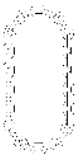
Instructions for use

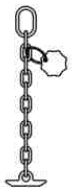
Original version acc. to 2006/42/EG

Special-purpose chain tackle

EN

Ring chain





T-handle chain
TWN 0894

Isolation
assembly
TWN 0893

Reduction
assembly
TWN 0875

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1 Description and purpose

THIELE special-purpose chain tackles (hereafter referred-to as chain tackles) are designed to transport loads safely. These instructions describe how the following types of tackle are to be used safely:

THIELE **ring chains** comprise at least one strand of chain (closed when in operating mode) that is directly wrapped around the load without the need for other components such as hooks etc. (this configuration is known as 'direct slinging').

THIELE **T-handle chains** TWN 0894 with connection element are designed for lifting and positioning steel pilings. They consist of three welded components - suspension link, sling chain and T-handle.

THIELE **isolation assembly** TWN 0893 is designed to provide electric isolation of up to 1000 Volts between a suspended load and the crane system.

THIELE **reduction assembly** TWN 0875 allows the load to be attached to a smaller chain when operating with very large-sized crane hooks.

THIELE chain tackles meet the requirements of Machinery Directive 2006/42/EC and have a design factor of 4 in relation to their load rating. They are marked with identifying information, namely the chain nominal size and grade, the manufacturer's mark and the traceability code.

THIELE chain tackles and sling components are designed to withstand 20,000 dynamic load cycles at maximum loading capacity. For higher workloads (e.g. multi-shift and automated operations) the loading capacity is to be reduced accordingly.

The special-purpose chain tackles should only be used:

- when the weight and centre of gravity of the load is known or has been assessed by a competent person
- within the permissible loading capacity
- in compliance with the permitted sling configuration and angle
- within the permissible temperature limits
- with suitable connecting links, sling components and/or shortening elements
- by trained and authorised persons.

2 Safety information

Risk of injury.
Do not walk under a suspended load.
Only use lifting tackle that is in perfect working order.

- Operators, fitters and maintenance engineers are to pay particular attention to the operating instructions, the relevant Professional Association documents DGUV V 1, DGUV R 100-500 section 2.8, DGUV R 109-004, DGUV V 52, DGUV I 209-013 and DGUV I 209-021 and the technical standards DIN 685-5, PAS 1061, DIN EN 818-1, DIN EN 818-2, DIN EN 818-4 and DIN EN 818-6
- When working outside Germany it is also essential to comply with the national regulations in the country of use.
- The information relating to safety, fitting, operating, testing and maintenance, as provided in these instructions and in the documents mentioned, is to be made available to all relevant personnel.
- Always wear your personal protective equipment when working.
- Structural modifications (e.g. welding or bending) are not permitted.
- Ensure that these instructions are kept in the vicinity of the product during the period of usage. Contact the manufacturer if replacement copies are required.
- **Incorrect fitting and use can result in personal injury and material damage.**
- Assembly, dismantling, testing and maintenance work must only be carried out by trained and authorised persons.
- Visually inspect the equipment before each use.
- Worn, bent or damaged tackle should not be used.
- Loads being lifted should be of a weight that is smaller or equal to the load rating of the chain tackle.
- Never exceed the chain's specified loading capacity.
- Position the crane hook above the centre of gravity of the load.
- Do not force the sling components into position.
- Check that the load can absorb the forces being transferred without suffering deformation.
- Do not load the nose of the hook.
- Do not twist or knot the chains.
- Avoid sharp edges. Use edge protectors or reduce the loading capacity by 20%.
- Observe the reduction in load rating when
  - the load distribution is non-symmetrical
  - the load is suspended in a noose
  - operating at higher temperatures
  - operating under high dynamic and cyclic loading conditions (multi-shift or automated operations)
  - operating with lifting magnets.
- When employing multi-strand chain slings avoid slope angles of less than 15° and do not set angles greater than 60°.
- Hooks should have functioning safety latches.
- When using hooks without safety devices, e.g. in the case of T-handles or because of operating requirements, increased caution is called for and a separate risk assessment should be undertaken.
- Suspension links must be free to move on the chain hook.
- Only lift loads that can move freely and are not anchored or attached.
- Do not subject chain links and components to bending stress.
- Chains must only be shortened using shortening hooks or clutches.
- When performing direct slinging the chain tackle is to be properly secured to stop it shifting.
- The lifting operation must only be commenced when you are certain that the load has been properly attached.
- Ensure that you and others remain outside the range of movement of the load (danger area).
- When loads are being lifted keep hands and other parts of the body away from the sling assembly. Slings should only be removed by hand.
- Avoid shock loads, e.g. caused by pulling the load from a slack chain.
- Never lift the load over the heads of other persons.
- Never cause a suspended load to swing.
- Suspended loads are to be supervised at all times.
- Only set loads down in appropriate places.
- Do not tuck parts of the sling assembly in below the load.
- Do not operate the system without fully functioning safety devices (cotters, spring pins, locking pins).
- TWN 0893: When using manual arc welders take care to ensure that the welding current conductor is properly attached. The welding power circuit must not pass through the isolation assembly.
- Consult your safety officer or the manufacturer if you are in any way uncertain about the proper use, testing or maintenance etc. of the equipment.

