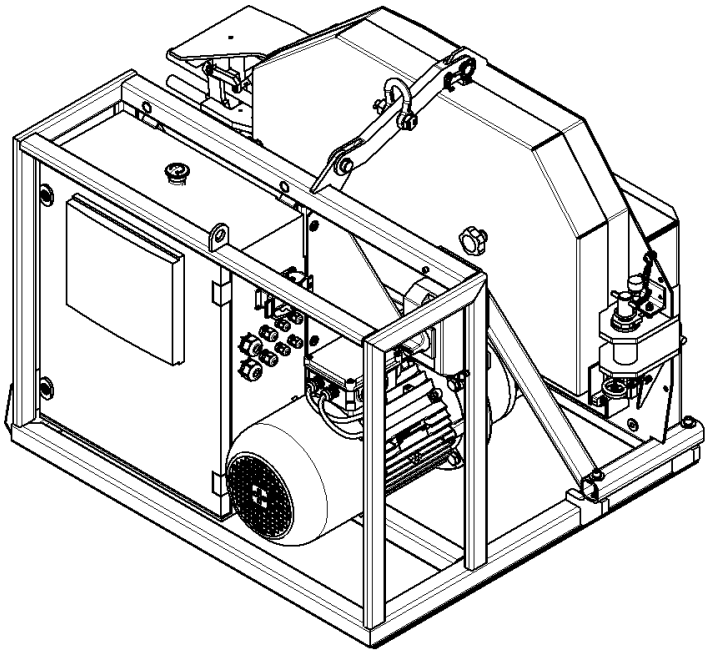
User Guide

Version: 01 / 10.09.2025

HIT-TRAC 64E servo



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Content

Preface

You made a good choice when you selected the HABEGGER HIT-TRAC motor-driven rope pulling machine. This state of the art rope pulling machine allows you to pull, lift and lower loads. Operation and maintenance are very simple and with correct handling ensure trouble-free and reliable operation.
It may be that you already know how your recently purchased rope pulling machine functions.
Nevertheless, read the following safety instructions safely before first commissioning.
Important information in the operation manual help you:

- To avoid hazards,
- to keep repair costs and downtimes to a minimum and
- to increase the reliability and service life of your rope pulling machine.

Always keep this operation manual at the place where the motor-driven rope pulling machine is used, and make sure that anyone who uses the machine reads and applies the information in the manual. It must be available for all operation personnel, to avoid errors during handling.
As well as the operation manual and the locally applicable accident prevention regulations, the recognized specialist rules for safe and proper working must be complied with.
We wish you every success and enjoyment using your product from Jakob AG.

EG-Konformitätserklärung

Déclaration de conformité CE

EC declaration of conformity

Wir / *Nous* / We

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erklären hiermit, dass die Maschine
déclarons par la présente que la machine
hereby declare that the device

HIT - TRAC 64E servo

in seiner Konzipierung und Bauart sowie in den von uns in Verkehr gebrachten Ausführungen den grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie Maschinen entsprechen.
Bei nicht bestimmungsgemässer Verwendung, sowie bei nicht von uns freigegebenen Umbauten oder Änderungen, verliert diese Erklärung ihre Gültigkeit. Zudem verliert diese Konformitätserklärung ihre Gültigkeit, wenn die Bestimmungen der Betriebs- und Instandhaltungsanleitung nicht befolgt oder missachtet werden.

satisfait aux exigences fondamentales de la directive machines CE en matière de sécurité et de santé, tant du point de vue de sa conception et de sa construction que pour toutes les versions que nous avons mises sur le marché. En cas d'utilisation non conforme ou de modification ou transformation non approuvées par nous, cette déclaration perd sa validité. Cette déclaration perd également sa validité en cas de non-respect des instructions d'utilisation et de maintenance.

conforms to the health and safety requirements of the EC Machinery Directives in its conception and design, as well as in the version placed on the market by us. In the event of improper use, as well as modifications or changes which are unauthorised by us, this statement loses its validity. This declaration of conformity also loses its validity if the relevant user guide and maintenance manual are not followed or are violated.

