PITTMAN DC MOTOR GEARBOXES
Gearboxes

AMETEK offers a cost effective series of spur gearboxes featuring sintered steel gears to best compliment our motors. These gearboxes when added to AMETEK motors offer greater flexibility to the designer. Spur gearboxes are offered with sleeve or ball bearings, optional lubricants for extreme temperatures, Delrin gears for reduced noise, shortened housings are available for select ratios and offset output shaft.

AMETEK also offers a series of planetary gears with different ratios and stages. The planetary series are offered with plastic or metal gears, sleeve or ball bearing output, center output shaft for servo applications and also an option for power transmission applications.
Gearboxes

G22A Planetary Gearbox

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

Notes:
1 Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection and operating conditions.
2 Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.

6210 Series Motor with G22A (PG6600)
### Gearboxes

#### G22B Planetary Gearbox

**Ø.866 (Ø22.0)**

**Ø.551 (Ø14.00)**

**Ø.550 (Ø13.97)**

**.138 (3.5)**

**Ø.236 (Ø6.0)**

**.571±.020 (14.5±.5)**

**.315±.020 (8.0±.5)**

**.079 (2.0)**

**.177**

**M2 X 0.4 ISO 3 HOLES EQ. SPD. ON A Ø.748 (Ø19.0) B.C.**

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### Reduction Ratio Designation

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</table>

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### Standard Construction

- Economical plastic gearing for reduced audible noise
- Sintered metal output bearing

### Options

- Alternate mounting and shaft configurations
- Additional ratios available
- Output ball bearing for high radial loads

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Notes:

1. Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection, and operating conditions.
2. Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bidirectional capability.

---

### 6210 Series Motor with G22B (PG6400)

#### Motor Length L max

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<th>Motor</th>
<th>Length L max in (mm)</th>
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<td>6213</td>
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<td>6214</td>
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# Gearboxes

## G30A Planetary Gearbox

### Reduction Ratio Designation

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### Standard Construction

- Sintered steel gears for high torque capacity and low audible noise
- Sintered metal output bearing

### Options

- Alternate mounting and shaft configurations
- Additional ratios available
- Output ball bearings for high radial loads

**Notes:**

1. Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection, and operating conditions.
2. Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.
3. Flange option adds 31 grams to gearbox weight.

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With Optional Square Mounting Flange (G30AF)

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PITTMAN PRODUCTS
343 Godshall Drive, Harleysville, PA 19438
USA: +1 267 933 2105 - Europe: +33 240928751 - Asia: +86 21 5763 1258
www.pittman-motors.com
For use with the following motor series:

8690 Series Motor with G30A (GM8190)

Motor | Length $L_{max}$ in (mm)
---|---
8691 | 1.798 (45.67)
8692 | 1.923 (48.84)
8693 | 2.173 (55.19)

8220 Series Motor with G30A (GM8120)

Motor | Length $L_{max}$ in (mm)
---|---
8222 | 2.070 (52.58)
8223 | 2.195 (55.75)
8224 | 2.445 (62.10)

8540 Series Motor with G30A (GM8540)

Motor | Length $L_{max}$ in (mm)
---|---
8541 | 2.114 (53.69)
8542 | 2.585 (65.66)
8543 | 3.057 (77.65)

9230 Series Motor with G30A (GM9630)

Motor | Length $L_{max}$ in (mm)
---|---
9232 | 1.828 (46.43)
9233 | 2.032 (51.10)
9234 | 2.403 (61.04)
9235 | 2.703 (68.66)
9236 | 3.053 (77.55)
9237 | 3.353 (85.17)

1300 Series Motor with G30A (GM1300)

Motor | Length $L_{max}$ in (mm)
---|---
1301 | 1.500 (38.10)
1302 | 2.000 (50.80)
1303 | 2.500 (63.50)

Note: All combinations shown are valid for both the G30A and G30AF configurations. Overall length is the same for both the G30A and G30AF as measured from their respective output mounting surfaces.
Gearboxes

G35A Spur Gearbox

Standard Gears

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<th>G35A 19.5:1</th>
<th>G35A 30.9:1</th>
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<th>G35A 95.9:1</th>
<th>G35A 187.7:1</th>
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Notes:
1. Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection, and operating conditions.
2. Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.

