PARALLEL PNEUMATIC GRIPPERS MINIATURE SERIES RPMC
CLEAN ROOM AND HARSH ENVIRONMENTS DESIGNED FOR MANIFOLD MOUNTING

RPMC Series

- Precision Gripping—Preloaded V Roller Bearings Eliminate Side Play Resulting in Excellent Part Positioning
- Clean Room Grease and Corrosion Resistant Shields Allow for Use in Clean Room and Harsh Environments
- Accuracy of 0.05 mm (0.002") and Repeatability of 0.03 mm (0.001")
- Rated Grip Force @ 7 Bar (100 psi), 36 N (8 lbs)
- Compact Design for Gripping Small Parts in Small Places
- Rigid and Low Friction Design Allows for Longer Finger Lengths for Use on Delicate Parts
- Group Multiple Grippers in Close Array Using Top Manifold Mounting Surface
- Up to 5 Million Cycles in Typical Operation and 10 Million with Maintenance
- Operating Temperature -35 to 80°C (-30 to 180°F)
- System Requires 3 to 7 bar (5 to 100 psi) Dry Filtered (40 Micron or Better) Air Supply
- Requires 4-Way, 2 Position Valve and Regulator for Delicate Parts

PRODUCT FEATURES

- Preload Bearings
  Bearings are preloaded for maximum support and zero side play

- Hard Coat Anodize
  The body has hard-coat anodize 60 RC with PTFE impregnation

- Purge/Scavenge Port
  Purge/Scavenge port for extreme environments from dirty and gritty to clean-room Class 10 or better

- Adjustable Preload Screw
  Adjustable preload screw allows for adjustment of preload on roller bearings

- Clean-Room Contaminants
  Units are lubricated with a clean-room grade grease

- Quality Components
  External components are made from corrosion resistant materials for resistance to de-ionized water or for use in FDA and medical parts handling applications

- One Piece Body
  One piece lightweight aluminum body

- Slip Fit Dowel Pin Holes
  Located in body and jaws

- Roller Bearings
  Patented Dual-"V" roller bearings provide low friction rolling motion and maximum rigidity for fingers

- Stainless Steel Cover
  Stationary and non-contacting cover eliminates the possibility of particle generation

Note: Grippers and manifold are shown for reference only. Tooling is customers responsibility.
**OPERATING PRINCIPLE**

- A double acting piston is connected by a shaft to a double sided pin wedge.
- The pin wedge slides in a hole located in each of the jaws converting vertical motion of the wedge into horizontal synchronous motion of the jaws.
- This gripper is suitable for internal or external gripping.

**TECHNICAL SPECIFICATIONS**

**Pneumatic Specifications**
- Pressure Operating Range: 3 to 7 bar (40 to 100 psi)
- Cylinder Type: Double acting
- Dynamic Seals: Internally lubricated Buna-N
- Valve Required to Operate: 4-way, 2-position

**Air Quality Requirements**
- Air Filtration: 40 micron or better
- Air Lubrication: Not necessary*
- Air Humidity: Low moisture content (dry)

**Temperature Operating Range**
- Buna-N Seals (Standard): -35 to 80°C (-30 to 180°F)
- FKM Seals (Optional): -30 to 120°C (-20 to 250°F)

**Maintenance Specifications**
- Expected Life:
  - Normal Application: 5 million cycles
  - With Preventative Maintenance: 10+ million cycles*
- Field Repairable: Yes
- Seal Repair Kits Available: Yes

*Addition of lubrication will greatly increase service life.
PARALLEL PNEUMATIC GRIPPER—MINIATURE CLEAN ROOM SERIES RPMC-1M

Dimensions: mm (inch)

RPMC-1M shown larger than actual size.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Metric mm</th>
<th>Imperial (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>36 N (8 lb)</td>
<td>Stroke 3.2 mm (0.13&quot;)</td>
</tr>
<tr>
<td>0.024 Kg (0.052 lb)</td>
<td>Weight</td>
</tr>
<tr>
<td>3 to 7 bar (40 to 100 psi)</td>
<td>Pressure Range</td>
</tr>
<tr>
<td>10 mm (0.394&quot;)</td>
<td>Cylinder Bore Ø</td>
</tr>
<tr>
<td>0.13 cm (0.008&quot;)</td>
<td>Displacement</td>
</tr>
<tr>
<td>-35 to 80°C (-30 to 180°F)</td>
<td>Temp Range (Standard Seals)</td>
</tr>
<tr>
<td>-30 to 120°C (-20 to 250°F)</td>
<td>Temp Range (Viton® Seals)</td>
</tr>
<tr>
<td>0.10 sec</td>
<td>Actuation</td>
</tr>
<tr>
<td>±0.05 mm (±0.002&quot;)</td>
<td>Accuracy</td>
</tr>
<tr>
<td>±0.03 mm (±0.00&quot;)</td>
<td>Repeatability</td>
</tr>
<tr>
<td>4-way, 2-position</td>
<td>Valve Required to Actuate</td>
</tr>
</tbody>
</table>

LOADING CAPACITY:

<table>
<thead>
<tr>
<th>Static</th>
<th>Dynamic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Tensile</td>
<td>89 N (20 lbs)</td>
</tr>
<tr>
<td>Maximum Compressive</td>
<td>89 N (20 lbs)</td>
</tr>
<tr>
<td>Maximum Moment Mx</td>
<td>1 Nm (12&quot;)/lbs</td>
</tr>
<tr>
<td>Maximum Moment My</td>
<td>2 Nm (15&quot;)/lbs</td>
</tr>
<tr>
<td>Maximum Moment Mz</td>
<td>1 Nm (12&quot;)/lbs</td>
</tr>
</tbody>
</table>

