TA1
series

TecHome

Product Segments

• Care Motion

The TA1 series linear actuator is TecHome's flagship model suited for healthcare, furniture, ergonomic and industrial applications. Industry certifications for the TA1 include EN60601-1, and RoHS. In addition, the TA1 linear actuator is available with an optional IP54 or 66 rating. Other options include a manual or quick release system and Hall or Reed feedback sensors.

General Features

Voltage of motor	12V DC, 24V DC, or 36V DC
Maximum load	10,000N in push
Maximum load	4,000N in pull
Maximum speed at full load	23.4mm/s (with 1,000N in a push or pull condition)
Minimum installation dimension	Stroke+163mm
Color	Black or grey
IP rating	Up to IP66
Certificate	EN60601-1and RoHS compliant
Operational temperature range	+5°C~+45°C
Options	Safety nut, quick release, Hall/Reed sensor(s)

Drawing

Standard Dimensions (vmm)
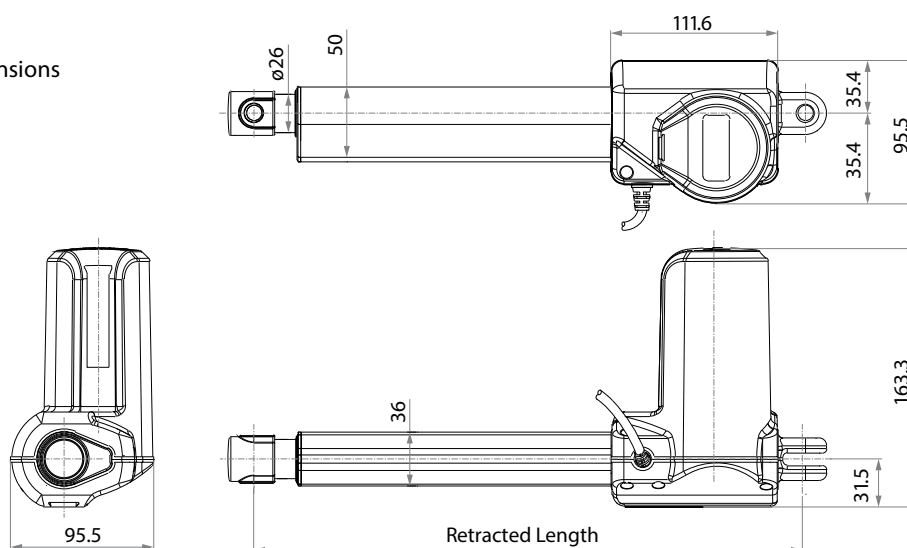
Load and Speed

| CODE	Load (N)		Self Locking Force (N)	Typical Current with Load (A)	Typical Speed (mm/s)	
	Push	Pull			No Load 32V DC	With Load 24V DC
Motor Speed (2600RPM)						
C	5000	4000	2500	3.6	8.0	4.1
D	6000	4000	4000	3.6	6.0	3.1
F	2500	2500	1500	3.3	15.9	8.3
G	2000	2000	1000	3.3	21.4	11.1
H	1000	1000	500	2.2	32.1	19.1
J	3500	3500	2500	3.7	11.9	6.0
K	8000	4000	5000	4.1	5.4	2.7
Motor Speed (3400RPM)						
L	6000	4000	4000	4.3	7.6	4.1
N	2500	2500	1500	4.2	20.2	11.1
O	2000	2000	1000	4.1	27.1	14.9
P	1000	1000	500	3.1	39.5	23.4
Q	3500	3500	2500	4.7	15.1	7.9
R	8000	4000	5000	5.1	6.8	3.5
T	5000	4000	2500	4.3	10.1	5.4
Motor Speed (3800RPM)						
Y	8000	4000	5000	5.4	7.7	4.4
B	10000	4000	10000	5.3	5.7	3.3
U	5000	4000	2500	4.6	11.4	6.6
W	2500	2500	1500	4.4	22.9	13.1
Z	3500	3500	2500	4.9	17.1	9.5

