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TOR MTM LEVERED ROPE WINCH OPERATION MANUAL



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1. Description and Operation

1.1 Product purpose

MTM - is a multi-purpose device designed for lifting, lowering and pulling the load during repair, installation and construction works not higher than the operating mode group 1M, load class B1. It is made according to TU 3173-002-39712863-2015.

MTM can be operated both in horizontal and vertical position in space.

In terms of climatic conditions corresponds to the category of GOST 15150, subject to compliance with the operating temperature of the lubricant (recommended / optimal ambient temperature for the operation: -20 to +40°C). MTM can be used both indoors and outdoors. Placement category: 1, 2, 3 as per GOST 15150.

The principle of MTM operation is to pull the rope through the device by means of grips controlled by levers.

1.2 Main specification

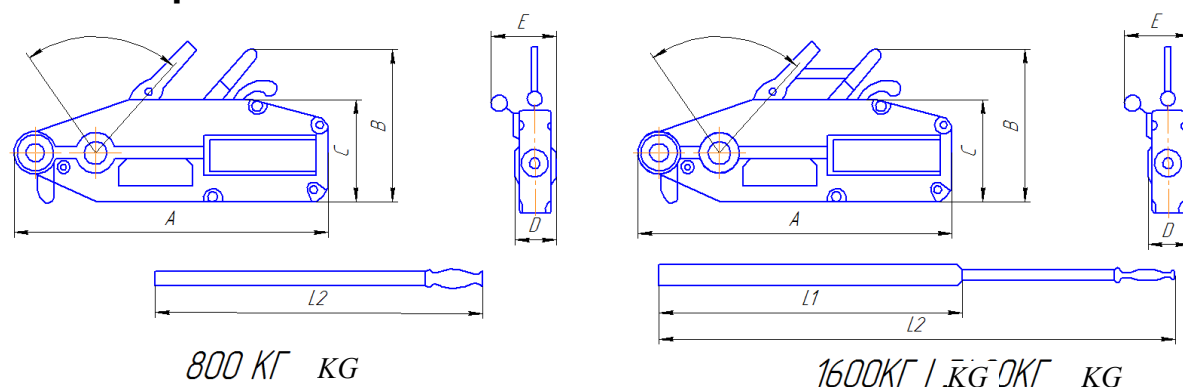


Fig. 1. Overall dimensions of MTM.

Model		MTM 0.8	MTM 1.6	MTM 3.2	MTM 5.4
Load capacity, kg		800	1600	3200	5400
Pulling force on the lever, N		343	441	441	745
Rope forward step, for 1 stroke of the lever, mm		≥52	≥55	≥28	≥30
Rope diameter, mm		8.3	11	16	20
Rope safety factor		5	5	5	5
Test load (static), kg		1000	2000	4000	6750
Product weight (net), not more, kg	Mechanism	7	13	24	56
	Rope	7.5	11.5	22	35
	Lever	1.6	2.6	2.6	3.3
Dimensions	A	426	545	660	932
	B	235	280	325	420
	C	168	190	230	300
	D	60	72	91	155
	E	64	97	116	152
	L1. cm		80	80	80
	L2. cm	80	120	120	120

Standard package includes:

- MTM assembly 1 pc.
- Operating lever 1 pc.
- Cable (rope) 12/20 m
- Data sheet and operation manual 1 pc.

