



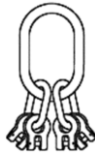
Master link assemblies
3- and 4-leg sling

TWN 0797
 TWN 1304
 TWN 1315
 TWN 1804
 TWN 1815



Oversized master
link assemblies

TWN 0817



Fixed size master
link assemblies
TAA / TAB

TWN 0810/4
 TWN 0811/4
 TWN 1810/4

Chains and accessories marked with the American nominal size 7/32" already corresponded to the European nominal size 6 mm. In order to achieve a better match, the previous nominal size 7/32" is now converted to the new nominal size 15/64". The Working Load Limits have now also been adjusted.


DEFINITIONS


Clevis

A U-shaped fitting with pin.

Working Load Limit (WLL)


The maximum load which a chain sling or component is designed to support.




 **WARNING**

The following Mounting Instructions must always be followed to avoid the risk of personal injury or property damage.

Do not use a master link for 3- and 4-leg chain slings before reading these Mounting Instructions.



 **NOTICE**


Read ASME B30.9 „Slings“, Chapters 9-0 and 9-1.
 Read ASME B30.26 “Rigging Hardware”, Chapters 26-0, 26-1, 26-4.


1. ABOUT THIS INSTRUCTION


This Mounting Instructions describe in particular how master links for 3- and 4-leg chain slings according to several TWN (TWN = THIELE Shop 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 master link for 3- and 4-leg chain slings.

 **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.

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!

Only use master links as well as lifting and attachment means free from defects!

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

SAFETY INSTRUCTIONS

- Operators, fitters and maintenance personnel must in particular observe the Operating and Mounting Instructions as well as standards ASTM A 906/A 906 M (Standard Specification for Grade 80 and Grade 100 Alloy Steel Chain Slings for Overhead Lifting), ASTM A 952/A 952 M (Standard Specification for Forged Grade 80 and Grade 100 Steel Lifting Components and Welded Attachment Links), ISO 3056 (Non-calibrated round steel link lifting chain and chain slings; Use and maintenance), ISO 7593 (Chain slings assembled by methods other than welding; Grade T(8)) and ISO 4778 (Round steel short link chains for lifting purposes – Chains slings of welded construction – Grade 8).

**SAFETY
INSTRUCTIONS**

- 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 master links.
- 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 13.
- 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 master links.
- Never expose master links or master link assemblies to loads exceeding the specified Working Load Limit.
- Do not use force when mounting/positioning the master links.
- Avoid bending loads to act on master links.
- Only lift loads that are freely movable and not attached or fastened.
- Always monitor a suspended load.
- Master links must be allowed to move freely in all tensile directions.
- 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 make sure your hands or other body parts do not come into contact with lifting means. Only remove lifting means manually (use your hands).
- Avoid impacts, e.g. due to abruptly lifting loads with chain in slack condition.
- Usage of fixed size master link assemblies without working safety elements (dowel pins) is not permissible.

- Put the load only down in flat places/sites where it can be safely deposited.
- 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, chain master links for 3- and 4-leg chain slings are not permitted for the transportation of persons.

3. DESCRIPTION AND INTENDED USE

Master link assemblies and fixed size master link assemblies are exclusively intended for the usage in chain sling assemblies according to ASTM A 906/A 906M.

They are prevalently used as upper end fittings to connect the sling chain assemblies to the crane hooks or are used as bottom end fittings to be assembled together with shackles to carry the load.

Fixed size master links have integrated ringshackles to easily attach sling chains and therefore they are predestinated for mounted sling chain assemblies.

These Mounting Instructions apply to following products:

- TWN 0797, TWN 1304, TWN 1315, TWN 1804, TWN 1815:
Master link assemblies for chains and wire ropes
- TWN 1817:
Oversized master link assemblies for crane hooks DIN15401
- TWN 0810/4, TWN 1810/4:
Fixed size master link assemblies type TAA
- TWN 0811/4:
Fixed size master link assemblies type TAB



Master link assemblies and fixed size master links must exclusively be used

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

Failure to do so may cause serious injury or property damage.

The master links and fixed size master links meet EG Machinery Directive 2006/42/EG requirements and feature a safety factor of at least 4 based on Working Load Limit.

They are signed with the corresponding chain size, grade, manufacturer's symbol and traceability code.

THIELE master links and fixed size master links 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, magnets) the WLL must be reduced.

