

MAY 2021 BULLETIN - HOW ICS COOL ENERGY KEEP BUSINESSES RUNNING WITH THE INDUSTRY LEADING “i-CHILLER” PROCESS CHILLER

INTRODUCTION

ICS Cool Energy has over 30 years' experience in providing process cooling for industrial applications to businesses of all size across the UK and Europe to keep them running.

Process chillers are designed and built from the ground up to be more reliable, operate within tighter specified tolerances and to be more robust for continued operation when compared to chillers designed for HVAC. ICS Cool Energy i-Chillers are specifically designed to cope with the rigours of manufacturing and critical processes.

Process chillers may cost slightly more than equivalent HVAC or comfort chillers but are significantly better value and fit for purpose in a critical process. A process chiller will deliver more accurate leaving water temperature, operate trouble free for longer, have a lower op-ex cost and a greater residual value.

The i-Chiller is the leading process chiller on the market, a benchmark in the industry & categorically trusted and proven. They are designed for process cooling applications, as opposed to a HVAC chiller designed for ambient cooling applications and then applied to a manufacturing process.

These units are plug and play and manufactured to work 16-24 hours a day, every day, to cool industrial processes, rather than the occasional or seasonal demands of an HVAC chiller. They are comprised of an evaporator in tank, pump, scroll compressors, multiple circuits, galvanised carbon steel structure, condenser section and a control panel.

Most importantly for process engineers and managers, they can cope with temperature and flow rate fluctuations, which can be very difficult for traditional HVAC chillers to deal with.

Some of the stand-out features of the industry leading i-Chiller include:

- Plug and play • Ease of operation and maintenance • Coil in-tank evaporator • Large integrated buffer tank • High power pump
- Fast customisation options • Compact footprint • Robustness
- Reliability

EASE OF OPERATION & MAINTENANCE

Being able to clean and maintain a chiller is very important so having access to parts and components is key. With that in mind, the i-Chiller has an easy to remove and clean condenser filter.

In general operation, being able to get a clear idea how your chiller is performing is essential, whether it is working between the set parameters or fluctuating outside of these. To make this as simple as possible, ICS Cool Energy's process chillers are fitted with an easy to use and externally visible advanced electronic controller – perfect for making fine adjustments.

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The i-Chiller also offers Digital input for remote on/off control, volt-free contacts for remote general alarm signal Mains isolator & manual filling kit comprising atmospheric (open) expansion tank.

ICS Cool Energy's intelligent remote chiller monitoring software acts as your virtual engineer, so you can check your temperature control and cooling equipment from anywhere in the world. It allows you to observe your chiller system's operation and enables off-site access to rectify system faults, helping to avoid costly production down-time.

To help protect customers' production facilities from chiller breakdowns, ICS Cool Energy monitor their chillers remotely on their behalf as part of a comprehensive planned preventative maintenance programme. This means that faults can be fixed on their behalf before they have even realised there is a problem.

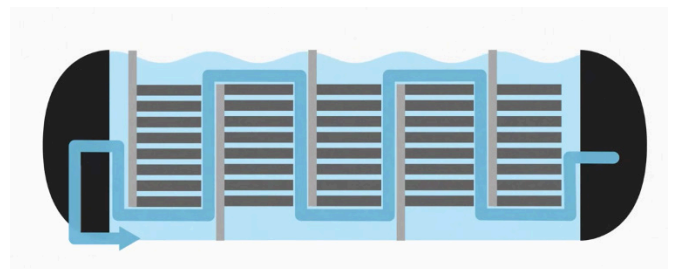
For added reassurance and to ensure your processes keep running, all units come with a comprehensive 3-year parts warranty as standard with an option to extend to 5 years.

COIL IN-TANK EVAPORATOR / LARGE INTEGRATED BUFFER TANK / HIGH POWER PUMP

Coil In-Tank Evaporator

The evaporator in a chiller functions as a heat exchanger as heat captured by the process coolant flow transfers to the refrigerant. When heat transfer occurs, the refrigerant evaporates, turning from low pressure liquid into vapour, while the temperature of the coolant reduces.

The i-Chiller is designed specifically for high process efficiency, with the unique finned evaporator (copper tubes & aluminium fins combined with axial condenser fans) immersed inside the cold-water tank, making them less susceptible to freezing and able to cope with variable load and process fluctuations. ICS Cool Energy's coil in-tank evaporator design also reduces the chance of blockages due to poor water quality.



