

MA2T

series



Product Segments

• Industrial Motion

TiMOTION's MA2T series electric linear actuator was specifically designed for applications that face harsh working environments and require heavy-duty and durability. Example applications suitable for the MA2T: Agricultural equipment such as seed spreader, harvesters, grain handlers, combines, tractors...etc. Commercial and industrial applications include commercial lawn mowers, scrubbers and sweepers, material handling equipment, and livestock ventilation systems.

Furthermore, the MA2T is a T-Smart (note 1) version actuator that can work with the PGMA (note 2) to achieve the following functionality:

- Set up the actuator's stroke and speed
- Multiple signal feedbacks support
- Monitor real-time actuator status
- Up to 8 actuator synchronization
- Built-in safety mechanism
- Customized service for BUS required applications (note 3)

Note 1: TiMOTION develops T-Smart functionality. With T-Smart, the actuator has a built-in circuit board with a microprocessor that can operate the actuator without a control box.

Note 2: PGMA is a software program developed by TiMOTION. Users can install this programmer into the laptop and adjust the actuator parameters directly.

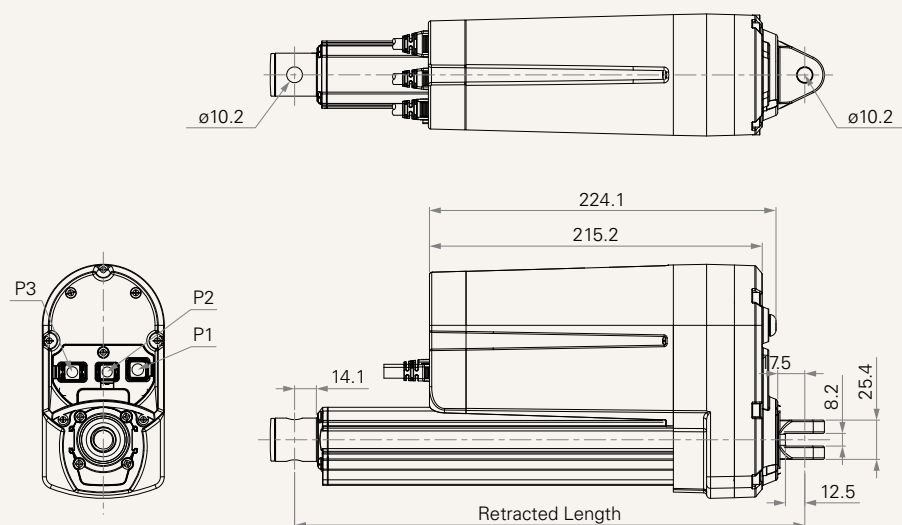
Note 3: Please contact your local sales department for further assistance.

General Features

Max. load	8,000N (push) 6,000N (pull)
Max. speed at max. load	5.4mm/s
Max. speed at no load	52.5mm/s
Retracted length	≥ Stroke + 131mm
IP rating	IP69K
Stroke	25~1000mm
Options	Hall sensors, manual drive, Reed sensor on the outer tube, T-Smart
Voltage	12/24 V DC
Operational temperature range	-40°C~+85°C
Operational temperature range at full performance	+5°C~+45°C

Drawing

Standard Dimensions
(mm)



Load and Speed

CODE	Load (N)		Self Locking Force (N)	Typical Current (A)		Typical Speed (mm/s)	
	Push	Pull		No Load 24V DC	With Load 24V DC	No Load 24V DC	With Load 24V DC
Motor Speed (5200RPM, Duty Cycle 25%)							
F	1000	1000	1300	2.7	8.4	52.5	43.0
G	2000	2000	2600	2.4	7.5	25.5	22.3
H	4000	4000	5200	2.3	8.0	13.2	11.1
J	6000	6000	7800	2.0	6.8	6.6	6.1
Motor Speed (5200RPM, Duty Cycle 10%)							
K	8000	6000	10400	2.0	6.2	6.6	5.4

