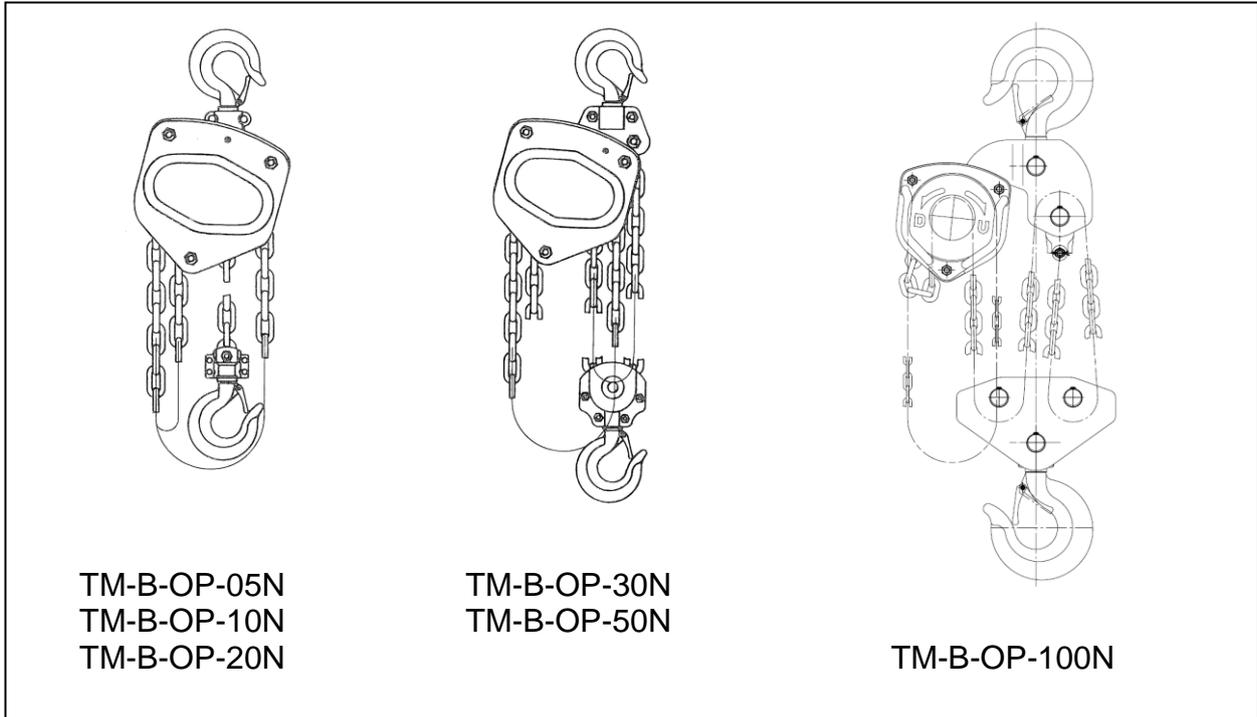


# MANUAL

## TM - Chain Blocks

Original operating instructions in keeping  
with the EC Machinery Directive



# Marking of changes to prior edition



TM chain blocks meet requirements as per EU Machinery Directive 2006/42/EG and were type tested by a certification body (TÜV Rheinland inspection agency).

Read this manual before using the TM Chain Block.  
This manual includes very important information concerning safety and operation.

### Warning Note

TM - Chain Blocks are not intended for lifting, carrying or transporting of persons and thus must not be used for this purpose!  
Death or injury can occur from improper use or maintenance.

## 1 General features

TM chain blocks are inter alia employed in the construction industry, in mining operations, marine applications and other sectors of industry.

Significant characteristics are:

- Overload protection
- Automatic, double-pawl braking system
- Stainless steel load chain to EN 818-7, type T, electrogalvanized

## 2 Safety Notes

The subsequent safety information provides an overview of the general methods of action in order to safely operate TM manual chain blocks. Disregard of these safety notes may result in death, severe injury or damage to property. Instructions hereunder are not to be considered exhaustive and are thus not limited to the following.

