

SEPTEMBER 2019

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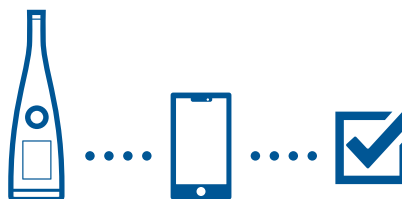
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New Creform Kitting Flow Rack with Light-Guided Picking

Flow rack is built for mixed-model assembly operations of powertrain components.

Creform Corporation engineers have designed a new pick-to-light flow rack for a manufacturer's assembly operation of powertrain components. The rack for the mixed-model assembly operation consists of a bank of five gravity flow racks each equipped with skate wheel conveyor, four supply levels and a return. Each rack's dimensions are 39" deep x 42" wide x 60" high. And each contains 16 picking locations per rack. The individual racks are designed to hold up to 800 lb. and are built using Creform 28 mm pipe and joint.

To add to the versatility, the racks are built on wheels but once in position, they are connected to one another to create an integrated storage cell with parts to be pulled for kits. These particular Creform flow racks are outfitted with a self-contained pick-to-light system to assist the associate with choosing the correct parts in order to make accurate manufacturing kits in the correct quantity. A primary benefit of the Creform pick-to-light system is that it enhances efficiency and reduces errors while greatly reducing the time required to train new associates.

The Creform pick-to-light racks are a stand-alone system powered by a basic PC and a controller mounted at the side of rack system. This control station also features a monitor and keyboard for use by the system administrator to set up, maintain and, if needed, modify the system and picking recipes.

Picking recipes for each assembly are easily created and maintained using simple and easy to understand and manipulate Microsoft® Office Excel templates. Picking recipes are initiated with a barcode scan. In this application the various models and their corresponding barcodes are posted on the far left of the racks.

Two message bars are positioned above the barcode station. The first one features system messages while the second features customizable messages that come from the recipe. Barcodes can also be used on production paperwork such as a manufacturing traveler or work order. For this user's application approximately ten different recipes were used.

Each of the 80 part-locations features a light for guided picking. Each light features a 4-digit display for quantity information as well as a pushbutton and infrared sensor for pick acknowledgement. With each light's sensor, the simple act of reaching into that position's box confirms the pick. There are seven different light colors to choose from and each can be unique to the recipe or even the pick step for color coding purposes.

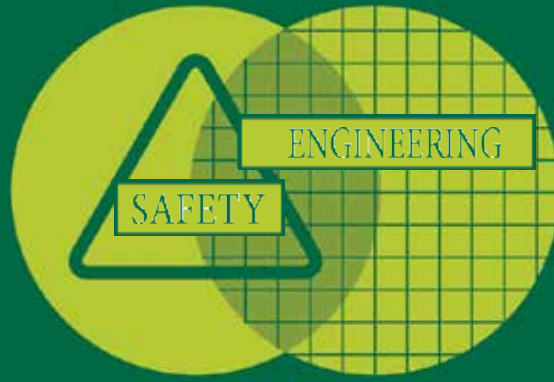
The associate that is doing the picking initiates the recipe using the barcode then follows the lights and pulls the indicated quantity. Once the last pick is made, a "GREEN" confirmation button to the far right of the rack illuminates indicating the recipe is complete and the system is ready for picker to start the next recipe.

As with all Creform flow racks, a wide variety of pipe colors are available, and accessories can include information sheet holders, label holders, tool storage, hooks to hang tools and other supplies. Creform Structures can be built for ESD for anti-static applications.

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VERIZON, SKYWARD, WING, AND OTHERS DEMONSTRATE NETWORK-BASED DRONE REMOTE IDENTIFICATION



Verizon and Skyward, A Verizon company, along with a working group of other drone companies, successfully demonstrated network-based remote identification of drones with the InterUSS Platform. This demonstration included seven drone flying use cases including infrastructure inspection, delivery, and recreational flights. The drones flew in close proximity while safely following ASTM remote ID protocols, the leading industry standard.

