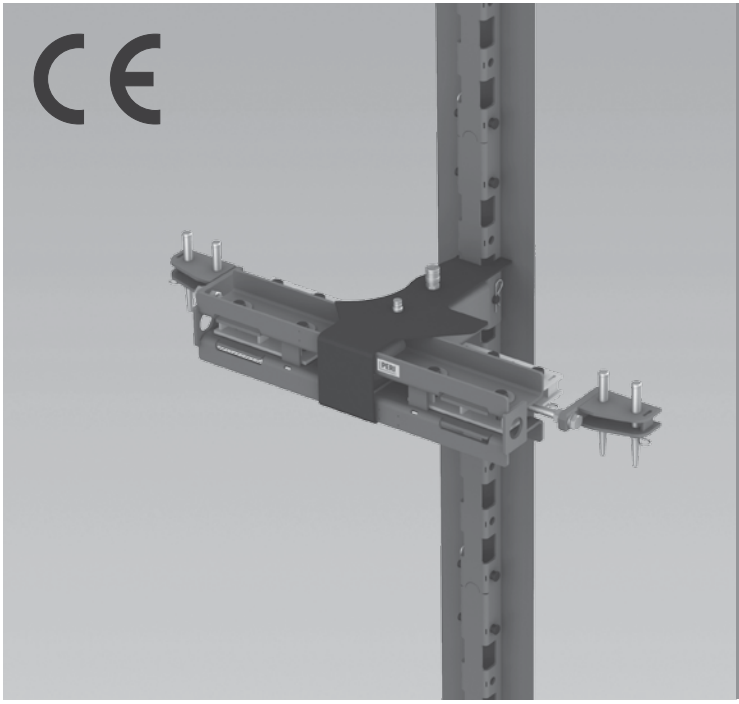
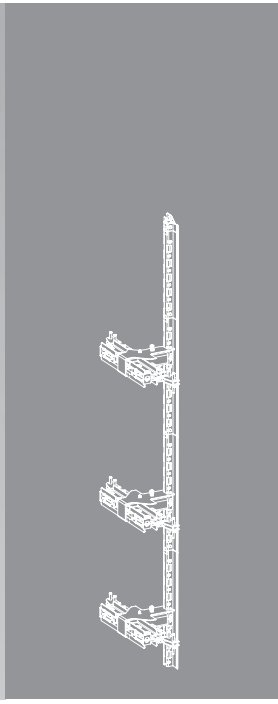
Hydraulic Striking Module VARIO

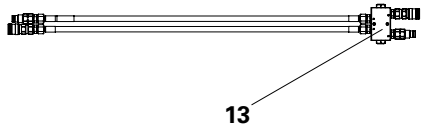
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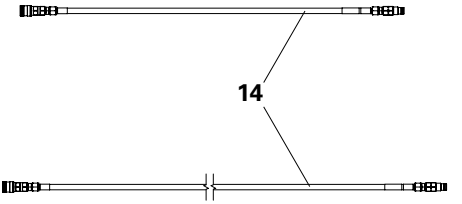
Translation of the Original Instructions for Use – Issue 07/2018

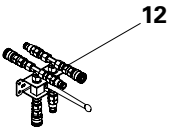


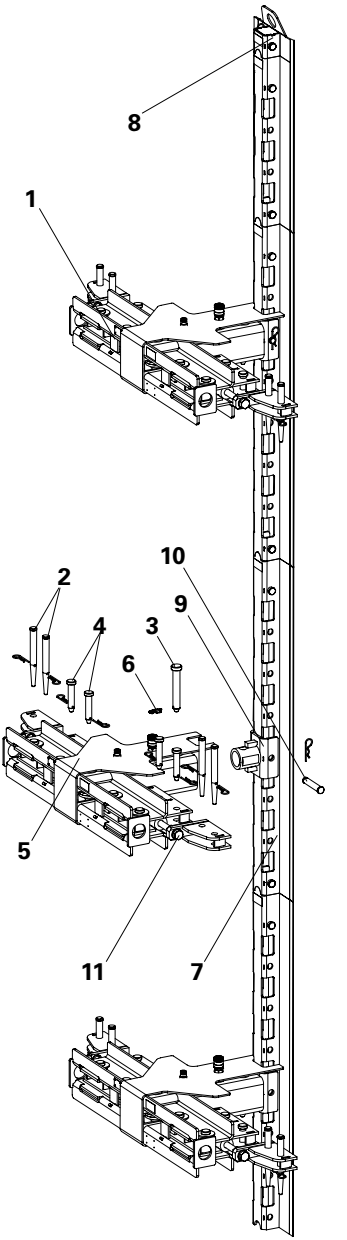


Overview of Main Components









1 Hydraulic Striking Module VARIO
2 Fitting Pin Ø 21 x 120 with Cotter Pin 4/1
3 Bolt Ø 24 x 129
4 Bolt Ø 21 x 120 with Cotter Pin 4/1
5 Protection Mat
6 Hinged Pin DIN 11023 5 x 32
7 Striking Profile VARIO 90 or 120
8 Striking Profile VARIO Top
9 Joint Striking Profile VARIO
10 Connecting Bolt Ø 20 x 97
11 Adjusting Screw (SW 30) with 11.1 Counternut
12 Hydraulic Branch Striking Module
13 Hydraulic Connector Unit Striking Module
14 Hydraulic Hose

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Key

Pictogram | definition


Danger / warning / caution


Note


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.

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

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 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

When using PERI products, the Instructions for Use and markings are to be complied with at all times!

For the application and inspection of our products, the current safety regulations and guidelines in the respective countries where they are being used must be observed at all times.

The contractor must ensure that the Instructions for Use provided by PERI are available at all times for the users and that they are fully understood!

The contractor must only assign people to use PERI products independently if they are actually familiar with the task!

PERI products are to be used as intended, ensuring that people are never put at risk in any way!

The maximum load-bearing capacity of PERI products must not be exceeded!
All people using the products must check the equipment during use for obvious defects, e.g. deformations, cracks, breaks, incomplete markings!

Do not use damaged products!

Do not use PERI products if the markings are missing or illegible!
Do not expose PERI products to any aggressive substances or influences of the weather during use!

The contractor must ensure that the personal protective equipment required for the assembly, modification or dismantling of the system is available and used as intended.

After the occurrence of any extraordinary events, e.g.

- storms,
- earthquakes,
- fire,
- accidents,
- overloading

or longer downtimes on the construction site, PERI products and their components must be checked for damage, stability and function by an authorised person.

For a better understanding, detailed illustrations are partly incomplete. Safety installations may not have been featured in these detailed drawings, but must nevertheless be available!

Safety Instructions

Product-Specific

Operations
Only use hydraulic units designed for this application with the permissible operating pressure.
No overloading due to the fresh concrete pressure can arise when formwork anchors are used correctly in two-sided formwork. Tie rods must be dimensioned and arranged in accordance with project requirements.

Follow Instructions for Use for the hydraulic pump!

Operations can only take place if the protection mat has been installed.

Personnel must not remain in the vicinity of the Hydraulic Striking Module VARIO during the shuttering and striking procedures.

During operations, the entire shaft formwork must be closely monitored.

Check hydraulic lines before use and, if necessary, re-tighten or replace.

Personal protective equipment must be worn during the entire period of operations!

Assembly/dismantling
During the assembly of the Hydraulic Striking Module VARIO, only pick up using suitable lifting gear and at the designated load-bearing point.

Secure hydraulic lines during installation or fasten to formwork elements by means of cable ties, hose clamps, etc.

Personal protective equipment is to be worn during the entire assembly procedure of the Hydraulic Striking Module VARIO, as well as of the hydraulic lines!

Intended Use

PERI products have been designed solely for use in the industrial and commercial sectors by suitably trained personnel!

The Hydraulic Striking Module VARIO has been designed for hydraulic shuttering and striking operations of suspended VARIO shaft formwork in conjunction with an ACS climbing system for concreting the core of a building.

The Hydraulic Striking Module VARIO serves as a movable connecting element of two suspended VARIO elements.

The gap between the VARIO elements is completely covered by the striking profiles.

Striking:
The external dimensions of the shaft formwork in the building core are reduced through the hydraulic control operations of the Hydraulic Striking Module VARIO which has been installed multiple times, whereby a gap is created between the formwork and the structure, facilitating the climbing procedure to the next concreting section.

Shuttering:
When the next concreting section has been reached, the original dimensions of the shaft formwork are restored by renewed hydraulic actuation.

Framework conditions:
- Use in conjunction with VARIO formwork elements with SRU Steel Walers as waling girders.
- Assembly/dismantling should be carried out on suspended formwork; in each case, the Striking Profile VARIO (including the Joint Striking Profile VARIO) must be pre-assembled depending on the height of the formwork and the position of the waling.
- Correct installation of hydraulic lines with all required components.
- Connecting to the Hydraulic Pump ACS-C 400 (AUX connection). All common types of pumps. ACS/RCS only with separate assembly and operating instructions.
- Absolutely essential bleeding procedure before commissioning.
- Completely remove tie rods prior to striking!
- Operations carried out by authorised qualified personnel only.
- Operation with other hydraulic pumps must be tested for suitability by PERI, and additional assembly and operating instructions must be provided.

Introduction

Instructions on Use

Use in a way not intended, or deviating from the intended use according to the Instructions for Assembly and Use, represents a misapplication with a potential safety risk.

Changes to PERI components are not permitted.

