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A note from the editor

Welcome to the Autumn 2020 issue of *Airside International*, in which we see just how suppliers are continuing to market and sell their wares even during these times of crisis for the aviation industry. Many of them are finding innovative ways of maintaining contact with existing customers and making themselves accessible to potential new ones.

We talk to a number of the big de-icing vehicle manufacturers, as well as suppliers of ground power units, tugs and tractors, to get their take on how the industry has changed as a result of the pandemic and what the future might hold.

Innovation is key to success in GSE development. We take a look at Power Stow's helpful Transfer Belt and the very different TaxiBot aircraft tug that is undertaking tests at Amsterdam Airport Schiphol, while also already in operational use in India.

Tecnove by Jofrauto's disinfectant truck is an example of innovation directly inspired by the pandemic, while David O'Connell, managing director of dBD Communications, has not only ensured that his company has continued to sell well in these challenging times but is also doing his bit for the local community.

Airside speaks to MC Solutions about its new airfield ground lighting failure response testing equipment, to a new aviation consultancy called Airport Operations and to a charitable start-up named Aviation Action that is available to help anyone in aviation that has suffered during the crisis of the past few months.

We get the latest from GSE manufacturer CIMC Air Marrel, as well as from suppliers HiSERV, Rushlift, Shell Aviation and IT specialist hoopo. Plus. We chat with dnata's regional CEO for the Asia-Pacific region, Dirk Goovaerts, to gain an insight into how one of the world's biggest handlers is coping with the challenges that Covid-19 has thrown up.

We hope you enjoy the issue.

Mike Bryant
Editor
Mike@evaint.com

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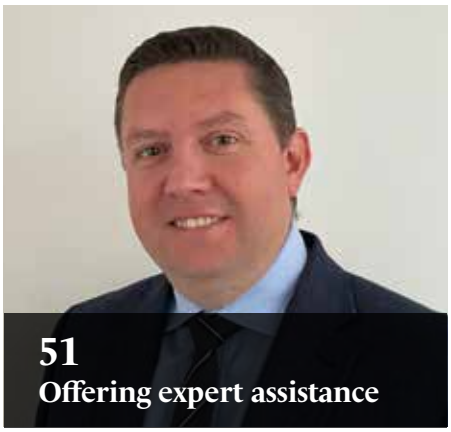

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Electric tow tractors: evidence of a long-term trend?

The move towards greener GSE continues, through good times and bad. And it can be seen clearly in the trend among some operators to choose battery-powered aircraft tractors. However, for others, diesel will remain the preferred option for some time yet

Kalmar Motor is a specialist in electric and hybrid tugs and is one of those at the forefront of the move towards greener GSE.

While the GSE manufacturing sector has been hit hard by the pandemic this year, Kalmar was in the fortunate position of having a very good pre-Covid order book that should keep it busy right throughout 2020, says the company's technical sales manager, Sean Bryan.

With some production rescheduling to compensate for some delays in component deliveries, the company has continued to manufacture pretty much as it would in a normal year, although some tractor deliveries have been pushed back, whether as a result of customer request, or because shipping options have been drastically cut back, or because import procedures have been rigorously tightened in some places.

Kalmar Motor has benefited from being based in Sweden, as the Swedish Government has taken a slightly less stringent approach to combating the pandemic than most other countries. The company has been able to operate within the controlled working and social distancing guidelines laid out by the government, Bryan notes.

Future orders have been affected, but Kalmar Motor is hopeful of a return to normal once the pandemic is no longer

Kalmar Motor's FB600EL recently delivered to Copenhagen Airport

with us; and anyway, that pre-existing order book would keep Kalmar busy into next year at least, Bryan suggests.

After-sales technical support has continued during the Covid-19 crisis. There has been less demand for it – handlers have cut back on their operations as a result of having far fewer aircraft to handle – but nevertheless, Kalmar Motor has maintained the level of its support either at the customer's place of work or, more usually, remotely via video calls or the like.

Many deliveries have also gone ahead despite the pandemic. For example, mid-summer saw the company deliver a 60-ton FB600EL electric conventional tractor to ground services provider Aviator in Copenhagen through HiSERV, and a TBL800E electric towbarless tractor to dnata in Dubai. In addition, some new orders have been taken, with more than a dozen orders placed over the spring and early summer months that were so impacted by Covid-19.

What was very noticeable, says Bryan, was that without exception all those orders were for electric pushbacks. "It appears that customers are committed to electric," he says, an ongoing trend that has not been affected by the virus or the resulting partial collapse of the aviation industry.

A MULAG baggage tug alongside a TUI aircraft

Fuel cells: the future?

Germany's MULAG tow tractors are a common sight at airports around the world, and *Airside International* has reported previously on the innovative work that the Oppenau-headquartered company has done with its Comet 4FC fuel cell-powered baggage tractor (see, for example, https://www.airsideint.com/issue-article/plug-power-works-with-mulag-on-hydrogen-fuel-cell-power/).

According to marketing manager Oliver Kesy, MULAG's new and improved hydrogen fuel cell tractor, the Comet 4FC, now boasts a larger and more powerful fuel cell. Its predecessor was successfully tested at Hamburg Airport last year, but the latest version comes with a whole range of other improved features. These include:

- A clearly arranged dashboard as part of a new cab interior design
- More vehicle status information now displayed
- Improved ergonomics as part of a more friendly cab layout
- A new ventilation system that minimises window fogging
- LED lighting, both front and rear
- Shatter-proof side mirrors
- A new windscreen for better visibility, as well as a clamping system for quick and cost-effective replacement in

case of damage
- Greater choice of working lights
- A rear-view camera that gives visibility on coupling and the vehicle's tow bar
- Winter tyres for all-year-round use

MULAG had a good year in 2019, enjoying growth in its tow tractor-related revenue – which softened the blow of this year's downturn. Moreover, "It has certainly helped to have new state-of-the-art vehicles like the new Comet models unveiled at *inter airport* Europe 2019 in Munich," says Kesy. "Of course the Covid-19 crisis has slowed down business considerably, but we are hopeful for 2021."

He believes that, with regard to the ever-changing requirements for greener GSE power technologies, electric drive is "definitely a trend, although high-tech diesel engines are still dominating the market due to the cost for airports of setting up a proper charging infrastructure to handle peak power demands".

Another advantage of diesel drives is that they still offer better performance over long distances and operating times which call for rapid refuelling, Kesy posits. However, "Hydrogen fuel cells will become an alternative as well and are already being taken into account when airports think about their future setup possibilities," he adds.

As for MULAG's immediate future, ongoing changes to its range of baggage and cargo tractors are being made. These include additional safety features and digitalisation, as well as engine updates and the development of new types with more powerful specifications, Kesy confirms.

'Differentiated' offerings

Parthenay, France-based SOVAM designs and manufactures a range of GSE that includes passenger steps, maintenance platforms, loaders, lavatory and other service units, as well as baggage tugs and pushback tractors.

The company has had a busy few years, a period involving its acquisition in 2017 by a privately owned company registered and located in Ireland, Abbey International Finance, and an ongoing process of moving the company towards profitability and what Abbey has described as a "sustainable future".

Like MULAG, SOVAM enjoyed "good results" last year, which it achieved on the back of a corporate strategy that featured such priorities as:

- Offering "a selective product portfolio"
- Providing reliable, robust and user-friendly self-propelled vehicles on custom-built chassis that comply with ISO 9001
- Addressing market demand with a "differentiated alternative" for large-volume GSE vehicles like tractors, passenger stairs and service vehicles while "asserting [its] leadership" in highly engineered equipment such as maintenance platforms and military products

When it comes to its own manufacturing strategy, SOVAM has focused on three pillars:

- All products are designed in-house by dedicated teams
- It produces standardised products that benefit from increased after-sales support
- It offers optimised product quality through the use of dedicated subcontractors

When Alain Péru took over as managing director of SOVAM in March 2019 (he had actually previously worked for the company, left and subsequently rejoined in spring last year), this corporate strategy was already in place – but of course, he also identified changes that he felt were necessary.

Not all of those changes could be made straight away, however, and he continued

MULAG offers refurbishment option

Used GSE can meet a need in the market where new products are not suitable for various economic and strategic reasons, MULAG's Oliver Kesy points out. Of course, second-hand vehicles have very often reached the end or are near the end of their lifecycle and are no longer economical in their current condition due to increased spare part requirements and downtimes.

In such cases, a comprehensive refurbishment of the vehicle is a possible option to enable a second lifecycle. Through its Certified Refurbished product range, MULAG offers airport tractors that have been refurbished by the original manufacturer and its certified partners.

This refurbishment is carried out according to stringent specifications and a detailed checklist, Kesy confirms. Thus, cost-effective alternatives to new products are made available either as replacement units or to back up an operational vehicle fleet with reserve units, all with a manufacturer's warranty of six months.

WheelTug: another alternative

Another option in terms of pushback technology that is coming soon is the WheelTug, an e-taxi system that uses a unit built into new aircraft nose wheels rather than a separate tow tractor. The WheelTug incorporates small electric motors to drive the aeroplane forward and backward. The system also reduces the need for main engine use during taxi.

The pilot or co-pilot controls the movement of the aircraft from the flight deck. A camera system can be fitted as part of the WheelTug product to offer the aircrew all-round visibility from near ground level.

WheetTug can be fitted to new-build aircraft or retrofitted to older machines. It is saids to save between seven and 20 minutes per flight in terms of turnaround times, as well as reducing fuel burn, minimising engine and brake wear, cutting emissions and significantly lowering pushback costs. The system also offers a high degree of manoeuvrability in the ramp area. According to a spokesperson for WheelTug PLC, despite the Covid-19-imposed restrictions of this year, the company continues to make good progress on its goal of a roll-out in early 2022. He confirmed in late July that testing continues, with good progress being made.

Earlier this year the company signed a letter of intent (LOI) with Indian carrier IndiGo that brought the total number of units 'reserved' to more than 2,000 for over 25 potential airline customers. The list of carriers that have expressed their interest includes such major players as Ethiopian, Icelandair, Kenya Airways and KLM.

The WheelTug concept dates back as far as 2004, and more than 100 patents are said by Wheeltug to have been issued in relation to the technology on which the system relies.

to focus on the previously set priorities, having to leave other ideas, such as new products that he wants to introduce, for later. Not that SOVAM's large R&D department has been idle, focusing on improvements to the company's wide-ranging existing product lines.

Amongst its range of pushbacks, its diesel-powered K40 has proved most popular of late, the company confirms. With a 40-ton towing capacity, it has been particularly in demand with African and Middle Eastern customers due to its robustness, reliability, ease of use and maintainability, SOVAM asserts.

Like Kalmar, SOVAM too is seeing the increasing demand for electric pushback options, particularly in the US and Europe – and the current pandemic will make demand for greener energy increase even further, Péru says. Today, SOVAM offers only diesel versions; if it does decide to develop an electric tug or tractor, it is likely to be as a supplement to one of its larger pushbacks, he confirms.

While not yet offering a battery-powered pushback, SOVAM is minimising the environmental footprint of its diesel tractors. Thus, for example, it is currently introducing new stage V engines for its 22-tonne to 40-tonne pushbacks (while one for the 60-tonne tractor is "coming soon"). SOVAM also offers electric versions of other product lines, such as some of its maintenance platform range.

Moreover, the company has made other improvements in terms of environmental sustainability in recent times, such as:

- Improving engine component accessibility – to filters, belts and the like – for easier and faster maintenance
- Enabling easier access to fuses and the diagnosis tool inside the driver's cab
- Introducing silicon hoses where possible for improved temperature resistance and to reduce risk of burns to the operator/driver
- Introducing aviation type brake hoses (which suffer less thermal expansion and wear)
- Introducing disc brakes front and rear for better braking performance

The Covid-19 pandemic has only encouraged Péru to think even bigger and to reconsider each and every possible option for growing the business, he says. Entirely new products will be developed and added to the current lines in time, he adds, perhaps including a return to the production of catering service vehicles as it did in the past.

emover development continues

The emover is an all-new, very different sort of electric tug. It has been in development since 2017. The first and only prototype of the pushback was on the HYDRO Systems stand at last year's *inter airport* Europe exhibition in Munich – and it attracted plenty of attention.