1. Only persons who received safety instructions and have been trained in the operation of the equipment are allowed to use the chain block.
2. In addition to the operating instructions, operators must be aware of and have been appropriately trained with regard to the relevant accident prevention regulations "Load-carrying devices used with lifting equipment", BGR 500. Only authorised persons in accordance with BGR 500, Chapter 2.8 may be assigned to perform assembly and dismantling work.
3. Check whether the suspension points are able to assume the forces to be applied.
4. Structural modifications, attachments or conversions are not permitted.
5. Do not operate or use chain blocks showing wear, damage or improperly functioning hook safety latches.
6. Inspect and check the chain block at regular intervals.
7. Replace worn and/or damaged parts.
8. Lubricate movable parts and the chain at regular intervals. Make sure to remove lubricants and dirt from the braking surfaces inside the block housing.
9. Never connect the chain ends in an inadmissible manner.
10. Do not lift loads of a weight higher than what has been prescribed as load capacity for the chain block (see section "Technical Details" in this respect).
11. If simultaneously lifting a load by means of two chain blocks, the load capacity of each of the two blocks must at least be equal to the weight of the load.
12. Loads must be attached in accordance with BGI 556 – "Government safety association information for load attachment personnel".
13. The chain must not wrap around the load or other components.
14. Position the chain block vertically above the load's center of gravity. Never 'drag' or 'pull' the load sideways.
15. The operational rotation of the load in the hook or the rotation of the chain block in the suspension hook is not permitted.
16. Never operate a hoist the chain of which is twisted, has kinks, is elongated or otherwise damaged.
17. Make sure the load is fully supported by and has contact with the hook bed and the safety latch has engaged.
18. Do not support any load with the tip of the hook.
19. Do not run the chain over edges.
20. During hoisting operation always observe the load.
21. Always make sure no one including you (operator) is in the range of the moving load (hazard area) and do not lift any load over people.

22. Do not lift any load over people.
23. When lifting a load start with tightening the chain slowly.
24. Do not lift the load jerkily.
25. Never cause a suspended load to swing.
26. Never leave a suspended load unattended.
27. Welding or cutting work must not be performed on a lifted load.
28. Never use a hoist chain in connection with welding work.
29. Stop operation of the chain block when unusual noise is heard, or if chain jumping or jamming occurs.
30. Only operate the chain block manually.
31. After use or in the event the chain block is inoperative make sure it has been secured to prevent unauthorized or inadmissible use.
32. Do not remove or cover warning labels located on the device.
33. Do not clean chain blocks with water or with a high-pressure cleaner.
34. Do not use chain blocks to lift dangerous goods such as molten or radioactive materials.
35. Operating temperature range is between -10 °C and +50 °C.
36. The brake must be examined for icing in the event of operating temperatures below 3 °C.
37. The brake pads may overheat when constantly lowering when dealing with long hook paths (> 3m). Ensure that cooling pauses are taken.
38. Storage temperature range is between 0 °C and +40 °C.
39. Observe national regulations that may not be stated here.

### **3 Pre – installation inspections**

Prior to commissioning (first use) the user should observe any applicable local or other provisions relating to the specific operation of the chain block.

Before using the chain block for the first time read this operating manual as well as any labels supplied with or attached to the hoist to rule out the equipment is operated improperly. Further points to be observed:

- Before using it, visually inspect the chain block carefully to detect transportation damage, if any.
- Ensure that a functional and visual inspection is performed by an expert.
- In case of a used chain block check the equipment's service history and any documentation provided.
- Lubricate the load chain of the hoist prior to commissioning.
- Ensure that testing intervals and the next testing date is determined. A notification regarding the next test must be attached to the manual chain block.
- Dispose packing in accordance to local regulations.

After hanging the chain block, position the lower end of the hand chain at a height of 500-1000 mm from the floor. In order to complete this task, you may have to shorten the hand chain by laterally bending the non-welded connecting link open, shortening the hand chain respectively and bending the connecting link closed. Normal chain links are not suitable for use as a connecting link.

### **4 Operating instructions**

Check the load brake for proper functioning by first raising the load and keeping it in that position. Position the chain block between the load to be lifted and the suspension point

in the load's center of gravity. Ensure hooks are seated correctly and the safety latches are engaged.

Also make sure that chains and hooks are not twisted, knotted or have cracks.

#### Lifting the load:

Ensure that there are no people or obstructions in the immediate area of the moving load. Begin lifting by slowly pulling the hand chain in „U“ (up) direction.

