

XY STACKED SYSTEM

ASME-NNNN-02-0365-0355xx
CHARON2HD XY with AccurET Modular

Data sheet

Version 1.0





HIGH PRECISION POSITIONING STAGE

Number of controlled axes		2	<u>)</u>	
Axes name		X (bottom axis)	Y (top axis)	
Thrust transmitter: DD (direct drive) or ID (indirect drive)	rive)	DD	DD	
TESTING CONDITIONS	UNIT			
Position controller	-	Modular 300 (7/15A)		
Motion controller	-	UltimET		
Rated payload	kg	7		
Rated input voltage	VDC	300		
Tool point position	mm	246.5 above bottom surface		
Ambient temperature	°C	22 ± 1		
solation system	-	Qui	ET	
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	6.4	
Total mass (without payload)	kg	50.0		
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FORCE CAPABILITIES (1)	UNIT			
Peak force	N	953	658	
Continuous force	N	350	185	
Standstill force	N	264	140	
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		
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DYNAMIC PERFORMANCE	UNIT			
Duty cycle	%	25	60	
Maximum speed	m/s	2	2	
Maximum acceleration	m/s ²	20	20	
Typical position stability at 2 kHz	nm	±40	±40	
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	
/ertical straightness / Total axial error	μm	±2.5	±5	
Orthogonality	arcsec	±1		
Roll	arcsec	±5	±10	
Pitch	arcsec	±5	±25	
Yaw	arcsec	±10	±10	
WORKING ENVIRONMENT				
		ISO 2		
Clean room compatibility (2)	-	IJU Z		

