

D P N DESIGN PRODUCT NEWS

Covering the total design engineering function in Canada



February 2010



30 A smart power relay

E-T-A Circuit Breakers has introduced a 30 A version of the E-1048-8 Dice Smart Power Relay, a remotely controllable electronic load disconnecting relay, matching standard four pin automotive relay sockets. The relay is a replacement of standard protection schemes.

www.e-t-a.ca



Plastic composite springs

Lee Spring has introduced LeeP plastic composite springs, fabricated in formulations of Ultem PEI resins. Six strengths are identifiable by distinct colors and are used where non-corroding, non-metallic, inert materials are preferred.

www.leespring.com



Process monitor/controller

Novotechnik's MAP 4000 series features include programmable input selection and mathematical functions as well as up to four limit switches, and analog outputs. It can perform up to 40 measurements/s. Series limit switches are programmable and operate via relays.

www.novotechnik.com

Volume 38 Number 1



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Physical rehab centre driven by design

By Mike Edwards

Maintaining independence as we grow older is a desire shared by our families, our communities and ourselves. Unfortunately, physical deterioration is inevitable and suddenly our homes, streets and public buildings reveal barriers to our mobility.

Working diligently to remove those barriers is a multidisciplinary team of scientists, engineers and industrial designers at the Toronto Rehabilitation Institute in downtown Toronto. Led by Geoff Fernie, vice president of Research at Toronto Rehab, the institute can take just about any researcher's idea through design and build to proof-of-concept and commercialization.

"Most of us know someone who is coping with the often daunting challenges of a disability caused by illness or injury. In fact, at some point, we will all experience a disability or care for someone who has one.

"Rehabilitation research has the power to improve lives by providing practical solutions to everyday problems faced by people

with disabilities and those encountering older age. Our technology team translates research into products," said Fernie.

The institute's Challenging Environment Assessment Laboratory (CEAL), consisting of a tightly integrated mechanical workshop, electronics development workshop and rapid prototyping workshop, ensures that product prototypes are delivered quickly into the hands of researchers.

CEAL is part of Toronto Rehab's iDAPT (Intelligent Design for Adaptation, Participation and Technology) facility set to open in February 2011. iDAPT is Toronto Rehab's \$36 million research initiative and part of a \$146 million hospital capital redevelopment (www.torontorehab.com).

CEAL's Research and Design Studio is where inventions are conceived and the designs are conceptualized. Researchers and students from engineering, industrial design, clinical, architectural and other backgrounds collaborate in this workspace that emphasizes creative computer graphics and concept modelling with the help of a Stratasy Dimension

**HOW AUTODESK INVENTOR
CONSTRUCTS EXCELLENCE
WITH DIGITAL PROTOTYPING.**

autodesk.com/inventor

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Image courtesy of Engineering Center LTD, Russia

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Get PAC features at a PLC price with **Productivity**3000™



Productivity3000, the latest industrial controller from AutomationDirect, saves you time from start to finish! The high-performance CPU has 50Mb memory, fast scan times and industry-leading seven communication ports for just \$599 U.S. It's the heart of a system with so many time-saving features, we could only list the top 20 here!

ProductivitySuite software FREE (\$495 U.S. value) We want you to see just how productive this new controller can make you. That's why we're offering the software for FREE (downloadable online) right now - check out the tools, instruction set and programming/debug environment that will let you configure and program a system in less time than you can imagine.

TOP 10 SOFTWARE HIGHLIGHTS

- Auto Discover the hardware
- Tag name database programming
- Task management
- Advanced "fill-in-the-blank" instructions
- Seamless database connectivity
- Graphical HTML-based Help File
- Run-time editing
- Project file and user documentation stored in CPU
- USB data logging on the CPU
- Tag database export to C-more HMI

all in an intuitive Windows-based programming environment

TOP 10 HARDWARE HIGHLIGHTS

- **High-performance CPU** with 50Mb memory, fast scan time, and USB & Ethernet Programming ports for quick and easy connectivity
- **Modular** rack-based footprint with 36 discrete and analog I/O option modules, up to 115,000 I/O
- Unmatched **built-in communications** capabilities, including local and remote I/O ports and networking
- Integrated **drive communications** over Ethernet
- **LCD display on CPU** and Remote Slave for configuration and diagnostics
- Patent-pending **LCD display on ALL analog modules** - helpful in troubleshooting and reading process values
- **Hot-Swappable** I/O for advanced troubleshooting and system repair
- No module placement restrictions - **any module in any slot**, any base
- **No power budget** limitations
- Optional I/O terminal blocks or easy ZIPLink **plug-and-play wiring**

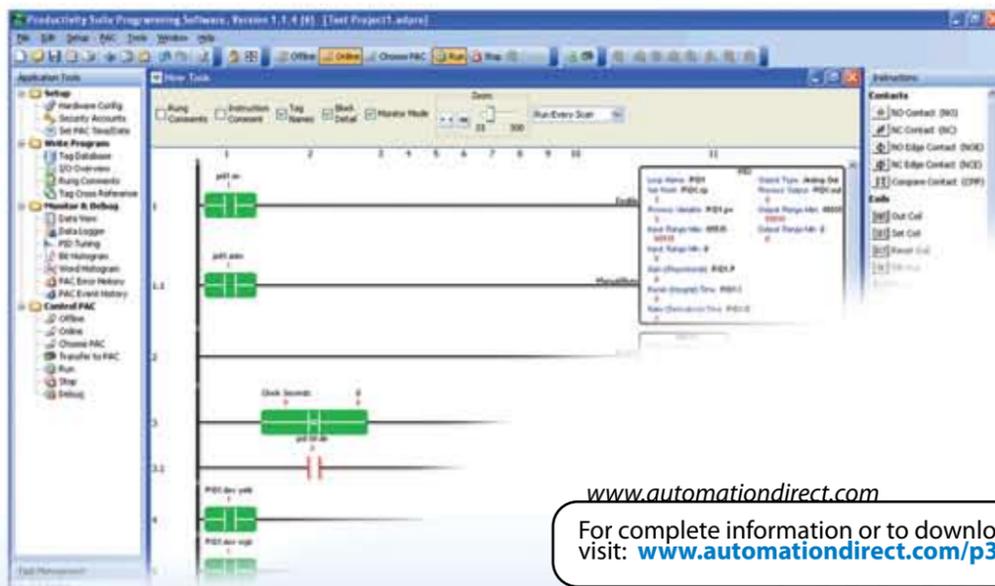
and a two-year warranty to boot!

LCD display aids troubleshooting



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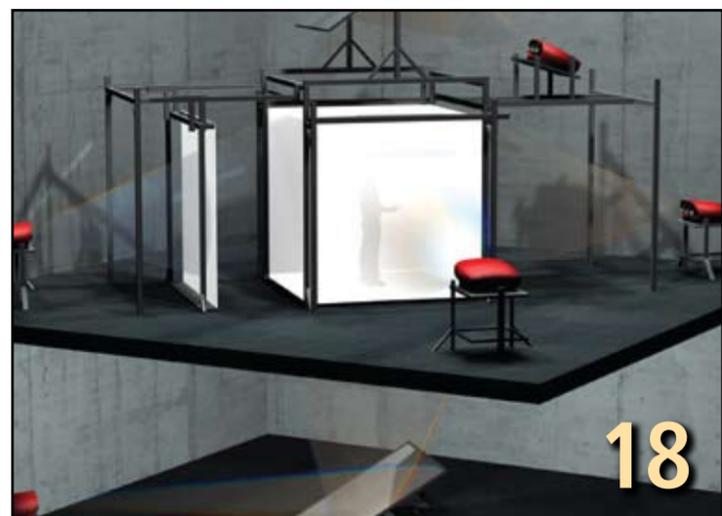
System integration partnership program adds new member

Automation and control integration provider Altec Integrated Solutions has completed the certification process to become the latest member of Bosch Rexroth Canada's Electric Drive and Controls Systemintegrator program.



Social media platforms have design engineers communicating on the web

Autodesk (above), SolidWorks and Siemens PLM Solid Edge are using social media channels such as YouTube, Facebook and Twitter to connect with design engineers at their jobs.



Université du Québec is using virtual reality to treat phobias

Cyberpsychology Lab employs a 6-sided virtual reality "immersive room" and a team of researchers to modify computer games to help patients deal with phobias such as fear of heights and enclosed spaces.



Porsche's front engine sports sedan a rare hatchback design

Bill Vance examines the Porsche Panamera, a four-seater that places the automaker in the luxury sedan market, along with Mercedes-Benz, Audi, Jaguar, Infiniti and Lexus.

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DPN DESIGN PRODUCT NEWS

DIGITAL EDITION

February 2010



DPN editor
Mike Edwards

Please go online to dpncanada.com to fully explore and enjoy the Digital Edition of Design Product News. This user-friendly new format, with every item linked to other websites, videos and 3D PDFs, will help you get even more invaluable design engineering information from **DPN**.



Interactive stuff

Notice that as you move your mouse over certain parts of the magazine or over the DPN 3D and video player buttons, in some editorial stories and in some advertisements, a grey box appears. That means you are one click away from a new window opening up that takes you to a website or rich media we've linked to.

Renderings



From Avatar to the iPad, the future of 3D has never looked brighter. Now where's the content?

By Mike Edwards, Editor

For those that have seen Avatar, it was interesting to see the use of 3D models within a 3D projected sci-fi movie. Notice the human characters using gesture-based techniques to manipulate information on a screen and hand-held tablets?

Avatar's director, Canadian-born James Cameron, a physicist who caught the Hollywood bug, has executed both narrative and technological creativity to great success. To provide the illusion of the 9 foot tall Na'vi inhabitants of Pandora, Cameron employed actors wired with 3D motion capture sensors – technology used to benefit the realism of human movements in most video games.

Now enter Steve Jobs and the Apple iPad launch. Does 3D have a future on this platform? Or, as Oleg Shilovitsky, CTO at Dassault Systèmes ENOVIA, puts it: "Who can generate 3D/PLM content for the Apple iPad?"

The Dassault Systèmes 3DVIA Mobile application already works on the iPhone or iPod Touch, providing a way to use the platforms finger gestures to view 3D

Devices come and go, but content lasts forever with its creators

solid models on their own or against a 2D image background. This app from the Apple Store is fun to play with, to be sure, but is not a design creation platform.

So too the iPad – "an iPhone stretched up in size" with the camera and phone features stripped out.

"This device is not for design," says Shilovitsky. "Absence of a camera creates some limitation for the application like 3DVIA Mobile and all other applications that want to merge physical and virtual life.

"This device is probably too expensive to be used on the shop floor and manufacturing. Potentially, I can see iPad can be used instead of slim laptops, for reviews and by mobile users."

But design content is still more than about just 3D models. Autodesk has released SketchBook Mobile, the portable version of its SketchBook Pro application for the PC and Mac. The idea is you'll never need to hunt for a clean napkin and a pencil at those impromptu brainstorming sessions over lunch.

Just fire up your iPhone or iPod Touch, extend your index finger, and sketch away immediately. Now with the iPad, users of this app – Apple assures us that its new platform can run existing apps – will now have the surface area of an unfolded napkin to play with.

Shilovitsky thinks that the iPad life

in PLM has potential. "The opportunity will come when we will start generating content that can be easily consumed by iPad.

"Today, most of the content in design and manufacturing is tuned for desktop computers – CAD and other design systems are desktop oriented, data management and process oriented systems are, for the best case web oriented."

What should be done to make it happen?

"Let's start thinking about content around us: design, simulations, bill of materials, project reviews, change requests. How to get this content on such a cool device like iPad? Content will be the major driver for people to start using it."

His conclusion? That PLM generates content for multiple devices, allowing for

the long life of intellectual property.

"Devices will come and die, but content will be forever with companies that create it."

If you found **Renderings** interesting, please send a message to medwards@clbmedia.ca.

High-Performance Energy and Data Transmission Systems



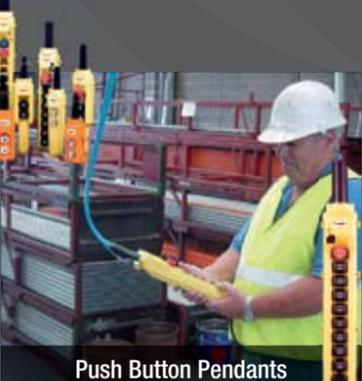
Conductor Bar Systems



Cable Festoon Systems



Cable Reels



Push Button Pendants

Conductix-Wampfler has one critical mission: To provide you with energy and data transmission systems that will keep your operations up and running 24/7/365. Our rugged, low maintenance products are time tested in the most demanding environments. Our systems are backed by a combined worldwide sales and service network unmatched in our industry.

We offer a complete line of mobile electrification products and have over 60 years of experience applying these products to real-world industrial applications. If you need reliable solutions, look no further than Conductix-Wampfler.

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Feature: Editors Choice



Energy-saving industrial display panels

Beckhoff Automation has introduced control panels and panel PCs with 5.7-in. displays. The panels feature aluminum fronts with IP65 rated protection. Space-saving display dimensions of 7.2 x 5 in. (W x H) facilitate use wherever compact displays are required for machinery or automated buildings. The 640 x 480 pixel panels are available in different versions: from a "basic" control panel display without processor to a compact PC controller with an integrated, energy-saving Intel Atom CPU.

