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MARCH/APRIL 2020 | WWW.PLANT.CA | \$12

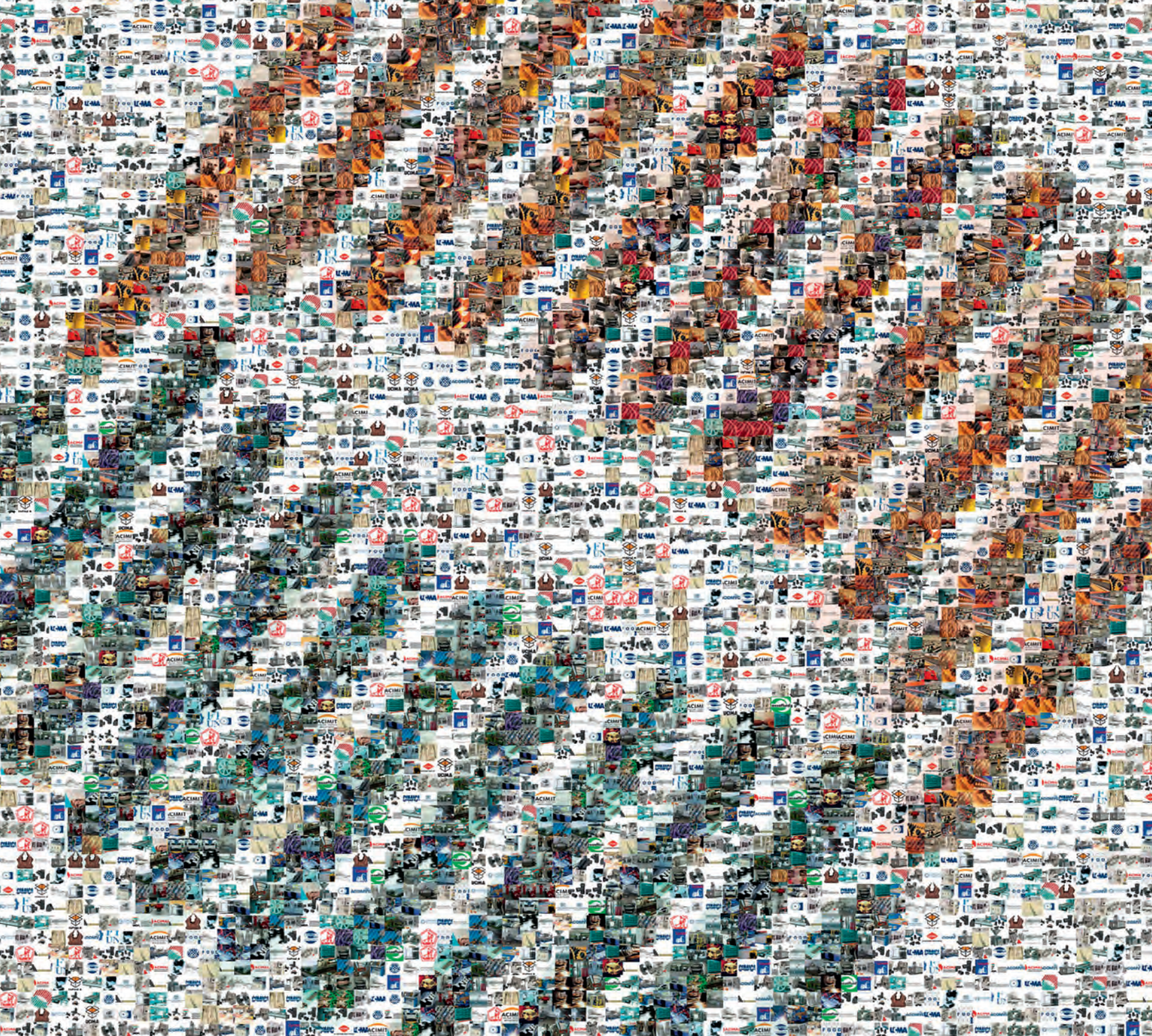
MEET THE COFFEE BREW CREW

Station Beverage taps
into beer-inspired brewing

For news and advice on
COVID-19 in the manufacturing
sector, visit www.plant.ca.

COVID-19: Keeping your people and business safe
Use the Internet of Things to drive revenue
Make the dock safer for aging workers
New robotics technology boosts production

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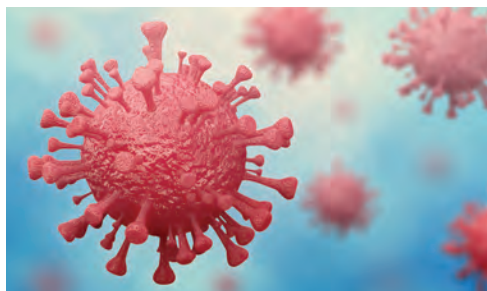
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COVER PHOTO: RODNEY DAW

PLANT—established 1941, is published 7 times per year by Annex Business Media. Publications Mail Agreement #40065710. Circulation email: bolechnowicz@annexbusinessmedia.com
Tel: 416-510-5182 Fax: 416-510-6875 or 416-442-2191 Mail: 111 Gordon Baker Road, Suite 400, Toronto, ON M2H 3R1. Occasionally, PLANT will mail information on behalf of industry-related groups whose products and services we believe may be of interest to you. If you prefer not to receive this information, please contact our circulation department in any of the four ways listed above. Annex Privacy Officer: privacy@annexbusinessmedia.com Tel: 800-668-2374. No part of the editorial content of this publication may be reprinted without the publisher's written permission. ©2020 Annex Publishing & Printing Inc. All rights reserved. Performance claims for products listed in this issue are made by contributing manufacturers and agencies. PLANT receives unsolicited materials including letters to the editor, press releases, promotional items and images from time to time. PLANT, its affiliates and assignees may use, reproduce, publish, re-publish, distribute, store and archive such unsolicited submissions in whole or in part in any form or medium whatsoever, without compensation of any sort. This statement does not apply to materials/pitches submitted by freelance writers, photographers or illustrators in accordance with known industry practices. Printed in Canada. ISSN: 1929-6606 (Print), 1929-6614 (Online).



COVID-19: A virus update

When the COVID-19 virus surfaced late last year in China, few anticipated its rapid spread and since being declared a global pandemic, developments worldwide and close to home have been disturbing.

Canadian governments at all levels have responded by quickly adapting to changing circumstances to keep citizens safe and halt the spread of the virus. Naturally, businesses are feeling the impact, manufacturers among them.

In Canada's manufacturing heartland – Ontario and in a more restricted way Quebec – have declared the sector essential, and rightly so. It's integral to limiting the inevitable economic damage by keeping supply chains and trade in motion.

But there are challenges: slowing demand; interruptions to supplies; financial liquidity concerns; reduced workforces due to illness or absences related to family care issues; the daily health and safety of teams still on the job; adapting to quickly shifting government moves; and having no idea when it will all end.

Companies with a crisis management plan on the go will have a better chance of making it through this ordeal by treating the disruption as a controlled burn.

Talking to lenders, identifying potential risks to supply, evaluating employees' skills and where they can fill holes in the production process, amping up the cleaning regime and focusing on key customers are obvious action items (see pages 15-16 for tips). But communication and transparency with staff, suppliers and customers are also key to getting past this thing.

The federal government has provided some clarification on how the Canada Emergency Wage Subsidy will work. It applies to any business with a revenue decline of at least 30% because of COVID-19; it covers 75% of an employee's wages on the first \$58,700 earned (up to \$847 per week), back dated to March 15; it applies to companies of all sizes, non-profits and charities included.

Meanwhile, plants are pitching in to mitigate shortages of medical gear. The federal government has ordered millions of masks and thousands of ventilators for the fight and manufacturers are helping to fill healthcare needs.

Here are some examples (see <https://bit.ly/2R0PnhG> for updates):

- Thornhill Medical, a Toronto-based manufacturer, is making 500 ventilators that were to be delivered in early April.
- General Motors is working with medical firm Ventec Life Systems to produce ventilators in higher quantities and get them to hospitals faster.
- Fiat Chrysler Automobiles (FCA) is manufacturing and donating more than 1 million protective face masks per month for frontline workers across North America.
- Canada Goose is making gowns and scrubs at two of its plants. They will be donated to hospitals.
- Bauer is shifting from hockey equipment to visors for medical staff.
- Labatt is brewing hand sanitizer (initial order 50,000 bottles) that will be donated to support Food Banks Canada, frontline workers and its customers in the restaurant and bar industry.
- Spirits manufacturer Corby Spirit and Wine Ltd. and its Walkerville Hiram Walker & Sons Distillery in Windsor, Ont. are also producing sanitizer.

As of this writing (note these numbers were quickly surpassed as they were written), 89 Canadians had died from COVID-19 as the number of cases hit 7,708. Globally, the world was on track to hit a million cases and in the US, the number of afflicted was climbing quickly to 181,000 with almost 3,600 deaths.

The end of this plague may not be in sight, so the prudent advice for manufacturers is to remain steady, agile and prepare for a return to normal, whatever that's going to look like.

Joe Terrett, Editor

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Subscription Price

Canada \$76.00 per year, US \$201.00 (CAD) per year, Foreign \$227.00 (CAD) per year. Single Copy Canada \$12.00. Add applicable taxes to all rates. Combined, expanded or premium issues, which count as two subscription issues.

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Toronto, ON M2H 3R1

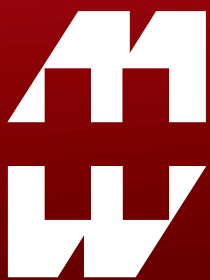
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BULLETINS

Enerkem Inc., a waste-to-biofuels and chemicals producer based in Montreal, has received a \$50 million equity investment from **Suncor Energy**, based in Calgary. Suncor was also part of a \$76.3 million equity investment with Enerkem's existing shareholders. Suncor provides technical resources to support the operations of the Enerkem Alberta Biofuels plant in Edmonton. The plant turns non-recyclable, non-compostable mixed municipal solid waste into cellulosic ethanol.

Spartan Controls Ltd. was named as one of Canada's Best Managed Companies (the Deloitte-run business awards program) in recognition of overall business performance and sustained growth. The Calgary-based provider of automation, valves, measurement, process control, digital transformation and other solutions serves clients in oil and gas, oil sands, mining, pulp and paper, power, pipelines and government.

A new project is going through the federal Innovation Superclusters Initiative, which helps Canadian organic growers and processors develop new uses for waste by-products. It's taking Vancouver's **Lucent BioSciences'** proprietary technology for micronutrient fertilizers to the manufacturing stage with partners **AGT Food and Ingredients**, a processor of pulses (dried seeds from legumes) in Regina and **4D Labs**, a research facility at Simon Fraser University in Burnaby, BC.

Health Canada has granted **Canntab Therapeutics Ltd.** a cannabis research licence for continuing research and development at its Markham, Ont. facility. The manufacturer of cannabinoid and terpene blends in hard pill form will produce oral delivery formulations after it receives processing and seller licences from Health Canada. They'll include extended release, instant release and bi-layered hard pills.

C.R. Wall & Co. Inc., a Cambridge, Ont. supplier of products for the Canadian natural gas industry, has acquired **Foothills Industrial Products** in Calgary. It will serve as CR Wall's first permanent location in western Canada.

Microart expands in Markham

Space supports main electronics assembly plant



Plant floor at Microart's Markham, Ont. facility.

PHOTO: RODNEY DAW

MARKHAM, Ont. — Microart Services Inc., an electronics manufacturing services provider, has expanded its operations with a new building in Markham, Ont.

The 20,000 square-foot space will support the company's 42,000 square-foot main facility, also in Markham, as the company handles its rapid growth – 15% over three years.

"We are extremely excited to expand yet again right in my own hometown," said Mark Wood, Microart's CEO.

The company employs 280 people across two shifts assembling circuit boards, now at the two locations. The new building will offer mechanical assembly, finished goods kanban, direct order fulfilment, repair and refurbishment and customer specific warehousing services.

It has nine surface mount lines, three high-speed SMT lines and three X-ray machines at the main Markham location.

Operations are to be at volume before the end of April.

Feds invest \$5.2M in CME tech program

WINDSOR, Ont. — Canadian Manufacturers & Exporters (CME) is getting more than \$5.2 million in federal funding through FedDev Ontario to launch its new Technology Assessment Program.

In collaboration with the Windsor-Essex Regional Chamber of Commerce, CME will provide up to 175 small- to medium-sized manufacturers in southern Ontario with productivity and technology assessments aimed at stimulating investments and the adoption of new technology solutions.

Eligible businesses will receive an assessment by a vetted technical qualified service provider, valued at up to \$25,000.

"Businesses that invest in new technologies have a considerably better growth outlook than their non-adopting counterparts, at home and in global markets," said CME president and CEO Dennis Darby.

"This program will help manufacturers adopt new technologies sooner and access its wide range of potential benefits like lower operating costs, increased product quality, higher innovation capacity, and increased customer satisfaction."

Visit https://cme-mec.ca/technology_assessments.

An aerospace centre for Mirabel

MIRABEL, Que. — Lauak Canada, a subsidiary of French business Lauak, plans to transform its Mirabel, Que. factory into an advanced technology aeronautics centre.

A research office will be responsible for developing new products and processes, creating several dozen jobs.

The firm specializes in manufacturing tubes to transport fuel, water, air and liquids feeding various airplane systems.

"Quebec is an ideal anchor point to conquer new markets and develop our activity in North America," said Mikel Charrington, co-manager of Lauak Group.

