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TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط MIDDLE EAST

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EDITOR'S NOTE

THE REGION'S CONSTRUCTION sector is on the recovery path, after the impact of the pandemic, with the confidence most visible in the imminent start of the Expo 2020. The Annual Construction Review (p16-20) has more on ambitious projects including Saudi Arabia's Red Sea tourism venture.

The Big 5 event, to be held both online and in-person this year, connecting the global construction industry, has several leading names readying up to showcase the latest construction products and solutions, in a safe environment.(p36).

Do not miss the Annual Constructon Buyers' Guide which showcases the manufacturers, suppliers and services across the industry.(p42)

We also feature an insightful interview into digital technologies transforming the marine industry.(p28)

At Technical Review we always welcome readers comments to trme@alaincharles.com

TECHNICAL REVIEW MIDDLE EAST

النشرة التقنية - الشرق الأوسط

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Briefly

Emirati company Helios Industry awards contract to thyssenkrupp for green hydrogen project

THYSSENKRUPP HAS BEEN awarded a contract to perform a technical study for a new green hydrogen and green ammonia project by the Emirati company Helios.

As part of the project, a water electrolysis plant and a facility for sustainable ammonia production will be constructed at Kizad in Abu Dhabi, based on thyssenkrupp technology. It will be the first commercial plant to produce CO2-free green ammonia from renewable resources in the UAE.

The planned facility will integrate thyssenkrupp's green hydrogen and green ammonia technologies, with the first phase set to incorporate a multi-megawatt electrolyser plant, and an ammonia production facility with the capacity of 20,000 tonnes per annum. The project will aim to further increase the capacity of the ammonia production facility to 200,000 tonnes per annum.

"This project is another important milestone for the UAE's recent shift to a lower carbon renewable energy future. The new facility will produce green ammonia which is an energy carrier that enables easy transportation of renewable energy, for example via a ship. It can also be used as an emission-free transport fuel and in the fertiliser and chemical industries," said M. K. Saiyed, managing director of Helios.

"We are very excited to work together with Helios to support the UAE on its way into a sustainable future. In doing so, we are building both, on our innovative technology solutions, as well as on thyssenkrupp's regional and local footprint and long heritage as a partner to the region," commented Sami Pelkonen, CEO of thyssenkrupp's Uhde business unit.

As a specialist in chemical plant engineering and construction, thyssenkrupp offers various integrated solutions based on its water electrolysis technology. This includes for example, processes for the production of sustainable ammonia, methanol and synthetic natural gas.

thyssenkrupp's Uhde combines technological expertise and decades of global experience in the engineering, procurement, construction and service of chemical plants.

ACWA Power closes financial deal for Sudair Solar plant

ACWA POWER HAS announced the financial close for the 1500 MW Sudair Solar plant, a leading project under the Public Investment Fund (PIF) renewable energy programme.

The project was announced at the inauguration of Sakaka PV project in April this year, under the patronage of HRH Prince Mohammed bin Salman bin Abdulaziz, Crown Prince, Deputy Prime Minister, chairman of the Supreme Committee for Energy Mix Affairs for Electricity Production and Enabling Renewable Energy Sector, and in the presence of HRH Prince Abdulaziz bin Salman bin Abdulaziz Al Saud, Minister of Energy.

A specialised Saudi technical team at the Ministry of Energy selected the Sudair project site and carried out the engineering requirements and preliminary studies,for efficient energy production and to shape the circular carbon economy.

ACWA Power also announced that SAPCO, owned by Aramco, has joined the consortium with ACWA Power and Badeel, a company owned by PIF. The consortium, led by ACWA Power, embodies the strategic importance of the Sudair Solar PV project, the first project under PIF's renewable energy programme.

It aims to support Saudi Arabia's ongoing energy transition and diversification, and to deliver 70% of the country's renewable energy under the National Renewable Energy Programme (NREP).

ACWA Power in which PIF holds a 50% stake in ACWA Power and Badeel will each own 35% in 'Sudair One Renewable Energy Company', a special purpose vehicle incorporated for the project; and SAPCO holds a 30% stake.

Aramco's investment in the Sudair Project is its first participation with PIF in its renewable energy programme; reflecting the company's efforts to advancing sustainable energy solutions within its operations, and Saudi Arabia, where a variety of low-carbon energy solutions are being deployed.

Image Credit : AdobeStock

The Sudair Solar PV project will help reduce carbon emissions.

With an investment value of US$90.6mn, Sudair Solar PV project, which is located at Sudair Industrial City, will be one of the largest single-contracted Solar PV plants in the world, and the largest of its kind in Saudi Arabia.

A 25-year power purchase agreement for the plant signed with the Saudi Power Procurement Company, ensures low tariffs. Using bifacial modules, the high performance solar plant will be powering 185,000 homes, offsetting nearly 2.9 million tonnes of emissions per year.

The financing structure features a set of equity bridge facilities provided by local and international banks, supporting the sponsor group's equity investment.

The financing group includes Mizuho Bank Ltd, Riyad Bank, Korea Development Bank, Arab Petroleum Investments Corporation (APICORP), Al Rajhi Banking and Investment Corporation, and Standard Chartered Bank, and mandated lead arrangers.

Mai Dubai achieves zero carbon footprint in 2021

MAI DUBAI, BOTTLED water company owned by the Dubai Electricity and Water Authority (DEWA), has made a significant achievement of cutting down its overall carbon footprint in 2020, following the installation of a solar photovoltaic (PV) plant at its facilities. According to the latest sustainability review report by Dubai Carbon Centre of Excellence (DCCE), Mai Dubai's Al Qudra site had zero carbon emissions last year as compared to 2019.

Mai Dubai has placed sustainability as one of its core values, and it is being implemented throughout its operations.

One of the major initiatives was the installation of the 18.1MW rooftop solar system, the second-largest solar roof installation in the world, which contributed to abating more than 10,000 MTs of carbon emissions annually, and served as an example of sustainable business practices.

Image Credit : AdobeStock

Sustainability is one of the core values of Mai Dubai.

"Mai Dubai is proud of its latest achievement of further reducing its carbon footprint, which is a testament to the effectiveness of our strategy to employ renewable energy in our operations," said Alexander van't Riet, CEO, Mai Dubai.

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SCAN HERE

Briefly

PDO's Ras Al Hamra project wins LEED green building certification

THE RAS AL Hamra (RAH) Development Project by Petroleum Development Oman (PDO) has achieved the LEED accreditation for implementing solutions in areas including sustainable site development, energy efficiency, water savings, minimising greenhouse gas emissions, materials selection and indoor environmental quality.

The Leadership in Energy and Environmental Design (LEED), which was developed by the US Green Building Council (USGBC), is the most widely used green building rating system in the world.

RAH Development project manager Jaber Al Siyadi said, "The project is a prime example of how the innovative work of project teams can create local solutions that contribute to making a global difference. It is also a key contributor to the transformation of the way our buildings are built, designed and operated to the highest levels of sustainability.

"We are delighted to contribute to the sustainability of the country, in line with Oman Vision 2040, and to the green design standards in our modern development of RAH. The LEED accreditation means the project is moving towards meeting international sustainability standards by achieving efficiency and creating healthy indoor environments. It also drives project excellence and best practice for all initiatives to build sustainable and modern cities in Oman."

RAH LEED-certified homes have significant environmental benefits with lower carbon emissions and higher water savings compared to baseline conventional villas. This in turn reduces operational and maintenance costs, conserves resources while prioritising sustainable practices and human health.

PDO is one of the leading exploration and production companies in the Sultanate of Oman. The company is owned by the government of Oman (which has a 60% interest), the Shell Group (which has a 34% interest), Total (which has a 4% interest) and PTTEP (which has a 2% interest). Gas fields and processing plants are operated by PDO exclusively on behalf of the government.

Tradeling launches fulfilment centre in Dubai CommerCity

TRADELING, THE EMARKETPLACE company focused on B2B transactions in the MENA region, has set up a fulfillment centre in Dubai CommerCity to further expand its business and its commitment to the UAE.

The move aims to extend Tradeling's operational capabilities to provide a superior and faster service to its customers while keeping up with increasing demand and driving down costs.

The Tradeling fulfilment centre is set to facilitate domestic and cross-border transactions where high-demand products are stored and fulfilled by Tradeling as part of its extended commitment to the customer.

The sellers will be able to ship their products to a dedicated warehouse in bulk. In addition, the sellers can store their goods and sell them in smaller quantities while saving significant shipping costs, which can be passed on to the buyer. Small and medium-sized enterprises (SMEs) will be able to further benefit from highly competitive wholesale prices.

The Fulfilment Centre serves as a central hub in the 2.1mn sq ft e-commerce free zone, where products can be sold and distributed at speed across other GCC countries with ease.

Marius Ciavola, CEO, Tradeling, said, "Dubai CommerCity not only shares the same vision as us to facilitate trade and boost economic activity in the UAE, but it also serves as a well-placed and established free zone catering to fast-paced e-commerce companies, like Tradeling, which are witnessing exponential growth."

He added, "As the dominant and fastest-growing business-to-business e-commerce platform in the MENA region, we want to ensure we keep up with demand from both buyers and sellers while easing as many pain points as possible for our customers so they can streamline their procurement processes, maximise their earning potential and ensure competitive pricing."

Image Credit: Tradeling

The Tradeling fulfilment centre is set to facilitate domestic and cross-border transactions.

DeVere Forster, chief operating officer, Dubai CommerCity, commented, "Dubai CommerCity provides clients an e-commerce ecosystem that enables cost-effective and time-efficient operations, which is key for accelerating their growth. In doing so, Dubai CommerCity serves as one of the critical players supporting e-commerce businesses and shaping the future of the e-commerce industry in the region."

Tradeling aims to connect global suppliers with the region's markets opening new opportunities for businesses across the globe to thrive in a new era of digital commerce. The company has more than 55,000 registered buyers and suppliers from over 48 countries and serves all business customers from micro-businesses, SMEs to multi-nationals and large organisations.

ALEC Energy wins DEWA HQ contract

ALEC ENERGY WILL provide a solar photovoltaic solution for Dubai Electricity and Water Authority's (DEWA's) new headquarters, Al-Shera'a, in the Al Jaddaf area of Dubai.

The company provided a multi-tiered solution which includes the delivery of almost 21,150sqm of building attached photovoltaic (BAPV) panels on the roof, more than 1,000sq m of building integrated photovoltaic (BIPV) panels in the façade and nearly 2,000 sq m of podium fins as well as fibre optic collectors, shaded structure PV and solar trees, which collectively will generate 4.8 MWp upon completion, to ensure the new headquarters will reach its net zero targets.

HE Saeed Mohammed Al Tayer, managing director and CEO of DEWA, said, "By building Al-Shera'a, DEWA's new headquarters, which will be the tallest, largest and smartest government Zero Energy building in the world, we establish a global benchmark for buildings that achieve a balance between development and the environment, to protect the right of future generations to live in a clean, healthy and safe environment."

DEWA's Al Sheraa is set to be the smartest government Zero Energy building in the world.

Image Credit: ALEC Energy

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Briefly

The Sustainable City in Dubai hosted delegates from Russia

THE SUSTAINABLE CITY welcomed a high-level Russian delegation which included mayors, deputy mayors, governor deputies, urban planners, and chief architects who are preparing a Master of Public Administration – a degree to help leaders and administrators acquire quality skills and training in handling public administrative sectors and office.

The delegation toured the Sustainable City to learn about the latest technologies and solutions and the best international practices employed in the community. The delegation was received by SEE Institute - the research and development arm of Diamond Developers.

The programme centred around new ways of thinking and skills development as well as innovative technologies in urban infrastructure. Further, it included a deep dive workshop into climate action by examining best practices for achieving net zero energy.

Karim El-Jisr executive director of SEE institute, underlined the importance of such visits, as they enhance collaborations and support global partnerships for achieving the UN Sustainable Development Goals. They also accelerate the transfer of knowledge about sustainability across continents and showcase Dubai as a global hub for innovation in smart and sustainable cities.

The Sustainable City located in Dubailand in Dubai is the world's first fully sustainable community, and GCC's 'Happiest Community'.

An icon of Dubai, it represents a new era in Real Estate, where social, environmental and economic facets are perfectly considered and seamlessly blended, to offer harmonious, quality sustainable low carbon living.

The mixed-use development spans some 46 hectares and provides an array of green residential facilities and amenities with no negative impact on the environment.

A unique concept which redefines sustainable living; offering energy ¬efficient housing, zero maintenance and low service fees, green education and health care and a host of indoor and outdoor leisure and wellness activities, an urban farm, green mosque and innovation centre.

Danfoss completes acquisition of Eaton's hydraulics business

DANFOSS HAS FINALISED its US$3.3bn acquisition of Eaton's hydraulics business, following confirmation of all necessary regulatory approvals and closing conditions.

The move will see the Danfoss Group grow in size by a third and establish itself as a global leader in mobile and industrial hydraulics. The acquisition of Eaton's hydraulics business is a vital aspect of Danfoss' growth strategy. Eaton's hydraulics business will be combined with the Danfoss Power Solutions business segment. Combining the two organisations will double the size of Danfoss Power Solutions, increasing its innovation capacity twofold.

The strengthened Danfoss Power Solutions will have the broadest selection of mobile and industrial hydraulics products and solutions available in the market, with the full line offering including fluid conveyance systems. The company's distribution channels have also been significantly boosted, while its local application support and geographical reach have increased considerably. All of these benefits will enable Danfoss Power Solutions to become an even stronger technology partner for existing and new customers, plus take the lead in digitalisation and electrification.

"This is a great day for Danfoss as we welcome 10,000 new colleagues into the organisation and create a global leader in mobile and industrial hydraulics. By combining the knowledge and experience of the two strong businesses and great teams, our customers will receive an unmatched level of service and expertise from a single partner. We will continue our significant investments to stay on the forefront of technology leadership and provide solutions that improve productivity and reduce emissions to meet the requirements of the future," commented Danfoss president and CEO Kim Fausing.

Image Credit: Danfoss

Eric Alström, president of Danfoss Power Solutions.

"We are very pleased to complete this significant investment in our core hydraulics business so we can serve our customers and partners even better than before. Combining the two robust businesses represents a perfect match and provides countless opportunities, such as increasing our engineering expertise and capabilities, doubling our global application support and extending the value of our Application Development Centres and digital design tools. Adding fluid conveyance and industrial applications are other assets gained through this transaction," said Eric Alström, president of Danfoss Power Solutions.

" The new Danfoss Power Solutions team will create a global leader in mobile and industrial hydraulics, drawing on long legacies of innovation and industry-leading expertise. The combined product portfolio and broadened global reach will better serve customers and distributors all around the world," added Paulo Ruiz, president of the former Eaton hydraulics business.

Oman establishes hydrogen alliance to drive national hydrogen economy

OMAN'S MINISTRY OF Energy and Minerals (MEM) is establishing a national hydrogen alliance, Hy-Fly, for the development and deployment of clean hydrogen.

Hy-Fly comprises 13 key public and private organisations encompassing government bodies, oil and gas operators, educational and research institutes as well as ports who will work together to support and facilitate the production, transport and utilisation of clean hydrogen for domestic use and export. The alliance will promote clean hydrogen through investments, technologies, policies, and expertise across the whole hydrogen supply chain.

The alliance will be led by the Ministry, facilitated by Petroleum Development Oman's (PDO's) Energy Renewal unit, with participations from the Authority for Public Services Regulation, Petroleum Development Oman, Energy Development Oman, OQ, Oman LNG, BP Oman, Oman Shell and Total Energies Oman, Sultan Qaboos University, GUTech and the ports of Sohar and Duqm.

Image Credit : PDO

The signing ceremony for the Hy-Fly alliance.

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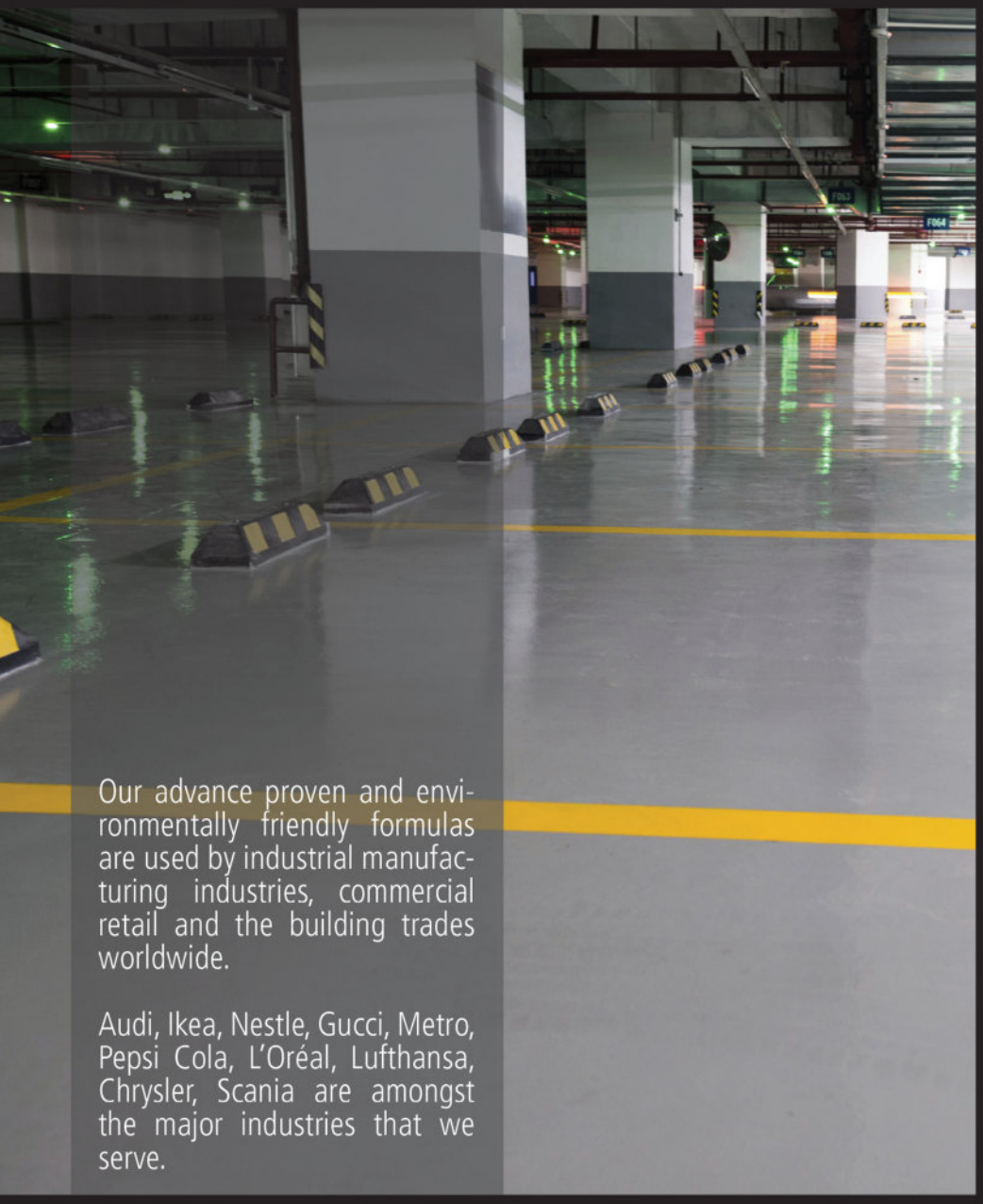

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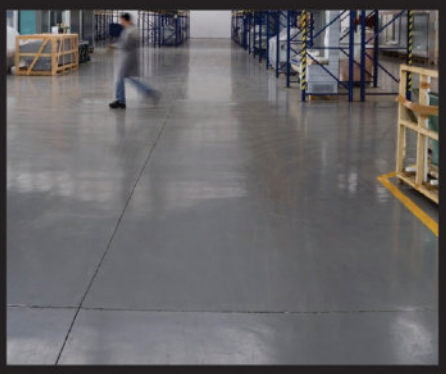

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Trella and ExxonMobil bring digital innovation to trucking industry in Egypt

EXXONMOBIL EGYPT S.A.E. signed the Collaboration and Framework Agreement with Trella, a technology platform that connects shippers to carriers.

Trella is aiming to disrupt the freight industry in Egypt with innovative solutions and tech-fuelled growth.

The collaboration arrived in time with ExxonMobil Egypt's mission to empower new digital solutions and support young and ambitious innovators beyond the energy industry. This initiative allows Trella to bring even greater value to the freight marketplace through enhanced trucking productivity and efficiency, increased work opportunities for truck drivers, and empowering drivers and fleets with the use of Mobil Delvac - ExxonMobil's heavy-duty diesel engine oils designed to help commercial trucks boost uptime and reduce fuel costs.

ExxonMobil Egypt collaborates with Trella.

Photo Credit : Adobe Stock

"We are very excited about our collaboration with ExxonMobil Egypt, unlocking new ways to build an ecosystem that supports drivers and surpasses the status-quo of logistics. Throughout this support, we'll aim at expanding and empowering a network of well-utilised trucks all over Egypt," said Omar Hagrass, Trella's CEO. "Trella's growth in a short period of time and through challenging circumstances is a signal that the market is ripe for disruption, and we believe Trella is on the right track to revamp the freight industry in Egypt and in the region" added Hagrass.

