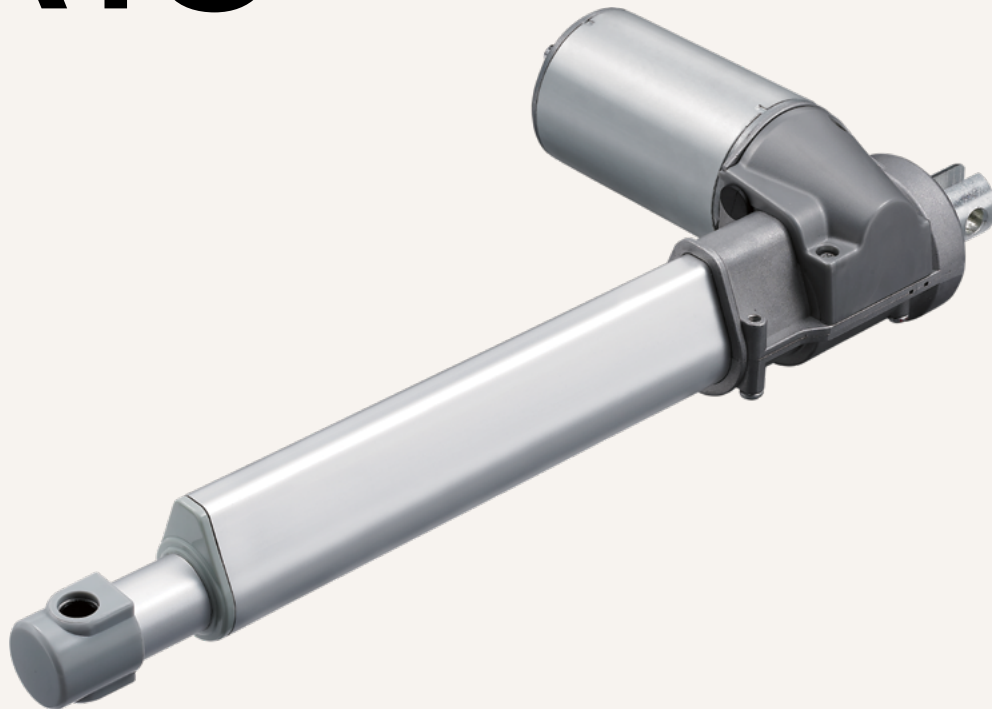


TA13

series



Product Segments

• Care Motion

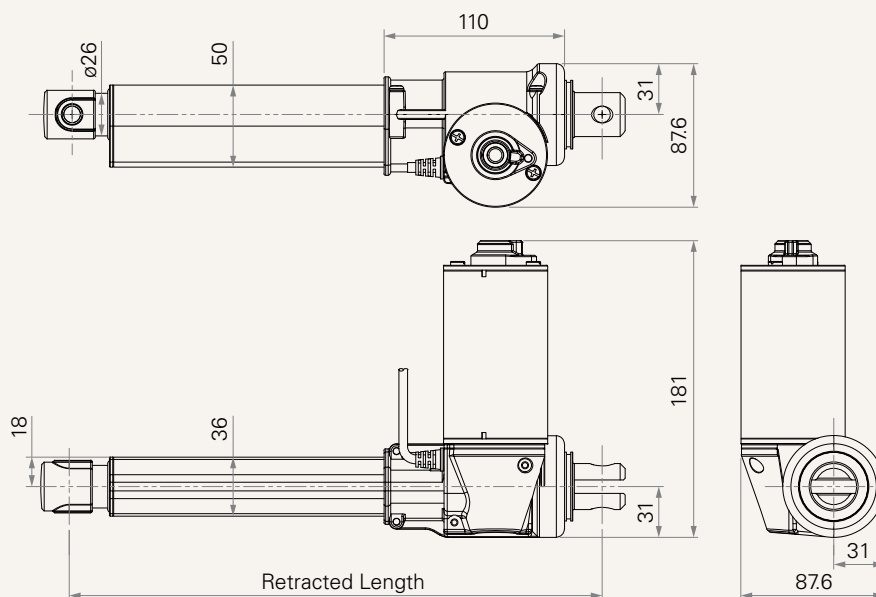
TiMOTION's TA13 series linear actuator is designed primarily for dental chairs requiring high-push load solutions, but can also be applied to a wide range of other medical applications. The TA13 supports load ratings up to 10000N. Its speed is up to 32.2mm/s even under the load of 1500N. Certificates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

