



Instantor[®]

R-Press Fittings



Superior Plumbing Products
for **Professional Plumbers**
Since 1926

ACR Technical Guide



Instantor®

R-Press Fittings



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1 - Introduction

1.1 Applications

The Instantor R-Press system is a copper press connection system designed for the air conditioning and refrigeration markets.

It allows contractors to make secure leak-free connections in seconds. R-Press utilises a rubber stop ring, coated stainless steel grip ring and black HNBR sealing element to provide permanent leak-proof connections from 1/4" to 1 1/8".

Applications: R-Press fittings are designed for the following applications

- Refrigeration
- Air Conditioning
- Heat Pump (refrigeration side)
- VRF & VRV

FITTING MATERIAL	COMPATIBILITY	APPROVED REFRIDGEMENTS		
<p>FITTING BODY Refrigerant Grade Copper (UNS C12200 min 99.9% pure)</p>	<p>APPROVED LUBRICANTS POE, PAO, PVE, AB and MO</p>	R32	R125	R134A
<p>O-RING HNBR</p>	<p>APPROVED CONNECTIONS Copper to Copper</p>	R290	R404A	R407A
<p>FITTING WARRANTY</p>	<p>APPROVED TUBE Copper tube conforming to ASTM B280, ASTM B88 or ASTM B743</p>	R407C	R407F	R407H
<p>15-year product warranty, valid upon completion of required training.</p>	<p>APPROVED COPPER TUBING Hard Copper (Drawn) - Type ACR, L, K Soft Copper (Annealed) - Type ACR, L, K</p>	R410A	R454A	R454B
		R438A	R448A	R449A
		R454C	R452A	R452B
		R507A	R600A	R452C
		R1234YF	R1234ZE	

1.2 Features & Benefits

WARRANTY: 15-year product warranty, valid upon completion of required training.

FLAME-FREE: Flame-free installation avoids the need for a fire permit and the risk of fire on site.

NO NITROGEN PURGE: R-Press 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.

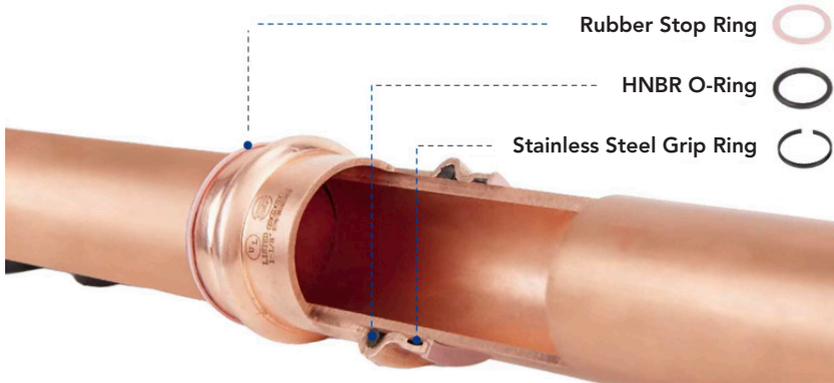
PROTECTED O-RING: Lead-in edge design aids tube insertion and helps protect the O-ring from damage or displacement.

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.

1.3 Technology - 3 Point Press



3-POINT PRESS: Three press points, one each side of the bead, and one press compressing the O-ring. This provides a secure joint.

Size 1/4", 3/8", 1/2" without stainless steel grip ring

Size 5/8", 3/4", 7/8", 1-1/8" with stainless steel grip ring

1.4 Technical Data

Maximum Rated Operating and Abnormal Pressure:

700 psi / 48 bar / 4800 kPa

Continuous Operating Temperature:

-40°F to 250°F (-40°C to 121°C)

Vacuum Pressure Capability: 200 microns

Leak Tightness: Helium 7.5×10^{-7} Pa m³/s at +20°C, 10 bar

Burst Pressure:

>3X Maximum operating and abnormal pressure

>2,100 psig / >14400 kPa / >144 bar

Size Availability (Inches):

1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1-1/8

1.5 Quality Assurance

Instantor is an ISO9001 registered company and we are committed to providing quality products and support to our customers.

