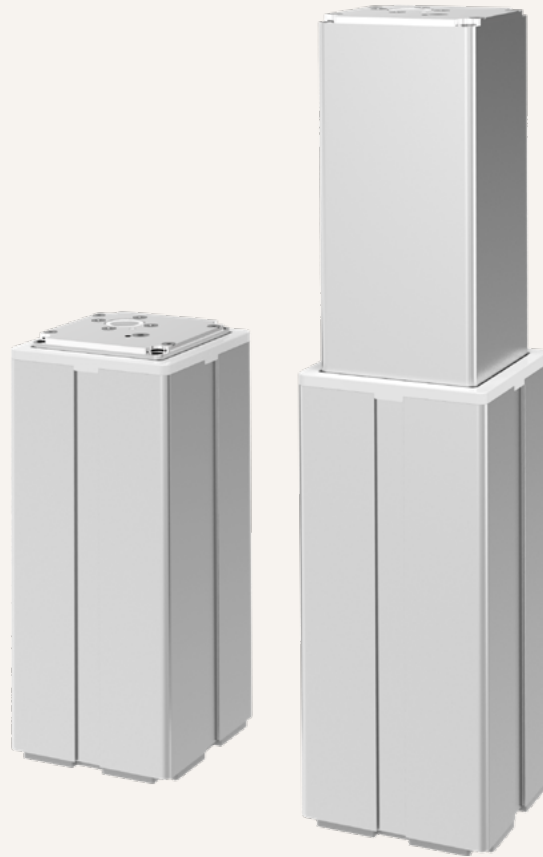


TL24

series



Product Segments

- **Care Motion**
- **Ergo Motion**

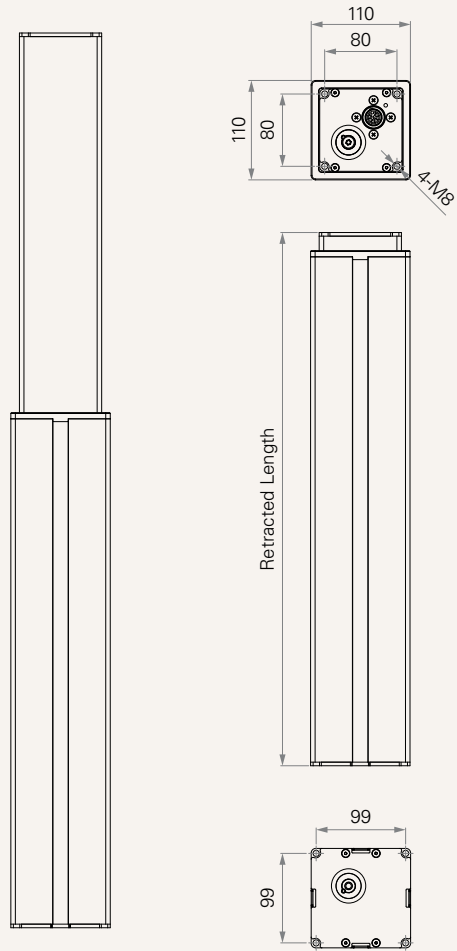
TL24 electric lifting column is designed for medical applications such as height adjustable workstations, screens and optical machines. TL24 provides multiple cable exit options, such as from top end socket or top/bottom sides; besides, TL24 also support "direct cut system" which can be operated without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

General Features

Max. load	3,300N (push)
Max. dynamic bending moment	200Nm
Max. static bending moment	400Nm
Max. speed at max. load	6.5mm/s
Max. speed at no load	38mm/s
Retracted length	≥ Stroke+188mm
IP rating	IPX6
Dimension of outer tube	110*110mm square
Stages	2-stage
Stroke	100~600mm
Output signals	Hall sensors, POT
Voltage	12/24V DC

Drawing

Standard Dimensions
(mm)



