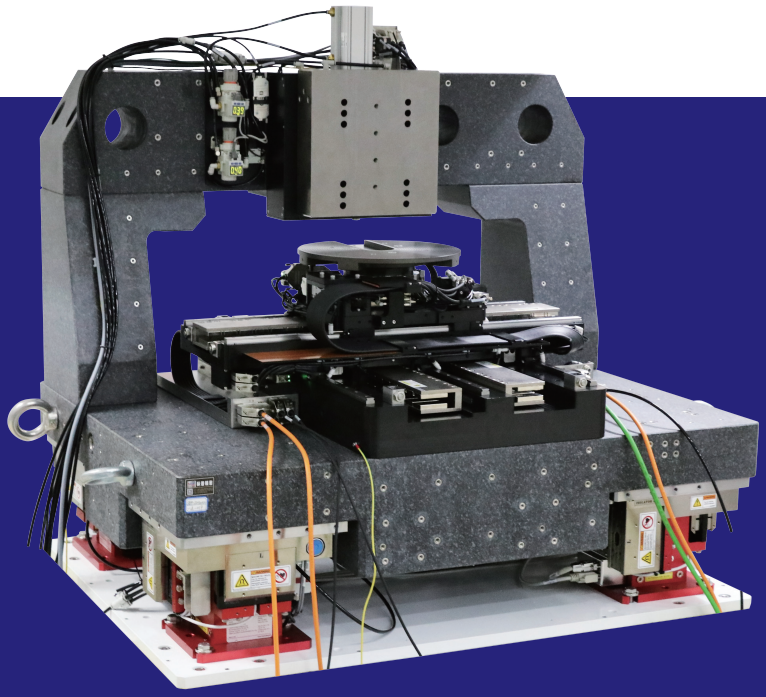


PGS-XYT SERIES

- XYT stack stage
- High accuracy, high stiffness, fast move and settle
- Good position stability
- Wafer stage
- Zero cogging
- Vacuum version available

EN-26.3.1

PGS-XYT

Motor Specifications	Upper Axis	Lower Axis	Theta Axis
Motor	AUM4-P5-S4-K-NH-3.0-NFB-V201	AUM4-P5-S6-K-NH-3.0-NFB-V201 ❹	ACW170-52-P-J7-H9D-3.0-FB-RT-11800-1000X-P5-Z17
Continuous Force (NC) @100°C ❶ Continuous Torque (NC) @100°C [T-axis] ❶	284 N	331 N	2.8 Nm
Peak Force Peak Torque [T-axis]	1605 N	1872 N	9.7 Nm
Force Constant ±10% Torque Constant ±10% [T-axis]	30.9 N/Arms	36 N/Arms	0.66 Nm/Arms
Back EMF Constant ±10%	25.2 Vpeak/(m/s)	29.4 Vpeak/(m/s)	0.056 Vpeak/rpm
Resistance @25°C ±10% ❷	1.22 Ω	1.75 Ω	2.76 Ω
Inductance ±20% ❸	0.96 mH	1.44 mH	1.65 mH
Continuous Current (NC) @100°C ❶	9.2 Arms	9.2 Arms	4.2 Arms
Peak Current	53 Arms	52 Arms	14.7 Arms
Max. Bus Voltage	96 Vdc	96 Vdc	96 Vdc
Magnetic Period	60 mm	60 mm	16 2P
Mechanical Specifications	**Upper Axis**	**Lower Axis**	**Theta Axis**
Effective Stroke ❺	360 mm	370 mm	360 mm Infinite
Bi-directional Repeatability ❻	±0.3 µm	±0.3 µm	±1 arcsec
Accuracy (with mapping)	±0.5 µm	±0.5 µm	±2 arcsec
Flatness	5 µm	5 µm	-
Straightness	7.5 µm	7.5 µm	-
Pitch	15 arcsec	10 arcsec	-
Pitch Repeatability	±0.5 arcsec	±0.5 arcsec	-
Yaw	10 arcsec	10 arcsec	-
Yaw Repeatability	±0.5 arcsec	±0.5 arcsec	-
Orthogonality	±5 arcsec	±5 arcsec	-
Radial Runout	-	-	±5 µm
Typical Position Stability ❼	±2 nm	±2 nm	±0.007 arcsec
Max. Acceleration	10 m/s²	10 m/s²	4000 deg/s²
Max. Velocity	1 m/s²	1 m/s²	600 deg/s²
Payload	2.5 kg	2.5 kg	2.5 kg