Note

1 With a 12V motor, the current is approximately twice the current measured in 24V. With a 36V motor, the current is approximately two-thirds 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 TecHome control boxes have this feature built-in.
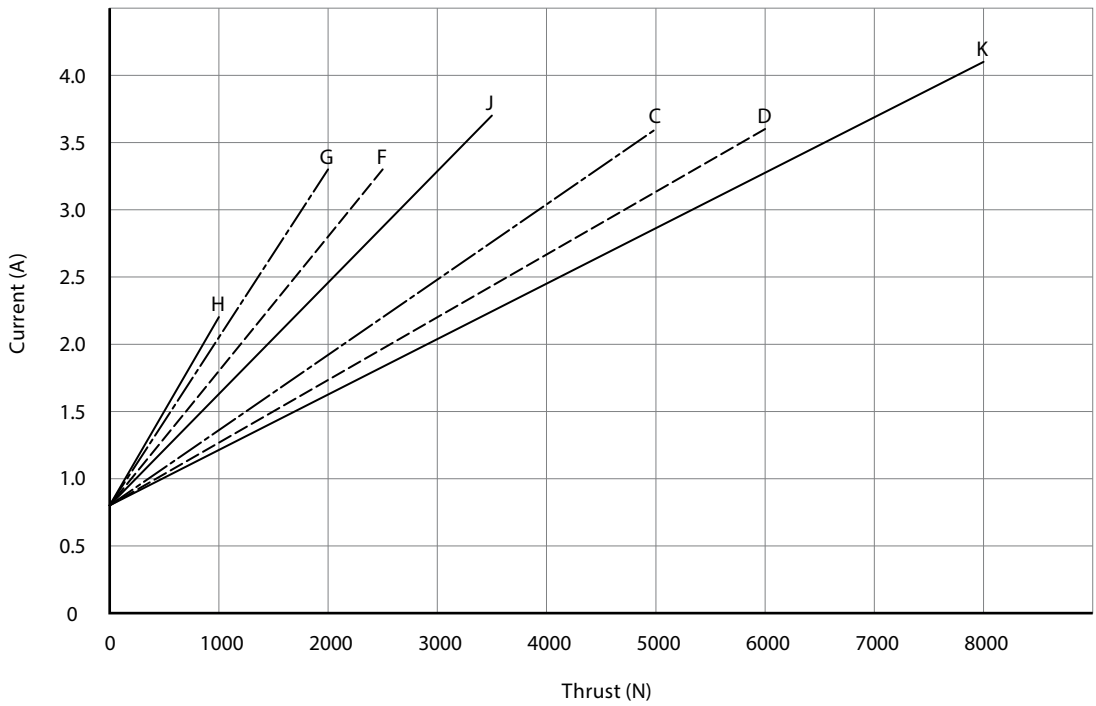
Performance Data (24V DC Motor)

Motor Speed (2600RPM)

