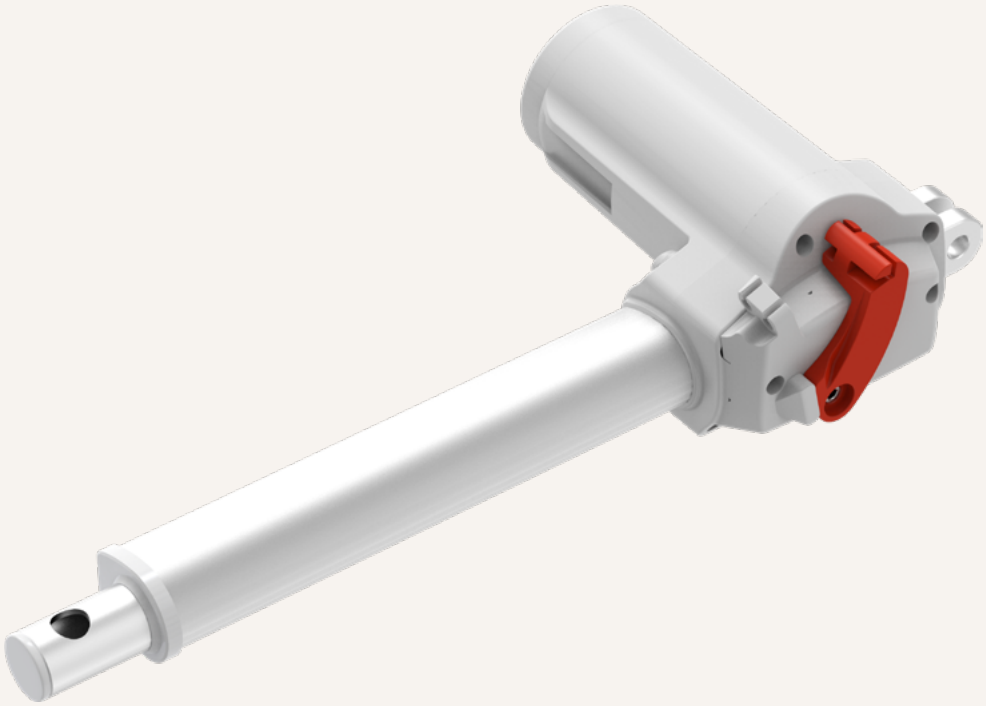
TA31QR

series



Product Segments

- **Care Motion**

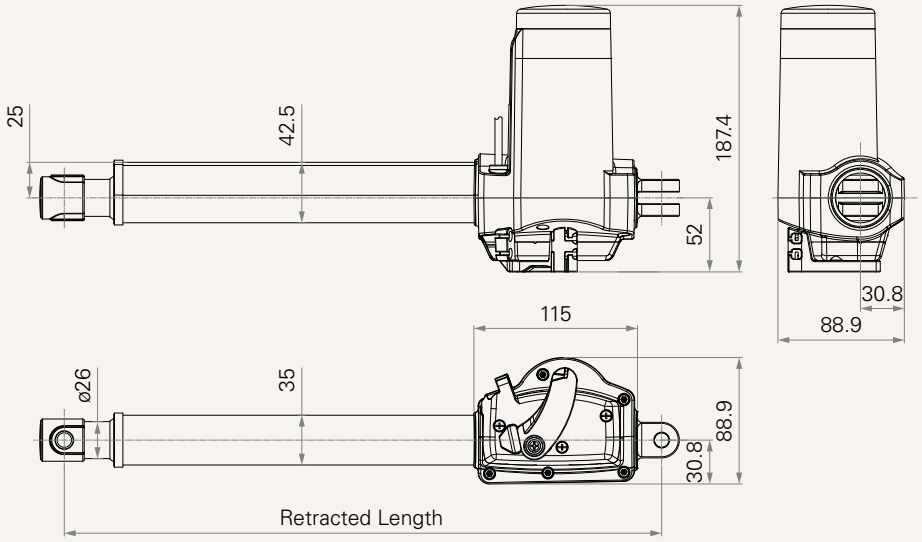
The TA31QR improves upon the TA31 with added design benefits and functionality, while providing a high quality yet economical option for medical applications. In particular, the TA31QR provides multiple output signal options. These include a spindle set Hall sensors or POT which will continue to send position feedback after the quick release action is performed. This feature allows the user to maintain accurate position within the control system without having to perform a system reset.

