

Operating Instructions

Original in compliance with 2006/42/EG



Lifting Points, weld-type

TWN 0119, TWN 0124, TWN 1882



Manufacturer:
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1 Description and Intended Use

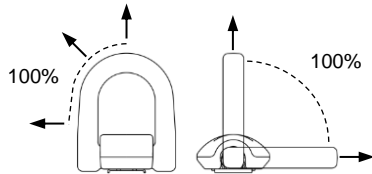
THIELE Lifting Points weld-type are intended for attachment to steel structures and components.

Sling chains according to EN 818-4 or lashing chains according to EN 12195 may be used.

Weld-type Lifting Points mainly consist of a forged weld-on support and a welded or forged ring.

For Lifting Points of TWN 0124 and TWN 1882 springs are integrated to the weld-on support to provide position stabilization and noise reduction when not in use. (TWN = THIELE-standard)

Lifting Points can be loaded to 100 % in all tensile directions.



THIELE Lifting Points meet EG Machinery Directive 2006/42/EG requirements and feature a safety factor of at least 4 based on Working Load Limit (WLL).

THIELE Lifting Points are signed with the CE symbol.

They are also signed with the Working Load Limit in tons or the chain size, manufacturers mark (stamp 'H4') and identification number.

THIELE Lifting Points 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.

Lifting Points must exclusively be used

- within the limits of their permissible working load limit,
- for permissible attachment modes and inclination angles,
- within the temperature limits prescribed,
- with properly laid welding seams.

Working Load Limit of different modes of assembly can be seen in the load table.

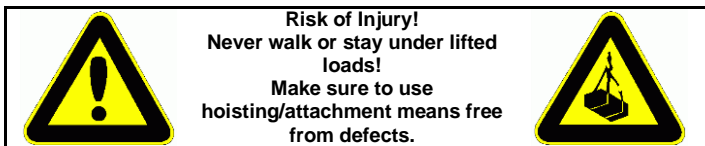
Using the Lifting Points of TWN 0119 and TWN 0124 exclusively for lashing the maximum Lashing Capacity (LC) is calculated by doubling the Working Load Limit.

TWN 1882:

There are identically constructed Lashing Points by TWN 1880 available.

An alternating use for lifting and lashing is not allowed.

2 Safety Notes



- Operators, fitters, and maintenance personnel must in particular observe the Operating Instructions also from the used sling chain assemblies, documentations DGUV V 1, DGUV R 100-500 Chapter 2.8 and DGUV I 209-013 issued by the German Employers' Liability Insurance Association, as well as the Operating Instructions of the loads concerning advise for lifting.
- Outside the Federal Republic of Germany the specific provisions issued locally in the country where the items are used must also 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 the respective persons.
- Make sure these Operating Instructions are available in a place near the product during the time the equipment is used. Please contact the manufacturer if replacements are needed.

- When performing work make sure to 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).
- Visually inspect the equipment prior to each use.
- Never put to use worn-out, bent or damaged Lifting Points.
- Only lift loads the mass of which is less than or equal to the Working Load Limit of the Lifting Points.
- Do not use force when mounting/positioning the Lifting Points.
- Only lift loads that are freely movable and not attached or fastened.
- Do not bend the ring.
- Do not start lifting before you have made sure the load has been correctly attached.
- Make sure no one including you (operator) is in the way of the moving load (hazard area).
- During lifting/hoisting make sure your hands or other body parts do not come into contact with hoisting means. Only remove hoisting 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 places/sites where it can be safely deposited.

THIELE will not be responsible for damage caused through non-observance of the instructions, rules, standards and notes indicated!

In the event of doubts about the use, inspection, maintenance or similar things contact your safety officer or the manufacturer!

3 Commissioning

Prior to using the components for the first time make sure that

- the Lifting Points comply with the order and have not been damaged,
- test certificate, statement of compliance and Operating Instructions are at hand,
- markings correspond with what is specified in the documentation,
- the documentation is safely kept in an orderly manner.

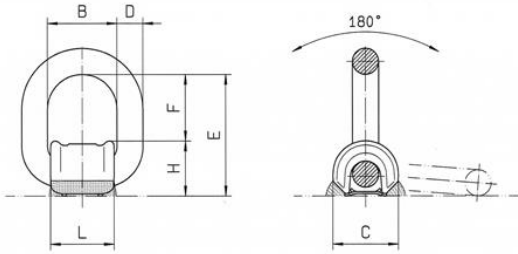
Dispose of the packing in an environmentally compatible way according to local rules.

