



Operating manual

PGS 48 (E/J/A)


Foreword

This document represents the operating instructions for the PGS 48 (E/J/A) clamping unit and contains important specifications and information to enable safe, proper and economical machine operation.

All specifications assume that the clamping unit is used as described in section ► 2.2 [7].

All illustrations in this document serve to support the explanations presented in text form and are not necessarily to scale. Depending on the product variant, the images and illustrations shown may differ slightly from the clamping unit included in the scope of delivery.

The operating instructions are part of the clamping unit

	<p>// For safe operation and the fulfilment of any warranty claims, first read the operating instructions and follow the instructions.</p> <p>// Pass on the operating instructions to the next owner.</p> <p>// No liability is accepted for damage and malfunctions resulting from non-observance of the operating instructions.</p> <p>// Contact the manufacturer's customer service (info@rego-fix.com) if you have any questions about the operating manual.</p>
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Copyright protection

The copyright of this document belongs to REGO-FIX AG (manufacturer).

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Manufacturer:	REGO-FIX AG, Obermattweg 60, CH-4456 Tenniken, Switzerland Phone +41 61 976 14 66, info@rego-fix.com
Technical changes:	The manufacturer reserves the right to make changes in the sense of technical improvements.
Document number:	600011899

This instruction manual must be kept for as long as the device is in use.
Please read in full and keep close to the product.

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1. General information

1.1 Storage

- // The operating instructions must be stored in the immediate proximity of the clamping unit and protected from immissions.
- // Workplace staff must have access to the operating manual at all times.
- // The contents of the operating instructions must be clearly legible throughout the service life of the device. If parts of the operating manual are missing or no longer legible, the manufacturer must be contacted so that the documentation can be restored.

1.2 Limitation of liability

The content of this manual was compiled in compliance with applicable guidelines and standards and on the basis of the latest technology standards and our many years of experience. The manufacturer does not accept liability for any damages or accidents resulting from:

- // Disregard of instructions
- // Non-compliance with safety regulations
- // Improper use of the machine
- // Disregard of personnel qualifications
- // Any modifications to the machine or (sub-)components installed therein that have not been agreed with the manufacturer and are expressly permitted

The requirements set out in the supply or purchase agreement, the general terms and conditions, the manufacturer's delivery terms and the international and national regulations in place when the agreement was concluded also apply.

1.3 Customer support

Direct support is available from your local sales representative.

For technical queries, please contact our support team at info@rego-fix.com.

You can find information about the relevant contact persons at any time either via the contact address above or via our website (rego-fix.com).

2. Security

2.1 Basic safety information

The security officer must ensure that

- // only qualified personnel are assigned to work on the clamping unit. Specifications for the work to be carried out depending on the selected operating mode are summarised in section ► 2.3 [8].
- // the necessary personnel training is carried out.
- // the operating personnel have the operating instructions and other safety-relevant documents in the product documentation available at all times for all work and are obliged to strictly observe these documents.
- // staff observe the accident prevention rules and regulations in force at the location as well as maintenance and calibration cycles.
- // the applicable safety and environmental protection regulations are complied with.
- // hazards resulting from the installation location and/or type of installation of the machine as well as the operating ambient conditions are evaluated and documented and taken into account in the form of instructions.

The clamping unit may only be used within the scope of its intended use (see section ► 2.2 [7]). Furthermore, the clamping unit may only be used in a technically flawless and operationally reliable condition. Before commissioning and after maintenance or repair work has been carried out, the clamping unit must be checked to ensure that it is intact.

2.2 Intended use

- // **This clamping unit is a hydraulic assembly press for semi-automated pressing in and out of cutting tools with shank using powRgrip® technology from REGO-FIX AG.**
- // **For the intended use of the clamping unit and the safe operation enabled as a result, the following conditions must also be met:**
 - / The clamping unit may be used only for the modes of operation specified in section ► 4 [23]. All specifications for machine operation and personnel qualifications must be complied with.
 - / Children are prohibited from operating the clamping unit. Personnel in training may only work under the supervision of qualified personnel ► 2.3 [8].
 - / The clamping unit may only be used in conjunction with third-party devices and components, software, tools and auxiliary materials recommended or installed by the manufacturer. Any kind of interventions, adaptations and modifications to the clamping unit are expressly prohibited.
 - / The clamping unit must not be operated in explosive or flammable environments.
 - / The clamping unit must always be operated with the protective conductor connected in the power cable.
 - / The following specifications for the electrical supply must be observed:

▲ (E) Europe	230 V±10%	50 Hz
▲ (A) North America	115 V±10%	60 Hz
▲ (J) Japan	100 V±10%	50-60 Hz

- / The operating front of the clamping unit must be freely accessible. It must be possible for the emergency-off push button to be actuated by the operator at any time.
- / The minimum distance of the operating front to other machines, parts of the building or internal traffic routes must be at least 1 m. A maximum ground gradient/slope of 1% must not be exceeded. During servicing/maintenance, the clamping unit must be accessible from all sides with a minimum distance of 1 m. The clamping unit is operated standing, with two hands.
- / The clamping unit is designed for use in closed, dry (max. relative humidity 95%) rooms with temperatures between +10 °C and +40 °C. The workstation must be well lit.

2.3 Requirements for the machine operator

The requirements for the machine operator are described below, taking into account the operating modes. Regardless of their qualifications, only staff who can reliably carry out the work assigned to them are considered. Persons under the influence of impairing agents, e.g. drugs, alcohol, medication, etc., are considered to be unreliable personnel.

Operating mode:

Transport	This work must be carried out by technical specialists or qualified personnel (section ► 2.3.1 [8]).
Start-up	This work can be carried out by the operating personnel (section ► 2.3.2 [9]).
Normal operation	This work can be carried out by the operating personnel (section ► 2.3.2 [9]).
Troubleshooting and problem solving	In "simple" cases, this work may be carried out by the operating personnel (section ► 2.3.2 [9]). "Simple cases" are all cases that are listed in the finite list "Normal operation" (section ► 2.3.3 [9]). In all other cases, the work must be carried out by technical specialists or qualified personnel (see section ► 2.3.1 [8]). "Repair work" (section ► 2.3.4 [9]) contains a non-exhaustive list that summarizes the relevant work steps.
Servicing and maintenance	Same as "Troubleshooting and problem solving"
Disassembly and disposal	This work must be carried out by technical specialists or qualified personnel (section ► 2.3.1 [8]).

2.3.1 Definition of technical specialist / qualified personnel

These personnel must be familiar with the applicable requirements (duty of care, security, etc.) or must be sensitised accordingly by the client. The term 'specialist' therefore refers to someone who has undergone technical training, possesses the knowledge and experience necessary for the work and is capable of completing the tasks assigned to them and recognizing any potential dangers themselves.

All repair work must be carried out by employees of the company REGO-FIX or by employees of a third party commissioned by the company REGO-FIX by default. A different procedure is only possible in individual cases by agreement with customer support and with written confirmation.

2.3.2 Definition of operating personnel

The operating personnel must have completed system training (trained personnel). In addition to operation, this also includes an understanding of the residual risks and the resulting hazards during operation. The training may be carried out by the company REGO-FIX, a recognized sales partner of REGO-FIX or a third party commissioned by the company REGO-FIX.

2.3.3 Work steps/machine interactions in normal operation

- // Press the control elements on the front (control buttons, emergency stop) and the rocker switch on the side. Connect and disconnect the device plug (power supply for the machine).
- // Actuate the door on the pressing head to open/close the pressing area. Inserting/removing the toolholder including collet and tool.
- // Perform simple maintenance measures. These include:
 - / Clean the outside of the machine (cladding elements)
 - / Clean the pressing area (machine disconnected from the power supply).
 - / Check the oil level and top off with hydraulic oil if necessary.
(Machine disconnected from the power supply).

2.3.4 Repair work (by qualified personnel)

Repair operations include the following activities:

- // All work steps/machine interactions of nominal operation
- // Carrying out test runs/function tests with a reduced number of casing elements and, if necessary, with extended equipment (e.g. measuring equipment). Before carrying out any maintenance or repair work, the machine must be safely disconnected from the electrical power supply. If this is not possible (e.g. for certain fault evaluations), the work must be carried out by electrically trained personnel specifically for this type of repair work.
- // Removal of the casing elements and replacement of machine components.
- // Inspection and acceptance of the machine.


2.4 Identification of residual hazards

Using technical products can be dangerous. Hazards that could not be eliminated by design measures or protective devices are declared by the manufacturer as residual risks. The safety information in these operating instructions refers to the known residual risks that have been identified and classified by the manufacturer as part of risk assessment/risk reduction. If any additional dangers come to light during operation, the operator is required to report these immediately to the manufacturer.





The residual risks vary depending on the type of operation. For this reason, the residual risks are addressed in this document for each mode of operation in section ► 4 [23].

The warning notices in the operating instructions warn of hazards with regard to the above-mentioned residual risks, which must be observed when handling the machine. The format used in this instruction manual for the uniform signalling of "DANGER," "WARNING," "CAUTION" and "NOTE" is shown in section ► 2.5 [10].




