SURES hexapod

High resolution high rigidity hexapod for astronomy

KEY FEATURES

- Payload capacity up to 500 kg
- Low cross coupling motions
- Operational in any orientation
- Operational at high altitude
- Absolute encoders

APPLICATIONS

- Astronomy
- Positioning of mirror of telescope
- High accuracy positioning
- Antenna qualification
- Optical adjustment

SURES hexapod positions the 450 kg secondary mirror of OAJ T250 telescope in Spain with 0.35 µm linear and 0.5 arcsec angular resolutions. The SURES hexapod for OAJ has a 920 mm diameter.

ARIES telescope is installed in Nainital in India. With a primary mirror of 3.6 m diameter, it is the largest optical centre in the country. Cross-coupling of SURES hexapod is less than 0.7 arcsec in tip-tilt during centering or focus.
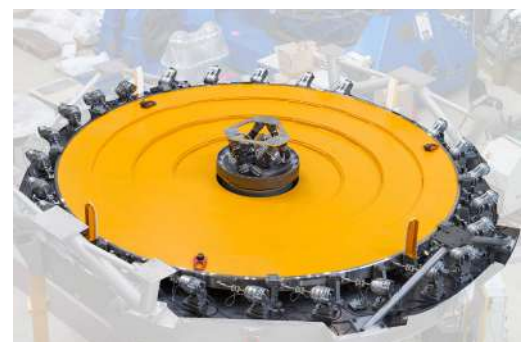
Two identical SURES hexapods position the M2 and M3 mirrors of DAG 4m telescope in Turkey.
They realign the optics in order to compensate relative displacements due to gravity and temperature change during observation. Thus they improve the imaging quality of the telescope.

	SURES
Motion and positioning	
Travel range Tx, Ty (mm)	± 8
Travel range Tz (mm)	± 6
Travel range Rx, Ry, Rz (°)	± 1
Resolution Tx, Ty, Tz (µm)	0.1
Resolution Rx, Ry, Rz (µrad)	1
Repeatability Tx, Ty (µm)	± 0.25
Repeatability Tz (µm)	± 0.13
Repeatability Rx, Ry, Rz (µrad)	± 0.5
Mechanical properties	
Payload capacity (kg) (with orientation from 0° to 90°)	up to 500
Motor type	Brushless motor
Encoder type	Absolute encoder
Miscellaneous	
Operating temperature range (°C)	-20 to + 40
Humidity level (%)	up to 100
Materials	Aluminum, steel, stainless steel
Size mobile platform (mm)	Ø 690
Height in middle position (mm)	360
Mass (kg)	117
Cable length (m)	10 (longer on request)
Options	Customized platform design Hand-held control unit Scalable size
Controller	
Controller type	ALPHA+ custom
Interface	Ethernet
Power supply	120-240 VAC / 50-60 Hz

The performances are specified for single axis motions, with all other axes at midrange and for a rotation center in the middle of the mobile platform.

Hexapod in middle position

Ø 690