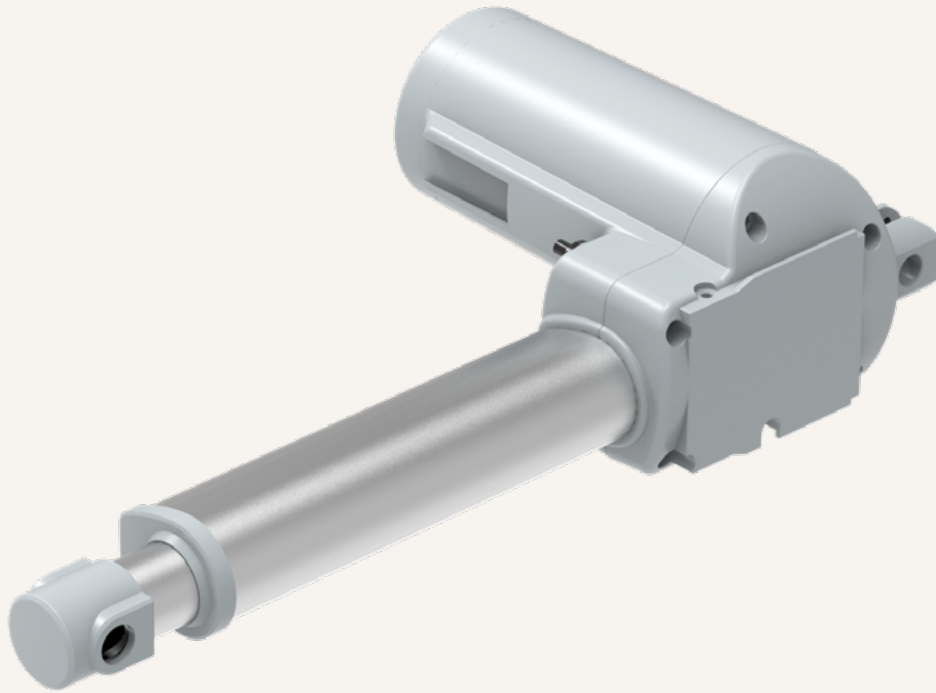


TA31

series



Product Segments

- **Care Motion**

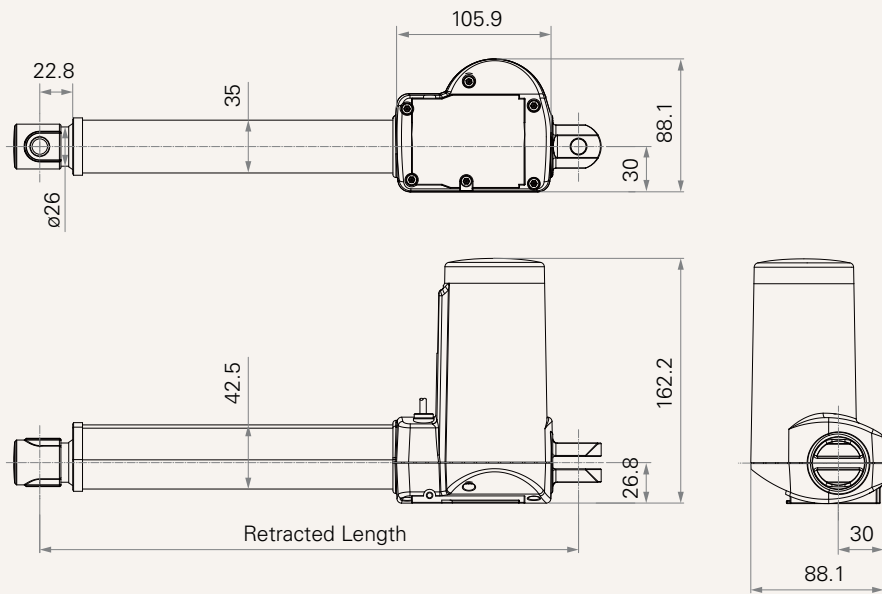
The TA31 is a simplification of our medical grade linear actuators. The TA31's simplicity provides an economical, yet high quality, option for medical applications such as medical beds, medical chairs, or home care options.

