

FREQUENTLY ASKED QUESTIONS

GENERAL

What problems come from corrosion under insulation (CUI)?

Corrosion can degrade the tubing or insulation, leading to refrigerant leaks and mold in the building. Mold comes from water vapor condensing onto the cold piping caused by damaged insulation. Fixing it can be very expensive and time-consuming process.

Where can I buy Reftekk products?

Please refer to the website: www.reftekk.com.

How do I properly account for expansion and contraction in copper tubing?

Copper tubing that undergoes large temperature changes, like the high-pressure gas line, will expand and contract up to 2 inches per 100 feet of tubing. It is important to install the piping system per the manufacturer's installation instructions to account for this.

What is a vapor/water dam when insulating copper pipe and what does it do?

It is a barrier that prevents vapor/water penetration or migration along the pipe. In the instance that vapor or water penetrates the insulation, the water vapor dam will limit how far it can propagate, minimizing damage done in the piping system and the building. A water vapor dam is created by gluing the insulation to the pipe.

Why does the insulation need to be glued to the pipe every 12-18 feet?

It provides a moisture migration barrier to keep moisture from moving under the insulation throughout the building.

Why is preventing moisture from reaching the refrigerant piping so important?

If moisture penetrates the piping insulation it can: promote mold formation in the building, ruin the insulation, cause structure damage, and lower the efficiency of the HVAC system.

SWAGE TOOL QUESTIONS

Why doesn't the swage tool have a 1/4" expander head?

Swaging 1/4" copper tubing exceeds the allowable elongation limit of the copper, occasionally causing the tube to crack.

Will the Swage Expander tool offer expander heads larger than 1-5/8"?

Reftekk does not currently offer larger than 1-5/8" expander heads. 1-5/8" is the largest pipe used on VRV/VRF systems.

Why is the cup depth of the Swage Expander tool shorter than commonly available copper fittings?

The deep socket depths on commonly available copper fittings are designed for soldering applications. The shallow socket depths created by the swage expander are designed per ASME B16.50-2013 for proper brazing cup depths to reduce potential leaks.

Why can't I swage or bend industry standard H58 Hard stick copper?

Unless properly annealed, the allowable elongation limit for H58 stick copper does not allow for bending or swaging without fracturing or inducing micro-cracks in the tubing.

BRAZING RING QUESTIONS

Why use brazing rings?

Brazing Rings form an inside fillet at the back end of the socket. This rear fillet helps to prevent leaks.

What is the material composition of a brazing ring?

The material composition of the brazing rings is the same as the industry standard 15% silver (BCuP-5) brazing rod.

Can brazing rings be used with industry standard fittings that have deeper solder cup depths?

Yes.

Why use Oxy-Propane over Oxy-Acetylene when brazing copper tubing?

Oxy-Propane can heat copper tube faster than Oxy-Acetylene with less chance of melting the copper. Propane is also more stable and does not have the handling and storage precautions of Acetylene. Brazing copper tube can be easier, faster, safer, and cheaper with Oxy-Propane.

Since the flow of brazing material flows from capillary action, what happens if I'm using a brazing ring and don't have the tubing fully inserted into the socket and in contact with the brazing ring?

You will know the joint isn't complete because there will be no visual cue of the brazing material coming out of the joint to form the second fillet. The joint will need to be cut out and brazed again.

HALF-HARD COPPER (H55 TEMPER) QUESTIONS

What applications can Half-Hard copper be used for?

Half-Hard (H55 temper) copper is suitable for any application that Hard (H58 temper) copper is currently being used for.

Does (H58) Hard copper have a higher allowable working pressure than Half-Hard copper?

Interestingly enough, design calculations show that Half-Hard (H55 temper) copper has a slightly higher allowable working pressure than Hard (H58 temper) Copper. However, when brazed, both Hard and Half-Hard copper become fully annealed, reducing their working pressure to the same value.

Why can't I flare Half-Hard copper?

Flaring Half-Hard (H55) copper exceeds the allowable elongation of light drawn (H55) copper. The flare can split the copper.

Why haven't I seen or been able to buy Half-Hard copper before?

While Half-Hard copper is being newly introduced to the US market, it has long been the standard copper tubing used in Europe, Asia, and many other countries due to its many advantages. US Manufacturing is not currently available as a standard product.

