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Airside INTERNATIONAL

SPRING 2020 #AIRSIDEINT

ENVIRONMENTAL AWARENESS

HANDLERS, AIRLINES AND AIRPORTS LOOK TO MINIMISE HARMFUL EMISSIONS

FIRST STEPS IN THE AUTOMATION OF GSE • GSE LEASING: A VIABLE ALTERNATIVE

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A note from the editor

Welcome to the Spring 2020 issue of *Airside International*, whose theme is the environmental impact of airport apron operations and how that impact can be mitiugated. In particular, the conversion of GSE to electric power is a frequent feature within the pages of this magazine.

In Megan Ramsay's examination of the changing world of high lifts and loaders, she looks at how suppliers of these specialised forms of GSE are increasingly moving to electric-powered options for environmentally conscious customers.

Meanwhile, Goldhofer has supplied one of its F11e electric tugs into a local German gateway, indicating that suppliers of many other types of GSE are seeing increasing demand for non fossil-fuel-powered equipment.

Airports and airlines are playing their part too; we have seen Etihad Airways and Brussels Airport collaborate recently on a special 'eco-flight' between the capitals of the UAE and Belgium, while dnata has turned around a flydubai flight at Dubai International Airport using only what it describes as 'zero-emissions' GSE.

Elsewhere, autonomy is another subject of investigation this Spring. Rob Coppinger investigates the potential of electric autonomous vehicles, while the editor was at Toulouse-Blagnac Airport to see the first public display of an autonomous baggage tractor demonstrating its capabilities on the French airport's apron.

Also recently, Aurrigo – best known for its autonomous baggage dolly that has undergone trials at London Heathrow Airport's Terminal 5 – has developed a system to alert a dolly driver to unsecured baggage: a not insignificant problem on the ramp.

Numerous other technological developments are considered in this issue of *Airside*. Transpoco has worked closely with manufacturer Schmidt on a bespoke de-icing monitoring solution for Dublin Airport Authority, while Israel's hoopo looks at the way asset visibility technology can be used to improve the efficiency of airside operations.

Fascinating work is being done by Sarcos Robotics of the US on easing the burden for workers in the aviation and other industries that need to move heavy loads on a regular basis. It is collaborating with Delta Air Lines on applications that might be of interest to the US carrier as regards its innovative Guardian XO exoskeleton.

Tri-Logical Technologies is offering GSE operators another weapon in their fight against ramp rash – collisions on the ramp involving GSE and aircraft – while a number of GSE suppliers have announced new product designs or improvements to existing lines. Mallaghan, for example, is to supply a large number of customised maintenance platform lifts (MPLs) to Delta, while Western Global is now marketing a range of transportable fuel tanks designed with the demands of the aviation industry in mind.

Finally, we talk to both ADELTE and Aviramp about the world of the airport boarding bridge and aircraft access infrastructure, while ramp training procedures and GSE leasing form two of the subjects of the bigger feature pieces within this issue.

We hope you enjoy the issue.

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Keeping things locked down

Aurrigo, the Coventry, UK-based company that developed an autonomous baggage dolly trialled at London Heathrow, has launched a new product – the Transport Safety System (TSS) – designed to end the problem of baggage and cargo falling from dollies being towed on the apron

The TSS system consists of a suite of sensors that, when installed on a dolly, are able to communicate wirelessly with another control unit fitted in the tow tug. If baggage or other cargo is not locked down correctly, warnings appear on a head-up display screen in the driver's cab and, if anything does fall from the dolly, the system will detect the change in weight and the tug will be automatically immobilised.

The tug will also be immobilised if the system detects any uncoupling of the towed dollies.

Aurrigo confirms that it is currently in discussions with a number of airlines, ground handling companies and airport operators about the potential of the system.

Miles Garner, sales and marketing director at Aurrigo, recalls: "Our work with International Airlines Group (IAG) and British Airways on the autonomous baggage dolly has given us the opportunity to explore some of the other issues facing the aviation sector and our engineers quickly identified a way of solving the costly issue of incidents involving damaged baggage and ruined cargo.

