



---

## Operating Manual

### Switch Blade Lining Device

22.28 / 01



---

|                                    |                                       |  |
|------------------------------------|---------------------------------------|--|
| <b>Robel Bahnbaumaschinen GmbH</b> | Industriestraße 31,<br>Postfach 3222, | 83398 Freilassing<br>83395 Freilassing |
| e-mail:                            | info@robel.info                       | Telefon/Phone/Téléphone (08654) 609-0  |
| Internet:                          | www.robel.info                        | Telefax/Fax (08654) 609-445            |

This operating manual was issued taking into consideration  
the latest technology at the time of printing.  
They are subject to change do to new developments.  
Weights and measurements approximate.  
Some photos show special designs.



## Contents

|          |                                    |           |
|----------|------------------------------------|-----------|
| <b>1</b> | <b>TECHNICAL DATA.....</b>         | <b>1</b>  |
| <b>2</b> | <b>SAFETY .....</b>                | <b>3</b>  |
| 2.1      | General Dangers .....              | 3         |
| 2.2      | Danger Warnings .....              | 3         |
| 2.3      | First Aid .....                    | 3         |
| <b>3</b> | <b>APPLIANCE DESCRIPTION .....</b> | <b>5</b>  |
| 3.1      | Intended Use .....                 | 5         |
| 3.2      | Components.....                    | 5         |
| <b>4</b> | <b>OPERATION.....</b>              | <b>11</b> |
| 4.1      | Pre-Operation Checks .....         | 11        |
| 4.2      | Preparing for Alignment.....       | 12        |
| 4.3      | Aligning .....                     | 13        |
| <b>5</b> | <b>MAINTENANCE.....</b>            | <b>17</b> |
| 5.1      | Cleaning and maintaining .....     | 17        |
| 5.2      | General .....                      | 18        |
| 5.3      | Hydraulics .....                   | 18        |

**6 APPENDIX A .....19**

6.1 Intended Use .....19

6.2 Liability Exclusions .....19

6.3 Copyright.....19

6.4 General Specifications .....20

6.5 Acceptance, Fittings and Operating Licence .....20

6.6 Safety Regulations.....21

6.7 Protecting and Using the Appliance.....21

6.8 Intended Audience for Operating Instructions.....22

6.9 Accident Prevention .....23

6.10 Safety Principles .....24

6.11 Specific Dangers.....24

6.12 Dangers from Hydraulic Power.....24

6.13 Dangers from Heat.....24

6.14 Other Dangers – Safety Equipment.....25

6.15 Fire Hazards .....25

6.16 Fire Prevention.....26

**APPENDIX: EC-DECLARATION OF CONFORMITY**

## 1 TECHNICAL DATA

|                                     |               |
|-------------------------------------|---------------|
| Stroke.                             | max 150 mm    |
| Pushing force                       | max. 250 KN   |
| Hydraulic system pressure           | max. 700 bar  |
| Hydraulic oil Panolin HLP 46 Synth. | 1.3 litre     |
| Hand pump                           | two-stage     |
| Cylinder                            | single-acting |

|   | Dimensions in mm |       |        |              |
|---|------------------|-------|--------|--------------|
|   | Length           | Width | Height | Weight in kg |
| Appliance with hand pump<br>- basic configuration | 930              | 125   | 500    | 60           |
| Strut, long                                       | 990              | 90    | 55     | 9.3          |
| Strut, short                                      | 730              | 90    | 115    | 7.5          |
| Wedge, long                                       | 210              | 90    | 120    | 4.8          |
| Wedge, short                                      | 160              | 65    | 200    | 1.9          |
|   |                  |       |        |              |
| <b>Accessories:</b>                               |                  |       |        |              |
| 2 clamps for S49/S54 profile                      | 155              | 110   | 90     | 7.0          |
| 2 clamps for UIC 60 profile                       | 180              | 110   | 90     | 7.4          |
| 2 clamps for R65 profile                          | 190              | 110   | 90     | 7.4          |

**22.28 / 01**

**SWITCH BLADE ALIGNING DEVICE**

---

This page remains empty.

## **2 SAFETY**

### **2.1 General Dangers**

The appliance is safe by current technical standards. The appliance's safety mechanisms are in accordance with current safety regulations.

For further information see Appendix A.

### **2.2 Danger Warnings**

All of the following remarks and instructions aim to protect the personal safety and physical integrity of the operator from danger and to protect the appliance operator's assets from damage. These instructions use specific naming conventions throughout to differentiate between different types of danger and the degree of consequences that might arise if instructions are not followed. In particular they are:



**DANGER** indicates that not following the instructions could lead to death or serious injury to the operator and to substantial damage to the operator's assets.

---



**CAUTION** indicates that non-compliance with the instructions may cause injuries of the operator and damage to the property of the owner.

---



**NOTE** contains important information about the machine, its operation or about a section of the manual on hand.

---

### **2.3 First Aid**

Aim to keep the First Aid kit in good order at all times.

Your work place's medical service or doctor should therefore be consulted about First Aid measures and equipment.

**22.28 / 01**

**SWITCH BLADE ALIGNING DEVICE**

---

This page remains empty.



### **3 APPLIANCE DESCRIPTION**

#### **3.1 Intended Use**

The aligning device is for re-shaping deformed switch blades including flexible switch blades.

#### **3.2 Components**

The shaping arm consists of a yoke-shaped hollow box with a hydraulic hand pump mounted on top which supplies the cylinder screwed on to the bending arm.

External hydraulic equipment can also be attached using the hose's quick-change connection.

A double wheel flange is incorporated under the shaping arm and, on the opposite side, there is a built-in extension tube. By attaching the long strut to this tube, the device can easily be pushed on to the rail.

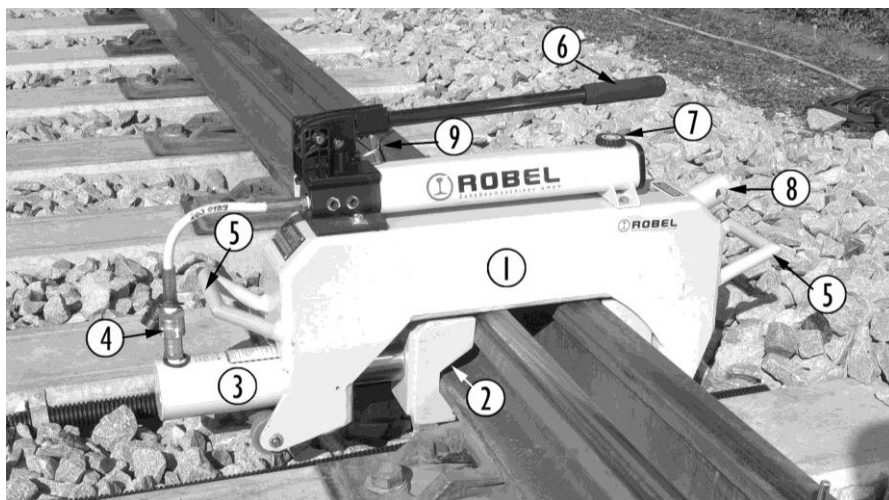
The appliance also has two struts (short and long) and two wedges (short and long) together with appropriate clamps.

Fit the relevant clamp to the appliance for each rail type.

