

# MOUNTING INSTRUCTIONS

## RO/RO LASHING POINT

### TWN 1480

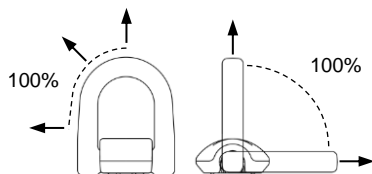


#### 1. DESCRIPTION AND INTENDED USE

The Ro/Ro lashing points 10000 daN in accordance with this THIELE factory standard are intended for load securing, in particular as attachment points on lorries and transport trailers for sea transport on Ro/Ro ships.

The lashing points mainly consist of a forged weld-on support and a forged D-ring. Two springs are integrated to the weld-on support to provide position stabilization and noise reduction when not in use.

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



The lashing points are marked with the lashing capacity LC in daN (Deka-Newton), manufacturers mark and traceability code. (LC = Lashing Capacity)

The D-rings are blue powder coated, the weld-on support is not coated.

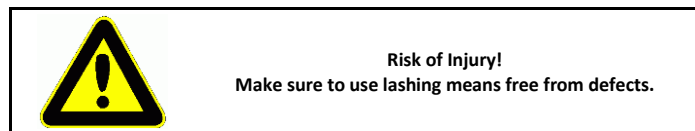
The lashing points feature a safety factor of at least 2 based on the lashing capacity.

Usage for lifting is not permissible!

The lashing points must exclusively be used

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

#### 2. SAFETY NOTES



- Operators, fitters, and maintenance personnel must in particular observe these 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 mounting 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. Also see Chapter 9.
- 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 D-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!**

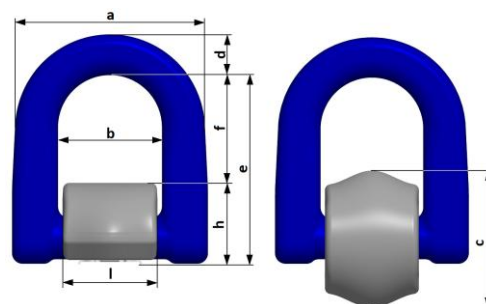
#### 3. COMMISSIONING

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



Lashing capacity	Article no.	Dimensions [mm]								Mass
LC		a	b	c	d	e <sup>1)</sup>	f <sup>1)</sup>	h	l	[kg]
10 000 daN	F35209	127	81	75	22	132	90	42	76	2,41

<sup>1)</sup> for vertical position

#### 5. MOUNTING

##### 5.1 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 specified lashing capacity multiplied with a safety factor of 1,25 without safety reducing deformation.

Make sure there is a sufficiently large area for welding around the weld-on supports.

##### 5.2 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.



### 5.3 Welding notes

Welding instructions for weld-on support (S355NL or similar) to 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.

**Welding on the movable D-ring is not allowed!**

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.

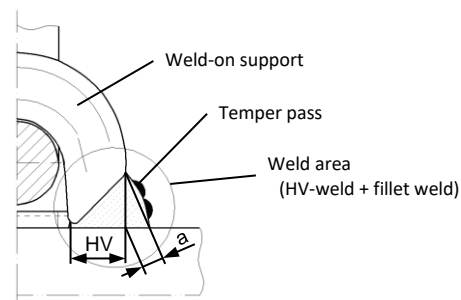
Continue the welding within one heat.

Check the D-ring is free movable after finished welding.

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

This inspection must be documented.

### 5.4 Welding dimensions



Size LC	Length of weld <sup>1)</sup> [mm]	HV-weld [mm]	Fillet weld a <sub>min</sub> [mm]	Volume appr. [cm <sup>3</sup> ]
10 000 daN	2 x 76	8	6	7,5

<sup>1)</sup> Following the outer contour of a weld-on support

### 5.5 Miscellaneous

1. Minimum notched-bar impact strength values of ISO-V specimens KV = 27 J 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.
4. Check the welds for cracks, inclusions and blowholes.
5. A procedure check is recommended to confirm the selected settings.

### 5.6 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 <sup>1)</sup> 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.  Note: The quench and temper layer must only be applied to the weld metal. Contact with the base metal must be avoided.
Electrode polarity	(= +)	(= +)	
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	

<sup>1)</sup> but not more than 20 °C below the tempering temperature



## 5.7 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 <sup>1)</sup> 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 <sup>2)</sup> 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	(= +)	(= +)	(= +)	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	

<sup>1)</sup> Re-drying according to manufacturer's instructions

<sup>2)</sup> but not more than 20 °C below the tempering temperature

## 6. CONDITIONS OF USE

### 6.1 Normal use

The D-rings of the lashing points must always be freely movable.  
They must not rest on or be supported by other structural parts.

### 6.2 Influence of temperature

The temperature range for use is -40 °C to +200 °C.  
If 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 General

Inspections and maintenance must be arranged for by the owner!

Inspection deadlines 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, elongation or breakage of parts,
- cuts, notches, cracks, tears, bruises,
- limited articulation of the D-ring,
- heating beyond permissible limits,
- severe corrosion,
- wear exceeding 10 %, for example in the D-ring diameter area,
- weld failures.

### 7.2 Inspection service

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

### 7.3 Maintenance

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

Minor notches and cracks at the D-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.

### 7.4 Disposal

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

## 8. STORAGE

Lashing points are to be stored in dry locations at temperatures ranging between +5 °C 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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