STANDALONE MODULE

ASME-TBS050-01-11-#-0xxx

with AccurET Modular

Data sheet

Version 1.1

ETEL

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

TESTING CONDITIONS	UNIT	
Position controller	-	AccurET Modular 300 7/15 Arms
Motion controller	-	UltimET
Rated payload (2)	kg	35
Rated input voltage	VDC	100
Tool point position	mm	65 (above interface plate)
Ambient temperature	°C	22
Isolation system	-	QuiET

DIMENSIONAL DATA	UNIT	
Width	mm	68
Length	mm	216
Height	mm	490
Total stroke	mm	50
Moving mass (without payload)	kg	3.4
Total mass (without payload)	kg	12
Rotor inertia (without payload)	$kg.m^2$	3.6E-05

FORCE CAPABILITIES (3)	UNIT	
Peak force	N	13500
Standstill force	N	3600
Static friction (maximal value)	N	260
Dynamic friction (maximal value)	N	240

LOAD CAPACITIES	UNIT	
Maximum payload	N	450

DYNAMIC PERFORMANCE	UNIT	
Duty cycle	%	100
Maximum speed	m/s	0.03
Maximum acceleration	m/s^2	5
Typical position stability at 2 kHz	nm	± 20

ACCURACY	UNIT	
Positioning accuracy (without mapping)	µm	± 3
Bidirectional repeatability	µm	± 0.3
Micro horizontal straightness (4)	µm	± 0.05
Micro vertical straightness (4)	µm	± 0.05
Horizontal straightness (5)	µm	± 3
Vertical straightness (5)	µm	± 3
Micro Roll (6)	µrad	± 4
Micro Pitch (6)	µrad	± 4
Micro Yaw (6)	µrad	± 4
Roll (5)	µrad	± 10
Pitch (5)	µrad	± 10
Yaw (5)	µrad	± 15

ENCODER CHARACTERISTICS	UNIT	
Encoder and signal type	-	Rotary optical / Linear incremental
Output signal	-	EnDat 2.2 / 1 Vpp
Signal period or line count	Resolution & µm	18 bits / 20
Reference mark	-	Absolute / Single
Power supply	V	5

WORKING ENVIRONMENT		
Clean room compatibility (7)	-	ISO 2 (ISO 1 optional)

	ELECTRICAL SPECIFICATIONS	UNIT	
	Motor type	-	Synchronous servomotor
	Number of phases	-	3
Kt	Force constant	Nm/Arms	0.81
Ku	Back EMF constant (8)	Vrms/(rad/s)	0.468
Km	Motor constant	Nm/√W	0.228
R20	Electrical resistance at 20°C (8)	Ohm	8.4
L1	Electrical inductance (8)	mH	13
Ip	Peak current	Arms	6.8
Ic	Continuous current	Arms	2.24
Is	Standstill current	Arms	1.7
ns	Standstill speed	rpm	0.132
Um	Max. input voltage	VDC	400
Pc	Max. cont. power dissipation	W	83.2
2p	Number of poles	-	8

VACUUM CHARACTERISTICS (7)	UNIT	
Vacuum supply for axis cleanliness		
Vacuum flow	l/min	5

TYPICAL MOVE AND SETTLE TIMES	UNIT	
Move 1: 5 µm within ± 200 nm window	ms	35
Move 2: 100 µm within ± 200 nm window	ms	70
Move 3: 10 mm within ± 200 nm window	ms	450
Move 4: 25 mm within ± 200 nm window	ms	950

GUIDING ELEMENTS		
Type	-	Linear ball bearings

MATERIAL AND FINISH		
Baseplate	-	Aluminium
Carriage	-	Aluminium

OPTIONS / ACCESSORIES / FEATURES	UNIT	
Micrometric hard stop	-	Optionnal
Air purge	-	Pneumatic fitting for axis cleanliness

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. Unless stated otherwise, all measurements are made within the testing conditions.
(1) Indirect ballscrew 16 mm pitch 2 mm
(2) Center of gravity distance from interface = 80 mm.
(3) Tolerances on electrical parameters are available on request.
(4) Typical value for 100 µm stroke, steps of 10 µm.
(5) Valid each 5 mm stroke.
(6) Typical value for 100 µm stroke, steps of 5 µm.
(7) Under laminar flow conditions at 0.25 m/s vertical. Cleanliness vacuum flow 5 l/min. Contact ETEL for more details. Payload must completely cover the slots at the level of the carriage's interface.
(8) Terminal to terminal.