This is ExxonMobil's first direct investment and collaboration with a tech startup in the Middle East and North Africa.

UAE companies embrace diversity in boardrooms

NINETEEN LISTED COMPANIES in the UAE have appointed female board members following the mandate passed by the Securities and Commodities Authority (SCA) in March this year, to empower Emirati women and encourage more females to play a greater role on the boards of listed companies. 111 listed companies are to appoint at least one woman to their boards either at the time of electing members which takes place in Q1 2022 or prior to that period, should a current board member resign or if an additional chair is added.

To further drive female representation in UAE boardrooms, the second Board Summit, an initiative of Aurora50, the UAE-based social enterprise and change accelerator, will take place in September. Research has shown companies with diverse boardrooms thrive in the long term and both benefit the economy and society. One of the goals of the summit is to encourage boards to invest time and energy in making diverse appointments not just to achieve a target but because it will have a positive impact on the performance of their business.

The Board Summit will bring together UAE ministers, policy makers, regulators, chairpersons, board members and C suite executives to discuss the economic benefits of increased diversity on boards in the country and to provide direct access to board-ready female talent for the UAE's companies to connect with.

Commenting on the annual Board Summit taking place this year, Hatem Dowidar, Group CEO, Etisalat said, "The UAE has been making remarkable progress in boosting women's participation in the public and private sector with several country wide initiatives. This heightened level of awareness on gender diversity and concerted efforts to promote diversity across different industries in various leadership roles has helped empower women. In line with the wise vision of the UAE leadership, Etisalat has worked continuously to have gender equality in the workplace with women taking up various leadership positions in the company bringing their diverse experiences and perspectives contributing to innovation and better decision making. The Annual Board Summit is a great platform to showcase the transformative effect of an inclusive board sparking creativity, innovation, and competitiveness."

Diana Wilde, CEO and co-founder of Aurora50 spoke out on gender balance in the workplace, commenting, "Board diversity should be a priority for every organisation. It is proven that companies with diverse boards outperform their peers. At Aurora50, we champion diversity because we have witnessed how these changes are positively impacting the competitiveness of companies in the UAE and beyond. We are here to provide evidence-based perspectives and advice companies on how they can engage highly competent women and increase diversity on boards. Our partners recognise this and have paved the way for a positive shift towards gender-balanced boards. The Board Summit has played a crucial role in changing the narrative about how diverse boardrooms impact corporate performance whilst connecting board-ready women in bridging the network gap."

Briefly

Siraj Power signs long-term deal with Emirates Group

THE UAE'S LOCALLY-OWNED and leading distributed solar provide, Siraj Power, has announced the signing of a long-term solar deal with Emirates Group.

The deal will see SirajPower install the region's first and largest solar carport at a regional sports facility.

SirajPower will construct a bespoke 2 MWp solar carport will be custom-built for the Sevens Stadium, a sports arena owned by the Emirates Group and known for hosting the annual Emirates Dubai 7s and hosting a range of international sporting and entertainment events.

As well as the project's construction, SirajPower will undertake the complete scope of services for the solar carport. This will span the design, installation, financing, long-term operating and maintaining phases of the project.

4,500 solar modules will span an area of 10,551 m2, producing 3.5 GWh of clean energy ever year, offsetting over 1,496 metric tons of carbon dioxide emissions.

Laurent Longuet, CEO at SirajPower, said, "The increasing adoption rate of solar technologies in the UAE market is remarkable. SirajPower has proudly been at the forefront of this successful development through its strategic and continuous long-term partnerships with key players across diverse industries, striving for more meaningful ways to lower their environmental impact while reducing on their energy costs.

"This is also effectively supporting DEWA's clean energy target expected to account for 12% of Dubai's overall production."

Thomas Burwell, General Manager and Tournament Director at The Sevens Stadium, added, "We have always been conscious of the importance of conserving energy and positively impacting our environment.

"The sustainable development and operation of such a world-class facility supports the UAE's effort to promote a green economy and enhance green projects. As a Group, Emirates already incorporates sustainable practices in the business."

Etihad Rail partners with Western Bainoona

The partnership will replace 120,000 truck trips annually.

Photo Credit : Etihad Rail

THE DEVELOPER AND operator of the UAE's National Rail Network, Etihad Rail, has entered into a strategic partnership with the Western Bainoona Group.

As part of the partnership, Etihad Rail will deliver rail freight services to the Group for their construction materials. The services will focus on transporting freight between Western Bainoona Group's facilities in Fujairah to Abu Dhabi and Dubai.

The agreement was signed following a series of directives from HH Sheikh Theyab bin Mohamed bin Zayed Al Nahyan, the chairman of Abu Dhabi's Crown Prince Court and chairman of Etihad Rail.

Both parties will target a sustainable and efficient mode of transport in order to bolster the whole of the UAE's economy in the most sustainable way possible.

The project is one of Etihad Rail's largest ever commercial partnerships for stage two of the UAE's National Rail project.

It will see 4.5 mn tonnes of Western Bainoona Group's aggregates transported annually across 643 trains travelling from the group's facilities in Fujairah. The trains will serve destinations in the Industrial City of Abu Dhabi (IACD) and Dubai Industrial City.

Each train will reach a length of approximately one kilometre, with Etihad Rail confirming an allocation of 70 wagons on each train, reaching a capacity of up to 7,000 tonnes per trip. The partnership will reduce road traffic by 120,000 truck trips every year.

Mr. Mohammed Khalfan Al Hameli, chairman of Western Bainoona Group, said, "Western Bainoona Group is honoured to become one of Etihad Rail's partners. We look to leverage the freight solutions provided by the UAE National Rail Network, bolstering and facilitating trade between the emirates.

"In sum, the network will enhance the capacity of companies operating across the UAE. Companies can develop their business by redirecting assets and reducing transportation costs, efficiently utilising their time and resources to become active players in the development of the UAE."

Mohamed Al Marzooqi, executive director of Rail Relations at Etihad Rail, added, "Etihad Rail is pleased to sign the one of the largest agreements for Stage Two of UAE National Rail Network, adding Western Bainoona Group to our list of partners."

Etihad Rail continues its construction of facilities at ICAD and Dubai Industrial City, providing advance logistical infrastructure in their respective regions.

The National Rail network is one of the UAE's largest infrastructure projects, and will strengthen the nation's transport and logistics sector.

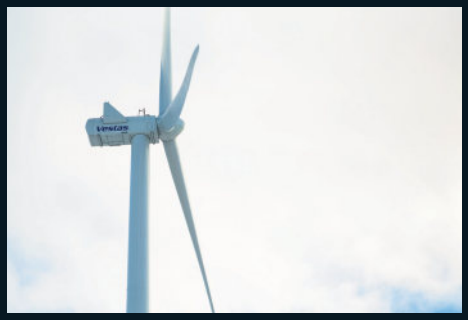
Saudi Arabia's first wind farm begins generation

DUMAT AL JANDAL, the Middle East's largest wind farm, has successfully connected to the grid and begun its carbon-free electricity production.

The 400MW utility-scale wind project was developed by a consortium led by EDF Renewables and Masdar. The wind farm hosts 99 wind turbines from Vestas, each with a power output of 4.2 MW. Construction began in September 2019.

Upon completion, the wind farm will generate carbon-free power for up to 70,000 Saudi households, saving 988,000 tonnes of carbon dioxide annually. The project plays a key role in supporting the Kingdom's climate change mitigation goals.

Olivier Bordes, CEO of EDF Renewables Middle East, commented, "This major step clearly demonstrates our ability to deliver competitive, innovative, and low-carbon energy solutions and to support the Saudi Arabia's Vision 2030 aiming to reduce the country's carbon footprint. We are thriving to expand renewable energies.



The farm has the capacity to power 70,000 households.

Photo Credit : HK Strategies

EXECUTIVES' CALENDAR 2021

SEPTEMBER 2021

7-12	IAA Commericial Vehicles	MUNICH	www.iaa.de
12-15	The BIG 5 Dubai	DUBAI	www.thebig5.ae
12-15	The BIG 5 Heavy	DUBAI	www.thebig5.ae
12-15	The BIG 5 Solar	DUBAI	www.thebig5.ae
27-29	Middle East Coatings	DUBAI	www.middleeastcoatingsshow.com
12-15	Middle East Concrete	DUBAI	www.middleeastconcrete.com
12-15	Middle East Stone	DUBAI	www.thebig5.ae

OCTOBER 2021

Oct 01-31 March, 2022	EXPO 2020	DUBAI	www.expo2020dubai.com
05-07	WETEX	DUBAI	www.wetex.ae

NOVEMBER 2021

16-17	The Mining Show	DUBAI	www.terrapinn.com

Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

Expo 2020's Programme for People and Planet

EXPO 2020 DUBAI has revealed the calendar for its Programme for People and Planet, a schedule of events, experiences, thought-leadership and public conversations aiming to find solutions for some of the most pressing problems facing our world.

The Programme for People and Planet will run across the entire six months of Expo 2020, anchored by 10 Theme Weeks and 18 International Days, each of which explore major issues of global significance. Through the Theme Weeks, participants will investigate solutions to critical global challenges, ranging from mitigating climate change and biodiversity loss and making human habitats more sustainable, to bridging the digital divide and ensuring equal access to education and healthcare. As a part of the programme, more than 220 events will take place, from large forums and public conventions, to seminars and workshops. Expo 2020's signature platform, the World Majlis series will host 53 individual session during these six months.

The Programme for People and Planet will assemble different perspectives, fostering exchanges of ideas between leading experts under the themes such as technology and innovation, youth and women and girls' empowerment. It will include wildlife advocate Dame Jane Goodall, Eden Project founder Sir Tim Smit, and HE Sarah Al Amiri, UAE Minister of State for Advanced Technology and the woman behind the Emirates Mars Mission, the 191 nations participating in Expo 2020, as well as business leaders, grassroots actors, and the wider global community.

Nadia Verjee, chief of staff, Expo 2020 Dubai, said, "Sitting at the heart of our World Expo, and taking place at a moment in time that could not be more urgent or opportune, the Programme for People and Planet is the manifestation of our theme and purpose, 'Connecting Minds, Creating The Future'. It will not only form an essential part of our event-time activities, but will also catalyse a one-of-a-kind movement to shape the legacy that Expo 2020 leaves the world, long after we close our doors, resulting in a meaningful and measurable impact for generations to come."

Expo's cultural track, Build Bridges, will break down boundaries, harnessing the power of storytelling, art and music. The social-development track, Leave No One Behind, will spotlight the importance of opportunity for all. Designed with and for the global community, the Programme for People and Planet will harness the connecting power of World Expos to catalyse a legacy of transformative change. The Programme for People and Planet reflects challenges and opportunities facing not just the decision-makers of today, but all the people living on this planet. Visitors to Expo 2020 will also be able to explore the topics raised in the Programme for People and Planet by embarking on a curated Visitor Journey. Aligned with the 10 Theme Weeks, these self-guided tours will be available on the Expo 2020 app and will allow visitors to discover the different ways in which countries, businesses and other organisations are responding to the key challenges we are facing as a global community.

Coinciding with the UAE's Golden Jubilee, Expo 2020 will be running from 1 October 2021 to 31 March 2022. It will bring the world together, fostering an open, global dialogue that looks to the future and addresses some of the most pressing issues facing our world today. Millions of visitors from across the globe will be invited to join the making of a new world, learning how we can ensure a future that is fair and inclusive for all, creating a global movement that will leave a lasting legacy of positive change.

www.expo2020dubai.com

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ON THE WEB

A round up of the leading developments and innovations recently featured on *Technical Review Middle East*'s online portal. To read more or to stay up to date with the latest industry news, visit *www.technicalreview.me*

TAQA Group partners with Emirates Steel

ABU DHABI NATIONAL Energy Company PJSC (TAQA) announced a partnership with Emirates Steel to develop a large-scale green hydrogen project enabling the first green steel produced in the MENA region. TAQA and Emirates Steel will utilise green hydrogen to optimise clean steel production level. The hydrogen will enable green and low carbon steel manufacturing, saving energy while creating a sustainable manufacturing process.

Photo Credit : TAQA

Region's first Green Steel manufacturing.

www.technicalreviewmiddleeast.com/manufacturing/metals/

Schneider Electric partners with AVEVA

SCHNEIDER ELECTRIC AND AVEVA has announced that their combined technology offerings are supporting the sustainability initiatives of mining companies. Schneider Electric and AVEVA are providing the tools required by organisations to make informed decisions that will empower people across the mining, minerals, and metals value chains to be more strategic in their choices based on sound advice with sustainability in mind.

The IDC Technology Spotlight also reinforces the fact that as the industry continues to experience backlash from its perceived stagnant position on sustainability, platforms with added analytics are enabling improved operational efficiencies while enhancing the visibility of the changes being made.

www.technicalreviewmiddleeast.com/construction/mining/

Continental's study on challenges faced by truck drivers

UAE TRUCK drivers have revealed the personal impact of the challenges they face carrying out their work, with 57% of drivers claiming to experience stress during their work according to a new study, and the majority finding that the stress of the job carries over into their personal lives. When asked how other road users could adapt their driving style to facilitate truck drivers' own driving experiences, 50% of drivers raised the issue of others maintaining a safe distance from trucks; 37% said they could better observe traffic regulations; and 33% suggested that they could be more considerate of truck drivers. It is estimated that approximately 20% of the UAE automotive market is made up of commercial vehicles (trucks, vans, and buses), with past research shared by the WHO indicating that around 11% of road traffic accidents involved trucks or buses.

www.technicalreviewmiddleeast.com/logistics/trucks/

BAUER Maschinen GmbH presents BAUER Cube System

BAUER MASCHINEN GMBH will open new possibilities for the production of diaphragm walls in future with BAUER Cube System. Due to this, the impact of construction sites on traffic, businesses and residents are minimised as it only requires a comparatively small access point to an existing microtunnel or auxiliary tunnel. The actual work is carried out underground, essentially invisibly.

www.technicalreviewmiddleeast.com/manufacturing/innovations/

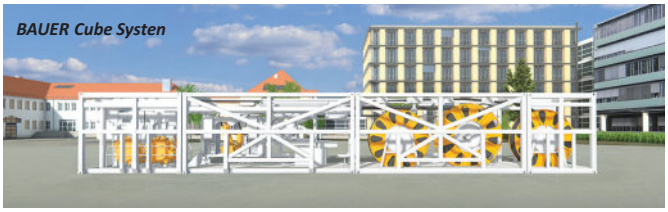


Photo Credit : BAUER Group

New Cat Pulverisers to deliver concrete demolition

CATERPILLAR'S NEW generation of primary and secondary Pulverisers added six new Pulverisers to deliver high performance concrete demolition. It'll deliver up to 52% faster cycle times, producing more tons-per-litre of fuel burned. The new Cat Pulveriser line includes three new rotatable primary models: P318, P324 and P332 and three new fixed secondary models: P218, P224 and P232.

www.technicalreviewmiddleeast.com/construction/machinery/

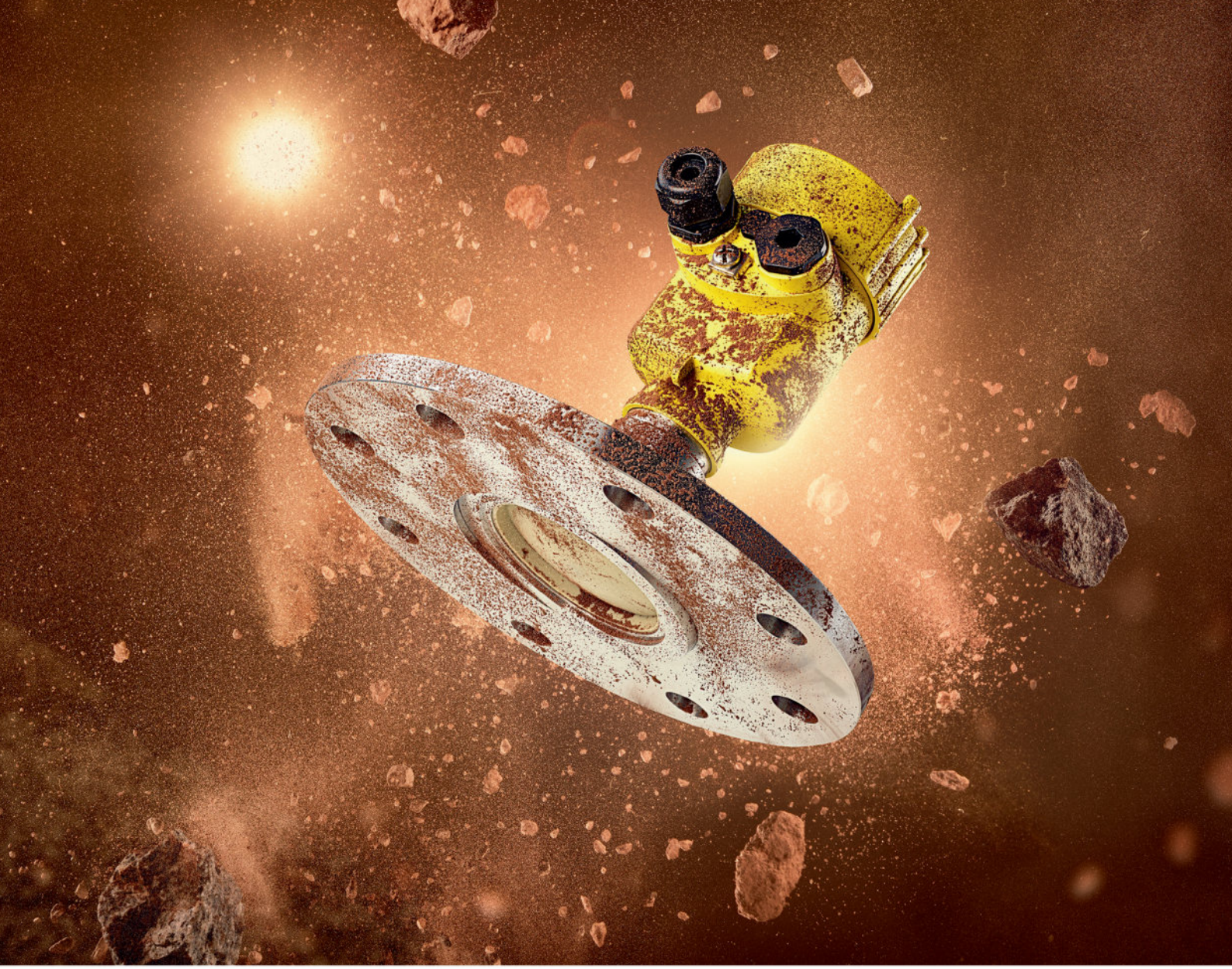
The New Cat Pulveriser includes 6 models.

Image Credit : Caterpillar

TRSDC achieves BSI BIM Project Kitemark

THE RED Sea Development Company (TRSDC) has become the first asset owner in the world to achieve the BIM Project Kitemark for its digital project delivery and adoption of Building Information Modelling (BIM) aligned to ISO19650, awarded by the British Standards Institution (BSI). TRSDC has used BIM since 2018, and has been developing its digital project delivery services ever since. Using BIM helped TRSDC create a shared environment that allows international teams to continue working at pace despite challenging COVID-19-impacted environments. The use of digital techniques has meant better quality data-driven decisions can be made in days rather than weeks. BIM is a core part of TRSDC's pioneering 'model first' environment, and have been working closely with project partners, building BIM capability, to positively impact the Saudi market for future digitally enabled projects. Other benefits include the minimisation of waste by using Design for Manufacture and Assembly techniques and using Modern Methods of Construction.

www.technicalreviewmiddleeast.com/construction/buildings/



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Looking Forward VEGA

Photo Credit : Adobe Stock

The construction industry embeds key trends such as sustainability and digitalisation across the value chain.

Building back better

After all the economic uncertainties brought about by last year's lockdowns, the outlook is improving for the Gulf's construction industry. Martin Clark tells us more.

THE OUTLOOK FOR construction in the GCC region is looking a little more bullish after the dismal year that was 2020.

That confidence is perhaps most visible with the imminent start of Expo 2020, a showcase for some of the industry's cutting-edge technologies, trends and innovations.

The Dubai event is now scheduled to run from 1 October 2021 to 31 March 2022 after being pushed back a year by the Covid-19 outbreak.

Therei is no doubt many firms are still reeling from the events of last year, however.

Business volumes slumped in the wake of all the uncertainties surrounding the pandemic and associated lockdowns, which crippled whole economies, meaning one of the worst years on record for the big construction groups and their suppliers.

Around US$42.5bn of construction and transport project contracts were awarded last year, according to MEED figures, down 26% on the US57.5bn in 2019, already one of the weakest years of the past decade.

By way of contrast, the value of contracts awarded in 2013 reached US$87.6bn.

Oman seemed to be the worst affected market, with construction output down 10.3%, while Saudi Arabia fared better, recording a 1.9% contraction.

Now, with Expo 2020 just around the corner, the hope is that the only way is up.

Market outlook

Saudi Arabia, the GCC's largest economy, stands out as a beacon of hope for the region because of its swathe of multi-billion dollar mega projects, such as NEOM, the Red Sea Project and Qiddiya, all set to provide a rich pool of work for contractors.