4. COMMISSIONING

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

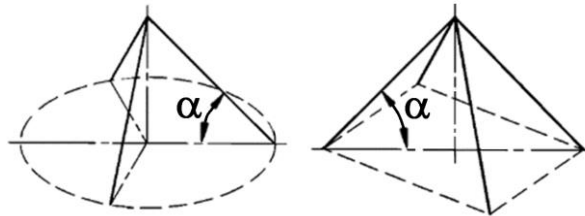
- the parts comply with the order and have not been damaged,
- test certificate, statement of compliance and Mounting Instructions are at hand,
- markings correspond with what is specified in the documentation,
- inspection deadlines and the qualified persons for examinations are determined,
- visibility and functional testings 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.

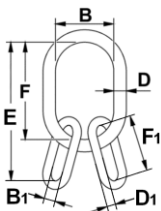
5. TECHNICAL DATA

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

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

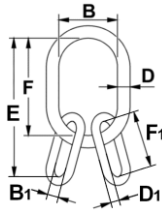


5.1 Master Link Assemblies for Offshore Chain Slings, TWN 0797, Grade 80



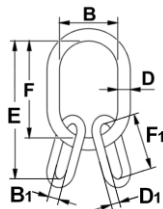
Nominal Size	Article No.	WLL [lbs.]					Dimensions [mm]						Mass [lbs.]	
		$\alpha = 45^\circ$	$\alpha = 60^\circ$	$\alpha = 65^\circ$	$\alpha = 70^\circ$	$\alpha = 75^\circ$	E	D	F	B	D ₁	F ₁		B ₁
1 7/8	F0797268	17,400	17,600	17,600	17,600	17,600	340	26	180	100	22	160	90	11.68
1 ¼ 1	F0797328	24,900	26,900	26,900	26,900	26,900	410	32	230	125	26	180	100	19.8
1 27/64 1 ¼	F0797368	35,300	35,300	35,300	35,300	35,300	480	36	250	140	32	230	125	33.1
1 25/32 1 27/64	F0797458	49,800	54,000	55,100	55,100	55,100	570	45	320	175	36	250	140	53.8
1 31/32 1 25/32	F0797508	59,100	64,100	68,600	68,600	68,600	660	50	340	190	45	320	175	88.2
2 7/32 1 31/32	F0797568	88,200	88,200	88,200	88,200	88,200	720	56	380	210	50	340	190	121
2 1/64 2 7/32	F0797638	110,200	110,200	110,200	110,200	110,200	810	63	430	240	56	380	210	174

5.2 Master Link Assemblies, TWN 1304, Grade 80



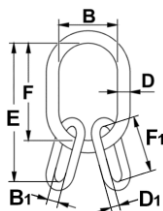
Nominal Size	Article No.	WLL [lbs.] 60° ≤ α < 90°	Dimensions [mm]							Mass [lbs.]
			E	D	F	B	D ₁	F ₁	B ₁	
15/64	F1304016	7,300	156	16	110	60	10	46	23	1,58
9/32	F1304018	9,500	190	18	130	70	13	60	30	2,65
5/16	F1304020	11,800	200	20	140	80	13	60	30	3,26
3/8	F1304026	20,100	265	26	180	100	18	85	40	7,51
1/2	F1304032	31,200	330	32	230	125	22	100	50	14,1
5/8	F1304040	47,000	410	40	290	160	26	120	60	26,5
3/4	F1304050	75,400	500	50	340	190	36	160	80	54,3
7/8	F1304056	95,700	540	56	380	210	36	160	80	68,6
1	F1304063	124,000	610	63	430	240	40	180	90	97,4
1 ¼	F1304080	196,000	740	80	520	290	50	220	110	190
1 27/64	F1304085	238,000	780	85	520	290	56	260	130	232
1 37/64	F1304110	306,000	960	110	680	380	63	280	140	450

5.3 Master Link Assemblies, TWN 1315 for Ropes, Grade 80



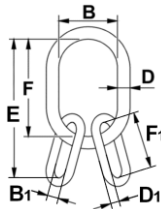
Article No.	WLL [lbs.] 45° ≤ α < 90°	Dimensions [mm]							Mass [lbs.]
		E	D	F	B	D ₁	F ₁	B ₁	
F1315016	6,200	200	16	110	60	13	90	50	2.43
F1315018	8,800	240	18	130	70	16	110	60	4.19
F1315022	11,700	290	22	160	90	18	130	70	6.83
F1315026	16,500	340	26	180	100	22	160	90	11.7
F1315032	24,500	410	32	230	125	26	180	100	19.8
F1315036	35,300	480	36	250	140	32	230	125	33.1
F1315045	46,300	570	45	320	175	36	250	140	52.9
F1315050	69,700	660	50	340	190	45	320	175	88.2
F1315056	88,600	720	56	380	210	50	340	190	121
F1315063	110,500	810	63	430	240	56	380	210	174
F1315085	224,400	1,040	85	520	290	80	520	290	441

