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PLANT

ADVANCING CANADIAN MANUFACTURING

Volume 72, No. 04 May/June 2013

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CIEN

CANADIAN INDUSTRIAL EQUIPMENT NEWS

HIGHLIGHTS

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Make skills a local issue

We all know a mismatch of people, skills and jobs impairs Canada's productivity and our ability to compete in domestic and global markets, but hey, good news...All you manufacturers who complain there aren't enough people with the right skills will be happy to learn it's all in your imagination.

Human Resources and Skills Development Canada compared 6.5 million job openings expected with skilled workers coming from schools, colleges, universities and immigrants, and it declares there's no shortage today, nor will there be one in the next 10 years, despite the aging workforce and those retiring boomers we've been hearing so much about.

Of course, these results may be a bit too macro for manufacturers who suggest their experience in the real world is otherwise, according to plenty of other reports:

- Last year the Conference Board of Canada forecast a shortage of one million workers by 2020 thanks to the waves of boomers who will be retiring.
- As of today, the Canadian Federation of Independent Business observes there are 300,000 unfilled jobs across Canada, 32,900 of them in manufacturing, with the highest vacancy rates occurring in firms with fewer than 19 employees.
- The 2013 EMC/**PLANT** salary survey notes 69% of manufacturers cited skills shortages as their chief worry over the next five years and it's a perennial theme in the yearly **PLANT** business outlook survey.
- Recruitment specialist Hays Canada notes 54% of oil and gas employers cite skills shortages as a significant issue, while Randstadt Canada reports an abundance of engineers who are out of balance with available jobs because of market locations, a shortage of those with 10 years or more of specialized experience, and a lack of practical skills among the young.

On that last point, a humorous aside: a Northern Ontario manufacturer desperate to fill five positions, as retold by an industry insider, called a young guy in for a 9 a.m. interview the next day. "Great," says the kid. "Can you make it 10 a.m.? I don't get up 'til 9:30."

As our job candidate works on his interview skills for next time, immigration and temporary foreign worker programs will help some companies, while schools, business and government are attempting with some difficulty to align their efforts to ensure there are enough of the right people for available jobs, but manufacturers need to take more direct, local action.

Canadian Manufacturers & Exporters' 2012-13 management issues survey noted companies are reducing investment in training across all categories except language and lean, suggesting this is because of the expense, although they would feel much better about spending the money if there was government support through tax credits or direct funding.

Al Diggins, president and general manager of EMC, believes companies need to step up and spend more money on training, something he says many forward-thinking companies are getting back to.

Going with that idea, internal programs should utilize older workers to mentor the younger and less skilled. Help those with more general skills upgrade their credentials. Pay a decent wage with attractive benefits so they'll stick around.

Work closely with local schools to attract students to manufacturing as a career choice. Co-op programs and internships are cheap, but why not give kids a taste with a paying summer or part-time job? Diggins got his start in the manufacturing world working summers (in paper mills), as did many others among the boomer generation.

If you are experiencing difficulty filling jobs because of skills issues, training must part of your growth strategy. Take a longer view and spend the money.

Joe Terrett, Editor

Comments? E-mail jterrett@plant.ca.



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» Bulletins

TransCanada Corp. is selling a 45% interest in two US natural gas pipelines to its US subsidiary **TC PipeLines LP** for \$1.05 billion. Gas Transmission Northwest LLC transports natural gas from Western Canada to California, Nevada and the Pacific Northwest. Bison Pipeline LLC connects the US Rocky Mountain gas supply to downstream markets through the Northern Border pipeline system.

BioteQ Environmental Technologies Inc., a Vancouver-based wastewater treatment company, sold its share of a jointly owned mobile Sulf-IX pilot plant to partner Newalta for \$500,000. The pilot plant, built in 2012, provides on-site field testing for sulphate removal from industrial wastewater. Newalta, a Calgary-based environmental services company, will deploy the unit to assess opportunities to apply BioteQ's Sulf-IX technology in North America.

Bri-Chem Corp., an Edmonton-based manufacturer of oil and gas drilling fluids and steel pipe, is acquiring the assets and operations of an unnamed California speciality cement chemical blending company to expand its reach in North America. Financial details were not released.

Electrovaya, a Toronto-based advanced battery system developer and manufacturer, and its Miljøbil Grenland AS subsidiary in Norway have secured an order for a lithium ion battery system that will power the Hisarøy Electric Ferry. The ferry, powered by Electrovaya's Super-Polymer 2.0 battery system, will save up to 180,750 litres of fuel over its lifetime.

Norax Canada Inc. received \$50,000 in repayable funding from Canada Economic Development's Business and Regional Growth program to commercialize a materials heating innovation. The manufacturer of induction heating systems in Saint-Romuald, Que. will use the funds to promote a universal annealing system and meet with potential clients across North America.

CCL Industries Inc., a manufacturer of specialty packaging for consumer and healthcare products based in Toronto, has acquired **INT Autotechnik GmbH** for \$14 million. The Munich-based company is a producer of stainless steel and aluminum tread plates for automotive OEMs.

BDC expands CTA program in the US

Makes it easier for competitive companies to break into global markets

MONTREAL: The Canadian Technology Accelerator (CTA) program is expanding in the US to make it easier for innovative Canadian tech firms to break into more global markets.

The partnership between BDC Venture Capital has announced a strategic partnership with the Department of Foreign Affairs and International Trade (DFAIT) will further develop new accelerators in Boston, New York City, San Francisco and Philadelphia.

Some of the most promising Canadian companies involved in IT, life sciences, gaming, clean tech and healthcare will have better access to new clients and investors in the US and abroad, says Jean-René Halde, president of BDC. "The intent is that this translates into greater and faster growth of new



Going global with Canadian technology.

PHOTO: THINKSTOCK

Canadian companies that are more competitive and improve long-term economic prospects for the whole country."

DFAIT's CTAs in the US host selected Canadian technology

SMEs for several months, providing free office space, mentoring and networking opportunities, plus introductions to key players in the local business and tech communities.

\$8M to cut cement plant GHGs

BATH, Ont.: Lafarge Canada Inc. and partners are investing \$8 million in a project that will use local surplus materials to power the company's cement plant in Bath, Ont.

Natural Resources Canada (NRC), the Queen's Institute for Energy and Environmental Policy and Carbon Management Canada (CMC) have joined forces to develop ways of powering the Bath cement plant using wood-based supplies such as construction and demolition site debris, railway ties and other materials that aren't currently recycled. CMC is funding low carbon fuel research with a \$400,000 grant over three years.

NRC is investing \$2.68 million to construct the full-scale demonstration plant.

Plasma purification efforts expanded

Focus is on emerging Asian markets

LAVAL, Que.: ProMetic Life Sciences Inc. has expanded its strategic collaboration with Sartorius Stedim Biotech (SSB) to include a contribution of equipment to ProMetic's plasma purification facility, plus an agreement for the co-commercialization of its Plasma Protein Purification System (PPPS) globally.

SSB, a French supplier of equipment to the biopharmaceutical market, will provide filtration equipment and other consumables that will be integrated in ProMetic's plasma purification plant, which is to be operational in the fourth quarter.

Financial details of SSB's contribution were not released, but ProMetic, a biopharmaceutical company based in Laval, Que., said it represents a significant investment over the next three years as plasma derived products manufactured in the GMP facility undergo regulatory approval.

The agreement also confirms SSB as a preferred supplier of filtration equipment and consumables for ProMetic's PPPS licensees.

ProMetic's PPPS system employs powerful affinity separation materials in a multi-step process to extract and purify proteins at high yields.

ProMetic and SSB will also expand their co-commercialization efforts of the PPPS tech-

nology to include respective technological and engineering solution transfers. Expanded global co-commercialization efforts are expected to accelerate penetration of a plasma purification turnkey process in Asia and other emerging markets.

ProMetic's said its plasma purification facility in Laval, created for the development and manufacturing of high-value plasma-derived therapeutics, will become a technological showroom for the PPPS technology.

New patent for metal-polymer hybrid

TORONTO: Integran Technologies Inc. has expanded its structural metal plating-on-polymer portfolio (Nanovate NP) with a patent for lightweight metal-coated polymer articles with "superior" thermal cycling performance.

The Toronto-based developer of advanced metallurgical nanotechnologies notes differences in thermal expansion have limited the operating temperature range of hybrids of metals and polymers. By developing processes that achieve previously unattainable levels of metal-to-polymer adhesion, Integran says it has extended the structural applicability of its metal-polymer hybrids to much greater temperature extremes.

The processes apply to carbon/glass fibre reinforced polyamides, polyether-imides, polyamide-imides, polyimides and polyether-ether ketones.

Integran's president and CEO Gino Palumbo described this development as being "particularly relevant" to space, aerospace and defense applications, and other industrial, biomedical and consumer products.

GM's new cargo van is a Nissan

Chevrolet City Express is based on the NV200

DETROIT: General Motors and Nissan have signed an agreement for Nissan to produce a Chevrolet-branded small cargo vehicle for the US and Canada.

The Chevrolet City Express, based on the Nissan NV200, is to be available for sale in the fall of 2014, in response to requests from fleet customers who want something in the commercial small van segment.

Nissan currently sells its version of the vehicle in several markets globally, including the US and Canada.

The NV200 is a winner of the International Van of the Year Award. Cost of ownership is among the lowest in the class thanks to low running costs, the high-



Interior view of the 2015 Chevrolet City Express.

PHOTO: GM

efficiency of the engines and drivetrains, and a safety structure that minimizes crash damage.

ATCO awarded \$100M contract

357 modular units ordered for Wheatstone LNG project

CALGARY: The ATCO Group of Companies will manufacture and install 357 modular units for the Chevron-operated Wheatstone Project in Western Australia.

The Calgary-based manufacturer of modular buildings says its ATCO Structures & Logistics Pty. division in Australia started the design phase in April for the more than \$100 million subcontract awarded by Bechtel.

ATCO expects the subcontract to create 137 new jobs, including 42 manufacturing jobs in Perth and Brisbane and 95 jobs based on site at Ashburton North, in Western Australia.

The modular units will form a variety of office complexes and free standing buildings on site including training centres, IT buildings, guard-houses and medical centres.

The units will be built at ATCO's manufacturing facilities in Brisbane and Perth.

The 150,000 square-foot Perth facility, operational in September, will supply about 60% of the required units.

Manufacturing is to warp up by the second



Workforce housing on Curtis Island, Australia.

PHOTO: ATCO

quarter of 2014.

The Chevron-operated Wheatstone Project consists of two LNG trains with a combined capacity of 8.9 million tonnes per annum and a domestic gas plant.

It's a joint venture between Australian subsidiaries of Chevron, Apache Corp., Kuwait Foreign Petroleum Exploration Company, Shell and Kyushu Electric Power Co., with PE Wheatstone Pty Ltd (part owned by TEPCO).

Process plant kiln gets CSA approval

TORONTO: Canada Lithium Corp. has received approval from the Canadian Standards Association (CSA) to operate its process plant kiln.

The company says it will now commence the commissioning process for various hydrometallurgical circuits within the plant that, due to their integration into the kiln circuit, could not be pre-commissioned. These include the kiln input conveyor, kiln filters and baghouse installations, kiln bed, kiln discharge conveyor, lithium sulphate circuit, CO₂ supply system, lime addition circuit and reverse osmosis water systems, plus various process control systems.

The heating of the kiln to operational temperatures of about 1,000 degrees C will require several days.

Circuits operated intermittently with limited lithium sulphate feedstock during the CSA inspection process, such as the sodium carbonate circuits and the various stages of precipitation, leaching, filtration and packaging will be sequentially integrated into the newly commissioned circuits.

With the CSA kiln approval in place, Canada lithium anticipates the first lithium carbonate shipments by June.

\$3M to develop thermal tech

MAUMEE, Ohio: Dana Holding Corp. has received two grants totaling \$3 million from Natural Resources Canada (NRCan) to develop technology to improve thermal management systems for batteries in electric, plug-in hybrid-electric, and hybrid-electric vehicles.

The first project aims to advance the development of aluminum heat exchangers, which are used to thermally manage electric-vehicle battery systems. The grant focuses on improving fluxless aluminum brazing materials and process technology for manufacturing to increase process speeds, enhance cleanliness during production, and reduce overall cost.

The second project involves improving battery system performance in low temperatures by developing and integrating thick-film electric surface heaters directly into the cooling heat exchanger.

Dana will collaborate with Mississauga, Ont.-based Datec Coatings on this project.

Dana, a supplier of driveline, sealing, and thermal-management technologies based in Maumee, Ohio, employs more than 630 people at five locations across Ontario.

The work for these projects will be completed at Dana's technology centre in Oakville, Ont.

Both projects are part of NRCan's ecoENERGY Innovation Initiative (ecoEII).

D-Wave Two selected for AI initiative

BURNABY, BC: D-Wave Systems Inc. is installing its new 512-qubit quantum computer at the Quantum Artificial Intelligence Lab, a collaboration among NASA, Google and the Universities Space Research Association (USRA).

The D-Wave Two, created by the Burnaby, BC-based computer science firm, will be used to advance machine learning and solve challenging computer science problems.

Installation has begun at NASA's Ames Research Center in Moffett Field, Calif., and the system is to be functional during the third quarter of the year.

Researchers at Google, NASA and USRA will use the system to develop applications for a broad range of complex problems such as machine learning, web search, speech recognition, planning and scheduling, search for exoplanets, and support operations in mission control centres.

The system will also be available to the broader US academic community through USRA.

No financial details were released.

» Feedback

CHALLENGING MACHINERY LEGISLATION

I just read the article about altering machinery (April 2013 issue of **PLANT**, *Altering machinery? You'll need an engineer's OK after Sept. 1*). What cerebrally challenged politician came up with that new legislation?

I have been involved in manufacturing for 40 years and if I think of the number of times that I or one of my esteemed colleagues made an alteration to a piece of equipment that actually contributed something to productivity and competitiveness, it scares me to think that those changes would be killed by bureaucrats!

Actually it sounds eerily like the system I grew up in that is no more... communism. Only politicians controlled manufacturing, driven by five, 10, and 25-year plans.

If you wanted to build a chicken coup and needed some nails, you wouldn't easily find any. The iron was used in the manufacturing of millions of tons of eight-inch rail spikes, stored out of sight in central Siberia, because "The Plan" performance was measured in tonnage and not by product that was actually needed.

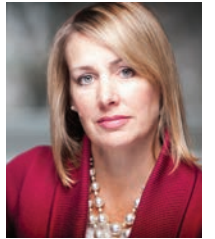
Please put a stop to this before it comes to the rest of Canada.

Henry Friesen
Abbotsford, BC

We'd like to hear from you. Send letters to jterrett@plant.ca with your name, address and phone number. Letters will be edited.

» Careers

Engineer **Annette Bergeron** is the 94th president of Professional Engineers Ontario (PEO), the province's licensing and regulating body. She has worked as a production engineer at Dofasco Inc.; a lecturer at Queen's faculty of applied science and engineering and Queen's school of business; and director, first-year studies, Queen's engineering. Most recently, she was general manager at Queen's Alma Mater Society Inc.



Annette Bergeron

Schneider Electric Canada has appointed **Linda Cleroux** CFO. She comes to the energy management company based in Mississauga, Ont. from Newalta, a Calgary-based waste management and environmental services company. She'll be responsible for financial planning, forecasting, investment analysis, performance advisement, operational excellence and risk management.



Linda Cleroux

Dave Johnson has joined Arctic Glacier Holdings Inc., a Winnipeg-based manufacturer of packaged ice, as vice-president of sales. Previously he was senior vice-president of business development at Crossmark Canada, a sales and marketing company based in Mississauga, Ont.

Myong-Jun Park is the new chief executive of DSTN, a manufacturer of wind farm parts and a Daewoo subsidiary in which the Nova Scotia government has a stake. Park has been with Daewoo for more than 30 years and has worked in a variety of industrial sectors including shipbuilding.

Chantier Davie Canada Inc. has added **Jared Newcombe** to its management team as senior executive vice-president. He was most recently project manager of Halifax shipyard's current newbuild contract with the federal government. **Andrzej Marasinski** joins the Quebec shipbuilder as vice-president of federal government projects. He comes to Davie from Lockheed Martin in Montreal.

CEO **Kevin Clarke** is stepping down from Catalyst Paper Corp., a pulp and paper company based in Richmond, BC. His departure follows completion of the company's court-supervised restructuring. Catalyst Paper owns three mills in BC and manufactures printing papers, newsprint and pulp.

20-20 Technologies Inc., a developer of 3D interior design and furniture manufacturing software in Laval, Que., has appointed **Ken Short** vice-president, strategy and portfolio management. He'll head a newly created division responsible for 20-20's lines of business. Short comes from Abaqus Inc., a global supplier of advanced engineering analysis software.

\$1.38M for water treatment in Peru

OTTAWA: BluMetric Environmental Inc. has been awarded a US\$1.38 million contract to supply a reverse osmosis treatment system to large diversified industrial chemicals producer in Peru.

The Ottawa-based environmental services company said its system will provide up to 3 million litres of high-quality process water per day to a new chemicals facility.

BluMetric operates through two divisions: professional environmental services under the names WESA, Envir-Eau, and OEL-HydroSys; and water, under WESAtech and Seprotech.

SMEs get hot line to regulators

Online feedback form will get answers in 15 days

OTTAWA: Ontario companies with questions about regulations, red tape and paperwork that affect their businesses can go to a “hotline” for answers that are to come within 15 days.

The online feedback form, developed by the Canadian Federation of Independent Business (CFIB) and the Ministry of Economic Development, Trade and Employment, is now available at www.ontario-canada.com/registry/contact_us.do.

“This online tool will give small business a dedicated hot line to speak directly to government about specific examples of red tape that are making it difficult for them to run their business,” said CFIB’s

Ontario director Plamen Petkov.

Government ministries have 15 business days to respond to business owners in writing.

The feedback form is one of five measures developed jointly by CFIB and the ministry. Other measures include:

- Reducing the amount of paperwork imposed on small businesses. Ontario’s workers’ compensation board has nearly completed this process.



Red tape driving you crazy? Ontario has a hotline. PHOTO: THINKTOCK, CREATAS IMAGES

- Streamlining the government procurement process to give small businesses a fair chance to compete for government contracts.
 - Improving the current system of measuring and publicly reporting the regulatory burden; and
 - Regularly reviewing specific requirements that are imposed by government.
- The Toronto and Ottawa-based CFIB represents small and medium-sized businesses across Canada.



“Spray technology can save me \$200,000 a year? No way.”

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» Events

2013 MRO Spare Parts Solutions Expo SBL Group

July 16-17, Louisville, Ky.

A network for addressing MRO spare parts, supplies and services issues. E-mail chuckwatson@thesblgroup.com. Visit <http://thesblgroup.com>.

23rd World Mining Congress Canadian Institute of Mining, Metallurgy and Petroleum

Aug. 11-15, Montreal

Held in conjunction with ISARC 2013 hosted by the International Association for Automation and Robotics in Construction (IAARC). WMC’s theme is *Mapping the Future: Advances in Mining Engineering*, featuring leading edge, peer-reviewed papers and high-level knowledge sharing. Visit www.wmc-expo2013.org.

NDT in Canada 2013 CINDE/CANSMART/IZFP

Oct. 7-10, Calgary

Presented by the Canadian Institute for NDE (CINDE), The Cansmart Group (CANSMART), and the Fraunhofer Institute for Nondestructive Testing (IZFP). Latest developments in NDT, smart materials and structural health monitoring will be discussed with a special emphasis on the energy industry. Visit <http://events.cinde.ca>.

PTDA Industry Summit PTDA

Oct. 18-20, Dallas

Power Transmission Distributors Association (PTDA) hosts a networking event with educational sessions on economic trends and market opportunities. Visit www.ptda.org/IndustrySummit.

AME Toronto 2013 AME

Oct. 21-25, Toronto

Association for Manufacturing Excellence (AME) presents the *Breakthrough to Your Leading Edge* lean conference. Four of the world’s leading lean thought leaders are featured: Jim Womack, Dan Jones, John Shook and Mike Rother, plus best practices sessions and plant tours. Visit www.ameconference.org/2013-toronto.

For more events visit www.plant.ca.

The Secret To Keeping Electronics Cool!

NEMA 12 Cabinet Coolers

The NEMA 12 Cabinet Coolers for large heat loads up to 5,600 Btu/hr. are ideal for PLCs, line control cabinets, CCTV cameras, modular control centers, etc.

- Measures 8" (203mm) high
- Mounts top, side or bottom
- Enclosure remains dust-tight and oil-tight

NEMA 4 and 4X Cabinet Coolers

NEMA 4 and 4X Cabinet Coolers for large heat loads up to 5,600 Btu/hr. They are ideal for PLCs and modular controls.

- Enclosure remains dust-tight, oil-tight and splash resistant
- Suitable for wet locations where coolant spray or hose down can occur

Type 316 Stainless Steel Cabinet Coolers

Type 316 Stainless Steel Cabinet Coolers for NEMA 4X applications are available for heat loads up to 5,600 Btu/hr.

- Resists harsh environments not suitable for Type 303/304
- Ideal for food and chemical processing, pharmaceutical, foundries, heat treating and other corrosive environments

Mini NEMA 12, 4, and 4X Cabinet Coolers

The mini NEMA 12, 4 and 4X Cabinet Coolers for small heat loads up to 550 Btu/hr. are ideal for control panels, relay boxes, laser housings, and electronic scales.

- Measures 5" (127mm) high
- Mounts top, side or bottom
- Enclosure remains dust-tight and oil-tight

High Temperature Cabinet Coolers

High Temperature Cabinet Coolers for NEMA 12, 4 and 4X applications are available for heat loads in many capacities up to 5,600 Btu/hr.

