AIR-CONDITIONING PIPING SYSTEM

RIIFO

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CATALOGUE INDEX

ABOUT RIIFO

RIIFO is a leading multinational corporation, providing one-stop piping solutions applied in residential, commercial, agricultural, industrial, and infrastructural sectors. Persistently reinventing since 1996, with over 8,000 employees, 70 branches & subsidiaries, and 300,000 distributors, we have served customers in more than 100 countries and regions.

With an integrated value chain, from R&D to manufacturing and retail distribution, we strive to fulfill our mission of offering ideal piping products and services for all environments.

8,000
Employees

300,000
Distributors worldwide

100+
Serving over 100 countries & regions

70
Branches & Subsidiaries

INNOVATION

Believing that innovation is the key to go beyond the ordinary, RIIFO has founded one world-class labs recognized and certified by CNAS. Over 600 innovation talents have spared no effort to challenge industrial boundaries, achieving 923 patents and 20 technology awards.

And this innovative passion has perfectly presented on high quality products and outstanding services, we strive to offer ideal piping solutions to everyone.

SCALE

We adopt highly automated production lines with the most rigorous and comprehensive production control, and management system to handle such a powerful production.

Facility

9
global production bases

5,200+
production staffs

200
hectares area totally

4,000+
automated production lines

Capacity

Production Capacity

- Pipe: **3.2 billion** m/yr
- Fitting: **1.3 billion** pcs/yr

Storage Capacity

- **1,735,000 m3** ≈ 61,950 TEU (20 GP Containers)

RIIFO APPROVALS

RIIFO adhere to the concept of quality priority,all RIIFO products are produced under rigorous quality control with excelsior manufacturing.
Until now,RIIFO has gained over 50 certificates, such as NSF, DVGW, AENOR, WRAS Watermark, etc. These certificates worldwide underline our technical and quality know-how, and we can provide you with 25 years system warranty backed up by an international insurance company.

Group Honor

OHSMS45001 · ISO14001 · MANAGEMENT SYSTEM ISO 9001: 2015 · reddot · EPD®

Certificates

USA · GERMANY · FRANCE · INDONESIA · SPAIN · UK

NETHERLAND · FINLAND · EU · AUSTRALIA · AUSTRALIA · AUSTRALIA

PROJECT REFERENCE

Monterey, Mexico

Project: Torre KOI
Type: Residential
Year: 2017
Product: Air-conditioning piping system

Atlas, Ethiopia

Project: Dodi Extension Tower
Type: Residential
Year: 2017
Product: Air-conditioning piping system

Sheki, Azerbaijan

Project: Marxal Resort & Spa
Type: Hotels
Year: 2016
Product: Air-conditioning piping system

Tangerang, Banten, Indonesia

Project: Sky House BSD
Types: Mixed Use Building
Years: 2019
Product: Air conditioning Piping System, air conditioning protective pipe slot

Tangerang, Banten, Indonesia

Project: STAN Polytechnic of State Finance
Types: School
Years: 2022
Product: Air-conditioning piping system

Bogor, Jawa Barat, Indonesia

Project: Amaris Pakuan Hotel
Types: Hotel
Years: 2022
Product: Air-conditioning piping system

Panama City, Panama

Project: Hospital Punta Pacifica
Type: Hospital
Year: 2020
Product: Air-conditioning piping system

Merida, Mexico

Project: Via Montejo
Type: Residential
Year: 2017
Product: Air-conditioning piping system

Jakarta, Indonesia

Project: Wika Office Tower
Type: Commercial
Year: 2016
Product: Air-conditioning piping system

Panama City, Panama

Project: JW MARRIOTT PANAMA
Type: Residential
Year: 2020
Product: Air-conditioning piping system

MULTILAYER PIPING SYSTEM FOR AIR CONDITIONING

Introduction

Multilayer pipe is a new alternative applied to air conditioning systems. RIIFO multilayer pipe offers air conditioning performance equivalent to copper pipe, but at a low cost. In addition, it reduces installation time with its compression connection system that easily adapts to the air conditioning equipment.

Compared to traditional copper pipe, multilayer pipe is an innovative system that combines the advantages of both plastic and metal pipes, offering ease of fold, tensile strength and extraordinary insulation capacity.

The PEX-AL-PEX multilayer pipe consists of 5 layers, an inner layer of cross-linked polyethylene (PE-X), an adhesive layer, an intermediate layer of aluminum, an adhesive layer and an outer layer of cross-linked polyethylene (PE-X).

