



## INSTALLATION INSTRUCTIONS CLIP SHROUD SYSTEM

Connections in the REHAU RAUTHERMEX pipe system



# INFORMATION AND SAFETY WARNINGS

## Notes about these installation instructions

### Validity

These installation instructions are valid worldwide.

### Pictograms and logos



Safety warnings



Legal information



Important information that must be noted



#### Currentness of the installation instructions

To ensure your own safety and the correct use of our products, please check at regular intervals whether a newer version of these installation instructions is available. The issue date of your installation instructions is always printed in the bottom left-hand corner of the cover page. You can obtain the current installation instructions from your REHAU sales office, specialist wholesaler or you can download it from the internet at [www.rehau.com/en-us](http://www.rehau.com/en-us) or <https://www.rehau.com/us-en/downloads/2006944>.

#### Safety warnings and operating instructions

- For your own safety and the safety of other people, please read all safety warnings and operating instructions carefully and in full before commencing installation.
- Keep the installation instructions handy for easy access
- If you have not understood the safety instructions or the individual assembly guidelines or you find them unclear, please contact your REHAU sales office.

**Non-compliance with the safety information may lead to damage to property or personal injury.**



#### Use in line with specifications

The REHAU pipe systems and their components must only be planned, installed and operated as described in the current applicable technical information or in the relevant installation instructions. Any other use is improper and therefore prohibited.

For more detailed advice, please contact your REHAU sales office. Proper use entails compliance with all of the instructions in the technical information as well as the installation, operating and maintenance instructions. We accept no liability for improper use or prohibited modifications to the product and all resultant consequences.



Observe all applicable national and international regulations relating to laying, installation, safety and the prevention of accidents when installing pipe systems, as well as the instructions in the technical information and these installation instructions. Please also observe the applicable laws, standards, instructions and regulations (e.g. DIN, EN, ISO, DVGW, TRGI, VDE and VDI) as well as regulations on environmental protection, regulations of the Employer's Liability Insurance Association and specifications of the local public utilities companies. Please ensure that the guidelines, standards and regulations in use are the valid version in each case. The design and assembly instructions relate directly to the REHAU product in each case. Some sections refer to generally applicable standards or regulations.

More specific standards, regulations and instructions relating to the planning, installation and operation of drinking water or heating systems or systems for building services must also be observed and do not form part of this technical information.

Areas of application that are not included in this technical information (custom applications) require consultation with our technical applications department.



### Prerequisites for personnel

- Our systems should only be assembled by people who are authorized to do so and have received training in this.
- Work on electrical installations or pipework components must only be carried out by trained and authorized personnel.

### General precautions

- Keep your workplace clean and free of obstructions
- Ensure that your workplace is adequately lit
- Keep children, pets and unauthorised persons away from tools and the installation areas. This applies particularly in the case of renovation work in an occupied area
- Only use the components intended for the respective REHAU system. The application of components from other systems or the use of tools which do not come from the relevant REHAU installation system can result in accidents or other hazards

### Working clothes

- Wear protective goggles, suitable working clothes, safety shoes, a hard hat and a hairnet if you have long hair
- Do not wear loose-fitting clothing or jewellery as they may get caught in moving parts

### During installation

- Always read and follow the operating instructions for the REHAU installation tool you are using
- Improper handling of tools can result in severe cuts, trapped or severed limbs
- Improper handling of tools can damage the jointing components and result in leaks
- REHAU pipe cutters have a sharp blade. Store and handle them in such a way that there is no risk of injury from the REHAU pipe cutters
- When cutting the pipes to size, maintain a safe distance between the hand holding the pipe and the cutting tool
- Never put your hand in the tool's cutting zone or on moving parts during the cutting process
- Following the expansion process, the expanded pipe end returns to its original shape (memory effect). Do not insert any foreign objects into the expanded pipe end during this stage
- Never put your hand in the tool's compression zone or on moving parts during the compression process
- The fitting may fall out of the pipe until the compression process is complete. Risk of injury!
- During maintenance or retooling work and when changing the installation area, always unplug the tool and prevent it from being switched on accidentally



### Operating parameters

- If the operating parameters are exceeded, the pipes and connections are overloaded. It is therefore not permitted to exceed the operating parameters.
- Adherence to the operating parameters is to be ensured by safety and control facilities (e.g. pressure reducer, safety valves and similar).

### System-specific safety warnings

- Deburr or remove edges on insulating sleeves in order to prevent possible injury
- When sawing or sanding foamed PUR, a dust mask must be worn
- When welding electrofusion couplers and foam moulding with PUR foam for the shroud, the component heats up
- There is a danger of crushing when working with lashing straps to fix the pipes in place. Do not reach into the hazardous areas
- Only make the connection using suitable installation tools
- The relevant operating instructions, instruction leaflet and technical information must be observed when handling tools and making the connection
- Do not use dirty or damaged connection components or tools
- Cordless or mains-operated tools such as A-light2, A3, E3, G2 are unsuitable for permanent operation. A break of min. 15 minutes must be taken after approx. 50 consecutive compressions to allow the appliance to cool down
- You can find the exact allocation of the connection components in the current price list.

