



RealWear's assisted reality device supports safe, hands-free work for front-line jobs in manufacturing, oil and gas, healthcare, utilities, and other industries. (Courtesy: Imint)

INNOVATION

RealWear device enables techs to collaborate safely

IMINT Image Intelligence AB, a global leader in video enhancement software, recently announced collaboration with RealWear Inc., the world's leading developer of industrial-grade assisted-reality connected devices for industrial applications. Under the agreement, Imint's pioneering Vidhance software is integrated into RealWear's flagship HMT-1 voice-controlled device — delivering the industry's clearest, most stable video performance to frontline workers who need hands-free access for visual communications and information.

Already a pioneer in the mobile industry, partnering with blue-chip brands such as Xiaomi, Vivo, and Motorola, among many others, this collaboration marks Imint's debut into the head-mounted display and enterprise wearable markets — which, like smartphones, stand to benefit significantly from professional-quality video performance.

“RealWear's hands-free platform is the gold standard for industrial wearables and is an ideal application for Imint's industry-leading video optimization software — which has already proven essential in today's leading smartphones and other mobile devices,” said Andreas Lifvendahl, CEO, Imint. “Imint's Vidhance video enhancement software, together with RealWear's advanced technology, ensures optimal video performance for

both recording procedures and real-time viewing by a remote expert.”

RealWear's assisted reality device supports safe, hands-free work for front-line jobs in manufacturing, oil and gas, healthcare, utilities, and other industries. In light of the ongoing COVID-19 pandemic, organizations are seeking solutions to give remote experts access to onsite frontline workers. The HMT-1 voice-enabled solution gives workers real-time access to documents, workflows, visual data, and remote experts while on the job.

Remote mentoring on RealWear's assisted reality, hands-free platform has gone global in large part due to the pandemic, leveraging certified voice-enabled apps such as Microsoft Teams, Cisco WebEx Expert on Demand, Zoom, or other purpose-built software. The HMT-1 allows remote

technicians to “see” what frontline workers see while maintaining a safe distance during the pandemic or by bringing their expertise to bear without incurring travel costs. However, doing so effectively requires stable, high-quality video processing.

To achieve this, RealWear is leveraging Imint’s Vidhance video optimization software, which is included in Release 12 of the HMT firmware update, which became available March 2021. Specifically, RealWear Release 12 will incorporate Imint’s Vidhance Video Stabilization and Vidhance Dynamic Blur Reduction, two technologies that intelligently compensate for camera movement to deliver the most stable video possible, especially in low-light environments.

“A superior video experience on the HMT-1 has always been critical to performing mission-critical tasks while using both hands on the job,” said Dr. Chris Parkinson, chief technology officer. “By integrating Vidhance into our firmware, it’s helping take remote mentor to the next level. Through our early access program, we’ve already received very positive feedback about the stable video experience.”

The cumulative effect of Imint’s Vidhance software algorithms on the HMT platform is video that is significantly more stable, balanced, and clear — ensuring professionals receiving a feed from an HMT headset have the highest-quality picture possible of the situation and can take decisive action.

MORE INFO weareimint.com

► INNOVATION

SkySpecs acquires two European wind-tech companies

SkySpecs, a global leader in wind-energy technology, has acquired two of Europe’s premier wind-energy companies: Fincovi, a leader in financial



A shift toward smarter asset investment and predictability of O&M has been made possible with the combined expertise of SkySpecs, Fincovi, and Vertikal AI. (Courtesy: SkySpecs)

asset management, and Vertikal AI, a pioneer in predictive maintenance for wind energy. The combined entity brings together world-class data insight and automation to help wind-farm owner-operators to optimally invest in, maintain, and manage their assets for sustainable returns.

Serving customers in 26 countries, SkySpecs, Fincovi, and Vertikal AI have offices in Ann Arbor, Michigan; Amsterdam, The Netherlands; Dublin, Ireland; Vejle, Denmark; and Hyderabad, India.

“Our global customers are facing critical challenges when it comes to budgeting and maximizing the life and returns of their assets as the wind industry matures,” said Danny Ellis, CEO of SkySpecs. “We are thrilled to join forces with these two great companies to equip global wind customers with the tools to best utilize capital and keep a pulse on their assets’ health and performance. Our vision requires world-class data, predictive insight, and automation. Collectively, we will help wind-farm owners and operators to best invest in, maintain, and manage the world’s top-performing wind

assets.”