1.6 Trademarks and Patents

U.S. Patent No. US 20240337336A1
World Patent No. WO 2024152415 A1
China Patent No. ZL 2023 2 0113763.1
European Patent Application No. PCT CN2023 079936
EU Patent Application: EP4653738A1
Aus Patent Application: AUS2023424739A1

1.7 Fitting Sizes

Size Availability (Inches):

1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1-1/8

1.8 Fitting Materials

Fitting Body:

Refrigerant Grade Copper
(UNS C12200 min 99.9% pure)

O-Ring:

HNBR

Grip Ring:

Stainless Steel



1.9 Approvals, Standards and Test Compliance

COMPATIBILITY	APPROVED REFRIDGEMENTS		
APPROVED LUBRICANTS POE, PAO, PVE, AB and MO	R32	R125	R134A
APPROVED CONNECTIONS Copper to Copper	R290	R404A	R407A
APPROVED TUBE Copper tube conforming to EN12735-1, ASTM B280, ASTM B88 or ASTM B743	R407C	R407F	R407H
APPROVED COPPER TUBING Hard Copper (Drawn) - Type ACR, L, K Soft Copper (Annealed) - Type ACR, L, K	R410A	R454A	R454B
	R438A	R448A	R449A
	R454C	R452A	R452B
	R507A	R600A	R452C
	R1234YF	R1234ZE	

Listings and Certifications

ISO 14903 - 7.4 Tightness test, compliant

ISO 14903 - 7.6 Pressure temperature vibration tests (PTV), compliant

ISO 14903 - 7.8 Freezing test, 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

ASME B31.5 - 2016 Refrigeration Piping and Heat Transfer Components, compliant

UL 207 SA46123

- UL Listed: Approved use for field and factory installations with A1 refrigerants

- UL Recognised: Approved use for factory installations with A2, A2L, and A3 refrigerants

UL 109 - 8 Vibration test, compliant

UL 1963 - 79 Tests of gaskets and seals used in refrigerant systems, compliant

1.10 Fitting Storage

Keep fittings in sealed packaging to prevent O-ring drying out before use.

2 – Design Considerations

2.1 Pipework Support

Please refer local guidelines and the standard below.

EN 378-2:2016 Refrigerating systems and heat pumps. Safety and environmental requirements. Design, construction, testing, marking and documentation.

2.2 Pipework Protection

Please refer local guidelines and the standard below.

EN 378-2:2016 Refrigerating systems and heat pumps. Safety and environmental requirements. Design, construction, testing, marking and documentation.

2.3 Pipework Identification and Insulation

Please refer local guidelines and the standard below.

EN 378-2:2016 Refrigerating systems and heat pumps. Safety and environmental requirements. Design, construction, testing, marking and documentation.

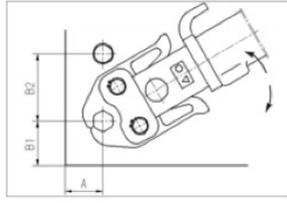
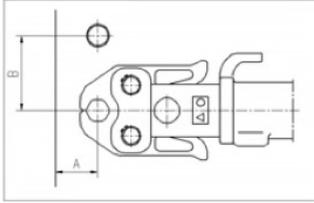
2.4 Earth Continuity

Electrical Continuity:

Maintains ground continuity without the need for additional ground continuity straps.

2.5 Space Required for the Pressing Process

The following minimum clearances are required from structural components to allow operation of tool to press fitting.

