HIWIN® MIKROSYSTEM

Linear Motor Stage

1.5μm *Straightness & Flatness*

37mm *Low Profile*

- High stiffness crossed roller bearings
- Ironless direct drive linear motor

AC Servo Motor Stage

100nm *Minimum Incremental Motion*

- Precision ground ball screws
- High stiffness crossed roller bearings
- Suitable for Z axis application

NPS Series

Nano Precision Stage

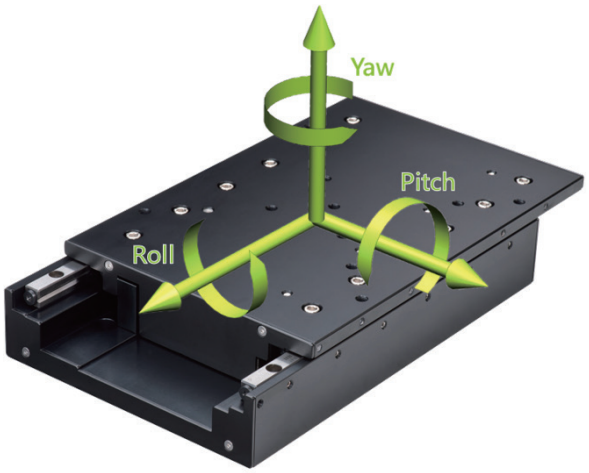
www.hiwinmikro.tw

Moment Load Capacity

NPS Series

Linear Motor Stage

Model	Stroke	Unit	Roll	Yaw	Pitch
NPS-L-UB1	50	N-m	145	160	170
	100	N-m	175	220	210
NPS-L-UB2	50	N-m	218	314	302
	100	N-m	254	455	472
NPS-L-CB4	50	N-m	610	513	488
	100	N-m	784	759	729
NPS-L-CB6	50	N-m	865	759	729
	100	N-m	1230	1390	1350
NPS-L-CB8	50	N-m	1230	1390	1350
	100	N-m	1680	1780	1730



Model Explanation

NPS- L - UB1 - 05 A - 03 - C

Model Series

Nano Precision Stage
- Linear Motor

Motor Type

UB1: LMC-HUB1
UB2: LMC-HUB2
CB4: LMCB4
CB6: LMCB6
CB8: LMCB8

Stroke

05: 50 mm
10: 100 mm

Linear Encoder Type

A: Optical, Analog 1Vpp Sin/Cos, Stainless steel scale
B: Optical, Analog 1Vpp Sin/Cos, Invar scale
C: Optical, Digital, Resolution 0.1 μm, Stainless steel scale (standard)
D: Optical, Digital, Resolution 0.1 μm, Invar scale

Cable Length

N: No Cable
03: 3 m
05: 5 m
07: 7 m

Custom Code

None: Strandard
C: Customized

Note: For special requests, please contact HIWIN MIKROSYSTEM or local distributors.

Mechanical Specifications

NPS Series

Linear Motor Stage

Specifications	Unit	CB4		CB6		CB8	
Stroke	mm	50	100	50	100	50	100
Peak Force	N	292		436		580	
Continuous Force	N	73		109		145	
Peak Current	A_{rms}	8		8		8	
Continuous Current	A_{rms}	2		2		2	
Resolution	μm	0.1		0.1		0.1	
Bi-directional Repeatability *1	μm	±0.2		±0.2		±0.2	
Accuracy *1	μm	±1	±1	±1	±1	±1	±1
Straightness *1	μm	1.5	2	1.5	2	1.5	2
Flatness *1	μm	1.5	2	1.5	2	1.5	2
Pitch *1	arc-sec	±5	±5	±5	±5	±5	±5
Yaw *1	arc-sec	±5	±5	±5	±5	±5	±5
Normal Load Capacity	kg	30		40		50	
Maximum Acceleration *2	m/s^2	2		2		2	
Maximum Velocity *2	m/s	0.2		0.2		0.2	
Material	-	Aluminum With Black Hard Anodized Finish					
Stage Weight	kg	7	8	8	10	10	12