4 Technical Data

| Type | Size | Article No. ¹⁾ | Article No. ^{1,2)} | WLL [t] | Mass [kg] |
|----------|----------|---------------------------|-----------------------------|---------|-----------|
| TWN 0119 | 6-8 | F35103 | F35103A | 1,12 | 0,24 |
| | 8-8 | F35113 | F35113A | 2,0 | 0,46 |
| | 10-8 | F35123 | F35123A | 3,15 | 0,63 |
| | 13-8 | F35133 | F35133A | 5,3 | 1,9 |
| | 16-8 | F35143 | F35143A | 8,0 | 2,67 |
| | 22-8 | F35163 | - | 15 | 8,1 |
| | 32-8 | F35183 | - | 31,5 | 27,3 |
| TWN 0124 | 40-8 | F35193 | - | 50 | 60 |
| | 6-8 | F35107 | - | 1,12 | 0,25 |
| | 8-8 | F35110 | - | 2,0 | 0,43 |
| | 10-8 | F35124 | - | 3,15 | 0,72 |
| | 13-8 | F35139 | - | 5,3 | 1,9 |
| TWN 1882 | 16-8 | F35144 | - | 8,0 | 2,8 |
| | 6-10/XL | F352041 | F352041A | 1,4 | 0,41 |
| | 8-10/XL | F352051 | F352051A | 2,5 | 0,57 |
| | 10-10/XL | F352061 | F352061A | 4,0 | 0,84 |
| | 13-10/XL | F352071 | F352071A | 6,7 | 2,19 |
| | 16-10/XL | F352081 | F352081A | 10 | 3,35 |

1) Article Numbers of basic versions, no customized editions.
2) Edition for USA.

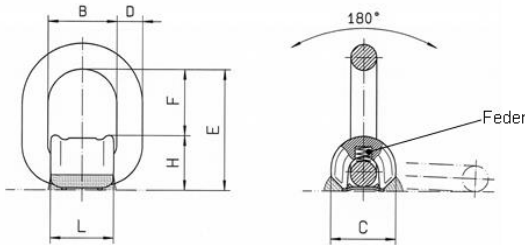
Dimensions TWN 0119:



| Size | Marking | Dimensions [mm] | | | | | | |
|------|---------|-----------------|-----------------|-----|-----|-----|----|-----|
| | | E ¹⁾ | F ¹⁾ | C | L | H | D | B |
| 6-8 | 1 | 59 | 31 | 32 | 32 | 28 | 12 | 36 |
| 8-8 | 2 | 69 | 37 | 38 | 38 | 33 | 14 | 42 |
| 10-8 | 3 | 84 | 46 | 45 | 44 | 38 | 18 | 48 |
| 13-8 | 5 | 120 | 69 | 60 | 60 | 51 | 24 | 66 |
| 16-8 | 8 | 127 | 66 | 68 | 65 | 61 | 28 | 72 |
| 22-8 | 15 | 178 | 98 | 96 | 109 | 80 | 39 | 120 |
| 32-8 | 32 | 292 | 174 | 145 | 165 | 118 | 56 | 180 |
| 40-8 | 50 | 371 | 228 | 186 | 210 | 145 | 72 | 230 |

1) For vertical orientation.

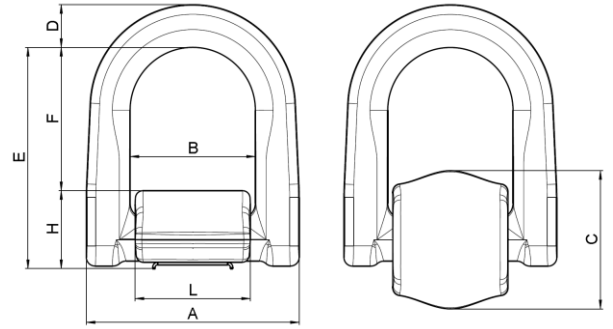
Dimensions TWN 0124:



| Size | Marking | Dimensions [mm] | | | | | | |
|------|---------|-----------------|-----------------|----|----|----|----|----|
| | | E ²⁾ | F ²⁾ | C | L | H | D | B |
| 6-8 | 1 | 56 | 30 | 32 | 32 | 28 | 12 | 36 |
| 8-8 | 2 | 67 | 37 | 38 | 38 | 33 | 14 | 42 |
| 10-8 | 3 | 81 | 45 | 45 | 44 | 38 | 18 | 48 |
| 13-8 | 5 | 117 | 69 | 60 | 60 | 54 | 24 | 66 |
| 16-8 | 8 | 122 | 67 | 68 | 65 | 61 | 28 | 72 |

2) For vertical orientation.

