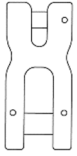
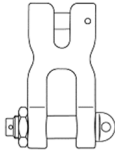


MOUNTING INSTRUCTIONS
 CHAIN COUPLING SHACKLES
 GRADES 80 AND 100



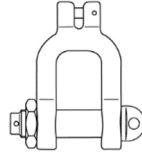
Clevis chain coupling shackles

TWN 0861



Clevis chain coupling bolt shackles

TWN 0862



Clevis special shackles

TWN 0897



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

Do not use a chain coupling shackles before reading these mounting instructions.

1. ABOUT THIS INSTRUCTION

These mounting instructions describe in particular how chain coupling shackles according to TWN 0861, TWN 0862 and TWN 0897 (TWN = THIELE works standard) are to be safely used for lifting purposes.

The instructions apply analogously to components of identical design.

To comply with these mounting instructions is essential to help avoid hazards and increases the reliability and service life of the chain coupling shackles.



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



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



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



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



SAFETY INSTRUCTIONS signs indicate specific safety-related instructions or procedures.

Chains and accessories marked with the American nominal size 7/32" already corresponded to European nominal size 6 mm. In order to achieve a better match, the previous nominal size 7/32" is now converted to the new nominal size 1/4" #. The working load limits have now also been adjusted. #

DEFINITIONS

Clevis

A U-shaped fitting with pin.

Working Load Limit (WLL)

The maximum load which a chain coupling shackle is designed to support.



NOTICE

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

2. BASIC SAFETY REQUIREMENTS



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

The working load limit must not be exceeded!

Chain coupling shackles as well as lifting and attachment means to be used must be 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 and mounting 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 056 (Non-calibrated round steel link lifting chain and chain slings; Use and maintenance), ISO 7593 (Chain slings assembled by methods other than welding; Grade T(8)) and ISO 4778 (Round steel short link chains for lifting purposes – Chains slings of welded construction – Grade 8).
- The specific safety and operating regulations and standards issued locally in the country where the items are used must be observed.
- The directions given in these mounting instructions and specified documentations relating to safety, assembly, operation, inspection, and maintenance must be made available to persons operating and using the chain coupling shackles.

MOUNTING INSTRUCTIONS

CHAIN COUPLING SHACKLES

GRADES 80 AND 100



SAFETY INSTRUCTIONS

- These mounting 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. See also chapter 11.
- 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 inspection and maintenance must exclusively be carried out by skilled and authorized persons.
- Structural changes are impermissible (e.g. welding, bending).
- Never attempt to make the shackle opening smaller by bending or welding in intermediate elements.
- **Operators must carry out a visual inspection and, if necessary, a functional test of the safety equipment before each use.**
- Usage without safety devices (nuts, dowels pins) is not permitted.
- Never put to use worn-out, bent or damaged shackles.
- Never expose shackles to loads exceeding the specified working load limits.
- Do not use force when mounting/positioning shackles.
- Make sure the load can take the forces to be applied without suffering deformation.
- Lateral loads bending the shackles are not permissible. Shackles must be capable of aligning themselves in loading direction.
- Do not start lifting before you have made sure the load has been correctly attached.
- **No one including you (operator) must be in the way of the moving load (hazard area).**
- During lifting make sure your hands or other body parts do 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 lifting means in slack condition.
- Applications where the bolt may become threaded out, e.g. by a rope or load, shall be avoided. If such applications cannot be avoided bolts with safety pins shall be used.
- If shackles are expected to perform under continuous service conditions (multi-shift, automatic operations or the like) contact the manufacturer first to reduce the working load limit as necessary.
- Never move a suspended load over persons.
- Never cause suspended loads to swing.
- Always monitor a suspended load.

- Put the load only down in flat places/sites where it can be safely deposited.
- Avoid shackles to get caught under the load.
- 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.

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

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

3. DESCRIPTION AND INTENDED USE

THIELE Chain coupling shackles are intended as end fittings of chain sling assemblies. The chain strands are to be fitted directly to the clevis. Shackles of TWN 0861 are intended to be mounted once to be left on the load permanently.



Shackles must only be used

- within the limits of their permissible working load limit,
- for permissible attachment methods and sling angles,
- within the temperature limits prescribed,
- with their original bolts and dowel pins of appropriate size,
- by trained and authorized persons.