Saudi Arabia's Public Investment Fund is by far the GCC's biggest construction client, while oil prices have also recovered to 2019 levels, providing a further stimulus to general economic activity.

Saudi Arabia alone has almost US$1trn of construction and transport projects planned, representing over half of all yet to be awarded work in the GCC, followed by the UAE.

Another barometer is the real estate market, which appears to be accelerating.

A Betterhomes report showed that the

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Dubai property market recorded transaction levels at their highest in the first half of 2021 for over a decade.

Highlights include a 92% increase in the total property value sold and a 70 per cent increase in the total number of units sold compared to the same period in 2020.

For a pre-pandemic comparison, that is a 52% increase in both the total property value and the total number of units sold versus 2019.

Richard Waind, group managing director at Betterhomes, cited low interest rates and improving job sentiment as key demand drivers.

"Investors have returned in large numbers, looking to take advantage of both improving capital growth prospects and attractive rental yields, which remain higher than most established markets," he said.

Sustainability agenda

Even when things start to fully balance out across the region, it is likely that we will be witnessing some changes as the construction industry embeds key trends such as sustainability and digitalisation across the value chain.

This will be evident at Expo 2020, where exhibitors will be keen to highlight their green credentials.

Dubai Electricity and Water Authority (DEWA) has a large pavilion, in keeping with its status as Official Sustainable Energy Partner, where it will flag some of its latest projects.

These include its Green Hydrogen Project, the first project in the Middle East to produce hydrogen using solar power, and a 250 megawatts pumped-storage hydroelectric power plant in Hatta, a first for the GCC region.

The push to more sustainability across the Gulf's construction sector is a long-term trend that has been apparent for many years, and right across the industry, from recycling and materials through to energy usage.

The new Dubai 2040 Urban Master Plan released this year has sustainability at its heart.

It aims to encourage mass transit use, walking, cycling and the use of flexible means of transportation, as well as develop sustainable housing complexes and communities with integrated green spaces.

The most ambitious project of all is Saudi Arabia's NEOM project, a car-free, zero-emissions city set to be built along the Red Sea coast and wholly powered by clean energy.

The flagship US$500bn development, in the northwest of the country, would also provide a rich stream of work for contractors as well as becoming a test bed for new eco-friendly technologies and practices.

The Red Sea Development Company (TRSDC), the entity behind Saudi Arabia's grand Red Sea tourism venture, won praise recently for its sustainability credentials after an ESG assessment.

Corporation action

This sustainability agenda has been a major focus for the region's leading builders and contractors, shaping corporate behaviour right from the top.

Aldar Properties announced recently that it had achieved the highest environmental, social and corporate governance (ESG) ranking of the UAE's listed real estate companies – highlights include the reduction of energy consumption by 17 per cent, carbon footprint by 13%, and water consumption by 9.7% in 2020.

Last year, it also released a new sustainability strategy, and is developing a follow up carbon neutral action plan set to be launched by the end of 2021.

This will contain specific targets to catalyse a reduction in carbon emissions and to drive the carbon neutral agenda across the business.

Aldar Properties is also focused on delivering against its 2025 energy and emissions reduction targets and improving waste management across the entirety of its business.

"It is our firm intention to lead by example in the region and to effectively manage climate-related risks and opportunities both today and in the years to come," said Greg Fewer, Aldar's group chief financial and sustainability officer.

Other companies are adopting a similar approach.

The Red Sea Development Company (TRSDC), the entity behind Saudi Arabia's grand Red Sea tourism venture, won praise recently for its sustainability credentials after an ESG assessment.

Within some categories, it achieved top marks for areas such as materials, water use and waste management as a result of its solutions to minimise potential environmental impacts.

"Since the project's conception, sustainability has been our guiding principle

The sustainability agenda has been a major focus for the region's leading builders and contractors.

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for design and development, informing every single decision that is made," said John Pagano, TRSDC's chief executive.

The ambitious project hopes to welcome its first guests by the end of 2022.

Digitisation drive

Much of these challenges would not be possible without the adoption of technology and a relentless push to innovate.

This has been facilitated by widespread digitalisation across many aspects of the construction sector.

In a Deloitte construction outlook for 2021, albeit primarily focused on the USA, three quarters of construction industry executives indicated that they are likely to invest in at least one digital technology this year.

"Digital moves business decisions from reactive to predictive and could enable engineering and construction firms to outpace their competition. For this reason, it is likely to be a priority," the report noted.

Technologies such as building information management (BIM) can help enhance real-time project visibility, eliminate cost overruns, and accelerate the development timeline, it added. Digital supply networks can also help to calibrate demand and supply by ensuring constant material availability using machine learning and cognitive computing.

Additionally, digital twin technologies can help make use of 3D data to generate building profiles and blueprints of building parts and components in real time, driving visibility and operational improvements across the building life cycle.

Digital twin technologies can help make use of 3D data to generate building profiles and blueprints of building parts and components in real time, driving visibility and operational improvements across the building life cycle.

All of these digitalisation effects are now being felt across the Gulf region. Other technology trends include the growing use of autonomous machines and drones to help conduct remote site inspections while, after project delivery, predictive maintenance can help firms better manage assets and equipment.

And, most recently, Dubai approved a ruling to encourage the uptake of 3D printing in the construction sector – it includes a target to ensure that 25 per cent of its buildings are constructed using 3D printing technology by 2030.

DEWA recently unveiled a new robotics and drone laboratory that became the first building in the UAE to be fully printed onsite.

Local content

Another important trend is the shift to using local content and resources wherever possible, something that allies with overall sustainability goals.

Localising of the supply chain was one of the main strands that Aldar Properties deployed to enhance its ESG profile.

As well as adhering to green building standards and investing in sustainable innovation, it includes developing specific localised procurement policies.

Over time, as well as boosting local employment, this is also likely to fuel opportunities and growth for GCC-based supply, materials and engineering companies. And it seems there is lots more to come. Amaala, another of Saudi's mega projects, in March signed a deal with the Saudi Contractors Authority (SCA) to share access to an online 'project participation platform' that flags up projects to SCA members and receives essential bid details.

"This partnership is a key step towards achieving our goal of aiding Saudi contractors to participate in the new landscape of projects established to drive the Vision 2030 strategy forward successfully," said SCA's governor, Eng Thabet Al-Sawayeed.

"Working with Amaala and their existing contractors in this capacity will also allow us to further enable the uptake of our localisation programmes which incentivise organisations to empower Saudis through training and employment."

SCA is a subsidiary of the Ministry of Municipal and Rural Affairs.

The deal also provides for the establishment of staff training courses and sharing of studies and statistics relating to the local construction sector.

Amaala, a luxury tourist destination, is expected to eventually support more than 50,000 direct, indirect and induced Saudi jobs.

The development group behind the project has already awarded several construction contracts to a number of Saudi firms, including Al-Tamimi Group, HASCO and Saudi Real Estate (Binyah). ■

Photo Credit: Adobe Stock

Digital twin technologies can help make use of 3D data to generate building profiles and blueprints of building parts and components in real time.

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'74% of SMEs in construction and manufacturing optimistic'

Small and Medium Enterprise (SME) confidence across most sectors is on the rise, find the latest research by Mastercard.

ALTHOUGH DIFFERENT SECTORS were exposed to and impacted in different ways to the extensive changes of the COVID-19 pandemic, Small and Medium Enterprise (SME) confidence across most sectors is on the rise, according to the latest research by Mastercard.

The inaugural Mastercard Middle East and Africa SME Confidence Index found that 74% of SMEs in construction and manufacturing are optimistic about the next 12 months. Confidence levels were highest among businesses in retail, closely followed by food, beverage and entertainment. Construction and manufacturing had the best forecasts, with 76% of SMEs projecting revenues that will either grow or hold steady. Half (50%) are projecting an increase.

Photo Credit : Adobe Stock

SMEs in the MEA region's construction and manufacturing sector have identified upskilling staff (56%), easier access to credit (56%) and better data and insights (52%), as the top drivers for growth.

Access to training, credit and data key for future growth

As many regional economies gradually enter the normalisation and growth phase, and social restrictions continue to ease, small and medium sized businesses in the MEA region's construction and manufacturing sector have identified upskilling staff (56%), easier access to credit (56%) and better data and insights (52%), as the top drivers for growth. This highlights opportunities for small businesses that arise from both internal transformation as well as industry regulations and trends.

Solutions that go beyond getting paid

For many small businesses, reducing their dependence on cash through digital payments acceptance, has played a major factor in being able to get paid and maintain revenues.

"As manufacturing and construction businesses continue to build back better through a combination of digital transformation and people development, they are also encouraging other SMEs in this sector. At Mastercard we look forward to a seamless continuation of supporting the SME ecosystem, providing the payments technology infrastructure and wider business solutions that will spur wide, inclusive growth of the digital economy," said Amnah Ajmal, executive vice president, market development, Middle East and Africa, Mastercard.

Rising costs and maintaining staff among concerns

When asked about the main thing that keeps them up at night, 54% of regional SMEs in construction and manufacturing mentioned the challenge to maintain and grow their business was their top issue. Looking at concerns over the next 12 months, six in ten (60%) identified the rising cost of doing business, while 47% cited access to capital.

From an operational perspective, concerns for the next year include maintaining current staff levels (47%), training and upskilling staff (44%), finding the right talent for new needs (39%) and mental and physical wellbeing (39%) – highlighting the growing trend around the development of people as a key theme for small business success.

Benefits of a cash-free economy

Growing confidence levels in digital as a business imperative, is tied to a deeper understanding and wider recognition among SMEs of the advantages that result from a growing digital economy. When asked about the biggest benefits of a cash-free economy to their businesses, SMEs in construction and manufacturing stated the ease of not processing cash (48%) and more convenient payment of suppliers and employees (47%).

The area where most construction and manufacturing businesses in the region say they now need support, is in help managing or upskilling teams (55%).

As consumer trends evolve in a post-pandemic world, businesses must adapt and prepare for the future.

Consumer passion for the environment is also growing, with 7 in 10 believing it is more important for businesses to do more for the environment, and 25% in the Middle East saying they would stop buying from businesses that do not behave sustainably. ■

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Terex Trucks has over 70 years' experience in building tough, reliable articulated haulers.

Photo Credit: Terex Trucks

Trucks for tunnelling projects

What makes Terex Trucks' articulated haulers, the TA300 and TA400, proven performers for the toughest applications?

SCOTTISH MANUFACTURER TEREX Trucks explains why tough tunnelling projects require extra tough machinery and how its articulated haulers get the job done in challenging working environments.

Maximum uptime

The machines working in the tunnel have to follow an intense schedule and usually run around the clock, seven days a week. Any unscheduled downtime can cause delays and increases costs, so machine reliability and availability are important requirements.

To ensure maximum uptime, Terex Trucks uses a long-life transmission fluid that extends oil change intervals. The TA300 has a maintenance interval of 4,000 hours and the TA400's transmission has an oil change interval of 6,000 hours. Terex Trucks has also extended the maintenance life of the actuation hydraulic fluid to 4,000 hours. This does not only increase uptime; the reduction in consumption and disposal of fluids also helps to minimise environmental impact.

Operational safety

The machines' modulating transmission retarder is coupled with an efficient exhaust brake and fully enclosed oil-cooled multidisc brakes, to provide high levels of machine control and operational safety.

To ensure safe operations, Terex Trucks haulers are equipped with effective hazard area communications, including indicators for left and right as well as directional lights, often backed up by additional supporting lights.

Terex Trucks has over 70 years' experience in building tough, reliable articulated haulers. The TA300 and TA400 are straightforward machines that get the job done, no matter what.

Strong and fuel-efficient engines

Thanks to a drivetrain that Is perfectly matched with the engine, Terex Trucks haulers deliver powerful performance and excel in demanding work environments. The TA300 and TA400 are both equipped with Scania engines. The TA300 is powered by a Scania DC9 engine, which develops gross power of 370 hp (276 kW) and a maximum torque of 1387 lbf ft (1,880 Nm), and the TA400's Scania DC13 engine develops gross power of 331 kW (444 hp) and a maximum torque of 2,255 Nm (1,663 lbf ft).

Both the TA300 and TA400 have recently been updated with an EU-Stage V emission-compliant engine and now boast a reduction in fuel consumption of up to 7% (compared to the Stage IV machines). This improvement is achieved with advanced engine control and effective fuel injections. In combination with its latest upgrade to a highly efficient 8-speed transmission, the Stage V TA300 even delivers fuel consumption savings of up to 10%.

The TA300 and TA400 come with three-stage aspirated air filtration, which provides increased engine protection to lengthen maintenance intervals.

Comfortable working environment

Terex Trucks has improved operator comfort and upgraded the cabs of the TA300 and TA400 with a high-performance heating and air-conditioning system.

Easy to maintain

Both the TA300 and TA400 have a fully tilting cab for easy access, and the electronically raised hood allows technicians to reach the engine service points quickly.

"At Terex Trucks, we have over 80 years' experience in building tough, reliable off-highway haulers," said Paul Douglas, managing director. "This strong hauling heritage is reflected in our products today. The TA300 and TA400 are straightforward machines that get the job done, no matter what." ■

Fleetboard celebrates10-year partnership with WBG

DAIMLER COMMERCIAL VEHICLES MENA and the general distributor of MercedesBenz Trucks in Abu Dhabi – Emirates Motor Company, celebrate a 10-year partnership with Western Bainoona Group (WBG).

Based in the UAE, WBG is an integrated group in the areas of construction, land transportation and crushers, and has been a cornerstone in the development of roads, bridges and infrastructure projects in the United Arab Emirates.

"We truly value the partnership and appreciate the trust from Western Bainoona Group. Together with EMC, we are committed to providing the best services and to further strengthen our long and prosperous partnership," said Olaf Petersen, general manager, Daimler Trucks Sales, Daimler Commercial Vehicles MENA.

By actively utilising the data from Fleetboard's unique Driver Performance Analysis, Trip Records and Service/Uptime data, WBG did not only benefit from operating cost savings such as fuel consumption, but also an increased uptime due to efficient management of services schedules. This led to the management's decision to equip Fleetboard as standard in all of their Mercedes-Benz Trucks in 2015. Today, there are over 250 active Fleetboard units in WBG's fleet.

"At Western Bainoona Group, we continuously enhance our capability to ensure we remain at the forefront of our industry and having Fleetboard installed in our Mercedes-Benz trucks which enables professional monitoring and management of our fleet, is our commitment to provide excellence to our customers," said

Photo Credit: Daimler Commercial Vehicles

From left: Olaf Petersen, general manager, Trucks Sales Daimler Commercial Vehicles MENA; Bilal AlRibi, general manager Commercial Vehicles of Emirates Motor Company; Zouheir Chamandi, president of Western Bainoona Group.

Zouheir Chamandi, president of Western Bainoona Group.

"Thanks to Fleetboard, we managed to save over 10% of fuel consumption from idling and achieved almost zero fuel loss from potential fuel theft, by tracing fuel loss data with the Trip Records, Mapping, and Driver Performance analysis," added Chamandik.

As connectivity and auto-data processing is fast evolving, WBG's next step is to link the massive data available from Fleetboard, into their SAP system, and to look at innovative ways to simplify processes, such as using data from Fleetboard to further lower operating costs, and automate processes such as automatic job card creation based on service data from Fleetboard.

LG highlights air solutions and technical expertise

The new showroom offers B2B customers and prospects, solutions as well as guidance for advanced HVAC technologies.

IN PARTNERSHIP WITH Al Yousuf Electronics, LG Electronics (LG) continues to expand in the local marketplace, with its new enterprise-focused air solutions showroom in Dubai. Centrally located on Sheikh Zayed Collector Road, the showroom aims to be a base for LG to display its latest heating, ventilation, and air conditioning (HVAC) technologies and act as a consultant for current and potential customers on their specific air solutions requirements.

"We welcome all decision-makers to come visit our new showroom in Dubai, where our team are on hand to understand your business challenges and objectives. For many, we recognise that this now includes instilling a confident return to public spaces, through the use of HVAC solutions which integrate not only comfort, but also thorough hygiene measures at their core. Whether operating in hospitality, retail, education, commercial or residential spaces, our experts can help to carve out an individual roadmap for any business, helping to achieve operational excellence," said Hongju Jeon, president, LG Electronics Gulf.

On show at the new location are solutions such as LG's DUAL Vane and Round Cassette air conditioners, each featuring the company's inverter technology for faster cooling, quieter running and extended usability. The DUAL Vane Cassette AC utilises two individual vanes to deliver wider and more customised airflow, with fine angle control. The AC features LG's Safe Plus Insulation – an antimicrobial treatment that is applied to internal insulation components to prevent the growth of mould and provide cleaner, fresher airflow.

LG's new showroom in Dubai.

Photo Credit : LG

From LG's variable refrigerant flow (VRF) systems, visitors to the showroom can learn more about the Multi V 5 outdoor unit – an integrated solution that provides maximum energy efficiency while minimising operational costs. The LG Multi V 5 features Dual Sensing Control to detect humidity and temperature, optimising airflow accordingly.

LG is also showcasing its BECON cloud Digital HVAC Management Solution, enabling business operators to remotely monitor and control their systems in real-time, with reduced costs and shortened non-operating times.

In addition, LG's range of PuriCare air purifiers are on display, including the PuriCare Double Tower, Single Tower, Mini and Wearable.

Visitors to the new Dubai showroom can explore the LG ThinQ Experience Zone – a special area dedicated to the company's smart technology ecosystem, including AI-integrated products.

"Through our longstanding partnership with LG, we collectively work to understand the needs of our current customers and prospects. Often, we find that decision makers are looking for a centralised location from which they can not only purchase solutions, but also receive advisory and technical expertise throughout the entire product lifecycle. As summer fast approaches, we naturally witness an increase in businesses looking to invest in AC solutions in particular. We would like to encourage any consultants and planners to first come and explore what our showroom has to offer and why LG should be the partner of choice when it comes to purchasing air solutions," said Mohamed Al Yousuf, CEO Al Yousuf Electronics. ■

> "Whether operating in hospitality, retail, education, commercial or residential spaces, our experts can help to carve out an individual roadmap for any business, helping to achieve operational excellence"
>
> **Hongju Jeon, president, LG Electronics Gulf.**

Reliable level measurement with radar sensors

How VEGA's radar level instruments helped improve a Fujairah quarry's efficiency and throughput.

Automated level measurement in a stone crusher

Measuring the level of material in a crusher has different purposes. For instance, it helps maintain a sufficient level of material to optimise the rock-on-rock compression into the crusher, maximising throughput.

It is also mandatory to monitor and control the level to avoid the crusher from choking or overfilling, both resulting in unplanned shutdowns and tedious maintenance operations.

"Our production rate is 650 MT/hour and about 12,000 MT in a day, so optimising the crushers is key to productivity and any down-time is not an option for us. Additionally, if any crusher is overfilled, this presents a potential hazard for any workers in the area. This is why on our site we automated our crusher lines and favoured VEGA's reliable measurement technologies," explained Ishteyaque Ahmad, plant manager, Power International LLC.

Cost-effective

All mining companies and quarries aim to run their productions smoothly, without down-time, minimal material loss and to maximise their revenues. Some companies, however, still hesitate to take the leap to invest in automated instruments, historical reasons being the high costs involved in a fully automated system and field sensors, which were also laborious to install and commission.

State-of the art devices such as radar level sensors (for example, VEGAPULS 69 radar), have become more affordable over the years, due to technological advancements as well as R&D. Equipping even the smallest sites is now a possibility with VEGA's spectrum of sensors.

"Instrumentation is an indispensable part of our site and allows us to have a smooth operation and to optimise the flow of material significantly. Investing into modern technologies, such as 80GHz radar level sensors, is a strategic step towards excellence and efficiency," remarked Ahmad.

Automated crushers with non-contact radar

Adjusting the speed and controlling the conveyor belt is the way to manage the flow of material into the crusher. To do so, accurate level measurement is required, and this is critical information for a plant operator.

There are many ways to measure the level, and ensuring the right technology is an important step for an autonomous crushing and screening line.

The environment, such as, dust, noise, vibration, heat, buildup, rock projections and others are what makes this measurement complex.

Mechanical systems such as tilt-switches are at the frontline of this demanding application. Tilt-switches have been used in this industry for decades. Unfortunately, as they need to be in contact with the material, they are subject to wearing and intrusive maintenance or replacement. Additionally, such devices can only act as a high alarm and do not provide live feedback on the material height or percentage of material into the crusher. Thus, the use of such technology comes with limitations.

Photo Credit : VEGA

Automated stone crusher equipped with a VEGAPULS 69 radar sensor.

It is not rocket science that non-contact sensors might be a better choice for rock level measurement. And there are plenty of alternatives such as lasers, cameras and ultrasonic sensors.

However, they are almost always affected by the heavy dust, vibrations or moisture buildup, conditions synonymous with a quarry or mining site.

But one technology rises above the others: the 80 GHz Radar. Unaffected by site conditions, non-contact radar sensors perform well with all bulk solids.

The VEGAPULS 69 from the German manufacturer VEGA, in particular, delivers extremely reliable and accurate measured values. The radar sensor operates at a high frequency (80GHz) and embark an advanced electronic which negates the influence of buildup.

