REHAU

Unlimited Polymer Solutions*



RAUTOOL A-LIGHT2 KOMBI

DE BEDIENUNGSANLEITUNG/TECHNISCHE INFORMATION

EN OPERATING INSTRUCTIONS/TECHNICAL INFORMATION

FR MODE D'EMPLOI/INFORMATION TECHNIQUE

IT ISTRUZIONI PER L'USO/INFORMAZION TECNICHE

Valid from 2015

*Des solutions polymères à l'infini

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Construction

Automotive

Industry

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SAFETY WARNINGS

The tool is intended to be used with original REHAU supplementary sets for machining all REHAU compression sleeve systems in the size range 12 (16) – 40 mm.



Read all safety warnings and assembly instructions before using the tool.



Follow these operating instructions and always keep the safety warnings with the tool.
In addition to the operating instructions, always observe generally applicable statutory and other binding regulations relating to the prevention of and protection against accidents.

General safety warnings:

1. Keep your workplace clean and free of obstructions. Make sure there is always sufficient light.
2. Keep children, pets and unauthorised persons away from the place at which you are working.
3. Wear suitable working clothing. Do not wear loosely fitting clothes or jewellery! They may get caught in moving parts. Wear a hairnet if you have long hair. Use goggles.
4. Do not touch moving parts (risk of trapping fingers)!.
5. Be alert! Only use the tool if you have received instructions in using it.
6. Keep your tools in a safe place. When not in use, tools should be kept in dry, closed rooms out of the reach of children.
7. The tool is suitable for creating REHAU compression sleeve joints only. Do not use the tool for other purposes!
8. Only operate the tool with original REHAU parts and accessories.
9. Maintenance and repair work should be done only in a service center authorised by REHAU. We will not be responsible for any work performed by an unauthorised person. The addresses of authorised service centers can be found in the attachment or they can be obtained from your REHAU sales office.

General tool-specific safety warnings:

1. Keep the tool, the batteries and the charger away from moisture, extreme heat, oil and solvents. The charger is only intended for use in dry, indoor rooms. It must not be used outdoors.
2. Never operate the tool in an environment presenting the risk of fire or explosion! Do not burn the tool!
3. Before use, examine the tool and accessories for damage or defects (for example, cracks in the cable insulation, oil leaks from the tool, bent compression cylinders, damage or visible wear of the jaw sets, etc). Check whether the moving parts are in proper working order, that they are not jammed and that parts are not damaged. All parts must be correctly assembled and satisfy all of the conditions to ensure proper tool operation.
4. Never work with a damaged tool or accessory! Immediately send the damaged tool to the nearest service center.
5. The battery may only be charged using the charger supplied. Using a different battery or different charger may cause an explosion.
6. At every tool alteration (replacement of jaw sets) remove the battery from the tool to prevent unintended actuation.
7. Make sure that the rechargeable battery contacts cannot be shorted by metal objects, such as screws, instruments, nails, etc. A short circuit between the battery contacts can cause burns or fire.
8. When charging, only use one-phase alternating current at the voltage indicated on the power rating label.
9. Do not insert foreign objects into the ventilation grills on the charger!
10. To prevent the motor from overheating, do not operate at maximum pressure for any prolonged period! The tool is not suited for long-term use. After about 50 consecutive compressions, it should be made to rest for at least 15 min. to allow it to cool.
11. Do not burn the tool, charger or rechargeable batteries! Rechargeable batteries may explode and flare up.
12. As a result of improper use, liquid can leak from the battery. Avoid contact with this liquid. In the event of inadvertent contact, rinse off with water. Should the liquid enter the eyes, obtain medical assistance as well.



Processing at temperatures under -10 °C and over +45 °C may result in damage to jointing components, to the tool and/or in personal injury!
- Do not work below the minimum processing temperature of -10 °C!
- At lower temperatures (below 0 °C) it is recommended that the jointing components be stored in a warm environment before being processed.



REHAU will not accept any liability for damage or injury attributable to unsafe product use, poor maintenance or improper product and system usage.
For planning and assembly kindly use our current Technical Information brochure. You can obtain the up-to-date brochure from your wholesale dealer, your REHAU sales office or by downloading from www.rehau.com.

REPLACEMENT PARTS / ACCESSORIES

RAUTOOL A-light2 combi
Mat.-No. 1217478 1001
- Base tool A-light2 combi
- Charger (for Rautool spare rechargeable battery 18 V)
- Rechargeable battery Li-Ion 18 V/1,3 Ah
- Pipe cutter 40 stabil
- Lubricant
- Cleaning brush
- Operating instructions
- System case



Detailed descriptions of the accessories/replacement parts can be found in the corresponding current Technical Information/Operating Instructions.

