



LIGHTWEIGHT STRUCTURES FOR HEAVYWEIGHT SAFETY

FRANGIBLE COMPOSITE TOWERS AND FENCES

MAXIMUM SAFETY WITH MINIMUM MASS

EXEL COMPOSITES is the world's leading supplier of frangible support structures to airports. Exel's extremely light yet rigid composite structures are the optimum choice for airport safety in every respect. With more than 20 years of experience in airport structures, Exel's products meet the needs of frangibility, rigidity, low mass and transparency to electromagnetic signals perfectly. In addition Exel poles, lattice masts, fences and other composite structures need minimum maintenance. They provide maintenance of installed equipment safely on the ground level by a single maintenance person.

ICAO COMPLIANT, FAA-APPROVED

Since the first installation in 1988, Exel airport masts, towers and fences have been renowned for their capabilities and performance. The composite structures have passed numerous tests stipulated by international and national aviation organizations, both civil and military. The tests in UV-radiation, corrosion, deflection and survival under stormy winds have been successfully passed. Compliance of Exel products with frangibility ruling of both ICAO and the FAA has been proven in fullscale impact test.

As indication of Exel's expertise, The Netherland's Aerospace Laboratory NLR has issued Exel a declaration of conformity to ICAO ruling and Exel appears on FAA's list of certified products and manufacturers. In addition to these, Exel's quality management and production processes have been certified by DNV to comply with ISO 9001:2008 and ISO 14001:2004 standards.



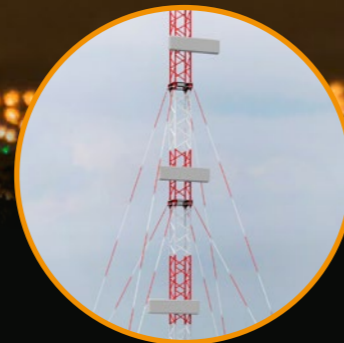
EXCELLENCE IN SAFETY AND PERFORMANCE – PROVEN EVERY DAY AT HUNDREDS OF AIRPORTS WORLDWIDE.



EXEL APPROACH LIGHTING MASTS

Exel Approach Lighting support structures consist of poles for single lights and lattice masts for multiple lights. The lights can be installed from 25 cm at the lowest to 50 meters + at the highest. The standard colours for both poles and masts are aviation yellow and aviation orange, other colours are manufactured upon request.

Fibreglass as a material is brittle by nature, but with Exel's special pull-winding technology it can be turned into tubes with thin wall, yet extremely high strength and rigidity, completely transparent to electromagnetic radiation. Therefore, Exel's poles and masts cause no interference with the communication equipment used at airports.



EXEL GLIDE PATH TOWERS

Frangible Carbon Composite Glide Path Tower for maximum operational safety offer:

- high stability
- very light weight
- patented frangible guy rods
- easy set-up
- totally frangible structure

Specification:

- 600 mm x 600 mm lattice structure
- three sections, lengths adjusted according to antenna heights
- survival wind speed: 60 m/s
- can be raised with or without crane



EXEL LOCALIZER SUPPORTS

Exel support structures for localizers are frangibility tested and ICAO-approved. The standard colour of the poles (used for installation of localizer antennas up to 2 m height) and lattice structures (installation height above 2 m) is international orange, other colours are manufactured upon request.



EXEL WEATHER MASTS

The support structures for weather observation equipment – such as wind direction indicators, anemometers, transmissometers and forward scatter meters – comprise of poles and lattice masts, all ADM6 compliant. The structures are painted orange-white or red-white according to ICAO's Annex 14.

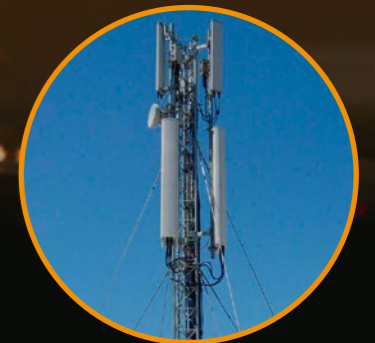
Poles (non-tiltable or tiltable) are optimal for supporting forward scatter meters installed at the height of 2 or 3 meters. Lattice masts are used e.g. for wind cone supporting (available also with an internally or externally illuminated wind cone) and anemometers. Lattice masts can be supplied with an optional centre hinge allowing quick, safe and easy maintenance of the equipment installed.



EXEL FENCING

The main purpose of airport fencing is to prevent unauthorized access to non-public areas. Exel frangible fences are made for securing individual installations on public areas that require frangible structures as well as fencing that crosses the approach line. Exel frangible fence has been impact tested to verify frangibility. The maximum height of the fence is 2,2 meters and coloured either aviation yellow or red-white. Other colours are manufactured upon request.

The heavy duty perimeter fence is made in standard height of 2,5 meters, with options up 2,8 m. All Exel airport fences comply with the respective ICAO ruling.



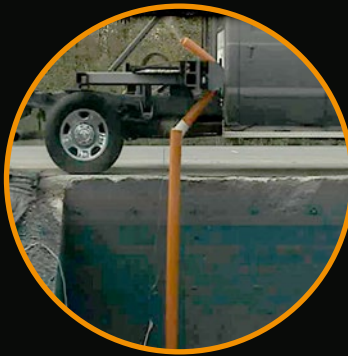
OTHER FRANGIBLE STRUCTURES AND SUPPORTS

Thanks to the rigid and lightweight composite structure, Exel masts can be adapted to perform in a variety of support tasks. For example, various antennas, transmitters, receivers and reflectors require high stability yet the support must break at an impact as ruled by ICAO. While the main structures remain mainly the same, a vast array of parts for installing different equipment is always available on demand for Exel's customers.

More than 500 airports worldwide
have chosen Exel.
Here are some of them.



**DYNAMIC IMPACT
OF FENCE**



**DYNAMIC IMPACT
OF POLE**



**DYNAMIC IMPACT
OF LATTICE MAST**

CERTIFIED EXCELLENCE

Exel's aerodrome safety installations are used all round the world, from Sydney to Houston and from Svalbard to Montevideo – performing on circumstances from permanently frozen ground to the extreme heat of Equatorial sunshine. All of Exel's aerodrome products are thoroughly tested to verify compatibility and certified to comply with both ICAO's and FAA's frangibility requirements, guaranteeing the maximum level of airport safety.



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