



TWN 0119
 TWN 0124



TWN 1882

2. BASIC SAFETY REQUIREMENTS



WARNING

To prevent the risk of injury never walk or stay under lifted loads!
 The working load limit must not be exceeded!
 Lifting points 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!



WARNING

The following operating instructions must always be followed to avoid the risk of personal injury or property damage.
 Do not use a lifting point before reading these operating instructions.

SAFETY INSTRUCTIONS

1. ABOUT THIS INSTRUCTION

These mounting instructions describe in particular how lifting points, weld type according to TWN 0119, TWN 0124 and TWN 1882 (TWN = THIELE works standard) are to be safely used for lifting purposes. The instructions apply analogously to components of identical design. Compliance with these instructions is essential to help avoid hazards and increases the reliability and service life of the lifting points.

DANGER

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

WARNING

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

CAUTION

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

NOTICE

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

SAFETY INSTRUCTIONS

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

DEFINITIONS

Working Load Limit (WLL)

The maximum load, which a lifting point is designed to support.



NOTICE

Read ASME B30.9 for sling inspection criteria.
 Read ASME B30.26 "Rigging Hardware",
 Chapters 26-0, 26-1, 26-4.

- Operators, fitters and maintenance personnel must in particular observe the operating instructions of the used chain sling. The operating instructions for the load, if it contains instructions for lifting, must also be observed.
- 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 lifting points.
- 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 10.
- 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.**
- Never use worn-out, bent or damaged lifting points.
- Only lift loads that do not exceed the working load limit of the used chain sling. Do not use force when mounting/positioning the attachment components.
- The load must resist and tolerate the forces to be applied without suffering deformation.
- 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 and balanced.
- **No one including you (operator) must be in the way of the moving load (hazard area).**
- During lifting your hands or other body parts must not come into contact with lifting means. Only remove lifting means manually (use your hands).
- Never move a suspended load over persons.
- Avoid impacts, e.g. due to abruptly lifting loads with chain in slack condition.
- Never cause suspended loads to swing.
- Always monitor a suspended load.

SAFETY INSTRUCTIONS

- Put the load only down in flat places/sites where it can be safely deposited.
- Assume for sufficient place for the personnel to move when choosing the route of transportation and storage location. Danger to life and risk of injury by crushing hazards!
- 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, lifting points are not permitted for the transportation of persons.

3. DESCRIPTION AND INTENDED USE

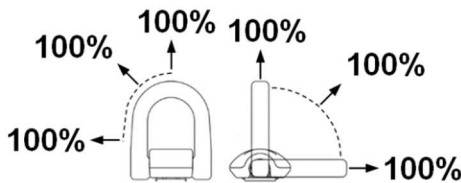
THIELE lifting points weld-type are exclusively intended for attachment to steel structures and components.

Sling chains according to ASTM A906/A906M-02, ISO 7593 or ISO 4778 may be used.

Lifting points weld type 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.

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

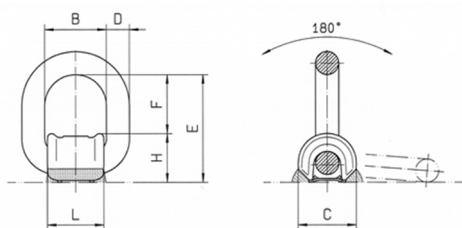


THIELE lifting points meet EC Machinery Directive 2006/42/EC requirements and feature a safety factor of at least 4 based on the working load limit.

5. TECHNICAL DATA

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

5.1 TWN 0119



Marking	Size	WLL [lbs]	Article no.	Dimensions [mm]							Mass [lbs]
				E 1)	F 1)	C	L	H	D	B	
1	1/4	2 500	F35103A	59	31	32	32	28	12	36	0.53
2	5/16	4 500	F35113A	69	37	38	38	33	14	42	1.01
3	3/8	7 100	F35123A	84	46	45	44	38	18	48	1.39
5	1/2	12 000	F35133A	120	69	60	60	51	24	66	4.19
8	5/8	18 100	F35143A	127	66	68	65	61	28	72	5.88
15	7/8	34 200	F35163A	178	98	96	109	80	39	120	17.83
32	1-1/4	72 300	F35183	292	174	145	165	118	56	180	60.17
50	-	110 200	F35193	371	228	186	210	145	72	230	132.2

1) for vertical orientation

They are signed with the working load limit in tons or the nominal chain size, manufacturer's mark and traceability code.

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 sling angles,
- within the temperature limits prescribed,
- with properly laid welding seams,
- by trained and authorized persons.

Working load limits 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 lashing capacity (LC) is calculated by doubling the working load limit.

An alternating use for lifting and lashing is not allowed.

TWN 1882: There are identically constructed lashing points by TWN 1880 available.