1.3 Accessories

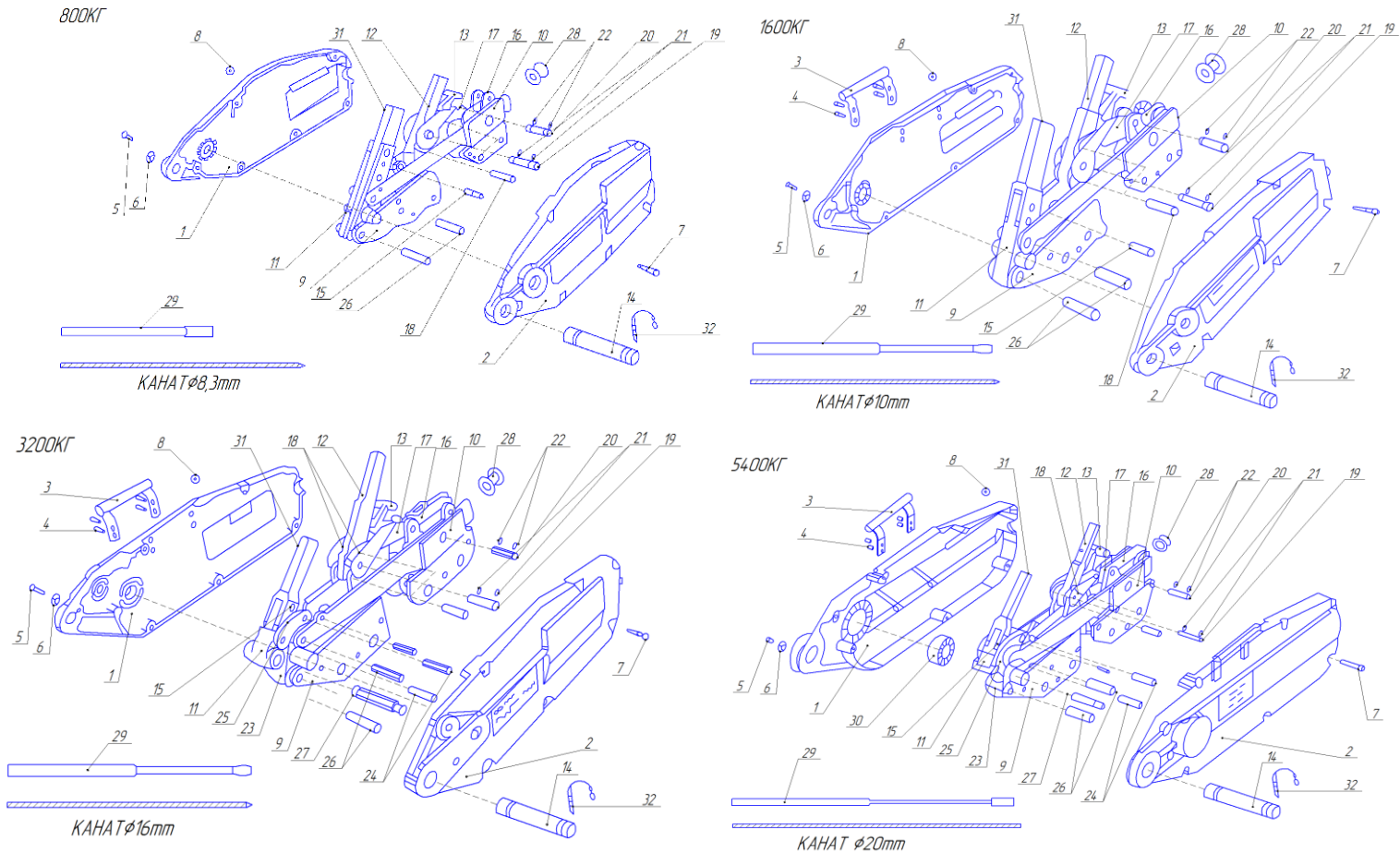


Fig. 2. Explosion diagrams of MTM 0,8 – 5,4 t.

Nº	Part	Nº	Part
1	Body (left side)	17	Rod
2	Body (right side)	18	Pin
3	Handle	19	Pin
4	Handle fastener	20	Pin
5	Bolt	21	Washer
6	Grover washer	22	Washer
7	Bolt	23	Crank
8	Nut	24	Pin
9	Front clamping mechanism	25	Rod
10	Rear clamping mechanism	26	Crank axis
11	Rod drive	27	Support rod
12	Lowering lever (reverse lever)	28	Guide sleeve
13	Weakening lever (unclamping lever)	29	Operating lever
14	Anchor bolt	30	Bearing
15	Shear pin	31	Lifting lever (forward lever)
16	Upper clamp	32	Split pin

2. Intended use

2.1 Installation, preparation and operation

Preparation for work:

- Unpack the MTM. Perform visual examination for deformation and damage.
- Check the lubrication of the mechanism, if lubrication is insufficient, add grease (Lubricant grease Ж as per GOST 1033-79 or analogue).
- Check the tightness of all body bolts, tighten if necessary.
- Move one of the levers, make sure that the mechanism works clearly, does not jam, then repeat the same with the second lever.
- Unpack and inspect the rope. The rope should be clean, without loops, breaks and other damages. The hook on the end of the rope should be without damage with a serviceable safety click.
- Insert the anchor bolt until it stops, insert the safety split pin into the hole at the end of the anchor bolt.

