

MA1

series



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Product Segments

• Industrial Motion

TecHome's MA1 series linear actuator is the proven choice for applications requiring a durable, long life solution. Specifically designed for harsh working environments, the MA1 linear actuator is ideal for use in heavy-duty machinery, industrial equipment and off road vehicles. This linear actuator has been certified for applications requiring IP66 dynamic compliance.

General Features

Spindle	ACME or Ball screw	
Voltage of motor	12V DC, 24V DC, 36V DC, 110V AC, or 220V	
Maximum load	4,500N in pull/push	
Maximum speed at full load	48mm/s (Ball screw, 24V DC motor, with 2500N)	
Standard stroke	20~1000mm (ACME screw) 50~1000mm (Ball screw)	AC
Minimum installation dimension	Stroke+160mm (without POT)	
Color	Black	
IP rating	IP66D	
Operational temperature range	-30°C~+65°C	
Operational temperature range at full performance	+5°C~+45°C	
Options	Overload clutch, Hall sensor(s), POT, manual crank function	
Mechanical or electromagnetic brake		
Higher duty cycle (25%), corrosion proof		

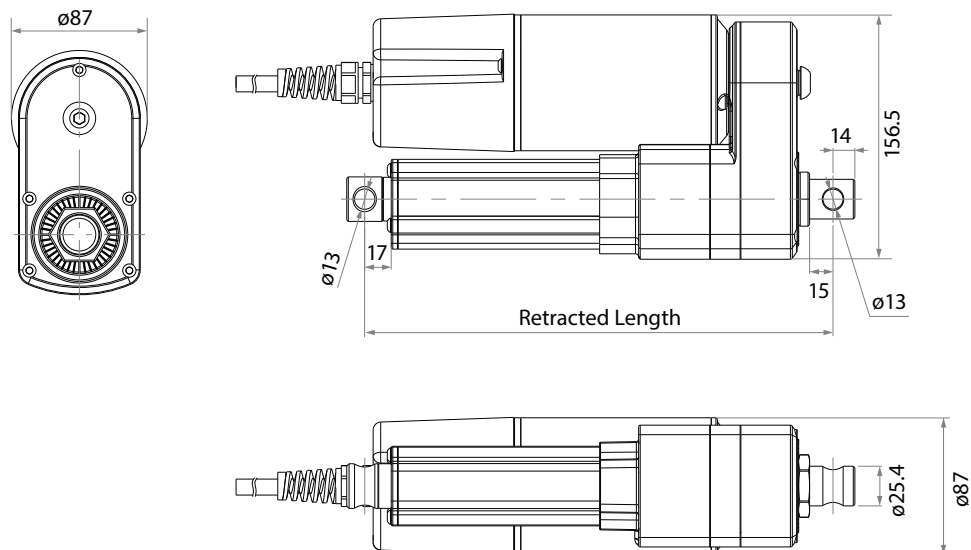
MOTION AND AUTOMATION

P: 07 3297 9797 A: 33 Perrin Drive, Underwood, QLD, 4119, Australia E: info@techome.com.au W: www.techome.com.au

Drawing

Standard Dimensions

(mm)



Load and Speed

CODE	Load (N)		Typical Current (A)				Typical Speed (mm/s)				Overload Clutch Range (N)
	Push	Pull	No Load 12V DC	No Load 24V DC	With Load 12V DC	With Load 24V DC	No Load 12V DC	No Load 24V DC	With Load 12V DC	With Load 24V DC	

ACME Screw, DC Motor (Duty cycle 25%)

B	1500	1500	10.0	5.0	15.4	7.7	29.5	29.5	27.0	27.0	1800~3300
C	2500	2500	5.0	2.5	14.0	7.0	15.8	15.8	14.3	14.3	3000~5500

Ball Screw, DC Motor (Duty cycle 25%)

A	2500	2500	7.0	3.5	30.0	12.5	58.5	58.5	36.5	48.0	3000~5500
B	3500	3500	5.0	2.5	18.0	9.0	29.8	29.8	25.5	25.5	4200~7700
C	4500	4500	4.0	2.0	13.0	6.5	16.0	16.0	14.0	14.0	5400~9900

CODE	Load (N)		Typical Current (A)				Typical Speed (mm/s)				Overload Clutch Range (N)
	Push	Pull	No Load 110V AC	No Load 220V AC	With Load 110V AC	With Load 220V AC	No Load 110V AC	No Load 220V AC	With Load 110V AC	With Load 220V AC	

ACME Screw, AC Motor (Duty cycle 25%)

B	1500	1500	1.9	0.9	2.0	1.0	26.1	22.5	23.0	21.0	1800~3300
C	2500	2500	1.9	0.9	2.0	1.0	14.1	12.0	12.8	11.2	3000~5500

Ball Screw, AC Motor (Duty cycle 25%)

A	2500	2500	2.0	0.9	2.5	1.3	53.0	46.0	38.5	40.0	3000~5500
B	3500	3500	1.9	0.9	2.1	1.1	27.0	23.5	22.5	21.5	4200~7700
C	4500	4500	1.9	0.9	2.0	1.0	14.5	12.0	13.0	11.5	5400~9900

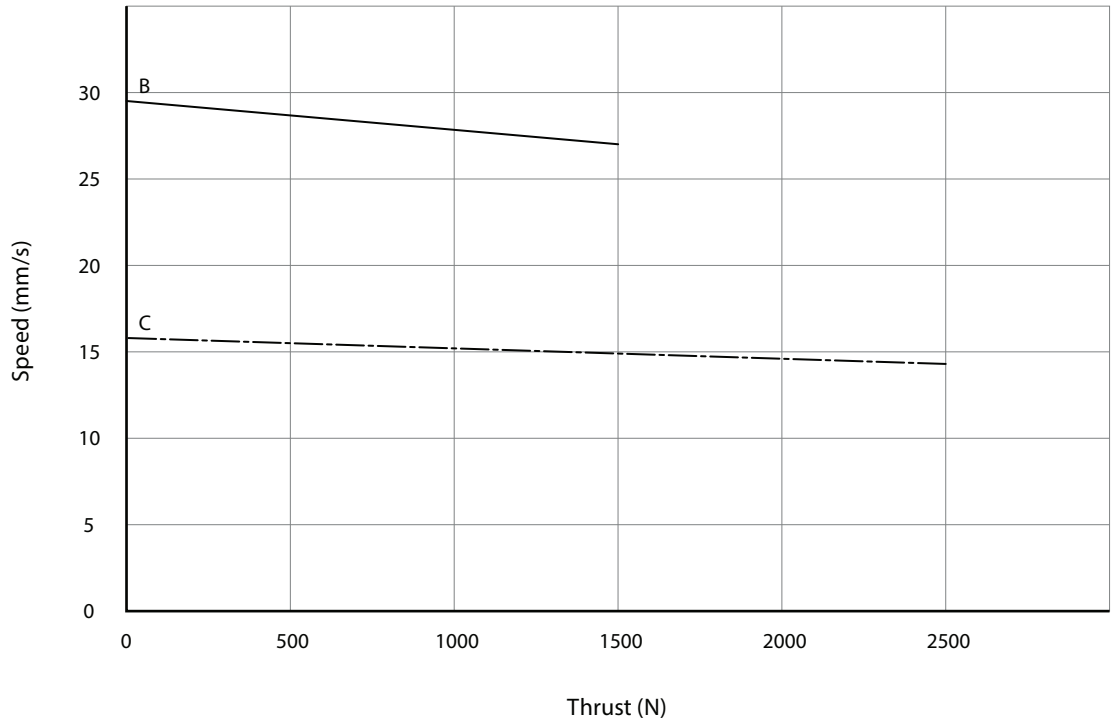
Note

- 1 This self-locking force level is reached only when a short circuit is applied on the terminals of the motor. All the TecHome control boxes have this feature built-in.
- 2 Current and speed: Tested average value when stretching in push direction.
- 3 Standard stroke (ACME): 20~1000mm. Standard stroke (BALL): 50~1000m

