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.

### NEMA Motor Mounting Dimensions

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimension</th>
<th>Size 17 *</th>
<th>Size 23</th>
<th>Size 34</th>
<th>Size 42</th>
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<tbody>
<tr>
<td>A</td>
<td>Motor Shaft Diameter</td>
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<td>.250</td>
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<td>.625</td>
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<tr>
<td>B</td>
<td>Δ Motor Shaft Length</td>
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<td>.810</td>
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<td>1.380</td>
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<td>C</td>
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<td>Δ Pilot Length</td>
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<tr>
<td>E</td>
<td>Mounting Bolt Circle</td>
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<td>2.625</td>
<td>3.875</td>
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<td>F</td>
<td>Bolt Hole Size</td>
<td>4-40 UNC</td>
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<td>.22</td>
<td>.281</td>
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<tr>
<td>Mating Gearhead</td>
<td>Mounting Hole</td>
<td>.125</td>
<td>#10-24 UNC x .380 DP</td>
<td>#10-24 UNC x .380 DP</td>
<td>1/4-20 UNC x .50 DP</td>
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<tr>
<td>G</td>
<td>Bolt Hole Distance</td>
<td>1.220</td>
<td>1.856</td>
<td>2.740</td>
<td>3.500</td>
</tr>
</tbody>
</table>

* Δ Dimensions can be less than indicated.
* These sizes not included in NEMA standards

### 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

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

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><strong>NEMA Size</strong></th>
<th><strong>Inline Planetary Gearheads</strong></th>
<th><strong>Hybrid Stepper Motors</strong></th>
<th><strong>Single- or Double-Ended Shafts</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>17</strong></td>
<td>CG, Compact Series S9117A-CG... (pg. 11-52)</td>
<td>.9° Step Angle S9117MM... (pg. 14-11)</td>
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<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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<td></td>
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<tr>
<td><strong>23</strong></td>
<td>PRX, Precision Series, Heavy-Duty S9123A-PRX... (pg. 11-47)</td>
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<td>80V DC Max. Drive S9123M-...HT... (pg. 14-13)</td>
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<tr>
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<td>RTX, Precision Series, Standard-Duty S9123A-RTX... (pg. 11-49)</td>
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<td>160V DC Max. Drive S9123M-... (pg. 14-15)</td>
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<td>T-Series S9123T-... (pg. 11-66)</td>
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<td></td>
<td>Spur Gearheads (Planetary Gearhead Alternative) Low Cost &amp; Long Life S9123A-SG... (pg. 11-72)</td>
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<td></td>
<td>CG, Compact Series S9134A-CG... (pg. 11-54)</td>
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<td><strong>42</strong></td>
<td>PG, Precision Series, Low Backlash S9142A-PG... (pg. 11-58)</td>
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<td>160V DC Max. Drive S9142M-... (pg. 14-21)</td>
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</table>
PRX & RTX PLANETARY GEARHEADS

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

> PRX TYPE (HEAVY-DUTY)

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

NEW
NEW 11-47

**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>
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<tbody>
<tr>
<td>S9123A-PRX004</td>
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<td>3.23</td>
<td>420</td>
<td>530</td>
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<td>1.887 x 10⁻³</td>
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<td>455</td>
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<td>1.548 x 10⁻³</td>
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<td>1.493 x 10⁻³</td>
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<td>1.490 x 10⁻³</td>
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<td>192</td>
<td>241</td>
<td>720</td>
<td>1.487 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 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.

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

<table>
<thead>
<tr>
<th>Catlog Number</th>
<th>Gear Ratio</th>
<th>L Max.</th>
<th>Max. Rated Continuous Torque</th>
<th>Max. Momentary Torque</th>
<th>Max. Stopping Torque</th>
<th>Gearhead Moment of Inertia</th>
</tr>
</thead>
<tbody>
<tr>
<td>S913A-PRX004</td>
<td>4:1</td>
<td>4.73</td>
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<td>1874</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.

<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>
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<td>947</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: 590 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.

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

* 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.

---

**KINCH COMPONENT**

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CG PLANETARY GEARHEADS

NEMA Size 17, 23 & 34
Radial and Axial Shaft Loading Specifications
Compact Series

Size 17 Bearing Radial Load Limits

Radial Load (lbf)
0 20 40 60 80 100 120 140
Load Distance From Mount Face (in.)
0.2 0.4 0.6 0.8 1.0 1.2

Size 23 Bearing Radial Load Limits

Radial Load (lbf)
0 20 40 60 80 100 120 140
Load Distance From Mount Face (in.)
0.2 0.4 0.6 0.8 1.0 1.2

Size 34 Bearing Radial Load Limits

Radial Load (lbf)
0 20 40 60 80 100 120 140
Load Distance From Mount Face (in.)
0.2 0.4 0.6 0.8 1.0 1.2 1.4

Size 17, 23 & 34 Bearing Axial Load Limits

Axial Load (lbf)
0 40 80 120 160 200 240 280
Output Shaft (rpm)
50 75 100 125 150 175 200 225

KEY
- 50 rpm
- - 250 rpm
- - - 500 rpm
- - - - 2000 rpm

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
**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:** 0.8 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*</th>
<th>Acceleration Torque</th>
<th>Stall Torque**</th>
<th>Max. Rated Output rpm (5000 rpm Input)</th>
<th>Moment of Inertia oz in. sec^2</th>
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<td>714</td>
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<td>S9117A-CG010</td>
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<td>121</td>
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</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.
**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:**
-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:** 1.7 lb.
- **Double Stage:** 2.2 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. sec^2</th>
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<tr>
<td>S9123A-CG004</td>
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<td>2.46 Single Stage</td>
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<td>253</td>
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<td>400</td>
<td>1000</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.
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:
-40°F to +250°F

