



POCKET GUIDE

**The Original Flame-Free
Refrigerant Press Fittings**



**MADE IN
AMERICA**

rapidlockingsystem.com




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SAFETY INSTRUCTIONS


RLS fittings are only to be installed with RLS approved press tools and jaws. These are commercial and industrial tool and jaw sets – read the tool manuals in complete detail. Proper training is required to operate.

▲ WARNING



- Follow all instructions.
- Failure to follow all instructions may result in property damage, serious injury or death.
- Installation should only be done by a certified/qualified person.
- Do not perform any work on a pressurized system.

▲ WARNING



- Only use RLS fittings with compatible refrigerants.
- Using incompatible refrigerants may damage the system, and/or result in serious injury or death.

▲ WARNING



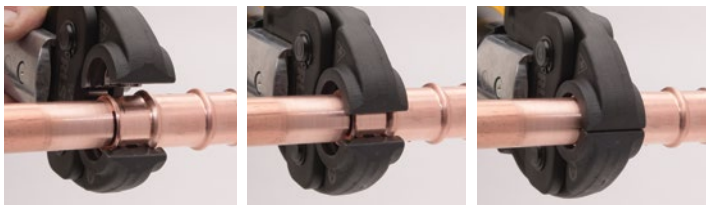
- Users must use personal protection during the installation of RLS fittings.
- Wear safety glasses or face shield when installing RLS fittings.
- Failing to use safety glasses or face shield may result in serious personal injury or death.



Fast, reliable HVAC/R joints as easy as 1-2-3!

Get reliable, flame-free connections in seconds with RLS, the original HVAC/R press fittings. Just prep the copper tube ends and then let the battery-powered tool do the work. Our patented technology results in two 360° metal-to-metal connections with each press – creating a permanent mechanical joint every time, without the dangers of an open flame and flammable gas.

With our proven, unmatched track record of success – including more than 15 million fittings installed worldwide since 2015 – you can count on the dependability of RLS. Plus, RLS-compatible jaws are available for most press tools (see page 26 for details).



1. Insert the tube

2. Align the jaws

3. Pull the trigger

RLS ADVANTAGES:

- Field-proven since 2015
- 15 million+ installed fittings
- Sizes from 1/4" to 2-1/8"
- Connections in 10 seconds
- UL Listed to 700 psi
- 360° metal-to-metal joints
- Works in tight spaces
- No gas or brazing materials
- No flame, no fire hazards
- No hot work permits
- No fire watch
- No nitrogen purging
- Made in America
- 15-year limited warranty

All RLS products are approved for use with the following refrigerants:

R-134A	R-404A	R-407A	R-407C	R-407F	R-407H
R-410A	R-417A	R-421A	R-422B	R-422D	R-424A
R-427A	R-434A	R-437A	R-438A	R-448A	R-449A
R-450A	R-452A	R-453A	R-456A	R-507A	R-513A
R-513B	R-718	Ethylene Glycol	R-22*		

*Special order item, includes neoprene o-rings in place of HNBR.

Contact us about special blends or other refrigerants not listed here. Check your local codes to ensure that RLS fittings are suitable for use with your particular refrigerant. RLS fittings are also compatible with the following industrial (non-refrigerant) gases: nitrogen, argon, helium and oxygen (non-medical). Testing on A2, A2L and A3 refrigerants is ongoing, with expected approval by end of 2023.



INSTRUCTIONS

Prepare Tool and Installation Aids

1. Assure that all the tools and installation aids are available prior to beginning installation. The following list is to be used as a reference:

- RLS fitting (Figure 1)
- RLS approved press tool and jaws – sized appropriately (Figure 2)
- RLS installation aids (Figure 3)
 - Deburring tool
 - Permanent marker
 - Tube cutter
 - RLS press gauge
 - RLS depth gauge
 - Abrasive pad
 - Brush



Figure 1



Figure 2

Inspect Fitting and Tube

2. To ensure the integrity of the joint, visually determine if the O-Rings are present and visually inspect the O-Rings for obvious damage such as nicks or tears.

Caution: If an O-Ring appears to be damaged, is out of position, or is missing, **DISCARD OLD FITTING AND USE A NEW ONE.**

3. Perform a visual and tactile inspection of the tubing for surface imperfections referenced in ASTM B280, B88 or B1003 and the *Copper Tube Handbook* published by the Copper Development Association (CDA). Imperfections in and adjacent to the crimp or seal area could inhibit the joint integrity. These imperfections may include, but are not limited to:

- Surface scratches
- Incise marks (a required permanent mark of the tube manufacturer's name or logo)
- Out of round (oval) on the cut ends
- Production defects such as zippers
- Dirt or debris
- Items that may interfere with the O-Ring

Should any of the above situations be identified, select a different area of the tubing. If necessary, cut off the portion with the imperfections.

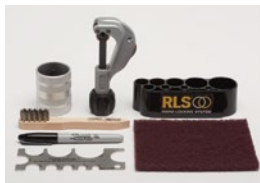
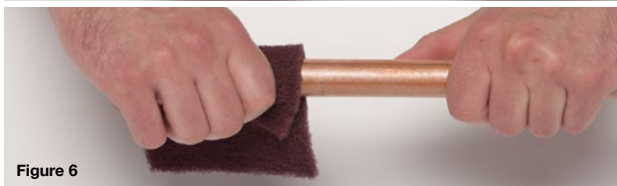
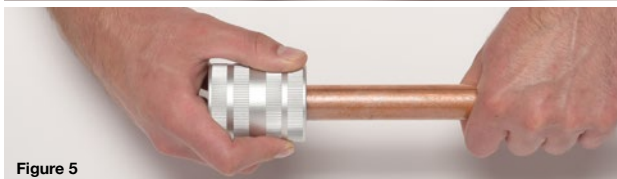
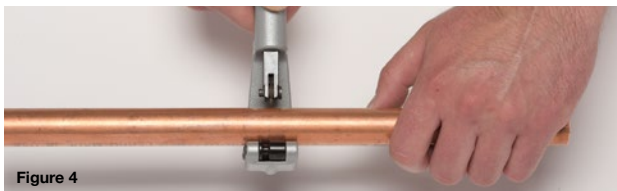


Figure 3



Cut Tube

4. Cut the copper tube using the supplied or similar tube cutter (Figure 4). Ensure tube section to be pressed is straight. Caution: Do not proceed if the tube is cut at any visible angle other than 90 degrees or if the tube is not straight. Do not use a worn or damaged tube cutter, which can damage the tube and compromise the installation. This may lead to injury, equipment damage or failure of the system.

