

2 Multi Degrees of Freedom

27-38

2.1



Free XD series

Multi Degrees of Freedom, Long Travel Range, Parallel Kinematic

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2.1.1 Z Tx Ty
Free3D.ZTxTy

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2.1.2 XYZ · Tx Ty Rz
Free6D.3-2.150, Free6D.3-2.070

30

2.2



Carrier series

Carrier.L7550.XY, Carrier.L1010.XY

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2.3



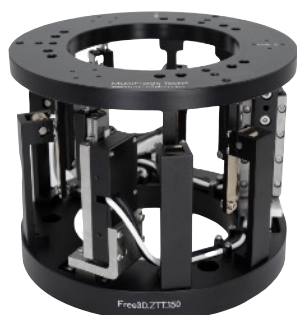
Piezo Motor Controller

MC-Newton.S

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“FreeXD Series”

Multi Degrees of Freedom, Long Travel Range, Parallel Kinematic



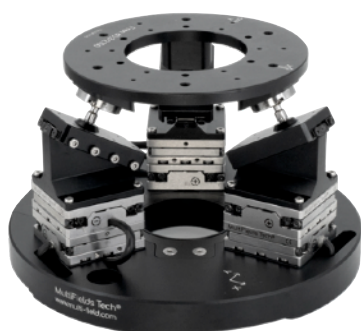
➔ Free3D.ZTxTy.150

ZTxTy Motion, Optical Sensor Feedback

Travel Range: Z: ± 5 mm & $\theta X, \theta Y$: $\pm 3^\circ$, $\pm 3^\circ$

Minimum Incremental Motion: Z: 25 nm & $\theta X, \theta Y$: 7.5 μ rad

Max. Payload: 3kg



➔ Free6D.3 - 2.150

XYZTxTyRz 6DoF Motion, Optical Sensor Feedback

Travel Range: XYZ: ± 10 mm, ± 10 mm, ± 5 mm;

$\theta x, \theta y, \theta z$: $\pm 10^\circ$, $\pm 10^\circ$, $\pm 20^\circ$

Minimum Incremental Motion: XYZ: 20 nm, 20 nm, 20 nm; $\theta X, \theta Y, \theta Z$: 1 μ rad, 1 μ rad, 1 μ rad

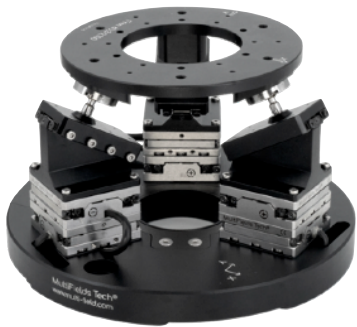
Max. Payload: 1kg

6 DoF Parallel Stage — Free6D.3–2.150

Parallel Kinematic, Clear Aperture, Flexible Design

- ➔ Feature
- Quiet Motion
 - Self-lock
 - Optical Sensor Inside
 - Nanometer Resolution
 - Parallel Kinematic
 - High Stiffness

➔ Photo & Drawing



➔ Specification

Free6D.3–2.150

1	Optional	.HV, High Vacuum Version; .UHV, Ultra High Vacuum Version;
2	Footprint × Height	Ø150 × 90 mm
3	Material	Stainless Steel, Aluminum
4	Cable & Connector(6x)	Standard/HV, shield cable and D-Sub15 plug; UHV, Kapton, PEEK D-Sub15
5	Max. Payload	1 kg
6	Travel Range X, Y, Z *	±10 mm, ±10 mm, ±5 mm
7	Travel Range θX, θY , θZ *	±10 °, ±10 °, ±20 °
8	Unidirection Repeatability X, Y, Z	±0.25 μm, ±0.25 μm, ±0.1 μm
9	Unidirection Repeatability θX, θY, θZ	±5 μrad, ±5 μrad, ±5 μrad
10	Minimum Incremental Motion X, Y, Z	10 nm, 10 nm, 10 nm
11	Minimum Incremental Motion θX, θY, θZ	1 μrad, 1 μrad, 1 μrad
12	Sensor Type	Optical Sensor
13	Sensor Resolution	2nm
14	Controller	MF–Free6D

◆ Axes of Parallel kinematic system are not independent. The specified value represents the maximum Travel Range achievable under independent single-axis motion conditions.
For detail drawing and 3D model please contact us.