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Cutting through the red tape

Paul Fanning, Editor (pfanning@findlay.co.uk)

In the wake of some disappointing growth figures, it is hardly surprising that government should be seeking to stimulate the manufacturing sector in any way it can. The latest comes in the form of its call to manufacturers to take part in a government consultation to get rid of unnecessary bureaucracy.

This so-called 'Red Tape Challenge', which opened on 21 July, is open until August 11 and offers manufacturers the opportunity to log on to the Challenge site (redtapechallenge.cabinetoffice.gov.uk) and share their opinions about the regulations that affect them – which should stay, which should be simplified and which should be removed.

The government claims that the default presumption will be that burdensome regulations will go. If Ministers want to keep them, they will have to make solid cases for them to stay. Manufacturing minister Mark Prisk said of the scheme: "Our manufacturing sector is at the centre of our plans to rebalance the economy and promote sustainable private sector growth. That's why cutting back the bureaucracy and the red-tape that you have to deal with every day is one of my main priorities. I want our manufacturers to be making things, not filling out forms."

Clearly, this is to be welcomed. 'Red tape' in its various forms features prominently in any list of manufacturers' complaints and with good reason. And, while it is possible to be cynical about the possible effectiveness of such consultation, that is no reason to pass up this opportunity to make manufacturing's voice heard.

Those wishing to contribute should visit the Red Tape Challenge website . Input will then be reviewed by Ministers who have three months to decide which regulations they will scrap.

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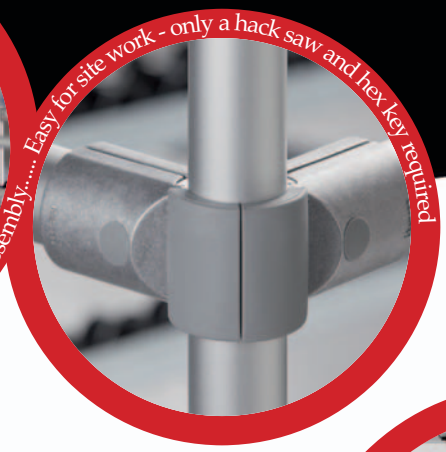
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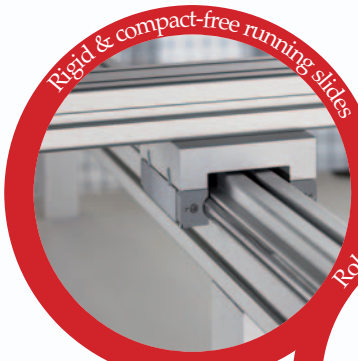
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Folding stool shows strengths of 3D printing

Rapid prototyping and 3d printing specialist, Objet has revealed details of a full size folding stool able to support more than 100Kg.

The stool was printed in a single print job using the company's ABS like digital material, RGD5160-DM, a new material which is jetted as a composite material on the Objet Connex multimaterial 3d printer.

The folding stool sits 48cm off the ground and, according to Objet, has similar high dimensional stability, thermal resistance, and toughness as ABS grade engineering plastics, enabling it to repeatedly sustain the weight of a person.

The Objet ABS like Digital Material It is said to be a high impact material (65-80J/m or 1.22-1.50ft lb/in), with high temperature resistance (65°C and after thermal post treatment 90°C). The material is designed for manufacturers and engineers looking to functionally simulate products made of ABS grade engineering plastics, including snap fit parts, durable and movable parts and products requiring drop testing.

Gilad Gans, executive vice president at Objet said: "The folding stool is a demonstration of the unique possibilities available using Objet's multimaterial 3d printers including the new Objet260 Connex. Our technology represents the most effective way of functionally testing complex design ideas. Whether skateboards or folding stools, the prototypes that come out of Objet Connex 3d printers look like the real thing and also perform like the real thing. Not only can this stool carry the weight of a person, but it was actually printed in the fold up position in a single print job and then opened up upon removal from the printer to be used."

www.objet.com

Minister to address Energy Summit

Minister of State for Energy & Climate Change Charles Hendry will be giving the keynote address at this year's inaugural Energy Summit.

Mr Hendry has been Member of Parliament for Wealden since 2001. Prior to joining the Government, he was Shadow Minister for Energy. He had previously held the position of Shadow Minister for Energy, Industry and Postal Affairs. Before this, he was the Deputy Chairman of the Conservative Party (2003-05), Shadow Minister for Young People (2002-05) and Shadow Minister for Industry and Enterprise (May – December 2005).

Created in partnership between the Institution of Mechanical Engineers, and Findlay Media, The Energy Summit brings together leading keynote speakers, a "Question Time" panel from government and energy supply and a selection of practical discussion forums which offer a wealth of valuable content for anyone with an investment in UK manufacturing.

The Energy Summit 2011 will provide UK manufacturers with the opportunity to hear from and to question key speakers from government, the supply chain and industry about energy policy, cost, supply and to take in practical case studies and workshops on how to make your business more effective and competitive.

www.ukenergysummit.co.uk

NCC takes possession of its new building

The University of Bristol's National Composites Centre (NCC) today (13 July 2011) took formal possession of the building, and its Chief Executive received a large, symbolic key to mark the occasion. Almost 100 people gathered at the NCC to hear how it had been completed in such a short timescale.

The NCC's incredible 20-month journey began in November 2009 with the publication of the UK Composites Strategy by the Department of Business, Innovation and Skills, the selection of Bristol as the location for the NCC and the University of Bristol as owner and host of the Centre. The Bristol and Bath Science Park was identified as the specific site for the building in March 2010.

Physical work on the site began in August 2010. Construction work continued at break-neck speed and the building was finished in June. Also in June Umeco PLC joined the founding members.

Commenting on this, Peter Chivers, the NCC's Chief Executive, said: "The construction of this centre in such a short timescale is an outstanding success. To think that only one year ago work hadn't even begun on the building and the site was a green field."

The Centre is already operational and will be able to offer full capability by September.

BRIEFS

Improved PH linear guides

The PH linear guides, which NSK will present for the first time at the EMO trade fair, allow carriages and rails of the same size to be freely combined, where previously this high accuracy was only possible through paired systems. This makes it easier to produce machines and to replace precision linear guides during servicing. What's more, the linear guides are available off the shelf.

NSK achieved this simplification by optimising production processes and producing to tighter tolerances. This means that higher precision rails and carriages can now be freely combined. Just like NSK's existing ranges of linear guides, products from the PH series are self-aligning. This makes mounting easier.

www.nskeurope.com

ATEX cylinder sensors available

With the launch of the latest versions of the MK-range of pneumatic cylinder sensors ifm electronic can now offer users and OEM's alike a full range of sensors for explosion hazard areas.

ifm electronic now offers cylinder sensors which conform to the requirements of the various ATEX categories, in both solid state and reed versions. For Gas Zones 1 and 2 and Dust Zones 21 and 22 there is a version with an integrated six-metre cable to keep connection out of harm's way. If the requirement is for Dust Zone 22 alone, there is a choice of units with a short cable and an M12 connector, or a 2m cable.

www.ifm.com/uk

Sick introduces compact, quick mount inductive sensor

The new Sick IQ Flat Range of Inductive Sensors offers presence detection in a wide range of applications. The four competitively priced models are easy to install, with single or twin screw mounting, and are between only 4mm and 10mm thick, thus allowing positioning in recessed positions under moving machinery.

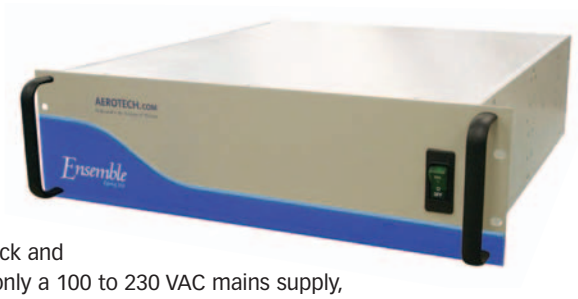
The Sick IQ Flat range is ideal as a replacement sensor for machinery and equipment positioning duties, inside or outside; all models are IP67 protection rated.

The SICK IQ04 and IQ06 models feature tough plastic housings and single screw fixings. The SICK IQ20 and IQ25 models have robust die cast metal housings with secure twin screw fixings. The sensing ranges are between 1.5mm and 7mm, depending on model.

Sick's IQ Flat range sensors can be plugged in for immediate sensing availability, and have an LED indicator to signal status. Additionally, the IQ Flat's stable operation over long periods ensures sensing reliability.

www.sick.co.uk

Controllers offer increased flexibility



Aerotech's Ensemble range of advanced multi-axis motion controllers has been expanded with the newly launched Epaq MR series featuring a flexible choice of up to eight servo or micro-stepping drives housed in a 19-inch 3U rack and complete with power supplies and connectors for motor power, feedback and expandable machine I/O. Requiring only a 100 to 230 VAC mains supply, the completely integrated unit includes hardware, software and interfacing options to suit the price and performance requirements of applications ranging from general purpose positioning to the most advanced motion and machine control. There is also provision to add up to two further external drives using the built-in high-speed AeroNet serial interface for a total of 10 axes of coordinated motion.

The new Epaq MR provides multitasking programming for five independent tasks of synchronised multi-axis motion and I/O with linear and circular interpolation, contouring, velocity profiling and electronic gearbox functions. In addition I/O triggered 'on-the-fly' position registration and data capture functions are included as well as a single-axis implementation of Aerotech's unique Position Synchronised Output (PSO), where axis position and laser power control or other external events are tightly coordinated.

www.aerotech.com

Solution to last month's Coffee Time Challenge

The solution to last month's challenge of how to prevent the consumption of sour milk comes from leading milk company Cravendale's research and development team, who joined forces with designer Oliver Newberry to create a radical, new, innovative milk jug which will alert people to when their milk has soured. The milk jug was discovered during Cravendale's product research into the bacteria that turns milk sour.

The key features of the Cravendale milk jug include a unique PH sensor built in to the base of the jug. The sensor measures the PH acidity of the jug's contents and updates the milk drinker via an LCD screen message. The LCD screen reads "Fresh" or "Sour" offering a reliable analysis of the milk's drinkability,

New sensors from Micro-Epsilon

Visitors to stand P47 at this year's Sensors+Systems for Control and Instrumentation exhibition (14-15 September 2011) will have the opportunity to view a range of new sensors from precision measurement specialist Micro-Epsilon UK.

Highlights on the stand include the official UK launch of the unique Blue Laser Sensors, as well as demonstrations of the thermoIMAGER TIM160, and the scanCONTROL 2710 laser profile sensor with Ethernet interface.

A world first in laser triangulation sensor technology, Micro-Epsilon's new innovative Blue laser sensor will be demonstrated for the first time in the UK at the show.

Blue Laser Sensors operate on the laser triangulation measuring principle and use blue laser technology. The sensors are ideal for measurements on hot, glowing metals, particularly in hot steel processing, as well as for measuring organic materials such as skin, foodstuffs, plastics, veneers and wood.

www.micro-epsilon.co.uk

Switch ideal for arduous conditions

A new range of control devices from .steute UK & Ireland is designed specifically for use in potentially explosive applications. The EX RF BF 80 is available in three enclosure sizes, housing up to three different control devices including single and double pushbuttons, mushroom buttons, selector and control switches.

The IP66-rated EX RF BF 80, which has been tested to more than one million operations, is suitable for use in operating temperatures between -20°C and +60°C and, in accordance with the ATEX and IECEx directives, is suitable for use in Ex zones

1 & 2 and 21 & 22.

Like many control devices in .steute's 'Wireless' range, the radio signal can extend from a minimum of 30m (internally) to a maximum of 300m (externally) and is insensitive to interference from external sources because the signal is transmitted within 80ms. The battery-less EX RF BF 80 also uses .steute's 'energy harvesting' principle, which produces the energy required to transmit the radio signal by converting kinetic energy (generated by the movement of actuating the button or switch) into electrical energy.