General Features

Voltage of motor	12, 24V DC; 12, 24V DC (PTC)
Maximum load	5,000N in push
Maximum load	3,000N in pull
Maximum speed at full load	6.3mm/s (with 3500N in a push condition)
Stroke	25~450mm
Minimum installation dimension	Stroke + 178mm
Color	Black or grey
IP rating	Up to IP66W
Operational temperature range	+5°C~+45°C
Options	Safety nut, Hall sensors, POT, spindle set Hall sensors

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%)							
J	3500	3000	1000	0.8	3.5	11.2	6.3
K	5000	3000	1500	0.8	3.5	9.0	4.7

Note

1 With a 12V motor, the current is approximately twice the current measured in 24V; 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.

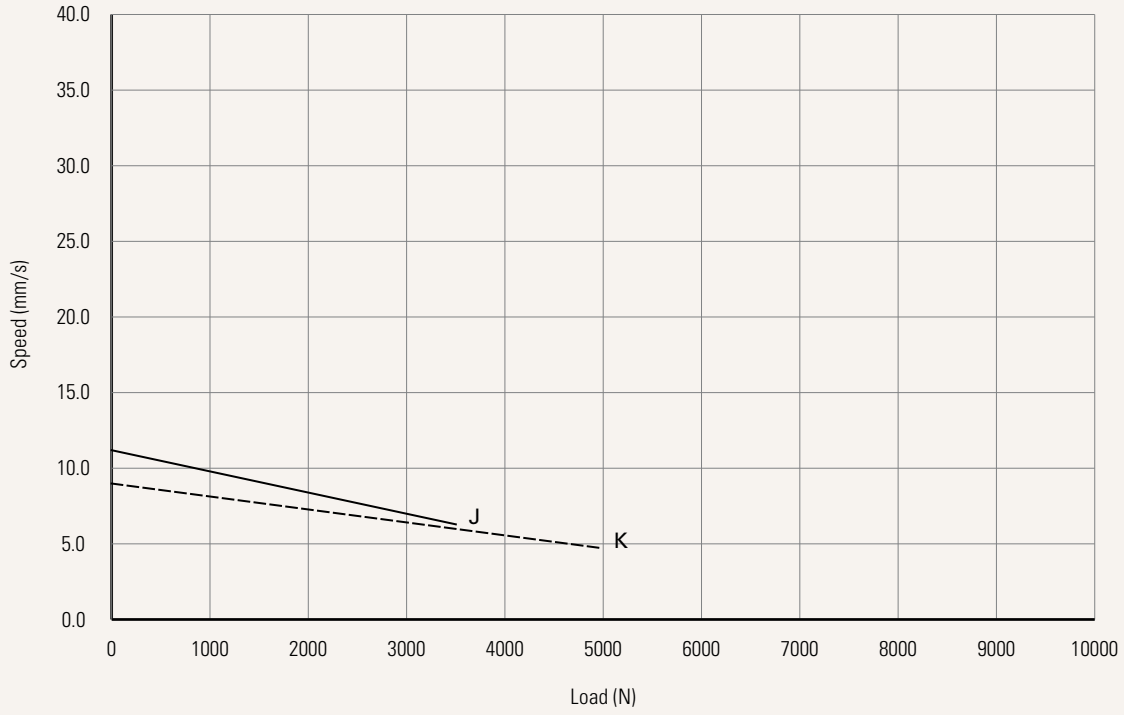
3 Current and speed: Tested average value when extending in push direction.

