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ADVANCING CANADIAN MANUFACTURING

Volume 74, No. 03 April 2015

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global hot zones

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CANADIAN INDUSTRIAL EQUIPMENT NEWS

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Embrace risk for strategic benefits
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Ontario's power struggle

Say what you will about its policies and delivery, the Conservative government in Ottawa gets manufacturing, particularly its impact on the economy (about 13% of GDP), and the important role it plays in jobs, innovation and trade.

It has directed funding and incentives to key industry sectors, provided tax incentives, hammered out trade deals to open up new global markets, while actively engaging the US on critical issues such as snags at the border that impede trade. And there's more to come in the budget.

Kathleen Wynne's Liberal government in Ontario also gets manufacturing. Next to the now dominant service industry, it's a key driver of the provincial economy; so Liberal governments have implemented similar tax and funding measures.

She boldly proclaimed in January that Ontario was prepared to shield the nation from the beating the economy has endured from the decline of the energy sector. But she will not have an easy time of it. Ontario has much going for it as a place to invest in manufacturing, but its high costs are a detriment, and electricity is a particular bother.

Successive Ontario governments mishandled the file and Wynne's administration appears to be continuing the bungling.

Just over a year ago energy minister Bob Chiarelli unveiled the province's long-term energy plan, which projected an increase in industrial power costs of 33% over five years and 55% in the next 20. That's a great plan if the intent is to wave off potential investment to less costly jurisdictions in the US or Mexico.

The Association of Major Power Consumers in Ontario (AMPCO), which represents 40 big industrial users, benchmarked Ontario's delivered rate and found it to be higher than New Brunswick Quebec, Manitoba, Alberta and BC, plus several (competing) US jurisdictions.

AMPCO also breaks down the cost, which includes the hourly energy price, transmission, distribution, wholesale market service charges, the global adjustment and debt retirement charge. Of this inventory of rates and charges, the last two are of particular concern.

The stranded debt (from the break-up of Ontario Hydro into several companies) was reduced to \$7.8 billion, but cost businesses and households \$11.5 billion. Finance minister Charles Sousa has offered some financial hocus pocus to account for the difference and counter accusations of slippery management, but bear in mind this comes from the same bunch who cost taxpayers close to \$2 billion not to build a couple of natural gas power plants. Industry will be stuck with the debt charges until 2018.

The global adjustment is another major annoyance for existing ratepayers. It's supposed to cover the fixed costs of the power system, which includes above market prices paid to private energy generators, green energy producers and some Ontario Power Generation operations. This "adjustment," which can exceed the actual price of the electricity, is especially galling because Ontario now generates more power than it needs, so it's selling the surplus to its neighbours at a loss, or paying them to take it.

Industrial users are in agreement something more must be done to lower electricity costs. Ian Howcroft, vice-president of Canadian Manufacturers & Exporters - Ontario has suggested an industrial rate. And AMPCO president Adam White suggests in a *Star* article earlier this year that the province direct some of the cheap surplus power to industry; both ideas geared to attracting investment and maintaining manufacturing jobs.

Ontario is offering incentives for potential investors, plus a market tool that will allow big users to reduce the global adjustment, but such tinkering does not address the structural problems of Ontario's power struggle. That shield Wynne promised the nation will have to made of something more substantial than bold words and good intention.

Joe Terrett, Editor

Comments? E-mail jterrett@plant.ca.



COVER IMAGE: STEPHEN UHRANEY



12



15



16



18

Features

» OPERATIONS

- 10 **FABRICATION** INKAS's R&D-heavy armoured vehicles keep clients safe in global "hot zones."
- 12 **LUBRICATION** Regular audits maintain your lube system at top efficiency.
- CCOHS SAFETY TIPS** Keep noise levels in check to maintain worker health.
- 13 **TEAMWORK** Eight must-have soft skills for maintenance managers.
- 14 **THINK LEAN** New leadership? Engage employees with positive change.

» TRENDS

- 15 **AUTOMOTIVE** Magna CEO Don Walker promotes a strategy to attract Canadian auto investments.

» MANAGEMENT

- 16 **STRATEGY** Real risk management goes beyond bare minimums.
- TRAINING** Don't overcoach: take small steps to optimize worker performance.
- 17 **PROCUREMENT** Hedging eases the pains of currency volatility.
- SOLD** Steps to take after the LOI.

» INNOVATION

- 18 **AUTOMOTIVE R&D** Lightweight vehicles that are better for the environment.
- COLLABORATION** Colleges get a hand for product development and smart manufacturing.
- WASTE WATER** Research tries to wrangle antibiotic-resistant bugs.

» SUSTAINABILITY

- 19 **CARBON** CCEMC-funded energy projects are paying more than emissions reductions dividends.
- 20 **EMISSIONS** Mapping waste energy pays off in Alberta.
- RECYCLING** New Toronto plant will produce plastic flake, pellets from waste.

CIEN

» TECHNOLOGY

- 21 **AERIAL WORK PLATFORMS** Brazil's 2016 Olympic preparations get a lift.
- SUPPLY LINES** Supplier news.
- 22 **PRODUCT FOCUS** Safety
- 24 **PRODUCTS AND EQUIPMENT** What's new in industrial products and machinery.
- 29 **PLANTWARE** Hardware and software for managing plant operations.

Departments

- 4 Industry View
- 6 Careers
- 8 Events
- 9 PLANT Pulse
- 30 Postscript

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» Bulletins

Export Development Canada has signed an agreement with **AVIC International Leasing Co. Ltd.** to provide \$45 million in financing for the purchase of CRJ900 NextGen aircraft manufactured by Montreal-based aerospace giant **Bombardier**. AVIC Leasing is a subsidiary of **Aviation Industry Corp.** of China. The Crown export financing agency says it hopes to help bring more Canadian aircraft to the growing Chinese market.

Manac Inc. is reviewing its options, which includes selling the Quebec-based manufacturing company, a merger or another business transaction. The company manufactures truck trailers in Canada.

ACT Aurora Control Technologies Corp. has received two orders from **SEMCO Engineering** in Montpellier, France, a supplier to the global solar market, for its Decima inline measurement system with Veritas software. The orders will go to two unidentified photovoltaic (PV) solar cell manufacturers. ACT Aurora Control Technologies, based in North Vancouver, manufactures systems for the PV industry.

The **Orthopaedic Innovation Centre**, non-profit corporation based in Winnipeg, has been awarded \$5 million by the Western Canada Diversification Fund to develop an Advanced Digital Manufacturing Hub (ADMH) to advance and commercialize 3D printing technologies. The funding will be used to purchase metal additive manufacturing equipment for testing, development, precision measurement, and fabrication of advanced orthopaedic materials and technologies.

New Flyer Industries Inc., a Winnipeg, Man.-based manufacturer of transit buses, has been awarded a contract for 305 heavy-duty 40-foot and 60-foot Xcelsior compressed natural gas buses from the Transportation Commission of Southern Nevada.

While Canada no longer produces heavy trucks, **Scotiabank's Global Auto Report** says the improvement in North American commercial truck demand represents a positive development for several Canadian provinces. In particular, tires are one of Nova Scotia's main exports. Michelin operates several tire plants in the province, including a facility dedicated to the heavy truck market.

GM plant closure would cut GDP by \$5B: Unifor

Report says 33,000 jobs would be lost if Oshawa plants closed

TORONTO — Canada's GDP would shrink by more than \$5 billion per year within two years if General Motors closed its Oshawa manufacturing complex entirely.

That's one of the main findings in a report by Unifor released March. 30.

The union, which represents more than 305,000 workers including close to 40,000 in the auto sector, said the study confirms the massive economic benefits of GM's operations in Oshawa, Ont., which currently supports 3,600 production jobs and an estimated 500 salaried positions.

"Canada is a great place for GM to do business, and we all benefit greatly from them being here," said Jerry Dias, Unifor's national president.

The study, authored by Robin Somerville of The Centre for Spatial Economics, found the complex boosts Canada's GDP, supports tens of thousands of jobs, generates vital tax revenue to support health care and education services, and significantly bolsters the Canada Pension Plan.

The analysis considers the direct GDP produced in the facility, the indirect impact on auto parts and other supply industries, and the economic



A 2014 Chevrolet Impala rolls off the line at GM's Oshawa Assembly plant.

PHOTO: GM CANADA

activity stemming from the spending and re-spending of workers' wages.

A closure would result in the immediate loss of 24,000 direct and in-direct manufacturing-related positions. Within two years, the number would jump to 33,000.

The report concedes that employment would partially rebound eventually, but at the expense of a permanent decline in average wages.

The federal and Ontario governments would feel a permanent loss of revenues and an increase in their deficits north of \$1 billion annually.

The union has also de-

nounced the federal government's sale of its remaining GM shares, purchased as part of the 2009 automotive bailout.

"It is remarkably short-sighted...at a time when there has been wide-spread agreement that securing GM's future in Canada is critical," said Dias.

Unifor's chief economist, Jim Stanford, cited several recent investments by Ford, Chrysler and GM as proof that Canada is a good place for automakers to invest.

"Canadian auto workers provide the highest levels of quality, productivity and innovation in the world, at a very competitive cost," he said.

Magellan to open second facility in Poland

TORONTO — Magellan Aerospace will open a new advanced precision machining facility in Mielec, Poland to complement its existing surface treatment facility in the eastern European country.

The facility is expected to be fully operational in the second half of 2015 and will initially specialize in the production of small- to-medium-size aerospace components.

It will eventually be expanded into precision assembly and aeroengine machining.

The company said the expansion is part of its customers' growing demand for globalization.

Magellan, based in Mississauga, Ont., is a manufacturer of aerospace assemblies and components.

Norbord, Ainsworth complete merger

TORONTO — Ainsworth Lumber Co. Ltd. is now a wholly-owned subsidiary of Norbord Inc.

The manufacturer of wood-based panels and oriented strand board said the transaction will help it meet increasing demand in the recovering US housing market thanks to a larger mill network.

Norbord employs 2,600 people at 17 plants in Canada, Europe and the US. It had 2014 sales of more than \$1.6 billion.

Ainsworth, based in Vancouver, manufactures oriented strand board, stud lumber, specialty plywood and woodchips. The company operates six production facilities in BC and Alberta.

Pyrogenesis licenses plasma systems

Asian company will market them for five years

MONTREAL — PyroGenesis Canada Inc. has signed an exclusive licence agreement with an Asian clean-tech project developer to market the company's plasma waste processing systems over the next five years.

The name of the licensee and the country were not disclosed.

The licence involves six 50 TPD waste treat-

ment systems, which use high-temperature and highly-reactive plasma to destroy a range of municipal, hazardous, biomedical and other wastes, then recover energy and other by-products.

The systems typically sell for up to \$30 million.

PyroGenesis Canada, based in Montreal, manufactures advanced plasma processes and process equipment for several industrial markets.

Hammond Power, National Material partner in Mexico

GUELPH, Ont. — Hammond Power Solutions Inc. has formed a new electrical core manufacturer with its joint venture partner National Material LP.

Corefficient S. de R.L. de C.V. will be based in Monterrey, Mexico and will produce energy efficient electrical cores for dry type and liquid filled transformers. Production is to start later this year.

Hammond, based in Guelph, Ont., makes industrial enclosures. National is a global steel and aluminum processor based in Elk Grove Village, Ill.

PLANT Off-Site photo feature RETURNS!

Travel with PLANT Magazine to an exotic locale and win \$75

PLANT is reviving its popular Off-Site photo feature.

When you go on a business trip or vacation, be sure to take a copy of PLANT with you. If you have a photo taken while reading your favourite manufacturing publication in a remote, interesting or exotic location and we use it, you'll get \$75.

PLANT has travelled all over the world, visiting such exotic locales as China's Great Wall, and Rome's Coliseum, it has been underwater and was taken on safari. Get snapping and become a PLANT celebrity!

Send photos with name, title, company, address and phone number to Off-Site, PLANT, jterrett@plant.ca. Digital photos should be at least 5x7 inches and 300 dpi.



A shark interrupts this diver, who was taking a break with PLANT Magazine to catch up on what's going on in Canadian manufacturing.

Benefits plans not reflecting health challenges

Too much is being spent on glasses, orthotic shoes and chiropractics

TORONTO — A year-long study of health benefits by Green Shield Canada reveals that big dollars are being spent on services that don't necessarily align with the predominant health challenges facing Canadians.

The study includes data related to prescription drugs, eyewear and paramedical services, and shows how benefits are being used.

It reveals that Green Shield Canada's clients spent approximately \$144-million on glasses, orthotic shoes and chiropractic and massage services last year, yet only \$100,000 (less than 1%) of that amount was spent on dieticians and nutritionists, despite rising cases of type-2 diabetes and obesity.

Most surprising was the rapid increase of paramedical services at younger ages, including chiropractic care for infants and massages for teenagers. The highest expenditure of any



Just 1% spent on dieticians and nutritionists.

PHOTO: THINKSTOCK

service was for massages.

Green Shield, a Windsor, Ont.-based insurer, said there is a risk that increases in paramedical services expenses are taking away resources from other important health strategies and treatments.

What the future holds is another cautionary tale: the Baby Boomers are aging and costs for treating their health issues – largely associated with chronic

disease – are increasing, with fewer people shouldering those costs.

Escalating drug costs are a major concern. During the study period, the predominant debate was about the ability of Canadian employers to afford benefits costs to cover expensive drugs for conditions such as rheumatoid arthritis and hepatitis C.

NRStor to deploy CAES system

TORONTO — NRStor has partnered with two US companies to build a large-scale, fuel-free compressed air energy storage (CAES) system in Ontario, which it says could save ratepayers up to \$8 billion over 20 years while helping to reduce the province's carbon emissions.

NRStor, a Toronto-based energy storage project developer, and its US partners General Compression and SustainX, will work together in a phased approach to project development.

The technology is expected to reduce the need for gas plants. Surplus energy generated at off-peak times can be stored and released when demand is greater, or during lulls in wind generation.

CAES absorbs surplus energy during low-demand or transmission constrained periods and returns it back to the grid when needed. Added to the grid system along with wind generation, it provides reliable baseload power, something wind generation can't do on its own.

Energy is produced when winds are favourable, which may not be when the power is required on the grid. To balance the grid, gas plants currently fill the gaps.

NRStor said the installed cost of the project will be less than one-tenth of the estimated \$350 per kilowatt hour for battery storage projected by the year 2022.

Magna expands in Mexico

New plant will build exterior panels for export

AURORA, Ont. —Magna International Inc. has started the construction of a new \$135 million manufacturing facility in Queretaro, Mexico, which will produce moulded and painted exterior parts for global automakers.

The 285,000 square-foot facility is to be operational by early 2016 and will employ 600 people who will produce exterior components including fascias and rocker panels.

The Aurora, Ont.-based auto parts manufacturer said the Queretaro facility will be its 30th plant in Mexico, where it has more than 24,000 employees.

Its first assembly facility in the country was established in 1991.

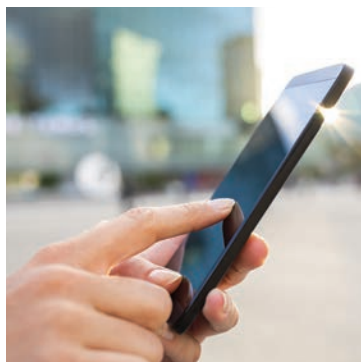
Magna has more than 313 manufacturing operations and 84 product development facilities worldwide.



The Queretaro plant is Magna's 30th in Mexico.

PHOTO: MAGNA

EORN partners with online jobs portal



Finding employment in Eastern Ontario.

PHOTO: THINKSTOCK

TORONTO — The Eastern Ontario Regional Network (EORN) is partnering with an online platform that helps job seekers

connect to meaningful employment opportunities across the region.

Magnet, developed at Ryerson University, uses secure and accurate technology to match employers and qualified candidates. Through funding from EORN and the Eastern Ontario Development Program, a Magnet portal will be created specifically for Eastern Ontario employers and job candidates.

More than 43,000 job seekers have registered on the platform, which also has relationships with more than 20 universities and colleges.

Energy companies need more long-term cost management: EY

CALGARY — An EY survey of senior executives in the Canadian oil patch finds that many companies are aware of their need for a more balanced and structured approach to cost management, but 92% of respondents have minimal or no long-term strategies in place.

"Most companies reacted quickly when oil prices collapsed, but have only implemented tactical and short-term measures to manage their costs," said Lance Mortlock, EY's Canadian strategy services leader. "Organizations really need to be more long-term and strategic in their approach."

The survey, *A new energy world: why costs matter in an era of resource abundance*, finds the biggest issue companies are facing is finding cost reductions while maintaining capacity with fewer resources. Still, close to half of respondents haven't implemented a central group or team to focus on cost management.

They have responded by making dramatic and rapid short-term cuts in headcount, capital and expenses.

The report notes in a resource abundant world, future commodity prices won't preserve or rescue high-cost projects or unconventional plays with higher operating costs.

Munro said winners will drive new lean business models, and renew a focus on operational excellence, globally aligned business models and innovation.

UTC taps IBC for advanced alloys

VANCOUVER — IBC Advanced Alloys Corp. has received a purchase order from UTC Aerospace Systems to supply its advanced Beralcast components for critical imaging systems used on a variety of unnamed US and foreign military aircraft.

UTC, a manufacturer of integrated systems and components for the aerospace and defense industries and a unit of United

Technologies Corp., said it expects the first components prior to IBC's 2015 fiscal year end of June 30.

Production has begun at IBC's Wilmington, Mass. manufacturing facility.

The Vancouver-based manufacturer of advanced alloys and rare metals (such as beryllium), says its Beralcast alloys are three times stiffer and weigh 22% less than aluminum.

First hydrogen fuel cell tram powered by Ballard FCvelocity system

QINGDAO, China — The world's first fixed rail electric tram powered by a Canadian-made hydrogen fuel-cell system has been successfully demonstrated in China.

Ballard Power System's FCvelocity fuel cell module is integrated into the low floor tram, which was demonstrated during a launch event at CSR Qingdao Sifang Co.'s production and testing facility in Qingdao, China.

CSR Sifang has a yearly production capacity of 200 high-speed electric multiple units, 1,000 mass transit vehicles and 300 high-grade passenger cars.

Additional testing is being completed at CSR Sifang's facility.

Ballard Power Systems, based in Vancouver, manufactures zero-emission proton-exchange-membrane fuel cells.

Feedback

SMOKING INFRACTION

Re: Getting a handle on shift work, March 2015 PLANT

The article was a good read, but the fellow in the photo is smoking indoors and the company could be getting a \$500 fine. Funny that it wasn't noted.

