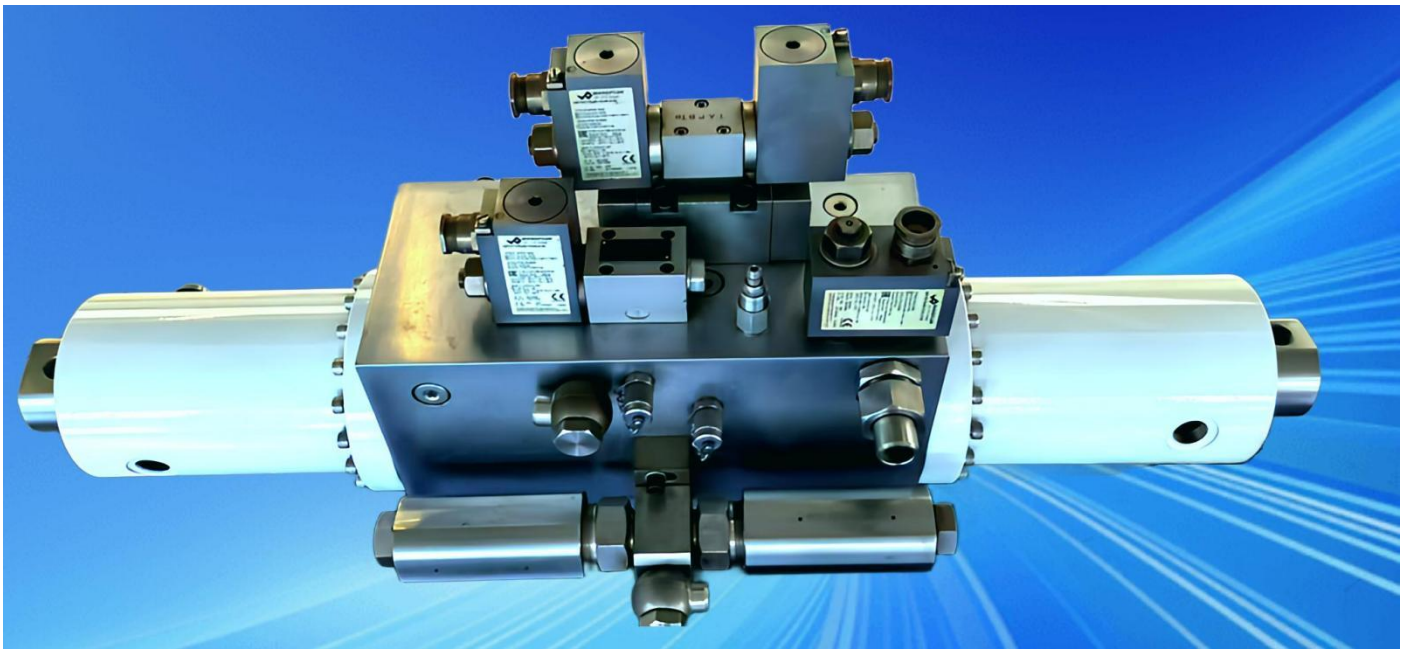
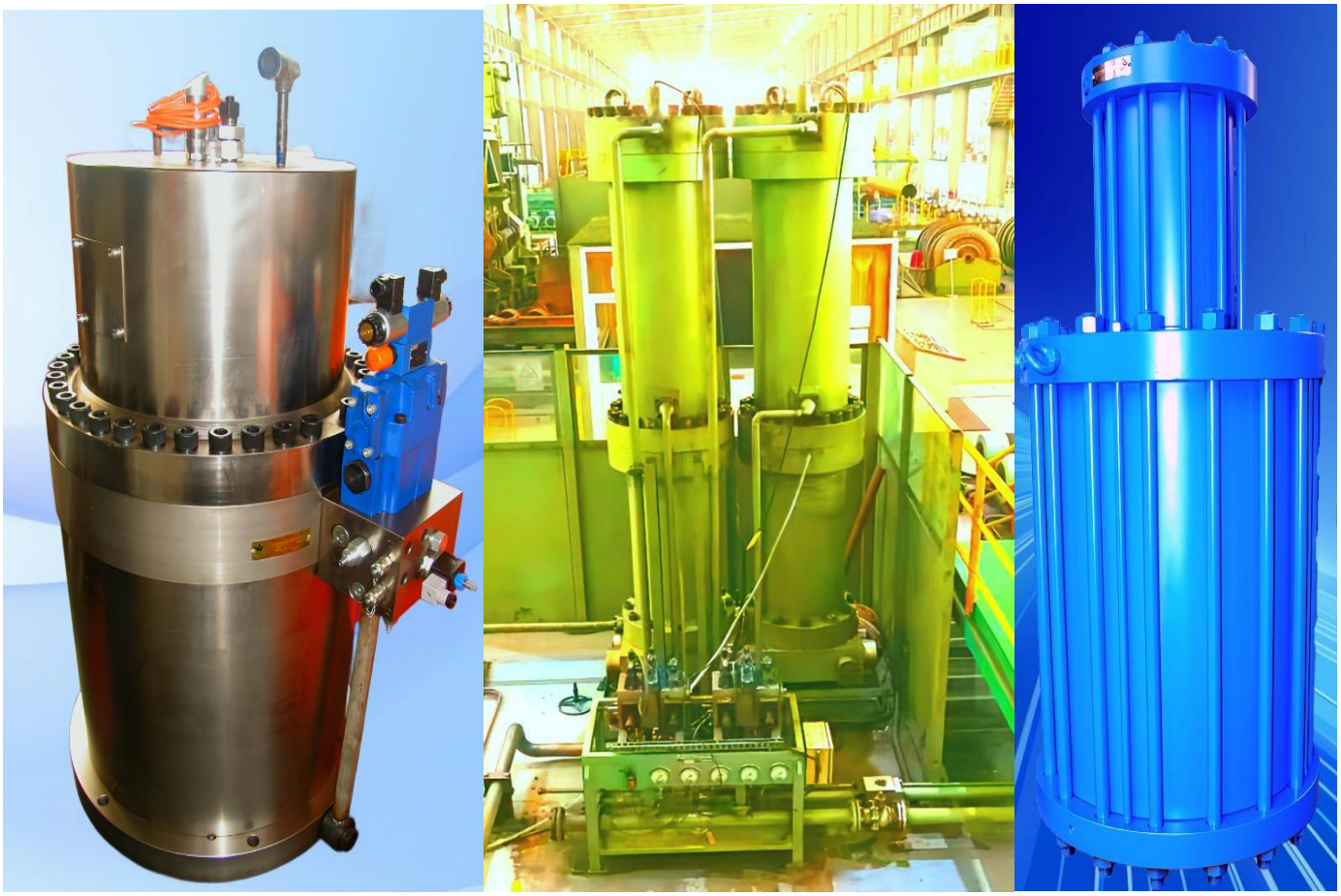
Hydraulic Intensifier Cylinder Photo