> 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 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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<td>1016</td>
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<td>50</td>
<td>2.32 x 10⁻³</td>
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</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.
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>
</tr>
</thead>
<tbody>
<tr>
<td>S9117A-PG003</td>
<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>
<td>2.163 x 10⁴</td>
</tr>
<tr>
<td>S9117A-PG004</td>
<td>4:1</td>
<td></td>
<td>158</td>
<td>248</td>
<td>1625</td>
<td>1.053 x 10⁴</td>
<td>1.352 x 10⁴</td>
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<tr>
<td>S9117A-PG005H</td>
<td>5.5:1</td>
<td></td>
<td>143</td>
<td>223</td>
<td>1182</td>
<td>5.870 x 10³</td>
<td>1.174 x 10⁴</td>
</tr>
<tr>
<td>S9117A-PG007</td>
<td>7:1</td>
<td></td>
<td>119</td>
<td>158</td>
<td>928</td>
<td>3.692 x 10³</td>
<td>1.143 x 10⁴</td>
</tr>
<tr>
<td>S9117A-PG010</td>
<td>10:1</td>
<td></td>
<td>56</td>
<td>84</td>
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<td>1.833 x 10²</td>
<td>1.132 x 10⁴</td>
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<tr>
<td>S9117A-PG016</td>
<td>16:1</td>
<td>3.28 Double Stage</td>
<td>169</td>
<td>264</td>
<td>406</td>
<td>1.045 x 10²</td>
<td>1.352 x 10⁴</td>
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<tr>
<td>S9117A-PG022</td>
<td>22:1</td>
<td></td>
<td>171</td>
<td>267</td>
<td>295</td>
<td>5.830 x 10²</td>
<td>1.174 x 10⁴</td>
</tr>
<tr>
<td>S9117A-PG028</td>
<td>28:1</td>
<td></td>
<td>172</td>
<td>269</td>
<td>232</td>
<td>3.667 x 10²</td>
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<td>S9117A-PG040</td>
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<td>174</td>
<td>272</td>
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<td>1.821 x 10²</td>
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<td></td>
<td>127</td>
<td>199</td>
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<td>3.479 x 10²</td>
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<td>243</td>
<td>118</td>
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<td>201</td>
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<td>52</td>
<td>77</td>
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<td>1.708 x 10²</td>
<td>1.132 x 10⁴</td>
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* Maximum Rated Continuous torque is rated at 3,000 rpm, and a Minimum Life of 10,000 hours.

---

For NEMA motor mounting dimensions, see page 11-44.
### PG PLANETARY GEARHEADS • NEMA SIZE 23

**SINGLE AND DOUBLE STAGE**

**PRECISION SERIES**

**LOW BACKLASH DESIGN**

<table>
<thead>
<tr>
<th>MATERIAL:</th>
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<tbody>
<tr>
<td>Housing - Stainless Steel</td>
</tr>
<tr>
<td>Mounting Flanges - Aluminum, Black Anodized</td>
</tr>
<tr>
<td>Output Shaft - Stainless Steel</td>
</tr>
<tr>
<td>Gears - Steel, Case-Hardened</td>
</tr>
<tr>
<td>Bearings - Ball Bearings, High Strength Steel</td>
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</table>

<table>
<thead>
<tr>
<th>OPERATING TEMPERATURE:</th>
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<tbody>
<tr>
<td>-40°F to +255°F</td>
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<table>
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<th>FEATURES:</th>
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<tbody>
<tr>
<td>True planetary system.</td>
</tr>
<tr>
<td>Standard NEMA sizes.</td>
</tr>
<tr>
<td>High torsional stiffness.</td>
</tr>
<tr>
<td>Sealed to extend service life.</td>
</tr>
<tr>
<td>Includes a precision balanced clamp-on pinion.</td>
</tr>
<tr>
<td>Woodruff key #404 and motor mounting hardware kit supplied.</td>
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<table>
<thead>
<tr>
<th>SPECIFICATIONS:</th>
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<tbody>
<tr>
<td>Max. Input Speed: 6500 rpm</td>
</tr>
<tr>
<td>Shaft Loading - Radial: 600 lbf</td>
</tr>
<tr>
<td>Axial: 600 lbf</td>
</tr>
<tr>
<td>Min. Efficiency - Single Stage: 90%</td>
</tr>
<tr>
<td>Double Stage: 85%</td>
</tr>
<tr>
<td>Max. Backlash - Single Stage: 6 arc min.</td>
</tr>
<tr>
<td>Double Stage: 10 arc min.</td>
</tr>
<tr>
<td>Lower Backlash units available on special order.</td>
</tr>
<tr>
<td>Single Stage: 3 arc min.</td>
</tr>
<tr>
<td>Double Stage: 5 arc min.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Stage: 1.8 lb.</td>
</tr>
<tr>
<td>Double Stage: 2.8 lb.</td>
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</table>

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></th>
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<td>2.66</td>
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<td></td>
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<td></td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>S9123A-PG100</td>
<td>100:1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

---

**INCH COMPONENT**

**Catalog Number**

**Gear Ratio**

**L Max. in.**

**2.66**

**Single Stage**

**3.48**

**Double Stage**

**Max. Rated Cont. Torque* lbf in.**

<table>
<thead>
<tr>
<th>380</th>
<th>360</th>
<th>317</th>
<th>263</th>
<th>119</th>
<th>376</th>
<th>380</th>
<th>384</th>
<th>388</th>
<th>286</th>
<th>347</th>
<th>288</th>
<th>110</th>
</tr>
</thead>
</table>

**Max. Momentary Torque lbf in.**

| 594 | 562 | 496 | 411 | 179 | 587 | 594 | 600 | 607 | 447 | 542 | 450 | 164 |

**Max. Rated Output rpm (6500 rpm Input)**

| 2166 | 1625 | 1182 | 928 | 650 | 406 | 295 | 232 | 162 | 109 | 118 | 92 | 65 |

**Inertia Gearhead ozf in. sec²**

| 4.866 x 10⁻⁴ | 3.113 x 10⁻⁴ | 1.746 x 10⁻⁴ | 1.100 x 10⁻⁴ | 5.471 x 10⁻⁵ | 3.287 x 10⁻⁴ | 1.838 x 10⁻⁴ | 1.157 x 10⁻⁴ | 5.749 x 10⁻⁵ | 3.287 x 10⁻⁴ | 1.838 x 10⁻⁴ | 1.157 x 10⁻⁴ | 5.749 x 10⁻⁵ |