Kenneth Carrier
Cintube Ltd.
Mississauga, Ont.



We'd like to hear from you. Send comments to j.terrett@plant.ca with your name, address and phone number. Submissions will be edited.

CN to build \$250M hub in Milton

Facility expected to create up to 1,000 jobs



Milton facility will compliment CN's Brampton, Ont. terminal, which is nearing capacity.

PHOTO: CN

MILTON, Ont. — CN plans to build a \$250-million intermodal and logistics hub on its main line in Milton, Ont. to relieve capacity constraints at its nearby Brampton, Ont. terminal.

The Montreal-based national railway said its intermodal business, principally containerized international and domestic cargo moving in cooperation with trucks and ocean-going ships, is one of its fastest growing segments. Its 2014 revenues

were more than \$2.7 billion.

The facility is expected to create more than 1,000 direct and in-direct jobs, based on it attracting additional warehousing and distribution centres to the Milton area. It will also supply additional capacity and container availability for exporters in the southwest Greater Toronto and Hamilton Area (GTHA).

CN moves more than \$250 billion worth of goods annually coast-to-coast and across the US.

Toyota Boshoku invests in Elmira

Ontario governments kicks in \$1-million grant

ELMIRA, Ont. — Toyota Boshoku Canada will use a \$1 million grant from the Ontario government to invest in new technology and create 73 jobs at its Elmira, Ont. manufacturing facility.

The company supplies interior vehicle components such

as seats and door trims, to Toyota's Ontario assembly plants in Cambridge and Woodstock.

It said the funding from the Southwestern Ontario Development Fund will be used to purchase new equipment, enhance productivity and quality control, and reduce costs.

Forest industry gets \$8.9M to drive innovation

PRINCE GEORGE, BC — The federal government is investing \$8.9 million in the forest industry through the Expanding Market Opportunities Program to drive innovation.

The program, which has contributed to increased wood product exports to China of more than 1,000% between 2007 and 2014, helps Canadian forest products companies diversify their markets, build business relationships globally and enhance competitiveness.

Canada is the world's fourth-largest exporter of forest products, providing jobs for more than 200,000 Canadians.

COM DEV acquires PW for \$20.1M

CAMBRIDGE, Ont. — COM DEV International Ltd. is acquiring Pacific Wave Systems, a manufacturer of waveguides for the global satellite industry, for US\$20.1 million.

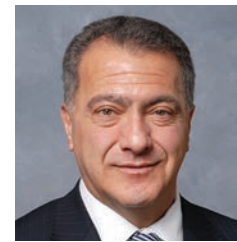
COM DEV, a Cambridge, Ont.-based manufacturer of space hardware, said Pacific Wave Systems, based in Garden Grove, Calif., expands its core space equipment business in areas of market growth, such as high-throughput satellites.

Waveguides efficiently direct electromagnetic signals between various satellite components, including the filters and switches that COM DEV produces.

» Careers



Jay Stillie



Michael Christodoulou



Stefan Fickenscher

Provincial Partitions, a manufacturer of modular buildings and structures based in Mississauga, Ont., has appointed **Jay Stillie** territory manager for Southwestern Ontario. Stillie started with Provincial Partitions as an installer in the early 1980s, then moved into sales.

Walter Surface Technologies has appointed **Michael Christodoulou** president and COO of the Montreal-based supplier of metal surfacing solutions. Previously he was president of Cummins Eastern Canada LP, the distributor for Cummins Inc., a manufacturer of diesel engines.

Stefan Fickenscher has been appointed managing director of TRUMPF Canada in Mississauga, Ont., succeeding **Stefan Schreiber**. Fickenscher joined TRUMPF GmbH + Co. KG in 2002 as international project manager, 2D lasers, then transferred to TRUMPF Inc. in Farmington, Conn. in 2011. Trumpf makes machinery and industrial lasers for flexible sheet metal processing.

Ken Bloch Soerensen moves from the international maritime sector, most recently based in Dubai, to join Algoma Central Corp. as president and CEO, replacing the retiring **Greg Wight**. Algoma, based in St. Catharines, Ont., operates a

fleet of dry and liquid bulk carriers operating on the Great Lakes – St. Lawrence Waterway.

Athabasca Oil Corp. has a new CEO. **Rob Broen**, previously president and COO, replaces **Tom Buchanan**. Calgary-based Athabasca oil is focused on oil sands development in the Athabasca region of northeastern Alberta and light oil resources in the northwestern region.

Andreas Sobotta has joined Hammond Manufacturing as vice-president of North American sales and marketing. Most recently Sobotta was national sales manager with Davis Controls. Hammond Manufacturing, based in Guelph, Ont., makes industrial enclosures.

Jim Manz joins Brick Brewing Co. Ltd., a Kitchener, Ont.-based brewery, as director of sales, Canada. Most recently, he led Restaurants Canada efforts as vice-president, membership.

Gary Collins joins the board at D-BOX Technologies Inc., a Longueuil, Que. manufacturer of motion systems for the entertainment industry. He's currently a director of Chorus Aviation Inc./ Air Canada Jazz and Liquor Stores North America Inc.

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EXAIR's Back Blow Nozzles are engineered to clean inside of pipe, tube, hose or channels. An array of holes provide a forceful 360° airflow to clear out coolant, chips or debris created from machining processes. This nozzle prevents blowing chips further into a pipe or out the opposite end of the pipe.

www.airnozzle.info/18/back.htm

1600% Return on Investment!

The Money Is In Your Hand!

This small Super Air Nozzle costs only \$35. Installing it in place of one 1/4" copper tube can save you \$592.80 per year.

Here's how:

A 1/4" copper tube is a common homemade blowoff that consumes 33 SCFM when at a normal supply pressure of 80 PSIG. EXAIR's award winning **Model 1100 Super Air Nozzle** is 1/4 NPT and consumes only 14 SCFM at 80 PSIG.

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Most large plants know their cost per 1,000 standard cubic feet of compressed air.

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In this case, 19 SCFM x 60 minutes x .25/1,000 = 28.5 cents per hour.

28.5 cents per hour x 40 hour work week = \$11.40 per week.

\$11.40 per week x 52 weeks = \$592.80 per year.

The Super Air Nozzle pays for itself in three weeks.

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Alberta's success depends on oil

CALGARY — Oil is still the straw that stirs the drink in Alberta, according to ATB Financial's latest *Business Beat*.

Of the 624 small and mid-sized businesses (SMEs) that participated in the quarterly survey, 70% said the success of their business was tied to the price of oil.

"That's significant because 90% of Alberta's small and mid sized businesses don't deal directly in oil and gas," says Wellington Holbrook, ATB's executive vice-president of business and agriculture.

The survey, conducted between Jan. 16 and March 6, also showed 51% of Alberta SMEs say the success of their business was tied to the value of the Canadian dollar, 60% depend on the availability of skilled labour and 86% need a strong provincial economy to be successful.

Of the SMEs that believe their businesses will be worse off in six months, 36% said the reason was the low price of oil.

"The majority of business owners are still optimistic about their own futures despite their dependency on oil," adds Holbrook.

Schlumberger invests in CelluForce

Will explore NCC applications for oil and gas wells

MONTREAL — CelluForce has a new investor.

Schlumberger, a supplier of technology, integrated project management and information services for the energy sector, has come onboard the Domtar-FPInnovations joint venture to explore ways nano-crystalline cellulose could enhance the productivity of oil and gas wells.

Nano-crystalline cellulose (NCC) is an extract derived from forest biomass that has strength properties comparable to steel and is expected to have various



Wood-derived, nano-crystalline cellulose has strength properties comparable to steel.

PHOTO: CELLUFORCE

industrial applications.

The first small-scale NCC pilot plant began operation in 2006 at FPInnovations' Montreal lab, which led to a scalable production process and a demonstration plant at Domtar's mill in Windsor, Que., which has a production capacity of 1,000 kilograms per day.

Schlumberger's investment follows a \$4 million contribution by Sustainable Development Technology Canada (SDTC) to optimize the NCC extraction process from dry wood pulp.



Chachel, Business Development Analyst

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» Events

BSA 2015

BSA

May 2-5, Amelia Island, Fla

The Bearing Specialists Association's (BSA's) annual convention is themed "Relationships Matter." Visit www.bsaconventions.org.

STLE 70th Annual Meeting & Exhibition
STLE

May 17-21, Dallas

Omni Hotel

The Society of Tribologists and Lubrication Engineers (STLE) conference showcases technical papers, application-based case studies, best practice reports and discussion panels. Visit www.stle.org.

PTDA Canadian Conference

PTDA

June 4-6, Vancouver

The Power Transmission Distributors Association (PTDA) hosts this event for Canadian distributors and suppliers. Visit www.ptda.org.

Global Petroleum Show

DMG Events

June 9-11, Calgary

Now an annual event for global energy producers, EPCs, service companies and suppliers hosting 95 countries, 63,000 attendees and 2,000 exhibitors. Visit <http://globalpetroleumshow.com>.

ATX

UBM Canon

June 16-18, Toronto

Get a close look at technologies and applications plus sessions on 3D printing for manufacturing, industrial automation, integrated quality management, and more at Automation Technology Canada. Visit <http://atxcanada.designnews.com>.

WMTS

SME

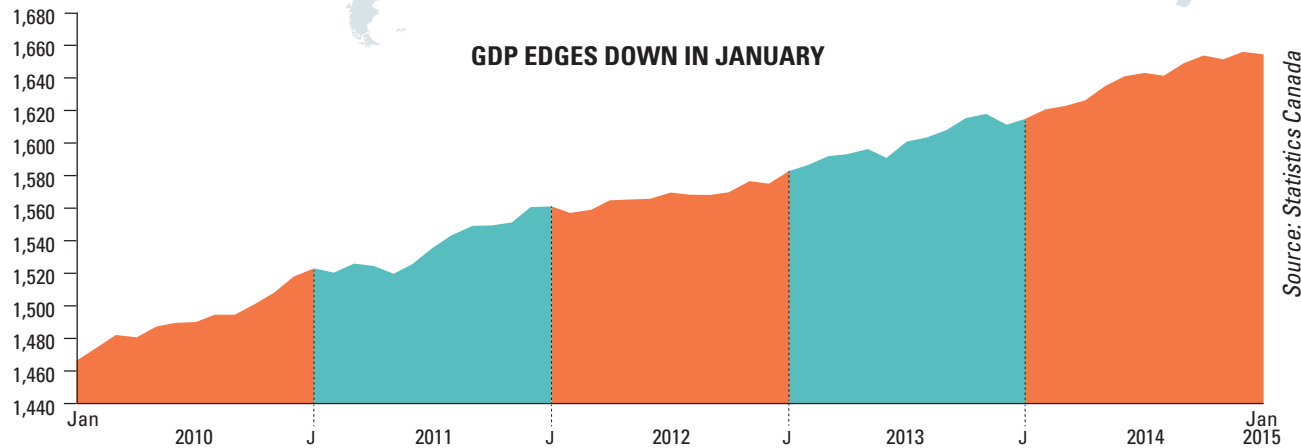
June 15-17, Edmonton

The Western Manufacturing Technology Show (WMTS) features state-of-the-art machinery and equipment for manufacturers in Western Canada, plus educational sessions, keynotes and networking opportunities. Visit www.wmts.ca or call (888) 322-7333, ext. 4435.

PLANT PULSE

ECONOMIC DEVELOPMENTS AND TRENDS

billions of chained (2007) dollars – all industries



Real GDP slipped 0.1% in January after increasing 0.3% in December and declining 0.2% in November.

JANUARY MANUFACTURING OUTPUT DECLINES

Manufacturers' output followed up a 2.1% increase in December with a 0.7% dip in January. Durable-goods were down 0.7% with declines in machinery and transportation equipment, but increases were posted in non-metallic mineral products, computer and electronic products and fabricated metal products. Non-durable goods decreased 0.7% with notable declines in chemicals, plastics and rubber products. But beverage and tobacco showed increases.

BUSINESS SLOWS

...but exports will help pick up the pace

Like the weather, business conditions for manufacturers in March were pretty cold, according to the RBC Canadian Manufacturing Purchasing Managers' Index (RBC PMI), but they're warming up compared to record-lows in February.

The monthly survey, conducted in association with Markit, a financial information services company, and the Supply Chain Management Association (SCMA), registered 48.9, just ahead of February's 48.7. A reading above 50.0 indicates positive business conditions.

RBC says March's reading represents the first back-to-back deterioration in overall business conditions over the survey's four-and-a-half year history. The first quarter average (49.5) is the weakest since the survey began in late-2010.

Although output, new business and employment levels all fell at slower rates, manufacturers signalled a solid reduction in work-in-hand, while inventory levels were reduced again as they expressed concerns about future demand.

The results suggest they face headwinds, but Craig Wright, RBC's senior vice-president and chief economist says the bank remains confident that as the US economy continues to strengthen and the Canadian dollar becomes more competitive, "there will be an uptick in exports, a good sign for manufacturers – we need some time to see this materialize."

RBC's report notes the decline in energy sector spending helped to slow business in March, yet the overall decline in incoming work was only modest and less marked than it was in February. Export sales also fell at a slower pace, helped along by a lower-value loonie and stronger US demand.

Production decrease

A moderate drop in new orders contributed to the decrease in production, and reduced backlogs took pressure off operating capacity for the fourth consecutive month.

All of these factors contributed to more cautious hiring patterns. RBC says the latest data signalled payroll numbers decreased for the third month running, although the rate of job shedding moderated from February's survey-record pace.

Some manufacturers are deliberately reducing stock in response to the uncertain business outlook. Pre-production inventories decreased at the fastest rate since November 2010, while stocks of finished goods were depleted at the most marked pace in just under three years.

Volumes of input buying fell for the second month, reflecting efforts to prevent inventory accumulation across the manufacturing sector. This helped alleviate supply chain pressures, with the latest lengthening of vendor lead times the least marked since August 2013.

Average cost burdens increased, which survey respondents overwhelmingly attributed to exchange rate depreciation and a corresponding rise in imported raw material costs. That said, the overall rate of input cost inflation moderated since February, while factory gate charges also rose at a weaker pace.

Regionally, Ontario continued to buck the overall deterioration in manufacturing, while Alberta-BC posted a survey-record downturn, where a sharp drop in employment contrasted with job creation elsewhere.

The report is based on data compiled from monthly replies to questionnaires sent to purchasing executives at more than 400 industrial companies.

8.2%
PROFIT

The average profit margin non-financial corporations earned in Q4, a 27-year high. Excluding the hard-hit energy sector, profit margins are at their highest in almost 30 years at 7.6%.

Source: CIBC World Markets

\$24 MILLION

What the two-year federal government ad campaign cost (starting off at \$1.6-million) to market Canadian oil in the US. The Keystone pipeline issue is still unresolved.

Source: Canadian Press

4.3%

Annual global GDP in 2016, according to the Organisation of Economic Cooperation and Development's latest forecast. Canada's growth is pegged at 2.1%, the EU at 2% and the US at 3%. China weighs in at 7% and India at 8%.

Source: OECD

\$1,053

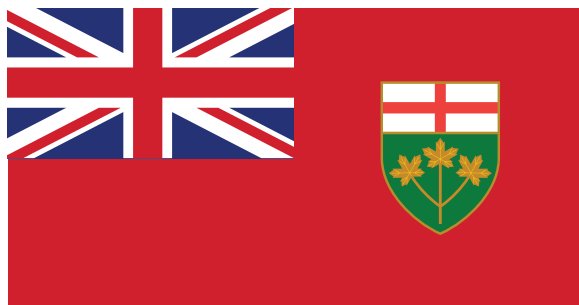
Weekly earnings in manufacturing, representing a 4.3% increase in January. Pay has hovered around this level since June 2014. The largest year-over-year gains were in machinery, fabricated metal products and food manufacturing. Notable declines were recorded in plastics and rubber products.

Source: Statistics Canada



41.1%

The Fraser Institute says this is how much Ontario government workers' wages and benefits increased between 2005-06 and 2013-14, faster than all other program spending (38.8%) and beyond the combined rate of inflation and government job growth (26%). Compensation at the 2009-10 level would have saved \$14.7 billion over five years and sliced \$4.4 billion from the 2013/14 budget deficit.



» Fabrication

Building BULLETPROOF

INKAS' ARMoured VEHICLES PROVIDE SAFETY IN GLOBAL "HOT ZONES"

The Toronto manufacturer is expanding five-fold thanks to its sharp focus on exports, R&D and customization.

BY MATT POWELL, ASSOCIATE EDITOR

From afar, the Mercedes G63 AMG parked at the back of INKAS Armoured Vehicle Manufacturing's busy Toronto plant looks like any other luxury SUV. Up close, it's a different story – more 007 than deep-pocketed soccer mom.

First of all, the SUV, which is stretched by 43 inches, is painted a mystic matte black and powered by a hand-built, 5.5 litre biturbo V8 engine that pumps out 544 horsepower – a lot of getaway in less than savoury environments. And it's fitted with enough armouring to protect against most assault rifle fire, in accordance with NIJ Standard 0108.01 Level 3 and CEN 1063 Level B6 requirements. The vehicle withstands virtually all non-armour piercing ammunition and a reinforced floor protects occupants from two DM51 grenade blasts detonated simultaneously.

There's one other giveaway this is no ordinary SUV. Try opening one of the doors. You'll need both hands.

Because of the added weight from all that armouring, INKAS has upgraded the suspension and braking components to keep the ride as smooth as possible, or as Phillip Daskal, vice-president of sales for INKAS's armoured vehicle division says, "so it doesn't feel like you're driving a tank. When you're driving a Mercedes, you shouldn't feel the added weight. It should drive like it just came from the dealership."

Inside, luxury and security features are controlled through an integrated iPad mini. There's also vast amounts of fine leather (sourced from Bentley) and wood veneers (from Rolls Royce), all custom, in-house. The windows are bulletproof, and made of electrolumi-

nescent glass that goes from limo tint to clear and back at the flick of a switch. There's also extras such as satellite TV, a refrigerator, an air purification system, a pistol holder, and LEDs that change colours to set different moods, including "various romantic themes."

All of this can be yours for \$1 million.

With a price tag that high, it's no wonder INKAS's vehicles are generally reserved for those with deep pockets and a lot of influence, such as government officials, oil and steel magnates or other higher-ups in the executive suite, specifically those in conflict zones such as Africa, the Middle East or South America. And they make a point of wanting vehicles that blend in.