Hydraulic Intensifier Cylinder

1. Overview

A hydraulic intensifier cylinder is a pressure amplification device based on Pascal's Law. The working principle involves a large-diameter hydraulic cylinder generating a strong thrust that drives a smaller plunger into the intensifying chamber to produce high pressure. The chamber pressure equals the working pressure of the large cylinder multiplied by the ratio of the large piston area to the small plunger area.

Through this mechanism, the intensifier cylinder can amplify ordinary hydraulic system pressure to several hundred MPa. It is widely used in metallurgy, injection molding machines, hydraulic presses, **laboratory equipment, synthetic diamond presses, and nuclear reactor pressure vessels**, where high pressure precision is required.

2. Key Features

(1) **High Pressure Output** — By increasing the area ratio, low-pressure hydraulic oil can be amplified to hundreds of MPa.

(2) **Energy Efficient** — Operates with a low-pressure hydraulic pump, reducing energy consumption by over 50%. Power can be cut off during pressure holding to further save energy.

(3) **Compact Design** — Much smaller than traditional high-pressure systems, saving installation space and cost.

(4) **Excellent Stability** — Based on Pascal's Law, output pressure is stable. Bidirectional cylinders can continuously output high pressure.

(5) **High Durability** — Made of high-strength materials with precision seals, providing more than 10 years of service life and low maintenance cost.

3. Engineering Excellence

With more than 30 years of experience, **URANUS Hydraulic** has provided thousands of customized intensifier cylinders for clients around the world.

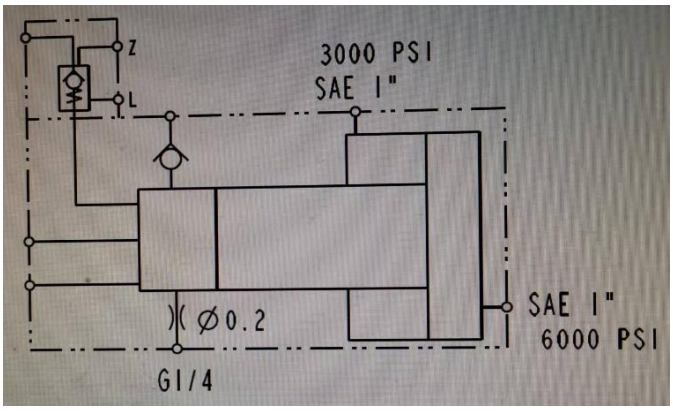
The products' superior performance, reliability, and durability have earned widespread trust and praise, with annual orders steadily increasing.

