

CHEMICAL ENGINEERING

AUGUST 2008

IN AUSTRALIA

Produced by Engineers Media, Engineers Australia's publishing company, for the IChemE in Australia and the Chemical College of Engineers Australia. The statements made or opinions expressed in this magazine do not necessarily reflect the views of Engineers Australia or the Institution of Chemical Engineers in Australia.

EDITOR: Dietrich Georg – dgeorg@engineersmedia.com.au

NEWS

New masters course for oil and gas

Curtin University of Technology, in conjunction with PetroSkills, is now offering a Master of Technology (Petroleum Technology) to engineers working in the oil and gas industry.

The partnership will provide a link between competency-based graduate training programs and a master level academic qualification.

PetroSkills is a global training alliance of the major oil and gas companies delivering graduate training programs specifically for the oil and gas sector.

Explaining the significance of the partnership, Professor Andris Stelbovics, pro vice-chancellor science and engineering at Curtin, said: "Offering industry engineers a recognised, professional, master qualification through Curtin is an important step towards a more collaborative approach to serving the global community and meeting industry demand."

"The new course offers an online, flexible program with a time commitment that is easily managed by engineers in the oil and gas industry," he said. This means participants can complete the program part-time and online without having to



PetroSkills president Ford Brett (l) and Curtin University pro vice-chancellor science and engineering Professor Andris Stelbovics at the signing of the agreement.

leave their workplace.

Professor Martyn Ray, MTech academic course director, said half the credit points will be obtained through workplace projects. The remaining credit points required will be obtained through university

assessment of selected PetroSkills course materials.

For more information go to www.mtechpt.curtin.edu.au or contact the program manager Priya Correia at 08 9266 1242 or p.correia@curtin.edu.au.

Call for faster assessment of chemicals

The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) should assess chemicals faster, according to the Productivity Commission.

In its review of chemicals and plastics regulation released this month, the Productivity Commission found that the processes for assessing and registering new chemicals are expensive and inefficient. "The small size of the Australian market restricts the ability of firms to recoup these costs. Accordingly, some firms claim that they are deterred from introducing new chemicals that may be more beneficial to users and the environment than the chemicals currently used," the commission said, adding that the costs of assessment should match

the risks the chemicals pose.

Moreover, according to the commission, most commercial chemicals in use when NICNAS was established in 1990 were automatically approved. "This means that most of the chemicals in use in Australia remain unassessed, or not fully assessed, for their health and environmental risks." NICNAS should screen all existing chemicals and assess the ones likely to pose a threat in more detail, the commission said.

Instead of conducting its own assessments in every case, NICNAS should accept more chemical assessments from overseas, particularly from Canada, the European Union and the United States, it said.

While the Productivity Commission was generally supportive of uniform chemical regulations across the country, it noted there may be valid reasons why regulations vary in different jurisdictions.

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NEWS

New international forms of contract launched

The Institution of Chemical Engineers has launched a suite of process plant contracts for international use. This follows the 2005 publication of the consultation edition of the international form for lump-sum process plant contracts (*The International Red Book*).

Most engineering and construction projects cater for the provision and construction of a major structure, such as a highway, dam or bridge. Alternatively, they might cater for a mechanical and electrical plant, such as a pumping station or mechanised transport system.

But a process plant is different because its end product is a chemical and/or biological process. If the process itself does not work as a complete system, the plant will be of little or no value. That means the many activities of the contractor in designing and constructing a process plant must be focused on creating a plant that reliably delivers the product to the required standard.

Thus a process plant contract will typically have at least four distinct sets of tests: off-site and pre-installation tests; on-site completion of construction tests; take-over tests; and performance tests.

These tests are a major feature of the IChemE contracts, along with the many other provisions that are required for a

well-rounded contract. The contracts also provide a framework in which additional provisions can be included as necessary.

IChemE contracts are structured to consist of an agreement, the conditions of contract, the specification, and the schedules. While the number of schedules has grown over the years, the basic approach has been that the specification is the technical description of the plant and the schedules describe everything else, including stating facts and details (eg time for completion) referred to in the conditions of contract.

The cost of a process plant failing to deliver the required outputs can be immense. For the contractor to guarantee that the plant will work in all circumstances is generally beyond its financial resources and the traditional clients of the process industries have long since recognised that contractors will only be able to deliver on realistic and competitive prices if their liability is capped, probably to contract price or less.

