**CLAMPS**

**GEARHEAD ATTACHING CLAMPS**

**MATERIAL:**
300 Series Stainless Steel, .025 thick

Special clamps are available on request.

---

**INCH COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Size Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D Dia.</th>
<th>Screw Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>S3808Y-C132</td>
<td>8</td>
<td>1/16</td>
<td>.582</td>
<td>.230</td>
<td>.818</td>
<td>#2-56</td>
</tr>
<tr>
<td>S3811Y-C133</td>
<td>11</td>
<td>9/64</td>
<td>.804</td>
<td></td>
<td>1.190</td>
<td>#4-40</td>
</tr>
<tr>
<td>S3815Y-C134</td>
<td>15</td>
<td>5/64</td>
<td>.980</td>
<td></td>
<td>1.505</td>
<td></td>
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<tr>
<td>S3818Y-C135</td>
<td>18</td>
<td>1/8</td>
<td>1.150</td>
<td>.227</td>
<td>1.830</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** If tab requires adjustment, use pliers to bend.

---

**PRECISION SYNCHRO LOCKING CLAMPS**

**MATERIAL:**
416 Stainless Steel

**SPECIFICATION:**

<table>
<thead>
<tr>
<th>Tolerances</th>
<th>Decimals</th>
<th>± .005</th>
</tr>
</thead>
</table>

**NOTE:** Used to lock Size 11 Synchro Output Shaft to mounting plate after desired setting is obtained.
The basic form of planetary gear system is shown above. It consists of a sun gear A, planetary gears B, internal gear C and carrier D. In our gearheads the internal gear is fixed, the sun gear is the input pinion, and the output shaft is part of the carrier.

This relationship can be represented schematically as shown on the right. The speed ratio is given by the equation:

$$\text{Gear Ratio} = \frac{1 + \frac{z_a}{z_c}}{\frac{z_a}{z_c}} = \frac{z_a + z_c}{z_a} = \frac{z_c}{z_a} + 1$$

where:  
- $z_a$ = number of teeth in sun gear A, and  
- $z_c$ = number of teeth in internal gear C.

For the example shown in the above illustration (where $z_a = 14$, $z_b = 18$ and $z_c = 50$), the Gear Ratio is 4.6:1.

For a double-stage planetary gearhead, the carrier of the first stage becomes the sun gear of the second stage.

The advantages of the planetary gearheads are:
1. The input and output axes are in the same line.
2. The planet gears used in a planetary system share the load, allowing for a much higher torque capacity unit than the comparable size spur gearheads.
3. The unit is compact and inertially balanced.

The disadvantages are:
1. The mechanism is complex.
2. The components require high-precision manufacturing.
3. The cost is considerably more than comparable size spur gearheads.

### USEFUL FORMULAS

- **The maximum output hp of Gearhead**
  \[ \text{hp of Gearhead} = \frac{(\text{Maximum continuous torque}) \times (\text{Maximum rated output rpm})}{63025} \]

- **The maximum allowable output hp of the motor**
  \[ \text{output hp of the motor} = \frac{\text{The maximum output hp of gearhead}}{0.90 \text{ (single stage) or 0.85 (double stage)}} \]

- **Effective inertia**
  \[ \text{Effective inertia} = \text{load inertia} \left(\text{gear ratio}\right)^2 + \text{gearhead inertia} + \text{pinion inertia} \]

  **For very fast response**, the effective inertia should be one to three times larger than the motor inertia (including the pinion).

  **For acceptably fast response**, the effective inertia should be less than ten times larger than the motor inertia (including the pinion).

  $\Delta$ Inertia values shown in this catalog include both the gearhead and pinion values.
How to choose the type of gearhead depends primarily on the application. Some of the factors to be considered to make proper trade-offs between cost and performance are shown below. The hybrid design of planetary and spur gears are not offered by us but are available on the market, and are included for comparison purposes.

<table>
<thead>
<tr>
<th>DESIGN FACTORS</th>
<th>Planetary</th>
<th>Low Cost Planetary</th>
<th>Spur</th>
<th>Hybrid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque Capacity</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Medium limited by spur gear pair strength</td>
</tr>
<tr>
<td>Load Sharing</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Planetary Section Only</td>
</tr>
<tr>
<td>Power to Weight Ratio</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Power to Size Ratio</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Torsional Stiffness</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Backlash</td>
<td>Low 6-10 minutes</td>
<td>Medium 7-14 minutes</td>
<td>High 30 min. max.</td>
<td>Medium</td>
</tr>
<tr>
<td>Available Number of Gear Ratios</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Cost</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
</tr>
</tbody>
</table>
NEMA size gearheads are designed to mate with the motors that conform to the dimensions established by the NATIONAL ELECTRICAL MANUFACTURING ASSOCIATION (NEMA) for stepping motors. These dimensions are given in the table below. For non-NEMA size stepping motors, brushless DC, brush and servo motors, special mounting interfaces may be obtained at nominal charges. Please consult our application engineering department.

### Useful Formulas

The maximum output hp of gearhead

\[ \text{hp of gearhead} = \frac{\text{Maximum continuous torque} \times \text{Maximum rated output rpm}}{63025} \]

The maximum allowable output hp of the motor

\[ \text{hp of the motor} = \frac{\text{The maximum output hp of gearhead}}{0.90 \text{ (single stage)} \text{ or } 0.85 \text{ (double stage)}} \]

Effective inertia

\[ \text{Effective inertia} = \frac{\text{load inertia}}{(\text{gear ratio})^2} + \frac{\text{gearhead inertia}}{\text{pinion inertia}} \]

For very fast response, the effective inertia should be one to three times larger than the motor inertia (including the pinion).

For acceptably fast response, the effective inertia should be three to ten times larger than the motor inertia (including the pinion).
## SELECTION CHART

### NEMA SIZE INLINE PLANETARY GEARHEADS

**PHONE:** 516.328.3300 • **FAX:** 516.326.8827 • **WWW.SDP-SI.COM**

<table>
<thead>
<tr>
<th>NEMA Size</th>
<th>Inline Planetary Gearheads</th>
<th>Hybrid Stepper Motors</th>
<th>Single- or Double-Ended Shafts</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>CG, Compact Series S9117A-CG... (pg. 11-52)</td>
<td>.9° Step Angle S9117MM... (pg. 14-11)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PG, Precision Series, Low Backlash S9117A-PG... (pg. 11-55)</td>
<td>1.8° Step Angle S9117M-...HT (pg. 14-11)</td>
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<tr>
<td></td>
<td>EG, Economy Series, Low Backlash S9117A-EG... (pg. 11-59)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>PRX, Precision Series, Heavy-Duty S9123A-PRX... (pg. 14-47)</td>
<td>80V DC Max. Drive S9123M-...HT... (pg. 14-13)</td>
<td></td>
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<tr>
<td></td>
<td>CG, Compact Series S9123A-CG... (pg. 11-53)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PG, Precision Series, Low Backlash S9123A-PG... (pg. 11-56)</td>
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<td></td>
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<tr>
<td></td>
<td>EG, Economy Series, Low Backlash S9123A-EG... (pg. 11-60)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>T-Series S9123T-... (pg. 11-66)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spur Gearheads (Planetary Gearhead Alternative) Low Cost &amp; Long Life S9123A-SG... (pg. 11-72)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>PRX, Precision Series, Heavy-Duty S9134A-PRX... (pg. 14-40)</td>
<td>160V DC Max. Drive S9134M-... (pg. 14-17)</td>
<td></td>
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<tr>
<td></td>
<td>RTX, Precision Series, Standard-Duty S9134A-RTX... (pg. 14-50)</td>
<td>160V DC Max. Drive, Heavy-Duty S9134M-...HT (pg. 14-19)</td>
<td></td>
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<tr>
<td></td>
<td>CG, Compact Series S9134A-CG... (pg. 11-54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PG, Precision Series, Low Backlash S9134A-PG... (pg. 11-57)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EG, Economy Series, Low Backlash S9134A-EG... (pg. 11-61)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T-Series S9134T-... (pg. 11-66)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Spur Gearheads (Planetary Gearhead Alternative) Low-Cost &amp; Long-Life S9134A-SG... (pg. 11-73)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>PG, Precision Series, Low Backlash S9142A-PG... (pg. 11-58)</td>
<td>160V DC Max. Drive S9142M-... (pg. 14-21)</td>
<td></td>
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<tr>
<td></td>
<td>EG, Economy Series, Low Backlash S9142A-EG... (pg. 11-62)</td>
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<td></td>
<td>T-Series S9142T-... (pg. 11-70)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Spur Gearheads (Planetary Gearhead Alternative) Low-Cost &amp; Long-Life S9142A-SG... (pg. 11-74)</td>
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</tr>
</tbody>
</table>
PRX & RTX PLANETARY GEARHEADS

NEMA Inch: 23 & 34 & Metric: 60 & 90
Radial and Axial Output Shaft Loading Specifications

> PRX TYPE (HEAVY-DUTY)

023/060 PRX Bearing Radial Load Limits

Radial Load (lbf) vs. Load Distance From Mount Face (in.)

034/090 PRX Bearing Radial Load Limits

Radial Load (lbf) vs. Load Distance From Mount Face (in.)

> RTX TYPE (STANDARD-DUTY)

023/060 RTX Bearing Radial Load Limits

Radial Load (lbf) vs. Load Distance From Mount Face (in.)

034/090 RTX Bearing Radial Load Limits

Radial Load (lbf) vs. Load Distance From Mount Face (in.)

The graphs display allowable radial load at a given distance from the gearhead face based on an L10 bearing life of; 20,000 hours (PRX), 15,000 hours (RTX)

KEY

- 50 rpm
- 125 rpm
- 250 rpm
- 500 rpm
- 1000 rpm
- 2000 rpm
PRX PLANETARY GEARHEADS • NEMA SIZE 23

PRECISION SERIES
SINGLE & DOUBLE STAGE
HEAVY-DUTY

MATERIAL:
- Housing: Stainless Steel
- Mounting Flanges: Red Anodized Aluminum (Front), Aluminum (Back)
- Output Shafts: Stainless Steel
- Gears: Alloy and Stainless Steel
- Bearings: Ball and Angular Contact Bearings

FEATURES:
- Standard NEMA sizes
- High torque design with optimized gear geometry
- High torsional stiffness
- Sealed to extend service life
- Captive, bearing supported input pinion
- Simplified quick installation
- Single-piece construction
- Alloy steel square key is supplied

SPECIFICATIONS:
- Max. Input Speed: 6500 rpm
- Shaft Loading:
  - Axial: 500 lbf. Value shown is for loads into the gearhead face. For loads away from the face, reduce by 50%
  - Radial: See graph on page: 11-46
- Min. Efficiency:
  - Single Stage: 95%
  - Double Stage: 90%
- Backlash:
  - Single Stage: 4 arc min.
  - Double Stage: 6 arc min.
- Operating Temperature:
  - -40°F to +250°F
- Weight:
  - Single Stage: 2.8 lb.
  - Double Stage: 3.8 lb.
- Torsional Stiffness:
  - 20 lbf in./arc min.

For NEMA motor mounting dimensions, see page 11-44.

INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max.</th>
<th>Max. Rated Continuous Torque lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Stopping Torque lbf in.</th>
<th>Gearhead Moment of Inertia* ozf in. sec²</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9123A-PRX004</td>
<td>4:1</td>
<td>3.23</td>
<td>420</td>
<td>530</td>
<td>1069</td>
<td>2.190 x 10³</td>
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<tr>
<td>S9123A-PRX005</td>
<td>5:1</td>
<td></td>
<td>360</td>
<td>455</td>
<td>1043</td>
<td>1.887 x 10³</td>
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<tr>
<td>S9123A-PRX007</td>
<td>7:1</td>
<td></td>
<td>350</td>
<td>455</td>
<td>1043</td>
<td>1.583 x 10³</td>
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<tr>
<td>S9123A-PRX010</td>
<td>10:1</td>
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<td>250</td>
<td>315</td>
<td>984</td>
<td>1.061 x 10³</td>
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<tr>
<td>S9123A-PRX016</td>
<td>16:1</td>
<td></td>
<td>165</td>
<td>210</td>
<td>720</td>
<td>1.547 x 10³</td>
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<tr>
<td>S9123A-PRX020</td>
<td>20:1</td>
<td></td>
<td>420</td>
<td>530</td>
<td>1069</td>
<td>1.852 x 10³</td>
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<tr>
<td>S9123A-PRX025</td>
<td>25:1</td>
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<td>420</td>
<td>530</td>
<td>1069</td>
<td>1.567 x 10³</td>
</tr>
<tr>
<td>S9123A-PRX028</td>
<td>28:1</td>
<td></td>
<td>360</td>
<td>455</td>
<td>1043</td>
<td>1.659 x 10³</td>
</tr>
<tr>
<td>S9123A-PRX035</td>
<td>35:1</td>
<td></td>
<td>360</td>
<td>455</td>
<td>1043</td>
<td>1.548 x 10³</td>
</tr>
<tr>
<td>S9123A-PRX040</td>
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<td></td>
<td>420</td>
<td>530</td>
<td>1069</td>
<td>1.551 x 10³</td>
</tr>
<tr>
<td>S9123A-PRX050</td>
<td>50:1</td>
<td></td>
<td>360</td>
<td>455</td>
<td>1043</td>
<td>1.548 x 10³</td>
</tr>
<tr>
<td>S9123A-PRX070</td>
<td>70:1</td>
<td></td>
<td>286</td>
<td>360</td>
<td>964</td>
<td>1.493 x 10³</td>
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<tr>
<td>S9123A-PRX100</td>
<td>100:1</td>
<td></td>
<td>192</td>
<td>241</td>
<td>720</td>
<td>1.488 x 10³</td>
</tr>
</tbody>
</table>

* Values shown include pinion, clamp and sleeve and are for standard NEMA mountings. Efficiency rated at 3000 rpm input speed, at nominal rated torque. All torque ratings are based upon 3000 rpm nominal input speed and 20,000 hours minimum service life.
PRX PLANETARY GEARHEADS • NEMA SIZE 34

PRECISION SERIES
SINGLE & DOUBLE STAGE
HEAVY-DUTY

› MATERIAL:
  Housing - Stainless Steel
  Mounting Flanges - Red Anodized Aluminum (Front)
  Aluminum (Back)
  Output Shafts - Stainless Steel
  Gears - Alloy and Stainless Steel
  Bearings - Ball and Angular Contact Bearings

› FEATURES:
  Standard NEMA sizes.
  High torque design with optimized gear geometry.
  High torsional stiffness.
  Sealed to extend service life.
  Captive, bearing supported input pinion.
  Simplified quick installation.
  Single-piece construction.
  Alloy steel square key is supplied.

› SPECIFICATIONS:
  Max. Input Speed: 6500 rpm
  Shaft Loading:
    Axial: 750 lb. Value shown is for loads into the gearhead face. For loads away from the face, reduce by 50%
    Radial: See graph on page: 11-46
  Min. Efficiency:
    Single Stage: 95%
    Double Stage: 90%
  Backlash:
    Single Stage: 4 arc min.
    Double Stage: 6 arc min.
  Operating Temperature:
    -40°F to +250°F
  Weight:
    Single Stage: 9.1 lb.
    Double Stage: 12.7 lb.
  Torsional Stiffness:
    80 lbf in./arc min.

INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L</th>
<th>Max. Rated Continuous Torque lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Stopping Torque lbf in.</th>
<th>Gearhead Moment of Inertia* ozf in. sec²</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9134A-PRX004</td>
<td>4:1</td>
<td>4.73 Single Stage</td>
<td>1487</td>
<td>1874</td>
<td>3548</td>
<td>1.554 x 10⁻²</td>
</tr>
<tr>
<td>S9134A-PRX005</td>
<td>5:1</td>
<td></td>
<td>1328</td>
<td>1674</td>
<td>3481</td>
<td>1.310 x 10⁻²</td>
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<tr>
<td>S9134A-PRX007</td>
<td>7:1</td>
<td></td>
<td>895</td>
<td>1128</td>
<td>2954</td>
<td>1.117 x 10⁻²</td>
</tr>
<tr>
<td>S9134A-PRX010</td>
<td>10:1</td>
<td></td>
<td>580</td>
<td>722</td>
<td>2564</td>
<td>1.018 x 10⁻²</td>
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<tr>
<td>S9134A-PRX016</td>
<td>16:1</td>
<td></td>
<td>1487</td>
<td>1874</td>
<td>3548</td>
<td>1.303 x 10⁻²</td>
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<tr>
<td>S9134A-PRX020</td>
<td>20:1</td>
<td>6.50 Double Stage</td>
<td>1487</td>
<td>1874</td>
<td>3548</td>
<td>1.149 x 10⁻²</td>
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<tr>
<td>S9134A-PRX025</td>
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<td></td>
<td>1328</td>
<td>1674</td>
<td>3481</td>
<td>1.139 x 10⁻²</td>
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<td>S9134A-PRX028</td>
<td>28:1</td>
<td></td>
<td>1487</td>
<td>1874</td>
<td>3548</td>
<td>1.036 x 10⁻²</td>
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<tr>
<td>S9134A-PRX035</td>
<td>35:1</td>
<td></td>
<td>1328</td>
<td>1674</td>
<td>3481</td>
<td>1.030 x 10⁻²</td>
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<tr>
<td>S9134A-PRX040</td>
<td>40:1</td>
<td></td>
<td>1487</td>
<td>1874</td>
<td>3548</td>
<td>9.778 x 10⁻³</td>
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<tr>
<td>S9134A-PRX050</td>
<td>50:1</td>
<td></td>
<td>1328</td>
<td>1674</td>
<td>3481</td>
<td>9.753 x 10⁻³</td>
</tr>
<tr>
<td>S9134A-PRX070</td>
<td>70:1</td>
<td></td>
<td>1029</td>
<td>1297</td>
<td>2954</td>
<td>9.734 x 10⁻³</td>
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<td>S9134A-PRX100</td>
<td>100:1</td>
<td></td>
<td>674</td>
<td>849</td>
<td>2564</td>
<td>9.724 x 10⁻³</td>
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* Values shown include pinion, clamp and sleeve and are for standard NEMA mountings. Efficiency rated at 3000 rpm input speed, at nominal rated torque. All torque ratings are based upon 3000 rpm nominal input speed and 20,000 hours minimum service life.
RTX PLANETARY GEARHEADS • NEMA SIZE 23

PRECISION SERIES
SINGLE, DOUBLE & TRIPLE STAGE
STANDARD-DUTY

▶ MATERIAL:
- Housing: Stainless Steel
- Mounting Flanges: Red Anodized Aluminum (Front)
  Aluminum (Back)
- Output Shafts: Stainless Steel
- Gears: Alloy and Stainless Steel
- Bearings: Ball, High Strength Steel

▶ FEATURES:
- Standard NEMA sizes.
- High torque design with optimized gear geometry.
- High torsional stiffness.
- Sealed to extend service life.
- Captive, bearing supported input pinion.
- Simplified quick installation.
- Single-piece construction.
- Alloy steel square key is supplied.

▶ SPECIFICATIONS:
- Max. Input Speed: 6500 rpm
- Shaft Loading:
  - Axial: 350 lbf. Value shown is for loads into the gearhead face. For loads away from the face, reduce by 50%
  - Radial: See graph on page: 11-46
- Min. Efficiency:
  - Single Stage: 95%
  - Double Stage: 90%
  - Triple Stage: 85%
- Backlash:
  - Single Stage: 4 arc min.
  - Double Stage: 6 arc min.
  - Triple Stage: 8 arc min.
- Operating Temperature: -40°F to +250°F
- Weight:
  - Single Stage: 3.3 lb.
  - Double Stage: 3.9 lb.
  - Triple Stage: 4.7 lb.
- Torsional Stiffness: 15 lbf in./arc min.

**INCH COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>Max. Rated Continuous Torque lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Stopping Torque lbf in.</th>
<th>Gearhead Moment of Inertia* ozf in. sec²</th>
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<tbody>
<tr>
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<td>395 468 947 1.861 x 10⁻³</td>
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<tr>
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<tr>
<td>S9123A-RTX400</td>
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<td>395 468 947 1.435 x 10⁻³</td>
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<td>S9123A-RTX500</td>
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<td>340 400 926 1.435 x 10⁻³</td>
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<td>S9123A-RTX700</td>
<td>700:1</td>
<td>265 320 861 1.435 x 10⁻³</td>
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</tbody>
</table>

* Values shown include pinion, clamp and sleeve and are for standard NEMA mountings. Efficiency rated at 3000 rpm input speed, at nominal rated torque. All torque ratings are based upon 3000 rpm nominal input speed and 15,000 hours minimum service life.
**PRECISION SERIES**  
**SINGLE, DOUBLE & TRIPLE STAGE**  
**STANDARD-DUTY**

**MATERIAL:**
- **Housing:** Stainless Steel  
- **Mounting Flanges:** Red Anodized Aluminum (Front)  
  Aluminum (Back)
- **Output Shafts:** Stainless Steel  
- **Gears:** Alloy and Stainless Steel  
- **Bearings:** Ball, High Strength Steel

**FEATURES:**
- Standard NEMA sizes.
- High torque design with optimized gear geometry.
- High torsional stiffness.
- Sealed to extend service life.
- Captive, bearing supported input pinion.
- Simplified quick installation.
- Single-piece construction.
  - Alloy steel square key is supplied.

