

# TA2P

## series



### Product Segments

#### • Industrial Motion

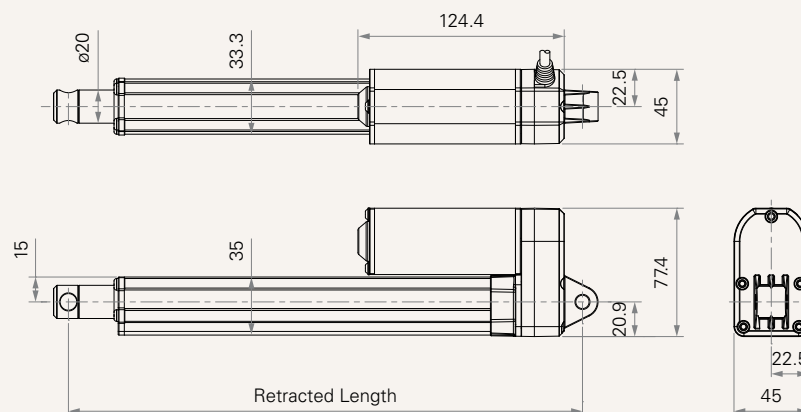
Both the TA2 and the TA2P are compact, robust, and capable of performing well in certain outdoor environments. A more powerful motor makes the TA2P capable of handling load ratings up to 3500N (787 pounds) while retaining its compact size. In addition to the high power motor, the TA2P linear actuator is available with multiple choices for feedback sensors.

#### General Features

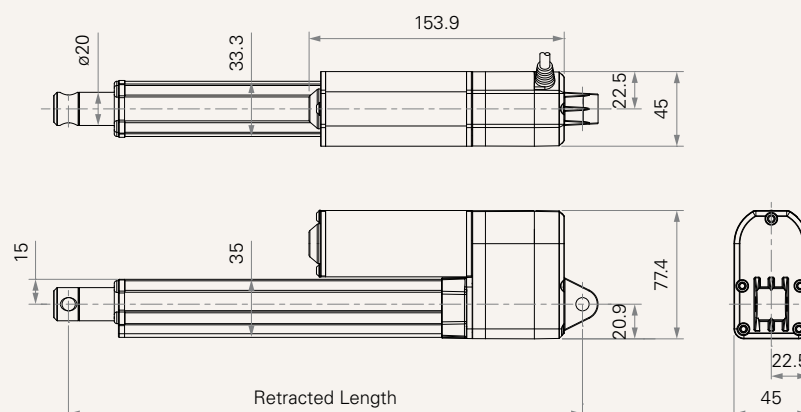
|   |  |
|---|--|
| Max. load   | 3,500N (push); 2,000N (pull)                                   |
| Max. speed at max. load                           | 2.4mm/s  |
| Max. speed at no load                             | 56.5mm/s   |
| Retracted length                                  | ≥ Stroke + 108mm (with Hall sensors or without output signals) |
| IP rating   | IP66M  |
| Certificate                                       | UL73   |
| Stroke  | 20~1000mm  |
| Output Signals                                    | Mechanical pot., NPN Hall sensor                               |
| Voltage   | 12/24/36/48V DC; 12/24/48V DC (PTC)                            |
| Color   | Silver   |
| Operational temperature range                     | -25°C ~ +65°C  |
| Operational temperature range at full performance | +5°C ~ +45°C   |

## Drawing

Dimensions  
without Output Signal  
or with Hall Sensors  
(mm)



Dimensions  
with POT  
or Reed Sensor  
(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%) |          |      |                        |                     |                  |                      |                  |
| A                                     | 250      | 250  | 250                    | 1.2                 | 2.3              | 43.0                 | 36.0             |
| B                                     | 500      | 500  | 500                    | 1.1                 | 2.5              | 25.8                 | 23.0             |
| C                                     | 1000     | 1000 | 1000                   | 1.1                 | 3.0              | 14.0                 | 11.8             |
| D                                     | 1500     | 1500 | 1500                   | 1.0                 | 2.8              | 9.0                  | 8.0              |
| E                                     | 2000     | 2000 | 2000                   | 1.0                 | 2.8              | 7.1                  | 6.2              |
| Motor Speed (6600RPM, duty cycle 25%) |          |      |                        |                     |                  |                      |                  |
| F                                     | 250      | 250  | 250                    | 1.6                 | 3.0              | 56.5                 | 45.0             |
| G                                     | 500      | 500  | 500                    | 1.5                 | 3.0              | 32.5                 | 28.5             |
| H                                     | 1000     | 1000 | 1000                   | 1.5                 | 3.0              | 16.5                 | 14.3             |
| K                                     | 1500     | 1500 | 1500                   | 1.3                 | 3.0              | 11.1                 | 10.0             |
| L                                     | 2000     | 2000 | 2000                   | 1.3                 | 3.0              | 8.8                  | 7.7              |
| Motor Speed (3800RPM, duty cycle 25%) |          |      |                        |                     |                  |                      |                  |
| S                                     | 3500     | 2000 | 3500                   | 0.8                 | 2.8              | 3.2                  | 2.4              |
| Motor Speed (2200RPM, duty cycle 25%) |          |      |                        |                     |                  |                      |                  |
| T                                     | 2000     | 2000 | 2000                   | 0.3                 | 0.9              | 3.2                  | 2.3              |

