DAIKIN

FIRELESS COPPER PIPE CONNECTOR

Fireless | Fast & Easy | Leak-Free

TIGHTFIT

GAS TIGHT JOINT II

Designed for HVAC Equipment
Compatible with Most Air-conditioning Installation

DHOS-TF-PC-2302

As the world's leading air-conditioning specialist, Daikin's unrivaled solution ensures a flawless installation right down to the smallest details such as pipe connections.t

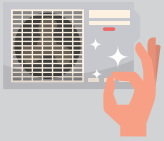
Introducing Tightfit, Daikin's pipe connector that requires no brazing works, thus eliminating fire hazards and providing reliable, fast and easy installation.

Eliminating brazing, Tightfit's cutting-edge technology revamps piping installation and achieves unprecedented perfection in air-conditioning system that is leak-free and long lasting.

Why Tightfit?

Fireless & Safe

Hassle-Free



System Reliability

Quality Assurance

Fast & Easy Installation

Cost Savings

FIRELESS & SAFE

As Tightfit does not require brazing, there is no risk of handling high pressure and flammable equipment, thus eliminating fire hazards and ensuring safety at the installation site.

This also simplifies applications and certifications required to conduct the installation, without compromising efficiency and safety.

SYSTEM RELIABILTY

For installations using traditional brazing, nitrogen purging must be executed to prevent the formation of copper oxide inside the pipe. This is crucial as copper oxide formed inside the pipe will circulate in the system during operation and cause premature compressor failure.

Risk of Copper Oxide

Copper oxide will form inside copper pipes if nitrogen is not used to displace oxygen during brazing (aka nitrogen purge)

Overtime, copper oxide particles will travel to the compressor during operation of the air-conditioner, leading to compressor failure

Tightfit's fireless mechanism eliminates the risk of copper oxide formation and helps prevent early compressor failure. It prolongs the lifespan of air-conditioning systems and greatly reduces the risk of costly repairs.

Warranty Coverage across the life span of compressor

Average lifespan of compressor: 10-15 years

Manufacturer: Average 3 years User: Bear the risk for next 7-12 years

Using Tightfit would significantly reduce the risk of failure and maximise the lifespan of the compressor.

FAST & EASY INSTALLATION

Traditional brazing requires numerous cumbersome equipment such as gas cylinders and brazing tools that requires expert installers to operate, making installation arduous. Tightfit redefines ease of installation by dismissing these requirements and involving only 2 wrenches to perform a matchless installation.

Traditional Brazing

80kg

- Acetylene gas cylinder
- Oxygen gas cylinder
- Nitrogen gas cylinder
- Brazing torch
- Brazing hoses
- Pressure regulator
- Brazing rod

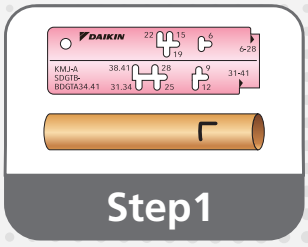
VS

TIGHTFIT Installation

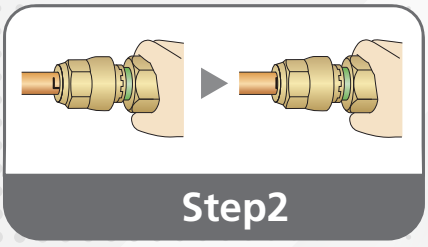
3kg

- Tightfit ruler
- 2 adjustable wrenches

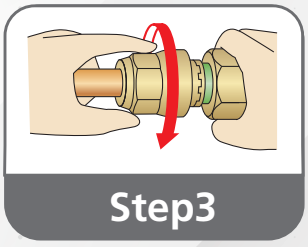
Tightfit installation can be perfected in 4 simple steps with unparalleled speed and ease.



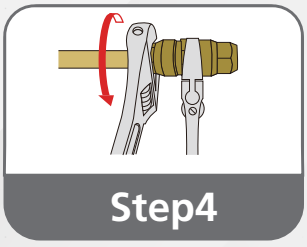
Step1



Step2



Step3



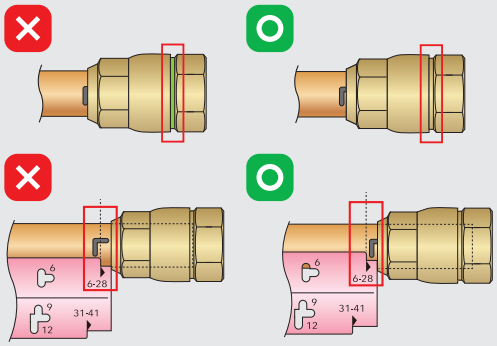
Step4

By using Tightfit, jobs can now be completed twice as fast and with minimal disruptions to the installation site. Installations can be completed overnight or over the weekend, without any disturbance to daily building operations.

