MA1
series

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.

Available options for the MA1 linear actuator include AC or DC power, ball or acme spindles, mechanical or electrical braking and a load limiting clutch or limit switches.

General Features

Spindle	ACME or Ball screw
Voltage of motor	12V DC, 24V DC, 36V DC,110V AC, or 220V AC
Maximum load	4,500N in pull/push
Maximum speed at full load	48.0mm/s (Ball screw, DC motor, with 2500N)
Standard stroke	20~1000mm (ACME screw); 50~1000mm (Ball screw)
Minimum installation dimension	Stroke+160mm (without POT)
Color	Black
IP rating	IP66D
Operational temperature range	-25°C~+65°C
Options	Overload clutch, Hall sensor(s), potentiometer, manual crank function

Mechanical or electromagnetic brake
Higher duty cycle (20%), corrosion proof

Load and Speed

CODE	Load (N)		Typical Current (A)				Typical Speed (mm/s)			
	Push	Pull	No Load		With Load		No Load		With Load	
			12V DC	24V DC	12V DC	24V DC	12V DC	24V DC	12V DC	24V DC
ACME Screw, DC Motor										
B	1500	1500	10.0	5.0	15.4	7.7	29.5	29.5	27.0	27.0
C	2500	2500	5.0	2.5	14.0	7.0	15.8	15.8	14.3	14.3
Ball Screw, DC Motor										
A	2500	2500	7.0	3.5	25.0	12.5	58.5	58.5	48.0	48.0
B	3500	3500	5.0	2.5	18.0	9.0	29.8	29.8	25.5	25.5
C	4500	4500	4.0	2.0	13.0	6.5	16.0	16.0	14.0	14.0

CODE	Load (N)		Typical Current (A)				Typical Speed (mm/s)			
	Push	Pull	No Load		With Load		No Load		With Load	
			110V AC	220V AC	110V AC	220V AC	110V AC	220V AC	110V AC	220V AC
ACME Screw, AC Motor										
B	1500	1500	1.9	0.9	2.0	1.0	26.1	22.5	23.0	21.0
C	2500	2500	1.9	0.9	2.0	1.0	14.1	12.0	12.8	11.2
Ball Screw, AC Motor										
A	2500	2500	2.0	0.9	2.5	1.3	53.0	46.0	38.5	40.0
B	3500	3500	1.9	0.9	2.1	1.1	27.0	23.5	22.5	21.5
C	4500	4500	1.9	0.9	2.0	1.0	14.5	12.0	13.0	11.5

Note

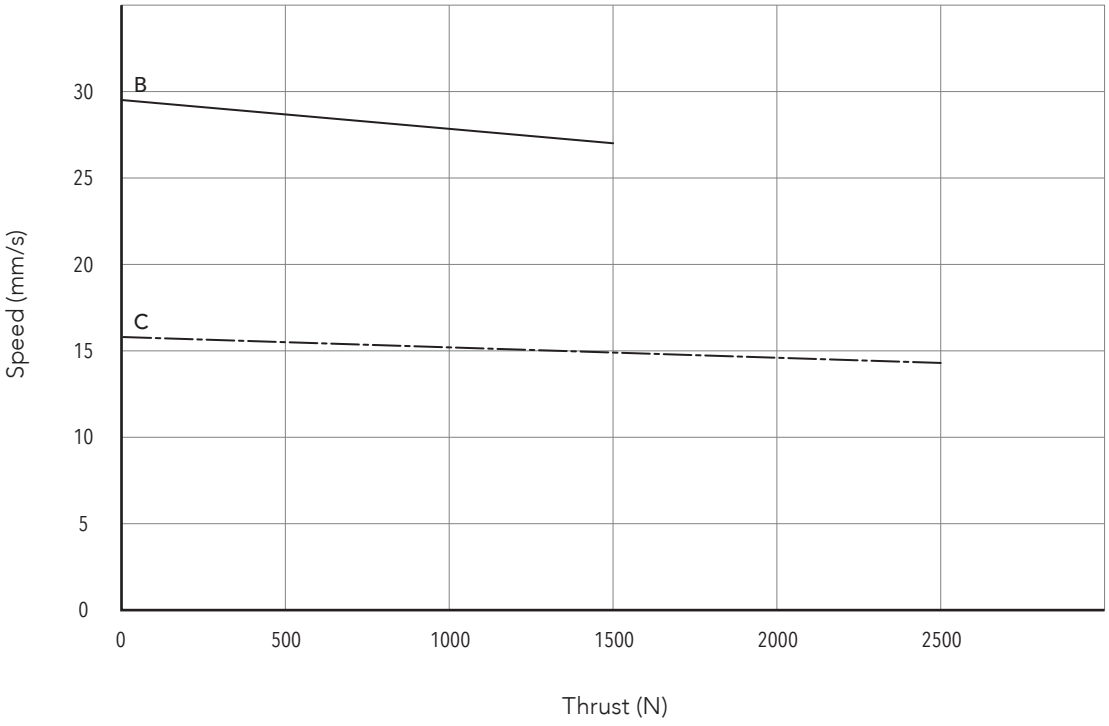
1 Self locking force: Tested average value when working with TecHome control system in push direction.