**SPECIFICATIONS:**
- **Max. Input Speed:** 6500 rpm
- **Shaft Loading:**
  - Axial: 550 lbf. Value shown is for loads into the gearhead face. For loads away from the face, reduce by 50%
  - Radial: See graph on page 11-46
- **Min. Efficiency:**
  - Single Stage: 95%
  - Double Stage: 90%
  - Triple Stage: 85%
- **Backlash:**
  - Single Stage: 4 arc min.
  - Double Stage: 6 arc min.
  - Triple Stage: 8 arc min.
- **Operating Temperature:** -40°F to +250°F
- **Weight:**
  - Single Stage: 9.6 lb.
  - Double Stage: 13 lb.
  - Triple Stage: 16.3 lb.
- **Torsional Stiffness:**
  - 70 lbf in./arc min.

![RTX PLANETARY GEARHEADS • NEMA SIZE 34](Image)

**INCH COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max.</th>
<th>Max. Rated Continuous Torque lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Stopping Torque lbf in.</th>
<th>Gearhead Moment of Inertia* ozf in. sec²</th>
</tr>
</thead>
<tbody>
<tr>
<td>S913A-RTX004</td>
<td>4:1</td>
<td>4.82</td>
<td>1452</td>
<td>1829</td>
<td>3473</td>
<td>1.295 x 10⁻²</td>
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<tr>
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<td>1274</td>
<td>1605</td>
<td>3316</td>
<td>1.119 x 10⁻²</td>
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<tr>
<td>S913A-RTX007</td>
<td>7:1</td>
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<td>863</td>
<td>1088</td>
<td>2621</td>
<td>9.398 x 10⁻³</td>
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<tr>
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<td>559</td>
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<td></td>
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<td>1829</td>
<td>3473</td>
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<td>3316</td>
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<td>9.344 x 10⁻³</td>
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<td>1274</td>
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<td>3316</td>
<td>8.526 x 10⁻³</td>
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<tr>
<td>S913A-RTX070</td>
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<td>993</td>
<td>1251</td>
<td>2821</td>
<td>8.912 x 10⁻³</td>
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<tr>
<td>S913A-RTX100</td>
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<td></td>
<td>642</td>
<td>810</td>
<td>2456</td>
<td>8.920 x 10⁻³</td>
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<tr>
<td>S913A-RTX160</td>
<td>160:1</td>
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<td>1452</td>
<td>1829</td>
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<td>8.934 x 10⁻³</td>
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<tr>
<td>S913A-RTX280</td>
<td>280:1</td>
<td></td>
<td>1452</td>
<td>1829</td>
<td>3473</td>
<td>8.909 x 10⁻³</td>
</tr>
<tr>
<td>S913A-RTX400</td>
<td>400:1</td>
<td></td>
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<td>1829</td>
<td>3473</td>
<td>8.919 x 10⁻³</td>
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<tr>
<td>S913A-RTX500</td>
<td>500:1</td>
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<td>1274</td>
<td>1605</td>
<td>3316</td>
<td>8.919 x 10⁻³</td>
</tr>
<tr>
<td>S913A-RTX700</td>
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<td>993</td>
<td>1251</td>
<td>2821</td>
<td>8.918 x 10⁻³</td>
</tr>
</tbody>
</table>

*Values shown include pinion, clamp and sleeve and are for standard NEMA mountings. Efficiency rated at 3000 rpm input speed, at nominal rated torque. All torque ratings are based upon 3000 rpm nominal input speed and 15,000 hours minimum service life.
Allowable radial load as a function of speed and load distance from mount face based on life of 10,000 hours.

Allowable axial load as a function of output shaft rpm.
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16

**CG PLANETARY GEARHEADS • NEMA SIZE 17**

**SINGLE AND DOUBLE STAGE COMPACT SERIES**

**MATERIAL:**
- Housing - Steel, Black Zinc Plated
- Mounting Flanges - Aluminum
- Output Shaft - Stainless Steel
- Gears - Steel, Case-Hardened
- Bearings - Ball Bearings

**OPERATING TEMPERATURE:**
-40°F to +250°F

**FEATURES:**
- True planetary system.
- NEMA mounting standards.
- Low start-up torque.
- Sealed high strength steel ball bearings.
- Woodruff key #404 and motor mounting hardware kit supplied.

**SPECIFICATIONS:**
- Max. Input Speed: 5000 rpm
- Shaft Loading - Radial: See Graph on Page: 11-51
- Axial: See Graph on Page: 11-51
- Min. Efficiency - Single Stage: 90%
  - Double Stage: 85%
- Efficiency rated at 3,000 rpm input speed, at nominal rated torque.
- Max. Backlash - Single Stage: 12 arc min.
  - Double Stage: 16 arc min.

**WEIGHT:**
- Single Stage: .8 lb.
- Double Stage: 1.1 lb.

Metric motor mounting available on special order.

**INCH COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>Nominal Rated Torque* lbf in.</th>
<th>Acceleration Torque lbf in.</th>
<th>Stall Torque** lbf in.</th>
<th>Max. Rated Output rpm (5000 rpm Input)</th>
<th>Moment of Inertia ozf in. sec²</th>
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</thead>
<tbody>
<tr>
<td>S9117A-CG004</td>
<td>4:1</td>
<td>2.41</td>
<td>109</td>
<td>137</td>
<td>221</td>
<td>1250</td>
<td>2.331 x 10⁴</td>
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<tr>
<td>S9117A-CG005</td>
<td>5:1</td>
<td>2.41</td>
<td>103</td>
<td>130</td>
<td>210</td>
<td>1000</td>
<td>1.895 x 10⁴</td>
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<tr>
<td>S9117A-CG007</td>
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<td>90</td>
<td>113</td>
<td>183</td>
<td>714</td>
<td>1.566 x 10⁴</td>
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<tr>
<td>S9117A-CG010</td>
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<td>81</td>
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<td>138</td>
<td>224</td>
<td>333</td>
<td>3.696 x 10⁴</td>
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<td>120</td>
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<td>244</td>
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<td>121</td>
<td>153</td>
<td>248</td>
<td>178</td>
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<td>124</td>
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<td>117</td>
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<td>237</td>
<td>100</td>
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<td>81</td>
<td>102</td>
<td>153</td>
<td>50</td>
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* All Torque ratings are based on 3,000 rpm nominal input speed, and a Minimum Life of 10,000 hours.

** Stall torque rating is limited to 1,000 occurrences.
INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>Nominal Rated Torque* lbf in.</th>
<th>Acceleration Torque lbf in.</th>
<th>Stall Torque** lbf in.</th>
<th>Max. Rated Output rpm (5000 rpm Input)</th>
<th>Moment of Inertia ozf in. sec²</th>
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</thead>
<tbody>
<tr>
<td>S9123A-CG004</td>
<td>4:1</td>
<td>2.46</td>
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<td>253</td>
<td>409</td>
<td>1250</td>
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<td>5:1</td>
<td>Single</td>
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<td>248</td>
<td>400</td>
<td>1000</td>
<td>1.202 x 10⁻⁶</td>
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<tr>
<td>S9123A-CG007</td>
<td>7.1</td>
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<td>201</td>
<td>325</td>
<td>714</td>
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<td>210</td>
<td>265</td>
<td>428</td>
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<td>1061 x 10⁻⁶</td>
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<tr>
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<td>1033 x 10⁻⁶</td>
<td>1.113 x 10⁻⁶</td>
</tr>
<tr>
<td>S9123A-CG020</td>
<td>20:1</td>
<td>221</td>
<td>279</td>
<td>451</td>
<td>250</td>
<td>1083 x 10⁻⁶</td>
<td>1.208 x 10⁻⁶</td>
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<tr>
<td>S9123A-CG025</td>
<td>25:1</td>
<td>225</td>
<td>284</td>
<td>459</td>
<td>178</td>
<td>1060 x 10⁻⁶</td>
<td>1.208 x 10⁻⁶</td>
</tr>
<tr>
<td>S9123A-CG028</td>
<td>28:1</td>
<td>229</td>
<td>289</td>
<td>467</td>
<td>125</td>
<td>1052 x 10⁻⁶</td>
<td>1.062 x 10⁻⁶</td>
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<td>40:1</td>
<td>Double</td>
<td>232</td>
<td>281</td>
<td>454</td>
<td>100</td>
<td>1.061 x 10⁻⁶</td>
</tr>
<tr>
<td>S9123A-CG050</td>
<td>50:1</td>
<td>Double</td>
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<td>281</td>
<td>454</td>
<td>100</td>
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<td>1060 x 10⁻⁶</td>
<td>1.060 x 10⁻⁶</td>
</tr>
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<td>177</td>
<td>285</td>
<td>50</td>
<td>1060 x 10⁻⁶</td>
<td>1.060 x 10⁻⁶</td>
</tr>
</tbody>
</table>

* All Torque ratings are based on 3,000 rpm nominal input speed, and a Minimum Life of 10,000 hours.
** Stall torque rating is limited to 1,000 occurrences.
## CG PLANETARY GEARHEADS • NEMA SIZE 34

### SINGLE AND DOUBLE STAGE

**COMPACT SERIES**

#### MATERIAL:
- **Housing**: Steel, Black Zinc Plated
- **Mounting Flanges**: Aluminum
- **Output Shaft**: Stainless Steel
- **Gears**: Steel, Case-Hardened
- **Bearings**: Ball Bearings, High Strength Steel

#### OPERATING TEMPERATURE:
- 

#### FEATURES:
- True planetary system.
- NEMA mounting standards.
- Low start-up torque.
- Sealed high strength steel ball bearings.
- Woodruff key #606 and motor mounting hardware kit supplied.

#### SPECIFICATIONS:
- **Max. Input Speed**: 5000 rpm
- **Shaft Loading - Radial**: See Graph on Page: 11-51
- **Axial**: See Graph on Page: 11-51
- **Min. Efficiency - Single Stage**: 90%
  - **Double Stage**: 85%
  - Efficiency rated at 3,000 rpm input speed, at nominal rated torque.
- **Max. Backlash - Single Stage**: 12 arc min.
  - **Double Stage**: 16 arc min.

#### WEIGHT:
- **Single Stage**: 5.0 lb.
- **Double Stage**: 6.0 lb.

Metric mounting available on special order.

### INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>Nominal Rated Torque* lbf in.</th>
<th>Acceleration Torque lbf in.</th>
<th>Stall Torque** lbf in.</th>
<th>Max. Rated Output rpm (5000 rpm Input)</th>
<th>Moment of Inertia ozf in. sec²</th>
</tr>
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<tbody>
<tr>
<td>S913A-CG004</td>
<td>4:1</td>
<td>3.33 Single Stage</td>
<td>744</td>
<td>937</td>
<td>1515</td>
<td>1250</td>
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<td>884</td>
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<td>1539</td>
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<td>200</td>
<td>3.569 x 10⁻³</td>
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<tr>
<td>S913A-CG030</td>
<td>28:1</td>
<td>3.33 Single Stage</td>
<td>845</td>
<td>1065</td>
<td>1721</td>
<td>178</td>
<td>2.782 x 10⁻³</td>
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<td>S913A-CG040</td>
<td>40:1</td>
<td>3.33 Single Stage</td>
<td>861</td>
<td>1085</td>
<td>1754</td>
<td>125</td>
<td>2.349 x 10⁻³</td>
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<td>50:1</td>
<td>3.33 Single Stage</td>
<td>806</td>
<td>1016</td>
<td>1642</td>
<td>100</td>
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<td>753</td>
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<td>50</td>
<td>2.326 x 10⁻³</td>
</tr>
</tbody>
</table>

* All Torque ratings are based on 3,000 rpm nominal input speed, and a Minimum Life of 10,000 hours.
** Stall torque rating is limited to 1,000 occurrences.

Inch component diagram with dimensions and part numbers:

- **Catalog Number**: 0.220 (4 HOLES)
- **EQ. SP. ON A Ø3.875 B.C.
- **Ø4.63
- **L
- **Ø2.875 *.000 - .002
- **.094
- **.66
- **.312
- **Ø .7500
- **.7495
- **.312
- **Ø 2.877 x .150 DP.

For NEMA motor mounting dimensions, see page 11-44.
**PG PLANETARY GEARHEADS • NEMA SIZE 17**

**SINGLE AND DOUBLE STAGE PRECISION SERIES LOW BACKLASH DESIGN**

**MATERIAL:**
- Housing - Stainless Steel
- Mounting Flanges - Aluminum, Black Anodized
- Output Shaft - Stainless Steel
- Gears - Steel, Case-Hardened
- Bearings - Ball Bearings, High Strength Steel

**OPERATING TEMPERATURE:**
-40°F to +255°F

**FEATURES:**
- True planetary system.
- Standard NEMA sizes.
- High torsional stiffness.
- Sealed to extend service life.
- Includes a precision balanced clamp-on pinion.
- Woodruff key #404 and motor mounting hardware kit supplied.

**SPECIFICATIONS:**
- Max. Input Speed: 6500 rpm
- Shaft Loading - Radial: 125 lbf
  - Axial: 75 lbf
- Min. Efficiency - Single Stage: 90%
  - Double Stage: 85%
- Max. Backlash - Single Stage: 6 arc min.
  - Double Stage: 10 arc min.
- Lower backlash units available on special order.
- Single Stage: 3 arc min.
  - Double Stage: 5 arc min.

**WEIGHT:**
- Single Stage: 1.0 lb.
- Double Stage: 1.6 lb.

Triple stage gearheads are available on special order for gear ratios of 160, 280, 400, 550 and 700 to 1. Other mounting interfaces are available on special order.

### INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>Max. Rated Continuous Torque* lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (6500 rpm Input)</th>
<th>Inertia Gearhead ozf in. sec²</th>
<th>Inertia Input Pinion ozf in. sec²</th>
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<td>3:1</td>
<td>2.62 Single Stage</td>
<td>167</td>
<td>261</td>
<td>2166</td>
<td>1.669 x 10⁴</td>
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<tr>
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<td>158</td>
<td>248</td>
<td>1625</td>
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<td>1.352 x 10⁴</td>
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<tr>
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<td></td>
<td>143</td>
<td>223</td>
<td>1182</td>
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<td>1.174 x 10⁴</td>
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<td>119</td>
<td>158</td>
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<td>3.692 x 10⁴</td>
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<td>169</td>
<td>264</td>
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<td>1.143 x 10⁴</td>
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<td></td>
<td>174</td>
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<td>1.821 x 10⁴</td>
<td>1.132 x 10⁴</td>
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<td>128</td>
<td>201</td>
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<td>1.132 x 10⁴</td>
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<td>S9117A-PG100</td>
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<td>52</td>
<td>77</td>
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<td>1.708 x 10⁴</td>
<td>1.132 x 10⁴</td>
</tr>
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</table>

* Maximum Rated Continuous torque is rated at 3,000 rpm, and a Minimum Life of 10,000 hours.
Inch COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>Max. Rated Cont. Torque* lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (6500 rpm Input) ozf in. sec²</th>
<th>Inertia Gearhead ozf in. sec²</th>
<th>Inertia Input Pinion ozf in. sec²</th>
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</thead>
<tbody>
<tr>
<td>S912A-PG003</td>
<td>3:1</td>
<td>380</td>
<td>594</td>
<td>2166</td>
<td>4.866 x 10⁴</td>
<td>1.194 x 10³</td>
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<tr>
<td>S912A-PG004</td>
<td>4:1</td>
<td>360</td>
<td>562</td>
<td>1625</td>
<td>3.113 x 10⁴</td>
<td>9.502 x 10⁴</td>
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<td>S912A-PG005H</td>
<td>5.5:1</td>
<td>317</td>
<td>496</td>
<td>1182</td>
<td>1.746 x 10⁴</td>
<td>8.969 x 10⁴</td>
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<tr>
<td>S912A-PG007</td>
<td>7:1</td>
<td>263</td>
<td>411</td>
<td>928</td>
<td>1.100 x 10⁴</td>
<td>8.880 x 10⁴</td>
</tr>
<tr>
<td>S912A-PG010</td>
<td>10:1</td>
<td>119</td>
<td>179</td>
<td>650</td>
<td>5.471 x 10⁴</td>
<td>8.846 x 10⁴</td>
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<tr>
<td>S912A-PG016</td>
<td>16:1</td>
<td>376</td>
<td>587</td>
<td>406</td>
<td>3.287 x 10⁴</td>
<td>9.502 x 10⁴</td>
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<tr>
<td>S912A-PG022</td>
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<td>594</td>
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<td>8.969 x 10⁴</td>
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<td>232</td>
<td>1.157 x 10⁵</td>
<td>8.880 x 10⁴</td>
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<td>8.846 x 10⁴</td>
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<td>8.880 x 10⁴</td>
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<td>S912A-PG055</td>
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<td>542</td>
<td>118</td>
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<td>8.846 x 10⁴</td>
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<td>164</td>
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<td>5.393 x 10⁵</td>
<td>8.846 x 10⁴</td>
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</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
**PG PLANETARY GEARHEADS • NEMA SIZE 34**

**SINGLE AND DOUBLE STAGE**
**PRECISION SERIES**
**LOW BACKLASH DESIGN**

> **MATERIAL:**
  - Housing - Stainless Steel
  - Mounting Flanges - Aluminum, Black Anodized
  - Output Shaft - Stainless Steel
  - Gears - Steel, Case-Hardened
  - Bearings - Ball Bearings, High Strength Steel

> **OPERATING TEMPERATURE:**
  - -40°F to +255°F

> **FEATURES:**
  - True planetary system.
  - Standard NEMA sizes.
  - High torsional stiffness.
  - Sealed to extend service life.
  - Includes a precision balanced clamp-on pinion.
  - Woodruff key #606 and motor mounting hardware kit supplied.

> **SPECIFICATIONS:**
  - Max. Input Speed: 6500 rpm
  - Shaft Loading - Radial: 900 lbf
    - Axial: 900 lbf
  - Min. Efficiency - Single Stage: 90%
    - Double Stage: 85%
  - Max. Backlash - Single Stage: 6 arc min.
    - Double Stage: 10 arc min.
  - Lower backlash units available on special order.
  - Single Stage: 3 arc min.
  - Double Stage: 5 arc min.

> **WEIGHT:**
  - Single Stage: 7 lb.
  - Double Stage: 8 lb.

Non-NEMA size mounting interfaces are available on special order.
To mate with D50R10-06.., motor requires nonstandard pinion (1/2 inch bore). Add "SP" to the part number when ordering.

### INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>Max. Rated Continuous Torque* lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (6500 rpm Input)</th>
<th>Inertia Gearhead oz in. sec²</th>
<th>Inertia Input Pinion oz in. sec²</th>
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</thead>
<tbody>
<tr>
<td>S9134A-PG003</td>
<td>3:1</td>
<td>4.19</td>
<td>1285</td>
<td>2008</td>
<td>2166</td>
<td>4.672 x 10⁻³</td>
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<tr>
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<td>1219</td>
<td>1905</td>
<td>1625</td>
<td>2.833 x 10⁻³</td>
<td>2.522 x 10⁻³</td>
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<tr>
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<td>1113</td>
<td>1740</td>
<td>1182</td>
<td>1.585 x 10⁻³</td>
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<tr>
<td>S9134A-PG007</td>
<td>7:1</td>
<td>5.31</td>
<td>935</td>
<td>1461</td>
<td>928</td>
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<td>1.955 x 10⁻³</td>
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<tr>
<td>S9134A-PG010</td>
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<td>650</td>
<td>4.961 x 10⁻⁴</td>
<td>1.923 x 10⁻³</td>
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<tr>
<td>S9134A-PG016</td>
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<td>1333</td>
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<td>2.040 x 10⁻³</td>
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<tr>
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<tr>
<td>S9134A-PG040</td>
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<td>1925</td>
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<td>1.923 x 10⁻³</td>
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</table>

* Maximum Rated Continuous torque is rated at 3,000 rpm, and a Minimum Life of 10,000 hours.
Triple stage gearheads are available on special order for gear ratios of 160, 280, 400, 550 and 700 to 1.
PG PLANETARY GEARHEADS • NEMA SIZE 42

SINGLE AND DOUBLE STAGE PRECISION SERIES
LOW BACKLASH DESIGN

› MATERIAL:
Housing - Stainless Steel
Mounting Flanges - Aluminum, Black Anodized
Output Shaft - Stainless Steel
Gears - Steel, Case-Hardened
Bearings - Ball Bearings, High Strength Steel

› OPERATING TEMPERATURE:
-40°F to +255°F

› FEATURES:
True planetary system.
Standard NEMA sizes.
High torsional stiffness.
Sealed to extend service life.
Includes a precision balanced clamp-on pinion.
Woodruff key #808 and motor mounting hardware kit supplied.

