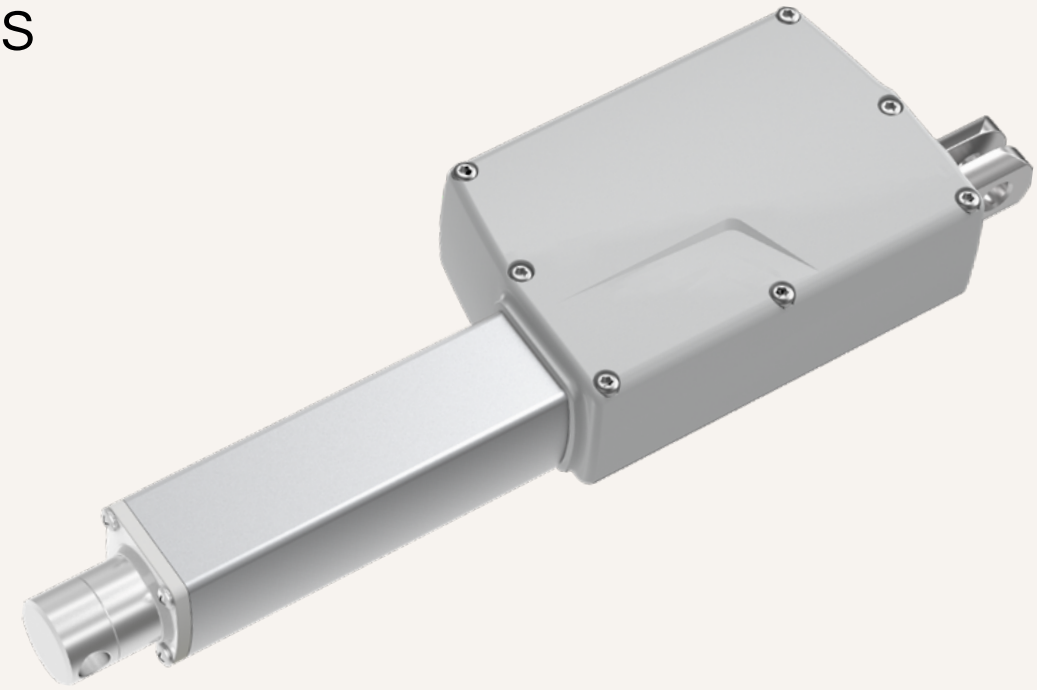
# TA29

series



## Product Segments

- **Care Motion**
- **Ergo Motion**

TiMOTION's TA29 is one of our new generation medical DC linear actuators, which can lift up to 6000N, yet has a small installation dimension. In addition to this, its IP rating is up to IP66W. The TA29 is highly recommended for various medical applications that require a short retracted length, yet need to support a large force, such as the leg adjustment or sling angle actuator on the patient hoist system.

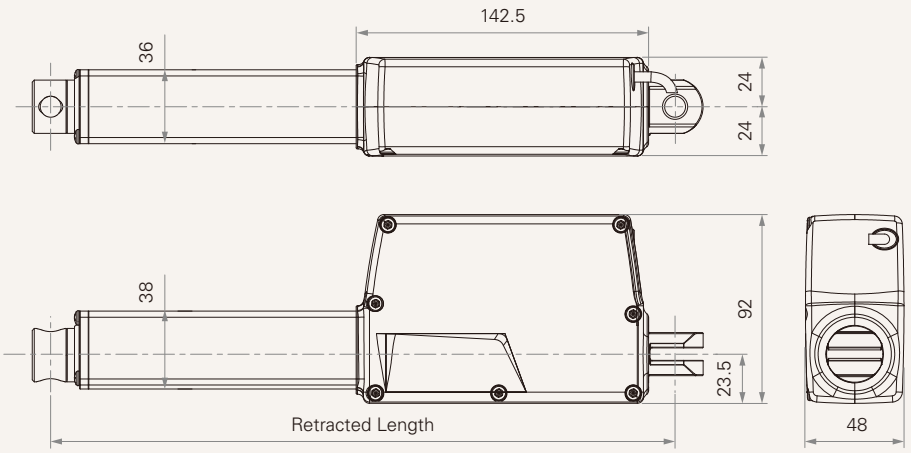
**General Features**

| | |
|---|---|
| Max. load | 6,000N (push);  3,500N (pull) |
| Max. speed at max. load | 3mm/s |
| Max. speed at no load | 30.2mm/s |
| Retracted length | ≥ 178mm (depending on chosen options) |
| IP rating | IP66W |
| Stroke | 25~600mm |
| Output signals | Hall sensors, POT |
| Voltage | 12/24V DC; 12/24V DC (PTC) |
| Color | Black, grey |
| Operational temperature range | +5°C~+45°C |