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

Operations with defective products are not permissible.

Applicable Technical Documentation

- Instructions for Use: ACS Core 400 Hydraulics
- Instructions for Assembly and Use for VARIO GT 24 Girder Wall Formwork

Target Groups

Contractors
These Instructions for Use are intended for contractors who use PERI products
- for assembling, modifying and dismantling purposes, or use
- them for, e.g. 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 personnel
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 instruction** 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.
- 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.
- Any other risks that are associated with the assembly, modification or dismantling procedures.

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

Identification Markings

Caution

Do not use the Hydraulic Striking Module VARIO if the type plate is missing or illegible!



Operating States and Limits

Spatial limitations

– Suspended VARIO GT 24 Shaft Formwork with Steel Waler SRU as waling girder.
– Joint Striking Profile VARIO (item no. 129714) in connection with Striking Profile VARIO Top (item no. 129034), Joint Striking Profile VARIO 90 (item no. 129024) and/or Striking Profile VARIO 120 (item no. 129029).
– Hydraulic line to the pump (ACS-C 400 auxiliary hydraulic pump) consisting of standard hoses with quick-release couplings (Hydraulic Hose 2SN-DN08-FF XX.XM), Hydraulic Branch Striking Module (item no. 129039) and Hydraulic Connector Unit Striking Module (item no. 129040).

Time limitations

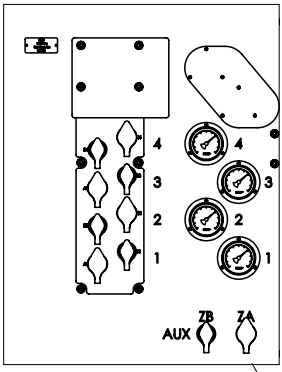
– In accordance with the rental storage criteria, the component must no longer be used if it is damaged.
– Hydraulic components must be inspected and serviced separately according to the inspection and maintenance instructions and, if necessary, must no longer be used.

Additional limitations

– Max. permissible operating pressure: 210 bar.
– Permissible temperature limits: 20 °C to +60 °C.
– Hydraulic oil ISO 11158 HM10
– Hydraulic oil ISO 11158 HVI22
– Hydraulic oil ISO 11158 HVI46

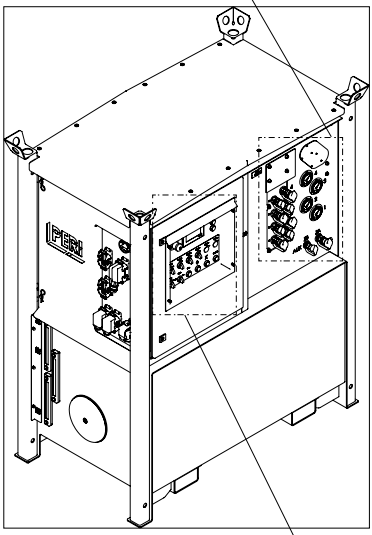
Hydraulic Pump

Hydraulic Pump ACS-C 400
Item no. 128667 (4-fold)
129095 (6-fold)

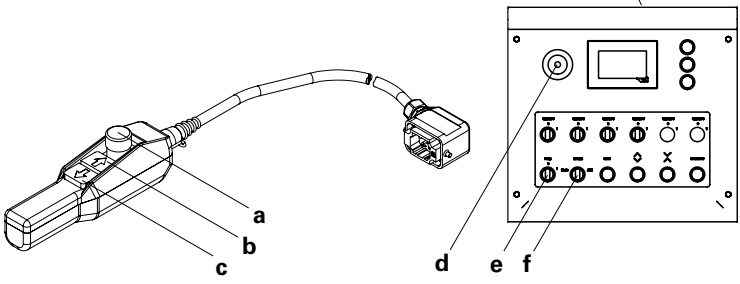


Connections:
Connect the hydraulic hoses to the corresponding quick-release couplings and closing nipples.
– AUX (ZA and ZB)

Required operating elements:
– emergency stop button (d)
– selector switch (pump 0/1) (e)
– selector switch (operating mode: single/interlink/AUX) (f)



Remote control:
Remote control is equipped with a 15-metre-long cable and plug
– Remote control
– emergency stop button (a)
– Extend Cylinder button (b)
– Retract Cylinder button (c)



VARIO GT 24 Girder Wall Formwork

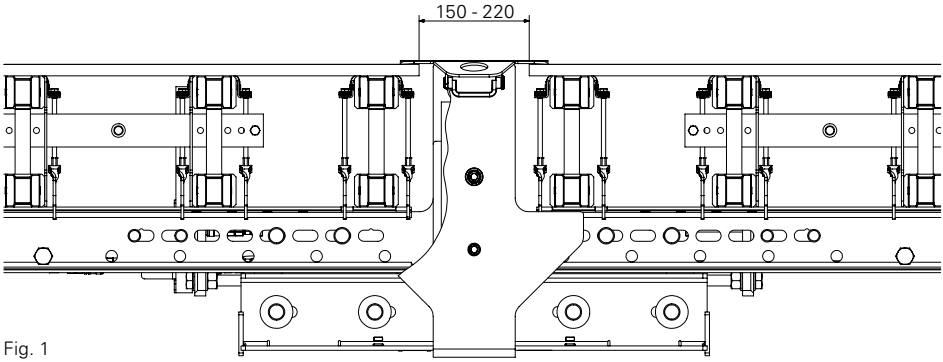


Fig. 1

After installation, the Hydraulic Striking Module VARIO should not fall below or exceed the minimum or maximum dimensions (Fig.1 and Fig. 1a).
See also the Instructions for Assembly and Use for the VARIO GT 24 Girder Wall Formwork (not the standard application)

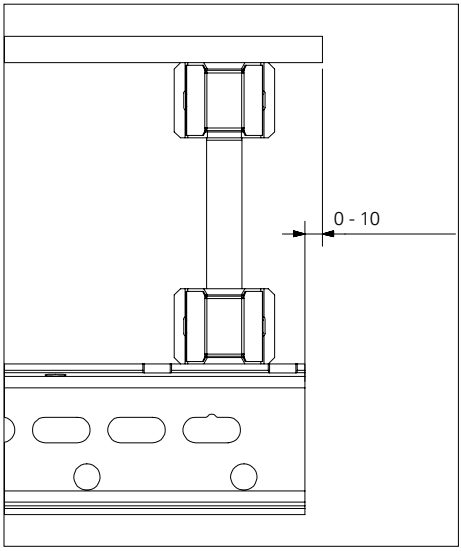


Fig. 1a

Inspections

1. General
The procedure described in this section is based on current German regulations for testing and inspections. The points listed form the minimum requirements for the inspection.

The respective regulations of the individual states and countries where this product is used must be taken into account.

If no country-specific regulations are available, it is recommended to proceed according to German guidelines and regulations.

The contractor is responsible for determining the type, scope and intervals for the required inspections relating to the provision of the PERI product. These inspections serve to systematically identify and remedy any safety-related defects.

2. Purpose
Operating and functional safety is guaranteed through the inspection carried out before initial commissioning, along with regularly arranged checks of the PERI product.

3. Responsibility
The contractor must ensure that the product is only put into operation if it has been inspected by a qualified person.

4. Inspection
It must be verified that all defects have been rectified and any non-functioning products have been replaced. The inspection includes a visual and functional check.

4.1 Safety inspection
- Deformations, wear and lengthening of the components.
- Mechanical damage.
- Check availability of all parts.
- Cracks, bending, flattening, notches on any components.
- Only original PERI parts may be used.
- Signs of impermissible heating or contact with fire.
- Markings must be legible.

4.2 Functionality check
Free and easy movement of moving parts.

Implementation of anything beyond the usual scope of inspection is subject to the discretion of the qualified person and can extend to additional checks.

4.3 Measures
If defects are discovered during the safety check, do not continue to use the Hydraulic Striking Module VARIO! Properly dispose of the Hydraulic Striking Module VARIO!

4.4 Inspection before starting work operations
Check hydraulic components.

Storage and Transportation

General

Store and transport the Hydraulic Striking Module VARIO so that it cannot unintentionally change its position or be damaged in any way.

Do not drop Hydraulic Striking Module VARIO.

During the moving procedure with the crane, ensure that components are picked up and set down so that any unintentional falling over, falling apart, sliding, falling to the ground or rolling is avoided.

Do not place any loads on the Hydraulic Striking Module VARIO.

Use original PERI storage and transport systems, e.g. crate pallets.

Store the Hydraulic Striking Module VARIO in dry, clean and corrosion-protected conditions at temperatures from -20 °C to +60 °C.

The Hydraulic Striking Module VARIO must be protected against the effects of the weather and aggressive materials if safety is then likely to be affected!

During transport, intermediate storage or when remaining suspended on the load, ensure that it remains free of dirt and that its functionality is not affected.

Make sure that no body parts are trapped due to tilting or falling during transport.

Transport on and to the Construction Site

During the transportation procedure, protective equipment must always be worn.



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

Do not drop the components.

Use PERI lifting accessories and slings as well as the load-bearing points provided on the component (eyelets on both sides of the component).

During the moving procedure
- ensure that components are picked up and set down so that unintentional falling over, falling apart, sliding, falling down or rolling is avoided.
- no persons are allowed to remain under the suspended load.

The access areas on the jobsite must be free of obstacles and tripping hazards, as well as being slip-resistant.

For transportation, the surface used must have sufficient load-bearing capacity.