To complete its project, Lauak Canada plans to expand its factory and acquire Industry 4.0 digital equipment.

The federal government is providing \$3 million in financial support.

Mitacs, partners work on 5G

Will advance smart technology initiatives

MONTREAL — Mitacs is working to connect 400 interns with several projects under the ENCQOR 5G network, a public-private partnership aiming to advance 5G technology.

The partnership involves governments of Canada, Quebec and Ontario, and tech firms Ciena, Ericsson, Thales, IBM Canada and CGI.

ENCQOR 5G will advance the always-on internet connection required to support 5G initiatives such as smart cities, e-health, e-education, autonomous vehicles and on-demand entertainment.

Interns from various



The eENCQOR 5G network will advance the internet connection required to support 5G initiatives.

PHOTO: MITACS

Ontario and Quebec academic institutions are being contracted to work on the projects and will eventually secure full-time employment.

Mitacs is a non-profit provider of research and training for industrial and social innovation based in Toronto.

Nordic first customer for Dash 8-400 overhead bin

Extension adds stowage volume in the cabin



De Havilland's Dash 8-400.

PHOTO: DE HAVILLAND

TORONTO — De Havilland Aircraft of Canada Ltd.'s launch customer for the Dash 8-400 Classic Overhead Bin Extension is Nordic Aviation Capital.

De Havilland will be the exclusive supplier of all future Dash 8-400 bin extensions for the Danish aircraft lessor's fleet.

The Toronto-based aircraft manufacturer said the extension equipped with a larger door opening and new latches accommodates standard roll-aboard bags, reducing the need for gate check service.

Nordic serves 79 airline customers in 50 countries, including carriers such as Air Canada, British Airways and Lufthansa.

The bin extension is in development with De Havilland's supplier Safran Interiors.

Magna drives new e4 systems

Debuts during winter test driving in Sweden



The e4 technology demonstrator car showcases Magna's electrified drive systems in a pure EV format.

PHOTO: MAGNA

ARJEPLOG, Sweden

— Magna International debuted its e4 technology demonstrator car during the company's winter test-driving activities in northern Sweden in February.

The vehicle showcases the Aurora, Ont.-based manufacturer's electrified drive systems in an electric vehicle format, with integrated PSM-type eDrive systems on the front and rear axles.

The unit on the front

is equipped with a mechanical differential, and the unit on the rear has a twin-clutch torque vectoring system. Both eDrives, including the gearbox, electric motors, inverters, inverter software, and vehicle control strategy, were developed by Magna.

The auto parts and systems maker anticipates global growth in e-mobility will include mild and micro hybrids, high-voltage hybrids and electric vehicles.

EDC beefs up Women in Trade program

OTTAWA — Export Development Canada (EDC) is increasing funds available for its Women in Trade investments program.

EDC has established three new commitments: increase support available through the Women in Trade investments program to \$100 million, up from \$50 million in 2019; facilitate \$2 billion in trade by 2023; serve 1,000 unique customers by 2023.

EDC cites research that shows advancing women's economic equality has the potential to add \$150 billion in incremental GDP by 2026.

Only 11% of Canadian women-owned businesses are exporting.

More aid for laid-off Oshawa workers

New job training centre will support those in auto parts

TORONTO — The Ontario government is investing \$757,664 to help automotive workers impacted by the closing of General Motors' assembly operations in Oshawa, Ont.

A new action centre in the city will provide services and support for up to 1,700 workers from independent parts suppliers impacted by the closure at the General Motors Assembly Plant.

A centre opened at the General Motors site in Oshawa in the fall that focuses on training and support for former GM employees.



GM's Oshawa assembly plant.

PHOTO: GM

The new centre, a partnership with Unifor, the labour union representing automotive workers, connects them with job and training opportunities. Counselling services and workshops will help them improve job searches, resume writing and interview skills.

CAREERS

Hamilton steelmaker Stelco Holdings Inc. has appointed **Paul Scherzer** CFO. He takes over from interim CFO **Roy Collins**, vice-president, internal audit. Scherzer comes from the industrial materials and services team at BNP Paribas in New York. He has spent close to 25 years as a metals and mining investment banker with progressive roles focusing on the steel industry.

Xtivity Inc., a London, Ont. professional services provider of MRO asset reliability products, has added 30-year software veteran **John Trus** to its team as the head of global sales and marketing. Previously he was vice-president, global sales at Remsoft, a provider of optimization and intelligence software based in Fredericton, NB.

There are leadership changes at the Excellence in Manufacturing Consortium (EMC) in Owen Sound, Ont. **Amanda Doman** moves into the role of vice-president and general manager from director of finance. **Scott McNeil-Smith**, has moved from national director, projects and partnerships, to vice-president, manufacturing sector performance. **Bren de Leeuw**, formerly operations manager, Western Canada, has transitioned into the role of vice-president, community partnerships and stakeholder relationships.

Velan Inc. has appointed **Bruno Carbonaro** president of Velan Inc., a manufacturer of industrial valves based in Montreal. He comes to the company from Groupe Fives, a global engineering firm that supplies industrial equipment to numerous industries. He reports to **Yves Leduc**, CEO.

Cascades Inc., a manufacturer of paper products based in Kinsey Falls, Que., has appointed three directors to its board. **Melanie Dunn** is president and CEO of Cossette, a marketing company based in Quebec City. **Elif Levesque** is vice-president of finance and CFO of Osisko Gold Royalties Ltd., a Montreal-based mining company. **Nelson Gentiletti** is COO and CFO of Loop Industries, a technology company based in Terrebonne, Que. that's focused on sustainable PET plastic and fibre.

25 Ballard modules for Solaris buses

Shipments to Germany begin this year and extend into 2021



Solaris Urbino 12 hydrogen fuel cell electric bus.

PHOTO: BALLARD POWER SYSTEMS

VANCOUVER — Ballard Power Systems has received a purchase order from Solaris Bus & Coach S.A. for 25 of the new 70-kilowatt heavy-duty FCmove-HD fuel cell modules.

Solaris is a European bus and trolley manufacturer based in Bolechowo, Poland.

Ballard, a manufacturer of hydrogen fuel cells based in Vancouver, said the modules will power 15 Solaris Urbino 12 hydrogen buses planned for deployment in Cologne, and 10 Urbino 12 hydrogen buses planned for deployment in Wuppertal, Germany.

They're part of the Joint Initiative For Hydrogen Vehicles Across Europe (JIVE 2) funding program.

The Solaris Urbino 12 travels 350 kilometres on a single hydrogen refuelling. The bus incorporates an axle with two electric motors and is equipped with a climate control system using heat generated by the fuel-cell module.

Shipments of modules to Solaris will begin in 2020 and extend into 2021 to match the timing for manufacturing and deployments.

No financial details were released.

Ozzie dairy licenses EnWave tech

VANCOUVER — Australian dairy KL Ballantyne Pty Ltd. has signed a licensing deal with EnWave Corp. to use the Canadian company's REV technology and purchase machinery for food processing.

Ballantyne has the exclusive right to produce dairy products in Australia using a patented 10-kilowatt radiant energy vacuum (REV) machine for commercial production.

Ballantyne will pay a royalty tied to the commercial success of REV-dried products that they commercialize.

The family-owned company based in Melbourne manufactures dry, condensed and evaporated dairy products.

EnWave, a Delta, BC advanced technology company, dehydrates organic materials.



PLANT ONLINE SOUNDING OFF

What readers have to say about breaking news

Have you checked out **PLANT**'s daily news online? Here are some headlines that have inspired members of the Canadian manufacturing community to chime in. They're edited, but use the links to see the raw – and for some – longer versions of their remarks plus the stories that inspired their reactions.

Stay up-to-date on the developments – domestic and global – that affect Canada's industrial sectors by watching the news feed at www.plant.ca or reading **PLANT**'s twice-weekly newsletter (hit Subscribe on the website).

GM gets tax break in Lordstown for new plant next to factory it closed

<http://www.plant.ca/6gIok>

➤ The shell game with GM continues. Closing the decent middle wage-paying plants. Starting new ventures with less pay, almost no corporate taxes and fewer people. Now isn't that the way to build a world-class corporation?

[but] nothing of what help employers will get! It's about time our governments at all levels offer some help [and] do something for us outside of downloading everything on us and taxing us to death! They can practise their socialism after they buy my business at market value and I move out of this country!

Ottawa to soon detail fiscal response to COVID-19 economic shock

<http://www.plant.ca/0z3Eb>

➤ We hear so much about how they are going to help employees

How EI benefits for COVID-19 quarantines will work

<http://www.plant.ca/1sBrz>

➤ I think EI benefits should not be 55%. People asked to stay home due to COVID-19 should get paid 100%. A lot of people

will still go to work because they know they will be losing money if they apply for EI.

Coal miner Teck baffled by fish collapse downstream of BC mines

<http://www.plant.ca/FbJzE>

➤ Why are we not seeing an explosion against the hundreds of billions of litres of raw sewage dumped into Canada's rivers and oceans every year? Now that's pollution of our waters and only legal because the cities and governments are doing it.

Quebec premier says returns will fly high with \$30M airship investment

<http://www.plant.ca/OusRj>

➤ Those who worry about ballast and the issue of the aircraft blowing away don't fully understand the physics behind how it works. An "airship" flies because the envelope of the ship displaces a specific weight of air with a

lighter gas, in this case helium. It's the same principle that allows steel ships to float in water. The easiest way to add ballast is to reduce the amount of helium inside the structure and let the envelope deflate, reducing the buoyancy to zero. A pump compresses the helium into a tank for storage at an increased density. When the airship is ready to travel again the helium is released back into the envelope, inflating it and increasing the buoyancy.

Environment Canada to re-release science review backing plastics ban

<http://www.plant.ca/vOtBN>

➤ When I worked with the chemical industries division – plastics section of Environment Canada (retired in 2016) – I said many, many times that all plastics should be collected and used as fuel for power generation. Trying to separate all the different plastics is futile and a waste of money. Plastics cannot be infinitely recycled as metals can. How much GHG emissions are produced from the recycling trucks diligently driving from house to house and collecting and emptying blue boxes?

Great Northern fined \$125,000 for worker fatality

WOODSTOCK, Ont. — Great Northern Insulation has been fined \$125,000 for failing to take reasonable precautions for the protection of an employee killed on the way to a job in 2018.

The Woodstock, Ont. company, which installs insulation in industrial, commercial and residential facilities, pleaded guilty in a Parry Sound, Ont. court.

The incident occurred Nov. 23, 2018 when the young worker and a co-worker left a site in Magnetawan, Ont. because there was no room to park their truck.

Because of the slippery road conditions, they decided to install tire chains.

The truck was not properly immobilized. As they were installing chains, the truck started rolling and sliding forward, fatally running over the younger worker, before coming to a stop in a snow bank.

CUTRIC launches Smart Vehicle project

Focus is on standardized technology for autonomous mass transit shuttles

WINDSOR, Ont. — The Canadian Urban Transit Research and Innovation Consortium (CUTRIC) is applying more than \$1.1 million to establish the National Academic Cluster for Smart Vehicles (NAC-SV).

CUTRIC, a researcher and developer of mobility and transportation technology and its members are contributing \$797,900. An additional \$306,500 is coming through the federally supported Mitacs Accelerate and Mitacs Career Connect programs, and through ECO Canada and BioTalent Canada.

NAC-SV will standardize technology associated with autonomous and connected shuttles for use in transit and mass-mobility, bringing together several manufacturers.



(L-R) Heather Pratt, executive director, research and innovation, University of Windsor; Mitra Mirhassani, associate professor, University of Windsor; and Josipa Petrunic, executive director and CEO, CUTRIC.

PHOTO: TORY JAMES

The goal is for manufacturers to coordinate short-range vehicle-to-vehicle and vehicle-to-infrastructure communications, improve cybersecurity, develop software to manage digitized shuttle fleets, and use standardized charging systems.

“These shuttles service Canadians by filling a critical gap in our transit system and providing a much-needed service on routes that are too small to justify a bus route,” explained Josipa Petrunic, executive director and CEO of CUTRIC.



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Manufacturers stand up to COVID-19



Labatt hand sanitizer.

PHOTO: LABATT

Canada's manufacturers are proving just how essential they are, especially in the production of supplies needed to battle the spread of COVID-19.

Automotive companies are looking at how they can help and possibly manufacture items such as ventilators, while distillers such as Corby Spirit and Wine Ltd. in Walkerville, Ont. are producing hand sanitizer.

So is Labatt Breweries of Canada. Its shift to sanitizer will include facilities in London, Ont., Edmonton, Montreal, Vancouver and Toronto. Initial production is 50,000 bottles that will be donated to support Food Banks Canada, frontline workers and its customers in the restaurant and bar industry.

Premium winter wear manufacturer Canada Goose is making scrubs and patient gowns at plants in Toronto and Winnipeg. The company will add plants as needed.

Approximately 50 employees at each location will produce the gear with an initial goal of 10,000 units donated locally at no cost.

Also of note, the company has launched the Canada Goose Employee Support fund for those impacted by store and manufacturing closures but aren't eligible for government assistance.

Meanwhile, Bauer intends to turn over some hockey equipment production at its innovation centre in Blainville, Que. to make protective visors for doctors, nurses and first responders. About 2,000 visors made of plastic with anti-fogging material will be made daily.

We salute these manufacturers and others pitching in as Canada battles the COVID-19 plague!

Airships catch a second wind



Not a blimp.