› SPECIFICATIONS:
Max. Input Speed: 6500 rpm
Shaft Loading - Radial: 1400 lbf
Axial: 1400 lbf
Min. Efficiency - Single Stage: 90%
Double Stage: 85%
Max. Backlash - Single Stage: 6 arc min.
Double Stage: 10 arc min.
Lower Backlash units available on special order.
Single Stage: 3 arc min.
Double Stage: 5 arc min.

› WEIGHT:
Single Stage: 11.5 lb.
Double Stage: 18 lb.
Non-NEMA size mounting interfaces are available on special order.
Triple Stage gearheads are available on special order for gear ratios of 160, 280, 400, 550 and 700 to 1.

INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>Max. Rated Cont. Torque* lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (6500 rpm Input)</th>
<th>Inertia Gearhead ozf in. sec²</th>
<th>Inertia Input Pinion ozf in. sec²</th>
</tr>
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<tbody>
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<td>3:1</td>
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<td>65</td>
<td>1.823 x 10⁻³</td>
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* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
EG PLANETARY GEARHEADS • NEMA SIZE 17

SINGLE AND DOUBLE STAGE
ECONOMY SERIES
LOW BACKLASH

> MATERIAL:
  - Housing - Steel, Gold Zinc Plated
  - Mounting Flanges - Aluminum, Black Anodized
  - Output Shaft - Stainless Steel
  - Gears - Steel, Case-Hardened
  - Bearings - Ball Bearings, High Strength Steel

> OPERATING TEMPERATURE:
-40°F to +255°F

> FEATURES:
  True planetary system.
  Standard NEMA sizes.
  Includes a precision balanced clamp-on pinion.
  Woodruff key #404 and motor mounting hardware kit supplied.

> SPECIFICATIONS:
  - Max. Input Speed: 5000 rpm
  - Shaft Loading - Radial: 125 lbf
    Axial: 75 lbf
  - Min. Efficiency - Single Stage: 90%
    Double Stage: 85%
  - Max. Backlash - Single Stage: 10 arc min.
    Double Stage: 14 arc min.
  - Lower Backlash units available on special order.
  - Single Stage: Max. Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.

> WEIGHT:
  - Single Stage: 1 lb.
  - Double Stage: 1.6 lb.

Non-NEMA size mounting interfaces are available on special order.

### INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>Max. Rated Cont. Torque* lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (5000 rpm Input)</th>
<th>Inertia Gearhead ozf in. sec²</th>
<th>Inertia Input Pinion ozf in. sec²</th>
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<tr>
<td>S9117A-EG003</td>
<td>3:1</td>
<td>2.66 Stage</td>
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<td>77</td>
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<td>1.132 x 10⁵</td>
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</tbody>
</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
EG PLANETARY GEARHEADS • NEMA SIZE 23

SINGLE AND DOUBLE STAGE ECONOMY SERIES
LOW BACKLASH DESIGN

› MATERIAL:
  Housing - Steel, Gold Zinc Plated
  Mounting Flanges - Aluminum, Black Anodized
  Output Shaft - Stainless Steel
  Gears - Steel, Case-Hardened
  Bearings - Ball Bearings, High Strength Steel

› OPERATING TEMPERATURE:
  -40°F to +255°F

› FEATURES:
  True planetary system.
  Standard NEMA sizes.
  Includes a precision balanced clamp-on pinion.
  Woodruff key #404 and motor mounting hardware kit supplied.

› SPECIFICATIONS:
  Max. Input Speed: 5000 rpm
  Shaft Loading - Radial: 600 lbf
    Axial: 600 lbf
  Min. Efficiency - Single Stage: 90%
    Double Stage: 85%
  Max. Backlash - Single Stage: 10 arc min.
    Double Stage: 14 arc min.
  Lower Backlash units available on special order.
  Single Stage: 7 arc min.
    Double Stage: 9 arc min.

› WEIGHT:
  Single Stage: 2 lb.
  Double Stage: 3 lb.

Non-NEMA size mounting interfaces are available on special order.

**INCH COMPONENT**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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<tr>
<td>S9123A-EG003</td>
<td>3:1</td>
<td>3.06 Single Stage</td>
<td>285</td>
<td>396</td>
<td>1666</td>
<td>4.866 x 10⁴</td>
<td>1.194 x 10⁻³</td>
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<td>3.06 Single Stage</td>
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<td>366</td>
<td>1250</td>
<td>3.113 x 10⁴</td>
<td>9.502 x 10⁻⁴</td>
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<tr>
<td>S9123A-EG005H</td>
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<td>238</td>
<td>330</td>
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<td>1.746 x 10⁴</td>
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<tr>
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<td>274</td>
<td>714</td>
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<td>8.880 x 10⁻⁴</td>
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<td>9.502 x 10⁻⁴</td>
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<tr>
<td>S9123A-EG016</td>
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<td>391</td>
<td>312</td>
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<td>396</td>
<td>227</td>
<td>1.838 x 10⁵</td>
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<tr>
<td>S9123A-EG028</td>
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<td>3.06 Single Stage</td>
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<td>400</td>
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<tr>
<td>S9123A-EG040</td>
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<td>49:1</td>
<td>3.06 Single Stage</td>
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<td>215</td>
<td>298</td>
<td>71</td>
<td>5.460 x 10⁵</td>
<td>8.846 x 10⁻⁴</td>
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<td>100:1</td>
<td>3.06 Single Stage</td>
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<td>50</td>
<td>5.393 x 10⁵</td>
<td>8.846 x 10⁻⁴</td>
</tr>
</tbody>
</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
### EG PLANETARY GEARHEADS • NEMA SIZE 34

**SINGLE AND DOUBLE STAGE**  
**ECONOMY SERIES**  
**LOW BACKLASH DESIGN**

#### MATERIAL:
- **Housing:** Steel, Gold Zinc Plated  
- **Mounting Flanges:** Aluminum, Black Anodized  
- **Output Shaft:** Stainless Steel  
- **Gears:** Steel, Case-Hardened  
- **Bearings:** Ball Bearings, High Strength Steel

#### OPERATING TEMPERATURE:
- -40°F to +255°F

#### FEATURES:
- True planetary system.  
- Standard NEMA sizes.  
- Includes a precision balanced clamp-on pinion.  
- Woodruff key #606 and motor mounting hardware kit supplied.

#### SPECIFICATIONS:
- **Max. Input Speed:** 5000 rpm  
- **Shaft Loading - Radial:** 900 lbf  
- **Axial:** 900 lbf  
- **Min. Efficiency - Single Stage:** 90%  
- **Double Stage:** 85%  
- **Max. Backlash - Single Stage:** 10 arc min.  
- **Double Stage:** 14 arc min.  
  - Lower backlash units available on special order.  
  - Single Stage: 7 arc min.  
  - Double Stage: 9 arc min.

#### WEIGHT:
- **Single Stage:** 7 lb.  
- **Double Stage:** 8 lb.  

Non-NEMA size mounting interfaces are available on special order.  
To mate with D50R10-06, motor requires nonstandard pinion (1/2 inch bore).  
Add "SP" to the part number when ordering.

#### INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>Max. Continuous Torque* lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (5000 rpm Input)</th>
<th>Max. Gearhead Inertia ozf in. sec²</th>
<th>Inertia Input Pinion ozf in. sec²</th>
</tr>
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<tbody>
<tr>
<td>S9134A-EG003</td>
<td>3:1</td>
<td>964</td>
<td>1339</td>
<td>1666</td>
<td>4.672 x 10⁻³</td>
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<tr>
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<td>4:1</td>
<td>914</td>
<td>1270</td>
<td>1250</td>
<td>2.833 x 10⁻³</td>
<td>2.522 x 10⁻³</td>
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<tr>
<td>S9134A-EG005H</td>
<td>5.5:1</td>
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<td>1160</td>
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<tr>
<td>S9134A-EG007</td>
<td>7:1</td>
<td>701</td>
<td>934</td>
<td>714</td>
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<td>1.955 x 10⁻⁴</td>
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<tr>
<td>S9134A-EG010</td>
<td>10:1</td>
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<td>704</td>
<td>500</td>
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<tr>
<td>S9134A-EG016</td>
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<td>S9134A-EG028</td>
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<td>1.923 x 10⁻³</td>
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<td>1.923 x 10⁻³</td>
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</table>

* Maximum Rated Continuous torque is rated at 3,000 rpm, and a Minimum Life of 10,000 hours.
**EG PLANETARY GEARHEADS • NEMA SIZE 42**

SINGLE AND DOUBLE STAGE
ECONOMY SERIES
LOW BACKLASH DESIGN

**MATERIAL:**
- Housing - Steel, Gold Zinc Plated
- Mounting Flanges - Aluminum, Black Anodized
- Output Shaft - Stainless Steel
- Gears - Steel, Case-Hardened
- Bearings - Ball Bearings, High Strength Steel

**OPERATING TEMPERATURE:**
- -40°F to +255°F

**FEATURES:**
- True planetary system.
- Standard NEMA sizes.
- Includes a precision balanced clamp-on pinion.
- Woodruff key #808 and motor mounting hardware kit supplied.

**SPECIFICATIONS:**
- Max. Input Speed: 5000 rpm
- Shaft Loading - Radial: 1400 lbf
  - Axial: 1400 lbf
- Min. Efficiency - Single Stage: 90%
  - Double Stage: 85%
- Max. Backlash - Single Stage: 10 arc min.
  - Double Stage: 14 arc min.
- Lower Backlash units available on special order
  - Single Stage: 7 arc min.
  - Double Stage: 9 arc min.

**WEIGHT:**
- Single Stage: 12 lb.
- Double Stage: 18 lb.

Non-NEMA size mounting interfaces are available on special order.

**INCH COMPONENT**

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<td>3:1</td>
<td>5.20 Single Stage</td>
<td>1726</td>
<td>2398</td>
<td>1666</td>
<td>1.641 x 10²</td>
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<tr>
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<td>1646</td>
<td>2287</td>
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<td>S9142A-EG022</td>
<td>22:1</td>
<td>5.20 Single Stage</td>
<td>1810</td>
<td>2515</td>
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<td>6.156 x 10³</td>
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<td>28:1</td>
<td>5.20 Single Stage</td>
<td>1829</td>
<td>2540</td>
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<td>8.680 x 10³</td>
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<td>5.20 Single Stage</td>
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<td>3.706 x 10³</td>
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<td>2344</td>
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<td>1969</td>
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<td>1.823 x 10³</td>
<td>8.680 x 10³</td>
</tr>
</tbody>
</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
Inch or Metric

Our gears come in all sizes

Spur gears • Bevel gears • Helical gears • Internal gears • Worm gears • Splines

At SDP/SI, we offer complete design and manufacturing services at our fine pitch gear cutting facility, one of the largest in the U.S. with over 130 gear cutting machines.

Precision • Commercial

Call 516-328-3300 to discuss your requirements

E-Mail us at sdp-sisupport@sdp-si.com
All of our NEMA and Metric sized gearheads, except NEMA size 17, are offered using a ready-to-mount system of attaching the motor to the gearhead. The gearhead ratio unit includes a preinstalled pinion and a self-aligning input clamp. This allows the gearhead to maintain concentricity with the motor shaft and eliminates the need to set the pinion.

The procedure for selecting a complete gearhead solution is simple:

**Step 1.** Select your motor and determine the appropriate frame size for the gearhead.

**Step 2.** Measure the pilot diameter E, pilot length (from motor), bolt circle, shaft OD and shaft length of your motor.

**Step 3.** Based on your measurements and frame size selection, go to the page that lists the mounting bracket and sleeve that you require.

**Step 4.** Choose the reduction ratio and complete the part number.

**Example:** You have a NEMA 34 motor and you measure the pilot diameter to be 2.875 in., the pilot length to be .12 in., the bolt circle to be 3.875 in., the shaft diameter to be .375 in. and the shaft length to be 1.10 in. If your required reduction is 30:1 then you would select mounting bracket "1" and sleeve "A". Therefore, the part number you would need to order is: S9134T-0301A.

**NOTE:** The mounting brackets and motor shaft sleeves listed in this catalog complement 90% of the motors currently available. If your motor does not meet our gearhead specifications, please contact our engineering staff to arrange for a custom mounting bracket or motor shaft sleeve.
GEARHEAD TO MOTOR MOUNTING INFORMATION

MOUNTING INSTRUCTIONS:

A) Using the screws provided, bolt the mounting bracket to the input end of the gearhead ratio unit.

B) Slide the motor shaft sleeve into the input clamp and align the slot in the sleeve with the slot in the clamp.

C) Rotate the clamp to align the mounting bracket access holes with the clamping bolts.

D) Place the motor on a solid work surface with the output shaft pointing up. Slide the assembled gearhead onto the motor shaft.

E) Using a torque wrench, tighten the clamp bolts to the pretightening torque values listed below.

F) Using the screws provided, bolt the gearhead to the motor.

G) Using an alternating pattern, gradually tighten the clamp bolts until you reach the final tightening torque listed below.

<table>
<thead>
<tr>
<th>Gearhead Frame Size</th>
<th>Pretightening Torque</th>
<th>Final Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb. in.</td>
<td>Nm</td>
</tr>
<tr>
<td>NEMA 23</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>NEMA 34</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>NEMA 42</td>
<td>16</td>
<td>1.8</td>
</tr>
<tr>
<td>Metric 60</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>Metric 90</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>Metric 115</td>
<td>16</td>
<td>1.8</td>
</tr>
</tbody>
</table>
T-SERIES PLANETARY GEARHEADS • NEMA SIZE 23

SINGLE AND DOUBLE STAGE

> MATERIAL:
  Housing - Anodized Aluminum
  Gears - Steel, Heat-Treated
  Bearings - Ball, Sealed

> OPERATING TEMPERATURE:
  -29°F to +250°F (-34°C to +121°C)

> FEATURES:
  True planetary system.
  Gears heat-treated to Rc 50.
  High torsional stiffness.
  Readily mounts to most motors.

> SPECIFICATIONS:
  Max. Input Speed: 4000 rpm
  Shaft Loading - Radial (F_r): See graph
    Axial (F_a): 310 lbf (1379 N) @ 250 rpm output
  Efficiency - Single Stage: 93%
    Double Stage: 88%
  Max. Backlash - Single Stage: 13 arc min.
    Double Stage: 15 arc min.
  Torsional Stiffness: 6.3 lbf in./arc min. (0.71 Nm/arc min.)

> WEIGHT:
  Single Stage: 1.5 lb. (0.7 kg)
  Double Stage: 1.9 lb. (0.9 kg)

---

VALUES IN GRAPH ARE IN RPM

**TORSIONAL STIFFNESS**: 6.3 lbf in./arc min. (0.71 Nm/arc min.)

---

**WEIGHT**: Single Stage: 1.5 lb. (0.7 kg)
Double Stage: 1.9 lb. (0.9 kg)
T-SERIES PLANETARY GEARHEADS • NEMA SIZE 23

SINGLE AND DOUBLE STAGE

Phone: 516.328.3300 • Fax: 516.326.8827 • www.SDP-si.com

Access holes for motor shaft clamp unit may be supplied with 2 or 4 holes.

C thread on a ØD bolt circle

Mounting Bracket

Mounting Bracket

<table>
<thead>
<tr>
<th>Code</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D Dia.</th>
<th>E* Dia.</th>
<th>F</th>
<th>Motor Shaft Length (max. – min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.40</td>
<td>1.22</td>
<td>M4</td>
<td>2.625</td>
<td>1.984</td>
<td>.15</td>
<td>.128 – .65 (32.5 – 16.5)</td>
</tr>
<tr>
<td>2</td>
<td>2.40</td>
<td>1.22</td>
<td>M4</td>
<td>2.756</td>
<td>1.984</td>
<td>.15</td>
<td>.128 – .65 (32.5 – 16.5)</td>
</tr>
<tr>
<td>3</td>
<td>3.54</td>
<td>1.47</td>
<td>M6</td>
<td>3.937</td>
<td>3.165</td>
<td>.15</td>
<td>.153 – .9 (38.9 – 22.9)</td>
</tr>
</tbody>
</table>

Motor Shaft Sleeve Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Bore</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.250</td>
</tr>
<tr>
<td>B</td>
<td>.3125</td>
</tr>
<tr>
<td>C</td>
<td>.375</td>
</tr>
<tr>
<td>D</td>
<td>.500</td>
</tr>
<tr>
<td>E</td>
<td>8 mm</td>
</tr>
<tr>
<td>F</td>
<td>9 mm</td>
</tr>
<tr>
<td>G</td>
<td>10 mm</td>
</tr>
<tr>
<td>H</td>
<td>11 mm</td>
</tr>
<tr>
<td>I</td>
<td>14 mm</td>
</tr>
</tbody>
</table>

NOTE: Dimensions in ( ) are in mm.
* Pilot diameter is a clearance diameter and should not be used to center the gearhead.

Δ See technical page 11-64 for assembly directions.
**T-SERIES PLANETARY GEARHEADS • NEMA SIZE 34**

**PHONE:** 516.328.3300 • **FAX:** 516.326.8827 • WWW.SDP-SI.COM

---

**SINGLE AND DOUBLE STAGE**

**> MATERIAL:**
- **Housing:** Anodized Aluminum
- **Gears:** Steel, Heat-Treated
- **Bearings:** Ball, Sealed

**> OPERATING TEMPERATURE:**
- -29°F to +250°F (-34°C to +121°C)

**> FEATURES:**
- True planetary system.
- Gears heat-treated to Rc 50.
- High torsional stiffness.
- Readily mounts to most motors.

**> SPECIFICATIONS:**
- **Max. Input Speed:** 4000 rpm
- **Shaft Loading - Radial (F<sub>r</sub>):** See graph
  - Axial (F<sub>a</sub>): 510 lbf (2269 N) @ 250 rpm output
- **Efficiency - Single Stage:** 93%
  - Double Stage: 88%
- **Max. Backlash - Single Stage:** 13 arc min.
  - Double Stage: 15 arc min.
- **Torsional Stiffness:** 16.8 lbf in./arc min. (1.9 Nm/arc min.)

**INCH COMPONENT CATALOG NUMBER**

*S 9 1 3 4 T -

**RATIO CODE** || **SLEEVE CODE** || **MOUNTING BRACKET CODE**
---

<table>
<thead>
<tr>
<th>Ratio Code</th>
<th>Gear Ratio</th>
<th>L in. (mm)</th>
<th>MAX. RATED CONTINUOUS TORQUE AT 1000 rpm</th>
<th>MAX. RATED CONTINUOUS TORQUE AT 4000 rpm</th>
<th>MAX. MOMENTARY TORQUE</th>
<th>INERTIA REFLECTED BACK TO MOTOR SHAFT lbf in. sec.² x 10^-4 (kg cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>003</td>
<td>3:1</td>
<td>2.68 (68)</td>
<td>360 (40.7)</td>
<td>270 (30.5)</td>
<td>510 (57.6)</td>
<td>3.90 (0.44)</td>
</tr>
<tr>
<td>005</td>
<td>5:1</td>
<td>Single</td>
<td>490 (55.4)</td>
<td>325 (36.7)</td>
<td>700 (79.1)</td>
<td>1.20 (0.140)</td>
</tr>
<tr>
<td>010</td>
<td>10:1</td>
<td>Stage</td>
<td>238 (26.9)</td>
<td>192 (21.7)</td>
<td>700 (79.1)</td>
<td>.66 (0.075)</td>
</tr>
<tr>
<td>015</td>
<td>15:1</td>
<td></td>
<td>454 (51.3)</td>
<td>373 (42.1)</td>
<td>850 (96.1)</td>
<td>1.20 (0.140)</td>
</tr>
<tr>
<td>025</td>
<td>25:1</td>
<td>3.53 (89.6)</td>
<td>652 (73.7)</td>
<td>526 (59.4)</td>
<td>850 (96.1)</td>
<td>.66 (0.075)</td>
</tr>
<tr>
<td>030</td>
<td>30:1</td>
<td>Double</td>
<td>500 (56.5)</td>
<td>416 (47)</td>
<td>850 (96.1)</td>
<td>.65 (0.074)</td>
</tr>
<tr>
<td>050</td>
<td>50:1</td>
<td>Stage</td>
<td>720 (81.4)</td>
<td>595 (67.2)</td>
<td>850 (96.1)</td>
<td>.65 (0.074)</td>
</tr>
<tr>
<td>100</td>
<td>100:1</td>
<td></td>
<td>325 (36.7)</td>
<td>270 (30.5)</td>
<td>700 (79.1)</td>
<td>.65 (0.074)</td>
</tr>
</tbody>
</table>

**NOTE:** Dimensions in ( ) are in mm.

*To be discontinued when present stock is depleted*

---

**Values in graph are in rpm**

---

**RADIAL SHAFT LOAD RATING**

---

**CONTINUED ON THE NEXT PAGE**
Inch

**T-SERIES PLANETARY GEARHEADS • NEMA SIZE 34**

**SINGLE AND DOUBLE STAGE**

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

---

**Mounting Bracket**

- **Dimensions in ( ) are in mm.**
- **Pilot diameter is a clearance diameter and should not be used to center the gearhead.**

---

**Motor Shaft Sleeve Code**

<table>
<thead>
<tr>
<th>Code</th>
<th>Bore</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.375</td>
</tr>
<tr>
<td>B</td>
<td>.500</td>
</tr>
<tr>
<td>C</td>
<td>.625</td>
</tr>
<tr>
<td>D</td>
<td>14 mm</td>
</tr>
<tr>
<td>E</td>
<td>16 mm</td>
</tr>
<tr>
<td>F</td>
<td>19 mm</td>
</tr>
</tbody>
</table>

---

**Motor Shaft Length (max. – min.)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Dia.</th>
<th>F</th>
<th>Motor Shaft Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.37</td>
<td>.20</td>
<td>1.53 – 0.61 (38.9 – 15.5)</td>
</tr>
<tr>
<td>2</td>
<td>3.94</td>
<td>.20</td>
<td>1.79 – 0.88 (45.5 – 22.4)</td>
</tr>
<tr>
<td>3</td>
<td>5.71</td>
<td>.58</td>
<td>1.79 – 0.88 (45.5 – 22.4)</td>
</tr>
</tbody>
</table>

---

**Continued from the previous page**

**ACCESS HOLES FOR MOTOR SHAFT CLAMP UNIT MAY BE SUPPLIED WITH 2 OR 4 HOLES.**

---

**NOTE:** Dimensions in ( ) are in mm.

---

**CONTINUED FROM THE PREVIOUS PAGE**

---

See technical page 11-64 for assembly directions.

