



**REHAU®**

Unlimited Polymer Solutions\*



## RAUTOOL XPAND

DE BEDIENUNGSANLEITUNG/TECHNISCHE INFORMATION  
EN OPERATING INSTRUCTIONS/TECHNICAL INFORMATION  
FR MODE D'EMPLOI / INFORMATION TECHNIQUE  
IT ISTRUZIONI PER L'USO/INFORMAZIONI TECNICHE

Valid from June 2012

\* Des solutions polymères à l'infini  
[www.rehau.com](http://www.rehau.com)

**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, damage or visible wear of the expander mandrel or the basic tool itself). 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 expander head) 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. The tool is not suited for long-term use.  
After about 50 consecutive expansions, 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. Always give used up rechargeable batteries to the recycling system.
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  $-10\text{ }^{\circ}\text{C}$  and over  $+45\text{ }^{\circ}\text{C}$  may result in damage to jointing components, to the tool and/or in personal injury.**

**- Do not work below the minimum processing temperature of  $-10\text{ }^{\circ}\text{C}$ !**

**- At lower temperatures (below  $0\text{ }^{\circ}\text{C}$ ) 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](http://www.rehau.com).**

# ITEMS SUPPLIED / REPLACEMENT PARTS / ACCESSORIES

## RAUTOOL Xpand

Mat. No. **1**208891**1**001

- Xpand basic tool
- Li-ion battery 18V/1.3Ah
- Tube of lubricant
- Cleaning brush
- Xpand operating instructions



## Accessories, Li-ion battery 18V/1.3Ah

Mat. No. **1**203619**1**001

for RAUTOOL  
A3/A-light2/E3/G2/Xpand



## Accessories, mains adapter 230V/18V (plug acc. to European standard [EN 50075])

Mat. No. **1**203621**1**001

for RAUTOOL  
A3/A-light2/E3/G2/Xpand



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

## Accessories, charger 230V (plug acc. to European Standard [EN 50075])

Mat. No. **1**203609**1**001

for RAUTOOL  
A3/A-light2/E3/G2/Xpand



## Accessories, transport case (empty)

Mat. No. **1**208957**1**001

for RAUTOOL Xpand



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# TECHNICAL DATA / EQUIPMENT AND FUNCTION

## Technical data

|                               |                                                                   |
|-------------------------------|-------------------------------------------------------------------|
| Max. working pressure:        | 450 bar                                                           |
| Max. shear force:             | 16.5 kN (linear)                                                  |
| Mains voltage battery charge: | 230 V/50 Hz                                                       |
| Battery voltage:              | 18 V                                                              |
| Battery capacity:             | 1.3Ah                                                             |
| 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/s <sup>2</sup> (weighted effective value of acceleration) |
| Weight:                       | approx. 1.6 kg (basic tool with battery)                          |

## Equipment description and operating principle

| Item No. | Tool elements      | Function                                                                         |
|----------|--------------------|----------------------------------------------------------------------------------|
| 1        | Operating switch   | Actuating the expansion process                                                  |
| 2        | Reset button       | Slider for opening the releas valve for returning the tool to its start position |
| 3        | Expansion cylinder | Working unit for holding the expander heads                                      |
| 4        | Battery            | Rechargeable Li-ion battery                                                      |
| 5        | Battery locking    | Release button for the battery                                                   |
| 6        | Red LED            | Information on the battery charge level                                          |
| 7        | White LED          | LED for workplace lighting                                                       |