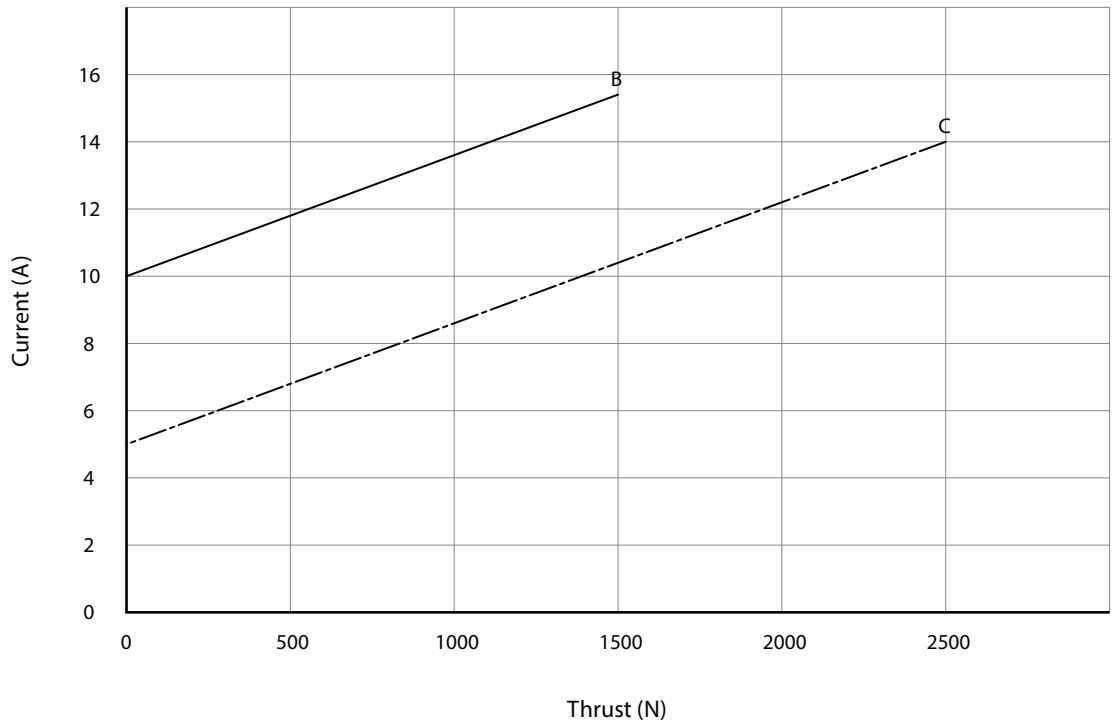
Performance Data

ACME Screw, 12V DC Motor

Speed vs. Thrust



Current vs. Thrust



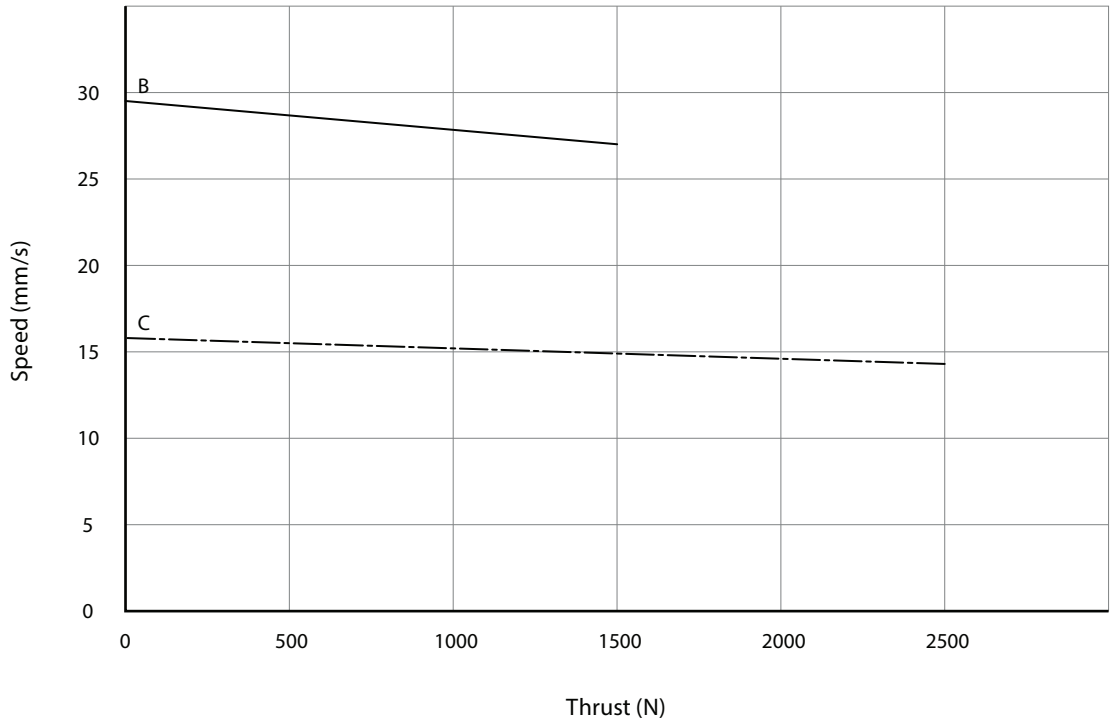
Note

1 The performance data in the curve charts shows theoretical value.

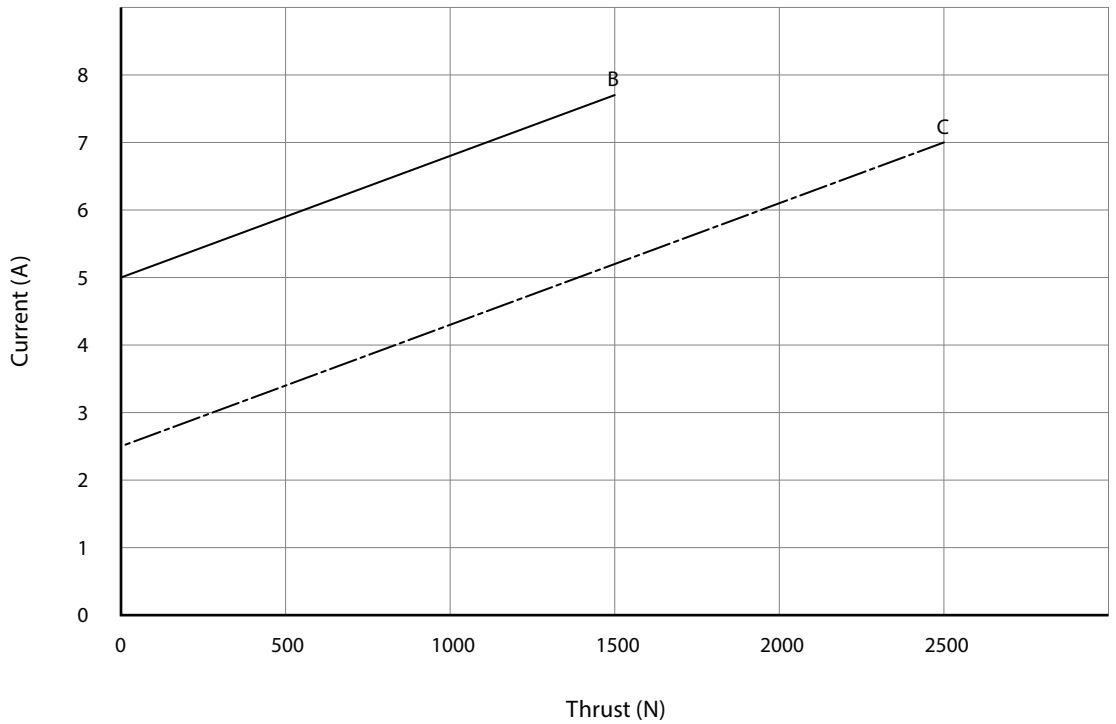
Performance Data

ACME Screw, 24V DC Motor

Speed vs. Thrust



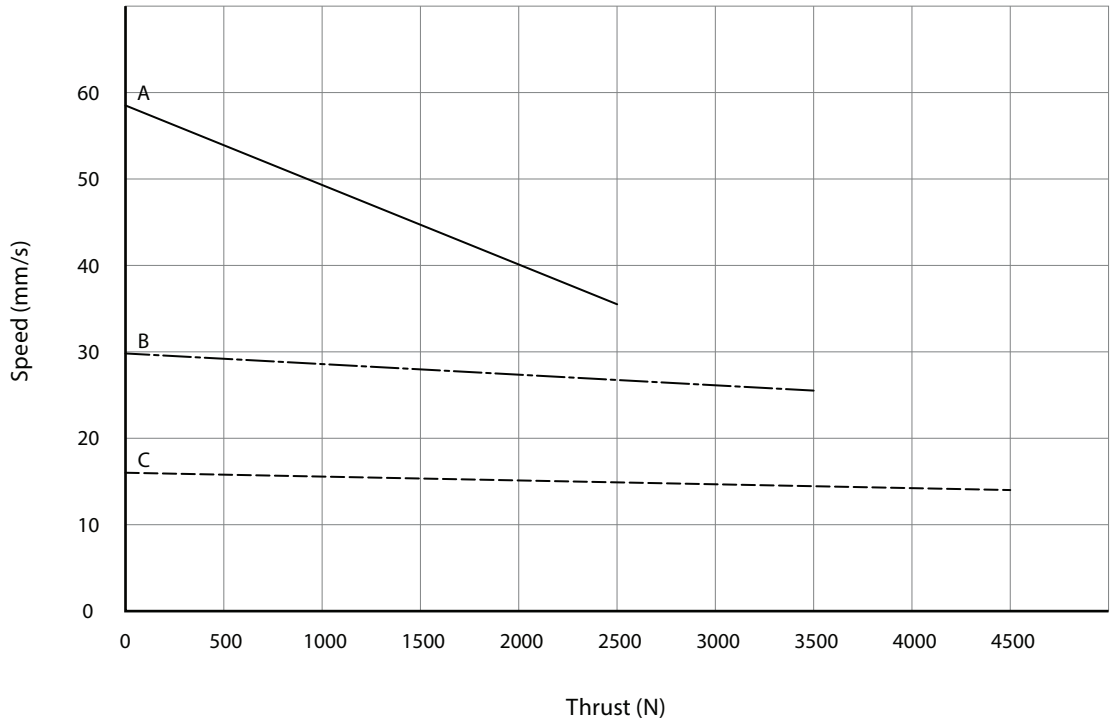
Current vs. Thrust



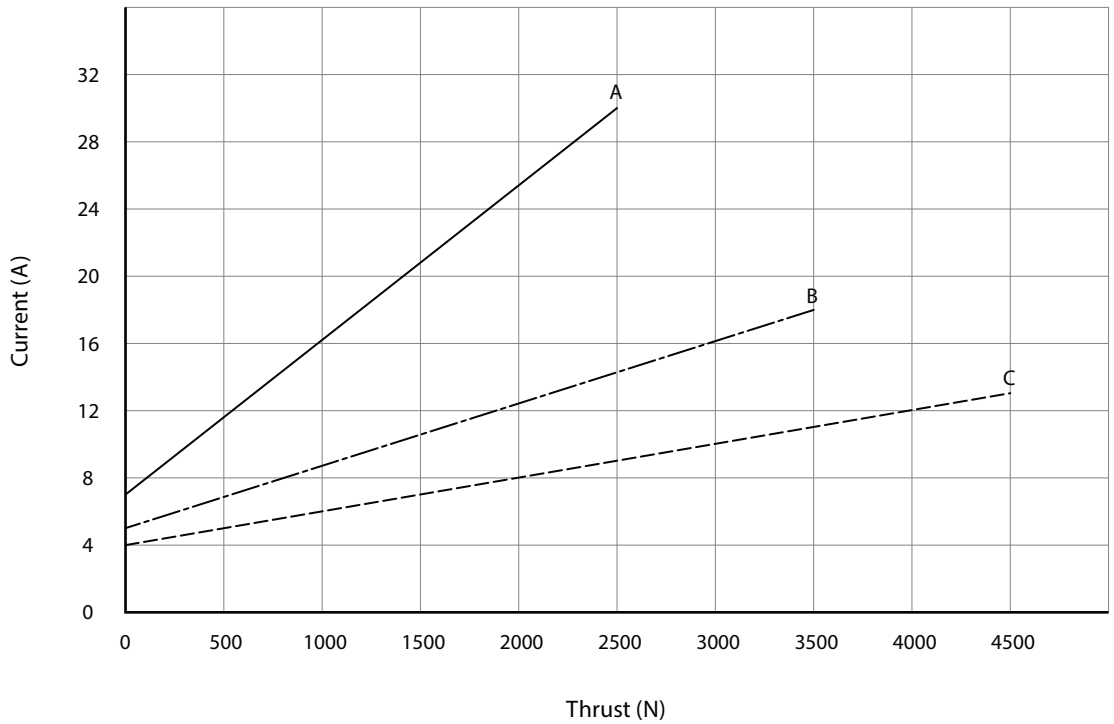
Note

1 The performance data in the curve charts shows theoretical value.

Speed vs. Thrust