“There is an incredible opportunity to integrate operating data with financial data to provide better insight into asset investment,” said Ray O’Neill, CEO of Fincovi. “Our team can’t wait to combine our capabilities to help wind-farm owners decide how to invest their next dollar.”

“We use data analytics and applied AI to optimize the real-time health of wind turbines,” said Allan Larsen, CEO of Vertikal AI. “Joining with SkySpecs will enable us to deliver our predictive maintenance software to the market — at scale — for the greatest performance impact with wind producers.”

As the wind industry matures and assets age, there is an urgent need for wind-farm owners, operators, and OEMs to seek out data-driven predictive insight and automation to best manage operating expenses, extend asset life, and realize optimal total production. This demand is creating an incredible opportunity for the united entity of SkySpecs, Fincovi and Vertikal AI.

MORE INFO skyspecs.com

CONSTRUCTION

Vestas enters Latvian market with 59-MW wind project

Marking its entrance into the Latvian wind market, Vestas has secured a 59-MW order at the Targale wind project from a special purpose company majority owned by Utilitas, the Estonian utility provider.

The Targale project is in Ventspils municipality in western Latvia, and will be powered by 14 V136-4.2 MW turbines at a hub height of 82 meters.

With only 65 MW of wind capacity installed in Latvia, this project is due to nearly double the total installed capacity in the country, as Latvia makes progress toward its target to procure 50 percent of energy from renewable energy sources by 2030. To support the country's wind-energy ambitions, Vestas opened its first office in Latvia in April 2021.

Vestas will supply and install turbines and will provide service for the project through a long-term 20-year Active Output Management 5000 (AOM 5000) service agreement, providing power performance certainty and Vestas' industry-leading service expertise throughout the lifetime of the project.

"Our first project with Utilitas also marks Vestas' arrival in Latvia," said Nils de Baar, president of Vestas Northern & Central Europe. "We are positive about Latvia as a market and are delighted to be selected to provide turbines and long-term service at the Targale project. This project can be a bellwether for the Latvian wind industry, as the country advances its strong performance on clean energy toward 50 percent renewable energy penetration by 2030."

"We are delighted to partner with Vestas, the largest manufacturer of wind-turbine generators, to build the wind park Targale together," said Rene Tammist, development manager at Utilitas. "The explicit technological innovations in terms of efficient and



Ameresco's 9.2-MW Wind Project for PPC Renewables completes construction in Kefalonia, Greece. (Courtesy: Ameresco)

environmentally friendly energy production that Vestas provide will contribute greatly to the renewable energy sector in Latvia. I am convinced that their presence in the Baltics will even more support the wind-energy development in the region."

Turbine delivery to the Targale project will begin in the second quarter of 2022, and commissioning will begin in the third quarter of the same year.

To seal Vestas' entry into Latvia and to service new wind projects such as Targale, plans are also underway to establish a local Vestas service hub in Latvia in 2022, near Ventspils port.

MORE INFO www.vestas.com

CONSTRUCTION

Ameresco's 9.2-MW wind project is up and running

Ameresco, Inc., a leading cleantech integrator specializing in energy efficiency and renewable energy, recent-

ly announced that its wind-turbine project at Xerakia Dilinata of the Municipality of Kefalonia, Greece, has completed construction and is in operation. The project is Ameresco's first international wind project completed on continental Europe and expands the company's presence as a leader in renewable energy. It was secured as part of a design, build, operate, and maintain (DBOM) contract awarded to Ameresco in 2019 by PPC Renewables SA (PPCR), a wholly owned subsidiary of Public Power Corporation SA, Greece's largest power generation company.

Located against the picturesque backdrop of Kefalonia Island, the Kefalonia Wind Project tasked Ameresco with the design and construction of four 2.3 MW wind turbines that will be operated and maintained under an additional 14-year fixed price contract. The 9.8 million euro renewable energy project will supply clean energy to the area, ensuring the island's natural beauty and resources are preserved for future generations.

"In benefiting our local communities with enhanced renewable energy

solutions, we contribute to Greece's standing as a notable international player in the renewable energy space," said Konstantinos Mavros, CEO of PPCR. "We have been pleased to work together in partnership with the Ameresco team and are proud to be a part of such a meaningful initiative."

