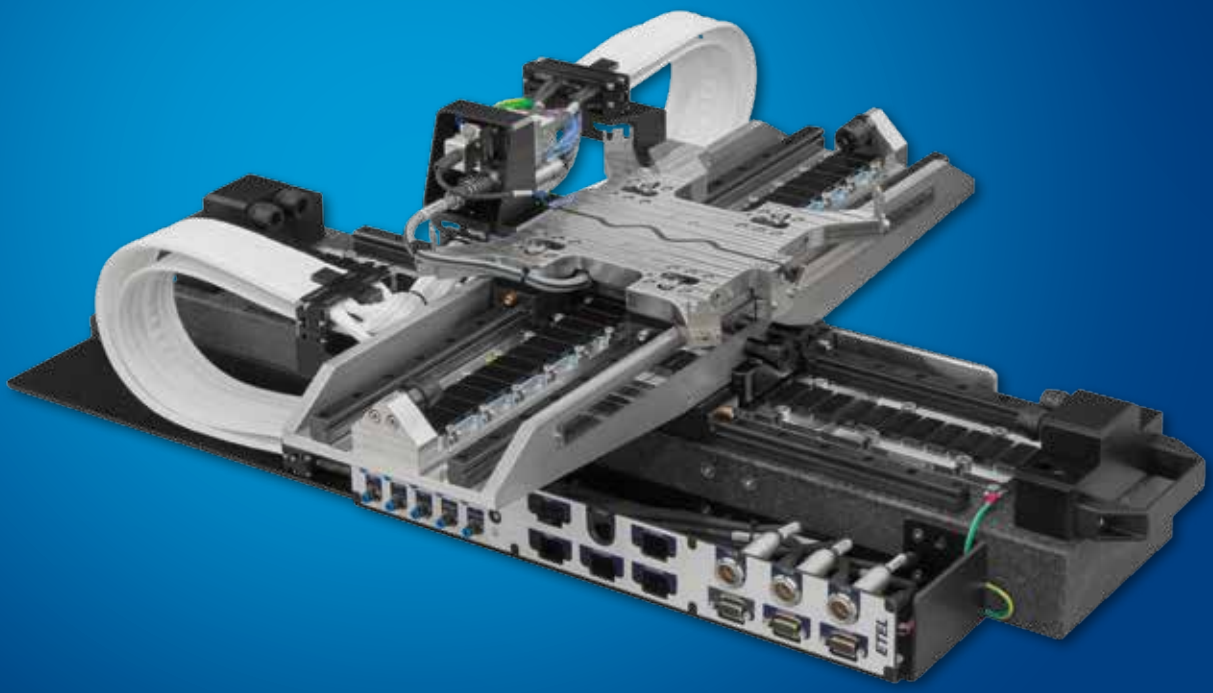

XY STACKED PLATFORM

ASME-NNNN-02-0475-0410xx

CHARON2 XY

Data sheet

Version 1.2

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 10/30 Arms	VHP 100 10/30 Arms
Motion controller	-	UltimET	
Rated payload	kg	5	
Tool point position	mm	275 mm above bottom surface	
Ambient temperature	°C	22 °C ±1 °C	
Isolation system	-	QuiET	

DIMENSIONAL DATA	UNIT		
Stage width	mm	781	
Stage length	mm	955	
Stage height	mm	219	
Total stroke	mm	475	410
Moving mass (without payload)	kg	17.2	4.6
Total mass (without payload)	kg	49.5	

FORCE / TORQUE CAPABILITIES (1)		UNIT		
Fp	Peak force	N	521	298
Fc	Continuous force	N	131	54.3
Fs	Standstill force	N	96.9	40.9
Fd	Max. detent force (average to peak)	N	7.1	7.9
Ffrs	Static friction (maximal value)	N	22	22
Ffrd	Dynamic friction (maximal value)	N/(m/s)	22	22

LOAD CAPACITIES	UNIT	
Maximum payload	kg	30

DYNAMIC PERFORMANCE	UNIT		
Maximum speed	m/s	1	1
Maximum acceleration	m/s^2	10	10
Typical position stability at 2kHz	nm	±2	±2
Tracking error at rated speed and 2kHz	nm	±1000	±1000

STAGE ACCURACY	UNIT		
Duty cycle	%	25	25
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	µm	±2.5	±5
Orthogonality	arcsec	±15	
Roll	arcsec	±5	±10
Pitch	arcsec	±5	±10
Yaw	arcsec	±10	±10

ELECTRICAL SPECIFICATIONS (1)		UNIT	X (bottom axis)	Y (top axis)
	Motor type	-	Ironcore	Ironcore
	Motor model	-	LMG10-030-3QB-H01	LMG05-030-3RA-H01
	Number of phases	-	3	3
Kt	Force constant	N/Arms	26.6	24.6
Ku	Back EMF constant (2)	Vrms/(m/s)	16.2	14.9
Km	Motor constant	Nm/√W	16.8	13.2
R20	Electrical resistance at 20°C (2)	Ohm	1.68	2.31
L1	Electrical inductance (2)	mH	9.02	10.8
Ip	Peak current	Arms	31.0	19.9
Ic	Continuous current	Arms	5.01	2.26
Is	Standstill current	Arms	3.80	1.71
vs	Standstill speed	mm/s	0.25	0.20
Udc	Nominal input voltage	VDC	96	96
Pc	Max. cont. power dissipation	W	72.7	20.4
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

WORKING ENVIRONMENT	
Clean room compatibility (3)	ISO 2

TYPICAL MOVE AND SETTLE TIMES	UNIT	
Move 1: 80 mm within ±100 nm window	ms	250
Move 2: 25 mm within ±100 nm window	ms	170
Move 3: 10 µm within ±100 nm window	ms	50

GUIDING ELEMENTS		
Type	Ball bearing	Ball bearing

MATERIAL AND FINISH		
Baseplate	Granite	Aluminum & silicon alloy
Carriage	Aluminum & silicon alloy	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) Terminal to terminal.
(3) Under laminar flow conditions at 0.25 m/s along Y axis. Measured 230mm from the lower face of the system. Contact ETEL for more details.

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