INKAS's ability to produce such vehicles has helped the Toronto-based company gain recognition as a global armoured vehicle manufacturing powerhouse. Its efforts culminated in the Transportation Equipment award at the 2014 Ontario Export Awards, presented by Canadian Manufacturers & Exporters, CanadianManufacturing.com and PLANT.

"We want to keep everything concealed to the naked eye; these cars have to look the same as they did when they come off the production line," says Daskal.

Founded in 1993 by CEO and ex-Russian military man David Khazanski, INKAS acted initially as an armed messenger service. Now it's a global conglomerate offering security services including armoured vehicle and safe manufacturing; merchant services, such as point-of-sale and electronic transaction processing; and its Metaline and AppGear Ltd. ventures.

Plant expansion

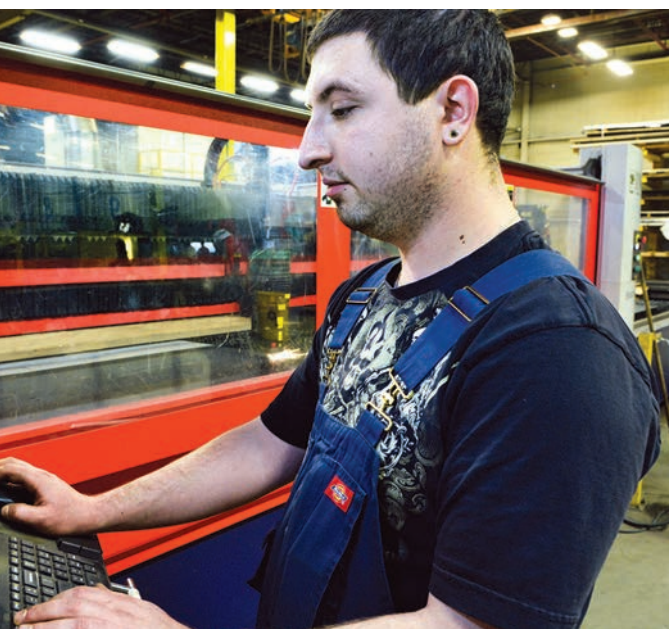
Apart from its Toronto headquarters, the company has offices in Gatineau, Que., plus sales and support services locations in Ghana, Mexico, Nigeria and Russia.

The armoured vehicle division is expanding into a 150,000 square-foot plant in North Toronto (which is to be complete by the fall), just up the road from its origi-





An INKAS employee grinds a vehicle's frame as part of the company's proprietary armouring process. PHOTOS: STEPHEN UHRANEY



nal 65,000 square-foot facility as it goes from building 50 vehicles a month to 80 by the end of this year.

Naturally, as most of its clients are based in "hot zones," INKAS is exporting about 98% of its production, Daskal says. Born in Calgary, he spent years bartending and selling real estate before joining INKAS; and he has ventured to some of the world's most conflicted areas, even living for year in Nigeria.

Canada doesn't come to mind as a conflict zone. The challenge, Daskal says, is to prove to clients why the world's best armoured cars are made by Canadians.

"[Indeed] they don't think cars like this are coming from Canada, so ensuring the awareness is there is a lot of work," he says.

The plant runs like a well-oiled machine (pun intended), where more than 100 highly-skilled fabricators work 24/7 across three shifts. It's lined by luxury SUVs and stacks of ballistic steel fresh off one of the company's CNC machines or its Bystronic pressbrake, which delivers enough force to complete 90 degree bends on super-thick slabs of metal.

INKAS is well aware of the skilled labour it requires to pump out its high-quality, high-tech vehicles, and Roman Shiminov, the company's vice-president of marketing and business development, says that's a big part of why the company is based in Canada.

"People are much more qualified here, and despite the higher salaries we have to pay our workers, the quality of our product is much better," he says.

"We're building vehicles that are supposed to save lives, so we have the responsibility to stand behind what we're doing."

Especially as it relates to metal fabrication. The company needs workers familiar with the materials it's installing into its vehicles. Some even have Masters degrees and Doctorates.

He says one of the most important skills is the ability to understand the materials, such as managing different gauges, bending allowances and behaviours.

"We're building vehicles that are supposed to save lives, so we have the responsibility to stand behind what we're doing. These things aren't toys, they're going to some of the most unstable places on earth, so our name and brand has to be represented by those vehicles."

The production process involves three main stages, including preparatory, armouring and finalization. There are strict quality control procedures at each stage, with a sharp focus on continuous improvement.

The process starts with designing all the materials required for a specific vehicle, which is tasked to the engineering team using 3D modelling software. Next up is the laser cutting stage, where components and materials – tested in the laboratory and on the shooting range – are processed. The OEM vehicle is then stripped to its bare frame.

(Photos L to R)

INKAS's armoured vehicle production line.

An employee installs custom flooring into an armoured limousine.

A CNC operator programs INKAS's new Bystronic CNC laser cutting machine.

The armouring process starts with ballistic steel plates or lightweight composites for the roof, floor, side-walls and rear. The vehicle is equipped with a proprietary overlap system in all openings and gaps between the doors and the vehicle's frame. The suspension and braking systems are also modified and reinforced to handle the additional weight of the armour. Then internal components such as the battery fuse box and engine control module are protected.

Once the vehicle is fully armoured, it's upholstered with plastics, woods or leathers as specified by the customer. At this stage, if required, components such as sirens, dual door locks or spotlights are installed.

High-end R&D

INKAS can build virtually anything. A blacked-out Cadillac Escalade being outfitted with armour plating by a couple of welders is likely headed to a foreign embassy, Daskal says. And there's a GMC Denali, a few Range Rovers, some Lexus RX450s and a Toyota Avalon sedan in various stages of production. They too will find homes somewhere other than Canada.

And the manufacturer is still building behemoth armoured personnel carriers (APCs). In fact, there's a tendered order for 26 of its Huron vehicles, at about \$450,000 a pop, for the National Police of Columbia.

The Huron is built on a Kenmore T370 chassis and will be outfitted with a cannon to wrangle unruly rioters with foam, tear gas, dyes and water.

"Who would have thought Canadians would be building this stuff?" Daskal quips.

In the engineering offices, an employee is plugging away in 3D, working on a gun port for one of the APCs.

This is where INKAS, suspended in a mezzanine above noisy CNC and welding machines, puts its R&D efforts to work. The 10-member engineering team has a hand in each vehicle that rolls out of the plant, having spent weeks focusing on the intricacies of each one to maximize space and safety.

"It's our eye in the sky," says Daskal, where the engineers are also working on ways to increase the amount of armoured steel that can be added to a vehicle without hindering performance.

It's timely then, that INKAS has recently increased the production of its Metaline division, purchasing and installing two new Bystronic cutting and bending machines. This is where components are designed and produced for INKAS's armoured and special purpose vehicles. The new machinery is expected to provide faster cutting speeds, lower power consumption and increase processing flexibility.

Engineers are also working to finalize a passenger-controlled proprietary software. The million-dollar Mercedes G-class SUV is the first to be outfitted with the technology.

"Sure, [the software] costs us a lot to develop it in-house, but that way we're able to control the design and customize it to each vehicle and client requests," says Shiminov, noting its remote diagnostics capabilities will help cut repair costs.

All of this adds to the real value INKAS provides to its export markets – a higher level of safety for drivers and passengers who face very different hazards requiring more than the seat belts, air bags and crumple zones that protect typical Canadian drivers.

Comments? E-mail mpowell@plant.ca.

» Lubrication

Operating at top efficiency reduces machine downtime and avoidable maintenance costs.

BY STEVE GAHBAUER

Lubrication systems in any manufacturing or processing plant must deliver the right amount of cool and clean oil or grease at the right time to lube points. The benefits are improved utilization and effectiveness, increased reliability and, most important, lower maintenance costs.

But achieving lubrication's full potential is often overlooked. In traditional lube systems, less than half of the lubricant is in effective circulation. There has been no detailed research into oil reservoirs, but using large ones results in inefficient air and water separation. And bearing failure resulting from improper lubrication is a major cause of equipment downtime.

Performing regular lube audits keep a plant's lube system working at optimum efficiency and delivering consistent and reliable results. In a technical presentation at the Hamilton Section of the Society of Tribologists and Lubrication Engineers (STLE), section chairman Mike Deckert, vice-president of FLO Components Ltd., an ISO 9001-certified lubrication company in Mississauga, Ont., made the case for lubrication audits and how they should be conducted.

Lubrication problems are still abound. More than 95% of all bearings are manually lubricated and according to a study by bearing and component manufacturer SKF, more than 50% of bearing failures are the result of improper lubrication. Reducing bearing failures by just 10% saves a lot of money and using the right type of lubricant is key. Deckert said many plants have huge inventories of different lubricants to satisfy requirements of various pieces of equipment and specific applications. New machines added to a plant will have different automatic lubrication systems already installed.

The loss of in-stock products and supplies due to improper storage and handling is another problem. Also, lube technicians may know lubrication schedules, but there's no single location where all critical information is documented. And frequently – because of a lack of training – there is no “ownership” of lube systems, equipment or processes.

Before conducting a lube audit, set these objectives:

- Consolidate purchases from different vendors.
- Reduce types/brands in stock and standardize lubricants and equipment.
- Aim at longer intervals between lubrication.
- Use a better-quality lubricant.

Identify training needs and define the scope of work



Lube audits help increase productivity and reduce energy consumption. PHOTO:THINKSTOCK

How's your LUBE system?

HARNESS THE BENEFITS OF REGULAR AUDITS

required for an audit by doing the following:

- Review all lubricants and identify where, when and on which pieces of equipment they're used.
- Examine current lubricant handling procedures and inventory control systems.
- Review production equipment with automatic lubrication systems and check related documentation.
- Identify key production equipment without automatic lubrication systems.
- Work with key lubricators and technicians to review processes, procedures and supporting documentation. Remember that 50% of the knowledge is in people's heads.
- Review all training guidelines, processes and requirements and any related documentation.
- Work with key lubricators to determine service schedules and lubrication tasks.
- Identify potential health and safety concerns.

Create an action plan

A properly conducted lube audit yields a number of results. It identifies duplication, finds hidden costs and assists in developing a favourable return on investment by automating some of the key pieces of production equipment. It also helps to develop a customized action plan that prioritizes opportunities in a sequence. And it leads

to learning about safety and environmental issues. But update equipment manuals with current lubrication methods.

The major benefits are a noticeable increase in productivity, service intervals, safety and sustainability, and a decrease in energy consumption, lubricant consumption, downtime, overall operating expenses and waste.

Changing to automated lubrication cycles also helps. Purge contaminants – they're environmentally safe and allow lubrication by small measured amounts.

However, there are still challenges ahead, including: proper data collection and inventory reporting becoming an environmental and regulatory concern; technology advancing more in the next five years than it has in the last 20 years; harnessing new technologies to remain competitive; training becoming key to success; and the need to push boundaries in lube management and auditing.

That's why more plants are conducting audits. The benefits are compelling and the savings substantial.

Steve Gahbauer is an engineer, a Toronto-based business writer and a regular contributing editor to PLANT. E-mail gahbauer@rogers.com.

Comments? E-mail jterrett@plant.ca.

» CCOHS Safety Tips

When loud is too loud

How workplace noise affects workers' health

Low or moderate noise levels in an office may be annoying, but louder “industrial-grade” noises in a manufacturing facility can cause permanent hearing loss.

Occupational exposure limits are measured in decibels but the limits vary within different jurisdictions (see www.ccohs.ca, *Occupational Exposure Limits for Workplace Noise in Canada*). However, there are other tell-tale signs that indicate noise is a problem:

- Do people have to raise their voices?
- After a shift, do their ears ring?
- Do they need to play car radios louder after work?

- Do they find it hard to understand conversations in crowded places?

Hearing related health effects range from tinnitus (a ringing or buzzing in the ear) and temporary hearing loss, to permanent hearing loss, a cumulative process, and most pronounced at a frequency of 4,000 Hz.

Other factors that affect a worker's hearing include vibration, the worker's age, certain medications and diseases, exposure to “ototoxic” chemicals, such as toluene and carbon disulfide, and exposure to noise outside of work.

An assessment and employee survey will



Earmuffs protect workers from excessive noise.

PHOTO:THINKSTOCK

help determine where the noise is coming from, how much there is, who is exposed and for how long. When it's not possible to eliminate the noise entirely, the next best op-

tion is lowering it to an acceptable level at the source with engineering controls.

Administrative controls involve rotating work schedules, or changing production schedules, to keep exposure time within acceptable limits.

And where technology can't eliminate the problem, workers should wear appropriate personal hearing protection such as earmuffs or plugs – as an interim measure until other measures control the noise at the source.

This article was provided by the Canadian Centre for Occupational Health and Safety (CCOHS). The not-for-profit federal corporation promotes the physical, psychosocial and mental health of Canadian workers by providing information, training, education and management systems. Visit www.ccohs.ca.

» Teamwork

Your motivation and confidence will rub off on the maintenance team to create a productive work environment.

BY JEFF O'BRIEN

Maintenance and reliability professionals have technical training, a basic knowledge of principles and practical experience from years working in the field. But these eight soft skills are also key to achieving greater productivity and efficiency across the maintenance team.

1. Leadership. Be self-motivated, organized, trustworthy, empathetic and optimistic. Have a clear vision of where you want the maintenance team to go and set a positive example that encourages others to follow. Leadership is also about doing the job properly by delegating work to subordinates, which frees up precious time. Follow this simple process to ensure the job gets done correctly:

- Set the policies and ground rules such as the level of quality expected.
- Select the best person for the task, not necessarily the superstar on the team, but the person with the right skills for the job.
- Agree on what needs to get done.
- Agree on the timelines needed to get the job done.
- Provide the resources needed to ensure they're successful and remove any roadblocks along the way.
- Follow up at regular intervals to ensure they're on schedule.
- Recognize them when the work is done well.

2. Excellent interpersonal skills. Maintenance managers negotiate daily with subordinates, management, suppliers, contractors, machine operators and project managers so excellent interpersonal skills are crucial. Others perceive people with good interpersonal skills as calm and assertive. But listening is not the same as hearing. When we communicate, 45% of the time is spent listening, so take the rest of the time to hear other people's point of view.

3. Problem solving skills/critical thinking. Think clearly and rationally, solve problems systematically, and make the right decisions quickly. Asset managers have to deal with many responsibilities including managing the maintenance budget, supervising a team of technicians, prioritizing work based on need, managing maintenance metrics and keeping up with the latest technologies. They need to process information quickly and make fast and effective decisions. The most skilled critical thinkers will look at all the evidence, interpret the data, evaluate all the alternatives, prioritize and form a judgment that delivers the most effective solution in the quickest time possible.

4. Developing people. Many companies are great at hiring and deploying



How are your SOFT SKILLS?

HERE ARE EIGHT THAT MANAGERS MUST HAVE

people but they forget the developing part. Change is inevitable so your team needs ongoing training and development to learn new skills and take on bigger and more complex challenges. Work with subordinates to identify areas for improvement. Hold regular information transfers so the team can share knowledge, ideas and experiences. Plan your work orders so experienced team members mentor the less experienced. Well-trained, capable people allow you to quickly promote from within when more senior positions open up.

Make long-term career development one of your top priorities as it leads to a high performing, productive and motivated maintenance team.

5. Time management. Maintenance managers are constantly interrupted and pulled in different directions by conflicting demands, but avoid trying to get jobs done in the order they come up. Good time management requires a shift in thinking to achieve results, and working smarter, not harder. Spend 15 minutes each morning planning your day, stick to meeting schedules and ensure all meetings end on time. Use your CMMS to help plan the maintenance team's day by prioritizing and scheduling the work. Insist all work requests are submitted through the guest request portal so your phone is not constantly ringing. Schedule time to review the work request queue. Reserve the phone for issues that could be critical to the business.

6. Promote teamwork and collaboration. Individuals that work together as teams bounce ideas off each other to arrive at the best solution quicker. Teamwork leads to better decisions, products, and services. Promote behaviours that lead to effective teamwork. Recognize different strengths among team members and combine them to gain the maximum value and meet or exceed the department's goals.

7. Adaptability. Change is inevitable. Equipment and systems are getting more complex, health and safety is now the highest priority, CO2 emissions are influencing how goods are manufactured

Ongoing training and development provides employees with the skills they'll need to take on more complex tasks. PHOTO:THINKSTOCK

and mobile apps are being used for just about everything. Be prepared to adapt quickly to changing circumstances and environments. Embrace new ideas, new ways of working and new technologies.

8. Ability to handle stress. Handling stress may not be a skill in the strictest sense but it can mean the difference between success and failure. Managing stress doesn't mean taking a deep breath and just getting on with it. Controlling the controllables reduces the chances stress will be an issue, keeps you in good spirits and positively affects those around you.

Some of these skills will come naturally to you but will require additional effort to perfect. Ultimately they'll help create a healthy work environment where employees look forward to taking on more responsibility and tackling exciting new challenges.

Jeff O'Brien is a product specialist, CMMS evangelist and industry blogger at Maintenance Assistant Inc., a Toronto supplier of web-based maintenance software. E-mail jeffrey.obrien@maintenanceassistant.com. Visit www.maintenanceassistant.com.

Comments? E-mail jterrett@plant.ca.

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» Think Lean

Make the first month of your leadership count with a focus on strategic and tactile analysis and action.

BY RICHARD KUNST

When you join an organization the “noise” made by issues that are preventing people from being successful in their tasks can be overwhelming. It’s the first 30 days on the job when the decision is made to launch a business makeover that lean can have the biggest impact. As a leader you need to enable both strategic and tactile analysis and action.

On the tactile side, quiet things down by investing in white boards and converting them into daily report-out boards. Locate them strategically by department or natural work groups, and don’t forget to include the office.

Appearance is important. The look and feel of your boards need to communicate your commitment to professionalism. Have the management team meet in front of the board daily – at the same time – to review results and discuss concerns. This forces managers into the workplace where the money is being made and it shows employees commitment to improving performance. Typically visiting the boards takes less than one hour per day.

People are competitive so leverage that attribute. Identify targets and measurements to benchmark against. Reach into past production records and plot the output of a particular operation. It’s something the team has proven it can do. Change the targets as you introduce other lean methods for improvement.

Create management rules that are simple but easily understood. Here are three:

- don’t put stuff in my aisles ... and I own all of the aisles;
- don’t be late for meetings; if you’re late three times you don’t respect the team so we probably don’t need you; and
- meet target dates (which you get to establish).

They combine to: draw unfiltered information directly from within specific operations and processes; force managers to get onto the shop floor; prioritize and eliminate concerns; create tangible goals; provide opportunities to see people daily and praise them for meeting targets; and monitor aisles to ensure they’re kept clear.