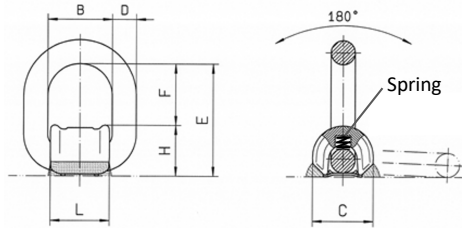
4. COMMISSIONING

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 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.

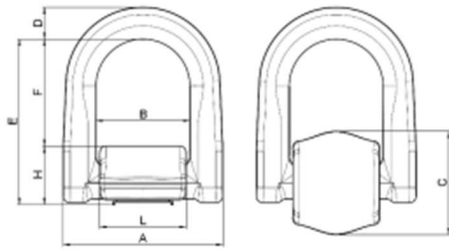
5.2 TWN 0124



Marking	Size	WLL [lbs]	Article no.	Dimensions [mm]							Mass [lbs]
				E ²⁾	F ²⁾	C	L	H	D	B	
1	1/4	2 500	F35107	56	30	32	32	28	12	36	0.55
2	5/16	4 500	F35110	67	37	38	38	33	14	42	0.95
3	3/8	7 100	F35124	81	45	45	44	38	18	48	1.59
5	1/2	12 000	F35139	117	69	60	60	51	24	66	4.19
8	5/8	18 100	F35144	122	67	68	65	61	28	72	6.17

2) for vertical orientation


5.3 TWN 1882



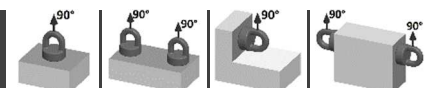

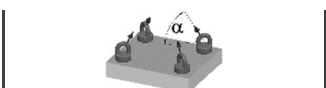
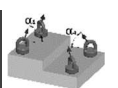
Marking	WLL [lbs]	Article no.	Dimensions [mm]							Mass [lbs]	
			A	B	C	D	E ³⁾	F	H		L
1,5 t	3 300	F352041	65	38	50	13	68	42	26	35	0.93
2,5 t	5 500	F352051	76	45	50	15	73	46	27	42	1.26
4 t	8 800	F352061	85	50	56	17	87	56	31	46	1.87
6,7 t	15 000	F352071	116	68	78	23	122	78	44	63	4.85
10 t	22 600	F352081	130	69	92	27	126	72	54	63	7.39

3) for vertical orientation

5.4 Load table for TWN 0119 and TWN 0124 for different number of legs/lifting points and sling angles

Attachment type												
	Number of legs	1-Leg	2-Legs	1-Leg	2-Legs	2-Legs		2-Legs	3-/4-Legs			3-/4-Legs
Sling angle α	$\alpha=90^\circ \pm 5^\circ$	$\alpha=90^\circ \pm 5^\circ$	$\alpha=90^\circ \pm 5^\circ$	$\alpha=90^\circ \pm 5^\circ$	$30^\circ \leq \alpha < 45^\circ$	$45^\circ \leq \alpha < 60^\circ$	$60^\circ \leq \alpha < 75^\circ$	asym. ⁴⁾	$30^\circ \leq \alpha < 45^\circ$	$45^\circ \leq \alpha < 60^\circ$	$60^\circ \leq \alpha < 75^\circ$	asym. ⁴⁾
Marking	MAXIMUM TOTAL LOAD [lbs] ⁵⁾ #											
1	2 500	5 000	2 500	5 000	2 500	3 500	4 300	2 500	3 800	5 300	6 500	2 500
2	4 500	9 000	4 500	9 000	4 500	6 400	7 800	4 500	6 800	9 500	11 700	4 500
3	7 100	14 200	7 100	14 200	7 100	10 000	12 300	7 100	10 700	15 100	18 400	7 100
5	12 000	24 000	12 000	24 000	12 000	17 000	20 800	12 000	18 000	25 500	31 200	12 000
8	18 100	36 200	18 100	36 200	18 100	25 600	31 400	18 100	27 200	38 400	47 000	18 100
15	34 200	68 400	34 200	68 400	34 200	48 400	59 200	34 200	51 300	72 500	88 900	34 200
32	72 300	144 600	72 300	144 600	72 300	102 200	125 200	72 300	108 500	153 400	187 800	72 300
50	110 200	220 400	110 200	220 400	110 200	155 800	190 900	110 200	165 300	233 800	286 300	110 200

