

# MML010类型...MML010△-KP□□、MML010-MP□□□

(MML010 Type...MML010△-KP□□、MML010-MP□□□)



MML系列中最轻巧的直线电机。可在有限的小空间内实现高效驱动。是最适合各种领域设备小型化的直线电机。

The MML010 is the smallest of the MML Series Linear Motor. It is a very efficient drive system that was developed to fit in the smallest possible space. This is most appropriate linear motor for the miniturization of equipment in various fields.

### 标准规格/Standard Specifications

绝缘耐压/Insulation Capacity : AC1500V 1分钟 (1min)  
 周围温度/Operating Range : 0 ~ 40°C  
 冷却方式/Cooling method : 自冷 (Self-cool)  
 绝缘电阻/Insulation Resistance : DC500V 100MΩ以上/DC500V 100MW or more  
 周围湿度/Operating range (in controlled environment) : 20 ~ 80% (无结露) (No condensation)  
 最大温度/Maximum temperature : 120°C

### 详细规格/Specification

项目 / Item	单位 / Unit	MML010△-KP01		MML010△-KP02		MML010△-KP03	
		A*1	B*1	A*1	B*1	A*1	B*1
额定推力 <sup>2)</sup> /Continuous Force	N	33		63		120	
额定电流 <sup>3)</sup> /Continuous Current	Arms	2.9	1.4	2.7	1.4	5.2	2.6
最大推力 <sup>2)</sup> /Peak Force	N	165		315		598	
最大电流 <sup>3)</sup> /Peak Current	Arms	14.4	7.2	13.7	6.9	26.2	13.1
动子重量/Mover weight	kg	0.17		0.31		0.61	
推力常数/Force Constant DC马达换算/All Three Phases	N / Arms	11.6	23.2	23.0	46.0	22.8	45.6
马达常数/Motor Constant DC马达换算/All Three Phases	N / √W	5.8	5.8	8.1	8.1	11.4	11.4
线间感应电压常数/Back EMF (line to line)	Vrms / (m/s)	6.5	13.0	12.9	25.8	12.8	25.6
线间电阻/Coil Resistance (line to line)	Ω	4.0	16.0	8.0	32.0	4.0	16.0
线间电感/Inductance (line to line)	mH	1.21	4.84	2.43	9.72	1.21	4.84
散热常数 (有散热片) Thermal Resistance (included heat sink)	K / W	1.43		0.79		0.43	
散热常数 (无散热片) Thermal Resistance (not included heat sink)	K / W	1.71		0.95		0.51	

\*1: A为低电压输入型, B为高电压输入型。表中的△填入A或B。

\*2: 最大推力、最大电流会根据使用的伺服控制器最大电流而变化。本数值是以转子上安装有散热片(铝板)为条件的。(散热片尺寸: 200×200×15mm)

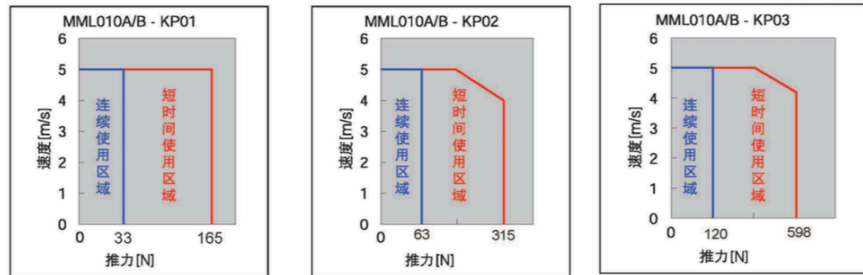
\*3: 电枢卷线温度为100°C时的数值。

\*1: A = Low Voltage Model, B = High Voltage Model. The △mark in the chart signifies that either A or B models could be suitable.

\*2: The value given for the Peak Force and Peak Current may differ depending on the Peak Current of the Servo Controller utilized. Given Values are for heat sink (Aluminum) equipped Coil Plates. (Heat Sink size: 200×200×15mm)

\*3: Given value is after the electrical wiring temperature has reached 100°C.

