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Life to your Building

THE JOURNAL OF FAISAL JASSIM TRADING COMPANY

WINDS OF CHANGE

Here we are on the second issue of our newsletter. Thank you for the generous comments we received on this initiative; we are truly in a time of changes and large shifts within the building services industry, not only at FJTCO level, but on a wider UAE level.

In fact, we have recently moved to our new facility in Dubai Investment Park. This has put our operation under some strain during this massive shift. However, all is well rewarded now that we are back in full swing, as the facility of 11000 m2 of space, made available to us, is doubling some and tripling some other workshops areas we occupied previously. The benefits are great. We are able to increase our production, synergise better, reduce waste, control inflating rentals and much more. Our clients will feel the difference in the increased capacities in our Switchgear, Grilles and Diffusers, Pumping, Ductwork and Duct Accessories divisions. In addition, we still have our Showroom in Al Qusais, where we display most of the products range, and allows our engineers a step closer to town.

The shift within the UAE building services industry, though, is much more dramatic. It has started some time ago with some shy regulations and reluctant approaches, culminating with the green drive that we are witnessing today. The industry is finally tipping over. Is it the realities of global warming, the scarcity of resources, the shortage of power or the oil prices? Whatever the reason is, the UAE have jumped on this wagon and like a roller coaster it will shake us all. We are having a number of interesting exchanges with consultants and developers. From energy saving heat wheels , variable frequency drives, solar systems, auto balancing valves, insulation, efficient pumps motors and fans, variable air volume boxes, Heat Exchangers, high efficiency A/C equipments, adiabatic cooling , culminating in optimised selections to reduce the Wattage per foot print in buildings. The list is endless. Added efforts from institutions and government bodies are required to spread the understanding and the proper usage of these technologies. In our turn, FJTCO will remain committed to work with proven and tested technologies and play our modest role in the drive to change the color of the industry to GREEN.

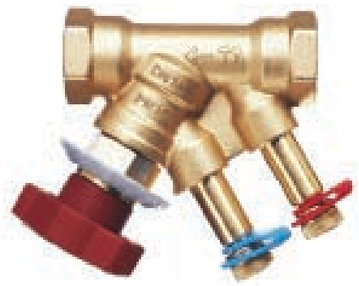
Raphael Khlat
Managing Director

IN THIS ISSUE

WORLD LEADING VALVE MANUFACTURERS

Tour Andersson

Faisal Jassim is proud to be associated with Tour Andersson, one of the World leading valves manufacturers. TA produce full line of valves especially suited for the HVAC application and specializes in controllability. The technology creates optimum conditions to take control and stay in control. TA provides valves of all sizes (from 10 to 1000 mm), all connections, three pressure classes (PN 16, PN 20 PN 25), four material (Ametal, gun metal, grey iron, ductile iron).



TA expertise cover all types of hydronic system constant and variable flow static & dynamic balancing. There are numerous arguments for a proper balancing of your HVAC system in particular for a variable flow system application we mention:

1. Balancing improves comfort.

Even when you calculate each circuit by computer, you seldom find components that exactly match your theoretical values. Most engineers choose larger components than smaller ones but then the plant cannot provide the desired indoor climate. There are two reasons:

- The flow becomes too large in favoured circuits, and too small in unfavoured circuits.
- The flow in the distribution network becomes bigger than the flow in production circuits.

You can remove the causes by fitting balancing valves and balancing the plant as balancing limits the flow in favoured circuits and ensure that all circuits receive their design flows.

2. Balancing saves energy:

Each morning the return to full operation completely opens all the control valves. In unbalanced plants the unfavoured circuits must wait for full flow until the temperature sensors in the favoured circuits reaches the set point. Balancing valves limit the flow in favored circuits and reduces start-up times, reducing the energy consumed accordingly.

3. Balancing reveals flaws...in time

Balancing exposes flaws of wrongly mounted terminal units, damaged pipes, back-to-front check valves and blocked filters while they can still be cheaply repaired. Balancing allows you to act before control equipment is commissioned, before ceilings are mounted, and most important, before tenants move in.