2 Current and speed: Tested avearge value when stretching in push direction.

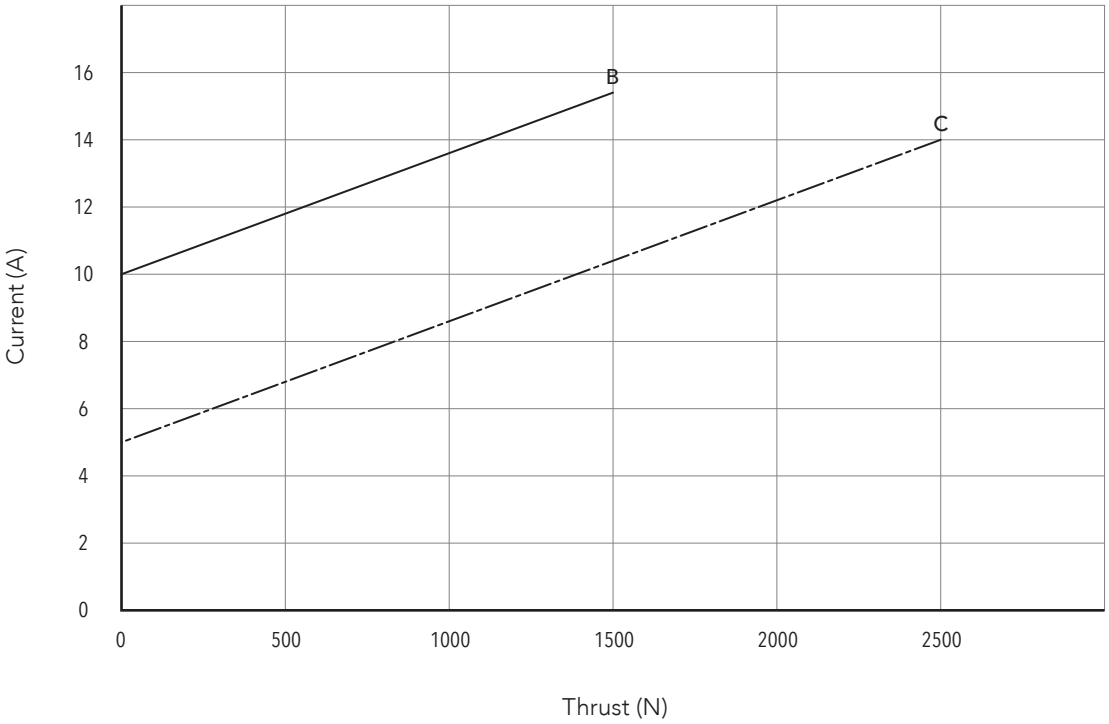
Performance Data

ACME Screw, DC Motor (12V DC)