### 推力-速度特性/Force/Speed Characteristics



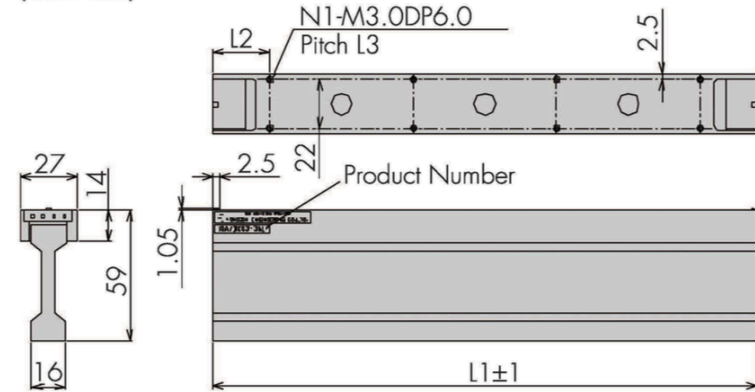
本特性根据伺服控制器供给至直线电机的输入电压而变化。

上述特性是以A型AC型AC85V、B型AC170V作为供给至直线电机的输入电压算出的。

The above characteristics may vary depending on the Voltage supply from the Servo Controller to the motor. Listed characteristics for the Linear Motor's Input Voltage is calculated at AC85V for Type A, AC170V for Type B. For further details, please contact our Sales Department.

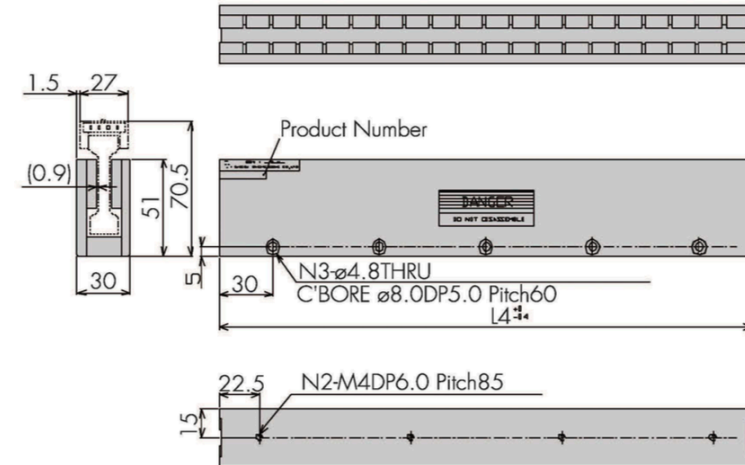
### 外形尺寸/Dimensions (单位/unit: mm)

#### ●动子 (Coil Plate)



Type	Size[mm]				Qty[pcs]
	L1	L2	L3	N1	
KP01	78	24	30	4	
KP02	138	32	37	6	
KP03	258	27	68	8	

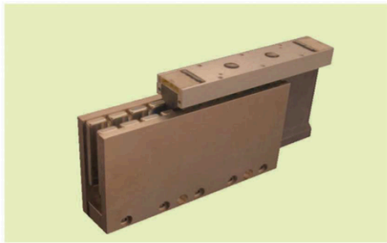
#### ●定子 (Magnet Plate)



Type	Size[mm]			Qty[pcs]
	L4	N2	N3	
MP150	150	2	2	
MP300	300	4	5	

# MML020类型...MML020△-KP□□、MML020-MP□□□

(MML020 Type...MML020△-KP□□、MML020-MP□□□)



可在需要精密定位、高速度、高加速度的小型半导体制造设备等有限的小空间内使用。是最适合制造设备小型化的直线电机。

This Series of Linear Motor is well suited for applications that require Precision Positioning, High Speed, Quick Acceleration such as Semiconductor manufacturing equipment. It is also able to be utilized in limited work spaces. It is the most appropriate Linear Motor design for the reduction of manufacturing equipment size.