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

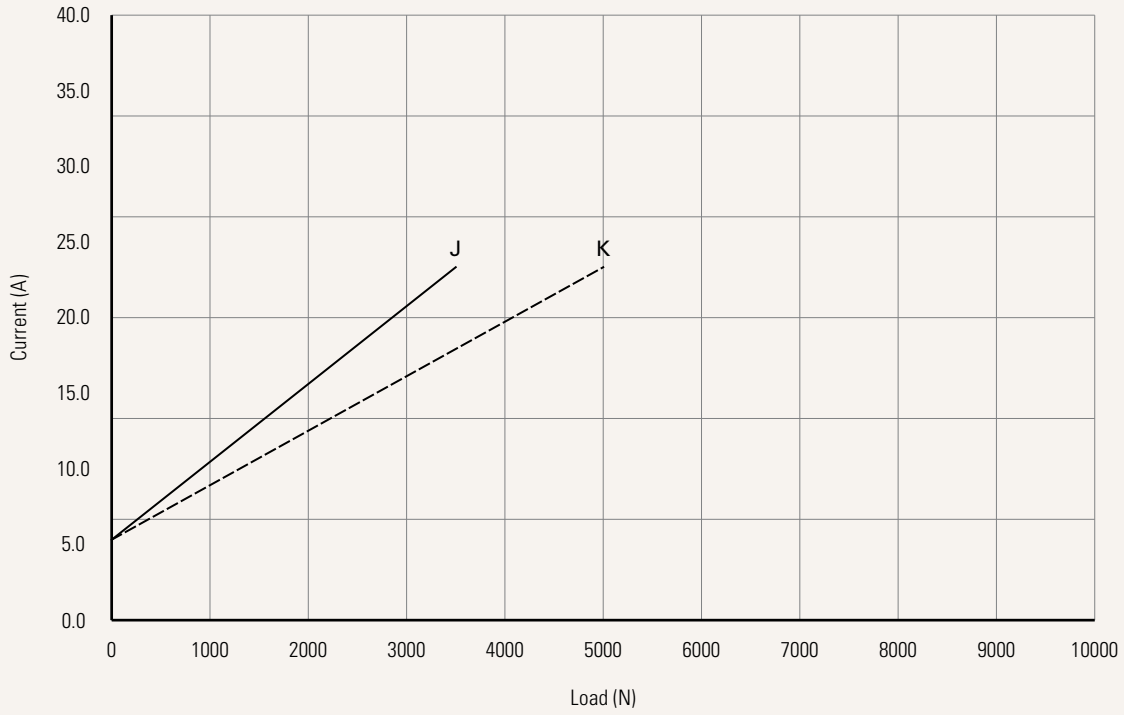
Performance Data (24V DC Motor)

Motor Speed (3800RPM, Duty Cycle 10%)

Speed vs. Load



Current vs. Load



Note

1 The performance data in the curve charts shows theoretical value.

TA31QR Ordering Key

TiMOTION

TA31QR

Version: 20180723-B

Voltage	1 = 12V DC	2 = 24V DC	5 = 24V DC, PTC	6 = 12V DC, PTC
Load and Speed	See page 2			
Stroke (mm)	25~450			
Retracted Length (mm)	See page 5			
Rear Attachment (mm) See page 6	2 = Aluminum casting, U clevis, slot 8.2, depth 17.0, hole 10.2 3 = Aluminum casting, U clevis, slot 8.2, depth 17.0, hole 12.2 C = Aluminum casting, U clevis, slot 8.2, depth 17.0, hole 10.2, with T-bushing			
Front Attachment (mm) See page 6	1 = Punched hole on inner tube + plastic cap, without slot, hole 10.2, with plastic bush 2 = Punched hole on inner 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 tube, wihout slot, hole 10.2, with plastic bush		6 = Punched hole on inner tube, wihout 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, with T-bushing	
Direction of Rear Attachment (Counterclockwise) See page 7	1 = 0°	3 = 90°		
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) 1 = Safety nut		2 = Standard push only 3 = Standard push only + Safety nut	
Functions for Limit Switches See page 7	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, TC21)			
Output Signals	0 = Without 2 = Hall sensor * 2		P = POT H = Spindle set Hall sensors * 2	
Connector See page 8	1 = DIN 6P, 90° plug 2 = Tinned leads 4 = Big 01P, plug	C = Y cable (direct cut, water proof, anti-pull) D = Extension cable, not preset on motor cover (cable legth 120mm) R = Extension cable, preset on motor cover (cable legth 50mm)		E = Molex 8P, plug F = DIN 6P, 180° plug G = Audio plug
Cable Length (mm)	0 = Straight, 100 1 = Straight, 500 2 = Straight, 750	3 = Straight, 1000 4 = Straight, 1250 5 = Straight, 1500	6 = Straight, 2000 7 = Curly, 200 8 = Curly, 400	B~H = For direct cut system See page 8

TA31QR Ordering Key Appendix

Retracted Length (mm)