The EX RF BF 80 is multi-network compatible, easy to programme via the receivers and can be mounted directly at the place of use without the need to feed or fix cables. It can also be used in conjunction with other .steute wireless control devices, even on a single machine, as signals are transmitted together with a unique identification code.

www.steute.co.uk

meaning users will never have to experience sour milk again. The jug also includes an innovative alarm system which alerts the drinker to when the milk has soured .

Adoption of the Cravendale milk jug across the UK could represent a reduction of up to 100,000 tonnes in milk wastage per year, which in turn would reduce the UK's carbon footprint by approximately 190,000 tonnes of CO_2.

www.milkmatters.co.uk

worldskills London 2011

Showcasing skills that shape our world

UK skills take centre

Concerns over the lack of traditional apprentice schemes being run in the last century were first raised by the Lord Leitch Report of 2005. It revealed that UK engineering skills primarily lay in the 40 to 60 years age bracket and, given the age profile of the engineering workforce in the UK, warned that the growing skills gap needed to be addressed as a matter of urgency.

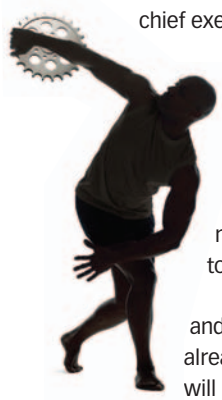
Today, the figures speak for themselves. Of the 300,000 graduates in the UK each year, only 24,000 are from engineering disciplines – and, of those, only 13,000 are UK students.

A number of UK initiatives have been established to tackle this skills gap, but Juergen Maier, managing director for Siemens Industry UK, believes more measures need to be taken. "The numbers in engineering vocational training are even more concerning as the manufacturing sector will need 235,000 at apprentice/technician level over the next 10 years," he notes. "It is encouraging that the Government has acknowledged this skills gap and has pledged investment in apprenticeships and vocational routes but, unfortunately, we have a 20-year gap of investment to fill. This is where WorldSkills comes in – it's a key way to raise the profile of engineering and manufacturing and help encourage new recruits into the industry."

WorldSkills International is a global competition that first took place in Spain in 1947. Since 1971, it has been held every two years and this year it makes its third UK appearance, taking place from 5 to 8 October at ExCel, London.

WorldSkills London 2011 looks set to be the biggest event yet, with 1000 competitors from more than 50 countries/regions competing in 45 vocational skills – each vying for the chance to win gold, silver or bronze medals. Medallions for excellence will also be awarded and visitors will be offered impartial advice and guidance on careers and apprenticeships.

The organisers expect approximately 150,000 visitors over the four days, while Visit London estimates the competition will bring £28million in direct economic benefit to the city. Chris Humphries CBE, chief executive of the UK Commission for Employment and Skills, believes WorldSkills London 2011 can provide UK industry with a platform to showcase its true capability. "But we need businesses to come on board," he warns. "Hosting an event of this magnitude will not only require funding, but also the equipment and raw materials. I call upon UK plc to pledge its support to this unique opportunity."



Competitors are generally aged 22 or younger and most participating countries and regions have already selected teams from previous heats. All eyes will be on the UK team, which ranked seventh in the world at the last event in Calgary – four places higher than it achieved in 2007. The targets for the UK team are high; it will compete in 30 skills and expects to win 10 medals, including five golds, and gain a top five ranking in the world. Categories include Mechatronics, Robotics and Mechanical Engineering CAD.

The selection and training of UK competitors was managed by the National Apprenticeship Service. Potential competitors were drawn from a shortlist and competitions, then further training was given before they competed at a final selection event. The best overall performing competitors were chosen to be part of Team UK.

Skills Minister John Hayes announced the 43 members of Team UK at the end of June and described their role in bringing the value of vocational skills and practical learning to national attention as 'hugely important'. "I offer my warm support and congratulations to every member of the team," he said. "To support the ambitions of young people everywhere in our country, we have created a record number of apprenticeships, and we are building the best skills training system we've ever had."

Sponsors back WorldSkills

Industry giants have jumped at the chance to sponsor the broad range of categories. Siemens, for example, is providing automation and drive components for the Industrial Control and Polymechanics/Automation

stage

This October, London plays host to the largest skills competition in the world. Chris Shaw takes a closer look at WorldSkills London 2011.

competitions. "Importantly, taking part is inspiring and exciting for young people as it's a chance for them to engage with likeminded peers," observed Maier. "We also mustn't forget the thousands of visitors who will attend WorldSkills – many of whom will be young people from across the UK – and how inspiring the skills competitions and exhibition element of the event will be for them. Siemens is delighted to be able to showcase its technology at the exhibition where it will be seen by pupils from schools and colleagues across the UK and spark ideas and interest in the minds of the engineers and manufacturers of tomorrow."

Pneumatic and electrical automation technology specialist Festo is sponsoring both the Mechatronics and Mobile Robotics sections. Kim Holm, regional manager at Festo Didactic (Finland), wanted the company to be associated with an event designed to encourage young people into the industry. "Both mechatronics and mobile

Team UK rises to the challenge

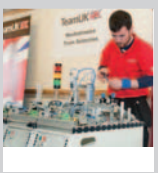
Mobile Robotics

Darren Lewis, representing Team UK, is 21 and believes WorldSkills London 2011 will enable him to excel in robotics. Working towards a BSc (Hons) in Product Design and Robotics, Lewis has already decided on a career in robotics. "The work is current, interesting and a challenge," he said. "By getting involved in international competitions I'm more likely to impress future employers. My ambition is to keep improving in my skill and continue to make up-to-date concepts."

Puja Varsani, currently in the final year of her undergraduate degree at Middlesex University, described the opportunity to represent Team UK in Mobile Robotics as 'a huge honour'. "I hope this opportunity will allow me to showcase how vocational training can lead to successful employment and career opportunities," she said. "I know the next few months will be tough as I will be in training for the event and I really hope the whole of the country gets behind Team UK."

Mechanical Engineering CAD

At 20 years old, Ryan Sheridan has already won a gold medal in EuroSkills 2010 and a silver in WorldSkills UK Mechanical Engineering CAD 2010. His college lecturer at Motherwell College told him about the competitions and he believes these will help him get the relevant training he needs to progress in life. "My ambition is to be the best I can and I would say to other young people considering a vocational career, "If it makes you happy, go for it!"



Mechatronics

At the age of 23, Chris Downey already holds a bronze medal for WorldSkills UK Mechatronics 2010 and hopes to improve upon that this October. "My biggest achievement would be getting to the UK final of Mechatronics," he said. "My ambition is to complete my training and become a chartered engineer as well as getting a master's degree in engineering. By competing for a place at WorldSkills London 2011, I hope to learn different things about myself while also learning how different countries approach my skill. I want to finish as high as I can in the competition and strive to win a gold medal for the UK. This will greatly help my future career prospects when applying for jobs and enable me to make new contacts in the industry."

Maier: "It is encouraging that the Government has acknowledged this skills gap and has pledged investment in apprenticeships and vocational routes but, unfortunately, we have a 20-year gap of investment to fill."

robotics trades are reflecting modern industrial trades," he said. "They are close to Festo's core business and interests and we want to have our finger on the pulse as to the level of training and skilled people of today."

The Mechanical Engineering Design – CAD category is sponsored by 3Dconnexion, a provider of 3D mice for 3D design and visualisation. All 20 CAD workstations will be equipped with a SpacePilot PRO 3D mouse. Vice president of products, Antonio Pascucci, said: "To prepare students for their professional careers it is important to give them access to the best tools available. Giving competitors a chance to push the boundaries of their design capabilities with a SpacePilot PRO will deliver lasting value in the fields of engineering and computer aided design."

Changing attitudes

According to James Dyson, the greatest shortages in the engineering industry are within the technically skilled areas; 71% of vacancies are from the skilled trade, professional and technical occupations and process operative roles. "That's why we invest in supporting initiatives such as WorldSkills, which promote technical skills at grassroots levels," Maier asserts. "We are a Global Industry Partner of WorldSkills International, so we can work together to improve the quality of vocational training worldwide."

While WorldSkills is committed to encouraging more young people into the industry, both Maier and Holm believe outdated attitudes need to change. "We need to show that the industry of today is a totally different workplace than before," stated Holm. "A mechatronics technician has an interesting job that changes from day to day. However, the world at large does not take this view, even though we live in an age of iPhones and computers. Technology is an interesting world."

"We need to connect with young people and get them excited about engineering and manufacturing," agrees Maier. "Then, the industry needs to engage with young people early on in their education, before they have selected their subject options at secondary school. This will ensure students are armed with all the relevant information to make the right subject choices should they want to take up a career in engineering or manufacturing."

How can you contribute?

Providing resources

WorldSkills London 2011 is offering companies the opportunity to become involved with the event by providing equipment and resources.

Aidan Jones, executive director of the event, says: "In addition to seeking financial sponsorship, we're also offering companies the chance to become sponsors of an international event by lending us the equipment we need for the competitions. We believe that WorldSkills London 2011 will be a huge boost to the UK economy and that it will leave a legacy of young people inspired by skills, but for this to be a resounding success, we need the support of businesses who can lend us the kit we need."

Volunteering

From greeting competitors on arrival at the airport to escorting guests around the event, to helping to manage the media it will be volunteers who make the event happen.

The first person a visitor or competitor meets will be a volunteer. The scale of the event is enormous and, with hundreds of activities taking place in a space the size of ten Wembley football pitches, our volunteers will need to cover a lot of ground.

There are opportunities for people of all levels and experience. Some positions require special skills – for instance, a language or specific technical knowledge – but most simply require hard work and customer service.

Volunteers will also be provided with official kit, food and drinks while on duty, a Travelcard and an official certificate detailing their contribution.

Visiting

You can register to attend WorldSkills London 2011 on the event's website, where you can also book for up to four of your friends, family or colleagues.

People of all ages will be welcomed, with the opportunity to see the competition, to try out new skills and to find out about career opportunities.

Have a go

'Have a go' sessions are designed to offer an engaging way of promoting and demonstrating skills used in the workplace and the jobs needed in the future. These 'bite-sized' tasters are intended to ignite a passion to learn, and to provide expert information, advice and support.

The sessions are being delivered by partners such as colleges, training providers, schools, community groups, employer's associations or other organisations.

Contact details

For more information about WorldSkills London 2011, go to www.worldskillslondon2011.com

Power disrupts

The automotive sector needs some disruptive technology to shake up the way cars are made, and the creation of new engineering skills may be a positive side effect to the changes, Formula One engineering icon Gordon Murray tells Matthew Valentine.

In an era of change, one product key to modern life is beginning to look a bit old-fashioned. The fundamental process of mass producing cars has changed little since the introduction of the Ford Model T in 1908, contends Gordon Murray.

"Even though those vehicles had a separate platform, it was still a standard steel body, welded together, painted and the bits assembled onto the finished motor car," he says. "And we now use aluminium for primary structures instead of steel, and we use some plastic mouldings for bumpers and wings and things like that. But, essentially, we still make cars the same way."

As well as being old-fashioned, the traditional methods are also capital-intensive, requiring enormous investment, and energy-intensive in terms of materials and processes, says Murray.

Before environmental issues attained their current high profile, Murray had already been convinced that smaller, lighter cars would become essential to help maintain personal mobility as traffic levels grew. Having always worked on low-volume sports and racing cars, he began to examine the hardware and methods involved in the mass production of small cars.

"It soon became obvious that the reason why car companies didn't encourage people to buy small cars, and the reason they didn't make smaller, lighter cars, was because you don't make much profit on them. If any profit at all," he says. Costs, however, are very similar to those for larger cars, which can be sold for more and equipped with more 'content' – expensive extras – to drive up profit margins.

Murray started seeking an engineering solution to making smaller cars more cost effective to manufacture in high volumes, and soon turned to an area of which he has vast experience: structural composites. He designed the first Formula One car to use carbon fibre, in 1979, and the first car to use it on the road, the McLaren F1.

