ZOOMLOCK® MAX

Press-to-Connect Refrigerant Fittings

Catalog K-3, Engineering Submittal, January 2025

Parker

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

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ATTENTION!
WARRANTY COULD BE VOID IF ZOOMLOCK MAX IS NOT APPLIED PER INSTRUCTIONS! CAREFULLY READ ALL INSTALLATION INSTRUCTIONS (SEE PAGES 21-23) AND WATCH VIDEOS.

ZoomLockMAX.com

Compatible Components

To make a system convenient to install, ODM x ODM ZoomLock compatible components are available including:

- **Ball Valves**
- **Moisture and Liquid Indicators**
- **Solenoid Valves**
- **Filter-Driers**

If you have questions about the products contained in this catalog, or their applications, please contact:
Parker Sporlan Division
phone 636 239 1111
www.zoomlockmax.com

Extra care is taken in the preparation of this literature, but Parker is not responsible for any inadvertent typographical errors or omissions. Information in this catalog is only accurate as of the date of publication. For a more current information base, please consult the division web site at discover.parker.com/sporlanliterature.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

PARKER SAFETY GUIDE FOR SELECTING AND USING ZOOMLOCK MAX FITTINGS AND RELATED ACCESSORIES

⚠ WARNING

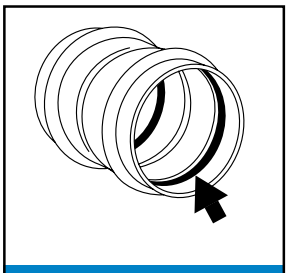
FAILURE TO FOLLOW INSTALLATION INSTRUCTIONS, IMPROPER SELECTION OR IMPROPER USE OF ZOOMLOCK MAX FITTINGS AND RELATED ACCESSORIES ("PRODUCTS") CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:

- Fittings thrown off at high speed.
- High velocity fluid discharge.
- Explosion or burning of the conveyed fluid.
- Electrocution from high voltage electric power lines.
- Contact with suddenly moving or falling objects that are controlled by the conveyed fluid.
- Injections by high-pressure fluid discharge.
- Dangerously whipping copper line.
- Contact with conveyed fluids that may be hot, cold, toxic or otherwise injurious.
- Sparking or explosion caused by static electricity buildup or other sources of electricity.
- Sparking or explosion from flammable liquids.

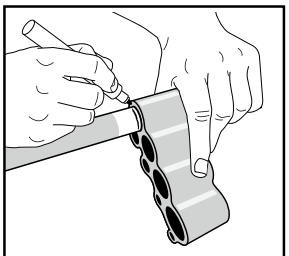
ZOOMLOCK MAX FITTINGS CAN ONLY BE CONNECTED WITH JAWS/TOOLS DESIGNED FOR USE WITH ZOOMLOCK MAX PRODUCTS. BEFORE SELECTING OR USING ANY OF THESE PRODUCTS, IT IS IMPORTANT THAT YOU READ AND FOLLOW THE INSTALLATION INSTRUCTIONS.

KEY STEPS FOR SAFETY

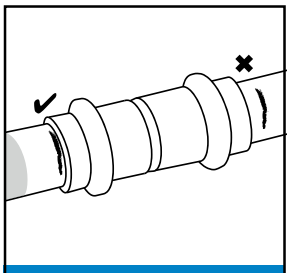
ZoomLock MAX fittings are intended to be installed by HVAC/R professionals that have been trained specifically on ZoomLock MAX products. For product training visit www.zoomlocktraining.com.



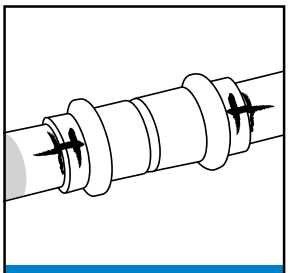
ENSURE O-RING IS SEATED



MARK TUBE DEPTH



CHECK TUBE DEPTH



MARK THE COMPLETED JOINT

⚠ WARNING

Failure or improper selection or improper use of the products described herein or related items can cause death, personal injury and property damage.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

For safety information see the Safety Guide at www.parker.com/safety or call 1-800-CParker.

OFFER OF SALE

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the detailed "Offer of Sale" that you can refer to at : **US:** www.parker.com/salesterms **International:** www.parker.com/termsandconditions

Catalog K-3, October 2024 supersedes Catalog K-3, June 2022 and all prior publications.

Connect Copper in Seconds,
Improves Profitability for HVACR Companies

Rated up to
700 psi
48 bar

ZoomLock® MAX

PRESS-TO-CONNECT REFRIGERANT FITTINGS

ZoomLock® MAX fittings, designed for the air conditioning and refrigeration markets, allow contractors to make secure leak-free connections in seconds. It means less time on the job and more money in the contractor's pocket.

ZoomLock MAX fittings provide clean, leak-proof connections for refrigerant lines up to 700 psi. By eliminating concerns about gas and flames, ZoomLock MAX fittings offer more flexibility in where and when you can work, plus there's no need to nitrogen-purge the lines.

The ZoomLock MAX Advantage

- Hermetically sealed packaging for debris-free fittings
- Hard, robust copper fittings made from refrigerant grade copper
- Proven three-point press technology providing a leak-free and secure joint
- No more crimp gauge needed—connect the fitting with one complete cycle
- Jaws available for most professional crimping tool brands, both large and compact

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

FEATURES AND BENEFITS

- **Flame-free:**
  Flame-free installation avoids the need for a fire permit and the risk of fire on site.
- **No Nitrogen Purge:**
  ZoomLock MAX is a mechanical joint, thus eliminating the need for nitrogen purge during the jointing process.
- **Lower Installed Cost:**
  A professional fitting which is quick and simple to install, saving time and money.
- **Higher Productivity, Improved Flexibility:**
  Work may be completed during working hours / public access, by a single employee.
- **Site Access:**
  Easy access to work sites, no gas bottles required.
- **Quality Designed In:**
  Reliable, repeatable, permanent, tamper-proof connections every time.
- **3-Point Press:**
  Three press points, one each side of the bead, and one press compressing the O-ring. This provides a secure joint.
- **High Quality O-ring:**
  High quality HNBR O-ring forms a secure leak-free joint when pressed.
- **Protected O-ring:**
  Lead-in edge design aids tube insertion and helps protect the O-ring from damage or displacement.
- **Electrical Continuity:**
  Maintains ground continuity without the need for additional ground continuity straps.
- **Field Proven:**
  Press fit technology, field proven over two decades and millions of installed fittings worldwide.
- **Compact Tooling:**
  Light compact tooling provides easy access to tightly spaced tube runs.
- **Tooling Concept:**
  Only specially designed jaws are approved for use with ZoomLock MAX fittings.
- **Certification:**
  ZoomLock MAX Refrigerant Fitting UL 207, Edition 9, file SA7511.
- **Support:**
  Backed by ZoomLock's experienced technical support and customer service teams.

Applications

ZoomLock MAX fittings are designed for the following applications:

- **Refrigeration**
- **Air Conditioning**
- **Heat Pump (Refrigeration side)**
- **VRF and VRV**

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

TECHNICAL DATA

Product Parameters

- **Applications:**
  - Refrigeration
  - Air Conditioning
  - Heat Pump (Refrigeration side)
  - VRF and VRV
- **Continuous Operating Temperature:**
  -40°F to 250°F / -40°C to 121°C
- **O-ring Temperature Range:**
  -40°F to 284°F / -40°C to 140°C
- **Maximum Rated Operating and Abnormal Pressure:**
  700 psi / 48 bar / 4800 kPa
- **Burst Pressure:**
  >3X Maximum operating and abnormal pressure
  >2,100 psig / >14400 kPa / >144 bar
- **Vacuum Pressure Capability:**
  200 Microns
- **Leak Tightness:**
  Helium ≤ 7.5 × 10^{-7} Pa.m^3/s at +20°C, 10 bar
- **Size Availability (Inches):**
  1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1-1/8, 1-3/8, 1-5/8

Fitting Materials

- **Fitting Body:**
  Refrigerant Grade Copper (UNS C12200 min 99.9% pure)
- **O-Ring:**
  HNBR

Fitting Warranty

- 15-year warranty.

