

## Instructions for use

Original version acc. to 2006/42/EG



## Combination shortening clutch

**TWN 1353** grade 8

**TWN 1853** grades 10/XL

Manufacturer:

THIELE GmbH & Co. KG

Tel: +49 (0) 2371 / 947 - 0

58640 Iserlohn

www.thiele.de



### 1 Description and purpose

THIELE combination shortening clutches are designed for shortening individual sling chains in accordance with EN 818-4 or lashing chains in accordance with EN 12195. Combination shortening clutches meet the requirements of DIN 5692. They can be used to create a non-permanent connection at any point along the chain strand. They are symmetrical in construction.

The combination shortening clutch must only be used:

- within the permissible loading capacity
- in compliance with the permitted sling configuration and angle
- within the permissible temperature limits
- by trained and authorised persons.

Combination shortening clutches must only be employed with a loaded sling. Shortening clutches of type TWN 1353 and TWN 1853 (TWN = THIELE Factory Standard) must only be used with chains in accordance with the nominal size and grade stamped on the clutch body.

Pay particular attention to the operating instructions when using combination shortening clutches on slings and lifting tackle. This applies especially to the load bearing capacity as a function of the number of slings and the angle of slope. The weakest member will determine the load capacity of the entire sling assembly.

THIELE combination shortening clutches can also be used in lashing chains in accordance with EN 12195. The maximum lashing force is obtained by doubling the load rating.

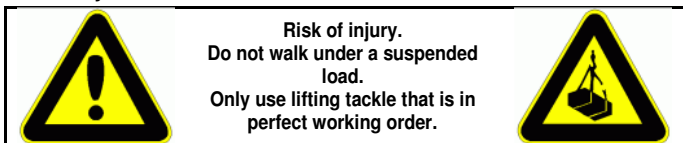
Do not alternate between lifting and lashing applications.

Combination shortening clutches are not approved for transporting persons.

THIELE combination shortening clutches are certified by the Professional Association and bear the H4 stamp. Combination shortening clutches are stamped with the CE marking as required under the provisions of the European Machinery Directive. They have a design factor of 4 in relation to their load rating.

THIELE combination shortening clutches are designed to withstand 20,000 dynamic load cycles at maximum loading capacity. For higher workloads (e.g. multi-shift and automated operations) the loading capacity is to be reduced accordingly. Combination shortening clutches are marked with the nominal chain size and grade, the manufacturer's mark and the identification number.

### 2 Safety information



- Operators, fitters and maintenance engineers are to pay particular attention to the operating instructions for the suspension gear to which the combination clutches are attached, as well as to the relevant Professional Association documents DGUV V 1, DGUV R 100-500 section 2.8, DGUV I 209-013 and DGUV I 209-021 and to technical standards DIN 685-5 and DIN EN 818-6.
- When working outside Germany it is also essential to comply with the national regulations in the country of use.
- The information relating to safety, fitting, operating, testing and maintenance, as provided in these instructions and in the documents mentioned, is to be made available to all relevant personnel.
- Ensure that these instructions are kept in the vicinity of the product during the period of usage. Contact the manufacturer if replacement copies are required.
- Always wear your personal protective equipment when working.
- **Incorrect fitting and use can result in personal injury and material damage.**
- Assembly, dismantling, testing and maintenance work must only be carried out by trained and authorised persons.
- Structural modifications (e.g. welding, detachment of parts, drilling) are not permitted.