Zutreffende EG-Richtlinie: *Directive CE concernée:* Applicable EC directives:	**EC Machinery Directive 2006/42/EC**
Angewandte harmonisierte Normen: *Normes harmonisées appliquées:* Applied harmonised standards:	**DIN EN 14492-1: 2010-06** **EN 60204-1: 2006** **EN ISO 12100: 2011-01**

Stv. Leiter Technik
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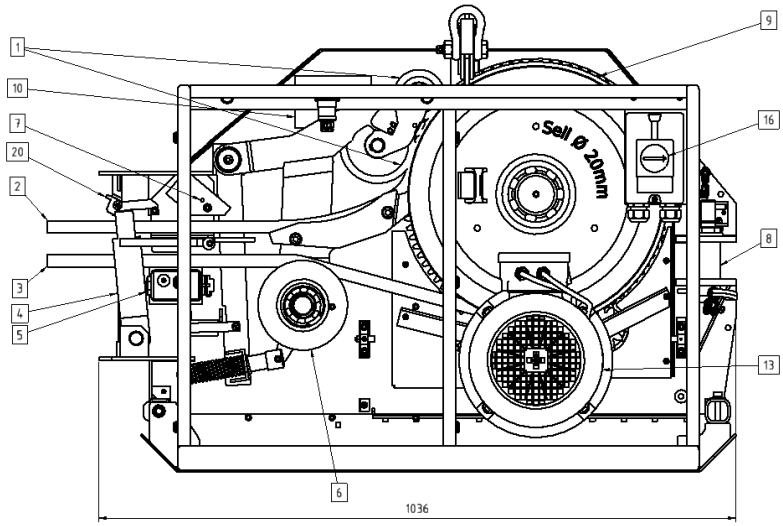
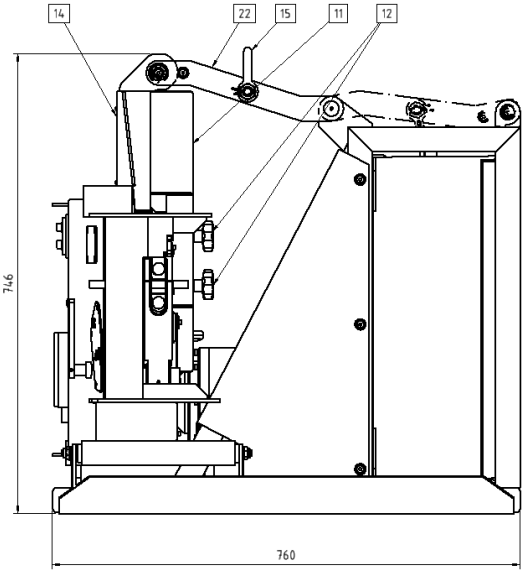
1 General description

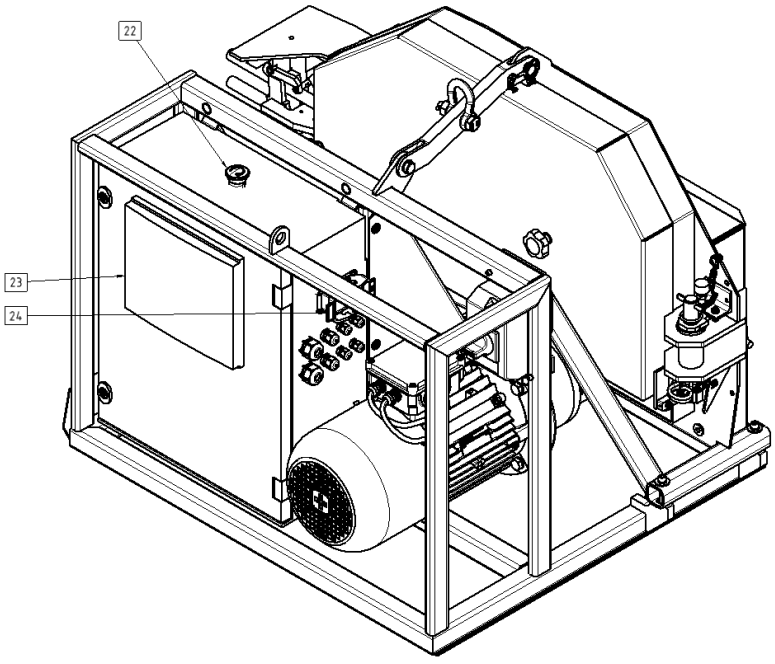
The HIT-TRAC motor-driven rope pulling machine is designed to pull, lift and lower loads.
The traction element used is a special HABEGGER HIT-TRAC rope of any length, which is steered around the drive wheel via a series of guide elements, and then exits once more in the unloaded condition.

