

# CHEMICAL ENGINEERING

## OCTOBER 2009

### IN AUSTRALIA

## CHEMECA AWARDS

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### Awards recognise engineering excellence

#### CHEMECA MEDAL

Professor Michael Dureau received the Chemeca Medal, the most prestigious chemical engineering award in Australia and New Zealand, at the Chemeca conference in Perth last month.

“Mike Dureau has been a pillar of the chemical engineering community in Australia for many years,” the citation read. “He has tirelessly served his profession at the highest possible levels, both professional and personal.” In particular, the citation highlighted his mentoring of young engineers.

After graduating in chemical engineering from the University of Sydney, Dureau embarked on a career in chemical, water, control and power, retiring as chief executive of Alstom Power in 2003.

He is the chairman and executive director of the Warren Centre for Advanced Engineering, immediate past chair of disaster relief agency RedR Australia and a member of many organisations.

“More than just an engineer, Mike is a



Professor Michael Dureau (centre) with BP Kwinana refinery managing director Thy Heyns (r), who was the MC on the night, and chair of the awards selection committee Dr Gordon Weiss.



General manager of supply and distribution at Caltex Ken James (r) presents the certificate to Professor Robert Burford.

great humanitarian,” the citation said.

Several other prizes were awarded at the conference:

#### CALTEX TEACHING AWARD

(\$5000 and certificate)

This award recognises outstanding achievements in the teaching of chemical engineers.

#### Winner: Professor Robert Burford

Professor Robert Burford champions the interchange between the chemical industry and students in the School of Chemical

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## CHEMECA AWARDS

Sciences and Engineering at the University of NSW. Over his 31 year career at the school, he has organised site visits, coordinated cooperative scholarships and mentored graduates in the industry.

His research into thin-layer inorganic-organic hybrid materials has led to new nanocomposites of organic polymers and the use of atomic layer deposition for surface modification.

Burford is a co-inventor of patents in fire performance materials, polymer blends and inorganic oxide formation.

In addition to his interest in petrochemical processing, materials formation and control, biotechnology and renewable resources, he also teaches business management.

### EXXONMOBIL AWARD (\$5000 and certificate)

The award recognises significant contributions to chemical engineering through innovations or a series of related publications over a number of years.

#### Winner: Professor Suresh Bhatia

Professor Suresh Bhatia is recognised for his work on the development of molecular-level theories of transport of fluids in nanopores, which has superseded the Knudsen theory and the commonly used Dusty Gas Model.

His theories permit more accurate modelling of multicomponent fluids in nanoporous materials and improve process design in nanofluidics technology, membrane separation, molecular sieving, and catalysis. He is a regional editor of the international journal *Molecular Simulation*.

Bhatia championed the creation of the School of Chemical Engineering at the University of Queensland where he now works.

### FLUOR AWARD (\$5000 and certificate)

The award recognises exceptional management and leadership talent that has resulted in a sustained corporate success over a significant period.

#### Winner: Norm Shaw

Norm Shaw is a senior vice president of Fluor Corporation. He



ExxonMobil Australia chairman John Dashwood (l) presents the certificate to Professor Suresh Bhatia.



Fluor vice-president of Australasian operations John McAneny (l) presents the certificate to Norm Shaw.



#### Board

<b>Max Lu</b> (chair)	<b>Paul Taranto</b> (Victoria)
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Executive Director

**Jan Althorp**

Suite 11– 2/488 Bourke St, Melbourne, 3000  
phone 03 9642 4494 fax 03 9642 4495  
jalthorp@icheme.org



ENGINEERS AUSTRALIA  
College of Chemical Engineers Board

<b>Elizabeth Harangozo</b> (chair and Council nominee)	<b>Zvonko Pregelj</b> (Queensland)
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	<b>Andre Jemison</b> (Young Engineers)
	<b>Iven Mareels</b> (corresponding)

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is currently based at the company's Melbourne office where he directs the feasibility study of Newcrest's new Cadia East gold project in Orange, NSW.

He joined Fluor in Australia in 1969 after graduating in mechanical engineering from the University of Melbourne.

He was the first Australian Fluor employee to be assigned overseas and has specialised in resource, mining and minerals, power, infrastructure and hydrocarbon projects, including the world's largest copper mine at Escondida in Chile.

### FREEHILLS AWARD

(\$5000 and certificate)

The award recognises innovation in product design, development, or service delivery.