2.5 Presentation forms – warnings


DANGER	Hazard with a high degree of risk which, if not avoided, may result in death or irreversible injury .
WARNING	Hazard with a medium level of risk which, if not avoided, may result in a reversible injury with temporary incapacity to work .
CAUTION	Hazardous situation with a low level of risk which, if not avoided, may result in a minor or moderate injury without temporary incapacity to work .
NOTE	A potentially harmful situation that can lead to material damage.
NOTE	
	This symbol serves both, general information and to indicate possible material damage.




The following mandatory signs are used:




Symbol	Meaning	Symbol	Meaning
	Wear eye protection		Use safety gloves
	Use safety shoes		Use head protection

2.6 Residual risks of the different operating modes

Pictogram Description of residual risk	Countermeasure	Operating modes						
		Transport	Start-up	Normal operation	Fault/rectification	Servicing/maintenance	Disassembly/disposal	
<div>⚠ DANGER ⚠</div>								
<div></div> <div>Danger due to dangerous electric voltage</div> <div>(Fatal) electric shock</div>	// Only operate the machine with the protective conductor connected							
	// Only operate the machine with complete casing	•	•	•		•	•	
	// Observe the manufacturer's specifications for the power supply							
	// Only operate the machine with the protective conductor connected							
	// Observe the manufacturer's specifications for the power supply				•			
	// Repair/component replacement only by qualified personnel							
	<div>⚠ DANGER ⚠</div>							
	<div></div> <div>Hazards due to flammable substances</div> <div>Fire</div>	// Regularly check tank for leaks						
// Preventing the tank from leaking or stopping it as quickly as possible		•	•	•		•	•	
// Avoid proximity to sources of fire or sparks								
// Regularly check tank for leaks								
	// Avoid proximity to sources of fire or sparks				•			
	// Repair/component replacement only by qualified personnel							
	<div>⚠ DANGER ⚠</div>							
	<div></div> <div>Danger due to falling machine/ packaging</div> <div>Crushing of parts of the body, being struck by heavy weight</div>	// Wearing protective equipment: Protective gloves and helmet						
// Transport with the aids provided		•						
// Observe the transport instructions								

Pictogram Description of residual risk	Countermeasure	Operating modes				
		Transport	Start-up	Normal operation	Fault/rectification	Servicing/maintenance
						Disassembly/disposal
⚠ WARNING ⚠						
 Hazards due to the use of incorrect spare parts Different consequences due to lack of compatibility	// Only use original parts from the manufacturer // Repair/component replacement by qualified personnel only // If you have any questions or doubts, contact specialists and/or the manufacturer				•	•
Risk due to non-compliance with personnel qualifications Improper handling or ignorance can lead to significant personal injury and/or property damage	// Observe required personnel qualifications // Repair/component replacement only by qualified personnel // If you have any questions or doubts, contact specialists and/or the manufacturer	•	•	•	•	•
Risk of oil splashing out In particular, eye injuries	// Only operate the machine when it is complete and adhere to maintenance cycles // Observe the required personnel qualifications. Repair/component replacement only by qualified personnel // If you have any questions or doubts, contact specialists and/or the manufacturer // Wear protective equipment (safety goggles) for repairs		•	•	•	•
Danger due to unexpected start-up Different consequences due to a lack of willingness	// Ensure mains disconnection by pulling out the power supply // Carry out maintenance work only on a machine that is disconnected from the power supply // Repair/component replacement only by qualified personnel		•	•	•	•

Pictogram Description of residual risk	Countermeasure	Operating modes					
		Transport	Start-up	Normal operation	Fault/rectification	Servicing/maintenance	Disassembly/disposal
Stopping the machine in an emergency Different consequences due to lack of opportunity	// No visual barrier for the emergency-off push button on the operating front // Press emergency-off push button (followed by mech. reset necessary) // Repair/component replacement only by qualified personnel		•	•	•	•	•
Hazards due to ineffective safety elements Different consequences due to lack of safety	// Only operate the machine when it is complete and adhere to maintenance cycles // Repair/component replacement/adjustment of safety elements only by qualified personnel		•	•	•	•	•
<div style="text-align: center;">  WARNING  </div>							
 Danger due to acceleration/braking Crushing of parts of the body	// Wearing protective equipment: Protective gloves and helmet // Transport of the packaging with the intended aids // Observe the instructions for transporting the packaged machine	•					
Hazards due to moving parts Crushing of parts of the body in pressing operation	// Only operate the machine in complete condition, including all protective devices and parts. // Observe the instructions for safe operation of the machine		•	•	•	•	
Hazards due to moving parts Crushing of parts of the body when inserting and removing parts	// Close the door carefully // Do not pinch fingers between fixed and hinged parts	•	•	•	•	•	•

Pictogram Description of residual risk	Countermeasure	Operating modes					
		Transport	Start-up	Normal operation	Fault/rectification	Servicing/maintenance	Disassembly/disposal
⚠ CAUTION ⚠							
 Danger due to leaking oil Slipping	<ul style="list-style-type: none">// Follow the instructions for filling/emptying the tank// Observe the maintenance cycles of the hydraulic components// Repair/component replacement only by qualified personnel// Wear protective equipment for repairs	•	•	•	•	•	•
⚠ CAUTION ⚠							
 Danger due to sharp edges/pointed areas Cutting and puncturing	// Observe the transport instructions	•					
	// Only operate the machine when it is complete		•	•			
	// Observe the instructions for safe operation of the machine						
	// Repair/component replacement only by qualified personnel				•	•	•
	// Wear protective equipment for repairs						
⚠ CAUTION ⚠							
 Hazard due to tipping machine/packaging Crushing of parts of the body, especially fingers/toes	// Observe the transport instructions	•					
	// Observe the installation location/workstation specifications						
	// Repair/component replacement only by qualified personnel	•	•	•	•	•	•
	// Wear protective equipment for repairs						

3. Device description

In section ▶ 3.1 [16], important components of the clamping unit are shown and named in a schematic overview. In addition, section ▶ 3.2 [17] shows a detailed drawing of the pressing head including important functional components. Based on the description of how the powRgrip® system works in section ▶ 3.3 [18], section ▶ 3.4 [18] provides a detailed functional description of the clamping unit.

3.1 Overall view of the clamping unit

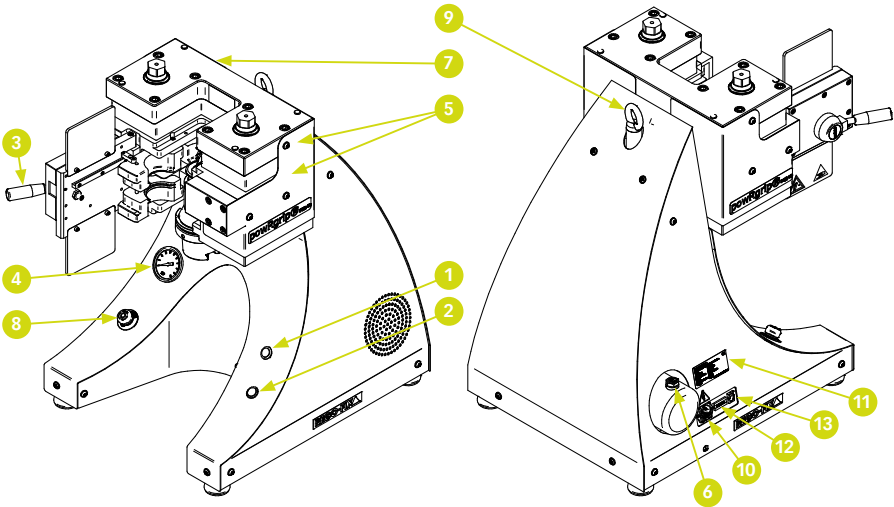


Figure 3.1
Schematic overview of the clamping unit including identification of important components.

1	"OUT" push button	8	Emergency stop button
2	"IN" push button	9	Eyebolt for transport
3	Door with locking lever	10	Device plug
4	Pressure gauge for hydraulic pressure	11	Type plate
5	Vent screw (2) under the cover	12	Cycle counter
6	Oil filler neck/hydraulic oil tank	13	ON/OFF rocker switch
7	Pressing head		

3.2 Overall view of the pressing head

Schematic overview of the pressing head including identification of important components.

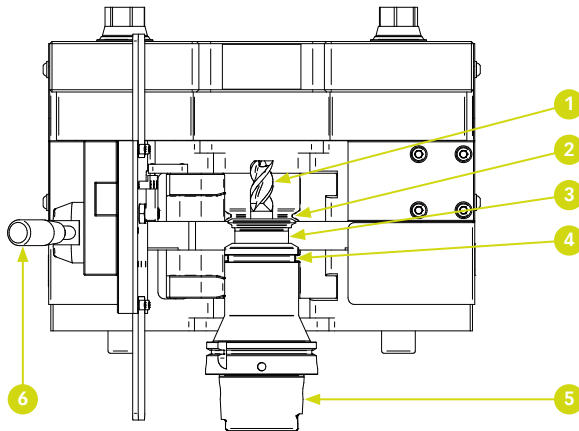


Figure 3.2a
Pressing-in insertion position.