1.1 Components

1 Pressure roller
2 loose rope end
3 Traction rope
4 Rope shaft
5 Limit switch lift/lower
6 Guide roller
7 Cover monitoring
8 Anchor bolt
9 Drive wheel
10 Information sign
11 Housing cover
12 Cover closure
13 Electric motor
14 HSS NFC Chip
15 Tab for transport
16 main switch
20 Latch
22 Lifting device
23 Emergency stop control
24 10-pin control plug
25 Display







2 General safety rules

The HABEGGER motor-driven rope pulling machine HIT-TRAC confirms to the current state of the art. To protect against accidents, it is equipped with effective safety devices according to the recognized technical safety standards, guidelines and laws.
However: Laws, regulations and safety devices do not offer protection against carelessness and negligence!
Only use the motor-driven rope pulling machine in perfect condition, complying with the operation manual.
Before you work with the motor-driven rope pulling machine, you must carefully read and comply with the safety information below.
This is for your safety!

2.1 Safety information in this operation manual

For hazards, notes and important information, the following symbols and descriptions are used:

- Notices are particularly important information which you must comply with when operating the equipment for its intended use.

- Caution! Note indicates hazard for the machine, machine parts and the environment.

- Danger! Note referring to hazards to health and the life of the operator and other persons in the working area of the motor-driven rope pulling machine.

- Warning of hazardous electrical voltage.

- Warning of hot surfaces.

2.2 Intended use

The HIT-TRAC motor-driven rope pulling machine is designed to pull, lift and lower loads.

- The HIT-TRAC must not be used to transport persons.

2.3 Authorized operators

The motor-driven rope pulling machine must only be used by a specialist person who is authorized. As the operating company for the motor-driven rope pulling machine, make sure that the operation manual is made accessible to the operator and ensure that they have read and understood it.

2.4 Liability and warranty provisions

The liability and warranty provisions of the general T&C of Jakob Rope Systems apply. Especially T&C points 10 and 11.

2.5 Behavior in an emergency situation

Before starting work, always inform yourself whether and where there is a mobile phone network or where a traditional telephone is available. Check the availability of a first-aid box.

2.6 Product specific hazards

2.6.1 Hot surfaces

During operation the components of the device warm up to differing degrees.

- CAUTION! Skin burns!
- If touched, hot surfaces can cause skin burns.
- After shutting down operation, wait until the components in the working area have cooled down sufficiently so that their surfaces can be touched safely. Some surfaces can be hotter than others!
- If required wear protective gloves/protective clothing.

2.7 Preparation

2.7.1 Electrical connection

- Before the components are connected, the details on the relevant type plate must be checked and complied with.

- Hazardous electrical voltage!
- Touching electrical components can cause severe injuries or lead to death.
- Before all maintenance and repair work, the device must be isolated from sources of energy (electrical power).
- The machine must not be operated without a residual current device (RCD). (Personal protection)

2.7.2 Control

- According to operating instructions Control servo

2.7.3 Location

- Personnel must not be located on a structure hanging on the HIT-TRAC.
- When working always make sure you have a firm and safe location to stand in.
- Always stand outside the hazard area of the load to be moved, and never in the way of the exiting rope.
- You need sufficient room to move. Therefore make sure you have a sufficiently large area to stand in.
- Do not use ladders as a standing area.
- If your location is unsuitable: Install deflection roller and select a better location.
- When installing the machine take care that no external hazards can act on the rope pulling machine, the traction rope, the load and the operator personnel. (e.g. falling objects, passing vehicles, electrical overhead lines, and so on)

2.7.4 Anchoring

- Attach the machine with sufficiently strong strops or slings to the anchor bolts.
- Do not use damaged strops or lifting slings.
- In the unloaded condition, rope couplings and fixings must not come undone of their own accord.
- The machine must be able to adjust freely in the pulling direction of the rope. Otherwise there is a risk of the housing breaking!
- When remaining in the same location for longer periods: Regularly check attachments!