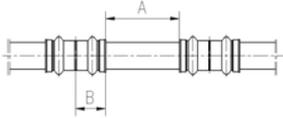


TUBE OD	MINIMUM DISTANCE A (MM)	MINIMUM DISTANCE B (MM)
1/4"	19	41
3/8"	19	41
1/2"	19	41
5/8"	22	41
3/4"	22	54
7/8"	22	54
1-1/8"	26	54

TUBE OD	MINIMUM DISTANCE A (MM)	MINIMUM DISTANCE B1 (MM)	MINIMUM DISTANCE B2 (MM)
1/4"	22	35	64
3/8"	22	35	64
1/2"	22	35	64
5/8"	22	35	64
3/4"	26	38	64
7/8"	26	38	64
1-1/8"	29	45	76

2.6 Minimum Distance Between Pressings and Insertion Depth

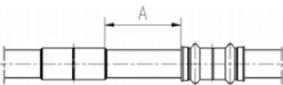
Minimum distance between pressings and insertion depth. Due to the reforming of the tube profile when pressed, it is advised that a minimum distance is allowed between each fitting.



TUBE OD	INSERTION DEPTH B (MM)	MINIMUM DISTANCE A (MM)
1/4"	16	10
3/8"	16	10
1/2"	18	10
5/8"	20.5	15
3/4"	23	22
7/8"	24	22
1-1/8"	24.5	22

2.7 Minimum Distance for Press Fittings from an Existing Brazed Joint

Minimum distance for press fittings from an existing brazed joint after all hot works are complete and cooled.

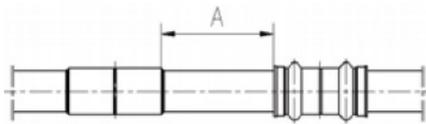


TUBE OD	MINIMUM DISTANCE A (MM)
1/4"	10
3/8"	10
1/2"	10
5/8"	15
3/4"	22
7/8"	22
1-1/8"	22

2.8 Minimum Brazing Distance to an Existing Pressed Fitting

Brazing or soldering near to press joints should be avoided as this may cause the seal to degrade due to heat transfer.

The following table 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 hot block, to prevent heat transfer to the press fitting during brazing.



TUBE OD	MINIMUM DISTANCE A (MM)
1/4"	250
3/8"	300
1/2"	350
5/8"	450
3/4"	500
7/8"	600
1-1/8"	700

2.9 Testing and Commissioning of Air Conditioning and Refrigeration Systems

Testing and commissioning of ACR systems should be in accordance with the requirements specified in:

EN 378-2:2016 Refrigerating systems and heat pumps. Safety and environmental requirements. Design, construction, testing, marking and documentation.

(EU) No 517/2014 on fluorinated greenhouse gases.

2.10 Approved Tube

Copper tube conforming to EN12735-1, ASTM B280, ASTM B88 or ASTM B743



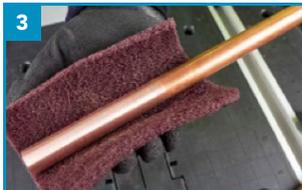
3 - Installation Instructions



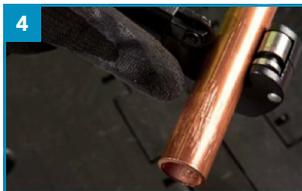
1. Cut the Tube: Tube should be cut completely square and there should be no defects and scratches on the tube which may affect the integrity of joints.



2. Deburr the Tube: Using the deburring tool to make sure both inside and outside of the tube end are free from any burrs or sharp edges to avoid damaging the sealing element.



3. 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.



4. Check for defects: If deep scratches are still visible, cut the tube back to a clean section and repeat steps 2 - 3.



5. 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.



6. Insert the tube into the depth gauge and mark the insertion depth. Insert the tube into the fitting. Tube needs to be fully inserted into the fittings stop end. Marking the tube will allow any movement of the fitting to be seen before pressing.



7. 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.



8. 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.