#### Lowering the load:

Ensure that there are no people or obstructions in the immediate area of the moving load. Lower the load by pulling the hand chain in „D“ (down) direction. For releasing the brake disk a little more force may be needed.

#### After use:

Remove any foreign objects and dirt from the chain and hoist. Inspect chains, hooks and the safety latches to ensure they are operational. When unused, store the chain block in a dry and clean location.

#### Slip clutch:

The slip clutch is set to approx. 1.6 x WLL at the factory and exclusively serves to provide the chain block an overload protection. It may not be operationally used or actuated. The slip clutch must exclusively be adjusted/set by manufacturer or authorized competent persons. Repeated checks of the slip clutch setting at short intervals (e.g. after it has been hired out) are not permissible.

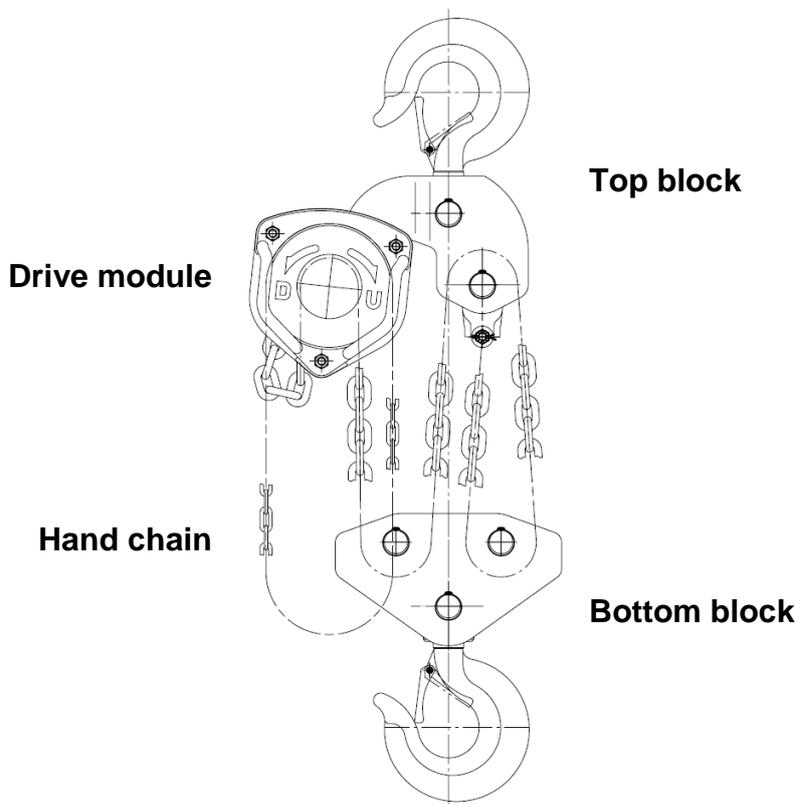
## **5 Load chain mounting**

1. Clean the chain that is to be assembled as well as the parts of the chain block that come into contact with the chain.
2. Insert the first chain link in an upright position (vertical to the sprocket) **between the chain guide and the sprocket**. **Ensure that the welding seams of the following vertical chain links point outwards in a radial manner**. Rotate the hand wheel so that the second chain link can be horizontally assumed by the following pocket of the sprocket.
3. Continue with the rotary movements until sufficient chain links protrude from the other side of the housing in order to perform the further steps.
4. Pay attention to the correct positioning of both chain strands in terms of the chain guide rollers. **During operation, the housing orients itself according to the load. Neither of the chain strands may then come into contact with the housing bolts under load. The chain may not run above the guide roller under any circumstances.**
5. When dealing with a single-strand design, insert the chain end of the load strand into the console of the hook attachment and fasten it with the chain bolt. Secure chain bolt with new self-locking nuts.
6. When dealing with a twin-strand design, insert the chain end of the load strand above the bottom block sprocket. In doing so, pay attention to the correct alignment of the inlet to the chain drive sprocket so that the chain strand is not twisted.
7. When dealing with the TM-B-OP-100, insert the chain end of the of the load strand via the sprockets of the bottom and top block according to the reeving diagram illustrated on the next page. In doing so, pay attention to the correct alignment of the inlets to the chain drive sprocket so that the chain strands are not twisted.
8. Fasten the loose chain to the chain end fitting fixed to the housing. In the event of a twin-strand reeving the loose chain end coming out of the bottom block will be

fixed by a bolt to the upper hook suspension. Pay attention that the chain strands are not twisted. If necessary, shorten the chain by removing a link. Secure the chain bolt with a new splint.