The other key feature of the IChemE contracts is the non-adversarial approach

A key feature of the IChemE contracts is the non-adversarial approach to the various provisions and the variety of dispute resolution mechanisms they include.

to the various provisions and the variety of dispute resolution mechanisms they include. Each of the contract handbooks contains an introductory note, a form of agreement, the general conditions, guidance on and example clauses for the particular conditions, guidance on completing the agreement and on drafting the schedules, and guide notes on the main contractual issues detailed in the contract conditions.

There are four titles in the suite of international contracts. Alongside *The International Red Book* for lump-sum contracts is *The International Green Book* for reimbursable contracts, *The International Burgundy Book* for target-cost contracts, and *The International Yellow Book* for subcontracts.

In October, a user-guide to the international forms of contract (*The International Purple Book*) will also be published.

Visit www.icheme.org/foc or contact Rosie Evans at revans@icheme.org for more information about the *International Forms of Contract*.



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ENGINEERS AUSTRALIA

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NEWS

Nobel prize winner addresses Fellows



More than 40 senior members of the IChemE in Australia attended the IChemE's Fellows lunch in Sydney, where Professor Sir Harry Kroto (centre), one of the winners of the 1996 Nobel Prize for Chemistry, was the guest speaker. He explained the importance of the "three S's" – science, society and sustainability. He is shown here with Des King (l), CEO of Caltex Australia; and Russell Scott, chairman of IChemE in Australia and Uhde Shedden's managing director. The lunch, one of the highlights in the social calendar of IChemE in Australia, was hosted by Verity Firth, New South Wales minister for climate change and the environment, at the New South Wales Parliament House.

ESD Simulation Training
Dynamic Simulation Training Specialists

2008 TRAINING COURSES

Design and Operation of FPSO's	
24th - 26th September 2008	Perth
Subsea Systems	
13th - 14th October 2008	Perth
Production Process & Emergency Systems on Oil & Gas Installations	
5th - 7th November 2008	Perth
Control Operation & Design of Reciprocating Gas Compressors	
15th-16th September 2008	Perth
and 10th - 11th November 2008	Melbourne
Control & Operation of Centrifugal Gas Compressors	
17th-19th September 2008	Perth
and 12th - 14th November 2008	Melbourne
Floating LNG - Production Storage Offloading & Regasification	
22nd - 23rd September 2008	Perth

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

www.esd-simulation.com

Good job prospects for chemical graduates

Chemical engineering graduates found entering the job market at the beginning of this year more difficult than their counterparts in other engineering disciplines. However, the vast majority found full-time jobs within four months of completing their courses.

The recently-released Graduate Careers Australia report on those who finished university in 2007 found 86.2% of chemical engineering graduates available for work were in full-time employment four months after completing their degrees. This compares to 98.7% for mining engineers, 97.8% for civil engineers, 92.1% for aeronautical engineers and 86.3% for graduates from all bachelor or postgraduate courses overall.

The report found that chemical engineering enjoyed above-average growth in employment prospects.

Engineering bachelor graduates under 25 working in industry or professional practice earned a median starting salary of \$50,000. Those working in regional areas received \$3200 more on average.

The average starting salary of bachelor graduates under-25 for all fields of study was \$43,000, amounting to 80.1% of average male earnings.

Two-thirds of graduates from undergraduate courses classified as "engineering and related technologies" were satisfied with their studies and 71% agreed that the courses enhanced generic skills. However, only 42.5% agreed that the teaching was good and 33.1% agreed that the workload was appropriate.

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NEWS

Views invited on climate change

by Elizabeth Harangozo

The march of public policy announcements regarding climate change issues continues its inexorable progress towards the establishment of an Australian emissions trading scheme. The Chemical College and particularly the National Committee for Fuels and Energy continue to provide input to Engineers Australia's policy team on these critical issues.

Engineers Australia members have been invited to share their views at the Institution's blog site: engineersaustralia.typepad.com/pollution_reduction_green/

There can be no doubt, whatever your view of the science, that public discussion of climate change, and all its associated issues, is going to continue to be a major influence on governmental policy and research funding. Delivering the solutions to controlling climate change must be seen on some level as a tremendous opportunity for all engineering professionals and it is among our greatest challenges to be able to engage, not only our profession, but the wider populace in support of fair and equitable structural means to achieve ongoing sustainable industrialisation.