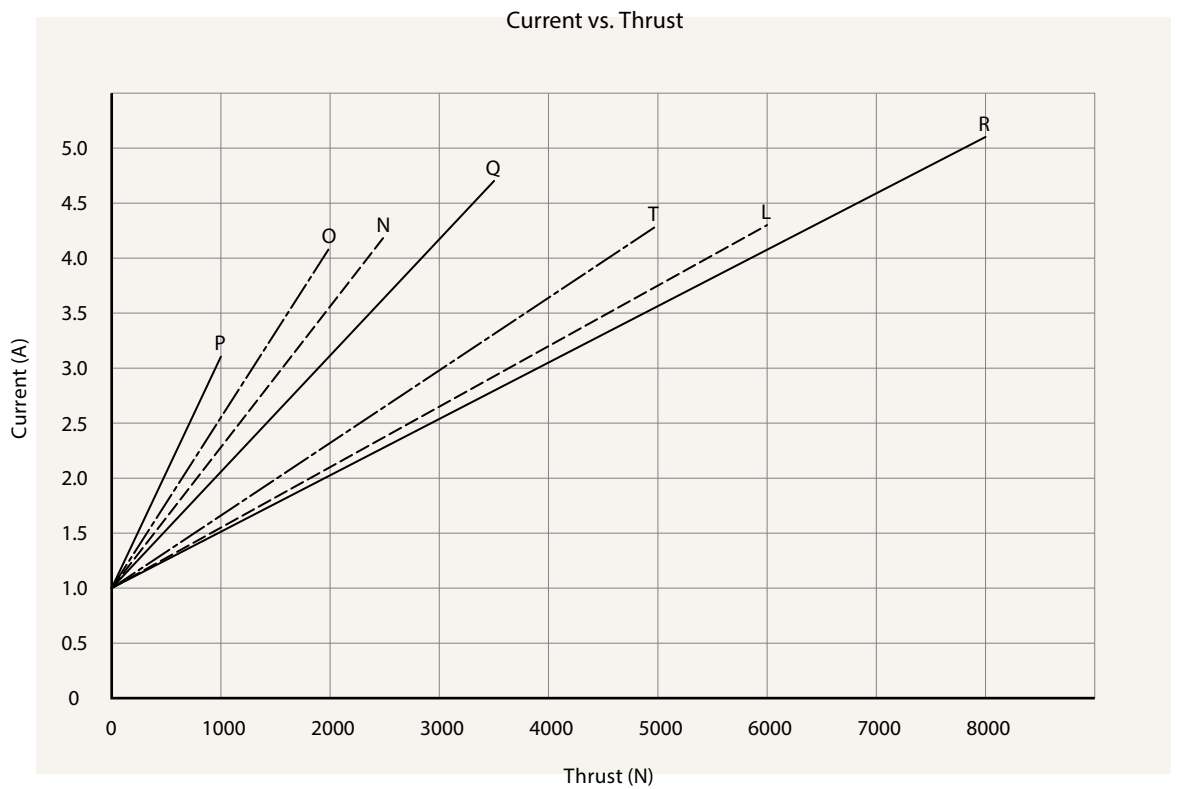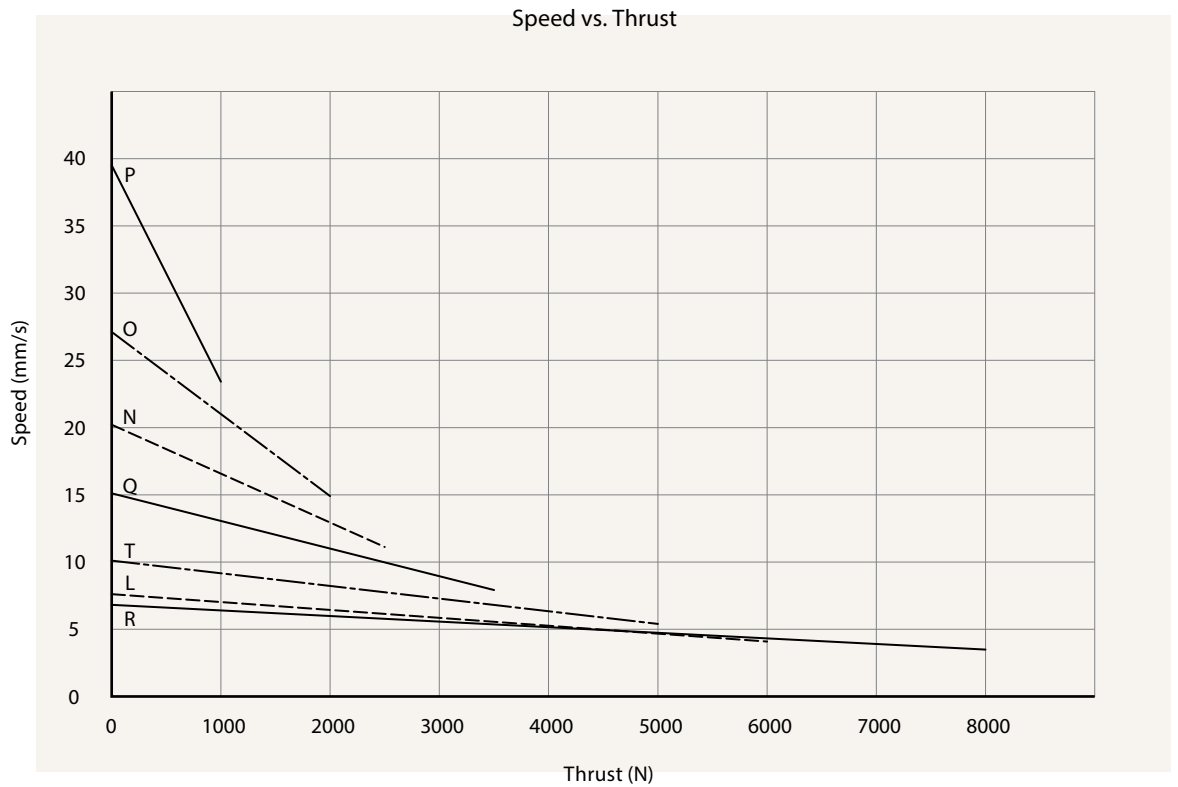## Speed