The emover was designed as a lithium-ion battery-powered tug capable of pushing back aircraft weighing up to 600 tonnes (basically, all commercial aircraft from Embraer E190s right up to A380s).

Able to move at up to 23km/h, it has a low-profile design that enables it to access under low-slung aircraft such as the B737. The prototype had six steerable driving wheels for maximum manoeuvrability, with automated tow head change (of up to eight tow heads) depending on the aircraft to be pushed back.

The latest in safety features were built in, including automated positioning to the aircraft and a collision warning system supported by a bird's eye view camera system for all-round visibility.

According to HYDRO's head of innovation management, Ulrich Ockenfuss, "For our emover, the *inter airport* Europe show was a great success. Nine potential customers from around the world decided to test our emover in daily airport operation."

Driven by the results of those tests, he continues, HYDRO has recently completed a redesign focused on changing elements including:

- Extending the range of tasks it can easily perform to include maintenance towing
- Reducing the emover's width to 3.7m
- Moving to a four-wheel design (instead of six) that takes standard aircraft tug tyres
- Using 100 % off-the-shelf components
- Minimising maintenance requirements

Says Ockenfuss: "We are now ready for preparing 0-series production" (a pre-production run in product manufacturing).

He concludes: "We are convinced that after the current Covid-19 crisis passes, the demand for cost-saving, emission-free, one-man-operated aircraft tractors will grow significantly."

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A TLD GPU-409 provides power to a Royal Jordanian A310

Keeping the power running

There may be fewer aircraft flying at the moment, but those that are frequently need the help of ground power units (GPUs) while they are at their gate. This power can be supplied either by mobile GPUs or by larger static units. Three suppliers talk to *Airside* about the challenges they are facing and the trends in demand for GPUs

Globally active GSE manufacturer TLD offers a wide range of ramp equipment that takes in towbarless and conventional aircraft tractors, baggage tractors, loaders and transporters, air-start units (ASUs), passenger steps, belt loaders, air conditioner units (ACUs), lavatory and water service units, trailers, dollies and maintenance platforms, as well as GPUs.

Its GPUs are manufactured at the company's Windsor, Connecticut facility in the US, as well as in Saint-Lin (near Parthenay in western France) and in Shanghai, China, the latter two sites producing GPUs as part of TLD's geographically diverse Ranger manufacturing programme.

Under the Ranger programme, TLD makes GSE at sites local to its big markets, hence the distribution of the company's manufacturing facilities in the US, Europe and Asia. However, all the equipment is produced "to the same global quality standards and designs", explains Richard 'Chip' Toomey, chief operating officer of TLD Windsor's commercial operations.

The facility at Windsor in the north-eastern US builds various lines of GPUs, ASUs and ACUs for both civilian and military customers. The military products side of the operation at Windsor manufactures liquid chillers and air conditioners specifically for military customers.

All told, there are about 300 TLD staff at the Connecticut factory, which has been producing GPUs for more than 25 years. The GPUs manufactured at Windsor supply 28V, 400Hz power from 60kVA through to 180kVA. And they can all be characterised in terms of three major themes, Toomey suggests:

- They offer high quality, alongside high reliability and cost-effectiveness
- They are built according to a design philosophy known as SREM: being Simple, Reliable and Easy to Maintain
- The equipment is backed by TLD's global after-sales support service network

Last year saw TLD's parent company Alvest acquire Powervamp, the Bedford, UK-based supplier of specialist power equipment to the aviation and automotive industries. It offers 400Hz GPUs that range from the smallest 12V DC general aviation GPU up to a powerful 90kVA frequency converter.

That acquisition represented an opportunity for TLD to benefit from Powervamp's expertise in its specialist market and to work in technology from Powervamp where beneficial to do so. Toomey points to Powervamp's expertise in frequency conversion technology that he describes as "well proven" and of considerable potential benefit to TLD.

That sharing process continues. "We are developing synergies between the two teams to further improve the reliability and cost-competitiveness of both our offerings, as well as integrating Powervamp's proven technologies into our GPU product line," Toomey confirms.

This year has, of course, been difficult – for TLD as for so many others operating in or supplying the aviation business. The company's GPU sales have been affected, says Toomey, although they have by no means dried up during the crisis. "This is a challenging time," he says, but he insists that: "There is still business out there."

TLD's diversified international supply chain has allowed it to

Guinault offers a wide range of GPUs as well as ACUs and ASUs

maintain its own output as required, and enable it to respond flexibly to the varying levels and patterns of requirements that have been seen in different markets around the world. "We met with suppliers to learn and understand their local challenges and made alternative sourcing decisions to maintain our customer deliveries," Toomey observes.

During the pandemic, TLD engineers have continued to meet with customers as far as has been possible within national travel and quarantine restrictions, and the benefit of having geographically spread teams of technicians providing after-sales support has shown its worth in recent months.

The company's technicians have also been able to offer advice when asked to do so by GPU operators who have looked to store their equipment in times of low operational intensity before getting them quickly back into service as and when required.

Toomey is personally optimistic of a rebound in the GPU market next year, although right now it remains very much a "wait-and-see' operating environment. Meanwhile, TLD continues to invest in new developments, driving quality and reliability in its GPUs, he says – efforts that will "keep TLD at the forefront of the GPU market".

'We need to be optimistic'

Across the Atlantic in Europe, Saint-Cyr-en-Val, France-headquartered GPU manufacturer Guinault has a history dating back to 1949, when Maurice Guinault founded the company. Although a specialist in GPUs, over the years it has also developed innovative ASUs and ACUs.

While the company has sought to remain a close-knit business concern, its machines have been operated on five continents across more than 120 countries. Yet it can surely not have faced a more challenging time than this year. "It is a very strange environment," says CEO Lionel Clermont, of the situation that all GSE manufacturers have encountered in 2020.

How has Guinault reacted to the collapse of the aviation industry? "In these times, it's all about customer care," he explains. He fully understands that airlines, facing a plunge in passenger numbers, do not have the ability (or the desire) to finance new equipment acquisitions right now; therefore, it is all about looking after them and their equipment, to get them through these tough times.

"We are not pushing anybody [to spend money]," Clermont insists. Instead, Guinault is concentrating on providing the best possible technical support to its airline customers to ensure that their GPUs (and other Guinault GSE) are kept working and performing to their optimum level.

In fact, Guinault's long history of offering the highest possible quality of equipment – which means highly reliable equipment – has left its users well positioned at least in terms of their GPU/ACU/ASU use. High-quality equipment, combined with good pricing on spare parts, has "always been our priority", Clermont says.

The company has not signed up to the consumer 'throw-away' culture, of simply acquiring new equipment when something breaks down: while always producing very reliable equipment, Guinault's thought process has also been to make available

A TLD GPU-409 serves a Delta B757

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the necessary technical support and competitively-priced spare parts to ensure that equipment can be brought back into service in the vast majority of cases when it suffers some form of breakdown or deterioration in performance.

The fact that Guinault designs and builds its equipment itself supports this strategy, while its "deep experience" in GPU/ACU/ASU design and manufacturing also allows its airline customers to enjoy the longest possible lifetime for their GSE, Clermont says.

As for what we can expect in terms of the aviation industry's recovery: "No-one can predict the future, least of all the 'experts'," he opines. 'There are just too many variables involved.

"But we need to be optimistic; and I am optimistic. People need to meet, and to do that they need to travel. But how fast we will get back to normality, no-one can predict with a high degree of certainty."

Whatever happens, "Our long-term strategy hasn't changed," Clermont confirms. That focus on quality and reliability for the lowest cost of operation will remain at the heart of Guinault's business model.

A range of power provision

SINEPOWER is an Aveiro, Portugal-based designer and manufacturer of GPUs, static frequency converters, DC chargers for electric vehicles and inverters. It was founded as an independent business in 2003 and today offers mobile and fixed ground power sources from 30kVA right up to 400kVA (for static units at the higher thresholds).

The standard range of GPUs it offers take in apparent power outputs of 30kVA, 45kVA, 60kVA, 90kVA, 120kvA and 180kVA, but military customers have taken units of up to 400kVA.

Its GPUs deliver an output of 200V three-phase 400Hz to an aircraft through single or dual output.

SINEPOWER's background lies mainly in converters, recalls sales manager Edward Alves, but its wide-ranging portfolio now sells to a variety of military and commercial customers who, he says, value quality, robustness, efficiency and value for money.

In particular, Alves points to the fact that SINEPOWER's rectifier technology minimises the amount of reactive energy created by one of its GPUs (reactive energy is the power wasted in the system that represents the difference between the electricity supplied and the electricity converted into useful power). This keeps costs down, which is perhaps especially important for users at non-military gateways who are charged by their host airport on a cost-per-unit of electricity used basis.

Another unique selling point that SINEPOWER boasts is that its units offer continuous full-power electric supply – 90kVA for up to 24 hours, for example. This is particularly useful for certain customers, such as those involved in maintenance, repair and overhaul (MRO), Alves points out.
SINEPOWER does not appear to have struggled in the same way as other members of the aviation community this year. In fact, business is going very well, Alves says. That is partly because many of its clients are military users who are not suffering from the collapse in civilian air passenger numbers and partly because SINEPOWER has a wide breadth of electrical products that are sold into many different industries (maritime, car charging and project business, as well as aviation).

Another plus point for SINEPOWER has perhaps been the trend on the part of GSE operators to move towards more electric – battery-powered or hybrid – equipment, including GPUs. SINEPOWER's solid-state frequency converters obviate the need for noisy and emissions-emitting diesel GPUs.

Recent months have seen a number of GPUs sold to the Republic of Singapore Air Force, while other major customers of SINEPOWER include the British defence and aerospace manufacturing giant BAE, the US Air Force, the Spanish and Portuguese air forces and many others across Europe and South America.

In regards to civilian airports and airfields, SINEPOWER GPUs are in use at locations including Brussels Zaventem Airport and Kosovo's Pristina Airport, often in MRO facilities.

SINEPOWER provides static power supply equipment as well as mobile GPUs

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ITW GSE expands its battery-powered range

The all-electric 7400 JetEx eGPU is a relatively new accompaniment to ITW GSE's portfolio of battery-powered ground power units. Soon, the range will be able to power all sizes of aircraft, while each unit gives off zero emissions and makes virtually no noise

ITW GSE's 7400 JetEx eGPU is a 28V DC battery-powered ground power unit. It is only the latest addition to a large stable of GPUs offered to the fixed- and rotary-wing markets by the Odense, Denmark-headquartered, globally active company (it has manufacturing facilities in Palmetto in the US as well as in Odense).

Most distinctively, it is completely battery-powered – and therefore quiet, emitting no fumes and so eminently suitable for operations within a hangar as well as outside. It provides 28V DC power and is ideal for serving a wide range of business and general aviation aircraft including ATRs, Cessna Citations, Beechcraft, Gulfstreams, Dassault Falcons, and Dash 8 turboprops.

It is not the first battery-powered GPU in the ITW GSE stable – its 7400 eGPU is a fully electric 400Hz AC option suitable for larger aircraft including A320 Family and B737 narrowbodies, B757s and B767s. Nor will it be the last – of which more later.

Moreover, the 7400 JetEx eGPU is by no means the first in the JetEx series of GPUs. The JetEx has been in production since the 1970s, explains ITW GSE's sales director for the Americas, Alberto Rocha. For example, the 6400 JetEx 8 is a 28V DC mobile GPU; however, it is diesel-powered, whereas the 7400 JetEx eGPU is ITW GSE's first model to represent a 100% battery-powered option at 28V DC ideal for the business and general aviation markets of turboprops.

The 7400 JetEx of course requires no fuel and has no rotary generator. In fact, says Rocha, "We have taken out all the moving parts" from its diesel-driven predecessors, the parts that are most subject to wear and tear. "It is basically a solid-state GPU but one with all the flexibility of other generators," he adds.