Dimensions TWN 1882:



| Size = Marking | Dimensions [mm] | | | | | | | |
|----------------|-----------------|----|----|----|-----------------|-----------------|----|----|
| | A | B | C | D | E ³⁾ | F ³⁾ | H | L |
| 6-10/XL | 65 | 38 | 50 | 13 | 68 | 42 | 26 | 35 |
| 8-10/XL | 76 | 45 | 50 | 15 | 73 | 46 | 27 | 42 |
| 10-10/XL | 85 | 50 | 56 | 17 | 87 | 56 | 31 | 46 |
| 13-10/XL | 116 | 68 | 78 | 23 | 122 | 78 | 44 | 63 |
| 16-10/XL | 130 | 69 | 92 | 27 | 126 | 72 | 54 | 63 |

3) For vertical orientation.

Load Table

| Marking on weld-on support ▶ | | | TWN 0119 / TWN 0124 | | | | | | | | TWN 1882 | | | | |
|------------------------------|---------------------------|-------------|---------------------|------|------|------|------|------|------|-----|----------|-------|-----|-------|------|
| Attachment mode | Inclination angle β | No. of legs | 1 | 2 | 3 | 5 | 8 | 15 | 32 | 50 | 1,5 t | 2,5 t | 4 t | 6,7 t | 10 t |
| | 0° | 1 | 1,12 | 2 | 3,15 | 5,3 | 8 | 15 | 31,5 | 50 | 1,5 | 2,5 | 4 | 6,7 | 10 |
| | 0° | 2 | 2,24 | 4 | 6,3 | 10,6 | 16 | 30 | 63 | 100 | 3 | 5 | 8 | 13,4 | 20 |
| | 90° | 1 | 1,12 | 2 | 3,15 | 5,3 | 8 | 15 | 31,5 | 50 | 1,5 | 2,5 | 4 | 6,7 | 10 |
| | 90° | 2 | 2,24 | 4 | 6,3 | 10,6 | 16 | 30 | 63 | 100 | 3 | 5 | 8 | 13,4 | 20 |
| | 0°-45° | 2 | 1,6 | 2,8 | 4,25 | 7,5 | 11,2 | 21,2 | 45 | 71 | 2,1 | 3,5 | 5,6 | 9,4 | 14 |
| | 45°-60° | 2 | 1,12 | 2 | 3,15 | 5,3 | 8 | 15 | 31,5 | 50 | 1,5 | 2,5 | 4 | 6,7 | 10 |
| | asymmetrical | 2 | 1,12 | 2 | 3,15 | 5,3 | 8 | 15 | 31,5 | 50 | 1,5 | 2,5 | 4 | 6,7 | 10 |
| | 0°-45° | 3 / 4 | 2,36 | 4,25 | 6,7 | 11,2 | 17 | 31,5 | 67 | 106 | 3,15 | 5,25 | 8,4 | 14,1 | 21 |
| | 45°-60° | 3 / 4 | 1,7 | 3 | 4,75 | 8 | 11,8 | 22,4 | 47,5 | 75 | 2,25 | 3,75 | 6 | 10,1 | 15 |
| | asymmetrical | 3 / 4 | 1,12 | 2 | 3,15 | 5,3 | 8 | 15 | 31,5 | 50 | 1,5 | 2,5 | 4 | 6,7 | 10 |

5 Assembly and Removal

5.1 Preparations

The mounting location for each Lifting Point has to ensure that

- the load can take the forces safely to be applied without suffering deformation,
- no areas of danger are created (crushing point, shearing point),
- transportation is not restrained by overhang,
- lifting accessories will not be bypassed,
- incorrect use is avoided,
- the suspension gear cannot be damaged, for example by sharp edges,
- the Lifting Point can be used easily.

Make sure the welding surfaces are grinded down, flat, dry, free of impurity, flawless and weldable (material see ISO/TR 15608 table 1, group 1). Make sure the weld area at the component is able to absorb the input force without safety reducing deformation.

Make sure the weld seam area at the component is large enough for the Lifting Points to be safely attached by welding.

5.2 Welding Instructions

Welding Instructions relating to weld-on supports (S355NL or similar) to be attached to C22, S235, S355 or similar components.

The following general Welding Instructions shall be duly followed:

| | |
|--------------------|--|
| Personell, Quality | DIN EN ISO 3834 DIN EN ISO 14731 DIN EN ISO 9606 |
| Welding process | DIN EN 1011 DIN EN 1090 DIN EN 15085 |
| Further | DIN 15018 ISO/TR 15608 SEW 088 |

Do not weld on the movable rings!