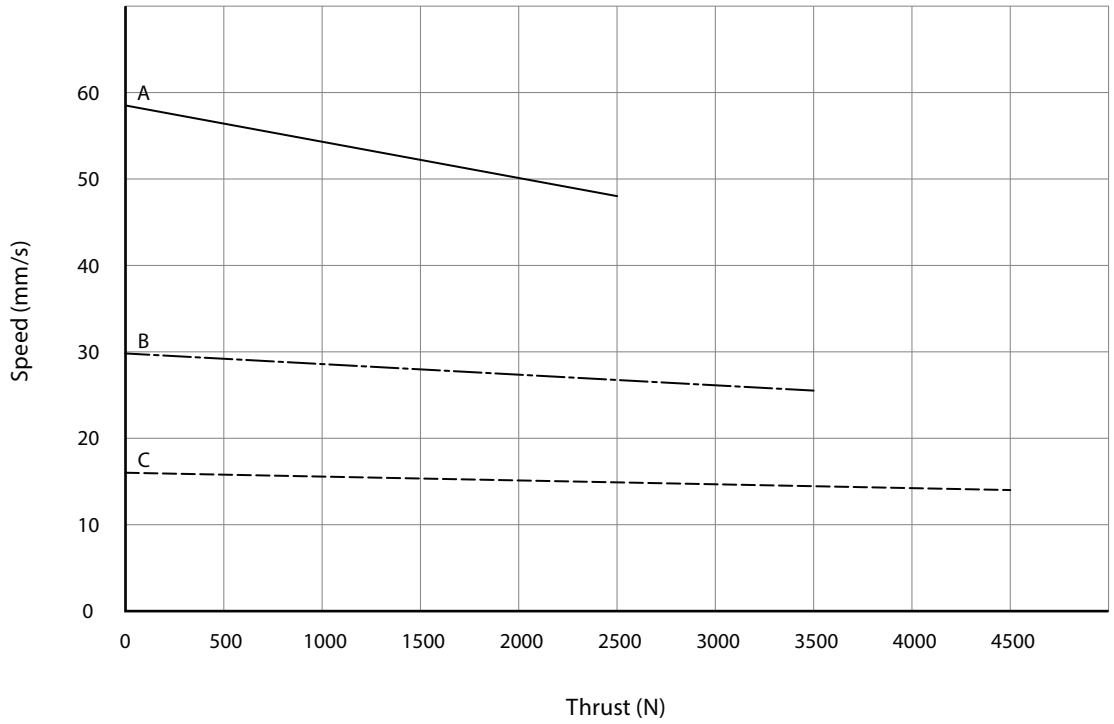
Current vs. Thrust



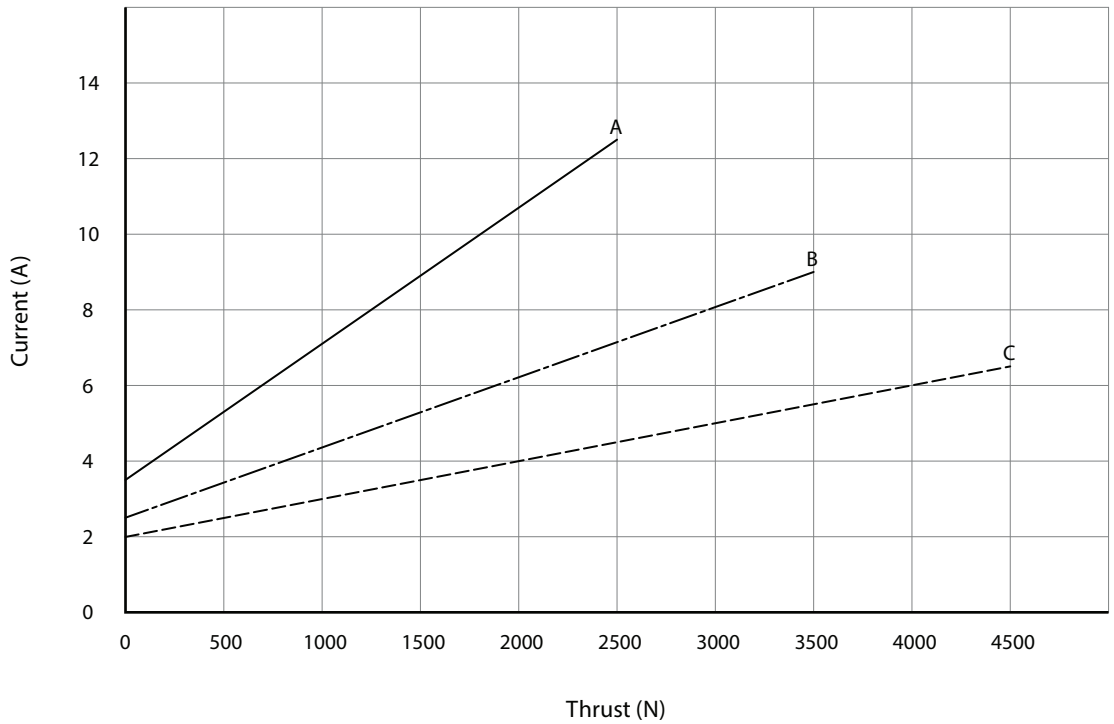
Note

1 The performance data in the curve charts shows theoretical value.

Speed vs. Thrust



Current vs. Thrust



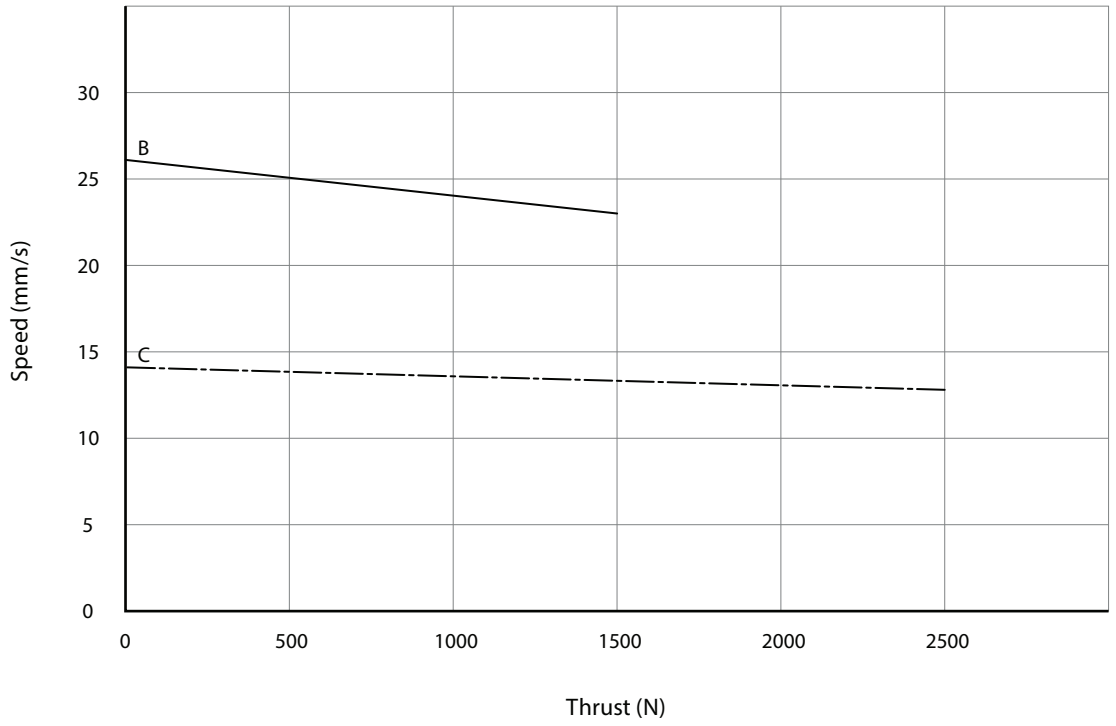
Note

1 The performance data in the curve charts shows theoretical value.

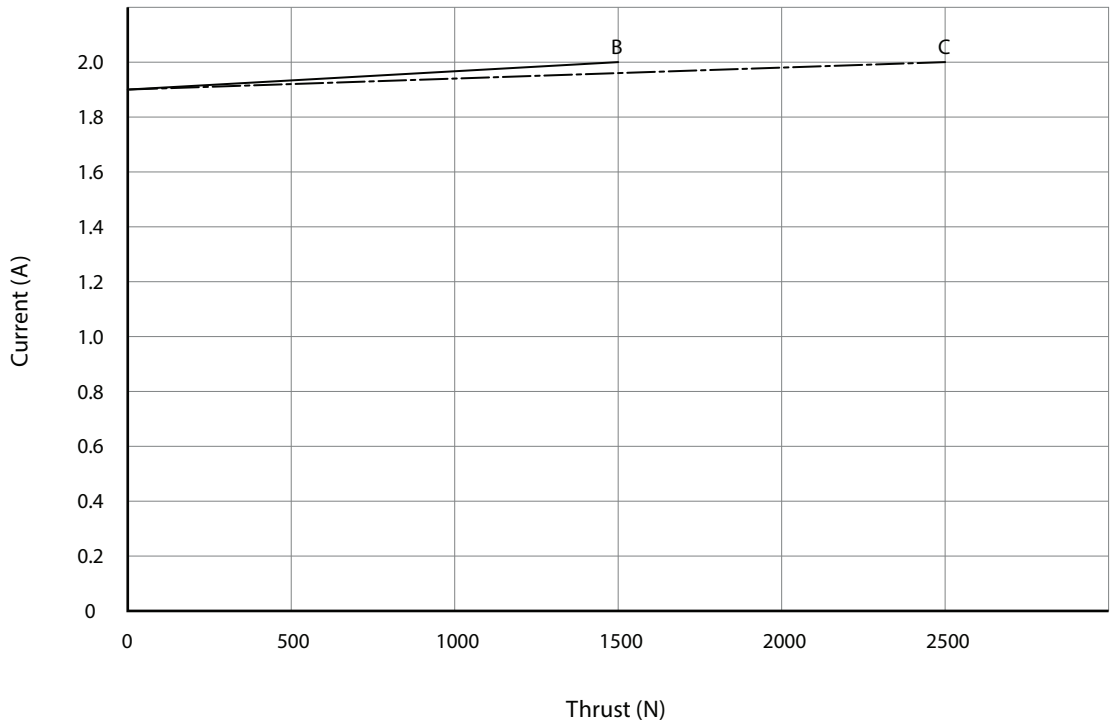
Performance Data

ACME Screw, 110V AC Motor

Speed vs. Thrust



Current vs. Thrust



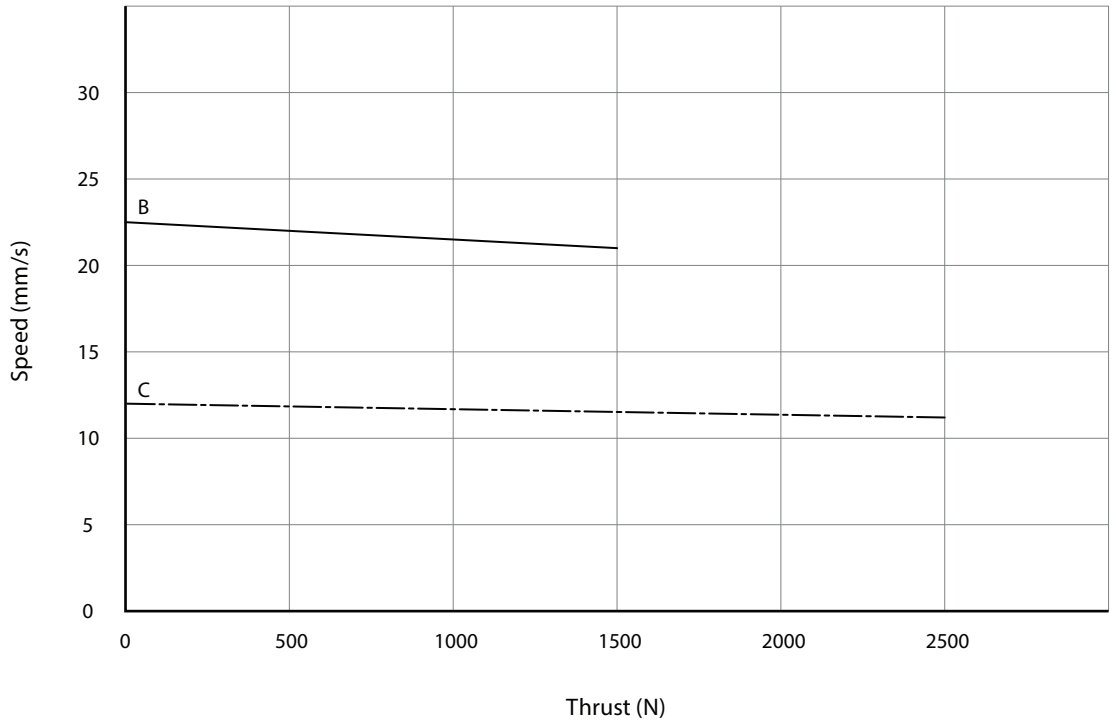
Note

1 The performance data in the curve charts shows theoretical value.