Motor type		ELECTRICAL SPECIFICATIONS (1)	UNIT	X (bottom axis)	Y (top axis)
Motor model		Motor type	-	Ironcore	Ironcore
Number of phases Number of phases Ruman		***	_		LMG10-050-3QB
NArms		Number of phases	_		
Montor constant Nm/vW 24.3 27.3	Kt	•	N/Arms	85.3	51.2
Montor constant Nm/vW 24.3 27.3	Ku	Back EMF constant (3)	Vrms/(m/s)	50.9	31
Continuous current	Km	. ,	` ′ —		27.3
Peak current Arms 15 15 15 15 15 15 15 1	R20	Electrical resistance at 20°C (3)	Ohm		
Continuous current Arms A 2 3.71	L1	Electrical inductance (3)	mH	23.8	13.7
Arms	lp	Peak current	Arms	15	15
Standstill speed m/s 0.15 0.16 0.	lc	Continuous current	Arms	4.2	3.71
Um Max. input voltage VDC 300 300 Pc Max. cont. power dissipation W 73.5 55.9 Magnetic period W 73.5 55.9 ENCODER CHARACTERISTICS UNIT Optical - incremental Uoutput signal - Optical - incremental Output signal period or line count μm 4 4 Reference mark - One One Power supply V 5 5 VACUUM CHARACTERISTICS Vacuum supply for wafer chuck Vacuum supply for wafer chuck Vacuum supply for wafer chuck Vacuum supply for axis cleanliness Vacuum flow I/min 10 6 TYPICAL MOVE AND SETTLE TIMES 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 130 Move 3: 80 mm within ±100 nm window ms 130 Move 3: 80 mm within ±100 nm window ms	ls	Standstill current	Arms	3.18	2.81
Per Max. cont. power dissipation W mm 32 32 32 ENCODER CHARACTERISTICS Encoder and signal type - Optical - incremental Optical - i	าร	Standstill speed	m/s	0.15	0.16
Magnetic period mm 32 32 32	Um	Max. input voltage	VDC	300	300
ENCODER CHARACTERISTICS Encoder and signal type - Optical - incremental Optical - incremental - 1 Vpp 1 Vpp Signal period or line count - One One - One One -	Рс	Max. cont. power dissipation	W	73.5	55.9
Company Com	2τр	Magnetic period	mm	32	32
Company Com		ENCODER CHARACTERISTICS	LINIT		
Output signal - 1 Vpp 1 Vpp Signal period or line count μm 4 4 Reference mark - One One Power supply 5 5 VACUUM CHARACTERISTICS Vacuum supply for wafer chuck Vacuum supply for wafer chuck Vacuum supply for axis cleanliness Vacuum flow Vacuum flow I/min 10 6 TYPICAL MOVE AND SETTLE TIMES 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 OPTIONS / ACCESSORIES / FEATURES - Aluminium & silicon alloy Anodized aluminum	Encod		Oitii	Ontical incremental	Ontical - incremental
Signal period or line count Reference mark Power supply VACUUM CHARACTERISTICS VACUUM CHARACTERISTICS Vacuum supply for wafer chuck Vacuum supply for wafer chuck Vacuum supply for axis cleanliness Vacuum flow VIII			- -	•	
One		-	ım		
Power supply V 5 5 5 VACUUM CHARACTERISTICS Vacuum supply for wafer chuck Vacuum at interface output Vacuum supply for axis cleanliness Vacuum flow Vacuum	-		μιιι	•	•
Vacuum supply for wafer chuck Vacuum supply for axis cleanliness Vacuum supply for axis cleanliness Vacuum supply for axis cleanliness Vacuum flow Vacuum supply for axis cleanliness Vacuum flow Vacuum flow Vacuum supply for axis cleanliness Vacuum flow Vacuum flow Vacuum supply for axis cleanliness Vacuum flow Vacuum flow Vacuum supply for axis cleanliness Vacuum flow Voll Vimin 10 6 Vacuum flow Vacuum f			- \		
Vacuum supply for wafer chuck Vacuum at interface output Vacuum supply for axis cleanliness Vacuum flow Vacu					•
Vacuum at interface output Vacuum supply for axis cleanliness Vacuum flow Vacuum			UNIT		
Vacuum supply for axis cleanliness Vacuum flow I/min 10 6 TYPICAL MOVE AND SETTLE TIMES Move 1: 10 μm within ±100 nm window Move 2: 25 mm within ±100 nm window Move 3: 80 mm within ±100 nm window Move 3: 80 mm within ±100 nm window GUIDING ELEMENTS Type - Ball bearing Ball bearing MATERIAL AND FINISH Baseplate - Anodized aluminum Aluminium & silicon alloy Anodized aluminum OPTIONS / ACCESSORIES / FEATURES					
Vacuum flow I/min 10 6 TYPICAL MOVE AND SETTLE TIMES Move 1: 10 µm within ±100 nm window Move 2: 25 mm within ±100 nm window Move 3: 80 mm within ±100 nm window Move 3: 80 mm within ±100 nm window 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		•	bar	-0.6	
TYPICAL MOVE AND SETTLE TIMES Move 1: 10 µm within ±100 nm window Move 2: 25 mm within ±100 nm window Move 3: 80 mm within ±100 nm window Move 3: 80 mm within ±100 nm window MATERIAL AND FINISH Baseplate Carriage Anodized aluminum Aluminium & silicon alloy Anodized aluminum OPTIONS / ACCESSORIES / FEATURES					_
Move 1: 10 µm within ±100 nm window Move 2: 25 mm within ±100 nm window Move 3: 80 mm within ±100 nm window Move 3: 80 mm within ±100 nm window Move 3: 80 mm within ±100 nm window MATERIAL AND FINISH Baseplate Carriage - Anodized aluminum Aluminium & silicon alloy Anodized aluminum OPTIONS / ACCESSORIES / FEATURES	Vacuu	ım flow	l/min	10	6
Move 2: 25 mm within ±100 nm window ms 130 GUIDING ELEMENTS Type - Ball bearing Ball bearing MATERIAL AND FINISH Baseplate - Anodized aluminum Aluminium & silicon alloy Carriage - Aluminium & silicon alloy OPTIONS / ACCESSORIES / FEATURES		TYPICAL MOVE AND SETTLE TIMES	UNIT		
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	Move	1: 10 µm within ±100 nm window	ms	40	
GUIDING ELEMENTS Type - Ball bearing Ball bearing MATERIAL AND FINISH Baseplate - Anodized aluminum Aluminium & silicon alloy Carriage - Aluminium & silicon alloy OPTIONS / ACCESSORIES / FEATURES		•			
MATERIAL AND FINISH Baseplate - Anodized aluminum Aluminium & silicon alloy Carriage - Aluminium & silicon alloy OPTIONS / ACCESSORIES / FEATURES	Move	3: 80 mm within ±100 nm window			
MATERIAL AND FINISH Baseplate Carriage - Anodized aluminum Aluminium & silicon alloy Anodized aluminum & Anodized aluminum OPTIONS / ACCESSORIES / FEATURES		GUIDING ELEMENTS			
MATERIAL AND FINISH Baseplate - Anodized aluminum Aluminium & silicon alloy Carriage - Aluminium & silicon alloy Anodized aluminum OPTIONS / ACCESSORIES / FEATURES	Type	OUDING ELEWENTS	_	Ball bearing	Ball hearing
Baseplate - Anodized aluminum Aluminium & silicon alloy Carriage - Aluminium & silicon alloy Anodized aluminum OPTIONS / ACCESSORIES / FEATURES	71"				
Carriage - Aluminium & silicon alloy Anodized aluminum OPTIONS / ACCESSORIES / FEATURES					
OPTIONS / ACCESSORIES / FEATURES			-		•
	Carria	ge	-	Aluminium & silicon alloy	Anodized aluminum
Temperature sensors - Yes No	O	PTIONS / ACCESSORIES / FEATURES			
	Tempe	erature 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.