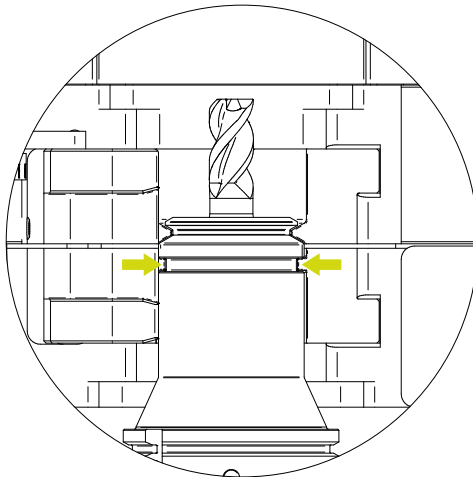


Figure 3.2b
Press-out insertion position

1	Cutting tool
2	Collet position below the pressing insert
3	Collet
4	Toolholder insertion position
5	Toolholder
6	Locking lever (vertical position closed; horizontal position open)

3.3 How the powRgrip® system works

The powRgrip® tool clamping system from REGO-FIX is used for fixing cutting tools with shanks in a toolholder provided for this purpose.

► Figure 3.3 (a) [18] shows the three components of the powRgrip® system: toolholder, collet and cutting tool, left in the unclamped state and right in the clamped state. In addition to this, ► Figure 3.3 (b) [18] a sectional view of the clamping area, at the top in the unclamped state and at the bottom in the clamped state.

In order to be able to apply the necessary compressive and tensile forces for clamping and unclamping, a hydraulic assembly press from REGO-FIX is used. One of the permissible assembly presses is the clamping unit PGS 48 described in these operating instructions.

Specifications regarding shaft tolerances must be taken into account for the collets, see section

► 6 [41].

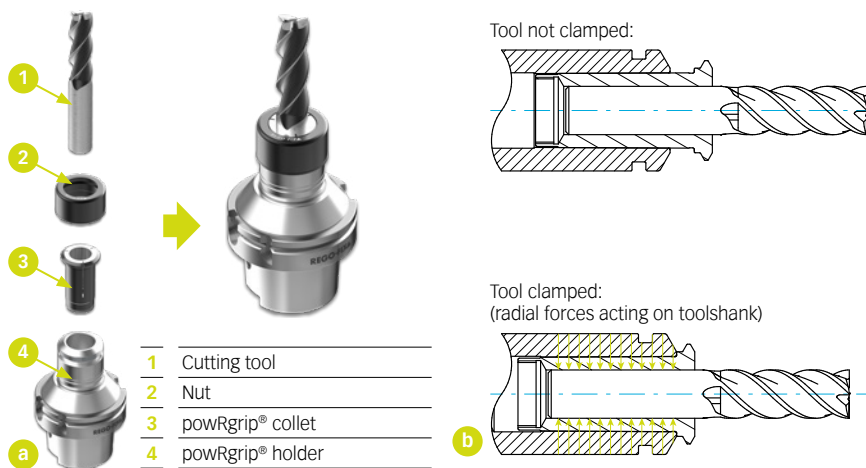


Figure 3.3

- a Presentation powRgrip® system
- b Schematic diagram clamping range

3.4 Functionality of the clamping unit PGS 48

The clamping unit, designed as a hydraulic assembly press, has an electrically operated drive unit. To switch between pressing in and pressing out, the pressing head must be moved. The positions are changed using buttons labeled "IN" and "OUT". For safety reasons, the respective button must be pressed continuously to move to the desired position. There are two mounting surfaces in the pressing head (Figure 3.2 a and b) which hold the toolholder in place via a groove provided for this purpose. In the process, the spindle interface of the toolholder always points downwards.

An emergency stop push button allows the entire clamping unit to be switched off immediately and safely. The clamping unit is now in error mode. To reset, the operator must release the emergency stop push button manually by turning it. Only then can a new pressing movement be started. However, this requires the error to be acknowledged by briefly pressing any LED button. The pressing movement can now be carried out by pressing and holding the corresponding LED button.

3.5 Labelling

A type plate (see ► [figure 3.5](#) [□ 19](#)) is attached to the rear of the clamping unit. In addition to the CE mark, it contains important information and manufacturer information.

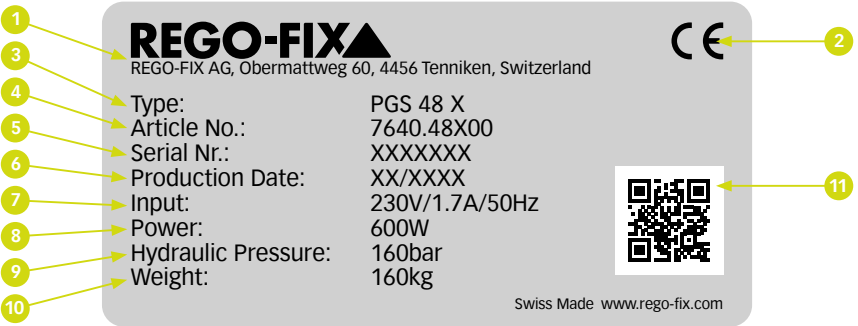


Figure 3.5
Exemplary illustration of the type plate incl. identification of important components.

1	Manufacturer and mailing address of the manufacturer	7	Electrical operating values
2	CE mark	8	Power
3	Machine type	9	Operating pressure
4	Article number	10	Weight of the clamping unit
5	Serial number	11	QR-Code REGO-FIX AG Website
6	Date of production		

NOTE	
	For spare parts orders as well as for technical support, please supply the information provided on the type plate.

3.6 Specifications

Description	Value	Unit
Dimensions and weight		
Machine Length (open door) × Width × Height	705 × 495 × 758	[mm]
Machine packaging Length × Width × Height	815 × 615 × 965	[mm]
Machine – Weight	160	[kg]
Machine with packaging – Weight	200	[kg]

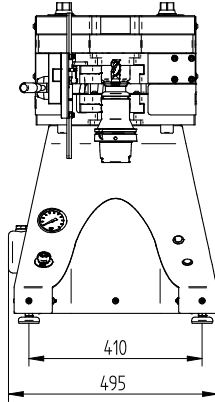
Benefits		
Connected load	600	[W]
Engine – efficiency class	IE2	[-]
Tank size/fill quantity	1 (1,6)	[l]
Operating pressure (max.)	160	[bar]
Temperature range	+10 to +40	[°C]
Emission level	<70	[dB(A)]
Earth leakage current	<10*)	[mA]

* The clamping unit complies with product standard DIN EN 60204-1. The measured earth leakage current is less than 10 mA.
For higher earth leakage current requirements, it is possible to connect a second protective conductor (A > 1.5 mm²) to the clamping unit (see ► figure 3.6 [□ 21]).

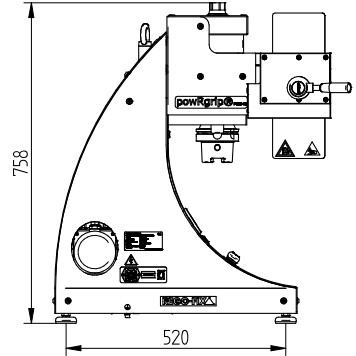
Equipment and auxiliary materials		
Hydraulic oil type	HLP ISO VG 32	[-]
Hydraulic oil quantity	1.6	[l]
Applicable clamping equipment	powRgrip® PG48	[-]

Supply, interfaces, connections		
Electrical power supply	(E) 230 V ±10% / 50 Hz (A) 115 V ±10%/ 60 Hz (J) 100 V ±10%/ 50-60 Hz	[-]
Appliance plug	(E) Schuko CEE-7/VII Type 12 (CH) (A) NEMA 5-15 (J) NEMA 5-15	[-]

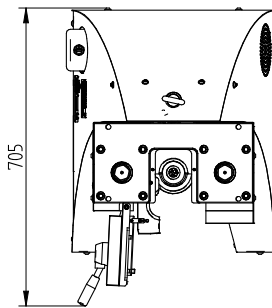
Front view



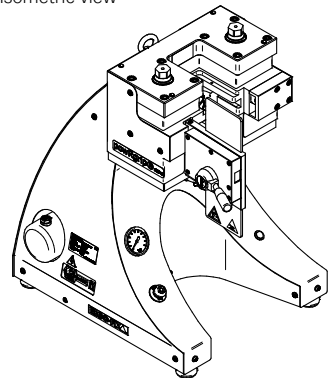
Left side view



Top view



Isometric view



Grounding connection screw

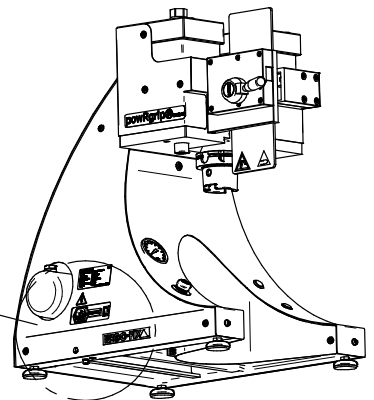
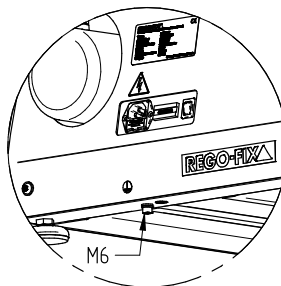