Note

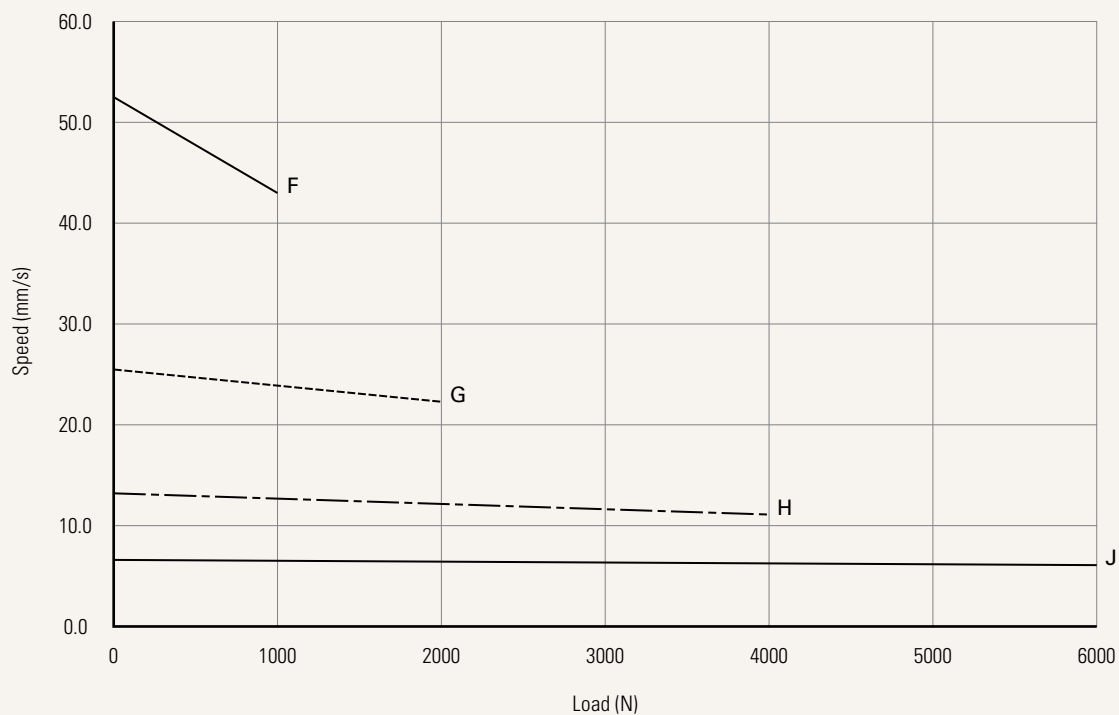
- Please refer to the approved drawing for the final authentic value.
- This self-locking force level is reached only when a short circuit is applied on the terminals of the motor. All the TiMOTION control boxes have this feature built-in.
- The current & speed in table are tested with 24V DC motor under ambient temperature 20°C. With a 12V DC motor, the current is approximately twice the current measured in 24V DC. With a 36V DC motor, the current is approximately two-thirds the current measured in 24V DC. Speed will be similar for all the voltages.
- The current & speed in table are tested when the actuator is extending under push load.
- The current & speed in table and diagram are tested with a stable 24V DC power supply.
- Standard stroke: Min. ≥ 25 mm, Max. please refer to below table.

CODE	Load (N)	Max Stroke (mm)
K	≥ 8000	200
H, J	≥ 4000	600
G	≈ 2000	800
F	≈ 1000	1000

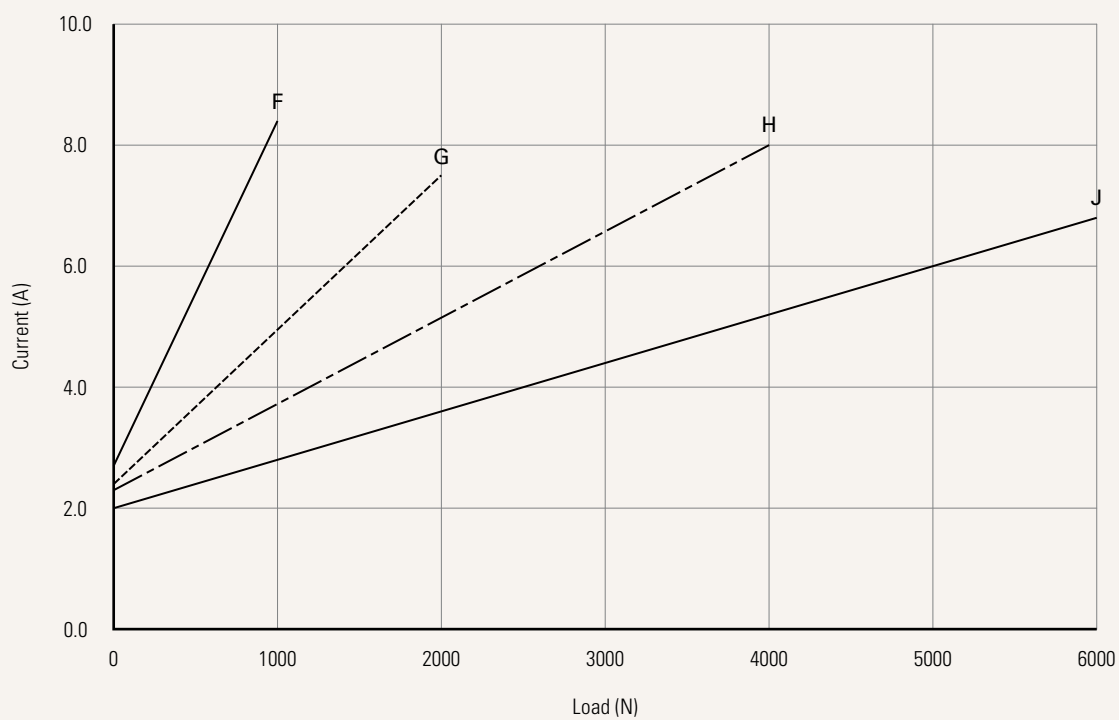
Performance Data (24V DC Motor)