- Never attempt to reduce the size of the opening on the combination clutch by bending or by welding in a spacer piece.
- Visually inspect the equipment before each use.
- Worn, bent or damaged clutches should not be employed.
- Never exceed the combination clutch's specified loading capacity.
- Do not force the combination clutch into position.
- Do not twist or knot the chains.
- Avoid sharp edges. Use edge protectors or reduce the loading capacity by 20%.
- When employing multi-strand chain slings avoid sling angles of less than 15° and do not set angles greater than 60°.
- Do not subject the chain links and other components to bending stress.
- Lifting should only be commenced when the load has been properly attached.
- Ensure that you and others remain outside the range of movement of the load (danger area).
- When loads are being lifted keep hands and other parts of the body away from the sling assembly.
- Avoid shock loads, e.g. caused by pulling the load from a slack chain.
- Never lift the load over the heads of other persons.
- Never cause a suspended load to swing.
- Suspended loads are to be supervised at all times.
- Only set loads down in appropriate places.
- Do not tuck parts of the sling assembly in below the load.
- Do not operate the system without fully functioning safety devices (cotters, spring pins, locking pins).
- The shortened section of chain should not be loaded and must not be used as a ring chain.
- The section of chain resting in the lower part of the shortening clutch must never be loaded on both sides.
- Combination shortening clutches must be free to orient themselves in the direction of loading.
- Consult your safety officer or the manufacturer if you are in any way uncertain about the proper use, testing or maintenance etc. of the equipment.

**THIELE cannot be held liable for damage resulting from a failure to observe the regulations, standards and other information relating to this equipment.**

**THIELE does not give general approval for components supplied by other manufacturers to be fitted to and used on equipment of grade 10/XL.**

**It is expressly forbidden to carry out slinging and lashing operations when under the influence of drugs or alcohol (including residual alcohol).**

### 3 Initial commissioning

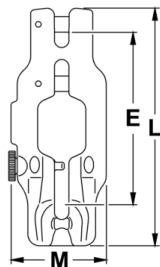
When using the equipment for the first time ensure that

- the components are as ordered and are undamaged
- test certificate, declaration of conformity and fitting instructions are included
- markings and documents are matching
- all related documents are properly stored in a safe place.

Dispose of all packaging material according to local environmental regulations.

#### 4 Technical data

The tables refer to standard product codes and data only. No individual customer specifications are shown.



##### 4.1 TWN 1353

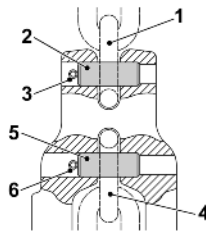
nominal size	product code	load rating [t]	dimensions [mm]			weight approx. [kg]
			E	L	M	
6-8	F349145	1.12	107	118	47	0.4
8-8	F349245	2.0	143	158	63	0.85
10-8	F349345	3.15	177	194	78	1.6
13-8	F349445	5.3	231	252	100	3.4
16-8	F349545	8.0	248	291	157	5.2
22-8	F349805	15.0	365	396	162	13.6

##### 4.2 TWN 1853

nominal size	product code	load rating [t]	dimensions [mm]			Weight approx. [kg]
			E	L	M	
6-10/XL	F349155	1.4	107	118	47	0.4
8-10/XL	F349255	2.5	143	158	63	0.85
10-10/XL	F349355	4.0	177	194	78	1.6
13-10/XL	F349455	6.7	231	252	100	3.4
16-10/XL	F349555	10.0	248	291	157	5.2
22-10/XL	F349845	19.0	365	396	162	13.6

#### 5 Fitting and removal

1. Insert the end of the chain (1) between the upper clevis sides.
2. Slide clevis pin (2) into the clevis and pass it through the final link of the chain until it reaches the stop.
3. Drive home the spring pin (3) into its seat. Ensure that it does not protrude and that the slot faces away from the clevis pin.
4. Take the end (4) of the chain that is to be shortened and pass it between the middle clevis sides.
5. Slide pin (5) into the clevis and pass it through the final link of the chain until it reaches the stop.
6. Drive home the spring pin (6) into the retainers. Ensure that the spring pin sits flush and that the slot faces away from the clevis pin.
7. Check that the chain is free to move.



#### Removal

Removal is carried out in the reverse order to fitting. If necessary use a mandrel to drive out the spring pins.