Load and Speed

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

Note

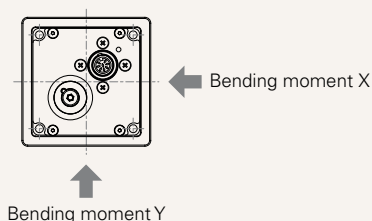
- Parameters above are from tested average, please refer to approval drawing for final value.
- The current & speed in table are tested with 24V DC motor. With a 12V DC motor, the current is approximately twice the current measured in 24V DC; speed will be similar for both voltages.
- This self-locking 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.
- Operational temperature range: +5°C~+45°C
- Standard stroke: Please refer to below table

CODE	Load (N)	Min. Stroke (mm)	Max. Stroke (mm)
	Push		
G	3300	100	≤300
J	1800	100	≤450
L	800	100	≤600

6 Dynamic bending moment (Nm) - X direction

Stroke (mm)	Retracted length (mm)
	S+188
100-400	200
401-600	200
601-800	200

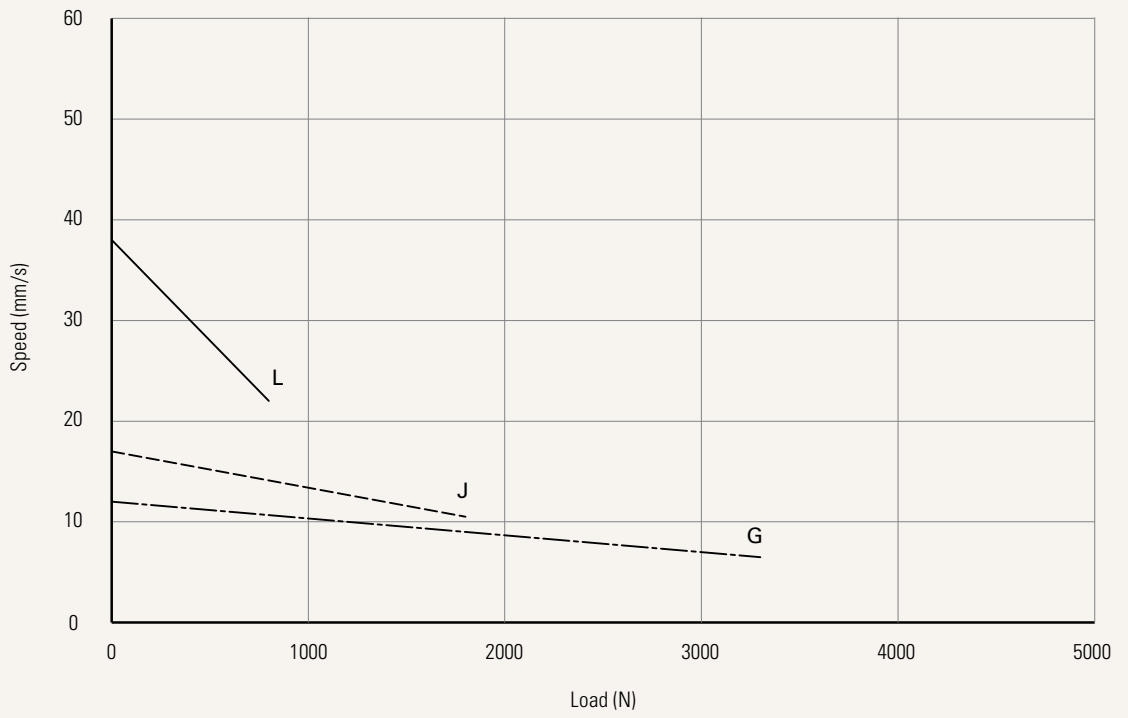
- * Bending moment Y direction= X
- * Static bending moment= dynamic*2