**Inertia Input Pinion ozf in. sec²**

| 8.969 x 10⁻⁴ | 6.500 x 10⁻⁵ | 4.96 x 10⁻⁵ | 3.47 | 2.88 | 1.500 | 9.000 | 6.500 | 4.96 | 3.47 | 2.88 | 1.500 | 9.000 |

---

**WEIGHT:**

**Single Stage:** 1.8 lb.  
**Double Stage:** 2.8 lb.

---

**SPECIFICATIONS:**

**Max. Input Speed:** 6500 rpm  
**Shaft Loading - Radial:** 600 lbf  
**Axial:** 600 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.
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.

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. 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>
</tr>
</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>
<td>4.901 x 10⁻³</td>
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<tr>
<td>S9134A-PG004</td>
<td>4:1</td>
<td></td>
<td>1219</td>
<td>1905</td>
<td>1625</td>
<td>2.833 x 10⁻³</td>
<td>2.522 x 10⁻³</td>
</tr>
<tr>
<td>S9134A-PG005H</td>
<td>5.5:1</td>
<td></td>
<td>1113</td>
<td>1740</td>
<td>1182</td>
<td>1.585 x 10⁻³</td>
<td>2.040 x 10⁻³</td>
</tr>
<tr>
<td>S9134A-PG007</td>
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<td></td>
<td>935</td>
<td>1461</td>
<td>928</td>
<td>9.983 x 10⁻⁴</td>
<td>1.955 x 10⁻³</td>
</tr>
<tr>
<td>S9134A-PG010</td>
<td>10:1</td>
<td></td>
<td>552</td>
<td>828</td>
<td>650</td>
<td>4.916 x 10⁻¹</td>
<td>1.923 x 10⁻³</td>
</tr>
<tr>
<td>S9134A-PG016</td>
<td>16:1</td>
<td></td>
<td>1315</td>
<td>2055</td>
<td>406</td>
<td>2.824 x 10⁻⁴</td>
<td>2.522 x 10⁻⁴</td>
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<tr>
<td>S9134A-PG022</td>
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<td>1333</td>
<td>2083</td>
<td>295</td>
<td>1.550 x 10⁻⁴</td>
<td>2.040 x 10⁻⁴</td>
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<tr>
<td>S9134A-PG028</td>
<td>28:1</td>
<td></td>
<td>1346</td>
<td>2103</td>
<td>232</td>
<td>9.952 x 10⁻⁴</td>
<td>1.955 x 10⁻³</td>
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<tr>
<td>S9134A-PG040</td>
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<td></td>
<td>1364</td>
<td>2123</td>
<td>162</td>
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<td>1.923 x 10⁻³</td>
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<tr>
<td>S9134A-PG055</td>
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<td></td>
<td>1015</td>
<td>1587</td>
<td>132</td>
<td>9.417 x 10⁻⁴</td>
<td>1.955 x 10⁻³</td>
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<td>S9134A-PG070</td>
<td>70:1</td>
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<td>1232</td>
<td>1925</td>
<td>118</td>
<td>4.759 x 10⁻⁴</td>
<td>1.923 x 10⁻³</td>
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<tr>
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<td>1027</td>
<td>1605</td>
<td>92</td>
<td>4.684 x 10⁻⁴</td>
<td>1.923 x 10⁻³</td>
</tr>
</tbody>
</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 oz in. sec²</th>
<th>Inertia Input Pinion oz in. sec²</th>
</tr>
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<td>3:1</td>
<td>4.73</td>
<td>2301</td>
<td>3597</td>
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<td>1.64 x 10⁻²</td>
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<td>3430</td>
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<td>1.04 x 10⁻²</td>
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<td>5.87 x 10⁻³</td>
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<td>1684</td>
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<td>1.84 x 10⁻³</td>
<td>8.680 x 10⁻³</td>
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<td>1.82 x 10⁻³</td>
<td>8.680 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.

For NEMA motor mounting dimensions, see page 11-44.
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: 7 arc min.
  Double Stage: 9 arc min.

> 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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<tbody>
<tr>
<td>S9117A-EG003</td>
<td>3:1</td>
<td>2.66</td>
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<td>3.12</td>
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<td>S9117A-EG005H</td>
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<td>179</td>
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</table>

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

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<thead>
<tr>
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<td>S9123A-EG070</td>
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<td>8.880 x 10³</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 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
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.

Max. Torque:
- Single Stage: 2040 in-lb
- Double Stage: 0 in-lb

Min. Efficiency:
- Single Stage: 90%
- Double Stage: 85%

Weight:
- Single Stage: 7 lb.
- Double Stage: 8 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 Continuous 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>S9134A-EG003</td>
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<td>1339</td>
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</tbody>
</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.