4. Balancing helps pumps work as per demand

The main reason for choosing variable flows is to minimize the pump's energy consumption. For example, many designers choose a pump that is slightly too big. In a cooling plant the pump accounts for 10 to 20 per cent of total energy use. If the set point is 40 per cent too high, then energy costs will be 4 to 8 per cent higher than necessary.... month after month, year after year. The whole point of a variable-speed pump-to save-energy-is lost. Hence balancing the system will create adequate pressure drop in the least favoured circuit, requiring the pump to work exactly as per the demand and not more.

5. Balancing valves for fault tracing and systems analysis

Balancing is the only way to reveal pump oversizing, allowing you to optimize the pump head. This way balancing helps reduce pumping costs and assists in tracing faults in designs..

MOTORCITY

AN ACTION PACKED COMMUNITY

You don't have to love motorsports to live in MotorCity, but it helps. Superbly designed apartments and villas let you live the action in a residential community unlike any other. The project being developed by Union Property who have awarded the district cooling to (EMICOOL), a subsidiary of M'Sharie. Their contract includes the construction of two new District Cooling Plants in the prestigious Dubai Motor City development. The plants, once completed, will be able to provide up to ninety-two thousand tons of additional refrigeration to the development.

The construction of both plants has been awarded to Drake & Scull; Plant 7 will be completed by June 2008, while Plant 8 will be completed by February 2010. The plants will be constructed at a cost of 600 million Dirhams and can individually generate up to forty six thousand tons of refrigeration each.

Faisal Jassim is supplying all the pumps for this district cooling development and they are as follow:

- 16 Primary chilled water pumps, ITT B&G model VSX-14x16x13 coupled to 200HP motor.
- 24 Secondary chilled water pumps, ITT B&G model HSCS-10x14x20L coupled to 600HP motor 16 Condenser chilled water pumps, ITT B&G model VSX-18x20x22 coupled to 400 HP motor.

Further FJTCO is supplying M/s Thermo and STS the MEP contractor of the residential buildings in the project a total of 150 packages for the Booster, Transfer and Pressurization unit application.

These are assembled in our workshop facility using ITT B&G Pumps series VR33, VR16 & VR8 models with complete stainless steel piping headers and electrical controls.

On the Airside FJTCO is supplying 240,000 m2 of PAL 20mm and 30mm pre-insulated ductwork pre-assembled in our workshop along with our total line of Flowtech Grilles Diffusers and acoustic Louvres.

"Cool" Man: George Berbari

By Martin Thomas

DISTRICT COOLING IS AN IMPORTANT PIECE OF THE ECO JIGSAW PUZZLE FOR CITY DWELLERS

George Berbari is a driven man. He is the CEO of DCPRO Engineering and he's been in the business a long time. This time has included the heady days 1995 when District Cooling came to the UAE as Gulf Energy Systems and ended up 3 years later with the IPO of Tabreed. We ask about the scale of the industry and he tells us: "District Cooling is a business that needs cities and people... today in the GCC more than 40% of areas are served this way, up from less than 5% ten years ago."

He also tells us "At that time our target was 100k tons of chilled water and look at us now - standing at 500k tons with a new target of 15million tons in another eight years." He adds in passing 'That implies close to AED100 billion in construction."

Berbari has published much in trade media but his articulacy and passion deserve a wider audience. He puts these figures into the context of urban growth and energy demand and CO2 production and he very soon has you understanding that District Cooling brings big benefits economically and ecologically to cities but as with everything there are downsides. It's just that his way brings so many fewer downsides.

Berbari repeats that HVAC " is not a rocket science". HVAC has been around for a long time and the principles are well understood and the underlying science has been with us forever. But getting it right – more so than ever in our harsh climate – involves a lot more than bolting the pipes together properly or ensuring a good electrical supply. You need to understand the economics that can make or break not just a single project but also the whole concept. While real estate investment can bring developers 50% IRRs or more in the short run, District Cooling if managed well can deliver stable long term IRRs of 15%. It's no wonder a boom economy like ours looks for ways to short circuit the process. Too many companies are seriously under capitalized to do the job properly.

He lists several common mistakes made by District Cooling projects: over-sizing capacity, overbuilding, over-sizing piping which together amount to not integrating properly the elements of the system.

He explains that in this region we don't really have an appreciation of the monetary value of time. 'I know organizations in our business who will waste months of time trying to shave a million dollars of some consulting fees and in the process lose five or six times as much in delays or mistakes as the projects continue.