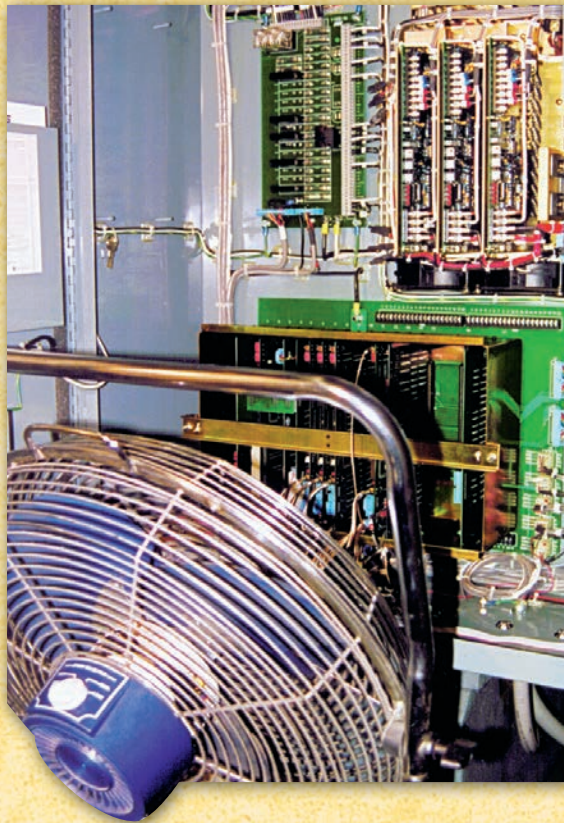
- Suitable for ambients up to 200°F (93°C)
- Ideal for mounting near ovens, furnaces, and other hot locations

Non-Hazardous Purge Cabinet Coolers

NHP Cabinet Coolers keep a slight positive pressure on the enclosure to keep dirt from entering through small holes or conduits. For use in non-hazardous locations.

- Uses only 1 SCFM in purge mode
- For heat loads up to 5,600 Btu/hr.
- NEMA 12, 4 and 4X

A bad choice could cost you thousands!



Look Familiar?

When hot weather causes the electronics inside a control cabinet to fail, there is a panic to get the machinery up and running again. The operator might choose to simply open the panel door and aim a fan at the circuit boards. In reality, the fan ends up blowing a lot of hot, humid, dirty air at the electronics and the cooling effect is minimal. If the machinery starts functioning again, the likelihood of repeated failure is great since the environment is still hot (and threatens permanent damage to the circuit boards). Worse yet, that open panel door is an OSHA violation that presents a shock hazard to personnel.

The Real Solution!

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Strong unions mean a prosperous Canada

BY KEN GEORGETTI

There's a clear connection between strong and effective labour unions, a healthy middle class and a prosperous Canada. In fact, both the International Monetary Fund and the Organization for Economic Co-operation and Development say that broadly based collective bargaining is the best way to build a healthy middle class in any country.

The Canadian Labour Congress released a research study in 2012

“Unionized workers are more likely to have access to workplace pension, drug and dental plans...”

showing that on average unionized workers earn \$5.11 an hour more than non-union workers. That extra money in the pockets of individual workers means the union advantage is worth a cumulative \$793 million per week that's added to our economy, and it represents a gain for local communities and small businesses as well. Decent wages and pensions mean prosperous communities because unionized workers spend

most or all of their pay cheques close to home.

The study, which highlighted 29 communities across Canada, showed that centres with more union members enjoy relatively higher incomes overall and support a richer mix of businesses and services – including such professionals as dentists, chiropractors, therapists, health specialists and family lawyers. Being in a union means better wages for

women, workers of colour, aboriginal people and people with disabilities. The study found, for example, that 53% of non-union women earn less than \$13.33 an hour. Among women who do belong to unions, just 6.4% earn less than \$13.33 per hour.

Unionized workers are more likely to have access to workplace pension, drug and dental plans. This means millions of children, who otherwise wouldn't, do have access to proper dental and vision care.

But it doesn't stop there. Historically, the labour movement has played a key role in winning pensions for workers, minimum wages, the 40-hour workweek, weekends off, safer workplaces and negotiated packages that include various health benefits. Many of these gains have benefited all Canadian workers.

Employees must be able to negotiate freely for wages that allow them to pay their mortgages and put their children through school. Most union negotiations end with a contract – not a strike or a lockout.

Everyone benefits

And free collective bargaining really does work for the common good. For generations, Canadians have endorsed the purpose and understood the value of free collective bargaining. To a great extent, their communities' destinies depend upon it. Polling tells us that most Canadians agree unions play a necessary role in society by advocating for measures such as better laws, safe workplaces, good health care and pensions that benefit everyone.

Unions and their members want a fair and prosperous Canada for everyone – not just the people at the top. That's why, for example, the CLC is working to convince governments to improve Canada Pension Plan benefits. We want to ensure all retired Canadians – whether or not they belong to a union – will receive a liveable \$24,000 a year from CPP. It can be done. When unions stand up for fairness, they raise the bar for everyone.

Behind every successful private business, entrepreneur or public service, there's a group of dedicated workers. Ensuring there's a healthy middle class means a prosperous Canada.

Visit <http://www.canadianlabour.ca/action-center/union-advantage> for a copy of *The Union Advantage in Canadian Communities*.

Ken Georgetti is president of the 3.3 million-member Canadian Labour Congress (CLC). He began his career at the Cominco lead and zinc smelter in trail, BC, went on to become president of his union local and later of the British Columbia Federation of Labour. Visit <http://canadianlabour.ca>.

Comments? E-mail jterrett@plant.ca.

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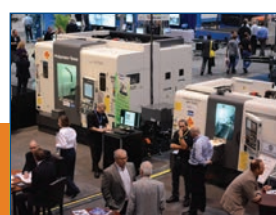
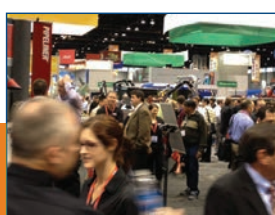
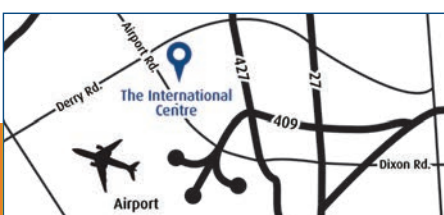
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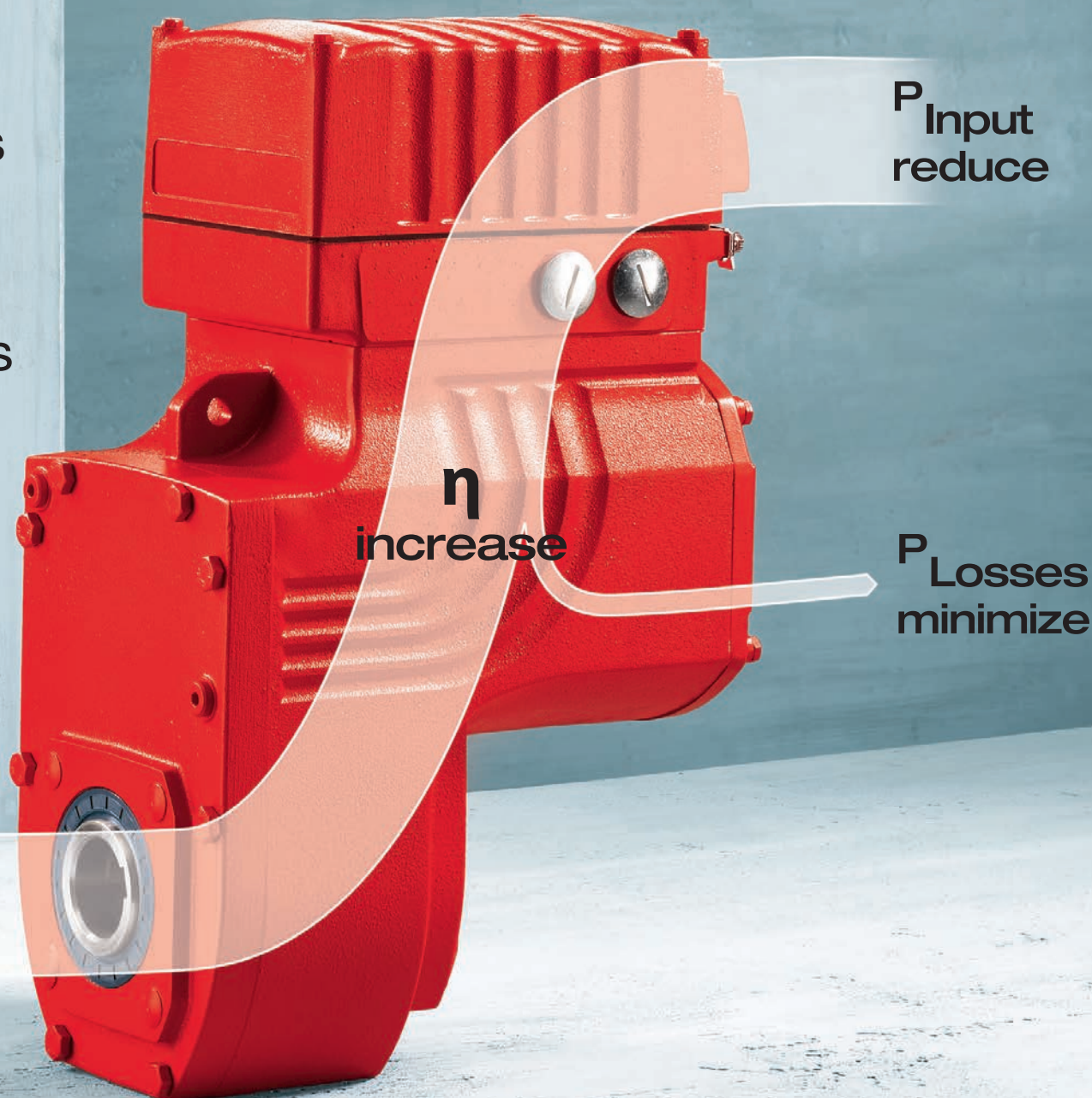


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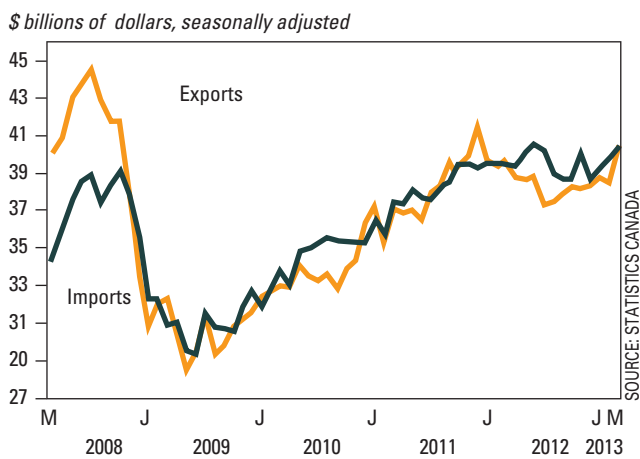
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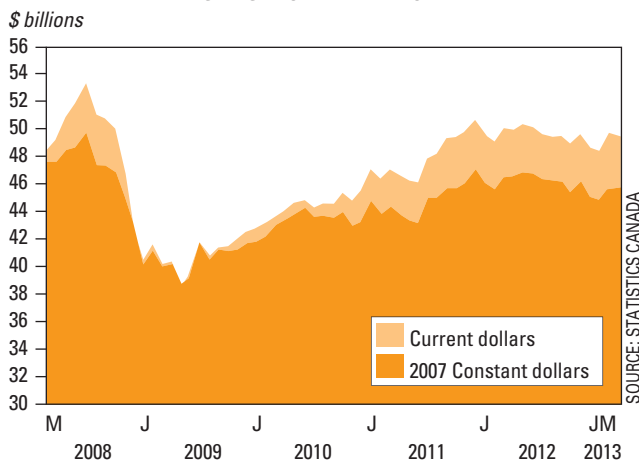
ECONOMIC DEVELOPMENTS AND TRENDS

MARCH TRADE BALANCE SHIFTS



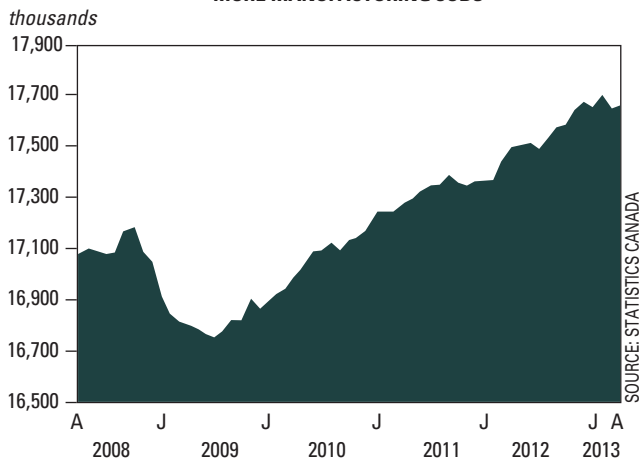
Merchandise exports increased 5.1% and imports by 1.7% in March, shifting Canada's trade balance from a deficit of \$1.2 billion in February to a surplus \$24 million. Food and beverages registered a record \$2 billion, up 14.4%. Aerospace rose 13.4% to \$1.5 billion.

SALES DECLINE IN MARCH



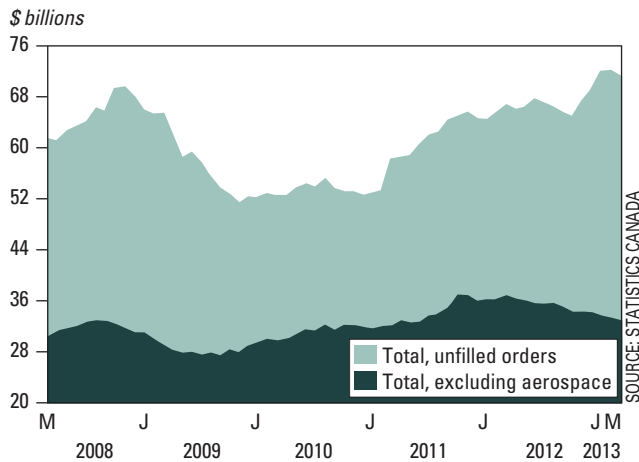
Manufacturing sales were down in 10 of 21 industries, for an overall decline of 0.3% to \$49.5 billion, reflecting lower sales in petroleum and coal products, and chemical manufacturing. Overall the decline represented approximately one-third of Canadian manufacturing.

MORE MANUFACTURING JOBS



The employment rate in April is unchanged from March at 7.2%. Manufacturing jobs rose by 21,000, the first monthly gain breaking a downward trend that began in June 2012. However, employment was still down 2.9% (52,000 jobs) from 12 months earlier.

DECREASE IN UNFILLED ORDERS



Unfilled orders were down 1.1% to \$71.1 billion in March, following four consecutive months of gains. Orders were slower in the aerospace and fabricated metal industries. New orders also declined, by 2.2% to \$48.7 billion, driven mostly by a slowdown in transportation equipment.

Real sales up 0.2% Choppy shipments pattern continues

Statistics Canada reports manufacturing sales were down 0.3% to \$49.5-billion in March following a 2.6% increase in February, the third decline in four months and the extension of a choppy pattern in shipments over the past year, according to a TD Economics bulletin.

In real terms (adjusted for inflation), the picture was much better, writes TD economist Dina Ignjatovic. Sales were up by 0.2%.

Lower sales of petroleum and coal products, down 2.6%, were responsible for much of the decline, pushed to their lowest level seen since mid-2012 by lower prices.

The chemical manufacturing industry was down 2%, while cooler weather weighed on fertilizer demand.

Higher sales were recorded in plastics and rubber products (3.7%), non-metallic minerals (2%) and motor vehicles (1.5%).

While the inventory-to-sales ratio was unchanged at 1.39, Ignjatovic notes forward-looking indicators were not very supportive. Statistics Canada cited unfilled orders were down 1.1%, while new orders declined 2.2%, driven mostly by the transportation sector.

Overall, sales declined in 10 of 21 industries, representing approximately one-third of manufacturing.

Ignjatovic says manufacturing will likely feel the effects of a continuing slowdown in US demand, but once economic growth picks up there and globally in the second half of the year, output should follow suit.

And some heartening news about the loonie: while still high relative to historical norms, Ignjatovic says it's likely to lose ground over the next 12 months, "which will certainly bode well for manufacturers as it helps to improve competitiveness."

INDUSTRY PROFITS EDGE UP IN APRIL

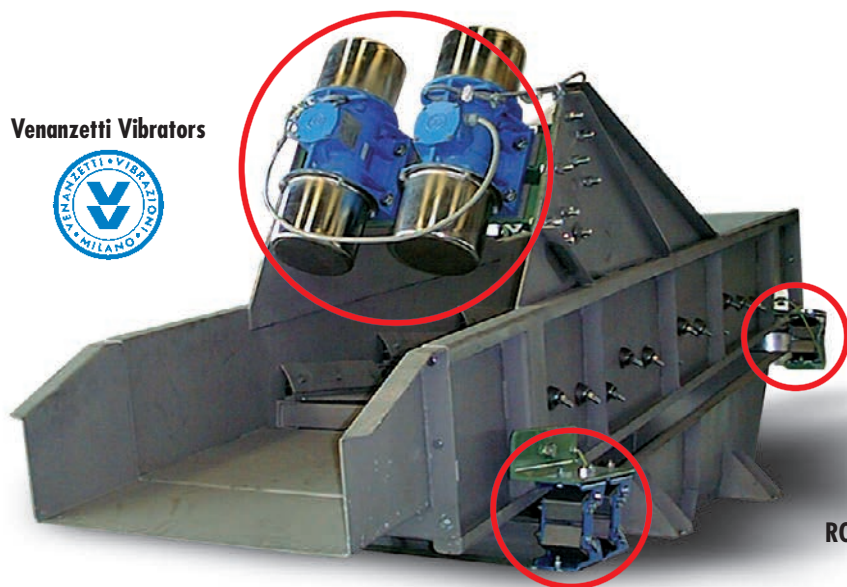
Profits were up in April thanks to strong showings in forestry products, oil and gas extraction, agriculture and retail services, according to the Conference Board of Canada's Leading Indicator of Industry Profitability Index.

The Ottawa-based research firm said the index advanced 0.2%, pointing to modest near-term corporate profit growth.

Of the 49 industries covered in the index, 25 recorded declines. The Conference Board says the overall corporate profitability index remains vulnerable to any unexpected shocks.

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WHAT YOU EXECUTIVES ARE UPBEAT,

The 2013 EMC-PLANT salary survey shows very modest gains in management remuneration.

BY JOE TERRETT, EDITOR

Conditions continue to be challenging for Canadian manufacturers... So what else is new? Most companies are adapting to a loonie that's hovering around parity with the US buck, and some markets are hopping. Indeed, it's a pretty good time to be in the North American automotive sector, aerospace is taking flight and despite prices that are lower than oil sands companies would like to see, energy development continues to drive business activity across Canada, while food and beverages always seems to do well because, hey – people have to eat.

Yes, the world economy is a little wobbly what with Europe seemingly imploding, China slowing down and trade with the US proceeding at a dawdle. Yet several business surveys from last fall through the first quarter of this year have shown Canadian manufacturing executives to be upbeat about their prospects, despite the gloomier reports they're reading in the mainstream media.

Upbeat as they may be, expectations for management-level pay have been dialled back for 2013, according to the results of the third national salary benchmark survey conducted by the Excellence in Manufacturing Consortium (EMC), a not-for-profit organization based in Owen Sound, Ont. that helps Ca-

nadian manufacturers become more competitive, and **PLANT** magazine, a Glacier Media Business Information Group publication.

Average executive remuneration in a sector dominated by small and medium-sized enterprises (SMEs) is to rise 1.2% after a more impressive 4.3% increase in 2012, but the surprising finding is the hit to the wallet some of the top people expect this year.

The survey gathered 2,138 responses from executives and managers who shared personal information about salaries and bonuses, and how their businesses are faring. The results indicate the manufacturers in this survey sample are also optimistic about business, and that's what Al Diggins, EMC's president and general manager, is seeing among the organization's membership.

"The state of manufacturing is good. There's a positive attitude. Businesses have survived two recessions and made a lot of changes along the way, diversifying and realigning. They're a lot stronger and many of them are crazy busy."

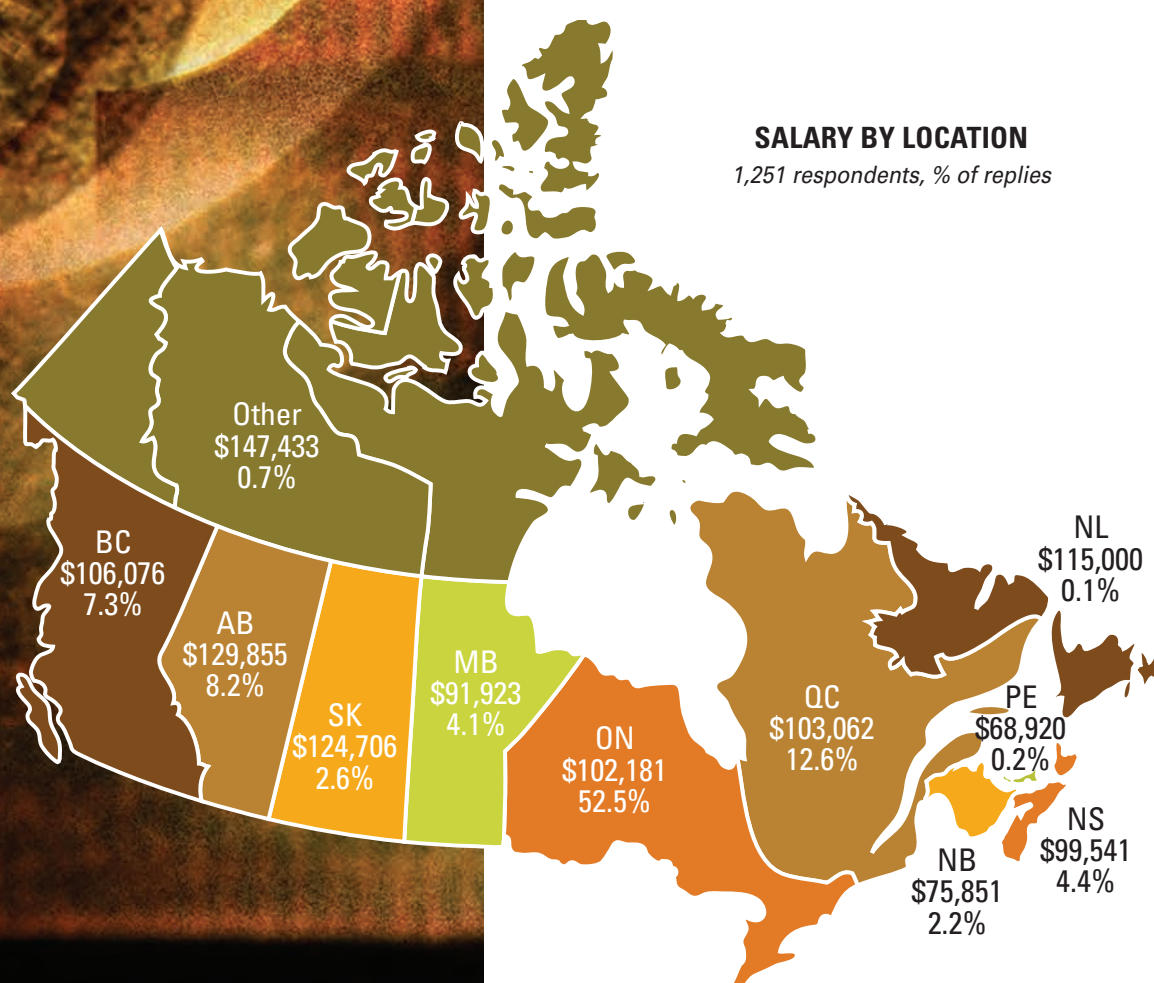
But that's not translating into big pay hikes for the top of the management hierarchy.

