GB

Installation,- Operating and Maintenance Instructions

HADEF Gentry Crane

Type 800

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 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 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 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 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!	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 $< 10^6$ Ω 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 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 qualified person in accordance with the accident prevention regulations UVV BGV D6 before initial operation.

- The permitted environmental temperature during equipment operation is –20°C up to +40°C!
- 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!

Moving of loads on plain and stable ground. In combination with hoists also vertical lifting and lowering of unguided loads.

- In case of wind velocity of more than 40 km/h the crane must be fixed to the ground or dismantled.

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!

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

- 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 BGR500 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.
- Observe separate installation-, operation and maintenance instruction of hoists.
- Please consider oscillation of the load and stopping distance.
- Make sure that the device stands stable.

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.

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

Movable gantry crane with single beam

Illustration 1

4.3 Functions

The standard gantry crane is equipped with two static wheels and two rotatable wheels.
For better transport, the gantry crane is supplied demounted.

4.4 Important components

4.4.1 Beam

Single beam made of profiled steel.

4.4.2 Beam support

Welded steel.

4.4.3 Wheels

Wheels of polyamide for cranes up to 3,2 t capacity.

Wheels with polyurethane lining from 5 t capacity up.

4.4.4 Wheel brake (as option)

To lock the wheels.

4.4.5 Power supply (as option)

For gantry cranes with electric chain hoist, including lockable main switch.

5 Technical data

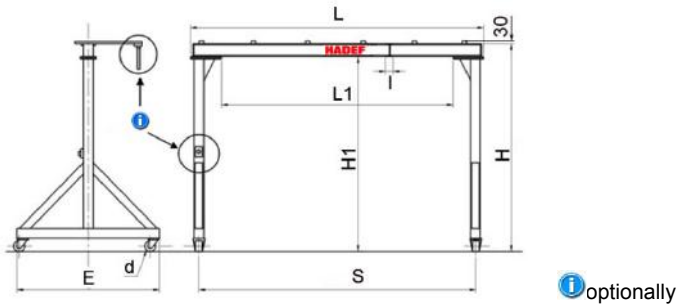


Illustration 2

Capacity	dimensions in mm								weight
kg	span S up to	track height H1	H	L	L1	E	d	l	kg
500	2500	3000	3180	2640	2040	1500	150	91	257
	3000		3180	3140	2540	1500	150	91	266
	3500		3180	3640	3040	1500	150	91	276
	4000		3180	4140	3540	1500	150	91	285
	4500		3180	4640	4040	1500	150	91	295
	5000		3180	5140	4540	1500	150	91	304
	2500	3500	3680	2640	2040	1500	150	91	269
	3000		3680	3140	2540	1500	150	91	278
	3500		3680	3640	3040	1500	150	91	288
	4000		3680	4140	3540	1500	150	91	297
	4500		3680	4640	4040	1500	150	91	307
	5000		3680	5140	4540	1500	150	91	316
	2500	4000	4180	2640	2040	2000	150	91	307
	3000		4180	3140	2540	2000	150	91	316
	3500		4180	3640	3040	2000	150	91	325
	4000		4180	4140	3540	2000	150	91	335
	4500		4180	4640	4040	2000	150	91	344
	5000		4180	5140	4540	2000	150	91	354
	2500	4500	4680	2660	1860	2000	150	91	416
	3000		4680	3160	2360	2000	150	91	426
	3500		4680	3660	2860	2000	150	91	435
	4000		4680	4160	3360	2000	150	91	444
	4500		4680	4660	3860	2000	150	91	454
	5000		4680	5160	4360	2000	150	91	463
	2500	5000	5180	2660	1860	2400	150	91	462
	3000		5180	3160	2360	2400	150	91	472
	3500		5180	3660	2860	2400	150	91	481
	4000		5180	4160	3360	2400	150	91	490
	4500		5180	4660	3860	2400	150	91	500
	5000		5180	5160	4360	2400	150	91	509
1000	2500	3000	3200	2640	2040	1500	200	100	285
	3000		3200	3140	2540	1500	200	100	296
	3500		3200	3640	3040	1500	200	100	307
	4000		3200	4140	3540	1500	200	100	319
	4500		3220	4640	4040	1500	200	110	348
	5000		3220	5140	4540	1500	200	110	361
	2500	3500	3700	2640	2040	1500	200	100	297
	3000		3700	3140	2540	1500	200	100	308
	3500		3700	3640	3040	1500	200	100	320
	4000		3700	4140	3540	1500	200	100	331
	4500		3720	4640	4040	1500	200	110	360
	5000		3720	5140	4540	1500	200	110	373
	2500	4000	4200	2640	1840	2000	200	100	426
	3000		4200	3140	2340	2000	200	100	437
	3500		4200	3640	2840	2000	200	100	448
	4000		4200	4140	3340	2000	200	100	459
	4500		4220	4640	3840	2000	200	110	488
	5000		4220	5140	4340	2000	200	110	501
	2500	4500	4700	2660	1860	2000	200	100	444
	3000		4700	3160	2360	2000	200	100	455
	3500		4700	3660	2860	2000	200	100	466
	4000		4700	4160	3360	2000	200	100	477
	4500		4720	4660	3860	2000	200	110	506
	5000		4720	5160	4360	2000	200	110	519
	2500	5000	5200	2660	1860	2400	200	100	490
	3000		5200	3160	2360	2400	200	100	501
	3500		5200	3660	2860	2400	200	100	512
	4000		5200	4160	3360	2400	200	100	523
	4500		5220	4660	3860	2400	200	110	552
	5000		5220	5160	4360	2400	200	110	565