## Note

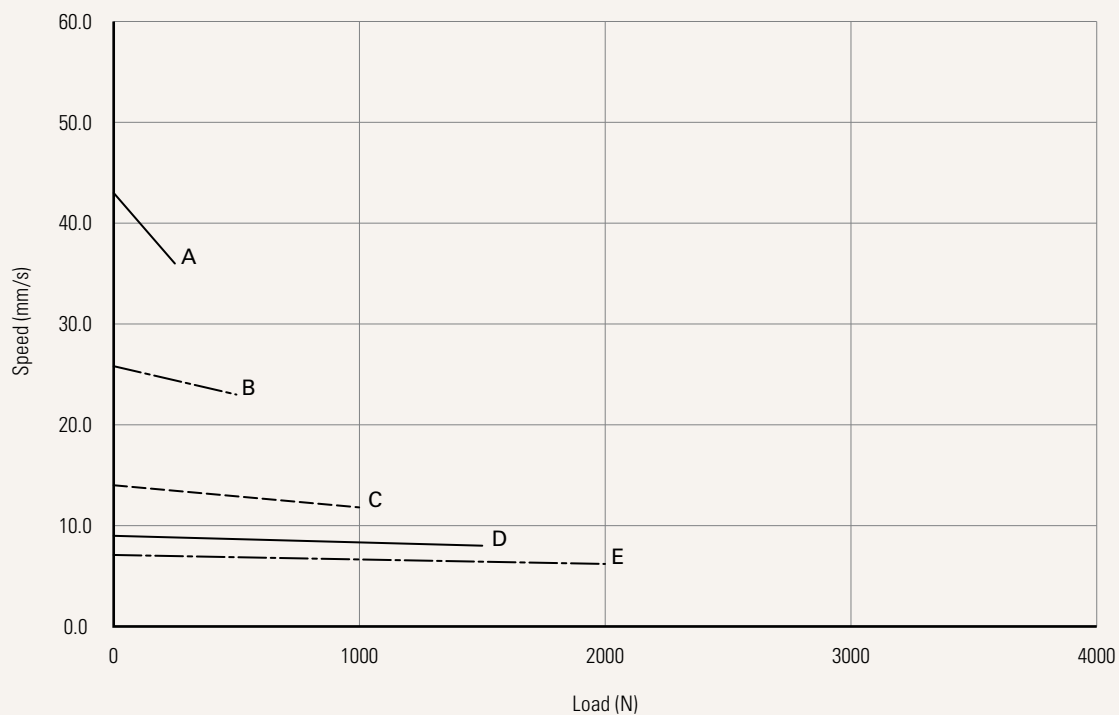
- 1 Please refer to the approved drawing for the final authentic value.
- 2 This self-locking force level is reached only when a short circuit is applied on the terminals of the motor. All the TiMOTION control boxes have this feature built-in.
- 3 The current & speed in table are tested with 24V DC motor. 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.
- 4 The current & speed in table are tested when the actuator is extending under push load.
- 5 The current & speed in table and diagram are tested with a stable 24V DC power supply.
- 6 Without load, noise level  $\leq 78\text{dBA}$  (by TiMOTION test standard, ambient noise level  $\leq 36\text{dBA}$ ).
- 7 Standard stroke: Min.  $\geq 20\text{mm}$ , Max. please refer to the table below.

| CODE           | Load (N)    | Max Stroke (mm) |
|----------------|-------------|-----------------|
| <b>A, F</b>    | $\leq 250$  | 1000            |
| <b>B, G</b>    | $\leq 750$  | 800             |
| <b>C, H</b>    | $\leq 1000$ | 600             |
| <b>D, K</b>    | $\leq 1500$ | 500             |
| <b>E, L, T</b> | $\leq 2000$ | 450             |
| <b>S</b>       | $\leq 3500$ | 300             |