vs. Thrust
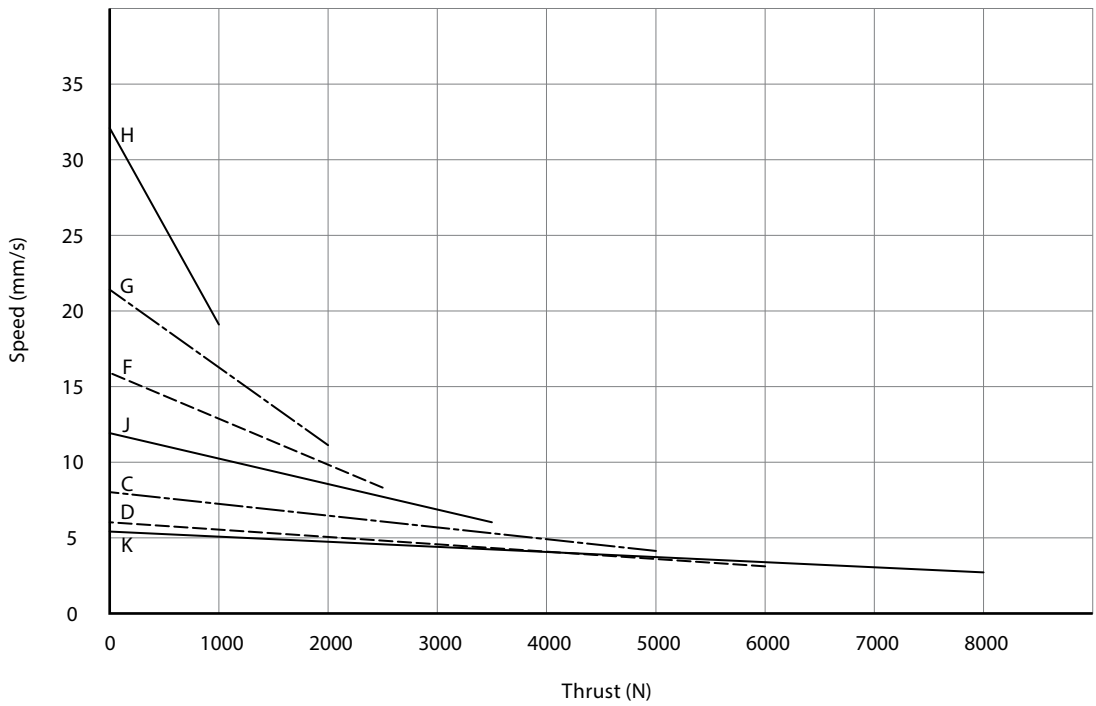
Current vs. Thrust

