

## Operating Instructions

Original in compliance with 2006/42/EG



### Lifting points, screw-type

Grades 8 and 10/XL



TWN 0121/1 TWN 0122 TWN 0123 TWN 0127 TWN 1120 TWN 1830 TWN 1890

Manufacturer:  
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## 1 Description and Intended Use

THIELE lifting points screw-type are intended for attachment to steel, aluminum or non-ferrous metal structures and components.

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

These Operating Instructions show the safety use of THIELE lifting points of the following executions:

- TWN 0121/1 Lifting points, rotatable, with slide bearing
- TWN 0122 Lifting points
- TWN 0123 Lifting points
- TWN 0127 Lifting points MDB
- TWN 1120 TITAN Lifting points, rotatable, with slide bearing
- TWN 1830 X-TREME Lifting points, rotatable, with ball bearing
- TWN 1890 Lifting points XS-Point, rotatable

THIELE lifting points meet EG Machinery Directive 2006/42/EG requirements and feature a safety factor of at least 4 based on WLL.

THIELE lifting points are signed with the CE symbol.

They are also signed with the Working Load Limit (WLL) 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, magnetic spreaders) the WLL must be reduced.

Lifting points must exclusively be used

- within the limits of their permissible working load limit,
- within the temperature limits prescribed,
- with suitable screws (see screw data) and fitted directly to the component.

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

THIELE lifting points are normally not intended for the transportation of persons.

### Turning and rotating loads

- TWN 0121/1 Turning allowed, rotating not allowed.
- TWN 0122 Turning allowed, rotating not allowed.
- TWN 0123 No turning and/or rotating allowed.
- TWN 0127 Turning allowed, rotating not allowed.
- TWN 1120 Turning allowed, rotating not allowed.
- TWN 1830 Turning and rotating allowed.
- TWN 1890 Turning allowed, rotating not allowed.

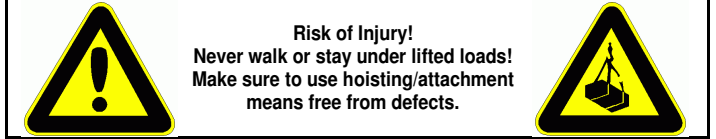
This classification relates to occasionally turning or rotating loads.

Continuous or long-term turning or rotating is not allowed.

Using the lifting points exclusively for lashing the maximum lashing capacity is calculated by doubling the Working Load Limit.

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 or suspension link.
- 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.
- Put the load only down in flat places/sites where it can be safely deposited.
- In the event of doubts about the use, inspection, maintenance or similar things contact your safety officer or the manufacturer!

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

**As regards quality grade 10/XL THIELE does not give its general approval to the assembly of components stemming from different manufacturers!**

