### Rotary Cylinder

#### About the product 350

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</thead>
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</tr>
</tbody>
</table>

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About the Product

1. Classification of the rotary cylinder (rotary actuator)

   Rotary cylinder: An apparatus that transforms the energy of pressurized air into rotational movement

   1) Vane type

   The vane type is operated by the air pressure that operates on the hydraulic area of the fixed wall installed on the cylinder.

   Single vane: 270° to 300°, Double vane; 70° to 120°, Triple vane; below 60°

   Structurally, it's difficult to shut air completely.

   2) Rack & pinion type

   When the center that is geared to the rack gear linked directly to the piston, torque is acquired. The type is most efficient among rotary cylinders. It's easy to install cushions. Also, component forces are generated at the pressure angle of the rack gear. Also, friction increases because horizontal thrust on the backside of the gear or piston occurs, but efficiency of 80° to 90° could be obtained.

   3) Screw type

   When the stroke is enlarged as the straight movement changes to the rotational movement with the screw on the thrust axis in the middle, the rotational angle could be great, but the exterior should become larger. The efficiency ratio is about 80%.

   4) Crank type

   The linear movement changes to rotational movement by the crank. The angle of movement is limited to 110° structurally, and the rotational force changes according to the angle of movement.

   5) Wheel gear & chain type (hydro type)

   The chain linked to the cylinder piston arranged in parallel is geared to the wheel gear. With built-in oil on the part linked to the wheel gear, the type is used in processes that require quiet rotation. Greater than 90% efficiency is possible.
2. Process of selecting rotary cylinder

1) Review of the size of the load

(1) Required torque when static power is required;

\[ Ts = F \times I \text{ (Nm)} \]

\[ F: \text{The force which is demanded (n)}, I: \text{From load center distance until in rotary center (m)} \]

(2) When the load changes

a) Calculation of the resistance torque

- When there is no change in load (horizontal use) \( K=2 \)
- When there is change to the load (vertical use) \( K=5 \)

b) Calculation of the acceleration torque

(i) Acceleration torque \( Ta = 5 \times I \times \left( \frac{\theta}{t^2} \right) \times 10^{-2} / 10,000 \text{ (Nm)} \)

\[ \theta: \text{rotary actuator angle (rad)}, 90^\circ = 1.5708(\text{rad}), 180^\circ = 3.1416(\text{rad}), 270^\circ = 4.7124(\text{rad}) \]

(ii) The inertial momentum is calculated according to the shape and weight of the load.

(iii) Each acceleration is calculated.

\[ \alpha = \frac{\theta}{t^2} \text{ (rad/s}^2) \]

\[ \theta: \text{rotary actuator angle (rad)}, t: \text{rotary actuator time} \]

c) Calculation of the required torque

\[ Tt = T_R + T_L \]

In the angular rotational cylinder torque table, select the model that satisfies the equation.

2) Review of allowed energy

a) Calculation of the angular velocity

\[ \omega = \frac{\theta}{t} \text{ (rad/s}^2) \]

\[ \theta: \text{rotary actuator angle (rad)}, t: \text{rotary actuator time} \]

b) Calculation of the inertial energy of the load

\[ E = 0.5 \times I \times \omega^2 \times 10^{-1} \text{ (mj)} / 10,000 \text{ [I: Inertial moment (Nm)]} \]