Note

1 The performance data in the curve charts shows theoretical value.
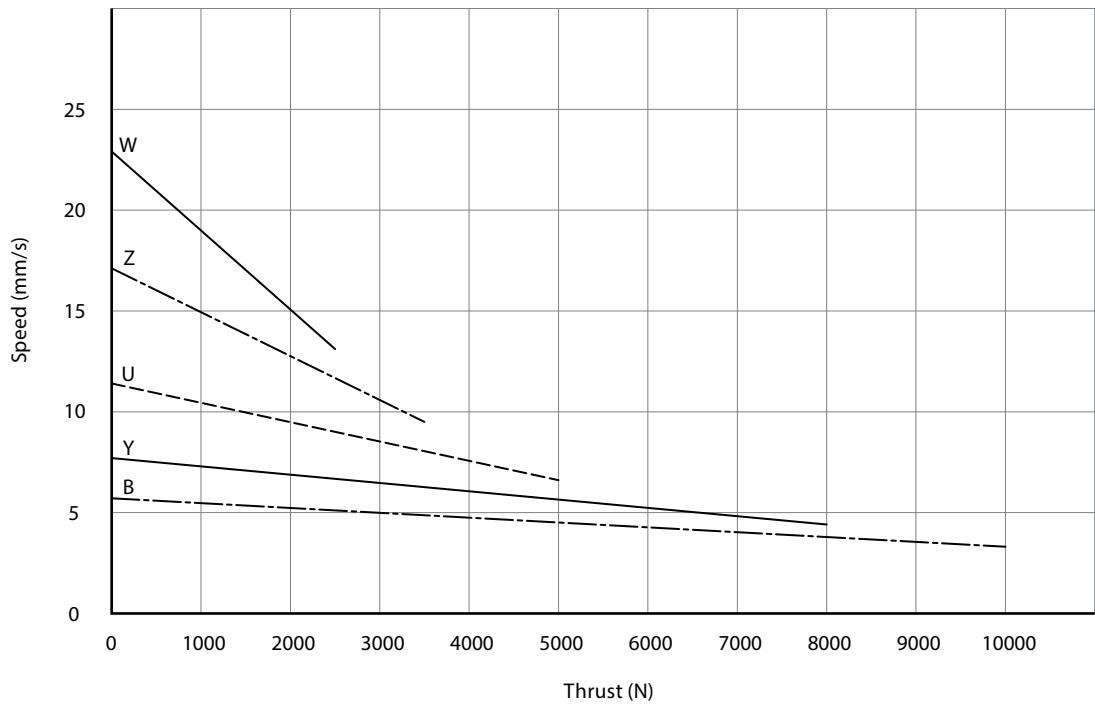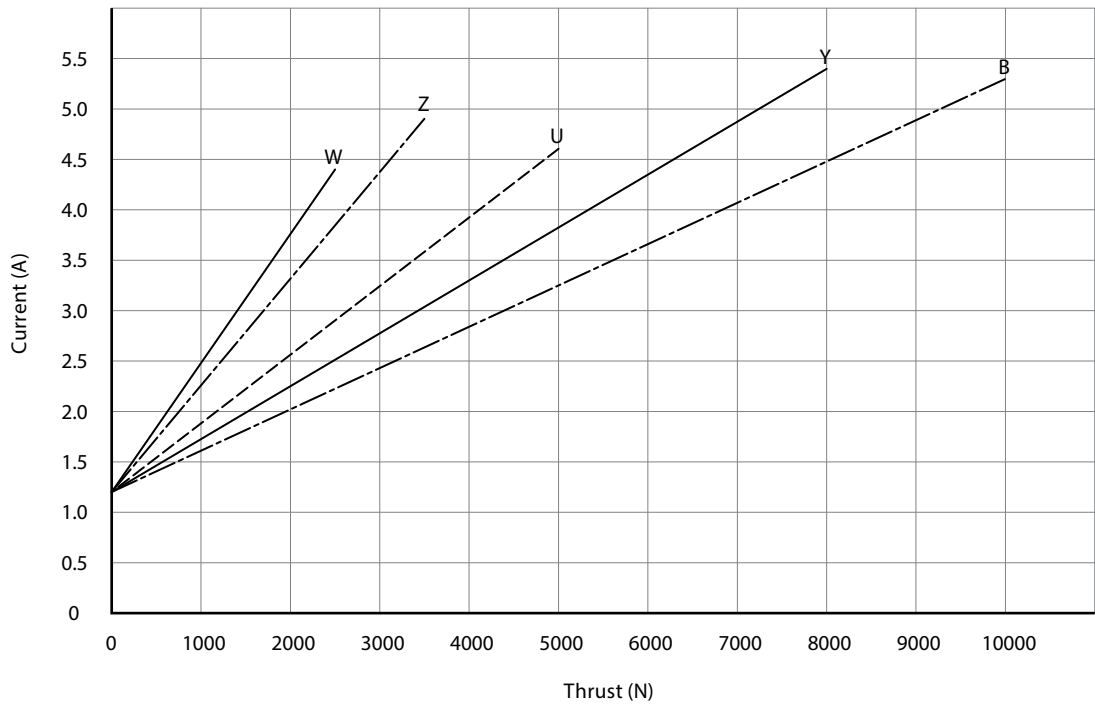
Performance Data (24V DC Motor)

Motor Speed (3400RPM)

Speed vs. Thrust

Current vs. Thrust

Note

1 The performance data in the curve charts shows theoretical value.
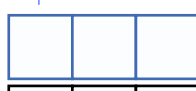
Performance Data (24V DC Motor)

Motor Speed (3800RPM)

Speed vs. Thrust

Current vs. Thrust

Note

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

TA1 Ordering Key

TA1

Field		
Voltage	1 = 12V 2 = 24V 3 = 36V	
Load and Speed	See page 2	
Stroke (mm)		
Retracted Length (mm)	See page 7	