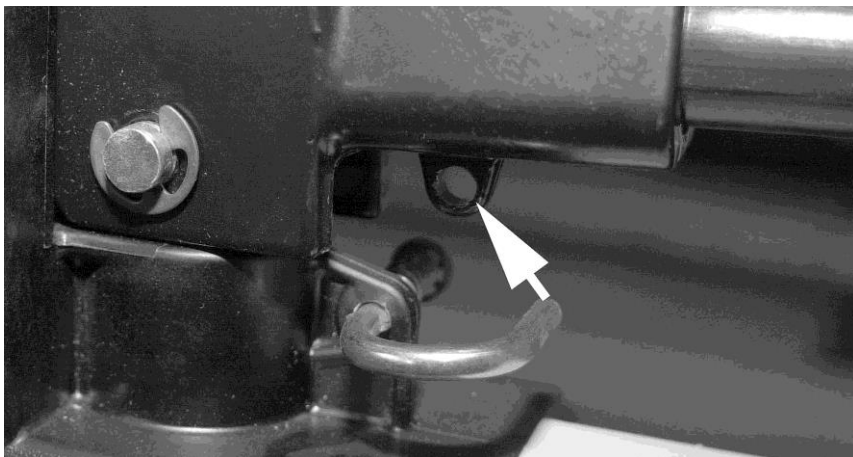
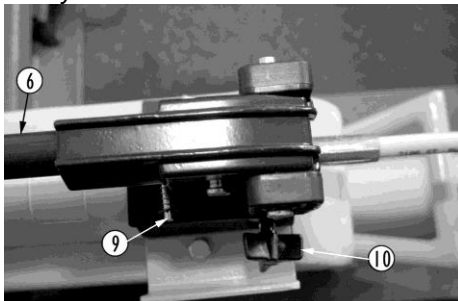
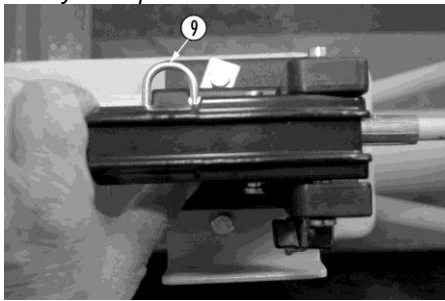
**22.28 / 01**

**SWITCH BLADE ALIGNING DEVICE**

---



- 1 Shaping arm
- 2 Clamps
- 3 Hydraulic cylinder
- 4 Quick-change connection
- 5 Handle
- 6 Pump handle
- 7 Hydraulic oil tank vent / filler
- 8 Extension tube for strut
- 9 Safety bolt

*Safety bolt closed**Safety bolt open*

- 6 Pump handle
- 9 Safety bolt
- 10 Pump valve

**CAUTION**

The switch blade aligning appliance should NOT be carried by the pump handle!

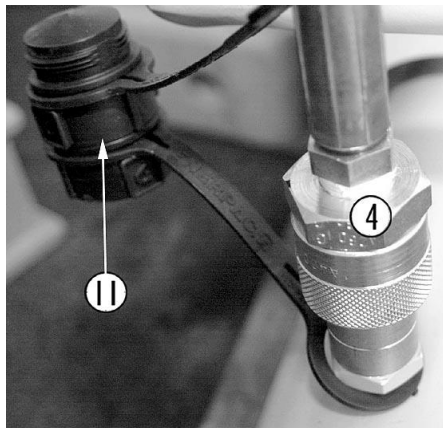
---

## 22.28 / 01

### SWITCH BLADE ALIGNING DEVICE

---

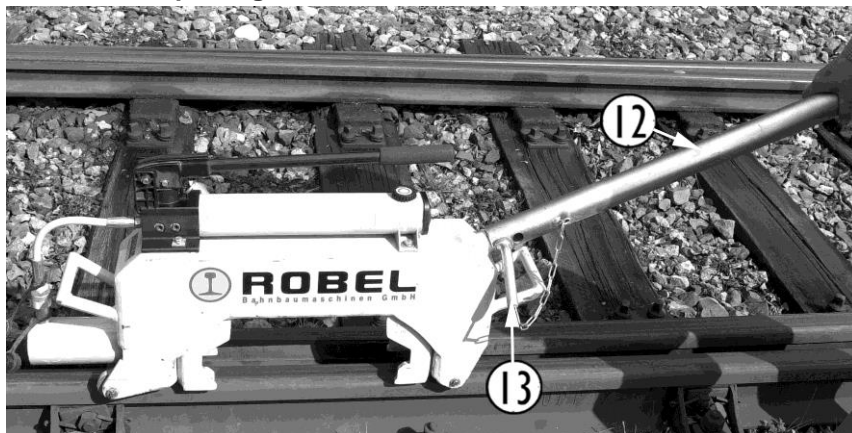
#### 3.2.1 Detail of Quick-Change Connection



4 Quick-change connection (screw fastening)

11 Safety cap

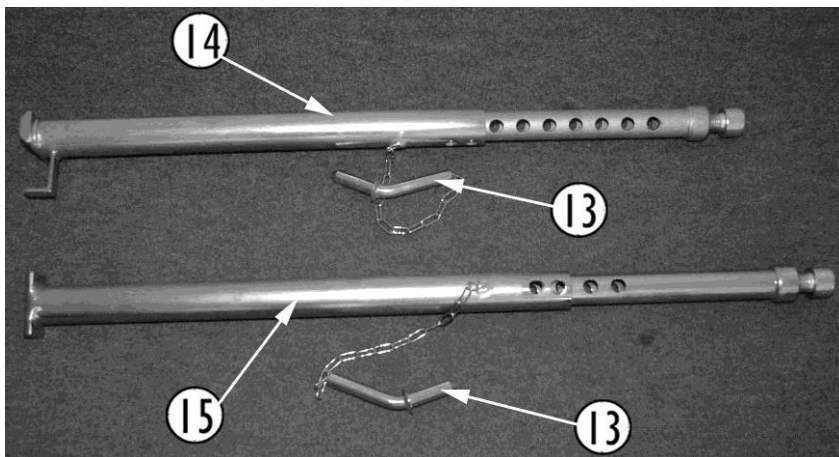
#### 3.2.2 Transporting to Rails



12 Strut

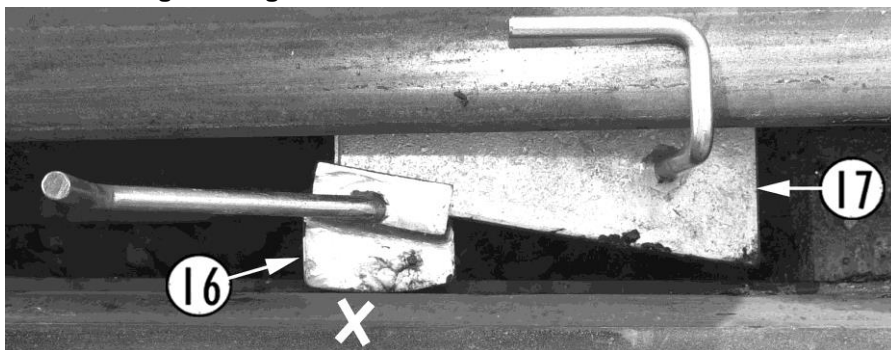
13 Safety bolt

### 3.2.3 Struts



- 13 Safety bolt
- 14 Shorter strut
- 15 Longer strut

### 3.2.4 Wedge Configuration



- 16 Short wedge
- 17 Long wedge

**Bending point is indicated by a white cross!**

## **22.28 / 01**

### **SWITCH BLADE ALIGNING DEVICE**

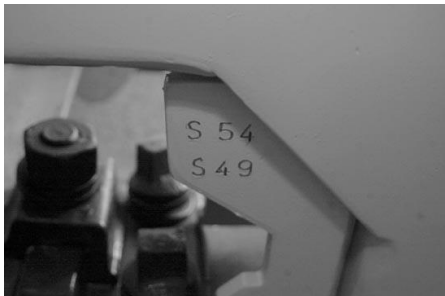
---

#### **3.2.5 Detail of Clamps**

*For UIC 60*



*For S54 / S49*



## 4 OPERATION

The aligning device is used to re-shape deformed switch blades including flexible switch blades.

It is placed on the heads of stock rails and switch blades. Switch blades should only be shaped when cold and with points not locked.

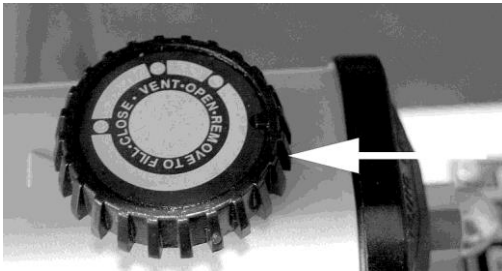
---

**CAUTION**

- During aligning do not touch the switch blade – keep your distance
- 

### 4.1 Pre-Operation Checks

- Before using the appliance check it for visible signs of damage (cracks, hydraulic hose, defective clamps, quick-change connection screw loose.)
- Check that there is sufficient hydraulic oil in the tank.
- Fill with hydraulic oil if the level in the tank is less than half:



To do this, unscrew the cap (for venting and filling the hydraulic oil tank) in an anti-clockwise direction;

After filling with hydraulic oil, screw shut in a clockwise direction and, to vent, twist clockwise a further ½ turn.

The hydraulic cylinder should be vented with the pump valve turned in an anti-clockwise direction.

