XYZ & O Multistage UHV Manipulators

Customer:

UNIVERSITÉ DE GENÈVE
HEC - Hautes Études Commerciales

Universitè de Genéve
Dépt de la Phys. de Mat. Cond.
24 quai Ernest Ansermet
CH - 1211 Genéve 4 Switzerland

The UHV XYZ Stages is a 4-axis motion system consisting of two horizontal linear stages, one vertical linear stage and a rotation stage. The XYZ stages can reach a UHV vacuum level of 1x10-9 Torr, while the rotary stage can be differentially pumped with a vacuum level of 1x10-2 Torr. Edge welded bellows with a 300 mm stroke provide a movable connection between the rotary feed through and the DN150 CF flange that is used for mounting the system. The differentially pumped rotary feed through has a kinematic base which allows for adjustment of the users' equipment to the appropriate orientation with respect to the beam. The Vertical Stage has a total travel of 300 mm (±150 mm) and consists of a NEMA 34 motor coupled to a 55:1 gear box, a preloaded 20x5 mm ballscrew and preloaded linear guide rails which allows for smooth operation of the vertical stage. The combination of the gearbox and ballscrew allows the vertical stage to have a resolution of 0.455 µm per step. The motor was sized to provide the vertical motion to be able to travel at a max speed of 1.81 mm/sec. The vertical stage is also equipped with fully adjustable limit switches and closed loop feedback is provided by a Renishaw Tonic Encoder with a resolution of 0.1µm