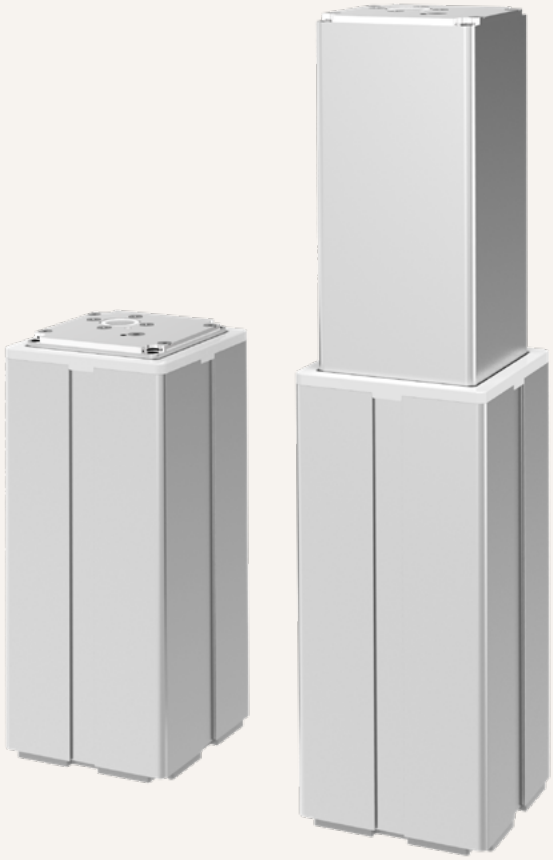
TL24

series



Product Segments

- **Care Motion**

TL24 electric lifting column is designed for medical applications such as height adjustable workstations, screens and optical machines. TL24 provides multiple cable exit options, such as from top end socket or top/bottom sides; besides, TL24 also support “direct cut system” which can be operated without control box, connecting the main power and hand control directly. The TL24 features an extruded aluminum rectangular 2 stage appearance.

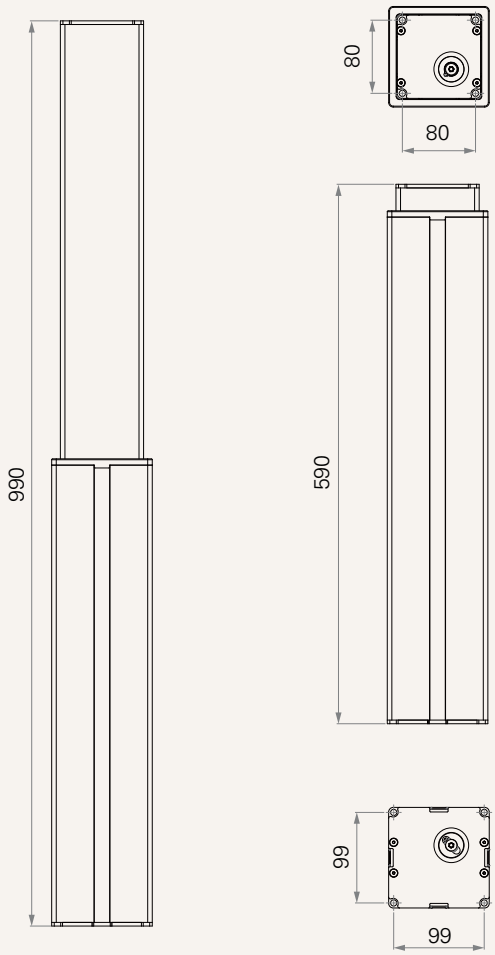
General Features

Maximum load	3300N in push
Maximum dynamic bending moment	200Nm
Maximum static bending moment	400Nm
Maximum speed at full load	22mm/s (with 800N in a push condition)
Minimum installation dimension	≥ Stroke + 188mm
Stroke	100~800mm

Two stage outer tube with rectangular appearance

Drawing

Standard Dimensions (mm)



Load and Speed

CODE	Load (N) Push	Self Locking Force (N)	Typical Current (A) No Load 32V DC	Typical Current (A) With Load 24V DC	Typical Speed (mm/s) No Load 32V DC	Typical Speed (mm/s) With Load 24V DC
Motor Speed (5600RPM, duty cycle 10%)						
G	3300	1800	2.0	4.7	12.0	6.5
J	1800	800	2.0	3.2	17.0	10.5
L	800	300	2.5	5.0	38.0	22.0

Note

1 Parameters above are from tested average, please refer to approval drawing for final 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.