# SYSTEM DESCRIPTION: CLIP SHROUD

## Clip system for T-, L- and I-shrouds

Connecting points in the ground, for example couplers or T-pieces, are to be insulated and sealed to an insulation quality equivalent to that of the pipes.

The clip shroud developed specifically for RAUTHERMEX comprises two half shells, which are placed over the carrier pipe connection and simply pressed together with fastening clips in accordance with the toggle lever principle. The seal between the shroud and the pipe is carried out by means of an innovative sealing ring concept made of EPDM. An appropriately sized sealing ring is used for each of the individual pipe outlets. Grooves ensure the correct position in the shroud.

The REHAU T, I and L clip shroud systems are watertight-tested up to 3 mWS, even with a max. angle deviation in the pipe installation of up to 20° for small shrouds and 10° for large shrouds (testing carried out in accordance with the increased requirements of EN 489 and by MFPA Leipzig GmbH).



In addition to this, combined sealing and venting plugs ensure a quick and easy installation.

A high-quality, two-component PU foam in bottles is used for the subsequent insulation.



- The clip shroud system is only compatible with RAUTHERMEX pipes.

- The sealing rings must always be installed prior to establishing the final carrier pipe connection. The installation cannot be carried out at a later date.
- Observe the installation instructions "compression sleeve jointing system".



Fig. 1: Half shell T-shroud



Fig. 2: Half shell I-shroud



Fig. 3: Half shell L-shroud



Fig. 4: Sealing rings made from EPDM



Fig. 5: Two-component PU foam



Shroud type	Article No.	External Diameter	Delivery Contents	Article No. for shroud foam	Foam Size
T-shroud small	13300551001	76 - 126	T-shroud with 2 half shells, 20 clips, 3 self-ventilating sealing plugs (orange), 1 fast-action glue	12095961001	6
T-shroud large	13510541001	76 - 182	T-shroud with 2 half shells, 27 clips, 3 self-ventilating sealing plugs (orange), 1 fast-action glue	13510631001	9.1
I-shroud small	13300561001	76 - 126	I-shroud with 2 half shells, 14 clips, 2 self-ventilating sealing plugs (orange), 1 fast-action glue	12983571001	5
I-shroud large	13520381001	76 - 182	I-shroud with 2 half shells, 22 clips, 2 self-ventilating sealing plugs (orange), 1 fast-action glue	13524131001	8
L-shroud small	13300571001	76 - 126	L-shroud with 2 half shells, 15 clips, 2 self-ventilating sealing plugs (orange), 1 fast-action glue	12983571001	5
L-shroud large	13039271001	76 - 126	L-shroud with 2 half shells, 22 clips, 2 self-ventilating sealing plugs (orange), 1 fast-action glue	13524131001	8

For installation, 1 additional foam set in the indicated size and 2 sealing rings (for I- and L-shrouds) or 3 sealing rings (for T-shroud) must be ordered.

Tab. 1: Delivery requirements for the shrouds and foam for installation



Fig. 5: T-shroud set small



Fig. 8: T-shroud set large



Fig. 6: I-shroud set small



Fig. 9: I-shroud set large



Fig. 7: L-shroud set small



Fig. 10: L-shroud set large

# MAKING A COMPRESSION SLEEVE JOINT

## Cutting the pipes



### Pipes springing back

Pipes under pressure may spring out during the cutting process. Cut the pipe carefully without pressure if possible, wear suitable protective clothing and keep out of the danger zone.

The pipe end must be free from contaminations (e.g. adhesive tape, lubricating or adhesive agent) to make the connection.



## Stripping the insulation

Measure the length of the insulation to be removed (table 2) whereby an additional 40 mm are required for a clean trim of the carrier pipe. The stripping length is chosen in such a way that a safe seal is created using the shroud. In order to carry out the jointing system with a compression sleeve, the free pipe length must measure at least 3 x the length of the compression sleeve as the sleeve pushed on must not be affected by the expansion process.

Shroud	Maximum stripping length L Maximum stripping length L
Small shroud	190 + 40 for trimming
Large shroud	200 + 40 for trimming

Tab. 2: Stripping lengths for making compression sleeve joints

\* A longer length can be stripped depending on the size of the fitting. The external pipe jacket must be completely undamaged in the area where the sealing ring will be installed.



## Stripping the RAUTHERMEX insulation

Cut the pipe jacket with a saw or a knife in a longitudinal direction with the RAUTHERMEX system and peel off the jacket. Insert the knife a maximum of 5 mm during this process.



