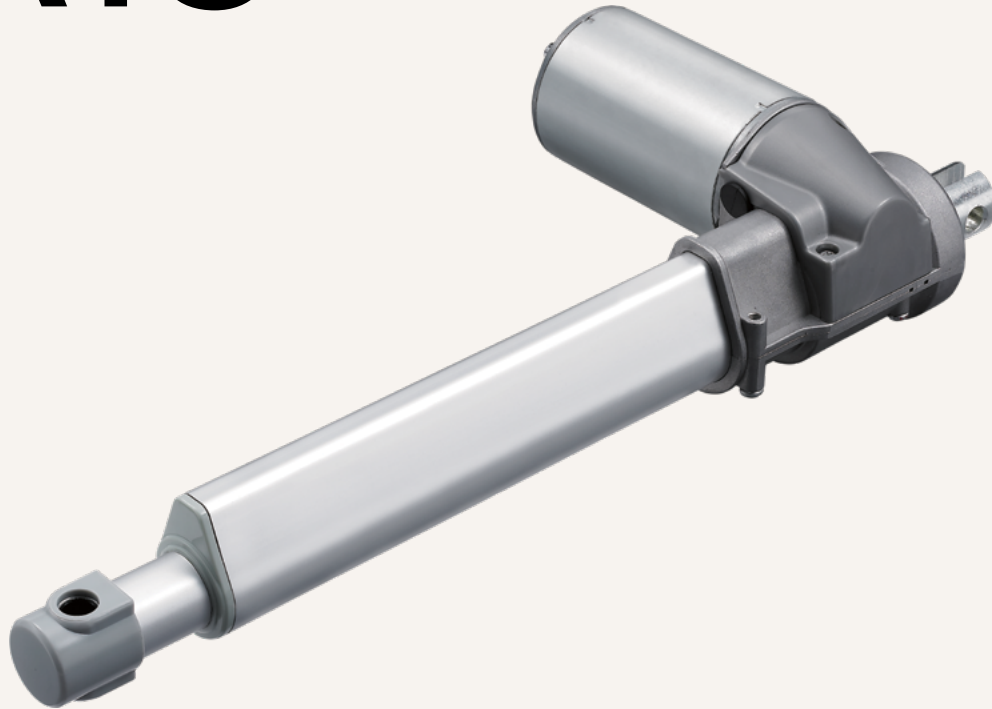


# TA13

series



## Product Segments

- **Care Motion**

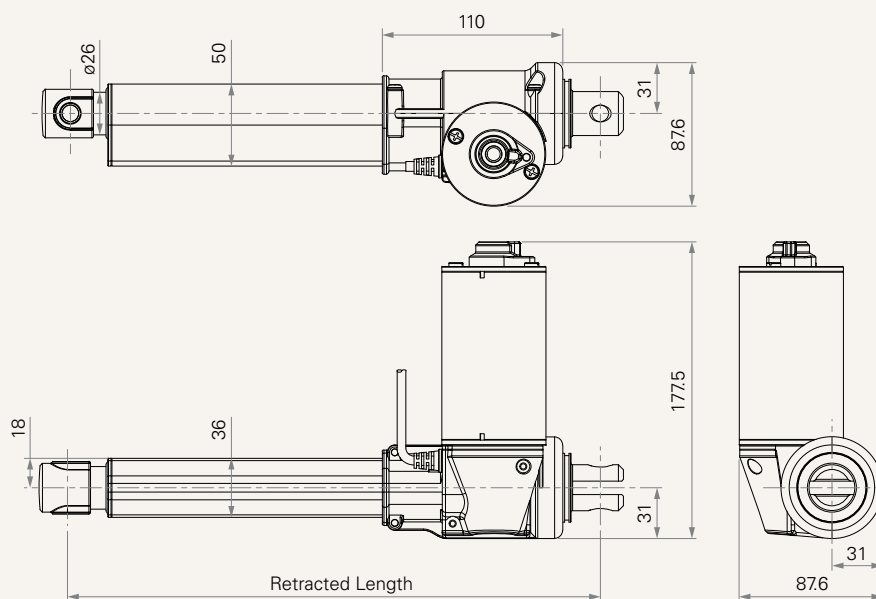
TiMOTION's TA13 series linear actuator is designed primarily for dental chairs requiring high-push load solutions, but can also be applied to a wide range of other medical applications. The TA13 supports load ratings up to 10000N. Its speed is up to 32.2mm/s even under the load of 1500N. Certificates for the TA13 include IEC60601-1 and ES60601-1.

