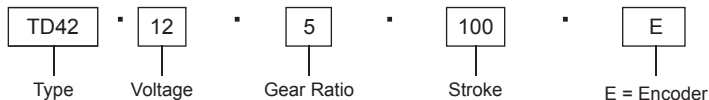


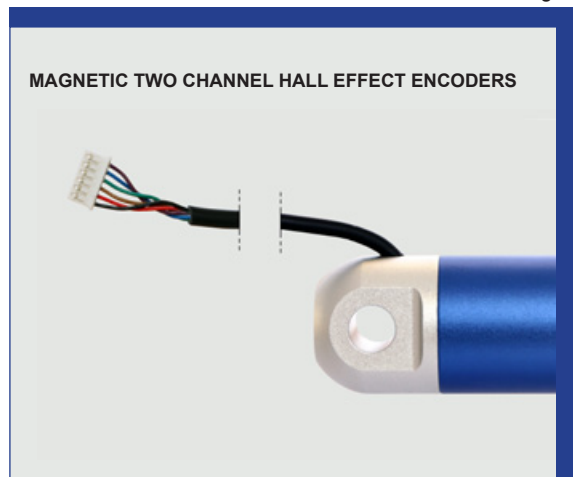
ENCODER OPTION FOR TD ACTUATOR SERIES

This document describes only the data for the encoders. For actuator data please refer to the separate actuator data sheets. The encoder design is based on a rotating magnetic disk and two hall sensors. It is a simple, long life, robust and low cost technology. In standard our encoders generate the maximum number of pulses that are possible in relation to the diameter of the magnet and encoder.

MODEL NO. DESIGNATIONS



Example: TD42-12-5-100-E



ENCODER FEATURES AND BENEFITS

- Magnetic hall sensor encoders
- Two encoder channels is standard
- Available for all our TD actuators
- Simple design
- Robust and long lifetime
- Low cost
- High number of pulses

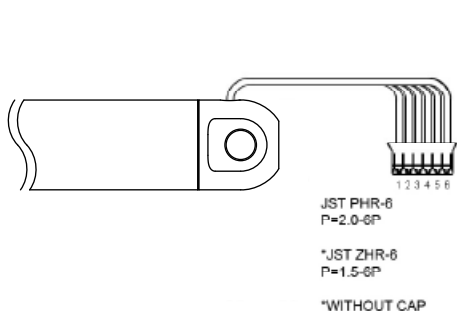
ENCODER DATA

Actuator	Encoder magnetic poles	Pulses Per motor Revolution PPR (Two channels)	Screw pitch mm	Cable length mm	Cable connector	Hall pulses/mm stroke
TD16	3	3*2	1,6	500	JST ZHR-6 P=1 5-6P	1.875
TD21	3	3*2	1,6	500	JST ZHR-6 P=1 5-6P	1.875
TD25	3	3*2	2	500	JST ZHR-6 P=2 0-6P	1.5
TD37	7	7*2	4	1500	JST ZHR-6 P=2 0-6P	1.75
TD42	7	7*2	4	1500	JST ZHR-6 P=2 0-6P	1.75
TD52	5	5*2	4	1500	JST ZHR-6 P=2 0-6P	1.25

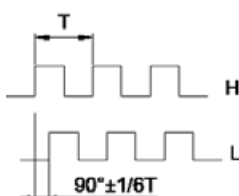
ELECTRIC CHARACTERISTICS

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN	REF	MAX	UNITS
Supply voltage	Vcc	---	3.5	-	20	V
Output saturation voltage	Vce (sat)	Vcc = 14V ; Ic = 20mA	-	300	700	mV
Output leakage current	Icex	Vce = 14V ; Vcc = 14V	-	< 0.1	10	µA
Supply Current	Icc	Vcc = 20V Output open	-	5	10	mA
Output rise time	tr	Vcc = 14V; RL = 820 Ohm; CL = 20pF	-	0.3	1.5	µS
Output fall time	tf	Vcc = 14V; RL = 820 Ohm; CL = 20pF	-	0.3	1.5	µS
Hall sensor	UTC Unisonic KS1816 (OUTPUTS: Open collector)					

