

## CRYO TIP / TILT / PISTON STAGE (CTTPS)



### Features

- Driven by Cryo Linear Actuators (CLA)
- Preloaded actuators to ensure play free motion
- Frictionless membrane guides instead of v-grooves
- Materials: stainless steel, titanium
- 20 mK to 375 K, vacuum compatible
- Sub-nanometer stability
- 1/2" or 1" version standard
- Optics side-clamped with a spring loaded screw
- Self locking; no power dissipation when "off"

### Description / Applications

The Cryo Tip / Tilt / Piston Stage (CTTPS) accepts 1/2" or 1" optical elements and can be operated in a cryo-vacuum environment. It is actuated with JPE's Cryo Linear Actuators (CLA). The actuators are preloaded and the in-plane position of the optics is not achieved via traditional ball in v-groove constructions, but by using a deformable metal membrane. Combined these features eliminate play and friction in the tip / tilt / piston axes, and therefore allow very accurate and stable positioning. The system will hold its position when powered-off.

### Specifications

specs	unit	CTTPS1/2	CTTPS1
<b>SYSTEM SPECIFICATIONS</b>			
Active axes	-	3	
Type of motion	-	Tip/Tilt/Piston	
Optical diameter	mm (inch)	12.7 (1/2)	25.4 (1)
Open aperture diameter	mm	11,5	21
System tip / tilt range w.r.t optics centre	deg	± 7.2	± 5.6
System piston range	mm	± 1.5	
Actuator	-	CLA2201	
Main construction material	-	Titanium, stainless steel	
Mass	grams	160	170
<b>ACTUATOR SPECIFICATIONS</b>			
Specifications are given for individual CLA actuators unless otherwise mentioned.			
See interface drawing for transformation matrix from actuator outputs to system motion			
Range	mm	± 1.5	
Step size @ 293 K	nm	5-25	
Step size @ 4 K	nm	1-5	
Operating temperature	K	0.02-375	
Actuator spindle pitch	mm/turn	0,25	
<b>DRIVE ELECTRONICS</b>			
Controller/driver	-	CAB-230(115), CADM2	