There are three traditional reasons that structural composites have not been used in high volume car production: unit price, cycle times and the difficulty of attaching point loads to a composite panel. The solutions to these comprise the starting blocks of iStream, a new vehicle manufacturing system that Gordon Murray Design has developed and is now selling to manufacturers.

"If you say structural composites, people immediately think of carbon fibre. But there are other fibres and there are other matrices you can use to hold the fibres together that don't have to be epoxy, and it doesn't have to be carbon. So we started looking around and we're got a very low cost system for the actual monocoque panels," says Murray.

Cycle times for low volume carbon fibre cars are too long for mass production, he says: "Epoxy resins in thermoset composites are hours in an autoclave and you'd need so many toolsets to make even 5,000 cars a year, let alone 100,000 or 500,000, so we set about working with various suppliers to reduce the cycle time. We've got it down to 100 seconds."

Yet the most important problem is that of attaching point loads to a composite panel, which is essentially two skins either side of a flimsy core material. "It's very, very difficult, because you need an insert to spread the load. When you're hand making a Formula One car, or even a sports car, you can have a template and drop in 160 inserts. You've got all week to do it and the time doesn't really matter. But when you've only got 100 seconds, taking point loads out in composites is virtually impossible. So the other bit of iStream is that we use very low grade steel, mild steel, and we make the world's simplest frame. It's not a spaceframe, it's just a frame that essentially joins up all the point loads," he says.

"As well as being old-fashioned, the traditional methods are also capital-intensive"

Mountings for everything from seats and seatbelts to the engine and suspension components are located on this simple frame. "That itself doesn't need to be strong or stiff," says Murray. "Once you bond the monocoque into it with a robot you've got a massively safe, strong, lightweight structure. And, in one fell swoop, we're reduced the capital investment, we're reduced the weight, we've increased the safety because of the strength of the shell around you... and we've got flexibility beyond anybody's wildest imagination."

From a commercial point of view, the ability to build to order is a kind of Holy Grail. Current production from car manufacturers is invariably stockpiled. A sudden economic downturn can lead all too quickly to fields full of unsold cars because factories are like a sausage machine that can't be turned off, says Murray.

The iStream system is designed to be more flexible. A central plant would manufacture the basic frames, while smaller, local assembly areas would put the cars together, to order. The plants would be small enough to back on to sales operations, says Murray: "You could walk in, choose your car and come back three days later to watch it be put together."

The system can be applied to any size of vehicle, from city cars to buses. The capital investment to set up an iStream manufacturing system is around 10 per cent of that needed for a conventional car plant, and is uses less energy too. Talks are underway with a number of parties interested in licensing the system.

Photograph: Donald Maclellan

Background

Professor Gordon Murray was born in Durban, South Africa. He studied mechanical engineering at Natal Technical College (Now the Durban University of Technology), also holding down a job to fund the building and racing of his own car.

He moved to the UK to work at Brabham, where he became chief designer under team boss Bernie Ecclestone. Murray was responsible for a number of World Championship-winning F1 cars, and the famous Brabham 'fan car', the BT46B.

Murray was technical director of McLaren from 1987 to 2006. The car he designed for the 1988 season won 15 out of 16 races, giving Ayrton Senna his first championship win. He also headed the McLaren Cars company, which made road cars: The famous McLaren F1 and the Mercedes Benz SLR McLaren

Chain reactions

Power transmission chain may be a mature technology, but suppliers are still developing new solutions. Matt Bailey reports.

While energy chain is an essential engineering product, it has long been mistakenly seen as a commodity. However, companies in the industry are continuing to develop and refine designs.

One of the key factors behind this refinement is the environment. Derek Mack of Tsubaki says: "We are always upgrading and bringing new products to market that fit in with our green ethos," he claims, "while many of our competitors are consolidating and going down the low cost route."

How this green ethos manifests itself in the product line is in innovations like 'lube-groove' technology. Mack explains how it works. "The bearing area of the chain has a pin, bush and roller. On Tsubaki medium-sized chain, the bush has lubrication grooves along the internal diameter. They retain lubricant between the bearing areas so that the pin which sits inside the bush is constantly being lubricated, reducing metal-on-metal contact and hence chain wear. This significantly lengthens the lifetime of the chain."

While it would be difficult to produce actual application-based figures on chain life extension and energy consumption, Mack says the benefits are considerable. "It is difficult to measure energy consumption and all chains produce more or less the same energy consumption anyway. I couldn't claim that our chain consumes less energy than our competitors - although we do make special, premium, top-end chains with bearing rollers fitted which are particularly good in this area – but on the standard range, the environmentally friendliness comes from the chain's long life. We make it once, we transport it once, it is fitted once and then recycled once, thus reducing raw materials and associated energy. Similar chains from other suppliers may last three, five or even seven times less. The total lifetime cost of ownership is reduced."

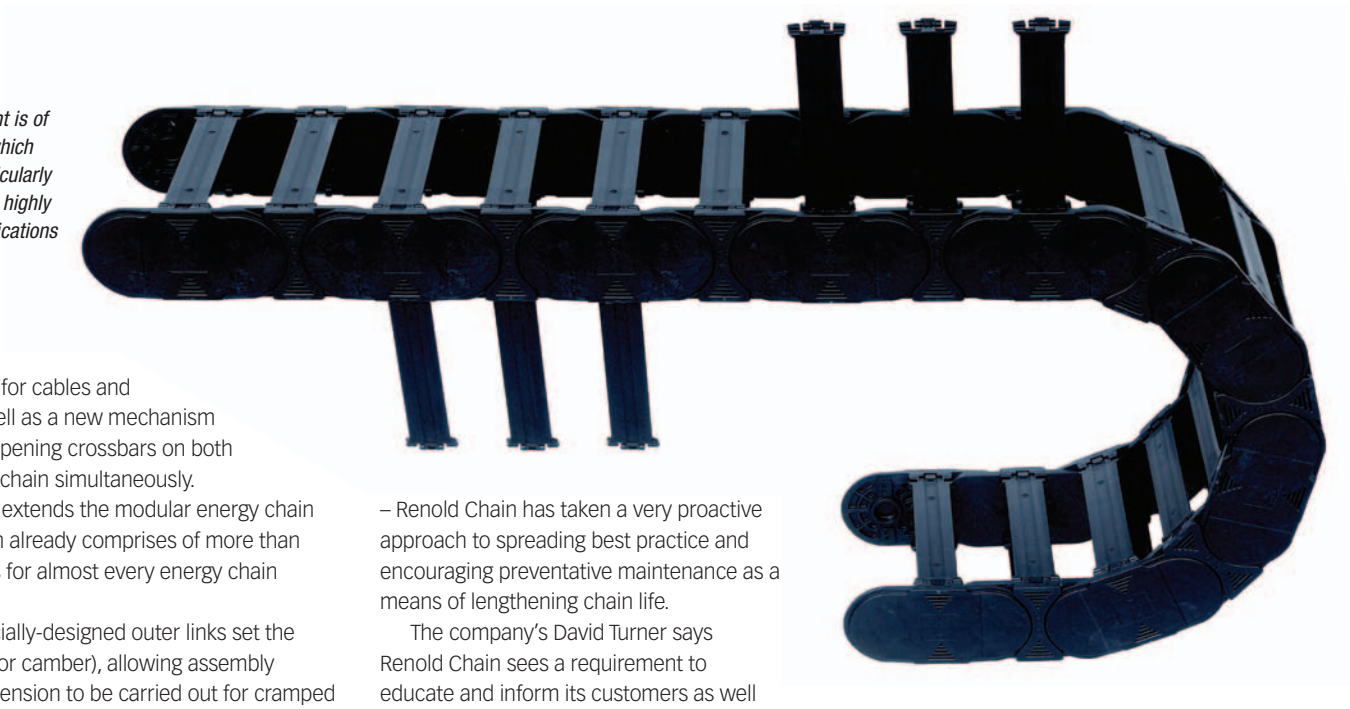
As in other areas of engineering, the steady development of materials is having an impact on chain. "The introduction of plastics has already happened and our R&D department is looking at special alloys and materials for the future," confirms Mack. "We have a big commitment to R&D. Plastics is an interesting area for chain manufacture and we have stainless steel and engineering plastic lubrication-free PC chain, while our R&D team continues to look at other materials. Our Lambda steel chain is also lubrication-free, utilising a special oil impregnated sintered bush in combination with a special coated bearing pin to reduce friction between critical components and increase the life of the chain without any additional lubrication."

While the latest iteration of Lambda lubrication-free chain is due to be released next year, Tsubaki has other irons in the fire. "We have a new corrosion resistant chain, NEP (new environmental plating) which has two coatings to prevent corrosion. Where some corrosion-resistant chain designs cause problems as their coatings wear off, NEP is RoHS complaint and its coatings are not harmful."

Another key innovator in this area is Igus, which has for some time pioneered the use of plastic energy chains. It has recently developed a new, lighter version of its popular E4.1 range.

The E4.1 light is of low weight, which makes it particularly well-suited to highly dynamic applications and means that it offers even more

1. Lube grooves
2. Seamless bush
3. Centre sink rivet
4. Ring coin



Igus' E4.1 light is of low weight, which makes it particularly well-suited to highly dynamic applications

filling space for cables and hoses, as well as a new mechanism for quickly opening crossbars on both sides of the chain simultaneously.

The E4.1 extends the modular energy chain range, which already comprises of more than 70,000 parts for almost every energy chain solution.

The specially-designed outer links set the pretension (or camber), allowing assembly without pretension to be carried out for cramped conditions or for vertically hanging energy chains. For designs with a change of direction of rotation, such as in zigzag applications, the direction of bending radius can be varied through the rotatable inner link.

The tongue and groove design, which interlocks the chain links, ensures good torsion resistance and high stability, particularly for side mounted applications. For applications requiring high filling weights and long self-supporting distances, the double stop system with large stop-dog surfaces helps ensure optimum load distribution. Both the brake and stop-dog systems create a noise-reducing effect that results in a particularly smooth running chain.

While also offering a range of advanced power transmission chains – including lube-free – Renold Chain has taken a very proactive approach to spreading best practice and encouraging preventative maintenance as a means of lengthening chain life.

The company's David Turner says Renold Chain sees a requirement to educate and inform its customers as well as selling them product. "We have always wanted to be perceived as the custodian of best practice. If there is a particular reason why chain has worn out we want customers to be aware of it so they can understand how to make their chain last longer."

Organisations may find that they are repeatedly replacing a product that has the same wear pattern or failure process and, "there may be something symptomatic about this," suggests Turner, "it may not be just wear and tear".

As a prime example of this approach the company has recently tackled the problems with a transmission chain jumping or climbing its sprockets. "A common cause of this is excessively worn sprockets, or worn chain, or both," says Turner. "Worn sprockets will also cause chain to wear rapidly, so it's important to replace it and check the condition of the sprockets before fitting new chain. Look at the faces of the sprocket's teeth. Any wear will be seen as a polished worn strip, about the pitch circle diameter on each of the teeth."

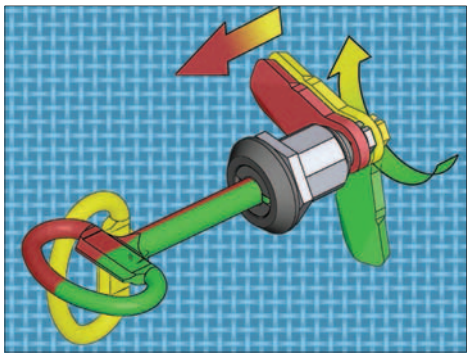
According to Turner: "It's worth pointing out that low cost, poor quality sprockets on most industrial applications are a false economy," he says. "A good quality sprocket should last through the life of several chains before anything like the amount of wear shown here will have occurred. If there is an imperfection or if the sprockets aren't aligned properly it will create lots of vibration and noise and use more energy and if you can save, say, one percent on your energy bill at today's prices that can have a significant impact."

