RLS®
RAPID LOCKING SYSTEM

Original. Patented. Proven.

FAQs

Flame-Free Refrigerant Fittings

PROUDLY MADE
IN AMERICA

TROUBLESHOOTING

1. What should I do to ensure that a fitting doesn't leak after pressing?

- Verify tubing for scratches, incise marks and dents prior to tube cutting. Be careful when using a knife to cut off plastic shipping caps or insulation off copper tubes.
- Take time to cut the tubing properly using a tubing cutter. Rushing through the cutting process may cause dents and oval tubing, which can create leaks.
- Verify proper deburring and sanding/cleaning of tube surface per instructions.
- Verify proper tube insertion depth using provided insertion gauge. One gauge is provided with the tool kit or can be ordered separately. Refer to the "Minimum Insertion Depth" table on next page if you do not have a gauge.
- Verify the proper crimp diameter using the provided crimp gauge.
- Verify correct jaw is installed for the fitting you are trying to press.
- If jaw is sticking during the press, try applying a light coating of spray lubricant such as WD-40 directly to the jaws.
- Let jaw and tool do the work. If the fitting is in a hard to reach place, it is important to let the tool body move freely.
- Avoid applying any sort of pulling or twisting of the tool during the pressing process.

2. What should I do if a fitting leaks after pressing?

If the fitting was recently pressed (15-20 minutes) prior to pressurization, it is possible the bubbles are a result of trapped air in the double crimp area that can leak out over time, and IS NOT a fitting leak. This is more likely to occur on smaller fittings.

Since the joint is a permanent one, if a fitting is leaking after this period there is not much that can be done to address it. It's best to remove the affected fitting and replace with a new one.

If fitting is to be returned for analysis, please ensure that there is AT LEAST 3 inches of tube on each end of the fitting so it can be analyzed, and leak cause determined. Without sufficient tubing, fitting can't be tested and leak confirmed.

3. If a fitting leaks, can you just braze it in instead of cutting it out and having to add more pipe?

Trying to braze the fitting will very likely melt the O-ring material and thus introduce contaminants into the system that could cause other system issues, so the fittings should never be brazed.

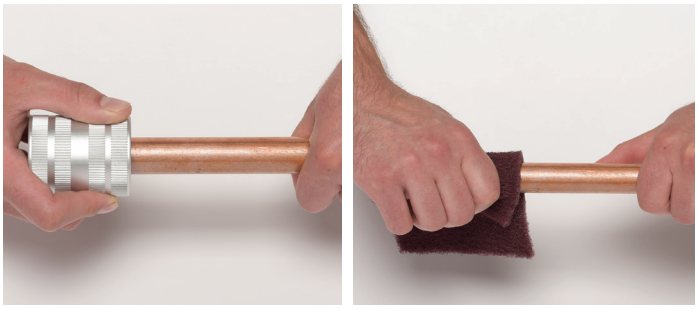
INSTALLATION

4. What is the most common cause of leaky fittings?

Skipping installation instructions 4 through 8 will cause the tube to leak. It is very important to use the scouring pad and deburring tool. Refrigerant gas running at high pressure is more likely to leak than water at a much lower pressure, therefore, following the tube preparation instructions is critical.

5. What is a "deep" scratch and how can I remove it?

A deep scratch is defined as one that can be felt with your fingernail. To remove minor scratches try using a new piece of Scotch Brite abrasive pad (maroon color) or 400 grit sandpaper. Alternatively, 180 grit sandpaper/cloth can be used for 15-20 seconds to remove a deep scratch.



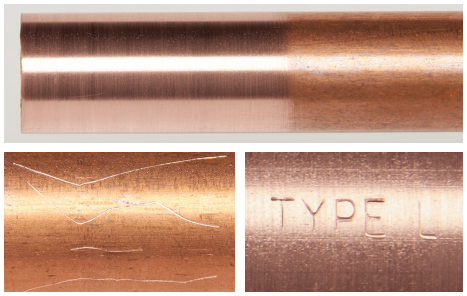
Following tube preparation steps 4 to 8 in the RLS installation instructions is important for preventing leaks.

6. How do you slide insulation over RLS fittings if the flare grabs the insulation?

If the flare of the fitting tends to be a problem, you can smooth the transition over the fitting by adding duct or electrical tape around the flared edge of the fitting to the tube.

7. Can you show an example of a "good" copper tube surface after sanding?

The top photo below shows a properly prepped tube end. The two lower photos show a tube with bad scratches and a tube with an incise mark, both of which need to be cut off or removed by deburring and sanding per the installation instructions.