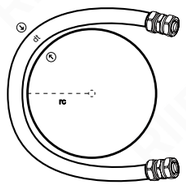
- Easy to install
- Lower price than copper
- Durable
- Light in weight
- Barrier to the permeation of oxygen and light
- Smooth inner wall ensures low pressure loss
- Multi-layer technology prevents natural corrosion and condensation problems
- Less joints, reducing risk of leakage

Application

Designed for mini split air conditioning (cooling only).
Maximum Working Temperature: 60°C
Maximum Working Pressure: 552 PSI (38 Bar)

Applicable refrigerant

Bending performance



Bendng Radius	
Size(mm)	Radius(mm)
H-0712	60
H-0912	60
H-1216	80
H-1620	100
H-2025	125
H-2632	160

Standards

Compliance with the following codes:
2021, 2018, 2015, 2012, 2009 and 2006 International Mechanical Code®(IMC)
2021, 2018, 2015, 2012, 2009 and 2006 International Residential Code®(IRC)
2021, 2018, 2015, 2012, 2009 and 2006 Uniform Mec hanical Code®(UMC)*

*Uniform Mechanical Code is a copyrighted publicatio n of the International Association of Plumbing and Mec hanical Officials.

Compliance with the following standards:
·ASTM F1281-2017(R2021), Standard Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe

·ICC-ES LC 1035-2015, Standard Specification for Cross-linked Polyethylene/Aluminum/Cross-linked Polyethylene (PEX-AL-PEX) Pipe and Fittings for Refrigeration Applications

Certificates

ICC ES PMG
USA

Compression Fitting

Advantages

- Easy installation, no need for welding
- Corrosion resistant
- Removable and reusable
- Safe and reliable
- Long service life

Air conditioner		Copper pipe dimension		Valve joint	RIFENG multilayer AC system	
HP	BTU/h	Inch	mm	UNF thread	Pipe	Fittings
1/2, 3/4, & 1	4500~11000	1/4	6.35	7/16'-20UNF	H-0712	F1-S0912*7/16(20UNF) C
		3/8	9.52	5/8'-18UNF	H-0912	F1-S0912*5/8(18UNF) C
1/5 & 2	11000~20000	1/4	6.35	7/16'-20UNF	H-0712	F1-S0912*7/16(20UNF) C
		1/2	12.7	3/4'-16UNF	H-1216	F1-S1216*3/4(16UNF) C
2.5	20000~24000	1/4	6.35	7/16'-20UNF	H-0712	F1-S0912*7/16(20UNF) C
		5/8	15.88	7/8'-14UNF	H-1620	F1-S1620*7/8(14UNF) C
3-5	24000~36000	3/8	9.52	5/8'-18UNF	H-0912	F1-S0912*5/8(18UNF) C
		5/8	15.88	7/8'-14UNF	H-1620	F1-S1620*7/8(14UNF) C
6-8	36000~52000	3/8	9.52	5/8'-18UNF	H-0912	F1-S0912*5/8(18UNF) C
		3/4	19.05	11/16'-14UNF	H-1825 or H-2025	F1-S1825*1 1/16(14UNF) C or F1-S2025*1 1/16 (14UNF) C

Specification

PEX–AL–PEX (H Serie)

Spec.	Packing Spec. (m)	Color(out/in)
H-0712	50/100	Golden/Transparent or White/Transparent
H-0912	50/100	Golden/Transparent or White/Transparent
H-1216	50/100	Golden/Transparent or White/Transparent
H-1620	50/100	Golden/Transparent or White/Transparent
H-1825	50/100	Golden/Transparent or White/Transparent
H-2025	50/100	Golden/Transparent or White/Transparent
H-2632	50/100	Golden/Transparent or White/Transparent

Insulated Air Conditioning Pair Coil

Pair coil	Pipe spec.	Coil thickness(mm)	Packing Spec. (m)
1/4''+3/8''	H- 0712+0912	10	25/30
1/4''+1/2''	H- 0712+1216	10	25/30
1/4''+5/8''	H- 0712+1620	10	25/30
3/8''+5/8''	H- 0912+1620	10	25/30
1/4''+3/8''	H- 0712+0912	8	25/30
1/4''+1/2''	H- 0712+1216	8	25/30
1/4''+5/8''	H- 0712+1620	8	25/30
3/8''+5/8''	H- 0912+1620	8	25/30
3/8"+3/4"	H- 0912+1825/2025	8	25/30