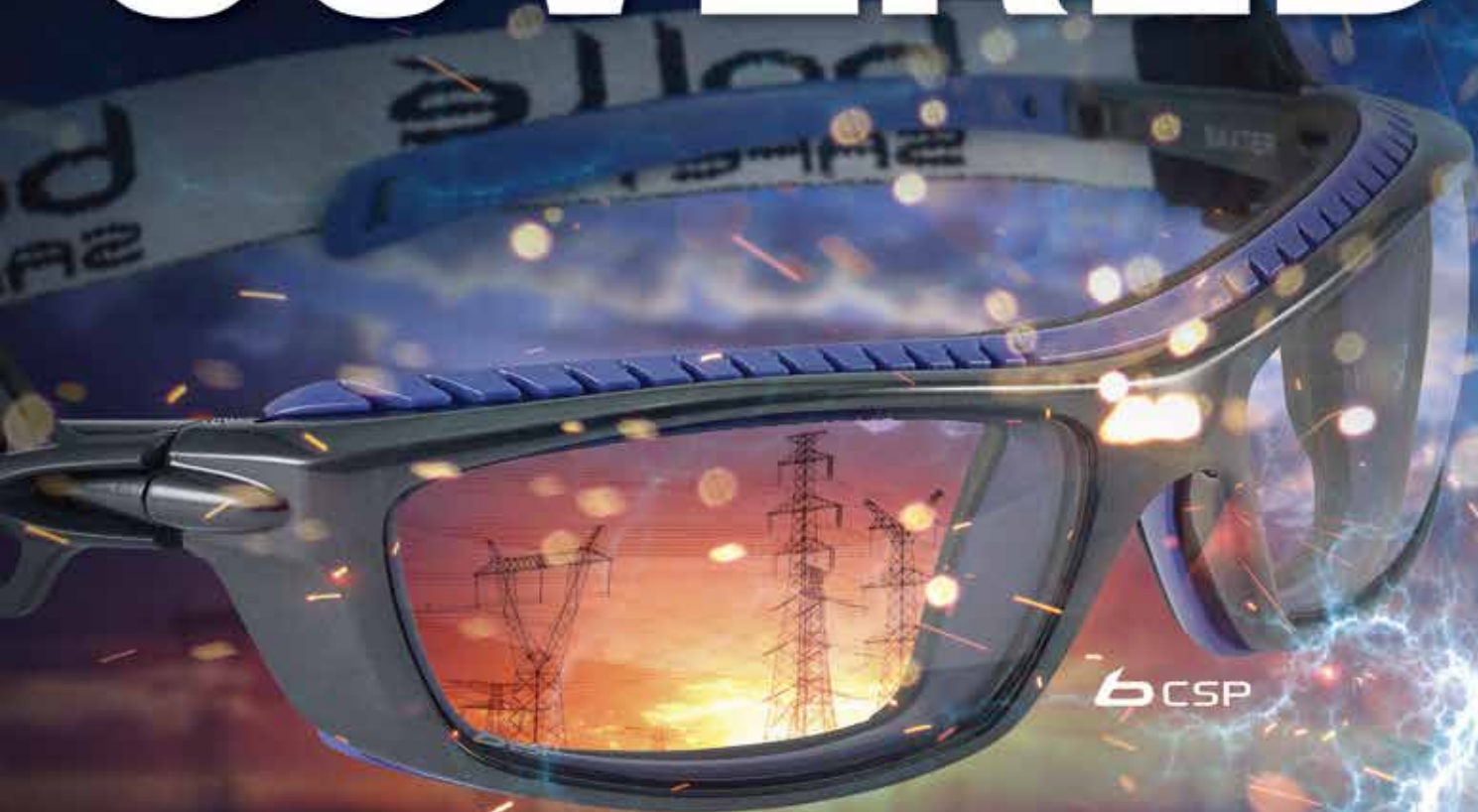
In the demonstration, Skyward simulated a beyond visual line of sight (BVLOS) infrastructure inspection flight with the drone flown directly over Verizon 4G LTE for the duration of the flight. Connecting drones to the wireless network facilitates the sharing of information critical to the safe integration of drones into the National Airspace System, especially for the complex operations of the near future, which will demand safe, autonomous, BVLOS flights.