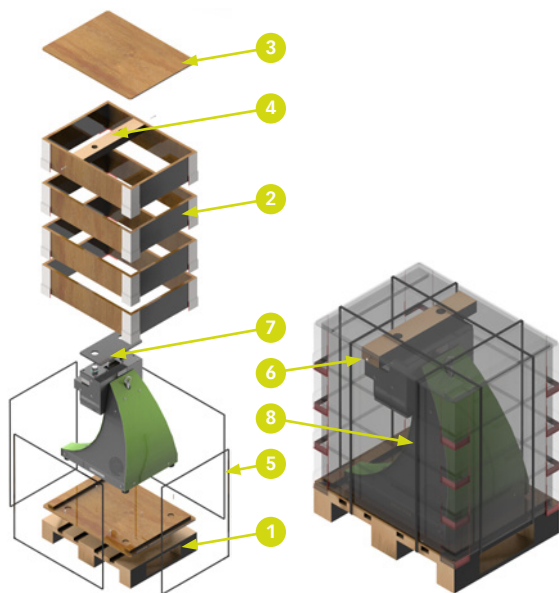
Figure 3.6

Dimensions of the clamping unit and connection option for a second protective conductor.

3.7 Delivered condition and packaging

The packaging of the machine for the first destination is carried out by the manufacturer. A packaging unit must not be overloaded or stacked. The packaging and contents must be protected from the effects of moisture and a transport temperature of between -20 °C and +40 °C must be maintained.

A schematic representation of the packaging, its dimensions and its components is shown in ► figure 3.7 (a) [22].







1	Disposable pallet 800 × 600 × 144 mm
2	Support frame 800 × 600 × 200 mm
3	Pallet cover 800 × 600 mm
4	Crossbar
5	Strapping
6	Fastening screws
7	Foam
8	Packed machine (as-delivered condition)

Figure 3.7

Schematic diagram of the packaging and the packaged machine, including identification of important components.

The following components are included in the scope of delivery:

- // 1× clamping unit PGS 48 (E, A or J) for the powRgrip® clamping system
- // 1× packaging incl. VCI protective cover
- // 1× original operating instructions (printed)
- // 1× country-specific power cable

NOTE			
	Even brief interim storage of the product in an aggressive humid environment can lead to corrosion or similar transport damage.		The packaged machine must not be stacked.
	Displays the top of the packaged machine.		Protect the packaged machine/ packaging from moisture.

If transport damage is discovered during the incoming goods inspection, the following steps must be carried out:

- // Recording of transport damage in a damage report
- // Notification of the carrier of the existence and nature of the damage
- // Notification of the supplier of the existence and nature of the damage

4. Operating modes

The different operating modes are explained below.

4.1 Transport

4.1.1 Personnel qualification

Technical specialists or specialist personnel are absolutely necessary for transport. More information on personnel qualification can be found in section ► 2.3 [8].



4.1.2 Residual risks

A list of the residual risks can be found in section ► 2.6 [12].

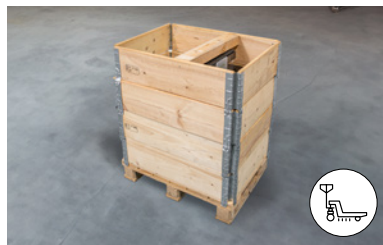
4.1.3 Description of the workstation and requirements for the installation location

The clamping unit is designed for operation on a workbench or a specially manufactured assembly unit (pay attention to weight). The clamping unit must be positioned in such a way that safe and long-lasting operation is guaranteed.




4.1.4 Transport of the packaged machine


NOTE	
	// Foot protection must be worn as protective equipment for transport on the ground
	// Wearing gloves is recommended

- // There is an underride option for a pallet truck
- // Ensure that the clamping unit does not tip over during lifting
- // Gently put down the pallet with the clamping unit



4.1.5 Transport by crane

NOTE	
	// Foot and head protection must be worn when transporting with a crane // Wearing gloves is recommended
	
	

NOTE	
	The device may only be transported by crane without a toolholder or cutting tool (risk of injury).

Step 1:

If necessary, fix the eyebolt at the point provided for this purpose.

Pull a carabiner through the eyebolt and fasten to the crane mount.

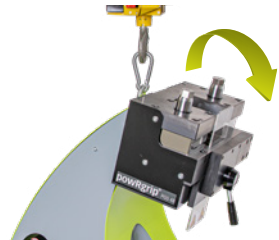
**Step 2:**

Lift the machine slowly with the crane.

Be careful when lifting; the eyebolt is not located at the machine's center of gravity. This leans slightly forwards.

Transport to the desired position and gently set down.

Avoid rocking and abrupt changes of direction.

**Step 3:**

If desired, the eyebolt can be removed for machine operation.

The eyebolt must be stored in case of subsequent transport.




4.2 Start-up

4.2.1 Personnel qualification


Commissioning can be carried out by operating personnel. More information on personnel qualifications can be found in section ► 2.3 [8].

4.2.2 Residual risks

A list of the residual risks can be found in section ► 2.6 [12].

NOTE	
	To prevent damage to the clamping equipment and the machine, a cutting tool must always be inserted when clamping powRgrip® collets (never clamp empty).

4.2.3 Important information on initial commissioning

NOTE	
	The following protective equipment must be worn for initial commissioning: Foot protection, eye protection

General specifications must be taken into account when selecting the installation location for commissioning the clamping unit. These are set out in section ► 2.2 [7].

Requirements for the machine operator are described in section ► 2.3 [8].

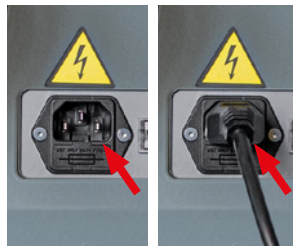
Transport damage is to be treated as described in section ► 3.7 [22]. The duty to report lies with the user. To start up the machine, first remove the complete packaging and section ► 4.1.3 [23] for the selection of the place of work/installation.

The supplied power cable is required to operate the machine. The manufacturer's requirements for the external power supply must be observed and guaranteed. Step-by-step instructions for initial commissioning are provided below.

The following elements of the machine must be visually inspected by the installation personnel and/or the user before commissioning.

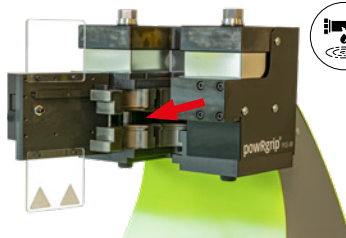
Control 1:

Check that the power cable and the socket with fuse (10 A, 250 V) are not damaged.



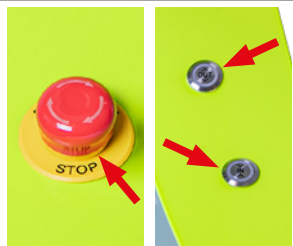
Control 2:

Check whether the leak-tightness of the machine is guaranteed (no leakage).



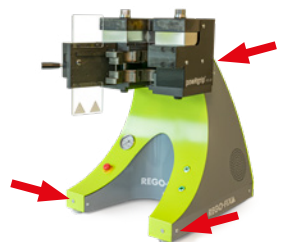
Control 3:

Check that the controls are not damaged and that the emergency-off push button is not actuated.



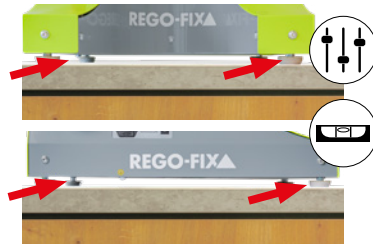
Control 4:

Check that all casing elements are correctly installed and that no screws are missing.



Control 5:

Check if the device is standing level on the selected surface. If necessary, correct the tilt of the instrument by turning the feet in/out.



4.2.4 Instructions for initial commissioning

Step 1:

Set up the machine at the workstation in compliance with the requirements in section ► 4.1.3 [23].



Step 2:

Plug the power cable into the C14 appliance plug on the side of the appliance and connect to the external power supply.

Details about the connector can be found in section ► 3.6 [20].



Step 3:

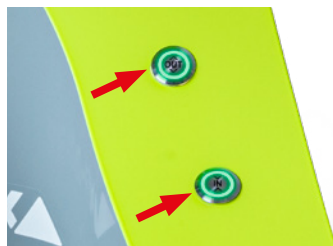
Switch on the clamping unit using the rocker switch (on the left side of the device).

Both buttons flash green.

→ Select the press-in or press-out mode as required. To do this, press and hold the corresponding LED button until the hydraulic unit switches off.

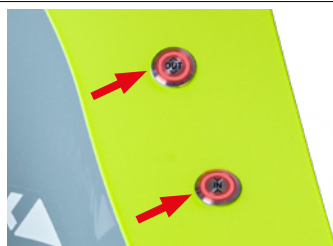
If you accidentally press the button only briefly or release it during movement, this will result in an error. The machine flashes red with both buttons. To acknowledge the error, briefly press any button.