General Features

Voltage of motor	24 / 36V DC, PTC or thermal protector
Maximum load	10,000N in push
Maximum load	5,500N in pull
Stroke	≥ 25~1000mm
Maximum speed at full load	32.2mm/s (with 1,500N in a push or pull condition)
Minimum installation dimension	≥ Stroke + 180mm
Color	Black or grey
Certificate	IEC60601-1, ES60601-1, EMC
Operational temperature range at full performance	+5°C~+45°C
Options	Hall sensors, Reed sensor, push only
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

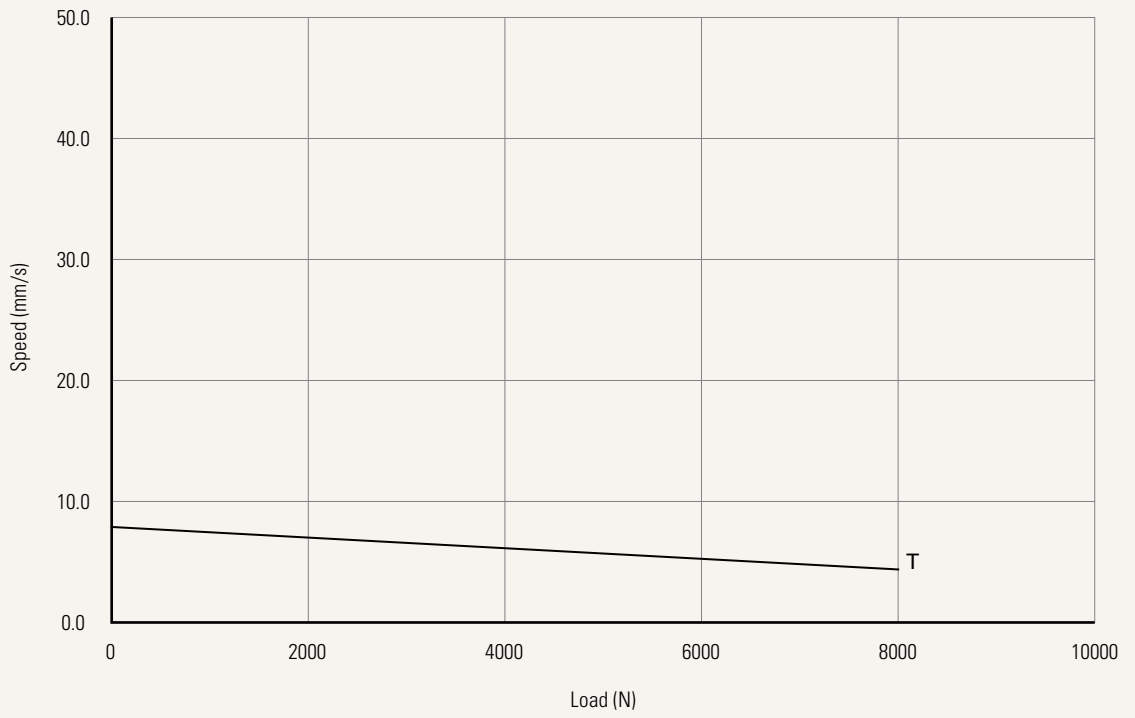
- 1 Please refer to the approved drawing for the final authentic value.
- 2 This self-locking force level is reached only when a short circuit is applied on the terminals of the motor. All the TiMOTION control boxes have this feature built-in.
- 3 The current & speed in table are tested with 24V DC motor.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