"We have taken out all the moving parts"

Alberto Rocha,
ITW GSE

The new 7400 JetEx eGPU at Florida's Tampa Airport

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It is wheeled and therefore mobile, can support the wide range of aircraft in operation today that require 28V DC power, is ideal for indoor use, saves on fuel, emissions and noise and its battery can be charged easily and quickly by standard National Grid type power sources (any 50/60 Hz socket). With a very high battery capacity, it can also go for days without charge.

The battery is essentially the same system as that which powers a Nissan Leaf electric car. Its reliability is thus well proven, and certification is not a problem. ITW GSE worked closely with Nissan to ensure that the software and interfaces that the former designed for the 7400 JetEx eGPU would be as efficient as possible, yet the whole design, development and initial production process of bringing the 7400 JetEx eGPU to market only took something in the region of two years, says Rocha: thanks in large part to the fact that the battery is proven technology (in the automotive industry) and that ITW GSE has so much experience in 28V DC GPU design and development.

A hundred or more starts can be performed by the eGPU on a single charge, and because no special charging unit is required, it is simple to recharge. When Rocha spoke to *Airside* earlier this summer, one 7400 JetEx eGPU was being used on a daily basis at Tampa International Airport (the closest to ITW GSE's Florida factory) by fixed base operator (FBO) Sheltair Aviation Services. Sheltair has acted as a validation partner for ITW GSE and it has, says Rocha, liked the product immensely.

A second unit was also soon to be deployed into a general aviation terminal at Atlanta Hartsfield-Jackson International Airport but, of course, the collapse in the aviation industry that resulted from the Covid-19 pandemic has slowed interest in the acquisition of new GPUs to a great extent this year.

ITW GSE had received numerous requests for demonstrations of the 7400 JetEx eGPU prior to the Covid-19 outbreak, many of who were willing to travel to Florida to see it in action. 'There was a lot of interest," says Rocha, who remains confident of that interest returning once the aviation industry returns to some degree of normality.

The primary market for the unit will be business and general aviation operators and handlers, plus FBOs. A secondary but important potential market lies in the regional commercial airline sector, those turboprop operators such as United

"It is basically a solid-state GPU but one with all the flexibility of other generators"

Alberto Rocha,
ITW GSE

Express that are such important players in the US aviation space.

A tertiary market potentially exists in helicopter operators, such as police forces, fire services and coast guards, that employ 28V DC powered rotary-wing equipment.

Rocha's own area of responsibility is the Americas, and the US market is expected to be the most important in any geographical breakdown of projected demand for the 7400 JetEx eGPU, largely because of the sizes of its business and regional airline sectors.

Rocha's 'patch' stretches all the way from Canada and the US through Latin America to the Caribbean and even as far south as Antarctica, where ITW GSE GPUs are actually currently deployed at research stations that are served by icy airstrips.

The full set

Completing the ITW GSE portfolio of battery-powered GPUs will be a more powerful version of the company's 7400 eGPU, one that will be able to serve widebodies such as the B777, B787, B747, A330, A350 and even A380. With more batteries and more power output (180 kVA), the new unit – expected to be launched before the end of this year – will mean that ITW GSE's stable of battery-powered GPUs will be offer mobile ground power to all sizes and classes of aircraft.

Given that Rocha fully expects the global trend toward battery-powered GPUs to only grow in momentum in the future – thanks to the desire both to save on fuel costs and to minimise harmful emissions – this comprehensive portfolio will, he believes, put ITW GSE in a great position in the GPU market in what will surely be a more buoyant post-Covid-19 world.

The whole design, development and initial production process of bringing the 7400 JetEx eGPU to market only took something in the region of two years

Alberto Rocha,
ITW GSE

Preparing for winter – and ice

The Northern Hemisphere winter season is not too far away and many airports are planning for the aircraft de-icing that may be required. We talk to some of the big de-icing unit manufacturers about the year they have had, and their plans and expectations for the coming few months

For Roskilde, Denmark-headquartered Vestergaard, the Covid-19 pandemic interrupted what had been a time of high demand for the aircraft de-icing supplier's products.

In fact, the company's 2019-20 financial year was a record period both in terms of turnover and result, Vestergaard having sold no less than 198 vehicles over the course of the 12 months (this total takes in its aircraft washing vehicles and toilet and water units as well as its de-icer products).

Demand had been high in many markets around the world, recalls vice president sales & marketing Lars Barsøe, but sales had been particularly strong in North America. What is more, Vestergaard was looking ahead to even better results in 2020-21, although this will not be possible now because of the Covid-19 pandemic that has devastated the industry.

Vestergaard has continued to support its customers during the downturn

Barsøe and his team continued to market their products during even the worst of the downturn, although on-site visits were impossible. Digital communications and online meetings became the norm for making contact with existing and potential customers; of course, when airport or ground service provider employers furloughed their staff, even that was not feasible.

Meanwhile, Vestergaard engineers continued to support customers – again, through digital means – during the lockdown. Due to the collapse in passenger aircraft operations, there is much less need for de-icers to be in operational use, and that means less potential need for onsite assistance for maintenance or service.

Routine maintenance scheduled for many customers' de-icers had to be postponed but, as of July, Vestergaard engineers were already busy flying to numerous customers locations around the world to service their equipment.

Work at Vestergaard on new equipment has also continued. At *inter airport* Europe in Munich last year, the company showed off its all-new hybrid de-icer for the first time. The hybrid version of the best-selling Elephant BETA model can operate completely on battery power or can use its diesel engine as required.

Typically, an operator might wish to drive to airport gate areas using the power of the unit's diesel engine, before turning off the engine and then de-icing on battery power. The operator could also drive short distances between gates using the electric motor.

With a fully charged battery, the plug-in hybrid Elephant BETA is able to de-ice 15 to 20 aircraft without using the vehicle's diesel engine. The lithium-ion battery can be charged either by means of an on-board charger or via a generator on the power take-off (PTO) of the diesel engine.

Two prototype units of the hybrid have already been tested extensively, while further trials are due to take place in the coming Northern Hemisphere winter at one airport in Europe and one in Canada.

There has been huge interest in the new hybrid Elephant BETA design, says Barsøe. This should not come as a surprise, he believes, given the rising demand in the aviation and ground handling sectors for electric-powered and hybrid technologies.

The new developments do not stop there – Vestergaard has designed fully electric-powered chassis that are suitable for both the company's 9-tonne and 12-tonne lavatory and water service units. A 40kWh

lithium-ion battery can offer endurance of up to 12 hours and the unit comes with an on-board charger that, depending on the power available on-airport, can charge the battery fully in four to nine hours.

The new chassis and battery can also form the base for Vestergaard's Glycol Recovery Vehicle (GRV), which – launched only in spring this year – sweeps up and collects leftovers from the de-icing process from the ramp.

The battery-powered chassis will also be suitable as the base for Vestergaard's smallest de-icer, its Elephant Mini MY Lite, a stripped-back version of the Elephant MY model. A 4,000 litre capacity de-icer, the Elephant Mini MY Lite is a low-cost option for customers on a budget.

Across the pond

Over the Atlantic in the US, Tennessee-based Ground Support Specialist (GSS) manufactures a wide range of product lines that includes belt loaders, engine wash carts and other GSE in addition to its various de-icer models.

Its de-icers are able to meet all requirements, says vice president Adam Houpt, explaining: "The launch of the full-size GS2100 Wraptor early in 2020, which joins Ground Support's existing GS320, GS700, and GS1400 de-icer lines, means the company's coverage is now complete and capable of servicing all aircraft sizes, from smaller private aircraft to full-size widebody commercial jets."

He continues: "GSS is unique in that we build everything from the ground up. From the chassis to the cab to the aerial device, everything is built such that it has a specific purpose."

GSS's equipment is designed to be reliable, easy to use and easy to maintain. Its de-icers utilise a single engine, mounted on a swing out module for easy access, while a single heater is employed in its narrowbody de-icers. "GSS's primary objective remains to provide a highly reliable, quality product at a reasonable cost," Houpt summarises.

Textron GSE markets the Premier and Safeaero ranges of de-icers

As with Vestergaard, business had been going well pre-pandemic, Houpt confirms. It had just finalised two lengthy contracts, one of which was with the US Navy, and just launched its newest de-icer, the GS2100 Wraptor mentioned above.

Typically, production slots start to fill up mid-spring for winter deliveries, says Houpt. "Unfortunately, early March is when the world came to a screeching halt, thus slowing down business travellers and airline traffic in general." This of course had an impact on GSS's operations, especially in relation to new-build work. However, Houpt notes, "GSS was started as a refurbishment company in the mid-nineties. We predicted the transition of the industry, with all the unknowns at hand, and revamped our approach.

"We knew that capital for new equipment purchases would be lacking, but we also know you must have equipment stationed to be able to operate. With that in mind, we are focusing largely on used equipment refurbishments – anything from a simple preventive maintenance and paint to a complete zero-time re-life.

"This approach allows us to be able to provide our customers with anything suitable to their budget, knowing we are all operating on one at this time."

As has been the case at Vestergaard, GSS has also continued to interact with current and potential clients during the crisis in whatever way it can. Houpt says that, while the pandemic has completely changed the way the company operates its business, using video chats and live stream transmissions has enabled it to update customers on issues of interest, whether it be the status of a build or a completed job (in more normal times GSS encourages its customers to come on-site during a build and/or once the unit is completed, in order to ensure everything is to their liking and standard).

"We like to look at the glass as being half full," says Houpt positively. This year has at least given the company the time and space to think even more than usual about what its customers want and need to operate as efficiently as possible while keeping costs as low as possible.

"It's a question that we ask ourselves often and have been able to act on during this slow time in our industry," he says. "In a sense, we have gone back to the drawing board from the design perspective. In what ways can we design the truck to go faster while also improving the reliability for the customer? This time has also allowed us to look at the newest technologies across the industry, test out new components and determine what is most suitable for our trucks and our customers."

'Robust manufacturing'

Textron GSE was another of the de-icer suppliers that saw healthy sales in 2019 and in the pre-pandemic days of early 2020. Perhaps those burgeoning sales were a reflection of changes made over the last five years, during which Textron GSE implemented "robust manufacturing processes" to support healthy demand, says vice president and general manager Matt Chaffin.

Textron GSE manufactures two respected de-icer brands: Premier and Safeaero.

Premier de-icers are known for cost-effective, reliable performance, says Textron GSE. The Premier brand is particularly well established in North America but has also been growing stronger in international markets.

Safeaero is known for highly innovative, efficient products with low operational costs. Textron acquired the Swedish de-icing vehicle manufacturer Safeaero in 2016.

The Safeaero 220 is said to be the industry's only single operator de-icer, allowing the operator full control of all functions including driving, boom, nozzle, and flow rate without him/her ever leaving the cab.

The Safeaero 220 enjoyed increased sales in 2018 and 2019 and efficient forward planning enabled the company to offer its customers improved delivery schedules to meet their winter season needs, Chaffin recalls.

Textron GSE offers new Guardian technology for de-icers

In August, Textron GSE announced that it had launched Guardian, a safeguard to prevent accidents caused by operators of its Premier line of de-icers mistakenly leaving switches in the 'on' position during equipment shutdown.

If those switches are left in the 'on' position, then power might periodically continue to flow to key components of the machine, which could cause damage to motors or burners.

In what is described as a failsafe design, simple push-button switches are now used to deploy power to particular functions at the correct times during start-up. These switches reset to 'off' automatically once power to the Premier de-icer is cut.

Most Premiers can quickly be modified with the new Guardian technology: the process that takes about half a day.

For Textron GSE, just as for Vestergaard and GSS, the pandemic hit demand. "The impact of Covid-19 on our industry was abrupt and unprecedented and is the most detrimental event in the history of aviation," says Chaffin. "Trepidation can be seen right across the industry," he adds, with the onset of the disaster having been so sudden it has been difficult for GSE operators – be they self-handling airlines or ground service providers – to react.