2.7.5 Load

- The pulling force must not be greater than the rated pulling force of the machine.
- Secure free hanging loads against turning!
- The inherent stability of the load must be guaranteed, to prevent sliding off or tipping during the work.
- Pay attention to obstacles, which could cause the load to tip or become stuck.
- Uncontrolled loading (e.g. buckets, containers) during the lift or at interim positions is prohibited.
- When tensioning and anchoring, take into account possible stress spikes (in static condition) due to external influences.
- Excessive impacts and loading on the pulling machine (e.g. anchoring of moving machinery, wind and so on) must be prevented by the use of a strain relief rope.

- The efficiency of deflection devices must be considered when designing the system.

2.7.6 Traction rope

The condition of the rope is decisive for the reliability of the drive system.
Rope structure and inherent strength (transverse compressive strength, impact resistance) must resist the loads which occur.

- Only suitable **original HABEGGER ropes** must be used.
- The pulling rope must not be lubricated, and must be kept clean.
- The rope diameter must match that on the type plate.
- Damage of the rope: crushed, unwound, non-circular, kinked ropes or ropes with strand breaks or tangles must not be used. **(ISO 4309)**
- Ropes with broken wires: remove carefully and correctly.
- Rope connections, sleeves, compression heads, short splices and so on must not run through the drive system.
- When deflecting the rope over sharp edges, obstacles and so on protect the rope using suitable floor rollers or supports made of wood or plastic.
- Due to unloading of the rocker, the loose robe end (2) must not hang freely for more than **50 m**.
- For lengths greater than **20 m** the loose rope end (2) must be rolled up properly (rollers, reels). Rope twists, tangles, kinks etc. must be avoided!

2.7.7 Inserting rope

- Before all work, close and lock housing cover (11) above the drive system.
- When handling wire ropes wear gloves.

2.8 Working

2.8.1 Pulling and lifting

- **In an emergency** press emergency stop button (19 / 23). Machine stops immediately.
- The loose rope end (2) must be able to exit the pulling machine unhindered.
- Never pull hooks against the housing.
- In situations where the work cannot easily be seen: Observations by assistants, if necessary with radio contact.
- Ensure that the Traction rope (3) is slightly tensioned before lifting the load to prevent load peaks from oc-curring.

- Before starting work, check the correct direction of rotation for lifting and lowering.
- Observe the rope during the movement.
- Observe the movement of the load.
- Risk of slipping with low load!
- When pulling make sure that neither the housing nor the rope are deflected or tilted by objects or obstacles.
- When pulling diagonally upwards the rope pulling machine can tilt. Place wood underneath, or avoid diagonal pull with rope roller.

- During operation, the pressure roller (1), in connection with the rope geometry, can lead to elongation slippage and accumulation of the rope so that it briefly lifts out of the V-groove of the drive sheave. The subsequent compensation of this rope protrusion usually results in a regular, characteristic cracking or banging noise. This phenomenon is therefore operational. The machine operation can be continued without hesitation.

2.8.2 Lowering

- Release the lowering button (18). Machine stops.
- **In an emergency** press emergency stop button (19 / 23). Machine stops immediately.
- Risk of falling! Pay attention to loose rope end (2)! Stop lowering movement **2 m** before the end of the rope end at the latest.
- The loose rope end (2) must be able to run freely and without deformations and tangles into the machine.

2.9 Decommissioning

- The pulling rope (3) must be unloaded during decommissioning.
- Loads must be secured.

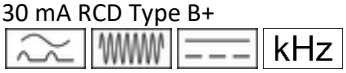
2.10 Storage and transport

- The device must be transported on pallets, secured against sliding and tilting.

3 Design and function

3.1 Technical specifications

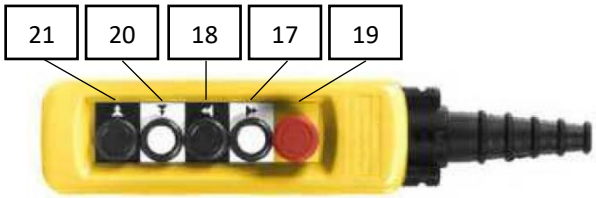
HIT-TRAC	64E servo
Rated force (pulling, lifting, lowering)	64 kN
Overload protection at	approx. 75 kN
Rope speed	approx. 0-4.7 m/min
Control pendant	plug-in 10-pin
Radio remote control	plug-in 10-pin
Load display	X
Pulling force regulation	-
Switch-on period lifting at rated force	100%
Switch-on period lowering at rated force	100%
Rope movement: lifting/lowering	unlimited/unlimited
Dimensions Length Width Height	 1035 mm 760 mm 746 mm
Effective diameter of drive wheel:	400 mm
Rope pulling machine own weight	334 kg
Transmission oil	4 and 0.2 l / 80 W 90
Pulling rope type Diameter Construction Length Breaking strain	HABEGGER HIT-TRAC rope 20.0 mm 6 x 26 WS+FC galvanized any 304 kN
Drive group (DIN 15 020)	1 C_m
Sound power level L_{WA}	max. 85 dB
Permissible temperature range for use and storage	-20°C bis +50°C