---

**SECTION X-X**

**MOUNTING BRACKET**

**SECTION Y-Y**

**MOTOR SHAFT SLEEVE**

---

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**T-SERIES PLANETARY GEARHEADS • NEMA SIZE 42**

**SINGLE AND DOUBLE STAGE**

- **MATERIAL:**
  - Housing - Anodized Aluminum
  - Gears - Steel, Heat-Treated
  - Bearings - Ball, Sealed

- **OPERATING TEMPERATURE:**
  - -29°F to +250°F (-34°C to +121°C)

- **FEATURES:**
  - True planetary system.
  - Gears heat-treated to Rc 50.
  - High torsional stiffness.
  - Readily mounts to most motors.

- **SPECIFICATIONS:**
  - Max. Input Speed: 4000 rpm
  - Shaft Loading - Radial (F_r): See graph
  - Axial (F_a): 760 lbf (3380 N) @ 250 rpm output
  - Efficiency - Single Stage: 93%
    - Double Stage: 88%
  - Max. Backlash - Single Stage: 13 arc min.
    - Double Stage: 15 arc min.
  - Torsional Stiffness: 31 lbf in./arc min. (3.5 Nm/arc min.)

- **WEIGHT:**
  - Single Stage: 8.9 lb. (4.0 kg)
  - Double Stage: 11.7 lb. (5.3 kg)

---

**INCH COMPONENT CATALOG NUMBER**

*S 9 1 4 2 T -

**RATIO CODE**

- Sleeve Code: A, B, C, D, E, F, or G
- Mounting Bracket Code: 1, 2, or 3

<table>
<thead>
<tr>
<th>Ratio Code</th>
<th>Gear Ratio</th>
<th>L in. (mm)</th>
<th>Max. Rated Continuous Torque at 1000 rpm lbf in. (Nm)</th>
<th>Max. Rated Continuous Torque at 4000 rpm lbf in. (Nm)</th>
<th>Max. Momentary Torque lbf in. (Nm)</th>
<th>Inertia Reflected Back to Motor Shaft lbf in. sec² x 10⁴ (kg cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>003</td>
<td>3:1</td>
<td>3.49 (88.6)</td>
<td>690 (78)</td>
<td>485 (54.8)</td>
<td>1000 (113)</td>
<td>14 (1.6)</td>
</tr>
<tr>
<td>005</td>
<td>5:1</td>
<td>Single Stage</td>
<td>810 (91.5)</td>
<td>325 (36.7)</td>
<td>1000 (113)</td>
<td>3.8 (0.43)</td>
</tr>
<tr>
<td>010</td>
<td>10:1</td>
<td>460 (52)</td>
<td>370 (41.8)</td>
<td>1000 (113)</td>
<td>1.9 (0.21)</td>
<td></td>
</tr>
<tr>
<td>015</td>
<td>15:1</td>
<td>454 (51.3)</td>
<td>373 (42.1)</td>
<td>1600 (180.8)</td>
<td>3.9 (0.44)</td>
<td></td>
</tr>
<tr>
<td>025</td>
<td>25:1</td>
<td>1250 (141.2)</td>
<td>865 (97.7)</td>
<td>1600 (180.8)</td>
<td>3.7 (0.42)</td>
<td></td>
</tr>
<tr>
<td>030</td>
<td>30:1</td>
<td>972 (109.8)</td>
<td>805 (91)</td>
<td>1600 (180.8)</td>
<td>1.9 (0.21)</td>
<td></td>
</tr>
<tr>
<td>050</td>
<td>50:1</td>
<td>1395 (157.6)</td>
<td>1050 (118.6)</td>
<td>1600 (180.8)</td>
<td>1.8 (0.2)</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>100:1</td>
<td>630 (71.2)</td>
<td>522 (59)</td>
<td>1200 (135.6)</td>
<td>1.8 (0.2)</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Dimensions in ( ) are in mm.

*To be discontinued when present stock is depleted.*

**To be discontinued when present stock is depleted.**

**RADIAL SHAFT LOAD RATING**

Values in graph are in rpm

---

11-70

1.25.13 JF
T-SERIES PLANETARY GEARHEADS • NEMA SIZE 42

SINGLE AND DOUBLE STAGE

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1/8’ (3.2)
AMERICAN STD.
SQUARE KEY

ACCESS
HOLES FOR
MOTOR SHAFT
CLAMP UNIT MAY
BE SUPPLIED
WITH 2 OR 4 HOLES

Dimensions in ( ) are in mm.

* Pilot diameter is a clearance diameter and should not be used to center the gearhead.

NOTE:

Mounting Bracket

<table>
<thead>
<tr>
<th>Code</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D Dia.</th>
<th>E* Dia.</th>
<th>F</th>
<th>Motor Shaft Length (max. – min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.53</td>
<td>1.925</td>
<td>M6</td>
<td>4.95</td>
<td>3.165</td>
<td>.25</td>
<td>2.12 – 0.99 (53.8 – 25.1)</td>
</tr>
<tr>
<td>2</td>
<td>.625</td>
<td>1.925</td>
<td>M6</td>
<td>3.94</td>
<td>3.165</td>
<td>.25</td>
<td>2.12 – 0.99 (53.8 – 25.1)</td>
</tr>
<tr>
<td>3</td>
<td>.6245</td>
<td>5.71(145)</td>
<td>M8</td>
<td>4.345</td>
<td>5.134</td>
<td>.58</td>
<td>2.56 – 1.42 (65.0 – 36.0)</td>
</tr>
<tr>
<td>4</td>
<td>5.59</td>
<td>2.36</td>
<td>M10</td>
<td>6.50</td>
<td>5.134</td>
<td>.58</td>
<td>2.56 – 1.42 (65.0 – 36.0)</td>
</tr>
</tbody>
</table>

Motor Shaft Sleeve Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Bore</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.625</td>
</tr>
<tr>
<td>B</td>
<td>1.000</td>
</tr>
<tr>
<td>C</td>
<td>14 mm</td>
</tr>
<tr>
<td>D</td>
<td>16 mm</td>
</tr>
<tr>
<td>E</td>
<td>19 mm</td>
</tr>
<tr>
<td>F</td>
<td>22 mm</td>
</tr>
<tr>
<td>G</td>
<td>24 mm</td>
</tr>
</tbody>
</table>

Continued from the previous page

Δ See technical page 11-64 for assembly directions.
SPUR GEARHEADS • NEMA SIZE 23

LOW-COST ALTERNATIVE TO PLANETARY GEARHEAD
LONG-LIFE

› MATERIAL:
  Housing - Steel, Black Zinc Plated
  Mounting Flanges - Aluminum, Black Anodized
  Output Shaft - Stainless Steel
  Gears - Stainless Steel
  Bearings - Ball Bearings, High Strength Steel

› OPERATING TEMPERATURE:
  -40°F to +255°F

› FEATURES:
  Standard NEMA sizes.
  Includes a precision balanced clamp-on pinion.
  Woodruff key #303 and motor mounting hardware kit supplied.
  Sealed ball bearing on output shaft.
  O-ring at each joint.

› SPECIFICATIONS:
  Max. Input Speed: 4000 rpm
  Shaft Loading - Radial: 75 lbf
  Axial: 75 lbf
  Min. Efficiency: 90%
  Max. Backlash: 20 arc min.
  Lower Backlash units available on special order. 10 arc min.
  Max. Inertia Reflected to Input: 7.15 x 10^{-4} ozf in. sec.
  Pinion Gear Inertia: 7.59 x 10^{-4} ozf in. sec.
  Max. Torque Rating - Continuous: 20 lbf in.
  Momentary: 30 lbf in.

› WEIGHT:
  1.5 lb.

Other gear ratios and non-NEMA size mounting interfaces are available on special order.

<table>
<thead>
<tr>
<th>INCH COMPONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Catalog Number</strong></td>
</tr>
<tr>
<td>S9123A-SG003</td>
</tr>
<tr>
<td>S9123A-SG005</td>
</tr>
<tr>
<td>S9123A-SG010</td>
</tr>
<tr>
<td>S9123A-SG015</td>
</tr>
<tr>
<td>S9123A-SG020</td>
</tr>
<tr>
<td>S9123A-SG030</td>
</tr>
<tr>
<td>S9123A-SG050</td>
</tr>
<tr>
<td>S9123A-SG100</td>
</tr>
</tbody>
</table>

* “S” indicates output rotates in the same direction as input; “R” denotes opposite direction.
SPUR GEARHEADS • NEMA SIZE 34

LOW-COST ALTERNATIVE TO PLANETARY GEARHEAD
LONG-LIFE

➤ MATERIAL:
- Housing: Steel, Black Zinc Plated
- Mounting Flanges: Aluminum, Black Anodized
- Output Shaft: Stainless Steel
- Gears: Stainless Steel
- Bearings: Ball Bearings, High Strength Steel

➤ OPERATING TEMPERATURE:
-40°F to +255°F

➤ FEATURES:
- Standard NEMA size.
- Includes a precision balanced clamp-on pinion.
- Woodruff key #404 and motor mounting hardware kit supplied.
- Sealed ball bearing on output shaft.
- O-ring at each joint.

➤ SPECIFICATIONS:

- **Max. Input Speed**: 4000 rpm
- **Shaft Loading - Radial**: 100 lb
- **Axial**: 125 lb
- **Min. Efficiency**: 90%
- **Max. Backlash**: 20 arc min.
- **Max. Inertia Reflected to Input**: 5.35 x 10^{-4} ozf in. sec^2
- **Pinion Gear Inertia**: 1.52 x 10^{-3} ozf in. sec^2
- **Max. Torque Rating - Continuous**: 60 lbf in.
- **Momentary**: 90 lbf in.

➤ WEIGHT:
3.5 lb.

Other gear ratios and non-NEMA size mounting interfaces are available on special order.

To mate with D50R10-06.. motor requires nonstandard pinion (1/2 inch bore) and mounting adapter. Add “SP” to the part number when ordering.

Inch Component

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>Maximum Rated Output rpm (4000 rpm input)</th>
<th>Rotation Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9134A-SG003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9134A-SG005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
</tr>
<tr>
<td>S9134A-SG010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9134A-SG015</td>
<td>15:1</td>
<td>267</td>
<td>S</td>
</tr>
<tr>
<td>S9134A-SG020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9134A-SG030</td>
<td>30:1</td>
<td>133</td>
<td>R</td>
</tr>
<tr>
<td>S9134A-SG050</td>
<td>50:1</td>
<td>80</td>
<td>S</td>
</tr>
<tr>
<td>S9134A-SG100</td>
<td>100:1</td>
<td>40</td>
<td>S</td>
</tr>
</tbody>
</table>

* “S” indicates output rotates in the same direction as input; “R” denotes opposite direction.
SPUR GEARHEADS • NEMA SIZE 42

LOW-COST ALTERNATIVE TO PLANETARY GEARHEAD
LONG-LIFE

> MATERIAL:
  - Housing - Steel, Black Zinc Plated
  - Mounting Flanges - Aluminum, Black Anodized
  - Output Shaft - Stainless Steel
  - Gears - Stainless Steel
  - Bearings - Ball Bearings, High Strength Steel

> OPERATING TEMPERATURE:
-40°F to +255°F

> FEATURES:
  - Standard NEMA size.
  - Includes a precision balanced clamp-on pinion.
  - Woodruff key #505 and motor mounting hardware kit supplied.
  - Sealed ball bearing on output shaft.

> SPECIFICATIONS:
  - Max. Input Speed: 4000 rpm
  - Shaft Loading - Radial: 150 lbf
  - Min. Efficiency: 90%
  - Max. Backlash: 20 arc min.
  - Lower Backlash units available on special order.
  - Max. Inertia Reflected to Input: 4.33 x 10^-3 ozf in. sec^2
  - Pinion Gear Inertia: 7.59 x 10^-3 ozf in. sec^2
  - Max. Torque Rating - Continuous: 200 lbf in.
  - Momentary: 300 lbf in.

> WEIGHT:
6.5 lb.

Other gear ratios and non-NEMA size mounting interfaces are available on special order.

<table>
<thead>
<tr>
<th>INCH COMPONENT</th>
<th>Gear Ratio</th>
<th>Maximum Rated Output rpm (4000 rpm input)</th>
<th>Rotation * Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9142A-SG003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9142A-SG005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
</tr>
<tr>
<td>S9142A-SG010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9142A-SG015</td>
<td>15:1</td>
<td>267</td>
<td>R</td>
</tr>
<tr>
<td>S9142A-SG020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9142A-SG030</td>
<td>30:1</td>
<td>133</td>
<td>S</td>
</tr>
<tr>
<td>S9142A-SG050</td>
<td>50:1</td>
<td>80</td>
<td>R</td>
</tr>
<tr>
<td>S9142A-SG100</td>
<td>100:1</td>
<td>40</td>
<td>S</td>
</tr>
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</table>

* “S” indicates output rotates in the same direction as input; “R” denotes opposite direction.
### SELECTION CHART

#### NEMA SIZE RIGHT ANGLE GEARHEADS

<table>
<thead>
<tr>
<th>NEMA Size</th>
<th>Right Angle Planetary Gearheads</th>
<th>Hybrid Stepper Motors Single- or Double-Ended Shafts</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>PG, Precision Series, Low Backlash S9117D-SRPG... (pg. 11-76) EG, Economy Series S9117D-SREG... (pg. 11-84)</td>
<td>.9° Step Angle S9117MM... (pg. 14-11) 1.8° Step Angle S9117M-...HT (pg. 14-11)</td>
</tr>
<tr>
<td>42</td>
<td>PG, Precision Series, Low Backlash S9142D-SRPG... (pg. 11-82) EG, Economy Series S9142D-SREG... (pg. 11-90) T-Series S9142R-R... (pg. 11-98) Spur Gearheads (Planetary Gearhead Alternative) Low-Cost &amp; Long-Life S9142D-SRS... (pg. 11-100)</td>
<td>160V DC Max. Drive S9142M-... (pg. 14-21)</td>
</tr>
</tbody>
</table>

### NEMA Size Dual Output Planetary Gearheads

<table>
<thead>
<tr>
<th>NEMA Size</th>
<th>Dual Output Planetary Gearheads</th>
<th>Hybrid Stepper Motors Single- or Double-Ended Shafts</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>PG, Precision Series, Low Backlash S9117E-SDPG... (pg. 11-102) EG, Economy Series S9117E-SDEG... (pg. 11-110)</td>
<td>.9° Step Angle S9117MM... (pg. 14-11) 1.8° Step Angle S9117M-...HT (pg. 14-11)</td>
</tr>
<tr>
<td>42</td>
<td>PG, Precision Series, Low Backlash S9142E-SDPG... (pg. 11-108) EG, Economy Series S9142E-SDEG... (pg. 11-116)</td>
<td>160V DC Max. Drive S9142M-... (pg. 14-21)</td>
</tr>
</tbody>
</table>
**SINGLE, DOUBLE, AND TRIPLE STAGE**

**PRECISION SERIES**

**LOW BACKLASH DESIGN**

**MATERIAL:**
- Housing - Stainless Steel
- Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
- Output Shaft - Stainless Steel
- Gears - Steel, Case-Hardened
- Bearings - Precision Tapered Roller

**OPERATING TEMPERATURE:**
- -40°F to +255°F

**FEATURES:**
- True planetary system.
- Standard NEMA sizes.
- High torsional stiffness.
- Case-hardened spiral bevel gears.
- Sealed to extend service life.
- Includes a precision balanced clamp-on pinion.
- Woodruff key #303 and motor mounting hardware kit supplied.

**SPECIFICATIONS:**
- Max. Input Speed: 6500 rpm
- Shaft Loading - Radial: 125 lbf
  - Axial: 75 lbf
- Min. Efficiency - Single Stage: 95%
  - Double Stage: 80%
  - Triple Stage: 75%
- Max. Backlash - Single Stage: 11 arc min.
  - Double Stage: 15 arc min.
  - Triple Stage: 19 arc min.
  - Lower Backlash units available on special order.
  - Single Stage: 8 arc min.
  - Double Stage: 10 arc min.
  - Triple Stage: 12 arc min.

**WEIGHT:**
- Single Stage: 2.8 lb.
- Double Stage: 3.4 lb.
- Triple Stage: 4 lb.

Other mounting interfaces are available on special order.

**INCH COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>M</th>
<th>Max. Rated Cont. Torque** lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (6500 rpm Input)</th>
<th>Inertia Gearhead ozf in. sec.²</th>
<th>Inertia Pinion ozf in. sec.²</th>
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<tr>
<td>S9117D-SRPG003</td>
<td>3:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>167</td>
<td>261</td>
<td>2167</td>
<td>4.153 x 10⁴</td>
<td>2.163 x 10⁴</td>
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<tr>
<td>S9117D-SRPG004</td>
<td>4:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>158</td>
<td>248</td>
<td>1625</td>
<td>2.478 x 10⁴</td>
<td>1.352 x 10⁴</td>
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<tr>
<td>S9117D-SRPG005H</td>
<td>5.5:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>143</td>
<td>223</td>
<td>1182</td>
<td>1.341 x 10⁴</td>
<td>1.174 x 10⁴</td>
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<tr>
<td>S9117D-SRPG007</td>
<td>7:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>119</td>
<td>158</td>
<td>928</td>
<td>8.344 x 10⁴</td>
<td>1.143 x 10⁴</td>
</tr>
<tr>
<td>S9117D-SRPG010</td>
<td>10:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>56</td>
<td>84</td>
<td>650</td>
<td>4.113 x 10⁴</td>
<td>1.132 x 10⁴</td>
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<tr>
<td>S9117D-SRPG016</td>
<td>16:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>169</td>
<td>264</td>
<td>406</td>
<td>1.088 x 10⁵</td>
<td>1.352 x 10⁴</td>
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<tr>
<td>S9117D-SRPG022</td>
<td>22:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>171</td>
<td>267</td>
<td>295</td>
<td>6.056 x 10⁴</td>
<td>1.174 x 10⁴</td>
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<tr>
<td>S9117D-SRPG028</td>
<td>28:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>172</td>
<td>269</td>
<td>232</td>
<td>3.806 x 10⁴</td>
<td>1.143 x 10⁴</td>
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<tr>
<td>S9117D-SRPG040</td>
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<td>3.30 Single Stage</td>
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<td>272</td>
<td>162</td>
<td>1.889 x 10⁴</td>
<td>1.132 x 10⁴</td>
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<td>49:1</td>
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<tr>
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<td>55:1</td>
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<td>3.30 Single Stage</td>
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<td>243</td>
<td>118</td>
<td>1.791 x 10⁴</td>
<td>1.132 x 10⁴</td>
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<tr>
<td>S9117D-SRPG070</td>
<td>70:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
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<td>201</td>
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<td>1.751 x 10⁴</td>
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<tr>
<td>S9117D-SRPG100</td>
<td>100:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
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<td>77</td>
<td>65</td>
<td>1.719 x 10⁴</td>
<td>1.132 x 10⁴</td>
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<tr>
<td>*S9117D-SRPG160</td>
<td>160:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>181</td>
<td>283</td>
<td>41</td>
<td>1.821 x 10⁵</td>
<td>1.132 x 10⁴</td>
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<tr>
<td>*S9117D-SRPG280</td>
<td>280:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>183</td>
<td>286</td>
<td>23</td>
<td>1.735 x 10⁵</td>
<td>1.132 x 10⁴</td>
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<tr>
<td>*S9117D-SRPG400</td>
<td>400:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>185</td>
<td>286</td>
<td>16</td>
<td>1.769 x 10⁵</td>
<td>1.132 x 10⁴</td>
</tr>
<tr>
<td>*S9117D-SRPG700</td>
<td>700:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>136</td>
<td>212</td>
<td>9</td>
<td>1.766 x 10⁵</td>
<td>1.132 x 10⁴</td>
</tr>
</tbody>
</table>

* Triple stage units are available on special order only.
** Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
RIGHT ANGLE PG PLANETARY GEARHEADS • SIZE 17

SINGLE, DOUBLE, AND TRIPLE STAGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

Inch

1.22
(TYP)

.094

.986

.884

.047

.250
(TYP)

.82

.12

1.65
SQ.

.125
(4 HOLES)

EQ. SP. ON A

Ø1.725 B.C.