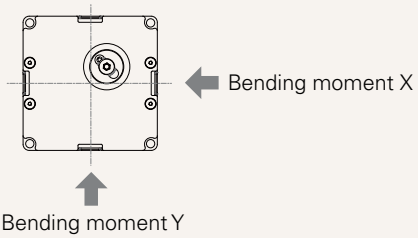
3 Operational temperature range: +5°C~+45°C

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 Bending moment Y direction = X

6 Static bending moment = dynamic*2

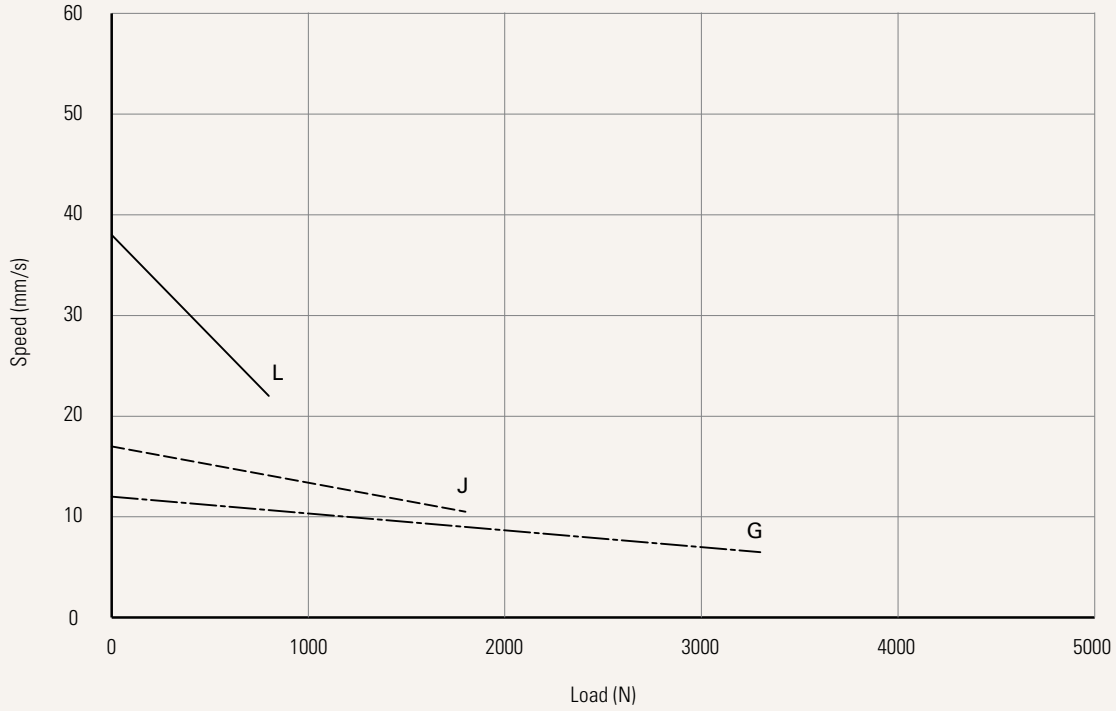
Dynamic bending moment (Nm) - X direction	
Stroke (mm)	Retracted length (mm) S+188
100-400	200
401-600	200
601-800	200



