Accessories: Vacuum compatible Nanopositioning stages, cables, feedthrough

S. N.	Specification	Qty
1	**High Resolution Linear Positioner:** Positioning over a travel range of 50 mm (Closed loop linear nanopositioner made from stainless steel with integrated optoelectronic encoder and crossed-roller bearings for 1a) HIGH vacuum conditions & 1B) ULTRA high vacuum conditions) **Specification** • **Travel mechanism:** inertial piezo drive**,** Positioner type: linear • **Size and Dimensions:** footprint; height: 80x30; 9.5mm**,** max installation space: 30x131.6; 9.5mm**,** weight (stainless steel version): 147 g • **Materials:** positioner body (/HV, /UHV): stainless steel, actuator: PZT ceramics, connecting wires copper, jacket: RT: silicon, HV/UHV: fiberglass, Bearings: stainless steel • **Load (@ ambient conditions):** maximum load: 240 N (24 KG), maximum dynamic force along the axis: 1 N • **Coarse Positioning Mode:** input voltage range: 0 - 60 V, travel range (step mode): 50 mm, maximum drive velocity @ 300 K : 4.5 mm/s • **Fine Positioning Mode:** fine positioning resolution: sub-nm, fine positioning range @ 300 K: 1.6 µm, input DC voltage range @ 300 K: 0 - 60 V • **Accuracy of Movement:** repeatability of step sizes: **typically, 5 % over full range** typ. forward / backward step asymmetry: **10 %** • **Position Encoder:** readout mechanism: **Optoelectronic sensor:** sensor power (when measuring): **300 mW,** wavelength of illumination: **870 nm,** sensor resolution: **1 nm,** repeatability: **50 nm,** absolute accuracy: **< 0.01% of travel range** **1a) Working Conditions:** mounting orientation: arbitrary, minimum pressure (/UHV): $5E^{-11}$ mbar, room temperature **1b) Working Conditions:** mounting orientation: arbitrary, minimum pressure (/UHV): $5E^{-8}$ mbar, room temperature	2 2
2	**High Resolution Rotator:** Rotator enables precise 360° endless rotation of samples in both directions. The integrated optoelectronic encoder enables ultra-precise position control over the entire travel range. **Specification** • **Travel Mechanism**: inertial piezo drive**,** positioner type: rotator • **Size and Dimensions:** footprint; height: 30x30; 13.5mm**,** max installation space: 30x30; 13.5mm**,** weight (stainless steel version) 66 g • **Materials:** positioner body (/HV, /UHV) : stainless steel**,** actuator: PZT ceramics**,** connecting wires:- copper, jacket: RT: silicon, HV/UHV: fiber glass**,** bearings: stainless steel • Environmental options: UHV	2

	• **Compatibility with Electronics:** piezo positioning controller all versions**, Load (@ ambient conditions),** maximum load: **20 N,** maximum dynamic torque around axis : **2 Ncm** • **Coarse Positioning Mode:** input voltage range: **0 - 60 V,** travel range (step mode) :**360 °,** maximum drive velocity @ 300 K : **10 °/s** • **Fine Positioning Mode:** fine positioning resolution: µ°, fine positioning range @ 300 K 12 m°, input DC voltage range @ 300 K 0 - 100 V • **Accuracy of Movement:** repeatability of step sizes typically 5 % over full range**,** typ. forward / backward step asymmetry 10 %**,** wobble: 6 mrad • **Position Encoder:** readout mechanism: **optoelectronic sensor,** sensor power (when measuring): **300 mW,** wavelength of illumination: **870 nm,**sensor resolution: **0.01 m°,** repeatability : 1 m°**,** absolute accuracy: **< 0.01% of travel range** • **Working Conditions:** mounting orientation**: arbitrary:** minimum pressure (/UHV): $5E^{-11}$ mbar**,** temperature range (/RT): 273K .. 328K	
3a	Vacuum extension cable: woven flat cable (Kapton) with two SubD15 connectors (PEEK) **Qty: 2Nos for item 1a), 2Nos for item 1b) and, 2Nos for item 2** **Note:** Cables should be compatible with stages	6
4a	Connection cable (outsize vacuum: from controller to feedthrough on flange) for item 1a) & item 1b) length: 2m cable with SubD26HD connector (controller) and SubD15 connector with integrated preamplifier for the connection of positioners or vacuum feedthroughs; incl. subD15 male-male adaptor as a substitute for the vacuum feedthrough during tests Length: 2m Or similar compatible cables	4
4b	Connection cable (outsize vacuum: from controller to feedthrough on flange) for item 2 2m cable with SubD26HD connector (controller) and SubD15 connector for the connec1on of positioners or vacuum feedthroughs; incl. subD15 male-male adaptor as a substitute for the vacuum feedthrough during tests Length: 2m Or similar compatible cables for item 2.	2
5	Motion Controller: to control up to three nanopositioners (Item 1a), item 1b), and item 2) in open and closed loop mode,an Ethernet cable, a USB 2 Ethernet adapter and a power pack with country specific plug With activation of the enhanced Pro features incl. multiple device control with one program, set DC level, and End of Travel detection.	1

6a	Electrical Vacuum Feedthrough EVFT 63CF DN63CF - VFT/3 x 15 Pin Sub-D vacuum feedthrough with an maximum inner diameter of 76.8 mm, with an outer diameter of the SubD15 connectors/plugs of ~ 58 – 60 mm)	2
6b	Electrical Vacuum Feedthrough EVFT 40CF	2
7	Base plate for item 1a), item 1b) and item 2)	6
8	**Nanopositioner Toolbox for Vacuum** Additional Accessories (Titanium screws, cabling, pin connectors, etc.) specified for vacuum and cryogenic conditions including. – adapter plate for item 1a) item 1b) and item 2): • **Titanium Screws Titanium** M1.6 x 2 8 pcs M1.6 x 4 24 pcs M1.6 x 6 8 pcs M2 x 3 8 pcs M2 x 5 24pcs M2 x 7 8 pcs M2 x 8 16 pcs M2 x 10 8 pcs M2.5 x 10 16 pcs • **Pin Connectors:** 2-pole pin plug (PEEK) 12 pcs. 3-pole pin plug (PEEK) 12 pcs. 5-pole pin plug (PEEK) 12 pcs. • **Cabling:** copper wire w/polyamid coating (length: 20 m, Ø 0.2 mm) 4pcs. • **Other accessories:** Micro screwdriver 2 pcs. Tweezer 1 pcs. Base plate for item 1: 3pcs Base plate for item 2: 1 Pcs	2