QUALITY ASSURANCE

Tightfit has achieved ISO 14903 certification, meeting the stringent standard for components and joints in refrigeration systems and heat pumps.

Any errors or faulty installation can also be identified immediately by conducting the 2 checks below, allowing prompt rectification for a tight and leak-free piping system.



Easy Check for Correct Installation

Error in installation can also be immediately identified if:

1) Green marking is still visible after tightening

2) L/T shape falls outside the notch

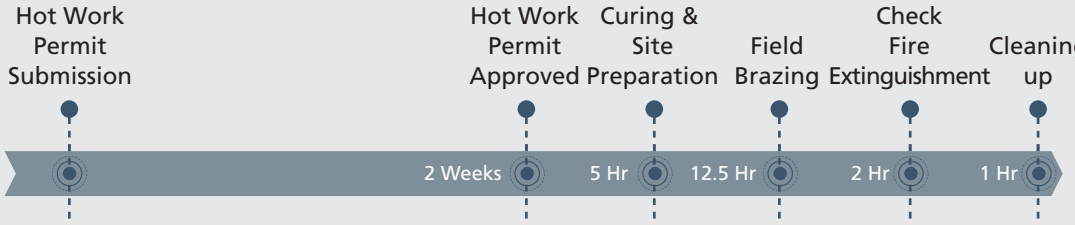
HASSLE-FREE

Since Tightfit does not require brazing, there is no need for additional processes such as

- Application for hot work permits
- Hiring specialized installers
- Hiring fire safety officers

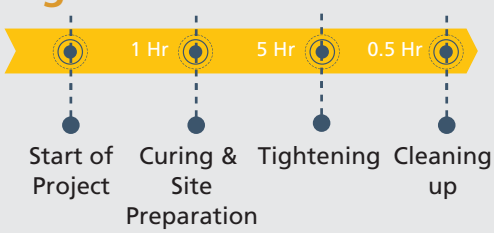
Thus, the cost and time required to complete the project is greatly shortened.

Brazing



Total time:
2 Weeks 20.5 Hours

Tightfit



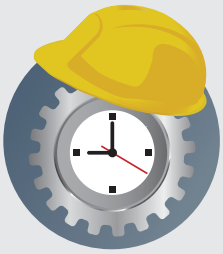
Total time:
6.5 Hours

COST SAVINGS

Tightfit's leak-free and fast installation results in visible **cost savings** in comparison to other installation methods such as:

No Specialised Labour

No need to hire specially trained installers or fire safety officers



Reduced Labour Hours

Tightfit requires only 1/3 of installation time compared to brazing, and only 1 person is required to complete the connection

No Expensive Special Tools

No need for special tools or safety gear used in brazing, Tightfit only requires 2 adjustable wrenches

Less Probability of Breakdown

Tightfit removes all external risks during installation, preventing premature compressor failure and minimizing risk of additional spendings in repairs and replacements.

Potential Applications

MALLS

Tightfit's quick and easy installation allows work to be completed quickly without affecting mall traffic and business.

DATA CENTRES

As data centres need to be constantly operating, Tightfit provides the perfect solution because of how fast it can be installed without disrupting operations. There is also no risk of fire hazards because no brazing is needed.

PETROL STATIONS

Tightfit's fire-free installation is ideal for petrol stations, where fire hazards are eliminated.

OIL & GAS REFINERIES

With no brazing required, Tightfit is safe and easy to install in oil & gas refineries.

OFFSHORE RIGS

Tightfit is ideal for installation on offshore rigs as a non-brazed pipe connection, which completely eliminates fire hazards.

AIRPORTS

With Tightfit's quick and fire-free installation, there is minimal disruptions to operations. Using Tightfit also ensures greater system reliability, which further minimises the risk of repairs.