### General Features

Max. load	10,000N (push); 5,500N (pull)
Max. speed at max. load	4.5mm/s
Max. speed at no load	49.4mm/s
Retracted length	≥ Stroke + 185mm
Certificate	IEC60601-1, ES60601-1, EMC
Stroke	25~1000mm
Options	Hall sensors, Reed sensor, push only
Voltage	24/36V DC, PTC or thermal protector
Color	Black or grey
Operational temperature range at full performance	+5°C~+45°C
Suitable for dentist chair 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
<b>Motor Speed (3000RPM, Duty Cycle 10%)</b>							
<b>T</b>	8000	4000	8000	2.5	6.0	7.9	4.4
<b>Motor Speed (3800RPM, Duty Cycle 10%)</b>							
<b>B</b>	10000	4000	10000	2.5	8.5	8.0	4.5
<b>C</b>	8000	4000	8000	2.5	8.5	10.7	6.0
<b>D</b>	5500	5500	5500	2.5	8.0	14.4	8.1
<b>E</b>	3000	3000	3000	3.0	7.0	25.8	15.7
<b>F</b>	1500	1500	1500	2.5	6.5	49.4	32.2

## Note

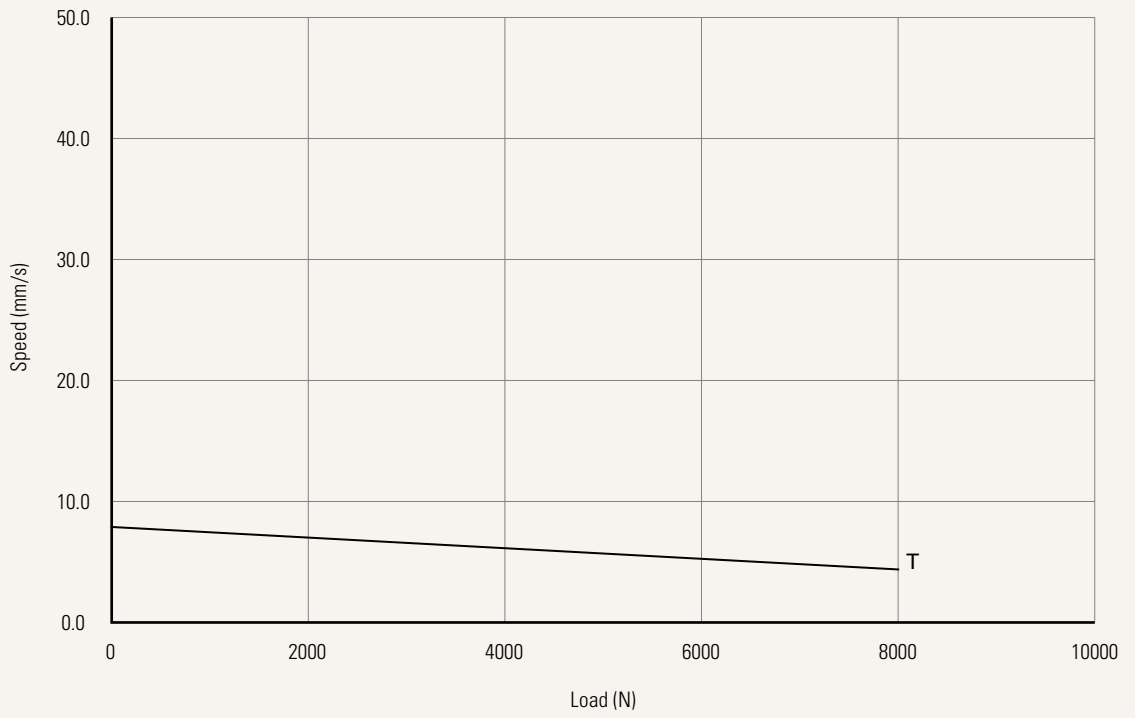
- 1 Please refer to the approved drawing for the final authentic value.
- 2 This self-locking force level is reached only when a short circuit is applied on the terminals of the motor. All the TiMOTION control boxes have this feature built-in.
- 3 The current & speed in table are tested with 24V DC motor. 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 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.  $\geq 25$ mm, Max. please refer to below table.

