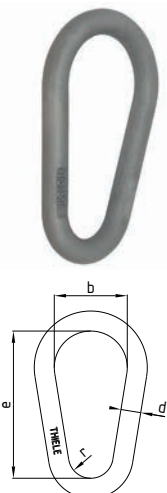
Approved Chain by the German Statutory Accident Insurance

## TWN 1479

### Lashing Links

NEW

The Grade 80 lashing rings TWN 1479 are mainly fitted in brackets of C-shaped side frames on heavy-duty trailers. The crack tested lashing rings are used to secure loads in accordance with DIN EN 12640 and DIN EN 12195-1 and enable the tie down of heavy loads of diverse shapes, such as construction equipments. The manufacturing and testing requirements comply with the ISO 8539 and DIN EN 1677 parts 1 and 4.



Trade Size	Article-No.	Lashing Capacity (LC) [daN]	Dimensions [inch]				Weight app. [lbs]
			d	t	b	b <sub>2</sub>	
10	F352354	10,000	0.67	4.92	2.44	1.50	1.30

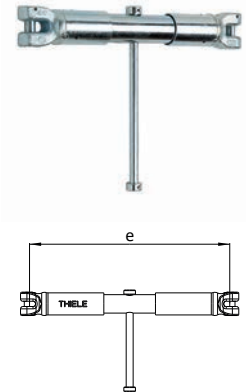
## Grade 80 Lashing Chains and Components

### Chain Tensioners with Toggle

The Grade 80 chain tensioners TWN 1450 with toggle are used as tensioning elements in lashing chains. The chain tensioners can also be used in chain slings for stepless adjustment of the strand lengths when lifting loads. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Normal straight load [daN] min.	Lashing Capacity (LC) [daN] max.	Dimensions [inch]			Weight app. [lbs]
				e <sub>max</sub>	e <sub>min</sub>	lift	
5/16"	F34179	1,800	4,000	13.58	10.63	2.95	4.63
3/8"	F34199	2,200	6,300	14.76	10.83	3.94	5.95
1/2"	F34189	2,600	10,000	18.11	12.99	5.12	8.82

TWN 1450

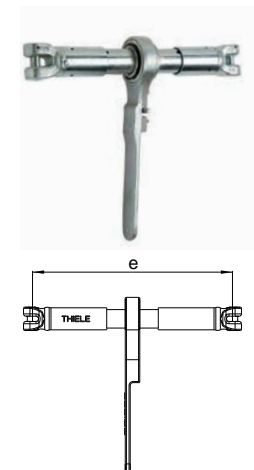


### Chain Tensioners with Ratchet

The Grade 80 chain tensioners TWN 1451 with ratchet are used as tensioning elements in lashing chains. The chain tensioners can also be used in chain slings for stepless adjustment of the strand lengths when lifting loads. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Normal straight load [daN] min.	Lashing Capacity (LC) [daN] max.	Dimensions [inch]			Weight app. [lbs]
				e <sub>max</sub>	e <sub>min</sub>	lift	
5/16"	F34175	1,800	4,000	13.58	10.63	2.95	5.51
3/8"	F34195	2,200	6,300	14.76	10.83	3.94	7.72
1/2"	F34185	2,600	10,000	18.11	12.99	5.12	11.02

TWN 1451

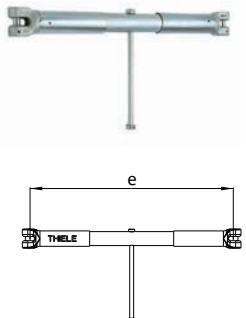


### Chain Tensioners with Toggle (Large Lift)

The Grade 80 chain tensioners TWN 1452 with toggle are used as tensioning elements in lashing chains. The chain tensioners can also be used in chain slings for stepless adjustment of the strand lengths when lifting loads. The chain tensioners have a particularly large lift. The chain tensioner with ratchet and trapezoidal thread achieve a high pretensioning force with little force impact. This property is of fundamental importance when lashing down, as the level of the pretensioning force contributes to load securing. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Normal straight load [daN] min.	Lashing Capacity (LC) [daN] max.	Dimensions [inch]			Weight app. [lbs]
				e <sub>max</sub>	e <sub>min</sub>	lift	
1/2"	F341871	2,600	10,000	26.57	17.52	9.06	15.87
5/8"	F34197	3,100	16,000	32.68	21.65	11.02	26.01

TWN 1452





# Grade 80 Lashing Chains and Components

## TWN 0119A

### Weld-on type Lifting Points

The weld-on lifting points TWN 0119 are used for universal lifting, moving and lashing of loads. The lifting points are often welded to machine frames, steel structures, lifting beams and housings. The manufacturing and testing requirements are based on DIN EN 1677-1 and ISO 8539.



Trade Size	Article-No.	Working Load Limit [lbs]	Lashing Capacity (LC) [daN]	Dimensions [inch]							Weight app. [lbs]
				e*	f*	c	l	b	h	d	
1/4"	F35103A	2,500	2,200	2.32	1.22	1.26	1.26	1.42	1.10	0.47	0.53
5/16"	F35113A	4,500	4,000	2.72	1.42	1.50	1.50	1.65	1.30	0.55	1.01
3/8"	F35123A	7,100	6,300	3.35	1.81	1.77	1.73	1.89	1.50	0.71	1.59
1/2"	F35133A	12,000	10,600	4.72	2.72	2.36	2.36	2.60	2.01	0.94	4.25
5/8"	F35143A	18,100	16,000	5.00	2.60	2.68	2.56	2.83	2.40	1.10	5.89

\*e- and f-Dimension vertical to the welding level.

## TWN 0124

### Weld-on type Lifting Points with Spring

The weld-on lifting points TWN 0124 with spring are used for general lifting, moving and lashing of loads. The lifting points are often welded onto machine frames, steel constructions, lifting beams and housings. The D-ring is being held in position by a spring. The manufacturing and testing requirements comply with DIN EN 1677-1 and ISO 8539.



