



# XY STACKED SYSTEM

ASME-NNNN-02-0365-0355xx

CHARON2 HD XY with AccurET VHP

Data sheet

Version 1.0

**PRELIMINARY**

**ETEL**

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	-	VHP 100 (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	730	
Length	mm	839	
Height	mm	226.5	
Total stroke	mm	365	355
Moving mass (without payload)	kg	25.6	6.40
Total mass (without payload)	kg	50	

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 <sup>2</sup>	20	20
Typical position stability at 2kHz	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	UNIT		
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
<b>Kt</b>	Force constant	N/Arms	45.4	26.8
<b>Ku</b>	Back EMF constant (3)	Vrms/(m/s)	27.1	16.3
<b>Km</b>	Motor constant	Nm/√W	45.5	28.2
<b>R20</b>	Electrical resistance at 20°C (3)	Ohm	0.663	0.605
<b>L1</b>	Electrical inductance (3)	mH	6.74	3.77
<b>Ip</b>	Peak current	Arms	30	30
<b>Ic</b>	Continuous current	Arms	8.14	7.33
<b>Is</b>	Standstill current	Arms	6.17	5.55
<b>ns</b>	Standstill speed	m/s	0.15	0.16
<b>Um</b>	Max. input voltage	VDC	100	100
<b>Pc</b>	Max. cont. power dissipation	W	74	56.3
<b>2tp</b>	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		
	<b>Vacuum supply for wafer chuck</b>			
	Vacuum at interface output	bar	-0.6	
	<b>Vacuum supply for axis cleanliness</b>			
	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.