Use original PERI storage and transport systems, e.g. crate pallets, pallets or stacking devices.

Storage on the Construction Site

Hydraulic Striking Module VARIO
- Remove all dirt from the Hydraulic Striking Module VARIO.
- Close all open hydraulic connections with dust protection caps.

Hydraulic Connector Unit Striking Module
- Remove all dirt from the Hydraulic Connector Unit Striking Module.
- Do not place any objects on the Hydraulic Connector Unit Striking Module.

Hydraulic Branch Striking Module
- Remove all dirt from the Hydraulic Branch Striking Module.
- Do not place any objects on the Hydraulic Branch Striking Module.

Hydraulic pump
- Follow Instructions for Use for the hydraulic pump.

Hydraulic hoses
- Remove dirt from the hydraulic hoses.
- Only use designated transport crates for storage and transportation.
- Do not remove hydraulic oil from the hydraulic hoses!
- Keep bushing and connectors of all quick-release couplings clean, and fitted with protection caps or coupled together during transport and storage.
- Store hydraulic hoses rolled up, sorted and marked according to length.
- Do not place any objects on the hydraulic hoses.
- Do not use the hydraulic hoses to lift loads, and ensure there are no kinks.

Longer-Term Storage

Hydraulic Striking Module VARIO
- Remove all dirt from the Hydraulic Striking Module VARIO.
- After disconnecting the hydraulic hoses, close the hydraulic connections with dust protection caps.

Hydraulic Connector Unit Striking Module
- Only use designated transport crates for transportation and storage.
- Protect hydraulic connections against corrosion by means of a suitable preserving agent.
- Do not place any objects on the Hydraulic Connector Unit Striking Module.
- Protect the Hydraulic Connector Unit Striking Module against the effects of the weather and direct splashes of water.

Hydraulic Branch Striking Module
- Only use designated transport crates for transportation and storage.
- Protect hydraulic connections against corrosion by means of a suitable preserving agent.
- Do not place any objects on the Hydraulic Branch Striking Module.
- Protect the Hydraulic Branch Striking Module against the effects of the weather and direct splashes of water.

Hydraulic pump
- Follow Instructions for Use for the hydraulic pump.

Hydraulic hoses
- Remove dirt from the hydraulic hoses.
- Only use designated transport crates for transportation and storage.
- Do not remove hydraulic oil from the hydraulic hoses.
- Protect hydraulic connections against corrosion by means of a suitable preserving agent.
- Keep bushing and connectors of all quick-release couplings clean, and fitted with dust protection caps or coupled together during transport and storage.
- Store hydraulic hoses rolled up, sorted and marked according to length.
- Protect the hydraulic hoses against the effects of the weather and direct splashes of water.
- Do not place any objects on the hydraulic hoses.
- Do not use the hoses as load-handling equipment and ensure that there are no kinks.

Horizontal Assembly of the Striking Profile

Before coupling the Striking Profiles, take into account the assembly plan of the VARIO Girder Wall Formwork.

Connecting the Striking Profiles together

1. Insert two Striking Profiles VARIO 90 or 120 (7) into each other.
2. Insert connecting bolts (10) and secure with cotter pins. (Fig. 2)
3. Repeat steps one to two until the required length of the profile has been realised. Carefully select the sizes of the profiles to ensure that as few profiles as possible are used.
4. Attach one Striking Profile VARIO Top (8) on the first Joint Striking Profile VARIO from above and secure with bolts and cotter pins.The Striking Profile VARIO Top (8) serves as an attachment point for lifting the Striking Profile with the crane.

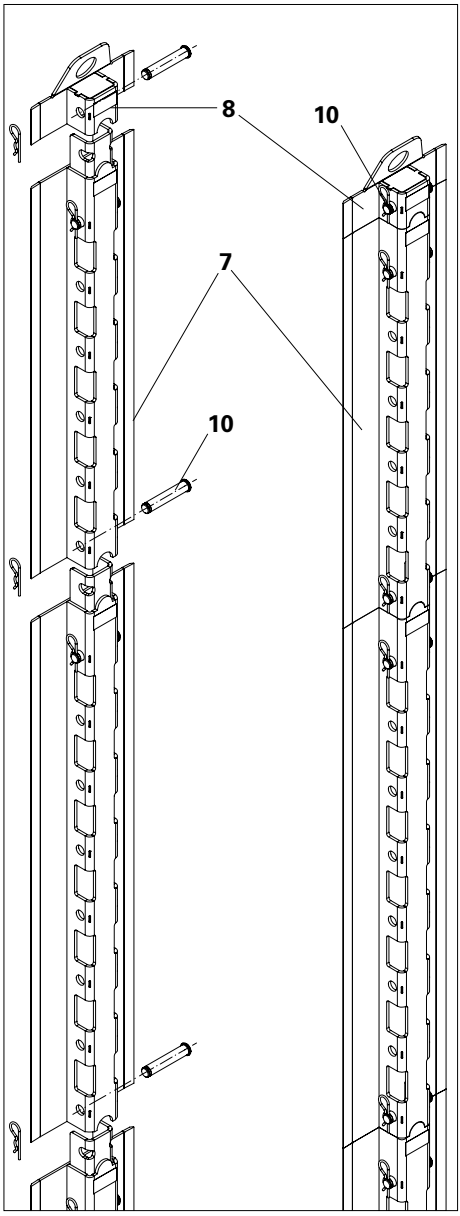


Fig. 2

Mounting the Striking Module VARIO couplings

1. For each waler line position on the formwork, mount one Joint Striking Profile VARIO (9) on the Striking Profile VARIO.
   – The position of each Joint Striking Profile VARIO must first be precisely measured as the position of the Joint Striking Profile VARIO must correspond to the waler line positions of the formwork. (Fig. 5)
2. Insert the Joint Striking Profile VARIO into the Striking Profile VARIO (7). (Fig. 3)
3. Secure each Joint Striking Profile VARIO with one connecting bolt (10) and then insert one cotter pin. (Fig. 3a)

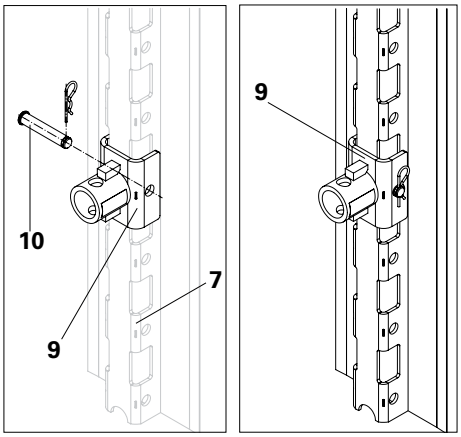


Fig. 3 Fig. 3a

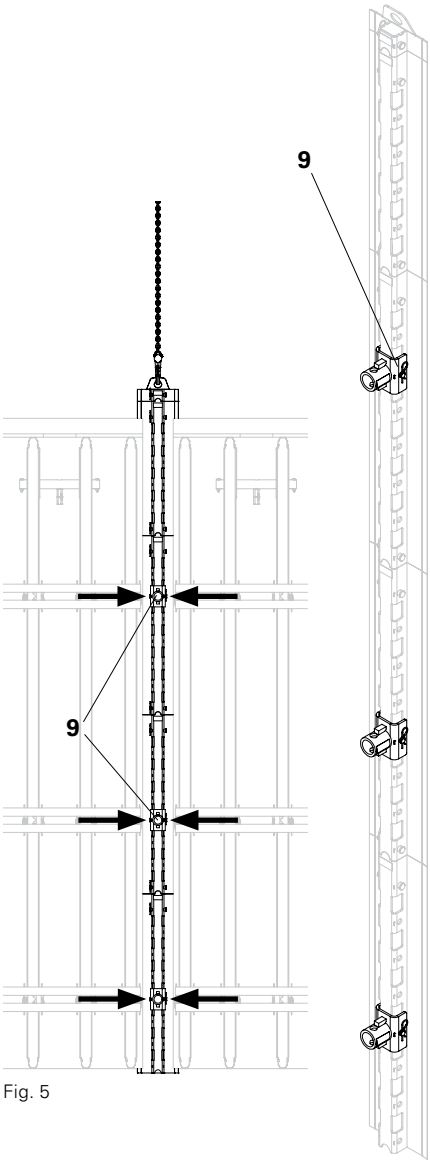


Fig. 5 Fig. 4

Joining the Striking Profile to a Formwork Unit

Warning

In the case of incorrect use, the eyelet on the Striking Profile VARIO Top could break off due to overloading.
Risk of crushing, entrapment and death due to heavy load being dropped.
⇒ The eyelet on the Striking Profile VARIO Top may only be used to lift the Striking Profile itself. Other loads such as formwork may not be suspended on the Striking Profile!

Setting up the Hydraulic Striking Profile

1. Lower the Striking Profile VARIO (7) assembly unit, e.g. with a crane, and place against the formwork element from the concrete side. (Fig. 6)
2. When positioning, ensure that the Joint Striking Profiles VARIO (9) on the Striking Profile are at the height of the formwork element waling.