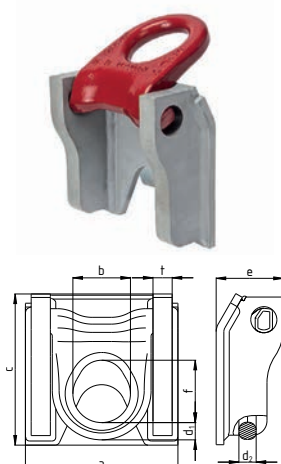
Trade Size	Article-No.	Working Load Limit [lbs]	Lashing Capacity (LC) [daN]	Dimensions [inch]							Weight app. [lbs]
				e*	f*	c	l	b	h	d	
6-8	F35107	2,500	2,200	2.24	1.14	1.26	1.26	1.42	1.10	0.47	0.53
8-8	F35110	4,500	4,000	2.64	1.34	1.50	1.50	1.65	1.30	0.55	1.01
10-8	F35124	7,100	6,300	3.19	1.69	1.77	1.73	1.89	1.50	0.71	1.59
13-8	F35139	12,000	10,600	4.61	2.60	2.36	2.36	2.60	2.13	0.94	3.55
16-8	F35144	18,100	16,000	4.80	2.40	2.68	2.56	2.83	2.40	1.10	5.89

\*e- and f-Dimension vertical to the welding level.

## TWN 1477

### ZKS-Modules NEW

The weld-on ZKS-modules TWN 1477 are predominantly installed in C-shaped side frames of low-loaders and trailers. The large swivel range also allows the securing of overhanging loads. The pivotable large lashing eyelet built into the cassette enables a fixed mounting position for easy connection with the lashing equipment. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



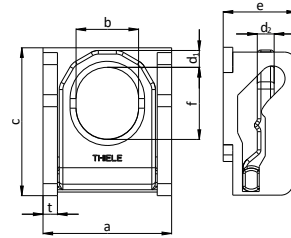
Trade Size	Article-No.	Lashing Capacity (LC) [daN]	Dimensions [inch]								Weight app. [lbs]
			d <sub>1</sub>	d <sub>2</sub>	b	a	t	e	c	f	
10	F352376	10,600	0.71	0.71	2.36	6.26	0.79	2.76	6.20	2.56	10.91



## Lashing Points, Weld-on Type

### TWN 1471 ZK-Modules with Stressless Lashing® NEW

The weld-on ZK-modules TWN 1471 are predominantly installed in C-shaped side frames of low-loaders and trailers. The large swivel range also allows the securing of overhanging loads. A newly developed, patented cassette design enables a fixed mounting position for easy connection to the lashing equipment. Stressless Lashing® in perfection. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677-1.



Trade Size	Article-No.	Execution*	Lashing Capacity (LC) [daN] max.	Dimensions [inch]								Weight app. [lbs]
				d <sub>1</sub>	d <sub>2</sub>	b	a	t	e	c	f	
5	F352390	N	5,000	0.55	0.55	2.05	4.21	0.47	2.40	4.69	2.36	4.23
5	F352395	S	5,000	0.55	0.55	2.05	4.21	0.47	2.40	4.69	2.36	4.30
10	F352380	N	10,600	0.71	0.71	2.44	5.39	0.59	2.87	5.67	3.07	7.61
10	F352385	S	10,600	0.71	0.71	2.44	5.39	0.59	2.87	5.67	3.07	7.63

\* The sheets of the lashing cassette in the execution „N“ (=Normal) are produced in micro-alloyed steel. The execution „S“ (=Special) are produced from special steel and are therefore capable to get be hot dip galvanized (up to 500°C) with the vehicle frame.

### General information

The standard DIN EN 12640 specifies the minimum testing requirements for lashing points on road trucks and trailers with flatbed bodies and a permissible total weight of more than 3,5 t for mixed cargo transportation. Lashing points are devices to attach lashing gear. A lashing point can be an oval link, hook, lug or lashing rail. These types of lashing points may lead to safety issues when in operation.

A non-appropriate dimensioning and use of non-suitable lashing points, as well as the damage of the lashing points and frames of the vehicle, shows a high potential danger in traffic. In operation, oval links are often exposed to unforeseen torque which may cause a damage to the body-work of the vehicles. Very often required inclination angles are not properly considered. Further, oval links can cause unnecessary noise exposure in traffic. The developed THIELE ZK-Modules (lashing ring with cassette) may be easily fitted and adopted at the side frames of trailers.

The ZK-Modules are marked with permissible lashing capacity (LC), manufacturer name (THIELE) and standard number (DIN EN 12640). Official agencies may easily check the correct installation. The ZK-Modules made by THIELE provides highest safety for load securing in the heavy-duty road traffic.



YouTube video of the ZK-module

#### Positions:



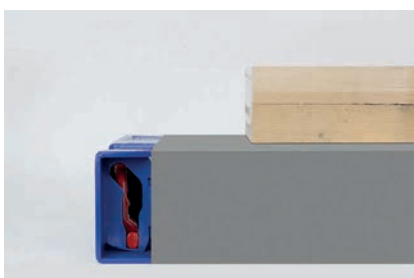
Rest Position



Hold Position



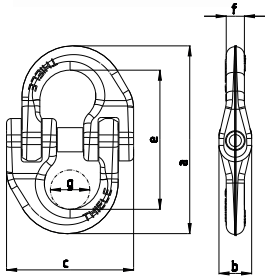
Position for oversized load





## Grade 80 Lashing Chains and Components

### TWN 1320

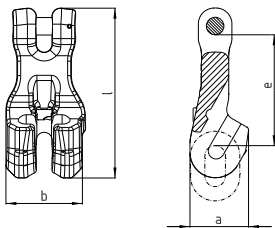


### THI-LOK® Connecting Links

The Grade 80 THI-LOK® connecting links TWN 1320 are used to connect lifting chains with lifting components to assemble chain slings. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539 and DIN EN 1677-1.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]						Weight app. [lbs]
			e	g	a	c	b	f	
1/4"	F308060	2,500	1.50	0.51	2.13	1.65	0.43	0.30	0.18
5/16"	F308160	4,500	2.13	0.71	2.95	2.32	0.59	0.35	0.44
3/8"	F308260	7,100	2.52	0.87	3.50	2.83	0.71	0.55	0.77
1/2"	F308360	12,000	3.39	1.02	4.72	3.46	0.94	0.67	1.37
5/8"	F308460	18,100	4.02	1.42	5.63	4.53	1.14	0.79	3.09

### TWN 0851/1



### Clevis Shortening Claws with Safety Pin

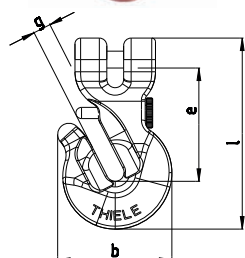
**NEW**

The Grade 80 clevis shortening claws TWN 0851/1 with safety pin are used to adjust the lengths of chain slings, lifting and lashing chains. The clevis design enables the direct attachment to the lifting chain.