PHOTO: FLYING WHALES

In these advanced aeronautical times you'd think Zeppelinish-blimpy-dirigible-balloon airships would be a bit too retro for any practical transport applications. They disappeared from the sky because of fossil fuel economics, but they may be getting a second wind as a way to move stuff to and from remote areas.

The latest development comes from Quebec where the province is investing \$30 million in a French firm with a Canadian subsidiary called Flying Whales. The plan is to use airships to transport up to 60 tonnes of material per trip over difficult-to-reach areas, such as Quebec's north.

There has been much poo-pooing of the idea but the technology works, said professor Barry Prentice at University of Manitoba's Asper School of Business in a *Globe and Mail* article. (He also runs a research institute studying airship technology.)

It's not the first time the idea of airships serving remote Canadian locations has come up. In 2008, Canadian firm SkyHook International was proposing just such a venture to serve remote northern destinations and it teamed up with Boeing to get an aircraft into the air.

Founder and innovator Pete Jess had a design and patent for the JHL-40 aircraft capable of lifting a 40-ton sling load and transporting it up to 200 miles in harsh environments without refuelling. But there were challenges finding financing and parent company Jessco sold its interest in 2009.

New name for Asbestos



Digging asbestos at the Jeffrey Mine.

PHOTO: HARRY ROWED

Asbestos used to be an excellent building material and an addition to a variety of products thanks to its high heat resistance and insulating qualities.

Used around the world for centuries, asbestos is still being employed in some parts of the world, despite its toxicity. Breathing in the delicate silicate fibres leads to asbestos-related disease resulting in scarring of the lungs. Complications follow that are usually terminal.

Little wonder the town of Asbestos, Que. is looking for a new name.

Asbestos has been mined since the late 1800s at the nearby Jeffrey mine until it was halted by the Quebec government in 2012.

Mayor Hugues Grimard said in a *Canadian Press* news story (www.plant.ca/hurrH) the fibre's reputation has caused confusion about the municipality. Outsiders are convinced the town's residents live under a toxic plume.

A \$50-million fund established in 2012 by the Quebec government has allowed the town to diversify its economy so it's no longer dependent on mining asbestos.

"We have come to the post-asbestos era," Grimard said. "We are proud of our past but we want to look to the future."

Canada is out of the asbestos game but it's still being mined in Russia (53%) followed by Kazakhstan (16%), China (15%), and Brazil (11.5%). Asia consumes about 70% of the production.

We say we're a protective company ... Then why aren't we starting to (make) protection for our doctors, nurses, hospitals, and their needs?

Dan Bourgeois, vice-president of product innovation at Bauer, the hockey equipment manufacturer, on the company's plan to make visors for frontline medical workers.

Li-Cycle recycles EV battery materials

As electric vehicles become more prevalent globally, what happens to the spent lithium-ion batteries?

Technology developed by a Mississauga, Ont. company offers a solution.

Li-Cycle Corp. recently completed its first shipment of commercially recycled battery material containing energy metals concentrate. The shipped product processed at its Mississauga plant contained cobalt, nickel and lithium.



Lithium-ion battery.

PHOTO: ADOBE STOCK

The company, founded in 2016, claims its technology recovers 80% to 100% of all materials found in the batteries using a two-step mechanical and hydrometallurgical/wet chemistry process. All variants of cathode and anode chemistries within the lithium-ion spectrum are recycled without sorting into specific chemistries. And it does so without risk of fire during processing. No solid waste streams result, there is minimal/no water discharge, and no harmful air emissions.

CUSMA assessed

Better than nothing?

It has many names: the new NAFTA, United States-Mexico-Canada Agreement (USMCA), Canada-US-Mexico Agreement (CUSMA) or Tratado México Estados Unidos Canadá (TMEUC). Whatever it's called, the rebooted continental trade deal does not represent an improvement for any of the partners.

The Liberal government released an assessment in February as it tried to hurry along ratification of the agreement that has already been passed by American and Mexican legislators. The verdict? A very modest economic gain of \$6.8 billion by 2025 (0.25% advance in GDP) compared with having no continental trade agreement. The assessment does not compare the new deal to the old NAFTA.

But a 50-page analysis by the C.D. Howe Institute declares lower GDP compared to NAFTA for each of the partners, with Mexico the worst off (-0.8%) followed by Canada (-0.4%) and the US (-0.1%).

Expressed in terms of economic wellbeing, Canada will see a decline of almost \$13.5 billion, Mexico almost \$20 billion and the US, more than \$24 billion.

The research shows the three parties would be marginally better off than if NAFTA were to elapse. Canada would see GDP decline by almost 0.5% with a drop in economic wellbeing of more than \$13 billion; Mexico almost 0.8% and almost \$15 billion; and the US 0.1% and almost \$18 billion.

A 2018 analysis by the Conference Board of Canada also predicted a 0.5% decline in the country's economy, and a loss of about 85,000 jobs within a year if NAFTA were terminated.

Although Canada managed to preserve some dispute settlement measures, C.D. Howe warns a sunset clause, elimination of investor-state dispute settlement and a failure to eliminate US national security tariffs (such as steel and aluminum) on partner imports raises the risk to assured US market access.

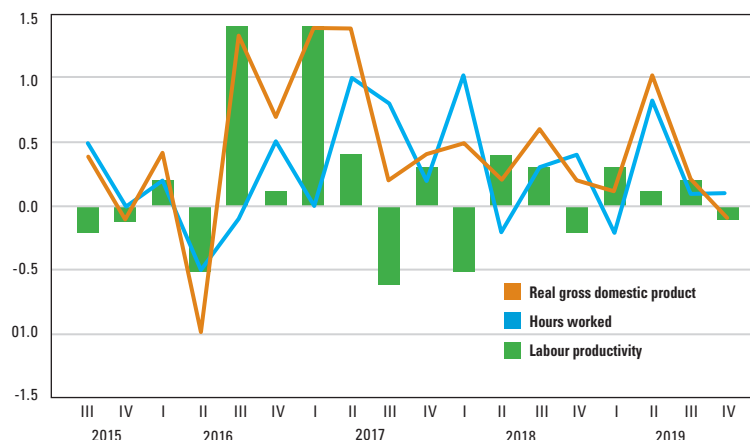
Visit cdhowe.org for a copy of *Quantifying CUSMA: The Economic Consequences of the New North American Trade Regime*.

PLANT PULSE

ECONOMIC DEVELOPMENTS AND TRENDS

PRODUCTIVITY, COMPENSATION AND LABOUR COST Q4

quarterly % change



Source: Statistics Canada, CANSIM

Labour productivity slipped by 0.1% in Q4-2019, after posting a 0.2% gain in Q3. This was the first decrease in a year. Statistics Canada reported labour costs per unit of output increased 1%, the same rate as in the previous quarter. The gain was mostly attributable to a 0.8% increase in average compensation per hour worked, while productivity was relatively unchanged. Hourly compensation grew 1.3% in goods-producing businesses. Hourly compensation grew in nine of the 16 main industrial sectors. Manufacturing posted strong gains (2.1%).



72.7%

The ambition-execution gap identified by a survey of Association for Advancing Automation (A3) members that showed most (76%) feel artificial intelligence is important to their companies, but just 3.3% were applying it.



77.7%

Year-over-year manufacturing capacity utilization rate, down 1.4% in Q4. It's the lowest rate since the Q4-2010. Statistics Canada reports declines in 13 of the 21 major manufacturing industries, representing approximately 60% of GDP in the sector.

IMAGES: © STOCK.ADOBE.COM



0.25%

The economic gain as of 2025 in GDP – or an additional \$6.8 billion – resulting from the CUSMA (or USMCA) trade deal, compared to no deal. Based on an assessment by Canada's federal government.



12%

Q2 hiring outlook (hiring versus cutting staff) for manufacturers of durable goods, according to the Manpower Group Employment Outlook Survey (in January). That's down 4% from Q1 and 3% from Q2-2019. Three per cent of non-durables manufacturers are hiring, down 13% from Q1 and 8% from Q2-2019.



Increase in manufacturing operating profits (13.8%) in 2018 compared to 2017 (\$61.3 billion). Statistics Canada notes profits were up in nine of the 13 subsectors. Petroleum and coal products accounted for the largest share of the gain, up \$6.3 billion. Wood and paper manufacturing increased \$1.1 billion (17.1%) as a result of higher lumber prices. Profits for motor vehicle and parts manufacturing fell \$1.5 billion, partially attributable to a decrease in US demand for vehicles built in Canada.

MEET THE NEW BREW CREW

STATION BEVERAGE'S COLD COFFEE TAKES OFF

Innovation and a beer-inspired process take canned beverages to commercial reality.

BY CAROLYN COOPER

When entrepreneur Steve Ballantyne first tried Nitro-infused cold brew coffee in New York in 2013, he was instantly won over by its rich flavour and smooth texture. Canned cold brew already had a niche following in the US, but outside of coffee shops the category was practically unknown in Canada.

Recognizing the potential to launch a healthier and more creative coffee product in ready-to-drink (RTD) format, Ballantyne joined forces with Mitchell Stern and Mike Roy in 2014 to launch New Orleans Style Nitro Cold Brew, the first product from Station Beverage Co.

In just seven years Toronto-based Station has gone from start-up to national brand, and it's now one of Canada's fastest-growing beverage businesses. After helping to establish the cold brew coffee category in retail and opening their own custom-designed coffee brewery, Station continues to test the boundaries of the market with innovative new products, and a thriving co-packing business.

Coffee is Canada's favourite beverage, according to the Coffee Association of Canada, with 72% of Canadian adults consum-

ing it daily, at an average of 2.8 cups per day. The RTD category represented 5% of that market in 2019, a 2.5%-jump since 2014, and growth is expected as consumers continue choosing healthier to-go beverages over pop and energy drinks.

Unlike iced coffee – which is brewed using hot water and then chilled down – cold brew is steeped in water for several hours, extracting more flavour from the ground coffee and producing a less-bitter beverage. When a can of cold brew is infused with nitrogen and shaken it creates a creamy texture reminiscent of a draft-poured Guinness stout.

“We saw this beautiful intersection of three different categories: the high-quality craft coffee market, the consumer-packaged goods market, and the beer industry,” says Mitchell Stern, co-founder and vice-president of marketing and sales. That meant “bringing a craft-quality coffee into places that are more convenient for consumers, such as grocery and convenience stores, and taking cues from the beer industry – we’re sourcing really high-quality ingredients, and producing everything ourselves using a similar process and equipment.”

The entrepreneurs, then ranging in age from 27 to 33, brewed their first batches in a shared kitchen designed for start-ups, then moved to a 1,200-square-foot microbrewing and retail space in Toronto's Junction



(Left) Mike Roy operating the canning line for a production run of the New Orleans product.

(Centre) Production manager and head brewer Steven Briggs and Andy McDonald, packaging and inventory lead, inspect cans to adjust the date coding system and do some quality assurance/control on the final packaging.

(Right) Cans of cold brew are dosed with liquid nitrogen before sealing.





The three founders of Station Beverage, Mitchell Stern, Steve Ballantyne and Mike Roy in the taproom where they retail products in cans and on tap.

PHOTOS: RODNEY DAW

variety of skill sets – I don't think we'd be in manufacturing if we didn't."

A fresh grind

The brewing process starts with Fair Trade, certified-organic whole roasted coffee beans from Oakville's Reunion Coffee Roasters, which is freshly ground on site. "Our brewing vessel is technically a modified version of a mash tun," Roy says. "It's a simple process, but in practice there are techniques to the way the coffee is ground and the different ratios of coffee to water. That's really where a lot of the flavours are going to come in, and what's going to separate different brews."

After steeping in temperature-controlled water for 18 hours, the grounds are removed, and the liquid is put through a three-stage filtration process to remove any micropathogens. "Post filtration the product is pumped into the bright tanks, which are temperature controlled, and that's where we condition everything with nitrogen, and where we get the product to the RTD level that we'd like," Roy explains.

On the way to the canning line the coffee also goes through a 0.2-micron filter to eliminate any remaining micropathogens. "It basically sterilizes the liquid, which has allowed us to extend our shelf life drastically [from four to 18 months]. There's no pasteurizing, heating, chemical treatment or preservatives, it's done using microfiltration."

About 50% of production is automated. "We have an automated canning system...The cans coming down the line, being filled, being dosed with nitrogen, getting sealed, all of that is automated." At the same time due to frequent Q&A checks, pack out remains semi-manual,



neighbourhood. Together they had plenty of business, marketing and technical skills, but little in the way of coffee or brewing experience. Every step was a learning curve, especially as the company began to scale up.

In late 2017 Station settled in

its current 10,000-square-foot facility and began construction on Canada's first coffee brewery, opening in early 2018 following extensive renovations. "There's no benchmark in the industry for cold brew coffee," says Mike Roy, co-founder, brewmaster

and vice-president of operations. "So we had to envision what we wanted, and then work back from that to figure out the process. Training with the equipment takes a lot of trial and error. But between myself, Steve and Mitch, we have a wide

as do labour-intensive tasks such as loading equipment with ingredients.

"The new brewing system that we have on the way has a fully automated agitation system," he adds, "so things are growing a little bit in the automation department, but it's still quite hands on."

Station also recently installed brewery management software that allows the operator to remotely monitor things like liquid levels in tanks. "When you grow at close to 100% per year there's always equipment that needs to come in," Roy says.