PARTIAL MOTOR INPUT VIEW

GEARHEAD OUTPUT VIEW

.12

.10

Ø .868

.867

Ø .125

(4 HOLES)

EQ. SP. ON A

Ø1.725 B.C.

.250

.986

.867

1.65
SQ.

1.22
(TYP)

1.25

2.72

.062
(TYP)

.3750

.3745

.062
(TYP)

#4-40 UNC-2B

X .250 DP.

(4 HOLES)

EQ. SP. ON A

Ø1.725 B.C.

.125

(4 HOLES)

EQ. SP. ON A

Ø1.725 B.C.

.047

0.62

.866

.864

.82

.3750

.3745

.062
(TYP)
RIGHT ANGLE PG PLANETARY GEARHEADS • SIZE 23

SINGLE, DOUBLE, AND TRIPLE STAGE
PRECISION SERIES
LOW BACKLASH DESIGN

- MATERIAL:
  - Housing - Stainless Steel
  - Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
  - Output Shaft - Stainless Steel
  - Gears - Steel, Case-Hardened
  - Bearings - Precision Tapered Roller

- OPERATING TEMPERATURE:
  -40°F to +255°F

- FEATURES:
  - True planetary system.
  - Standard NEMA sizes.
  - High torsional stiffness.
  - Case-hardened spiral bevel gears.
  - Sealed to extend service life.
  - Includes a precision balanced clamp-on pinion.
  - Woodruff key #404 and motor mounting hardware kit supplied.

- SPECIFICATIONS:
  - Max. Input Speed: 6500 rpm
  - Shaft Loading - Radial: 600 lbf
  - Axial: 680 lbf
  - Min. Efficiency - Single Stage: 85%
  - Double Stage: 80%
  - Triple Stage: 75%
  - Max. Backlash - Single Stage: 11 arc min.
  - Double Stage: 15 arc min.
  - Triple Stage: 19 arc min.
  - Lower Backlash units available on special order.
    - Single Stage: 8 arc min.
    - Double Stage: 10 arc min.
    - Triple Stage: 12 arc min.

- WEIGHT:
  - Single Stage: 4 lb.
  - Double Stage: 5 lb.
  - Triple Stage: 6 lb.

Non-NEMA size mounting interfaces are available on special order.

INCH COMPONENT

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>S9123D-SRPG003</td>
<td>3.1</td>
<td>6.49 Single Stage</td>
<td>4.23 Single Stage</td>
<td>380</td>
<td>594</td>
<td>2167</td>
<td>1.539 x 10^-3</td>
<td>1.194 x 10^-3</td>
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<td>S9123D-SRPG004</td>
<td>4.1</td>
<td>7.32 Double Stage</td>
<td>5.05 Double Stage</td>
<td>360</td>
<td>562</td>
<td>1625</td>
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<td>496</td>
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<td></td>
<td></td>
<td>263</td>
<td>411</td>
<td>928</td>
<td>3.034 x 10^-4</td>
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<td></td>
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<td>179</td>
<td>650</td>
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<td>587</td>
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<td>3.461 x 10^-4</td>
<td>9.502 x 10^-4</td>
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<td>594</td>
<td>295</td>
<td>1.930 x 10^-4</td>
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<td>S9123D-SRPG055</td>
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<td>542</td>
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<td>631</td>
<td>41</td>
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<tr>
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<td>640</td>
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<td>5.461 x 10^-3</td>
<td>8.846 x 10^-3</td>
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<tr>
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<td>400.1</td>
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<td></td>
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<td>16</td>
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<td>8.846 x 10^-3</td>
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<tr>
<td>*S9123D-SRPG700</td>
<td>700.1</td>
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<td>303</td>
<td>473</td>
<td>9</td>
<td>5.581 x 10^-3</td>
<td>8.846 x 10^-3</td>
</tr>
</tbody>
</table>

* Triple stage units are available on special order only.
** Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
RIGHT ANGLE PG PLANETARY GEARHEADS • SIZE 23

SINGLE, DOUBLE, AND TRIPLE STAGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW
**SINGLE, DOUBLE, AND TRIPLE STAGE**

**LOW BACKLASH DESIGN**

▷ **MATERIAL:**
- Housing - Stainless Steel
- Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
- Output Shaft - Stainless Steel
- Gears - Steel, Case-Hardened
- Bearings - Precision Tapered Roller

▷ **OPERATING TEMPERATURE:**
- -40°F to +255°F

▷ **FEATURES:**
- True planetary system.
- Standard NEMA sizes.
- High torsional stiffness.
- Case-hardened spiral bevel gears.
- Sealed to extend service life.
- Includes a precision balanced clamp-on pinion.
- Woodruff key #606 and motor mounting hardware kit supplied.

▷ **SPECIFICATIONS:**
- **Max. Input Speed:** 6500 rpm
- **Shaft Loading - Radial:** 900 lbf
- **Axial:** 900 lbf
- **Min. Efficiency - Single Stage:** 85%
- **Double Stage:** 80%
- **Triple Stage:** 75%
- **Max. Backlash - Single Stage:** 11 arc min.
- **Double Stage:** 15 arc min.
- **Triple Stage:** 19 arc min.
- Lower Backlash units available on special order.
- **Single Stage:** 8 arc min.
- **Double Stage:** 10 arc min.
- **Triple Stage:** 12 arc min.

**WEIGHT:**
- **Single Stage:** 12.5 lb.
- **Double Stage:** 13.5 lb.
- **Triple Stage:** 14.5 lb.

Non-NEMA size mounting interfaces are available on special order. To mate with D50R10-06, motor requires nonstandard pinion (1/2 inch bore). Add "SP" to the part number when ordering.

**INCH COMPONENT**

<table>
<thead>
<tr>
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<tbody>
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<td>3:1</td>
<td>9.16</td>
<td>5.91 Single Stage</td>
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<td>2008</td>
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<td>1.17 x 10^2</td>
<td>4.301 x 10^{-2}</td>
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<td>5.91 Single Stage</td>
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<td>1905</td>
<td>1675</td>
<td>6.818 x 10^{-2}</td>
<td>2.522 x 10^{-2}</td>
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<td>7.1 Single Stage</td>
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<td>1740</td>
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<td>7.1 Single Stage</td>
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<td>928</td>
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<td>650</td>
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<td>1.923 x 10^{-2}</td>
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<td>7.04 Double Stage</td>
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<td>2055</td>
<td>406</td>
<td>2.944 x 10^{-2}</td>
<td>2.522 x 10^{-2}</td>
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<td>7.04 Double Stage</td>
<td>1333</td>
<td>2083</td>
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<td>1346</td>
<td>2103</td>
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<td>160:1</td>
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* Triple stage units are available on special order only.
** Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
RIGHT ANGLE PG PLANETARY GEARHEADS • SIZE 34

SINGLE, DOUBLE, AND TRIPLE STAGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW

Inch
RIGHT ANGLE PG PLANETARY GEARHEADS • SIZE 42

SINGLE, DOUBLE, AND TRIPLE STAGE
PRECISION SERIES
LOW BACKLASH DESIGN

› MATERIAL:
  Housing - Stainless Steel
  Right Angle Housing and
  Mounting Flanges - Aluminum, Black Anodized
  Output Shaft - Stainless Steel
  Gears - Steel, Case-Hardened
  Bearings - Precision Tapered Roller

› OPERATING TEMPERATURE:
  -40°F to +255°F

› FEATURES:
  True planetary system.
  Standard NEMA sizes.
  High torsional stiffness.
  Case-hardened spiral bevel gears.
  Sealed to extend service life.
  Includes a precision balanced clamp-on pinion.
  Woodruff key #808 and motor mounting hardware kit supplied.

› SPECIFICATIONS:
  Max. Input Speed: 6500 rpm
  Shaft Loading - Radial: 1400 lbf
  Axial: 1400 lbf
  Min. Efficiency - Single Stage: 85%
  Double Stage: 80%
  Triple Stage: 75%
  Max. Backlash - Single Stage: 11 arc min.
  Double Stage: 15 arc min.
  Triple Stage: 19 arc min.
  Lower Backlash units available on special order.
  Single Stage: 8 arc min.
  Double Stage: 10 arc min.

Non-NEMA size mounting interfaces are available on special order.

› WEIGHT:
  Single Stage: 28.5 lb.
  Double Stage: 35 lb.
  Triple Stage: 36 lb.

---

**Triple stage units are available on special order only.**

**Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.**

---

**Special Component**
RIGHT ANGLE EG PLANETARY GEARHEADS • SIZE 17

SINGLE AND DOUBLE STAGE ECONOMY SERIES

➤ MATERIAL:
Housing - Steel, Gold Zinc Plated
Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
Output Shaft - Stainless Steel
Gears - Steel, Case-Hardened
Bearings - Precision Tapered Roller

➤ OPERATING TEMPERATURE:
-40°F to +255°F

➤ FEATURES:
True planetary system.
Standard NEMA sizes.
High torsional stiffness.
Case-hardened spiral bevel gears.
Sealed to extend service life.
Includes a precision balanced clamp-on pinion.
Woodruff key #404 and motor mounting hardware kit supplied.

➤ SPECIFICATIONS:
Max. Input Speed: 5000 rpm
Shaft Loading - Radial: 400 lbf
Axial: 400 lbf
Min. Efficiency - Single Stage: 85%
Double Stage: 80%
Max. Backlash - Single Stage: 14 arc min.
Double Stage: 18 arc min.
Lower Backlash units available on special order.
Single Stage: 11 arc min.
Double Stage: 13 arc min.

➤ WEIGHT:
Single Stage: 2.8 lb.
Double Stage: 3.4 lb.

Non-NEMA size mounting interfaces are available on special order.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>M</th>
<th>Max. Rated Cont. Torque* lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (5000 rpm Input)</th>
<th>Inertia Gearhead ozf in. sec. 2</th>
<th>Inertia Input Pinion ozf in. sec. 2</th>
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<tr>
<td>S9117D-SREG003</td>
<td>3:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>125</td>
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<td>1666</td>
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<td>2.163 x 10^4</td>
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<td>S9117D-SREG004</td>
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<td>5.5:1</td>
<td>3.30 Single Stage</td>
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<td>909</td>
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<td>3.30 Single Stage</td>
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<td>124</td>
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<tr>
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<td>16:1</td>
<td>3.30 Single Stage</td>
<td>127</td>
<td>176</td>
<td>312</td>
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<td>1.352 x 10^4</td>
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<tr>
<td>S9117D-SREG022</td>
<td>22:1</td>
<td>22:1</td>
<td>3.30 Single Stage</td>
<td>128</td>
<td>178</td>
<td>227</td>
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<td>1.174 x 10^4</td>
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<td>S9117D-SREG028</td>
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<td>28:1</td>
<td>3.30 Single Stage</td>
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<td>179</td>
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<td>40:1</td>
<td>3.30 Single Stage</td>
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<td>181</td>
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<td>49:1</td>
<td>3.30 Single Stage</td>
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<td>55:1</td>
<td>3.30 Single Stage</td>
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</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
RIGHT ANGLE EG PLANETARY GEARHEADS • SIZE 23

SINGLE AND DOUBLE STAGE ECONOMY SERIES

➤ MATERIAL:
- Housing: Steel, Gold Zinc Plated
- Right Angle Housing and Mounting Flanges: Aluminum, Black Anodized
- Output Shaft: Stainless Steel
- Gears: Steel, Case-Hardened
- Bearings: Precision Tapered Roller

➤ OPERATING TEMPERATURE:
-40°F to +255°F

➤ FEATURES:
- True planetary system.
- Standard NEMA sizes.
- High torsional stiffness.
- Case-hardened spiral bevel gears.
- Sealed to extend service life.
- Includes a precision balanced clamp-on pinion.
- Woodruff key #404 and motor mounting hardware kit supplied.

➤ SPECIFICATIONS:
- Max. Input Speed: 5000 rpm
- Shaft Loading - Radial: 600 lbf
- Axial: 600 lbf
- Min. Efficiency - Single Stage: 85%
- Double Stage: 80%
- Max. Backlash - Single Stage: 14 arc min.
- Double Stage: 18 arc min.
- Lower Backlash units available on special order.
  - Single Stage: 11 arc min.
  - Double Stage: 13 arc min.

➤ WEIGHT:
- Single Stage: 4.2 lb.
- Double Stage: 5.2 lb.

Non-NEMA size mounting interfaces are available on special order.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>M</th>
<th>MAX. RATED CONT. TORQUE* lbf in.</th>
<th>MAX. MOMENTARY TORQUE lbf in.</th>
<th>MAX. RATED OUTPUT RPM (5000 rpmInput)</th>
<th>INERTIA GEARHEAD ozf in. sec.²</th>
<th>INERTIA INPUT PINION ozf in. sec.²</th>
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<tr>
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<td>4.51 Single Stage</td>
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<td>330</td>
<td>909</td>
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<td>S9123-SREG070</td>
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* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
RIGHT ANGLE EG PLANETARY GEARHEADS • SIZE 23

SINGLE AND DOUBLE STAGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW
## RIGHT ANGLE EG PLANETARY GEARHEADS • SIZE 34

### ECONOMY SERIES

**> MATERIAL:**
- Housing: Steel, Gold Zinc Plated
- Right Angle Housing and Mounting Flanges: Aluminum, Black Anodized
- Output Shaft: Stainless Steel
- Gears: Steel, Case-Hardened
- Bearings: Precision Tapered Roller

**> OPERATING TEMPERATURE:**
- -40°F to +255°F

**> FEATURES:**
- True planetary system.
- Standard NEMA sizes.
- High torsional stiffness.
- Case-hardened spiral bevel gears.
- Sealed to extend service life.
- Includes a precision balanced clamp-on pinion.
- Woodruff key #606 and motor mounting hardware kit supplied.

**> SPECIFICATIONS:**
- Max. Input Speed: 5000 rpm
- Shaft Loading - Radial: 900 lbf
- Axial: 900 lbf
- Min. Efficiency - Single Stage: 85%
- Double Stage: 80%
- Max. Backlash - Single Stage: 14 arc min.
- Double Stage: 18 arc min.
- Lower Backlash units available on special order.
- Single Stage: 11 arc min.
- Double Stage: 13 arc min.

**> WEIGHT:**
- Single Stage: 12.4 lb.
- Double Stage: 13.4 lb.

Non-NEMA size mounting interfaces are available on special order.
To mate with DS0R10-06., motor requires nonstandard pinion (1/2 inch bore).
Add "SP" to the part number when ordering.

### INCH COMPONENT

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<td>761</td>
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</tr>
</tbody>
</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
RIGHT ANGLE EG PLANETARY GEARHEADS • SIZE 42

SINGLE AND DOUBLE STAGE ECONOMY SERIES

> MATERIAL:
  Housing - Steel, Gold Zinc Plated
  Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
  Output Shaft - Stainless Steel
  Gears - Steel, Case-Hardened
  Bearings - Precision Tapered Roller

> OPERATING TEMPERATURE:
  -40°F to +255°F

> FEATURES:
  True planetary system.
  Standard NEMA sizes.
  High torsional stiffness.
  Case-hardened spiral bevel gears.
  Sealed to extend service life.
  Includes a precision balanced clamp-on pinion.
  Woodruff key #808 and motor mounting hardware kit supplied.

> SPECIFICATIONS:
  Max. Input Speed: 5000 rpm
  Shaft Loading - Radial: 1400 lbf
  Axial: 1400 lbf
  Min. Efficiency - Single Stage: 85%
  Double Stage: 80%
  Max. Backlash - Single Stage: 14 arc min.
  Double Stage: 18 arc min.
  Lower Backlash units available on special order.
  Single Stage: 11 arc min.
  Double Stage: 13 arc min.

> WEIGHT:
  Single Stage: 28 lb.
  Double Stage: 35 lb.

Non-NEMA size mounting interfaces are available on special order.

### INCH COMPONENT

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S9142D-SREG003</td>
<td>3:1</td>
<td>11.85</td>
<td>7.64</td>
<td>1726</td>
<td>2398</td>
<td>1666</td>
<td>1.64 x 10⁻²</td>
<td>1.680 x 10⁻²</td>
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<td>S9142D-SREG004</td>
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<td>7.64</td>
<td>1646</td>
<td>2287</td>
<td>1250</td>
<td>1.049 x 10⁻²</td>
<td>1.032 x 10⁻²</td>
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<td>7.64</td>
<td>1516</td>
<td>2106</td>
<td>909</td>
<td>5.878 x 10⁻²</td>
<td>8.993 x 10⁻²</td>
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<td>S9142D-SREG007</td>
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<td>7.1</td>
<td>7.64</td>
<td>1283</td>
<td>1782</td>
<td>714</td>
<td>3.704 x 10⁻²</td>
<td>8.766 x 10⁻²</td>
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<td>13.45</td>
<td>936</td>
<td>1300</td>
<td>500</td>
<td>1.841 x 10⁻²</td>
<td>8.680 x 10⁻²</td>
</tr>
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<td>S9142D-SREG016</td>
<td>16:1</td>
<td>11.85</td>
<td>9.24</td>
<td>1784</td>
<td>2478</td>
<td>312</td>
<td>1.101 x 10⁻²</td>
<td>1.032 x 10⁻²</td>
</tr>
<tr>
<td>S9142D-SREG022</td>
<td>22:1</td>
<td>9.24</td>
<td></td>
<td>1810</td>
<td>2515</td>
<td>227</td>
<td>6.156 x 10⁻³</td>
<td>8.997 x 10⁻³</td>
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<td>S9142D-SREG028</td>
<td>28:1</td>
<td>7.1</td>
<td></td>
<td>1829</td>
<td>2540</td>
<td>178</td>
<td>3.875 x 10⁻³</td>
<td>8.766 x 10⁻³</td>
</tr>
<tr>
<td>S9142D-SREG040</td>
<td>40:1</td>
<td>3.14</td>
<td></td>
<td>1855</td>
<td>2577</td>
<td>125</td>
<td>1.925 x 10⁻³</td>
<td>8.680 x 10⁻³</td>
</tr>
<tr>
<td>S9142D-SREG049</td>
<td>49:1</td>
<td>3.14</td>
<td></td>
<td>1400</td>
<td>1945</td>
<td>102</td>
<td>3.706 x 10⁻³</td>
<td>8.766 x 10⁻³</td>
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<td>S9142D-SREG055</td>
<td>55:1</td>
<td>3.14</td>
<td></td>
<td>1688</td>
<td>2344</td>
<td>91</td>
<td>1.866 x 10⁻³</td>
<td>8.680 x 10⁻³</td>
</tr>
<tr>
<td>S9142D-SREG070</td>
<td>70:1</td>
<td>3.14</td>
<td></td>
<td>1417</td>
<td>1969</td>
<td>71</td>
<td>1.843 x 10⁻³</td>
<td>8.680 x 10⁻³</td>
</tr>
<tr>
<td>S9142D-SREG100</td>
<td>100:1</td>
<td>3.14</td>
<td></td>
<td>1024</td>
<td>1423</td>
<td>50</td>
<td>1.823 x 10⁻³</td>
<td>8.680 x 10⁻³</td>
</tr>
</tbody>
</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
T-SERIES RIGHT ANGLE PLANETARY GEARHEADS • NEMA SIZE 23

SINGLE, DOUBLE AND TRIPLE STAGE

> MATERIAL:
  Housing - Anodized Aluminum
  Gears - Steel, Heat-Treated
  Bearings - Tapered Roller

> OPERATING TEMPERATURE:
  -29°F to +250°F (-34°C to +121°C)

> FEATURES:
  True planetary system.
  Gears heat-treated to Rc 50.
  High torsional stiffness.
  Readily mounts to most motors.

> SPECIFICATIONS:
  Max. Input Speed: 5000 rpm
  Shaft Loading - Radial (F_r): See graph
  Axial (F_a): See table
  Efficiency - Single Stage: 98%
  Double Stage: 93%
  Triple Stage: 98%
  Max. Backlash - Single Stage: 13 arc min.
  Double Stage: 15 arc min.
  Triple Stage: 15 arc min.