Compatibility

- **Approved Lubricants:** POE, PAO, PVE, AB and MO
- **Approved Connections:**
  Copper to Copper
- **Approved Tube*:**
  Copper tube conforming to ASTM B280, ASTM B88, ASTM B743, ASTM B1003
- **Approved Copper Tubing:**
  Hard Copper (Drawn)
  - Type ACR, L, K

  Soft Copper (Annealed)
  - Type ACR, L, K

Agency Approvals and Certifications

- UL 207 - Edition 9 Refrigerant Fitting - File SA7511
- UL 109 - 8 Vibration test, compliant
- UL 1963 - 79 Tests of gaskets and seals used in refrigerant systems, compliant
- ISO 5149-2:2014, Refrigerating systems and heat pumps - Safety and environmental requirements - Part 2: Design, construction, testing, marking and documentation compliant
- ISO 5149-2, 5.3.2.2.3 Strength pressure test, compliant
- ISO 14903 - 7.4 Tightness test, compliant
- ISO 14903 - 7.6 Pressure temperature vibration tests (PTV), compliant
- ISO 14903 - 7.8 Freezing test, compliant
- ASTM G85 salt spray (fog) compliant
- ASHRAE 15 - 2016 Safety Standard for Refrigeration Systems, compliant
- ASME B31.5 - 2016 Refrigeration Piping and Heat Transfer Components, compliant
- 2024, 2021, 2018, 2015, 2012, 2009 and 2006 International Mechanical Code (IMC), certified, ICC-ES, PMG-1790
- 2024, 2021, 2018, 2015, 2012, 2009 and 2006 International Residential Code (IRC), certified, ICC-ES, PMG-1790
- 2024, 2021, 2018, 2015, 2012, 2009 and 2006 Uniform Mechanical Code (UMC), certified, ICC-ES, PMG-1790

Approved Refrigerants

32**	422D	454B**
125	427A	454C**
134a	438A	455A**
290**	444A**	457A**
404A	447A**	459A**
407A	447B**	507A
407C	448A	513A
407F	449A	513B
407H	450A	516A
410A	452A	600A**
417A	452B**	718
421A	452C	1234yf**
422B	454A**	1234ze**
422D	HYCOOL 20	

* Please refer to ZoomLock MAX Tube Compatibility Table, page 19.

** When using refrigerants classified A2L (lower flammability), A2 (flammable) and A3 (higher flammability) additional/specific standards, local rules and regulations, codes of practice and by-laws may be applicable.

ZoomLock MAX fittings are NOT suitable for R-717, R-723, R-764, R-744 refrigerants. Refer to ZoomLockMAX.com for the latest approved refrigerants list.

Quality Assurance

ZoomLock MAX is manufactured in an ISO 9001 certified facility committed to providing quality products and support.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

PRESS TOOLS AND JAWS

Parker Hannifin recommends the use of ROTHENBERGER press tools in combination with ZoomLock MAX ROTHENBERGER jaws. However other press tools may be used in combination with ZoomLock MAX ROTHENBERGER jaws. See table below for tool compatibility.

Press Tools

ROTHENBERGER ROMAX 4000
Includes the ROTHENBERGER ROMAX® 32 kN press tool, 2 batteries and battery charger.

- **Description:** MZK-TK-R4000
- **Part Number:** 871441

ROTHENBERGER Twin Turbo US
Includes the ROTHENBERGER Twin Turbo US 24 kN press tool, 2 batteries and battery charger.

- **Description:** MZK-TK-RCTT
- **Part Number:** 871439

ROTHENBERGER Twin Turbo US
Includes the ROTHENBERGER Twin Turbo 19 kN press tool, 2 batteries and battery charger.

- **Description:** MZK-TK-RCTT-19KN
- **Part Number:** 871443

ROTHENBERGER ROMAX 4000 32 kN

ROTHENBERGER Twin Turbo US 24 kN

COMPATIBLE PRESS TOOLS		32 kN	24 kN	19 kN
ROTHENBERGER	ROMAX® 3000	✔	–	–
	ROMAX® 3000 AC	✔	–	–
	ROMAX® 4000	✔	–	–
	ROMAX® AC ECO	✔	–	–
	Twin Turbo US (TT US)	–	✔	–
	ROMAX® Compact TT	–	–	✔
	ROMAX® Compact	–	–	✔
DEWALT	DCE200	✔	–	–
	DEC210D2	–	✔	–
KLAUKE	UAP2/UNP2	✔	–	–
	UAP3L/UAP4L	✔	–	–
	UP2EL14	✔	–	–
	MAP2L19	–	–	✔
	MAP219	–	–	✔
MILWAUKEE	M12 Force Logic	–	✔	–
	M18 Force Logic	✔	–	–
	M18 Long Throw	✔	–	–
HILTI	NPR 24-22	–	✔	–
	NPR 32-22	✔	–	–
NIBCO	PC-100	✔	–	–
	PC-280	✔	–	–
REMS	Power-Press	✔	–	–
	Akku-Press	✔	–	–
RIDGID	320-E	✔	–	–
	CT400	✔	–	–
	RP 241	–	✔	–
	RP 240	–	✔	–
	RP 210-B	–	✔	–
	RP 200-B	–	✔	–
	RP 330-B	✔	–	–
	RP 330-C	✔	–	–
	RP 340	✔	–	–
	RP 350	✔	–	–
	RP 351	✔	–	–
VIRAX	Viper® P25+	✔	–	–
	Viper® P25+	✔	–	–

ZoomLock MAX fittings can only be connected with jaws designed for use with ZoomLock MAX products as shown on page 9.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

PRESS TOOLS AND JAWS (CONTINUED)

PRESS JAW KIT (7 PIECE)

Includes 1/4, 3/8, 1/2, 5/8, 3/4, 7/8 and 1-1/8 jaws

32 kN ROTHENBERGER Jaw Set

- **Description:** MZK-32KN JAW KIT
- **Part Number:** 871408

24 kN ROTHENBERGER Jaw Set

- **Description:** MZK-TK-RCTT
- **Part Number:** 871409

19 kN ROTHENBERGER Jaw Set

- **Description:** MZK-TK-RCTT
- **Part Number:** 871410

3 JAW STARTER KIT

Includes 3/8, 3/4, and 7/8 jaws

24 kN ROTHENBERGER Jaw Set

- **Description:** MZK-24KN
- **Part Number:** 871450

32 kN ROTHENBERGER Jaw Set

- **Description:** MZK-32KN
- **Part Number:** 871451

INDIVIDUAL JAWS / PART NUMBERS			
1/4”	MZK-32KN JAW-1/4” 871428	MZK-24KN JAW-1/4” 871419	MZK-19KN JAW-1/4” 871411
5/16”	MZK-19KN JAW-5/16” 871446	MZK-24KN JAW-5/16” 871447	MZK-32KN JAW-5/16” 871448
3/8”	MZK-32KN JAW-3/8” 871429	MZK-24KN JAW-3/8” 871420	MZK-19KN JAW-3/8” 871412
1/2”	MZK-32KN JAW-1/2” 871430	MZK-24KN JAW-1/2” 871421	MZK-19KN JAW-1/2” 871413
5/8”	MZK-32KN JAW-5/8” 871431	MZK-24KN JAW-5/8” 871422	MZK-19KN JAW-5/8” 871414
3/4”	MZK-32KN JAW-3/4” 871432	MZK-24KN JAW-3/4” 871423	MZK-19KN JAW-3/4” 871415
7/8”	MZK-32KN JAW-7/8” 871433	MZK-24KN JAW-7/8” 871424	MZK-19KN JAW-7/8” 871416
1-1/8”	MZK-32KN JAW-1 1/8” 871435	MZK-24KN JAW-1 1/8” 871426	MZK-19KN JAW-1 1/8 871418
1-3/8”*	MZK-32KN JAW-1 3/8” 871436	—	—

*Depth gauge (P/N 870517) is included with the 1-3/8" jaw.

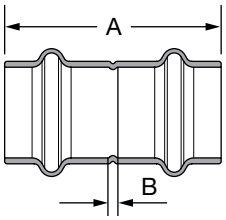
WARNING: ZoomLock MAX fittings can only be connected with jaws/tools designed for use with ZoomLock MAX products.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

COUPLINGS

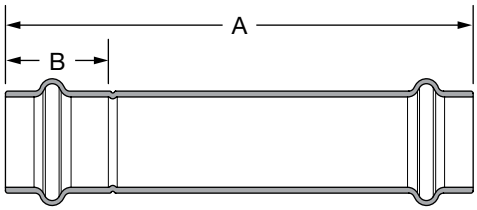
Dimensions



Size	Part Number	Description	Dimensions			
			A		B	
			Inch	mm	Inch	mm
1/4	870508	MZK-C4-HNBR	1.54	39.0	0.12	3.0
5/16	870514	MZK-C5-HNBR	1.54	39.0	0.12	3.0
3/8	870509	MZK-C6-HNBR	1.50	38.0	0.12	3.0
1/2	870503	MZK-C8-HNBR	1.57	40.0	0.20	5.0
5/8	870510	MZK-C10-HNBR	1.77	45.0	0.12	3.0
3/4	870505	MZK-C12-HNBR	1.79	45.5	0.06	1.5
7/8	870506	MZK-C14-HNBR	2.22	56.5	0.33	8.5
1-1/8	870507	MZK-C18-HNBR	2.24	57.0	0.24	6.0
1-3/8	870511	MZK-C22-HNBR	2.80	71.0	0.11	3.0
1-5/8	870517	MZK-C24-HNBR	2.56	65.0	0.20	5.0

