

Mounting Instructions

Original in compliance with 2006/42/EG

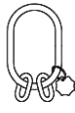


Master Link Assemblies for 3-/4-Leg Slings

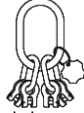
Grades 8 and 10/XL



Master link assembly
3- and 4-leg sling



Oversized master
link assembly



Fixed size master
link assembly
TAA / TAB

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1 Description and Intended Use

Master link assemblies are intended to be built in sling chain assemblies for lifting of loads according to EN 818-4.

They are prevalently used as upper end fittings to connect the sling chain assemblies to the crane hooks.

Fixed size master link assemblies have integrated ringshackles for easy attachments of sling chain and therefore they are predestinated for mounted sling chain assemblies.

These Mounting Instructions apply to following products:

- TWN 0796
Master link assemblies for 3- and 4-leg wire ropes slings according to DIN EN 13414-1
- TWN 0797
Master link assemblies for 3- and 4-leg offshore sling chain assemblies
- TWN 0809, TWN 1809
Master link assemblies for 3- and 4-leg slings chain assemblies
- TWN 0817
Oversized master link assemblies for 3- and 4-leg slings chain assemblies used for crane hooks DIN15401
- TWN 0810/4, TWN 0811/4, TWN 1810/4
Fixed size master link assemblies type TAA and TAB (with ringshackles)

The master link assemblies meet EG Machinery Directive 2006/42/EG requirements and feature a safety factor of at least 4 based on Working Load Limit (WLL).

THIELE master link assemblies 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 WLL must be reduced.

Master link assemblies must exclusively be used

- within the limits of their permissible Working Load Limit,
- within the temperature limits prescribed,
- for permissible attachment methods and inclination angles,
- by trained and authorized persons.

Master link assemblies are as a rule not permitted for the transportation of persons.

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 of the sling chain assembly into which the master link assemblies are to be installed, documentations DGUV V 1, DGUV R 100-500 Chapter 2.8, DGUV R 109-004, DGUV I 209-013 and DGUV I 209-021 issued by the German Employers' Liability Insurance Association as well as standard specifications DIN 685-5, DIN 5688-3, EN 818-4 and EN 818-6.
- 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 Mounting Instructions are available in a place near the product during the time the equipment is used.
- 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 master link assemblies.
- Never expose master link assemblies to loads exceeding the specified Working Load Limit.
- Do not use force when mounting/positioning the master link assemblies.
- Master link assemblies must be allowed to move freely in all tensile directions.
- Avoid bending loads to act on master link assemblies.
- 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.
- Usage of fixed site master link assemblies without working safety elements (dowel pins) is not permissible.
- 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 parts for the first time make sure that

- the parts comply with the order and have not been damaged,
- test certificate, statement of compliance and Mounting Instructions are at hand,
- markings correspond with what is specified in the documentation,
- documentations are safely kept in an orderly manner.

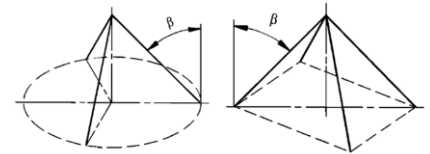
Dispose of the packing in an environmentally compatible way according to local rules.

4 Technical Data

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

WLL = Working Load Limit

For 3- or 4-leg slings the data for WLL are depending on the inclination angle:



4.1 Master Link Assemblies for Wire Ropes TWN 0796, Grade 8

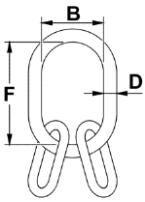
TWN 0796	Rope-Ø ³⁾		Article-no.	WLL [t]		Dimensions [mm]			Mass app. [kg]
	1)	2)		β 0°≤45°	β 45°≤60°	D	F	B	
	11	10	F0796016	2,8	2,0	16	110	60	1,2
	13	12	F0796018	4,0	2,8	18	130	70	1,9
	14	14	F0796022	5,3	3,7	22	160	90	3,1
	18	16	F0796026	7,5	5,3	26	180	100	5,3
	22	20	F0796032	11,1	7,8	32	230	125	9,0
	26	24	F0796036	16,0	11,3	36	250	140	15
	28	28	F0796045	21,0	14,8	45	320	175	24
	36	36	F0796050	31,6	22,3	50	340	190	40
	40	40	F0796056	40,2	28,4	56	380	210	55
	44	44	F0796063	50,1	35,4	63	430	240	79
	60	60	F0796085	102	70	85	520	290	200