THIELE cannot be held liable for damage resulting from a failure to observe the regulations, standards and other information relating to this equipment.
THIELE does not give general approval for components supplied by other manufacturers to be fitted to and used on equipment of grade 10/XL.

It is not permitted to use special-purpose chain tackles for transporting persons.

It is expressly forbidden to carry out slinging and lashing operations when under the influence of drugs or alcohol (including residual alcohol).

3 Initial commissioning

When using the equipment for the first time ensure that

- the components are as ordered and are undamaged
- test certificate, declaration of conformity and fitting instructions are included
- markings and documents are matching
- all related documents are properly stored in a safe place
- dispose of all packaging material according to local regulations.

4 Technical data

4.1 Ring chains

Ring chains comprise at least one strand of chain (closed when in operating mode) that is directly wrapped around the load without the need for other components such as hooks etc. (this configuration is known as 'direct slinging').

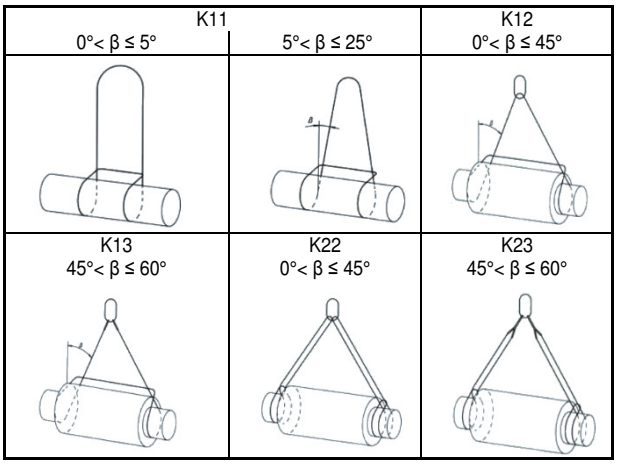
Ring chains are fed either through or beneath the load or are looped around it (a noose sling) and then attached directly to lifting tackle or fed through a suspension link.

The connecting links fitted to welded ring chains are usually selected one level above the nominal size of the chain, in accordance with EN 818-4.

The direct slinging method is not suitable for transporting loose batches of material. When employing the direct slinging method secure the ring chains so that they cannot shift or slide.

Observe a 20% reduction in load rating when using noose slings.