CODE	Load (N)	Max Stroke (mm)
<b>B</b>	10000	700
<b>T, C</b>	8000	750
<b>D</b>	5500	800
<b>E</b>	3000	900
<b>F</b>	1500	1000

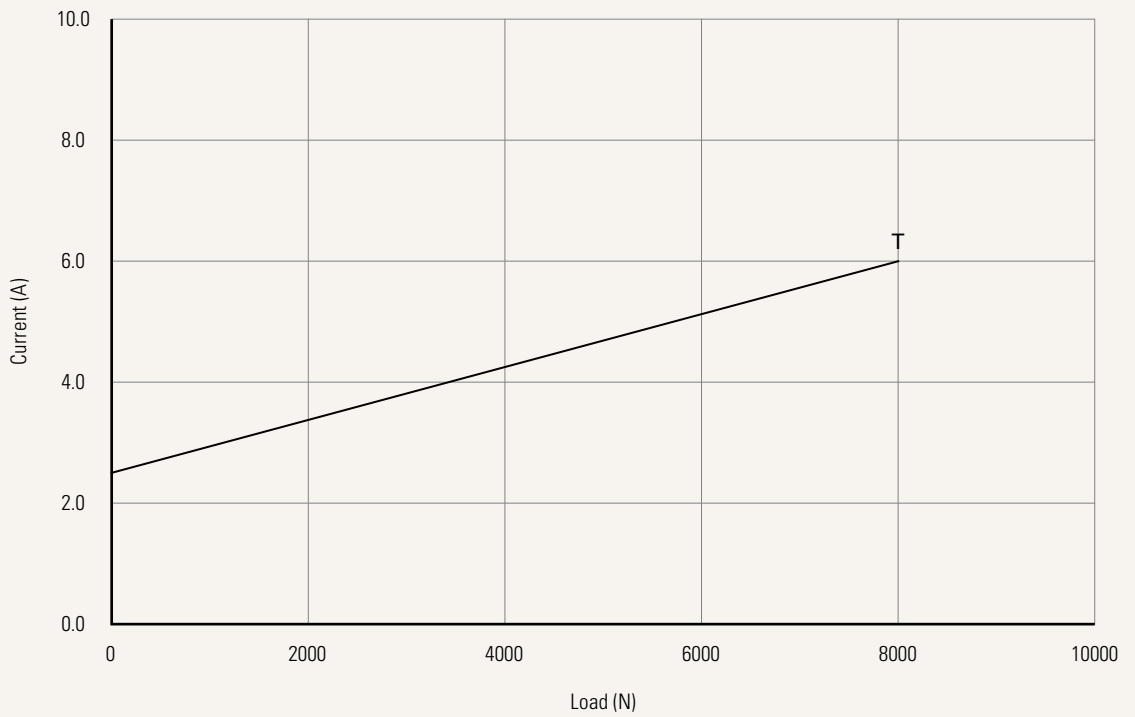
**Performance Data (24V DC Motor)**

Motor Speed (3000RPM, Duty Cycle 10%)