1) with fibre core [mm], 2) with steel core [mm], 3) acc. EN 13414-1

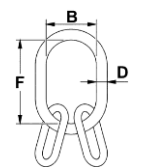
4.2 Master Link Assemblies for Offshore Sling Chain Assemblies TWN 0797, Grade 8

TWN 0797 (Offshore)	Article-no.	WLL [t] 0° ≤ β ≤ 45°	Dimensions [mm]			Mass app. [kg]
			D	F	B	
	F0797268	7,9	26	180	100	5,3
	F0797328	11,3	32	230	125	9,0
	F0797368	16	36	250	140	15
	F0797458	22,6	45	320	175	24,4
	F0797508	26,8	50	340	190	40
	F0797568	40	56	380	210	55
	F0797638	50	63	430	240	79

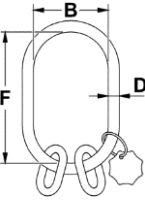
4.3 Master Link Assemblies for Slings Chain Assemblies
TWN 0809, Grade 8

TWN 0809	Nominal size	Article-no.	WLL [t]		Dimensions [mm]			Mass app. [kg]
			β $0^\circ \leq \beta < 45^\circ$	β $45^\circ \leq \beta < 60^\circ$	D	F	B	
	6-8	F0809068	2,36	1,7	16	110	60	0,9
	8-8	F0809088	4,25	3	20	140	80	1,8
	10-8	F0809108	6,7	4,75	26	180	100	3,8
	13-8	F0809138	11,2	8	32	230	125	7,7
	16-8	F0809168	17	11,8	40	290	160	13
	18-8	F0809188	21,2	15	45	320	175	18
	20-8	F0809208	26,5	19	50	340	190	25
	22-8	F0809228	31,5	22,4	50	340	190	28
	26-8	F0809268	45	31,5	63	430	240	49
	28-8	F0809288	50	37,5	63	430	240	49
	32-8	F0809328	67	47,5	80	520	290	86
	36-8	F0809368	85	60	85	520	290	106
	40-8	F0809408	106	75	95	580	320	146
	45-8	F0809458	132	95	110	680	380	223
	50-8	F0809508	160	118	110	680	380	252
	56-8	F0809568	200	150	125	720	400	350

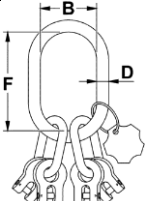
4.4 Master Link Assemblies for Slings Chain Assemblies
TWN 1809, Grade 10/XL

TWN 1809	Nominal size	Article-no.	WLL [t]		Dimensions [mm]			Mass app. [kg]
			β $0^\circ \leq \beta < 45^\circ$	β $45^\circ \leq \beta < 60^\circ$	D	F	B	
	6-10/XL	F180906	3,0	2,12	16	110	60	1,0
	8-10/XL	F180908	5,3	3,75	20	140	80	2,2
	10-10/XL	F180910	8,0	6,0	26	180	100	3,8
	13-10/XL	F180913	14	10	32	230	125	7,7
	16-10/XL	F180916	21,2	15	40	290	160	13
	22-10/XL	F180922	40	28	50	340	190	28

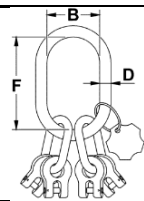
4.5 Oversized Master Link Assemblies Slings Chain Assemblies used for Crane Hooks DIN15401 TWN 0817, Grade 8

TWN 0817	Nom. size	Article-no.	Crane hook no.	WLL [t] $0^\circ \leq \beta < 45^\circ$	Dimensions [mm]			Mass app. [kg]
					D	F	B	
	6-8	F08170616	16	2,36	22	260	140	2,9
	8-8	F08170816	16	4,25	26	260	140	3,9
	10-8	F08171016	16	6,7	30	260	140	5,
	13-8	F08171316	16	11,2	36	250	140	9,43
	16-8	F08171616	16	17	36	250	140	9,4
	6-8	F08170625	25	2,36	24	340	180	4,1
	8-8	F08170825	25	4,25	28	340	180	5,4
	10-8	F08171025	25	6,7	32	340	180	7,7
	13-8	F08171325	25	11,2	40	340	180	11,9
	16-8	F08171625	25	17	40	340	180	13,2
	20-8	F08172025	25	26,5	55	430	220	32,3
	6-8	F08170640	40	2,36	26	430	220	5,7
	8-8	F08170840	40	4,25	30	430	220	7,42
	10-8	F08171040	40	6,7	34	430	220	10,1
	13-8	F08171340	40	11,2	42	430	220	15,5
	16-8	F08171640	40	17	42	430	220	16,8
	18-8	F08171840	40	21,2	48	430	220	23,7
	22-8	F08172240	40	31,5	55	430	220	32,3