Accessories, charger 230 V
(Plug EU standard [EN 50075])
Mat.-No. 1203609 1001
for RAUTOOL
Rechargeable batteries 18 V



Accessories, Li-ion battery 18 V/1.3 Ah
Mat.-No. 1203619 1001
for RAUTOOL
A-light2/A-light2 Kombi / Xpand QC



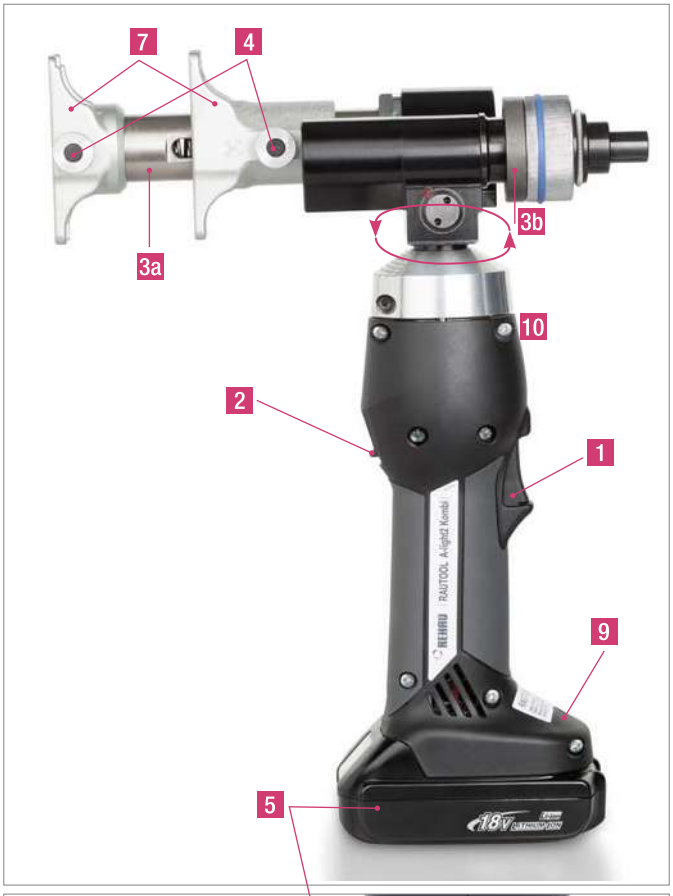
TECHNICAL DATA / EQUIPMENT DESCRIPTION

Technical data

Max. working pressure:	450 bar
Max. shear force:	18 kN (linear)
Mains voltage battery charger:	230 V/50 Hz
Battery voltage:	18 V
Battery capacity:	1.3 Ah
Battery technology:	Lithium-ion
Battery charge time:	approx. 22 mins.
Hydraulic oil:	Rivolta S.B.H. 11
Ambient temperature:	-10 °C to +45 °C
Noise level:	70 dB (A) at 1 m distance
Vibrations:	< 2,5 m/s² (weighted effective value of the acceleration)
Weight:	approx. 2.4 kg (basic tool with battery)

Gerätebeschreibung und Funktionsprinzip

Item. No.	Tool elements	Function
1	Operating switch	Actuating the compression process
2	Reset knob	Slider for opening the release valve for returning the tool to its starting position
3a	Compression cylinder	Compression unit working unit to retain the jaw sets (rotatable by 360°)
3b	Expansion cylinder	Quick Change retainer for expansion cylinders for RO systems (thread) and QC® (bayonet)
4	Pins	Used to fasten the jaw sets to the compression cylinder
5	Battery	Rechargeable Li-ion battery
6	Battery locking	Release knob for the battery
7	Jaw set	Rotatable double jaw set for two sizes
8	Red LED	Information on the battery charge levels and tool maintenance
9	White LED	LED for workplace lighting
10	Change-over unit	Head rotation to preselect the working unit Right position (in the direction of the operating switch) working unit will be automatically activated (here: expander unit)





TOOL PREPARATION

Charging the battery

Caution! Risk of injury!
Improper handling of the tool may result in personal injury and/or material damage

- To charge the battery, only use one-phase alternating current at the voltage indicated on the power rating label
- Charge the battery only by using the charger provided. Using a different battery or different charger may cause an explosion
- Never operate the charger in an environment presenting the risk of fire or explosion
- Do not expose the charger to rain or snow
- After charging or before any cleaning, disconnect the charger from the power source
- Make sure that the battery contacts cannot be shorted by metal objects, such as screws, instruments, nails etc. (for example, by carrying them in the pockets of your pants or the like)

To charge the battery, connect the charger to the electric power mains and push the battery securely into the charger. Charging takes about 22 minutes. The battery charge level is indicated by the LEDs on the charger.