The safety pin prevents unintentional detachment of the chain. The shortening claws have been tested in interaction with lifting chain. The chain pockets ensure a particularly tight fit for the inserted chain link. The safety bolt enables the use in lashing chains according to DIN EN 12195-3. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1 and DIN 5692.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	l	b	a	
1/4"	F349101	2,500	2.01	1.06	1.46	3.07	0.55
5/16"	F349201	4,500	2.56	1.34	1.79	3.94	1.10
3/8"	F349301	7,100	3.19	1.69	2.20	4.88	2.05
1/2"	F349401	12,000	4.17	2.20	2.87	6.38	4.48
5/8"	F349501	18,100	5.12	2.68	3.46	7.60	7.94

### TWN 0827/1



### Clevis Shortening Hooks with Safety Pin

The Grade 80 clevis shortening hooks with safety pin TWN 0827/1 are used to adjust the length of chain slings and lashing chains. The clevis design enables the direct attachment to the lifting chain. The safety pin prevents the chain from accidental release. The manufacturing and testing requirements correspond to the ASTM A952/A952M, ISO 8539, DIN EN 1677-1 and DIN 5692.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	l	b	
5/16"	F33201	4,500	2.40	0.37	4.02	2.40	1.21
3/8"	F33211	7,100	2.87	0.47	4.92	2.95	2.22
1/2"	F33221	12,000	3.70	0.59	6.30	3.74	4.63
5/8"	F33231	18,100	4.41	0.71	7.40	4.72	7.75

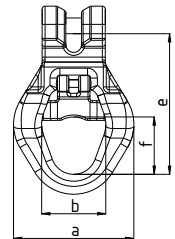
## Grade 80 Lashing Chains and Components

### Clevis Skip Suspension Links for One-Hand Operation and Forged Safety Latch

The Grade 80 skip suspension links TWN 0869 connect chain slings with the pivot of containers, e.g. containers according to DIN 30720. The shape of the eyelet is designed to fit container suspension pivots. The clevis design enables the direct attachment to the lifting chain. The forged safety latch allows a safe one-hand operation. The manufacturing and testing requirements are based on the ISO 8539 and DIN EN 1677 parts 1 and 4.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	a	f	b	
1/2"	F313800	12,000	5.59	2.26	2.56	4.80	4.23
5/8"	F313850	18,100	5.55	2.26	2.56	4.80	4.23

TWN 0869

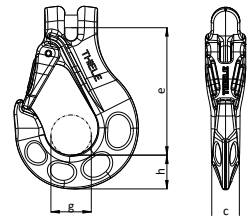


### Clevis Sling Hooks with Forged Safety Latch

The Grade 80 clevis sling hooks TWN 1340/1 with latch are used to assemble universal chain slings and lashing chains. The clevis design enables the direct attachment to the lifting chain. The forged heavy duty safety latch prevents an unintentional detachment from the load. The sling hooks comply with the ASTM A952/A952M, ISO 7597 and DIN EN 1677-2.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]				Weight app. [lbs]
			e	g	h	c	
1/4"	F336010	2,500	2.95	0.94	0.79	0.67	0.79
5/16"	F336110	4,500	3.62	1.18	0.98	0.87	1.68
3/8"	F336210	7,100	4.45	1.46	1.26	1.10	3.11
1/2"	F336310	12,000	5.24	1.65	1.61	1.38	5.45
5/8"	F336410	18,100	6.38	2.01	1.97	1.61	13.23

TWN 1340/1



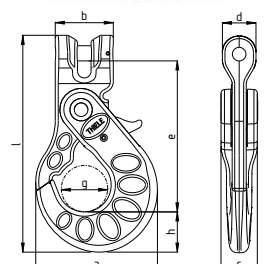
### Clevis Skip Suspension Hooks

NEW

The Grade 80 skip suspension hooks TWN 1399 connect chain slings with the pivot of containers, e.g. containers according to DIN 30720. The shape of the hooks is designed to fit container lifting pivots. The clevis design enables the direct attachment to the lifting chain. The hooks lock automatically under load and may only be reopened manually if not under load anymore. The skip suspension hooks comply with DIN EN 1677-3.

Trade Size	Article-No.	Working Load Limit [lbs]	Dimensions [inch]								Weight app. [lbs]
			e	c	g	h	d	b	a	l	
1/2"	F335000	12,000	65.75	15.75	20.08	16.54	14.57	25.20	53.15	94.09	7.36
5/8"	F335300	18,100	64.96	15.75	20.08	16.54	14.57	25.20	53.15	94.09	7.36

TWN 1399





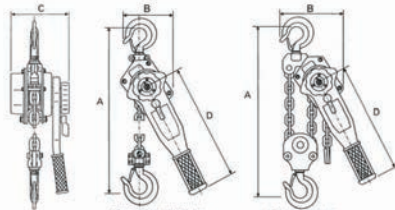
## TM Lever Blocks TWN 1001

### Properties:

- With overload protection
- Light weight robust steel construction
- THIELE alloy load chain according to the DIN EN 818-7-T
- Minimized headroom
- Minimum effort needed to raise maximum load
- Hooks with strong casted safety latches
- Approved for tensioning according to the DIN EN 12195-3
- Protected automatic weston brake with unique twin pawls
- Galvanized hand chains
- Corrosion protection of galvanized load chains
- Durable baked enamel paint protection
- Standard spare parts available
- TÜV / GS / CE approved
- Supplied with THIELE test certificates
- Manuals available in 7 languages



The TM Lever Blocks TWN 1001 are hand operated, portable devices for pulling, lifting and moving of loads. They can also be used as lashing devices in accordance to the DIN EN 12195-3. The integrated slipping clutch works as over-load protection. The galvanized THIELE-load chains TWN 0062 comply with the requirements of the DIN EN 818-7.