SLIP COUPLINGS

Dimensions



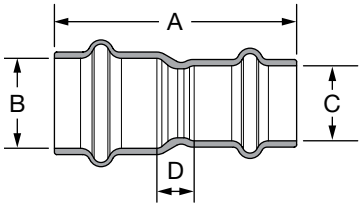
Size	Part Number	Description	Dimensions			
			A		B	
			Inch	mm	Inch	mm
1/4	870550	MZK-RC4-HNBR	3.54	90.0	0.71	18.0
3/8	870552	MZK-RC6-HNBR	3.54	90.0	0.71	18.0
1/2	870553	MZK-RC8-HNBR	3.58	91.0	0.69	17.5
5/8	870554	MZK-RC10-HNBR	3.98	101	0.83	21.0
3/4	870555	MZK-RC12-HNBR	3.98	101	0.86	22.0
7/8	870556	MZK-RC14-HNBR	4.17	106	0.95	24.0
1-1/8	870557	MZK-RC18-HNBR	4.17	106	1.00	25.5
1-3/8	870559	MZK-RC22-HNBR	3.94	100	1.34	34.0

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

REDUCERS

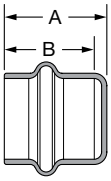
Dimensions



Size	Part Number	Description	Dimensions							
			A		B		C		D	
			Inch	mm	Inch	mm	Inch	mm	Inch	mm
3/8 x 1/4	870800	MZK-R64-HNBR	1.65	42.0	3/8	9.53	1/4	6.35	0.24	6.0
3/8 x 5/16	870818	MZK-R65-HNBR	1.73	42	3/8	9.53	5/16	8.0	0.2	5
1/2 x 1/4	870808	MZK-R84-HNBR	1.73	44.0	1/2	12.7	1/4	6.35	0.33	8.5
1/2 x 3/8	870801	MZK-R86-HNBR	1.67	42.5	1/2	12.7	3/8	9.53	0.28	7.0
5/8 x 1/4	870809	MZK-R104-HNBR	2.05	52.0	5/8	15.9	1/4	6.35	0.51	13.0
5/8 x 3/8	870810	MZK-R106-HNBR	1.87	47.5	5/8	15.9	3/8	9.53	0.33	8.5
5/8 x 1/2	870802	MZK-R108-HNBR	1.79	45.5	5/8	15.9	1/2	12.7	0.28	7.0
3/4 x 1/2	870811	MZK-R128-HNBR	1.81	46.0	3/4	19.1	1/2	12.7	0.26	6.5
3/4 x 5/8	870803	MZK-R1210-HNBR	2.07	52.5	3/4	19.1	5/8	15.9	0.37	9.5
7/8 x 1/2	870812	MZK-R148-HNBR	2.07	52.5	7/8	22.2	1/2	12.7	0.43	11.0
7/8 x 5/8	870804	MZK-R1410-HNBR	2.07	52.5	7/8	22.2	5/8	15.9	0.30	7.5
7/8 x 3/4	870805	MZK-R1412-HNBR	2.07	52.5	7/8	22.2	3/4	19.1	0.26	6.5
1-1/8 x 5/8	870814	MZK-R1810-HNBR	2.17	55.0	1-1/8	28.6	5/8	15.9	0.33	8.5
1-1/8 x 3/4	870806	MZK-R1812-HNBR	2.26	57.5	1-1/8	28.6	3/4	19.1	0.39	10.0
1-1/8 x 7/8	870807	MZK-R1814-HNBR	2.28	58.0	1-1/8	28.6	7/8	22.2	0.33	8.5
1-3/8 x 7/8	870815	MZK-R2214-HNBR	2.63	67.0	1-3/8	34.9	7/8	22.2	0.51	13.0
1-3/8 x 1-1/8	870816	MZK-R2218-HNBR	2.83	72.0	1-3/8	34.9	1-1/8	28.6	0.49	12.5

CAPS

Dimensions



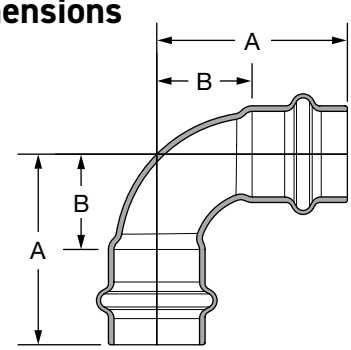
Size	Part Number	Description	Dimensions			
			A		B	
			Inch	mm	Inch	mm
1/4	870900	MZK-CP4-HNBR	0.77	19.5	0.71	18.0
5/16	870901	MZK-CP5-HNBR	0.77	19.5	0.71	18.0
3/8	870902	MZK-CP6-HNBR	0.77	19.5	0.71	18.0
1/2	870903	MZK-CP8-HNBR	0.75	19.0	0.69	17.5
5/8	870904	MZK-CP10-HNBR	0.89	22.5	0.83	21.0
3/4	870905	MZK-CP12-HNBR	0.93	23.5	0.87	22.0
7/8	870906	MZK-CP14-HNBR	1.02	26.0	0.94	24.0
1-1/8	870907	MZK-CP18-HNBR	1.08	27.5	1.00	25.5
1-3/8	870908	MZK-CP22-HNBR	1.47	37.5	1.34	34.0

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

90° ELBOWS

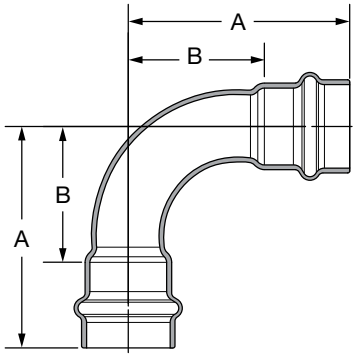
Dimensions



Size	Part Number	Description	Dimensions			
			A		B	
			Inch	mm	Inch	mm
1/4	870600	MZK-90E4-HNBR	1.28	32.5	0.57	14.5
5/16	870601	MZK-90E5-HNBR	1.30	33.0	0.59	15.0
3/8	870602	MZK-90E6-HNBR	1.30	33.0	0.59	15.0
1/2	870603	MZK-90E8-HNBR	1.24	31.5	0.55	14.0
5/8	870604	MZK-90E10-HNBR	1.54	39.0	0.71	18.0
3/4	870605	MZK-90E12-HNBR	1.67	42.5	0.81	20.5
7/8	870606	MZK-90E14-HNBR	1.97	50.0	1.02	26.0
1-1/8	870607	MZK-90E18-HNBR	2.24	57.0	1.24	31.5
1-3/8	870608	MZK-90E22-HNBR	2.72	69.0	1.38	35.0

90° LONG RADIUS ELBOWS

Dimensions



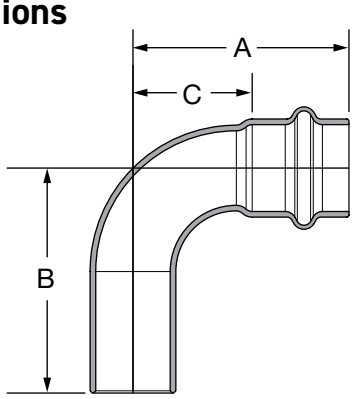
Size	Part Number	Description	Dimensions			
			A		B	
			Inch	mm	Inch	mm
1/2	871613	MZK-90E8-LR-HNBR	1.71	43.5	1.02	26.0
5/8	871614	MZK-90E10-LR-HNBR	1.96	50.0	1.14	29.0
3/4	871610	MZK-90E12-LR-HNBR	2.20	56.0	1.33	34.0
7/8	871611	MZK-90E14-LR-HNBR	2.59	66.0	1.65	42.0
1-1/8	871612	MZK-90E18-LR-HNBR	3.03	77.0	2.02	51.5
1-3/8	871615	MZK-90E22-LR-HNBR	3.50	89.0	2.15	54.7
1-5/8	871616	MZK-90E24-LR-HNBR	4.29	109.0	3.11	79.0

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

90° STREET ELBOWS

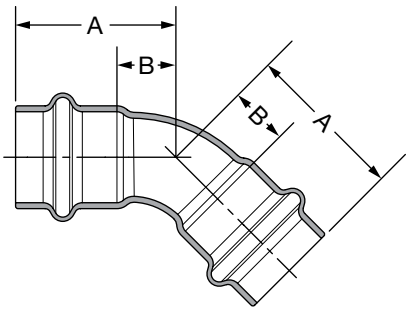
Dimensions



Size	Part Number	Description	Dimensions					
			A		B		C	
			Inch	mm	Inch	mm	Inch	mm
5/16	871301	MZK-90SE5-HNBR	1.30	33.0	1.36	34.5	0.59	15.0
3/8	871302	MZK-90SE6-HNBR	1.30	33.0	1.36	34.5	0.59	15.0
1/2	871303	MZK-90SE8-HNBR	1.24	31.5	1.36	34.5	0.55	14.0
5/8	871304	MZK-90SE10-HNBR	1.54	39.0	1.77	45.0	0.71	18.0
3/4	871305	MZK-90SE12-HNBR	1.67	42.5	1.89	48.0	0.81	20.5
7/8	871306	MZK-90SE14-HNBR	1.97	50.0	2.09	53.0	1.02	26.0
1-1/8	871307	MZK-90SE18-HNBR	2.24	57.0	2.42	61.5	1.24	31.5
1-3/8	871308	MZK-90SE22-HNBR	2.72	69.0	3.22	82.0	1.38	35.0

