



Installation, Operating and Maintenance Instructions

HADEF Steel Wire Rope Pull Hoist

Type 148/19



HADEF

 **NOTICE!**

The installation or mounting instructions for incomplete machines you'll find in chapter "Installation"

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Heinrich De Fries GmbH will be named HADEF in the following text.

Original operating- and maintenance instructions in German language.

Translation in other languages is made of the German original.

A copy may be requested in writing or is available for download on www.hadef.com

Subject to changes.

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1 Information

The products meet European Union requirements, in particular the validated EU Machine Directive.
 The entire company works acc. to a certified quality assurance system as per ISO 9001.
 The production of components at our work is subject to strict, intermediate checks.
 After assembly, each product is subject to a final test with overload.
 For the operation of hoists, the national accident prevention regulations apply in Germany, amongst others.
 The stated performance of the devices and meeting any warranty claims require adherence to all instructions in this manual.
 Before delivery, all products are packed properly. Check the goods after receipt for any damage caused during transport. Report any damage immediately to the forwarding agent.
 This manual allows a safe and efficiently use of equipment. Images of this manual are for a principle understanding and can be different from the real design.

 **NOTICE!**

We refer to the prescribed equipment tests before initial start-up, before putting back into operation and the regular periodic inspections.
 In other countries any additional national regulations must be observed.

2 Safety

2.1 Warning notice and symbols

Warnings and notice are shown as follows in these instructions:

 DANGER!	This means that there is a high risk that leads, if it is not avoided, to death or severe injury.
 WARNING!	This means that there is a risk that could lead, if it is not avoided, to death or severe injury.
 CAUTION!	This means that there is little risk that could lead, if it is not avoided, to slight injury or damage to the device or its surrounding.

 **NOTICE!**



Danger from electricity.



Danger from explosive area.

2.2 Duty of care of the owner



DANGER!

Failure to follow the instructions of this manual can lead to unpredictable hazards.

For any resulting damage or personal injury, HADEF assumes no liability.

The unit was designed and built following a risk analysis and careful selection of the harmonized standards that are to be complied with, as well as other technical specifications. It therefore represents state-of-the-art technology and provides the highest degree of safety.

Our delivery includes the hoist supplied beginning at its suspension and ending at the load hook and if supplied with control, the control line/hose that leads to the hoist. Further operating material, tools, load attaching devices as well as main energy supply lines must be assembled according to the valid rules and regulations. For explosion-proof equipment, all these parts must be approved for use in area prone to explosion, or they must be suitable for use in area prone to explosion. The owner is responsible for this.

However, in everyday operation this degree of safety can only be achieved if all measures required are taken. It falls within the duty of care of the owner/user of the devices to plan these measures and to check that they are being complied with.

Complete the operating and installation instructions by any instructions (regarding supervision or notifications) that are important for the special kind of use of the equipment, i.e. regarding organization of work, work flow and human resources.

In particular, the owner/user must ensure that:

- The unit is only used appropriately.
- The device is only operated in a fault-free, fully functional condition, and the safety components, in particular, are checked regularly to ensure that it is functioning properly.
- The required personal protective equipment for the operators, service and repair personnel is available and is used.
- The operating instructions are always available at the location where the equipment is used and that they are legible and complete.
- The unit is only operated, serviced and repaired by qualified and authorized personnel.
- This personnel is regularly trained in all applicable matters regarding safety at work and environmental protection, and that they are familiar with the operating manual and, in particular, the safety instructions it contains.
- Any safety and warning signs on the devices are not removed and remain legible.
- Devices for use in area prone to explosion must (from customer's side) be earthed with a shunting resistor of $< 10^6 \Omega$ against earth.



WARNING!

It is not allowed to make constructive changes of the equipment!

2.3 Requirements for the operating personnel

The units may only be operated by qualified persons that are appropriately trained and that are familiar with it. They must have their employer's authorization for operation of the units.

Before starting work, the operating personnel must have read the operating and installation instructions, especially the chapter "Safety Instructions".

This is especially important for operating personnel that rarely uses the equipment, i.e. for installation or maintenance work.