	Unit	TM-LB 025*	TM-LB-OP 075N	TM-LB-OP 150N	TM-LB-OP 300N	TM-LB-OP 600N
Working Load Limit / Lashing Capacity	[t]	0,25	0,75	1,5	3,0	6,0
Lift app. 5ft. (1,50m)	[Article-No.]	F061901	F062411	F062511	F062611	F062711
Lift app. 10ft. (3,05m)	[Article-No.]	F061902	F062412	F062512	F062612	F062712
Lift app. 15ft. (4,60m)	[Article-No.]	F061903	F062413	F062513	F062613	F062713
Lift app. 20ft. (6,10m)	[Article-No.]	F061904	F062414	F062514	F062614	F062714
Falls of chain	[pieces]	1	1	1	1	2
Effort to lift for max. Working Load	[lbs]	5.51	30.86	48.50	70.55	74.96
Load chain diameter	[inch]	0.16	0.24	0.31	0.39	0.39
Length of lever handle (D)	[inch]	6.30	11.02	16.14	16.14	16.14
Headroom (A)	[inch]	9.06	12.80	14.96	18.90	24.41
Width (B)	[inch]	3.35	5.35	6.30	7.09	9.25
Depth (C)	[inch]	3.62	5.83	6.77	7.87	7.87
Hook-opening (upper)	[inch]	0.98	1.65	1.81	2.13	2.44
Hook-opening (lower)	[inch]	0.98	1.65	1.81	2.13	2.44
Net weight (Lift app. 5ft.)	[lbs]	5.22	15.65	29.10	47.95	72.69
Lever block only	[Article-No.]	F06192	F06243	F06253	F06263	F06273

\*TM-LB 025 without overload protection





**KWS**



**THIELE®**



# THIELE POULTRY CHAINS

Conveyor Chains for Slaughterhouses



## Calibrated Poultry Conveyor Chains TWN 0085

The calibrated conveyor chains TWN 0085 are used for applications in the poultry industry, especially in slaughterhouses, as a central means for power and drive. The special THIELE case-hardening ensures a high wear resistance and the galvanized surface provides a high corrosion protection of the round steel chains. The manufacturing and testing requirements are based on manufacturer specific specifications.

The fine tolerated round steel chains are offered in standard lengths of 50 m.

THIELE provides screw-type connecting links (TWN 0086) to connect the chain lengths.

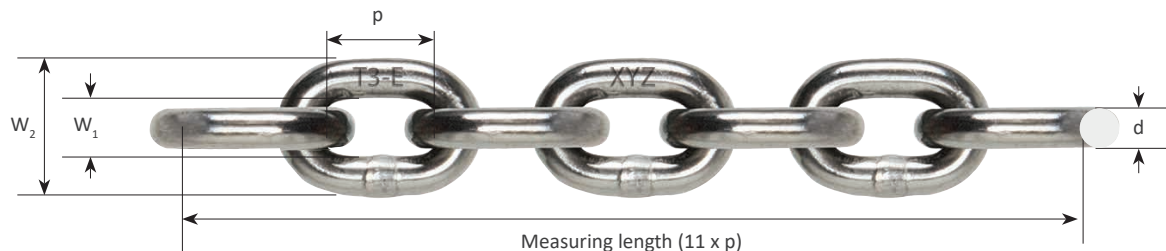
Dimension [mm]	Article-No.	Pitch p [mm]	Pitch- Tol. [mm]	Inner Width w <sub>1</sub> [mm] min.	Outside Width w <sub>2</sub> [mm] max.	Multi Pitch Length 11 x p [mm]	Multi Pitch Length Tol. [mm]	Weight app. [lbs/ft]
8 x 25.3	F05470	25.3	-0.2/ +0.3	9.2	26.0	278.3	-0.0/ +1.0	0.94
8 x 25.4	F05471	25.4	-0.2/ +0.3	9.6	26.1	279.4	-0.4/ +0.6	0.89
8 x 38.0	F05472	38.0	-0.2/ +0.3	13.3	30.0	418.0	-0.0/ +1.1	0.81
10 x 38.0	F05473	38.0	-0.25/ +0.5	12.5	34.0	418.0	-0.5/ +1.4	1.34

## Technical Properties:

Description	Nominal Size [mm]	Test Force [kN] min.	Breaking Force [kN] min.	Surface Hardness [HV1]	Hardening Depth at HV 550 [mm]	Surface Thickness [μm] min.	Compatible with*
T50E	8 x 25.3	24	40	min. 750	0.4 - 0.56	25	S
T50E	8 x 25.4	24	40	730 - 830	0.4 - 0.56	12	S, M, F, L
T80E	8 x 38.0	24	40	730 - 830	0.4 - 0.56	12	
T50E	10 x 38.0	37.5	62.5	730 - 830	0.5 - 0.70	12	
T80E	10 x 38.0	60	98	730 - 830	0.5 - 0.70	12	
T50V	8 x 25.4	24	40	min. 250	—	—	

**Material-Options:** *Manganese Steel, Chrome-Nickel-Steel*

**\*Feature:** suitable for S = "Marel Stork"; M = "Meyn", F = "FOODMATE"; L = "Linco"



**Finish:** *electro galvanized*

## Poultry Chains

### Round Steel Chains made of corrosion-resistant Austenitic Steel TWN 0085

The round steel chain has been the central element in the power transmission in the poultry processing industry, especially for slaughterhouse operations. Round steel chains are being used on nearly all type of production lines, e.g. at slaughter, cutting and cooling lines.

