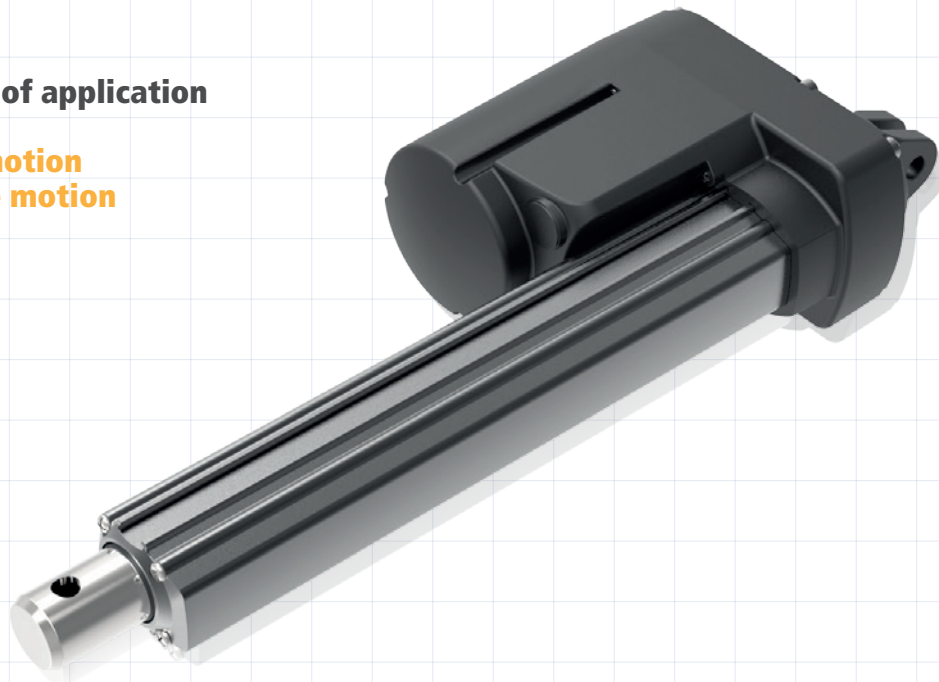


Electric actuator MA2

Typical areas of application

- Industrial motion
- Automotive motion



The MA2 series linear actuator was specifically designed for applications which face harsh working environments and require ruggedness and durability. Its IP69K protection ensures it will withstand high temperature, high pressure water jets, and the ingress of dust and other solid contaminants. The MA2 also has optional Reed switches along the outer tube which allow users to adjust the stroke length. For improved control and accuracy of motion, the MA2 can be customized with many different feedback options depending on your application requirements.

Example applications suitable for the MA2: Agricultural equipment such as spreaders, harvesters, grain handlers, combines and tractors.

Commercial and industrial applications such as commercial lawn mowers, scrubbers and sweepers, material handling equipment and livestock ventilation systems.

Key figures

- | | |
|---|---|
| • Voltage of motor | 12 V DC, 24 V DC or 36 V DC |
| • Max. load | 6000 N in push/pull |
| • Max. speed at full load | 45 mm/s (with 1000 N in a push or pull condition) |
| • Standard stroke | 25 ~ 1000 mm |
| • Min. installation dimension | stroke+131 mm |
| • IP rating | up to IP69K |
| • Operational temperature range | -30 °C ~ +65 °C |
| • Operational temperature range at full performance | +5 °C ~ +45 °C |
| • Options | Hall sensor(s), POT, Reed switch |

Load and speed

CODE	Load		Self locking force 1)	Typical current 2)		Typical speed	
	push [N]	pull (N)		no load 24 VDC [A]	with load 24 VDC [A]	no load 24 VDC [mm/s]	full load 24 VDC [mm/s]
Motor speed 5200 min⁻¹, duty cycle 25%							
F	1000	1000	1300	2.5	9.0	54.0	45.0
G	2000	2000	2600	2.2	9.0	28.5	22.0
H	4000	4000	5200	2.0	8.5	14.0	11.7
J	6000	6000	7800	2.0	7.0	7.0	6.2

Note

- 1) This self-locking force level is reached only when a short circuit is applied on the terminals of the motor. All the control boxes have this feature built-in.
- 2) With a 12 V motor, the current is approximately twice the current measured in 24 V. With a 36 V motor, the current is approximately 66 % of the current measured in 24 V; speed will be similar for both voltages.

