DynX

Rotary Series

Data sheet

Version 5.0

ETEL
MOTION TECHNOLOGY

DIMENSIONAL DATA		UNIT	VALUES
	Stage width (1)	mm (in)	100 (3.94)
	Stage length	mm (in)	117 (4.61)
	Stage height	mm (in)	40.5 (1.59)
ID	Inside diameter	mm (in)	Ø 35 (Ø 1.37)
	Total mass	kg (lbs)	1.42 (3.13)
J	Rotor inertia	$kg.m^2$	5.93 E-4

TORQUE CAPABILITIES (2)		UNIT	VALUES
Tp	Peak torque	Nm	2.32
Tc	Continuous torque (3)	Nm	0.488
Ts	Stall torque	Nm	0.370
Tfrs	Static friction	Nm	0.161
Tfrd	Dynamic friction	Nm/(rad/s)	1.3 E-3

LOAD CAPACITIES	UNIT	VALUES
Axial load capacity (4)	kg (lbs)	20 (44.4)
Radial load capacity (5)	kg (lbs)	10 (22.2)
Upside down load capacity (4)	kg (lbs)	20 (44.4)

DYNAMIC PERFORMANCE	UNIT	VALUES
Maximum speed (6)	rpm	400
Maximum acceleration	rad/s^2	3'000
Typical position stability (7)	arcsec	± 0.2

STAGE ACCURACY (8) (9)	UNIT	TYPICAL VALUES
Accuracy (w/o mapping) (10)	arcsec	± 50
Accuracy (w/ mapping) (10)	arcsec	± 3
Unidirectional repeatability (10)	arcsec	± 1.5
Bidirectional repeatability (10)	arcsec	± 2
Axial runout	µm	0.5
Radial runout (10)	µm	± 2.5
Eccentricity	µm	20
Wobble	arcsec	± 5

ELECTRICAL SPECIFICATIONS (2)		UNIT	TTB0090-020-3NA
Kt	Torque constant	Nm/Arms	0.361
Ku	Back EMF constant (peak value) (11)	Vrms/(rad/s)	0.208
R20	Electrical resistance at 20°C (11)	Ohm	5.56
L1	Electrical inductance (11)	mH	1.22
Ip	Peak current	Arms	6.90
Ic	Continuous current (3)	Arms	1.42
Is	Stall current	Arms	1.07
Udc	Nominal input voltage	VDC	300
Pc	Max. cont. power dissipation (3)	W	20.7
2p	Number of poles	-	20
ns	Stall speed	rpm	0.037

GUIDING ELEMENT	
Type	Ball bearing, 4 contact points
Preload	Low

ENCODER CHARACTERISTICS

Encoder type	Non-contact, optical, metal disc
Signal type	Incremental
Output signal	1 Vpp or TTL
Number of lines of the grating disk	10'000

WORKING ENVIRONMENT

Clean room compatibility (12)	ISO 5 (referred to ISO 14644-1 standard)
	Class 100 (referred to US Fed Std 209E)
IP protection grade (13)	IP40

MATERIALS AND FINISH

Base	Aluminum / Black anodized
Shaft	Stainless steel

OPTIONS

TTL encoder output signal (14)	Interpolation factor	5x	10x	50x	100x
	Max. speed [rpm] (15)	400	400	200	100
Limited stroke	< 360°	From 21° to 336° by step of 45°			
	> 360°	391°			
Air purge		Bidirectional pneumatic fitting			

ACCESSORIES

	Extension cables

The DynX Rotary Series proposed by ETEL are fully compliant with the Machinery Directive 2006/42/EC as long as the system is used under the working conditions described in the DynX Hanbook. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the stage is used in an improper way.

Notes: The specifications given may be mutually exclusive.

(1) Without limited stroke.
(2) Tolerances: refer to the DynX Hanbook.
(3) Coils at 80 °C, ambiant temperature at 20 °C and additional surface of 0.02 m^2 fixed to the base and 0.007 m^2 to the rotor.
(4) Indicative load capacity with a payload centered on the stage. Please contact ETEL for any other case.
(5) Indicative load capacity with the stage is the horizontal position, with a payload centered on the carriage and the center of gravity 20 mm above the interface surface of the carriage.
(6) Recommended value. Please contact ETEL in case of greater requirements.
(7) With an AccurET modular 300, at encoder level.
(8) Values measured on a precision mounting surface (typical flatness 15 μm).
(9) All mounting screws used. Specifications measured with an AccurET modular 300. The typical ambient temperature during the measurements is 22°C.
(10) Value measured 14 mm above the interface surface of the carriage.
(11) Terminal to terminal.
(12) ISO 4 (class 10) on request.
(13) Please contact ETEL for more stringent needs.
(14) With TTL encoder cable adaptor.
(15) For an input frequency of 10 MHz on an AccurET modular 300 position controller (input frequency is controller dependent). Limited by the interpolation chip.