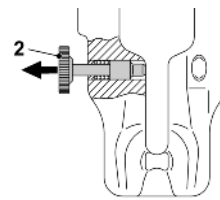
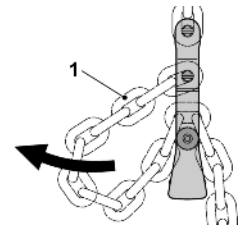
**Clevis pin and spring pins are intended for one-off use only.**

#### 6 Storage

Store the product in a dry condition at temperatures of between 0 and 40 °C.

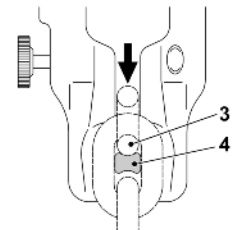
#### 7 Operation

1. Pull the required length of chain (1) through the opening in the shortening clutch and towards the side facing away from the strand of chain leading to the load.

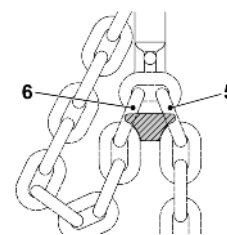


2. Release the shortening clutch by pulling out on the latch (2).

3. Hold the latch open and insert the vertical link (3) selected for the shortening process into the clutch.



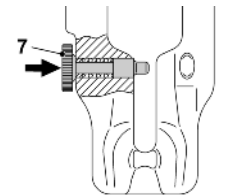
4. The chain link following the selected link (3) is supported in the chain bed and is centred by the pin (4).



5. Lay the chain strand (5) on one side of the shortening clutch and place the shortened length of chain (6) into the holder on the other side.

6. Lock the shortening clutch by releasing the latch (7).

7. Check that the chain links are correctly seated in the shortening clutch and that the latch is locking properly.



#### 8 Operating conditions

Shortening individual strands of chain in a multi-chain sling indicates a non-symmetrical distribution of load. Be aware of the reduction in loading capacity in such cases.

The locking/securing devices are not to be placed under stress during normal operation.

##### 8.1 Temperature effects

Any components that have been heated up above the maximum operating temperatures should be withdrawn from service.

The operating temperature for combination shortening clutches is as follows

Grade 8: -40 °C to +200 °C

Grade 10/XL: -30 °C to +200 °C

##### 8.2 Environmental influence

It is not permitted to use the clutch in an environment where acids, aggressive or corrosive chemicals or their vapours are present.

#### 9 Testing, maintenance and disposal

It is the operator's responsibility to ensure that all testing and maintenance is properly carried out.

The operator is to schedule the test cycles.

The equipment is to be tested regularly, and at least once a year, by a competent person, and the results recorded. This frequency is to be increased for heavy-duty applications. An additional test to verify that no cracks are present must be carried out within a period of three years. Load tests are no substitute for these condition tests.

The condition of each piece of slinging equipment is to be recorded during every test.

The tests are to be entered in a file (DGUV I 209-062 or DGUV I 209-063) that is to be set up when the shortening clutches are first commissioned. This file should contain the characteristic data along with proof of identity.

If any of the following defects are present the shortening clutch should be withdrawn from service immediately:

- illegible or missing markings
- deformation, cuts, gouges, splits or cracks
- wear, e.g. if more than 10% of the pin diameter
- locking latch defective
- exposure to heat above the permitted range
- severe corrosion, illegible markings.
- Any cleaning (e.g. prior to testing) should not be carried out with burning equipment or using any process that could lead to hydrogen embrittlement (such as pickling or dipping in acid solutions).

#### Maintenance

Maintenance work should only be undertaken by competent persons.

Small indentations and cracks can be carefully removed by grinding, bearing in mind the maximum permitted 10% reduction in cross section and the need to avoid any gouges or notches.

All maintenance work must be documented.

#### Testing service

THIELE can provide qualified and trained personnel to carry out testing and maintenance work on chain slinging equipment and accessories.

#### Disposal

Steel components and attachments that have reached the end of their useful life are to be recycled in accordance with local regulations.

### 10 Replacement parts

Only use original spare parts.

One spares set consists of two clevis pins and two spring pins.