When the inertial energy of the load exceeds the allowable energy of the rotary cylinder type, a mechanism to absorb the impact is required.
<table>
<thead>
<tr>
<th>Outline</th>
<th>Require item</th>
<th>Moment of inertia ( [ \text{Nm} ] )</th>
</tr>
</thead>
</table>
| ![Image](image1.png) | \( d \) : Diameter [cm]  
\( M \) : Weight [kg]  
\( I = \frac{Mxd^2}{8} \times 0.00098 \) |
| ![Image](image2.png) | \( M1 \) : Weight of part L1[kg]  
\( M2 \) : Weight of part L2[kg]  
\( I = \frac{M_1 L_1^2 + M_2 L_2^2}{3} \times 0.00098 \) |
| ![Image](image3.png) | \( L \) : Length of bar  
\( M \) : Weight [kg]  
\( I = \frac{ML^2}{12} \times 0.00098 \) |
| ![Image](image4.png) | \( M1 \) : Weight of part a1[kg]  
\( M2 \) : Weight of part a2[kg]  
\( I = \frac{M_1(4a_1^2 + b_1^2) + M_2(4a_2^2 + b_2^2)}{12} \times 0.00098 \) |
| ![Image](image5.png) | \( M \) : Weight [kg]  
\( I = \frac{ML^2}{12} \times 0.00098 \) |
| ![Image](image6.png) | \( M \) : Weight [kg]  
\( I = \frac{M}{12} \left( \frac{d^2}{4} + \frac{L^2}{3} \right) \times 0.00098 \) |
| ![Image](image7.png) | \( I1 \) : The moment of inertia which passes the center of the load located at the top and that parallels to the rotation axis  
\( I2 \) : The moment of inertia which located around the rotation axis of the arm  
\( M1 \) : Weight at the top of the object  
\( M2 \) : Weight of the arm  
\( R \) : Distance from the rotation axis to the center of gravity of the load at the top of the object  
\( I = I_1 + M_2 R^2 + I_2 \times 0.00098 \) |
| ![Image](image8.png) | \( I1 \) : Moment of inertia at the loading side  
\( I2 \) : Moment of inertia at the driving side  
\( I = I_1 + \left( \frac{a}{b} \right)^2 I_2 \times 0.00098 \) |
### Single Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Rotation Angle</th>
<th>Practical Torque (Nm)</th>
<th>Max Payload (kg)</th>
<th>Weight (kg)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>90° / 180°</td>
<td>0.093P</td>
<td>0.8</td>
<td>0.8</td>
<td>0.41 / 0.47</td>
</tr>
<tr>
<td>20</td>
<td>90° / 180°</td>
<td>0.184P</td>
<td>1.2</td>
<td>1.2</td>
<td>0.69 / 0.80</td>
</tr>
<tr>
<td>25</td>
<td>90° / 180°</td>
<td>0.328P</td>
<td>3.5</td>
<td>3.5</td>
<td>1.17 / 1.37</td>
</tr>
<tr>
<td>30</td>
<td>90° / 180°</td>
<td>0.608P</td>
<td>5.7</td>
<td>5.7</td>
<td>2.08 / 2.45</td>
</tr>
<tr>
<td>40</td>
<td>90° / 180°</td>
<td>1.481P</td>
<td>15</td>
<td>12</td>
<td>3.62 / 4.33</td>
</tr>
</tbody>
</table>

### Double Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Rotation Angle</th>
<th>Practical Torque (Nm)</th>
<th>Max Payload (kg)</th>
<th>Weight (kg)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>90° / 180°</td>
<td>0.235P</td>
<td>8</td>
<td>8</td>
<td>0.86 / 0.82</td>
</tr>
<tr>
<td>20</td>
<td>90° / 180°</td>
<td>0.491P</td>
<td>12</td>
<td>10</td>
<td>2.20 / 2.10</td>
</tr>
<tr>
<td>25</td>
<td>90° / 180°</td>
<td>1.040P</td>
<td>15</td>
<td>14</td>
<td>2.74 / 2.66</td>
</tr>
<tr>
<td>30</td>
<td>90° / 180°</td>
<td>1.491P</td>
<td>16</td>
<td>16</td>
<td>3.88 / 3.76</td>
</tr>
<tr>
<td>40</td>
<td>90° / 180°</td>
<td>3.169P</td>
<td>26</td>
<td>25</td>
<td>6.82 / 6.62</td>
</tr>
<tr>
<td>50</td>
<td>90° / 180°</td>
<td>6.455P</td>
<td>32</td>
<td>30</td>
<td>11.71 / 11.60</td>
</tr>
<tr>
<td>63</td>
<td>90° / 180°</td>
<td>14.715P</td>
<td>42</td>
<td>40</td>
<td>23.02 / 23.00</td>
</tr>
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</table>