Speed vs. Thrust



Current vs. Thrust

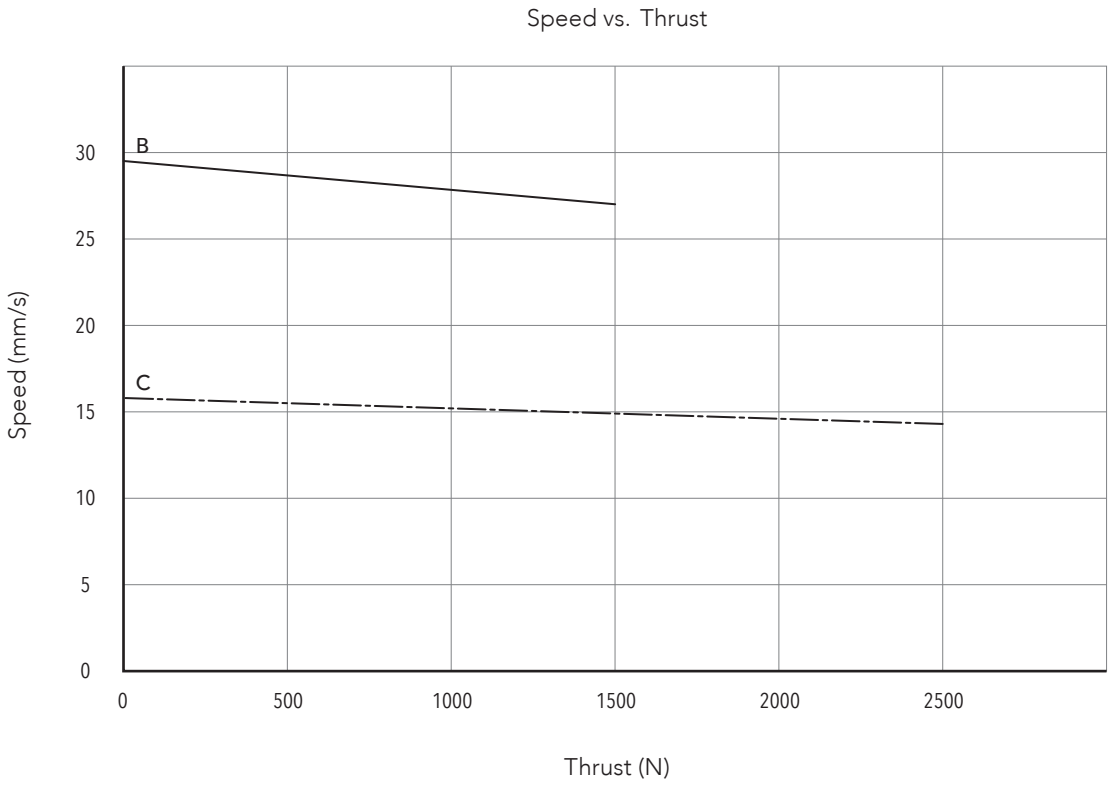


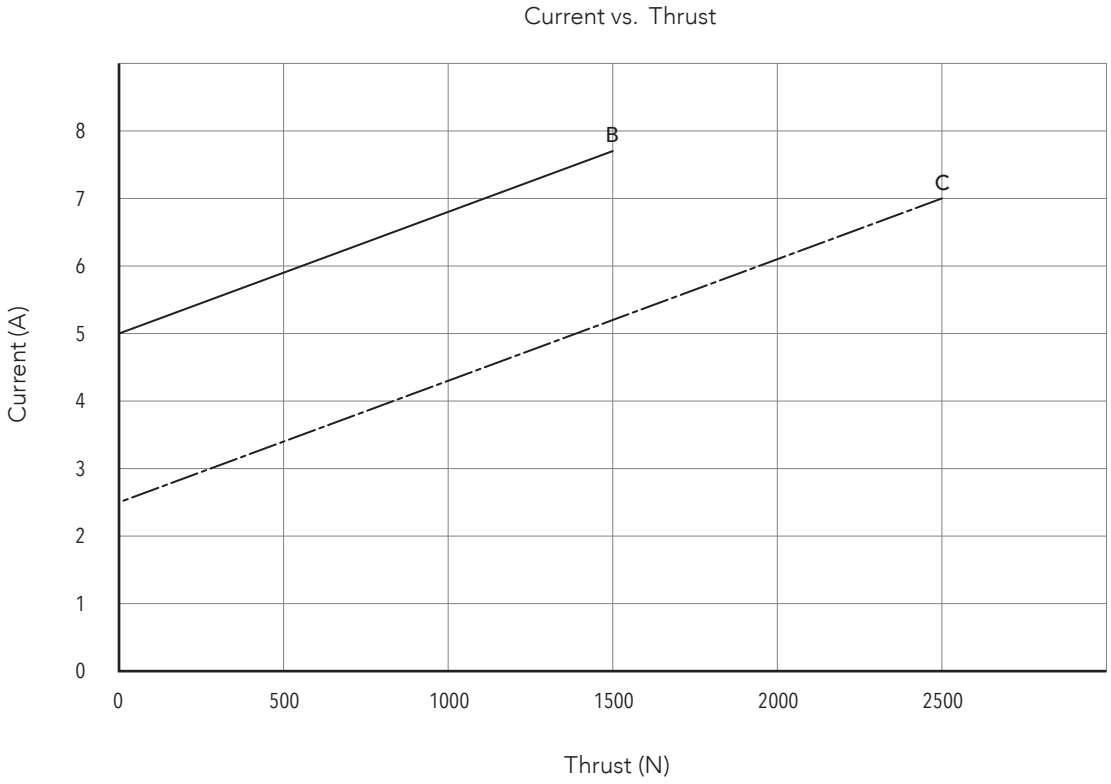
Note

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

Performance Data

ACME Screw, DC Motor (24V DC)





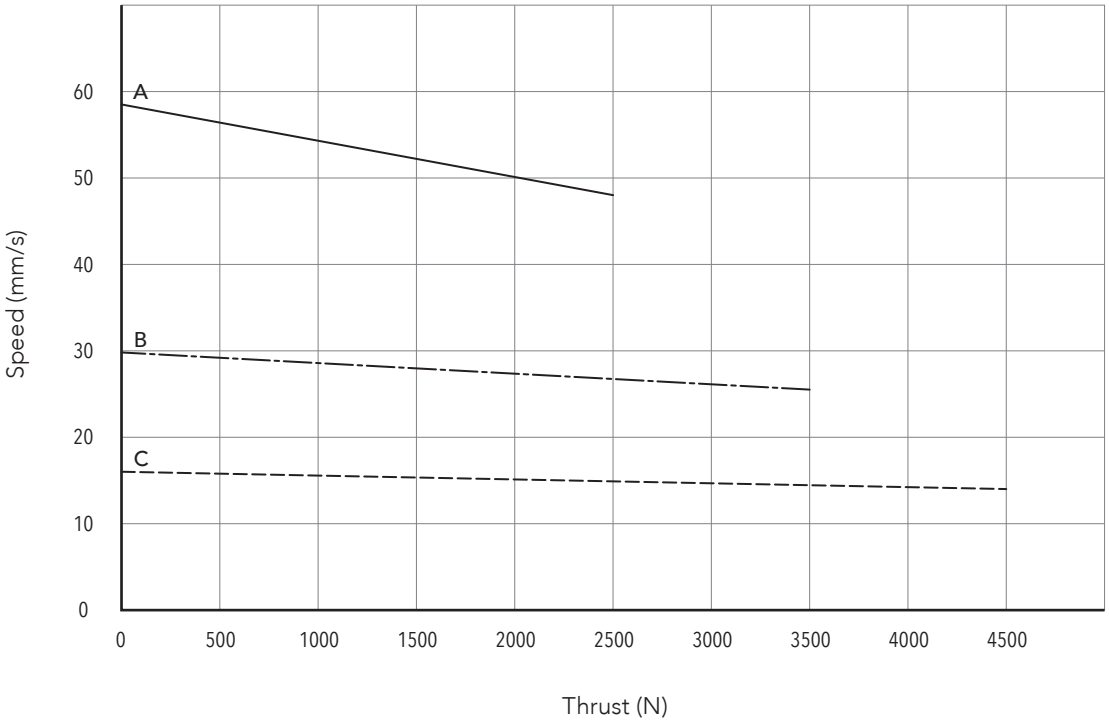
Note

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

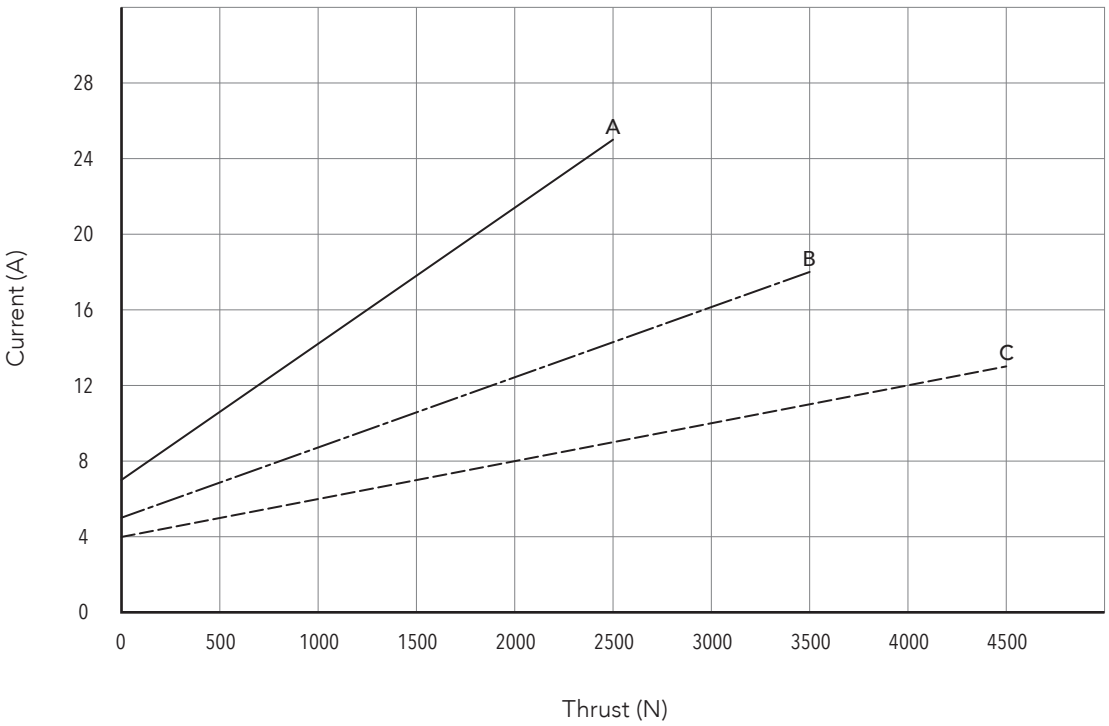
Performance Data

Ball Screw, DC Motor (12V DC)