"The latest and ongoing forecast for equipment expenditure remains weak and, like other companies, Textron GSE has been affected," he adds. However, Chaffin insists that customer satisfaction, communication and service will remain top priorities for the business, as it continues to support its customers during these uncertain times.

While the overall outlook for the industry is not great, Textron GSE "remains positive and steadfast in executing everything a leading manufacturer can control, customer communication, global support, planning and production and parts programmes, and remaining focused on engineering innovation and safety," Chaffin says. Of course, even during these months of comparatively few services operating through so many of the world's airports, aircraft will still need to be de-iced when the weather requires it, so the demand for de-icers does not ever disappear.

Like the other manufacturers that *Airside* spoke to for this feature, Textron GSE leveraged the latest communication tools such as video conferencing to maintain links with customers, becoming generally more creative to maintain direct contact with partners and customers. This ongoing customer engagement has also included online product demonstrations and presentations of de-icing products.

Textron GSE customers have also continued to access the company's network of experienced factory technicians and airport shops (Textron GSE has some 17 or so in the US, and they are typically located airside at airports), while its 'Aftermarket' group has been in continuous contact with customers, scheduling visits that provide technical solutions.

Additionally, its Aftermarket business provides original equipment manufacturer (OEM) components at affordable prices to extend the life and performance of existing equipment.

Supporting customers

In fact, says Chaffin, these last few months have been all about "supporting our customers". De-icing operators have a surplus of equipment in this time of low operational intensity, and they are having, as a result, "to figure out how to manage that surplus". For Chaffin, in helping these operators of Textron GSE equipment, "We want to be their 'partners', rather than a 'vendor' or 'supplier'."

Moreover, even during the pandemic, Textron GSE has continued to analyse and review its de-icer vehicle portfolio, aligning it with the needs of its customers, ensuring it has on offer "the right products at the right time", says Chaffin.

"Current considerations for new product development include industry trends such as reduced fluid consumption, overhead cost reduction, productivity, safety and environmental stewardship. Meanwhile, interest in one-person de-icing and its associated benefits continues to be strong."

Finally, while Textron GSE will continue to focus on achieving organic growth wherever that is feasible, it is not ruling out an more corporate acquisitions like that of Safeaero in 2016. "If the right opportunity comes up, we would certainly consider it," says Chaffin.

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dnata cleans up

Handlers have been hit hard by the effects of the Covid-19 pandemic, perhaps as hard as any link in the chain of the aviation industry. Yet, ground service providers (GSPs) such as dnata have been at the forefront of the effort to ensure that the industry continues to function as best it can, with passengers able to feel confident that flying is still as safe as possible

dnata undertook a major disinfection programme of all its GSE at its two hubs in Dubai

dnata, part of the Dubai-headquartered Emirates Group, moved quickly and decisively when the potential impact of Covid-19 was first assessed in early spring this year. According to the handler, its teams worked "around the clock to develop and implement a comprehensive health and safety programme" that involved adapting services, processes and training across its international operations.

Specifically in relation to its ground handling, dnata introduced new disinfection programmes, deployed personal protective equipment (PPE) widely amongst its staff, mandated protective measures such as social distancing, and significantly enhanced its aircraft interior cleaning services.

In May, dnata undertook a mass disinfection programme of all its GSE at its two home hubs in Dubai as part of a wider effort to protect its own employees and passengers. More than 11,500 pieces of GSE – including buses, passenger steps, baggage dollies and pushback tractors – were disinfected at the two Dubai airports where dnata is active: Dubai International and Dubai World Central.

A bowser spray unit and handheld sanitation units were used to disinfect all

"I believe that until a vaccine is widely available we will need to keep these precautions in place"

Dirk Goovaerts,
dnata

of dnata's airside GSE, including its cargo handling equipment.

dnata president Gary Chapman summarises: "The Covid-19 pandemic has caused unprecedented disruption to the travel and aviation industries. dnata is not immune. Like our customers and competitors, we are also facing serious challenges and working hard to recalibrate our business and operations for what, right now, is an uncertain future.

"Over the past few months, we have adapted our operations and processes to the new normal, enhanced our existing services, and launched new ones to meet changing demand."

A range of measures

Dirk Goovaerts is dnata's regional CEO for the Asia-Pacific region and as such has played a leading role in introducing dnata's Covid-19 countermeasures in that area. He explains that as soon as the danger of the virus spreading from Wuhan in China had been identified, dnata quickly introduced those aspects of its Business Continuity Plan that were relevant to this specific situation.

Those measures were wide-ranging. As described above, more stringent cabin cleaning measures were introduced, alongside the use of stronger antiviral disinfectant, in order to protect passengers.

All dnata agents and handlers even remotely likely to come into contact with the virus were offered PPE, the perceived danger of their operating environment determining the level of PPE required. Masks and hand sanitisers were widely issued, with equipment such as visors given to those in greater danger: for example, staff who are required to work alongside others in the confined space of an aircraft cargo hold for even short periods during the freight loading/unloading process).

As well as new equipment, new procedures were put in place to minimise the danger to dnata's employees. Social distancing measures, whether mandated or advised by relevant national, local or airport authorities were instituted, and management ensured that these rules were both understood and observed by staff, says Goovaerts.

dnata has also deployed its teams into self-

contained, smaller silos wherever possible in order to ensure that the virus does not spread amongst them. This has built resilience.

The GSP has brought in new rules to minimise contact between its handlers (and other employees) and non-dnata, third-party individuals in order to further reduce the danger of infection to its staff. Furthermore, in addition to the social distancing that applies wherever possible to its employees during their shifts, dnata has also minimised the time they spend working together wherever feasible.

Training of staff has been key to ensuring that the new requirements and guidelines are followed, Goovaerts stresses, adding: "Discipline amongst our agents has been so important." Cross-training of staff in other areas of dnata's work has also taken place to increase flexibility in resource deployment – for example, some of dnata's workers who usually handle passenger flights have been redeployed to handling cargo services, whose operational frequency has remained as high as usual during the pandemic.

A price worth paying

Goovaerts admits that the new PPE and disinfectant cost money, the new measures introduced have some cost implications, and they may have some negative effect on productivity but, he says: "We had to make these investments, no expense could be spared to protect the health and safety of our employees or of our customers."

He continues: "It would have been a false economy to do otherwise. There was the threat of losing control, as well as the danger to health. It was absolutely necessary to act as we did."

As to when dnata and other handlers might be able to begin withdrawing these various precautionary measures, Goovaerts opines: "There can be no definitive answer on this at the moment.

"Personally, I believe that until a vaccine is widely available we will need to keep these precautions in place," and that dnata will continue to work with airport operator partners, government and other national regulatory bodies, as well as keeping a good eye on the advice of multinational health agencies such as the World Health Organization to maintain the necessary countermeasures.

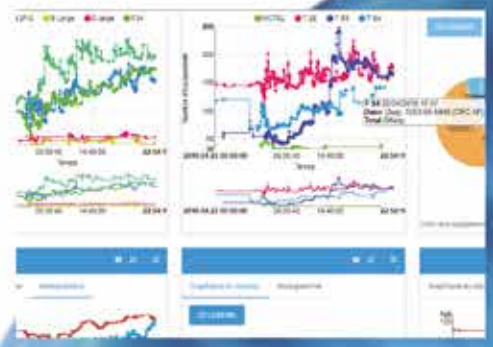
Goovaerts believes that dnata has played a key role in keeping aircraft flying during this incredibly hard time for the industry, an especially important function in terms of those cargo-carrying aircraft flying medicines and PPE to where it was most needed. It has also worked as hard as possible to keep confidence that dnata and the operations it handles are as biosafe as possible – in other words that dnata, as a GSP, has taken all possible measures to protect the health and safety not only of its own staff but also those of its customers and customers' customers.

Looking forward, Goovaerts believes that handlers will need to look seriously at reinventing their businesses to meet the needs of a new operating environment – the 'new normal' as it relates to the aviation industry.

"We need to adapt our existing services and introduce new services" in order to operate successfully in the new normal, he considers. This is, of course, "easier said than done", but dnata at least is committed to being sufficiently agile to meet the needs of the changed operating milieu and to enhance the overall customer experience.

Senior management and ramp operators alike will need something of a new mindset, the former especially having to be able to make the right decisions in a fast-moving environment.

New procedures and new equipment will also be part of the answer, as will making optimum use of new technology to automate procedures and optimise resource allocation, Goovaerts concludes.



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HiSERV offers Smart training option

In July, Cologne, Germany-based GSE supplier HISER delivered a state-of-the-art training device to Berlin Brandenburg Airport. The Smart Trainer is modelled on an aircraft body and is now in use in Germany for the first time. Ramp operators, fire brigade and maintenance engineers can use this simulator to train their staff in a realistic environment. Managing director Roland Ückert tells *Airside* more

Can you tell us a little bit about the training device?

The Smart Trainer is the first of its kind. It is owned by HiSERV and the new Berlin Brandenburg Airport BER is the first customer to rent this modern device to train its employees [Berlin Brandenburg is due to open on 31 October, while Berlin Tegel will shut soon after and Schoenefeld will become BER's Terminal 5].

The HiSERV Smart Trainer is used for training and improvement of procedures that will take place at the airport.

With the HiSERV Smart Trainer, workers on the apron can practice without risk how to approach an aircraft with all their equipment, service the airplane and then move away. This increases both their own safety in the course of their work and reduces the risk of damage to the aircraft.

What smart technology does the Smart Trainer incorporate that makes it such a capable training tool?

The HiSERV Smart Trainer has almost every access point, connector and door available on the most widely used aircraft worldwide. Therefore, our customers can train with equipment as varied as ground power units (GPUs), de-icing or toilet servicing vehicles without risking damage to a real aircraft.

Which other companies and agencies has HiSERV partnered with on this project?

HiSERV developed the Smart Trainer together with [manufacturer] Schrader and DEKRA [the German Motor Vehicle Surveillance Association, an expert in transport-related safety] to reach a new level in training equipment.

The trainer was built by the Schrader company and tested and approved by DEKRA.

BER is now the first airport to rent the trainer for training in preparation for its opening later this year. The Smart Trainer is already located airside at BER.

Do you hope to sell more Smart Trainers to other customers in Germany and abroad in the future?

The feedback after the first tests was so positive that we can very well imagine building another Smart Trainer in the future.

Have you managed to keep business going through the pandemic?

The Covid-19 pandemic has severely affected the entire aviation industry. With our innovative and flexible solutions we support our customers in adapting to this challenge in the best possible way.

We are doing this, for example, by helping them to convert fixed costs into variable costs, by using low-maintenance and therefore very cost-efficient electrical GSE and by optimising the use of their ground service units.

HiSERV has been offering GSE since 2017. It manages a young and modern fleet of more than 4,000 units, the equipment complemented by short-term rental, pay-per-use and real-time tracking options. It also supplies a portfolio of additional services related to GSE rental, such as consulting, maintenance, fleet management and training.

CIMC Air Marrel expands its electric-powered portfolio

Air Marrel is not letting the grass grow under its feet in this incredibly tough year. As part of a larger GSE manufacturing group, it is continuing to expand its portfolio of equipment, and particularly the options it offers the market in terms of electric GSE. Moreover, it is seriously investigating the potential of hydrogen power for the ramp of tomorrow

While Air Marrel is based in Saint-Chamond, France, it forms part of the Shenzhen, China-headquartered CIMC Group, a corporate giant with interests in energy, construction, oil and gas, shipping and other markets as well as airport equipment.

Having acquired no less than 10 companies in the aviation and transport/logistics sectors since 2012, the CIMC Group has positioned itself as a primary supplier of airport and GSE solutions. CIMC-Tianda Airport Holding, an aviation division of the Shenzhen-based company, now consists of 13 business units, each of them specialising in particular product areas. These include passenger boarding bridges, pre-conditioned air systems, baggage handling systems, air cargo management systems, fire-fighting vehicles and different families of ramp-based ground support equipment.