<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>
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<td>3:1</td>
<td>5.20</td>
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<td>8.680 x 10⁻³</td>
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</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

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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°C to +250°C (-34°F to +121°F)

- 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)

![Graph of radial shaft load rating]

Values in graph are in rpm

### INCH COMPONENT CATALOG NUMBER

*S 9123 T -

- Ratio Code
- Sleeve Code: A, B, C, D, E, F, G, H or I
- Mounting Bracket: 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. sec.² x 10⁻⁴ (kg cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>003</td>
<td>3:1</td>
<td>1.92 (48.8)</td>
<td>96 (11.1)</td>
<td>65 (7.3)</td>
<td>150 (16.9)</td>
<td>.67 (0.076)</td>
</tr>
<tr>
<td>005</td>
<td>5:1</td>
<td>Single</td>
<td>105 (11.9)</td>
<td>71 (8)</td>
<td>250 (28.2)</td>
<td>.22 (0.025)</td>
</tr>
<tr>
<td>010</td>
<td>10:1</td>
<td>Stage</td>
<td>63 (7.1)</td>
<td>52 (5.9)</td>
<td>250 (28.2)</td>
<td>.14 (0.016)</td>
</tr>
<tr>
<td>015</td>
<td>15:1</td>
<td></td>
<td>124 (14)</td>
<td>100 (11.3)</td>
<td>250 (28.2)</td>
<td>.21 (0.024)</td>
</tr>
<tr>
<td>025</td>
<td>25:1</td>
<td>2.61 (66.3)</td>
<td>175 (19.8)</td>
<td>115 (13)</td>
<td>250 (28.2)</td>
<td>.21 (0.024)</td>
</tr>
<tr>
<td>030</td>
<td>30:1</td>
<td>Double</td>
<td>207 (23.4)</td>
<td>147 (16.6)</td>
<td>275 (31.1)</td>
<td>.13 (0.015)</td>
</tr>
<tr>
<td>060</td>
<td>50:1</td>
<td>Stage</td>
<td>202 (22.6)</td>
<td>142 (16)</td>
<td>275 (31.1)</td>
<td>.13 (0.015)</td>
</tr>
<tr>
<td>100</td>
<td>100:1</td>
<td></td>
<td>85 (9.6)</td>
<td>73 (8.2)</td>
<td>275 (31.1)</td>
<td>.13 (0.015)</td>
</tr>
</tbody>
</table>

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

* To be discontinued when present stock is depleted.

1.25 13 JF
T-SERIES PLANETARY GEARHEADS • NEMA SIZE 23

SINGLE AND DOUBLE STAGE

MOUNTING BRACKET

MOUNTING BRACKET Δ SHOWN ATTACHED

NOTE: Dimensions in ( ) are in mm.

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

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

**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 ($F_a$): 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.)

> **WEIGHT:**
> Single Stage: 4.2 lb. (1.9 kg)
> Double Stage: 5.6 lb. (2.5 kg)

---

**INCH COMPONENT CATALOG NUMBER**

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

---

### Values in graph are in rpm

**RADIAL SHAFT LOAD RATING**

### Ratio 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 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. sec.$^2$ x 10$^{-4}$ (kg cm$^2$)</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>490 (55.4)</td>
<td>325 (36.7)</td>
<td>700 (79.1)</td>
<td></td>
<td>1.20 (0.140)</td>
</tr>
<tr>
<td>010</td>
<td>10:1</td>
<td>238 (26.9)</td>
<td>192 (21.7)</td>
<td>700 (79.1)</td>
<td></td>
<td>.65 (0.075)</td>
</tr>
<tr>
<td>015</td>
<td>15:1</td>
<td>454 (51.3)</td>
<td>373 (42.1)</td>
<td>850 (96.1)</td>
<td></td>
<td>1.20 (0.140)</td>
</tr>
<tr>
<td>025</td>
<td>25:1</td>
<td>652 (73.7)</td>
<td>526 (59.4)</td>
<td>850 (96.1)</td>
<td></td>
<td>.66 (0.075)</td>
</tr>
<tr>
<td>030</td>
<td>30:1</td>
<td>500 (56.5)</td>
<td>416 (47)</td>
<td>850 (96.1)</td>
<td></td>
<td>.65 (0.074)</td>
</tr>
<tr>
<td>050</td>
<td>50:1</td>
<td>720 (81.4)</td>
<td>595 (67.2)</td>
<td>850 (96.1)</td>
<td></td>
<td>.65 (0.074)</td>
</tr>
<tr>
<td>100</td>
<td>100:1</td>
<td>325 (36.7)</td>
<td>270 (30.5)</td>
<td>700 (79.1)</td>
<td></td>
<td>.65 (0.074)</td>
</tr>
</tbody>
</table>

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

Continued on the next page
**T-SERIES PLANETARY GEARHEADS • NEMA SIZE 34**

**SINGLE AND DOUBLE STAGE**

- **Inch**
- **1/8" (3.2) AMERICAN STD. SQUARE KEY**
- **ØE**
- **0.556 (14.1)**

**MOUNTING BRACKET**

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

**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>

**Mounting Bracket**

<table>
<thead>
<tr>
<th>Code</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</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 – 0.61 (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>

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

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

---

Continued from the previous page

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

**01**

- **Inch**
- **1/8" (3.2) AMERICAN STD. SQUARE KEY**
- **ØE**
- **0.556 (14.1)**

**MOUNTING BRACKET**

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

**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>

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

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

---

Continued from the previous page

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

**01**

- **Inch**
- **1/8" (3.2) AMERICAN STD. SQUARE KEY**
- **ØE**
- **0.556 (14.1)**

**MOUNTING BRACKET**

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

**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>

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

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---

Continued from the previous page

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

**01**

- **Inch**
- **1/8" (3.2) AMERICAN STD. SQUARE KEY**
- **ØE**
- **0.556 (14.1)**

**MOUNTING BRACKET**

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

**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>

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

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

---

Continued from the previous page

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

**01**

- **Inch**
- **1/8" (3.2) AMERICAN STD. SQUARE KEY**
- **ØE**
- **0.556 (14.1)**

**MOUNTING BRACKET**

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

**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>

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

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

**S9142T** - See graph

Ratio Code: A, B, C, D, E, F, or G

Mounting Bracket Code: 1, 2, or 3

---

### RADIAL SHAFT LOAD RATING

- Values in graph are in rpm

| Ratio Code | Gear Ratio | L in. (mm) | Max. Rated Continuous Torque at 1000 rpm lbf in. (Nm) | Max. Rated Continuous Torque at 4000 rpm lbf in. (Nm) | Max. Momentary Torque lbf in. (Nm) | Inertia Reflected Back to Motor Shaft lbf in. sec.² x 10⁻⁴ (kg cm²)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></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>4.72 (119.9)</td>
<td>1250 (141.2)</td>
<td>865 (97.7)</td>
<td>1600 (180.8)</td>
<td>3.7 (0.42)</td>
</tr>
<tr>
<td>030</td>
<td>30:1</td>
<td>Double Stage</td>
<td>972 (109.8)</td>
<td>805 (91)</td>
<td>1600 (180.8)</td>
<td>1.9 (0.21)</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. Continued on the next page
**T-SERIES PLANETARY GEARHEADS • NEMA SIZE 42**

