

- Backlash free
- Nonometer resolution
- Long travel
- Small Size
- Customized versions

## HOW A PIEZO LEGS MOTOR WORKS

A Piezo LEGS motor is a direct acting, one piece walking machine whose legs can be elongated and bent sideways. By synchronizing the movement of two pairs of legs, it moves in small but distinct increments - just as an ant does. Except that it's much faster and far stronger.

By taking thousands of steps per second - even in the sub-micrometer or nanometer range - it can cruise over several centimeters during this time. Forces extend up to several hundred Newtons. There's no need for gears or mechanical transmissions, rotors, stators or ball-bearings. What's more, the material in a Piezo LEGS motor is virtually impossible to wear out.

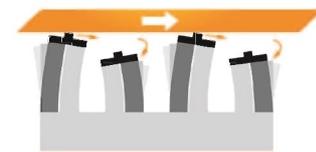
## HOW IT MOVES - STEP-BY-STEP

Orange arrows show the direction of motion of each leg tip. They move as alternate pairs. White arrows show the movement of the rod.

- 1 All four legs are electrically activated. All are elongated.



- 2 The first pair of legs maintains contact with the rod and moves right. The second pair retracts. Their tips bend left.



- 3 The second pair now extended and repositions on the rod. Their tips move right. The first pair retracts and their tips bend left.



- 4 The second pair of legs moves right. The first pair begins to elongate and move up towards the rod.

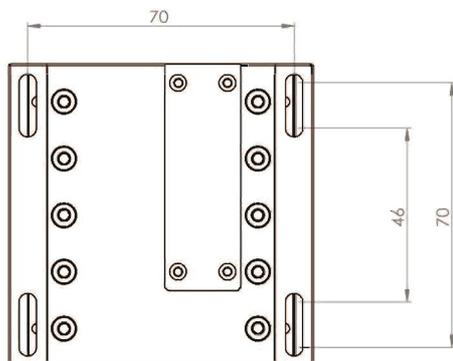
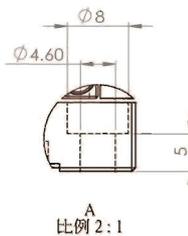
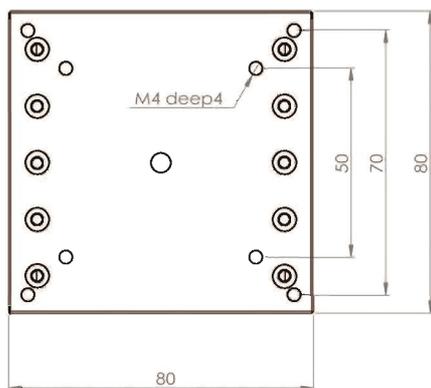
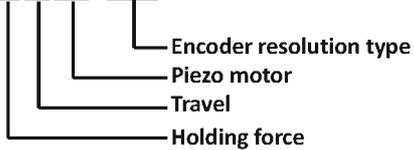


## MNLS0625PM-R050

Technical Specification		Units
Size	80*80*25	mm
Travel	25	mm
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1	µm
Flatness	±1.5	µm
Repeatability	±0.1	µm
Pitch	60	µrad
Yell	60	µrad
Hoding Force	6	N
Continuous Force	3	N
Motor	LL1011-050D1A00	
Weight	420	g
Controller	PMD101	

可客製真空環境下使用規格

### MNLS 06 25 PM - R050



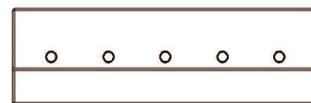
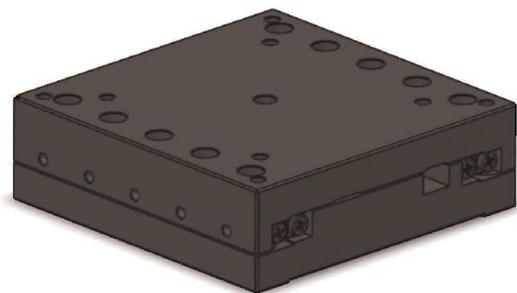
### Motor pin assignment

Pin	Color	mm
1	Black	Phase 1
2	Brown	Phase 2
3	Red	Phase 3
4	Orange	Phase 4
5	Yellow	GND

### Encoder pin assignment

Pin	Color	mm
1	X	X
2	Green	Quadrature Signal A+
3	Orange	Quadrature Signal B+
4	Red	+5 V (max 200 mA)
5	Black	GND
6	White	Quadrature Z Index