The operating range for all types of panels is 0 to 55°C.

www.beckhoffautomation.ca

Multi-loop integrated controller

Watlow has introduced the EZ-ZONE RM – a configurable multi-loop temperature/process controller. The unit is said to be the first industrial controller to inte-



grate an entire assembly of control loop functionality in one space-saving, DIN-rail mounted package. It can be used as a PID temperature/process controller, an over/under limit controller or these func-

tions can be combined into an integrated controller. It can be configured with between 1 to 16 modules controlling from 1 to 64 loops.

www.watlow.com

Miniature 6 A SPST and DPST rocker switches

NKK Switches has expanded its line of rocker-style switches to include the CWSB series of miniature, snap-in mounted rockers. Offered in both SPST and DPST, units have a stable stationary contact construction, polycarbonate housing and a polyamide actuator. Mechanical life is rated at 30,000 operations minimum and electrical life at 10,000 operations minimum with a resistive load and 6000 operations minimum with an inductive load. CWSB switches are rated 6 A at 250 Vac for a



resistive load and are UL recognized and CSA Certified. cULus marking is standard on all CWSB devices and all are RoHS Directive compliant.

www.nkkswitches.com

4-pole, double-throw relay modules

WAGO Corp. has announced a line of DIN-rail mount 858 series four-pole, double-throw industrial relays engineered for robust applications requiring compact signal switching for power and control. The 858 Series can be ordered as Complete Relay Modules, or a customizable Socket/Base with standalone Relays as components. The Complete Relay Modules carry



a four change-over contact relay, retaining clip and base featuring two conductor entries at each connection point. The Relay Modules also provide two locations for marking strips or

WMB markers, direct printing at conductor entries and an adhesive label option. The relays are available in coil voltages of 24 Vdc, 120 Vdc and 230 Vac, as well as gold contact-equipped variants.

www.wago.us

Gantry servo motion software

Kollmorgen has introduced MechaWare 4.0 – a mechatronic "toolkit" that is said to empower software and design engineers to work together to design, test and modify custom motion algorithms in a fraction of the time and cost of conventional methods. The MechaWare 4.0 graphical interface allows controls engineers to reduce development cycles and simplify machine design. They are also able to embed inverse kinematic calculations in firmware for customized, real-time performance, define coordinate transformations to improve system accuracy based on registration mark or vision system input, and create motion and I/O routines in firmware for reduced latency and improved safety.

www.kollmorgen.com



Injector/ejector handles

Elma Electronic has announced Advanced Mezzanine Card (AMC) injector/ejector handles. AMCs are the main boards for MicroTCA designs and are also implemented in some AdvancedTCA applications. The handles have an optional mi-



cro-switch that fits all of the locations listed in the MicroTCA.0 specification. An optional LED indicator light guide is available with a die-cast zinc

bright chromate faceplate that provides strength and durability. The clear polycarbonate light guide easily snaps into faceplate. Custom handle designs and colors are available and the customer's logo can be optionally integrated into the handle die-cast. Elma also offers services that include silk-screening, overlays and custom cutouts.

www.elma.com

Industrial Components & Services Kinecor Solutions



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Kinecor is more than just a distributor. Our dedicated team of specialized engineers provide turn-key solutions to your most demanding industry challenges.

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Process Equipment • Material Handling • Safety and PPE

By Design

Altec Integrated Solutions now a Systemintegrator



Left to right: Rocky Blondin (Altec Integrated Solutions), Bill Long (AIS), Chris Bartlett (AIS), Christoph Neuscheler (Bosch Rexroth Canada), Tyler Hansen (AIS), Michael Dill (AIS).

Automation and control integration provider Altec Integrated Solutions Ltd. (www.alteconline.com) has completed the certification process to become the latest member of Bosch Rexroth Canada's Electric Drive and Controls Systemintegrator program (www.boschrexroth.ca).

Headquartered in Coquitlam, BC, Altec is now offering its clients production and application know-how, combined with the needed industry sector knowledge, of a Bosch Rexroth Systemsintegrator to guarantee optimum implementation of Bosch Rexroth systems and components. As a Systemintegrator, Altec can now

develop customized, innovative solutions for its customers based on the Bosch Rexroth Automation House.

Achieving Certified Systemintegrator status means Altec can combine Rexroth drive and control technology with in-house solutions, design and integration skills.

Altec began in 1999 in machine automation and industrial design for the forest products industry, entertainment, food and beverage and municipal services industries, and today has expanded its depth of knowledge and skill sets to cover a wider variety of industries.

Hurdles remain on road to recovery: economist

By Jerry Cook

The nascent recovery in the Canadian economy still has a long way to go and, in fact, still has some key hurdles to overcome.

"I am hesitant to use the word recovery because I think it has been overused in the last while and it has not been used entirely responsibly," said Peter Hall, vice president and chief economist with Export Development Canada (EDC). Hall was speaking to the Automotive Parts Manufacturers' Association's (www.apma.ca) 14th annual Automotive Outlook Conference.

Continued Hall, "I believe that right at the moment we are in the heaving seas between the end of the recession and the beginning of the recovery. It is a protracted period of time and it is not an easy period to be in. We are in the middle of a race to recovery which will have a number of key hurdles that we have yet to overcome."

The problem is that the uncertainty makes any type of strategic planning nearly impossible, he added. "For example, you will see news reports one week which indicate that the recovery is on and the next week you see other reports indicating that the bottom has dropped out of the world economy again. The problem is that it is very difficult to do any kind of strategic planning in a market that is as volatile as that."

There are a number of factors contributing to the volatile nature of the market. "For one thing, we have had very successful government action, not just inside the Canadian economy, but in the world economy. Monetary policy



Peter Hall, vice president and chief economist with Export Development Canada (EDC), speaking to the Automotive Parts Manufacturers' Association's (APMA) 14th annual Automotive Outlook Conference.

and the interest rate reductions that we saw last fall were nothing if not dramatic," he said.

However, the growth that has been spurred by fiscal stimulus spending is causing false optimism that the recovery is already underway, he said. "What we have seen recently with the dramatic quarters of growth that are being reported currently is that they have the fingerprints of fiscal stimulus all over it. Fiscal policy is exerting an extraordinary impact on what is going on right now. (Media reports) imply that this is a fundamental return to recovery but that isn't what we are seeing right now."

Another problem is the excess inventories that have built up since the start of the downturn and now have to be reduced, said Hall, adding that a case in point is the U.S. housing market.

According to Hall, other key hurdles that will have to be overcome in setting the stage for a recovery include currency appreciation, the threat of inflation, and protectionism.

Autodesk University 2009 reaches more than 25,000



More than 25,000 people from 100 countries participated in Autodesk University 2009 (AU), attending in Las Vegas and virtually via AU Virtual. Attendees indicated that staying competitive is one of the major reasons people come to the three-day user conference in Las Vegas. "One of the best ways to stay competitive is through the use of technology," noted Carl Bass (left), Autodesk president and CEO. Bass said that technologies follow a continuum – from impossible to impractical to possible to expected to required – and the right timing is critical. "Too early, it's impractical; too late and, well, you've missed the boat. Get the timing just right, though, and you've hit the sweet spot."

News in Brief

Wainbee purchases SHCN

Spécialité Hydraulique Côte Nord, Inc. (SHCN) located in Sept-Iles, QC, has been acquired by Wainbee Ltd. (www.wainbee.ca) As a result of this acquisition, Wainbee now has 13 locations coast-to-coast servicing customers from Vancouver to Halifax.

Parker combines divisions

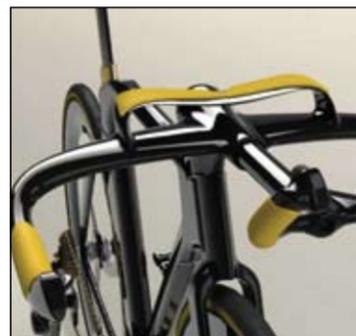
Parker Hannifin (www.parker.com) has aligned its Motion & Control Division and Fluid Connector Division into a single combined division for Parker Canada. Tony Wyszowski has assumed the general manager position for Parker Canada.

MTS program for cylinders

MTS Sensors (www.mtssensors.com) has announced an industry partnership program for the integration of its Temposonics sensors in hydraulic cylinders for mobile hydraulics. The MTS Integration PARTNER program combines the position-sensing technology with hydraulic cylinder manufacturers worldwide, enabling "smart cylinder" designs.

Rittal debuts service capabilities video

Rittal Systems Ltd. has recently created and posted a video highlighting its value added service capabilities. Found at www.rittal.ca, the video highlights its local onsite technical abilities and customization services. Rittal has been providing in-house modification and assembly service to customers for a number of years using an in house CNC machine and a dedicated team of skilled technicians assembling enclosures. The video shows how Rittal designers, the modification centre and assembly team provide customers high quality enclosures.



Javelin Technologies announce 'Cool' Design Contest winners

Javelin Technologies (www.javelin-tech.com) has announced the winners of its 2009 Cool Design Contest from its customer base that use SolidWorks 3D solid modeling software. CADmech (Photon Aerobar shown), Shape Products and SNC Lavalin were the top prize winners of a PlayStation 3. Honorable Mentions went to Ingersoll Axles, Mining Technologies, Shape Products, Broda Seating and IMG.

Calendar

April 19-23, 2010. Hannover, Germany. Hannover Messe (www.hannovermesse.de) includes co-located shows Industrial Automation, Digital Factory and MobilTec (hybrid and electric powertrains).

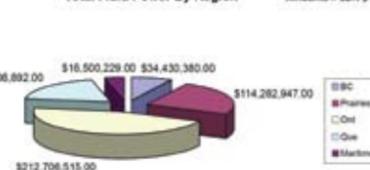
May 3-4, 2010. Toronto. For the third year running, the Partners in Prevention Ontario Health & Safety Conference & Trade Show

is featuring the Machine Automation Safety Congress (www.safermachines.com).

May 17-19, 2010. Montreal. Montreal Manufacturing Show sponsored by the Society of Manufacturing Engineers (www.mmts.ca) includes factory automation and machine tool exhibits.

See more events @ dpncanada.com

Total Fluid Power By Region Amounts in CDN \$



Maritime provinces include New Brunswick, Nova Scotia, PEI and Newfoundland & Labrador. Prairies include Alberta, Saskatchewan, Manitoba plus the territories.

CFPA releases fluid power sales for Canada

The Canadian Fluid Power Association (www.cfpa.ca) has released the results of its Market Statistics Survey – Industry Sales 2008. Participating member pneumatics companies included Asco Numatics Canada, Ltd., Bosch Rexroth Canada, Festo Inc., Parker Hannifin Canada Inc. and SMC Pneumatics (Canada) Ltd. Participating hydraulics companies included Bosch Rexroth Canada, Eaton Hydraulics, Oilgear Canada Inc., Parker Hannifin Canada and Sauer-Danfoss. Total reported pneumatic sales came in at \$128,820,400 while hydraulics sales came in at \$337,506,563. Total overall fluid power sales (see above by region) came in at \$466,326,963, with Ontario as the number one region, followed by the Prairies.

Technical Literature

Climate control. The *Rittal Industrial Buyers Guide* is a reference tool when selecting climate control solutions, enclosures, and enclosure accessories.

www.rittal.ca/literature

Motors and drives. *Motors and Drives: A Practical Technology Guide* from ISA introduces engineering concepts of motors and drives, and helps readers understand how to keep them operating efficiently and manage energy consumption.

www.isa.org/motorsanddrives

Native CAD models. Misumi USA, Inc., has announced that the Misumi 3D CAD Model library in CD-ROM format is now available to machine builders, automation system designers and product design engineers. Containing thousands of mechanical components, the 2-CD set complements Misumi's on-line 3D CAD configurator.

www.misumiusa.com/Catalogs/request.aspx?Catalog=3844

www.misumiamerica.com

Vacuum workholding. Kurt/NEMI has announced publication of a catalog containing 36 pages of its vacuum workholding and automated systems, digitizers, software and tool setter. Included in the vacuum workholding line of are grid system tables ranging up to 60 x 120 in. as standard sizes and table sizes made to customer specifications.

www.kurtworkholding.com

HMI systems. EAO Switch Corp. has released an HMI Systems brochure. The brochure highlights EAO's competencies in industrial design and ergonomics, component manufacturing, mechanical and system design, software and interface design, production and supply chain, and quality assurance and testing. Systems achieve specified IP standards, and conform to CE, UL, cUL, VDE, RoHS and WEEE standards.

www.eao.com/eus/en/home.sp?navid=0

Severe duty piston pumps and motors. Parker Hannifin Corp. has completed a Product Catalog and Applications Handbook update for the GOLD CUP series of piston pumps and motors. The *GOLD CUP Product Catalog (HY28-2667-01/GC/NA,EU)* and *Applications Handbook (HY28-2668-01/GC/NA,EU)* are reference texts for designing severe duty closed-circuit hydraulic systems for shredding, mining, drilling, railway, material handling, pulp/paper, offshore, chemical, processing, military and marine applications as well as industrial systems.

www.phpump.com

Mechanical components. An interactive CD-ROM from **Stock Drive Products/Sterling Instrument (SDP/SI)** features a 360-page *Inch/Metric Supplement Catalog, D795*, containing over 7000 components, plus eStore access. In addition, the CD-ROM contains PDF versions of the previously published SDP/SI 1184-page *Master Inch Catalog, D790*, and the 1240-page *Master Metric Catalog, D785*. The CD-ROM has eStore access where users can order parts, request quotes, download 3D drawings and check inventory.