Speed vs. Thrust



Current vs. Thrust



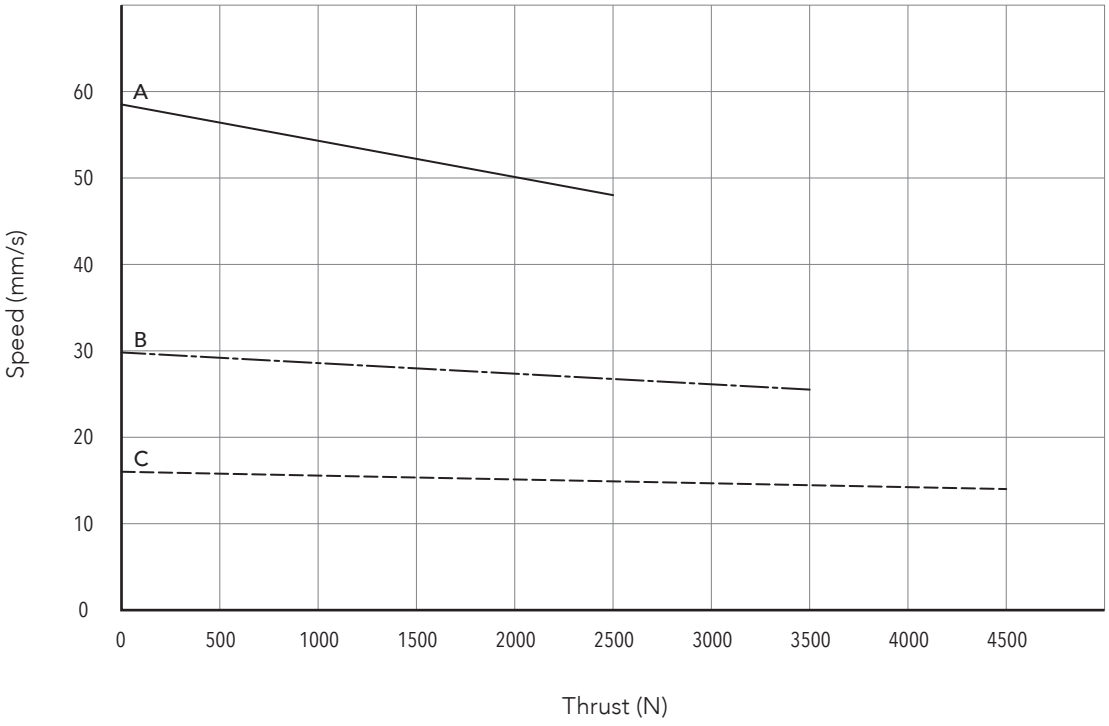
Note

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

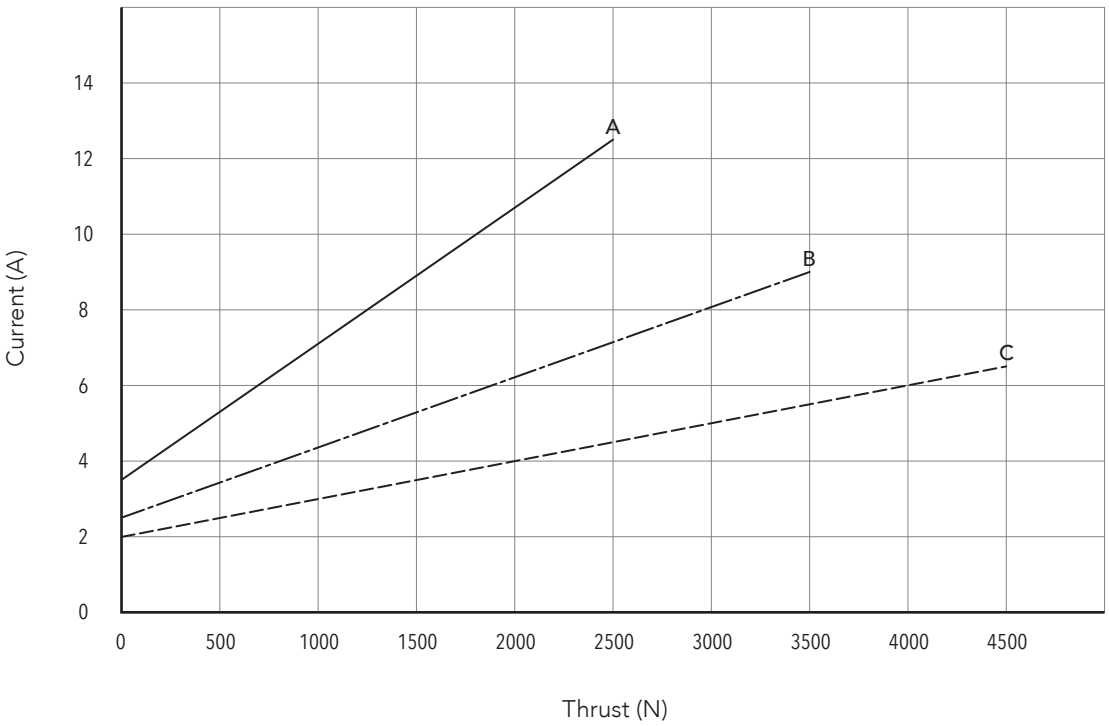
Performance Data

Ball Screw, DC Motor (24V DC)

