1. 应用设备 Application apparatus
2. 安装接口 Install interface
   (1) 缸体安装方式 Installation mode of cylinder block
      - 单耳叉 Single earring
        - 衬套 With bushing
        - 轴承 With bearings
        - 无 Without
      - 双耳叉 Double earring
        - 衬套 With bushing
        - 无 Without
      - 耳轴 Trunnions
      - 法兰 Flange
        - 内侧 Inward
        - 外侧 Outward
   (2) 活塞杆头安装方式 Installation mode of rod end
      - 单耳叉 Single earring
        - 衬套 With bushing
        - 轴承 With bearings
        - 无 Without
      - 双耳叉 Double earring
        - 衬套 With bushing
        - 无 Without
      - 螺纹 Thread
        - 内螺纹 Internal
        - 外螺纹 External
   (3) 其它 Other

3. 性能 Performance
   - 最大线性速度 Max linear speed: mm/s
   - 负载 at load: KN
     - 静态负载 Static load: KN
     - 推力 Pull: KN
     - 拉力 Push: KN
     - 动态负载 Dynamic load: KN
     - 推力 Pull: KN
     - 拉力 Push: KN
   - 侧面力 Lateral force: KN
   - 工作行程 Operating stroke: mm
   - 工作周期 Number of work cycles: 次/小时(cycles/hour) 小时/天(hours/day) 年(years)
   - 防护等级 IP Protection: IP
     - 正常 Normal
     - 无防转 No Anti-rotation
     - 防转 Anti-rotation
   - 工作环境 Working condition: 室内 Indoor 室外 Outdoor
   - 控制模式 Control mode: 数字 Digital 总线 Field bus
   - 防抱死 Anti-lock: YES
   - 常用要求 Self-locking: YES
4. 其他客户要求 Other customer requirements

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**HENGLI HYDRAULIC**

As a domestic benchmark enterprise in the field of high-end hydraulic control transmission technology, Hengli Hydraulic is actively advocating and performing innovations in four areas of product design, manufacturing process, quality and management improvement. Hengli is dedicated to realizing hydraulic component intelligent production, efficient and energy-saving production. Through technology innovation, we are supporting a better worldwide recognition of "Made in China", contributing to a new global hydraulic industry structure and worldwide technology innovation.

In response to diversified market demands, Hengli is committed to designing and developing hydraulic control and transmission products and solutions based on the specific local requirement for worldwide customers. Especially for mobile machinery and tunnel boring industries, Hengli maintains a sustainable competitive advantage relying on mature application experience and strong cooperation partnership with our customers.

**What we provide**

- 高压油缸 High pressure cylinder
- 高性能液压缸 High performance hydraulic cylinder
- 高性能泵站和电机 High performance piston pump and motor
- 高精度传感 High precision casting
- 液压系统集成 Pneumatic component and system integration
- 制动系统 Braking system
- 高精度测量 Surface thermal spray treatment
- 专用液压缸 High performance hydraulic test bench
- 高精度测量系统 Pneumatic component and system integration
- 专用液压系统 Pneumatic component and system integration
- 冷端回转体 Cold end rotatable cylinder
- 液压系统集成 Pneumatic component and system integration
- 专用液压缸 High performance hydraulic test bench
- 高性能油缸 High performance hydraulic cylinder
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- 制动系统 Braking system
- 高精度测量 Surface thermal spray treatment

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**High performance electric cylinder**

- 高效率 Fast speed
- 重载 Heavy loading
- 高精度 High precision
With the ever-increasing stringent environmental regulations, people’s awareness of environmental protection is gradually increasing, and the requirements for construction machinery are getting higher and higher. With its advantages, such as low noise, no leakage, high efficiency, and low pollution of the electric cylinder just make up for this demand. Various types of constructor machinery or manipulators, equipped with the electric cylinders as the mechanical carrier, have gradually become more popular in many enterprises.

As a kind of electric actuator, electric cylinder has the characteristics of low cost, compact structure, convenient installation, high control precision and flexible operation. As a mechanical motion carrier, the electric cylinder drives the ball screw to move through the rotation of the servo motor, with angular displacement transformed into linear displacement, achieving accurate speed control, position control, and thrust control.

Because of its high efficiency, large load capacity, fast speed, precise and controllable movement, the electric cylinder is widely used in many fields including aerospace testing, multi-degree of freedom simulation, multi-degree of freedom dynamic entertainment, multi-degree of freedom precision machining, robots, auto manufacturing equipment, steel connection casting, petrochemical engineering, materials handling, injection molding machine, mold control, valve control, precision machinery, pharmaceutical machinery, food processing and other fields.

**R&D Strength**

At the time of conventional theoretical calculations, we use finite element software for assistive analysis and calculation under the complex stress conditions of the electric cylinder, thereby more effectively ensure that the design strength meets the needs of use, and the durability test bench can be used for life testing and performance testing.

**APPLICATION ELECTRIC CYLINDER**

**CUSTOMED PRODUCTS**

**PRODUCT ADVANTAGE**

**R&D Strength**

- Single-ear fork
- Double-ear fork
- Trunnion
- Flange
- Screw thread
- Ball head
Two dedicated endurance test benches are available in Hengli for various life time test requirements from customer side. During Hengli internal rotary actuator endurance test according to the Hengli standard “Q/HL 000000-0000”, the HBM series rotary actuator fully meets all the requirements, no obvious failure or wear is found during appearance inspection and disassembly test after 10,000 times of durability test.