Suitable for patient hoist application

## 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 (4800RPM, Duty Cycle 10%)** | | | | | | | |
| **B** | 1500 | 1500 | 1500 | 1.5 | 5.0 | 30.2 | 17.7 |
| **C** | 2500 | 2500 | 2500 | 1.5 | 5.0 | 16.0 | 9.1 |
| **D** | 3500 | 3500 | 3500 | 1.5 | 5.0 | 10.9 | 6.5 |
| **E** | 4500 | 3500 | 4500 | 1.5 | 4.5 | 6.5 | 4.0 |
| **P** | 6000 | 3500 | 6000 | 1.5 | 4.5 | 5.5 | 3.0 |
| **Motor Speed (5200RPM, Duty Cycle 10%)** | | | | | | | |
| **H** | 1000 | 1000 | 1000 | 1.5 | 3.5 | 30.0 | 15.0 |
| **K** | 1500 | 1500 | 1500 | 1.5 | 3.5 | 20.0 | 10.0 |
| **L** | 2000 | 2000 | 2000 | 1.5 | 3.7 | 15.0 | 7.5 |
| **M** | 2500 | 2500 | 2500 | 1.5 | 3.7 | 10.0 | 5.0 |
| **N** | 4000 | 3500 | 4000 | 1.5 | 3.7 | 5.4 | 2.8 |

## Note

1 Please refer to the approved drawing for the final authentic value.

2 The current & speed in table are tested when the actuator is extending under push load.

3 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.

4 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; speed will be similar for both voltages.

5 The current & speed in table and diagram are tested with TiMOTION control boxes, and there will be around 10% tolerance depending on different models of the control box. (Under no load condition, the voltage is around 32V DC. At rated load, the voltage output will be around 24V DC)

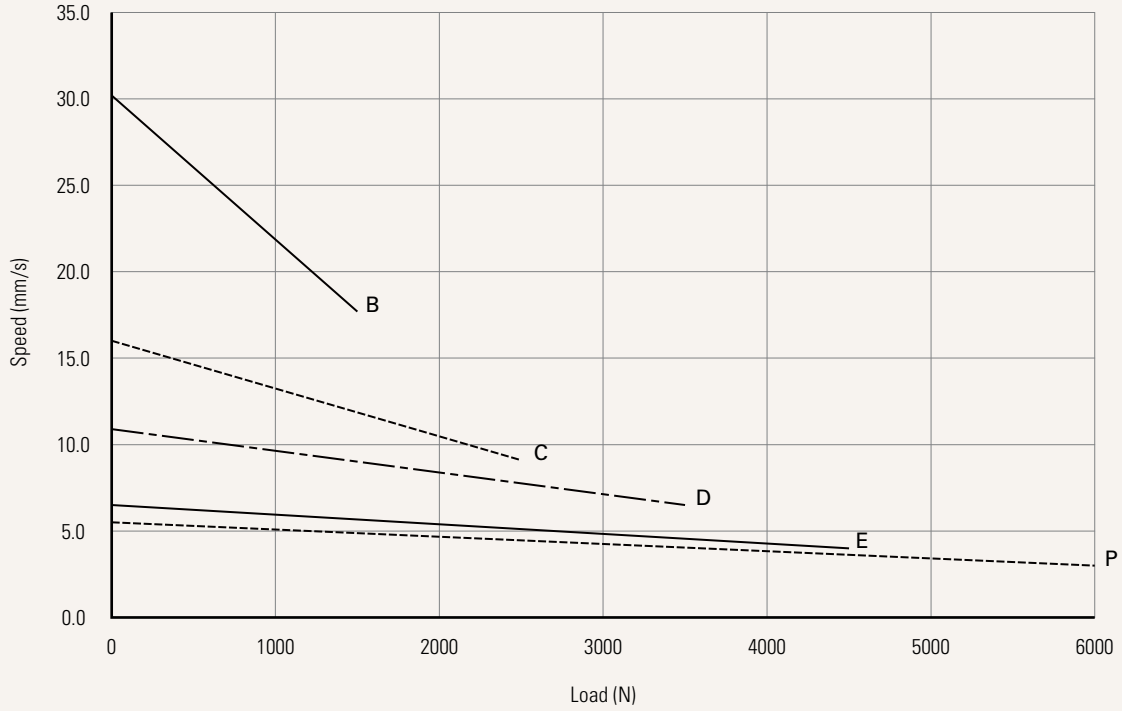
6 Standard stroke: Min. ≥ 25mm, Max. please refer to below table.