Speed vs. Load



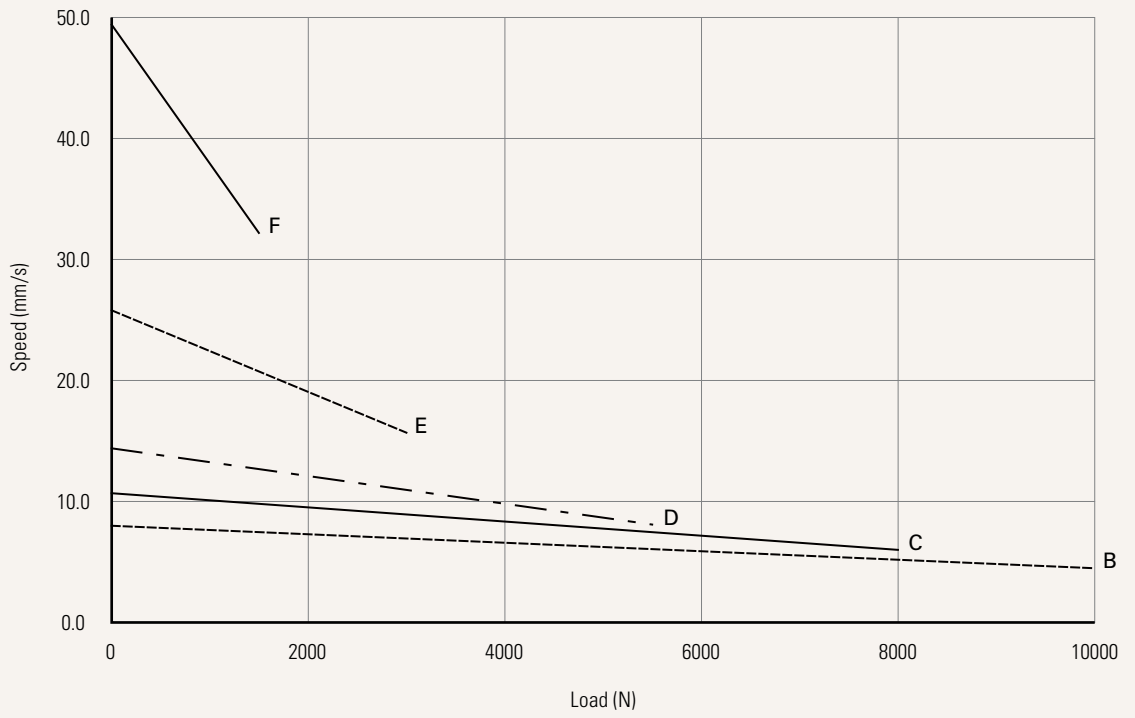
Current vs. Load



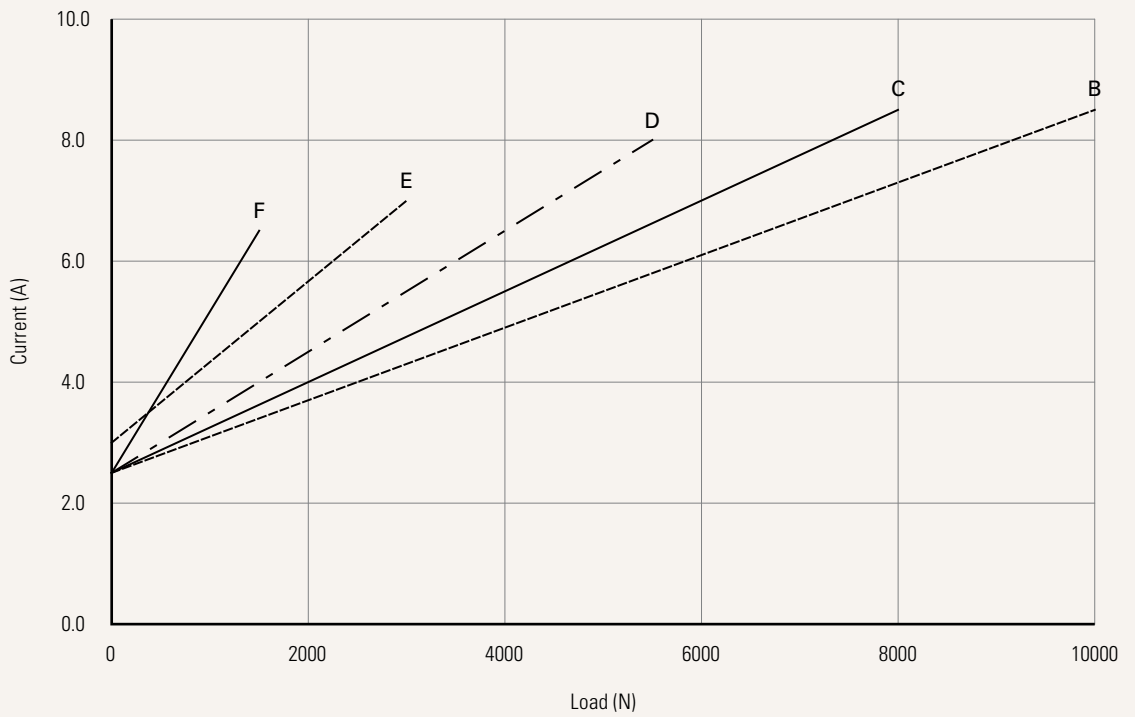
**Performance Data (24V DC Motor)**

Motor Speed (3800RPM, Duty Cycle 10%)

