



Installation,- Operating and Maintenance Instructions

HADEF Aluminium Gantry Crane

Type 700

collapsible, single beam

K1

collapsible, double beam

K2

collapsible, single beam - movable

K1F

collapsible, double beam - movable

K2F



HADEF

Internet Download: www.doc.hadef.de/bapk700_gb.pdf

 **NOTE!**

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

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Heinrich de Fries GmbH, Gauss Str. 20, D-40235 Düsseldorf



Heinrich de Fries GmbH wird im Weiteren als HADEF bezeichnet.

Originalbetriebsanleitung in deutscher Sprache.

Eine Kopie kann bei HADEF schriftlich angefordert werden.

Änderungen vorbehalten.



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

Translation of the original operating and maintenance instructions

A copy is available from HADEF on request.

Subject to changes.

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1 Information

HADEF products meet European Union requirements, in particular the EU Machine Directive (2006/42/EG).

The entire company works acc. to a certified quality assurance system as per ISO 9001.

The production of components at HADEF is subject to strict, intermediate checks.

After assembly, each HADEF product is subject to a final test with overload.

For the operation of hoists, the accident prevention regulations BGV D8, BGV D6 and BGR 500 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 HADEF 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 efficient use of equipment. Images of this manual are for a principle understanding and can be different from the real design.

NOTE!


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!

Gives advice for use and other useful information.



Danger from electricity.



Danger from explosive area.

2.2 Duty of care of the owner

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 authorisation 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 jewellery.
- Do not wear cloths that are too big/wide.

2.4 Appropriate use

The appropriate use of the units is vertical lifting and lowering of unguided loads, in combination with hoists moving of loads on plain and stable ground.

The permitted safe working load of the devices must not be exceeded! An exception can be made during the load test, carried out by a licensed expert in accordance with the accident prevention regulations UVV BGV D6 before initial operation.

- The permitted environmental temperature during equipment operation is -20°C to $+40^{\circ}\text{C}$.
- Do not use the crane on icy or slippery ground.
- In case of wind velocity of more than 40 km/h the crane must be fixed to the ground or dismantled.
- Defective devices and load suspension devices must not be used until they have been repaired! Only original HADEF spare parts must be used. Non-compliance will result in any warranty claims on HADEF becoming void.
- Liability and warranty will become void if unauthorized modifications of the units are made by the user!



NOTE!

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!

It is not allowed:



- pulling loose of stuck loads, dragging of loads and inclined pulling is not allowed.
- in explosive atmosphere, except the unit is especially modified for it and marked by an indication label
- to transport people
- persons must not stand under a suspended load

2.5 Basic safety measures

- Only use the hoists appropriately.
- Never load the devices beyond their permitted working load limit.
- Please observe the accident prevention regulations (UVV).
- Should the equipment be used outside of Germany, please pay attention to the national regulations that apply.
- Grounds and supporting structures used in conjunction with this equipment must provide an adequate stability. In case of doubt, please consult a structural engineer.
- If the equipment has not been used for a period of time, carry out visual checks of all main components and replace any damaged parts with new, original spare parts.
- Please pay attention to the regulations for load carrying devices UVV BGR 500 for both positive and non-positive methods of attaching loads.
- Do not use defective equipment.
- 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!
- Load-attaching devices must be in perfect shape.
- The load must not bump against the crane construction.

2.1 Safety Instructions

Please pay attention to the following additional safety instructions to prevent injury:

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

- Please pay attention to the operating and maintenance instructions.
- Please pay attention to the operating and maintenance instructions of the hoists.
- Please pay attention to the warnings mentioned on the device.
- Please consider oscillations of the load and the stopping distance.
- Please adhere the safe distances.
- Please insure good sight during operation.
- In case of trouble stop operation immediately and eliminate the defect.
- Make sure the device stands stable.
- Make sure there is good bearing soil.

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

HADEF 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



NOTE!

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 functioning of the motor and the brake are endangered by the forming of condensation.