Power transmission chain has been around for a while and perhaps familiarity can breed contempt or at least indifference. "Many people see it as just oily metal," says Turner. "But there's more to it than that. We also manufacture electronic products for predictive maintenance. Smartlink monitors the load on the chain, feeding back strain information – and exactly which part of the cycle this strain occurs in – remotely using GPRS. The ability to predict chain wear or elongation is also important. We have a product called Wear Monitor in the pipeline which uses sensors positioned next to the chain to assess it as it goes past and tell you whether it is extending and give you a prediction of when it will reach two or three percent elongation and need changing, so you can plan maintenance."

www.tsubaki.eu
www.igus.co.uk
www.renold.com

Renold's Smartlink monitors the load on the chain, feeding back information

Compression latches beat vibration



EMKA's 1000 series specialist compression latches are particularly suitable for the tight locking of doors, covers or hatchways on compressors, generators, construction/mining equipment, air-conditioning, heating and ventilating systems and railway construction equipment.

The compression function includes a two-stage operation with direct pull-down on the gasket profile; the 1000 latch has a turn/compress function, which also solves problems where thick extruded gaskets are used or where normal latches would give too tight a compression. The 1000 series provides 5.5mm of direct pull compression - while looking like any other double-bar or coin slot ¼ turn fastener.

The operator makes a first quarter turn of the key, which positions the latch and a conventional 3mm ramp. The second ¼ turn then generates a "soft landing" with a further 5.5mm compression. Standard EMKA hole form is used so fitment is simple in all situations where traditional ¼ turn fasteners would be expected.
www.emka.co.uk

Southco Marine launches high security locks

Southco Marine, has introduced a range of entry door locks incorporating its industry-leading Star-Lock mechanism – a high-end security system designed to offer the perfect blend of robustness and style for sail or motor boat and yacht applications.

All three options – The Star Sailor, L Star, and Single Star – are built around the Star Lock system lockbox, featuring an active locking deadbolt with an upturned hook mechanism to prevent door liftoff. These versatile, streamlined key-actuated, secure performance locks are designed to help designers of upscale sailing and motor boats and yachts provide greater consistency in hardware aesthetics and performance across multiple locations within each boat.

Each delivers the enhanced security of Southco's technologically advanced three-axis security with pins at 0° (12 o'clock), 180° (6 o'clock) and 270° (9 o'clock) positions. This enables the locks to offer three times the number of pin tumblers in the same axial distance as a traditional disc tumbler lock, making the locks inherently more secure than disc tumbler locks, and enabling them to provide that added security in a lockplug that fits standard doorframes. In addition, each is offered with the ergonomic comfort of keys with moulded nonslip contour grips for easier operation.
www.southcomarine.com.

New latch/handle and cabinet control rod system

Elesa's new CLT latch/handles particularly suit large standalone or suite style cabinets with single point closure – or in conjunction with the CAR rod controls for two or three-point locking. This spreads the gasket pull-down loads across the door so ensuring optimal sealing and security on control cabinets and electronic racks. The CLT latch/handle itself is sealable to IP65 and so is suited to most commercial/industrial cabinet applications.

The CLT latch is available with a varied selection of locking possibilities, through many key lock number possibilities to a double winged key type. Rod controls to complement the CLT handle are available with either 100mm or 200mm flat rods to interface with rod extensions which may be supported by black technopolymer rod guides. Handle fitment is via 2 off standard 50mmx25mm rectangular punchings.
www.elesanow.co.uk

Misumi expands portfolio of special plastic components

The portfolio includes Philips-head tallow-drop screws and hexagon socket head screws made from glass-fibre-reinforced polyamide (RENY), polyphenylene sulphide (PPS) and polyetheretherketone (PEEK). By expanding its portfolio, the Japanese specialist in mechanical standard, purchased and custom made parts is supplementing its range of connection components targeted at specific applications. As a result, the company is able to tap into additional areas of application with specific material requirements, for which conventional screw materials would not be suitable.

RENY is made from polyamide MXD6 and crystalline engineering plastics reinforced with 50% glass fibre. It also offers a high level of stability and elasticity; it also exhibits outstanding resistance against oil and heat.

PPS is a purely crystalline engineering plastic that also displays optimum thermal resistance. The physical properties of the material will not become impaired when subjected to high temperatures, even for prolonged periods. PPS is also particularly resistant to chemicals and impresses thanks to its mechanical and electrical insulating properties, in addition to its dimensional stability.

PEEK is a highly effective, high-performance, semi-crystalline engineering plastic. It offers the best chemical resistance of all the engineering plastics and can only be dissolved in concentrated sulphuric acid. The material also exhibits outstanding resistance to heat and hydrolysis and is abrasion and flame-resistant.
www.misumi.co.uk

Spring-loaded plunger assemblies

PEM Type PTL2 spring-loaded plunger assemblies allow users to quickly and easily move racks, slides, access panels, and similar equipment to new positions without requiring tools. If necessary, a unique lockout feature keeps the fastener's spring-loaded plunger retracted until the plunger pin drops into final position. A simple quarter-turn of the fastener enables the retracted locking and unlocking actions.

Type PTL2 spring-loaded plunger assemblies install permanently in aluminum or steel sheets as thin as .060" / 1.53mm with hardness of HRB 80 or less or HB 150 or less. Their engineering allows the reverse side of the sheet to remain flush when the plunger is retracted.

These fasteners install reliably into properly sized mounting holes in a sheet. The fastener is placed into a recessed anvil and then the work piece (punch side) is placed over the fastener's shank. With punch and anvil surfaces parallel, installation is completed by applying squeezing force until the shoulder of the retainer comes into contact with the sheet material.

As a variation of these fasteners, Type PSL2™ spring-loaded plunger assemblies are available on special order without the lockout feature.

www.pemnet.com

Instant adhesive for specialist applications

Intertronics 'adhere' ADH9105 is a precision-engineered, application-specific adhesive for the high technology industries. adhere ADH9105 has higher impact, humidity and temperature resistance with a more flexible bond than mainstream cyanoacrylates – thus making it the adhesive of choice where gap filling and resistance to vibration, thermal shock or motion compliance are required, for example in mounting of electrical or electronic components, assembly of enclosures, cable boxes or in strain relief or simple wire tacking, e.g. in loudspeakers.

'adhere' ADH9105 is a high-viscosity black rubber toughened formulation that can tolerate temperatures up to 105°C (125°C intermittently) and is suitable for bonding metals, plastics and rubbers providing a bond of suitable flexibility,.

This tough peel and cleavage resistant one-part adhesive features room temperature cure in seconds (without an external energy source) and at 3500-5000 cps viscosity will not droop, run or sag before cure is completed. Dispensing is readily achieved in small quantities via standard squeeze bottles and in larger quantities.

www.intertronics.co.uk

Blind fasteners improve solar panel manufacture

High speed blind fastening technology has been adopted to meet the critical strength and contamination-free assembly requirements of an innovative lightweight solar panel.

Construction of the solar collector frame requires the secure fixing of an outer frame from one side only, without pre-punching or drilling to avoid compromising the structural integrity of the main frame. Additionally the fastening technique has to work in combination with a silicone adhesive sealant and avoid any risk of contamination.

Working in partnership with energy efficient water heating systems manufacturer Clage GmbH, of Lüneburg, Germany, International fastening and assembly technology specialist Böllhoff, proposed its standard RIVTAC joining system to meet these specific production requirements.

The flat plate solar energy collector delivers very high energy yields - in excess of 80% - and weighs only 32.5kg due to its lightweight geometry and materials. An aluminium frame is added as a final step in the manufacturing process to optimise strength and protect the solar cells and service connections. This is securely fastened at each corner with two RIVTAC fasteners.

Other fixing methods such as bolts and piercing rivets were evaluated but these were found to produce unwanted filings which could contaminate the silicone adhesive and have an adverse affect on frame strength.

www.bollhoff.com

D-SNAP joiners for panel fitting

The D-SNAP range of panel assembly joiners, locks, hinges etc is designed to enable specialist cabinet builders to quickly fabricate housings with flat sheet into a robust structure. These new joiner components from FDB Panel Fittings operate to fasten two or more sheet metal panels together by simply pressing and snapping the joiner into prepared panel cutouts. They are ideal for fastening cabinet components, e.g. removable top or base and for robust firm fixing of panels of similar or varying thickness, e.g. multi-component motor control cabinets.

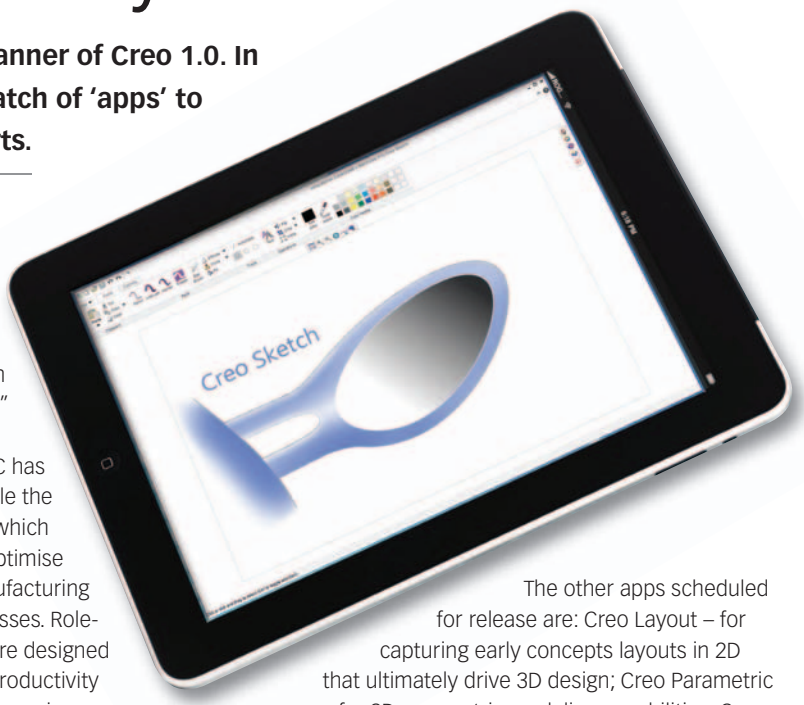
The 1-044SL is intended for permanent assembly or joining of cabinets side by side whereas the 1-045SL is specifically for situations where one panel may require regular removal, e.g. for maintenance. The 1-046SL also allows one panel to be removed; it is the ideal solution where lighting panels for example have to be removed. The fixed side is fastened with screws enabling the joiner to be used with materials such as wood or for retro-fit installation where hole purchasing is not a possibility.

D-SNAP joiners will adjust to varying thicknesses of panel and use standard 30x10mm cutouts enabling rapid assembly after painting. Where removable panels are needed then pull-off forces may be chosen from 15N/30N/50N dependent upon component.

www.fdb.co.uk

Unlocking creativity

PTC has re-launched its CAD offerings under the banner of Creo 1.0. In addition, the company has also released its first batch of 'apps' to augment the core CAD software. Matt Bailey reports.



PTC has launched Creo 1.0 and the first batch of 'apps' designed to augment and extend the capabilities of the software.

Describing Creo as a step change in the development of its CAD software suite, PTC states that the technology enables enterprise-wide participation in the product design process "to unlock potential for creativity, teamwork, efficiency and value".