That on-going investment has meant Station can offer co-packing services for other beverage brands. "When we first got the canning line it was way more volume than we needed, but it opened up the co-packing space for us," he recalls. "My philosophy is that if my canning line is not running it's not making any money for us."

Roy estimates Station produces roughly 90% of the cold brew coffees currently available in Canada. Last year it produced about 350,000 litres of coffee, and Roy expects to double volume in 2020 with the addition of equipment that will bring total capacity to one million litres. "There's at least \$1 million in assets on the floor. The great thing about owning your own equipment is you're not confined to somebody else's process, and it allows us a lot of freedom to make our own products," he says, adding the company is largely self-funded.

Station's top-selling SKU is its original 355-millilitre New Orleans Style Nitro Cold Brew, a sugar- and dairy-free blend of coffee and chicory root with just 15 calories. Other varieties include naturally flavoured mocha, vanilla and coconut, each with 40 calories and five grams of organic cane sugar. As well as selling kegs for foodservice, Station

operates a wholesale business called Craft on Draft, supplying locations such as offices with dispensing equipment (keggers) and kegs of Nitro cold brew coffee, sparkling water and kombucha from local producers like Tonica Kombucha.

This past winter the company collaborated with Baileys on a RTD Classic Black cold brew in shelf-stable Tetra Paks. It was also a test-run for future products that will require a Tetra line with an UHT pasteurizer.

Station's new plant-based lattes, developed with NSF and the University of Guelph, will also be in Tetra Paks. "If you're adding something like oat milk you have to go through a heat process, you have to sterilize the product," Roy says. The company will launch three flavours of oat-milk lattes this spring. "That's where the industry is heading, so we want to make something that's a little more guilt-free, with a clean label, less

sugar, fewer calories and with high-end craft coffee."

Station's other new launch is its 355-millilitre Cascara Sparkling Iced Tea, a cold brewed, carbonated beverage (three flavours) made from cascara, the shell around the coffee bean that farmers usually discard. Introduced in October, Stern says the product "evolved from us understanding that we're not just a coffee company, we're a beverage company. So in our goal to create healthier products, we realized there was a great opportunity in the iced tea market." And they're just getting started.

Carolyn Cooper is a freelance business writer based in Kawartha Lakes, Ont. who has deep roots in the food and beverage industry. E-mail cjcooperbrown@outlook.com.

Comments?
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COVID-19

Analyze the potential impact on your business, implement crisis management and talk to your lender.

BY JOE TERRETT, EDITOR

When the COVID-19 virus surfaced late last year in Wuhan, capital of Central China's Hubei province, few would have predicted its rapid spread to about 166 countries and the upheaval that followed. By Jan. 30 it was declared a world health emergency and as of March 11, a global pandemic.

Symptoms include a cough, fever, tiredness and in severe cases, difficulty breathing. It's particularly risky for those 65 or over, those with compromised immune systems and those with underlying medical conditions. Severe cases can lead to pneumonia, and for some the outcome is death.

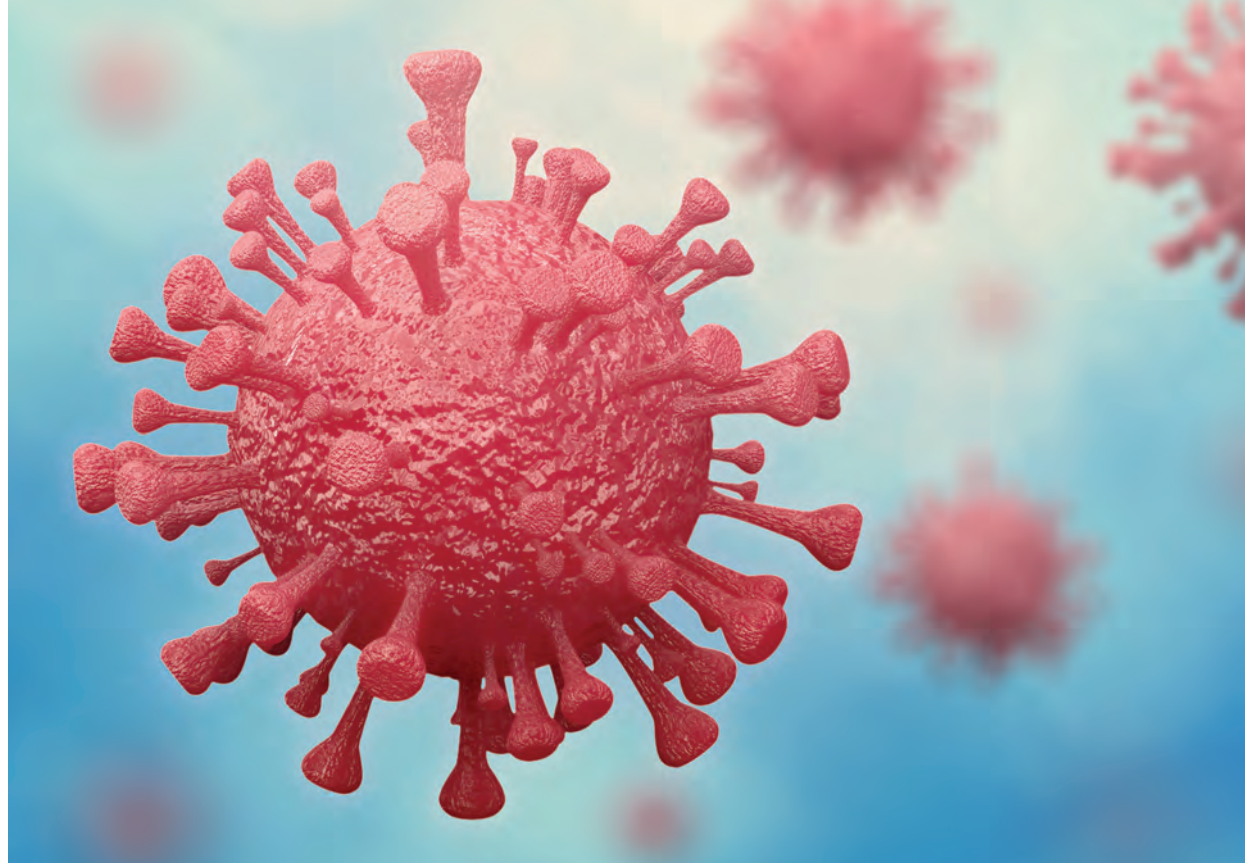
In Canada, all levels of government across the country are engaged in strategies that will curb the spread of the virus, and this inevitably impacts business such as manufacturing. Workplaces are shut down, but in those deemed essential, people are maintaining safe distances from each other and the cleaning regime is more stringent.

Manufacturing has been declared essential in several provinces, but companies face a variety of challenges.

Dennis Darby, president and CEO of Canadian Manufacturers & Exporters (CME), has been fielding calls from members daily throughout the crisis. What are their pain points? Liquidity, what the government can do and keeping the plant floor operating with reduced workforces.

"With small, medium enterprises, there's not a lot of cash on hand, and any slowdown or reduction in orders is a concern," Darby says.

Big picture, CME has been asking government to delay business deductions and it's talking with banks about being lenient



COVID-19 is impacting manufacturing.

PHOTO: NEAR - STOCK.ADOBE.COM

Business not as **USUAL** PANDEMIC TESTS RISK PLANS, PRODUCTION FLEXIBILITY

on financing terms (they're sympathetic, few specifics). But ripples and waves through the supply chain are also a concern.

Supply chain visibility

"Most companies don't have trend visibility in their supply chains. In a lot of cases they don't know where materials come from so they don't have full understanding of their exposure," says Mike Gillespie, partner and national manufacturing industry leader at BDO Canada LLP, a professional services firm.

Many companies have not taken a deeper look into their supply chains, says Alan Mak, a partner and BDO's national forensics practice leader. "They know where the cheque goes but don't know where the parts come from. Discussions [with clients] involve going one, two

and three layers deeper to figure out where parts originate, the risk exposure and where possible, to identify alternative sources."

Maintaining a workforce with the needed production skills is another challenge. Mak, who leads BDO's crisis management team, says companies need to conduct an impact analysis to identify the minimum operation requirement, divide the resources on hand and insulate the workforce. He suggests adapting management staff. Divide them in two, one group in the plant and one operating outside, ready to step in when needed.

Communication between production and human resources is key. Gillespie recommended identifying to what extent people can be cross-trained or not; and if not, prioritize what

production is most important, and which clients are critical.

BDO is working with clients to identify where redundancies could exist with minimal ramp up time; and to ensure operational continuity by recalling the recently retired or moving back to previous positions the recently promoted and those who have changed roles.

There should be an executive crisis management team in place with defined roles and responsibilities. That could be the CEO or C-suite executives, or a different team on the ground that is making decisions day-to-day. Mak stressed the importance of a defined information flow that allows people to make the right decisions on the spot.

Companies that don't have a lot of financial cushioning need to determine what cash resources they have and how long they can operate before they need assistance. Mak says they are finding lenders responsive.

What is the minimum staffing capacity to keep the plant operational? Mak says this provides a cushion for labour availability in the event there are absences. Cleaning regimes should also be changed, focusing on high contact areas such as doors, control panels and consoles.

The Excellence in Manufactur-

INSURANCE

ing Consortium is keeping close contact with its members, providing its services and programs online. But it has also opened up one of its members-only forums to all Canadian manufacturers and stakeholders looking for knowledge related to COVID-19.

Members Need Help (www.emccanada.org/member-needs-help) is an e-mail service that provides an opportunity for members to share insights and experiences. A section on the forum's website addresses COVID-19 issues. Categories include current information, policies and procedures, assessments and communication tools.

"We want to offer support to the entire Canadian manufacturing sector. During these unprecedented times, it is imperative that we come together and support the expanse of our manufacturing network," says EMC president Jean-Pierre Giroux.

Manufacturers are facing many uncertainties as the crisis unfolds, but the 2008-09 recession offered valuable lessons.

"Some companies struggled, some closed and others used the time to get ready for the next business cycle," says Scott McNeil-Smith, EMC's vice-president, manufacturing performance. "They were the first to grab market share."

He suggests companies focus on projects they haven't had time for, such as machinery upgrades and maintenance programs; and to look at internal processes, supply chain connections and technology.

Last word goes to Darrin Mitchell, CEO of Trout River Industries in Coleman, PEI and an EMC member. His company makes live bottom trailers, truck box and cube trailers. He made a short video posted on LinkedIn, noting there are a lot of unknowns. But it's a good time to step up and show leadership. "As an entrepreneur, if everyone starts running right, maybe it's a good day to turn left."

Comments?

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Take your business from awareness to excellence.

PHOTO: LUCIAN MILASAN - STOCK.ADOBE.COM

Develop management systems based on best practices.

BY ROD COOK

When it comes to accidents in the workplace, hindsight is always 20/20.

With the Ontario Workplace Safety and Insurance Board's (WSIB) new Health and Safety Excellence program, there's a clear path to make workplaces healthier and safer.

The program provides a roadmap to develop systems based on best practice, and it makes health and safety accessible to manufacturers of all sizes.

Some businesses may be looking to build a new system, while others want to improve what's already in place. The program can be tailored to a company's needs. Successes also earn premium rebates as well as non-financial recognition.

The program is built on 36 topics spread across three levels – foundation, intermediate and advanced – to develop and integrate management systems into workplaces.

Three steps get you started:

1. Register with a WSIB-approved health and safety provider listed on wsib.ca/healthandsafety. They offer support through in-person

WSIB's excellence AGENDA

NEW PROGRAM BOOSTS HEALTH & SAFETY OUTCOMES

coaching, online or over the phone.

2. Complete an online health and safety assessment. Use it to evaluate what's already in place, what may be missing and to suggest program topics that address unique needs. These topics are completed at a pace that works best for your business. There's no time limit.

3. Submit simple documentation to the WSIB to show that a topic was completed. Once validated, you'll be eligible for financial and other incentives for every topic completed.

Success in the program means saving money, paying lower premiums and receiving rebates on WSIB premiums. For example, a business could receive a 1.4% to 2% rebate per topic; however, investments in health and safety prevent future workplace accidents and the costs associated

with them.

The program also helps businesses achieve a best practice standard, such as COR2020 or ISO 45001, and also helps businesses meet the Ministry of Labour's Safe Employers accreditation standard. When you've completed the program and maintained a strong health and safety management system, a third-party audit is required to verify the approved accreditation standards are met (ISO, COR, CSA or OHSAS).

In 2020, turn hindsight into foresight.

Rod Cook is vice-president of workplace health and safety services at the Ontario Workplace Safety and Insurance Board (WSIB) in Toronto. Visit wsib.ca/healthandsafety.

Comments?

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IoT

Demonstrate leadership to reap the return on investments and efficiency gains.

BY RICK VEAGUE

The Internet of Things (IoT) continues to be regarded as a cost saving mechanism and that investments in cost containment are being prioritized ahead of new revenue generation strategies. Although progress has been made with companies collecting IoT data and its use in both asset management and equipment monitoring, many companies are taking tentative steps toward adoption.

IoT has played a role in manufacturing for some time. Networked programmable logic controllers (PLC) are used to automate processes and data from supervisory control and data acquisition (SCADA) systems have achieved greater management visibility on the plant floor. All of this depends on data from connected devices.

But few companies are realizing the instant revenue generation potential that comes as a result of deploying IoT deeper into the business. Data from connected devices transforms and leans out a business by triggering events and transactions such as inventory re-orders, maintenance work orders and customer orders. This increased efficiency is an opportunity to leapfrog competitors by significantly shortening timelines, enhancing the customer experience or creating new product and service lines that deliver new revenue.