Motor Speed (5200RPM, Duty Cycle 25%)

Speed vs. Load



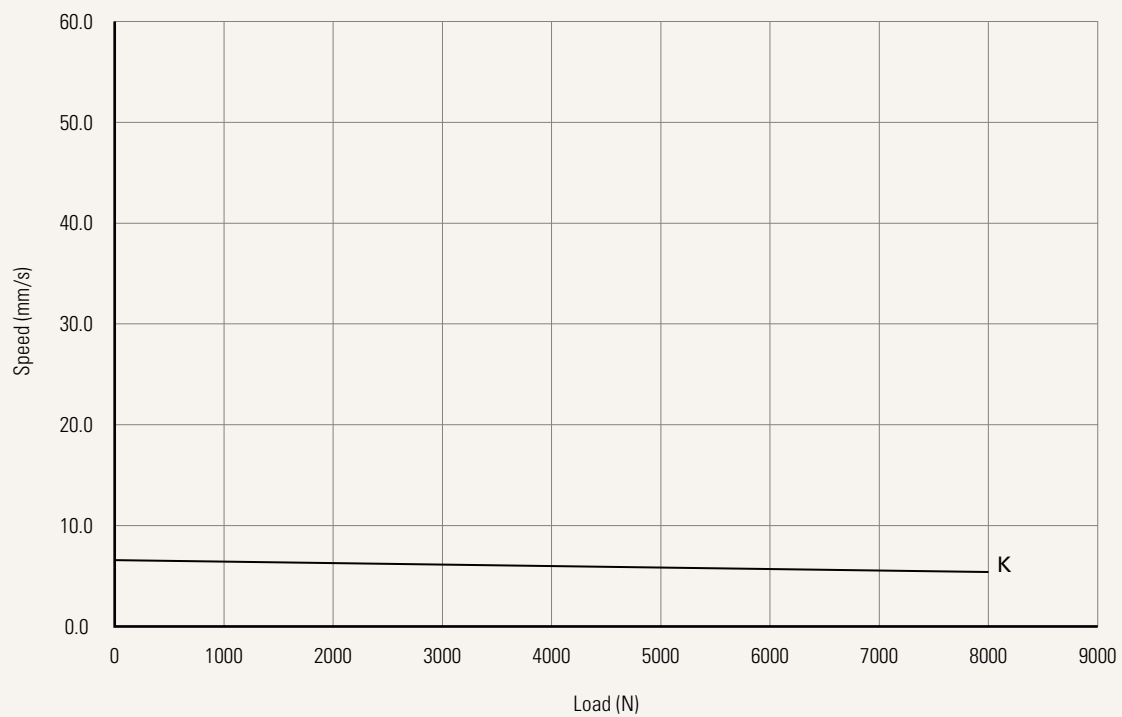
Current vs. Load



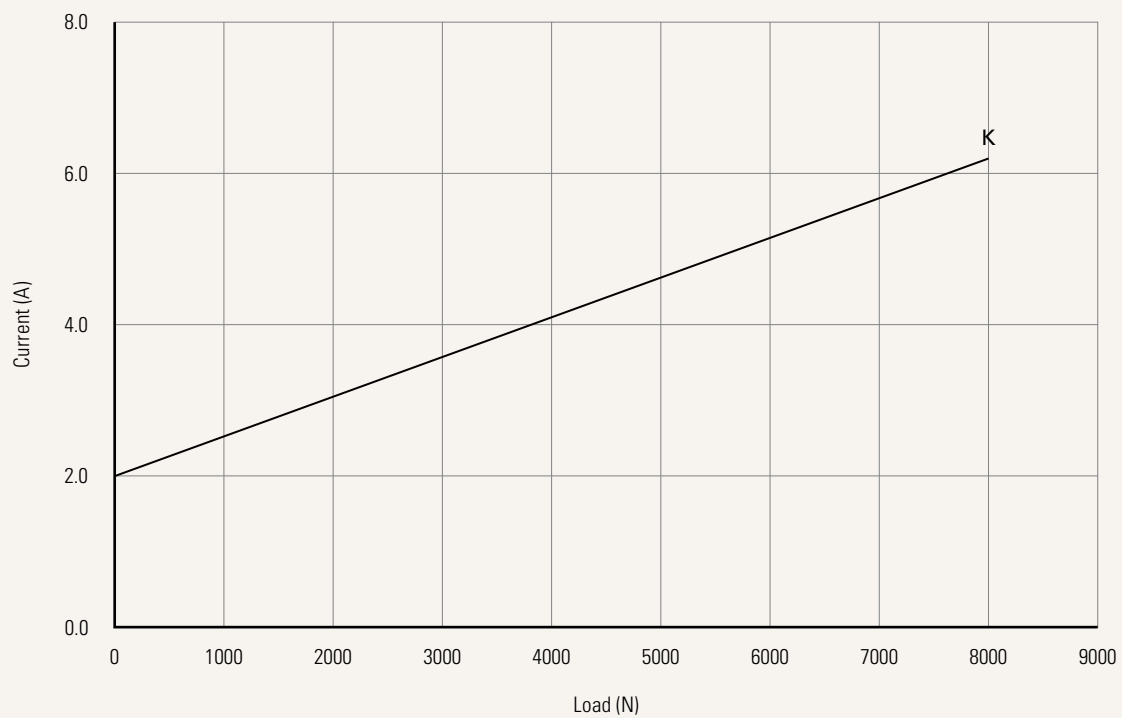
Performance Data (24V DC Motor)

Motor Speed (5200RPM, Duty Cycle 10%)

Speed vs. Load



Current vs. Load



Voltage	1 = 12V DC		2 = 24V DC	
Load and Speed	See page 2			
Stroke (mm)	See page 2			
Retracted Length (mm)	See page 6			
Rear Attachment (mm)	1 = Aluminum casting, clevis U, slot 8.2, depth 12.5, hole 10.2 2 = Aluminum casting, clevis U, slot 8.2, depth 15.0, hole 10.2 See page 6 3 = Aluminum casting, clevis U, slot 8.2, depth 15.0, hole 12.8 4 = Aluminum casting, clevis U, slot 8.2, depth 15.0, hole 12.2			
Front Attachment (mm)	1 = Iron inner tube with punched hole, without slot, hole 10.2 2 = Iron inner tube with punched hole, without slot, hole 12.2 See page 7 3 = Iron inner tube with punched hole, without slot, hole 12.8 4 = Aluminum casting, clevis U, slot 8.2, depth 15.0, hole 