“Remote ID lets operators see other aircraft and allows authorities to understand where drones are flying and for what purpose,” said Eric Ringer, Director of Aviation Network Technology at Skyward, A Verizon company. “Technologies like cellular connectivity and network-based remote ID are bringing us one step closer to making deploying drones as easy and trusted as picking up your phone and calling a friend.”

About the demo

The demonstration took place in controlled airspace near San Francisco International Airport, and featured participants from Verizon, Skyward, Wing, Uber, AirMap, AiRXOS, ANRA, CNN, Kittyhawk, UASidekick, and Flite Test. Permission to fly

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in controlled airspace was obtained via LAANC, the FAA's Low Altitude Authorization and Notification Capability.

Network-based remote ID is designed to support transparency, while protecting the data of drone operators and customers.

The ASTM remote ID standard enables reliable remote identification of a variety of drones. It represents the consensus of 35 regulatory and industry organizations and can be implemented today. It is designed to support the needs of regulators across the world and support different types of aircraft and operators.

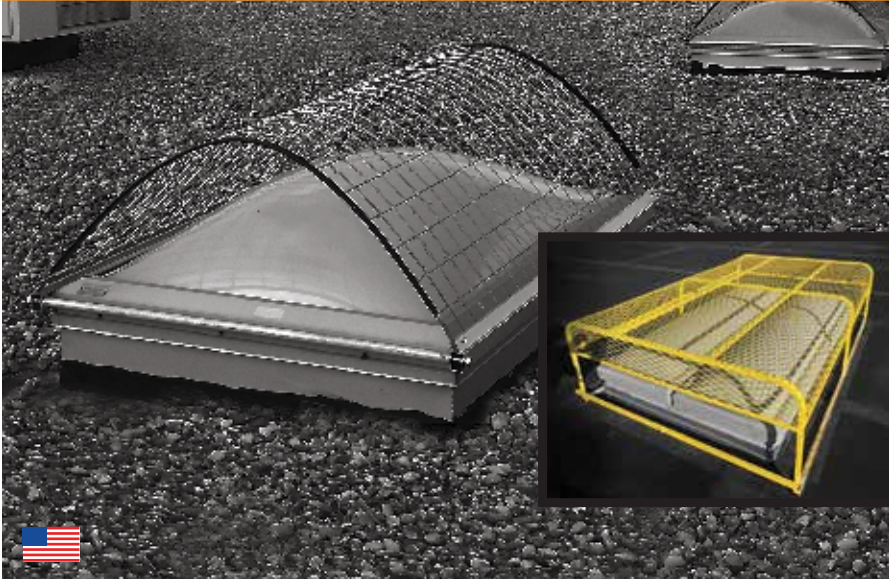
Without a system for remote identification, drones cannot be safely integrated within the national airspace and enterprise adoption will be restricted, even if they are connected to 4G LTE or 5G Ultra Wideband.

"The InterUSS initiative is another important step toward the safe, efficient, scalable integration of drones into the national airspace," said Mariah Scott, President of Skyward. "Our goal is to manage all vehicles in the air safely and in a way that enables commerce, and we've shown that we have the technical ability to do that. We look forward to a requirement for remote identification, which will directly enhance safety and further spur innovation."

About Skyward, A Verizon company

Skyward, A Verizon company is a leading authority on safe, efficient, connected drone operations, giving customers comprehensive oversight of teams, equipment, projects, and flights. We combine airspace intelligence, regulatory advocacy, and wireless connectivity to power today's drone flights and tomorrow's networked fleet deployments.

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Taking the Pain Out of Regulatory Compliance

Properly designed continuous emission monitoring systems (CEMS) can simplify regulatory compliance while reducing costs



Petrochemical refineries are increasingly being called on to install continuous emission monitoring systems (CEMS) to collect, record and report data to comply with air emission standards outlined by the Environmental Protection Agency (EPA) as well as local and state air quality districts.

Spurring this requirement are stricter regulations, often stimulated by air quality districts, which expand the types and capacities of equipment, as well as the addition of chemical compounds, that must be monitored. In addition, facilities with decades-old monitoring systems are now facing the need to retrofit or replace obsolete components.

