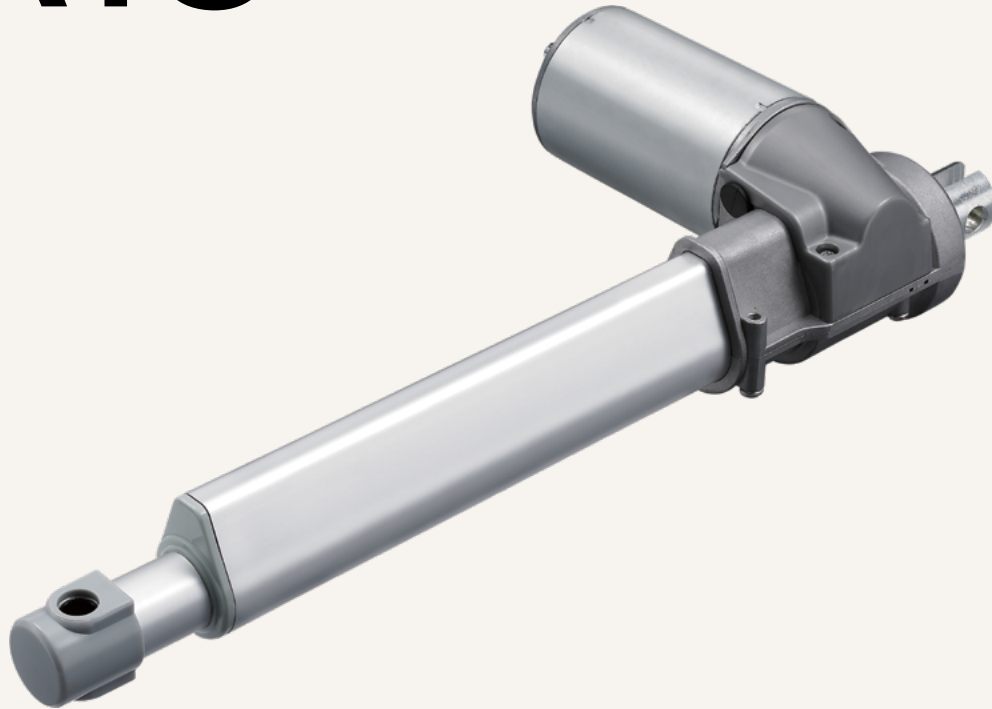


TA13

series



Product Segments

- **Care Motion**

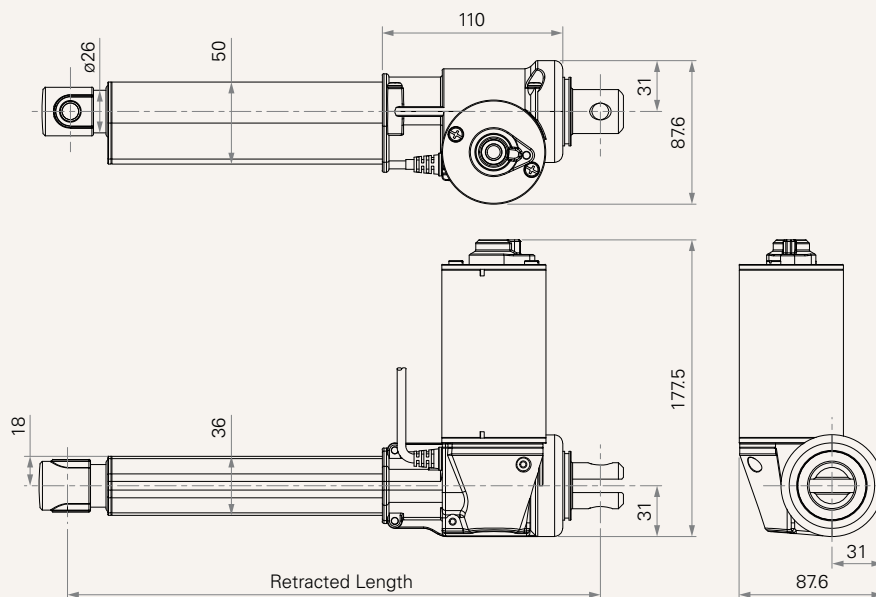
TiMOTION's TA13 series linear actuator is designed primarily for dental chairs requiring high-push load solutions, but can also be applied to a wide range of other medical applications. The TA13 supports load ratings up to 10000N. Its speed is up to 32.2mm/s even under the load of 1500N. Certificates 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 + 180mm
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
Motor Speed (3000RPM, Duty Cycle 10%)							
T	8000	4000	8000	2.5	6.0	7.9	4.4
Motor Speed (3800RPM, Duty Cycle 10%)							
B	10000	4000	10000	2.5	8.5	8.0	4.5
C	8000	4000	8000	2.5	8.5	10.7	6.0
D	5500	5500	5500	2.5	8.0	14.4	8.1
E	3000	3000	3000	3.0	7.0	25.8	15.7
F	1500	1500	1500	2.5	6.5	49.4	32.2