Using IoT for cost reduction is a conservative strategy. Digital transformation is forward-looking and creative – the aim should be to generate a new business model. Real transformation necessitates visionary leadership combined with the technology and skill sets to execute the vision.

A 2018 Bain & Co. study



Take IoT deeper into the business.

PHOTO: ADOBE STOCK

More than a cost SAVING

USE THE INTERNET OF THINGS TO DRIVE REVENUE

revealed prospective adopters feel vendors have failed to limit the most significant barriers to IoT adoption. These include security, ease of integration with existing IT and operational technology systems, and unclear returns on investment. The research suggests customers have lengthened time lines for reaching scale and are planning less extensive IoT implementations by 2020 than they were in 2016.

Filling the gap

With the broad range of PLC and SCADA systems, it's difficult to combine and consolidate these systems in a logical way with enterprise resource planning (ERP) software. A substantial gap remains between connected devices and the transactional software used to run a business. IoT can quickly become too complex with systems integrators mapping multiple systems together. ERP software will increasingly need to provide streamlined approaches to overcome this challenge or it will be a

constraint for companies intending to adopt transformational business models built around IoT data.

There are both logistical and technical barriers that prevent IoT and ERP from talking to each other. IoT typically creates data in a continuous stream. A sensor may send a record of conditions in a piece of equipment or component to a plant historian or SCADA system at any given time. ERP requires data that describes a defined business event. That event may be an exception to ideal operations, a duty cycle of a piece of equipment – but it's finite and has a specific business meaning.

Project teams must define what data ERP should collect to determine how an IoT discovery tool can convert the 'stream-of-consciousness' data into something that informs ERP of business events and operations. This may include a particular piece of equipment that requires service, the need for a technician to visit a cus-

tomers site, or that a production line should be slowed down to avoid quality issues.

It could be that we see two flurries of IoT investment moving forward. The first will focus on enabling more thorough and strategic data collection, the second on making more complete use of data. Data collected on equipment may at first identify issues, but in the future it could drive an automated field service value chain where the equipment sends its own work orders. Companies would be able to charge for productivity and outcomes – duty cycles, products manufactured and hours of operation – instead of a discrete product.

Successfully unlocking the productivity and ROI gains IoT brings will come down to ambition for connecting real-time data from connected devices. ERP systems will need to create seamless, manageable pathways for IoT data to reach the core business systems where it will have the greatest impact. Only this way will IoT and ERP truly talk to each other and achieve benefits beyond cost prevention.

Rick Veague is chief technical officer for IFS, North America, a global enterprise software vendor with Canadian offices in Mississauga, Ont. and Ottawa. Visit <https://www.ifsworld.com/ca>.

Comments?

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PERFORMANCE

It begins the process of finding more information.

BY HUGH ALLEY

A manufacturer was having problems with a particular defect. The lead was asked if the part was defective when it arrived at the department, or caused by the department.

"I don't know" was his reply.

"I think..." or "My guess is..." would have been much harder to challenge. "I don't know," showed he wasn't trying to make up an answer, and wasn't trying to pin it on someone else. He was just stating the fact.

One way to respond would be to tell him, "Knowing this stuff is your job." This doesn't serve the company well, because it doesn't get to the root of the problem: where do the defects originate?

The response should be, "I wonder how we could find out?"



When the answer is "I don't know."

PHOTO: ALPHASPIRIT - STOCK.ADOBE.COM

Solving PROBLEMS

ANSWERING "I DON'T KNOW" IS A GOOD PLACE TO START

other sources.

When we are solving problems on the floor, we often ask questions. Those reporting to us are tempted to provide any answer so that they don't look bad. But the answer may not be particularly accurate or helpful.

Ask yourself, is this statement a fact, an opinion or a guess?

Of the three, facts are the most helpful. Opinions are the most dangerous because they are formed with so little regard to facts.

Sometimes guesses are helpful, especially when they result in ideas to test. The lead's guesses led him to test some ideas, which confirmed some, or allowed him to cross others from the list.

"I don't know" means "I'm ready to learn what is really going on." It reflects honesty and a willingness to be curious. Both are important for better performance.

Next time you ask a question and the answer is "I don't know," consider this a statement you should celebrate.

This begins the problem-solving process and leads to forming ideas as more information is gathered.

The lead proposed several ways to get more information, such as asking the crew. He realized he could ask his crew what they had observed, even if it was anecdotal.

The crew started tracking where the defects were first identified and he learned that more than two thirds were found at the point where the parts arrived.

Most of the others were found after one particular operation. This provided clues about where to look.

Looking deeper

He also started looking more closely at the nature of the defects. Defects previously treated as the same were recognized to be two distinct types with different origins. And when he tried one particular fix in the transport process, only a third of the defects were eliminated, instead of the 75% he had expected. This prompted him to look for still



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THINK LEAN

Methodologies can be effective but what about quality?

BY RICHARD KUNST

If you own or participate within a process you need a “centre of truth,” a location where you can conduct research to see if a current disturbance to flow has previously been experienced and the corrective action taken.

Documentation is a critical part of any process whether it's the history behind your automobile, your stay history with a hotel chain or decisions made with a lawyer while writing your will.

But there's a danger the centre of truth ends up as tribal knowledge that only resides with your R&D engineer. The consequence? New technology falters and creates ongoing grief for the linear process experts attempting to perfect the technology using a lottery mentality.

A manufacturer that became successful despite lacking formal operational methodologies demonstrates the importance of a repository of truth.

During the course of several months, lean methodologies were implemented but one key KPI was slow to show improvement.

Daily management report-outs where employees and management could reflect on previous 24-hour disturbances to flow and mitigate upcoming concerns improved employee engagement.

Next, disturbances to flow were highlighted to prevent them from becoming “micro-stoppages” that would be ignored or just generally accepted. Hourly run boards were introduced – hand-written, not electronic – to increase employee emotional attachment.

To improve process up-time, total productive management was introduced that incorporated operator self checks for early detection of potential problems, and that expanded the reach to include other process-related



Avoiding micro-stoppages from disturbances to flow.

PHOTO: QUALITY STOCK ARTS - STOCK.ADOBE.COM

Your centre of TRUTH

UNCOVER PREVIOUS DISTURBANCES TO FLOW

attributes.

Of course, an erratic production schedule was impacting KPIs. Two methodologies were introduced: single-minute exchange of dies (SMED) so set-ups would be completed within minutes and no longer a concern in relation to schedule changes; and a combined raw material and finished goods kanban with an inherent hyjunkia box (visual scheduling tool) to allow for level loading and optimum schedule loading.

This was overlaid on the existing ERP system for data collection and mining.

KPIs continued to show much opportunity to improve quality within process. Focus was directed on material yield, and the results were positive as yield numbers were consistently north of 95% as scrap and defects could be recycled back into the raw material stream.

Morning market was launched where quality and process defects would be displayed for corrective action, in essence, make up quality concerns large, ugly and begging for corrective action. But asking for action without a methodology becomes a wish.

Moving the needle

The result was to launch aggressive A3 training and problem solving. Training had encompassed a formal problem-solving suite of tools since traditional A3 methodology is just a reporting mechanism. The needle moved slightly.

But the quality KPI failed to improve significantly. The resulting analysis showed the primary quality culprit was a recently introduced product that bypassed the formal route of new product/process introduction, so no centre of truth

existed.

Full stop! Lean methodologies could not deliver their full potential until a centre of truth could be established.

The new product was put through an accelerated but reflective new product introduction flow covering:

- Capturing the voice of the customer
- SIPOC (supplier, input, process, output, customer) process improvement
- Detailed process map
- Cause and effect matrix
- FMEA (failure modes and effects analysis) evaluation
- Control plan

If you have successfully implemented daily lean methodologies to identify and resolve issues and advance opportunities, but you're not getting the best result, back up and re-build your foundation. And always use your problem follow sheet as you create your centre of truth.

Richard Kunst is president and CEO of Cambridge, Ont.-based Kunst Solutions Corp., which helps companies become more agile, develop evolutionary management and implement lean solutions. Visit www.kunstofsolutions.com. E-mail rkunst@kunstofsolutions.com.

Comments?

E-mail jterrett@plant.ca.

CCOHS SAFETY TIPS

All stakeholders are accountable for their own welfare and those around them.

Many basic elements of occupational health and safety legislation such as the rights and responsibilities of workers, employers and supervisors are similar across jurisdictions in Canada, although the details and how the laws are enforced may vary.

Employers are required to take every reasonable precaution to ensure the workplace is safe and set standards for performance, while ensuring safe working conditions are always observed.

Depending on the size of the company, it establishes and maintains a health and safety committee or supports workers in the selection of at least one health and safety representative.

Employees must be trained: to use and handle equipment safely, and about any potential hazards; how to safely use, handle, store and dispose of hazardous substances; how to handle emergencies; and how to use personal protective equipment.

Employers are required to immediately report all critical injuries to the government department responsible for occupational health and safety.

Managers and supervisors act on behalf of the employer, so they're responsible for meeting the duties of the employer as specified in the Occupational Health and Safety Act. Workers are to be provided with written instructions pertaining to protective measures and procedures. They must ensure employees work in compliance with health and safety acts and regulations; advise workers of potential and actual hazards; and ensure they use prescribed protective equipment and/or devices.

Governments are responsible for enforcement legislation, workplace inspections, incident investigations, communication



Ensure workers are equipped with the appropriate personal protective gear.

PHOTO: ANDREY POPOV - STOCK.ADOBE.COM

Working SAFEST

WHO'S RESPONSIBLE FOR WHAT IN THE WORKPLACE

of information, promotion of training, education and research and the resolution of health and safety disputes.

Unsafe work

Employees have the right to refuse unsafe work, to participate in workplace health and safety activities and to know or be informed about actual and potential dangers in the workplace. Their responsibilities include: working in compliance with occupational health and safety acts and regulations; using personal protective equipment and clothing as directed by the employer; reporting workplace hazards and dangers to the supervisor or employer; working in

a safe manner as required by the employer and use the prescribed safety equipment; and telling the supervisor or employer about any missing or defective equipment or protective device that may be dangerous.

What happens when there is a refusal for unsafe work? The employee reports the refusal to a supervisor and states why an investigation will follow and the employee returns to work if the problem is resolved to everyone's satisfaction. If the problem is not resolved, a government health and safety inspector is called who investigates and gives a decision in writing.

Legislation holds employers responsible to protect em-

ployee health and safety while inspectors in each jurisdiction carry out enforcement. Police or crown attorneys may also lay charges under Section 217.1 of the Canada Criminal Code (also known as the Westray Bill or Bill C-45). This section imposes a legal duty on employers and those who direct work to take reasonable measures to protect employees and public safety. If this duty is "wantonly" or recklessly disregarded and bodily harm or death results, an organization or individual could be charged with criminal negligence.

If you have specific concerns about regulations, consult local authorities in your jurisdiction.

The Canadian Centre for Occupational Health and Safety (CCOHS) in Hamilton contributed this article. CCOHS provides information, training, education, management systems and solutions that support health and safety programs and the prevention of injury and illness in the workplace. Visit www.ccohs.ca.

Comments?
E-mail jterrett@plant.ca.



WHAT IF...

YOU COULD SAVE MILLIONS OF LITERS OF WATER BY MAKING A FEW SIMPLE CHANGES?

REPLACE NOZZLES AT THE FIRST SIGN OF WEAR

Worn nozzles spray over capacity, resulting in water waste. Check nozzle flow rates regularly; visual checks won't detect wear. Replacing nozzles that are spraying just 15% over capacity can save millions of liters of water. Using less water means you'll reduce chemical and energy use too.

AUTOMATE TANK CLEANING

Automated washing of tanks, totes, drums, vats and more will ensure thorough, repeatable cleaning using the least amount of water possible in the shortest amount of time. Processors often reduce cleaning time by as much as 75% and water use by 50% or more.

RIGHT-SIZE YOUR NOZZLES

In many operations, lower capacity nozzles can be used without compromising product/process quality. We helped one processor save more than one billion liters of water annually on conveyor cleaning. Evaluate and test your nozzles to see if you can experience similar benefits.

Reducing water use is good for the environment and the bottom line. Let us help you make some of the simple changes described above.

We help companies around the world reduce water, energy and material use, decrease waste, minimize environmental impact and improve worker safety. Let our spray technology advance your sustainability initiatives.

MAKE EVERY DROP COUNT!



Spraying Systems Co.®

To learn more visit spray.com/sustainability

MAINTENANCE

Three tips that will reduce contributing factors to equipment failure.

Issues related to lubrication prevent rolling element bearings from reaching their design life. They include contamination, wrong type, too much lubrication, too little, not often enough, and/or lubrication not applied correctly.

Generally, these factors are

Lube HYGENE

POOR PRACTICES LEAD TO TROUBLE AND DOWNTIME



Use of the right lubricants reduces bearing issues. PHOTO: BUNG - STOCK.ADOBE.COM

easily corrected. But it's not just about reliability. It's about doing more with less to lower costs, said Ken Brown, the owner of Eco Fluid Center Ltd. in Toronto, a tribology service company.

He noted in a workshop presented to the Toronto section of the Society of Tribologists and Lubrication Engineers that bearing troubles account for 50% to 60% of all electric motor failure, and poor lubrication practices are to blame most of the time. With hydraulics, the leading cause of equipment failure is contamination of lubricants from water, dirt and/or wear. And Brown said 90% of pump failures are preventable; 75% result from aged, unsuitable or inefficient lubricants, and contaminants from solids and liquids.

