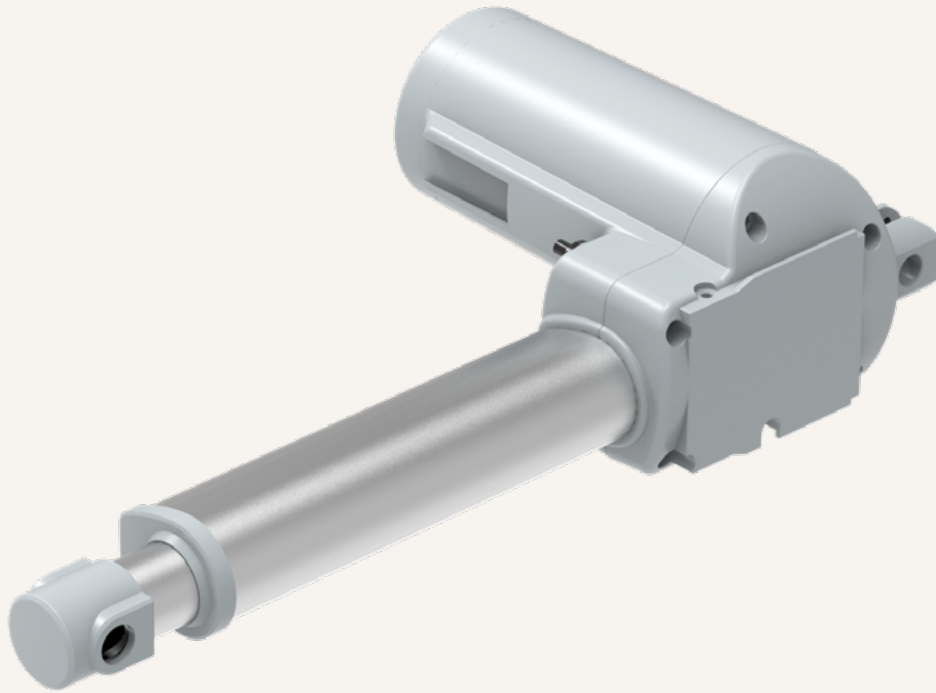


TA31

series



Product Segments

• Care Motion

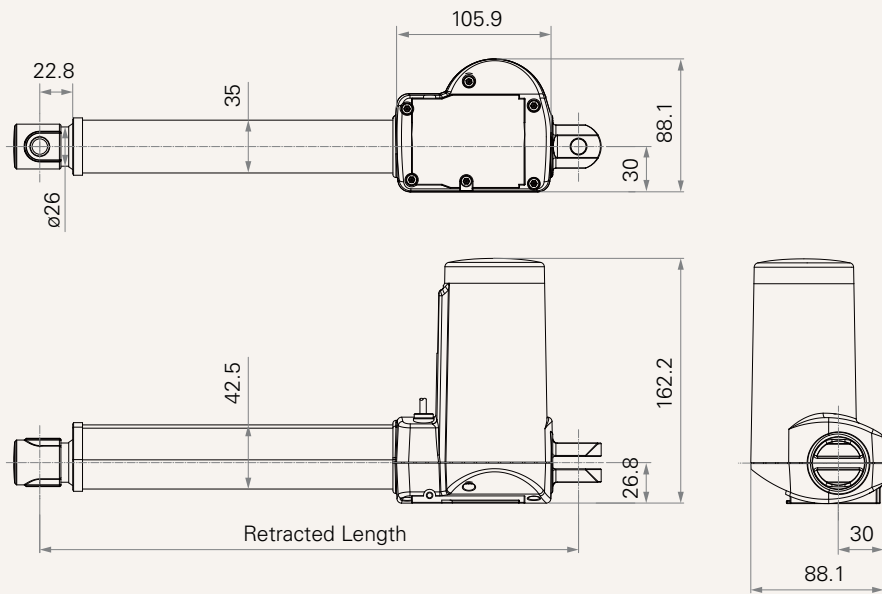
The TA31 is a simplification of our medical grade linear actuators. The TA31's simplicity provides an economical, yet high quality, option for medical applications such as medical beds, medical chairs, or home care options.

