CPSHR1 – CRYO POSITIONING STAGE HIGH RESONANCE 1



Features

- xyz motion for very stable cavity measurements
- Parallel kinematics for optimized stiffness
- High resonance frequencies
- Coarse motion using Cryo Linear Actuators
- Scanning motion integrated
- 20mK to 375K, vacuum compatible
- Compatible with CVIP1 vibration isolator

Description / Applications

The Cryo Positioning Stage High Resonance (CPSHR) is a XYZ positioning stage developed for operation in a cryo-vacuum environment, especially suited for very stable cavity measurements. Parallel kinematics result in a light and stiff stage with very high internal resonance frequencies, making it less sensitive to floor vibrations. The CPSHR 1 is the most compact design with small stroke and highest resonances.

Specifications

General info	
Type of motion	xyz with parasitic angular motion
Parasitic angle from xy stroke	20 mrad/mm, about the x and y axis
No load resonance frequency	xy: 1,5 kHz / z: 4,0 kHz
Dimensions	See drawings below
Operational environmental conditions	20 mK to 375 K, ambient to UHV
Weight	300 g
Stepping motion	
Travel range	x ±1,3 mm / y ±1,5 mm / z ±0,5 mm (not simultaneously)
Actuator	CLA2201, see drawings for calculating actuator outputs to system motion
Minimal step size @ 300 K	5 nm
Minimal step size @ 4 K	1 nm
Scanning motion	
Actuator	Piezo actuators, see drawings for calculating piezo outputs to system motion
Scanning range @ 300 K, typical	x 6,5 µm / y 7,5 µm / z 2,5 µm (not simultaneously)
Scanning range @ 4 K, typical	x ±1,3 µm / y ±1,5 µm / z ±0,5 µm (not simultaneously)
Minimal step size	Sub-nm
Drive voltage @ 300 K	-30 V to 120 V
Drive voltage @ 4 K	-150 V to 150 V
Forces and load capacity	
Load capacity	200 g
Materials	
Main body	Titanium
CLA2201	Stainless steel, ceramic, piezo actuator*
Scanner	Piezo actuator*
*Piezo actuator	Low voltage multilayer, ceramic insulated
Model specific information	
-S	xyz scanner added, see above for range
-V, -HV or -UHV	Level of vacuum compatibility, see the glossary on the homepage for details
Electronics CPSC	
Controller Base Cabinet	CAB
Driver for stepping and scanning	CADM or PSM (scanning only)

© JPE. Subject to change without notice. All data are outdated by any new release.
JPE disclaims any liability with regard to the accuracy, completeness, and timeliness of the information provided.

Ordering Information

Available Models

CPSHR1-S-V	Cryo Positioning Stage High Resonance 1-Scanner

Available Options

-HV	Upgrade to High Vacuum compatibility
-UHV	Upgrade to Ultra High Vacuum compatibility

Accessories

AKM1	Accessory Kit Mechanical 1
AKE1	Accessory Kit Electrical 1

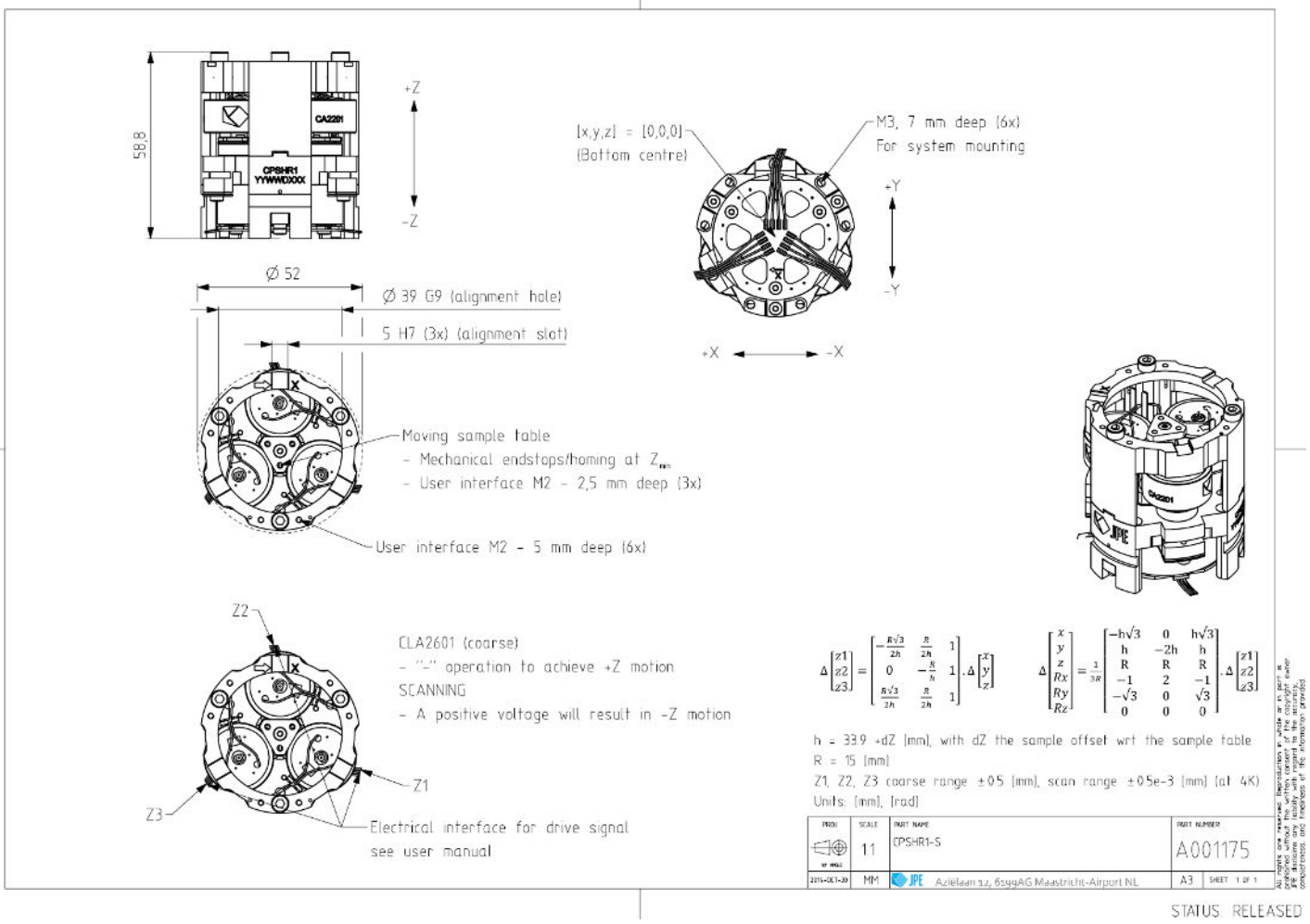
Mechanical and electrical information

Download 3D step files and manuals from:
https://www.jpe-innovations.com/cryo-nano-products/

Contact

For quotations, specials, or engineering services, please contact us at:
https://www.jpe-innovations.com/contact/

Drawings



© JPE. Subject to change without notice. All data are outdated by any new release.
JPE disclaims any liability with regard to the accuracy, completeness, and timeliness of the information provided.