

Greetings from Andy Fraher

I hope you enjoy reading the first quarterly ITT Residential and Commercial Water Engineering newsletter. We are now almost two years into the integration of the former ITT Fluid Handling Division and Water Technology Engineering Groups. In that time, we have added engineering capabilities in our new Baroda, India Technical Center, and have plans to add additional capacity in our Nanjing Tech Center in 2008. By combining our global engineering assets we have been able to successfully take full advantage of our collective knowledge base on several projects, including the development of the new Faradyne electric submersible motor.

By the time you read this newsletter, the Global Value Based Product Development Symposium featuring the theme of “New Product Development in a Globally Collaborative World” will have taken place.

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Andy Fraher
Vice President, Director,
Engineering and
Technology

New Product Release

Series FS 250 Flow Switches

R&CW is proud to introduce a new generation of flow switches for residential and commercial applications. The Series FS250 Flow Switches have a patent-pending technology that has eliminated the need for bellows.

A general purpose flow switch is designed to start or stop electrically operated equipment such as, signal lights, alarms, motors, automatic burners, and metering devices. Operation of a flow switch occurs when liquid flowing through piping into which the flow switch is installed actuates a paddle arm which in turn mechanically actuates a snapswitch that makes or breaks an electrical signal. Typical flow switch applications are hot water boilers, chiller system compressors, and any system where monitoring system / pump flow performance is critical.



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India Technical Center

The India Technical Center opened in August 2007 in the city of Vadodara, located north of Mumbai (Bombay). Vadodara is in the state of Gujarat, on the west side of India, and this strong commercial state provides approximately 20% of total Indian industrial output.

The center will ultimately accommodate approximately 80 staff to serve Fluid Technology product lines. In addition, a new manufacturing unit is scheduled to open in the second quarter of 2008. Prior to the existence of the center, ITT had been outsourcing product design/development tasks for the Asia market to various vendors in the region. This center will now serve as a single, dedicated location to which ITT product managers and engineers can go for help with design analysis, 3-D modeling, redesign and cost reduction, and product localization.

Vinayak Kanegaonkar, the Deputy Director of Engineering, has 8 people on staff, 4 junior and 4 experienced engineers, and plans to expand. All engineers go through an orientation period that includes a study of R&CW products. Vinayak, who is new to R&CW as of October 2007, is not a stranger to pump design. He has designed more than 100 pumps in a career that has spanned 32 years in the pump business. Vinayak states that he's very impressed with the VBPD process and ITT's global roadmap. He sees his role as one to facilitate capacity growth, and he's hopeful that people throughout ITT will draw on his staff's depth and experience.



Vinayak Kanegaonkar
Deputy Director of
Engineering

Flowtronex

W.E.T. in Dallas

ITT-Flowtronex® is a creator of pumping systems for a variety of irrigation, boost, and lift applications for use on golf courses, in landscaping, and by municipalities, with a focus on delivering *engineered-to-order* products. The Flowtronex manufacturing facility is located in a Dallas suburb, and recently experienced quite a "wet season". Earlier this year, manufacturing for Water Equipment Technologies (W.E.T.® – an ITT Aquious product line), was moved from Florida to Dallas for operations streamlining purposes. W.E.T. engineering, sales, and after-market support staff will remain in Florida. Products are already shipping.

The W.E.T. products use reverse osmosis (RO) and nano-filtration (NF) membrane technologies to produce high purity or potable water from seawater, brackish and surface water sources and reuse water from wastewater. The RO products are a natural pairing with Flowtronex pump stations because both product lines are sold in coastal regions and island settings.



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Engineered for life

Fraher, cont....

ITT R&CW has done a great job integrating the efforts of our outsourcing partners into our projects. The further inclusion of our India and China Tech Centers will enable us to develop truly global, low cost product platforms while further enabling us to provide local solutions for our regional markets. The seamless integration of our global internal and external resources and close alignment with the operations, sales, and marketing functions, will help us reach our goal of providing our stakeholders with the premier service levels they expect from us, while maximizing ITT's investments.

Series FS 250, cont....

The UL353 standard dictates that commercial flow switches should be able to perform 100,000 continuous cycles (actuations) at their published maximum temperature and pressure ratings. The new, **Series FS 250** Flow Switches surpassed this requirement with a phenomenal 240,000 actuations without failure!

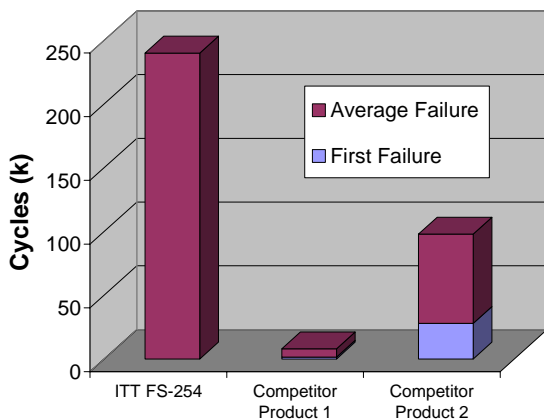


ITT now has outstanding general purpose flow switches **without a bellows** resulting in no solder, no lead (thus environmentally friendly), and fewer pieces. This design is **more** sensitive to flow and less sensitive to pressure than the standard bellows-based flow switch.

Utilizing Taguchi Methods™, the team developed a rotational o-ring design to replace the soldered bellows design. The new design required careful orchestration based on two main factors: the o-ring seal material, and the percentage of o-ring compression and expansion that will withstand extreme environmental conditions. For the product qualification, 18 different designs were simultaneously tested under the same test conditions to select the best design option. Highly sophisticated test equipment was employed to record even the slightest leakage through the flow switch.