HOSPITALS

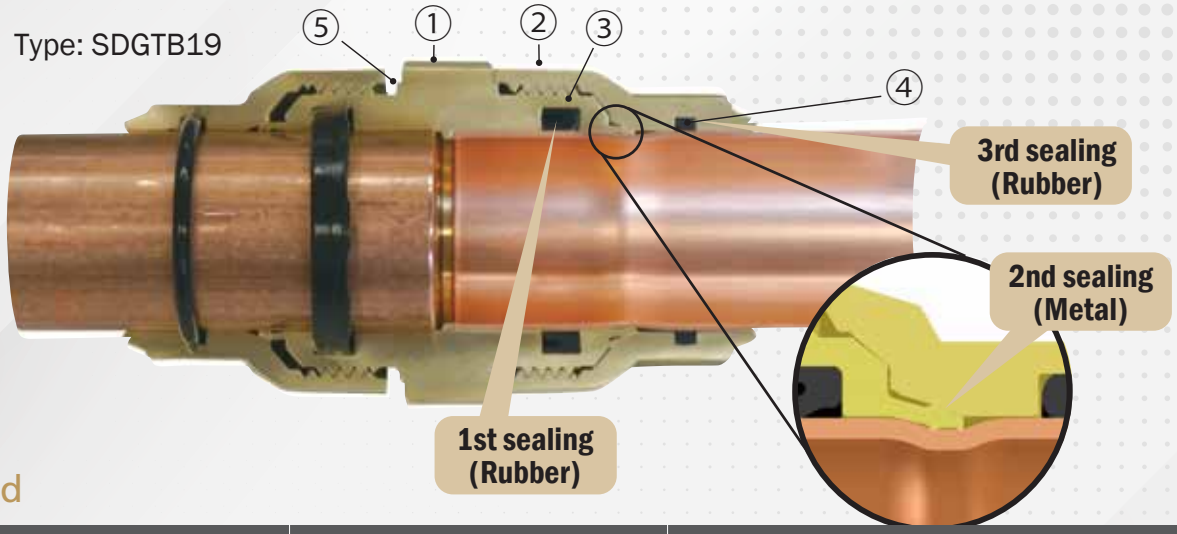
Indoor air quality is especially important in hospitals, which is why Tightfit works best because installation can be done without brazing.

LABORATORIES

Tightfit's fire-free installation can be completed safely and quickly without affecting operations in the laboratories.

Tightfit Mechanism

Type: SDGTB19



Legend

Name	Material	Remark
① Main body	C3771	Forged and Machined Brass
② Nut	C3771	Forged and Machined Brass
③ Gasket	IIR	Main sealing
④ O-ring	EPDM	Secondary sealing & moisture stopper
⑤ Indicator	Luminous marker	Green color

Full line-up

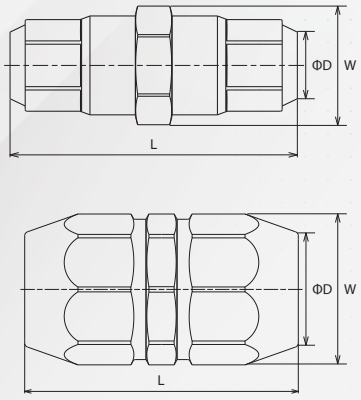
Standard Joint		Asymmetry Joint		NEW 90° Bend Joint		NEW Test Plug	
Size	Model name	Size	Model name	Size	Model name	Size	Model name
Φ6.35	SDGTB06	Φ9.52-6.35	SDGTB0906	-	-	Φ6.35	SDGTKB06
Φ9.52	SDGTB09	Φ12.70-9.52	SDGTB1209	-	-	Φ9.52	SDGTKB09
Φ12.70	SDGTB12	Φ15.88-12.70	SDGTB1512	-	-	Φ12.70	SDGTKB12
Φ15.88	SDGTB15	Φ19.05-15.88	SDGTB1915	-	-	Φ15.88	SDGTKB15
Φ19.05	SDGTB19	Φ22.22-19.05	SDGTB2219	-	-	Φ19.05	SDGTKB19
Φ22.22	SDGTB22	Φ25.40-22.22	SDGTB2522	Φ22.22	SDGTLB22	Φ22.22	SDGTKB22
Φ28.58	SDGTB28	Φ28.58-25.40	SDGTB2825	Φ28.58	SDGTLB28	Φ28.58	SDGTKB28
Φ34.92	BDGTA34	Φ34.92-28.58	SDGTB3428	-	-	-	-
Φ41.28	BDGTA41	-	-	-	-	-	-

Line-up Expansion

With growing demand for Tightfit, additional sizes have been added to increase the areas of application.
** This KMJ series comes with default insulation included with every unit of Tightfit

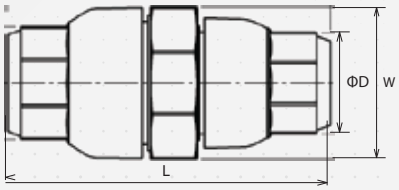
Standard Joint		Asymmetry Joint		NEW 90° Bend Joint		NEW Test Plug	
Size	Model name	Size	Model name	Size	Model name	Size	Model name
Φ25.00	KMJ25A	Φ31.00-25.00	KMJR3128A	Φ25.00	KMJE25A	-	-
Φ31.00	KMJ31A	-	-	-	-	-	-
Φ38.00	KMJ38A	-	-	-	-	-	-