### 标准规格/Standard Specifications

绝缘耐压/Insulation Capacity : AC1500V 1分钟 (1min)  
 周围温度/Operating Range : 0 ~ 40°C  
 冷却方式/Cooling method : 自冷 (Self-cool)  
 绝缘电阻/Insulation Resistance : DC500V 100MΩ以上/DC500V 100MW or more  
 周围湿度/Operating range (in controlled environment) : 20 ~ 80% (无结露) (No condensation)  
 最大温度/Maximum temperature : 120°C

### 详细规格/Specification

项目 / Item	单位 / Unit	MML020△-KP01		MML020△-KP02		MML020△-KP03	
		A*1	B*1	A*1	B*1	A*1	B*1
额定推力 <sup>2)</sup> /Continuous Force	N	62		111		219	
额定电流 <sup>2)</sup> /Continuous Current	Arms	2.7	1.3	2.4	1.2	4.9	2.4
最大推力 <sup>2)</sup> /Peak Force	N	308		554		1094	
最大电流 <sup>2)</sup> /Peak Current	Arms	13.4	6.7	12.2	6.2	24.4	12.1
动子重量/Mover weight	kg	0.22		0.43		0.8	
推力常数/Force Constant DC马达换算/All Three Phases	N / Arms	22.9	44.5	45.5	90.8	44.9	89.7
马达常数/Motor Constant DC马达换算/All Three Phases	N / √W	9.5	9.4	13.3	13.4	18.6	18.5
线间感应电压常数/Back EMF (line to line)	Vrms / (m/s)	13.2	26.2	26.3	52.4	25.9	51.8
线间电阻/Coil Resistance (line to line)	Ω	5.8	22.4	11.7	45.9	5.8	23.4
线间电感/Inductance (line to line)	mH	1.85	7.4	3.66	14.6	1.83	7.44
散热常数 (有散热片) Thermal Resistance (included heat sink)	K / W	1.14		0.67		0.34	
散热常数 (无散热片) Thermal Resistance (not included heat sink)	K / W	1.36		0.80		0.41	

\*1 : A为低电压输入型, B为高电压输入型。表中的△填入A或B。

\*2 : 最大推力、最大电流会根据使用的伺服控制器最大电流而变化。本数值是以转子上安装有散热片 (铝板) 为条件的。  
(散热片尺寸: 200×200×15mm)

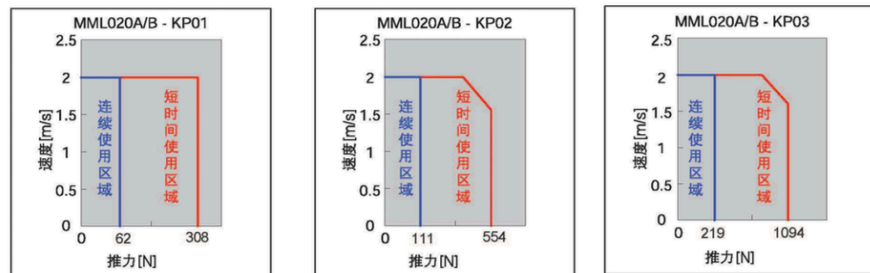
\*3 : 电枢卷线温度为100°C时的数值。

\*1: A = Low Voltage Model, B = High Voltage Model. The △ mark in the chart signifies that either A or B models could be suitable.

\*2: The value given for the Peak Force and Peak Current may differ depending on the Peak Current of the Servo Controller utilized. Given Values are for heat sink (Aluminum) equipped Coil Plates. (Heat Sink size: 200×200×15mm)

\*3: Given value is after the electrical wiring temperature has reached 100°C.