### Hydraulic

<table>
<thead>
<tr>
<th>Type</th>
<th>Rotation Angle</th>
<th>Practical Torque (Nm)</th>
<th>Max Payload (kg)</th>
<th>Weight (kg)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>90° / 180°</td>
<td>3.139(P-1.4)</td>
<td>40</td>
<td>20</td>
<td>5.49 / 5.83</td>
</tr>
<tr>
<td>60</td>
<td>90° / 180°</td>
<td>9.908(P-1.3)</td>
<td>62</td>
<td>32</td>
<td>11.50 / 12.00</td>
</tr>
<tr>
<td>80</td>
<td>90° / 180°</td>
<td>19.228(P-0.9)</td>
<td>78</td>
<td>40</td>
<td>18.50 / 20.00</td>
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</tbody>
</table>
## Rotary Cylinder

### Swivel Unit

<table>
<thead>
<tr>
<th>Type</th>
<th>Rotation Angle</th>
<th>Practical Torque (Nm)</th>
<th>Max Payload (kg)</th>
<th>Weight (kg)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTU</td>
<td>25 90°</td>
<td>0.169P</td>
<td>1.2</td>
<td>0.6</td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td>40 90°</td>
<td>0.775P</td>
<td>1.9</td>
<td>1.2</td>
<td>1.97</td>
</tr>
<tr>
<td></td>
<td>50 90°</td>
<td>1.413P</td>
<td>2.8</td>
<td>1.6</td>
<td>3.24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Rotation Angle</th>
<th>Practical Torque (Nm)</th>
<th>Max Payload (kg)</th>
<th>Weight (kg)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHU</td>
<td>20 180°</td>
<td>0.510P</td>
<td>12</td>
<td>10</td>
<td>2.26</td>
</tr>
<tr>
<td></td>
<td>34 180°</td>
<td>1.275P</td>
<td>18</td>
<td>13</td>
<td>4.10</td>
</tr>
<tr>
<td></td>
<td>40 180°</td>
<td>1.570P</td>
<td>20</td>
<td>15</td>
<td>6.80</td>
</tr>
<tr>
<td></td>
<td>40N 180°</td>
<td>3.021P</td>
<td>24</td>
<td>21</td>
<td>8.84</td>
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</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Rotation Angle</th>
<th>Practical Torque (Nm)</th>
<th>Max Payload (kg)</th>
<th>Weight (kg)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHUM</td>
<td>20 180°</td>
<td>0.510P</td>
<td>12</td>
<td>10</td>
<td>388</td>
</tr>
<tr>
<td></td>
<td>34 180°</td>
<td>1.275P</td>
<td>18</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 180°</td>
<td>1.570P</td>
<td>20</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40N 180°</td>
<td>3.021P</td>
<td>24</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>
While the slide cylinder transports objects vertically and horizontally, the rotary cylinder moves objects rotationally, and the adjustment of the rotational angle is possible.
Rotary Cylinder
SRJ-16,20,25,30,40

Character

- Rotary actuator of rack & pinion type
- A built-in wearing provide long unit life
- Low friction seal provide high torque with envelope ratio
- End stopper for precise angular position
  (Can use shock absorber instead of stopper)

Rack & pinion type

Drive
double acting pneumatic cylinder

Body
high-tensile aluminum body with lightest possible because of hard anodizing

Kinetics
pinion/toothed rack system for low tolerance transmission of drive power in one rotation movement

