

# Installation, Operating and Maintenance Instructions

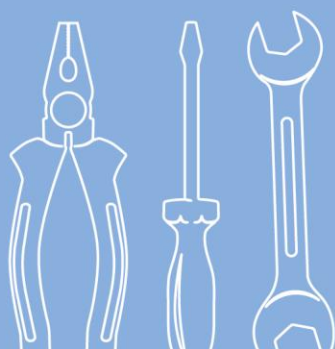
## Monorail Trolley

**18/16VA**

as push travel trolley  
as hand geared trolley

R  
H

Stainless steel design



## NOTICE!

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

© by Heinrich de Fries GmbH

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

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](http://www.hadef.com)

Subject to changes.

## Table of Contents

|           |                                                |           |
|-----------|------------------------------------------------|-----------|
| <b>1</b>  | <b>Information .....</b>                       | <b>3</b>  |
| <b>2</b>  | <b>Safety .....</b>                            | <b>3</b>  |
| 2.1       | Warning notice and symbols.....                | 3         |
| 2.2       | Duty of care of the owner.....                 | 3         |
| 2.3       | Requirements for the operating personnel ..... | 4         |
| 2.4       | Appropriate use .....                          | 4         |
| 2.5       | Basic safety measures .....                    | 5         |
| <b>3</b>  | <b>Transport and Storage .....</b>             | <b>5</b>  |
| 3.1       | Transport.....                                 | 5         |
| 3.2       | Safety device for transport .....              | 5         |
| 3.3       | Storage .....                                  | 5         |
| <b>4</b>  | <b>Description .....</b>                       | <b>6</b>  |
| 4.1       | Areas of application .....                     | 6         |
| 4.2       | Aufbau .....                                   | 6         |
| 4.3       | Functions.....                                 | 6         |
| 4.4       | Important components.....                      | 6         |
| <b>5</b>  | <b>Technical data.....</b>                     | <b>7</b>  |
| <b>6</b>  | <b>Installation.....</b>                       | <b>7</b>  |
| 6.1       | Trolley.....                                   | 7         |
| 6.2       | Adjusting the gauge .....                      | 7         |
| 6.3       | Installation on the beam.....                  | 8         |
| 6.4       | Tools .....                                    | 8         |
| <b>7</b>  | <b>Control .....</b>                           | <b>8</b>  |
| 7.1       | General .....                                  | 8         |
| <b>8</b>  | <b>Safety check.....</b>                       | <b>9</b>  |
| <b>9</b>  | <b>Functional test .....</b>                   | <b>9</b>  |
| 9.1       | Checks before the initial start-up.....        | 9         |
| 9.2       | Functional test .....                          | 9         |
| <b>10</b> | <b>Maintenance .....</b>                       | <b>9</b>  |
| 10.1      | General .....                                  | 9         |
| 10.2      | Monitoring .....                               | 9         |
| <b>11</b> | <b>Inspection.....</b>                         | <b>10</b> |
| 11.1      | Periodic checks .....                          | 10        |

|             |                                                                  |           |
|-------------|------------------------------------------------------------------|-----------|
| <b>12</b>   | <b>Service.....</b>                                              | <b>10</b> |
| <b>12.1</b> | <b>Lubricant - Selection .....</b>                               | <b>10</b> |
| <b>12.2</b> | <b>Lubricant for food industry – Selection (as option*).....</b> | <b>10</b> |
| <b>13</b>   | <b>Trouble .....</b>                                             | <b>10</b> |
| <b>14</b>   | <b>Decommissioning .....</b>                                     | <b>10</b> |
| <b>14.1</b> | <b>Temporary decommissioning .....</b>                           | <b>11</b> |
| <b>14.2</b> | <b>Final decommissioning/disposal .....</b>                      | <b>11</b> |

## 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 efficient use of equipment. Images of this manual are for a principle understanding and can be different from the real design.

|                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>NOTICE!</b>                                             |
| 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:

|                                                                                                     |                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>DANGER!</b>  | This means that there is a high risk that leads, if it is not avoided, to death or severe injury.                                        |
|  <b>WARNING!</b> | This means that there is a risk that could lead, if it is not avoided, to death or severe injury.                                        |
|  <b>CAUTION!</b> | 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. |
|  <b>NOTICE!</b>  | Gives advice for use and other useful information.                                                                                       |



Danger from electricity.



Danger from explosive area.

### 2.2 Duty of care of the owner

|                                                                                                    |
|----------------------------------------------------------------------------------------------------|
|  <b>DANGER!</b> |
| 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.
- customers equipment at site must comply with currently applicable ATEX-regulations



## **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**

Horizontal movement on beams up to the maximum rated load.