According to customer and application requirements, the HBM series rotary actuators can be customized with special material and optimized structure to deal with various even harsh operating conditions. Meanwhile according to the installation positions, tripod and horseshoe mounting frames in different forms can also be customized.

HBM series rotary actuator is mainly designed for all kinds of aerial work platform. Customized product solutions according to customer requirements for different equipment can also be realized.

**Customization service**

**Product testing**

**What we provide**
- Hydraulic Cylinder
- Hydraulic Piston Pump & Motor
- Hydraulic Control Valve for Mobile Machinery
- Industrial Valve
- Hydraulic Pump Unit and System
- High performance Hydraulic Test Bench
- High precision Casting
- Pneumatic Components and Integrated System
- Cold-drawn Stainless Steel Pipe
- Surface Coating / Thermal Spray Treatment

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The HBM series rotary actuator is independently designed and developed for articulated aerial working platform for arm and platform control. According to customer installation and performance requirement, customized design can be realized accordingly to ensure suitable and flexible operation. Design based on metric unit, unique seal and structure allows a low friction coefficient and high output torque. In addition, the FEA analysis and endurance test contribute to the product stability and reliability. Compared to similar products on the market, the HBM series rotary actuator provides a 15% to 20% higher output torque and requires a 15% lower cracking pressure under same product size, allowing a stable operation with higher efficiency and better cracking pressure, which ultimately guarantees a safe, reliable and efficient working of the aerial working platform.

Features

Product Advantage

Low friction coefficient

The key component of the HBM series rotary actuator - the spiral spline for rotation and torque transmission, features in excellent precision, balanced stress distribution and stable transmission. Together with the low-friction axial bearings and a unique sealing system design, the HBM series rotary actuator has a low friction coefficient during transmission process.

High output torque

Through continuous innovative research and validations, the HBM series rotary actuator is designed in compact structure to make full use of the limit internal space and transmit high output torque via fluid pressure. Compared to similar products on the market, the HBM series rotary actuator provides a 10% to 20% higher output torque under same product size.

Long service life

In Hengli, comprehensive analysis and calculation on each size of the HBM rotary actuator are implemented in assist of FEA software during design process. Besides, product optimization is continuously carried out to ensure that each size of the product can meet the long service life requirements. Except for normal factory test, two dedicated rotary actuator endurance test benches are available for tests according to customer and application requirements, ensuring excellent durability and long service life.

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### Size and specification

<table>
<thead>
<tr>
<th>Size</th>
<th>80</th>
<th>95</th>
<th>120</th>
<th>140</th>
<th>160</th>
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</thead>
<tbody>
<tr>
<td>D1 (Cover diameter)</td>
<td>107</td>
<td>113</td>
<td>144</td>
<td>168</td>
<td>192</td>
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<tr>
<td>D2 (Barrel diameter)</td>
<td>110</td>
<td>115</td>
<td>142</td>
<td>165</td>
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<tr>
<td>L1 (Rotary actuator total length)</td>
<td>140</td>
<td>196</td>
<td>180</td>
<td>192</td>
<td>187</td>
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<tr>
<td>L2 (Output shaft threaded)</td>
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<td>M10</td>
<td>M12</td>
<td>M20</td>
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<tr>
<td>L3 (Output shaft threaded pitch)</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td>8</td>
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<tr>
<td>L3 (Output shaft through hole)</td>
<td>26</td>
<td>25</td>
<td>25</td>
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<td>/</td>
</tr>
<tr>
<td>L4 (Cover side screw diameter)</td>
<td>/</td>
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</tr>
<tr>
<td>L5 (Cover side screw quantity)</td>
<td>/</td>
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<td>/</td>
</tr>
<tr>
<td>L6 (Cover side thread pitch diameter)</td>
<td>/</td>
<td>/</td>
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</tr>
</tbody>
</table>

### Maximum output torque (Nm)

- 625
- 808
- 1037
- 1157
- 1355

### Maximum moment capacity straddle mounting (Nm)

- 625
- 808
- 1037
- 1157
- 1355

### Maximum moment capacity cantilever mounting (Nm)

- 625
- 808
- 1037
- 1157
- 1355

### Radial load (kg)

- 263
- 278
- 308
- 337
- 357

### Axial force (kg)

- 500
- 680
- 860
- 1040
- 1220

### Rotation (°)

- 180
- 180
- 180
- 180
- 180

### Displacement (cc)

- 255
- 255
- 513
- 827
- 1253

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Note:
The ordering code above refers only the basic specification and rotary angle. Valve, bushings and other accessories can be customized according to corresponding requirements.

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Innovative independent design
Independent intellectual property rights obtained

The HBM series rotary actuator is independently designed and developed for articulated aerial working platform for arm and platform control. According to customer installation and performance requirement, customized design can be realized accordingly to ensure suitable and flexible operation. Design based on metric unit, unique seal and structure allows a low friction coefficient and high output torque. In addition, the FEA analysis and endurance test contribute to the product stability and reliability. Compared to similar products on the market, the HBM series rotary actuator provides a 15% to 20% higher output torque and requires a 15% lower cracking pressure under same product size, allowing a stable operation with higher efficiency and better cracking pressure, which ultimately guarantees a safe, reliable and efficient working of the aerial working platform.