Speed vs. Load



Current vs. Load



<b>Voltage</b>	5 = 24V DC, PTC or thermal protector	7 = 36V DC, PTC or thermal protector
<b>Load and Speed</b>	<a href="#">See page 2</a>	
<b>Stroke (mm)</b>	<a href="#">See page 2</a>	
<b>Retracted Length (mm)</b>	<a href="#">See page 6</a>	
<b>Rear Attachment (mm)</b>	1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing <a href="#">See page 7</a>	3 = Iron CNC, U clevis, slot 10.2, depth 17, hole 10.2, with plastic T-bushing 4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2
<b>Front Attachment (mm)</b>	1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing <a href="#">See page 7</a>	B = Punched hole on inner tube + plastic cap, width 32, without slot, hole 10.2 C = Punched hole on inner tube + plastic cap, width 32, without slot, hole 12.2 J = Aluminum casting, without slot, hole 10.2, for dental chair
<b>Direction of Rear Attachment (Counterclockwise)</b>	1 = 0°	3 = 90° <a href="#">See page 7</a>
<b>Color</b>	1 = Black (Pantone Cool Gray 9C cable cover + black cable) 2 = Grey (Pantone Cool Gray 9C cable cover + Pantone 428C cable)	
<b>Quick Release</b>	0 = Without	
<b>Special Functions for Spindle Sub-Assembly</b>	0 = Without (Standard) 1 = Safety nut	2 = Standard push only 3 = Standard push only + safety nut
<b>Functions for Limit Switches</b>	1 = Two switches at full retracted / extended positions to cut current <a href="#">See page 8</a> 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	
<b>Output Signal</b>	0 = Without	2 = Hall sensor*2 3 = Reed sensor
<b>Plug</b>	1 = DIN 6P, 90° plug <a href="#">See page 8</a> 2 = Tinned leads	M = DIN 4P, dental chair plug (40510-143, standard) N = DIN 4P, dental chair plug (40510-040)
<b>Cable Length (mm)</b>	1 = Straight, 500 2 = Straight, 750	3 = Straight, 1000 4 = Straight, 1250 5 = Straight, 1500 6 = Straight, 2000 7 = Curly, 200 8 = Curly, 400

## Retracted Length (mm)

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

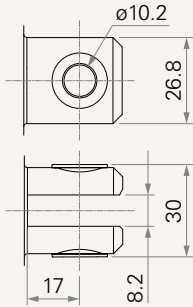
A. Front Attach.	
1, 2, 3, 4	+185
B, C	+180
J	+180

C. Load.	
B	+5
T, C	-
D, E, F	-

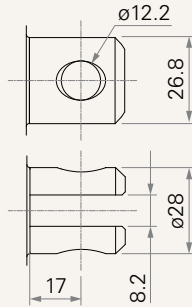
B. Stroke (mm)	
25~150	-
151~200	-
201~250	-
251~300	-
301~350	+10
351~400	+20
401~450	+30
451~500	+40
501~550	+50
551~600	+60
601~650	+70
651~700	+80
701~750	+90
751~800	+100
801~850	+110
851~900	+120
901~950	+130
951~1000	+140

## Rear Attachment (mm)

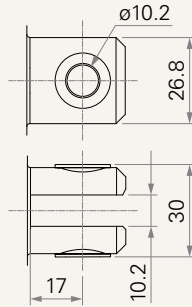
1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing



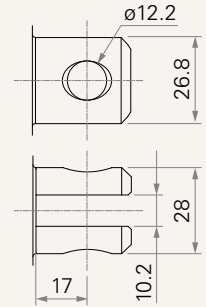
2 = Iron CNC, U clevis, slot 8.2, depth 17, hole 12.2



