



# DynX

## Rotary Series

Data sheet

Version 5.0



DIMENSIONAL DATA		UNIT	VALUES
Stage width (1)		mm (in)	225 (8.85)
Stage length		mm (in)	229 (9.01)
Stage height		mm (in)	60 (2.36)
<b>ID</b> Inside diameter		mm (in)	Ø 100 (Ø 3.93)
Total mass		kg (lbs)	8.3 (18.29)
<b>J</b> Rotor inertia		kg.m <sup>2</sup>	1.49 E-2

TORQUE CAPABILITIES (2)		UNIT	VALUES
<b>Tp</b> Peak torque		Nm	25.9
<b>Tc</b> Continuous torque (3)		Nm	4.23
<b>Ts</b> Stall torque		Nm	3.2
<b>Tfrs</b> Static friction		Nm	1.1
<b>Tfrd</b> Dynamic friction		Nm/(rad/s)	2.5 E-2

LOAD CAPACITIES		UNIT	VALUES
Axial load capacity (4)		kg (lbs)	60 (132.27)
Radial load capacity (5)		kg (lbs)	30 (66.13)
Upside down load capacity (4)		kg (lbs)	60 (132.27)

DYNAMIC PERFORMANCE		UNIT	VALUES
Maximum speed (6)		rpm	400
Maximum acceleration		rad/s <sup>2</sup>	1'500
Typical position stability (7)		arcsec	± 0.2

STAGE ACCURACY (8) (9)		UNIT	TYPICAL VALUES
Accuracy (w/o mapping) (10)		arcsec	± 30
Accuracy (w/ mapping) (10)		arcsec	± 3
Unidirectional repeatability (10)		arcsec	± 1
Bidirectional repeatability (10)		arcsec	± 1.5
Axial runout		µm	0.5
Radial runout (10)		µm	± 3
Eccentricity		µm	30
Wobble		arcsec	± 5

ELECTRICAL SPECIFICATIONS (2)		UNIT	TTB0180-030-3RA
<b>Kt</b> Torque constant		Nm/Arms	1.63
<b>Ku</b> Back EMF constant (peak value) (11)		Vrms/(rad/s)	0.943
<b>R20</b> Electrical resistance at 20°C (11)		Ohm	4.16
<b>L1</b> Electrical inductance (11)		mH	1.66
<b>Ip</b> Peak current		Arms	17.1
<b>Ic</b> Continuous current (3)		Arms	2.67
<b>Is</b> Stall current		Arms	2.02
<b>Udc</b> Nominal input voltage		VDC	300
<b>Pc</b> Max. cont. power dissipation (3)		W	55.0
<b>2p</b> Number of poles		-	32
<b>ns</b> Stall speed		rpm	0.0097

GUIDING ELEMENT		
Type		Ball bearing, 4 contact points
Preload		Low

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## 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	18'000

## 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	111	55
Limited stroke	< 360°	From 31° to 346° by step of 45°			
	> 360°	396°			
Air purge		Bidirectional pneumatic fitting			

## ACCESSORIES

	Extension cables
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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, ambient temperature at 20 °C and additional surface of 0.09 m<sup>2</sup> fixed to the base and 0.034 m<sup>2</sup> 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 18.3 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.

DXR-TO225 S N 0000 A S D 10 T3 5 x - N Y S x x x - N x

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<b>STANDARD FEATURES</b>	Precision grade																			
	Standard	S																		
	Axis configuration																			
	Not applicable	N																		
	Angular stroke																			
	From 31° to 346° by step of 45°			0346																
	396°			0396																
	Unlimited 0000			0000																
	Base material																			
	Aluminum				A															
	Table top material																			
	Stainless steel					S														
	Encoder type																			
	Disk encoder						D													
	Encoder signals																			
	1 Vpp incremental							10												
	TTL 5x							11												
	TTL 10x							12												
	TTL 50x							13												
	TTL 100x							14												
Motor type																				
Toothless TTB0180-030-3RA								T3												
Environment																				
ISO 5 (class 100)									5											
ISO 4 (Class 10)									4											
Free digit																				
<b>OPTIONS</b>	Limit switches																			
	Yes																			
	No																			
	Air purge																			
	Yes																			
	No																			
	Finish																			
	Standard																			
Custom																				
Free digit																				
Free digit																				
Free digit																				
Free digit																				
<b>ACCESSORIES</b>	Tooling plate																			
	No																			
	Free digit																			