❶ Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling, AC-Air Cooling, WC-Water Cooling.
❷ Resistance is measured by DC current with standard 0.5 m cable.
❸ Inductance is measured by current frequency of 1 kHz. The variation range of AUM inductance is ±40% because three phase inductances are different. The value in the catalog is the average between the maximum and minimum values. For each phase, the variation range is ±20%.
❹ Two motor in parallel connection on bottom axis.
❺ Stroke up to 450 mm.
❻ ISO 230-2.
❼ 3 sigma, duration 2s, sampling rate 2kHz; T position stability up to +/-0.003 arcsec. For more information, please contact cust-service@akribis-sys.com.
★ Chuck excluded.
The contents of datasheet are subject to change without prior notice.

Standalone Z (on fix granite beam)

Typical Specifications	Z-axis
Effective Stroke	20 mm
Bi-directional Repeatability ❶	±0.6 μm
Accuracy (with mapping)	±1 μm
Flatness	2 μm
Straightness	2 μm
Pitch	10 arcsec
Pitch Repeatability	±0.5 arcsec
Yaw	10 arcsec
Yaw Repeatability	±0.5 arcsec
Typical Position Stability ❷	±10 nm
Payload	35 kg

❶ ISO 230-2.
❷ 3 sigma, duration 2s, sampling rate 2kHz.

Move and Settle

Typical Specifications	Value
Move & settle time in ±0.1um window: 80mm step	205 ms
Move & settle time in ±0.1um window: 25mm step	125 ms
Move & settle time in ±0.1um window: 5mm step	70 ms
Move & settle time in ±0.4 arcsec window: 180deg step	500 ms
Move & settle time in ±0.4 arcsec window: 1deg step	100 ms

★ Move and settle time is the average of all measured points.

Active Vibration Isolation

Specifications	Value
Passive Suspension Type	Air Diaphragm
Nominal Isolator Resonance	2 Hz
Active Type	Linear Motor
Control DOFs	6
Typical Load Capacity @ 4 bar with Servo Valve	1080 kg
Peak Force	560 N

Ordering Part Number (OPN)

