

Special Purpose Fixture (SPF) for Assembly and Integration of Spacecraft

U R Rao Satellite Centre (URSC) of Indian Space Research Organisation (ISRO) has developed Special Purpose Fixture (SPF) that is used to enable Assembly, Integration and Test (AIT) of spacecraft. It offers three degrees of freedom of motion that enable

- ✦ Tilting of spacecraft to an elevation angle between +/- 90°.
- ✦ 360° rotation of spacecraft about its Azimuth(Az.) axis.
- ✦ Translation (up & down motion) along vertical axis.



Salient Features

- ✦ Easy accessibility to different location, Modular Design with flexibility for configuration changes.
- ✦ Modular Design allows to change the configuration according to Satellite mass, Centre of Gravity for test or integration requirements.
- ✦ 3 DOF motions using precision ball screw, linear motions guides, slewing bearings.
- ✦ Low backlash, Self-holding and stay put braking features.
- ✦ Low acceleration / deceleration transmission drives and controls.
- ✦ Mobility using non-marking wheels.
- ✦ Air levitation using four Air pads enables smooth movement of the fixture on cleanroom flooring.
- ✦ Worm driven Levelling jacks & Tow bar interface for powered towing.
- ✦ Safety Limit switches, proximity switches, logical controls for fool proof operations.

Major Specifications

- ✦ Max. External Dimensions : 4700 mm X 2600 mm x 3400 mm
- ✦ Self-Weight : 6500 kg
- ✦ Allowable Mass : Maximum- 2500 kg (Dry Spacecraft)
- ✦ Allowable Static Mass : 5000 kg. (No motion is allowed)
- ✦ C.G. height : 2000 mm (from the mounting plane)
- ✦ Max. Allowed Envelope : Diameter - 3750 mm (About Az. axis)

Technology Transfer

URSC/ISRO offers to transfer this technology of developed Special Purpose Fixture (SPF) by URSC to industries in India with adequate experience and facilities. Industries interested in obtaining knowhow may write giving details of their present activities, infrastructure and facilities.

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