# TOOL PREPARATION

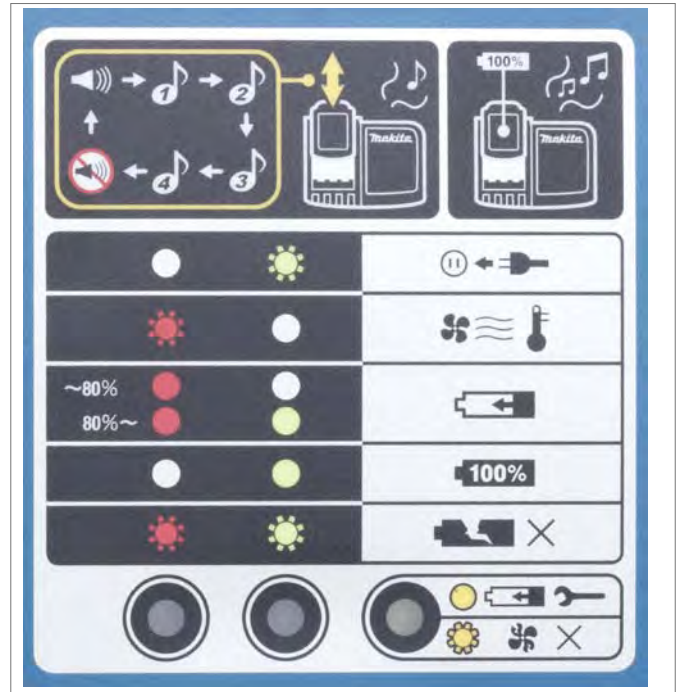
## Charging the battery



**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.<br>The battery can stay in the charger for approx. 24 hours without being damaged.<br>Depending on the setting, a melody will sound once when the battery is full. |
|  |  |  | Red and green LED flash alternately       | A malfunctions 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               |      |  | <b>Self-test!</b>                              | 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.<br>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              |      |  | <b>Battery is flat!</b>                        | 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         |      |  | <b>Service!</b>                                | 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<br>20 s/2 Hz | <br> |  | <b>Battery is flat!</b><br><b>Service!</b>     | 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         |      |  | <b>Overheating!</b>                            | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1 x               |      |  | <b>Warning!</b><br><b>Pressing force!</b>      | 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.                                                                                                                                                                                                                                                                                                             |
| 3 x               | 3 x  |  | <b>Warning!</b><br><b>Serious malfunction!</b> | 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.

- Use only REHAU expander heads of the RO system [standard since 1996 (18° circular mandrel)]
- Make sure that whenever the expander heads are changed, the heads are fully screwed on!
- Before use, check the expander heads and the tool for damage or visible wear!  
Damaged tools or tool components must no longer be used and should immediately be sent to an authorised service center for repair.

## Expanding tool

When screwing on expander heads bring the tool in starting position (mandrel retracted). Always screw expander heads fully on.  
Use expander heads that conform to the pipe dimensions (for example, 16x2.2).



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



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





# ASSEMBLY PROCEDURE

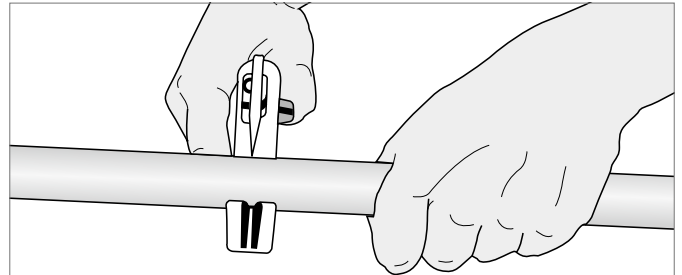


Failure to observe these instructions may result in damage to the joining system, to the tool and in personal injury.

1. Using pipe cutters, cut pipe to required length at right angles and without leaving burrs.

**Attention:**

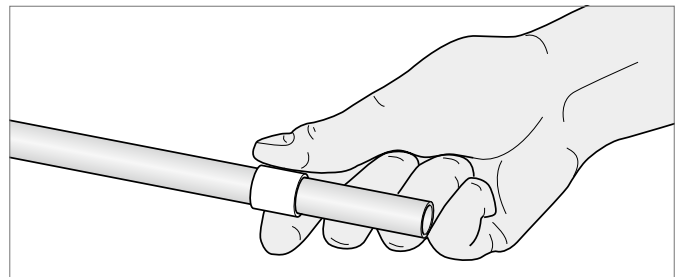
Keep your hand at a safe distance from the tool. Do not use saws, or similar!



2. Slide compression sleeve onto pipe.

**Attention:**

With metal compression sleeves, the inside taper must point towards the joint.



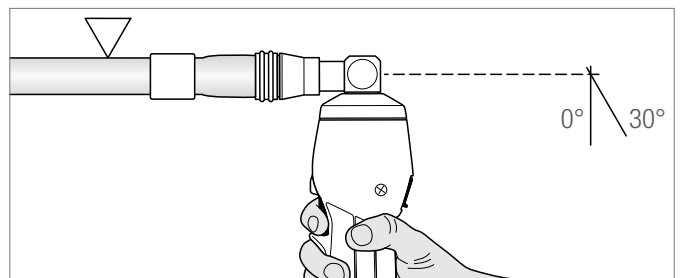
3. Expansion using RAUTOOL Xpand

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!