The fine-tolerance round steel chains are made from austenitic steel and are offered in standard lengths of 50 m.

Dimension [mm]	Article-No.	Pitch p [mm]	Pitch-Tol. [mm]	Inner Width w <sub>1</sub> [mm] min.	Outside Width w <sub>2</sub> [mm] max.	Multi Pitch Length 11 x p [mm]	Multi Pitch Length Tol. [mm]	Weight app. [lbs/ft]
8 x 25,4	F054711	25.4	-0.2/ +0.3	9.2	26.1	279.4	-0.4/ +0.6	0.89

#### Technical Properties:

Description	Dimension [mm]	Test Force [kN] min.	Breaking Force [kN] min.
T60R	8 x 25.4	37.5	60

**Material:** Corrosion-resistant austenitic steel (1.4404/316L or similar)

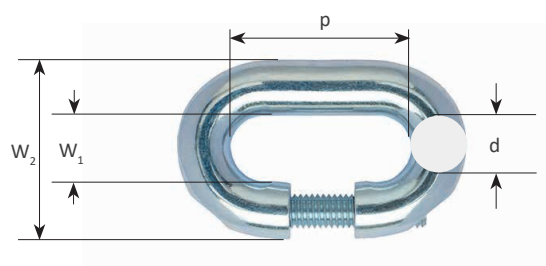


**Finish:** Bright finish

### Screw-type Connecting Links TWN 0086

The screw-type connecting links TWN 0086 are used to easy connect conveyor chains in poultry slaughterhouses. The special THIELE case-hardening ensures high wear resistance and the galvanized surface provides high corrosion protection of the round steel chains. The manufacturing and testing requirements are based on manufacturer specific specifications.

Dimension [mm]	Article-No.	Pitch p [mm]	Inner Width w <sub>1</sub> [mm] min.	Outside Width w <sub>2</sub> [mm] max.	Breaking Force [kN] min.	Surface Hardness [HV10]	Hardening Depth at HV 550 [mm]	Weight app. [lbs/ft]
8 x 25.4	F42077	25.4	9.3	26.1	30	550 - 600	0.2 - 0.3	0.03



**Finish:** Electro galvanized



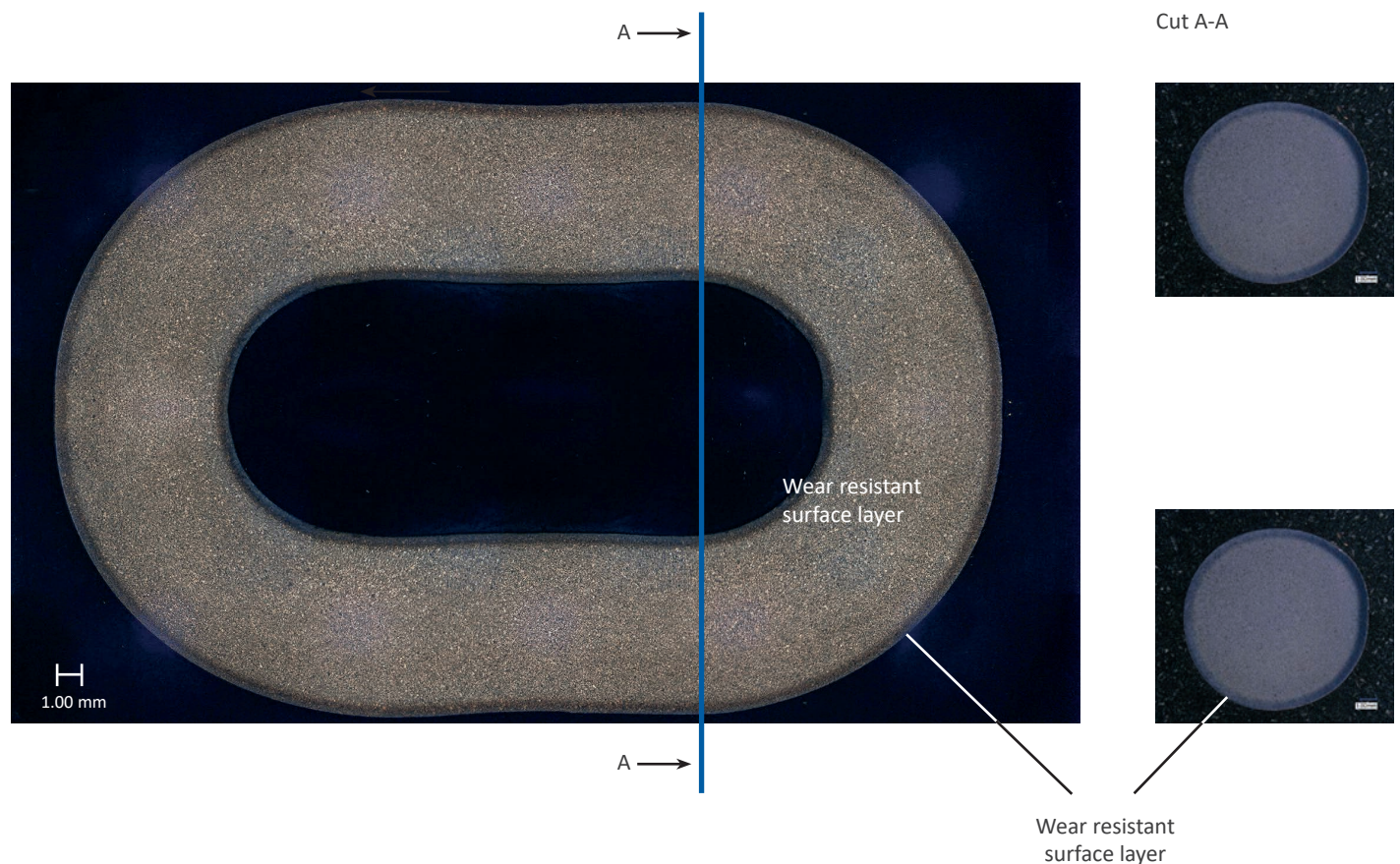
THIELE fine-tolerance round steel chains are manufactured with a high dimensional accuracy over a defined measuring distance.