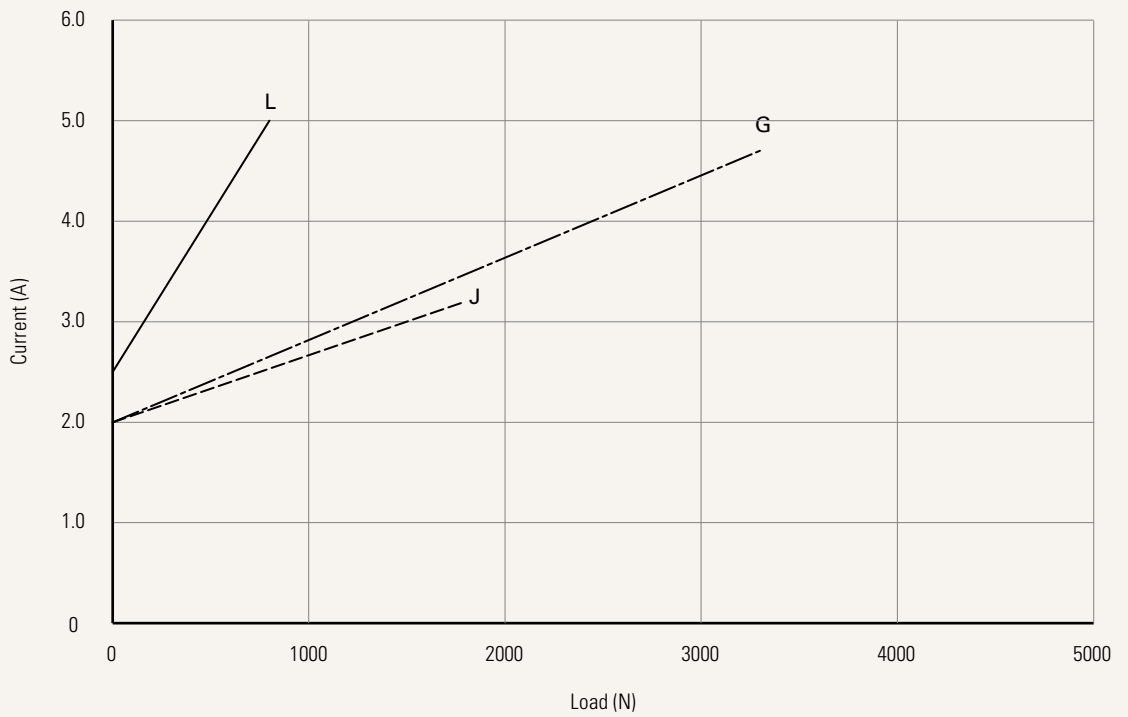
Performance Data (24V DC Motor)

Motor Speed (5600RPM, Duty Cycle 10%)

Speed vs. Load



Current vs. Load



TL24 Top End Socket Ordering Key

TL24

Version: 20230530-I

Voltage	1 = 12V DC Note: 12V didn't apply the Safety certificate.	2 = 24V DC
Load and Speed	See page 3	
Stroke (mm)	See page 3	
Retracted Length (mm)	See page 8	
Cable Exit	1 = Top end socket See page 9	
Special Functions for Spindle Sub-Assembly	0 = Without (Standard)	1 = Safety nut
Functions for Limit Switches	1 = Two switches at full retracted / extended positions to cut current 3 = Two switches at full retracted / extended positions to send signal See page 9	
IP Rating	1 = Without	2 = IPX4 3 = IPX6
Output Signals	0 = Without	2 = Hall sensor*2 3 = POT
Connector	1 = DIN 6P, socket See page 10	
Cable Length (mm)	1 = Without (the corresponding extension cable TEC needs to be ordered separately)	
Color	2 = Matte silver	
Tubes Direction	0 = Thinner on top	1 = Wider on top See page 11
Top Plate	1 = Small plate See page 11	
Bottom Plate	1 = Small plate See page 11	
Grounding Function	0 = Without	