Schematic diagram showing different load configurations:



The tables show standard product codes and data, not individual customer specifications:

Load rating table for grades 8 and 10/XL

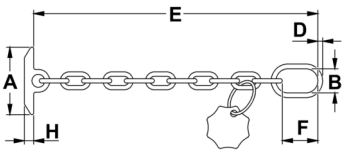
Configuration	K11		K12	K13	K22	K23
Sling angle	0 ≤ 5°	5 ≤ 25°	0° ≤ 45°	45° ≤ 60°	0° ≤ 45°	45° ≤ 60°
Load factor	1.6	1.45	1.13	0.8	1.7	1.2
Nominal size	Loading capacity [t]					
6-8	1.8	1.6	1.25	0.9	1.9	1.35
7-8	2.5	2.2	1.7	1.25	2.6	1.8
8-8	3.2	2.8	2.3	1.6	3.4	2.4
10-8	5.0	4.5	3.6	2.5	5.4	3.8
13-8	8.5	7.5	6.0	4.25	9.0	6.3
16-8	12.5	11.8	9.0	6.5	13.5	9.8
18-8	16	15	11	8.0	17	12
20-8	20	18	14	10	21	15
22-8	24	22	17	12	26	18
26-8	34	30	24	17	36	25
28-8	40	36	28	20	42	30
32-8	50	47	36	25	54	39
36-8	63	60	45	32	68	49
40-8 [1)]	80	71	56	40	86	61
45-8 [1)]	100	90	71	50	110	77
6-10/XL	2.3	2.0	1.6	1.12	2.45	1.7
8-10/XL	4.0	3.6	2.8	2.0	4.25	3.0
10-10/XL	6.4	5.8	4.5	3.2	6.8	4.8
13-10/XL	10.7	9.7	7.5	5.4	11.2	8.0
16-10/XL	16	14.5	11.5	8.0	17	12
18-10/XL [1)]	20	18	14	10	21	15
20-10/XL [1)]	25	23	18	12.5	27	19.2
22-10/XL [1)]	30	28	21.8	15.5	32	23
26-10/XL [1)]	42	38	30	21.5	46	32
32-10/XL [1)]	65	59	46	32	69	49

1) only welded possible

Product codes for round link chains

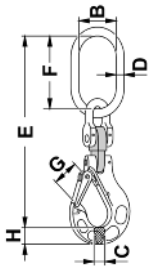
grade 8 TWN 0805, RAL 9005				grade 10/XL TWN 1805, RAL 5002			
nominal size	prod. code.	load rating [t]	weight approx. [kg/m]	nominal size	prod. code	load rating [t]	weight approx. [kg/m]
6-8	F01453	1.12	0.8	6-10/XL	F01610B	1.4	0.8
7-8	F01459	1.5	1.1	8-10/XL	F01615B	2.5	1.5
8-8	F01465	2.0	1.4	10-10/XL	F01622B	4.0	2.3
10-8	F01470	3.15	2.2	13-10/XL	F01629B	6.7	3.9
13-8	F01475	5.3	3.8	16-10/XL	F01635B	10.0	5.8
16-8	F01480	8.0	5.7	18-10/XL	F01641B	12.5	7.4
18-8	F01485	10.0	7.3	20-10/XL	F01638B	16.0	9.0
20-8	F01495	12.5	9.0	22-10/XL	F01650B	19.0	11.0
22-8	F01500	15.0	10.9	26-10/XL	F01660B	26.5	15.0
26-8	F01515	21.2	15.2	32-10/XL	F01670B	41.0	23.0
28-8	F01520	25.0	17.6				
32-8	F01525	31.5	23.0				
36-8	F01530	40.0	29.0				
40-8	F01535	50.0	36.0				
45-8	F01540	63.0	45.5				
50-8	F01546	80.0	56.0				
56-8	F01556	100	72.5				
63-8	F01566	125	89.0				

4.2 T-handle chains TWN 0894



nominal size	prod. code	load rating [t]	dimensions [mm]						weight approx. [kg]
			E	A	H	D	B	F	
10-8	F08811	1.6	405.5	95	14.5	13	25	44	1.7
10-8	F08812	1.6	675.5	95	14.5	13	25	44	2.3