Dimensional accuracy plays a decisive role and has a major impact on the operating life of the chain. Another important factor in ensuring a frictionless operation between the round steel chain and the drive and take wheels, is dimensional coordination to each other.

The two key factors that affect the service life of round steel chains are wear and corrosion.

THIELE uses a specific case hardening process to minimise the wear. The process applies carbon diffusion into the surface of the material in order to render the wear resistance of the chains.

### Case Hardened Round Steel Chain 8 x 25.4 mm



Round steel chains operating in slaughterhouse lines are exposed to chemical influences, such as cleaning agents. As a result, round steel chains are exposed to a continuous process of corrosion. Therefore, the round steel chains TWN 0085 are protected with a galvanic coating to counteract the effect of corrosion.

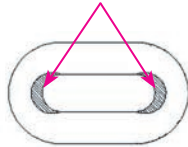
# Poultry Chains

## Wear

In operation, round steel chains are exposed to wear at the interlinks.

The interlink wear causes a pitch elongation of the chain link and therefore of the complete conveyor chain.

Primary wear at the interlinks



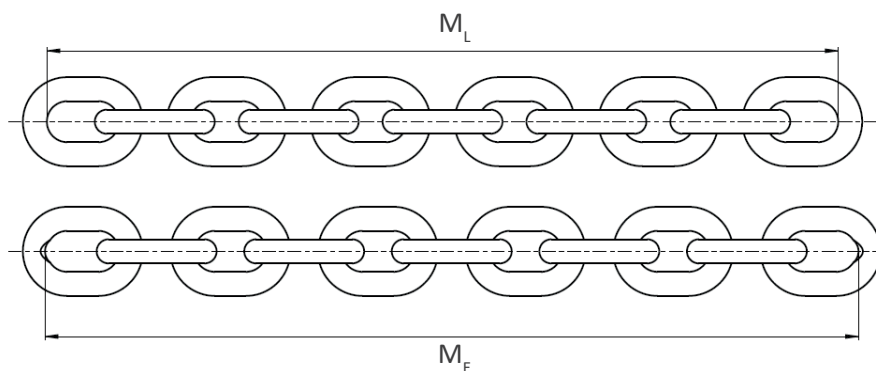
THIELE conveyor chains are produced with a corresponding surface hardness and hardening depth.

## Discard criteria

Any frictional process will inevitably result in material loss, especially in the interlink areas. THIELE as a manufacturer recommends to take round steel chains out of operation once the total elongation over a defined length exceeds 2%.

The definition of the discard criteria is calculated with the following formula, taking a measuring length of 11 link pitches into consideration:

$$\text{POINT OF DISCARD} = M_E > 2\% M_L + M_L$$



### Legend:

$M_E$  = actual measured test section in use (actual value)

$M_L$  = Original length of the section (as per manufacturer specification)

To continue using the chain beyond this point of discard may result in an excessive wear of the chain and chain wheels. It may also cause functional failures which may lead to costly production downtimes.



## Poultry Chains

The requirements imposed on the fracture mechanics of round steel chains are derived from the process parameters.

The speed and load conditions under consideration of the coefficients of friction and deflection, are essential to determine the breaking force requirements of the chains.

THIELE provides a range of different material grades and heat treatments for individual customer applications. They are precisely coordinated with the equipment manufacturer or plant operator on a case-by-case basis.

THIELE has experience in manufacturing round steel chains for poultry processing plants for many decades and work as the central element in power transmission.

### **THIELE Poultry Chains** **The central element in power transmission**







**KWS**



**THIELE®**



# THIELE FARMING CHAINS

Conveyor Chains for Farming



TLK

## TWN 5100/3

## Round Steel Chains for Loading Wagons and Dung Spreaders

The round steel chains TWN 5100/3 are used in the loading floors of loader wagons and dung spreaders in the agriculture industry. The narrow dimensional tolerances of the calibrated round steel chains allow them to be used on loading floors with parallel 2 or 4 running chain lengths (in pairs). The manufacturing and testing requirements are based on the specifications of the manufacturer THIELE.



Dimensions	Article-No.	Operating Force [kN] max.	Proof Force [kN] min.	Breaking Force [kN] min.	Measuring Length (11 x p)			Weight app. [lbs/ft]
					[mm]	permissible tol.		
8 x 22.8	F05011	18	45.2	64.2	250.8	+1.1	-0.6	0.94
8 x 24	F05031	18	45.2	64.2	264.0	+1.2	-0.6	0.91
8 x 28	F05062	18	45.2	64.2	308.0	+1.4	-0.7	0.87
8 x 31	F05051	18	45.2	64.2	341.0	+1.5	-0.8	0.83
9 x 27	F05072	22.4	57.3	81.3	297.0	+1.3	-0.7	1.21
9 x 31	F05081	22.4	57.3	81.3	341.0	+1.5	-0.8	1.10
9,5 x 27	F05121	25	63.8	90.6	297.0	+1.3	-0.7	1.34
10 x 26.5	F05151	28	70.7	100	291.5	+1.3	-0.7	1.51
10 x 28	F05155	28	70.7	100	308.0	+1.4	-0.7	1.55
10 x 30.5	F05171	28	70.7	100	335.5	+1.5	-0.8	1.48
10 x 31	F05181	28	70.7	100	341.0	+1.5	-0.8	1.41
10 x 35	F05195	28	70.7	100	385.0	+1.7	-0.9	1.41
10 x 38	F05201	28	70.7	100	418.0	+1.9	-1.0	1.40
11 x 31	F05221	33.5	85.5	121	341.0	+1.5	-0.8	1.77
11 x 35	F05230	33.5	85.5	121	385.0	+1.7	-0.9	1.67
12 x 36	F05251	40	102	145	396.0	+1.8	-0.9	2.15
12 x 42	F05261	40	102	145	462.0	+2.1	-1.1	2.02
13 x 36	F05285	47.5	119	170	396.0	+1.8	-0.9	2.55
13 x 45	F05291	47.5	119	170	495.0	+2.2	-1.1	2.32
13,2 x 62	F05302	47.5	123	175	682.0	+3.1	-1.6	2.16
14 x 42	F05331	53	139	197	462.0	+2.1	-1.1	2.77
14 x 50 <sup>2)</sup>	F131071	53	139	197	550.0	+1.1	-1.1	2.69
14 x 50 <sup>2) 3)</sup>	F131002	65	162	240	550.0	+1.1	-1.1	2.69
16 x 56	F05355	71	181	257	616.0	+2.8	-1.4	3.63