Capacity	dimensions in mm								weight
kg	span S up to	track height H1	H	L	L1	E	d	l	kg
1600	2500	3000	3200	2640	1840	1500	200	100	372
	3000		3200	3140	2340	1500	200	100	383
	3500		3200	3640	2840	1500	200	100	395
	4000		3200	4140	3340	1500	200	100	406
	4500		3220	4640	3840	1500	200	110	435
	5000		3220	5140	4340	1500	200	110	448
	2500	3500	3700	2640	1840	1500	200	100	390
	3000		3700	3140	2340	1500	200	100	402
	3500		3700	3640	2840	1500	200	100	413
	4000		3700	4140	3340	1500	200	100	424
	4500		3740	4640	3840	1500	200	120	474
	5000		3740	5140	4340	1500	200	120	489
	2500	4000	4200	2660	1860	2000	200	100	444
	3000		4200	3160	2360	2000	200	100	455
	3500		4200	3660	2860	2000	200	100	466
	4000		4200	4160	3360	2000	200	100	477
	4500		4240	4660	3860	2000	200	120	527
	5000		4240	5160	4360	2000	200	120	542
	2500	4500	4700	2660	1660	2000	200	100	493
	3000		4700	3160	2160	2000	200	100	505
	3500		4700	3660	2660	2000	200	100	516
	4000		4700	4160	3160	2000	200	100	527
	4500		4740	4660	3660	2000	200	120	577
	5000		4740	5160	4160	2000	200	120	592
	2500	5000	5200	2660	1660	2400	200	100	544
	3000		5200	3160	2160	2400	200	100	555
	3500		5200	3660	2660	2400	200	100	566
	4000		5200	4160	3160	2400	200	100	578
	4500		5240	4660	3660	2400	200	120	628
	5000		5240	5160	4160	2400	200	120	643
2000	2500	3000	3220	2660	1860	1500	200	110	382
	3000		3220	3160	2360	1500	200	110	395
	3500		3220	3660	2860	1500	200	110	409
	4000		3240	4160	3360	1500	200	120	440
	4500		3270	4660	3860	1500	200	135	481
	5000		3270	5160	4360	1500	200	135	499
	2500	3500	3720	2660	1860	1500	200	110	400
	3000		3720	3160	2360	1500	200	110	414
	3500		3720	3660	2860	1500	200	110	427
	4000		3740	4160	3360	1500	200	120	458
	4500		3770	4660	3860	1500	200	135	499
	5000		3770	5160	4360	1500	200	135	517
	2500	4000	4220	2660	1860	2000	200	110	454
	3000		4220	3160	2160	2000	200	110	500
	3500		4220	3660	2660	2000	200	110	513
	4000		4240	4160	3160	2000	200	120	545
	4500		4270	4660	3660	2000	200	135	586
	5000		4270	5160	4160	2000	200	135	604
	2500	4500	4720	2680	1680	2000	200	110	504
	3000		4720	3180	2180	2000	200	110	517
	3500		4720	3680	2680	2000	200	110	530
	4000		4740	4180	3180	2000	200	120	562
	4500		4770	4680	3680	2000	200	135	602
	5000		4770	5180	4180	2000	200	135	620
	2500	5000	5220	2680	1280	2400	200	110	711
	3000		5220	3180	1780	2400	200	110	724
	3500		5220	3680	2280	2400	200	110	737
	4000		5240	4180	2780	2400	200	120	769
	4500		5270	4680	3280	2400	200	135	810
	5000		5270	5180	3780	2400	200	135	828
	2500	5500	5700	2720	1320	2400	250	100	725
	3000		5700	3220	1820	2400	250	100	736
	3500		5700	3720	2320	2400	250	100	747
	4000		5700	4220	2820	2400	250	100	758
	4500		5720	4720	3320	2400	250	110	787
	5000		5740	5220	3820	2400	250	120	824