APPEARANCE SIZE



OUTPUT WAVEFORM WITH EXTERNAL CONNECTED RESISTORS

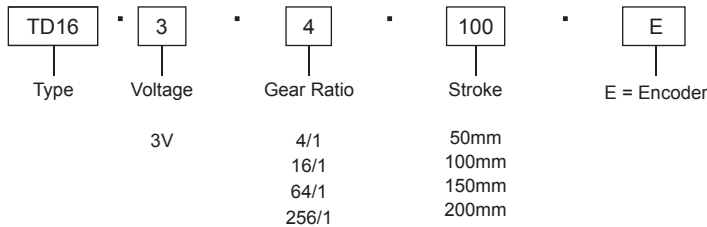


TWO CHANNEL ENCODER CONNECTIONS:	
1. BLACK	: - MOTOR
2. RED	: + MOTOR
3. BROWN	: HALL SENSOR Vcc
4. GREEN	: HALL SENSOR GND
5. BLUE	: HALL SENSOR A Vout
6. PURPLE	: HALL SENSOR B Vout

TD16 TUBULAR LINEAR DC ACTUATORS

Small, light weight, compact, low voltage, tubular dc motor linear actuators with encoder feed back option. These actuators have been specifically developed for usage in home automation applications, consumer products and remote control systems. Customized versions are welcome upon request. Additional data and CAD drawings are available on our web site.

MODEL NO. DESIGNATIONS



Example: TD16-3-4-100-E

TD16



TRANSMOTEC

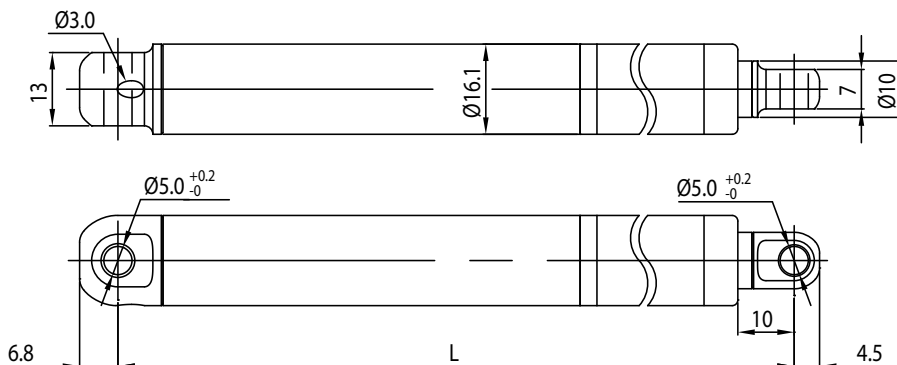
ENCODER VERSION

SEE SEPARATE DATA SHEET



MOTOR DATA				
Reduction	1:4	1:16	1:64	1:256
Voltage Rated (V)	3			
Current, max Load (A)	0.4			
Speed, no Load (mm/s)	83	20.5	5.2	1.3
Speed, max Load (mm/s)	68	17	4.2	1
Load max. push/pull energized (Kg)	0.1	0.35	1.2	4.2
Load max. push/pull energized (N)	0.98	3.43	11.76	41.16
Self-lock max. push/pull de-energized (Kg)	0.2	0.7	2.4	8.4
Self-lock max. push/pull de-energized (N)	1.96	6.86	23.52	82.32
Weight (g ±50 g)	150	150	150	150

APPEARANCE SIZE



FEATURES AND BENEFITS

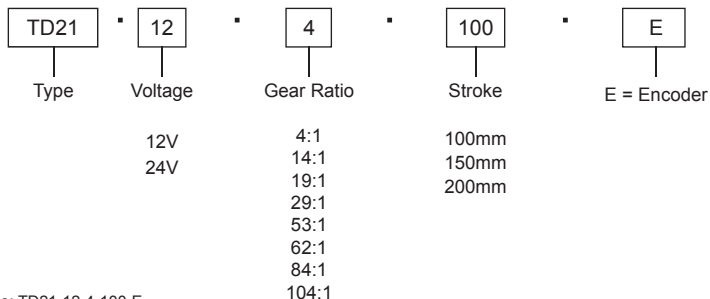
- Encoder feedback magnetic hall sensor option
- Aluminum house and rod
- Duty cycle max. 10%
- Ambient operational temperature range -10 °C to +60 °C
- Max duty time @ max load 1min.
- No end limit switches
- IP Grade IP54
- See separate database for further data
- Customizations are welcome upon request