Note

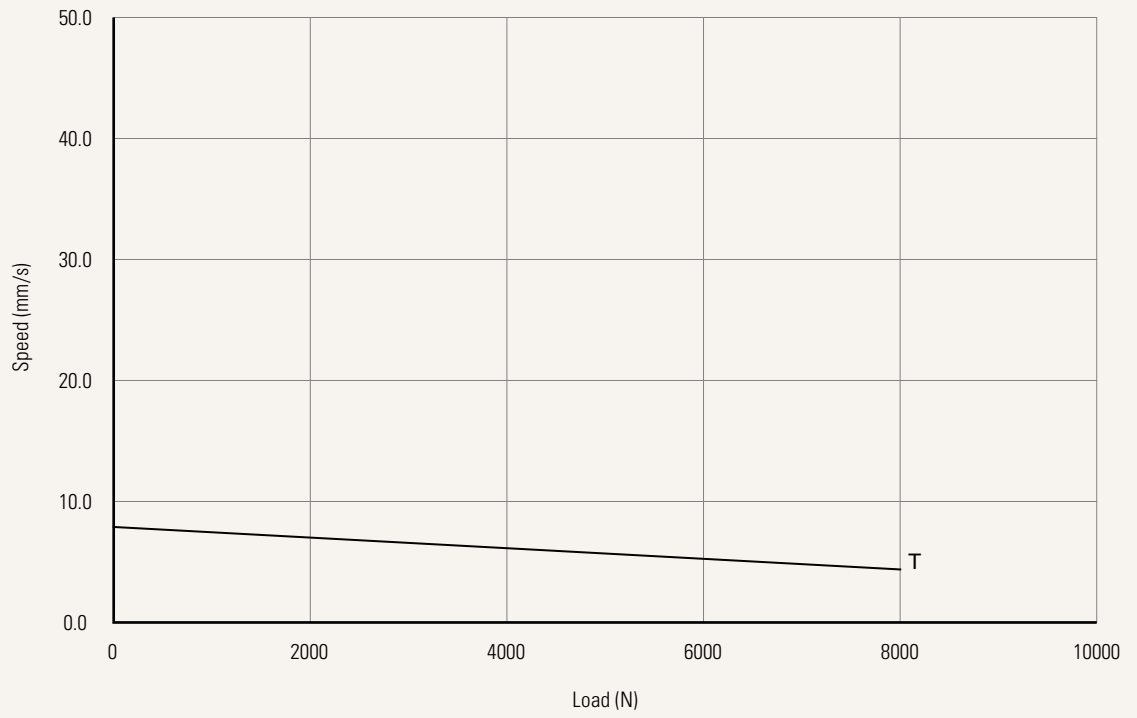
- Please refer to the approved drawing for the final authentic value.
- This self-locking force level is reached only when a short circuit is applied on the terminals of the motor. All the TiMOTION control boxes have this feature built-in.
- The current & speed in table are tested with 24V DC motor. 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.
- The current & speed in table are tested when the actuator is extending under push load.
- 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)
- Standard stroke: Min. ≥ 25 mm, Max. please refer to below table.