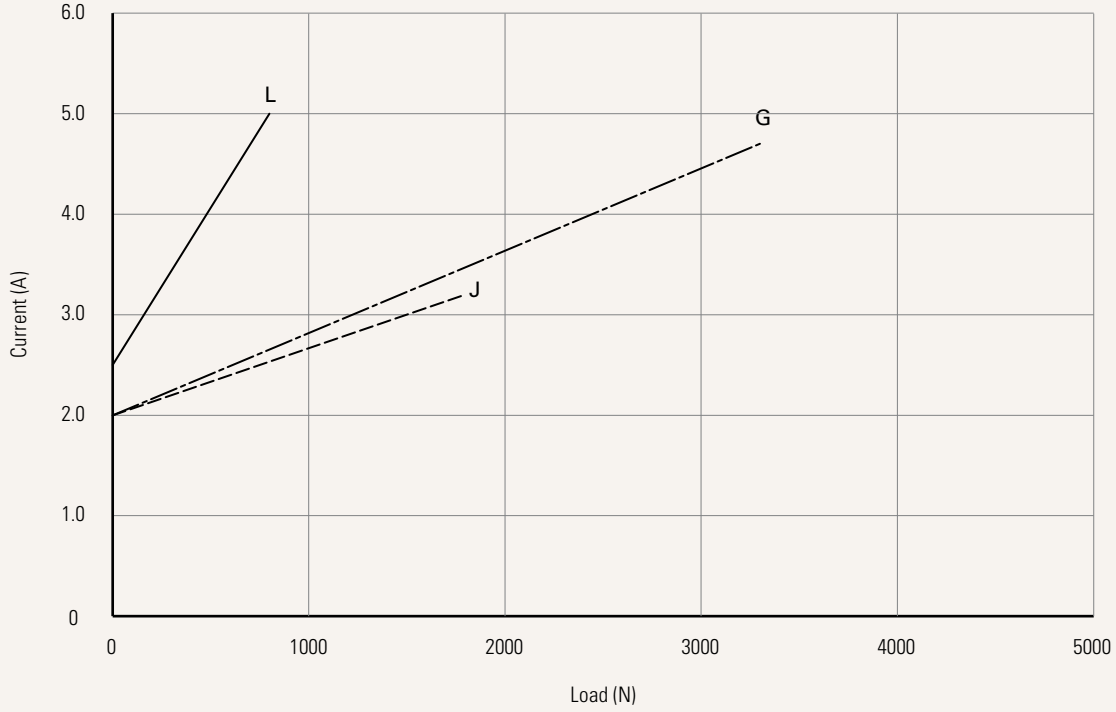
Performance Data (24V DC Motor)

Motor Speed (5600RPM, Duty Cycle 10%)

Speed vs. Load



Current vs. Load



TL24 Top End Socket Ordering Key

TiMOTION

TL24

Version: 20190222-E

Voltage	1 = 12V DC	2 = 24V DC	
Load and Speed	See page 2		
Stroke (mm)	100-800		
Retracted Length (mm)	See page 7		
Cable Exit See page 8	1 = Top end socket		
Special Functions for Spindle Sub-Assembly	0 = Without (Standard)	1 = Safety nut	
Functions for Limit Switches See page 8	1 = Two switches at full retracted / extended positions to cut current 3 = Two switches at full retracted / extended positions to send signal		
IP Rating	1 = Without	2 = IPX4	3 = IPX6
Output Signals	0 = Without	2 = Hall sensor*2	3 = POT
Connector See page 9	1 = DIN 6P, socket		
Cable Length (mm)	5 = Without (the corresponding extension cable TEC needs to be ordered seperately)		
Color	2 = Matte silver		
Tubes Direction See page 10	0 = Thinner on top	1 = Wider on top	
Top Plate See page 10	1 = Small plate		
Bottom Plate See page 10	1 = Small plate		
Grounding Function	0 = Without		

Note

1 The TL24 is designed especially for push applications, not suitable for pull applications.

TL24 Side Cable Ordering Key

TiMOTION

TL24

Version: 20190222-E

Voltage	1 = 12V DC	2 = 24V DC			
Load and Speed	See page 2				
Stroke (mm)	100-800				
Retracted Length (mm)	See page 7				
Cable Exit See page 8	2 = Bottom side cable	3 = Top side cable			
Special Functions for Spindle Sub-Assembly	0 = Without (Standard)	1 = Safety nut			
Functions for Limit Switches See page 8	1 = Two switches at full retracted / extended positions to cut current 3 = Two switches at full retracted / extended positions to send signal				
IP Rating	1 = Without	2 = IPX4	3 = IPX6		
Output Signals	0 = Without	2 = Hall sensor*2	3 = POT		
Connector See page 9	1 = DIN 6P, 90° plug	2 = Tinned leads	F = DIN 6P, 180° plug		
Cable Length (mm)	1 = Straight, 500 2 = Straight, 750	3 = Straight, 1000 4 = Straight, 1250	5 = Straight, 1500 6 = Straight, 1750	7 = Straight, 2000	
Color	2 = Matte silver (428C color cable set)		3 = Matte silver (Black cable set)		
Tubes Direction See page 10	0 = Thinner on top	1 = Wider on top			
Top Plate See page 10	1 = Small plate				
Bottom Plate See page 10	1 = Small plate				
Grounding Function	0 = Without				

