

**KEEPING INDUSTRY RUNNING –
BULLETIN 5 - PLANNED PREVENTATIVE
MAINTENANCE (PPM)**

INTRODUCTION

Chiller and temperature control system maintenance is a cost effective and time-proven way of maximising productivity and limiting costly production downtime when carried out on a planned, regular basis.

Planned preventative maintenance forms an essential part of modern-day business and manufacturing, particularly when considering methods of production that require continuous operation and working in adherence to time-sensitive deadlines.

To help our customers remain compliant, our F-Gas qualified engineers carry out over 100-point checks with our planned preventative maintenance programmes. This gives you great peace of mind that your temperature control equipment is up to the job. And if a breakdown were to occur, we have you covered with emergency repairs and backed up by the largest rental fleet of temperature control equipment in the UK – 50MW / over £50M of stock in the fleet.

MAINTENANCE SCHEDULE

On a PPM visit from one of ICS Cool Energy’s 50+ UK based Service Engineers, they will check the general state of your chiller, the refrigeration, the cooling system, and the electrical system. Some of the aspects evaluated in our 100-point check include:

General

- Inspect and record general condition i.e., corrosion and security of panels and components
- Remove control panel covers; check all mechanical and electrical components. Tighten all connections.
- Inspect condition and clean down condenser coils as required
- Remove and clean panel filters as required
- General wipe over of the chiller to maintain the appearance of the unit
- Take water sample for analysis (one per annum)

Refrigeration

- Full inspection of pipework and associated components for defects or damage
- Record refrigerant pressures, temperatures, superheat and subcool values and record on F-Gas compliant Electronic Log Sheet
- Inspect condition and soundness of crank case heaters
- Check the mechanical operation and condition of compressor(s)
- Check system for adverse noise and vibration
- Check the condition of refrigeration sight glass for moisture content
- Check operation and condition of thermostatic/electronic expansion valves
- Confirm the correct refrigerant charge within the circuit
- Check the soundness of compressor safety device items
- Conduct an electronic leak test of the refrigerant system for F-Gas log

Cooling System

- Check the mechanical and electrical operation, the condition of fluid pumps and associated
- Inspect pipework/hoses/valves/connections for leaks

- Check all internal fluid circuit solenoid valves
- Check flow switches for operation
- Check auto make-up, auto-vent(s) regulating devices, pressurising vessel(s)
- Check operation and limit stats of heaters (if fitted)
- Obtain glycol/water mix percentage and pH and record (where applicable)
- Ensure correct water-cooled condenser flow rate and temperature set point

Electrical System

- Ensure tightness of all termination, switch gear and electrical connections
- Record supply and control voltage
- Record running current of compressor(s), fan(s), pump(s) and crank case heater(s)
- Inspect all fuses and/or circuit breakers for condition and soundness
- Verify the condition of all printed circuit boards, time guard circuits and override relays
- Check and record parameters and set points
- Check operation of high and low water safety switch (if fitted)
- Check fan speed controller settings and calibrate (where fitted)
- Confirm correct operation of frost stat
- Verify cable termination for condition
- Inspection of the controls, relay, and electrical starters
- Confirm condition of chiller trace heating

ICS Cool Energy’s planned preventative maintenance packages offer a wide range of features and can be tailored to your specific individual requirements.

4 OPTIONS	
Standard	Industry leading 100 point checks
Timed	Priority SLA
Advanced	Multi-site asset management
Bespoke	Whatever works for you

Five important aspects of our PPM packages detailed further in this bulletin include:

- 1) Water quality check and treatment
- 2) F-Gas Compliant leak test
- 3) Engineer availability 24 hours, 7 days a week with van stock of spare sparts
- 4) Glycol check (%)
- 5) Extended warranties

Other key services in our PPM packages include:

- Laboratory analysis
- Reduced labour rates
- Discounted spare parts
- Prioritised calls
- Chiller logbook
- Direct access to our technical support desk
- Courtesy rental service (hire chiller in the event a repair takes longer, or a particular spare part is on a longer delivery time)

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WATER QUALITY CHECK & TREATMENT

All our planned maintenance programmes incorporate a water quality check as standard.

Water treatment is essential when the system water quality falls outside of the correct pH parameters.

The water quality affects the longevity, efficiency and reliability of your process equipment. It's essential that your system fluid is checked, maintained and treated regularly to avoid problems such as corrosion, bacteria and system fouling which will ultimately lead to equipment and process system failure, inconvenience and expense.