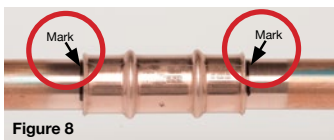
Prepare Tube

5. Use the deburring tool to remove any residual burrs from the outside and inside of the tube (Figure 5). Visual and tactile inspection should indicate no sharp edges or burrs remain. This is critical to avoid damaging the O-Ring.
6. Use the included abrasive pad or adequate substitute (e.g. sand paper or sand cloth) to clean the end of the tubes to be joined (Figure 6). Tube ends should be free and clear of oxidation, dirt and debris. The surface should appear bright and shiny. Do not drop the tube, as this may cause damage and lead to improper installation. If the tube has been dropped, inspect it carefully and discard the tube if any damage is found.



Connect Tube

- Use the supplied depth gauge (Figure 7) or table below to mark inserted tube for insertion depth. Each tube must be marked to the correct insertion depth every time.
- Push fitting onto tube and continue until the insertion marks are aligned with the end of the fitting. Make sure the tube is completely inserted into the fitting using the marks made in Step 7 (Figures 8 & 9).



Minimum Insertion Depth

Fitting Size	1/4" – 3/8"	1/2" – 1-1/8"	1-1/4" – 1-3/8"	1-5/8"	2-1/8"
Depth (in)	1	1-1/4	1-1/2	1-3/4	2-1/8
Depth (mm)	25.4	31.8	38.1	44.5	54.0

Note: It is possible that tube may be fully inserted and the marks may still be slightly visible as a result of the dimple and the accuracy of marks.

Note: Fitting installation should be relatively easy with little resistance felt. If it seems overly difficult to install the fitting, remove from tube and check to make sure the O-Ring hasn't been unseated. If this is the case, discard the fitting and use a new, replacement fitting.

⚠ WARNING

- Only RLS approved tools and jaws should be used to install RLS fittings.
- Failing to use the RLS approved jaws may result in property damage, serious injury or death.



INSTRUCTIONS

9. Press the press tool locking pin (Figure 10), then rotate 45° to release (Figure 11).
10. Slide the appropriate size jaw over the press tool head (Figure 12), then depress the locking pin until it clicks (Figure 13).
11. Slide the charged battery onto the base of the tool (Figure 14). Press and hold the trigger on the tool until the cycle is completed to calibrate (Figure 15). Calibration is recommended every time a jaw is changed prior to use.



Figure 10



Figure 11

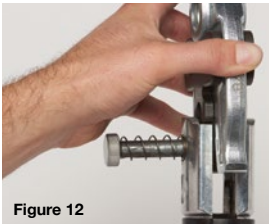


Figure 12



Figure 13



Figure 14



Figure 15



⚠ WARNING

COPPER TUBE ENDS SHOULD BE INSPECTED AND ANY SHARP EDGES SHOULD BE REMOVED. SHARP EDGES MAY CAUSE DAMAGE TO THE O-Ring.

Note: Refer to the manufacturer's instructions for specific tool and jaw operation.



INSTRUCTIONS

12. Press at the base of the jaws to open (Figure 16) and place the jaws onto the fitting as shown (Figure 17). Grooves in the jaw should line up and seat onto a groove located on the fitting. Ensure the tool is positioned between the flare and groove (Figure 18), NOT over the groove (Figure 19). Align the bottom portion of the jaw and the top portion will follow. **SPECIAL ATTENTION SHOULD BE GIVEN TO THE CORRECT SEATING OF THE JAW.**
13. Visually verify the inserted tube has remained in place and is still at the correct insertion depth as indicated by the mark (Figure 18).



Figure 16

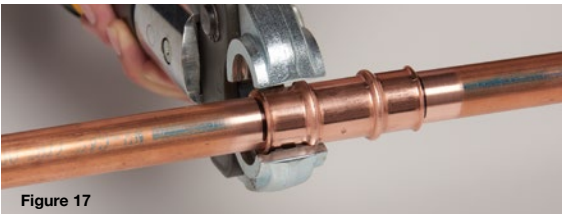


Figure 17

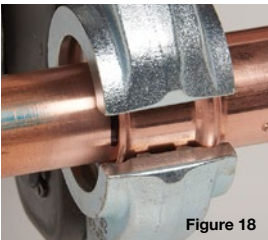


Figure 18

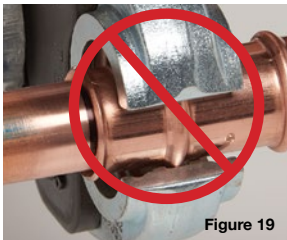


Figure 19



⚠ WARNING

- Keep hands and fingers away from jaws during use.
- Failing to keep hands and fingers away from jaws may lead to serious personal injury.

Note: Refer to the manufacturer's instructions for specific tool and jaw operation.



14. Press and hold the trigger on the tool to begin the pressing process. Continue to hold the trigger until the tool completes its cycle (Figure 20). The jaws will not open until the cycle is completed without manual override. Repeat the process for the remaining fitting ends where appropriate.

Note: For 1-3/8" fittings only (when using 19 kN or 24 kN jaws), after the 1st press, a 2nd press must be made with the 2nd press rotated at least 60° (approximate) from the 1st (Figure 21). When using 32 kN jaws, only one press is required. No other fittings are to be pressed twice.

15. Open the jaws and remove from the fitting. If the jaws do not open, the pressing cycle was not completed. For manual override, slide the manual release button down to open the jaw. If jaws stick to fitting, ensure the jaws are cleaned and apply a light amount of WD-40 to the jaw profile surface.

Verify Connection

16. To verify the press cycle was completed properly, a witness mark (RLS) will appear within the press bands (Figure 22). The mark will be more pronounced when pressed on hard tube vs. annealed tube but will be visible. Failure to create the witness mark either means an unauthorized jaw or the wrong sized jaw was used. It's also possible the jaw is dirty and the witness mark is filled with dirt/debris. If a fitting is incorrectly pressed then it must be removed and the procedure restarted with a new fitting.

USE THE PRESS GAUGE TO CONFIRM THE CONNECTION.
(See next page.)



Figure 20

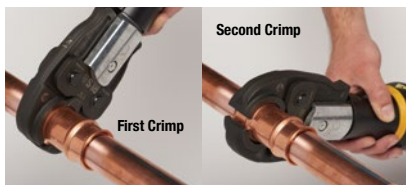


Figure 21



Figure 22



17. The RLS press gauge will confirm the finished press band diameter. The gauge is marked to align with the proper size fitting and press required. When the fitting is properly pressed, the RLS press gauge allows the marked slot to fit snug on the press band (Figure 23). If the press band is unable to fit within the marked slot on the gauge, it is under-pressed and will need to be re-pressed starting with Step 12.

Note: Flashing may be left over from the pressing process on hard tube. If so, rotate the gauge so that the flashing is in line with the size marking when placed over the press bands. This will allow the diameter to be checked without interference from the flashing.

Use caution – flashing may be sharp.