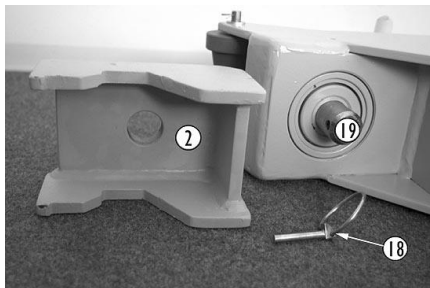
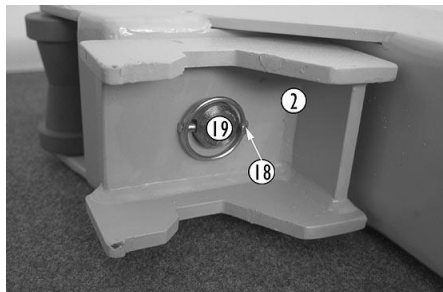
- The clamps should be separated far enough from each other so that there is enough space for the switch blade between the clamps.

## **22.28 / 01**

### **SWITCH BLADE ALIGNING DEVICE**

---

#### **4.1.1 Changing the Clamps**



- Flip the safety ring to the right and pull the retaining pin out of the bolt (19) with the safety ring (18) to the right.
- Place an alternative clamp on to the bolt so that markings point towards the shaping arm.

#### **4.2 Preparing for Alignment**

- Inspect the deformed switch blade and mark the defective area with chalk.
- Establish whether the deformation has increased the curve (reduced the radius) or decreased the curve (increased the radius).

The first is the most usual occurrence.

However, a combination of both may also occur.



## 4.3 Aligning

---



### **Danger!**

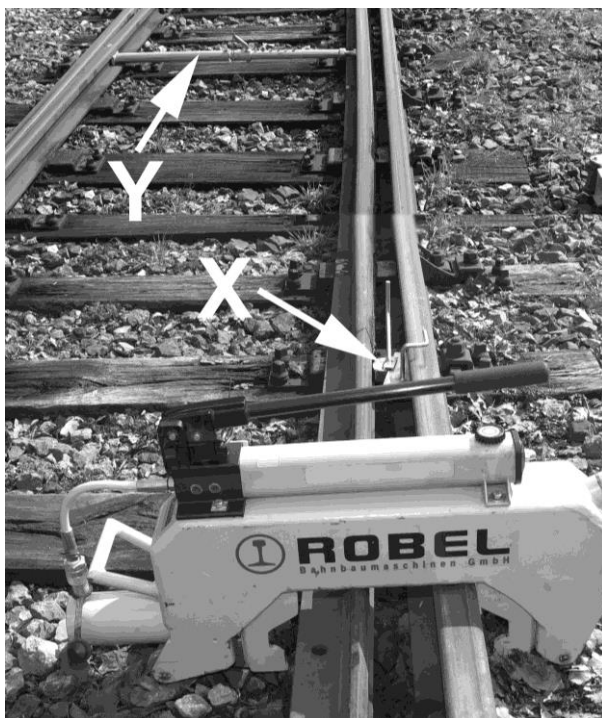
- It is essential that points are carefully and correctly re-locked on completion of any alignment work

### 4.3.1 Case I: Increasing the Radius

Where the switch blade deformation reduces the radius.

#### **CAUTION**

- Switch blades should only be shaped when points are not locked



- X Wedge  
Y Strut

**22.28 / 01****SWITCH BLADE ALIGNING DEVICE**

---

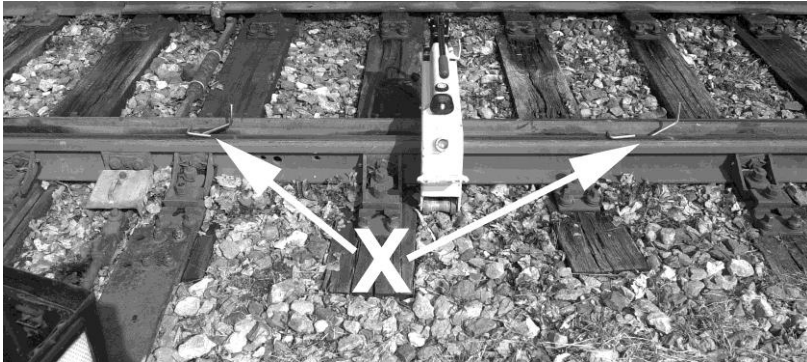
- Place the aligning device in the space between sleepers at a distance of between 1 and 1.5 metres from the site of the fault (in the direction of the fault).
  - Completely retract the hydraulic cylinder.
  - Turn the pump valve (10) on the hydraulic pump to shut.
- ⇒ **Smaller gaps:** The aligning device does not have sufficient force.
- ⇒ **Larger gaps:** The switch blade deformation is springy and the tip of the blade is already touching the stock rail.
- Introduce a wedge at the damaged spot. This should completely fill the gap between switch blade and stock rail or the aligning device's stroke cannot be used fully.
- Place the strut approximately half way between the fault and the first spot where the blade is to be clamped, at as close as possible to a right angle to the switch blade (see illustration).
- Using the hydraulic pump, extend the cylinder and bend the switch blade against the fault.
- Having identified the best spot, place the switch blade under bending tension for at least 60 seconds.
- Opening the pump valve (10) on the hydraulic pump releases the switch blade.
- After removing the aligning device, check the resulting appearance.
- If the fault has been corrected, operations can be terminated by re-locking the points.
- If the resulting reshaping is insufficient, repeat the whole process.
- If the reshaping has gone too far and the switch blade has too great a radius at the deformation point, follow instructions for Case 2.

### 4.3.2 Case 2: Decreasing the Radius

Where the switch blade deformation increases the radius.

**CAUTION**

- Switch blades should only be shaped when points are not locked



X      Wedges

- Completely retract the hydraulic cylinder.
  - Turn the pump valve (10) on the hydraulic pump to shut.
  - Insert 2 wedges at a distance of between 1 and 1.5 m from the site of the fault.
  - Bend the switch blade (as described in more detail in Case 1).
- ⇒ **Smaller gaps:** The aligning device does not have sufficient force.
- ⇒ **Larger gaps:** The switch blade deformation is springy and the tip of the blade is already touching the stock rail.
- Introduce wedges to both left and right of the damaged spot. This should completely fill the gap between switch blade and stock rail or the aligning device's stroke cannot be used fully.
  - Using the hydraulic pump, extend the cylinder and bend the switch blade against the fault. Having identified the best spot, place the switch blade under bending tension for at least 60 seconds.
  - Opening the pump valve (10) on the hydraulic pump releases the switch blade.

**22.28 / 01**

**SWITCH BLADE ALIGNING DEVICE**

---

This page remains empty.

## **5 MAINTENANCE**

- Please always use the recommended lubricants and, in the event of repairs, use genuine replacement parts at all times. In addition to complying with the terms of guarantee this is also important for the added operational safety of your machine.

Ordering spare parts correctly can substantially speed up delivery thus making the machine more economical.

- When ordering spare parts please supply the following:
  - Machine type
  - Machine number
  - Component
  - Spare part description and number
  - Quantity
  - Delivery method
  - Delivery address

### **5.1 Cleaning and maintaining**

- Clean the switch blade aligning device regularly in order to prevent a loss of production caused by excessive soiling.
- Clean the switch blade aligning device only with a damp cloth. Use only water and if necessary a mild cleaning agent without chemical supplements.
- **Never** use solvents and aggressive or combustible cleaning agents!

## **22.28 / 01**

### **SWITCH BLADE ALIGNING DEVICE**

---

## **5.2 General**

- Inspect equipment and check oil-level before using the device. Where necessary fill with oil to 2/3 of the maximum level.
- Clean and lubricate spindles after every use.
- The device should be checked and overhauled every two years.
- Do not exceed the pump's maximum operating pressure of 700 bar.

## **5.3 Hydraulics**

- An oil change should be performed annually

## **6 APPENDIX A**

### **6.1 Intended Use**

The aligning device is for re-shaping deformed switch blades including flexible switch blades.

### **6.2 Liability Exclusions**

The manufacturer declares itself to be exempt from any responsibility for damage arising if the appliance is not used in the designated way.

Any use of the appliance other than that specified above is not authorised and can endanger the lives and well-being of operating and maintenance personnel as well as the material property of the operator. The manufacturer of the appliance declares itself free from liability for damage to people or property belonging to the operator or a third party if:

- The appliance is not used as specified,
- Operating and maintenance personnel have not read and understood these instructions and have used the appliance for other purposes,
- Operating or maintenance personnel are not sufficiently qualified or the appliance has been used under conditions exceeding limiting values,
- The appliance has not been serviced within the time specified.

