

## Air-Bearing Rotary Stage



### Features

- Non-contact torque motor drive for high dynamic response
- Optical linear encoder for high precision
- Enclosed air-bearing design for high stiffness, high precision
- Axial runout and radial runout with Nano-precision accuracy
- Low-profile design

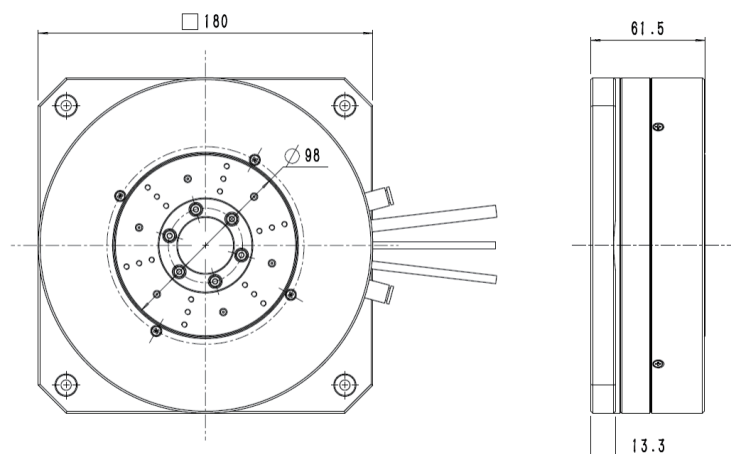
### Description

The stage provides excellent angle positioning accuracy, velocity stability and lower runout.

### Applications

- Wafer inspection
- High precision metrology
- X-ray diffraction systems
- Optical inspection and manufacturing
- MEMS/nanotechnology equipment manufacturing

### Interface Definition



\*Interface dimensions from ARD120

## Technical Specifications

|                              | ARD120-00                                       | ARD180-00   | ARD220-00 |
|------------------------------|-------------------------------------------------|-------------|-----------|
| Accuracy                     | $\pm 2$ arcsec                                  |             |           |
| Bidirectional repeatability  | $\pm 0.5$ arcsec                                |             |           |
| Axial runout                 | <180 nm                                         | <100 nm     |           |
| Radial runout                | <450 nm                                         | <250 nm     |           |
| Tilt error motion            | <1 arcsec                                       | <0.7 arcsec |           |
| Continuous torque            | 0.48 N·m                                        | 2.36 N·m    | 5.99 N·m  |
| Max. velocity                | 1000 rpm                                        | 1000 rpm    | 1000 rpm  |
| <b>Mechanical properties</b> |                                                 |             |           |
| Dimensions                   | 120 mm                                          | 180 mm      | 220 mm    |
| Hollow aperture              | 10 mm                                           | 30 mm       | 50 mm     |
| Max. load_Axial              | 8 Kg                                            | 30 Kg       | 66 Kg     |
| Max. load_Radial             | 4 Kg                                            | 15 Kg       | 36 Kg     |
| Operating pressure_Axial     | 5 bar $\pm$ 0.5 bar                             |             |           |
| Operating pressure_Radial    | 6 bar $\pm$ 0.5 bar                             |             |           |
| Total mass                   | 4.5 Kg                                          | 6.1 Kg      | 8.3 Kg    |
| Material                     | Aviation aluminum, black anodized/hard anodized |             |           |

## Customization Information

The series is configured with options that can be selected based on the user's actual application. Options include dimension, encoder and more.

Table 1 Dimension Options

|      |               |
|------|---------------|
| -120 | 120, Diameter |
| -180 | 180, Diameter |
| -220 | 220, Diameter |

Table 2 Encoder Options

|     |                                                   |
|-----|---------------------------------------------------|
| -S1 | Incremental analog optical linear encoder, 1Vpp   |
| -S2 | Incremental digital optical linear encoder, RS422 |
| -S3 | Absolute optical linear encoder, BISS             |