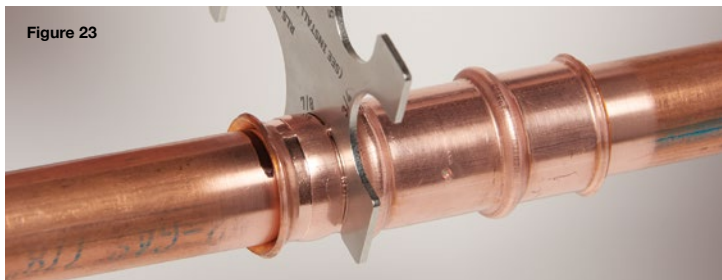


Figure 23

Minimum Distance From Braze to Nearest Fitting End

Tube Diameter	1/4" – 1/2"	5/8"	3/4"	7/8" – 1"	1-1/8"	1-1/4" – 1-3/8"	1-5/8"	2-1/8"
Distance (in)	5	7	8	9	12	14	16-1/4	21-1/4
Distance (mm)	127	178	203	229	305	355	413	540

SAFETY INSTRUCTIONS

- Do not rest the weight of the tool on the tube or fitting.
- Periodically check to ensure the jaws are meeting and aligned.
- Do not leave battery on charger unattended or overnight.
- Use brush to ensure jaws are debris free.
- Do not braze or solder within distance indicated in the chart above.

Note: For specific tool and jaw care and maintenance, refer to the manufacturer's instructions.

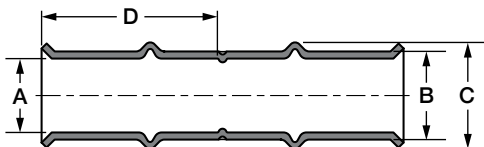


Couplings



Size (Inch)	Part Number	Dimensions (Inches)				Box Quantity	Carton Quantity	Carton Weight
		A	B	C	D			
1/4	3011040400111	0.26	0.34	0.45	0.95	10	100	2.3 lbs.
5/16	3011050500111	0.32	0.40	0.52	0.93	10	100	2.9 lbs.
3/8	3011060600111	0.39	0.47	0.59	0.98	10	100	3.5 lbs.
1/2	3011080800111	0.51	0.59	0.73	1.25	10	100	6.1 lbs.
5/8	3011101000111	0.64	0.74	0.89	1.24	10	100	9.5 lbs.
3/4	3011121200111	0.76	0.88	1.07	1.29	10	40	5.5 lbs.
7/8	3011141400111	0.89	1.02	1.19	1.31	10	40	7.0 lbs.
1	3011161600111	1.01	1.16	1.36	1.31	10	40	9.5 lbs.
1-1/8	3011181800111	1.14	1.29	1.45	1.29	10	40	10.3 lbs.
1-1/4	3011202000111	1.26	1.41	1.62	1.30	12	24	7.4 lbs.
1-3/8	3011222200111	1.39	1.54	1.75	1.57	12	24	9.0 lbs.
1-5/8	3011262600111	1.64	1.88	2.18	1.85	4	4	3.4 lbs.
2-1/8	3011343400111	2.14	2.38	2.68	2.34	4	4	5.5 lbs.

DIMENSIONS



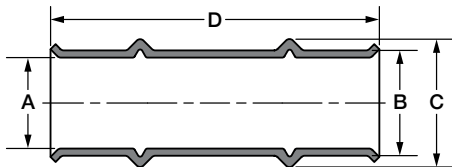


Slip Couplings



Size (Inch)	Part Number	Dimensions (Inches)				Box Quantity	Carton Quantity	Carton Weight
		A	B	C	D			
1/4	3021040400111	0.26	0.34	0.45	2.00	10	100	2.3 lbs.
5/16	3021050500111	0.32	0.40	0.52	2.01	10	100	2.9 lbs.
3/8	3021060600111	0.39	0.47	0.59	2.05	10	100	3.5 lbs.
1/2	3021080800111	0.51	0.59	0.73	2.74	10	100	6.1 lbs.
5/8	3021101000111	0.64	0.74	0.89	2.75	10	100	9.5 lbs.
3/4	3021121200111	0.76	0.88	1.07	2.75	10	40	5.5 lbs.
7/8	3021141400111	0.89	1.02	1.19	2.74	10	40	7.0 lbs.
1-1/8	3021181800111	1.14	1.29	1.45	2.77	10	40	10.3 lbs.
1-3/8	3021222200111	1.39	1.54	1.75	3.15	12	24	9.0 lbs.

DIMENSIONS



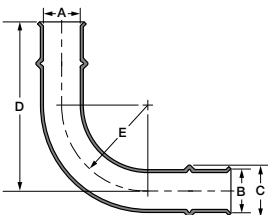


90° Elbows



Size (Inch)	Part Number	Dimensions (Inches)					Box Quantity	Carton Quantity	Carton Weight
		A	B	C	D	E			
1/4	3031040400111	0.26	0.34	0.45	2.01	0.68	10	100	4.4 lbs.
5/16	3031050500111	0.32	0.40	0.52	2.13	0.81	10	100	5.8 lbs.
3/8	3031060600111	0.39	0.47	0.59	2.27	0.93	10	100	7.4 lbs.
1/2	3031080800111	0.51	0.59	0.73	2.88	1.18	10	100	11.6 lbs.
5/8	3031101000111	0.64	0.74	0.89	3.21	1.47	10	100	20.0 lbs.
3/4	3031121200111	0.76	0.88	1.07	3.47	1.76	10	40	12.3 lbs.
7/8	3031141400111	0.89	1.02	1.19	3.75	2.03	10	40	16.6 lbs.
1	3031161600111	1.01	1.16	1.36	4.04	2.33	10	40	22.2 lbs.
1-1/8	3031181800111	1.14	1.29	1.45	4.29	2.54	10	40	27.8 lbs.
1-1/4	3031202000111	1.26	1.41	1.62	4.30	2.53	5	5	3.7 lbs.
1-3/8	3031222200111	1.39	1.54	1.75	4.54	2.75	5	5	4.9 lbs.
1-5/8	3031262600111	1.64	1.88	2.18	5.49	3.25	2	2	4.6 lbs.
2-1/8	3031343400111	2.14	2.38	2.68	6.83	4.25	2	2	7.3 lbs.

