

LPS Climbing Device and Hydraulics

Assembly, Commissioning and Maintenance

Spare Parts and Circuit Diagrams

Assembly Instructions – Issue 05/2019

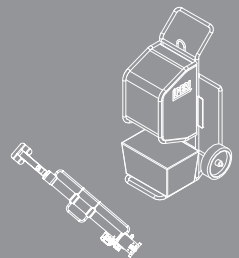
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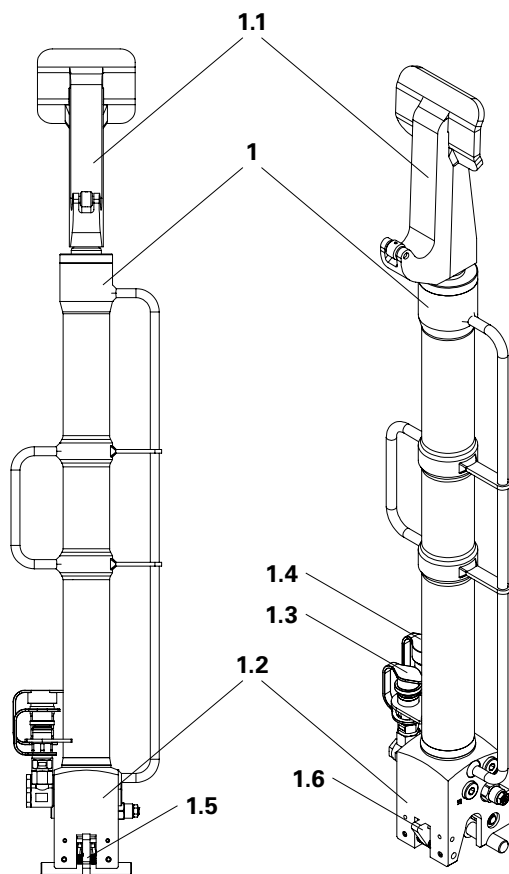
Climbing Device LPS 30 kN
PERI Item No. 125815
S/N 109.050-575



Hydraulic Pump RCS 4 x 190 bar,
380 – 460 V, PERI Item No. 109766
S/N 964.020



Overview



- 1** Climbing Device LPS 30 kN
- 1.1** Piston with head bearing and roller
- 1.2** Cylinder base
- 1.3** Return from the piston side with hydraulic quick coupler (nipple) to angle screw with protective cover
- 1.4** Inflow to the piston base with hydraulic quick coupler (bushing) to angle screw with protective cover
- 1.5** Cylinder reposition device (spring-loaded)
- 1.6** Locking lever (spring-loaded)

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Key

Pictogram | Definition

-  Danger / Warning / Caution
-  Information
-  To be complied with
-  Visual check
-  Tip
-  Misapplication
-  Correct application
-  Load-bearing point
-  Safety helmet
-  Safety shoes
-  Safety gloves
-  Safety glasses
-  Personal protective equipment to prevent falling from a height (PPE)

Dimension specifications

Dimensions are usually given in mm.
Other measurement units, e.g. cm, are shown in the illustrations.
Load details are usually given in kg.
Other measurement units, e.g. t, are shown in the illustrations.

Conventions

- Instructions are numbered with:
1., 2., 3.
- The result of an instruction is shown by: →
- Position numbers are clearly provided for the individual components and are given in the drawing, e.g. **1**, in the text in brackets, for example **(1)**.
- Multiple position numbers, i.e. alternative components, are represented with a slash: e.g. **1 / 2**.

Arrows in the illustrations

- ➔ Arrow representing an action
- ⇨ Arrow representing a reaction of an action*
- ➞ Forces

* If not identical to the action arrow

Safety Instructions

Safety instruction categories

The safety instructions alert site personnel to the risks involved and provide information on how to avoid these risks. Safety instructions are featured at the beginning of the section or ahead of the instructions, and are highlighted as follows:



Danger

This sign indicates an extremely hazardous situation which, if not avoided, will result in death or serious injury.



Warning

This sign indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Caution

This sign indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Information

This sign indicates situations in which failure to observe the information can result in material damage.

Set-up of the safety instructions



Signal word

Type and source of the danger!
Consequences of non-compliance.
⇒ Avoidance measures.

Safety Instructions

General

Deviations from the standard configuration and/or intended use present a potential safety risk.

All country-specific laws, standards and other safety regulations are to be taken into account whenever our products are used.

In the case of unfavourable weather conditions, suitable precautions and measures are to be implemented, in order to guarantee working safety and stability.

The contractor (user) must ensure the stability throughout all phases of construction. He must ensure and verify that all occurring loads are safely transferred.

The contractor (user) has to provide safe working areas for site personnel which are to be reached through the provision of safe access ways. Areas of risk must be cordoned off and clearly marked. Hatches and openings on accessible working areas must be kept closed during working operations.

For a better understanding, detailed illustrations are partly incomplete. Some safety installations which have possibly not been shown in these detailed descriptions must nevertheless still be available.

Storage and Transportation

Do not drop the components.

Store and transport components ensuring that no unintentional change in their position is possible. Detach lifting gear from the lowered units only if these are in a stable position and no unintentional change is possible.

When moving the components, make sure they are lifted and set down in a way that any unintentional tilting over, falling apart, sliding or rolling away is prevented.

Use only suitable lifting accessories to move the components as well as the designated load-bearing points.

During the lifting and moving procedure, ensure that all loose parts are removed or secured.

During the moving procedure, always use a guide rope.

Move components on clean, flat and sufficiently load-bearing surfaces only.

PERI products must be protected against the effects of the weather and aggressive materials during storage in order to ensure that safety is not affected.

Safety Instructions

Product-Specific

Operations

The contractor must ensure that the assembly, modification, dismantling, moving, use and handling of the product is managed and supervised by qualified personnel and authorised personnel.

All persons working with the product must be familiar with the operating instructions and safety information.

The contractor has to ensure that the instructions for use, the instructions for assembly and use, other instructions required for operation or assembly, relevant planning documents, parts lists and other data are available to the users.

Access ways and working areas

Safe access to all working areas must be guaranteed at all times.

Working areas must remain free of any tripping hazards.

Working platforms are to be kept clean and tidy.

Avoid installing working areas and access points in areas of risk.

Make sure the Hydraulic Pump is positioned on a level and sufficiently load-bearing surface.

Assembly

Mandatory use of personal protective equipment (PPE):

- safety helmet
- safety shoes
- protective gloves

There is always the possibility of unforeseen risks arising during assembly work. Assess the degree of risk in each individual case and, if necessary, take measures to prevent or at least minimise the risk.

If guardrails cannot be used due to technical reasons or have to be removed, then site personnel are to be secured by other means (e.g. through rope protection).

Site personnel are forbidden to remain in areas below where assembly work is being carried out unless the area of risk has been provided with sufficient protection against falling, overturning, sliding or rolling objects and masses. The area of risk is to be cordoned off and clearly marked.

Safety Instructions

Protection against falling objects

Secure tools and materials to prevent them from falling to the ground. Remove concrete residue and other dirt.

Avoid positioning working areas and access points in areas of risk. If this is not possible due to work procedures, suitable protective measures (e.g. protective roofs) must be available to provide protection against falling objects. This also applies to work requiring only a short period of time.

Operational working areas at great heights are to be secured against falling objects by means of appropriate constructional measures. Safety nets (mesh size ≤ 2 cm) and planking are considered to be suitable here, and are to be installed very close (distance ≤ 5 cm) to the building.

Climbing procedure

Anchoring of the climbing units in the next concreting section is only to be carried out after the required concrete strength has been reached.

As a result of the moving procedure, leading edges are formed between the platforms. If work is carried out in this area, site personnel must be secured against falling (e.g. through rope protection). Cordon off the areas of risk.

During the moving procedure, neither persons nor construction materials or tools are allowed to be transported.

When climbing with climbing hydraulics, details regarding the arrangement of the hydraulic hoses must be taken into consideration.

In the case of any malfunctions:

- lower platform to the next possible position and secure.
- leave the climbing unit in the safest way possible.
- inform an authorised person immediately.

Maintenance and repairs

- Only use materials which are in perfect condition.
- Components of the climbing systems are to be checked for signs of damage by qualified personnel and authorised persons on a regular basis. Dirt which affects functionality is to be removed immediately.
- Damaged components are to be inspected, removed and replaced.
- Determine the cause of any damage that occurs repeatedly and rectify.

PERI climbing hydraulics may not be used if the type plate is missing, incomplete or illegible.

Intended Use

The lightweight Climbing Device LPS 30 kN is used exclusively to lift a climbing system complete with mesh enclosure into the next concreting section.

PERI products have been designed for exclusive use in the industrial and commercial sectors by suitably trained personnel only.

These Assembly Instructions serve as a basis for the project-related risk assessment, as well as instructions for the provision and use of the system by the contractor (user). However, they do not replace them.

The components are to be inspected before each use to ensure they are in perfect condition and that they function correctly.

Only PERI original components may be used. The use of other products and spare parts represents a misapplication with associated safety risks.

Changes to PERI components are not permitted and represent a misapplication with associated safety risks. Safety instructions and permissible loads must be observed at all times.

Components provided by the contractor must conform to the requirements found in these Instructions for Use and all valid construction guidelines and standards.

Deviations from the standard configuration are not permitted. Special applications must be described in the form of detailed planning and operating instructions based on a separate risk assessment. These special applications must be approved by PERI.

Anything other than the use that is specified in Point 1 is considered contrary to the designated use.

For damage arising from non-intended use:

- the operator bears the sole responsibility,
- the manufacturer assumes no liability.

The system described in these Assembly Instructions may contain patent-protected components.

Standard Assembly

General

The climbing mechanism for the Self-Climbing System LPS consists of:

- Climbing Device LPS 30 kN
- Hydraulic Pump RCS 4 x 190 bar, 380 – 460 V
- Rail Guidance Shoe-2 LPS
- Climbing Rail LPS

Function

The Climbing Device LPS 30 kN is positioned on the Slab Shoe-2 LPS or Slab Shoe Corner-2 LPS or Rail Guidance Shoe-2 LPS, which is anchored to the structure. The Climbing Device works with the climbing pawl in the Rail Guidance Shoe-2 LPS. The head bearing on the piston engages the spacers in the Climbing Rail LPS and pushes both of them upwards with the mesh enclosure. At the end of the stroke, the pawl in the Rail Guidance Shoe-2 LPS engages in another spacer. Once the cylinder has been retracted, the pawl carries the load and the head bearing circumvents the next spacer. After this, the head bearing engages in these spacers.

Applications

With the help of the Climbing Hydraulic LPS, climbing units can be moved vertically without using a crane.

Standard climbing systems:

- Climbing Protection Panel LPS

For special applications, the design engineer must check whether additional or alternative measures are required for the climbing procedure. These measures are to be shown and described in the general arrangement drawings and assembly plans.

The structures shown in these Instructions for Use are examples and feature only one component size. They are valid accordingly for all component sizes contained in the standard configuration.

Additional PERI product information

- Instructions for Assembly and Use (e.g. for the LPS Screen – Lightweight Climbing Enclosure)
- Instructions for Use (e.g. for the Lifting Beam RCS 9 t)
- PERI PI Sheets - separate product information (e.g. for permissible anchor loads)

Technical Data

Climbing Device LPS 30 kN

Stroke length: effective 500 mm (maximum 575 mm)
Lifting power: maximum 30 kN (**11.2 kip**)
Operating pressure: 180 bar (**18.0 MPa**)

Hydraulic Pump RCS 4 x 190 bar, 380 – 460 V

Power supply: 400 V/50 Hz – 3-phase – flow rate 6 l/min
Power supply: 460 V/60 Hz – 3-phase – flow rate 7 l/min
Sound emissions: 64 dB (**A**) at a distance of 1.0 m

Note - for use only in Canada:

Hydraulic Pump RCS 4 x 190 bar, 460 V CSA

Power supply: 460 V/60 Hz – 3-phase – flow rate 7 l/min
Installation Declaration provided by the manufacturer is not valid in Canada!

Cleaning and Maintenance Instructions

The Climbing Device LPS 30 has been designed for long-term use on construction sites.

Use PERI original components as spare parts.

In order to ensure cost-effective, technical and safe use over a long period, it is important to take a value-preserving approach.

Repairs which require welding or deformation of components must be carried out by PERI.

Additional Technical Documentation

- Instructions for Assembly and Use:
 - LPS Screen Lightweight Climbing Enclosure
- Instructions for Use:
 - Lifting Beam RCS 9 t
 - Screen Adapter Stacking LPS 60

Target Groups

Contractors

These Assembly Instructions are intended for contractors who use PERI products for

- assembling, modifying and dismantling operations, or
- use them, e.g. for concreting, or
- who have them used, e.g. for forming operations.

Construction site coordinator

The Safety and Health Protection Coordinator*

- is appointed by the client,
- must identify potential hazards during the planning phase,
- determines measures that provide protection against risks,
- creates a health and safety plan,
- coordinates the protective measures for the contractor and site personnel so that they do not endanger each other,
- monitors compliance with the protective measures.

Competent persons

Due to the specialist knowledge gained from professional training, work experience, and recent professional activity, the competent person has a reliable understanding of safety-related issues and can correctly carry out inspections. Depending on the complexity of the test to be undertaken, e.g. scope of testing, type of testing or the use of certain measuring devices, a range of specialist knowledge is necessary.



- **In other countries, ensure that the relevant national guidelines and regulations in the respective current version are complied with!**
- **If no country-specific regulations are available, it is recommended to proceed according to German guidelines and regulations.**

* Valid in Germany: Regulations for Occupational Health and Safety on Construction Sites 30 (RAB 30).