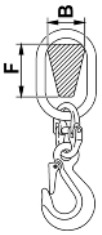
4.3 Isolation assembly TWN 0893



nominal size	prod. code	load rating [t]	dimensions [mm]							weight approx. [kg]
			E	D	F	B	G	H	C	
6-8	F08904	1.12	307	18	130	70	24	20	17	1.7
8-8	F08912	2.0	329	18	130	70	30	25	22	2.2
10-8	F08898	3.15	371	18	130	70	37	32	28	3.3
13-8	F08899	5.3	425	22	160	90	42	41	35	5.3

4.4 Reduction assembly TWN 0875

When ordering please give width B and height F of the crane hook.



nominal size	prod. code	load rating [t]	weight approx. [kg]
10-8	F30255	3.15	2.7
13-8	F30257	5.3	4.0
18-8	F30265	10.0	17.5

4.5 S hook TWN 0860

Please refer to separate instructions for the use of S hooks.

5 Fitting and removal

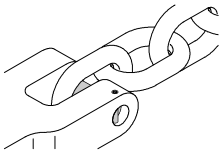
5.1 Preparatory measures

Ensure that all the fittings are in perfect working order and that the load is suitable for the carrying capacity of all the components.

5.2 Attaching/detaching chains

Always follow the fitting and operating instructions when attaching and removing chain tackle.

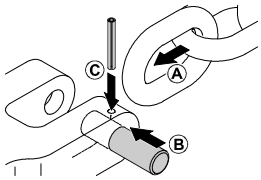
5.3 Clevis system



The confusion-free design of the clevis system means it is only possible to fit chains whose nominal size matches the sling connector.

Fitting

If necessary, remove the spring pin and clevis pin.



(A) Feed the end of the chain between the sides of the clevis.

(B) Slide the clevis pin into the clevis and through the last chain link until it reaches the stop.

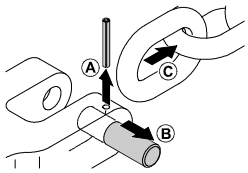
(C) Drive home the split pin flush with its recess. The slot must face away from the clevis pin.

Check that the chain is free to move

Only use clevis pins and sling components of the same grade (pins Ø 13 mm and over are marked on their face side).

Spring pins are intended for one-off use only.

Removal



Loosen the relevant chain sling.

(A) Drive out the spring pin with a hammer and mandrel[2)] .

(B) Use a mandrel to force out the clevis pin.

(C) Detach the chain.

2) Matching mandrels can be obtained under product code Z03303

6 Conditions of usage and operation

6.1 Information on T-handle chain TWN

The steel piling should have a maximum hole diameter of 40 mm.

Taking up load:

- Thread the T-handle fully through the hole.
- Turn the T-handle at right angles to the run of the chain and tighten up the chain so that the legs of the T-handle lie flat against each side of the hole.
- Adjust the T-handle as far as possible so that its longitudinal axis is in line with the direction of chain loading; this helps prevent damaging bending stresses. Ensure that the legs of the T-handle still have sufficient contact on each side of the hole.

Releasing the load:

- Slacken the T-handle chain.
- Turn the legs of the T-handle so that it lines up with the chain direction.
- Manually withdraw the T-handle from the hole.

6.2 Temperature effect

If the chain tackle is to be used at higher temperatures reduce the load rating in accordance with the following table.

grade	temperature range	remaining load capacity
8	-40 °C ≤ 200 °C	100 %
	200 °C ≤ 300 °C	90 %
	300 °C ≤ 400 °C	75 %
10/XL	-30 °C ≤ 200 °C	100 %
	200 °C ≤ 300 °C	90 %
	300 °C ≤ 380 °C	60 %

The temperature range for operating isolation assemblies type TWN 0893 is usually limited to between -20 °C and +200 °C.

Any chain tackle that has been heated up above the maximum operating temperature should be withdrawn from service.

6.3 Information on normal conditions of use

When using hooks without safety devices, e.g. due to operational requirements, increased caution is called for and a separate risk assessment should be carried out.