The Kefalonia Wind Project will advance Greece's environmental sustainability goals by improving the country's overall environmental footprint and reducing carbon dioxide emissions by 22,000 tons each year. That figure results in savings equivalent to 4,753 passenger cars not driven, 2,475,526 gallons of gasoline not burned, or 28,731 acres of pine forest conserved. PPCR will also return 3 percent of revenues received from the project to local governments and communities as an added cost savings benefit from the project.

"The beauty of Kefalonia is unmatched, and we're thrilled to be contributing to the preservation and

betterment of the municipality and its residents both fiscally and environmentally," said Britta MacIntosh, senior vice president at Ameresco. "This project demonstrates our commitment at Ameresco to providing renewable energy solutions that advance sustainability goals globally."

MORE INFO www.ameresco.com/energy-efficiency

CONSTRUCTION

Exus wins repowering contract for 240-MW Big Sky Wind Farm

Exus Management Partners, a leading expert in powering sustainable investments through operational excellence, has been selected to lead the repowering of Illinois' Big Sky Wind Farm by Vitol. The deal follows Vitol's

acquisition of the project from a BlackRock-managed fund earlier this year.

Exus will play a central role in Vitol's plan to invest more than \$250 million to upgrade the project, with the repowering expected to increase Big Sky's annual energy output by 60 percent by the end of 2022. The scheme will entail the installation of highly efficient Vestas wind turbines using the existing foundations and towers.

Exus will provide asset management services for the project and handle the permitting for its repowering, enabling Vitol to optimize returns and continue enhancing its participation in the green energy transition.

As well as offsetting more than 620,000 tons of CO₂ emissions each year, Exus' involvement will incorporate a variety of environmental and community activities, including support for regional wetland and prairie reserves and sponsorship of local cultural events.

Wind farms typically have a lifes-

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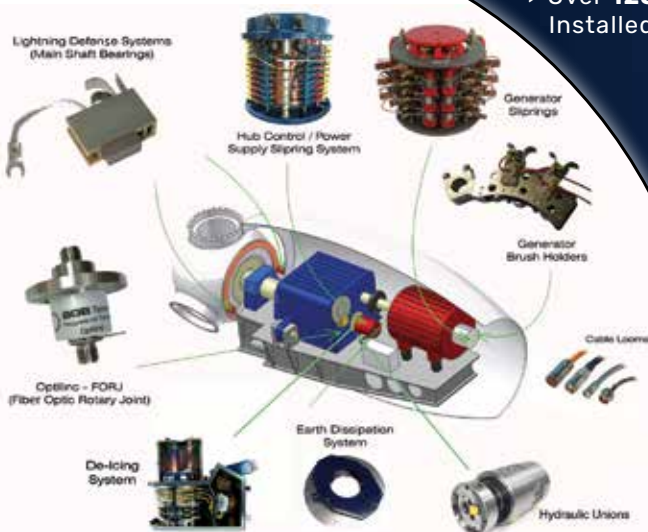
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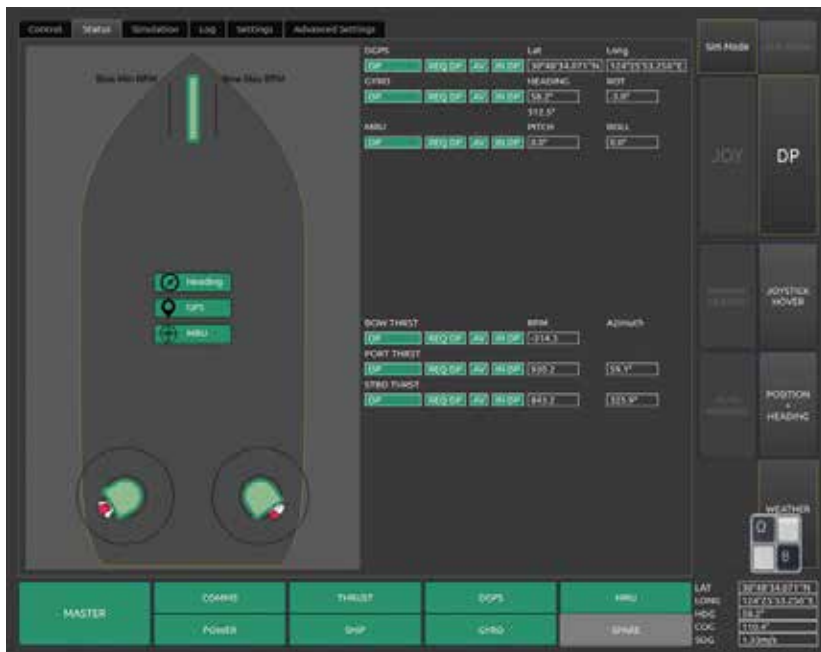
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Reygar's BareFLEET system provides enhanced vessel health, performance, and motion data to drive maximum operational efficiency. (Courtesy: Reygar)