Rear Attachment (mm) — See page 8

- 0 = U clevis plastic , slot 8.2, hole 10.2 (for load push 4000N & pull < 2500N)
- 1 = U clevis plastic , slot 8.2, hole 12.2 (for load push 4000N & pull < 2500N)
- 2 = U clevis Aluminum casting, slot 8.2, hole 10.2
- 3 = U clevis Aluminum casting, slot 8.2, hole 12.2
- 4 = U clevis Aluminum casting, slot 10.2, hole 10.2
- 5 = U clevis Aluminum casting, slot 10.2, hole 12.2
- C = U clevis Aluminum casting #3 + plastic bushing, slot 8.2, hole 10.2
- H = Hand crank
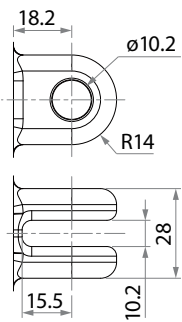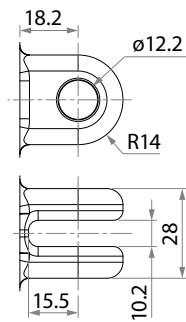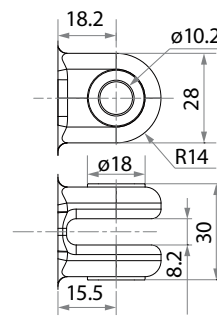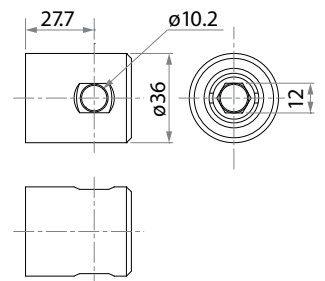
Front Attachment (mm) — See page 8
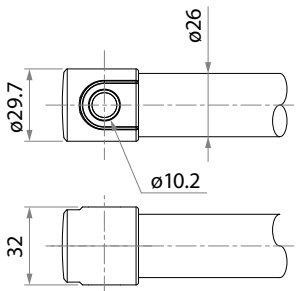
- 1 = Punched hole on inner tube + plastic cap, width 32, without slot, hole 10.2
- 2 = Punched hole on inner tube + plastic cap, width 32, without slot, hole 12.2
- 3 = U clevis plastic φ30, slot 8.2, hole 10.2 (for load push < 4000N & pull < 2500N)
- 4 = U clevis plastic φ30, slot 8.2, hole 12.2 (for load push < 4000N & pull < 2500N)
- 5 = Punched hole on inner tube, width 26, without slot, hole 10.2
- 6 = Punched hole on inner tube, width 26, without slot, hole 12.2
- 7 = U clevis Aluminum casting, width 26, slot 6.2, hole 10.2
- 8 = U clevis Aluminum casting, width 26, slot 6.2, hole 12.2
- 9 = U clevis Aluminum casting #8 + plastic bushing, width 28, slot 6.2, hole 10.2

Direction of Rear Attachment (Counterclockwise) — See page 9

- 1 = 0°   2 = 45°   3 = 90°   4 = 135°

Field		
Color	1 = Black 2 = Grey (Pantone 428C)	
IP Rating	1 = Without 2 = IP54 3 = IP66 4 = Without housings 5 = IP66W	
Emergency Release Function	0 = Without 1 = Cable type quick release (standard) 2 = Handle type quick release	

Special Functions for Spindle Sub-Assembly

- 0 = Without
- 1 = Safety nut
- 2 = Standard push only
- 3 = Standard push only + safety nut

Functions for Limit Switches — See page 9

- 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

Output Signals

- 0 = Without   1 = One Hall sensor   2 = Two Hall sensors   3 = Reed Sensor

Connector — See page 10

- 1 = DIN 6P, 90° plug
- 2 = Tinned leads
- 4 = Big 01P, plug
- C = Y cable (for direct cut system, water proof, anti pull)
- D = Extension cable + DIN 6P socket (with anti pull clip)
- E = MOLEX 8P, plug
- 5 = DIN 6P, 180° plug
- G = Audio plug