CEOs and presidents see themselves advancing by just 1.35% this year after a 3.3% advance from 2011 to 2012, although that's a little better than owners and partners, who expect a 0.92% increase compared to a 1.9% drop the previous year, when last year's sample predicted a 5.8% increase. They are just ahead of plant managers who are looking at a 0.9% raise this year, way down from 7.5% the previous year. But vice-presidents have fared the worst, averaging a 6.8% drop, following a whopping 17.5% increase in 2012.

So what happened? Economic growth ended up falling short of early expectations, checking in at 1.8%, after a 2.6% hike the year before. And according to economists from the Bank of Canada, chartered banks or the International Monetary Fund (IMF), Canada can look forward to a lukewarm GDP of between 1.5% to the most optimistic 1.9%.

Diggins suspects part of the answer lies within variable pay.

More than half (57.5%) of the respondents reported a portion of their pay made up of bonuses and incentives with those showing the highest percentage (20%



View low response rates (under 2%) with caution.

ARE WORTH

BUT WORKING HARD FOR THE MONEY

or more) averaging \$191,127. Almost half (47.3%) of the total respondent base report perks or extras, such as profit sharing (45%), a vehicle of some kind (29%), other entitlements (28%), club memberships (11%), stock options (12%) and access to private health care (10%).

“Some small companies didn’t have a great year so bonuses likely cut into salary increases,” he says.

On the other hand, some companies had a great year but Scott McNeil-Smith, EMC’s director of marketing and development, suggests investments in machinery and equipment may also have something to do with it. “It could be the numbers are coming in fast and they’re looking at new equipment; or maybe they’re plateauing so they’re looking at investing [to expand the business]. That directly impacts the bottom line.”

Salary levels are affected by a variety of other factors, including company revenue, years of experience, education, the kind of industries served and whether or not you are a man or a woman (only 18.3% are female – and this year’s sample reveals a 39.8% pay difference between the sexes).

The average salary for all executive and management titles is \$104,891, just under a 1.2% increase over 2012 when the inflation rate was 1.5% (as of March inflation was 1%). Statistics Canada pegs the average weekly wage for all manufacturing titles at \$1,040, or \$54,000 for the year, which is a 4.8% increase over 2011.

Predictably, the big money is still going to owners, senior executives and plant managers who tallied more than \$100,000 a year. CEOs and presidents are at the top of the salary hierarchy anticipating \$177,806 in 2013, followed by vice-presidents (\$167,244), owners/partners (\$133,017), directors (\$129,043) and plant managers (\$108,955).

Directors are looking at the biggest percentage increases in 2013 (3.7%), ahead of the overall averages (1.2%), which are nonetheless, higher than the 0.8% Statistics Canada reports unionized labour has earned as of April, year-to-date.

Engineers average \$93,356, technicians/technologists \$89,064, maintenance managers \$88,656, materials managers \$79,620 while many of the other categories, including administrative management, purchasing/supply management, quality managers, and safety managers, earn between \$72,300 and \$77,700. The “other” category covering various manager and supervisor-type roles not on the main list averaged \$91,236.

About 28% reported at least some of their compensation comes from overtime pay, which averages 5%.

Most (60%) report no change in employment status since the last survey while 22% note that they are working harder for the money. Although they hold the same job and salary, they’ve taken on more responsibility because of reduced staff. Most put work-life balance ahead of all other desired work conditions and 82% are satisfied with it (although they’re averaging 47 hours on the job).

But they’re also very happy with their jobs overall (89%), job security (86%), vacation time (84%), benefits (72%) and compensation (78%).

Company revenues have so far increased for 50% of them or stayed the same for 30% since last year.

Highest priorities

Most of the respondents (69%) have a management role only in their companies, while 11% have an ownership stake as partners or minority owners.

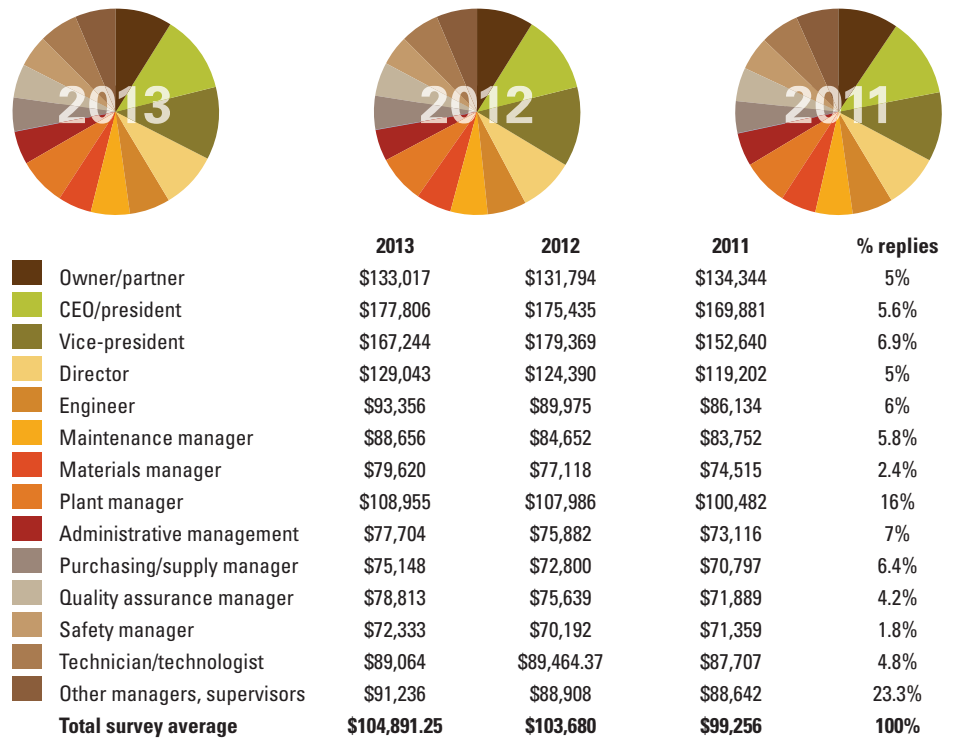
Their businesses cover a range of interests based on Statistics Canada categories from automotive to sophisticated electronics with 16% identifying their organizations as large (more than 500 employees) and the rest falling under the SME category, 69% of them at least partially unionized.

Thirty-nine per cent have a university degree, 48% have a college or trade/technical school diploma, 3% a CEGEP and 14% have a high school education or less. University grads score the highest wage rate at \$115,446, 12.5% ahead of the next-best paid trade/technical school grads at \$101,829.

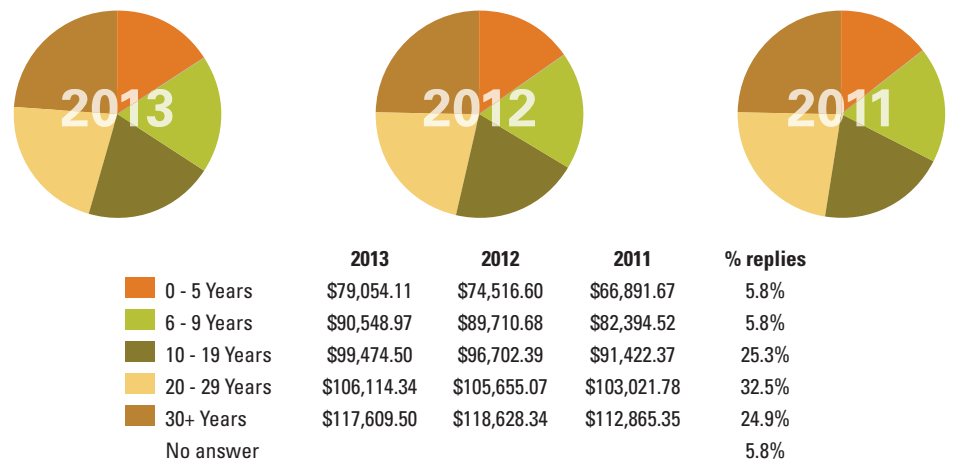
Sixty-nine per cent of the companies pay for educational courses, memberships in professional associations (51%) and professional certification programs (42%).

Like last year, investing in the business continues to be manufacturers’ highest priority over the next five years. Fifty-six per cent will put money into new production equipment and processes, 48% will hire new employees, 33% are adding lines of business, 26% intend to enter new geographic markets, and 25% are expanding their plants

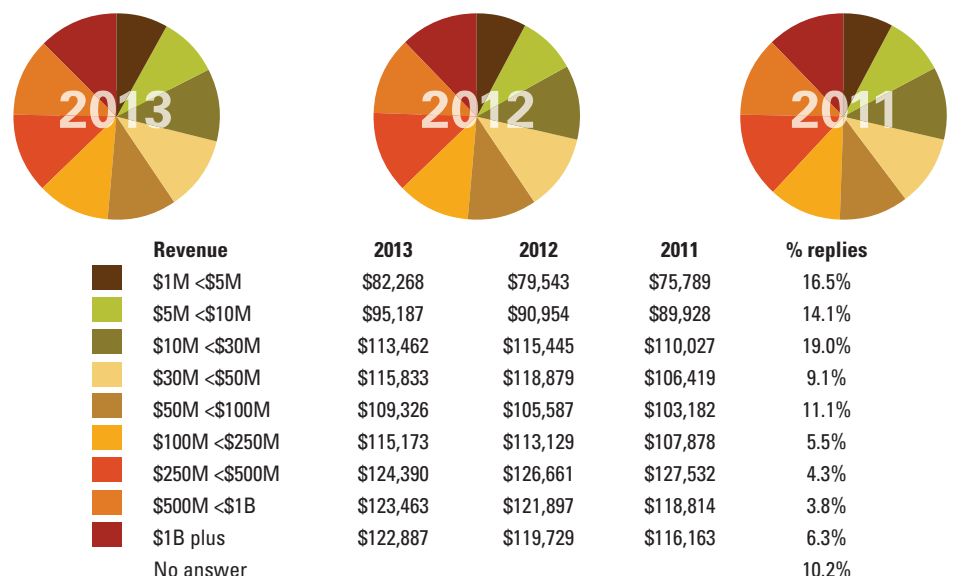
JOB TITLES
1,251 respondents



SALARY BY EXPERIENCE
1,251 respondents



SALARY BY COMPANY REVENUE
1,251 respondents



and expanding into new geographic markets.

Asked about what skills they needed most to do their jobs, 35% of senior executives and managers cited people skills, followed by industry specific technical (12%) and way down the list was a four-way tie at 8% for analysis, negotiation skills, project management and productivity/continuous improvement.

What additional training do they need? Most cited

financial (29%), technical skills (26%), productivity/continuous improvement (25%), industry-specific technical skills (24%) and people skills (23%).

Looking ahead the next year, the skills deficit is the most pressing issue facing 69% of the respondents, followed by cost control (56%), technology upgrades (27%), capacity utilization (26%) and reorganization (25%).

A shortage of skilled workers has been a consistent concern for manufacturers, although a report titled *Imbalances Between Labour Demand and Supply, 2011-2020* from Human Resources and Skills Development Canada suggests otherwise. It concludes there is no general labour shortage now, or will there be in the next 10 years despite an aging workforce.

Yet Canadian Manufacturers & Exporters surveyed its members, who revealed half were having trouble finding qualified workers, and they expect the problem will worsen in the next five years. And the problem is evident among EMC's members. Shortages and mismatches are across the board and across the country, more acute in some areas than others.

"Every region I was in last year, companies were looking for people with the right skills. In New Brunswick they were pulling welders out of college (which has shut down its program because there weren't enough students)," says McNeil-

BONUSES AND INCENTIVES
1,251 respondents

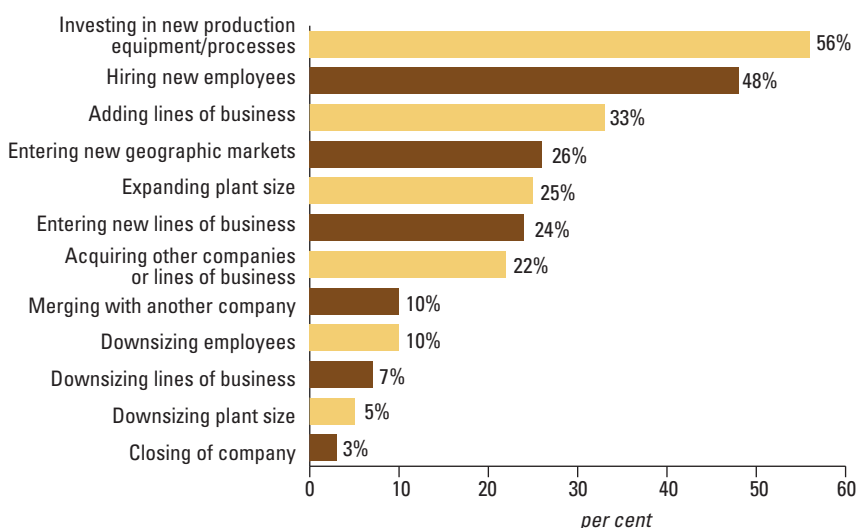
Average Salary	% salary	% replies
\$80,216	0	39.1%
\$80,014	1% - 3%	9.0%
\$87,746	4% - 5%	8.9%
\$106,073	6% - 10%	14.3%
\$116,516	11% - 15%	6.7%
\$141,272	16% - 20%	6.7%
\$191,127	20%+	11.9%
No answer		3.4%

INDUSTRIES SERVED BASED ON PRODUCTS
1,251 respondents

Industry	2013	2012	2011	% replies
Aerospace product and parts	\$107,481	\$103,067	\$96,105	1.8%
Beverage and tobacco product	\$95,422	\$126,867	\$87,387	1.8%
Chemical	\$118,622	\$117,012	\$111,972	3.2%
Clothing manufacturing	\$82,228	\$77,013	\$73,337	0.9%
Computer and electronic product	\$100,816	\$107,745	\$112,273	2.2%
Durable goods industries	\$125,928	\$121,285	\$118,857	0.6%
Electrical equipment, appliance and component	\$83,571	\$80,492	\$77,850	3.1%
Fabricated metal product	\$104,450	\$102,154	\$96,859	18.7%
Food manufacturing	\$100,014	\$95,217	\$91,179	8.1%
Furniture and related product	\$87,707	\$85,230	\$84,346	1.0%
Leather and allied product	\$48,866	\$46,866	\$46,533	0.2%
Machinery	\$109,752	\$106,675	\$100,012	4.6%
Miscellaneous manufacturing	\$95,116	\$93,435	\$91,431	3.6%
Motor vehicle	\$112,290	\$107,190	\$101,130	0.8%
Motor vehicle body and trailer	\$121,000	\$113,000	\$100,000	0.2%
Motor vehicle parts	\$95,951	\$93,237	\$92,990	3.0%
Non-durable goods industries	\$119,250	\$118,500	\$110,250	0.3%
Non-metallic mineral product	\$114,800	\$111,540	\$112,450	0.8%
Paper manufacturing	\$103,248	\$99,715	\$97,241	3.1%
Petroleum and coal product	\$118,966	\$113,972	\$104,377	1.4%
Plastics and rubber products	\$114,841	\$115,411	\$117,913	9.1%
Primary metal	\$127,915	\$125,184	\$122,207	2.8%
Printing and related support activities	\$88,308	\$87,354	\$85,301	3.6%
Railroad rolling stock	\$56,100	\$51,000	\$50,000	0.1%
Ship and boat building	\$70,000	\$70,000	\$76,666	0.2%
Textile mills	\$72,250	\$69,750	\$67,000	0.2%
Textile product mills	\$137,928	\$127,907	\$124,392	1.1%
Transportation equipment	\$134,893	\$119,313	\$141,246	1.2%
Wood product	\$103,359	\$106,816	\$99,792	4.5%
Other	\$103,652	\$104,355	\$96,064	12.9%
No answer				5%

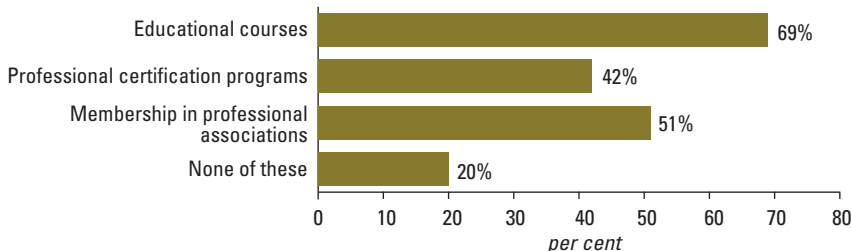
CHANGES IN NEXT 5 YEARS

1,850 respondents



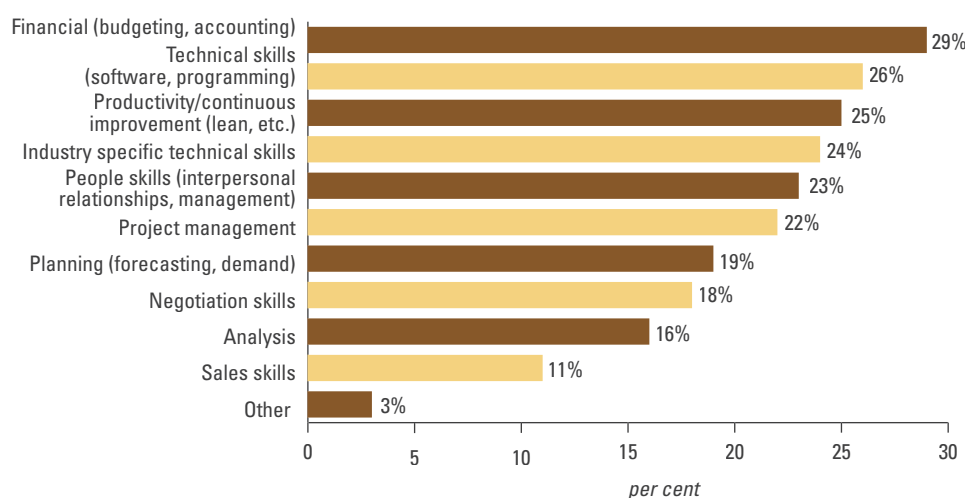
WHAT COMPANIES PAY FOR

1,432 respondents



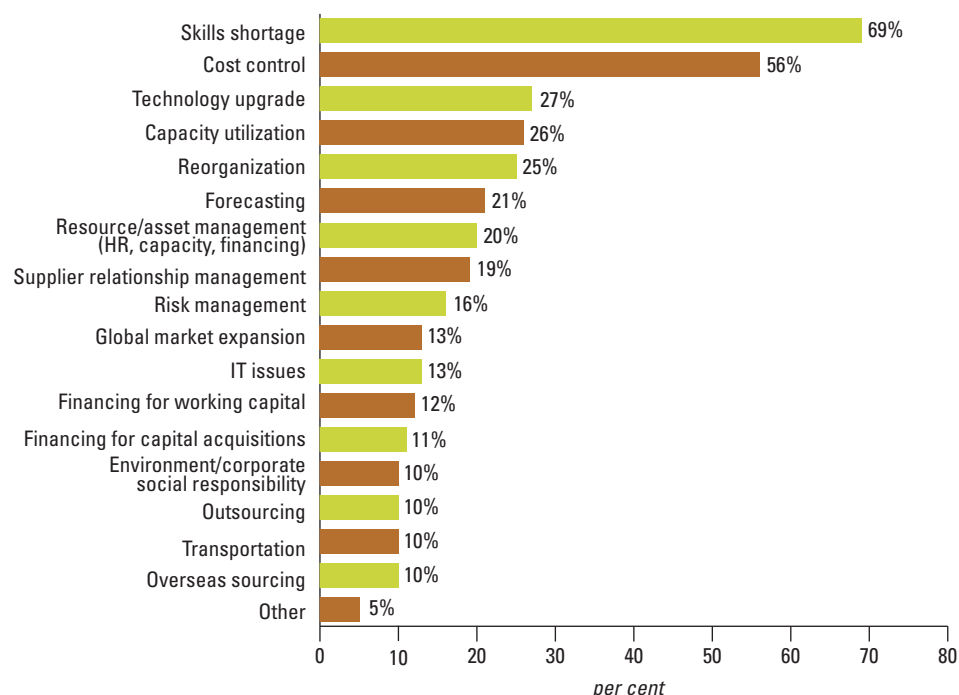
MORE TRAINING NEEDED

1,393 respondents

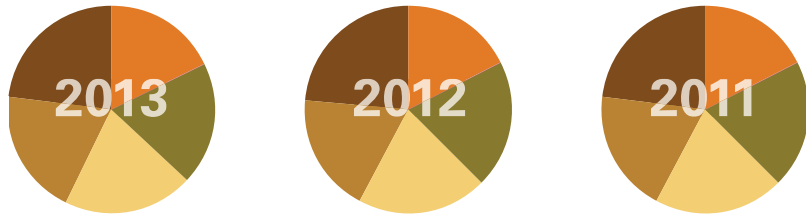


MOST SIGNIFICANT SHORT-TERM ISSUES

1,824 respondents

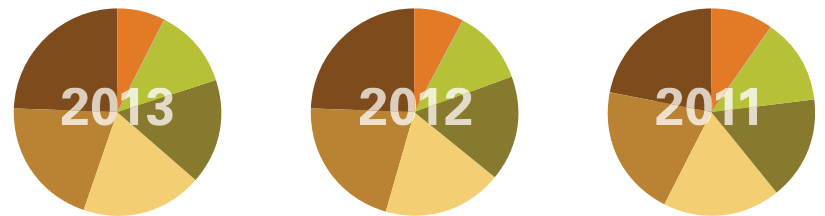


EDUCATION 1,251 respondents



	2013	2012	2011	% replies
CEGEP	\$90,112	\$87,143	\$83,065	3%
College diploma	\$96,291	\$97,007	\$93,924	27%
High school or less	\$101,829	\$100,890	\$96,902	13.3%
Trade/technical diploma	\$97,637	\$91,058	\$89,283	14.1%
University degree	\$115,446	\$114,950	\$108,721	38.4%
No Answer	4.2%			
Total survey average	\$104,891.25	\$103,680	\$99,256	100%

SALARY BY AGE 1,251 respondents



	2013	2012	2011	% replies
Under 25	\$43,666	\$44,433.33	\$36,666	0.2%
26-35	\$70,729	\$66,245	\$62,420	7%
36-45	\$94,159	\$94,027	\$86,132	23.4%
46-55	\$108,132	\$104,497	\$102,272	40.5%
56-65	\$116,510	\$119,852	\$115,539	21.2%
Over 65	\$138,070	\$138,163	\$132,321	3.3%
No Answer				4.3%
Total survey average	\$104,891.25	\$103,680	\$99,256	100%

TOP THREE SKILLS NEEDED 1,432 respondents

	1st	2nd	3rd
People skills (interpersonal relationships, management)	35%	21%	15%
Industry specific technical skills	12%	10%	10%
Productivity / Continuous improvement (lean etc.)	8%	15%	18%
Analysis	8%	11%	11%
Project management	8%	10%	11%
Financial (budgeting, accounting)	8%	6%	6%
Planning (forecasting, demand)	7%	9%	11%
Technical skills (software, programming)	5%	6%	5%
Sales skills	5%	5%	5%
Negotiation skills	4%	7%	8%

Canadian labour force is under 35 years old, while globally that same age group makes up 33% of the oil and gas market. In Canada, 42% are between 35 and 49, and another 40% are 50 or older.

