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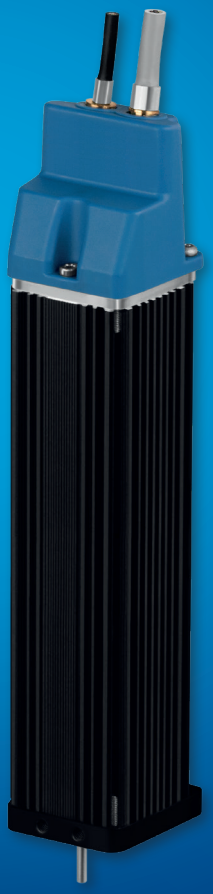
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Z STANDALONE ACTUATOR

ASME-TMMA00100451PAS0010

Data sheet

Version 2.2

ETEL

AXIS DESIGNATION	
Number of controlled axes	1
Axes name	Z
Thrust transmitter: DD (direct drive) or ID (indirect drive)	DD

TESTING CONDITIONS	UNIT	
Position controller	-	AccurET Modular 48
Rated axial payload	kg	None
Configuration	-	Vertical (rod pointing down)
Rated input voltage	VDC	48
Ambient temperature	°C	22 ± 1
Isolation system	-	None

DIMENSIONAL DATA (1)	UNIT	
Width	mm	40
Length	mm	44
Height	mm	192
Total stroke	mm	10
Moving mass (without payload)	kg	0.198
Total mass (without payload)	kg	0.78

FORCE CAPABILITIES	UNIT	
Peak force	N	120
Continuous force (2)(3)	N	31.4
Maximum transmissible effort (4)	N	200

FORCE CONTROL CAPABILITIES	UNIT	Typical values
Nominal force (typical value)	N	> 8
Force accuracy (typical value)	%	1.5 % for 8 N / 0.5 % for 20 N
Force overshoot (typical value)	%	45 % for 8 N / 25 % for 20 N

LOAD CAPACITIES	UNIT	
Maximum axial load	N	0.5
Maximum radial load	N	0

DYNAMIC PERFORMANCE	UNIT	
Maximum speed	m/s	1
Maximum acceleration	m/s^2	300

ACCURACY	UNIT	
Unidirectional repeatability (5)	µm	< ±5

ENCODER CHARACTERISTICS	UNIT	
Encoder and signal type	-	Optical - incremental
Output signal	-	1 Vpp
Signal period	µm	80
Reference mark	-	None
Power supply	V	5 ± 0.25

WORKING ENVIRONMENT		
IP protection grade	-	IP50

TYPICAL MOVE AND SETTLE TIMES	UNIT	
Move 1: 2.8 mm within ± 10 µm	ms	7.5

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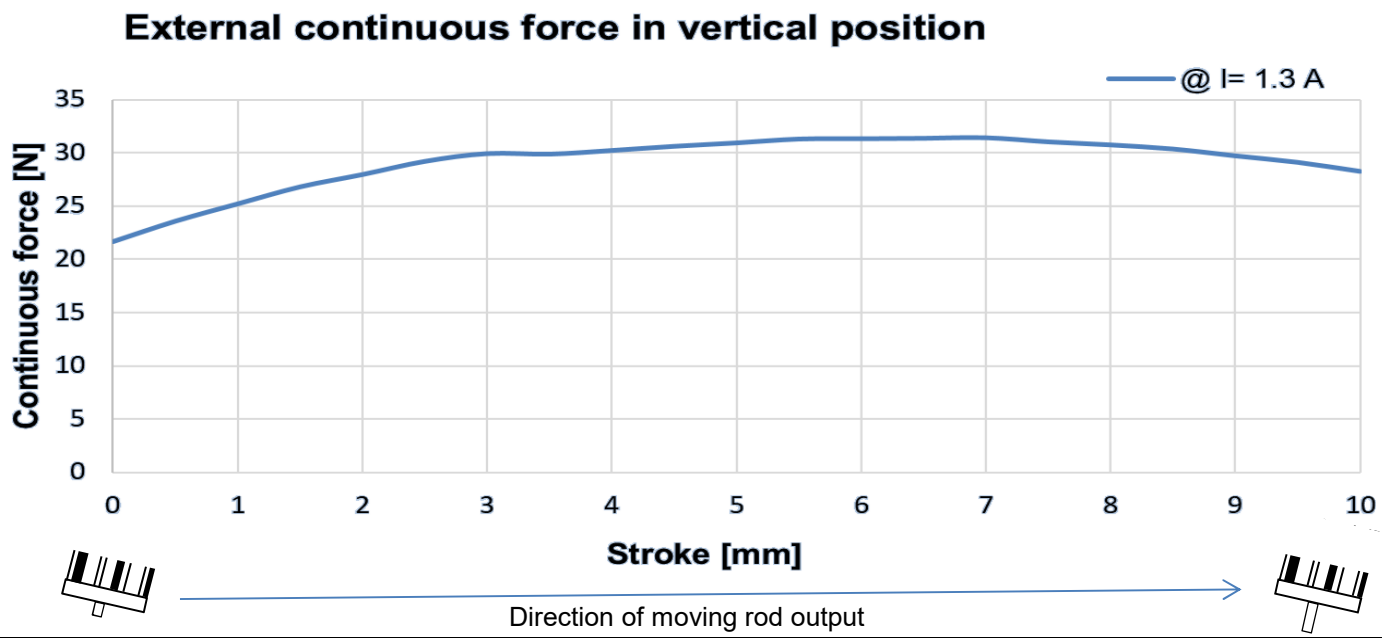
ELECTRICAL SPECIFICATIONS		UNIT	
	Motor type	-	Moving magnet
	Motor model	-	TMMA0010-045-1PA
	Number of phases	-	1
Kt	Force constant (6)	N/A_{DC}	28.4
Ku	Back EMF constant (7)	$V_{DC}/(m/s)$	28.4
R20	Electrical resistance at 20 °C (7)	Ohm	9.30
L1	Electrical inductance (7)	mH	10.6
Ip	Peak current	A_{DC}	4.65
Ic	Continuous current	A_{DC}	1.30
Um	Max. input voltage (8)	VDC	48
Pc	Max. cont. power dissipation (3)	W	20.0

GUIDING ELEMENTS		
Type	-	Plain bearing

MATERIAL AND FINISH		
Baseplate	-	Aluminum black anodized
Carriage	-	Steel

OPTIONS / ACCESSORIES / FEATURES	UNIT	
Gravity compensation	N	1.94
Motor and encoder connectors	-	Yes (for AccurET Modular 48)
Safety screw	-	Yes
Mechanical fuse	-	Compatible (to be ordered separately)

CONT. FORCE = f (STROKE)



According to the Machinery Directive 2006/42/EC, the system presently described falls into the "partly completed machinery" category and fully complies with it as long as the system is operated according to the working conditions described in the corresponding manual. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the system is used in an improper way.

Notes: The specifications given may be mutually exclusive. Hypothesis, tolerances and definition are in ETEL systems documentation.
(1) Without considering cables and moving rod. Total stroke corresponds to the functional stroke, mechanical stroke can be a little bit larger.
(2) See force vs stroke curve to check if the specifications can be reached based on the moving rod position.
(3) Coils at 80 °C.
(4) Maximum external force that the actuator can withstand (including impact force). No lateral force is allowed.
(5) When moving rod is extending.
(6) Vertical working position, at stroke = 6mm, when the moving rod is moving down.
(7) Terminal to terminal.

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