Capacity	dimensions in mm								weight
kg	span S up to	track height H1	H	L	L1	E	d	l	kg
3200	2500	3000	3300	2660	1660	1500	250	150	535
	3000		3300	3160	2160	1500	250	150	555
	3500		3300	3660	2660	1500	250	150	576
	4000		3300	4160	3160	1500	250	150	597
	4500		3300	4660	3660	1500	250	150	618
	5000		3300	5160	4160	1500	250	150	639
	2500	3500	3800	2660	1660	1500	250	150	551
	3000		3800	3160	2160	1500	250	150	572
	3500		3800	3660	2660	1500	250	150	593
	4000		3800	4160	3160	1500	250	150	614
	4500		3800	4660	3660	1500	250	150	635
	5000		3800	5160	4160	1500	250	150	656
	2500	4000	4300	2660	1660	2000	250	150	711
	3000		4300	3180	2180	2000	250	150	732
	3500		4300	3680	2680	2000	250	150	754
	4000		4300	4180	3180	2000	250	150	775
	4500		4300	4680	3680	2000	250	150	796
	5000		4300	5180	4180	2000	250	150	817
	2500	4500	4800	2680	1280	2000	250	150	766
	3000		4800	3180	1780	2000	250	150	787
	3500		4800	3680	2280	2000	250	150	808
	4000		4800	4180	2780	2000	250	150	829
	4500		4800	4680	3280	2000	250	150	850
	5000		4800	5180	3780	2000	250	150	871
	2500	5000	5300	2720	1320	2400	250	150	833
	3000		5300	3220	1820	2400	250	150	854
	3500		5300	3720	2320	2400	250	150	875
	4000		5300	4220	2820	2400	250	150	896
	4500		5300	4720	3320	2400	250	150	917
	5000		5300	5220	3820	2400	250	150	938
	2500	5500	5700	2720	1320	2400	250	100	806
	3000		5700	3220	1820	2400	250	100	817
	3500		5720	3720	2320	2400	250	110	843
	4000		5740	4220	2820	2400	250	120	875
	4500		5770	4720	3320	2400	250	135	915
	5000		5770	5220	3820	2400	250	135	934
5000	2500	3000	3360	2680	1280	1500	300	170	880
	3000		3360	3180	1780	1500	300	170	909
	3500		3360	3680	2280	1500	300	170	937
	4000		3360	4180	2780	1500	300	170	966
	4500		3360	4680	3280	1500	300	170	995
	5000		3360	5180	3780	1500	300	170	1023
	2500	3500	3860	2680	1280	1500	300	170	907
	3000		3860	3180	1780	1500	300	170	936
	3500		3860	3680	2280	1500	300	170	964
	4000		3860	4180	2780	1500	300	170	993
	4500		3860	4680	3280	1500	300	170	1021
	5000		3860	5180	3780	1500	300	170	1050
	2500	4000	4360	2720	1320	2000	300	170	697
	3000		4360	3220	1820	2000	300	170	725
	3500		4360	3720	2320	2000	300	170	754
	4000		4360	4220	2820	2000	300	170	782
	4500		4360	4720	3320	2000	300	170	811
	5000		4360	5220	3820	2000	300	170	840
	2500	4500	4860	2720	1320	2000	300	170	1012
	3000		4860	3220	1820	2000	300	170	1040
	3500		4860	3720	2320	2000	300	170	1069
	4000		4860	4220	2820	2000	300	170	1097
	4500		4860	4720	3320	2000	300	170	1126
	5000		4860	5220	3820	2000	300	170	1154
	2500	5000	5360	2720	1320	2400	300	170	1079
	3000		5360	3220	1820	2400	300	170	1108
	3500		5360	3720	2320	2400	300	170	1136
	4000		5360	4220	2820	2400	300	170	1165
	4500		5360	4720	3320	2400	300	170	1193
	5000		5360	5220	3820	2400	300	170	1222