Skills mismatch

The Hays and EMC/PLANT survey results serve as a reminder that manufacturing is not only short of skilled labour; the workforce is aging, which will exacerbate the problem. Most respondents (68%) are 46 to 65 or older. Of the total, 41% are 46 to 55 and 23% are 56 to 65. There are just 7% who are 26 to 35 and 24% in the 36 to 45 groups.

As noted in the 2012 survey, a significant number of experienced people will be leaving over the next decade. By 2015, 48% of the workforce will be 45 to 65 and by 2020, 17.9% of the population will be 65 or older and the Conference Board of Canada forecasts the country will be short one million workers by 2020.

Diggins says the time has come for companies to take on more responsibility for training, something many have given up over time. "Colleges can't react quick

enough. Once they get a program in place, it's obsolete."

School co-op programs are a good start, but Diggins fears students are doing a lot of menial work rather than getting actual job training.

Companies are also having trouble hanging onto skilled people. It's supply and demand. When a skilled person is offered more money, they will be tempted to move on.

"We need to offer comprehensive benefits," says Diggins, noting the survey's job satisfaction question got a 60% response to competitive salary and 52% for benefits. "Yes, it's expensive, but what does it cost to lose an employee, then replace and train another?"

During the recession, training budgets were among the first to be cut, says McNeil-Smith. But companies that continued to invest in production and other improvements were among the first to reap the benefits when the markets rebounded.

A return to internal training programs will also pay benefits and perhaps help boost salaries at the upper management level as bottom lines improve.

Comments? E-mail jterrett@plant.ca.

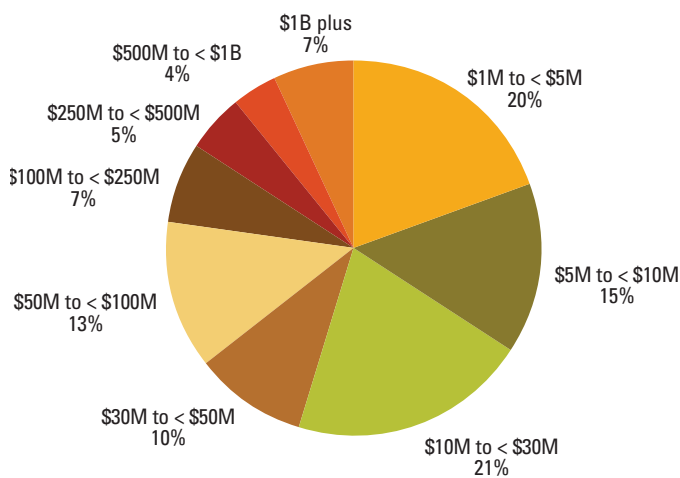
Smith. "Some commentary challenges the perceived lack of skills. I think there's availability of labour based on employment rates, but the real question is whether people are trained or skilled in the areas that are needed."

He cited one company that had five positions to fill, got 1,000 resumes but found only two candidates to interview.

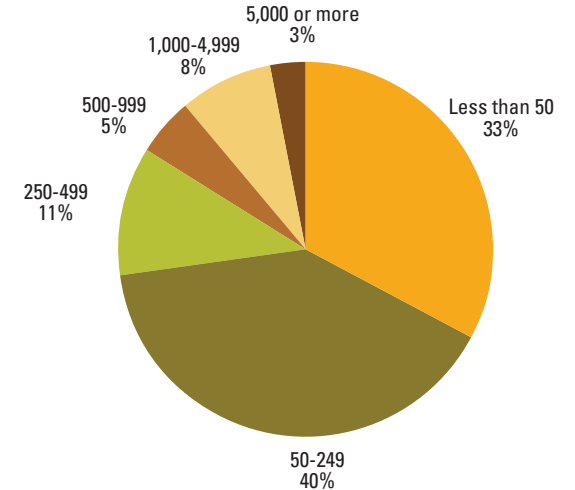
Canada's oil and gas industry is booming but also suffering from a shortage of workers with appropriate skills and there aren't enough young people entering the business, which threatens short- and long-term growth, according to recruitment specialist Hays Canada.

Its 2013 Oil and Gas Global Salary Guide notes 54% of Canadian oil and gas employers cite skills shortages as a significant issue, although 73% expect to increase hiring in the next 12 months. Only 18% of the current

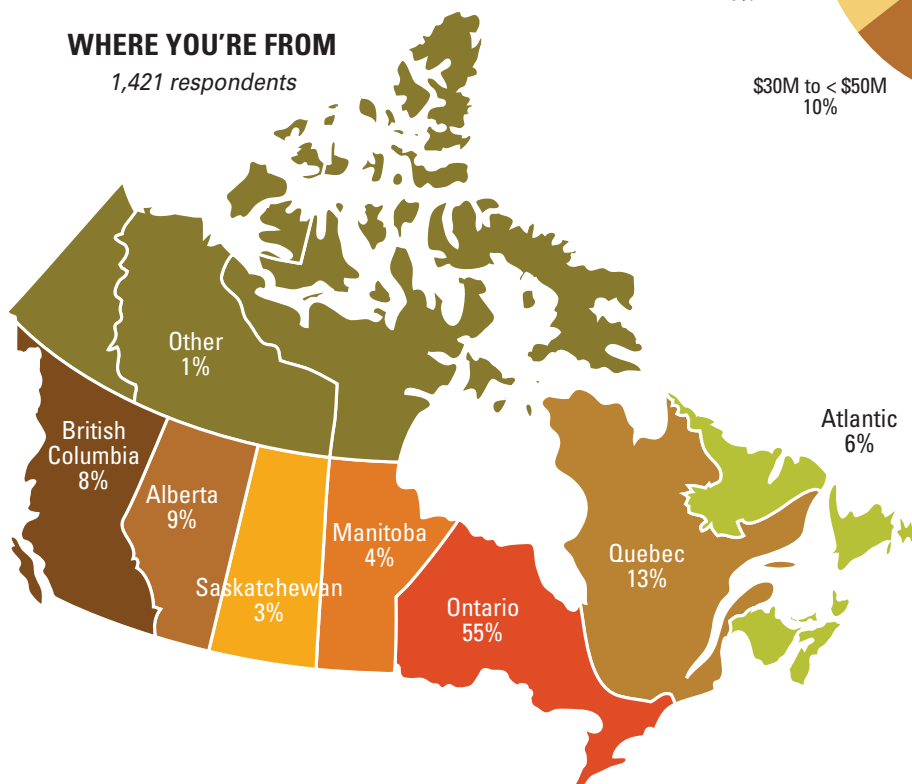
REVENUE 1,317 respondents



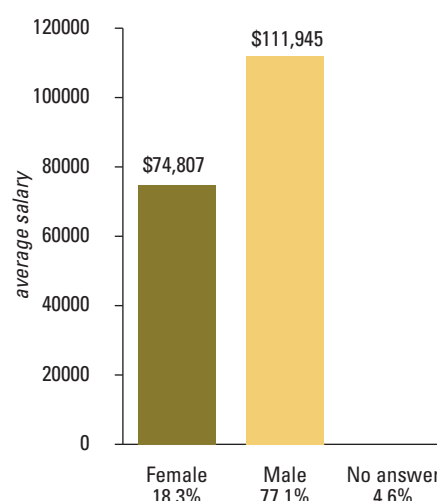
NUMBER OF EMPLOYEES 1,411 respondents



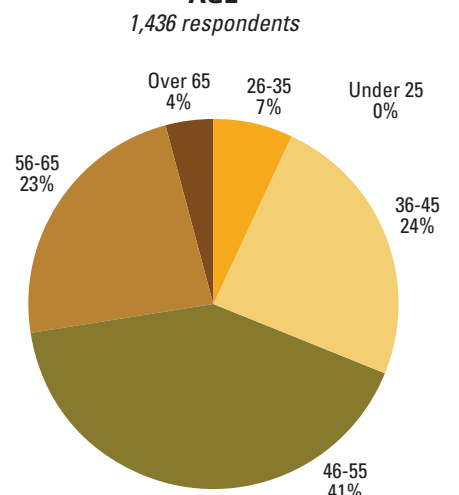
WHERE YOU'RE FROM 1,421 respondents



GENDER GAP 1,251 respondents



AGE 1,436 respondents





Use the less visible drivers of change in your marketplace to gain an advantage in the future.

BY EBEN LOUW

The Harper government's 2013 budget highlighted the need to put Canadian manufacturers on a more competitive footing. The ability of companies to develop skills, create employment and to succeed in their marketplaces drives economic growth. But as a management leader or business owner, you have experienced how difficult it is to make these lofty, longer-term outcomes a reality.

If you answer "yes" to the following questions, it may be necessary to review how you plan, what you plan for, and how you approach a world of increasing uncertainty:

- Your industry is changing at a pace that has accelerated over the last few years.
- You already perform annual strategic planning and develop a business plan or update existing strategic plans.
- Your strategic plan is built on assumptions strongly grounded in the way things are working now, or used to work in the past. This may be especially true when you use the typical SWOT (strengths, weaknesses, opportunities and threats) model, which relies heavily on known issues rather than uncertainties and possibilities that are some years away.

- Your strategic plan ends up being more operational as the focus soon becomes short and continues to be for the remainder of the year.

- You have a feeling words such as globalization, global shift, business succession, industry consolidation and "new normal" must have an impact on your business, but you're not sure how to react.

- There are major shifts in consumer behaviour, flows of capital and the expansion and contraction of markets that may have a profound impact on your company, but the visible proof is not yet immediate; and it's easier to focus on the short-term emphasis on profitability and productivity, for more immediate results.

- Your workforce may be vulnerable to retirements with the loss of key skills and experience that follows, yet you find it hard to attract suitably qualified people and training them is risky, not knowing if they'll stay.

- You'd like to focus on future opportunities now but uncertainty is frustrating your planning efforts.

- You want to be prepared for the future but have no idea how to connect the long-term vision with short-term priorities.

It's difficult to keep up with the pace of change. Globalization is forcing all manufacturers to review products, their placement and the value they bring. This environment is creating a dangerous minefield, but also opportunities.

Shorter term, there are significant pressures on profitability and the ability to produce quality products when

Making the most out of structural and demographic shifts. PHOTO: THINKSTOCK

production costs are high and it becomes increasingly difficult to fill labour requirements. And it's easier for global competitors such as Chinese manufacturers with the capacity to handle high volumes to serve new markets in geographies such as Brazil, Europe, the Middle East and even North America.

So how should you adjust your framework to address these challenges and respond to opportunities? By incorporating uncertainty into your planning.

Longer-term planning

Planning needs to become more complex, more multi-dimensional and it requires a deeper understanding of the less visible drivers of change and how they interact with each other.

Longer term planning is not just the domain of large, multi-national corporations. Organizations of all sizes must stretch their horizons. Synchronize timelines through a structure that enables operational planning for the 'now' to be connected with the strategic planning of the 'later' and the visionary planning of the future.

How do you tune the planning process to more fast-paced change? Follow these steps:

1. Integrate long (uncertain, visionary), medium (strategic) and short term (operational) planning into one framework. Even if you're not able to accurately predict the future,

Continued on page 18

» Moving On When to sell

How to determine if the time is right

BY MARK BORKOWSKI

Timing is everything when you sell your business. It all hangs on the financial condition of the company, valuation, growth cycle, profit history and the current market. You'll get the highest price with solid sales and earnings with a history of good performance that are trending upward.

If selling is on your mind, consider the following:

1. Get a business valuation to determine what your business is worth in the current market. You don't need to pay for one: an accountant or a mergers and acquisitions pro will help.

2. Gauge the market conditions in your part of the country. Ontario and Alberta are seen as places to relocate or expand. Ontario is considered one of the strongest labour markets and picked up more residents than other provinces as the recession deepened in 2008 and early 2009.

3. Investors in every category are looking for stability, better predictability and control. Business acquisitions offer all of these and a better return than traditional investments. Most of Canada is a prime target because of positive future economic expectations and long-term outlook.

4. The capital gains tax rate is at a historic low. The current exemption allows every bona fide shareholder the first \$750,000 as tax-free. Be aware that small business gains exemptions change dramatically in 2014.

5. Buyers currently exceed sellers, but the time will soon come when the balance shifts as lots of baby-boomer owners sell and retire.

And who are the buyers? They include:

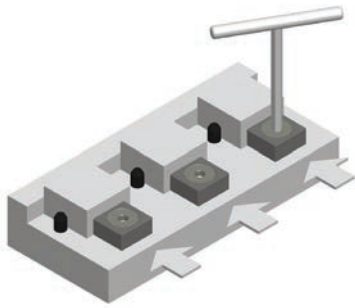
- Early baby-boomer corporate retirees.
- Management-level refugees with severance pay or pension allocations to invest looking to go into business for themselves.
- Foreign buyers looking for investment opportunities while the dollar is valued lower against their own currency.
- 30-something up-and-comers aggressively buying and building.
- Strategic buyers actively acquiring smaller firms as part of their strategy for quick growth and innovation.
- Investment buyers, such as private equity groups, who are seeking add-on acquisitions in the lower middle-market for their investment portfolios.
- Out of work blue-collar workers looking to "buy a job." Their interests tend to be smaller technical service companies.

With all categories of buyers in play, historic low interest rates, the government working to make credit easier to attain, and the most favourable capital gains tax rate in 40 years, this is a good time to consider an exit strategy.

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

Comments? E-mail jterrett@plant.ca.

Tiny Vise™ Edge Clamps Deliver Secure, Compact Clamping



This standard style has one serrated and one smooth side. Force is applied by the turn of a hex wrench.

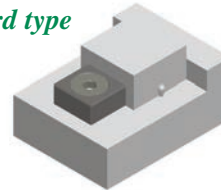
Patented Tiny Vise™ edge clamps from Carr Lane offer strong clamping action in a mini size. These clamps will be featured in applications at Carr Lane's IMTS booth W-1663. Ideal for fixturing small parts, the unique clamps grip the side of a workpiece to keep the top clear for machining.

Tiny Vise edge clamps are available in a wide range of sizes, from a miniature #8-32 thread size up to a powerful 1"-8 thread with 11000 N clamping force. Force is quickly applied by positive screw action with the turn of a hex wrench.

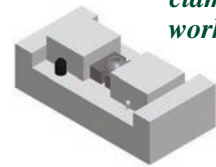
Variations include a double edge version, for clamping two workpieces at the same time, a v jaw version for clamping round workpieces, and a double v jaw style. Visit tiny vises in the Featured Product section at www.carrlane.com/featured.

Variations

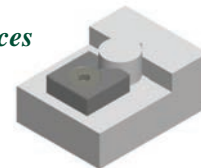
standard type



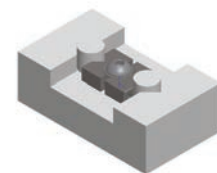
straight double for clamping two workpieces at once



v for clamping round workpieces



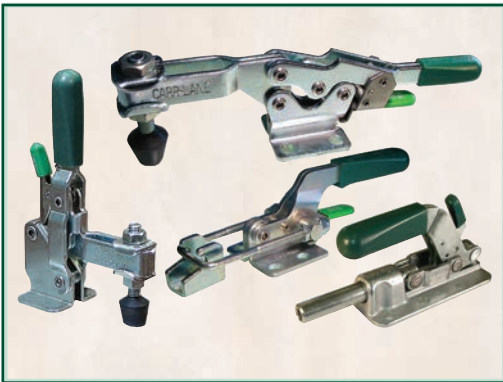
v double for clamping two round workpieces



TOOLING COMPONENTS, CLAMPS

Carr Lane's 680-page catalogue contains alignment pins, hoist rings, plungers, handles and knobs, locators, supports, tooling plates and blocks, jig and fixture bases, and more. Full sections on tooling components, toggle clamps, drill jig bushings, modular fixturing, and power workholding. Send for a copy, or view it online.

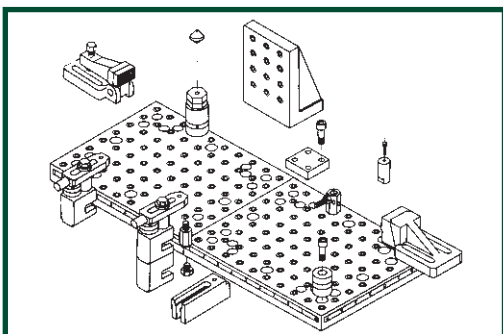
Carr Lane Mfg. Co., www.carrlane.com.



TOGGLE CLAMPS WITH SAFETY LOCKS

Carr Lane has introduced a variety of new toggle clamps with optional safety locks, including latch-action, vertical-handle, horizontal-handle, and push/pull types. Carr Lane toggle clamps have a comfortable handle grip, and are made of durable high-grade steel (many also available in stainless steel).

Carr Lane Mfg. Co., www.carrlane.com.



MODULAR FIXTURING

Modular fixturing from Carr Lane is ideal for one-time jobs, prototype parts, jobs that do not repeat often, replacement parts, or while permanent fixtures are built or repaired. See our wide variety of modular fixturing components in our online catalogue, including economical starter sets.

Carr Lane Mfg. Co., www.carrlane.com.

CarrLock™ SYSTEM



Machine Operator Tyler Vaughn, of the Flying S, places a carbon trim fixture. The Carr Lock™ receiver bushings allow for fixtures in various configurations.



PROBLEM:

"We are an aerospace prototype shop making the transition from prototype to production on an important UAV project. We've developed elaborate fixturing of all shapes and sizes. We found ourselves leaving our trim fixtures set up on a large gantry style table and then having to tear everything down when a large part came along to make way for it.

This tied up one of our most valuable spindles, and dust collection was nearly impossible. Change over and setup times were totally out of control."

SOLUTION:

"I discovered that I could combine 80% of our trim fixtures into just one fixture plate using just two Carr Lock pins, with excellent locating ability and much better clamping than before.

Our setup times have gone from an average of about 25 minutes to literally 30 seconds, thus saving us hundreds of hours."

Peter Bowman
Production Manager/Mfg Engineer
Flying S Inc.



MANUFACTURING CO.

www.carrlane.com/carrlock

Planning for the longer term

Continued from page 16

determine, which issues, trends, and changes should be on the corporate radar now. Track changes in these trends and build an environment of anticipatory thinking.

2. Evaluate the leadership's ability to think about the future. Review the types of discussions held during the past two years. Were they operational or strategic? Willing to work with uncertainty? Able to develop in new directions, or perfect the current situation? If necessary, develop these skills from internal or external sources.

3. Pick a specific timeline that goes beyond your immediate control.

Develop a scenario that describes how your industry will look, the trends that will get it there and what will strengthen or weaken those trends. Evaluate where your competition will be during the same timeframe.

4. Develop a continuous strategic planning framework.

Build an activity flow for a future strategy. Adapt business plans and strategies for continued growth in certain key areas that include: product development; learning new skills; acquisition of new technology and equipment; product develop-

ment; and geographic positioning of your product.

5. Consider innovation, both radical and incremental, as a consistent goal.

Emphasize longer-term plans, while focusing on shorter term, operational efficiencies. Be prepared for the possibility that future customers may want you to produce something completely different from what you currently do. Value differentiation requires a deep understanding that goes beyond your customers to their customers. Gain insight about the trends your customers see from their customers.

6. Make anticipation part of your culture at all levels. All employees should be part of the organizational intelligence system. Develop critical thinking

skills and establish a platform that celebrates consistent feedback and learning. Sometimes the questions are more important than the answers. Celebrate those willing to ask the tough questions.

7. Be realistic about the potential of all your current products.

Review your portfolio of products and services, do a life-cycle analysis and evaluate trends in the markets they serve.

8. Be patient. Questioning and learning should continue after identifying a new product or market. This should be embedded within all layers of management. You may make mistakes, but you'll be better prepared for the future.

Learning about and adapting to the future is a key competitive advantage. Opportunities, demographic trends and global economic shifts are factors that form the bedrock on which a future platform will be built. Accept from the outset your company has to intentionally enter areas where important information will be picked up along the way.

