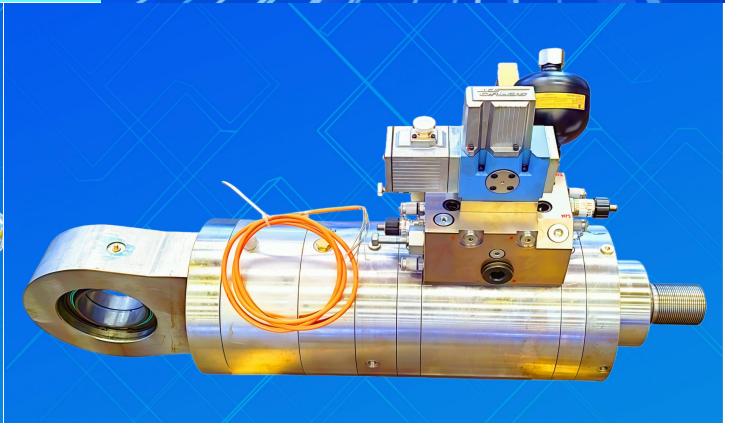
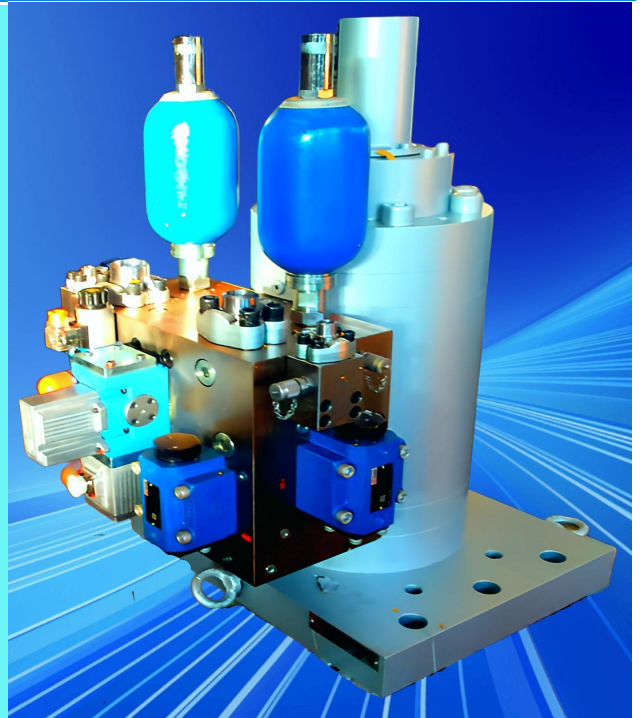


High-Frequency Response Hydrostatic Servo Hydraulic Cylinder





Low-Friction Sealed High-Frequency Vibration Servo Hydraulic Cylinder



High-Frequency Response Hydrostatic Servo Hydraulic Cylinder

Revolutionizing Precision Motion with Hydrostatic Technology

Background

For over 30 years, Uranus has specialized in high-performance hydraulic cylinders. In 2013, we developed China's first **350 Hz high-frequency hydrostatic servo cylinder**, applied in a 250 g geotechnical centrifuge shaker—filling a domestic gap, reaching advanced international levels, and winning a National Science & Technology Award.

Principle & Advantages

- **Hydrostatic non-contact support:** A high-stiffness oil film between piston rod and guide bushing eliminates Coulomb friction, achieving near “zero-friction” motion.
- **Smart closed-loop control:** Servo valve bandwidth >100 Hz; built-in/external high-resolution displacement sensors ensure precise synchronization with high-frequency commands.
- **Outstanding frequency response:** -3 dB amplitude characteristic covers 50 Hz to several hundred Hz, capable of accurately reproducing complex non-sinusoidal waveforms.

Key Performance

- Micron-level precision and ultra-smooth low-speed motion
- High oil-film stiffness ensures strong anti-disturbance and excellent stability
- Withstands high radial/axial loads under harsh conditions

Applications

Successfully applied in:

- Aerospace vibration simulation
- Mold oscillation in steel continuous casting
- Material fatigue testing machines
- Automotive road impact and tire simulation platforms
- Ultra-gravity centrifuge vibration rigs
- High-frequency servo pressing and cold forging equipment

Customization & Cooperation

Non-standard customization and OEM are supported, delivering tailored solutions for advanced equipment.

