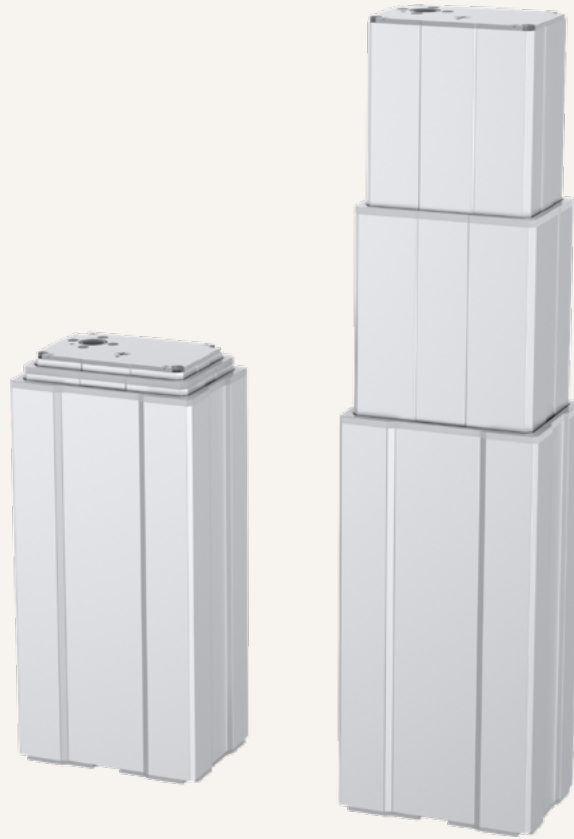


TL54

series



Product Segments

• Care Motion

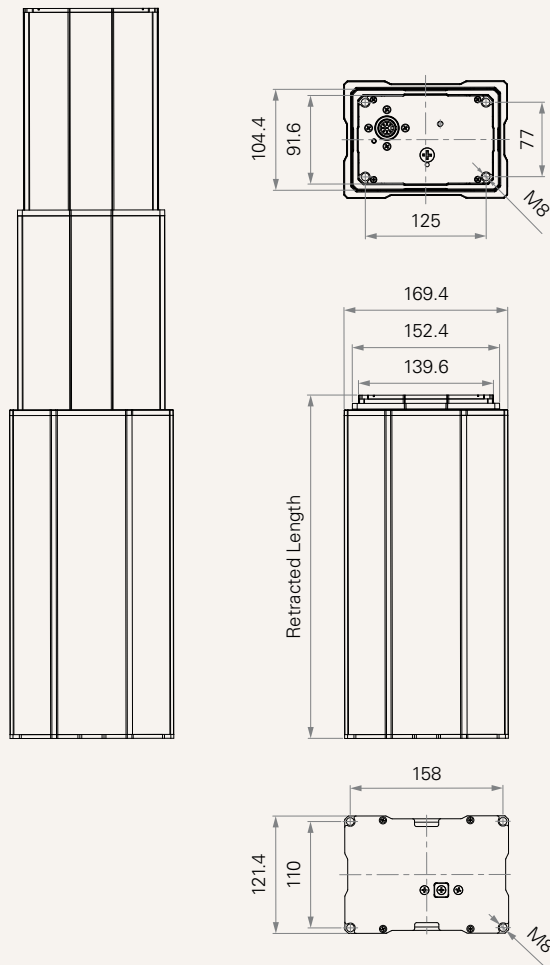
The TL54 is the latest advancement in TiMOTION's medical column series. Specifically designed and developed for tension loads, it is ideally suited for pull applications such as the suspension of medical equipment. The TL54's three-segment outer tube ensures safe and stable movement, while also offering a minimal installation dimension with a wide range of stroke options.