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

THIELE-Chain coupling shackles meet EG Machinery Directive 2006/42/EG requirements and feature a safety factor of at least 4 based on working load limit (WLL).

THIELE shackles 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.

Generally, they are marked with the associated chain size and grade, manufacturer's symbol and traceability code.



Shackles must only be used with a single loaded chain leg.

Shackles can also be used within lashing chain assemblies. When used within a lashing system the maximum lashing capacity (LC) is obtained by doubling the working load limit.

Any alternating use for lifting and lashing purposes is impermissible!

4. COMMISSIONING

Prior to using the components for the first time assure that

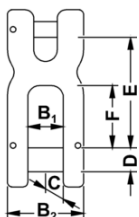
- the shackles comply with the order and have not been damaged,
- test certificates and mounting instructions are at hand,
- markings correspond with what is specified in the documentation,
- inspection deadlines and the qualified persons for examinations are determined,
- visibility and functional testings 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 rules.

5. TECHNICAL DATA

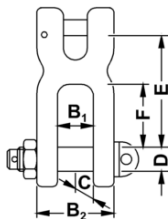
Tables include only article numbers of standard and not customized parts.

5.1 Special chain coupling shackles, TWN 0861, Grade 80



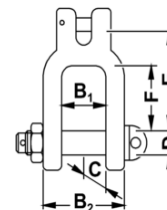
Nominal size	Article no.	WLL [lbs]	Dimensions [mm]						Mass [lbs]
			E	D	C	F	B ₁	B ₂	
3/8	F30601	7 100	64	16	32	36	21	47	1.34
1/2	F30611	12 000	83	20	40	49	27	61	2.73
5/8	F30621	18 100	99	24	48	56	33	75	4.63

5.2 Chain coupling shackles, TWN 0862, Grade 80



Nominal size	Article no.	WLL [lbs]	Dimensions [mm]						Mass [lbs]
			E	D	C	F	B ₁	B ₂	
3/8	F30600	7 100	64	16	32	36	21	47	1.48
1/2	F30610	12 000	83	20	40	49	27	61	3.02
5/8	F30620	18 100	99	24	48	56	33	75	5.03

5.3 Special coupling shackles, TWN 0897, Grade 80



Nominal size	Article no.	WLL [lbs]	Dimensions [mm]						Mass [lbs]
			E	D	C	F	B ₁	B ₂	
1/4"	F30586	2 500	70	20	39	46	35	65	1.04
5/16	F30596	4 500	70	20	39	46	35	65	1.19

6. ASSEMBLY AND REMOVAL

6.1 General

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.



Allways assemble/remove shackles or parts in load-free condition.

To prevent unilateral loads and misalignment spacers may be arranged to center the load application point on the bolt.

Disassemble the parts in reverse order.

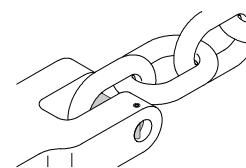
Use a suitable drift punch to drive the dowel pins out.

Suitable drift punches are available by article no. Z03303.

Dowel pins and cotter pins must only be installed once.

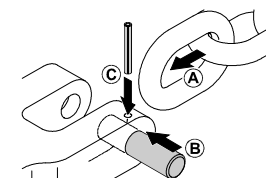
6.2 Clevis fastening system

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



6.2.1 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.



Check whether the chain runs smoothly.

The dowel pins must only be installed once.

MOUNTING INSTRUCTIONS

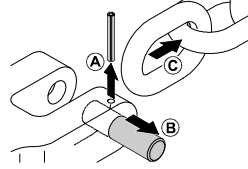
CHAIN COUPLING SHACKLES

GRADES 80 AND 100

Only connect pins and attachment components of identical grades. Starting with $\varnothing \frac{1}{2}$ " the pins are marked on the front end.

6.2.2 DISASSEMBLY

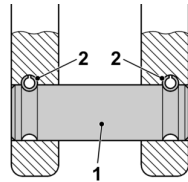
- Slacken the respective chain leg.
- (A) Drive dowel pin out using hammer and drift punch ¹⁾.
- (B) Push pin out using a drift punch.
- (C) Remove the chain.



Suitable drift punches are available by article no. Z03303.