These exclusions from liability for damage to people or material property do not affect other exclusions.

### **6.3 Copyright**

Specific characteristics and particular attributes of the appliance are the intellectual property of ROBEL Bahnbaumaschinen GmbH. The copyright on its use remains with ROBEL Bahnbaumaschinen GmbH. It may not be reproduced either in full or in part, published or otherwise exploited for competitive purposes, whether for payment or not. Its contents may not be passed by company employees to anyone outside the business.

## **6.4 General Specifications**

Appropriate legal requirements and accident prevention measures for use of this appliance must generally be observed. If they are not observed, the operator of the appliance takes responsibility for any legal consequences.

In the event of differences between prevailing regulations that apply to use of the appliance and the manufacturer's or sub-contractor's specifications, whichever limitations are the most stringent must apply.

The buyer must make available all appliances and operational or supporting materials to enable the delivered product to be set up and personnel to be trained. Enough safe and clear track and work sections must be provided to allow personnel to learn and practice how to use the goods delivered.

ROBEL Bahnbaumaschinen GmbH together with its customer service organizations are however happy to provide further advice, training or other consultative services. Further details and conditions can be obtained separately.

## **6.5 Acceptance, Fittings and Operating Licence**

It is the buyer's responsibility to check that the condition, fittings, performance and especially the safety features of the goods delivered match the relevant specifications agreed and to take account of the regulations specified in the contract.

The buyer must equip the goods delivered with all those additional fittings required to meet any changes to existing operational and safety regulations, norms, statutory regulations or other regulations, e.g. safety notices etc.

Unless otherwise agreed, no fittings of this nature are provided with the goods delivered.

Furthermore it is the buyer's responsibility to demonstrate that the goods delivered have been accredited for use by the appropriate authority. Any documentation to be provided by the manufacturer or supplier (descriptions, proof, attestations etc) to enable this should be specified in the contract of supply.

Any additional measures and costs required to achieve operational accreditation must be borne by the buyer.



## **6.6 Safety Regulations**

All requirements relating to handling of the appliance in order to protect life, health, material property and the environment must be guaranteed as a priority!

- Before setting up the appliance, provide proof that all personnel concerned have been made aware that all relevant:
  - statutory safety measures
  - building and operating regulations
  - professional and trade organization regulations
  - workplace and environmental protection regulations
  - licensing requirements
  - operating requirements and
  - any additionally applicable regulations

support and expand the manufacturer's safety and operating conditions for use of the appliance and its accessories.

If necessary whoever is responsible for the equipment's use must set out additional regulations and measures specific to particular use of the machine in order to ensure that all safety requirements are met.

In addition to these instructions, we would ask you to pay particular attention to the following appliance-specific safety regulations and to ensure their compliance.

## **6.7 Protecting and Using the Appliance**

- Protect the appliance from unauthorized people setting up and using its apparatus and accessories.
- The appliance should only be set up and used where all conditions required for safe use have been met.

**22.28 / 01****SWITCH BLADE ALIGNING DEVICE**

---

## **6.8 Intended Audience for Operating Instructions**

These instructions contain the information needed to use the appliance they describe correctly.

The instructions are written exclusively for technically qualified personnel. Qualified personnel in this context are:

- Personnel who can prove that they are qualified to use this appliance either through training or experience,
- Personnel who are familiar with the appliance's safety concepts,
- Maintenance and service personnel who are specially trained to repair the appliance.

Only personnel who are in a position to read and understand these instructions should work with this appliance. They should sign to indicate that they have read and understood the instructions above. Installation, maintenance and operation of the appliance should only occur where valid safety and operational regulations of the appropriate rail or operation-specific authority have been considered and are strictly followed for its use and safety. This is especially relevant where regulations relate to safety and protection of the workplace and environment as well as the operating, maintenance and safety regulations or other instructions supplied by the manufacturer or supplier.

## **6.9 Accident Prevention**

The legal regulations and accident prevention measures that apply to the relevant area of operation must be observed. If they are not observed the operator of the appliance is responsible for any legal consequences.

- Observe general and operation-specific accident prevention regulations at all times.
- Familiarize yourself with potential dangers relating to the appliance's specific area of activity and obtain a copy of the corresponding instructions.
- Before setting up the machine, check that it is in working order:
  - Completeness and soundness of fittings, temporary devices, tools, accessories, safety devices etc;
  - Inspections and maintenance are carried out competently and at the appropriate times.
  - Agents required for operation (fuel, lubricant etc) are kept topped-up;
  - All requirements for accident-free use for you and other persons, as well as for property and the environment are fulfilled.
- Be aware of the dangers specific to use of the appliance in your area of work, especially regarding:
  - People and obstacles,
  - Adherence to safety guidelines,
  - Work on neighbouring rails,
  - Safe application of all safety devices,
  - Fulfillment of all necessary safety measures relating to the area of operation.
- Only use tools and equipment in good condition.
- Spilt agents (oil, grease etc) should be cleared up immediately to prevent hazards from slipping or fire. Keep materials for oil bonding and cleaning to hand.
- Repair minor defects immediately to avoid larger ones.
- Before leaving the appliance the following checks should be performed:
  - Appliance has been switched off correctly
  - Tools and accessories are stored safely

## **22.28 / 01**

### **SWITCH BLADE ALIGNING DEVICE**

---

## **6.10 Safety Principles**

The appliance should only be operated by trained personnel!

Possible sources of danger should also be indicated on the appliance by warning signs and/or captions.

## **6.11 Specific Dangers**

The appliance must be switched off (engine 'off' if using an engine-driven hydraulic power pack) before either adjustments or maintenance work is carried out and should be secured against the possibility of starting up again accidentally or inadvertently. All sources of energy (mechanical or hydraulic) must be switched off and secured against the possibility of starting up again.

## **6.12 Dangers from Hydraulic Power**

Work on the hydraulic part of the appliance may only be performed by personnel who are specially qualified to do so. The appliance's hydraulic equipment must be checked regularly and any faults found must be addressed immediately, e.g. leaks, damage to the exterior etc. Any section of the hydraulic system that is to be worked on must first be depressurised. Pneumatic components (hoses, screwed-joints, valves etc.) must only be swapped for items with identical specifications (compressive strength, temperature-resistance etc).

Pressure in conduits should be checked in case directional control valves, stop-valves etc prevent supply to the cylinder and pressure remains locked in that section.

Dangers from hydraulic power can be avoided by:

- Switching off the engine
- Opening the return valve, thus neutralizing hydraulic pressure when using the hand-pump

Work on hydraulic parts of the appliance should only be carried out by specially qualified personnel (e.g. ROBEL Bahnbaumaschinen GmbH personnel).

## **6.13 Dangers from Heat**

Before working on hot parts, the appliance must be allowed to cool for at least 30 minutes.

## **6.14 Other Dangers – Safety Equipment**

- Fingers and hands may be burnt by hot parts;
- Injuries, especially to eyes, may occur from hoses becoming disconnected or oil spraying from any of the hydraulic conduits.
- Long-term damage, especially to hearing, may occur if operators are not routinely protected from noise;
- Scalding may occur from oils, grease and other hot materials if the operator cannot understand and follow notices and regulations on their packaging.

The operator is obliged to ensure that safety devices provided are actually being used or left in their appointed place in the work-place. The operator must wear appropriate clothing: no wide sleeves or other parts that could easily be caught in the appliance.

The person responsible for maintenance work should, after carrying out the work, re-apply safety devices. It is essential that basic training include attendance at the manufacturer's training session.

Operators using the appliance must have read and understood the instructions above.

The instructions must be available to users at all times.

In particular, the operator must contribute to the safety of the appliance through maintenance being conducted regularly and in accordance with these instructions.

## **6.15 Fire Hazards**

Poisonous or carcinogenic substances may result from burning hydraulic oil! As a rule all fires should only be extinguished with a dry-powder extinguisher.

## **22.28 / 01**

### **SWITCH BLADE ALIGNING DEVICE**

---

## **6.16 Fire Prevention**

- No naked flames or easily flammable materials on or in immediate proximity of the appliance!
- Familiarize yourself promptly with the fire prevention regulations and the use of extinguishers. To do so consult the authorized delegate for fire prevention in your workplace.
- Only authorized fire extinguishers (dry extinguishers) of the appropriate fire prevention class should be used.
- Fire extinguishers should be checked periodically and labelled with inspection notices. (Check expiry dates!)
- Once used, a fire extinguisher should be taken out of service.