6.4 Environmental influence

It is not permitted to use the chain tackle in an environment where acids, aggressive or corrosive chemicals or their vapours are present. Hot galvanising or electroplating should also not be used.

6.5 High-risk situations

The level of risk applying in off-shore operations and the lifting of persons or dangerous loads, such as molten metals and other similar potential hazards, should be evaluated by a competent person in the form of a risk assessment. It is also necessary to take account of any additional regulations that may apply.

7 General information on sling components

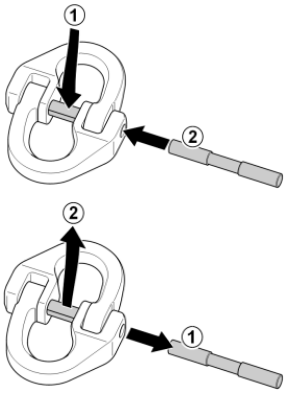
7.1 Connecting links

In the case of assembled chain sling systems the chains are connected to other components by means of connecting links or some other means. This allows the attachment of components whose nominal size does not match that of the chain.

The nominal size and grade of the chain and connecting link must match

Fitting

Insert the two halves of the connecting link into the components that are to be attached and fit the two halves together.



1. Line up the spring sleeve.
2. Push the pin in until it meets the spring sleeve, line up the chamfers of the pin with the sleeve and then drive the pin home with a hammer.
3. Check that the spring sleeve engages around the centre section of the pin.

Removal

1. Drive out the pin with a mandrel.
2. Remove the spring sleeve.
3. Withdraw the two halves of the connecting link from the attached components.

A set of mandrels type TWN 0945 can be obtained under product code Z03303.

The spring sleeves are intended for one-off use only.

Check that the components being attached can move freely in their respective connector halves.

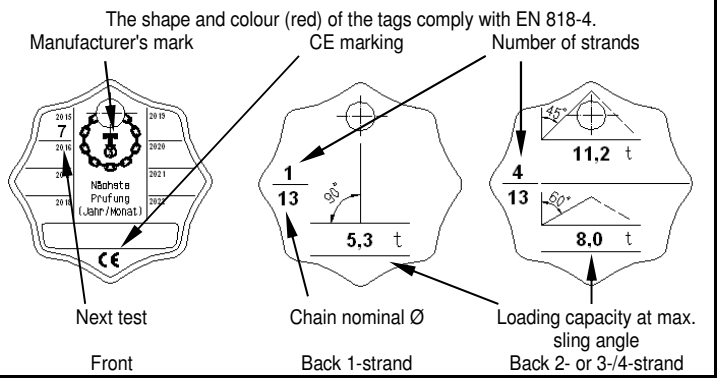
7.2 Shortening elements

When using shortening elements, such as shortening hooks, claws or combination clutches, refer to the separate operating and fitting instructions.

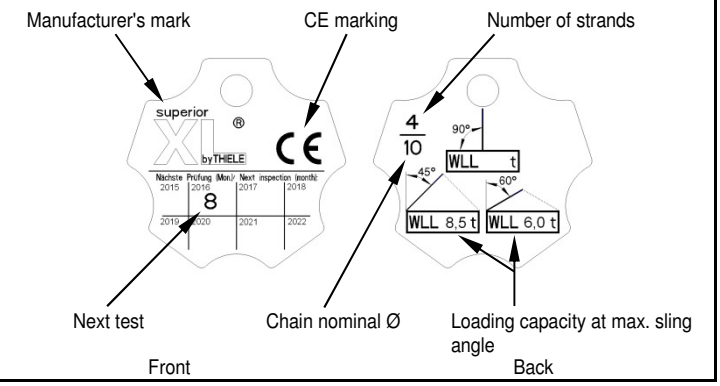
8 Markings

Chain tackles normally have an identification tag affixed to the suspension link, in compliance with EN 818-4. THIELE chain slings are identified by the CE marking on the tag.

