

Composite Glide Path Tower

ICAO's Frangibility Ruling

AERODROME DESIGN MANUAL PART 6, Frangibility – First Edition, 2006 states that:

...certain airport equipment and installations, because of their function, must be located in an operational area. All such equipment and installations as well as their supports should be of **minimum mass** and **frangible** in order to ensure that impact does not result in loss of control of the aircraft. Among these equipment are for example:

- ILS glide path equipment

...structures located within the grated portion of the runway strip not meeting the frangibility requirement, such as an existing **non-frangible ILS glide path antenna**, should be replaced by a **frangible structure**, if practicable, and relocated within the non-grated portion of the runway strip.

Exel Fibre Glass Composite Towers

Exel Composites Oyj have developed a unique range of fibre glass lattice towers which have been delivered to airport installations since 1988. Fibre glass is a **lightweight material** that **brakes at impact** and is **transparent to electro-magnetic signals**. It tolerates all types of weather and is practically maintenance free.

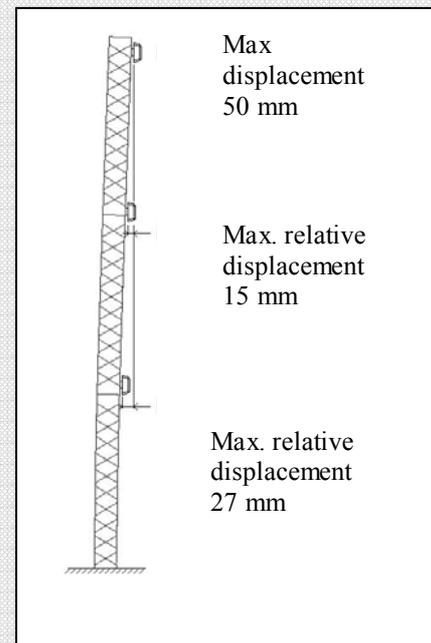


- GP tower is supplied in sub-assemblies. The tower is easily assembled laying on the ground.
- Anchor bolts and casting template are delivered in advance for preparation of the foundation.
- Antennas, ladder and life-line installed on the ground.
- Fully assembled tower raised with a crane.



Specifications

GP-TOWER	10 m (33 ft.) tower	15 m(50 ft.) tower
basic form and size	3000x3000 mm triangle	3000x3000 mm triangle
no. of sections	2x5000 mm	3x5000 mm
antenna deflection max		antenna 3: 50 mm (43 m/s) antenna 2: 35 mm (41 m/s) antenna 1: 23 mm (41 m/s)
relative antenna deflection		antenna 3: 0 mm antenna 2: 15 mm antenna 1: 27 mm
survival wind speed	72 m/s (260 km/h; 161 mph)	60 m/s (216 km/h; 134 mph)



ADM6: 4.9 Design Criteria for Frangibility

4.9.31 ILS/MLS installations present special cases. The requirements of 4.9.24 to 4.9.30 are applicable for ILS/MLS structures, but the design criteria associated with a 3000-kg airplane cannot be applied in all instances for the following reasons:

- B) Considering the unique nature of the tower structure the ILS glide path antenna, frangibility criteria have not yet been developed.

GP-Tower delivery includes:

- anchor bolts and casting template
- sub-assemblies for on site assembly of tower sections
- antenna brackets that allow adjustment of antennas both vertically and horizontally
- cable conduits
- ladder and safety rail
- obstruction light



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