Moreover, the microwave based technology does not rely on the surrounding conditions to proceed with the measurement. The physical properties of microwaves allow them to pass through thick layers of dust or humidity and remain unaffected by heavy sun exposure.

Further, by providing live data, the radar level sensors act as an overfill protection, allowing operators to control the conveyor belt speed to avoid unnecessary wear of the machines and avoid stoppages. ■

Digital technologies enhancing the marine industry

Hervé Lours, VP - Marine, AVEVA, spoke to Fyna Ashwath on the digital transformation of the marine sector in the Middle East and explains how the OSIsoft merger has helped augment AVEVA's capabilities.

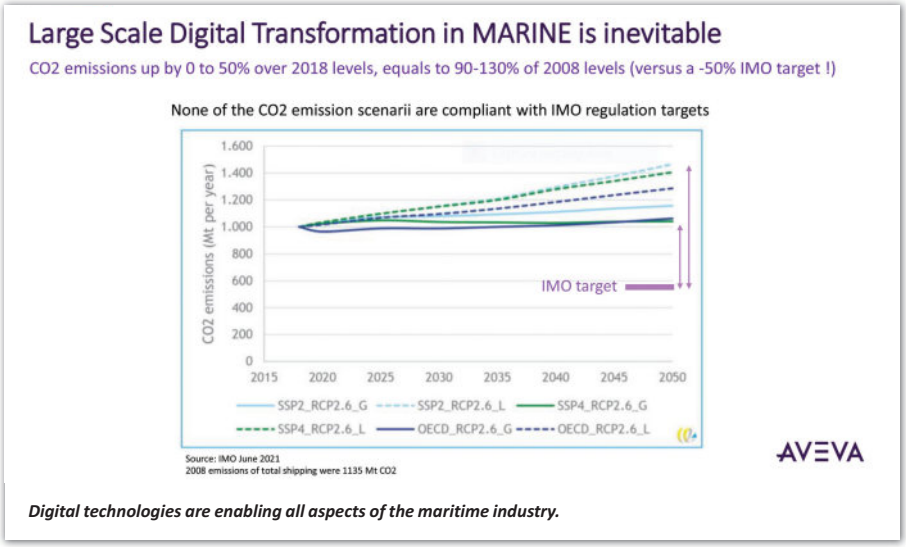
How is AVEVA accelerating digital transformation of the marine sector? What has been its role in the evolution of the sector in the Middle East?

AVEVA offers deep insight into the marine sector of the Middle East, across all aspects including connected services to ship owners, monitoring ship operations, helping minimise costs and enhancing profitability.

As the only player active along the entire marine life cycle and with 60% market share worldwide in engineering and design software, AVEVA encompasses every aspect of the maritime industry, including the design of a new ship, simulation, shipyard operation software, optimising energy consumption and equipment monitoring.

The adoption of digital technologies, including the digital twin, is enabling marine leaders to protect margins, automate manual processes, improve safety, accessibility, drive process and maintenance optimisation, and improve operational efficiency.

AVEVA is the leader in simulation in complex thermodynamic processes and

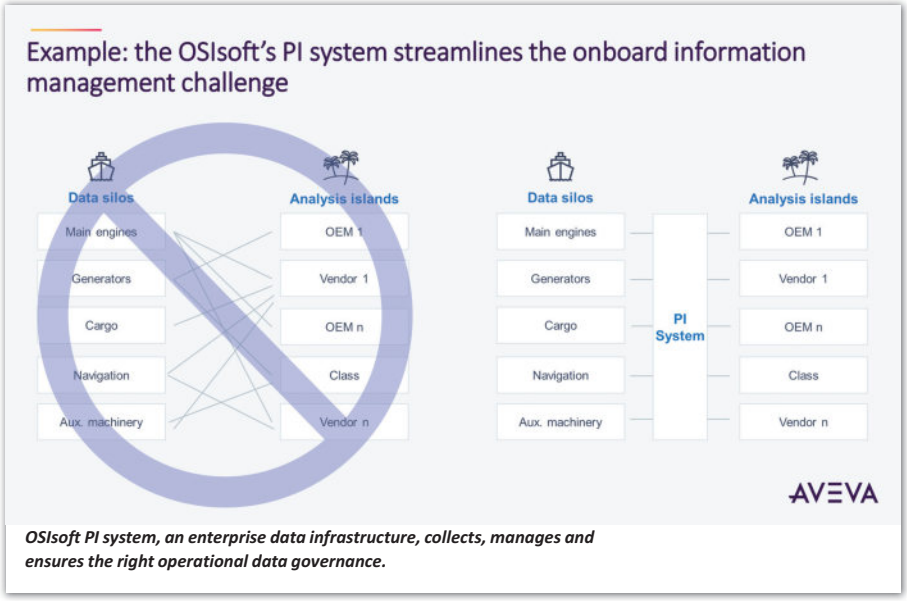


Digital technologies are enabling all aspects of the maritime industry.

Photo Credit: AVEVA

Schneider Electric in energy management software and this synergy has enabled the AVEVA Group to provide continuous and steady development in all segments, across all geographical markets, vessel and client types. More than 3000 ships are connected using AVEVA solutions and it offers unique capabilities to meet the IMO emission reduction targets.

AVEVA's ambition for the Middle East and Africa region is to be the largest group for industrial software.



OSIsoft PI system, an enterprise data infrastructure, collects, manages and ensures the right operational data governance.

Photo Credit: AVEVA

How does the OSIsoft's PI system streamline the onboard information management challenge?

With the acquisition of OSIsoft, AVEVA now brings to the industry the well-known PI system, an enterprise data infrastructure solution, which collects, manages, and ensures the right operational data governance for the full fleet. The combined portfolio brings OSIsoft's data management together with AVEVA's industrial software to unlock what the company calls Performance Intelligence. Performance Intelligence connects information and Artificial Intelligence with human insight, to enable faster and more accurate decision-making, helping industries boost sustainability. It provides data to measure and understand the entire industrial lifecycle.

In fact, through dialogue with ship owners,

Hervé Lours, VP - Marine, AVEVA.

AVEVA and International Maritime Industries (IMI) have extended their long collaboration with a new partnership to accelerate Maritime Sector Digital Transformation in the Middle East and Africa.

we realised that a major challenge they face is the lack of capability over the control of data generated by equipment on the ship. This requirement of ship owners perfectly complements the solutions offered by AVEVA – taking data, collecting as well as managing it, to give good insight to the users, for instance, to predict maintenance issues.

How are IMI and AVEVA working together to deploy the most advanced technology for the sector?

AVEVA and International Maritime Industries (IMI) have extended their long collaboration with a new partnership to accelerate Maritime Sector Digital Transformation in the Middle East and Africa.

Set to be fully operational by 2023, IMI is driving an accelerated and advanced digital programme to ensure it is able to commence yard operations using the most advanced technology innovations. This will help IMI to deliver agile and efficient newbuild project execution, a connected, digitally-enabled workforce to ensure safe and effective ship production, and a smart connected shipyard to continuously optimise the operational efficiency of its facility. ■

Crushers leading to quality aggregate

Tribhuwan Sati, sales director for Terex MPS, Middle East and East Africa, explains that quarries have numerous factors to consider when selecting cone crushers to create quality aggregate products.

A SUCCESSFUL APPLICATION of a cone crusher within a crushing circuit is measured by the amount of material passing through the cone, the power draw of the machine, the size distribution of the products coming out of the circuit and the shape of the product. The goal is to efficiently and economically produce the target products, conforming with the required specifications.

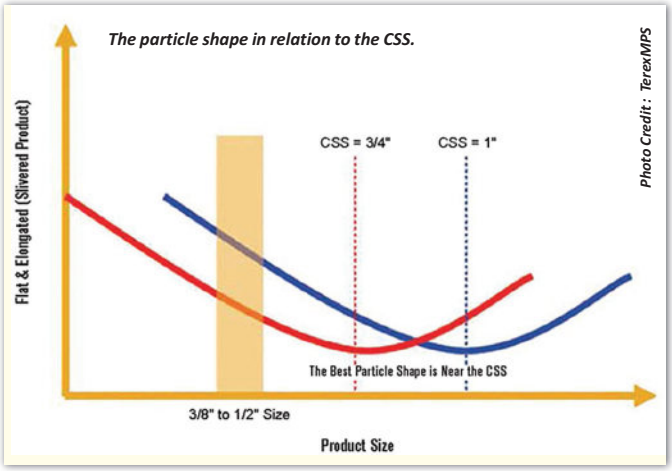
Cone crusher types

Cone crushers can be categorised into three main design types. With floating bowl and screw bowl cone crushers the upper frame raises to open CSS or relieve crushing pressure. The third type – the spider-bearing cone crushers – incorporate a shaft supported by a hydraulic piston which controls CSS and crushing pressure. Each machine type has its own features and advantages, and each is best suited to particular applications. Terex offers each of these cone crusher types within its equipment range to ensure it can provide the best option across all crushing applications.

Crushing factors

Each cone crusher has distinctive mechanical factors that affect the production rate and quality of the material processed by a cone crusher including:

- Cone head diameter
- Crushing chamber slope (angle)
- Cone head stroke
- Gyrating speed
- Manganese liner profile
- Closed side setting (CSS)
- Crushing force (monitored as operating pressure)
- Applied power and feed control.



The particle shape in relation to the CSS.

Photo Credit: Terex MPS

Photo Credit: Terex MPS

A Terex MC1150 cone crusher module that includes a feed bin with a variable speed vibrating feeder. Level indicators in both the bin and crusher hopper work to maintain a choked condition within the cone crusher chamber.

In any crushing operation, physical characteristics of the material being processed also affect the output product. The material characteristics that affect the crushing process include:

- Abrasiveness
- Compressive strength
- Bulk density
- Friability
- Plasticity
- Feed gradation
- Moisture content
- Reduction ratio.

Producing quality product

Most aggregates specifications require a cubical product. The cubicity of the cone crusher product can be improved with the correct circuit design, promotion of recirculation, screen selection and crusher operating parameters. Generally the cubicity is best in sizes close to the crusher CSS. ■

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Supporting the energy transition in the Middle East

Ahmad Hussein, country head of electrification business, ABB, Saudi Arabia, discusses ABB's initatives to promote smart and sustainable energy operations.

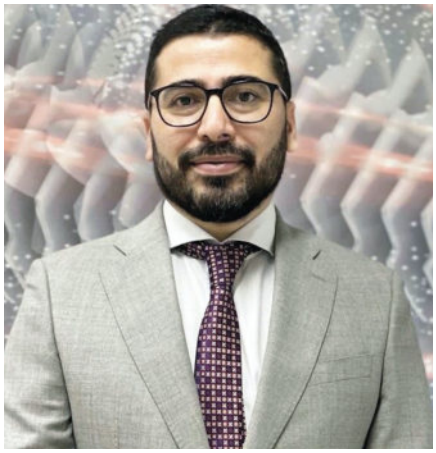

Photo Credit : ABB

Ahmad Hussein, country head of electrification business, ABB, Saudi Arabia.

What opportunities do you see arising from the energy transition in the Middle East, and how is ABB helping the region move to a low carbon future?

The Middle East and Africa shows solid renewable energy progress, and is on track to realise its vast renewable energy potential and diversify its energy sources. Moreover, owing to the availability of low-cost gas resources, the region plays a significant role in exporting blue and green hydrogen.

The energy sector also calls for energy storage policy regulations to unleash the full potential and make power trading more commercialised. In addition, a rapid expansion of renewable integration to the grid in the world's fastest-growing region in energy consumption and transition to low carbon communities require a modern, smart and flexible power grid.

In response, ABB is developing innovative grid solutions to enable power distribution products, solutions, and services digitally. Our smart technologies help customers to create reliable, efficient, and more resilient grids. Designed to optimise operational costs and reduce capital expenditure, they enable fast integration of future-proof solutions and decision-making based on real-time data from the ABB Ability™ cloud solutions.

How can ABB technologies facilitate the integration of renewables into the grid, while maintaining grid stability?

Grids are evolving in line with the sustainable energy transition, and the grids of the future will be completely different in structure from the traditional model we know. Networks with decentralised power generation will require decentralised solutions to ensure grid stability and resilience. Weather determines how the power plants operate by generating 'non-synchronous' power and creates grid challenges regarding stability and resiliency. ABB Electrification is proud of the industry's most comprehensive portfolio designed to meet the current and future challenges in the grid. Attention has turned to ABB synchronous condensers with their former function of reactive power compensation in that context. Together with solutions that secure grid stability, the key for facilitating the integration of renewables is working with partners to develop solutions for a safe, smart and sustainable future, maximising the benefits from the existing robust infrastructure instead of a 'rip-and-replace' strategy.

What are the benefits of Vehicle-to-Grid technology, and how do you see it developing?

Vehicle-to-Grid (V2G) technology opens new opportunities for energy trading and intelligent energy management. V2G technology unlocks the energy stored in electric vehicle batteries so that households and fleets can support the grid when demand peaks. V2G gives utility access to the renewable energy stored in vehicles to better balance loads and mitigate grid bottlenecks. V2G supports balancing the grid and smoothly integrating renewables. It enables utilities to become less dependent on fossil fuel power plants and also reach their sustainability targets. At ABB, we commit to be a benchmark in this technology globally and support the acceleration towards electric mobility and sustainable transportation.

How can digitalisation help to optimise the management of utilities, and what are the main challenges?

We live in an era of revolution: energy revolution with renewables, energy storage, the introduction of electric vehicles, and the Fourth Industrial Revolution, which builds on the digital process, representing new ways in which technology becomes embedded within society.

Disruptive innovation only works if it optimises; these are also the foundations of digital transformations.

Utilities that focus on asset management, leveraging advanced data analytics and applying digital technologies, can significantly improve operational performance, improve customer services and overcome the main challenges with DER integration or ageing infrastructure.

How can data-driven energy management solutions help companies to improve energy efficiency and operate more sustainably?

Data-driven energy management solutions are gaining traction for optimising energy efficiency, availability and environmental sustainability. Energy efficiency has become essential to running cost-efficient operations. ABB Ability™ Energy Manager provides a real-time understanding of energy consumption and identifies areas of improvement. It is scalable and can monitor site performance and supervise the electrical system and allocate costs.

Scheduled automatic data exports execute and analyse to improve the use of assets and help managers make informed decisions to optimise the business. In addition, alerts and notifications support predictive maintenance to key personnel with remote implementation to achieve energy savings.■

Middle East renewables surge, says GlobalData's MEED

MIDDLE EAST RENEWABLES surge as energy transition accelerates, says GlobalData's MEED.

Renewable energy project contract awards in 2021 have eclipsed deals for conventional power plant projects in the Middle East as the region's energy diversification agenda gathers pace, according to GlobalData's MEED.

The company's latest report, 'Middle East Energy Transition', says there were no contract awards for oil-powered or gas-fuelled power stations in the Middle East and North Africa (MENA) region in the first half of 2021. However, in the same period, there a number of renewable energy project contract awards in the region, worth roughly US$2.8bn.

From 2017 to 2020, the average value of contract awards for oil- or gas-fuelled power stations in the MENA region was around US$4.8bn a year, with US$6.2bn of conventional thermal power plant contract awards made in 2020.

"The stalling of the development of conventional power generation plants in the region is one consequence of an acceleration of efforts to reduce greenhouse gas (GHG) emissions and to diversify the energy sources away from oil and gas. Doubts about long-term demand for oil products and growing confidence in the cost effectiveness of renewable energy are also fuelling the region's energy transition," commented Richard Thompson, editorial director of GlobalData's MEED.

Renewables on the rise

Some US$104bn-worth of renewable energy projects are planned, of which roughly US$21.5bn are at the contract tendering stage and are likely to lead to contract awards in 2021 and 2022.

"Of the remaining US$82.4bn of planned projects, only around US$4.1bn are at an advanced stage of design, with the vast majority, some $78.3bn of projects, still under study. Many of these may not go ahead or could change substantially in scope," added Thompson.

According to MEED's report, Saudi's US$18bn renewables projects pipeline offers the best prospects, with some US$13bn of renewable energy projects at or close to the tendering stage. The UAE, which far outstrips Saudi Arabia in terms of installed renewable capacity, has only US$370m of renewables projects at the bidding stage.

Green hydrogen

The report identifies hydrogen fuel as an important emerging element in the Middle East's energy landscape. The use of hydrogen fuel in electricity generation emits only water vapour and no carbon dioxide. Moreover, hydrogen can help decarbonise traditional gas-fired power plants.

"The hype surrounding hydrogen, and in particular green hydrogen, has become increasingly hard to ignore as it dominates industry discussions of oil and gas, renewable energy, mining and climate change. The opportunity to pivot to green hydrogen is particularly strong in the MENA region, " added Thompson.

An estimated US$42bn-worth of green hydrogen-related projects are being planned across the MENA region – and project announcements have become increasingly frequent over recent years. These announcements include both high-level memorandums of understanding (MoUs) comprising studies that are expected to lead to concrete project opportunities in the future, and agreements related to a specific project with general details on the type, location and capacity of the planned facilities.

Energy transition

"Energy transition is now among the highest policy priorities for the Middle East's oil producers, which have been hard hit by low oil prices since 2015 – a knock that may be exacerbated by the decline in oil demand growth that is predicted by 2040," added Thompson. ■

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The potential of fibre optic technology

Abdul Aziz Syed, regional sales manager, Middle East and North Africa, Fotech, discusses opportunities for fibre optic monitoring and the challenges he is overcoming through approaches that add in-country value.

How does fibre optic sensing technology work?
Fibre optics detect and monitor vibrations, strains and temperature changes in real-time. Thousands of pulses of light are sent along fibre optic cables every second and when these encounter vibrations, strains or temperature changes, the light reflected back changes in what's called 'backscattering'. The changes – which could come from a range of sources, such as vehicles being driven, people climbing or digging, leaks, human and animal intrusions or even explosions – are interpreted by our sophisticated software using advanced algorithms and AI. Fibre optic sensing – or Distributed Acoustic Sensing (DAS) technology – can be installed new or integrated into existing infrastructure, and works with Internet of Things (IoT) and machine learning platforms.

As well as collecting the right data in the right locations, DAS technology makes analysing data easy so operators can make good, fast decisions. It has so many applications for a wide range of MENA clients throughout this huge geographical region and we are reaching out in all countries with our sales programme.

What industry sectors are Fotech targeting in the region?
In MENA ,we are moving away from traditional sectors, such as oil and gas pipelines, and focusing on sectors where we are seeing real growth. Water pipeline monitoring is a really important application. It's an area that is close to my heart as the region has serious water stress and fresh water loss is an issue, but fibre optic sensing can detect faults, such as a burst pipe, quickly. There is heavy reliance on desalination plants across the Middle East because of poor groundwater and the infrastructure required to ensure a reliable water supply needs to be monitored more effectively so problems can be detected and remedied without delay.

Does moving away from oil and gas mean Fotech is targeting the renewable energy sector?
Yes, definitely. Fotech's parent company, bp, is making major investments in renewables and there are significant developments in solar and wind power generation in UAE and Saudi Arabia. And in North Africa, Morocco is a major growth market for solar energy, so we see plenty of opportunities there. Indeed, all utilities can benefit from fibre optic monitoring technology because it is a cost-effective, environmentally friendly, unobtrusive way to protect these important assets.

What about transport applications?
There is so much potential because of the significant investment in rail and metro projects across the MENA region, some of which have been completed and some of which are still underway. Rail investment is critical to smart cities, and fibre optic sensing can monitor everything from possible intruders on rail networks to track faults before they become major hazards.

Photo Credit : Fotech

Abdul Aziz Syed, regional sales manager MENA, Fotech, a bp launchpad company.

And road transport is offering exciting new opportunities with autonomous vehicles (AVs) projected to become commonplace in the years ahead. AVs need smart roads, and this is where DAS technology will come into its own. Fibre optic cables can provide continuous monitoring of roads and provide live feedback to AVs about the conditions ahead, such as potholes, people and animals on the road, as well as accidents. This, in turn, makes AVs safer.

What MENA markets have the most growth potential for Fotech?
Saudi Arabia and the UAE are our top MENA markets, and they are massive investors in a range of major infrastructure projects, but we are interested in the whole region. Qatar and Kuwait are particularly important, as well as Jordan, especially with its potential for upgrading water infrastructure. The UAE normalising relations with Israel is also beneficial and we are already working with Israeli companies and exploring the scene there.

