

# When cooling becomes critical

By Tracey Rushton-Thorpe

**T**rox AITCS is well known in the market for providing innovative solutions and their latest pioneering CO<sub>2</sub> based dealer desk cooling system is one which is causing quite a stir. With the first installation now up and running in JPMorgan, we look at how CO<sub>2</sub>OLdesk lives up to its reputation.

## Technology at its best

CO<sub>2</sub>OLdesk is a very simple idea, providing a carbon dioxide based cooling system that can counteract the escalating heat loads produced by PCs in dealer desks of financial institutions.

Heat loads have always been an issue in this type of application with temperatures reaching up to 35°C in the knee well. Typical cooling solutions such as chilled beams just aren't able to cope with these demands, blowing cool air from the ceiling rather than absorbing the heat at source.

CO<sub>2</sub>OLdesk on the other hand provides the perfect solution as it is integrated within the raised floor directly beneath the desks and works in conjunction with an integrated desk chamber, creating a micro climate and ensuring that all of the PC heat is absorbed. It is supplied with liquid carbon dioxide at 14°C

and draws the rejected heat across a heat exchanger, fully absorbing the PC load and enabling the equipment to remain operating at its optimum temperature. In addition because CO<sub>2</sub> is electrically benign, it does not present a risk to PC equipment or underfloor cabling.

As well as the obvious benefits to the traders, another major selling point with this system is that it offers energy savings of up to 30% over chilled water alternatives and because it is fully compatible with any types of desks, it allows a conventional building to be made into a trading floor thus giving the flexibility needed in today's office environments.

Guy Hutchins, Director of Trox AITCS said: "The use of CO<sub>2</sub>, which has more than seven times the heat capacity of chilled water, enables an extremely slimline construction that would not be possible with chilled water thereby allowing its use with very shallow floor voids. This is extremely valuable

to investment banks as it gives them the flexibility to locate trading in almost any building."

There are three types of units in the range; recessed, semi recessed and surface mounted, all of which use stainless steel

name for itself as the optimum high density cooling solution for data centres, and it was this technology which led Paul to approach Trox AITCS about a new desk cooling system which would suit his requirements.

this system allows us to do that easily without the constraints of a pre-determined PC quantity or load for each individual desk.

"Each CO<sub>2</sub>OLdesk unit can support six PCs and therefore we can accommodate a far

greater number of people on each floor than we could with a water cooled system. We have also made maintenance a lot easier by incorporating a BMS and LED alarm for fan failure. Should any of the fans go down, a volt free signal is sent to the maintenance team via the BMS and the desk mounted LEDs allow the maintenance team to identify the

problem desks.

"Basically this system has given us the flexibility to cope with anything. By working with Trox AITCS, what started out as a huge problem with no real solution has resulted in the birth of a new CO<sub>2</sub> solution."

## The perfect solution

In the current climate you can't go far without someone

questioning the environmental credentials of new products and services and this is another area where CO<sub>2</sub>OLdesk comes out on top with not one but two environmental benefits.

Firstly the CO<sub>2</sub> system offers maximum power efficiencies that can deliver anything between 10 and 30% energy saving over chilled water alternatives and secondly it uses waste CO<sub>2</sub> from industrial processes meaning less CO<sub>2</sub> is escaping into the environment.

In short this system appears to be perfect. It provides the flexibility needed in this type of application and it solves a major cooling problem which was the prime focus from the very beginning. The fact that it also ticks the energy efficiency box is an added bonus which is certain to get it a lot more attention in the market.

But more importantly what this installation proves is that by working together the industry can come up with the perfect solution. Here is proof that Trox AITCS and JPMorgan were able to solve a major problem by sitting down and coming up with a solution based on the knowledge and technology which is available in the industry – and perhaps that is one of the most important lessons of all.



heat exchangers for the highest levels of resilience. In addition, for built in redundancy, each unit contains two power supplies and two fans so that in the event that one fan fails, the other has the capacity to provide 75% of the load which would be adequate for most situations until the maintenance team arrives.

## Having faith

It's all very well looking at the technical details because they are bound to add up to the fact that the system is the best thing since sliced bread. But this can be quite a risky strategy when you consider that this was the first ever installation of this technology and therefore a massive leap of faith for a company like JPMorgan.

Paul Hood, Head of Engineering Operations EMEA at JPMorgan Chase said: "We had looked at a number of different cooling solutions to solve our problem but conventional overhead cooling was generally unable to deal with the high density under desk cooling requirements. A PCs standby load is approximately 75% of the maximum load and because we never switch the PCs off there is a constant heat source."

The Trox AITCS CO<sub>2</sub>OLrac system is already making a

Paul says: "The CO<sub>2</sub>OLrac system is already well known in the industry and it soon became clear that by using this type of technology we could produce a bespoke unit to satisfy the cooling needs of the dealer floors. Basically by developing my original concept and integrating it with the Trox AITCS technology we were able to come up with the perfect solution."

The original plan was to install the CO<sub>2</sub>OLdesk system at just the Wood Street offices but the success of this particular installation led to it being rolled out to their London Wall offices which when completed will benefit around 1500 traders.

Paul says: "The first units were installed into the Wood Street offices in May 2007 and were an instant success. The ambient temperature throughout the floor was extremely comfortable and the whole working environment was a huge improvement on what we had become used to.

"The additional benefit for us was the flexibility which the system provided. CO<sub>2</sub>OLdesk absorbs the heat load where it occurs along a desk run which allows a holistic approach to PC deployment. By necessity we have to move groups of people around on the dealer floors and