**Working under the influence of drugs or alcohol is strictly forbidden!**

## 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,
- documentations are safely kept in an orderly manner.

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

4 Technical Data						Load Table [t]									
TWN	Article-no.	WLL [t]	usable thread length [mm]	Screw datas / suspension link [mm]	tightening torque [Nm]										
						0°	0°	90°	90°	0≤45°	45≤60°	dissym.	0≤45°	46≤60°	dissym.
	F35000	1,12	M16 x 25	M16 x 40 DIN 7984 ST 8.8	170 <sup>1)</sup>	1,12	2,24	1,12	2,24	1,6	1,12	1,12	2,36	1,7	1,12
	F35010	2,0	M20 x 30	M20 x 50 DIN 7984 ST 8.8	350 <sup>1)</sup>	2,0	4,0	2,0	4,0	2,8	2,0	2,0	4,25	3,0	2,0
	F35020	3,15	M24 x 36	M24 x 60 DIN 7984 ST 8.8	600 <sup>1)</sup>	3,15	6,3	3,15	6,3	4,25	3,15	3,15	6,7	4,75	3,15
	F35030	5,3	M30 x 50	M30 x 80 DIN 6912 ST 10.9	1200 <sup>1)</sup>	5,3	10,6	5,3	10,6	7,5	5,3	5,3	11,2	8,0	5,3
	F35070	3,15	M16 x 25	M16 x 45 DIN 7984 ST 10.9 <sup>2)</sup>	170 <sup>1)</sup>	3,15	6,3	3,15	6,3	4,25	3,15	3,15	6,7	4,75	3,15
	F35075	5,3	M20 x 36	M20 x 60 DIN 7984 ST 10.9 <sup>2)</sup>	350 <sup>1)</sup>	5,3	10,6	5,3	10,6	7,5	5,3	5,3	11,2	8,0	5,3
	F35080	8,0	M30 x 50	M30 x 80 DIN 6912 ST 10.9 <sup>2)</sup>	950 <sup>1)</sup>	8,0	16	8,0	16	11,2	8,0	8,0	17	11,8	8,0
	F35095	15	M36 x 53	M36 x 90 DIN 6912 ST 10.9 <sup>2)</sup>	1900 <sup>1)</sup>	15	30	15	30	21,2	15	15	31,5	22,4	15
	F35098	21,2	M42 x 67	M42x100simi.DIN7984 ST 10.9 Spec.2)	2100 <sup>1)</sup>	21,2	42,4	21,2	42,4	29,7	21,2	21,2	45	31,5	21,2
	F35101	25	M45 x 67	M45x110simi.DIN7984 ST 10.9 Spec.2)	2400 <sup>1)</sup>	25	50	25	50	33,5	25	25	50	37,5	25
	F35102	31,5	M56 x 88	M56x135simi.DIN7984 ST 10.9 Spec.2)	3200 <sup>1)</sup>	31,5	63	31,5	63	45	31,5	31,5	67	47,5	31,5
	F35285	36	M56 x 88	M56x135simi.DIN7984 ST 10.9 Spec.2)	3200 <sup>1)</sup>	50	100	50	100	71	50	50	106	75	50
	F34110	1,12	M16 x 30	B16 x 70 x 35	hand-screwed	1,12	2,24	1,12	2,24	1,6	1,12	1,12	2,36	1,7	1,12
	F34115	1,12	M16 x 30	A16 x 110 x 60		1,12	2,24	1,12	2,24	1,6	1,12	1,12	2,36	1,7	1,12
	F34120	2,0	M20 x 38	B16 x 70 x 35		2,0	4,0	2,0	4,0	2,8	2,0	2,0	4,25	3,0	2,0
	F34121	2,0	M20 x 38	A16 x 110 x 60		2,0	4,0	2,0	4,0	2,8	2,0	2,0	4,25	3,0	2,0
	F34130	3,15	M24 x 35	B18 x 85 x 40		3,15	6,3	3,15	6,3	4,25	3,15	3,15	6,7	4,75	3,15
	F34131	3,15	M24 x 45	A18 x 110 x 60		3,15	6,3	3,15	6,3	4,25	3,15	3,15	6,7	4,75	3,15