The GSE division of CIMC-Tianda Airport, which takes in Air Marrel – the latter became part of the CIMC group in 2013 – offers apron buses, catering trucks, ambulifts, transporters and cargo loaders. Of late, the division has focused its attention on developing a comprehensive range of electric GSE, with joint project teams working on battery-powered equipment from the group's various engineering centres in China, Singapore and France.

All the new electric models – which take in catering trucks, cargo loaders and apron buses – offer the latest in safety approach systems (excluding apron buses, where this feature is not relevant), electronic control systems and remote diagnosis control (telematics).

"This latest technology allows customers to benefit from the latest safety and technological standards," observes Gwenn Hervet, sales and marketing director for CIMC Air Marrel, who markets and sells GSE produced across the group.

Catering to demand for battery power

As recently as the first quarter of this year, CIMC Xinfa launched a fully electric version of its XC6000 catering truck (Xinfa is a Chinese bus manufacturer that was also acquired by CIMC as part of its expansionist drive). The XC6000e comes in two variants. The basic model offers a power output of 175kWh, has a range of 210km and can service 20 aircraft with payloads of up to 4 tonnes on a single charge, while the more powerful variant has a battery output of 314kWh, can drive up to 315km and can serve 30 aircraft on a single charge. Both models come equipped with a safety approach system and meet International Air Transport Association

(IATA), Civil Aviation Administration of China (CAAC) and European Economic Area CE standards.

CIMC Xinfa's 6300EVA Aerobus has long been a common sight at airports in China and CIMC Xinfa was the first manufacturer of electric apron buses, Hervet explains. The vehicles now have proven track records at more than 30 airports across the world, making Xinfa one of the leading suppliers of both electric and diesel buses. Like CIMC's catering trucks, two different battery options are available, at 234kWh and 314kWh. In addition to these high-capacity airport apron buses, Xinfa also manufactures medium-sized buses for smaller airports and VIP buses.

All of the Xinfa buses are manufactured in either steel or full aluminium, according to customers' needs. Aluminium bodies are lighter and extremely robust, Hervet says. One of the strengths of CIMC Xinfa is its flexibility to adapt its buses to customer-specific requirements, he continues.

A major example can be seen in the development of a dual-drive apron bus (with driving stations at both front and rear of the vehicle), which was designed specifically for congested airports such as Hong Kong and Sydney. Up to now, Xinfa has been the only manufacturer to offer this dual drive facility (Carbridge in Australia has also offered dual-drive buses as part of its collaboration with Xinfa).

Electric loaders

Air Marrel has historically specialised in transporters and loaders, and today offers a range of loaders from 3.5 tonnes right up to 35 tonnes and transporters of 7 tonnes and 20 tonnes. These cargo loaders continue to be manufactured in France, at the business unit based at Saint-Chamond, near Lyon.

Over the last couple of years, this business unit has developed new electric versions of its two best-selling cargo loaders: the LAM7000 and LAM14000. The electric LAM3500, meanwhile, was shown off at *inter airport* in Munich last year.

Priority has been given to reducing energy consumption through what Hervet describes as an "optimisation of the hydraulic design". For example, he points to power tank accumulators that store power generated by the most energy-consuming functions (such as the raising of the main platform) in order to perform lower energy-consuming functions (such as lowering platforms) without drawing energy from the battery.

This simple and logical system emphasises reduced energy consumption – and battery capacity – rather than focusing


CIMC Air Marrel can offer customers electric-powered catering trucks

on generating the highest possible capacity. As a consequence, although lithium batteries are available on Air Marrrel's 14-tonne loader, all models are most usually supplied with conventional lead-acid batteries, which offer similar performance to diesel-driven models.

Of course, CIMC also continues to offer its conventional loaders and transporters. While demand has been down during this year's Covid-19 pandemic for the smaller loaders that serve passenger aircraft (because so many of these aircraft have been grounded), freighters continue to fly and the big loaders and transporters that serve their maindecks have remained popular all year, Hervet reports. CIMC Air Marrel continues to investigate possible battery-powered options for its larger loaders to complement its e-versions of the smaller units, but their energy consumption is higher – and the challenges to develop efficient battery-powered versions with today's affordable technology are also consequently that much greater.

A significant development this year for CIMC's loader business has been the opening of a cargo loader assembly plant in Beijing. Intended to address the ever-growing needs of the Chinese domestic airport market, the plant has until now assembled both diesel and electric variants of Air Marrel's 14-tonne loaders, but by the end of the year will almost certainly be offering the group's 7-tonne loaders as well.

The facility in no way replaces Saint-Chamond, Hervet stresses, its value lying in its proximity to a Chinese national market for airport-related products that shows no sign of abating.

Radical change

While greener power sources are going to be a 'must' as environmental concerns grow ever stronger, battery power will not be the last word in terms of more sustainable alternatives to diesel, Hervet opines.

Not only is some electrical energy not generated in a 'green' way, but battery-powered GSE is very much constrained at the moment by the limited availability of charging infrastructure at so many of the world's airports.

So, looking to the future, CIMC Air Marrel has worked on projects at several airports in Europe involving hydrogen fuel cell-powered cargo loaders. In fact, the French manufacturer has been a pioneer in hydrogen fuel cell technology for GSE: its first hydrogen fuel cell loader was tested in Spain with national airport operator Aena as far back as 2012.

While the progress made on developing this innovative technology for GSE slowed markedly in the years after 2012 – "the industry was not ready" for it, says Hervet – last year's *inter airport* Europe show in Munich demonstrated that demand for such a revolutionary power source is returning. Thus, Air CIMC Marrel is now once again looking at prospects for its smaller 3.5-tonne and 7-tonne cargo loaders as far as hydrogen fuel cell technology is concerned.


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Schiphol trials TaxiBot aircraft tow tractor

As part of its wider effort to minimise harmful emissions, Amsterdam Airport Schiphol has this summer played host to TaxiBot towing trials as it considers more sustainable aircraft taxiing alternatives

In late April, Amsterdam Airport Schiphol, operator of the Netherlands' biggest air gateway, announced that it would be hosting trials of TaxiBot. TaxiBot represents a different alternative to standard aircraft taxiing systems, one in which towing is remotely controlled from the flight deck of the aircraft.

The benefits of the TaxiBot system, which enables an aircraft to be conveyed from gate to airport runway without the need for the aircraft's engines to be running, are many – not least in terms of the cost savings and lower levels of harmful emissions achieved through the reduced use of aircraft fuel during taxiing. Schiphol is investigating its advantages in collaboration with a number of partners.

The tests, which were ongoing at the time of writing at the end of July (they were expected to continue until at least mid-August), involve a number of interested parties. Players have included Netherlands Air Traffic Control (Luchtverkeersleiding Nederland, or LVNL), the Dutch Ministry of Infrastructure and the Environment (Ministerie van Infrastructuur en Waterstaat), dnata and KLM Ground Services (handlers at Schiphol) and three of the big airlines at Schiphol: Dutch flag-carrier KLM, Dutch low-cost carrier Transavia and charter carrier Corendon Dutch Airlines (sister airline to Turkey-based Corendon Airlines).

Paris-headquartered Smart Airport Systems was the supplier of the TaxiBot; part of the Alvest Group of aviation companies, it is a sister company to TLD, which together with Israel Aerospace Industry (IAI) has been behind the development of the TaxiBot semi-robotic taxiing system.

The trials of TaxiBot at Schiphol forms part of a project at Amsterdam to assess the feasibility of sustainable taxiing, a representative of Amsterdam Airport Schiphol tells *Airside*. Some of the possibilities under investigation include how sustainable taxiing can be integrated

"This study aligns with our ambition to be the world's most sustainable airport"

Hassan Charaf,
Royal Schiphol Group

into daily operations, whether sustainable taxiing is achievable on a large scale and how long any transition phase might need to be.

Smart Airport Systems believes that a saving of up to 85% in fuel consumption can be achieved when using TaxiBot's own hybrid diesel-electric engine in place of an aircraft's own engines during the taxi process, while Schiphol apparently expects to achieve a total saving of between 50 and 85% on fuel consumption during taxiing because aircraft engines do still need to warm-up for a few minutes before take-off.

Hassan Charaf, head of innovation at Royal Schiphol Group, comments: "This study aligns with our ambition to be the world's most sustainable airport.

"We are continuing with this important test despite the situation that the corona crisis has caused. I am proud that Schiphol and its partners are investigating what sustainable taxiing at Schiphol can mean.

Freek van der Pal, managing director of Corendon Dutch Airlines, adds: "This project is a perfect fit within our sustainability policy.

"Our ambition is to reduce Co_2 emission levels and to work together with our partners in chain to make the aviation industry more sustainable. The first tests with our plane went well. Therefore, we hope for a positive outcome from the trials and that we and our partners can roll it out in the near future."

Phased testing

Vincent Metz, executive vice president business development at Smart Airport Systems, explains that the testing at Schiphol has been undertaken in a carefully phased process.

Trials began with the towing of an empty aircraft in just the same manner that a tow truck would tow a trailer. Then, they progressed up to pilot-controlled remote taxiing while additional complexities were introduced on a phased basis. For example, mid-July saw night-time trials to test the effect of lower levels of visibility. In the last phase, commercial flights with passengers on board are taxiing using the TaxiBot system.

The trials have been "very practical in nature", Metz notes. Up to now, "We have been very happy and impressed with the results achieved by Schiphol, especially since trials were in the midst of Covid-19 crisis," he adds.

"It has been great to work with Schiphol as a partner in this project. They are so committed to reach their sustainable objectives. On top of this, they have strong know-how and ability to get all the stakeholders at the airport involved and enthusiastic about this trial and its evaluations.

"That has allowed us to get real 360-degree feedback from all the key players contributing to the TaxiBot operation. For us, that has confirmed that TaxiBot is a solution that is ready today to bring direct and real emission reductions for airlines and airports."

Measurements are being undertaken during the trials to see what fuel savings can be made through lower aircraft engine run times. These translate to a reduction of Co_2 emissions, while reductions in nitrogen emissions are also achieved – a not inconsiderable concern in the Netherlands right now, where No_2 emissions are a particularly sensitive political/environmental issue.

Sustainable taxiing is seen as a potentially important part of the mix of measures that might be introduced into the Dutch aviation sector to minimise harmful emissions of both No_2 and Co_2. Moreover, as well as savings on emissions and fuel costs, TaxiBot also cuts down on noise on the ramp, particularly benefiting the handlers operating on a busy airport ramp on an ongoing basis.

TaxiBot is already in operation in India, at Delhi and Bangalore Airports. Air India is using a small fleet of TaxiBot vehicles to tow aircraft at these busy hubs. The Schiphol trials have added a lot of publicity on top of that. Metz is already noticing the extra interest that has been generated by these trials amongst other airport operators. More and more airports are – he says – starting to realise the potential of the TaxiBot in helping them to achieve their environmental and sustainability objectives.

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Innovation in GSE

Denmark-headquartered Power Stow, well known for its extendable belt loader system, the Rollertrack Conveyor that is used by airports, ground handlers and airlines around the world, also developed the innovative Transfer Belt. The main purpose of the Transfer Belt is to assist in the unloading of baggage and cargo from various types of containers and baggage carts onto an arrival conveyor belt in a sorting area. It has proven very popular in the comparatively short time it has been available

The Transfer Belt enables faster and easier unloading of bags and cargo, allowing a handler/operator to handle a large number of baggage items quickly, efficiently and in a more ergonomically beneficial way – in particular, because it eliminates the need for lifting and twisting on the part of handlers moving bags from a cart or unit load device (ULD) to an arrival belt. A handler/operator slides bags onto a Transfer Belt, which then guides the luggage onto a conveyor belt. This semi-automatic unloading method significantly reduces the risk of back and shoulder injuries.

Kim Meldgaard, Power Stow's international area sales manager, recalls that the Transfer Belt was developed as part of a wider corporate project looking into potential automated loading systems, but the value of the Transfer Belt as a stand-alone development was immediately apparent.

