



T STANDALONE AXIS

ASME-DXR+T01550303NAS0000

DXR+ with AccurET VHP

Data sheet

Version 2.1

ETEL

| AXIS DESIGNATION | |
|--|-------|
| Number of controlled axes | 1 |
| Axes name | Theta |
| Thrust transmitter: DD (direct drive) or ID (indirect drive) | DD |

| TESTING CONDITIONS | UNIT | |
|---------------------|-------------------|----------------------------|
| Position controller | - | 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 | 48 |
| Tool point position | mm | 20 (above interface plate) |
| Ambient temperature | °C | 22 ±1 |
| Isolation system | - | QuiET |

| DIMENSIONAL DATA | UNIT | |
|---------------------------------|-------------------|--|
| Inside diameter | mm | 44 |
| Width | mm | 215 |
| Length | mm | 215 |
| Height | mm | 67.5 |
| Total stroke | ° | Infinite (limited stroke is an option) |
| Total mass (without payload) | kg | 5 |
| Rotor inertia (without payload) | kg.m ² | 0.004 |

| TORQUE CAPABILITIES (2) | UNIT | |
|--------------------------------------|------------|------|
| Peak torque | Nm | 7.87 |
| Continuous torque | Nm | 1.74 |
| Standstill torque | Nm | 1.32 |
| Max. detent torque (average to peak) | Nm | 0 |
| Static friction (maximal value) | Nm | 1 |
| Dynamic friction (maximal value) | Nm/(rad/s) | 0.03 |

| LOAD CAPACITIES | UNIT | |
|-----------------|------|----|
| Maximum payload | kg | 30 |

| DYNAMIC PERFORMANCE | UNIT | |
|------------------------------------|--------------------|-------|
| Duty cycle | % | 50 |
| Maximum speed | rad/s | 18 |
| Maximum acceleration | rad/s ² | 60 |
| Typical position stability at 2kHz | arcsec | ±0.02 |

| ACCURACY | UNIT | |
|--|--------|------|
| Positioning accuracy (without mapping) | arcsec | ±30 |
| Positioning accuracy (with mapping) | arcsec | ±3 |
| Unidirectional repeatability | arcsec | ±1 |
| Bidirectional repeatability | arcsec | ±2 |
| Horizontal straightness / radial runout | µm | ±3.5 |
| Vertical straightness / total axial error at R = 42.5 mm | µm | ±3 |

| WORKING ENVIRONMENT | |
|------------------------------|-------|
| Clean room compatibility (3) | ISO 2 |

| ELECTRICAL SPECIFICATIONS (2) | | UNIT | |
|-------------------------------|-----------------------------------|----------------|---------------------|
| | Motor type | - | Toothless |
| | Motor model | - | TTB0126-030-3NA-239 |
| | Number of phases | - | 3 |
| Kt | Force constant | Nm/Arms | 1.23 |
| Ku | Back EMF constant (4) | Vrms/(rad/s) | 0.712 |
| Km | Motor constant | Nm/ \sqrt{W} | 0.309 |
| R20 | Electrical resistance at 20°C (4) | Ohm | 10.5 |
| L1 | Electrical inductance (4) | mH | 2.65 |
| Ip | Peak current | Arms | 6.9 |
| Ic | Continuous current | Arms | 1.47 |
| Is | Standstill current | Arms | 1.11 |
| ns | Standstill speed | rad/s | 0.0016 |
| Um | Max. input voltage | VDC | 100 |
| Pc | Max. cont. power dissipation | W | 41.9 |
| 2p | Number of poles | - | 28 |

| ENCODER CHARACTERISTICS | | UNIT | |
|-------------------------|-----------------------------|-------------|-----------------------|
| | Encoder and signal type | - | Optical - incremental |
| | Output signal | - | 1 Vpp |
| | Signal period or line count | period/turn | 18000 |
| | Reference mark | - | One |
| | Power supply | V | 5 |

| VACUUM CHARACTERISTICS | | UNIT | |
|------------------------|-------------|-------|-------|
| | Vacuum | bar | -0.06 |
| | Vacuum flow | l/min | 5 |

| TYPICAL MOVE AND SETTLE TIMES | | UNIT | |
|-------------------------------|---|------|-----|
| | Move 1: 0.004 deg within $\pm 40 \mu\text{deg}$ | ms | 60 |
| | Move 2: 1 deg within $\pm 40 \mu\text{deg}$ | ms | 100 |
| | Move 3: 90 deg within $\pm 40 \mu\text{deg}$ | ms | 360 |
| | Move 4: 180 deg within $\pm 40 \mu\text{deg}$ | ms | 500 |
| | Move 5: 360 deg within $\pm 40 \mu\text{deg}$ | ms | 600 |

| GUIDING ELEMENTS | | |
|------------------|--|------------------------|
| Type | | Crossed roller bearing |

| MATERIAL AND FINISH | | |
|---------------------|--|-----------------|
| Baseplate | | Aluminium alloy |
| Carriage | | Stainless steel |

| OPTIONS / ACCESSORIES / FEATURES | | |
|----------------------------------|--|-------------------------------------|
| Limited stroke | | Configurable. See interface drawing |
| Air purge | | Bidirectionnal pneumatic fitting |

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 perpendicular to rotation axis. Measured at interface plate level. Contact ETEL for more details.
- (4) Terminal to terminal.