6.3 Bolt assembly TWN 0861

A) Move the bolt (1) through both holes in the shackle ends and see to it that the two grooves in the bolt are positioned concentrically with the dowel pin holes in the shackle body.



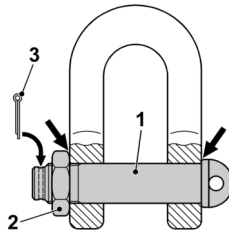
B) Insert the dowel pins (2). Make sure the slot faces away from the bolt towards the shackle bow.

6.4 Bolt assembly TWN 0862 and TWN 0897

A) Fully insert the bolt (1) through both shackle boreholes.

B) Retain the bolt with a suitable nut (2) and tighten the nut so as to be hand-tight using an appropriate tool. Make sure bolt and nut are evenly seated against the shackle body.

C) Finally, insert the cotter pin (3) in the respective hole in the bolt to secure the connection.



7. CONDITIONS OF USE

7.1 Normal use

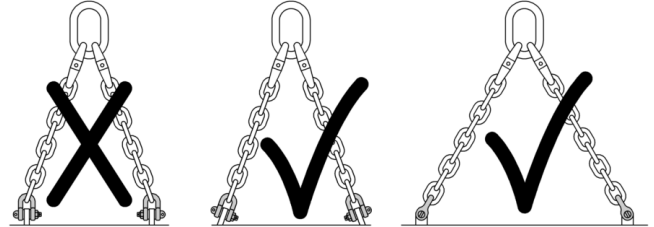


Shackles must not be exposed to bending loads; make sure eccentric loads are avoided.

Shackles must be able to move freely. Supporting of shackles on other parts is not permitted.

Take care that

- incorrect arrangements are avoided, e.g. eccentric loads,
- damage of lifting or lashing accessories, e.g. by sharp edges, is not possible,
- the shackles can be reached easily for fitting/unhinging lifting or lashing accessories.



wrong

correct

correct

7.2 Influence of temperature



The respective temperature range limits must be considered for all components used.

Using chain coupling shackles in high temperatures will cause the working load limit to be reduced as indicated below.

Temperature range	Remaining WLL
-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 %



If a shackle has been exposed to temperatures exceeding the maximum values specified, it must not be used furthermore.

7.3 Environmental influence



Chain Coupling Shackles 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 as well. Chain coupling shackles are not intended for applications in abrasive blasting environments.

7.4 Especially hazardous conditions



The degree of danger when used for 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.

8. INSPECTION, MAINTENANCE, DISPOSAL



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 shackles 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 inspection shall be kept in a file that has to be set up for each shackle before first used. The register will show characteristic data of the shackles as well as identity details.

Immediately stop using chain coupling shackles that show the following defects:

- missing or illegible identification/markings,
- deformation, elongation or fractures,
- cuts, notches, cracks, incipient cracks, pinching,
- damaged threads,
- heating beyond permissible limit,
- severe corrosion,
- impaired or missing safety systems,
- wear in excess of 10 %, e.g. in the receiving area of the pin diameter,
- missing or damaged pin locks or removal 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).

8.1 Inspection service

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

8.2 Maintenance



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

Minor notches and cracks may be eliminated by careful grinding observing the maximum cross section reduction requirement of 10 % and avoid making more severe cuts or scores. All maintenance and repair activities must be documented properly.

8.3 Disposal



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

9. SPARE PARTS



Use only original spare parts.

9.1 Spare part sets for clevis fastening system

Sets consist of pin and dowel pin.

Size	Article no.
1/4"	F48694
5/16	F48352
3/8	F48355
1/2	F48358
5/8	F48361

9.2 Pin sets for TWN 0861

Sets consist of pin and dowel pins.

Size	Article no.
3/8	F48036
1/2	F48039
5/8	F48042

9.3 Pin sets for TWN 0862

Sets consist of pin, nut and cotter pin.

Size	Article no.
3/8	F30451
1/2	F30461
5/8	F30471

10. STORAGE



Shackles must be stored properly sorted and in dry conditions at temperatures between 32 °F and 104 °F.

Do not store in a manner that cause mechanical damage.

11. THIELE OPERATING AND MOUNTING INSTRUCTIONS



Current mounting and operating instructions are available as a PDF download on the THIELE-website www.thiele.de.



12. PUBLISHING INFORMATION

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