5.5 Load table for TWN 1882 for different number of legs/lifting points and sling angles

Attachment type												
	Number of legs	1-Leg	2-Legs	1-Leg	2-Legs	2-Legs		2-Legs	3-/4-Legs			3-/4-Legs
Sling angle α	$\alpha=90^\circ \pm 5^\circ$	$\alpha=90^\circ \pm 5^\circ$	$\alpha=90^\circ \pm 5^\circ$	$\alpha=90^\circ \pm 5^\circ$	$30^\circ \leq \alpha < 45^\circ$	$45^\circ \leq \alpha < 60^\circ$	$60^\circ \leq \alpha < 75^\circ$	asym. ⁴⁾	$30^\circ \leq \alpha < 45^\circ$	$45^\circ \leq \alpha < 60^\circ$	$60^\circ \leq \alpha < 75^\circ$	asym. ⁴⁾
Marking	MAXIMUM TOTAL LOAD [lbs] ⁵⁾ #											
1,5 t	3 300	6 600	3 300	6 600	3 300	4 700	5 700	3 300	5 000	7 000	8 600	3 300
2,5 t	5 500	11 000	5 500	11 000	5 500	7 800	9 500	5 500	8 300	11 700	14 300	5 500
4 t	8 800	17 600	8 800	17 600	8 800	12 500	15 300	8 800	13 200	18 700	22 900	8 800
6,7 t	15 000	30 000	15 000	30 000	15 000	21 200	26 000	15 000	22 500	31 800	38 900	15 000
10 t	22 600	45 200	22 600	45 200	22 600	32 000	39 100	22 600	33 900	47 900	58 700	22 600

4) Reduced working load limits according to DIN 685-5 (DIN = German institute for standardization) #

5) Without consideration of the used chain slings #

6. MOUNTING/ WELDING INSTRUCTIONS

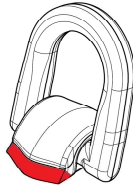
6.1 Preparation

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.

The mounting location for each lifting point has to ensure that

- no areas of danger are created (crushing point, shearing point),
- lifting and moving is not restrained by overhang,
- used lifting means (e.g. hooks) are freely movable and will not be bended,
- incorrect use is avoided,
- the load can take the forces including safety factors safely to be applied without suffering deformation,
- lifting points cannot be damaged,
- lifting points can be used easily.

The positions of the welds are marked red in the adjacent sketch (both sides):



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).

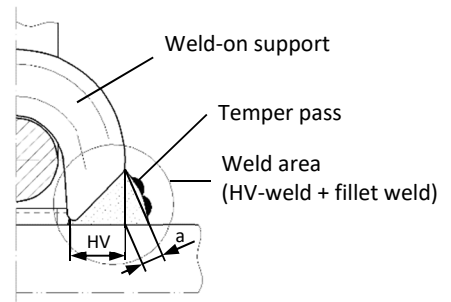
6.2 Welding instructions

Welding Instructions relating to weld-on supports (A 633 Gr. or similar) to be attached to SAE1020, A283C, A570Gr40 or similar components.

The following general Welding Instructions shall be duly followed:

- ISO 2560 Welding consumables – Covered electrodes for manual arc welding of non-alloy and fine grain steel
- ISO 14341 Welding consumables – Wire electrodes and weld deposits for gas shield metal arc welding of non-alloy and fine grain steel
- ISO 3834-2 Quality requirements for fusion welding of metallic materials
- EN 1011-1, 2 Welding – recommendations for welding of metallic materials
- ISO 9606-1 Qualification testing of welders – fusion welding
- DVS 0702-1/0711 Factsheet - Requirements for operation and Personnel
- SEW 088 Weldable unalloyed and low-alloyed steels – Recommendations for processing

Sketch:



6.3 Miscellaneous

1. Minimum notched-bar impact strength values of ISO-V specimens KV = 27 J at -40° F (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 on site must make sure the welding current is correctly adjusted to suit the given welding position.
4. A procedure check is recommended to confirm the selected settings.

6.4 Geometry data weld seams

Type	Marking/ WLL [t]	Minimum length ¹⁾ [mm]	HV-Weld [mm]	Fillet weld a min [mm]	Volume appr. [cm ³]
TWN 0119	1	2 x 32	9	3	2.0
	2	2 x 38	9	3	2.3
	3	2 x 44	10.5	3	3.0
	5	2 x 60	15	4	7.3
	8	2 x 65	17	4	8.5
	15	2 x 109	24	6	25.8
	32	2 x 165	36	16	131
TWN 0124	50	2 x 210	36	22	260
	1	2 x 32	9	3	2.0
	2	2 x 38	9	3	2.3
	3	2 x 44	10.5	3	3.0
	5	2 x 60	15	4	7.3
TWN 1882	8	2 x 65	17	4	8.5
	1,5 t	2 x 35	7.5	3	2.5
	2,5 t	2 x 42	7.5	3	3.0
	4 t	2 x 46	9	3	3.8
	6,7 t	2 x 63	12	4	8.1
	10 t	2 x 63	15	4	9.8

1) corresponds to length L for both sides of the weld-on support



WARNING

Don't 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.