Dimension & Weight



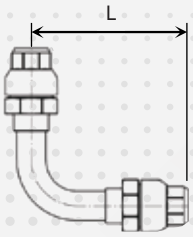
Standard Joint

Size	L (mm)	W (mm)	Weight (g)
Φ6.35	50.4	15.0	43.0
Φ9.52	55.0	19.9	79.0
Φ12.70	59.0	23.5	113.0
Φ15.88	74.0	30.0	210.0
Φ19.05	76.8	34.6	273.0
Φ22.22	83.4	40.2	292.0
Φ28.58	88.0	46.7	515.0
Φ34.92	101.5	51.1	686.0
Φ41.28	103.5	58.3	881.0



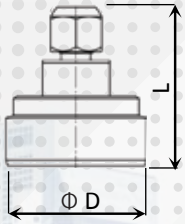
Asymmetry Joint

Size	L (mm)	W (mm)	Weight (g)
Φ9.52-Φ6.35	52.7	19.9	67.0
Φ12.70-Φ9.52	57.5	23.5	101.0
Φ15.88-Φ12.70	65.0	30.0	164.0
Φ19.05-Φ15.88	76.8	34.6	244.0
Φ22.22-Φ19.05	81.5	40.2	358.0
Φ25.40-Φ22.22	85.8	43.5	444.0
Φ28.58-Φ25.40	88.1	46.7	505.0
Φ34.92-Φ28.58	101.5	51.1	645.0



90° Bend Joint NEW

Size	L (mm)	Weight (g)
Φ22.22	120.0	655.7
Φ28.58	145.0	968.4

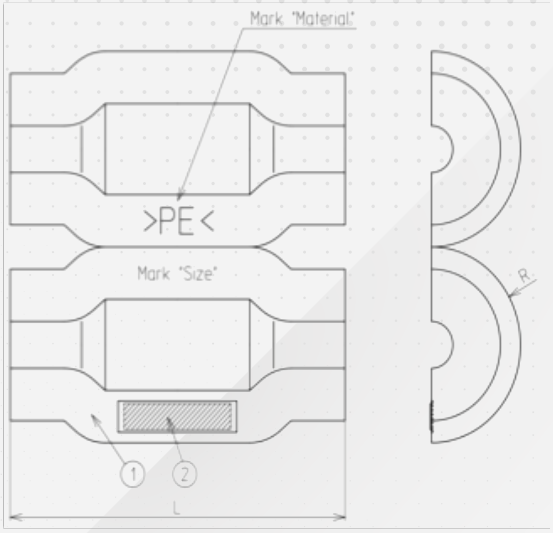


Test Plug NEW

Size	L (mm)	W (mm)	Weight (g)
Φ6.35	43.0	15.0	53.0
Φ9.52	44.0	20.0	67.6
Φ12.70	46.0	23.0	73.4
Φ15.88	50.0	30.0	96.6
Φ19.05	52.0	34.0	111.7
Φ22.22	54.0	40.0	135.6
Φ28.58	54.0	46.0	146.0

Tightfit Insulation (ROHOZ)

ROHOZ insulation is designed for Tightfit, compatible with SGTB, BDGTA and KMJ Tightfit series installation. It protects the Tightfit from condensation to ensure maximum thermal efficiency of the system and acts as a barrier against contamination and damages to the tightfit



ROHOZ available models cover standard and asymmetrical Tightfit models from size 06 to 28.

Label	Part	Material
1	Foam Insulation	Polyethylene (PE)
2	Foam Tape	-

Models	Nominal (size)	Length (L)	Radius (R)
ROHOZ06	6.35, 9.52	121.2mm	32.7mm
ROHOZ12	12.70, 15.88	141.0mm	37.4mm
ROHOZ19	19.05, 22.22	150.8mm	43.1mm
ROHOZ25	25.40, 28.59	155.4mm	46.7mm

Applicable Tightfit Models:

Standard Joint	Asymmetrical Joint
SDGTB06	SDGTB0906
SDGTB09	SDGTB1209
SDGTB12	SDGTB1512
SDGTB15	SDGTB1915
SDGTB19	SDGTB2219
SDGTB22	SDGTB2522
SDGTB28	SDGTB2825