Does bending or swaging Half-Hard copper reduce the allowable working pressure?

No. As long as the bend radius is sufficient (approximately 4 times the O.D.), the allowable working pressure is unchanged.

Does field bent/swaged Half-Hard copper meet current US codes?

Yes.

Why are Half-Hard copper tubes 19' long?

19' long sticks fit into 20' job site containers while also allowing the container doors to be shut and locked for easy and secure storage on the job site. 20' sticks are sometimes too long.

What happens if I run out of Half-Hard (H55 temper) copper and can't get any more for a current job?

Half-Hard (H55 temper) Type L copper is the same dimensions and tolerances as standard Hard (H58 temper) Type L copper used in the industry today. Hard (H58 temper) copper with elbow fittings and couplings can be substituted where needed in a pinch.

Where is the tubing manufactured?

This high-quality copper tubing is manufactured in Vietnam by the world's second largest copper tubing manufacturer.

How do I differentiate Half-Hard copper from Hard (H58 temper) copper?

Half-Hard (H55 temper) copper is labeled as "H55 Bendable" quality.

EPDM INSULATION QUESTIONS

What is EPDM Insulation?

EPDM is a non-polar, closed-cell, elastomeric foam insulation that is highly moisture and UV resistant.

Why use EPDM?

EPDM is the only insulation material allowed by most manufacturers for VRV/VRF. EPDM has a wider allowable temperature range that exceeds the 248°F requirement for VRV/VRF piping systems. It meets 25/50 Flame-Spread/Smoke-Generated per ASTM E84, as well as being ozone resistant and long-term UV resistant. It is non-polar and has an extremely low permeability to moisture.

Do EPDM Insulated Copper Coils meet codes?

EPDM Insulated Copper Coils meet all codes and requirements for HVAC refrigerant piping systems, and performs better than standard NBR/PVC Insulated Copper Coils. EPDM insulation lasts longer than NBR/PVC insulation.

Why use such thick insulation?

State Energy codes and California Title 24 require much thicker piping insulation than is currently being used in most buildings in the US. These codes are written in legal language and are legally enforceable.

Can EPDM be used outdoors?

EPDM is UV resistant, Ozone resistant, and highly moisture resistant making it better suited for outdoor use than currently used NBR/PVC insulation. Some codes recommend protecting outdoor insulation with a jacket or coating.

Why use adhesive discs rather than contact cement to join lengths of insulation?

Adhesive discs do not require contact cement, meaning no messy application and no delayed waiting time for the contact cement to become tacky before joining. This makes installation time faster and easier. Adhesive discs are provided with Aerocel SSPT insulation and require EPDM tape to be applied over the joint.

PIPING SUPPORT QUESTIONS

Why does insulation need to maintain full thickness at pipe support locations?

It has to meet the same codes and specifications as the insulation and to prevent condensation under the insulation at the support points. It also allows the insulation to be properly glued to the support points to maintain the insulation vapor barrier.

Can Reftekk pipe support clamps be used outdoors?

Yes, the pipe supports have an outer skin of EPDM insulation for UV protection and can be used outdoors. They are also waterproof when installed correctly.

Why are “cush-clamps” and “donut clamps” not allowed on below ambient refrigerant piping to support the pipe?

They are difficult to insulate properly, and they prevent the installer from maintaining the insulation vapor barrier. With outdoor installation, the insulation gap or void allows for direct water intrusion between the insulation and pipe. Some may have a direct metal path to the tubing which allows the water vapor to condense under the insulation and migrate inside walls or drip onto the ceiling. This can cause mold.

INDUSTRY BEST PRACTICES

Why use nitrogen purge when brazing?

Nitrogen purge prevents the inside of the copper tubing from generating black copper oxides that can destroy compressor bearings and plug up small orifices.

Why use swaging tools to replace factory fittings?

Swaging the tubing reduces the number of braze points and brazing labor hours. Fewer brazes helps to keep the system cleaner and extends compressor life.

Why is proper evacuation of the piping so important before charging?

Proper evacuation procedure will tell you if ice or moisture are still present in the system. Moisture left in the system will cause the oil in the compressor to break down and initiate compressor failure.

What is the best way to find refrigerant leaks?

Pressurize the piping system with 95% Nitrogen and 5% Hydrogen gas and use a hydrogen leak detector to find tiny slow leaks.