On the strategic side, activate a BBB report – a daily snapshot of bookings,



Mapping out a business makeover.

PHOTO: THINKSTOCK

30-DAY MAKEOVER

ENGAGE YOUR TEAMS WITH POSITIVE CHANGE

billings and backlog. The backlog is separated into workable and non-workable. Divide billings into the backlog to determine what the typical order turn-around will be. If it’s too high, more capacity is needed. Speed is the new currency in operations. The faster you produce, the more a customer is willing to pay.

Defining KPIs

Keep billings and bookings in balance as long as the level of backlog is acceptable to support order turnaround. If the backlog starts to decline, remove throughput capacity, which allows you to quickly manage headcount requirements.

Use the STEP diagnostic to define critical KPIs for the next five years and desired improvements. Don’t spend time engineering how they’ll be achieved. Look at enablers to deploy and add definitions around them. This becomes a powerful document that:

- gives credit to existing methodologies that are working well;
- aligns the team around understanding and definitions of methods and names;
- shows the rest of the organization you’re on a journey and many new

methodologies will be introduced over time; and

- allows for a simple annual assessment to determine the success of the journey. Many organizations use the Demming cycle of plan, do, check and act; however, you will reap immediate benefits if you switch it up and go with check, act, plan and do.

Running an enterprise value stream mapping workshop will ease you into this mode of management style and help your team see what you are seeing. Be a participant rather than a facilitator (boss).

First decide what you’d like to map (such as quote to cash, order to ship or support processes).

Next pick a mapping team consisting of members from different parts and levels of the operation. Pick the best people because they’ll likely become your implementation steering committee.

Creating the current state map is the “check” part of the cycle. The mapping team is going to gather data by interviewing members responsible for functions within the process. There are many critical metrics to capture but the vital few include: process time (how long does it

take to perform a task?); cycle time (frequency that a task is being performed); and complete and accurate (the time a person can complete the task without additional info).

Take time to reflect on the data. What does it tell you? Is the process working well? Does it meet customer expectations? What can be simplified to improve the process?

Many of the identified actions (“act” phase) will be simple and inexpensive to implement. Note the impact of every completed action on the overall metrics of your enterprise value stream map.

The “plan” part of the cycle requires a challenge to the mapping team, such as how to reduce total process cycle time by 50% without applying IT solutions.

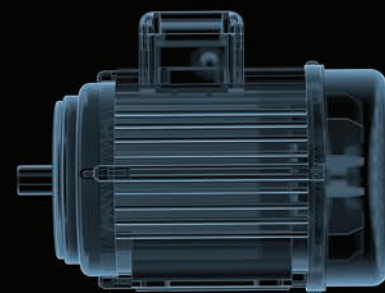
In the final “do” phase, build the project plan with dates and milestones and the future state map.

Ultimately you will have created a roadmap for change and a steering committee that’s engaged and aligned to move the organization forward. You’ll see a difference within 30 days.

Richard Kunst is president and CEO of Cambridge, Ont.-based Kunst Solutions Corp., which publishes the “Lean Thoughts” e-newsletter and helps companies become more agile, develop evolutionary management and implement lean solutions. Visit www.kunstolutions.com. E-mail rkunst@kunstoftosolutions.com.

Comments? E-mail jterrett@plant.ca.

» Tech Tip



Check starter contacts

It could save a costly motor repair

When a motor fails or single-phases, check the contactor. Not replacing a failed contact is a common error, which may result in an identical failure.

When the contactors are repaired or replaced, don’t file off the silver (or gold/platinum), which reduces the chance of the copper contacts welding together. If the contacts weld, the contactor may not operate as designed.

It’s good practice to replace all contacts when one is damaged.

Sometimes a contact fails and the motor is in good condition. Use an off-line motor diagnostic tool, such as motor circuit analysis, to test the condition of the windings. Ohmmeters and insulation testers (meggers) are not capable of detecting turn shorts.

Source: Motor Diagnostics and Motor Health News, Success by Design, with permission.



LEAN ALERT

Identifying waste in processes and eliminating it lowers costs and makes your company more competitive. But lean is much more than eliminating waste. The core focus of the Toyota Production System (TPS) is maximizing customer value. If you aren’t focused on what customers value, it’s difficult to identify waste (those things customers aren’t prepared to pay for). Putting value for customers first helps your value streams flow at the pace of demand with the least resources, while focusing on continuously improving.

Source: Association of Manufacturing Excellence (AME), Canada. Visit <http://ame.org>.

» Automotive

While there's been some good work to ensure auto investment grows, the government must do more to ensure the industry thrives.

BY MATT POWELL, ASSOCIATE EDITOR

As the CEO of the world's third largest automotive parts manufacturer and the leader of more than 20,000 employees, Magna International's Don Walker has got a pretty good handle on the state of the global automotive industry. He has confidence in Canada's auto industry, but feels it must shift into a higher gear to address growing global competition, especially from Mexico. Walker also heads the Canadian Automotive Partnership Council (CAPC), an industry association that's calling on the federal government to implement a national automotive investment agency to ensure the sector thrives.

What's your take on the Canadian automotive industry's long-term prospects?

The current value of the Canadian dollar gives us a more level playing field to be more competitive and attract new investments. The auto industry, for the most part, is driven by the number of plants assemblers are building. More assemblers typically translates to more parts business.

It will be interesting to see what happens with the upcoming UAW and Unifor negotiations – that's always a difficult situation for everybody. But we have a great pool of skilled workers, our education system is strong, and for the most part, business infrastructure is good.

I am worried about energy costs in Ontario, but the overall outlook for the health of the industry is better now than it was when the loonie was at par with the US greenback.

What are the biggest challenges?

Labour is an issue as it relates to whether or not auto companies will add assembly plants here, or add capacity to existing facilities in Canada because that's a big driver for them. There's a combination of things that aren't always favourable, such as infrastructure, and



with Don Walker

MAGNA CEO HEADS CAPC AND THE DRIVE FOR AUTO INVESTMENT

overhead and energy costs.

It's always easy from a government perspective to say it wants to add programs, such as Ontario's pension plan, that put more costs on an industry. But whenever we add cost, people have to decide if they want to put their plant in Ontario, Michigan or Tennessee.

Why is investment in Canadian-based operations so important?

If the car companies are not keeping their plants up to date and capable of producing global platforms competitively, they will slowly move production to more competitive jurisdictions. Whether it's the quality of paint line, or efficiency of the body shop or automation, we need to make sure that Canadian plants are getting the investments they need to remain as competitive here as they would be anywhere else.

From a [Magna] perspective, we're constantly having to update technology to be more efficient, win the business in the first place and offset productivity

demands from our customers.

You can do a lot without new capital through continuous improvement, but to bring in new business, you need to invest some capital.

It's always a good sign when you see companies such as GM and Ford making a bet that they'll be able to maintain their competitiveness in Canada.

What does the CAPC intend to accomplish?

We need to make the Canadian jurisdiction easy to navigate and understand, and be attractive to decision makers in the automotive industry.

In Mexico, ProMexico acts as a one-stop shop. If you're thinking about making an investment, you pick up the phone and talk to one person who will tell you what the government can do. This also happened in Michigan.

These jurisdictions are making sure the [incentives] make sense, are explained, streamlined and show people everyone is actively engaged in attracting investment.

I think [the government] understands

it's a high priority to attract assembly plants and has been working hard at it, but it's also not a popular thing with the public to help with an investment to attract new jobs and new spending here.

There's always someone who's going to say, "well, they're giving handouts to big companies." It's not a handout. These companies are creating jobs and helping to maintain Canada's standard of living. **CAPC is calling on the federal government to recalibrate its auto strategies. What is it doing right? What needs more work?**

One of the things the government did right was to not allow GM and Chrysler to go bankrupt. It was expensive, but from an objective outlook, that could have been a pivotal point where we lost a lot of assembly capacity and the companies could have failed. That business would have moved offshore and we'd never get it back.

I think there is a very focused recognition among CAPC members of the importance of this industry to Ontario and Canada. There has been a lot of good work done on taxes and the harmonization of standards.

[The government] can't do much about the level of the dollar, but can influence it with policy. It has done a good job with the things it can manage.

The one area that's difficult for a government to manage is helping with incentives to level the playing field and that's one of the things CAPC is asking them to really consider.

We've had some great wins recently with Ford's investment in Oakville, and Chrysler in Windsor – hopefully the government will continue to help them. Toyota and Honda's investments too.

With the lower dollar, we have a better shot at attracting more investment.

What kind of feedback are you getting from governments?

They've been receptive, and they have been involved.

It takes time to implement new ideas, such as the automotive investment agency proposed by CAPC, but those ideas can act as a catalyst for change. There's a lot of interest and I know they're studying it. That's a positive.

This interview has been edited.

Comments? E-mail mpowell@plant.ca

» Global Economy

MMEs: Unsung heroes

HSBC examines their critical role

The report, *Hidden Impact: The vital role of mid-market enterprises*, commissioned by HSBC, a multinational banking and financial services company, showcases their contribution to GDP, employment and the supply chain in both developed and developing economies.

It analyzes data from almost 162,000 MMEs in 15 countries and territories spanning Asia, Europe, the Middle East and the Americas, with a combined turnover of \$21.1 trillion. They contribute \$14.7 trillion to global GDP and directly employ 169 million people.

Canada is home to 5,950 MMEs, defined as companies with earnings between \$50 and \$500 million. They rank eighth among the economies in the study, and generate approximately \$830.5 billion in turnover and employ 1.9 million Canadians, representing 14.5% of the country's jobs.

MMEs tend to be highly productive, contributing more to GDP per employee than smaller companies, employing and training more staff, exporting more, and investing more in research and development.

They contribute 31.8% to Canada's GDP. The companies are often privately owned, usually with a professional management team that has replaced the owner-manager leadership structure common to many small and medium enterprises (SMEs).

Most Canadian MMEs are in wholesale and retail (27.2%), followed by the manufacturing sector (19.2%), and contribute \$39.9 billion to the national economy.

The higher value-adding business services sector, which generates \$90.8 billion annually, provides the biggest contribution to the economy, the equivalent of 5.1% of GDP. Wholesale and retail generates the largest amount of turnover, at \$233.3 billion.

The US is home to the largest number of MMEs with around 55,700 firms that directly contribute \$2.2 trillion to the US economy. China has an estimated 40,200 MMEs, directly contributing \$5.7 trillion to the country's economy.

The two countries combine for 60% of all MMEs in the study, and both are important to Canada as strategic partners.

PHOTO: THINKSTOCK



BY PLANT STAFF

Mid-market enterprises (MMEs) contribute \$275.1 billion to Canada's economy, HSBC says in a report that highlights the unsung role these businesses play in the global economy.

Take risk management beyond bare minimum requirements to establish a process that best meets the needs of your company.

BY DAVID FLORIO

Whether you're looking to produce high-quality products at a lower cost or expand to a new and uncertain foreign market, it's virtually impossible to run a successful manufacturing business without exposure to risk. Managed incorrectly, it can quickly lead to damaged reputation, financial loss, decreased productivity or the failure of the business.

Clearly defining risk acceptance and tolerance levels is the only way to truly understand how risk fits into your company's strategic objectives. A sound risk mitigation strategy allows you to determine the potential reward certain risks carry, while shedding light on opportunities to maximize profits and increase stakeholder value by minimizing negative risks.

Fine-tuning your approach to risk also gives you a leg up on the competition. In PLANT's *Manufacturers' Outlook 2015*, only 52% of respondents indicated establishing such a risk mitigation strategy was on the top of their "to do" lists – a number that isn't nearly high enough.

With new revisions to ISO 9001:2015, certified Canadian companies will be required to implement a number of new measures before 2018, one being a tangible analysis that identifies risks within critical processes and areas of business, and outline actions to mitigate them. With that deadline on the horizon, there's no better time than the present to put your company's risk management groundwork in place. Here are a few suggestions to get the ball rolling.

If you're like most companies, you already have some measures in place to identify, track and measure risk. Build on them. Risk management can be applied to an entire organization all at once, or to specific functions, business units, projects or activities.

The key is to take a top-down ap-



A top-down approach is key to a successful risk management strategy. PHOTO:THINKSTOCK

Embracing RISK

A SOUND STRATEGY DOES MORE THAN PROTECT YOUR BUSINESS

proach – one that is cross functional and allows boards and senior management to sponsor the process. This makes risk management less of a burden and more of a benefit to the organization.

To help keep moving in the right direction:

- determine any risk tracking and measurement activities already in place;
- document those activities more formally;
- identify where existing risk tracking and measurement activities can be enhanced; and
- implement a pilot program in specific areas of the business to begin a consistent communication and understanding of risk identification, tracking and measurement.

Enterprise risk management (ERM), when implemented correctly, is an excellent tool to leverage risks for greater performance, build a foundation for competitive advantage and establish your company as a market leader.

ERM's value

The problem is that many companies see ERM as a significant and sometimes daunting undertaking. If you've avoided implementing ERM, give it another look. Many would argue it's not as complicated as it appears and provides substantial value.

There are also many resources available to help increase your odds of implementing ERM effectively. Frameworks, such as the ISO 31000 Risk manage-

ment – Principles and guidelines and the COSO 2013 Internal control – Integrated framework, are helpful tools for companies developing ERM risk assessment strategies and processes.

ISO 31000 is a standard that provides principles and generic guidelines for risk management. It allows organizations of any size to increase the "likelihood of achieving objectives, improve the identification of opportunities and threats, and effectively allocate and use resources for risk treatment." Basically, it's designed to outline the nature of the risk management process and offer guidance on how to implement a successful strategy.

The Committee of Sponsoring Organizations of Treadway Control (COSO) 2013 Internal control—Integrated framework was recently updated to reflect the needs of today's business environment, and is intended to "broaden the application of internal control addressing operations and reporting objectives, and clarify the requirements for determining what constitutes effective internal control."

Its role is more to assist the user in evaluating existing ERM processes rather than focusing solely on the risk management process itself. Whether you choose to strengthen your risk management activities through ERM or by other means, it's important to remember that, at its core, risk management is about protecting your business from adverse events and, when possible, transforming risk into opportunity. Establishing a company culture that values these qualities is not only a sign of effective stewardship, it's just plain good governance – something the marketplace will be sure to recognize and reward.

David Florio is a partner, Operational Advisory, with Grant Thornton LLP, a Canadian accounting, tax and advisory firm that provides services to private and public organizations. Visit www.grantthornton.ca. E-mail David.Florio@ca.gt.com or call (416) 369 6415.

Comments? E-mail jterrett@plant.ca.

» Training

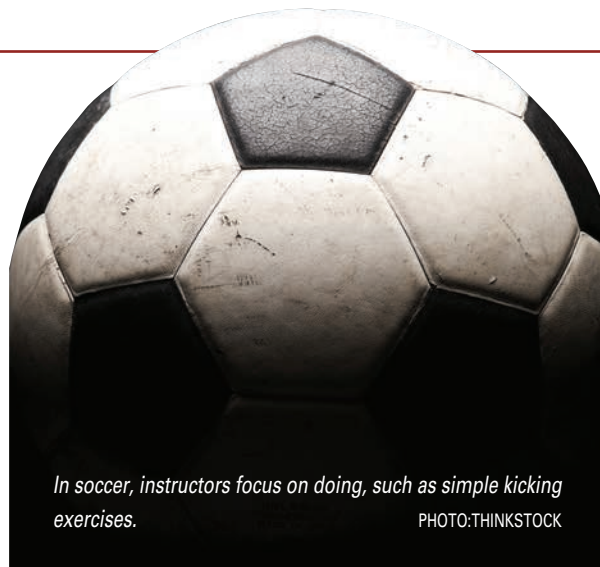
You can teach too much Get trainees doing something, small steps

BY HUGH ALLEY

How many training sessions start with an instructor saying something like, "I have a three hour presentation here, but we only have 45 minutes so I'll have to go quickly." Then in the last three minutes, slides are flashing every six seconds!

Or a supervisor walks through a 34-step procedure full of tricky settings and adjustments and expecting the trainee to "get it" the first time, and is surprised when the new person makes mistakes.

In the workplace, we ignore what sports teams have learned.



In soccer, instructors focus on doing, such as simple kicking exercises. PHOTO:THINKSTOCK

Soccer instructors get you doing something, such as simple kicking exercises, in small steps. For example, you first learn a straight-ahead classic kick with the inside edge of your

dominant foot. Then you learn to dribble. And so on, one simple element at a time.

Managers will complain they don't have time to break down the teaching into bite-sized elements. Curiously, they always have time to fix the mistakes people make.

If people on your team are having a hard time learning new tasks, consider how much information they have to absorb in one go.

What's the best way to ensure people actually learn the tasks?

Build up their skill sets by delivering small lessons that let them practice and master one thing after another in sequence.

Hugh Alley is president of First Line Training Inc. in Burnaby, BC, which focuses on increasing productivity by improving the skills of front line managers and supervisors. E-mail halley@firstlinetraining.ca or hone (604) 866-1502. Visit <http://firstlinetraining.ca>.



Dollar DAZE

HEDGE YOUR BETS

AGAINST THE HIGH US DOLLAR

An 80-plus-cent loonie is driving costs up for Canadian manufacturers, but there are ways to manage currency fluctuations.

BY MATT POWELL, ASSOCIATE EDITOR

It's as if Southwest Airlines had gazed into a crystal ball. The US discount airliner needed a way to cut costs at the height of the 2008-09 global financial crisis as energy prices spiked, and to keep fares reasonable it took a gamble and locked in its fuel prices before they skyrocketed.

In 2008, about 70% of its fuel costs were locked in based on oil prices at \$51 per barrel; 55% in 2009 at the same price. The practice protected it against oil price shifts and played a significant role in the company's ability to turn a profit that year within a delicate economic environment. This year Southwest said it expects to save \$1 billion in costs.

It's called hedging and it's something manufacturers can use to manage their procurement costs in the face of a bloated (and volatile) US dollar.

Indeed, the US dollar has climbed to its highest point in 11 years and manufacturers are already under pressure from intensifying global competition. US goods are more expensive to source, specifically for manufacturers that sell domestically, and this is damaging bottom lines and profit margins.

Canada is America's largest trading partner, accounting for 17% of its trade-weighted average. To understand the dollar's purchasing power, this metric determines which countries the US trades with the most.

What's trending the US dollar upwards? Paul Noel, senior vice-president of procurement at Ivalua, a global vendor of cloud-based spending management software based in Redwood City, Calif. (with a recently opened Montreal office), believes it has to do with the relative strength of an otherwise slow recovery from the financial crisis, and lower oil prices.