| Load (N) | Max Stroke (mm) |
|---|---|
| **6000** | 450 |
| **3500 ≤ load ≤ 4500** | 600 |
| **< 3500** | 1000 |

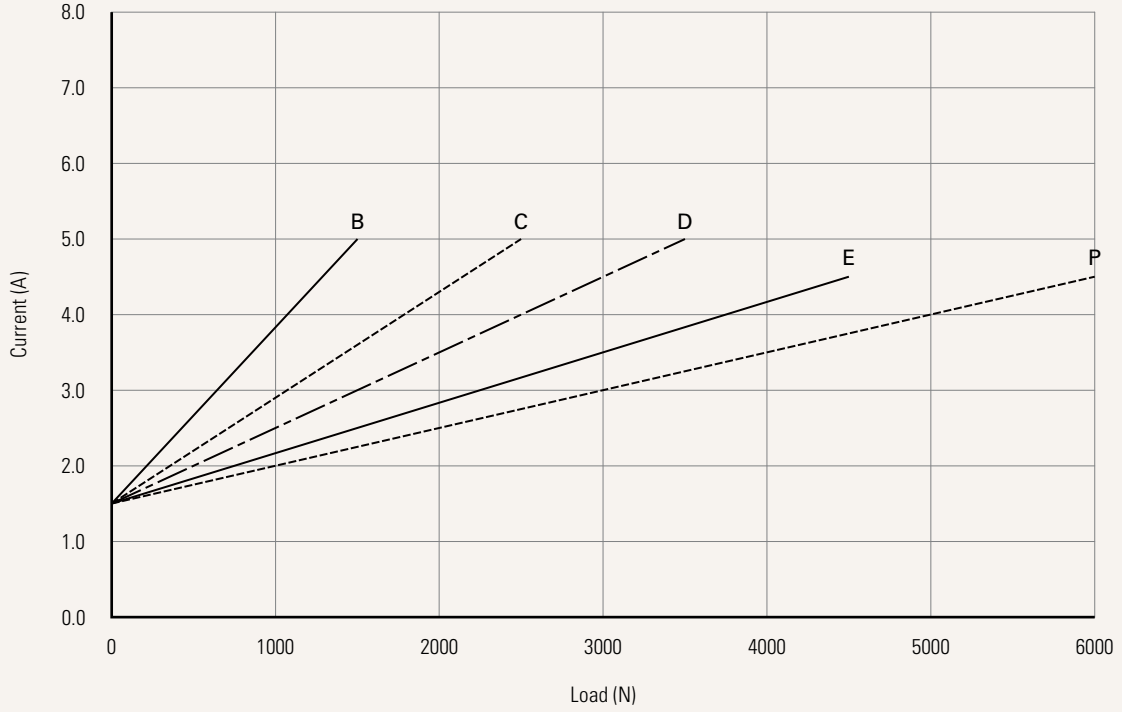
**Performance Data (24V DC Motor)**

Motor Speed (4800RPM, Duty Cycle 10%)