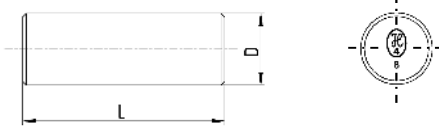
If the spring pins are of different size always use the longer for the clevis.

The clevis pins are galvanised and blue passivated, the spring pins are zinc flake coated.

Clevis pins of diameter 13 mm and above are stamped with the H4 marking and grade.

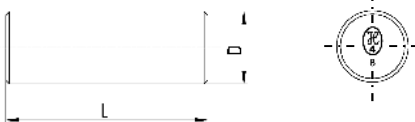
The locking system is a press fit and can only be replaced by the manufacturer.

#### 10.1 Spare parts set for TWN 1353, grade 8



nominal size	spares set, complete <sup>1)</sup>		clevis pin (TWN 0904/1)		spring pin (ISO 8752)	
	product code	weight approx. [kg]	product code	D x L [mm]	product code	D x L [mm]
6-8	F483495	0.02	F48655	7.5 x 21	Z08921	3 x 16
8-8	F483525	0.03	F48007	9 x 26	Z00081 <sup>1)</sup> Z03606	3 x 20 3 x 18
10-8	F483555	0.06	F48010	12 x 33	Z00082 <sup>1)</sup> Z00506	4 x 26 4 x 22
13-8	F483585	0.14	F48013	16 x 42	Z00094 <sup>1)</sup> Z00105	4 x 32 4 x 30
16-8	F483615	0.24	F48016	19 x 50	Z00083	6 x 40
22-8	F483675	0.65	F48022	26.5 x 69.5	Z00094	8 x 55

#### 10.2 Spare parts set for TWN 1853, grade 10/XL



nominal size	spares set, complete <sup>1)</sup>		clevis pin (TWN 1904/1)		spring pin (ISO 8752)	
	product code	weight approx. [kg]	product code	D x L [mm]	product code	D x L [mm]
6-10/XL	F486865	0.02	F48671	7.5 x 21	Z08921	3 x 16
8-10/XL	F486875	0.04	F48672	10 x 31	Z00081 <sup>1)</sup>	3 x 20
10-10/XL	F486885	0.08	F48673	12.7 x 38	Z03606	3 x 18
13-10/XL	F486895	0.17	F48674	16.7 x 48	Z00082 <sup>1)</sup>	4 x 26
16-10/XL	F486905	0.29	F48675	20 x 56	Z00506	4 x 22
22-10/XL	F486935	0.71	F48678	28.2 x 70	Z00094	4 x 32

1) For fitting to clevis

B09442-A

### 11 Imprint

THIELE GmbH & Co. KG, Werkstrasse 3, 58640 Iserlohn, Germany

Tel.: +49(0)2371/947-0 // email: info@thiele.de

© THIELE GmbH & Co. KG, 2017. All rights reserved.

### EC Declaration of Conformity

in accordance with Machinery Directive 2006/42/EC, Annex II A for a complete machine

The manufacturer, THIELE GmbH & Co. KG, hereby declares that

- combination shortening clutch TWN 1353, grade 8
- combination shortening clutch TWN 1853, grade 10/XL

for use in chain slinging equipment comply with the relevant regulations of Machinery Directive 2006/42/EC.

We declare that the relevant technical documentation for these complete machines has been drawn up in accordance with Annex VII part A and undertake to submit this to the supervisory authorities upon request.

The following harmonised standards have been applied:

- DIN EN 12100
- DIN EN 1677-1

The following Professional Association test principles were applied:

- GS-OA 15-05 Principles for testing and certifying chains and chain component parts

This statement does not include a guarantee of specific features. Observe the safety information and instructions pertaining to these products.

Documentation manager

Dr Jürgen Obenauf

(Head of Quality and Environment)

Tel.: +49(0)2371/947-541

Iserlohn, 17.03.2016

Dr Günther Philipp

(Managing Director)