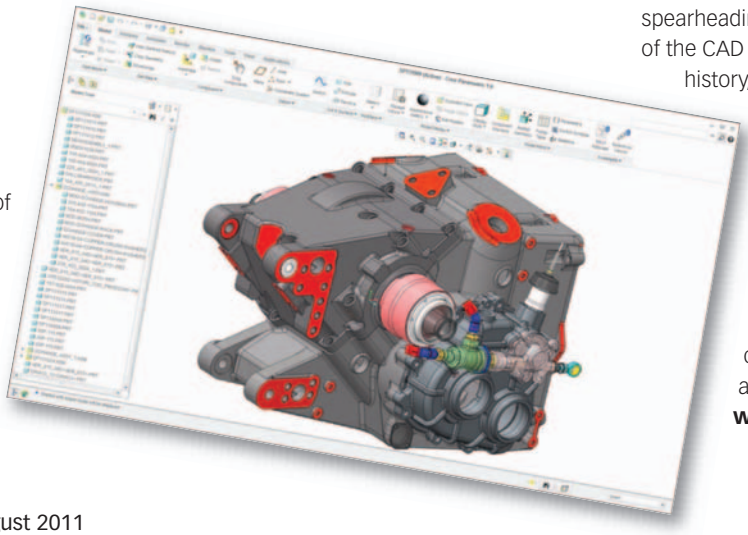
Creo is designed to solve what PTC says are unaddressed problems in the mechanical CAD market: usability, interoperability, assembly management and technology lock-in. "It provides a scalable suite of interoperable, integrated design apps, built on an architecture with patent-pending technology, to meet the needs of the wide spectrum of users that form a company's extended product development team," says James Heppelmann, PTC's president and CEO. "By more fully engaging these users throughout the product lifecycle, companies can increase productivity and improve operational efficiencies, getting better products to market faster.

"Since we unveiled our Creo product strategy last October, we've seen incredible customer interest," adds Heppelmann. "Based on the reaction of the marketplace, we believe that Creo has the potential to deliver the renaissance in CAD innovation that we had predicted at the launch."

Creo 1.0 effectively represents a bringing together of PTC's Pro/ENGINEER, CoCreate and ProductView software solutions. "Pro/ENGINEER, CoCreate, and ProductView are the foundational elements of an exciting new future of CAD, providing proven performance in 2D and 3D CAD, CAE, CAM, CAID, and Visualisation," says Hempelmann. "And that connection is reflected in the new name for these products in the Creo family of design software. Creo not only protects existing investment in PTC products, but provides a smooth path to the future."

Along with the Creo package, PTC has also made available the first set of 'apps' which are designed to optimise engineering, manufacturing and service processes. Role-based packages are designed to help increase productivity for everyone from service planners, technical illustrators and industrial designers to engineers who have historically driven product design processes using 3D direct or parametric modelling, while also benefiting CAD users in the extended enterprise.

The initial offering of nine apps includes Creo Sketch, a simple 'freehand' 2D ideas and design concepts drawing app which PTC made available for free in July this year. The company's VP Creo Business Unit, Morten Ibsen adds that PTC hopes to further extend flexibility and mobility of Creo Sketch with the release a version of the app for the Apple iPad in the near future.



The other apps scheduled for release are: Creo Layout – for capturing early concepts layouts in 2D that ultimately drive 3D design; Creo Parametric – for 3D parametric modeling capabilities; Creo Direct – for fast, flexible 3D geometry creation and editing using a direct modeling approach; Creo Simulate – delivers capabilities an analyst needs for structural and thermal simulation; Creo Schematics – for creating 2D routed systems diagrams for piping and cabling designs; Creo Illustrate – for 3D technical illustrations, providing capabilities to communicate complex service and parts information, training, work instructions; plus Creo View ECAD – for viewing, interrogating, and marking up electronic geometry and Creo View MCAD – for viewing, interrogating, and marking up mechanical geometry.

"With the delivery of Creo 1.0, PTC is spearheading an unprecedented transformation of the CAD industry for the second time in history," says Brian Shepherd, executive vice president, product development, PTC. "Creo's role-based apps make a typically closed process open and inclusive, enabling more people to make a meaningful contribution to product designs. This is a huge advance that will help our customers create better designs, and ultimately better products."

www.ptc.com

Beyond PLM

At Siemens' recent PLM Connection event, Matt Bailey spoke to the company's managing director PLM Software, Robin Hancock about the company's vision for the future of PLM.

Siemens says it has brought a lot of investment and understanding of what's required in industrial software to bear in order to bring a very broad scope of software to the market. The company's aim is to offer a complete industrial software set, "without it being proprietary". According to Siemens managing director PLM Software, Robin Hancock. "People want as much integration as they need, but they don't want to be forced into taking everything from the same supplier."

Charting the development of PLM, Hancock says, "In the old days it was all about product design. Now, while you're designing and developing the product and getting people to collaborate around it, you're also designing and developing your plant and your manufacturing capability concurrently. Because the pressure is to get more competitive, more highly configured products to market at a lower price and higher quality, more quickly, doing those things concurrently is the next big value proposition for manufacturing and engineering companies. But change is difficult and the last thing you want is some 'big bang'.

"Longer term there is the interplay between what we call TIA – totally integrated automation. This integrates everything, from controllers up through manufacturing and then into engineering and back into R&D. We already provide systems in all those areas," says Hancock. "People like Rolls-Royce are integrating manufacturing execution with PLM and getting big benefits from bringing those things together. It is about getting your products to your customer quicker."

The design lifecycle

Hancock says Siemens is now looking at the whole lifecycle of design through production and beyond, to maintenance, repair and overhaul. "We try to become part of the customer's project team, so we are mindful of how quickly they can manage change and engage with them in a way that is not going to take too many risks," he says. "Our engagement model is probably our biggest differentiator. You are managing the competing pressures of delivering enough value for it to be interesting without taking on too much change risk."

"IT USED TO BE THE PRESERVE OF AUTOMOTIVE, AEROSPACE AND A COUPLE OF OTHER INDUSTRIES, BUT NOW IT IS BEING VERY BROADLY ADOPTED BY MANY SECTORS: PLM HAS COME OF AGE."

Another very important development is HD-PLM (high definition PLM). Unveiled at Expo 2010, HD-PLM allows cross-domain decision making by uniting users with the people, tools and precise product-related information they need to intelligently evaluate decision alternatives.

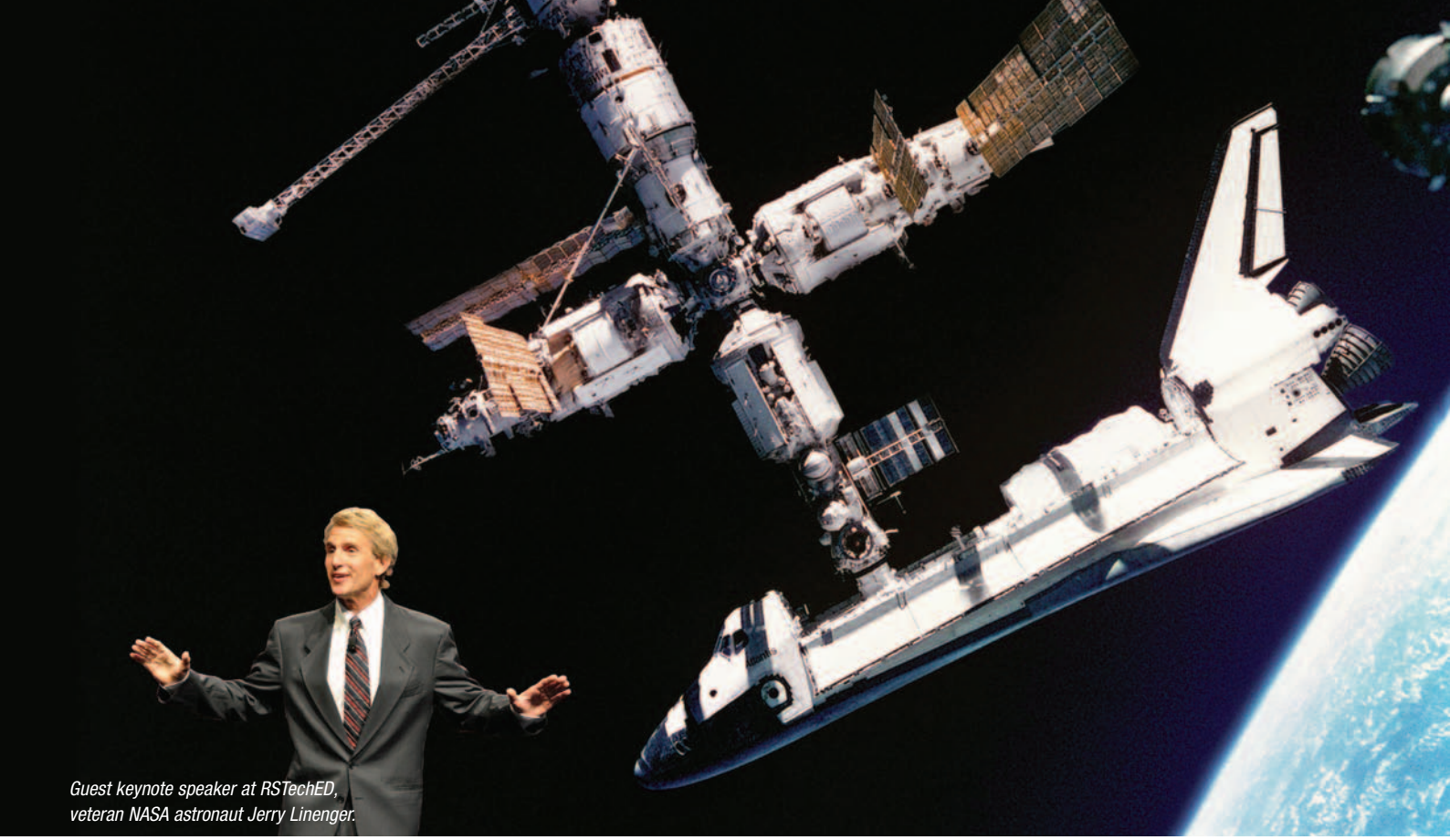
The user's experience is personalised by actively placing them into the digital context appropriate to their role. HD-PLM will proactively assist users in collaborative decision making, and information will be clarified and turned into knowledge through a highly intuitive visual presentation. HD-PLM helps users validate decisions against company best practices appropriate for the task at hand. "It allows interested parties to concentrate only on the product detail that is important to them," Hancock explains. "You might want to see a car design from a recyclability point of view and want everything else masking out. HD-PLM enables you to understand it more easily, collaborate on decisions about that aspect more easily and make decisions more easily and share best practice."

Rapid development

Clearly the sector is changing rapidly. "We're investing billions in developing our tool and product set and our service capability," says Hancock. "We are seeing huge growth in PLM, in markets that are supposed to be pretty tough. That tells me that companies are investing in technologies that can help them be more effective and efficient and give their customers what they want more quickly.

"Our technologies are almost counter-cyclical," he adds. "The decision to find the right people and employ more of them can be difficult to justify, but applying technology to make the people you have already got more effective is a strategy that seems to be driving growth in PLM. It used to be the preserve of automotive, aerospace and a couple of other industries, but now it is being very broadly adopted by many sectors: PLM has come of age."

www.plm.automation.siemens.com



Guest keynote speaker at RSTechED, veteran NASA astronaut Jerry Linenger.

Sharing automation best practice

Joining the 1,350 other enthusiastic delegates in Orlando, Florida, Matt Bailey attended Rockwell Automation's annual RSTechED interactive technical education event.

For the 14th year, Rockwell Automation rallied the faithful at its RSTechED event. The conference, which took place within the confines of the imposing Rosen Shingle Creek Hotel in Orlando, Florida, is a week-long software training event for end-users, systems integrators, distributors, partners, machine builders, and Rockwell Automation technical and sales personnel. Attendees from around the globe gathered to learn how their peers tackle day-to-day engineering challenges.

According to Rockwell Automation, more than 1,350 delegates, many with family in tow, made it to Orlando this year, making it one of the most highly attended events in the events history. Coming from 43 countries, delegates proved to be a diverse group of manufacturers, system integrators, machine builders and distributors gathered principally for training and educational sessions.

With the latest products and technology solutions available in a classroom environment, the idea is that participants gain an in-depth understanding of how the Rockwell Automation Integrated Architecture system is helping companies across the globe. RSTechED 2011 included more than 120 educational sessions, discussions, demonstrations, hands-on labs and customer presentations in an interactive, classroom-style environment.