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

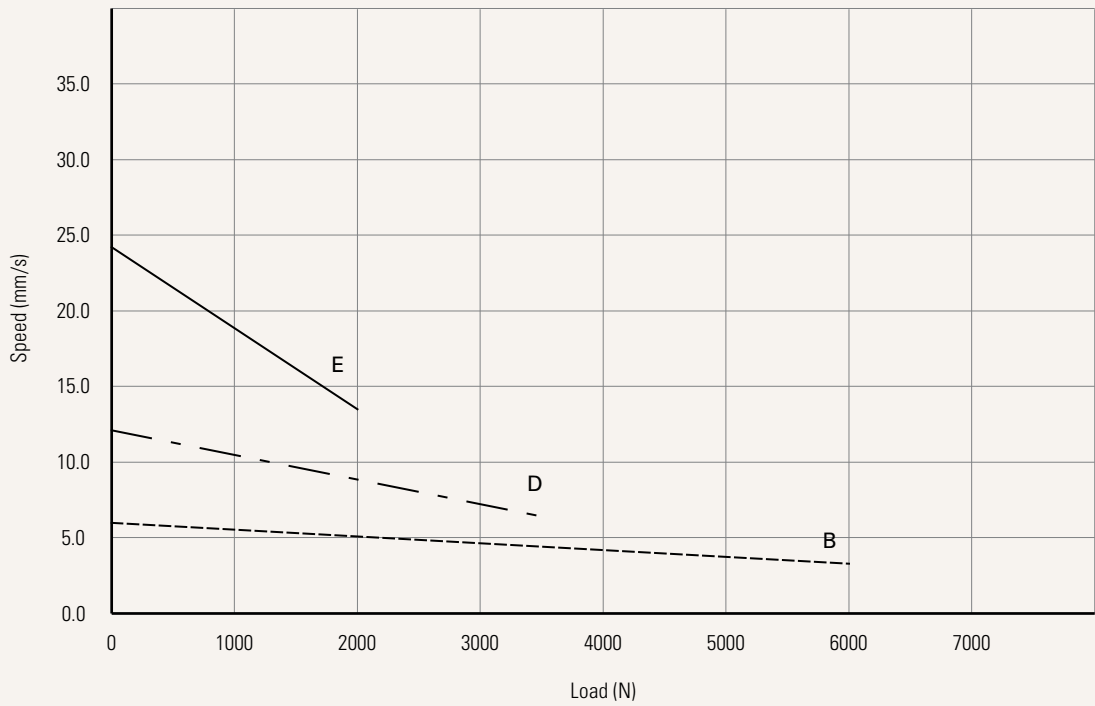
Note

- 1 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.
- 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 when the actuator is extending under push load.
- 4 Standard stroke: 25~450mm