**Please note that insulation come inside the packaging for the following models:
KMJ25A, KMJ31A, KMJ38A & KMJR3128A

Technical Specifications

Applications	Refrigeration / Air-conditioning / Heat Pump (Refrigeration side) / VRV
Applicable fluid	
Refrigerant	R410A, R32
Refrigeration oil	Ether oil / Ester oil / Polyalkylene glycol oil
Max. pressure^	4.3 MPa
Min. pressure^	-0.101MPa (-755 mmHg)
Max. Temp.*	130°C
Min. Temp.*	-45°C
Pressure Resistance	17.2MPa x 2 min.
Applicable copper pipe	
ASTM B280-08, B88-09 (Type L), EN12735	
Size	Φ6.4 - Φ41.8
Thickness	0.8mm-2.0mm
Type	O(～Φ15.9) & H(Φ19.1～)
Form	Coiled tube & Straight pipe
Electrical Continuity	Maintains earth continuity without the need for additional earth continuity straps Approved Connection: Copper to Copper

^ Operating Pressure: -0.101MPa(-755mmHg) – 4.3MPa
* Operating Temperature: -45°C – 130°C

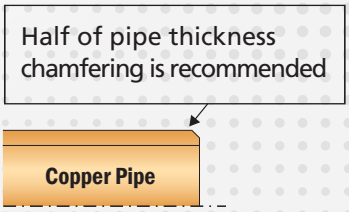
Quality & Safety Standards

According to ISO14903	
Type of Joints	Hermetically sealed joints ※ Under size 28 Permanent joints ※ Above size 34
Tightness test	ISO14903-17,7.4 (Level A1) ※ Under size 28
Pressure-temperature vibration tests (PVT)	ISO14903-17,7.6
Operation simulation	ISO14903-17,7.7
Freezing test	ISO14903-17,7.8
Additional pressure test for hermeticsally sealed joints	ISO14903-17,7.9
Vacuum test	ISO14903-17,7.10
Compatibility screening test	ISO14903-17,7.11
Fatigue test for hermetiocally sealed joints	ISO14903-17,7.12
Additional tightness test	
Bending test ①	Pressurized by 0.5MPa air with 15° bending angle
Bending test ②	Pressurized by 3.3MPa N^2 with ±10mm displacement on 1m span
Torsion test	90° torsion angle
Maximum squeeze torque	14～49Nm ※ Under size 28 (according to the size)
Expected life	
The expected life of the O-ring, if used within the product specifications for temperature and pressure, is at least 30 years.	

Simple 4 -Step Action

Preparation

Chamfering of the pipe outside and inside

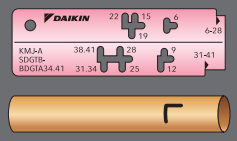


Step 1

Marking the insertion standard line

Marking method : using marking gauge

Mark the insertion "T" or "L" standard line with the marking gauge and marker pen at proper position of each pipe size.

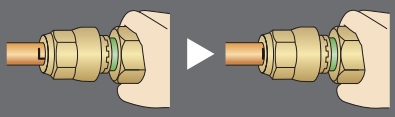


Step 2

Pipe insertion

1) Insert firmly by hand until the pipe stops.
2) Make sure that the insertion standard line is no longer visible.

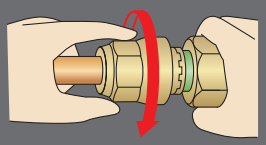
- Do not tighten the nut before pipe insertion.
- When inserting the pipe, do not apply excessive force. The O-ring will be damaged.



Step 3

Manual tightening of nut

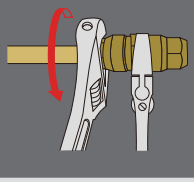
Hold the main body and tighten the nut in the direction of the arrow by hand until it will not turn anymore.



Step 4

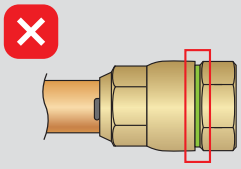
Tightening of nut

Hold the main body and tighten the nut with a monkey wrench in the direction of arrow until the green indicator disappears and the nut comes into contact with the flat face of the body.

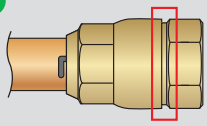


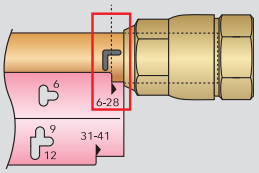
Check

1. Green indicator should be hidden.
2. Place the marking gauge on the end face of the nut and make sure that the "T" or "L" shaped mark falls completely within the notch in the marking gauge.
   The marking gauge contains one notch for measuring the insertion of pipe of Ø28 or less, and another notch for measuring the insertion of pipe of Ø31 or more. Be sure you are using the correct notch when measuring.