Egypt, Algeria and Morocco are our key North African markets – there has been a lot of investment interest, especially from European banks, in projects to improve living conditions and to develop oil, gas, renewables and minerals. ■

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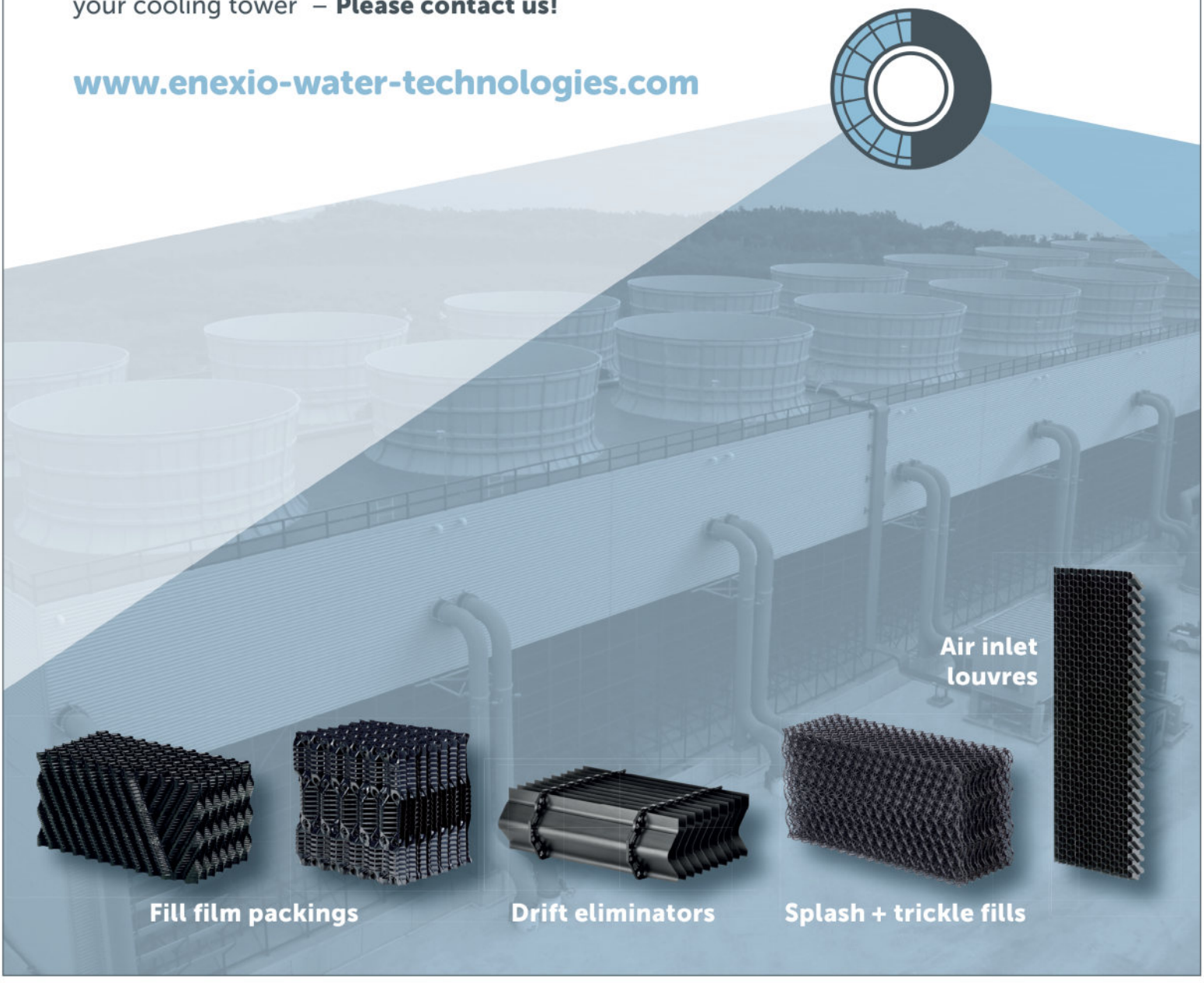

Connecting global construction players

The in-person event will include exhibitors such as Caparol, Saudi Ceramics, Climatech, Gulf Extrusions and Emirates Steel, among others.

DMG EVENTS HAS announced that The Big 5 will return to the Dubai World Trade Centre from 12-15 September 2021. The free-to-attend event, to be held both in-person and online this year, will connect the global construction industry, and play a crucial role in driving economic recovery in the wake of COVID-19 disruption.

Now in its 42nd year, the Middle East, Africa and South Asia (MEASA) region's largest and most influential event for the construction industry, has so far confirmed more than 1000 exhibitors from 45 countries, and 20 country pavilions. It will include online networking events and meetings that will help organisations kick-start their businesses.

Leading brands will showcase the latest construction products and solutions covering the full construction cycle.

Photo credit : The Big 5

A thriving construction market

Commenting on a report released by MEED projects – Projects Data and Intelligence Partner for The Big 5 – Josine Heijmans, vice president at dmg events, revealed there was a US$163bn worth of contracts awarded in 2020 in the Middle East and Africa despite the impact of COVID-19, and US$1.9bn worth of projects are currently in execution in the region.

Heijmans foresees that powerful face-to-face connections between industry stakeholders is key for the sector's continued development, stating that, "With US$5.06tn worth of projects planned and unawarded across all sectors in the Middle East and Africa construction market, it is more important than ever to offer a safe environment for the community to come together where they can boost business activities, rebuild partnerships, and discuss vital lessons learnt all in one place."

The Big 5 will showcase the latest construction products and solutions covering the full construction cycle, across dedicated product sectors, specialised events and acceleration zones. The exhibitors include Caparol, Soudal, Saudi Ceramics, MahyKhoory, Zamil Air Conditioning, Climatech, Gulf Extrusions, Emirates Steel and many more.

Christian Witsch, chief executive officer, Gulf Extrusions said, "For many years we have been representing our products and innovations at The Big 5 which is a very important and great event for our industry. Now, after one year of interruption due to COVID, it is again safe to go to The Big 5."

> "It is more important than ever to offer a safe environment for the community to come together where they can boost business activities, rebuild partnerships, and discuss vital lessons learnt all in one place."

Driving transformative leadership

A curation of high-level summits this year will shed light on crucial developments in the construction sector, while exploring long-term opportunities on the horizon. Summits in 2021 cover all aspects of the industry from facades to building technology, including the highly anticipated Global Construction Leaders' Summit, The Future of Facades Summit, and The FuturTech Construction Summit.

FuturTech panellist, Dr Anas Bataw, director at The Centre of Excellence in Smart Construction, shared excitement for the line-up of conferences, talks and features scheduled this year and invited industry colleagues to attend.

Celebrating industry excellence

Returning and new platforms will run at the event to recognise project excellence in the region's construction industry. The Big 5 Women in Construction Awards, and the newly launched The Big 5 Construction Impact Awards, are set to honour the people, organisations and projects driving sustainable development, innovation, and transformation in the region's industry. ■

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Pumps: the Made in Italy excellence meets innovation

Giulio Pedrollo, CEO, Pedrollo Group, talks to Fyna Ashwath about his company's participation in The Big 5 and its plans for growth in the region.

Photo Credit : Pedrollo Group

Giulio Pedrollo, CEO, Pedrollo Group.

What technologies and innovations are the Pedrollo Group showcasing at this year's Big 5?
The Pedrollo Group has been participating at the Big 5, the international trade fair dedicated to the building and water supply sectors, for several years.

This year, the Group will present new products that further expand the wide range of electric pumps and accessories in our portfolio, such as the new FUTURE JET self-priming pumps, the MAGNIFICA swimming pool pump, and the transportable electric generator G-THOR, together with new electronic devices for electric pump control.

As per the Pedrollo philosophy, all our new products are the result of an intense study of materials and technical design, aimed at maximising performance with particular attention to energy savings, the key for a greener future while respecting the environment.

Are there any new strategies that the group is adapting in the region, considering the new work environment emerging due to the impact of the pandemic?
The pandemic caused by COVID-19 has certainly transformed the market and people's perception of basic needs in everyday life.

These obviously include the inalienable need (and right) to water as a fundamental asset in the primary and industrial sectors.

The Gulf region was also affected, albeit to a different extent than European, South American and Far Eastern countries.

Pedrollo has faced new challenges in the best possible way through particular attention to the customer, an impeccable logistic service with delivery times that no competitor has so far been able to guarantee and always maintaining very high quality standards despite the exponential growth of raw material prices.

The new strategy adopted by the Pedrollo group was not to change, but to implement the production and delivery philosophy that made the Pedrollo brand a world leader in its 47-year history.

What growth prospects does the Group foresee for the Gulf region, and challenges, if any?
The establishment of the Dubai branch in 2006, the Pedrollo Gulf FZE, definitely strengthened the presence of the Pedrollo brand in the UAE and the wider Gulf region, through a solid distribution and promotion network for our electric water pumps, which also allowed many local companies to improve agriculture and domestic water supply even when Dubai's economic development was still in its infancy.
Our growth prospects will be fundamentally based on the expansion of the sales network in the various emirates, thus covering some areas that have so far been considered 'not strategic', obviously aiming to affirm and consolidate the quality of Pedrollo products.

With regards to our current and future presence in the Gulf region, Pedrollo has already successfully started a strategic campaign to supply important and prestigious projects, such as the recent Al MUGHIRAH project developed and completed in Abu Dhabi and the MAG project located in the Meydan area, not so far from the Burj Khalifa tower, Dubai. We do consider the importance of enlarging our selling product range, not only for domestic pumps, with the goal of making the Pedrollo brand one of the main players for industrial and residential projects in the UAE.

Further, we are sure that all the new products and technologies that Pedrollo is implementing to make the electric pumps more and more efficient and in step with the times, will open up new interesting opportunities also considering that here, MADE IN ITALY is synonymous with quality, excellence and reliability. ■

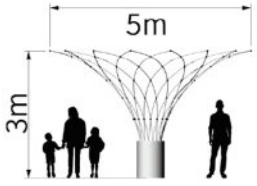
Pedrollo's new self priming pumps: the Future Jet international patented.

Photo Credit : Pedrollo Group

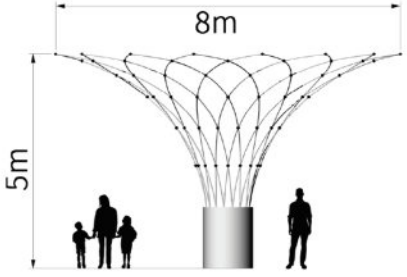
WINNER OF THE MOST INNOVATIVE PRODUCT AWARD
URBAN DESIGN & LANDSCAPE EXPO BIG 5 2019

GREENING UP CITIES AND COOLING THEM DOWN

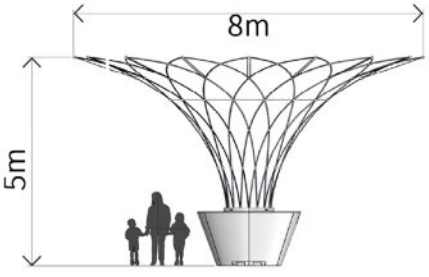
We design green structures for public and private spaces.



MINI COROLLE
Shade : **20m²**



COROLLE
Shade : **50m²**



COROLLE OLYMPE
Shade : **50m²**

MADE IN FRANCE

www.urbancanopee.com
+ 33 6 33 08 04 03

Greening up for climate resilient cities

The Corolle by Urban Canopee is a new low-carbon solution to cool cities down through the amazing properties of plants.

The Corolle helps combat the effects of global warming in urban environment.

WINNER OF THE Big 5 Dubai 2019 Urban Design and Landscape Expo Most Innovative Product Award, the Corolle by Urban Canopee is a new low-carbon solution to cool cities down through the amazing properties of plants, creating canopies in areas where planting directly in the ground is not an option.

Self-standing, highly resistant to corrosion and to extreme weather conditions, autonomous and connected, this green piece of urban furniture alimented and controlled by solar-powered sensors use solar energy to automatically irrigate climbing plants. With a minimal footprint for a very large shaded area, and without impacting the existing infrastructures and networks, the Corolle is a highly practical and movable cool island solution. Easily deployable and installed within a day, it does not require power or water connection and remains relocatable while helping combat the effects of global warming in urban environment, allowing a perfect architectural integration. The base of the structure integrates a substrate container and a water tank, and the climbing plants used are adapted to the local climate and to the structure's unique growth conditions. Several Corolles can be combined to form larger structures and cover large areas.

The creation of the Corolle is the result of 15 years of R&D experience in innovative building materials on light structures at the Navier laboratory from the prestigious École des Ponts ParisTech, graduate school of Civil Engineering.

Assembled with patented connection nodes, the gridshell structure, made of lightweight fiberglass composite rods as resistant as steel but four times lighter, is used as a support for climbing plants to grow and flourish. The plants optimal growth is assisted by a proprietary smart connected irrigation system, the Sensopee, whose remote real time monitoring of temperature, humidity, and water level lowers maintenance needs and allows optimum transmission of climatic and biodiversity data.

With their high albedo value, the resulting canopies help combat the heat accumulated in cities, regulate evapotranspiration, reduce noxious air pollution and restore biodiversity, making communities greener, healthier and more livable. ■

www.urbancanopee.com

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Construction Buyers' Guide 2021

The Middle East's annual where-to-buy guide

Section One: Listings by category
Section Two: Suppliers of construction & mining equipment and services
Section Three: Contact details of MENA region agents, distributors and subsidiaries listed alphabetically by country

Section One: Listings by category

AIR COMPRESSORS
Cummins Middle East FZE
Doosan Portable Power
Rotair Spa

AIR CONDITIONING
LG Electronics Gulf FZE

ALTERNATORS FOR GENSETS
Linz Electric S.p.A.

Asphalt Plant
Ciber Equipamentos Rodoviários Ltd
Lintec & Linnhoff Holdings Pte Ltd

Attachments and Accessories
Bobcat
Caterpillar SARL
MB Crusher

Backhoe Loaders
Balkrishna Industries Ltd. (BKT)
Bobcat
Caterpillar SARL

Batching Plant
Lintec & Linnhoff Holdings Pte Ltd
Vortex Hydra S.r.l.

Block/Tile - Making Equipment
Vortex Hydra S.r.l.

Breakers
Bobcat
Doosan Portable Power

BUILDINGS
PEDROLLO GROUP
URBAN CANOPEE

Compaction Equipment
Caterpillar SARL
Doosan Portable Power

Components and Accessories
Deep Sea Electronics Ltd
Eland Cables
Hi-Force Ltd.

COMPONENTS AND SPARE PARTS
Eland Cables
ENEXIO Water Technologies Gmbh
Liebherr-Export AG

Concrete
Liebherr-Export AG

Concrete Equipment - Other
Bobcat
Doosan Portable Power
Lintec & Linnhoff Holdings Pte Ltd
Vortex Hydra S.r.l.

CONCRETE EQUIPMENT
Liebherr-Export AG
Trelawny Spt Ltd.
Vortex Hydra S.r.l.

Construction Vehicles - Other
Astra Veicoli Industraili SpA
Caterpillar SARL
Liebherr-Export AG

CONSTRUCTION VEHICLES
Caterpillar SARL
Liebherr-Export AG
OK TRUCKS
Perkins Engines Company Limited.

CONSULTANCY SERVICES
Cummins Middle East FZE

Cranes
Balkrishna Industries Ltd. (BKT)
Liebherr-Export AG

Crushing, Screening and Washing
MB Crusher

DETECTORS
VEGA Technique

DEMOLITION EQUIPMENT
Bobcat
Doosan Portable Power
Liebherr-Export AG
MB Crusher

Diesel Driven
Deep Sea Electronics Ltd
Doosan Portable Power
Perkins Engines Company Limited.
Rotair Spa

Dozers
Caterpillar SARL
Liebherr-Export AG

DRILLING
Eland Cables

Drilling - Other
Doosan Portable Power

Dump Trucks and Haulers
Astra Veicoli Industraili SpA
Balkrishna Industries Ltd. (BKT)
Caterpillar SARL

Dumpsters
Liebherr-Export AG

Earthmoving Equipment - Other
Bobcat
Caterpillar SARL
Liebherr-Export AG

EARTHMOVING EQUIPMENT
Bobcat
Caterpillar SARL
Liebherr-Export AG
MB Crusher
Perkins Engines Company Limited.

Engines, Components and Accessories
Caterpillar SARL
Deep Sea Electronics Ltd
Jubaili Bros
Perkins Engines Company Limited.
Volvo Penta

Equipment
Jubaili Bros
URBAN CANOPEE
Vortex Hydra S.r.l.

Excavators
Bobcat
Caterpillar SARL
Liebherr-Export AG
Yanmar Europe B.V.

Fabrication and Structures
Kirby Building Systems

EDUCATION & TRAINING
VEGA Technique

FIELD INSTRUMENTATION/ PROCESS/CONTROL/ VALVES
VEGA Technique

FINISHING
Conren Ltd.
URBAN CANOPEE

Formwork
Sucoot Co., LTD

Grinding Equipment
Trelawny Spt Ltd.

Hoists
Liebherr-Export AG

Hydraulic
Hi-Force Ltd.

Jacking Equipment
Hi-Force Ltd.

INDICATORS/ CONTROLLERS
VEGA Technique

INSTRUMENTATION & CALIBRATIONS
VEGA Technique

LEVEL DETECTION & CONTROL
VEGA Technique

LIFTING EQUIPMENT
Eland Cables
Hi-Force Ltd.
Liebherr-Export AG
Perkins Engines Company Limited.

Lighting Masts/Towers
Doosan Portable Power
Jubaili Bros
Kohler Power Systems EMEA
Mahindra Powerol - Mahindra & Mahindra Ltd.
SAB, Standard Aggregatebau Evers GMBH & CO. KG
Visa S.p.A.
Yanmar Europe B.V.

Loaders - Other
Bobcat
Caterpillar SARL
Liebherr-Export AG
Yanmar Europe B.V.

Mechanical
Hi-Force Ltd.

Mini-Excavators
Bobcat
Caterpillar SARL
Liebherr-Export AG

Mobile Mixing Plant
Lintec & Linnhoff Holdings Pte Ltd

LIMIT SWITCHES
VEGA Technique

MEASURE & TEST/ EQUIPMENT/SYSTEMS/ MONITORING
VEGA Technique

MEASUREMENT, CONTROL & DAIGNOSTIC, INSTRUMENTATION, DAIGNOSTIC
VEGA Technique

MOBILE POWER SUPPLY UNITS
Cummins Middle East FZE
Doosan Portable Power
Eland Cables
Jubaili Bros
Kohler Power Systems EMEA
Linz Electric S.p.A.
Mahindra Powerol - Mahindra & Mahindra Ltd.
SAB, Standard Aggregatebau Evers GMBH & CO. KG
Visa S.p.A.

Motor Graders
Balkrishna Industries Ltd. (BKT)
Caterpillar

OTHER SITE EQUIPMENT AND MATERIALS
Bobcat
Conren Ltd.
Cummins Middle East FZE
Doosan Portable Power
Eland Cables
URBAN CANOPEE

Pavers
Caterpillar SARL

Petrol Driven
Rotair Spa

Pipe Making Equipment
MB Crusher

Pneumatic
Doosan Portable Power
Hi-Force Ltd.
Trelawny Spt Ltd.

Pumping Equipment - Other
Deep Sea Electronics Ltd
PEDROLLO GROUP
Yanmar Europe B.V.

PROCESS CONTROL EQUIPMENT
VEGA Technique

PROCESS CONTROL & PROCESS AUTOMATION
VEGA Technique

PUMPING EQUIPMENT
Eland Cables
Mahindra Powerol - Mahindra & Mahindra Ltd.
Visa S.p.A.

Quarrying
Doosan Portable Power
Liebherr-Export AG

Recycling
Liebherr-Export AG
MB Crusher

RENTAL EQUIPMENT
Caterpillar SARL
Cummins Middle East FZE
Hi-Force Ltd.
Jubaili Bros
Peter Berghaus GmbH
Rotair Spa
Visa S.p.A.

Road Building Equipment - Other
Bobcat
Caterpillar SARL
Doosan Portable Power
Lintec & Linnhoff Holdings Pte Ltd
Peter Berghaus GmbH
Rotair Spa
URBAN CANOPEE

Road Marking
Peter Berghaus GmbH
Rotair Spa

ROAD BUILDING EQUIPMENT
Bobcat
Caterpillar SARL
Doosan Portable Power
Liebherr-Export AG

Rollers
Caterpillar SARL

Sand Blasting Equipment
Doosan Portable Power
Rotair Spa

SCAFFOLDING
Sucoot Co., LTD
Wilhelm Layher GmbH & Co KG

Scrapers
Caterpillar SARL
Trelawny Spt Ltd.

Services
URBAN CANOPEE

Site Dumpers
Caterpillar SARL

Skidsteer Loaders
Balkrishna Industries Ltd. (BKT)
Bobcat
Caterpillar SARL

Submersible
PEDROLLO GROUP

Telescopic Handlers
Bobcat

Temporary Housing and Offices
URBAN CANOPEE

SENSORS
VEGA Technique

TOOLS
Conren Ltd.
Doosan Portable Power
Hi-Force Ltd.

Tools - Other
Hi-Force Ltd.

Tractors
Astra Veicoli Industraili SpA
Caterpillar SARL

Tunnelling
Liebherr-Export AG

ULTRASONIC SYSTEMS
VEGA Technique

URBAN DESIGN & LANDSCAPE
Urban Canopee

USED EQUIPMENT
Caterpillar SARL
OK TRUCKS
Visa S.p.A.
Vortex Hydra S.r.l.

Welding Equipment
Kohler Power Systems EMEA
Linz Electric S.p.A.

Section Two: Suppliers of construction & mining equipment and Services

Astra Veicoli Industraili SpA

Via Caorsana 79
Piacenza PC
29122
Italy
Tel: +39 0523 543379
Fax: +39 0523 591773
Web: www.iveco-astra.com
E-mail: info@astraspa.com

A premium manufacturer of construction, mining, oil & gas and heavy haulage off-road vehicles, ASTRA has more than 70 years' experience building machines for the global construction sector. It develops robust, reliable and versatile trucks that include heavy trucks for heavy missions of over 60-ton gross vehicle weight and specialized vehicles.