This is putting a spotlight on CEMS, as refineries eager to keep costs down wrestle with how to meet compliance requirements as inexpensively and efficiently as possible, while still protecting the facility against regulatory fines. Also at top-of-mind is keeping plant personnel on higher revenue generating priorities and off of maintenance and operational duties.

"CEMS are used for environmental compliance only. They do not make the refinery money," says Bill Deutschlander of Eichleay, a full service, multi-discipline facilities design and engineering firm for petrochemical and other industries. "So the least amount of money you can spend on the system and remain compliant is in the refinery's best interest."

As a member of the instrumentation and controls group, Deutschlander has decades of experience working with laboratory and inline process analyzers, including CEM systems.

The difficulty with that concept, says Deutschlander, is that a poorly designed CEM system with the least expensive components can cost much more in the long run in ongoing upkeep and maintenance.

"A lot of [CEMS] providers want to purchase the lowest-priced equipment to install in their system," adds Deutschlander.

er. "That might get you a lower installed cost, but you want quality system components so you minimize the amount of maintenance required."

In addition, if the system fails to record data, even for short periods of time or is not properly validated every 24 hours, regulators can levy significant penalties against the facility that can range from \$50,000 for a single notice, up to multiple hundreds of thousands of dollars over time.

CEMS Integration

Housed in shelters in close proximity to each piece of equipment monitored, CEM systems continuously transport samples of exhaust gases that have been conditioned to a rack of analyzers. Reporting software is also included, and the entire system is often tied into the refinery's network.

To accomplish this task, CEMS involve probes, analyzers, pumps, chillers and other components available on the open market. As such creating these types of systems is a matter of integrating a variety of products from different manufacturers.

Once integrated, by EPA rule, CEMS must be validated once every 24 hours to ensure the analyzer has not drifted off its calibrated accuracy by more than typically 10%. CEMS operate 24 hours a day, 365 days a year and must also have an uptime of 95% to stay in compliance and avoid fines.

For these reasons, ongoing maintenance is unavoidable for facilities that expect to remain in compliance.

Stricter Regulations Spur Installations

For one west coast refinery, new regulations necessitated the installation of CEM systems on four mid-sized process boilers previously monitored by more basic oxygen monitors. The new guidelines from the local air quality district addressed emissions of nitrogen oxide (NOX) and carbon dioxide (CO₂) from boilers, steam generators, and process heaters.

"We used to have different type of measurements on these process heaters, but that was no longer acceptable to the Bay Area and we had to install a full-blown CEMS," says Ken Sullivan, an engineer for analyzers and instrumentation at the refinery.

According to Sullivan, the project was put out to bid and was ultimately awarded to Cemtek Environmental, a leading supplier of custom engineered CEMS.

Cemtek is a system integrator of extractive, dilution and mercury CEMS designed to monitor compound such as NOX, CO₂, oxygen, sulfur and others. The refinery was already familiar with Cemtek, having worked with the

The advertisement for Jesco Industries features a central collage of various industrial equipment, including material handling systems, storage racks, and processing units, each enclosed in a colored border. At the top left is the 'jesco' logo in green, with '— Since 1932 —' and a registered trademark symbol. To the right is the 'WIPCO' logo in a black diamond shape, also with a registered trademark symbol. Below the WIPCO logo is the text 'A division of Jesco Industries, Inc.'. At the bottom, the contact information is provided: 'Call 800-529-6697' and 'Visit www.JescoOnline.com'. Below this, in smaller text, is 'Jesco Industries, Inc. 950 Anderson Rd PO Box 388 Litchfield, MI 49252-0388'.

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company on several past projects.

"They came in with the best proposal," says Sullivan. "In our experience, they really try and do the right thing for us. If you put a spec together and they have a better idea, they will point it out based on their past experience."

Sullivan adds that Cemtek was able to install and complete initial testing of the system prior to the deadline and within cost.

Reducing Maintenance Requirements

There is routine maintenance that has to be done on these systems. Many plants find they must assign additional man hours to take care of the equipment.