**SINGLE AND DOUBLE STAGE**

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

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

**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>4.53</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>4.92</td>
<td>2.36</td>
<td>M8</td>
<td>5.71</td>
<td>4.345</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>

* 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: 15 lb
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.²
Pinion Gear Inertia: 7.59 x 10^{-4} ozf in. sec.²
Max. Torque Rating - Continuous: 10 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>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>S9123A-SG003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9123A-SG005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
</tr>
<tr>
<td>S9123A-SG010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9123A-SG015</td>
<td>15:1</td>
<td>267</td>
<td>R</td>
</tr>
<tr>
<td>S9123A-SG020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9123A-SG030</td>
<td>30:1</td>
<td>133</td>
<td>R</td>
</tr>
<tr>
<td>S9123A-SG050</td>
<td>50:1</td>
<td>80</td>
<td>R</td>
</tr>
<tr>
<td>S9123A-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 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 lbf
  - Axial: 125 lbf
  - Min. Efficiency: 90%
  - Max. Backlash: 20 arc min.
  - Lower Backlash units available on special order.
  - 10 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.
  0-ring at each joint.

› SPECIFICATIONS:
  Max. Input Speed: 4000 rpm
  Shaft Loading - Radial: 150 lbf
  Axial: 150 lbf
  Min. Efficiency: 90%
  Max. Backlash: 20 arc min.
  Lower Backlash units available on special order.
  10 arc min.
  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.

---

**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>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>
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<td>S9142A-SG010</td>
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<td>400</td>
<td>S</td>
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<tr>
<td>S9142A-SG015</td>
<td>15:1</td>
<td>267</td>
<td>R</td>
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<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>
</tbody>
</table>

* "S" indicates output rotates in the same direction as input; "R" denotes opposite direction.
## NEMA Size Right Angle Gearheads and Dual Output 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. 11-96) Spur Gearheads (Planetary Gearhead Alternative) Low-Cost &amp; Long-Life S9142D-SRSG... (pg. 11-100)</td>
<td>160V DC Max. Drive S9142M-... (pg. 14-21)</td>
</tr>
</tbody>
</table>

<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>34</td>
<td>PG, Precision Series, Low Backlash S9134E-SDPG... (pg. 11-106) EG, Economy Series S9134E-SDEG... (pg. 11-114) Spur Gearheads (Planetary Gearhead Alternative) Low-Cost &amp; Long-Life S9134E-SDSG... (pg. 11-119)</td>
<td>160V DC Max. Drive S9134M-... (pg. 14-17) 160V DC Max. Drive, Heavy-Duty S9134M-...HT... (pg. 14-19)</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>
### RIGHT ANGLE PG PLANETARY GEARHEADS • SIZE 17

**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.

### 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 Input Pinion ozf in. sec.²</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9117D-SRP003</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 10⁻⁴</td>
<td>2.163 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117D-SRP004</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>S9117D-SRP005H</td>
<td>5.5:1</td>
<td>7.1</td>
<td>5.1 Single Stage</td>
<td>143</td>
<td>223</td>
<td>1182</td>
<td>1.341 x 10⁻⁴</td>
<td>1.174 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117D-SRP007</td>
<td>4.97</td>
<td>10.1</td>
<td>3.84 Double Stage</td>
<td>119</td>
<td>158</td>
<td>928</td>
<td>8.344 x 10⁻⁵</td>
<td>1.143 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117D-SRP010</td>
<td>6.11</td>
<td>16.1</td>
<td>5.51 Double Stage</td>
<td>56</td>
<td>84</td>
<td>650</td>
<td>4.113 x 10⁻⁵</td>
<td>1.132 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117D-SRP016</td>
<td>5.51</td>
<td>22.1</td>
<td>5.51 Double Stage</td>
<td>169</td>
<td>264</td>
<td>406</td>
<td>1.088 x 10⁻⁴</td>
<td>1.352 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117D-SRP022</td>
<td>28.1</td>
<td>40.1</td>
<td>5.51 Double Stage</td>
<td>171</td>
<td>267</td>
<td>295</td>
<td>6.056 x 10⁻⁵</td>
<td>1.174 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117D-SRP028</td>
<td>40.1</td>
<td>49.1</td>
<td>5.51 Double Stage</td>
<td>172</td>
<td>269</td>
<td>232</td>
<td>3.806 x 10⁻⁵</td>
<td>1.143 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117D-SRP040</td>
<td>49.1</td>
<td>55.1</td>
<td>5.51 Double 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>S9117D-SRP049</td>
<td>61.1</td>
<td>71.1</td>
<td>5.51 Double 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>S9117D-SRP060</td>
<td>87.1</td>
<td>97.1</td>
<td>5.51 Double Stage</td>
<td>128</td>
<td>201</td>
<td>83</td>
<td>1.751 x 10⁻⁵</td>
<td>1.132 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117D-SRP100</td>
<td>6.11</td>
<td>100.1</td>
<td>6.11 Triple 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.
RIGHT ANGLE PG PLANETARY GEARHEADS • SIZE 17