And consider the advice of Dr. Ram Charan, author of *Global Tilt*, who said, "If you think you have no time to do these things now, you will have plenty of time in the future when business is down."

Eben Louw, a partner with accounting, tax and advisory firm MNP, is based in Abbotsford, BC, and specializes in manufacturing, strategy and business succession planning. E-mail eben.louw@mnp.ca. Visit www.mnp.ca.

Comments? E-mail jterrett@plant.ca.



MEMBERS BENEFIT.

Excellence in Manufacturing Consortium (EMC) members have access to many world-class and First-in-Canada initiatives that help manufacturers to grow and become more competitive.

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- Reduce your costs
- Improve your safety
- Network, benchmark and share best practices
- Train your workforce, and much more

**EMPOWERING MANUFACTURERS.
POWERED BY EMC.**

» Networking

Time to ENGAGE

An EMC leadership initiative

The Excellence in Manufacturing Consortium of Canada (EMC) has launched a new program for manufacturers at the executive level to share best practices and overcome business barriers.

The ENGAGE program brings together forums of 10 or 12 senior executives and company owners who will network and collaborate on ways to break through barriers that impede business growth and profitability.

"Many companies have told us they are not only competing for new business and customers around the world, but also competing at home to attract and develop talented leadership with the expertise necessary to grow and become more competitive," said Al Diggins, EMC's president and general manager.

EMC, a not-for-profit organization based in Owen Sound, Ont. that helps Canadian manufacturers become more competitive, is targeting continuous six- and seven-figure sustainable improvements for participating companies.

Each Engage Forum will be facilitated by an experienced senior executive, who has successfully led manufacturing businesses through turnarounds, transformations and acquisitions.

For information e-mail djarrett@emc-canada.org.



Excellence
in Manufacturing
Consortium

Réseau
Manufacturier
Canadien



Canadian
Manufacturing
Network



DV Systems' oil-free system covers applications from the mechanical bays and garage to HVAC controls, lab and autopsy stations.

BY MATT POWELL, ASSISTANT EDITOR

When DV Systems promises to produce compressed air that's of better quality than the air we breathe, it says a lot about the CEO's confidence in his made-in-Canada operation. But it also helped the company land a significant contract.

The Barrie, Ont.-based manufacturer of air compressors has installed its oil-free systems in the soon to be operational Forensics Services and Coroners Complex (FSCC) in Toronto.

One of the largest facilities of its kind in North America, the 550,000 square-foot complex in Downsview, part of Toronto's North York district, will open this fall housing the Centre of Forensic Sciences, the Office of the Chief Coroner and the Provincial Forensic Pathology Unit under one roof. The facilities it replaces are more 30 years old.

DV Systems' 45,000 square-foot plant is staffed by 45 employees, four of them engineers who focus solely on R&D, developing products such as a new line of 200 horsepower air compressors.

Its products are made in Canada, a point of great pride to Bogdan Markiel, the company's CEO. That might not have been the case if Markiel and his partner (and president) Garth Greenough hadn't come along.

It all started with DeVilbiss Co. of Toledo, Ohio, which began producing air compressors in Barrie in 1954.

"When Garth and I bought the company in 2006, that's when the Canadian company truly began," says Markiel. Indeed, they bought it from two Americans who were shipping business segments elsewhere, including to Mexico.

"We wanted to develop a reputation for reliability and design products around that idea – simple in concept, but sophisticated and reliable in construction. And we wanted to make them in Canada."

Everything the company designs with variable speed drives is to reduce energy and the CEO says a flexible manufacturing line gives DV Systems a competitive advantage.

"We cross-train our employees so they're able to work in different locations along the line, which enables us to build a variety of products and move people around when demand for certain products peaks or decreases," he says. "That allows us to be extremely responsive to the market and reduce delivery times because we produce everything to order. We're able to have orders out the door in less than four days."

System reliability helped to secure the FSCC contract, which the company completed in December.

"The system had to be fully redundant, so we installed isolation valves along the entire system in case one device has to



AIR power

KEEPING IT CLEAN AT TORONTO'S NEW FORENSICS LAB

be serviced," says Markiel. "The compressors are sequenced so they alternate; giving each other a break."

The facility adheres to LEED Gold Certification standards for the control of highly infectious airborne diseases, which includes a separate and distinct Containment Level 3 (CL3) autopsy zone, the first in Canada for a forensic facility. It also includes a dedicated air handling system with cascading pressurization and HEPA filtration of exhausted air; a

'kill tank' using heat from the treatment of liquid effluent; a dedicated body receiving area and coolers; autopsy and x-ray rooms; an evidence screening laboratory for the CFS; male/female walk-through decontamination showers to and from gowning areas; and an autoclave with a "dunk tank" for safe removal of waste materials and specimens.

Critical components in the compressed air system include two of DV Systems' J75 Mohawk variable speed drive rotary

DV Systems' oil-free air compressors on the job at the FSCC. PHOTO: DV SYSTEMS

screw compressors, one 50 hp rotary screw compressor, two desiccant air dryers, and two ETC catalytic converters.

System critical

The compressed air has multiple applications from the mechanical bays and garage area to HVAC controls, lab stations and autopsy stations.

"The compressors sit on vibration pads, on poured concrete platforms to keep them as stable as possible and we've installed stainless steel pipe to reduce the chance of pressure drops," says Markiel.

Working alongside contractor Modern Niagara Inc., which managed the FSCC's critical mechanical systems, DV Systems had to ensure the entire facility would have a continuous compressed air supply. The ETC oil-free compressors remove oils suspended in ambient air according to ISO 8573 class 0, and they achieve class 1 even with hydrocarbon concentrations up to 154,000 parts per billion. A clean condensate with a hydrocarbon concentration downstream of the ETC is less than 1.93 parts per billion.

The system also produces a condensate that's not acidic compared to other oil-free compressors, achieving pH levels of less than seven. The catalytic process minimizes bacteria, fungus and microbial content. And a protective shutdown unit prevents oil-containing compressed air from entering the network in the event of a malfunction.

Not that guests in the morgue or autopsy area would care, bottom line, the compressed air is better quality than the air we breathe – promise kept by DV Systems.

Check out a video of how the ETC compressors work at www.oilfree.dvsystems.ca.

» Tech Tips

Performing motor forensics

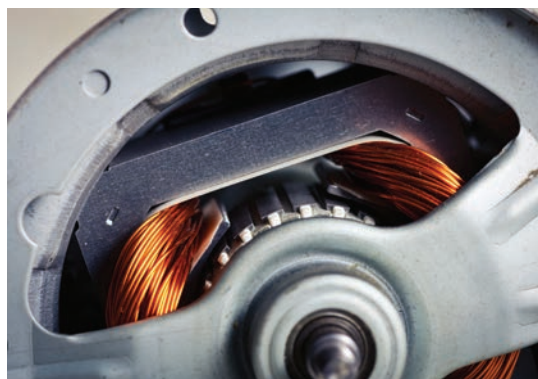
Getting to the root cause of failure

Don't be too trusting of your local motor repair shop. When performing forensics on an electric motor or generator, you must define the root cause of the failure. But that definition may mean something different to an electric motor shop where it's as simple as a bearing failure or shorted winding.

In fact, there is often a combined lack of information and understanding of the systems in which the machine operates. Once the motor is isolated, the most obvious issues such as shaft currents, cracks, damaged insulation systems and fractured rotor bars are addressed, but may only be the symptoms. The root cause may actually be hidden only to become evident once the machine is returned to service.

The key to proper repair is to ask why the symptoms occur, determine what parts of the system may cause the problem, and then eliminate them one by one. This is a relatively rapid process for most failures; however, for a few it requires time and effort. A rush to correct results in even more lost time.

The best method is to apply at least a simple 'five why' system to a problem, although there may be several answers to each, and there may even be several root causes. It's not a simple problem and diligence is necessary.



Determine why symptoms occur to ensure repairs are performed properly. PHOTO: THINKSTOCK

Adapted from *Motor Diagnostics and Motor Health Newsletter: Success by Design*.



Most compressors are best served using turbine oils with ISO viscosity grades of 32 to 36. PHOTO: THINKSTOCK

the units in operation, plus a small percentage of rotary vane units. Centrifugal and dry screw compressors are in service mostly in the food and beverage industries, where oil-free air is required.

Both mineral and synthetic oils can be used for as long as they have application-appropriate properties. Ray Thibault, a lubrication specialist and oil-monitoring analyst certified by the Society of Tribologists and Lubrication Engineers (STLE), suggests looking for the following compressor oil characteristics:

- Mineral oils are low cost, have excellent additive solubility, and are compatible with most synthetic lubricants, except PAGs and silicones. But they have a low flash point and low thermal stability.

- Polyalphaolefins have high thermal and oxidative stability, low volatility, and are compatible with mineral oils, most synthetics and elastomeric seals. They are hydrolytically stable, but have low lubricity, poor additive solubility, and a tendency to shrink seals balanced with esters.

- Diesters have good metal wetting properties and biodegradability, high flash point and low volatility, but they easily hydrolyze at high temperatures and tend to swell seals and attack certain paints.

- Polyalkylene glycols have a very high viscosity index, excellent lubricity, and the ability to hold high levels of dissolved water. They have a high flash point and low volatility, they're biodegradable and compatible with elastomeric seals, but may cause slight shrinkage. However, they're incompatible with many paints, polycarbonate materials, mineral oils and non-ester synthetics.

- Polyol esters have the highest thermal and oxidative stability of all synthetics, excellent solvency, very good lubricity, and they are highly degradable. On the downside, they cost more than most traditional synthetics and have a tendency to hydrolyze under high water and temperature conditions.

There are lubricants for every need, but Thibault warns that careful consideration is required when switching from one supplier to another, and when switching to a different fluid type.

Steve Gahbauer is an engineer and Toronto-based freelance writer, the former engineering editor of PLANT and a regular contributing editor. E-mail gahbauer@rogers.com.

Comments? E-mail jterrett@plant.ca.

MAXIMUM air

USE THE RIGHT FLUIDS FOR BEST COMPRESSOR OPERATION

Careful selection and monitoring of air compressor lubricants helps to avoid costly downtime.

BY STEVE GAHBAUER

Most manufacturing and processing plants use compressed air systems air for tools, pneumatic equipment and instruments. Keeping air compressors running smoothly and efficiently requires special attention to lubricants that cool, seal and oil components to reduce friction.

When choosing compressor fluids, look for a lubricant that provides the following benefits:

- wear (friction) reduction;

- rust and corrosion protection;
- high oxidation stability;
- good filterability; and
- non-foaming performance.

Oil viscosity is very important: it determines the suitability of the lube for essential functions, and viscosity changes must be monitored to indicate oxidation problems and contamination.

Most compressors are best-served by premium-grade turbine oils with ISO viscosity grades of 32 to 46; however, there are many different types of compressors and each manufacturer is likely to recommend lubricants that have been used on a test stand at controlled facilities.

Reciprocating compressors were used extensively in the past to provide compressed air, but now flooded rotary screw compressors account for more than 80% of

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Timed DELIVERY

HOW IT IMPROVES WAREHOUSE PRODUCTIVITY

Standardizing processes in the warehouse makes tasks easily repeatable and creates a baseline for improvement.

BY RICHARD KUNST

Warehouses and central stores are the epitome of anti-lean. They act as a repository of time called inventory; however, until we achieve a perfect process that includes the supply chain, warehouses and stores will continue to be a necessary evil.

Here are some tips for improvements that flow from reverse-thought engineering to create timed delivery routes.

1. How big? Start by creating a plan for every part (PFEP) that calculates both the cubic and square feet required to store inventory. Linked to a forecast module it will quickly tell you how to flex your space to accommodate demand.

The PFEP, a sortable database of all part numbers used within your process, typically contains the following information:

- part numbers
- use volume and locations
- packaging size and quantity
- supplier information

2. Stocking strategy. Stocked SKUs should be segregated as runners, repeaters and strangers. Store runners in locations that minimize walking. Many plants stock by customer, or by commodity. Error-proof by separating similar-looking SKUs to reduce incorrect picks. For example, distribute bolts that look the same, but have different lengths in different locations. A picker would have to be way off course to pick the incorrect SKU. This strategy also works well in point of use locations.

3. Separate walk from activity. When creating picking targets, start with a holistic time study that combines motion and activity. Separate the two activities before



Study where time is spent by looking at motion and activity.

PHOTO: THINKSTOCK, JUPITERIMAGES

optimizing them.

Look at the order picker's typical route, calculate the distance in feet and determine frequency (hourly, daily). Calculate the walk time by taking the feet travelled and dividing by five, then multiplying by 2.5 seconds for a total. A lift truck will average 120 feet per minute. Subtract the transit time from the route frequency where the remaining time becomes activity time, so route frequency – walk time = available activity time. If it takes 7.2 seconds for a team member to extract product from a shelf, available activity time is divided by 7.2 seconds to determine the number of picks within the route frequency.

If you plan to conduct a route every hour, the calculation would look like this:

- Route frequency = 60 minutes
- Distance travelled = 1,200 feet
- Tow motor drive time = (1,200 ft./120 fpm) = 10 minutes
- Available activity time = route frequency – drive time = 60 – 10 = 50 minutes
- Picks capable = available activity time * 60 (to convert to seconds)/7.2 seconds per pick = 416 picks

4. Make it visual. No sophisticated computer system can replace a team member's touch when accessing a SKU location, so optimize this opportunity. Using the

Continued on page 22



Making it visual

Continued from page 21

PFEP as a guide, create visual triggers for replenishment (KANBAN). Even if you are using a sophisticated computer replenishment system, the visual trigger system overlay becomes additional protection from stock-outs. Also, every time a team member picks a SKU to zero, validate the entry against your computer number.

5. Apply OEE to measure warehouse performance. Manufacturers use overall equipment effectiveness (OEE) to measure how well lines or equipment are used. The OEE calculation typically consists of operating rate or availability; performance rate; and quality rate. Calculate these metrics to create an OEE value for your warehouse operation:

OEE = availability X performance X quality.

To calculate an OEE equivalent do the following:

- Available time = pick capability, from calculation above
- Performance = actual number of picks completed
- Quality = pick accuracy

Although accuracy is important, ensure your calculations are consistent and look at trends in your data.

6. Run boards and other fun stuff. Monitor compliance to pick targets using a run board, which indicates hourly targets against the team member, and post the actual. Add comments on why a target was not accomplished. Review them daily to identify opportunities for continuous improvement.

No lean exercise is complete without enterprise value stream mapping. Determine a flow within the separate activities to create a holistic value stream cadence that increases the velocity and frequency of activities.

Warehouses are typically neat and organized but do not overlook the application of 5S+1 principals. Make sure you have designated storage locations for paperwork, conveyance equipment and cleaning utensils.

Standardization is also a key lean principle for the warehouse. Standardizing processes will make tasks easily repeatable with planned zero waste. Standard work allows your team to understand processes according to inputs, procedures, timing and outputs, while creating a baseline from which to improve.

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@kunstofsolutions.com.

Comments? E-mail jterrett@plant.ca.

What's for LUNCH?

SET UP A HEALTHY EATING PROGRAM AT YOUR PLANT

Healthy eating while on the job can be a challenge, however nutritious food gives plant workers more energy and helps them to be more productive.

People who work in manufacturing will likely eat at least one meal and the odd snack on site.

A well-balanced diet and active living helps employees maintain a healthy weight and prevent chronic diseases such as heart disease, type 2 diabetes and some forms of cancer.

Although a safe and clean eating area is a requirement under most occupational health and safety laws, going beyond that to provide healthy food choices at meetings, from vending machines and in the cafeteria will go a long way to promoting good eating habits and active living. Making refrigerators and microwaves available will also encourage employees to bring healthy meals or snacks from home.

Ask your vending machine companies to stock healthier choices. Replace chocolate bars and chips with granola bars, fruit bars, nuts, popcorn, pretzels or crispy rice squares. Consider having a refrigerated food unit to offer yogurt, fresh fruit, vegetable sticks, and whole grain sandwiches. Replace soft drinks with water or small portions of 100% fruit juice. Price the healthier choices the same or less than non-nutritious ones.

If you order food for meetings consider healthy options. Include adequate choices for those with food allergies, or dietary restrictions.

Make water available and serve 100% fruit and vegetable juices in small containers, lower fat white and chocolate milk, regular and decaffeinated coffee and tea with lower fat milk and sugar substitute.

Making healthy choices

Serve fresh fruit or vegetable snacks, lower fat, higher fibre baked goods (no trans fats) and sandwiches that should be made with whole grain breads, lower fat and vegetable fillings, and mayo on the side (but no butter or margarine).

Lower calorie deserts include fruits, angel food cake and lower fat yogurt.

In the morning, offer higher fibre, whole grain breads, bagels, muffins, or cereals and control portion sizes by slicing bagels in half or serving mini-muffins. Include fresh fruit and yogurt.

Employees should also make healthy choices at home. Workplace programs should include the following:

- Offer educational materials such as the Canada's Food Guide, sample meal plans and shopping lists for employees to help them plan healthier meals.
- Teach people how to read and understand food labels.
- Provide healthy cooking demonstrations or tips.
- Invite a speaker to a 'lunch-n-learn' session.
- Have "theme" weeks or months.



Meals should include colourful vegetables or fruit, lean meat or alternatives, and grain products, half of them whole.

PHOTO: THINKSTOCK

FOLLOW THE FOOD GUIDE

Remind employees to review these tips from Canada's Food Guide:

- Meals should include one dark green and one orange vegetable; low fat milk; and a small amount of unsaturated fat (that contains canola or corn).
- Have vegetables and fruit more often than juice.
- Make at least half of your grain products whole grain each day.
- Have meat alternatives such as beans, lentils and tofu often.
- Eat at least two Food Guide servings of fish each week.
- Drink water to quench your thirst.
- Pay attention to portion size.
- Read labels and select foods low in fat and high in fibre (more than two grams).
- Keep a supply of healthy snacks (such as nuts, dried fruit, fresh fruit, yogurt) on hand to reduce trips to the vending machines or cafeteria.

- Arrange an in-house weight management program. Be sure to communicate with your employees. Survey them to help shape the types of programs your company offers.

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

Comments? E-mail jterrett@plant.ca.

» Maintenance

Managing change

Making the transition to proactive maintenance

Making the transition from reactive to proactive maintenance isn't easy, but it can be done if you recognize that it's all about people and success requires new thinking.

So says Cliff Williams, a 30-year-plus asset management pro who helps drive maintenance performance at plants in North and South America for ERCO Worldwide, a Toronto-based chemicals manufacturer.

First of all, show that you respect the crew's opinions and the skills each one brings to the plant. Do your maintenance people have the necessary authority to do their jobs?

Information has to flow both ways. Educate your maintenance staff; give them pertinent information, such as total work order costing, and ask questions: what is used to clean oil in hydraulic systems? Are you aware that inner race, outer race and the rolling element and cage make up a bearing assembly? What is the cost of bearing replacements over the last year? How much downtime was due to hydraulic problems, bearing failures, contaminated oil, or the loss of production that could have been forestalled by preventive maintenance?

Attitude – good or bad – affects everyone. When motivated and positive, we smile, compliment the team and empower.

Deal with negative moods by taking a breather and assess why then break out of the cycle and focus on something positive. If a colleague is stuck in a negative cycle, practice empathy.

Trust your team. Your crews will do their best, and they will communicate.

It all adds up to realizing that proactive maintenance is a people issue. How they think and act will determine how successful a transition from reactive maintenance will be. — Steve Gahbauer

This article is adapted from a presentation by Cliff Williams at the MainTrain conference in Toronto in November.

A UNB student's energy project demonstrates the value of a strong connection between Canadian industry and academia.

BY MATT POWELL, ASSISTANT EDITOR

Rapidly rising power costs are driving home the importance of energy efficiency in pulp mills.

Although AV Nackawic was the first mill with prehydrolysis kraft conversion capabilities in Canada, it struggled to find energy savings without heat recovery technologies in place.

A graduate student from the University of New Brunswick delivered a solution that's saving the mill \$40,000 a year, demonstrating the benefit of industry connecting with post-secondary institutions.

Today, the mill in tiny Nackawic, a town of about 1,000 in central New Brunswick (also home to the world's largest axe), employs more than 350 people, but it has endured a bumpy ride.

Constructed in 1967, it manufactured photographic grade kraft pulp until 2004, when the St. Anne Nackawic Pulp Co. Ltd. declared bankruptcy, owing more than \$100 million to its creditors.

The company blamed high energy, material and labour costs for the closure, which put 450 people out of work. Digital cameras also cut into demand for photographic paper.

It reopened after an announced partnership between Tembec and India's Aditya Birla Group in 2006 under the AV Nackawic banner, but Tembec subsequently backed out.

The New Brunswick government awarded the company a five-year loan of \$10 million in 2009 to protect 300 jobs, which followed \$10 million to convert the plant to produce pulp for rayon.

The mill now produces more than 175,000 tonnes of northern bleached hardwood kraft woodpulp used in coated paper, specialty printing paper, packaging and tissue produced from aspen, birch and maple fibres.

In 2010, AV Nackawic was awarded \$2.37 million through the government of Canada's \$1 billion Pulp and Paper Green Transformation Program (PPGTP) to make upgrades that would reduce the mill's water and energy consumption by recycling filtrate in the bleach plant process and reducing the amount of cutting chemicals used.

The company also wanted to enhance its heat recovery systems but it lacked the resources needed to complete the project, so it went looking for a solution, and found Rohan Bandekar. He's a graduate student from the department of chemical engineering at the University of New Brunswick and a product of the Mitacs Accelerate program, which supports research and development projects by partnering industry with academia.

Born in Dharwad, Karnataka, India in 1984, Bandekar came to North America to get his Master's degree in chemical engineering at Wayne State University



Rohan Bandekar is now a junior process engineer at AV Nackawic.

PHOTO: AV NACKAWIC

TAKING the HEAT

HOT AIR RECOVERY SAVES NEW BRUNSWICK MILL \$40,000

and he graduated in 2008.

After a year-long job search, he finally received an offer. Dr. Yonghao Ni at the University of New Brunswick invited him to work on a research project with Corner Brook Pulp and Paper Ltd., while he completed a second Master's degree.

His research with Ni resulted in an opportunity between Mitacs and AV Nackawic, and he has never looked back.

