

MOUNTING INSTRUCTIONS  
SPECIAL SLING COMPONENTS  
GRADES 80 AND 100



Ring-shackles

TWN 0812  
TWN 1812



Master Links

TWN 0820



Swivels

TWN 0845



Balancers

TWN 0882



Key Hooks

TWN 0892

DEFINITIONS

Clevis

A U-shaped fitting with pin.

Working Load Limit (WLL)

The maximum load, which a special sling component is designed to support.



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

Do not use a special sling component before reading these mounting instructions.



**NOTICE**

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

1. ABOUT THIS INSTRUCTION

These mounting instructions describes in particular how THIELE special sling components according to TWN 0812, TWN 0820, TWN 0845, TWN 0882, TWN 0892 (all grade 80) and TWN 1812 grade 100 (TWN = THIELE Shop Standard) are to be safely used for lifting purposes.

The instructions apply analogously to components of identical design.

To comply with these instructions is essential to help avoid hazards and increases the reliability and service life of the special sling components.



**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.

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!

Special sling components 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 mounting and operating instructions as well as standards ASTM A 906/A 906 M (Standard Specification for Grade 80 and Grade 100 Alloy Steel Chain Slings for Overhead Lifting), ASTM A 952/A 952 M (Standard Specification for Forged Grade 80 and Grade 100 Steel Lifting Components and Welded Attachment Links), ISO 3056 (Non-calibrated round steel link lifting chain and chain slings; Use and maintenance), ISO 7593 (Chain slings assembled by methods other than welding; Grade T(8)) and ISO 4778 (Round steel short link chains for lifting purposes – Chains slings of welded construction – Grade 8).
- The specific safety and operating regulations and standards issued locally in the country where the items are used must be observed.
- 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 special sling components.

**SAFETY  
INSTRUCTIONS**

- 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 special sling components.
- 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. Also see 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 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.**
- Usage without safety devices (nuts, dowels pins) is not permitted.
- Never put to use worn-out, bent or damaged components.
- Never expose components to loads exceeding the specified working load limits.
- Do not use force when mounting/positioning the attachment components.
- **No one including you (operator) must be in the way of the moving load (hazard area).**
- Only lift loads that are freely movable and not attached or fastened.
- Avoid bending loads to act on components.
- Make sure the load can take the forces to be applied without suffering deformation.
- Do not start lifting before you have made sure the load has been correctly attached.
- 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 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 only down in flat places/sites where it can be safely deposited.
- Avoid components 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 regard grade 100, THIELE does not give its approval to the assembly of components sourced from different manufacturers!**

**As a rule, special sling components are not permitted for the transportation of persons.**

### 3. DESCRIPTION AND INTENDED USE

THIELE Special sling components are exclusively intended for the usage in chain sling assemblies according to ASTM A 906/A 906M.

These mounting instructions describes the safety use of following components:

THIELE **Ringshackles** TWN 0812 and TWN 1812 are fixed to chain leg ends to be connected to other components.

THIELE **Master Links with clevis** TWN 0820 are fixed to chain leg ends to be connected to other components or to carry a hook.

A sling hook with clevis of the same size can be pulled through the notch to provide a sling for a choke hitch.

THIELE **Swivels** TWN 0845 are intended to be used within a chain leg to avoid harmful twisting. Turn back has to be done under unload conditions.

THIELE **Balancers** TWN 0882 are intended to enable a smooth load spreading within two chain legs.

THIELE **Key Hooks** TWN 0892 are part of multi-leg chain sling assemblies only intended to lift metal covering plates narrow to the floor.



Components 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 suitable connecting links or attachment components,
- by trained and authorized persons.

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

THIELE components meet EC Machinery Directive 2006/42/EC requirements and feature a safety factor of at least 4 based on the working load limit.

They are signed with the corresponding chain size, grade, manufacturer's symbol and traceability code.

THIELE components 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) the working load limit must be reduced.

Ringshackles TWN 0812 and TWN 1812 as well as swivels TWN 0845 may be used in lashing chain assemblies. When used within a lashing system the 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

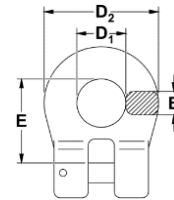
- the components comply with the order and have not been damaged,
- test certificates and mounting instructions are at hand,
- markings correspond with what is specified in the documentation,
- inspection deadlines and the qualified persons for examinations are determined,
- visibility and functional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

#### 5. TECHNICAL DATA

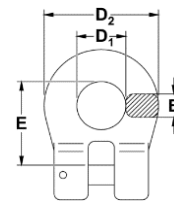
Tables include only article numbers of standard and not customized parts.

