

Winter weather can be severe and unpredictable, but it need not bring an airport to a standstill. Ensuring that de-icing services can keep aircraft moving in a cost-effective way, even in the midst of a big freeze, requires sophisticated equipment, but also clever planning, **Wolfhard Gräf**, N*ICE, tells Jim Banks.

Ice cold in Frankfurt

An airport sells capacity to airlines under normal weather conditions, so harsh weather can have a massive impact on the facility's ability to meet its commitments. At a busy airport that sees big variations in weather

conditions throughout the year it is vital to keep flight turnaround as swift and efficient as possible, which means having a de-icing service that can prepare planes for take-off with a minimum of disruption to other ground services.

The severe winter conditions in recent years have shown just how important it is to have up-to-date equipment, careful planning and in-depth training to ensure that de-icing operations are carried out efficiently and cause no delays, and

Frankfurt Airport is one good example of how important this is. Firstly, the airport lacks runway capacity, which makes it vulnerable to any disruptions that cause it to reduce capacity. Secondly, it has endured extreme weather conditions that have caused it to look closely at how it can make the de-icing of aircraft more efficient.

“De-icing is not part of the scheduled ground time,” says Wolfhard Gräf, managing director of N*ICE Aircraft Services & Support. “It can block valuable gate handling and gate positions. An airport can run out of stand capacity, which may mean reducing the amount of in-bound traffic. It would usually be the short-haul flights that suffer because the long-haul flights have been in the air for so long they cannot easily be diverted. Any reduction in capacity would have a huge economic impact on a hub airport like Frankfurt.”

Cool operator

N*ICE Aircraft Services & Support was established in July 1999 as a joint subsidiary of Fraport AG and Servisair SAS. The sole purpose of N*ICE is to de-ice aircraft on the ground. This is a large and complex process at a busy hub airport like Frankfurt, which sees big seasonal variations in weather and which may require over 50 planes to be de-iced per hour in very bad weather.

N*ICE has three big tank farms holding around one million litres of de-icing fluid. It has been investing heavily in its fleet of de-icing rigs and will have 51 units operating at Frankfurt this winter, an increase of nearly 20% on the 43 rigs it had last winter.

“ N*ICE will have 51 units operating at Frankfurt this winter, an increase of nearly 20% on last winter. ”

“We have invested ahead of time,” says Gräf. “Our biggest rigs can handle even the highest point on the tail of the A380. In the past, the biggest challenge at Frankfurt was that winter operations were not as highly prioritised as other aspects of airport operation, but the last two winters have forced everyone to think about improving capacity, structures, training and everything else.

“We had two very severe winters in a row, which demanded more from staff and equipment. We handled 16,600 aircraft last winter, which was triple what we had planned for. Last winter we would have needed 100 rigs on one day to handle usual daily operations, but the service must be economically viable. If we had that many rigs we would use them all only on one day a year.”

Skating on ice

The safety of aircraft and passengers is the overriding priority for the airport and its subcontractors, but attention must also be given to the punctuality of flights and the cost-effectiveness of services such as de-icing.



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The challenge is to have enough rigs and trained staff ready when severe weather hits.

“Last year, there were two days of chaos with lots of cancellations,” explains Gräf. “We are always dancing on a knife-edge when making decisions about capacity and staff. The weather is only 100% predictable for the next half hour, but not weeks or months ahead. So, there is some risk in our investment decisions.

“ N*ICE handled 16,600 aircraft last winter, which was triple what it had planned for. We would have needed 100 rigs on one day to handle usual daily operations. ”

“We are planning 11 more units, but the decision has not been agreed yet. Mild winters always bring up the argument that we have too much

Wolfhard Gräf

Wolfhard Gräf joined Lufthansa in 1967 and worked in ground operations planning and operations services mainly in the US. In 1999, Gräf became managing director of N*ICE, a joint subsidiary of Fraport AG and Servisair SAS, with an emphasis on the further development of operational and technical issues of aircraft de-icing and anti-icing on the ground.

capacity, but it only takes one severe winter to see all that capacity used.”

Planning is the most important task that N*ICE has to fulfil. It must make sure that its equipment is in proper working order, and that it has enough

weather for the next day and predict the conditions. If there is moderate snow or worse, then everyone is made available, which means 98 staff per shift and 51 vehicles. We can beef up our plan in 30 minutes if conditions are milder but suddenly get worse.

“The staffing and operations force for each day must be planned intelligently, but we must also have the capacity to respond quickly to changes. If necessary, we can bring in ground-handling staff who are at the airport and have been trained. They can be ready to go quickly, they know the airport and they have ramp passes and licences to drive big vehicles. We train them during the summer, which is when we do maintenance, preparation and make new investment

staff on-site to respond quickly and efficiently to changes in the weather.

“We have a stepped operations and staff plan,” says Gräf. “We look at the

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Remote de-icing positions help Frankfurt Airport to keep gates free.

in the fleet.” The careful planning of maintenance is one of the most important tasks, and makes for a busy summer schedule.

“There is a big maintenance programme in the summer so that in winter the rigs only go to the workshop if there is an unanticipated fault,” says

provider is vital to ensure that the best infrastructure is in place to allow the de-icing experts to do the best job.

“There are specialist de-icing pads, but a maximum of 20% of flights can use them, the rest are done on the gate positions,” says Gräf. “One solution to the problem of de-icing

“ The interaction of both the airport and the service provider is vital to ensure that the best infrastructure is in place to allow the de-icing experts to do the best job. ”

Gräf. “The average age of the rigs in our fleet is 5.6 years, though that average will be lower when the eight new rigs arrive, so it is one of the youngest fleets in the world. It is very reliable, and all the rigs are high-end models. We are committed to making a minimum of 85% of the fleet available each morning, and we can do that easily.”

All-round investment

The airport, too, has invested in new equipment to improve the efficiency of de-icing services. The interaction of both the airport and the service

blocking aircraft on the stands is to increase the number of remote de-icing positions, so that planes can vacate the gate. So, the on-block time is still higher, but the aircraft can still depart on time.

“Frankfurt is very small in terms of acreage, so we are looking at all free corners of the airport. We have got four more remote de-icing positions, so that over 40% will now be done on those pads. That stabilises the operation of the airport, especially when it is allied with the increase in the number of rigs.”

Frankfurt expansion

In January 2009 construction began on a third runway to the north-west of the current airport facilities at Frankfurt. Currently, the only new runway under construction at a major hub in Europe, the additional capacity it will afford the airport on completion this winter amounts to 126 flight movements per hour.

This equates to 700,000 movements and 88.3 million passengers per year. With an additional 2,800m runway, plus associated taxiways and apron, the N*ICE workload will increase significantly. These operations will be covered by new equipment acquisitions to ensure that delays are minimised during adverse weather conditions.

Extreme weather can still cause delays, but for hub airports like Frankfurt, on which many spoke routes rely, there has been a major emphasis on ensuring that freezing conditions, ice, snow and storms cause as little disruption as possible. Investing in infrastructure, skills and intelligent planning processes is the only way to keep an airport running at its best in the depths of winter. ■