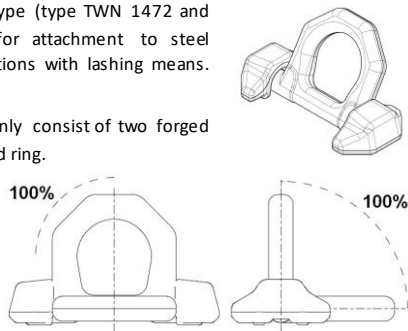


1 DESCRIPTION AND INTENDED USE

THIELE-Lashing points weld-type (type TWN 1472 and TWN 1473) are intended for attachment to steel structures to enable connections with lashing means. (TWN = THIELE standard)

Weld-type lashing points mainly consist of two forged weld-on supports and a forged ring.

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



The rings are marked with the maximum lashing capacity LC in daN (Deka-Newton). (LC = Lashing Capacity)

The rings of TWN 1472 are red powder coated, the rings of TWN 1473 are blue powder coated. The weld-on supports are not coated.

The lashing points feature a safety factor of at least 2 based on the maximum lashing capacity.

Usage for lifting is not permissible!

The lashing points must exclusively be used

- within the limits of their permissible lashing capacity,
- within the temperature limits prescribed,
- with properly laid welding seams.

2 SAFETY NOTES



Risk of Injury!
Make sure to use lashing means free from defects.

- Operators, fitters, and maintenance personnel must in particular observe this Instructions also from the used lashing chain assemblies, documentation DGUV V 1 issued by the German Employers' Liability Insurance Association, as well as the Operating Instructions of the vehicle.
- 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 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 lashing points.
- Only lashing loads the mass of which is less than or equal to the capacity of the lashing points.
- Do not use force when mounting/positioning the lashing points.
- Do not bend the ring.
- Only remove lashing means manually (use your hands).
- In the event of doubts about the use, inspection, maintenance or similar things contact your safety officer or the manufacturer!
- **Transportation of persons is forbidden!**

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

Working under the influence of drugs, medications impairing the sense and/or alcohol (including residual alcohol) is strictly forbidden!

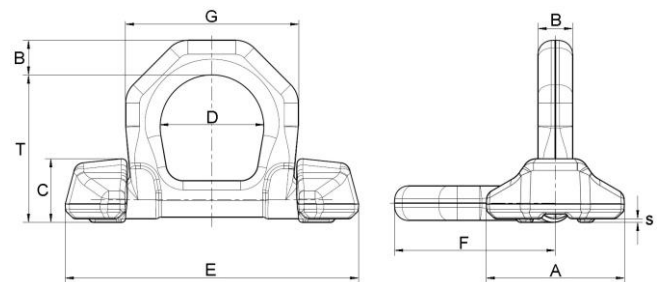
3 COMMISSIONING

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

- the components comply with the order and have not been damaged,
- test certificate, declaration of conformity and operating 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 testing are carried out and documented,
- documentations are safely kept in an orderly manner.

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

4 TECHNICAL DATA



Size	Dimensions [mm]									
	A	B	d1	C	D	E	F	G	T	s
8 000 daN	65	14	16	28	48	134	74	74	70	2
13 500 daN	80	20	22	37	60	170	93	100	85	2

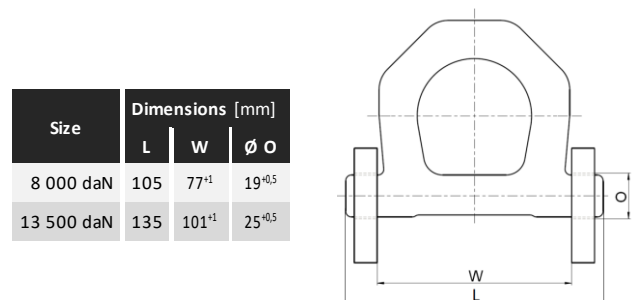
Edition	Size	Selection	Article no. ¹⁾	Mass [kg]
TWN 1472	8 000 daN	COMPLETE	F35200	0,79
		only ring	F352000	0,39
	13 500 daN	COMPLETE	F35201	1,73
		only ring	F352010	0,96
TWN 1473	8 000 daN	COMPLETE	F352001	0,79
		only ring	F352002	0,39
	13 500 daN	COMPLETE	F352011	1,73
		only ring	F352012	0,96

1) Only standard Article Numbers, not for customized editions

Assembly within steel constructions:

Rings can be used separately in steel structures.