DANGER!

In order to avoid severe injury, please pay attention to the following when using the equipment:

- Use protective clothes/equipment.
- Do not wear long hair hanging down open.
- Do not wear rings or other jewelry.
- Do not wear clothes that are too big/wide.
- Do not reach into ropes, chains, drive parts or other moving parts with your hands

2.4 Appropriate use

The permitted safe working load of the devices must not be exceeded! An exception can be made during the load test before initial operation, carried out by a licensed qualified person.

- Defective devices and load suspension devices must not be used until they have been repaired! Only original spare parts must be used. Non-compliance will result in any warranty claims becoming void.
- Liability and warranty will become void if unauthorized modifications of the units are made by the user!
- The permissible ambient temperature when operating the devices:

Power unit	Device classification for	
	Not explosive atmosphere	Explosive atmosphere according to  ATEX)*)**
Manual	-20 °C/+50 °C	-20 °C/+40 °C
Motor	-20 °C/+40 °C	-20 °C/+40 °C

) * At an atmospheric pressure range from 0.8bar to 1.1bar and an oxygen content of approx. 21%

) ** Devices of this category have been specially modified and labeled by the manufacturer

 **DANGER!**

The permissible ambient temperature must not be exceeded!

Horizontal, vertical or diagonal movement of loads.

Applicable for outdoors using.

When not using, protect it against dust and condensation by cover.

NOTICE!

If the units are not used appropriately, it is not possible to ensure safe operation.

The owner and operator have sole liability for all personal injury and damage to property arising from inappropriate use.

 **DANGER!**

The use is not allowed:

- for pulling loose of stuck loads, dragging of loads and inclined pulling.
- in explosive atmosphere, except the unit is especially modified for it and marked by an indication label.
- in reactor containment vessels.
- to transport people.
- The device is not suitable for use on stages and in studios.

Persons must not stand under a suspended load.

2.5 Basic safety measures

- Observe installation-, operation and maintenance instruction.
- Take notice of caution notes at units and in the manual
- Observe safety distances.
- Take care for a free view on the load.
- Only use the hoists appropriately.
- The equipment is to be used exclusively for movement of goods. Under no circumstances my persons be moved.
- Never load the devices beyond their working load limit.
- Pay attention to the accident prevention regulations (UVV).
- Should the hoist be used outside of Germany, please pay attention to the national regulations that apply.
- Supporting structures and load-attached devices used in conjunction with this equipment must provide an adequate safety factor to handle the rated load plus the weight of the equipment. In case of doubt, consult a structural engineer.

- If the equipment has not been used for a period of time, carry out visual checks of all main components such as chains, load hooks etc. and replace any damaged parts with new, original spare parts before putting the equipment back into operation!
- Do not use a hoist that is defective, pay attention to any abnormal noise it makes during operation.
- Stop working immediately in case of disturbances and remedy failures.
- Any damage and faults must be reported to a responsible supervisor immediately.
- If the unit is put into motion, any persons in the immediate vicinity must be informed by calling to them!
- Please pay attention to the regulations for load carrying devices UVV for both positive and non-positive methods of attaching loads.
- The lifting tackle or the load must be securely attached to the hook and be seated at the bottom of the hook.
- The safety catch of hooks must be closed.
- When charged, the housing may not be in contact somewhere.
- Motor drive is prohibited.

3 Transport and Storage

CAUTION!

Transport may only be done by qualified personnel. No liability for any damage resulting from improper transport or improper storage.

3.1 Transport

The devices are checked and if so adequately packed before delivery.

- Do not throw or drop the equipment.
- Use adequate means of transport.

Transport and means of transport must be suitable for the local conditions.

3.2 Safety device for transport

NOTICE!

Should a safety device for transport exist, please remove it before commissioning.

3.3 Storage

- Store the equipment at a clean and dry place.
- Protect the equipment against dirt, humidity and damage by an appropriate cover.
- Protect hooks, wire ropes, chains and brakes against corrosion.

4 Description

4.1 Areas of application

The devices must be as far as possible installed in a covered room.