Qualified personnel

PERI products may only be assembled, modified or dismantled by personnel who are suitably qualified to do so. For the work to be carried out, the qualified personnel must have received instructions** covering at least the following points:

- The plan for the assembly, modification or dismantling of the PERI product in an understandable form and language.
- The measures necessary to safely assemble, modify or dismantle the PERI product.
- Naming of the preventive measures to be taken to avoid the risk of persons and objects falling.
- The safety precautions to be taken in the event of changing weather conditions that could adversely affect the safety of the PERI product concerned, as well as the personnel.
- Details regarding permissible loads.
- Description of all other risks and dangers associated with assembly, modification or dismantling operations.

** Instructions are given by the contractor himself or a competent person selected by him.

A1 Climbing Device LPS 30 kN

- 1 Climbing Device LPS 30 kN
Item No. 125815 (S/N 109.050-575)
- 1.1 Piston with head bearing and roller
- 1.2 Cylinder base
- 1.3 Return from the piston side with hydraulic quick coupler (nipple) to angle screw with protective cover ¹⁾
- 1.4 Inflow to the piston base with hydraulic quick coupler (bushing) to angle screw with protective cover ¹⁾
- 1.5 Reposition device
- 1.6 Locking lever
- 1.7 Measuring connection
- 1.8 Lowering brake valve
- 1.9 Protection caps

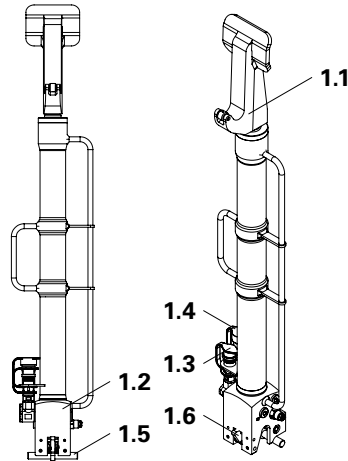


Fig. 1



Due to the clear arrangement of the quick-coupler nipple (return) and bushing (inflow) on the Climbing Device and Hydraulic Pump, a wrong connection of inflow and return lines is not possible. During moving operations, fit quick-couplers with protection caps (1.9) (Item no. 125632) which provide protection against dirt and damage.

¹⁾ In order to prevent the quick couplers from colliding with the platforms or other parts of the Climbing Protection Panel when climbing, it is possible to arrange the couplers vertically using angle pieces.

■ **Contact PERI!**

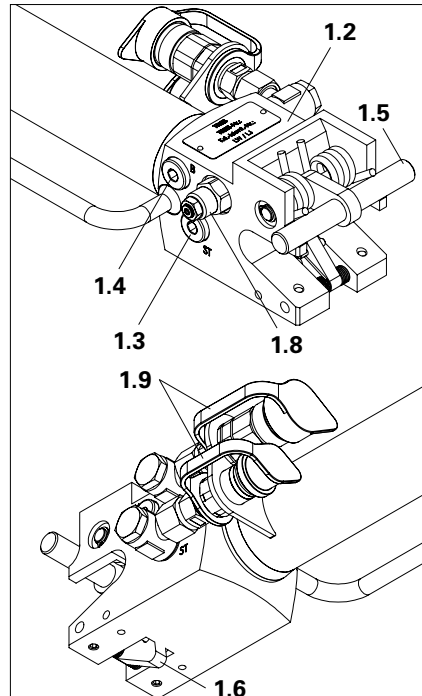


Fig. 2

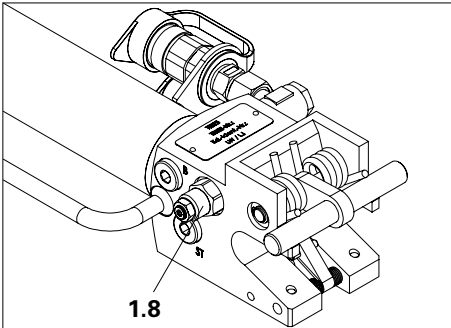


Fig. 3

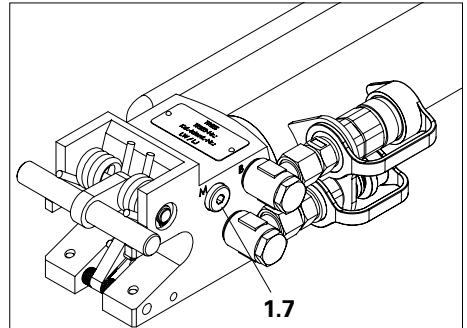


Fig. 4

A2 Hydraulic Twin Hose RCS

- 2.1** Hydraulic Twin Hose RCS 10 m, Item no. 110069 (SK050.723A)
- 2.2** Hydraulic Twin Hose RCS 20 m, Item no. 110070 (SK050.724A)
- 2.3** Quick-Coupler Bushing RCS Item no. 110822
- 2.4** Quick-Coupler Nipple RCS Item no. 110823
- 2.5** Retaining ring (bushing)

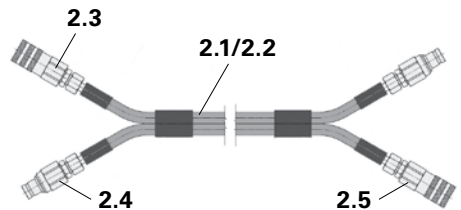


Fig. 5

A3 Hydraulic Pump RCS

- 3** Hydraulic Pump RCS 4 x 190 bar, 380 – 460 V for 4x Climbing Devices, Item no. 109766 (S/N 964.020)

Note - for use only in Canada:

Hydraulic Pump RCS 4 x 190 bar, 460 V CSA
Item no. 114243 (S/N 964.020-CSA)
Installation Declaration provided by the manufacturer is not valid for this.

- 3.1** Operating lever
- 3.2** Motor protection plug CEE
- 3.3** Electricity socket with phase inverter

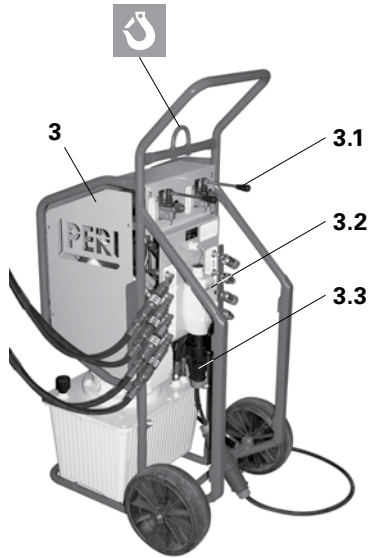


Fig. 6

- 3.4** Hydraulic oil tank
Filling quantity: max. 22 litres
- 3.4a** Oil drain screw
- 3.5** Oil level indicator with thermometer
- 3.6** Filling piece with ventilation filter
- 3.7** Return flow filter

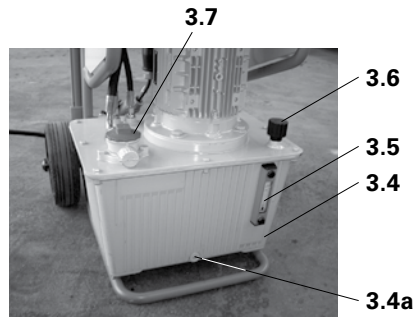


Fig. 7

- 3.11** Measuring connection for pressure check (only through PERI personnel)

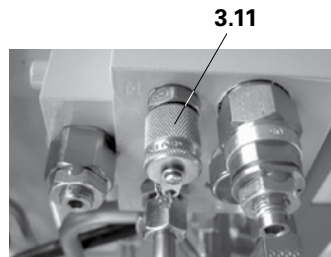
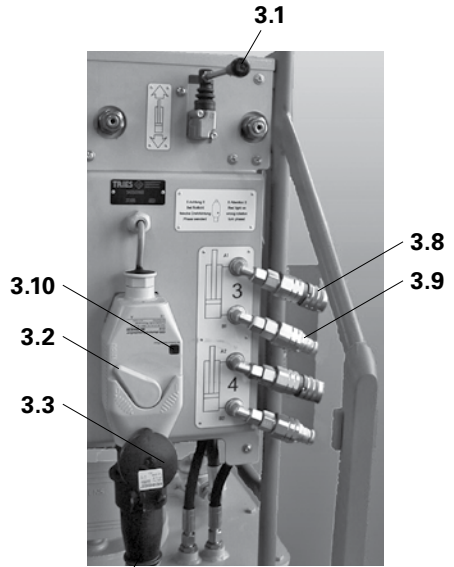


Fig. 8

- 3.1** Hand valve in the middle position
- 3.2** Switch
- 3.3** Electricity socket with phase inverter
- 3.8** Return flow on piston-rod side A of the cylinder with hydraulic quick-coupler (bushing)
- 3.9** Inflow for piston head side B of the cylinder with hydraulic quick-coupler (nipple)
- 3.10** Rotary field control lamp
- 4.1** Adapter Cable RCS
Accessory for supply line with CEE socket
Operational voltage: 380 – 400 V/16A, 50 Hz
- 4.2** Plug Socket RCS, black accessory for assembly of adapter cable, operational voltage 380 – 460 V, 50 – 60 Hz



4.1 + 4.2

Fig. 9

Functioning of flow divider

A flow divider is installed for each pair of cylinders in the Hydraulic Pump which evenly divides the flow of the hydraulic oil to the cylinders.

This ensures load-independent synchronisation of the cylinder.

Synchronisation deviations can be corrected in the respective end position by keeping the cylinder running against the limit stop for a period of time.

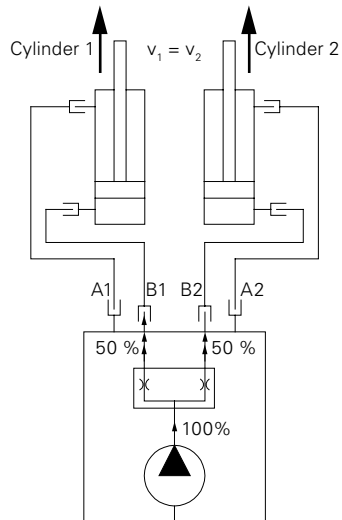


Fig. 10

A4 Rail Guidance Shoe LPS

- 5 Slab Shoe-2 LPS, adjustable (Fig. 12)
Slab Shoe Corner-2 LPS (Fig. 13)
Rail Guidance Shoe-2 LPS (Fig. 11)
- 5.1 Climbing pawl
- 5.2 Guiding skid
- 5.3 Threaded Bolt LPS DW 15
- 5.4 Locating pin for the Climbing Device

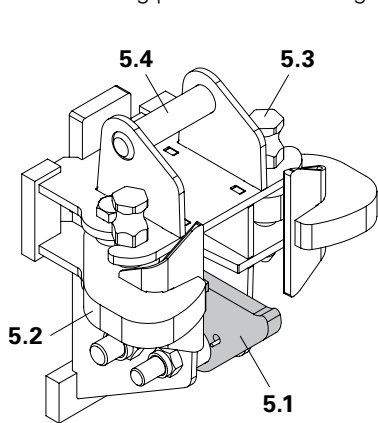


Fig. 11b

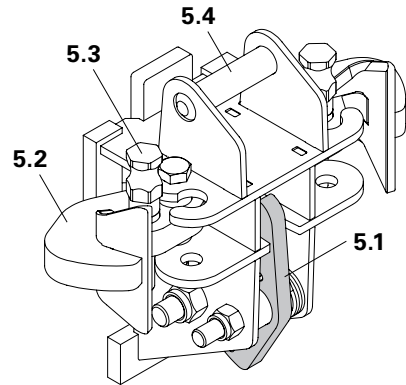


Fig. 11a

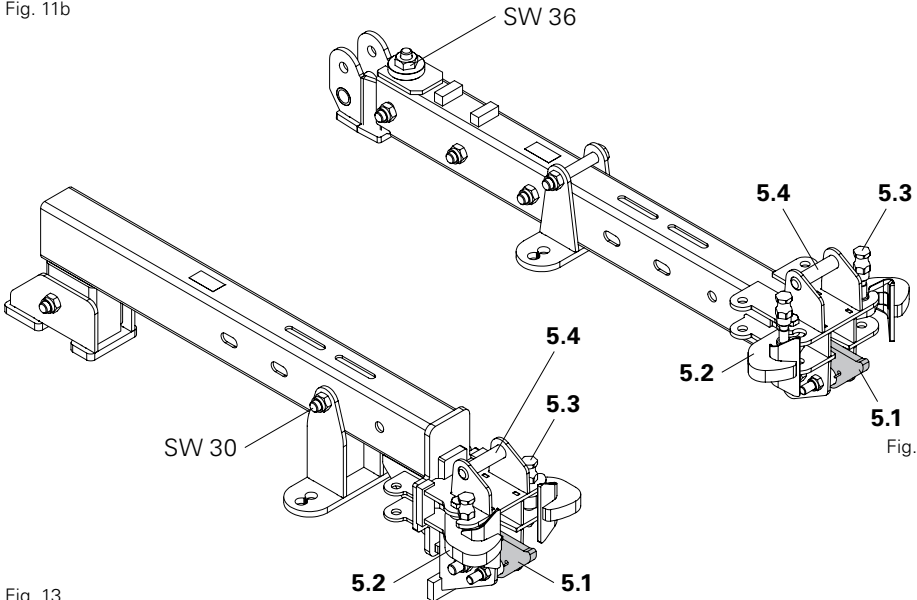


Fig. 13

Fig. 12

A5 Climbing Device in use

Use for LPS Screen Lightweight Climbing Enclosure with Slab Shoe-2 LPS

- 1 Climbing Device LPS 30 kN
- 5 Slab Shoe-2 LPS, adjustable
- 9 Climbing Rail-2 LPS
- 9.1 Spacer