Through the Accelerate program, companies ante up \$7,500 for the internship, and Mitacs matches the funding dollar-for-dollar, with \$10,000 of the funding

going to the intern as a stipend, and the remaining \$5,000 supporting other costs associated with the research project.

"The Black Hole"

"The project had been something I had been half working on, but it was a detailed project that was going to take some time," said Carolyn Drost, senior process engineer at AV Nackawic. "[Bandekar] recognized the inefficiency in the process."

The blow heat recovery system is popularly known as "the Black Hole," where

the pulp and paper industry has utilized the energy of blow vapors from the digesters to produce process hot water for washing and bleaching operations.

The system also reduces the vapour volume of the gases for non-condensable gases (NCG) incineration.

"It's a challenge to extract maximum performance because of the system's dual functionality," says Bandekar.

But his solution addresses performance issues caused by that dual functionality. Now the system recovers hot blow gases as they are released from the digester while also reducing the vapour volume of the non-condensable gases for NCG incineration.

Increased NCG volume required additional cooling of blow gases to further reduce the total volume incinerated.

Another issue lay in the inability of the process to supply constant temperature hot water to the bleach plant operation.

"Understanding the thermodynamics of the blow heat recovery system avoids errors in calculating the amount of energy needed and prevents vapour release and energy loss to the atmosphere," says Bandekar. "A heat balance across the blow heat system revealed that the secondary condenser was not cooling the NCG to the required temperature."

Further investigation revealed the cooling water flow to the secondary condenser was insufficient to condense the NCG. Gases exiting the secondary condenser are cooled to the set point of 84 degrees C and the gases from the tertiary condenser are also cooled to the required temperature of 40 degrees C.

"The condenser's control loop was re-tuned to supply enough cooling water to the secondary condenser, allowing us to reduce our steam use," he says.

Thanks to Bandekar, the mill has converted its cooking process from a kraft to a dissolving pulp process.

The project was completed in just eight months under the supervision of Drost and is saving energy.

The connection of the mill also paid off for Bandekar personally. He now works for AV Nackawic full-time as a junior process engineer.

Comments? E-mail mpowell@plant.ca.

» Green Manufacturing

Top line growth

How to drive it in four steps

BY BRETT WILLS

Leveraging sustainability helps manufacturers drive top line growth, but it can be a tricky proposition. Here are some tips that will put more green in your financial results.

1. Market analysis. Who influences the industry and what are they doing? Is your industry adopting sustainability/green rating or certification programs? Which ones have customers' attention? Any legislation looming that would influence the market? If so, how will your customers be affected? What are the green trends? How will this impact future customer demand? What are competitors doing? How are customers responding? What specifics are customers looking for? What commitments are they making?

2. Maximize green/sustainability attributes. How are your current offerings meeting requirements in the marketplace? For example, if your company manufactures building supplies and the market analysis shows a trend towards green building certification programs such as LEED, how do your products contribute to gaining certification points?

3. Develop green value proposition. It must clearly articulate how products/services meet or exceed demands of customers and the market. Build it into spec sheets, product/service brochures and marketing materials.

4. Third-party certification. Look at applicable green/sustainability certifications. Recognized programs clear up any confusion about green claims and provide credibility.

Integrating sustainability into the business strategy goes beyond internal benefits. It takes time and resources but many manufacturers find the return well worth the investment.

Brett Wills is the director of the Green Enterprise Movement and a senior consultant with High Performance Solutions in Cambridge, Ont. E-mail bwills@hpsinc.ca.



A prototype TE generator in a Chevrolet Suburban like this one generates more than 400 watts. PHOTO: GM

sors, and the best available materials rely on elements such as lead, antimony and tellurium that are toxic, rare and expensive.

At this point, a TE generator in the exhaust system is close to commercial viability. A prototype employing antimony and tellurium materials generates more than 400 watts in a Chevrolet Suburban, which can run accessories such as ventilation, navigation and headlights from the waste heat. This leads to a 5% gas savings of roughly 2.35 litres per kilometre. With enhanced efficiency, a TE generator would replace the alternator.

AUTO21, Canada's automotive research program, has funded an interdisciplinary team of researchers from chemistry, physics, and materials science and engineering. This project strives to optimize the use magnesium silicide, which consists of benign, affordable and abundant magnesium and silicon. If successful, it will eliminate the use of toxic materials in the generator while increasing its sustainability; make the generator economically viable; and enhance gas mileage.

With the high level of activity in this area of research and development, it's only a matter of time before vehicles convert waste energy into a useful form.

Holger Kleinke, a professor at the University of Waterloo, leads the Energy Harvesting in Automobiles project for the AUTO21 Network of Centres of Excellence, a national automotive research initiative based in Windsor, Ont. Visit www.auto21.ca.

Comments? E-mail jterrett@plant.ca

THERMOELECTRIC TECHNOLOGY CONVERTS HEAT INTO ELECTRICITY

It will harness otherwise wasted energy to run accessories such as ventilation, navigation and headlights.

BY HOLGER KLEINKE

Alternative methods of power generation are becoming increasingly important, particularly in the automotive industry where research is focused on technologies that reduce vehicles' consumption of fossil fuels.

Considering more than half of all the energy we generate is transformed into waste heat, recovering any part of it would be extremely beneficial. Thermoelectric (TE) materials convert heat into electricity to create a temperature gradient that can be employed in cooling applications, or for enhancing the conversion of photovoltaic solar energy by using additional parts of the solar spectrum.

The market for thermoelectric generators, used in a number of applications, has increased by 70% from 2003 to 2007, and the world's largest supplier is Calgary-based Global Thermoelectric.

The key advantages of thermoelectrics, used for example, in the Voyager I and II and Cassini spacecraft, are a lack of moving parts (thus no vibration); and it doesn't deplete natural resources or emit greenhouse gases.

Operation collaboration

Recognizing these benefits, the National Science Foundation (NSF) and the US Department of Energy (DOE) recently invested \$33 million in thermoelectric partnership projects that include several universities and automotive companies such as General Motors and Ford.

In Canada, the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Ontario Centres of Excellence (OCE) support similar research. Both organizations are involved in automotive TE

generator projects with General Motors of Canada and a new Collaborative Research and Training Experience Program (CREATE) involves researchers from the Universities of Toronto, Waterloo and McMaster University. The CREATE team is supported by Angstrom Engineering, Arjae Spectral Enterprises, Dana Canada Corp., Inerjys Ventures and Natural Resources Canada.

Despite the active research, two major challenges inhibit large-scale applications of thermoelectric generators and coolers. Conversion efficiency remains relatively low compared to other power generators and compres-

» Lighting

Solar powered LEDs

Providing light to those without energy.

There are about 2 billion people in communities that are not plugged into an electricity grid, so naturally there are no streetlights, but a team of University of Windsor researchers are working on a solution that involves a portable solar-powered LED lighting system developed by a local manufacturer.

PhD student Anas Labak helped design and optimize the system for Windsor-based Tesla Digital Lighting Systems under the guidance of electrical engineering professor Narayan Kar. The project has received \$75,000 in funding through the FedDev Ontario Applied Research and Commercialization Initiative (which encourages collaboration between post-secondary institutions and industry) and the company.

The Windsor, Ont.-based company, founded in 2007, makes commercial and industrial lighting products, including fixtures for offices, manufacturing plants, parking lots, street lights, spot lights and side building lights.

Labak's system, developed over the past year, is mounted on a wheeled aluminum frame and consists of two solar panels, two car batteries and a small bank of digital LED lights. The idea is to create enough power for a standard-sized North American LED street light that would last about 36 hours.

"It's actually not that complicated," says Labak. "We were just trying to optimize the power we were able to get from these panels. Basically, it's for anyone who doesn't have access to electricity."

Kar says the University was tasked with developing an algorithm to ensure the lighting system produced enough energy to make it commercially viable.

"We're trying to determine how much solar power we will need to power the bulbs so the system is not only cost effective, but also reliable during peak-demand periods," he says. "Developing that algorithm is one of the final obstacles to commercialization."

Kar's team includes two PhD students (one being Labak) and one post-doctoral student.

According to Tesla's web site, the patent-pending technology to make its digital LED bulbs produces about 10 times more energy than traditional bulbs, for a drastically reduced carbon footprint. The bulbs would stand in for traditional streetlights, park lights and lighting for baseball diamonds.

LED bulbs burn cool and don't create pollution because they don't depend on inert gases.

Tesla's CEO Steve Pokrajac says the product should be marketable within six months. "There's still some fine-tuning required on the design of the prototype to improve its size, weight and durability before it can go into production."

ROI is less than a year. — Matt Powell



The University of Windsor's solar-powered LED lighting module, designed by Anas Labak (left) and Narayan Kar (right). PHOTO: UNIVERSITY OF WINDSOR

Does Ontario's GEA blow?

FRASER INSTITUTE REPORT SLAMS PLAN AS TOO COSTLY

The Canadian think tank says costs for developing more wind and solar power generation will hit manufacturing and mining hard.

BY JOE TERRETT, EDITOR

Ontario premier Kathleen Wynne has declared she is very sorry for the \$585 million cost (so far) of cancelling two planned natural gas power plants in Oakville and Mississauga during the provincial election in 2011, but there may be more regrets related to her predecessor Dalton McGuinty's Green Energy Act (GEA) to come.

The Fraser Institute, a Canadian think-tank with offices across the country, has released a report that's highly critical of the costs associated with the former premier's flagship energy policy, saying large industrial users of electricity will see costs rise to be among the highest in North America, resulting in serious consequences for the province's economic growth and competitiveness.

"Already, the GEA has caused major price increases for large energy consumers, and we're anticipating additional hikes of 40% to 50% over the next few years," says Ross McKittrick, a Fraser Institute senior fellow and author of *Environmental and Economic Consequences of Ontario's Green Energy Act*, in a statement announcing the report.

McKittrick, noting the Ontario government defends the GEA by referring to a confidential 2005 cost-benefit analysis on reducing air pollution from power plants, says the analysis did not recommend pursuing wind or solar power. Instead it looked at conventional pollution control methods, which would have yielded the same environmental benefits as the GEA, but at a tenth of the current cost.

"If the province sticks to its targets for expanding renewables, the GEA will end up being 70 times costlier than the alternative, with no greater benefits," he says.

The report contends the manufacturing and mining sectors will be particularly hard-hit by rising energy costs. It predicts returns to investment for manufac-



Critics of Ontario's GEA say high energy costs are blowing in the wind.

PHOTO: THINKSTOCK

turing will likely decline by 29%, mining by 13%, and forestry by less than 1%.

"We've always had concerns with the economic modelling of the Green Energy Act," says Ian Howcroft, vice-president of the Ontario division of Canadian Manufacturers & Exporters (CME). "We supported looking at alternate energy; we thought the energy mix should include solar, nuclear, gas and other opportunities, [but] you have to look at the economics of this, you can't have a subsidized rate starting at 62 cents for solar and then sell that for between 5 and 11 cents, it just doesn't make sense, it's not sustainable. I think we're finding that out right now."

Industry rate

McKittrick says provincial efforts to shield these industries through subsidy programs only transfer the costs onto Ontario taxpayers, "who are already dealing with skyrocketing residential electricity prices."

But Howcroft recommends an industrial rate in line with what competing jurisdictions in the US are offering their manufacturers.

"We have to make sure everyone understands the important role manufacturing plays in the province of Ontario: ...750,000 direct jobs and 1.5 million indirect jobs. How do we protect that?"


And yes, ratepayers would be subsidizing those rates, but Howcroft emphasizes the importance of making the "right investments" rather than in something that doesn't make economic sense, such as the Feed-in Tariff (FIT) program.

In an e-mailed response to questions, the communications branch of the Ontario Ministry of Energy says its 2010 Long-Term Energy Plan estimated that industrial electricity prices would rise an average of 5% a year between 2010 and 2015. So far, the increase has been less than that forecast. Last year, non-hydro


renewables accounted for about 14% of the Global Adjustment, including 4% from the FIT program. It notes the following measures that could lessen the burden on manufacturers:

- As of January 2013, industrial companies could be eligible for electricity rates among the lowest in North America if they start or expand operations and


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Wind energy called 'inherently inefficient'

Continued from page 25

create jobs through the recently announced Industrial Electricity Incentive program.

- The Industrial Conservation Initiative, available to approximately 150 of Ontario's largest energy consumers, shifts electricity consumption to off-peak hours.
- The Northern Industrial Electricity Rate Program provides price rebates of two cents per kilowatt-hour to qualifying large industrial facilities. On average this reduces industrial electricity prices by about 25%, based on 2012 levels.
- The Ontario Power Authority offers demand response and energy efficiency programs that can further reduce industrial customers' bills.

The Fraser Institute study is especially critical of the GEA's focus on wind generation. It claims 80% of Ontario's wind-power generation occurs when electricity demand is so low that the entire output is surplus and must be dumped on the export market at a substantial loss.

The Auditor General of Ontario estimates that the province has already lost close to \$2 billion on surplus wind exports, and the report says figures from the electricity grid operator show the ongoing losses are \$200 million annually.

The wind grid is described as inherently inefficient due to the fluctuating nature of the power source. The report calculates that due to seasonal patterns, seven megawatts of wind energy are needed to provide a year-round replacement of one megawatt of conventional power.

"Consequently, the cost of achieving renewable energy targets for the coming years will be much higher than the Ontario government's current projections," McKittrick says. "In fact, air emissions may start going up under the GEA if the growing surplus of wind and solar power necessitates taking one of Ontario's nuclear power plants offline."

The Canadian Wind Energy Association (CanWEA) says the Fraser Institute takes a "simplistic approach" to examining the benefits of the GEA, and highlights its reliance on "the widely criticized" 2011 annual Report by the Auditor General of Ontario.

Although electricity prices are increasing across North America as jurisdictions upgrade "ancient electricity systems," CanWEA vice-president Chris Forrest says "wind energy is cost-competitive with virtually

every potential new source of generation available in Ontario and it does not create hazardous waste or consume vast amounts of fresh water from our Great Lakes."

The Ministry of Energy dismissed the idea of scrubbing old coal-fired power plants, saying there is no proven technology that prevents coal plants from emitting greenhouse gases. "On the other hand, wind and solar power emit zero greenhouse gases, zero smog-causing pollutants and zero mercury."

It says new rules enabling the "dispatch" of wind generation in Ontario's electricity system are to be implemented by the fall. "Once the rules are in place, wind can be turned off when generation is not needed, decreasing the need for temporary shutdowns of nuclear units."

And it also allows there may be adjustments: "As we move forward we will continue to look at all options to strike the balance between reliability and affordability, while continuing our work on modernizing our electricity system."

Those potential adjustments will likely be impacted by the government's response to a World Trade Organization upholding a complaint from the EU and Japan that Ontario's program to promote green energy violates international rules. The complaint centres on the GEA's requirement that a percentage of solar and wind components be made in the province.

Energy minister Bob Chiarelli has said the province isn't about to abandon its green energy initiative, and he told the CBC Ontario will be working with the federal government to address the ruling's implications.

The province's manufacturers will also be monitoring the act's impact on their operations. Howcroft observes that growing the manufacturing base will require more energy, so it must have a reliable supply. "And as our members keep reminding us, it has to be cost competitive. [When you] look at what the US, Quebec and Manitoba provide to their manufacturers, the energy file is not looking too positive for Ontario manufacturers."

Download the *Environmental and Economic Consequences of Ontario's Green Energy Act* at www.fraserinstitute.org under Research-News.

Comments? E-mail jterrett@plant.ca.



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» Forest Products

Companies collaborate Focusing on sustainability

After several challenging years, the world's forest products sector is showing signs of recovery, and Canadian companies are collaborating to take advantage of growth opportunities, according to the forestry segment in PwC's recent 16th Annual CEO Survey.

"We are seeing optimism that demand and prices will continue to strengthen in the solid wood sector, but recovery in the pulp and paper sector will likely lag," said Mike Vermette, partner in PwC's Deals practice.

If US housing continues to rise over the medium term and China's economy continues to grow as predicted, he says the stage is being set for a potentially strong market for softwood lumber.

He says CEOs are still watchful of economic volatility, energy costs, access to raw materials, and a shortage of skilled labour, which if not carefully managed, may limit growth once the sector kicks into high gear.

The survey results show forest products CEOs are targeting pockets of opportunity and applying non-traditional business models as a way to control costs, manage risks and develop new markets.

Half of those surveyed said they entered into a new strategic alliance or joint venture last year, in some cases involving new business areas or with organizations along the supply chain.

PwC cites an example of a strategic alliance that involved four BC forest products companies chartering a cargo ship to move their products to the developing Chinese market.

"This collaboration allowed these companies to decrease logistic uncertainty and risk, which has plagued exporting goods to Asia in recent years," said the global consulting company.



Strong market predicted for softwood lumber.

PHOTO: THINKSTOCK

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C I E N

CANADIAN INDUSTRIAL EQUIPMENT NEWS



VKS's auto-advance feature keeps the system and operators in sync.

PHOTO: CMP AMS

Ground ZERO

WHERE DEFECTS ARE ELIMINATED AS VARIABLES TO PRODUCTION

Enclosure manufacturer CMP developed its VKS software to reduce defects and now it's available to other manufacturers.

BY MATT POWELL, ASSISTANT EDITOR

Zero defect manufacturing is a big promise to make, not that CMP Advanced Manufacturing Solutions is making such a pledge just yet, but the designer and manufacturer of large-sized metal enclosures is confident its Visual Knowledge System (VKS) software will help it get there.

CMP, founded in 1969, is a family business started by Hans Zimmermann. Now the company is helmed by Zimmermann's son Steve, 52, who invested more than \$5 million in VKS, a project implemented at its Chateauguay, Que. plant by his own son Ryan, 24. The system has helped CMP reduce production variables.

The company's 138,000 square-foot facility in Chateauguay, a suburb of about 45,000, 30 minutes southwest of Montreal, produces painted shells for

ultra-sound machines, security scanners and server racks. It's also making doors for the next generation of Bombardier metro (subway) cars and bicycle stands for Bixi, the urban bike-rental system.

CMP employs more than 200 people in Quebec, 100 employees at a factory in Binghamton, NY, and another 100 in Zapopan, Mexico, which sells mostly to Mexico and the southern US; and it's set to hit sales of \$70 million this year. More than 90% of its products are destined for US-based customers.

It will also make lithium-ion battery enclosures for Tesla, which makes those high-end electric cars, a project the youngest Zimmermann says CMP wouldn't have been able to complete before VKS.

"Twenty years ago we wouldn't have considered (Tesla) because of the risk. With VKS we can cover our backs," says

Ryan, VKS's implementation manager.

Now the software, officially introduced in April at the American Society of Quality Conference in Indianapolis, is available to other manufacturers.

"We had to find a way to redefine ourselves and stay relative and competitive in the market," says Zimmermann. "We were looking at ways to increase productivity and cut labour costs while making sure we were producing super high quality product, and VKS is the answer."

The system allows companies to create an electronic or hard copy Visual Instruction File (VIF), a document that illustrates a process through a combination of digital images and text that are easy to understand and show realistically how a process or job needs to be performed.

The VIFs are displayed on wireless, touch-screen viewer stations, and the software is cloud based – a valuable feature that allows companies to access their own system securely in different parts of the world.

Continued on page 28

» Supply Lines

BORDEN REPS LIND

Lind Equipment has appointed the Borden Agencies as its electrical sales agent in Alberta.

The Markham, Ont.-based company manufactures static grounding, hazardous location and industrial work lighting, portable power, and GFCI products.

Sales reps will be working from Calgary and Edmonton.

NEW MARMON WAREHOUSE

Marmon/Keystone Canada is opening its seventh warehousing facility in Quebec City, a satellite of the larger location in Boucherville, Que.

The 24,500 square-foot metals service centre will supply stainless and carbon pipe, tube and bar products to customers within a 160-kilometre radius of the city.

Main industries served include transportation, machining, mining, and manufacturers of hydraulic cylinders and food processing equipment.

TORONTO BASE FOR HELUKABEL

Helukabel has opened its Canada headquarters in Toronto. The manufacturer of cable, wire and accessories will house its Canadian corporate, sales and warehousing/distribution operations there.

"Canada's continued industrial and renewable energy expansion made adding a domestic distribution centre a logical choice to further enhance our services to the market," said Alex Kanouni, the company's general manager.

He said the central location will allow Helukabel to reach the entire country within a few business days.

\$81M MEDEVAC DEAL

FLIR Systems Inc. has been awarded a two-year, \$81 million blanket purchase deal from the US Army to support its MEDEVAC program.

The sensor manufacturer will supply its military qualified Talon MMS product, a stabilized 9-inch multi-sensor gimbal system for MEDEVAC Blackhawk helicopters.

The instruments will be made at FLIR's Billerica, Ma. facility.

PT/MC MARKET EXPANDS

The power transmission/motion control (PT/MC) industry expanded for a 12th consecutive quarter at a slightly faster pace than the fourth quarter of 2012, reports the Chicago-based Power Transmission Distributors Association (PTDA).

The Q1 reading of 61.1 represents a substantial increase over last quarter's reading of 50.7, but it's lower than previous years (85.5 in 2011 and 75.4 in 2012).

Improves quality

Continued from page 27

"I can send an e-mail from Mexico requesting a visual aid for a specific process, and our software editors upload it immediately from Montreal," says Zimmermann.

No more digging for documents in a file cabinet to figure out what to do with specific pieces or products. Instead, operators scan a bar code attached to the piece, then video and written instructions appear on the touch screen. CMP claims the technology boosts quality, an operator's efficiency and productivity.

"We threw a lot of different methods concepts around, and eventually visual instruction started to make its way around the shop," says Zimmermann. "Eventually the concept turned into a web-based application, which created more opportunities for features."

In 2011 CMP started to invest heavily in the technology, hiring three back-end and front-end software designers. When it put the system to work, the pemsert rejection rate was reduced by 70%.

"We needed to optimize implementation at our own operations first and now we're able to show our customers the impact it had here, which is huge for us," says Zimmermann.

Greater accountability

The system also manages inventory, equipment up-time, internal monitoring, process control and standardization.

"We can draw reports on every job; who opened it, how long they took to complete it, how many parts they did and whether or not they finished the job within the required time," says Zimmermann. "This results in full traceability and accountability within the shop. We also take that information and draw KPI data."