### Do not damage the carrier pipe when stripping the insulation!

Carrier pipe sections that are damaged or broken by cuts or scratches must be cut off and thrown away.



Remove the PU foam from the section where you have peeled off the outer jacket.



Remove any residual PU foam using abrasive paper.



### Trimming

Trim approx. 40 mm from the pipe ends using a pipe cutter to achieve a square, burr-free cut. To do this, the pipe cutter has to tightly rest against the pipe to ensure a square cut.



#### Risk of injury!

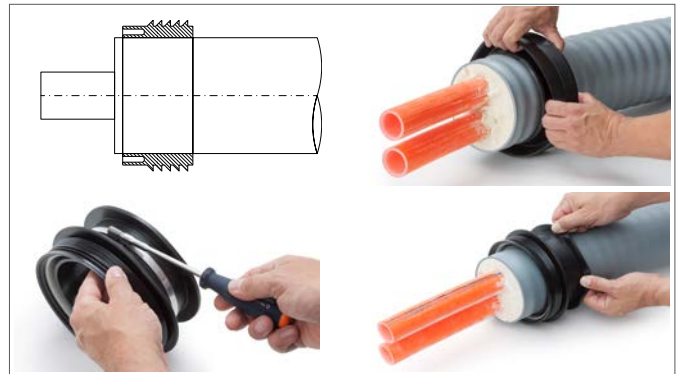
Observe a safety distance of the hand holding the pipe to the pipe cutter.

A ribbed pipe cutter can also be used from carrier pipe dimensions measuring 75 – 160 mm. Observe the separate installation instruction „compression sleeve“.



### Pushing on the sealing ring

Pull up all sealing rings onto the corresponding pipe. Make sure that the ridges on the sealing rings are positioned correctly according to the picture on the right. Loosen the clip from small shroud sealing rings or remove it entirely for further installation.

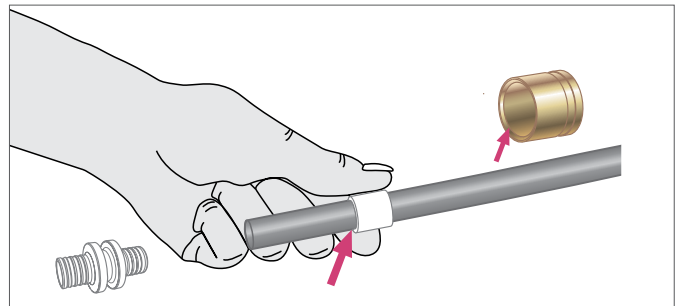


### Pushing on the compression sleeves

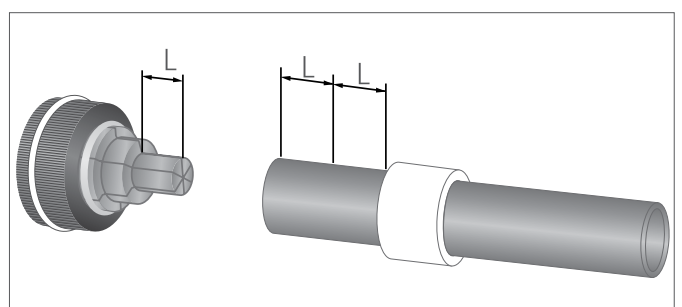
Push the compression sleeves up to the end of the area where the insulation has been stripped.



The chamfer on the inside (arrow) points towards the connection.



Push the compression sleeve onto the pipe until at least double the compression sleeve length is exposed between the pipe end and the compression sleeve.



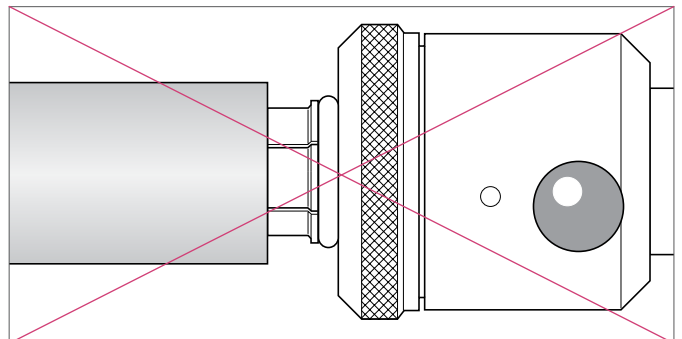
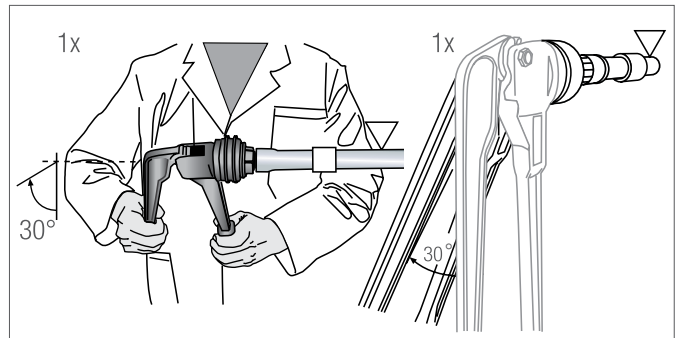
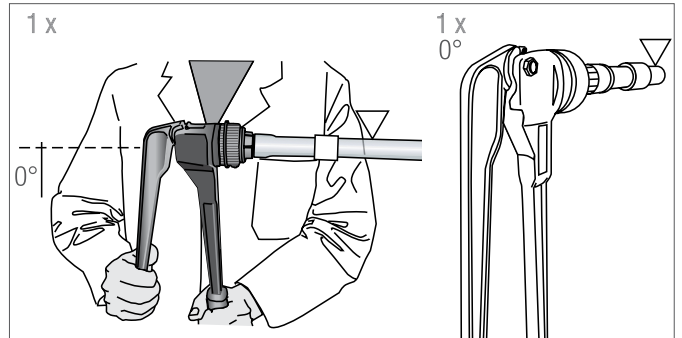
## Expansion

