

HY (F) 6 系列机液伺服阀 (仿形阀)

HY(F)6 series mechanical-hydraulic servo valve (copying valve)



产品原理

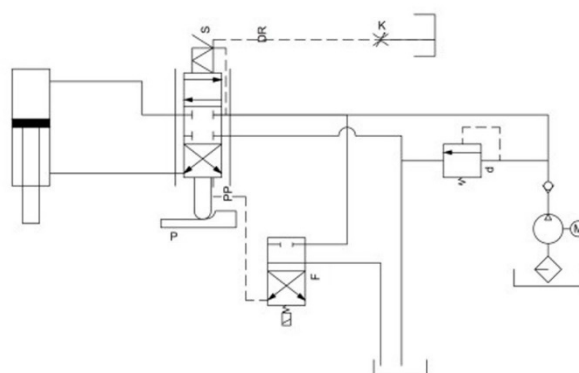
Product principle

加工开始, 机液伺服阀 S 的阀芯在弹簧力作用下推到下端, 压力油经机液伺服阀流入液压缸的上腔, 使活塞 (与模具相连) 下移慢慢接近工件, 直到机液伺服阀 S 触头上的滚轮接触仿形板 P, 阀芯回复至中位, 活塞移动停止。当拖板带动模具纵向进给时, 随着滚轮沿仿形板 P 滑动, 阀芯按仿形板形状动作, 活塞带动模具跟随阀芯运动, 从而加工出形状与仿形板相同的工件。

When processing starts, the core of mechanical-hydraulic servo valve S is pushed to the lower end under the action of the spring force. The pressure oil flows into the upper chamber of the hydraulic cylinder through the mechanical-hydraulic servo valve, making the piston (connected with the mould) move down and slowly approach the workpiece until the roller on the contact of the mechanical-hydraulic servo valve S contacts the copying plate P. At this time, the core returns to the middle position and the piston stops moving. When the base plate drives the mould to longitudinally feed, the core acts according to the movement of the copying plate as the rollers slide along the copying plate. The piston drives the mould to follow the movement of the core, so as to process the workpiece with the same shape as the copying plate.

当一个加工动作完成, 给 PP 供油阀芯在液压力的作用下推到上端, 压力油经机液伺服阀流入液压缸下腔, 实现活塞的快退, 纵向快速回升至初始位置, 准备重复下一次的加工。

When one processing action is completed, the core supplying oil to PP is pushed to the upper end under the action of hydraulic pressure. The pressure oil flows into the lower chamber of the hydraulic cylinder through the mechanical-hydraulic servo valve to achieve the quick retreat of the piston. The piston longitudinally quickly goes back to the initial position for repeating the next processing.



结构原理图

Structural schematic diagram

机液伺服阀阀芯上端引进压力液，与 DR 内漏口相通，由于受节流口 K 作用，产生背压力，使机液伺服阀仿形动作稳定。

Pressure liquid is introduced to the upper end of the core of the mechanical-hydraulic servo valve, and the upper end is interconnected to the internal leakage opening of DR. Due to the action of throttle opening k, throttle opening is generated to make the copying action of the mechanical-hydraulic servo valve stable.

产品特点

Product features

机液伺服阀将小功率的机械动作转变为液压输出量（流量和压力）的机液转换元件。机液伺服阀大都是滑阀式结构，结构简单、价格低廉、维护成本低、控制精度高。

The mechanical-hydraulic servo valve converts low-power mechanical action into hydraulic output (flow and pressure) of mechanical-hydraulic conversion components. The mechanical-hydraulic servo valve is mostly of slide valve type, with simple structure, low price, low maintenance cost and high control accuracy.

产品应用

Applications

广泛应用于船舶的舵机、机床的仿形装置、飞机的助力器等。HYF（6）系列机液伺服阀主要用于汽车车轮旋压机及焊接机的仿形控制；适用于高工作精度仿形加工，重复定位。

The product is widely applied in copying devices of ship steering gear and machine tool and the booster of airplanes. HYF (6) series mechanical-hydraulic servo valves are mainly used for copying control of automobile wheel spinning machine and welding machine. It is applicable to copying machining with high working precision and repeated positioning.

