



XY STACKED SYSTEM

ASME-NGNN-03-0365-0355xx

VULCAN02 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
Motion controller	-	VHP 100 10/30 Arms
Rated payload	kg	UltimET
Tool point position	mm	7
Ambient temperature	°C	301 mm above bottom surface
Isolation system	-	22 ± 1
		QuiET

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

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

LOAD CAPACITIES		UNIT
Maximum payload	kg	80

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

ACCURACY		UNIT
Positioning accuracy (without mapping)	µm	±10
Positioning accuracy (with mapping)	µm	±1
Bidirectional repeatability	µm	±0.25
Horizontal straightness / radial runout	µm	±1.5
Vertical straightness / total axial error at R = 42.5 mm	µm	±3
Orthogonality	arcsec	±15
Roll	arcsec	±20
Pitch	arcsec	±20
Yaw	arcsec	±1.5
		±30
		±1
		±0.25
		±3.5
		±5
		±25
		±60
		±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
2tp	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

MATERIAL AND FINISH			
	Baseplate		Granite
	Carriage		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.