We ask what technologies are coming along for exploitation that will improve District Cooling in the future. He says that it's not really about new technologies as we don't yet fully appreciate what can be done with existing possibilities. He mentions thermal storage of chilled water which can be used for either load leveling or load shifting – where the chillers are turned off and the stored coolant is used instead. He goes on to discuss the integration of power generation with sewage treatment and the use of treated water instead of fresh and about how important it is to choose the right kind of power generation.

As we begin to run out of time I ask him about any legislation he's like to see. He has obviously thought about this before as there's no hesitation. 'Programmes for reduction of energy usage by 50% at least – such using as thermal storage or solar power" is his opening remark. Followed by explaining about the increasing need for major reductions in releasing CO2'. And after a few moments he adds most forcefully 'Remove all subsidies on power and charge a fair market price'. This he explains would focus us here on doing it right as in UAE in particular we have the wealth to afford and the political will to try innovative solutions to our energy and ecological trials

George Berbari's passion for his subject is palpable. In our interview it is not hard to see a Renaissance man, focused on his industry and its place in a wider world. By considering the world as a holistic system and understanding the economics of that system he is able to see a world where his already successful business is even more so – and as he told us in his opening remarks he's not afraid to share that success if people are willing to listen.

George Berbari (GB) Brief Biography

- Founder and CEO of DC PRO Engineering who is an electro mechanical consultancy firm specialized in District Energy Services.
- GB has 23 Years extensive HVAC experience in the Middle East where he played a major role in starting the District Cooling (DC) in UAE in 1995 where DC has grown to currently 1 Million Ton in operation (2008) and more than 10 Million Ton planned in the next 10 years. .
- GB has transferred more than 20 technologies to the ME and Pioneered 6 new applications in the field of District energy.
- GB holds a Bachelor of mechanical engineering from American University of Beirut (AUB) 1985.
- GB has several publications in ASHRAE journal and Climate Control Magazine.

Martin Thomas is a freelance writer, businessman and consultant based in the UAE. He specializes in developing industries and companies with a technological underpinning.
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The Mystery of the **Cooling Tower Pump Noise**

The problem of "cavitating condenser water pumps" with adequate NPSH available is not uncommon. Several theories are offered to explain the cavitation-like noise, but none validated. These facts, however, are known:

The broad band noise experienced is very similar, if not identical, to classical cavitation. The resulting noise tends to be more prevalent on negative suction pressure systems but will occur on positive suction pressure as well.

The introduction of small amounts of air to the pump suction often reduces or eliminates the cavitation noise. Unlike classic cavitation, throttling of the pump discharge to a lower capacity usually has little impact on the noise level.

There are two mechanisms for generating pump noise: liquid and mechanical.

Mechanical Noise:
For centrifugal pumps, mechanical noise is generally the result of component imbalance (impeller and/or coupler), coupler misalignment, rubbing components or improper installation of the base plate and/or motor. These mechanical mechanisms generate distinct frequencies equal to rotational speed and/or multiples (1,2,3) of rotational speed. measuring the noise spectra did not reveal distinct frequencies, which conclude the noise is not mechanically generated.

Liquid Noise:
The second mechanism for generating noise is velocity of the liquid entering the pump liquid. There are generally four types of pulsation sources in pumps that result from liquid noise:

- Discrete frequency components generated by the pump impeller
- Broad-band turbulent energy resulting from high flow velocities
- Impact noise consisting of intermittent bursts of broad-band noise caused by cavitation, flashing and water hammer
- Flow-induced pulsations caused by periodic vortex formation when flow is past obstructions and side branches in the piping system

By measuring of frequencies item (1) is elimnated as a source of noise. Item (2), (3) & (4) are broad band noise identified with the noise generated. Hence the pump noise observed is that of cavitation. It is not classic cavitation, as NPSH available is sometimes higher than NPSH required

It is a well-documented fact that highly aerated cooling tower water can contain as much as 4-6% excess air. The excess air absorbed in the cooling tower comes out of the solution, as it flows through the piping and becomes entrained air. These air bubbles pass into the pump impeller where they collapse, and produce "cavitation."

