



XY STACKED PLATFORM

ASME-NNNN-03-0490-0420xx

Vulcano XY

Data sheet

Version 1.2

ETEL

AXIS DESIGNATION

Number of controlled axes	3	
Axes name	Y1-Y2	X
Thrust transmitter: DD (direct drive) or ID (indirect drive)	DD	DD

TESTING CONDITIONS

	UNIT		
Position controller	-	VHP100 10/30A	VHP100 10/30A
Motion controller	-	UltimET	
Rated payload	kg (lbs)	9.3 (20.5)	
Rated inertia	kg.m ²	-	
Rated acceleration	m/s ² (in/s ²)	25 (984.2)	25 (984.2)
Rated speed	m/s (in/s)	1 (39.3)	1 (39.3)
Tool point position	mm	170 mm centered above X axis carriage	
Ambient temperature	°C	22 ±1	
Isolation system	-	QuiET	

DIMENSIONAL DATA (1)

	UNIT		
Stage width	mm (in)	810 (31.88)	
Stage length	mm (in)	1045 (41.14)	
Stage height	mm (in)	197 (7.75)	
Total stroke	mm (in)	490 (19.29)	420 (16.53)
Moving mass (without payload)	kg (lbs)	20.1 (44.31)	5.2 (11.46)
Total mass (without payload)	kg (lbs)	88 (194)	

FORCE CAPABILITIES

	UNIT		
F_p Peak force	N	1800	519
F_c Continuous force	N	380	122
F_s Stall force	N	286	92.7
F_d Max. detent force (average to peak)	N	24	7.2
Static friction (maximal value)	N	15	12
Dynamic friction (maximal value)	N/(m/s)	34	45

LOAD CAPACITIES

	UNIT		
Maximum payload	kg (lbs)	40 (88.18)	

DYNAMIC PERFORMANCE

	UNIT		
Maximum acceleration	m/s ² (in/s ²)	25 (984.2)	25 (984.2)
Maximum speed	m/s (in/s)	1.5 (59)	1.5 (59)
Typical position stability	nm	±0.6	±0.7
Typical speed stability (tracking error at 10% of rated speed)	nm	1300	1000

STAGE ACCURACY (2)

	UNIT		
Positioning accuracy (with mapping)	µm	±0.8	
Bidirectional repeatability (3)	µm	±0.35	
Roll	arcsec	±20	±20
Pitch	arcsec	±20	±20
Yaw	arcsec	±1.5	±14.5

WORKING ENVIRONMENT

Clean room compatibility (4)	ISO 1	

ELECTRICAL SPECIFICATIONS		UNIT	Y1-Y2	X
	Motor type	-	Ironcore	Ironcore
	Motor model	-	LMG10-050-3UA-H01	LMG10-030-3QB-H01
	Number of phases	-	3	3
Kt	Force constant	N/Arms	35.4	26.6
Ku	Back EMF constant (5)	Vrms/(m/s)	21.4	16.2
R20	Electrical resistance at 20°C (5)	Ohm	1.46	1.68
L1	Electrical inductance (5)	mH	8.54	9.10
Ip	Peak current	Arms	39.2	31.1
Ic	Continuous current	Arms	5.54	4.70
Is	Stall current	Arms	4.20	3.56
ns	Stall speed	m/s	350 E-6	420 E-6
Udc	Nominal input voltage	VDC	96	96
Pc	Max. cont. power dissipation	W	96.5	79.6
2τp	Magnetic period	mm	32	32
2p	Number of poles	-	-	-

ENCODER CHARACTERISTICS		UNIT		
	Encoder and signal type	-	Optical / sin-cos	Optical / sin-cos
	Output signal	-	1 Vpp	1 Vpp
	Signal period or line count	μm	4	4
	Reference mark	-	one (center of stroke)	one (center of stroke)
	Power supply	V	5	5

VACUUM CHARACTERISTICS		UNIT		
	Vacuum supply for axis cleanliness			
Fv_c	Vacuum flow	l/min	5	5

TYPICAL MOVE AND SETTLE TIMES		UNIT		
	Move 1: 10μm within ±100 nm	ms	50	50
	Move 2: 25 mm within ±100 nm	ms	150	140
	Move 3: 80 mm within ±100 nm	ms	180	170

GUIDING ELEMENTS				
	Type		Recirculating bearings (3x)	Recirculating bearings (2x)

MATERIAL AND FINISH				
	Baseplate		Stainless steel	-
	Carriage		-	Anodized aluminum

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) With bumpers compressed (except for total stroke) and without any additional customer part attached to the mobile interface.
- (2) Values given at 3 sigmas.
- (3) Repeatability measured with 10m/s² acceleration.
- (4) Under laminar flow conditions at 0.25 m/s along Y axis. Measured 12 mm above customer mobile interface. Contact ETEL for more details.
- (5) Terminal to terminal.