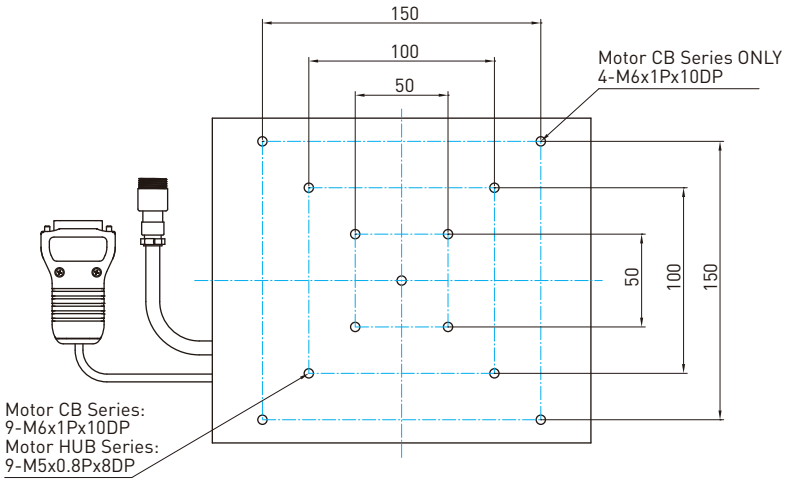
Specifications	Unit	UB1		UB2	
Stroke	mm	50	100	50	100
Peak Force	N	80		160	
Continuous Force	N	20		40	
Peak Current	A_{rms}	6.2		12.3	
Continuous Current	A_{rms}	1.5		3.1	
Resolution	μm	0.1		0.1	
Bi-directional Repeatability *1	μm	±0.2		±0.2	
Accuracy *1	μm	±1	±1	±1	±1
Straightness *1	μm	1.5	2	1.5	2
Flatness *1	μm	1.5	2	1.5	2
Pitch *1	arc-sec	±5	±5	±5	±5
Yaw *1	arc-sec	±5	±5	±5	±5
Normal Load Capacity	kg	10		20	
Maximum Acceleration *2	m/s^2	2		2	
Maximum Velocity *2	m/s	0.2		0.2	
Material	-	Aluminum With Black Hard Anodized Finish			
Stage Weight	kg	1.5	2	2	2.5

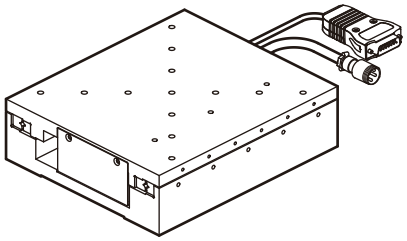
Note:
1. All measurements are measured in the center of stage.
2. Maximum velocity and acceleration are measured with payload.
3. After error compensation.