It was first shown to the public at the *inter airport* Europe fair in Munich in 2017. Well received at the expo, there followed a further period of prototype testing at various airports around the world, by means of which Power Stow gained further valuable user feedback, Meldgaard notes.

The Transfer Belt was launched officially onto the market early last year, and its first customer was Copenhagen Airport, Denmark's biggest and busiest air gateway. Today, the Transfer Belt is in use at many different airports, including gateways in North America, Europe and Asia.

The benefits of the Transfer Belt are many, Meldgaard explains.

Firstly, it is designed for easy integration into different airport environments and existing baggage handling systems and so, he says, is more or less 'plug-and-play' in this regard.

It is also easy to use, with all functions being managed by a single operator. The operator simply slides the bags onto the Transfer Belt, which then guides the baggage onto the conveyor belt. Most of the Transfer Belt's functions, such as movement, belt start and brake release, are controlled via a multi-purpose handle

on the side of the device, while 'Stop' and 'Complete' have their own dedicated buttons located on the sides of the machine.

Operators require only minimal training on the equipment. Because it significantly cuts down on lifting heavy loads, individual handlers find it ergonomically very beneficial – while their employers benefit from staff suffering fewer injuries and taking fewer sick days.

The Transfer Belt also makes the process of transferring bags from carts/ULDs to the conveyor belt a gentler one, thus minimising potential damage to baggage during the process. And, of course, it speeds up the unloading process – indeed, representing as much as a 30% improvement in productivity, says Meldgaard.

The Transfer Belt is a patented product, and as a semi-automatic system, the first of its kind on the market, he continues. Some handlers/operators use vacuum systems or hooks to make baggage handling easier, but these do not have the flexibility of the Transfer Belt.

The equipment has been modified and improved over the last couple of years as a result of user feedback. Power Stow has worked with many different users to obtain their feedback and ensure that it meets their various demands.

"We are a company that always listens to our customers and is open for any kind of input from users. They are the real 'judges' of what is working, or not. So we are always happy to receive input such as ideas for modifications if they are requested," Meldgaard remarks.

Aviation Action in action

Chris Wild, the head of airfield operations at the UK's Manchester Airport, has – with the help of a number of his colleagues in the aviation industry – set up a charity to help members of the sector who feel the need for some support, especially those who have found themselves out of work, very likely as a result of Covid-19-related cutbacks. Aviation Action, officially launched in late July, has a simple mission: to provide personal and professional help and support to the people who 'really make aviation fly'

Chris Wild, founder of Aviation Action

Can you tell us about your background in the aviation business, and about what you do now at Manchester Airport?

My love of aviation started, like many others, when I took a trial flying lesson at the age of 13. Since then I have obtained a degree in Aviation Management, obtained my Private Pilot's Licence (PPL) and worked for five different airports.

I started my career as a ground handling agent at London City Airport, and since then have worked my way through various airport operational leadership roles. I have now been at Manchester Airport, where I hold the position of head of airfield operations, for nearly five years.

I lead a team of approximately 70 colleagues active in four key areas: airfield operations, airfield capacity management, airfield planning/projects and airfield safety and compliance. Essentially, I ensure that the airfield operates efficiently and safely, and that we continue to deliver a strong service to our airline clients and airfield users.

Aviation Action was established this summer, but had you been thinking about it for some time before that?

Yes, I had the idea some six months ago when I first experienced a similar charity in the hospitality sector. I was shocked and surprised that aviation didn't have such a cause. Covid-19 gave me the kick to launch it, and I haven't stopped since!

So the thinking behind Aviation Action is not all to do with the pandemic; there are longer term issues that you also feel need addressing within the industry?

Pandemic aside, there is a need for Aviation Action. At a time when the industry desperately needs significant support, we found there is an evident lack of specific support available for the hundreds of thousands of people who work in aviation.

At the moment, we are heavily involved in supporting colleagues through the pandemic, mainly relating to mental health and employment matters. As a leader, but more importantly as a husband and a dad, I am acutely aware of the challenges our aviation colleagues have to overcome in everyday life, both personally and professionally.

Aviation is an industry where you can experience feelings of euphoria and negativity in the space of any one shift. Aviation Action will provide longer term support to colleagues going through a challenging life event and will also be there to support when positive life events come along, such as helping with preparation for an interview, promotion or by providing training.

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How many people have approached Aviation Action for your help?

Within an hour [of establishing the charity] I had a pilot who was under threat of redundancy approach us for help. Within the day, we had paired him with a fellow pilot who had experienced a similar event. We then provided some further professional support a few days later. We are now helping numerous people daily with the help of our amazing peer and professional supporters.

What sort of help are people looking for, and from what sorts of areas of the aviation sector are they coming?

The range is really broad; it ranges from some simple signposting for jobs, to a CV review and rewrite, to arranging psychological support and career 'reset' coaching. These people come from right across the spectrum: we have had pilots, cabin crew, engineers, airport workers and aviation graduates, many of whom are now peer supporters supporting others.

What sorts of professional and personal support can you offer to those who ask for help?

We have been so lucky with the support we have received so far. I have been inundated with offers of help, which is so heartwarming. Within a few weeks we had around 50 peer supporters with diverse experience and knowledge and approximately 30 professional supporters from HR [human resources], legal, hypnotherapists, coaches, mental health practitioners, and many others.

Did you get help from the outset in establishing the charity?

Yes, very much so, from my industry peers. Much like what the charity is trying to achieve, I reached out to some of my close industry peers for support and to ask a few favours. They quickly obliged and gave me the confidence to launch.

Chris Wild founded Aviation Action earlier this year; besides his responsibilities with the charity, he is head of airfield operations at Manchester Airport

And what sort of resources have you been able to devote to Aviation Action on an ongoing basis?

Those that helped me to launch Aviation Action continue to provide help and support today, for which I am so thankful.

In fact, the support from the industry and companies linked with aviation has been nothing short of incredible. Early supporters and donors have included Bristol Airport, Lincs Lining Limited, British Aviation Group, Osprey Consulting Services, AIRDAT and Dedrone, to name just a few.

I get asked all the time 'what can we do to help?' and I think they expect me to say 'make a donation'. But as it stands we just need access to resources, expertise and services which we can promote, share and signpost our clients to in order for them to get the right, targeted and appropriate support for their need.

In terms of the charity sector, I have gained some really valuable support from Mark Lewis, CEO at Hospitality Action; he has been amazing.

What forms is this assistance taking?

It really varies, but at the moment we don't talk money – that's for later. Funding and donations are firmly on our road map to ensure we can continue to provide services but at the moment it is simply free access to their resources, expertise and services. This could range from using their Zoom account to running a webinar to agreeing to undertake six coaching sessions.

Everyone has something to offer: it is our job to facilitate and make arrangements to allow our aviation colleagues who are in need, to benefit.

There is a job vacancies element to the website. How are you getting the information regarding those vacancies?

We have close links with aviation-specific recruitment companies who help

promote Aviation Action to their network of contacts as well as providing resources like CV reviews or CV/interview webinars. As part of that agreement we host their roles on our site and introduce them to potential candidates.

Do you have plans for the further development of Aviation Action? Will you continue to grow the charity once the aviation industry returns to normality, whenever that might be?

Absolutely, this is just the start. There is a degree of fire-fighting at the moment as we navigate ourselves out of this crisis, but we do have a three-horizon strategic plan taking us through to 2022 [this strategic plan takes in the 'stepped changes' towards being a 'world-class charity', Aviation Action's expanding roles and how it will build its profile, resources and ability to help those who need its assistance].

As we move forward we would love to offer hardship grants, training grants, young people/women in aviation schemes, support aviation apprenticeships, and military-to-civil conversions to name a few. This will be undertaken alongside the services we currently offer but we are committed to continually improving these services.

In a subsequent statement, Wild commented on just how valuable donations will be. He said: "Donations from aviation companies are paramount of course, to help support more people in the wider aviation community.

"The services our team are offering are all free, so the donations we receive are going towards securing support for the people that really need it, whether that is mentor support to obtain new employment following a Covid-19 redundancy, or tackling an ongoing mental health issue."

He continued: "The impact of Covid-19 across the globe has seen thousands of redundancies, lay-offs, collapses, withdrawal of services, fear and anxiety across the aviation world, which in turn has impacted so many others.

"Livelihoods have been lost and whole businesses have been forced to either be put on hold forcing a cash-flow crisis, or wound down completely. In my own sector, the devastating effect on airport operations has left airfields looking like ghost towns, as operators either shut down, leaving their airliners parked in eerie rows, or fly them off to designated airfields where they can be stored awaiting redeployment, retirement from service or the scrapyard.

"We encourage our industry to come together during this turbulent period to support the wider community," Wild concluded.

The Aviation Action website can be found at: www.aviationaction.org

"Pandemic aside, there is a need for Aviation Action"

Chris Wild,
Aviation Action

Looking ahead to better times

Rushlift, the subsidiary of Doosan Industrial Vehicles UK that supplies airport GSE, has been busy this year, despite the collapse of the aviation market caused by Covid-19

The end of last year saw Rushlift begin to talk to ASC Handling about the possibility of supporting the latter's handling operations at London Gatwick Airport for charter carrier TUI.

Rushlift had already been supporting ASC Handling's operations at London Heathrow for six or seven years – through leased ground support equipment and its ongoing maintenance – which perhaps gave the supplier an edge in the competitive tender process that followed.

Another advantage that Rushlift enjoyed, says Tim Willett, its operations director, was that it carries a lot of stock – in this case, perhaps as much as 75% of the GSE required by ASC for handling TUI at Gatwick.

Rushlift was awarded a five-year contract to provide on lease and subsequently maintain a total of 225 vehicles (GSE and cars) worth a total of £3.4 million (US$4.1 million).

The GSE includes a wide range of equipment, such as pushback tugs, baggage carts, powered belt loaders and high loaders, from well-established equipment providers including TREPEL, TLD, Textron and Charlatte, as well as a fleet of 20 Hyundai petrol-driven cars.

The exact terms of the agreement were negotiated and co-ordinated between Christmas last year and 4 March this year: a comparatively short period of time to source, prepare and deliver such a large amount of equipment. It was significant, then, that Rushlift carried such a wide range of inventory, including most of the smaller vehicles. Moreover, a number of Rushlift GSE engineers, supervisors and managers up to director level were deployed at Gatwick throughout the night up to the launch on 4 March.

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"We were up against an extremely tight deadline, but we were confident that we could deliver on time," Willett recalls. "The challenge for our team was to ensure that orders stayed on schedule and that meant making daily checks with the equipment makers. It went right up to the wire, with final deliveries the day before the 'go-live'. However, the entire team worked through the night to get the job done."

Rushlift has two workshops at Gatwick, one of which is located airside and thus readily available to support ASC's GSE repair and maintenance requirements (as well as the GSE that Rushlift maintains for DHL's easyJet handling operation at the gateway, a programme that dates back to 2017).

Rushlift also has a total of 12,000 square metres of GSE storage space at Gatwick, another asset it can offer its clients there.

Maurizio Beni, ASC Handling managing director, is pleased with how things have gone. "ASC has been working closely with Rushlift GSE for over six years at Heathrow and we have a very close working relationship with the Rushlift team," he says. "We have come to expect very high standards of service support and quality of equipment supplied, and this is delivered consistently.

"The Gatwick inaugural launch was extremely important to ASC, so naturally we selected Rushlift GSE to support our operational start-up and to supply over 200 items of GSE. The launch date went without any problems, and Rushlift GSE delivered a superb service to ASC and our customer."

"We were up against an extremely tight deadline, but we were confident that we could deliver on time"

Tim Willett,
Rushlift

Airport Operations offers its support

Airport Operations is a relatively new addition to the aviation sector. Formed in 2019, and headquartered in Essex in the UK, it offers both consultancy services and resources to airport operators looking for specialist help. The last few months have been incredibly difficult for everyone involved in aviation, but Airport Operations has fought through

Airport Operations Limited director Kieran Meikle explains that, while its payroll is small, the team is composed of "highly experienced airport technical experts [who] have many years of delivering safe operations at regional and international airports". It currently has a staff of five, with numerous self-employed trainers and consultants giving support as required.