With this in mind Chemeca 2008, to be held in the NSW electricity generator's heartland of Newcastle commencing 28 September, should provide outstanding opportunities for attendees to participate in and contribute to professional development along the conference theme of "Towards a sustainable Australasia". Online registra-

tion for the conference is now open on the conference website www.chemeca2008.com/welcome.asp

Elizabeth Harangozo ... "Delivering the solutions to controlling climate change must be seen on some level as a tremendous opportunity for all engineering professionals."



Focus on continuing professional development

by Elizabeth Harangozo

Continuing professional development (CPD) continues to be an area of key focus for the Chemical College. While the regional chemical engineering groups continue to deliver excellent technical programs for member participation, we struggle with delivering auditable professional training for members. Rather, we rely on members to keep their own audit records for CPD.

Those of us practising in industrial settings will be all too familiar with the transition that has occurred over the past 10 years or so towards competency based training for anyone who has a task to perform in a workplace. In workplace training we are no longer interested in being told what a person can do, but we must be shown what a person can do.

While this philosophical change has had its roots in trade based vocational training, the breadth of application is becoming more extensive through the long estab-

lished National Training Framework and, to a lesser extent, through the employer's duty of care in being able to demonstrate that employees have the skills necessary to complete their work related tasks without putting themselves or others at risk.

Professionals on the whole have been slow to adopt, or completely left out, of competency based training as a means of achieving CPD. There are some stand out exceptions to this, the CPA program for accountants is one (see www.cpaaustralia.com.au).

It is an objective of the Chemical College to develop competency based training modules for delivery to members. If you have any topics you think would be good candidates for CPD modules for professional engineers please email me at elizabeth.harangozo@engsa.com.

Elizabeth Harangozo, is the chair of Engineers Australia's Chemical College Board.



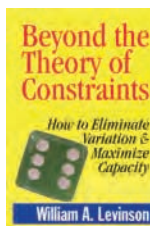
HAZOP: Guide to Best Practice

F Crawley, M Preston, B Tyler \$99.05 + GST = \$108.95

Hazard and Operability Studies were devised by ICI in the late 1960s following major problems with new, large process plants. They were used during the design stage of a project to identify and correct design faults. HAZOP is now the first choice tool for identification of weaknesses in process design. The 2nd edition of

this book reviews earlier guidelines and incorporates better practices, and how they might be applied. In particular it addresses computer controlled processes. 131 companies contributed to preparation of this book. Published by the UK's Institution of Chemical Engineers.

2008 9780852955253 141pp



Beyond the Theory of Constraints

William A. Levinson \$54.55 + GST = \$60

Beyond the Theory of Constraints states that variation in processing and material transfer times comes from special or assignable causes that can be eliminated through traditional quality management techniques. Even random or common-cause variation can be suppressed through lean manufacturing methods. This book will teach business executives, managers, and technical professionals, including

quality and manufacturing engineers, how to identify and remove variations and maximize capacity to achieve bottom-line results.

2007 9781563273704 168pp

EA BOOKS

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IChemE plans greater presence in China

The Institution of Chemical Engineers plans to establish a greater presence in China, following the appointment of Dr Yan Tsauro as the country's first IChemE operations director.

IChemE president Professor Richard Darton outlined the Institution's Chinese strategy in his speech at the Asia Pacific Confederation of Chemical Engineers meeting this month. "Chemical Engineering is a global profession and IChemE must play a leadership role in supporting chemical engineers wherever they are," he said.

"IChemE is well placed to support the Chinese chemical engineering community in three areas: professional standards; promoting best practice in process and environmental safety; and creating the framework to encourage the technical innovation required to address challenges in areas like water, health, energy and the environment.

"IChemE has long been recognised for its ability to qualify competent chemical engineers. We believe in the value of publicly recognising exemplary standards of professionalism and ability through the award of the chartered chemical engineer qualification," he added.

Tsauro said that IChemE's efforts in China will be welcomed, given the growing significance of chemical engineering in the country: "We have 5000 sizeable domestic chemical companies in China and a further



At the Asia Pacific Confederation of Chemical Engineers meeting were (l-r) Professor Max Lu (deputy chair of IChemE in Australia), Professor David Wood (past chair of IChemE in Australia), Jan Althorp (executive director of IChemE in Australia), Russell Scott (chair of IChemE in Australia), Dr Yan Tsauro (IChemE operations director for China).