"Manufacturers need to look beyond their US suppliers if high-dollar volatility continues to play a role in procurement processes," he says. "You're going to get squeezed selling in this environment."

In its simplest form, a hedge is used to reduce the risk of any substantial losses or gains, and can be constructed from a number of financial instruments, such as stocks, exchange traded funds, insurance or forward contracts that allow you to lock in an exchange rate today for a currency transaction at a later date.

An alternative tool is an option, which sets the exchange rate the company chooses to apply. If the current rate is more favorable, the company won't exercise the option.

Noel says agreeing on forward exchange contracts with suppliers provides some relief from the back and forth of the exchange rate.

Western Union Business Solutions notes currency hedging can be a complicated proposition, but first steps include identifying exposures, formulating a currency risk management policy, determining budget rates and goals, formulating a strategy, executing it and then evaluating the results and making adjustments.

A 2009 survey by Export Development Canada (EDC) found manufacturers were hedging currency risk in a number of ways, such as: increasing expenses incurred in a foreign currency to match earnings in that currency (59%); changing product prices to reflect changes in the value of the dollar (50%); invoicing foreign buyers in Canadian dollars (41%); matching the due date or receivables in a foreign currency to payables in that currency (17%); and entering into foreign exchange swaps.

Procurement strategy

Noel believes because there's so much trade between the US and Canada, some companies forget the role currencies play in their relationships with foreign suppliers.

"[Procurement people] don't always consider where they're buying from because they're usually focused on the costs," he says. "It brings some folks into a sense of false security."

Hedging is also a great idea, Noel adds, if a manufacturer has invested a lot of capital into what it's making and doesn't want to risk everything on something it can't control.

Farmers do this when they gauge the prices of their crops. They consider how much their produce could sell for based on how well their competitors' harvests went – the price could be high or low. Either way, there's uncertainty about a crop's potential take. Some buy into forward contracts and lock in their prices so they know almost exactly how much money they're going to make at the end of the harvest.

When you don't have control over the currency exchange rate, you can at least mitigate its impact by making hedging part of your procurement strategy.

Comments? E-mail mpowell@plant.ca.

» Sold

After the LOI

How to avoid blowing the deal

BY MARK BORKOWSKI

Selling your manufacturing business? Reaching the letter of intent (LOI) stage is a great indicator of success, but many steps lie ahead that can derail or ruin the transaction. Here are seven tips to avoid potential setbacks that could occur between the LOI and when the transaction closes:

1. Deal with the details. The LOI sets the pace for the rest of the process, so do it right. Be sure everyone understands all elements, and that it has a reasonable amount of detail.

2. Keep the business on budget and performing well. Most deals require the seller to operate as usual during closing. Avoid tweaking the business in the final months or weeks to gain an advantage. It's difficult to do without creating problems.

3. If something bad happens, inform the buyer immediately. Business results are rarely perfect. Done properly, this increases the buyer's confidence in you and the business.



Misunderstandings and poor communication can complicate a deal.

PHOTO:THINKSTOCK

4. Analyze previously presented financial statements. Most serious buyers will perform a "quality of earnings" accounting on your company that involves a detailed review of the financial statements you've previously presented. Perform your own analysis to find the unusual items a buyer may ask about rather than scrambling to find answers later.

5. Be organized. The buyer will need information about the financial results, including legal, insurance, human resources and major contracts. The information should support the picture painted during the sale process.

6. Manage the lawyers. Lawyers will take the most protected, conservative position on your behalf. But if both parties do so, there's little room for middle ground. Don't let the lawyers manage you. Continue compromising and negotiating what isn't covered in the LOI.

7. Communicate effectively. Never take a shortcut by firing off an e-mail when a phone call would be better.

Mark Borkowski is president of Toronto-based Mercantile Mergers & Acquisitions Corp., which specializes in the sale of privately held companies. Visit mercantilemergers-acquisitions.com.

Comments? E-mail jterrett@plant.ca.

HIRING PLANS

About 16% of 540 CFOs surveyed across Canada expect their companies to create new jobs over the next six months; 63% plan to fill vacated roles; 18% are freezing hiring; and 3% are eliminating positions.



Source: Robert Half, a global staffing firm with offices across Canada.

» Automotive R&D

Lightweighting is fundamental to the design of vehicles that are better tuned to the environment.

BY BRADLEY DIAK

By 2025, the average vehicle sold in North America must achieve a fuel efficiency of 4.21 L/100 km, compared with the 2010 level of 8.51 L/100 km. Achieving this level in 10 years will require the kind of innovations that would make Henry Ford take notice.

Fuel efficiency and performance improves as the car becomes lighter. A 10% reduction in vehicle mass translates into a 3% fuel savings so lightweighting is not just for the racing enthusiast, it's key to engineering automobiles that are friendlier to the environment.

Lower density magnesium alloys offer significant structural advantages over steel and aluminum alloys, but there are challenges. Magnesium is known for its poor weldability, low formability, poor crash worthiness, greater susceptibility to corrosion, higher cost, reduced alloy selection and limited recycling stream. Researchers are overcoming these issues by targeting specific components.

AUTO21 researchers partnering with Ford Motor Co. have been applying tailor-welded-blank (TWB) and friction stir welding (FSW) technologies to develop an affordable magnesium alloy spare wheel as a test case for making more complicated components.

A spare wheel is effectively dead weight that rests somewhere in a vehicle until it's needed. In many vehicles the spare has devolved from a full-on replacement wheel to the lighter, space-saving mini-spare. In others it has been replaced with a tire sealer kit. This saves about 10 kilograms (kg), but the sealer kit can't repair 15% of flats, and it can be difficult to use.

Researchers estimate replacing a steel mini-spare with a full size, 16-inch magnesium alloy spare is about 5 kg. However, there is more to it than changing materials. The manufacturing process must evolve too.

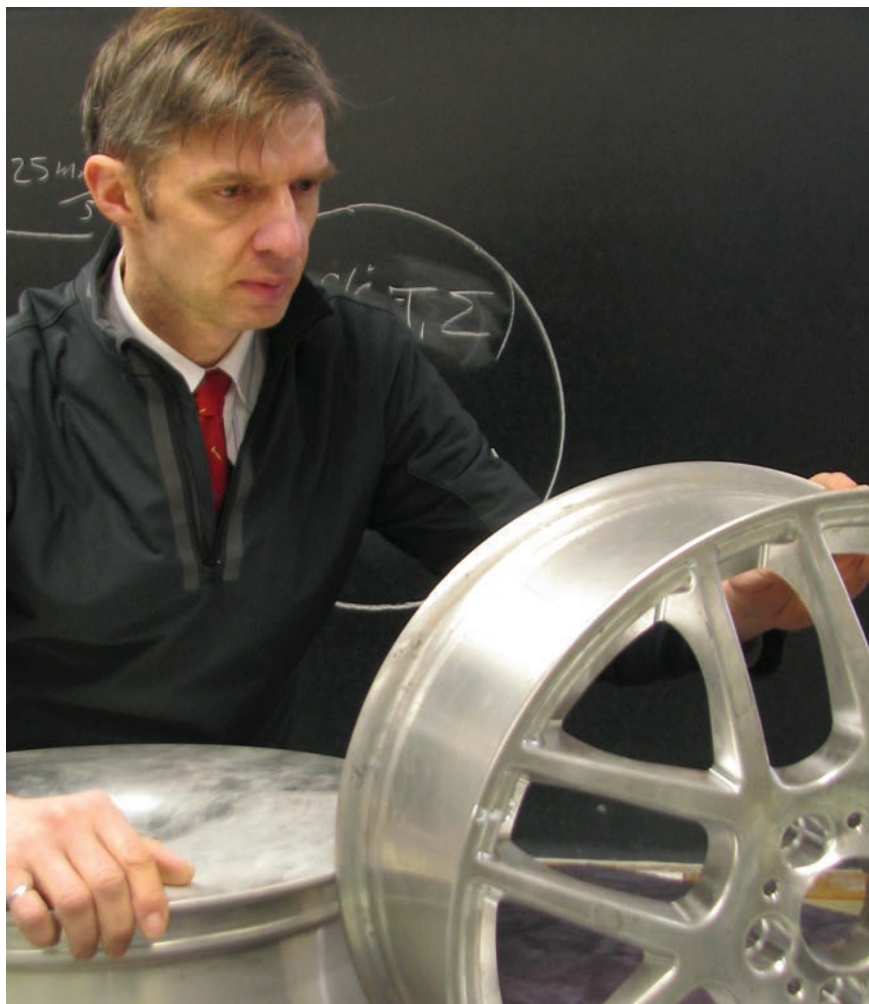
A basic wheel consists of two components. The hub/spokes support considerable compressive and bending stresses and must be strong enough to support the vehicle. The rim distributes the load through the pressurized tire. An ideal design uses different materials for each component.

Casting is the cheapest manufacturing process, and something that magnesium does very well, but the resulting properties do not meet the structural demands of the whole wheel. In contrast, cast hubs made from a stronger, less formable magnesium alloy could be mated to an extruded lower density, lower-alloy-containing magnesium rim. This two-piece solution, the basis of TWB manufacturing used in making complex parts such as doors, saves weight and material costs but requires an additional joining step. The two-piece wheel strategy is used in many aftermarket designs but tends to be unsuitable for mass production.

Arc welding is the standard joining process for many materials, but magnesium alloys are subject to the formation of cracks,

Re-inventing the WHEEL

MAGNESIUM ADDS TRACTION TO LIGHTWEIGHTING



Bradley Diak is researching ways to lightweight the spare wheel.

PHOTO: AUTO21

porosity and high thermal distortion in the melting and solidification cycle. FSW, a solid-state joining method, uses a rotating tool to plunge and traverse a seam between two pieces. Frictional heat and deformation forms a stir zone, which bonds the components.

FSW was first used successfully by the Fundo Wheels (formerly a Norwegian company) to produce aluminum wheels. AUTO21 researchers hope to bring this production method to Canadian manufacturing.

Bradley Diak is an associate professor of Mechanical and Materials Engineering at Queen's University in Kingston, Ont. and leader of AUTO21's Tailor-Welded Blank Manufacturing of Mg Alloy Parts project. Visit auto21.ca.

Comments? E-mail jterrett@plant.ca.

» Wastewater

Project tackles antibiotic-resistant bugs

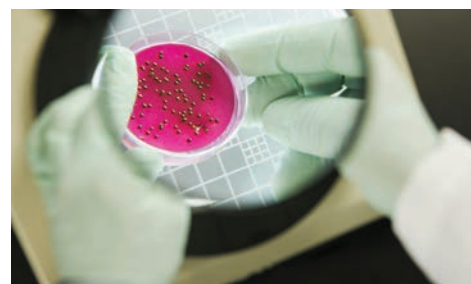
University of Regina gets \$585,000 NSERC funding

A research team at the University of Regina will use \$585,000 in federal funding for a project that will find ways to reduce harmful bacteria in wastewater.

The funding, through the Natural Sciences and Engineering Research Council of Canada's (NSERC) Strategic Grants Program, will support a team led by Christopher Yost, Canada research chair in Microbes, the Environment and Food Safety at the University of Regina.

Yost is currently working with researchers at Dalhousie and Acadia universities and municipal wastewater treatment plants in Saskatchewan, Nova Scotia, PEI and Nunavut to develop new processes that reduce antibiotic-resistant bacteria.

Overuse of antibiotics increases the amount of antibiotic-resistant bacteria excreted into wastewater. They survive the treatment process, increasing the risk of transferring antibiotic resistance genes



Some harmful bacteria.

PHOTO: THINKSTOCK

to the environment and humans.

Yost's laboratory includes highly sensitive specialized equipment that quantifies and characterizes genes and resistant bacteria in water treatment and other areas affected by wastewater runoff.

» Collaboration



(L-R) On hand for the announcement of \$8.1 million in federal funding for Fanshawe College are Joe Preston, MP; Gary Goodyear, Minister of State, FedDev Ontario; Susan Truppe, MP; Peter Devlin, president, Fanshawe College; and Ed Holder, Minister of State for Science and Technology.

Colleges launch innovation centres

Help for product development, smart manufacturing

Conestoga College in Cambridge and Fanshawe College in London, both receiving federal funding, are providing small and medium-sized (SME) businesses in Southern Ontario with access to centres that will help drive innovation.

Fanshawe College is building the 20,000 square-foot Canadian Centre for Product Validation, with some help from a \$8.1 million FedDev Ontario investment, which will allow companies to test and validate their products. Funding from the Investing in Commercialization Partnerships initiative will be used for construction and start-up in 2016.

The ISO-certified facility at Fanshawe College, the only one of its kind in Canada, will provide developmental multi-modal (electrical, mechanical, environmental and thermal systems) product testing services to various industry sectors including military and defence, automotive, aerospace, renewable energy, building products and consumer goods.

The project is expected to create 115 permanent jobs, 50 temporary jobs and up to 105 jobs at companies.

In Cambridge, the Conestoga College Institute of Technology and Advanced Learning has opened an applied research facility.

The Centre for Smart Manufacturing, which received funding from the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Canada Foundation for Innovation (CFI), will provide manufacturers with access to seven dedicated labs at the Cambridge and Doon campuses.

The centre will support new product and process development across a number of technologies, including advanced sensors, electronic systems, software, light manufacturing production and assembly, prototype production, 3D-printing and materials.

Conestoga's School of Engineering and Information Technology faculty will also provide expertise and student research teams that will work with industry partners.

» Carbon

A Conference Board of Canada report finds projects that receive funding from CCEMC pay more than emissions reduction dividends.

BY JOE TERRETT, EDITOR

Investments in technologies that aim to reduce greenhouse gas emissions and ease the effects of climate change have a positive impact on the Alberta economy and they're delivering spin-off benefits across the country.

The Conference Board of Canada analyzed 100 projects that have so far received \$250 million from the not-for-profit Climate Change and Emissions Management Corp. (CCEMC) for a total investment of \$1.3 billion from 2011-16. The analysis shows the projects will generate more than \$2.4 billion (in 2007 dollars) over the five-year study period and add 15,017 person-years of full-time employment to the Canadian economy.

This is certainly validation of the work CCEMC has been doing since 2009 when it was established by the Alberta government as an independent organization with a mandate to reduce greenhouse gas emissions through the development and deployment of technology.

Why the analysis?

Kirk Andries, managing director of CCEMC, says the organization's first five and half years looked at transformative technologies, with the core metric being the reduction of greenhouse gas emissions. "One of the things we hadn't looked at was the economic impact. We went to the Conference Board of Canada because we wanted an in-depth assessment."

Predictably, he is pleased with the results detailed in the final report, *Investing in GHG Emissions-Reduction Technology*.

"It takes some of the sting out of the argument that managing CO₂ is just a cost. There are benefits that come out the other end as well, including GDP growth, employment, tax revenues and disposable income," he says from his office in Sherwood Park, a hamlet located east of Edmonton.

Indeed, the Conference Board estimates for every dollar invested, economic activity is boosted by \$1.90.

Much of the benefit (98.3%) flows to Alberta where real GDP is forecast to be \$1.95 billion (a multiplier of five for every dollar invested by CCEMC) with an added 12,244 person-years of employment over the study period. At its peak last year, employment was up by close to 5,200 jobs. Household incomes get a boost as will retail sales (by \$790 million). Housing starts are expected to increase by 398 and corporate profits are to rise by a cumulative \$278 million. Construction, manufacturing and personal services account for the greatest industrial impacts. And the report says a lift to personal income of \$1.2 billion (disposable income of \$963 million) will add \$226 million to general government coffers.

Other provinces receive some benefit through supply-chain dynamics. Ontario is the biggest winner with an increase to GDP of \$240 million and an additional 1,231 person-years of employment. Gains to the other provinces range from \$22 million in Manitoba to \$106 million in BC, while increases in person-years of employment are from 134 to 696.

CCEMC has 100 projects on the go that receive money from the Climate Change and Emissions Management Fund.

Companies that emit more than 100,000 tonnes of CO₂ annually are required to reduce their emissions intensity by 12% below their 2004-05 baselines. If they are unable to do so, there are three compliance options: improve

ALBERTA'S GHG TARGET

Reduce emissions by 200 megatonnes or 50% below business as usual by 2050.



CCEMC is working to change the perception that carbon management is just a cost.

PHOTO: THINKSTOCK

Reducing GHG emissions

NEW TECH INVESTMENTS ARE GOOD FOR THE ECONOMY

internal energy efficiency, buy carbon credits from other Alberta organizations or pay \$15 per tonne to the fund, which is collected by the Alberta government.

"We think every project has the potential to be a hot one," says Andries, who is also executive director of the Alberta Biodiversity Monitoring Institute. "We're really trying to push the envelope. We see our money as risk capital, so we're not like a VC [venture capital fund] looking at a financial return in a year and a half. Ours is patient capital. We understand that technology takes time and the return we are looking for is the greenhouse gas reduction."

Grappling with climate change

Projects cover carbon capture and storage, renewable energy, clean-energy, energy efficiency, climate change adaptation, carbon uses and biological.

Andries offers examples, such as the Lethbridge Biogas Cogeneration project, which converts waste material such as agricultural manure and food processing waste into electrical and thermal energy through anaerobic digestion.

Another is the Enhanced Solvent Extraction Incorporating Electromagnetic Heating (ESEIEH) Consortium that involves the Harris Corp. of Melbourne, Fla., a telecommunications equipment manufacturer, and energy producers CNOOC Ltd./Nexen Inc., Devon Canada and Suncor Energy Inc.

They're testing a new process that would replace steam used for in situ bitumen extraction with electromagnetic heating, combined with solvent dilution. On a full cycle basis, it has the potential to reduce emissions generated from steam-assisted gravity drainage by up to 80%.

CO₂ Solutions Inc., an innovator in enzyme-enabled carbon capture, has been working with a major Alberta oil sands producer to capture carbon from natural gas combustion emissions. The one-year project, almost complete, applies a technology that uses an enzyme (car-

CCEMC FUNDING PRIORITIES

- Conserving and using energy efficiently (emissions target of 24 megatonnes by 2050).
- Implementing carbon capture and storage (emissions target of 139 megatonnes by 2050).
- Greening energy production (emissions target of 37 megatonnes by 2050).

bonic anhydrase). When introduced in a packed tower scrubbing system, it substantially improves the efficiency of capturing CO₂ with low-energy solvents. Andries says the Quebec City company is submitting another project.

Alberta is committed to reducing its greenhouse gas emissions, but the projects funded by CCEMC have the potential for much broader geographic reach as nations grapple with the effects of climate change.