### Winner: Chris Jenkins

Chris Jenkins has developed new technology in petrochemicals, methanol synthesis



Chris Jenkins.

and syngas processes for which he holds several patent credits.

After graduating in chemical engineering from the University of Canterbury in New Zealand, he joined Altona Petrochem-

ical Company, working on plant support, operations, design, project delivery and venture planning.

He moved to Texas in 2001 to take a position at ExxonMobil where he developed research guidance and competitive analysis for propylene production technologies and provided planning support for major chemicals projects.

In 2003 he co-wrote the site-wide optimisation model for the Baytown Olefins Plant steam cracking complex.

Jenkins joined Uhde Shedden in 2006, where he has been working on onshore oil and gas, chemicals, and coal to liquids projects.

He has recently completed assignments in Beijing and Mexico City on major coal, chemical and petrochemical ventures.

Jenkins was unable to receive his award in person.

### ESD Simulation Training

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Perth - 11th - 12th November  
Brisbane - 1st - 2nd December
- Subsea Systems**  
Perth - 12th - 13th November
- Control Operation & Design of Reciprocating Gas Compressors**  
Melbourne - 16th - 17th November
- Design and Operation of FPSO's**  
Perth - 16th - 18th November
- Control & Operation of Industrial Gas Turbines**  
Perth - 23rd - 24th November

For more information contact:  
Daren Reid, ESD Simulation Training Pty Ltd  
Tel: (08) 9355 5599 Email: [daren.reid@esd-simulation.com](mailto:daren.reid@esd-simulation.com)

**PetroSkills** Curtin  
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### Master of Technology (Petroleum Technology)

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In the MTech you remain in full-time industry employment while completing the program online and part-time with Curtin University.

This unique collaborative program between Curtin and PetroSkills combines industry endorsed, competency-based graduate training with formal academic assessment.

Course Duration: 2-4 Years Part-time

Students can choose between two streams of study:

- Facilities Engineering, or
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For full course details and application information visit the MTech website at [www.mtechpt.curtin.edu.au](http://www.mtechpt.curtin.edu.au)

[www.mtechpt.curtin.edu.au](http://www.mtechpt.curtin.edu.au)

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## CHEMECA AWARDS

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*Rio Tinto Alcan general manager of business improvement and technology Jenny Purdie presents the certificate to John Gibbeson.*



*Uhde Shedden managing director Russell Scott presents the medal to Kathryn McDonald.*



*Professor Suresh Bhargava (l) accepts the certificate from WorleyParsons engineering director corporate Lindsay Wheeler.*

#### **RIO TINTO AWARD** (\$5000 and certificate)

The award recognises outstanding applied chemical engineering.

#### **Winner: John Gibbeson**

John Gibbeson is a recognised technical leader in gas processing, treating and quality.

He is a member of ExxonMobil's Global Best Practice initiative and the Australian Standards committee for the AS4564 standard on natural gas quality.

After graduating from the University of NSW, Gibbeson joined Alcan Aluminium and moved on to roles at Monsanto. Since then he has been working for Esso for 31 years, including a stint in Cairo, Egypt, as operations manager for Esso Suez.

Upon his return to Australia, he developed and implemented Esso Australia's risk assessment and management system.

#### **UHDE SHEDDEN AWARD** (\$4000 and medal)

The award recognises practical services to the profession and to the practice of chemical engineering.

#### **Winner: Kathryn McDonald**

Kathryn McDonald leads a large team of process engineers and plant technicians at the Qenos Altona Olefins site. She has mentored many young engineers and oversees the company's graduate and vacation recruitment programs.

McDonald is an industry representative on the Chemical Engineering Program Advisory Committee at RMIT University, her alma mater.

She joined Qenos as a graduate design engineer and worked in production scheduling, major maintenance activities and business analysis before progressing to her current leadership role.

#### **WORLEYPARSONS AWARD** (\$5000 and certificate)

The award recognises personal commitment and leadership to safety and the environment.

#### **Winner: Professor Suresh Bhargava**

Professor Suresh Bhargava is dean of the School of Applied Sciences at RMIT University. His areas of specialisation are industrial chemistry and nanotechnology. Bhargava is presently researching mercury removal from industrial waste and the use of gold nanoparticles in medical formulations.

Bhargava has achieved a major breakthrough in alumina technology, three industry-related patents, over 140 publications, 151 industrial reports and conference proceedings.