Wire definitions

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

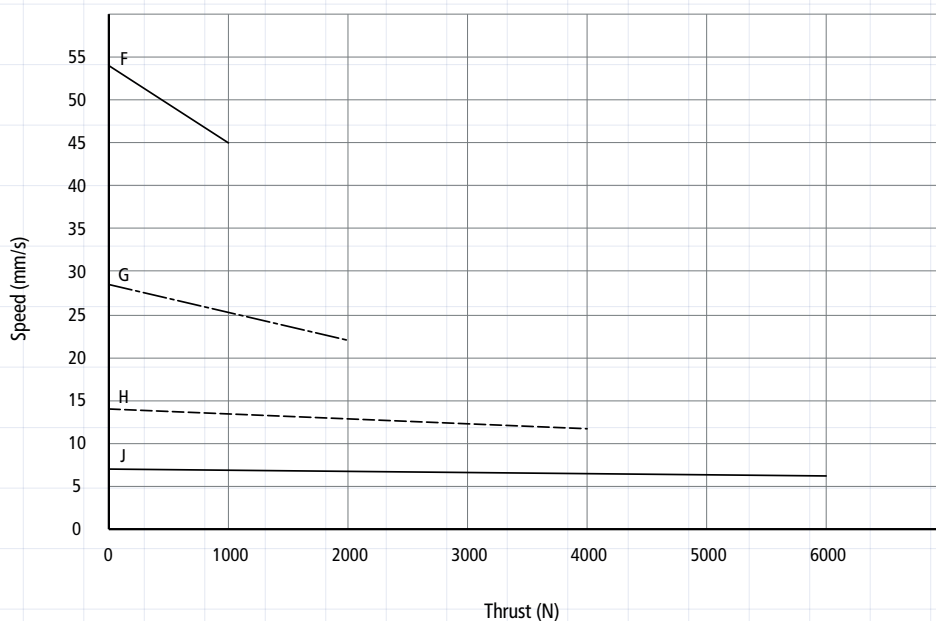
Note

- * See ordering key – functions for limit switches.

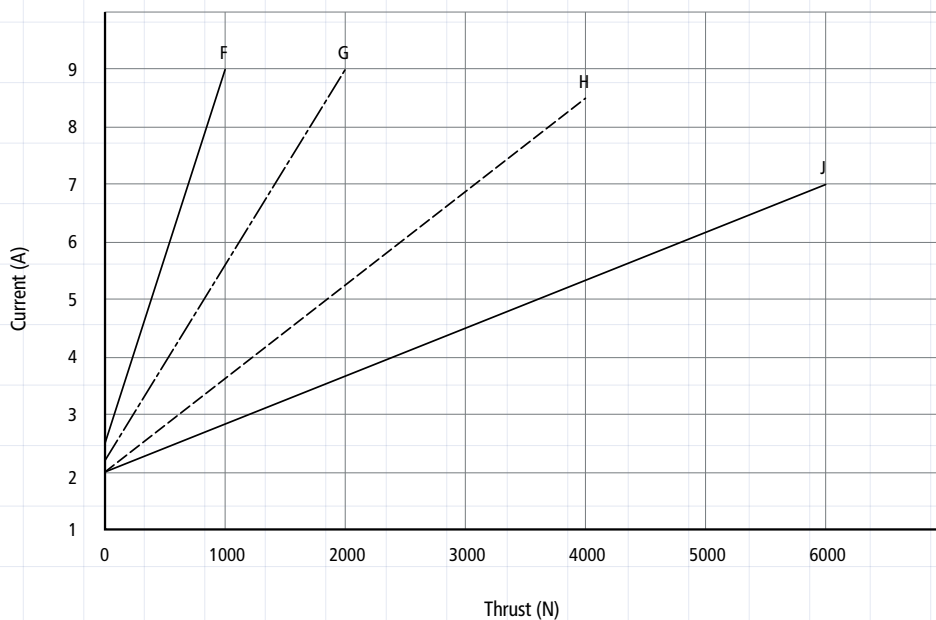
Performance data (24 VDC motor)