Environment Canada notes average annual temperatures in Canada have increased by 1.7 degrees C over the past 65 years, and the US Environmental Protection Agency estimates the average global temperature is expected to rise between 1.1 to 6.4 degrees C. The effects of climate change run from more severe weather patterns to health risks and damage to ecosystems.

So the work continues at CCEMC. Andries says it's hard to say how funding might be affected by plunging oil prices because it will depend on whether or not energy companies change their production levels. But looking ahead, he sees CCEMC collaborating more with other organizations. A potential partner is Canada's Oil Sands Innovation Alliance (COSIA), a resource-rich group of oil sands energy producers that are working together to improve their environmental performance. Both organizations have a common goal. Much rests on the success of their collective efforts.

Visit www.e-library.ca for a copy of the report.

Comments? Email jterrett@plant.ca.

Mapping wasted ENERGY

EDMONTON-AREA INDUSTRIAL SITES COULD POWER 5,100 HOMES

PHOTO: THINKSTOCK

BY PLANT STAFF

There's a place for emissions escaping from industrial stacks across Canada's largest hydrocarbon processing region, according to a first-of-its-kind study by a partnership between CMC Research Institutes, Alberta Innovates - Technology Futures (AITF) and Alberta's Industrial Heartland Association (AIHA).

In an effort to better understand the energy flows and associated waste in Alberta's Industrial Heartland region, the *Community Integrated Energy Mapping Feasibility Study* found that 97 megawatts could be applied towards other uses. That's enough waste heat to power 5,100 homes and warm up another 15,200 in the province, while reducing carbon emissions by 151,000 tonnes.

Data was collected from 16 industrial firms

in Strathcona County and Alberta's Industrial Heartland near Edmonton, based on the assumption 33% of the total available wasted energy could be captured and repurposed.

The Heartland region in the northeast was selected because of its combination of industry and municipalities. It includes five municipal districts and 40 companies involved in oil and gas processing, petrochemicals and advanced manufacturing.

The study, conducted from May 2013 to June 2014 and funded by Natural Resources Canada (NRCan), identified 300 megawatts of sensible waste energy, of which 64 megawatts comes from low pollutant exhaust stacks with temperatures between 230 and 1,100 degrees C; 85 megawatts from exhaust stacks with temperatures between 120 to 230 degrees C; and 151 megawatts from coolers and compressors with temperatures between 80 and 230 degrees C.

Integrating energy solutions

"The energy mapping concept is the first step in understanding the business case for energy integration solutions for Alberta," says Craig Aumann, AITF environment and carbon management researcher and a lead author of the study.

Companies that participated in the study include Agrium, Air Liquide, Air Products, AltaSteel, ATCO Energy Solutions, Keyera Energy, North West Redwater Partnership, Oerlikon Metco (Canada) Inc., Plains Midstream, Rio Tinto Alcan, Shell Canada, Sherritt, Suncor Energy, Umicore, Veresen and Western Hydrogen.

Based on the study's success, NRCan and Carbon Management Canada are exploring expanded regional waste energy mapping.

Download the study at www.albertatechfutures.ca.

» Recycling

Canada Fibers opens T0 plant

Will produce PET flake and PE, PP pellets

Canada Fibers Ltd. is commissioning a technologically advanced plastics recycling plant that will produce pure, homogeneous plastic materials from post-consumer and post-industrial waste.

The 160,000 square-foot Urban Polymers facility in north Toronto starts operations in the spring, and will produce polyethylene terephthalate (PET) flake material as well as compounded polyethylene (PE) and polypropylene (PP) pellets.

PET is the primary source of material for beverage bottles and single serving food containers. PE and PP are used to produce packaging for other liquids, including household detergents.

The facility will process up to 25 million pounds of PET per year and 11 million pounds of PP/PE per year during its initial development phases.

Canada Fibers was founded in 1990 as a Toronto-based paper recovery and marketing operation. It has since grown into a plastic, glass, aluminum, paper and metal materials recovery, and separation company.

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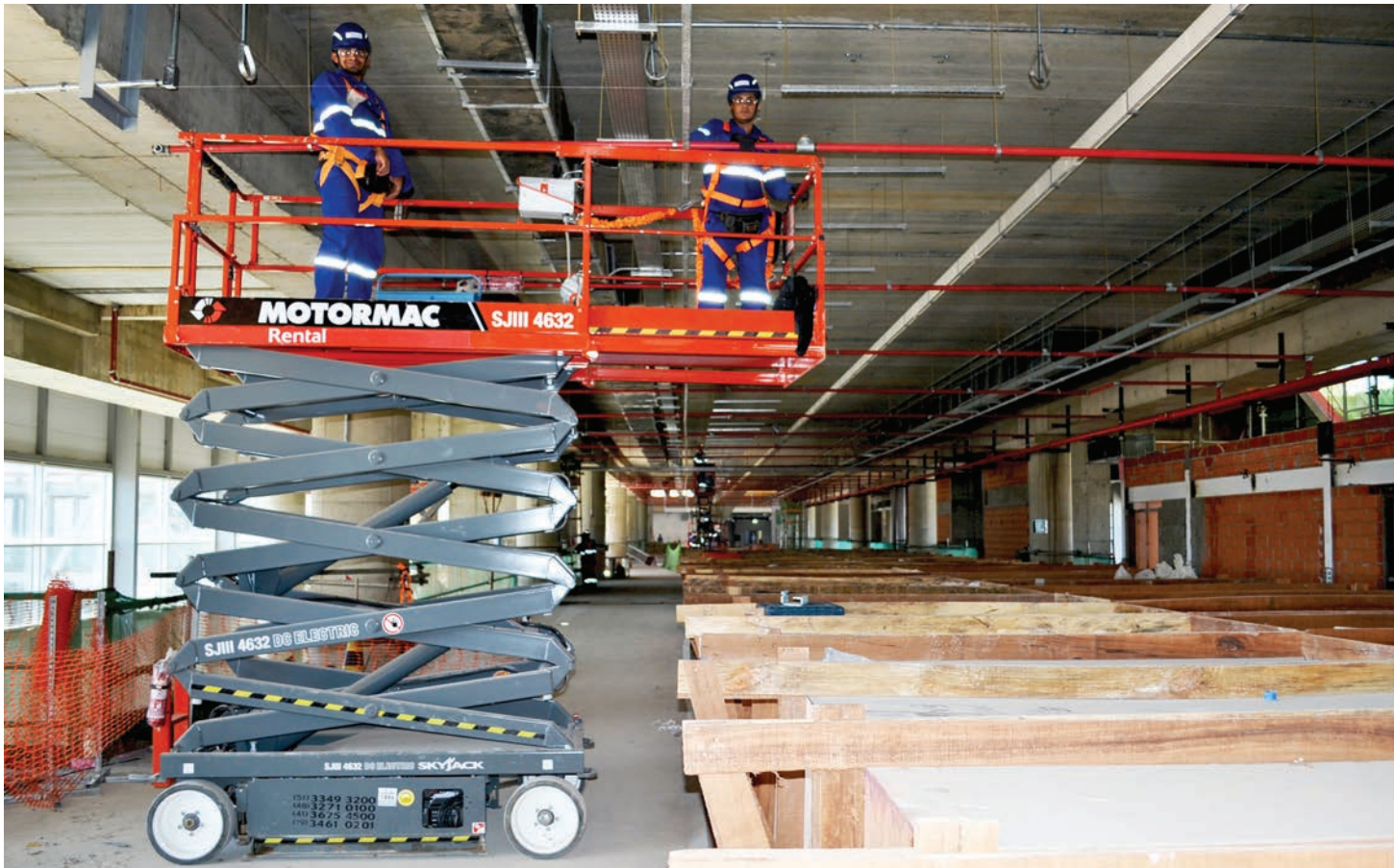
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C I E N

CANADIAN INDUSTRIAL EQUIPMENT NEWS

» Aerial Work Platforms



Skyjack's SJIII 4632 electric scissor lift on the job at Viracopos International Airport in Brazil.

PHOTO: SKYJACK

2016 Preparing for Brazil's OLYMPICS

SKYJACK GIVES AIRPORT PROJECT A LIFT

The Guelph manufacturer's scissor lifts are handling key installation jobs as one of Brazil's largest aviation hubs prepares for visitors from around the world.

Brazil is expecting a huge inflow of visitors when it hosts the 2016 Olympic Games, which means the Viracopos International Airport in Campinas, São Paulo, the state's third largest city and one of Brazil's largest aviation hubs, needs to expand its facilities.

But the airport is also planning for the future. In 2013, it welcomed 9.3 million passengers and received 260,000 tons of cargo. By 2042, the site is projected to receive 80 million passengers annually and transport many times more tons of cargo, becoming one of the busiest

airport hubs in Latin America.

It's a \$3.5 billion project that will include a new 1.2 million square-foot terminal, and a Canadian manufacturer is providing the scissor lifts (supplied through Motormac Rentals) to handle several key installation jobs.

Skyjack, a division of Linamar Corp. and based in Guelph, Ont., has supplied a mix of 63 SJIII 4626 and SJIII 4632 electric scissor lifts that are being used to install electrical components, hydraulic pipes, air conditioning parts, and safety equipment, including fire extinguishers and speakers for radio and audio announcements. Towards the end of the project, the scissor lifts will also help with waterproofing and painting jobs.

Skyjack's scissor lifts are also helping to make Viracopos International, the sixth largest airport in Brazil, one of the most technologically advanced. They're being used to install state-of-the-art data transmission cables and internet connec-

tion devices, a task that often requires platforms that can manoeuvre in tight spaces.

The SJIII 4626 and SJIII 4632 are high capacity with large platform areas. Both models are drivable at full height and feature a 4-foot (1.22 metre) roll-out extension deck that's secured in several positions.

The SJIII 4626 has a raised platform height of 26 feet (7.92 metres), a working height of 32 feet (9.75 metres), 30% gradability and a weight capacity of 1,000 pounds (454 kilograms).

The SJIII 4632 has a raised platform height of 32 feet (9.75 metres), a working height of 38 feet (11.58 metres), 25% gradability and a weight capacity of 700 pounds (318 kilograms).

"After the foundation and the main concrete and steel skeletal structure are completed, all work, inside and out, can be optimized with Skyjack's scissor

Continued on page 22

» Supply Lines



Acklands-Grainger features its house brands.

PHOTO: ACKLANDS-GRAINGER

MRO GETS "THE WORKS"

Acklands-Grainger provided updates on its warehouse expansions in Alberta and Ontario during its Works 2015 MRO and safety product show in Vancouver.

Its new 535,000 square-foot Toronto distribution centre is now operating and will officially open in June. The Fort McMurray, Alta. centre was operational at the end of March and the Edmonton facility will open in 2016 (details to be announced).

The Toronto-based industrial products distributor said the new facilities would be loaded with technology to streamline inventory control and link to the US systems. The e-commerce systems are more user friendly, and you can expect to see more house brands online.

The annual event, this year running Feb. 4-5, brought together 1,200 suppliers and 1,900 customers who learned about the latest product innovations, industry trends, and strategies for reducing operating costs and enhancing productivity.

PR GOES WITH WIKA

A manufacturer of electronic signal conditioning equipment based in Denmark is broadening its reach in Canada by teaming up with WIKA Instruments Ltd.

WIKA, a manufacturer of pressure, temperature, and level measurement instrumentation based in Edmonton, will add the PR electronics products used in the oil and gas, chemical manufacturing, water and wastewater industries to its portfolio.

WIKA has six sales offices and six service centres across Canada.

COORDINATED MOTION

B&R's Automation has earned PLCopen Motion Control Part 4 certification for coordinated motion.

The specifications include predefined function blocks and machine state descriptions to control multi-axis systems with a standardized interface.

Identical command execution is guaranteed by standardized interfaces so there's no need to change code.

B&R is a manufacturer of automation technologies based in Atlanta.

Gains in speed and safety

Continued from page 21

lifts,” said Fernando Jaeger, corporate business manager at Motormac Rental. “Every single aspect you can think of in terms of indoor aerial platform work has a Skyjack machine working on it. That’s almost every element that exists in a modern building of this kind. The gains in speed and safety are enormous.”

Motormac leased the Skyjacks to Constran, the main contractor of Aeroportos Brasil Viracopos, a consortium that won the bid for the airport’s 30-year expansion project.

Motormac’s Skyjack units have been working around the clock to deliver the airport project on schedule. In fact, Motormac has a specialist on-site to guarantee safety and soundness of the equipment, and to ensure the contractor is using all the machines at their full potential.



The SJIII 4626 rises as high as 7.9 metres.

PHOTO: SKYJACK

Additionally, Skyjack has worked with local governments and regulatory agencies to ensure aerial work platform operators on the Viracopos project and in the country in general are properly trained.

“We’ve been collaborating with governing agencies and with customers to establish a culture of training and safety,” Jaeger explained. “Besides having the ISO 9001 quality certification, Motormac is also licensed as an IPAF Learning Center.”

Skyjack, formed in 1985, became part of the Linamar Corp. in 2002 and has locations in North America, Europe, Asia and Australia.

The manufacturer’s product range includes; vertical mast lifts; DC electric scissors; rough terrain scissors; telescopic booms; articulating booms; and telehandlers.

Linamar is a global manufacturer of automotive parts and systems, and other products.

In 2013, Skyjack manufactured its 250,000th machine and the 100,000th 3219 model.

Industry Canada shows the company has total sales of more than \$50 million and employs 600 people.

This is an edited version of an application story provided by Skyjack.

Comments? Email jterrett@plant.ca.

Safety

A SECURE FIT WITH ENTITY GOGGLE

Honeywell’s Uvex Entity safety goggles protect workers from impact, dust and chemical splash hazards with a secure, gap-free fit.

A lightweight PVC body easily conforms to the face and a compact design accommodates other forms of PPE for comfortable combination wear.

The toric-shaped lens provides a wide field of unobstructed peripheral vision. Its Uvextra coating coupled with an indirect ventilation system minimizes fogging, and the adjustable, neoprene headband swivels 360 degrees.

The goggles come in translucent blue with a clear lens for multi-purpose use or matte black with Shade 3.0 and Shade 5.0 lens options for welding applications.



Unobstructed peripheral vision.

The style meets both ANSI Z87.1-2010 and CSA Z94.3 standards.

Honeywell Safety Products is a manufacturer based in Smithfield, RI.

www.uvex.us

OPTIMAL OPTICS WITH ARISTO HELMET

The Aristo Tech HD auto-darkening helmet from ESAB Welding & Cutting Products (optical class 1/1/1) has the highest optical performance possible according to the EN 379 Standard.

The advanced LCD lens viewing area is 100 x 62 mm (3.9 x 2.4 in.) – 12 mm (0.5 in.) larger than the previous lens – for wider visibility and better spatial awareness.

A new X-TIG mode ups the performance level when welding down to 5 A. The helmet uses electromagnetic arc sensors that automatically react to the arc’s magnetic field. This eliminates interference from sunlight or other electrical/electronic equipment, and ensures the helmet darkens when the sensors are blocked.

A grind mode is activated at the lowest sensitivity, so operators don’t have to shift between the helmet and a face shield and safety glasses. The grind mode also works well for plasma and oxy-fuel cutting.

ESAB Welding & Cutting Products supplies the welding and cutting industry. Its Canadian office is in Mississauga, Ont.

www.esab.com

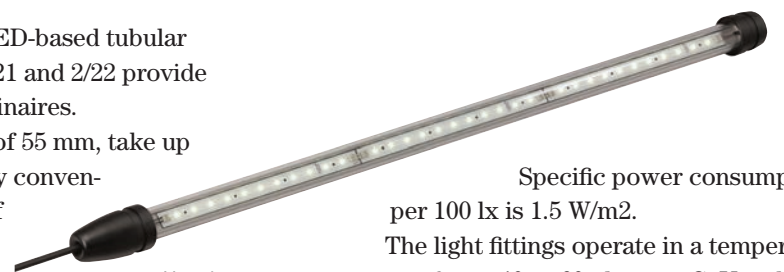


Eliminates interference from sunlight.

LET THERE BE LED LIGHT

R. STAHL’s compact 6036 series LED-based tubular light fittings for use in Ex zones 1/21 and 2/22 provide an alternative to typical linear luminaires.

The new lights, with a diameter of 55 mm, take up less than half the space required by conventional linears and are less than half their weight. For example, 30 4-ft.-long LED-based tubular light fittings ensure an illuminance of approximately 500 lx, which would normally require 35 linear luminaires with two 36 W fluorescent tubes each – or 48 conventional box-type units retrofitted with LEDs.



Uses less space.

Specific power consumption per 100 lx is 1.5 W/m².

The light fittings operate in a temperature range from -40 to 60 degrees C. Use them for general lighting or as machine lamps.

R. STAHL Ltd. is a manufacturer of safety technology for hazardous areas based in Waldenburg, Germany with Canadian offices in Edmonton.

www.stahl.de



Made of durable, high-bond acrylic.

FLOOR SIGNS PROMOTE SAFETY

Visual Workplace Inc.’s Smart Floor Signs clearly communicate critical safety information and instructions.

The easy to apply peel-and-stick made of durable, high-bond acrylic withstands forklift and heavy foot traffic.

Signs are available in three sizes: 12 in. and 17 in. round, or 14- x 20-in. rectangles with rounded corners.

The 5 ml PVC laminate is clear, slightly textured, scratch resistant and anti-skid. The material is flexible so it conforms to curved or flat surfaces.

Visual Workplace is a supplier of 5S and lean products based in Byron Center, Mich.

www.visualworkplaceinc.com

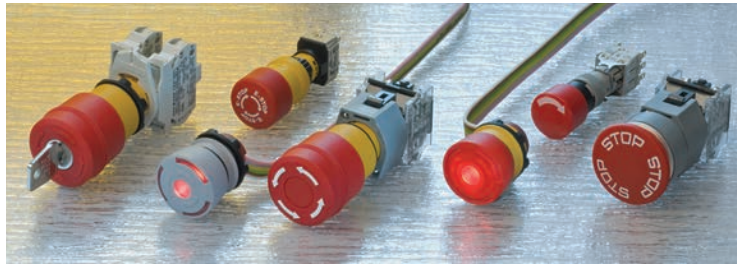
E-STOP SOLUTIONS ARE FAIL-SAFE

EAO Corp.'s E-Stop switches deliver fool-proof equipment shutdown.

With the new "Fail-Safe" contacts, separation of the contact block from the E-Stop actuator renders the application ineffective. If there's any defect or improper installation of the switch actuator to the new Fail-Safe contact block, the switching contact opens, cuts power and stops the machinery as it would in an emergency shutdown routine.