45° ELBOWS

Dimensions



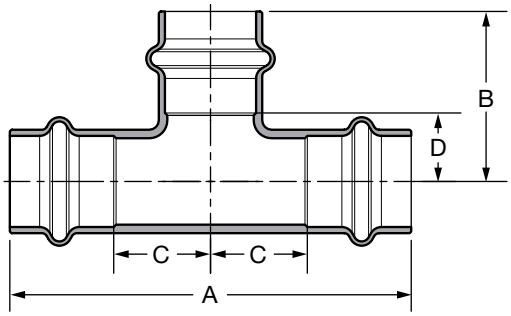
Size	Part Number	Description	Dimensions			
			A		B	
			Inch	mm	Inch	mm
1/4	871401	MZK-45E4-HNBR	0.93	23.5	0.22	5.5
5/16	871445	MZK-45E5-HNBR	0.94	24.0	0.24	6
3/8	871402	MZK-45E6-HNBR	1.02	26.0	0.31	8.0
1/2	871403	MZK-45E8-HNBR	0.94	24.0	0.26	6.5
5/8	871404	MZK-45E10-HNBR	1.10	28.0	0.28	7.0
3/4	871405	MZK-45E12-HNBR	1.24	31.5	0.37	9.5
7/8	871406	MZK-45E14-HNBR	1.34	34.0	0.39	10.0
1-1/8	871407	MZK-45E18-HNBR	1.56	39.5	0.55	14.0
1-3/8	871399	MZK-45E22-HNBR	2.02	52.0	0.71	18.0
1-5/8	870400	MZK-45E24-HNBR	2.40	61.0	1.22	31.0

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

TEES

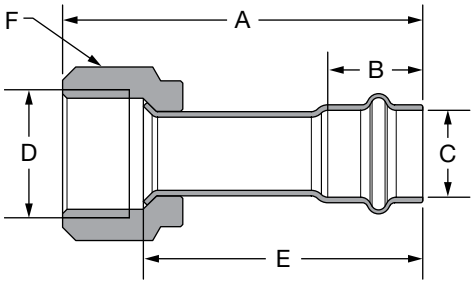
Dimensions



Size	Part Number	Description	Dimensions							
			A		B		C		D	
			Inch	mm	Inch	mm	Inch	mm	Inch	mm
1/4	870701	MZK-T4-HNBR	2.13	54.0	1.06	27.0	0.35	9.0	0.35	9.0
5/16	870711	MZK-T5-HNBR	2.29	58.0	1.14	29	0.43	11	0.43	11
3/8	870702	MZK-T6-HNBR	2.48	63.0	1.22	31.0	0.53	13.5	0.51	13.0
1/2	870703	MZK-T8-HNBR	2.60	66.0	1.10	28.0	0.61	15.5	0.41	10.5
5/8	870704	MZK-T10-HNBR	2.99	76.0	1.26	32.0	0.67	17.0	0.43	11.0
3/4	870705	MZK-T12-HNBR	3.31	84.0	1.42	36.0	0.79	20.0	0.55	14.0
7/8	870706	MZK-T14-HNBR	3.50	89.0	1.52	38.5	0.81	20.5	0.57	14.5
1-1/8	870707	MZK-T18-HNBR	3.74	95.0	1.69	43.0	0.87	22.0	0.69	17.5
1-3/8	870708	MZK-T22-HNBR	4.41	112	2.20	56.0	0.87	22.0	0.87	22.0
1-5/8	870710	MZK-T24-HNBR	5.47	139	2.74	69.5	1.56	39.5	1.56	39.5

SAE FLARES

Dimensions

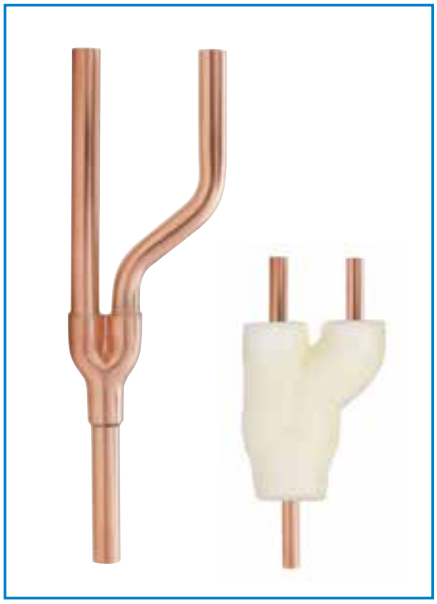


Size	Part Number	Description	Dimensions									
			A		B		C	D	E		F	
			Inch	mm	Inch	mm	Inch	Inch	Inch	mm	Inch	mm
1/4	871000	MZK-F4-HNBR	2.13	54.0	0.71	18.0	1/4”	1/4”	1.81	46.0	0.67	17.0
3/8	871002	MZK-F6-HNBR	2.40	61.0	0.71	18.0	3/8”	3/8”	1.97	50.0	0.86	22.0
1/2	871003	MZK-F8-HNBR	2.50	63.5	0.69	17.5	1/2”	1/2”	2.03	51.5	0.95	24.0
5/8	871004	MZK-F10-HNBR	2.91	74.0	0.83	21.0	5/8”	5/8”	2.28	58.0	1.06	27.0
3/4	871005	MZK-F12-HNBR	3.21	81.5	0.86	22.0	3/4”	3/4”	2.50	63.5	1.34	34.0

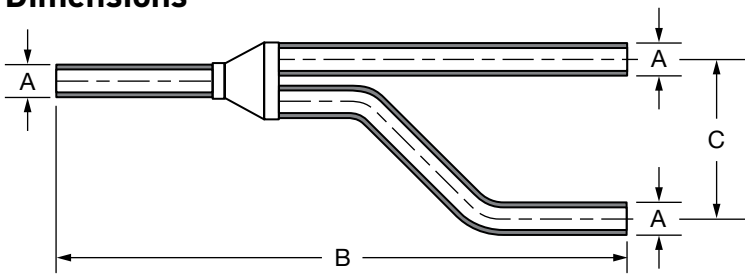
ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

Y-JOINTS



Dimensions

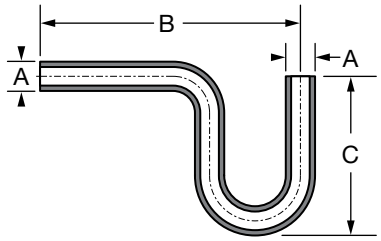


Size	Part Number	Description	Dimensions					
			A		B		C	
			Inch	mm	Inch	mm	Inch	mm
3/8	771102	MZK-Y6-NA	0.38	9.5	7.59	192	2.37	60.0
1/2	771103	MZK-Y8-NA	0.50	12.7	8.97	227	2.49	63.0
5/8	771104	MZK-Y10-NA	0.63	15.9	9.49	240	2.61	66.0
3/4	771105	MZK-Y12-NA	0.75	19.1	10.20	258	2.73	69.0
7/8	771106	MZK-Y14-NA	0.88	22.2	12.13	307	2.89	73.0
1-1/8	771107	MZK-Y18-NA	1.13	28.6	13.16	333	3.56	90.0

Note: Not UL Approved. Includes foam insulation as shown.

P-TRAPS

Dimensions



Size	Part Number	Description	Dimensions					
			A		B		C	
			Inch	mm	Inch	mm	Inch	mm
1/2	771203	MZK-PT8-NA	0.50	12.7	5.12	130	3.54	90.0
5/8	771204	MZK-PT10-NA	0.63	15.9	5.12	130	3.62	92.0
3/4	771205	MZK-PT12-NA	0.75	19.1	5.91	150	4.25	108.0
7/8	771206	MZK-PT14-NA	0.88	22.2	6.69	170	4.65	118.0
1-1/8	771207	MZK-PT18-NA	1.13	28.6	8.27	210	5.98	152.0
1-3/8	771208	MZK-PT22-NA	1.38	34.9	10.24	260	7.48	190.0

INSTALLATION KIT

3 piece kit includes depth gauge for sizes 1/4" through 1-1/8", permanent marker, and general purpose hand pad. Depth gauge for 1-3/8" fitting size sold separately.

- **Description: MZK-IK, Part Number:** 870516

DEPTH GAUGE

Plastic depth gauge confirms the proper insertion depth of the tubing. For use with 1-3/8" fitting size only.

- **Description:** MZK-IK-22 Install Kit 1-3/8, **Part Number:** 870517

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

FITTING STORAGE

ZoomLock MAX fittings do not require special storage conditions. However to protect the HNBR O-ring a few simple precautions should be taken.

The O-rings should be protected from light sources, in particular direct sunlight or intense artificial light having a high ultra-violet content.