##### 5.1 Ringshackles, TWN 0812, Grade 80



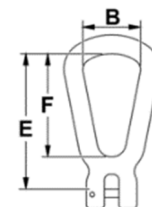
Nominal size	Article no.	WLL [lbs]	Dimensions [mm]				Mass [lbs]
			E	D <sub>1</sub>	D <sub>2</sub>	B	
1/4#	F31700	2 500	31	17	39	8	0.22
5/16	F31710	4 500	37	21	50	11	0.44
3/8	F31720	7 100	46	26	62	14	0.88
1/2	F31730	12 000	59	33	79	18	1.92
5/8	F31740	18 100	75	42	99	22	3.53

##### 5.2 Ringshackles, TWN 1812, Grade 100



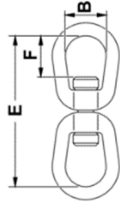
Nominal size	Article no.	WLL [lbs]	Dimensions [mm]				Mass [lbs]
			E	D <sub>1</sub>	D <sub>2</sub>	B	
1/4#	F31704	3 100	31	17	39	8	0.22
5/16	F31714	5 700	37	21	50	11	0.44
3/8	F31724	8 800	46	26	62	14	0.88
1/2	F31734	15 000	59	33	79	18	1.92
5/8	F31744	22 600	75	42	100	23	3.53

##### 5.3 Master links with clevis, TWN 0820, Grade 80



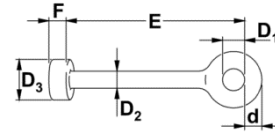
Nominal size	Article no.	WLL [lbs]	Dimensions [mm]			Mass [lbs]
			E	F	B	
5/16	F31000	4 500	93	68	36	0.88
3/8	F31010	7 100	126	95	49	1.98
1/2	F31020	12 000	158	120	60	3.53
5/8	F31030	18 100	187	140	80	6.61

### 5.4 Swivels, TWN 0845, Grade 80



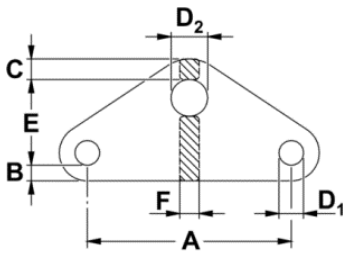
Nominal size	Article no.	WLL [lbs]	Dimensions [mm]			Mass [lbs]
			E	F	B	
1/4"	F34000	2 500	108	27	30	0.73
5/16	F34010	4 500	168	44	44	2.93
3/8	F34020	7 100	168	44	44	2.93
1/2	F34030	12 000	184	46	51	4.63
5/8	F34040	18 100	252	66	64	9.81

### 5.5 Key hooks, TWN 0892, Grade 80



Nom. size	Article no.	WLL [lbs]	Dimensions [mm]						Mass [lbs]
			E	d	D1	D2	D3	F	
3/8	F34250	7 100	168	17	20	17	40	25	1.76

### 5.6 Balancers, TWN 0882, Grade 80



Nominal size	Article no.	WLL [lbs]		Dimensions [mm]							Mass [lbs]
		Sling angle $45^\circ \leq \alpha \leq 75^\circ$ #	Sling angle $30^\circ \leq \alpha < 45^\circ$ #	E	A	D <sub>1</sub>	D <sub>2</sub>	B	C	F	
1/4"	F48300	3 500	2 500	42	100	14	18	8	11	10	0.88
5/16	F48303	6 400	4 500	56	130	18	22	10	15	12	1.76
3/8	F48306	10 000	7 100	70	160	22	28	13	19	15	3.31
1/2	F48309	17 000	12 000	91	210	28	40	16	25	20	7.50
5/8	F48312	25 600	18 100	110	260	36	42	20	30	25	12.35
3/4	F48322	40 000	28 300	130	300	42	54	25	35	30	24
7/8	F48315	48 400	34 200	140	330	46	56	28	39	35	33
1	F48319	67 500	47 700	170	390	54	66	33	46	40	55
1-1/4	F48321	102 200	72 300	210	480	68	80	40	54	50	103
1-3/4	F48325	102 200	72 300	200	700	68	80	40	56	50	143

## 6. ASSEMBLY AND REMOVAL

### 6.1 General

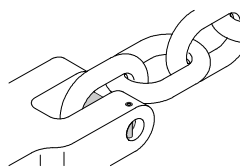
All components to be installed or used must be in perfect condition and the relevant working load limits of all parts must accommodate the respective load to be handled.