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

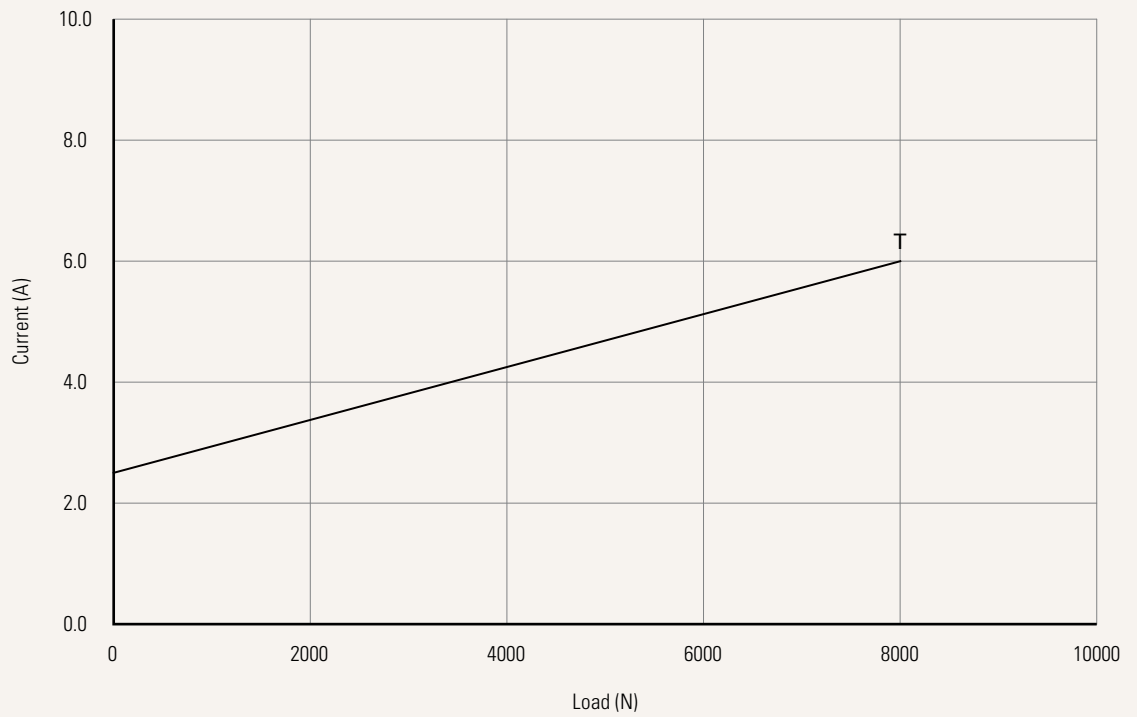
Performance Data (24V DC Motor)

Motor Speed (3000RPM, Duty Cycle 10%)