Speed vs. Load



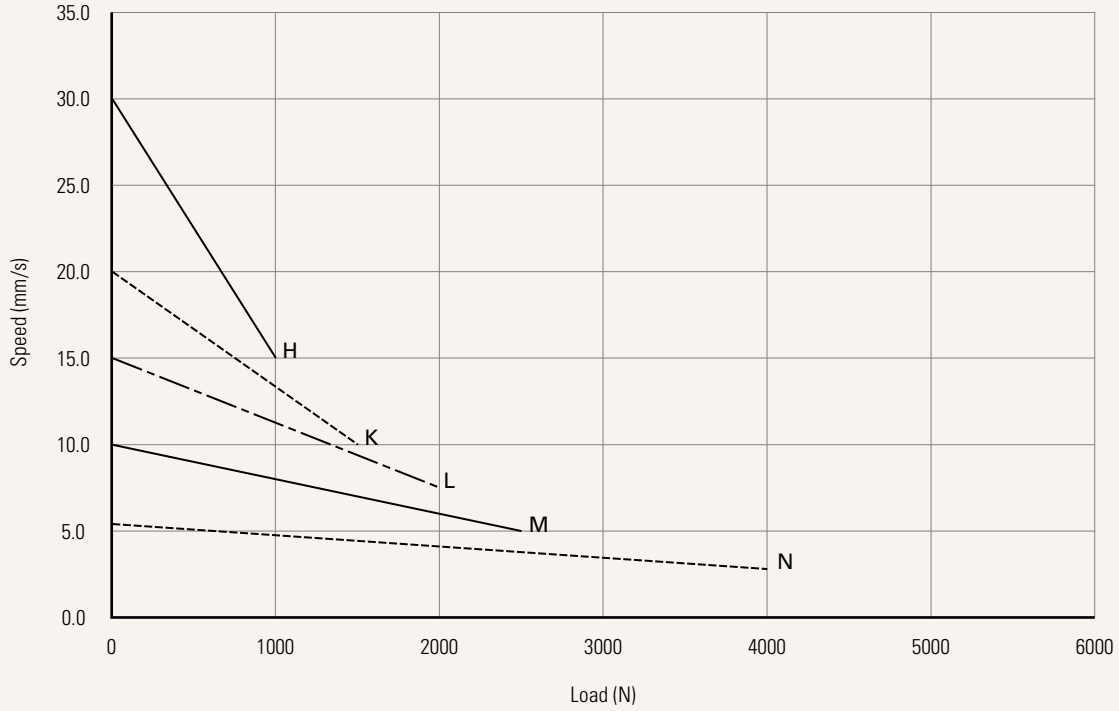

Current vs. Load



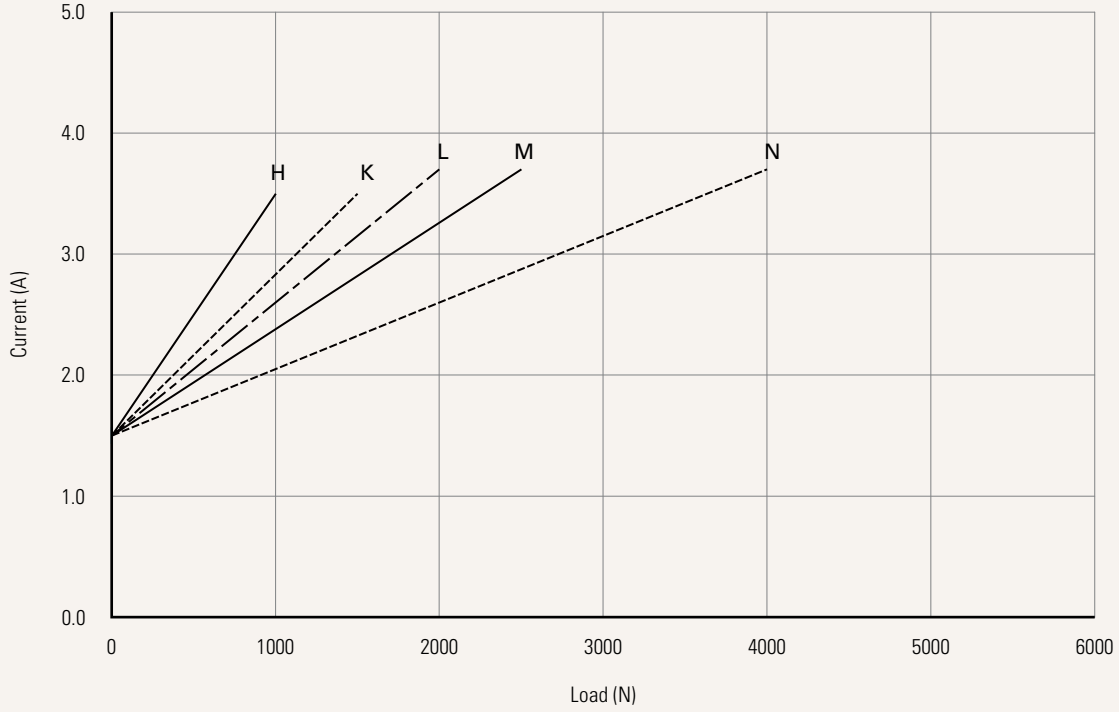
**Performance Data (24V DC Motor)**

Motor Speed (5200RPM, Duty Cycle 10%)