The optimal design was selected based on Taguchi Methods and confirmed by applying the same stringent test conditions as the original samples. See the chart for the outstanding test results.

The team is proud of its achievements by developing a technology that can be applied to other products. Some of the benefits include:



- Environmentally friendly design (no soldering required)
- High sensitivity to flow rates and low sensitivity to environmental conditions
- Product reliability that surpassed all competitor's products
- Fewer moving components (less prone to failure)

For more information on application of Taguchi Methods, please contact Tim Reed or Amjed Shafique.



Dallas, cont...

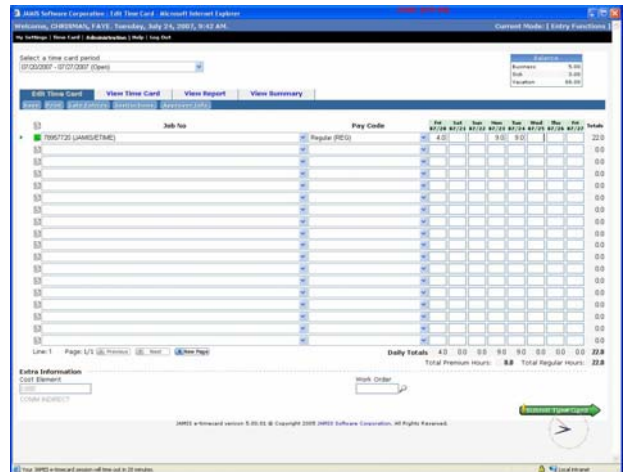
Flowtronex, in addition to assimilating the new product lines, has been busy this year with new releases MCA and the Home Defender.

The Master Control Architecture is a different approach to programmable logic controller (PLC) controls that allow the customer and ITT the ability to proactively monitor and diagnose product functionality thus reducing complications and downtime. ITT and the customer can remotely ensure that pumping stations operate correctly.

The Home Defender, AC Fire Pump Model 13D, is designed to boost water pressure for automatic residential fire sprinkler systems. This product's main differentiator from ITT's competitor products is that it is UL listed – very important since it is a life safety product.

e-timecard System

A new e-timecard system is going to be implemented across R&CW engineering to enable uniform tracking of all time spent by engineering personnel. Time tracking is already being done within some R&CW sites; however, different tools and methods for collecting data are used, making it difficult to analyze the data. This new tool will centralize and standardize the function of time tracking, making the task of reporting easier.



Submitting a timecard is a simple task. At the end of each week, you will open the web-based application and enter your time spent on each project.

By implementing this new software, not only will time tracking become standardized, but a unified project numbering scheme will be implemented. This will allow everyone to have a common language for reporting and classifying work which will assist us as we work more frequently across sites.

Project numbers will be assigned to capture all activities, and these activities will be classified in six categories for analysis purposes. Engineering leaders will be able to measure product development requirements and understand resource commitments based on the data collected in the new system. Armed with this information, we will all be able to make better fact-based decisions on resource planning.



Get to Know Texas Turbine Operations

At our Texas Turbine Operation we manufacture 5" to 30" turbine pump products. Our turbine pump products are assembled into various pump models including oil or water-lubricated line-shaft deep well, submersible, vertical short-set industrial, vertical can, UL/FM Listed vertical, and surface mount vertical.

These turbine pumps are used primarily to pump water for irrigation, municipal, and industrial applications. The pumps are installed in ground wells, river structures or water storage sumps. The turbine pump is driven by either a vertical or submersible motor. All the ITT line-shaft turbine pumps sold in the U.S. use either vertical hollow shaft (VHS) or vertical solid shaft (VSS) motors. Since the depth of the well and ground water level varies from well to well, and the depth of the river water intake structure and water sump varies, depending on the installation, our products are Built to Customer – BTO (specifications). Quite often, these types of orders include special features that need to be handled by the Engineering Department.

Our Engineering Department is divided into five working groups:



Eric Hammock
has been busy on
Engineered to Order jobs
since joining TTO in
February 2007

- New Product Development and Marketing/Sales Support (managed by Chi-Sheng Yang and Larry Howard) — develops the new products, maintains the price-book engineering data and performance curves, IOMs, and the selection software.
- Order Engineering (managed by Jimmy Scroggins) — handles most of the custom VIT and VIC orders. He and Eric Hammock process the orders, Charles Hankson creates the BOMs, and Billy DeVore creates all the special drawings.
- Product Testing (with Eddie Janeway as Product Engineer and Jesse Garza as Lead person in the Test Lab) — provides all product testing, 95% of which is production related.
- Compliance — Chi-Sheng Yang and Eddie Janeway are also responsible for maintaining the UL, FM, CSA, and NSF listing.
- Pattern Shop — Located in Slaton, Texas, about 30 miles from Lubbock and managed by Rodney Turnbow, the Pattern Shop is responsible for development of the pattern equipment for the new products and maintaining all the pattern equipment products.

A special thanks to contributors James Gu, Giorgio Menegazzi, Andy Fraher, John Garvey, Chi-Sheng Yang, Bruce Weir, Vinayak Kanegaonkar, John Spuller, Robert Rathke, Gerhard Fasching, Mike Mudrick, Alberto Scarinci, Cinzia Estori, Larry Howard, and Rob Teich

Send your feedback and story suggestions to rcw.newsletter@infopros.com