pan of about 20 years, but individual turbines can begin to lose productivity due to wear and tear within a decade of their construction. With approximately 40 GW of U.S. wind capacity now more than 10 years old, including Big Sky Wind Farm, it is becoming increasingly cost-effective for owners of older wind farms to replace turbines with new, more advanced models.

“Repowering is a rapidly growing trend in U.S. wind,” said Mike Speerschneider, development partner at Exus. “Increasing numbers of projects are approaching a decade or more in their life cycle, experiencing associated losses in efficiency. Larger and more efficient turbine technologies are helping projects generate electricity at a level that makes the investment worthwhile and supports the energy transition. Exus is proud to be working alongside Vitol at the forefront of US wind repowering.”

“Big Sky is well placed to deliver clean energy to our commercial and industrial customers, as well as the highly liquid PJM power market, and is the latest example of our ongoing commitment as one of the market leaders in the shift towards renewable energy,”

said R. Andrew de Pass, head of Renewables at Vitol Inc. “We are excited to be working with Exus to optimize the project, while aligning with our premium standards of ESG investing.”

MORE INFO www.exuspartners.com

MAINTENANCE

U.S. vessel operators push to meet offshore wind ambitions

As offshore wind expands in the U.S., local commercial vessel and workboat operators looking to become leaders in the emerging offshore support market must respond to the demands of project owners whose standards and ways of working have been established in the mature European sector.

That is according to Reygar Ltd, the firm behind the innovative advanced remote monitoring platform, BareFLEET, which is seeing growing demand from U.S. vessel operators.

Across Europe and, increasingly, Asia-Pacific, offshore wind project

owners focused on maximizing the availability and, therefore, profitability of their assets are mandating for advanced remote monitoring and reporting technologies across both their direct operations via their operations and maintenance providers, but also their operator’s support fleet. As these mature project owners begin to establish interests stateside, it is clear that digitalized O&M will be a requirement of firms looking to determine their place in the burgeoning U.S. offshore support market, too.

Fortunately, many firms working across the U.S. workboat and commercial vessel sector are already beginning to invest in cost-effective monitoring platforms integrated into their existing vessel systems. Harbor tug, ferry, and pilot boat operators in particular are looking to these systems to cut downtime via real time data-informed planned maintenance across their varied fleets, allowing them to guarantee a continued high quality of service to existing clients.

“Forward thinking commercial vessel operators are already working to secure their place in the U.S. offshore market, but to become sector leaders they must be able to capitalize on what we already know from firms operating globally: that a willingness to be transparent with vessel health, performance, and safety data is critical to winning contracts,” said Chris Huxley Reynard, managing director of BareFLEET. “In order to prepare for entry to this emerging market, we have begun working with a number of commercial vessel operators to deploy the BareFLEET monitoring and reporting system across their diverse vessels and onboard systems. As BareFLEET is technology agnostic, it can be integrated into each vessel firm’s preferred fleet and business management system, preventative maintenance system, and supplementary data analysis platform. This reduces administrative workload ahead of the businesses scaling up.”

The BareFLEET system monitors vessel health, navigational, and performance data from across any vessel

or critical equipment type. As well as informing accurate daily reporting and baseline comparisons, it provides the data for a “deep dive” into values such as motion, fuel use, and engine health in order to inform operational improvements where relevant.