Note

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

TL24 Side Cable Ordering Key

TL24

Version: 20230530-I

Voltage	1 = 12V DC Note: 12V didn't apply the Safety certificate.	2 = 24V DC		
Load and Speed	See page 3			
Stroke (mm)	See page 3			
Retracted Length (mm)	See page 8			
Cable Exit See page 9	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 9	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 10	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 11	0 = Thinner on top	1 = Wider on top		
Top Plate See page 11	1 = Small plate			
Bottom Plate See page 11	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: 20230530-I

Voltage	1 = 12V DC 2 = 24V DC Note: 12V didn't apply the Safety certificate.
Load and Speed	See page 3
Stroke (mm)	See page 3
Retracted Length (mm)	See page 8
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 9	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 10	C = Direct cut, water proof, anti-pull
Cable Length (mm) See page 10	B = Cable exit #B, L2=L3=100 D = Cable exit #D, L2=L3=L4=100 C = Cable exit #C, L1=L2=L3=100 E = Cable exit #E, L2=L3=L4=100
Color	2 = Matte silver (428C color cable set) 3 = Matte silver (Black cable set)
Tubes Direction See page 11	0 = Thinner on top 1 = Wider on top
Top Plate See page 11	1 = Small plate
Bottom Plate See page 11	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 $\geq A+B+C$

A.

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

* Different retracted length is relative to different bending moment, [See page 3.](#)

B.

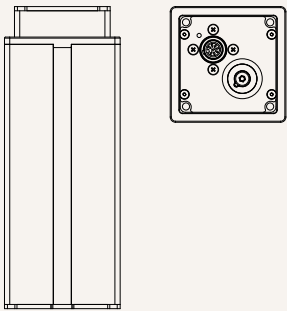
Cable Exit	Top End Socket	Bottom Side Cable	Top Side Cable	Direct Cut	
	1	2	3	B, D, E	C
	-	-	+15	+35	-

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

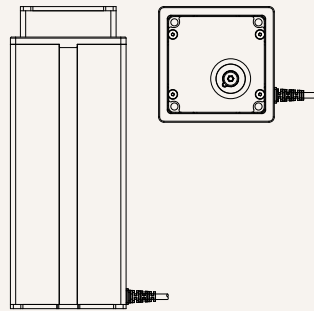
Cable Exit	Top End Socket	Bottom Side Cable	Top Side Cable
	1	2	3
	+36	+36	+36

Cable Exit

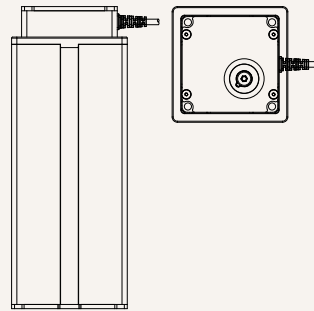
1 = Top end socket



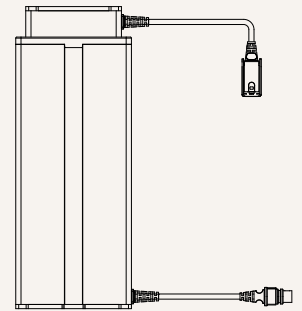
2 = Bottom side cable



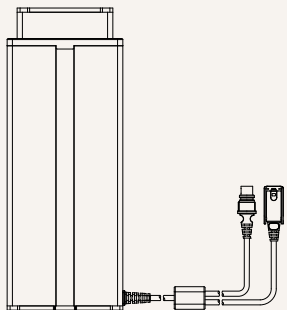
3 = Top side cable



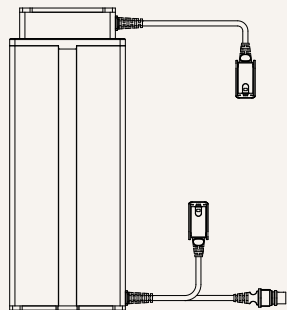
B = Top side- for TH; Bottom side- for TP