Bhargava completed a master of science degree at the age of 19 and was the only student from all Indian universities to be selected as Commonwealth Academic Staff Scholar in chemistry in 1979. The scholarship allowed him to complete a doctorate in chemistry in the UK.

#### **AKER SOLUTIONS DESIGN PRIZE**

The award recognises an outstanding final year student design project.

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### Winner: Tarrant Falcke

Monash University student Tarrant Falcke was part of a group of six fourth-year chemical engineering students invited to design an integrated gasification combined cycle powerstation with carbon capture technology.

Uhde Shedden provided an entrained flow gasifier for the project. Falcke's final report earned a mark of 95%.

Falcke was unable to receive his award in person.

### JOHN A BRODIE MEDAL

The award is given out for the best paper presented at the Chemeca conference. The medal is named in memory of John Brodie, who was chief engineer with Union Carbide and a member of the Council of Engineers Australia.

### Winners: Gregory Newton and Brent Young

Gregory Newton, a chemical and materials engineering student, and Associate Professor Brent Young, both from the University of Auckland, presented a paper titled "Liquid slugging control for oil and gas pipeline riser systems".

The researchers used software to simulate slugging in a pipeline riser system. The oil and gas extraction industries suffer from the problem of intermittent "slugs" of gas or liquid moving through the pipeline. In the simulation, an active control system that used proportional-integral feedback mitigated severe slugging.

### GRAEME JAMESON AWARD

(\$5000 and certificate)

This award is presented by Engineers Australia's Australasian Particle Technology Society to the postgraduate student who presents the best paper on particle technology at Chemeca.

### Winner: Kai Ying Yeap

Kai Ying Yeap a doctoral student at the Ian Wark Research Institute at the University of South Australia, investigated the use of polyethylene oxide flocculants to recover water from clay mineral wastes generated by mining. She concluded that selecting the



Chair of Engineers Australia's Chemical College Elizabeth Harangozo with the medallists Gregory Newton (l) and Associate Professor Brent Young.



Professor Clive Davies, president of the Australasian Particle Technology Society, presents the certificate to Kai Ying Yeap.

right treatment and flocculation conditions could dramatically improve water removal. The project is part of a Australian Minerals

Science Research Institute programme being carried out by the Universities of South Australia and Melbourne.

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Chair of the industrial chemistry division of the Royal Australian Chemical Institute, Dr Gary Bowman (l) presents the prize to Professor Neil Foster.

### RK MURPHY MEDAL

This award medal is the most prestigious award presented by the industrial chemistry division of the Royal Australian Chemical Institute for significant achievements in chemical engineering, process chemistry or related areas.

### Winner: Professor Neil Foster

Scientia Professor at the University of NSW, Neil Foster has been one of the most productive and influential researchers in the world in the development of supercritical fluid and dense gas applications, especially in the emerging field of nanomedicine.

A public company, Eiffel Technologies, listed on the Australian Securities Exchange, was established in 2000 to scale-up and commercialise technology that he and his research team had developed. He is also the founding director and chief scientific officer of BioParticle Technologies.

Foster has published 120 articles in peer reviewed journals and books, has edited one book, co-authored 110 presentations at national and international symposia, and is a named co-inventor on 13 patent filings.

## 2010 ENGINEERS AUSTRALIA DIARY

### The complete organising tool for the busy engineer.

This leather bound style comes in black only, has a wiro binding so it lies flat when opened, and all components can be removed and updated from year to year. The cover is embossed with the Engineers Australia logo without the date so you needn't buy another diary again, just the refill.

Components: A calendar diary with a week to an opening – separate telephone/address book – note book – business card pockets – monthly and yearly planners.

SIZE: 185mm x 250mm

**Personalising is only available until 18 December (Maximum 24 characters).**

**REFILLS AVAILABLE**



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Please have the following name gold stamped on the cover of my 2010 diary at \$16.50 (Incl gst) extra (use block letters)

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## CHEMECA NEWS A

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### New directions needed for engineering courses

Chemeca attendees used audience response systems to have their say during Professor Ian Cameron's plenary presentation. As the inaugural senior fellow and engineering discipline scholar at the Australian Learning and Teaching Council, Cameron outlined new directions engineering courses will have to take if they are to prepare capable graduates for the jobs of the future.

When he asked the participants to vote, 18% responded that they were dissatisfied with the quality of graduates. When only the votes from industry, consulting and professional association attendees were considered, 25% reported being dissatisfied. Participants said the main problems graduates suffered were an inability to relate theory and practice (26%) and poor

critical thinking (26%).