If they are used in the open, protect the units against the effects of weather such as rain, hail, snow, direct sunshine, dust, etc. - we recommend to use a cover in parking position. If the device is set up in a continuously humid environment with strong temperature fluctuations, the correct functionings are endangered by the forming of condensation.

NOTICE!

Use only in the intended atmosphere with a humidity of up to 100%, but not under water!

DANGER!

It is not permitted to use the unit in an area at risk from explosion!

4.2 Design

HADEF wirerope hoists are suitable for mobile use.
The housing is made of steel.

Basic model:

wirerope hoist Type 148/19
with lever tube
including 20 m wirerope with hook and tapered end



Illustration 1

4.3 Functions

By moving the lever, the wire rope is moved forwards or backwards through the clamping jaws.
This makes it possible to move the load forwards or backwards.
In case of overload, a safety pin breaks and interrupts the pulling movement.
Reduce the load to the max. nominal load and insert a new, original safety pin.

4.4 Important components

- Housing
made of steel

- Brake
Load pressure brake

- Clamping jaws
Clamping jaws transport the wire rope.

- Overload protection
The safety pin shears off in case of overload. Moving the load cannot be continued.

- Wire rope
Only special wire ropes must be used that have been developed for these units.

5 Technical data

capacity	pulling force	lever force with full load	wirerope turn per double lift	wirerope Ø	minimum breaking force	weight without rope	wirerope weight per m
kg	kg	N	mm	mm 1)	kN	kg	kg
800	1200	353	52	8,3	40	6,4	0,25
1600	2400	412	55	11	80	12	0,51
3200	4000	441	28	16	160	23	1

1) special wire rope

6 Installation

Please observe the following points in order to avoid damage to the equipment or injury of person:

- Wear protective gloves
- Check assembly devices for stable hold.
- The device must be set up and attached in such a way that it cannot change position neither by the load nor by other influences.

6.1 Wire rope assembly - free running mechanism

The free running mechanism of wire rope offers easy feed in and out of the uncharged wire rope during assembly and disassembly of the wire rope.

Basic position of the operation levers

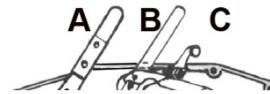


Illustration 2

Insert the wire rope

- Move lever (A) slightly to the left side.
- Nearly simultaneously move lever (B) and (C) until lever (C) engages.
- The maximum position for lever (A) is the vertical position, not further.
- Insert the wire rope into the unit from the back.
- Feed the wire rope completely through the unit until it comes out in the front of the unit.
- Unlock lever (C) to the right side.

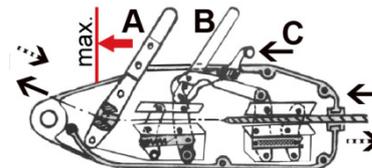
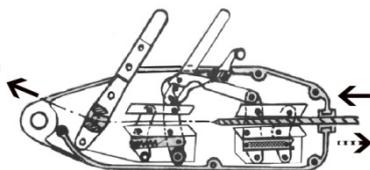


Illustration 3

correct



wrong

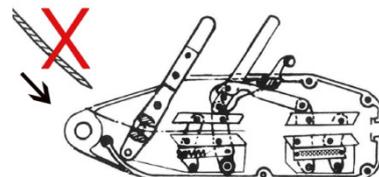


Illustration 4

CAUTION!

It is prohibited to insert the wire rope into the unit from the front.
Never use the free-running mechanism when the wire rope is charged!

Remove the wire rope

Disassemble the wire rope in the same way as the assembly is done.

- Move lever (A) slightly to the left side.
- Nearly simultaneously move lever (B) and (C) until lever (C) engages.
- The maximum position for lever (A) is the vertical position, not further.
- Pull the wire rope out of the unit to the back side.
- Unlock lever (C) to the right side.

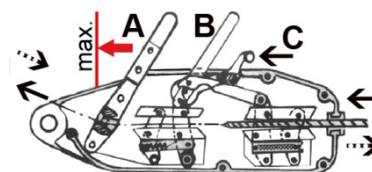


Illustration 5

6.2 Fastening of the device

A bolt for a possible fastening of a hook, or other device is provided at the front side.