Fail-Safe contacts come with Series 04 and Series 84 E-Stops.

Applications include: machinery, transportation, lifting/moving, medical equipment, industrial x-ray ma-



Foolproof shutdown.

chines, packaging equipment, food processing applications, compressors and printing equipment.

EAO, based in Milford, Conn., makes HMI systems and components.

www.eao.com

HAZMAX CONTAINS HAZARDOUS MATERIALS

HEMCO Corp.'s HAZMAX containment work area isolates hazardous materials in applications such as large equipment distillation procedures, pilot plant requirements, and sampling/weighing/dispensing operations.

A varaflow baffle system and by-pass inlets protect against hazardous fumes, safely venting vapours, odours and powders.

The ventilated work area is made of corrosion resistant composite resin surface panels. Tempered glass horizontal sliding door panels provide access to the work area that's equipped with vapour-proof or explosion-proof lighting.

A secondary containment basin, constructed of seamless composite polyresin, has coved corners and a sloped bottom for draining and cleaning of any accidental spills that flow through a raised fibreglass grate deck floor.

HEMCO is a manufacturer of innovative laboratory equipment based in Independence, Mo.

www.HEMCOcorp.com



Protects workers and the environment.



Powers a variety of equipment.

DOK CENTRALIZES DOCK DEVICES

The Dok-Commander Control System from Rite-Hite integrates the controls of multiple loading dock devices into a centralized, easy-to-operate control system.

It powers a variety of equipment at each loading dock position, including a vehicle restraint, dock leveller, dock door and dock light. An interlock feature ensures equipment is engaged in the proper sequence of operation.

Security is added when Dok is linked with an active building security system. If an engaged restraint is tampered with, the building security system is notified and facility protocol is followed. And its narrow design allows for tight door centrelines.

Rite-Hite Corp., based in Milwaukee, is a manufacturer of material handling systems.

www.ritehite.com

EMERGENCY LIGHTING GOES BUG-EYED

Safety lighting for hazardous areas is becoming bug-eyed with Larson Electronics' HAL-EMG-EXT-12W-2L emergency lighting system.

The Class 1 Division 2 LEDs automatically switch to back-up battery power if the power goes out and will last for 90 minutes or until power is restored. A built in charger then returns the unit to a fully charged state.

The nickel-cadmium battery is protected from deep discharge by solid-state circuitry



Multi-voltage capable.

that senses low voltage and turns the unit off before damage occurs.

This emergency light is multi-voltage capable and operates from 120 to 277 V and withstands temperatures ranging from 0 to 50 degrees C.

An integrated pilot light indicates the presence of AC current and a test switch allows for easy confirmation of proper operation.

Larsen Electronics is a lighting manufacturer based in Kemp, Tex. <http://Larsonelectronics.com>

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PROVIDE SAFETY EYEWEAR 24/7

Eyelation (distributed by Levitt-Safety) makes prescription eyewear available to workers while reducing costs associated with administering benefits programs.

The program is accessible 24/7 and allows employees on every shift to order their glasses immediately from the free onsite kiosk. Setting it and the system on site is easy. The administrator loads the benefit options and plans for each employee, including information such as job requirements and associated eyewear benefits, to match the eyewear with the needs of the role.

After the initial setup, each employee is issued an ID card to access the system, which manages benefit renewals.

Levitt-Safety is a Toronto-based supplier of safety equipment.

www.levitt-safety.com

AUTOMATION



EN 60068-2-6 certified.

PROTECTS AGAINST HUMIDITY AND CORROSION

B&R Automation's X20c compact controller and I/O modules are protected against condensation and corrosive gases thanks to special components on the electronics module for use in harsh environments.

The coating protects the components and circuit board from the effects of condensation and corrosive gases.

Condensation is checked using the test specified in BMW GS 95011-4, and protection against corrosive gases using the four-part corrosive gas tests specified in EN 60068-2-6, test method 4.

Operating temperatures range from 25 to 60 degrees C.

B&R Automation is a manufacturer of industrial automation products based in Atlanta.

www.br-automation.com

MACHINING

INSERTS IMPROVE GROOVING OPERATIONS

Walter Tools' three new insert geometries improve speed, reliability and chip formation in parting and grooving operations for medium-to-high feed rates.

The CE4 geometry for medium to high-feed rates has a tough cutting edge and good chip compression, while the universal CF5 geometry makes easy work of long-chipping materials and medium feed rates. The CF6 geometry handles low-feed rates, non-ferrous metals, small diameters or thin-walled tubes.

All three geometries, available in widths from 1.5 to 6 mm, are outfitted with Walter's Tiger-tec Silver CVD coating technology to increase toughness and decrease machining time.



Widths from 1.5 to 6 mm.

Walter is a manufacturer of specialized metal cutting tools with North American operations in Waukesha, Wis.

www.walter-tools.com

WORKHOLDING

TENDO MAKES TOOL CHANGES QUICK

Schunk's TENDO toolholders with hydraulic expansion technology prevent chipping at the cutting edge.

They have a variety of intermediate sleeves and are used with all clamping diameters. They come in multiple gauge lengths that clamp directly.

Small in size for low-clearance, they make tool changes quick and provide consistent run-out accuracy.



Maintenance-free.

Schunk is a manufacturer of clamping and workholding systems based in Lauffen am Neckar, Germany. It has Canadian operations in Mississauga, Ont. www.schunk.com

TEST AND MEASUREMENT

PULSED SENSORS PREVENT FALSE READINGS

Ophir Photonics F-PE80BF-DIF-C pyroelectric pulsed sensors measure high energy/peak power lasers, including Nd:YAG and harmonics.

The fan-cooled sensor covers wavelengths from 0.19 μm to 2.9 μm and measures pulses with average powers to 200 Wm measuring down to 0.5mJ. Its BF coating and diffuser provide damage thresholds to 50J/cm² at 2ms.

A user adjustable threshold prevents false readings in noisy environments. They support repetition rates up to 25 kHz and pulse widths up to 20 ms.

The sensors work with most Ophir smart displays or PC interfaces, including the Nova II, Vega, and Juno, each with a "Smart Connector" interface that



Wavelengths from 0.19 μm to 2.9 μm .

automatically configures and calibrates the display.

Ophir Photonics, a Newport Corp. brand, is a manufacturer of laser measurement equipment based in North Logan, Utah.

www.ophiropt.com/photronics



Inputs up to 300 V.

PD6400 MAKES POWER MEASUREMENT EASY

Precision Digital Corp.'s PD6400 high voltage and current meter provides reliable measures of high voltage, current, and apparent power with independent, field-selectable current and voltage inputs up to 300 V and 5 A, AC or DC.

The user-configurable, dual-line display has easy-to-read LED digits and warning lights with adjustable brightnesses.

The unit, which is NEMA4X/IP65-rated and carries CE and UL listings, has Modbus capability (Slave) so it integrates into existing networks for panel or field

SmartWasher® Parts Cleaning System

Non-pathogenic microbes break down organic compounds of grease, grime, varnish, oil, carbon and other heavy industrial soils into harmless water and carbon dioxide.

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Waste disposal becomes a non-issue.

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SmartWasher® solution remains clean and reusable.

Product images not to scale.

SmartWasher® Cleaning Solutions and Premium Grade Filters are available in Industrial Grade, Automotive & Ink Grade, and Specialty Metals Grade.

www.crc-canada.ca

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STORAGE



Bins come in 15 sizes.

KANBAN BINS SIMPLIFY MATERIAL HANDLING

Akro-Mils' AkroBins model 30237 make the handling of materials easier.

The 9-1/4 x 6 x 5 in. bins are used back-to-back as a two-bin Kanban system for shelves up to 18-in. deep to control inventories and minimize parts handling.

Available in 15 sizes and a variety of colours, they're made of industrial-grade polymers that resist weak acids and alkalis, and are water, rust and corrosion-proof.

Akro-Mils is a manufacturer of storage and material handling products based in Akron, Ohio.

www.akro-mils.com

operation in harsh environments.

The meters also accept current transformer inputs for even higher current measurements.

The displayed voltage, current or apparent power level is labeled with a custom tag and unit. The voltage and current is also scalable to represent different engineering units.

The company's MeterView Pro software makes programming easy, which streamlines setup and eliminates button pushing.

Options include up to four relays, a 4-20 mA analogue output, and a 24 VDC power supply. Expansion modules add an additional 4 relays, 2 4-20 mA outputs, and 8 digital I/O.

Precision Digital is a manufacturer of display and control instrumentation based in Holliston, Mass.

www.predig.com

OSCILLOSCOPE MONITORS STANDARD ELECTRIC PARAMETERS

Saelig Co. Inc.'s GDS-200/300 2-channel 1GSa/s digital oscilloscopes have a 7-in. touch-panel LCD and store and retrieve portrait or landscape waveform images and raw data via a USB interface.

They come in 70, 100 and 200 MHz bandwidth versions with a maximum sample rate per channel of 1 GSa/s and memory depth is 5 Mpts for handling 300,000 wave forms. A built-in digital multimeter simultaneously measures and monitors AC and DC voltage, current and temperature.



Touch-panel LCD.

Trend plots monitor standard electric parameters while measuring basic circuit signals.

The units, compatible with smartphones for transmitting recorded data to remote locations also have built-in engineering calculators with attenuation calculation analysis.

Built-in temperature measurement and logging functions conduct temperature logging experiments with B,E,J,K,N,R,S,T-type thermocouple probes for Celsius and Fahrenheit measurements.

Users can also use trend plot editing to conduct temperature monitoring over a long period for quality assurance and test situations.

Saelig is a manufacturer of test and measurement equipment based in Fairport, NY.

www.saelig.com

FASTENERS

CLINCHING NUTS ALIGN EASILY

PennEngineering's floating self-clinching nuts for stainless assemblies make mating-hole alignment easier in relaxed tolerance applications.

They come with non-locking or self-locking threads and permit up to 0.015-in. minimum float in all directions from centre. Unique engineering adds strength and support in an assembly by permit-



Thread sizes M3 to M5.

ting fastener threads to extend fully into their retainer shank.

Fitted with non-locking Type A4 nuts (with free running load-bearing threads) and self-locking Type LA4 nuts (with prevailing torque locking threads), they install in stainless sheets as thin as 0.97 mm with hardness of HRB 88 or less on the Rockwell "B" scale.

Thread sizes range from #4-40 through #10-32 and M3 to M5.

PennEngineering is a fastener manufacturer based in Danboro, Pa.

www.pemnet.com

WELDING

WELDERS ARE SEVERE DUTY

Lincoln Electric's Vantage 520 SD engine-driven welder and generator handles tough environments such as mining, construction and pipe welding, joining the company's larger Vantage 600 SD and Air Vantage 600 SD to form a Severe Duty group.

A Tier 4 Final (T4F) compliant engine meets new EPA diesel fuel emission standards, and handles a variety of processes, including Stick, TIG, MIG, and pipe welding. It also handles flux-cored wire welding and arc gouging.

A digital platform provides smoother arc action, faster arc response and improved pipe welding with reduced spatter. New pulsing capabilities improve arc control for out-of-position work and reduce heat input to decrease base material distortion.



T4F-compliant.

ArcLink digital communication is fast, with advanced wire feeders such as the Power Feed 25M or other components that allow memory presets for repeated application procedures, operator limits and lockouts to reduce errors.

It's powered by a Deutz 34.8 hp D2.9L4 engine to produce 520 A/30 V at 60% duty cycle and 450 A/32 V at 100% duty cycle.

Generator power is up to 11,000 W single-phase or 17,000 W three-phase, 120/240 VAC.

Lincoln Electric is a manufacturer of welding products based in Cleveland.

www.lincolnelectric.com

CAMERAS

CAMERA ENHANCES JOBSITE COMPATIBILITY

RIDGID's SeeSnake rM200, a compact, portable inspection camera system with interchangeable drums, handles any pipe or line inspection job.

The D2A or D2B drums have different push cable lengths, diameters, stiffness and springs for specific job requirements.

The D2A's 200-ft. long, 0.3-in. diameter push cable has a single-nested spring, while the D2B Drum has a 165-ft. long, 0.35-in. diameter push cable with the same stiffness index as the standard SeeSnake cable. A dual-nested spring provides a more gradual stiffness transition, making it easier to negotiate turns and tees.

Both D2 drums have a 1-in. diameter and self-levelling camera head for a clear view that's always upright. The camera head also has a built-in sonde that pinpoints the camera's position and depth.

RIDGID is a tool manufacturer based in Elyria, Ohio.

www.ridgid.com



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SWITCHES



IP67-rated.

SWITCHES HANDLE THREE-PHASE POWER APPLICATIONS

Use Eaton Corp.'s IP67-rated non-metallic motor control disconnect switch for secondary power shutdowns at manufacturing plants.

The 30- or 60-A units are constructed with industrial strength NEMA 4x Valox thermoplastic materials to withstand corrosive and harsh environments.

Eaton, a manufacturer of power management technologies based in Cleveland, recommends the switches equipped with standard or variable frequency drive (VFD) auxiliary contacts for three-phase applications.

They're DIN rail mounted and enclosed to protect against dust and water intrusions. Mounting feet provide a 1/4-in. gap

or flush mount for washdown procedures.

A padlock option complies with OSHA regulations. Lock-out, tag-out 1910.147 requirements keep energy isolated unless the device is in use or being serviced.

www.eaton.com

SWITCHES CUT ENERGY USE BY 30%

Pisco USA Inc.'s 31 Series digital pressure switches provide easy and efficient changeover from seven different units of pressure to eliminate conversions in non-corrosive and non-flammable gas applications



3-colour LCD.

Three models – VUS-31R-N (compound pressure), the VUS-31-N (negative pressure) and the SEU-31-N (positive pressure) – change easily from psi, inHg, kPa, MPa, kgf/cm², bar and mmHg.

They're outfitted with high visibility three-colour LCD dual displays. Connec-

tors include a 2-m cable or a 3-pin M8 male connector, 2 NPN or 2 PNP output, and analogue voltage or current output.

The switches go into sleep mode automatically after 30 seconds of inactivity to reduce power consumption by 30%. A built-in locking function prevents accidental output if a key is pushed in error, and a key symbol is shown when the function is activated.

Pisco is a supplier of pneumatic industrial equipment based in Elmhurst, Ill.

www.pisco.com

NETWORKING

NODE COMBINES ETHERNET AND WAN

Siemens Ruggedcom's RX1400 multiprotocol intelligent node combines ethernet switching, routing and firewall functionality with various WAN connectivity options for use in harsh environments.

The IP40-rated device provides a high level of immunity to electromagnetic interference, heavy electrical surges, extreme temperature and humidity.

It doesn't use fans for cooling and operates continuously within -40 and 85 degrees C. A rugged metal housing supports DIN rail, panel, or rack mounting.

With its integrated GNSS (GPS/GLONASS) functionality the device reports its location in large scale deployments, such as support of primary communications over commercial LTE networks and leveraging LTE's capabilities for quality of service management.

The device is equipped with 2G and 3G wireless rollback. Connectivity and the cellular router is equipped with a Dual SIM card slot for automatic failover when there are interruptions.



Rollback to 2G and 3G networks.

Two optional small form factor fibre optic transceivers establish wireline communication.

The unit is compact for installation in existing cabinets, and it has advanced cyber security features for mission-critical applications, such as in utility substations, traffic control cabinets, or oil and gas.

Siemens Ruggedcom is a manufacturer of communications equipment based in Concord, Ont.

www.siemens.com

SYSTEM LOWERS DATA MANAGEMENT COSTS



Multiple device communication.

Moxa's ioLogik 2500 4-in-1 smart acquisition system combines I/O functionality, an ethernet switch, serial/Modbus connectivity, and up to 32 GB of data logging into a single remote unit.

The device reduces the number of system components and connections, and eliminates rewiring in daisy chain expansions.

A slave ethernet port links up to eight daisy-chained expansion modules and converts more than 100 channels to one IP address. Three additional ports connect to a ethernet-driven field device.

It supports micro SD cards with up to 32 GB of memory. A built-in FTP server assesses data remotely.

Two serial communication ports input data from devices using the Modbus RTU protocol, which transforms it into Modbus TCP or AOPC tag formats before sending it out over the ethernet network.

The device is available in two versions: with eight channels of digital inputs or with four analogue inputs. A wireless version is in development.

Moxa is a manufacturer of industrial networking and automation systems based in Brea, Calif.

www.moxa.com

TRANSFORMERS

TRANSFORMERS REDUCE NOISE

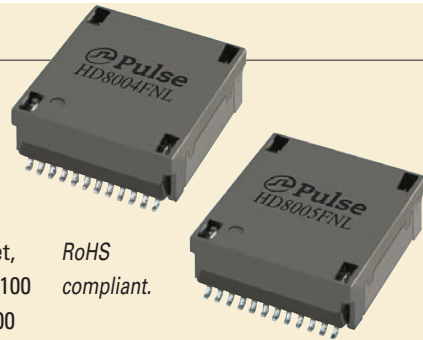
Pulse Electronics Corp.'s HDBaseT transformers provide common mode noise reduction for power over applications.

HDBaseT technology enables the 5Play feature set, which includes ultra high definition 4K video, audio, 100 BaseT ethernet, various control signals, and up to 100 W of power on a single 100 m CAT5e/6 ethernet cable.

The transformers are RoHS compliant and meet IEEE802.3af standards. They come in a 13.72- x 14.99- x 5.72-mm, 24-pin SMT package and are available in trays or tape and reel.

Pulse Electronics is a manufacturer of industrial electronic components based in San Diego, Calif.

www.pulseelectronics.com



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VISION



3.2 MP image sensor.

CAMERA CAPTURES TINY TEMPERATURE DIFFERENCES

Wahl Instruments Inc.'s Wahl Heat Spy a/z 150 thermal imaging cameras highlight minimal temperature differences.

A 160 x 120 detector produces 19,200 individually calibrated pixels with a thermal sensitivity of ≤ 0.05 degrees C.

A 3.6 in., 640 x 480 resolution LCD touch screen display is clear and easy to see. The 25 x 19 degree field of view with 3.2 megapixel CMOS image sensor captures visible light images, while an additional 0.5 x wide angle lens and one x2 telephoto lens enhance functionality.

Dual LED bulbs above the lens act as headlights for clear visible images even in low light conditions. Laser aiming pinpoints hotspots.

An 8 GB Micro SD card is included and is compatible with four viewing modes – visible, thermal, Picture-in-Picture and SpyLite. Bluetooth connectivity transfers files to a PC wirelessly and a headset connects to record and playback verbal image annotations.