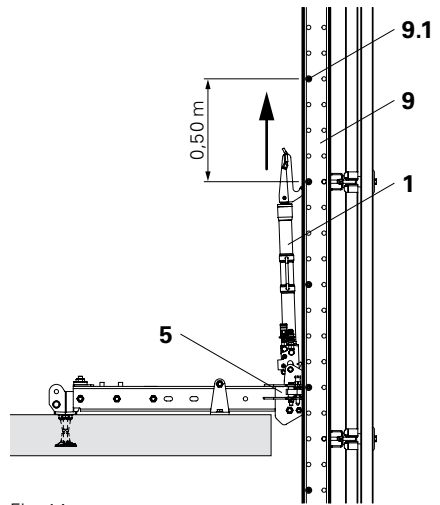


Fig. 14

Use for LPS Screen Lightweight Climbing Enclosure with Rail Guidance Shoe-2 LPS

- 1 Climbing Device LPS 30 kN
- 5 Rail Guidance Shoe-2 LPS
- 9 Climbing Rail-2 LPS
- 9.1 Spacer

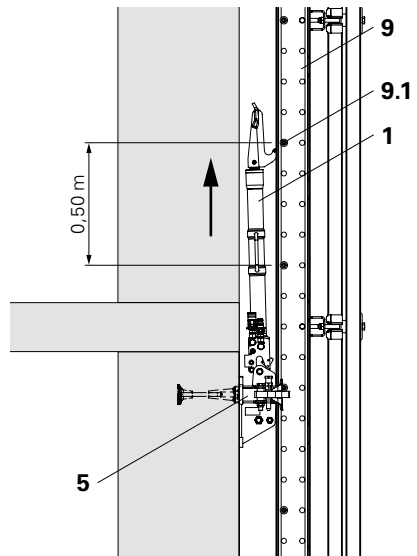


Fig. 15

B1 Measures

Moving on the construction site

- Keep bushing and nipples of all quick-couplers clean and fitted with protection caps (Item no. 125632) or coupled together during transport.
- Ensure the piston rod is in a retracted position before transporting the hydraulic cylinder.
- Transport the hydraulic hoses rolled up – do not drag them along the ground.

Temporary storage on the construction site

- Clean bushing and nipples of all quick-couplers and fit with protection caps when storing, or connect them together.
- Store the hydraulic cylinder with the piston rod in a retracted position.
- Store hydraulic hoses rolled up.
- When storing, place the hydraulic cylinder in its designated transport box, see B2.
- Do not store the Hydraulic Pump in a horizontal position as the oil can escape through the ventilation valve.

Transport from and to the construction site

- Clean dirt off climbing device and Hydraulic Pump, and leave to dry.
- Fit bushing and nipples of all quick-couplers with protection caps or couple them together.
- Transport hydraulic hoses rolled up.
- Fill the hydraulic cylinder and hydraulic hoses with oil.
- Ensure the piston rod is in a retracted position before transporting the hydraulic cylinder.
- When transporting, place the hydraulic cylinder in its designated transport box and secure, see B2.
- When transporting, place the Hydraulic Pumps in their designated transport boxes and secure, see B2.
- Do not transport Hydraulic Pump in a horizontal position as the oil can escape through the ventilation valve.
- When moving transport crates with the crane, use suitable lifting slings that are wrapped around the underside.

Longer storage periods

- Do not drain the oil during downtime.
- Protect connections against corrosion using a suitable preserving agent. Close all openings ensuring they are airtight.
- If stored in regions characterised by high humidity, additionally fill the hydraulic oil tank to the brim with hydraulic oil and ensure that the unit is firmly closed.

B2 Packaging



Transport crates

- are only used for transport and storage purposes.
- are not used as load-handling equipment.



- Clean dirt off the Climbing Device and Hydraulic Pump, and leave to dry.
- Fix protection caps to bushing and nipples of all quick-couplers.
- Place the hydraulic cylinder in the designated transport crate.
- Store hydraulic hoses rolled up.
- Do not store Hydraulic Pump in a horizontal position as the oil can escape through the ventilation valve.
- Fix cover to the transport crate.

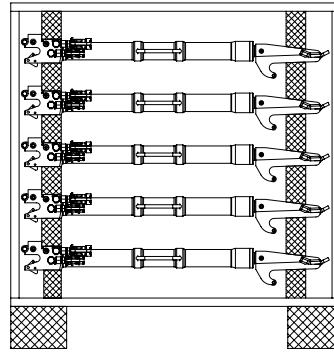


Fig. 16



Fig. 17

Designation	Weight [kg]
Climbing Device LPS 30 kN Item no. 125815 (S/N: 109.050-575)	25,0
Hydraulic Pump RCS Item no. 109766 (S/N: 964.020)	109,0
Hydraulic Twin Hose RCS Length 10 m Item no. 110069	9,0
Length 20 m Item no. 110070	16,0

All weight details do not include the oil.

Dimensions of the Hydraulic Pump RCS:

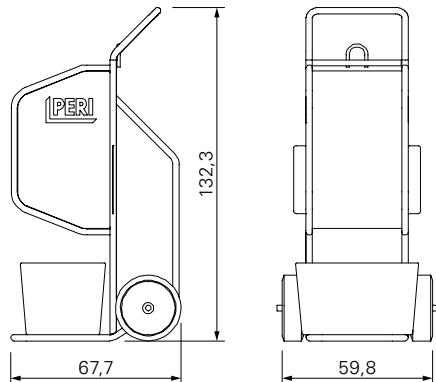


Fig. 17a

C1 Initial Commissioning

Measures before the initial commissioning

- Check the completeness of the technical documentation, e.g. hydraulic plan, equipment list, electrical wiring diagram, instructions for switch and motor. (see Appendix)
- Site personnel to familiarise themselves with the equipment using the available documentation.
- Compare required type of current and voltage with that specified on the type plate.
- The plug socket should be connected by qualified personnel, see C2.
- Check the rotary field on the rotary field display, see D3. If the control lamp changes to red, change rotary field direction with the integrated phase inverter.
- Check that the oil tank is clean.
- Fill tank with hydraulic oil, see C3.
- Check temperature of the electric motor.
- Check temperature of the hydraulic oil and, if necessary, bring to operating temperature, see C3.
- Clean bushing and nipples of all quick-couplers and check for signs of damage.
- Check all fittings and re-tighten if necessary.
- Carefully vent the system during initial commissioning or after intermediate storage, see D5.



Fig. 18



With low temperatures ($<10^{\circ}\text{C}$), warm up the hydraulic oil by flushing the system in order to reach the required start viscosity.

Recommended hydraulic oil for low temperatures:

HM10 – ISO11158

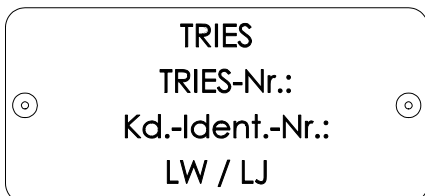


Fig. 18a

C2 Commissioning

Measures taken during commissioning

- Listen out for any pump noises after starting up.
- Check the rotary field.
- Check level of the hydraulic oil and top up if necessary.
- Check temperature of the electric motor.
- Check temperature of the hydraulic oil and, if necessary, bring to operating temperature, see C3.
- Check filter and, if necessary, clean or replace.
- Carefully vent the system during initial commissioning or after intermediate storage, see D5.
- Check the functionality of the hand valve and hydraulic cylinder.
- Check components and connections for signs of external leakage.
- Never re-tighten leaking screw connections under high pressure, but only after a pressure release.

Re-commissioning after a long downtime

- Thoroughly clean and rinse preserved equipment before commissioning. Any remaining preservation agents can block the valves.
- Drain condensation water from the hydraulic tank.
- Check hydraulic oil after a long standstill period for usability and change if necessary.
- All recommended measures for the initial commissioning also apply to re-commissioning.

Electrical connection



Connection carried out only by authorised qualified personnel.

Accessories:

- Plug Socket RCS (Fig. 19)
Item no. 110279 (S/N: K016.440) for connection plug on the pump.
The Plug Socket RCS is not a CE plug!
- Adapter Cable RCS (Fig. 20)
Item no. 110280 (S/N: SK050316BX) for operating voltage 400 V and a power supply line with CEE coupling 16 A.

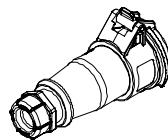


Fig. 19

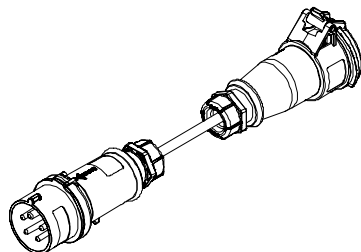


Fig. 20

C3 Maintenance and Repairs

Overview

Damage and any resulting downtime can be avoided by carrying out scheduled maintenance work.

PERI recommends shortened maintenance intervals:

- for equipment showing signs of heavy wear.
- with high thermal and mechanical loads.
- when subject to heavy soiling.

Maintenance and repairs	Recommended maintenance intervals
Clean machine housing and cylinder. Lubricate moving parts on the cylinder.	Daily
Clean oil filter and replace if necessary. Replace hydraulic oil.	Before use on next jobsite, minimum 1x yearly
Replace hoses.	If damaged, before use on next jobsite, minimum 1x yearly
Replace sealings.	With oil leakage
Check fluid level in the oil tank. Check oil temperature and oil level. Check whether there are signs of leakage. Check working and control pressures. Check whether any noises or vibrations are present.	Daily to weekly.
Check: <ul style="list-style-type: none"> ■ equipment mountings ■ pipe and hose lines (connections, chafe marks, kinks) ■ protective covers, display devices ■ ventilation filter in the filling piece 	Weekly to monthly.
Check: <ul style="list-style-type: none"> ■ machine housing (dirt, damage) ■ efficiency control 	Monthly to quarterly.
Check the complete Hydraulic Pump (deposit formation, rust formation).	Yearly.

Table 1

Check fluid level in oil tank

If fluid volume is too low

- the operating temperature increases,
- which leads to air inclusions
- allow the hydraulic cylinder to extend jerkily.

Therefore:

- keep the oil level display device clean.
- continually monitor the oil level.
- Immediately top up any missing hydraulic oil.
- determine the cause of excessive oil consumption.



- The oil level can vary depending on the type, quantity and size of the consumer.
- Recommended operating temperature of the hydraulic oil: 45° C (average temperature of the hydraulic oil in the tank).

Check oil temperature and oil level



- Read off the oil temperature and oil level on the thermometer (**3.5**).
- The operating temperature of the hydraulic oil increases with an increase in the outside temperature.
- Switch off the Hydraulic Pump if the oil temperature goes over 70 °C.
- Determine the cause of the overheating (e.g. no pressureless flow, outside temperature too high).

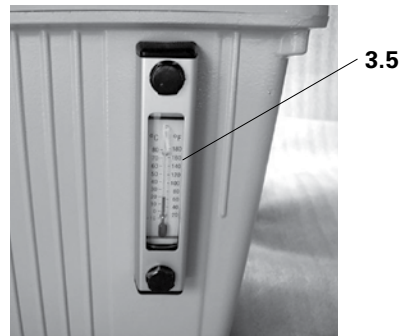


Fig. 21

Replace the hydraulic oil

Drain the hydraulic oil and clean oil tank:

1. Completely retract the piston rod.
2. Clean hydraulic tank especially in the area of the filling piece.
3. Switch off the pump and drain the hydraulic oil in a warm condition.
4. Remove the oil drain screw **(3.4a)** – hex. screw SW 10.
5. Completely drain the tank.
6. Clean hydraulic tank if necessary.
7. Clean return flow filter or replace if necessary.
8. Check ventilation filter in the filling piece **(3.6)** for signs of dirt.
9. For extremely dirty equipment or when changing the hydraulic oil, rinse with separate oil.
10. Drain flushing oil from the hydraulic tank and clean once again if necessary. (Fig. 22)



- Instructions for the safe handling of hydraulic oil are included in the safety data sheet of the oil selected for use.
- Avoid body contact and contact with the structure. Information on cleaning and correct disposal are included in the safety data sheet of the hydraulic oil selected for use.



Fig. 22

Filling with new hydraulic oil:

1. Pour in hydraulic oil via the filter.
 - Fill tank only up to the top marking. Avoid overfilling!
 - The hydraulic oil used must be free of water and dirt.
 - Pour in hydraulic oil using a clean filling sieve (separate filling sieve, filling funnel with sieve insert, or using an ultra-fine filter).
 - Do not mix hydraulic oils of different quality and from different manufacturers.
2. Close the filling opening with end cap.
3. Check the oil level.
4. Check the tightness of the oil tank (e.g. cap, pipe penetrations, flanges).
5. Record type of oil used and amount in the maintenance chart.

Recommended hydraulic oil:

HM10 – ISO 11158,
HVI22 – ISO 11158,
HVI46 – ISO 11158,
e.g. PERI Hydraulic Oil HM10, 20 l,
Item no. 131270.

Filling quantity: max. 22 litres.

Clean the oil filter and replace

1. Unscrew the plastic cap of the return flow filter (3.7) and open (Fig. 23). Plastic cap presses the filter element (3.12) into the lower part of the housing (3.13) by means of a spring.
2. Pull out the lower part of the housing (3.13) including the filter element (3.12) from the head piece. (Fig. 24)

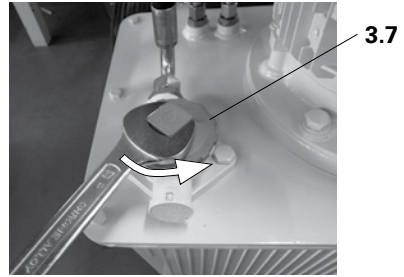


Fig. 23



Make sure that the hydraulic oil tank remains free of any dirt and impurities.