### 推力-速度特性/Force/Speed Characteristics



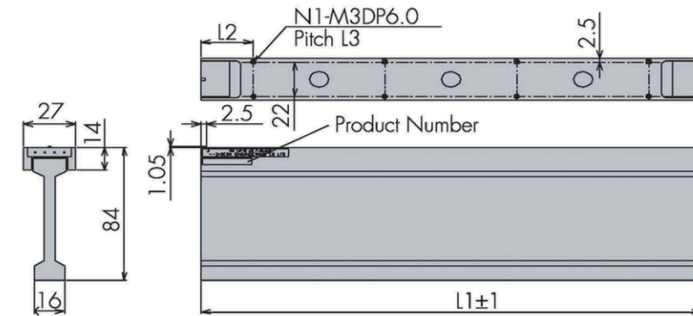
本特性根据伺服控制器供给至直线电机的输入电压而变化。

上述特性是以A型AC型AC85V、B型AC170V作为供给至直线电机的输入电压算出的。

The above characteristics may vary depending on the Voltage supply from the Servo Controller to the motor.  
 Listed characteristics for the Linear Motor's Input Voltage is calculated at AC85V for Type A, AC170V for Type B.  
 For further details, please contact our Sales Department.

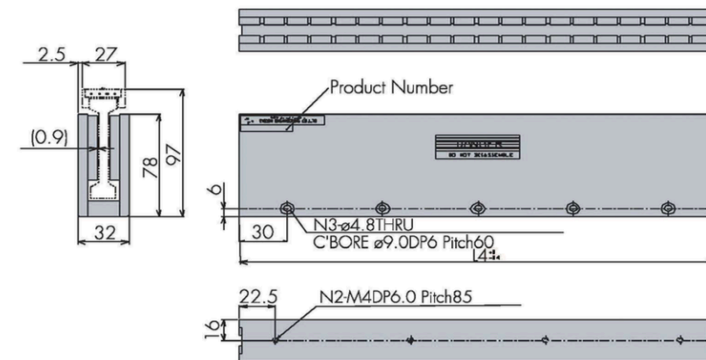
### 外形尺寸/Dimensions (单位/unit : mm)

#### ● 定子 (Coil Plate)



Type	Size[mm]			Qty[pcs]
	L1	L2	L3	
KP01	78	24	30	4
KP02	138	32	37	6
KP03	258	27	68	8

#### ● 定子 (Magnet Plate)



Type	Size[mm]			Qty[pcs]
	L4	N2	N3	
MP150	150	2	2	
MP300	300	4	5	

# MML030类型...MML030△-KP□□、MML030-MP□□□

(MML030 Type...MML030△-KP□□、MML030-MP□□□)



可适用于半导体制造设备、组装机器设备等广泛的领域。  
This Model is suitable for a wide range of fields such as Semiconductor Production Equipment and Assembly Robots

### 标准规格/Standard Specifications

绝缘耐压/Insulation Capacity : AC1500V 1分钟 (1min)  
周围温度/Operating Range : 0 ~ 40°C  
冷却方式/Cooling method : 自冷 (Self-cool)  
绝缘电阻/Insulation Resistance : DC500V 100MΩ以上/DC500V 100MW or more  
周围温度/Operating range (in controlled environment) : 20 ~ 80% (无结露) (No condensation)  
最大温度/Maximum temperature : 120°C

### 详细规格/Specification

项目 / Item	单位 / Unit	MML030△-KP01		MML030△-KP02		MML030△-KP03	
		A*1	B*1	A*1	B*1	A*1	B*1
额定推力 <sup>3</sup> /Continuous Force	N	88		163		313	
额定电流 <sup>3</sup> /Continuous Current	Arms	2.6	1.3	3.6	1.8	7.0	3.5
最大推力 <sup>2</sup> /Peak Force	N	440		815		1565	
最大电流 <sup>2</sup> /Peak Current	Arms	13.0	6.5	18.0	9.0	35	17.5
动子重量/Mover weight	kg	0.26		0.53		1.06	
推力常数/Force Constant DC马达换算/All Three Phases	N / Arms	34.0	68.4	45.4	88.9	45	88.9
马达常数/Motor Constant DC马达换算/All Three Phases	N/√W	12.4	12.5	18.9	18.2	26.4	25.7
线间感应电压常数/Back EMF (line to line)	Vrms / (m/s)	19.6	39.2	26.2	51.3	26.0	51.3
线间电阻/Coil Resistance (line to line)	Ω	7.5	30.0	5.8	23.9	2.9	12.0
线间电感/Inductance (line to line)	mH	2.4	9.5	2.1	8.0	1.05	4.0
散热常数 (有散热片) Thermal Resistance (included heat sink)	K / W	0.88		0.48		0.26	
散热常数 (无散热片) Thermal Resistance (not included heat sink)	K / W	1.06		0.59		0.31	