A customizable form option appears at a pre-determined time allowing operators to acknowledge certain requirements and input requested data, which is then stored in an online archive.

"Those forms can be customized as quality checklists, which we're able to provide to customers," he says.

An auto-advance tool links machines and tools with the VKS system so the software acknowledges when the operator completes a step in the process, progressing to the next one only when the system recognizes the prior one is complete. Adding to the cool factor: the system actually links with specific screw torques if specific parts require it.

"That feature gives us the ability to build more complex parts for industries where zero defect guarantees are required," he adds.

And as technical as the system may be, using it is easy.

"If you use Microsoft Word, you can use VKS. We've got people in our shop in their 60s using the system who have never touched a computer before..."

With internal testing processes complete, the team will shift its energy to getting the product out to customers. Zimmermann says CMP will also offer implementation and consulting services.

As for pricing, CMP will charge a monthly fee based on user accounts, depending on the kind of user. Standard users are shop-floor employees, or "readers" amounting to \$13.50 a month each.

"Authors" or administrators – the people who actually create the visual instructions, manage a company's back-end, and generate reports and key performance indicators – would cost \$135 per month each.

CMP says a company of about 100 people would require up to three privileged users, while the remainder would be standard users.

As VKS customers get their plants in order, CMP will continue working on reaching the Ground Zero of defect-free production.

Comments? E-mail mpowell@plant.ca.

Air compressors

DUPLEX COMPRESSOR DOUBLE PUMPS

Jenny Product's single- and two-stage duplex compressors are equipped with two pumps and two electric motors that operate separately or at the same time. This allows the second pump to serve as a back up or complement the first pump to accommodate greater airflow needs.

They're powered by industrial-duty electric motors and come with ASME-certified air tanks. Single-stage models with 60- and 80-gal. tanks provide 19.6 to 55.6 cfm at 125 psi. Two-stage models with 120- and 240-gal. capacities produce 36.6 to 214 cfm at 175 psi.

Features include a directional air shroud and large flywheel to keep pump temperatures low. A splash lubrication system using Ultimate



ASME-certified air tanks.

Blue synthetic pump oil protects pistons, crankshaft, bearings, rings and cylinders. And protectively mounted fittings plus heavy duty, enclosed belt guards protect the

units against harsh environments. Also standard are a tank gauge, alternator, magnetic starter, large canister intake filter with replaceable filter elements, auto start/stop control, thermal overload protection and special unloading valves. Oil sight glass, dryer, aftercooler, lubricator, air line filter, circuit control transformer and low oil-level switch are optional.

Jenny Products Inc. is a manufacturer of air compressors based in Somrset, Pa.

www.jennyproductsinc.com
www.plantmagazine.ca/rsc/1

VACUUM WITH MORE CAPACITY

EXAIR's 110 gallon heavy duty Dry Vac System is a rugged, industrial duty vacuum cleaner that sucks up large volumes of dry materials. A higher capacity drum requires fewer changes.

The compressed air-powered vacuum has no motors or impellers to clog or wear out, making it suitable for the clean-up of abrasive materials such as steel shot, garnet, metal chips and sand. It runs at a quiet 82 dBA (half the noise of electric vacuums) and surrounding air is kept clean by the 0.1 micron filter bag that traps dusty particles.

It comes with a 10-ft. static resistant hose, 20-ft. compressed air hose, shutoff valve, pressure gauge, aluminum tools, tool holder, drum dolly and a 110 gal. drum.

Exair is a manufacturer compressed-air products based in Cincinnati.

www.exair.com

www.plantmagazine.ca/rsc/2



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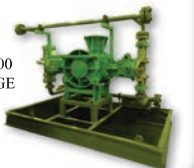
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FOR CONTINUOUS USE APPLICATIONS

The Iroquois K100 rotary screw compressor from DV Systems Inc., an air compressor systems manufacturer based in Barrie, Ont., operates at a 100% duty cycle and is well suited for continuous-use applications where reliable, dry, clean air is required.

The 100-hp unit delivers 463 scfm at 100 psi and an integrated, modular design makes the Iroquois a compact, quiet (at 75 dBA) system that provides high-capacity air delivery and stable system pressure.

Variable speed, direct drive technology provides operating flexibility while optimizing energy consumption.

Also in the product line-up is the heatless, regenerative desiccant air dryer for sensitive applications requiring clean, dry and contaminant-free compressed air. All models are equipped with a purge-adjusting valve for alignment with system-specific demands. Optimizing the time the dryer spends purging during the regeneration cycle reduces energy costs. And the ETC catalytic converter actively oxidizes hydrocarbons into water and carbon dioxide for pharmaceutical, food and beverage and electronics industries applications.

www.dvsystems.ca

www.plantmagazine.ca/rsc/3



Delivers 463 scfm at 100 psi.

PORTABLE UNITS SAVE ENERGY

Comairco has put its portable All Weather Air (AWA) compressors in insulated, self-contained packages for placement wherever space is an issue. Six models come in sizes from 254 to 320 cm high and lengths from 335 to 823 cm.

They're for use inside or outside (in temperatures ranging from -40 to 49 degrees C) and they run on electricity making them cheaper to operate than diesel portables, but also better for the environment.

The heavy duty, sound-attenuated enclosure with easy access doors has forklift pockets for easy

movement and placement. Controls are fully automated and circuit breakers are built-in.

All models are either variable speed drive or fixed speed. Variable speed with Sullair spiral valve technol-

ogy delivers energy savings and a range of capacities and pressures.

Comairco, which provides air compressor systems from operations in Quebec, Ontario, Manitoba and Saskatchewan, also offers optional remote monitoring.

The controllers come in different screen sizes, they're web accessible and have Modbus Ethernet capability. They feature pressure and temperature alarms, a 24 VDC power supply and they're programmable to customer specs.

www.comairco.ca

www.plantmagazine.ca/rsc/4



Six self-contained models.

HEAVY ON PRODUCTIVITY



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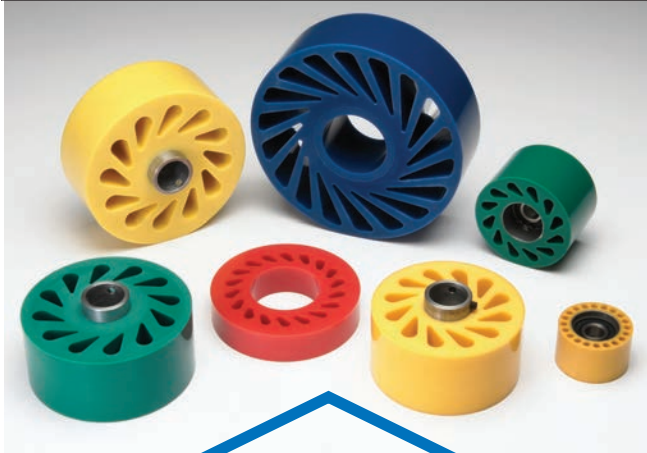
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www.plantmagazine.ca/rsc/118

AIR COMPRESSORS



Quick connect installation.

quick connect installation using standard electrical power or portable generators for either indoor or outdoor applications.

Sullair, a manufacturer of rotary screw air compressors based in Michigan City, Ind., claims 67% lower operating costs than equivalent diesel-driven compressors.

The system is powered by a 214 hp TEFC electric drive motor with Wye-Delta starter, and provides emission-free operation.

A deluxe instrument panel includes easy-to-read gauges and visual alerts to compressor operating conditions and service prompts. Large lockable enclosure service doors provide ample access to the motor and compressor for service and maintenance. And a highway towable tandem axle supports a full fluid containment retention frame. Electric brakes, restraining tow chains and taillights are included.

www.sullair.com

www.plantmagazine.ca/rsc/5

EMISSIONS-FREE OPERATION

Sullair's E900H electric portable air compressor delivers 900 cfm at operating pressures up to 150 psig.

Its 460-V, three-phase 60 Hz cam lock electrical connections provide

SENSORS



Minimizes downtime.

OPTIC SENSORS SEE MORE

WTB4 MultiLine Photoelectric sensors from SICK USA use optics to create two line-shaped light spots that continuously detect objects with large gaps (such as PCBs and products that are shiny or dark) from leading to trailing edge in a range of packaging and semiconductor applications.

Both light sources must reflect the light back to the sensor to activate the output. Once they're returned, the sensor stays active even if one of the light beams is not returned. Using two light streams minimizes downtime caused by incorrect detection from single point sensors.

SICK's ASIC technology incorporates OES3 to boost background suppression and allow the sensors to ignore shiny targets, detect multi-coloured objects and enhance ambient light immunity.

SICK, based in Minneapolis, manufactures sensors, safety systems and automatic identification products for industrial applications.

www.sickusa.com

www.plantmagazine.ca/rsc/6



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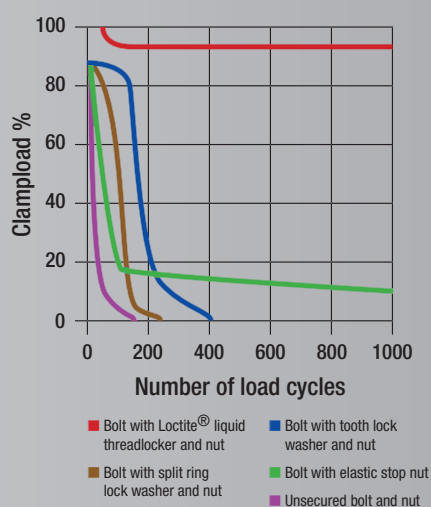


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CLAMPLOAD RETENTION COMPARISON



Accurate output signals.

GAUGE VOLUME FLOW

Dwyer Instruments Inc.'s MFS magnetic inductive flow sensor is applied to processes involving contaminated media and provides accurate frequency output signals proportionate to flow.

Dwyer, a manufacturer of testing and measurement equipment based in Michigan City, Ind., says the sensor is suitable for reversible gauging of volume flow of conductive liquids in closed piping operations.

Touted as an alternative to a paddle wheel sensor, the MFS contains no moving parts, minimizing mechanical wear. Its measuring technique features an obstruction free pipe cross-section for operation without interference.

Changes in liquid temperature, density, viscosity, concentration or electrical conductivity don't affect the sensor's output signal.

www.dwyer-inst.com

www.plantmagazine.ca/rsc/7



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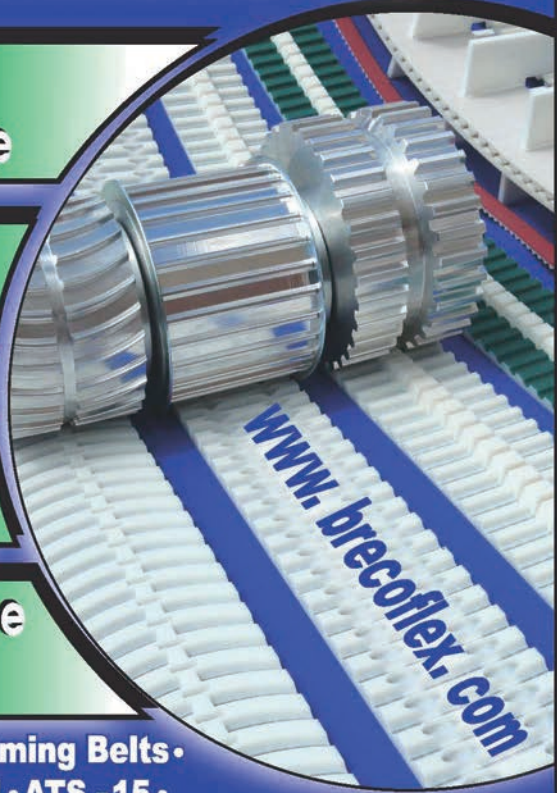
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DAYLube lubricant grease from Dayton Progress uses nanoceramic particles that act as sub-microscopic ball bearings to provide continuous lubrication to steel surfaces on heavy equipment such as loaders, dozers, haul trucks, excavators, skidders and crushers.

With a much lower friction coefficient at all temperatures than traditional PTFE greases, chemically inert DAYLube is also environmentally friendly. It maintains its viscosity across the full temperature range and does not soften or run out. Adhesion extends production up to 10-times that of other greases by providing significant friction reduction and wear-resistance.

DAYLube operates in temperature ranges from -40 to 425 degrees C, while the nanoceramic particles remain intact to 1,300 degrees C. The lubricant has high load-bearing properties, a low dielectric constant, does not contain metal or silicone and is resistant to steam, acids, and most chemical products.

Dayton Process is a Dayton, Ohio manufacturer of nanoceramic greases and precision punches.

www.daytonprogress.com
www.plantmagazine.ca/rsc/8

VISION

CAMERAS ELIMINATE THERMAL GUESSWORK

FLIR Systems Inc.'s FLIR A5sc, A15sc, and A35sc long wave infrared thermal imaging camera kits ease thermal bench-top testing applications in tight machine locations. The vision systems are available in a variety of pixel resolutions from 80x64 and 160x128 up to 320x256 to meet multiple spatial resolution requirements.

The thermal imaging cameras provide technicians, researchers and manufacturers with a non-destructive, non-contact T&M tool that helps eliminate temperature measurement guesswork during product development and on the production line. The tool sees heat patterns and extracts temperature values via live and recorded imagery, and infrared technology.

The kits include a compact goose-neck stand for easy aiming. Cameras are light and compact measuring 4.2 x 1.6 x 1.7 in.



Eliminates
guesswork.

Plug-and-play compatibility through GiGE Vision and GenICam protocols, and a 60 Hz frame rate for streaming images provides camera control and image capture in real time.

FLIR is a manufacturer of thermal imaging systems based in Portland, Ore.

www.flir.com

www.plantmagazine.ca/rsc/9

IDENTIFY PLANT ISSUES FAST

Identify issues on manufacturing lines quickly using Cognex Corp.'s VisionView 900 industrial operator panel for both In-Sight vision systems and ethernet-ready DataMan barcode readers feature. A 9 in. display helps operators.



Ethernet-ready vision.

The IP65-rated touch screen displays images and overlay graphics. Operators can modify inspection parameters, adjust camera focus, load and save jobs previously configured on the vision system. It saves images for subsequent troubleshooting and process optimization using ethernet networks or built-in USB ports and password protection regulates the operator's control over regions of interest and vision tool parameters.

Cognex Corp. is a manufacturer of machine vision and industrial ID systems based in Matick, Mass.

www.cognex.com

www.plantmagazine.ca/rsc/10

WATER TREATMENT



12.5 million gallons per day.

WATER CANNON MAXIMIZES FOAM SUPPRESSION

The Turbo X-Treme Magnum Water Cannon from Airmaster Aerator provides maximum foam suppression thanks to an upgraded, high-efficiency 50 hp floating/surface aerator, which pumps up to 12.5 million gallons of water per day.

Airmaster, a manufacturer of industrial water treatment equipment based in DeRidder, La., says the aerator is for industrial, agricultural and disaster recovery applications.

The water cannon is powered by a separate 7.5 hp grinder pump, rotates 360 degrees in 1 min. 35 secs., and sprays more than 100 gal. of water in a 230-ft. or so diameter, achieving foam suppression, aeration, evaporation and cooling.

An optional chemical injection port adds enzymes and de-foamers.

www.airmasteraerator.com

www.plantmagazine.ca/rsc/11

ABRASIVES

WHEELS DEBURR STAINLESS STEEL PARTS

Rex-Cut Abrasive's Smooth Touch type 1 wheels for robotic deburring and finishing precision stainless steel parts are made from cotton fibre impregnated with abrasives and a proprietary bond. Together they create a dense, yet flexible wheel that constantly reveals fresh abrasives as it works.

Comparable to conventional 5-9 density unitized wheels, they operate at speeds up to 30,000 rpm depending on diameter and thickness, and last up to five times longer.

They're available in coarse, medium, and fine grits in 2, 3, 4, and 6-in. diameters.



Alternative to diamond abrasives.

Meller Alumina Powders are offered in a Microlux-R version. Large agglomerated particles that break down under pressure for final polishing are 99.98% pure.

For fine grinding and uniform polishing, Microlux-RZ powders are 99.99% pure and deagglomerated with controlled particle sizes.

Meller Optics Inc. is a developer of optics finishing processes based in Providence, RI.

www.melleroptics.com

www.plantmagazine.ca/rsc/13

TEST AND MEASUREMENT

MULTIMETRE OPTIMIZES BENCH DESIGN

Keithley Instruments Inc.'s 2110 5-1/2-digit dual-display multimeter handles a number of general-purpose system and bench design applications. Features include external triggering, a built-in reading buffer and an optional GPIB interface.

Capabilities include: DC voltage (up to 1,000 V) and current (up to 10 A); AC voltage (up to 750 V) and current (up to 10 A); two- and four-wire resistance (up to 100 mega-ohms); temperature, frequency (10 Hz-300 kHz) and period; and capacitance (1 nanofarad to 100 microfarad ranges) measurements.

A variety of mathematical functions and diode and continuity test functions are also

MOTION CONTROL

ACTUATORS PACK PEAK FORCE

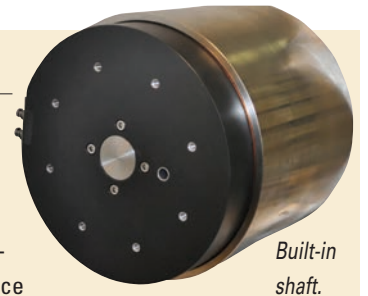
BEI Kimco Magnetics' LA100-93-000A high force linear actuators pack a peak force of 500 lb., a strength that would typically require two actuators. Applications include environmental stress testing for lab equipment, military and aerospace equipment, and industrial and testing environments.

The actuators feature a continuous force rating of 292 lb. with 2-in. to boost peak force rating. A semi-housed construction with built-in shaft and bushings orients the coil assembly concentric to the field assembly, making the actuator fast-mounting. The unit measures 10 in. in diameter and 9.3 in. long at mid stroke.

El Kimco Magnetics is a manufacturer of motion control products based in Vista, Calif.

www.beikimco.com

www.plantmagazine.ca/rsc/16



Built-in shaft.



GPIB interface.

included. A programmable A-D converter and filter settings optimize the signal-to-noise ratio to improve measurement accuracy. At the fast 4-1/2-digit setting, it takes up to 50,000 readings per second.

The instrument's dual display shows results from two measurements simultaneously, such as DC voltage and temperature, so users can monitor temperature fluctuations without interrupting other measurements.

Keithley Instruments is a manufacturer of electrical test equipment based in Cleveland.

www.keithley.com

www.plantmagazine.ca/rsc/14

It achieves Tier 4 Interim certification thanks to cooled exhaust gas recirculation (CEGR) technology and a diesel particulate filter. A Case turbocharged engine rated at 78 net hp (58 kW) boosts fuel efficiency by a minimum of 5%.

Productivity and efficiency are enhanced by retaining more material during the dump cycle. Material spillage is reduced thanks to optional Ride Control technology.

A three-point hitch with variable-flow hydraulics boosts precision and lift capacities, and an optional hydraulic power takeoff and dual tilt on the box blade offer greater versatility.



Variable-flow hydraulics.

The 570N XT has an operating weight of 12,898 lb., bucket breakout force of 9,271 lb., and hinge pin height of 11 ft. 3 in.

Case, based in Racine, Wis., manufactures construction equipment.

www.casece.com

www.plantmagazine.ca/rsc/15

CONSTRUCTION

LOADER BOOSTS PRODUCTIVITY

The 570N XT loader/tool carrier from Case Construction Equipment enhances fuel economy, productivity, breakout force and reach.



Speeds up to 30,000 rpm.

Rex-Cut is a manufacturer of cotton fibre abrasive grinding and finishing products based in Fall River, Mich.

www.rexcut.com

www.plantmagazine.ca/rsc/12

POWDERS EASE OPTICS GRINDING

Microlux Alumina Powders from Meller Optics come in two grades and seven particle sizes from 0.05 to 3.0 µm for surface finishes to 10-5 scratch-dig on a variety of hard and soft optical substrates.

Ready to mix with de-ionized water, the alumina abrasives are an alternative to diamond abrasives for optics grinding, lapping, and polishing applications.

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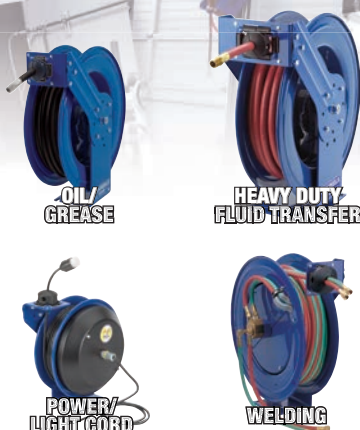
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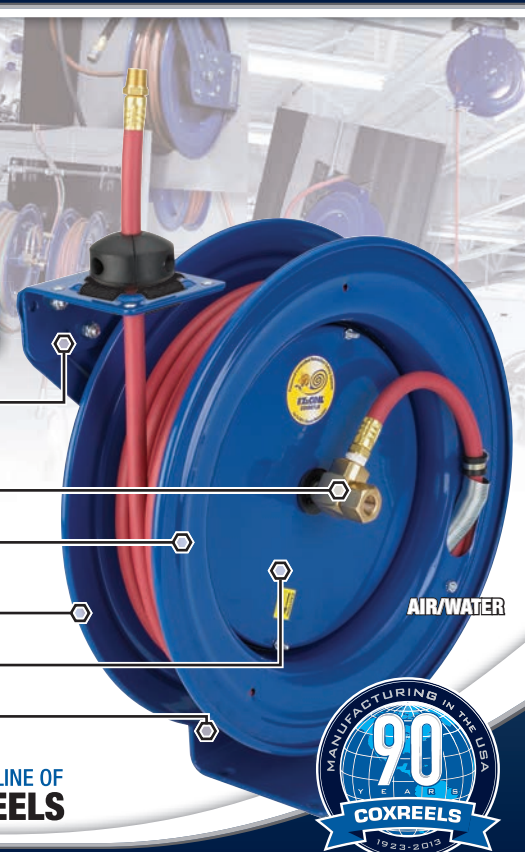
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» Buying & Selling

A new machinery marketplace

Conduct business directly on the List A Tool website

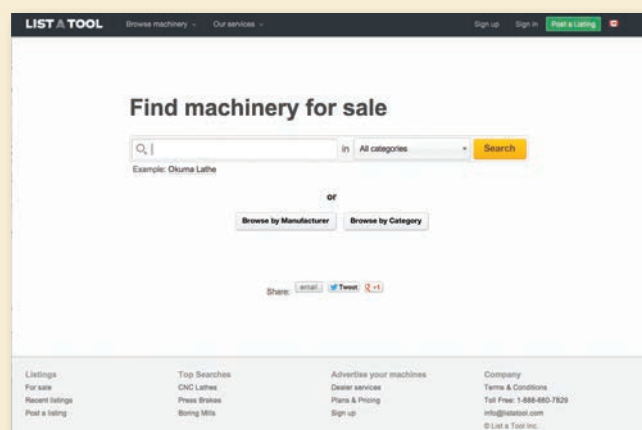
Looking for a machine or tool? Maybe you have some equipment to sell. The challenge is to get the word out and hook up with the right people. Using the internet makes sense but it's so...infinite; and all that Googling requires lots of sorting and sifting to find specs and source suppliers. What's needed is a machinery and equipment marketplace that functions like a dating service but allows buyers and sellers to do business directly, unencumbered by a third party.