SINGLE, DOUBLE, AND TRIPLE STAGE

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW

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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
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<tbody>
<tr>
<td>S9123D-SRPG003</td>
<td>3:1</td>
<td>6.49</td>
<td>4.23 Single Stage</td>
<td>380</td>
<td>594</td>
<td>2167</td>
<td>1.539 x 10⁻¹</td>
<td>1.194 x 10⁻¹</td>
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<tr>
<td>S9123D-SRPG004</td>
<td>4:1</td>
<td>7.1</td>
<td>4.23 Single Stage</td>
<td>360</td>
<td>562</td>
<td>1625</td>
<td>9.035 x 10⁻¹</td>
<td>9.502 x 10⁻¹</td>
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<tr>
<td>S9123D-SRPG005H</td>
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<td>7.1</td>
<td>4.23 Single Stage</td>
<td>317</td>
<td>496</td>
<td>1182</td>
<td>4.878 x 10⁻¹</td>
<td>8.969 x 10⁻¹</td>
</tr>
<tr>
<td>S9123D-SRPG007</td>
<td>7:1</td>
<td>7.32</td>
<td>5.05 Double Stage</td>
<td>263</td>
<td>411</td>
<td>928</td>
<td>3.034 x 10⁻¹</td>
<td>8.880 x 10⁻¹</td>
</tr>
<tr>
<td>S9123D-SRPG010</td>
<td>10:1</td>
<td>7.32</td>
<td>5.05 Double Stage</td>
<td>119</td>
<td>179</td>
<td>650</td>
<td>1.495 x 10⁻¹</td>
<td>8.846 x 10⁻¹</td>
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<tr>
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<td>16:1</td>
<td>7.32</td>
<td>5.05 Double Stage</td>
<td>376</td>
<td>587</td>
<td>406</td>
<td>3.461 x 10⁻¹</td>
<td>9.502 x 10⁻¹</td>
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<tr>
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<td>22:1</td>
<td>7.32</td>
<td>5.05 Double Stage</td>
<td>380</td>
<td>594</td>
<td>295</td>
<td>1.930 x 10⁻¹</td>
<td>8.969 x 10⁻¹</td>
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<td>28:1</td>
<td>7.32</td>
<td>5.05 Double Stage</td>
<td>364</td>
<td>600</td>
<td>232</td>
<td>1.214 x 10⁻¹</td>
<td>8.880 x 10⁻¹</td>
</tr>
<tr>
<td>S9123D-SRPG040</td>
<td>40:1</td>
<td>7.32</td>
<td>5.05 Double Stage</td>
<td>388</td>
<td>607</td>
<td>162</td>
<td>6.027 x 10⁻¹</td>
<td>8.846 x 10⁻¹</td>
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<td>S9123D-SRPG049</td>
<td>49:1</td>
<td>7.32</td>
<td>5.05 Double Stage</td>
<td>286</td>
<td>447</td>
<td>133</td>
<td>1.117 x 10⁻¹</td>
<td>8.880 x 10⁻¹</td>
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<tr>
<td>S9123D-SRPG055</td>
<td>55:1</td>
<td>7.32</td>
<td>5.05 Double Stage</td>
<td>347</td>
<td>542</td>
<td>118</td>
<td>5.690 x 10⁻¹</td>
<td>8.846 x 10⁻¹</td>
</tr>
<tr>
<td>S9123D-SRPG070</td>
<td>70:1</td>
<td>7.32</td>
<td>5.05 Double Stage</td>
<td>288</td>
<td>450</td>
<td>93</td>
<td>5.551 x 10⁻¹</td>
<td>8.846 x 10⁻¹</td>
</tr>
<tr>
<td>S9123D-SRPG100</td>
<td>100:1</td>
<td>7.32</td>
<td>5.05 Double Stage</td>
<td>110</td>
<td>164</td>
<td>65</td>
<td>5.438 x 10⁻¹</td>
<td>8.846 x 10⁻¹</td>
</tr>
<tr>
<td>* S9123D-SRPG160</td>
<td>160:1</td>
<td>8.10</td>
<td>5.85 Triple Stage</td>
<td>404</td>
<td>631</td>
<td>41</td>
<td>5.760 x 10⁻¹</td>
<td>8.846 x 10⁻¹</td>
</tr>
<tr>
<td>* S9123D-SRPG280</td>
<td>280:1</td>
<td>8.10</td>
<td>5.85 Triple Stage</td>
<td>409</td>
<td>640</td>
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<td>8.846 x 10⁻¹</td>
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<td>8.10</td>
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<td>5.581 x 10⁻¹</td>
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</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.
**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 #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

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<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>M</th>
<th>Max. Rated Cont. Torque** Max. Momentary Torque Max. Rated Output rpm Inertia Gearhead</th>
<th>Inertia Input Pinion</th>
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<td>9.16</td>
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**NOTE:**
- *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 42

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 #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.

INCH COMPONENT

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Gear Ratio</th>
<th>L Max.</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. 1</th>
<th>Inertia Input Pinion ozf in. sec. 2</th>
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</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 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.

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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.

### INCH Component

<table>
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<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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<td>396</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

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW

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Inch

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16
## RIGHT ANGLE EG PLANETARY GEARHEADS • SIZE 34

### 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 #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 D50R10-06.. motor requires nonstandard pinion (1/2 inch bore). Add “SP” to the part number when ordering.

### INCH COMPONENT

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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 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

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* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
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: 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 1, 2 or 3

**RADIAL SHAFT LOAD RATING**

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<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. sec² x 10⁻⁴ (kg cm²)</th>
<th>Torsional Stiffness lbf in. / arc min. (Nm / arc min.)</th>
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**NOTE:** Dimensions in ( ) are in mm.

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

Δ See technical page 11-64 for assembly directions.

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<th>C</th>
<th>D Dia.</th>
<th>E* Dia.</th>
<th>F</th>
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<td>1.22</td>
<td>M4</td>
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<td>2.4</td>
<td>1.22</td>
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<td>2.756 (70)</td>
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**Motor Shaft Sleeve Code**

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<td>F</td>
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<td>G</td>
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**NOTE:** Dimensions in ( ) are in mm.