> WEIGHT:
  Single Stage: 3 lb. (1.4 kg)
  Double Stage: 3.4 lb. (1.5 kg)
  Triple Stage: 3.8 lb. (1.7 kg)

### INCH COMPONENT CATALOG NUMBER

*S 9 1 2 3 R - R**

<table>
<thead>
<tr>
<th>L</th>
<th>K</th>
<th>Max.Rated Cont. Torque at 1000 rpm lbf in. (Nm)</th>
<th>Max. Rated Cont. Torque at 5000 rpm lbf in. (Nm)</th>
<th>Max. Momentary Torque lbf in. (Nm)</th>
<th>Inertia Reflected Back to Motor Shaft lbf in. sec^2 x 10^-4 (kg cm^2)</th>
<th>Torsional Stiffness lbf in. / arc min. (Nm / arc min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:1</td>
<td>003</td>
<td>4.31 (109.5)</td>
<td>3.11 (79)</td>
<td>83 (9)</td>
<td>68 (8)</td>
<td>270 (31)</td>
</tr>
<tr>
<td>5:1</td>
<td>005</td>
<td>4.99 (127)</td>
<td>4.79 (117)</td>
<td>179 (20)</td>
<td>138 (16)</td>
<td>366 (41)</td>
</tr>
<tr>
<td>10:1</td>
<td>010</td>
<td>3.11 (79)</td>
<td>3.79 (96)</td>
<td>157 (18)</td>
<td>130 (15)</td>
<td>366 (41)</td>
</tr>
<tr>
<td>15:1</td>
<td>015</td>
<td>4.99 (127)</td>
<td>4.79 (117)</td>
<td>100 (11)</td>
<td>83 (9)</td>
<td>297 (34)</td>
</tr>
<tr>
<td>25:1</td>
<td>025</td>
<td>3.11 (79)</td>
<td>3.79 (96)</td>
<td>60 (7)</td>
<td>50 (6)</td>
<td>198 (22)</td>
</tr>
<tr>
<td>30:1</td>
<td>030</td>
<td>4.99 (127)</td>
<td>4.79 (117)</td>
<td>102 (12)</td>
<td>94 (11)</td>
<td>305 (34)</td>
</tr>
<tr>
<td>50:1</td>
<td>050</td>
<td>3.11 (79)</td>
<td>3.79 (96)</td>
<td>62 (7)</td>
<td>57 (6)</td>
<td>203 (23)</td>
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<tr>
<td>100:1</td>
<td>100</td>
<td>5.68 (144)</td>
<td>4.48 (114)</td>
<td>163 (18)</td>
<td>161 (18)</td>
<td>366 (41)</td>
</tr>
</tbody>
</table>

**NOTE:** Dimensions in ( ) are in mm.
SINGLE, DOUBLE AND TRIPLE STAGE

ACCESS HOLES FOR MOTOR SHAFT CLAMP UNIT MAY BE SUPPLIED WITH 2 OR 4 HOLES. △

MOUNTING BRACKET

See technical page 11-64 for assembly directions.

<table>
<thead>
<tr>
<th>Code</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D Dia.</th>
<th>E* Dia.</th>
<th>F</th>
<th>Motor Shaft Length (max. – min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.4</td>
<td>1.22</td>
<td>M4</td>
<td>2.625</td>
<td>1.984</td>
<td>.15</td>
<td>1.28 – 0.65 (22.5 – 16.5)</td>
</tr>
<tr>
<td>2</td>
<td>2.4</td>
<td>1.22</td>
<td>M4</td>
<td>2.756</td>
<td>1.984</td>
<td>.15</td>
<td>1.28 – 0.65 (22.5 – 16.5)</td>
</tr>
<tr>
<td>3</td>
<td>3.54</td>
<td>.174</td>
<td>M6</td>
<td>2.937</td>
<td>3.165</td>
<td>.15</td>
<td>1.53 – 0.9 (23.8 – 22.9)</td>
</tr>
</tbody>
</table>

NOTE: Dimensions in ( ) are in mm.
* Pilot diameter is a clearance diameter and should not be used to center the gearhead.

Motor Shaft Sleeve Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Bore</th>
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<tbody>
<tr>
<td>A</td>
<td>.250</td>
</tr>
<tr>
<td>B</td>
<td>.3125</td>
</tr>
<tr>
<td>C</td>
<td>.375</td>
</tr>
<tr>
<td>D</td>
<td>.500</td>
</tr>
<tr>
<td>E</td>
<td>8 mm</td>
</tr>
<tr>
<td>F</td>
<td>9 mm</td>
</tr>
<tr>
<td>G</td>
<td>10 mm</td>
</tr>
<tr>
<td>H</td>
<td>11 mm</td>
</tr>
<tr>
<td>I</td>
<td>14 mm</td>
</tr>
</tbody>
</table>

Continued from the previous page
### T-SERIES RIGHT ANGLE PLANETARY GEARHEADS • NEMA SIZE 34

**SINGLE, DOUBLE AND TRIPLE STAGE**

**MATERIAL:**
- Housing - Anodized Aluminum
- Gears - Steel, Heat-Treated
- Bearings - Tapered Roller

**OPERATING TEMPERATURE:**
-29°F to +250°F (-34°C to +121°C)

**FEATURES:**
- True planetary system.
- Gears heat-treated to Rc 50.
- High torsional stiffness.
- Readily mounts to most motors.

**SPECIFICATIONS:**
- Max. Input Speed: 5000 rpm
- Shaft Loading - Radial (F_r): See graph
- Axial (F_a): See table
- Efficiency - Single Stage: 98%
  - Double Stage: 93%
  - Triple Stage: 88%
- Max. Backlash - Single Stage: 13 arc min.
  - Double Stage: 15 arc min.
  - Triple Stage: 15 arc min.

**WEIGHT:**
- Single Stage: 6 lb. (2.7 kg)
- Double Stage: 7.4 lb. (3.4 kg)
- Triple Stage: 8.8 lb. (4 kg)

---

**INCH COMPONENT CATALOG NUMBER**

*S 9134 R-R  
**Ratio Code**
- Sleeve Code A, B, C, D, E, or F
- Mounting Bracket Code 1, 2 or 3

* To be discontinued when present stock is depleted.

**RADIAL SHAFT LOAD RATING**

<table>
<thead>
<tr>
<th>Gear Ratio</th>
<th>Ratio Code</th>
<th>L</th>
<th>K</th>
<th>Max. Rated Cont. Torque at 1000 rpm lbf in. (Nm)</th>
<th>Max. Rated Cont. Torque at 5000 rpm lbf in. (Nm)</th>
<th>Max. Momentary Torque lbf in. (Nm)</th>
<th>Inertia Reflected Back to Motor Shaft lbf in. sec^2 x 10^-4 (kg cm^2)</th>
<th>Torsional Stiffness lbf in. / arc min. (Nm / arc min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:1</td>
<td>003</td>
<td>5.76 (146)</td>
<td>3.99 (101)</td>
<td>251 (28)</td>
<td>207 (23)</td>
<td>905 (102)</td>
<td>12.1 (1.37)</td>
<td>21.5 (2.4)</td>
</tr>
<tr>
<td>5:1</td>
<td>005</td>
<td>6.66 (169)</td>
<td>4.89 (124)</td>
<td>508 (57)</td>
<td>420 (47)</td>
<td>1113 (126)</td>
<td>14.5 (1.64)</td>
<td>23.1 (2.6)</td>
</tr>
<tr>
<td>10:1</td>
<td>010</td>
<td>7.56 (192)</td>
<td>5.79 (147)</td>
<td>462 (52)</td>
<td>381 (43)</td>
<td>1113 (126)</td>
<td>13.7 (1.54)</td>
<td>14.8 (1.7)</td>
</tr>
<tr>
<td>15:1</td>
<td>015</td>
<td>8.55 (231)</td>
<td>6.59 (174)</td>
<td>305 (34)</td>
<td>251 (28)</td>
<td>1018 (115)</td>
<td>11.3 (1.28)</td>
<td>21.9 (2.5)</td>
</tr>
<tr>
<td>25:1</td>
<td>025</td>
<td>9.90 (263)</td>
<td>7.78 (200)</td>
<td>172 (19)</td>
<td>142 (16)</td>
<td>635 (72)</td>
<td>10.6 (1.2)</td>
<td>21.9 (2.5)</td>
</tr>
<tr>
<td>30:1</td>
<td>030</td>
<td>11.25 (342)</td>
<td>8.89 (230)</td>
<td>311 (35)</td>
<td>285 (32)</td>
<td>1045 (118)</td>
<td>11.1 (1.25)</td>
<td>17.9 (2)</td>
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<tr>
<td>50:1</td>
<td>050</td>
<td>13.75 (438)</td>
<td>11.24 (280)</td>
<td>175 (20)</td>
<td>160 (18)</td>
<td>653 (74)</td>
<td>10.4 (1.17)</td>
<td>21.4 (2.4)</td>
</tr>
<tr>
<td>100:1</td>
<td>100</td>
<td>16.38 (576)</td>
<td>13.28 (320)</td>
<td>480 (54)</td>
<td>472 (53)</td>
<td>1113 (126)</td>
<td>13.7 (1.55)</td>
<td>14.8 (1.7)</td>
</tr>
</tbody>
</table>

**NOTE:** Dimensions in ( ) are in mm.

1.25.13 JF

---

**Values in graph are rpm**

Radial Force, F_r (lbf)

<table>
<thead>
<tr>
<th>Distance X (mm)</th>
<th>0</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
<th>18</th>
<th>20</th>
<th>22</th>
<th>24</th>
<th>26</th>
<th>28</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radial Force, F_r</td>
<td>0</td>
<td>100</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>500</td>
<td>600</td>
<td>700</td>
<td>800</td>
<td>900</td>
<td>1000</td>
<td>1100</td>
<td>1200</td>
<td>1300</td>
<td>1400</td>
<td></td>
</tr>
</tbody>
</table>

Radial Force, F_a (lbf)

<table>
<thead>
<tr>
<th>Distance X (in.)</th>
<th>0</th>
<th>0.2</th>
<th>0.4</th>
<th>0.6</th>
<th>0.8</th>
<th>1.0</th>
<th>1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radial Force, F_a</td>
<td>0</td>
<td>100</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>500</td>
<td>600</td>
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</table>

**ROTOR AND RATED LOADS**

<table>
<thead>
<tr>
<th>Speed rpm</th>
<th>50</th>
<th>100</th>
<th>250</th>
<th>500</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axial Load F_a lbf (N)</td>
<td>340 (1510)</td>
<td>270 (1200)</td>
<td>200 (890)</td>
<td>160 (710)</td>
<td>130 (580)</td>
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</table>

**CONTINUOUS DUTY COEFFICIENTS**

<table>
<thead>
<tr>
<th>Load Factor</th>
<th>0.2</th>
<th>0.4</th>
<th>0.6</th>
<th>0.8</th>
<th>1.0</th>
<th>1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency</td>
<td>88%</td>
<td>93%</td>
<td>93%</td>
<td>93%</td>
<td>93%</td>
<td>93%</td>
</tr>
</tbody>
</table>

**SIGHTON ANGLE COEFFICIENTS**

<table>
<thead>
<tr>
<th>Load Factor</th>
<th>0.2</th>
<th>0.4</th>
<th>0.6</th>
<th>0.8</th>
<th>1.0</th>
<th>1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio Fr</td>
<td>7.56 (192)</td>
<td>7.56 (192)</td>
<td>7.56 (192)</td>
<td>7.56 (192)</td>
<td>7.56 (192)</td>
<td>7.56 (192)</td>
</tr>
</tbody>
</table>

**INERTIA COEFFICIENTS**

<table>
<thead>
<tr>
<th>Load Factor</th>
<th>0.2</th>
<th>0.4</th>
<th>0.6</th>
<th>0.8</th>
<th>1.0</th>
<th>1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inertia</td>
<td>13.7 (1.55)</td>
<td>13.7 (1.55)</td>
<td>13.7 (1.55)</td>
<td>13.7 (1.55)</td>
<td>13.7 (1.55)</td>
<td>13.7 (1.55)</td>
</tr>
</tbody>
</table>

**CONTINUED ON THE NEXT PAGE**
T-SERIES RIGHT ANGLE PLANETARY GEARHEADS • NEMA SIZE 34

Phone: 516.328.3300 • Fax: 516.326.8827 • www.sdpsi.com

Mounting Bracket

See technical page 11-64 for assembly directions.

<table>
<thead>
<tr>
<th>Code</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D Dia.</th>
<th>E* Dia.</th>
<th>F</th>
<th>Motor Shaft Length (max. – min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.54 (89.9)</td>
<td>1.735 (44.1)</td>
<td>M5</td>
<td>3.87 (98.3)</td>
<td>3.165 (80.4)</td>
<td>.20</td>
<td>1.53 – 0.81 (38.9 – 15.5)</td>
</tr>
<tr>
<td>2</td>
<td>3.54 (89.9)</td>
<td>1.735 (44.1)</td>
<td>M6</td>
<td>3.94 (100)</td>
<td>3.165 (80.4)</td>
<td>.20</td>
<td>1.79 – 0.88 (45.5 – 22.4)</td>
</tr>
<tr>
<td>3</td>
<td>4.53 (115.1)</td>
<td>2.470 (62.7)</td>
<td>M8</td>
<td>5.71 (145)</td>
<td>4.345 (110.4)</td>
<td>.58</td>
<td>1.79 – 0.88 (45.5 – 22.4)</td>
</tr>
</tbody>
</table>

* Pilot diameter is a clearance diameter and should not be used to center the gearhead.

NOTE: Dimensions in ( ) are in mm.

Motor Shaft Sleeve Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Bore</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>375</td>
</tr>
<tr>
<td>B</td>
<td>500</td>
</tr>
<tr>
<td>C</td>
<td>625</td>
</tr>
<tr>
<td>D</td>
<td>14 mm</td>
</tr>
<tr>
<td>E</td>
<td>16 mm</td>
</tr>
<tr>
<td>F</td>
<td>19 mm</td>
</tr>
</tbody>
</table>

Continued from the previous page
T-SERIES RIGHT ANGLE PLANETARY GEARHEADS • NEMA SIZE 42

SINGLE, DOUBLE AND TRIPLE STAGE

> MATERIAL:
Housing - Anodized Aluminum
Gears - Steel, Heat-Treated
Bearings - Tapered Roller

> OPERATING TEMPERATURE:
-29°F to +250°F (-34°C to +121°C)

> FEATURES:
True planetary system.
Gears heat-treated to Rc 50.
High torsional stiffness.
Readily mounts to most motors.

> SPECIFICATIONS:
Max. Input Speed: 5000 rpm
Shaft Loading - Radial (F_r): See graph
Efficiency - Single Stage: 98%
Double Stage: 93%
Triple Stage: 88%
Max. Backlash - Single Stage: 13 arc min.
Double Stage: 15 arc min.
Triple Stage: 15 arc min.

> WEIGHT:
Single Stage: 12 lb. (5.4 kg)
Double Stage: 14.8 lb. (6.7 kg)
Triple Stage: 17.6 lb. (8.0 kg)

Values in graph are rpm

RADIAL SHAFT LOAD RATING

<table>
<thead>
<tr>
<th>Distance X (mm)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radial Force, F_r (lbf)</td>
<td>50</td>
<td>100</td>
<td>250</td>
<td>500</td>
<td>1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance X (in.)</th>
<th>0</th>
<th>0.2</th>
<th>0.4</th>
<th>0.6</th>
<th>0.8</th>
<th>1.0</th>
<th>1.2</th>
<th>1.4</th>
<th>1.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radial Force, F_r (lbf)</td>
<td>50</td>
<td>100</td>
<td>250</td>
<td>500</td>
<td>1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INCH COMPONENT CATALOG NUMBER

<table>
<thead>
<tr>
<th>Sleeve Code</th>
<th>A, B, C, D, E, F, G, H or I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting Bracket Code</td>
<td>1, 2 or 3</td>
</tr>
</tbody>
</table>

* To be discontinued when present stock is depleted

<table>
<thead>
<tr>
<th>Gear Ratio Code</th>
<th>L</th>
<th>K</th>
<th>Max. Rated Cont. Torque at 1000 rpm lbf in. (Nm)</th>
<th>Max. Rated Cont. Torque at 5000 rpm lbf in. (Nm)</th>
<th>Max. Momentary Torque lbf in. (Nm)</th>
<th>Inertia Reflected Back to Motor Shaft lbf in. sec.^2 x 10^4 (kg cm^2)</th>
<th>Torsional Stiffness lbf in. / arc min. (Nm / arc min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:1</td>
<td>003</td>
<td>7.67 (195)</td>
<td>5.40 (137)</td>
<td>687 (78)</td>
<td>567 (64)</td>
<td>2039 (230)</td>
<td>20.6 (2.33)</td>
</tr>
<tr>
<td>5:1</td>
<td>005</td>
<td>1346 (152)</td>
<td>958 (108)</td>
<td>2255 (255)</td>
<td>23.2 (2.63)</td>
<td>28.6 (3.4)</td>
<td></td>
</tr>
<tr>
<td>10:1</td>
<td>010</td>
<td>1072 (121)</td>
<td>885 (100)</td>
<td>2255 (255)</td>
<td>23.2 (2.63)</td>
<td>28.6 (3.4)</td>
<td></td>
</tr>
<tr>
<td>15:1</td>
<td>015</td>
<td>832 (94)</td>
<td>687 (78)</td>
<td>622 (93)</td>
<td>19.3 (2.18)</td>
<td>25.6 (3.3)</td>
<td></td>
</tr>
<tr>
<td>25:1</td>
<td>025</td>
<td>416 (47)</td>
<td>343 (39)</td>
<td>1450 (165)</td>
<td>18 (2.04)</td>
<td>25.6 (3.3)</td>
<td></td>
</tr>
<tr>
<td>30:1</td>
<td>030</td>
<td>851 (96)</td>
<td>778 (88)</td>
<td>2555 (285)</td>
<td>18.9 (2.13)</td>
<td>26.1 (3.0)</td>
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</tr>
<tr>
<td>50:1</td>
<td>050</td>
<td>425 (48)</td>
<td>388 (44)</td>
<td>1499 (168)</td>
<td>17.6 (1.99)</td>
<td>25.6 (3.0)</td>
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<tr>
<td>100:1</td>
<td>100</td>
<td>10.13 (257)</td>
<td>7.87 (200)</td>
<td>1114 (126)</td>
<td>1095 (124)</td>
<td>2255 (255)</td>
<td>23.3 (2.64)</td>
</tr>
</tbody>
</table>

Inches & Radians

**NOTE:** Dimensions in ( ) are in mm.

Continued on the next page
**T-SERIES RIGHT ANGLE PLANETARY GEARHEADS • NEMA SIZE 42**

**SINGLE, DOUBLE, AND TRIPLE STAGE**

**PHONE:** 516.328.3300 • **FAX:** 516.326.8827 • WWW.SDP-SI.COM

---

**ACCESS HOLES FOR MOTOR SHAFT CLAMP UNIT MAY BE SUPPLIED WITH 2 OR 4 HOLES.**

**NOTE:** Dimensions in () are in mm.

* Pilot diameter is a clearance diameter and should not be used to center the gearhead.

---

**Mounting Bracket**

---

**Motor Shaft Sleeve Code**

<table>
<thead>
<tr>
<th>Code</th>
<th>Bore</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>.625</td>
</tr>
<tr>
<td>B</td>
<td>1.000</td>
</tr>
<tr>
<td>C</td>
<td>14</td>
</tr>
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<td>D</td>
<td>16</td>
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<tr>
<td>E</td>
<td>19</td>
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<tr>
<td>F</td>
<td>22</td>
</tr>
<tr>
<td>G</td>
<td>24</td>
</tr>
</tbody>
</table>

---

**Continued from the previous page**
RIGHT ANGLE SPUR GEARHEADS • NEMA SIZE 23

LOW-COST ALTERNATIVE TO PLANETARY SYSTEM
LONG-LIFE DESIGN

> MATERIAL:
  Housing - Steel, Black Zinc Plated
  Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
  Output Shaft - Stainless Steel
  Gears - Stainless Steel
  Bearings - Ball Bearings

> OPERATING TEMPERATURE:
-40°F to +255°F

> FEATURES:
  Standard NEMA sizes.
  Sealed to extend service life.
  Case-hardened spiral bevel gears.
  Includes a precision balanced clamp-on pinion.
  Woodruff key #404 and motor mounting hardware kit supplied.

> SPECIFICATIONS:
Max. Input Speed: 4000 rpm
Shaft Loading - Radial: 300 lbf
Axial: 300 lbf
Min. Efficiency: 90%
Max. Backlash: 25 arc min.
  Lower Backlash units available on special order.
  15 arc min.
Max. Inertia Reflected to Input: 2.58 x 10⁻⁵ ozf in. sec.²
Pinion Gear Inertia: 7.59 x 10⁻⁴ ozf in. sec.²
Max. Torque Rating - Continuous: 20 lbf in.
  Momentary: 30 lbf in.