5.4 Master Link Assemblies, TWN 1804, Grade 100



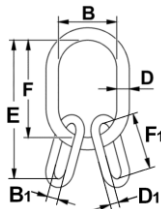
Nominal Size	Article No.	WLL [lbs.] 60° ≤ α < 90°	Dimensions [mm]							Mass [lbs.]
			E	D	F	B	D ₁	F ₁	B ₁	
15/64	F1804016	9,700	170	16	110	60	13	60	30	1.98
9/32	F1804018	11,900	190	18	130	70	13	60	30	2.65
5/16	F1804020	15,000	210	20	140	80	16	70	35	3.97
3/8	F1804026	25,100	270	26	180	100	20	90	45	8.38
1/2	F1804032	39,000	350	32	230	125	26	120	60	16.8
5/8	F1804040	58,800	420	40	290	160	28	130	65	28.7
3/4	F1804050	94,100	500	50	340	190	36	160	80	55.1
7/8	F1804056	120,000	560	56	380	210	40	180	90	77.2
1	F1804063	155,000	630	63	430	240	45	200	100	110
1 ¼	F1804080	244,000	740	80	520	290	50	220	110	190

5.5 Master Link Assemblies, TWN 1815, Grade 100



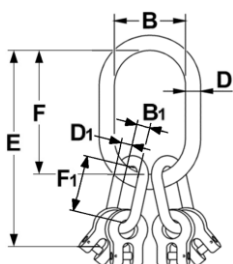
Article No.	WLL [lbs.] 45° ≤ α < 90°	Dimensions [mm]							Mass [lbs.]
		E	D	F	B	D ₁	F ₁	B ₁	
F1815016	7,700	200	16	110	60	13	90	50	2.43
F1815018	11,000	240	18	130	70	16	110	60	4.19
F1815022	14,500	290	22	160	90	18	130	70	6.83
F1815026	20,500	340	26	180	100	22	160	90	11.7
F1815032	30,600	410	32	230	125	26	180	100	19.8
F1815036	44,100	480	36	250	140	32	230	125	33.1
F1815045	58,000	570	45	320	175	36	250	140	52.9
F1815050	88,200	660	50	340	190	45	320	175	88.2
F1815056	110,600	720	56	380	210	50	340	190	121
F1815063	138,000	810	63	430	240	56	380	210	174
F1815085	280,300	1040	85	520	290	80	520	290	441

5.6 Oversized Master Link Assemblies Sling for Crane Hooks DIN 15401, TWN 0817, Grade 80



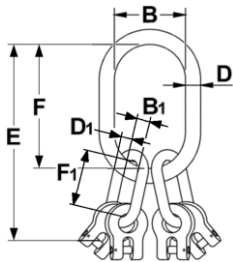
Nominal Size	Crane Hook No.	Article No.	WLL [lbs.] 45° ≤ α < 90°	Dimensions [mm]							Mass [lbs.]
				E	D	F	B	D ₁	F ₁	B ₁	
15/64	16	F08170616	5,200	330	22	260	140	16	70	35	6.61
15/64	25	F08170625	5,200	410	24	340	180	16	70	35	9.04
15/64	40	F08170640	5,200	500	26	430	220	16	70	35	12.6
5/16	16	F08170816	9,400	330	26	260	140	16	70	35	8.60
5/16	25	F08170825	9,400	410	28	340	180	16	70	35	11.9
5/16	40	F08170840	9,400	500	30	430	220	16	70	35	16.3
3/8	16	F08171016	14,800	350	30	260	140	20	90	45	12.6
3/8	25	F08171025	14,800	430	32	340	180	20	90	45	17.0
3/8	40	F08171040	14,800	520	34	430	220	20	90	45	22.3
1/2	16	F08171316	24,700	370	36	250	140	26	120	60	22.7
1/2	25	F08171325	24,700	440	40	340	180	22	100	50	26.4
1/2	40	F08171340	24,700	530	42	430	220	22	100	50	34.2
5/8	16	F08171616	37,500	370	36	250	140	26	120	60	20.7
5/8	25	F08171625	37,500	460	40	340	180	26	120	60	29.1
5/8	40	F08171640	37,500	550	42	430	220	26	120	60	37.0
3/4	25	F08172025	58,400	590	55	430	220	36	160	80	71.2
7/8	40	F08172240	69,400	590	55	430	220	36	160	80	71.2

