

**INSTALLATION, OPERATION
AND MAINTENANCE
INSTRUCTIONS**

**WETTED SURFACE
DRY AIR COOLER**

Installation Operation and Maintenance

Location

The unit should not be located on roofs finished with asphalt. When this is unavoidable a suitable oil resistant barrier should be employed.

Piping

Pipe work should be installed so as to place no strain on the headers and connections.

The dry cooler should never be used as an earth for arc welding equipment. Mains water piping supplying the wetting system must incorporate a double check valve to fully comply with the water supply regulations.

Provision to completely drain the external pipework or trace heating and insulation should be utilised to prevent bursts in cold weather.

The water distribution pipework should be completely drained during the Winter using the drain points provided.

Flushing & Cleaning

When flushing out welding debris and other foreign matter from the pipe work it is essential that steps are taken to prevent the debris from entering the heat exchanger coils. If it is not possible to totally isolate the dry air cooler from the pipe work during the flushing process a fine mesh strainer should be employed to catch any foreign bodies present.

Any chemicals used in the cleaning process should be compatible with both copper and silver.

Wiring

All wiring should comply with the 17th edition of the IEE Regulations and any other relevant local codes or specifications.

All swarf caused by drilling gland plates should be removed and suitable corrosion prevention measures taken to limit the growth of rust.

The dry cooler has all the internal wiring completed and requires only a 400v three phase and neutral supply and interlocks with the related equipment to complete the installation.

Commissioning Preparation

System should be filled with water/glycol solution.

Air should be vented from the system.

Pumps should be run and the flow adjusted to give design flow rate.

All terminals within the control panel should be tested to ensure no loose connections are present.

All thermal overloads should be set for the full load current of the motors.

All circuit breakers should be switched to the ON position.

Check and adjust direction of rotation of the fans.

Commissioning

Apply cooling load to dry air cooler

Measure and record temperatures at which fans cycle on and off.

Measure and record fluid entering and leaving temperatures.

Adjust control system as necessary to obtain optimum performance.

Adjustable parameters on the Dixell Controller are listed in the table below

| Parameter and Label | Description | Range *(Units) | Pr1 Pr2 |
|---------------------|---|----------------|------------|
| SEtF | Sets the target temperature (PTC Input) | LSF -HSF | Pr1 |
| OA1 | Output 1 Configuration | Fan/nu | Pr2 |
| OA2 | Output 2 Configuration | Fan/nu | Pr2 |
| OA3 | Output 3 Configuration | Fan/nu | Pr2 |
| OA4 | Output 4 Configuration | Fan/nu | Pr2 |
| OA5 | Output 5 Configuration | Fan/nu | Pr2 |
| OA6 | Output 6 Configuration | Fan/nu | Pr2 |
| CH | Direct action (Cooling) | CL | Pr2 |
| rot | Rotation of fan sequence | no | Pr2 |
| Pbc | Probe 1 configuration | Ptc | Pr2 |
| P2P | Probe 2 present | no | Pr2 |
| LAF | Low alarm | 0°C/100°C | Pr1 |
| HAF | High Alarm | 0°C/ 100°C | Pr1 |
| AFd | Alarm Delay | 0-255 mins | Pr1 |
| FPr | No of fans engaged with faulty probe | 0-#Fans | Pr2 |
| ALiP | Fan fault digital input 1-6 | Op/CL | Pr2 |
| ALMr | Fan Fault reset | no | Pr2 |
| dEu | Display unit of measurement | C | Pr2 |
| rES | Resolution | dE | Pr2 |
| odo | Outputs delay at power on | 0-255 sec | Pr2 |
| Pb | Proportional band | 0-30°C | Pr2 |
| Fon | Delay switching up fans | 0-255 sec | Pr2 |
| FoF | Delay switching down fans | 0-255 sec | Pr2 |
| LSF | Lower set point limit | | Pr2 |
| HSF | Upper set point limit | | Pr2 |
| | | | |

Control System

The following description assumes that the control panel is supplied with power, all circuit breakers are in the ON position, water/glycol is circulating through the coil, the remote enable contacts are closed and a cooling load is present.

The fluid will begin to rise in temperature. As the temperature reaches that set on the controller the first fan will be started. If the temperature continues to rise such that the stage differential is exceeded the next fan will be started. This will continue until the system stabilises to balance the load. If all fans are running and the temperature of the water continues to rise the surface wetting feature will be enabled.

Maintenance

All dry air coolers are designed to operate under automatic control with the minimum of attention. However, in order to ensure reliable service, regular maintenance should be carried out.

Items, which should be given special attention, are listed below.

Electrical terminals should be checked to ensure no loose connections are present.

Coil surfaces should be kept clean and free from foreign matter.

All mechanical parts should be checked for security of attachment at regular intervals.

Motor running current should be measured and recorded to detect any abnormalities in operation.

Motors should be checked for bearing damage.

A sample of the glycol\water solution should be analysed annually prior to the onset of cold weather to ensure that the properties are suitable to prevent freezing of the fluid. The water distribution pipework should be completely drained during the Winter using the drain points provided

Safety

No work should be carried out on the dry air cooler without isolating the circuit involved as automatic starting of the fans could lead to danger.

On completion of any works, unit should be returned to normal operating condition. Fans should not be run with the guards removed under any circumstances.