1500 international joint ventures.

"Chinese universities produce 2000 BE graduates every year. IChemE has an excellent track record in supporting chemical engineers and the creation of a new branch in China will ultimately provide a range of international qualifications, services and

technical training that will contribute to our members' continuing professional development and give a real boost to the professional community," she said.

For more information about IChemE activities in China, contact Dr Yan Tsauro at ytsauro@icheme.org.

New accreditation guide for chemical courses

IChemE has revised its guidelines for accrediting university chemical engineering courses.

Following extensive consultation with all accredited universities, the revised guidelines are being introduced with effect of September 2008.

The changes reflect new best practice for accreditation, including much-

needed clarification of the distinguishing features between a Bachelor's and a Master's degree and prepare departments for expected changes as a result of the Bologna declaration, which aims to harmonise the structure and teaching of university degrees across Europe.

IChemE is currently training its team

of voluntary assessors through a series of workshops in Malaysia, Australia and the UK.

Existing accredited departments will be issued with the revised guidelines by the end of September.

They will not be affected by the changes until the next routine accreditation review.



Chemeca2008

28 September - 1 October 2008, City Hall, Newcastle, NSW
Towards a Sustainable Australasia

Online registration is now open on the Conference website www.chemeca2008.com

If you are unable to register on-line, please contact Conference Office to be sent a copy of the registration form.

Conference Theme

Towards a Sustainable Australasia

Chemeca 2008 will showcase the latest knowledge in process engineering specifically covering the areas of: Energy, Particle Technology & Mineral Processing, Water, Safety & Risk, Food & Bio, Education, Fundamental Principles and other topics.

Invited Speakers

Mr Jeff Cohen, USA

Mr Jeff Cohen is a Senior Manager for US EPA's Office of Atmospheric Programs, responsible for Agency initiatives addressing both ozone protection and climate change.



Prof Richard Darton

Richard Darton is Professor of Engineering Science at the University of Oxford, and currently President of the Institution of Chemical Engineers.



Prof Max Lu, Australia

Prof Max Lu is a Federation Fellow and Professor of Nanotechnology in Chemical Engineering at the University of Queensland.



Prof Roe-Hoan Yoon, USA

Prof Roe-Hoan Yoon is Professor in Mining and Mineral Processing at the Virginia Polytechnic Institute, USA. He was recently elected a Member of the US Academy of Engineering.



Registration Fees

	Early Fee Deadline 1 August	Late Fee From 2 August
Members	\$850.00	\$950.00
Non-Members	\$950.00	\$1,050.00
Students	\$500.00	\$550.00
Day Registrations	\$500.00	\$550.00

Social Program

Welcome Reception

Date: Sunday, 28 September 2008
Time: 18:00 - 19:30
Venue: Newcastle Region Art Gallery
A three minute walk through Civic Gardens opposite the City Hall
Dress: Smart Casual
Cost: Included in registration fee
Additional Tickets: AUD50.00

Accommodation

Crowne Plaza Newcastle

Wharf Road, Newcastle

★★★★

Queens City Side Suite	AUD235.00
Queen Harbour Side Suite	AUD265.00
Twin Harbour Side Suite	AUD265.00

Travelodge Newcastle City

Cnr King & Steel Streets, Newcastle

★★★★

Standard Single	AUD135.00
Standard Double	AUD135.00
Standard Twin	AUD135.00

Quest Apartments Newcastle

575 Hunter Street, Newcastle

★★★★

One Bedroom Suite	AUD280.00
Two Bedroom Suite	AUD345.00


The Clarendon Hotel

347 Hunter Street, Newcastle

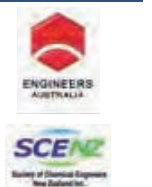
★★★★

Standard Room	AUD140.00
Deluxe Room	AUD150.00
Standard Suite	AUD160.00
Deluxe Suite	AUD170.00

Conference Dinner

Sponsored by 
Date: Tuesday, 30 September 2008
Time: 19:30 - 23:00
Venue: Newcastle City Hall
Dress: Smart Casual
Cost: Included in registration fee
Additional Tickets: AUD105.00