Ambient temperature: - 20°C up to + 40°C. Humidity: 100 % or less but not under water

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

4.2 Design

HADEF Aluminium Gantry Cranes are available in the following types:

Type 700 K1 stationary with single beam, collapsible

Type 700 K2 stationary with double beam, collapsible

Type 700 K1F movable with single beam, collapsible

Type 700 K2F movable with double beam, collapsible



Type 700 K1



Type 700 K2



Type 700 K1F



Type 700 K2F

The cranes can be combined with hand chain hoists as well as with electric chain hoists.

When supplied with electric chain hoist, the crane is supplied ready for wiring including low voltage control.

Serial crane: three phase current 400 V/50Hz - 16A, phase inverter CEE connection, electric connection of the hoist by plug connection. Protection IP66, suitable for in- and outdoor use.

4.3 Functions

The following functions are possible:

Horizontally adjustable beam	K1, K2, K1F, K2F
Beam supports adjustable in height	K1, K2, K1F, K2F
Feet adjustable in height	K1, K2
Horizontally movable trolley with locking brake	K1, K2, K1F, K2F
Collapsible beam supports	K1, K2, K1F, K2F
Detachable wheel structure	K1F, K2F

Easy disassembly of all parts to facilitate transport of the equipment.

4.4 Important components

4.4.1 Beam

Depending on the kind of crane and capacity there is a single or a double beam of aluminium.

4.4.2 Beam support

Made of aluminium, adjustable horizontally, detachable

4.4.3 Trolley

Movable horizontally, with locking brake.

4.4.4 Movable crane

The crane is movable with load - suitable for indoor use.

Polyurethane coated wheels incl. brake.

4.4.5 Wheels for all stationary cranes - option

Suitable to move the crane without load.

Optionally available with wheels made of polyurethane foam for indoor and outdoor use or polyurethane-coated for indoor use.

4.4.6 Manual winch mechanism - option

1 set (2 units) manual winches for manual height adjustment via chain.

Constant crank effort.

4.4.7 Electric control

Serial equipment for cranes with electric hoist including plug in for electric connections and phase inverter CEE.

Protection IP66, suitable for indoor and outdoor use.

5 Technical data

Type AKP 700 K1, K2

Model	Capacity	Beam length	Suspension point at the trolley bolt	Suspension point at the trolley bolt	Width	Adjustment range		Weight approx.	
						Beam support	Adjustable feet		
	kg	A	B	B	C	D	E	K1	K2
		mm	K1	K2	mm	mm	mm	kg	kg
K1 + K2	1000	4000	1360-2360	1735-2735	1295	600	400	95	177
K1 + K2	1000	6000	1360-2360	1735-2735	1295	600	400	120	225
K1 + K2	1500	4000	1360-2360	1735-2735	1295	600	400	102	177
K1 + K2	1500	6000	1360-2360	1735-2735	1295	600	400	144	225
K1 + K2	1000	4000	1750-3000	2124-3374	1743	850	400	105	187
K1 + K2	1000	6000	1750-3000	2124-3374	1743	850	400	130	235
K1 + K2	1500	4000	1750-3000	2124-3374	1743	850	400	126	187
K1 + K2	1500	6000	1750-3000	2124-3374	1743	850	400	168	235
K1 + K2	1000	4000	2325-4025	2709-4409	2238	1300	400	166	237
K1 + K2	1000	6000	2325-4025	2709-4409	2238	1300	400	190	285
K1 + K2	1500	4000	2325-4025	2709-4409	2238	1300	400	172	237
K1 + K2	1500	6000	2325-4025	2709-4409	2238	1300	400	244	285
K2	2000	4000	--	2227-3477	1752	850	400	--	225
K2	2000	6000	--	2227-3477	1752	850	400	--	273
K2	3000	4000	--	2645-3795	2222	750	400	--	267
K2	3000	6000	--	2645-3795	2222	750	400	--	251