HIT-TRAC	64E servo
Drive motor Power S3 30%	Synchronous motor 7.5 kW
Type Speed Motor current S3 30% Current S3 30% Power cable plug	F 112M-6 PM B DG KF 1500 U/min 13.8 A (S1 100%) 14.4 A (S1 100%) 5m (3xL+N+PE) CEE 32 32A
Voltage	3 x 400 V 50 Hz
Standard / protection type	VDE 530 / IP 65
Fault current protection switch	According to DIN VDE 0100-410:2018-10, DIN VDE 0100-530:2018-6 and VDE 0664-10/-2
- 30 mA RCD Type AC 	-
- 30 mA RCD Type A 	-
- 30 mA RCD Type F 	X
- 30 mA RCD Type B 	X
- 30 mA RCD Type B+ 	X
Brake Rated braking torque Anchor tension	BR60 60 Nm 195 V
Emergency mode control	-

3.2 Operating éléments

Pendant button

17 Lift button
18 Lower button
19 Emergency stop
20 Faster
21 Slower



Radio remote control

A wireless remote control can be used as an option.

- Radio control Quadrix / FSE308
  Control for 1 machine

3.3 General functions

3.3.1 Cover monitoring

The housing cover (11) over the drive wheel prevents the entry of foreign objects and protects against accidents due to improper access. The rope derailment protection for the pulling rope is also integrated in the housing cover (11).
The cover monitoring (7) makes sure that the housing cover (11) is closed. The machine cannot be started with the cover open.

3.3.2 Limit switch lift/lower

The limit switch for lifting/lowering is only for an emergency. If the hook on the pulling rope (3) or the loose rope and (2) is pulled against the housing, the machine stops immediately.

- Danger! After activation of the limit switch lifting/lowering (5) the machine must be secured and unloaded. It must be checked whether any damage has occurred.

3.3.3 Brake

The brake is fixed on the free motor shaft end.

3.3.4 Monitoring of pulling rope (3)

1. Hook was pulled against the rope guide (4)
2. Check whether it is possible to drive free
3. Press the rope end switch override button on the display (25) (see servo control operating instructions).
4. Press lower button (18) until the limit switch (5) is no longer activated.

3.3.5 Monitoring of loose rope end (2)

1. Fit loose rope end (2) with bolted rope clamp
2. Rope clamp on loose rope end (2) was pulled against the cable guide (4)
3. Check whether it is possible to drive free
4. Auf Display (25) Seilendschalter Überbrückung betätigen (siehe Betriebsanleitung Steuerung servo)
5. Press lift button (17) until the limit switch (5) is no longer activated.

3.3.6 Control cable extension

The control cable can be extended by the manufacturer.

3.3.7 Extension cable

The power cable can be extended.

3.3.8 Power generator

The HIT-TRAC machines can be operated with a mobile generator. Jakob AG will be happy to support you with the valuation. Important, the supply must be provided via 5 conductor L1, L2, L3, N and PE.

4 Operation

4.1 Preparation

4.1.1 Electrical connection

All electrical components must be connected and tested in accordance with applicable standards and regulations.

4.1.2 Control

According to the operating instructions for the servo control system:

1. Main switch (16) switched on
2. Safety circuit activated
3. Display (25) shows no message

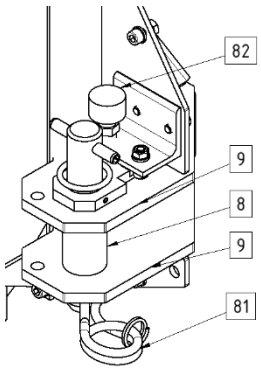
4.1.3 Location

Suitable location for the rope puller.
The machine may only be lifted and transported using the lifting lug (15). The lifting device (22) must be bolted to the HIT-TRAC housing and secured.

