

Fabrication of Waveguide Runs

Space Applications Centre (SAC) of Indian Space Research Organisation (ISRO) has developed an Innovative Process technology to fabricate Waveguide run from Thin Walled Rectangular Tubes having various cross sectional dimensions.

These waveguide runs are of various shapes & different lengths and are being used for making total waveguide plumbing line, by assembling the said waveguide runs through flanges welded at each end. The different shapes are being made by variety of bends & twists generated through forming process by working on straight tubes

Technical Specification

Raw Material Details

Form	Rectangular rolled tubes
Material	Al. Alloy 6061-T6
Internal Surface Finish	1.6 Micron

Type of Cross Section & Joining of End Flanges

Waveguide	Internal imension (L x B) in mm	Wall Thickness in mm
WR-75	19.05 x 9.525	0.635
WR-51	12.95 x 6.47	0.635
WR-28	7.11 x 3.55	0.635

Waveguide	Bends	Bend Angles (Degrees)	E Plane mean Bend Radius (mm)	H Plane mean Bend Radius (mm)	Twist Angles (Degree)
WR-75	E-Plane, H Plane	0 to 180	30	35	0 to 90
WR-51	E-Plane, H Plane	0 to 180	20	25	0 to 90
WR-28	E-Plane, H Plane	0 to 180	20	20	0 to 90

Process of Joining of flanges with waveguide	Space Qualified Tungsten Inert Gas(TIG) Welding
Material	Al. Alloy 6061-T6
Internal Surface Finish	1.6 Micron
Thickness	1.2 mm to 0.635 mm
Quality*	RF Leak Proof

Applications

- Ground as well as Airborne Radar
- Transmission & Reception in range of Microwave frequencies
- Satellite based Communication System
- In the devices of Navigation Aids
- High power testing of Microwave system