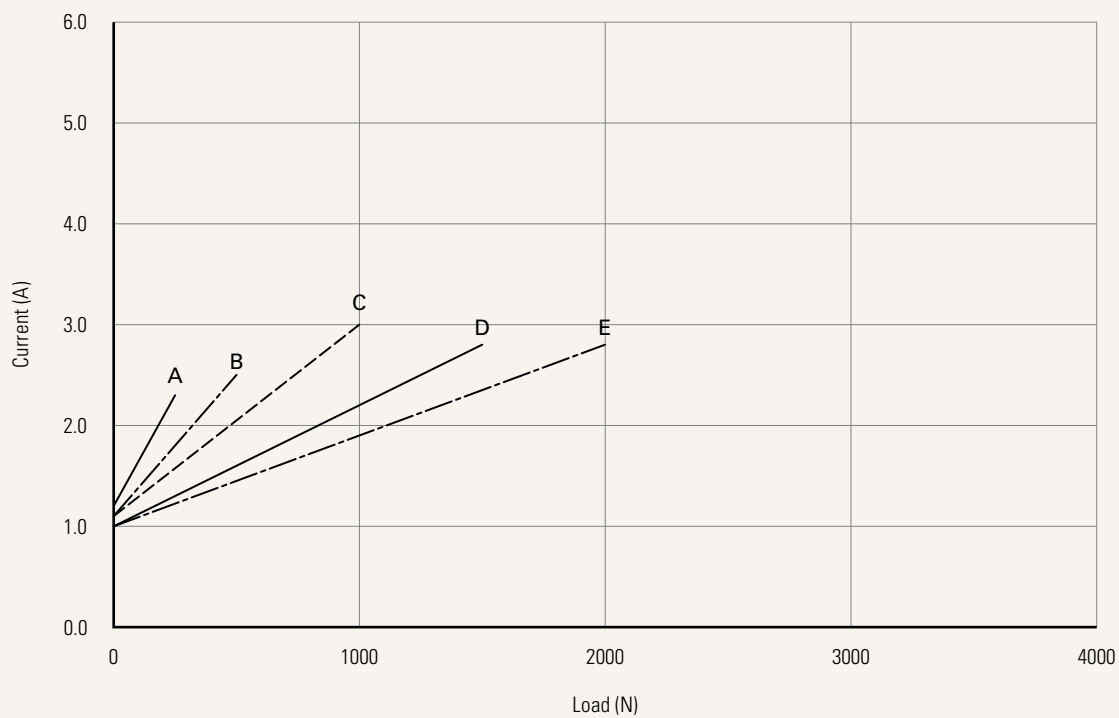
## Performance Data (24V DC)

Motor Speed (5200RPM, duty cycle 25%)