> "IMAGINE IF YOU COULD TAKE 40% OF THE TIME OUT OF A DESIGN CYCLE; IMAGINE IF YOU COULD GET THE MACHINE UP AND RUNNING AND PRODUCTION OPTIMISED IN HALF THE TIME."
>
> FRANK KULASZEWICZ, SENIOR VP, ARCHITECTURE & SOFTWARE

On the first two mornings of RSTechED, keynote presentations were made by Rockwell Automation senior vice president, architecture & software Frank Kulaszewicz who shared his vision on how companies around the world are harnessing the power of control systems data; and retired US Navy flight surgeon and veteran NASA astronaut Jerry Linenger whose experiences on a five month mission on the Russian Mir Space Station – one of the most dramatic and dangerous missions in the history of space exploration - provided an often hair-raising but always inspirational counterpoint to the technical sessions.

In his address, Frank Kulaszewicz expounded on Rockwell's vision of innovation. "Our vision starts with the integrated architecture," he said. "The integrated architecture has been out in the market now for ten years, it allows us and our customers to be more successful. We continue to build on that architecture, but it is important for us to think about it in a different way as we apply new technologies to it."

Many of the week's customer speakers addressed the application of new technologies, and clearly the whole RSTechED experience is a two-way process. "This week we hope we can help you answer a few questions," Kulaszewicz

confirmed, addressing the practicalities of production engineering. "Questions like, how effective is my machine? And how do I drive more throughput with less energy and less material? This week you will see how to turn data into information that you can act on."

He didn't just tackle the production phase though. "In the design phase, imagine if you could take time out of the cycle; imagine if you could reduce your risk in the design using simulation," he said. "Everybody in this room has the ability to affect productivity across the spectrum of design, operation and maintenance. Imagine if you could take 40% of the time out of a design cycle; imagine if you could get the machine up and running and production optimised in half the time. Those things add real value and they are some of the concepts and ideas you are going to see this week.

"Ten years ago we released the Logix integrated architecture into the marketplace. What's next? Many things are happening… This year you're going to see a lot of fun things coming out. You'll see new capabilities come into the architecture. You're going to see new network infrastructure; we're going to release a whole family of new controllers for Compact Logix and we're going to introduce new electronic operator interfaces which will be demonstrated in some of the sessions this week. All these things will be coming out in the next years not only to help drive capability into the architecture but also more innovation and creativity for you and your control environment."

With over 120 different sessions offered over the week, Rockwell Automation states the goal of RSTechED is to provide each attendee the opportunity to get a hands-on experience of its solutions — from beginner level overviews to in-depth, advanced hands-on labs — all while networking with peers throughout the industry. The event brings together diverse view points from within organisations such as control engineers, manufacturing IT, plant, operations and maintenance managers, all hailing from companies of different sizes and market niches from around the world.

Sessions covered a range of subject areas from components to manufacturing intelligence; networks, infrastructure and security to safety; sustainability; process; service and support and many others.

Generating much interest were the Customer Speakers presentations with a range of topics covered by a broad spectrum of Rockwell Automation customers. Although many were commercially sensitive and thus understandably closed to the press, a number of sessions related how Rockwell Automation is helping customers meet a diverse selection of modern production challenges.

In a typical customer session, Kimberly Clarke's ITS team leader Missy Jakusz explained how her company was using the virtualisation of Rockwell Automation's FactoryTalk AssetCentre to overcome the challenges of increased engineering requirements and the growing need for vendor support.

Frank Kulaszewicz.

"Working within a separate manufacturing domain, we have leveraged the use of virtualisation and wireless technology to more effectively deliver AssetCentre," she said. "Through virtualisation we are able to deploy virtual desktops to use AssetCentre and increase both on-site and remote access capacity. Specific machine VLAN wireless provides security, hardware flexibility and roaming capability. The use of AssetCentre along with other technology has significantly increased connectivity and productivity from project startup through day-to-day troubleshooting."

A large number of the sessions took the form of interactive training where those participating could actually earn points towards viable (US) qualifications on completion. After a description of what they could expect and what was expected of them, delegates followed instructions on one monitor while carrying out tasks in Rockwell (and other) software on another.

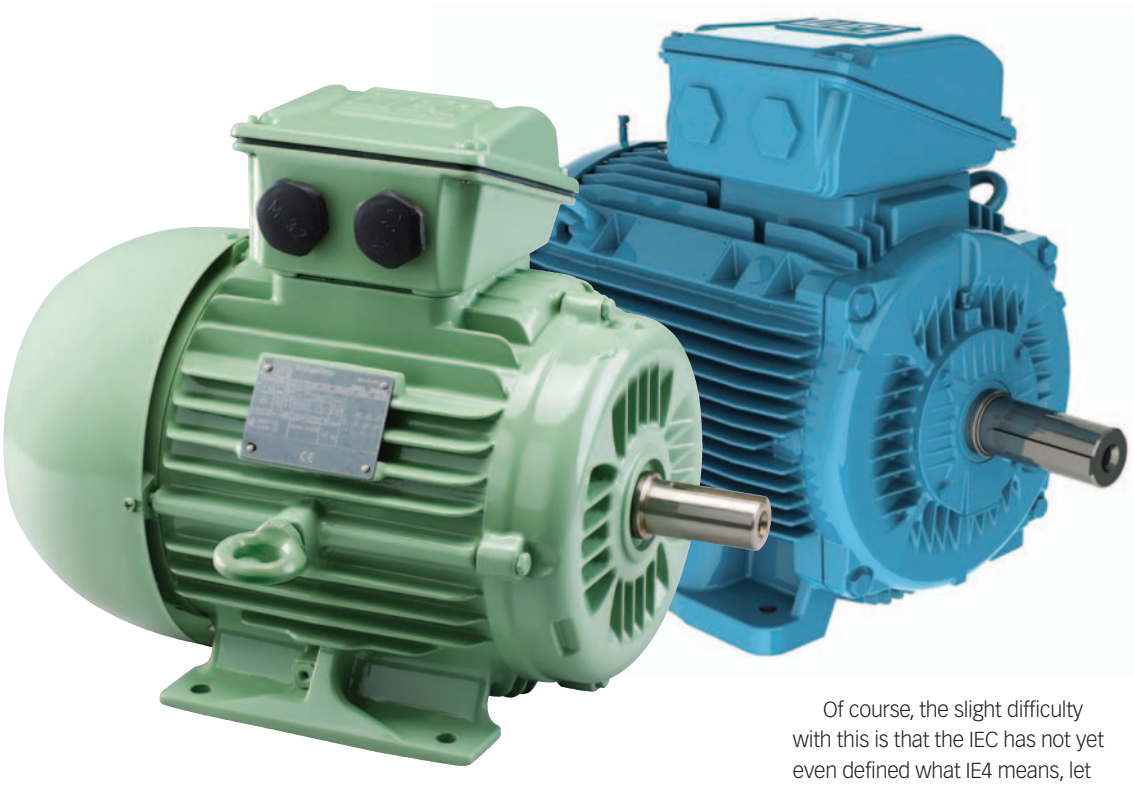
The Integrated Architecture and Automation Software sessions were run in this way. *Eureka* sat in on the 'Motion Control Design Using RSLogix 5000, Motion Analyzer and SolidWorks' session which was chaired by the product marketing manager for Kinetix Motion Control, John Pritchard. Participants were invited to discover how the latest version of Motion Analyzer could help machine builders optimise mechanical, electrical and control systems design.

The course took delegates through the newest features in Motion Analyzer and demonstrated the software's integration with SolidWorks mechanical 3D software as well as RSLogix 5000 control program software. There were staff on hand to guide delegates through the process and help them get to grips with the software's capabilities.

www.rockwellautomation.com

Super premium defines efficiency

With minimum motor efficiency levels having recently come into force, Paul Fanning looks at the cutting edge.



Mandatory minimum efficiency levels for low-voltage electric motors are now in force across the European Union. Since 16 June, most general-purpose motors in the range 0.75–375kW bought for use in Europe must achieve a minimum efficiency level of IE2, according to the classification drawn up by the International Electrotechnical Commission (IEC).

The requirements cover two-, four- and six-pole motors for use on 50 and 60Hz supplies. Some motors, such as those designed for use in explosive atmospheres, are currently excluded from EU MEPS but some suppliers, including ABB, expect that these machines will eventually have to comply with IEC 60034-30 and are therefore giving them IE markings.

The second stage of the EU MEPS scheme will come into force from January 2015, when motors with output powers above 7.5kW will have to achieve IE3 efficiency levels – or IE2 if used with variable speed drives. The third stage, which applies from January 2017, will extend the scheme to include motors with outputs down to 750W.

However, as is usual in such matters, the regulation lags behind the technology by some distance. While IE2 is now the minimum that can legally be sold (with IE3 not coming into force for four more years) there are already a number of motors that have been launched that are billed as meeting the IE4 'super premium' level of efficiency.

Of course, the slight difficulty with this is that the IEC has not yet even defined what IE4 means, let alone outlined any plans to make it mandatory. That aside, however, there are motors available that offer previously unimaginable levels of efficiency.

WEG beat the rest of the field in this department when it launched its WQuattro range last year. WEG's new WQuattro line of super premium efficiency motors employs a hybrid design to achieve the highest efficiency in the market, exceeding the requirements of the impending IE4 Super Premium Efficiency classification across its entire output range.

The WQuattro line has been developed for users who consider energy saving a major priority. It is an environmentally- friendly range of motors that, due to its highly efficient performance - with no energy (joule) losses from its rotor - demands less energy from the grid. For the user, this translates into lower total cost of ownership, a reduction in CO2 emissions, and a faster return on investment.

The WQuattro is a hybrid motor integrating a conventional three-phase distributed winding, and a rotor with an aluminium cage and internal high energy magnets. This combination makes the WQuattro ideal for direct- on- line starting and acceleration up to synchronous speed. With this type of operation the motor speed does not vary with load, despite overload variations, or cases of voltage drop, as long as the mains frequency is kept constant. In addition, there is no requirement for positioning/speed sensors, or special protection relays, and the low bearing temperatures that result from synchronous operation also ensure longer life and reduced maintenance for the motors.

Where the speed of the motor needs to be adjustable, the WQuattro can be used with inverters , offering an extended speed range with constant torque. In addition inverter control also offers the key benefit of multi-motor operation: i.e. several motors can operate in synchronism fed by the same inverter.

The WQuattro line offers interchangeability with existing installations. It employs the same frame size for output as standard induction motors, and so is easy to retrofit into existing applications.

The WQuattro line is available in 4 and 6 pole versions, with frame sizes from 80 to 132S, and outputs of 0,37kW up to 7,5 kW. The motors benefit from class F insulation, and

are suitable for operation on 230/400, 400/690 or 525V supplies.

ABB has entered the 'super premium' market with the launch of a new motor based on an innovative rotor with no windings, offering high efficiency and high power output. Using synchronous reluctance technology, the new motor is robust and has practically no losses. The motor is offered as a complete package together with a frequency converter and dedicated software.

Juha Silvennoinen, head of ABB's motors and generators business unit, says: "The new rotor is a break-through in motor technology, an achievement that makes it possible to make motors that are much more efficient and smaller than conventional induction motors."

The motor and drive package is offered in two configurations, one

that maximises efficiency, the other maximising output.

The high efficiency package meets the latest most stringent efficiency level specified by the IEC; class IE4, super premium efficiency. For customers, this means 40 percent less energy losses than a conventional motor.

