HYZ 系列伺服执行器

HYZ series servo actuators

产品简介

Product overview

伺服执行器主要由电液伺服阀、直线伺服油缸或摆动伺服马达、传感器（力、位置、加速度）及附件等组成，伺服执行器是一液压执行机构，能把来自液压源的液压能转换为机械能，也可根据需要通过产品自带的位移传感器或行程开关进行伺服控制。输出力大，运行位置准确，体积小。伺服作动器采用，模块式结构，维护性好，伺服阀直接安装在作动筒上，容腔效应小，固有频率高。伺服作动器可内置、外置安装磁致式位移传感器或差动变压器式 LVDT 位移传感器，外置安装光栅尺式位移传感器，负载拉压力传感器。伺服作动器均采用进口优质密封件，启动摩擦力小，寿命高。

The servo actuator is mainly composed of an electrohydraulic servo valve, a linear servo cylinder or a swing servo motor, sensors (force, position and acceleration) and accessories. It is a hydraulic actuator, which can convert the hydraulic energy from the hydraulic source into the mechanical energy, and it is capable of servo control through the displacement sensor or stroke switch of the product as needed. It features great output force, accurate running position and small volume. The servo actuator with a modular structure has good maintainability. The servo valve is directly installed on the actuator cylinder, delivering a small cavity effect and a high natural frequency. The servo actuator can be internally or externally installed with a magneto-induced displacement sensor or an LVDT displacement sensor, and externally installed with a grating scale displacement sensor and a tensile pressure sensor. All servo actuators are provided with imported high-quality seals, enabling less starting friction and longer service life.

产品特点

Product features

- 输出力大，输出力矩可调
- Great output force, adjustable output torque
- 启动压力小，响应速度快
- Small starting pressure, quick response
- 低速无爬行，传动平稳可靠
- Low speed without creeping, smooth and reliable transmission
- 摩擦力小，使用寿命长
- Less friction, longer service life

使用环境要求

Requirements for service environment

- 环境温度：-10°C~40°C

- Ambient temperature: -10°C~40°C

- 工作液清洁度：ISO440615/12,NAS16386 级。工作液清洁度直接影响伺服执行器的使用寿命和性能，系统工作液越清洁伺服执行器的使用寿命越长性能越好

- Cleanliness of working fluid: class 15/12 as per ISO 4406 or class 6 as per NAS 1638. The cleanliness of working fluid directly affects the service life and performance of a servo actuator. The cleaner the working fluid is, the longer the service life of and the better the performance of the servo actuator is.

- 无线电干扰和磁场干扰：无线电干扰环境场强和磁场干扰环境场强低

- Radio interference and magnetic field interference: low environmental field strength of radio interference and magnetic field interference

- 接地：要求配装电液伺服阀、伺服放大器时与传感器良好接地，接地电阻≤4Ω

- Grounding: good grounding with sensors when the electrohydraulic servo valve and the servo amplifier are equipped, with an earth resistance not more than 4Ω

- 振动：不产生振动

- Vibration: no vibration

- 相对湿度：≤80%

- Relative humidity: ≤80%

- 油液温度：-10°C~60°C

- Oil temperature: -10°C~60°C

性能指标

Performance indicators

1、 额定工作压力

1. Rated working pressure

伺服执行器的工作压力为（2~31.5）MPa。

The working pressure of servo actuator is (2~31.5) MPa.

2、 最低启动压力

2. Minimum starting pressure

液压伺服执行器在空载条件下，驱动伺服油缸活塞或马达动片运动的最小工作压差。航宇智星设计制造的液压伺服执行器的最低启动压力△P≤0.02MPa。

Minimum working differential pressure of the hydraulic servo actuator driving the servo cylinder piston or the moving plate of the motor under no-load conditions. The minimum starting pressure of the hydraulic servo actuator designed and manufactured by Hangyu WitStar is: △P≤0.02MPa.

3、 工作行程

3. Working stroke

伺服执行器工作所需要的行程叫工作行程。若直线运动，即工作所需要的直线行程；若摆角运动，即工作所需要的转动角度。

Working stroke is the stroke required for the servo actuator to work. In the case of linear motion, it is the linear stroke; and in the case of angular motion, it is the rotation angle.

4、 最大输出力或力矩

4. Maximum output force or torque

在负载条件下，当进油为额定压力，回油为零压，输出速度为零时，伺服执行器输出的作用力或力矩称为最大输出力或力矩。

The maximum output force or torque is the force or torque output by the servo actuator when oil is fed at the rated pressure and returned at zero pressure and the output speed is zero under load conditions.