Female straight coupling

Spec.	Pcs/Box	Pcs/Ctn.
F1-S0712x5/8(18UNF) C	42	336
F1-S0712x7/16(20UNF) C	56	448
F1-S0912*7/16(20UNF) C	56	448
F1-S0912*5/8(18UNF) C	42	336
F1-S1216*3/4(16UNF) C	30	240
F1-S1620x7/8(14UNF) C	25	200
F1-S1825x1 1/16(14UNF) C		128
F1-S2025x1 1/16(14UNF) C	20	160

Straight Coupling

Spec.	Pcs/Box	Pcs/Ctn.
F1-S0912x0912 C	42	336
F1-S1216x1216 C	24	192
F1-S1620x1620 C	20	160
F1-S1825x1825 C		135
F1-S2025x2025 C	14	112
F1-S2632x2632 C		96

Compression to Copper Pipe Adapter

Spec.	Pcs/Box	Pcs/Ctn.
F1-S0912x1/4CuF(B280) C	50	400
F1-S0912x3/8CuF(B280) C	40	320
F1-S1216x1/2CuF(B280) C	50	400
F1-S1620x5/8CuF(B280) C	20	160
F1-S2025x3/4CuF(B280) C	24	192

*For copper pipe in line with ASTM B280

Pipe cutter

Spec.	Pcs/Box	Pcs/Ctn.
GJ IV		40

Reamer

Spec.	Pcs/Box	Pcs/Ctn.
Reamer 0912	10	50

Plastic reamer

Spec.	Pcs/Box	Pcs/Ctn.
ZYD2-0912-1216-1620	10	200
ZYD2-1216-1620-2025	10	180
ZYD2-1620-2025-2632	10	100
ZYD2-0912-1216-1825	10	200

Internal bending spring

Spec.	Pcs/Box	Pcs/Ctn.
WH-1216	25	150
WH-1620	15	90
WH-1825	9	54
WH-2025	9	54
WH-2032	4	24

External bending spring

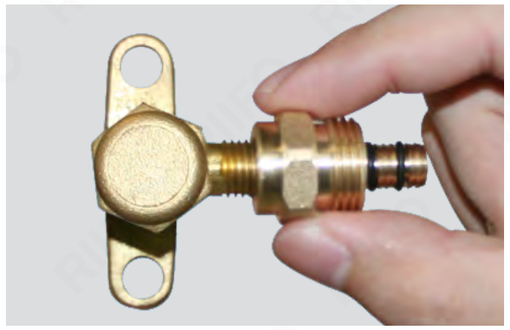
Spec.	Pcs/Box	Pcs/Ctn.
WH-1216 II	6	36
WH-1620 II	4	24
WH-2025 II	2	12
WH-2632 II	1	6

Installation

Step1:
Cut the pipe vertically and precisely with a pipe cutter.

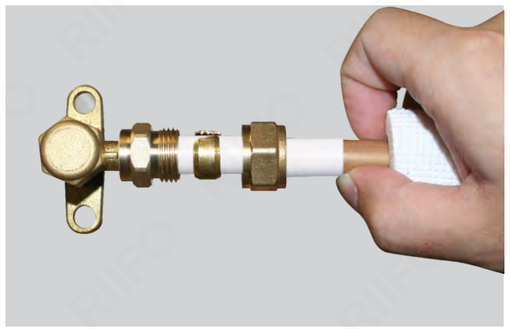
Step2:
Round and bevel the ends with the RIIFO reamer

Step 3:
Choose the right size of the fitting according to the pipe; place the nut and then the compression ring onto the pipe.
Please note the threaded opening must face the end of the pipe.



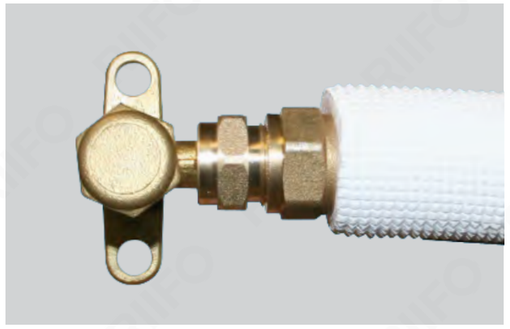
Step 4:
Install the fitting on the air conditioning valves.