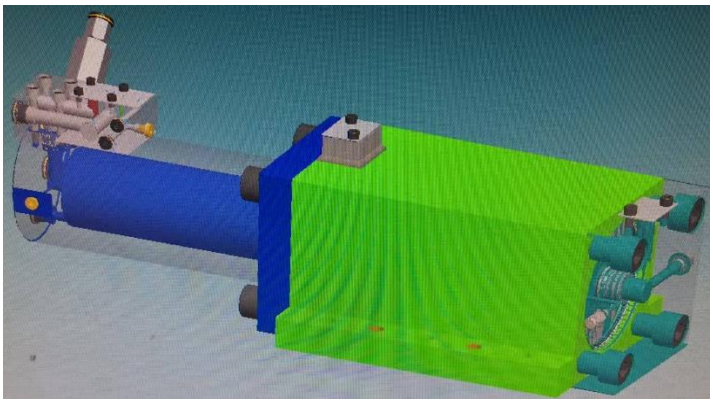
Typical Application Examples

1. Hydraulic Pressure Intensifier Cylinder UZY2012T200/110-330HS

Bore 200mm, rod 110mm, plunger 110mm, stroke 330mm.

Medium: hydraulic oil. Input pressure 25MPa, output pressure 70MPa, test pressure 31.5MPa.

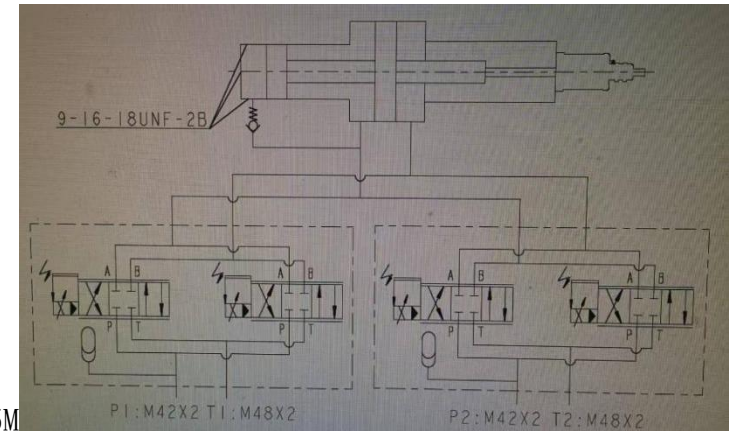




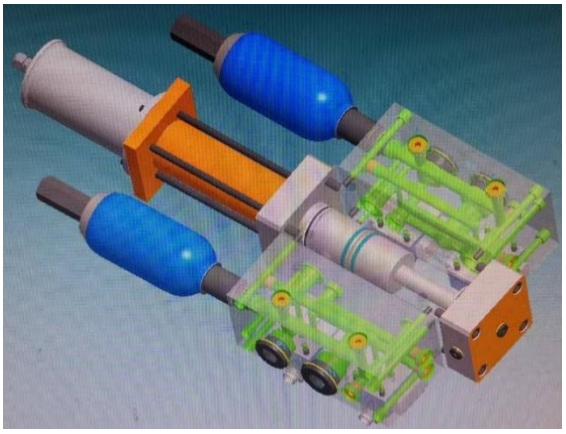
2 Constant-Speed High-Frequency Pressure Intensifier Cylinder UZY63/26X100-105

Bore 63mm, rod 26mm, ratio 1:4.9, stroke 100mm.

Medium: hydraulic oil. Input 21.5MPa, output



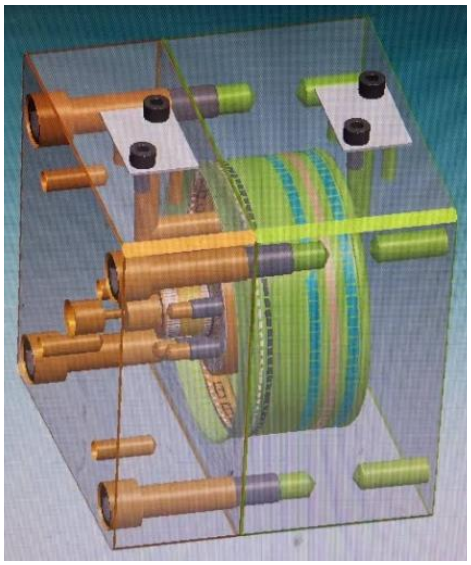
105M



3. 300 MPa Pressure Intensifier UZY1901T140/18-10

Bore 140mm, rod 18mm, plunger 18mm, stroke 10mm.