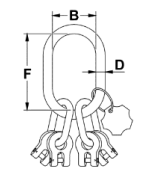
4.6 Fixed Size Master Link Assemblies Type TAA
TWN 0810/4, Grade 8

TWN 0810/4	Nom. size	Article-no.	WLL [t]		Dimensions [mm]			Mass app. [kg]
			β $0^\circ \leq \beta < 45^\circ$	β $45^\circ \leq \beta < 60^\circ$	D	F	B	
	6-8	F08104068	2,36	1,7	16	110	60	1,4
	8-8	F08104088	4,25	3,0	22	160	90	3,1
	10-8	F08104108	6,7	4,75	26	180	100	5,4
	13-8	F08104138	11,2	8,0	32	230	125	11,1
	16-8	F08104168	17,0	11,8	40	290	160	19
	22-8	F08104228	31,5	22,4	50	340	190	43

4.7 Fixed Size Master Link Assemblies Type TAA
TWN 1810/4, Grade 10/XL

TWN 1810/4	Nom. size	Article-no.	WLL [t]		Dimensions [mm]			Mass app. [kg]
			β $0^\circ \leq \beta < 45^\circ$	β $45^\circ \leq \beta < 60^\circ$	D	F	B	
	6-10/XL	F1810406	3,0	2,12	16	110	60	1,4
	8-10/XL	F1810408	5,3	3,75	20	140	80	2,7
	10-10/XL	F1810410	8,0	6,0	26	180	100	5,4
	13-10/XL	F1810413	14	10	32	230	125	11,2
	16-10/XL	F1810416	21,2	15	40	290	160	19,4

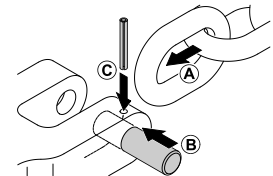
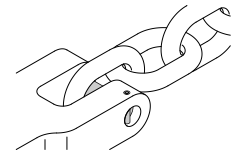
4.8 Fixed Size Master Link Assemblies Type TAB
TWN 0811/4, Grade 8

TWN 0811/4	Nom. size	Article-no.	WLL [t]		Dimensions [mm]			Mass app. [kg]
			β $0^\circ \leq \beta < 45^\circ$	β $45^\circ \leq \beta < 60^\circ$	D	F	B	
	6-8	F08114068	2,36	1,7	16	70	35	1,2
	8-8	F08114088	4,25	3	20	90	45	2,3
	10-8	F08114108	6,7	4,75	22	100	50	4,1
	13-8	F08114138	11,2	8	26	120	60	8,3
	16-8	F08114168	17	11,8	32	140	70	13
	18-8	F08114188	21,2	15	36	160	80	20
	22-8	F08114228	31,5	22,4	40	180	90	32,6

5 Assembly and Disassembly Clevis-type Fastening System
Only chain and component of same nominal size and grade belong together!

Assembly

- If necessary, remove dowel pin and pin.
- (A) Place end of chain leg between the lateral clevis elements.
- (B) Push pin from the side fully into the clevis and through the last chain link of the leg.
- (C) Drive dowel pin fully in (must not project) to secure the pin. The slot must face away from the pin.
- Check the chain runs smoothly!

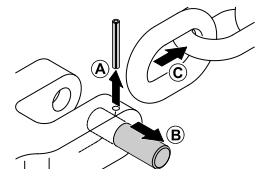


Only connect pins and attachment components of identical quality grades (starting with \varnothing 13 mm the pins are marked on the front end).

The dowel pins must only be installed once.

Disassembly

- Slacken the respective chain.
- (A) Drive dowel pin out using hammer and drift punch.
- (B) Push pin out.
- (C) Remove the chain.



Suitable drift punches are available by Article No. Z03303.

6 Operating

Master link assemblies must not be guided by other parts during operation. They also must not be forced sideways to avoid bending stress. Take care for reduction of Working Load Limits relating to inclination angles β . Data see tables chapter 4.

7 Conditions of Use

7.1 Influence of Temperature

Using master link assemblies at elevated temperatures will cause the Working Load Limit to be reduced as indicated below.

