



# Z STANDALONE ACTUATOR

**ASME-NNNN-02-0025-0002xx**

Data sheet

Version 1.0

***ETEL***

| AXIS DESIGNATION   |                  |                   |
|--|------------------|-------------------|
| Number of controlled axes                                    | 2                |                   |
| Axes name  | Long stroke axis | Short stroke axis |
| Thrust transmitter: DD (direct drive) or ID (indirect drive) | DD               | DD                |

| TESTING CONDITIONS  |    | UNIT  |
|---------------------|----|---|
| Position controller | -  | Modular 48 05/10A                               |
| Motion controller   | -  | UltimET   |
| Rated payload       | kg | 0                      0.004                    |
| Tool point position | mm | Centered at the extremity of the interface part |
| Ambient temperature | °C | 22 ± 1  |

| DIMENSIONAL DATA              |    | UNIT                            |
|-------------------------------|----|---------------------------------|
| Width                         | mm | 65.8                            |
| Length                        | mm | 106                             |
| Height                        | mm | 161.5                           |
| Total stroke                  | mm | 25.3                      2     |
| Moving mass (without payload) | kg | 0.19                      0.025 |
| Total mass (without payload)  | kg | 1.5                             |

| FORCE / TORQUE CAPABILITIES (1)       |         | UNIT                           |
|---------------------------------------|---------|--------------------------------|
| Fp Peak force                         | N       | 67.2                      11.3 |
| Fc Continuous force                   | N       | 12                      2.54   |
| Fs Standstill force                   | N       | 9.11                      2.54 |
| Ffrs Static friction (maximal value)  | N       | 0.35                      0    |
| Ffrd Dynamic friction (maximal value) | N/(m/s) | 0.70                      0    |

| LOAD CAPACITIES     |    | UNIT                        |
|---------------------|----|-----------------------------|
| Maximum moment load | Nm | 0                      0    |
| Maximum axial load  | N  | 0                      0.05 |
| Maximum payload     | kg | 0                      0.01 |

| DYNAMIC PERFORMANCE                |                  | UNIT                          |
|------------------------------------|------------------|-------------------------------|
| Maximum speed                      | m/s              | 1.3                      0.6  |
| Maximum acceleration               | m/s <sup>2</sup> | 200                      200  |
| Typical position stability at 2kHz | nm               | ±30                      ±120 |

| ENCODER CHARACTERISTICS     |    | UNIT                                 |
|-----------------------------|----|--------------------------------------|
| Encoder and signal type     | -  | Optical - incremental                |
| Output signal               | -  | 1 Vpp                      1 Vpp     |
| Signal period or line count | µm | 4                      4             |
| Reference mark              | -  | One                      One         |
| Power supply                | V  | 5 ± 10%                      5 ± 10% |

| WORKING ENVIRONMENT |      |
|---------------------|------|
| IP protection grade | IP20 |

| ELECTRICAL SPECIFICATIONS (1) |                                   | UNIT  | Long stroke axis | Short stroke axis |
|-------------------------------|-----------------------------------|---|------------------|-------------------|
|                               | Motor type                        | -   | Ironless         | Voice coil        |
|                               | Motor model                       | -   | ILS03-036-3KA    | ILS01-010-10A     |
|                               | Number of phases                  | -   | 3                | 1                 |
| Kt                            | Force constant                    | N/Arms or N/A <sub>DC</sub>                       | 7.36             | 1.26              |
| Ku                            | Back EMF constant (2)             | V <sub>rms</sub> /(m/s) or V <sub>dc</sub> /(m/s) | 4.46             | 1.26              |
| Km                            | Motor constant                    | Nm/√W   | 3.86             | 1.86              |
| R20                           | Electrical resistance at 20°C (2) | Ohm   | 2.42             | 0.46              |
| L1                            | Electrical inductance (2)         | mH  | 0.61             | 0.09              |
| I <sub>p</sub>                | Peak current                      | Arms or A <sub>DC</sub>                           | 10.0             | 10.0              |
| I <sub>c</sub>                | Continuous current                | Arms or A <sub>DC</sub>                           | 1.76             | 2.17              |
| U <sub>dc</sub>               | Nominal input voltage             | VDC   | 48               | 48                |
| P <sub>c</sub>                | Max. cont. power dissipation      | W   | 14.9             | 2.87              |
| 2τ <sub>p</sub>               | Magnetic period                   | mm  | 20               | 16                |

| FORCE CONTROL CAPABILITIES |   | UNIT |      |
|----------------------------|---|------|------|
|                            | Force stability at force level 0.2 N        | mN   | ±3   |
|                            | Force stability at force level 2.0 N        | mN   | ±7   |
|                            | Contact stiffness                           | N/m  | 6000 |
|                            | Move & force 1: 8.5 ± 0.3 mm & 0.2 ± 0.04 N | ms   | 60   |
|                            | Move & force 2: 8.5 ± 0.3 mm & 2 ± 0.4 N    | ms   | 40   |

| GUIDING ELEMENTS |  |                               |
|------------------|--|-------------------------------|
| Type             |  | Rolling element      Flexures |

| MATERIAL AND FINISH                               |  |          |
|---|--|----------|
| Static interface part                             |  | Aluminum |
| Moving motor part                                 |  | Titanium |
| Moving interface (fixed to the moving motor part) |  | Aluminum |

| FEATURES                            |  | UNIT |                                     |   |
|-------------------------------------|--|------|-------------------------------------|---|
| Parking position                    |  | -    | Retracted position (upper position) | - |
| Holding force (in parking position) |  | N    | 3.75 to 7                           | - |

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) Terminal to terminal.