IChemE



Conference Office

ICMS Pty Ltd 84 Queensbridge Street
Southbank VIC 3006 AUSTRALIA
E: chemeca2008@icms.com.au
T: + 61 3 9682 0244 F: + 61 3 9682 0288

www.chemeca2008.com

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EVENTS

AUSTRALIA

Courses: Control operation and design of reciprocating gas compressors (2 days) Perth 15 Sep, Melbourne 10 Nov; **Control and operation of centrifugal gas compressors** (3 days) Perth 17 Sep, Melbourne 12 Nov; **Subsea systems** (2 days) Perth 3 Jul; **Floating LNG** (2 days) Perth 17 Sep; **The oil and gas industry – a nontechnical overview** (1 day) Perth 19 Sep; **Production processing and emergency systems on offshore oil and gas installations** (3 days) Perth 7 Nov. *Inquiries:* Renae Watson 08 9355 5599, fax 08 9355 3899, email renae.watson@esd-simulation.com, web www.esd-simulation.com

Conference: Chemeca 2008 (4 days) Newcastle 28 Sep. *Inquiries:* web www.chemeca2008.com

Seminars: Pump fundamentals (2 days) Brisbane 17 Nov, Melbourne 25 Nov, Perth 2 Dec, Adelaide 9 Dec, Darwin 15 Dec; **Liquid piping systems**

fundamentals (2 days) Brisbane 19 Nov, Melbourne 27 Nov, Perth 4 Dec, Adelaide 11 Dec. *Inquiries:* Kasa Redberg 02 9868 1111, fax 02 8246 6387, email info@kasa.com.au, web www.kasa.com.au

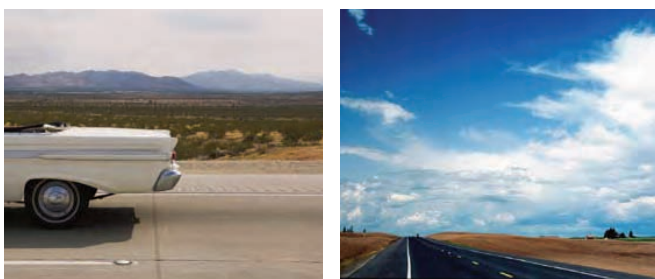
Conference: Australasian oil and gas exhibition and conference (3 days) Perth 17 Feb, 2009. *Inquiries:* 03 9261 4500, fax 03 9261 4545, email aog@divexhibitions.com.au, web www.aogexpo.com.au

OVERSEAS

Conference: 10th international chemical and biological engineering conference (3 days) Braga, Portugal 4 Sep. *Inquiries:* +351 253 604 401, fax +351 253 678 986, email chempor@deb.uminho.pt, web www.deb.uminho.pt/chempor2008

Conference: 53rd annual safety in ammonia plants and related facilities symposium (5 days) Texas, US 7 Sep. *Inquiries:* email xpress@aiche.org, web www.aiche.org/Conferences/Specialty/Ammonia.aspx

Conference: 24th international mineral processing conference 2008 (5 days) Beijing, China 24 Sep. *Inquiries:* email impc2008@impc2008.org, web www.impc2008.org



IChemE in Australia Board hosts a members forum – Chemeca 2008

Entrepreneurial & innovative thinking: academic and industry links

Russell Scott, Chairman of the Board of IChemE in Australia, invites members to attend the IChemE in Australia member forum on 28 September 2008. Inputs from round table discussions from the member forum will be included in the ChemEng08 debate in October 2008 in Birmingham, UK.

This is an invitation to you: get involved and have your say, we need your input...

Date: Sunday 28 September 2008
Time: 14:00–17:00, (prior to the Chemeca welcome function)
Location: Hunter room, city hall, Newcastle
Who: All members of IChemE
Registration: There is no cost, but members need to register to attend

Format

- Welcome: Russell Scott, chairman, IChemE in Australia
- Roadmap update: David Brown, ceo of IChemE
- Entrepreneurship & innovation: Prof. Richard Darton, president of IChemE
- Group discussion on focus questions
- Feedback & Conclusions

Focus Questions

- How do we strengthen industry and academic links to foster entrepreneurial and innovative thinking?
- Is wealth creation driven by markets or science?
- Is industry based on 19th century processes and applications?
- How do we encourage industry to "value add"?
- What role should regulation play?