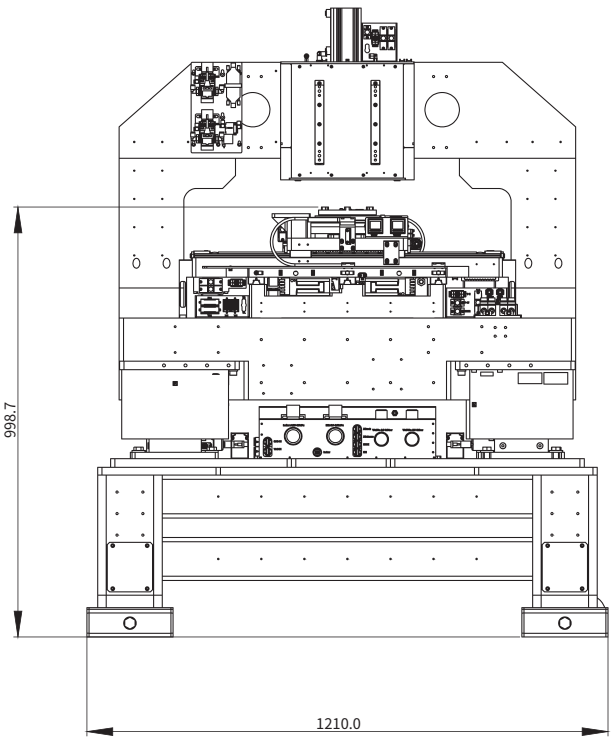
PGS-XYT-B3637-H2A3

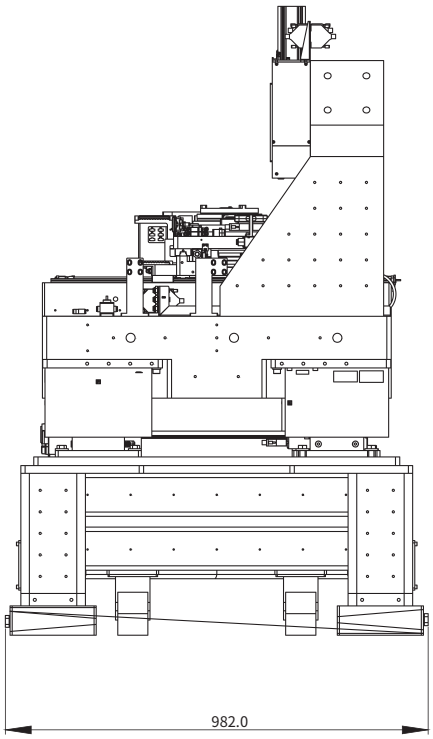
- Model: PGS-XYT
- Finish: B: Black Anodized
- Upper Axis Stroke: 36: 360mm
- Scale Type: 3: Glass G0 Robax, 0ppm/K
- Encoder Type: H2A: LIF4, SINCOS (1Vpp)
- Lower Axis Stroke: 37: 370mm

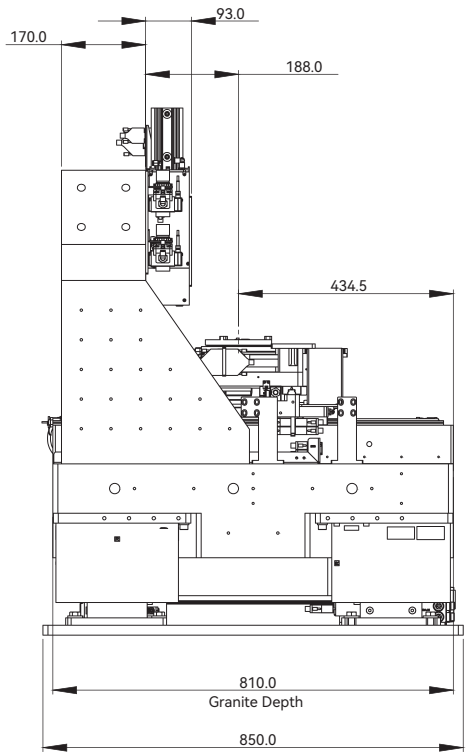
Note:
★ Products can be customized to suit specific working environments, please contact cust-service@akribis-sys.com.