General Features

Max. load	2,000N (push/pull)
Self-locking force	2,000N
Max. dynamic bending moment	250Nm
Max. static bending moment	500Nm
Max. speed at max. load	12mm/s
Max. speed at no load	21mm/s
Retracted length	$\geq \text{Stroke}/2 + 150\text{mm}$
IP rating	IPX6
Dimension of outer tube	121.4*169.4mm, rectangular
Stages	3-stage
Stroke	250~600mm
Output signals	Hall sensors
Voltage	12/24V DC, PTC
Color	Matte silver, black
Operational temperature range	+5°C~+45°C

Drawing

Standard Dimensions
(mm)



Load and Speed

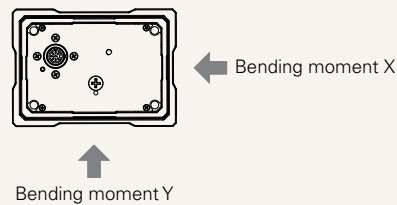
CODE	Load (N)		Self Locking Force (N)	Typical Current (A)		Typical Speed (mm/s)	
	Push	Pull		No Load 32V DC	With Load 24V DC	No Load 32V DC	With Load 24V DC
Motor Speed (5100RPM, Duty cycle 10%)							
B	2000	2000	2000	2.7	5	21	12

Note

- Please refer to the approved drawing for the final authentic value.
- The current & speed in table are tested with 24V DC motor.
- 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.
- Dynamic bending moment (Nm) - X direction

Stroke (mm)	Retracted length (mm)	
	S/2+150	S/2+155
250-600	250	250

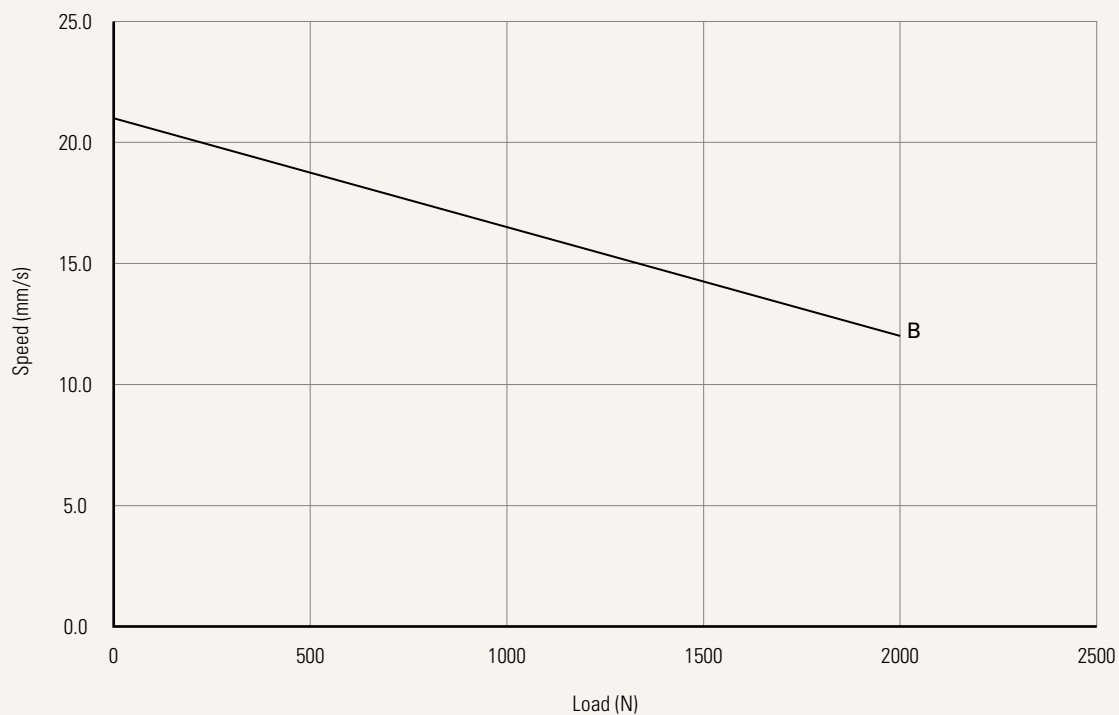
- * Bending moment Y direction= X*0.8
- * Static bending moment= dynamic*2