Speed vs. Thrust



Current vs. Thrust

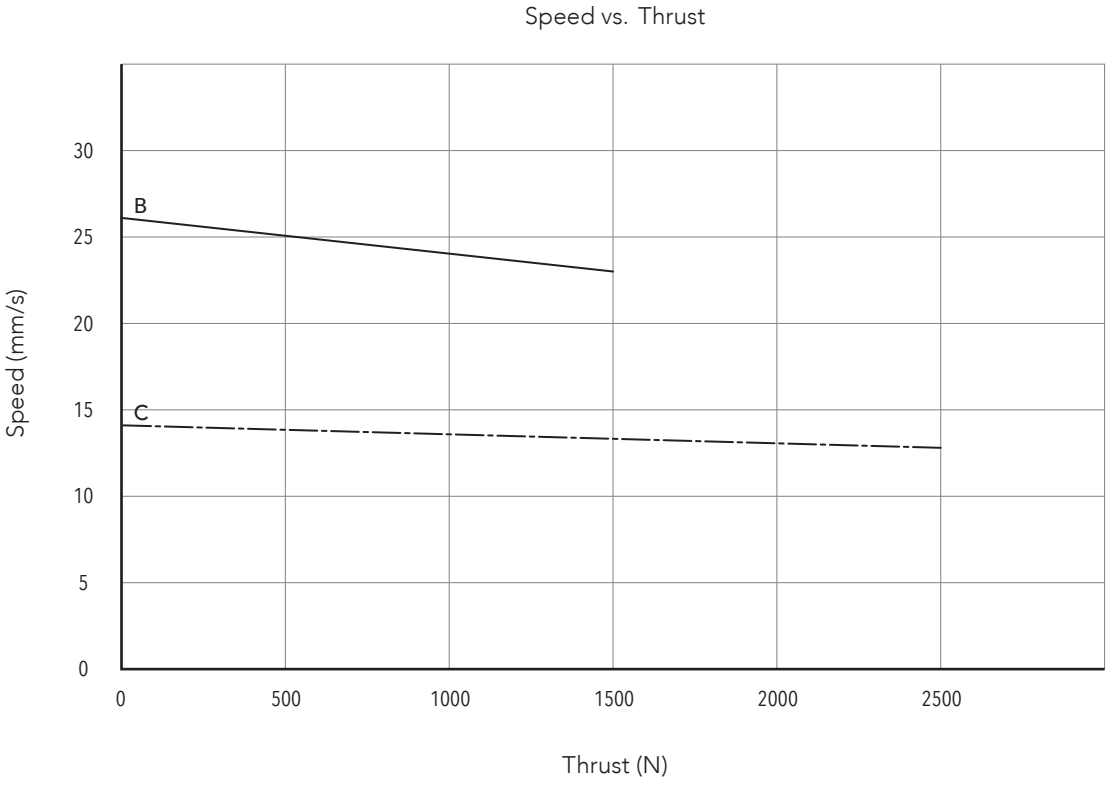


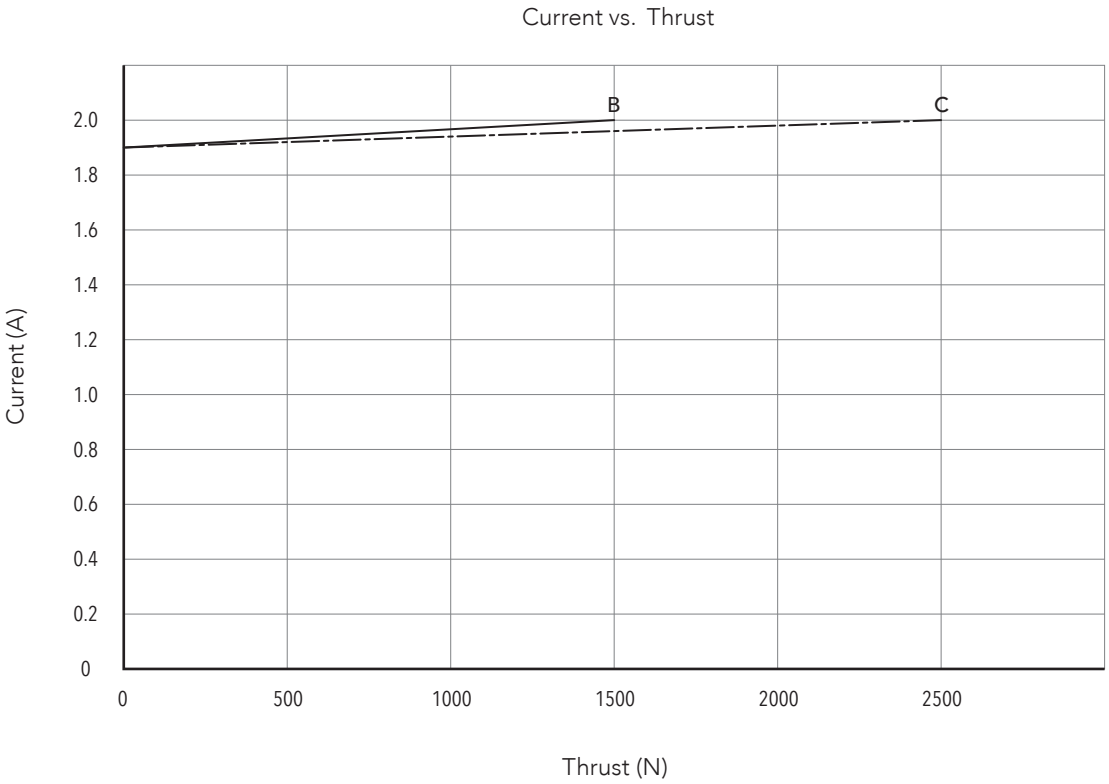
Note

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

Performance Data

ACME Screw, AC Motor (110V AC)