RSVP

Send a completed registration form to tgraham@icheme.org by 12 September 2008
 Tel: +61 (0)3 96424494
 Fax: +61 (0)3 96424495

IChemE
in Australia



IChemE in Australia Salary Survey 2008

\$400 (Incl. 10% GST)

First published in the UK in 1980, IChemE's Salary Survey has now been extended to Australia. With salary and benefits data direct from our members, the survey compares earnings by age, professional qualifications, location, sector and level of responsibility.

ISBN 978-0-85295-527-7

Email: sales@icheme.org Tel: 03 9642 4494

www.icheme.org/salariesurvey08

IChemE
heart of the process

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NEW PRODUCTS

Process control software

Honeywell has released an enhanced version of its Experion process knowledge system, which is designed to help plant operators coordinate process control, safety shutdown, and fire and gas mitigation.

In addition to the unique safety instrumented system (SIS) integration, Experion helps improve plant operations through embedded simulation capabilities used for comprehensive operator training and control, display and procedure validation.

The Safety Manager platform shows crucial safety, fire, safety instrumented system and gas information on a single

display. The new Batch Manager function executes batches at the control level, instead of using a separate server. The UniSim simulation program trains operators to work on a process before it is implemented in a plant.

Operators can use the alarm shelving utility to prioritise alarms on their displays.

Experion is designed to be compatible with third-party subsystems, using the MODBUS TCP protocol to connect to terminals, analysers and scales.

More Info? Qikreply 19



The Prosonic M FMU 44 sensor can measure levels in tanks and silos up to 20m.

Measuring levels

The Prosonic M FMU 44 is a two-wire-loop-powered, non-contact ultrasonic sensor that measures levels in tanks and silos up to 20m.

The sensor can measure fluids, pastes, sillage and coarse bulk materials in environments with low dust and pressure, and no vacuum or vapour. It can operate at temperatures ranging from -40°C to 80°C.

The FMU 44 sensor is available as 4...20mA/HART, in Profibus PA and Foundation Fieldbus platforms. It operates at 14V to 36V DC, or at 10V DC when used in HART mode with fixed 11mA consumption.

The sensor works at the frequency of 30kHz and pulse repetition of 0.3Hz, with an accuracy of $\pm 0.2\%$ of set range. It has a blocking distance of 0.5m and can be installed in 400mm tall narrow nozzles are possible.

The IP68-rated polyvinylidene fluoride enclosure can be supplied with internal overvoltage protection.

More Info? Qikreply 20

Thermocouple and RTD nodes

New analogue thermocouple and RTD (resistance temperature detectors) instrumentation nodes for the SureCross wireless network are now available. Applications include temperature analysis for preventive maintenance, temperature control of difficult-to-access equipment and monitoring a dairy bulk tank.

The thermocouple node supports up to three thermocouple inputs, one thermistor input and two discrete (sinking) inputs, providing two discrete (NMOS sinking) outputs. Users can choose from 11 configurable thermocouple options, capable of sensing temperatures from -200°C to 2320°C, depending on configuration. The node's default is the J-type thermocouple, which senses temperatures ranging from -180°C to 750°C. In addition, the node uses integrated cold junction compensation.

The RTD node supports up to four 3-wire Pt100 (DIN .00385) RTDs and is suitable for monitoring temperatures ranging from -200°C to 482°C.

The nodes work in conjunction with



The nodes are suitable for measuring temperatures in a variety of applications.

a gateway on the SureCross wireless network, communicating at frequencies of either 900MHz or 2.4GHz. The gateway can support up to 15 nodes.

The nodes can be powered by 10V-30V DC or 3.6V-5.5V DC in a power-saving mode, solar power, or the 3.6V FlexPower battery module. Their housing is rated at IP67.

More Info? Qikreply 17

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NEW PRODUCTS

Software calculates physical properties

ProPhyPlus 2 is a program that calculates physical properties of pure components and their mixtures over a wide range of temperatures and pressures. The software models the properties of most fluids found in chemical, petrochemical, refining, oil and gas and other process industries.