10.2 5 = Aluminum casting, clevis U, slot 8.2, depth 15.0, hole 12.2 6 = Aluminum casting, clevis U, slot 8.2, depth 15.0, hole 12.8 K = Rod end bearing, hole 12.8			
Direction of Rear Attachment (Counterclockwise)	1 = 90°		2 = 0°	
See page 7				
Functions for Limit switches	T = T-smart Limit Switch dedicated option			
Reed Sensor on The Outer Tube	0 = Without 1 = Reed sensor * 2 to control box, tinned lead		2 = Reed sensor * 2 to actuator P2	
Output Signal	D = Embedded Hall sensor*2 to T-smart; configurable on PGMA with signal output type See page 8			
Output Cable	3 = 3 sockets with extension cable		T= Direct cable out, 1+1 type	
Connector	1 = Tinned lead See page 8			
Cable Length (mm)	1 = 500 2 = 1000	3 = 1500 4 = 2000	5 = 3000 6 = 5000	
IP Rating	2 = IP54	3 = IP66	6 = IP66D	8 = IP69K
Manual Drive	1 = With			
T-Smart	T = T-smart advanced			
Bus Interface Board	C = CAN bus			

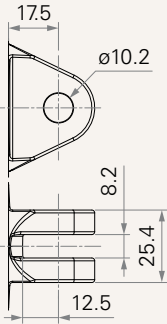
Retracted Length (mm)

