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

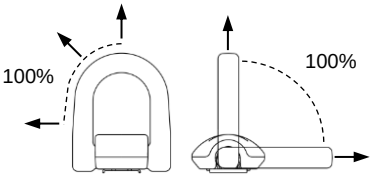
THIELE Lifting Points weld-type are intended for attachment to steel structures and components.

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

Risk of Injury!
Never walk or stay under lifted loads!
Make sure to use hoisting/attachment means free from defects.

- 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.

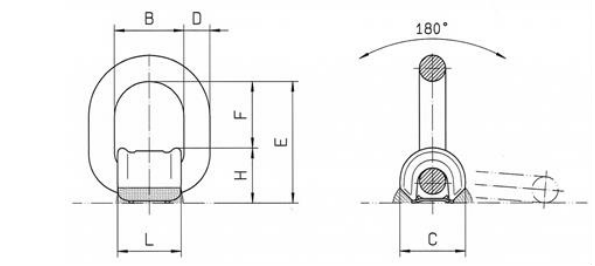
Dispose of the packing in an environmentally compatible way according to local rules.

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
	40-8	F35193	-	50	60
TWN 0124	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
	16-8	F35144	-	8,0	2,8
TWN 1882	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.

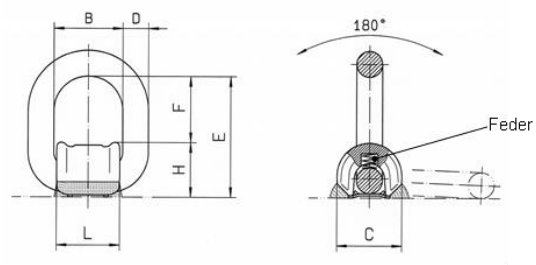
Dimensions TWN 0119:



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.

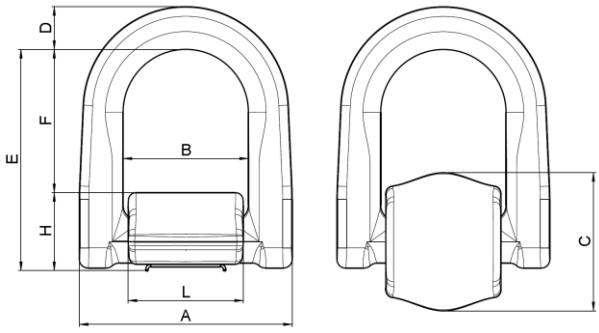
Dimensions TWN 0124:



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			TWN 0119 / TWN 0124								TWN 1882				
Marking on weld-on support ►			1	2	3	5	8	15	32	50	1,5 t	2,5 t	4 t	6,7 t	10 t
Attachment mode	Inclination angle β	No. of legs	Working Load Limit of attachment mode [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
β	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
β	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!

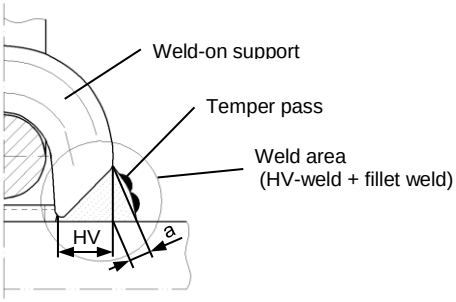
Take care not to widen the gap for the root run during tack-welding.

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} ▽ [mm]	**Volume** appr. [cm³]
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
	40-8	2 x 210	36	22	260
TWN 0124	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
TWN 1882	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.

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/marking,
- 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

THIELE GmbH & Co. KG, Werkstraße 3, 58640 Iserlohn, Germany
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„#“ Changes to previous edition.

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:
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Iserlohn, 25 February 2016
Dr. Günther Philipp
(Managing Director)