Motor speed 5200 min⁻¹, duty cycle 25%

Speed vs. Thrust



Current vs. Thrust

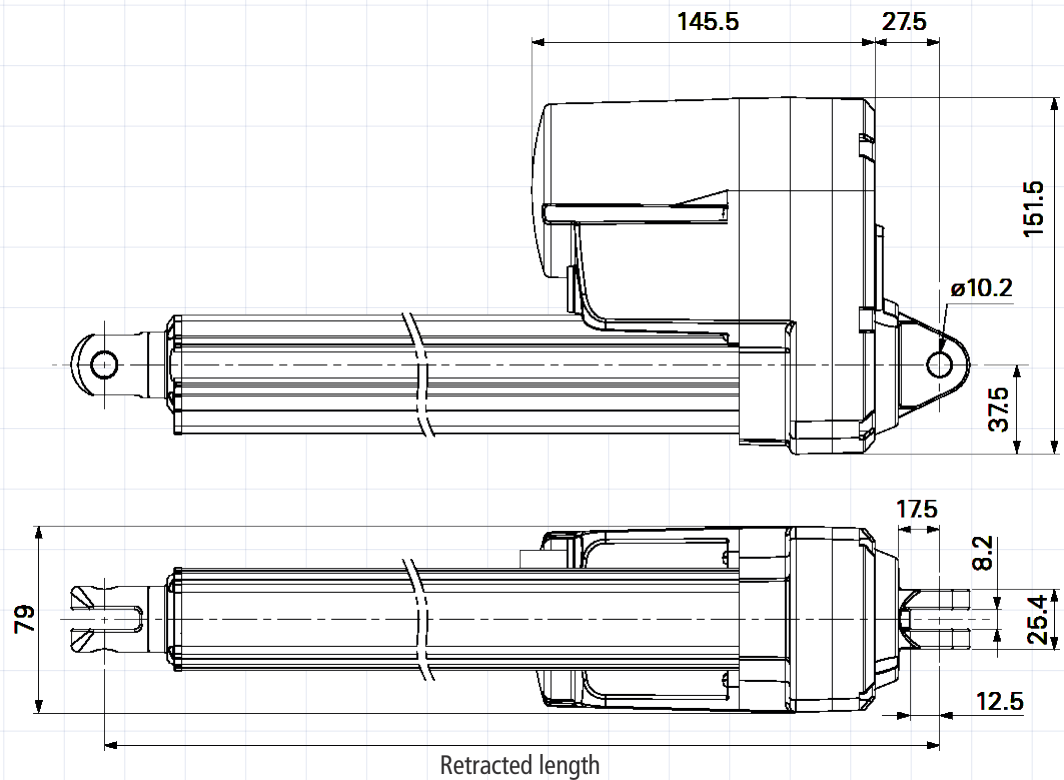


Note

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

Drawing

Standard dimensions (mm)



Retracted length (mm)

Retracted length \geq Stroke+A+B+C

A		
Code front attachment	Code rear attachment 1 A	Code rear attachment 2, 3 A
1, 3	+131	+134
4, 6	+161	+164
K	+178	+181

B	
Stroke (mm)	B
0~150	-
151~200	-
201~250	+10
251~300	+20
301~350	+30
351~400*	+40

C	
Code output signals	
0, 4, 5, 6, 7	-
1	+20

*For stroke over 400 mm + 10 mm for each incremental 50 mm stroke.

Ordering key (e. g.: MA2-1G-100231-1111-021-20)

MA2-

<input type="checkbox"/>	Voltage	1 = 12 V 2 = 24 V	3 = 36 V 5 = 24 V, thermal control	6 = 12 V, thermal control 7 = 36 V, thermal control
<input type="checkbox"/>	Load and speed	see page 2		
-				
<input type="checkbox"/>	Stroke (mm)			
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>	Retracted length (mm)	see page 5		
<input type="checkbox"/>				
-				
<input type="checkbox"/>	Rear attachment	1 = aluminum casting, U clevis, slot 8.2 mm, depth 12.5 mm, hole 10.2 mm 2 = aluminum casting, U clevis, slot 8.2 mm, depth 15.0 mm, hole 10.2 mm 3 = aluminum casting, U clevis, slot 8.2 mm, depth 15.0 mm, hole 12.8 mm		
<input type="checkbox"/>	Front attachment	1 = iron inner tube with punched hole, no slot, hole 10.2 mm 3 = iron inner tube with punched hole, no slot, hole 12.8 mm 4 = aluminum casting, U clevis, slot 8.2 mm, depth 15.0 mm, hole 10.2 mm 6 = aluminum casting, U clevis, slot 8.2 mm, depth 15.0 mm, hole 12.8 mm K = rod end bearing, hole 12.8 mm		
<input type="checkbox"/>	Direction of rear attachment (counterclockwise)	1 = 90°	2 = 0°	
<input type="checkbox"/>	Functions for limit switches	1 = two switches at full retracted/extended positions to cut current 2 = two switches at full retracted/extended positions to cut current + 3rd LS to send signal 3 = two switches at full retracted/extended positions to send signal 4 = two switches at full retracted/extended positions to send signal + 3rd LS to send signal		
-				
<input type="checkbox"/>	Output signals	0 = without 1 = POT	4 = one Hall sensor 5 = two Hall sensors	6 = one reed sensor on outer tube 7 = two reed sensors on outer tube
<input type="checkbox"/>	Connector	2 = tinned leads		
<input type="checkbox"/>	Cable length	1 = straight, 500 mm 2 = straight, 1000 mm	3 = straight, 1500 mm 4 = straight, 2000 mm	
-				
<input type="checkbox"/>	IP rating	1 = without	2 = IP54	6 = IP66D 8 = IP69K
<input type="checkbox"/>	Manual drive	0 = without	1 = with	

Terms of use

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