標準線長為 1.0 m cable for driver PMD101，如需增長 cable 長度或 Differential 可客製修改

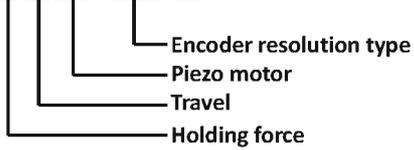


## MNLS0625PM-R050-OP

Technical Specification		Units
Size	120*120*25	mm
Travel	25	mm
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1	µm
Flatness	±1.5	µm
Repeatability	±0.1	µm
Holding Force	6	N
Continuous Force	3	N
Motor	LL1011-050D1A00	
Weight	960	g
Controller	PMD101	

可客製真空環境下使用規格

MNLS 06 25 PM - R050 - OP



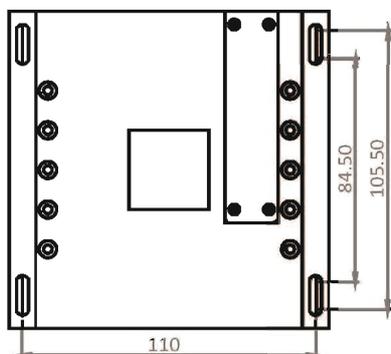
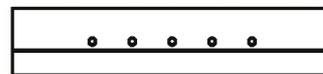
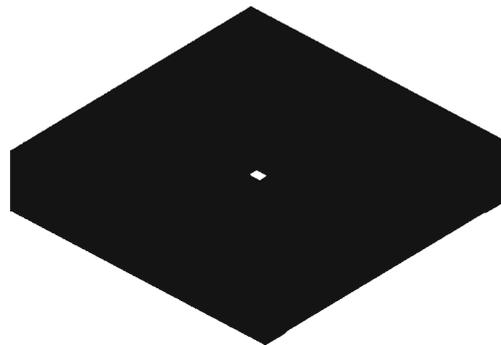
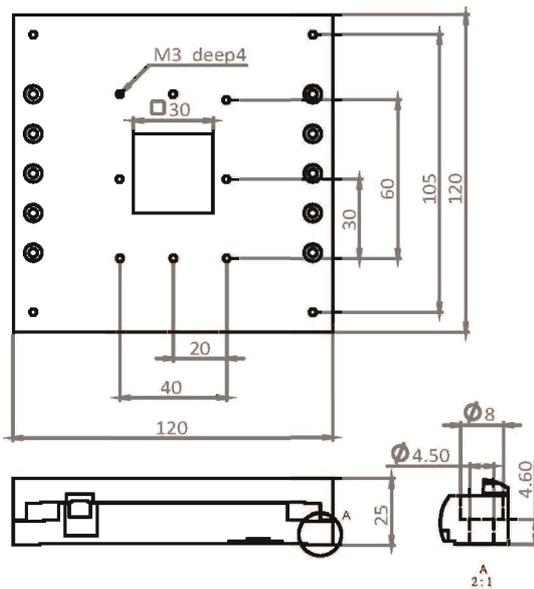
### Motor pin assignment

Pin	Color	mm
1	Black	Phase 1
2	Brown	Phase 2
3	Red	Phase 3
4	Orange	Phase 4
5	Yellow	GND

### Encoder pin assignment

Pin	Color	mm
1	X	X
2	Green	Quadrature Signal A+
3	Orange	Quadrature Signal B+
4	Red	+5 V (max 200 mA)
5	Black	GND
6	White	Quadrature Z Index

標準線長為 1.0 m cable for driver PMD101，如需增長 cable 長度或 Differential 可客製修改

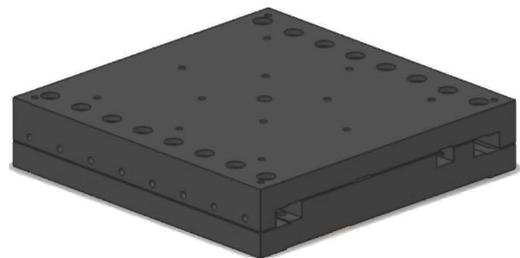
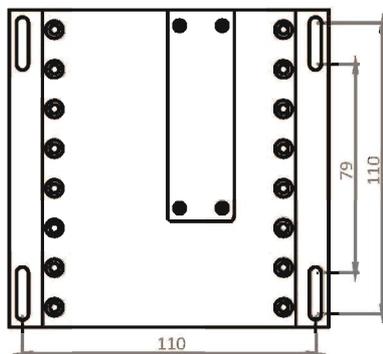
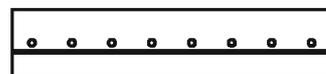
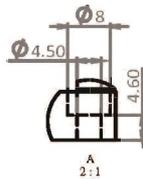
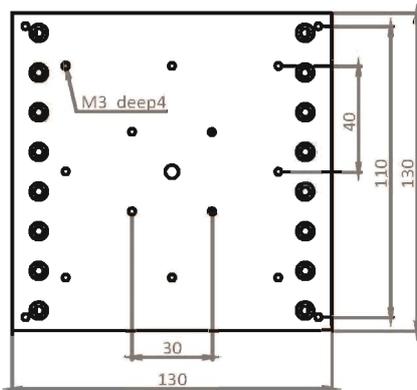
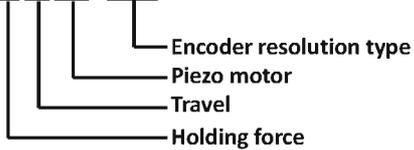