- Push the segments of the expander head onto the pipe up to the stop.
- **Avoid the expander head from tilting when doing this.**
- Expand pipe once
- Following this, rotate the expander head with a 30° offset. The pipe remains in its initial position during this.
- Expand pipe end again

Expand the second pipe in the same way for DUO pipes prior to inserting the fitting.



- Observe the safety warnings of the tools
- Check that the expander heads run smoothly as well as for contaminations and if required, clean them
- Screw expander heads fully onto the expanding tool (must not become detached when rotating in the pipe)
- The minimum distance between the end of the pipe and compression sleeve must be observed and is at least twice the length of the compression sleeve
- Expand pipe evenly
- It is not allowed to warm up the pipe locally using a flame or warm air
- Only REHAU compression sleeve fittings (no items from other manufacturers) may be inserted into the expanded pipe end.
- If cracks appear in the expanded area or if pipe ends have not been expanded according to specifications, cut off the damaged pipe end and repeat the expansion process.



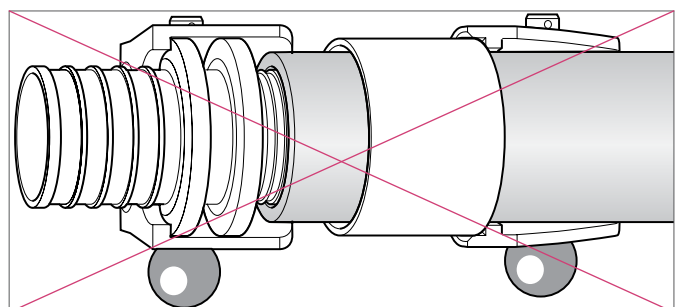
## Insert fitting

Insert the fitting into the expanded pipe immediately after expansion (or up to the end collar).

If the pipe has been expanded correctly, the fitting can be fully inserted into the expanded pipe without any major resistance. After a brief period, the fitting fits firmly in the pipe as the pipe contracts again (memory effect).

All sealing ribs must be covered by the pipe during this process.

Make sure the fitting is correctly positioned in the tool!  
Applying the tool to the wrong fitting coil will over-compress the connection!





## Compression

Insert the compression sleeve joint into the compression tool and fully compress without tilting. The joint then can be immediately pressurised and the temperature applied to it in full.

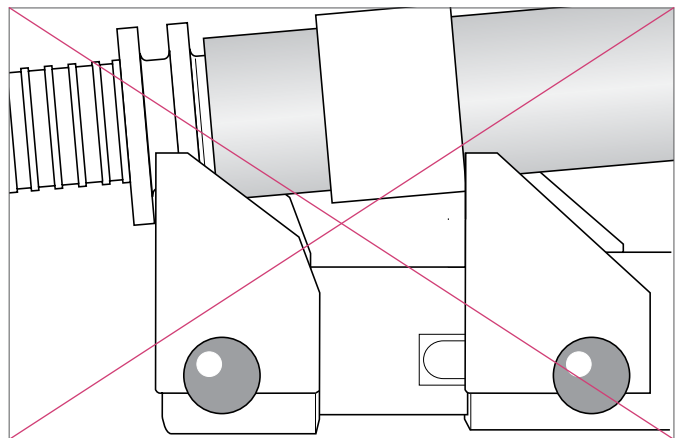
1. Press push button or foot lever on the tool.
2. Compression sleeve must be fully compressed
3. Visual inspection of the joint for damage.



- The joint must be applied stress-free on pipe sections
- Do not tilt uncompressed joints when inserting them into the tool and during the compression process and always keep the tool fully attached
- Compression sleeve must be fully compressed
- Do not use any lubricating agent, no water or similar when creating the compression sleeve joint.