<http://sdp-si.com/web/html/newprd-D795CD.htm>

DROs for metrology. Digital readouts (DROs) from Heidenhain are now listed in a 30-page *Digital Readouts* catalog and feature multiple offerings – including a GAGE-CHEK and five QUADRA-CHEK models (previously known and sold by the Heidenhain subsidiary Metronics, Inc.).

www.heidenhain.com

Products: Sensors



Exact detection of piston positions

Magnetic T and C slot cylinder sensors from Baumer are employed to detect the exact position of pistons in pneumatic cylinders. The compact and rugged plastic housing offers IP67 protection. The MZTK 06P1003 line of sensors for T slots can be installed in the slot from above. No cylinder disassembly is required, even if both front faces are equipped with installation panels. The universally applicable standard C and T slot sensors can also be used for round cylinders and cylinders with tie-rods.

www.baumer.ca



Molded case circuit breakers

AutomationDirect has announced Fuji Electric's BW series of molded case circuit breakers. The series is said to take up less space than almost any others on the market. Suitable for branch circuit protection, the series offers standard type and high-interrupting capacities in identically-sized housings. The three-pole non-adjustable magnetic trip molded case circuit breakers, in sizes up to 800 A, are also suitable for reverse-feed applications. All BW series breakers conform to worldwide standards, including UL, CSA, CE and IEC. A variety of accessories is also available, including auxiliary contacts, shunt trips and under-voltage releases.

www.automationdirect.com/mccb

Piezoelectric energy harvesting power supply

Linear Technology has announced the LTC3588-1, an energy harvesting product optimized for low energy sources, including piezoelectric transducers. The LTC3588-1 integrates a low-loss, full-wave bridge rectifier with a high efficiency buck converter to harvest ambient vibration energy via piezoelectric transducers and then convert it to a regulated output to power application microcontrollers, sensors, data converters and wireless transmission components. The unit operates from an input voltage range of 2.7 to 20 V.

www.linear.com

Differential pressure sensor

American Sensor Technologies, Inc. has announced the AST5100 Wet/Wet differential pressure sensor for differential pres-

sure measurement ranges as low as 0 to 5 in. of water column (0 to 0.18 psi) and up to 0 to 15 psid. AST uses a Macro Sensors LVDT (linear variable differential transformer) to measure the movement of bellows and digitally amplifies the signal with new AST electronics. The AST5100 is compensated from 0° to 55°C using the same advanced electronics as the AST20HA pressure transducer. Each product is packaged with an M12x1 Eurofast electrical connection.

www.astensors.com



Chlorine detection

The CLDTX series of chlorine dioxide sensors and FCLTX series of free chlorine sensors from Omega feature amperometric measurement technology. Both series are available in multiple ranges to detect ppm levels of chlorine dioxide or free chlorine. Both models are easily maintained and are designed for use in water treatment disinfection applications and for use with chlorine dioxide or chlorine generators, pools, etc.

www.omega.ca

Capacitive level sensors

The CAP-100 and CAP-200 series capacitive liquid level sensors from Gems Sensors & Controls are suitable for a wide variety of bottle types, including plastic, glass and fibreglass. The sensors can be used for medical applications such as waste, reagent or diluent liquids as well as dark, sticky or viscous fluids. Said to be easy-to-calibrate, both sensor series are available in both aqueous and non-aqueous versions and can be delivered with factory preset sensitivity. They may also be used as a proximity sensor to detect the presence of solids such as paper or pulp.

www.gemssensors.com

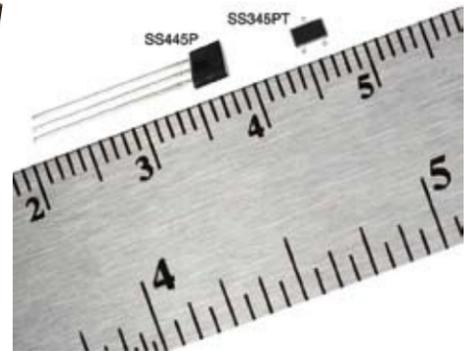


IP69K-rated photoelectric sensor

SICK has announced the W4S-3 INOX photoelectric sensor. The sensors feature a smooth, IP69K stainless steel housing that withstands harsh wash down applications. The unit incorporates OES3 technology

into SICK's third generation custom ASIC for background and foreground suppression. The sensors ignore stray background reflections, detect multi-colored or shiny objects, and provide high immunity to ambient light.

www.sickusa.com



Hall-effect digital position sensors

Honeywell has announced the SS345PT and SS445P Unipolar Hall-effect digital position sensors. The units are said to reduce total system cost for applications by having built-in pull-up resistors, eliminating the need for the purchase of an external pull-up resistor. As unipolar devices, the new sensors respond to either a north pole or a south pole, depending upon the sensor. The SS345PT responds to a single north pole; the SS445P responds to a single south pole. The open collector output with built-in pull-up resistor easily interfaces with common electronic circuits. The 2.7 to 7 Vdc low supply voltage range allows for use in a variety of applications.

www.honeywell.com



Incremental rotary encoders

Pepperl+Fuchs has introduced model RVS58S incremental rotary encoders with integrated safety technology. The encoders with self-diagnostics are specifically designed for use in safety aligned systems up to SIL3 in accordance with IEC 61508, performance level "e" in accordance with IEC 13849, and Category 4 in accordance with DIN EN 954-1. The encoders are also suitable as a motor feedback system for safe drives in accordance with IEC 61800-5-2. They operate at 5 Vdc ±5% and deliver a maximum output frequency of 200 kHz in operating temperatures ranging from -20° to 80 °C. They are rated to handle axial shaft loads of 40 N at maximum 6000 rpm or 10 N at maximum 12,000 rpm, and radial shaft loads of 60 N at maximum 6000 rpm or 20 N at maximum 12,000 rpm.

www.pepperl-fuchs.com

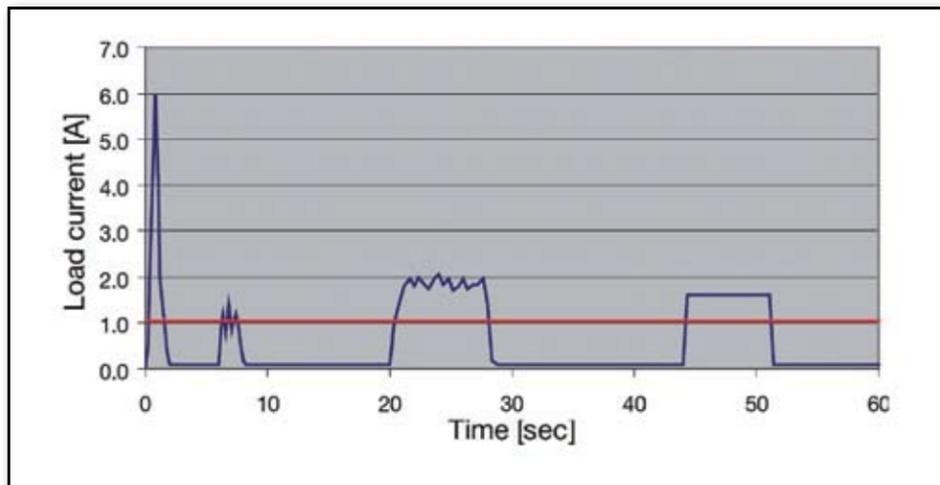
Feature: Sensors

The many factors to consider when specifying thermal circuit breakers for equipment

By Albert Bürgler

Thermal circuit breakers for equipment (CBE) protect motors and transformers against electrical overloading.

Thermal circuit breakers for equipment have an advantage in that they are insensitive to inrush currents that occur when switching on motors and transformers. In addition to specifying the rated current needed for the load



Circular saw motor load behavior includes high current at start-up.

the load, and thus the deflection of the circuit breaker bimetal, is dependent on how the load current develops, the switching frequency and/or how often an overload occurs.

A circular saw's motor for example (figure 1), is started via the closure of

High ambient temperatures lead to early tripping

other parameters such as in-rush current, overload capacity, operating duty and ambient temperature should also be taken into consideration.

Numerous types of loads, especially motors, can be temporarily operated with an overload. To avoid an unwanted trip release of the circuit breaker, the rated current can be selected more generously. However, the motor datasheet and/or the overload capacity of the load

the breaker and runs under no-load conditions for a short period of time, that is, the machine is not physically loaded. During the start-up time the load current is extremely high, but only for a very short period.

The bimetal heats rapidly during this period, but not enough to trip the breaker. It cools down again when the motor runs under no-load conditions, using only a small fraction of its rated load. While the saw is in use, the operating current increases again.

The level of current flow is dependent on this, as well as various factors such as the type of wood being cut, thickness and hardness of the wood, and on the speed at which the wood is being fed to the circular saw blade. When using a hand-operated saw, not all of these factors are constant and vary during operation.

The load current generally drops back to no-load conditions after a few seconds of operation when the motor and bimetal can cool down again. With fluctuating loads such as these, the bimetal should only trip the breaker when the machine is subjected to an overload for too long or when the motor is blocked.

The most important factor directly influencing the trip characteristic of a circuit breaker is the ambient temperature. The trip characteristic is stipulated to an

extent by the international standards IEC 60934, UL 1077 and CSA C22.2 235 in which calibration takes place at 23° C.

However, if the breaker is subjected to an ambient temperature of 60° C in an application, the bimetal is significantly deflected from the onset before any load current flow. The breaker will then trip too early, even when operated with just the normal rated current. For applications where the CBE is subjected to ambient temperature considerably different than 23° C, the rated current selected

must be corrected. The appropriate correction values can be found in the relative product data sheets.

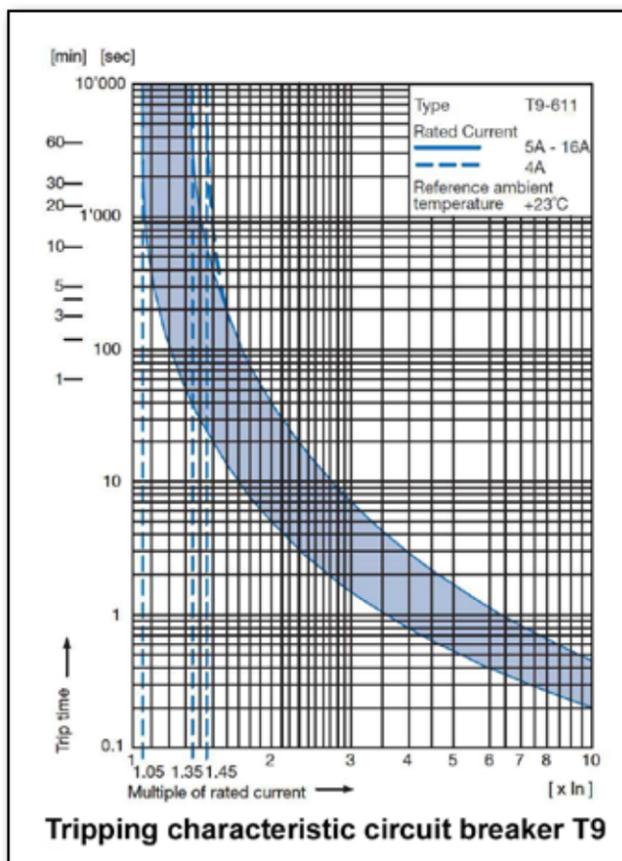
The switch-on and start-up characteristics of the load need to be considered with the selection of the rated current, so that the breaker does not trip unnecessarily.

On the other hand, the trip release characteristic should lie as close as possible to the characteristic of the load so that the breaker not only protects the load safely but that it also does not give rise to nuisance tripping. The best approach is to use trip characteristic curve of the appropriate breaker.

Dependent on the overload capacity, the bimetal rated current can now be selected as close as possible to slightly below or above the rated value of the load.

It is recommended that tests be carried out with the rated current selected under practical conditions with critical operating duty modes having frequent starts, large load fluctuations or increased ambient temperatures.

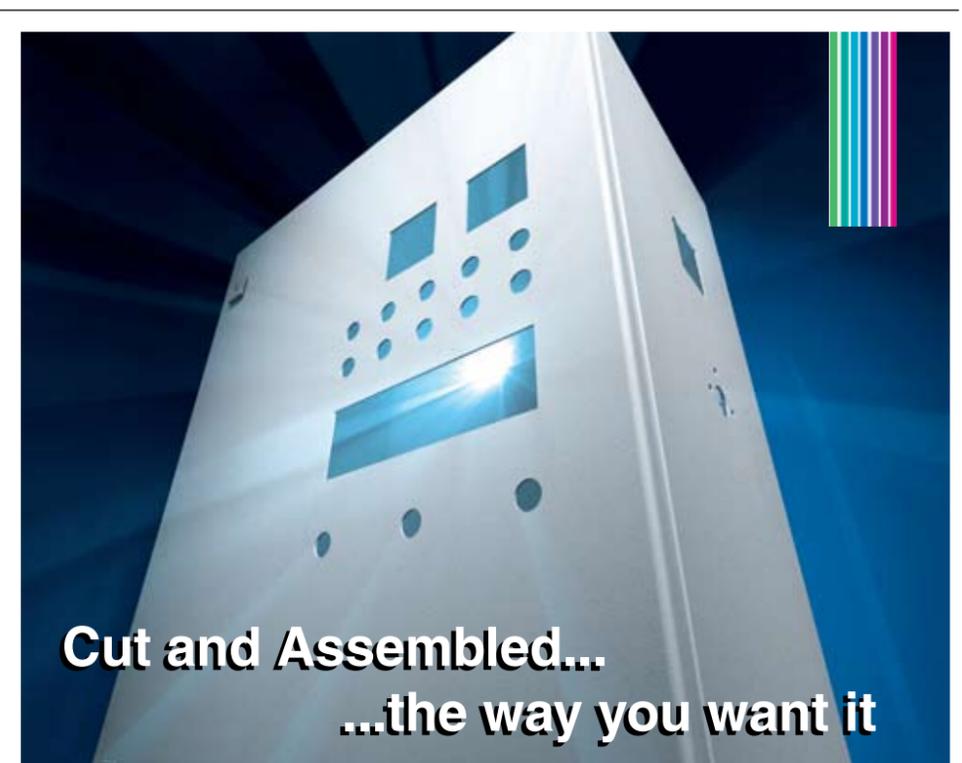
Albert Bürgler is Product Manager CBE, SCHURTER AG. His white paper, "Selecting rated currents for CBE," is available at www.schurter.com/downloads.



The best approach is to use trip characteristic curve of the appropriate breaker.

to be protected must be considered as well.