1. Drain contaminated oil from the lower part of the housing (3.13) and dispose of correctly.
2. Clean filter element (3.12); if necessary, dispose of correctly and replace with a new filter. (Fig. 25)
3. Press lower part of the housing (3.13) with filter element into the head piece.
4. Fit the plastic cap of the return flow filter and tighten.

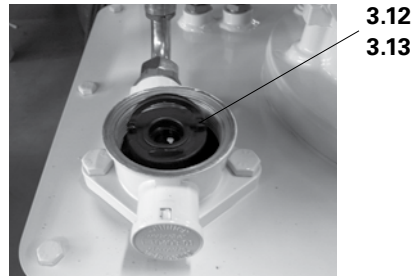


Fig. 24

3.7 Return flow filter
S/N: K017.006

3.12 Filter element
Type: ARGO P3.0520-51

3.13 Lower part of the housing
Type: ARGO FR 072.0104

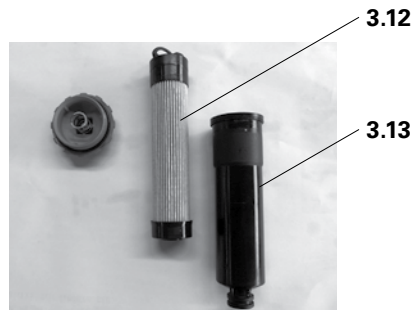


Fig. 25

D1 Preparations

Preparations on the hydraulics

- Check the age of the hydraulic hoses and replace if necessary.
- Carefully vent the hydraulic cylinder and hoses before use, see D5.
- Clean the oil filter and replace if necessary, see C3.
- Check fluid level in the oil tank and top up hydraulic oil if required, see C3.
- Unravel any loops and twists in the hydraulic hoses.
- Do not place any objects on the hydraulic lines.
- Clean all bushings and nipples of all quick-couplers.
- Check the rotary field on the rotary field display, see D3.
- Check the temperature of the oil, see C3.
- With low temperatures, warm up hydraulic oil by flushing the system in order to reach the required start viscosity.
- Listen out for any pump noises after starting up.
- Check components and connections for signs of leakage.

Preparations on the self-climbing system



Danger

The climbing procedure creates additional open edges!

Falling off the platform.

⇒ Cordon off areas of risk or secure by means of other measures.



- Ensure that the Climbing Rail rests on the pawl of the Climbing Shoe on which the Climbing Device is positioned. If the vertical spacing of the Rail Guided Shoe LPS is divisible by approx. 50 cm, deactivate the other Rail Guided Shoe LPS during the climbing procedure.
- Ensure that no objects or parts of the intermediate platform project into the area of the hoses.
- If manual intervention is necessary during the climbing procedure, the platform to be climbed may only be accessed after consultation with the operating personnel.



Monitor the climbing procedure from a safe position.

D2 Installing the Climbing Device

General assembly

Standard arrangement

Two cylinders per Climbing Unit are in use.

Position of the hydraulic hoses

- Depending on the position of the Pump, connect the hydraulic hoses left or right on the Climbing Device.
- Connect the hydraulic hoses so that they are not pulled upwards by the platform during climbing.
- Place the Hydraulic Pump for the climbing procedure on the building slab.



- Arrange the hoses so that they are not caught up or crushed in the Climbing Unit or the building during the climbing procedure.
- In the area of the platforms which are to be climbed, ensure that the hoses remain loop-free.



In order to save time, use 2 sets of hydraulic hoses; hoses should be laid alternating between the wall and Climbing Rails.

Standard hose arrangement diagram

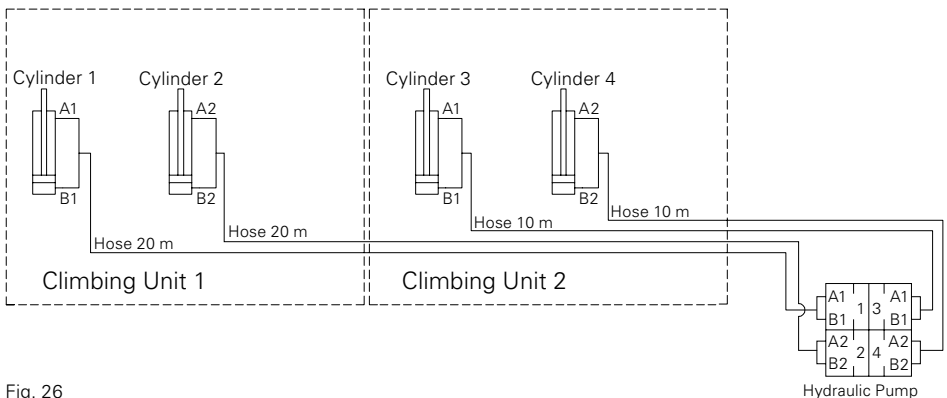


Fig. 26

Hose arrangement for self-climbing procedure of the last unit

For each climbing section, move the last unit to be climbed separately. Adapt control sequence as the Hydraulic Pump is climbed at the same time. Two cylinders are in use on one Climbing Unit.

Place the Hydraulic Pump for the climbing procedure on the building slab. Move the Hydraulic Pump with the crane.



Do not connect Cylinders 3 + 4 to the Hydraulic Pump.

Connecting the hydraulic lines

The Quick-Couplers on the Pump are marked accordingly (A1–A2, B1–B2).



The arrangement of the plugs and sockets of the Quick-Couplers is clearly shown and cannot be mixed up.

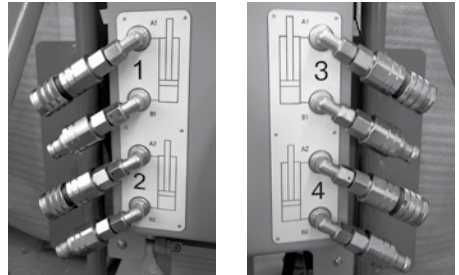


Fig. 27

The Quick-Couplers consist of:

- 2.3** Bushing with retaining ring
Item no. 110822
- 2.4** Nipple
Item no. 110823
- 2.5** Retaining ring

Procedure:

1. Clean nipple (**2.4**) and bushing (**2.3**).
2. Push the nipple as far as possible into the bushing until the retaining ring (**2.5**) engages.
3. Turn retaining ring with a quarter-turn (right or left) = secured. Accidental disconnection is thus prevented.

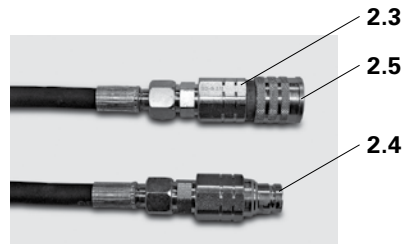


Fig. 28

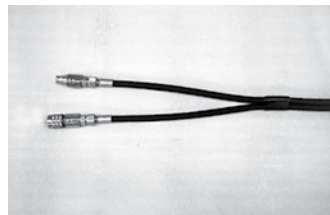


Fig. 29

Mounting the Self-Climbing System LPS

Installing the Climbing Device LPS 30 kN with Slab Shoe-2 LPS, adjustable

- Place the Climbing Device LPS 30 kN (1) on the bolt of the Slab Shoe-2 LPS (5B).
- Position the head bearing (1.1) within the Climbing Rail-2 LPS.



- Is the locking lever (1.6) fully engaged on the cylinder base?
- Does the head bearing (1.1) securely grip under the spacers?
- Are the hydraulic hoses arranged so that they do not get tangled during the climbing procedure?

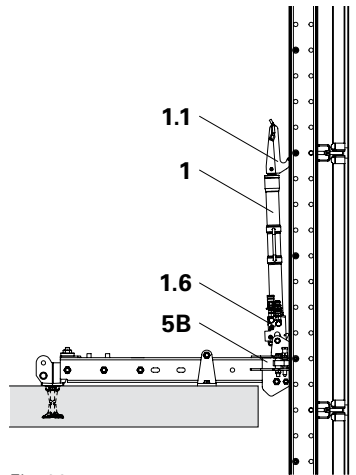


Fig. 30

Climbing Protection Panel element

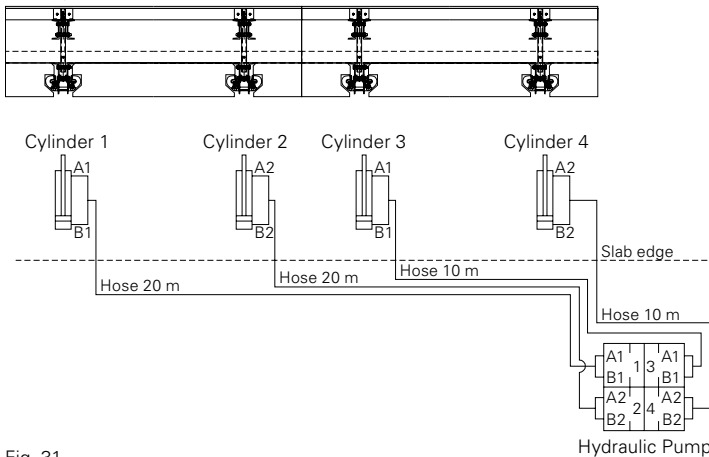


Fig. 31

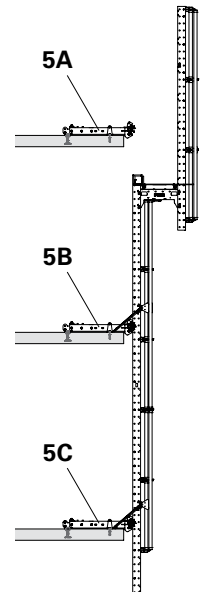


Fig. 32



Are the hydraulic hoses connected on the correct side?

Installing the Climbing Device LPS 30 kN with Rail Guidance Shoe-2 LPS

1. Place the Climbing Device LPS 30 kN (1) on the bolts of the Rail Guidance Shoe-2 LPS (5C).
2. Position the head bearing (1.1) within the Climbing Rail-2 LPS (9).



- Is the locking lever (1.6) fully engaged on the cylinder base?
- Does the head bearing securely grip under the spacers (9.1)?
- Are the hydraulic hoses arranged so that they do not get tangled during the climbing procedure?

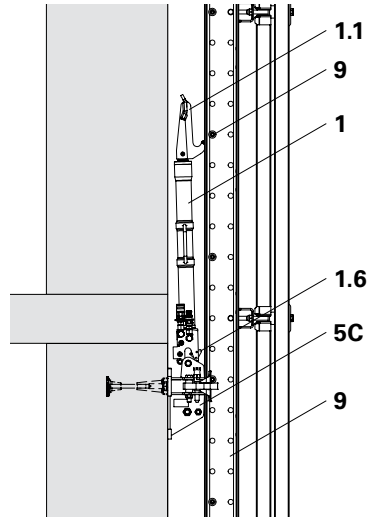


Fig. 33

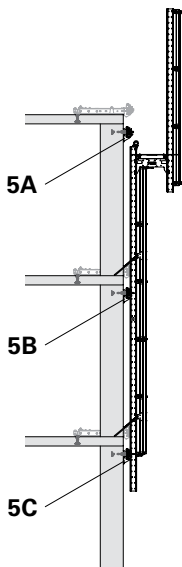


Fig. 34

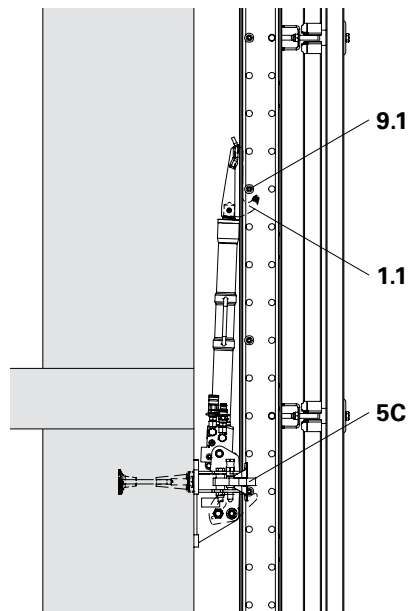


Fig. 35

D3 Self-Climbing Procedure

Operating the Hydraulic Pump



Follow the separate operating instructions for the motor protection switch and the electric motor.

Protective motor switch:

- 3.2** Switch
- 3.3** Electricity socket with phase inverter
- 3.10** Rotary field control lamp

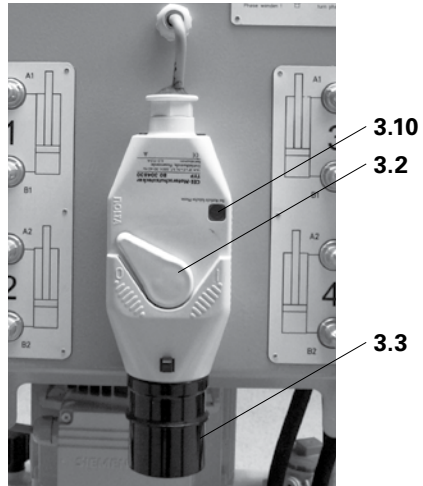


Fig. 36



If the rotary field display (**3.10**) is red, turn the phase inverter 180° in the plug (**3.3**).
→ Rotary field is changed.

