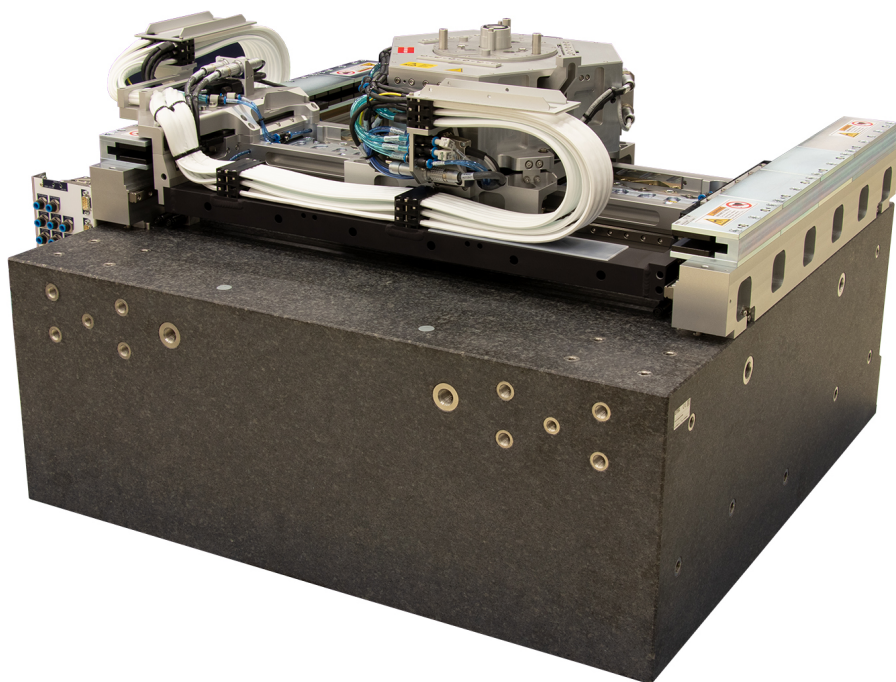




# XYZT PLANAR SYSTEM METIS CIP

Data sheet

| AXIS DESIGNATION                                             |  |    |        |        |          |       |
|--------------------------------------------------------------|--|----|--------|--------|----------|-------|
| Number of controlled axes                                    |  | 6  |        |        |          |       |
| Axes name                                                    |  | X  | Y1, Y2 | Fine Z | Coarse Z | Theta |
| Thrust transmitter: DD (direct drive) or ID (indirect drive) |  | DD | DD     | DD     | ID       | DD    |

| TESTING CONDITIONS                                 | UNIT |                    |             |             |             |             |
|----------------------------------------------------|------|--------------------|-------------|-------------|-------------|-------------|
| Position controller                                | -    | ACCURET+300        | ACCURET+300 | ACCURET+100 | ACCURET+300 | ACCURET+100 |
| Motion controller                                  | -    | ULTIMET ADVANCED   |             |             |             |             |
| Rated payload                                      | kg   | -                  | -           | 0.9         | -           | -           |
| Rated input voltage                                | VDC  | 100                | 100         | 48          | 100         | 100         |
| Tool point position (from upper side granite base) | mm   | 251                |             |             |             |             |
| Ambient temperature                                | °C   | 22                 |             |             |             |             |
| Isolation system                                   | -    | QUIET (2 x VHP100) |             |             |             |             |

| DIMENSIONAL DATA              | UNIT                    |                                         |     |     |    |          |
|-------------------------------|-------------------------|-----------------------------------------|-----|-----|----|----------|
| Width                         | mm                      | 775                                     |     |     |    |          |
| Length                        | mm                      | 911.5                                   |     |     |    |          |
| Height                        | mm                      | 529 (with Z coarse down and Z centered) |     |     |    |          |
| Total stroke                  | mm or °                 | 320                                     | 320 | 4   | 12 | Infinite |
| Max payload                   | kg                      | -                                       | -   | 1.4 | -  | -        |
| Moving mass (without payload) | kg or kg/m <sup>2</sup> | 40                                      | 20  | 7   | -  | 0.004    |
| Total mass (without payload)  | kg                      | 625 (indicative value)                  |     |     |    |          |