Rotation table
fast and economic positioning of the rotation table

Stop damper
direct cylinder body position inquiry

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## Specification

<table>
<thead>
<tr>
<th>Products Name</th>
<th>SRJ16</th>
<th>SRJ20</th>
<th>SRJ25</th>
<th>SRJ30</th>
<th>SRJ40</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Torque</td>
<td>0.093P</td>
<td>0.184P</td>
<td>0.327P</td>
<td>0.608P</td>
<td>1.480P</td>
<td>N.m</td>
</tr>
<tr>
<td>Radial payload</td>
<td>0.8</td>
<td>1.2</td>
<td>3.5</td>
<td>5.7</td>
<td>15</td>
<td>kg</td>
</tr>
<tr>
<td>Compress load(thrust)</td>
<td>0.8</td>
<td>1.2</td>
<td>3.5</td>
<td>5.7</td>
<td>15</td>
<td>kg</td>
</tr>
<tr>
<td>Tensile load(thrust)</td>
<td>0.6</td>
<td>1.0</td>
<td>3.0</td>
<td>4.5</td>
<td>8.0</td>
<td>kg</td>
</tr>
<tr>
<td>Weight(90°)</td>
<td>0.41</td>
<td>0.63</td>
<td>1.17</td>
<td>2.08</td>
<td>3.61</td>
<td>kg</td>
</tr>
<tr>
<td>Weight(180°)</td>
<td>0.47</td>
<td>0.80</td>
<td>1.37</td>
<td>2.45</td>
<td>4.33</td>
<td>kg</td>
</tr>
<tr>
<td>Turning Time(90°)</td>
<td>0.2 to 0.5</td>
<td>0.2 to 0.8</td>
<td>0.2 to 1.0</td>
<td>0.3 to 1.0</td>
<td>0.3 to 1.0</td>
<td>sec</td>
</tr>
<tr>
<td>Turning Time(180°)</td>
<td>0.3 to 0.7</td>
<td>0.3 to 1.0</td>
<td>0.3 to 1.5</td>
<td>0.5 to 1.5</td>
<td>0.5 to 1.5</td>
<td>sec</td>
</tr>
<tr>
<td>Fitting size</td>
<td>M5 PF(G) 1/8</td>
<td>PF(G) 1/8</td>
<td>PF(G) 1/8</td>
<td>PF(G) 1/8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air consumption(90°/180°)</td>
<td>3.8 / 7.6</td>
<td>7.4 / 14.8</td>
<td>13.1 / 26.2</td>
<td>24.3 / 48.6</td>
<td>59.2 / 118.4</td>
<td>cm³</td>
</tr>
<tr>
<td>Cushion</td>
<td>Stopper or Absorber</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetition Accuracy</td>
<td>±0.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>degree</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>3 to 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bar</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-5 to 60</td>
<td></td>
<td></td>
<td></td>
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<td>°C</td>
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<tr>
<td>Lubrication</td>
<td>Needless</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* After 100 consecutive strokes to end positions

**SRJ-16**

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359
SRJ-20

SRJ-25

*for ( ) in number 180°
Rotary Cylinder

**Character**

- Rotary actuator of rack & pinion type with internal dual piston
- Saving power tube by center through bore & easy mount
- Identical stop power with a rotation power reduce rotation moment of inertia
- Integrated bracket to use a shoulder bolt key reduce the tolerance of end position

**Rack & pinion type**

- **Shock absorber**
  adjustable end rotary driving absorbency

- **Mounting block**
  mounting for inductive proximity switch

- **Kinetics**
  pinion/toothed rack system for low tolerance transmission of drive power in one rotation movement

- **Body**
  high-tensile aluminum body with lightest possible because of hard anodizing