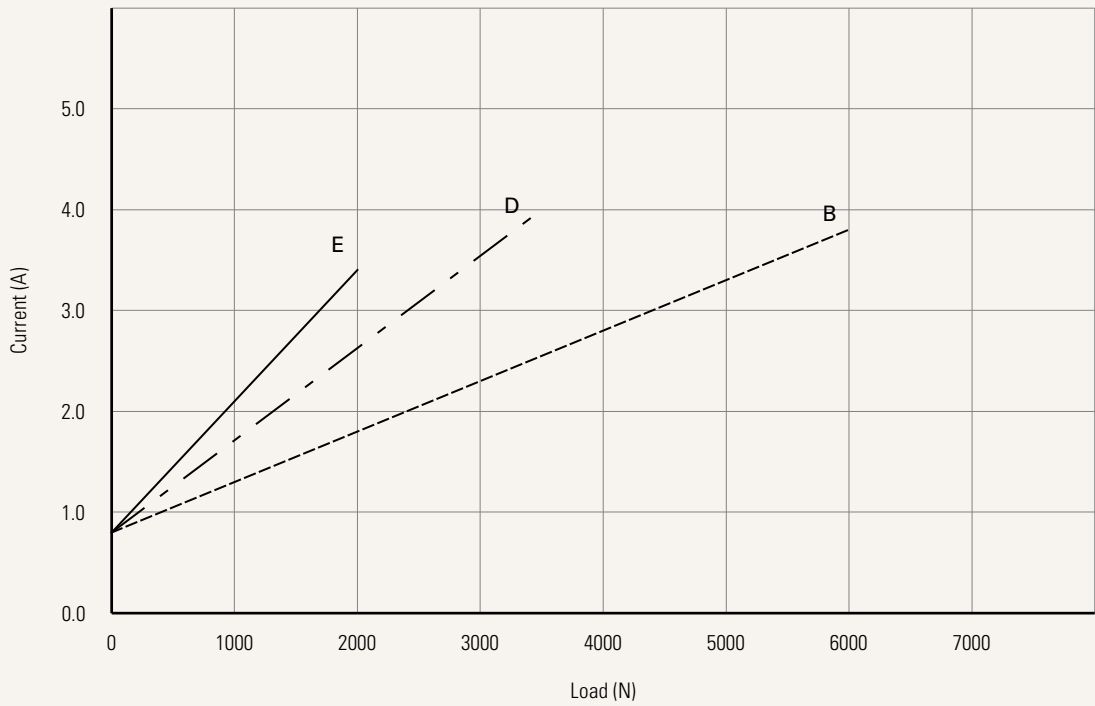
Performance Data (24V DC Motor)

Motor Speed (3800RPM, Duty Cycle 10%)