DIMENSIONS



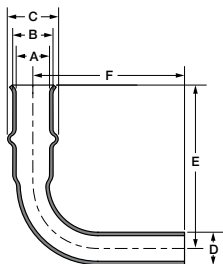


90° Street Elbows



Size (Inch)	Part Number	Dimensions (Inches)						Box Quantity	Carton Quantity	Carton Weight
		A	B	C	D	E	F			
3/8	3501060600111	0.39	0.47	0.59	0.38	1.75	1.89	10	100	4.8 lbs.
1/2	3501080800111	0.51	0.59	0.73	0.50	2.56	2.65	10	100	9.2 lbs.
5/8	3501101000111	0.64	0.74	0.89	0.63	2.64	2.81	10	100	15.1 lbs.
3/4	3501121200111	0.76	0.88	1.07	0.75	3.00	3.15	10	40	9.2 lbs.
7/8	3501141400111	0.89	1.02	1.19	0.88	3.25	3.40	10	40	12.7 lbs.
1-1/8	3501181800111	1.14	1.29	1.45	1.13	3.80	3.93	10	40	22.1 lbs.
1-3/8	3501222200111	1.39	1.54	1.75	1.38	4.38	4.51	5	5	3.8 lbs.

DIMENSIONS



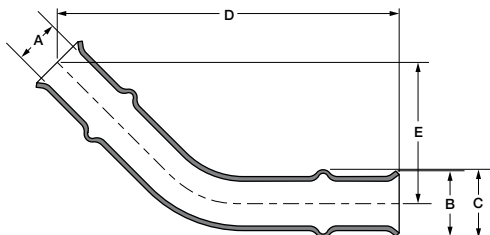


45° Elbows



Size (Inch)	Part Number	Dimensions (Inches)					Box Quantity	Carton Quantity	Carton Weight
		A	B	C	D	E			
3/8	3081060600111	0.39	0.56	0.59	2.94	1.21	10	100	5.8 lbs.
1/2	3081080800111	0.51	0.71	0.73	3.72	1.54	10	100	9.6 lbs.
5/8	3081101000111	0.64	0.86	0.88	3.97	1.64	10	100	15.9 lbs.
3/4	3081121200111	0.76	1.02	1.07	4.12	1.70	10	40	9.4 lbs.
7/8	3081141400111	0.89	1.13	1.19	4.49	1.86	10	40	12.7 lbs.
1-1/8	3081181800111	1.14	1.41	1.45	4.84	2.00	10	40	20.2 lbs.
1-3/8	3081222200111	1.39	1.68	1.75	5.11	2.11	5	5	3.8 lbs.
1-5/8	3081262600111	1.64	2.00	2.18	6.22	2.58	2	2	3.1 lbs.
2-1/8	3081343400111	2.14	2.57	2.68	7.44	3.08	2	2	4.7 lbs.

DIMENSIONS



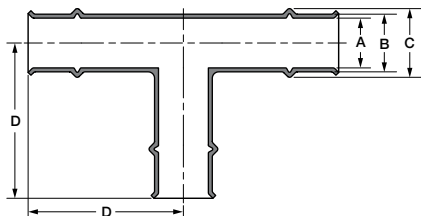


Tees



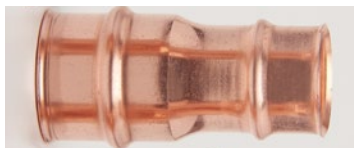
Size (Inch)	Part Number	Dimensions (Inches)				Box Quantity	Carton Quantity	Carton Weight
		A	B	C	D			
3/8	3091060606111	0.39	0.47	0.59	1.63	10	100	8.4 lbs.
1/2	3091080808111	0.51	0.59	0.72	2.23	10	100	26.4 lbs.
5/8	3091101010111	0.64	0.74	0.87	2.30	10	100	26.8 lbs.
3/4	3091121212111	0.76	0.88	1.05	2.38	10	40	15.0 lbs.
7/8	3091141414111	0.89	1.02	1.19	2.43	10	40	20.3 lbs.
1	3091161616111	1.01	1.16	1.36	2.59	10	40	23.7 lbs.
1-1/8	3091181818111	1.14	1.29	1.45	2.56	10	40	30.4 lbs.
1-1/4	3091202020111	1.26	1.41	1.62	3.36	5	5	4.7 lbs.
1-3/8	3091222222111	1.39	1.54	1.75	3.36	5	5	5.3 lbs.
1-5/8	3091262626111	1.64	1.88	2.18	3.95	2	2	4.7 lbs.
2-1/8	3091343434111	2.14	2.38	2.68	4.18	2	2	6.3 lbs.

DIMENSIONS



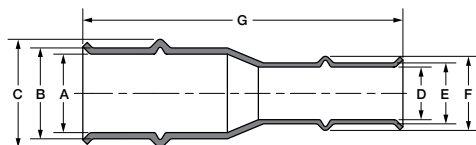


Reducers



Size (Inch)	Part Number	Dimensions (Inches)							Box Quantity	Carton Quantity	Carton Weight
		A	B	C	D	E	F	G			
3/8 to 1/4	3051060400111	0.39	0.47	0.59	0.26	0.34	0.45	2.24	10	100	3.8 lbs.
1/2 to 1/4	3051080400111	0.51	0.59	0.73	0.26	0.34	0.45	2.71	10	100	5.0 lbs.
1/2 to 3/8	3051080600111	0.51	0.59	0.73	0.39	0.47	0.58	2.58	10	100	5.5 lbs.
5/8 to 1/4	3051100400111	0.64	0.74	0.89	0.26	0.34	0.45	2.70	10	100	7.9 lbs.
5/8 to 3/8	3051100600111	0.64	0.74	0.89	0.39	0.47	0.58	2.70	10	100	8.1 lbs.
5/8 to 1/2	3051100800111	0.64	0.74	0.87	0.51	0.59	0.72	3.10	10	100	8.7 lbs.
3/4 to 1/2	3051120800111	0.76	0.88	1.05	0.51	0.59	0.72	3.10	10	40	4.7 lbs.
3/4 to 5/8	3051121000111	0.76	0.88	1.05	0.64	0.74	0.87	3.00	10	40	5.2 lbs.
7/8 to 1/2	3051140800111	0.89	1.02	1.19	0.51	0.59	0.72	3.05	10	40	5.6 lbs.
7/8 to 5/8	3051141000111	0.89	1.02	1.19	0.64	0.74	0.87	3.05	10	40	6.6 lbs.
7/8 to 3/4	3051141200111	0.89	1.02	1.19	0.76	0.88	1.05	3.11	10	40	7.3 lbs.
1 to 7/8	3051161400111	1.01	1.16	1.37	0.89	1.02	1.19	3.09	10	40	9.1 lbs.
1-1/8 to 1/2	3051180800111	1.14	1.29	1.45	0.51	0.59	0.72	3.25	10	40	8.1 lbs.
1-1/8 to 5/8	3051181000111	1.14	1.29	1.45	0.64	0.74	0.87	3.25	10	40	9.0 lbs.
1-1/8 to 3/4	3051181200111	1.14	1.29	1.45	0.76	0.88	1.05	3.18	10	40	9.6 lbs.
1-1/8 to 7/8	3051181400111	1.14	1.29	1.45	0.89	1.02	1.19	3.10	10	40	9.9 lbs.
1-3/8 to 7/8	3051221400111	1.39	1.54	1.75	0.89	1.02	1.19	3.66	12	24	7.9 lbs.
1-3/8 to 1 1/8	3051221800111	1.39	1.54	1.75	1.14	1.29	1.45	3.34	12	24	8.2 lbs.
1-5/8 to 1-1/8	3051261800111	1.64	1.88	2.18	1.14	1.29	1.45	4.50	4	4	2.9 lbs.
1-5/8 to 1-3/8	3051262200111	1.64	1.88	2.18	1.39	1.54	1.75	4.30	4	4	3.0 lbs
2-1/8 to 1-3/8	3051342200111	2.14	2.38	2.68	1.39	1.54	1.75	5.20	4	4	4.3 lbs
2-1/8 to 1-5/8	3051342600111	2.14	2.38	2.68	1.64	1.88	2.18	5.05	4	4	5.2 lbs