Filling the rope:

- Use only regular (native) rope. The rope should be clean, without loops, breaks and other damages. The hook on the end of the rope should be without damage with a serviceable safety click.
- Put the MTM vertically so that the guide bushing was from the top. Push MTM into the ground / floor.
- Pull the lifting lever all the way to the side of the anchor bolt and lock (press to the ground/floor with the foot).
- Pull the lowering lever to the weakening lever. Lower both levers with a force so the weaken lever get into the inner groove on the housing and lock. Put greater effort to weakening lever. To put the weakening lever into the inside groove pressed simultaneously into the MTM body and forward.
- Pull the rope through the MTM to the required length.
- Release the weakening lever. The MTM is ready to work.

Operation procedure:

- Make sure you have studied and taken into account all safety measures (see c. 2.4)
- Securely fasten the MTM on the support by the anchor bolt.
- Securely install the operating lever on the lifting lever (MTM 0.8 has one-section operating lever, other sizes of MTM have two-section telescopic operating lever).
- Shaking the lifting lever, check the performance of the MTM without load. Then set the required length of the rope, hook the load. Before starting the main operation, perform test liftings starting from 10% and increasing to 50% of the data sheet load capacity of MTM. Make sure that MTM works without jamming and without slipping the rope.
- Move the operating lever to the lowering lever and test the MTM for lowering. When swinging the lever, the load should lower. When not moving the lever the lowering

should stop (slippage of the rope indicates that: MTM is not serviceable or worn out, the rope is dirty or worn out, the maximum permissible weight of the load is exceeded).

- When dragging/pulling the load, the rope must enter the MTM strictly along its axis without bends (see figure 3).
- If the rope does not run straight when lifting or dragging/pulling the load, use the guide block (see figure 4 and table to the figure).

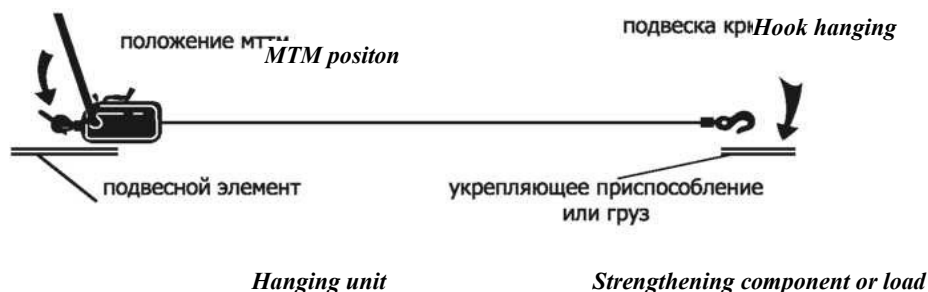
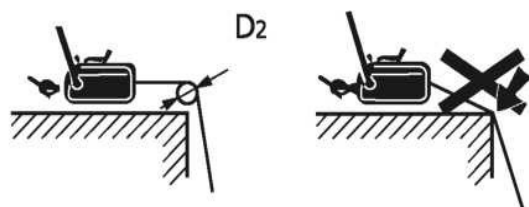


Figure 3. Pulling the load with MTM.



Load capacity, t	Rope diameter,	Minimum diameter, mm	
		of block	of guide block D2
0.8	8.3	130	100
1.6	11	180	140
3.2	16	260	200
5.4	20	322	249

Fig. 4. Use of blocks.