Cable Length

0 = Straight, 100mm	3 = Straight, 1000mm	6 = Straight, 2000mm	B~H = For direct cut system
1 = Straight, 500mm	4 = Straight, 1250mm	7 = Curly, 200mm	See page 10
2 = Straight, 750mm	5 = Straight, 1500mm	8 = Curly, 400mm	

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TA1 Ordering Key Appendix

Retracted Length (mm)

1. Calculate A+B+C+D = Y

2. Retracted length needs to ≥ Stroke+Y

A. Rear/Front Attachment

Front Attachment	Rear Attachment	
	0, 1, 2, 3, 4, 5, C	H
1	+163	+171
2	+163	+171
3	+185	+193
4	+185	+193
5	+163	+171
6	+163	+171
7	+175	+183
8	+175	+183
9	+175	+183

B. Load V.S. Stroke

Stroke (mm)	Load (N)			
	< 6000	= 6000	= 8000	= 10000
0~150	-	-	-	+6
151~200	-	-	+5	+11
201~250	-	+5	+10	+16
251~300	-	+10	+15	+21
301~350	+5	+15	+20	+26
351~400	+10	+20	+25	+31

C. Emergency Release Function

CODE	
0	-
1	+24
2	+24

D. Special Functions for Spindle Sub-Assembly

Push Only	Load (N)
	≥ 6000
0	-
1	-
2	+3
3	+3

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TA1 Ordering Key Appendix

Rear Attachment (mm)

0 =U clevis plastic , slot 8.2, hole 10.2 (for load push < 4000N & pull < 2500N)

ø10.2
18.2
R14
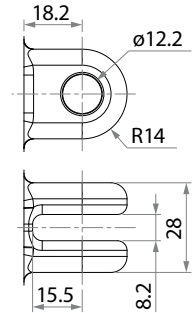28
15.5   8.2

1 =U clevis plastic , slot 8.2, hole 12.2 (for load push < 4000N & pull < 2500N)

ø12.2
18.2
R14
28
15.5   8.2

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

ø10.2
18.2
R14
28
15.5   8.2

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

ø12.2
18.2
R14
28
15.5   8.2

4 =U clevis Aluminum casting, slot 10.2, hole 10.2

ø10.2
18.2
R14
28
15.5   10.2

5 =U clevis Aluminum casting, slot 10.2, hole 12.2

ø12.2
18.2
R14
28
15.5   10.2

C =U clevis Aluminum casting #3 + plastic bushing, slot 8.2, hole 10.2

ø10.2
18.2
28
ø18   R14
30
8.2
15.5
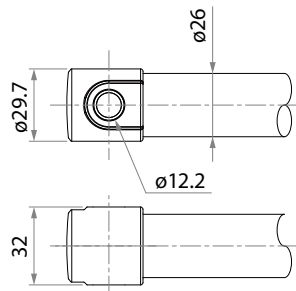
H =Hand crank

27.7   ø10.2
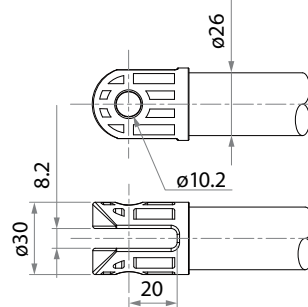ø36
12

Front Attachment (mm)

1 =Punched hole on inner tube + plastic cap, width 32, without slot, hole 10.2
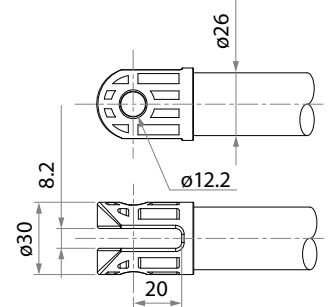
ø26
ø29.7
ø10.2
32

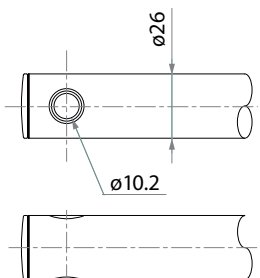2 =Punched hole on inner tube + plastic cap, width 32, without slot, hole 12.2

ø26
ø29.7
ø12.2
32

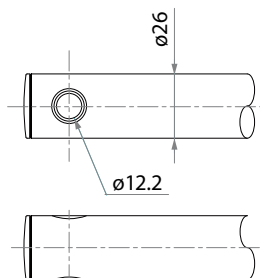3 =U clevis plastic ø30, slot 8.2, hole 10.2 (for load push < 4000N & pull < 2500N)