As the ozone is particularly harmful to rubber, storage rooms should not contain any equipment that is capable of generating ozone, such as mercury vapor lamps or high-voltage electrical equipment giving rise to electric sparks or silent electrical discharges.

Combustion gases and organic vapors should be excluded from storage rooms, as they may give rise to ozone via photochemical processes. Precautions should also be taken to protect stored products from all sources of ionizing radiation.

ZoomLock MAX fittings should be kept in their sealed bags to protect them from contamination.

MARKINGS and CLEANLINESS

Each fitting is marked with a pressure rating (on a pink background), cleaned, bagged, and labeled to fully comply with the cleanliness requirements of ASTM-B280 and ASTM-B88 type K or L. Keep the resealable bag closed to protect fittings from contamination.

DESIGN CONSIDERATIONS

All refrigeration pipelines must be designed so that the number of joints is kept to a practical minimum. Refrigeration pipelines should be designed in compliance with the following key standards and in line with federal, state and local regulations, codes of practice and by-laws governing the installation. All applicable health and safety practices must be adhered to.

- ASHRAE 15 - Safety Standard for Refrigeration Systems.
- ASME B31.5 - Refrigeration Piping and Heat Transfer Components.
- International Mechanical Code (IMC).
- International Residential Code (IRC).
- Uniform Mechanical Code (UMC).

Pipework Support

All pipework should be supported by the use of appropriate clips, brackets or supports. Please refer to:

- ASHRAE 15 - Safety Standard for Refrigeration Systems.
- ASME B31.5 - Refrigeration Piping and Heat Transfer Components.
- International Mechanical Code (IMC).
- International Residential Code (IRC).
- Uniform Mechanical Code (UMC).

Federal, state and local regulations, codes of practice and by-laws governing the installation must also be adhered to. Supports should be placed near to fittings when possible and additional supports may be required when using soft copper tubes or where vibration occurs.

Pipework Protection

Tubing and fittings shall be protected as far as possible against adverse environmental or other external effects. Refer to:

- ASHRAE 15 - Safety Standard for Refrigeration Systems.
- ASME B31.5 - Refrigeration Piping and Heat Transfer Components.
- International Mechanical Code (IMC).
- International Residential Code (IRC).
- Uniform Mechanical Code (UMC).

Federal, state and local regulations, codes of practice and by-laws governing the installation must also be adhered to.

Pipework Identification and Insulation

All pipework must be installed in accordance with:

- ASHRAE 15 - 2016 Safety Standard for Refrigeration Systems.

Electrical Continuity

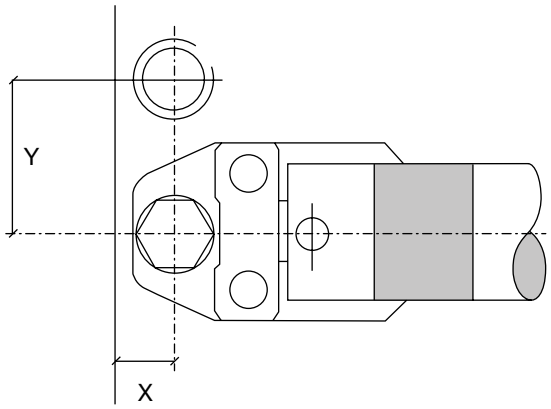
ZoomLock MAX fittings maintain ground continuity without the need for additional ground continuity straps.

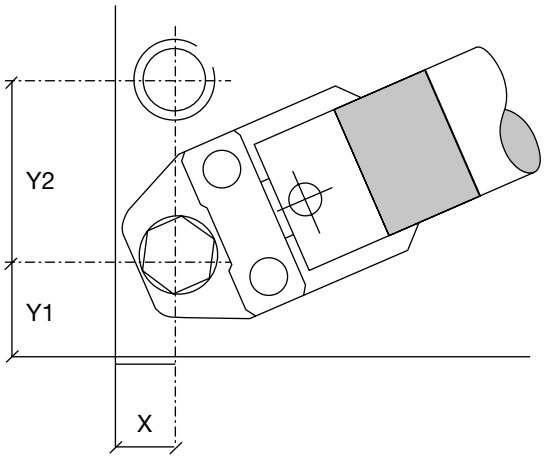
ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

DESIGN CONSIDERATIONS (Continued)

Space Required for the Pressing Process





Space Required to Complete a Pressing Between Tubes and Wall ROTHENBERGER 32KN JAWS				
Tube Size - OD (Inches)	X		Y	
	Inches	mm	Inches	mm
1/4	1-1/4	30	2-3/8	60
5/16	1-1/4	30	2-3/8	60
3/8	1-1/4	30	2-3/8	60
1/2	1-1/4	30	2-3/8	60
5/8	1-1/4	30	2-3/8	60
3/4	1-1/4	30	2-3/8	60
7/8	1-3/8	35	2-3/8	60
1-1/8	1-3/8	35	2-3/8	60
1-3/8	1-3/8	35	2-3/8	60
1-5/8	2-5/8	65	5-1/8	130

Space Required to Complete a Pressing Between Tubes and Wall Corner ROTHENBERGER 32KN JAWS						
Tube Size - OD (Inches)	X		Y1		Y2	
	Inches	mm	Inches	mm	Inches	mm
1/4	2	50	2	50	4	100
5/16	2	50	2	50	4	100
3/8	2	50	2	50	4	100
1/2	2	50	2	50	4-3/8	110
5/8	2	50	2	50	4-3/8	110
3/4	2	50	2	50	4-3/8	110
7/8	2-3/8	60	2-3/8	60	4-3/4	120
1-1/8	2-3/8	60	2-3/8	60	4-3/4	120
1-3/8	2-3/8	60	2-3/8	60	4-3/4	120
1-5/8	4	100	4	100	8	200

Space Required to Complete a Pressing Between Tubes and Wall ROTHENBERGER 19 OR 24 KN JAWS				
Tube Size - OD (Inches)	X		Y	
	Inches	mm	Inches	mm
1/4	1-1/4	30	2-3/16	55
5/16	1-1/4	30	2-3/16	55
3/8	1-1/4	30	2-3/16	55
1/2	1	25	2-3/16	55
5/8	1	25	2-3/16	55
3/4	1	25	2-3/16	55
7/8	1-1/4	30	2-3/16	55
1-1/8	1-3/8	35	2-3/16	55

Space Required to Complete a Pressing Between Tubes and Wall Corner ROTHENBERGER 19 OR 24 KN JAWS						
Tube Size - OD (Inches)	X		Y1		Y2	
	Inches	mm	Inches	mm	Inches	mm
1/4	1-5/8	40	1-5/8	40	4	100
5/16	1-5/8	40	1-5/8	40	4-1/4	105
3/8	1-5/8	40	1-5/8	40	4-1/4	105
1/2	1-5/8	40	1-5/8	40	4-1/4	105
5/8	1-5/8	40	1-5/8	40	4-1/4	105
3/4	1-5/8	40	1-5/8	40	4-1/4	105
7/8	2-3/16	55	2-3/16	55	4-3/8	110
1-1/8	2-3/8	60	2-3/8	60	4-9/16	115

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

DESIGN CONSIDERATIONS (Continued)

Insertion Depth and Minimum Distances Between Pressings

Due to the reforming of the tube profile when pressed, it is advised that a minimum distance is allowed between each fitting.

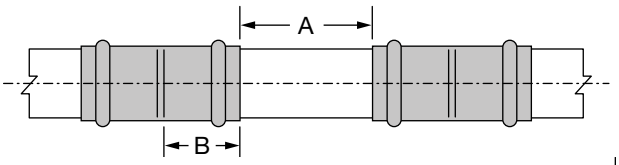
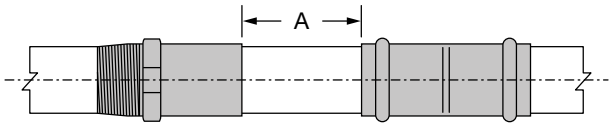


Table 1

Nominal Size	Minimum Distance A		Insertions Depth B	
Inches	Inches	mm	Inches	mm
1/4	1/2	10	0.71	18.0
5/16	1/2	10	0.75	19.0
3/8	1/2	10	0.71	18.0
1/2	5/8	15	0.75	19.0
5/8	5/8	15	0.87	22.0
3/4	7/8	20	0.91	23.0
7/8	7/8	20	0.98	25.0
1-1/8	1	25	1.04	26.5
1-3/8	1-3/8	35	1.34	34.0
1-5/8	1-3/8	35	1.18	30

Minimum Distance for Press Fittings from an Existing Brazed Joint

To ensure proper sealing of both the brazed and ZoomLock MAX fitting the following minimum distances must be maintained between the two fittings.



It is important that there is no residual brazing or other foreign debris on the tubing to be inserted into the ZoomLock MAX fitting. The surface condition on the area of press joint should be clean and free from debris and comply with ASTM-B280 or ASTM-B88 type ACR, L, or K.