Note

1 The TL24 is designed especially for push applications, not suitable for pull applications.

TL24 Direct Cut Ordering Key

TL24

Version: 20190222-E

Voltage	1 = 12V DC	2 = 24V DC	
Load and Speed	See page 2		
Stroke (mm)	100 - 800		
Retracted Length (mm)	See page 7		
Cable Exit See page 8	B = Top side- for TH; Bottom side- for TP C = Bottom side- Y cable, for TH + TP D = Top side- for the 2nd column; Bottom side- for TH & TP; direct cut operation with 2 columns E = Top side- for the 2nd column & TH; Bottom side- for TP; direct cut operation with 2 columns		
Special Functions for Spindle Sub-Assembly	0 = Without (Standard)	1 = Safety nut	
Functions for Limit Switches See page 8	1 = Two switches at full retracted / extended positions to cut current		
IP Rating	1 = Without	2 = IPX4	3 = IPX6
Output Signals	0 = Without		
Connector See page 9	C = Direct cut, water proof, anti-pull		

Cable Length (mm) See page 9	B = Cable exit #B, L2=L3=100
	C = Cable exit #C, L1=L2=L3=100
			D = Cable exit #D, L2=L3=L4=10
			E = Cable exit #E, L2=L3=L4=10

Color	2 = Matte silver (428C color cable set)		3 = Matte silver (Black cable set)
Tubes Direction See page 10	0 = Thinner on top	1 = Wider on top	
Top Plate See page 10	1 = Small plate		
Bottom Plate See page 10	1 = Small plate		
Grounding Function	0 = Without		

Note

1 The TL24 is designed especially for push applications, not suitable for pull applications.

Retracted Length (mm)

1. Minimum retracted length needs to ≥ A+B+C

A.

Load (N)	800	1800	3300
	S+188	S+188	S+188

* Different retracted length is relative to different bending moment, see page 2.

B.

Cable Exit	Top End Socket	Bottom Side Cable	Top Side Cable	Direct Cut	
	1	2	3	B, D, E	C
	-	-	+15	+35	-

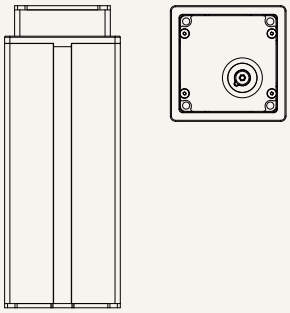
C. When with POT (When without POT, C=0)