Description of the LED display on the charger

○	☀	○	Green LED flashes	Charger ready for use
☀	○	○	Red LED flashes	Charging delayed, battery cooling
●	○	○	Red LED displays a steady light	Battery charging, charged level less than 80 %
●	●	○	Green and red LEDs display a steady light	Battery charging, charged level 80-100 %
○	●	○	Green LED displays a steady light	Battery is full, charger automatically switches to trickle charge. The battery can stay in the charger for approx. 24 hours without being damaged. Depending on the setting, a melody will sound once when the battery is full.
☀	☀	○	Red and green LED flash alternately	A malfunction exists. The battery cannot be charged. The contacts of the charger or of the battery may be dirty or the battery is worn out or damaged. Clean contacts.
○	○	○	Yellow LED displays a steady light	Conditioning charge of the battery to prevent the battery from wearing out quickly. This can occur when the battery is inserted into the charger at high or low temperatures or when it is completely charged or completely empty.
○	○	☀	Yellow LED flashes	Cooling fan malfunction. The battery can still be charged. Clean vents. If malfunction occurs often, send the charger in for maintenance or repair.

Only charge the battery at a room temperature of 10 °C to 40 °C. If you want to charge a hot or too cold battery, the red LED may flash. A battery which is too hot can remain in the charger, charging will begin when the battery has cooled down. A battery which is too cold, however, should be removed from the charger. Wait until the battery has reached room temperature. Charging will begin after the battery has warmed up or cooled down.

Description of the LED display on the tool

The light-emitting diode together with the electronic control system serves to provide information about the battery charge levels and the tool.



2 x	☀		○	🔈	**Self-test!**	When the battery is inserted, the light-emitting diode flashes a few times. This means that the electronic control is performing its self-test satisfactorily. Attention! Wait approx. 30 seconds between removing the empty battery and inserting a charged one so that the self-test can be carried out.
20 s	●		○	🔈	**Battery is flat!**	If the diode displays a steady light for about 20 seconds after a work operation, this means that the battery is empty and needs to be charged..
20 s/2 Hz	☀		○	🔈	**Service!**	If the diode flashes for about 20 seconds upon completion of a work operation, this means that maintenance needs to be carried out (after 20,000 joints). The tool should be sent to the REHAU service center as soon as possible.
20 s 20 s/2 Hz	● ☀		○	🔈	**Battery is flat!** **Service!**	If the LED lights up for 20 seconds and then flashes, this means that the battery is flat and also that maintenance is due.
20 s/5 Hz	☀		○	🔈	**Overheating!**	If the diode flashes quickly for about 20 seconds, this means that the tool is overheated. Allow for the device to cool down before using it again.
1x	☀		○	🔊	**Warning!** **Pressing force!**	If the light-emitting diode flashes once and emits a signal tone during the compression process, either the necessary pressing force was not reached or the pressing process was manually interrupted. The joint made in the compression process may not have been created properly and must be inspected.
3x	☀	3x	☼	🔊	**Warning!** **Serious malfunction!**	If the light-emitting diodes and the workspace lighting flash three times and if a signal tone is emitted at the same time during the compression process, there is a serious malfunction. The pressing force is not being reached when the motor is running. The joint made in this compression process may not have been created properly and must be inspected! The tool should be sent to the REHAU service center for repair as soon as possible. Should this malfunction occur three times in succession, the device will switch to malfunction and will need to be sent to the REHAU service center for repair.

USING THE TOOL

Caution! Risk of injury.
Improper handling of the REHAU tool may result in personal injury and/ or material damage.

- Only use REHAU expander heads of the RO system [standard since 1996 (18° circular mandrel)] or QC® expander heads
- Ensure that whenever expander heads are changed, the expander heads are screwed on properly or locked in securely!
- Check the expander heads and the tool for damage or visible wear prior to every use.
  Damaged tools or tool components must no longer be used or are to be sent for repair to an authorised service centre immediately!

The RAUTOOL Xpand QC can be used with QC® expander heads and REHAU expander heads with a thread.
Always return the tool to the initial position to change the expander heads (mandrel retracted) and always screw on heads properly. Use expander heads matching the pipe dimension (e.g. 16 x 2.2).
Insert QC® expander heads onto the bayonet retainer up to the stop and securely lock in with a rotating movement. The expander head locks in automatically in the correct position.