9. Perform a functional test using a low load. Check that the chain strands are not twisted, that the chain is not touching the housing bolts and that it flawlessly glides into the chain guide.

### Reeving of Load Chain - TM-B-OP-100N:



**For chain mounting make sure that the welds of the upright chain links in the sprockets of the drive module and top block face outwardly!**

For design reasons, at the bottom block this can only be achieved by a deflector roll.  
**The load chain must not be twisted between its two attachment ends.**

## 6 Inspection and tests

Prior to use the operating personnel or maintenance staff must visually check the chain block for damage or incorrect functioning.

### Operation:

Watch out for damage or abnormal noise that may be the result of potential problems. Do not use the chain block when the load chain cannot run freely through the blocks. Listen for clicking and pay attention to any blocking or malfunction. The clicking sound of the pawl of the ratchet is normal when a load is lifted. If a chain jams, jumps or in case excessive noise can be heard check the chain carefully.

Make sure the hand chain moves freely without jamming and is not damaged.

If any problem is permanent return the chain block to one of the service addresses for inspection and/or repair.

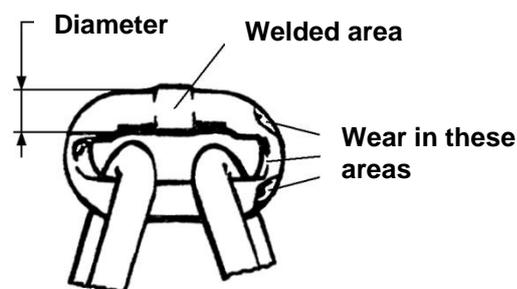
Do not operate the chain block until all problems are solved.

### Load chain:

Check all chain links for bending, cracks, and notches, pitting, and wear.

The chain should be taken out of service if the pitch has increased by more than 3 % or the average wire diameter reduced by more than 10 %.

Check for correct chain lubrication and re-lubricate if necessary. If the chain is dirty and unlubricated, this can lead to premature wear and subsequent chain failure. Lubricate the chain, e.g. with a mineral oil in accordance with DIN 51502 CLP 220 or with a dry lubricant, e.g. Unimoly C 220 Spray in the event of a dusty or dirty environment.



### Hooks:

Check hooks for wear and damage. Take hooks out of service if the hook opening has widened by more than 10 % or the shank height in the hook bed reduced by more than 5 % compared to a new hook. In the event a safety latch does not correctly engage with the hook tip this is due to overloading and the respective hoist must be replaced. Check whether the hooks swivel smoothly. Check the safety latch for proper functioning.

### Slipping clutch:

If the device is used as intended, the slipping clutch is not set or adjusted. It can only be replaced as a complete unit and must be subsequently examined by expert staff once installed.

### Transmission:

The transmission is maintenance-free.

## **Tests and maintenance work must be arranged by the user.**

The chain block shall be checked by an authorized repair center at least once a year. An inspection documentation must be prepared for each hoist and all inspection activities must be included in that service history.

The chain block must be recertified after 4 years of operation at the latest. Such a recertification must also be performed after the chain block has been repaired with such a repair to be carried out by an authorized repair center. In this case contact one of the service addresses listed in this manual.

## **7 Maintenance and repair**

The repair of a chain block must exclusively be performed by a service workshop authorized by THIELE. In this case please refer to one of the service addresses.

### Replacing the chain:

Relieve the chain block of load and loosen the chain bolt on the hook tackle or suspension console in the event of a twin-strand reeving as well as on the chain end fitting. Allow the used chain to run through the chain block in the lifting or lowering device and, if necessary, pull the chain through the top and bottom block. Assemble the new chain according to the information provided in Chapter 5.

### Replacing the load hook / hook tackle (single-strand):

The hook tackle can only be replaced as a unit. Relieve the chain block of load and open the nut belonging to the chain bolt. Pull the chain bolt out of the hook tackle console. Insert the chain end into the console of the new hook tackle and push a new chain bolt into the drill hole of the console and through the last chain link. Secure the chain bolt with a new self-locking nut.