Speed vs. Load



Current vs. Load



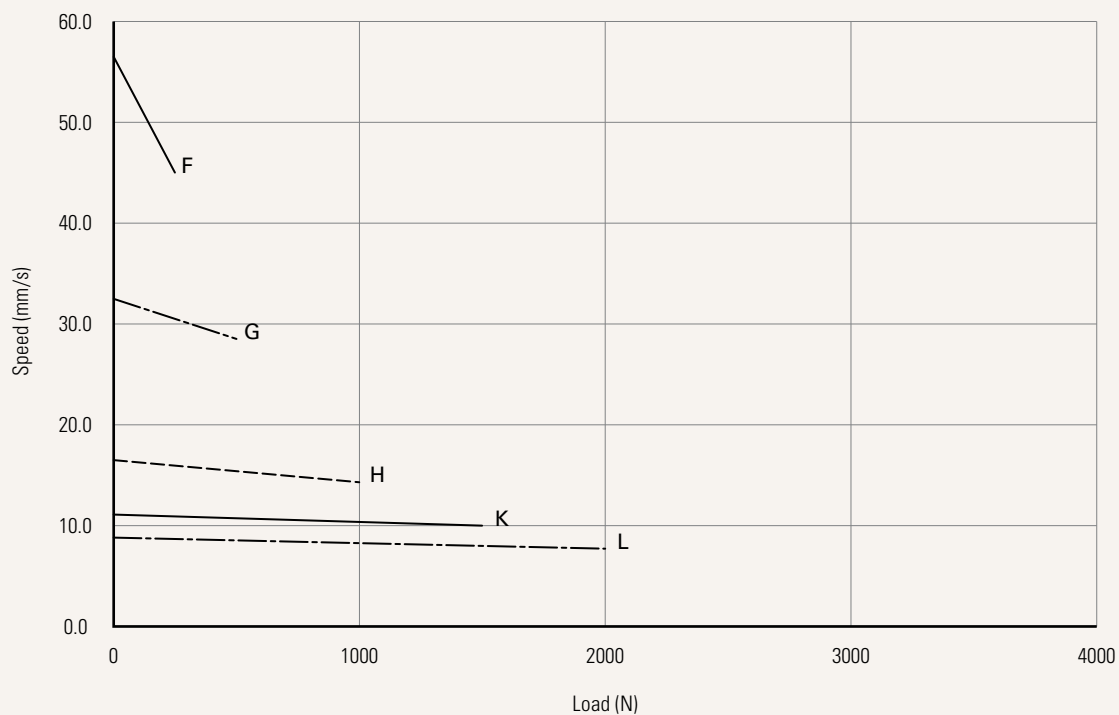
### Note

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

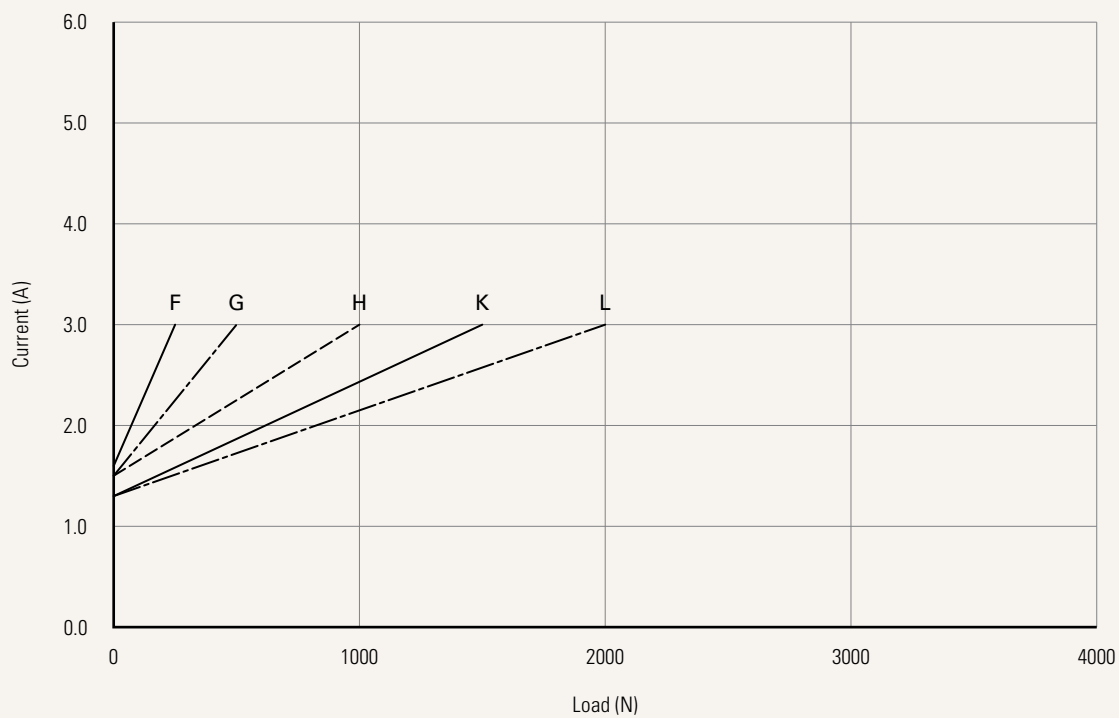
## Performance Data (24V DC)

Motor Speed (6600RPM, duty cycle 25%)