| DYNAMIC PERFORMANCE                 | UNIT                                   |      |      |      |       |       |
|-------------------------------------|----------------------------------------|------|------|------|-------|-------|
| Maximum speed                       | m/s or rad/s                           | 1.2  | 1.2  | 0.1  | 0.044 | 15.7  |
| Maximum acceleration                | m/s <sup>2</sup> or rad/s <sup>2</sup> | 20   | 20   | 2    | 0.5   | 144   |
| Typical position stability at 2 kHz | nm or arcsec                           | ± 25 | ± 25 | ± 15 | -     | ± 0.2 |

| ACCURACY                                                   | UNIT         |       |       |       |                                 |       |
|------------------------------------------------------------|--------------|-------|-------|-------|---------------------------------|-------|
| Positioning accuracy (without mapping)                     | µm or arcsec | ± 10  | ± 10  | -     | -                               | ± 30  |
| Positioning accuracy (with mapping/without thermal)        | µm or arcsec | ± 1   | ± 1   | -     | -                               | ± 3   |
| Bidirectional repeatability                                | µm or arcsec | ± 0.4 | ± 0.4 | ± 0.3 | ± 0.5<br>(uni-dir/top position) | ± 2   |
| Horizontal straightness / radial runout                    | µm           | ± 2   | ± 1.5 | ± 1.8 | -                               | ± 1.5 |
| Vertical straightness / total axial error (at rot. center) | µm           | ± 2   | ± 2   | -     | -                               | ± 1.5 |

| ENCODER CHARACTERISTICS     | UNIT              |         |         |         |           |         |
|-----------------------------|-------------------|---------|---------|---------|-----------|---------|
| Encoder and signal type     | -                 | Optical | Optical | Optical | Optical   | Optical |
| Output signal               | -                 | 1 Vpp   | 1 Vpp   | 1 Vpp   | Endat 2.2 | 1 Vpp   |
| Signal period or line count | µm or period/turn | 4       | 4       | 4       | 20        | 18000   |
| Reference mark              | -                 | One     | One     | One     | Absolute  | One     |
| Power supply                | V                 | 5       | 5       | 5       | 5         | 5       |

| WORKING ENVIRONMENT          |   |                             |  |  |  |
|------------------------------|---|-----------------------------|--|--|--|
| Clean room compatibility (1) | - | ISO 2 (at tool point level) |  |  |  |

| GUIDING ELEMENTS |   |        |              |          |              |
|------------------|---|--------|--------------|----------|--------------|
| Type             | - | Hybrid | Ball bearing | Flexures | Ball bearing |

| ELECTRICAL SPECIFICATIONS (2) | UNIT | X          | Y1, Y2     | Fine Z       | Coarse Z  | Theta         |
|-------------------------------|------|------------|------------|--------------|-----------|---------------|
| Motor type                    | -    | Ironless   | Ironless   | Voice coil   | Brushless | Ironless      |
| Motor model                   | -    | ILM+06-040 | ILM+06-040 | EMF-14.5-058 | -         | SLICE0109-015 |
| Number of phases              | -    | 3          | 3          | 1            | 3         | 3             |

| TYPICAL MOVE AND SETTLE TIMES          | UNIT |     |   |   |     |
|----------------------------------------|------|-----|---|---|-----|
| Move 1: 10 $\mu$ m within $\pm$ 100 nm | ms   | 60  | - | - | -   |
| Move 2: 20 mm within $\pm$ 100 nm      | ms   | 150 | - | - | -   |
| Move 3: 100 mm within $\pm$ 100 nm     | ms   | 230 | - | - | -   |
| Move 4: 180° within $\pm$ 60 $\mu$ deg | ms   | -   | - | - | 700 |

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) Please refer to the cleanliness document for more details
- (2) Tolerances on electrical parameters are available on request.