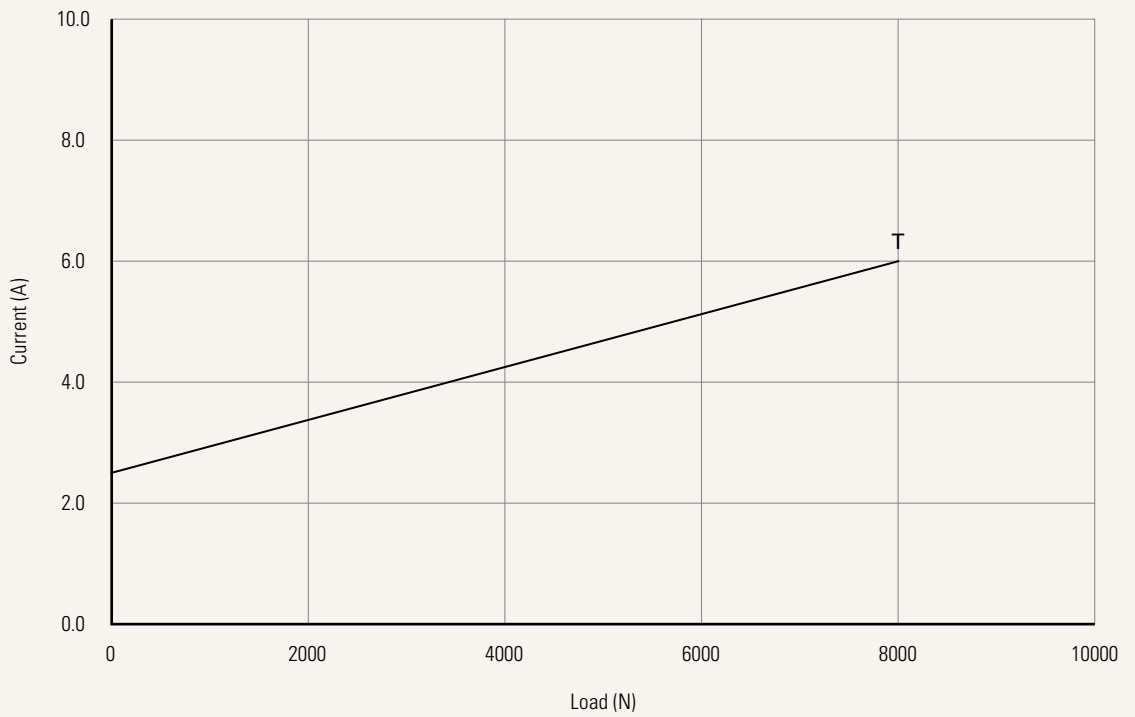
Performance Data (24V DC Motor)

Motor Speed (3000RPM, Duty Cycle 10%)