S (Stroke)	50	100	150	200
L (S + 120mm)	170	220	270	320
Weight (g ±50 g)	150	150	150	150

TD21 TUBULAR LINEAR DC ACTUATORS

Small, light weight, compact, low voltage, tubular dc motor linear actuators with encoder feed back option. These actuators have been specifically developed for usage in home automation applications, consumer products and remote control systems. Customized versions are welcome upon request. Additional data and CAD drawings are available on our web site.

MODEL NO. DESIGNATIONS



TD21



TRANSMOTEC

ENCODER VERSION

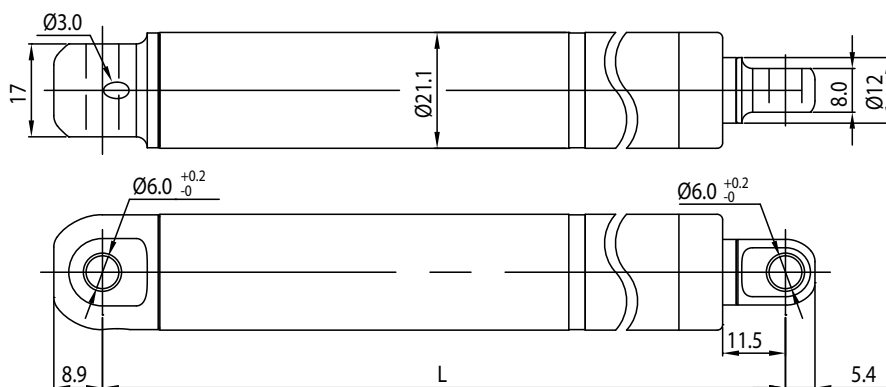
SEE SEPARATE DATA SHEET



MOTOR DATA

Reduction	4:1		14:1		19:1		29:1		53:1		62:1		84:1		104:1	
	12	24	12	24	12	24	12	24	12	24	12	24	12	24	12	24
Voltage (V)	12	24	12	24	12	24	12	24	12	24	12	24	12	24	12	24
Current, max Load (A)	0.24	0.12	0.24	0.12	0.24	0.12	0.24	0.12	0.24	0.12	0.24	0.12	0.24	0.12	0.24	0.12
Speed, no Load (mm/s)	82		25.5		18.7		12.3		6.8		5.8		4.2		3.4	
Speed, max Load (mm/s)	66		20.8		15.2		10		5.5		4.7		3.4		2.8	
Load max. push/pull energized (Kg)	0.16		0.45		0.65		1		1.5		1.7		2.4		3	
Load max. push/pull energized (N)	1.57		4.41		6.37		9.8		14.7		16.66		23.52		29.4	
Self-lock max. push/pull de-energized (Kg)	0.32		0.9		1.3		2		3		3.4		4.8		6	
Self-lock max. push/pull de-energized (N)	3.14		8.82		12.74		19.6		29.4		33.32		47.04		58.8	
Weight (g ±50 g)	270		270		270		270		270		270		270		270	

APPEARANCE SIZE



FEATURES AND BENEFITS

- Encoder feedback magnetic hall sensor option
- Aluminum house and rod
- Duty cycle max. 10%
- Ambient operational temperature range -10 °C to +60 °C
- Max duty time @ max load 1min.
- No end limit switches
- IP Grade IP54
- See separate database for further data
- Customizations are welcome upon request

S (Stroke)	100	150	200
L (S + 130mm)	230	280	330
Weight (g ±50 g)	270	270	270

TD25 TUBULAR LINEAR DC ACTUATORS

Small, light weight, compact, low voltage, tubular dc motor linear actuators with encoder feed back option. These actuators have been specifically developed for usage in home automation applications, consumer products and remote control systems. Customized versions are welcome upon request. Additional data and CAD drawings are available on our web site.