Speed vs. Load



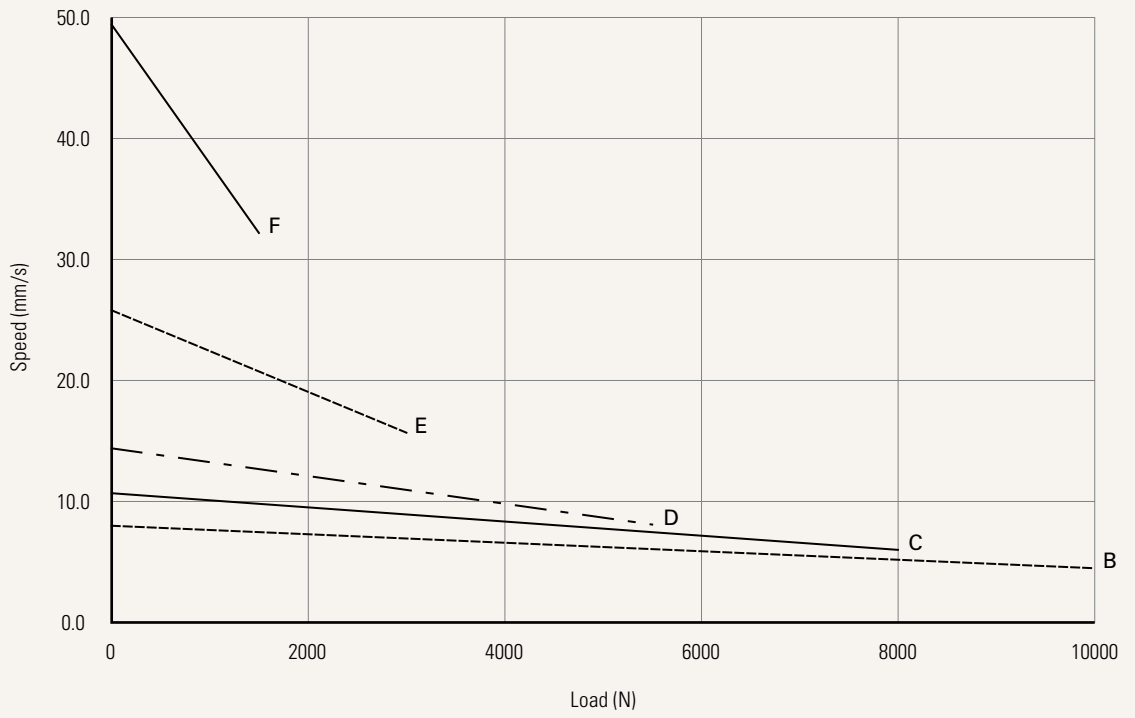
Current vs. Load



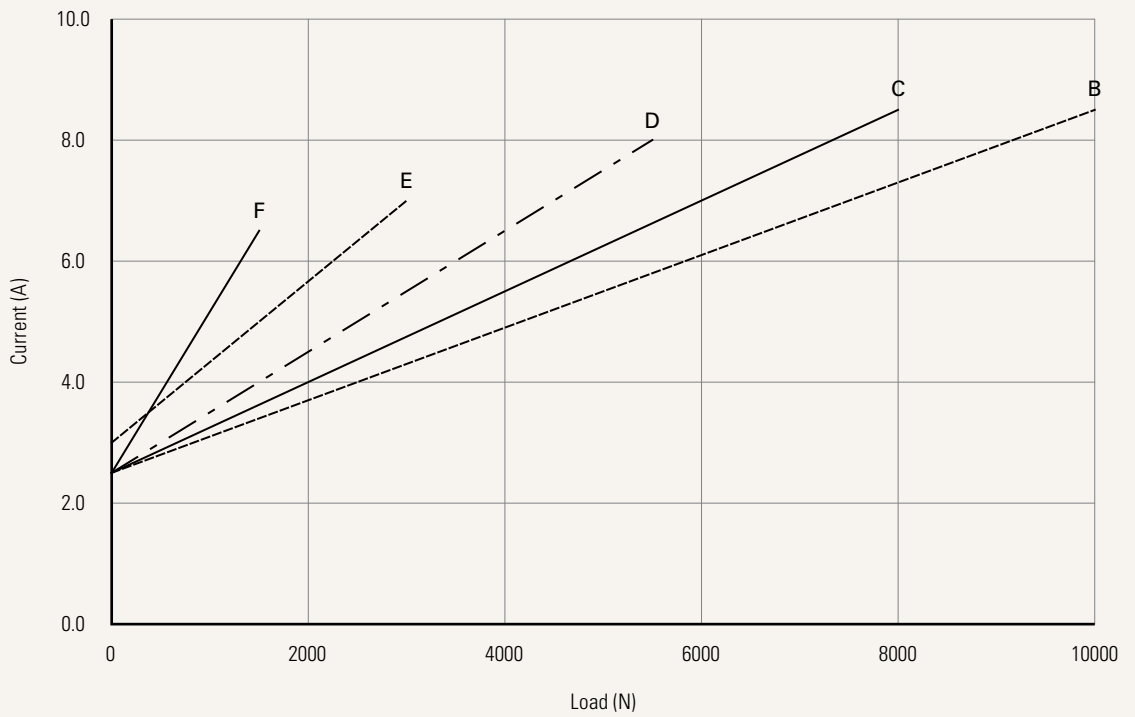
Performance Data (24V DC Motor)