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 permitted environmental temperature during equipment operation is  $-10^{\circ}\text{C}$  up to  $+50^{\circ}\text{C}$ !



## **DANGER!**

The ambient temperature range must not be exceeded!

 **NOTICE!**

If the units are not used as intended, safe operation is not guaranteed.

The operator alone is responsible for all personal injury and damage to property resulting from improper use.

## 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 90%, but not under water!



#### DANGER!

In particular, use is not permitted:

- in potentially explosive atmospheres, unless the equipment has been modified for this purpose and this is shown on special type plates it carries for this purpose.
- in reactor containments
- for transporting persons
- for holding lifted loads
- for scenic use
- when persons are under suspended loads

### 4.2 Aufbau

Push travel trolley Type 18/16R-VA



Hand geared trolley Type 18/16H-VA

### 4.3 Functions

Push travel trolley:

The trolley is moved by pushing the load.

Hand geared trolley:

Hand geared trolleys are moved by pulling one of the two stands of the endless hand chain.



#### NOTICE!

The best protection against functional failures in case of extreme environmental impact is the regular use of the equipment.

### 4.4 Important components

- Trolley wheels made in stainless steel  
Machined trolley wheels with maintenance-free roller bearings. Profiled wheel surfaces for the use on all standard beams with inclined and parallel flanges.
- Side plates made in stainless steel  
with integrated wheel fracture supports.
- Load bolt made in stainless steel  
Different bolt lengths are available for different beam flange widths.
- Hand chain made in stainless steel

## 5 Technical data

### Rush Trolley Type 18/16R-VA

| Capacity<br>kg | Beam flange width<br>from - to<br>at load bar size |          |         | kg  |     |     |
|----------------|----------------------------------------------------|----------|---------|-----|-----|-----|
|                | 1N<br>mm                                           | 2N<br>mm | 3N      | 1N  | 2N  | 3N  |
| 500            | 55-158                                             | 159-260  | 261-310 | 6,1 | 6,8 | 7,1 |
| 1000           | 55-158                                             | 159-260  | 261-310 | 6,3 | 7,2 | 7,7 |

### Hand Geared Trolley Type 18/16H-VA

| Capacity<br>kg | Beam flange width<br>from - to<br>at load bar size |          | Curve radius min.<br>m | Manual<br>hand chain<br>force<br>~N | Travel path when reeling<br>off 30 m of hand chain<br>m | kg |    |
|----------------|----------------------------------------------------|----------|------------------------|-------------------------------------|---------------------------------------------------------|----|----|
|                | 1N<br>mm                                           | 2N<br>mm |                        |                                     |                                                         | 1N | 2N |
| 1000           | 74-125                                             | --       | 1,3                    | 5,4                                 | 3,30                                                    | 28 | -- |
| 2000           | 100-150                                            | --       | 1,5                    | 11,3                                | 3,50                                                    | 36 | -- |
| 3000           | 100-150                                            | --       | 1,6                    | 15,2                                | 3,10                                                    | 46 | -- |

## 6 Installation

The assembly and installation depends on the local environment. The hoist must be suspended in a way that it can position itself freely.

### 6.1 Trolley

For assembly on a beam a travel limit must be placed at either end of the track.

This must be attached so that any elastic limitation buffer or the trolley wheels are driven against them in their end position when moving.

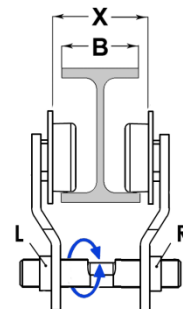
Generally, additional lifting gear (e.g. fork lift, lifting platforms) will be required for the assembly. These must take the weight of the devices securely.

### 6.2 Adjusting the gauge

The trolley can be adjusted to various beam flange widths. Setting to the relevant beam flange width "B" is to be made as follows:

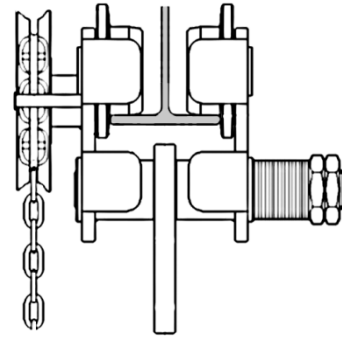
#### Push Travel Trolley Type 18/16 R-VA

- Dimension "X" is set by turning the load bar.
- Secure the safety nuts (L)+(R) tight.
- Check correct flange width "B" and dimension "X". If necessary, repeat the setting.