Scratches Incise mark

8. How do I know the correct insertion depth when pushing the RLS fitting onto the copper tube?

Use the depth gauge provided or the "Minimum Insertion Depth" chart below to determine the correct insertion depth. Mark the tubing with a permanent marker to indicate proper insertion depth on every tube.

MINIMUM INSERTION DEPTH

Fitting Size	Inches	Millimeters
1/4	1	25.4
5/16	1	25.4
3/8	1	25.4
1/2	1-1/4	31.8
5/8	1-1/4	31.8
3/4	1-1/4	31.8
7/8	1-1/4	31.8
1	1-1/4	31.8
1-1/8	1-1/4	31.8
1-1/4	1-1/2	38.1
1-3/8	1-1/2	38.1

9. How do I press onto the flared tubing that comes out of the condenser and evaporator on residential units?

We do not have a specific product designed to press over this type of flared tubing. However, if there is at least 3 inches of straight copper tubing after the flared end is removed, and it is accessible with the jaws, we suggest that you cut the flared end off and press directly to the tube. It is important to measure the straight section of tube, prior to cutting, to ensure the diameter is within tolerance and will work with the fitting. Reference the standards in item #10 for size ranges.

10. How much tolerance can the RLS fitting handle on the pipe being pressed?

We know that not all copper tubing is the same, but we have tested RLS with most copper tube manufacturers with no issues. The tolerance for each tube to ensure a leak-free joint is defined by ASTM B280, B88 or B1003.

11. What is the minimum brazing distance?

Brazing tubing after a fitting has been installed should be avoided at all costs. Minimum brazing distances below apply to pre-brazed tube sections as well. If field brazing, conventional precautions should be taken to ensure fitting remains cool.

MINIMUM DISTANCE FROM RLS FITTING TO BRAZE

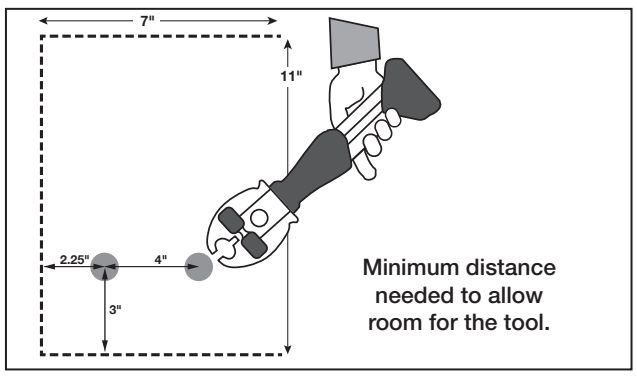
Tube Diameter	Inches	Millimeters
1/4 to 1/2	5	127
5/8	7	178
3/4	8	203
7/8 to 1	9	229
1-1/8	12	305
1-1/4 to 1-3/8	14	356

12. What is the minimum distance between RLS fittings?

The ends of the fittings should be no closer than 1/2 inch apart.

13. What is the recommended minimum space (envelope) needed around the Klauke® tool and jaws to crimp?

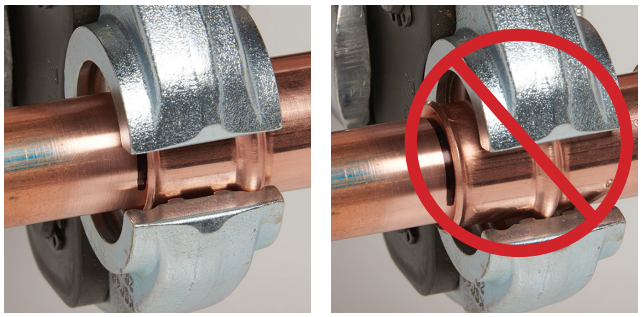
An envelope of 11" x 7" is recommended. The illustration below shows closed space around the fitting with one end open. It assumes a 4" center-line between fittings and a max 1-3/8" couplings. A minimum of 2-1/4" from the back wall surface is required. You need 2-1/2" between couplings for jaws if the tool is coming up from below the fittings to press. Contact RLS with questions.



PRESS TOOL

14. Can RLS fittings be pressed in the same location as Viega ProPress fittings?

No. The fittings will leak if you do not press per the RLS installation instructions. Proper pressing is also illustrated in the photo below.