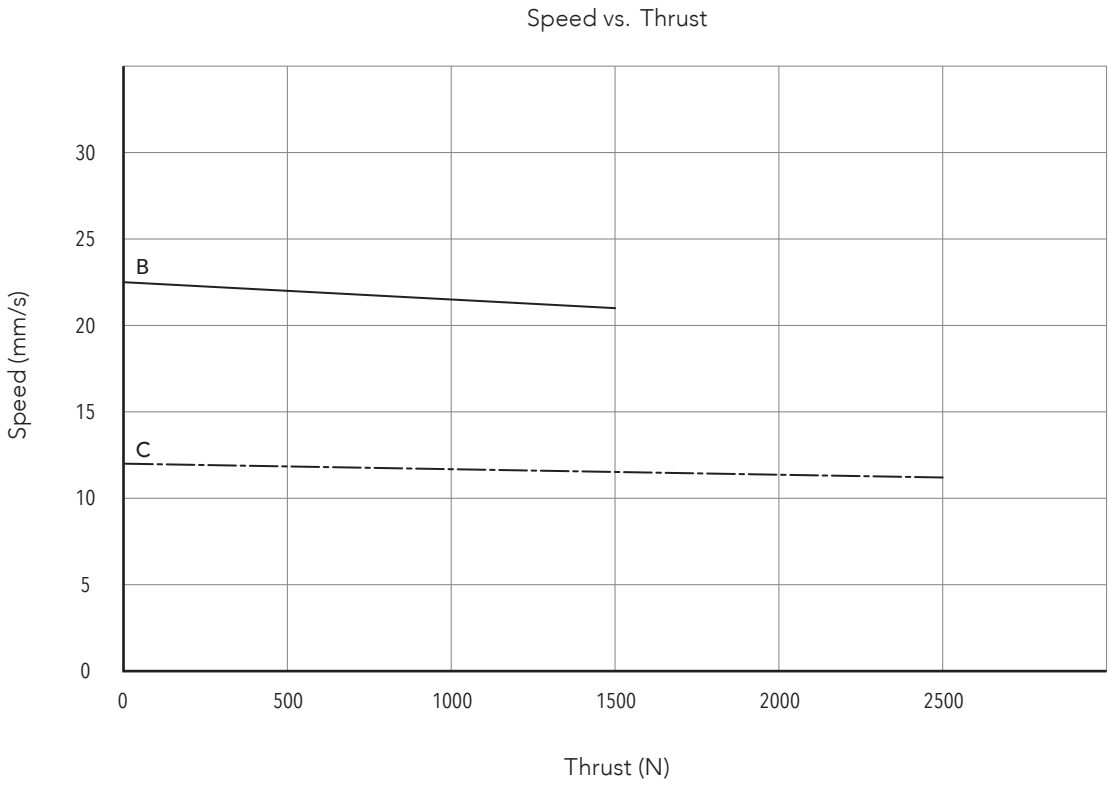


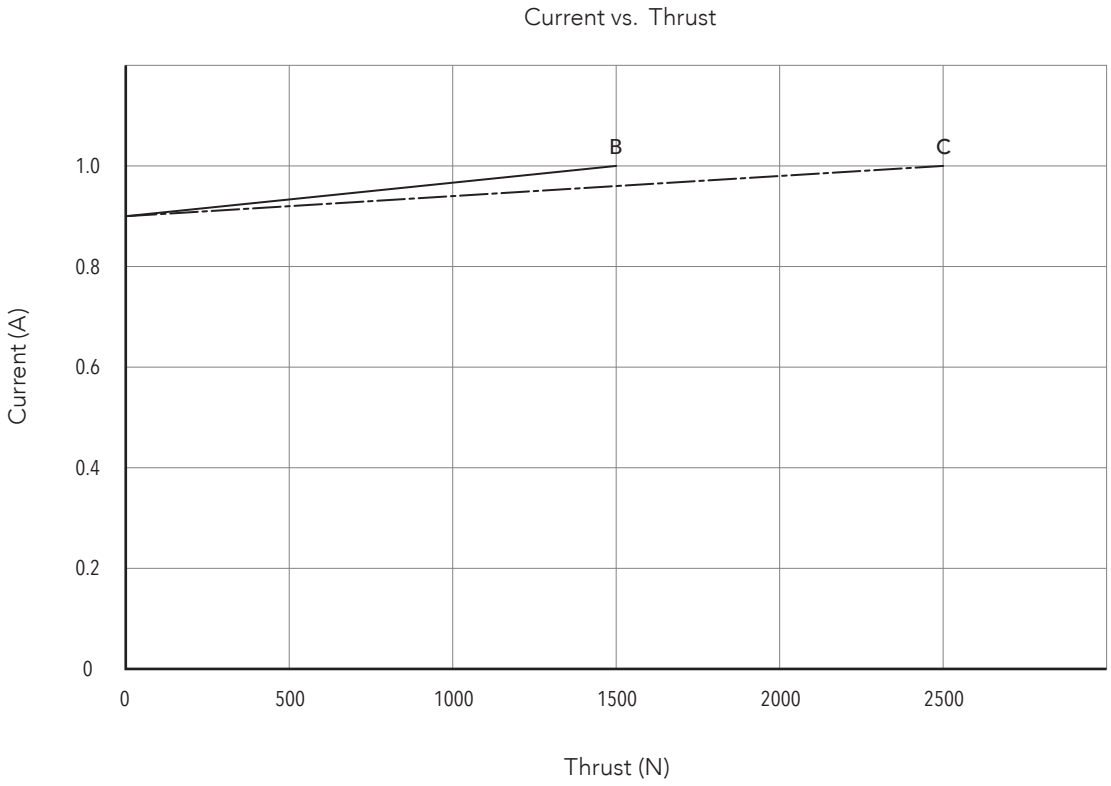
Note

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

Performance Data

ACME Screw, AC Motor (220V AC)