SDRJ-16,20,25,30,40,50,63

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### Specification

<table>
<thead>
<tr>
<th>Products Name</th>
<th>SDRJ16</th>
<th>SDRJ20</th>
<th>SDRJ25</th>
<th>SDRJ30</th>
<th>SDRJ40</th>
<th>SDRJ50</th>
<th>SDRJ63</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Torque</td>
<td>0.235P</td>
<td>0.49P</td>
<td>1.039P</td>
<td>1.49P</td>
<td>3.165P</td>
<td>6.448P</td>
<td>14.7P</td>
<td>N.m</td>
</tr>
<tr>
<td>Radial payload</td>
<td>8</td>
<td>12</td>
<td>15</td>
<td>16</td>
<td>26</td>
<td>32</td>
<td>42</td>
<td>kg</td>
</tr>
<tr>
<td>Compress load(thrust)</td>
<td>8</td>
<td>10</td>
<td>14</td>
<td>16</td>
<td>25</td>
<td>30</td>
<td>40</td>
<td>kg</td>
</tr>
<tr>
<td>Tensile load(thrust)</td>
<td>7</td>
<td>9</td>
<td>10</td>
<td>12</td>
<td>20</td>
<td>26</td>
<td>32</td>
<td>kg</td>
</tr>
<tr>
<td>Weight( 90°)</td>
<td>0.86</td>
<td>2.15</td>
<td>2.74</td>
<td>3.88</td>
<td>6.82</td>
<td>11.66</td>
<td>22.90</td>
<td>kg</td>
</tr>
<tr>
<td>Weight( 180°)</td>
<td>0.82</td>
<td>2.11</td>
<td>2.66</td>
<td>3.76</td>
<td>6.62</td>
<td>11.60</td>
<td>22.50</td>
<td>kg</td>
</tr>
<tr>
<td>Turning Time( 90°)</td>
<td>0.2 to 1.4</td>
<td>0.2 to 1.8</td>
<td>0.2 to 1.8</td>
<td>0.3 to 1.0</td>
<td>0.4 to 1.2</td>
<td>0.6 to 3.2</td>
<td>0.7 to 3.5</td>
<td>sec</td>
</tr>
<tr>
<td>Turning Time( 180°)</td>
<td>0.3 to 1.0</td>
<td>0.3 to 1.0</td>
<td>0.3 to 1.0</td>
<td>0.4 to 1.2</td>
<td>0.5 to 1.4</td>
<td>0.7 to 3.5</td>
<td>0.8 to 3.7</td>
<td>sec</td>
</tr>
<tr>
<td>Fitting size</td>
<td>M5</td>
<td>PF(G) 1/8</td>
<td>PF(G) 1/8</td>
<td>PF(G) 1/8</td>
<td>PF(G) 1/8</td>
<td>PF(G) 1/8</td>
<td>PF(G) 1/4</td>
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</tr>
<tr>
<td>Air consumption(90°/180°)</td>
<td>8.8 / 17.7</td>
<td>19.7 / 39.5</td>
<td>41.6 / 83.2</td>
<td>66.6 / 119.9</td>
<td>126.3 / 252.5</td>
<td>251.3 / 502.7</td>
<td>589.8 / 1179.6</td>
<td>cm³</td>
</tr>
<tr>
<td>Cushion</td>
<td>Stopper or Absorber</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>±0.1</td>
<td>degree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating pressure</td>
<td>3 to 7</td>
<td>bar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-5 to 60</td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Needless</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*After 100 consecutive strokes to end positions*
SDRJ-20

2-PF(G)1/8 (AIR PORT)
2-ABSORBER (M14x1.5p)
2-PROXIMITY SENSOR M8x2MM (JPM8)

SDRJ-25

2-PF(G)1/8 (AIR PORT)
2-ABSORBER (M14x1.5p)
2-PROXIMITY SENSOR M8x2MM (JPM8)
### Rotary Cylinder

**RJC-40, 63, 80**

**Character**

- Rotary actuator of driving shaft coupled chain join piston type
- Built in hydro cushion reduce shock at end of rotation and increase road stopping capacity
- Smoothly rotation at field of low speed
- A driving shaft with center through bore assemble easily into a module
- Attention to select the position tap hole & direction of rotation