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

Continued from the previous page
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)

---

### T- SERIES RIGHT ANGLE PLANETARY GEARHEADS • NEMA SIZE 34

**SDP/SI**

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#### INCH COMPONENT CATALOG NUMBER

*S 9134 R - R [ ] [ ] [ ] [ ] [ ]

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#### RATIO CODE

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<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 (2.3)</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 (2.5)</td>
</tr>
<tr>
<td>10:1</td>
<td>010</td>
<td>3:1</td>
<td>3.99 (101)</td>
<td>462 (52)</td>
<td>361 (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>15:1</td>
<td>4.89 (124)</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>25:1</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>
<td></td>
</tr>
<tr>
<td>30:1</td>
<td>030</td>
<td>30:1</td>
<td>311 (35)</td>
<td>285 (32)</td>
<td>1045 (118)</td>
<td>11.1 (1.25)</td>
<td>17.9 (2)</td>
<td></td>
</tr>
<tr>
<td>50:1</td>
<td>050</td>
<td>50:1</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>
<td></td>
</tr>
<tr>
<td>100:1</td>
<td>100</td>
<td>100:1</td>
<td>5.76 (192)</td>
<td>5.79 (147)</td>
<td>480 (54)</td>
<td>472 (53)</td>
<td>1113 (126)</td>
<td>13.7 (1.55)</td>
</tr>
</tbody>
</table>

**NOTE:** Dimensions in ( ) are in mm. Continued on the next page

---

1.25.13 JF
T-SERIES RIGHT ANGLE PLANETARY GEARHEADS • NEMA SIZE 34

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

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

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

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>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>1.33 – 0.61 (33.8 – 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>

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>

Δ See technical page 11-64 for assembly directions.

Motor Shaft Length:
- 1.33 – 0.61 in (33.8 – 15.5 mm)
- 1.79 – 0.88 in (45.5 – 22.4 mm)

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 Force, F_r (lbf)

Distance X (mm)

Distance X (in.)

Radial Force, F_r (N)

Max. Inertia Reflected Back to Motor Shaft lbf in. sec^2 x 10^4 (kg cm^2)

Torsional Stiffness lbf in. / arc min. (Nm / arc min.)

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)

Sleeve Code
- A, B, C, D, E, F, G, H or I

Mounting Bracket Code
- 1, 2 or 3

Ratio Code
- 003, 005, 010, 015, 025, 030, 050

Gears heat-treated to Rc 50.
High torsional stiffness.
Readily mounts to most motors.

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.

MAX. INPUT SPEED:
- 5000 rpm

SHAFT LOADING - RADIAL (F_r):
- See graph

Axial Load F_a (N)

Speed rpm

Axial Load F_a (lbf)

50 460 (2050)
100 370 (1650)
250 270 (1200)
500 210 (930)
1000 170 (760)

DIMENSIONS IN ( ) ARE IN MM.

NOTE: Dimensions in ( ) are in mm.

INCH COMPONENT CATALOG NUMBER

* S 9142 R - R

Mounting Bracket Code
- 1, 2 or 3

Gearing Ratio
- 3:1, 5:1, 10:1, 15:1, 25:1, 30:1, 50:1, 100:1

Ratio Code
- 003, 005, 010, 015, 025, 030, 050

Max. Rated Cont. Torque at 1000 rpm lbf in. (Nm)

Max. Rated Cont. Torque at 5000 rpm lbf in. (Nm)

Max. Momentary Torque lbf in. (Nm)

Inertia Reflected Back to Motor Shaft lbf in. sec^2 x 10^4 (kg cm^2)

Torques in ( ) are in Nm.

To be discontinued when present stock is depleted

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

[Diagram showing mounting bracket and dimensions]

**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

[Diagram showing motor shaft sleeve and dimensions]

**SECTION Y-Y**

**SECTION X-X**

---

See technical page 11-64 for assembly directions.
### 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 lb
- Axial: 300 lb
- Min. Efficiency: 90%
- Max. Backlash: 25 arc min.
  - Lower Backlash units available on special order.
  - 15 arc min.
- Max. Inertia Reflected to Input: $2.58 \times 10^{-5}$ ozf in. sec.$^2$
- Pinion Gear Inertia: $7.59 \times 10^{-4}$ ozf in. sec.$^2$
- Max. Torque Rating - Continuous: 20 lb in.
- Momentary: 30 lb 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>S9123D-SRSG003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9123D-SRSG005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
</tr>
<tr>
<td>S9123D-SRSG010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9123D-SRSG015</td>
<td>15:1</td>
<td>267</td>
<td>R</td>
</tr>
<tr>
<td>S9123D-SRSG020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9123D-SRSG030</td>
<td>30:1</td>
<td>133</td>
<td>R</td>
</tr>
<tr>
<td>S9123D-SRSG050</td>
<td>50:1</td>
<td>80</td>
<td>R</td>
</tr>
<tr>
<td>S9123D-SRSG100</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.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) 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-SRSG003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9134D-SRSG005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
</tr>
<tr>
<td>S9134D-SRSG010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9134D-SRSG015</td>
<td>15:1</td>
<td>267</td>
<td>S</td>
</tr>
<tr>
<td>S9134D-SRSG020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9134D-SRSG030</td>
<td>30:1</td>
<td>133</td>
<td>R</td>
</tr>
<tr>
<td>S9134D-SRSG050</td>
<td>50:1</td>
<td>80</td>
<td>S</td>
</tr>
<tr>
<td>S9134D-SRSG100</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-SRSG003</td>
<td>3:1</td>
<td>1333</td>
<td>S</td>
</tr>
<tr>
<td>S9142D-SRSG005</td>
<td>5:1</td>
<td>800</td>
<td>S</td>
</tr>
<tr>
<td>S9142D-SRSG010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<tr>
<td>S9142D-SRSG015</td>
<td>15:1</td>
<td>267</td>
<td>R</td>
</tr>
<tr>
<td>S9142D-SRSG020</td>
<td>20:1</td>
<td>200</td>
<td>R</td>
</tr>
<tr>
<td>S9142D-SRSG030</td>
<td>30:1</td>
<td>133</td>
<td>S</td>
</tr>
<tr>
<td>S9142D-SRSG050</td>
<td>50:1</td>
<td>80</td>
<td>R</td>
</tr>
<tr>
<td>S9142D-SRSG100</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