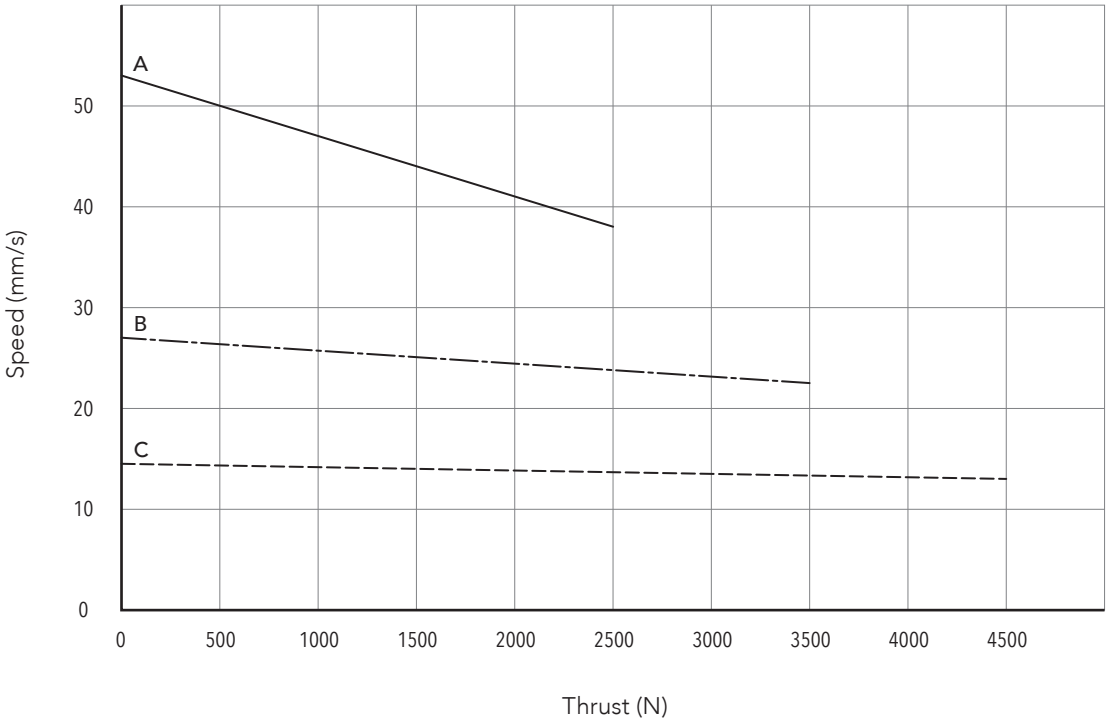
Note

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

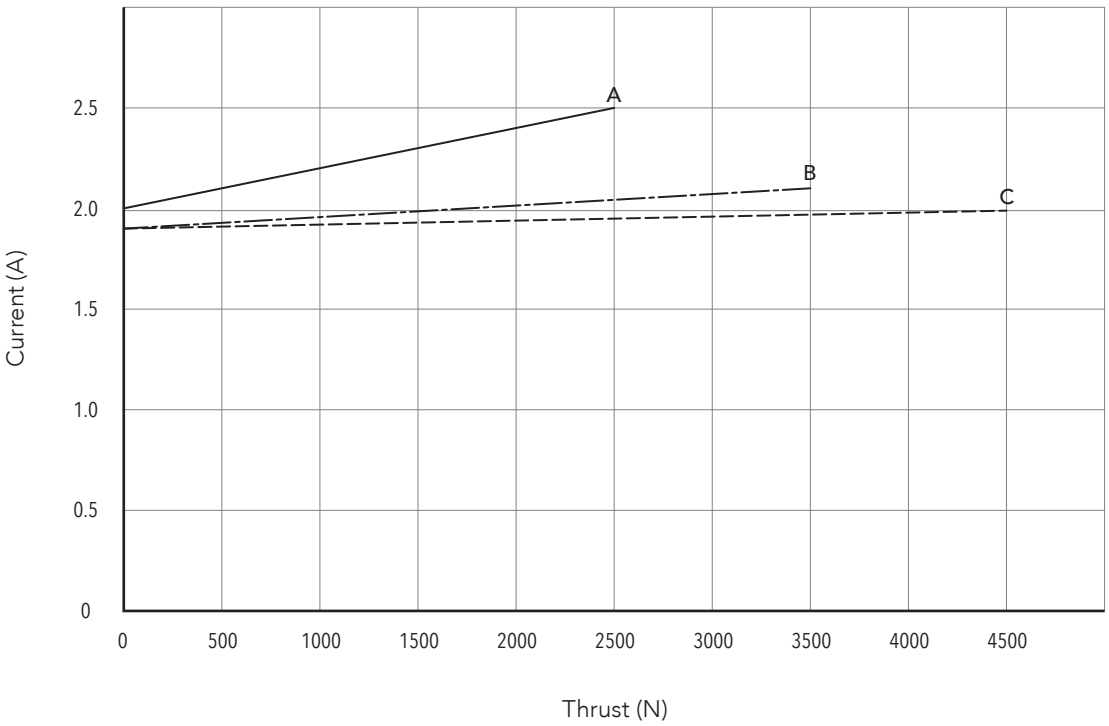
Performance Data

Ball Screw, AC Motor (110V AC)