	F35157	3,15	M20 x 38	M20 x 50 ISO 4017 10.9 <sup>2)</sup>	350	3,15	6,3	3,15	6,3	4,25	3,15	3,15	6,7	4,75	3,15
	F35158	5,3	M24 x 35	M24 x 50 ISO 4017 10.9 <sup>2)</sup>	600	5,3	10,6	5,3	10,6	7,5	5,3	5,3	11,2	8,0	5,3
	F34405	0,3	M8 x 18	M8 x 35 12.9	hand-screwed by open-ended spanner	0,3	0,6	0,3	0,6	0,42	0,3	0,3	0,63	0,45	0,3
	F34390	0,45	M10 x 18	M10 x 35 12.9		0,45	0,9	0,45	0,9	0,63	0,45	0,45	0,95	0,67	0,45
	F34395	0,6	M12 x 23	M12 x 40 12.9		0,6	1,2	0,6	1,2	0,85	0,6	0,6	1,25	0,9	0,6
	F34400	1,4	M16 x 28	M16 x 45 10.9		2,1	4,2	1,4	2,8	2,0	1,4	1,4	3,0	2,1	1,4
	F34410	2,5	M20 x 32	M20 x 50 10.9		3,0	6,0	2,5	5,0	3,55	2,5	2,5	5,3	3,8	2,5
	F34420	3,5	M24 x 40	M24 x 60 10.9		6,0	12	3,5	7,0	5,0	3,55	3,55	7,1	5,3	3,5
	F34430	6,7	M30 x 52	M30 x 80 12.9		7,1	14,2	6,7	13,4	9,0	6,7	6,7	14	10	6,7
	F34440	8,0	M36 x 66	M36 x 100 12.9		12,5	25	8,0	16	11,2	8,0	8,0	17	11,8	8,0
	F34306	0,45	M10 x 15		hand-screwed by open-ended spanner	0,9	1,8	0,6	1,2	0,63	0,45	0,45	0,95	0,67	0,45
	F34307	0,6	M12 x 18			1,2	2,4	0,7	1,4	0,85	0,6	0,6	1,25	0,9	0,6
	F34300	1,4	M16 x 20			2,8	5,6	1,7	3,4	2,0	1,4	1,4	3,0	2,1	1,4
	F34310	2,5	M20 x 25			5,3	10,6	2,8	5,6	3,55	2,5	2,5	5,3	3,8	2,5
	F34320	3,5	M24 x 30			7,0	14	4,0	8,0	5,0	3,55	3,55	7,1	5,33	3,55
	F34330	5,3	M30 x 40			10	20	6,3	12,6	7,5	5,3	5,3	11,2	8,0	5,3
	F34340	8,0	M36 x 50			15	32	9,5	19	11,2	8,0	8,0	17	11,8	8,0
	F34350	10	M42 x 60			18	36	12,5	25	14	10	10	21,2	15	10
	F34353	12,5	M45 x 65			20	40	15	30	17,5	12,5	12,5	26,5	18,8	12,5
	F34355	12,5	M48 x 68			20	40	15	30	17,5	12,5	12,5	26,5	18,8	12,5
F34360	17	M56 x 78		28	56	22	44	23,6	17	17	36,5	25	17		
	F35243	0,63	M10 x 17	M10 x 45 ISO 4017 12.9	80	0,63	1,26	0,63	1,26	0,9	0,63	0,63	1,3	1,0	0,63
	F35244	1,0	M12 x 22	M12 x 50 ISO 4017 12.9	130	1,0	2,0	1,0	2,0	1,4	1,0	1,0	2,1	1,5	1,0
	F35245	1,7	M16 x 30	M16 x 70 ISO 4017 10.9	180	1,7	3,4	1,7	3,4	2,4	1,7	1,7	3,6	2,6	1,7
	F35246	2,5	M20 x 38	M20 x 80 ISO 4017 10.9	350	2,5	5,0	2,5	5,0	3,5	2,5	2,5	5,3	3,8	2,5
	F35247	4,0	M24 x 40	M24 x 90 ISO 4017 12.9	500	4,0	8,0	4,0	8,0	5,7	4,0	4,0	8,5	6,0	4,0
	F35249	6,0	M30 x 44	M30 x 100 ISO 4017 10.9	500	6,0	12	6,0	12	8,4	6,0	6,0	12,6	9,0	6,0
	F35250	8,0	M36 x 64	M36 x 120 ISO 4017 12.9	750	8,0	16	8,0	16	11,2	8,0	8,0	17	11,8	8,0
	F35251	10	M42 x 74	M42 x 140 ISO 4017 10.9	950	10	20	10	20	14	10	10	21	15	10