ø26
8.2   ø10.2
ø30
20

4 =U clevis plastic ø30, slot 8.2, hole 12.2 (for load push < 4000N & pull < 2500N)

ø26
8.2   ø12.2
ø30
20
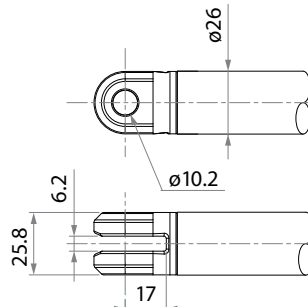
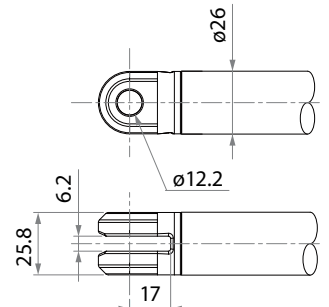5 =Punched hole on inner tube, width 26, without slot, hole 10.2

ø26
ø10.2

6 =Punched hole on inner tube, width 26, without slot, hole 12.2

ø26
ø12.2

7 =U clevis Aluminum casting, width 26, slot 6.2, hole 10.2

ø26
6.2   ø10.2
25.8
17

8 =U clevis Aluminum casting, width 26, slot 6.2, hole 12.2
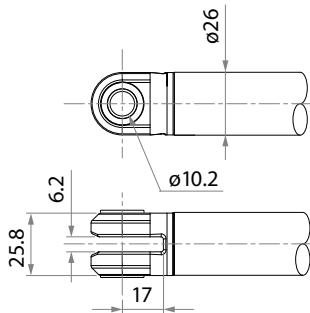
ø26
6.2   ø12.2
25.8
17

TA1 Ordering Key Appendix

Front Attachment (mm)

9 = U clevis Aluminum casting #8 +
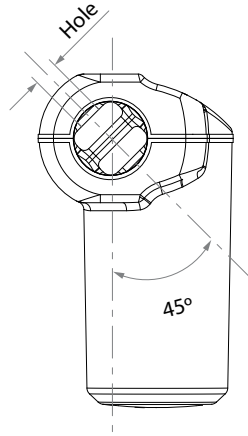   plastic bushing, width 28, slot
      6.2, hole 10.2

ø26

ø10.2

6.2

25.8

17

Direction of Rear Attachment (Counterclockwise)

1 = 0°	2 = 45°	3 = 90°	4 = 135°

Hole

0°

Hole

45°

Hole

90°

Hole

135°

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

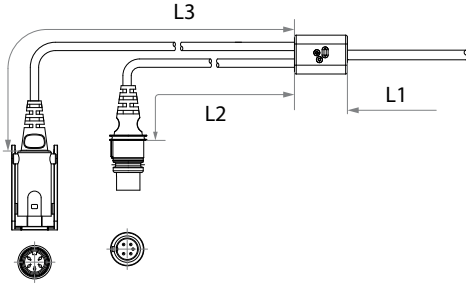# TA1 Ordering Key Appendix

Connector

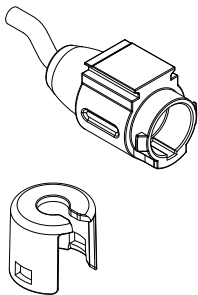1 = DIN 6P, 90° plug
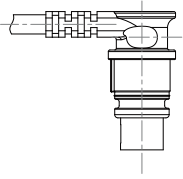
2 = Tinned leads
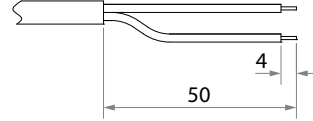
4 = Big 01P, plug
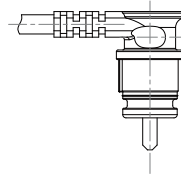
C =Y cable (for direct cut system, water proof, anti pull)

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

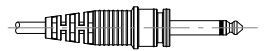D =Extension cable + DIN 6P socket (with anti pull clip)

E = MOLEX 8P, plug
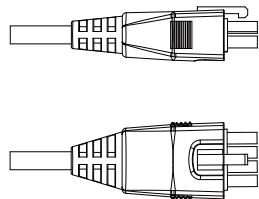
F = DIN 6P, 180° plug
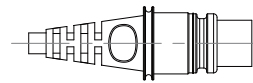
G = Audio plug

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