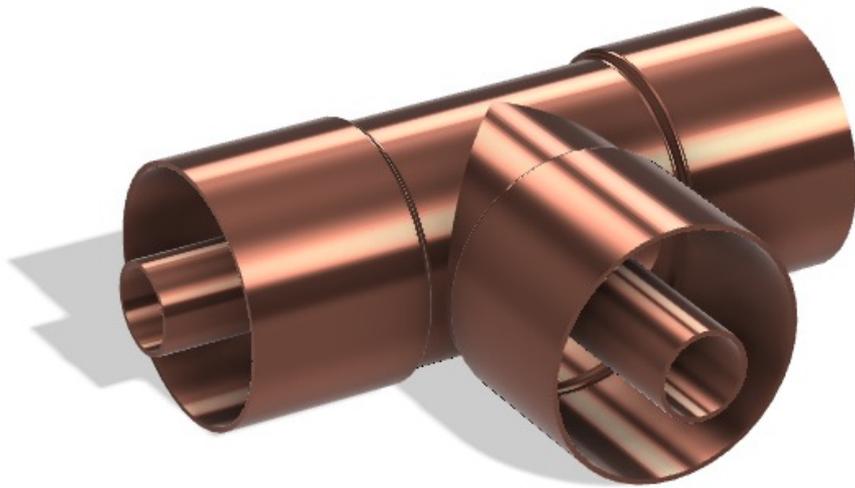


WATERKINETICS

ECODU©



Installation Instructions  
for  
Solder Tubes and Fittings

# Contents

## General Information

System Design, Installation & Use

Regulations

Guarantee

Product Performance

Product Information

## Pre-Assembly

Tools Required

Notes

## Installation for Soldering

Eco-Duo Copper Tube

Eco-Duo Pipe Spirals

Eco-Duo Fittings

## Installation for Brazing

Eco-Duo Copper Tube

Eco-Duo Pipe Spirals

Eco-Duo Fittings

# General Information

## System Design, Installation & Use

These products are designed for hot- and cold-water services and within the advised pressure and temperature limits. They are not designed for use with vented or unvented closed-circuit heating systems.

All systems should be designed, installed and used in accordance with appropriate specifications or codes of practice and Water Kinetics technical recommendations.

It is important that thermal movement is considered when designing a system as pipework will expand and contract. Avoid stress concentrations between fixed points particularly radiators, valves and similar fittings. Expansion loops should be included in the system to resolve thermal movement issues.

Installations should be supported to make sure that there is the minimum stress possible added to tubes and joints.

The insulation requirements specified in the current Water Supply (Water Fittings) Regulations and Building Regulations should be used.

Provision for thermal movement where pipework is installed under screed, plaster or passes through brick/block work. Pass tubes and fittings through sleeves, conduits or in ducts with loose, inert non-rigid materials.

When designing a Water Kinetics system take care that all joints can be accessed.

## Electrical Continuity

All installations must be correctly earthed. Water Kinetics fittings provide electrical continuity when correctly assembled. After an installation is complete ensure continuity checks are conducted by a qualified electrician in accordance with current regulations.

# General Information

## Regulations

Water Kinetics tubes and fittings are tested and comply with the requirements of the current United Kingdom Regulations/Byelaws (Scotland).

- Eco-Duo copper tube conforms to BS-EN1057
  - Tube Diameters 15-54mm are half-hard (R250) and 66.7-108mm are hard (R290)
- Eco-Duo copper solder fittings conform to EN1254

## Guarantee

Water Kinetics products carry a guarantee against manufacturing defects when installed as part of a system comprised wholly of Water Kinetics pipeline components to the correct specification.



25-year guarantee for Eco-Duo tubes

10-year guarantee for Eco-Duo fittings

# General Information

## Product Performance

- Operating temperatures between -30°C to 120°C
- Pressure rated to a maximum 16 bar (across temperature range)
- All copper is Cu-DHP grade, giving excellent corrosion resistance and very-high fire resistance
- Copper acts as a bactericide, helping to suppress bacterial growth
- 90% of copper scrap is recycled and at the end of product life copper can be reclaimed
- Eco-Duo Pipe Spirals and Fitting Separators are manufactured from 316L-grade Stainless Steel
- Eco-Duo tube is supplied pre-cleaned with fitted end-caps

## Product Information

For more detailed information for the Eco-Duo range of fittings and valves, such as the dimensions, weights, materials and SKU codes, please see the Data Sheets. These are available to download from the Water Kinetics website.