1) for tapped holes in steel 2) Additional technical THIELE-specification must be observed.

## 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,
- the lifting point can be assembled flush,
- no areas of danger are created (crushing point, shearing point),
- transportation is not restrained by overhang,
- incorrect use is avoided,
- the suspension gear cannot be damaged, for example by sharp edges,
- the lifting point can be used easily.

### 5.2 Assembly

The useful depth of the thread must enable the lifting points to be safely screwed in. Use only the delivered screws!

Make sure the tapped hole is arranged at right angle to the attachment face on the component.

The depth of the thread „L“ of the component must at least be as follows:

$$L = 1 \times d \text{ for steel}$$

$$L = 2 \times d \text{ for aluminum}$$

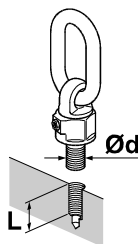
$$L = 1,25 \times d \text{ for castings } L = 2,5 \times d \text{ in aluminum-magnesium-alloys}$$

(L = depth of thread; d = thread diameter)

- Make sure the threads of the lifting point and in the component are clean and dry.
- For lifting points have to remain on the component a usual fluid safety agent for screws has to be used.
- In case of straight fittings the nut has to be secured against unintentionally loosening.
- TWN 0123, TWN 1120 and TWN 1830:  
Use a suitable open-ended spanner or ring spanner to fix the lifting points so as to be finger-tight.

TWN 0121/1, TWN 0122, TWN 0127 and TWN 1890:

Take care to tighten the screws by the right torque shown in the table. As long as it is ensured there is no load turning for a singular use and the lifting point cannot be loosened a hand tightening of the lifting points by a suitable open-ended spanner or ring spanner is sufficient. An additional check is necessary in case of a repeated load lowering.



- TWN 1830:  
Take care not to exceed the tightening torque of 40 Nm for screws M10 and M12.

There has to be made a chamfer on the hole for the thread:

- Thread M10 and M12: Chamfer 2,0+0,5 x 45°
- Thread M16 and M20: Chamfer 2,5+0,5 x 45°
- Thread M24 and M30: Chamfer 3,5+0,5 x 45°
- Thread M36 and M42: Chamfer 4,0+0,5 x 45°
- Thread M48 and M56: Chamfer 4,5+0,5 x 45°

## 6 Conditions of Use

### 6.1 Normal Use

The top part of the lifting point including attachment link must always be freely movable.

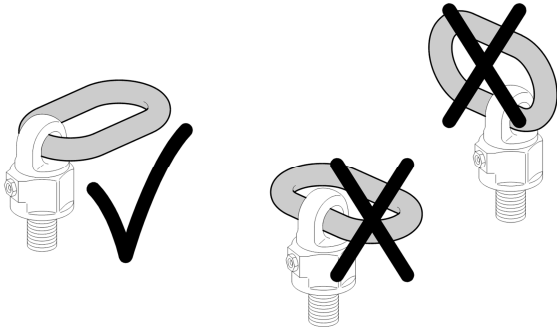
It must not rest on or be supported by other structural parts.

When attaching the components make sure the position of the lifting point always enables forces to be exerted in longitudinal direction of the suspension link. #

Make sure only the top parts of the lifting points turns into loading direction and not the firmly secured stationary portion.

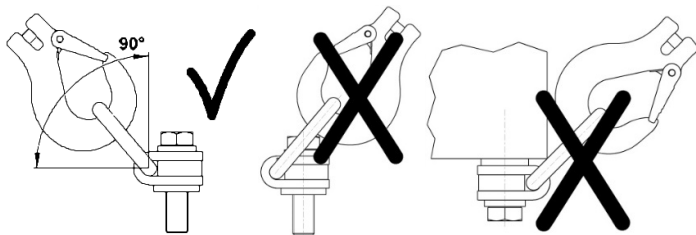
Using 4-leg chain link assemblies may cause higher risk because only 2 opposite legs carrying the load. Check the Working Load Limit of lifting point and chain link assembly carefully and chose if necessary bigger sizes.

The force must be applied lengthwise to the suspension link. #



TWN 1830:  
The lifting point must not be used for a permanent or prolonged turning of the load.