Speed vs. Load




Current vs. Load



# **TA29** Ordering Key

TiMOTION

TA29

Version: 20240524-N

| | | | | |
|---|---|---|---|---|
| **Voltage** | 1 = 12V DC | 2 = 24V DC | 5 = 24V DC, PTC | 6 = 12V DC, PTC |
| **Load and Speed** | See page 2 | | | |
| **Stroke (mm)** | See page 2 | | | |
| **Retracted Length (mm)** | See page 6 | | | |
| **Rear Attachment (mm)** See page 7 | 3 = Aluminum casting, U clevis, slot 6.2, depth 12.2, hole 10.2 | | 4 = Aluminum casting, U clevis, slot 6.2, depth 12.2, hole 12.2 | |
| **Front Attachment (mm)** See page 7 | 3 = Aluminum CNC, without slot, hole 10.2 | | 4 = Aluminum CNC, without slot, hole 12.2 | |
| **Direction of Rear Attachment (Counterclockwise)** See page 7 | 1 = 90° | 2 = 0° | | |
| **Color** | 1 = Black | 2 = Pantone 428C | | |
| **IP Rating** | 1 = Without | 2 = IP54 | 3 = IP66 | 5 = IP66W |
| **Special Functions for Spindle Sub-Assembly** | 0 = Without (Standard)<br>1 = Safety nut | | 2 = Standard push only<br>3 = Standard push only + safety nut | |
| **Functions for Limit Switches** See page 8 | 1 = Two switches at full retracted / extended positions to cut current<br>2 = Two switches at full retracted / extended positions to cut current + third one in between to send 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<br>5 = Two switches at full retracted/extended positions to send signal (Operate with control box: TC1, TC8, TC10, TC14) | | | |
| **Output Signals** | 0 = Without | 2 = Hall sensor * 2 | P = POT | |
| **Connector** See page 8 | 1 = DIN 6P, 90° plug<br>2 = Tinned leads<br>4 = Big 01P, plug<br>C = Y cable (For direct cut system, water proof, anti pull) | | E = Molex 8P, plug<br>F = DIN 6P, 180° plug<br>Q = Molex 6P, 90° plug | |
| **Cable Length (mm)** | 0 = Straight, 100<br>1 = Straight, 500<br>2 = Straight, 750 | 3 = Straight, 1000<br>4 = Straight, 1250<br>5 = Straight, 1500 | 6 = Straight, 2000<br>7 = Curly, 200<br>8 = Curly, 400 | B~H = For direct cut system See page 8 |

# **TA29** Ordering Key Appendix

## Retracted Length (mm)

1. Calculate A+B+C+D = Y
2. Retracted length needs to ≥ Stroke + Y
3. Retracted length needs to > 178mm

| **A. Front Attachment** | |
|---|---|
| **3, 4** | +115 |

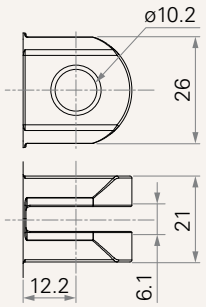
| **B. Stroke (mm)** | Load (N) | | | | |
|---|---|---|---|---|---|
| | < 3500 | 3500 | 4000 | 4500 | 6000 |
| **25~150** | - | +7 | +7 | +12 | +27 |
| **151~200** | +5 | +15 | +15 | +20 | +35 |
| **201~250** | +5 | +15 | +15 | +20 | +35 |
| **251~300** | +10 | +20 | +20 | +25 | +40 |
| **301~350** | +10 | +20 | +20 | +25 | +40 |
| **351~400** | +15 | +25 | +25 | +30 | +45 |
| **401~450** | +20 | +30 | +30 | +35 | +50 |
| **451~500** | +25 | +35 | +35 | +40 | +55 |
| **501~550** | +30 | +40 | +40 | +45 | +60 |
| **551~600** | +35 | +45 | +45 | +50 | +65 |

| **C. Spindle Functions** | Load (N) | | | | |
|---|---|---|---|---|---|
| | < 3500 | 3500 | 4000 | 4500 | 6000 |
| **0** | - | - | - | - | - |
| **1** | +19 | +12 | +12 | +12 | +12 |
| **2** | +6 | +6 | +6 | +6 | +6 |
| **3** | +25 | +18 | +18 | +18 | +18 |