9. Release the jaw.



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

Flares Installation Instructions



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



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

TUBE DIAMETER	RECOMMENDED TORQUE (N.M)
1/4"	14-18
3/8"	33-42
1/2"	50-62
5/8"	63-77
3/4"	90-110

4 – Press Tool and Jaw Compatibility

Jaw and Press Tool Compatibility for Instantor R-Press

PRESS TOOLS COMPATIBLE WITH INSTANTOR R-PRESS JAWS - INCH		PRESS TOOL JAWS COMPATIBLE WITH INSTANTOR IP2020 AND IP2030-19KN PRESS TOOL	
	INSTANTOR JAW	JAW SIZES 1/4" - 1-1/8" V-PRESS	LISTED TOOL JAWS
INSTANTOR Mini Tool 18V	✓	INSTANTOR R-PRESS V JAW	✓
NOVOPRESS AFP101 / ACO102 / ACO103	✓	NOVOPRESS PB-1 V-JAW	✓
ROTHENBERGER ROI,MAX® Compact TT	✓	ROTHENBERGER TT V-JAWS	✓
MILWAUKEE M12™ FORCE LOGIC™	✓	REMS Mini-Press 22V	✗
Hilti Nuron NPR 19-22	✓		
Klaulke MAP219	✓		
REMS Mini-Press 22V	✗		

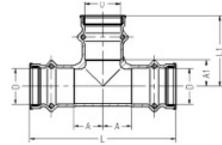
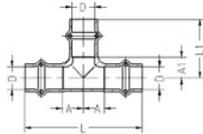
19kN press tools are suitable and approved to press R-fitting and tube up to 1-1/8"

All above tool and jaws are for use with Instantor R-Press system, V-JAW Size 1/4" to 1-1/8"

REMS 22kN press tool is suitable to press our R-Press system, however you can only use the appropriate REMS jaws with REMS tool.

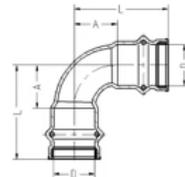
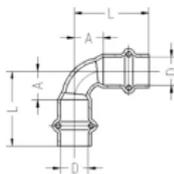
5 - Product Range - Inch

Equal Tee PxPxP



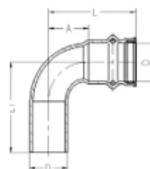
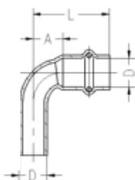
PT PART NO.	SIZE D	L (MM)	A (MM)	L1 (MM)	A1 (MM)
RP518100	1/4"	45	6.5	21.5	5.5
RP518200	3/8"	50	9	25	9
RP518300	1/2"	60	12	28	10
RP518400	5/8"	72	15	33.5	12.5
RP518500	3/4"	78	15.5	37.5	14
RP518600	7/8"	85	18	39.5	15
RP518700	1-1/8"	98.5	24.5	44.5	20

90° Elbow PxP



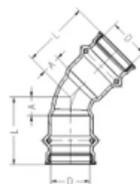
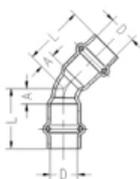
PT PART NO.	SIZE D	L (MM)	A (MM)
RP515100	1/4"	24	8
RP515200	3/8"	26	10
RP515300	1/2"	30.5	12.5
RP515400	5/8"	35.5	14.5
RP515500	3/4"	32.5	20
RP515600	7/8"	44.5	20
RP515700	1-1/8"	53	28.5

90° Street Elbow FTGxP



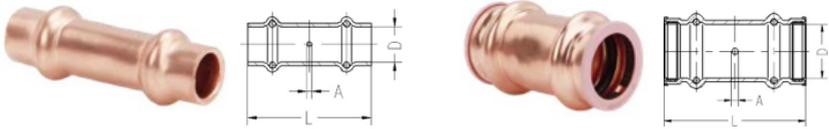
PT PART NO.	SIZE D	L (MM)	L1 (MM)	A (MM)
RP535100	1/4"	24	25.5	8
RP535200	3/8"	26	28	10
RP535300	1/2"	29.5	32.5	11.5
RP535400	5/8"	35.5	39.5	14.5
RP535500	3/4"	32.5	45	20
RP535600	7/8"	44.5	51	20
RP535700	1-1/8"	53	59	28.5

45° Elbow PxP



PT PART NO.	SIZE D	L (MM)	A (MM)
RP545100	1/4"	20.5	4.5
RP545200	3/8"	21.5	5.5
RP545300	1/2"	22	4
RP545400	5/8"	28.5	7.5
RP545500	3/4"	32.5	9
RP545600	7/8"	36	11.5
RP545700	1-1/8"	36.5	12.5