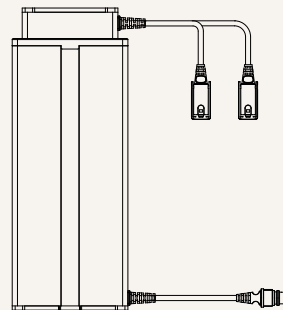
C = Bottom side- Y cable, for TH + TP



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



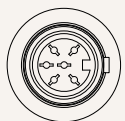
Functions for Limit Switches

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

Connector (Top End Socket)

1 = DIN 6P, socket

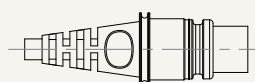
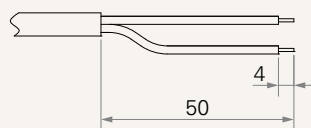
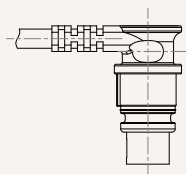


Connector (Side Cable)

1 = DIN 6P, 90° plug

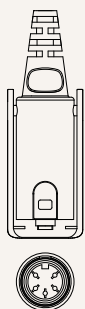
2 = Tinned leads

F = DIN 6P, 180° plug



Connector (Direct Cut)

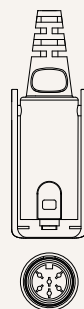
C = Direct cut, water proof, anti-pull



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

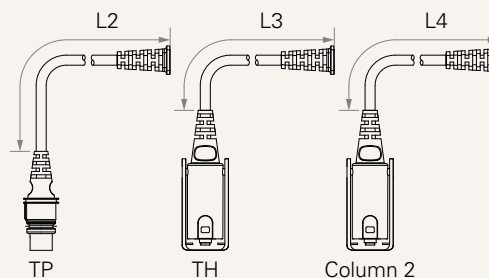
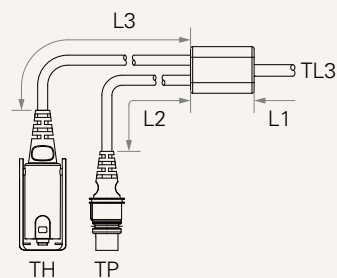
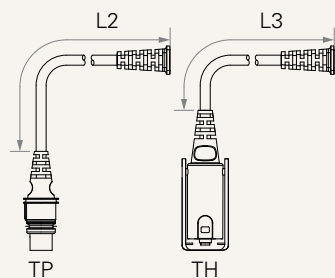
Cable Length (mm)

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

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

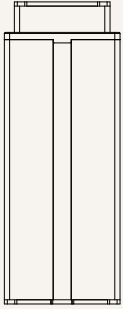
D = Cable exit #D, L2=L3=L4=100

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

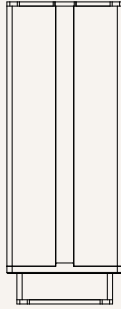


Tubes Direction

0 = Thinner on top

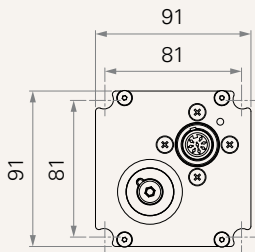


1 = Wider on top

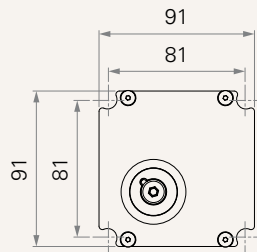


Top Plate

1 = Small plate (Top end socket)

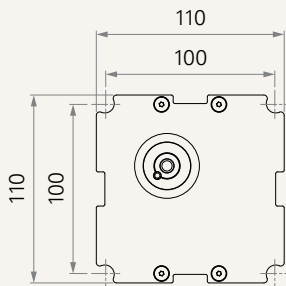


1 = Small plate (Side cable)



Bottom Plate

1 = Small plate



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.