Speed vs. Thrust



Current vs. Thrust



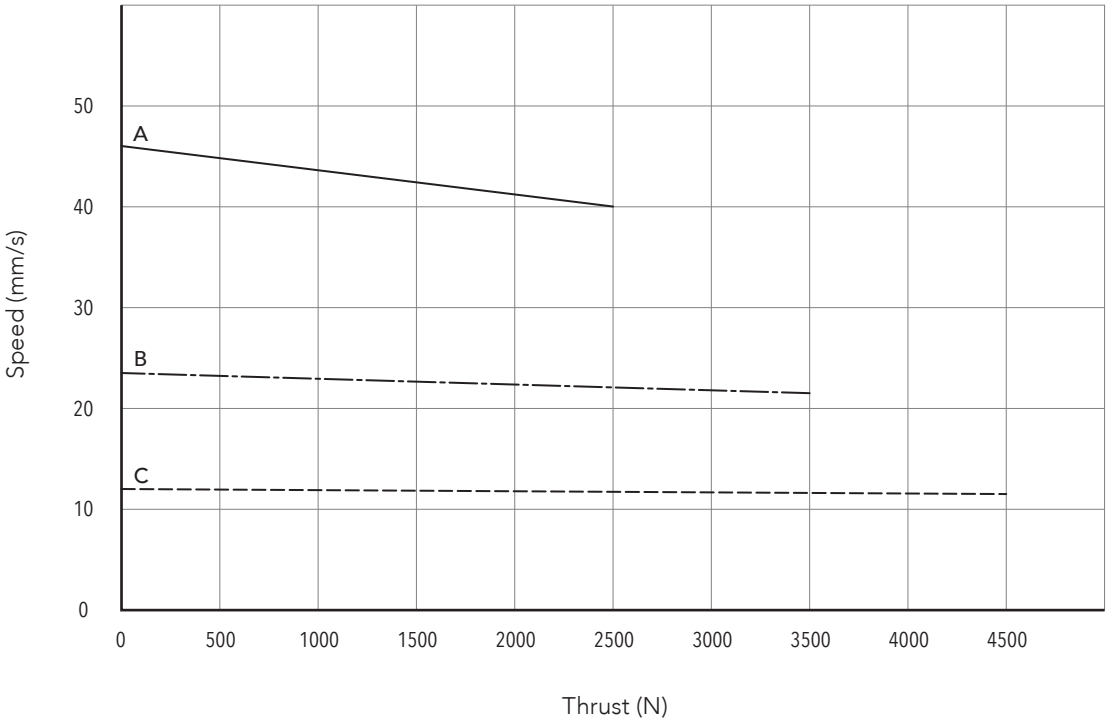
Note

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

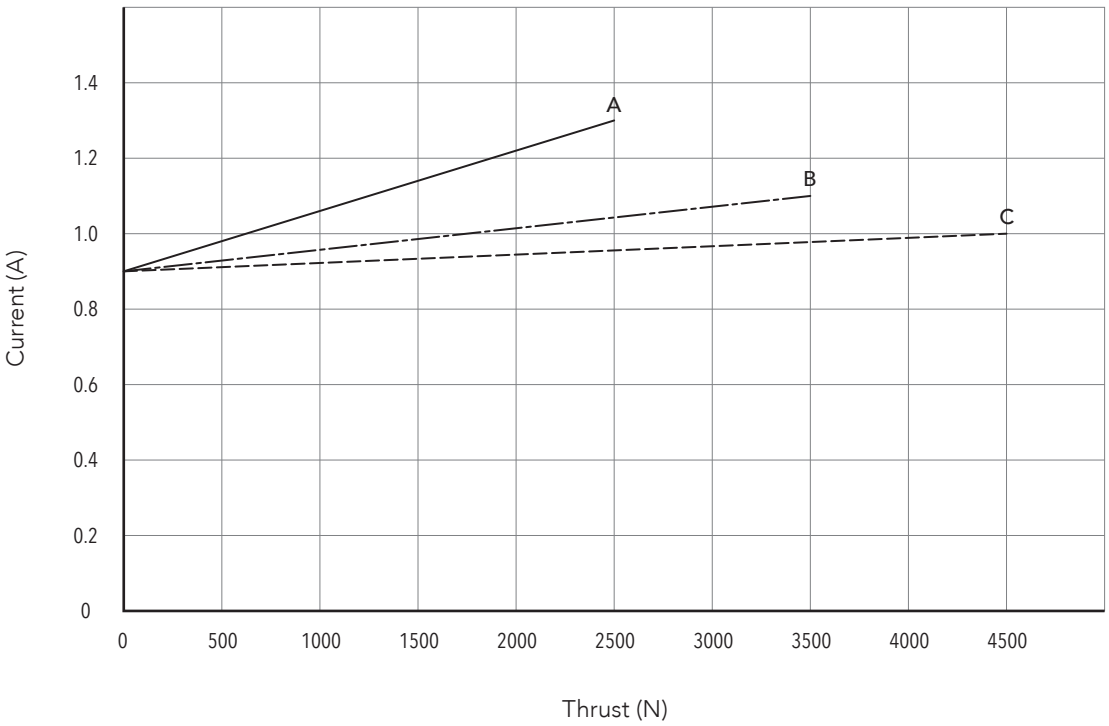
Performance Data

Ball Screw, AC Motor (220V AC)

Speed vs. Thrust



Current vs. Thrust

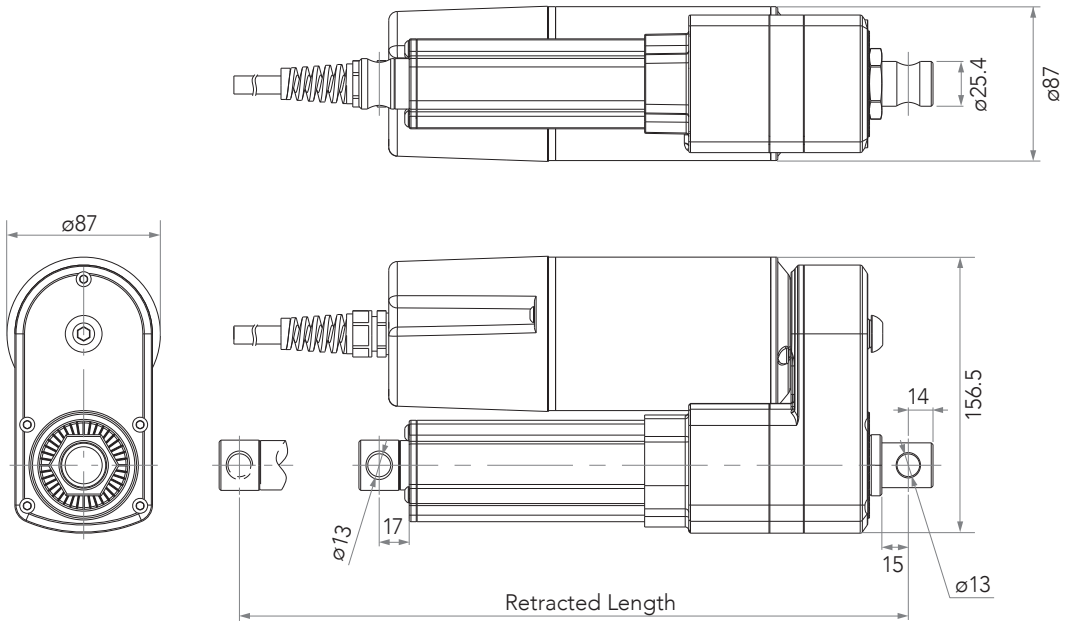


Note

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

Drawing

Standard Dimensions
(mm)



Wire Definitions

CODE*	Pin					
	1 (green)	2 (red)	3 (white)	4 (black)	5 (yellow)	6 (blue)
0	N/A	N/A	N/A	N/A	N/A	N/A
1	extend (VDC+)	N/A	N/A	N/A	retract (VDC+)	N/A
2	extend (VDC+)	common	upper limit switch	N/A	retract (VDC+)	lower limit switch

Note

* See ordering key - functions for limit switches

Retracted length (mm)

1. Calculate A+B+C = Y

2. Retracted length needs to ≥ 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

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

MA1 Ordering Key

MA1

Version: 20160712-A

	Spindle Type	A = ACME screw	B = Ball screw			
	Voltage	1 = 12VDC	2 = 24VDC	3 = 36VDC	4 = 110VAC 60Hz	5 = 220VAC 50Hz
	Load and Speed	See page 2.				
	Stroke (mm)					
	Retracted Length (mm)	See page 12.				
	Rear Attachment	1 = #45 Steel CNC, Hole: 13mm				
	Front Attachment	1 = #45 Steel CNC, Hole: 13mm				
	Direction of Rear Attachment (Counterclockwise)			1 = 90° (Standard)	2 = 0°	
	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				
	Overload Clutch	0 = Without	1 = With (Standard)			
	Mechanical Brake	0 = Without	1 = With (Ball screw's standard option)			
	Electromagnetic Brake	0 = Without (Standard)	1 = With			
	IP Rating	6 = IP66D				
	Manual Drive	0 = Without	1 = With			
	Output Signals	0 = Without	1 = Potentiometer	4 = One Hall sensor	5 = Two Hall sensors	
	Plug	1 = Tinned leads				
	Cable Length	1 = Straight, 500mm				