

ITS Telescopic Tower Systems ~ Portable & Fixed Foundation-Mounted

- » Trailer, Truck, Skid or Foundation-Mounted, Heavy-duty Telescopic Lattice Steel Structures
- » Self-supporting & Guy Capable Heights from $\pm 38'$ / 12m to $\pm 130'$ / 40m AGL; 500lb/227kg –750lb/340kg Capacity
- » Wind Ratings to 145 Mph per ANSI/TIA-EIA 222-G; 120-220VAC/60-50Hz Operating Configurations
- » Fully Automatic, Direct Drive Tower Operating System; No Exposed Belts, Chains or Guy Wires
- » Redundant Cabling, Extreme Rated Components, Key Power Access, Integrated Safety Features
- » Greatest Self-Supporting and Guyed Antenna Load Capacity of Any Comparable Tower System



ITS' self-supporting and guy capable telescopic lattice steel structures are fully automatic, have extended heights ranging from $\pm 38'0''/12\text{m}$ to $\pm 130'0''/40\text{m}$ above ground level, standard payloads with capacities to 500 lbs/227kg and 750lbs/340kg depending upon model configuration and offer the greatest wind load capacities of any comparable tower system.

ITS telescopic structures may be utilized solely in the self-supporting configuration at their maximum extended elevation ~ no guy wires required except in cases of excessive loads, extreme wind velocity, or to minimize deflection for critical applications. There is no need for inappropriate or unsafe guying to trailer or truck structure or ground anchors of any kind when deploying an *ITS* tower to its maximum extended height.

ITS telescopic structures are custom manufactured for installation directly to a concrete foundation or for integration atop numerous *ITS* trailer, truck, skid or other similar platforms. A rigorous Finite Element Analysis Program, performed and certified by an industry recognized, unaffiliated Structural Engineering and Consulting Firm, may be utilized to perform stress analysis review to determine tower member design in conformance with *ANSI/TIA-EIA 222-G* Standard requirements for each client-specific load configuration. The latticed towers members are modeled using beam elements for the leg members, truss elements for the bracing and cable elements for the raising, lowering and support cables.

The structural parameters and geometry of the members are included in the tower modeling. The wind loading are calculated for the different wind directions and then applied as external loads on the structure with the self-weight loading internally determined. In order to obtain the maximum stress occurring in all tower members and guy wires (if utilized), three different wind directions relative to the tower and optional guys (Face Wind, Apex Wind, Parallel Wind) are considered.

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Summary ~ ITS Telescopic Tower Systems (Cont.)

Each *ITS* tower is comprised of three (3) to six (6) 21'0"-25'0"/6.4-7.6m, heavy duty, hot-dipped galvanized steel, telescoping lattice sections mounted to either a tilt-base support structure used for mobile applications or a steel anchor plate when affixed to a concrete or other appropriate foundation. The tower may be tilted to the vertical position by a single or tandem heavy-duty chrome plated hydraulic cylinder(s) and automatically elevated by an advanced, direct drive motor/gearbox assembly. The tower section raising assembly utilizes a heavy-duty drum with a redundant cabling system comprised of a series of galvanized or stainless steel aircraft quality cables to raise, lower and stabilize the erected tower sections. In addition, the redundancy of the tower cabling configuration and a positive pull down system provide for the raising/lowering, securing/supporting of each individual interior tower section by a series of three (3) independently anchored cables. The engaging of a mechanical tower lock mechanism further ensures the safety and stability of the erected structure.

Each tower's tilt and telescoping function are automatically engaged and disengaged by the use of tower and tilt-base mounted electronic limit switches. Contained within a locking weather resistant NEMA 4 cabinet, a proprietary control system utilizing a 120VAC/60Hz or 220VAC/60-50Hz power supply operates the tower. To protect the tower's sensitive electronics from exposure to the elements, control switches are accessible through a weather protecting outside panel. Illuminated (LED) low volt warning and tower functions lamps (tilt and telescope) as well as a key lock power engagement devise are several of the safety features incorporated into each tower's central control system.

ITS models include both commercial and military configurations; many of which are capable of withstanding harsh environment conditions and transport challenges inherent to many urban and remote regions of the world. Transport capabilities include C-130 or larger fixed wing aircraft, flatbed trailer, 2 or 4-wheel truck, by rail, sea or over-the-road tractor. *ITS* towers designed for fixed foundation installations or mobile applications, may be shipped modularly allowing for containerized transport and in-country re-assembly.

With respect to the equipment specifications and stated standards of performance, *ITS* strives to meet or exceed applicable *ASTM*, *DOT*, *ANSI/TIA-EIA* and other industry related codes, guidelines and standards applicable to its unique line of equipment. A representative list of guides/standards utilized in *ITS* equipment design and manufacturing processes include, but are not necessarily limited, to the following: *MIL-STD-810E* (environmental engineering considerations), *MIL-STD-1472* (human engineering design), *MIL-STD-454* (electronic equipment), *ASTM-A-123* (zinc coatings/galvanization), *MIL-STD-1791* (designing for internal aerial delivery-fixed wing), *AWS D1.1* (steel welding), *AISC* (steel construction), *MIL-STD-810E/514.5* (shock/vibration profiles), *FED-STD-595* (standard colors), and *FAA-STD-019B* (lightning protection, grounding, bonding & shielding). *ITS* trailer configurations are manufactured in conformance with Federal Vehicle Safety standards and all materials and methodologies utilized in the manufacture of *ITS* telescopic towers may be certified as to their strict adherence to current *ANSI/TIA-EIA 222-G* standards for communication structures.