In order to lock it, insert it through the housing and turn it 2 times.

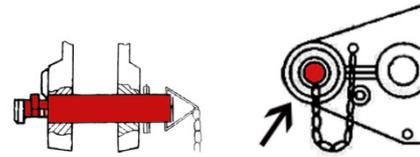


Illustration 6

7 Control

Only people that are familiar with the operation of the lifting devices and cranes may be entrusted with their operation. They must be authorized by the employer for the operation of the equipment. The employer must ensure that the operating instructions are available near the equipment and that they are accessible for the operating personnel.

7.1 Lifting or pulling

Move the operating lever (A) forwards and backwards to lift or pull the load.



Illustration 7

7.2 Lowering or relieving

Move the operating lever (B) forwards and backwards to lower or set down the load.



Illustration 8

CAUTION!

- Never operate the relieving lever when the wire rope is charged.
- Never let the load rotate when the wire rope is fastened to it.
- Never move all levers together at the same time.
- Never use a device to elongate the lever.
- Never use the levers forcible as this may destroy the safety pin.
- Never use self-made safety pins, only use original safety pins/bolts.
- When charged, the housing may not be in contact somewhere.

8 Commissioning

8.1 General

Should the unit be used in Germany:

Please observe the validated, national accident prevention regulations.

For other countries:

Inspections as above. Please observe the national rules and regulations and the instructions in this manual!

NOTICE!

Hoists up to 1000 kg capacity and without motor-driven trolleys of hoisting unit must be tested by a “qualified person” before putting into operation for the first time.

Hoists of 1000 kg capacity and up or with more than one motor-driven hoist movement; i.e. lifting and trolley movement, must be tested by a “licensed qualified person” before putting in operation.

An exception is “hoists ready for operation” acc. validated national regulations with EU-declaration of conformity.

Definition “qualified person” (former expert)

A “qualified person” has learned, due to occupational training and experience and the job that the person has done, the skills needed to tests the material for one’s work.

Definition “licensed qualified person” (former approved expert)

A “licensed qualified person” has, due through special occupational training, knowledge about testing of the material for one’s work and knows the national accident prevention regulations and other prescriptions and technical regulations. This person must test the material for one’s work regularly with regard to design and kind of use. The license will be given to qualified person be the approved supervision authorities (ZÜS).

8.2 Wire rope

Wire ropes must be free from corrosion, dirt or damage.

They must be lubricated before commissioning.

No lubrication shortens the lifetime of the wire rope and the maintenance intervals.

WARNING!

It is not allowed to use plastic wire ropes or plastic-coated wire ropes.

9 Safety check

Before putting into service initially or when putting back into service, it must be checked whether:

- All fastening screws (if existent), socket pins, flap socket and safety devices are tightened and secured.
- The wire ropes are winded up correctly, are lubricated and are in good condition.

10 Functional test

The functional test must be effected with the load capacity mentioned on the type plate.

Check the brake when lifting/lowering - it must hold the load safely.

Check the condition of the wire rope and the supporting structures.

Check screw connections.

11 Maintenance

11.1 General

All monitoring, servicing and maintenance operations are to ensure correct functioning of the equipment; they must be effected with utmost care.

- Only “qualified persons” may do this work.
- Servicing and maintenance work must only be done when the hoist is not loaded.
- Records must be kept of all test results and measures taken.

11.2 Monitoring

The monitoring and servicing intervals stated are valid for operation under normal conditions and single-shift operation. In case of severe operating conditions (e.g. frequent operation with full load) or special environmental conditions (e.g., heat, dust, etc.), the intervals must be shortened correspondingly

11.3 Overload protection by safety pin

Replace the safety pin by a new, original safety pin in case of deformation or shearing off.

11.4 Clamping jaws

If the clamping jaws are worn, they must be replaced by original clamping jaws.

12 Inspection

12.1 Periodic checks

Independently from the regulations of the individual countries, lifting devices must be checked at least yearly by a qualified person or licensed qualified person regarding its functional safety.

