XY STACKED SYSTEM

ASME-NNNN-02-0475-0410xx

CHARON2HD XY with AccurET VHP

Data sheet

Version 1.0

ETEL

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HIGH PRECISION POSITIONING STAGE

AXIS DESIGNATION		
Number of controlled axes	2	
Axes name	X (bottom axis)	Y (top axis)
Thrust transmitter: DD (direct drive) or ID (indirect drive)	DD	DD

TESTING CONDITIONS	UNIT	
Position controller	-	VHP100 (10/30A)
Motion controller	-	UltimET
Rated payload	kg	7
Rated input voltage	VDC	96
Tool point position	mm	246.5 above bottom surface
Ambient temperature	°C	22 ± 1
Isolation system	-	QuiET

DIMENSIONAL DATA	UNIT		
Width	mm	786	
Length	mm	948	
Height	mm	226.5	
Total stroke	mm	475	410
Moving mass (without payload)	kg	26.6	6.40
Total mass (without payload)	kg	55	

FORCE CAPABILITIES (1)	UNIT		
Peak force	N	991	681
Continuous force	N	360	193
Standstill force	N	272	145
Max. detent force (average to peak)	N	26	16
Static friction (maximal value)	N	25	25
Dynamic friction (maximal value)	N/(m/s)	25	25

LOAD CAPACITIES	UNIT	
Maximum payload	kg	30

DYNAMIC PERFORMANCE	UNIT		
Duty cycle	%	25	60
Maximum speed	m/s	1.25	1.25
Maximum acceleration	m/s^2	20	20
Typical position stability at 2 kHz	nm	±2	±2

ACCURACY	UNIT		
Positioning accuracy (without mapping)	µm	±20	
Positioning accuracy (with mapping)	µm	±1	
Bidirectional repeatability	µm	±0.4	
Horizontal straightness / radial runout	µm	±3	±3.5
Vertical straightness / total axial error	µm	±2.5	±5
Orthogonality	arcsec	±15	
Roll	arcsec	±5	±10
Pitch	arcsec	±5	±25
Yaw	arcsec	±10	±10

WORKING ENVIRONMENT		
Clean room compatibility (2)	-	ISO 2

ELECTRICAL SPECIFICATIONS (1)		UNIT	X (bottom axis)	Y (top axis)
	Motor type	-	Ironcore	Ironcore
	Motor model	-	LMS15-050-3TC	LMG10-050-3TB
	Number of phases	-	3	3
Kt	Force constant	N/Arms	45.4	26.8
Ku	Back EMF constant (3)	Vrms/(m/s)	27.1	16.3
Km	Motor constant	Nm/√W	45.5	28.2
R20	Electrical resistance at 20°C (3)	Ohm	0.663	0.605
L1	Electrical inductance (3)	mH	6.74	3.77
Ip	Peak current	Arms	30	30
Ic	Continuous current	Arms	8.14	7.33
Is	Standstill current	Arms	6.17	5.55
ns	Standstill speed	m/s	0.15	0.16
Um	Max. input voltage	VDC	100	100
Pc	Max. cont. power dissipation	W	74	56.3
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	4	4
Reference mark	-	One	One
Power supply	V	5	5

VACUUM CHARACTERISTICS	UNIT		
Vacuum supply for wafer chuck			
Vacuum at interface output	bar	-0.6	
Vacuum supply for axis cleanliness			
Vacuum flow	l/min	10	6

TYPICAL MOVE AND SETTLE TIMES	UNIT	
Move 1: 10 μm within ±100 nm window	ms	40
Move 2: 25 mm within ±100 nm window	ms	130
Move 3: 80 mm within ±100 nm window	ms	180

GUIDING ELEMENTS			
Type	-	Ball bearing	Ball bearing

MATERIAL AND FINISH			
Baseplate	-	Anodized aluminum	Aluminium & silicon alloy
Carriage	-	Aluminium & silicon alloy	Anodized aluminum

OPTIONS / ACCESSORIES / FEATURES			
Temperature sensors	-	Yes	No

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 vertical laminar flow conditions at 0.5 m/s . Measured at tool point level. Contact ETEL for more details.
(3) Terminal to terminal.