MODEL NO. DESIGNATIONS

TD25	12	10	100	E
Type	Voltage	Gear Ratio	Stroke	E = Encoder
	12V 24V	10:1 13:1 18:1 29:1 42:1 52:1 67:1 80:1	100mm 150mm 200mm 250mm	

Example: TD25-12-10-100-E

TD25



TRANSMOTEC

ENCODER VERSION

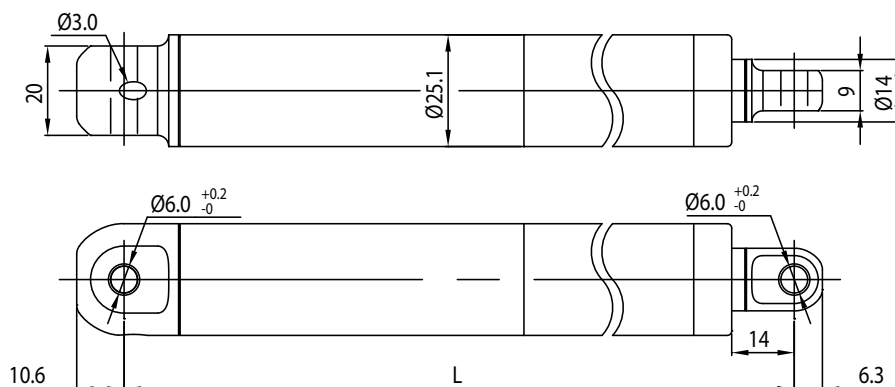
SEE SEPARATE DATA SHEET



MOTOR DATA

Reduction	10:1		13:1		18:1		29:1		42:1		52:1		67:1		80:1		
	12	24	12	24	12	24	12	24	12	24	12	24	12	24	12	24	
Voltage (V)																	
Current, max Load (A)	0.32	0.16	0.32	0.16	0.32	0.16	0.32	0.16	0.32	0.16	0.32	0.16	0.32	0.16	0.32	0.16	
Speed, no Load (mm/s)	30		23.9		16.4		10.4		7.1		5.7		4.4		3.7		
Speed, max Load (mm/s)	24.6		19.7		13.5		8.5		5.8		4.7		3.6		3		
Load max. push/pull energized (Kg)	0.85		1.1		1.3		2.2		2.8		3.4		4.5		4.7		
Load max. push/pull energized (N)	8.33		10.78		12.74		21.56		27.44		33.32		44.1		46.06		
Self-lock max. push/pull de-energized (Kg)	1.7		2.2		2.6		4.4		6		6.6		8.6		9.2		
Self-lock max. push/pull de-energized (N)	16.66		21.56		25.48		43.12		58.8		64.68		84.28		90.16		
Weight (g ±50 g)	350		350		350		350		350		350		350		350		

APPEARANCE SIZE



FEATURES AND BENEFITS

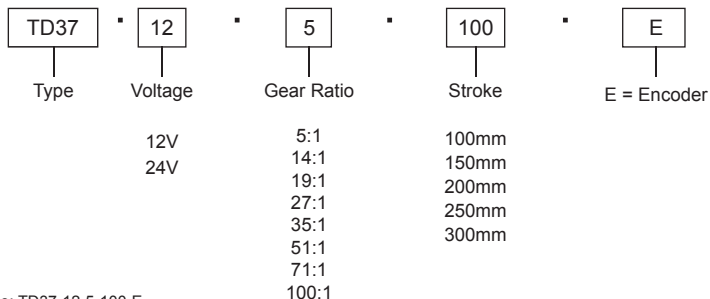
- Encoder feedback magnetic hall sensor option
- Aluminum house and rod
- Duty cycle max. 10%
- Ambient operational temperature range -10 °C to +60 °C
- Max duty time @ max load 1min.
- No end limit switches
- IP Grade IP54
- See separate database for further data
- Customizations are welcome upon request

S (Stroke)	100	150	200	250
L (S + 141mm)	241	291	341	391
Weight (g ±50 g)	350	350	350	350

