Press release

How the monitoring and adjustment of raised floor void pressure increases the energy efficiency of server room cooling

When setting up a data centre, IT managers used to focus solely on ensuring that servers were constantly available. Today, the subject of energy efficiency is moving to centre stage. For not only do operators face higher electricity consumption by their air-conditioning due to increased server computing power - energy prices are also rising. However, through the use of differential pressure sensors in the raised floor and a novel control strategy developed by Stulz enable medium-sized to large data centres to increase their energy efficiency.

Hamburg, November 2009. According to calculations by the Gartner market research company, around two thirds of energy consumption in data centres is now employed for cooling. This is above all due to the fact that blade servers, which are becoming increasingly popular, generate a much greater heat load than conventional servers. This gives rise to more exacting requirements for the air-conditioning technology: it should cool as reliably as before, but also as efficiently as possible. To achieve this goal, plans should include an appropriately sized raised floor under the server installation space when renovating data centres or building new ones. The floor void is used to convey cold air to wherever it is needed, thus reducing energy consumption.

Individual rack cooling with air-adjustable raised floor grilles

The heat load in a data centre is not consistent and variable air volume floor grilles are therefore employed. In this way, the right quantity of conditioned air can be matched to the individual cooling requirements of the server racks.

It is no longer necessary to cool the entire data centre to 18 °C, for example, and have to put up with the resulting high energy costs. Instead, a base temperature of 24 to 26 °C is sufficient, with additional cooling in places with a risk of hot spots, as these can easily lead to IT failure.

Differential pressure monitors ensure an even air flow

The data centre is a dynamic working environment and consequently floor void pressures can fluctuate considerably. If you do not bear this fact in mind, you will continue to use more cold air than you actually need, in order to prevent overheating. To resolve this problem, STULZ installs pressure sensors in the raised floor. These are integrated in the A/C unit's control loop, and ensure that the pressure stays constant. The raised floor pressure control makes sure that the racks are supplied with the required quantity of air.

Air must be able to circulate freely in the floor void

To ensure that a raised floor system is efficient, all openings in the intermediate floor must be hermetically sealed. The cooled air may only emerge through the flaps intended for this purpose. Moreover, the raised floor must not be mistaken for an additional storage space! It is true that pipes and cables can be routed there to a limited extent. But it is essential to ensure expert installation with sufficient floor height allowed to accommodate both planned and future under-floor service requirements. Otherwise, inadequate air circulation will cause the cooling capacity to fall dramatically.

The raised floor can be expanded at any time

Raised floor systems are thoroughly flexible. They can be adapted at any time, as the server park grows. So if the racks are modified, leading to changing heat loads, the individual elements can easily be replaced. STULZ air-conditioning experts provide IT managers with advice on all aspects regarding the energy-efficient cooling of data centres with precision air-conditioning systems.

About STULZ GmbH Klimatechnik

Since it was founded in 1947, the STULZ Company has evolved into one of the world's leading system suppliers of air-conditioning technology. With the manufacture of precision air-conditioning units and chillers, the sale of air-conditioning and humidification systems and service and object management, this division of the STULZ Group achieved a turnover of around 300 million Euros in 2007. Since 1974 the group has seen continual international expansion of its air-conditioning technology business, specialising in A/C for data processing centres and telecommunications installations. STULZ employs 1,600 workers in Germany and across twelve subsidiaries (in France, Italy, Great Britain, the Netherlands, New Zealand, Poland, Spain, China, India, South Africa, Australia and the USA). Additionally, the company co-operates with sales and service partners in more than 100 other countries, and therefore boasts an international

network of air-conditioning specialists. It has production plants in Germany, Italy, the USA, China and India. The STULZ Group employs over 4,000 people world-wide. Current turnover lies at around some 700 million euros.

You can find further up-to-date information about STULZ on the Internet at www.stulz.com, or contact:

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