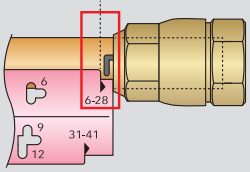


Green indicator is hidden.





"L" shaped mark falls within the notch



If the "T" or "L" shaped mark falls outside the notch in the marking gauge,cut off the joint, replace it with a new joint, and carry out construction again.

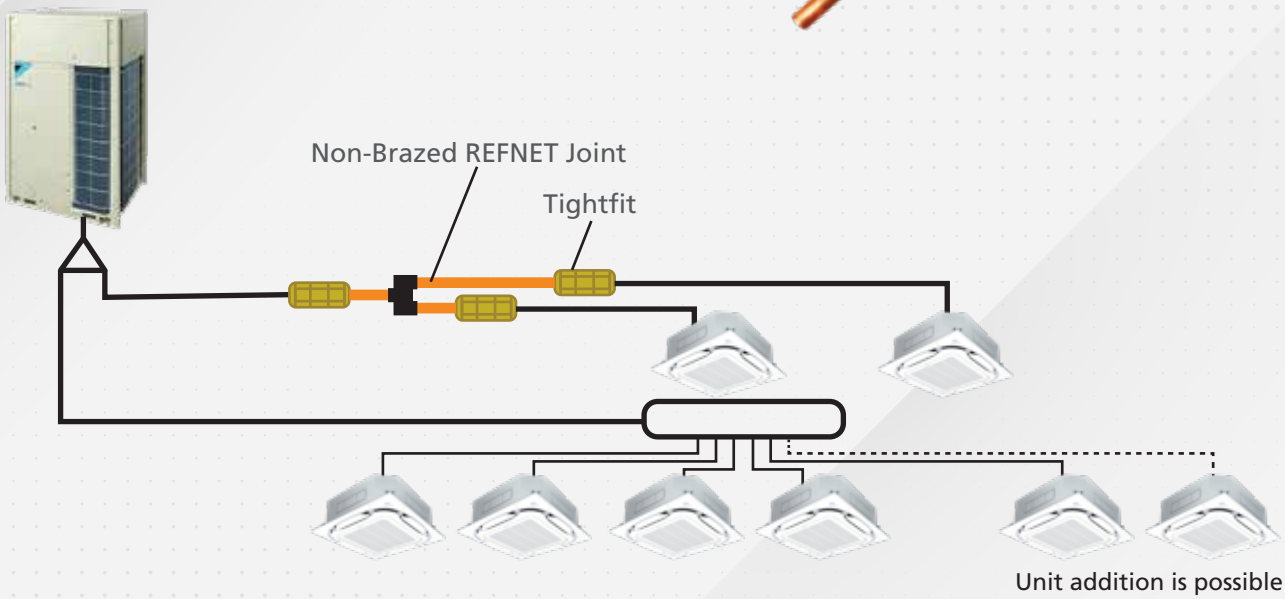
Non-Brazed Refnet Joint NEW

Introducing the new Non-Brazed REFNET Joint, designed as a refrigerant branch kit to directly connect the main and branch pipes of VRV indoor units without brazing.

Features

- Non-brazing connection
- Directly connects to TIGHTFIT
- Insulation material conforms to British Fire Protection Standards

Schematic Diagram



Unit addition is possible

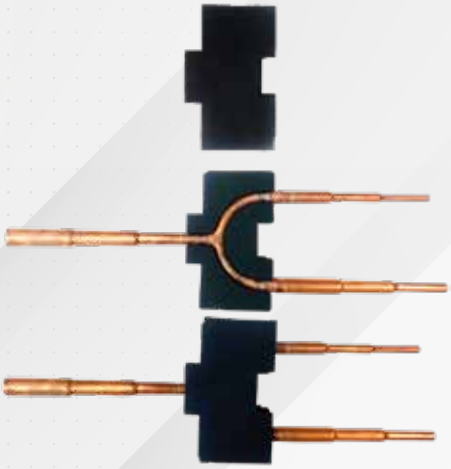
REFNET Joint model name according to indoor unit total capacity index (6 types in total)

Indoor Unit Capacity Index	Model Name	
	2 Pipes	3 Pipes
X < 290	BHRG26A33T7	BHRG25A33T7
290 ⩽ X < 640	BHRG26A72T7	BHRG25A72T7
640 ⩽ X	BHRG26A73T7	BHRG25A73T7

Main Body	Insulation Material
	 Body 2 Pcs. Top 2 Pcs.

Easy to Construct

- Select the model according to the indoor unit capacity index.
- Cut the appropriate part of the joint using a pipe cutter.
- Insert the TIGHTFIT and tighten it using 2 adjustable wrenches.