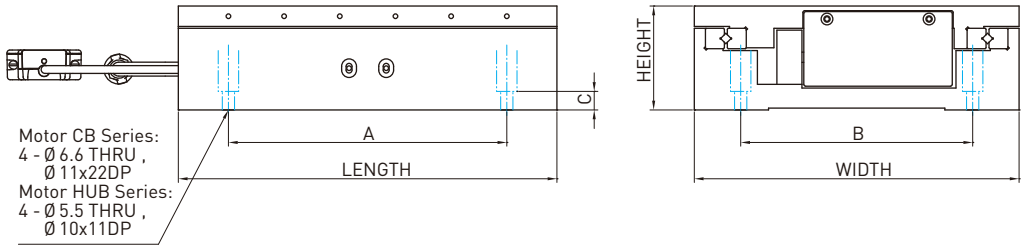
Dimensions

NPS Series

Linear Motor Stage







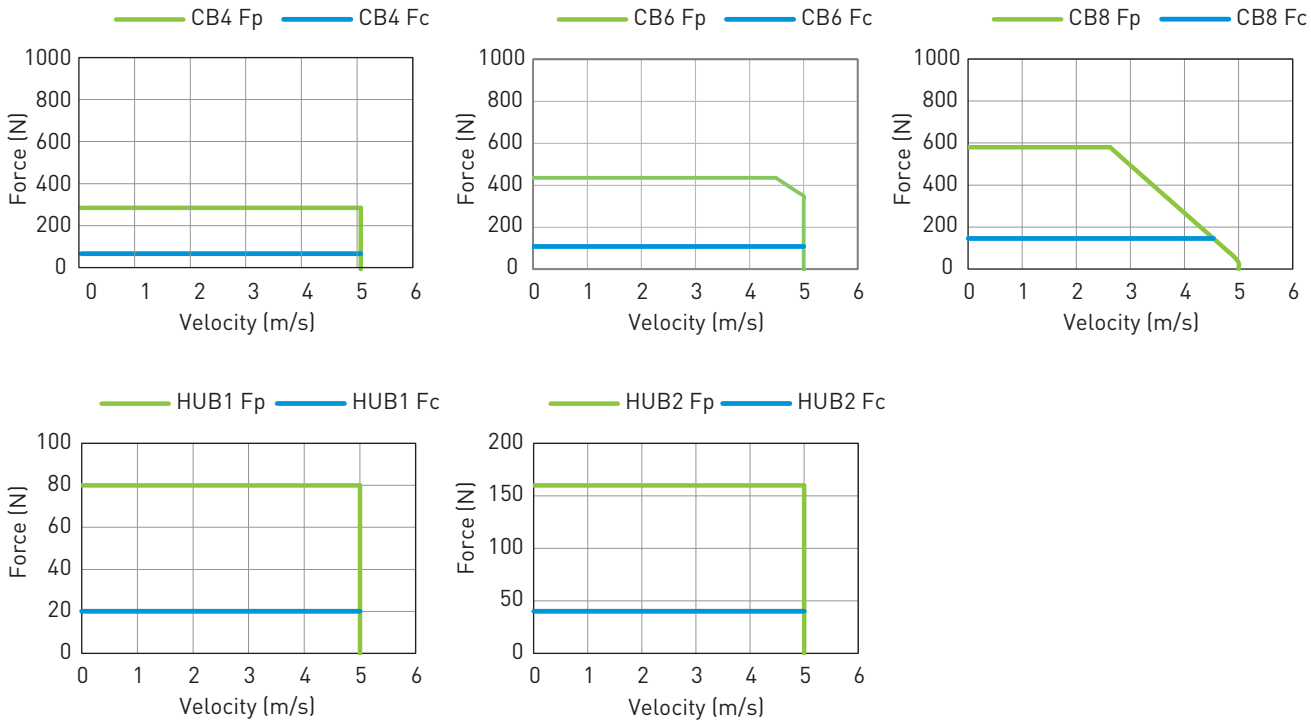
Model	Stroke	Dimension					
		LENGTH	WIDTH	HEIGHT	A	B	C
NPS-L-UB1	50	127	125	37	100	75	6
	100	195	125	37	100	75	6
NPS-L-UB2	50	195	125	37	135	75	6
	100	245	125	37	135	75	6
NPS-L-CB4	50	204	175	60	160	125	12
	100	260	175	60	160	125	12
NPS-L-CB6	50	270	175	60	215	125	12
	100	324	175	60	215	125	12
NPS-L-CB8	50	334	175	60	280	125	12
	100	388	175	60	280	125	12

Note: All dimensions are in millimeters.