Step 5
Tighten the fitting with a wrench



Step 6:
Push the inserts into the pipe up to the shoulder, take care not to damage the O-ring.

Step 7:
Tighten the nut with a wrench



Step 8:
Install insulation sleeve

AIR CONDITIONING PROTECTIVE PIPE SLOT

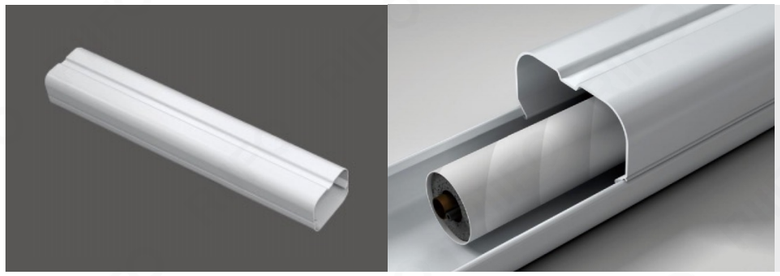
The RIIFO protective pipe system for air conditioning is designed with high-quality PVC raw materials that possess exceptional properties. These pipes are equipped with V0-class flame retardance, enabling them to self-extinguish in case of a fire outbreak, and can resist up to 2000V voltage fault, ensuring reliability and safety. Furthermore, they are resistant to acid and alkali as well as ultraviolet rays, providing effective protection to air conditioning pipes and extending their lifespan. The seamless modular splicing design facilitates easy installation, while the sealed connection prevents air convection, noise, and pests damage. Additionally, the white appearance of the pipes provides a clean and neat finish after installation.
In addition, our protective pipe slot offers significant cost and energy savings benefits. Damaged air conditioning pipes or insulation can lead to higher maintenance costs or even equipment replacement, which can be avoided with our protective pipe slot. By protecting the pipes' insulation, our product also helps to increase the efficiency of the system and reduce energy consumption, resulting in energy savings.

Advantages

- No pungent smell
- Acid and alkali resistance
- Self-extinguishing from fire
- Resistant to ultraviolet
- Long service life
- Reduce maintenance costs
- Energy Saving
- Sealed connections isolate air convection, and eliminate noise and pests

Performance parameter			
Characteristic	Testing method	Unit	Value/range
Vicat softening point (method 860)	ISO 306	°C	80
Thermal conductivity (20℃)	ISO 8302	W/mk	~0.17
Material grade	DIN EN 13501-1		E
Linear expansion coefficient	ISO 11359	K-1	0.8*10-4
Specific heat capacity	ISO 11357	KJ/kgK	~1.05
Material performance description,measured at 23°C			
Characteristic	Testing method	Unit	Value/range
Density	ISO 1183	g/cm^3	1.80±0.02
Tensile strength	ISO 527	N/mm^2	≥15
Elongation at break	ISO 527	%	≥15
Bending strength	ISO 527	N/mm^2	≥5
Impact strength 0°C	ISO 179^{-1} 1eU	KJ/m^2	Not broken
Impact strength 20°C	ISO 179^{-1} 1eU	KJ/m^2	Not broken
Notched impact strength	ISO 179^{-1} 1eA	KJ/m^2	≥1
Elastic Modulus	ISO 178	N/mm^2	> 200
Shore D hardness	DIN 53606		81±3

System Component



Protective pipe

Used for effectively fixing and protecting air conditioning pipe

Straight coupling

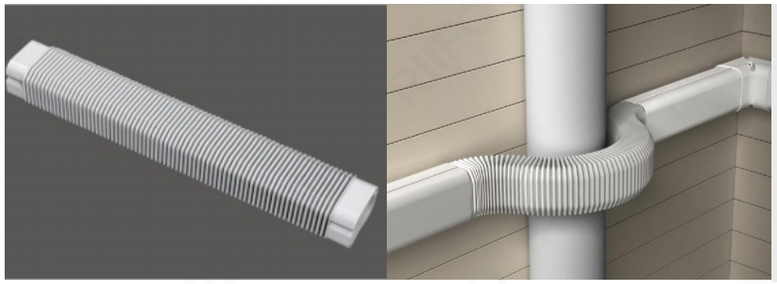
Used for extension and connection of protection pipeline in order to meet the installation requirements of any length.