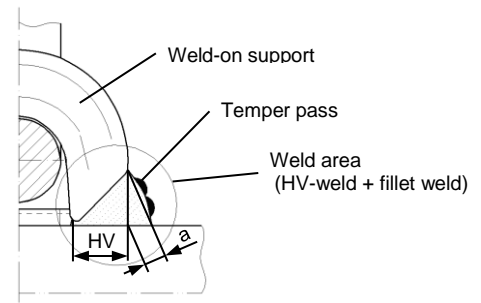
Take care not to widen the gap for the root run during tack-welding.

Take care for an accurate cleaning of the root run.

Take care to avoid end crater.

Continue the welding within one heat.

Sketch:



Miscellaneous:

1. Minimum notched-bar impact strength values of ISO-V specimens KV=27J at -40 °C (e.g. S355J4G3 or S355NL, EN10025)
2. When selecting material grades other than those listed above please contact the base material and filler metal manufacturers for information.
3. The responsible welding supervisor must make sure the welding current is correctly adjusted to suit the given welding position.

| Type | Size | Minimum length ¹⁾ [mm] | HV-weld [mm] | Fillet weld a _{min} ²⁾ [mm] | Volume appr. [cm ³] |
|----------|----------|--------------------------------------|-----------------|---|---------------------------------------|
| TWN 0119 | 6-8 | 2 x 32 | 9 | 3 | 2,0 |
| | 8-8 | 2 x 38 | 9 | 3 | 2,3 |
| | 10-8 | 2 x 44 | 10,5 | 3 | 3,0 |
| | 13-8 | 2 x 60 | 15 | 4 | 7,3 |
| | 16-8 | 2 x 65 | 17 | 4 | 8,5 |
| | 22-8 | 2 x 109 | 24 | 6 | 25,8 |
| | 32-8 | 2 x 165 | 36 | 16 | 131 |
| TWN 0124 | 40-8 | 2 x 210 | 36 | 22 | 260 |
| | 6-8 | 2 x 32 | 9 | 3 | 2,0 |
| | 8-8 | 2 x 38 | 9 | 3 | 2,3 |
| | 10-8 | 2 x 44 | 10,5 | 3 | 3,0 |
| | 13-8 | 2 x 60 | 15 | 4 | 7,3 |
| TWN 1882 | 16-8 | 2 x 65 | 17 | 4 | 8,5 |
| | 6-10/XL | 2 x 35 | 7,5 | 3 | 2,5 |
| | 8-10/XL | 2 x 42 | 7,5 | 3 | 3,0 |
| | 10-10/XL | 2 x 46 | 9 | 3 | 3,8 |
| | 13-10/XL | 2 x 63 | 12 | 4 | 8,1 |
| | 16-10/XL | 2 x 63 | 15 | 4 | 9,8 |

| Welding process | Manual metal arc welding (MMA) DIN EN ISO 9606-1; Nr. 111 | | | | | Metal active gas welding(MAG) DIN EN ISO 9606-1; Nr. 135 | | |
|-------------------------------|--|---------------|---------------|---------------|-------------------------------|---|---------------|---------------|
| Welding groove | DIN EN ISO 9692-1:2013-12, chapter 1.9.1 (siehe sketch) | | | | | DIN EN ISO 9692-1:2013-12, chapter 1.9.1 (see sketch) | | |
| Quality grade | Root run: DIN EN ISO 5817 - D Final run: DIN EN ISO 5817 - C | | | | | Root run: DIN EN ISO 5817 - D Final run: DIN EN ISO 5817 - C | | |
| Wire electrode | For example. DIN EN ISO 2560-A-E42-4 ⁺ -B (2011) AWS A5.1-04: E7018-1H4R AWS A5.1M-04: E4918-1H4R | | | | | DIN EN ISO 14341-A-G 42- 4- M21- 3Si1 DIN EN ISO 14341-A-G 46- 4- M21- 3Si2 AWS A5.18-05: ER70S-6 AWS A5.18M-05: ER48S-6 | | |
| Welding position | DIN EN ISO 6947: PA, PB, PC, PE, PF | | | | | DIN EN ISO 6947: PA, PB, PC, PE, PF | | |
| Preheating of parent metal | Thickness ≥ 20 mm: 150 - 200 °C Rebaking (filler metal): appr. 300 - 350 °C for 2 hours | | | | | Thickness ≥ 20 mm: 150 - 200 °C | | |
| Interpass temperature | ≤ 400 °C | | | | | ≤ 400 °C | | |
| Postweld heat treatment | Thickness ≥ 30 mm: Tempering at 400 °C for 1 minute per mm of wall thickness or using the 'temper pass' technique | | | | | Thickness ≥ 30 mm: 400 °C for 1 minute per mm wall thickness or using the 'temper pass' technique | | |
| Pass | Root run | Final run | Final run | Final run | Temper pass | Root run | Final run | Temper pass |
| Wire or electrode diameter | 2,5 mm | 3,2 mm | 4,0 mm | 5,0 mm | 3,25 mm/ 4,0 mm/ 5,0 mm | 1 mm | 1,2 mm | 1 or 1,2 mm |
| Welding current (=) | 80-110 A | 100-140 A | 130-180 A | 180-230 A | as final run | 130 – 260 A | 190 – 325 A | 190 – 325 A |
| Electrode polarity | (= +) | (= +) | (= +) | (= +) | (= +) | (= +) | (= +) | (= +) |
| Voltage | - | - | - | - | - | 22 – 33 V | 19 – 31 V | 19 – 31 V |
| Shield gas ISO 14175; M2 1 | - | - | - | - | - | 10 - 12 l/min | 12 - 14 l/min | 12 - 14 l/min |
| Kind of passes | Stringer pass | Stringer pass | Stringer pass | Stringer pass | Stringer pass | Stringer pass | Stringer pass | Stringer pass |