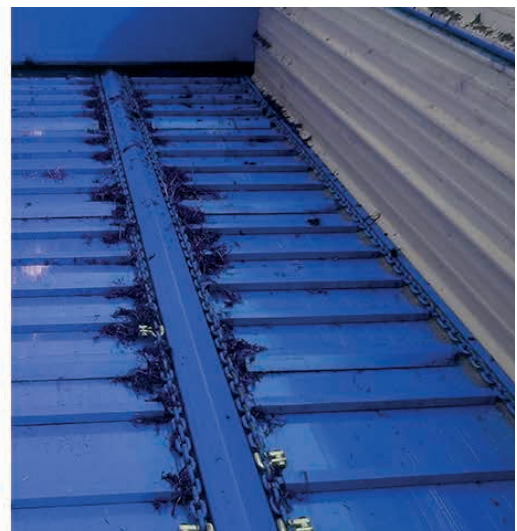
The length tolerance of chain strands for single strand is +0.3 / -0.0%.

The length tolerance of matched pair chain strands is 0.1%.

For the measurement of the length of matched pair chain strands, each chain strand must be free of torsion and strained or hanged with 1% of the corresponding breaking force.

<sup>2)</sup> Dimensional tolerances according to DIN 22252

<sup>3)</sup> Increased tensile stress 200 N/mm<sup>2</sup>, production test stress 500 N/mm<sup>2</sup> and breaking stress 720 N/mm<sup>2</sup>



# Accessories for Farming Chains

## Special Connecting Links Type VG

The special connecting links VG TWN 5200 are used to connect round steel chains in loader wagons and dung spreaders. The manufacturing and testing requirements are based on the specifications of the manufacturer THIELE.

Dimensions [mm]	Article-No.	Breaking Force [kN] min.	Weight app. [lbs]
8 x 24/8 x 22.8	F05500	70	0.15
8 x 31/9 x 31	F05510	85	0.17
8 x 28*	—	85	0.17
9.5 x 27/10 x 26	F05531	90	0.21
10 x 28	F05541	100	0.22
10 x 30.5	F05550	100	0.22
10 x 31/11 x 31	F05551	100	0.29
10 x 35	F05555	100	0.22
10 x 38*	F05560	100	0.22
11 x 35	F05564	100	0.22
12 x 36	F05574	140	0.53
13 x 36	F05570	170	0.53
13 x 45*	F05575	170	0.56
14 x 42	F05568	190	0.32

Finish: Bright polished

\*On request

Min. order quantity: 50 pieces.

## TWN 5200 VG



## Special Connecting Links Type VGG

The special connecting links type VGG TWN 5200 are used to connect round steel chains in loader wagons and dung spreaders. The manufacturing and testing requirements are based on the specifications of the manufacturer THIELE.

Dimensions [mm]	Article-No.	Breaking Force [kN] min.	Weight app. [lbs]
8 x 31	F05520	85	0.15
10 x 31	F05551	100	0.29
11 x 35	F05556 <sup>1)</sup>	100	0.29
12 x 42	F05573 <sup>1)</sup>	140	0.32

Finish: Bright polished

<sup>2)</sup>Electro galvanized finish

## TWN 5200 VGG



## Chain Brackets

The chain brackets TWN 0111 are used to connect round steel chains in loader wagons and dung spreaders and enable the mounting of flight bars. The manufacturing and testing requirements comply with the DIN 22253.

Dimensions [mm]	Article-No.	Breaking Force [kN] min.	Weight app. [lbs]
14 x 50	F25006	190	0.45

With screw M16 x 65 as per DIN 931 ST 8.8 and nut as per DIN 985-1610, suitable for chains as per DIN 22252.

## TWN 0111







## Accessories for Farming Chains

### TWN 5201



#### Special Flight Bar Flanges

The special flight bar flanges TWN 5201 are used to fasten flight bars and round steel chains in loader wagons and dung spreaders. The manufacturing and testing requirements are based on the specifications of the manufacturer THIELE.

Dimensions [mm]	Article-No.	Breaking Force [kN] min.	Weight app. [lbs]
8 x 24/8 x 22.8	Z03598	MF8x22,8/24	0.04
8 x 31	Z03599	MF8x31	0.09
9.5 x 27	Z03600	MF9,5x27	0.12
10 x 31	Z03602	MF10x31	0.16
10 x 38	Z03603	MF10x38	0.12

Minimum order quantity: 50 pieces

### TWN 5202



#### Special Hammerhead Screws

The special hammerhead screws TWN 5202 are used to fasten the flight bar flanges with flight bars and round steel chains in loader wagons and dung spreaders. The manufacturing and testing requirements are based on the specifications of the manufacturer THIELE.

Dimensions [mm]	Article-No.	Breaking Force [kN] min.	Weight app. [lbs]
8 x 31	Z03868	HK 8	0.07
9,5 x 27	Z03870	HK 9,5x27	0.05
10 x 31	Z03871	HK 1010	0.08

Minimum order quantity: 50 pieces

### TWN 5204



#### Special Drive Pocket Wheels

The special drive pocket wheels are mounted on shafts below the loading floors of loader wagons and dung spreader vehicles and are working as drive sprockets for the round steel chains. The manufacturing and testing requirements are based on the specifications of the manufacturer THIELE.