Allways assemble/remove components in load-free condition.

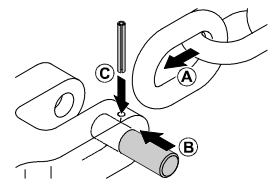
### 6.2 Clevis fastening system

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.



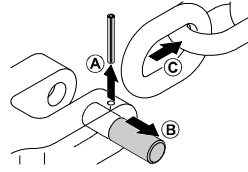
Check whether the chain runs smoothly.

The dowel pins must only be installed once.

Only connect pins and attachment components of identical grades. Starting with  $\varnothing 1/2$ " 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 <sup>1)</sup>.
- (B) Push pin out using a drift punch.
- (C) Remove the chain.



Suitable drift punches are available by article no. Z03303.

### 6.3 Swivels, TWN 0845

Swivels are able to be connected to connecting links or shackles.

Please consider the mounting instructions and the working load limits of the connected components and take care that all parts can freely move.

### 6.4 Balancers, TWN 0882

Pins of shackles as well as connecting links can be mounted to the holes of the balancers.

Please consider the mounting instructions and the working load limits of the connected components and take care that all parts can freely move.

### 6.5 Key hooks, TWN 0892

A pin of a shackle as well as a connecting link can be mounted to the eye of the Key Hook.

Please consider the mounting instructions and the working load limits of the connected components and take care that all parts can freely move.

Take care of a sufficient overlap of the Key Hooks end to the load (consider diameters  $D_2$  and  $D_3$ )

## 7. CONDITIONS OF USE

### 7.1 Normal use



Sizes and grades of the used components have to match!

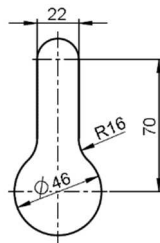
Swivel TWN 0845 must not turn under load conditions.

Key Hooks TWN 0892:

Key Hooks TWN 0892 must not turn under load conditions.

The notch within the load shall meet the dimensions [mm] of the adjacent sketch.

**The end of the small slot has to be oriented to the center of the chain sling assembly.**



The sling angle of the chain legs shall be within a range between minimum 45 ° and 75 °!

### 7.2 Influence of temperature



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

Using special sling components at elevated temperatures will cause the working load limit to be reduced as indicated below.

Grade	Temperature range	Remaining WLL
Grade 80	-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	-30 °C ≤ t ≤ 205 °C -22 °F ≤ t ≤ 400 °F



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

### 7.3 Environmental influence



Special sling components 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.

### 7.4 Especially hazardous conditions



The degree of danger when used in offshore applications, the lifting 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.



The special sling components are not intended to be used for abrasive blasting environments.



## 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 special sling components 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 sling chain before first use. The register shall show characteristic data of the chains and components as well as identity details.

Immediately stop using special sling components that show the following defects:

- missing or illegible identification/markings,
- deformation, elongation or fractures of chains or components,
- cuts, notches, cracks, incipient cracks, pinching,
- links heated beyond permissible limit,
- severe corrosion,
- impaired or missing safety systems, for example if the hook safety latch is defect,
- seating of the hook safety latch is no longer ensured
- limited hinging capability (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 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 performed 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 steel components and accessories taken out of service must be scrapped in accordance with local regulations and provisions.

## 9. SPARE PARTS



Use only original spare parts.

Sets consist of pins and dowel pins.

Grade 80		Grade 100	
Nom. size	Article no.	Nom. size	Article no.
1/4#	F48694	1/4#	F48686
5/16	F48352	5/16	F48687
3/8	F48355	3/8	F48688
1/2	F48358	1/2	F48689
5/8	F48361	5/8	F48690

## 10. STORAGE



Special sling components 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](http://www.thiele.de).



## 12. PUBLISHING INFORMATION #

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