

HY(F)153 电液伺服阀

HY(F)153 electrohydraulic servo valve



产品特点

Product features

- 采用力矩马达和两级液压放大器结构
Adopting torque motors and two-stage hydraulic amplifiers
- 阀芯驱动力大
Great core driving force
- 高分辨率，低滞环
High resolution and low hysteresis
- 外置式蝶形过滤器，用户可自行更换
External butterfly filter, which can be replaced by the user themselves
- 前置级为双喷嘴挡板阀
Double-nozzle flapper valve for front stage
- 动态响应性能高
High performance for dynamic response
- 结构紧凑，使用寿命长
Compact structure and long service life
- 高强度超硬铝壳体，强度高，重量轻
High-strength ultraduralumin housing, high strength and light weight

动态特性图

Dynamic Characteristic Chart

标准频响动态性能实测

Measured Dynamic Performance of Standard Frequency Response

数据曲线 Data curve			
产品型号 Product model	HY153	产品名称 Product name	阀 Valve
产品编号 Product no.	191018	额定流量(L/min) Rated flow (L/min)	63
额定电流(mA) Rated current (mA)	40	额定压力(MPa) Rated pressure (MPa)	21
油液温度(°C) Oil temperature (°C)	42		
动态特性曲线 Dynamic Characteristic Curve	<p>The figure contains two plots. The top plot, titled 'Amplitude Respond', shows Amplitude (dB) on the y-axis (ranging from -12 to -4) versus Frequency (Hz) on the x-axis (logarithmic scale from 10 to 400). A curve starts at approximately -4.5 dB at 10 Hz, remains relatively flat until about 60 Hz, then drops sharply to -10 dB at 130 Hz. Text on the plot indicates 'Max Amplitude (dB) = -4.4677' and 'Frequency (-3db) = 130'. The bottom plot, titled 'Phase Respond', shows Phase (degree) on the y-axis (ranging from 0 to 120) versus Frequency (Hz) on the x-axis (logarithmic scale from 10 to 400). The curve starts at 0 degrees at 10 Hz and increases steadily, crossing 90 degrees at 110 Hz. Text on the plot indicates 'Frequency (90deg) = 110'.</p>		
项目名称 Item name	性能参数 Performance parameter	试验结论 Test conclusion	
频率 Hz(-3db) Frequency Hz (-3db)	130	(合格) (Qualified)	
频率 Hz(90°) Frequency Hz (90°)	110		
备注 Remarks	试验员 1 Tester 1		

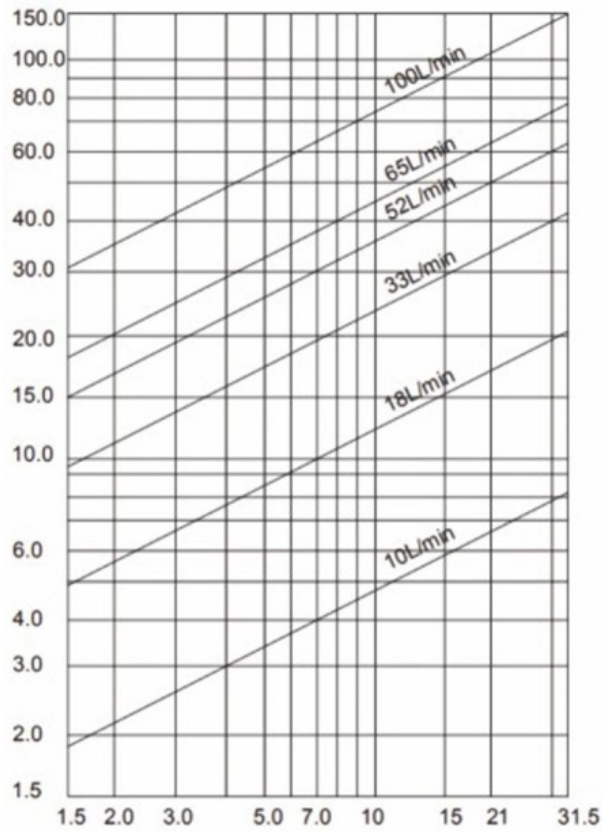
阀的负载流量图

Load Flow Diagram of Valve

阀口全开(100%给定指令信号)时阀的流量与阀压降的关系


Relationship between Valve Flow and Valve Pressure Drop with Fully-open Valve Port (100% Given Command Signal)

负载流量 (L/min)
Load flow (L/min)



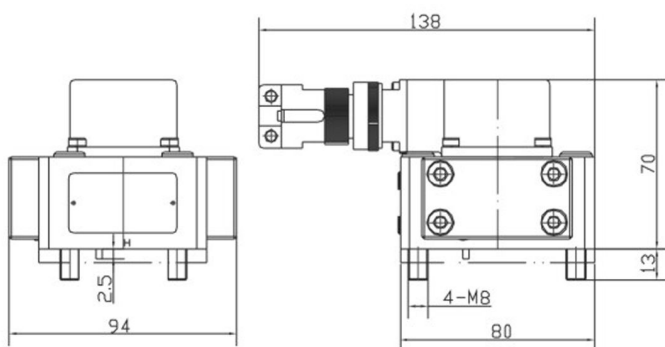
阀压降 ρP (MPa)

Valve pressure drop ρP (MPa)