15. How many press cycles can you complete on a complete battery charge?

On average you can achieve 100-150 presses per charge, depending on the size fittings being crimped. Each Klauke Tool kit comes with 2 Makita Lithium-ion 2.0 Ah 18V batteries (BL1820B) and a rapid charge charging system. To prevent any down-time, it is recommended that you have both batteries charged before going to the job site, and to have one charging (or charged) while the other is in use.

16. How can I increase battery life?

You can purchase a Makita 3.0 Ah 18 V Li-Ion battery (BL1930) at your local or online retailers where batteries are sold.

17. How do you know when the tool needs to be serviced?

The 15 kN (MAP2L) and 19 kN (MAP2L19) Klauke tools have red LED lights on the back of the tool that will blink for 20 seconds after a crimp. The 19 kN tool has a screen on the tool which indicates the number of remaining crimps. Take the tool back to an authorized dealer to have the tool serviced.

18. What is the expected life of the jaws?

Each jaw has an expected life of 10,000 to 12,000 crimps.

19. How do you know when the jaw needs to be replaced?

You will know when the jaw needs to be replaced when the contact point between the upper and lower jaw starts to open up/widen. A good indication of failure is when the crimp gauge no longer engages. Use the supplied wire brush in tool kit to periodically clean pressing jaws.

20. Where can replacement batteries and chargers be purchased?

The 2.0 Ah 18 V Makita Li-Ion battery (BL1820B) along with the 110V AC charger (DC18RC) can be purchased at your local or online retailers where batteries are sold.

TECHNICAL

21. What material is the O-ring made of?

The O-ring is a highly engineered HNBR O-ring that has been used in HVAC applications by OEMs and suppliers for many years with no issues.

22. What is the expected life of the O-ring in the system?

The O-ring material used is the same as what is used in other refrigeration components, such as valves. Due to the nature of the static press sealing the O-ring from outside air, in a properly working system the O-ring should last as long as the system.

23. Does the O-ring compensate for imperfections in the piping to make a tight seal?

Yes, the O-ring does compensate for small/minor scratches on the surface of the tube; however, the tubing needs to be inspected prior to use per ASTM B280, B88, or B1003 and the *Copper Tube Handbook* published by the Copper Development Association (CDA) specifications. Imperfections in and adjacent to the crimp area could inhibit the joint integrity. These imperfections may include surface scratches, incise marks, tube zippers and out-of-round tubing.

24. Are there any shelf life concerns?

No, the shelf life of the HNBR O-ring is estimated at or above 15 years.

25. Is there a concern about ice building up and then thawing under fittings in a horizontal or vertical configuration?

No, RLS fittings have been thoroughly tested in freeze/thaw applications with over 10,000 cycles completed in both vertical and horizontal configurations with no leakage concerns.

26. Are there any concerns about corrosion due to harsh environments, cleaners or off-gassing of produce/vegetables?

RLS fittings have gone through extensive SWATT testing, completing over 2,000 hours of salt spray testing without failure, which proves the resilience of the product. Care should be given to avoid areas that could be exposed to ammonia or ammonia-like substances as ammonia is very corrosive to copper fittings and tubing.

27. The product specifications state that the application temperature limits are -40°F to +300°F / -40°C to 150°C. What happens if we go beyond that limit?

If the application that the fitting is being used in goes beyond the specified limits of the O-ring (-40°F to +300°F / -40°C to 150°C), then there will be an increased likelihood that a leak can occur.

28. Can I use RLS fittings in a transportation application where vibration is high?

Yes. RLS fittings have gone through extensive vibration testing and results are as good as, if not better than, a braze joint. Please review the vibration testing procedure and conclusion for more information.

29. Can you use RLS refrigerant fittings to crimp to aluminum, steel or stainless steel?

No. RLS copper refrigerant fittings are specifically designed for copper-to-copper connections. Connecting to dissimilar metals can cause galvanic corrosion issues that could cause a failure.

OTHER

30. Are RLS fittings approved by state and city building codes?

RLS fittings have been approved by UL-207, ASHRAE 15, International Code Council – Evaluation Service (ICC-ES), International Mechanical Code (IMC), Universal Mechanical Code (UMC) and International Residential Code (IRC). These approvals are all that is needed in most areas. Please contact your local building inspector with questions prior to install. Installers should check local codes to ensure fitting compliance prior to install.

31. Do RLS refrigerant fittings come with a warranty?

Yes. Our 10-year manufacturer's warranty states that RLS fittings shall be free from defects in material and workmanship. The warranty shall only be applicable to the RLS fittings installed in accordance with the installation instructions.

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