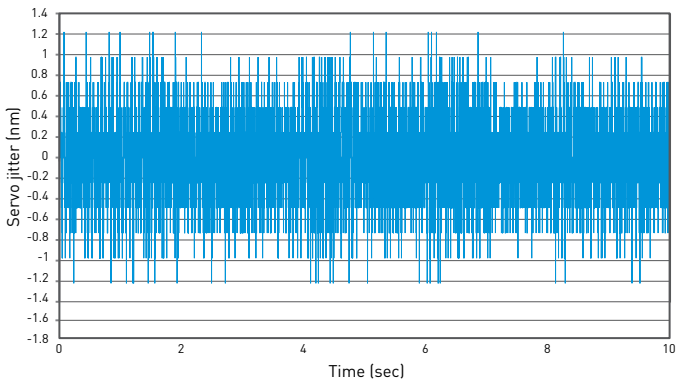
Linear Motor Performance

Force / Velocity curve (DC bus = 325 V)

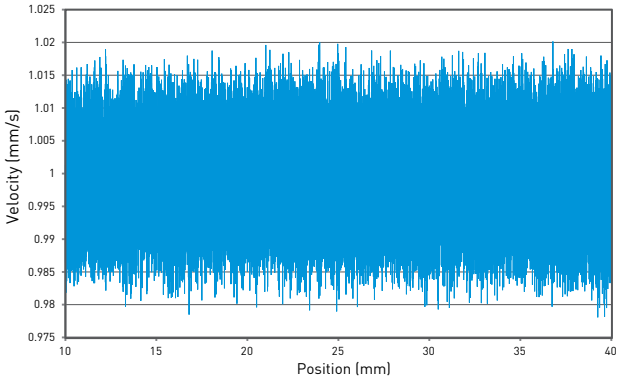
Note: These are linear motor component performance specifications. NPS stage maximum speed is limited to 0.2 m/s.



Servo Jitter Nano-level position stability
Perfect for nano-stepping motion



Velocity Ripple NPS-L has excellent velocity stability within ±2 % under 1 mm/s velocity.



Application of Industry

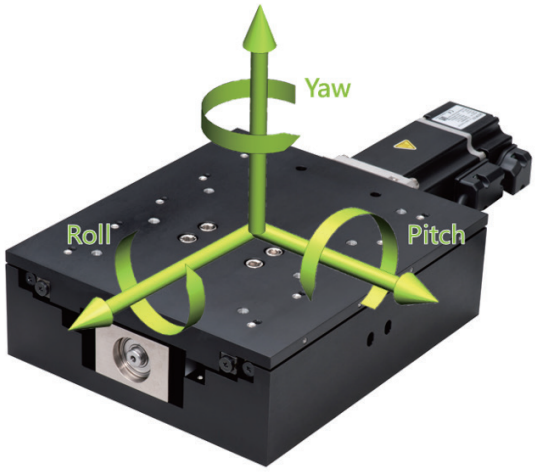
- Laser micromachining, marking, cutting
- Laser direct imaging
- Surface metrology
- AOI (Automatic Optical Inspection)

Moment Load Capacity

NPS Series

AC Servo Motor Stage

Model	Unit	Pitch	Roll	Yaw
NPS-AC-20-05	N-m	488	576	513
NPS-AC-20-10	N-m	729	698	759
NPS-AC-40-05	N-m	488	576	513
NPS-AC-40-10	N-m	729	698	759



Model Explanation

NPS- AC - 40B - 05 5 - 03 - C

Model Series

Nano Precision Stage
- AC Servo Motor

Motor Type

20: 200 W
20B: 200 W with Brake
40: 400 W
40B: 400 W with Brake

Stroke

05: 50 mm
10: 100 mm

Encoder Type

4: 17 bit absolute encoder
5: 13 bit less-wire incremental encoder
6: HIWIN17 bit incremental encoder

