

Frangible Localizer Supports

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:

- Instrument Landing System (ILS) localizer equipment

Existing structures located within a distance of 300 m from the runway end not meeting the frangibility requirement, such as **existing non-frangible ILS localizer antenna array**, should be **replaced by a frangible structure** or relocated beyond a distance of 300 m from the runway end...



Exel Localizer supports are full scale impact tested, lightweight and practically maintenance free.



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:

- A) The design criteria associated with a 3000-kg aeroplane should be retained for the ILS localizer. Current designs prove that lightweight structures for such installations can be applied. The possibility of using modular design, thereby limiting the total mass, should be also considered. The validation of energy assumptions and development of values for mass limitation require special study.

Frangible Exel supports

Exel LLZ supports are full scale impact tested to prove compliance with ICAO's frangibility ruling.

The type of support is chosen by the height of the antenna from the foundation and wind loading at the site:

- D106 pole
- L400 lattice support
- L500 lattice support

Please enquire, data provided with the enquiry should include:

- Height of the frangible support from foundation to the installation flange of the antenna
- Dimension drawing of the antenna
- Number of antennas and width of the entire antenna array
- Design wind speed at the installation site



Delivery of Exel supports includes:

- Calculation of stability (upon request)
- Calculation of foundation loads (upon request)
- Anchor bolts and templates
- Adapter flange for the antenna
- Height adjustment for the antenna that eliminates small deviations of the foundations
- Cover tube for cabling



2009