Palmer Wahl is a manufacturer of industrial instrumentation technologies based in Culver City, Calif.

www.palmerwahl.com

VACUUMS

PUMP VACUUM SEPARATES FLUIDS QUICKLY

Nilfisk CFM's VHO200 sump pump vacuum makes fast work of separating 75 L of mixed liquids and solids.

A diverting valve reverses the flow of air to pump out the tank and the stainless steel chip basket, perforated with 3 mm holes, separates fluids fast.

It comes with a tilting motor head that accommodates a range of accessories.

An internal oil mist filter prevents mist from entering the motor, and there's a new float system for automatic shut-off.



75-litre capacity.

www.plant.ca

Nilfisk CFM is a manufacturer of industrial cleaning equipment based in Morgantown, Pa.

www.nilfiskindustrialvacuums.com

TOOLS

COMPACT DRILL DELIVERS LOTS OF TORQUE

Hougen Manufacturing Inc.'s HMD905 portable magnetic drill provides superior power to weight ratio by giving steel fabricators more strength and torque while maintaining a small and lightweight footprint.

An LED mag drill pilot light efficiently and quickly lines up the pilot with the hole's centre location in low or no light conditions.

A proprietary two-speed Hougen motor maximizes tool life and increases torque when using larger diameter cutters and a two-stage magnet increases holding power by 30% when the drill motor is turned on.



10-A rating.

An arbour system uses a 5/8 in. slot drive for more rigidity, hole accuracy and quicker use of accessories, such as drill chucks and tapping attachments.

The drill has an electrical rating of 10 A, a 250/450 rpm motor, weighs just 35 lb., and measures 22-13/16 x 7-11/16 x 11-3/4 in. with capacities from 7/16 to 1-5/8 in. in diameter and 2 in. depth of cut.

A no-adjustment safety switch shuts the motor down if the magnetic base lifts, while an LED indicator monitors the sensor and alerts if an unsafe operational condition exists.

A two-stage power-on switch prevents drill rotation unless the magnet has first been engaged and, in the case of a power

CONNECTORS

HAN EX HANDLES DANGEROUS ENVIRONMENTS

HARTING's explosion proof Han Ex connectors come with a series of five size 3A sets, each comprised of a hood, housing and high pin count insert.

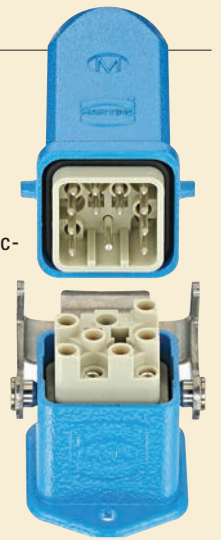
Applications include installations where gases, liquid and solids are present such as the chemical and mining, grains and sugars in the food sector, fermentation gases in waste management and thermal fuels in power generation, including biogas plants.

"Ex i" protection limits electrical circuitry for maximum voltage, current, capacity and inductance. It's rated to Zones 0, 1 and 2 for gas and Zones 20, 21 and 22 for dust.

They're available with 4, 7, 8 or 12 contacts, three variants with crimp termination and two with Han-Quick Lock terminations technology.

The HARTING Technology Group is a connector manufacturer based in Germany. It has a Canadian sales operation in Montreal.

www.harting.ca



4, 7, 8, or 12 contacts.

interruption, safety circuitry keeps the motor off after power is restored until the start button is manually depressed.

Hougen is a manufacturer of magnetic and hydraulic drills based in Schwartz Creek, Mich.

www.hougen.com

DRILLS

CARBIDE DRILLS HANDLE MOST MATERIALS

Dormer Pramet's solid carbide machinery drill handles a variety of materials including steel, stainless steel, cast iron, copper and aluminium.

A continuously thinned web (CTW) geometry increases flute volume and cross sectional strength. A special outer corner design provides added protection against wear and chipping especially under extreme conditions such as cross drilling.

A 140-degree point angle makes centring easy and reduces thrust requirements.

The R459 with its titanium aluminium nitride (TiAlN) coating also incorporates a consistent edge preparation that protects against premature chipping and



Efficient swarf removal.

flaking. Internal holes cool the cutting area as swarf removal minimizes machine downtime.

Diameters of 3 to 16 mm include a 0.1 mm increments up to 10 mm.

Dormer Pramet is a manufacturer of cutting and milling tools based in Šumperk, Czech Republic.

www.pramet.com

POWER SUPPLY



Over voltage protection.

MODULES DELIVER POWER EFFICIENCY

Polytron Devices' UI10 10 W, single and dual output AC-DC power supply modules deliver 75% efficiency in industrial control machines, amplifiers, ultrasonic welders, meter control boards and power equipment.

The universal devices, housed in 2.5- x 1.75- x 0.75-in. encapsulated plastic cases, provide short circuit, overload and over voltage protection for automatic recovery. An internal input filter minimizes electromagnetic interference.

They're ROHS compliant and have UL and CE Certifications.

Polytron Devices Inc. is a manufacturer of power conversion products based in Paterson, NJ.

www.polytrondevices.com

CABLES

SERVO CABLES SUPPORT HIPERFACE

The Lapp Group's OLFLEX SERVO FD 7DSL hybrid servo cables meet the requirements of the emerging HIPERFACE DSL control architecture. It has a polyurethane jacket for use in cable tracks while the 7DSL is PVC jacketed for fixed installations.

Both products meet HIPERFACE DSL standards and have UL AWM approvals.

The cables have a polypropylene insulation, which delivers better electrical properties than PVC. It's thinner, reducing cable diameter by 20%.

HIPERFACE uses a single hybrid servo cable for both power and signal. The cable contains a shared signal pair for the motor feedback and temperature signals, which are modulated for transmission. Both servo cables are resistant to temperature extremes, oil and flame, and the FD model also resists UV light and has a tight bend radii that facilitates smaller, more economical cable tracks.

UL AWM approved.

Lapp is a manufacturer of cables and connectors based in Stuttgart, Germany. Canadian operations are in Mississauga, Ont.

www.lappgroup.com



CONTROLLERS



16-out I/O system.

IRC5C SIMPLIFIES MACHINE CONTROL

ABB Robotics IRC5C compact controller is 25% smaller at 310 x 449 x 442 mm than the company's compact model and 87% smaller than the standard cabinet controller, but is equipped with most of the functionality found in its larger counterpart.

It's also equipped with a clean operator panel and improved cable connections for easier access and use. There are external connectors for all signals and a built-in, expandable 16-in, 16-out I/O system.

The IRC5C retains the motion control of the IRC5, and features TrueMove and QuickMove functions for improved accuracy, speed, cycle-time, programmability and synchronization with external devices.

The controller also integrates with additional hardware and sensors, such as ABB's Integrated Vision.

ABB, based in Auburn Hills, Mich., is a manufacturer of power and automation technologies.

www.abb.com

HOSES



4- and 5.5-mm versions.

HOSES SAFELY CONVEY DIESEL EXHAUST FLUIDS

Parker Hannifin's electrically-heated SCR Hose assemblies are available in 4 and 5.5 mm versions for heating and conveying diesel exhaust fluid throughout a commercial vehicle's SCR system.

Certified to IP6X, IPX8 and IPX9K, the company says the hoses have a thaw profile that performs better than traditional coolant-heated versions by better protecting the heating elements with an extruded sheath.

The hoses, manufactured for 12- or 24-V systems, have overmoulded fittings for impact and water resistance, making them suitable for harsh environments. They're also rated to ISO 14001 and TS 16959.

There are multiple options for fittings, electrical connectors, and overall lengths. Standard 6-mm Nylon lines are manufactured in a variety of lengths.

Parker Hannifin is a manufacturer of hoses and motion control technologies based in Ravenna, Ohio.

www.scrhose.com

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ENCODERS

IXARC PROVIDES PRECISE SHAFT REPORTS

POSITAL's IXARC encoders simplify machinery positioning tasks by combining incremental and absolute rotation measurement capabilities to provide precise angle and shaft reports at user-defined times.

The compact, IP67-rated magnetic encoders, which are shock, dust and moisture resistant, signal each time the shaft rotates by a specified angle.

Communications interfaces support RS 422, HTL or TTL for incremental readings and SSI for absolute measurements. Multi-turn versions count up to 64,000 revolutions, while incremental measurements have resolutions as high as 16,384 pulses per revolution.

POSITAL is a manufacturer of position sensors based in The Netherlands.

www.posital.com

SMARTGLANCE MAKES MOBILE REPORTING EASIER

Schneider Electric's Wonderware SmartGlance 2014 R2 mobile reporting software has been updated to make monitoring, visualizing and analyzing real-time plant and industrial process data via mobile devices easier.

Features include support for wearable technologies, a modern user interface for any browser, self-serve registration, support for multiple time zones for a global user base and full import and export capabilities for even faster deployment.



Supports wearable technologies.

MyAlerts, the software's newest mobile app feature, proactively notifies users of process events so they can stay current with real-time information based on configurable thresholds for tag reports.

The software is used with smart watches to alert mobile and remote field workers, plant supervisors and managers of critical production and process information in real-time.

Combined with Schneider Electric's cloud-hosted managed services, the software features an open interface to connect and push data to mobile devices from virtually any data source, including historians, manufacturing execution systems, enterprise manufacturing intelligence systems or any real-time system of record.

It also provides connectors for accessing data from any SQL database and any OPC-HDA-compatible system for better access to third-party data sources and systems.

Schneider Electric, with operations in Toronto, is a global specialist in energy management. www.schneider-electric.com/us

BACKUP SOFTWARE ELIMINATES CNC DOWNTIME

FANUC America Corp.'s iFASBacCNC eliminates extended downtime from the loss of critical files following a CNC hardware failure or operational mistake.

The network-based CNC software system automatically backs up files customized by the machine tool builder or end-user to a remote network server. The files include CNC parameters, PMC ladder and parameters, custom macros and variables, part programs, tool offsets and workpiece coordinate system offsets.

The front end interfaces with FANUC's FASConnect server for file browsing, scheduling and backup operations of FOCAS enabled FANUC CNCs. The system works with multiple FASConnect servers across an

Drag and drop navigation.



entire network to combine files from a single machine, work cell, factory or even multiple factories into a single configuration for backup scheduling.

Use it on any personal computer connected to a network in a factory, office or remote location.

Browse with drag and drop navigation. Individual files are uploaded manually or multiple files from multiple CNCs across the network can be included in a configuration. Multiple configurations are then combined into a single scheduled backup.

Scheduling allows automatic hourly, daily, weekly or monthly backup. Users may also execute schedules manually for immediate needs. E-mail notifications detail scheduled backup status.

FANUC Corp. is a manufacturer of factory automation technologies based in Mt. Fuji, Japan. It has North American operations in Rochester Hills, Mich.

www.fanucamerica.com

ATN CONVERTIBLE PROFILE TIMING BELT



DESIGN

BRECOflex, CO., L.L.C. has developed a patented timing belt system that allows the customer to rapidly and easily attach profiles or product nests of any material directly to the belt. Profiles may be installed, replaced or exchanged while the belt is installed. Additionally ATN technology offers a field connection option using simple hand tools. www.brecoflex.com

BRECOflex

FLIR TG165 IMAGING IR THERMOMETER



The FLIR TG165 Imaging IR Thermometer bridges the gap between single spot infrared thermometers and FLIR's legendary thermal cameras. Equipped with FLIR's exclusive Lepton micro thermal sensor, the TG165 lets you see the heat so you know where to reliably measure it. Easily find unseen hot and cold spots for instant troubleshooting. Store images and data to show customers and include in reports. www.flir.com/tg165

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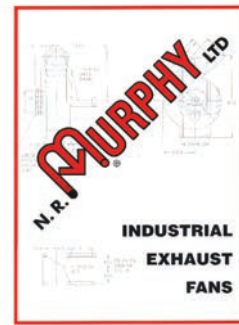
Vi-Cas Manufacturing's new 16-page, full colour brochure details the company's most popular vacuum cups. In addition to dimensional information (including lip diameter, height and mounting holes), the new literature shows photos of each cup to guarantee accuracy. Vacuum cups and accessories are used extensively in all types of packaging and labeling operations. www.vi-cas.com

Vi-Cas Manufacturing

Index of Advertisers

Advertiser	Page #
ASCO Valve Ltd.....	8
Automation Direct.....	OBC
CPS – Canadian Portable Structures.....	26
CRC Canada Co.....	24
Canon ATX Show	IBC
Carr Lane Roemheld Mfg.....	23
EMC	6
Exair.....	7
Frasers.com	28
Flir Systems	IFC
IGUS Inc.....	23
SEW-Eurodrive	27
SME WMTS.....	20
SME CMTS.....	30
SSI Schaefer System International Inc.....	25
Scott's Directory	29
Syspro	13
Vi-Cas	26

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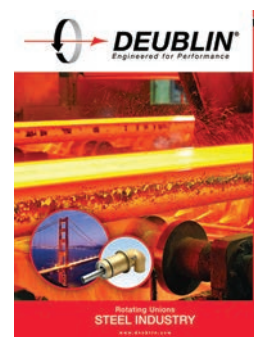
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STEEL MANUFACTURING ROTATING UNION CATALOG AVAILABLE



A new catalogue of rotating unions for steel manufacturing applications is now available from Deublin Company, in both print and electronic versions (see below). The catalogue provides detailed operating information and specifications for several model numbers and sizes,

along with installation instructions. www.deublin.com/product-support/request-a-catalog/
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Manufacturing and the Millennials

BY MATT POWELL, ASSOCIATE EDITOR

Hey Boomers, forget everything you've been told (or assumed) about the Millennials. It's all myth. Canada's next generation of workers is a lot like you. But as the current regime, you'll need a better understanding of what makes them tick if they're to be enticed into the world of manufacturing.

Here are some typical misconceptions about Millennials (18 to 32): they're spoiled, entitled, lazy day dreamers who

“The reality is, they're going to make up the largest proportion of the workforce (75%) by 2025...”

spend most of their days gazing at a cell phone or tablet navigating Twitter or Instagram feeds; and they lack the work ethic and discipline needed to succeed.

In fact, the most educated generation will be the first that doesn't have to adapt to online technologies (because they played a role in building them), and research shows that these young workers are a key resource for your companies. They are, after all, going to make up

the largest proportion of the workforce (75%) by 2025.

A Pew Research study published in January finds that, like your generation, they don't want to change jobs all the time. In fact, they value job security more than you Boomers.

Here are some other statistics: 50% say having a job you enjoy is incredibly important, compared to 38% of Boomers. High paying positions are low on list of

work priorities. Development and work/life balance are more important. And (believe it or not) they don't all want to be the next Mark Zuckerberg (creator of Facebook). They are more educated (27% of woman have a degree, 21% of men) than the Boomers (14% of women have a degree, 17% of men), but haven't found work as quickly. They're connected by social media, saddled by debt, and in no rush to marry. Most importantly, though, they're optimistic about the future.

Meanwhile, Boomers are retiring, and they'll be creating a lot of job vacancies for several years as manufacturers struggle to find people with the right skills.

Peruse **PLANT's** *Manufacturers' Outlook 2015* survey and you'll find 50% of respondents say finding skilled workers will be their biggest challenge over the next three years; while 49% identify this issue as their biggest constraint to growth. Fifty-eight per cent of them are handling the problem with internal training, but only 28% are partnering with post-secondary institutions. As for training, only 21% have turned to social media or webinars and only 20% work with local post-secondary institutions.

Boomers – your generation gap is showing. To attract more Millennials you need to gear your hiring practices and train with them in mind. That means embracing their interest in the online world and investing in higher-tech tools.

New regime

Millennials are certainly aware of and interested in manufacturing. A recent Intuit survey found many agree that it's key to good jobs and economic growth. More than 90% of respondents said so, agreeing with Boomers who weighed in at 95%.

The industrial world is changing. It's moving towards more high-tech activity and value-added manufacturing that requires an educated and skilled workforce. Take Ontario's technology sector: you'll find young up-and-comers plying the drone and robotics fields and the energy sector is nicely aligned with the Millennial value system, which favours renewable energy and green technology development.

But there's work to be done. The Intuit survey shows among those with high school or less, 47% consider the manufacturing sector to be very important to providing good jobs. This percentage decreases as the level of education increases – 38% with a college diploma or some university and 29% with a university degree believe the sector is key to providing good employment.

Boomers, look past the myths and relate to Millennials in ways that will engage them. They are the business leaders of tomorrow and manufacturing's future depends on them.

Comments? E-mail mpowell@plant.ca.

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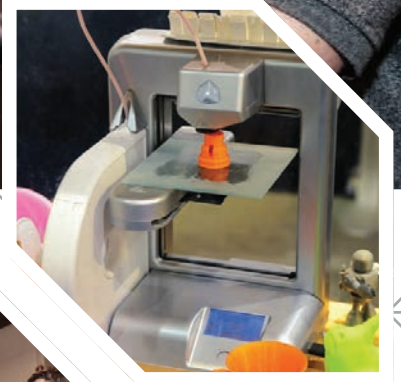


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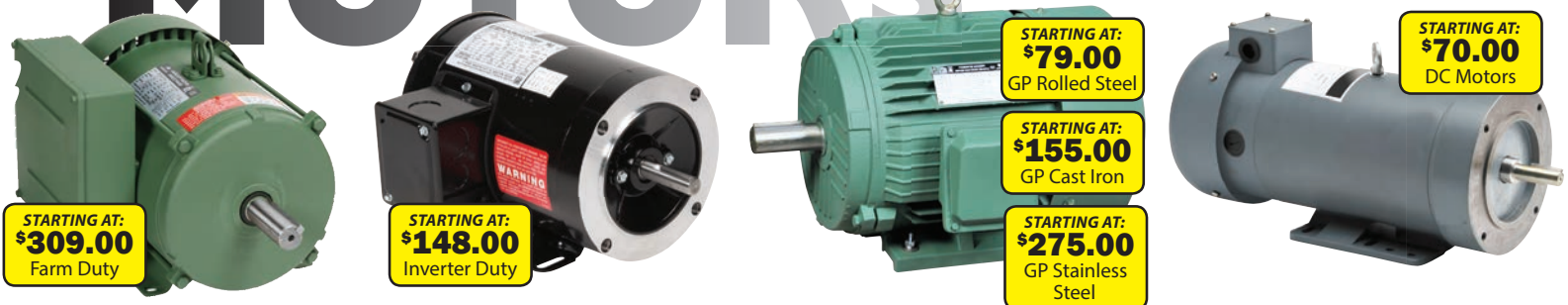
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