General Features

| | |
|--|--|
| Voltage of motor | 24V DC, 24V DC(PTC) |
| Maximum load | 6,000N in push |
| Maximum load | 3,000N in pull |
| Maximum speed at full load | 13.5mm/s (with 2000N in a push or pull condition) |
| Stroke | 25~450mm |
| Minimum installation dimension | Stroke + 157mm |
| Color | Black or grey |
| IP Rating | Up to IP66W |
| Certificate | IEC60601-1, ES60601-1, IEC60601-1-2 |
| Operational temperature range | +5°C~+45°C |
| Options | Safety nut, Hall sensor(s) |
| An economic solution with compact installation dimension | |

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 32V DC | With Load 24V DC | No Load 32V DC | With Load 24V DC |
| Motor Speed (3800RPM, duty cycle 10%) | | | | | | | |
| B | 6000 | 3000 | 6000 | 0.8 | 3.8 | 6.0 | 3.3 |
| D | 3500 | 3000 | 3500 | 0.8 | 4.0 | 12.1 | 6.4 |
| E | 2000 | 2000 | 350 | 0.8 | 3.4 | 24.2 | 13.5 |
| Motor Speed (4500RPM, duty cycle 10%) | | | | | | | |
| H | 5000 | 3000 | 5000 | 1.0 | 4.0 | 7.6 | 4.7 |

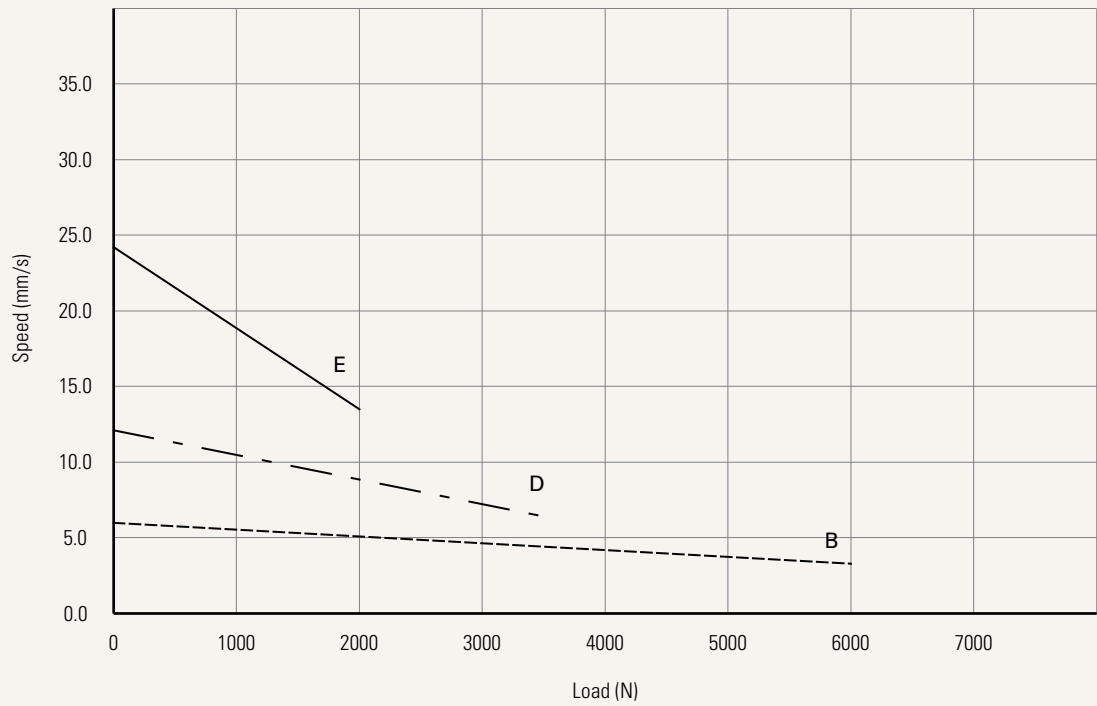
Note

- 1 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.
- 2 Current and speed: Tested average value when extending in push direction.
- 3 Operational temperature range: +5°C~+45°C
- 4 Standard stroke: 25~450mm