Cable Length

N: No Cable
03: 3 m
05: 5 m
07: 7 m

Custom Code

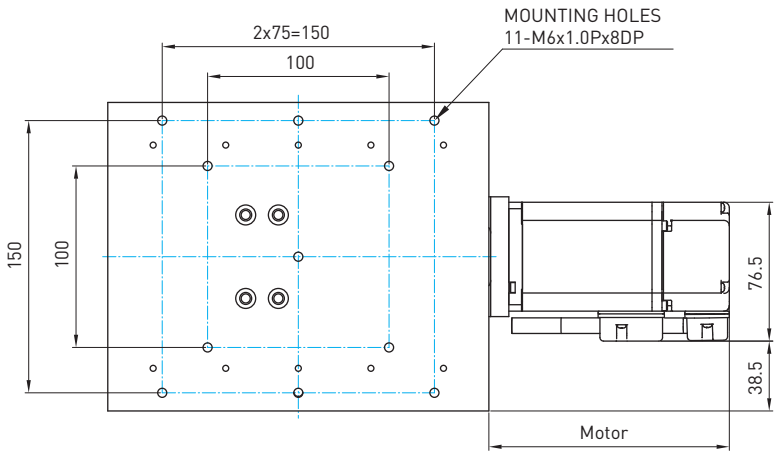
None: Strandard
C: Customized

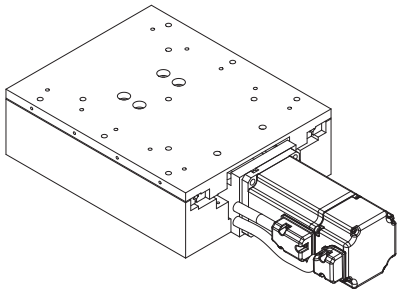
Note: For special requests, please contact HIWIN MIKROSYSTEM or local distributors.

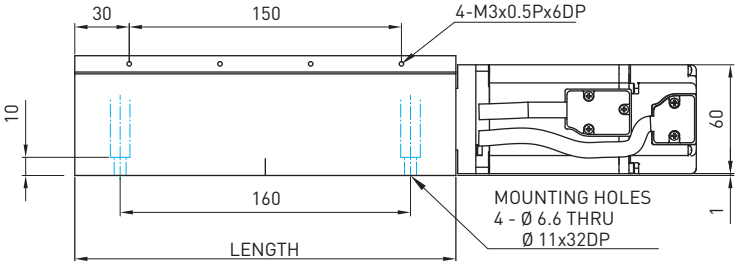
Dimensions

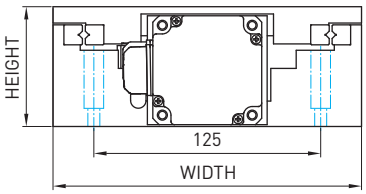
NPS Series

AC Servo Motor Stage









Model	Stroke	Dimension			
		LENGTH	WIDTH	HEIGHT	MOTOR
NPS-AC-20-05	50	210	170	67	85.5 (115.5)
NPS-AC-20-10	100	265	170	67	85.5 (115.5)
NPS-AC-40-05	50	210	170	67	104.2 (134.2)
NPS-AC-40-10	100	265	170	67	104.2 (134.2)

Note:
1. All dimensions are in millimeters.
2. ( ) include brake size.

Mechanical Specifications

NPS Series

AC Servo Motor Stage

Specifications	Unit	200 W		400 W	
Stroke	mm	50	100	50	100
Ball Screw Pitch	mm	2			
Continuous Current	A_{rms}	1.7		2.5	
Peak Current	A_{rms}	5.1		7.5	
Accuracy *1*3	μm	±3		±3	
Bi-directional Repeatability *1	μm	±0.3		±0.3	
Straightness & Flatness *1	μm	±1.5		±1.5	
Pitch *1	arc-sec	±5		±5	
Yaw *1	arc-sec	±5		±5	
Normal Load Capacity	kg	25		40	
Maximum Velocity *2	m/s	0.1		0.1	
Maximum Acceleration *2	m/s^2	2		2	
Moving Mass	kg	2.0	2.4	2.0	2.4
Stage Weight	kg	6.5	7.0	7.0	7.5
Moving Slide Material	-	Aluminum With Black Hard Anodized Finish			

Note:
1. All measurements are measured in the center of stage.
2. Maximum velocity and acceleration are measured with payload.
3. After error compensation.

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