Speed vs. Load



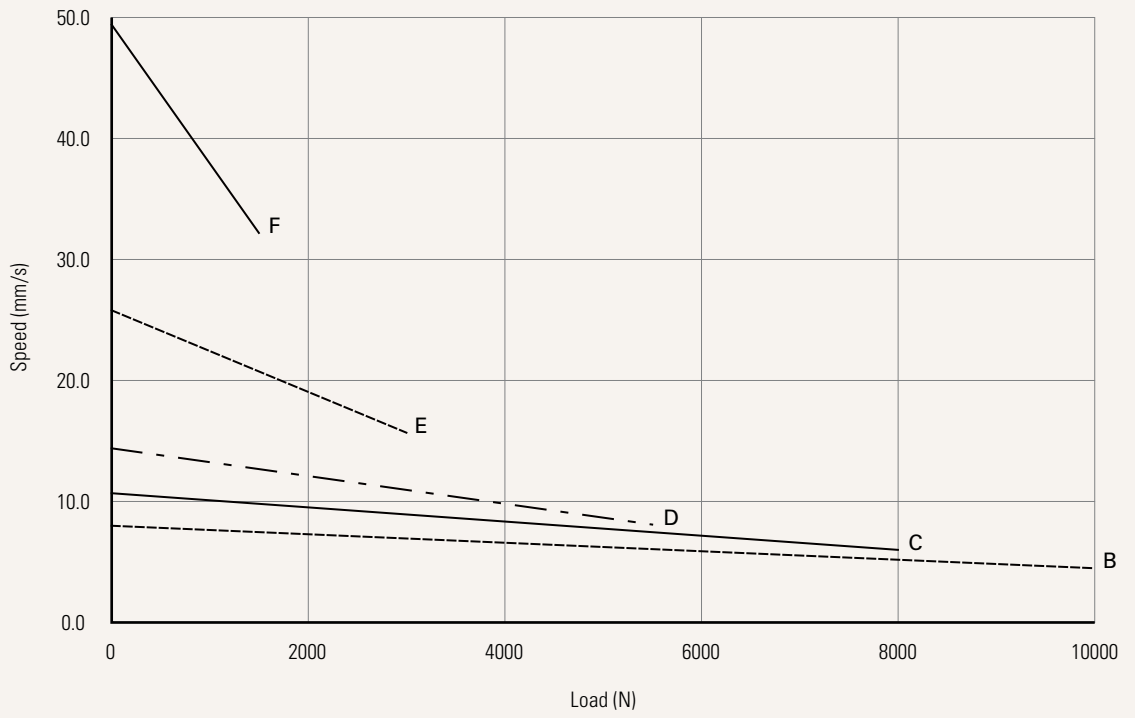
Current vs. Load



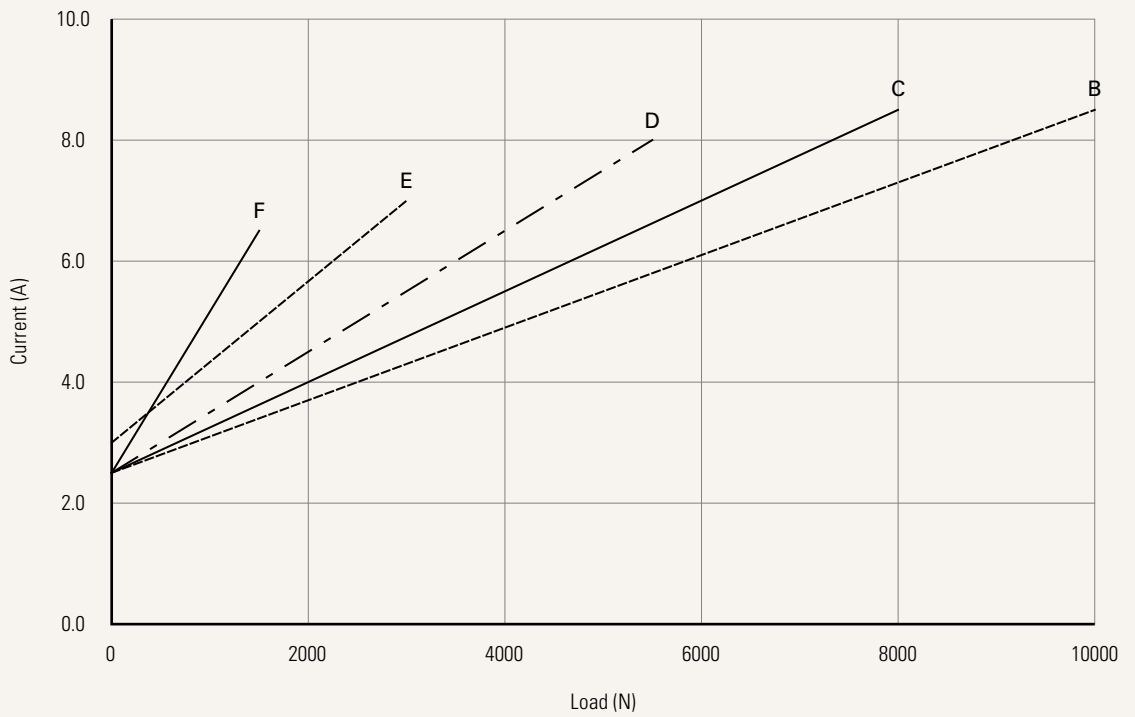
Performance Data (24V DC Motor)

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) See page 7	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) See page 7	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) See page 7	1 = 0°	3 = 90°		
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 See page 8	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			
Output Signal	0 = Without	2 = Hall sensor*2	3 = Reed sensor	
Plug See page 8	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)		
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)

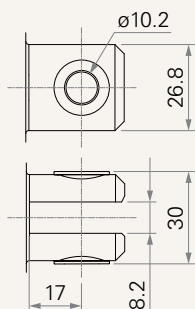
1. Calculate $A+B = Y$
2. Retracted length needs to $\geq \text{Stroke}+Y$

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

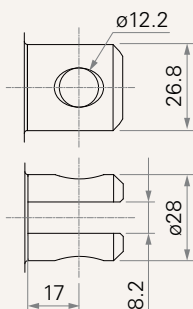
B. Stroke (mm)	
25~150	-
151~200	-
201~250	-
251~300	-
301~350	+10
351~400	+20
401~450	+30
451~500	+40
501~550	+50
551~600	+60
601~650	+70
651~700	+80
701~750	+90
751~800	+100
801~850	+110
851~900	+120
901~950	+130
951~1000	+140

Rear Attachment (mm)

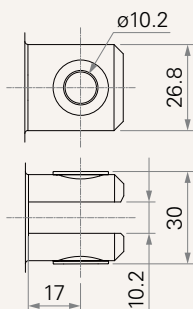
1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing



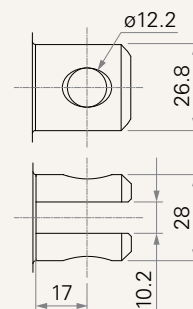
2 = Iron CNC, U clevis, slot 8.2, depth 17, hole 12.2



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

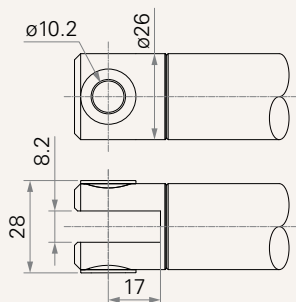


4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2

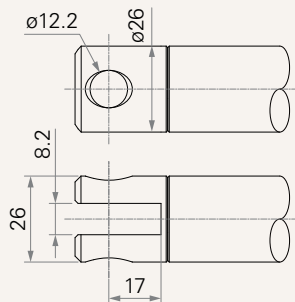


Front Attachment (mm)

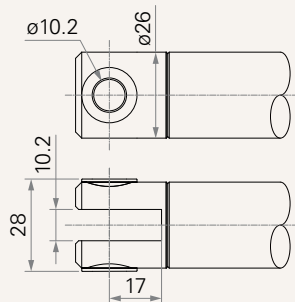
1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2



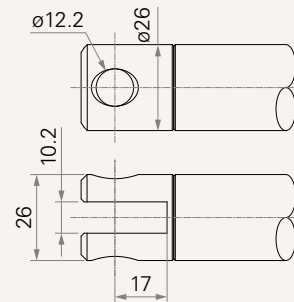
2 = Iron CNC, U clevis, slot 8.2, depth 17, hole 12.2



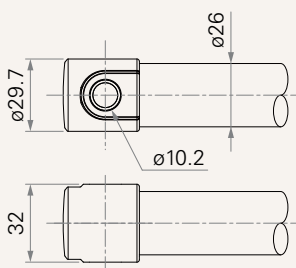
3 = Iron CNC, U clevis, slot 10.2, depth 17, hole 10.2



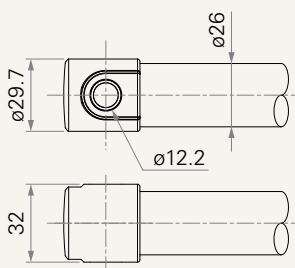
4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2



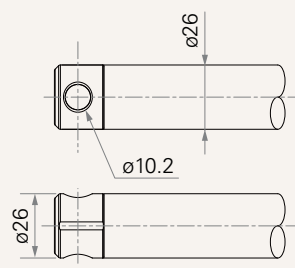
B = Punched hole on inner tube + plastic cap, width 32, without slot, hole 10.2



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

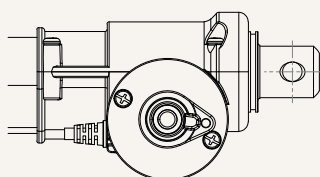


J = Aluminum casting, without slot, hole 10.2, for dental chair

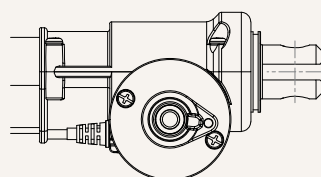


Direction of Rear Attachment (Counterclockwise)

1 = 0°



3 = 90°



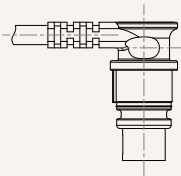
Functions for Limit Switches

Wire Definitions

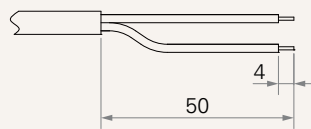
CODE	Pin					
	● 1 (Green)	● 2 (Red)	○ 3 (White)	● 4 (Black)	● 5 (Yellow)	● 6 (Blue)
1	extend (VDC+)	N/A	N/A	N/A	retract (VDC+)	N/A
2	extend (VDC+)	N/A	middle switch pin B	middle switch pin A	retract (VDC+)	N/A
3	extend (VDC+)	common	upper limit switch	N/A	retract (VDC+)	lower limit switch
4	extend (VDC+)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

Plug

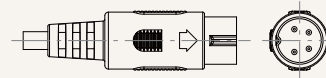
1 = DIN 6P, 90° plug



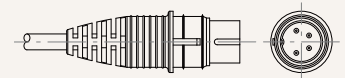
2 = Tinned leads



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



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



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