**Air hydraulic**

- **Drive**: double acting pneumatic cylinder
- **Body**: high-tensile aluminum body with lightest possible because of hard anodizing
- **Stop screw**: end stop adjustable via adjustment screw

---

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The delivery of * mark option is longer than a standard, So inquire of JRT
Specification

<table>
<thead>
<tr>
<th>Products Name</th>
<th>RJC40</th>
<th>RJC63</th>
<th>RJC80</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Torque</td>
<td>3.136(P-1.4)</td>
<td>9.898(P-1.3)</td>
<td>19.208(P-0.9)</td>
<td>N.m</td>
</tr>
<tr>
<td>Radial payload</td>
<td>40</td>
<td>62</td>
<td>78</td>
<td>kg</td>
</tr>
<tr>
<td>Compress load(thrust)</td>
<td>20</td>
<td>32</td>
<td>40</td>
<td>kg</td>
</tr>
<tr>
<td>Tensile load(thrust)</td>
<td>20</td>
<td>32</td>
<td>40</td>
<td>kg</td>
</tr>
<tr>
<td>Weight(90°)</td>
<td>6</td>
<td>11.5</td>
<td>18.5</td>
<td>kg</td>
</tr>
<tr>
<td>Weight(180°)</td>
<td>6.5</td>
<td>12</td>
<td>20</td>
<td>kg</td>
</tr>
<tr>
<td>Turning Time(90°)</td>
<td>0.5 to 2.5</td>
<td>0.7 to 3.5</td>
<td>1.5 to 4.0</td>
<td>sec</td>
</tr>
<tr>
<td>Turning Time(180°)</td>
<td>0.7 to 3.0</td>
<td>1.0 to 4.0</td>
<td>2.0 to 5.0</td>
<td>sec</td>
</tr>
<tr>
<td>Fitting size</td>
<td>PF(G) 1/8</td>
<td>PF(G) 1/4</td>
<td>PF(G) 1/4</td>
<td></td>
</tr>
<tr>
<td>Air consumption(90°/180°)</td>
<td>127.7 / 255.3</td>
<td>395.9 / 791.8</td>
<td>766.0 / 1532.1</td>
<td>cm³</td>
</tr>
<tr>
<td>Cushion</td>
<td>Absorber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetition Accuracy</td>
<td>±0.1</td>
<td></td>
<td></td>
<td>degree</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>3 to 7</td>
<td></td>
<td></td>
<td>bar</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-5 to 60</td>
<td></td>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Needless</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* After 100 consecutive strokes to end positions

RJC-40

*for ( ) in number 180°
**RJC-63**

- **REED SWITCH** (JRT-02)
- **2-AIR PORT** PF(G) 1/4
- **6-M8 DP18**

*for ( ) in number 180°

---

**RJC-80**

- **REED SWITCH** (JRT-02)
- **2-AIR PORT** PF(G) 1/4

*for ( ) in number 180°
**Character**

- Rectangular rotary unit to be able to rotate two grippers rectangularly mounted unit
- In case of using with series AF30 or AF46, easy to assemble into a module
- Internal shock absorber reduce shock at end of rotation and increase road stopping capacity
- Light weight grippers (e.g. AF28D) to mount at unit is suitable

**Finger attachable 90° swivel unit**

![Diagram of Rotary Cylinder]

- **Intake flange**
  for connection to application specific adapter plate

- **Drive**
  double acting pneumatic cylinder

- **Body**
  high-tensile aluminum body with lightest possible because of hard anodizing

- **Shock absorber**
  adjustable end rotary driving absorbency

- **Kinetic**
  pinion/toothed rack system for low tolerance transmission of drive power in one rotation movement
Product Name

Bore Size
25, 40, 50

Sensor Cable Length
Nomark - 1m
3M - 3m
5M - 5m
Q8 - quick connector (M8-3pin male Length 0.15m)
F8 - quick connector (M8-3pin female Length 3m)