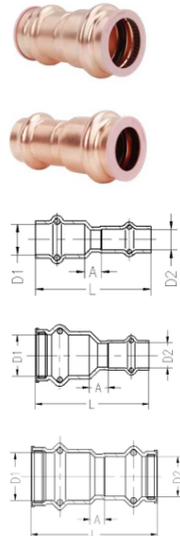
Coupling with Stop



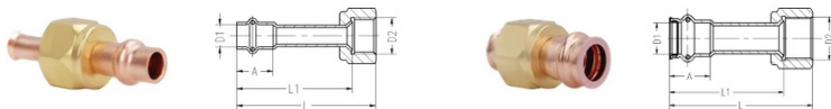
PT PART NO.	SIZE D	L (MM)	A (MM)
RP510100	1/4"	1.38	3
RP510200	3/8"	1.38	3
RP510300	1/2"	1.57	4
RP510400	5/8"	1.65	4
RP510500	3/4"	2.01	5
RP510600	7/8"	2.09	5
RP510700	1-1/8"	2.11	5

Reduced Coupling PxP

PT PART NO.	SIZE D1	SIZE D2	L (MM)	A (MM)
RP519210	3/8"	1/4"	42	8
RP519310	1/2"	1/4"	40	6
RP519320	1/2"	3/8"	37.5	5.5
RP519410	3/4"	1/2"	49.5	8
RP519420	5/8"	1/4"	48.5	11.5
RP519430	5/8"	3/8"	44.5	7.5
RP519530	5/8"	1/2"	45	6
RP519540	7/8"	1/2"	52	9.5
RP519630	3/4"	5/8"	50.5	6
RP519640	7/8"	3/4"	54.5	6.5
RP519650	7/8"	5/8"	54.5	9
RP519740	1-1/8"	3/4"	58	10
RP519750	1-1/8"	5/8"	58.5	13
RP519760	1-1/8"	7/8"	58	9



Flare



PT PART NO.	SIZE D1	SIZE D2	L (MM)	L1 (MM)	A (MM)
RP514100	1/4"	UNF 7-16-20	54	45.5	16
RP514200	3/8"	UNF 5/8-15	61	50.5	16
RP514300	1/2"	UNF 3/4-16	63.5	51.5	18
RP514400	5/8"	UNF 7/8-14	74	59	21
RP514500	3/4"	UNF 11/16-14	81.5	64.5	23.5

Cap PxCap



PT PART NO.	SIZE D	L (MM)	A (MM)
RP551100	1/4"	18	2
RP551200	3/8"	18	2
RP551300	1/2"	20.5	2.5
RP551400	5/8"	24.5	2.5
RP551500	3/4"	26	2.5
RP551600	7/8"	27	2.5
RP551700	1-1/8"	27.5	3

5 – Extended Guarantee

Instantor R-Press Fittings Carry a Warranty of 15 Years.

The warranty covers defects in manufacture that are attributable to our areas of responsibility. The warranty period is 2 years out of bag, and 15 years where certified training has been provided. The guarantee is only valid when the joint has been created using Instantor R-Press fittings and approved pipe, and the joint has been press fitted using the correct pressing force and using an Instantor R-Press jaw.

This warranty is not valid if the installation was carried out by non-professionals or if the assembly instructions in our manual were not followed.

Civil responsibility is limited to a period of 15 years after the installation. In the event of damage, this must be communicated to Instantor. in writing within a period of five days from the accident. Defective Instantor R-Press Fittings must be kept and made available to our technicians for the checks required in each case.



700 psi



Instantor®

R-Press Fittings

Instantor Ireland

Instantor Works
Santry Avenue
Dublin 9
D09K160

Sales: +353 (0)1 842 6255

Email: sales@instantor.ie

instantor.ie

Instantor UK

1 Dagger Road
Lisburn
BT28 2TJ

Sales: +44 (0) 121 737 2515

Email: sales@instantor.co.uk

instantor.co.uk



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