## MNLS0675PM-R050

Technical Specification		Units
Size	120*120*25	mm
Travel	75	mm
Speed	10	mm/sec
Resolution	50	nm
Straightness	±2	µm
Flatness	±2.5	µm
Repeatability	±0.15	µm
Holding Force	6	N
Continuous Force	3	N
Motor	LL1011-101D1A00	
Weight	950	g
Controller	PMD101	

可客製真空環境下使用規格

MNLS 06 75 PM - R050



### Motor pin assignment

Pin	Color	mm
1	Black	Phase 1
2	Brown	Phase 2
3	Red	Phase 3
4	Orange	Phase 4
5	Yellow	GND

### Encoder pin assignment

Pin	Color	mm
1	X	X
2	Green	Quadrature Signal A+
3	Orange	Quadrature Signal B+
4	Red	+5 V (max 200 mA)
5	Black	GND
6	White	Quadrature Z Index

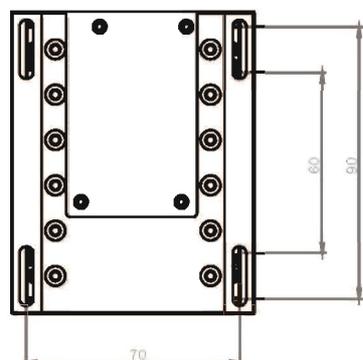
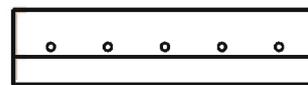
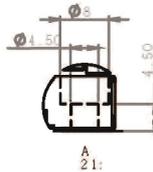
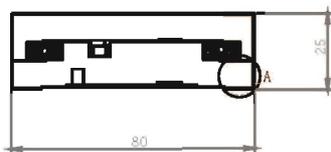
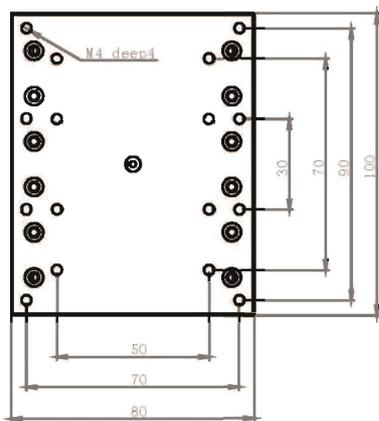
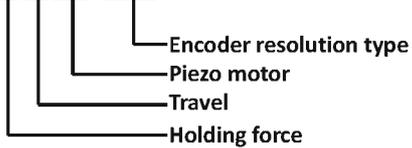
標準線長為 1.0 m cable for driver PMD101，如需增長 cable 長度或 Differential 可客製修改

## MNLS2040PM-R050

Technical Specification		Units
Size	100*80*25	mm
Travel	40	mm
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1.2	µm
Flatness	±2	µm
Repeatability	±0.1	µm
Pitch	70	µrad
Yaw	60	µrad
Holding Force	22	N
Continuous Force	10	N
Motor	LT2020-070D1A00	
Weight	570	g
Controller	PMD101	

可客製真空環境下使用規格

MNLS 20 40 PM - R050



### Motor pin assignment

Pin	Color	mm
1	Black	Phase 1
2	Brown	Phase 2
3	Red	Phase 3
4	Orange	Phase 4
5	Yellow	GND

### Encoder pin assignment

Pin	Color	mm
1	X	X
2	Green	Quadrature Signal A+
3	Orange	Quadrature Signal B+
4	Red	+5 V (max 200 mA)
5	Black	GND
6	White	Quadrature Z Index

標準線長為 1.0 m cable for driver PMD101，如需增長 cable 長度或 Differential 可客製修改