技术参数

Technical Parameters

项目 Item	型号 Model	
		HY603
额定流量（阀压差 7MPa） Rated flow (valve differential pressure 7MPa)		4/10/20/40
额定工作压力（MPa） Rated working pressure (MPa)		21
控制形式 PP Control form PP		外控 External control
泄漏形式 DR Leakage form DR		外泄 External leakage
泄漏油允许背压（MPa） Allowable back pressure of leaked oil (MPa)		0.05
控制油口需用压力（MPa） Pressure required d to control oil opening (MPa)		1.5-7
阀芯最大行程（mm） Maximum stroke of core		6(±3)
最高压力（MPa） Maximum pressure (MPa)		31.5
最大流量（L/min） Maximum flow rate (L/min)		100
重复定位精度（%） Repeated positioning accuracy (%)		W3
油液温度（℃） Oil temperature (°C)		-25~105
密封材料 Sealing material		丁睛橡胶（或按用户要求） Butyronitrile rubber (or as required by users)
工作介质 Working medium		石油基液压油（或按用户要求） Petroleum-based hydraulic oil (or as required by users)
推荐油液 Recommended oil		粘度在 38℃ 时为 10-100mm ² /s 10~100mm ² /s when the viscosity is 38°C

油液清洁度:

Cleanliness of oil:

- ① 系统过滤: 选用无旁路、带报警装置的高压过滤器安装在系统的主油路中, 如有可能, 可直接将过滤器安装在伺服阀的进油口处;

System filtering: The high pressure filter without bypass but with an alarm device is installed in the main oil circuit of the system. If possible, the filter can be directly installed at the oil inlet of the servo valve;

- ② 油液的清洁度会影响机液伺服阀寿命;

The cleanliness of oil will affect the service life of the mechanical-hydraulic servo valve;

- ③ 安装要求: 注意保持安装介面清洁度。

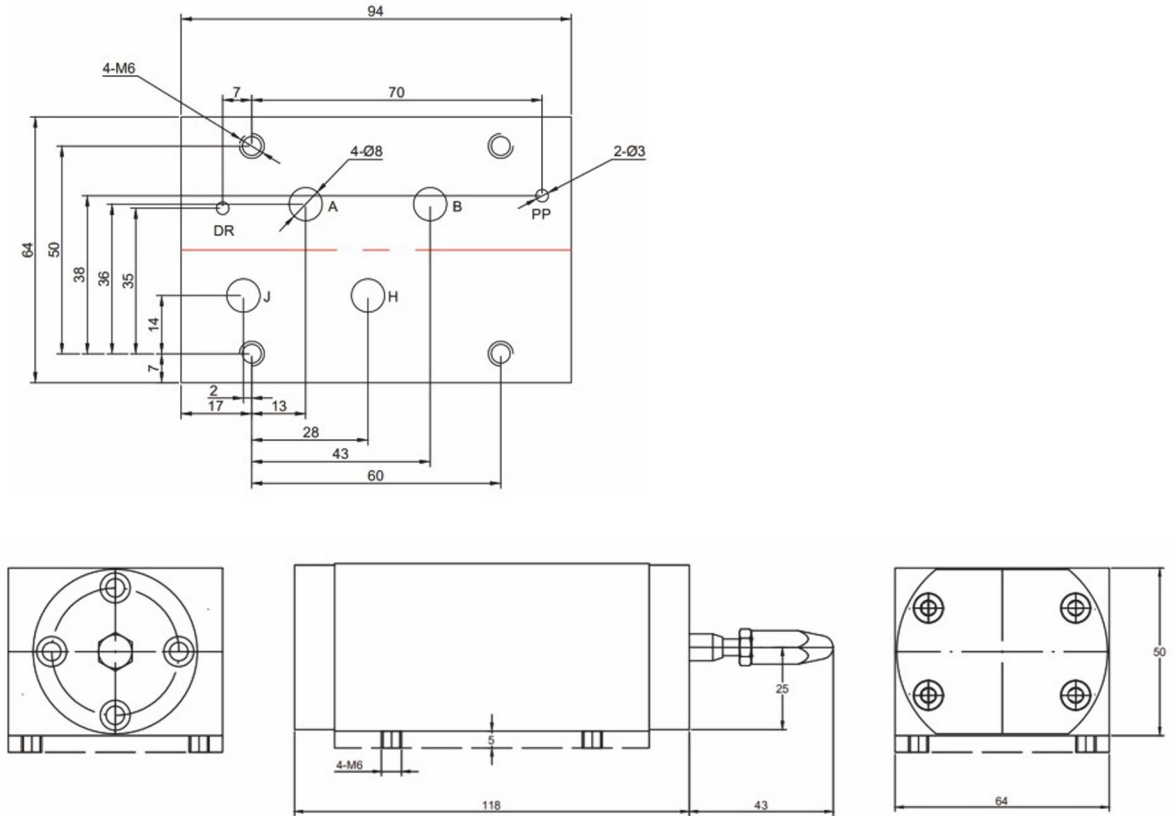
Installation requirements: Keep the installation interface clean.