\*1 : A为低电压输入型, B为高电压输入型, 表中的△填入A或B。

\*2 : 最大推力、最大电流会根据使用的伺服控制器最大电流而变化。本数值是以转子上安装散热片 (铝板) 为条件的。  
(散热片尺寸: 200×200×15mm)

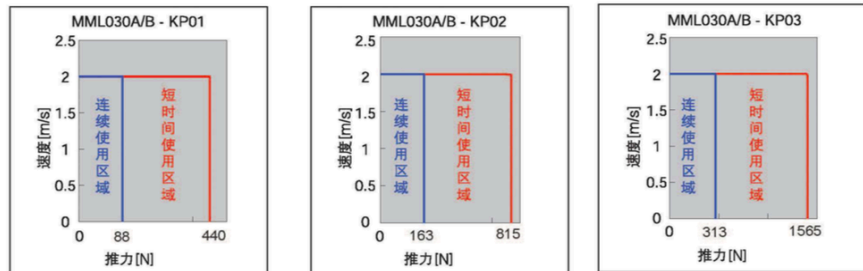
\*3 : 电枢卷线温度为100°C时的数值。

\*1: A = Low Voltage Model, B = High Voltage Model. The △ mark in the chart signifies that either A or B models could be suitable.

\*2: The value given for the Peak Force and Peak Current may differ depending on the Peak Current of the Servo Controller utilized.  
Given Values are for heat sink (Aluminum) equipped Coil Plates. (Heat Sink size: 200×200×15mm)

\*3: Given value is after the electrical wiring temperature has reached 100°C.

### 推力-速度特性/Force/Speed Characteristics



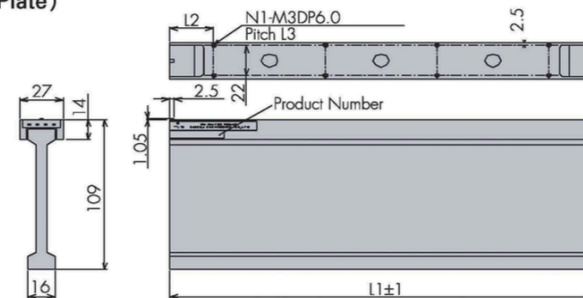
本特性根据伺服控制器供给至直线电机的输入电压而变化。

上述特性是以A型AC型AC85V、B型AC170V作为供给至直线电机的输入电压算出的。

The above characteristics may vary depending on the Voltage supply from the Servo Controller to the motor.  
Listed characteristics for the Linear Motor's Input Voltage is calculated at AC85V for Type A, AC170V for Type B.  
For further details, please contact our Sales Department.

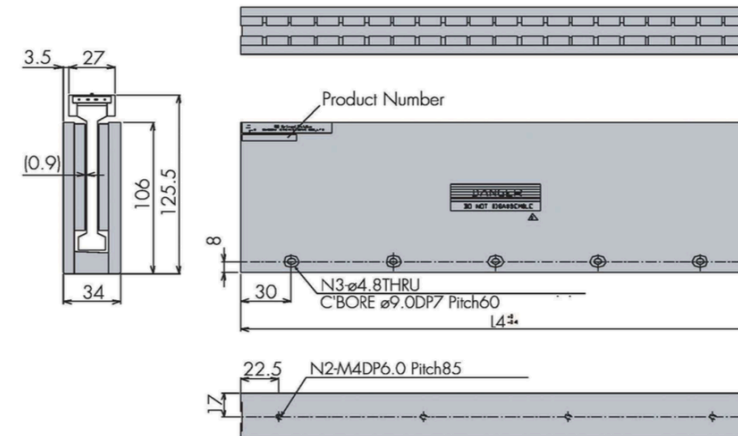
### 外形尺寸/Dimensions (单位/unit : mm)