# Pre-Assembly

## Tools Required

Solder/brazing alloy

Steel wool

De-burring tool

Hand tube-cutter

Flux

Propane torch

Safety goggles & gloves

Flame protector cloth



Propane torch



Safety goggles & gloves



Steel wool



Solder



Flux



Brazing alloy



De-burring tool



Hand Tube-cutter



Flame protector cloth

## Notes

It is intended that a technically competent installer should undertake installation.

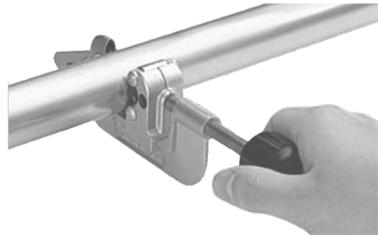
When undertaking an installation, ensure that the correct tools are at hand and that all health and safety advice is considered.

# Installation for Soldering

## Eco-Duo Copper Tube

Select the correct size of Eco-Duo tube ensuring that it is clean, in good condition and free from damage. If the tube is oval or damaged, use a re-rounding tool.

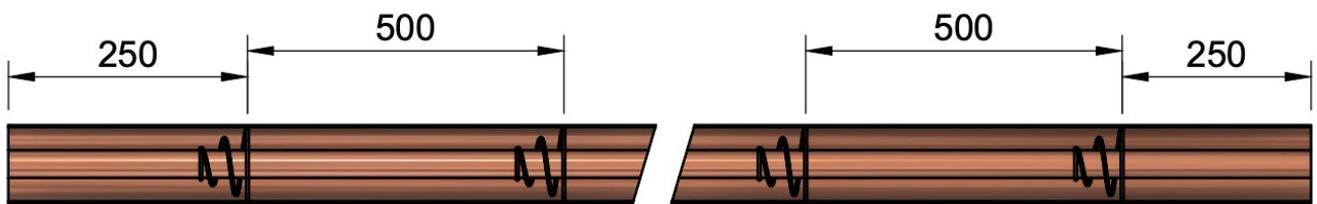
1. Cut Eco-Duo tubes to required length. Cut the Eco-Duo outer tube square using a tube cutter or powered tube-cutting saw.
2. To cut the inner tube, slide it out from outer to expose it for cutting. Cut the tube as you did for the outer.
3. De-burr Eco-Duo tubes. Remove internal and external burrs caused by the tube cutting operation using appropriate de-burring tools.
4. Clean the outside of the pipe using steel wool (or 120 grit emery cloth).
5. Apply flux to the outside of the tube where fitting will be soldered.
6. Check correct Eco-Duo tube ring distances. The inner tube is supported inside the outer using Eco-Duo Spirals. These need to be positioned correctly before assembly of the system.



# Installation for Soldering

## Eco-Duo Pipe Spirals

Eco-Duo Spirals should be positioned approximately 250 mm from both ends of the tube and at a maximum of 500 mm intervals between. Every supplied length of Eco-Duo tube comes with Spirals fitted in the correct positions, which must be adjusted when the tube is cut into shorter lengths. For pipe lengths shorter than 1-metre, there must be two spirals, distanced evenly through the length. For pipe lengths shorter than 150 mm, one single spiral can be positioned centrally.



## Eco-Duo Copper Fittings

Select the correct size of Eco-Duo tube and fitting ensuring that they are clean, in good condition and free from damage.

1. Clean the inside of the fitting using steel wool (or 120 grit emery cloth).
2. Apply flux to the inside of the fitting.
3. Insert pipe fully into fitting, making sure the inner pipe is also connected correctly.



# Installation for Soldering

4. Apply heat to the joint using a propane torch, ensuring heat is spread evenly on all sides.



5. Allow the solder to come into contact with the joint as the propane torch heats the opposite end to where the solder is being applied. Apply solder all around the joint. Solder should liquify when it comes in contact with the fitting and flow into the joint.