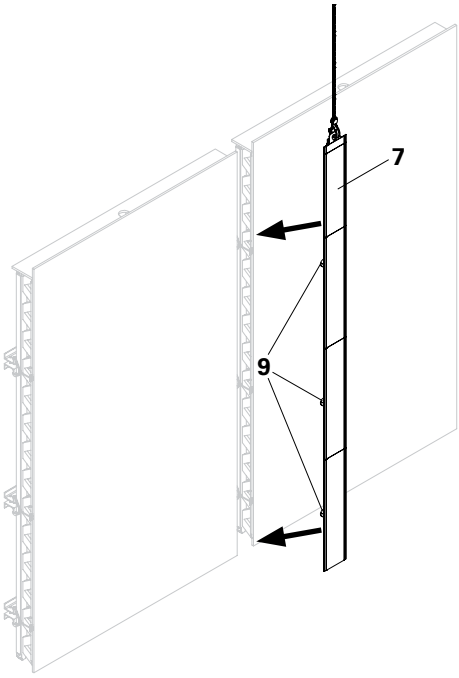


Fig. 6

Warning

Assembly in a high position!
This can result in a fall which could lead to serious injuries.
⇒ Assembly is only carried out from a safe working position, e.g. working platform, mobile scaffold.

Attaching the Hydraulic Striking Module VARIO

1. Remove all bolts with cotter pins or locking pins from the Hydraulic Striking Module VARIO.
2. Mount the Hydraulic Striking Module VARIO (1) on the Joint Striking Profile VARIO (Fig. 7) and secure with bolts Ø 24 x 129 (3) and locking pins. In order to make it easier to insert the bolts, fold away the protection mat. (Fig. 8 + Fig. 9)
3. Open out the protection mat.
4. Release crane lifting gear from the Striking Profile.

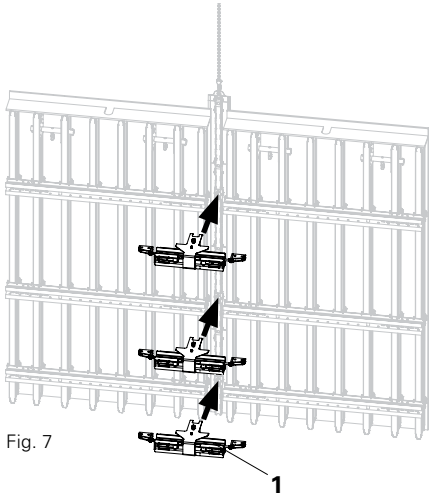


Fig. 7

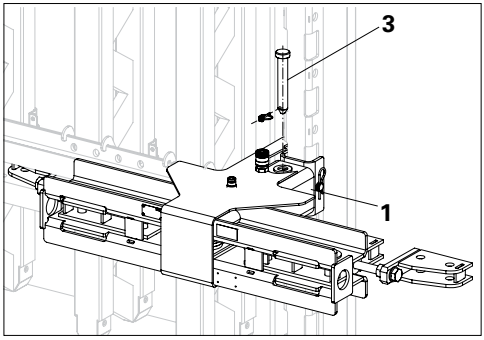


Fig. 8

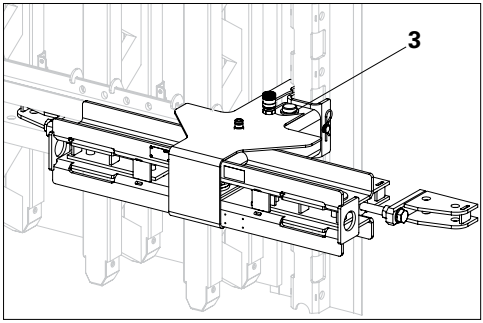


Fig. 9

Mounting the Hydraulic Striking Module VARIO

1. Insert the four locking pins (4) and secure with cotter pins. (Fig. 10)
2. When inserting the respective locking pin (4), ensure that the pins are also pushed through the two levers (1.1) under the metal sheet.(Fig. 10 + Fig. 12)

Check the Hydraulic Striking Module VARIO to see whether two levers have been bolted through with the locking pins (4) on both sides. (Fig. 11)

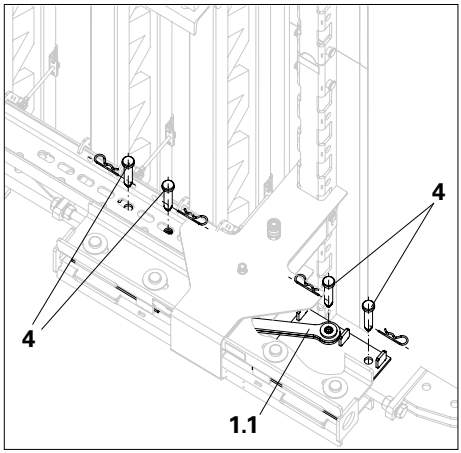


Fig. 10

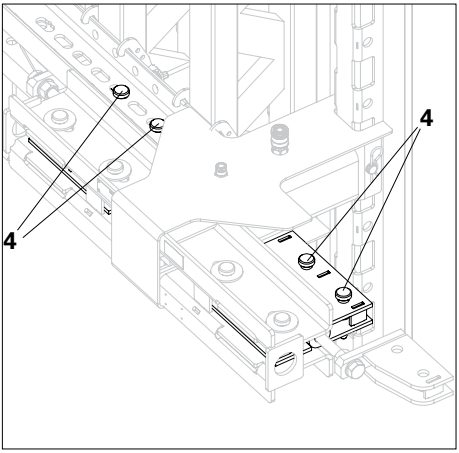


Fig. 11

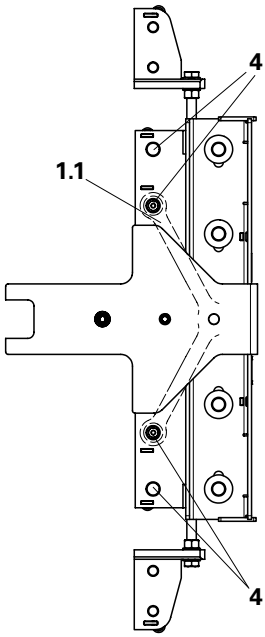


Fig. 12

Mounting the Hydraulic Striking Module VARIO

1. Use the adjusting bolts (11) to adjust the two striking pressure pieces to suit the SRU Waler so that the bolts Ø 21 x 120 (2) can be inserted through the outer two holes of the SRU Waler and through the holes in the striking pressure pieces and then secured. Then secure the four bolts with cotter pins.
2. Do not tighten the adjusting bolts (11) and counter nuts (11.1) yet. (Fig. 14)

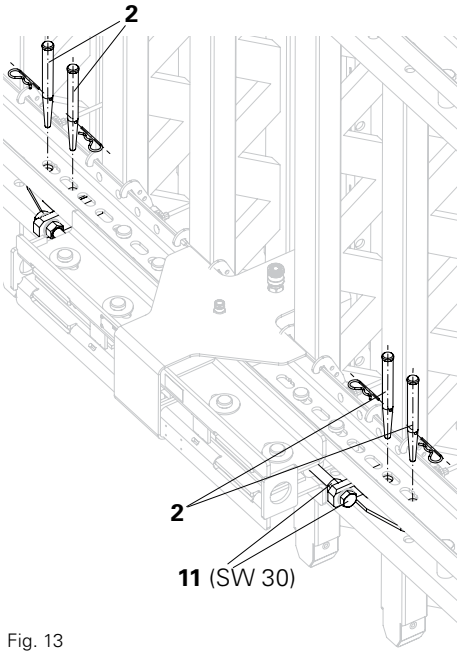


Fig. 13

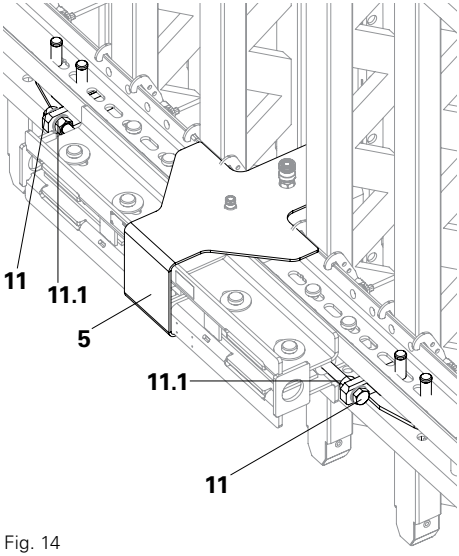


Fig. 14

Assembly of the Remaining Hydraulic Striking Module VARIO

Warning

Assembly in a high position!
This can result in a fall which could lead to serious injuries.
⇒ Assembly is only carried out from a safe working position, e.g. working platform, mobile scaffold.

For every waler line level (here: three) and each shaft element of the formwork, repeat the steps in the sections from "Assembly of the Striking Profile" to "Mounting the Hydraulic Striking Module VARIO".

When all Hydraulic Striking Modules VARIO have been installed, align the formwork parallel and flush to all edges, borders and other formwork. Align the Hydraulic Striking Module VARIO centrally to the formwork.

1. Compensate for the structural and formwork tolerances with adjusting bolts (11).
2. Securely fix adjusting bolts (11) with lock nuts (11.1). (Fig. 13 + Fig. 14)

Keep erecting and adding VARIO elements until the shaft formwork is complete.