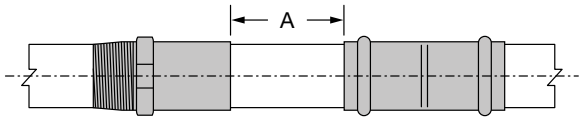
Table 2

Minimum Distance from a Brazed Joint		
Nominal Size Tube - OD	Minimum Distance A	
Inches	Inches	mm
1/4	1/2	10
5/16	1/2	10
3/8	1/2	10
1/2	5/8	15
5/8	5/8	15
3/4	7/8	20
7/8	7/8	20
1-1/8	1	25
1-3/8	1-3/8	35
1-5/8	1-5/8	40

Note: A - clearance between fitting ends.

Minimum Brazing Distance to an Existing Pressed Fitting

Caution – Brazing near to ZoomLock MAX joints should be avoided as this may cause the seal to degrade due to heat transfer. The table below states the minimum distance away from the press joint which is acceptable to braze. If this distance cannot be maintained then adequate precautions must be taken such as fabricating the brazed section prior to assembly with the press fittings, wrapping



in a wet rag or applying a heat barrier spray, gel or putty, to prevent heat transfer to the press fitting during brazing.

Table 3

Minimum Distance Brazing		
Nominal Size Tube - OD	Minimum Distance A	
Inches	Inches	mm
1/4	10	250
5/16	12	300
3/8	12	300
1/2	13-3/4	350
5/8	17-3/4	450
3/4	19-3/4	500
7/8	23-3/4	600
1-1/8	27-1/2	700
1-3/8	35-1/2	900
1-5/8	47 1/4”	1200

Note: A - clearance between fitting ends.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

DESIGN CONSIDERATIONS (Continued)

Testing and Commissioning of Air Conditioning and Refrigeration Systems

Testing and commissioning of air conditioning and refrigeration systems should be in accordance with the requirements specified in:

- ASHRAE 15 - Safety Standard for Refrigeration Systems.
- ASME B31.5 - Refrigeration Piping and Heat Transfer Components.
- International Mechanical Code (IMC).
- Uniform Mechanical Code (UMC).

Federal state and local regulations, codes of practice and by-laws governing the installation must also be adhered to.

General

- Dry oxygen free nitrogen (OFN) should be used for tightness and strength testing as it is inert. Do not use oxygen for pressure testing, under pressure it can react violently with hydrocarbons (oil and grease) resulting in explosions and fire.
- The maximum test pressure to be identified by the installer. This will be calculated from the system pressure and the test parameters.
- To ensure ZoomLock MAX fittings are tested safely, during the strength pressure and / or tightness test, the pressure should be raised gradually up to the desired test pressure of the system as established by the installer.
- If you are going to leave the pipework pressurized for 24 hours or longer to check for leaks, measure the system pressure and the ambient temperature at the start and finish of the tightness test. A rise in ambient temperature can mask a leak if this is not taken into account. There will be a pressure change of approximately 10 psi with a temperature change of 9°F.
- Care must be taken to ensure a ZoomLock MAX joint will not be close enough to the liquid charging point that the temperature of the joint drops below -40°F when breaking a vacuum by liquid charging the system.

Problem Solving Vacuum Evacuation

Vacuum evacuation removes air, moisture, and non-condensable gases prior to system charging.

Failure to achieve a vacuum:

- A leak or moisture in the system (see below).
- Vacuum pump not working correctly.
- Vacuum pump does not have sufficient capacity.

Failure to hold a vacuum:

- A leak in the system or the connections to the system – find all leaks and repair them.
  - An ultrasonic leak detector can help pinpoint leaks on a system under vacuum.
- Moisture or refrigerant still in the system – continue evacuation.

No remedial action e.g. cutting out fittings from the system should be taken until a proper fault finding exercise has been completed.

ZoomLock MAX Tube Compatibility

ZoomLock MAX Fitting Size Inches	Tube Size Nominal OD		ASTM B280 - ASTM B88 - ASTM B743 - ASTM B1003 Wall Thickness - Inches (mm)												
	Inches	mm	0.025" (0.64)	0.030" (0.76)	0.031" (0.81)	0.035" (0.89)	0.040" (1.02)	0.042" (1.07)	0.045" (1.14)	0.049" (1.24)	0.050" (1.27)	0.055" (1.40)	0.060" (1.52)	0.065" (1.65)	0.072 (1.83)
1/4	0.250	6.35	■	●											
5/16	0.313	8.00		●■	●	●■									
3/8	0.375	9.53		●■	●	●■									
1/2	0.500	12.70			●	●■				●■					
5/8	0.625	15.88				●	●■			●■					
3/4	0.750	19.05				●		●■		●■					
7/8	0.875	22.23							●■					●■	
1-1/8	1.125	28.58									■			■	
1-3/8	1.375	34.93										■		■	
1-5/8	1.625	41.28								■			■		■

● **Coil lengths in annealed condition.**
■ **Straight lengths in hard/half hard condition.**

Notes:
Ensure coil tubes are in round condition. Oval tubes should be re-rounded.
Hardness tolerance as per approved standards in the table above.
It is the engineer's responsibility to ensure that the tube selected is compatible with ZoomLock MAX and meets the operating pressure requirements of the system.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

DESIGN CONSIDERATIONS (Continued)

Elbow Equivalent Lengths

Certain applications are more sensitive to pressure losses from piping and require the use of long radius elbows to help ensure the pressure drop is kept to a minimum.

Specifications for Brazed 90° Elbows and ZoomLock® MAX Press-to-Connect 90° Elbows

Fitting Size (Outside Diameter) Inches	Equivalent Length of Brazed 90° Elbows		Equivalent Length of ZoomLock MAX 90° Elbows	
	Short Radius (R/D = 1)	Long Radius (R/D = 1.5)	Standard	Long Radius
1/4	1.0	0.7	0.7	*
5/16	1.1	0.75	0.75	*
3/8	1.2	0.8	0.8	*
1/2	1.4	0.9	1.2	0.7
5/8	1.6	1.0	1.3	0.8
3/4	1.8	1.2	1.5	1.0
7/8	2.0	1.4	1.7	1.1
1-1/8	2.6	1.7	2.2	1.4
1-3/8	3.3	2.3	2.8	1.8
1-5/8	4	2.6	N/A	2.1

The equivalent lengths of brazed 90° elbows between 1/2" and 1-3/8" are referenced directly from Table 16 in Chapter 1 of the *2018 ASHRAE Handbook: Refrigeration [1].*

R/D = Bend radius of fitting divided by the outside diameter of the tube that goes into the fitting.

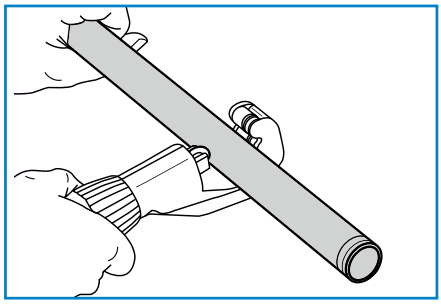
*Standard 1/4", 5/16, and 3/8" ZoomLock MAX 90° elbows have a R/D ⩾ 1.5 and meet the requirements of long radius.

[1] American Society of Heating, Refrigerating and Air-Conditioning Engineers. (2018). *2018 ASHRAE Handbook: Refrigeration.* Atlanta, GA: American Society of Heating, Refrigerating and Air Conditioning Engineers.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

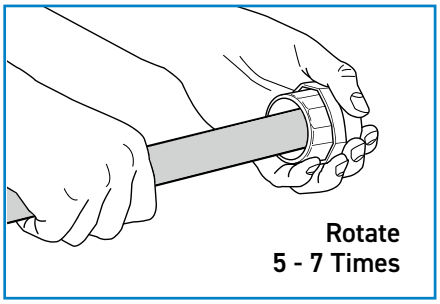
INSTALLATION INSTRUCTIONS



STEP 1

Cut the tube to length

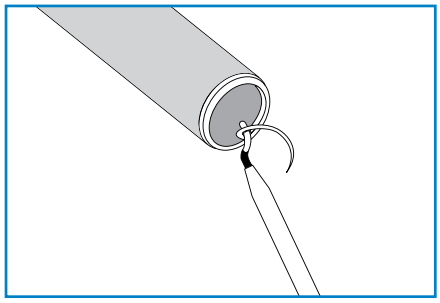
- Use a rotary tube cutter.
- Ensure that the tube is cut square.
- Check the tube has retained its shape and is damage free.



STEP 2

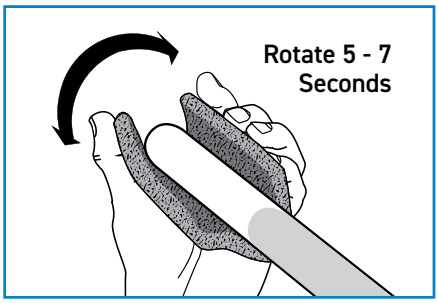
Deburr and remove all external sharp edges

- Deburr the tube both internally and externally.
- Where possible angle the tube downwards to prevent filings entering the tube.
- Use a pencil type deburrer on internal tube edges.
- Make sure the internal and external surfaces of the tube ends are smooth and free from burrs or sharp edges.