DIMENSIONS



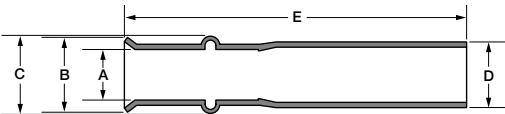


Reducing Bushings



Size (Inch)	Part Number	Dimensions (Inches)					Box Quantity	Carton Quantity	Carton Weight
		A	B	C	D	E			
1/2 to 3/8	3521080600111	0.39	0.56	0.59	0.50	2.50	10	100	4.6 lbs.
5/8 to 1/2	3521100800111	0.51	0.68	0.72	0.63	2.95	10	100	7.3 lbs.
3/4 to 5/8	3521121000111	0.64	0.84	0.87	0.75	2.98	10	40	4.4 lbs.
7/8 to 3/4	3521141200111	0.76	1.02	1.05	0.88	3.04	10	40	5.9 lbs.
1-1/8 to 7/8	3521181400111	0.89	1.10	1.19	1.13	3.06	10	40	8.5 lbs.
1-3/8 to 1-1/8	3521221800111	1.14	1.40	1.45	1.38	3.12	12	24	7.0 lbs.

DIMENSIONS



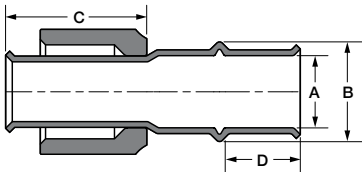


SAE Euro Flares



Size (Inch)	Part Number	Dimensions (Inches)				Box Quantity	Carton Quantity	Carton Weight
		A	B	C	D			
1/4	3291040000111	0.26	0.45	1.38	0.56	10	100	2.5 lbs.
3/8	3291060000111	0.39	0.59	1.38	0.58	10	100	3.7 lbs.
1/2	3291080000111	0.51	0.72	1.13	0.75	10	100	5.9 lbs.
5/8	3291100000111	0.64	0.87	1.48	0.75	10	40	3.6 lbs.
3/4	3291120000111	0.76	1.05	1.48	0.80	10	40	5.2 lbs.

DIMENSIONS



Per ARI Guideline M-97 45° Refrigeration Flare Fittings and Copper Tubing

Size	Torque, ft-lbs [N*m]	
	Minimum	Maximum
1/4"	8 [11]	10 [14]
3/8"	15 [20]	25 [34]
1/2"	25 [34]	35 [47]
5/8"	40 [54]	55 [75]
3/4"	50 [68]	60 [81]

Note: Per Section 9.5 of the M-97 Guideline, when applying torque to the flare connection the use of lubricants/lubrication is not recommended.

Note: Applying a torque above the maximum limit may distort or damage the sealing surface of the flare.

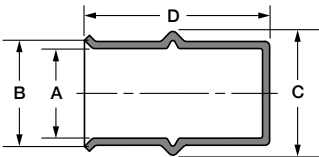


Caps



Size (Inch)	Part Number	Dimensions (Inches)				Box Quantity	Carton Quantity	Carton Weight
		A	B	C	D			
1/4	3071040000111	0.26	0.34	0.45	1.45	10	100	1.8 lbs.
5/16	3071050000111	0.32	0.40	0.52	1.45	10	100	2.3 lbs.
3/8	3071060000111	0.39	0.47	0.59	1.45	10	100	2.6 lbs.
1/2	3071080000111	0.51	0.59	0.72	1.97	10	100	5.1 lbs.
5/8	3071100000111	0.64	0.74	0.87	1.98	10	100	6.9 lbs.
3/4	3071120000111	0.76	0.88	1.05	1.97	10	40	3.8 lbs.
7/8	3071140000111	0.89	1.02	1.19	1.90	10	40	4.9 lbs.
1	3071160000111	1.01	1.16	1.36	2.00	10	40	7.2 lbs.
1-1/8	3071180000111	1.14	1.29	1.45	1.99	10	40	7.8 lbs.
1-1/4	3071200000111	1.26	1.41	1.62	2.50	12	24	6.5 lbs.
1-3/8	3071220000111	1.39	1.54	1.75	2.49	12	24	7.2 lbs.

DIMENSIONS

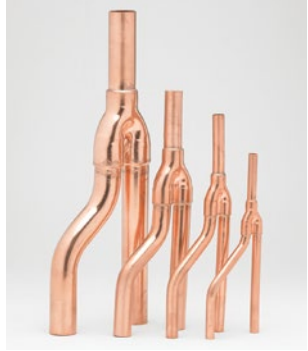




ANCILLARY PRODUCTS

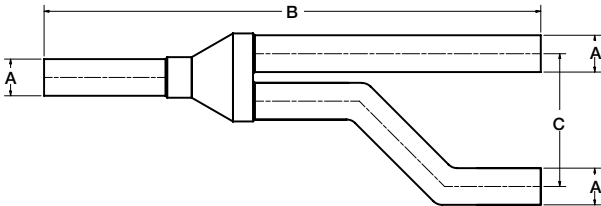
ODM products are compatible with RLS fittings.

ODM Y-Joints



Size (Inch)	Part Number with insulation	Part Number without insulation	Dimensions (Inches)			Box Qty.	Carton Qty.
			A	B	C		
3/8	3771060606130	3771060606111	0.38	7.56	2.36	2	44
1/2	3771080808130	3771080808111	0.50	8.94	2.48	2	44
5/8	3771101010130	3771101010111	0.63	9.45	2.60	2	42
3/4	3771121212130	3771121212111	0.75	10.16	2.72	2	24
7/8	3771141414130	3771141414111	0.88	12.09	2.87	2	24
1-1/8	3771181818130	3771181818111	1.13	13.11	3.54	1	10
1-3/8	3771222222130	3771222222111	1.38	14.92	4.06	1	10

DIMENSIONS





ANCILLARY PRODUCTS

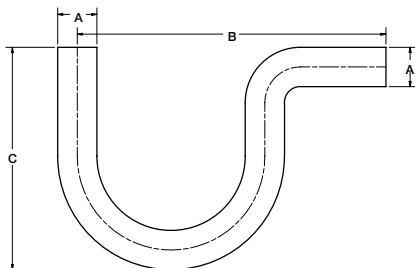
ODM products are compatible with RLS fittings.