Capacity are per set of jaws and not simultaneous.
**PARALLEL PNEUMATIC GRIPPER—MINIATURE CLEAN ROOM SERIES RPMC-2M**

**Dimensions: mm (inch)**

```plaintext
<table>
<thead>
<tr>
<th>Component</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 X M2 X 0.4</td>
<td>24.0 (0.94)</td>
</tr>
<tr>
<td>2 X M2 X 0.4 X .09 DP</td>
<td>16.0 (0.63)</td>
</tr>
<tr>
<td>2 X M2 X 0.4 X .18 DP</td>
<td>21.0 (0.82)</td>
</tr>
<tr>
<td>2 X 3.5</td>
<td>9.5 (0.37)</td>
</tr>
<tr>
<td>2 X 2 H7 X 3.3 DP</td>
<td>6.0 (0.236)</td>
</tr>
<tr>
<td>2 X 2 H7 X 1.5 DP</td>
<td>4.8 (0.19)</td>
</tr>
<tr>
<td>2 X Ø 2H7 X 1.5 DP</td>
<td>12.00 (0.4724)</td>
</tr>
</tbody>
</table>

**UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW**

<table>
<thead>
<tr>
<th>Dimension Tolerances</th>
<th>Imperial (inch)</th>
<th>Metric (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>±0.0005 = ±0.013</td>
<td>±0.002 (0.0005)</td>
<td></td>
</tr>
<tr>
<td>±0.0003 (0.0001)</td>
<td>±0.0005 (0.0002)</td>
<td></td>
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</tbody>
</table>

**EFFECTIVE FINGER LENGTH**

- **ECROF**
  - 0.206 (0.0081)
  - 0.528 (0.0206)
  - 0.94 (0.037)

**GRIP FORCE PER FINGER**

- 60 PSI (4.1 bar)
- 10.5 lbs (4.78 N)
- 20.8 lbs (92.7 N)

**LOADING CAPACITY†**

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<thead>
<tr>
<th>Category</th>
<th>Static</th>
<th>Dynamic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Tensile T</td>
<td>89 N (20 lbs)</td>
<td>31 N (7 lbs)</td>
</tr>
<tr>
<td>Maximum Compressive C</td>
<td>89 N (20 lbs)</td>
<td>31 N (7 lbs)</td>
</tr>
<tr>
<td>Maximum Moment Mx</td>
<td>1 Nm (12/16 lbs)</td>
<td>0.5 Nm (4/8 lbs)</td>
</tr>
<tr>
<td>Maximum Moment My</td>
<td>2 Nm (15/32 lbs)</td>
<td>0.6 Nm (5/8 lbs)</td>
</tr>
<tr>
<td>Maximum Moment Mz</td>
<td>1 Nm (12/16 lbs)</td>
<td>0.5 Nm (4/8 lbs)</td>
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† Capacity are per set of jaws and not simultaneous.
**PARALLEL PNEUMATIC GRIPPER—MINIATURE CLEAN ROOM SERIES RPMC-3M**

**Dimensions: mm (inch)**

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Total Rated Grip Force</th>
<th>RPMC-3M</th>
</tr>
</thead>
<tbody>
<tr>
<td>F @ 100 psi, 7 bar</td>
<td>36 N (8 lb)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stroke</th>
<th>6.3 mm (0.25&quot;)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Weight</th>
<th>0.034 Kgs (0.074 lb)</th>
</tr>
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<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>3 to 7 bar (40 to 100 psi)</th>
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<tr>
<th>Cylinder Bore Ø</th>
<th>10 mm (0.394&quot;)</th>
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<table>
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<tr>
<th>Displacement</th>
<th>0.25 cm³ (0.015&quot;)</th>
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<table>
<thead>
<tr>
<th>Temp Range (Standard Seals)</th>
<th>-35 to 80°C (-30 to 180°F)</th>
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<th>Actuation</th>
<th>0.10 sec</th>
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<table>
<thead>
<tr>
<th>Accuracy</th>
<th>±0.05 mm (±0.002&quot;)</th>
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<table>
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<tr>
<th>Repeatability</th>
<th>±0.03 mm (±0.001&quot;)</th>
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<th>Valve Required to Actuate</th>
<th>4-way, 2-position</th>
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**LOADING CAPACITY¹**

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**To Order** Visit omega.com/rpmc_series for Pricing and Details

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>LENGTH mm (inch)</th>
<th>DEPTH mm (inch)</th>
<th>HEIGHT mm (inch)</th>
<th>STROKE mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPMC-1M</td>
<td>23 (0.89)</td>
<td>16 (0.630)</td>
<td>23 (0.92)</td>
<td>3.2 (0.13)</td>
</tr>
<tr>
<td>RPMC-2M</td>
<td>24 (0.94)</td>
<td>16 (0.630)</td>
<td>25 (0.98)</td>
<td>4.8 (0.19)</td>
</tr>
<tr>
<td>RPMC-3M</td>
<td>30 (1.16)</td>
<td>16 (0.630)</td>
<td>25 (0.98)</td>
<td>6.3 (0.25)</td>
</tr>
</tbody>
</table>

**Ordering Example:** RPMC-2M mini gripper clean-room series with maximum stroke of 4.8 mm (0.19").

Recommended accessories SLKT-143V top air port manifold seal kit for remote air fitting use.

**ACCESSORIES**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLKT-121</td>
<td>Standard seal repair kit</td>
</tr>
<tr>
<td>SLKT-143V</td>
<td>Top air port manifold seal kit (FKM only)</td>
</tr>
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</table>

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