Cameron believes engineering curricula should be redesigned taking into account the findings of neuroscience and cognitive psychology research into how people learn. In addition to lecture theatres and laboratories, universities should send their students out to worksites, corporate offices, virtual spaces and international exchange programs.

According to Cameron, modern engineering is becoming multidisciplinary, multinational and more dependent on modelling, simulation and visualisation. Engineers have to work on mega-projects and nano-scale processes, and take into account the entire life cycle of a product or system, from planning to decommissioning

and remediation.

At the same time, the number of hours in chemical engineering courses has shrunk between 1929 and 2007. Modern courses devote less time to engineering practice than those in the early parts of the 20th century, with significant reductions in the proportion of the curriculum devoted to design and basic sciences. On the other hand, modern courses dedicate more of their curriculum to chemical engineering science, broadening subjects and electives.

Cameron was also worried by a lack of academic staff with experience in industry. Of the academic participants who voted, 28% spent less than one year working outside higher education. Only 27% had six or more years of non-academic experience.

### Patents galore in natural gas processing

Perth company Cool Energy, established to commercialise technology developed at Curtin University of Technology, is one of the top 20 patent filers in the area of natural gas processing, the Chemeca conference heard last month in Perth.

Chemist and patent attorney Mary Louise Turonek, from the firm Griffith Hack Patent and Trade Mark Attorneys, looked at natural gas processing patents published in international patent databases between January 2000 and June 2009, and presented her findings at the conference.

According to her analysis, the number of patents has been growing markedly every year since 2006. The figure for 2008 is more than double that of 2006. "It will be interesting in future years to ascertain the impact of the current global recession on innovative activity represented here," she said.

About a third of the patents relate to liquefaction. The next most common area for patents is sweetening technology, which aims to separate "sour" gases like carbon dioxide and hydrogen sulfide from natural gas before further processing or fractionation. The rest of the patents are almost equally divided into dehydration, separation of

natural gas liquids, and condensates.

The top three patent filers are Shell, French research organisation Institut Francais du Pétrole and German company Linde.

Mitsui Shipbuilding is also a major producer of patents, because it supplies

zeolite absorbents and membranes for dehydration.

While patents are a useful way of tracking the development of new technologies, Turonek noted that they do not tell the full story because many innovations are never patented.

### Chemeca 2010 to go beyond the academic

"Engineering at the edge" is the theme of next year's Chemeca conference to be held in Adelaide on 26-29 September.

To encourage contributions from outside academia, the organisers have dropped the requirement for fully refereed papers.

Instead, contributors are invited to submit an extended abstract of 1-2 pages, which will be reviewed by the technical program committee before being included in the proceedings.

"The world is facing unprecedented challenges – global warming, massive land and water degradation and the potential for a pandemic are just a few

examples," the chair of the organising committee Mark Biggs says in his invitation. "Tackling these unprecedented challenges requires chemical engineers to work at the edge of the discipline, interfacing with other traditional and emergent disciplines.

"We want Chemeca 2010 to be a showcase of this modern chemical engineering, both in academia and industry."

Abstracts are due on 1 March and extended abstracts on 31 May.

The conference is being organised by Melbourne company ICMS. For more information, see [www.chemeca2010.com](http://www.chemeca2010.com) or email [chemeca2010@icms.com.au](mailto:chemeca2010@icms.com.au).

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## EVENTS

### AUSTRALIA

**Seminars: Production process and emergency systems on oil and gas installations** (3 days) Perth 9 Nov; **Coal seam methane** (2 days) Perth 11 Nov, Brisbane 1 Dec; **Control operation & design of reciprocating gas compressors** (2 days) Melbourne 16 Nov; **Design & Operation of FPSAs** (3 days) Perth 16 Nov; **Control & operation of industrial gas turbines** (2 days) Perth 23 Nov. *Inquiries:* Daren Reid 08 9355 5599, email daren.reid@esd-simulation.com

**Conference: 11th Pacific polymer conference / 31st Australasian polymer symposium** (5 days) Cairns 6 Dec. *Inquiries:* Andrea Goodwin 0416 626 500, web www.ppc11.org

**Conference: 2009 Multilingual Interdisciplinary Conferences on Chemical, Mechanical and Materials Engineering with Virtual Participation** (6 days) 7 Dec. *Inquiries:* web www.ausihem.org

