2009-07: Airside International "Runways, rubber and TrackJet"

Runways, rubber and TrackJet

Hard times require clever investment and this means prolonging the life of airport assets as well as actually improving their performance. One means of preserving airport infrastructure is to make sure every scrap of debris is removed as efficiently as possible – this is where TrackJet comes in. Jo Murray reports

There is no point in bemoaning the cost of runway repair and resurfacing if effective processes have not been put in place to ensure longevity. Part of this process is the seeking out and use of equipment to remove rubber and other debris from the runway surface. Of course maintaining the surface of a runway also has operational advantages, namely the preservation of appropriate friction levels.

One company – Weigel Hochdrucktechnik – has specialised in runway maintenance technology through the production and marketing of its TrackJet product. Hans Rohdenburg, Senior Consultant for Weigel, calls the TrackJet system an “industrial revolution”.

In fact Weigel has specialised in various high water pressure (HWP) systems for industrial use during its 30 year history in engineering and manufacturing but, for the last 10 years, the TrackJet system has become Weigel's main R&D product. This product’s focus has always been on airport runway cleaning – rather than any other industrial use – and has a HWP system of 2.500 bars/34.000 psi of water pressure.

Comments Rohdenburg: “Working at the extremely high 2.500 bars of water pressure has proved not to damage the micro and macro surfaces of a runway pavement – whereas the old HWP systems, which worked between 400 and 1.000 bars, have a bad track record of doing so.” He says this is because a small amount of water is used as the medium and nothing else. “The 2.500 bars systems only uses about 10% of the amount of water the old HWP systems use and, with a state of the art nozzle configuration and specially designed nozzles, we are able to control the cleaning job without harming the surfaces.”

So what does the TrackJet kit comprise? What does Weigel actually sell? “The TrackJet system comprises the ‘carrier’ of the HWP system – which can be a truck, a Unimog or a Snow Blower vehicle to name some options – and the ‘water and waste water supply and retain unit we refer to as the VacuFlex module.” If, for example, a customer airport already owns and operates a suitable Unimog vehicle for other airport services, that can be used for the TrackJet system. In other words, the airport does not need to purchase another expensive ‘carrier’ just for runway cleaning and rubber removal; it can simply add on the TrackJet module.

Others who do not have a suitable ‘carrier’ and need a complete solution from Weigel can be accommodated.

“Our engineering department has over the years come up with some unique solutions,” says Rohdenburg, adding that there are about 30 TrackJet modules in operation in the market. “When we made the first units for India, for example, the customer insisted on Indian made MAN trucks as a ‘carrier’. We acquired these and our engineering and production team had to come up with a number of new solutions to provide the client with the quality TrackJet product our customers expect from us.”

The VacuFlex module provides a suction system which allows maintenance to be carried out on the runway while leaving a clean and residue-free surface behind – event water is sucked up. The VacuFlex trailer contains both a freshwater supply and a wastewater collection tank combined in one holder. The tank volume is continuously adjusted so that the decreasing freshwater volume corresponds to the increasing wastewater volume. “The waste water is allowed to go straight into the sewer and only the solid waste has to go to the disposal grounds. This is an ecological and economical feature of the whole system,” comments Rohdenburg. The VacuFlex trailer is separate from the main “carrier” for easy handling purposes.

But how can Weigel be sure that its equipment only removes what the airport operating company wants to remove from the runway without damaging the surface of the runway or removing paint markings that should remain in place? Rohdenburg responds: “Weigel's TrackJet system works with special software developed by our Technical Director, Stefan Weigel, and is, I have to say, state of the art.”

The beauty of systems like this is that all the power is in the high water pressure and not in harmful chemicals. “The TrackJet system only uses 100% water for ecological and economical reasons,” he says. “The Weigel HWP systems have proved to take 99% of the rubber from the surface ‘just like that’.”

The TrackJet operates at a working width of 2m, which is a unique solution in the runway cleaning industry and is designed to give maximum cleaned surface in a short time. “Compared with old systems, like the old HWP systems, or mechanical or chemical solutions, we come in at about one-third of the operating cost per m2,” says Rohdenburg. All good things come at a price and the TrackJet product does come with a higher price tag than a 1,000 bar HWP system or the use of chemicals.

Performance enhancements are to be expected from any capital outlay and TrackJet has been equally scrutinised for its return on investment – however it is calculated. “If an airport deploys, for example, a TrackJet system right from the start, after having put on a new surface to the runway be it asphalt or cement or an anti grip surface to name a few, we have customer statements which say that after years of TrackJet use, not only that the life extension of the runway surface was a minimum of five years, but the surface was also at an overall very high friction level, guaranteeing safe usage of the runway at all times,” remarks Rohdenburg. “For used runway surfaces we stop the derogation and significantly improve the friction level as well.”

All airport equipment requires some level of introduction and TrackJet is no different. “When you own a TrackJet system you want to make sure that your operators not only know how to ‘handle’ it but also to ‘understand’ it. They must know everything from the operation of the equipment to its maintenance. TrackJet systems are, at present, working in 15 different countries. This is proof to us that our training modules are well adapted to the individual needs of our worldwide customers.
The quality of the operators and our training efforts secure low maintenance cost,” points out Rohdenburg.

Surely not all airports have the same issues in relation to the build up of rubber and a corresponding reduction in friction, or do they? “We do have a hot climate version of the TrackJet system which is in use in some Middle East countries where there is a high water working temperature which needs to brought down to a normal level to ensure the best cleaning results. Cold climates normally do not represent a technical problem for us. Other than that, no regional factors have an effect on the cleaning results or the functioning of the equipment,” he responds.

Not only that, TrackJet has strong environment credentials. Says Rohdenburg: “We are proud to say that we have engineered an environmentally safe product with the TrackJet System. This is just perfect for environment protection purposes.”

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