1. Calculate A+B = Y
2. Retracted length needs to $\geq$ Stroke+Y

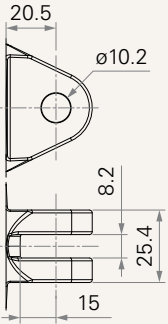
A.			B. Stroke (mm)	
Front Attach.	Rear Attach.		25~150	-
	1	2, 3, 4	151~200	-
1, 2, 3	+131	+134	201~250	+10
4, 5, 6	+161	+164	251~300	+20
K	+178	+181	301~350	+30
			351~400	+40
			401~450	+50
			451~500	+60
			501~550	+70
			551~600	+80
			601~650	+90
			651~700	+100
			701~750	+110
			751~800	+120
			801~850	+130
			851~900	+140
			901~950	+150
			951~1000	+160

Rear Attachment (mm)

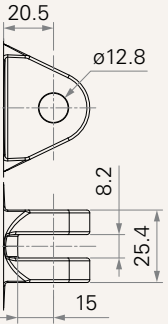
1 = Aluminum casting, clevis U, slot
8.2, depth 12.5, hole 10.2



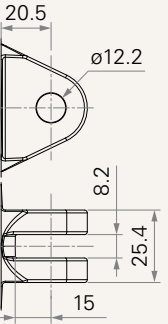
2 = Aluminum casting, clevis U, slot
8.2, depth 15.0, hole 10.2



3 = Aluminum casting, clevis U, slot
8.2, depth 15.0, hole 12.8



4 = Aluminum casting, clevis U, slot
8.2, depth 15.0, hole 12.2



Front Attachment (mm)

1 = Iron inner tube with punched hole, without slot, hole 10.2

2 = Iron inner tube with punched hole, without slot, hole 12.2

3 = Iron inner tube with punched hole, without slot, hole 12.8

4 = Aluminum casting, clevis U, slot 8.2, depth 15.0, hole 10.2

5 = Aluminum casting, clevis U, slot 8.2, depth 15.0, hole 12.2

6 = Aluminum casting, clevis U, slot 8.2, depth 15.0, hole 12.8

K = Rod end bearing, hole 12.8

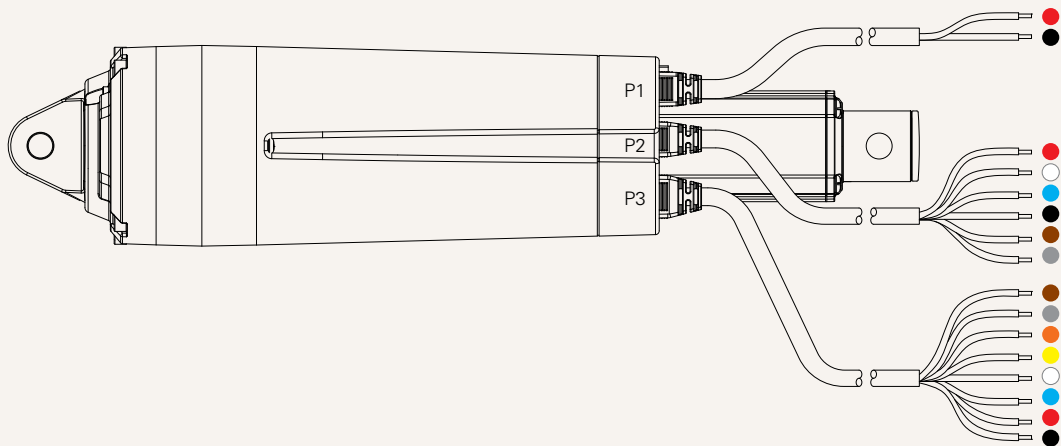
Direction of Rear Attachment (Counterclockwise)

1 = 90°

2 = 0°

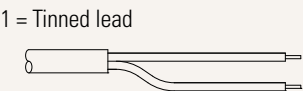
Wire Definition

DC Moter									
P1	Wire Color	Red	Black						
	AWG	14	14						
	T-Smart	VDC +	VDC-						
P2	Wire Color	Red	White	Blue	Black	Brown	Gray		
	AWG	20	20	20	20	20	20		
	T-Smart	UART-+5V DC	UART-TX	UART-RX	UART-GND	reed input 1	reed input 2	Hall 2 / PWM	Signal GND
P3	Wire Color	Brown	Gray	Orange	Yellow	White	Blue	Red	Black
	AWG	20	20	20	20	20	20	20	20
	T-Smart	Ctrl EXT	Ctrl RET	EOS-extended	EOS-retracted	S1/POT/CAN+	S2/PWM/CAN-	VDC +	Common



* The signal wires depend on the chosen options.

Connector



Terms of Use

The user is responsible for determining the suitability of TiMOTION products for a specific application. TiMOTION products are subject to change without prior notice.