5.7 Fixed Size Master Link Assemblies Type TAA, TWN 0810/4, Grade 80



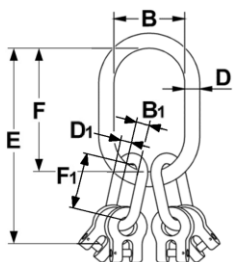
Nominal Size	Article No.	WLL [lbs.]			Dimensions [mm]							Mass [lbs.]
		60° ≤ α < 90°	45° ≤ α < 60°	30° ≤ α < 45°	E	D	F	B	D ₁	F ₁	B ₁	
15/64	F08104068	6,400	5,200	3,700	201	16	110	60	13	60	13	3.09
5/16	F08104088	11,700	9,500	6,800	267	22	160	90	16	70	35	6.83
3/8	F08104108	18,400	15,100	10,600	316	26	180	100	20	90	45	11.9
1/2	F08104138	31,200	25,500	18,000	409	32	230	125	26	120	60	24
5/8	F08104168	47,000	38,400	27,100	495	40	290	160	28	130	60	42
7/8	F08104228	88,900	72,500	51,300	620	50	340	190	40	180	90	95

5.8 Fixed Size Master Link Assemblies Type TAA, TWN 1810/4, Grade 100



Nominal Size	Article No.	WLL [lbs.]			Dimensions [mm]							Mass [lbs.]
		$60^\circ \leq \alpha < 90^\circ$	$45^\circ \leq \alpha < 60^\circ$	$30^\circ \leq \alpha < 45^\circ$	E	D	F	B	D ₁	F ₁	B ₁	
15/64	F1810406	8,000	6,600	4,600	201	16	110	60	13	60	30	3.08
5/16	F1810408	14,800	12,100	8,500	247	20	140	80	16	70	35	5.95
3/8	F1810410	22,900	18,700	13,200	316	26	180	100	20	90	45	11.9
1/2	F1810413	39,000	31,800	22,500	409	32	230	125	26	120	60	24.7
5/8	F1810416	58,700	47,900	33,900	495	40	290	160	28	130	65	42.8

5.9 Fixed Size Master Link Assemblies Type TAB, TWN 0811/4, Grade 80



Nominal Size	Article No.	WLL [lbs.]			Dimensions [mm]							Mass [lbs.]
		$60^\circ \leq \alpha < 90^\circ$	$45^\circ \leq \alpha < 60^\circ$	$30^\circ \leq \alpha < 45^\circ$	E	D	F	B	D ₁	F ₁	B ₁	
15/64	F08114068	6,400	5,200	3,700	161	16	70	35	13	60	30	2.65
5/16	F08114088	11,700	9,500	6,800	197	20	90	45	16	70	75	5.05
3/8	F08114108	18,400	15,100	10,600	236	22	100	50	20	90	45	8.97
1/2	F08114138	31,200	25,500	18,000	299	26	120	60	26	12	60	18.3
5/8	F08114168	47,000	38,400	27,100	345	32	140	70	28	130	65	28.9
7/8	F08114228	88,900	72,500	51,300	460	40	180	90	40	180	90	71.9

6. ASSEMBLY AND DISASSEMBLY OF CLEVIS-TYPE FASTENING SYSTEMS

6.1 Preparations

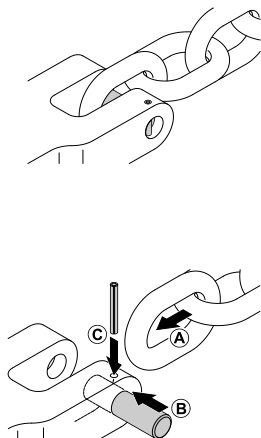
All components to be installed or used must be in perfect condition and the relevant Working Load Limits of all parts must accommodate the respective load to be handled.

