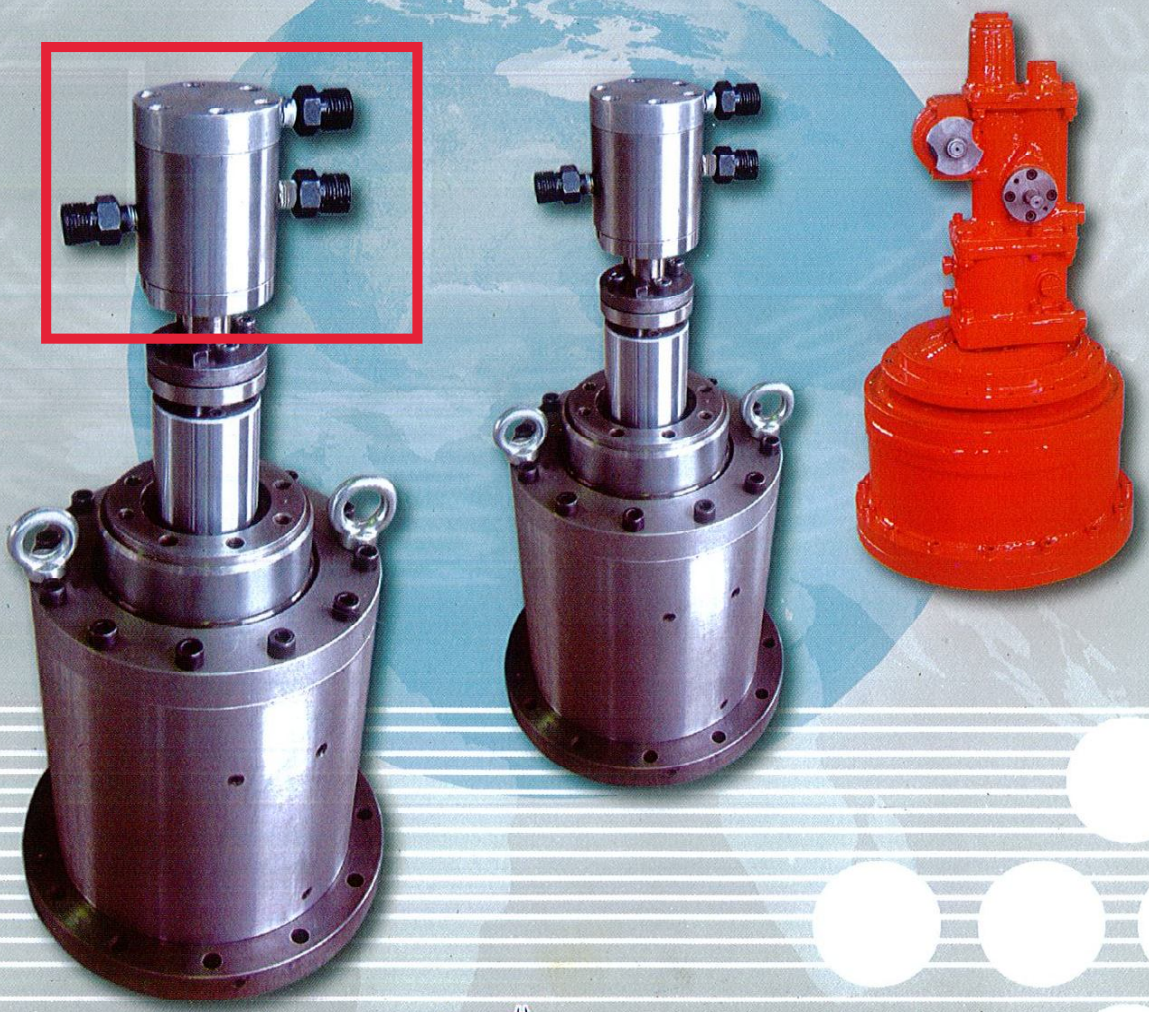
YCASH-002

Hydraulic Servo Cylinder

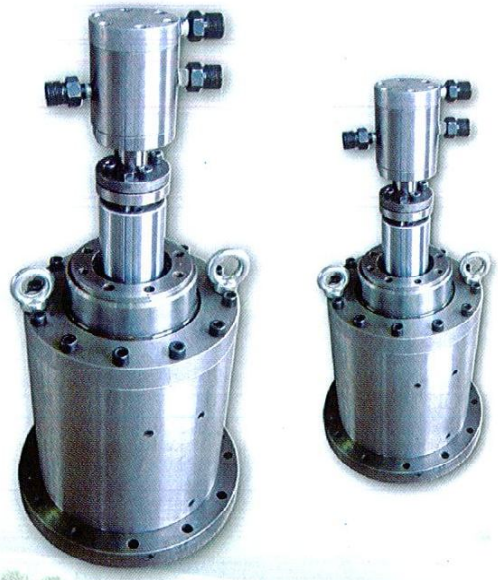
伺服液压缸



榆次航天液压制造有限公司
YU CI AIR-SPACE HYDRAULICS MANUFACTUING CO.;LTD

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Feature and Operation of the servo cylinder

The servo cylinder can be used for adjusting the blast volume of a blower fan. It consists of three sections: rotary sealing, distributing spool and main cylinder body. The main function and feature of each section are the followings:

- Rotary sealing section can draw high pressure oil (P) as well as returning oil (O) and lubricating oil (T) in (out) the main cylinder body rotating at high speed. So it looks like a rotary valve containing a spindle rotating at high speed and a stationary shell supported by rolling bearings. It has higher precision, that is too much internal leakage as well as extra temperature rise after a longer working period are not allowed. Its rolling bearings' service life is limited; normally they must be rejected after two or three years running.
- Distributing spindle section acts as a directional valve with negative overlap. Normally its inlet line always is opened and return line closed and lubricating line always opens. By means of negative overlap, a very small opening in return line causes certain return oil flow rate circularly cooling the main cylinder. Since the blaster fan locates in flue, high ambient temperature could bring the main cylinder too hot. In order to protect sealing and cool oil, oil circulating outside the body is necessary. At the same time, it can make the power package running at lower pressure under normal condition so that the power station's service life will be prolonged.
- Main cylinder body section is a differential cylinder with 1 : 2 ratios of its upper and down area. When high pressure oil (P) is simultaneously led into the upper and down chambers, larger chamber will become cylinder chamber and smaller one acts as a pump supplying the larger one with oil; when the oil returns to tank from the larger one, the smaller one acts as a cylinder. This function causes the cylinder running in both directions for the same time and having the same acting force against outside.
- Servo cylinder operation: as the distributing spool moves in, inlet line (P) connects to the upper and down chambers of the cylinder, while the return line (O) is fully closed. In this case, the larger chamber brings the shell of the main cylinder moving backward until the distributing body and spool return to their original positions; Otherwise, as the distributing spool is pulled forward for a stroke, the inlet line (P) only connects to the upper chamber and the return line (O) opens fully so that the cylinder body will move forward until it returns to its original relative position. For the shell of the main cylinder moves with the moving direction and stroke of the spool, it is called as "following-up". Actually servo cylinder is a hydraulic amplifier which can generate power force by tons with a small drive signal source.