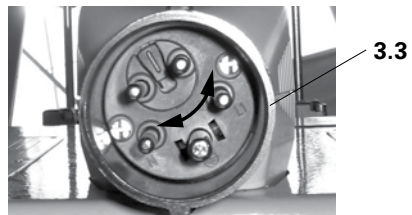


Fig. 37

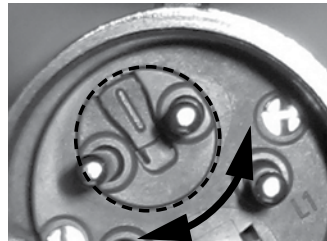


Fig. 37a

Hand valve	Connections
Rechts	3 + 4
Links	1 + 2

1. Switch on the Hydraulic Pump:



Are both hand valves (**3.1**) in the middle position?

- Turn the toggle on the protective motor switch (**3.2**) to the right.
→ Hydraulic Pump is switched on.

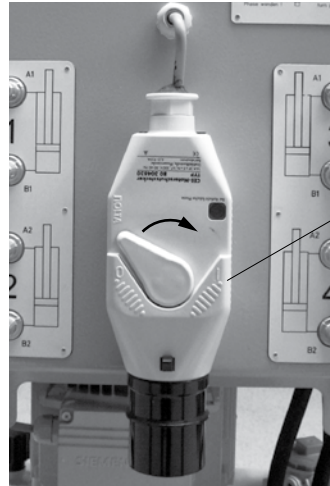


Fig. 38

2. Extend the Climbing Device:

- Push hand valve (**3.1**) upwards.
→ Cylinder extends.

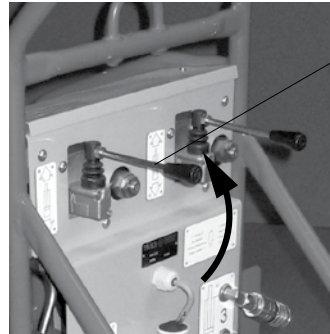


Fig. 39

3. Extending the Climbing Device:

- Activate the Rail Guidance Shoe-2 LPS (5) on which the Climbing Device is positioned if it is currently inactive.
- Extend the pistons of all the Hydraulic Cylinders up to the first Spacer (9.1).
→ Load is now carried by the head bearing on the piston (1.1).



Are all head bearings engaged in the Spacers? If necessary, deactivate the other Rail Guidance Shoe-2 LPS.

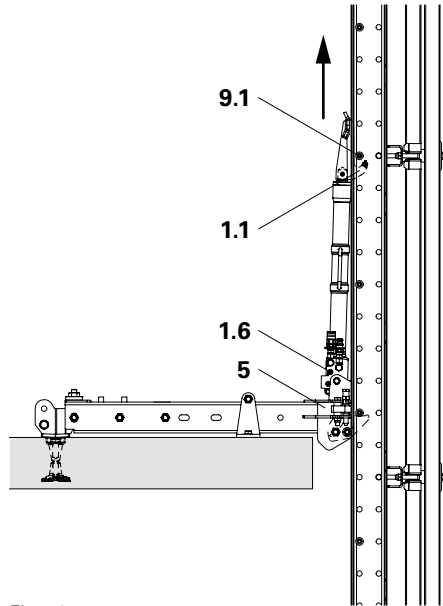


Fig. 40

4. Retracting the Climbing Device:

- Push the hand valve (3.1) downwards.
→ Cylinder retracts.

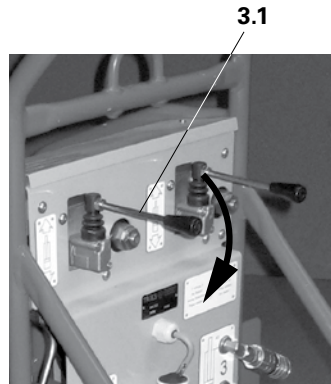


Fig. 41

5. Retracting the climbing device:

- Retract pistons of all Hydraulic Cylinders.
- Head bearing (1.1) is guided by the Spacers (9.1).
 - Hydraulic Cylinder tips backwards.
- Retract piston until the head bearing on the piston engages under the Spacers.



Are all head bearings correctly engaged in the Spacers?

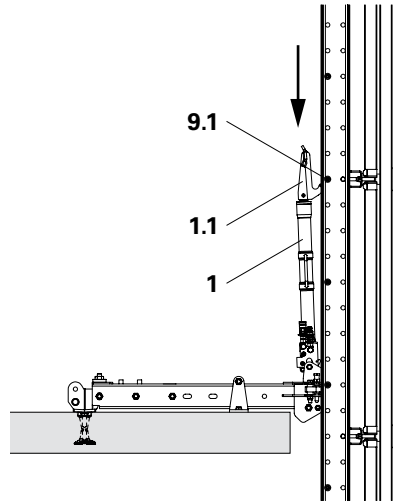


Fig. 42

6. Switching off the Hydraulic Pump:

- Turn the toggle on the motor protection switch (3.2) to the left.
 - Hydraulic Pump switches off.



- Always switch off the Hydraulic Pump and secure against being re-activated if the Climbing Hydraulic is non-operational.
- Secure the Hydraulic Pump against being unintentionally switched on.

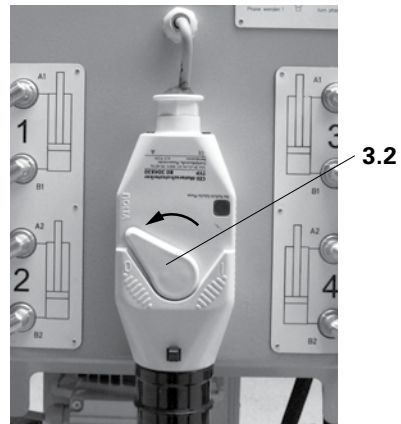


Fig. 43

Inserting in the Rail Guidance Shoe-2 LPS

Prerequisites:

- Top Rail Guidance Shoe-2 LPS (**5A**) is deactivated.
- Both guiding skids (**5.2**) are open.
- Middle Rail Guidance Shoe-2 LPS (**5B**) is activated.

After reaching the top Rail Guidance Shoe-2 LPS:

1. Stop stroke.
2. Close the skids (**5.2**) of the top Rail Guidance Shoe-2 LPS (**5A**).
3. Continue stroke.

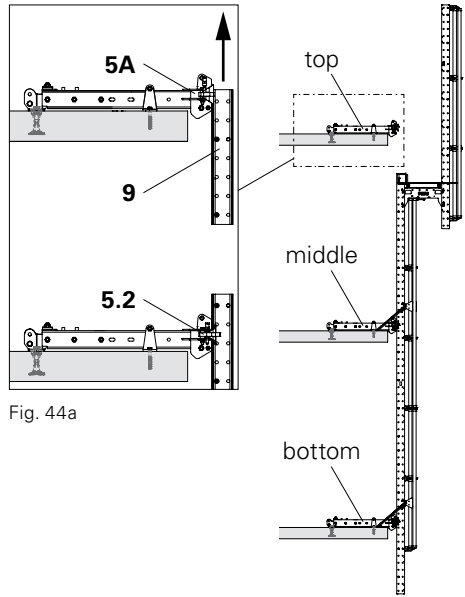


Fig. 44a

Fig. 44

Using the Guide-in Tool:



If the guiding skids cannot be closed:

1. Pull Climbing Rail-2 LPS inwards using the Guide-in Tool RCS (**8**).
2. Close the guiding skids.
3. Remove Guide-in Tool.

Attachment point:

Bolt \varnothing 21 (**8.1**).

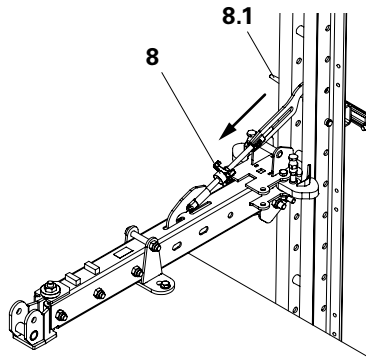


Fig. 45

Last lifting stroke

During the last stroke of a climbing procedure, the vertical load is transferred to another Rail Guidance Shoe-2 LPS. Therefore, the Rail Guidance Shoe-2 LPS that will serve as the vertical bearing must be activated:

- Activate the Rail Guidance Shoe-2 LPS which is intended to be used as the vertical bearing.
- Interrupt the last stroke after load change and deactivate the pawls of the other Rail Guidance Shoes-2 LPS.
- Set down the Climbing Unit on the climbing pawls (**5.1**) of the activated shoes. (Fig. 46)
- After the last stroke, completely retract all cylinders.

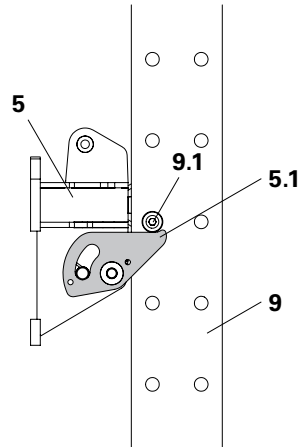


Fig. 46



- Are all climbing rails (**9**) aligned with the respective Rail Guidance Shoes-2 LPS (**5**)?
- Are all climbing pawls (**5.1**) completely engaged under the Spacers (**9.1**)?
- Are all Rail Guidance Shoes-2 LPS that serve as vertical bearings activated?

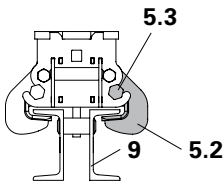
Opening and closing the Rail Guidance Shoe LPS

Opening the Rail Guidance Shoe LPS

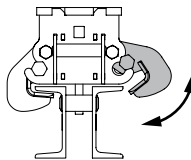
1. Screw out the Threaded Bolt LPS DW 15 (5.3).
2. Fold open the guiding skid (5.2). (Fig. 47a)
3. Proceed in the same way with the other guiding skid. (Fig. 47b)

Closing the Rail Guidance Shoe LPS

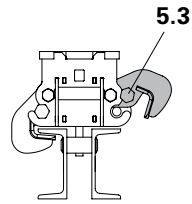
1. Fold the guiding skid (5.2) forwards.
2. Completely screw in the Threaded Bolt LPS DW 15 (5.3) again.
3. Proceed in the same way with the other guiding skid.



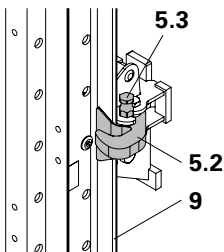
Top view: skid closed



Top view: skid open

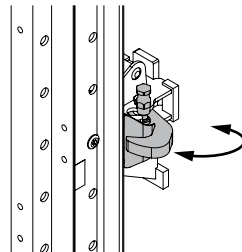


Top view: skid open



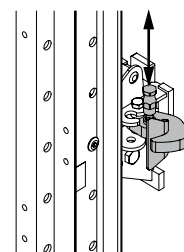
View: skid closed

Fig. 47a



View: skid open

Fig. 47b



View: skid opened

Fig. 47c



Warning

Do not open the Rail Guidance Shoe LPS under load or during the climbing procedure!

Risk of crushing.

⇒ Do not touch if the load is moving!



Are both securing pins on the Rail Guidance Shoe LPS completely inserted downwards and is the locking spring fixed in position?



Opening the Rail Guidance Shoe LPS

- makes it easier to insert the Climbing Rail (9) during climbing,
- allows the insertion of the Climbing Rail during the initial assembly.

Dismantling the Rail Guidance Shoe LPS

Pull the opened Rail Guidance Shoe-2 LPS between the Climbing Rail (9) and wall first upwards and then sideways, see Instructions for Assembly and Use for the LPS Screen – Lightweight Climbing Enclosure.

Deactivating the Rail Guidance Shoe-2 LPS



Warning

In a deactivated position, no vertical force from the Climbing Rail can be transferred via this particular Shoe.

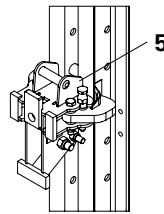
Risk of crushing.

⇒ Do not touch if the load is moving!

1. Ensure that the Climbing Unit is stationary.
2. Reach into the Rail Guidance Shoe-2 LPS from below and turn the climbing pawl **(5.1)** upwards.
3. Insert Wire Nail 100 x 4.0 through the hole **(5.5)** in the climbing pawl **(5.1)** in order to block it.

→ The climbing pawl is deactivated and, thus, non-operational.

From the rear



Section

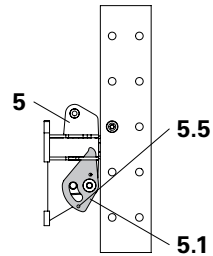


Fig. 48



Can the Wire Nail slip out?

Activating the Rail Guidance Shoe-2 LPS



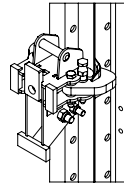
This position serves to transfer vertical forces from the Climbing Rail during working operations as well as during climbing.

1. Ensure that the Climbing Unit is stationary.
2. Pull the previously inserted Wire Nail out of the climbing pawl **(5.1)**.
 - The climbing pawl jumps into its working position.
 - The climbing pawl is activated and therefore operational.



Can the climbing pawl move freely?

From the rear



Section

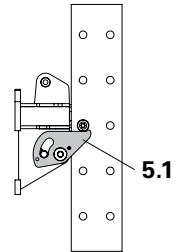


Fig. 49

D4 Dismantling the Climbing Device

Disconnecting the hydraulic lines

1. Turn the retaining ring (2.5) on the bushing (2.3) until reaching the check mark.
→ Coupling is unlocked. (Fig. 51)
2. Press the retaining ring (2.5) on the bushing.
→ Coupling is released.