**APPENDIX: EC-DECLARATION OF CONFORMITY****EG-Konformitätserklärung (deutsche Originalfassung)**

EC Declaration of Conformity (English translation)  
Déclaration „CE“ de Conformité (Traduction française)

**gemäß Maschinen-Richtlinie 2006/42/EG, Anhang II A**

as defined by the Machinery Directive 2006/42/EC Annex II A  
conformément à la directive „CE“ relative aux machines 2006/42/CE, Annexe II A

**Hersteller (Name und Anschrift):**

Manufacturer (name and address):

Fabricant (nom et adresse):

ROBEL Bahnbaumaschinen GmbH

Industriestraße 31

D-83395 Freilassing

**Hiermit erklären wir, dass das**

Herewith we declare that the model

Par la présente, nous déclarons, que le modèle fourni par

Weichenzungenrichtgerät

Typ 22.28

**folgenden einschlägigen Bestimmungen entspricht:**

complies with the following provisions applying to it:  
correspond aux dispositions pertinentes suivantes:

2006/42/EG

**Angewandte harmonisierte Normen:**

Applied harmonized standards:

Normes harmonisées appliquées:

DIN EN 13977: 2011

DIN EN ISO 12100: 2011

**Bevollmächtigt für die techn. Dokumentation:**

Responsible person for technical documentation:

Personne chargée pour la documentation technique:

Mag. Bernhard Lair

Abt. Technische Dokumentation

Industriestraße 31, D-83395 Freilassing

**Die benannte Stelle nach Anhang IX:**

The notified body according to Annex IX:

L'organisme habilité conformément à l'Annexe IX:

DGUV TEST

Prüf- und Zertifizierungsstelle, FB Bauwesen

Landsberger Straße 309, 80687 München

Notified Body, Nr.: 0515

wurde (wird) eingeschaltet zur:

was (is) engaged for:

intervient pour:

Freiwilligen Baumusterprüfung

voluntary type-examination

effectuer l'examen de type volontaire

Freilassing, 2013-01-08

Ort, Datum

Place, date / Lieu, date

  
Industriestraße 31  
D-83395 Freilassing

Unterschrift, Angabe der Funktion im Unternehmen  
Signature, acting in the company / Signature, en qualité de



## 产品说明书

### 道岔尖轨校正装置

22.28 / 01



---

|                   |                     |                                    |
|-------------------|---------------------|------------------------------------|
| 德国 Robel 轨道机械有限公司 | Industriestraße 31, | 83395 Freilassing                  |
| 电子邮箱              | info@robел.com      | Telefon/电话/Téléphone (08654) 609-0 |
| 网址：               | www.robел.com       | Telefax/传真 (08654) 609-445         |

本产品说明书是在考虑印刷是的最新技术状况的基础上发布的。

印刷时的最新技术的基础上编制的。

并且会随着技术发展进行修改。

重量和测量值都为近似值。

有些照片显示的为特殊设计。





## 目录

|               |           |
|---------------|-----------|
| <b>1 技术参数</b> | <b>1</b>  |
| <b>2 安全</b>   | <b>3</b>  |
| 2.1 一般危险      | 3         |
| 2.2 危险警告      | 3         |
| 2.3 急救        | 3         |
| <b>3 设备简介</b> | <b>5</b>  |
| 3.1 预期用途      | 5         |
| 3.2 组件        | 5         |
| <b>4 操作</b>   | <b>11</b> |
| 4.1 运行前检查     | 11        |
| 4.2 校正准备      | 12        |
| 4.3 校正        | 13        |
| <b>5 保养维护</b> | <b>17</b> |
| 5.1 清洗和维护     | 17        |
| 5.2 一般资料      | 18        |
| 5.3 液压装置      | 18        |

**6 附录A ..... 19**

6.1 预期用途 ..... 19

6.2 责任免除 ..... 19

6.3 版权 ..... 19

6.4 一般规范 ..... 20

6.5 验收、配件及经营许可证 ..... 20

6.6 安全规程 ..... 21

6.7 设备保护与使用 ..... 21

6.8 本产品说明书的阅读对象 ..... 22

6.9 事故预防 ..... 22

6.10 安全原则 ..... 23

6.11 具体危险 ..... 23

6.12 液压动力危险 ..... 24

6.13 热危险 ..... 24

6.14 其他危险 - 安全设备 ..... 25

6.15 火灾隐患 ..... 25

6.16 防火 ..... 25

**附录：欧共体声明**

# 1 技术参数

|                          |            |
|--------------------------|------------|
| 行程                       | 最大150 mm   |
| 推力                       | 最大 250 KN  |
| 液压系统压力                   | 最大 700 bar |
| 液压油Panolin HLP 46 Synth. | 1.3 litre  |
| 手摇泵                      | 二级         |
| 气缸                       | 单动式        |

|                | 尺寸单位：毫米 |     |     | 重量单位      |
|----------------|---------|-----|-----|-----------|
|                | 长度      | 宽度  | 高度  | 公斤 ( kg ) |
| 手摇泵装置<br>-基本配置 | 930     | 125 | 500 | 60        |
| 撑杆，长           | 990     | 90  | 55  | 9.3       |
| 撑杆，短           | 730     | 90  | 115 | 7.5       |
| 楔子，长           | 210     | 90  | 120 | 4.8       |
| 楔子，短           | 160     | 65  | 200 | 1.9       |
|                |         |     |     |           |
| 配件：            |         |     |     |           |
| S49/S54型2夹具    | 155     | 110 | 90  | 7.0       |
| UIC 60型2夹具     | 180     | 110 | 90  | 7.4       |
| R65型2夹具        | 190     | 110 | 90  | 7.4       |

此页留空。

## 2 安全

### 2.1 一般危险

按目前的技术标准，本装置是安全的。该装置的安全机制符合现行的安全规则。

详见附录A。

### 2.2 危险警告

以下所有备注和说明旨在保护操作人员的人身安全和身体健康，使其免受危险，并保护操作方的资产免受损害。这些说明始终使用特定的命名惯例来区分危险的类型以及如果没有遵循这些说明可能产生的后果的程度。特别是：