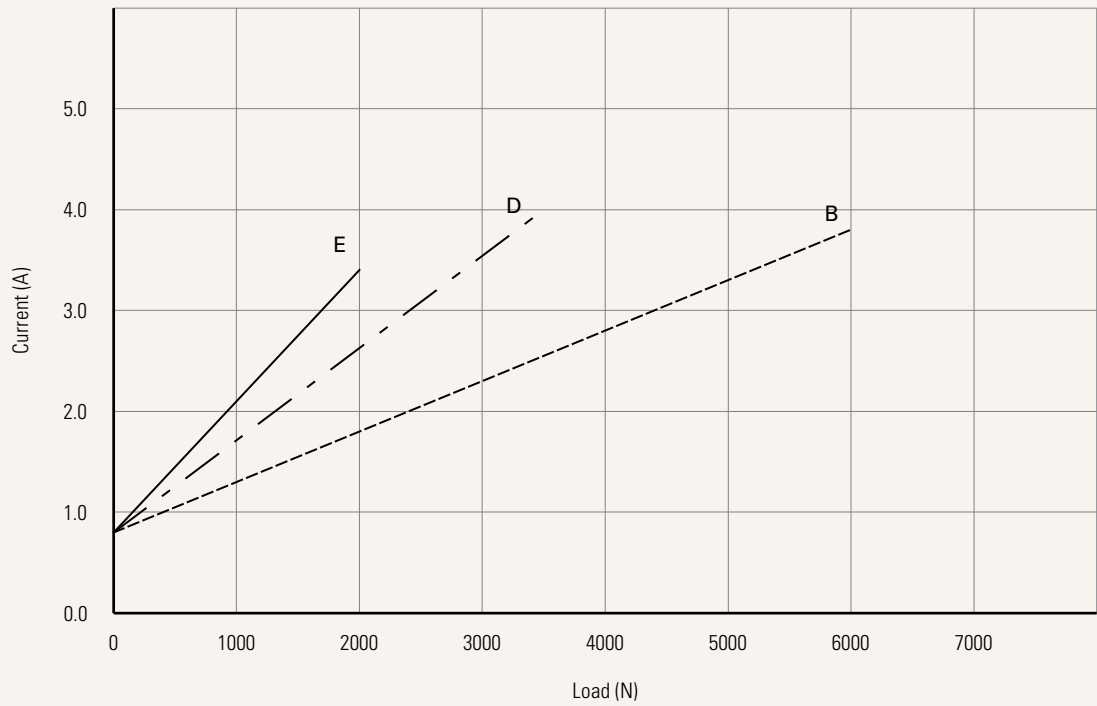
Performance Data (24V DC Motor)

Motor Speed (3800RPM, Duty Cycle 10%)