Then you can proceed again.



Step 4:

If the buttons continue to light up red, there is an error and the clamping unit is not ready for operation. More information on troubleshooting and fault rectification can be found in chapter ► 4.4 [34].









4.3 Normal operation

4.3.1 Personnel qualification




Normal operation can be carried out by operating personnel. More information on personnel qualification can be found in section ► 2.3 [□ 8].

4.3.2 Residual risks

A list of the residual risks can be found in section ► 2.6 [□ 12].

NOTE	
	To prevent damage to the clamping equipment and the clamping unit, a cutting tool must always be inserted when clamping powRgrip® collets (never clamp empty).
	Even brief interim storage of the clamping unit in an aggressive humid environment can lead to corrosion or similar damage.
	Min./max. clamping lengths for cutting tool shafts according to specifications in section ► 6 [□ 41]. The clamped cutting tool must always rest against the adjusting screw of the collet on the rear side.
	Before each pressing-in procedure, the clamping equipment and the cutting tool to be clamped must be cleaned according to the specifications in section ► 5 [□ 40].
	The collet must be pressed into the toolholder to stop. There must be no visible gap between the collet and the toolholder. If there is a gap, in particular the maximum holding force, the transmittable torque and the concentricity can be negatively affected.
	Only tool shafts with a diameter tolerance of h6 or more precisely may be clamped. Clamping tool shafts with too much undersize can permanently damage the collets.

4.3.3 Instructions for pressing in cutting tools

 WARNING 	
	<p>// During a pressing cycle, the hydraulic system is under pressure (160 bar). The door may only be opened after the pressing process has been completed (see step 5). Opening the door interrupts the pressing process. The system switches to depressurized and an error message appears. The clamping equipment can either be removed or the pressing cycle can be completed with the door closed after acknowledging the error.</p> <p>// In an emergency, press the Emergency-Off push button.</p>

Step 1:

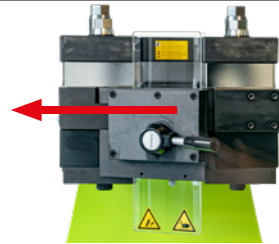
Press and hold the "IN" push button until you hear the hydraulic unit switch off. The system is now in the "IN" starting position.

- ▲ The push button changes from a flashing to a permanently illuminated green light signal
- ▲ The pressure gauge no longer indicates oil pressure (0 bar).



Step 2:

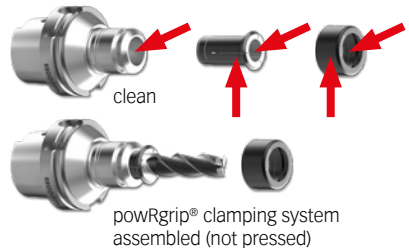
Open the door on the powRgrip® clamping unit. To do this, move the locking lever to the horizontal position.



Step 3:

Prepare the powRgrip® clamping equipment and the cutting tool to be clamped and clean according to the specifications in section ► 5 [40].

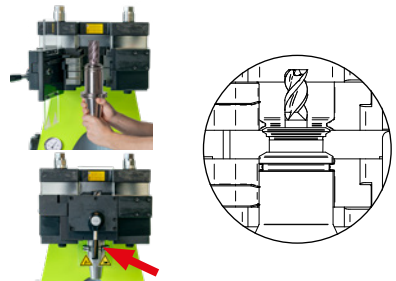
Specifications for the clamping length and for the tool geometry according to section ► 6 [41].



Step 4:

Insert the powRgrip® toolholder with collet chuck and cutting tool into the powRgrip® clamping unit.

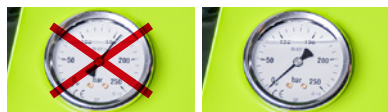
Close the door on the powRgrip® clamping unit and lock it in the vertical position with the lever.



Step 5:

Press and hold the "IN" push button.
The pressing process is complete when the following conditions are met:

- ▲ The push button changes from a flashing to a permanently illuminated green light signal
- ▲ The hydraulic unit has audibly switched off.
- ▲ The pressure gauge no longer indicates oil pressure (0 bar).



Once the press-fitting process is complete, the powRgrip® clamping unit returns to the "IN" starting position.

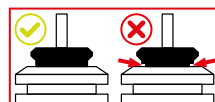
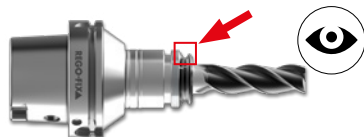
To remove the toolholder, secure it with one hand. Then open the door and carefully remove the toolholder from the clamping unit using two hands.



Step 6:

Check if the collet is pressed to the stop (no gap between the collet and the toolholder).
If a gap is visible, remove the collet as described in section ► 4.3.4 [32] and clean both the holder retainer and the collet (section ► 5 [40]).

Then repeat the clamping process.



Step 7:




Fit the secuRgrip® nut and tighten to a tightening torque of 120 Nm using a torque wrench and the tool mounting block or Torco block.

NOTE	
	<p>The use of a secuRgrip® nut is mandatory.</p>

The cutting tool is now securely clamped in the toolholder and ready for use in the machine tool.



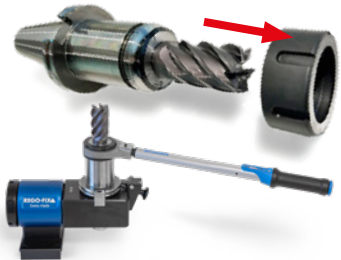
4.3.4 Instructions for pressing out cutting tools

 WARNING 	
	<p>// During a pressing cycle, the hydraulic system is under pressure (160 bar). The door may only be opened after the pressing process has been completed (see step 5). Opening the door interrupts the pressing process. The system switches to depressurized and an error message appears. The clamping equipment can either be removed or the pressing cycle can be completed with the door closed after acknowledging the error.</p> <p>// In an emergency, press the Emergency-Off push button.</p>

Step 1:

Loosen the secuRgrip® nut using a torque wrench and the tool mounting block or Torco block.

Unscrew the nut completely and set it aside.



Step 2:

Press and hold the "OUT" push button. The system moves to the "OUT" starting position.

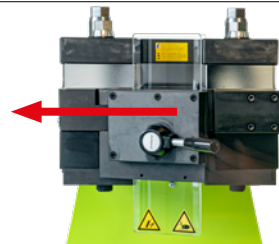
The process is considered complete when the following conditions are met:

- ▲ The push button changes from a flashing to a permanently illuminated green light signal
- ▲ The hydraulic unit has audibly switched off.
- ▲ The pressure gauge no longer indicates oil pressure (0 bar).



Step 3:

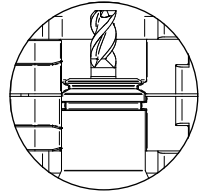
Open the door on the powRgrip® clamping unit. To do this, move the locking lever to the horizontal position.



Step 4:

Insert the powRgrip® toolholder with collet chuck and cutting tool into the powRgrip® clamping unit.

Close the door on the powRgrip® clamping unit. To do this, move the lever to the vertical position. Meanwhile, secure the toolholder with one hand.



Step 5:

Press and hold the “OUT” push button. The pressing process is complete when the following conditions are met:

- ▲ The push button changes from a flashing to a permanently illuminated green light signal
- ▲ The hydraulic unit has audibly switched off.
- ▲ The pressure gauge no longer indicates oil pressure (0 bar).

Once the pressing process is complete, the powRgrip® clamping unit returns to the “OUT” starting position.

To remove the toolholder, secure it with one hand. Then open the door and carefully remove the toolholder from the clamping unit using both hands.

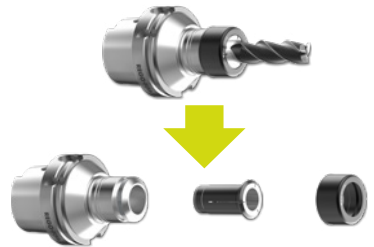


Step 6:

Remove the released collet and tool from the toolholder one after the other.

Before the next clamping, observe the cleaning specifications in section ► 5 [40].

Protect against corrosion during storage.



4.3.5 Decommissioning of the clamping unit

In the event of a brief interruption (e.g. overnight or over the weekend), the main switch of the clamping unit must be switched off.

The following points must be observed if the clamping unit is not used for a prolonged period of time, during machine maintenance or a planned machine transport:

- // Switch off the main switch of the clamping unit.
- // Disconnect the main plug of the clamping unit (main disconnect device).
- // There must be no hydraulic pressure in the system (check the pressure gauge).

The following points must be observed when shutting down the clamping unit:

- // The procedure is the same as for long periods of non-use. In addition, the hydraulic oil must be removed from the tank and the system and disposed of properly.

4.4 Troubleshooting and problem solving

4.4.1 Personnel qualification

Troubleshooting and problem solving can be carried out by operating or specialist personnel. More information on personnel qualification can be found in section ► 2.3 [8].

4.4.2 Residual risks

A list of the residual risks can be found in section ► 2.6 [12].

