

INSTALLATION, OPERATION
AND MAINTENANCE
INSTRUCTIONS

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.

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 16th 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.

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.

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.