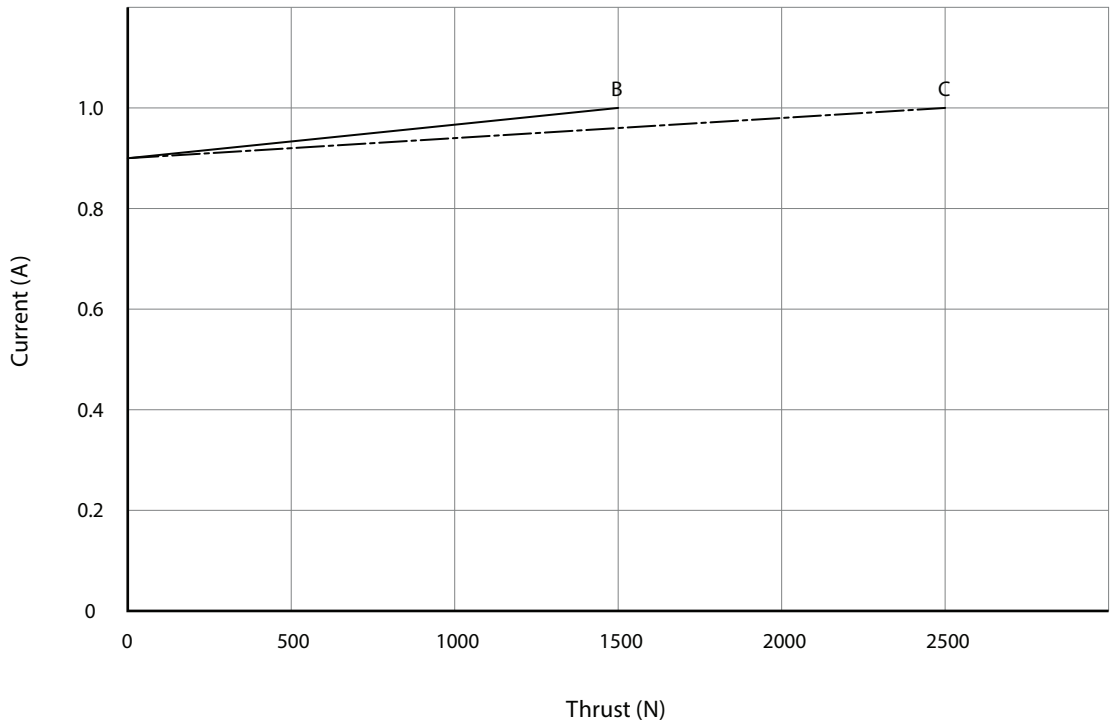
Performance Data

ACME Screw, 220V AC Motor

Speed vs. Thrust



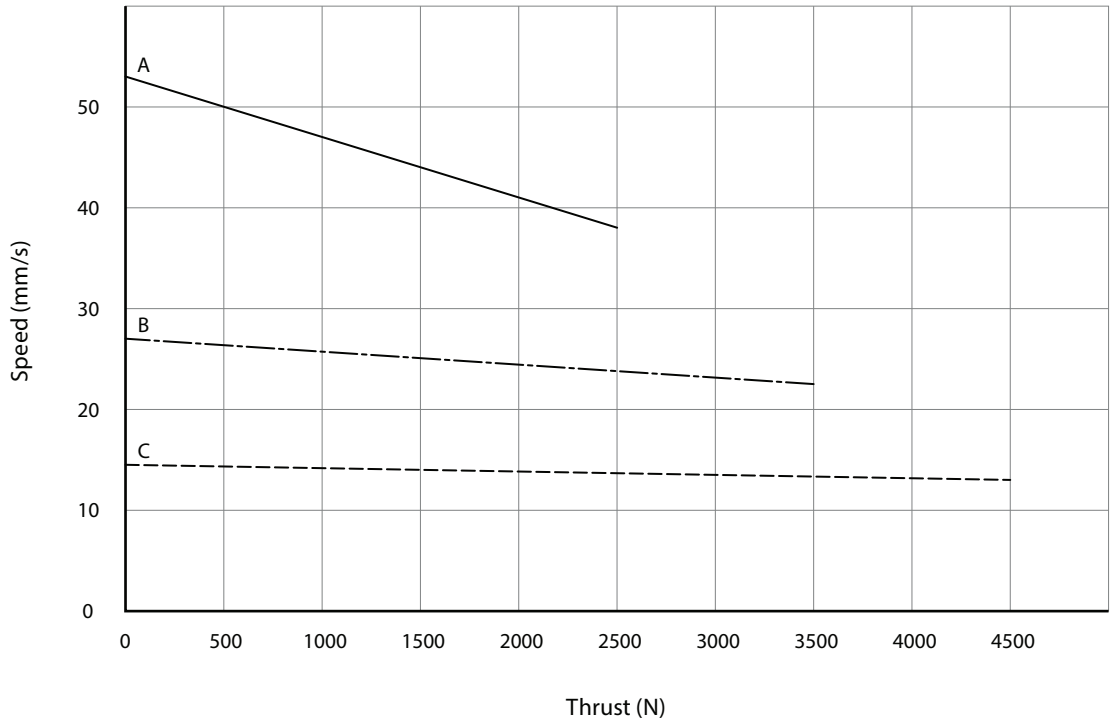
Current vs. Thrust



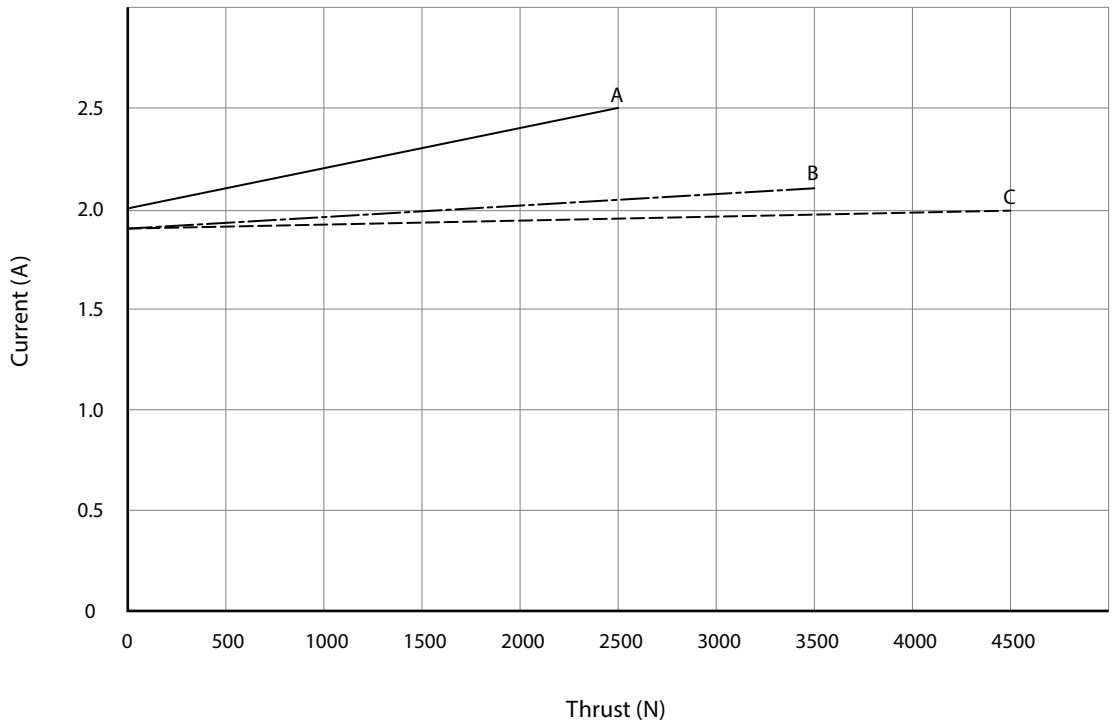
Note

1 The performance data in the curve charts shows theoretical value.

Speed vs. Thrust



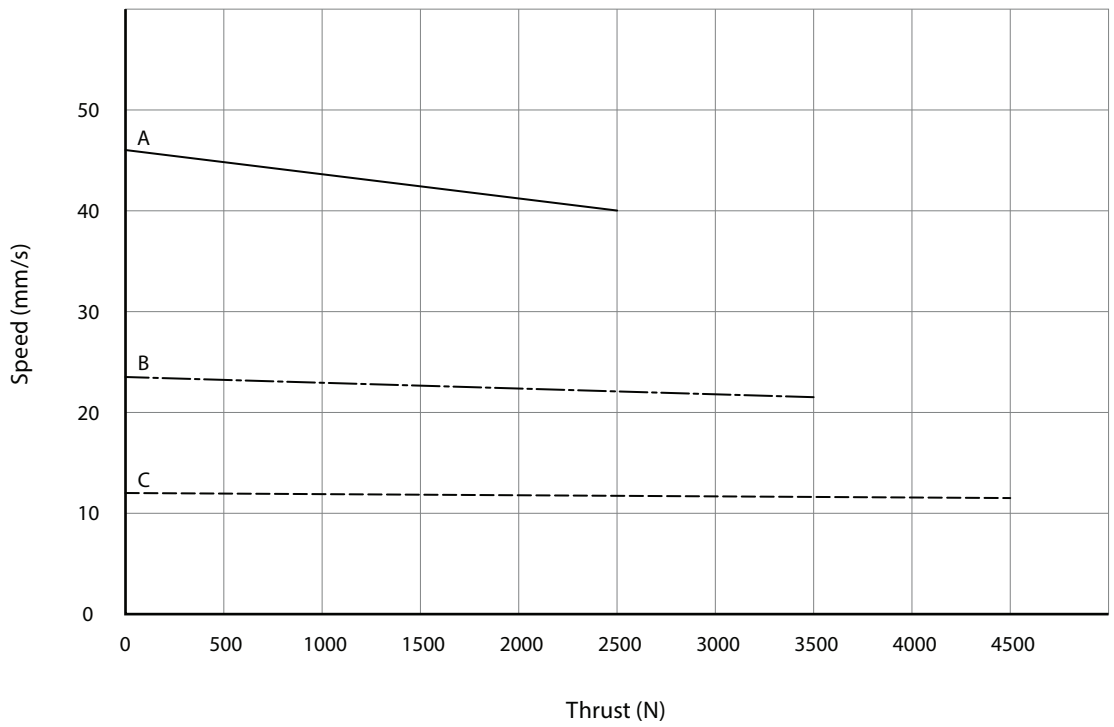
Current vs. Thrust



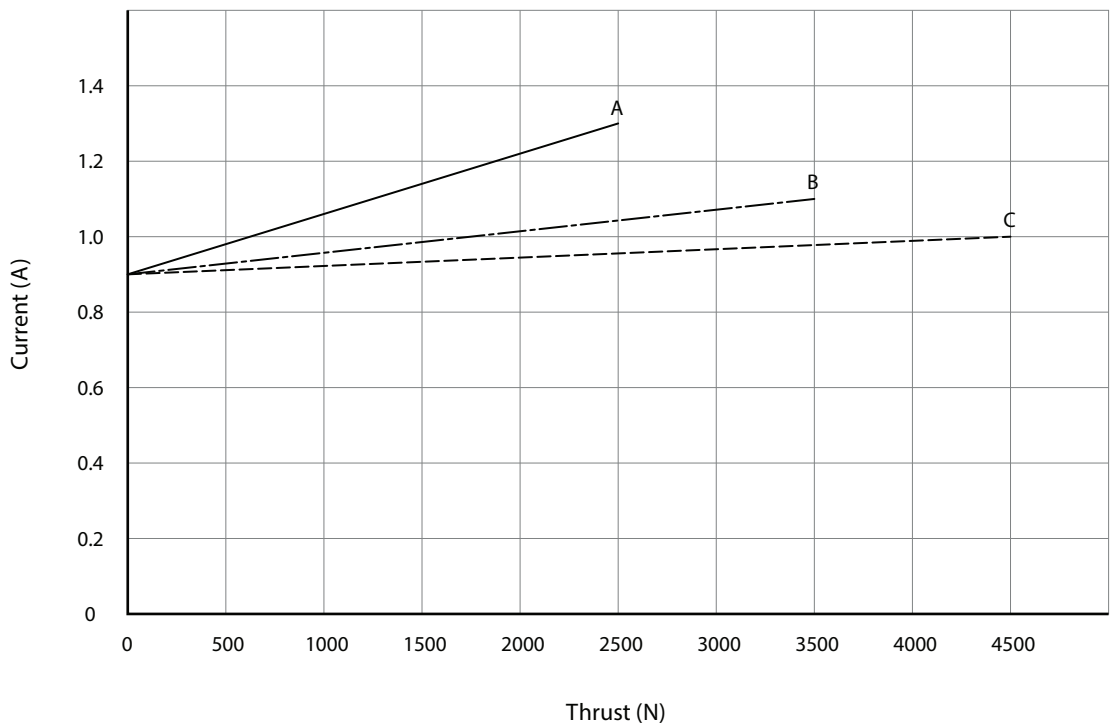
Note

1 The performance data in the curve charts shows theoretical value.

Speed vs. Thrust



Current vs. Thrust



Note