"We believe in providing only the best people, equipment and services to improve safety and performance and to reduce carbon emissions for all of our airport customers," he adds.

The company offers a range of services designed to take the strain from airport managers. It can provide personnel for all airside operations and safety roles, including accountable managers, safety managers, wildlife control operatives, marshallers and stand planners.


Airport Operations director Kieran Meikle

Plus, its testing team can undertake runway friction testing, MALMS (Mobile Airfield Lighting Monitoring Testing) and rubber removal. As well as completing such work, it can also train airport operators' own staff to do so.

The Airport Operations compliance support team can advise on procedural requirements and certifications, while its Airside Operations Supply Chain (AOSC) service delivers products at the best prices available. In fact Airport Operations claims to be "the UK's only dedicated online retail and just-in-time logistics service for airport operations".

Frustration

"The driving force behind setting up Airport Operations Limited was my frustration in having minimal time to manage multiple departments and budgets as head of operations, security and safety manager at London Oxford Airport," recalls Meikle.

"My team and I at Oxford were always frustrated that there wasn't a single-point supplier that could support airside operations and safety. The amount of time dealing with supplier after supplier for everything from marshalling bats to safety and security consultancy took a huge amount of time and negotiation. Frequently, trying to find the right product took considerable effort. Airport Operations Ltd aims to resolve those very issues."

While Airport Operations itself is new, its team has plenty of experience: more than 30 years of it, says Meikle. "We've managed EASA [European Union Aviation Safety Agency] certification, airspace changes and runway extensions, we've managed projects like remote towers, radar installations, runway resurfacing and we've battled the weather during winter operations."

Of course, it has not been an easy time for Airport Operations, just like the vast majority of businesses involved in the aviation industry this year. Having been running for less than 12 months – and five of those under the Covid-19 crisis – Airport Operations has nevertheless supported one company with the start-up of an aviation security training organisation and also offered ongoing support to offshore island airports.

"But the good news is that as of today we are officially the exclusive agent for AES/Airsafe Aeronautical Ground Lighting in the UK," confirmed Meikle in July. "Recent AES installations have included Leeds and Farnborough. In addition, as of today we are official UK agents for RJA Corporate Aviation Security as well; RJA already supports Lydd, Oxford, Lasham and Farnborough airports and we are supporting them with their expansion plans," he adds.

Airport Operations' customers include airfields big and small, and it can offer support to airports right across the world. It has active ongoing enquiries in the Middle East and the UK.

Meikle continues: "As airport managers ourselves we are obsessed with our customers' needs, whether these be training, continuous improvement of their safety management systems, the provision of outsourced and fixed price airside operations and safety personnel, or the supply of airfield lighting.

"Our team members are curious and continually looking for safe, certified innovate solutions that reduce the operational cost or operational efficiency of airside operations. We ensure all of our services meet the highest standard whether that be training to Highfield Accreditation, or the certification of equipment to ICAO/FAA/EASA [International Civil Aviation Organization/Federal Aviation Administration/European Union Aviation Safety Agency] standards to improve quality and safety.

"We are a small organisation at the moment but we think big and take bold decisions to support our customers."

The Covid-19 crisis has offered limited opportunities in its own right. For example, throughout the pandemic, Airport Operations has continued to support existing customers with 'return to operations' equipment and planning, and worked to support clients to reduce their GSE fleets. In fact, as of July, it had over a hundred pieces of used GSE serviceable and available for sale. Furthermore, "We have used the time to improve our training products, operational services and our product range," says Meikle.

In the round, "We understand the complexities of airside operations and accept the challenge to reduce our customers' workload, costs and emissions whilst increasing safety and efficiency," he concludes.

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Invention in disinfection

A Spanish GSE supplier is offering airport authorities and ramp operators a new way of keeping apron areas clean and safe, as part of the wider fight against the Covid-19 threat

Tecnove by Jofrauto, a specialised GSE product manufacturing business operated as a collaborative programme between Tecnove and Jofrauto, two Spanish GSE manufacturers, has developed a specialised vehicle ideally suited for disinfecting ramp areas (as well as public roads).

The vehicle was developed by Tecnove by Jofrauto's own engineering team in collaboration with one of its partners, SVAT (part of the FCC Group). SVAT was looking for a tool to help it ensure its apron is fully sanitised and therefore safe for people to work on for as long as the Covid-19 virus remains a threat.

The vehicles available on the market today were not seen as well suited to perform such a role, and so the decision was taken to develop their own specialised vehicle, to be used for disinfecting equipment and airport ramp areas.

The vehicle, given the initial commercial name of the SJDR3000, is based on a Mercedes Fuso 9C18 Duonic truck, which is equipped with a mechanical nebuliser 'cannon' that sprays a mix of water and sodium hypochlorite completely safe for humans. This first model has a water tank with a capacity of 3,000 litres and a 210-litre hypochlorite disinfectant tank, while the cannon is able to spray fluid up to a range of 35m.

The cannon can spray liquid at a rate of 1,200 litres per hour, and is able to rotate through 360 degrees. It is quiet even when operating at full speed and the software that controls the cannon is easy to use (via a five-button panel).

Disinfectant can also be distributed more manually by means of an extendable hose reel for areas where it is not possible to aim the cannon. The 20m hose is carried in the truck complete with nebuliser nozzle, ready for use for when required.

Tecnove by Jofrauto can offer training for users and engineers tasked with maintaining the vehicle, including advice on preventive maintenance programmes. After-sales service can be sourced from locally based support in Spain, France and Belgium, with 24-hours-a-day, seven-days-a-week assistance available via e-mail and phone.

From August, demonstrations of the unit were expected to begin in cities including Madrid, Malaga and Cordoba. Tecnove by Jofrauto confirms that international deployment of the disinfection vehicle is expected to begin in Mexico; there has also been interest elsewhere in Latin America, in the Middle East and in Europe.

Tecnove by Jofrauto hopes to be able to build such vehicles in approximately four weeks for those who wish to order one, while the business hopes to be able to ramp up to a production rate of as many as 30 units a month if demand so requires it.

Tecnove by Jofrauto's products are in operation at more than 50 airports in 25 countries across four continents. They include catering vehicles, ambulifts, water and lavatory service units, and high loaders.

The SJDR3000 was developed by Tecnove by Jofrauto's own engineering team in collaboration with one of its partners

dBD Communications adapts to the changing times – with success

Covid-19 has had a huge impact on the aviation industry, in all sorts of ways. In business, and certainly for suppliers selling into this sector, it has been necessary to find new ways of working to support existing customers and to win new ones. Yet some companies are doing better than ever

dBD Communications has sold de-icing headsets such as these to customers including Vestergaard

David O'Connell is the managing director of dBD Communications, the Basildon, Essex, UK-headquartered specialist in duplex communications solutions for industries including rail and construction as well as aviation.

He and his company quickly adapted to the 'new normal' – if there is yet such a thing – continuing to operate at full capacity in an environment necessarily significantly affected by concerns related to the Covid-19 pandemic.

"Getting new business has to be done differently at the moment," O'Connell observes. Interaction between supplier and customer is still a must, and the value of remote communication technologies such as Zoom or Microsoft Teams to support business growth has become very apparent, he says.

Processes to ensure thorough disinfection of the workplace, equipment and materials were quickly introduced at the Basildon facility, with appropriate social distancing also rapidly mandated at the factory to ensure work could continue.

Of course, the challenges posed by the virus cannot be completely alleviated whatever the technologies and processes introduced, and difficulties in communicating effectively with potential customers have been compounded by the uncertainty that surrounds the industry in terms of how and when it might return to something approaching the pre-pandemic operating environment.

O'Connell's own feeling is that the industry may well bounce back rapidly once Covid-19 concerns ease. He envisages 'snowballing momentum" once confidence returns, though much will depend on the extent of the severity and duration of quarantine rules enforced by national governments around the world.

dBD Communications' business in the rail industry has remained strong throughout the pandemic, he confirms, thanks in part to its role as a key supplier to Network Rail, which looks after the UK's national rail infrastructure. But dBD has done well of late in its aviation business too.

Its airside wireless communications portfolio incorporates systems designed specifically for pushback handlers and de-icing service providers. When low-cost carrier easyJet wanted to go wireless at London Gatwick International Airport, it put

dBD Communications' systems through a number of trials and decided to opt for the company's Minerva VOX systems at the gateway earlier this year.

The system allows an aircraft handler overseeing pushback to communicate wirelessly with the flight deck, and to do so hands-free. This latter capability is enabled by the fact that Minerva VOX communication is voice-operated: the system will transmit at the sound of the user's voice without requiring the user to depress any switch or button.

And because it is wireless, no plug-in wire connection with the aircraft is needed, so the handler is able to walk around the aircraft as safety issues or any other matters require. Having Minerva VOX thus affords greater flexibility, O'Connell points out.

Having signed the deal in the New Year, dBD Communications had delivered the Minerva VOX systems within a very sort timeframe by the end of March, but not long after that the easyJet operation at Gatwick came to a halt as a result of the pandemic. Despite that, it was an important deal and in better times O'Connell is hopeful that successful use of Minerva by easyJet at its South London base at Gatwick will encourage the carrier to adopt the technology at other stations in its global network.

Ongoing success

The month of July was a particularly successful one for dBD's burgeoning aviation business. In that month, Denmark-based de-icing vehicle

"Getting new business has to be done differently at the moment"

David O'Connell,
dBD Communications

David O'Connell, managing director of dBD Communications

manufacturer Vestergaard ordered another 20 wireless systems from dBD. These Athena headsets will wirelessly connect a de-icing sprayer in the open basket of a Vestergaard de-icing machine with his/her colleague in the cabin of the vehicle.

The headset worn by the operator in the basket will have a 'protected headset' to minimise the external noise and pollution of the ramp environment, while dBD's Athena Lighter version will be used by the operator in the cabin. The Athena Lighter has a more open left earpiece (described as a milled, hollow ear dome), to allow its wearer to hear more ambient sound, be that from the vehicle itself or perhaps any other vehicle-based communications system in operation.

Also in July, globally active handler Menzies placed an order for dBD Communications' four-user Apollo wireless headset system for use at Oslo Airport in Norway. This commitment followed the sale of dBD systems to Menzies for use at Copenhagen Airport last year.

Finally, July saw Air New Zealand (Air NZ) confirm that dBD Communications would be its "headset supplier of choice", says O'Connell. The carrier selected the company to supply it with wireless headsets as part of a competitive tender that month, though details on numbers and delivery dates are yet to be ironed out.

dBD is likely to supply Minerva headsets to accompany other systems as required, O'Connell informs.

July showed that dBD Communications has made "good traction" in the aviation sector of late, he notes, and is now recognised as a key provider of wireless systems and headsets in the ground handling and de-icing businesses.

Supporting the comunity

As well as running his own business, during the pandemic O'Connell has also chosen to look at ways of supporting his wider community. He currently serves on the board of his local Opportunity South Essex (OSE) group, part of his area's Local Enterprise Partnership (LEP), where he can offer his knowledge and experience to others.

LEPs – there are currently 38 of them across England – are business-led partnerships with local authorities. They play a role in defining local economic priorities and driving economic growth. As well as being an honour in itself, O'Connell says, serving on an LEP also gives him an insight into how other businesses have reacted to the realities of working in an environment dominated by fears of Covid-19.

His work with the LEP also led to an interesting opportunity. The Cabinet Office, whose main aim is to support the British prime minister and his/her cabinet to drive the government's programme, contacted O'Connell to ask if dBD might create a short video highlighting how it had re-engineered its place of work, processes and technologies in order to continue to work effectively during the partial lockdown that was imposed in spring of this year.

As well as ensuring its own employees' safety, the company has also worked to deliver the safest possible product to its customers in these difficult times – hence dBD's disinfection of all headsets before they leave the factory, for example, just one part of the company's 10-step cleaning guide to combating the spread of the virus. That 10-step regime covers the company's process from goods entering the factory right through to final delivery.

dBD reacted quickly to safeguard its people and its business, and O'Connell is confident that better times may not be far away. And there may even be one positive to the pandemic in terms of its effect on airside operations: it has made the benefits of autonomy of operations on the ramp even clearer, he suggests, observing that 'autonomy' strongly suggests the need for wireless-based communications in that context.