"If plant personnel have to spend more and more time on the CEMS, usually what that means is it's going to take them away from working on profit generating equipment," says Deutschlander. "So properly designed process analyzers will help them ultimately have a much higher return on the dollar by making the process more efficient."

Exacerbating the situation is the continuing exodus of experienced personnel to retirement, leaving a younger generation of engineers with limited training on existing systems.

"You're seeing more outsourcing now because refineries don't have enough personnel to do the maintenance," says Deutschlander.

To address this, integrators like Cemtek provide field service maintenance services. These can range from yearly visits to tune-up the system prior to annual re-certification, quarterly visits to maintain the system on a more regular basis, or even on-site services with daily technician visits.

Technology will also play a key role in reducing maintenance requirements. Today's emission systems now deliver remote diagnostics that allow technicians to review how the system is operating and conduct preventative diagnostics through a web browser, removing the need for regular or unnecessary on-site visits.

"You can maintain more [process analyzer] systems with fewer personnel using remote diagnostics," explains Deutschlander. "The more information you can view remotely will lower the total overall cost of maintenance."

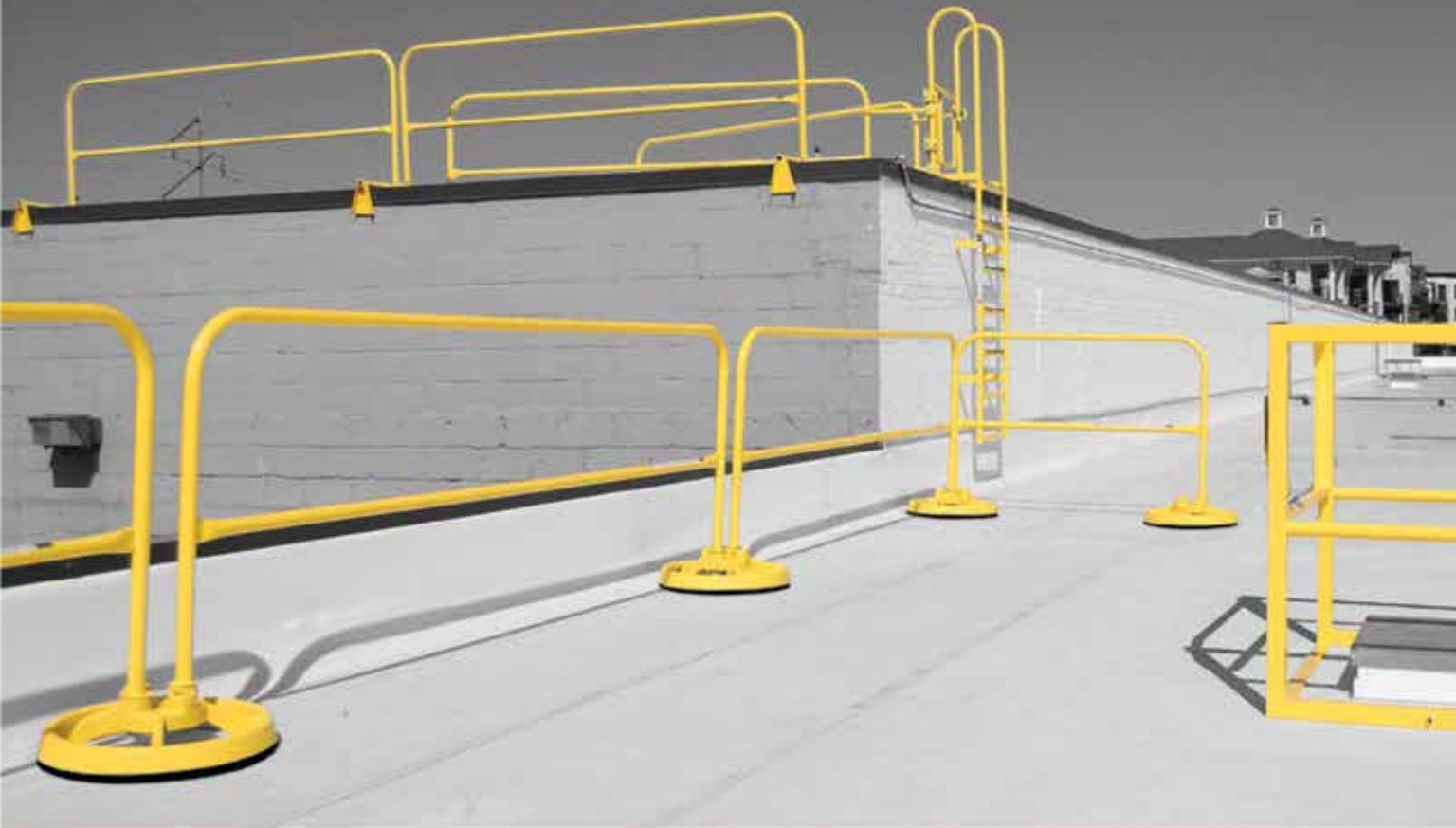
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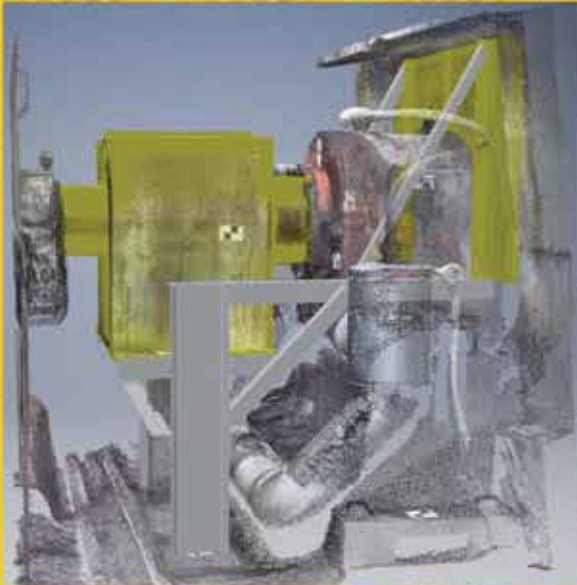
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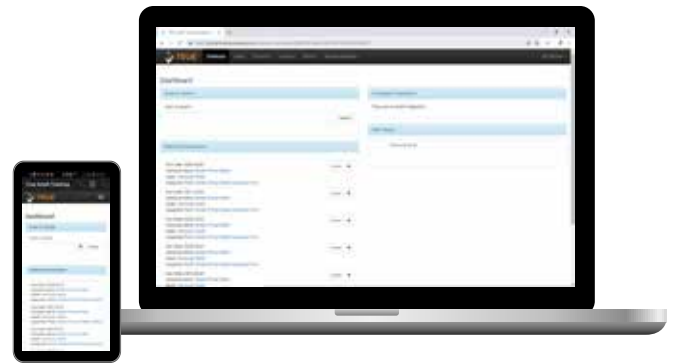
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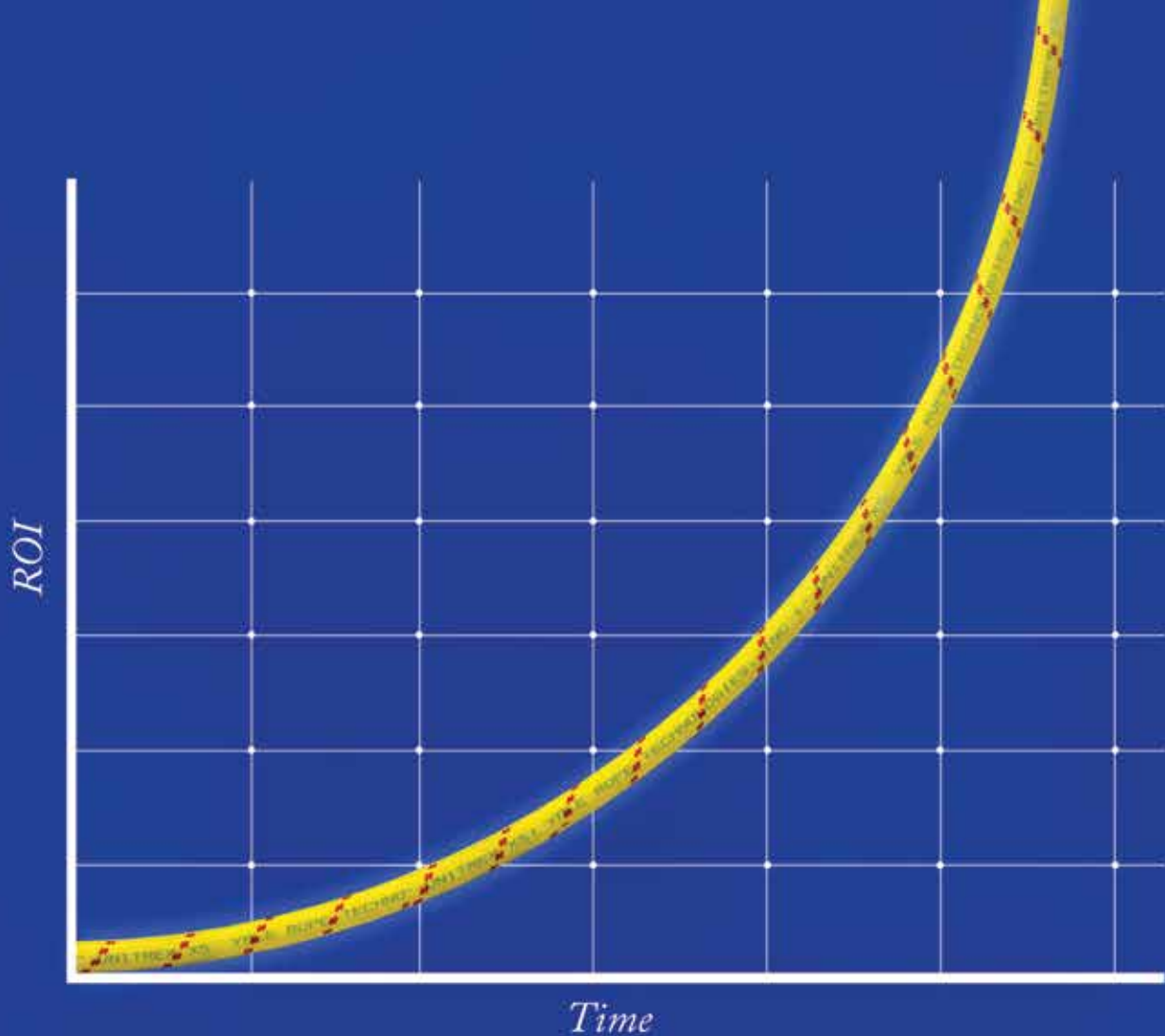
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Established in 1932 in Detroit, Michigan, by the grandfather of the company, Jesco Industries Inc. has grown to become one of the leading manufacturers of material handling equipment. We serve our customers very well by offering a wide range of products which may be used from the processing department through the shipping department. A Woman Owned Small Business is WBE Certified.



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1-1/2" Diamond mesh 10 gauge wire partition system are engineered for easy installation allowing unrestricted visibility and total air circulation. Inventory of standard height panels of 7, 8 or 10 high are available; but don't stop there because many industries require partitions to reach the trusses or building joists and that certainly can be accomplished. If you are installing partition on a raised platform (mezzanine) remember this requires zero or "no" sweep to keep everyone safe walking below. This is to prevent tools from dropping from the edge of the platform. (OSHA 1910.23(e)(4)) Either partition system will work well but the more project information you are able to supply, the more knowledgeable we all become and it is truly amazing how that works!

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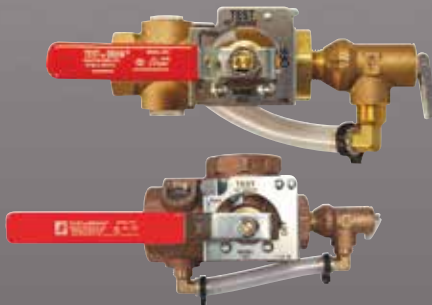
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