Non-Brazed REFNET Joint
BHRG25/26A33/72/73T

Time Saving

- Saves more than 60% of installation time.

Safety

- As no brazing work is required, there is no risk of fire hazards and ensuring safety.

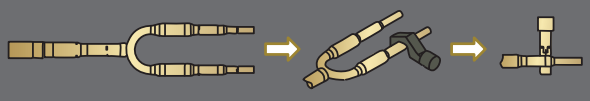
Specifications

Applicable refrigerants		R-410A , R-32	
Material	Main Body	Copper alloy	
	Insulation	Nitrile butadiene rubber (NBR)	
Usage pressure		Maximum pressure: 4.3 Mpa Minimum pressire: -755 mmHg	
Insulating capability (Affixed insulation)		Maximum operating temperature: +116°C Minimum operating temperature: -200°C	EN 14706, EN 14707, EN14304
Fire capability (Affixed insulation)		Surface temperature flame propagation: Class [1] Flame propagation velocity: Class [0]	BS476-7 BS476-6

REFNET installation can be perfected in 4 simple steps

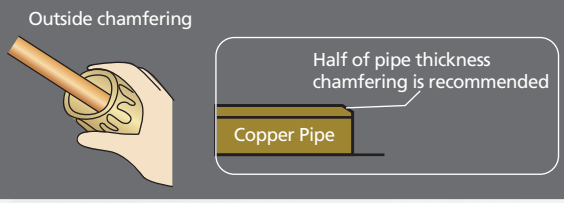
Step 1
Cut the pipe

According to the selected model, cut the pipe with a pipe cutter.



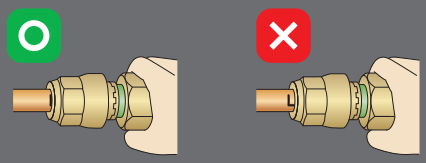
Step 2
Chamfering the pipe

- Outside chamfering: Chamfer about 0.5°.
- Inside chamfering: Deburr the inner part.



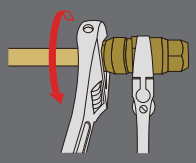
Step 3
Connect the Tightfit

Connect the Tightfit to the REFNET Joint.



Step 4
Tightening of nut

Tighten the nut completely until the GREEN indicator disappears.

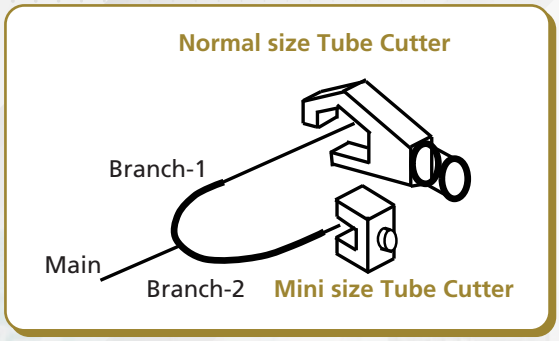


Precautions

- Cut the pipe using the pipe cutter at the cutting point (red mark).
- Cut the pipe at right angle.
- Use a suitable size pipe cutter and cut the pipe slowly to prevent deformation of the pipe.
- If the pipe cutter is dirty, clean it before use.
- If the outside of the pipe is not chamfered, the O-ring would be damaged and cause leakage.
- Chamfer the pipe pointing downwards, in order to prevent foreign objects from entering the pipe.
- Do not apply excessive twisting forces to the TIGHTFIT after connection.

Note

Use a suitable size pipe cutter to cut the pipe



Application Examples

OFFICES

Tightfit's quick and easy installation allows jobs to be completed over the weekend without affecting daily office operations.

Some project references include:
- Nueva Córdova's Building (Chile)
- Twin Engine, Pune (India)
- Vasanth & Co, Chennai (India)
- Ofcina Laboratorio Casasco (Argentina)

HOTELS

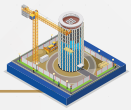
With no brazing required, Tightfit installation can take place without compromising on the safety and comfort and of hotel guests.

Some project references include:
- St. Regis Bermuda Hotel (Bermuda)

RESIDENCES

As Tightfit is fire-free and safe to install, residence owners will be granted a peace of mind during installation. The quality assurance of Tightfit also guarantees leak-free connections and reliable air-conditioning systems for many years to come.