电连接器连接定义表 Table of Connection Definitions of Electrical Connector	线圈连接方式 Coil connection mode	单线圈、串联、并联、差动 Single-coil, series connection, parallel connection and differential
	插座针号 Socket pin number	
	外引出导线颜色 Color of external lead wire	绿 红 黄 蓝 Green Red Yellow Blue
	控制电流的极性 Polarity of control current	单线圈: 2+, 1-或 4+, 3-; 串联线圈: 1 与 4 相连, 2+, 3- Single coil: 2+, 1-, or 4+, 3-; Series coil: 1 and 4 connected, 2+, 3- 并联线圈: 1 与 3、2 与 4 相连, (2, 4) +, (1, 3) - Parallel coil: 1 and 3 connected, 2 and 4 connected, (2, 4) +, (1, 3) - 差动联接: 当 1+时, 1 到 2 < 1 到 3; 当 1-时, 2 到 1 > 3 到 1; 用于串联时, 2+, 3- Differential connection: For 1+, 1 to 2 < 1 to 3; For 1-, 2 to 1 > 3 to 1; For series connection, 2+, 3-

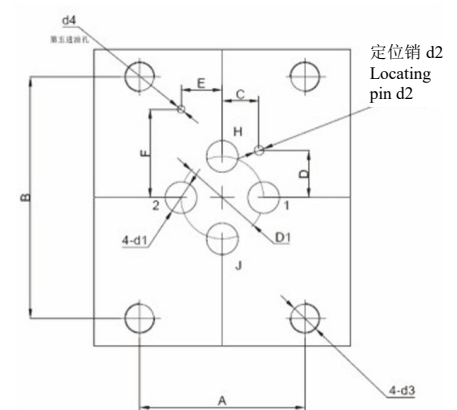
外形及安装尺寸图

Outline and Installation Dimension Drawing



油路安装面尺寸

Oil Circuit Installation Surface Dimensions



代号 Designation	D1	d1	d2	d3	d4	A	B	C	D	E	F
N	Φ22.2	Φ8.5	Φ2.5	M8	Φ2	44.4	65	9.9	12.7	11	23.8

- 进油腔 J,回油腔 H,负载腔 1、2,第五进油孔可按需提供

Oil supply port J, oil return port H, load ports 1 & 2, and the fifth oil inlet may be provided as required.

- A、B、C、D、D1、E、F 理论值尺寸公差均为±0.1mm

Theoretical dimension tolerances of A, B, C, D, D1, E and F are all ±0.1mm.

- 定位销可根据用户需要选配

Locating pin is optional depending on user demand

电液伺服阀配件及附件清单

List of Parts and Accessories of Electrohydraulic Servo Valve

必要配件 Necessary parts						可选附件 Optional accessories			
型号 Model	J、H、1、2 口密封圈规格（数量4 件） Specification of sealing ring for ports J, H, 1 and 2 (quantity: 4 pieces)	先导级独立 进油口密封 圈规格（数 量1件） Specification of sealing ring for pilot-stage independent oil inlet (quantity: 1 piece)	电连接 器插头 （数量1 件） Electrical connecto r plug (quantity: 1 piece)	护板 Guard plate （数量1 件） (quantity : 1 piece)	安装螺钉规 格 Specification of mounting screw （数量4 件） (quantity: 4 pieces)	冲洗板 Flushing plate	转接板 Adapte r board	屏蔽线 Shielde d wire	SVC 伺 服阀控 制器 SVC servo valve controlle r
HY15 3	Φ10.3x2	Φ6x2	MS 系列 MS series	护板 Guard plate	GB70 M8x25	●	●	●	●

技术参数

Technical Parameters

产品型号 Product model	HY153	
供油压力 Oil supply pressure	2-31.5	
额定流量 Qn (L/min)	$\rho P_N=21\text{MPa}$	10、18、33、52、65、100
Rated flow Qn (L/min)	$\rho P_N=7\text{MPa}$	4、10、19、30、38、63
额定流量容差 (%) Rated flow tolerance (%)	± 10	
额定电流 I _n (mA) Rated current I _n (mA)	15	40
线圈电阻 (Ω) Coil resistance (Ω)	200	80
滞环 (%) Hysteresis (%)	< 2	
分辨率 (%) Resolution (%)	< 0.5	
非线性度 (%) Nonlinearity (%)	< 3	
不对称度 (%) Asymmetry (%)	< 10	
零偏 (%) Zero bias (%)	$\leq \pm 2$	
重叠 (%) Lap (%)	$\leq \pm 2.5$	
内漏(L/min) Internal leakage (L/min)	$\leq 1.2 \sim 3.7$	
压力增益 (%Ps/1%In) Pressure gain (%Ps/1%In)	> 50	
温度零漂 ($\rho T=40^\circ\text{C}$) (%) Temperature zero drift ($\rho T=40^\circ\text{C}$) (%)	$< \pm 2$	
供油压力零漂 (80%~100%)P _N (%) Oil supply pressure zero drift (80%~100%)P _N (%)	$< \pm 2$	

回油压力零漂(0~20%)P _N (%) Return pressure zero drift (0~20%) P _N (%)		<±2		
加速度零漂△a=10g (%) Acceleration zero drift △a=10g (%)		<±2		
频率特性 Frequency characteristic	幅频宽 (-3dB)(Hz) Amplitude bandwidth (-3dB) (Hz)	>130(10~33L/min)	>100(52~65L/min)	>70(WOL/min)
	相频宽(-90°)(Hz) Phase bandwidth (-90°) (Hz)	>130(10~33L/min)	>100(52~65L/min)	>70(100L/min)
温度范围 (°C) Temperature range (°C)		-25-105		
质量 (Kg) Mass (kg)		≤1.1		

测试油温 40±6°C；测试供油压力 21MPa

Oil temperature under test: 40±6°C; Oil supply pressure under test: 21MPa