Agents:
United Arab Emirates - IVECO - Dubai Regional Representative Office

Balkrishna Industries Ltd. (BKT)

BKT House, C-15
Trade World
Kamala Mills Compound
Lower Parel
Mumbai
400013
India
Tel: +91 22 66663800
Fax: +91 22 66663898
Web: www.bkt-tires.com
E-mail: mena@bkt-tires.com

BKT is one of the global leaders in the 'off highway' tires segment which includes Industrial & Construction, Earthmoving, Agriculture and Lawn & Garden application. For more details, please visit the website www.bkt-tires.com

Bobcat

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Cluster I, Level 18, Office 1802
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Web: www.bobcat.com
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Agents:
Bahrain - Yusuf Bin Ahmed Kanoo Co. WLL
Egypt - Otrac Heavy Equipment
Iraq - Vara Company for General Trading LTD
Kuwait - Bahrah Trading Co. WLL
Libya - Danah for Import of Road Equipment and Heavy Machinery
Oman - International Heavy Equipment LLC
Qatar - Jaidah Motors & Trading Co.
Saudi Arabia - General Trading & Equipment
United Arab Emirates - Kanoo Machinery LLC
Yemen - Blue Triangle Trading LTD

Cat Lift Trucks

Hefbrugweg 77, Almere
1332 AC, Netherlands
Tel: +31 36 5494411
Web: www.catlifttruck.com
E-mail: info@catlifttruck.com

Agents:
Bahrain - Mohamed Abdulrahman Al-Bahar Bahrain
Iraq - Mantrac Group Iraq (Cat)
Jordan - Jordan Tractor & Equipment Co. Ltd. (Cat)
Kuwait - Mohamed Abdulrahman Al-Bahar Kuwait
Lebanon - M. Ezzat Jallad & Fils (Lebanon)
Oman - Oasis Trading & Equipment Co. LLC
Qata - Mohamed Abdulrahman Al-Bahar Qatar
Saudi Arabia - Zahid Tractor & Heavy Machinery Co. Ltd.
United Arab Emirates - Mohamed Abdulrahman Al Bahar Al Ain
Yemen - The Tehama Trading Co. (CAT Lift Trucks)

Caterpillar SARL

PO Box 262147
Jebel Ali Free Zone (South)
Dubai
United Arab Emirates
Tel: +971 4 8106464
Fax: +971 4 8106465
Web: www.cat.com

Agents:
Bahrain - Mohamed Abdulrahman Al-Bahar Bahrain
Egypt - Mantrac SAE
Iraq - Iraqi Co. for Machinery and Equipment Service (Cat SRL)
Jordan - Jordan Tractor & Equipment Co. Ltd. (Cat)
Kuwait - Mohamed Abdulrahman Al-Bahar Kuwait
Lebanon - M. Ezzat Jallad & Fils (Lebanon)
Morocco - Tractrafric Equipement
Oman - Oasis Trading & Equipment Co. LLC
Qatar - Mohamed Abdulrahman Al-Bahar Qatar
Saudi Arabia - Zahid Tractor & Heavy Machinery Co. Ltd.
Tunisia - Parenin
United Arab Emirates - Mohamed Abdulrahman Al Bahar
Yemen - Tehama Trading

Ciber Equipamentos Rodoviários Ltda

Rua Senhor do Bom Fim, 177
Porto Alegre/RS
CEP: 91140-380
Brazil
Tel: +55 51 33649200
Web: www.ciber.com.br
E-mail: ciber@ciber.com.br

In Porto Alegre - Brazil, CIBER Equipamentos Rodoviários, has been located for more than 60 years. Pioneer in the development of mobile counterflow asphalt plants, keeping up to the present day always on the cutting edge, launching new technologies and products. CIBER - A Wirtgen Group Company.

Agents:
Ciber Equipamentos Rodoviários Ltda.

Conren Ltd.

Unit 1 The Bridge Business Centre
Ash Road South
Wrexham Industrial Estate
Wrexham, LL13 9UG
United Kingdom
Tel: +44 1978 661991
Fax: +44 1978 664664
Web: www.conren.com
E-mail: exports@conren.com

Established in 1971 Conren are UK manufactures and exporters of construction materials including waterproofing membranes, epoxy resin coatings and screeds, anti-skid resins for highways and external decorative resin bound and bonded surfacing.

Agents:
United Arab Emirates - Al-Shirawi Contracting Co. LLC

Cummins Middle East FZE

PO Box 17636
South Zone 2, Jebel Ali Free Zone
Dubai
United Arab Emirates
Tel: +971 4 8809911
Fax: +971 4 8860518/9
Web: www.middleeast.cummins.com
E-mail: cummins.middleeast@cummins.com

For 100 years, Cummins' technology has powered success around the world. Our comprehensive portfolio delivers innovative solutions for your unique power need - commercial, industrial, marine, mining, recreational, emergency and residential. Products include diesel engines ranging from 49 to 5,500 hp, diesel and gas powered generator sets ranging from 15 to 3750 kVA, alternators, generator-drive engines and integrated power systems, combining generator sets and power control and transfer technologies. Services range from system design, project management, operations and maintenance contracts to the development of turnkey power plants. With more than 9,000 dealer and distributor locations with service to approximately 190 countries and territories, we offer global capabilities and local support wherever and whenever you need us. Cummins technologies and employees are powering a world that's always on..

Deep Sea Electronics Ltd

Highfield House, Hunmanby
Industrial Estate
Hunmanby, North Yorkshire
YO14 0PH
United Kingdom
Tel: +44 (0) 1723 890099
Web: www.deepseaelectronics.com
E-mail: sales@deepseaelectronics.com

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Agents:
United Arab Emirates - Deep Sea Electronics (DMCC Branch)

Doosan Portable Power

PO Box 262688
JLT Platinum Tower
Cluster I, Level 18, Office 1802
Dubai, United Arab Emirates
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Fax: +971 4 2767204
Web:
www.doosanportablepower.com
E-mail: gaby.rhayem@doosan.com

Doosan Portable Power is a market leading manufacturer of portable compressors, generators and mobile lighting systems for the Middle East market. All Doosan Portable Power products are designed and rigorously tested to ensure they give outstanding operation on the toughest sites and in the most extreme conditions around the world, for applications in construction, roads, utilities, rental, quarrying and many other industries.

Agents:
Bahrain - Mohammed Jalal & Sons WLL
Egypt - Otrac Heavy Equipment Co. (Doosan Portable)
Ethiopia - My Wish Enterprises PLC
Iraq - VARA machinery
Jordan - Toolbox
Kuwait - Bahrah Trading Co. WLL
Libya - Gunny Oilfield Services
Mauritius - Prime Plant Company Limited
Oman - General Engineering Services (GENSERV)
Qatar - Jaidah Group
Saudi Arabia - Saudi Diesel Equipment
Saudi Arabia - The Machinery Group LLC
United Arab Emirates - Al Futtaim Auto & Machinery Co. LLC
Yemen - Blue Triangle Trading LTD

Eland Cables

120 Highgate Studios
53-79 Highgate Road
NW5 1TL, United Kingdom
Tel: +44 20 72418787
Web: www.elandcables.com
E-mail: sales@elandcables.com

An established global cable supplier, Eland Cables works on prestigious projects across demanding industries including Oil & Gas, Rail, Power Transmission, and Industrial Automation, with a portfolio covering power, data, control and instrumentation cables and accessories.

ENEXIO Water Technologies Gmbh

Robert-Bosch-Str. 2a
Huerth, 50354, Germany
Tel: +492233 39828 0
Fax: +49 2233 39828 20
Web: www.enexio-water-technologies.com
E-mail: info@enexio-water-technologies.com

ENEXIO Water Technologies provides solutions for water, wastewater and air treatment, for cooling towers and agricultural engineering and fishfarming. As expert for structured packings and lamella packs, we support our industrial and municipal customers worldwide in the planning and engineering of efficient plants.

Agents:
Egypt - Orbis Trading
United Arab Emirates - KELVION FZCO

Hi-Force Ltd.

Prospect Way, Daventry
Northants, NN11 8PL, UK
Tel: +44 1327 301000
Fax: +44 1327 706555
Web: www.hi-force.com
E-mail: daventry@hi-force.com

Hi-Force is the UK's leading manufacturer and supplier of hydraulic tools and bolting equipment, and offers a wide range of products suitable for use in several industries worldwide.

Agents:
Saudi Arabia - Jassem Ibrahim M. J Al Shikar Est.
United Arab Emirates - Ebrahim Al Shaker Industrial Equipment Trading LLC
United Arab Emirates - Hi-Force FZE
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John Deere Power Systems

Unité d'Orléans-Saran, 1 rue John Deere
Fleury les Aubrais Cedex, 45401, France
Tel: +33 2 38826119
Fax: +33 2 38846266
Web: www.johndeere.com
E-mail: jdengine@johndeere.com

John Deere Power systems develops, manufactures and markets diesel engines for a large variety of generator sets, compressors, industrial and agricultural applications. John Deere is one of the very few engine manufacturers that doesn't make gen-sets, this makes us unbiased partners with gen-set OEMs, offering them a robust power generation line-up from 30 to 500 kVA.

Agents:
Egypt - Orascom Trading SAE
Lebanon - Ghaddar Machinery Co.
Oman - General Engineering Services Est
Saudi Arabia - Electrical Work & Maintenance
Turkey - AKSA Servis Ve Yedek Parca AS
United Arab Emirates - GENAVCO
Yemen - Abu Alrejal Trading Corporation

Jubaili Bros

Jebel Ali Free Zone
United Arab Emirates
Tel: +971 4 8832023
Fax: +971 4 8832053
Web: www.jubailibros.com
E-mail: jbdubai@jubailibros.com

Jubaili Bros with over 40 years of experience, is a leading provider of Power Solutions in the Middle East, Africa and Asia. Jubaili Bros serves its customers by offering high quality diesel generating sets through 10 countries with 3 manufacturing plants and 29 branches & service centers that are dedicated to customer satisfaction.

Agents:
Kuwait - Jubaili Bros (Kuwait)
Lebanon - Jubaili Bros (Lebanon)
Qatar - Jubaili Bros WLL

Kirby Building Systems

PO Box 23933
Safat 13100
Kuwait
Tel: (965) 23262800
Fax: (965) 23261793
Web: www.kirbyinternational.com
E-mail: Kirby@alghanim.com

PO Box 6624
Al Jazeera Industrial Area II
Ras Al Khaimah
Tel: (971) 7204 3333
Fax: (971) 7244 7830
Web: www.kirbyinternational.com
E-mail:
kirbymarketing@alghanim.com

Kirby Building Systems, having HQ at Kuwait, is a global leader in Pre-Engineered Steel Buildings (PEB). In operation since 1976, Kirby maintains a strong reputation for providing cost effective solutions for Steel buildings, manufactured to the highest standards across its 5 plants at Kuwait, RAK, Hyderabad, Haridwar and Vietnam.

Kohler Power Systems EMEA

270 rue de Kerervern
29490 Guipavas, 29801, France
Tel: +33 2 98414141
Fax: +33 2 96416307
Web: www.kohler-sdmo.com

SDMO Industries is one of the world's leading generating set manufacturers. A wide range of standard products from 1 kVA to several megawatts through an efficient engineering department meets non-standard requirements. Present in over 150 countries through a dense network, SDMO Industries devotes its energy to supporting you in the successful completion of each of your projects worldwide.

Agents:
United Arab Emirates - KPS-SDMO Middle East

Liebherr-Export AG

General-Guisan-Straße 14
Nussbaumen, 5415
Switzerland
Web: www.liebherr.com
www.facebook.com/LiebherrConstruc
E-mail: info.lex@liebherr.com

The Liebherr Group comprises more than 140 companies in every continent of the world and employs a workforce of more than 47,000 people. In 2020, the Liebherr Group achieved a total consolidated turnover of more than 10.03 billion Euros. The Liebherr Group's Holding Company is Liebherr-International AG in Bulle, Switzerland, which is entirely owned by members of the Liebherr family.

Lintec & Linnhoff Holdings Pte Ltd

71 Tech Park Crescent
Singapore 638072
Tel: 68631111
Fax: 68633811
Web: www.lintec-linnhoff.com
E-mail: info@lintec-linnhoff.com

Lintec & Linnhoff is a global manufacturer and distributor of leading-edge solutions for the asphalt and concrete industries under the Lintec, Linnhoff and Eurotec brand names. Its products include asphalt mixing plants, concrete batching plants, pavement related technologies and machinery, and specialist concrete cooling solutions. The company's key technologies include Lintec's containerised asphalt and concrete batching plants built in 100% certified ISO sea containers and Linnhoff's screen drum technology.

Agents:
Lebanon - Lintec & Linnhoff Maschinen Pte Ltd

Linz Electric S.p.A.

Viale del Lavoro, 30
Arcole (VR), 37040, Italy
Tel: +39 045 7639201
Fax: +39 045 7639202
Web: www.linzelectric.com
E-mail: info@linzelectric.com

Linz Electric S.p.A. is specialized in the production of alternators from 1.7 kVA up to 1500 kVA and rotating welders up to 500Amps. The main focus of Linz Electric is the customer's satisfaction through the top product quality, quick and complete service.

Mahindra Powerol - Mahindra & Mahindra Ltd.

FES, Gate No. 2 Akurli Road
Kandivali East, Mumbai, 400101
India
Tel: +91 8451844155
Web: www.mahindrapowerol.com
E-mail: shelke.krunal@mahindra.com

Mahindra Powerol is a part of USD 19.3 billion Mahindra Group's Automotive & Farm Equipment Sectors (AFS). The company entered the field of Power Generation in 2001-2002, Starting FY2002, the business has grown exponentially. Today we have a diesel Generator range ranging from 5kVA to 625kVA, wherein up to 300kVA the units are made with Robust Mahindra Engines. Mahindra enjoys a leadership position in utility vehicles, information technology, financial services and vacation ownership in India and is the world's largest tractor company, by volume. It also enjoys a strong presence in agribusiness, aerospace, commercial vehicles, components, Defence, logistics, real estate, Power, speedboats and steel, amongst other businesses. Headquartered in India, Mahindra employs over 2,40,000 people across 100 countries.

Agents:
Kuwait - Agrims Projects Services General Trading & Contracting Co.
Qatar - Mannai Trading Co. WLL

MB Crusher

Via Astico 30/A
Fara Vicentino (VI), Italy
Tel: +39 0445 308148
Fax: +39 0445 308179
Web: www.mbcrusher.com
E-mail: info@mbcrusher.com

Italian company MB Crusher manufactures attachments for excavators and loaders for the recovery and recycling of inert waste at low costs and with minimal environmental impact. MB Crusher machines make it easy to complete the recycling cycle directly on site, simplyfing the operations of crushing, screening and handling of materials.

OK TRUCKS

IVECO SPA
Via Puglia 35- Turin
10156
Italy
Tel: +39 011 0072111
Web: www.oktrucks.com

OK TRUCKS offers second-hand trucks for sustainable long-haul transport and commercial vehicles for urban missions. Our vehicles are inspected in Europe with 120 points of check. A professional team supports our customers on the choice of the most suitable solution according to their business application to get the best value for money.

Distributors:
Jordan - Global Brand For Trucks Ltd.
Libya - EDRI Import IVECO Trucks and Spare Parts
Saudi Arabia - Arabian Auto Agency Company W.L.L. - Jeddah
United Arab Emirates - GHASSAN ABOUD GROUP
United Arab Emirates - United Alsaqer Heavy Equipment L.L.C.

PEDROLLO GROUP

Via Enrico Fermi 7 - 37047
San Bonifacio (VR) - Italy
Web: www.pedrollogroup.com
E-mail: info@pedrollogroup.com

UAE Branch
PEDROLLO GULF FZE
Dubai Airport Freezone
Building 4E – Block A Office No.624
Dubai, U.A.E, P.O. BOX 293533
Tel: +971 470 17 803, 7 804, 7 805
Fax: +971 470 17 806
E-mail: sales@pedrollodxb.ae

The Pedrollo Group, founded in San Bonifacio (VR, Italy) in 1974 operates in the sector of water handling, energy transformation and applied technology and, thanks to the activities of the founding company Pedrollo Spa, it is recognised among the world leaders in the production of electric water pumps. It exports most of its production to over 160 countries with its 10 commercial branches.

Perkins Engines Company Limited.

Frank Perkins Way
Peterborough
Cambridgeshire
PE1 5FQ
United Kingdom
Tel: +44 1733 583000
Web: www.perkins.com
E-mail: info@perkins.com

A world-leading supplier of off-highway diesel engines in the 4-2000kW market, Perkins has 85+ years' experience of designing, building and servicing industrial power solutions. Working in collaboration with 800+ equipment manufacturers in the construction, agricultural and power generation markets, we tailor our engines to meet their needs and exacting standards.

Agents:
United Arab Emirates - Power Systems Gulf LLC (Perkins Engines)

Peter Berghaus GmbH

Herrenhoehe 6
Kuerten, 51515
Germany
Tel: +49 2207 96770
Fax: +49 2207 967780
Web: www.berghaus-verkehrstechnik.de
E-mail: mail@berghaus-verkehrstechnik.de

Peter Berghaus GmbH - Well known manufacturer of innovative safety products for working zones from Germany. Portable traffic lights, mobile barrier systems, warning lights and warning trailers - All you need for safety on your road construction site.

Rockwell Automation

PO Box 45235
Al Wahda Commercial Tower - City Tower 1
18th Floor, Sheikh Hazaa Bin Zayed The 1st Street
Abu Dhabi
United Arab Emirates
Tel: +971 2 6948100
Fax: +971 2 6948199
Web: www.rockwellautomation.com

Rotair Spa

Via Bernezzo
67 12023
12023,
Caraglio (CN)
Italy
Tel: +971 50 2600 482
Fax: +971 6 557 9980
Web: www.rotairspa.com
E-mail: jayanthan@rotairspa.com

ROTAIR S.p.A is an Italian manufacturer of Portable Screw Air Compressors. Since its inception in 1961, the company is specialized in design and manufacturing of highly efficient and reliable screw compressors. Today ROTAIR compressors are supporting customers in 70 + countries to meet their demanding business needs in the most efficient way.

- Product range: 25 – 900 CFM / 7 – 14 bar
- Airend: Manufactured in-house
- Engines used: Perkins-UK, Kubota-Japan, Honda-Japan, Deutz-Germany and Cummins-UK
- Version: Diesel, Petrol and Hydraulic

SAB, Standard Aggregatebau Evers GMBH & CO. KG

Oststraße 11
D-22844 Norderstedt, Germany
Tel: +4940/ 522 50 110
Fax: +4940/ 522 50 11 44
Web: www.generatingset.com
E-mail: info@generatingset.com

Reputable German manufacturer of custom-built diesel-driven generating sets from 50 to 8000 kVA in stationary, transportable or mobile executions for standby, peak load or base load applications world-wide. Main competencies are the planning, designing, manufactur-ing, installation and servicing of global plant constructions under consideration of individual customer and project requirements.

Sucoot Co., LTD

No. 1836, Sec. 4, Taiwan Blvd
Taichung, 40764, Taiwan
Tel: +886 4 23598338
Fax: +886 4 23598480
Web: www.sucoot.com
E-mail: info.ws@sucoot.com

SUCOOT CO., LTD. established in 1984, in Taiwan.We not only supply scaffold and formwork materials but also provide the technical service to customers spreading over 70 countries around the world. Our products meet international standards with ISO-9001, EN 12810-1, ANSI/ASSE A10.8 and AS/NZS 1576.2&3 certificates.

Teksan Generator

Yenidogan Mah. Edebali Cd. No: 12
Sancaktepe, 34791, Turkey
Tel: +90 444 8576 /
+90 216 312 0550
Fax: +90 216 3126909
Web: www.teksan.com
E-mail: info@teksan.com

Agents:
Egypt - Rich Uni
Iraq - KM Company
Libya - Belhaj International Company
Saudi Arabia - ABDUL LATIF JAMEEL MACHINERY

Trelawny Spt Ltd.

Trelawny House
13 Highdown Road
Leamington Spa
CV31 IXT, United Kingdom
Tel: +44 1926 883781
Fax: +44 1926 450352
Web: www.trelawnyspt.com
E-mail: sales@trelawny.co.uk

Trelawny Spt Ltd. is an independent manufacturer of pneumatic tools and surface preparation equipment operating from its headquarters in the engineering heart of the UK in Leamington SPA. For over 60 years Trelawny has been offering a range of equipment for the preparation of concrete, steel and stone in various industries.

Trident Technology Services

Middle East & Africa
Web: www.itrident.com
E-mail: info@itrident.com

Trident Technology Services helps customers address their most critical business challenges by delivering comprehensive information and communication Technology, AV, security, electrical and industrial solutions. Trident technology Services is a world-class Representative firm providing sales, marketing, channel and technical services for international technology manufacturers across the Middle east & Africa, including Panduit, Atlona, and Fluke Networks.