Speed vs. Load



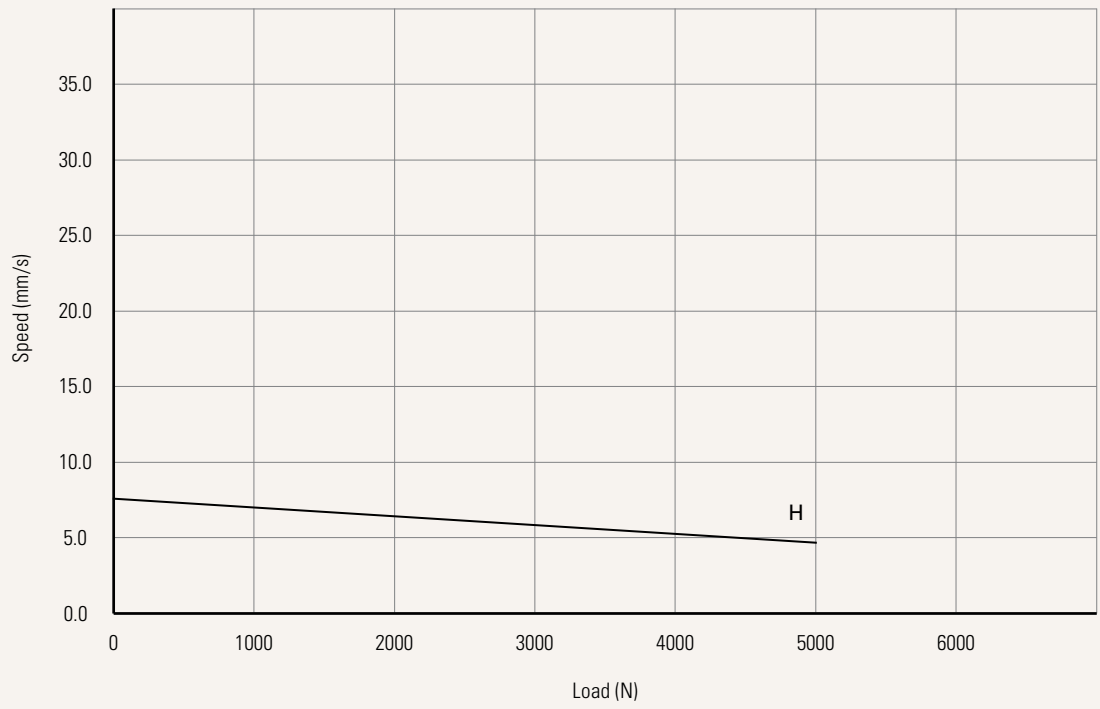
Current vs. Load



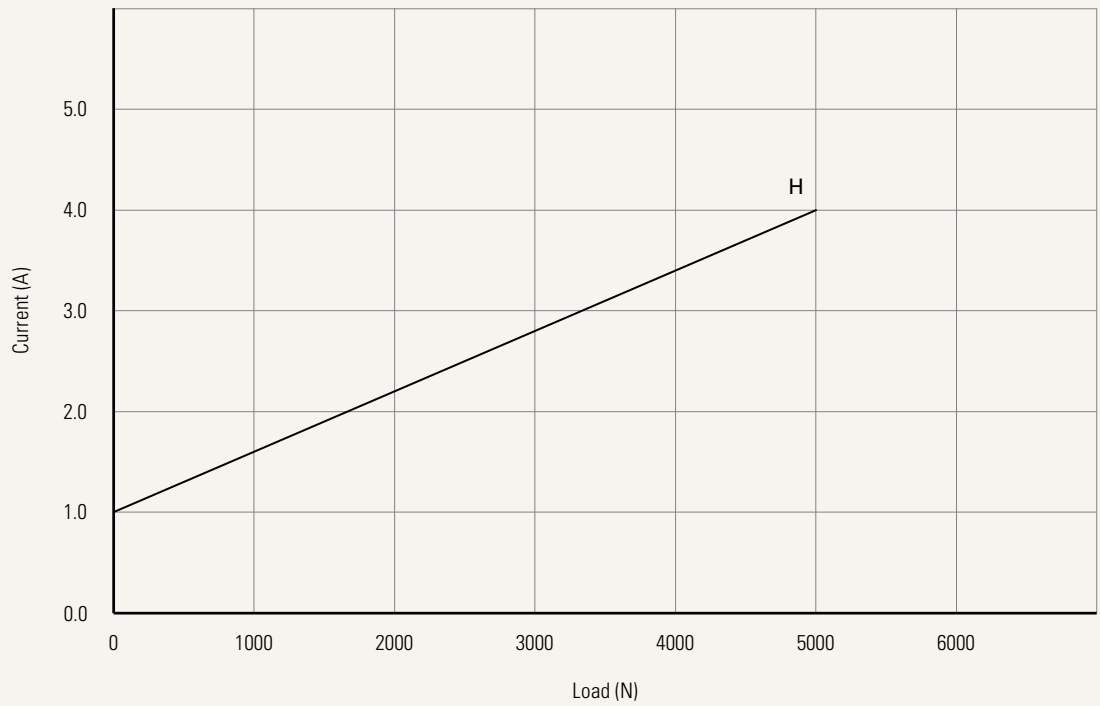
Performance Data (24V DC Motor)

Motor Speed (4500RPM, Duty cycle 10%)

Speed vs. Load



Current vs. Load



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

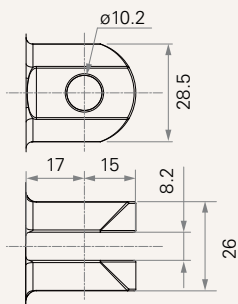
- 1 For stroke over 450mm, please contact our engineers.

