

Eka-Kool System Installation Guide



1 Initial Equipment Check

Once the CDU's and Evaporators have arrived, inspect for damage and check that Nitrogen holding charge is present.

2 Install equipment on site at the required location.

3 Pipe Work

Run the pipe work from CDU to Evaporator.

General Rule: Horizontal suction pipe should be one size larger diameter than the suction pipe from the evaporator.

Evaporator has the suction outlet pipe made so that a P'Trap is not required, its all done for you.

The suction and liquid pipes are also expanded ready for your pipe to be inserted and soldered.

Always try to run the suction and liquid pipes together inside one insulation for 2 to 3 M

This will allow some subcooling if necessary, in case the pipes are running in a hot environment.

Best is to have the 2 pipes together at the evaporator end.

4 Soldering Process

Make use of the nitrogen in the CDU and Evaporator for your soldering process.

Connect all the piping together and then purge nitrogen from the CDU through the pipes just before soldering (welding)

* **Note** that the Filter Driers have already been fitted to the evaporators and care should be taken not leave the pipes open for long periods, solder and seal the system as soon as possible.

5 Pressure Test

All components are mostly already fitted, to save time your on site. Only 4 soldering joints required, 2 at the evaporator and 2 at the CDU.

Once all soldering is completed including any joins for longer piping runs, Pressure test the system with dry nitrogen to 450 PSI

Make sure all the stop valves and solenoid valves are energised to allow gas to flow.

6 Vacuum

Once the leak test has passed inspection, vacuum the system

Again be sure to leave the solenoid valves energised open. Best to vacuum from both high side and low side of the system.

7 Refrigerant Charging the system

Connect a hose or 1/4" copper tube to the liquid line in the system and to your Refrigerant bottle.

Turn the bottle up side down and open the tap allowing the refrigerant to flow in a liquid phase.

Once the refrigerant has stopped flowing, (no more vibrations from the hose) close the tap of the refrigerant bottle.

8 Set up to Run

Disconnect the refrigerant bottle from the liquid pipe of the system.

Turn the bottle upright again.

Connect the bottle to the suction side of the system through your refrigeration gauges.

9 Run and Fine Tuning Gas charge

The system is now ready to run

These systems are set up with capillary tube expansion system.

There is no need for an Expansion Valve (TXV) also no need for a liquid receiver.

They are called a critical charge systems, meaning its important to put the right gas charge in to the system

Your system now has a charge of refrigerant, this is already a good base and should be quite close to a correct gas charge.

Final gas adjustments are now necessary to make the system run and perform well.

Electrically switch on the system with the compressor running

For low temp and some chiller systems, your Digital temperature controller should be now controlling the evaporator fan to be off due to high temperature, the fan should cycle on and off until a low enough room temperature has been reached.

The evaporator fan will now run continuously and pull the room temp down until the set point room temp is achieved.

This may take 30 minutes or several hours depending on the application.

During this commissioning running process, check that the evaporator is not flooding refrigerant back to the compressor.

Usually at this stage, the evaporator may be starving slightly, (not all U'Bend are frosted)

but this will get better as the room get closer to its desired temperature.

When the room temperature is approx 1.C away from cut out, the evaporator should now be fully frosted.

At this point you now need to adjust the gas charge, fill in more refrigerant to have a fully frosted coil.

If the refrigerant is flooding back too far and reaching the compressor drain out a bit of refrigerant.

Please note* for low temp systems it is quite normal to have ice on the suction valve of the compressor

Check to make sure this is not liquid flood back. Wet your finger and press it to the cold pipe, if it sticks that's a flood back.

You have quite a lot of adjustment area for the gas charge, its doesn't have to be perfect.

The gas charge will also vary with different room temperatures and weather conditions.

The flood back of refrigerant should end just outside of the evaporator, this will maintain a fully charged evaporator at all times.

If you have for example 15M of pipe run, then you have approx 10M of flood back adjustment range.