Here are three tips covered in his presentation:

- Many lubrication problems can be traced to contaminated oil. Monitoring oil cleanliness is the most important factor in preventing system failures.
 - Follow the five Rs of lubrication: right lubricant, right amount, right place, right time and right method. The advantages gained can be significant. Shell Canada found 91% of the problems it was having with motors at one of its refineries arose from bearings issues. The energy company achieved a 90% reduction in bearing failures just with better lubrication control.
 - Examine removed bearings and filter elements to determine better maintenance intervals. Look inside reservoirs to check fluid levels and watch for foam and debris deposits.
- Find additional presentations and tips at www.stletoronto.com (look under Presentations, and Tribological Costs Saving Workshop).

Comments?

E-mail jterrett@plant.ca.

ULTRAchecker

Air leaks, over-greased bearings, failed steam traps, electrical faults, passing valves, the **ULTRAchecker** finds them all.

... check everything

The **ULTRAchecker** covers all airborne & structure-borne ultrasound applications.



Ultrasound
Solutions

sdtultrasound.com/ultrachecker
1-800-667-5325

AUTOMATION

Orders are up across North America as new products hit the market.

BY PLANT STAFF

Robot orders were up in 2019, despite slowing global economic growth and disruptions to trade resulting from US tariff wars and other factors that raised the uncertainty level for businesses. As 2020 gets underway, robotics innovators and systems providers have new products for manufacturers in the mood to enhance their automated processes.

First some numbers. The Robotic Industries Association (RIA), part of the Association for Advancing Automation (A3) based in Ann Arbor, Mich., reports 29,988 units were ordered in North America, a 1.6% increase over 2018, although revenue was down 1.3%, closing the year at \$1.681 billion.

The International Federation of Robotics forecasts almost 2 million new robot units will be installed in factories around the world from 2020 to 2022. Research firm ResearchAndMarkets.com estimated the global market was valued at US\$34 billion in 2019 and forecasts a double-digit compound annual growth rate over 2020-2025.

"While 2019 was a challenging year and the outlook for growth in 2020 is murky, we're still seeing growing interest in automation technologies and solutions that will lead to continued future growth," said Jeff Burnstein, A3 and RIA president.

Canadian orders were up 25.6% from 2,415 units to 3,033. Shipments were essentially level, rising 1% from 3,050 to 3,080 for the year.

Canadian manufacturers may be slower to invest in Industry 4.0 technologies than their peers in the US and elsewhere, but there is recognition automation is key to production efficiency and competitive advantage.

The 2020 Advanced Manufacturing Survey conducted by



Interest is growing in automation technologies. PHOTO: PHOTOCREO BEDNAREK - STOCK.ADOBE.COM

What's new in ROBOTICS

TECH THAT ENHANCES AUTOMATED PROCESSES

BDO Canada LLP and **PLANT** Magazine shows 44% of the 251 leaders of mostly small and medium-size Canadian enterprises said their companies were spending on robotics. Forty-eight per cent of those spent an average of \$147,083 in 2019. About a third of respondents intended to invest in robotics over the next three years.

Manufacturers of automation systems and machinery have some ideas for those who are ready to invest. Here's a sampling of some new offerings:



Shorter design to modelling time.

Faster 3D printing. New software from ABB Robotics eliminates manual programming,

allowing manufacturers to print products in 3D within minutes.

The global technology company, based in Zurich, Switzerland (Canadian headquarters in Montreal), has found a way around time-consuming plotting of points and trajectories with its 3D Printing PowerPac.

Any standard slicer software design is translated into ABB's simulation environment and robot code. This means an operator moves from CAD design to final modelling in just 30 minutes.

<https://new.abb.com>

For end-of-arm tooling. Yaskawa America Inc.'s six-axis SP235 high-payload (235 kg) robot reduces air-cut time with its quick axis speeds and acceleration.

The manu-



Wide wrist motion range.

facturer of automation systems in Waukegan, Ill. says high moment and inertia ratings accommodate a wide range of spot guns and other end-of-arm tooling. A slim profile lets it reach into tight spaces and high-density layouts. Its vertical reach is 3,490 mm; horizontal is 2,710 mm.

Programming for complicated parts is simplified with wide wrist motion range for greater application flexibility.

www.yaskawa.com



Monitors data to detect trends.

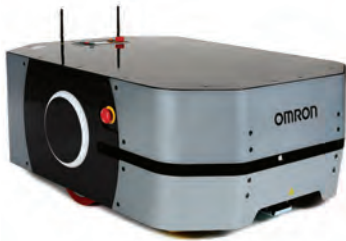
Quality control. New Scale Robotics, a manufacturer of automation tools in Victor, NY, has come up with an automated alternative for SMEs that are manually measuring parts with digital calipers for quality control in high-mix, small-batch manufacturing environments.

The Q-Span system integrates easily into the quality control lab or on the production floor with up to three gripper/caliper tools on a collaborative robot. It picks up small parts, measures multiple dimensions, makes in-process decisions based on measurements (for example, pass/fail or sort by range), and places each part in the appropriate tray or bin.

All data is recorded to a PC for later analysis and statistical process control (SPC), but also monitored in real time to detect trends and alert operators to process drift.

A Q-Span System handles small parts weighing up to 100 grams and measuring up to 100 mm. Measurement resolution is 0.0001 in. (2.5 µm) with better than 0.0002 in. (5 µm) repeatability and 0.0006 in. (15 µm) accuracy.

www.newscaleroobotics.com



Combines with a collaborative robot.

Autonomous mobility. Omron Automation Americas' LD-250 autonomous mobile robot carries payloads of up to 250 kg while avoiding people and obstacles by calculating the best routes to transport material.

The automation company based in Hoffman Estates, Ill. says its Fleet Manager system controls up to 100 mobile units with different payloads through a single system while managing traffic, battery charging and navigation.

An extra-sturdy structure handles unwieldy items traditionally transported in human-operated carts. The LD-250 is customizable with special conveyor tops, courier systems and adaptive material handling mechanics. It also takes advantage of several Omron technologies such as the high accuracy positioning system (HAPS), side lasers and acuity vision localization.

Combining the LD-250 with Omron's collaborative robot creates a heavy-duty mobile manipulator that handles tasks along with material transport. automation.omron.com

No disruption programming. RobotWorx, a Marion, Ohio automation integrator, is partnering with OCTOPUZ Inc., a robotics software developer in Waterloo, Ont., to enable programming of path-sensitive, complex robot applications on a computer without disrupting the manufacturing process.

Users create detailed virtual simulations of their real-world robot cells in minutes, complete with machinery and manufacturing components. Within this virtual cell, OCTOPUZ uses built-in machine logic to automatically identify the optimal toolpath trajectory and program the required code for a multitude of industrial tasks. The code is then accurately converted to the robot brand's unique language for use in the real world.

www.robots.com
<https://octopuz.com>

High performance. DENSO Robotics, a global supplier of advanced robotic technology in

Anaheim, Calif., has launched new VM-VL series robots for large part manufacturing, transportation, warehousing and other industrial applications.

VM robots are built to handle payloads of up to 55 lb. (25 kg) and come in two models: one with a maximum arm reach of nearly 5 feet (1.5 metres) and the other with a maximum arm reach of nearly 6 feet (1.8 metres). The VL robot handles payloads of up to 88 pounds (40 kilograms) with a maximum arm reach of more than 8 feet (2.5 metres).

Features include enhanced internal wiring for safer, more efficient operations; an easy-to-use RC9 programmable logic controller; and WINCAPS Plus, new software that optimizes 3D visual programming, motion planning and position guidance.

Applications include large part assembly, long reach computer tool tending, palletizing and depalletizing, material removal and deburring, and 3D bin picking.

www.densorobotics.com

All-round robot. The KR QUANTEC robot from KUKA Robotics Canada in Mississauga, Ont. covers several applications,

such as handling, spot welding and high path accuracy processes (laser cutting and milling).

The newest version carries a payload of up to 300 kg and is suitable for nearly every market segment, including the automotive, aerospace, foundry and medical industries.

Fast and precise, it uses enhanced oil for a longer lifespan, and has leaner interference contours.

Digital motion modes ensure optimal robot motion for specific applications.

www.kuka.com



Customizes to specific applications.

Research robot. Dingo, the lightweight indoor robot from Clearpath Robotics in Kitchener, Ont. is designed for research and education. Suitable for benchtop and laboratory testing, it's extensible (allows the addition of new capabilities and functionality) and programmable.

It comes in differential and omnidirectional drive configurations for a wide range of indoor robotics applications such as autonomous navigation, mobile manipulation, and mapping, reaching speeds of 1.3 metres per second. The payload is up to 20 kg.

The robot comes with a range of computing options, and the ability to greatly upgrade battery power, allowing users to fully customize for specific applications.

Dingo includes wheel encoders, programmable front-facing LED lights and a payload mounting system, as well as tool-less access to user power and communication ports for integrating sensors, manipulators and other third-party hardware.

www.clearpathrobotics.com/dingo

Comments?

E-mail jterrett@plant.ca.

ROBOTICS

OTTO EXPANDS TO JAPAN

Partnering with Altech to serve industry

OTTTO Motors is expanding its presence in the Japanese market where the Kitchener, Ont. manufacturer will provide its materials handling robots to industrial companies.

Operating in Canada since 2015, OTTO first deployed robots in Japan in 2018. This move is the first outside North America for the industrial division of Clearpath Robotics Inc.

The company produces self-driving vehicles that move materials within manufacturing and warehousing facilities.

OTTO is partnering with Altech, a specialized trading company that imports advanced machinery and equipment from Europe and the US to support Japanese companies.

Current customers are in the automotive, logistics, food and industrial equipment industries.

HIROTEC, a Tier 1 automotive parts supplier to Mazda, installed three OTTO self-driving vehicles that deliver door panels to welding cells at its Hiroshima plant. This deployment eliminated eight legacy autonomous guided vehicles.

The global market for mobile robotics is projected to exceed \$224 billion by 2030, according to ABI Research, a global technology market advisory firm.



OTTO on the move.

PHOTO: CLEARPATH

MATERIAL HANDLING

Push-bottom, ergonomic equipment eases the physical effort.

BY CHAD DILLAVOU

All types of people work on the loading dock. Most tend to be younger, yet that's where more aging Canadians are making a living.

In fact, according to CARP (an association for retired people), individuals aged 55 years and older accounted for 36% of the working-age population, the highest proportion on record, and it's expected to reach 40% by 2026, many of whom are in warehousing and distribution.

But many facilities aren't updating their loading dock equipment in the same way they're doing so inside the plant.

Robotics, AS/RS systems, AGVs and warehouse management systems are rapidly taking Canadian plants into the 21st century, while they continue to use manual – and potentially dangerous – procedures on the loading dock.

Thanks to newer technologies such as automatic vehicle restraints and push-button hydraulic levellers with smooth transition features, these practices no longer need to be backbreaking – especially for aging workers.

Forty years ago, manually securing trailers to a loading dock bay would require workers to go outside, regardless of weather and environment, and physically set wheel chocks on a trailer's rear tires. Some facilities still use this risky method, placing employees on the busy drive approach with the most basic form of vehicle restraint.

These types of manual operations are not only time intensive, but potentially dangerous. The US Occupational Safety and



A dock leveller in action.

PHOTO: RITE-HITE

Automate the loading DOCK ...TO KEEP AGING EMPLOYEES ON THE JOB AND SAFE

Health Administration (OSHA) – frequently cited in Canada – recently reported that tractor-trailers are the second leading cause of back-over deaths.

Safer operation

Internationally, recommendations are also being made to keep valued employees off the dangerous drive approach with the help of semi back-up alarms (New Zealand) and bumper refuge zones (France). With today's technology and changing standards, there's little to no reason for employees to chock tires outside.

Automatic restraints lock onto the trailer's wheels or – more

commonly – its rear impact guard (RIG). They're operated with a simple push of a button. This level of automation helps docks operate safer and more efficiently. Restraints also help to prevent trailer separation accidents, such as a driver prematurely pulling away from a dock when a forklift is still inside, which can lead to a fall of four feet or more while carrying heavy loads.

Once the trailer is secured to the loading dock, forklift operators and workers must bridge the gap from facility floor to the back of the trailer with a dock leveller. Mechanical levellers that require a worker to pull a

SUPPLY LINES

MANAGING ASSETS

Remsoft is adding MRO inventory management to its asset management capabilities with the acquisition of Xtivity Inc.

The company, based in London, Ont., provides reliability-centred inventory solutions for companies across pulp and paper, mining, automotive, pharmaceutical oil and gas and transportation.

MRO decisions to equipment performance throughout the inventory lifecycle to ensure parts availability and asset performance.

Remsoft products are focused on forestry and land assets.

Xtivity will operate as a subsidiary of Remsoft.

Its Pulse decision support system complements Remsoft's intelligent technology solutions.

COLOUR CO-ORDINATED

New Dominion Colour and LANSKO Colors merged in 2018 to supply colour pigments and dispersions for the global coatings, plastics, and ink industries. They are now sporting a new name: DCL Corp.

The company, with its international connections, will serve multi-national as well as small and medium customers globally.

GLOBAL REACH

Two business information firms are partnering to provide manufacturers with global reach when conducting credit assessments.