4.4.3 Display of errors/faults

As soon as an error/fault occurs, both buttons light up continuously.



Pressing the emergency stop push button leads to an error. This depressurizes the machine. As soon as the situation allows the device to continue operating, the emergency stop push button must first be released mechanically and the fault acknowledged by briefly pressing an LED button.

NOTE



This section outlines some error cases and measures to remedy them. However, detailed repair instructions, especially for defective components, are not included here, as these repairs must be carried out by appropriate specialist personnel.

4.4.4 Error – door sensor

A proximity sensor is installed in the pressing head, which enables the machine control unit to check whether the door is open or closed. The following errors may occur:

Possible cause	Remedy	Qualification
The pressing cycle is started with the door open/not completely closed.	Close the door and acknowledge the error by briefly pressing any button.	Operating personnel
The door is opened while the pressing cycle is running. The pressing process is interrupted when opening.	To restart the pressing process, select press-in or press-out mode as required. To do this, press and hold the corresponding LED button until the hydraulic unit switches off.	
Error cannot be rectified by acknowledging it. The proximity sensor may be defective. Other causes are a defective control unit or faults/damage in the wiring of the machine.	Send request to support sales partner or manufacturer for repair.	Specialist personnel
The pressing head cannot be closed or can no longer be closed completely.	Foreign objects are trapped between the inserts in the pressing head or the door → Clean.	Operating personnel

4.4.5 Error – Pressing force

When a clamping or unclamping process is started, pressure is built up by the hydraulic system. If this pressure is not reached within a specified period of time, an error message appears. The following errors may occur:

Possible cause	Remedy	Qualification
There is too little hydraulic oil in the tank of the clamping unit. The pressure cannot be built up.	Top up hydraulic oil. ⚠ DANGER ⚠ Only when disconnected from the power supply.	Operating personnel
The hydraulic oil is too dirty and must be replaced.	Replace hydraulic oil. ⚠ DANGER ⚠ Only when disconnected from the power supply.	Specialist personnel

Possible cause	Remedy	Qualification
It is possible that air has entered the hydraulic circuit.	To vent, loosen the screw slightly and then unscrew it slowly and gradually while the pressing process is initiated. The air escapes together with a small amount of oil, and the lower screw is used for venting during the press-fit process. The top screw is used for venting during the pressing process. Chapter ▶ 3.1 [16] , item 5.	Specialist personnel
<div style="background-color: red; color: white; text-align: center; padding: 5px;"> DANGER </div> <p>Risk of eye injury when unscrewing the screws.</p>		
Possibly defective electrical components	Troubleshooting and replacement of defective (sub-) components.	Specialist personnel
Pressure sensor defective. The machine does not reach the required pressure → Cycle time is exceeded.	Check the connection to the pressure sensor. Replacement of the pressure sensor.	Specialist personnel

4.4.6 Error – control system

The machine is controlled by a frequency converter with a programmable logic controller (PLC).

To evaluate details about the fault type, the control unit must be read out by specialist personnel.

However, as the cause of such a fault is often related to the electrical power supply and the ambient conditions, some measures that can be taken by the operating personnel are listed below.

Possible cause	Remedy	Qualification
There may be an overvoltage or undervoltage.	Compliance with the specifications for the electrical power supply: (E) 230 V ±10% / 50 Hz (A) 115 V ±10% / 60 Hz (J) 100 V ±10% / 50 -60 Hz	Operating personnel
Residual current circuit breaker (FI) reacts.	Design infrastructure for a maximum earth leakage current of <10 mA.	Operating personnel, specialist personnel
The (ambient) temperatures may be too high/too low.	Compliance with temperature specifications. +10°C to +40°C	Operating personnel

Possible cause	Remedy	Qualification
It is possible that the pressure sensor is defective, does not give a signal or is not connected correctly.	Support enquiry from sales partner or manufacturer, if necessary check and replace defective parts.	Specialist personnel
There may be an internal fault of the frequency inverter.	Support enquiry from sales partner or manufacturer, if necessary check and replace defective parts.	Specialist personnel

NOTE	
	<p>For spare parts orders as well as for technical support, please supply the information provided on the type plate.</p>

4.4.7 Other errors

Possible cause	Remedy	Qualification
<p>An error occurs, but the buttons do not light up red and do not indicate an error.</p> <p>The LED buttons are defective.</p>	Enquiry support distributor or manufacturer for repair.	Specialist personnel
<p>A tool cannot be clamped or released despite correctly built-up pressure.</p> <p>Faulty or dirty clamping equipment.</p>	Clean the clamping equipment and check the specifications for the clampable tools.	Operating personnel

4.5 Servicing and maintenance

4.5.1 Personnel qualification

Maintenance and servicing work can be carried out by operating or qualified personnel. More information on personnel qualification can be found in section ► 2.3 [8].

4.5.2 Residual risks

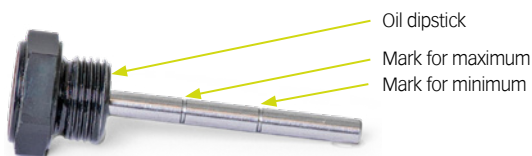
A list of the residual risks for the “Maintenance and maintenance” mode can be found in section ► 2.6 [12].

4.5.3 Maintenance schedule

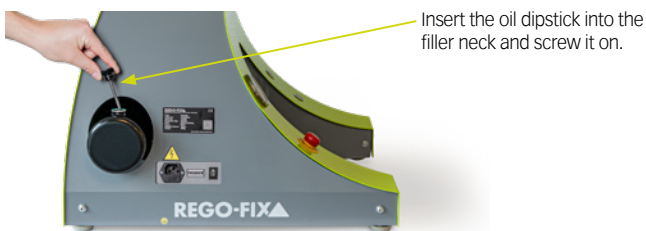
Various maintenance and servicing tasks have to be performed in order to maintain safe operation of the clamping unit. Details of individual servicing and servicing work, including information on the time intervals, are given below. This information relates to a single-shift operation and must be adapted or shortened accordingly in the case of multi-shift operation. All maintenance and servicing tasks must always be carried out while the machine is at a standstill (mains is disconnected and the system is depressurised, the pressure gauge must display 0 bar).

Component	Inspection/replacement	Inspection/maintenance task	Qualification
Clamping equipment (holder and clamping tool)	Before each pressing-in process	Clean according to the instructions in section ► 5 [40].	Operating personnel
Screw connections in general	Ongoing	In general, pay attention to loose parts and unusual noises.	Operating personnel
Instrument cladding and pressing area	Weekly	Clean with a soft cloth and all-purpose cleaner.	Operating personnel
Pressing head	Ongoing or weekly	Increased occurrence of oil indicates leaks. Protect hardened and black-finished parts from corrosion. Clean the outside of the head and then oil it.	Operating personnel
Hydraulic unit	Ongoing or annually	Visual inspection of hydraulic unit and lines for leaks.	Specialist personnel
Hoses and fittings	Check annually, replace hydraulic hoses every 5 years	Check hoses and fittings for leaks. If necessary, change the hydraulic components.	Specialist personnel

Component	Inspection/replacement	Inspection/maintenance task	Qualification
Check oil level	Weekly		Operating personnel



The oil level must be between the two marks for minimum and maximum. If the oil level is too low, oil must be topped up!



4.6 Disassembly and disposal

4.6.1 Personnel qualification

Disassembly and disposal must be carried out by qualified personnel. Further information on personnel qualification can be found in section ► 2.3 [8].

4.6.2 Residual risks

A list of the residual risks can be found in section ► 2.6 [12].

NOTE



Observe local disposal regulations.

5. powRgrip® cleaning instructions



Clean the powRgrip® collet holder manually on the inside with a clean cloth. Insert the cloth into the holder with one or two fingers and wipe the entire inner taper along its length and circumference.



Degreasing / cleaning powRgrip® collet. Dip in clean, oil soluble solvent, (e.g. alcohol, cold cleaner).



Clean tool shank by dipping in clean, oil soluble solvent, (e.g. alcohol, cold cleaner).



Dry off solvent with oil-free compressed air. Insert tool into collet.



Insert tool into collet. Insert toolholder assembly into powRgrip® unit and press in collet.

Cleaning of PG 48 holders is done using a clean cloth that can remove dirt as well as residues of coolant and lubricant.



Do not press in the collet without a tool. Pressing in collets without a tool will destroy the collet!