Always return the tool to the initial position to screw on the expander heads (mandrel retracted), always screw on heads properly. Use expander heads matching the pipe dimension (e.g. 16 x 2.2).

Always insert the expander head fully into the pipe all the way up to the stop!

Expanding tool

Expander:
When screwing on expander heads open expander completely (> 90° position). Always screw expander heads fully on. Use expander heads that conform to the pipe dimensions (for example, 16 x 2.2).



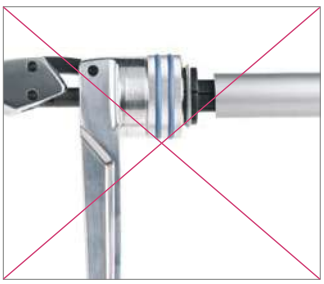
Expanding function
Rotate the expanding unit in the direction of the operating switch, the cylinder will be automatically activated. The mandrel must be in starting position (retracted) to change the expander heads.



Expanderbit:
Attention! When inserting the expander bit for hydraulic expanding, fully click the correspondingly sized expander bit into the respective compression jaws and check for fit (clamping).



Attention:
As a matter of principle, always insert the expanding tool into the pipe up to the stop.



1. When changing the compression jaws, always first push the long compression jaw and then the short one onto the tool cylinder.



2. Fix the compression jaws with the pins.

Attention:

Ensure the identical alignment of the double jaws (for example, size 25)! Always push the pins in all the way!



3. The compression jaw sets can be brought into the correct position by rotating the tool



4. To insert the battery, push it completely into the holder until it locks into position on its own.



5. Expanding function

Rotate the expanding unit in the direction of the operating switch. The expanding unit will be automatically activated.



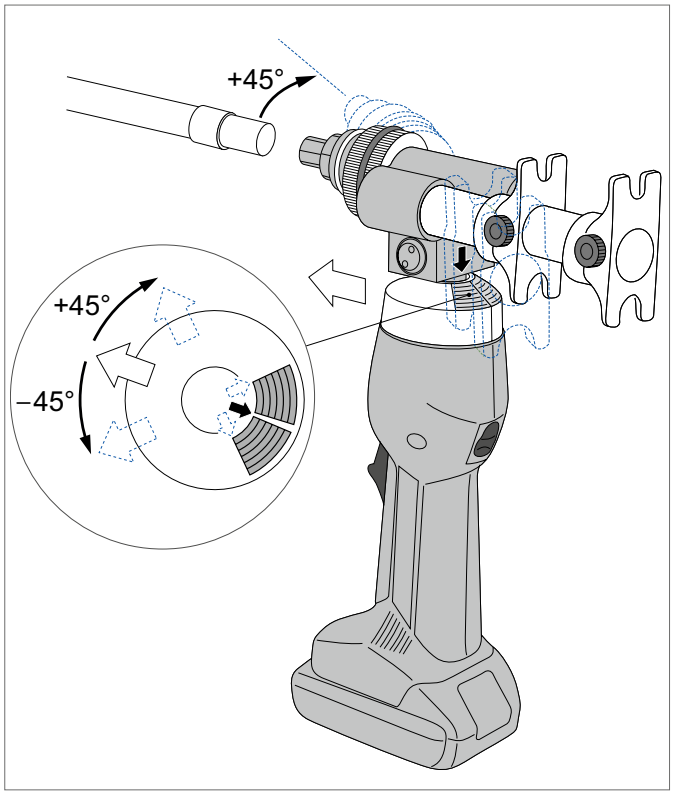
6. Compression function

Rotate the compression unit in the direction of the operating switch => compression function.