**DANGER (危险)** 表示，不按照说明书操作可能导致操作人员死亡或严重受伤，并对操作方的资产造成重大损害。



**CAUTION (小心)** 表示，不遵守本说明书可能导致操作人员人身伤害及业主财产损失。



**NOTE (注意)** 包含关于机器及其操作，或关于现有部分说明的重要信息。

### 2.3 急救

始终保持急救箱的良好状态。

对于急救措施和设备，应向您工作场所所在地的医疗服务机构或医生咨询。

此页留空。

## **3 设备简介**

### **3.1 预期用途**

此校正装置用于变形道岔尖轨的校形，包括柔性道岔尖轨。

### **3.2 组件**

成型臂由一个轭形空心盒和安装在顶部的液压手摇泵组成，该泵提供了拧紧到弯曲臂上的气缸。

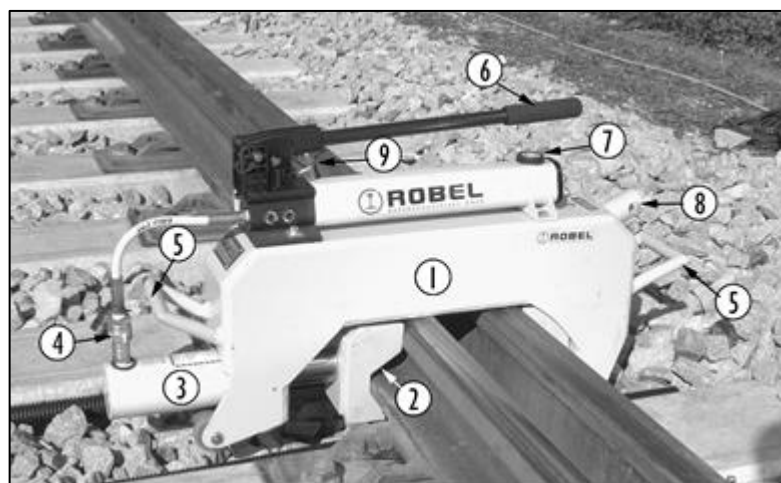
也可以通过快速更换式软管接头连接外部液压设备。

成型臂下有一个双轮法兰，在另一侧，有一个内置的延伸管。通过将长撑杆连接到这个延伸管上，可以很容易地将此装置推到轨道上。

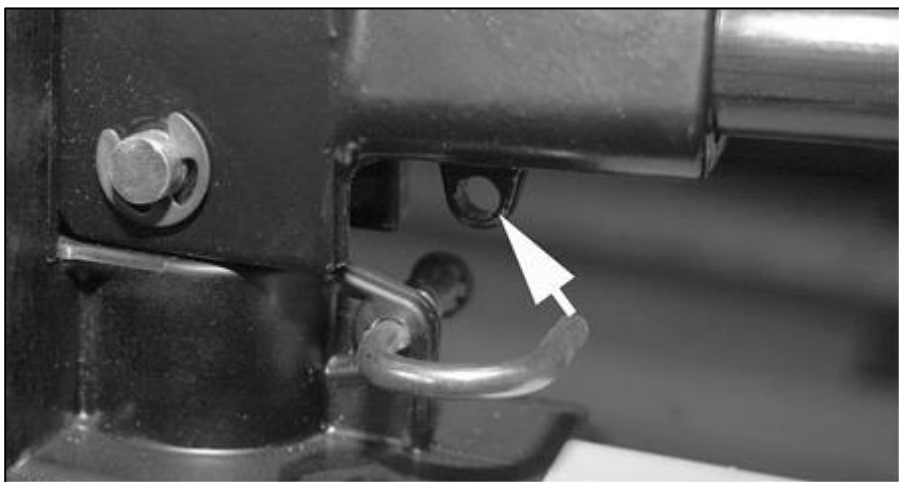
该装置也有两个撑杆（短和长）和两个楔子（短和长）以及相应夹具。

根据轨道类型将相关夹具装到设备上。

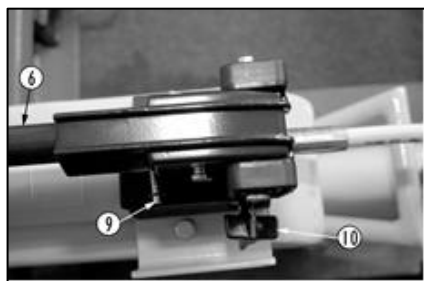




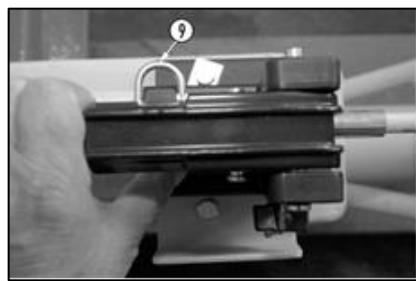
- 1 成型臂
- 2 夹具
- 3 液压气缸
- 4 快速更换式接头
- 5 手柄
- 6 泵柄
- 7 液压油箱排气/加油口
- 8 撑杆延伸管
- 9 安全螺栓



安全螺栓关闭



安全螺栓开启

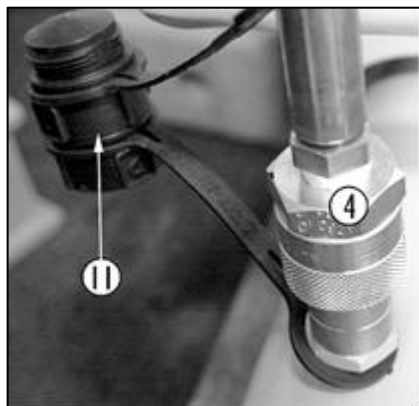


- 6 泵柄
- 9 安全螺栓
- 10 泵阀

**CAUTION**  
**小心**

- 道岔尖轨校正装置不应由泵柄进行！

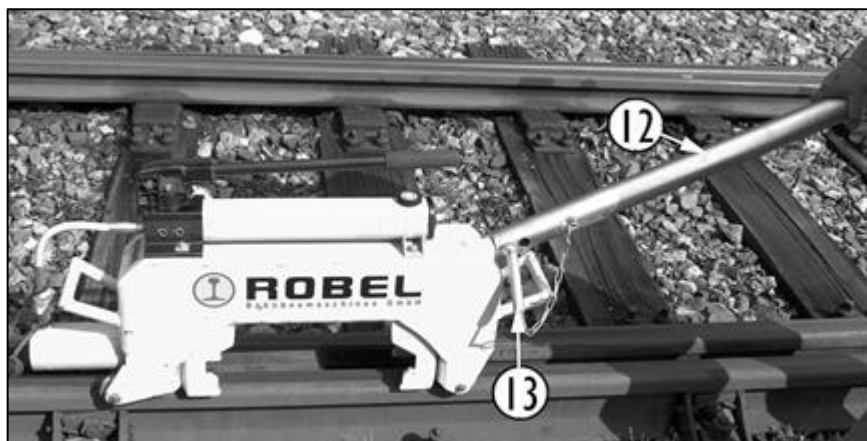
### 3.2.1 快速更换接头的详细说明



4 快速更换接头（螺钉紧固）

11 安全帽

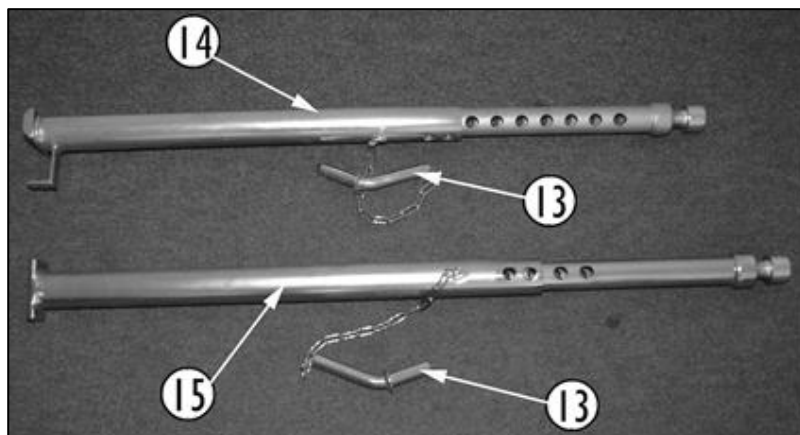
### 3.2.2 运输至轨道



12 撑杆

13 安全螺栓

### 3.2.3 撑杆

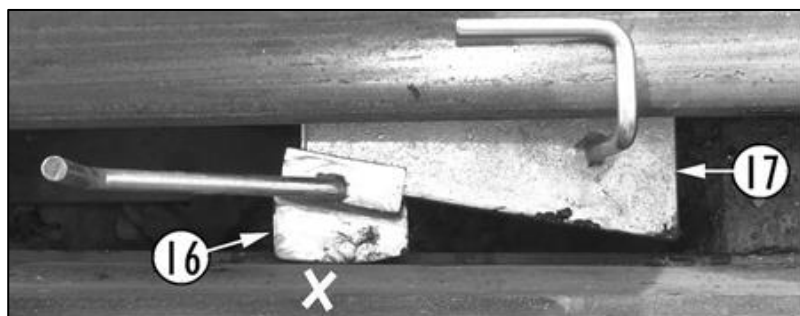


13 安全螺栓

14 短撑杆

15 长撑杆

### 3.2.4 楔子配置



16 短楔

17 长楔

弯曲点用白色十字表示！

### 3.2.5 夹具详细说明

*UIC 60*



*S54/S49*



## 4 操作

此校正装置用于变形道岔尖轨的整形，包括柔性道岔尖轨。

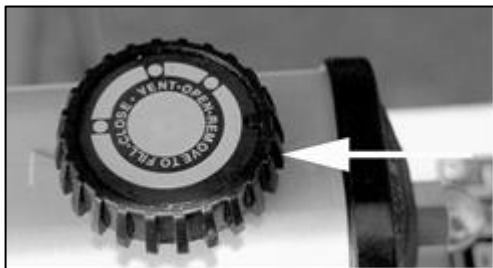
此装置放在基本轨头和道岔尖轨上。道岔尖轨应只在低温及道叉未锁定的情况下才能成形。