STEP 3

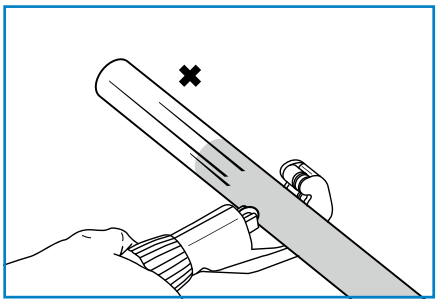
Use a pencil type deburrer on internal edges



STEP 4

Clean the tube end

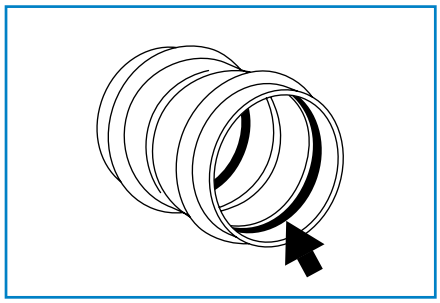
- Thoroughly clean the tube end using a general purpose hand pad or sand cloth in a rotating motion.
- Tube ends must be free from scratches, oxidation, dirt and debris.



STEP 5

Check for defects

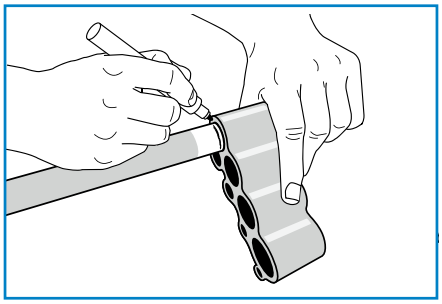
- If deep scratches are still visible, cut the tube back to a clean section and repeat steps 2 - 4.



STEP 6

Ensure the O-ring is seated

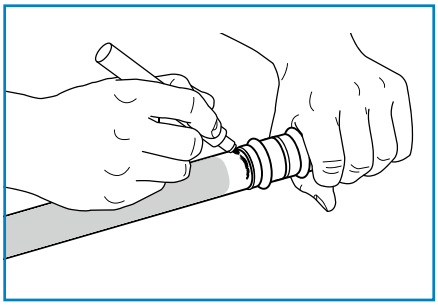
- Check the fitting is the correct size for the tube.
- Check the O-rings are present and correctly seated.
- A small additional amount of lubricant may be used to aid tube insertion.



STEP 7A

Mark insertion depth on tube using depth gauge

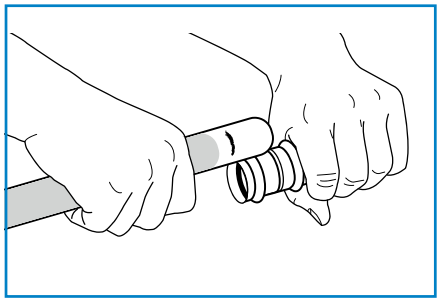
- Insert tube into correct socket in depth gauge.
- Mark the insertion depth on the tube.



STEP 7B

Alternatively insert tube to tube stop and mark

- The tube must be fully inserted into the fitting until it reaches the tube stop.
- To reduce the risk of dislodging the O-ring rotate the tube (if possible) while slipping it into the fitting.
- Mark the insertion depth on the tube.



STEP 7B

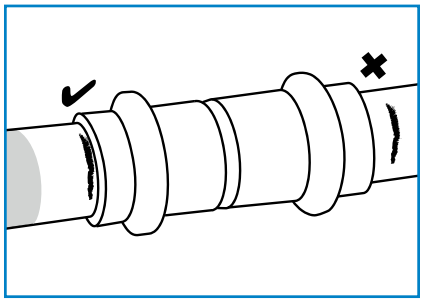
Check the depth mark

- Remove the tube and align with fitting socket, check that the depth mark is correctly positioned.
- The insertion depth mark is used as a reference prior to pressing the joint.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

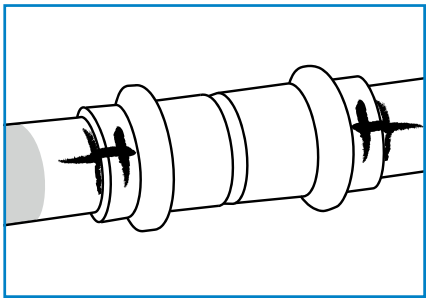
INSTALLATION INSTRUCTIONS (Continued)



STEP 8

Insert the tube fully into the fitting. Ensure tube is fully inserted prior to pressing

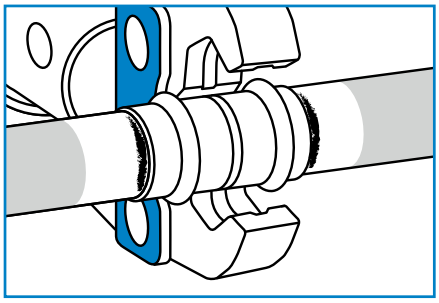
- Insert the tube fully into the fitting up to the tube stop.
- To reduce the risk of dislodging the O-ring rotate the tube (if possible) while slipping it into the fitting.
- Prior to pressing, ensure the tube has not moved out from the fitting socket.
- Use the insertion depth mark as a guide.



STEP 11

Mark the completed joint

- Mark the completed joint after pressing.
- This enables joints to be inspected easily before testing and insulating the pipework.

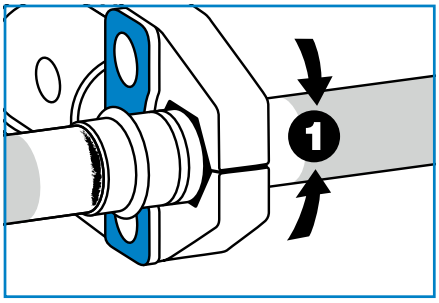


STEP 9

Align jaws squarely on the fitting

- Ensure pipework is correctly aligned prior to pressing.
- Ensure the correct size jaw is inserted into the tool.
- The jaws must be placed squarely on the fitting locating the groove over the o-ring.
- The o-ring on the fitting should fit centrally in the groove of the jaw.

⚠ **WARNING: ZoomLock MAX fittings can only be connected with jaws/tools designed for use with ZoomLock MAX products.**



STEP 10

Complete the joint with the approved tool. Press once only

- Depress and hold the button to complete the pressing cycle.
- Pressing is complete when the jaws are fully closed and the piston retracts.
- Complete the press cycle once only – do not repress.
- Release the jaw.

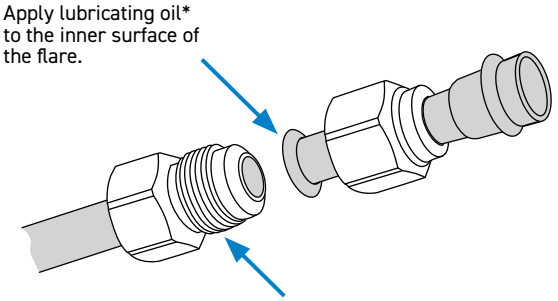
ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

INSTALLATION INSTRUCTIONS (Continued)

Installing a ZoomLock MAX Female Flare Connector to a Male Flare Connector

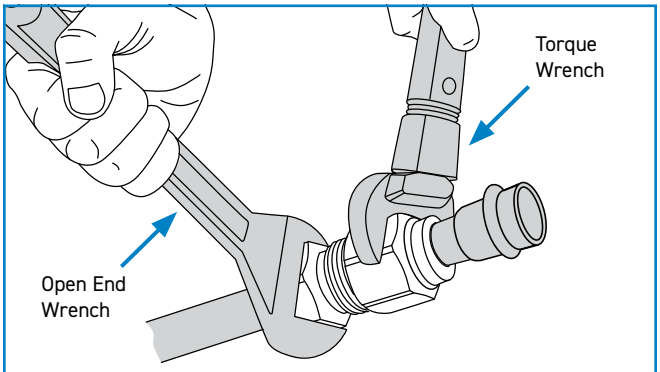
Make the flare connection prior to pressing the ZoomLock MAX joint. If this is not possible care must be taken to prevent rotational forces being applied to the pressed joint.



Copper Flare

Align the centers of both flares and tighten the flares by hand.

***Note:** A compatible refrigerant lubricant should be used and care should be taken to **avoid application onto flare threads.**



Tighten Joint using Torque Wrench

Fully tighten using an open end wrench and torque wrench to the torque values set out in the table. **Do not overtighten.**

Flares Tightening Torque**		
Size	N m	ft lbf
1/4"	14-18	11-13
3/8"	33-42	25-31
1/2"	50-62	37-45
5/8"	63-77	47-56
3/4"	90-110	67-81

**Do NOT overtighten.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

FREQUENTLY ASKED QUESTIONS

1. **Why is it significant that ZoomLock MAX is "UL Listed"?**
   UL Listing ensures that ZoomLock MAX meets the industry requirements for field and factory installation.
2. **How do I ensure I make a secure and leak-free joint?**
   Follow all of the steps for prep and installation.
3. **What is a "deep" scratch, and how do you clean this?**
   Your fingernail can feel a deep scratch. Try using a new piece of Scotch-Brite abrasive pad. Alternatively, use a 340 grit sandpaper/cloth.
4. **Can you show an example of a "good" copper tube surface after sanding?**

Figure 1 - Copper tube with "good" surface.

