XY STACKED SYSTEM

ASME-NGNN-03-0365-0355xx

VULCANO2 XY with AccurET VHP

Data sheet

Version 1.4

ETEL

AXIS DESIGNATION			
Number of controlled axes		3	
Axes name		X1-X2 (bottom axis)	Y (top axis)
Thrust transmitter: DD (direct drive) or ID (indirect drive)		DD	DD

TESTING CONDITIONS	UNIT		
Position controller	-	VHP 100 10/30 Arms	VHP 100 10/30 Arms
Motion controller	-	UltimET	
Rated payload	kg	7	
Tool point position	mm	301 mm above bottom surface	
Ambient temperature	°C	22 ± 1	
Isolation system	-	QuiET	

DIMENSIONAL DATA	UNIT		
Width	mm	765	
Length	mm	781	
Height	mm	280.1	
Total stroke	mm	365	355
Moving mass (without payload)	kg	29.3	7.3
Total mass (without payload)	kg	155	

FORCE / TORQUE CAPABILITIES (1)	UNIT		
Peak force	N	1970	594
Continuous force	N	458	162
Standstill force	N	346	122
Max. detent force (average to peak)	N	34	12
Static friction (maximal value)	N	10.7	11.8
Dynamic friction (maximal value)	N/(m/s)	23.5	28.7

LOAD CAPACITIES	UNIT	
Maximum payload	kg	80

DYNAMIC PERFORMANCE	UNIT		
Duty cycle	%	30	50
Maximum speed	m/s	1.2	1.2
Maximum acceleration	m/s^2	25	25
Typical position stability at 2kHz	nm	±2	±2

ACCURACY	UNIT		
Positioning accuracy (without mapping)	µm	±10	±30
Positioning accuracy (with mapping)	µm	±1	±1
Bidirectional repeatability	µm	±0.25	±0.25
Horizontal straightness / radial runout	µm	±1.5	±3.5
Vertical straightness / total axial error at 0 [mm] radius	µm	±3	±5
Orthogonality	arcsec	±15	
Roll	arcsec	±20	±25
Pitch	arcsec	±20	±60
Yaw	arcsec	±1.5	±10.0

WORKING ENVIRONMENT	
Clean room compatibility (2)	ISO 2

ELECTRICAL SPECIFICATIONS (1)		UNIT	X1-X2 (bottom axis)	Y (top axis)
	Motor type	-	Ironcore	Ironcore
	Motor model	-	LMG10-070-3SB-H01	LMG10-050-3TB-209
	Number of phases	-	3	3
Kt	Force constant	N/Arms	41.7	23.4
Ku	Back EMF constant (3)	Vrms/(m/s) or Vrms/(rad/s)	25.2	14.2
Km	Motor constant	N/√W	30.4	24.6
R20	Electrical resistance at 20°C (3)	Ohm	1.25	0.605
L1	Electrical inductance (3)	mH	8.89	3.77
Ip	Peak current	Arms	30	30
Ic	Continuous current	Arms	5.69	7.22
Is	Standstill current	Arms	4.31	5.47
ns	Standstill speed	m/s	0.14	0.14
Udc	Nominal input voltage	VDC	100	100
Pc	Max. cont. power dissipation	W	76.9	62.5
2τp	Magnetic period	mm	32	32

ENCODER CHARACTERISTICS	UNIT		
Encoder and signal type	-	Optical - incremental	Optical - incremental
Output signal	-	1 Vpp	1 Vpp
Signal period or line count	µm or period/turn	4	4
Reference mark	-	One	One
Power supply	V	5	5

TYPICAL MOVE AND SETTLE TIMES	UNIT		
Move 1: 10 µm within ±100 nm window	ms	40	40
Move 2: 25 mm within ±100 nm window	ms	125	125
Move 3: 80 mm within ±100 nm window	ms	170	170

GUIDING ELEMENTS		
Type	Ball bearing	Ball bearing

MATERIAL AND FINISH		
Baseplate	Granite	Stainless steel
Carriage	Stainless steel	Stainless steel

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) Tolerances on electrical parameters are available on request.
(2) Under horizontal laminar flow conditions at 0.45 m/s along X axis. Measured at 12 mm above customer mobile interface. Contact ETEL for more details.
(3) Terminal to terminal.

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