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Mike Stenko



Budapest keeps it quiet

For the environmental staff at Hungary’s Budapest Airport, offering tenants a dedicated area to safely perform engine run-ups is an integral component of the airport operator’s noise protection programme. On 21 June this year, a wholly new GRE was introduced at a ceremony attended by more than 100 airport officials and local dignitaries, including members of the Hungarian parliament. The ceremony featured a demonstration of the GRE with a full-power A320 ground run-up.

The facility was designed and supplied by Blast Deflectors, Inc (BDI) and, according to Bergin: “The Budapest GRE represents a new chapter in GRE technology. Our new modular design allows airports to easily expand and reconfigure the facility as requirements change.”

The Budapest GRE features two 12 metre high acoustic walls configured in an ‘L’ shape. “This curved steel jet blast deflector is surrounded on two sides by acoustic walls designed specifically for aircraft engine noise. The jet blast deflector protects the immediate area from jet blast and the two acoustic walls protect the nearby neighbourhoods from run-up noise,” Bergin explains.

“Aircraft up to Code C can be accommodated in the facility, and a third acoustic wall could easily be added in the future if the environmental requirements change.”

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New materials have been introduced for blast deflection, too. Galvanised steel has been most commonly used in blast deflection technology because of its high strength and corrosion resistance. As Stenko points out, if a bit of debris is blown against it, the blast fence will not be damaged or penetrated. Steel is sometimes covered with wadding to increase acoustic noise protection.

But steel structures cannot be used in front of an Instrument Landing System (ILS) localiser due to signal interference. Instead, non-metallic deflectors are used as they are transparent to the localiser signals. Nor can steel blast walls be produced in a frangible version. Blast walls near runways have to be frangible in case the landing gear hits the top of them. So, in place of steel, fibreglass is used.

BlastWall Inc was the first company to produce a patented fibreglass blast wall, according to company president Peter Roston. “Toronto Pearson International had a problem in 1998 when it built a new runway as close to the road as could be,” he says. “As it could not put a traditional steel, non-frangible blast wall there, it approached my late partner Mark Selkirk with a view to creating a fibreglass version. Not only can fibreglass be turned into a frangible blast wall, but radar signals can go through it, so it does not affect the ILS. It also needs little or no maintenance; Pearson’s original fibreglass blast wall needed no attention until 2011.”

After extensive testing of different heights and spreads of blast walls, using different aircraft types, aviation authorities gave their permission for the fibreglass blast wall to be developed and sold commercially. BDI developed its version this year.

BlastWall now offers four patented fibreglass blast walls – two models, each available in frangible or non-frangible versions – and has just introduced a range of six steel blast walls. They all differ in height and the amount of force they can withstand. “A frangible blast wall withstands a force of 160kph,” Roston explains, “whereas a non-frangible one can withstand forces up to 230kph.”

Aesthetics come into the equation, too. Some airports and civil aviation authorities require blast deflectors to be painted, while some want more attractive cladding such that the landside matches the surrounding architecture.

“Quite a bit of science goes into designing jet blast deflectors,” says Bergin. “We recently hired a full-time expert, educated to PhD level, in computational fluid dynamics, to help evaluate different blast deflector and GRE designs. This allows us to analyse the aerodynamic characteristics of new designs or specific projects and greatly enhances the capabilities of our research and development department.”

As indicated, blast deflectors come in a variety of size, shapes and materials. But in the increasingly competitive aviation world, if an airport doesn’t have any yet, it may not be long before blast deflectors head the list of essential infrastructure investment. ■