1. Calculate A+B+C+D = Y
2. Retracted length needs to ≥ Stroke + Y

A. Front Attachment	
CODE	
1, 2, 5, 6	+178
3, 4	+201
7, 8, 9	+193
B,C	+201

B. Load V.S. Stroke		
Stroke (mm)	Load (N)	
	3500	5000
25~150	-	-
151~200	-	-
201~250	-	-
251~300	-	-
301~350	+5	+5
351~400	+10	+10
401~450	+15	+15

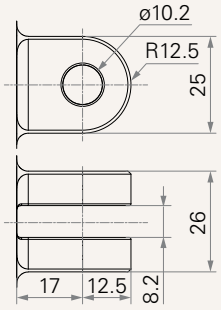
C. Load V.S. Special Functions for Spindle Sub-Assembly		
CODE	Load (N)	
	3500	5000
0	-	-
1	-	-
2	-	+3
3	-	+3

D. Signal Outputs	
CODE	
0	-
1	-
2	-
P	+7
H	-

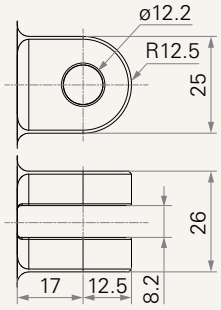
TA31QR Ordering Key Appendix

Rear Attachment (mm)

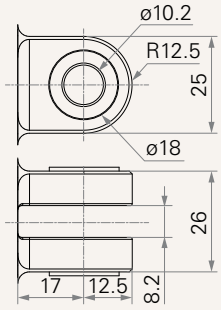
2 = Aluminum casting, U clevis, slot 8.2, depth 17.0, hole 10.2



3 = Aluminum casting, U clevis, slot 8.2, depth 17.0, hole 12.2

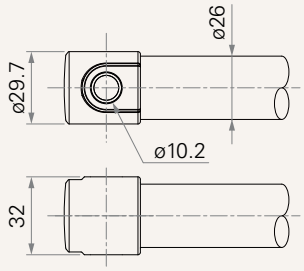


C = Aluminum casting, U clevis, slot 8.2, depth 17.0, hole 10.2, with T-bushing

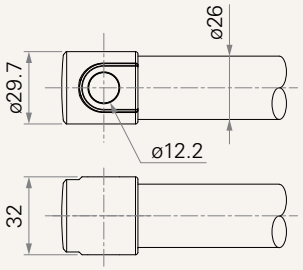


Front Attachment (mm)

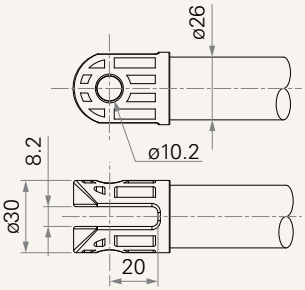
1 = Punched hole on inner tube + plastic cap, without slot, hole 10.2, with plastic bush



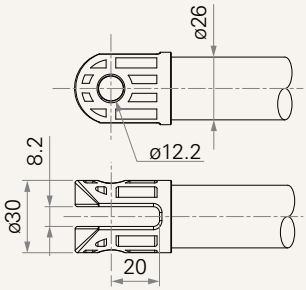
2 = Punched hole on inner tube + plastic cap, without slot, hole 12.2



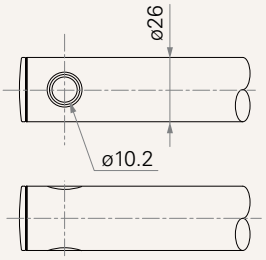
3 = Plastic, U clevis, width 8.2, depth 20.0, hole 10.2, for push < 4000N and pull < 2500N



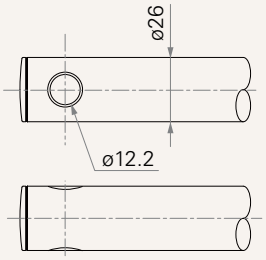
4 = Plastic, U clevis, width 8.2, depth 20.0, hole 12.2, for push < 4000N and pull < 2500N



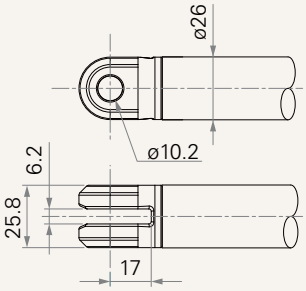
5 = Punched hole on inner tube, wihout slot, hole 10.2, with plastic bush