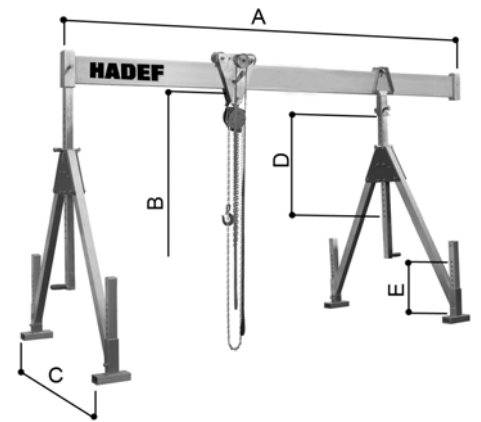


Illustration 1

Type AKP 700 K1F, K2F

Model	Capacity	Beam length	Suspension point at the trolley bolt	Suspension point at the trolley bolt	Width	Adjustment range	Weight approx.	
							Beam support	
	kg	A	B	B	C	D	K1F	K2F
		mm	K1F	K2F	mm	mm	kg	kg
K1F + K2F	1000	4000	1720-2120	2100-2500	1504	400	166	237
K2F	1000	6000	--	2100-2500	1504	400	--	285
K1F + K2F	1500	4000	1720-2120	2100-2500	1504	400	172	237
K2F	1500	6000	--	2100-2500	1504	400	--	285
K1F + K2F	1000	4000	2160-3010	2540-3390	2012	850	192	263
K2F	1000	6000	--	2540-3390	2012	850	--	311
K1F + K2F	1500	4000	2160-3010	2540-3390	2012	850	198	263
K2F	1500	6000	--	2540-3390	2012	850	--	311
K1F + K2F	1000	4000	2490-3790	2875-4175	2328	1300	214	285
K2F	1000	6000	--	2875-4175	2328	1300	--	333
K1F + K2F	1500	4000	2490-3790	2875-4175	2328	1300	220	285
K2F	1500	6000	--	2875-4175	2328	1300	--	333

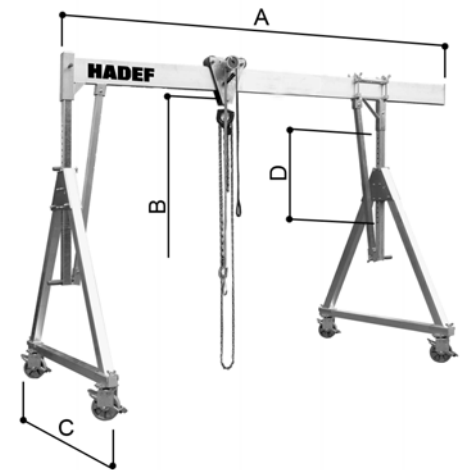


Illustration 2


6 Installation

Assembly depends on the local environment. The crane must be secured against movement and collapsing. Do not climb on the crane structure.

6.1 General

- Aluminium beams must be horizontal and beam supports of the side constructions must be vertical.
- The trolley may only be used on the part of the beam situated between the two side constructions.
- Inclined pulling is not allowed.
- When adjusting the beam supports, only touch the lifting handle and the set bolt.
- All set bolts must be placed and, if existent, locked with collapsible plugs before the crane is charged.

6.2 Dangers during assembly

 CAUTION!
<ul style="list-style-type: none"> ▪ In slightly oblique position and when the trolley brake is not locked, the trolley may get into movement. ▪ Incorrect adjustment of the beam supports may lead to injury. ▪ For movable cranes the wheel brakes of the side constructions must be locked so that the crane does not move. ▪ Unfold the frames slowly to prevent crushing of fingers. ▪ If the wind intensity is 40 km/h or more, the crane must be moved indoors, or fixed stable to the ground. ▪ If the weld seams show fracture, the load may fall down.

6.3 Assembly of the stationary crane

- Press the bolts (12) down at the frame stretchers (2).
- Fold the braces (2) to the outside until the set bolts (12) lock into the holes of the plate (3).

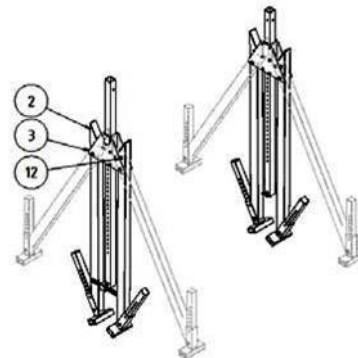


Illustration 3

- Place the horizontal adjustment device (6) on the shorter beam support (4.1). The horizontal adjustment device must be unfolded.
- Place the aluminium beam (7) onto the side constructions.
- Push the aluminium bush at the end of the aluminium beam (7) onto the longer beam support (4.2).
- Insert the other side of the aluminium beam (7) into the horizontal adjustment device (6) at the shorter beam support (4.1).