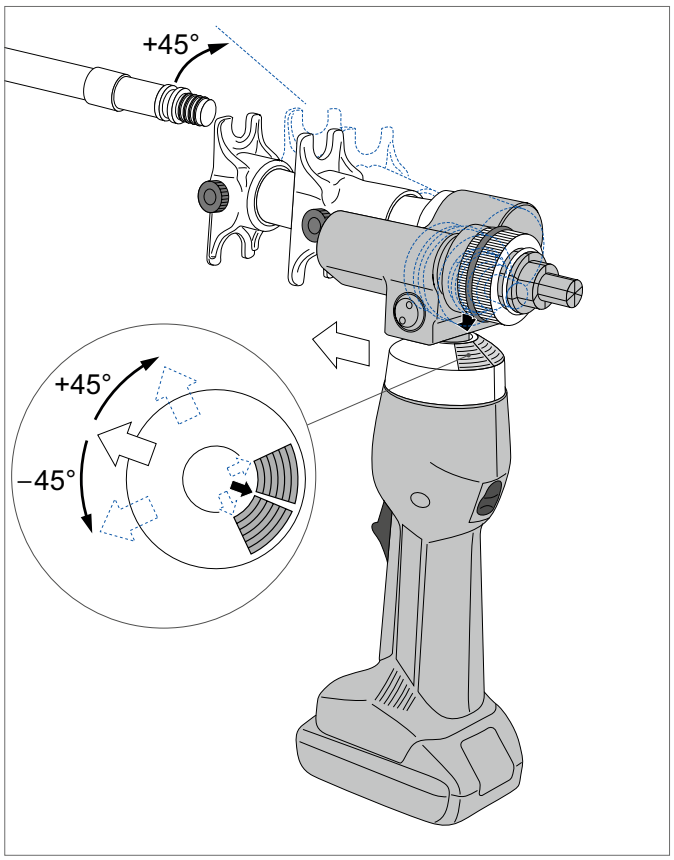


WORKING AREA / CHANGE OF FUNCTION

Clear working area (only expanding function) of the tool. Arrow in the area of the marking (+/- 45° swing range)



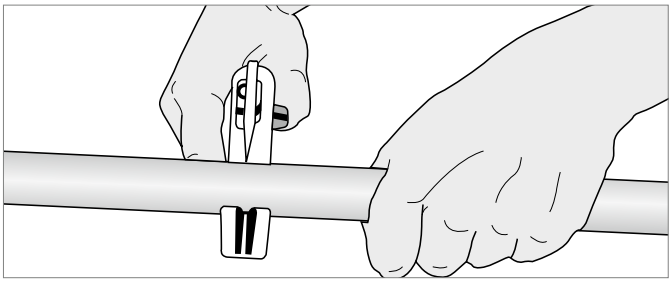
Clear working area (only compression function) of the tool. Arrow in the area of the marking (+/- 45° swing range)



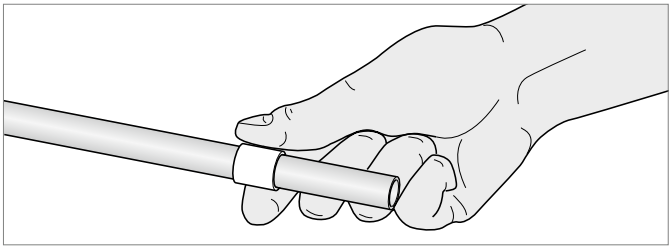
ASSEMBLY PROCEDURE

Compression sleeve
Failure to observe these instructions may result in damage to the jointing system, to the tool and in personal injury

1. Using pipe cutters, cut pipe to required length at right angles and without leaving burrs.
Attention:
Keep your hand at a safe distance from the tool. Do not use saws, or similar!

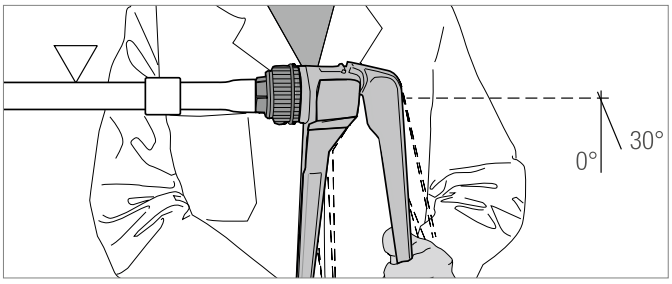


2. Slide compression sleeve onto pipe.
Attention:
With metal compression sleeves, the inside taper must point towards the joint!



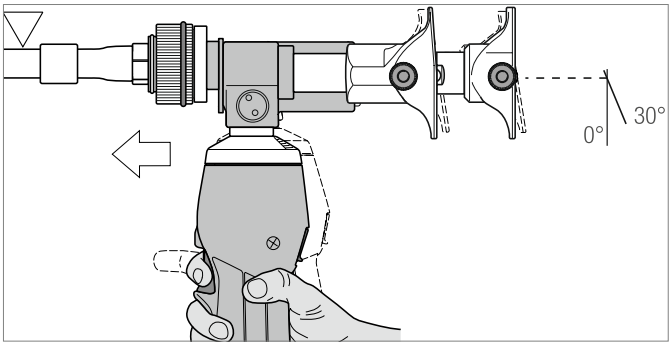
3a. Expansion using expanders:
Expand pipe, rotate 30°, and repeat.
The min. distance between expander head and compression sleeve must be two compression sleeve lengths.