“Over the past few years, BareFLEET has been mandated by a number of global offshore wind project owners as the ‘must have’ system for their contractors,” Reynard said. “We have worked hard to ensure that this does not present a challenge for operators, but is instead an opportunity for them to achieve goals such as environmental compliance, optimized crew comfort, and reduced emissions and fuel use — all while freeing up the time and resource for the crew and O&M team to do what they do best — guarantee excellent, consistent service to their customers.”

MORE INFO www.reygar.co.uk

▀ MAINTENANCE

Guardian expands into 360-degree height safety offer

Pure Safety Group recently announced its family of height safety brands — Stronghold by PSG, Ty-Flöt, Checkmate, ESG, and HART — have all been brought under the Guardian banner. The expanded Guardian is now the world’s largest independent fall protection and prevention brand.

“We are excited by Guardian brand awareness levels amongst the core end user groups we strive to protect,” said Jeff Ward, Guardian CEO. “We are proud to further extend the brand offering into an unrivaled range of fall protection and prevention solutions. Our vision is to blend scale with agility to make it easier than ever for our partners to operate safely at height. This is the start of a new journey for Guardian with several exciting initiatives in the pipeline over the coming months.”

The announcement comes at a time of meaningful investment by Guardian. Its manufacturing and supply chain team has grown under the leadership of recently appointed SVP of Operations, Derek Grant.

The sales team has been strengthened with multiple hires — led by newly appointed industry veteran, Dale Bartelson, SVP of sales and marketing. New specialist roles have been created to further deepen expertise and partner support in areas such as dropped object prevention and foreign material exclusion. And its fast-growing engineered systems and training arms continue to expand as they take on a greater strategic role within the business.

MORE INFO guardianfall.com

▀ MANUFACTURING

Timken innovation drives market sector outgrowth, leadership

The Timken Company, a global industrial leader in engineered bearings and power transmission products, recently announced it achieved industry-leading growth in service to wind-energy customers over the last five years. During this period, Timken significantly outgrew this market sector by registering a compound annual growth rate (CAGR) of 17 percent, compared to an estimated 7 percent CAGR for the industry as a whole. Timken is poised to capitalize further as global demand for equipment and services for the growing wind-energy sector continues to increase. The company anticipates another record year for wind-related revenue in 2021 and remains well-positioned to succeed in this market sector over the long term.

“With global demand on the rise for renewable energy sources, our customers’ success depends on designing larger, more powerful and efficient wind turbines,” said Andreas Roellgen, Timken vice president, Europe, Asia, Africa.

“As wind-turbine manufacturers continue to push the limits on performance, designing and manufacturing bearings for them is increasing in complexity. Timken’s long history of technical problem solving and engineering innovation for the world’s most challenging applications continues to be a significant advantage for our customers in the wind energy industry.”

Timken products, such as engineered bearings and lubrication systems, are designed to help wind turbines operate with greater efficiency in producing power. Also, the company’s maintenance services help maximize a turbine’s performance over its lifetime.

Timken increased its presence in both gear drive and main shaft equipment as the global wind energy market sector experienced rapid growth in 2020. And ongoing trends — such as OEMs building larger turbines that generate more power, and turbine main shaft designs that increasingly rely on tapered roller bearings to take on additional loading — continue to favor the company going forward. In fact, Timken demonstrated its industry leadership by recently partnering with a leading OEM to design and manufacture bearings for the world’s largest and most powerful wind turbine.

Timken, which entered the wind-energy market sector about 15 years ago and has since become a technology leader in the industry and a leading technical partner for wind-turbine and gear-drive OEMs, offers customers a complete engineering solution that meets an application’s demanding duty cycles.

Employing its collaborative technical sales model, the company works with customers to understand their most important success factors and key challenges. This tried-and-trusted approach is paying off in the rapidly evolving wind-energy sector, where Timken has been able to provide timely support to customers with solutions for new wind installations as well as existing designs that are underperforming. Given that the industry’s



Replacing main shaft bearings with upgraded Timken® bearings with wear-resistant coatings can help wind operators reduce maintenance costs over the turbine lifecycle. (Courtesy: The Timken Company)

growing base of installed turbines generally requires a major overhaul after 10 to 15 years, Timken is well-positioned to support not only new equipment, but also the increasing demand for maintenance, repair, and overhaul services. “Downtime and repairs can be very costly for wind-turbine operators, and our wind-energy solutions support our customers’ needs to optimize reliability, cost, and performance,” Roellgen said.