4.1.4 Anchoring

The rope puller is anchored using the anchor bolt (8) with a suitable attachment on the attachment point.

1. Insert the anchor bolt (8) correctly into the anchor lugs of the housing (9)
2. Turn the anchor bolt (8) and lock it with the locking bolt (82)
3. Secure anchor bolt (8) with split pin (81)

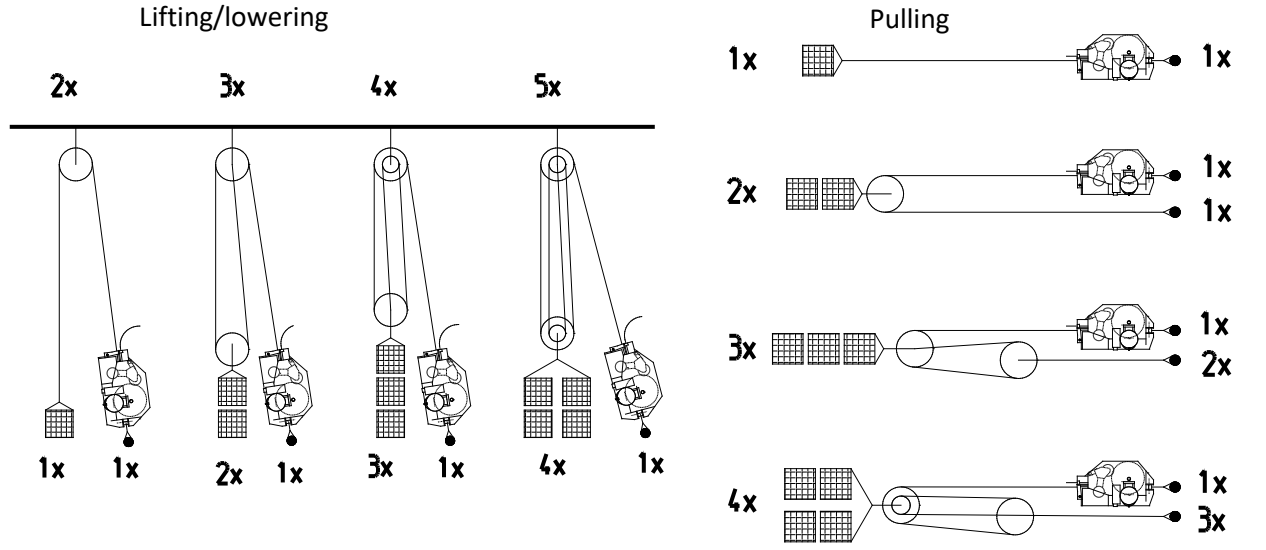


The best anchor points are:	- Solid objects and constructions - Concreted rings - Eyelets or rods
Natural anchoring points:	- Heavy/strong boulders - Trees - Other suitable objects
Technical anchor points:	- Rock anchor, concrete anchor - Round wood anchor in ground - These anchors depend very much on the ground conditions.

4.1.5 Load

The load must be determined before pulling. A suitable load dynamometer can be used for this.
Suitable means of attachment are used to fix the load on the pulling hook. These prevent the load slipping or tilting during work. Suitable attachment equipment includes for example eyes, slings, strops, straps.

For larger rated loads:
Reduce the pulling force by using pulleys.



- The efficiency of the rope block must be included in the design of the rope system. As a rule, an efficiency of 98% per deflection can be expected.

- Caution: Icy pulleys or stiff bearings can lead to an extreme deterioration of efficiency in the pulley block. The pulleys must be checked for smooth running before pulling in the rope.
- Caution: The choice of reeving can have an influence on the alignment of the rope blocks under tensile force. If they are misaligned during operation, this can lead to an extreme deterioration of the efficiency. The reeving must be changed in this case. The original operating instructions for the rope blocks must be considered.