Elbow 90°

Apply to the pipe connection of vertical wall corner (available for both inner and outer corners)
It can be rotated horizontally and vertically 90° to change the pipeline direction.

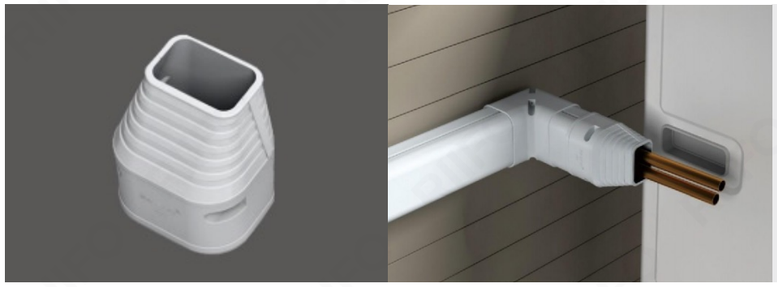
Flat Elbow 90°

Applicable for connecting and redirecting pipes on flat walls.
90 degrees Horizontal and vertical rotation can change the direction of the pipe, but does not change the installation plane of the pipe.



Flexible coupling

Apply to the air conditioning protection pipe slot to cross obstacles and get connecting in multiangle, and any radian. Scalable, suitable for any scene and convenient for construction.



Reducer End Cap

Applicable for end connection between air conditioner and protective pipe.

Wall Entry Cap 90°

Installation and connection of 90 degrees angle between air conditioning holes and outer wall. Seamless modular splicing makes fast installation, and isolates noise caused by air convection, and pests.

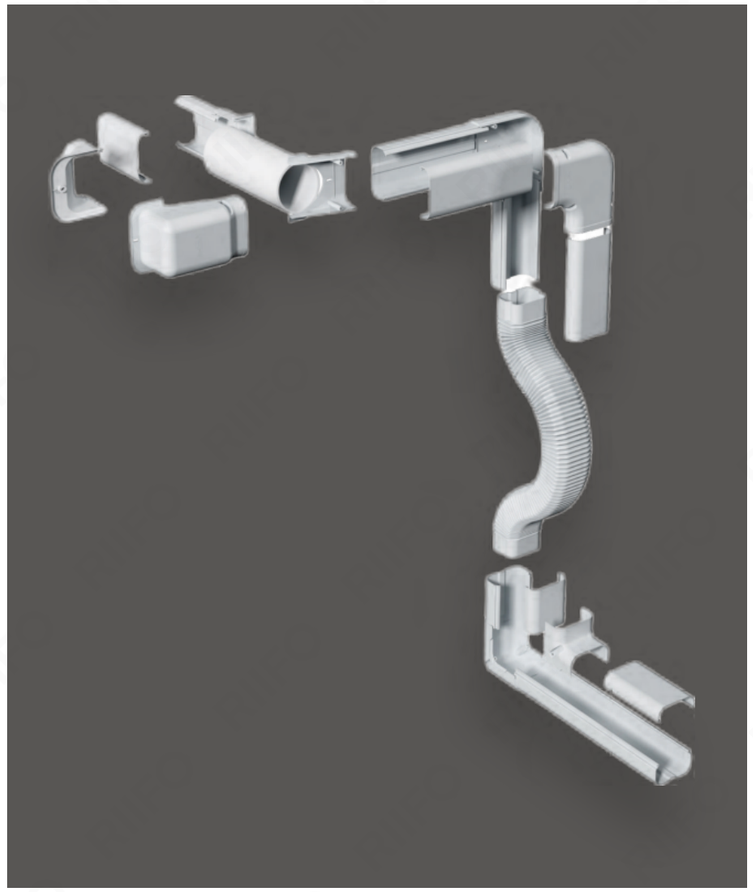
Wall Entry Cap

Installation and connection of air conditioning holes inside and outside the wall. Seamless modular splicing makes fast installation, and isolates noise caused by air convection, and pests.

Installation

Use a measuring tool to measure the length of the air conditioning pipe.

Determine the distance and position of connection points, and mark the installation position of pipes and fittings.