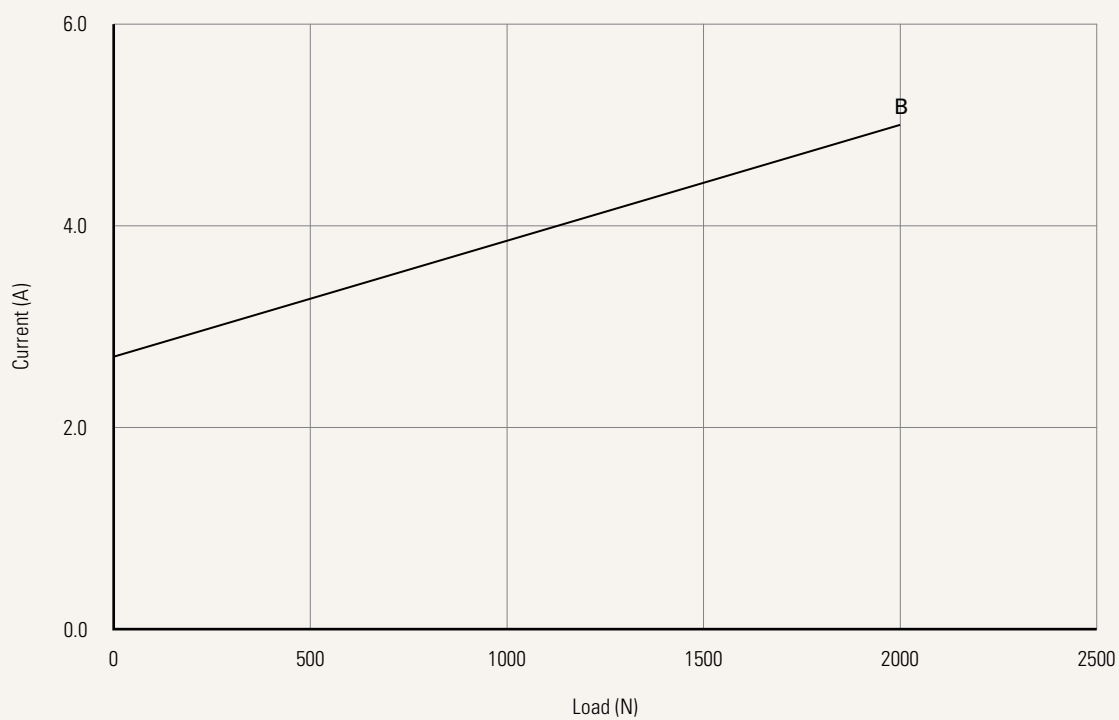
Performance Data (24V DC Motor)

Motor Speed (5100RPM, Duty cycle 10%)

Speed vs. Load



Current vs. Load



TL54 Ordering Key - Top End Socket

TL54

Version: 20240812-C

Voltage	1 = 12V DC, PTC	5 = 24V DC, PTC
Load and Speed	See page 2	
Stroke (mm)	250-600	
Retracted Length (mm)	See page 6	
Cable Exit	1~5 = See page 7	
Special Functions for Spindle Sub-Assembly	0 = Without (Standard) 1 = Safety nut	2 = Safety nut (bi-directional)
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	
IP Rating	1 = Without	2 = IPX4 3 = IPX6
Output Signals	0 = Without	2 = Hall sensor * 2
Connector	1 = DIN 6P, socket	2 = DIN 6P, socket, with Anti-pull buckle
Cable Length	0 = Without	
Color	1 = Black	2 = Matte silver
Tubes Direction	0 = Thinner on top	
Grounding Function	0 = Without	1 = With