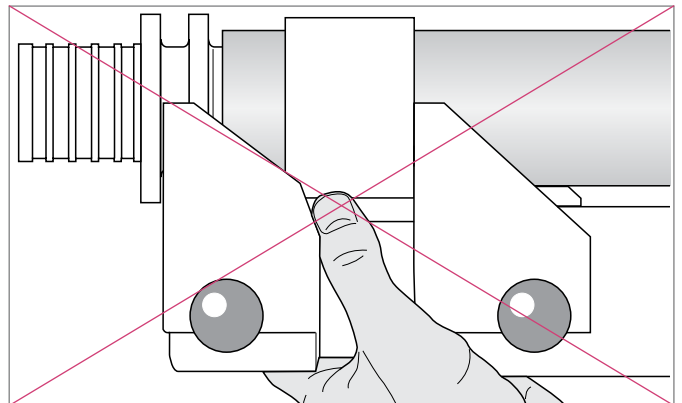


Always apply the clamping jaws or jointing system at a right angle!



### Warning:

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



## Complete joint.

Proceed as above for the further fitting outlets.

Subsequently restore the insulation as per the corresponding installation instructions.



# INSTALLATION: CLIP SHROUD

## Position of the lower shell half

Position the lower shell half (without plug holes) under the pipe.



## Position of the sealing rings

Position the sealing rings. The outside part of the ring must rest flush against the shroud entrance and align with the rest of the ring.



## Placing of the upper shell half

Ensure that the sealing rings are positioned around the entire circumference when the upper half of the shell is fit and check that the upper half of the shell fits.



## Clean glue surface

Clean the glue surfaces of the two shells so that they are free from dirt and grease.



### Apply glue

Coat the glue surfaces of the bottom shell using the fast-action glue supplied and ensure complete coverage. Apply the glue around the area where the sealing rings are and all the way to the inner edge.

*The glue sticks skin and eyelids together within seconds.*

*Avoid contact.*



**The glue sticks skin and eyelids together within seconds. Avoid contact.**



### Pressing on

Place the upper shell (with plug holes) on top and press down.



### Close clamping clips

Close the clamping clips. Start with the ends of the shells when doing this. Close the clamping clips on the long side of the T-shroud, followed by the remaining clips.

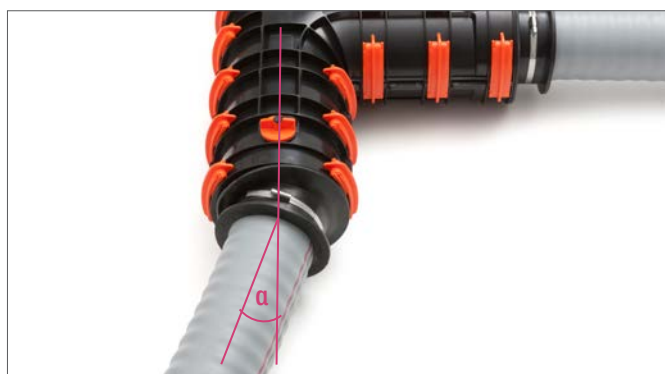


### Deviation in pipe installation

The pipe angle in the shroud may deviate depending on the dimensions of the pipe:

Small shroud up to 20°

Large shroud up to 10°



### Tightening the clamping bands

Pull the clamping bands tight on the seals (max. 3 Nm - only for small shrouds).



### Close plug holes

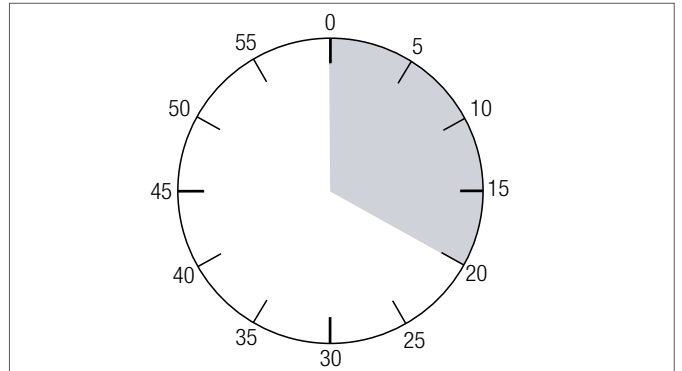
Close the two lower plug holes (T-shroud) and the lowest plug hole (I- and L-shrouds) using the self-ventilating sealing plugs. The attached rubber protection plugs remain open for ventilation.

The remaining, uppermost plug hole is to be left open as it serves the purpose of filling the foam at a later stage.



### Glue setting

Wait 20 minutes until the glue has set



### Mixing foam components

Fill the smaller of the two foam components into the large bottle.  
Observe the enclosed installation instructions when doing this.



#### **Danger, severe chemical reaction!**

The foam must not be stored in the sun prior to processing otherwise the foam components react very quickly and in an uncontrolled manner.

Always wear protective goggles and protective gloves when working with foam.