最大输出力可按下式简化计算：

The maximum output force can be calculated according to the following formula:

$$F_{max} = A \triangle P_s$$

式中： Fmax—最大输出力（N）

where, Fmax - maximum output force (N)

A—活塞有效工作面积（m2）

A - effective working area of piston (m²)

△P—油缸有效工作压差（MPa）

△P - effective working differential pressure of cylinder (MPa)

最大输出力矩可按下式简化计算：

The maximum output torque can be calculated according to the following formula:

$$M_{max} = A \triangle P_r$$

式中： Mmax—最大输出力矩（N•m）

where, (N•m) Mmax - maximum output torque (N•m)

A—有效工作面积（m2）

A - effective working area (m²)

△P—有效工作压差（Pa）

△ P - effective working differential pressure (Pa)

r—等效工作半径（m）

r - equivalent working radius (m)

5、 内漏

5. Internal leakage

在空载额定压力条件下，液压伺服执行器两个工作腔间油液的内部泄漏量称内漏，用 L/min 表示。航宇智星设计制造的液压伺服执行器的最低内漏≤0.5mL/min。

Internal leakage (in L/min) refers to the internal oil leakage between the two working chambers of the hydraulic servo actuator at the no-load rated pressure. The minimum internal leakage of the hydraulic servo actuator designed and manufactured by Hangyu WitStar is: ≤0.5mL/min.

6、 静压密封性

6. Static-pressure tightness

伺服执行器两工作腔在 2 米高液柱的静压作用下，静置 24 小时后，不得有明显的外部泄漏（允许湿润，不允许滴下）。

After the two working chambers of the servo actuator are placed still for 24h at the static pressure of a 2m high liquid column, there shall be no obvious external leakage (wetting is allowed, but

dripping is not allowed).

7、 超压密封性

7. Over-pressure tightness

伺服执行器在 1.5 倍（额定压力≤16MPa）或 1.25 倍（额定压力≥16MPa）额定压力作用下保持 3 分钟后，不得出现永久变形和明显的外部泄漏（允许湿润，不允许滴下）。

After the servo actuator is kept at 1.5 times (rated pressure≤16MPa) or 1.25 times (rated pressure ≥16MPa) of rated pressure for 3min, there shall be no permanent deformation or obvious external leakage (wetting is allowed, but dripping is not allowed).
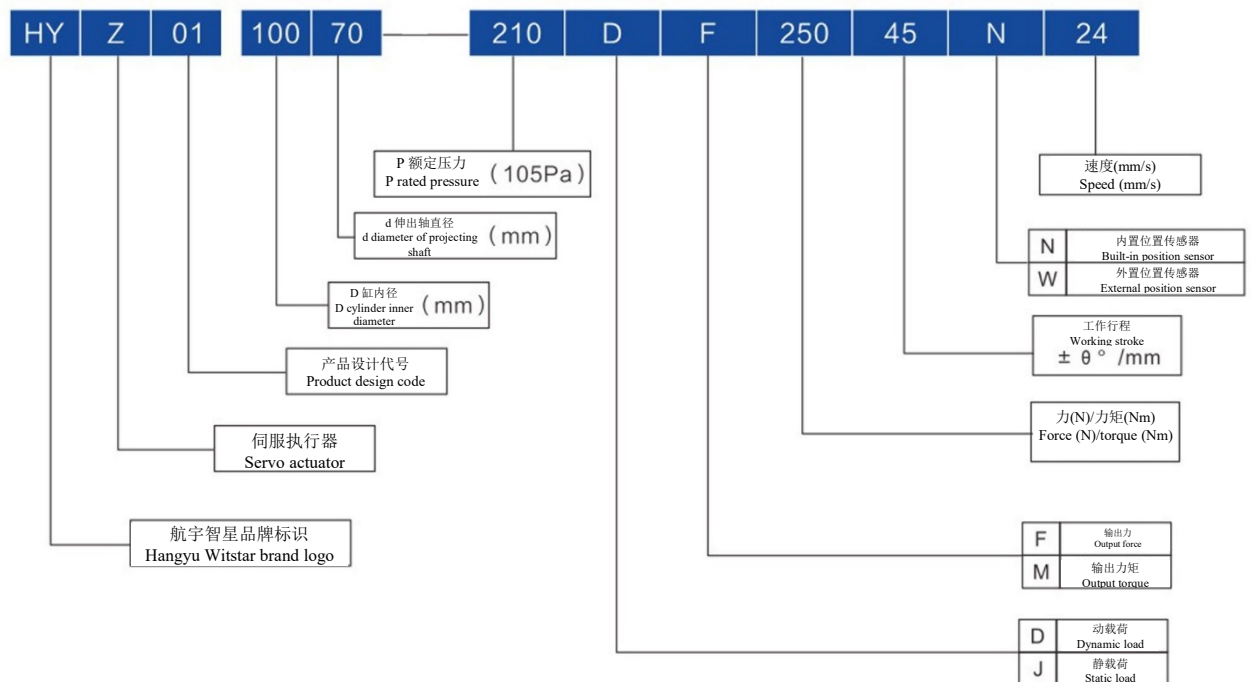
8、 外部密封

8. External tightness

在使用条件下，伺服执行器工作时不得有明显的外部泄漏（允许湿润，不允许滴下）。

When the servo actuator is working under service conditions, there shall be no obvious external leakage (wetting is allowed, but dripping is not allowed).

HYZ 系列伺服执行器系列号
Serial No. of HYZ series servo actuators

注：航宇智星可按用户的特殊要求定制各种伺服执行器

Note: Hangyu WitStar can customize servo actuators as required by users.