Calculation example:

Load Transmission	Number of rollers	Efficiency (guideline value)	Traction force at 64 kN
1x	0	100%	64 kN
2x	1	98%	125.44 kN
3x	2	96% (0.98 x 0.98)	184.32 kN
4x	3	94% (0.98 x 0.98 x 0.98)	240.64 kN
5x	4	92% (0.98 x 0.98 x 0.98 x 0.98)	294.40 kN
...	...	...	...
8x	7	87 % (0,98 ^ 7)	445.44 kN
...	...	...	...
20x	19	68 % (0,98 ^ 19)	870.40 kN

4.1.6 Traction rope

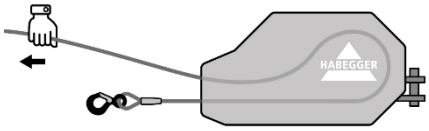
Unwinding and winding up the rope must be done properly according to ISO 4309.
Matching accessories:

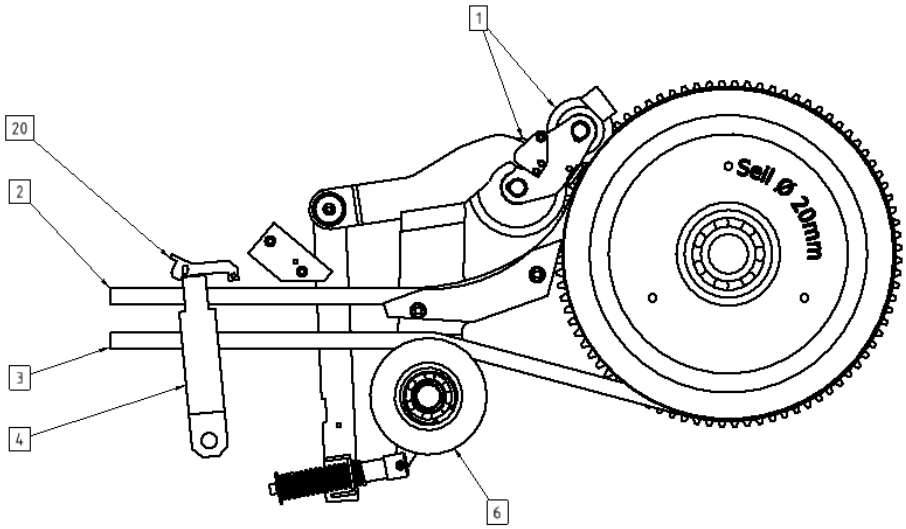
- Reel drive 6 (Art. 01651)

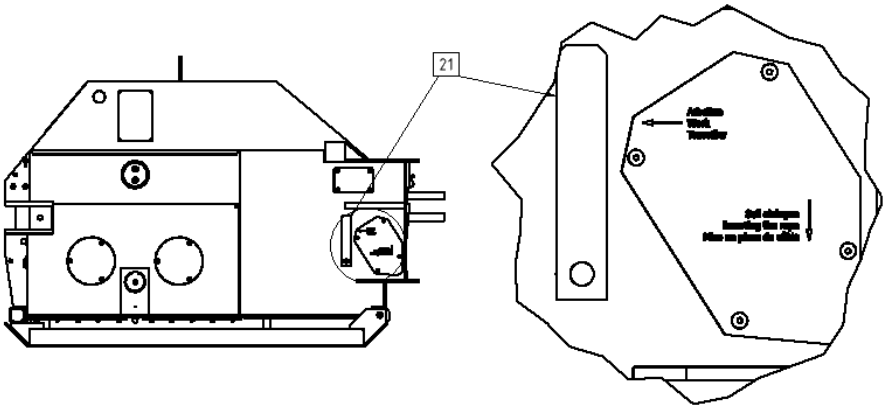
4.1.7 Inserting rope

Only insert the rope at the end of the preparation work. This allows the rope to be pre-tensioned by hand and laid around the drive wheel at a suitable point without an idle stroke. The rope is laid into the drive wheel according to the following sketch or information sign (10).

1. Open the lifting device (22) and bolt it to the frame.
2. Unlock housing cover (11) with cover handle (12) and fold up.
3. Switch the lever to the rocker (21) to "Inserting the rope". (upwards)
4. Lift latch (20) and swing rope shaft (4) forward
5. Create a loop of rope, traction rope (3) at the bottom.
6. Swivel in Traction rope (3) at the bottom in the rope shaft (4).
7. Lay loose rope end (2) at the top in the rope shaft (4) and under pressure roller (1) (lift rocker).
8. Lay rope loop in rope groove of drive wheel (9).
9. Pulling rope (3) over guide roller (6) (press rocker downwards).
10. On loose rope and (2) pull the rope into the rope groove of the drive wheel (9).
11. Close rope shaft (4) and engage latch (20).
12. Check correct location of rope one more time.
13. Switch lever to rocker (21) to "Work" (down)
14. Close housing cover (11) and lock with cover handle (12).