The foam can be processed at a usage temperature of 18 – 23 °C. The surface temperature of the shroud and the pipeline should be between 15 – 45 °C.

The foam components should be stored protected from frost between 15 - 20 °C prior to processing.

Please observe the instructions of the foam components for this!



### Shaking the foam bottle

Shake the closed foam bottle as per user manual "foam set".



### Filling with foam

Fill the content of the foam bottle into the remaining plug hole using the nozzle end.

The mix turns into rigid foam. The process starts at a processing temperature of approx. 20 °C after approx. 60 seconds and is complete after approx. 4 minutes. The mix can react quicker or slower at different processing temperatures.



### Close shroud

Close the top plugs. The attached rubber protection plug remains open for ventilation.



### Insert rubber plugs

Close the attached rubber plugs after venting (max. 5 minutes after filling with foam).



Installation is complete.



## NOTES

## NOTES

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**AE: Middle East**, +971 4 8835677, [dubai@rehau.com](mailto:dubai@rehau.com) **AR: Buenos Aires**, +54 11 48986000, [buenosaires@rehau.com](mailto:buenosaires@rehau.com) **AT: Linz**, +43 732 3816100, [linz@rehau.com](mailto:linz@rehau.com) **Wien**, +43 2236 24684, [wien@rehau.com](mailto:wien@rehau.com) **AU: Adelaide**, +61 8 82990031, [adelaide@rehau.com](mailto:adelaide@rehau.com) **Brisbane**, +61 7 55271833, [brisbane@rehau.com](mailto:brisbane@rehau.com) **Melbourne**, +61 3 95875544, [melbourne@rehau.com](mailto:melbourne@rehau.com) **Perth**, +61 8 94564311, [perth@rehau.com](mailto:perth@rehau.com) **Sydney**, +61 2 87414500, [sydney@rehau.com](mailto:sydney@rehau.com) **AZ: Baku**, +99 412 5110792, [baku@rehau.com](mailto:baku@rehau.com) **BA: Sarajevo**, +387 33 475500, [sarajevo@rehau.com](mailto:sarajevo@rehau.com) **BE: Bruxelles**, +32 16 399911, [bruxelles@rehau.com](mailto:bruxelles@rehau.com) **BG: Sofia**, +359 2 8920471, [sofia@rehau.com](mailto:sofia@rehau.com) **BR: Arapongas**, +55 43 31522004, [arapongas@rehau.com](mailto:arapongas@rehau.com) **Belo Horizonte**, +55 31 33097737, [belohorizonte@rehau.com](mailto:belohorizonte@rehau.com) **Caxias do Sul**, +55 54 32146606, [caxias@rehau.com](mailto:caxias@rehau.com) **Mirassol**, +55 17 32535190, [mirassol@rehau.com](mailto:mirassol@rehau.com) **Recife**, +55 81 32028100, [recife@rehau.com](mailto:recife@rehau.com) **BY: Minsk**, +375 17 2450209, [minsk@rehau.com](mailto:minsk@rehau.com) **CA: Moncton**, +1 506 5382346, [moncton@rehau.com](mailto:moncton@rehau.com) **Montreal**, +1 514 9050345, [montreal@rehau.com](mailto:montreal@rehau.com) **Toronto**, +1 905 3353284, [toronto@rehau.com](mailto:toronto@rehau.com) **Vancouver**, +1 604 6264666, [vancouver@rehau.com](mailto:vancouver@rehau.com) **CH: Bern**, +41 31 720120, [bern@rehau.com](mailto:bern@rehau.com) **Vevey**, +41 21 9482636, [vevey@rehau.com](mailto:vevey@rehau.com) **Zuerich**, +41 44 8397979, [zuerich@rehau.com](mailto:zuerich@rehau.com) **CN: Guangzhou**, +86 20 87760343, [guangzhou@rehau.com](mailto:guangzhou@rehau.com) **Beijing**, +86 10 64282956, [beijing@rehau.com](mailto:beijing@rehau.com) **Shanghai**, +86 21 63551155, [shanghai@rehau.com](mailto:shanghai@rehau.com) **Chengdu**, +86 28 86283218, [chengdu@rehau.com](mailto:chengdu@rehau.com) **Xian**, +86 29 68597000, [xian@rehau.com](mailto:xian@rehau.com) **Shenyang**, +86 24 22876807, [shenyang@rehau.com](mailto:shenyang@rehau.com) **CO: Bogota**, +57 1 898 