Do not tilt the pipe when expanding! Do not expand under bending stress!



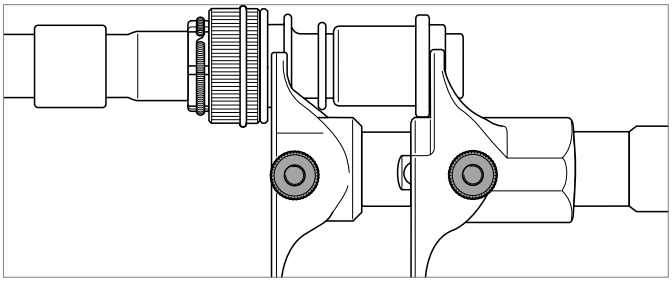
3b. Expansion using expanding unit:
Rotate the expanding unit in the direction of the operating switch (activating expanding function), expand pipe, rotate by 30° and repeat.
During this process observe a minimum distance (two compression sleeve lengths) between the expansion head and compression sleeve

Do not tilt pipes during expansion!
Do not subject the pipe to bending stress during expansion!



3c. Expansion using expanding unit
Rotate the expanding unit in the direction of the operating switch (activating expanding function), expand pipe, rotate by 30° and repeat.
During this process observe a minimum distance (two compression sleeve lengths) between the expansion head and compression sleeve.

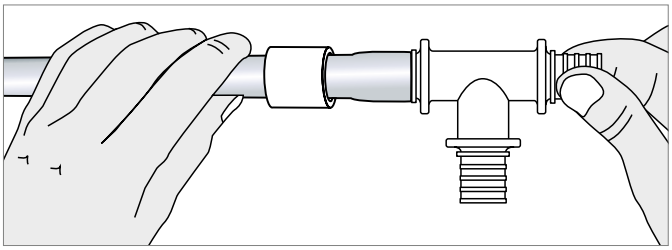
Do not tilt the pipe when expanding! Do not expand under bending stress!



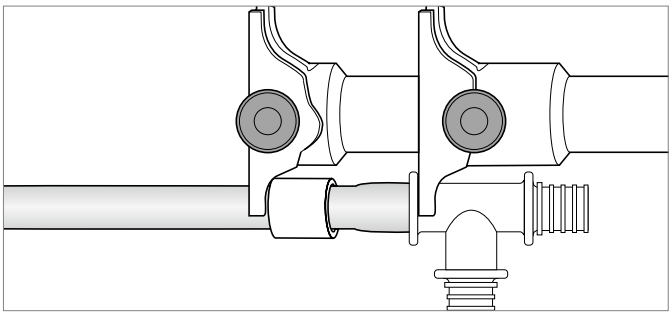
4. Insert fitting into pipe up to the stop. After a brief period, the fitting will sit tightly in the pipe (memory effect).

Attention:

All sealing ribs must be covered. Until the memory effect sets in fully, the fitting can fall out of the pipe! Make sure to seat the fitting in level position.



5. Rotate the compression unit in the direction of the operating switch (activating compression function).



Fully insert the joint into the compression unit.

Attention:

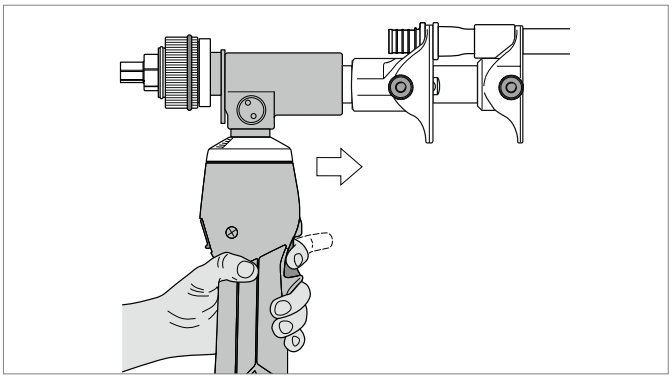
Do not tilt. The tool must be applied across the entire surface and at a right angle.

6. Start the compression process by pressing the operating switch and slide the compression sleeve up to the fitting collar.