Equifax Canada customers will access Creditsafe's global coverage of business data when signing a contract with a new business partner, providing funding to a business with international ownership, or evaluating a new-to-Canada customer and considering its prior term debt behaviour.

Equifax Canada is based in Toronto. Creditsafe USA is based in Allentown, Pa.

chain might be sufficient for operations with a young workforce that don't have a high volume of trailers to service. For aging workers and high-volume operations, consider hydraulic levellers.

Pushing a button on a control box means lifting a finger to raise and lower a heavy hydraulic leveller. Considering the average loading dock leveller services eight trucks per day, that saves a lot of bending over and pulling.

Smooth transitions

Additionally, in a study conducted by Ohio State University, it was revealed selecting a dock leveller designed with special attention to creating a smooth transition significantly reduces the effects of whole body vibration (WBV). This smooth transition extends from the building floor to the leveller, from the deck to lip and from the lip to trailer bed. WBV can be a key contributor to chronic back, neck and leg injuries suffered by long-term or aging forklift operators.

Traditionally, the various pieces of loading dock equipment – including vehicle restraints, levellers and overhead doors – were operated independently of each other. The most advanced dock controls now seamlessly integrate these systems.

It starts with the vehicle restraint. Once it's engaged with a RIG or rear wheels to secure the trailer, dockworkers can use other safety features. They include systems programmed with a green light interlock, which disables the use of the hydraulic leveller or overhead door until the vehicle restraint is safely engaged; an overhead door interlock that requires doors to be opened prior to leveller operation; or a stored leveller interlock that ensures the leveller is stored safely before the restraint releases the trailer.

When it comes to operating equipment at the loading dock door, this type of control panel helps to eliminate the potential for human error.

Advanced controls use a modern user interface with membrane switch buttons. These NEMA 4X-rated systems are built to withstand the harsh conditions of the loading dock. Their flexible circuitry modifies to update components or add features as needs change or budgets allow.

Working on a loading dock doesn't have to be a pain in the neck (or back). Facility managers looking to improve working conditions should consider automated solutions that simultaneously improve efficiency and safety.

Chad Dillavou is a product manager at Rite-Hite, a manufacturer of loading dock equipment, industrial doors, safety barriers and industrial fans based in Milwaukee, Wis. Visit www.ritehite.com.

Comments? E-mail jterrett@plant.ca.

LEADING EDGE

Innovative ideas for plants

NUCLEAR POWER GETS A LIFT

Platforms for maintenance duties

Handling Specialty has gone nuclear. The Grimsby, Ont. manufacturer of custom lift solutions received an order from an un-named nuclear power customer to provide four maintenance platforms and a handling cart.

The main platform of each unit has a capacity of 5,300 lb., 177-in. vertical travel, rises at 3 in. per second and has a jib crane with an 82-in. reach.

Each one docks in storage frames suspended above rail tracks and lowers on scissor lifts. When contact is made, the unit is driven out of its docking station and into service via a handheld control. Technicians board and perform their duties.

Safety features include tape switches for collision detection, limit switches, locks to secure base when unit is stored, handrails, emergency stops, safety lock-up bars, two maintenance blocks, a hydraulic braking system, manual release valve, manual brake release and lift cylinder manual release valve.

www.handling.com



Platform in the down position.

DE-6800 vertical multistage booster.

PHOTO: ARMSTRONG
FLUID TECHNOLOGY



DESIGN ENVELOPE GETS A BOOST

Amps up energy efficiency, plus analytics

Armstrong Fluid Technology has boosted its Design Envelope 6800 vertical multistage booster with permanent magnet motors for increased energy efficiency.

The Toronto-based pump manufacturer cites 40% additional savings compared to booster systems featuring premium efficiency NEMA motors with integrated drives.

Included is Booster Manager, a cloud-based performance management service that delivers analytics and performance insights, including profiles of energy and water consumption.

<https://armstrongfluidtechnology.com>



PHOTO: HANDLING SPECIALTY

SYSPRO 8 ENHANCED

New capabilities power productivity

SYSPRO Canada has enhanced SYSPRO 8, its latest ERP version, to help manufacturers and distributors securely automate and improve production, inventory control and reporting.

Enhancements provided by the global ERP company (based in Mississauga, Ont.) include an expanded Product Recall to easily identify any traceable parent item (Lot or Serial) that has been receipted into stock by any means.

Manufacturing Operations Management allows the rights of the user to be limited by the administrator.

Also enhanced are Point of Sale password expiry, password strength validation, and the management of deposits, inclusive of an audit trail are enhanced.

As more countries transition towards electronic tax submissions, SYSPRO includes support for Making Tax Digital and includes the nine-box return for the UK.

SQL Encryption in Motion ensures eavesdroppers and hackers can't see what's transmitted. And Avanti, SYSPRO's flagship web interface, is updated to support multi-factor authentication.

<https://ca.syspro.com>



Optimizing production.

PHOTO: ADOBE STOCK



Smart condition monitoring.

PHOTO: RITTAL

IOT FOR COOLING UNITS

Adapter links older Blue e models

Get cooling units IoT-ready with a special adapter from Rittal that links up older Blue e cooling units to smart condition monitoring and IoT systems.

It handles up to 10 cooling units in a master/slave arrangement. Data is recorded, while efficiency analyses are carried out. A monitoring system issues

automatic notifications and sets up to detect faults and limit breaches, helping to prevent machine downtime.

The adapter is compatible with all NEMA 12, 3R/4, and 4X rated – wall and roof-mounted – Blue e units that employ Rittal's Comfort Controller.

Rittal Systems Ltd. is a supplier of industrial enclosures, climate control, power management systems and automation services with offices in Mississauga, Ont.

www.rittal.ca



Plan, control and monitor.

PHOTO: FASTEMS

WCO DOES IT ALL

...even non-automated equipment

Fastems' new software domain plans, controls and monitors, even non-automated equipment, standing alone or in a cell.

The Finnish automation company (US offices in West Chester, Ohio) says its Work Cell Operations (WCO) domain is used either separately for machines or manual workstations, or in combination with an automated pallet and/or workpiece handling system.

It delivers time-optimized, automated production planning that takes the entire process chain into account. Automatic detailed planning allows parameters such as production with smaller part buffers.

In particular, employees on the shop floor have a clear view of what tools and materials are needed and which resources may be missing. They also know exactly which tasks are due in a shift thanks to clear, prioritized work lists.

www.fastems.com

PRODUCTS AND EQUIPMENT

CABINETS

SUPPORT FOR CABINET ASSEMBLY



Adjustable angles.

Assembling and wiring all the components inside an electrical cabinet, or its back plate, requires an appropriate, ergonomic support structure to make work faster and safer. Adjustable assembly tables by ALFR make this possible.

Model AMTE-300 offers adjustable angle of inclination between 0 and 70 degrees, with fixed height of 901 mm (35.5 in.), adjustable to between 800 mm (31.5 in.) and 1,092 mm (43 in.). AMTE tables are distributed by ITC Electrical Components, a master distributor of electrical components based in Concord, Ont.

www.itcproducts.com

3D MANUFACTURING

CARBON FIBRE AND PET FOR 3D



For plastic products.

The high-temperature Small Area Additive Manufacturing (SAAM HT) machine from Cincinnati Inc. now uses BASF 3DPS's ABS plastic, carbon fibre PET and recycled PET materials.

Ultrafuse ABS, created from acrylonitrile, butadiene and styrene polymers, is strong, flexible, heat-resistant, light-weight and abrasion resistant.

Use it to manufacture low cost prototypes or plastic products.

3D print components maintain their functionality under high mechanical and thermal loads. It's appropriate for the automotive industry, jigs and fixtures and any applications with humid

operating environments.

Plastic generates nearly half of all waste. 3D printing provides an opportunity to use recycled Ultrafuse rPET that prints like virgin material. It handles jig and fixture applications, automotive work and prototypes.

Cincinnati is a Harrison, Ohio machine tool manufacturer.

www.e-ci.com

DUST COLLECTION

RIBBON BLENDER MAKES BAGGING SAFER



Reduces material waste.

Munson's HD-3.5-9-SS ribbon blender enhances worker safety and plant hygiene with an integral bag station that collects dust generated during manual dumping.

Dust is drawn onto cartridge filters as nozzles within each filter alternately emit short blasts of air on a timed cycle. This dislodges accumulated materials and maintains vacuum efficiency.

The unit blends up to 2.4 cubic metres of powders, pastes or slurries in five to 10 minutes.

Its length-to-diameter ratio and split double-helical agitator reduce the time required to uniformly distribute particles having dissimilar sizes, shapes and bulk densities throughout the batch.

Tight tolerances of 3.175 to 1.587 mm between the ribbon blades and the vessel trough minimize residual product following discharge, reducing material waste.

Hand-held sacks are slit and dumped through a welded grate that traps oversized lumps and bag scraps as airborne dust is drawn away from the operator.

A hinged lid with removable, safety-interlocked grate provides access to the vessel interi-

or for cleaning and inspection.

Munson Machinery Co. Inc. in Utica, NY makes mixing, blend, shredding and separating machinery.

www.munsonmachinery.com

MATERIAL HANDLING

TOOL RAIL FOR LIGHT APPLICATIONS



Lightweight aluminium.

Columbus McKinnon Corp.'s ETA-3 Series rail profile from for light-duty applications adapts to a variety of configurations.

Use it as a tool rail for weld guns, light fixtures, weld curtains, spring balancers and work benches, or as a side-by-side rail to carry additional equipment on a crane.

Ease of movement comes from its lightweight aluminum trolley body, precision bearing load wheels, self-lubricating bronze bushings, dual bearing guide rollers, and integrated rubber bumpers.

It also attaches to the main-line system as a festoon rail. This allows trolleys and filter, regulator, and lubrication (FRL) equipment to move on a separate rail, helping to extend bridge and runway distances.

ETA-3 is extruded from high-grade 6005-T5 aluminum, and maximum capacity is 442 lb., with lengths up to 25 ft.

Columbus McKinnon is a manufacturer of motion control technologies based in Getzville, NY. www.cmworks.com

MOTORS

ONE STOP MOTOR/DRIVE

Siemens' combination motor/drive packages offer the option to select the optimum solution for a variety of heavy-duty industrial motion control applications from a single source.



For motion control applications.

Choose from a pre-determined list for a selection best suited to the application. The motor and drive are packaged on

a single pallet.

They're power-matched for 480 V high-overload operation through a 20 hp range, with I2 T protection from thermal damage.

A Siemens Intelligent Operator Panel is included for step-by-step drive start-up.

Application macros are provided in the Sinamics G120C drive for easy installation and wiring. Terminals are pre-assigned at the factory and the parameters are automatically set.

SIMOTICS SD100 motors are rugged cast-iron with inverter duty ratings in a 4:1 speed range for constant torque and 20:1 speed range for variable torque.

Communications selections on these matched motor/drive combinations include RS485 with USS and Modbus protocols. A Profibus variant is also offered for a Totally Integrated Automation (TIA) solution.

Siemens Corp. is a global manufacturer of industrial technology with a Canadian head office in Oakville, Ont.

www.usa.siemens.com/drives

SENSORS

SAFE MEASUREMENT IN CONDENSING APPS



Reflective technology.

Condensation is the most commonly encountered variable in liquid level applications and attenuates the acoustic signal of non-reflective ultrasonic sensors.

This weakens signal strength and reduces measurement reliability. Flowline non-contact EchoPod and EchoTouch reflective ultrasonic liquid level sensors from AutomationDirect deliver reliable level measurement in condensing environments.

Featuring reflective technology, they replace ultrasonic sensors in condensation applications, and other float, conductance and pressure sensors that fail due to contact with dirty, sticky and scaling media in small, medium and large capacity tanks.

The standard 4-20 mA output is monitored by a PLC or other controller. Models with four relays configure for level alarms and/or stand-alone level control such as automatic fill or empty functions.

AutomationDirect is a distributor of industrial automation products based in Cumming, Ga. www.automationdirect.com

WORKHOLDING

PROLONG JAW BLANKS LIFE



Reduces set-ups.

An easy-locating feature on soft jaw blanks from Dillon Jaws reduce set-up times, aid concentric performance,

improve chuck balance and ensure longer jaw life thanks to the increased accuracies.

A milled surface on the jaw end, opposite to the clamping surface, serves as a location point for positioning the counter-bored holes for exact dimensional matching.

They come in 1018 steel and 6061 aluminum, as well as 4140, 8620 and A2, brass, delrin, or stainless steel to suit virtually any CNC or manual chuck project involving turned or bored parts.

Dillon Manufacturing Inc. in Springfield, Ohio manufactures

standard and custom workholding solutions.

www.dillonmfg.com

ELECTRONICS

DIODES PROTECT SENSITIVE ELECTRONICS



Improves reliability.

Higher surge 8.0SMDJ series TVS diodes from Littelfuse Inc. protect sensitive electronic

equipment from transient voltage induced by lightning and other voltage events.

The series combines up to 8,000 W of peak pulse power dissipation in a compact DO-214AB SMC package. This simplifies printed circuit board design.

Littelfuse, based in Chicago, specializes in circuit protection, power control and sensing.

<https://Littelfuse.com>

PLANTWARE



Performing real-time data analysis.

GETTY IMAGES/iSTOCKPHOTO

PM FOR GAS ANALYZERS

ABB is launching a predictive maintenance solution that will help minimize environmental impact and make workplaces safer.

ABB Ability Condition Monitoring for its measurement devices keeps continuous gas analyzers under control to ensure clean air operations. It performs real-time data analysis to identify problems fast, drawing attention to significant or undesirable changes in device conditions.