For example, to help increase the service life of bearings in wind-turbine main shaft applications, Timken developed a thin-film coating that simultaneously increases surface hardness and wear-resistance, while reducing friction.

MORE INFO www.timken.com

► MANUFACTURING

Composite-core based conductors can help wind sector

Wind power is particularly advantageous over other renewable energy resources as it doesn’t require water and takes up minimal lateral space.

But creating powerful, environmentally friendly energy resources requires an equally beneficial material choice to produce and transmit their power.

Composites are already well known for aiding the wind-power sector. A significant amount of a turbine blade’s strength comes from its spar caps, the support beams inside the blades.

Making the spar caps from carbon fiber reduces the weight of the turbine blade, so manufacturers can produce longer blades to increase power output and efficiency.

However, in order to increase adoption of wind power into widespread infrastructure, the performance of the wind turbines and their power transmission across the grid need to be optimized.

The major limiting factor for how much wind power can be connected to the grid is often the maximum current capacity of the overhead lines. Maximum current capacity is determined by the line temperature limit, which ensures a safe distance between the line and the ground.

Going beyond the capacity overheats the wire, triggering a “thermal



Composite cored conductors can carry approximately twice the current of steel-cored conductors at much cooler operating temperatures. (Courtesy: Exel Composites)

sag,” which can lead to power outages and pose a health and safety risk.

One solution is to install more cable lines, but this involves the acquisition of new land rights, passing environmental regulations, lengthy installation time and additional labor costs. A quicker and more cost-effective solution is to upgrade the existing lines.

Traditional power cable wires, or conductors, are aluminum conductor steel reinforced (ACSR) conductors that consist of an outer aluminum conducting ring with a steel core that provides support and strength.

However, steel has a high coefficient of thermal expansion (CTE), which means steel core cables expand significantly when heated, leading to thermal sag.

Instead, aluminum conductor composite reinforced (ACCR) conductors have a much lower CTE than steel, meaning they can withstand higher temperatures without causing the cable to sag, making the cable a high-temperature, low-sag (HTLS) conductor.

Composite cored conductors can carry approximately twice the current of steel-cored conductors at much cooler operating temperatures. Composite cores also have a higher strength-to-weight ratio than steel, allowing a greater amount of aluminum in the cable for power transmission without

weighting the cable down.

Exel Composites manufactures composite cores for overhead cables, as well as composite materials for wind-turbine blades, which can be combined with composite core reinforced cables to bring a large wind power source to urban infrastructure.

Wind power is already a popular clean energy source, but power grid infrastructure often limits its potential. Composites are aiding the adoption of wind power, not only by making turbines more powerful and efficient, but also by increasing the current capacity of power cables.

MORE INFO www.exelcomposites.com

► MANUFACTURING

Tech ensures signal continuity in harsh environments

Greene Tweed, a leading global manufacturer of high-performance elastomers, thermoplastics, composites, and engineered components, recently announced its Seal-Connect® product line. These engineered connectors ensure reliability in data and electrical connections in a wide variety of applications across multiple industries,



Seal-Connect products are designed for use in environments typical of the energy, aerospace, and defense industries. (Courtesy: Greene Tweed)

while providing a reliable seal.

Seal-Connect products are available in three types: electrical, fiber-optic, and hybrid electrical and fiber. The products are designed for use in primarily high temperature and/or high-pressure environments typical of the energy, aerospace, and defense industries. Greene Tweed's connectors protect sensitive electronic and sensor assemblies that are critical to customer success. Proprietary materials and technologies allow Greene Tweed to provide advantageous solutions comparable or better than traditional glass-to-metal seals typically found in connectors. This creates a seal ideal for high-temperature and pressure environments common to the energy, aerospace, and defense industries, where hermeticity and signal insulation are critical.

Greene Tweed's engineers understand application needs across the energy, aerospace, and defense markets and how materials behave in a wide range of operating environments to offer the best Seal-Connect® product solution. Greene Tweed's design experience is backed by application success and extensive laboratory testing.

In addition to the wide variety of Seal-Connect® solutions already available in its portfolio, Greene Tweed's industry-experienced design and application engineers will collaborate with customers to design connectors to meet specific application requirements and specifications. ↵

MORE INFO www.gtweed.com