Some further advantages of a flooded evaporator include better flow distribution because the inlet is 100% liquid, better utilisation of the plate area and higher coefficient of performance (COP).

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Large Integrated Buffer Tank

A buffer tank is a storage tank used on the cold side of a cooling system. The tank is used as storage to cover peak loads or in situations when a surge in demand exceeds the capacity of the cooling system.

The i-Chiller benefits from a large integrated cold side buffer tank enables closer temperature control for process tolerance and reduces wear and tear from compressor start and stop operations.

The fact the buffer tank is integrated (as opposed to certain HVAC cooling systems which have an external storage vessel) means space and footprint is kept to an absolute minimum. This is especially useful as shop floor space is often at a premium for industrial manufacturers.

High Power Pump

The chilled water pump is used to circulate water in a closed system, circulating returned water from the process back to the chiller to cool again.

The i-Chiller comes with high-pressure integral 3 bar pump as standard (with the option to customise with a 5-bar pump), intended to cope with the more complex pipework found in processes applications and overcome larger pressure drops.

The typical pressure drop in process applications is 2-3 bar, in contrast to only a 1-1.5 bar drop in typical HVAC applications. This means that a chiller designed for HVAC applications and then subsequently repurposed to cool a process application is undoubtedly going to struggle to cool, operate inefficiently and not achieve desired results. In the manufacturing sector, this can lead to increased cycle times, parts or products not meeting the accepted standards, higher cooling costs and other general costs incurred.

PLUG & PLAY / COMPACT FOOTPRINT / ROBUSTNESS / RELIABILITY

Plug & Play

The i-Chiller is fully packaged, plug and play and easy to operate and maintain. It can be used in the middle of a production shop floor without being piped into the water supply (closed circuit).

Compact Footprint

Its small footprint ensures that it fits inside production lines where space is a premium and its high-pressure pumps ensure it can handle the complex pipework of process applications. In turn it has very minimal space requirements around the sides and top of the chiller which is very useful for busy shop floors.

Benefitting from an internal pump and tank (whereas HVAC chillers usually have these as external and separate items) means the i-Chiller is packaged, portable and fits easily between process machinery. Could add here bit about closed systems (not plumbed in)?

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Germany: 0800 0116 0117 | Netherlands: 088 258 2580 | Belgium: 0800 29 110 | Austria: 01236 81 73 | Switzerland: 055 505 66 22

Robustness

Being fully enclosed in a galvanised, epoxy coated carbon steel panel structure means the chiller is better protected from incurring damage when being moved from one part of the factory to another, or equally from activities around the process which may come into contact with it.

Reliability

By performing regular maintenance of process chiller systems, facilities can decrease energy costs, reduce power loads, save money on labour, and extend the chillers efficiency and lifespan.

Reliability in the i-Chiller is increased through an internal water bypass to protect pump against dead heading, phase monitor to protect the unit against phase loss & reversal and electrical panel protection ratings.

FAST CUSTOMISATION OPTIONS

ICS Cool Energy understand some processes have specific requirements that cannot always be met with a standard specification chiller.

Whether your application demands specific materials, duty, space or carbon footprint you can rely on ICS Cool Energy to produce it.

i-Chiller units are held in-stock for fast delivery countrywide and can be customised quickly with various options and modifications to meet your unique requirements – saving you valuable budget and time.

The depot teams across Europe can offer various customisable options to meet a specific process requirement, these include:

- Multiple circuits (for redundancy)
- Additional energy efficient options
- Ultra-low temperature capabilities
- The ability to work in higher ambient conditions
- Protection against harsher outdoor environments
- Specialist refrigerants / Low GWP refrigerants
- Aggressive fluids
- Specific pump and tank sizes and capacities
- Stainless steel housing for hygienic Food & Pharma areas
- A variety of footprints and dimensional constraints (e.g. low height, lift/door access)
- Client specific specifications / components / RAL colour
- OEM specific solutions (naked/integrated within the OEMs equipment)

SUMMARY

ICS Cool Energy's technically trained engineers will work in partnership with you to provide the most efficient temperature control solutions for the demands of your process, constraints of your site and budget.

Through one point of contact, ICS Cool Energy develop, manufacture, deliver, install, hire and service high quality, energy efficient and reliable packaged process chillers from 1 to 505kW, offering the widest range of cost-effective temperature control solutions in the industry.

To learn more about the i-Chiller, get in touch with ICS Cool Energy today.

Sales 0800 774 7426, Hire 0800 840 4210, Service 0800 774 7406

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