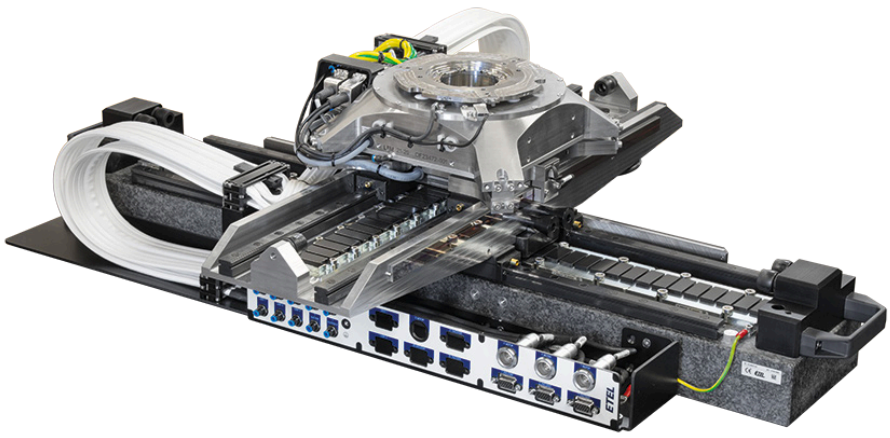

CHARON2 XYT (DXR^{H}) with AccurET VHP

Data Sheet

Version 1.2

AXIS DESIGNATION				
Number of controlled axes		3		
Axes name		X (bottom axis)	Y (top axis)	Theta
Thrust transmitter: DD (direct drive) or ID (indirect drive)		DD	DD	DD

TESTING CONDITIONS	UNIT			
Position controller	-	VHP 100 10/30 Arms	VHP 100 10/30 Arms	VHP 48 5/10 Arms
Motion controller	-	UltimET		
Rated payload (1)	kg	2		
Rated inertia (1)	kg.m^2	-	-	0.018
Rated input voltage	VDC	96	96	48
Tool point position	mm	247 mm above bottom surface		
Ambient temperature	°C	22 ±1		
Isolation system	-	QuiET		

DIMENSIONAL DATA	UNIT			
Stage width	mm	698		
Stage length	mm	835		
Stage height	mm	227		
Total stroke	mm	365	355	Infinite
Moving mass (without payload)	kg	22.8	10.6	-
Total mass (without payload)	kg	48.3		
Rotor inertia (without payload)	kg.m^2	-	-	0.006

FORCE / TORQUE CAPABILITIES (2)	UNIT			
Peak force / torque	N or Nm	512	298	14.9
Continuous force / torque	N or Nm	130	54.3	2
Standstill force / torque	N or Nm	98	40.9	1.51
Max. detent force / torque (average to peak)	N or Nm	7.1	7.9	-
Static friction (maximal value)	N or Nm	22	22	-
Dynamic friction (maximal value)	N/(m/s) or Nm/(rad/s)	60	60	-

LOAD CAPACITIES	UNIT	
Maximum payload	kg	12.5

DYNAMIC PERFORMANCE	UNIT			
Duty cycle	%	25	25	70
Maximum speed	m/s or rad/s	1	1	6.28
Maximum acceleration	m/s^2 or rad/s^2	10	10	200
Typical position stability at 2 kHz	nm or arcsec	±2	±2	±0.0025

STAGE ACCURACY	UNIT			
Positioning accuracy (without mapping)	µm or arcsec	±20		±3
Positioning accuracy (with mapping)	µm or arcsec	±1		-
Unidirectional repeatability	µm or arcsec	-		-
Bidirectional repeatability	µm or arcsec	±0.4		±0.25
Horizontal straightness / radial runout	µm	±3	±3.5	±1
Vertical straightness / total axial error at R = 0 mm	µm	±2.5	±5	±2
Orthogonality	arcsec	±15		-
Roll	arcsec	±5	±10	-
Pitch	arcsec	±5	±15	-
Yaw	arcsec	±10	±10	-

WORKING ENVIRONMENT	
Clean room compatibility (3)	ISO 2

ELECTRICAL SPECIFICATIONS (2)		UNIT	X (bottom axis)	Y (top axis)	Theta
	Motor type	-	Ironcore	Ironcore	Toothless
	Motor model	-	LMG10-030-3QB-H01	LMG05-030-3RA-H01	TTB0180-020-3RAS
	Number of phases	-	3	3	3
Kt	Force constant	N/Arms or Nm/Arms	26.6	24.6	1.16
Ku	Back EMF constant (4)	Vrms/(m/s) or Vrms/(rad/s)	16.2	14.9	0.669
Km	Motor constant	N/√W or Nm/√W	16.8	13.2	0.464
R20	Electrical resistance at 20 °C (4)	Ohm	1.68	2.31	4.16
L1	Electrical inductance (4)	mH	9.02	10.8	1.66
Ip	Peak current	Arms	30.0	19.9	13.20
Ic	Continuous current	Arms	5.00	2.26	1.75
Is	Standstill current	Arms	3.79	1.71	1.32
vs	Standstill speed	mm/s or rad/s	0.22	0.20	0.0017
Um	Max. input voltage	VDC	100	100	100
Pc	Max. cont. power dissipation	W	77.6	20.4	20.9
2τp	Magnetic period	mm	32	32	-
2p	Number of poles	-	-	-	32

ENCODER CHARACTERISTICS	UNIT			
Encoder and signal type	-	Optical - incremental	Optical - incremental	Optical - incremental
Output signal	-	1 Vpp	1 Vpp	1 Vpp
Signal period or line count	µm or period/turn	4	4	360'000
Reference mark	-	One	One	External index sensor
Power supply	V	5	5	5

TYPICAL MOVE AND SETTLE TIMES	UNIT			
Move 1: 10 µm within ±100 nm window	ms	50		-
Move 2: 25 mm within ±100 nm window	ms	170		-
Move 3: 80 mm within ±100 nm window	ms	250		-
Move 4: 1 deg within ±20 µdeg	ms	-	-	80
Move 5: 180 deg within ±20 µdeg	ms	-	-	670

GUIDING ELEMENTS			
Type	Ball bearing	Ball bearing	Angular contact ball bearing

MATERIAL AND FINISH			
Baseplate	Granite	Aluminum & Silicon alloy	Steel
Carriage	Aluminum & Silicon alloy	Stainless steel	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 Y axis. Measured at 230 mm from the bottom surface of the stage. Contact ETEL for more details.
(4) Terminal to terminal.

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