Speed vs. Load



Current vs. Load



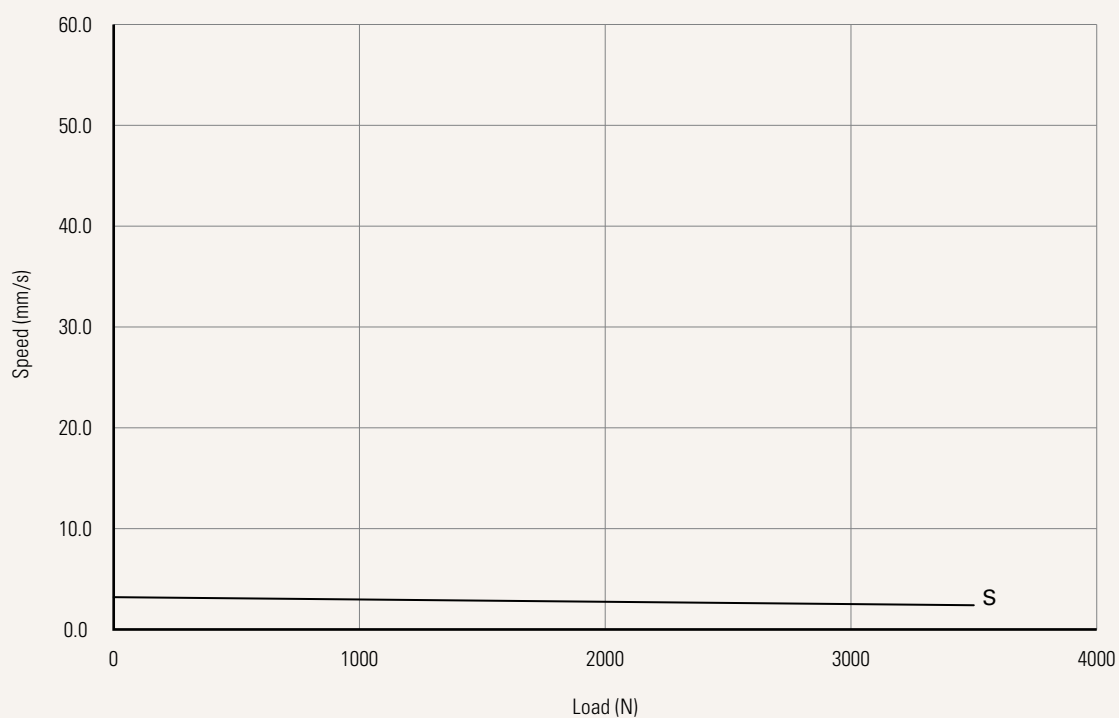
### Note

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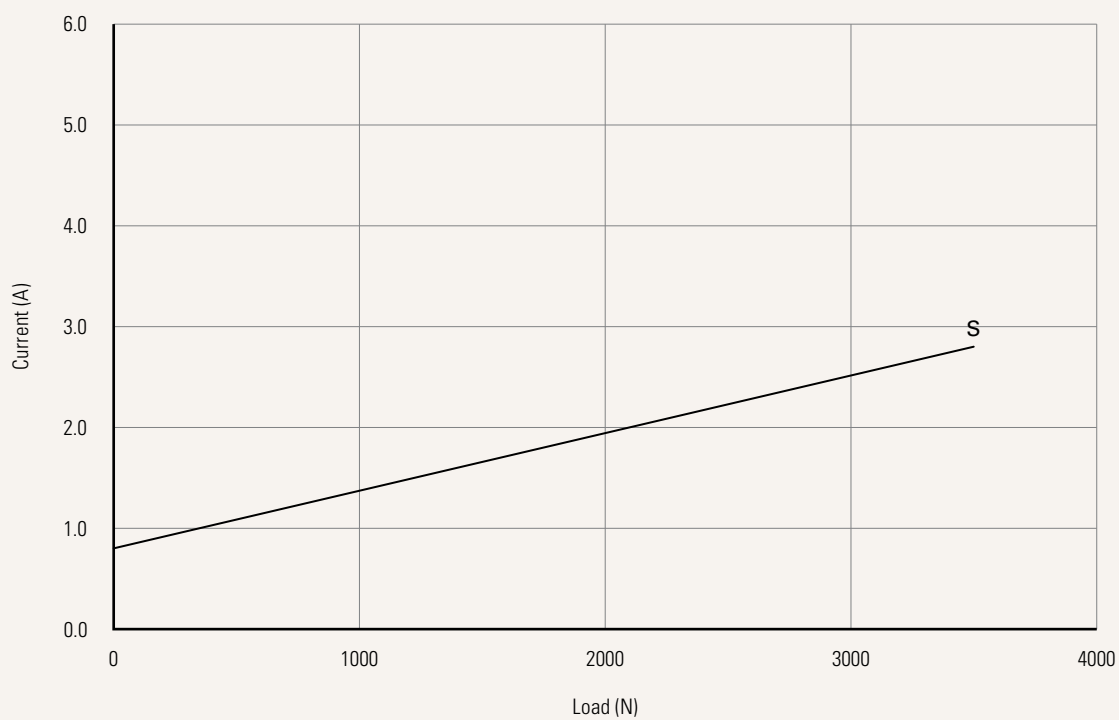
## Performance Data (24V DC)

Motor Speed (3800RPM, duty cycle 25%)