TL54 Ordering Key - Side Cable

TL54

Version: 20240812-C

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1

7

11

1

9

1

Voltage	1 = 12V DC, PTC		5 = 24V DC, PTC	
Load and Speed	See page 2			
Stroke (mm)	250-600			
Retracted Length (mm)	See page 6			
Cable Exit	See page 7			
Special Functions for Spindle Sub-Assembly	0 = Without (Standard) 1 = Safety nut		2 = Safety nut (bi-directional)	
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 4 = Two switches at full retracted/extended positions to send signal + third one in between to send signal			
IP Rating	1 = Without	2 = IPX4	3 = IPX6	
Output Signals	0 = Without	2 = Hall sensor * 2		
Connector	1 = DIN 6P, 90° plug 2 = Tinned leads	F = DIN 6P, 180° plug G = Molex 8P, 90° plug	H = Molex 8P, 180° plug I = Molex 6P, 90° 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	1 = Black (Black cable set) 2 = Matte silver (428C color cable set)		3 = Matte silver (Black cable set)	
Tubes Direction	0 = Thinner on top	1 = Wider on top		
Grounding Function	0 = Without	1 = With		

Retracted Length (mm)

1. Retracted length needs to $\geq A+B+C$

A. Load (N)

Push 2000	Pull 2000
S/2+150	S/2+155

Note

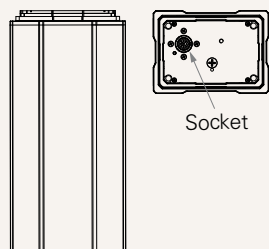
¹ Different retracted length is relative to different bending moment, [See page 2.](#)

B. Cable Exit

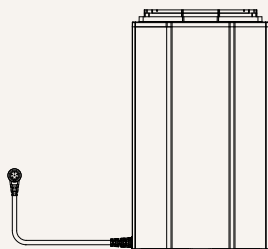
CODE	1	2	3	4	5
	Top End Socket	Thinner on Top, Bottom Side Cable	Wider on Top, Top Side Cable	Wider on Top, Bottom Side Cable	Thinner on Top, Top Side Cable
	-	+20	+20	+15	+15

Cable Exit

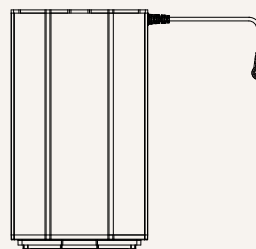
1 = Top end socket



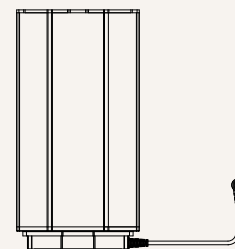
2 = Thinner on top, bottom side cable



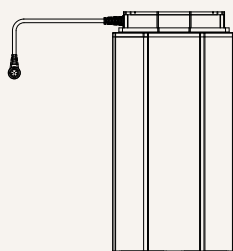
3 = Wider on top, top side cable



4 = Wider on top, bottom side cable



5 = Thinner on top, top side cable

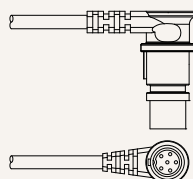


Connector

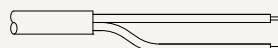
1 = DIN 6P, socket



1 = DIN 6P, 90° plug



2 = Tinned leads



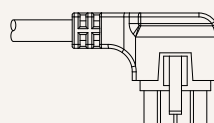
2 = DIN 6P, socket, with Anti-pull buckle



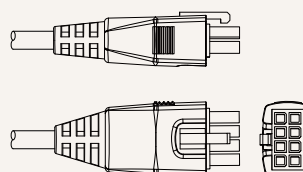
F = DIN 6P, 180° plug



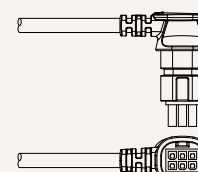
G = Molex 8P, 90° plug



H = Molex 8P, 180° plug



I = Molex 6P, 90° plug



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.