6.2 Clevis Fastening System

The clevis fastening system only permits attachment of the nominal chain size that suits the attachment component.

6.2.1 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.



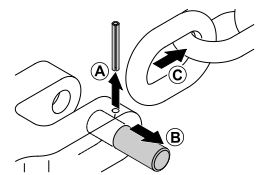
WARNING
 Check whether the chain runs smoothly.

The dowel pins must only be installed once.

Only connect pins and attachment components of identical grades. Starting with $\varnothing \frac{1}{2}$ " the pins are marked on the front end.

6.2.2 DISASSEMBLY

- Slacken the respective chain leg.
- (A) Drive dowel pin out using hammer and drift punch ¹⁾.
- (B) Push pin out using a drift punch.
- (C) Remove the chain.



1) Suitable drift punches are available by Article No. Z03303.

7. CONDITIONS OF USE

7.1 General

Master links and fixed size master links 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 sling angles α . Data see tables in chapter 5.

7.2 Influence of Temperature



The respective temperature range limits must be considered for all components used.

Using master links for 3- and 4-leg chain slings and fixed sized master link assemblies in high temperatures will cause the Working Load Limit to be reduced as indicated below.

	Temperature range	Remaining WLL
Grade 80	-40 °C ≤ t ≤ 205 °C -40 °F ≤ t ≤ 400 °F	100 %
	205 °C < t ≤ 300 °C 400 °F < t ≤ 572 °F	90 %
	300 °C < t ≤ 400 °C 572 °F < t ≤ 752 °F	75 %
	-40 °C ≤ t ≤ 205 °C -40 °F ≤ t ≤ 400 °F	100 %
Grade 100	-40 °C ≤ t ≤ 205 °C -40 °F ≤ t ≤ 400 °F	100 %



If the link components have been exposed to temperatures exceeding the maximum values specified they must not be used furthermore.

7.3 Environmental Influence



Master links for 3- and 4-leg chain slings and fixed sized master link assemblies must not be used in environments where acids, aggressive or corrosive chemicals or their fumes are present. Hot-dip galvanizing or galvanic treatment is prohibited as well.

7.4 Special 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 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.



Short inspection intervals must be scheduled for abrasive blasting environments. Selecting a welded sling chain assembly of the next greater nominal size will increase the permissible wear allowance.

Components with clevis are not intended for applications in abrasive blasting environments.

8. IDENTIFICATION/MARKING

As a rule, an identification tag is attached to the master links for 3- and 4-leg chain slings adjacent to the master link.

9. INSPECTION, MAINTENANCE, DISPOSAL

9.1 General



Inspections and maintenance must be arranged by the Owner!

Inspection intervals shall be determined by the Owner!

Visual inspections must be regularly carried out and documented by competent and trained persons, at least once a year or more frequently if the parts 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 component before first use. The register shall show characteristic data of the parts as well as identity details.

MOUNTING INSTRUCTIONS

MASTER LINKS FOR 3- AND 4-LEG CHAIN SLINGS

GRADES 80 AND 100



Immediately stop using master links for 3- and 4-leg chain slings that show the following defects:

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



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).

9.2 Inspection Service

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

9.3 Maintenance and Repair



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

All maintenance and repair activities are to be documented properly.

9.4 Disposal



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

10. SPARE PARTS



Use only original spare parts.

Sets consist of pin and dowel pin.

Nominal Size	Article No.	Nominal Size	Article No.
15/64	F48694	15/64	F48686
5/16	F48352	5/16	F48687
3/8	F48355	3/8	F48688
1/2	F48358	1/2	F48689
5/8	F48361	5/8	F48690
7/8	F48367		

11. STORAGE



Master links for 3- and 4-leg chain slings must be stored properly sorted and in dry conditions at temperatures between 32 °F and 104 °F.

Do not store in a manner that cause mechanical damage.

12. THIELE OPERATING AND MOUNTING INSTRUCTIONS



Current operating and installation instructions are available as a PDF download on the THIELE-website www.thiele.de.



13. PUBLISHING INFORMATION

Distributor:

KWS Inc.

P.O. Box 470487, Tulsa, OK 74147, USA

Phone number 800-872-9313

Fax number +1 918-665-4118

Email sales@kwschain.com

Manufacturer:

THIELE GmbH & Co. KG

Werkstraße 3, 58640 Iserlohn, Germany

Phone number +49 2371/947-0

Fax number +49 2371/947-241

Email info@thiele.de