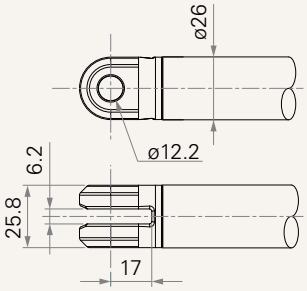
6 = Punched hole on inner tube, wihout slot, hole 12.2



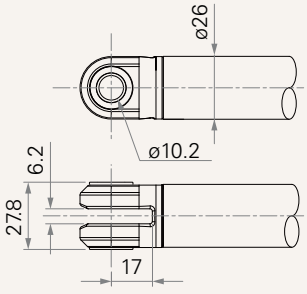
7 = Aluminum casting, U clevis, width 6.2, depth 17.0, hole 10.2



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



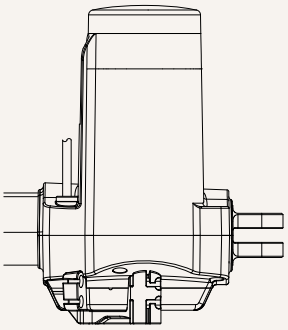
9 = Aluminum casting, U clevis, width 6.2, depth 17.0, hole 10.2, with T-bushing



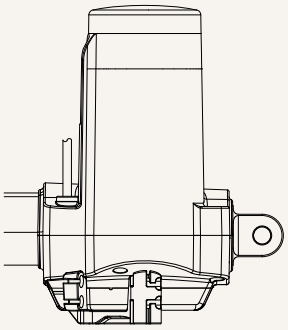
TA31QR Ordering Key Appendix

Direction of Rear Attachment (Counterclockwise)

1 = 0°



3 = 90°



Functions for Limit Switches

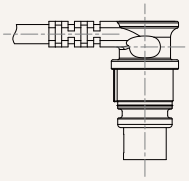
Wire Definitions

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

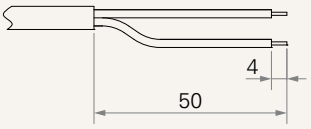
TA31QR Ordering Key Appendix

Connector

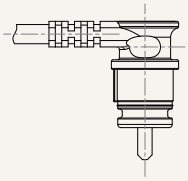
1 = DIN 6P, 90° plug



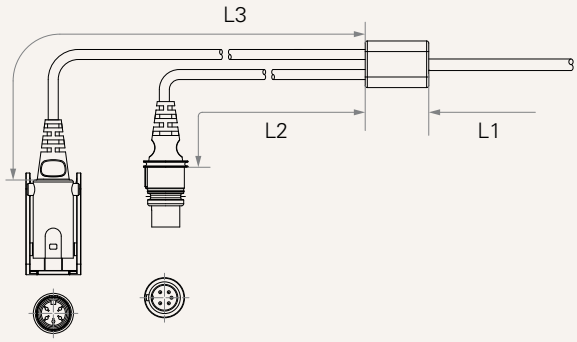
2 = Tinned leads



4 = Big 01P, plug



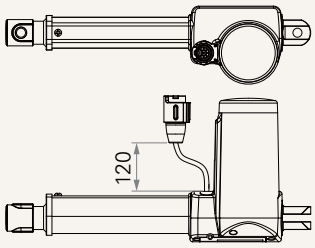
C = Y cable (direct cut, water proof, anti-pull)



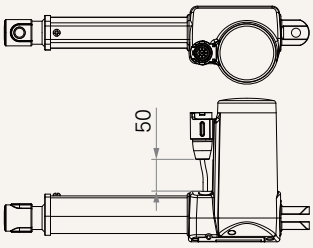
Cable length for direct cut system (mm)

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

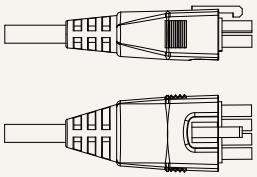
D = Extension cable, not preset on motor cover (cable legth 120mm)



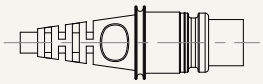
R = Extension cable, preset on motor cover (cable legth 50mm)



E = Molex 8P, plug



F = DIN 6P, 180° plug



G = Audio plug

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