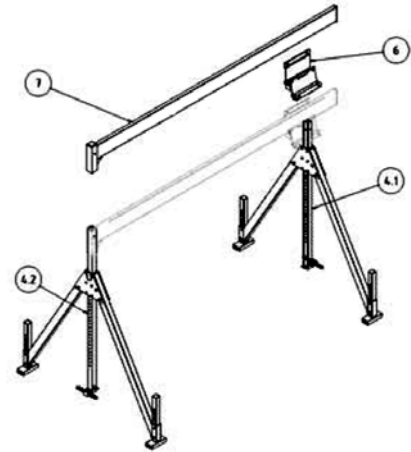


Illustration 4

- Insert the set bolts (11) into the hole of the bush.
- Secure with collapsible plug.
- Lock the aluminium beam (7) with star grip screws (20) in the horizontal adjusting device (6).

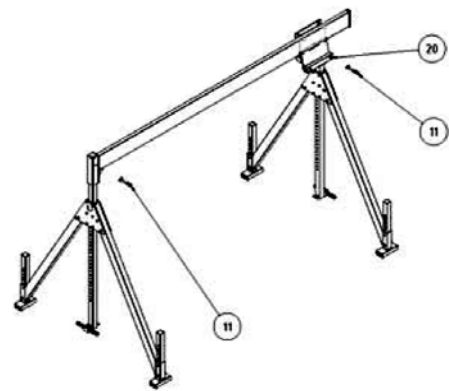


Illustration 5

- Place the trolley (8) onto the aluminium beam (7).
- Insert the set bolt (14) for the trolley into its hole.
- Secure with collapsible plug.
- Secure the trolley against unintended movement by pulling the red strap.

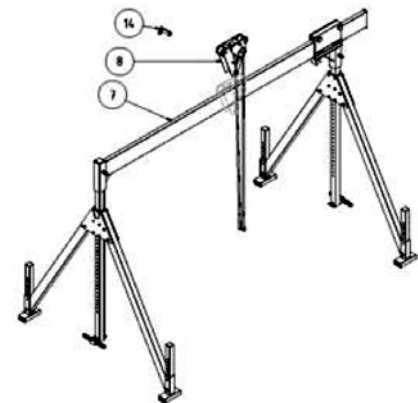


Illustration 6

Adjusting the height

- Draw out the aluminium feet (1) and/or the beam supports (4.1 + 4.2).
- Secure them with set bolts (9+10) for the desired height.

Make sure that the set bolts on both sides are on the same level.

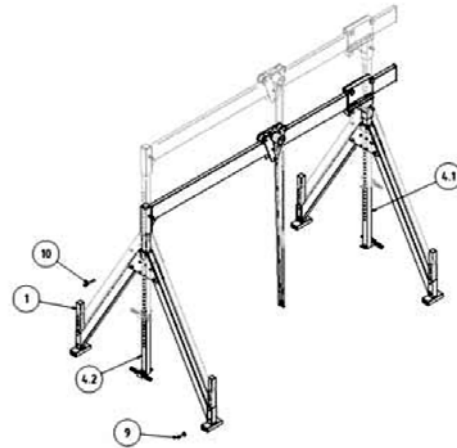


Illustration 7

6.4 Assembly of the movable crane

- Press the set bolts (12) at the braces (2) and fold the braces (2) to the outside until the set bolts (12) lock into the holes of the plastic plates (3).

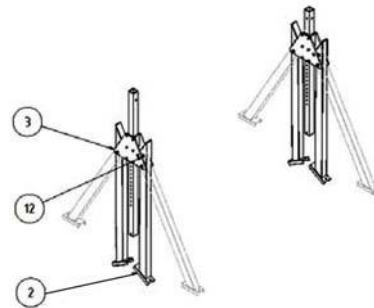


Illustration 8

- Place the horizontal adjustment device (6) on the shorter beam support (4.1). The horizontal adjustment device must be unfold.
- Set the side constructions onto the bolts of the wheel sets (19).
- Secure them with butterfly nuts (20).