4.2 Working

4.2.1 Pulling and lifting

1. Press lift push button (17).
2. Pulling rope (3) is pulled. Check the rope stretching and lifting of the machine during pulling.
3. Release push button lift (17). Machine stops.

4.2.2 Lowering

1. Press push button lower (18).
2. Load is lowered
3. Release push button lower (18). Machine stops.

4.3 Decommissioning

4.3.1 Taking rope out of the machine

1. Pulling rope (3) must be loose
2. Unlock housing cover (11) with cover handle (12) and fold up.
3. Switch the lever to the rocker (18) to "Inserting the rope". (upwards)
4. Lift latch (17) and swing rope shaft (4) forward
5. Remove loose rope and (2) at the top in rope shaft (4) and under pressure roller (1)
6. Remove pulling rope (3) at the bottom in the rope shaft (4)
7. Remove complete rope from the machine and wind up properly
8. Close housing cover (11) and lock with cover handle (12).

4.3.2 Dismantling machine

- Release machine from the anchor point
- Switch off the main switch (16)
- Disconnect machine from the power supply

4.4 Storage and transport

The device must be stored in a dry place. During transport and storage, the device must be covered against dust.

5 Faults

Faults	Possible cause	Measures
Motor does not start when push button is pushed	Housing cover (11) is not closed	Close housing cover (11)
	Rope shaft not swivelled in	Swivel rope shaft inwards until latch clicks
	Power cable not connected	Connect power cable
	Power cable defective	Replace power cable
	Defective fuse in the power supply	Clarify cause, fuse Replace
	RCD tripped	If necessary replace RCD according to chapter 3.1.
	Emergency stop button (19 / 23) on pendant button pressed	Release emergency stop button (19 / 23) by turning
	Limit switch lift/lower (5) activated	Drive free
	Other cause	Call an electrician, schematic is in the control cabinet cover or on the HSS chip (14)
Despite the motor making a noise the drive equipment does not move	Rectifier defective holding brake does not open	Replace rectifier
	Rope tension is greater than permissi-ble pulling force	Reduce load or use pulley system
Rope does not move, even though drive wheel turns	Rope incorrectly inserted	Install rope according to sketch
	Rocker not swivelled in	Switch lever to rocker (21) to "Work" (down)
	Too small or too thin rope installed	Install correct rope
	Severe wear on rope	Install new rope
	Drive wheel or rope excessively greased	Clean
	Rope groove in drive wheel strongly contaminated	Clean
	No load on rope	Load rope
Error messages on display (25)	Various causes	Follow instructions on display (25) For further information, see servo control operating instructions

6 Maintenance

The following items of inspection and maintenance work must be carried out:

Working	At the start of work	As required	Comments
General visual inspection: - Drive system - Housing - Anchor bolts, pulling tab	X	X	
Bolt check		X	after first use or overhaul
Cleaning of drive wheel		X	
Direction of rotation of electric motor	X	X	Lift button (17) Turning of the drive wheel in counterclockwise direction
Relubrication of the pinion		X	Gear wheel grease
Rope: - Visual inspection - Compression sleeve - Eye hook with securing device - Diameter check	X	X	According to ISO 4309 Inspection for deformations, damage, cracks or wire breaks Max **10%** smaller than rated diameter
Rope: Cleaning		X	
Oil level in sight glass		X	

Units, rope and accessories must be checked at least **every 2 years** (see sticker on the unit) by an expert certified by Jakob AG.
When doing so all parts are checked for deformation, wear and cracks. The test results must be entered in the inspection log.
The tests must be arranged by the operating company.
In addition to this additional tests must be arranged by an expert according to the local regulations as well as after harsh use conditions, at a shortened interval.

7 Spare parts

The spare parts are provided on a separate list. This can be requested from Jakob AG.

8 Disposal

Please comply with the local regulations on disposal.
Fully drain your HIT-TRAC of oil.
Please dispose of even the smallest quantities of oil properly or bring them to a responsible location.
When dismantling, separate material types as far as possible, to allow recycling: Keep metal and plastic parts separate and send for recycling.
Please bear in mind that protecting the environment and re-use of materials benefits everybody.