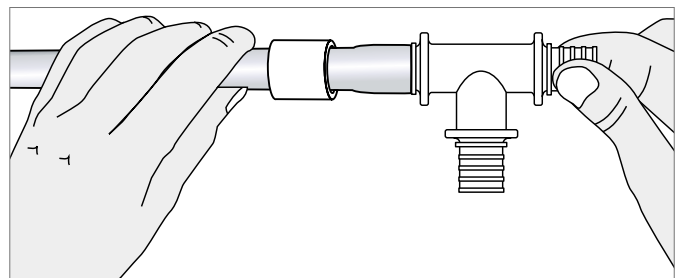


4. Insert fitting into pipe up to the stop. After a brief period, the fitting will sit tightly in the pipe (memory effect).

**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. Afterwards use the RAUTOOL assembly tool (in accordance with the operating instruction), to press the compression sleeve up to the fitting collar!



Processing at temperatures under -10 °C and over +45 °C may result in damage to joining 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 joining components be stored in a warm environment before being processed.

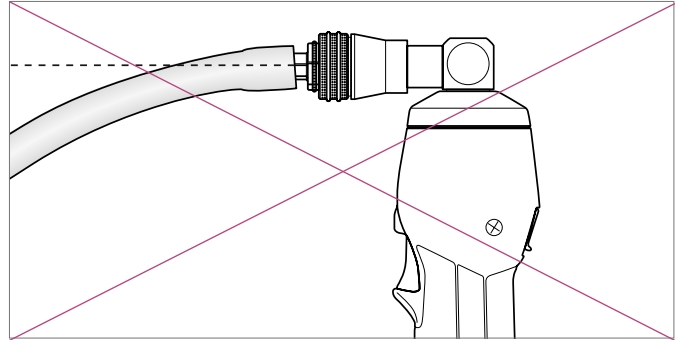
# IMPORTANT NOTES



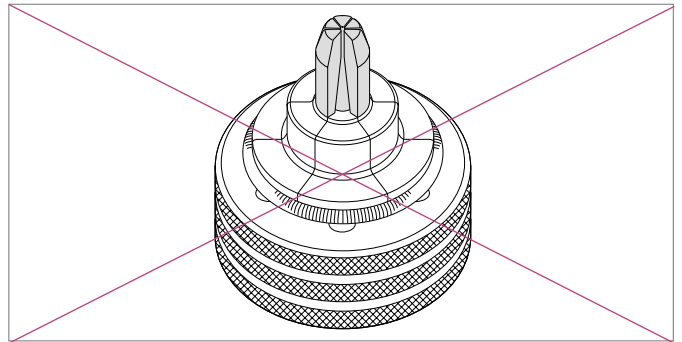
**Failure to observe these instructions may result in material damage.**

## Attention:

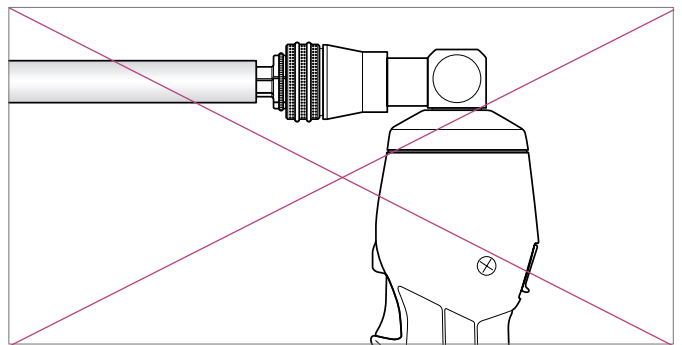
Do not expand the pipe under bending stress!  
Expanding tool and pipe axis must be identical in the expansion area (approx. three compression sleeve lengths): If necessary, readjust the pipe by bending.



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.



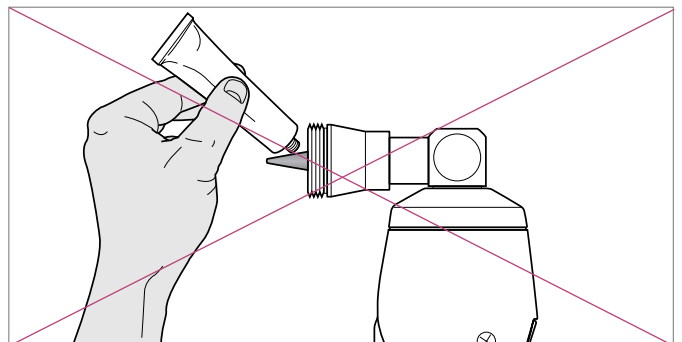
As a matter of principle, always insert the expanding tool into the pipe up to the stop.  
Do not tilt the expanding tool!