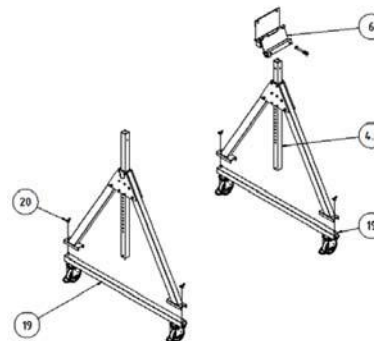


Illustration 9

2 persons required

- Lock all wheel brakes.
- Put up the side construction with the longer beam support (4.2) and hold it.
- Push the aluminium bush at the end of the aluminium beam (7) onto the beam support.

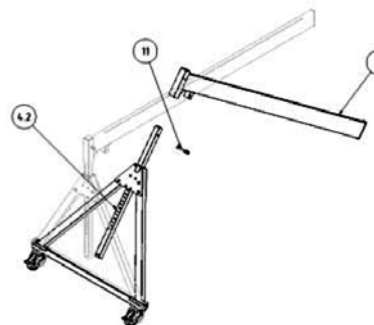


Illustration 10

- Place the second side construction in such a manner that the aluminium beam can be placed into the bottom part of the horizontal adjustment device (6).
- Unfold the cover of the horizontally adjustment device (6).
- Lock the aluminium beam with the two blue star grip screws.
- Insert the set bolts into the holes of the bush.
- Secure with collapsible plug.

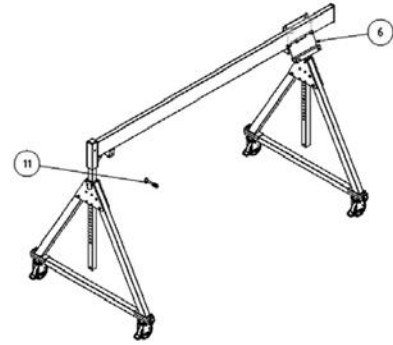


Illustration 11

- The holders for the oblique frame stretchers are welded to the aluminium beam (7) on the side of the bush, respectively at the horizontally adjustment device (6).
- Tighten the oblique frame stretchers (17) in the holders with screws and butterfly nuts.
- Insert the lifting handles (5) into the bottom holes of the beam supports (4.1 + 4.2).
- Place the oblique frame stretcher holders (18) on the lifting handles (5).
- Tighten all with butterfly screws.
- Also fix the oblique frame stretcher (17) at the lower end into the holder (18) by screw.

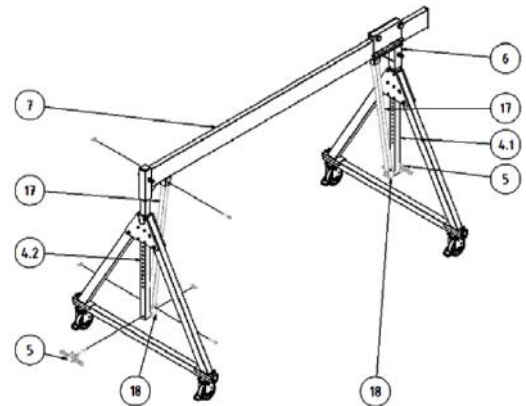


Illustration 12

- Place the trolley (8) onto the aluminium beam (7).
- Insert the set bolt (14) for the trolley into its hole.
- Secure with collapsible plug (13).
- Secure the trolley against unintended movement by pulling the red strap.

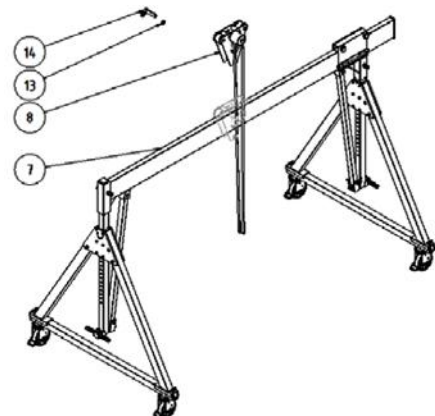


Illustration 13

Adjust the beam height.