This overload capacity is also heavily dependent on the operating duty. In many applications, the operating duty, and hence the current resulting from the load, is not constant. Along with other factors, the rising heat caused by



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Spotlight

Motion Control



Hybrid stepper motors

MAE brand Size 34 (Model HS 200) hybrid stepper motors from Ametek feature low detent torque to holding torque ratios serve to deliver smooth and quiet operation and the fine positioning capability required for microstepping. The motors are CE approved and manufactured according to EN 60034-1 specifications. UL versions are available upon request. The hybrid steppers include three versions with step resolutions of 1.8° (200 steps per rev) in full-step mode. Holding torques (bipolar) of 779, 1062 or 1416 oz in can be achieved, depending on motor type.

www.ametektechnicalproducts.com



Drive eliminates harmonics

Danfoss Drives has introduced the VLT Low Harmonic Drive. Drives perform real time analysis and actively impose currents, as needed, to restore and ensure the highest possible quality sine waves from the power supply grid. The drives are available in the power range 132 to 630 kW high overload, 160 to 710 kW normal overload, and voltage range of 380 to 480 VAC, 50 to 60 Hz. Units meet the IEEE519 recommendation, are available in an IP21/NEMA1 or IP 54 (hybrid) enclosure, are UL, cUL and Ctick listed, and carry the CE mark.

www.danfossdrives.com



Soft motor starters

AutomationDirect has introduced Stellar soft starters as a low-cost motor control alternative. The SR22 series soft starters, available in 5 to 40 A sizes, are overcurrent protected and feature two DIN-rail mountable frame sizes (45 and 55 mm). The microprocessor based starters have an operating voltage range of 208 to 460 Vac. Each unit is equipped with three potentiometers allowing adjustable start and stop times of up to 30 s and an adjustable start pedestal voltage ranging from 30 to 100%. A separate 24 Vdc control voltage is required.

www.automationdirect.com



75 mm linear position sensor

Honeywell has introduced the SMART Position Sensor, 75 mm Linear Configuration with an accuracy of 0.05 mm. Sealed packaging is said to allow robustness in most harsh environments such as shock, vibration, extreme temperatures, salt water, and dusty or rough terrain. Installation is simplified to four steps versus up to 14 steps for some competitive products, reducing set-up costs. The sensor provides design and interface flexibility because of its air gap of up to 3.0 ± 2.5 mm between the sensor and the magnet, and a variety of output options (analog standard).

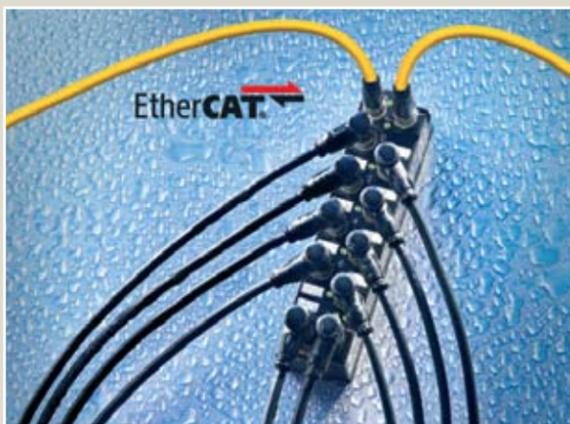
www.honeywell.com

Flexible, switchable EtherCAT Box I/O

In order to increase flexibility and optimize every I/O point for machine builders and users, Beckhoff Automation has introduced the EP2338 EtherCAT Box. With the EP2338 model, Beckhoff has added to its IP67 I/O system with a dynamic 8-channel digital variant. The filter constant of the inputs is 10 μ s. The outputs handle load currents of up to 0.5 A, are short-circuit-proof and protected against inverse polarity. If a channel is used as an output, the input is read back in parallel and can additionally be used for short-circuit analysis. The signals are connected optionally via M8 (EP2338-0001) or M12 (EP2338-0002) screw

type connectors. The modules, which measure 126 x 30 x 26.5 mm (H x W x D), the performance of EtherCAT at 100 Mbit/s is retained down to each IP67 box.

www.beckhoff.com/EP2338



Shaft alignment system



ITM has announced a measuring system for the alignment of horizontally-installed machines. The Easy-Laser D450 is focused on bringing simplicity to the user, the company says, with all parts included in the system designed and developed for rough use and to be easy to mount on to the machines. Step-by-step instructions on the display through the entire measurement procedure and the measurement principle is based on the "reverse indicator method" with two laser/measuring units mounted on each side

of the coupling. The system includes two measurement programs: Horizontal shaft alignment and Softfoot. The displayed measurement resolution can be set as low as 0.05 mils/thou. When the measurement is complete users can produce a printout, save in the display unit or transfer the data to a PC. The Easy-Laser D450 is a base system, with the performance and potential for expansion of our more advanced ones with the available accessories.

www.itm.com

Sercos III and Ethernet/IP for valve systems



Bosch Rexroth has announced the expansion of B-Design fieldbus components to include support for Sercos III and Ethernet/IP for valve manifold systems series HF03-LG, HF04, and CD01/02-PI. The valves include body sizes with 10, 15, 18 and 26 mm widths. All electric, pneumatic, supply and exhaust connections are on one plane. Discrete output modules control up to 2 A per point, and modular expansion of discrete and solenoid outputs is possible. The Sercos III version follows the standard platform as other Rexroth Bus Direct Control (BDC) protocols. Sercos III features up to 32 outputs per valve manifold and up to four valve manifolds can be controlled from one bus module. The EtherNet/IP version follows the standard platform as other Rexroth bus Central Mount System (CMS) protocols. EtherNet/IP features up to 48 inputs per valve manifold in addition to solenoid and discrete outputs, and up to four valve manifolds can be controlled by one bus module. The standard module works with EtherNet/IP, Modbus TCP and TCP/IP protocols.

www.boschrexroth.ca

Unified linear, angular sensing

STMicroelectronics has announced a 3-axis digital accelerometer with a 2-axis analog gyroscope integrated in a single module. The MEMS motion sensors combine a user-selectable full-scale acceleration range of $\pm 2g/\pm 4g/\pm 8g$ with the industry's widest angular-rate detection from 30 to 6000 dps along the pitch and yaw axes. The gyroscope element provides two separate outputs for each axis at the same time: an unamplified output value for high accuracy of slow motion and a 4x amplification to detect and measure very fast gestures and movements. The

MEMS module includes power-down and sleep modes and it can operate with any supply voltage in the range of 2.7 to 3.6V.

www.st.com/mems

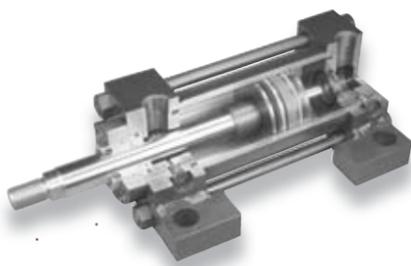


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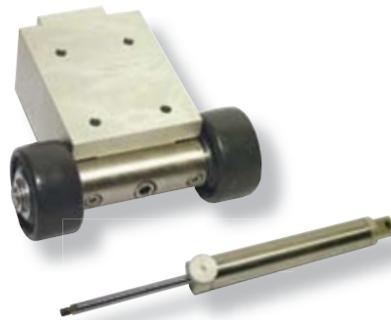
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TRD Heavy Duty Hydraulic Cylinders

HH Series Cylinders use innovative design to deliver more reliable heavy duty industrial hydraulic operations (3,000 psi). The NFPA interchangeable HH Series cylinders are also available with a rodlock, featuring a cutting-edge floating rod bushing design and precise rodlock alignment to ensure superior performance and trouble-free operation.



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Roundline Hydraulic Cylinders

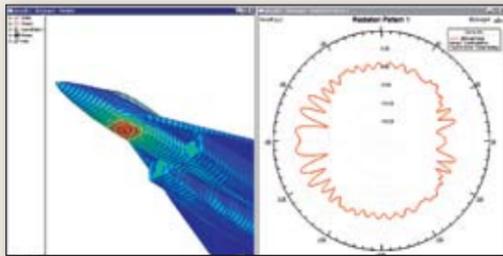
Traditional Bimba non-repairable air cylinders are available with an optional low pressure hydraulic service up to 250 psi; The Bimba 500 is a more robust non-repairable roundline design rated to 500 psi hydraulic service.

¹ Reed Business Information - Boston Division Research. A Study of the Air Cylinder Market. June 2005 & July 2007

CAD Chronicle

RF, microwave simulation of electromagnetic fields

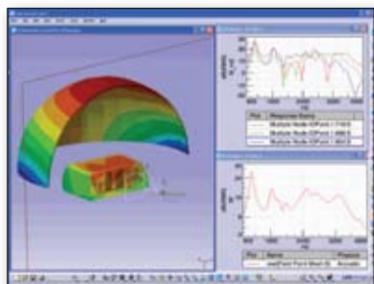
ANSYS, Inc. has announced the 12.1 release of HFSS software, technology for 3D full-wave electromagnetic field simulation. The product introduces an integral equation (IE) electromagnetic solver option, which is based on 3D full-wave method of moments (MoM), that can be implemented in the HFSS desktop. The technology is said to be effective for large-scale radiating and scattering simulation studies. The software helps engineers design, simulate and validate the behavior of complex high-performance radio frequency (RF), microwave and millimetre-wave devices in next-generation wireless devices, defence communication systems and consumer electronics.



www.ansys.com

Acoustic simulation solver

LMS has released the latest version of its acoustic simulation software, LMS Virtual.Lab Acoustics. The release is said to offer advancements in terms of solver performance and processing excellence with substantial developments including ray tracing for high frequency acoustics and time-domain BEM, a new time-based method for acoustic problem-solving. A core development focus has been to expand the FEM acoustic solver so that it can handle huge industrial tasks, including large noise radiation problems. This is possible thanks to PML (Perfectly Matched Layer), a technique designed to substantially reduce the number of required elements to solve noise radiation mega-problems more efficiently.



www.lmsintl.com

Mobile design app for iPhone and iPod Touch

Autodesk, Inc. has announced that Autodesk SketchBook Mobile is available on the iTunes App Store. SketchBook Mobile is a professional-grade paint and drawing app that offers a full set of sketching tools in a streamlined and intuitive user interface designed specifically for the iPhone and iPod touch. The SketchBook Mobile App uses the same engine as Autodesk SketchBook Pro painting and drawing software, delivering much of the same power and functionality as the desktop app.

www.autodesk.com/sketchbookmobile



Parasolid kernel added to PowerSHAPE

Delcam has launched the first version of its PowerSHAPE CAD system to incorporate Parasolid software. The release is said to provide major productivity and interoperability benefits to companies that use PowerSHAPE as a stand-alone design system and to those that use PowerSHAPE as part of Delcam's complete product development suite. Models in the Parasolid native XT file format can be imported directly from CAD systems based on Parasolid such as SolidWorks, Siemens PLM Software's Solid Edge software and NX software and also from many other systems, including Autodesk's Inventor and PTC's Pro/Engineer, that have Parasolid XT import/export filters.

www.delcam.tv/powershape2010



Documentation app for working with large models

QuadriSpace Corporation has announced that its Document3D Suite used to create documents, illustrations and animations from 3D CAD models, now includes capabilities that make it easy to work with large 3D models. Users of SP2 benefit from up to 30% reduction in memory usage and users running on 64-bit computers will now have double the amount of memory available, the company says, so larger and larger models can be used with good performance.

www.quadrispace.com



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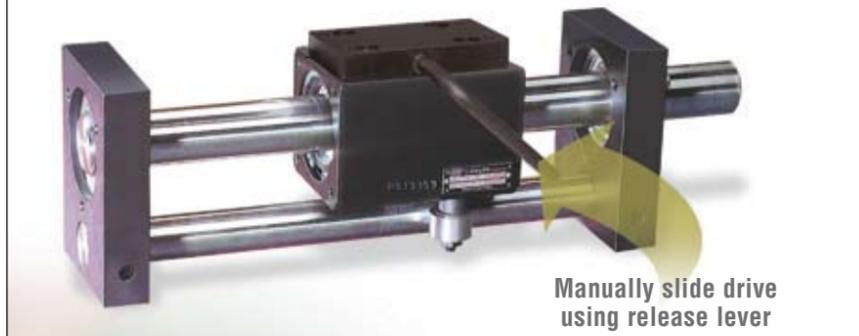
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Feature: Social Media

Going social: design engineers are communicating on the web and software vendors are listening

By Vanessa Chris

The recent influx of social media channels over the last two years has led to an entirely new form of business communication. The problem is, as these new tools evolve at a break-neck pace, it can be difficult and overwhelming to identify how and where to use them all.

This is a challenge vendors in the CAD world are looking to overcome. Over the past year and a half, the industry's major brands – namely, Solid Edge, SolidWorks and Autodesk – have devoted time, money and infrastructure towards demystifying this new terrain. Their goal is to move beyond the notion of “technology for technology’s sake” and to implement social media strategies that will allow them to strengthen their customer relationships.

“When we were developing our social media strategy, we had to ask ourselves, ‘What makes sense for our organization?’” said Matt West, social media manager at SolidWorks. “There are a number of platforms where we could be active, but we wanted to focus our attention on the ones where our customers were already frequenting.”

Instead of targeting a site like MySpace – which is typically frequented by teenagers and musicians, two of the furthest groups from a SolidWorks audience – West said the company opted to look at YouTube, Twitter and, to some extent, Facebook.

Maura Ginty, senior manager of global web content at Autodesk, agreed that these three portals are the most effective for business communication.

“Each has a slightly different use,” she said. “YouTube is used often as a reference point. Twitter allows for instant real time conversation and immediate response. Facebook or LinkedIn are still evolving.”