Regular reports provide recommendations based on health status, allowing on-site personnel to leverage their own expertise and enabling remote assistance from ABB when required.

ABB is a global industrial technology company with Canadian headquarters in Montreal.

www.abb.com



SmartSuite moving into production.

MONITOR ENERGY USE

Kontrol Energy Corp. has completed initial commercial pilots and will begin production of its energy tech for industrial and other markets in the second quarter.

The Vaughan, Ont. company that provides energy efficiency technology through IoT, cloud and SaaS technology, is moving into the production and scaling phase.

SmartSuite provides real-time energy savings through enhanced automation, smart learning algorithms and analytics in the cloud. They're achieved by automating up to 80% of heating and cooling controls and providing instant analysis/feedback through Kontrol's cloud solution.

EVENTS

Partners in Prevention 2020 WSPS

April 28-29, Mississauga, Ont. CANCELLED

This year's Partners in Prevention presented by Workplace Safety & Prevention Services focuses on safer and healthier workplaces featuring information sessions and innovations in technology.

Visit www.wsps.ca.

MMTS 2020 SME

May 11-13, Montreal POSTPONED

The Montreal Manufacturing Technology Show (MMTS) features machine tools, tooling, metalworking, automation, additive manufacturing, design and physical asset management. Keynotes, panel discussions and interactive technology exchanges on the event floor.

Visit <https://mmts.ca/attend>.

VMPT 2020 NSERC

May 19-22, Waterloo, Ont. POSTPONED

The 9th International Conference on Virtual Machining Process Technology (VMPT 2020), sponsored by the NSERC Canadian Network for Research and Innovation in Machining Technology – Phase 2 (CANRIMT2). Located at the University of Waterloo and integrated with its annual general assembly.

Visit <https://uwaterloo.ca/virtual-machining-pro->

Many planned events have been cancelled or postponed because of the COVID-19 pandemic. Consult the event websites for more information.

cess-technology.

Future Aluminum Forum Industry 4.0 Aluminum Association of Canada

May 25-27, Quebec City POSTPONED, Dec. 8-9,

The focus is on Industry 4.0 and what's happening in the world of digitalization.

Visit <https://futurealuminiumforum.com>.

PTDA 2020 Canadian Conference PTDA

June 3-4, Niagara Falls, Ont.

The Power Transmission Distributors Association (PTDA) conference brings key decision makers of the Canadian power transmission/motion control industry together for business networking and education. DM-IDEX (Distributor-Manufacturer Idea Exchange) provides an opportunity to schedule one-on-one meetings in advance.

Visit www.ptda.org.

FABTECH Canada SME

June 16-18, Toronto POSTPONED until 2022

Presented by the Society of Manufacturing Engineers (SME). Metal forming, fabricating, welding and finishing event features world-class suppliers with the latest industry products and developments, plus tools to improve productivity.

Visit <https://10times.com/fabtech-canada-expo>.



Manufacturers are responding to COVID-19

BY JAYSON MYERS

Manufacturers across Canada and around the world are feeling the impact from the COVID-19 crisis as it dramatically impacts demand.

Industry shutdowns in heavily infected areas such as China, eastern Asia, and Europe are already restricting the availability of materials, components and finished goods needed to maintain production.

Manufacturers have needed to jump into crisis management mode fast, taking immediate steps to preserve cash and ensure financial sustainability. Companies have been taking steps to complete unfilled orders, protect their workforce while keeping production open as much as possible, and support workers in cases where lay-offs have occurred.

Securing supplies of critical components have been a priority, if that's even possible in light of global disruptions. And plans are being put together if there are extended periods of slow or no business, then plans for as rapid a recovery as possible when the crisis passes.

Uncertainties about the spread of COVID-19 with the extent and severity of impacts on customer demand, supplier vulnerabilities, financial support, and business sustainability make the current situation highly unstable for all companies.

COVID-19 has also led to a surge in demand for household consumables as families batten down the hatches. Shortages have quickly appeared on grocery store and pharmacy shelves as products such as toilet paper, cold and flu remedies, cleaning products, pasta, canned and baking goods were scooped up. Food processors and specialty chemicals manufacturers will be pressed to ramp up production to keep shelves stocked. Yet supply constraints are likely to emerge, particularly over the summer, if there are not enough farm workers to plant or harvest fruit and vegetables.

Canada is facing more critical shortages of health care products for diagnosing, treating, and preventing COVID-19. In particular, demand is skyrocketing for: virus screening tests, vaccines, therapeutics, and symptom management treatments; personal protective equipment; cleaning and sterilization chemicals and equipment; and medical equipment such as ventilators and peripherals.

Canadian and provincial governments have issued a call to action for manufacturers to step in and ramp up supply. Business associations have followed suit. But it's not as easy as it sounds.

Scaling up the production of safe medical products requires the technical validation of new products and technologies, and systems required for production. Materials and components need to

be acquired – and new sources of supply identified and procured – no mean feat at a time of widespread supply shortages.

Manufacturers need to be able to produce to acceptable product and production standards. Their products also need to be tested and approved by regulators, especially if there is a risk they may endanger the health and safety of patients or health care workers. And that's all before new equipment is acquired, production processes are repurposed, or additional production capacity added.

Nevertheless, many companies are stepping up to the challenge. Auto and aerospace parts producers are working to repurpose their manufacturing capacity. Technology companies are moving fast to develop digital applications that will help model the disease, coordinate industry responses and improve supply chain efficiencies. Biotech and pharmaceutical companies have accelerated their efforts to develop tests, vaccines and therapeutics to treat the disease.

Some of Canada's leading clothing companies are now producing personal protective gear. Chemical companies and distilleries across the country are rapidly scaling up the supply of cleaning products and hand sanitizers. And manufacturers with capacity to produce materials and components in short supply will also play an essential role in sustaining supply chains.

It's a full court press, and it requires a coordinated effort. Next Generation Manufacturing Canada is working to coordinate with government and manufacturers that have the capabilities to step into the breach. We will be making Health Canada approved product specifications, testing procedures, manufacturing specifications, and bills of materials widely available to manufacturers across the country. And we are working with procurement authorities as well as some of Canada's leading companies to structure efficient procurement and distribution systems.

NGen has also allocated \$50 million to support industry-led projects leading to rapid production launches of critical products and materials required to fight COVID-19. We intend to fund initiatives that will deliver the right products to health care workers as quickly as possible.

For more information, go to www.ngen.ca/covid19-response.

Jayson Myers, the CEO of Next Generation Manufacturing Canada, is an award-winning business economist and advisor to private and public sector leaders. E-mail jayson.myers@ngmcanada.com. Visit www.ngmcanada.com.

Comments? E-mail jterrett@plant.ca.

"CANADA IS FACING MORE CRITICAL SHORTAGES OF HEALTH CARE PRODUCTS FOR DIAGNOSING, TREATING, AND PREVENTING COVID-19..."

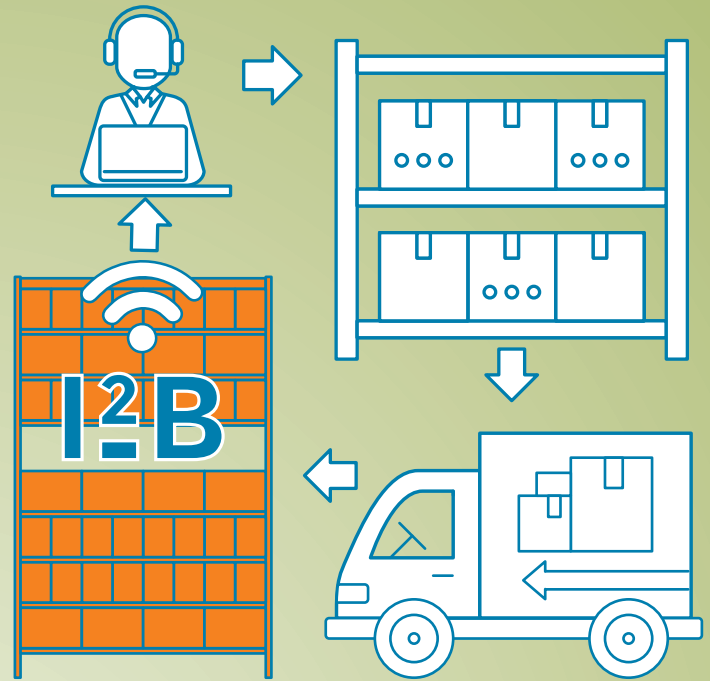
AUTOMATED RESTOCK ALERTS

KEEP LINES UP & RUNNING

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- Flexible Configurations
- Supply-Base Consolidation
- Reduce Inventory

IRWIN Industrial has added a new dimension to its suite of integrated part supply solutions.

Each IRWIN Intelligent Bin (I²B) automatically detects inventory levels and instantly sends alerts to IRWIN for informed replenishment, eliminating the need for counting trips. So, no more safety stock or emergency orders, and most importantly, no more lines down.



Multiple detection levels provide fill-status per bin. You'll get 24/7 visibility, insights, and analysis to optimise your operations, inventory and processes. You'll also eliminate disruptive and expensive out-of-stocks.

Consolidation of vendors across many possible part categories means fewer orders and expedites, while providing economies of scale and lowering incoming freight costs. You get reduced, but assured inventory and space-savings; allowing your organization to optimize its resources, focus on core competencies and meet strategic goals.

IRWIN Intelligent Bin Systems eliminate inefficient manual bin counts and stock outs. That keeps production lines and assembly cells uninterrupted – and profitable.

Details at irwin-ind.com/news-detail.htm?article_id=57

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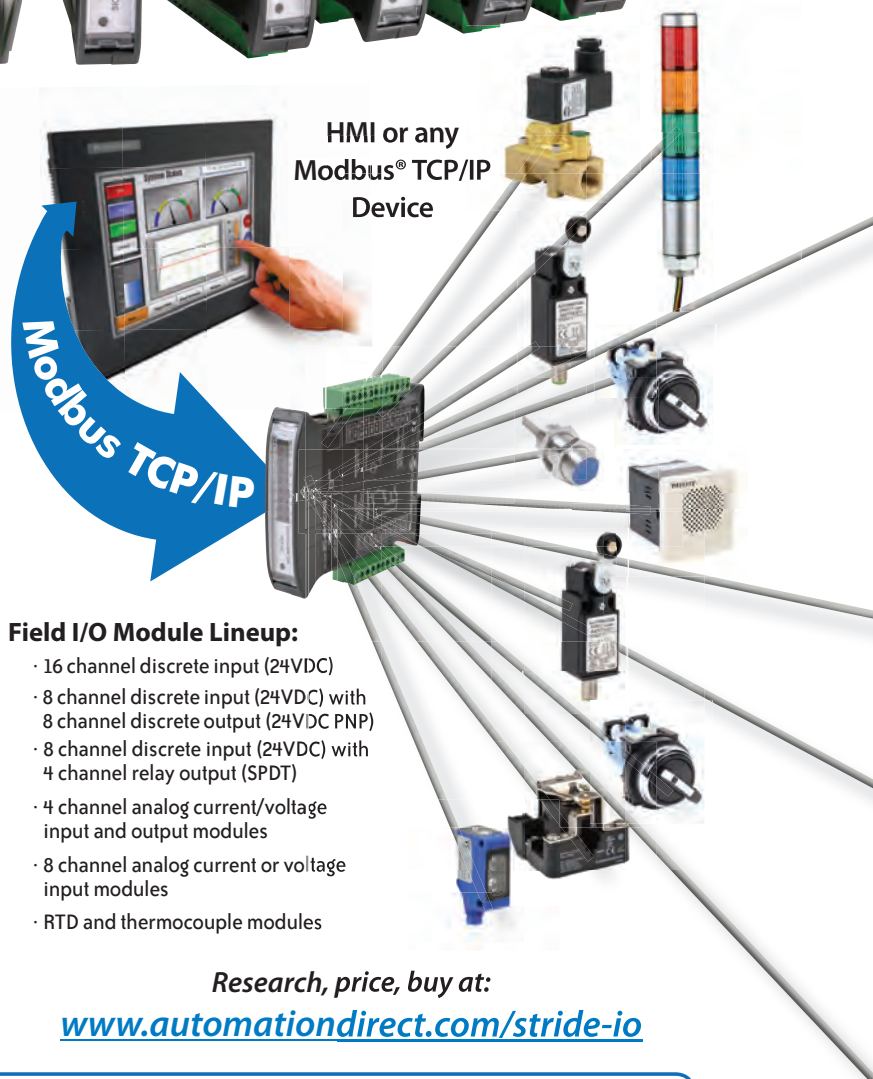
Stride I/O

Starting at \$139.00

The new STRIDE Field I/O modules provide an affordable and convenient I/O solution for Modbus TCP/IP-capable systems. Any Modbus TCP/IP device, like a PLC or HMI, can communicate directly with these modules over a single Ethernet connection, alleviating the expense of long I/O wire runs to remote discrete and analog components.

Each STRIDE Field I/O module also serves as a standalone remote I/O interface accessible from anywhere through the built-in Web Server.

Use the integrated Web Server for remote visualization, acquisition of the input/output values and access to the configuration parameters.



Field I/O Module Lineup:

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- 8 channel discrete input (24VDC) with 4 channel relay output (SPDT)
- 4 channel analog current/voltage input and output modules
- 8 channel analog current or voltage input modules
- RTD and thermocouple modules

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