Figure 2 - Copper tube with "bad" surface scratch.

5. **How do I know the correct insertion depth when pushing the ZoomLock MAX fitting onto the copper tube?**
   Use the depth gauge provided or the minimum insertion depth chart to determine the correct insertion depth. Mark the tubing with a permanent marker to indicate proper insertion depth on every tube.
   Refer to Table 1 on Page 18 for Information
6. **Do you have a solution for crimping onto swaged or belled tubing like that coming out of the condenser and evaporator on residential units?**
   No, we do not have a specific product designed to crimp over the swaged tubing. However, if there are at least 2 inches of straight copper tubing after the flared end and is accessible with the jaws, you may cut the flared end off and crimp directly to the tube.
7. **Where do I crimp ZoomLock MAX fittings?**
   Crimp with the jaw straddling directly over the o-ring section of the fitting.
8. **My jaws sometimes get stuck on the fitting after crimping. What can I do to make it easier to remove the jaws?**
   Applying a thin coating of WD-40 or similar lubricant to the jaw before starting a job should help.
9. **What is the minimum braze distance from the ZoomLock MAX fitting?**
   Refer to Table 2 on Page 18 for Information.
10. **What is the minimum distance between ZoomLock MAX fittings?**
    Refer to Table 3 on Page 18 for Information.

11. **How many crimps can you complete on a complete battery charge?**
    Tool dependent; consult the tool manufacturer owner's manual.
12. **How do you know when to service the tool?**
    Tool dependent; consult the tool manufacturer owner's manual.
13. **What is the expected life of the jaws?**
    ZoomLock MAX jaws are laser hardened and have an indefinite life expectancy. We encourage each customer to keep the jaws clean, free of debris, and stored properly when not in use. If any of the wear parts become damaged or non-functional, consult your local ZoomLock MAX distributor.
14. **What tool manufacturers and models are ZoomLock MAX jaws compatible?**
    Refer to page 8 for the press tool compatibility table.
15. **Where can replacement batteries and chargers be purchased?**
    Tool dependent; check the tool manufacturer owner's manual.
16. **Can you use ZoomLock MAX to crimp to aluminum, steel, or stainless steel?**
    No, ZoomLock MAX is designed explicitly for copper to copper connections.
17. **What standards and codes is ZoomLock MAX compliant with, and what approvals does it hold?** See page 7.
18. **Does ZoomLock MAX work on both hard and soft copper?**
    Yes, ZoomLock MAX is a press fitting system for use with hard, half-hard, or annealed copper tube conforming to EN12735-1 or ASTM-B280.
19. **What is the warranty on ZoomLock MAX fittings?**
    The product has a 15-year warranty from the first date of purchase. Please refer to full terms and conditions.
20. **What is the material used to make the O-ring?**
    Hydrogenated Nitrile Butadiene Rubber (HNBR).
21. **What is the expected life of the O-ring in the system?**
    The expected life of the O-ring, if used within the product specifications for temperature and pressure, is at least 25 years. The product has a 15-year warranty.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

FREQUENTLY ASKED QUESTIONS (Continued)

22. **Are there any storage issues, including where the fittings are stored in vehicles and exposed to extremes of high or low temperature?**
No, the product is not subject to degradation under normal storage conditions, provided it's kept in original packaging and not exposed to direct sunlight for long periods.

23. **What approved refrigerants are for use with ZoomLock MAX?**
See page 7.

24. **What approved lubricants are for use with ZoomLock MAX?**
See technical data on page 7.

25. **If ZoomLock MAX leaks on installation, can you braze the fitting rather than cutting out the joint and having to replace the missing tube?**
No, if a pressed fitting is leaking, the fitting must be cut out and replaced. You should not attempt to braze the fitting as you may melt the O-ring material and thus introduce contaminants into the system that could cause other system issues.

26. **Is there a concern about ice building up and then thawing under the fitting in a horizontal or vertical configuration?**
No, ZoomLock MAX has been thoroughly freeze/thaw tested.

27. **What is the difference between the press jaws for ZoomLock MAX and press jaws for other HVAC and plumbing press fittings?**
ZoomLock MAX fittings can only be connected with jaws/tools designed for use with ZoomLock MAX products.

28. **Are there any concerns with corrosion where installations are made in coastal areas or with cleaning agents?**
No, ZoomLock MAX has been Acid Salt Spray tested to ASTM G85. As with all copper installations, avoid exposure to ammonia.

29. **Does the O-ring compensate for imperfections in the tube to make a tight seal?**
Yes, the O-ring does compensate for small/minor scratches on the surface of the tube. However, avoid imperfections adjacent to the crimp area such as scratches, incise marks, and tubing that is not round. Reference copper piping standard for roundness.

30. **What happens if the application goes beyond the temperature specifications?**
If you use ZoomLock MAX in an application that the fitting goes beyond the specified limits of the O-ring, then there is an increased likelihood that a leak can occur due to the compromised O-ring.

31. **How clean are ZoomLock MAX fittings?**
ZoomLock MAX fittings comply with the cleanliness standards as required in the following Copper Tube Standards EN 12735-1 and ASTM-B280. Keep the zip closure bag sealed to protect fittings from contamination.

32. **How do the fittings cope with vibration from the system?**
Vibration is a recognized cause of leaks, design the system, and install to comply with all local standards and codes of practice, which aim to minimize vibration. Extensively tested ZoomLock MAX fittings ensure the joint doesn't leak as a result of system vibration and complies with the following standards: ISO 14903, Temperature Pressure Cycling and Vibration Test; UL 109 - 8, Vibration Test; UL 207, Fatigue Shock Test.

33. **Will the O-ring be damaged if acid develops in the refrigeration system?**
Good installation practice, a nitrogen purge during any brazing (not required with ZoomLock MAX mechanical fittings), a deep evacuation, and the proper installation and use of filter-driers containing new and effective molecular sieve desiccants prevent many system failures including the buildup of acid within the system. When selecting which desiccant material is best for an application, consider water capacity, refrigerant and lubricant compatibility, acid capacity, and physical strength, which are essential characteristics of desiccants.

34. **When pressed, small size fittings, mainly elbows, may allow a small amount of rotational movement at the joint. Will this affect the security of the joint?**
No, some rotational movement is quite acceptable, the joint won't leak, nor will it come apart under the pressure loading and during system operation. Some joint movement is good and allows for expansion and contraction in the system pipework.

35. **Is ZoomLock MAX suitable for medical gas applications?**
No, ZoomLock MAX is not suitable for medical gas applications.

36. **Can you press a fitting more than once?**
No, only press ZoomLock MAX fittings once.

37. **Is ZoomLock MAX approved for drinking water systems?**
Zoomlock MAX is not approved for potable water systems.

38. **I need to pull a vacuum, how deep of a vacuum can I pull?**
Pull 200 microns for a deep vacuum.

ZOOMLOCK MAX

Press-to-Connect Refrigerant Fittings

ABBREVIATIONS

AB Oil	Alkyl Benzene oil.
ASHRAE 15 - 2016	Safety Standard for Refrigeration Systems.
ASTM-B280-13	American Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.
ASTM-B88 Type K or L	Seamless Copper Water Tube.
ASME B31.5 - 2016 - 2016	Refrigeration Piping and Heat Transfer Components.
CFT	Constant Force Technology.
HNBR	Hydrogenated Nitrile Butadiene Rubber.
IMC 2021	International Mechanical Code 2021.
IRC 2021	International Residential Code 2021.
ISO 5149-2:2014	International Standard for Refrigerating systems and heat pumps - Safety and environmental requirements -- Part 2: Design, construction, testing, marking and documentation.
ISO 9001	Certified quality management system.
ISO 14903:2012	International Standard for Refrigerating systems and heat pumps – Qualification of tightness of components and joints.
LED	Light Emitting Diode.
PAO Oil	Poly-alpha-olefin oil.
POE Oil	Polyolester oil.
PVE Oil	Polyvinylether oil.
SMS	Short Message Service.
UL 207	Standard for Refrigerant-Containing Components and Accessories, Nonelectrical.
UL 1963 – 79	Standard for Refrigerant Recovery / Recycling Equipment. Section 79 Tests of Gaskets and Seals Used in Refrigerant Systems.
UL 109 - 8	Standard for Tube Fittings for Flammable and Combustible Fluids, Refrigeration Service, and Marine Use. Section 8 Vibration test.
UMC 2021	Universal Mechanical Code 2021.
UNS	Unified Numbering System.

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