1 The performance data in the curve charts shows theoretical value.

MA1 Ordering Key

MA1

Version: 20170710-B

<input type="checkbox"/>	Spindle Type	A = ACME screw	B = Ball screw		
<input type="checkbox"/>	Voltage	1 = 12V DC	2 = 24V DC	3 = 36V DC	4 = 110V AC 60Hz 5 = 220V AC 50Hz
<input type="checkbox"/>	Load and Speed	See page 2			
<input type="checkbox"/>	Stroke (mm)	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="checkbox"/>	Retracted Length(mm)	See page 12			
<input type="checkbox"/>	Rear Attachment (mm)	1 = #45 Steel CNC, without slot, hole: 13 See page 13			
<input type="checkbox"/>	Front Attachment (mm)	1 = #45 Steel CNC, without slot, hole: 13 See page 13			
<input type="checkbox"/>	Direction of Rear Attachment (Counterclockwise)	1 = 90° (standard)	2 = 0° See page 13		
<input type="checkbox"/>	Functions for Limit Switches	0 = Without (Needs to choose overload clutch) 1 = Two switches at full retracted/extended positions to cut current 2 = Two switches at full retracted/extended positions to send signal			
<input type="checkbox"/>	Overload Clutch	0 = Without	1 = With (standard)		
<input type="checkbox"/>	Mechanical Brake	0 = Without	1 = With (ball screw's standard option) See page 13		
<input type="checkbox"/>	Electromagnetic Brake	0 = Without (standard)	1 = With See page 14		
<input type="checkbox"/>	IP Rating	6 = IP66D			
<input type="checkbox"/>	Manual Drive	0 = Without	1 = With		
<input type="checkbox"/>	Output Signals	0 = Without	1 = POT	4 = One Hall sensor	5 = Two Hall sensors See page 14
<input type="checkbox"/>	Connector	1 = Tinned leads See page 15			
<input type="checkbox"/>	Cable Length	1 = Straight, 500mm			