Motor Speed (3800RPM, Duty Cycle 10%)

Speed vs. Load



Current vs. Load



Voltage	5 = 24V DC, PTC or thermal protector	7 = 36V DC, PTC or thermal protector
Load and Speed	See page 2	
Stroke (mm)	See page 2	
Retracted Length (mm)	See page 6	
Rear Attachment (mm)	1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing See page 7	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 See page 7	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° See page 7
Color	1 = Black (Pantone Cool Gray 9C cable cover + black cable) 2 = Grey (Pantone Cool Gray 9C cable cover + Pantone 428C cable)	
Quick Release	0 = Without	
Special Functions for Spindle Sub-Assembly	0 = Without (Standard) 1 = Safety nut	2 = Standard push only 3 = Standard push only + safety nut
Functions for Limit Switches	1 = Two switches at full retracted / extended positions to cut current See page 8 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	
Output Signal	0 = Without	2 = Hall sensor*2 3 = Reed sensor
Plug	1 = DIN 6P, 90° plug See page 8 2 = Tinned leads	M = DIN 4P, dental chair plug (40510-143, standard) N = DIN 4P, dental chair plug (40510-040)
Cable Length (mm)	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 $A+B = Y$
2. Retracted length needs to $\geq \text{Stroke}+Y$

A. Front Attach.

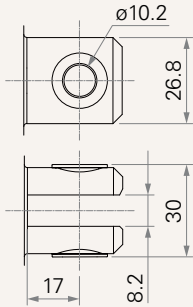
1, 2, 3, 4	+185
B, C	+180
J	+180

B. Stroke (mm)

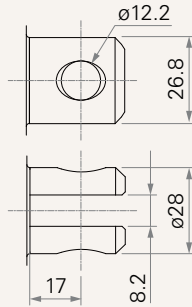
25~150	-
151~200	-
201~250	-
251~300	-
301~350	+10
351~400	+20
401~450	+30
451~500	+40
501~550	+50
551~600	+60
601~650	+70
651~700	+80
701~750	+90
751~800	+100
801~850	+110
851~900	+120
901~950	+130
951~1000	+140

Rear Attachment (mm)

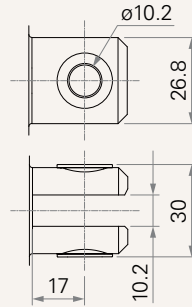
1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing



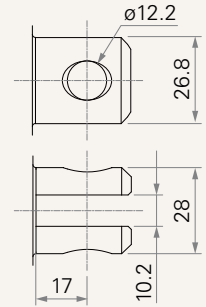
2 = Iron CNC, U clevis, slot 8.2, depth 17, hole 12.2