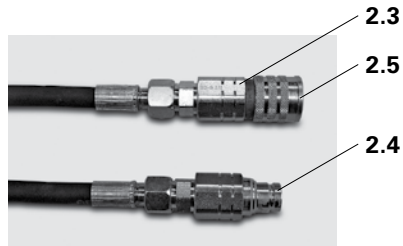


Fig. 50

- 2.3** Hydraulic Quick-Coupler (bushing)
Item no. 110822
- 2.4** Hydraulic Quick-Coupler (nipple)
Item no. 110823
- 2.5** Retaining ring

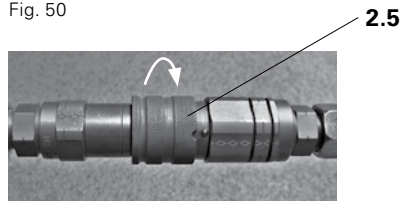


Fig. 51

Dismantling the Climbing Device

1. Before dismantling, completely retract the cylinder.
2. Release the hydraulic hoses from the Climbing Devices with the help of the Quick-Couplers (D4.1)
3. Operate the locking lever (1.6) on the cylinder base and laterally incline the Climbing Device so that the locking lever can no longer engage.
4. Lift the Climbing Device out of the Rail Guidance Shoe LPS.
5. Transport the Hydraulic Pump, Climbing Device and hydraulic hoses to the next climbing unit.

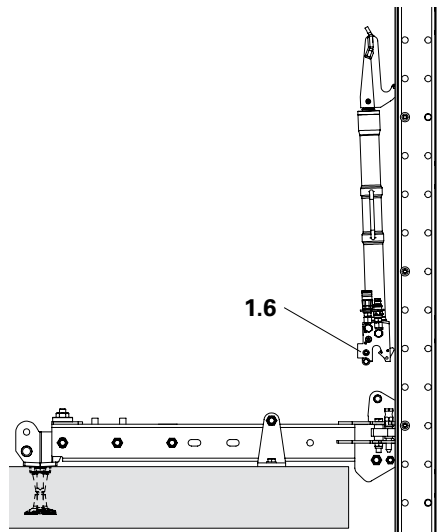


Fig. 52

D5 Remedial Measures for Malfunctions

Overview

Malfunction	Cause	Remedial measure
Cylinder sinks.	Air in the hydraulic system.	Bleed the system.
	Load safety valve is defective.	Replace the Climbing Device. Repairs carried out by PERI.
	Sealing is defective.	Replace the Climbing Device. Repairs carried out by PERI.
Uneven cylinder extension and retraction.	Air in the hydraulic system.	Bleed the system.
	Dirt in the hydraulic system.	Replace hydraulic oil and, if necessary, clean the hydraulic tank and oil filter, and replace.
	Synchronisation deviation.	Carry out a reference run.
	Leakage between the Hydraulic Pump and Cylinder.	Retract all Cylinders in order to lower the Climbing Unit onto the climbing pawls. Identify leakage point and seal; replace if necessary.
	Flow divider is defective.	Carry out a reference run. Repairs carried out by PERI.
Climbing Rail does not insert into the Shoe or climbing is not straight.	Lateral offset through synchronisation deviation.	Extend the Cylinders to the same height.
Climbed too far.		Retract all Cylinders in order to lower the Climbing Unit onto the climbing pawls. Contact PERI.
Hydraulic oil leaking.	Hydraulic hose is broken or leaks.	Immediately stop the climbing procedure and replace the hydraulic hose. Check all hydraulic hoses.
	Leaking hose connections.	Switch off the Hydraulic Pump (in order to relieve pressure). Tighten hose connections.

Malfunction	Cause	Remedial measure
Cylinder does not extend.	Climbing Unit is blocked.	Retract all Cylinders in order to lower the Climbing Unit onto the climbing pawls. Remove blockage.
	Insufficient oil in the hydraulic tank.	Determine the cause of the hydraulic oil loss and eliminate. Top up the hydraulic oil.
	Polarity on the motor swapped.	Check rotary field display and, if necessary, change with phase inverter.
	Leakage in the hydraulic system.	Identify leakage point and seal; replace if necessary.
Pawl does not engage in the Shoe.	Climbing pawl is blocked.	Remove the blockage.
	Pawl moves sluggishly or is dirty.	Clean the moving parts. Functionality check.
	Spring in the Rail Guidance Shoe LPS is broken.	Release the climbing pawl manually. Replace the Rail Guidance Shoe LPS. Repairs carried out by PERI.
	Cylinder does not extend far enough. Synchronisation deviation.	Carry out a reference run up to the end position.
Cylinder does not fall back in the Climbing Rail or does not engage.	Locking lever in the cylinder base does not completely engage.	Correctly place the cylinder base on the bolts of the Rail Guidance Shoe LPS.
	Spring in the cylinder base is broken.	Release the Climbing Device manually. Replace the Climbing Device. Repairs carried out by PERI.
	Cylinder cannot completely retract. Synchronisation deviation.	Carry out a reference run.

Bleeding the system

In order to ensure a reliable operation of the system, it must be completely vented during the initial commissioning on the jobsite, after tubes and hoses have been replaced, or after maintenance work has been carried out on the cylinder. In this process, the oil level in the Hydraulic Pump must always be checked and topped up as required.

Venting during the initial commissioning

1. Couple hose on the Hydraulic Pump side.
2. Connect coupling pair at the other end to the cylinder.
3. Place the cylinder in an upright position.
4. Completely extend the cylinder in order to displace the air pockets on the rod side.
5. Uncouple the cylinder and create a short-circuit connection. (Fig. 54)
6. Switch on the Hydraulic Pump and flush hose for approx. 1 minute by operating the hand valve.
7. Uncouple hose ends from each other and re-connect the cylinder.
8. Place the cylinder upside down.
9. Completely retract the cylinder in order to displace the air pockets on the piston side.
10. Uncouple the cylinder and flush hose once again for approx. 1 minute by means of a short-circuit connection in order to eliminate air pockets.
11. Extend and retract the cylinder pair several times in order to check the synchronisation.

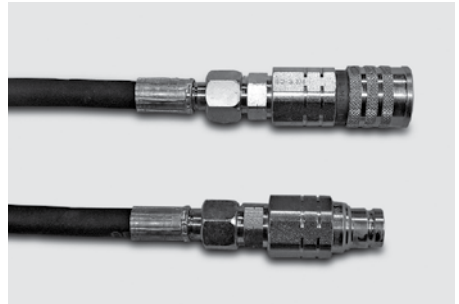


Fig. 53

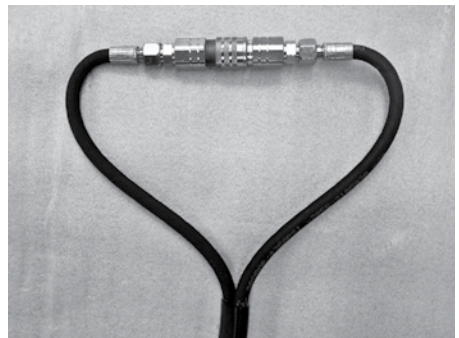


Fig. 54

Bleeding the system

Venting during hose replacement

1. Detach the old hose.
2. Connect the new hose on the Hydraulic Pump side.
3. Connect the coupling pair at other end.
→ Short-circuit connection (Fig. 54).
4. Switch on the Hydraulic Pump.
5. Push the hand valve upwards.
→ Hose is flushed for approx. 1 minute.
6. Disconnect the hose ends from one another.
7. Connect the cylinder according to the circuit diagram.
8. Extend and retract the cylinder pair several times in order to check the synchronisation.
9. Vent cylinder if required – see previous section “Venting during initial commissioning”.



Extend and retract the cylinder several times in order to check for leakage and the synchronisation. In the process, run at maximum pressure for a longer time in the end positions.

Carrying out a reference run

Carry out a reference run if there is any synchronisation deviation in a cylinder pair.

1. Extend both cylinders until the climbing pawl or piston head bearing engages the Climbing Rail.

The piston of the non-engaged Climbing Device moves very slowly (the leak oil in the flow divider allows end position compensation).

2. Move both cylinders against stop for approx. one minute.



Carry out this operation after each climbing procedure in order to eliminate the standard deviations of the flow divider.



Manual end position compensation

If synchronisation deviation is too large when under load, carry out a manual end position compensation with the help of a short-circuit connection:

Extending the cylinders to the same height

A large synchronisation deviation can result in a lateral offset. In rare cases, this could negatively affect the “threading” of the LPS Rails in the next Rail Guidance Shoe LPS. This deviation can be corrected even if the pistons have not been completely extended.

1. Decouple the inflow and outflow of Cylinder 2 (is extended further).
2. Connect the hoses to one another.
→ Short-circuit connection.
3. Extend the remaining Cylinder 1.
(Fig. 55)
4. As soon as the lateral offset has been corrected, re-couple Cylinder 2.
5. Press hand valve upwards until both cylinders have been completely extended.

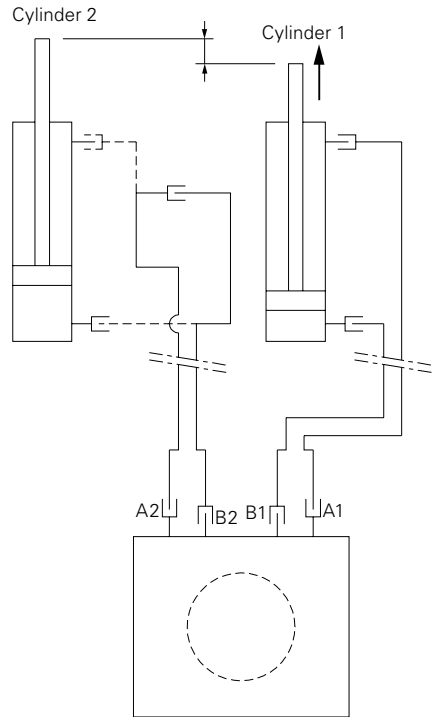


Fig. 55

Releasing the climbing pawl by hand

In the event of a broken leg spring in the Rail Guidance Shoe-2 LPS (5), manually lock the climbing pawl (5.1).

This procedure is required in order to replace the Rail Guidance Shoe LPS.



Warning

Risk of crushing!

- ⇒ Do not touch if the load is moving.
- ⇒ After climbing procedure is completed, replace the Climbing Device or have repairs carried out by PERI.

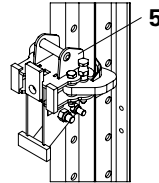
Procedure:

1. Completely extend the pistons of all hydraulic cylinders.
 - The Spacers (9.1) move past the climbing pawl (5.1).
2. Press the pawl lock (5.1) upwards by hand so that the climbing pawl is activated. (Fig. 56)
3. Retract the hydraulic cylinder until the climbing bolts (9.1) are positioned on the climbing pawl (5.1).
4. As soon as the defective Rail Guidance Shoe-2 LPS (5) is no longer used, dismantle and have it repaired or replaced.



Are all climbing pawls (5.1) engaged?

From the rear



Section

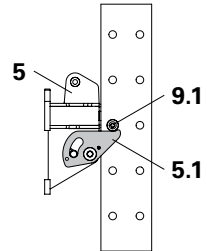


Fig. 56

Dismantling the Climbing Device with broken spring



Warning

Risk of crushing!

- ⇒ Do not touch if the load is moving!
- ⇒ After climbing procedure is completed, replace the Climbing Device or have repairs carried out by PERI!

In the event of a broken leg spring in the cylinder base, tip back the Climbing Device **(1)** by hand into the Climbing Rail **(9)**. This procedure is required in order to replace the Climbing Device.

Procedure:

1. Retract piston until the head bearing **(1.1)** is guided round the Spacer **(9.1)**.
2. If the head bearing does not remain in the rail, position the head bearing **(1.1)** by hand between the profiles of the Climbing Rail. (Fig. 57)
3. If the cylinder head remains in the rail, extend the cylinder so that the head bearings **(1.1)** engage the Spacers **(9.1)**.
4. Remove the Climbing Device as soon as it can no longer carry the load.



Are all head bearings engaged in the Spacers?



Also use this procedure in the event of forward or laterally inclined Climbing Rails.