528687, [bogota@rehau.com](mailto:bogota@rehau.com) **CZ: Praha**, +420 272 190111, [praha@rehau.com](mailto:praha@rehau.com) **DE: Bielefeld**, +49 521 208400, [bielefeld@rehau.com](mailto:bielefeld@rehau.com) **Bochum**, +49 234 689030, [bochum@rehau.com](mailto:bochum@rehau.com) **Frankfurt**, +49 6074 40900, [frankfurt@rehau.com](mailto:frankfurt@rehau.com) **Hamburg**, +49 40 733402100, [hamburg@rehau.com](mailto:hamburg@rehau.com) **Hannover**, +49 5136 891181, [hannover@rehau.com](mailto:hannover@rehau.com) **Leipzig**, +49 34292 820, [leipzig@rehau.com](mailto:leipzig@rehau.com) **München**, +49 8102 860, [muenchen@rehau.com](mailto:muenchen@rehau.com) **Nürnberg**, +49 9131 934080, [nuernberg@rehau.com](mailto:nuernberg@rehau.com) **Stuttgart**, +49 7159 16010, [stuttgart@rehau.com](mailto:stuttgart@rehau.com) **Ingolstadt**, +49 841 142626200, [ingolstadt@rehau.com](mailto:ingolstadt@rehau.com) **DK: København**, +45 46 773700, [kobenhavn@rehau.com](mailto:kobenhavn@rehau.com) **EE: Tallinn**, +372 6025850, [tallinn@rehau.com](mailto:tallinn@rehau.com) **ES: Barcelona**, +34 93 6353500, [barcelona@rehau.com](mailto:barcelona@rehau.com) **Bilbao**, +34 94 4538636, [bilbao@rehau.com](mailto:bilbao@rehau.com) **Madrid**, +34 91 6839425, [madrid@rehau.com](mailto:madrid@rehau.com) **FI: Helsinki**, +358 9 87709900, [helsinki@rehau.com](mailto:helsinki@rehau.com) **FR: Lyon**, +33 4 72026300, [lyon@rehau.com](mailto:lyon@rehau.com) **Metz**, +33 6 8500, [metz@rehau.com](mailto:metz@rehau.com) **Paris**, +33 1 34836450, [paris@rehau.com](mailto:paris@rehau.com) **GB: Glasgow**, +44 1698 503700, [glasgow@rehau.com](mailto:glasgow@rehau.com) **Manchester**, +44 161 7777400, [manchester@rehau.com](mailto:manchester@rehau.com) **Slough**, +44 1753 588500, [slough@rehau.com](mailto:slough@rehau.com) **Ross on Wye**, +44 1989 762643, [rowy@rehau.com](mailto:rowy@rehau.com) **London**, +44 207 3078590, [london@rehau.com](mailto:london@rehau.com) **GE: Tbilisi**, +995 32 559909, [tbilisi@rehau.com](mailto:tbilisi@rehau.com) **GR: Athens**, +30 21 06682500, [athens@rehau.com](mailto:athens@rehau.com) **Thessaloniki**, +30 2310 633301, [thessaloniki@rehau.com](mailto:thessaloniki@rehau.com) **HK: Hongkong**, +8 52 28987080, [hongkong@rehau.com](mailto:hongkong@rehau.com) **HR: Zagreb**, +385 1 3444711, [zagreb@rehau.com](mailto:zagreb@rehau.com) **HU: Budapest**, +36 23 530700, [budapest@rehau.com](mailto:budapest@rehau.com) **ID: Jakarta**, +62 21 45871030, [jakarta@rehau.com](mailto:jakarta@rehau.com) **IE: Dublin**, +353 1 8165020, [dublin@rehau.com](mailto:dublin@rehau.com) **IN: Mumbai**, +91 22 61485858, [mumbai@rehau.com](mailto:mumbai@rehau.com) **New Delhi**, +91 11 45044700, [newdelhi@rehau.com](mailto:newdelhi@rehau.com) **Bangalore**, +91 80 2222001314, [bangalore@rehau.com](mailto:bangalore@rehau.com) **IT: Pesaro**, +39 0721 200611, [pesaro@rehau.com](mailto:pesaro@rehau.com) **Roma**, +39 06 90061311, [roma@rehau.com](mailto:roma@rehau.com) **Treviso**, +39 0422 726511, [treviso@rehau.com](mailto:treviso@rehau.com) **JP: Tokyo**, +81 3 57962102, [tokyo@rehau.com](mailto:tokyo@rehau.com) **KR: Seoul**, +82 2 5011656, [seoul@rehau.com](mailto:seoul@rehau.com) **KZ: Almaty**, +7 727 3941301, [almaty@rehau.com](mailto:almaty@rehau.com) **LT: Vilnius**, +370 5 2461400, [vilnius@rehau.com](mailto:vilnius@rehau.com) **LV: Riga**, +371 6 7609080, [riga@rehau.com](mailto:riga@rehau.com) **MA: Casablanca**, +212 522250593, [casablanca@rehau.com](mailto:casablanca@rehau.com) **MK: Skopje**, +389 22402 670, [skopje@rehau.com](mailto:skopje@rehau.com) **MX: Celaya**, +52 461 6188000, [celaya@rehau.com](mailto:celaya@rehau.com) **Monterrey**, +52 81 81210130, [monterrey@rehau.com](mailto:monterrey@rehau.com) **NL: Nijkerk**, +31 33 2479911, [nijkerk@rehau.com](mailto:nijkerk@rehau.com) **NO: Oslo**, +47 2 2514150, [oslo@rehau.com](mailto:oslo@rehau.com) **NZ: Auckland**, +64 9 2722264, [auckland@rehau.com](mailto:auckland@rehau.com) **PE: Lima**, +51 1 2261713, [lima@rehau.com](mailto:lima@rehau.com) **PL: Poznań**, +48 61 8498400, [poznan@rehau.com](mailto:poznan@rehau.com) **PT: Lisboa**, +351 21 8987050, [lisboa@rehau.com](mailto:lisboa@rehau.com) **Oporto**, +351 22 94464, [oporto@rehau.com](mailto:oporto@rehau.com) **QA: Qatar**, +974 44101608, [qatar@rehau.com](mailto:qatar@rehau.com) **RO: Bacau**, +40 234512066, [bacau@rehau.com](mailto:bacau@rehau.com) **Bucuresti**, +40 21 2665180, [bucuresti@rehau.com](mailto:bucuresti@rehau.com) **Cluj Napoca**, +40 264 415211, [clujnapoca@rehau.com](mailto:clujnapoca@rehau.com) **RS: Beograd**, +381 11 3770301, [beograd@rehau.com](mailto:beograd@rehau.com) **RU: Chabarowsk**, +7 4212 411218, [chabarowsk@rehau.com](mailto:chabarowsk@rehau.com) **Jekaterinburg**, +7 343 2535305, [jekatarinburg@rehau.com](mailto:jekatarinburg@rehau.com) **Krasnodar**, +7 861 2103636, [krasnodar@rehau.com](mailto:krasnodar@rehau.com) **Nishnij Nowgorod**, +7 831 4678078, [nishnijnowgorod@rehau.com](mailto:nishnijnowgorod@rehau.com) **Nowosibirsk**, +7 3832 000353, [nowosibirsk@rehau.com](mailto:nowosibirsk@rehau.com) **Rostow am Don**, +7 8632 978444, [rostow@rehau.com](mailto:rostow@rehau.com) **Samara**, +7 8462 698058, [samara@rehau.com](mailto:samara@rehau.com) **St. Petersburg**, +7 812 3266207, [stpetersburg@rehau.com](mailto:stpetersburg@rehau.com) **Woronesch**, +7 4732 611858, [woronesch@rehau.com](mailto:woronesch@rehau.com) **SE: Örebro**, +46 19 206400, [orebro@rehau.com](mailto:orebro@rehau.com) **SG: Singapore**, +65 63926006, [singapore@rehau.com](mailto:singapore@rehau.com) **SK: Bratislava**, +421 2 68209110, [bratislava@rehau.com](mailto:bratislava@rehau.com) **TH: Bangkok**, +66 27635100, [bangkok@rehau.com](mailto:bangkok@rehau.com) **TW: Taipei**, +886 2 87803899, [taipei@rehau.com](mailto:taipei@rehau.com) **UA: Dnepropetrowsk**, +380 56 3705028, [dnepropetrowsk@rehau.com](mailto:dnepropetrowsk@rehau.com) **Kiev**, +380 44 4677710, [kiev@rehau.com](mailto:kiev@rehau.com) **Odessa**, +380 48 7800708, [odessa@rehau.com](mailto:odessa@rehau.com) **Lviv**, +380 32 2958920, [lviv@rehau.com](mailto:lviv@rehau.com) **US: Detroit**, +1 248 8489100, [detroit@rehau.com](mailto:detroit@rehau.com) **Grand Rapids**, +1 616 2856867, [grandrapids@rehau.com](mailto:grandrapids@rehau.com) **Los Angeles**, +1 951 5499017, [losangeles@rehau.com](mailto:losangeles@rehau.com) **Minneapolis**, +1 612 2530576, [minneapolis@rehau.com](mailto:minneapolis@rehau.com) **VN: Ho Chi Minh City**, +84 8 38233030, [sales.vietnam@rehau.com](mailto:sales.vietnam@rehau.com) **ZA: Durban**, +27 31 76572447, [durban@rehau.com](mailto:durban@rehau.com) **Johannesburg**, +27 11 2011300, [johannesburg@rehau.com](mailto:johannesburg@rehau.com) **Cape Town**, +27 21 9821254, [capetown@rehau.com](mailto:capetown@rehau.com) **East London**, +27 43 7095400, [eastlondon@rehau.com](mailto:eastlondon@rehau.com) **If there is no sales office in your country**, +49 9131 925888, [salesoffice.lbd@rehau.com](mailto:salesoffice.lbd@rehau.com)

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Rheniumhaus  
95111 Rehau (Germany)

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