> WEIGHT:
4 lb.

Other gear ratios and non-NEMA size mounting interfaces are available on special order.

---

<table>
<thead>
<tr>
<th>INCH COMPONENT</th>
<th>Gear Ratio</th>
<th>Maximum Rated Output rpm (4000 rpm input)</th>
<th>Rotation * Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9123-SRS003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9123-SRS005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
</tr>
<tr>
<td>S9123-SRS010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9123-SRS015</td>
<td>15:1</td>
<td>267</td>
<td>R</td>
</tr>
<tr>
<td>S9123-SRS020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9123-SRS030</td>
<td>30:1</td>
<td>133</td>
<td>R</td>
</tr>
<tr>
<td>S9123-SRS050</td>
<td>50:1</td>
<td>80</td>
<td>R</td>
</tr>
<tr>
<td>S9123-SRS0100</td>
<td>100:1</td>
<td>40</td>
<td>S</td>
</tr>
</tbody>
</table>

* "S" indicates output rotates in the same direction as input; "R" denotes opposite direction.
RIGHT ANGLE SPUR GEARHEADS • NEMA SIZE 34

LOW-COST ALTERNATIVE TO PLANETARY SYSTEM
LONG-LIFE DESIGN

> MATERIAL:
  Housing - Steel, Black Zinc Plated
  Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
  Output Shaft - Stainless Steel
  Gears - Stainless Steel
  Bearings - Ball Bearings

> OPERATING TEMPERATURE:
  -40°F to +255°F

> FEATURES:
  Standard NEMA sizes.
  Sealed to extend service life.
  Case-hardened spiral bevel gears.
  Includes a precision balanced clamp-on pinion.
  Woodruff key #606 and motor mounting hardware kit supplied.

> SPECIFICATIONS:
  Max. Input Speed: 4000 rpm
  Shaft Loading - Radial: 500 lbf
  Axial: 500 lbf
  Min. Efficiency: 90%
  Max. Backlash: 25 arc min.
  Lower Backlash units available on special order.
  15 arc min.
  Max. Inertia Reflected to Input: 2.09 x 10^-4 ozf in. sec.
  Pinion Gear Inertia: 1.52 x 10^{-2} ozf in. sec.
  Max. Torque Rating - Continuous: 60 lbf in.
  Momentary: 90 lbf in.

> WEIGHT:
  9 lb.

Other gear ratios and non-NEMA size mounting interfaces are available on special order.
To mate with D50R10-06... motors requires nonstandard pinions (1/2 inch bore) and mounting adapter. Add “SP” to the part number when ordering.

### INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>Maximum Rated Output rpm (4000 rpm input)</th>
<th>Rotation * Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9134D-SRS003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9134D-SRS005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
</tr>
<tr>
<td>S9134D-SRS010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9134D-SRS015</td>
<td>15:1</td>
<td>267</td>
<td>S</td>
</tr>
<tr>
<td>S9134D-SRS020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9134D-SRS030</td>
<td>30:1</td>
<td>133</td>
<td>R</td>
</tr>
<tr>
<td>S9134D-SRS050</td>
<td>50:1</td>
<td>80</td>
<td>S</td>
</tr>
<tr>
<td>S9134D-SRS100</td>
<td>100:1</td>
<td>40</td>
<td>S</td>
</tr>
</tbody>
</table>

* “S” indicates output rotates in the same direction as input; “R” denotes opposite direction.
RIGHT ANGLE SPUR GEARHEADS • NEMA SIZE 42

LOW-COST ALTERNATIVE TO PLANETARY SYSTEM
LONG-LIFE DESIGN

MATERIAL:
- Housing: Steel, Black Zinc Plated
- Right Angle Housing and Mounting Flanges: Aluminum, Black Anodized
- Output Shaft: Stainless Steel
- Gears: Stainless Steel
- Bearings: Ball Bearings

OPERATING TEMPERATURE:
-40°F to +255°F

FEATURES:
- Standard NEMA sizes
- Sealed to extend service life
- Case-hardened spiral bevel gears
- Includes a precision balanced clamp-on pinion
- Woodruff key #808 and motor mounting hardware kit supplied

SPECIFICATIONS:
- Max. Input Speed: 4000 rpm
- Shaft Loading - Radial: 700 lbf
- Axial: 700 lbf
- Min. Efficiency: 90%
- Max. Backlash: 25 arc min
- Lower Backlash units available on special order
- 15 arc min
- Max. Inertia Reflected to Input: 6.69 x 10^-4 ozf in. sec^2
- Pinion Gear Inertia: 7.59 x 10^-3 ozf in. sec^2
- Max. Torque Rating - Continuous: 200 lbf in
- Momentary: 300 lbf in

WEIGHT:
- 24 lb

Other gear ratios and non-NEMA size mounting interfaces are available on special order.

INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>Maximum Rated Output rpm (4000 rpm input)</th>
<th>Rotation Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9142D-SRG003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9142D-SRG005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
</tr>
<tr>
<td>S9142D-SRG010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9142D-SRG015</td>
<td>15:1</td>
<td>267</td>
<td>R</td>
</tr>
<tr>
<td>S9142D-SRG020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9142D-SRG030</td>
<td>30:1</td>
<td>133</td>
<td>S</td>
</tr>
<tr>
<td>S9142D-SRG050</td>
<td>50:1</td>
<td>80</td>
<td>R</td>
</tr>
<tr>
<td>S9142D-SRG100</td>
<td>100:1</td>
<td>40</td>
<td>S</td>
</tr>
</tbody>
</table>

* "S" indicates output rotates in the same direction as input; "R" denotes opposite direction.
INERTIA MATCHING EXAMPLE

**Motor Rotor Inertia**
518E-03 ozf in. sec.²

**Gearhead**

**Load Inertia**
1.567E-01 ozf in. sec.²

**System Inertia**

Formula:

System Inertia = Gearhead Inertia + Pinion Inertia + \( \frac{\text{Load Inertia}}{\text{(Gear Ratio)}^2} \)

Given:

- Size 23 5.5:1 Gearhead Inertia = 1.746E-04 ozf in. sec.²
- Size 23 5.5:1 Pinion Inertia = 9.062E-04 ozf in. sec.²
- Load Inertia = 1.567E-01 ozf in. sec.²
- Motor Inertia = 5.18E-03 ozf in. sec.²

Solution:

System Inertia = 1.746E-04 ozf in. sec.² + 9.062E-04 ozf in. sec.² + \( \frac{1.567E-01 \text{ ozf in. sec.}^2}{(5.5)^2} \)

System Inertia = 6.26E-03 ozf in. sec.²

Ratio of the System Inertia to (\( \text{The Motor Rotor Inertia} = (6.26E-03 \text{ ozf in. sec.}^2) : (5.18E-03 \text{ ozf in. sec.}^2) \)

-OR-

1.2 to 1 (Inertia Match)

**Ideal Inertia Match of 1:1**

Yields a Very Fast System Response

Other Application Parameters to Consider:

- Torque Requirements
- Speed Requirements
- Response Requirements
- Stiffness Requirements
- Resolution Requirements
**DUAL-OUTPUT PG PLANETARY GEARHEADS • SIZE 17**

**RIGHT ANGLE**

**SINGLE, DOUBLE, AND TRIPLE STAGE**

**PRECISION SERIES**

**LOW BACKLASH DESIGN**

**> MATERIAL:**

- Housing - Stainless Steel
- Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
- Output Shafts - Stainless Steel
- Gears - Steel, Case-Hardened
- Bearings - Precision Tapered Roller

**> OPERATING TEMPERATURE:**

-40°F to +255°F

**> FEATURES:**

- True planetary system.
- Standard NEMA sizes.
- High torsional stiffness.
- Case-hardened spiral bevel gears.
- Sealed to extend service life.
- Includes a precision balanced clamp-on pinion.
- Woodruff keys #303 and motor mounting hardware kit supplied.

**> SPECIFICATIONS:**

- **Max. Input Speed:** 6500 rpm
- **Shaft Loading - Radial:** 125 lbf
- **Axial:** 75 lbf
- **Min. Efficiency - Single Stage:** 85%
- **Double Stage:** 80%
- **Triple Stage:** 75%
- **Max. Backlash - Single Stage:** 11 arc min.
- **Double Stage:** 15 arc min.
- **Triple Stage:** 19 arc min.

**MATERIAL:**

- Housing - Stainless Steel
- Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
- Output Shafts - Stainless Steel
- Gears - Steel, Case-Hardened
- Bearings - Precision Tapered Roller

**OPERATING TEMPERATURE:**

-40°F to +255°F

**FEATURES:**

- True planetary system.
- Standard NEMA sizes.
- High torsional stiffness.
- Case-hardened spiral bevel gears.
- Sealed to extend service life.
- Includes a precision balanced clamp-on pinion.
- Woodruff keys #303 and motor mounting hardware kit supplied.

**SPECIFICATIONS:**

- **Max. Input Speed:** 6500 rpm
- **Shaft Loading - Radial:** 125 lbf
- **Axial:** 75 lbf
- **Min. Efficiency - Single Stage:** 85%
- **Double Stage:** 80%
- **Triple Stage:** 75%
- **Max. Backlash - Single Stage:** 11 arc min.
- **Double Stage:** 15 arc min.
- **Triple Stage:** 19 arc min.

**WEIGHT:**

- **Single Stage:** 2.8 lb.
- **Double Stage:** 3.4 lb.
- **Triple Stage:** 4.0 lb.

Non-NEMA size mounting interfaces are available on special order.

**INCH COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>M</th>
<th>Max. Rated Cont. Torque** lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (6500 rpm Input)</th>
<th>Inertia Gearhead ozf in. sec. ²</th>
<th>Inertia Pinion ozf in. sec. ²</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9117E-SDPG003</td>
<td>3:1</td>
<td>4.97</td>
<td>3.30 Single Stage</td>
<td>167</td>
<td>261</td>
<td>2166</td>
<td>2.153 x 10^4</td>
<td>2.163 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG004</td>
<td>4:1</td>
<td>5.51</td>
<td>3.84 Double Stage</td>
<td>158</td>
<td>248</td>
<td>1625</td>
<td>2.478 x 10^4</td>
<td>1.352 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG005H</td>
<td>5:5:1</td>
<td>7.1</td>
<td>3.84 Double Stage</td>
<td>143</td>
<td>223</td>
<td>1182</td>
<td>2.341 x 10^4</td>
<td>1.174 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG007</td>
<td>7:1</td>
<td>10.1</td>
<td>3.30 Single Stage</td>
<td>119</td>
<td>158</td>
<td>928</td>
<td>8.344 x 10^4</td>
<td>1.143 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG010</td>
<td>10.1</td>
<td>16.1</td>
<td>3.30 Single Stage</td>
<td>56</td>
<td>84</td>
<td>650</td>
<td>4.113 x 10^4</td>
<td>1.132 x 10^4</td>
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<tr>
<td>S9117E-SDPG016</td>
<td>16.1</td>
<td>22.1</td>
<td>3.30 Single Stage</td>
<td>169</td>
<td>264</td>
<td>406</td>
<td>1.088 x 10^5</td>
<td>1.352 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG022</td>
<td>22.1</td>
<td>28.1</td>
<td>3.30 Single Stage</td>
<td>171</td>
<td>267</td>
<td>295</td>
<td>6.056 x 10^4</td>
<td>1.174 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG028</td>
<td>28.1</td>
<td>40.1</td>
<td>3.30 Single Stage</td>
<td>172</td>
<td>269</td>
<td>232</td>
<td>3.806 x 10^4</td>
<td>1.143 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG040</td>
<td>40.1</td>
<td>55.1</td>
<td>3.30 Single Stage</td>
<td>174</td>
<td>272</td>
<td>162</td>
<td>1.889 x 10^5</td>
<td>1.132 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG049</td>
<td>49.1</td>
<td>55.1</td>
<td>3.30 Single Stage</td>
<td>127</td>
<td>199</td>
<td>132</td>
<td>3.525 x 10^4</td>
<td>1.143 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG055</td>
<td>55.1</td>
<td>70.1</td>
<td>3.30 Single Stage</td>
<td>156</td>
<td>243</td>
<td>118</td>
<td>1.791 x 10^5</td>
<td>1.132 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG070</td>
<td>70.1</td>
<td>100.1</td>
<td>3.30 Single Stage</td>
<td>128</td>
<td>201</td>
<td>92</td>
<td>1.751 x 10^5</td>
<td>1.132 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDPG100</td>
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<td>160.1</td>
<td>3.30 Single Stage</td>
<td>52</td>
<td>77</td>
<td>65</td>
<td>1.719 x 10^5</td>
<td>1.132 x 10^4</td>
</tr>
</tbody>
</table>

* Triple stage units are available on special order only.
** Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
DUAL-OUTPUT PG PLANETARY GEARHEADS • SIZE 17

RIGHT ANGLE
SINGLE, DOUBLE, AND TRIPLE STAGE

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM
DUAL-OUTPUT PG PLANETARY GEARHEADS • SIZE 23

RIGHT ANGLE
SINGLE, DOUBLE, AND TRIPLE STAGE
PRECISION SERIES
LOW BACKLASH DESIGN

> MATERIAL:
- Housing - Stainless Steel
- Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
- Output Shafts - Stainless Steel
- Gears - Steel, Case-Hardened
- Bearings - Precision Tapered Roller

> OPERATING TEMPERATURE:
-40°F to +255°F

> FEATURES:
- True planetary system.
- Standard NEMA sizes.
- High torsional stiffness.
- Case-hardened spiral bevel gears.
- Sealed to extend service life.
- Includes a precision balanced clamp-on pinion.
- Woodruff keys #404 and motor mounting hardware kit supplied.

> SPECIFICATIONS:
Max. Input Speed: 6500 rpm
Shaft Loading - Radial: 600 lbf
Axial: 600 lbf
Min. Efficiency - Single Stage: 85%
  Double Stage: 80%
  Triple Stage: 75%
Max. Backlash - Single Stage: 11 arc min.
  Double Stage: 15 arc min.
  Triple Stage: 19 arc min.
- Lower Backlash units available on special order.
  Single Stage: 8 arc min.
  Double Stage: 10 arc min.
  Triple Stage: 12 arc min.

> WEIGHT:
- Single Stage: 4 lb.
  Double Stage: 5 lb.
  Triple Stage: 6 lb.

Non-NEMA size mounting interfaces are available on special order.

### INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>M</th>
<th>Max. Rated Cont. Torque** lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (6500 rpm Input)</th>
<th>Inertia Gearhead ozf in. sec. ^2</th>
<th>Inertia Pinion ozf in. sec. ^2</th>
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<tbody>
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<td>4.23</td>
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*: Triple stage units are available on special order only.
**: Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
RIGHT ANGLE
SINGLE, DOUBLE, AND TRIPLE STAGE

DUAL-OUTPUT PG PLANETARY GEARHEADS • SIZE 23

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW

#10-24 UNC-2B X .375 DP (4 HOLES) EQ. SP. ON A Ø2.625 B.C.

Ø 5000
.312 (TYP)
.99
.063

L
M

Ø 1.500
1.498
.125

2.25 SQ.
1.86 (TYP)

Ø 2.95

Ø 2.05 (4 HOLES) EQ. SP. ON A Ø2.625 B.C.

#10-24 UNC-2B X .375 DP (4 HOLES) EQ. SP. ON A Ø2.625 B.C.

Ø 1.504
1.503

.12

1.86 (TYP)

2.25 SQ.

Ø 2.95

Ø 2.05 (4 HOLES) EQ. SP. ON A Ø2.625 B.C.

#10-24 UNC-2B X .375 DP (4 HOLES) EQ. SP. ON A Ø2.625 B.C.
DUAL-OUTPUT PG PLANETARY GEARHEADS • SIZE 34

RIGHT ANGLE
SINGLE, DOUBLE, AND TRIPLE STAGE
PRECISION SERIES
LOW BACKLASH DESIGN

> MATERIAL:
- Housing: Stainless Steel
- Right Angle Housing and Mounting Flanges: Aluminum, Black Anodized
- Output Shafts: Stainless Steel
- Gears: Steel, Case-Hardened
- Bearings: Precision Tapered Roller

> OPERATING TEMPERATURE:
-40°F to +255°F

> FEATURES:
- True planetary system.
- Standard NEMA sizes.
- High torsional stiffness.
- Case-hardened spiral bevel gears.
- Sealed to extend service life.
- Includes a precision balanced clamp-on pinion.
- Woodruff keys #606 and motor mounting hardware kit supplied.

> SPECIFICATIONS:
- Max. Input Speed: 6500 rpm
- Shaft Loading - Radial: 900 lbf
- Axial: 900 lbf
- Min. Efficiency - Single Stage: 85%
  Double Stage: 80%
  Triple Stage: 75%
- Max. Backlash - Single Stage: 11 arc min.
  Double Stage: 15 arc min.
  Triple Stage: 19 arc min.
  Lower Backlash units available on special order.
  Single Stage: 8 arc min.
  Double Stage: 10 arc min.
  Triple Stage: 12 arc min.

> WEIGHT:
- Single Stage: 12.5 lb.
- Double Stage: 13.5 lb.
- Triple Stage: 14.5 lb.

Non-NEMA size mounting interfaces are available on special order.
To mate with D50R10-06.. motors requires nonstandard pinions (1/2 inch bore).
Add “SP” to the part number when ordering.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>M</th>
<th>Max. Rated Cont. Torque** lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (6500 rpm Input)</th>
<th>Inertia Gearhead ozf in. sec. ²</th>
<th>Inertia Input Pinion ozf in. sec. ²</th>
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<tbody>
<tr>
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<td>5.91</td>
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<td>7.04</td>
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<td>1905</td>
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<td>828</td>
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<td>1925</td>
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<td>S9134E-SDPG070</td>
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<td>1027</td>
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<td>761</td>
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<td>2226</td>
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*Triple stage units are available on special order only.
**Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
DUAL-OUTPUT PG PLANETARY GEARHEADS • SIZE 34

RIGHT ANGLE
SINGLE, DOUBLE, AND TRIPLE STAGE

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM
**DUAL-OUTPUT PG PLANETARY GEARHEADS • SIZE 42**

**RIGHT ANGLE**
**SINGLE, DOUBLE, AND TRIPLE STAGE**
**PRECISION SERIES**
**LOW BACKLASH DESIGN**

> **MATERIAL:**
  - Housing - Stainless Steel
  - Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
  - Output Shafts - Stainless Steel
  - Gears - Steel, Case-Hardened
  - Bearings - Precision Tapered Roller

> **OPERATING TEMPERATURE:**
  - -40°F to +255°F

> **FEATURES:**
  - True planetary system.
  - Standard NEMA sizes.
  - High torsional stiffness.
  - Case-hardened spiral bevel gears.
  - Sealed to extend service life.
  - Includes a precision balanced clamp-on pinion.
  - Woodruff keys #303 and motor mounting hardware kit supplied.

> **SPECIFICATIONS:**
  - **Max. Input Speed:** 6500 rpm
  - **Shaft Loading - Radial:** 1400 lbf
    - Axial: 1400 lbf
  - **Min. Efficiency - Single Stage:** 85%
    - Double Stage: 90%
    - Triple Stage: 75%
  - **Max. Backlash - Single Stage:** 11 arc min.
    - Double Stage: 15 arc min.
    - Triple Stage: 19 arc min.
  - Lower Backlash units available on special order.
    - Single Stage: 8 arc min.
    - Double Stage: 10 arc min.
    - Triple Stage: 12 arc min.

> **WEIGHT:**
  - Single Stage: 28.5 lb.
  - Double Stage: 35 lb.
  - Triple Stage: 36 lb.

Non-NEMA size mounting interfaces are available on special order.

### INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
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<th>M</th>
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<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (6500 rpm Input)</th>
<th>Inertia Gearhead ozf in. sec. ²</th>
<th>Inertia Input Pinion ozf in. sec. ²</th>
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<tbody>
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<td>4142</td>
<td>16</td>
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<td>Single</td>
<td>7.18</td>
<td>2009</td>
<td>3140</td>
<td>9</td>
<td>1.881 x 10⁻², 8.680 x 10⁻²</td>
</tr>
</tbody>
</table>

* Triple stage units are available on special order only.
** Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
DUAL-OUTPUT PG PLANETARY GEARHEADS • SIZE 42

RIGHT ANGLE
SINGLE, DOUBLE, AND TRIPLE STAGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

GREATHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW
DUAL-OUTPUT EG PLANETARY GEARHEADS • SIZE 17

RIGHT ANGLE
SINGLE AND DOUBLE STAGE
ECONOMY SERIES

➤ MATERIAL:
Housing - Steel, Gold Zinc Plated
Right Angle Housing and
Mounting Flanges - Aluminum, Black Anodized
Output Shafts - Stainless Steel
Gears - Steel, Case-Hardened
Bearings - Precision Tapered Roller

➤ OPERATING TEMPERATURE:
-40°F to +255°F

➤ FEATURES:
True planetary system.
Standard NEMA sizes.
High torsional stiffness.
Case-hardened spiral bevel gears.
Sealed to extend service life.
Includes a precision balanced clamp-on pinion.
Woodruff keys #404 and motor mounting hardware kit supplied.