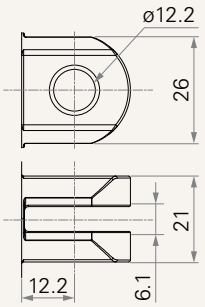
| **D. Output Signals** | |
|---|---|
| **P_POT** | +20 |

## Rear Attachment (mm)

3 = Aluminum casting, U clevis, slot 6.2, depth 12.2, hole 10.2

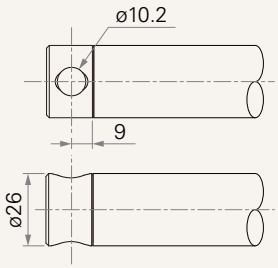



4 = Aluminum casting, U clevis, slot 6.2, depth 12.2, hole 12.2

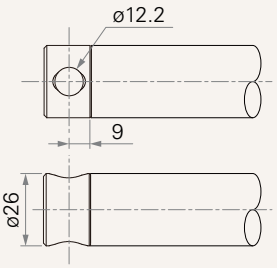



## Front Attachment (mm)

3 = Aluminum CNC, without slot, hole 10.2

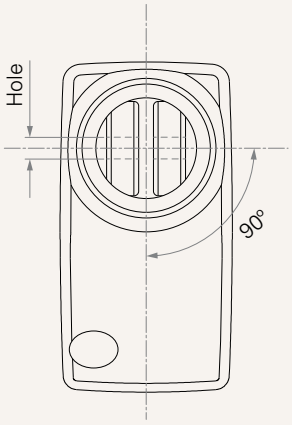



4 = Aluminum CNC, without slot, hole 12.2

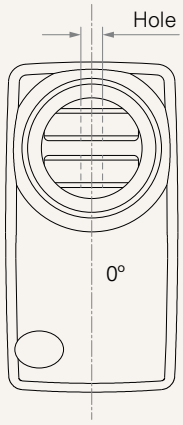



## Direction of Rear Attachment (Counterclockwise)

1 = 90°




2 = 0°



# **TA29** Ordering Key Appendix

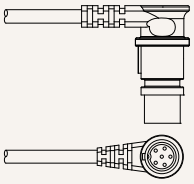
## Functions for Limit Switches

**Wire Definitions**

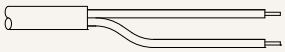
| CODE | Pin | | | | | |
|---|---|---|---|---|---|---|
| | 1 (Green) | 2 (Red) | 3 (White) | 4 (Black) | 5 (Yellow) | 6 (Blue) |
| **1** | extend (VDC+) | N/A | N/A | N/A | retract (VDC+) | N/A |
| **2** | extend (VDC+) | N/A | middle switch pin B | middle switch pin A | retract (VDC+) | N/A |
| **3** | 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

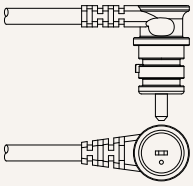
1 = DIN 6P, 90° plug



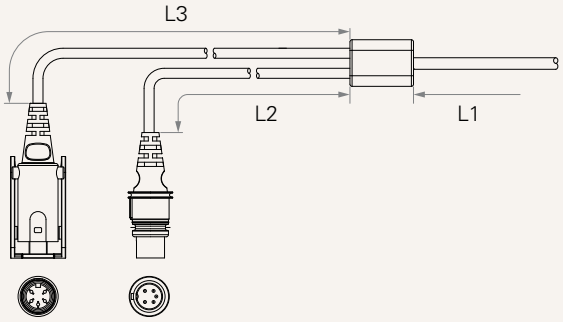
2 = Tinned leads



4 = Big 01P, plug



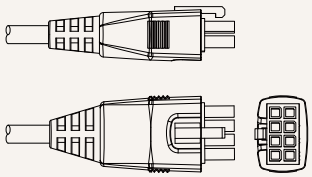
C = Y cable (for direct cut system, water proof, anti pull)



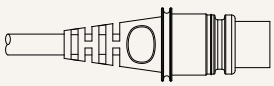

**Cable Length for Direct Cut System (mm)**

| 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 |

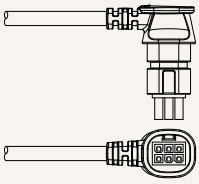
E = MOLEX 8P, plug



F = DIN 6P, 180° plug



Q = Molex 6P, 90° plug



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