Please note the following items:



THIELE is not responsible for the selection of the material or further dimensions of the steel construction

5 WELDING INSTRUCTIONS

5.1 General

Material of the weld-on support: S355NL or S355J2

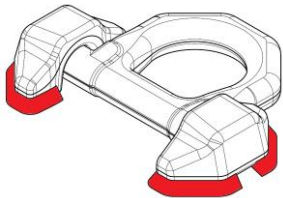
Material of the weld-on joint: C22, S235, S355 or similar

The following general welding instructions must be observed:

- EN ISO 2560 Welding consumables – Covered electrodes for manual arc welding of non-alloy and fine grain steel
- EN 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
- EN 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#

Welding is only permitted by trained and authorised personnel in accordance with the qualification according to EN ISO 9606-1.#

The positions of the welds are marked red in the sketch:



Take care to intermit the weld seam in the center on the outside to enable water to flow out.

Welding on the movable ring is not allowed!

5.2 Preparations

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 mounting place is able to absorb the maximum specified lashing capacity multiplied with a safety factor of 1,25 without safety reducing deformation.

5.3 Requirements

The mounting location for each lashing point has to ensure that

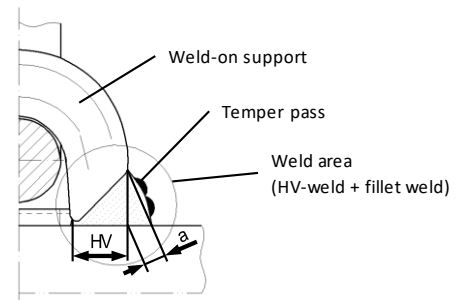
- no areas of danger are created (crushing point, shearing point),
- transportation is not restrained by overhang,
- used lashing means (e.g. hooks) are freely movable and will not be bended,
- lashing accessories will not be bypassed,
- incorrect use is avoided,
- lashing points cannot be damaged,
- they can be reached easily and without obstruction for attaching and detaching the lashing means. #

Observe the welding instructions listed.

The lashing points must be inspected by an expert after welding and before first use. This inspection must be documented.#

5.4 Welding dimensions

Sketch:



Size	Length of weld per support ²⁾ [mm]	HV-weld [mm]	Fillet weld a min. [mm]	Volume per support [cm ³]
8 000 daN	2 x 55	5	4	appr. 4,5
13 500 daN	2 x 75	6	4,5	appr. 7

2) Following the outer contour of a weld-on support

5.5 Welding sequence

1. Check the suitability of the attachment location especially concerning to stability, weldability and a safety use.
2. Position the lashing point and mark the position of the first weld-on support.
3. Fix the first support and make the root run.
4. Clean the root run and make the final runs.
5. Position the ring with one end into the first support and then the second support atop the free end of the ring. Consider and check dimension E.
Fix the second support by tack-welding.
6. Check dimension E and check the ring can move to 180 °.
Readjust the second support if necessary.
7. Weld the second support as the first one.
8. Check a smooth movement of the ring at last.

Do it analogously the same way for an assembly of single rings within a steel construction.

5.6 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 on site must make sure the welding current is correctly adjusted to suit the given welding position. #
4. Check the welds for cracks, inclusions and blowholes.
5. A procedure check is recommended to confirm the selected settings. #

5.8 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 ≥ 20 mm: 150 °C [#]		
Interpass temperature	≤ 400 °C		
Postweld heat treatment	Thickness ≥ 40 mm: Tempering at max. 400 °C ¹⁾ 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	(= +)	(= +)	
Voltage	19 – 25 V	19 – 32 V	Note: The quench and temper layer must only be applied to the weld metal. Contact with the base metal must be avoided. [#]
Shield gas ISO 14175; M21	10 – 12 l/min	12 – 14 l/min	
Kind of pass	Stringer pass	Stringer pass	

1) but not more than 20 °C below the tempering temperature

5.9 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 ²⁾ [#] 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 ≥ 20 mm: 150 °C [#]			
Interpass temperature	≤ 400 °C			
Postweld heat treatment	Thickness ≥ 40 mm: Tempering at max. 400 °C ³⁾ or apply quenching and tempering layer technology [#]			
Pass	Root run	Intermediate 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	(= +)	(= +)	(= +)	
Voltage	-	-	-	Note: The quench and temper layer must only be applied to the weld metal. Contact with the base metal must be avoided. [#]
Shield gas ISO 14175; M21	-	-	-	
Kind of pass	Stringer pass	Stringer pass	Stringer pass	

2) Re-drying according to manufacturer's instructions

3) but not more than 20 °C below the tempering temperature

6 CONDITIONS OF USE

6.1 Normal use

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

6.2 Influence of temperature

The temperature range for use is -20 °C to +200 °C.
If the lashing points have been exposed to temperatures exceeding the maximum values specified they must no longer be used.

6.3 Environmental influence

Lashing 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.

7 INSPECTIONS, MAINTENANCE, DISPOSAL

7.1 Inspections

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 lashing 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 of the lashing points as well as identity details.

Immediately stop using lashing points that show the following defects:

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

7.2 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.

7.3 Disposal

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

7.4 Inspection service

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

8 STORAGE

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

9 THIELE OPERATING AND MOUNTING INSTRUCTIONS

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



10 IMPRINT

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