## Hand Geared Trolley Type 18/16 H-VA

- Tighten the hexagon nut and safety nuts.
- Push on the trolley at the face of the beam flange.
- If this is not possible, the trolley can also be mounted on the beam from below.
- Therefore, remove the hexagon nut and the safety nut on the side without gear.
- Pull apart the side plates as far until it is possible to push the trolley onto the beam flange from below.
- Push the trolley together again until it reaches the correct wheel gauge.
- Secure the washers and distance tubes by tightening the hexagon nuts and the safety nuts.



### 6.3 Installation on the beam

- Push on the trolley at the face of the beam flange.
- If this is not possible, the trolley can also be mounted on the beam from below.
- Therefore, remove the safety nut on one side.
- Pull apart the side plates as far until it is possible to push the trolley onto the beam flange from below.
- Assemble the safety nut again and adjust the trolley to the correct track gauge.
- Tighten the safety nuts again (left and right).



#### CAUTION!

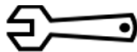
It is important that the load hangs in the middle under the beam so that the two side plates are equally loaded.



#### CAUTION!

The distance "X" between the wheel flanges of the trolley wheels must exceed the flange width "B" of the beam by 2-3 mm (1-1,5 mm each side).

### 6.4 Tools

|           |                                                                                     |                                                                                      |
|-----------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|           |  |  |
| 18/16R-VA | 500kg = SW30<br>1000kg = SW35                                                       |                                                                                      |
| 18/16H-VA | 1000kg = SW55<br>2000kg = SW55<br>3000kg = SW65                                     |                                                                                      |
|           |                                                                                     |                                                                                      |

## 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.

Monorail push travel trolleys are moved by pushing the load.

Monorail hand geared trolleys are moved by pulling the hand chain.

### 7.1 General

The operator of the unit is responsible for the entire system.

According to the Ordinance on Industrial Safety and Health, a hazard analysis must be carried out by the operator.

Observe the respective national standards, regulations and directives of the responsible bodies at the place of operation.

 **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 test 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 by the approved supervision authorities (ZÜS).

## 8 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.

## 9 Functional test

### 9.1 Checks before the initial start-up

**Trolley drive**

- The open-lying teeth of the trolley drive must be lubricated.

**Hand gear for hand geared trolley**

- Ensure correct fit of the hand chain; it must not be twisted and must hang freely.

### 9.2 Functional test

**Trolleys**

Carefully move the trolley to the end positions and check the positions of the end stops.

## 10 Maintenance

### 10.1 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.

### 10.2 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 Inspection

### 11.1 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.

|                                                                  | at<br>commissioning | daily<br>checks | 1st maintenance<br>after<br>3 months | Inspection<br>Maintenance<br>every<br>3 months | Inspection<br>Maintenance<br>every<br>12 months |  |
|------------------------------------------------------------------|---------------------|-----------------|--------------------------------------|------------------------------------------------|-------------------------------------------------|--|
| check screw connections                                          | X                   |                 |                                      |                                                | X                                               |  |
| check the bearings                                               |                     |                 |                                      |                                                | X                                               |  |
| check the trolley wheels                                         |                     |                 |                                      |                                                | X                                               |  |
| check lubrication of the driving pinion                          | X                   |                 |                                      |                                                | X                                               |  |
| buffers - check correct position and wear                        | X                   |                 |                                      |                                                | X                                               |  |
| electric motor* - check the brake lining                         |                     |                 |                                      |                                                | X                                               |  |
| electric motor* - check the brake                                | X                   | X               |                                      |                                                |                                                 |  |
| pneumatic motor*                                                 | X                   |                 | X                                    | X                                              |                                                 |  |
| Have the equipment checked by an expert<br>(periodic inspection) |                     |                 |                                      |                                                | X                                               |  |

\*as far as applicable

## 12 Service

Maintenance must be effected by lubricating the driving pinions (for hand geared trolleys) and by checking the rubber end stops.

### 12.1 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 |              |             |              |            |                       |                      |

### 12.2 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;<br>Pulleys<br>Gear rim;<br>Drive pinion | FM Grease HD2 | Mobilgrease FM 222 | --                    | --                     |

\* must be mentioned by order

## 13 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.

|                                                                                                                                                                                           |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                                                                                                        | <b>CAUTION!</b> |
| 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. |                 |

## 14 Decommissioning

|                                                                                                                                                                |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                                                                             | <b>WARNING!</b> |
| 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.

#### **14.1 Temporary decommissioning**

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

#### **14.2 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.