#### ●动子 (Coil Plate)



Type	Size[mm]			Qty[pcs]
	L1	L2	L3	
KP01	78	24	30	4
KP02	138	32	37	6
KP03	258	27	68	8

#### ●定子 (Magnet Plate)



Type	Size[mm]			Qty[pcs]
	L4	N2	N3	
MP150	150	2	2	
MP300	300	4	5	

# MML040类型...MML040△-KP□□、MML040-MP□□□

(MML040 Type...MML040△-KP□□、MML040-MP□□□)



MML系列中推力最大的直线电机。是可适用于大型制造设备等需要精密定位、高速度、高加速度、高推力领域的直线电机。  
 Within the MML series, this model has the most Force. It is ideally suited for applications where high amounts of force, high speed, and quick acceleration are required for operation, such as Large Scale Production Equipment and Precision Positioning Equipment.

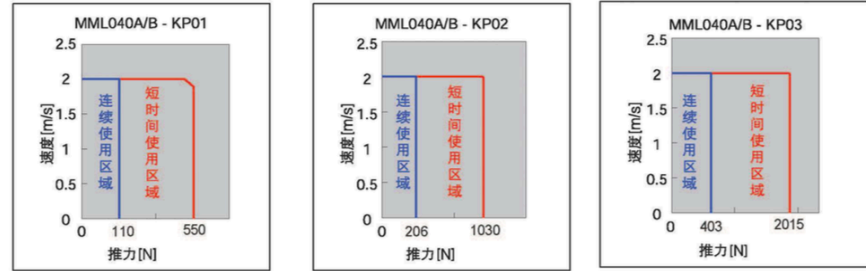
**标准规格/Standard Specifications**  
 绝缘耐压/Insulation Capacity : AC1500V 1分钟 (1min)  
 周围温度/Operating Range : 0~40°C  
 冷却方式/Cooling method : 自冷 (Self-cool)  
 绝缘电阻/Insulation Resistance : DC500V 100MΩ以上/DC500V 100MW or more  
 周围湿度/Operating range (in controlled environment) : 20~60%(无结露) (No condensation)  
 最大温度/Maximum temperature : 120°C

### 详细规格/Specification

项目 / Item	单位 / Unit	MML040△-KP01		MML040△-KP02		MML040△-KP03	
		A*1	B*1	A*1	B*1	A*1	B*1
额定推力 <sup>2)</sup> / Continuous Force	N	110		206		403	
额定电流 <sup>3)</sup> / Continuous Current	Arms	2.4	1.2	4.6	2.3	9.0	4.5
最大推力 <sup>2)</sup> / Peak Force	N	550		1030		2015	
最大电流 <sup>3)</sup> / Peak Current	Arms	12.0	6.0	23.0	11.5	45.0	22.5
动子重量 / Mover weight	kg	0.31		0.63		1.26	
推力常数 / Force Constant DC与达换算 / All Three Phases	N / Arms	45.7	89.8	44.8	90.4	44.8	90.6
马达常数 / Motor Constant DC与达换算 / All Three Phases	N / √W	15.0	14.7	20.7	21.0	28.9	29.7
线间感应电压常数 / Back EMF (line to line)	Vrms / (m/s)	26.4	52.8	25.9	52.2	25.9	52.3
线间电阻 / Coil Resistance (line to line)	Ω	9.3	37.4	4.7	18.5	2.4	9.3
线间电感 / Inductance (line to line)	mH	3.0	11.8	1.5	6.1	0.75	3.0
散热常数 (有散热片) Thermal Resistance (included heat sink)	K / W	0.62		0.34		0.18	
散热常数 (无散热片) Thermal Resistance (not included heat sink)	K / W	0.74		0.42		0.22	

