

Pressure Controls **EXPRESS**

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Industrial Controls

• High Purity Controls

• Tescom Europe

August 2005

Application Story

Advanced Gas-Cooled Reactor

By Russell Robinson, Territory Manager - UK, Tescom Europe

This application relates to an Advanced Gas Cooled Reactor (AGR) - one of a number of different types of nuclear reactors. AGR's are the second generation of British gas-cooled reactors, using graphite moderator and carbon dioxide as coolant. The fuel is uranium oxide pellets, enriched to 2.5-3.5%, housed in stainless steel tubes. The carbon dioxide circulates through the core, reaching temperatures of around 650°C. It then passes steam generator tubes located outside the core but still within the concrete and steel

pressure vessel. Control rods penetrate the moderator. A secondary safety shutdown system involves injecting nitrogen into the coolant or releasing boron balls.

The design of the AGR was such that the final steam conditions at the boiler stop valve were identical to that of conventional power stations. Thus the same design of turbine generator plant could be used in both cases. In order to obtain high temperatures, yet ensure useful graphite core life (graphite oxidises readily in CO₂ at high temperature) re-entrant flow is

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Announcements

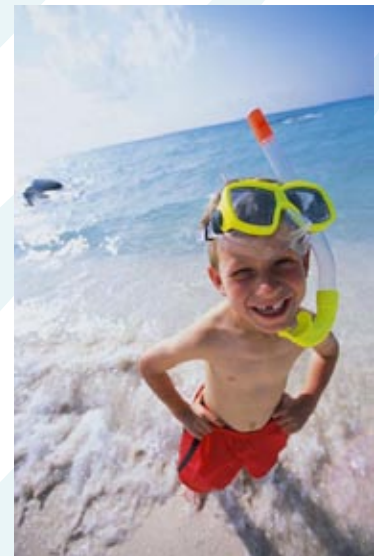
Employee Recognition
August Birthdays
Weddings

Unique Product System of the Month

Leak/Flow Panel (NA-42)

This panel is used to measure the leak rate, flow, and pressure of our customer's product. Two flow meters are switched in and out with VA series valves. One flow meter is used for the leak detection while the other is used to measure flow under normal operation. The panel fits into a larger 19-inch rack system and is operated by the customer's controller. Tescom built this unit per customer supplied prints, making changes and recommendations where component cost and availability was an issue.

For questions about this product or to inquire what Systems can do for you, please contact Jeff Wakefield, Systems Sales Engineer at 763-241-3316 or jwakefield@tescom.com.



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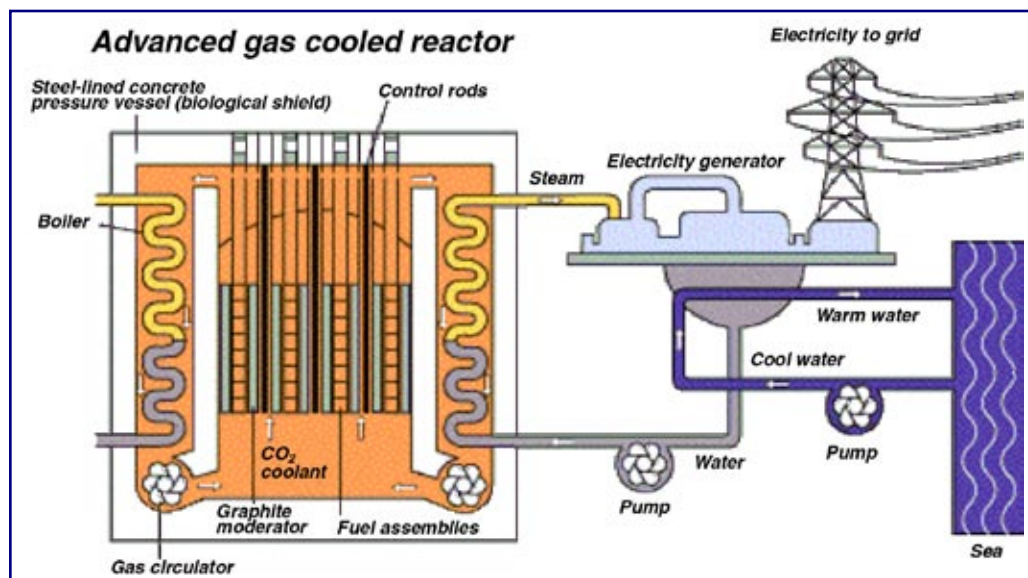
The Engineered Solutions COMPANY

Application Story

Reactor ...continued

utilised, ensuring that the graphite core temperature does not vary too greatly from that seen on a Magnox station.