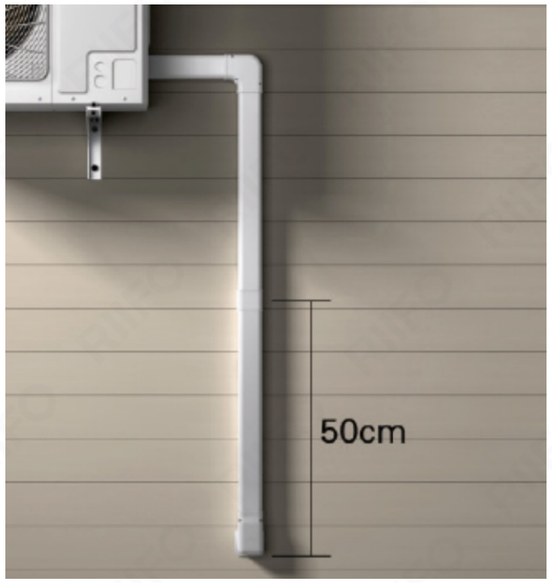


Check whether the pipeline is in line with the previous marked position. If it is in line, start the installation; and if not, re-determined the installation position.

Install and place the air conditioning pipe into the protective pipe system and fix the air conditioning pipe

After installation, use the cover to protect the pipe

Fix the protective pipe. Check whether the buried electic wire is in the same position to avoid damage during drilling.



The distance between the starting point and the end point should not exceed 50cm, so as to prevent the protective pipe from warping and deformation, affecting the overall appearance.

When the installation of the protective pipe encounters obstacles or the situation where pipe cannot be installed properly, flexible coupling shall be used for connection.

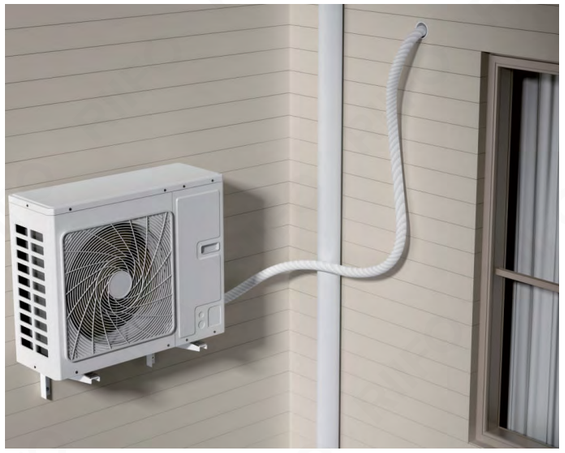
During the installation of air conditioner, carefully bend the pipe so as to avoid fracture, which may lead to the difficulty of sealing the cover plate.

BEFORE & AFTER INSTALLATION OF PROTECTIVE PIPE

BEFORE

AFTER

BEFORE



AFTER

HANDLING& STORAGE

Air conditioning pipe

- Air conditioning pipe should be properly packed in cartons, wooden crates or other suitable packaging;
- During transportation, scratching, throwing, bumping, crushing, exposure to sun, rain, oil and chemical contamination should be avoided;
- Air conditioning pipe should be stored away from heat sources, oil and chemical contamination, should not be exposed to sunlight, rain;
- Air conditioning pipe should be stored in a well-ventilated, ambient temperature of -20°C~40°C warehouse, stacking height should not exceed 2m.

Brass Fittings

In transporting, storing and handling the product, please note the following precautions.

- Brass fittings may be damaged by prolonged exposure to chemicals, including but not limited to:
- Alkaline Solutions: Highly alkaline solutions, such as sodium hydroxide (NaOH) or potassium hydroxide (KOH), can also corrode brass fittings over time.
- Acids: Strong acids, such as hydrochloric acid (HCl) or sulfuric acid (H2SO4), can corrode brass fittings and cause damage.
- Ammonia: Ammonia can react with brass fittings and lead to corrosion or deterioration.
- Oxidizing Agents: Strong oxidizing agents, such as hydrogen peroxide (H2O2) or potassium permanganate (KMnO4),can attack brass fittings and cause damage.
- Fittings should be protected from rain or water during transportation and storage.
- Avoid using external forces to squeeze the package, which may cause damage to the Fittings.

SERVICES

Up to **5** Years Warranty

Our products are warranted for up to 25 years. We guarantee high quality and support you with a long-term warranty.

10 Million Liability Insurance

We protect the legal rights and interests of our customers. Therefore, we have taken out a product liability insurance policy with Allianz, one of the world's leading insurers, with a coverage amount of 10 million USD.

Further details about warranty terms and liability insurance are available in our official documents. To learn more, please contact our company at www.riifo.com or sales@riifo.com.