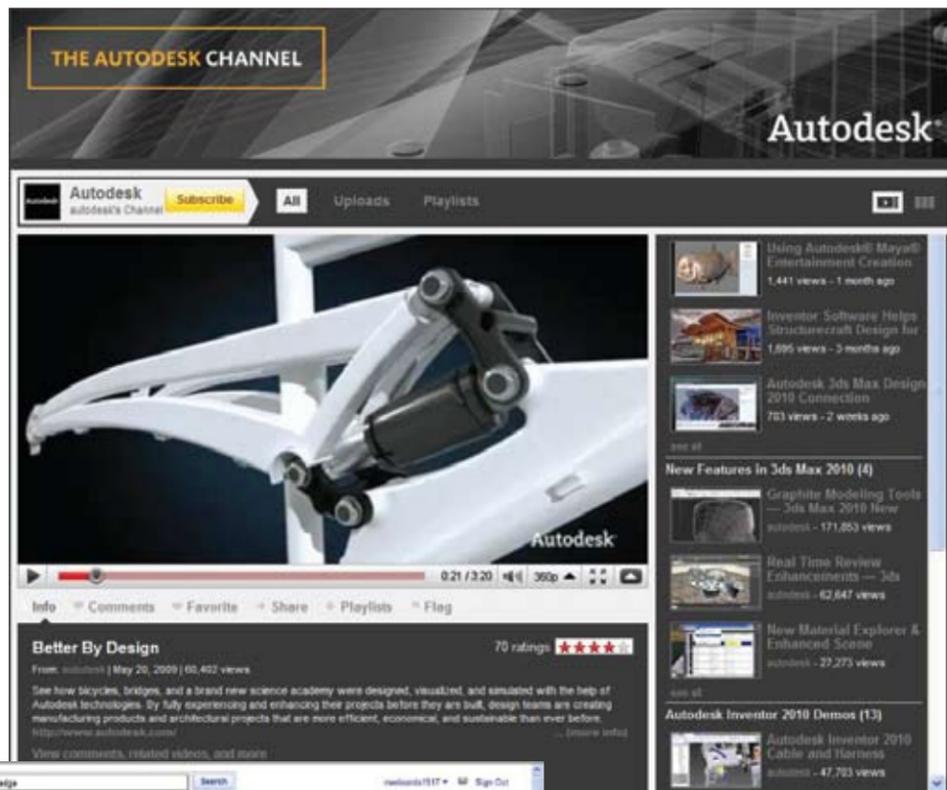
Just because a certain tool is popular today doesn't mean it's going to be tomorrow – and the same goes for evolving tools. You never know when Facebook will introduce a new app or program that will allow it to shift from the personal realm to the B2B arena.

“The most popular forums change from quarter to quarter,” said Dora Smith, director of global social media for Siemens Product Lifecycle Management software, the developer of Solid Edge. “People prefer different types of social media for different things. One trick we've learned is that you need to be in different places at different times.”

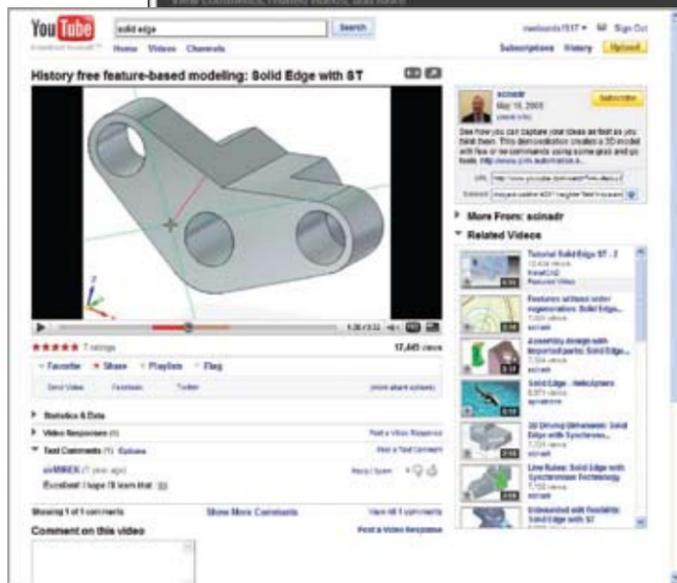
Big brother is listening

Being omnipresent in the social media realm allows companies to listen to what people are saying about them and learn from the often-unintentional feedback.

“When we go out to visit a customer to gather feedback, they don't say



Autodesk has created a YouTube channel that organizes its software instructional videos. It also provided a web-accessible version of its annual Autodesk University conference in 2009.



Solid Edge, from Siemens PLM Software, has a constant YouTube presence but also re-evaluates the most popular social media forums on a quarter-by-quarter basis.

‘SolidWorks, I hate you’ – but they say that kind of stuff on Twitter,” said West. “When I see comments like that I’ll message them and see if we can help. Most of the time they’re just having a bad day and venting their frustrations, but it helps to see people in the wild like that.”

West finds Twitter invaluable for learning about customer views and industry news. A simple search for “SolidWorks” allows him to keep track of anything and everything that’s being

“People prefer different types of social media for different things. One trick we’ve learned is that you need to be in different places at different times”

tweeted about the company and respond in real time.

Similarly, Solid Edge has designated social media ambassadors within the company to act as subject matter experts and monitor social media activity in their specific niche areas.

“We have a listening platform tool that we use to scan blogs, Twitter and our ambassadors do basic RSS searches



Twitter is used as a listening post by SolidWorks to monitor chatter about its products.

to see what people are saying about us,” said Dora Smith. “We also ask our customers about how they use social media and what tools they prefer.”

Establishing a better connection

The information gathered from online research has allowed these CAD com-

panies to better serve their consumers through more efficient communication pathways, transparency and a feeling of connectivity.

“We try to make sure we tailor activity specifically to each platform,” said West of SolidWorks. “For example, a lot of students use YouTube to better understand our product, so we try to put more tutorials there.”

Autodesk uncovered a similar need revolving around its AutoCAD software. In response, the company started its own YouTube channel in the beginning of 2009 that features show reels, rapid energy modelling, Sketchbook Pro tutorials and various AutoCAD support videos.

These companies are also using social media – specifically Twitter – to open themselves up to the public. Solid Edge is actively working on getting all of its employees on the social media bandwagon through monthly training sessions.

“Our marketing team used to be the face of the organization, but social media is making other people in the company more accessible. Consumers have more touch points – they feel more of a connection,” said Smith. “We want our subject matter experts to start using these tools and to find ways to integrate social media into their jobs. Instead of e-mail, for example, we’re telling them to post information on their blog or on Twitter and make their job a little more visible to clients.”

Autodesk has a number of different Twitter accounts that represent different aspects of the company, including the product development team, PR team as well as different regional groups. Autodesk University has its own Twitter account as well, and it saw a lot of action leading up to and during the company’s December 2009 event.

“Before Autodesk University this year, there was a lot of activity on Twitter. People at the conference were recording their reactions, while people at home were requesting handouts and asking questions via Twitter,” said Ginty. “Bloggers at the conference were

using Twitter to let people know when and where they were going to grab a beer.”

While the CAD companies are still trying to uncover social media’s full potential, so far it’s enabled them to keep in touch with their everyday users – not just the evangelists – all year round, rather than merely through an annual conference.

If you haven’t yet started to take advantage of these tools, but are interested in hopping on the bandwagon, West suggests starting slow.

“People tend to get scared because there’s so much out there,” he said. “Be selective. Figure out what works for you and how much time you’re willing to devote. Sometimes adding a couple of blogs to your RSS feed is all you need to feel more connected and expand your networking opportunities.”

Vanessa Chris is a freelance writer based in Toronto (vanessa@vanessachris.com).

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Feature: Mechanical CAD

Simulation lifecycle management – the secret ingredient of success in packaged goods

By Paul Lalor

Can you count how many store-bought packages the average consumer opens per day, per week, or even per year? If one were to conduct a mental tally of the myriad products any given individual consumes, the list would get very long – very quickly:

- Beverage bottles and cans
- Food containers
- Snack bags
- Cereal boxes
- Toy packaging
- Toothpaste tubes
- Electronics packaging
- Candy wrappers
- Medicine bottles

These, and many additional products, are part of the multi-trillion dollar consumer packaged goods (CPG) industry, which includes food and beverages, tobacco, cleaning products, and hygiene and beauty products. The packaging for these products needs to be designed to be strong enough to make it from the factory to your home without being damaged – yet must also provide a pleasant, convenient experience that makes consumers rush back to the store to buy more week after week.

It's unlikely that shoppers ever stop to ponder how the concept of a package originated, or inquire about how the product manufacturing companies make them; but, too often, opening a package can be difficult and can create spills, or, worse, injuries – which is frustrating for the consumer, and a potential liability for the manufacturer. As a result, many CPG companies have been putting significant effort into developing extremely innovative and easy-to-open packages. The cause is in part due to environmental concern, but much advancement is being driven by the need to improve safety and ease-of-opening for the consumer.

When it comes to product packaging, designers and engineers have to determine if the package can be manufactured. They seek answers to a wide range of questions, such as:

- Can it survive the manufacturing process?
- Will the container break or leak during transportation?
- Will it be easy to open, yet reseal effectively?

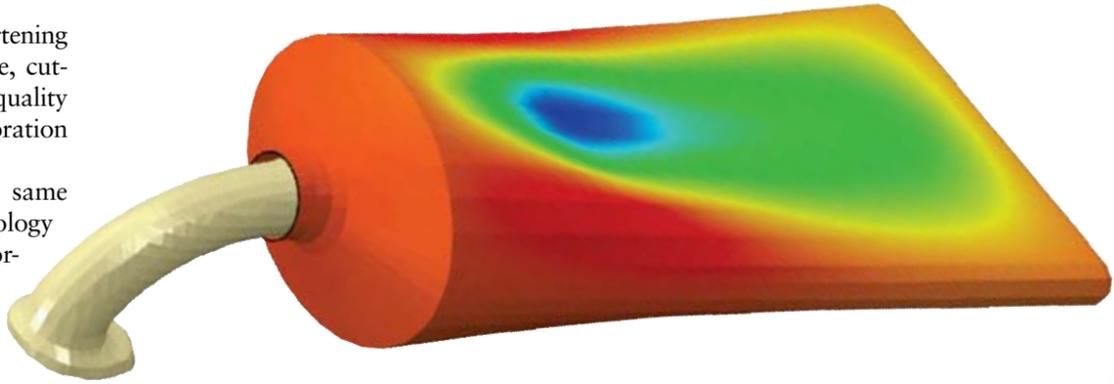
Engineering and scientific simulation techniques that understand and predict the real-world behavior of physical phenomena are often used to answer these questions and to help make adjustments when necessary.

However, for simulation to be truly effective as an integral part of the product development cycle, the data and resulting intellectual property associated with simulation must be shared, managed, and secured as strategic business assets. As a result, a new solution category, simulation lifecycle management (SLM), has emerged to address these issues.

SLM helps product development companies bring order to their simulation processes. It also provides the technology to ensure simulation data integrity, traceability, knowledge capture and collaboration. In this case, the end goal is to assist a CPG company in leveraging their simulation assets more effectively and bring

a new level of efficiency in shortening development cycles, reducing waste, cutting costs and improving product quality while fostering a culture of collaboration and innovation.

The CPG industry uses the same advanced realistic simulation technology that is used to evaluate the performance of airplanes, cars, nuclear power plants and medical devices. CPG simulations are just as sophisticated, and commonly include virtual drop testing, top-loading analysis, manufacturing line simulation, squeezing pressure, fluid-structure interaction, and



Consumer product packaging manufacturers are able to use SIMULIA SLM to manage data, such as loads, material properties, and boundary conditions associated with a variety of simulations, such as this toothpaste tube.



Multiple engineering domains influence the ability for new products to meet performance specifications. By managing the simulation tools, data, and processes, organizations are able to secure their simulation-generated intellectual property and gain significant efficiencies.

adhesive and forming simulations.

As such, a CPG company's SLM system must encompass four essential functional areas in order to be effective:

1. Collaboration – Collaboration is SLM's foundation. No process or product is created in isolation; in fact, most often they are created by teams or individuals in different facilities scattered over different time zones. Each person involved must be able to compare their results to work out differences before the late phases of product development, when the heavy money starts to hit the table. Cross-functional collaboration also promotes innovation

P&G, the world's largest consumer goods company, uses SLM to support modeling and simulation strategy

With SLM, P&G is able to:

- Make the benefits of realistic simulation available to a broader range of users than previously possible
- Accelerate global innovation by providing access to simulation tools, validated processes, and corporate knowledge bases throughout the product lifecycle
- Incorporate simulation processes, applications, and data into a managed and controlled environment
- Share and automate the execution of approved simulation methods, and improve traceability of simulation data
- Accelerate decision-making while securing valuable intellectual property

and higher quality by giving everyone in the development process insight into the latest intellectual property and helping them keep abreast of others' work that impacts their own.

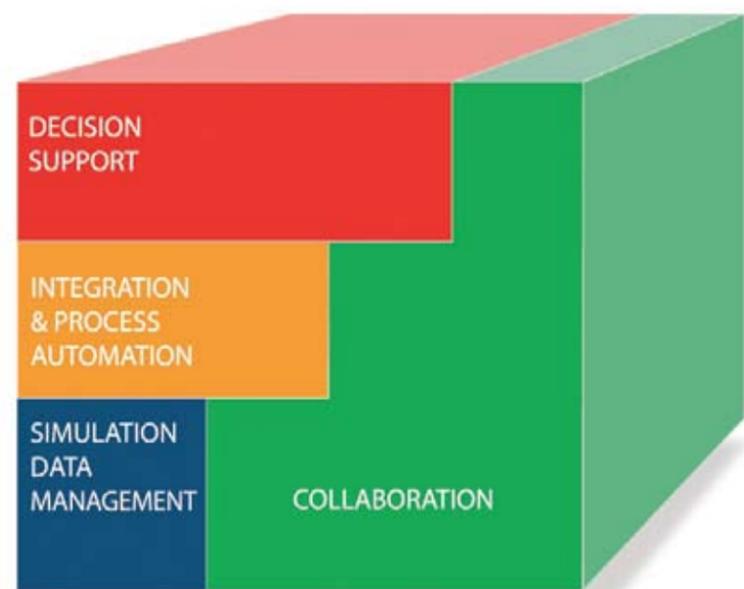
2. Simulation Data Management – Management of simulation data imposes the kind of discipline on simulation that has proven effective in other facets of product development, such as computer-aided design and bill of materials. Central data repositories provide a consistent, safe and searchable environment for valuable data. A coherent data management structure gives engineers and designers quick access to existing intellectual property that can help them with their current work. It also supports the definition of best simulation practices through automated workflows that ensure data integrity and repeatable processes while eliminating wasteful labor.