Speed vs. Load



Current vs. Load



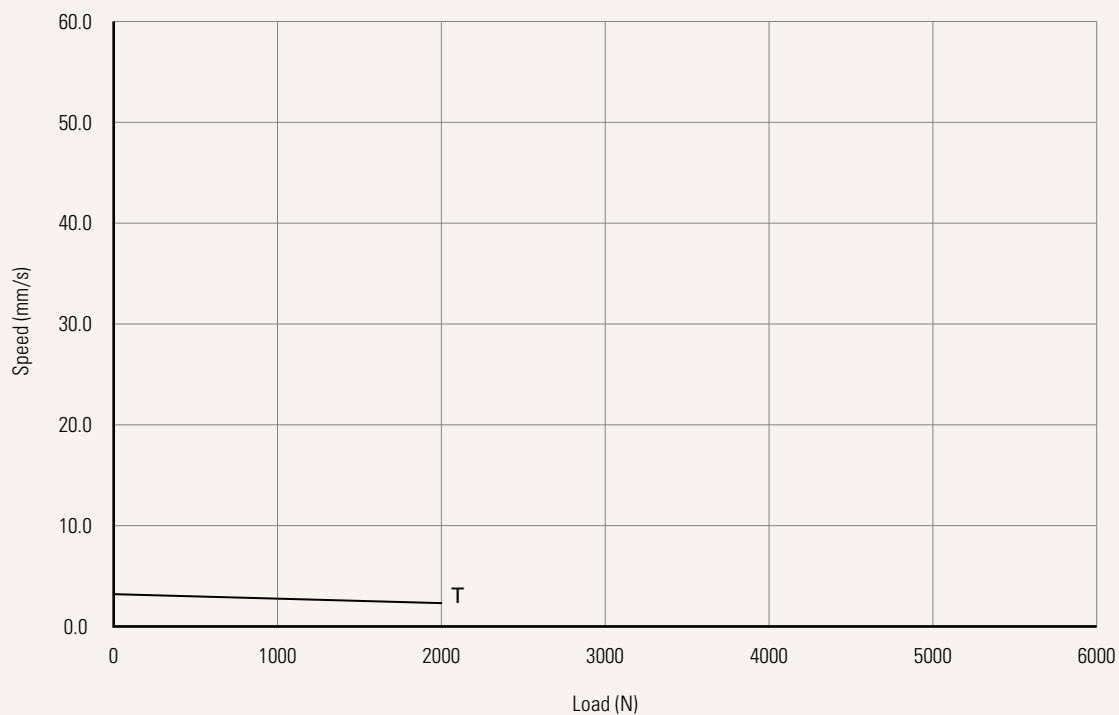
### Note

<sup>1</sup> The performance data in the curve charts shows theoretical value.

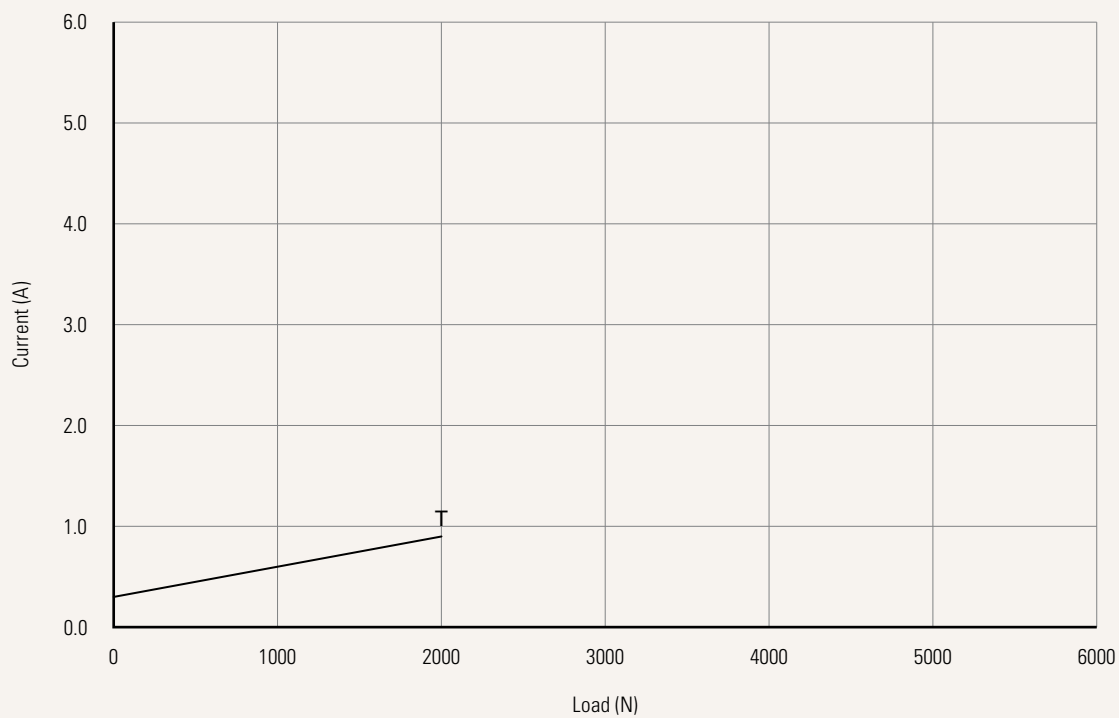
## Performance Data (24V DC)

Motor Speed (2200RPM, duty cycle 25%)