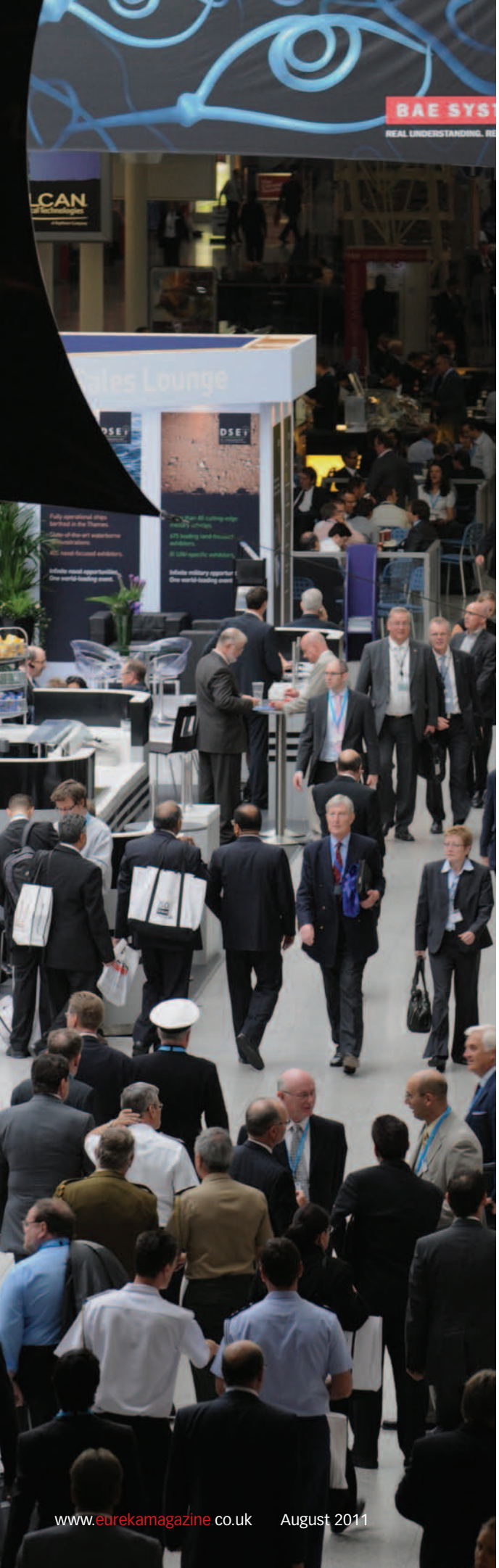
The motor and drive package is designed specifically for variable-speed drive operation, leading to further energy savings. Thanks to these savings the pay-back time of this package is very short, in many cases less than two years.

The second package is configured for maximum output. This motor-drive package offers a power density up to 40 percent higher than in a conventional induction motor. As a result the motor size can be up to two frame sizes smaller than a conventional induction motor, an important benefit for machine builders who often work with stringent space restrictions. Customers who buy this package get the high power density of an equivalent permanent magnet motor with the robustness of an asynchronous squirrel-cage motor.

Because the rotor runs cooler than other technologies, the bearings also run much cooler, making the motor much more reliable. With bearing failure accounting for around 70 percent of unplanned motor outages, customers will appreciate the longer greasing intervals and higher reliability offered by the new motor and drive packages.

SEW-Eurodrive also launched an IE4 motor. Seen at this year's Hannover Fair, it is a line-start permanent magnet motor which can either be connected directly to the power supply or operated with a frequency inverter. The DRU motors are based on AC asynchronous designs, using squirrel-cage rotors that contain permanent magnets.

www.weg.net/uk
www.abb.co.uk
www.sew-eurodrive.co.uk



Best defence

The world's largest defence and security exhibition returns to London's ExCel in September. Once again, the latest military and security technology will be on display with land, sea and air displays vying for the visitors' attention. Matt Bailey reports.

Defence & Security Equipment International (DSEi) is the world's largest fully integrated defence and security exhibition. It provides a forum where visitors can meet representatives from across the whole defence and security supply chain. DSEi takes place at ExCeL in London's docklands from 13 to 16 September. The last DSEi, held in 2009, saw 25,000 visitors from 98 countries in attendance.

To encourage increased levels of visitor attendance the show's organiser, Clarion, has expanded the focus on key sectors such as air platforms and introduced important new feature areas. The event will also offer a range of innovations to enhance the visitor experience, including a downloadable app to assist navigation around the exhibition floor.

Visitors to DSEi 2011 will be able to view systems and equipment from more than 30 leading manufacturing nations, including Brazil, France, Germany, India, Italy, Poland, Russia, South Africa, Sweden, Turkey, UK and the USA. Institutions such as the NATO Maintenance and Supply Agency (NAMSA), the US Department of Homeland Security and the UK Ministry of Defence (MoD) will also have a strong presence at the event.

New features will include an indoor unmanned vehicle and robotics demonstration zone; land, sea and air static displays, including the Apache helicopter and Joint Strike Fighter.

Also new is a security demonstration area. Since DSEi was last held in 2009 the event's name has undergone a subtle but significant change – the S now stands for security. The exhibition has increasingly covered products and services related to national security over the last few events but as the lines between traditional military and homeland security have continued to merge it was decided to reflect this in the event's name. One of the new feature areas will be dedicated to security. The Security Showcase and Demonstration Area will host live scenario and product based demonstrations. This platform allows exhibitors to promote their technology and services to a highly targeted audience and the official delegations invited to attend the event include internal security specialists as well as military.

DSEi 2011 will feature a dedicated international electronics pavilion which will act as a focus area for electronics companies of all sizes; it will include a lounge area for the use of all those exhibiting in the pavilion and will be designed to allow exhibitors an easy way to promote what can be complex products. Leading international electronics players such as XJTAG, Vicor, Lauterbach, ALR, Schroff, Jalteck, Humiseal and Phaedsys will be exhibiting.

The world's largest showcase for unmanned vehicle systems is also taking place. Supported by the Association for Unmanned Vehicle Systems International (AUVSI), the Robotics & Unmanned Systems Showcase is a dedicated arena that will be used for demonstrations of unmanned ground vehicles (UGVs) and unmanned aerial vehicles (UAVs) during the show. A football pitch-sized area, located in one corner of the North Hall, has been set aside for the demonstration and viewing area, while AUVSI will provide the intellectual content with a series of panels and showcases.

ExCeL's dockside location means waterborne demonstrations can also be staged. Planned demonstrations of equipment, such as RIBs, pontoon equipment and offshore raiding craft will take place, while visiting naval vessels provide another valuable platform for the demonstration of new systems and equipment. Visitors can inspect this on specially conducted tours of the ships including a modern frigate or destroyer and an offshore patrol vessel from the Royal Navy, while the Royal Netherlands Navy will also be sending a vessel.

Once again DSEi will feature an impressive line-up of presentations and speakers. According to the organiser, top level speakers from the Ministry Of Defence (MoD) as well as key industry figures will share their thoughts on current challenges and future opportunities for the defence industry through a series of panel debates, keynote sessions and live demonstrations. "Our seminars are the place to go to find out about the latest technologies in the industry and how they can keep your business competitive," it claims.

All sessions are free to attend to all DSEi attendees. They will be split into three themes, with their own dedicated theatres to help delegates quickly indentify topics that are relevant to their interests.

Situated in the heart of the Innovation Zone, Theatre One will be covering topics from Personnel Survivability through to Rapid Deployment Opportunities. It will also be hosting DSEi's new initiative, the DSEi Innovation Challenge where visitors can discover various technologies that are still under development.

Theatre Two which is located in the Security Zone, will focus on topics relating to recent security threats, including Cyber Warfare, Piracy and Combating Terrorism. While at the centre of the robotics and unmanned display area, the Unmanned Theatre will cover a range of topics from UAV System Development, to Robosynthesis and Pathway Detection. The sessions in the theatre will be complemented by live demonstrations of the latest unmanned technology in the Unmanned Display area.

As well as the seminars, a series of high level keynote addresses and briefings will be held away from the show floor. DSEi this year will see a strong ministerial presence across all departments, with a range of keynotes and visits planned from UK Ministers, including the Secretary of State for Defence, the Minister for International Security Strategy and the Minister for Defence Equipment, Support and Technology. A series of breakfast and afternoon briefings will be held which the organiser says will give visitors and exhibitors the chance to talk to those who shape current Government policy and thinking from security to strategy to defence offset to medical frontline trauma.

www.dsei.co.uk

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READER INTERVIEW

MATTHEW GARNER
PROJECT ENGINEER, ROBOTICS TOOLING DESIGN
HYDE GROUP LIMITED

Q How did you first get into the engineering industry?

A I left high school and didn't know what to do with myself. I spent five years at college doing electrical engineering at advanced level. I then did an HND in mechanical engineering and then went to university for two years doing robotic engineering. I went straight from university into Hyde Group; I work in the tooling division, developing robotic systems.

Q What does you role involve on a day-to-day basis

A We concentrate mainly on aerospace, particularly working with new techniques and materials. We design and build R&D robot cells and tooling; we do all the electrical integration – I design some of the control circuits myself – and then we integrate the whole lot and get our programmers to programme it and run it in full order. We get the idea from the client, they tell us the component they want built and we design the robot cell, including all the tooling.

Q What are some of the projects that you are currently working on?

A We have spent the last four years working on a very large R&D study called NGCW (next generation composite wing). Airbus led the project, backed by the Government and working with 20 other partners including GE, Bombardier, GKN and Kuka Robotics. We actually helped them develop the wing, rather than them throwing the design at us and saying "automate it". We are currently also working on a robotic mould carbon fibre rolling system for Airbus.

Q What is the most interesting project or piece of engineering that you have been involved in?

A We are involved in the new ITER fusion reactor project in France, which aims to demonstrate that fusion is a viable energy source for the future, working on a selection of machines to build the massive magnetic coils for the project.

Q Has the industry changed a great deal since you joined?

A I've only been in the industry for five or six years, but even in that time it has changed dramatically. The aerospace industry was totally anti-robots at first. They were scared of letting anything automated anywhere near aircraft parts, especially a whole wing. But in the last two or three years they have completely changed that opinion and they are looking for automated techniques for all of it now. Eventually, perhaps in ten or fifteen years, it will be just like the automotive industry in terms of automation.

Q What are the big issues facing your industry?

A At the moment we are having to convince people that robots and automated systems are the right solution. There are no significant issues with anything in particular, it's just a question of getting people to understand what is possible with automated tooling and robotics.

Q How do you see the industry going forward?

A Eventually, we will see an aircraft wings being assembled entirely by robots. We have already produced concepts for this, but when we get to the stage where the whole process is automated in five to ten years I think people will be astounded.

Q What excites you about engineering?

A Every couple of months we get a brand new project and a brand new robot 'toy' to play with. We have just been lent a Motoman SDA-20 which is a double-arm robot which can physically do what a human can do, if not more. There are some videos on YouTube of these robots doing various things including pulling a pint! We are currently considering programming it to play Jenga for a promotional film.

Avoiding the trap

How can you design a door that prevents the possibility of trapped and damaged fingers?

Most of us understand the danger presented by conventional door hinges. Who hasn't trapped or come close to trapping their fingers in a door hinge at some point? All it takes is a moment's inattention and the result can all too easily be considerable pain, not to mention injury and possibly permanent physical damage.

The main danger is posed to children, who are amongst the least safety-conscious and often have yet to learn the danger of putting their fingers in door hinges. The Royal Society for the Prevention of Accidents (RoSPA) estimates that 30,000 children trap and seriously injure their fingers in doors every year and more than 1,500 of these will require surgery.

The main danger with conventional doors comes from the gap which is created at the hinge side when the door is opening and closing. This gap is an easy place for unknowing fingers to wander and it presents a particular danger to children, people with sensory impairments or additional support needs and elderly people.

The sharp corners of the door and the frame act as cutting edges. This combined with the door, which acts as a lever, can create enough pressure at the hinge to cut steel.

Further research carried out at the Royal Sick Children's Hospital in Glasgow highlighted the severity of these injuries which occur. In six months, 136 children were admitted to Accident and Emergency after trapping their fingers in a door with 45% suffering bone/joint injuries and 11% amputation.

The cost of litigation for these injuries can be substantial. The responsibility for reducing these injuries falls to those who have children in their buildings.

The Challenge

The challenge this month, then, is to develop a door hinge that eliminates the danger of trapping fingers, while still offering a fully-functional means of entering and exiting a room.

Of course, the solution may not involve changing the hinge. Perhaps it would be possible to create a door from a soft, pliant material that would make any possible trapping of fingers painless and non-injurious? Alternatively, the gaps between doors and hinges could be filled with foam? However, such a solution would possibly make doors less secure, more expensive and would have serious repercussions for the effectiveness of the door itself.