12.2 Wire rope

Adequate performance of the servicing and monitoring work acc. to the validated, national regulations "Basics for cable drives – monitoring during use".

A visual check must be effected before every new work shift.

- Wear
- Deformation
- Fissures
- Corrosion

Report any damage immediately to the responsible person and exchange damaged or worn wire ropes and load tackles.

12.3 Inspection intervals

	at putting into operation	daily checks	inspection, maintenance every 3 months	inspection, maintenance every 12 months
inspection of the equipment by an expert (periodic inspection)				X
check screw connections	X			X
check brake function	X	X		
check the safety pin for deformation			X	
check clamping jaws for wear			X	
lubrication - wire rope *)			X	

*) shorten maintenance intervals in case of increased dirt or heavy charge of the equipment

13 Service

13.1 Wire rope

Wire ropes have to be exchanged by new, original wire ropes if they show corrosion, fracture or if they are worn.

Checks:

- Fastening screws must be checked before commissioning and at least every 3 months, - tighten them if necessary.
- Kind and number of broken threads.
- Position of the broken threads
- Timing sequence of occurrence of breaks.
- Reduction of the wire rope diameter.
- Corrosion
- Abrasion
- Deformation
- Heat influence
- Operation time
- Wire rope fastening



CAUTION!

The wire rope must be replaced immediately should even one strand be broken.

13.2 Lubricant - Selection

FUCHS	SHELL	ESSO	MOBIL	TOTAL	CASTROL	KLÜBER
Renolit FEP 2	Alvania EP 2	Unirex EP 2	Mobilux EP 2	MULTIS EP2	--	--
Stabylan 5006	--	--	--	--	Optimol Viscoleb 1500	Klüberoil 4UH 1-1500
--	--	--	--	--	--	Wolfracoat 99113
Chain lubricant OKS 451						

13.3 Lubricant for food industry - Selection (as option*)

	SHELL	MOBIL	CASTROL	KLÜBER
Gearing	FM Grease HD2	Mobilgrease FM 222	--	Klüberoil 4UH 1-1500 N
Load chain	--	Lubricant FM 100	Optimol Viscoleb 1500	--
Load hook; Pulleys Gear rim; Drive pinion	FM Grease HD2	Mobilgrease FM 222	--	--

* must be mentioned by order

14 Trouble

Please pay attention to the following in case of problems:

- Troubles with the equipment must only be repaired by qualified personnel.
- Secure the unit against unintended operation start.
- Put up a warning note indicating that the unit is not to be used.
- Secure the working area of moving parts of the unit.
- Please read the chapter "Safety instructions".

Notes on the repair of faults are found in the following table.

For the repair of failures please contact our service department.


CAUTION!

Trouble caused by wear or damage to parts such as wire ropes, chains, chain wheels, axes, bearings, brake parts, etc., must be remedied by replacing the parts with original spare parts.

15 Remedy

Trouble	Cause	Remedy
The load is no longer pulled	Clamping jaws are worn	Replace them by new, original clamping jaws.
	The clamping jaws are blocked.	Remove obstacle, check clamping jaws and wire rope for damage and replace if necessary.
	Damage of wire rope	Check the wire rope and replace it by a new special wire rope if necessary.
	Overload caused shearing-off of the safety pin.	Reduce the load, replace the safety pin by a new original safety pin.

16 Decommissioning


WARNING!

It is essential that the following points are observed in order to prevent damage to the equipment or critical injury when the device is being decommissioned:

It is mandatory that all steps for decommissioning the machine are carried out in the indicated sequence:

- First secure the working area for decommissioning, leaving plenty of space.
- Read the chapter "Safety instructions".
- Disassembly is carried out in reverse order to the assembly.
- Please make sure that all operating material is disposed of in accordance with environmental regulations.

16.1 Temporary decommissioning

- Measures are as above.
- Also read the chapter "Transport and storage".

16.2 Final decommissioning/disposal

- Measures are as above.
- After disassembly, ensure that the disposal of the equipment and any materials it contains is carried out in accordance with environmental regulations.