Speed vs. Load



Current vs. Load



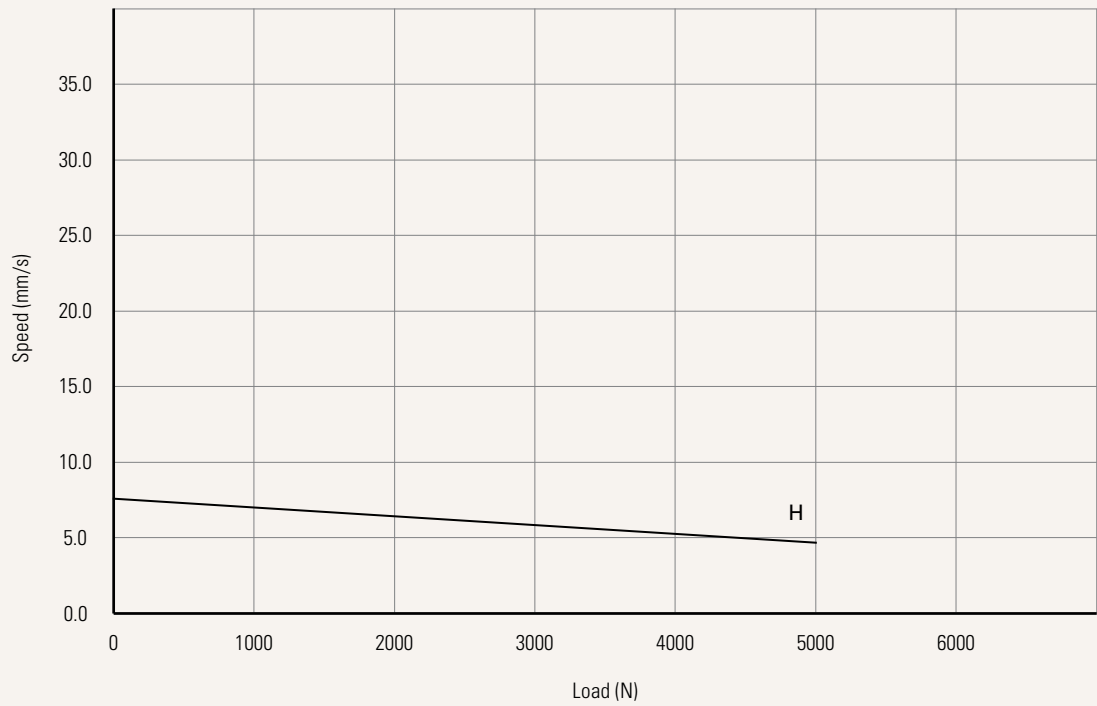
Note

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

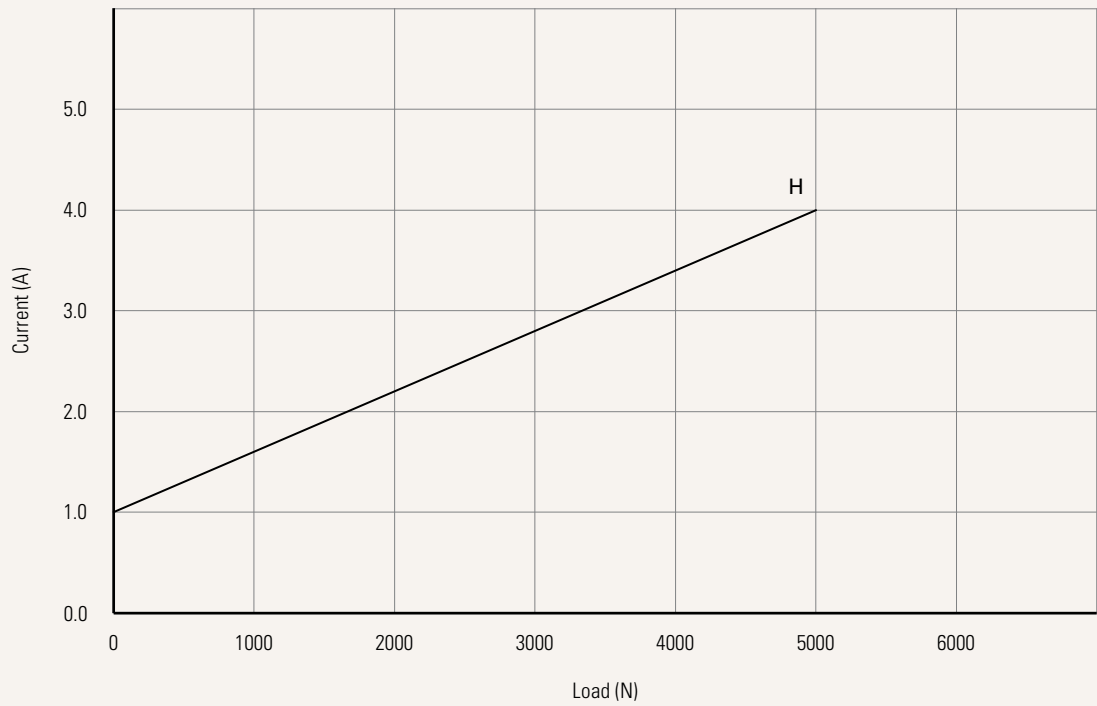
Performance Data (24V DC Motor)

Motor Speed (4500RPM, Duty cycle 10%)

