

### SMARTD Provides Improved Controlled Comfort Cooling

#### Case Study: Office Building

#### Benefits of SMARTD:

- **Controlled Comfort Cooling**
- **Reduced Environmental Impact**
- **Improved Energy Efficiency**
- **Superior Energy Savings**
- **Reduced Operating Costs**
- **Improved Reliability**

The need for improved energy efficiency and reduced environmental impact has never been greater, and President Obama's American recovery and re-investment plan has put energy efficiency front and centre. SMARTD's own goals are very much in keeping with this plan and vision, and the replacement of an older less energy efficient chiller at Urban West Business Park building in Walnut Creek, California, with an efficient energy saving SMARTD chiller, has brought impressive energy savings for this customer.

SMARTD chillers incorporate the oil-less magnetic bearing technology Turbocor centrifugal compressor, and working closely with Turbocor, SMARTD has very much focused its efforts on the development of a range of chillers that offer the highest year round efficiencies and the lowest lifetime operating costs in the world. With SMARTD's emphasis on developing a lead in lowest cost of operation, performance, and reliability, this translates into the lowest cost of ownership of any chiller on the market, and brings major benefits for both owners and for the environment.

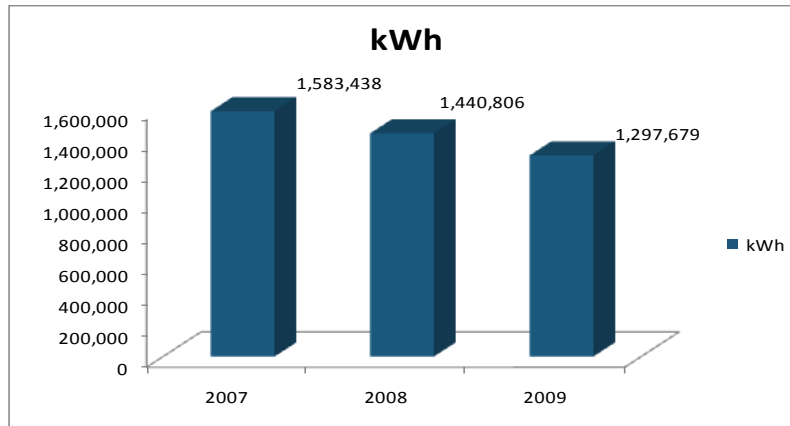
Reliable, low maintenance energy efficient comfort cooling of this office space, was of prime importance to this customer. The histograms overleaf, show the customer electricity consumptions in kWh for the prior chiller for year 2007 and with the SMARTD chiller for years 2008 and 2009, and \$ value savings for years 2008 and 2009 are noted accordingly.



**REVOLUTIONARY ENERGY SAVINGS  
FOR THE BUILT ENVIRONMENT**

The world-proven range of oil-free centrifugal chillers from Smardt

### ENERGY SAVINGS WITH SMARTD CHILLER



The Walnut Creek office building shows a full 2 years of energy savings using the SMARTD chiller, as installed in January 2008. And all of the savings have been specifically attributed to the new chiller, as no other measures were enacted to save energy.

As can be seen, the original estimated operational savings of \$36,000/year was a conservative estimate, which in practice, has been surpassed for both the 2008 and 2009 years of operation with the new SMARTD chiller.



SMARTD products are built to be environmentally responsible, and to provide customers with advanced product engineering and a wide range of models to choose from. They incorporate sustainable Turbocor magnetic bearing technology, which requires less than 1% of the energy required for conventional mechanical bearings and which reduce power consumption by up to 30%, compared with chillers that incorporate comparable screw compressors.

R134a is the non-ozone depleting refrigerant used, and the Turbocor oil-free compressor contributes to low maintenance and enhanced service life. It also eliminates costly oil related maintenance and parts servicing.

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Modular, split shell, and vibration free designs, facilitate installation and eliminate vibration isolation requirements. SMARTD chillers have the lowest noise levels in their class, utilize advanced controls software, and are code compliant.



**320 Ton SMARTD chiller being lowered by crane for installation in the Urban West Business Park Building, Walnut Creek, California**

### **THE CHALLENGE**

The challenge with this project was to ensure the customer got the right SMARTD product to meet and surpass expectations of energy savings in their building, and to get it installed on time and within budget.

### **SCOPE OF WORK & SOLUTION**

For this installation, SMARTD teamed up with partner American Chiller Service, an independent large tonnage air conditioning company who provide installation services to northern and central California and beyond, and who have built a solid reputation for experience, professional advice, and customer service.

In the last quarter of 2007, ACS took delivery of a new 320 ton SMARTD water cooled chiller, and by January 2008, had removed an existing Carrier 19 DK low pressure chiller from their clients facility and replaced it with the fully installed and operational SMARTD chiller, and ACS' association with SMARTD ensured a trouble free installation.

In 1978, California's Energy Code "Title 24 Regulations" were established in response to a legislative mandate to reduce California's energy consumption and its greenhouse gas emissions. These regulations contain standards which are updated periodically to encompass new energy efficient technologies and methods, and as an integral part of the scope of work undertaken by ACS, in addition to providing for greater energy efficiency through the installation of the new SMARTD chiller, also undertook necessary additional installation work by cutting out material from the mechanical room roof and incorporating mechanical room upgrades; all of which met Title 24 Regulations.

To also respond to Assembly Bill 32 - the Global Warming Solutions Act of 2006, which mandates that California must reduce its greenhouse gas emissions to 1990 levels by 2020 - the state of California is setting impressive standards within the US for improved energy efficiency, and is becoming a leader in promoting energy reduction and conservation. SMARTD and ACS' joint efforts are making a valuable contribution to California's energy reduction and greenhouse gas emissions policy.

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### CHILLER IMPROVEMENTS, BENEFITS & RESULTS

Within a short time-frame of bringing the new SMARTD chiller on-line, the customer was seeing energy savings, and the cumulative results speak for themselves: less maintenance and significant energy and \$ savings in each year since operating the new SMARTD chiller. And each subsequent year of operation will bring continued similar benefits and further cost savings.

In the first year of operation, annual building electricity costs were reduced by 20% which equates to an almost \$42,000 annual savings, the equipment acoustic signature was reduced to 70dBA, annual maintenance costs were reduced, system redundancy was increased, ozone friendly R134a is the refrigerant used, and with the magnetic bearing technology of the Turbocor compressor, oil is completely eliminated from the system, thus removing any possibility of risk of oil contamination in the refrigerant.

### SMARTD ENERGY EFFICIENCY

SMARTD is a leading global provider of low maintenance, low noise, advanced sustainable technology and environmentally responsible commercial and industrial chillers. Modular, split shell and vibration free designs facilitate installation and eliminate vibration isolation requirements. SMARTD chillers have the lowest noise levels in their class, utilize advanced controls software, and are code compliant.

And SMARTD chillers lead the way in energy efficiency, provide the highest year-round (IPLV) efficiencies in the world, and hence the lowest lifetime operating costs.

More and more customers are switching to SMARTD energy efficient technology chillers, because SMARTD users are experiencing significant reductions in both operating and maintenance costs.

SMARTD is no. 1 in chiller energy efficiency.

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