- Draw-out the beam supports to the desired height.
- Secure them with set bolts (10).

Make sure that the set bolts on both sides are on the same level.



Illustration 14

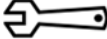

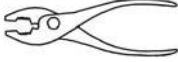
6.5 Disassembly

The trolley and possible hoists suspended must be taken down before disassembly of the crane.
The locking brake of the trolley must be locked.

Disassembly is performed in reverse order to the assembly.
The trolleys must either be taken down or locked with the locking brake.
The brake is locked by pulling the red strap

6.6 Tools

Special tools are not required.

Size	Tool
misc.	
	
	

7 Operation

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.

Adjustment possibilities

- I The beam length is adjustable horizontally
- II The side constructions are adjustable vertically.
- III The feet are adjustable vertically.
- IV The side constructions are collapsible.
- V Locking brake: RED = lock, GREEN = move

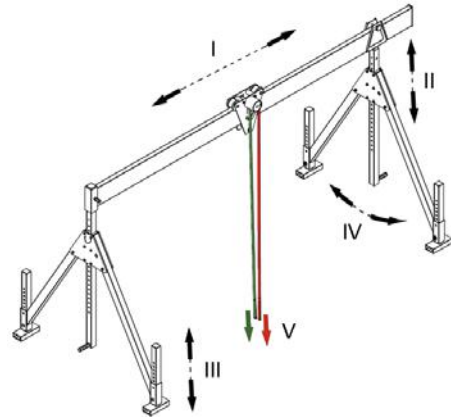


Illustration 15

7.1 Optional devices

Two different kinds of wheels are available to move the uncharged crane.

Under charge, the wheels with spring are pressed down.

The construction than stands directly on the feet.

The feet can be adjusted in height. The fork structure around the feet insures that the side construction keeps in place during assembly and disassembly.



Illustration 16

- 1 Wheels of polyurethane to move the crane indoor and outdoor.
- 2 Wheel surface of polyurethane for indoor movement.



Illustration 17

Winch for easy height adjustment.

- 1 set (2 pieces) per side construction 1 winch
- Constant effort on the crank.



Illustration 18

8 Commissioning

8.1 General

Should the unit be used in Germany, please observe the accident prevention regulations, in particular BGV D8, BGV D 6 and BGR 500 (VBG 9a).

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

NOTE!

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 quality person” before putting in operation.

An exception is “hoists ready for operation” acc. To BGV D6 II§25(4) 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).

NOTE!

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.

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.

10 Functional test

10.1 Checks before initial start-up

Design

- Check all screws and safety connections

Stability

- Make sure the ground is plain and nonskid.

10.2 Functional test

Trolley brake

Check correct function by pulling the red strap.

Loosen the brake - by pulling the green strap.

Wheel brakes

For movable cranes check the function of the wheel brakes.

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

12 Inspection

12.1 Periodic checks

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

In Germany it is necessary to observe the accident prevention regulations BGV D6, BGV D8, BGR 500 as well as DIN 15020 (Basics for cable drives). In other countries, the above mentioned tests and the national safety regulations apply.

12.2 Inspection intervals

	during putting into operation	daily checks	check every 12 months
Check screw connections.	X		X
check socket pins and plugs	X		
check wheels for wear			X
check brake function	X	X	
Inspection of the equipment by an expert (periodic inspection)			X

13 Service

The cranes are nearly maintenance-free.

For movable cranes, maintenance of the wheels must be effected, the wheels must be cleaned.

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

Problem	Cause	Remedy
Trolley is hardly to move	Obstacle on the beam deformation in the construction	remove the obstacle Examine the crane, have it repaired by an authorised workshop if necessary
crane trolley does not move	brake is stuck	loosen the brake - by pulling the green strap
the crane is hardly to move	wheel brake is locked	loosen the brake, clean the wheels if necessary

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.