TWN 1890:



### 6.2 Influence of Temperature

The permissible Working Load Limit of the lifting points reduces at elevated temperatures.

The reduced Working Load Limit figures 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.

TWN 0121/1, TWN 0122, TWN 0127, TWN 1120, TWN 1890:

Temperature range	Remaining Working Load Limit
-20 °C ≤ 100 °C	100 %
100 °C ≤ 200 °C	85 %
200 °C ≤ 250 °C	80 %
250 °C ≤ 300 °C	75 %

TWN 0123, TWN 1830:

Temperature range	Remaining Working Load Limit
-30 °C ≤ 200 °C	100 %
200 °C ≤ 300 °C	90 %
300 °C ≤ 400 °C	75 %

TWN 1830:

Take care for a loss of lubricant depending on several fitting positions and higher temperatures. A higher wear may occur.

Shorten the inspection intervall for that case.

### 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.

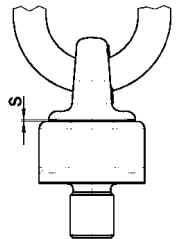
The results of the inspection shall be entered into a register (DGUV I 209-062 or DGUV I 209-063) to be prepared when the lifting point is firstly used. The register will show characteristic data of the lifting points and other components as well as identity details.

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,
- no freely rotating or turning possible,
- heating beyond permissible limits,
- severe corrosion,
- wear exceeding 10 %, for example in the suspension link diameter area,
- defect screws,
- TWN 1830: gap size „s“ exceeds figures in table below.

Max. gap size „s“ for TWN 1830:

Thread	s [mm]
M10 – M20	1,5
M24	2,0
M30	2,5
M36	3,0
M42 – M56	3,5



### Inspection Service

THIELE offers inspection, maintenance and repair services for lifting points performed by trained and competent personnel.

### Maintenance

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

Minor notches and cracks at suspension links 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 Spare parts

Only use original THIELE-spare parts. Exclusively use original THIELE screws and bolts because these are made to meet special requirements.

#### Screws

	WLL	Article-no.	Screw datas
TWN 0127	3,15	Z07742	M20 x 50 ISO 4017 10.9
	5,3	Z09017	M24 x 50 ISO 4017 10.9
TWN 1890	1,7	Z09544	M16 x 70 ISO 4017 10.9
	2,5	Z08692	M20 x 80 ISO 4017 10.9
	4,0	Z09809	M24 x 90 ISO 4017 12.9
	6,0	Z07810	M30 x 100 ISO 4017 12.9
	10	Z10136	M42 x 140 ISO 4017 10.9

## 9 Use of different fasteners<sup>#</sup>

If local circumstances dictate that different screws and bolts have to be used from those supplied with the installation, or listed in Section 8, the operator must ensure that

- these fasteners conform to the specified diameter and strength class,
- they can achieve the minimum required screw-in depth,
- they are 100% crack tested,
- each bolt has a proven notch impact energy of min. 36 J as a mean value of three samples tested at -20 °C or at the lowest fitting temperature, if this is below -20 °C, and that none of the samples falls below 25 J,
- written confirmation of the crack test and impact energy results is enclosed with the technical documentation.

## 10 Storage

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

## 11 Publishing Information

THIELE GmbH & Co. KG, Werkstraße 3, 58640 Iserlohn, Germany  
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<sup>#</sup> marking of changes to previous edition

THIELE GmbH & Co. KG herewith declares as manufacturer that

- **TWN 0121/1 Lifting points, rotatable, with slide bearing**
- **TWN 0122 Lifting points**
- **TWN 0123 Lifting points**
- **TWN 0127 Lifting points MDB**
- **TWN 1120 TITAN Lifting points, rotatable, with slide bearing**
- **TWN 1830 X-TREME Lifting points, rotatable, with ball bearing**
- **TWN 1890 Lifting points XS-Point, rotatable**

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:

- DIN 685-5
- DIN 5688-3

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)



## EU Declaration of Conformity

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