URBAN CANOPEE

CANOPEE STRUCTURES SAS
2 bis rue Alfred Nobel
Champs sur Marne, 77240, France
Tel: + 33 6 33 08 04 03
Web: www.urbancanopee.com
E-mail: olivier.lucotte@urbancanopee.fr

VEGA Technique

Al- khaimah Building
North Entrance, Al Ittihad Road
Deira, DUBAI, United Arab Emirates
Tel: +971 4 294 7552
Fax: +971 4294 7554
Web: www.vega.com
E-mail: info.ae@vega.com

Vega is a German manufacturer of level and pressure instruments for all applications such as in the chemicals, oil & gas, energy, water & waste water, bulk solids, food, pharmaceuticals…

VEGA develops innovative sensors that offers maximum safety and reliability: Guide Wave Radar, Free space Radar, Radiation based technologies, Pressure and Differential Pressure Transmitters etc..

Visa S.p.A.

Via 1° Maggio, 55
Fontanelle (TV), 31043, Italy
Tel: +39 0422 5091
Fax: +39 0422 509350
Web: www.visa.it
E-mail: visa@visa.it

Visa S.p.A is one of the world's leading genset suppliers, based in Italy, designing and manufacturing diesel gensets, from 9 to 3000 kVA, in standard or customized versions for a large variety of applications. It also provides specific equipment for the construction sector (such as mobile site pumps for dewatering and sewage). It is present in over 90 countries through a global network to support in the successful completion of projects through an efficient engineering department, guaranteeing a highly operational flexibility and qualitative standards for which it has become a leader in the market for more than 60 years.

Volvo Penta

Gothenburg
40508
Sweden
Tel: +46 31235460
Fax: +46 31508187
Web: www.volvopenta.com
E-mail: info.volvopenta@volvo.com

Volvo Penta, with approximately 4,000 dealers in over 130 countries, is a world-leading and global manufacturer of engines and complete power systems for both marine and industrial applications. The engine programme comprises diesel and gasoline engines with power outputs of between 10 and 900hp. Volvo Penta is part of the Volvo Group, one of the world's leading manufacturers of trucks, buses and construction equipment.

Agents:
Bahrain International Agencies Co. Ltd.
Egypt - Orascom Trading SAE HQ
Iraq - Inma
Jordan - Mithkal, Shawkat & Sami Asfour Co.
Kuwait - Al Boom Marine Co.
Lebanon - Khonaysser Motors
Libya - LIBTRAC
Oman - Muscat Overseas Industrial & Marine Equipment Trading Co. LLC
Qatar - Al-Badi Trading & Contracting Co. Ltd.
Saudi Arabia - Alkhorayef Commercial Co. Ltd.
Tunisia - SC Bateaux De Plaisance et de Peche Bateaumed
United Arab Emirates - Al Masaood Trucks, Equipment & Marine Engines Division

Vortex Hydra S.r.l.

Via Argine Volano 355
Fossalta di Copparo (FE)
Italy
Tel: +39 0532 879411
Fax: +39 0532 866766
Web: www.vortexhydra.com
E-mail: vh.sales@vortexhydra.com

Based in Italy, Vortex Hydra have obtained the enviable reputation of being world leaders in the specialist field of concrete roof tile manufacture. Renowed for their "state of the art" large scale, fully automatic production plants, the company has applied its expertise in developing the Uno System lower volume affordable plants.

Wilhelm Layher GmbH & Co KG

PO Box 40
Gueglingen - Eibensbach
74361
Germany
Tel: +49 71 35700
Fax: +49 71 3570265
Web: www.layher.com
E-mail: info@layher.com

Layher is the world's leading manufacturer of scaffolding and protective systems. For more than 75 years the Layher brand has been synonymous with proven safety, ground-breaking innovation, exceptional quality and complete dependability. With its global presence, Lahyer can make its expertise and experience available wherever they are needed.

Agents:
United Arab Emirates - Advanced Scaffold Trading LLC - Member of Layher Group
United Arab Emirates - Layher FZE

Yanmar Europe B.V.

Brugplein 11, 1332 BS, Almere
Netherlands
Tel: +31 36 54 93 200
Web: www.yanmarindustrial.eu
E-mail: industrial-yeu@yanmar.com

YANMAR is a global brand and leader in design & manufacturing of advanced performance diesel engines and final equipment for agricultural,construction,energy systems, industrial & marine applications.

Agents:
Algeria - Ferhah Motors
Angola - Anglobal
Bahrain - M. H. Al Mahroos BSC ©
Egypt - Ahmed Daoud
Kuwait - AL SULTAN & KHALAF
Lebanon - STAUNCH MACHINERY
Morocco - Dron Maroc
Oman - Oman Marketing and Services Company LLC
Qatar - Oriental Trading Co. Ltd.
Saudi Arabia - Abdullah Hashim Co. Ltd.
Tunisia - Sotradies
United Arab Emirates - Al-Futtaim Auto & Machinery Co. LLC (FAMCO)

Section Three: Agents, distributors and subsidiaries within the MENA region

ALGERIA

Ferhah Motors

cité les Mandarines lot n° 01
Groupe 213
Mohammadia - Alger
Tel: +213661521662
Web: www.ferhahmotors.com
E-mail:
ferhahmotors@ferhahmotors.com

ANGOLA

Anglobal

Smart Village Talatona - Zone
via Al 19 A
Talatona - Luanda
Tel: +244937222181/
+244917 534 925
Web: www.anglobal.co.ao
E-mail: comercial@anglobal.co.ao

BAHRAIN

AJM Khooheji and Sons

PO Box 74
Manama
Tel: +973 39944644
Email: :
sanjeevawasthi@ajmkooheji.com

International Agencies Co. Ltd.

PO Box 584 310
Al Khalifa Avenue
Manama 310
Tel: +973 728691
Fax: +973 728412
E-mail: sm-service@intercol.com

M. H. Al Mahroos BSC ©

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Manama
Tel: +973 17408090 / +973
39462449
Fax: +973 17404323
E-mail: ajit@almahroos.com

Mohamed Abdulrahman Al-Bahar Bahrain

PO Box 5357
Building 1207
Road 4625
Al-Nuwaidrat
Manama
Tel: +973 17 705177
Fax: +973 17 704710
Web: www.albahar.com
E-mail: web.inquiry@albahar.ae

Mohammed Jalal & Sons WLL

PO Box 747
Manama
Tel: +97317707070, +97317252606
E-mail: vilas_deshmukh@jalal.com

Yusuf Bin Ahmed Kanoo Co. WLL

PO Box 45
Manama
Tel: +973 17 738227,
+973 17 738200
Fax: +973 17 738240
Web: www.psgulf.com
E-mail:
osama.abdulkarim@kanoo.com

EGYPT

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Web: www.ahmeddaoud.com
E-mail: alifarghaly@ahmeddaoud.com

Mantrac SAE

PO Box 1054
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21111
Tel: +20 3 4541000
Web: www.mantracegypt.com
E-mail: info@mantrac.com.eg

Orascom Trading SAE

120, 26th July Street
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Tel: +20 2 334 52510
Fax: +20 2 334 73191
Web: www.orascom.com
E-mail: marianm@orascom.com

Orbis Trading

P.O Box 86
M518 cairo
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Tel: +202 2390005
Fax: +202 23926036
E-mail: mail@orbistrading.net

Otrac Heavy Equipment

Ardel-Kanoneyeen-Ring Road
Al-Salam City
Cairo
Tel: +202 26977799 , +202 21838999
E-mail: mai@otrac.com.eg

Otrac Heavy Equipment Co. (Doosan Portable)

Ardel - Kanoneyeen, Ringroad
El-Salam City
Cairo
Tel: +20 221838999
E-mail: mhassan@otracheavy.com

Rich Uni

8 Kasr El Nile St.
Giza
Egypt
Tel: + 202 25799711/75
Web: www.richuni.com
E-mail: m.azmy@richuni.com

ETHIOPIA

My Wish Enterprises PLC

Addis Ababba
Tel: +25 1114663920
E-mail: husa_seifu@yahoo.com

IRAQ

Inma

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Erbil
Tel: +964 66 2569888
E-mail: info@ittihadia.com

Iraqi Co. for Machinery and Equipment Service (Cat SRL)

Hamadan Industrial Zone
Basra
Al Basrah
61101
Tel: +964 7 901949995
Web: www.iratrac.com
E-mail: info@iratrac.com

KM Company

Kirkuk str
opposite of science college Er
Tel: +964 770 445 4027
E-mail: govand@sofy-group.com

Mantrac Group Iraq (Cat)

Dist. 923 St. 29, Bldg 76
Bagdad University St
Al Jaderia
Baghdad
Tel: +964 1 7783783
Fax: +964 1 7786714
Web: www.iratrac.com

Vara Company for General Trading LTD

62 Street, Al Karrada
Baghdad
Tel: +964 (750) 470 8090 / 783 5011
Web: www.varamachinery.com
E-mail: haidar@varamachinery.com

VARA machinery

Vara HQ, 8KM Rd.
Kirkuk Rd.
44001
Erbil
E-mail: rebeen@varamachinery.com

JORDAN

Global Brand For Trucks Ltd.
4 Iqtisad Street, Wadi Seer In
P.O.Box 852043 - Amman
Tel: +962 65866114
Web: www.gbtjordan.com

Jordan Tractor & Equipment Co. Ltd. (Cat)
PO Box 31
60, Queen Rania Street
Amman
11118
Tel: +962 6 5161141
Fax: +962 6 5161150
Web: www.jordantractor.com
E-mail: jtecmgmt@jtec.com.jo

Mithkal, Shawkat & Sami Asfour Co.
Jabal Amman
19 Outhman Bin Afan St.
Amman
11118
Tel: +962 6 4651989
Fax: +962 6 4649636
E-mail: asfourlive@umniahlive.net

Toolbox
Sahrah Mosharfeh Street
Prince Hasan Street
Negem Complex
Tel: +962 6 4773001
E-mail: e.khateib@toolbox.com.jo

KUWAIT

Agrims Projects Services General Trading & Contracting Co.
65452
Tel: +965 23712217
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Al Boom Marine Co.
PO Box 42188
Shuwaihk
70652
Tel: +965 24830474/24830570
Fax: +965 24838293
E-mail: boomkwt@kuwait.net

AL SULTAN & KHALAF
P.O.Box 42130
Al Mowasalat Street
Shuwaikh
70652
Tel: +965-24646666
Fax: +965-24838071
E-mail: fadi@sultan-khalaf.com

Bahrah Trading Co. WLL
PO Box 5869, Street 22
Al Rai Industrial Area
Safat
13059
Tel: +965 1803803
E-mail: mbiju@alsayergroup.com

Jubaili Bros (Kuwait)
Shuwaikh Industrial 2
Block 1,str 17
Asyawiah bldg
Tel: +965 24610356
Web: www.jubailibros.com
E-mail: jbkuwait@jubailibros.com

Mohamed Abdulrahman Al-Bahar Kuwait
PO Box 148, Shuwaik Port Area
Sector No. 3, Block No. 32
Street No. 105
Safat
13002
Tel: +965 2 4810855
Fax: +965 2 4836866
Web: www.albahar.com
E-mail: info@albahar.ae

LEBANON

Ghaddar Machinery Co.
P.O. Box - 110 Sidon
Tel: +961 7 220 000
Fax: +961 7 221 754 / 223 322
Web: http://www.ghaddar.com
E-mail: info@ghaddar.com

Jubaili Bros (Lebanon)
Sidon
Tel: +961 7 730871
Fax: +961 7 720813
Web: www.jubailibros.com
E-mail: jblebanon@jubailibros.com

Khonaysser Motors
Naher El Mott
Main Road
Tel: +961 1 870078
Fax: +961 1 874795
Web: www.khonaysser.com
E-mail: info@khonaysser.com

Lintec & Linnhoff Maschinen Pte Ltd
Tel: +961 71 195 440
Web: www.lintec-linnhoff.com
E-mail: tony.chakra@lintec-linnhoff.com

M. Ezzat Jallad & Fils (Lebanon)
PO Box 110208
Riad Solh, Beirut
1107 2020
Tel: +961 9 212077
Fax: +961 9 212073
Web: www.jalladlebanon.com
E-mail: info@jallad.com.lb

STAUNCH MACHINERY
Staunch Machinery
Ghazieh main road
Saida
Tel: +961-7222022 / +961-70932004
E-mail: hamza@staunchmachinery.net

LIBYA

Belhaj International Company
Coastal road Next the Engineer
Misurata
PO Box 2426
Tel: +218 91-3226474/+218512654101
E-mail: t.a.belhaj@gmail.com

Danah for Import of Road Equipment and Heavy Machinery
Sharikat Street
Main Post Office
Bohdaima – Benghazi
Tel: +218 912120464
E-mail: ramadan.kadiri@danah.ly

EDRI Import IVECO Trucks and Spare Parts

Gunny Oilfield Services
9 Km. Suani Road
Tripoli Main Post Office
Tripoli
91043
Tel: +218 21 4815684/5/6
Web: www.gunnylibya.com
E-mail:
Samir.Elhadadi@gunnylibya.com

LIBTRAC
Kremia
Swani Road
Km 11
Tripoli
Tel: +218 91 3815460

MAURITIUS

Prime Plant Company Limited
6, Royal Roar
Cormandel
Tel: +230 2331736
E-mail: sales@ppcl.mu

MOROCCO

Dron Maroc
Zone 1 de NOUACER
Lotissement SAPINO Lots 54-55
Casablanca
Tel: +212522014678
Web: http://www.dron.ma/
E-mail: contact@dron.ma

Tractrafric Equipement
Route Desserte des Usines
KM11 6 Autoroute Casa-Rabat
Ain Sebaa Grd Casablanca
20250
Tel: +212 2 2763000
212 2 2763000
Web: www.tractafric-equipment.com
E-mail: tamcasa@magrebnet.net.ma

OMAN

Aspire
PO Box 533
Tel: +965 24525622/99713034
Email:
rajesh.khanna@aspireoman.com

General Engineering Services (GENSERV)
P.O. Box:2690
Postal Code:112 Ruwi
Tel: + 968- 24490755
E-mail: wisam.salamah@genserv-oman.com

International Heavy Equipment LLC
PO Box 800
Seed Al Rumaillah Street
Sultan Qaboos
Azaiba, Muscat
111
Tel: +968 24503999
Fax: +968 24597999
E-mail: rajeshmenon@ihe-oman.com

Muscat Overseas Industrial & Marine Equipment Trading Co. LLC
Al Maridh Street
Bldg No.155-157
Muttrah 114
Tel: +968 24597950
Fax: +968 24597934
E-mail:
moimetco@muscatoverseas.com

Oasis Trading & Equipment Co. LLC
PO Box 2, Al Ma'arid Street
Bldg. No. 25, Way No. 61
Block No. 250, Azaiba
Rounabout, Jibroo
Muscat, 114
Tel: +968 2450 9000
Fax: +968 2450 9001
Web: www.albahar.com
E-mail: info@albahar.ae

Oman Gulf Enterprise
PO Box 421
Al Harthy Complex
Tel: +968 24797308/97474505
Email: narenderk@otegroup.com

Oman Marketing and Services Company LLC
Wattayah
Tel: + 968 24665782 / + 968 993283
Fax: +968 24562813
E-mail: Rajan.M@alfuttaim.com

QATAR

Al-Badi Trading & Contracting Co. Ltd.
PO Box 3915
Doha
Tel: +974 4 320715
Fax: +974 4 442888
E-mail: albadi@qatar.net.qa

Jaidah Motors & Trading Co.
Doha
150
Tel: +974 70166019
Fax: +974 4 4553153
E-mail: nigel.johnson@jaidah.com.qa

Jubaili Bros WLL
Doha
Tel: +974 4 4160121
Fax: +974 4 4162257
Web: www.jubailibros.com
E-mail: jbqatar@jubailibros.com

LG Qatar Office
PO Box 10480
Jaidah Square Building Airport Road
Doha
Tel: +974 66817241
Email: : gilbert.koussa@lge.com

Mannai Trading Co. WLL
PO Box 76
Ramada Junction Salwa Road
Industrial Supplies & Building Materials (ISBM), Doha
Tel: +974 4 4076000
Fax: +974 4 4076349
Web: www.mannai.com
E-mail: Manal.Jradi@mannai.com.qa

Mohamed Abdulrahman Al-Bahar Qatar
PO Box 2171
Gate No.16, Street No.15
Doha Industrial Area
Doha
Tel: +974 4600222
Fax: +974 4600225
Web: www.albahar.com
E-mail: info@albahar.ae

Oriental Trading Co. Ltd.
1st Floor, E Block,
Salwa Road, Al Waab Area,
Doha
Tel: +974 4 4466375
Fax: +974 4 4433573
E-mail: cherry@otcpr.com

SAUDI ARABIA

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P. O. Box 12630, Haramain Road
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Jeddah
21483
Tel: +966 12 2853770
Web: www.aljmachinery.com
E-mail: mizyenas@alj.com

Abdullah Hashim Co. Ltd.
PO Box 44
Jeddah-21411
Tel: +966 12 647 2200 – Ext. 140/14
E-mail: azizr@ahcl.com.sa

Alkhorayef Commercial Co. Ltd.
PO Box 305
Riyadh
11411
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Fax: +966 1 4950261
E-mail: msd@alkhorayef.com

Arabian Auto Agency Company W.L.L. - Jeddah
6452 Madinah Road
Jeddah
Tel: +966 12 669 5595
Web: www.aaa.com.sa

Electrical Work & Maintenance
PO Box 7240
Jeddah
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BKT awarded SQEP certification

BKT has been approved for Caterpillar SQEP (Supplier Quality Excellence Process) recertification and elevated from Gold to Platinum level, for the year 2021.

BKT HAS RECEIVED the Caterpillar Supplier Quality Excellence Process (SQEP) Platinum recertification for the year 2021. The recognition is dedicated to suppliers who distinguish themselves over the years, by achieving the highest levels of quality and control over processes.

BKT has stood out for its unwavering commitment in terms of leadership, quality, service and customer support, which has permeated every part of the company, from design to production, as well as customer assistance.

The SQEP Platinum certification, besides rewarding BKT's efforts in logistics and its range of innovative, high-quality products, further confirms the successful collaboration between Caterpillar and BKT, and lays the foundation for even stronger synergies and partnerships in the future.

Photo Credit: BKT Tyres

Arvind Poddar, chairman and managing director of BKT .

> "BKT's journey is one marked by continuous evolution and development."

Arvind Poddar, chairman and managing director of BKT stated, "We are proud of this result — we have not only confirmed the high quality of our processes, but have gone beyond that, and reached the highest level possible. This prestigious recognition from Caterpillar is a concrete proof, but we won't stop here. We will try to continuously improve our standards and performance for our suppliers. BKT's journey is one marked by continuous evolution and development." ■

BKT CON STAR enhances performance of telehandlers and wheel loaders

GRAZIANO, PAOLO AND Mauro brothers, have equipped the Scaglia Farm, their agricultural business in Turin that breed Piedmontese cattle, with Merlo TF30.9 model, a telehandler.

It is a utility tractor with a front loader, that can be can be used on different surfaces and in various soil conditions.

For their Merlo telehandler, the Scaglia brothers chose BKT CON STAR, a tyre designed for handling vehicles such as telehandlers and wheel loaders. This tyre ensures great performance in any condition, thanks to the strong grip provided by the wide lugs that increase the contact area with the underlying ground. The cut-and-chip resistant compound also guarantees resistance and durability, while the diagonal design prevents lateral slippage even when fully-loaded, which is a fundamental feature for this type of machinery.

"This is our third Merlo vehicle. We used to have the standard tractor with the front fork, but switching to a telescopic truck is a completely different thing, the differences are immediately felt. As for the tyres, they must be comfortable when driving on the road, but also robust and must withstand a good oscillation, especially when we are handling heavy loads at high heights. By choosing BKT we noticed a big positive difference in terms of sliding; for example, when we move materials in the stable, we feel a stronger grip and greater safety," stated Mauro Scaglia, co-owner of the Scaglia Farm.

Photo Credit: BKT Tyres

BKT CON STAR tyre ensures strong grip provided by the wide lugs.

AMANA Group's DuPod offers intelligent modular solutions

AMANA, A REGIONAL design-build contractor, has announced the launch of DuPod, which offers a multitude of intelligent modular solutions for developers, architects, and contractors across major markets in the region.

The Pods are manufactured off-site in a factory-controlled environment, increasing efficiency and decreasing waste as well as pollution. DuPod also adapts advanced Building Information Modeling (BIM) engineering to enable enhanced project coordination, collaboration, and efficiency between all stakeholders.

Ihab Ramlawi, managing director and co-founder of DuPod said,"Modular construction has been changing the region's landscape and fast gaining popularity due to the fact that it offers early project deliveries, convenience, and unprecedented certainty of quality and cost. In addition, it is extensively adopted for its versatility in design application. We are proud to be launching DuPod at a time when there is such exceptional demand for sophisticated and tech-enabled construction solutions that accelerate project lifecycle and maximise project value while ensuring first-rate quality and standardisation."

DuPod requires a migration from traditional construction methods to a processed manufacturing platform. It integrates advanced engineering, supply chain, and operation planning, using technology to streamline the product life cycle, to target higher efficiency.