Sensor Quantity
1 - 1EA
2 - 2EA

Absorber Quantity
1 - 1EA
2 - 2EA

Sensor Type
RS - Reed switch : 2 wire
N - Solid state type, current sinking (NPN)
P - Solid state type, current sourcing (PNP)
RT - High temperature type (+120°C) : Option (Reed switch only)

*Option
- Sensor : Normally Open(NO) is Standard and Normally Close(NC) is option
- For NC Type, add ordering code end "C" ex) RTC - High temperature type, Normally Close(NC) type

Sensor Cable
Nomark - Standard (for general pneumatic seal)
HT - High temperature sealing sets (-10°C to 120°C)
- For high temperature sealing, consult JRT

Sealing Option

The delivery of * mark option is longer than a standard, So inquire of JRT

Ordering Code

www.jrtfa.com
**RTU Specification**

<table>
<thead>
<tr>
<th>Products Name</th>
<th>RTU25</th>
<th>RTU40</th>
<th>RTU50</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Torque</td>
<td>0.169P</td>
<td>0.774P</td>
<td>1.411P</td>
<td>N.m</td>
</tr>
<tr>
<td>Radial payload</td>
<td>1.2</td>
<td>1.9</td>
<td>2.8</td>
<td>kg</td>
</tr>
<tr>
<td>Compress load(thrust)</td>
<td>0.6</td>
<td>1.2</td>
<td>1.6</td>
<td>kg</td>
</tr>
<tr>
<td>Weight</td>
<td>0.68</td>
<td>1.97</td>
<td>3.24</td>
<td>kg</td>
</tr>
<tr>
<td>Turning Time</td>
<td>0.5</td>
<td>0.8</td>
<td>1.0</td>
<td>sec</td>
</tr>
<tr>
<td>Fitting size</td>
<td>M5</td>
<td>M5</td>
<td>PF(G) 1/8</td>
<td></td>
</tr>
<tr>
<td>Air consumption quantity</td>
<td>7.7</td>
<td>35.5</td>
<td>64.8</td>
<td>Cm³</td>
</tr>
<tr>
<td>Cushion</td>
<td>Stopper or Absorber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetition Accuracy</td>
<td>±0.1</td>
<td></td>
<td></td>
<td>degree</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>3 to 7</td>
<td></td>
<td></td>
<td>bar</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-5 to 60</td>
<td></td>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Needless</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* After 100 consecutive strokes to end positions

**RTU-25**

![RTU-25 Diagram]

www.jrtfa.com

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Character

- Rotary unit of rack & pinion type with internal dual piston
- Identical stop power with a rotation power reduce rotation moment of inertia
- Integrated bracket to use a shoulder bolt key reduce the tolerance of end position
- In case of mounting with series AF30 or AF46, AF56N easy to assemble into a module
- Back side supply port prevent to twist of the power supply tube

Finger attachable swivel unit

Shock absorber
- adjustable end rotary driving absorbency

Kinetic
- pinion/toothed rack system for low tolerance transmission of drive power in one rotation movement

Body
- high-tensile aluminum body with lightest possible because of hard anodizing

Mounting block
- mounting for inductive proximity switch

Drive
- double acting pneumatic cylinder

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Exploded view

- Nut & Washer
- Ball Bearing
- Quad Ring
- Side Cover(B)
- Shock Absorber
- Ball Bearing
- Driving Shaft
- Rotary Head
- Stopper Bracket
- Wrench Bolt
- Piston Packing
- Wearing
- Piston
- Sensor Bracket
- Rotary Body
- Side Cover(A)
RHU

The delivery of * mark option is longer than a standard, So inquire of JRT
### Specification