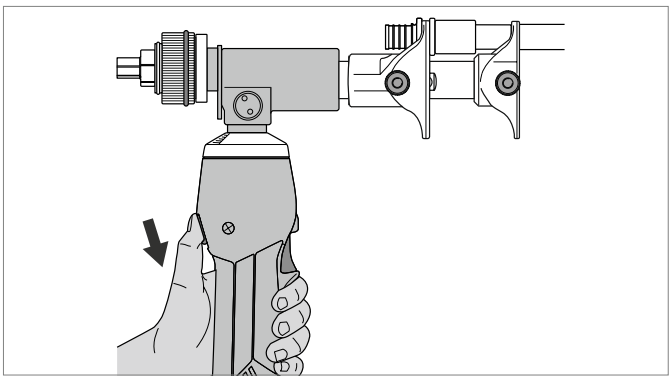
Attention!

Do not touch moving parts (risk of trapping fingers!)

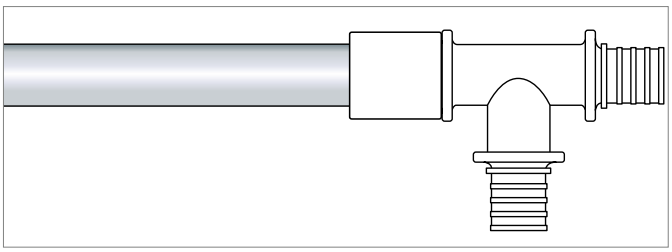
The compression process can be interrupted at any time by releasing the operating switch.



7. The tool comes equipped with a semi-automatic release valve. If the tool is moved to its final position for a prolonged period or used again after arriving at its final position, the tool will automatically return to its starting position. Furthermore, the tool can be manually returned to its starting position if the release valve is actuated (black button opposite the operating switch).



8. Completely compressed compression sleeve joint.



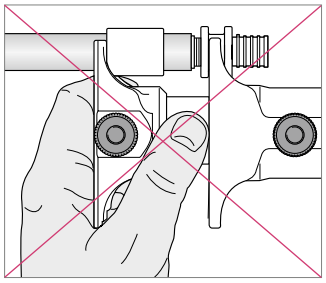
Processing at temperatures under -10 °C and over +45 °C may result in damage to jointing components, to the tool and/or in personal injury!

- **Do not work below the minimum processing temperature of -10°C!**
- **At lower temperatures (below 0 °C) it is recommended that the jointing components be stored in a warm environment before being processed.**

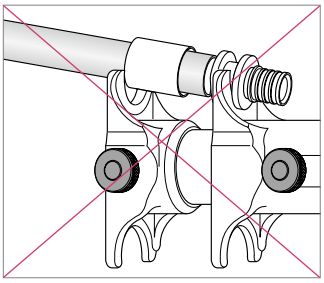
IMPORTANT NOTES

Compression sleeve
Failure to observe these instructions may result in material damage and/or personal injury!

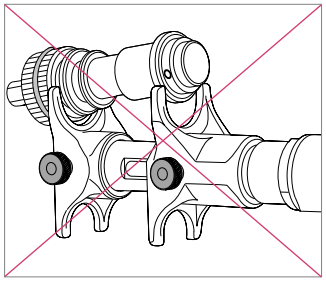
Attention:
Do not touch moving parts (risk of trapping fingers!



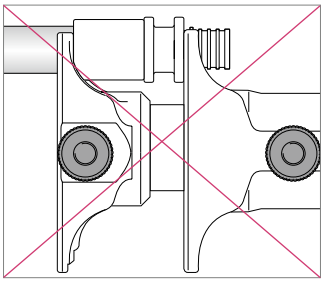
Always apply clamping jaws or jointing technique at right angles, making sure they completely contact the entire surface.



When using an expander bit, check to make sure that the seating (fully inside the jaws) and clamping action of the bit in the jaws are correct (to avoid falling out).

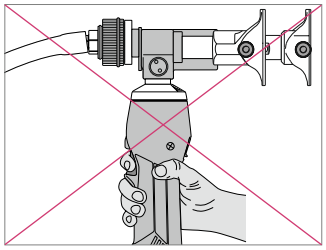


Make sure the fitting is correctly seated in the tool. Applying the tool to the wrong fitting collar will overcompress the joint!

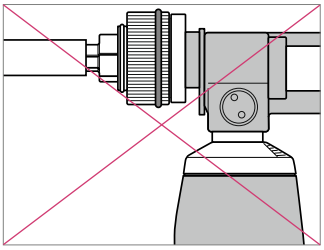


Failure to observe these instructions may result in material damage.

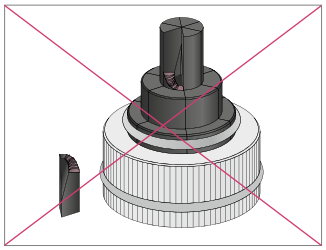
Attention:
Do not expand the pipe under bending stress!
Expanding tool and pipe axis must be identical in the expansion area (approx. three compression sleeve lengths): if necessary, readjust the pipe by bending.