Replacing the load hook / bottom block (twin-strand):

Relieve the chain block of load and open the screw belonging to the bottom block console. Open one half of the bottom block console and remove the hook. Correctly insert the new hook complete with its retainer into the bottom block console. Close the bottom block console with its half. In doing so, ensure that the hook retainer and the sprocket bolts are located in the intended retainers.

Re-insert the screws and secure them with new self-locking nuts.

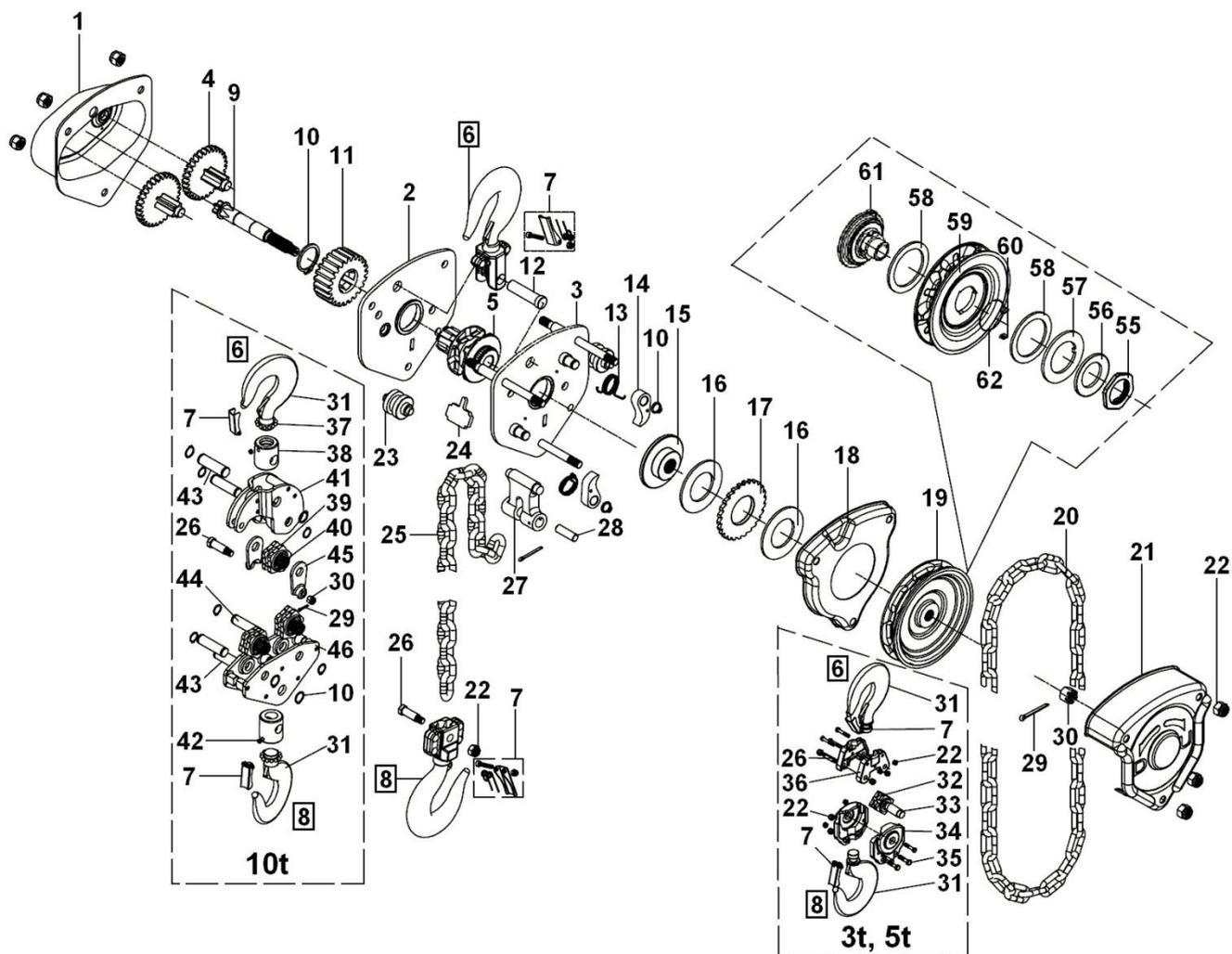
Replacing the suspension hook:

The housing must be opened in order to replace the suspension hook. Therefore, this work should only be performed by an authorized expert. In such a case, please contact a service address.