The solution available was developed by a British company and works by eliminating the dangerous gap created by conventional hinges. It is already in use across the country in the healthcare, educational, retail and leisure markets. It is simple, elegant and totally effective. Even so, it will be interesting to see if you can come up with something better.

The solution will be described in the September issue of *Eureka*.

The answer to last month's Coffee Time Challenge of how to avoid the consumption of spoilt milk can be fouind in the Technology briefs section on page 8.

ProcessFlows®
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A Leaner Manufacturing Case Study

Control valve manufacturer Bifold wanted to drive changes in its manufacturing processes that would cut costs and deliver measurable improvements in reliability and performance. Using ShapeSpace 3D search technology to search its entire part reference library and identify all parts manufactured from the same raw material, Bifold was very quickly able to consolidate manufacturing processes and improve efficiencies.

Manchester based Bifold Group designs and manufactures control valves and accessories for demanding engineering environments. Quality, safety, performance and reliability of their products are essential as they are used in hazardous, corrosive and subsea situations.

Valves are made up from a range of stock component part designs held in a part library, which has grown to almost 60,000 different parts. If components are physically in stock, the company is able to turn a job around extremely quickly, depending on batch size. If components are out of stock, they have to be machined before any assembly can begin.

To meet order demands, Bifold's machine shop was spending a lot of time tooling-up and making adjustments to machinery as it constantly juggled component runs with customer requirements.

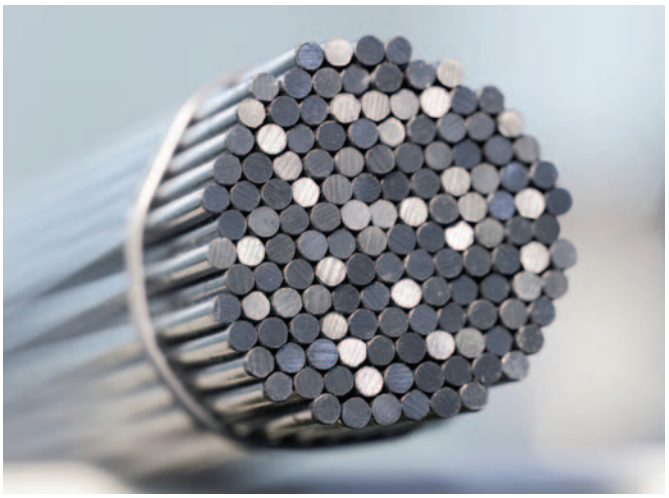
The company was not realising the potential of its existing capacity, which compromised workflow and extended delivery timescales.

Component parts are manufactured out of stainless steel bars in a range of standard sizes. Bifold use ten variants of steel bar for the majority of its parts.

Mike Peacock, General Manager at Bifold, wanted to minimise the disruption of constantly switching manufacture from one component part to another, by grouping all components made from the same steel bar into a single process. They would then only need to tool-up once for each steel bar variant.

Mike's 'lean thinking' would shorten lead times and increase throughput and productivity, giving the company a greater market opportunity and competitive advantage. But there was one problem; How to identify which parts were manufactured out of the same steel bar?

Bifiold's part numbering system gave no clue to what sort of part it was, or the size and shape of bar it was manufactured from. All part numbers were computer generated on an ad-hoc basis. A valve body BV0044/02 could be listed next to a locking bracket BV0045/02.



Going through a part library of up to 60,000 items manually was not an option, so ProcessFlows supplied Bifold with ShapeSpace 3D search technology. ShapeSpace searches part libraries and databases for all items of similar 3D shape or size. Part name and number is not needed.

All parts matching the 3D search criteria are presented collectively on screen in a layered, 3D visual format for easy identification, along with part number and full documented specification. At Bifold, this includes the steel bar sizing used to manufacture the part. It now has all the information needed to be able to verify each part number against the correct steel bar needed to manufacture that part.

By grouping together all parts made from the same steel bar, Bifold has been able to consolidate its part manufacture and dramatically reduce the time spent chopping and changing between jobs and reconfiguring machinery.

Bifold now maintains a constant level of physical stock parts, including 'one-off' and infrequently used parts, which are manufactured as part of the consolidated process at no extra cost.

If you are interested in finding out more about ShapeSpace 3D search technology, please call

0800 988 5593, or email *sales@processflows.co.uk*

Further information about ShapeSpace can be found at *www.shapespace.com*

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Adhesives

Radically Improved Instant Adhesive

Loctite 3090 is a clear, two-part cyanoacrylate that increases the versatility of instant adhesives. Alongside traditional benefits, 3090 allows exposed adhesive outside of the joint to harden within minutes – removing the need for a post-assembly activator. Gap sizes up to 5mm are readily accommodated and the gel viscosity means it's suitable for vertical or overhead application.

It can be used on plastic, rubber, wood, stone, leather, fabric or metal and can withstand a force of 20N/mm². Easy to use, 3090 comes in a pack containing a dual syringe with seven mixer nozzles – and no application gun is required.

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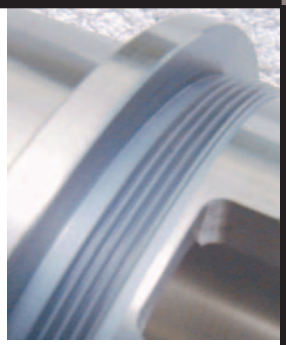
Coatings

WS2 Stops galling of SS and Titanium



Stainless Steels and Titanium are both prone to galling and seizing. WS2 is a very low friction dry lubricant surface treatment, developed by NASA for use in deep space. It has been shown to provide a very cost effective solution, preventing both problems on threads and other sliding surfaces.

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Disc Springs

Spirol Disc Springs meet Braking Systems' needs

A mechanical back-up design using Spirol Disc Springs has been developed for use with braking systems for off-highway vehicles. Such braking systems are commonly designed to be hydraulically actuated and in most cases, braking occurs when pressurized fluid compresses stationary plates against plates that rotate with the drive shaft. The amount of friction between each set of plates controls the deceleration of the vehicle. However, without an additional fail safe system, this design alone has limited reliability. If a hydraulic seal is compromised, or the hydraulic cylinder loses pressure for any reason, the brakes fail. With Spirol's design of mechanical back-up system, under normal circumstances, the hydraulic system holds a constant pressure on Disc Springs stacked in series. If pressure fails to be maintained, the stack of Disc Springs decompresses to actuate the braking mechanism. The reliability of this safety system is dependent on the consistent performance of Disc Springs. In this critical application, the Disc Springs' performance and level of predictability improves product quality and ensures overall safety.

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The small electric rotary atomiser produced by Newland Design is an efficient way of creating small, consistently-sized droplets by means of high-speed rotation alone, without need of compressed air or any high pressure.

The Newland Atomiser rotates a small porous plastic cylinder at speeds up to 35,000 rpm and emits droplets of less than 40 micrometres in diameter.

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Flow rates up to 25 litres per hour. Power input 10 - 25 Volts DC, consumption less than 40 Watts. Evaluation units always available.

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✆: 01524 733 424

www.newlanddesign.com

Sensors

SICK Introduces Compact, Quick Mount Inductive Sensor Range

The new SICK IQ Flat Range of Inductive Sensors offers presence detection in a wide range of applications. The four competitively priced models are easy to install, with single or twin screw mounting, and are between only 4mm and 10mm thick, thus allowing positioning in recessed positions under moving machinery.

The SICK IQ Flat range is ideal as a replacement sensor for machinery and equipment positioning duties, inside or outside; all models are IP67 protection rated.

The SICK IQ04 and IQ06 models feature tough plastic housings and single screw fixings. The SICK IQ20 and IQ25 models have robust die cast metal housings with secure twin screw fixings. The sensing ranges are between 1.5mm and 7mm, depending on model.

@: andrea.hornby@sick.co.uk
✆: 01727 831121

www.sick.co.uk

Subsea Mechanical Engineer

Aberdeen

Type: Contract **Salary/Rate:**Negotiable

Are you looking for a fantastic new job opportunity in Aberdeen as a Subsea Mechanical Engineer?

Job Description An experienced Mechanical Engineer is required for various project assignments within a large engineering contractor. Typically, roles would be the design and specification of hardware, manufacturing management, commissioning management. Some offshore work may be required.
Required Skills Design, fabrication and commissioning experience of the following: • Subsea Valves • Manifold Piping Systems and Conventions • Diverless Connectors ROV interface systems
Desired Skills Trees
Required Qualifications A relevant degree is preferred

For full details online enter reference: JSRLC1571100

Mechanical Design Engineer

Location:Bristol, Somerset
Type: Contract
Salary/Rate: Negotiable

My client (a leading Aviation/Aerospace organisation) is seeking to recruit Mechanical Design Engineer's to work on a contract based in the Bristol area that is initially scheduled for 6 months. This project will involve performing design work related to systems instillation/integration on the aircraft. Ideal candidates will be fluent in Catia V5 with an Aerospace background and have experience working with sheet metal, housing flight computers and DFM drawings.

For full details online enter reference: JS-.30533

Mechanical Design Engineer (Materials Handling)

Location: High Wycombe, Bucks
Type: Permanent
Salary/Rate: £30k - £40k pa + benefits

Mechanical Design Engineer (Materials Handling) High Wycombe, Buckinghamshire £30'000 - £40'000 + 25 Days Holiday + Progression + Pension + Healthcare Are you a Mechanical Design Engineer from a materials handling background with 3D CAD experience looking to work for an expanding, progressive company where you can progress into senior management? This expanding multinational business has been established for over 100 years and under a new directive are looking to expand the business into new countries. This highly profitable company design and manufacture materials handling equipment worldwide to industries such as the food, pharmaceutical and petrochemical industry.

For full details online enter reference: JS-.RTR - 10762

Project Engineer (Design)

Location: Highbridge Type:Permanent
Salary/Rate: £25'000-£32'000 + benefits

Are you a mechanical design engineer with experience of cost reduction and looking to work in a company that will offer you excellent training and career progression? Opportunity available for a leading manufacturing company offering a varied role where you will not only get involved in the design but look at cost reduction through investigations and idea generation. This Multi-national company is setting the standard for design, manufacture and distribution of products for mechanical, electrical and telecomms industries. With a high demand for their quality products, and looking to always make improvements to the products and processes, they are looking to recruit a project engineering. You will be responsible for costing engineering projects; updating Bills of Materials; working with production on Value Engineering/Value Added projects looking at the design and working with the production team.

For full details online enter reference: JS-.10758

Senior Design Engineer

Location:Cambridge, Cambridgeshire
Type: Permanent
Salary/Rate: £35k - £40k per annum

Job purpose To design and implement complex high speed digital and analogue circuits for Embedded CPU and video applications. Role will cover researching, defining and implementing hardware solutions to meet demands of the market place. Key responsibilities and accountabilities 1. Research, design and implement hardware (circuits and PCBs) to augment and expand Embedded CPU and video product range. This involves circuit innovation and design, protoyping, debug and qualification, to product release. 2. Keen awareness of technology trends and innovating solutions to meet time and cost constraints. 3. Provide technical support to software and productions teams. 4. Assist sales team to define solutions in response to particular customer needs. This involvement ranges from in-house discussion to being involved with customers via email/phone/person. Person profile Key skills: Extensive experience designing high speed digital interface involving CPUs, DDR Memory, digital video, EPLD/FPGA, PCI bus.
For full details online enter reference: JSNJ56799

Lead Mechanical Engineer

Location: Bedfordshire
Type: Permanent
Salary/Rate: £60k - £80k per annum + benefits

Lead Mechanical Engineer with experience of working on military vehicles, required to join an expanding world leading Defence Company. Due to continued success, the company is undergoing an exciting period of growth across many domains. As a result we have a vacancy for a high calibre Principal Mechanical Engineer to lead the design and test effort in support of a major programme. Successful candidates will possess a desire to be challenged and to contribute towards the success and growth of the business. In return we can offer career development, an empowered and supportive working environment and competitive reward package
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