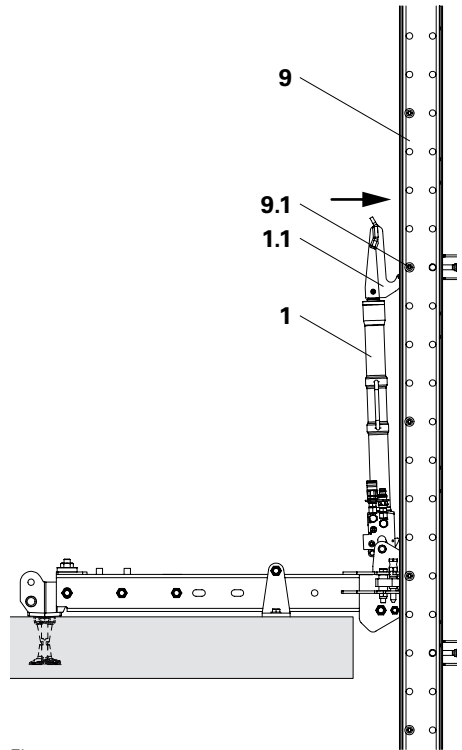


Fig. 57

E1 Hydraulic Connection Diagram

Standard hose arrangement diagram

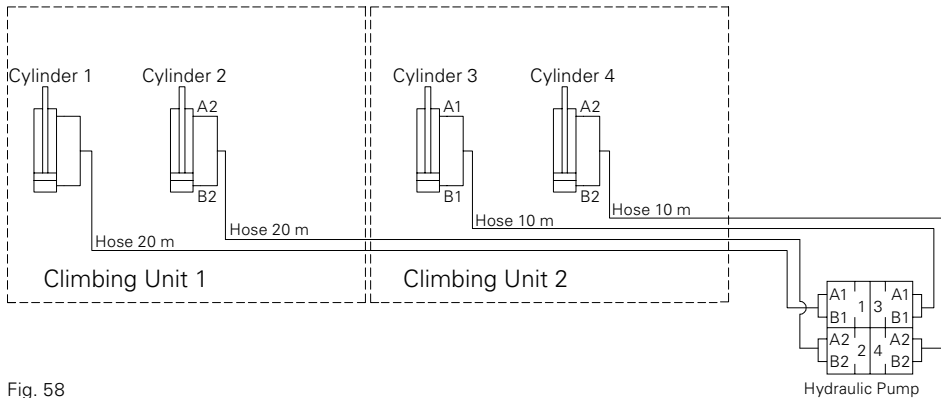


Fig. 58

E2 Hydraulic Circuit Diagram

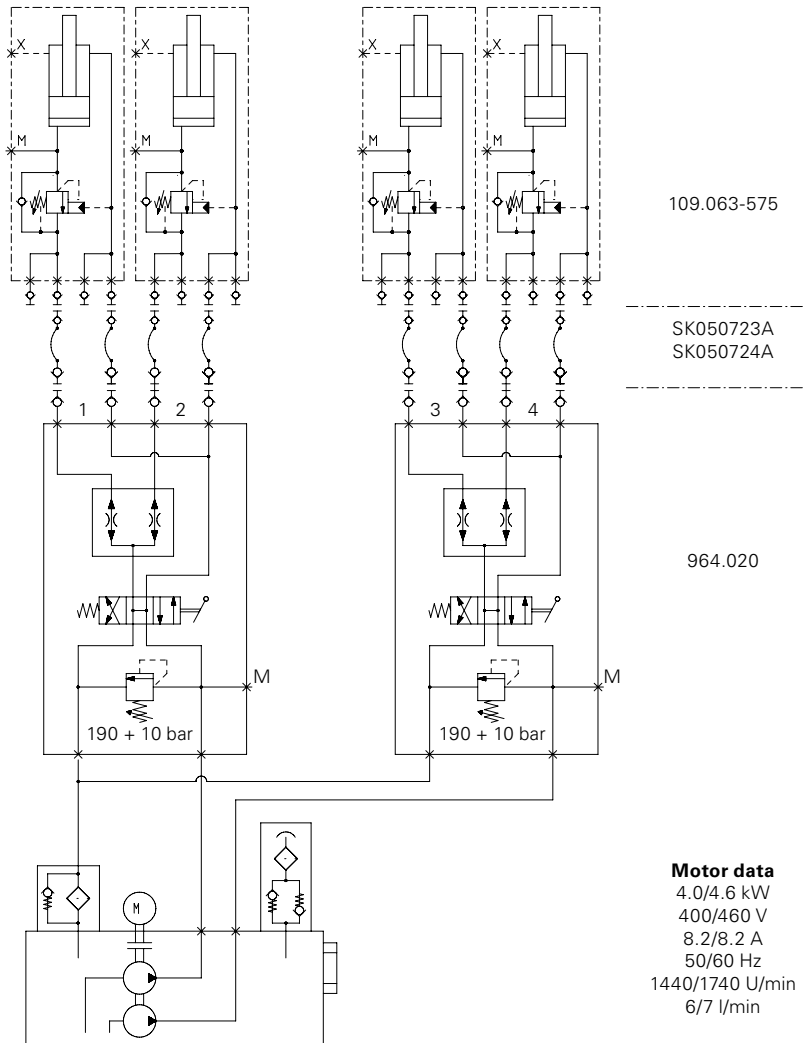


Fig. 59

Hydraulic circuit diagram:

Climbing Device LPS 30

Item no. 125815 (109.050-575)

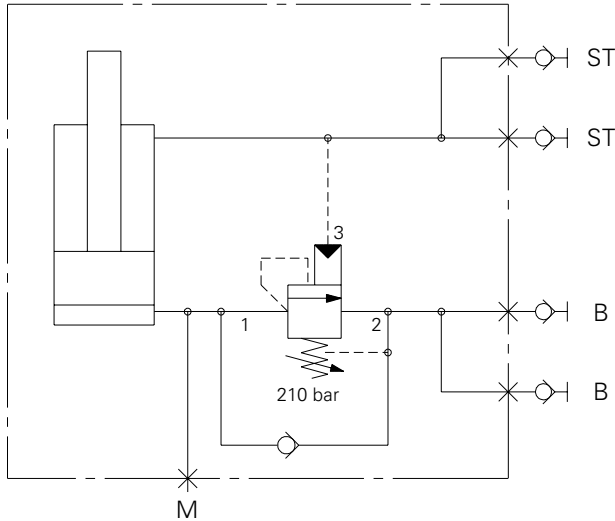


Fig. 60

E3 Electrical Power Supply Diagram

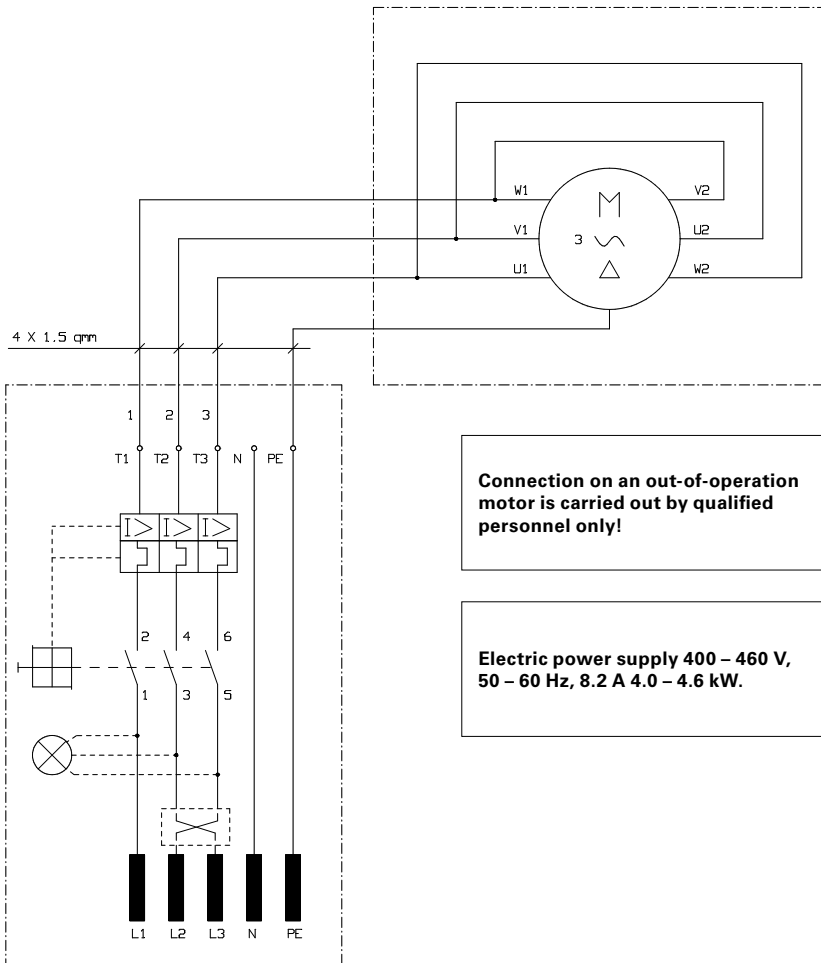


Fig. 61

Einbauerklärung

im Sinne der EG-Maschinenrichtlinie 2006/42/EG, Anh. II 1. B
für unvollständige Maschinen



Hersteller	In der Gemeinschaft ansässige Person, die bevollmächtigt ist, die relevanten technischen Unterlagen zusammenzustellen
PERI GmbH	Dipl. -Ing. Rainer Bolz
Rudolf-Diesel-Strasse 19	PERI GmbH
89264 Weissenhorn	Rudolf-Diesel-Strasse 19
	DE - 89264 Weissenhorn

Beschreibung und Identifizierung der unvollständigen Maschine

Produkt / Erzeugnis	KLETTERMECHANIK LPS 30KN
Typ	Klettertechnik
Maschinennummer	MO-19-02282#0#
Projektnummer	PRJ-2018-11-07-0001
Handelsbezeichnung	KLETTERMECHANIK LPS 30KN
Funktion	Das Kletterwerk LPS 30 steht auf dem Deckenschuh LPS oder Deckenschuh Ecke LPS oder Schienenführungsschuh, die am Bauwerk verankert sind. Das Kletterwerk arbeitet mit der Klinke im Schienenführungsschuh LPS zusammen. Das Kopflager am Kolben rastet in die Kletterbolzen (Distanzierungen in der Kletterschiene LPS) ein und schiebt beide zusammen mit der Gittereinhausung nach oben. Bei Hubende rastet die Klinke im Schienenführungsschuh in einen anderen Kletterbolzen ein. Beim Einfahren des Zylinders übernimmt die Klinke die Last und das Kopflager umfährt den nächsten Kletterbolzen. Danach rastet das Kopflager in diesen Kletterbolzen ein.

Es wird erklärt, dass die folgenden grundlegenden Anforderungen der Maschinenrichtlinie 2006/42/EG erfüllt sind:

1.1.3, 1.3., 1.3.1, 1.3.2, 1.3.7, 1.3.9, 1.5.1, 1.5.15, 1.6.1, 1.6.3, 1.6.5

Ferner wird erklärt, dass die speziellen technischen Unterlagen gemäß Anhang VII Teil B erstellt wurden.

Es wird ausdrücklich erklärt, dass die unvollständige Maschine allen einschlägigen Bestimmungen der folgenden EG-Richtlinien bzw. Verordnungen entspricht:

2006/42/EG	Richtlinie 2006/42/EG des Europäischen Parlaments und des Rates vom 17. Mai 2006 über Maschinen und zur Änderung der Richtlinie 95/16/EG (Neufassung) (1) Veröffentlicht in L 157/24 vom 09.06.2006
2014/68/EU	Richtlinie 2014/68/EU des Europäischen Parlaments und des Rates vom 15. Mai 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Druckgeräten auf dem Markt Veröffentlicht in L 189/164 vom 27.06.2014

Fundstelle der angewandten harmonisierten Normen entsprechend Artikel 7 Absatz 2:

EN ISO 12100:2010-11	Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobewertung und Risikominderung (ISO 12100:2010)
EN 60204-1:2006-06	Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1: Allgemeine Anforderungen
EN 614-1:2006+A1:2009	Sicherheit von Maschinen - Ergonomische Gestaltungsgrundsätze - Teil 1: Begriffe und allgemeine Leitsätze
EN ISO 13857:2008	Sicherheit von Maschinen - Sicherheitsabstände gegen das Erreichen von Gefährdungsbereichen mit den oberen und unteren Gliedmaßen (ISO 13857:2008)
EN 349:1993+A1:2008	Sicherheit von Maschinen - Mindestabstände zur Vermeidung des Quetschens von Körperteilen
EN ISO 4413:2010	Fluidtechnik — Allgemeine Regeln und sicherheitstechnische Anforderungen an Hydraulikanlagen und deren Bauteile (ISO 4413:2010)

Seite 1/2

Einbauerklärung

im Sinne der EG-Maschinenrichtlinie 2006/42/EG, Anh. II 1. B
für unvollständige Maschinen



Der Hersteller bzw. der Bevollmächtigte verpflichten sich, einzelstaatlichen Stellen auf begründetes Verlangen die speziellen Unterlagen zu der unvollständigen Maschine zu übermitteln. Diese Übermittlung erfolgt in Papierform oder digital.

Die gewerblichen Schutzrechte bleiben hiervon unberührt!

Wichtiger Hinweis! Die unvollständige Maschine darf erst dann in Betrieb genommen werden, wenn gegebenenfalls festgestellt wurde, dass die Maschine, in die die unvollständige Maschine eingebaut werden soll, den Bestimmungen dieser Richtlinie entspricht.

Weissenhorn, 08.03.2019

Ort, Datum



Unterschrift
Dipl.-Ing. Rainer Bolz
Head of R&D Formwork

Seite 2/2

This document is a translation into English from the German original.

Declaration of Incorporation

In accordance with the EC-Machinery Directive 2006/42/EG,
Annex II 1. B for partly completed machinery



Manufacturer	Person established within the Community authorized to compile the relevant technical documentation.
PERI GmbH	Dipl. -Ing. Rainer Bolz
Rudolf-Diesel-Strasse 19	PERI GmbH
89264 Weissenhorn	Rudolf-Diesel-Strasse 19
	DE - 89264 Weissenhorn

Description and identification of the partly completed machinery

Product	Climbing Device LPS 30KN
Type	Climbing Technology
Machine number	MO-19-02282#0#
Project number	PRJ-2018-11-07-0001
Trade name	Climbing Device LPS 30KN
Function	The Climbing Device LPS 30 is positioned on the Slab Shoe LPS or Slab Shoe Corner LPS or Rail Guidance Shoe, which are anchored to the structure. The climbing device works together with the climbing pawl in the LPS Rail Guidance Shoe. The head bearing on the piston head engages in the climbing bolts (spacers in the LPS Climbing Rail) and pushes both up together with the mesh enclosure. At the end of the stroke, the pawl in the rail guidance shoe engages in another climbing bolt. When the cylinder is retracted, the pawl takes over the load and the head bearing bypasses the next climbing bolt. Then the head bearing engages in this climbing bolt.