Speed vs. Load



Current vs. Load



Note

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

| | | | | |
|--|---|--|--|-----------------------------|
| Voltage | 2 = 24V DC | 5 = 24VDC, PTC | | |
| Load and Speed | See page 2 | | | |
| Stroke (mm) | | | | |
| Retracted Length (mm) | See page 6 | | | |
| Rear Attachment (mm) | 2 = Plastic, U clevis, width 8.2, depth 17.0, hole 10.2 | 3 = Plastic, U clevis, width 8.2, depth 17.0, hole 12.2 | | |
| | See page 7 | | | |
| Front Attachment (mm) | 1 = Punched hole on inner Aluminum tube + plastic cap, without slot, hole 10.2 | 6 = Punched hole on inner Aluminum tube, without slot, hole 12.2 | | |
| | 2 = Punched hole on inner Aluminum tube + plastic cap, without slot, hole 12.2 | 7 = Aluminum casting, U clevis, width 6.2, depth 17.0, hole 10.2 | | |
| | 3 = Plastic, U clevis, width 8.2, depth 20.0, hole 10.2, for push < 4000N and pull < 2500N | 8 = Aluminum casting, U clevis, width 6.2, depth 17.0, hole 12.2 | | |
| | 4 = Plastic, U clevis, width 8.2, depth 20.0, hole 12.2, for push < 4000N and pull < 2500N | 9 = Aluminum casting, U clevis, width 6.2, depth 17.0, hole 10.2, T bush | | |
| | 5 = Punched hole on inner Aluminum tube, without slot, hole 10.2 | | | |
| Direction of Rear Attachment (Counterclockwise) | 1 = 0° | 3 = 90° | | |
| | See page 8 | | | |
| Color | 1 = Black | 2 = Grey (Pantone 428C) | | |
| IP Rating | 1 = Without | 2 = IP54 | 3 = IP66 | 5 = IP66W |
| Special Functions for Spindle Sub-Assembly | 0 = Without (Standard) | | 2 = Standard push only | |
| | 1 = Safety nut | | 3 = Standard push only + safety nut | |
| 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 + third one in between 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 + third one in between to send signal | | | |
| | 5 = Two switches at full retracted / extended positions to send signal (Operate with control box: TC1, TC8, TC10, TC14; compatible with hall sensors) | | | |
| Output Signals | 0 = Without | 1 = Hall sensor*1 | 2 = Hall sensors*2 | |
| Connector | 1 = DIN 6P, 90° plug | | R = Extension cable, preset on motor cover (cable length 50mm) | |
| | 2 = Tinned leads | | E = Molex 8P, plug | |
| | 4 = Big 01P, plug | | F = DIN 6P, 180° plug | |
| | C = Y cable (direct cut, water proof, anti-pull) | | G = Audio plug | |
| | D = Extension cable, not preset on motor cover (cable length 120mm) | | | |
| Cable Length (mm) | 0 = Straight, 100 | 3 = Straight, 1000 | 6 = Straight, 2000 | B-H = For direct cut system |
| | 1 = Straight, 500 | 4 = Straight, 1250 | 7 = Curly, 200 | See page 9 |
| | 2 = Straight, 750 | 5 = Straight, 1500 | 8 = Curly, 400 | |

Retracted Length (mm)

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

A. Front Attachment

| | |
|-------------------|------|
| 1, 2, 5, 6 | +157 |
| 3, 4 | +182 |
| 7, 8, 9 | +172 |
| B, C | +180 |

B. Load V.S. Stroke

| Stroke (mm) | Load (N) | |
|----------------|----------|--------|
| | < 6000 | = 6000 |
| 25~150 | - | - |
| 151~200 | - | - |
| 201~250 | - | +5 |
| 251~300 | - | +10 |
| 301~350 | +5 | +15 |
| 351~400 | +10 | +20 |
| 401~450 | +15 | +25 |

Note

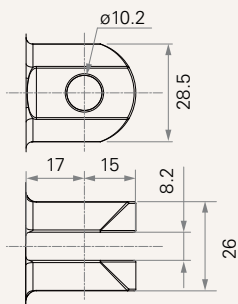
- 1 For stroke over 450mm, please contact our engineers.