Cable Exit	Top End Socket	Bottom Side Cable	Top Side Cable
	1	2	3
	+36	+36	+36

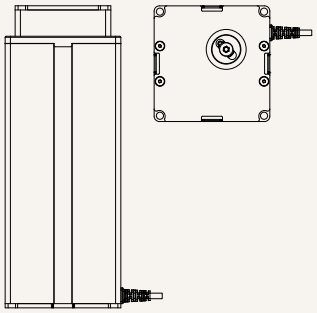
TL24 Ordering Key Appendix

Cable Exit

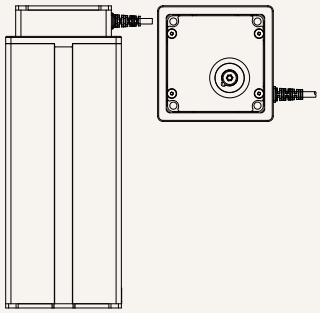
1 = Top end socket



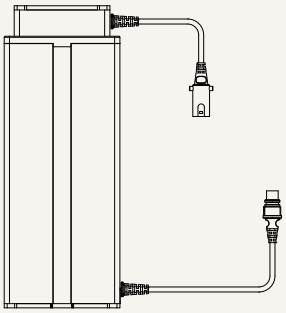
2 = Bottom side cable



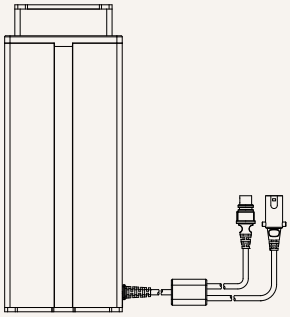
3 = Top side cable



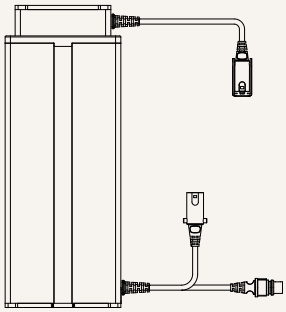
B = Cable exit #B, L2=L3=100



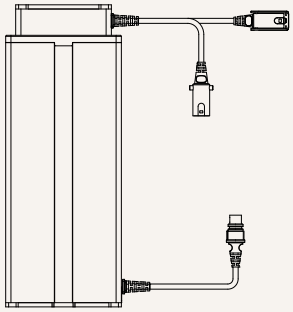
C = Cable exit #C, L1=L2=L3=100



D = Cable exit #D, L2=L3=L4=10



E = Cable exit #E, L2=L3=L4=10



Functions for Limit Switches

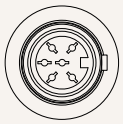
Wire Definitions

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
3	extend (VDC+)	common	upper limit switch	N/A	retract (VDC+)	lower limit switch

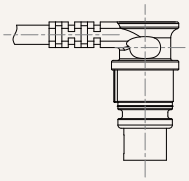
TL24 Ordering Key Appendix

Connector

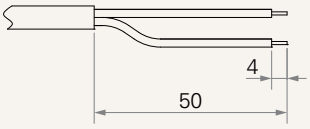
1 = DIN 6P, socket (Top end socket)



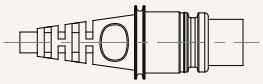
1 = DIN 6P, 90° plug (Side cable)



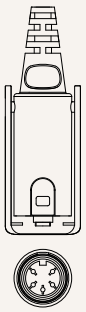
2 = Tinned leads



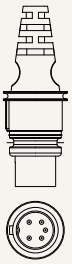
F = DIN 6P, 180° plug



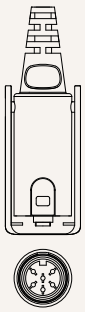
C = Direct cut, water proof, anti-pull



For TH:
long DIN 5P (Pin array 240°),
180° socket (with anti-pull clip)



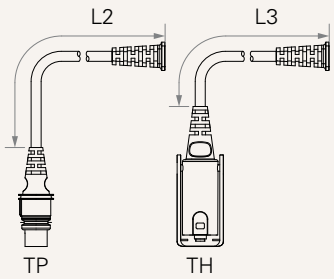
For TP:
long DIN 5P (Pin array 240°),
180° plug (with O-ring)



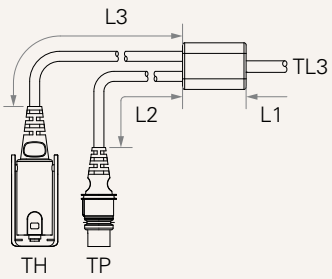
For Columm 2:
long DIN 6P (Pin array 240°),
180° plug (with anti-pull clip)

Cable Length (mm)

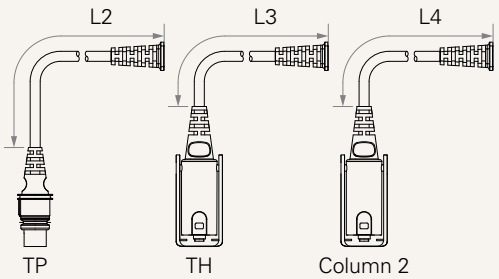
B = Cable exit #B, L2 = L3 = 100



C = Cable exit #C, L1 = L2 = L3 = 100



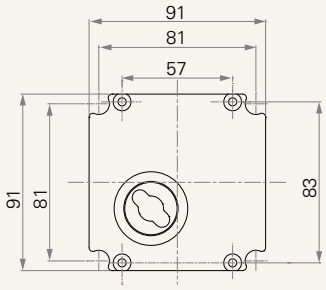
D, E = Cable exit #D, #E, L2 = L3 = L4 = 100



TL24 Ordering Key Appendix

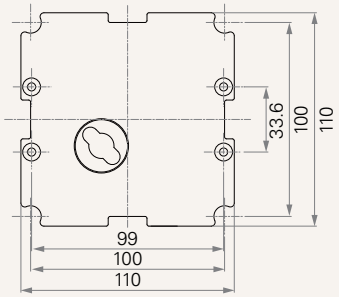
Top Plate

1 = Small plate



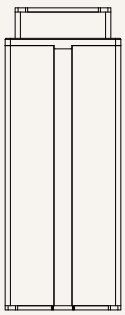
Bottom Plate

1 = Small plate

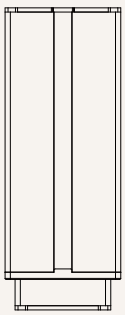


Tubes direction

0 = Thinner on top



1 = Wider on top



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