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!



# MAINTENANCE NOTES

## Regular inspection:



### Risk of injury!

#### Always remove the battery before cleaning and inspection.

- Always keep expander heads and expander mandrel clean  
When soiled (sand, dirt), clean them with a brush and oil them
- Before every use, check the expander heads, the mandrel and the Xpand basic tool itself 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 expander heads are fully screwed on and always inserted fully into the pipe up to the stop
- Regularly grease the taper of the expander tool. 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.**

# NOTES ON TROUBLESHOOTING

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| Defect                                    | Cause                                                                                                                                                                                                                                                                                                                                                  | Correction                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Motor does not run</b>                 | <ul style="list-style-type: none"> <li>- Tool/Battery contacts dirty</li> <li>- Tool/Battery contacts damaged</li> <li>- Battery not correctly locked into the tool</li> <li>- Battery empty</li> <li>- Battery faulty</li> <br/> <li>- Tool faulty</li> </ul>                                                                                         | <p>Clean contacts when dry with non-conducting material</p> <p>Send tool/battery to REHAU service center</p> <p>Reinsert battery, pay attention to locking mechanism!</p> <p>Charge battery</p> <p>Send battery to REHAU service center or independently give it to the recycling system</p> <p>Send tool to REHAU service center</p>                                                                                                                                   |
| <b>Tool loses oil</b>                     | <ul style="list-style-type: none"> <li>- Leak in oil tank or release valve</li> </ul>                                                                                                                                                                                                                                                                  | <p>Do not open the tool and do not remove or damage the tool seal!</p> <p>Send tool to REHAU service center</p>                                                                                                                                                                                                                                                                                                                                                         |
| <b>Tool does not reach final pressure</b> | <ul style="list-style-type: none"> <li>- Leak in oil tank or release valve</li> <br/> <li>- Air in the hydraulic system</li> <br/> <li>- Tool faulty</li> </ul>                                                                                                                                                                                        | <p>Do not open the tool and do not remove or damage to tool seal!</p> <p>Send tool to REHAU service center</p> <p>Interrupt the expansion process.</p> <p>Hold reset knob under tension (see page 6/Item No. 2) and at the same time continuously actuate the operating switch for about 10 seconds, (see page 6/Item No. 1).</p> <p>If this does not correct the defect, the tool must be sent to a REHAU service center.</p> <p>Send tool to REHAU service center</p> |
| <b>Battery does not charge</b>            | <ul style="list-style-type: none"> <li>- Charger not plugged in correctly</li> <li>- No power coming to socket</li> <li>- Charger / Mains cable or plug damaged</li> <li>- Charger not ready</li> <li>- Charger/Battery contacts dirty</li> <li>- Charger/Battery contacts damaged</li> <li>- Battery not locked correctly into the charger</li> </ul> | <p>Reinsert mains plug</p> <p>Change socket</p> <p>Send charger to REHAU service center</p> <p>Wait for green LED to flash</p> <p>Clean contacts when dry with non-conducting material</p> <p>Send charger/battery to REHAU service center</p> <p>Reinsert battery, pay attention to locking mechanism!</p>                                                                                                                                                             |

**If the defects cannot be remedied, send the tool to the REHAU service center or your dealer.**

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# GARANTIE-KARTE / GUARANTEE CARD CERTIFICAT DE GARANTIE / GARANZIA

**Artikel: / Article:****Article : / Articolo:** \_\_\_\_\_**Nr.: / No.: / N° : / Codice:** \_\_\_\_\_**Seriennummer: / Serial number:****N° de série : / Numero di serie:** \_\_\_\_\_**Ausgabedatum an Handwerkskunden: / Date of issue to customer:****Date de délivrance au client : / Data di consegna al cliente:** \_\_\_\_\_**Stempel/Unterschrift: / Stamp/Signature:****Tampon/Signature : / Timbro/Firma:** \_\_\_\_\_**Garantiezeit:** 12 Monate ab Lieferung bei bestimmungsgemäßem Gebrauch und pfleglicher Handhabung.**Guarantee period:** 12 months from delivery if used as directed for the applications intended and handled with reasonable care.**Durée de la garantie :** 12 mois à compter de la livraison, sous condition d'une utilisation conforme et d'une manipulation soignée.**Durata della garanzia:** 12 mesi a partire dalla data di consegna, se l'attrezzo è utilizzato secondo lo scopo cui è destinato e se maneggiato con cura.