Grade	Temperature range	Remaining WLL
8	-40 °C ≤ 200 °C	100 %
	200 °C ≤ 300 °C	90 %
	300 °C ≤ 400 °C	75 %
10/XL	-30 °C ≤ 200 °C	100 %
	200 °C ≤ 300 °C	90 %
	300 °C ≤ 380 °C	60 %

If the master link assemblies have been exposed to temperatures exceeding the maximum values specified they must no longer be used.

7.2 Environmental Influence

Master link assemblies 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.

7.3 Especially Hazardous Conditions

The degree of danger when used in offshore applications, the lifting of persons or hazardous loads, such as for example liquid metal, or similar risk potentials have to be assessed by a competent person in the form of a risk analysis.

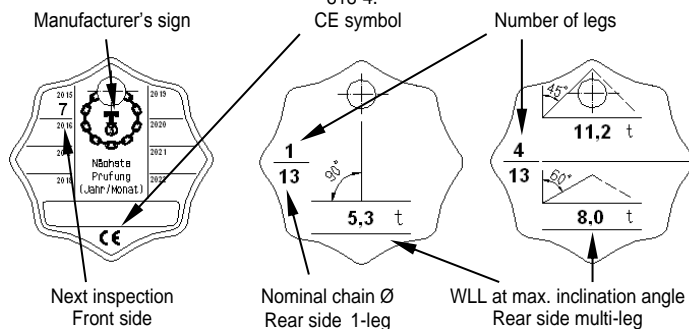
Any additional rules and directives must be followed in this case.

8 Identification/Marking

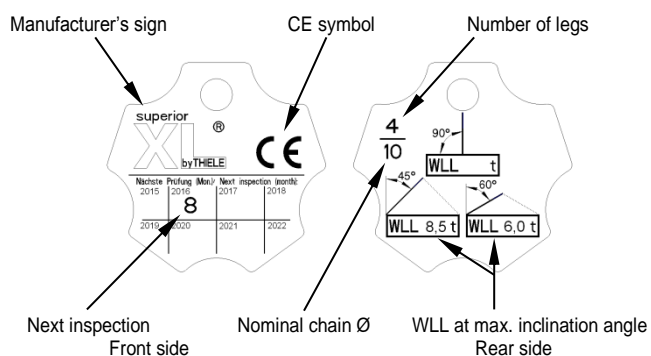
As a rule, an identification tag as prescribed in EN 818-4 is attached to the sling chain assembly adjacent to the master link.

Tags for Quality Grade 8, Example:

Form and color (red) of the tags correspond to requirements set forth in DIN EN 818-4.



Tags for Quality Grade 10/XL (Special Type, Blue Color), Example:



9 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 master link assemblies 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 sling chain assembly is first used. The register will show characteristic data of the chains and components as well as identity details.

Immediately stop using sling chain assemblies that show the following defects:

- missing or illegible identification/markings,
- deformation, elongation or fractures of chains or components,
- cuts, notches, cracks, incipient cracks, pinching,
- parts heated beyond permissible limits,
- severe corrosion,
- reduction of the averaged link thickness by more than 10 % as mean value of measurements taken perpendicularly towards each other,
- missing or damaged dowel pins.

Inspection Service

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

Maintenance and Repair

Maintenance and repair work must only be performed by competent persons. Minor notches and cracks may be eliminated by careful grinding observing the maximum cross section reduction requirement of 10 % and avoid making more severe cuts or scores.

Welded sling chain assemblies must exclusively be repaired by the manufacturer.

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.

10 Spare Parts

Only use original spare parts.

Spare Parts Sets for Clevis-type Fastening System

Consisting of pin and dowel pin

Nominal size	Article-no. Set	Nominal size	Article-no. Set
6-8	F48694	6-10/XL	F48686
8-8	F48352	8-10/XL	F48687
10-8	F48355	10-10/XL	F48688
13-8	F48358	13-10/XL	F48689
16-8	F48361	16-10/XL	F48690
18-8	F48364		
22-8	F48367		

Article Numbers for Tags

Grade	Article-no.	Execution
8	F08040	without welded ring
	F08042	with welded ring
10/XL	F08052	without welded ring
	F08053	with welded ring

11 Storage

Make sure sling chain components are stored in dry locations at temperatures ranging between 0 °C and +40 °C.

12 Publishing Information

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#' Changes to previous edition.