3. Integration and Process Automation –

to market. It also allows the simulation community to expand to design engineers, freeing up the time of simulation experts to develop the next generation of robust simulation methods.

4. Decision Support – Providing capabilities for decision support is about ensuring a product will meet its functional requirements, possess optimal cost, weight, and durability, and be designed, manufactured, and iterated in the least possible amount of time. To support these ends, SLM solutions must provide management tools for hitting design targets—in other words, making sure designs work as intended—and anticipating post-production performance. Those capabilities enable engineers to peer into the future, anticipate problems, and make the appropriate decisions early in the design process to ward off late-stage problems.

CPG companies like Procter & Gamble (see sidebar) are seeking to implement



A robust simulation lifecycle management system must encompass four essential functional areas to be effective: Collaboration, Simulation Data Management, Integration & Process Automation, and Decision Support.

Integration of a diverse set of simulation applications and subsequent process automation creates a unified simulation environment that facilitates toggling between various systems to complete a task. Essential, best-in-breed simulation capabilities from relevant outside resources must be integrated with simulation data and processes. Once all of the necessary resources exist in the same environment, simulation experts can link them together in automated workflows. Automating key processes adds accuracy and repeatability to simulation, which in turn improves quality and reduces time

SLM within their overall product lifecycle management (PLM) process to maintain and improve their competitive market position. Companies using SLM have the ability to create virtual worlds that closely mirror the physical world and will enable them to optimize performance, reduce material use, and detect and correct errors at a level almost inconceivable with today's physical prototyping.

Paul Lalor is in Strategic Product Planning, Dassault Systèmes SIMULIA.
www.simulia.com

Social Computing PLUS Product Development

Facebook Meets CAD? Not Exactly...

Today, the changing needs for collaboration have collided with the technological advances of the Internet, and social computing is poised to have a profound impact on product development.

The result – simply dubbed social product development – will allow teams to better collaborate across borders and time zones, and will enable innovation of endless possibilities.

This enhanced collaboration is being spurred on mainly by two factors that are affecting your industry and so many others: changing demographics and globalization.

Social product development is having its advent now due to two principal factors. The first is the demographic shift in the workforce.

The senior side of our workforce is aging, and while this is no surprise, it's crucial to recognize the serious implications that it can have

on your knowledge base. Right now, there is an urgent need to capture decades of valuable intellectual property before senior staff retires. At the same time, the incoming workforce of the next decade, who are at the moment somewhere between sixth grade and their senior year of college, embodies a new standard of technology literacy. These vanguards will usher in a new way of working and collaborating, undoubtedly influenced by their prolific use of social networking tools and Web 2.0 technologies. Businesses would do well to embrace this inevitability, and not shy away from it. Not only do you need to prepare for it, but you need to determine the best way to facilitate the eventual digital "meeting of the minds."

Shifting workforce demographics, increased connectivity demands of a global team, and major advances of Web 2.0 technologies are converging to create an unparalleled environment of both risk and opportunity to dramatically alter how products are developed.

The second and perhaps more visible factor is the inexorable global expansion of product development. As a complex set of activities involving a global roster of players, product development success has become a factor of how adept companies are at choreographing the collective efforts of a fragmented team. With social networking advances, we are presently experiencing a shift from the traditional, unidirectional "push" mentality of the Internet, to a "peer, publish, pull" mentality. When you combine this freer flow of information with anytime anywhere interpersonal connectivity, you'll see the disparate machinations of your global team working in greater harmony.

Clearly, we're not asserting that Facebook and MySpace are the wave of product development's future. So what's behind this revolution, technology-wise? Social product development is being propelled by infrastructure platforms like Windows SharePoint, through which Microsoft is enabling social tools that can have a real and monetizable impact in commercial settings. Simply put, Windows SharePoint represents a set of industrialized, secure, business-ready social technologies touted by Microsoft as "social computing." Social product development is the result of these capabilities being applied in a product development setting for serious economic and business benefits.

The combination of social computing technologies into a tightly woven, easy-to-use platform for product development provides disparate team members with unique and productive ways to share experiences, exchange information, and move business forward. What happens is simple yet profound: the evolution of



PTC's technology for social product development extends the social computing capabilities of Windows SharePoint Services by adding structured data management and rich interaction with authoring and viewing solutions.

ideas into profitable products.

PTC enables companies to join the revolution of social product development through its suite of Windows SharePoint-enabled products, including, Windchill ProductPoint, Pro/ENGINEER, Mathcad and ProductView.

PTC's Windchill ProductPoint adds a layer of intelligence that extends the functionality of Windows SharePoint Services by enabling vaulting, sharing, and reuse of CAD models and other structured product content. Imagine capturing and analyzing data interrelations, so that, based on individuals' past project involvement and their frequency of accessing particular CAD models, the system could suggest value-enhancing connections to be made with other team members. With a vision of tracking rich content and personnel relationships, Windchill ProductPoint is an ideal enabler of effective social product development.

PTC's solution for social product development is fully integrated with other PTC product development solutions, as well as other CAD software and Microsoft Office, so you can invisibly interact across applications. For example, you can use PTC's ProductView to send a super lightweight, yet highly accurate product viewable to a forum, allowing the team a chance to review and comment. Or you can check the online status of a team member from within Pro/ENGINEER and initiate an instant message to speed a design decision.

PTC's solution for social product development can help you add significant value to your product development activities. For design reuse, it can help your engineering team reduce the search time for the original part or assembly, and utilize the collective knowledge of the broader community to resolve a design issue. For virtual prototyping, it can make it easier for a geographically dispersed design team to quickly review and comment on a new prototype.

For reducing scrap and re-work, it can help you resolve eleventh hour changes in tooling, therefore avoiding the risk of a wasted production run.

For companies of all sizes, in all industries, the promise of social computing is great. And, without fail, the manufacturing workforce will replenish, technology will advance, and users will continually look to make their work lives easier. Now is the time to get acquainted with PTC's vision for pioneering and supporting social product development today and tomorrow.

This article was excerpted from the PTC (www.ptc.com) White Paper, "Social Computing PLUS Product Development."

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Feature: Mechanical CAD

Université du Québec: treating phobias in virtual reality allows anxiety sufferers to overcome fears

By David Laubner

According to the National Institute of Mental Health (NIMH) more than 40 million adults in the U.S. and Canada, or about 18%, have an anxiety disorder. Anxiety disorders can range from obsessive compulsive and post-traumatic stress to phobias like agoraphobia (fear of unfamiliar surroundings) and acrophobia (fear of heights). With phobias like the latter, patients can conquer them if they face their fears; however, putting patients in close proximity can be difficult. Patients who fear flying, for example, can't change their minds about flying once they're airborne – unless their experience is a virtual one.

That is why researchers in the Cyberpsychology Lab and the Canada Research Chair in Clinical Cyberpsychology at the Université du Québec en Outaouais (UQO) in Gatineau, Canada, are leveraging virtual reality (VR) environments to help patients with anxiety disorders face and manage their fears in a safe, controlled environment.

Immersive treatment conditions are created by projecting the virtual environments on the walls, floor and ceiling of a "CAVE-like" room, or by using special 3D goggles referred to as head-mounted displays (HMD). Everywhere the patient looks, the environment surrounds them, changing as they react to the scenarios – much as a video game changes based on the choices players make. The applications are being utilized to treat patients with conditions ranging from phobias and Alzheimer's disease to addictions. The success rate with virtual reality is equivalent to that for traditional treatments – around 75%.

Challenges with Virtual Environments

Although phobias and anxiety disorders can be treated effectively using traditional approaches, virtual reality environments offer a more practical approach in a clinical setting. It may not be possible for every clinic to keep spiders, snakes, high places, tight spaces and other common fear inducers on hand to treat patients – but they can all be made available in VR.

Director and Canada Research Chair in Clinical Cyberpsychology at the Université du Québec, Dr. Stephane Bouchard, assembled a team of researchers to modify computer games to help patients deal with phobias such as fear of heights and enclosed spaces. But getting the source codes needed to modify the games for use in more complex anxiety disorder simulations proved difficult and expensive.

The team then tried software developed specifically for creating virtual environments, but found it difficult to build scenarios quickly due to the tools' complexity. The challenges became even greater when the team tried to synchronize images on six surfaces to create a seamless, CAVE-like environment that would appear realistic to patients.

VR environments don't have to be flawless to be effective in treating patients but the team wanted there to be a high degree of realism to help convince both



The Cyberpsychology Lab of the Université du Québec en Outaouais' 6-sided virtual reality "immersive room" has 4 vertical walls, 3 stationary and 1 sliding. Images are beamed onto the 2 horizontal walls via mirrors; the floor image is beamed up from the room below. Illustration by Jean-François Jégo of the Cyberpsychology Lab.

funding agencies and psychologists of the technology's effectiveness. This will also help build existing research and create acceptance of VR among therapists.

With a grant for infrastructure development, the team acquired a complete development and deployment platform for interactive 3D content creation, 3DVIA Virtools, to give life to 3D objects and allow control in real time. Dr. Bouchard's team was able to quickly and easily learn the system and support rapid development of new environments in the six-sided room or with the HMD without investing the time that other software packages require to move from one to the other. 3DVIA Virtools not only helped to advance cyberpsychology research and development cost-effectively but also allowed the team to use familiar technologies like Windows XP Professional and the 64-bit edition of Windows Vista, which delivers the high levels of RAM needed to create more powerful scenarios, launch multiple applications simultaneously, and handle large VR environments. The Cyberpsychology Lab also uses the 2007 Microsoft Office System for documentation and basic administrative tasks and Microsoft Visual Studio which added to the team's productivity.

Visual Studio.NET gives the lab the power to modify standard blocks of source code in 3DVIA Virtools to create customized objects quickly and easily. Blocks can be written in popular C++ code, compiled and debugged to modify the properties of objects or create new ones.

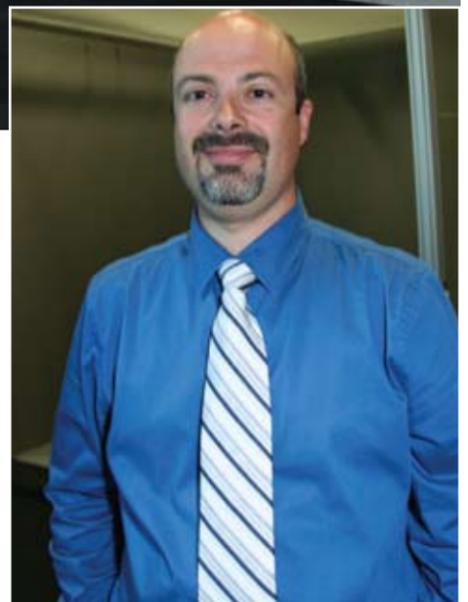
With 3DVIA Virtools operating on

the Microsoft platform researchers can focus on developing applications rather than trying to learn complex software. Applications also can be developed quickly, and 3DVIA Virtools and Microsoft make it quick and easy to connect with a wide variety of VR environments.

To create virtual reality environments, the first step is to develop assets or 3D objects in a specialized DCC (digital content creation) or CAD software. Once models are optimized for 3D Real Time, they are imported into 3DVIA Virtools to create a full real-time 3D application. Finally, with the 3DVIA Virtools VR library, users can easily publish applications in different types of Virtual Reality environments. 3DVIA Virtools' use of VRPN, an open source protocol, allows its environments to be projected or displayed using virtually any hardware on the market.

The VR Library component of 3DVIA Virtools links between the application running on the "master" PC and the cluster of six computers that project images to the cave-like VR environment, ensuring the image is seamless where different surfaces meet. Once the geometry of the room has been inputted into the system, 3DVIA Virtools makes all of the necessary adjustments. With perspective matrixes, 3DVIA Virtools changes the point of view or stretches the image to show it properly as images are distributed on the surfaces of the room, saving months during design.

Because the Université du Québec team was funded by research grants,



Dr. Stephane Bouchard, assembled a team of researchers to modify computer games to help patients deal with phobias such as fear of heights and enclosed spaces. Photo by Roger Collier, CMAJ.

spending three years to develop the backbone and codes for the virtual environment wasn't feasible and would drain the project of all its funds.

The less time spent creating individual scenarios the more scenarios the team can create. Since implementing 3DVIA Virtools, the team has been able to develop several virtual environments within a year and have been able to go from start to finish on a new research environment that worked on both a CAVE-like system and in an fMRI (brain scanner) in less than three months.

In addition to treating patients, UQO researchers are now working to commercialize the environments, making them available to clinical psychologists worldwide for state-of-the-art, localized patient treatment.

David Laubner is Director, Product Marketing at 3DVIA, Dassault Systèmes.

www.3dvia.com

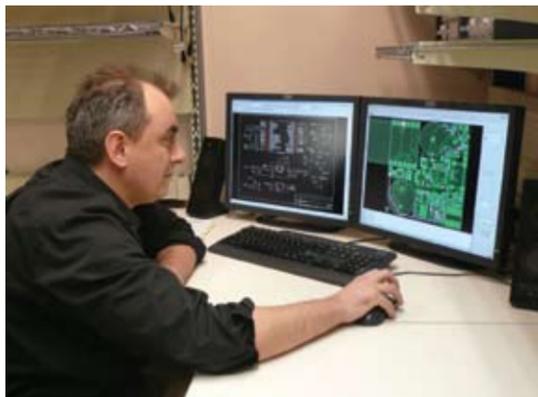
Cover Story

Rehab laboratory speeds design and commercialization of ideas

uPrint 3D printer. The studio has work equipped with SolidWorks mechanical CAD and Rhino surfacing design software, 2D printers/plotters, exhibit and modelling space, and an integrated team meeting space. Designs can also be analyzed with COSMOS FEA and Motion, as well as Magic Check STL for rapid prototyping build compliance.