8.1 Identification tag for grade 8 equipment



8.2 Identification tag for grade 10/XL (special format, colour blue)



9 Testing, maintenance and disposal

The operator is to ensure that all testing and maintenance is properly carried out

The operator is to schedule the test cycles

The equipment is to be tested regularly, and at least once a year, by a competent person, and the results recorded. This frequency is to be increased for heavy-duty applications. An additional test to verify that no cracks are present must be carried out within a period of three years. Load tests are no substitute for these condition tests.

The condition of the chain and the other components is to be recorded at every test.

The tests are to be entered in a file (DGUV I 209-062 or DGUV I 209-063) that is to be set up when the chain tackle is first commissioned. This file should contain the characteristic data of the chains and components along with proof of identity.

Chain tackle that exhibits any of the following defects is to be withdrawn from service immediately:

- illegible or missing markings
- deformed, stretched or fractured chains or components
- cuts, gouges, cracks, splits or pinching
- exposure to heat above the permitted range
- severe corrosion
- an increase in the pitch of any individual link of more than 5%
- a reduction of more than 10% in the averaged link thickness established as a mean value based on concentric measurements
- defective or missing safety devices, e.g. a malfunctioning safety latch on the hook
- a separation of more than 10% at the hook, or if the hook locking mechanism no longer seats properly
- restricted swivel capacity at the connecting links (the connector halves have become jammed)
- wear of more than 10%, e.g. at the seating for the connector halves or in the pin diameter
- defective or missing pin retainer or safety catch.

Cleaning (e.g. prior to testing) should not be carried out with burning equipment or using any process that could lead to hydrogen embrittlement (such as pickling or dipping in acid solutions).

Maintenance

Maintenance work should only be undertaken by competent persons. Only use original pins, sleeves, spring pins, safety latches, etc. for sling components as particular specifications apply in this case. If defects are found ensure that the chain strands and components are replaced before further use. Do not repair individual links, replace the entire chain.

If the safety latch will not engage with the nose of the hook it can be assumed that the hook, and at the very least the chain, has been overloaded. In such cases each of the components used in this chain strand should be replaced (chain, shortening element, connector link, etc.).
Small indentations and cracks can be carefully removed by grinding, bearing in mind the maximum permitted 10% reduction in cross section and the need to avoid any gouges or notches.
Welded chain tackle should only be repaired by the manufacturer.

All maintenance work must be documented.

Testing service

THIELE can provide qualified and trained personnel to carry out testing and maintenance work on chain slinging equipment and accessories.

Disposal

Steel components and attachments that have reached the end of their useful life are to be recycled in accordance with local regulations.

10 Replacement parts

See also Section 4, Technical Data. Only use original spare parts.

Detailed information on spare parts can be found in the separate component fitting instructions. These THIELE products can be obtained upon request or at www.thiele.de.

11 Storage

When not in use chain tackle should be hung up neatly and stored under dry conditions at a temperature of between 0 °C and +40 °C.

12 Imprint

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'#' denotes change from previous version.

EC Declaration of Conformity

in accordance with Machinery Directive 2006/42/EC, Annex II A for a complete machine

The manufacturer, THIELE GmbH & Co. KG, hereby declares that

- **ring chains, grades 8 and 10/XL**
- **T-handle chains TWN 0894, grade 8**
- **isolation assemblies TWN 0893, grade 8**
- **reduction assemblies TWN 0875, grade 8**

which are placed on the market by THIELE, together with the relevant test certificate, as completed machinery, are in compliance with the relevant regulations of Machinery Directive 2006/42/EC.

The following harmonised standards have been applied:

- DIN EN ISO 12100
- DIN EN 818 parts 1, 2, 4 and 6
- DIN EN 1677 parts 1 - 4

The following standards and specifications have also been used:

- PAS 1061
- DIN 685-5
- DIN 5688-3

This statement does not include a guarantee of specific features.

Observe the safety information and instructions pertaining to these products.

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Iserlohn, 17.03.2016
Dr Günther Philipp
(Managing Director)