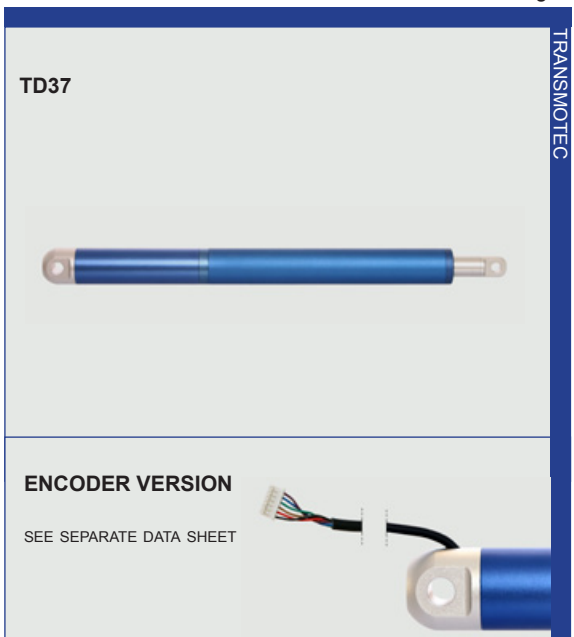
TD37 TUBULAR LINEAR DC ACTUATORS

Small, light weight, compact, low voltage, tubular dc motor linear actuators with encoder feed back option. These actuators have been specifically developed for usage in home automation applications, consumer products and remote control systems. Customized versions are welcome upon request. Additional data and CAD drawings are available on our web site.

MODEL NO. DESIGNATIONS



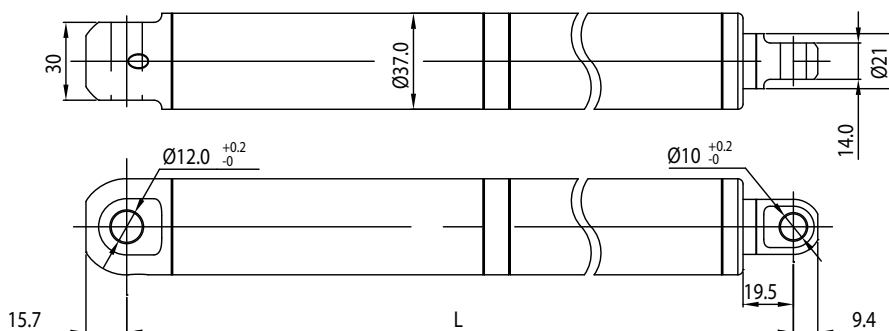
Example: TD37-12-5-100-E



MOTOR DATA

Reduction	5:1		14:1		19:1		27:1		35:1		51:1		71:1		100:1	
	12	24	12	24	12	24	12	24	12	24	12	24	12	24	12	24
Voltage (V)	12	24	12	24	12	24	12	24	12	24	12	24	12	24	12	24
Current, max Load (A)	1.2	0.6	1.2	0.6	1.2	0.6	1.2	0.6	1.2	0.6	1.2	0.6	1.2	0.6	1.2	0.6
Speed, no Load (mm/s)	90		32		24.5		17		13		9		6.5		4.8	
Speed, max Load (mm/s)	77		28		19.4		14.2		11.2		7.6		5.3		4.2	
Load max. push/pull energized (Kg)	4		10		16		20		25		40		50		65	
Load max. push/pull energized (N)	39.2		98		156.8		196		245		392		490		637	
Self-lock max. push/pull de-energized (Kg)	8		20		32		40		50		80		100		130	
Self-lock max. push/pull de-energized (N)	78.4		196		313.6		392		490		784		980		1274	
Weight (g ±50 g)	950		950		950		950		950		950		950		950	

APPEARANCE SIZE



S (Stroke)	100	150	200	250	300
L (S + 208mm)	308	358	408	458	508
Weight (g ±50 g)	950	950	950	950	950