6. Inspect joints to ensure solder is covering the full joint and there is no no areas for potential leakage. Allow to cool and wipe off any excess flux. Flush out the pipework.



## Note

Ensure solder is only applied to outer pipe and fitting and NOT the inner.

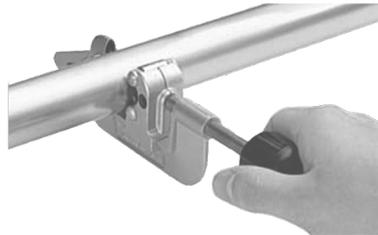
Ensure these steps are followed for each fitting across the whole system.

# Installation for Brazing

## Eco-Duo Copper Tube

Select the correct size of Eco-Duo tube ensuring that it is clean, in good condition and free from damage. If the tube is oval or damaged, use a re-rounding tool.

1. Cut Eco-Duo tubes to required length. Cut the Eco-Duo outer tube square using a tube cutter or powered tube-cutting saw.



2. To cut the inner tube, slide it out from outer to expose it for cutting. Cut the tube as you did for the outer.

3. De-burr Eco-Duo tubes. Remove internal and external burrs caused by the tube cutting operation using appropriate de-burring tools.



4. Clean the outside of the pipe using steel wool (or 120 grit emery cloth).



5. If silver brazing alloy is being used, apply flux to the outside of the tube where fitting will be brazed. If a copper/phosphorus alloy is used, no flux is needed.

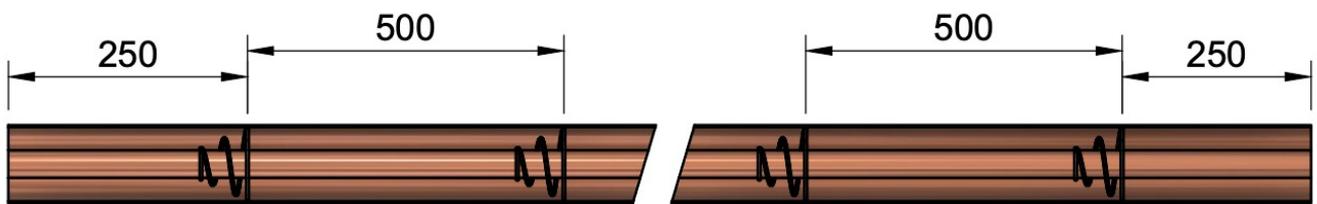
6. Check correct Eco-Duo tube ring distances. The inner tube is supported inside the outer using Eco-Duo Spirals. These need to be positioned correctly before assembly of the system.



# Installation for Brazing

## Eco-Duo Pipe Spirals

Eco-Duo Spirals should be positioned approximately 250 mm from both ends of the tube and at a maximum of 500 mm intervals between. Every supplied length of Eco-Duo tube comes with Spirals fitted in the correct positions, which must be adjusted when the tube is cut into shorter lengths. For pipe lengths shorter than 1-metre, there must be two spirals, distanced evenly through the length. For pipe lengths shorter than 150 mm, one single spiral can be positioned centrally.



## Eco-Duo Copper Fittings

Select the correct size of Eco-Duo tube and fitting ensuring that they are clean, in good condition and free from damage.

1. Clean the inside of the fitting using steel wool (or 120 grit emery cloth).
2. Apply flux to the inside of the fitting if silver brazing alloy is being used.
3. Insert pipe fully into fitting, making sure the inner pipe is also connected correctly.



# Installation for Brazing

4. Apply heat to the joint using propane torch (700°C – 750°C), ensuring heat is spread evenly on all sides.



5. Allow the brazing alloy to come into contact with the joint as the propane torch heats the opposite end to where the alloy is being applied. Apply alloy all around the joint. Solder should melt when it comes in contact with the fitting and flow into the joint.



6. Inspect joints to ensure brazing alloy is covering the full joint and there is no no areas for potential leakage. Allow to cool and wipe off any excess flux if necessary. Flush out the pipework.



## Note

Ensure brazing alloy is only applied to outer pipe and fitting and NOT the inner.

Ensure these steps are followed for each fitting across the whole system.

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