<table>
<thead>
<tr>
<th>Products Name</th>
<th>RHU20</th>
<th>RHU34</th>
<th>RHU40</th>
<th>RHU40N</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Torque</td>
<td>0.51P</td>
<td>1.274P</td>
<td>1.568P</td>
<td>3.018P</td>
<td>N.m</td>
</tr>
<tr>
<td>Radial payload</td>
<td>12</td>
<td>18</td>
<td>20</td>
<td>24</td>
<td>kg</td>
</tr>
<tr>
<td>Compress load(thrust)</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>21</td>
<td>kg</td>
</tr>
<tr>
<td>Tensile load(thrust)</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>21</td>
<td>kg</td>
</tr>
<tr>
<td>Weight</td>
<td>2.31</td>
<td>4.08</td>
<td>6.84</td>
<td>8.84</td>
<td>kg</td>
</tr>
<tr>
<td>Turning Time</td>
<td>0.3 to 1.0</td>
<td>0.4 to 1.2</td>
<td>0.5 to 1.5</td>
<td>0.8 to 2.0</td>
<td>sec</td>
</tr>
<tr>
<td>Fitting size</td>
<td>M5</td>
<td>M5,PF(G) 1/8</td>
<td>PF(G) 1/8</td>
<td>PF(G) 1/8</td>
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</tr>
<tr>
<td>Air consumption quantity</td>
<td>47.4</td>
<td>119.9</td>
<td>151.0</td>
<td>276.4</td>
<td>cm³</td>
</tr>
<tr>
<td>Cushion</td>
<td>Absorber</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetition Accuracy</td>
<td>±0.1</td>
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<td>Lubrication</td>
<td>Needless</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* After 100 consecutive strokes to end positions
RHU

RHU-40

RHU-40N

SHOCK ABSORBER
0.5M (M20x1.5) 2x2-PF(G) 1/8 (AIR PORT)
for SENSOR CABLE

2x2-PF(G) 1/8 (AIR PORT)
for ROTARY CYLINDER

2x4-M8 DP12

2x4-M8 DP12

2-PF(G) 1/8 (AIR PORT)
for ROTARY CYLINDER

2.0/10 DP12

4.0/10 DP12

0.91 thru
for SENSOR CABLE

PROXIMITY SENSOR (JPM8)

for ROTARY CYLINDER

2-PF(G) 1/8 (AIR PORT)
for GRIPPER (C,D are opposite side)

0-RING

2-PF(G) 1/8 (AIR PORT)
for GRIPPER

2x2-PF(G) 1/8 (AIR PORT)
for ROTARY CYLINDER

2x4-M8 DP12

2x4-M8 DP12

2-PF(G) 1/8 (AIR PORT)
for ROTARY CYLINDER

2-PF(G) 1/8 (AIR PORT)
for ROTARY CYLINDER

2.0/10 DP12

4.0/10 DP12

0.91 thru
for SENSOR CABLE

PROXIMITY SENSOR (JPM8)

for ROTARY CYLINDER

2-PF(G) 1/8 (AIR PORT)
for GRIPPER (C,D are opposite side)

0-RING

2-PF(G) 1/8 (AIR PORT)
for GRIPPER
The delivery of * mark option is longer than a standard, So inquire of JRT
1. Adapter attachment direction rotation gripper 180 degree direction change possibility
2. Turning head of the RHUM20 the semi-standard option specific is attaching

**RHUM-20**

![RHUM20+AF46-30](image1)

Work Weight=1.5kg

![RHUM20+AF46-40](image2)

Work Weight=2kg

**RHUM-34**

1. Adapter attachment direction rotation gripper 180 degree direction change possibility
2. Turning head of the RHUM34 the semi-standard option specific is attaching

![RHUM34+AF46-55](image3)

Work Weight=3.5kg

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1. Adapter attachment direction rotation gripper 180 degree direction change possibility
2. Turning head of the RHUM40N the semi-standard option specific is attaching

**RHUM-40**

- RHUM-40N+AF46-95
  - Work Weight=8kg

**RHUM-40N**

- RHUM40+AF46-75
  - Work Weight=5kg