ABS material prototypes are manufactured in the workshop using a 3D Systems SLA 5000 stereolithography machine. This rapid prototyping capability equips scientists with the ability to quickly and accurately manufacture small quantities of products for validation testing and impact measurement in the living, working and learning environments.

The CEAL Mechanical Workshop is equipped with the latest computer-controlled machine tools including ultra-high precision DMG Monoblock five-axis milling driven by MasterCAM software. Other machine tools include a Colchester CNC Lathe with sub-spindle and live tooling, Milltronics CNC mill, Atlas manual mill, Colchester manual lathe and Kent 618 manual surface grinder, as well as equipment for MIG, TIG, arc and spot welding.



Alexander Levchenko, PhD, Control Systems Specialist, iDAPT Research and Technology, has a variety of electronics assembly equipment, hardware and software, debuggers and compilers to build and program prototypes.

These tools are used to construct the instruments needed for research and the prototypes of the assistive device inventions. Anticipated products include new multidirectional powered wheelchairs with sophisticated seating and balancing systems, walking aids, fall prevention devices, communication aids and systems for transferring and repositioning patients.

The CEAL Electronics Workshop is equipped with a full range of instruments to support computer-aided design and automated fabrication of circuit boards. Included is Circuitworks, software that converts data for use in the SolidWorks platform, as well as OrCad Schematic and Layout programs, CircuitCam software and Boardmatic PCB M/C. Physical PCB prototypes are built with a suite of tools from LPKF such as ProtoMAT (PCB router), ProtoPlace (pick and place) and ProtoFlow (solder convection oven).

Once a circuit board is completed, a variety of debuggers and compilers are employed. These include IAR Embedded Workbench for ARM processors (IDE and compiler from IAR Systems), AVR Studio for AVR microcontrollers from Atmel, and MPLAB IDE and MPLAB C compilers for Microchip microcontrollers.

In the completed facility, room-sized pods can be adapted for a variety of research-driven projects. One pod will



Industrial designer Adam Sochak demonstrates Toronto Rehab's SlingServer creation, a device for assisting in lifting patients comfortably. Click on the video for a demo of the SlingServer in action.

contain a real ice floor and snow, and can produce realistic wind. Using a Bosch Rexroth hydraulic motion simulator, the ground surface can be tilted to create slopes or it can be moved suddenly to disturb balance. This provides a realistic, yet controlled environment to study human behavior and to test novel products.

By recreating these challenges, researchers will be able to develop practical solutions to obstacles encountered every day by older people and by those with disabilities.

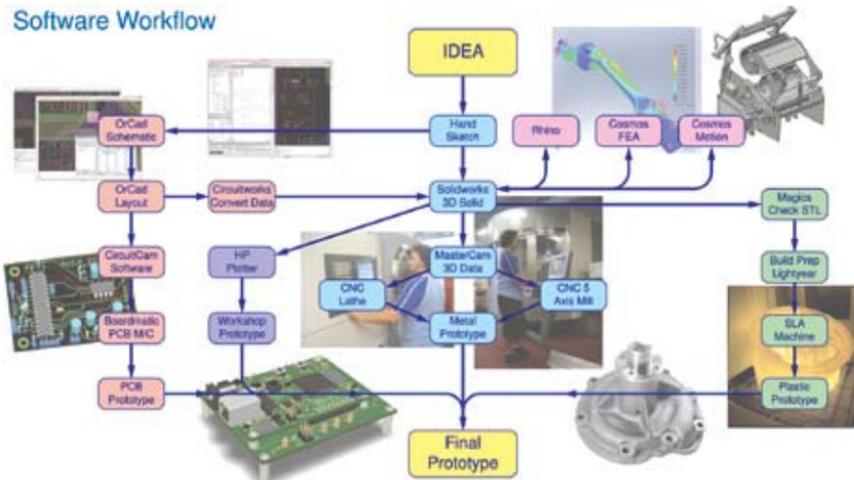
Since each "payload" will have on-board microprocessors monitoring a host of sensors, Quanser Inc. (www.quanser.com) of Markham, ON, has been commissioned to provide the computer systems for CEAL. Quanser has been active with



Dan Smyth, CAD Specialist, Research – iDAPT Technology R&D Team, demonstrates the SolidWorks design and simulation environment used in CEAL. The software platform is supported by Javelin Technologies of Oakville, ON.

Toronto Rehab on different projects that exploit its haptic control (sensory feedback) technologies.

An iDAPT Home Environment Laboratory will also feature a typical single-story dwelling to allow research-



The software workflow at iDAPT illustrates the lengths that Toronto Rehab has taken in order to provide a complete product concept turnkey operation.

ers to develop new tools to help people overcome the challenges they face in their own homes.

Fernie said that iDAPT is addressing two important issues that have been historical stumbling blocks. "Academics haven't been able to commercialize their work," and "researchers have bright ideas, but insufficient resources." The Club, a group of industry partners and researchers at Toronto Rehab, was created to address those issues.

Being in The Club gives industry partners the opportunity to negotiate a business arrangement if they see something they think they can sell. Companies are included in the entire process of product development from the concept stage

onwards, giving feedback in regular meetings and prototype development labs.

"There's a perception out there that it's not easy to make money out of products and technologies for people with disabilities," Fernie stated. "We want to make it easier for companies to get involved."

"Toronto Rehab receives royalties from its industry Club partners for every product sold, and these funds are channelled back into research. But the most important goal is not to make money," explained Fernie. "We want to see our research applied, helping people to lead better lives, at the same time creating jobs and wealth in our community."

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Breaking News:

Wainbee expands with acquisition of Spécialité Hydraulique C.N. in Sept Îles, Quebec.



Wainbee appointed Bansbach (gas springs) distributor.



Automotive Scene

Porsche's front engine sedan design sports a rare hatchback

By Bill Vance

The first Porsche 356 sports car emerged in 1948 from a converted sawmill in tiny Gmund, Austria, where Porsche relocated from Stuttgart during the Second World War. Since Ferdinand Porsche (the first) was the "father of the Volkswagen," the Porsche's rear-mounted, horizontally-opposed, air-cooled four cylinder engine and four wheel independent torsion bar suspension were Volkswagen based.

Although Porsche would divorce itself from VW as it converted to the 911 model in the 1960s, Porsches remained rear engine until the 911 was joined by the 1978 V8 powered model 928. This was followed in the 1980s by the front engine, four cylinder 944s. All were basically two seaters.

Porsche planned to gradually phase out rear engines but Porsche enthusiasts objected. They lobbied so effectively that Porsche discontinued front engines and stayed with the 911, still with us today and unique in the world of high performance sports cars with its engine behind the rear axle. There are also mid-rear engine Boxter and Cayman two seaters.

Now Porsche has returned to a front engine car (it has had front engine SUVs since 2003) with its new Panamera sedan. Although there is a distinct family resemblance to the 911, the similarity ends there.

The new Panamera four-seater places Porsche squarely in the Mercedes-Benz, BMW, Audi, Jaguar, Lexus luxury sedan crowd, although its hatchback does make it unusual. Hatchbacks aren't as popular in North America as in Europe, but they are so practical Porsche feels it complements its first true four passenger car.

The Panamera comes as the naturally aspirated S, 4-wheel drive 4S, and 4wd Turbo (twin turbochargers with intercooling). Its revised Cayenne SUV



To keep the Porsche Panamera firmly planted as speed increases, a two-stage wing below the rear window deploys at 90 km/h. In stage two, two additional blades extend from the wing at 190 km/h for added downforce.

4.8 litre aluminum, twin overhead camshaft, direct injection, 32-valve V8 is hooked to a 7-speed twin clutch automated manual transmission. There are variable intake valve timing and lift and chain driven camshafts, and a shallow sump for lower engine mounting.

Horsepower is 400 for the standard and 4wd versions, and 500 for the Turbo. Torque is 369 lb ft standard and 516 Turbo, with 568 available via temporary overboost. The four-wheel independent suspension uses air springs with front A-arms and rear links, and along with the standard calibration are two additional progressively sharper

choices, up to Sport Plus, for transmission, spring and shock absorber settings. Electronic stability control is standard.

For fuel saving a stop/start feature shuts off the engine when the car is stationary and re-starts when the brake pedal is released, the first such application in a non-hybrid automatic transmission car. Unfortunately it cancels itself when the car is parked and has to be reactivated each time it is driven. Fuel consumption is in the 18 L/100 km city and 10 L/100 km highway range on premium gasoline.



The new Panamera four-seater places Porsche squarely in the Mercedes-Benz, BMW, Audi, Jaguar, Lexus luxury sedan crowd, although its hatchback does make it unusual.

Performance and economy are helped by a commendable coefficient of aerodynamic drag of 0.29 (0.30 Turbo); the best currently is the Prius with 0.26. To keep it firmly planted as speed increases, a two-stage wing below the rear window deploys at 90 km/h. In stage two, two additional blades extend from the wing at 190 km/h for added downforce. The wing's angle of attack also adjusts with speed, and in Sport Plus mode the car is automatically lowered 25 mm.

The Panamera is a full sized car with a 2921 mm wheelbase and 4971 mm overall length, just 117 mm shy of Mercedes-Benz's S-Class sedan. Its a svelte 1417 mm tall, the lowest of its luxury sedan competitors, yet low seating and a high rear roof line (criticized by some for its full bodied appearance) provides ample head room for four passengers and holds 16 cubic feet of luggage (45 cubic feet with rear seats folded).

While Porsche presents the Panamera as a luxury sedan, it's really a sports car in disguise. Performance and handling are definitely in the best sports car class, which will appeal to motorists who desire a sports car and still want room for four.

The Panamera is on sale now at \$115,100 for the standard model, \$120,300 for the 4S and \$155,000 for the Turbo.

Bill Vance is an automotive journalist and author.

www.billvanceautohistory.ca

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The four-wheel independent suspension uses air springs with front A-arms and rear links.

With its steel, aluminum and magnesium construction, the Panamera weighs 1814 to 1996 kg depending on model. It's very quick with zero to 100 km/h in the 3.5 to 5.0 second range and top speed close to 300 km/h. Being slightly over geared, top speed is reached in 6th gear; 7th is a long-legged cruising ratio.

Medical Engineering

A new coat for dressing those familiar wounds

By Mark Sunderland

The treatment of wounds can be traced to the dawn of civilization. Burns, lacerations and punctures have all left their mark on the body ever since humankind was first exposed to the fire, the knife and the fork.

Whether or not a wound has been accidentally induced, surgically incised or the result of disease, (such as an ulcer), it's a break in the skin and an avenue for infection.

The first course of treatment, as any first aider well knows, is to stop the bleeding – and the first question may very well be “with what” – because the nature of accidents is that they don't always occur in proximity to a first aid box. Aside from this, there is always an exception to a rule. While living in the arctic, I was called to a house for help during a violent altercation. When I arrived, the perpetrator of the violence was on the floor and bleeding profusely.

He had made an unconventional entrance by smashing through a plate glass window. Following a bloody attack on the occupants he had collapsed – so rather than trying to revive him for a possible second round, I let the debilitating effect of blood loss enable his victims to be patched without interference.

So now to the point – and returning to the “with what” question – dressing a wound merely to arrest the flow of blood may introduce other problems principally, the complications that relate to infection.

Towards the end of 2008, Smith & Nephew Inc. in Canada (<http://global.smith-nephew.com/master/20322.htm>) expanded its unique range of antimicrobial barrier dressings that are marketed under the brand name “Acticoat”. The

The polyethylene material is ultrasonically bonded to a backing, then sterilized with radiation

dressings offer a unique range of use in partial and full-thickness wounds including pressure ulcers, venous ulcers, diabetic ulcers, surgical wounds, first and second degree burns, and graft sites. The dressings have now been cleared by FDA for use in the U.S.

Acticoat Flex products were designed to support physicians dealing with wounds and injuries of high risk of infection. Combining the flexibility of a polyester mesh substrate with the power of nanocrystalline silver technology, the Acticoat Flex line sets a new standard for patient comfort and ease of use.

This type of dressing offers important properties such as speed of kill, concentration, duration/spectrum of activity and lack of resistance that enables close physical contact to the wound bed.

They are soft, stretchable and conformable. They are painless to remove and do not hinder the patient's movement. The dressing's unique open weave structure also facilitates the passage of



Acticoat range of antimicrobial barrier dressings combining the flexibility of a polyester mesh substrate with the power of nanocrystalline silver technology.

fluid, thus making it ideal to promote in combination with Negative Pressure Wound Therapy (NPWT).

Because of its patented Nanocrystalline silver technology, the Acticoat range of products offers superior infection control properties. It is a highly soluble form of silver that exists in tiny crystals that are not visible to the naked eye. These crystals provide a greater surface area for moisture contact and thus are more soluble and reactive than other silver presentations. Some other forms of silver can take hours to work which allows time for bacteria to reproduce. Nanocrystalline silver is also effective against microorganisms present in the wound and it is currently the most effective form of silver available for wound care.

Manufacturing Acticoat wound dressings is a laborious, 14-hour process called physical vapor deposition in which high-density polyethylene is fed through a pressure vessel whose vacuum chamber is filled with electrically charged argon gas. This binds the ionized silver particles to the material in a one-micron-thick layer. By comparison, the human hair is 80 microns thick.

The polyethylene material is ultrasonically bonded to a laminate backing, then packaged and sterilized with radiation.

Silver has long been used as an antimicrobial, but one hurdle concerning its application in a dressing was that the chloride in skin causes silver to become inactive. This has been overcome by using tiny particles to slow the release of silver ions. A single piece of Acticoat can remain on a wound for up to a week.

ASM International, The Materials Information Society, recently recognized the inventor, Dr. Robert Burrell with their prestigious Engineering Materials Achievement Award for the development of technology and manufacturing methods for silver based nanostructured bioactive coatings.