Noise Control Techniques:
Several noise control techniques have been successfully employed to reduce excessive noise:

- Increase or decrease the pump speed to avoid system resonances of the mechanical or liquid systems.
- Increase liquid pressures (NPSHA, etc.) to avoid cavitation or flashing. This could include raising the tower, lowering the pump, or straightening the suction piping to reduce friction losses.
- Modify the pump so that the clearance between the impeller diameter and casing cutwater or diffuser vanes is increased.
- Inject a small quantity of air into the suction of a centrifugal pump to reduce cavitation noises by providing a shock absorbing cushion to minimize the impact of condensation of water vapor within the pump impeller.
- Eliminate vortexing by adding baffle assemblies in the cooling tower pan and reduce water velocities in piping to eliminate uneven flow of liquid into the impeller leading to noise.

It must be understood that each job site has its own particular set of operational requirements and, therefore, there is no single solution to the noise problems.

Boiler Logs Can Reduce Accidents

Often overlooked in boiler operation is the establishment and enforcement of a procedure for keeping adequate boiler logs. Over a period of time, boiler operating logs help distinguish operating trends that can allow problems to be diagnosed, and boiler and/or fuel burning system maintenance to be scheduled, before an emergency shutdown is necessary.

COVERAGE
There are two types of boiler logs: one for daily operations, the other for maintenance activities.

WHAT LOGS CAN TELL YOU
The National Board Incident Report for 1993 indicates that 79 percent of all reported boiler accidents are attributable to just two causes: low water cutoffs, and operator error/poor maintenance. Proper keeping and analysis of boiler logs help operators to focus on these areas, and therefore reduce boiler accidents. As low-water-cutoff problems account for 62 percent of the incidents, maintenance and testing of these devices could cause a dramatic reduction in boiler accidents.

SAMPLE LOGS
A separate log sheet is required for each boiler in the facility. One option is having a log sheet that is good for one month (31 days), and provides for two sets of readings per day. The most important concern is to keep the log completely, accurately, and updated regularly. Too often, logs are kept with identical readings for an entire month or with gaps in the readings.

RESPONSIBILITY
Operator: Responsible for taking boiler readings, assuring accuracy and initial analysis.

Management: Responsible for implementing log program and supervising its continuous completion. Also responsible for ensuring that an analysis program is carried out.

Retention: All persons involved must assure logs are filed in accordance with the facility policy.

Analysis: All involved persons must examine logs to determine trends and then act upon or recommend action in response to these trends. Repair or replacement of equipment, as indicated by these operation or maintenance log indications, must be performed as needed.

CONCLUSION
A well thought-out operation and maintenance log program designed to address the requirements of the facility will reduce boiler accidents, downtime, and equipment loss. Such a program, properly carried out, will focus attention of both management and operating personnel on the often-overlooked boiler plant, thereby addressing small problems before they become large ones.

Solar Energy Systems

Faisal Jassim is associated with a number of suppliers to provide a total and comprehensive solution for hot water application, using Solar as a source of energy. Recent Green initiative in the UAE has brought to prominence the advantage of a central solar water heating system. The technology is mature and well established with a number of installations installed and commissioned by FJTCO operating for a number of years. Typical applications cover residential and commercial development such as hotels, office towers, hospitals and multi storey building. The solar coverage can be designed to reach up to 70% in the winter and up to 100% in the summer. Recent development in the collectors manufacturing techniques and material used has improved the efficiency of solar collectors boosting the overall payback of the installation to 3-4 years

For a detailed pricing please contact our team for feasibility and commercial offers

Careers @ FJ

Opportunities awaits qualified applicants

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Sales Manager Valves

The candidate should be experienced in sales of valves with a very good background in the HVAC market. He should possess minimum of 5 years experience, with at least 2 years in a managerial position. The candidate should be able to manage a team of sales engineers. Bachelors degree in mechanical engineering is a must. He should posses excellent supervisory and communication skills.

Sales Engineer - Pumps

The candidate should have a bachelor's degree in mechanical engineering with a minimum of 3 years experience in the sales of pumps to the MEP Contracting Industry. The candidate should be sales driven with excellent communication skills.

Operation Manager-Switchgear Division

The Candidate should have a proven experience in managing the internal operation for our switchgear division. His responsibility will include project coordination, workshop control & procurement. He should be capable of managing effectively a team of people to lead them to timely completion of incoming order. Knowledge of ERP system is a plus.

Interested applicants can fax or e-mail their resumé with a letter of application to Faisal Jassim Head Office • Fax: 8105106 • email: fjtrdg@emirates.net.ae

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