The protection mat (5) must be correctly positioned for all Hydraulic Striking Modules VARIO! Operations can only take place together with the protection mat! (Fig. 15)

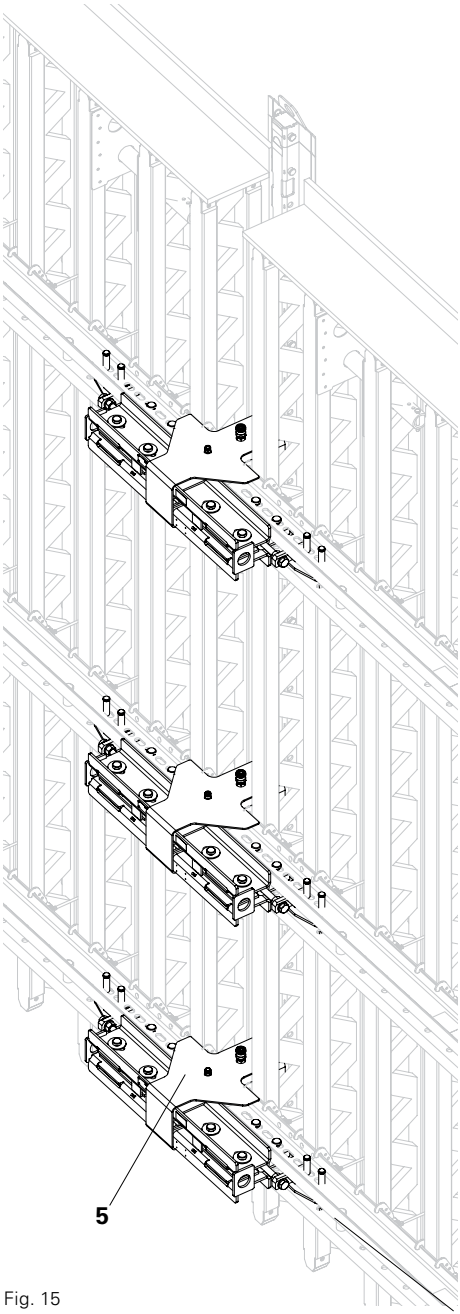


Fig. 15

Hydraulic Connection of an Element

Warning

Assembly in a high position!
This can result in a fall which could lead to serious injuries.
⇒ Assembly is only carried out from a safe working position, e.g. working platform, mobile scaffold.

1. Attach the Hydraulic Branch Striking Module (12) to, for example, a screwed on piece of formlining, and mount this under the waling directly to a GT 24 Girder, e.g. by means of Spax 4 x 20.

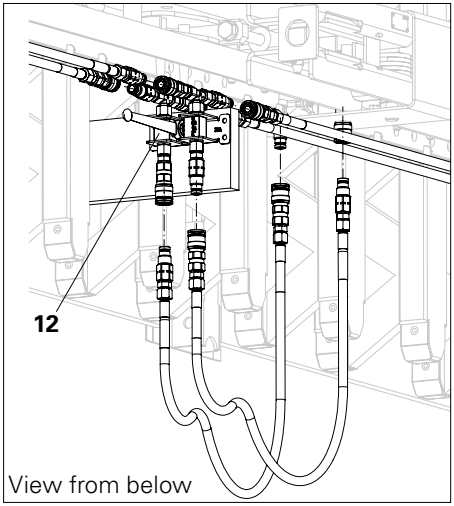


Fig. 16

2. Pull two hydraulic hoses from the bottom Hydraulic Branch Striking Module (12) to the bottom quick-release coupling of the Hydraulic Striking Module VARIO and connect them together. (Fig. 16)
3. From the top quick-release couplings of the Hydraulic Striking Module VARIO, form a connection with two hydraulic hoses to the bottom quick-release couplings of the next highest Hydraulic Striking Module VARIO. (Fig. 17)

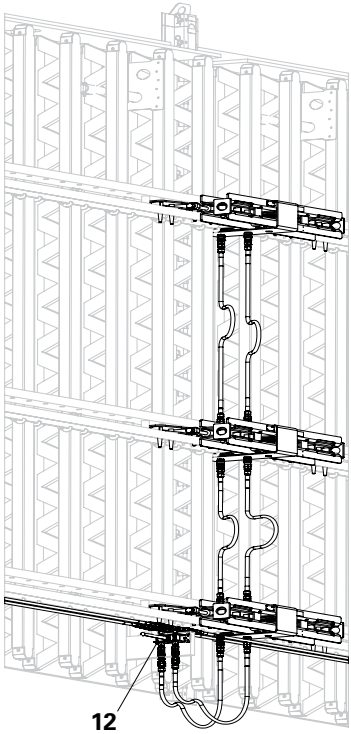


Fig. 17

4. Repeat step 3 until all Hydraulic Striking Modules VARIO on a shaft element have been connected. (Fig. 17)
5. Close the top quick-release couplings of the top Hydraulic Striking Module VARIO with dust protection caps.



– Secure hoses with cable ties or hose clamps so that they do not drag on the floor!
– Hoses must not collide with the structure or get caught up on anything!

Connecting to the Hydraulic Pump (Ring Circuit)

1. Connect the Hydraulic Connector Unit Striking Module (13) to the AUX connections of the hydraulic pump. (Fig. 18)
2. Fix the Hydraulic Connector Unit Striking Module (13), for example on the pump with cable ties, so that it does not drag on the ground.
3. From the Hydraulic Connector Unit Striking Module (13), lay two hydraulic hoses to the straight installation connections of the Hydraulic Branch Striking Module (12) and then connect. (Fig. 19a)

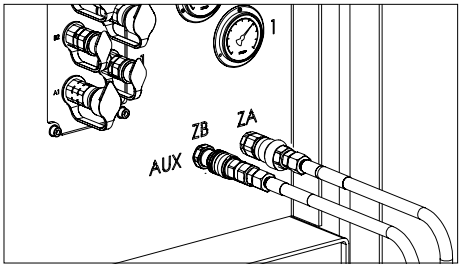


Fig. 18

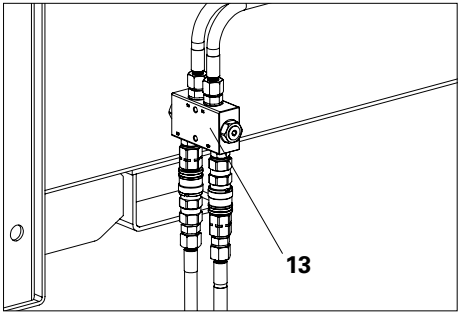


Fig. 19

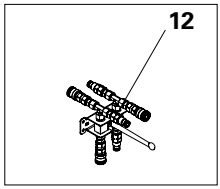


Fig. 19a

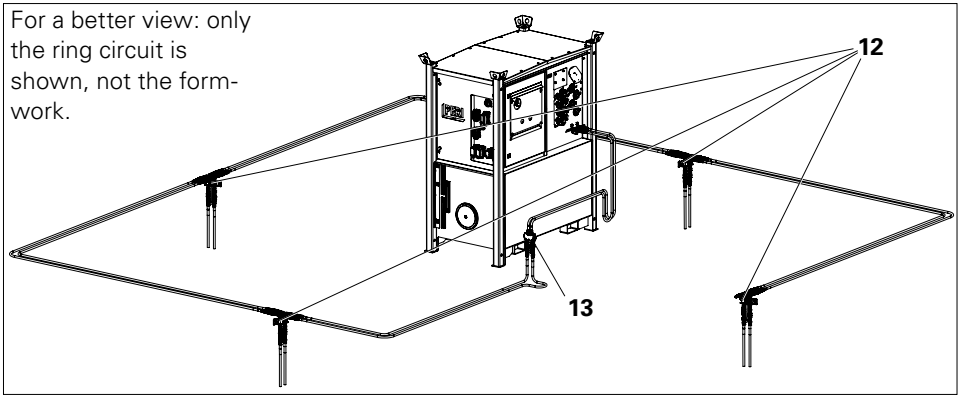


Fig. 19b

4. Connect the hydraulic hoses to the last two free quick-release couplings of the straight installation connection and lay them on the next Hydraulic Branch Striking Module on the next shaft element, and connect them. In the process, always lay the hydraulic hoses under the lowest waler line and secure, e.g. with cable ties, ensuring that they do not drag on the ground.
   (Fig. 19b)

Note

If there is a drop in pressure, uncontrolled formwork movements may occur.
Wedge components.
⇒ The Hydraulic Connector Unit Striking Module (13) prevents any drop in pressure!

Check all connections and hoses for leaks. There must be no leakage of hydraulic oil! If hydraulic oil has run onto the floor when connecting, remove it immediately!

Initial Commissioning

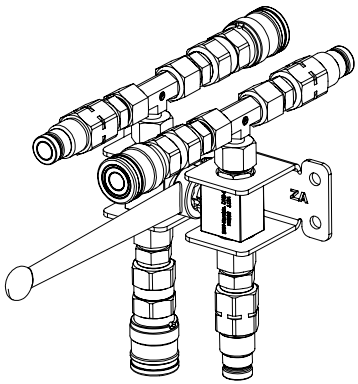
With the initial commissioning, the entire hydraulic system must be bled!

Before the AUX cylinders can be used, the following points must be carried out:

1. Start the pump operations in accordance with the operating instructions.
2. Check the oil filter. In case of deposits, change the oil filter and oil.
3. Check hydraulic pump for signs of damage and rust formation.
4. Further steps: see Commissioning.