• **When lifting/lowering, the weight of the lifted/lowered load should be 1/3 less than the specified max load capacity (on the nameplate). This is necessary to ensure the safety of the operation, as MTM is not equipped with additional safety brake.**

• To avoid exceeding the force on the lifting lever, the lifting lever is equipped with shear pins. When cutting the pin, the load will be immobilized (when exceeding the maximum permissible weight on the rise, the rope is possible to slip and spontaneous lowering of the load is possible) in this case it is necessary to lower the load to the ground. NEVER REPLACE THE PIN WITH A SUSPENDED LOAD! Spare shear pins are in the cavity of the handle or operating lever (remove the plug and take the spare pin). It is forbidden to use non-standard shear pins, this can lead to equipment failure and accident.

• It is forbidden to simultaneously press the lifting and lowering levers. Do not press the weakening lever while lifting / lowering the load.

• Carefully calculate the height of lifting/lowering. Always leave at least 1 meter of rope on the side of the anchor bolt!

• Before use and after work be sure to inspect the MTM.

2.2 Troubleshooting

Fault	Cause	Remedy
MTM is operating hard or allows slippage of the rope	<ol style="list-style-type: none"> 1. MTM's overloaded. 2. Rope is dirty. 3. Rope is worn or deformed. 4. MTM is worn out. 	<ol style="list-style-type: none"> 1. Reduce the weight of the load. 2. Clean the rope and wipe dry with a rag. 3. Replace the rope (use only standard galvanized rope). 4. Replace MTM.
Shear pin destroyed	<p>Tractive force exceeded the critical parameter:</p> <ol style="list-style-type: none"> 1. MTM's overloaded. 2. Load is caught on an obstacle. 	<ol style="list-style-type: none"> 1. Reduce the weight of the load. 2. Remove obstacles from the site. <p>Replace the shear pin</p>
Weakening lever moves easily	Spring of the clamping mechanism is broken	Replace the spring

2.3 Maintenance

Maintenance includes inspection of the winch after work for its serviceable condition.

After finishing the work, it is necessary to clean the rope from dirt and dust, open the clamp and remove the rope.

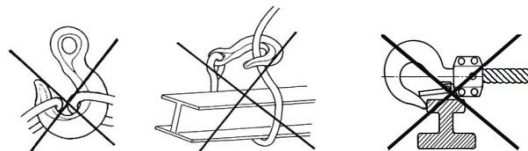
Keep the winch and the rope in a dry place to avoid corrosion.

When the initial diameter of the rope is reduced by 10%, it must be replaced with a new one.

Regularly lubricate all moving parts of the mechanism through the upper slit before starting work.

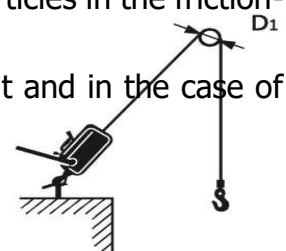
2.4 Precautions

- It is forbidden to use MTM when working with cargo exceeding the data sheet capacity of MTM.
- It is forbidden to use MTM for lifting people, animals, explosive or toxic substances, liquid or hot metal and slag; operation in chemically active environments, as well as its use in shock and jerk loads, with vibration loads.
- Do not use a rope to tie the load. Do not hook the load onto the end of the hook. Do not use a hook with a faulty click or without it.



- It is forbidden to use MTM with signs of deformation, contamination or corrosion of the rope, hook, mechanism of MTM or housing.
- Do not use the support the strength of which is not known for fixing/hanging MTM.
- Never leave a raised load unattended.
- It is prohibited to align the load and load-clamping devices on weight.
- It is forbidden to lubricate or repair MTM with the suspended load.