外形及安装尺寸图

Outline and installation dimension drawing

附图 3: HY603 机液伺服阀

Fig. 3: HY603 Mechanical-hydraulic Servo Valve



注：中心距数值均为理论值，公差±0.1mm

Note: The center distance values are all theoretical values, with the tolerance of ±0.1mm.

机液伺服阀油路安装面的粗糙度应不低于 $\sqrt{1.6}$ ，平面度不大于 0.025mm。

The roughness of the installation surface for the oil circuit of mechanical-hydraulic servo valve should not be less than $\sqrt{1.6}$, and the flatness should not be greater than 0.025mm.

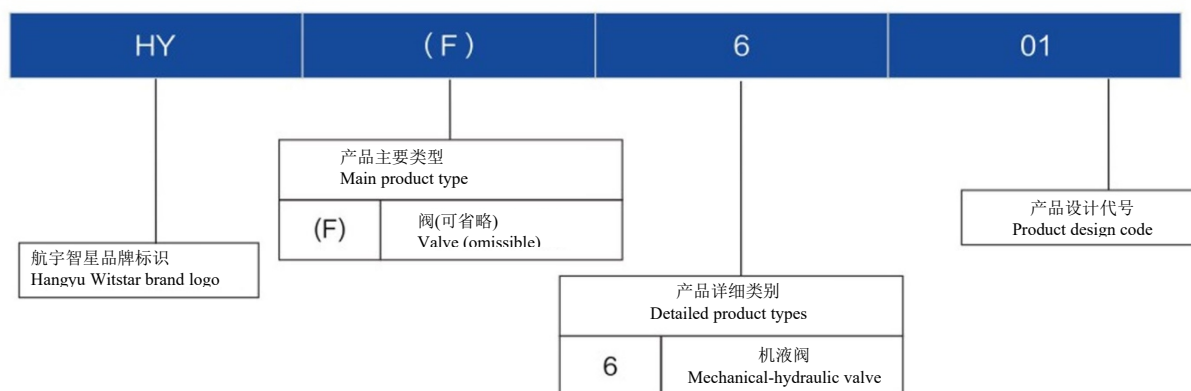
机液伺服阀配件及附件清单

List of parts and accessories of mechanical-hydraulic servo valve

型号 Model	HY603				
配件名称 Name of part	J、H、1、2 口密封圈 (Φ10x2) Sealing ring of J, H, 1 and 2 ports (Φ10x2)	DR、PP 口密封圈 (Φ4x2) Sealing ring of DR and PP ports (Φ4x2)	安装螺钉 (M6X50) Mounting screw (M6x50)	护板 Guard plate	冲洗板 Flushing plate
数量 qty. Quantity	4	2	4	1	选配 Optional

HY (F) 6 系列机液伺服阀系列号

Serial No. of HY(F)6 series mechanical-hydraulic servo valves



注：航宇智星可按用户的特殊要求定制各种机液伺服阀

Note: Hangyu WitStar can customize various kinds of mechanical-hydraulic servo valves as required by users.