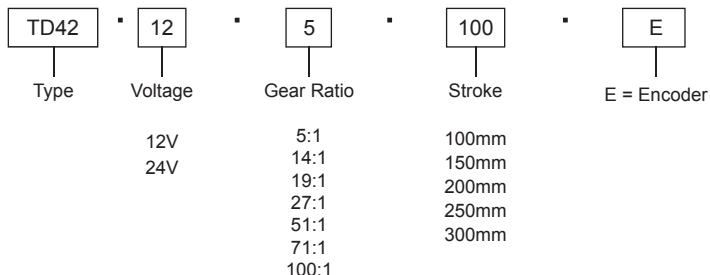
FEATURES AND BENEFITS

- Encoder feedback magnetic hall sensor option
- Aluminum house and rod
- Duty cycle max. 10%
- Ambient operational temperature range -10 °C to +60 °C
- Max duty time @ max load 1min.
- No end limit switches
- IP Grade IP54
- See separate database for further data
- Customizations are welcome upon request

TD42 TUBULAR LINEAR DC ACTUATORS

Small, light weight, compact, low voltage, tubular dc motor linear actuators with encoder feed back option. These actuators have been specifically developed for usage in home automation applications, consumer products and remote control systems. Customized versions are welcome upon request. Additional data and CAD drawings are available on our web site.

MODEL NO. DESIGNATIONS



Example: TD42-12-5-100-E

TD42



TRANSMOTEC

ENCODER VERSION

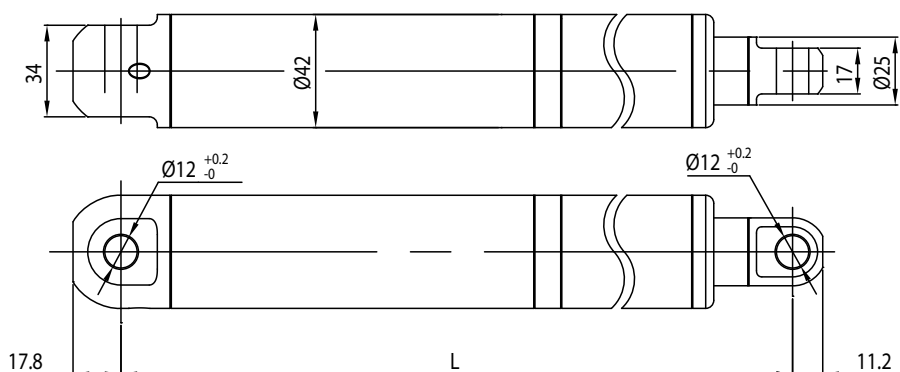
SEE SEPARATE DATA SHEET



MOTOR DATA

Reduction	5:1		14:1		19:1		27:1		51:1		71:1		100:1	
	12	24	12	24	12	24	12	24	12	24	12	24	12	24
Voltage (V)	12	24	12	24	12	24	12	24	12	24	12	24	12	24
Current, max Load (A)	1.6	0.8	1.6	0.8	1.6	0.8	1.6	0.8	1.6	0.8	1.6	0.8	1.6	0.8
Speed, no Load (mm/s)	77		29		20.8		14.8		7.8		5.6		4	
Speed, max Load (mm/s)	64		24		17.5		12.5		6.6		4.7		3.3	
Load max. push/pull energized (Kg)	6		15		22		30		50		68		95	
Load max. push/pull energized (N)	58.8		147		215.6		294		490		666.4		931	
Self-lock max. push/pull de-energized (Kg)	12		30		44		60		100		136		190	
Self-lock max. push/pull de-energized (N)	117.6		294		431.2		588		980		1332.8		1862	
Weight (g ±50 g)	1500		1500		1500		1500		1500		1500		1500	

APPEARANCE SIZE



S (Stroke)	100	150	200	250	300
L (S + 230mm)	330	380	430	480	530
Weight (g ±50 g)	1500	1500	1500	1500	1500