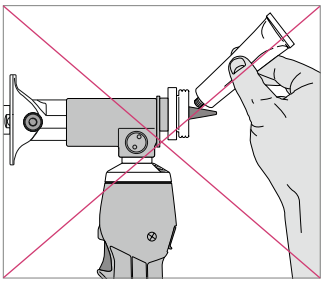
As a matter of principle, always insert the expanding tool into the pipe up to the stop.
Do not tilt the expanding tool!



Never work with a damaged expander head as this will damage the pipe! Replacements are available from your dealer or from the REHAU sales office.



Regularly grease the expander taper (tube of lubricant included). To avoid excess grease entering the pipe, do not grease the taper too much.
Attention:
Do not grease the expander segments that are in contact with the pipe!

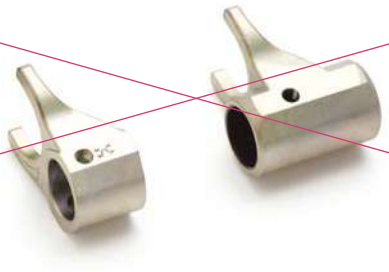


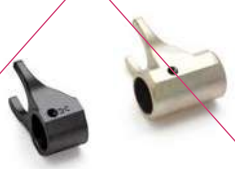
IMPORTANT NOTES RAUTITAN

Compatibility dimension 40

NEW **Ø 40**		**Ø 40**
1201801 1001 1201803 1001		+  + 

Under no circumstances!

OLD **Ø 40**		**Ø 40**
1137805 1001 1138223 1001		+ 

1201801 1001 1201803 1001		
1137805 1001 1138223 1001		

MAINTENANCE NOTES

Regular inspection:

Risk of injury!
Always remove the battery or unplug from the mains before cleaning and inspection.

- Always keep jaw sets, expanding tools and cylinders clean. When soiled, clean them with a brush and oil them. Then store the tool in a dry place.
- Before every use, check the jaw sets, expanding tools and the A-light2 basic tool for damage or visible wear. Damaged tools must not be used anymore and should immediately be sent to an authorised service center for repair.
- Make sure that the jaw sets are fully applied across the whole surface and at a right angle during the compression process, and the compression sleeve is inserted up to the fitting collar.
- Regularly grease the expanding tool tapers. Do not apply grease to the surface of expander segments! Should excess grease reach the expander segments, the segments must be thoroughly cleaned (e.g. cleaning solvent) and then dried.

Repairs:

Risk of accident!
Do not perform any repairs on the tool yourself! Repairs should only be carried out by an authorised service center.

Storage:
Never store the tool if wet! Dry the tool and grease it. Then store it in a dry place.
As a matter of principle, store the tool in its final position (extended cylinder or jaw sets) to extend its service life.

Transport:
Generally transport and store the tool with fitted expander head (risk of injury, contamination etc).



NOTES ON TROUBLESHOOTING

Defect	Cause	Correction
Motor does not run	- Tool/Battery contacts dirty - Tool/Battery contacts damaged - Battery not correctly locked into the tool - Battery empty - Battery faulty - Tool faulty	- Clean contacts when dry with non-conducting material - Send tool/battery to REHAU service center - Reinsert battery, pay attention to locking mechanism! - Charge battery - Send battery to REHAU service center or independently give it to the recycling system - Send tool to REHAU service center
Tool loses oil	- Leak in oil tank or release valve	- Do not open the tool and do not remove or damage the tool seal! - Send tool to REHAU service center
Tool does not reach final pressure	- Leak in oil tank or release valve - Air in the hydraulic system - Tool faulty	- Do not open the tool and do not remove or damage the tool seal! - Send tool to REHAU service center - Interrupt the compression process. - Hold reset knob under tension (see page 8/Item No. 2) and at the same time continuously actuate the operating switch for about 10 seconds. If this does not correct the defect, the tool must be sent to a REHAU service center. - Send tool to REHAU service center.
Battery does not charge	- Charger not plugged in correctly - No power coming to socket - Charger / Mains cable or plug damaged - Charger not ready - Charger/Battery contacts dirty - Charger/Battery contacts damaged - Battery not locked correctly into the charger	- Reinsert mains plug - Change socket - Send charger to REHAU service center - Wait for green LED to flash - Clean contacts when dry with non-conducting material - Send charger/battery to REHAU service center - Reinsert battery, pay attention to locking mechanism!
If the defects cannot be remedied, send the tool to the REHAU service center or your dealer!		