MA1 Ordering Key Appendix

Retracted Length (mm)

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

A. Type	ACME Screw DC Motor	Ball Screw DC Motor	ACME Screw AC Motor	Ball Screw AC Motor
	+160	+201	+160	+201

B. Mechanical Brake	Type			
Code	ACME Screw DC Motor	Ball Screw DC Motor	ACME Screw AC Motor	Ball Screw AC Motor
0	-	-	-	-
1	+35	-	+35	-

C. Output Signal	Type			
Code	ACME Screw DC Motor	Ball Screw DC Motor	ACME Screw AC Motor	Ball Screw AC Motor
0	-	-	-	-
1	+36	+40	+36	+40
4	-	-	+36	+40
5	-	-	+36	+40

Note

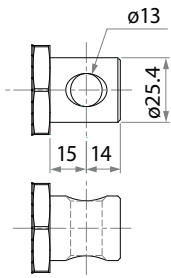
- 1 For long stroke, there is no need for additional retracted length.

MA1 Ordering Key Appendix

Rear Attachment (mm)

1 = #45 Steel CNC, without slot,

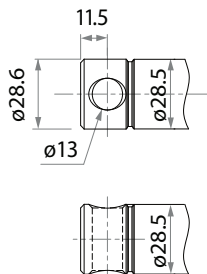
Hole: 13



Front Attachment (mm)

1 = #45 Steel CNC, without slot,

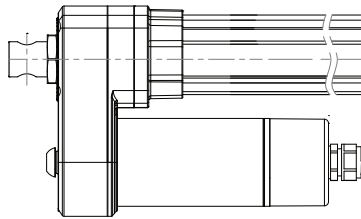
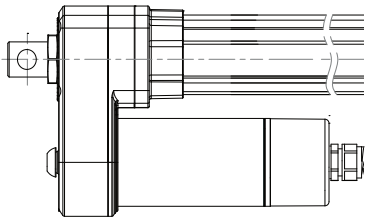
Hole: 13



Direction of Rear Attachment (Counterclockwise)

1 = 90° (standard)

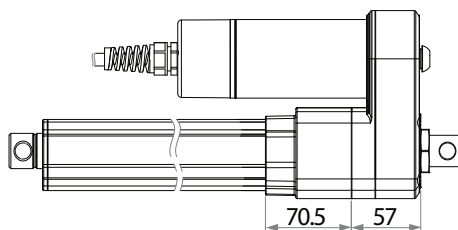
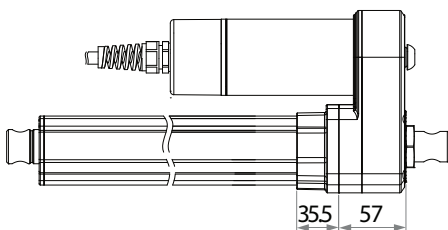
2 = 0°



Mechanical Brake

0 = Without

1 = With (ball screw's standard option)



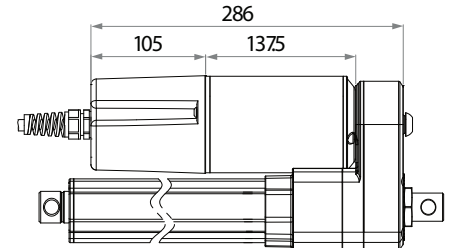
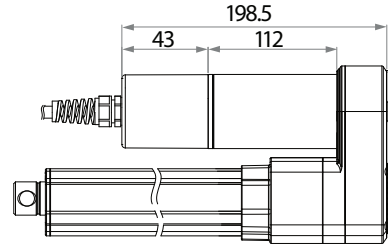
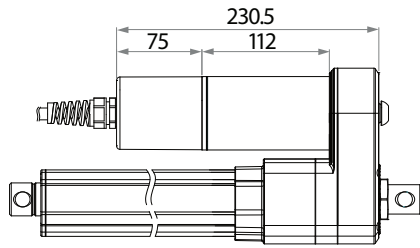
MA1 Ordering Key Appendix

Electromagnetic Brake

0 = Without (standard, DC Motor)

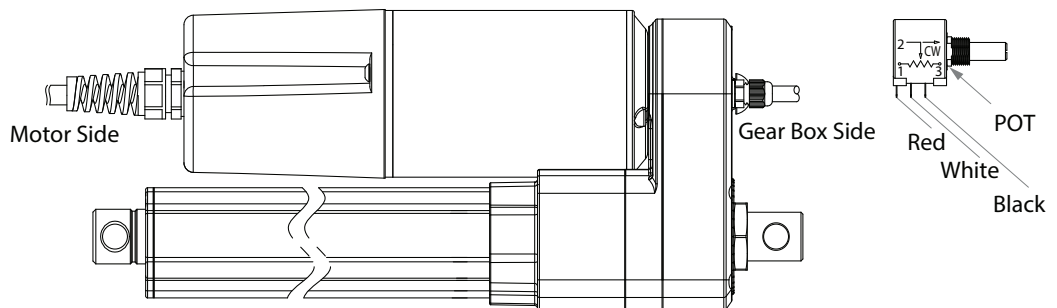
1 = With (DC Motor)

0 = Without (standard, AC Motor)



Wire Definition

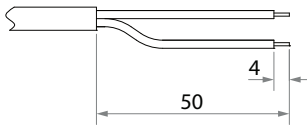
Motor Type			AWG	Output Signal Code			
				0. Without	1. POT	4. 1 Hall	5. 2 Hall
DC Motor	Motor Side	● Black	26	-	-	GND	GND
		● Blue	26	-	-	-	S2
		○ White	26	-	-	S1	S1
		● Red	26	-	-	+5V	+5V
		● Green	16	Stretch+	Stretch+	Stretch+	Stretch+
		● Yellow	16	Rereact+	Rereact+	Rereact+	Rereact+
	Gear Box Side	● Red	26	-	Pin1	-	-
○ White		26	-	Pin2	-	-	
● Black		26	-	Pin3	-	-	
DC Motor	Motor Side	● Black	18	Rereact+	Rereact+	Rereact+	Rereact+
		● Grey	18	Stretch+	Stretch+	Stretch+	Stretch+
		● Brown	18	PCBA+	PCBA+	PCBA+	PCBA+
		● Blue	18	Neutral	Neutral	Neutral	Neutral
		● Green/Yellow	18	GND	GND	GND	GND
	Gear Box Side	● Red	20	-	Pin1	+5V	+5V
		○ White	20	-	Pin2	S1	S1
		● Blue	20	-	-	-	S2
		● Black	20	-	Pin3	GND	GND



MA1 Ordering Key Appendix

Connector

1 = Tinned leads



Terms of Use

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