



# **XT STACKED SYSTEM**

**ASME-NNNN-02-0205-0000xx**

**CHARON2 XT (DXR+) with AccurET VHP**

Data sheet

Version 2.0

***ETEL***

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

TESTING CONDITIONS		UNIT
Position controller	-	VHP 100 10/30 Arms
Motion controller	-	UltimET
Rated payload (1)	kg	2
Rated inertia (1)	kg.m <sup>2</sup>	-
Rated input voltage	VDC	96
Tool point position	mm	195 mm (above bottom surface)
Ambient temperature	°C	22 ±1
Isolation system	-	QuiET

DIMENSIONAL DATA		UNIT
Width	mm	300
Length	mm	593
Height	mm	176
Total stroke	mm or °	205
Moving mass (without payload)	kg	12
Total mass (without payload)	kg	30
Rotor inertia (without payload)	kg.m <sup>2</sup>	N/A

FORCE / TORQUE CAPABILITIES (2)		UNIT
Peak force / torque	N or Nm	512
Continuous force / torque	N or Nm	130
Standstill force / torque	N or Nm	98
Max. detent force / torque (average to peak)	N or Nm	7.1
Static friction (maximal value)	N or Nm	22
Dynamic friction (maximal value)	N/(m/s) or Nm/(rad/s)	22

LOAD CAPACITIES		UNIT
Maximum payload	kg	30

DYNAMIC PERFORMANCE		UNIT
Duty cycle	%	30
Maximum speed	m/s or rad/s	1
Maximum acceleration	m/s <sup>2</sup> or rad/s <sup>2</sup>	20
Typical position stability at 2kHz	nm or arcsec	±2

STAGE ACCURACY		UNIT
Positioning accuracy (without mapping)	µm or arcsec	±15
Positioning accuracy (with mapping)	µm or arcsec	±1
Unidirectional repeatability	µm or arcsec	-
Bidirectional repeatability	µm or arcsec	±0.3
Horizontal straightness / radial runout	µm	±2.5
Vertical straightness / total axial error at R = 42.5 mm	µm	±2
Roll	arcsec	±3
Pitch	arcsec	±3.5
Yaw	arcsec	±5

WORKING ENVIRONMENT	
Clean room compatibility (3)	ISO 2

ELECTRICAL SPECIFICATIONS (2)		UNIT	X (bottom axis)	Theta
	Motor type	-	Ironcore	Toothless
	Motor model	-	LMG10-030-3QB-H01	TTB0126-030-3NA-239
	Number of phases	-	3	3
<b>Kt</b>	Force constant	N/Arms or Nm/Arms	26.6	1.23
<b>Ku</b>	Back EMF constant (4)	Vrms/(m/s) or Vrms/(rad/s)	16.2	0.712
<b>Km</b>	Motor constant	Nm/√W	16.8	-
<b>R20</b>	Electrical resistance at 20 °C (4)	Ohm	1.68	10.50
<b>L1</b>	Electrical inductance (4)	mH	9.02	2.65
<b>Ip</b>	Peak current	Arms or A <sub>DC</sub>	30.0	6.90
<b>Ic</b>	Continuous current	Arms or A <sub>DC</sub>	5.00	1.47
<b>Is</b>	Standstill current	Arms or A <sub>DC</sub>	3.79	1.11
<b>ns</b>	Standstill speed	mm/s or rad/s	0.22	0.0016
<b>Um</b>	Max. input voltage	VDC	100	100
<b>Pc</b>	Max. cont. power dissipation	W	77.6	41.9
<b>2τp</b>	Magnetic period	mm	32	-
<b>2p</b>	Number of poles	-	-	28

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	18000
	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	-
	Move 2: 25 mm within ±100 nm window	ms	130	-
	Move 3: 80 mm within ±100 nm window	ms	185	-
	Move 4: 1 deg within ±40 µdeg	ms	-	100
	Move 5: 180 deg within ±40 µdeg	ms	-	500

GUIDING ELEMENTS			
	Type	Ball bearing	Crossed roller bearing

MATERIAL AND FINISH			
	Baseplate	Granite	Aluminium alloy
	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) Payload can be assimilated to a cylinder of diameter 270 mm, 19 mm thick, weighting 2 kg. Inertia is expressed with respect to the center of gravity of the payload, Z being the axis of rotation.
- (2) Tolerances on electrical parameters are available on request.
- (3) Under laminar flow conditions at 0.25 m/s along X axis. Measured at 145 mm from the bottom surface of the stage. Contact ETEL for more details
- (4) Terminal to terminal.