Dispose: #

Nearly all parts are made of steel and should be scrapped in accordance to local regulations.

## 8 Spare parts



Item	Description	Item	Description	Item.	Description
1	Gearbox cover	19	Hand chain wheel	37	Ball bearing, hook
2	Housing plate, gear side	20	Hand chain	38	Hook nut
3	Housing plate, handwheel	21	Housing cover, handwheel	39	Sprocket, top/bottom block
4	Gearwheel stage	22	Hex. nut, self-locking	40	Needle bearing, sprocket
5	Sprocket, complete	23	Guide roll	41	Bracket, hook suspension
6	Suspension hook	24	Scraper	42	Bolt
7	Safety latch, complete	25	Chain	43	Hook pin
8	Hook	26	Pin	44	Sprocket pin
9	Drive shaft	27	Chain end fitting	45	Suspension plate
10	Safety ring	28	Pin, chain end fitting	46	Bracket, bottom block
11	Gearwheel	29	Cotter pin	55	Hex. nut, slip clutch
12	Pin	30	Slotted nut	56	Cup spring, slip clutch
13	Pawl spring	31	Hook, 2-strand	57	Thrust disk, slip clutch
14	Pawl	32	Sprocket, bottom block	58	Friction lining
15	Brake hub	33	Pin, bottom block	59	Hand chain wheel
16	Brake lining	34	Bracket, bottom block	60	Pawl, slip clutch
17	Ratched disk	35	Hex. Bolt	61	Thrust disk, brake
18	Housing cover, inside	36	Bracket, susp. hook	62	Circlip, slip clutch

**When ordering spare parts please indicate the model and serial No. of the chain block.**

Article-no. spare parts		Type TM-B-OP-...				
Item	Description	...05N	...10N	...20N	...30N	...50N
6	Suspension hook	Z09939	Z09940	Z09941	Z09942	Z09943
7	Safety latch, complete	Z09944	Z09945	Z09946	Z09947	Z09948
8	Hook	Z09949	Z09950	Z09951	Z09952	Z09953
16	Brake lining	Z06934	Z06935	Z06936	Z06937	Z06938
17	Ratched disk	Z06928	Z06929	Z06930	Z06931	Z06932
25	Chain (sold by meter)	F09027		F09047		F09057

Please direct your inquiries to the service address for the TM-B-OP-100N spare parts.

## 9 Technical details

Model/Type ►	TM-B-OP-05N	TM-B-OP-10N	TM-B-OP-20N	TM-B-OP-30N	TM-B-OP-50N	TM-B-OP-100N
Capacity (WLL) [t]	0,5	1	2	3	5	10
Standard lift [m]	2,5 <sup>#</sup>	2,5 <sup>#</sup>	3	3	3	3
Pull force at hand chain with full capacity [N]	230 <sup>#</sup>	360 <sup>#</sup>	430 <sup>#</sup>	440 <sup>#</sup>	470 <sup>#</sup>	480 <sup>#</sup>
Max. force transmission until the activation of the over-load protection	0,96	1,92	3,84	5,76	9,6	19,2
Min. distance between hooks [mm]	270	317	414	465	636	798
Load chain dia. [mm]	6	6	8	8	10	10
Net weight [kg]	8,1 <sup>#</sup>	10,7 <sup>#</sup>	17,7 <sup>#</sup>	24 <sup>#</sup>	38,6 <sup>#</sup>	80,4 <sup>#</sup>
Packing dimensions L x W x H [cm]	25 x 20 x 17	30 x 24 x 17	35 x 26 x 19	39 x 28 x 19	46 x 32 x 21	50x41x21
Additional weight for special chain lengths [kg/m]	0,9	1	1,2	2,4	4,6	9,2

## 10 Service address

THIELE GmbH & Co. KG, Postfach 8040, 58618 Iserlohn, Tel. +49(0)2371/947-0

## 11 Warranty

For TM chain blocks, a one-year warranty is granted from the date of purchase for defective materials or executions. Wear parts as well as parts that have been overloaded and incorrectly used are excluded from the warranty.

In the event of a justified complaint, the girder clamp will be repaired or replaced.

## 12 Documentation

TM Chain Blocks will be supplied with this manual and with an acceptance test certificate with a Declaration of Conformity.