**CAUTION****小心**

- 在校正期间不要触摸道岔尖轨 - 保持您与它的距离

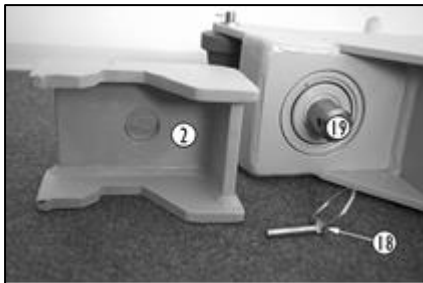
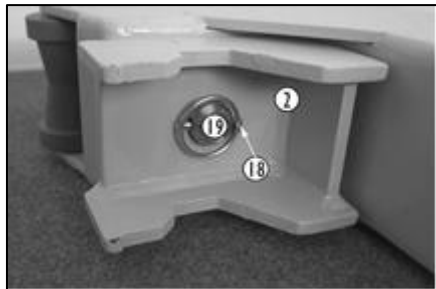
### 4.1 运行前检查

- 在使用该装置之前，检查它是否有明显的损坏迹象（裂缝、液压软管、夹具缺陷、快速更换连接螺钉松动。）
- 检查油箱里是否有足够的液压油。
- 如果油箱里的油面少于一半，就加液压油：



- 为此，逆时针方向旋开阀盖（用于排气和加注液压油箱）；
  - 加注液压油后，按顺时针方向旋紧，然后顺时针方向再转 $\frac{1}{2}$ 圈，以便排气。
  - 液压缸应通过逆时针方向旋转的泵阀排气。
- 夹具之间应该有足够远的距离，以便夹具之间有足够的空间为道岔尖轨所用。

## 夹具更换



- 将安全环向右翻转，并在安全环向右的状态下将固定销从螺栓（19）中拔出。
- 在螺栓上放置一个可替换的夹具，以便标记指向成形臂。

## 4.2 校正准备

- 检查变形的道岔尖轨，用粉笔标出缺陷区域。
- 确定变形是弯曲增大（半径减小）还是弯曲减小（半径增大）。

第一种是最常见的情况。

然而，两者也可能同时发生。

## 4.3 校正



### 危险！

- 完成任何校正工作后，应小心且正确地重新锁定各道叉，这个至关重要。

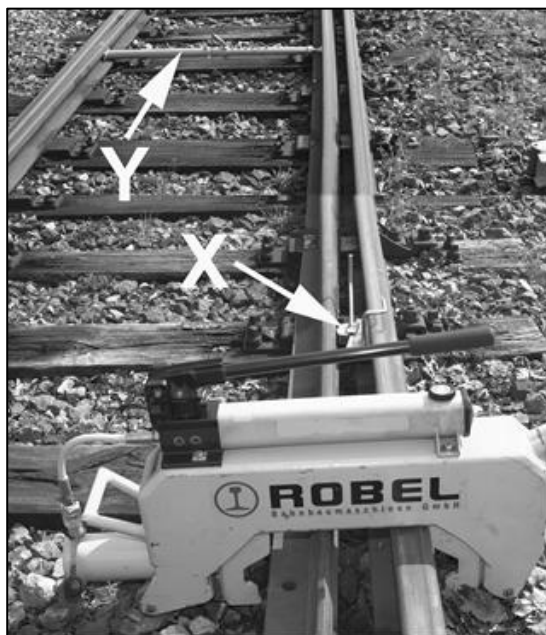
### 4.3.1 案例一：加大半径

如道岔尖轨变形减小了半径的话。

CAUTION

小心

- 道岔尖轨只有在道叉未锁定的情况下才能成形



X型 楔子

Y型 撑杆



- 将校正装置置于轨枕之间距离故障位置1至1.5米的空间内（沿故障方向）。
  - 液压缸完全缩回。
  - 旋转液压泵上的泵阀（10）至关闭。
- ⇒ **间隙较小**：校正装置没有足够的力量。
- ⇒ **间隙较大**：道岔尖轨变形是弹性的，尖轨端已经接触到了基本轨。
- 在受损点引入一个楔子。其应能完全填补道岔尖轨与基本轨之间的间隙，否则校正装置的行程无法充分利用。
- 将撑杆放置在故障处与尖轨被夹紧的第一个点之间的大约一半位置，尽量靠近道岔尖轨的直角（见图示）。
- 使用液压泵，扩大气缸，并弯曲道岔尖轨以防止故障。
- 确定最佳位置后，将道岔尖轨置于弯曲张力下至少60秒。
- 打开液压泵上的泵阀（10）放开道岔尖轨。
- ⇒ 拆下校正装置后，检查调整后的外观。
- 如果故障已纠正，可以通过重新锁定道叉终止操作。
- 如果所产生的整形效果不足，重复整个过程。
- 如果整形太过，变形处的道叉尖轨半径过大，请按照案例2的说明操作。

### 4.3.2 案例2：减小半径

如道岔尖轨变形导致半径加大的话。

CAUTION  
小心

- 道岔尖轨只有在道叉未锁定的情况下才能成形



X型 楔子

- 液压缸完全缩回。
  - 旋转液压泵上的泵阀（10）至关闭。
  - 在距故障位置1至1.5米处插入2个楔子。
  - 弯曲道岔尖轨（详情如案例1中所述）。
- ⇒ **间隙较小**：校正装置没有足够的力量。
- ⇒ **间隙较大**：道岔尖轨变形是弹性的，尖轨端已经接触到了基本轨。
- 在受损点的左边和右边都引入楔子。其应能完全填补道岔尖轨与基本轨之间的间隙，否则校正装置的行程无法充分利用。
  - 使用液压泵，扩大气缸，并弯曲道岔尖轨以防止故障。确定最佳位置后，将道岔尖轨置于弯曲张力下至少60秒。
  - 打开液压泵上的泵阀（10）放开道岔尖轨。

此页留空。

## **5 保养维护**

- 请始终使用推荐的润滑剂，并在维修时，使用原厂替换件。除遵守保证条款外，这对于增加您的机器的操作安全性也很重要。

正确订购备件可以大大加快交货速度，从而使机器更加经济。

- 订购备件时，请提供以下资料：

- 机器类型
- 机器编号
- 部件
- 备件描述和编号
- 数量
- 交货方法
- 交货地址

### **5.1 清洗和维护**

- 定期清洗道岔尖轨校正装置，以防止由于过度弄脏造成的生产损失。
- 只有用湿布清洗道岔尖轨校正装置。只使用水，必要时使用无任何化学添加剂的温和清洁剂。
- **切勿**使用溶剂和腐蚀性或易燃的清洗剂！

## **5.2 一般资料**

- 使用前检查设备，检查油位。必要时，加油至最高油位的2/3处。
- 每次使用后清洁并润滑主轴。
- 此装置应每两年检查和大修一次。
- 切勿超过泵的最大工作压力700 bar。

## **5.3 液压装置**

- 每年应换一次油。

## **6 附录A**

### **6.1 预期用途**

此校正装置用于变形道岔尖轨的校形，包括柔性道岔尖轨。

### **6.2 责任免除**

制造商声明，如果设备没有按指定的方式使用，由此引起的任何损害，制造商不承担任何责任。

除上文所指明的用途外，此设备的任何用途均未获授权，并可能危及操作和维护人员的生命安全以及操作方的物质财产。如果下列情况发生，设备制造商声明对属于操作方或第三方的人员或财产的损害不承担任何责任：

- 未按指定方式使用此设备，
- 操作和维护人员没有阅读和理解本说明书，并已将该设备用于其他用途，
- 操作或维护人员不具备足够资格，或设备在超过限值的条件下使用，
- 设备没有在指定的时间周期内进行维护。

这些对人身或物质财产损害的责任免除并不影响其他除外责任。

### **6.3 版权**

本产品的特殊特性和特质均为德国Robel轨道机械有限公司的知识产权。其使用方面的版权归德国Robel轨道机械有限公司所有。无论是否付费，本产品说明书不得全部或部分复制、出版或以其他方式用于竞争性用途。公司员工不得将其内容传递给本企业以外的任何人。

## 6.4 一般规范

一般情况下，使用本产品必须遵守适用法律要求并采取事故预防措施。如未遵守，设备操作人员有承担任何法律后果的责任。

如果适用于该设备的现行法规与制造商或分包商的规范之间存在差异，则以最严格的限制规定为准。

买方必须提供所有的器具和操作或配套材料，以便所交付产品得以安置并培训人员。必须提供足够安全且明确的轨道和作业区段，使员工可以学习如何操作和使用交付的产品并进行实操训练。