- Make sure that the operation area under the load was free of people.
- It is necessary to provide free overview of the operation site. Otherwise, it is necessary to attract an additional observer.
 - When working in an oversized place, make sure that the hook or load does not hit obstacles or the MTM body.
 - When working with MTM personnel must have protective helmets, gloves and safety shoes.
 - It is forbidden to use not regular shear pins.
 - It is forbidden to use the deformed or not regular working lever.
 - It is forbidden to press both levers (lifting and lowering) simultaneously.
 - Keep dirt from getting inside the mechanism.
 - Do not press the weakening lever while lifting / lowering the load.
 - When lifting the load is forbidden to stand on the load.
 - Do not allow the load to spin.
 - Don't leave the weakening lever of MTM in the grooves of the housing for a long time.
 - When the diameter of any working part of the rope is reduced by 10%, the rope must be replaced.
 - It is forbidden to pull the load over the edge/corner. Use the block.
 - In case of emergency during the hoist operation it is necessary:
 - a) if possible, to take measures to lower the load;
 - b) to report the incident to the surrounding personnel and to protect the place under the lifted load if the load could not be lowered;
 - c) to set the poster "MTM's FAULTY!", report the incident to the employee responsible for the maintenance of MTM good condition.
 - Manual winches (MW) are professional tools, operation and maintenance of which should be performed by qualified personnel.
 - Wear protective gloves.
 - Do not use the winch with the damaged steel rope.
 - Do not exceed the specifications of the winch.
 - Do not use the winch for vertical liftings. This can cause damage to the winch and injury to people. The winch is intended solely for the tension in the horizontal plane.
 - Let the steel rope wind smoothly onto the drum to avoid jamming of the mechanism.
 - To avoid the spontaneous unwinding, watch the position of the mode switch.
 - Follow safety rules when working at height.
 - Use the tool according to its purpose.
 - Do not allow particles of dirt, sand, clay or other abrasive particles in the friction-ratchet mechanism of the winch. This will lead to more rapid wear.
 - In case of detection of incorrect operation of the instrument and in the case of malfunction, stop using it and contact the Service Centre.



- In case of independent repair use only original spare parts. Please agree on the independent repair with the Supplier, otherwise the warranty on the tool can be possibly lost.

3. Transportation and storage

3.1. At breaks in operation, the MTM mechanism must be densely lubricated with grease, stored in a closed box in a place protected from precipitation on a pallet or rack in the absence of aggressive substances vapors that cause corrosion of metal parts of the mechanisms.

3.2. For long-term transportation it is desirable to preserve MTM and pack it in a rigid container.

3.3. Clean the rope of dirt, wipe dry with a rag and wind on the spool (included with a rope). Regular MTM rope is galvanized and does not require lubrication.

4. Warranty

WARRANTY

The warranty period is 12 months from the date of sale to the end customer.

LIMITATION OF LIABILITY:

- Seller will not be liable for product failures caused by use and normal wear and tear.

- The Seller is not responsible for product malfunctions caused by non-observance of operating rules or use of the Product under unacceptable environmental conditions.

- The warranty will be voided if the Product is not regularly serviced and if it is improperly stored.

- This warranty will not be extended to any Product that has been subject to misuse, neglect or accident or which will have been altered or repaired by elements other than Seller's in such a manner as to adversely affect its performance, stability or reability.

- The warranty does not cover the Product that has suffered any mechanical damage.

- The warranty does not apply to a Product that has been altered in any way.

In order to determine the causes of failure, a technical check is carried out for a period of 10 working days from the date of receipt of the Product for diagnosis.

Claims filing:

- Claims concerning found defects can be issued by the Buyer to the Seller within the guarantee period. The Buyer may request a claim form and instructions for filing a claim from the Seller.

- All risks associated with delivery of the Product to the dealer or service center are borne by the owner of the Product.

- Claims related to incompleteness and appearance of the Product will not be accepted after it has been put into operation.



The information in this paragraph is current at the time of printing of this manual. Up-to-date information on warranty service rules is published on the official website of the group of companies TOR INDUSTRIES **www.tor-industries.com** ("Service" section).

PRODUCT PASSPORT

Product Information:

Model

Serial No.

Sale Date / /

Warranty Period

Seller Information:

Company

Address

Phone

SERVICE MARKS

Place for Stamp	All control operations and tests have been carried out. The product is fully equipped, serviceable and ready for use.
Dated: <input type="text"/>	

Maintenance and repair

Type of Maintenance	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Type of Maintenance	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Warranty Repair	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Repair	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Date of Maintenance	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Contractor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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The customer confirms that he has familiarized himself with the rules of use of the product. The customer received the manual in English. The customer has no claims to the serviceability, appearance and completeness of the product.

Customer Signature _____

Place for Stamp