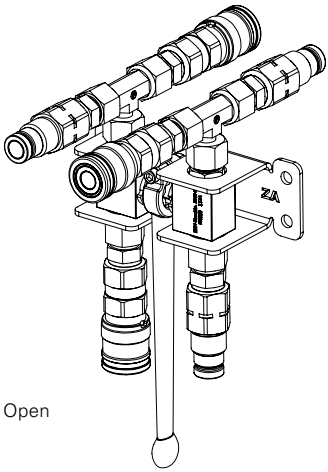
Commissioning

1. Switch on hydraulic pump.
2. Check oil temperature and oil level.
3. Check operating and control pressure.
4. Check for abnormal noises or vibrations.
5. Check for existing leaks.
6. Check cylinder for signs of damage, deformation, run marks and cracks.
7. Check hydraulic cylinder for oil leakage.
8. Check hose connections for oil leaks.
9. Ensure that the remote control is securely attached.
10. Ensure that the emergency stop buttons on the pump and on the remote control are unlocked (rotary release).
11. Use the program selection switch to select the correct operating mode (for the ACS Core 400 it is AUX).
12. Check that the levers of all Hydraulic Branch Striking Modules are open. (Fig. 20 + Fig. 20a)
13. In order to start the motor, press "Start" on the motor switch or, alternatively, briefly press the "Extend Cylinder" button on the remote control.



Closed

Fig. 20



Open

Fig. 20a

Bleeding

Note

Material damage

⇒ Regardless of the number of Hydraulic Striking Modules VARIO or the size of the shaft, each Hydraulic Branch Striking Module must be flushed in one direction for 2 minutes, and then for a further 2 minutes in the opposite direction.

Warning

Assembly in a high position!
This can result in a fall which could lead to serious injuries.

⇒ Assembly is only carried out from a safe working position, e.g. working platform, mobile scaffold.

Flushing and bleeding the hydraulics

1. Close the Hydraulic Branch Striking Modules (12b – 12d) of the striking elements 2 to 4.
2. Open the Hydraulic Branch Striking Module (12a) in striking element 1.
3. Short circuit the hydraulics in the first striking element with a short length of hose (a).
4. Press the button for "shuttering" on the remote control and let the hydraulic pump run in this direction for two minutes.
5. Stop the hydraulic pump and press the button for "striking". Let the hydraulic pump run for two minutes in this direction. (Fig. 21)
6. Repeat steps 1 – 3 for each Hydraulic Branch Striking Module.
7. Pull off hydraulic hose (a) again.

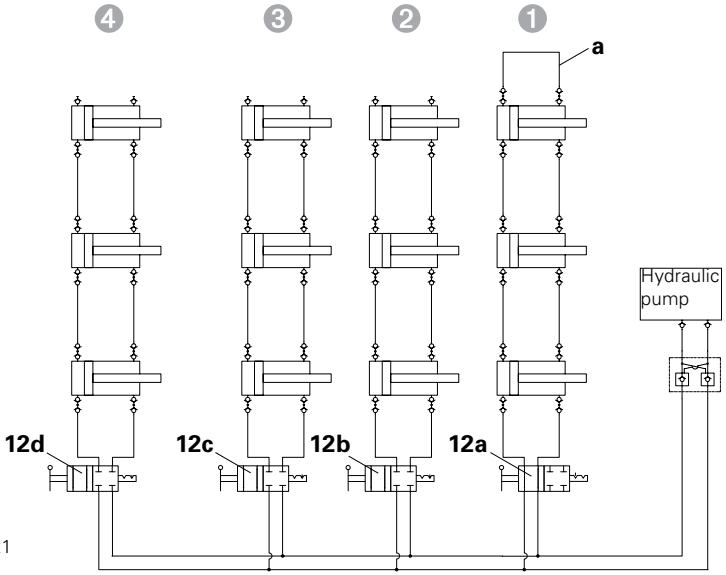


Fig. 21

Hydraulic Striking Module VARIO

Shuttering Procedure

Warning
High falling height when walking on the formwork. Danger to life due to falling.
⇒ Use PPE to prevent falling.

Warning
Movable mechanical parts in unforeseeable sequence. There is a risk of being trapped.
⇒ During the shuttering procedure, no persons should remain in the vicinity of the shaft formwork – especially the Striking Module VARIO!

Note
Material damage
⇒ When assembling the formwork, follow the Instructions for Assembly and Use for the formwork.
⇒ Adjust the formwork to match the required dimensions by means of the adjusting screw (11) and check for dimensional accuracy, especially when used for the first time. Repeat the procedure until the specified dimension has been reached.

Shuttering
1. Open all Hydraulic Branch Striking Modules.
2. Switch on hydraulic pump.
3. Set selection switch to AUX.
4. On the remote control, press the button for "shuttering".

Striking Procedure

Warning

Movable mechanical parts in an unforeseeable sequence. There is a risk of being trapped.

⇒ During the shuttering procedure, no persons should remain in the vicinity of the shaft formwork – especially the Striking Module VARIO!

Note

Material damage

⇒ When striking, follow the Instructions for Assembly and Use for the formwork.

Striking

1. Before striking, ensure that the ties have been removed from the formwork.
2. Mounting of leading anchor must be released.
3. Release all mounting parts attached to the formwork.
4. Open all Hydraulic Branch Striking Modules.
5. Switch on hydraulic pump.
6. Set selection switch to AUX.
7. On the remote control, press the button for "striking".

Note

Material damage

⇒ When climbing, follow the safety information in the Instructions for Use, or the Instructions for Assembly and Use for the climbing system.

⇒ Check the dimensional accuracy of the concrete after every climbing procedure; if necessary, re-adjust the formwork!

Fixing Malfunctions		
Malfunction	Possible faults	Remedial measure
Leakage	– Fittings not tightened. – Defective or soiled fittings (in particular: flat-face quick-release couplings). – Hydraulic cylinder leaks. – Sealing washers (cylinder or Hydraulic Connector Unit Striking Module) are missing. – Hydraulic hoses or compression fitting damaged. – Hose lines not properly laid and fixed (observe minimum bending radii). – Hydraulic hoses not correctly inserted.	– Tighten fittings using 80 Nm. – Clean fittings; replace if necessary. – Replace hydraulic cylinder. – Insert sealing washers in cylinder or Hydraulic Connector Unit Striking Module. – Replace damaged hydraulic hoses or fittings. – Lay new hose line, observe minimum bending radii. – Re-insert hydraulic hoses correctly.
Hydraulic Striking Module VARIO closes when shuttering or does not open completely during striking, no complete movement, sprue / offset in the concrete finish (striking in the shaft is impeded)	– Striking Profile not tight, or is dirty or bent. – Striking mechanism is heavily soiled or guide waler is bent. – Hydraulic Connector Unit Striking Module has not been integrated in the supply line. – Leakage in the hydraulic system. – Air in the hydraulic system. – Plywood formlining protrudes too far at the front: collision with Striking Profile during actuation. – Shaft formwork not executed as intended (e.g. formlining is too thin).	– Check dimensional accuracy and adjust. Clean or replace the Striking Profile first. – Clean striking mechanism or replace guide waler. – Integrate the Hydraulic Connector Unit Striking Module in the supply line. – Find and eliminate any leakage in the hydraulic system. – Bleed system as described in "Flushing and bleeding the hydraulics" section. – Re-measure and install the designated plywood formlining.

Fixing Malfunctions

Fixing Malfunctions		
Malfunction	Possible faults	Remedial measure
Hydraulic Striking Module VARIO is not functioning.	– Hydraulic hoses not inserted. – Ball valve (Hydraulic Branch Striking Module) closed. – Hydraulic pump malfunction. – Wrong hydraulic pump used. – Striking mechanism blocked. – Anchoring of the shaft formwork has not been dismantled (tie rods, anchor bolts, bolted mounting parts etc.). – Lever pairs not bolted during assembly of the Striking Module VARIO on the formwork steel waler. (Compare Fig. 10 and 12) – Short-circuit line (a) was not removed. (Compare Fig. 21)	– Insert hoses. – Open the ball valve on the Hydraulic Branch Striking Module. – Check the hydraulic pump and replace if necessary. – Use the correct hydraulic pump. – Check the striking mechanism and replace if necessary. – Dismantle the anchoring of the shaft formwork. – Lever pairs correctly bolted. (See Fig. 10 and 12) – Remove the short-circuit line (a). (See Fig. 21)

Fixing Malfunctions

Fixing Malfunctions		
Malfunction	Possible faults	Remedial measure
Specified shaft dimension has not been realised.	– Fine adjustment is incorrect or has not been carried out. – Counternut (fine adjustment) is loose. – Incorrect connection means used or bolts have been forgotten. – Leakage in the hydraulic system. – Air in the hydraulic system. – Unsuitable shaft formwork, anchoring and/or shoring.	– Readjustment carried out in accordance with the Instructions for Use. – Tighten the counternut (fine adjustment). – Check connection means used as well as for any missing bolts. – Check for signs of leakage. – Bleed system as described in "Flushing and bleeding the hydraulics" section. – Use PERI approved shaft formwork, anchoring and/or shoring.
As soon as the button on the remote control has been released, the stripped shaft formwork can no longer be held. It returns to its original position.	– Hydraulic Connector Unit Striking Module (13) not installed in the hydraulic circuit.	– Install the Hydraulic Connector Unit Striking Module (13) in the hydraulic circuit.

Cleaning and Maintenance Instructions

The Hydraulic Striking Module VARIO has been designed for long-term use on construction sites.

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

Repairs on the Hydraulic Striking Module VARIO which require welding or deformation of components are only allowed to be carried out by PERI.

If corrective maintenance or the replacement of worn components is required, only PERI original parts are to be used as spare parts.