Some project references include:
- Ruparel Ariana, Mumbai (India)
- BW Residential Building (Brazil)
- MANSÃO BAHIANA DE TENIS (Brazil)
- Residência Samuel Locks (Brazil)
- Villa 91 Vinhomes Central Park (Vietnam)
- Villa – My Tho (Vietnam)
- Vineet Bhatt Residence, Delhi (India)
- Trump Tower (Philippines)

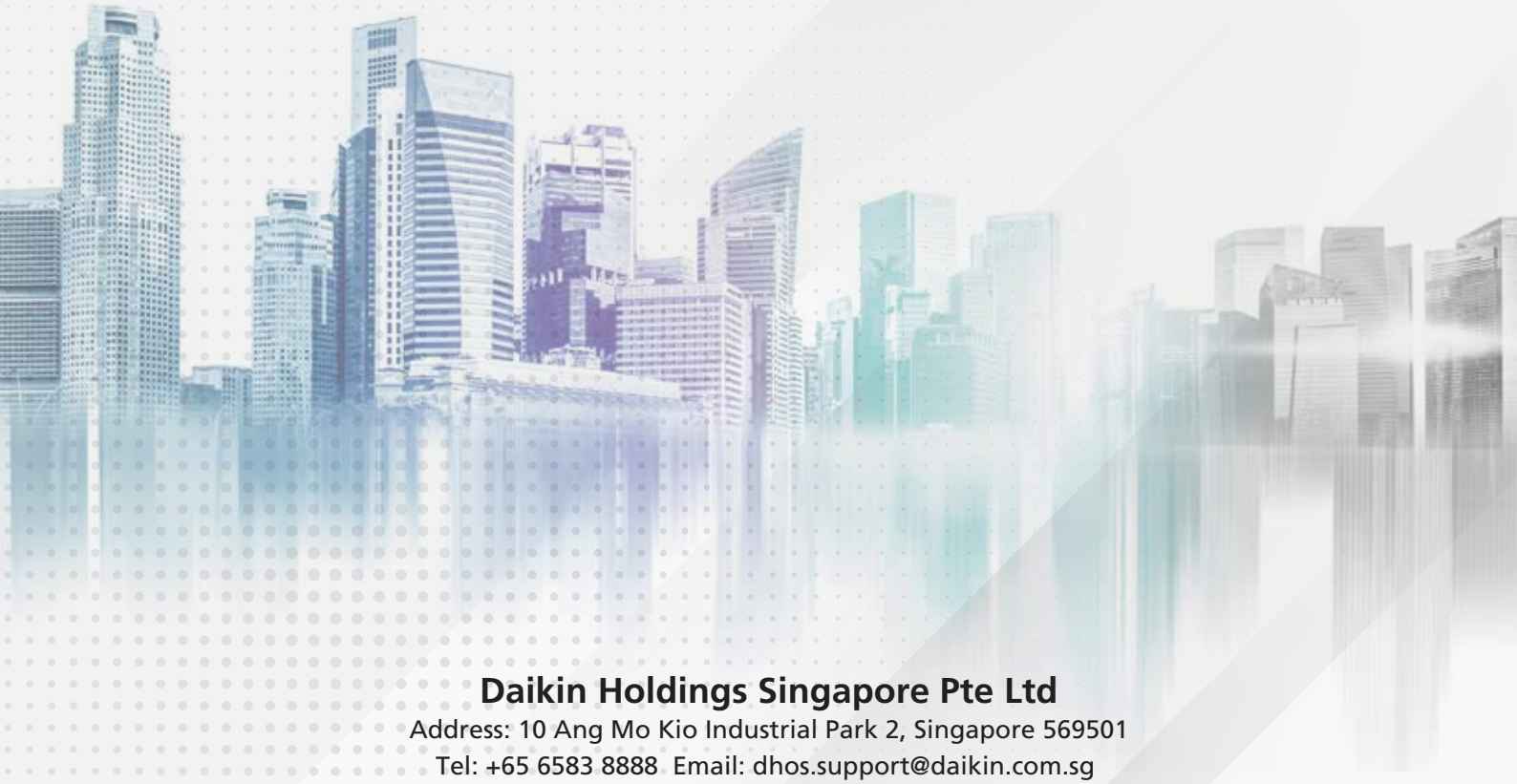


RENOVATION

Without having to do brazing, Tightfit installation eliminates any fire hazard risks onsite. There is also no need to bring heavy tools, allowing quick and safe installation given the limited time and space.

Some project references include:
- Concessionaire Toyota Ferro (Argentina)
- Toyota Panamericana (Argentina)
- Great Eastern Street Hotel (United Kingdom)
- INTER-WA HOME OFFICE (Thailand)
- Yue Hwa Building (Singapore)
- Umeda Center Building (Japan)

Notes



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