"There are hundreds of incidents every year where crashes happen due to driver

"The way we have designed our system means it can be easily retrofitted to tugs and dollies currently in use"

Miles Garner,
Aurrigo

error or the units not being stacked or locked in properly.

"Our Transport Safety System can help eradicate a lot of these as the tugs will not be able to move until everything is in place and, importantly, drivers will be immediately made aware if the situation changes."

Moreover, Garner adds: "The way we have designed our system means it can be easily retrofitted to tugs and dollies currently in use, or be integrated into the build process for new models."

Development

All of the TSS ardware and software was designed in-house at Aurrigo's Advanced Engineering Centre in Coventry. The development of the product was the direct result of Aurrigo receiving feedback from "various parts of the aviation sector", Garner says, "all asking for a solution to overcome the amount of accidents that happen when transporting luggage and cargo airside.

"These trends have definitely been noted by the senior management teams of airport operators across the world and they are proactively looking at how they can use technology to reduce accidents and speed up processes. TSS could be one of these solutions."

TSS has been in development for about six months now and is currently classed as an advanced prototype, Aurrigo confirms. "We're in the process of making a business case to enter into low-volume production with a number of potential customers, who are keen to trial the technology before agreeing to deploy TSS on live operations," Garner advises.

"There are two options on how we can take it forward. It could become one of the products in our range and, if this is the case, then production will be completed in Coventry.

Where we have a dedicated cell ready to be ramped up as soon as the first orders are placed.

"We're in the process of making a business case to enter into low-volume production with a number of potential customers"

Miles Garner,
Aurrigo

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"Alternatively, we could team up with a tug manufacturer and look at developing the technology so that it is either retrofitted or built as standard," Garner informs.

"Interest is coming from all over the world, but the largest concentration of enquiries is emanating from the Far East and, in particular, Singapore. This is a part of the world where there is a real desire to be early adopters of new technologies," he adds.

Autonomous dolly

As described in the Autumn 2019 issue of *Airside*, Aurrigo began testing the world's first autonomous baggage dolly at Heathrow in May last year. A converted standard dolly, the autonomous unit is equipped with GPS, LIDAR (Light Detection and Ranging) and cameras to enable it first to identify its position on the apron and then to execute its ensuing movements safely.

The launch of TSS comes just a few weeks after Aurrigo completed the second phase of its autonomous baggage dolly trials at

Heathrow's Terminal 5

Phase 1 consisted of operating the autonomous dolly in a controlled environment in Coventry. This was quickly followed by Phase 2, in which Aurrigo took the technology to a dedicated part of Terminal 5 at Heathrow and collected empty ULDs on agreed routes.

"Our engineers are pleased with how the autonomous dollies have performed and this [satisfaction] has been echoed by staff at British Airways," says Garner. "There have been lots of things we have learned, as working airside is a massive challenge, with so many different journeys being made by vehicles of all shapes and sizes.

"This is what the trials are all about and a great way of helping to refine the technology. I think it's safe to say there is a massive opportunity here – there has been no major innovation in the 'tug and three' approach for over 60 years, and we're trying to change that."

Testing so far has "proved extremely successful and we are now discussing the third phase, which could see us complete trials in a live environment, transporting cargo and luggage to real-time flights", Garner informs.

Further ahead, the plan is to integrate recently demonstrated 'swarm' technology to allow the dollies to be platooned together in formation. "Now that is an exciting development," Garner enthuses.

And continuing to consider the future, Garner concludes: "We have built a track record for delivering manufacturing solutions and autonomous controls in the automotive sector, but, in the past year, we have also proven this expertise can be applied to improve the efficiency of the aviation sector.

"There are so many opportunities in this field and we're hoping that the introduction of TSS and the autonomous dolly will lead to further exciting collaborations."