C. Special functions for spindle sub-assembly Load V.S. Stroke

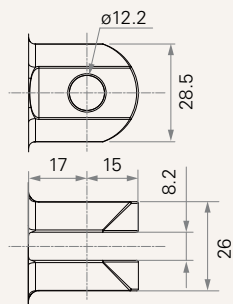
| CODE | Load (N) | |
|----------|----------|--------|
| | < 6000 | = 6000 |
| 0 | - | - |
| 1 | - | - |
| 2 | +5 | +8 |
| 3 | +5 | +8 |

Rear Attachment (mm)

2 = Plastic, U clevis, width 8.2, depth 17.0, hole 10.2

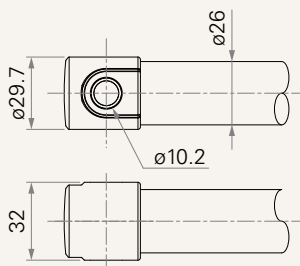


3 = Plastic, U clevis, width 8.2, depth 17.0, hole 12.2

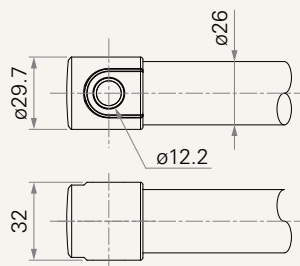


Front Attachment (mm)

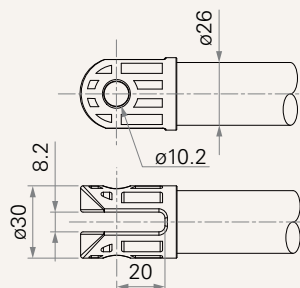
1 = Punched hole on inner Aluminum tube + plastic cap, without slot, hole 10.2



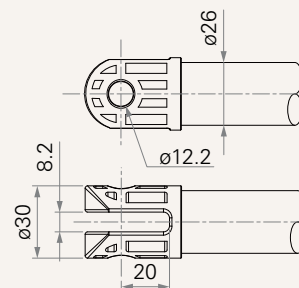
2 = Punched hole on inner Aluminum tube + plastic cap, without slot, hole 12.2



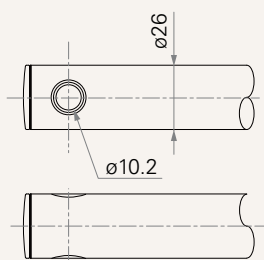
3 = Plastic, U clevis, width 8.2, depth 20.0, hole 10.2, for push < 4000N and pull < 2500N



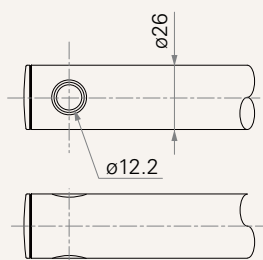
4 = Plastic, U clevis, width 8.2, depth 20.0, hole 12.2, for push < 4000N and pull < 2500N



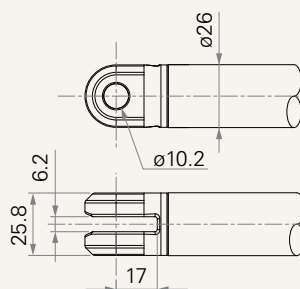
5 = Punched hole on inner Aluminum tube, without slot, hole 10.2



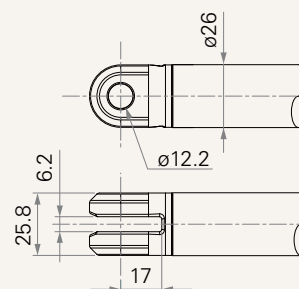
6 = Punched hole on inner Aluminum tube, without slot, hole 12.2



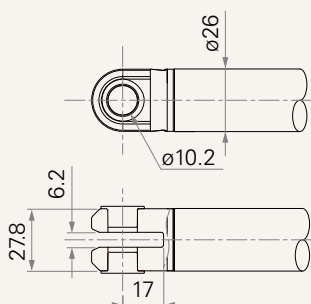
7 = Aluminum casting, U clevis, width 6.2, depth 17.0, hole 10.2