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

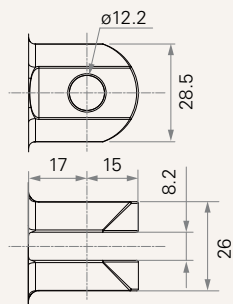
CODE	Load (N)	
	< 6000	= 6000
0	-	-
1	-	-
2	+5	+8
3	+5	+8

Rear Attachment (mm)

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

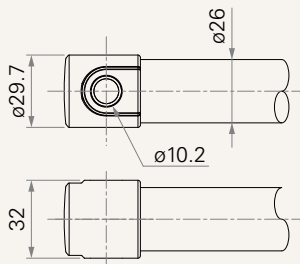


3 = Plastic, U clevis, width 8.2, depth 17.0, hole 12.2

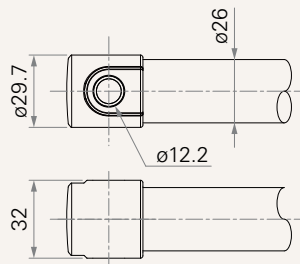


Front Attachment (mm)

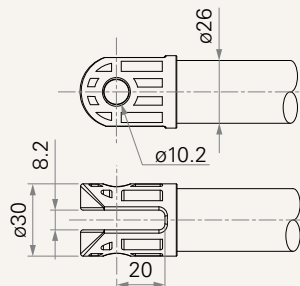
1 = Punched hole on inner Aluminum tube + plastic cap, without slot, hole 10.2



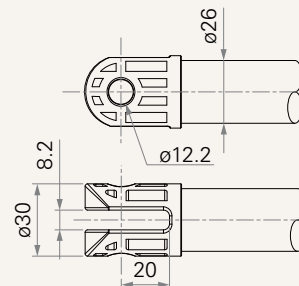
2 = Punched hole on inner Aluminum tube + plastic cap, without slot, hole 12.2



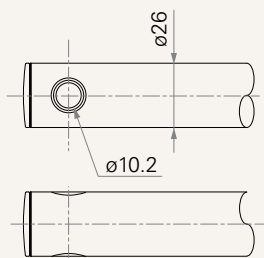
3 = Plastic, U clevis, width 8.2, depth 20.0, hole 10.2, for push < 4000N and pull < 2500N



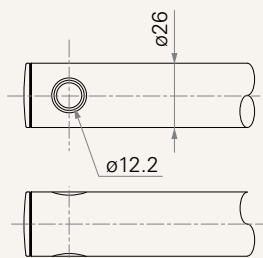
4 = Plastic, U clevis, width 8.2, depth 20.0, hole 12.2, for push < 4000N and pull < 2500N



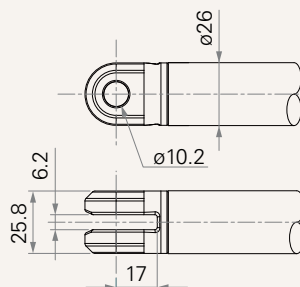
5 = Punched hole on inner Aluminum tube, without slot, hole 10.2



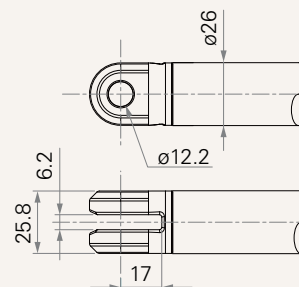
6 = Punched hole on inner Aluminum tube, without slot, hole 12.2



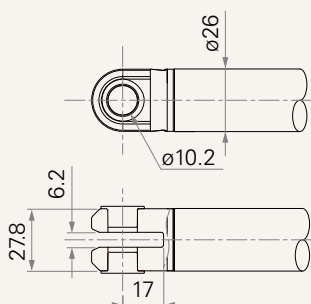
7 = Aluminum casting, U clevis, width 6.2, depth 17.0, hole 10.2