The founders of List A Tool (www.listatool.com) have done just that.

Norman Holesh, who has a regular gig as COO at a private-label manufacturer in Mississauga, Ont., and Nick Efimov, a webhead who has indulged his passion for programming, web applications and site development for the past seven years, noticed there wasn't much of a modern marketplace for machinery and equipment.

"Finding information about a piece of equipment is difficult because there's no library to go to," says Holesh.

About a year ago Efimov went to work putting together what would be a database of equipment information that's graphically simple and easy to use with two main goals: to provide a marketplace for manufacturers looking to buy or sell pieces of equipment; and to do the same for distributors and wholesalers, with lots of units for sale on a regular basis.



List A Tool's format keeps it simple for buyers and sellers.

Industrialmachines.net sells programs to advertisers, as does **www.northamericanmachinery.net** out of Philadelphia. On the WOTOL (www.wotol.com) site based in Lyon, France, the buyer has to pay a fee to see the sellers and advertisers buy programs. However, the deal on List a Tool, like the layout, is simple.

An end user looking for a piece of equipment or wishing to sell one just has to post it. No cost. Leads generated by the site go directly to the seller and there's no commission payable.

List A Tool will make its money from the wholesalers/distributors who have lots of machines to sell on a regular basis. There are various advertising plans, starting with the first 10 listings for free. After that they start at 25 machines for \$100 a month and work up to 500 for \$750.

The advantage for sellers is the visibility of a worldwide marketplace. And set-up is simple. Everything is on one page, you can load multiple images at one time, post YouTube videos, put up brochures, and listings are search optimized.

Holesh and Efimov will be tweaking the service as they go along and a natural extension will be to host company sites, saving small dealers the cost of designers and developers.

"We see this as a huge benefit to them and the next step forward," says Efimov. — Joe Terrett

Comment? E-mail jterrett@plant.ca.



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The ScrubPac VentClean system from Bionomic Industries Inc. removes more than 99% of storage tank and rail car vent emissions caused by breathing and filling operations. A triple action scrubbing technology, which is available in four sizes and handles gas capacities from 0 to 1,500 acfm, is suggested for use in HCI recovery, the removal of acid gases, alcohols, formaldehyde and amines.

The Type 1 operating configuration uses water on a once through basis. Type 2 incorporates a circulation pump and uses water at a reduced consumption rate, or a chemical reagent, such as sodium hydroxide on a re-circulated batch basis. The system's super tough, corrosion resistant construction lasts in hard in-field operations and a low-pressure scrubber design



Corrosion resistant.

avoids dangerous over-pressurization of fibreglass and plastic storage tanks.

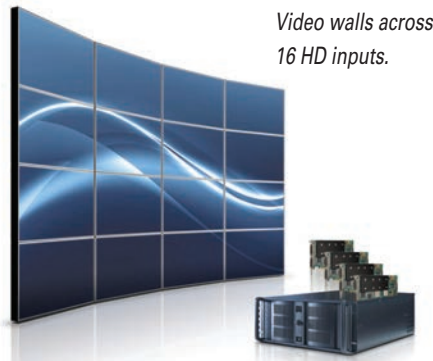
Bionomic is a manufacturer of air emissions reduction equipment based in Mahwah, NJ.

www.bionomicind.com
www.plantmagazine.ca/rsc/17

CONTROLS

DIGITIZE SIGNAGE AND PROCESS CONTROLS

Matrox Graphics Inc. and Seneca have partnered to build Mura MPX-based video wall controllers. Matrox's Mura MPX technology includes integrated inputs and outputs, and universal input capture on each PCIe x16 Gen2 card. The four-board controller enables integrators to build



Video walls across 16 HD inputs.

video walls across 16 HD inputs.

The 4U rack-mountable video wall solution fulfills project requirements for small-to mid-sized video wall installations in digital signage and process control applications.

Mura MPX Series video wall controller boards facilitate video switching, signal conversion and scaling from their multi-functional, single-slot design. Optional Matrox MuraControl for Windows video wall management software creates and manages layouts (presets) through quick manipulation of source content on all Mura-powered installations.

Matrox Graphics is a manufacturer of specialized graphics solutions based in Montreal.

www.matrox.com
www.plantmagazine.ca/rsc/18

GRINDING



Swivel axis shortens cycle times.

EXTREME METAL REMOVAL RATES

Grind with superior precision and at extreme metal removal rates with United Grinding Technologies' Studer S41 CNC. The universal cylindrical grinders longitudinal and cross slides, with a wheel-head swivel axis makes movements

SWITCHES

SWITCH RESISTIVE AND INDUCTIVE LOADS

Carlo Gavazzi's RGC2 and RGC3 3-phase switching solid state relays and contactors are an innovative solution for 2- and 3-pole switching of 3-phase loads, intended to replace electromechanical contactors when speed switches are frequent.

The units, available in two frame sizes (54 or 70 mm wide) switch resistive and inductive loads, and are UL Listed as motor controllers. Integrated overvoltage protection, high I2T ratings and immunity conformance to industrial standards ensure reliable operations, while a thermal design improves product lifetime.

They're available in current ratings of 25, 40 and 75 AAC per pole at 40 degrees C and are UL certified motor rated up to 25 hp and 600 VAC. The 3-pole switching device offers five current ratings ranging from 20 to 65 A per pole.

An optional monitoring feature offers the possibility of detecting status of mains and load, as well as internal RGC failures: open or short circuit and overheating. Alarming is implemented with LED indication, electromechanical relay output and auxiliary transistor output.

The company, based in Buffalo Grove, Ill., manufactures industrial automation products.

www.gavazzionline.com
www.plantmagazine.ca/rsc/21



Replaces electromechanical contactors.

around the working position swift and precise to shorten grinding cycle times.

A Granitan S103 machine bed provides a solid, rigid and thermally stable S41, offering an integrated guide system with a stable basis that absorbs the high forces of grinding at high metal removal rates. The guideways of both the longitudinal slide and the cross slide are moulded directly into the machine bed to boost precision.

A StuderGuide system uses hydrostatic and hydrodynamic guides to avoid the slip-stick effect or floating of the slide. Solid gray cast iron longitudinal and cross slides rest completely on the guideways over the entire travel path.

United Grinding Technologies, a manufacturer of grinding machines based in Miamisburgh, Ohio, says up to four external wheels or three internal spindles enable more than 30 grinding head combinations.

Internal grinding spindles handle speeds up to 120,000 rpm.

www.grinding.com
www.plantmagazine.ca/rsc/19

SAFETY

INTERLOCK MAKES HARSH ENVIRONMENTS SAFE

Kirk Key's HD Series Type DM access interlock protects equipment and workers from costly errors during electrical and switchgear maintenance. The heavy duty interlock ensures steps can't be skipped and a safe, pre-determined sequence



Handles high temperatures.

of operations is followed. Made from electro-polished 316 stainless steel, the interlock handles high temperature and corrosive environments such as wash-down, coastal or harsh industrial environments and offers a simpler, powerful key and cylinder mechanism with no openings and few moving parts.

Shaft-driven, it's highly resistant to dirt and debris, while a gasketed key and dust cover further prevents debris from entering the interlock cylinder. It's applicable for hinged doors, manhole covers, sliding door hatches or equipment that will not accommodate a precise fitting door lock or requires varying travel to latch.

Kirk Key is a manufacturer of key interlocks and interlocking systems based in Massillon, Ohio.

www.kirkkey.com
www.plantmagazine.ca/rsc/20

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WELDING



For post-weld heat treatment.

WIRE HANDLES HIGH STRESS

Lincoln Electric's UltraCore SR-12 gas-shielded flux-cored wire exceeds AWS E71T-12M-JH8 requirements in as-welded and stress-relieved conditions with impacts of 110 - 200 J at -40 degrees C.

Use the wire for pressure vessel fabrication and other applications that require post-weld heat treatment (PWHT) of mild steel.

This flux-cored wire also conforms to AWS A5.20/A5.20M and E71T-1M-JH8, E71T-9M-JH8 classifications.

UltraCore SR-12 wire is a standard .045 in. (1.1 mm) diameter, and comes in 15 lb. or 33 lb. packages.

The Lincoln Electric Co., headquartered in Cleveland, is a manufacturer of arc welding products.

www.lincolnelectric.com

www.plantmagazine.ca/rsc/23

VALVES

COMPRESSION-END VALVES HANDLE BIG PSI

Brennan Industries Inc., a manufacturer of hydraulic fittings and adapters based in Cleveland, has a new line of compression-end instrumentation valves that are available with single or double ferrule style tube fittings.

NVB ball valves are available in sizes up to 3/4 in. and are made from either 316 stainless steel or brass. They have two- or three-way configurations and are rated to 3,000 psi.

NVN-2200 and NVN-2300 screwed bonnet needle valves range in sizes from 1/8 in. to 1 in. and are available with either metal-to-metal or soft-seat stem types. The 316 stainless steel valves are rated to 6,000 psi, while the brass version is rated to 3,000 psi.

NVN-2000 and NVN-2100 integral



Available with single, double ferrules.

bonnet needle valves are available in sizes up to 1 in. with metal-to-metal stem types with "V" stem tip form. The check valves are made with o-ring seat seals and are rated to 6,000 psi in the 316 stainless steel version. Brass valves are rated to 3,000 psi.

www.brennaninc.com

www.plantmagazine.ca/rsc/24

CUTTING TOOLS

LT5 HANDLES ALL TYPES OF METALS

BLM Group is touting its Lasertube LT5 automated laser tube cutter handles small and medium-sized tubes thanks to a 1 kw IPG fibre laser so it's able to handle mild steel and highly reflective materials such as aluminum, copper and brass.

The cutter's fibre laser boosts energy efficiency compared to traditional CO2 lasers, leading to a 50% reduction in hourly operating costs. It also eliminates routine laser maintenance and optical beam alignment.

BLM, a manufacturer of tube processing equipment based in Cantu, Italy, says the cutter's low operating costs, flexibility and high cutting speeds make it an ideal solution to cut costs and enhance small tube processing productivity.

It handles oval, rectangular, round and square tubes up to 5 in. in diameter and lengths up to 256 in. The length of the tube is automatically measured during preloading, permitting the machine control to optimize nesting and minimize scrap. An optional conveyor unload short-length cut pieces or collects scrap and end pieces.

The entire process is driven by Artube CAD/CAM software for laser tube



Cuts hourly costs.

cutting, a package that permits direct import of three dimensional CAD data, part simulation, cycle time generation, and advanced off-line nesting, all helping to reduce set-up time and scrap.

www.blmgroup.com

www.plantmagazine.ca/rsc/25

SEALS

DRY-RUN SEALS REDUCE FRICTION

Metallized Carbon Corp. has received regulatory approval from the FDA for its Metcar Grade M-58 seal rings to be used in food contact applications.

M-58, an electro graphite base material that contains a special additive to reduce friction and improve dry running wear rate, can now be used in dry running, food mixer seals to lessen seal friction and lengthen seal wear life.



Approved for food handling.

Dry running mechanical seals are used on large, vertical mixers to seal the clearance between the agitator shaft and the housing where the shaft enters the top.

Available fully machined to the customer's drawing specifications, the seal rings can be used in temperatures between -34 and 425 degrees C.

Metallized Carbon is a manufacturer of bearings for severe operating environments based in New York.

www.metcar.com

www.plantmagazine.ca/rsc/26

HYDRAULICS AND PNEUMATICS

ROD LOCK CONTROLS TRAVEL, DRIFT

Advanced Machine & Engineering Co.'s pneumatic series RLN Rod Lock control addresses problems inherent to pneumatics – over travel, drifting, bouncing and reverse travelling. The AMLOK Power-Off Rod Lock mounts to a NFPA cylinder, or as a stand-alone unit.

The patented AMLOK Type RLN is constructed of black anodized aluminum with a special piston and wedge locking mechanism actuated by multiple springs that mechanically lock the rod quickly and securely. The clamp is unlocked when air actuates the piston, compresses the spring and releases the locking device.

Features include: no rod displacement on engagement; large clamping surface that reduces pressure-per-square-inch on the rod, extending service life; fast response time; low backlash; 4 bar (60 psi) release pressure; precision holding 0.002-0.003; consistent clamping force in both directions; high cycle rates and accuracy; holds load during power/pressure loss; compact design, easy integration; versatile sleeve nut/tie rod mounting to NFPA style pneumatic cylinders; and many NFPA style-mounting attachments available for stand alone applications.

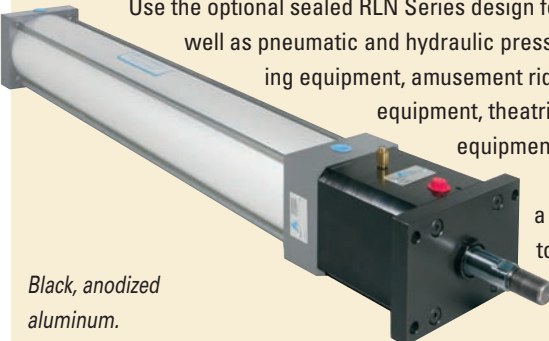
Use the optional sealed RLN Series design for food and wash down applications as well as pneumatic and hydraulic presses, scissor-lift tables, test and positioning equipment, amusement ride equipment, printing and paper handling equipment, theatrical equipment (platforms), assembly equipment and machine tool applications.

Advanced Machine & Engineering is a Rockford, Ill. manufacturer of machine tools.

Black, anodized aluminum.

www.ame.com

www.plantmagazine.ca/rsc/27





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» Plantware

WEGS REPLACE NETWORK CABLES

WAGO Corp.'s IP65 WLAN wireless ethernet gateways (WEGs) economize machine-to-machine networking.

The devices replace network cables by pairing with each other or an access point of the same radio technology. The 758-916 (2.4 GHz) and 758-917 (5

GHz) transmit data in MODBUS/TCP, EtherNet/IP or PROFINET up to 1,300 ft. (400 m) line-of-sight. Applications include motion-intensive, "disconnected" mobile or hard-to-connect packaging, construction and energy production machinery.

A streamlined IP65 housing featuring an integrated antenna (circularly polarized for heavily metallic environments), permits enclosure-free installation in industrial environments. And on-unit LEDs provide at-a-glance diagnostics/operational status updates.

A push-button and web-based management tool simplifies configuration and robust M12 cables provide power and ethernet connectivity.

The WEGs replace slip rings in machine building. When paired with WAGO SPEEDWAY 767 IP67 controllers and couplers, they support process applications such as wastewater pumps. Disconnected mobile applications include data transmission from railcars or other mobile devices to stationary collection boxes.

WAGO, based in Germantown, Wis., supplies electrical and automation technology for industry.

www.wago.us

www.plantmagazine.ca/rsc/28

REMOTEWATCH GETS AN UPDATE



Monitors control systems.

Invensys Operations Management has updated Remote-Watch, which proactively monitors the status and health of Foxboro I/A distributed control systems (DCS).

It continuously monitors operating KPIs and detects early stage issues such as available memory, CRC errors and other systems alarms and trends. Results of the analysis are transmitted using secure communications protocols.

Using applications that reside in a server located at the customer site and servers located at an Invensys operations centre, Invensys experts analyze the performance of the DCS. Invensys then works with the customer to take quick and corrective action.

The Remote Backup Service automatically stores system backups securely on the server. With Netsight Console, local and remote engineers troubleshoot network issues and Data Diode, a fail-safe mechanism, enforces one-way communications transmission while providing a barrier between the server and I/A Series DCS.

The device can't be breached by remote cyber attack, and it pushes and installs Foxboro I/A product quick fixes and McAfee anti-virus onto the DCS locally.

Invensys is a provider of automation and information technology software for manufacturers with representatives across Canada.

<http://iom.invensys.com>

www.plantmagazine.ca/rsc/29

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www.lpslabs.com/index

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www.plantmagazine.ca/rsc/130

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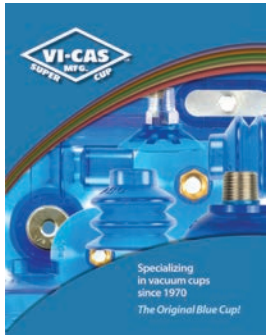
THE H50 ALGONQUIN Variable Speed Air Compressor by DV Systems is fully engineered from the ground up as a quiet, efficient and reliable package integrating variable speed technology throughout the entire unit.

www.dvsystems.ca

DV Systems

www.plantmagazine.ca/rsc/131

MOST POPULAR VACUUM CUPE



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

www.plantmagazine.ca/rsc/132

1/4 TON OF REFRIGERATION



EXAIR Vortex Tubes produce up to 10,200 Btu/hr. with no moving parts. Stainless Steel Vortex Tubes convert an ordinary supply of compressed air into two streams; one hot and one cold. Temperatures are adjustable from -50° to +250°F. Applications include cooling hot melts, cutting

tools, welding horns, electronic controls, soldered parts and gas samples. www.exair.com/18/130.htm

EXAIR Corporation

www.plantmagazine.ca/rsc/133

SWITCH RATED PLUGS & RECEPTACLES



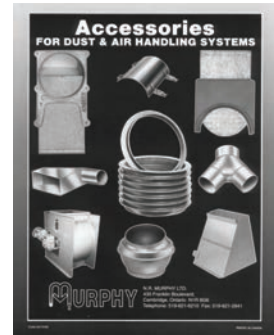
The 2013-2014 catalogue features Decontactor Series switch-rated plugs, receptacles and connectors. Decontactors simplify electrical equipment change-outs and make NFPA 70E compliance easier. Plugs and receptacles with UL switch ratings up to 200 amps and 60 hp are available. New multi-contact plugs and receptacles with 7 to 37 contacts are also included.

www.meltric.com

Meltric Corporation

www.plantmagazine.ca/rsc/134

ACCESSORIES – AIR AND DUST HANDLING SYSTEMS



This fully illustrated, 8-page catalogue features a wide variety of accessories including: stamped and rolled angle rings, blast gates, galvanized spiral duct, diverters, clean outs, nozzles, duct silencers, rotary air locks and exhaust fans.

www.nrmurphy.com

N.R. Murphy Ltd.

www.plantmagazine.ca/rsc/135

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Why an EU free trade deal must be ratified

BY JOCK FINLAYSON

Many countries are stepping up efforts to conclude new trade agreements with key commercial partners. Since the beginning of the year, the US has announced that it wants to reach a free trade accord with the EU, Japan has joined the discussions taking place under the rubric of the Trans-Pacific Partnership (TPP), and work on trade liberalization has accelerated among the members of the Association of Southeast East Asian Nations.

“Expanding trade and investment with the EU is an obvious way to broaden Canada’s commercial links...”

The backdrop for these regional negotiations is a soft world economy and the diminishing prospect of finalizing a major new global trade deal through the long-stalled Doha Round of World Trade Organization (WTO) talks. The WTO process has essentially broken down, overwhelmed by the complexity of the contemporary multilateral trade agenda and by the inherent difficulty of achieving consensus among the 150 plus

increasingly fractious member countries.

Where does Canada fit within this evolving global commercial policy landscape? It’s part of the ongoing TPP process and has inked a draft free trade agreement with South Korea that is yet to be ratified. We are also participating in preliminary talks with India and Japan aimed at fashioning bilateral trade agreements. But the most significant trade negotiation is with the EU to establish

a new Comprehensive Economic and Trade Agreement (CETA).

While Europe is mired in recessionary gloom, one might ask whether developing an agreement ought to be a priority for Canada, but there are several reasons why CETA is a worthwhile goal for Ottawa to pursue.

Notwithstanding the old continent’s economic and demographic challenges, the 27-member EU still ranks as the world’s biggest regional market, with a combined gross domestic product (GDP) exceeding \$17 trillion. It’s also home to quite a few of the world’s richest economies. CETA would give Canada improved access to a market of more than 500 million people.

Because most EU member states are both prosperous and highly developed, the region as a whole is characterized by well-established labour and environmental standards. This should ameliorate any concerns that entering into a trade agreement with the EU would exert downward pressure on regulatory standards here in Canada.

Broaden commercial links

It’s well understood that Canada needs to diversify our trade and investment relationships and reduce over-reliance on the US. Expanding trade and investment with the EU is an obvious way to broaden Canada’s commercial links.

Bear in mind, the US is working on its own bilateral trade agreement with the EU. Canada has spent more than four years in deliberations with the Europeans, and recent reports suggest the two sides are close to the finish line. Canada must conclude a deal before we are bypassed by the US.

Finally, CETA is expected to deliver a boost to our economy by reducing EU barriers to Canadian exports, fostering more two-way investment, and leading to more competitive markets. Some studies estimate that an ambitious trade agreement with the EU would lead to a \$12 billion increase in Canada’s GDP.

True, there are a number of politically sensitive issues in the Canada-EU talks, including market access for certain agricultural products, how government procurement will be opened up, rules governing foreign investment, and harmonizing intellectual property standards.

These may be tough nuts to crack, but none should be deal-killers. After all, in a strategic sense there’s more to gain than lose from achieving better access to a market that’s approximately 11 times bigger than Canada’s economy.

Jock Finlayson is executive vice-president of the Business Council of British Columbia. This column is distributed by Troy Media in Calgary. Visit www.troymedia.com.

Comments? E-mail jterrett@plant.ca.

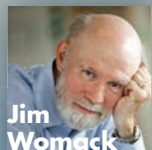
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