Clean the Hydraulic Striking Module VARIO before and after every use, and grease the Adjusting Bolt M20 x 160 with an appropriate lubricant (Long-Life Grease LT 200 EP or equivalent).

Maintenance and repair work on the Hydraulic Striking Module VARIO is to be carried out only at an authorised customer service centre in the respective region. Only original components may be used.

During cleaning operations, dirt can splash off the Hydraulic Striking Module VARIO.



Always wear safety glasses and safety gloves when cleaning the components!

Hydraulic pump

– When servicing the hydraulic pump, follow the maintenance instructions for the respective pump.

Hydraulic hoses

– For hydraulic hoses, pay attention to the date of manufacture. The recommended period of use is maximum 6 years.
– Check hoses for leaks, signs of damage and functionality of the fittings.
– Check lever for clean movement.

Hydraulic Striking Module VARIO

– Check Adjusting Bolt for ease of movement.
– Replace excessively soiled screws.
– Replace hydraulic cylinders / fittings if showing signs of leakage.
– Replace brittle or damaged cover mat.

Dismantling the Hydraulics

– Firstly, dismantle all hydraulic lines from the formwork. As described in the "Connecting the hydraulics" section but in reverse order.



– Release the connections to the hydraulic pump first.
– Depressurise hydraulic lines before dismantling.
– Completely shutter and briefly press the button in the opposite direction (striking).

Residual Dismantling

– Dismantle the Hydraulic Striking Module VARIO from each striking element in the reverse order as described in the "Assembly" section.
– Dismantle and take apart the Joint Striking Profiles VARIO and profiles.
– In the process, ensure that the dust protection caps are on the fittings.
– Take care when setting down and storing the Striking Module VARIO, fittings could be damaged.

Disposal

Disposal of the Hydraulic Striking Module VARIO must be arranged by an authorised person.



Note

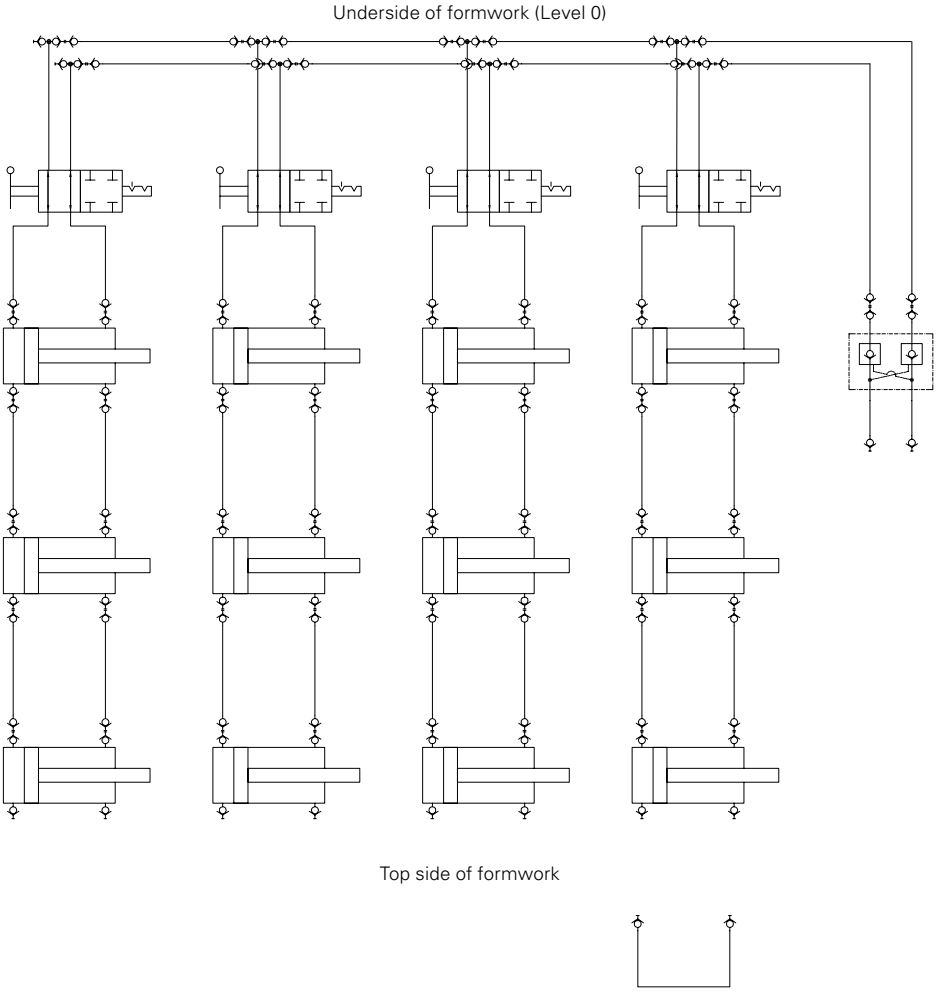
Environmental damage

⇒ Materials are to be sorted correctly and according to type.

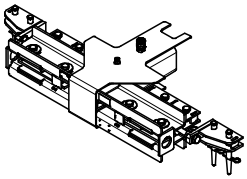
⇒ The materials are to be disposed of according to local regulations and guidelines.

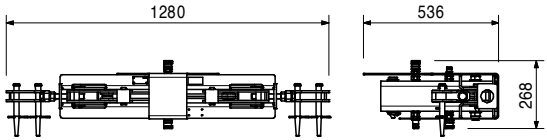


Hydraulic System Connection Plan

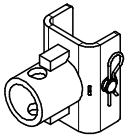


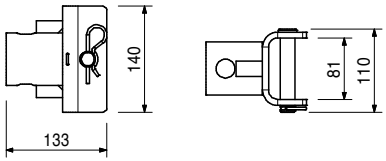
Item no.	Weight kg	
128996	76.400	**Hydraulic Striking Module VARIO** For a rigid connection of Steel Walers SRU U120 of two VARIO GT 24 Elements. Integrated hydraulic striking mechanism. **Complete with** 1 pc. 128989 HD-Cylinder 70/50-H60-G3/8 2 pc. 128992 Pin ISO16028 DN10 R3/8IG 2 pc. 128993 Sleeve ISO16028 DN10 R3/8IG 8 pc. 128995 Washer G3/8 4 pc. 128994 Double Nipple G3/8 1 pc. 128955 Pin Ø 24 x 129 1 pc. 128991 Linchpin DIN 11023-5x32, galv. 4 pc. 128957 Pin Ø 20 x 77 4 pc. 104031 Fitting Pin Ø 21 x 120 8 pc. 018060 Cotter Pin 4/1, galv. 1 pc. 128958 Protection Mat Striking Module **Note** Follow Instructions for Use. Use only original PERI hydraulic oil. **Technical data** Max. operating pressure: 210 bar.





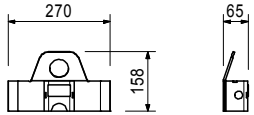
129714	2.980	**Joint Striking Profile VARIO** For connecting Hydraulic Striking Module VARIO to Striking Profile VARIO 90 or 120. **Complete with** 1 pc. 128960 Connection Pin Ø 20 x 97 1 pc. 018060 Cotter Pin 4/1, galv.





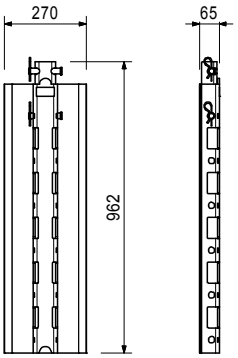
129034	1.820	**Striking Profile VARIO Top** As upper end attachment on Striking Profile VARIO.



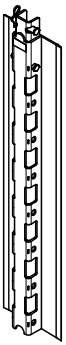


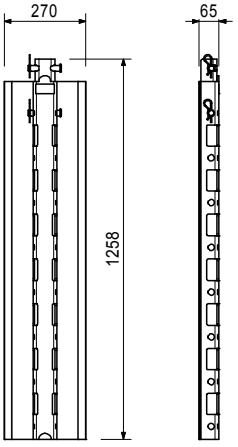
Item no.	Weight kg	
129024	17.100	**Joint Striking Profile VARIO 90** For tight closure of the gap between VARIO GT 24 Elements arranged on both sides. **Complete with** 1 pc. 128960 Connection Pin Ø 20 x 97 1 pc. 018060 Cotter Pin 4/1, galv.





129029	22.000	**Striking Profile VARIO 120** For tight closure of the gap between VARIO GT 24 Elements arranged on both sides. **Complete with** 1 pc. 128960 Connection Pin Ø 20 x 97 1 pc. 018060 Cotter Pin 4/1, galv.





Item no.	Weight kg	
129035	0.996	**Hydraulic Hoses EN 853 2SN DN08** **Hydraulic Hose EN 853 2SN DN08 1.0 m**
129036	1.430	**Hydraulic Hose EN 853 2SN DN08 2.0 m**

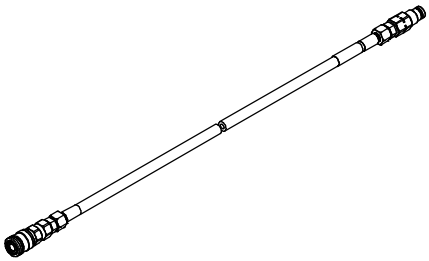
For connecting hydraulic striking modules with hydraulic climbing devices.