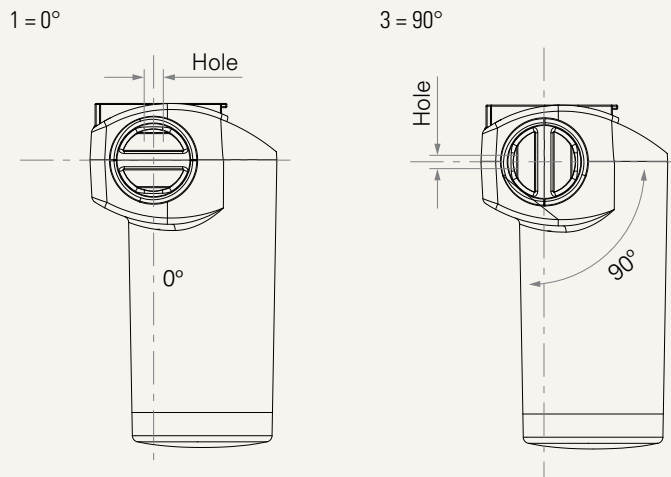
8 = Aluminum casting, U clevis, width 6.2, depth 17.0, hole 12.2



9 = Aluminum casting, U clevis, width 6.2, depth 17.0, hole 10.2, T bush



Direction of Rear Attachment (Counterclockwise)



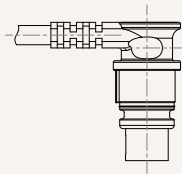
Functions for Limit Switches

Wire Definitions

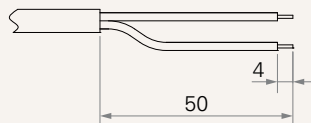
| CODE | Pin | | | | | |
|------|---------------|-----------|---------------------|---------------------|----------------|--------------------|
| | ● 1 (Green) | ● 2 (Red) | ○ 3 (White) | ● 4 (Black) | ● 5 (Yellow) | ● 6 (Blue) |
| 1 | extend (VDC+) | N/A | N/A | N/A | retract (VDC+) | N/A |
| 2 | extend (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 |
| 5 | extend (VDC+) | N/A | upper limit switch | common | retract (VDC+) | lower limit switch |

Connector

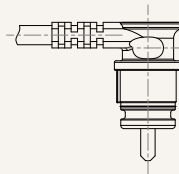
1 = DIN 6P, 90° plug



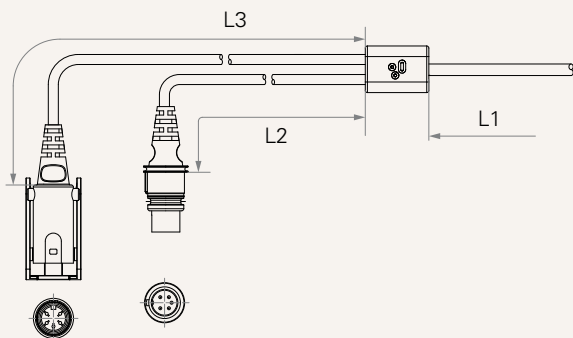
2 = Tinned leads



4 = Big 01P, plug



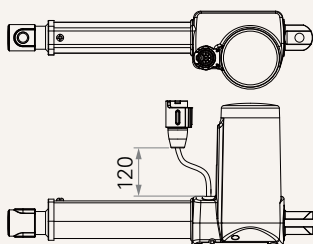
C = Y cable (direct cut, water proof, anti-pull)



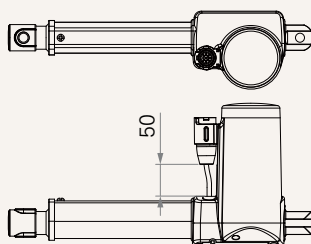
Cable length for direct cut system (mm)

| CODE | L1 | L2 | L3 |
|------|------|------|------|
| B | 100 | 100 | 100 |
| C | 100 | 1000 | 400 |
| D | 100 | 2700 | 500 |
| E | 1000 | 100 | 100 |
| F | 100 | 600 | 1000 |
| G | 1500 | 1000 | 1000 |
| H | 100 | 100 | 1200 |

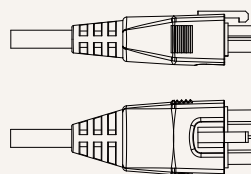
D = Extension cable, not preset on motor cover (cable length 120mm)



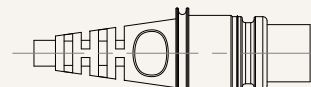
R = Extension cable, preset on motor cover (cable length 50mm)



E = Molex 8P, plug



F = DIN 6P, 180° plug



G = Audio plug



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.