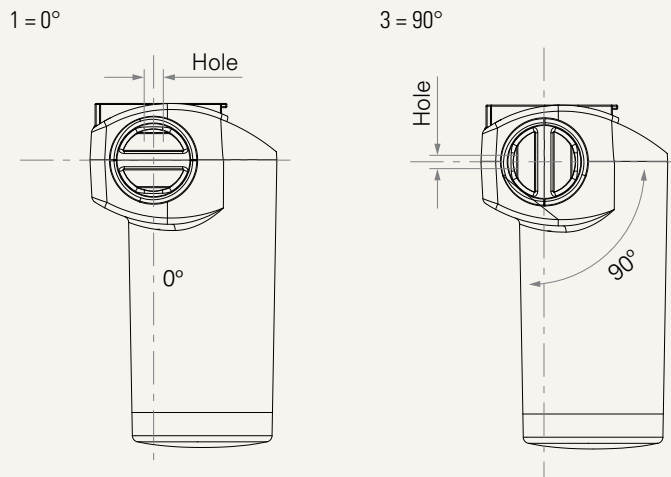
8 = Aluminum casting, U clevis, width 6.2, depth 17.0, hole 12.2



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



Direction of Rear Attachment (Counterclockwise)



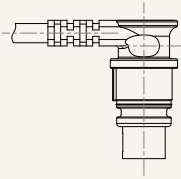
Functions for Limit Switches

Wire Definitions

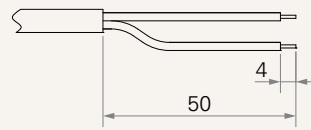
CODE	Pin					
	● 1 (Green)	● 2 (Red)	○ 3 (White)	● 4 (Black)	● 5 (Yellow)	● 6 (Blue)
1	extend (VDC+)	N/A	N/A	N/A	retract (VDC+)	N/A
2	extend (VDC+)	N/A	middle switch pin B	middle switch pin A	retract (VDC+)	N/A
3	extend (VDC+)	common	upper limit switch	N/A	retract (VDC+)	lower limit switch
4	extend (VDC+)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

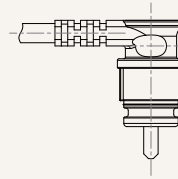
1 = DIN 6P, 90° plug



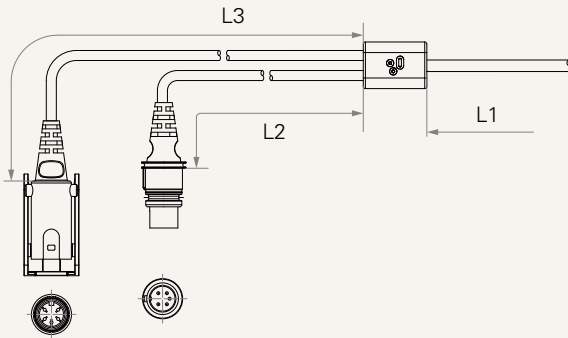
2 = Tinned leads



4 = Big 01P, plug



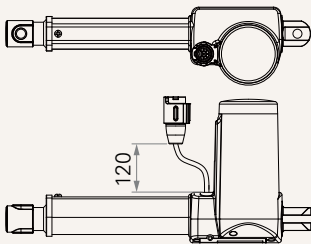
C = Y cable (direct cut, water proof, anti-pull)



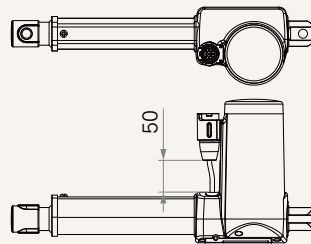
Cable length for direct cut system (mm)

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

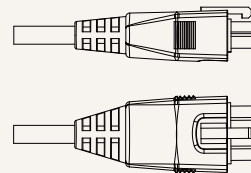
D = Extension cable, not preset on motor cover (cable length 120mm)



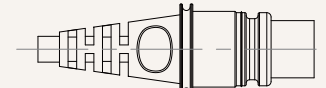
R = Extension cable, preset on motor cover (cable length 50mm)



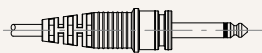
E = Molex 8P, plug



F = DIN 6P, 180° plug



G = Audio plug



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