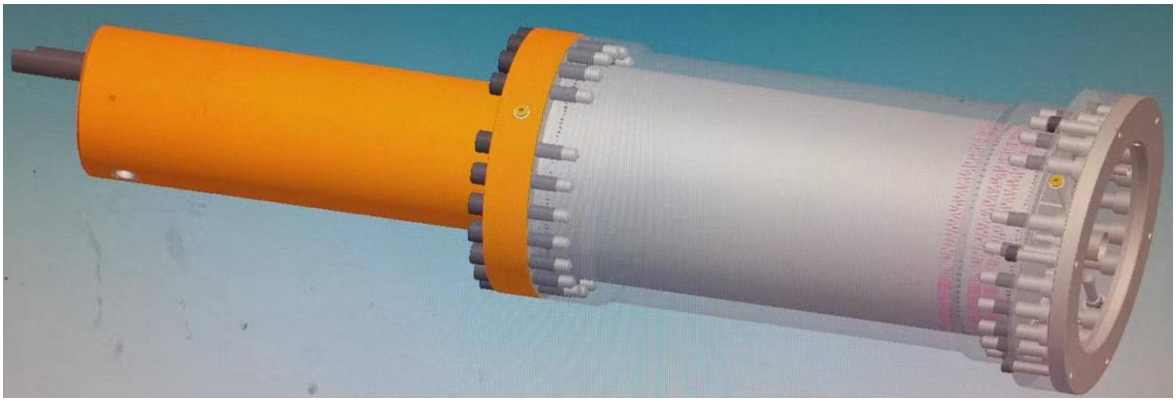
Medium: hydraulic oil. Input 5MPa, output 300MPa, test pressure 7.5MPa.



4、130 MPa Pressure Intensifier Cylinder UZ1511H320/110-550

Bore 320mm, rod 110mm, plunger 110mm, stroke 550mm, ratio 1:8.46, chamber volume 5.2L.

Input 16MPa, output 130MPa, test input 18MPa. Medium: castor oil.

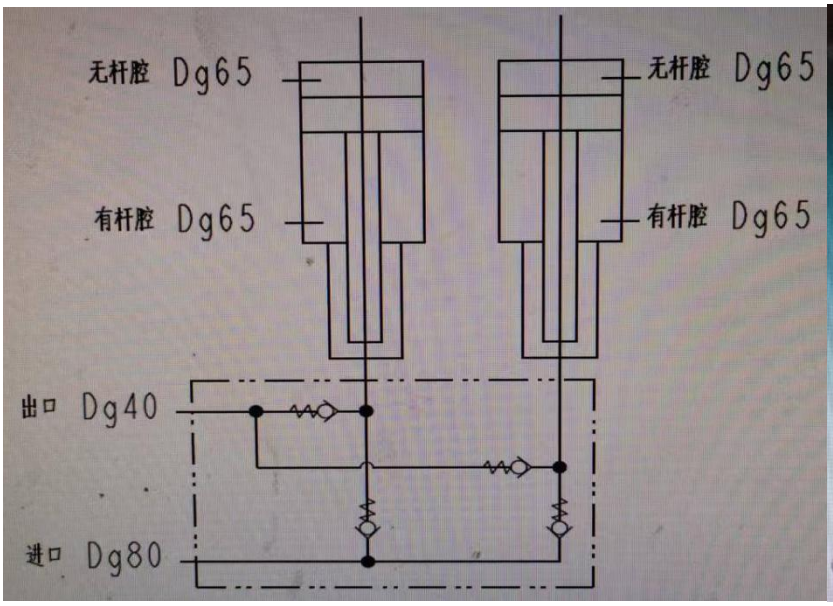


5、Pressure Booster UZ1903F500/320-1000-1:2.44

Bore 500mm, rod 320mm, plunger 320mm, stroke 1000mm, ratio 1:2.44.

Input 20.5MPa, output 50MPa, test input 31.5MPa.

Medium: hydraulic oil (input) and water (output).



6. Servo Pressure Intensifier Cylinder for Wellhead Injection UCZ1902JKZSWL12L-ZYG

UCZ1902JKZSWL12L-ZYG (Servo Intensifier Cylinder)

Bore 360mm, rod 170mm, plunger 170mm, stroke 480mm, ratio 1:4, chamber volume 12L.

Input 20.5MPa, output 50MPa, test input 31.5MPa.

Medium: hydraulic oil (input) and well-sealing paste (output).

Equipped with a built-in displacement sensor.