6 Installation

Assembly depends on the local environment. The crane must be secured against movement and collapsing. Do not use the crane structure to step on it.

6.1 General

The beam must be adjusted horizontally and beam supports of the side constructions must be adjusted vertically.

6.1 Dangers during assembly

CAUTION!

- The wheels of the side columns must be secured against rolling away.
- The side parts must be secured against turning over.
- If the wind intensity is 40 km/h or more, the crane must be moved indoors, or fixed stable to the ground.

6.2 Montage – Zusammenbau

- Seitenteile (1) und Träger (2) mittels Schraubensatz (4) verschrauben.
- Alle Schrauben mit Drehmomentenschlüssel gemäß Tabelle anziehen.
- Alle Schraubenverbindungen nochmals kontrollieren.

Hebezeuge nach deren Anleitung montieren.

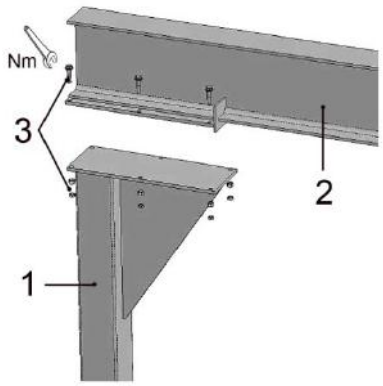


Bild 3

6.3 Table of screws

Tighten the screws with tightening moment mentioned in the table

Thread	Tightening moment (Nm) in property class	
	8.8	**10.9**
M 6	10,4	15,3
M 8	25,3	37,2
M 10	51	75
M 12	87	128
M 14	139	205
M 16	214	314
M 18	280	390
M 20	431	615
M 22	530	750
M 24	742	1159
M 27	1000	1400
M 30	1350	1900
M 33	2000	2800

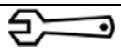
coefficient of friction 0,12 - 0,14 µges

6.4 Disassembly

The trolley and possible hoists suspended must be taken down before disassembly of the crane.
Disassembly is carried out in reverse order to the assembly.

6.5 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.

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!

☞ 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. 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).

☞ 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.

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

Wheel brakes (as option)

- 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, 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	Inspection every 12 months
check screw connections	X		X
check wheels for wear			X
check function of the wheel brake	X	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
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.