**Conference: Seventh international conference on computational fluid dynamics in the minerals and process industries** (3 days) Melbourne 9 Dec. *Inquiries:* web www.cfd.com.au/cfdconf

**Conference: 5th Australian organometallics meeting** (4 days) Sydney 17 Jan 2010. *Inquiries:* web www.ozom5.org



## Training courses in Australia 2009–10

### Project engineering – fundamentals of a project lifecycle

30 November–2 December, Melbourne VIC

### Fundamentals of process safety

15–19 February, Brisbane QLD

Contact: Victoria Reznikov

Email: [austcourses@icheme.org](mailto:austcourses@icheme.org)

Tel: +61 (0)3 9642 4494

Fax: +61 (0)3 9642 4495

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heart of the process

### OVERSEAS

**Congress: World congress on desalination and water reuse** (6 days) Dubai, United Arab Emirates 7 Nov. *Inquiries:* web www.idadubai2009.com

**Course: A chemist's guide to chemical engineering** (3 days) Nice, France 10 Nov. *Inquiries:* Karen Thurley +44 (0)1435 873062, email sciup@scientificupdate.co.uk, web www.scientificupdate.co.uk

**Seminar: 2009 Fuel cell seminar & exposition** (5 days) Palm Springs, USA 16 Nov. *Inquiries:* web www.fuelcellseminar.com

**Course: Bridging the gap between lab and plant** (3 days) Nice, France 17 Nov. *Inquiries:* web www.scientificupdate.co.uk

**Conference: Nano petroleum, gas and petro-chemical industries conference: "Providing nano-powered solutions"** (2 days) Cairo, Egypt 18 Nov. *Inquiries:* web www.npg.sabrycorp.com/conf/npg/09

**Conference: Asia-Pacific symposium on radiochemistry 2009** (6 days) California, USA 29 Nov. *Inquiries:* web apsoc2009.berkeley.edu

**Conference: New horizons in catalysis** (2 days) Cologne, Germany 3 Dec. *Inquiries:* web www.scientificupdate.co.uk

**Conference: International conference and exhibition: Organic process research & development** (3 days) California, USA 20 Jan 2010. *Inquiries:* web www.scientificupdate.co.uk

**Conference: International conference on chemistry and chemical engineering** (3 days) Cape Town, South Africa 27 Jan 2010. *Inquiries:* web www.waset.org/events.php

**Conference: 2010 International conference on chemical engineering and applications** (3 days) Singapore 26 Feb 2010. *Inquiries:* web www.iascit.org/ceca/index.htm

## EA BOOKS



ENGINEERS AUSTRALIA

### Purification of Laboratory Chemicals, 6th Ed.

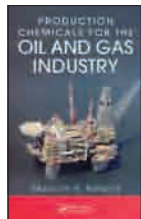
Wilfred L. F. Armarego, Christina Li Lin Chai \$213.64 + GST = **\$235.00**  
2009 9781856175678 743pp



This book keeps engineers, scientists, chemists, biochemists and students up to date with the purification of the chemical reagents with which they work, the processes for their purification, and guides readers on critical safety and hazards for the safe handling of chemicals and processes. Completely updated, it provides expanded coverage of the latest chemical products and processing techniques, safety and hazards. The book has been reorganised and is now fully indexed by CAS Registry Numbers.

### Production Chemicals for the Oil and Gas Industry

Malcolm A. Kelland \$204.55 + GST = **\$225.00**  
2009 9781420092905 437pp



This comprehensive text discusses all types of production chemicals used by the oil and gas industry for down hole and topside applications both onshore and offshore. The author reviews all past and present classes of production chemicals with numerous difficult-to-obtain references, especially SPE papers and patents. Unlike other texts that focus on how products perform in the field, this book instead focuses on the specific structures of chemicals that are known to deliver the required or desired performance, which is much more useful to research and development staff.

**Engineers Australia Salary & Benefit Survey, 2008**

## NEW PRODUCTS

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### Chiller range

Two models have been added to the Thermo Scientific NESLAB ThermoFlex range of recirculating chillers. The range now extends up to 10kW cooling capacity at 20°C.

Each chiller has a recirculation system with an integrated funnel, full flow filtration, and visual fluid level indication for easy maintenance. Ease-of-use design innovations include an integrated ramp that allows a single person to unpack a unit, air and water filters that can be changed while the unit is in operation.

The units have varying cooling capacities (1.4kW, 2.5kW, 3.5kW, 5kW, 7.5kW and 10kW) and can be configured for diverse applications such as industrial, medical, laser, metrology, packaging, pharmaceutical, and semiconductor processing.