Moreover, at a time when so many aircraft have been parked at airports around the world, congestion on and around stands has become even more pronounced. The dangers of ramp rash are thus perhaps even greater than ever, and the importance of effective communication during pushback is therefore also that much greater.

Catering to both pushback handlers and aircraft de-icing service providers, dBD Communications' customers include airlines such as easyJet and Singapore Airlines as well as handlers including Menzies, Swissport and Bangkok Flight Services (BFS).

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MC Solutions launches new Lamp Time Control

MC Solutions' Lamp Time Control (LTC) system measures the response time of an airfield ground lighting (AGL) lamp failure and – says the Milan-based supplier of ground lighting and surface guidance monitoring systems – can form part of a safe surface movement guidance control system (SMGCS)

The LTC consists of a master unit that is installed in an airfield control site, typically an air traffic control tower, and what is described as a subordinate (or 'slave') unit taken onto the airfield. The latter is connected to a 'power light' device that – through a standard Federal Aviation Administration (FAA) connector – is placed between the monitoring module and an airfield lamp on which the failure response time is going to be checked.

The master and slave units are wirelessly connected with a communication range of up to 12km.

The master unit incorporates a device that will detect the acoustic signal that is generated by a lamp failure. On an integrated printer it will then produce a report on the test: the failure response time in milliseconds as well as the LTC's individual serial number.

As well as timing the lamp failure feedback response time, the LTC can also be used to check the 'switch on' command time needed to light individual lamps and so the wider AGL environment.

The instrumentation has been tested and certified by the Piacenza, Italy-based SIET testing laboratory, and has a patent pending.

MC Solutions delivers the components of the LTC in what is described as a purpose-

Why is it important to test lights' failure response rate?

So, why is it so important for an operator to be able to time AGL lamps' failure feedback response time?

First, an AGL system must be in compliance with European Union Aviation Safety Agency (EASA) regulations: the rules say there must be a maximum of two seconds for feedback from a stopbar and five seconds from all other circuits, MC Solutions explains.

Moreover, when lead-on lights [which provide visual guidance to those entering a runway] are switched on or off, those lights must provide immediate feedback to the tower: "If you consider that an aircraft moves at a around 30 knots [56km/h], timing performance is a key feature if ground traffic is to be safely managed, ensuring safety for both aircraft and any other vehicles that might not be visible be seen from a cockpit," the company notes.

The LTC master unit

The LTC slave unit

The LTC comes in its own 'aeronautical suitcase'

made 'aeronautical suitcase' complete with handle and snap-lock system. The use of the measuring instrument does not require screws or other fastening mechanisms that could be dropped or lost. The LTC system requires calibration just once a year.

MIA going strong at Venice Airport

In other news, MC Solutions has reported that the Modular Intelligence Airport (MIA) system that it installed at Italy's Venice Airport has now been going strong for more than a year.

Of the 15,000 MIA modules and 6,000 connectors installed, there has not been a single failure over the past year, the company reveals.

The MIA airfield lighting control and monitoring system (ALCMS) is a fibre optic system that enables remote monitoring and testing of an AGL system. With high-speed connectivity and requiring little in the way of maintenance, MIA incorporates an aircraft detection system that can highlight any runway incursions as part of a wider surface management ground control system. This technology need only ever be calibrated once – on installation.

The fibre optic data transmission of the FAA and European Aviation Safety Agency (EASA)-compliant MIA system that connects the airfield to tower at Marco Polo Airport in Venice is a development of the MC Solutions' copper wire-based AGL monitoring system that is in place at a number of other Italian air gateways.

The software is tailored to the customer – not just the layout, but functionalities and interface as well. The software is controlled, uploaded and updated remotely.

MIA consists in the main of two devices: Monitor Control Lamp Opticals (MCLOs) that monitor airfield lamps and for which there is a worldwide patent pending; and Crossing Detection Units (CDUs) that recognise an aircraft or vehicle, its speed and its direction, through a magnetic loop installed in the airfield asphalt for runway incursion detection.

MIA is a high-speed system handling large volumes of data, with monitoring of both primary and secondary AGL services. It provides feedback from any malfunctioning lamp in a single second. That communication is free from interference because it does not use wireless technology.

Shell Aviation speeds aircraft fuelling process

Shell Aviation has introduced an upgrade to its SkyPad tablet that connects pilots and apron operators with cloud-based computer systems. The fuel supplier says its improved product enables 'end-to-end digital integration' of Shell with its airline customers

Developed in collaboration with software applications specialist SAP, Shell SkyPad was first brought onto the market three years ago.

Recollecting the product's initial development, Shell Aviation head of operations Thomas de Boer comments: "On the apron, where safety requirements are some of the most stringent in the world, orchestrating seamless operations and safely moving hundreds of refuelling trucks across the globe in close proximity to large aircraft is no easy task. This is particularly the case for our customers, who are inevitably bounded by time: every second saved makes a huge difference to their bottom line.

"That's why we introduced Shell SkyPad, connecting our operators who provide the fuel on the apron with office staff and customers throughout the fuelling process. First launched in November 2017, our complete and fully integrated solution links the tablet to a cloud-based computer platform, simplifying and speeding up critical aspects of the refuelling process, as well as reducing administration and human error."

Next step

The upgrade to the system, Shell SkyPad Data Exchange, marks the next step in Shell Aviation's ambitions for "a fully digitised refuelling operation".

The application has been enhanced with a real-time communications tool that enables instant contact between the apron operator, the pilot and back offices, allowing them to track, update and exchange fuel figures electronically throughout the refuelling process.

This means that aircraft do not need to be on stand for as long as they otherwise would during a refuelling. From the pilot's initial fuel order to take-off, the exchange between Shell SkyPad and an airline's own system means that potential issues during critical moments of the fuelling process can be predicted and averted, Shell says.

The transmission of progress milestones throughout the fuelling process delivers "flexibility, transparency and reliability", the company informs. The airline knows instantly when fuelling has begun and when it finishes, and receives a notification of the final fuel volume after the process is completed. In addition, the pilot does not need to leave the cockpit to speak to the fueller in person.

According to Shell, those airlines that use the new SkyPad Data Exchange can save up to 13 minutes during refuelling, thereby minimising delays in turnaround time and associated costs.

Shell SkyPad Data Exchange is also said to deliver fuel savings by optimising the refuelling process through improved data accuracy, avoiding expenditure on unnecessary fuel.

The new functionality of Shell SkyPad Data Exchange is compatible with a wide range of carriers' own digital platforms, enabling its integration with airline systems that adhere to the International Air Transport Association's Fuel Data Standards.

Launch customer

Shell SkyPad is already in use with many of Shell's airline customers. German flag-carrier Lufthansa is the first customer to integrate the new upgrade into its systems.

Kai Liedtke, head of fuel purchasing at the Frankfurt-headquartered airline group, remarks: "Shell SkyPad Data Exchange, a solution jointly developed between Shell, SAP and Lufthansa, is another important step into fully digitalising and automating the apron.

"The established real-time communication makes the fuelling process significantly safer, faster and more efficient. We strongly believe in the innovative approach of Shell SkyPad Data Exchange and are convinced that this will make a significant difference to the e-fuelling market."

De Boer tells *Airside* that, "Collaborating on new innovations and technologies has been a longstanding focus of Shell Aviation. We believe that partnerships can accelerate innovation and our work with SAP and Lufthansa on developing Shell SkyPad Data Exchange is strong testimony to that."

He recalls the thinking behind the development of SkyPad Data Exchange. "With the aviation industry operating on finely balanced operating margins, our customers are constantly challenged to maximise efficiency and look for innovations that could help improve turnaround times. For us this means continuing to work closely with our customers and innovators across industry to progress the technologies and solutions that will deliver operational excellence."

Shell Aviation's SkyPad Data Exchange; this photo was taken pre-Covid-19

Added benefits

Having Shell SkyPad technology distributed around the world enables Shell Aviation to connect to airlines' systems at any participating airport instantly, after a single integration has been made. This means Shell Aviation can offer a "simple, paperless solution" to its customers, which has added safety benefits during this time when social distancing is paramount to contain Covid-19.

De Boer observes: "With the global aviation industry facing its most significant challenge in history as it starts to recover from the impact of the Covid-19 pandemic, we're not content with being simply 'another supplier'.

"Minimising delays in aircraft turnaround times and errors in data transmission are two aspects that contribute towards profitability," he continues. "By improving communications between pilots and apron operators, this latest innovation will help to deliver smoother and safer operations for our airline customers, using digital technologies to maximise efficiency and accuracy across the refuelling process."

Shell Aviation will continue to innovate, de Boer says. "Incorporating digital technologies into the refuelling process is an area where we believe there is huge potential for uncovering greater operational efficiencies. That's why, in addition to Shell SkyPad, we invested in the only industry-wide, continuous audit of refuelling performance – we call it On Time Performance (OTP) Analytics. This advanced data analytics tool enables us to track every single flight versus schedule and to understand and improve our refuelling performance and adjust where necessary.

"In addition, while most of the industry assesses single-site performance using data analytics at a site level, this is an industry-first solution that tracks fuelling performance across different locations and enables benchmarking and identification of overarching trends to identify efficiency improvement opportunities for our customers. Moreover, OTP Analytics also tracks and records how many flights that arrive late are refuelled by Shell in time to catch up and take off on schedule."

hoopo: elements of a successful reboot

Ittay Hayut, the cofounder and CEO of hoopo, a provider of low-power, wide-area (LPWA) monitoring and tracking solutions, offers his thoughts on what three things will be key to a successful restoration of ground operations in a post Covid-19 world...

Travel restrictions imposed as a result of the global spread of the coronavirus have had a significant impact on the aviation sector and its employees across all parts of the value chain.

Ground handlers are the backbone of the industry, dedicated to serving their partner airlines and airports to ensure a safe, smooth experience for passengers.

Once this pandemic subsides, multiple actions will be required for a successful recovery. For businesses to increase operational efficiency, achieve better results and resume full activity as soon as possible, it is essential to plan ahead and address these urgent topics:

Rebuilding passenger confidence

How long will it take before people are ready to travel again once restrictions are lifted and the virus is contained? It depends on how quickly the industry adapts to the 'new normal' requirements. Quick implementation of social distancing, temperature screening, cleaning regimes (effective disinfection) and quick testing will be crucial components of the industry's recovery.

However, passengers' trust is built not only on personal safety but also on operational performance issues such as on-time departure, luggage arrival and an overall seamless journey.

Another critical topic will be ticket fares post-Covid-19. To offer attractive fares, airlines will have to reduce costs and keep operations as lean as possible. This will require improving efficacy and maximising fleet utilisation. Ground handling companies that support the airlines in achieving these goals will make all the difference.

Operational efficiency

Ground handling companies have been short-staffed because of Covid-19, and this will probably continue well into the recovery period. When travel begins to resume, handlers will need to quickly ramp up services to a rapidly increasing number of travellers.

To maintain efficient operations and timely service, companies will need to automate and maintain excellent control over their fleets in order to make the best use of existing resources.

Adaptability as a core capability

Although the activity of the industry is expected to return to normal, the pattern of business growth is unknown. This uncertainty demands extreme adaptability from ground handlers.

The ability of a company to smartly utilise and right-size its fleet may become essential for gaining market momentum and increasing profitability. The ability to adjust operations to the fluctuation in demand depends on two crucial factors: maximising fleet utilisation (providing premium service while reducing procurement costs or allowing some equipment to reside in long-term storage to prevent asset depreciation); and conducting predictive analytics (anticipating and adequately preparing for operational peak hours and changing demands as travel volumes return).

"Although the activity of the industry is expected to return to normal, the pattern of business growth is unknown"

Ittay Hayut,
hoopo

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