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

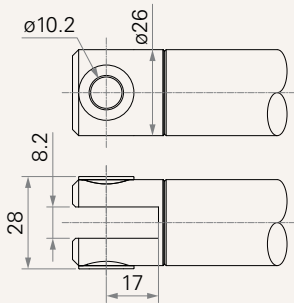


4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2

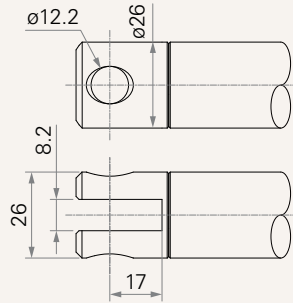


Front Attachment (mm)

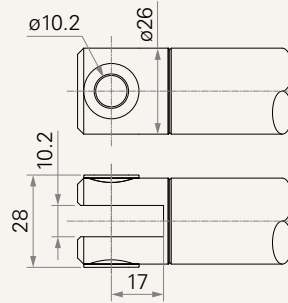
1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing



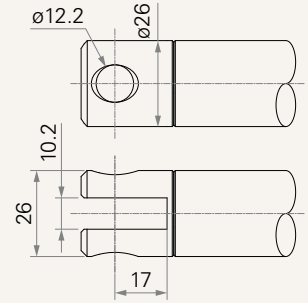
2 = Iron CNC, U clevis, slot 8.2, depth 17, hole 12.2



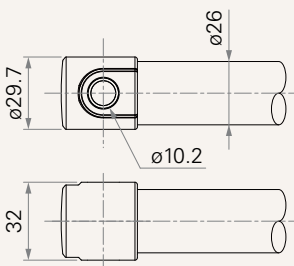
3 = Iron CNC, U clevis, slot 10.2, depth 17, hole 10.2, with plastic T-bushing



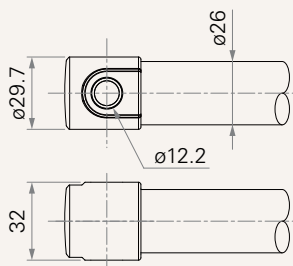
4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2



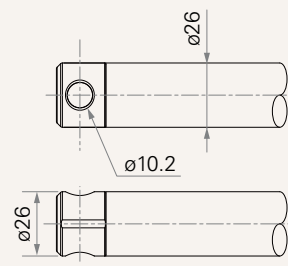
B = Punched hole on inner tube + plastic cap, width 32, without slot, hole 10.2



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

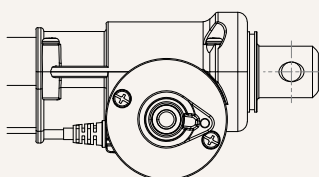


J = Aluminum casting, without slot, hole 10.2, for dental chair

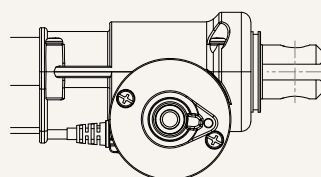


Direction of Rear Attachment (Counterclockwise)

1 = 0°



3 = 90°



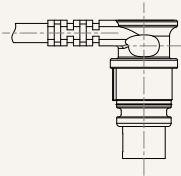
Functions for Limit Switches

Wire Definitions

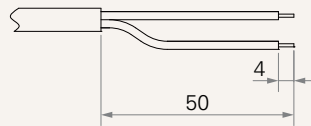
CODE	Pin					
	● 1 (Green)	● 2 (Red)	○ 3 (White)	● 4 (Black)	● 5 (Yellow)	● 6 (Blue)
1	extend (VDC+)	N/A	N/A	N/A	retract (VDC+)	N/A
2	extend (VDC+)	N/A	middle switch pin B	middle switch pin A	retract (VDC+)	N/A
3	extend (VDC+)	common	upper limit switch	N/A	retract (VDC+)	lower limit switch
4	extend (VDC+)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

Plug

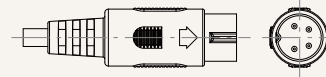
1 = DIN 6P, 90° plug



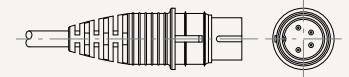
2 = Tinned leads



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



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



Terms of Use

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