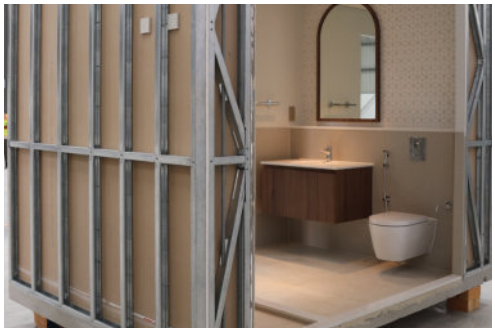

Photo Credit : AMANA Group

DuPod requires a migration from traditional construction methods.

"As factories are becoming more efficient and using artificial intelligence as well as robotics to create modules with more precision, we believe modular construction will play an ever more significant role going forward. Our mission is to continue investing in technological advancements to improve efficiency and we look forward to doing so in the months ahead," Ramlawi added.

DP World completes the testing of BOXBAY storage

DP WORLD HAS completed testing of the BOXBAY high bay storage concept at the first full-size facility constructed at the port of Dubai.

More than 63,000 container moves have been completed since the facility, which can hold upto 792 containers at a time, was commissioned earlier this year. The test found BOXBAY faster and more energy efficient than expected.

BOXBAY is a joint venture between DP World and German industrial engineering specialist SMS group. The system stores containers in slots, in a steel rack up to eleven high. It delivers three times the capacity of a conventional yard in which containers are stacked directly on top of each other, meaning the footprint of terminals can be reduced by 70%. In BOXBAY, containers are moved in, out and between slots by fully electrified and automated cranes built into the structure. Individual containers can be accessed without moving any others. The whole system is designed to be fully powered by solar panels on the roof.

Sultan Ahmed bin Sulayem, group chairman and CEO of DP World, said, "This test proves that BOXBAY can revolutionise how ports and terminals operate. The technology we have developed with our joint venture partner SMS group, dramatically expands capacity, increases efficiency, and makes the handling of containers more sustainable. BOXBAY is part of DP World's vision to apply innovation to enable global trade and be a provider of smart logistics solutions."

High performance levels of BOXBAY, 19.3 moves per hour at each waterside transfer table to the straddle carrier, and 31.8 moves per hour at each landside truck crane, will also reduce the equipment needed in a terminal.

Mathias Dobner, chairman and CEO of BOXBAY, said, "BOXBAY and its partner companies are very pleased with the results of the first six months of operation. In important parameters such as performance, reliability, energy consumption and many more our goals have been exceeded by far. For ports worldwide, this innovative and disruptive technology will not only strongly increase their over-the-quay-wall handling volumes and container storage capacity. It also allows them to make a further step towards sustainability, as power regeneration and solar panels on the roof help reduce the CO_2 footprint to a minimum."

Photo Credit : DP World

The system will be fully powered by solar panels on the roof.

Briefly

Metso Outotec's new Elution and Goldroom plant uses electrowinning for gold recovery

METSO OUTOTEC HAS announced the launch of compact Elution and Goldroom plant, a standardised solution for the forming of concentrated eluate to be processed for gold recovery by electrowinning.

The innovative plant design is based on pre-engineered modules to reduce engineering, delivery and construction, as well as commissioning time and investment cost.

"The launch of the Metso Outotec Elution and Goldroom plant is an important step in completing our capability to deliver a full Run-of-Mine ore to doré process flowsheet for our clients. Utilising standardised, pre-engineered modules allows for optimised delivery time and investment cost while still enabling customised automation and control," noted Jan van Niekerk, director, gold process solutions at Metso Outotec.

The Metso Outotec Elution and Goldroom plant can be delivered standalone or as part of a holistic gold process solution to enable onsite production of gold doré. Metso Outotec offers compact plant flowsheet designs based on ZADRA or AARL technologies. The Elution and Goldroom plant features a heat recovery circuit to minimise energy consumption and efficient carbon dewatering to maximise carbon regeneration and minimise energy losses.

The plant is available with four levels of automation – standard, upgraded, advanced and premium – and can be controlled either from a standalone control room or via the plant's DCS system.

Metso Outotec is set to dynamically model the plant's acid wash, elution and electrowinning circuits using its proprietary HSC Chemistry software.

The Elution and Goldroom plant is the final step in the gold process flowsheet, where the gold cyanide complex is desorbed from the activated carbon, recovered as a metal in the electrowinning cells, and refined to doré gold bars in the gold room. The activated carbon is regenerated for reuse in the cyanide leaching section.

Briefly

Mitsubishi Power introduces worldwide network of AI 'Tomoni Hubs'

THE ENERGY SUBSIDIARY OF Mitsubishi Heavy Industries (MHI) Group, Mitsubishi Power, is set to introduce a global network of TOMONI HUBs that will utilise artificial intelligence technologies to provide real-time, secure support for plant operation and maintenance decision making.

Each TOMONI HUB will include connected software, hardware and services that provide pre-warning of impending issues or required corrective action to avoid unit trips, load reductions or other issues. The network will also be able to alert and eliminate energy efficiency losses and help operators avoid unnecessary maintenance.

The global network will station TOMONI HUBs in Takasago and Nagasaki, Japan; Orlando, Florida; and Alabang, Philippines, with a fifth set to be commissioned in Q3 2021 in Duisburg, Germany.

Hubs access cybersecure cloud-based analytics and use distributed knowledge databases that incorporate the Mitsubishi Power experience.

"The name HUB conveys the central role our facilities are increasingly playing in channeling expert O&M support for on-site personnel and an evolving workforce," said Hiroyasu Ishigaki, general manager of the Mitsubishi Power ICT Operations in Yokohama, Japan.

TOMONI HUBs support all types of energy systems, including steam, gas turbine combined cycle , renewable power, distributed generation, emerging smart energy systems, and all-duration energy storage plants.

"Mitsubishi Power remote monitoring has already become an integral element in the support of many plants' successful O&M results. With TOMONI, we can now provide valuable support far beyond just monitoring—further extending the Japanese TOMONI concept of working 'together with' our customers to increase real-time collaboration among the energy system operators and the worldwide resources and expertise of Mitsubishi Power," concluded Ishigaki.

Bridgestone, AL Nasr launch electric vehicles

ALONGSIDE ITS LONG-STANDING local partner Nile Projects & Trading, Bridgestone has entered a partnership with AL Nasr Automotive Manufacturing Company to begin the testing phases of new electric vehicles in Egypt.

The trial operation plan will implement a series of electric vehicles across Cairo and Alexandria.

The initial phase of the pilot scheme will include a maximum of 13 electric vehicles, which will be deployed and tested annually.

Each vehicle is expected to fulfill a range of 30,000km of public test driving as part of the pilot scheme.

Bridgestone will provide tyres for the test electric vehicles, while Nile Projects & Trading's Fit and Fix Network will focus on ensuring the durability of the vehicles and provide service quality.

Fit and Fix Network provides services across Egypt for the electric vehicles at its 40+ national outlets, guaranteeing as safe and comfortable a drive as possible with comprehensive servicing and quality checks.

Stefano Sanchini, regional MD , Bridgestone MEA, said, "We are excited to be working in this project with our partners Nile Projects & Trading and AL Nasr.

"This is a step we are taking to support safe and secure mobility while contributing the realisation of a carbon neutral society."

The testing scheme fulfills Bridgestone's strategy to progress into a sustainable solutions company, targeting the provision of social and customer value by implementing its Sustainability Business Framework.

As part of its mission of 'Serving Society with Super Quality', Bridgestone's midterm business plans include sourcing over 50% of its power from renewable energy by 2023.

13 electric vehicles will be tested in Cairo and Alexandria.

"We have been actively promoting the adoption of electric vehicles in line with the government's vision of transitioning to this mobile innovation," said Hani EL Kholy, Managing Director, AL Nasr.

The partnership aims to revive the national pride brand of Nasr, and encourage the Egyptian government to make a statement of Egypt's intent to become a hub for electric vehicles in North Africa and encourage more travellers to choose electric vehicles for safer journeys.

Sanchini continued, "The introduction of our electric vehicles is a part of our commitment to develop mobility solutions and innovations that are safe and sustainable."

"The partnership with global tyre manufacturer and mobility solutions provider Bridgestone aligns with Presidency directives to localise the manufacture of vehicles used for clean energy," concluded EL Kholy.

Bobcat launches new version of S450 skid-steer loader

THE NEW BOBCAT S450 skid-steer loader is designed to further strengthen its unrivalled Number One position in its own class and in the MEA compact loader market overall, where the company has a market share of over 50%.

The new Bobcat 3D decals that the S450 now carries for the first time in MEA emphasise the well proven Bobcat track record for very reliable equipment and maximum uptime. This gives customers the confidence and peace of mind to always carry out their work in a timely and productive manner.

Gaby Rhayem, regional director at Doosan Bobcat EMEA, Middle East and Africa, said, "The new S450 introduces a fresh look for our market-leading loaders in MEA. As well as being the most popular skid-steer loader in the region, the S450 is far and away the most reliable and as a result has the highest resale value on the market. A used S450 with 4 years/4000 h on the clock will typically sell for 60% of the original price, representing an unbeatable return on investment for our customers."

Photo Credit : Doosan Bobcat EMEA

The new model strengthens the brand leader's position.

Project Databank

Compiled by Data Media Systems

Project Focus

Compiled by Data Media Systems

Project Summary

Name of Client	Ministry of Youth and Sports Affairs - Bahrain
Estimated Budget (US$)	450,000,000
Facility Type	Sports Stadium/Facilities
Sector	Construction
Status	Design
Location	Sakhir
Project Start	Q2-2016
End Date	Q4-2025
Last Updated	06-07-2021
Award Date	Q4-2022

Background

Ministry of Youth and Sports Affairs is planning to build a multi-purpose stadium, to be part of the Sports City complex to be built in Sakhir, a desert area in the southern part of Bahrain. The stadium is to be built on a circular plan and will have two tiers of stands, separated by a strip of sky boxes and business lounges with a total capacity of 3,000 seats. 50,000 seats are planned for ordinary fans.

Project Status

Date	Status
Jul 2021	The master plan has been completed. The detailed study work is ongoing.
Dec 2020	Populous Limited have been awarded a US$830 thousand contract for the master plan consultancy services for the project.
Jan 2020	Officials from the Ministry of Works (MOW) have invited foreign companies from the American Chamber of Commerce to consider investing in the project.
Sep 2019	The Southern Governorate of Bahrain has announced plans to expedite the progress of the project.
Jan 2019	The Ministry of Works has invited interested companies to initiate the prequalification process for a subcontract to design and supervise the planned sewage treatment plant and associated main sewer and TSE Line for the project.
Oct 2018	Designs for the new sports city are in the final stages and funding for the project is going to be provided by the US$10 billion GCC development aid plan. The project will be tendered after the funding is received.
May 2018	The MOW has stated that design for the 50,000 spectators sports city stadium has commenced.

Project Scope

The scope is to build an integrated sports stadium featuring:

- 50,000-seat stadium building
- VIP lounge
- Football pitch
- Athletics track
- Underground shopping complex
- Cineplex
- Car parks
- Multipurpose hall for Olympic sized swimming pools and individual sports
- Sewage treatment unit and associated main sewer and TSE Line

Project Finance

Ministry of Youth and Sports Affairs is the project client.

Project Databank

Compiled by Data Media Systems

CONSTRUCTION AND INFRASTRUCTURE PROJECTS, BAHRAIN

Project	City	Facility	Budget (US$)	Status
Albilad Real Estate - Water Garden City	Seef District	Mixed-Use Development	975,000,000	Construction
Amlak International Investment - Bahrain Marina - Phase 1 - Five Star Luxury Hotel	Manama	Mixed-Use Development	250,000,000	EPC ITB
Amlak International Investment - Bahrain Marina - Phase 2 - Aqua Park	Budaiya	Beaches and Resorts	200,000,000	EPC ITB
BAC - Bahrain International Airport Modernization Program - Overview	Muharraq	Airport	1,100,000,000	Construction
Bin Faqeeh - Layan Project	Durrat Marina	Mixed-Use Development	80,000,000	Construction
Diyar Al Muharraq Development - Overview	Muharraq	Mixed-Use Development	3,180,000,000	Construction
Eagle Hills Diyar - Marassi Al Bahrain	Muharraq	Mixed-Use Development	400,000,000	Construction
Edamah - Al Jazayer Beach Development - Overview	Bahrain	Theatre/Entertainment/ Leisure Facilities	1,200,000,000	Construction
Golden Gate Development - Golden Gate Project	Manama	Residential Development	200,000,000	Construction
Gulf Holding Company - Harbour Heights	Manama	Residential Development	650,000,000	Construction
KFCDC - HIlton - Hilton Hotel Bay and Residences	Manama	Hotels	66,000,000	Design
KFH - Diyar Al Muharraq Development - Diyar Al Muharraq Housing Development	Muharraq	Mixed-Use Development	500,000,000	Construction
Manara Developments - Hasabi Waterfront Development	Durrat Marina	Mixed-Use Development	1,800,000,000	Design
Ministry of Health - King Abdulla Bin Abdulaziz Medical City	Manama	Medical/Health Facilities/Spa	1,000,000,000	Construction
Ministry of Housing - Southern Governorate Housing Development	South Bahrain	Mixed-Use Development	220,000,000	Construction
Ministry of Housing - Umm Al Hassam Residential Complex	Umm Al Hassam	Mixed-Use Development	292,000,000	Feasibility Study
Ministry of Works, Municipality Affairs and Urban Planning - Waste-to-Energy Plant	Askar	Incineration Plant	480,000,000	Feasibility Study
Ministry of Youth and Sports Affairs - Integrated Sport City Stadium	Sakhir	Sports Stadium/Facilities	450,000,000	Design
MOH - East Hidd Housing Project - Phase 2 - 498 Plots	Hidd	Residential Development	45,000,000	Construction
MOH - East Sitra Town Development	Sitra	City	700,000,000	Construction
MOT - GCC Railway Network	Various	Railway	15,400,000,000	Design
MOT - King Hamad Causeway (Bahrain - Saudi Link)	Various	Causeway	4,500,000,000	Design
MOW - Busaiteen Link Causeway (New Manama to Muharraq Bridge)	Manama	Causeway	300,000,000	Construction
MOW - North Manama Causeway Project - Phase 2 - 2.4 KM Causeway	Manama	Roads	500,000,000	Construction
MTT - Bahrain Metro	Various	Railway	2,000,000,000	Design
Naseej - Canal View Project	Dilmunia	Residential Development	63,000,000	Construction
Tameer - Durrat Marina	South Bahrain	Mixed-Use Development	1,300,000,000	Construction

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التي تحول دون تطوير مدن ذات محصلة صفرية. إذ يتعين على مطوري المدن ذات المحصلة الصفرية في المنطقة أن يأخذوا في الاعتبار مجموعة كبيرة من العوامل عند تصميم المباني، واختيار المواد التي ليست مكلفة بيئيا لإنتاجها أو نقلها أو التخلص منها. بينما في مناطق أخرى، تُمكّن مواد، مثل الأخشاب، من تطوير مدن ذات محصلة صفرية. ويجب أن يكون الشرق الأوسط مبتكرا في تكييف المنتجات وإعادة ابتكارها ليتمكن من تعويض انبعاثات الكربون أثناء التصنيع.

تصميم يحركه الأداء

يعتبر استخدام أدوات التصميم الرقمية الذكية، لتعزيز التصميم الذي يحركه الأداء، عاملاً هاماً في تمكين التنمية المستدامة على نطاق أوسع في جميع أنحاء منطقة الشرق الأوسط. إذ يمكن أن يؤدي استخدام النماذج الحسابية للتمكن من تقييم استهلاك الطاقة مدى الحياة في المبنى ومتطلبات البناء، إلى تحقيق وفورات بيئية أوسع في المستقبل، مع تلبية احتياجات المجتمع اليوم. كما يعتبر تعزيز وتمكين التصميم على أساس الأداء البيئي جانباً مركزياً إضافياً لتطوير مدن ذات محصلة صفرية على نطاق أوسع.

تمكين المدن ذات المحصلة الصفرية في المنطقة

توفر أدوات التصميم الرقمي

عند تصميم مدن ذات محصلة صفرية، تتضاعف متطلبات التخطيط الدقيق، حيث لا يتعين على المصممين فقط مراعاة الطاقة المطلوبة لبناء مبنى، ولكن أيضا لتشغيله. هذا إلى جانب إيقاف تشغيله في نهاية المطاف. ويمكن أن تساعد الأدوات الرقمية والحاسوبية المتقدمة في تخفيف الضغط على المهندسين المعماريين. فقد أصبحت البرامج الحديثة قادرة الآن على مطابقة متطلبات التخطيط المعقدة لمشروع مدينة ذات محصلة صفرية. ويمكن الوصول إلى برنامج CLIMATESCOUT من شركة «كاليسون آر تي كيه إل»، على سبيل المثال، بحرية، ويوفر للمخططين نظرة ثاقبة لاستخدام تقنيات البناء والتصميم المناسبة لتلبية التنمية المستدامة.

أنظمة التبريد

إلى جانب تقنيات البناء الأخرى التي يمكن أن تتيح مناخا أكثر برودة، بما في ذلك النوافذ المستجيبة للشمس وضوء النهار المفلتر، يمكن لأنظمة التبريد أن تخلق تحكما صافيا في المناخ في منطقة الشرق الأوسط

التعاون على مستوى الصناعة

إن تمكين التطوير ذي المحصلة الصفرية على الصعيدين الإقليمي والعالمي مهمة أكبر من أية شركة تصميم وهندسة معمارية، سواء من حيث واجبها الأخلاقي أو حجم التنسيق التكنولوجي واللوجستي.

الخلاصة

أشار فيصل دوراني، رئيس أبحاث الشرق الأوسط في شركة «نايت فرانك»، حول توقعات المباني الخضراء في دول مجلس التعاون الخليجي قائلا: «لقد ولّدت أزمة المناخ نهضة خضراء عالمية، والشركات في الشرق الأوسط على وعي بتحديات المناخ».

يثبت بناء مستقبل أكثر اخضرارا لصناعة البناء أنه أمرٌ حيويٌ لتقدم الصناعة.

مفكرة الفعاليات 2021

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أكتوبر/تشرين الأول			
1 ـ 2022/3/31	معرض إكسبو 2020	www.expo2020dubai.com	دبي

حققت المنطقة تقدما ملحوظا في مجال الإنشاءات المستدامة

التقدم نحو مستقبل مستدام

حين سألت «ماكينزي وشركاه» 100 من كبار المديرين التنفيذيين في مجال الإنشاءات عن الاتجاهات التي يتوقعون تسريعها بسبب أزمة كوفيد 19-، أشار 53 في المائة منهم إلى الاستدامة. فالصناعات، في جميع أنحاء العالم، تتجه بشكل متزايد نحو الاستراتيجيات البيئية والاجتماعية والحوكمة (ESG) لدعم تعافيها من تداعيات الجائحة.

في السنوات الأخيرة، حقق الشرق الأوسط تقدما كبيرا في أعمال الإنشاء المستدامة. وكان أحد أبرز الأمثلة على مشروع مستدام رئيسي هو تطوير مدينة مصدر في أبو ظبي، والتي تهدف إلى أن تصبح أحد أكثر التطورات الحضرية استدامة في العالم. فسوف يجري تشييد جميع المباني في المدينة باستخدام الأسمنت منخفض الكربون والألومنيوم المعاد تدويره بنسبة 90 في المائة ومواد أخرى مستدامة.

وفي مكان آخر بالمنطقة، حصل مجمع الملك سلمان للطاقة في المملكة العربية السعودية، وهو مشروع ضخم يمتد على مناطق صناعية ومناطق لوجيستية ومناطق تجارية ومساكن سكنية، على جائزة القيادة للشرق الأوسط من مجلس المباني الخضراء الأمريكي لعام 2021.

والحكومات في جميع أنحاء المنطقة تتبنى استراتيجيات الطاقة النظيفة، بما في ذلك استراتيجية الطاقة النظيفة لدولة الإمارات العربية المتحدة 2050|، والمبادرة السعودية الخضراء في المملكة العربية السعودية، مما يتيح للتطوير ذي المحصلة الصفرية إمكانية اكتساب أهمية في جميع أنحاء المنطقة.

الاتجاهات في تطوير المدن ذات المحصلة الصفرية

كشف خبراء الصناعة من «كاليسون آر تي كيه إل» - شركة الهندسة المعمارية والتخطيط والتصميم العالمية - عن خمسة اتجاهات رئيسية لتطوير مدن ذات محصلة صفرية في منطقة الشرق الأوسط وشمال إفريقيا. وقد علق ماثيو ترايب، مدير شركة «كاليسون آر تي كيه إل» قائلا: «ترتكز رؤيتنا للتنمية المستدامة الإقليمية على التعاون عبر قطاع الهندسة والتصميم، وذلك باستخدام الأدوات الرقمية التي تركز على البيانات لدفع التعلم والفهم على مستوى الصناعة»

ويسلط خبراء من «كاليسون آر تي كيه إل» الضوء على الحاجة إلى ما يلي في تطوير مدن ذات محصلة صفرية.

مكونات خالية من الكربون

يمكن أن يكون اختيار مواد البناء أحد العوائق المركزية

المحتويات

القسم العربي

تحليلات

التقدم نحو مستقبل مستدام ٤

ملخص محتويات القسم الانجليزي

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