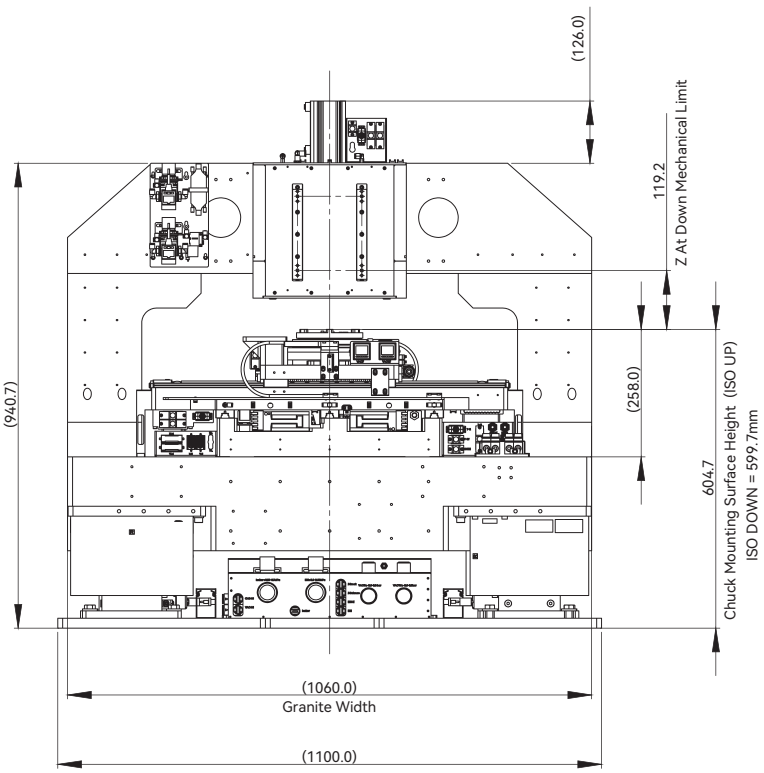
Dimensional Drawing

Overall Dimension



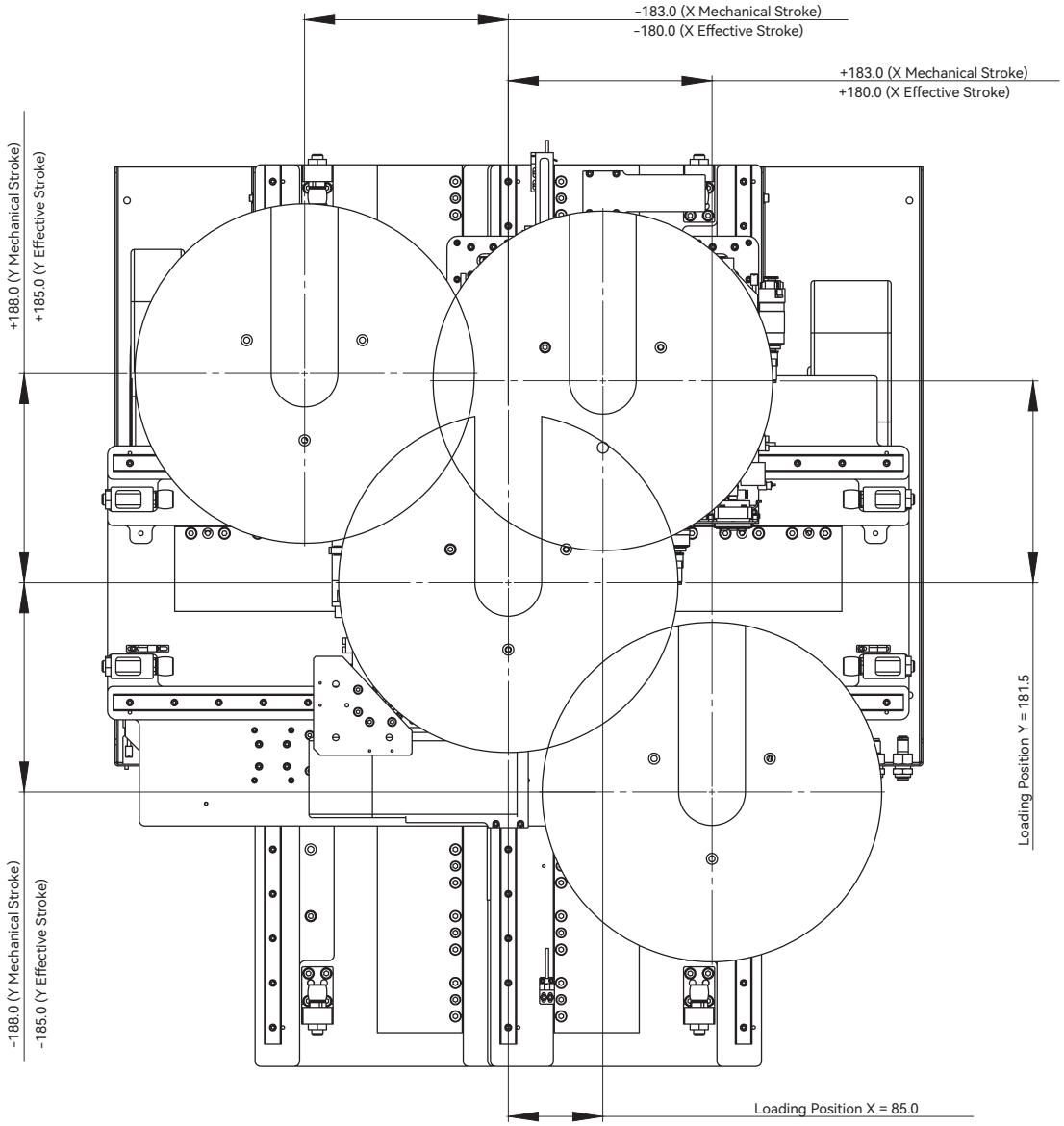






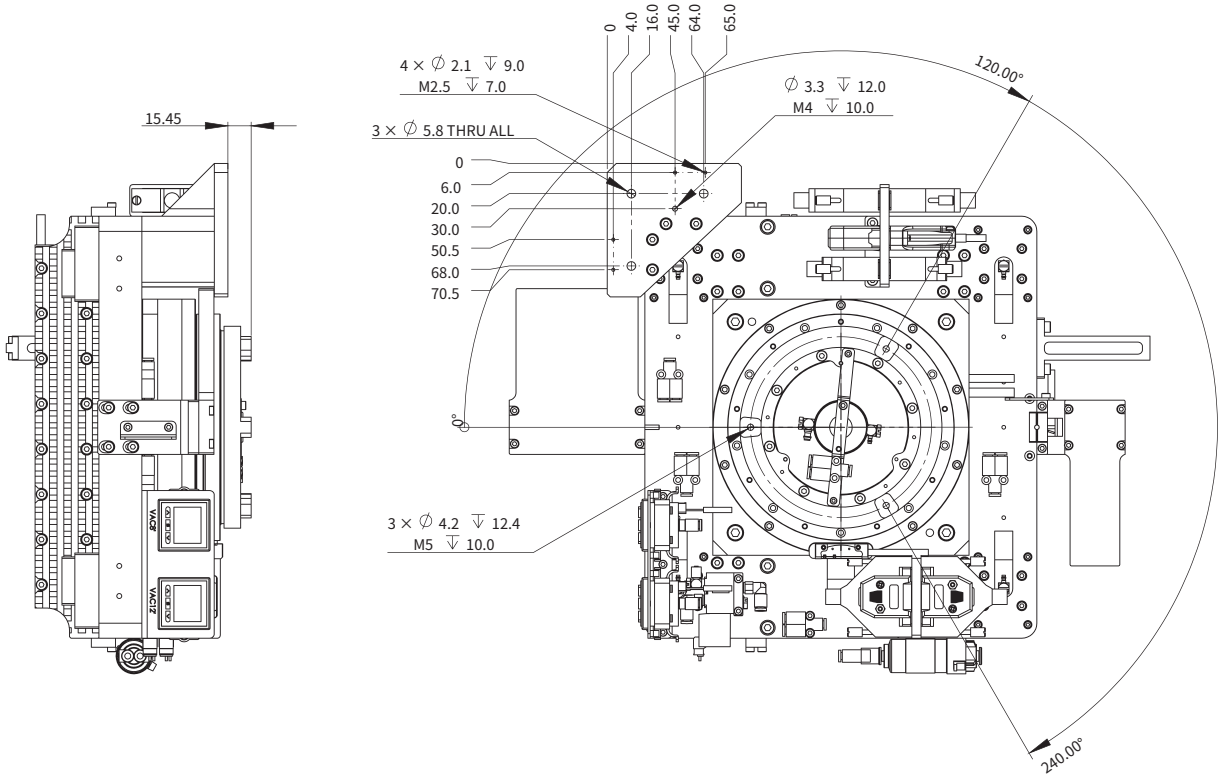
Dimensional Drawing

Stroke



Interface Drawing

■ T-axis Mechanical Interface



Interface Drawing

■ Z-axis Mechanical Interface