Dimensions [mm]	Article-No.	Type	Weight app. [lbs]
9 x 31	Z03584	58 B04	6.39





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# THIELE FISHING CHAINS

Round Steel Chains for the Fishing Industry



TFK



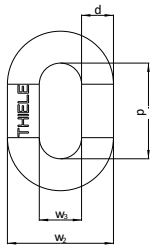
## TWN 0081 ML/LL Fishing Chains

The mid-link and long-link round steel chains TWN 0081 are used to build nets in the fishing industry. The manufacturing and testing requirements are based on manufacturer specifications.

- Material according to DIN EN 818-2 and ASTM A391/A391M
- Elongation at break: min. 15 %
- Marking „T3“, „Germany“ and traceability code
- Finish: black coloured (RAL 9005)

Dimensions	Type	Article-No.	Diameter d [mm]	Pitch p [mm]	Inside width w <sub>3</sub> [mm]	Outside width w <sub>2</sub> [mm]	Breaking Force [kN] min.	Weight app. [lbs/ft]
10 x 40	ML	F02881	10	40	40.0	15.0	126	1.34
13 x 55	ML	F02877	13	55	55.0	20.0	214	2.22
16 x 64	ML	F02875	16	64	64.0	24.0	322	3.43
19 x 76	ML	F02872	19	76	76.0	28.5	454	4.77
22 x 88	ML	F02878	22	88	88.0	33.0	610	6.45

Type "ML" = middle long link



Dimensions	Type	Article-No.	Diameter d [mm]	Pitch p [mm]	Inside width w <sub>3</sub> [mm]	Outside width w <sub>2</sub> [mm]	Breaking Force [kN] min.	Weight app. [lbs/ft]
13 x 81	LL	F02873	13	81	18	20	214	1.95
16 x 100	LL	F02876	16	100	22	24	322	2.96
19 x 100	LL	F02874	19	100	26	28.5	454	4.37
22 x 110	LL	F02871	22	110	30	33	610	5.91
26 x 140	LL	F02891	26	140	35	39	850	8.07
28 x 150	LL	F02879	28	150	38	42	986	9.41

Type "LL" = long link

## TWN 0089/2 Fishing Chains

The short link round steel chains TWN 0089/2 are used in the fishing industry. The special THIELE hot-dip galvanizing ensures long-lasting corrosion protection. The dimensions and mass of the low-twist round steel chains match to the respective fishing net type. The manufacturing and testing requirements are based on manufacturer specification.

- Material according to DIN EN 818-2
- Elongation at break: min. 20 %
- Marking: „T3-7“, „THIELE“, „Germany“ and traceability code
- Finish: Hot-dip galvanized

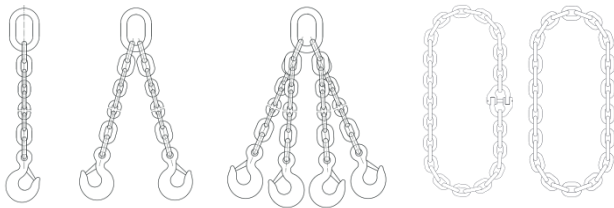
Dimensions	Type	Article-No.	Diameter d [mm]	Pitch p [mm]	Inside width w <sub>3</sub> [mm]	Outside width w <sub>2</sub> [mm]	Breaking Force [kN] min.	Weight app. [lbs/ft]
10 x 30	SL	F044861	10	30	13.0	37.0	102	1.48
13 x 39	SL	F0147621	13	39	17.4	18.1	162	2.53
16 x 48	SL	F0148011	16	48	21.0	59.2	252	3.83
17 x 48	SL	F028651	17	48	21.0	59.2	270	4.27
20 x 60 <sup>1)</sup>	SL	F014951	20	60	26.0	74.0	400	6.05
22 x 66 <sup>1)</sup>	SL	F015001	22	66	28.6	81.4	485	7.33


<sup>1)</sup> TWN 0089/1

Type "SL" = short link



# 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.


## 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.

## 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

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

! WARNING

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

! CAUTION

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

NOTICE


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

SAFETY INSTRUCTIONS

**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. #

## 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°.<sup>#</sup>
- 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 and Requirements (Vers. B11082-C US 01.20)

## 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,<sup>#</sup>
- as endless chain with mounted connector.<sup>#</sup>

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,<sup>#</sup>
- 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.

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

## 6. ASSEMBLY AND REMOVAL

### 6.1 Preparations

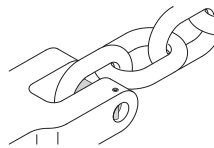
All components to be installed or used must be in perfect condition and the relevant Working Load Limits of all parts must accommodate the respective load to be handled.

### 6.2 Chain Assembly

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

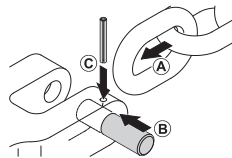
### 6.3 Clevis Fastening System

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**

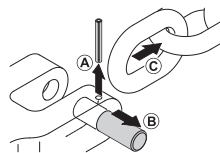
Check whether the chain runs smoothly.

The dowel pins must only be installed once.

Only connect pins and attachment components of identical grades. Starting with  $\varnothing \frac{1}{2}$ " 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 <sup>1)</sup>.
- (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



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## 7.2 Influence of Temperature



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 %



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

## 7.3 Environmental Influence



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



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



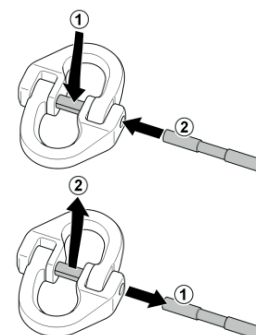
In mounted chain slings the chains are, for example, joined to other components by the use of connecting links. In this way, components can be mounted the nominal size of which deviates from that of the chain.

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.

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## 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



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/markings,
- 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



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



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



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.

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## 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



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](http://www.thiele.de), [www.kwschain.com](http://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](http://www.kwschain.com) and [www.thiele.de](http://www.thiele.de).**



## 14. PUBLISHING INFORMATION

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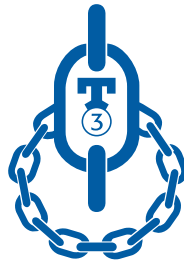
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