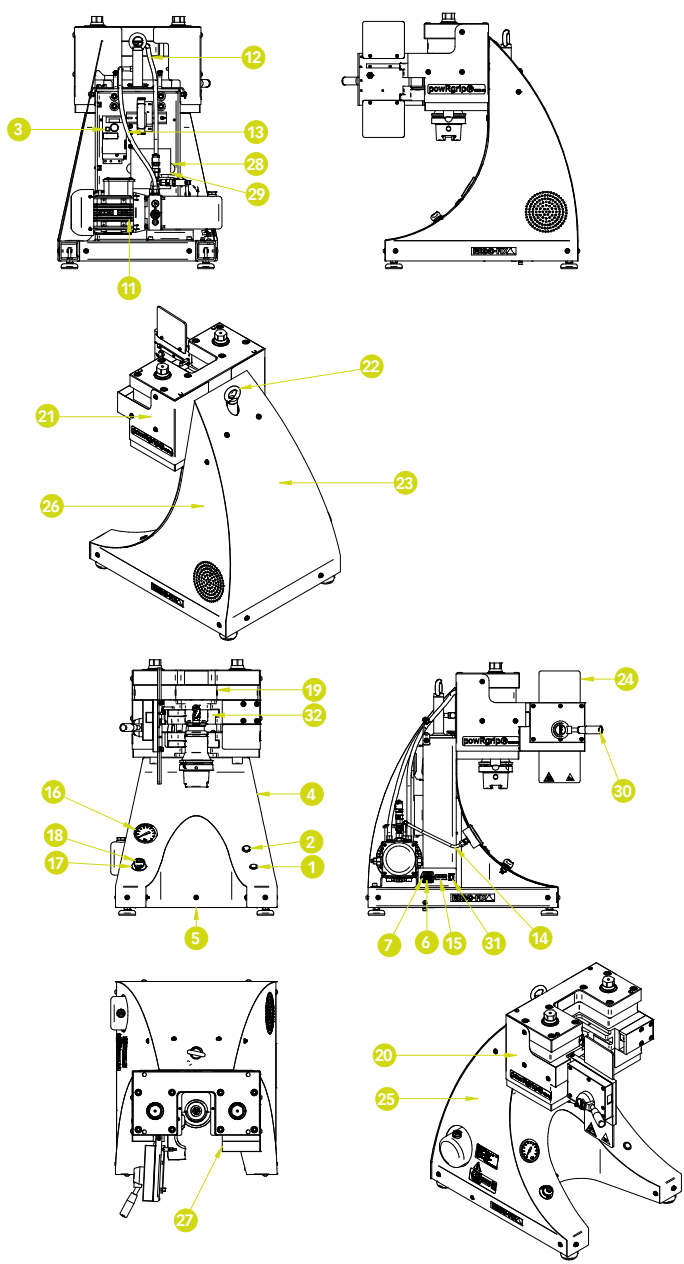
6. Technical data powRgrip®

Further user information, such as clamping lengths and cleaning guidelines, is available via QR code.



7. Spare parts

7.1 Drawing and parts list



For more information on wearing parts and spare parts, please contact your dealer or manufacturer with the serial number.

Position	Part no.	Description
1	600014330	Push button with "IN" light
2	600014331	Push button with "OUT" light
3	600006308	Frequency inverter
4	032003647	Front panel 1
5	032003649	Front panel 2
6	767456949	Device fuse
7	767000413	Device plug socket
8	031000028	Device plug, Germany
9	031000027	Device plug, Switzerland
10	600006665	Device plug, US
11	600008122	Hydraulic power unit
12	600010541	Hydraulic hose 1
13	600010539	Hydraulic hose 2
14	600010542	Hydraulic hose 3 to pressure gauge
15	767000419	Cycle counter
16	032003684	Pressure gauge
17	032003686	Emergency stop sign
18	767000863	Emergency stop push button
19	032003531	Pressing head cover, inside
20	032003530	Pressing head cover, left
21	032003529	Pressing head cover, right
22	032003680	Eyebolt
23	032003648	Back plate
24	600012586	PG48 spare parts set protective glass
25	032003643	Side panel, left
26	032003642	Side panel, right
27	031005061	Safety switch
28	767000448	Sinusoidal choke filter 230 V for 764048000 (E)
29	767000401	Transformer 115 V for 764048100 (A)/100 V for 764048200 (J)
30	032003591	Door lever
31	767000414	Rocker switch On/Off
32	600012194	PG48 APG spare parts set

7.2 APG (powRgrip® adapter) installation/removal instructions

NOTE

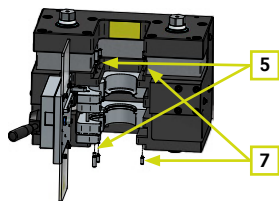


An APG is changed as a set: Part no. 600012194

Disassembly of the APG

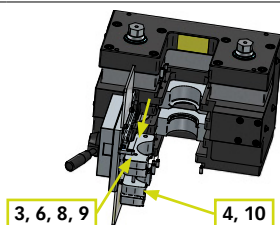
Step 1:

Loosen the grub screws (7) and the hinge pins (5) at the top and bottom.



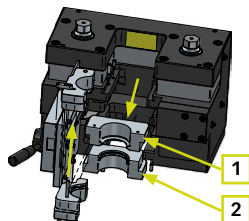
Step 2:

Pull out the two front APG halves (4, 10).



Step 3:

Separate the two front halves (4, 10) and successively remove the two rear APG halves (1, 2).



Sub-parts list SET:

Item	Quantity	Name
1	1	Upper rear adapter insert
2	1	Lower rear adapter insert
3	1	Upper front adapter insert
4	1	Lower front adapter insert
5	2	Hinge pin
6	1	Guide key
7	4	Grub screw ISO4028 M6x18
8	1	Socket head cap screw ISO4762 M4x12
9	2	Dowel pin ISO8734 Ø4h6x12
10	1	Dowel pin ISO8734 Ø6m6x60

Assembly of the APG

Assembly is carried out in reverse order.

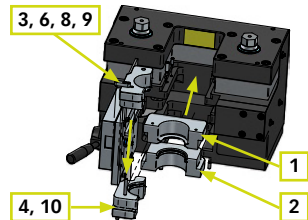
NOTE



All sliding surfaces (such as grooves, etc.) in the press plates and guide pins must be well greased (lithium grease).

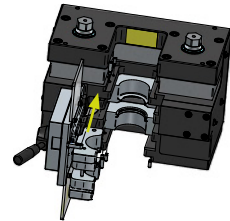
Step 1:

Insert the two rear halves (1, 2) and assemble the two front halves (4, 10).



Step 2:

The guide block (6) with straight shank (9) must be mounted in the guide groove provided in the door. Then insert the two front halves (4, 10) into the device.

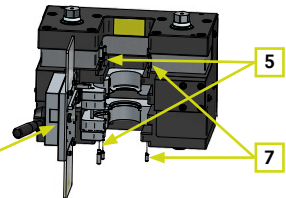


Step 3:

Tighten the grub screws and hinge pins on the top and bottom.

Follow the tightening torque instructions!

Note on adjusting the grub screws:
There are two grub screws in the door that serve as a mechanical stop. It may be necessary to adjust these grub screws when installing the new APG. It must be possible to close the door completely. The APG must not move when closed.