\*1 : A为低电压输入型, B为高电压输入型。表中的△填入A或B。  
 \*2 : 最大推力、最大电流会根据使用的伺服控制器最大电流而变化。本数值是以转子上安装有散热片 (铝板) 为条件的。  
 (散热片尺寸: 200×200×15mm)  
 \*3 : 电枢卷线温度为100°C时的数值。  
 \*1: A=Low Voltage Model, B=High Voltage Model. The△mark in the chart signifies that either A or B models could be suitable.  
 \*2: The value given for the Peak Force and Peak Current may differ depending on the Peak Current of the Servo Controller utilized.  
 Given Values are for heat sink (Aluminum) equipped Coil Plates. (Heat Sink size: 200×200×15mm)  
 \*3: Given value is after the electrical wiring temperature has reached 100°C.

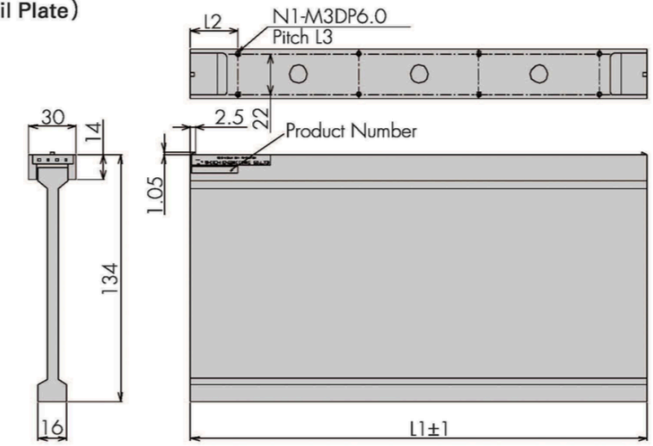
### 推力-速度特性/Force/Speed Characteristics



本特性根据伺服控制器供给至直线电机的输入电压而变化。  
 上述特性是以A型AC型AC85V、B型AC170V作为供给至直线电机的输入电压算出的。  
 The above characteristics may vary depending on the Voltage supply from the Servo Controller to the motor.  
 Listed characteristics for the Linear Motor's Input Voltage is calculated at AC85V for Type A, AC170V for Type B.  
 For further details, please contact our Sales Department.

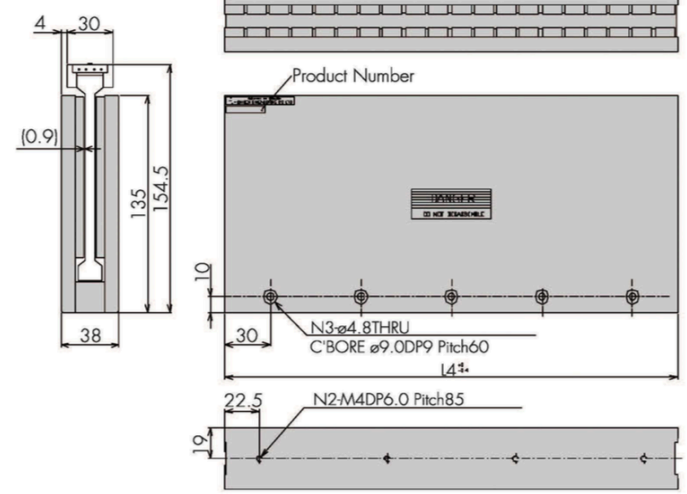
### 外形尺寸/Dimensions (单位/unit : mm)

#### ●动子 (Coil Plate)



Type	Size[mm]				Qty[pcs]
	L1	L2	L3	N1	
KP01	78	24	30	4	
KP02	138	32	37	6	
KP03	258	27	68	8	

#### ●定子 (Magnet Plate)



Type	Size[mm]			Qty[pcs]
	L4	N2	N3	
MP150	150	2	2	
MP300	300	4	5	