ODM P-Traps



Size (Inch)	Part Number	Dimensions (Inches)			Box Quantity	Carton Quantity
		A	B	C		
1/2	3761080800111	0.50	5.12	3.54	2	80
5/8	3761101000111	0.63	5.12	3.62	2	80
3/4	3761121200111	0.75	5.91	4.25	2	38
7/8	3761141400111	0.88	6.69	4.65	2	38
1-1/8	3761181800111	1.13	8.27	5.98	2	10
1-3/8	3761222200111	1.38	10.24	7.48	2	10

DIMENSIONS





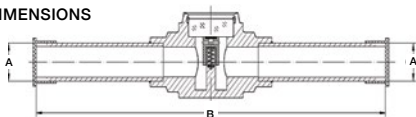
ANCILLARY PRODUCTS

ODM products are compatible with RLS fittings.

ODM Sight Glasses



DIMENSIONS

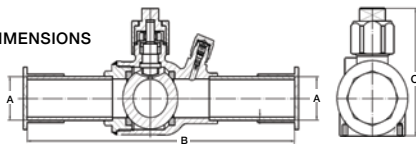


Size (Inch)	Part Number	Dimensions (Inches)		Box Quantity	Carton Quantity
		A	B		
1/4	3781040400111	0.25	4.02	1	100
3/8	3781060600111	0.37	4.69	1	100
1/2	3781080800111	0.50	6.10	1	100
5/8	3781101000111	0.63	6.14	1	50
3/4	3781121200111	0.75	6.34	1	50
7/8	3781141400111	0.88	6.57	1	50
1-1/8	3781181800111	1.13	7.56	1	30

ODM Ball Valves (Bi-Directional with Schrader valves)



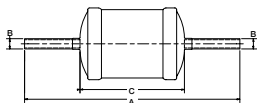
DIMENSIONS



Size (Inch)	Part Number	Dimensions (Inches)			Box Quantity	Carton Quantity
		A	B	C		
1/4	3791040400111	0.25	6.75	2.02	1	40
3/8	3791060600111	0.37	6.34	2.02	1	40
1/2	3791080800111	0.50	6.56	2.02	1	40
5/8	3791101000111	0.63	6.77	2.30	1	40
3/4	3791121200111	0.75	6.99	2.60	1	30
7/8	3791141400111	0.88	7.24	2.60	1	30
1-1/8	3791181800111	1.13	8.16	3.27	1	30
1-3/8	3791222200111	1.37	9.00	3.88	1	24

ODM Filter Dryers

DIMENSIONS



Size (Inch)	Part Number	Desiccant (Cubic Inches)	Dimensions (Inches)			Box Quantity	Carton Quantity
			A	B	C		
3/8 Liquid Line	3821060600111	8	7.95	0.38	3.90	1	30
3/8 Liquid Line	3831060600111	16	8.86	0.38	4.80	1	30
1/2 Liquid Line	3831080800111	16	8.94	0.50	4.80	1	30
3/8 Liquid Line Bi-Directional	3921060600111	8	7.87	0.38	3.82	1	30
3/8 Liquid Line Bi-Directional	3931080600111	16	8.66	0.38	4.61	1	30

Part Number	Connections Inlet/outlet	Flow capacity Ton @ 1psi Δ P (for kw multiply Ton by 3.5)				Water capacity drops of water									
		R134a	R22 & R410A	R407C	R404A & R507	R134a		R22		R407c		R410A		R404A & R507	
						75°F	125°F	75°F	125°F	75°F	125°F	75°F	125°F	75°F	125°F
3821060600111	3/8" ODM	5.42	6.0	6.0	4.0	265	245	250	225	205	165	170	130	275	260
3831060600111	3/8" ODM	6.2	6.8	6.8	4.57	396	366	271	336	306	246	256	196	406	286
3831080800111	1/2" ODM	8.5	9.4	9.4	6.2	396	366	271	336	306	246	256	196	406	286
3921060600111	3/8" ODM	4.8	5.1	5.0	3.33	265	245	250	225	205	165	170	130	275	260
3931080600111	3/8" ODM	4.9	5.2	5.2	3.49	359	341	360	307	361	333	327	302	392	365

All ratings are in accordance with ANSI/AHRI standard 710-2009.



Klauke® 32 kN and 19 kN Press Tools

Benefits:

- Durable, high-quality construction that is built to last
- Short pressing cycle – 10 seconds or less – increases productivity
- Compact design and 350° jaw rotation allows technician to install in tight spaces
- Automatic piston return
- Safety feature that lets the press cycle be interrupted, allowing for manual release of the piston, if needed
- High-quality, powerful Makita Li-Ion technology, with charging time of just 15 minutes
- Tool service indicated via imbedded LEDs, illuminates at 10,000 cycles



32 kN press tool



19 kN press tool

32 kN Tool Features:

Pressing Force: 32 kN

Presses/charge: 350-400 (4.0 Ah)

Battery Capacity: 18V / 4.0 Ah Li-Ion Makita (BL1840B)

Charging Time: 15 minutes

Operating Temp. Range:

-10°C to 40°C (14°F to 104°F)

Weight with Battery:

Without Jaw: 3.6 kg (8.0 lb)

Including Jaw: 5.7 kg (12.5 lb)

Dimensions: 359 x 76 x 317 mm

19 kN Tool Features:

Pressing Force: 19 kN

Presses/charge: 100-150 (2.0 Ah)

Battery Capacity: 18V / 2.0 Ah Li-Ion Makita (BL1820B)

Charging Time: 15 minutes

Operating Temp. Range:

-10°C to 40°C (14°F to 104°F)

Weight with Battery:

Without Jaw: 1.8 kg (4.0 lb)

Including Jaw: 3.1 kg (6.8 lb)

Dimensions: 395 x 80 x 118 mm

Klauke® Jaws

Klauke 32 kN Jaws

Size	Part Number
1/4"	399021321040
5/16"	399021321050
3/8"	399021321060
1/2"	399021321080
5/8"	399021321100
3/4"	399021321120
7/8"	399021321140
1"	399021321160
1-1/8"	399021321180
1-1/4"	399021321200
1-3/8"	399021321220
8-Jaw Kit	399031320801

Klauke 19 kN Jaws

Size	Part Number
1/4"	399021191040
5/16"	399021191050
3/8"	399021191060
1/2"	399021191080
5/8"	399021191100
3/4"	399021191120
7/8"	399021191140
1"	399021191160
1-1/8"	399021191180
1-1/4"	399021191200
1-3/8"	399021191220
8-Jaw Kit	399031190801



Accessory Kit:

- Tubing cutter
- RLS depth gauge
- RLS press gauge
- Permanent marker
- Wire Brush (for jaw cleaning)
- Abrasive pad
- Deburring tool

Accessory kit is included in both 19 kN tool kits. 32 kN 8-jaw kit includes the depth gauge, press gauge, marker, brush and abrasive pad (no cutter or deburring tool).