6 Conditions of Use

6.1 Normal Use

The ring of the Lifting Point must always be freely movable. It must not rest on or be supported by other structural parts.

Using 4-leg chain link assemblies may cause higher risk because only 2 opposite legs carrying the load. Check the Working Load Limit of Lifting Points and chain link assembly carefully and chose if necessary bigger sizes.

6.2 Influence of Temperature

The permissible Working Load Limit of the Lifting Points reduces at elevated temperatures.

The reduced Working Load Limit shown in the following tables shall only apply for short-term use at the temperatures indicated.

If the Lifting Points have been exposed to temperatures exceeding the maximum values specified they must no longer be used.

| Type | Temperature range | Remaining Working Load Limit |
|----------------------|-------------------|------------------------------|
| TWN 0119 TWN 0124 | -40 °C ≤ 200 °C | 100 % |
| | 200 °C ≤ 300 °C | 90 % |
| | 300 °C ≤ 400 °C | 75 % |
| TWN 1882 | -30 °C ≤ 200 °C | 100 % |
| | 200 °C ≤ 300 °C | 90 % |
| | 300 °C ≤ 380 °C | 60 % |

6.3 Environmental Influence

Lifting points 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 Inspections, Maintenance, Disposal

Inspections and maintenance must be arranged for by the Owner!

Inspection intervals shall be determined by the Owner!

Inspections must be carried out and documented by competent persons regularly but at least once a year, or more frequently if the Lifting Points are in heavy-duty service. After three years at the latest they must additionally be examined for cracks. A load test shall never be considered a substitute for this examination.

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The results of the inspection shall be entered into a register (DGUV I 209-062 or DGUV I 209-063) to be prepared at first use. The register will show characteristic data as well as identity details.

Immediately stop using Lifting Points that show the following defects:

- missing or illegible identification/markings,
- deformation, elongation or fractures,
- cuts, notches, cracks, incipient cracks, pinching,
- heating beyond permissible limits,
- severe corrosion,
- wear exceeding 10 %, for example in the ring diameter area,
- weld failures.

Inspection Service

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

Maintenance

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

Minor notches and cracks at the rings 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 are to be documented.

Disposal

All components and accessories of steel taken out of service are to be scrapped in line with local regulations and provisions.

8 Storage

Lifting Points are stored in dry locations at temperatures ranging between 0 °C and +40 °C.

9 Publishing Information

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„#“ Changes to previous edition.

B08000-F

EU Declaration of Conformity

acc. to Machinery Directive 2006/42/EG, Annex II A for a machine

THIELE GmbH & Co. KG herewith declares as manufacturer that

Lifting Points, weld-type

TWN 0119 and TWN 0124
TWN 1882

are placed on the market in the form of a complete machine by THIELE together with the relevant test certificate, and are in compliance with the applicable provisions of the EU Machinery Directive 2006/42/EG.

The following harmonized standards have been observed:

- DIN EN ISO 12100
- DIN EN 1677-1
- DIN EN 1677-4

Other standards and specifications have also been observed as follows:

- GS-OA 15-04

This declaration/statement is not meant to warrant any product properties. Safety notes and instructions pertinent to the products must be observed.

Responsible for the documentation:

Dr. Jürgen Obenauf
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Iserlohn, 25 February 2016

Dr. Günther Philipp
(Managing Director)