It is declared, that the following essential requirements of the Machinery Directive 2006/42/EG are fulfilled:

1.1.3, 1.3., 1.3.1, 1.3.2, 1.3.7, 1.3.9, 1.5.1, 1.5.15, 1.6.1, 1.6.3, 1.6.5

It is also declared, that the specific technical documentation has been drawn up in accordance with Annex VII, Part B.

It is expressly declared, that the partly completed machinery complies with all relevant provisions of the following EC Directive or Directives.

2006/42/EU	Directive 2006/42/EU on Machinery of the European Parliament and of the Council of 17 May 2006 and amending Directive 95/16/EU (recast) (1) Published in L 157/24 of 09.06.2006
2014/68/EU	Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014 on the harmonization of the laws of the Member States relating to the availability of pressure equipment on the market Published in L 189/164 of 27.06.2014.

Reference to the harmonized standards used, as referred to in Article 7 (2)

EN ISO 12100:2010-11	Safety of machines – General design principles – Risk assessment and mitigation (ISO 12100:2010)
EN 60204-1:2006-06	Safety of machines – Electrical equipment of machines – Part 1: general requirements
EN 614-1:2006+A1:2009	Safety of machines – Ergonomic design principles – Part 1: terminology and general principles
EN ISO 13857:2008	Safety of machines – Safety distances to prevent hazardous areas being reached by the upper and lower limbs (ISO 13857:2008)
EN 349:1993+A1:2008	Safety of machines – Minimum gaps to avoid crushing of parts of the human body
EN ISO 4413:2010	Fluid technology - General rules and safety requirements for hydraulic systems and their components (ISO 4413:2010)

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Declaration of Incorporation

In accordance with the EC-Machinery Directive 2006/42/EG,
Annex II 1. B for partly completed machinery



The manufacturer or his authorized representative shall be obliged to communicate to the national authorities, on a reasoned request, the specific documentation concerning the partly completed machinery. This information shall be supplied in digital form or, on request, in paper form.

The industrial property rights remain unaffected by this!

Important note! The partly completed machinery must not be put into service until it has been established, where appropriate, that the machinery into which the partly completed machinery is to be incorporated complies with the provisions of this Directive.

Weissenhorn, 08.03.2019

.....
Place, Date

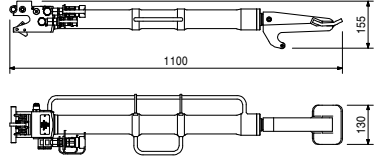
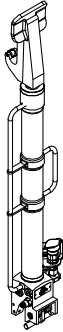
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Signature
Dipl.-Ing. Rainer Bolz
Head of R&D Formwork

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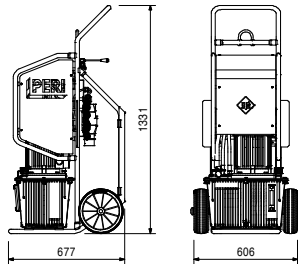
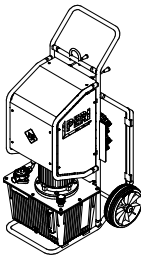
Component Overview/Spare Parts



Item no.	Weight kg		
125815	25.000	Climbing Device LPS 30 kN For crane-independent climbing of LPS Climbing Units.	Complete with 1 pc. 125632 Protect. Covers Climb. Device RCS Note Follow Instructions for Use. Permissible load-bearing capacity 30 kN.



109766	109.000	Hydraulic Pump RCS 4-fold, 380 – 460 V Hydraulic pump for actuating the Climbing Device RCS 50 and LPS 30.	Note Follow Instructions for Use. Use only original PERI Hydraulic Oil HV LP46.
--------	---------	--	--



057376	18.300	Accessories Hydraulic Oil ISO 11158 HV146, 20 l	
--------	--------	---	--

114243	109.000	Hydr. Pump RCS 4 x 190 / 460 V CSA Hydraulic pump for actuating the Climbing Device RCS 50.	Note Application in Canada only! Technical Data Follow Instructions for Use! Use only original PERI Hydraulic Oil HV LP46.
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Component Overview/Spare Parts

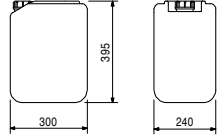
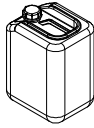


Item no. Weight kg

131270	17.900
131274	18.300
057376	18.300

Hydraulic Oils in canister
Hydraulic Oil ISO 11158 HM10, 20 I
Hydraulic Oil ISO 11158 HVI22, 20 I
Hydraulic Oil ISO 11158 HVI46, 20 I
 High-quality synthetic hydraulic oils for PERI Hydraulic Pumps with different viscosity suitable for certain temperature ranges.

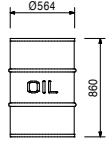
Technical Data
 Observe Safety Data Sheet and applicable National Safety Regulations regarding hydraulic oil, in particular for transport, storage and disposal! Observe the technical documentation for the hydraulic pump! Product Data Sheet on request.



131273	200.000
131275	200.000
131277	201.000

Hydraulic Oils in barrel
Hydraulic Oil ISO 11158 HM10, 210 I
Hydraulic Oil ISO 11158 HVI22, 210 I
Hydraulic Oil ISO 11158 HVI46, 210 I
 High-quality synthetic hydraulic oils for PERI Hydraulic Pumps with different viscosity suitable for certain temperature ranges.

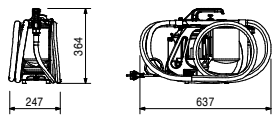
Technical Data
 Observe Safety Data Sheet and applicable National Safety Regulations regarding hydraulic oil, in particular for transport, storage and disposal! Observe the technical documentation for the hydraulic pump! Product Data Sheet on request.



131313	12.500
--------	--------

Hydraulic Oil Filter Pump CE, 230V/50Hz
 Hydraulic oil filter pump for fast and clean transfer of hydraulic oil in drums with simultaneous filtration.

Note
 Follow Instructions for Use!
 Country-specific inquiries for Hydraulic Oil Filter Pump CUL for USA / CAN!
Technical Data
 Power connection 220V/50Hz, plug CEE 7/7



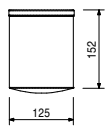
131314	1.000
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Accessories
Hydraulic Oil Filter Element 5 MIC

131314	1.000
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Hydraulic Oil Filter Element 5 MIC
 Wear part of the hydraulic oil filter pump.

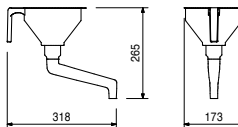
Note
 Follow Instructions for Use!
 Observe the maintenance instructions in the technical documentation for the oil filter pump!
 Observe the disposal notes!



Item no.	Weight kg
130685	0.225

Universal Funnel

For easy filling of hydraulic pumps with oil.



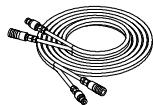
110069	8.500
110070	15.300

Hydraulic Twin Hoses

Hydraulic Twin Hose RCS, 10 m

Hydraulic Twin Hose RCS, 20 m

Two permanently connected hydraulic hoses for connecting hydraulic pumps with hydraulic climbing devices.

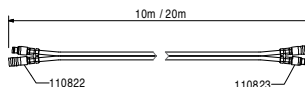


Complete with

2 pc. 128992 Pin ISO16028 DN10 R3/8IG

2 pc. 128993 Sleeve ISO16028 DN10 R3/8IG

4 pc. 051750 Male Stud Coupler X-GE12PSR-ED



110280	0.500
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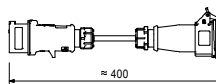
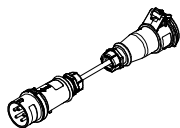
Adapter Cable RCS

For the power supply to the Hydraulic Pump RCS.

Note

Follow Instructions for Use!

With CEE plug connector 400 V 16 A.



110279	0.250
--------	-------

Plug Socket RCS, black

For providing the power supply to the Hydraulic Pump RCS with 380 – 460 V, 50 – 60 Hz.

Note

Follow Instructions for Use!



Component Overview/Spare Parts



Item no. Weight kg

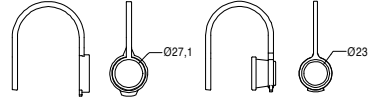
125632 0.050

Protect. Covers Climb. Device RCS

To protect unplugged quick couplings X-GE 12PSR-ED+ against dirt and damage.

Technical Data

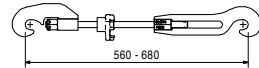
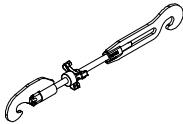
1 set for 1 Climbing Device RCS 50 (2x bushing and 2x nipple each).



114317 3.210

Guide in Tool RCS

For pulling up the Climbing Rail RCS in order to close the folding runners of the Climbing Shoe.

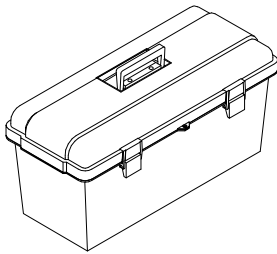


Item no.	Weight kg
115581	10.280

Hydraulic Service Case

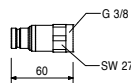
Consisting of:

- 1 pc. 115590 Tool Box 580 x 260 x 285 mm
- 6 pc. 115583 Pressure Gauge Typ 570 VA-Geh.
- 6 pc. 115584 Hose MKT 6-02 DN 02
- 12 pc. 115582 Measuring Coupl. SMK 20-G 1/4-PC
- 2 pc. 115591 Double Spanner SW 10 x 13
- 1 pc. 115592 Double Spanner SW 13 x 17
- 1 pc. 115588 Double Spanner SW 19 x 24
- 1 pc. 051778 Double Spanner SW 24 x 27
- 1 pc. 115589 Double Spanner SW 27 x 32
- 1 pc. 057278 Allen Key Set, 8 pcs.
- 1 pc. 115585 Allen Key SW 12
- 1 pc. 057279 Allen Key SW 14
- 1 pc. 057282 Pipe Wrench
- 1 pc. 115147 Angle Fitting Set PS
- 2 pc. 115396 Fitting Set PS
- 1 pc. 072180 Ratchet Wrench 1/2"
- 20 pc. 123881 Tube Screw Plug ROV12SX
- 20 pc. 123880 Threaded Plug VKAN 12S VIT
- 100 pc. 051760 Cable Binder NT-240H
- 2 pc. 126425 Distance Piece Ø 120
- 1 pc. 126440 Socket SW 17 - 1/2"
- 1 pc. 135172 Double Spanner SW 19 x 22
- 1 pc. 135173 Allen Key SHR-Bit SW 05
- 1 pc. 135174 Allen Key SHR-Bit SW 06
- 1 pc. 135175 Allen Key SHR-Bit SW 08
- 1 pc. 135176 Allen Key SHR-Bit SW 10
- 1 pc. 135177 SHR Screwdriver Bit 6 TI. Slot/PH
- 2 pc. 711035 Adhesive Label 128 x 65 mm
- 1 pc. 126434 List of contents Hydraulic Service Case



110823	0.171
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Quick Coupler Nipple RCS

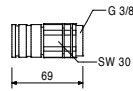


Component Overview/Spare Parts



Item no.	Weight kg
110822	0.297

Quick Coupler Bushing RCS



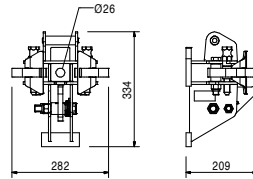
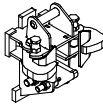
128799	15.000
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Rail Guidance Shoe-2 LPS

Anchor system M24. Guide and support for Climbing Rail LPS when fixed at the wall. With foldable guide runners and spring-loaded pawl.

Complete with

- 2 pc. 123867 Threaded Bolt Shera LPS DW 15
- 1 pc. 781053 Nut ISO 7040 M20-8, galv.
- 3 pc. 070890 Nut ISO 7040 M16-8, galv.
- 2 pc. 710219 Bolt ISO 4014 M16 x 100-8.8, galv.
- 1 pc. 128604 Bolt ISO 4014 M16 x 110-10.9, galv.
- 1 pc. 128605 Bolt ISO 1014 M20 x 110-10.9, galv.



026430	0.334
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Accessories

Bolt ISO 4014 M24 x 70-10.9, galv.

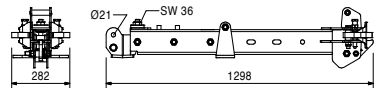
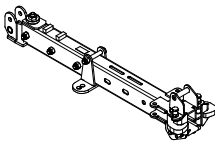
128562	36.100
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Slab Shoe-2 LPS, adjustable

Anchor system M24. With integrated rail guiding and height-adjustable support for Climbing Rails LPS. With adjustable cantilever over the slab edge.

Complete with

- 2 pc. 123867 Threaded Bolt Shera LPS DW 15
- 5 pc. 781053 Nut ISO 7040 M20-8, galv.
- 2 pc. 710219 Bolt ISO 4014 M16 x 100-8.8, galv.
- 3 pc. 070890 Nut ISO 7040 M16-8, galv.
- 1 pc. 711078 Bolt ISO 4014 M20 x 130-8.8, galv.
- 1 pc. 128604 Bolt ISO 4014 M16 x 110-10.9, galv.
- 4 pc. 128605 Bolt ISO 1014 M20 x 110-10.9, galv.



026430	0.334
124777	0.210

Accessories

Bolt ISO 4014 M24 x 70-10.9, galv.
Anchor Bolt PERI 14/20 x 130

**The optimal
System for every
Project and every
Requirement**



Wall Formwork



Column Formwork



Slab Formwork



Climbing System



Bridge Formwork



Tunnel Formwork



Shoring Systems



Construction Scaffold



Facade Scaffold



Industrial Scaffold



Access



Protection Scaffold



Safety Systems



**System-Independent
Accessories**



Services



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