Graphite contains many pores, and these enlarge as the reactor ages and the bulk graphite mass gradually reduces. The rate of graphite oxidation increases



over time, with the rate of reactivity change increasing as the amount of graphite reduces. The rate of oxidation can be reduced by adding methane to the carbon dioxide coolant to maintain a reducing atmosphere neutralising the active ions; this is delivered at around 40 bar pressure and flow of 2-8 kg/hr.

There are currently seven nuclear generating stations each with two operating AGRs in the United Kingdom. They are all owned and operated by British Energy. These are located at Dungeness B, Hartlepool, Heysham 1, Heysham 2, Hinkley Point B, Hunterston B and Torness.

At Dungeness B the existing Methane panel (*next page*) had been modified significantly since installation, with many parts now redundant, and more importantly due to the ferrous content of some components and the harsh environmental conditions, severe corrosion was evident.

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Literature

HOT OFF THE PRESS:

No printed literature this month.

PRINTED LITERATURE REQUESTS:

Please order through the Distributor's Only section on our [web site](#).

Trade Shows

Space 2005

AIAA Conference

August 30 - Sept. 1, 2005

Long Beach Conference

Center

Long Beach, California USA

Booth 534

Announcements



Tescom Europe

Please welcome **Dr. Christian Leonard** as our new **Territory Manager**

for Northern Germany for TE's Automated Systems. Christian is a Doctor of Natural Science and has gained several years of professional experience in project management and sales of measuring machines and test benches for the automotive industry.



Offices Closed

Tescom Hankuk

August 15, 2005

Independence Day

Application Story

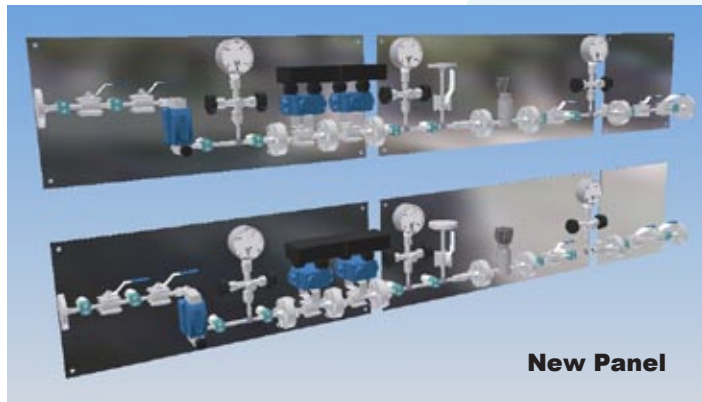
Reactor ...continued

As the methane supply is a critical part of the process, the priority was for a quality replacement panel to be supplied as soon as possible. A systems presentations was arranged by Russell Robinson and Tescom was subsequently chosen as the supplier. Following a site visit from Craig Davies and Marc Klawitter, the design was streamlined to that shown below:



Old Panel

Flanges or orbital welding was used as the connection method at the customer's request and all components were of 316 stainless steel construction. Other gas let down panels for CO₂ and N₂ have been identified by Dungeness B as future projects for improvement. We are also currently quoting Hinckley Point B a replacement Methane supply



New Panel

manifold for the bottle trailer compound which includes an automatic changeover system.

For further information regarding this project, please contact Russell Robinson at robinson.r@tescom-europe.com.

Announcements



Employee Recognition

Congratulations to these Tescom Employees for their dedication and years of service!

For July	Year(s) of Service
Zoe Mirfakhraie (USA)	10
Jerry Van Tassel (USA)	1
David Hall (USA)	1
Joe Maxwell (USA)	1

August Birthdays!

Happy Birthday! Glückwünsche zum Geburtstag!



생일 축하합니다

TESCOM USA

Bruce Haley	1
Susan Olson	1
Steve Wrobel	3
Derek Nelson	3
Doug Evans	7
Theresa DeRosier	7
Duane Kelzenberg	11
Bruce Hedstrom	13
Paul Dietz	16
Mike Chmieleski	19
Keith Monson	30

TESCOM EUROPE

Enrico Kaiser	4
Alexandra Simon	5
Alexander Klawitter	7
Richard Lucas	10
Mirco Borgward	13
Thomas Großkopf	15
Regine Falck	17
Astrid Hansen	17
Norbert Pospiech	23

HANKUK TESCOM

Sunny Lee	28
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Announcements



Congratulations to **Tammy Martin & Dan Hobgood** on their marriage on June 25th in Minnetonka, MN. Tammy is *Lead Sales Coordinator* for Industrial Controls.

Congratulations to **Dena Finken & Jerry Reef** on their marriage on July 9th in Ham Lake, MN. Jerry is a *Metal Finisher* for High Purity Controls.

Congratulations to **Nate & Samantha Flan** on their marriage on July 9th in Detroit Lakes, MN. Nate is a *Metal Finisher* for Industrial Controls.

"You don't marry one person; you marry three: the person you think they are, the person they are, and the person they are going to be come as the result of being married to you."

— RICHARD NEEDHAM
You and All the Rest