Mit Ihrem neuen Verpress- und Aufweitwerkzeugen wurden zu Ihrer Sicherheit im Werk mehrere Tests unter Last durchgeführt. Gebrauchsspuren sind dabei unvermeidlich, mindern aber die Qualität des Werkzeugs in keiner Weise.

Die Geräte wurden durch unsere Abteilung Qualitätssicherung kontrolliert und freigegeben. Sollte es trotz sorgfältiger Fertigung und Montage einen Grund zur Beanstandung geben, bitten wir Sie, das Gerät zusammen mit diesem Schein zur Reparatur bzw. zum Umtausch einzusenden. Weitere Ansprüche gleich welcher Art, sind ausgeschlossen.

For your benefit/safety some tests under load were carried out on your new compression and expanding tool in the factory. It is unavoidable that traces of use result from these tests. They do not however in any way detract from the quality of the tool.

The tools have been tested and approved by our quality control department. If despite the careful manufacture and assembly of the tool you still have reason for complaint we kindly ask you to return the tool for repair or exchange together with this guarantee card. Any further claims regardless of their type are not valid.

Plusieurs essais de charge ont été réalisés en usine sur cet outillage à sertissage et à expandre afin d'en garantir la sécurité. La mise en service de l'appareil pour la réalisation de ces essais n'a toutefois aucune répercussion sur la qualité de l'outillage.

Ces outillages ont été contrôlés et autorisés par notre service Assurance Qualité. Si malgré ces exigences rigoureuses de fabrication et de montage, il y a motif à contester la qualité de l'outillage, nous vous prions de bien vouloir nous retourner celui-ci accompagné de ce certificat, pour réparation ou échange. Toute autre revendication quelqu'elle soit est à exclure.

Per la Vostra sicurezza, gli attrezzi di espansione/compressione sono stati sottoposti a diversi test. Tracce dell'utilizzo sono inevitabili, ma non ne compromettono in alcun modo la qualità.

Gli attrezzi sono stati controllati e approvati dal nostro reparto qualità. La produzione e il montaggio dell'attrezzo sono stati eseguiti secondo elevati standard qualitativi. Se, nonostante ciò, doveste riscontrare delle anomalie, Vi preghiamo di rispedircelo unitamente alla presente garanzia. Provvederemo a ripararlo o a sostituirlo. Ulteriori contestazioni di qualsivoglia natura non saranno prese in considerazione.



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Insofar as the intended application deviates from that described in the relevant Technical Information brochure, the user must consult REHAU and must receive express written consent from REHAU before commencing this utilization. If the user fails to do so, the sole responsibility for the utilization shall lie with the individual user. In this case, the application, use and processing of products are beyond our control. Should a case of liability arise, however, this shall be limited to the value of the goods delivered by us and used by you in all cases of damage. Claims arising from granted guarantees shall become invalid in the case of intended applications that are not described in the Technical Information brochures.

Dans la mesure où l'on prévoit une autre application que celle décrite dans l'information technique en vigueur, l'utilisateur devra consulter REHAU et se procurer expressément un assentiment écrit avant de lancer cet emploi. Faute d'un tel assentiment, l'emploi en question est entièrement sous la responsabilité de l'utilisateur respectif. L'application, l'utilisation et la transformation des produits se trouvent dans ce cas en dehors de nos possibilités de contrôle. Si néanmoins une responsabilité entre en considération, elle se limite aux dommages portant sur la valeur de la marchandise que nous aurons livrée et que vous aurez utilisée.

Les droits reposant sur les déclarations de garantie données expirent pour des applications qui ne sont par décrites dans les informations techniques.

Se è previsto un impiego diverso da quelli descritti nell'Informazione Tecnica attualmente in vigore, l'utilizzatore deve contattare la REHAU e, prima dell'impiego, chiedere espressamente il nulla osta scritto della REHAU. Altrimenti l'impiego è esclusivamente a rischio dell'utilizzatore.

In questi casi l'impiego, l'uso e la lavorazione dei nostri prodotti sono al di fuori delle nostre possibilità di controllo. Se nonostante tutto, dovesse sorgere una controversia su una nostra responsabilità, questa sarà limitata al valore dei prodotti da noi forniti e impiegati da Voi.

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