TOOLS, JAWS AND ACCESSORIES

Klauke® Tool and Jaw Kits



Each tool and jaw kit comes in a hard plastic carrying case. Tools sold in the United States include two batteries and a battery charger (not included in kits sold outside the U.S.)

Batteries and chargers can be sourced from an RLS or Makita distributor.

U.S. Part Numbers
(Tools include 2 batteries and a charger.)

32 kN Tool (no jaws)
Part Number: 399011320001

19 kN Tool (no jaws)
Part Number: 399011190001

19 kN Tool and 5 Jaws
(3/8", 1/2", 5/8", 7/8", 1-1/8")
Part Number: 399011190501

International Part Numbers
(Tools do not include batteries or charger.)

32 kN Tool (no jaws)
Part Number: 399011320002

19 kN Tool (no jaws)
Part Number: 399011190002

19 kN Tool and 5 Jaws
(3/8", 1/2", 5/8", 7/8", 1-1/8")
Part Number: 399011190502

Jaw Kits

32 kN 8-Jaw Kit
(1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1-1/8", 1-3/8")
Part Number: 399031320801

19 kN 8-Jaw Kit
(1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1-1/8", 1-3/8")
Part Number: 399031190801

RIDGID Jaws



Size	Part Number
1/4"	399022001040
5/16"	399022001050
3/8"	399022001060
1/2"	399022001080
5/8"	399022001100
3/4"	399022001120
7/8"	399022001140
1-1/8"	399022001180
1-3/8"	399022001220

RIDGID 8-Jaw Set

The RIDGID 8-Jaw Set comes in a hard plastic carrying case and includes a tube cutter, deburring tools, press gauge, depth gauge, stainless steel brush, abrasive pad and permanent marker. Jaw sizes include 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1-1/8" and 1-3/8". The 5/16" jaw is sold separately.

Part Number: 399032000801

NOTE: RIDGID press tools are sold through RIDGID distributors, available in lightweight pistol-grip and inline models.

Accessories

Part Number	Description
399011000100	Klauke Replacement Tool Case
399031000100	Klauke Jaw Case
399032000100	RIDGID Jaw Case
399040307	1-1/4" Press Gauge
399040306	Press Gauge
399040308	Depth Gauge
399040301	Tube Cutter
399040302	Small Tube Deburring Tool (1/4" - 1-1/4")

Part Number	Description
399040309	Large Tube Deburring Tool (1/2" - 2")
399040303	Stainless Steel Brush
399040304	Abrasive Pad
399040305	Permanent Marker
399040101	Safety Kit (plastic bag, pen, instructions, crimp/depth gauges)
399040203	Makita 18V Charger - DC18RC
399040202	Makita 18V Battery - BL1815
399040201	Diagnostic tool - PGA1



TOOLS, JAWS AND ACCESSORIES

Tool and Jaw Compatibility Matrix - 1/4" to 1-3/8" Fittings

			JAW MANUFACTURER				
			Klauke®			RIDGID®	Milwaukee®
TOOL MANUFACTURER	Model(s)	Size Range	15 kN	19 kN	32 kN	24 kN	32 kN
	MAP2L	1/4" – 1-1/8"	✓				
	MAP2L19	1/4" – 1-3/8"		✓			
	UAP 332	1/4" – 1-3/8"			✓		✓
	UAP 432	1/4" – 1-3/8"			✓		✓
	Romax Compact	1/4" – 1-3/8"		✓			
	Romax 3000	1/4" – 1-3/8"			✓		✓
	Romax 4000	1/4" – 1-3/8"			✓		✓
	PC-20 M	1/4" – 1-1/8"	✓				
	RP 115	1/4" – 1-1/8"	✓				
	RP 200 RP 210 RP 240 RP 241	1/4" – 1-3/8"				✓	
	RP 330 RP 340 RP 350 RP 351	1/4" – 1-3/8"			✓		✓
	M12	1/4" – 1-3/8"				✓	
	M18 (excludes model 2674-20 short throw tool)	1/4" – 1-3/8"			✓		✓
	Pressgun Picco 6	1/4" – 1-3/8"				✓	
	Pressgun 6	1/4" – 1-3/8"			✓		✓
	ACO103	1/4" – 1-3/8"		✓			
	ACO203	1/4" – 1-3/8"			✓		✓
	ECO203	1/4" – 1-3/8"			✓		✓
	EFP203	1/4" – 1-3/8"			✓		✓
	DCE200	1/4" – 1-3/8"			✓		✓

Only RLS-approved tools and jaws can be used to install RLS fittings.



Klauke® 32 kN Long-Throw Tool, Actuator and Collar Jaws (1-5/8" & 2-1/8")



Benefits:

- Fast pressing cycle of less than 25 seconds
- 350° tool rotation for flexibility
- Automatic retraction saves time on multiple presses
- High safety factor thanks to "Quickstop" function
- Precise pressing force with audible signal
- Long battery and tool service-life
- Tool information shown via OLED display or i-press® app
- High-quality, powerful Li-Ion technology for long lasting operation

Accessories included with tool:

- Depth/press gauge
Part Number: 399040501
- Permanent marker
- Wire brush
(for collar jaw cleaning)
- Abrasive pad

32 kN Long-Throw Tool Features:

Pressing Force: 32 kN

Presses/charge: 350-400 (4.0 Ah)

Battery Capacity:

18V / 4.0 Ah Li-Ion Makita (BL1840B)

Charging Time: 15 minutes

Operating Temp. Range:

-10°C to 40°C (14°F to 104°F)

Weight with Battery: 4.4 kg (9.7 lb)

Dimensions: 530 x 76 x 317 mm

Part Number: 399011329900

Jaws:

2-1/8" Collar Jaw

Part Number: 399021321340

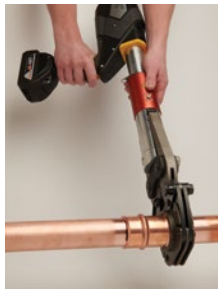
1-5/8" Collar Jaw

Part Number: 399021321260

Actuator Jaw

Part Number: 399021321000

Actuator Jaw is required and is used with both 1-5/8" and 2-1/8" collar jaws.