Engineers can calculate many physical properties of mixtures, including transport properties such as specific heat and viscosity, and thermodynamic properties such as enthalpy and compressibility. They can also determine phase equilibria including bubble and dew temperatures

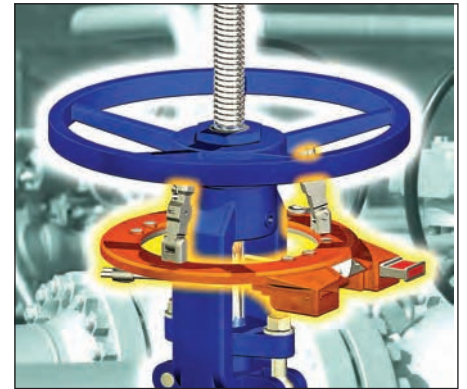
and pressures, flash at given enthalpy and salt formation.

ProPhyPlus 2 is based on the American Institute of Chemical Engineers' DIPPR, but users can add their own databases and amend the supplied data. The program can estimate the temperature-dependant properties of pure components using experimental data regression. It can also calculate binary interaction parameters from group contribution methods.

An extensive library of property models, selected for their reliability and efficiency is available: SRK, PR, LKP, BWRS, NRTL,

UNIQUAC, UNIFAC, MHV2, PSRK, Edwards, UNIQUAC electrolytes, ULPDHS, amines, sour-water and pure water. Engineers can fine-tune these models with additional parameters such as mixing rules and activity coefficients.

More Info? Qikreply 21



The Smart Handwheel Lock attaches to the valve stem.

Handwheel lock

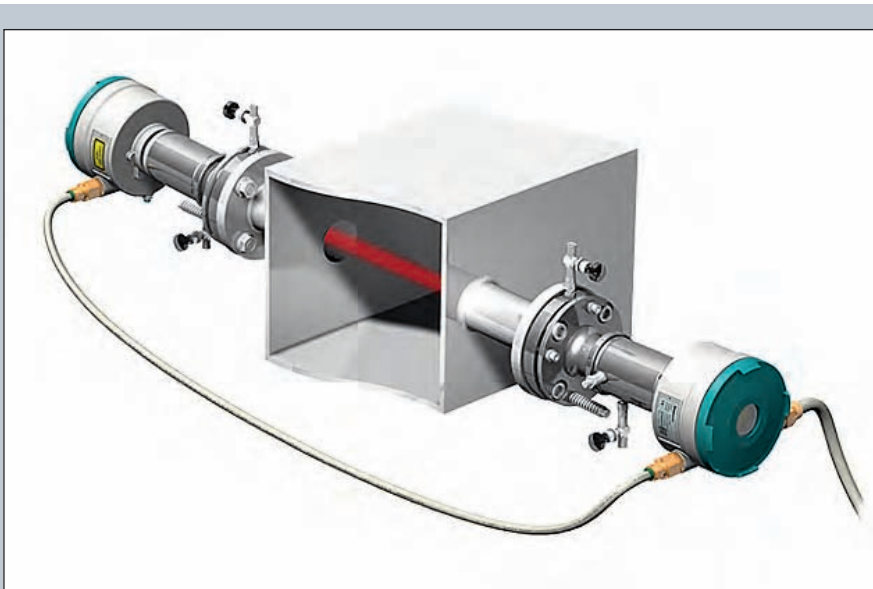
The Smart Handwheel Lock fixes the wheel of a valve in a set position. An interlocking key release mechanism is intended to reduce human error and improve safety by preventing unauthorised operation of the valve.

The lock attaches to the valve stem underneath the wheel without replacing or altering any part of the valve assembly and leaves enough space to grip the handwheel. This means that no specially machined parts, fittings or brackets are required. The lock can be fitted whilst the valve is still operational.

More Info? Qikreply 16

For more information on any of these products, send an email to pennyhg@engineersmedia.com.au with the subject headline "CEA Qikreply".

Your contact details and the Qikreply number of the product should be included in the body of the email.



The Sitrans SL analyser uses a laser to measure the concentrations of gases.

Laser determines gas concentrations

The Sitrans SL diode gas analyser is designed to measure concentrations of process and flue gases, and determine maximum and minimum oxygen concentrations in explosive environments.

The device relies on the specific light absorption of various gases as light travels from the laser diode to the transmitter. The light's narrow bandwidth means it will only interact with a particular gas, producing a single-line spectroscopy

reading. The analyser compensates for other factors such as dust and temperature.

A cable connects the receiver and transmitter. A second cable connected to the receiver powers the device. The receiver contains a user interface and can be operated using an infra-red remote control.

More Info? Qikreply 18