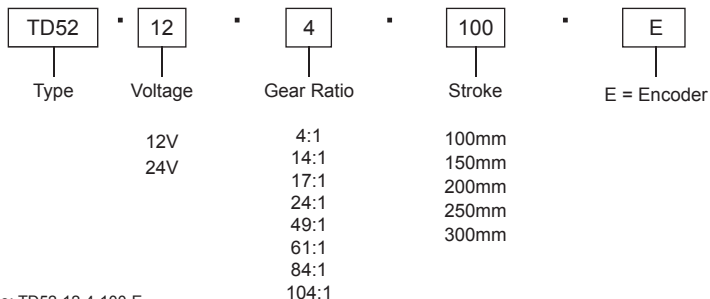
FEATURES AND BENEFITS

- Encoder feedback magnetic hall sensor option
- Aluminum house and rod
- Duty cycle max. 10%
- Ambient operational temperature range -10 °C to +60 °C
- Max duty time @ max load 1min.
- No end limit switches
- IP Grade IP54
- See separate database for further data
- Customizations are welcome upon request

TD52 TUBULAR LINEAR DC ACTUATORS

Small, light weight, compact, low voltage, tubular dc motor linear actuators with encoder feed back option. These actuators have been specifically developed for usage in home automation applications, consumer products and remote control systems. Customized versions are welcome upon request. Additional data and CAD drawings are available on our web site.

MODEL NO. DESIGNATIONS



Example: TD52-12-4-100-E

TD52



TRANSMOTEC

ENCODER VERSION

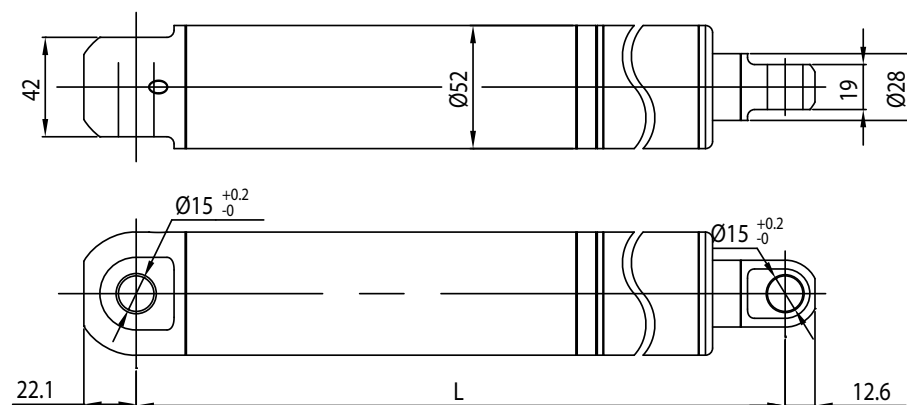
SEE SEPARATE DATA SHEET



MOTOR DATA

Reduction	4:1		14:1		17:1		24:1		49:1		61:1		84:1		104:1	
	12	24	12	24	12	24	12	24	12	24	12	24	12	24	12	24
Voltage (V)	12	24	12	24	12	24	12	24	12	24	12	24	12	24	12	24
Current, max Load (A)	4.4	2.2	4.4	2.2	4.4	2.2	4.4	2.2	4.4	2.2	4.4	2.2	4.4	2.2	4.4	2.2
Speed, no Load (mm/s)	110		32		26		19		9.5		7.5		5.5		4.4	
Speed, max Load (mm/s)	95		27		22		15.5		7.7		6.2		4.5		3.6	
Load max. push/pull energized (Kg)	10		35		45		65		115		145		200		250	
Load max. push/pull energized (N)	98		343		441		637		1127		1421		1960		2450	
Self-lock max. push/pull de-energized (Kg)	20		70		90		130		230		290		400		500	
Self-lock max. push/pull de-energized (N)	196		686		882		1274		2254		2842		3920		4900	
Weight (g ±50 g)	2500		2500		2500		2500		2500		2500		2500		2500	

APPEARANCE SIZE



FEATURES AND BENEFITS

- Encoder feedback magnetic hall sensor option
- Aluminum house and rod
- Duty cycle max. 10%
- Ambient operational temperature range -10 °C to +60 °C
- Max duty time @ max load 1min.
- No end limit switches
- IP Grade IP54
- See separate database for further data
- Customizations are welcome upon request

S (Stroke)	100	150	200	250	300
L (S + 280mm)	380	430	480	530	580
Weight (g ±50 g)	2500	2500	2500	2500	2500