**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 (\( \frac{\text{Motor Rotor Inertia}}{(6.26E-03 \text{ ozf in. sec.}^2)} \) (5.18E-03 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
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.
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: 4.0 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>4.153 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>168</td>
<td>264</td>
<td>2165</td>
<td>4.153 x 10⁻⁴</td>
<td>2.163 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117E-SDPG005H</td>
<td>5:1</td>
<td>7.1</td>
<td>3.84 Double Stage</td>
<td>169</td>
<td>264</td>
<td>2166</td>
<td>4.153 x 10⁻⁴</td>
<td>2.163 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117E-SDPG010</td>
<td>10:1</td>
<td>10.1</td>
<td>3.84 Double Stage</td>
<td>170</td>
<td>268</td>
<td>2166</td>
<td>4.153 x 10⁻⁴</td>
<td>2.163 x 10⁻⁴</td>
</tr>
<tr>
<td>S9117E-SDPG016</td>
<td>16:1</td>
<td>16.1</td>
<td>5.51 Double Stage</td>
<td>171</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 17

RIGHT ANGLE
SINGLE, DOUBLE, AND TRIPLE STAGE

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GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW
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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* 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 23

RIGHT ANGLE
SINGLE, DOUBLE, AND TRIPLE STAGE

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW
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.

### 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>
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<th>Inertia Gearhead ozf in. sec.²</th>
<th>Inertia Input Pinion ozf in. sec.²</th>
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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

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GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW
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: 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: 28.5 lb.
Double Stage: 35 lb.
Triple Stage: 36 lb.

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

INCH COMPONENT

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<th>Gear Ratio</th>
<th>L Max. in.</th>
<th>Max. Rated Cont. Torque** lbf in.</th>
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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 42

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 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.

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* 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

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PARTIAL MOTOR INPUT VIEW

GEARHEAD OUTPUT VIEW
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.

INCH COMPONENT

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<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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<td>6.78</td>
<td>4.51 Single Stage</td>
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<td>396</td>
<td>1666</td>
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* Maximum Rated Continuous Torque is rated at 3000 rpm, and a Minimum Life of 10,000 hours.
DUAL-OUTPUT EG PLANETARY GEARHEADS • SIZE 23

RIGHT ANGLE
SINGLE AND DOUBLE STAGE

GEARHEAD OUTPUT VIEW

PARTIAL MOTOR INPUT VIEW
DUAL-OUTPUT EG PLANETARY GEARHEADS • SIZE 34

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

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<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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<td>9.53 Single Stage</td>
<td>6.27 Single Stage</td>
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<td>1339</td>
<td>1666</td>
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* 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
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 #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: 29 lb.
  Double Stage: 35 lb.

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

### INCH COMPONENT

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<td>11.85 Single Stage</td>
<td>7.64 Single Stage</td>
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<td>2398</td>
<td>1666</td>
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<td>7.64 Single Stage</td>
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<td>2287</td>
<td>1250</td>
<td>1.049 x 10⁻³</td>
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<td>1782</td>
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<td>2478</td>
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<td>125</td>
<td>1.325 x 10⁻³</td>
<td>8.680 x 10⁻³</td>
</tr>
<tr>
<td>S9142E-SDEG049</td>
<td>49:1</td>
<td>13.45 Double Stage</td>
<td>9.24 Double Stage</td>
<td>1400</td>
<td>1945</td>
<td>102</td>
<td>3.706 x 10⁻³</td>
<td>8.766 x 10⁻³</td>
</tr>
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<td>S9142E-SDEG055</td>
<td>55:1</td>
<td>13.45 Double Stage</td>
<td>9.24 Double Stage</td>
<td>1688</td>
<td>2344</td>
<td>91</td>
<td>1.866 x 10⁻³</td>
<td>8.680 x 10⁻³</td>
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<td>70:1</td>
<td>13.45 Double Stage</td>
<td>9.24 Double Stage</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>S9142E-SDEG100</td>
<td>100:1</td>
<td>13.45 Double Stage</td>
<td>9.24 Double Stage</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.
DUAL-OUTPUT EG PLANETARY GEARHEADS • SIZE 42

RIGHT ANGLE
SINGLE AND DOUBLE STAGE

G E A R H E A D  O U T P U T  V I E W

P A R T I A L  M O T O R  I N P U T  V I E W
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 lb f
Axial: 300 lb f
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 10⁻¹ ozf in. sec.²
Pinion Gear Inertia: 7.59 x 10⁻¹ ozf in. sec.²
Max. Torque Rating - Continuous: 20 lb f in.
Momentary: 30 lb f 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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Catalog Number</strong></td>
</tr>
<tr>
<td>S9123E-SDSG003</td>
</tr>
<tr>
<td>S9123E-SDSG005</td>
</tr>
<tr>
<td>S9123E-SDSG010</td>
</tr>
<tr>
<td>S9123E-SDSG015</td>
</tr>
<tr>
<td>S9123E-SDSG020</td>
</tr>
<tr>
<td>S9123E-SDSG030</td>
</tr>
<tr>
<td>S9123E-SDSG050</td>
</tr>
<tr>
<td>S9123E-SDSG100</td>
</tr>
</tbody>
</table>

* “S” indicates output rotates in the same direction as input; “R” denotes opposite direction.
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 10^2 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>
</tr>
<tr>
<td>S9134E-SDSG010</td>
<td>10:1</td>
<td>400</td>
<td>S</td>
</tr>
<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>
</tr>
<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.

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**CATALOG NUMBER**

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<td>S9142E-SDSG005</td>
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