➤ SPECIFICATIONS:
Max. Input Speed: 5000 rpm
Shaft Loading - Radial: 400 lbf
Axial: 400 lbf
Min. Efficiency - Single Stage: 85%
Double Stage: 80%
Max. Backlash - Single Stage: 14 arc min.
Double Stage: 18 arc min.
Lower Backlash units available on special order.
Single Stage: 11 arc min.
Double Stage: 13 arc min.

➤ WEIGHT:
Single Stage: 2.8 lb.
Double Stage: 3.4 lb.
Non-NEMA size mounting interfaces are available on special order.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L (in.)</th>
<th>M</th>
<th>Max. Rated Cont. Torque* (lbf in.)</th>
<th>Max. Momentary Torque (lbf in.)</th>
<th>Max. Rated Output rpm (5000 Input)</th>
<th>Inertia Gearhead ozf in. sec. 2</th>
<th>Inertia Input Pinion ozf in. sec. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9117E-SDEG003</td>
<td>3:1</td>
<td>4.97</td>
<td>Single Stage</td>
<td>3.30</td>
<td>125</td>
<td>174</td>
<td>1666</td>
<td>1.669 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDEG004</td>
<td>4:1</td>
<td></td>
<td>Single Stage</td>
<td>3.30</td>
<td>119</td>
<td>165</td>
<td>1250</td>
<td>1.053 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDEG005H</td>
<td>5.5:1</td>
<td></td>
<td>Single Stage</td>
<td>3.30</td>
<td>107</td>
<td>149</td>
<td>909</td>
<td>5.870 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDEG007</td>
<td>7:1</td>
<td></td>
<td>Single Stage</td>
<td>3.30</td>
<td>89</td>
<td>124</td>
<td>714</td>
<td>3.692 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDEG010</td>
<td>10:1</td>
<td></td>
<td>Single Stage</td>
<td>3.30</td>
<td>56</td>
<td>84</td>
<td>500</td>
<td>1.833 x 10^4</td>
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<tr>
<td>S9117E-SDEG016</td>
<td>16:1</td>
<td></td>
<td>Single Stage</td>
<td>3.30</td>
<td>127</td>
<td>176</td>
<td>312</td>
<td>1.045 x 10^4</td>
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<td>S9117E-SDEG022</td>
<td>22:1</td>
<td></td>
<td>Double Stage</td>
<td>3.97</td>
<td>128</td>
<td>178</td>
<td>227</td>
<td>5.830 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDEG028</td>
<td>28:1</td>
<td></td>
<td>Double Stage</td>
<td>3.97</td>
<td>129</td>
<td>179</td>
<td>178</td>
<td>3.667 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDEG040</td>
<td>40:1</td>
<td></td>
<td>Double Stage</td>
<td>3.97</td>
<td>131</td>
<td>181</td>
<td>125</td>
<td>1.821 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDEG049</td>
<td>49:1</td>
<td></td>
<td>Double Stage</td>
<td>3.97</td>
<td>95</td>
<td>132</td>
<td>102</td>
<td>3.479 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDEG055</td>
<td>55:1</td>
<td></td>
<td>Double Stage</td>
<td>3.97</td>
<td>117</td>
<td>162</td>
<td>91</td>
<td>1.755 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDEG070</td>
<td>70:1</td>
<td></td>
<td>Double Stage</td>
<td>3.97</td>
<td>96</td>
<td>134</td>
<td>71</td>
<td>1.724 x 10^4</td>
</tr>
<tr>
<td>S9117E-SDEG100</td>
<td>100:1</td>
<td></td>
<td>Double Stage</td>
<td>3.97</td>
<td>52</td>
<td>77</td>
<td>50</td>
<td>1.708 x 10^4</td>
</tr>
</tbody>
</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
DUAL-OUTPUT EG PLANETARY GEARHEADS • SIZE 17

RIGHT ANGLE
SINGLE AND DOUBLE STAGE

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

Inch
DUAL-OUTPUT EG PLANETARY GEARHEADS • SIZE 23

RIGHT ANGLE
SINGLE AND DOUBLE STAGE
ECONOMY SERIES

> MATERIAL:
Housing - Steel, Gold Zinc Plated
Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
Output Shafts - Stainless Steel
Gears - Steel, Case-Hardened
Bearings - Precision Tapered Roller

> OPERATING TEMPERATURE:
-40°F to +255°F

> FEATURES:
True planetary system.
Standard NEMA sizes.
High torsional stiffness.
Case-hardened spiral bevel gears.
Sealed to extend service life.
Includes a precision balanced clamp-on pinion.
Woodruff keys #404 and motor mounting hardware kit supplied.

> SPECIFICATIONS:
Max. Input Speed: 5000 rpm
Shaft Loading - Radial: 600 lbf
Axial: 600 lbf
Min. Efficiency - Single Stage: 85%
Double Stage: 80%
Max. Backlash - Single Stage: 14 arc min.
Double Stage: 18 arc min.
Lower Backlash units available on special order.
Single Stage: 11 arc min.
Double Stage: 13 arc min.

> WEIGHT:
Single Stage: 4.2 lb.
Double Stage: 5.2 lb.

Non-NEMA size mounting interfaces are available on special order.

<table>
<thead>
<tr>
<th>INCH COMPONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Catalog Number</strong></td>
</tr>
<tr>
<td>S9123E-SDEG003</td>
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<tr>
<td>S9123E-SDEG004</td>
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<tr>
<td>S9123E-SDEG005H</td>
</tr>
<tr>
<td>S9123E-SDEG007</td>
</tr>
<tr>
<td>S9123E-SDEG010</td>
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<tr>
<td>S9123E-SDEG016</td>
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<tr>
<td>S9123E-SDEG022</td>
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<td>S9123E-SDEG028</td>
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<td>S9123E-SDEG040</td>
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<td>S9123E-SDEG049</td>
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<tr>
<td>S9123E-SDEG055</td>
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<tr>
<td>S9123E-SDEG070</td>
</tr>
<tr>
<td>S9123E-SDEG100</td>
</tr>
</tbody>
</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
RIGHT ANGLE
SINGLE AND DOUBLE STAGE

DUAL-OUTPUT EG PLANETARY GEARHEADS • SIZE 23

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

Inch

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW

1.498
1.500
1.25
0.62 (TYP)
0.63
2.25
1.86
(TYP)
1.504
1.503
1.500
.5000
.4995
.56
.312
(TYP)
.99
.12
.25
2.25
SQ.
1.86
(TYP)
1.500
.062 (TYP)
RIGHT ANGLE
SINGLE AND DOUBLE STAGE
ECONOMY SERIES

▷ MATERIAL:
Housing - Steel, Gold Zinc Plated
Right Angle Housing and
Mounting Flanges - Aluminum, Black Anodized
Output Shafts - Stainless Steel
Gears - Steel, Case-Hardened
Bearings - Precision Tapered Roller

▷ OPERATING TEMPERATURE:
-40° F to +255° F

▷ FEATURES:
True planetary system.
Standard NEMA sizes.
High torsional stiffness.
Case-hardened spiral bevel gears.
Sealed to extend service life.
Includes a precision balanced clamp-on pinion.
Woodruff keys #606 and motor mounting hardware kit supplied.

▷ SPECIFICATIONS:
Max. Input Speed: 5000 rpm
Shaft Loading - Radial: 900 lbf
Axial: 900 lbf
Min. Efficiency - Single Stage: 85%
Double Stage: 80%
Max. Backlash - Single Stage: 14 arc min.
Double Stage: 18 arc min.
Lower Backlash units available on special order.
Single Stage: 11 arc min.
Double Stage: 13 arc min.

▷ WEIGHT:
Single Stage: 12.4 lb.
Double Stage: 13.4 lb.

Non-NEMA size mounting interfaces are available on special order.
To mate with D50R10-66.. motor requires nonstandard pinion (1/2 in. bore)
Add "SP" to the part number when ordering.

INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>M</th>
<th>Max. Rated Cont. Torque* lbf in.</th>
<th>Max. Momentary Torque lbf in.</th>
<th>Max. Rated Output rpm (5000 rpm Input)</th>
<th>Inertia Gearhead ozf in. sec.²</th>
<th>Inertia Input Pinion ozf in. sec.²</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9134E-SDEG003</td>
<td>3:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>964</td>
<td>1339</td>
<td>1666</td>
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<tr>
<td>S9134E-SDEG004</td>
<td>4:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>914</td>
<td>1270</td>
<td>1250</td>
</tr>
<tr>
<td>S9134E-SDEG005H</td>
<td>5:5:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>835</td>
<td>1160</td>
<td>909</td>
</tr>
<tr>
<td>S9134E-SDEG007</td>
<td>7:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>701</td>
<td>934</td>
<td>714</td>
</tr>
<tr>
<td>S9134E-SDEG010</td>
<td>10:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>507</td>
<td>704</td>
<td>500</td>
</tr>
<tr>
<td>S9134E-SDEG016</td>
<td>16:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>986</td>
<td>1370</td>
<td>312</td>
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<tr>
<td>S9134E-SDEG022</td>
<td>22:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>1000</td>
<td>1389</td>
<td>227</td>
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<tr>
<td>S9134E-SDEG028</td>
<td>28:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>1009</td>
<td>1402</td>
<td>178</td>
</tr>
<tr>
<td>S9134E-SDEG040</td>
<td>40:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>1023</td>
<td>1421</td>
<td>125</td>
</tr>
<tr>
<td>S9134E-SDEG049</td>
<td>49:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>762</td>
<td>1058</td>
<td>102</td>
</tr>
<tr>
<td>S9134E-SDEG055</td>
<td>55:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>924</td>
<td>1283</td>
<td>91</td>
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<tr>
<td>S9134E-SDEG070</td>
<td>70:1</td>
<td>9.53</td>
<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>770</td>
<td>1070</td>
<td>71</td>
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<tr>
<td>S9134E-SDEG100</td>
<td>100:1</td>
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<td>6.27</td>
<td>Single Stage</td>
<td>Single Stage</td>
<td>507</td>
<td>761</td>
<td>50</td>
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</tbody>
</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
DUAL-OUTPUT EG PLANETARY GEARHEADS • SIZE 34

RIGHT ANGLE
SINGLE AND DOUBLE STAGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

PARTIAL MOTOR INPUT VIEW

GEARHEAD OUTPUT VIEW
DUAL-OUTPUT EG PLANETARY GEARHEADS • SIZE 42

RIGHT ANGLE
SINGLE AND DOUBLE STAGE
ECONOMY SERIES

› MATERIAL:
  Housing - Steel, Gold Zinc Plated
  Right Angle Housing and
  Mounting Flanges - Aluminum, Black Anodized
  Output Shafts - Stainless Steel
  Gears - Steel, Case-Hardened
  Bearings - Precision Tapered Roller

› OPERATING TEMPERATURE:
  -40°F to +255°F

› FEATURES:
  True planetary system.
  Standard NEMA sizes.
  High torsional stiffness.
  Case-hardened spiral bevel gears.
  Sealed to extend service life.
  Includes a precision balanced clamp-on pinion.
  Woodruff keys #88 and motor mounting hardware kit supplied.

› SPECIFICATIONS:
  Max. Input Speed: 5000 rpm
  Shaft Loading - Radial: 1400 lbf
  Axial: 1400 lbf
  Min. Efficiency - Single Stage: 85%
  Double Stage: 80%
  Max. Backlash - Single Stage: 14 arc min.
  Double Stage: 18 arc min.
  Lower Backlash units available on special order.
  Single Stage: 11 arc min.
  Double Stage: 13 arc min.

› WEIGHT:
  Single Stage: 29 lb.
  Double Stage: 35 lb.

Non-NEMA size mounting interfaces are available on special order.

INCH COMPONENT

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S9142E-SDEG003</td>
<td>3:1</td>
<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
<td>1726</td>
<td>2398</td>
<td>1666</td>
<td>1.641 x 10^3</td>
<td>1.680 x 10^3</td>
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<tr>
<td>S9142E-SDEG004</td>
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<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
<td>1646</td>
<td>2287</td>
<td>1250</td>
<td>1.094 x 10^3</td>
<td>1.032 x 10^3</td>
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<tr>
<td>S9142E-SDEG005H</td>
<td>5.5:1</td>
<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
<td>1516</td>
<td>2106</td>
<td>909</td>
<td>5.878 x 10^2</td>
<td>8.997 x 10^2</td>
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<tr>
<td>S9142E-SDEG007</td>
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<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
<td>1283</td>
<td>1782</td>
<td>714</td>
<td>3.704 x 10^2</td>
<td>8.766 x 10^2</td>
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<td>7.64 Single Stage</td>
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<td>1300</td>
<td>500</td>
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<td>8.680 x 10^2</td>
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<td>7.64 Single Stage</td>
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<td>2478</td>
<td>312</td>
<td>1.101 x 10^2</td>
<td>1.032 x 10^2</td>
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<td>S9142E-SDEG022</td>
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<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
<td>1810</td>
<td>2515</td>
<td>227</td>
<td>6.156 x 10^2</td>
<td>8.997 x 10^2</td>
</tr>
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<td>S9142E-SDEG028</td>
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<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
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<td>2540</td>
<td>178</td>
<td>3.875 x 10^2</td>
<td>8.766 x 10^2</td>
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<td>S9142E-SDEG040</td>
<td>40:1</td>
<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
<td>1855</td>
<td>2577</td>
<td>125</td>
<td>1.325 x 10^2</td>
<td>8.680 x 10^2</td>
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<td>S9142E-SDEG049</td>
<td>49:1</td>
<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
<td>1400</td>
<td>1945</td>
<td>102</td>
<td>3.706 x 10^2</td>
<td>8.766 x 10^2</td>
</tr>
<tr>
<td>S9142E-SDEG055</td>
<td>55:1</td>
<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
<td>1688</td>
<td>2344</td>
<td>91</td>
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<td>8.680 x 10^2</td>
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<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
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<td>1969</td>
<td>71</td>
<td>1.843 x 10^2</td>
<td>8.680 x 10^2</td>
</tr>
<tr>
<td>S9142E-SDEG100</td>
<td>100:1</td>
<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
<td>1024</td>
<td>1423</td>
<td>50</td>
<td>1.823 x 10^2</td>
<td>8.680 x 10^2</td>
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</table>

* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
DUAL-OUTPUT EG PLANETARY GEARHEADS • SIZE 42

RIGHT ANGLE
SINGLE AND DOUBLE STAGE

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW
DUAL-OUTPUT SPUR GEARHEADS • NEMA SIZE 23

RIGHT ANGLE
LOW-COST ALTERNATIVE TO
PLANETARY SYSTEM
LONG-LIFE DESIGN

> MATERIAL:
Housing - Steel, Black Zinc Plated
Right Angle Housing and
Mounting Flanges - Aluminum, Black Anodized
Output Shafts - Stainless Steel
Gears - Stainless Steel
Bearings - Ball Bearings

> OPERATING TEMPERATURE:
-40°F to +255°F

> FEATURES:
Standard NEMA size.
Sealed to extend service life.
Case-hardened spiral bevel gears.
Includes a precision balanced clamp-on pinion.
Woodruff keys #404 and motor mounting hardware kit supplied.

> SPECIFICATIONS:
Max. Input Speed: 4000 rpm
Shaft Loading - Radial: 300 lbf
Axial: 300 lbf
Min. Efficiency: 90%
Max. Backlash: 25 arc min.
Lower Backlash units available on special order.
15 arc min.
Max. Inertia Reflected to Input: 2.58 x 10^{-5} ozf in. sec.²
Pinion Gear Inertia: 7.59 x 10^{-4} ozf in. sec.²
Max. Torque Rating - Continuous: 20 lbf in.
Momentary: 30 lbf in.

> WEIGHT:
4 lb.

Other gear ratios and non-NEMA size mounting interfaces are available on special order.

**INCH COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>Maximum Rated Output rpm (4000 rpm input)</th>
<th>Rotation * Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9123E-SDSG003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9123E-SDSG005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
</tr>
<tr>
<td>S9123E-SDSG010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9123E-SDSG015</td>
<td>15:1</td>
<td>267</td>
<td>R</td>
</tr>
<tr>
<td>S9123E-SDSG020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9123E-SDSG030</td>
<td>30:1</td>
<td>133</td>
<td>R</td>
</tr>
<tr>
<td>S9123E-SDSG050</td>
<td>50:1</td>
<td>80</td>
<td>R</td>
</tr>
<tr>
<td>S9123E-SDSG100</td>
<td>100:1</td>
<td>40</td>
<td>S</td>
</tr>
</tbody>
</table>

* “S” indicates output rotates in the same direction as input; “R” denotes opposite direction.
DUAL-OUTPUT SPUR GEARHEADS • NEMA SIZE 34

RIGHT ANGLE
LOW-COST ALTERNATIVE TO
PLANETARY SYSTEM
LONG-LIFE DESIGN

> MATERIAL:
Housing - Steel, Black Zinc Plated
Right Angle Housing and
Mounting Flanges - Aluminum, Black Anodized
Output Shafts - Stainless Steel
Gears - Stainless Steel
Bearings - Ball Bearings

> OPERATING TEMPERATURE:
-40°F to +255°F

> FEATURES:
Standard NEMA size.
Sealed to extend service life.
Case-hardened spiral bevel gears.
Includes a precision balanced clamp-on pinion.
Woodruff keys #606 and motor mounting hardware kit supplied.

> SPECIFICATIONS:
Max. Input Speed: 4000 rpm
Shaft Loading - Radial: 500 lbf
Axial: 500 lbf
Min. Efficiency: 90%
Max. Backlash: 25 arc min.
Lower Backlash units available on special order.
Max. Inertia Reflected to Input: 2.09 x 10^4 ozf in. sec.²
Pinion Gear Inertia: 1.52 x 10^3 ozf in. sec.²
Max. Torque Rating - Continuous: 60 lbf in.
Momentary: 90 lbf in.

> WEIGHT:
9 lb.

Other gear ratios and non-NEMA size mounting interfaces are available on special order.
To mate with D50R10-06... motors requires nonstandard pinions (1/2 inch bore).
Add "SP" to the part number when ordering.

---

### INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>Maximum Rated Output rpm (4000 rpm input)</th>
<th>Rotation * Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9134E-SDSG003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9134E-SDSG005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
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<td>S9134E-SDSG010</td>
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<td>400</td>
<td>S</td>
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<tr>
<td>S9134E-SDSG015</td>
<td>15:1</td>
<td>267</td>
<td>S</td>
</tr>
<tr>
<td>S9134E-SDSG020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9134E-SDSG030</td>
<td>30:1</td>
<td>133</td>
<td>R</td>
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<tr>
<td>S9134E-SDSG050</td>
<td>50:1</td>
<td>80</td>
<td>S</td>
</tr>
<tr>
<td>S9134E-SDSG100</td>
<td>100:1</td>
<td>40</td>
<td>S</td>
</tr>
</tbody>
</table>

* "S" indicates output rotates in the same direction as input; "R" denotes opposite direction.
**DUAL-OUTPUT SPUR GEARHEADS • NEMA SIZE 42**

**RIGHT ANGLE**
LOW-COST ALTERNATIVE TO PLANETARY SYSTEM
LONG-LIFE DESIGN

**MATERIAL:**
- Housing - Steel, Black Zinc Plated
- Right Angle Housing and Mounting Flanges - Aluminum, Black Anodized
- Output Shafts - Stainless Steel
- Gears - Stainless Steel
- Bearings - Ball Bearings

**OPERATING TEMPERATURE:**
-40°F to +255°F

**FEATURES:**
- Standard NEMA sizes.
- Sealed to extend service life.
- Case-hardened spiral bevel gears.
- Includes a precision balanced clamp-on pinion.
- Woodruff keys #808 and motor mounting hardware kit supplied.

**SPECIFICATIONS:**
- Max. Input Speed: 4000 rpm
- Shaft Loading - Radial: 700 lbf
- Axial: 700 lbf
- Min. Efficiency: 90%
- Max. Backlash: 25 arc min.
- Lower Backlash units available on special order.
- 15 arc min.
- Max. Inertia Reflected to Input: 6.69 x 10^4 ozf in. sec.^2
- Pinion Gear Inertia: 7.59 x 10^-3 ozf in. sec.^2
- Max. Torque Rating - Continuous: 200 lbf in.
- Momentary: 300 lbf in.

**WEIGHT:**
24 lb.

Other gear ratios and non-NEMA size mounting interfaces are available on special order.

---

**INCH COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>Maximum Rated Output rpm (4000 rpm input)</th>
<th>Rotation * Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9142E-SDSG003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
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<tr>
<td>S9142E-SDSG005</td>
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<td>S</td>
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<td>S9142E-SDSG010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9142E-SDSG015</td>
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<td>20:1</td>
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