Speed vs. Load



Current vs. Load



### Note

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

|   |  |   |   |                 |
|---|--|---|---|-----------------|
| <b>Voltage</b><br><a href="#">See page 10</a>   | 1 = 12V DC<br>2 = 24V DC   | 3 = 36V DC<br>4 = 48V DC  | 6 = 12V DC, PTC<br>5 = 24V DC, PTC  | 8 = 48V DC, PTC |
| <b>Load and Speed</b>   | <a href="#">See page 3</a>   |   |   |                 |
| <b>Stroke (mm)</b>  | <a href="#">See page 3</a>   |   |   |                 |
| <b>Retracted Length (mm)</b>  | <a href="#">See page 9</a>   |   |   |                 |
| <b>Rear Attachment (mm)</b><br><a href="#">See page 10</a>                            | 1 = Aluminum, slotless, hole 6.4, one piece casting with gearbox<br>2 = Aluminum, slotless, hole 8.0, one piece casting with gearbox<br>3 = Aluminum, slotless, hole 10.0, one piece casting with gearbox  | 4 = Aluminum, U clevis, slot 6.0, depth 10.5, hole 6.4, one piece casting with gearbox<br>5 = Aluminum, U clevis, slot 6.0, depth 10.5, hole 8.0, one piece casting with gearbox<br>6 = Aluminum, U clevis, slot 6.0, depth 10.5, hole 10.0, one piece casting with gearbox |   |                 |
| <b>Front Attachment (mm)</b><br><a href="#">See page 11</a>                           | 1 = Aluminum, slotless, hole 6.4<br>2 = Aluminum, slotless, hole 8.0<br>6 = Aluminum, slotless, hole 10.0  |   | 3 = Aluminum, U clevis, slot 6.0, depth 16.0, hole 10.0<br>4 = Aluminum, U clevis, slot 6.0, depth 16.0, hole 6.4<br>5 = Aluminum, U clevis, slot 6.0, depth 16.0, hole 8.0 |                 |
| <b>Direction of Rear Attachment (Counterclockwise)</b><br><a href="#">See page 11</a> | 1 = 90°<br>2 = 0°  |   |   |                 |
| <b>Function of Limit Switches</b><br><a href="#">See page 12</a>                      | 1 = Two micro switches cut off the actuator at end of stroke (EOS)<br>2 = Two micro switches cut off the actuator at EOS + in-between third one sends signal<br>3 = Two switches at full retracted / extended positions to send signal<br>4 = Two switches at full retracted / extended positions to send signal + third one in between to send signal |   |   |                 |
| <b>Output Signal</b>  | 0 = Without  | 1 = Mechanical pot.   | N = NPN Hall sensor*2   |                 |
| <b>Connector</b><br><a href="#">See page 12</a>                                       | 1 = DIN 6P, 90° plug   | 2 = Tinned leads  |   |                 |
| <b>Cable Length (mm)</b>  | 1 = Straight, 300  | 2 = Straight, 600   | 3 = Straight, 1000  |                 |
| <b>IP Rating</b>  | 1 = Without  | 2 = IP54  | 3 = IP66  | 6 = IP66M       |



## Retracted Length (mm)

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

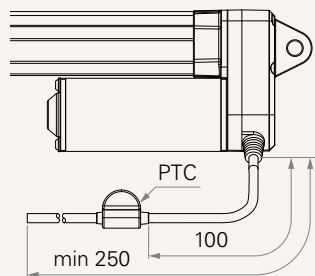
| A. Attachment    |                 |         |
|------------------|-----------------|---------|
| Front Attachment | Rear Attachment |         |
|                  | 1, 2, 3         | 4, 5, 6 |
| 1, 2             | +108            | +112    |
| 3, 4, 5          | +120            | +124    |

| B. Load V.S. Stroke |          |             |
|---------------------|----------|-------------|
| Stroke (mm)         | Load (N) |             |
|                     | < 3500   | $\geq$ 3500 |
| 20~150              | -        | +5          |
| 151~200             | +2       | +7          |
| 201~250             | +2       | +7          |
| 251~300             | +2       | +7          |
| 301~350             | +12      | +17         |
| 351~400             | +22      | +27         |
| 401~450             | +32      | +37         |
| 451~500             | +42      | +47         |
| 501~550             | +52      | +57         |
| 551~600             | +62      | +67         |
| 601~650             | +72      | +77         |
| 651~700             | +82      | +87         |
| 701~750             | +92      | +97         |
| 751~800             | +102     | +107        |
| 801~850             | +112     | +117        |
| 851~900             | +122     | +127        |
| 901~950             | +132     | +137        |
| 951~1000            | +142     | +147        |

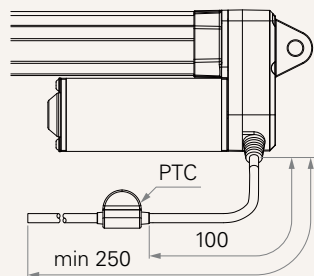
| C. Output Signals |     |  |
|-------------------|-----|--|
| CODE              |     |  |
| 0, N              | -   |  |
| 1, 3              | +30 |  |

## Voltage

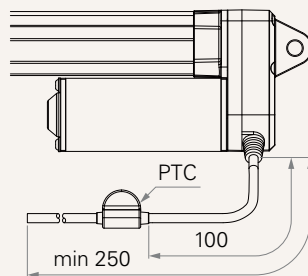
5 = 24V DC, PTC



6 = 12V DC, PTC

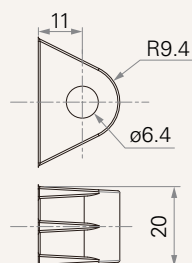


8 = 48V DC, PTC

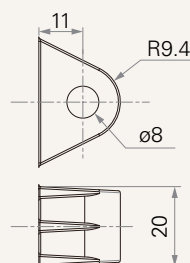


## Rear Attachment (mm)

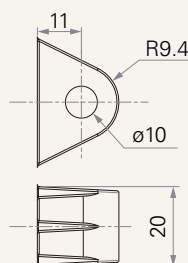
1 = Aluminum, slotless, hole 6.4, one piece casting with gearbox