但是，德国Robel轨道机械有限公司及其客户服务部门乐于提供进一步的建议、培训或其他咨询服务。更多细节和条件可另行获取。

## 6.5 验收、配件及经营许可证

买方有责任检查所交付货物的条件、配件、性能，特别是安全性能是否与所商定的有关规格以及合同中的规定相符。

买方必须为交付的货物配备所需的所有辅助配件，以满足现有操作与安全规例、规范、法规或其他规程如安全通知等的任何变更。

除非另有约定，货物交付时不提供此等性质的配件。

此外，买方有责任证明所交付的货物已通过认证，以供有关机构使用。任何由制造商或供应商提供的文件（说明、证明、认证等）都应在供货合同中加以规定。

为取得操作认证所需的任何额外措施和费用都须由买方负责。

## **6.6 安全规程**

为了保护生命、健康、物质财产和环境，必须优先保证满足与设备操作相关的所有要求！

- 在安装该装置之前，请提供证明，证明所有有关人员均已知悉所有相关事项：
  - 法定安全措施
  - 建筑与操作规程
  - 专业及行业组织条例
  - 工作场所及环境保护条例
  - 许可要求
  - 操作要求及
  - 任何其他适用规定

支持和加强制造商规定的有关设备及其附件使用的安全与操作条件。

必要时，任何负责设备使用的人必须针对机器的特殊用途制定额外的规定和措施，以确保满足所有的安全要求。

除了这些说明之外，我们还请您特别注意以下特定安全规程，并确保它们的合规性。

## **6.7 设备保护与使用**

- 防止未经授权之人安装及使用其机器和附件。
- 只有在符合安全使用所需的所有条件的情况下，才能安装和使用本设备。



## 6.8 本产品说明书的阅读对象

本说明书包含了正确使用它们所描述的设备必需的信息。

本说明书是专门为技术上合格的人员编写的。本文中合格人员包括：

- 能够通过培训或经验证明自己有能力使用该设备的人员，
- 熟悉设备安全概念的人员，
- 受过设备修理方面的专业培训的维修和服务人员。

只有能够阅读和理解本说明书的人员才能使用此设备。他们应该签字以表明他们已阅读和理解本说明书。只有已考虑到并严格遵守适用于轨道的及相应作业机构规定的有关安全与操作规程，才可以安装、维护和操作本设备。特别是涉及工作场所和环境安全与保护的规程以及制造商或供应商提供的操作、维护与安全规程或其他指示方面的相关规定。

## 6.9 事故预防

适用于相关业务领域的法律规定和事故预防措施必须遵守。如未遵守，任何法律后果都由设备操作人员负责。

- 始终遵守通用事故预防规定及作业方面的特定事故预防规定。
- 知悉与设备的特定活动区域相关的潜在危险，并获得相应说明书的副本。
- 在安装机器之前，请检查它是否处于工作状态：
  - 配件、临时装置、工具、附件、安全装置等的完整性和可靠性；
  - 检查和维护是在适当的时候由合格人员进行的。
  - 操作所需的作用剂（燃料、润滑剂等）保持加满状态；
  - 满足您及他人以及财产与环境的无事故使用的所有要求。
- 留意在您的工作范围内使用该装置的具体危险，特别是：
  - 人与障碍，
  - 遵守安全准则，

- 在邻近的轨道上作业，
  - 安全使用所有安全装置，
  - 执行与作业区域有关的所有必要安全措施。
- 只使用状态良好的工具和设备。
  - 溢出的物质（机油，油脂等）应立即清除，以防止滑倒或起火危险。手边常备油封和清洁用材料。
  - 立即修复较小的缺陷，避免产生较大缺陷。
  - 在离开设备之前，应进行下列检查：
    - 设备已正确关闭
    - 工具和配件已安全存放

## **6.10 安全原则**

设备只能由受过培训的人员操作！

可能的危险源也应在设备上标明警告标志和/或说明。

## **6.11 具体危险**

进行调整或维护工作之前设备必须关闭（发动机“关闭”，如果使用发动机驱动的液压动力机组的话），并应防止可能出现的意外或无意中重新启动。所有供能装置（机械或液压）都必须关闭并防止可能出现的重新启动。

## **6.12 液压动力危险**

对设备的液压部分的工作只能由具备专门资质的人员来完成。设备的液压装置必须定期检查，发现任何故障必须立即处理，如泄漏、外部损坏等。在液压系统的任何部分作业都必须先减压。气动元件（软管、螺纹接头、阀门等）必须更换规格（抗压强度、耐温性等）相同的物品。

如果方向控制阀、截止阀等阻止了对气缸的供应，且该部分的压力仍然处于锁定状态，则应该检查管道中的压力。

可通过以下方法避免来自液压动力的危险：

- 关闭发动机
- 开启回流阀，以此中和手摇泵使用时的液压压力。

对设备的液压部分的工作只能由具备专门资质的人员进行（例如：德国Robel轨道机械有限公司）。

## **6.13 热危险**

在热部件上作业之前，设备必须至少冷却30分钟。

## **6.14 其他危险 - 安全设备**

- 手指和手可能会被热部件灼伤；
- 软管与液压管道连接断开或液压管道喷出的机油可能会造成人身伤害，尤其是对眼睛。
- 如果操作人员没有常规的噪声防护措施，可能会造成长期损害，尤其是对听力；
- 如果操作人员不能理解和遵守包装上的说明和规定，油、油脂和其他热材料可能会导致发生烫伤。

操作方有义务确保所提供的安全装置在工作场所的制定位置得到切实使用和放置。操作人员必须穿着适当的衣服：没有宽大的袖子及其他易被设备夹住的零件。

负责维护工作的人员在进行维护工作后，应重新安装安全装置。参加包括制造商组织的培训课程在内的基本培训至关重要。

使用该设备的操作人员必须已经阅读并理解了上面的说明。

本说明书必须随时提供给使用者。

特别是，操作人员必须根据说明书进行定期维护，以保证设备的安全。

## **6.15 火灾隐患**

液压油燃烧可能产生有毒或致癌物质！一般来说，只有干粉灭火器才能扑灭所有的火。

## **6.16 防火**

- 设备上及其附近没有明火或易燃材料！
- 及时了解消防法规和灭火器的使用情况。因此，请咨询授权代表，以防在您的工作场所发生火灾。
- 只有认可的达到适用防火等级的灭火器（干式灭火器）才能适用。
- 灭火器应定期检查并贴上检查标签。（检查到期日！）
- 灭火器一旦使用，即应更换。

## 附录：欧共体声明

**EG-Konformitätserklärung (deutsche Originalfassung)**

EC Declaration of Conformity (English translation)  
Déclaration „CE“ de Conformité (Traduction française)

**gemäß Maschinen-Richtlinie 2006/42/EG, Anhang II A**

as defined by the Machinery Directive 2006/42/EC Annex II A  
conformément à la directive „CE“ relative aux machines 2006/42/CE, Annexe II A

**Hersteller (Name und Anschrift):**

Manufacturer (name and address):

Fabricant (nom et adresse):

ROBEL Bahnbaumaschinen GmbH  
Industriestraße 31  
D-83395 Freilassing

**Hiermit erklären wir, dass das**

Herewith we declare that the model

Par la présente, nous déclarons, que le modèle fourni par

Weichenzungenrichtgerät  
Typ 22.28

**folgenden einschlägigen Bestimmungen entspricht:**

complies with the following provisions applying to it:  
correspond aux dispositions pertinentes suivantes:

2006/42/EG

**Angewandte harmonisierte Normen:**

Applied harmonized standards:

Normes harmonisées appliquées:

DIN EN 13977: 2011  
DIN EN ISO 12100: 2011

**Bevollmächtigt für die techn. Dokumentation:**

Responsible person for technical documentation:

Personne chargée pour la documentation technique:

Mag. Bernhard Lair  
Abt. Technische Dokumentation  
Industriestraße 31, D-83395 Freilassing

**Die benannte Stelle nach Anhang IX:**

The notified body according to Annex IX:

L'organisme habilité conformément à l'Annexe IX:

DGUV TEST  
Prüf- und Zertifizierungsstelle, FB Bauwesen  
Landsberger Straße 309, 80687 München  
Notified Body, Nr.: 0515

wurde (wird) eingeschaltet zur:

was (is) engaged for:

intervient pour:

Freiwilligen Baumusterprüfung  
voluntary type-examination  
effectuer l'examen de type volontaire

Freilassing, 2013-01-08

Ort, Datum

Place, date / Lieu, date

  
Industriestraße 31  
- Geschäftsführer - Freilassing

Unterschrift, Angabe der Funktion im Unternehmen  
Signature, acting in the company / Signature, en qualité de