The first step to good quality water is to implement a water treatment plan. As part of our planned preventative maintenance contracts, ICS Cool Energy now carry out as standard, sampling and an independent laboratory analysis. An easy-to-read report is issued indicating any defects which fall outside of the recommended parameters and a detailed plan is created and can be implemented for you – returning and maintaining the quality of your water to best practice standards.

Benefits of Water Treatment:

- Prevent system degradation by regular monitoring and treatment
- Increase system efficiency
- Increase the life of your system and equipment
- Reduce maintenance and repair costs
- Protect the quality of your process system

By checking your water quality at least twice a year as part of a preventative maintenance programme, we can help ensure your production is safeguarded from system corrosion and ultimately breakdown, which could result in a huge cost to production and your customers.

ENGINEER AVAILABILITY 24 HOURS, 7 DAYS A WEEK

Our team of 55 highly qualified service engineers, UK wide are on call 24/7/365 to ensure you have the back-up you need if your equipment unfortunately fails.

Our manned technical desk will look to resolve your issue remotely for speed, in instances where a fix isn't possible this way, we will visit your site quickly to ensure your downtime is minimised.

With X-WEB, an analytical information-based system, we can dial into your chiller controller simply by using a web browser. The device allows for a 'black box' style monitoring of a system, whilst also allowing for the remote adjustments of operating parameters.

Owning the largest fleet of hire equipment in Europe means we can provide temporary solutions when needed to keep your operation running.

F-GAS COMPLIANCE

It's the responsibility of the operator (usually company) of refrigeration or air-conditioning systems to ensure compliance with the EC F-Gas and Ozone Regulations.

PROCESS TEMPERATURE CONTROL SPECIALISTS. SALES. HIRE. SERVICE.

Our International Offices: England and Wales: 0800 840 4210 | Ireland: 04692 52934 | Scotland: 01698 7445 40 | France: 01 60 66 80 83
Germany: 0800 0116 0117 | Netherlands: 088 258 2580 | Belgium: 0800 29 110 | Austria: 01236 81 73 | Switzerland: 055 505 66 22

Stationary systems with 5 tonnes CO₂ threshold of refrigerant or more must have regular leak checks to remain compliant. Stationary systems with over 500 tonnes CO₂ threshold must have automatic leak detection equipment fitted. Your refrigeration equipment should be labelled with the refrigerant type and the amount by Kg, so you can use this table to help identify your obligations:

REQUIREMENT	Tonnes CO ₂ Threshold	KG Equivalent for HFC 404A	KG Equivalent for HFC 134A
Annual leak test	5 tonnes CO ₂	1.3 kg	3.5 kg
6 monthly leak test	50 tonnes CO ₂	12.7 kg	35 kg
Automatic leak detection	500 tonnes CO ₂	127 kg	350 kg
Record keeping	5 tonnes CO ₂	1.3 kg	3.5 kg

GLYCOL CHECK (%)

Glycol is an anti-freeze solution with inhibitors to prevent damage to systems and equipment that can result in production downtime. It's the preferred alternative to using mains water in heating or cooling systems.

To correctly dose glycol you'll need to know how much water your system holds, a specialist like ICS Cool Energy can help with this. Remember a minimum of 25% is recommended to allow correct application of the inhibitor pack and keep the fluid biostatic (inhibits bacteria growth).

Our specifically formulated FlowCool range of glycol-based products incorporate organic inhibitors, are industry recommended and meet the BS5117 standard for use within two-way cooling and heating processes.

The complete range includes industrial grade glycol, suitable for food and beverage applications and bio-degradable glycol, all available for next day delivery.

EXTENDED WARRANTIES

Our temperature control solutions come with a 2-year warranty as standard and with our planned preventative maintenance contracts, we provide the option to extend this up to 5 years.

Extended warranties are provisioned with safety and complete coverage in mind, ensuring that HVAC, thermoregulator, heat pump, refrigeration and cooling equipment remains totally covered on a long-term basis and eligible for a range of contract benefits.

Extended warranties offer coverage for a 3–5-year period, providing service, maintenance, and repair to any or all of a company's facilities as a part of an inclusive, planned preventative maintenance package. However, if your process requires a more bespoke approach to maintenance, service level agreements can be put into place, offering businesses additional benefits such as contingency planning and tailored response times.

To get a comprehensive planned preventative maintenance package in place or simply to find out more, call ICS Cool Energy's friendly service team today on 0800 840 4210.