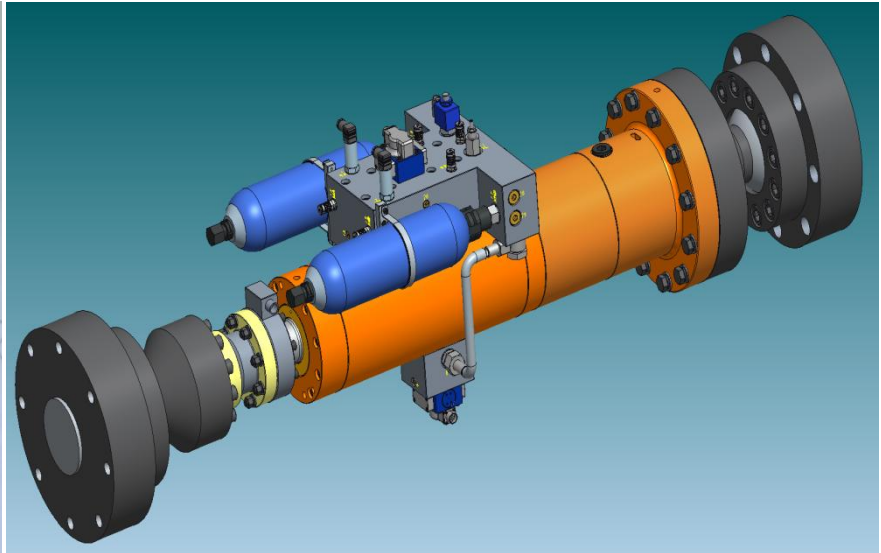
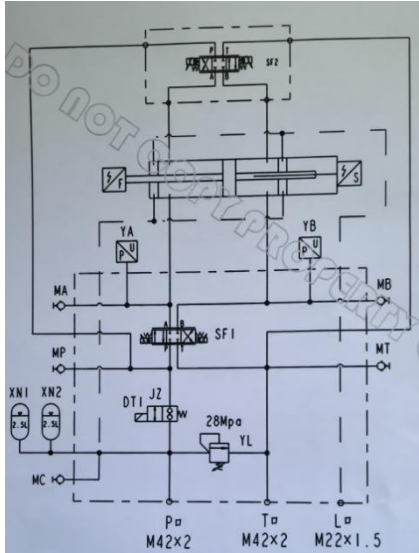
Representative Models & Specifications

1、USY1302JD220/105-40H

- Bore 220 mm; Rod 105 mm; Stroke ± 20 mm
- Working pressure 21 MPa; Test pressure 32 MPa; Case drain <0.02 MPa
- Medium: Hydraulic oil; Temp $-10^{\circ}\text{C} \sim +80^{\circ}\text{C}$
- Start pressure <0.1 MPa; Vibration 5 - 350 Hz
- External displacement sensor
- Application: 250 g centrifuge

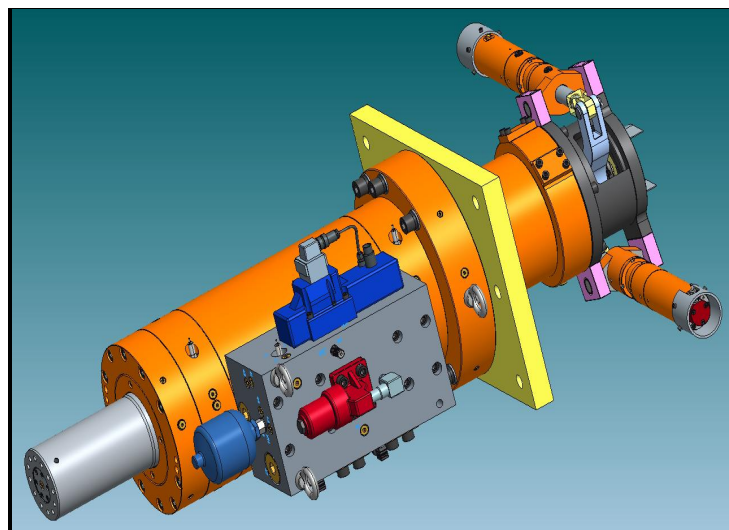
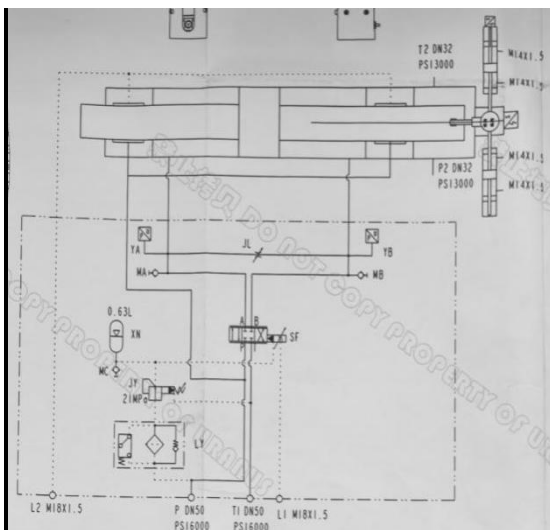
3、FLZJ-B + USY2210T110/80-110HS (Tire Load Simulator Actuator)

- Bore 110 mm; Rod 80 mm; Stroke ± 55 mm (Cushion 15 \times 2)
- Working pressure 28 MPa; Test pressure 35 MPa; Hydrostatic bearing 28 MPa
- External leakage <10 L/min; Start <0.1 MPa
- Built-in displacement sensor



4. WZTJ + 4×USY2211Q190/160-150HS (Rotary High-Frequency Oscillation Cylinder)

- Bore 190 mm; Rod 160 mm; Stroke 180 mm (Cushion 15×2)
- Working pressure 28 MPa; Test pressure 35 MPa; Hydrostatic bearing 28 MPa
- External leakage <10 L/min; Start <0.1 MPa
- Built-in displacement sensor



5. WZTJ + 4×USY2211Q190/160-150HS (Rotary High-Frequency Oscillation Cylinder)

- Bore 190 mm; Rod 160 mm; Stroke 180 mm (Cushion 15×2)
- Working pressure 28 MPa; Test pressure 35 MPa; Hydrostatic bearing 28 MPa
- External leakage <10 L/min; Start <0.1 MPa
- Built-in displacement sensor