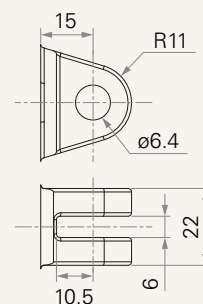
2 = Aluminum, slotless, hole 8.0, one piece casting with gearbox



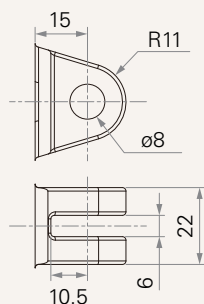
3 = Aluminum, slotless, hole 10.0, one piece casting with gearbox



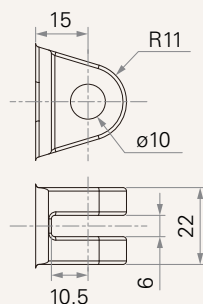
4 = Aluminum, U clevis, slot 6.0, depth 10.5, hole 6.4, one piece casting with gearbox



5 = Aluminum, U clevis, slot 6.0, depth 10.5, hole 8.0, one piece casting with gearbox

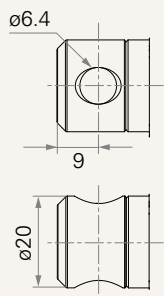


6 = Aluminum, U clevis, slot 6.0, depth 10.5, hole 10.0, one piece casting with gearbox

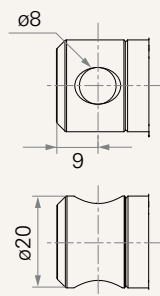


## Front Attachment (mm)

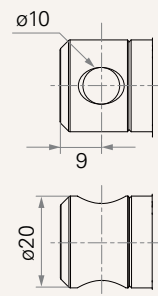
1 = Aluminum, slotless, hole 6.4



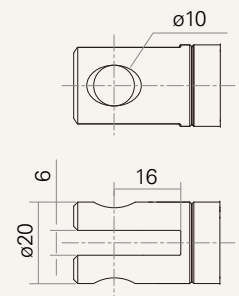
2 = Aluminum, slotless, hole 8.0



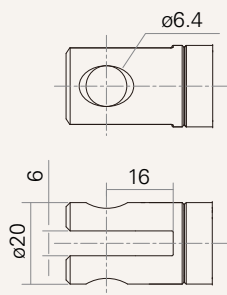
6 = Aluminum, slotless, hole 10.0



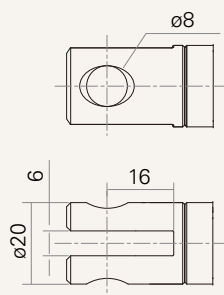
3 = Aluminum, U clevis, slot 6.0, depth 16.0, hole 10.0



4 = Aluminum, U clevis, slot 6.0, depth 16.0, hole 6.4

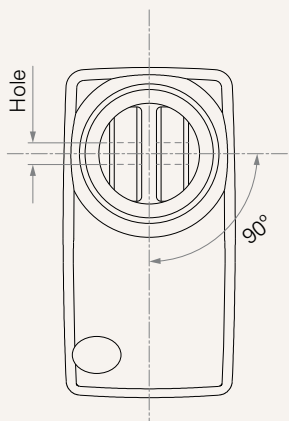


5 = Aluminum, U clevis, slot 6.0, depth 16.0, hole 8.0

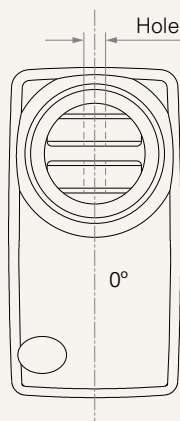


## Direction of Rear Attachment (Counterclockwise)

1 = 90°



2 = 0°

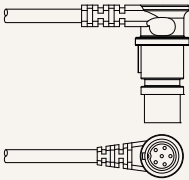


Functions for Limit Switches

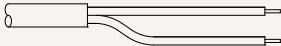
| Wire Definitions |               |         |                     |                     |                |                    |
|------------------|---------------|---------|---------------------|---------------------|----------------|--------------------|
| CODE             | Pin           |         |                     |                     |                |                    |
|                  | 1 (Green)     | 2 (Red) | 3 (White)           | 4 (Black)           | 5 (Yellow)     | 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 |

Connector

1 = DIN 6P, 90° plug



2 = Tinned leads



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.