Complete with

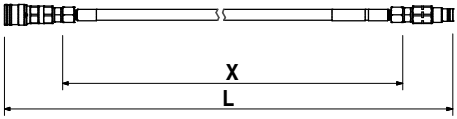
1 pc. 128992 Pin ISO16028 DN10 R3/8IG
1 pc. 128993 Sleeve ISO16028 DN10 R3/8IG
2 pc. 051750 Male Stud Coupler X-GE12PSR-ED

Note

Follow applicable Safety Regulations for the installation and maintenance of hydraulic lines!



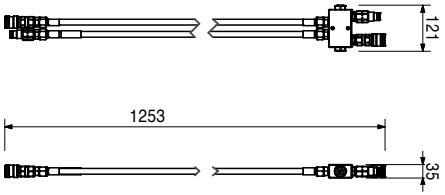
L	X
1169	1000
2169	2000



129040	3.000	**Hydraulic Connector Unit Striking Module**

For direct connection to Hydraulic Pump ACS-C 400.





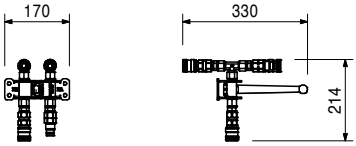
129039	2.780	**Hydraulic Branch Striking Module**

Shut-off T-piece as a branch from the oil supply line to the Hydraulic Striking Modules VARIO arranged one above the other.

Complete with

3 pc. 128992 Pin ISO16028 DN10 R3/8IG
3 pc. 128993 Sleeve ISO16028 DN10 R3/8IG





Item no.	Weight kg	
		Hydraulic Hoses 2SN-DN08-FF
129419	2.690	**Hydraulic Hose 2SN-DN08-FF 5.0 m**
129420	4.900	**Hydraulic Hose 2SN-DN08-FF 10.0 m**
129421	7.120	**Hydraulic Hose 2SN-DN08-FF 15.0 m**
129422	9.330	**Hydraulic Hose 2SN-DN08-FF 20.0 m**

For connecting hydraulic striking modules with hydraulic climbing devices.

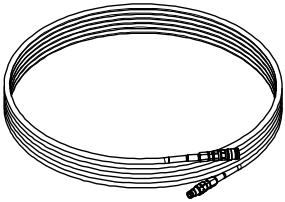
Complete with

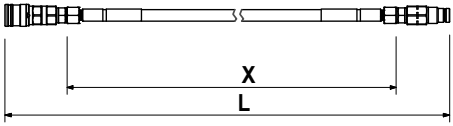
1 pc. 128992 Pin ISO16028 DN10 R3/8IG
1 pc. 128993 Sleeve ISO16028 DN10 R3/8IG
2 pc. 051750 Male Stud Coupler X-GE12PSR-ED

Note

Follow applicable Safety Regulations for the installation and maintenance of hydraulic lines!

L	X
5170	5000
10170	10000
15170	15000
20170	20000



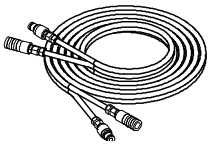


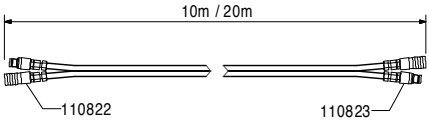
		Hydraulic Twin Hoses RCS
110069	8.500	**Hydraulic Twin Hose RCS, 10 m**
110070	15.300	**Hydraulic Twin Hose RCS, 20 m**

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

Complete with

2 pc. 128992 Plug ISO16028 DN10 R3/8IG
2 pc. 128993 Socket ISO16028 DN10 R3/8IG
4 pc. 051750 Male Stud Coupler X-GE12PSR-ED



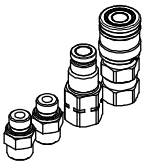


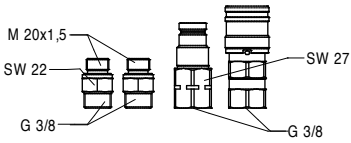
129424	0.440	**FF-Coupling Pair X-GE 12PSR-ED+**

Spare parts set for PERI Hydraulic Components with quick couplings X-GE 12PSR-ED+.

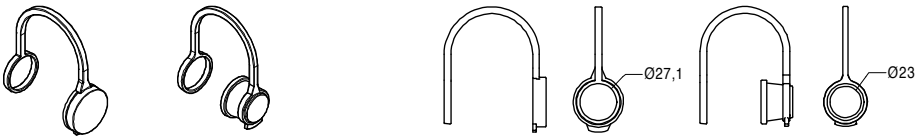
Complete with

1 pc. 128992 Pin ISO16028 DN10 R3/8IG
1 pc. 128993 Sleeve ISO16028 DN10 R3/8IG
2 pc. 051750 Male Stud Coupler X-GE12PSR-ED

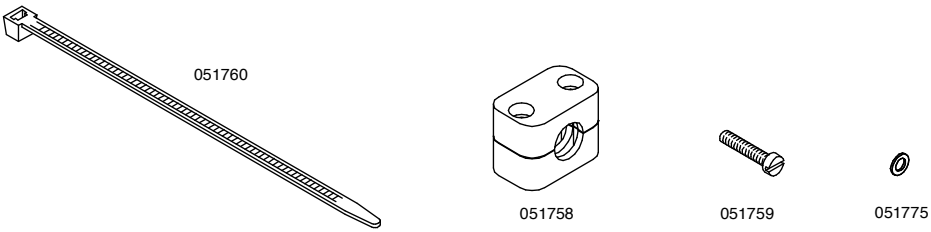




Item no.	Weight kg	
125632	0.050	**Protect. Covers Climb. Device RCS** To protect unplugged quick couplings X-GE 12PSR-ED+ against dirt and damage. **Technical data** 1 set for 1 Climbing Device RCS 50 (2x bushing and 2x nipple each).



051760	0.004	**Cable Binder NT-240H**
051758	0.100	**Clip Unit 319 PA**
051759	0.050	**Cyl. Bolt ISO 1207 M6 x 30-4,8, galv.**
051775	0.010	**Washer US**



EC Declaration of Incorporation

PERI

EG-Einbauerklärung

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

In der Gemeinschaft ansässige Person, die bevollmächtigt ist, die relevanten technischen Unterlagen zusammenzustellen:

Dipl.-Ing. Rainer Bolz
PERI GmbH
Rudolf-Diesel-Straße 19
DE - 89264 Weißenhorn

Beschreibung und Identifizierung der unvollständigen Maschine:

Produkt / Erzeugnis:	Hydraulisches Ausschalmodul VARIO
Typ:	Klettersystem/Schachtschalung
Seriennummer:	128996
Maschinennummer:	A001.700Z000
Projektnummer:	PRJ-2016-07-04-0003
Handels-Bez.:	Hydraulisches Ausschalmodul VARIO
Auftrag:	PLCMP
Funktion:	Hydraulischer Antrieb zum Ein- und Ausschalen von VARIO-Schachtschalungen

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

EG Maschinenrichtlinie 2006/42/EG

Fundstelle der angewandten harmonisierten Normen entsprechend Artikel 7, Absatz 2:

EN ISO 12100:2010-11
EN ISO 4413:2010

Weißenhorn, 06.06.2018

Hersteller
PERI GmbH
Rudolf-Diesel-Straße 19
89264 Weißenhorn

Leitung Produktentwicklung

Dipl.-Ing. Rainer Bolz
PERI GmbH

EC Declaration of Incorporation

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

EC Declaration of Incorporation

in compliance with the EC Machinery Directive 2006/42/EC, Annex II 1. B for partly completed machinery

Person residing within the Community authorised to compile the relevant technical documentation:

Dipl.-Ing. Rainer Bolz
PERI GmbH
Rudolf-Diesel-Strasse 19
DE - 89264 Weissenhorn

Description and identification of the machinery:

Product / Product name:	Hydraulic Striking Module VARIO
Type:	climbing system/shaft formwork
Serial number:	128996
Machine number:	A001.700Z000
Project number:	PRJ-2016-07-04-0003
Trade name:	Hydraulic Striking Module VARIO
Order:	PLCMP
Function:	Hydraulic drive for forming and stripping VARIO shaft formwork

It is expressly declared that the machinery fulfils all relevant provisions of the following EU Directives:

European Directive On Machinery 2006/42/EC

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

EN ISO 12100:2010-11
EN ISO 4413:2010

Weißenhorn, 06.06.2018

Manufacturer
PERI GmbH
P.O. Box 1264
89259 Weissenhorn, Germany

Appendix

Participation Protocol and Handover Certificate

Name:

_____

Position:

_____

Training:

_____

I have participated in the above training course.
I have received and understood instructions on how to use the Hydraulic Striking Module VARIO.
I know the safety regulations and adhere to them in practice.
If I should have any questions or in the case of any uncertainty, I will contact:

_____

_____

Date/signature:

_____

Address of PERI headquarters in Germany:

PERI GmbH
P.O. Box 1264
89259 Weissenhorn
Germany

Tel.: +49 7309 950 – 0
Fax: +49 7309 950 – 6210

Email: info@peri.de
The completed participation protocol and handover certificate must be signed and sent back to the responsible technical adviser at the above postal address!

Maintenance Chart

Maintenance location	Comments	Date	Name / signature

The optimal System for every Project and every Requirement



Wall Formwork



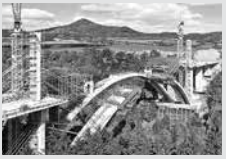
Column Formwork



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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