"Overall, we've seen that most of our project times have been cut in half using RLS fittings. On bigger jobs, where it might have taken us two weeks to pipe a job in the past, it's only taken a week."

– Alex Bishoff
Howard Mechanical Services





Applications

- High Pressure HVAC/R
- Ethylene Glycol
- Non-Potable Water

Product Parameters

- Continuous Operating Temperature: 250°F / 121°C
- O-Ring Temperature Rating: -40°F to +300°F / -40°C to +149°C
- Maximum Allowable Working Pressure (MAWP): 700 psi / 48 bar
- Minimum Required Test Pressure (UL 207): 2,100 psi / 145 bar
- Vacuum Pressure Capability: <200 Microns
- External Helium Leak Rate: $<7.5 \times 10^{-7}$ Pa·m³/s per ISO 14903
- Vibration Resistance: Conforms to UL 207
- Pull Test: Compliant with UL 207 for A1 fluids
- Size Availability (Inches): 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-3/8, 1-5/8, 2-1/8

Fitting Materials

- Fitting Body: Refrigerant Grade Copper, per ASTM-B75 or ASTM-B743
- O-Ring: HNBR

Compatibility

- Approved Oils: Mineral Oil, POE, PVE, PAG
- Approved Tubing Materials: Copper-to-Copper Connections
- Approved Tubing Tolerance: ASTM B88/B280, EN 12735 & AS/NZS 1571
- Approved Copper Tubing Types for 32 kN Tool/Jaws
 - Hard/Drawn: 1/4" to 2-1/8" Type ACR, L, K
 - Soft/Annealed: 1/4" to 1-3/8" Type ACR, L, K
- Approved Copper Tubing Types for 19 kN and 24 kN Tool/Jaws
 - Hard/Drawn: 1/4" to 1-3/8" Type ACR, L, K
 - Soft/Annealed: 1/4" to 1-3/8" Type ACR, L, K
- Approved Copper Tubing Types for 15 kN Tool/Jaws
 - Hard/Drawn: 1/4" to 1-1/8" Type ACR, L; 1/4" - 7/8" Type K
 - Soft/Annealed: 1/4" to 1-1/8" Type ACR, L; 1/4" - 7/8" Type K



Agency Approvals and Certifications

- UL Listed: 207, SA#33958, SDTW (7) (Except where noted)
- UL Listed: Approved Use For Field & Factory Installations
- ISO 5149-2: Part 2 Compliant
- ASHRAE-15, ANSI 15, ASME B31.5 (504.7)
- ICC-ES, PMG-1296
- International Mechanical Code (IMC)
2021, 2018, 2015, 2012, 2009, 2006
- International Residential Code (IRC)
2021, 2018, 2015, 2012, 2009, 2006
- Uniform Mechanical Code (UMC)
2021, 2018, 2015, 2012, 2009, 2006
- CRN 0A22551 and 0A18303

RLS Press Fitting Patents

- U.S. Patent No. 9,145,992
- U.S. Patent No. 9,638,361
- U.S. Patent No. D730,494
- Australian Patent No. 2012362443
- Brazilian Patent No. BR112014016012-0
- Canadian Patent No. 2,800,360
- Canadian Design Registration No. 149228
- EUIPO Registered Community Design No. 002218636-0001
- Japanese Patent No. 6051468
- Other Pending Patent Applications

RLS Press Tools and Jaws Patents

- Australian Design Registration No. 361533
- Canadian Design Registration No. 161804
- EUIPO Registered Community Design No. 002672667-0001
- Japanese Design Registration No. 1537545
- Other Pending Patent Applications

WARNING

Some of our ancillary products can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Troubleshooting

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

- Inspect tubing carefully and verify there are no scratches, incise marks, zippers or 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 by using a tubing cutter. Rushing through the cutting process may cause dents or 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 and can also be ordered separately. Refer to the "Minimum Insertion Depth" table on page 32 if you do not have a gauge.
- Verify the proper press diameter using the provided press gauge.
- Verify the correct jaw has been selected 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 press 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, it is best to remove the affected fitting and replace it with a new one.

If the 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 the leak cause determined. Without sufficient tubing, the 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?

No, 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.

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. Remember: sand/clean the tube surface around the tube not along the tube.



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 three lower photos show tube defects/damage. All three would need to be cut off, and the remaining tube deburred and sanded per the installation instructions.



Scratches



Incise mark



Zipper



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
1-5/8	1-3/4	44.5
2-1/8	2-1/8	54.0

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 pressed should be avoided at all costs. When absolutely necessary to do so, refer to the chart below for the minimum distance to leave between a pre-pressed fitting and a brazed joint. When field brazing, conventional

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
1-5/8	16-1/4	413
2-1/8	21-1/4	540

precautions should be taken to ensure the pressed fitting remains cool, including making sure purge gas flows away from the pressed fitting (to avoid exposing the seal to hot gas). Pre-brazed joints only need a minimum distance of 4" - 5" from RLS fittings to allow for jaw fit.

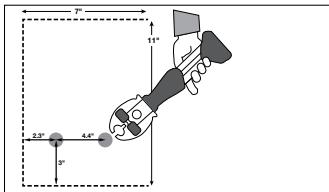


12. What is the minimum distance between RLS fittings?

The ends of the fittings should be no closer than 1/2" apart to allow space for the jaw to overhang.

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

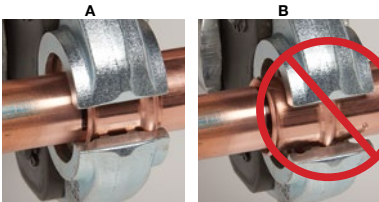
An envelope of 11" x 7" is recommended. The illustration below shows a closed space with one side open. For 1-3/8" couplings, a minimum of 4.4" is required between couplings (down to 3.3" for 1/4" couplings). A minimum of 2.3" from the back wall surface is required. You need 2.5" between couplings for 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 illustrated in Photo A below.



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

On average, you can achieve 100-150 presses per charge with the 19 kN tool and 350-400 with the 32 kN tool, depending on the size of fittings being pressed. Each Klauke Tool Kit comes with 2 Makita Lithium-ion batteries and a rapid charge charging system. To prevent any downtime, 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 higher capacity batteries at your local or online retailers where batteries are sold.



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

The Klauke tools have red LED lights on the back of the tool that will blink for 20 seconds after a press. If your tool needs servicing, please contact RLS.

18. What is the expected life of the jaws?

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

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

The contact point between the upper and lower jaw will start to open up/widen. A good indication of failure is when the press 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 18V 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 press 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 brazed joint. For further testing information, please refer to the Third Party Testing document located on our website at rapidlockingsystem.com.

29. Can you use RLS refrigerant fittings to press 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). 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 15-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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Access
Literature