WARNING

**Perform a thorough inspection after welding.
 No cracks, notches, inclusions, pitting or undercuts are allowed.**

6.5 Welding process MAG

Welding process		Metal active gas welding (MAG) EN ISO 9606-1; No. 135		
Welding groove	See sketch, taking into account EN ISO 9692-1			
Quality grade	For all layers according to EN ISO 5817 - C			
Wire electrode	EN ISO 14341-A:2011: ISO 14341-A-G 46 4 M21 3Si1 Possible alternatives must be selected and checked by the welding supervisor on site.			
Welding position	EN ISO 9606-1: PA, PB, PC, PF			
Preheating of parent metal	Thickness \geq 20 mm: 150° C			
Interpass temperature	\leq 400° C			
Postweld heat treatment	Thickness \geq 40 mm: Tempering at 400° C or apply quenching and tempering layer technology			
Pass	Root run	Intermediate run/ Final run	Temper pass	
Wire electrode diameter	1 mm	1,2 mm	1 or 1,2 mm	
Welding current (=)	130 – 200 A	135 – 290 A	See root run or stringer pass.	
Electrode polarity	(= +)	(= +)	Note: The quench and temper layer must only be applied to the weld metal. Contact with the base metal must be avoided.	
Voltage	19 – 25 V	19 – 32 V		
Shield gas ISO 14175; M21	10 – 12 l/min	12 – 14 l/min		
Kind of pass	Stringer pass	Stringer pass		

6.6 Manual welding process MMA

Welding process		Manual metal arc welding (MMA) EN ISO 9606-1; No. 111			
Welding groove	See sketch, taking into account EN ISO 9692-1				
Quality grade	For all layers according to EN ISO 5817 - C				
Wire electrode	EN ISO 2560 A:2010: min. ISO 2560-A-E 38 4 B 42 H5				
Welding position	EN ISO 9606-1: PA, PB, PC, PF				
Preheating of parent metal	Thickness \geq 20 mm: 150° C				
Interpass temperature	\leq 400° C				
Postweld heat treatment	Thickness \geq 40 mm: Tempering at 400° C or apply quenching and tempering layer technology				
Pass	Root run	Final run	Alternative final run	Temper pass	
Wire electrode diameter	2,5 mm	3,2 mm	4,0 mm	2,5 or 3,2 or 4,0 mm	
Welding current (=)	80 – 110 A	100 – 140 A	130 – 180 A	See root run or stringer pass	
Electrode polarity	(= +)	(= +)	(= +)	Note: The quench and temper layer must only be applied to the weld metal. Contact with the base metal must be avoided.	
Voltage	-	-	-		
Shield gas ISO 14175; M21	-	-	-		
Kind of pass	Stringer pass	Stringer pass	Stringer pass		

7. CONDITIONS OF USE

7.1 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 sling may cause higher risk because only two opposite legs carrying the load. Check the working load limit of lifting points and chain sling carefully and chose if necessary bigger sizes.

7.2 Influence of temperature



The permissible working load limit of the lifting points reduces at elevated temperatures.

The reduced working load limits shown in the following table shall only apply for short-term use at the temperatures indicated.

Type	Temperature range	Remaining WLL
TWN 0119 TWN 0124	-40° C \leq t \leq 205° C -40° F \leq t \leq 400° F	100 %
	205° C < t \leq 300° C 400° F < t \leq 572° F	90 %
	300° C < t \leq 400° C 572° F < t \leq 752° F	75 %
TWN 1882	-40° C \leq t \leq 205° C -40° F \leq t \leq 400° F	100 %



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

7.3 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.

7.4 Especially hazardous conditions



The degree of danger when used in offshore applications, 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.



For applications in abrasive blasting environments short inspection intervals must be scheduled. Selecting components of the next greater nominal size will increase the permissible wear allowance.

8. INSPECTION, MAINTENANCE, DISPOSAL

8.1 General



Inspections and maintenance must be arranged by the owner!

Inspection intervals shall be determined by the owner!

Inspections must be regularly carried out and documented by competent persons, 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 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 lifting point before 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,
- restricted hingeability of the ring,
- severe corrosion,
- wear exceeding 10 %, for example in the ring diameter area,
- weld failures.



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).

8.2 Inspection service

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

8.3 Maintenance

**DANGER**
Maintenance and repair work must only be performed by competent and trained 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 must be documented properly.

8.4 Disposal

NOTICE

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

9. STORAGE

Lifting points must to be properly stored in dry conditions at temperatures between 32° F and 104° F.

Do not store in a manner that cause mechanical damage.

10. THIELE OPERATING AND MOUNTING INSTRUCTIONS

NOTICE

Current mounting and operating instructions are available as a PDF download on the homepage.



11. PUBLISHING INFORMATION

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