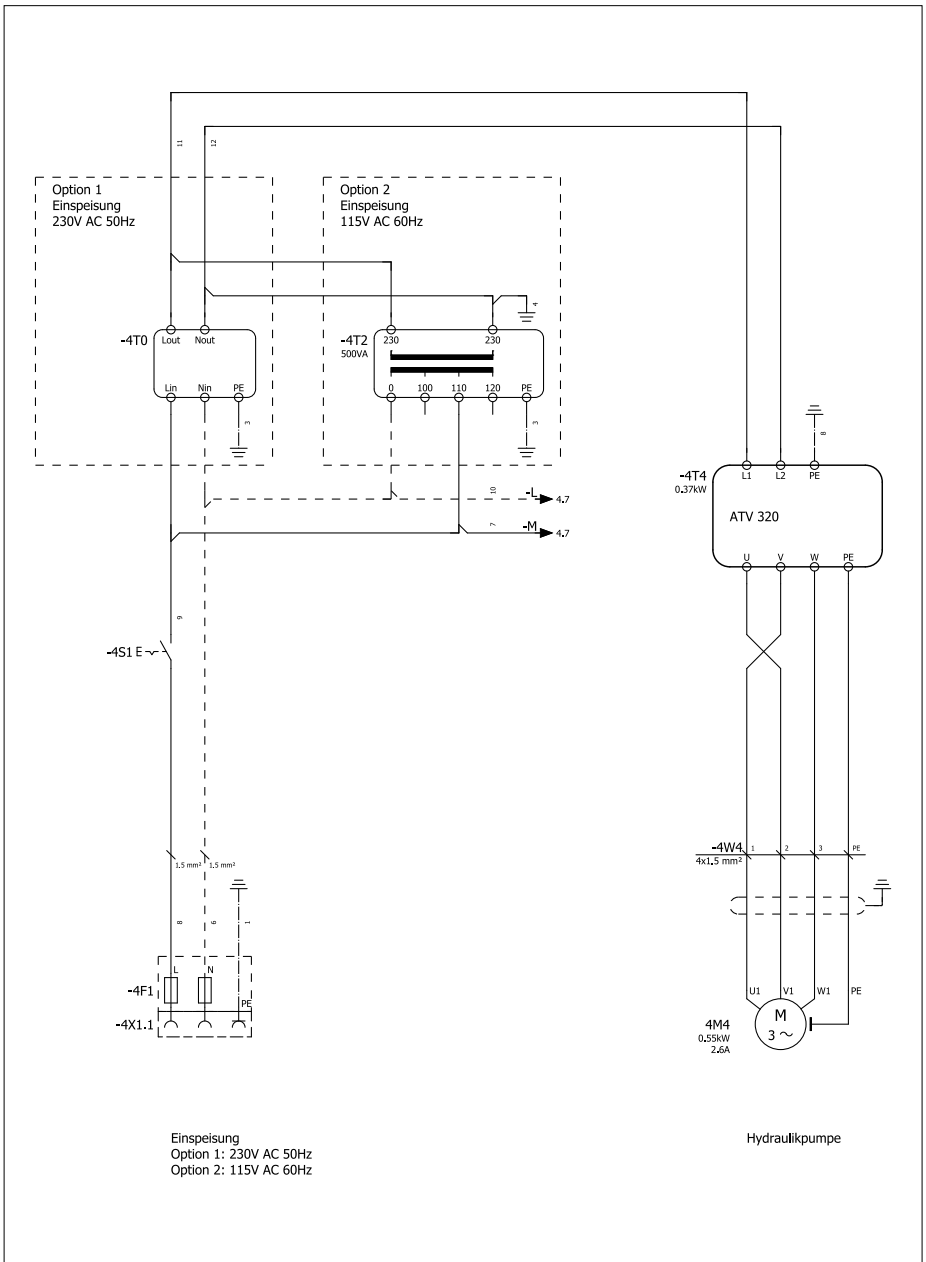


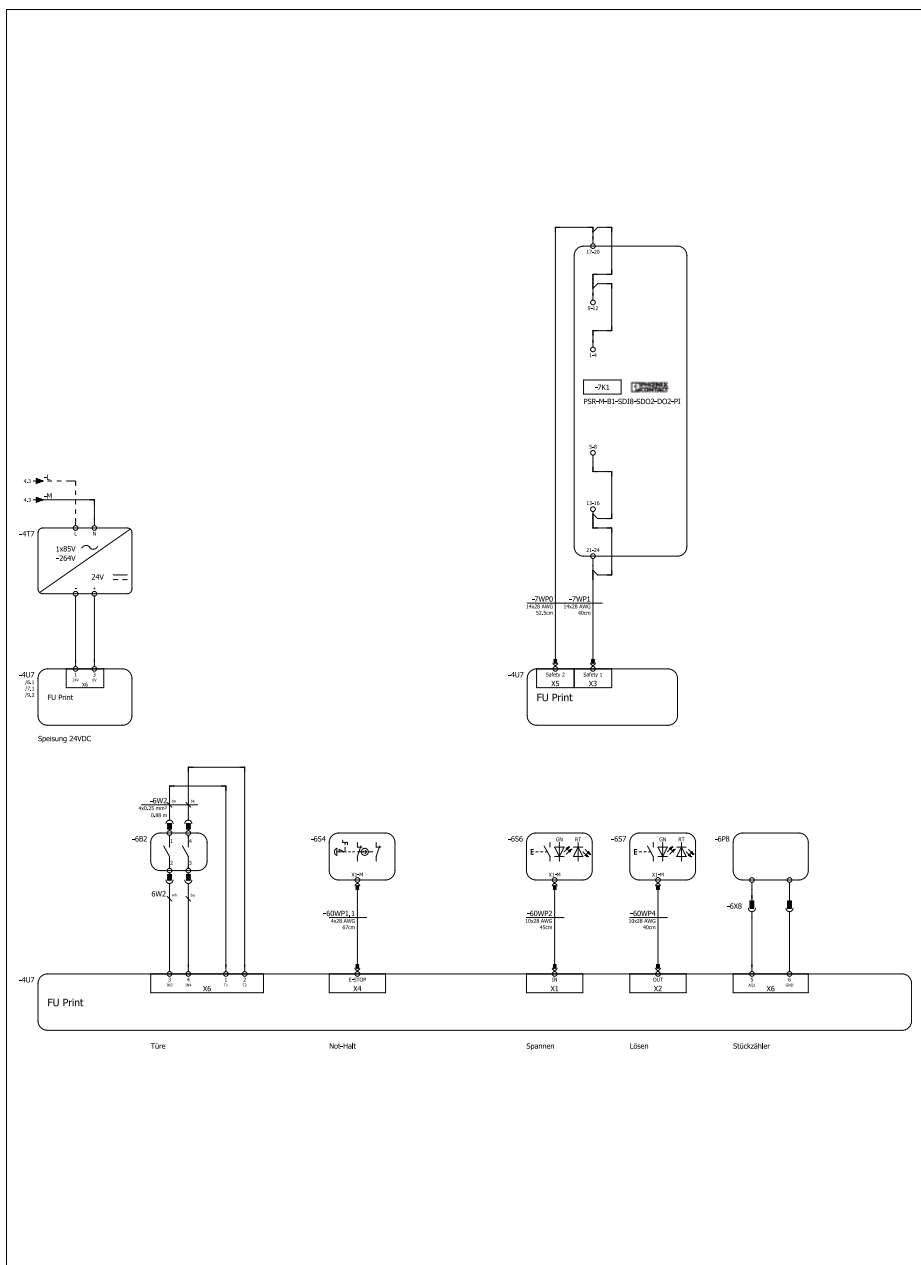
Tightening torques

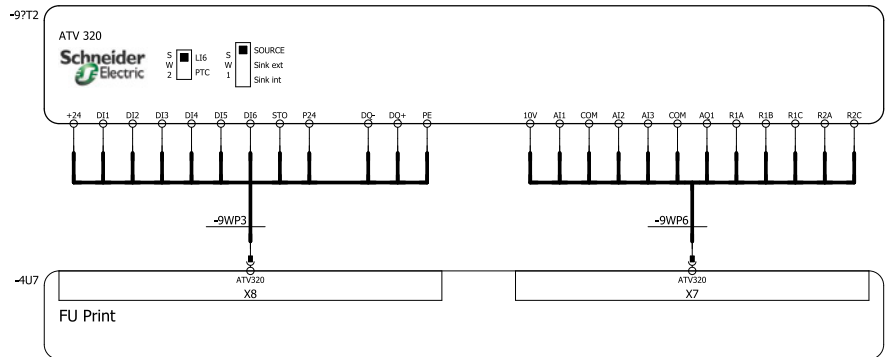
Tighten item **5** hinge pin to 15 Nm and secure with screw adhesive. Recommendation LOCTITE® 242.

Screw in item **7** grub screw M6 as far as it will go, then loosen by half a turn. The pins must not be tightened; they only serve to protect against pulling out. Secure with screw adhesive. Recommendation LOCTITE® 242.

8.2 Electrical diagram







FU Ansteuerung

9. EC Declaration of Conformity

EC Declaration of Conformity

The manufacturer REGO-FIX AG, Obermattweg 60, 4456 Tenniken, Switzerland hereby declares that the following machine

Product:	Clamping unit PGS 48 for the powRgrip® clamping system
Machine type:	PGS 48 (E/A/J)
Trade name:	powRgrip® PGS 48
Position:	Hydraulic assembly press for clamping and loosening cutting tools using powRgrip® technology

complies with the essential health and safety requirements of the **Machinery Directive (2006/42/EC)**.

Furthermore, the basic health and safety requirements in accordance with the following guidelines are met:

▲ **Electromagnetic Compatibility Directive (2014/30/EU)**

Assessment of conformity according to 2006/42/EC with internal production control.
Carrying out risk assessment and risk mitigation in accordance with DIN EN 12100.

This declaration refers to the condition of the machine at the time it was placed on the market.
Subsequent adaptations, modifications or other interventions in the machine are expressly excluded and require a new declaration of conformity.

Authorised representative for compiling the technical documentation:

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Tenniken, 20.11.2024

10. Technical data sheet hydraulic oil

Technical datasheet



COREX HLP 32

Industrial and hydraulic oil

Description

Paraffinic base and solvent-refined quality mineral oils that are refined with innovative and highly efficient additives are used to manufacture COREX HLP – a range of unparalleled lubricants that fulfil the various requirements, specifications and classifications of all well-known manufacturers as well as all relevant standards.

Product features

- universal use
- high level of wear protection
- optimum corrosion protection
- good seal compatibility
- outstanding anti-foaming behaviour
- Good low-temperature behavior

Field of application

COREX HLP 32 is used for a wide range of applications in industrial systems, working equipment, commercial vehicles and machine tools. It is also suitable for lubricating slide bearings and roller bearings, industrial transmission compressors and vacuum pumps, etc.

Specifications

DIN 51524-2 HLP, ISO 6743-4 HM

Technical Data

Properties	Test according to	Unit	Values
Colour			yellow
Viscosity			ISO VG 32
Density at 20 °C		g/cm ³	0.863
Viscosity at 40°C	DIN 51562-1	mm ² /s	32.0
Viscosity at 100°C	DIN 51562-1	mm ² /s	5.8
Viscosity index	DIN ISO 2909		109.0
Flash point	DIN EN ISO 2592	°C	> 200
Pourpoint	ASTM D5950	°C	-33

The above information corresponds to the current state of our knowledge. We reserve the right to make changes. The performance characteristics indicated are based on testing and production tolerances standard in this industry. A safety data sheet is available.

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