3 = Iron CNC, U clevis, slot 10.2, depth 17, hole 10.2, with plastic T-bushing

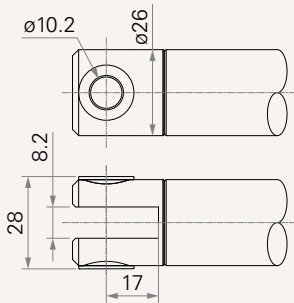


4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2

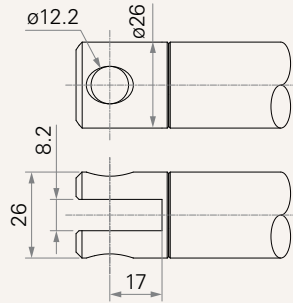


## Front Attachment (mm)

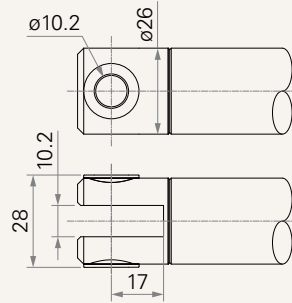
1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing



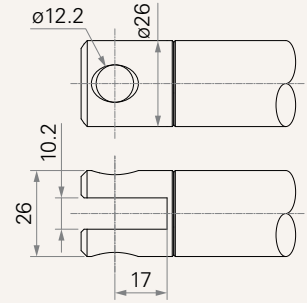
2 = Iron CNC, U clevis, slot 8.2, depth 17, hole 12.2



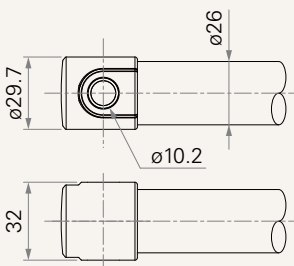
3 = Iron CNC, U clevis, slot 10.2, depth 17, hole 10.2, with plastic T-bushing



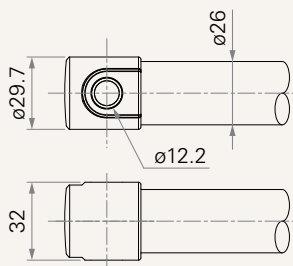
4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2



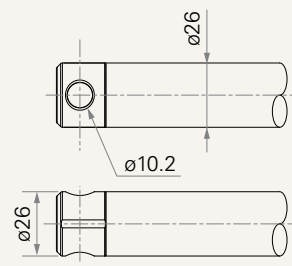
B = Punched hole on inner tube + plastic cap, width 32, without slot, hole 10.2



C = Punched hole on inner tube + plastic cap, width 32, without slot, hole 12.2

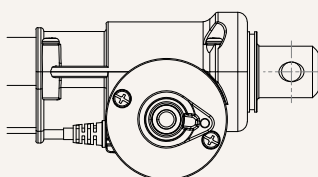


J = Aluminum casting, without slot, hole 10.2, for dental chair

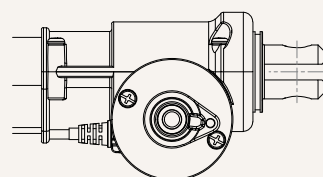


## Direction of Rear Attachment (Counterclockwise)

1 = 0°



3 = 90°



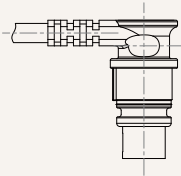
## Functions for Limit Switches

### Wire Definitions

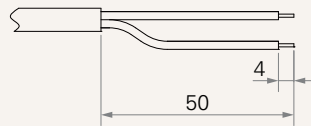
CODE	Pin					
	● 1 (Green)	● 2 (Red)	○ 3 (White)	● 4 (Black)	● 5 (Yellow)	● 6 (Blue)
1	extend (VDC+)	N/A	N/A	N/A	retract (VDC+)	N/A
2	extend (VDC+)	N/A	middle switch pin B	middle switch pin A	retract (VDC+)	N/A
3	extend (VDC+)	common	upper limit switch	N/A	retract (VDC+)	lower limit switch
4	extend (VDC+)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

### Plug

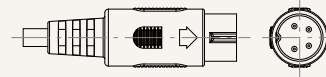
1 = DIN 6P, 90° plug



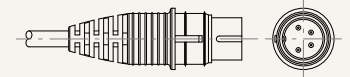
2 = Tinned leads



M = DIN 4P, dental chair plug (40510-143, standard)



N = DIN 4P, dental chair plug (40510-040)



### 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.