Fluid recirculation options include:

- pressure relief
- flow control with flow readout
- pressure relief with flow readout
- automatic refill to ensure the proper fluid level is maintained.
- anti-drainback to prevent the reservoir from overflowing
- DI water to maintain fluid resistivity
- water cooled condenser
- air cooled condenser.

[www.rheologysolutions.com](http://www.rheologysolutions.com)

### Safety poster

Pro-VisualPublishing has published the Laboratory Guide to Workplace Safety 2009/10, designed to reduce injuries at work.

The free wall-mounted chart highlights laboratory protocols that may need reviewing and provides tips for improving safety. It covers topics such as laboratory house-keeping, hazardous substances and toxicity.

The chart is funded by corporate sponsors. [www.provisual.com.au](http://www.provisual.com.au)

### Data loggers

Dickson is now offering PR120 and PR320 pressure data loggers that are capable of downloading data to USB.

The PR120 version is suitable for pressures up to 689.5kPa. The PR320 model



The Chemisor range of diaphragm pumps.

### Pumps for chemicals

Almatec has announced the Chemisor range of metal pneumatic diaphragm pumps for handling chemicals.

The pumps' product chambers have soft contours, smooth flow channels and no dead spaces. They are available in three volume sizes: 75L/min, 150L/min and 400L/min.

The components consist of stainless-steel, precision-cast housing, diaphragms and ball valves made of ethylene propyl-

ene diene monomer and polytetrafluoroethylene. The system is capable of dry running and self priming. It is equipped with an integrated muffler and an air control system.

Optional features include a pulsation damper, draining system, barrier-chamber system, diaphragm monitor, stroke counting and extended special ports for sanitary connections.

[www.almatec.de](http://www.almatec.de)

is suitable for pressures up to 2068.5kPa.

Both devices are capable of one-second sampling rates, and are equipped with a

diaphragm seal and an optional locking case.

[www.dicksondata.com](http://www.dicksondata.com)

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### NEW PRODUCTS

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#### Designing process plants

Intergraph has released SmartPlant 3D 2009 design software for process and power projects.

A new Model Data Reuse Wizard helps copy complex systems and the objects nested under those systems to a new destination within the same site database. This allows systematic reuse of 3D model data.

Users can integrate laser and pointcloud data with the design model for detailed design and engineering reviews, extending its use into plant revamps and other brownfield projects.

High-performance graphics allow designers to navigate large models in three dimensions.

The program offers extended modelling

capabilities including fireproofing and solids. It also supports modelling of concrete structures and complex equipment. Quantities for weight, volume, surface areas, and centre of gravity can be easily extracted. The fireproofing is automatically updated as the cross section, type, or length of members change.

A large amount of content has been added to the new version, including symbols for flanges, valves, valve operators, fittings and specialty items, instruments, jacketed pipe, cable trays, duct bank, lighting, conduit and HVAC.

The software is compatible with Citrix Presentation Server 4.5 (XenApp 4.5).

[www.intergraph.com.au](http://www.intergraph.com.au)

#### Monitoring leaks

InterTech has released the M-1075-Y mass flow leak detector with Ethernet connectivity. Managers can monitor, access and change test parameters remotely.

The device's data buffer is capable of storing up to 1000 test records.

The unit is equipped with USB ports, password-protected operator log-in and optional WiFi.

[www.intertechdevelopment.com](http://www.intertechdevelopment.com)



The M-1075-Y mass flow leak detector.

#### Conditioning

IDM Instruments has manufactured the Rapid Conditioning Cabinet for the pulp and paper industry. The device can be used to prepare paper samples for testing.

The programmed controller allows for two types of conditioning – a 1.5 minute cycle to air the sample before physical testing occurs, and a full cycle of 30 minutes.

The designers aimed to minimise test variability due to moisture content in paper samples.

[www.idminstruments.com.au](http://www.idminstruments.com.au)



The Rapid Conditioning Cabinet prepares paper samples for testing.



The washable keyboard shown here is available with USB or PS2 connections.

#### Washable keyboard released

Kensington has released a washable keyboard that can be cleaned under a tap or placed in a bucket of soapy water.

The keyboard, available with USB or

PS2 connections, is also treated with an antimicrobial coating to provide additional defence against the growth of bacteria.

[www.smartmadesimple.com.au](http://www.smartmadesimple.com.au)