Dr. Burrell began his work on the antimicrobial properties of silver in the early 1990s. A microbiologist by training, Dr.

Burrell has become an expert in burn and chronic wound healing. He is currently Canada Research Chair in Nanostructured Biomaterials and a professor with the Faculties of Engineering and Medicine &

Dentistry at the University of Alberta.

Mark Sunderland is President of Ottawa-based BioMedical Industry Group (mark.sunderland@biomedgroup.com).

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Feature: Hydraulics and Pneumatics



Pneumatics fittings, valves

The NITRA line of pneumatic components from AutomationDirect now includes additional fittings and valves for use with polyurethane and nylon tubing. The ME and MS series fittings include two additional male straight and two male elbows with #10-32 thread. The MEL series includes two additional long male elbow fittings. The MSR series fittings are push-to-connect male straight round fittings available in ten sizes ranging from 5/32 to 1/4 in. and 4 to 6 mm. The HVU series of three-way hand valves is available in seven sizes ranging from 1/4 to 1/2 in. and 6 to 12 mm; the valve blocks upstream pressure when closed and vents downstream pressure. CVU series union check valves have been added ranging from 5/32 to 3/8 in. and 6 to 8 mm sizes.

www.automationdirect.com

Pneumatic, electric actuated ball valves



The BVP70/BVP80 series of pneumatic, electric actuated ball valves

from Omega feature a stainless steel external trim and FKM O-rings standard. It is designed to operate using an air supply of 3.5 to 8.6 bar and the direct valve stem coupling to actuator shaft is designed to minimize backlash. Electric actuators feature two 1/2 NPT conduit ports and integral thermal overload protection. The product is suitable for water, chemical industries and automotive testing, process control applications.

www.omega.ca

Pumps boost energy efficiency



The design of the A18 generation of high-pressure pumps from Bosch Rexroth is based on the oblique axis principle and allows for integration in restricted installation spaces. In this situation, the flanges and shafts, built to international standards, simplify direct attachment to a PTO unit. The Rexroth A18FDO dual-circuit constant pump in rated dimensions 63 and 80 produces two separate delivery flows with mutually independent pressure levels, which reduces choke losses. The pivot angle of 40 degrees, increases versatility of performance, while the pressure range, boosted to 400 bar, improves the efficiency

of the system as a whole. Another new development is the A18VO adjustable pump with axial piston drive, operating in the pressure range from 350 to 400 bar, is suitable for use on large loading cranes such as in forestry operations.

www.boschrexroth.ca

Clean break squirt-free quick coupling



Walther Prazision has introduced a quick coupling, series CT. The stainless steel coupling has safety Clean Break Squirt-Free valves. It is a push-to-connect automatic lock, low force connection. Sizes are from 5 to 19 mm. Viton seals standard, other seals are available. Temperature resistance up to 600°F (dependant on seals). Working pressure to 928 psi. Benefits are said to include high flow, minimal pressure drop and ability to connect under residual pressure.

www.speztech.com

Displacement piston pump

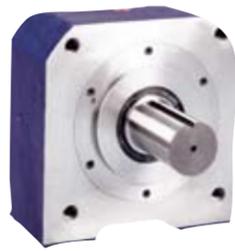
Parker Canada has announced the 45 cc/rev displacement piston pump to the P1/PD series of variable displacement medium pressure pumps. The 280 bar open circuit pumps for mobile and industrial applications are based on a compact round housing said to offer quiet operation. Control options include Pressure Limiter Control, Load Sensing and Pressure Limiter Control. Also offered are the Electronic Proportional Control, and Pilot Operated Control with NG6 interface. A choice of SAE and ISO mounting flanges and ports, and an assortment of keyed and splined shafts are offered.



www.parker.com

Hydraulic motor/pump load adaptors

Zero-Max Overhung Load Adaptors (OHLA) provide load support to eliminate premature hydraulic motor or pump bearing failure. OHLA units provide a solid mounting surface while sealing out dirt and contamination, as well as



provide support for both radial and axial loads. Shafts are machined from 130,000 psi stress-proofed steel. Over 50 standard models are available for handling overhung loads (axial and radial) on most motor or pump shafts. Input bore sizes range from 5/8 to 3-1/2 in. SAE mounts available include A, B, C, D, E, and F mounts with 2 or 4 bolt mounting flanges.

www.zero-max.com

NPT threaded plugs feature hex shaped head

Heyco Products, Inc., has announced availability of NPT threaded plugs as an addition to their current offering of PG and metric threaded plugs. Designed with a hex shaped head with slot for easy wrench or screwdriver installation, the new threaded plug is said to be a lower cost option over brass or steel NPT plugs, is available in multiple NPT thread sizes from 1/4 to 1 in., seals threaded openings to protect against contamination and moisture, and provides a liquid tight seal up to 70 psi. Constructed of electrically nonconductive nylon 6/6, the threaded plug is IP68 rated and resists oil and heat up to 105°C.

www.cordscanada.com

Pneumatic torque limiter

Nexen has introduced TL series pneumatically engaged, single-position torque limiters. The series uses a ball/detent interface and proximity sensor to disengage the machine shaft when excessive torque or a machine jam occurs. Upon detecting the overload condition, the sensor sends a signal to the torque limiter's control valve, exhausting the air and disengaging the unit for a clean disconnect of power to the driven components. By using pneumatic actuation, units facilitate remote trip-out torque adjustment via an air regulator, allowing operators to optimize overload protection while the machine is in use — thus eliminating the need for inconvenient onsite adjustments.



www.nexengroup.com

Check valve assembly for brakes

MICO, Inc. Has introduced a check valve assembly for full power brake systems. The compact manifold assembly includes a check valve and an inverted shuttle valve. The assembly supplies fluid for two separate accumulator circuits while reducing the necessary number of system components and limiting plumbing and hardware requirements. The assembly is suitable for hydraulic brake systems that must store energy in two separate accumulator circuits. It features flow capacity up to 11 gpm and a maximum operating pressure of 3625 psi. The assembly limits check valve leakage to a maximum of 0.25 cubic cm per minute at 3500 psi.

www.mico.com



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- 312 Beverage & Tobacco
- 313 Textile Mill
- 314 Textile Product Mills
- 315 Apparel
- 316 Leather
- 321 Wood Products
- 322 Paper

- 323 Printing
- 324 Petroleum & Coal Prod.
- 325 Chemicals
- 326 Plastics & Rubber
- 327 Nonmetallic Mineral
- 331 Primary Metal
- 332 Fabricated Metal
- 333 Machinery
- 334 Computer & Electronics

- 335 Electrical Products
- 336 Transportation Equipment
- 337 Furniture
- 339 Other Manufacturing
- NON-MANUFACTURING**
- 21 Mining
- 22 Utilities
- 23 Construction
- 42 Wholesale Trade

- 44 Retail Trade
- 48 Transportation
- 49 Warehousing
- 517 Telecommunications
- 541330 Engineering Services
- 611 Educational Service
- 62 Health Care
- 92 Public Administration
- Other (please specify)



F-SERIES
the **SNUGGLER®**

Parallel Helical Gearmotors

SEW-Eurodrive's F-Series parallel helical gearmotor lives up to its name as the ideal drive for tight space conditions. This compact drive, with its multiple mounting configurations, is a rugged alternative to right angled gearmotors.

F-SERIES PRODUCT RANGE

Power ratings from 0.05 to 336 HP

Output speeds from 0.06 to 464 rpm (based on 4 pole motor)

Output torques to 159,300 lb-in.



K-SERIES
Helical-Bevel Gearmotors

SEW-Eurodrive's K-Series right angle helical-bevel gearmotors deliver maximum performance and reliability with 95%+ efficiency and high torque density. Durable gearing designed for long service life makes this drive an ideal choice for demanding around-the-clock applications.

K-SERIES PRODUCT RANGE

Power ratings from 0.05 to 615 HP

Output speeds from 0.05 to 326 rpm (based on 4 pole motor)

Output torques to 442,500 lb-in.



S-SERIES
Helical-Worm Gearmotors

SEW-Eurodrive's S-Series right angle gearmotors offer helical-before-worm gearing combining durability with power-packed performance in a compact design that requires no motor belts or couplings.

S-SERIES PRODUCT RANGE

Power ratings from 0.05 to 46 HP

Output speeds from 0.05 to 257 rpm

Output torques to 35,400 lb-in.



AC MOTORS
and Brakemotors

SEW-Eurodrive's squirrel-cage motors and brakemotors deliver exceptional performance and reliability combined with low maintenance. Designed for continuous duty under tough service conditions, these low-noise brakemotors are used wherever fast, safe braking is a major application requirement.

AC MOTORS PRODUCT RANGE

Power ratings from 0.25 to 100 HP

2-, 4-, 6-, 8-, 4/8-, 2/6-, 2/8-pole plus others

Integral brakes to fit all frames

SEVERE DUTY CORROSION PROTECTION

SEW-Eurodrive has introduced a new line of aseptic gearmotors to meet the high levels of hygiene crucial to the production of food and beverages, as well as the stringent demands of the chemical and pharmaceutical industries. SEW has solved this challenge with the aseptic design of helical, parallel shaft helical, helical-bevel and helical-worm gearmotors made entirely of smooth stainless steel, cooled by pure convection cooling – eliminating conventional fan and cooling ribs, which prevents the build-up of germs and bacteria on the surface and allows for easy regular cleaning.



CORROSION PROTECTION PRODUCT RANGE

Power ratings from 0.34 to 2.0 HP

Can be mounted directly onto R, F, K, S-Series gear units in all standard positions

Get off Easy for a Change.



With TorqLOC® The keyless hollow shaft mounting system.



TorqLOC's corrosion-resistant, stainless steel design makes it the perfect choice for production line wash-down environments.

While hollow shaft mounting systems offer advantages over traditional securing methods, they're extremely susceptible to corrosion. As a result, getting a gearbox off the shaft is difficult, often impossible. The revolutionary TorqLOC makes things easy for a change.

TorqLOC is a compact, keyless hollow shaft mounting system that offers manufacturers operating in wash-down environments an unrivalled solution for coupling drive systems to their machinery.

With a keyless design that fits a variety of standard shaft sizes without additional machining, TorqLOC reduces operating costs and allows simple, fast assembly by eliminating the need to cut keyways or turn solid shafts to exacting tolerances.

Made from bronze and nickel-plated steel, TorqLOC's tapered bushings are inherently corrosion-resistant, making the system ideal for wash-down environments. And with no corrosion problems, TorqLOC ensures fast and easy removal, even after years of use.

With a flexible mounting system and corrosion-free components, you now get off and on easy with TorqLOC.

SEW
EURODRIVE
Driving the world



Clippard 10 mm & 15 mm Solenoid Valves

Clippard's new compact valves offer many features for design flexibility especially in applications with limited space. Available in 2-way or 3-way configurations, as Normally-Open or Normally-Closed, flow rates from 0.5 to 3.0 scfm are available dependent on the orifice size. Other features include highly-visible LED indicator light and manual override, quick response time, and multiple mounting and voltage options. For easy installation and versatility, select from five connector styles.

This all-new line of solenoid valves offer many possibilities for pneumatic applications that require a lightweight, cost-effective miniature valve.

www.clippard.com/10-15mm



Push-Quick Fittings

Clippard Push-Quick Fittings provide a simple method of connecting pneumatic components to each other and system piping. Push-Quick Fittings generally provide higher flows than barbed fittings, and allow full flow through the hose/tubing I.D. with no smaller orifice required as in barb fittings. Push-Quick Fittings and tubing are available in many styles and sizes.

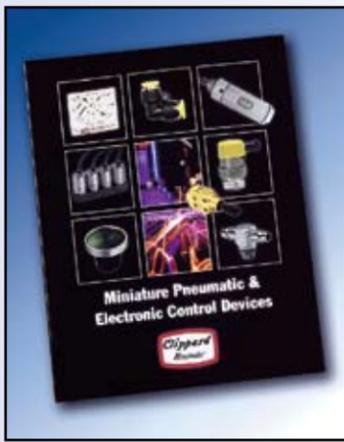
www.clippard.com



Clippard Brass Valves

Clippard offers poppet or spool designs; 2-, 3- or 4-way functions, in sizes from #3-56 and #10-32 through 1/8" NPT ports; and for pressures up to 300 psig. They are available with solenoid, air pilot, manual and mechanical actuators. Mounting styles include inline, panel mount, manifold mount or clearance holes for mounting screws. When you are looking for a valve, Clippard's minimatic line of valves provide a complete range of sizes and styles.

www.clippard.com



NEW! Clippard Catalog

Clippard's new 388-page full line catalog, with technical information, product applications, features, specifications, color photographs, and technical drawings for over 5,000 standard products is now available. It's your complete source for miniature fluid power products. Request your free copy today!

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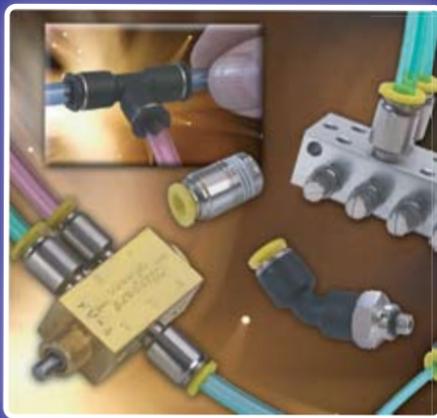
Clippard Maximatic® Solenoid Valves

Clippard's all-new Solenoid valves are available in two-way, three-way and four-way configurations in port sizes from #10-32 to 1/2" NPT. Select either a direct-acting poppet or solenoid-controlled pilot operated balanced spool design. Spool valves are body ported but can be bolted to a parallel circuit manifold.

Maximatic Solenoid Valves are a comprehensive valve offering that maximizes flow, are competitively priced, and will provide Maximum Value and Maximum performance.

Call Clippard today at 513-521-4261 or visit www.clippard.com/maximatic-b to request a free Maximatic catalog.

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Value.
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