For use with the following motor series:
8690 Series Motor with G35A (GM8290)
8220 Series Motor with G35A (GM8220)
8540 Series Motor with G35A (GM8840)

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H 5
Gearboxes

**G35A Spur Gearbox**

High Torque Gears

---

### Standard Construction

- Sintered bronze output bearing
- High torque gearboxes feature cut steel spur gears

### Option

- Alternate mounting and shaft configuration
- Output ball bearing for high radial loads
- Special greases for extreme operating temperatures
- Delrin gear clusters for reduced noise (select ratios)
- Shortened overall length (select ratios)

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**Notes:**

1. Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection, and operating conditions.
2. Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.

---

For use with the following motor series:

**8690 Series Motor with G35A (GM8290)**

**8220 Series Motor with G35A (GM8220)**

**8540 Series Motor with G35A (GM8840)**

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For products designed to meet specific applications, contact PITTMAN Motor Sales Department.

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www.pittman-motors.com
**Gearboxes**

**G35A Spur Gearbox**

Wide Face Gears

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<th>ø1.370 (Ø34.80)</th>
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<td>.060±.003 (1.52±.08)</td>
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Ø.500 (Ø12.70) Ø.498 (Ø12.65)

Ø.1873 (Ø4.757) Ø.1870 (Ø4.750)

.160 (4.06)

.262 (6.65)

.210 (5.33) DEEP MAX.

3 HOLES EQ. SPD.

ON A Ø1.062 (Ø26.97) B.C.

### Reduction Ratio Designation

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### Standard Construction

- Sintered bronze output bearing
- Wide face gearboxes feature cut steel spur gears

### Options

- Alternate mounting and shaft configurations
- Output ball bearing for high radial loads
- Special greases for extreme operating temperatures
- Delrin gear clusters for reduced noise (select ratios)
- Shortened overall lengths (select ratios)

**Notes:**

1. Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection, and operating conditions.
2. Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.

For use with the following motor series:

- **8690 Series Motor with G35A (GM8290)**
- **8220 Series Motor with G35A (GM8220)**
- **8540 Series Motor with G35A (GM8840)**

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343 Godshall Drive, Harleysville, PA 19438
USA: +1 267 933 2100 - Europe: +33 240928751 - Asia: +86 21 5763 1258
www.pittman-motors.com
### Gearboxes

#### G40A Planetary Gearbox

**Technical Specifications**

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<th>Specification</th>
<th>Units</th>
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<th>G40A 17.3:1</th>
<th>G40A 24:1</th>
<th>G40A 75:1:1</th>
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**Notes:**

1. Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection, and operating conditions.
2. Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.

**Standard Construction**

- Precision-hobbed steel gears for high torque capacity
- Sintered bronze output bearing

**Options**

- Alternate mounting and shaft configurations
- Output ball bearing for high radial loads
- Additional ratios available

For use with the following motor series:

- **3400 Series Motor with G40A (GM3400)**
- **4400 Series Motor with G40A (GM4400)**
- **5400 Series Motor with G40A (GM5400)**

**Motor Length, L max (mm)**

- **3411**: 2.953 (74.97)
- **3412**: 3.222 (81.94)
- **4411**: 2.953 (74.97)
- **4412**: 3.222 (81.94)
- **4413**: 3.253 (82.48)
- **5411**: 3.665 (93.06)
- **5412**: 3.665 (93.06)
- **5413**: 4.105 (104.28)

---

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www.pittman-motors.com
Gearboxes
G42A Planetary Gearbox

M3 X 0.5 ISO
4 HOLES EQ. SPD.
ON A Ø1.260 (Ø32.0) B.C.

Ø.3148 (Ø7.995)
Ø.3144 (Ø7.986)
Ø1.653 (Ø42.00)

.984±.020
(Ø25.00
+000
-002)

.118 ±.020
(3.0 X 3.0 X 16.0)
KEY & KEYWAY
PER DIN 6885

L MAX.

.079
(2.0)

M4 X 0.7 ISO
4 HOLES EQ. SPD.
ON A Ø1.417 (Ø36.0) B.C.

.118 X .118 X .630
(3.0 X 3.0 X 16.0)

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N2300 Series Motor with G42A (PG2310)

Motor | Length Lmax in (mm)
--- | ----------------|
9232 | 1.828 (66.43)
9233 | 2.203 (55.96)
9234 | 2.403 (61.04)
9235 | 2.703 (68.66)
9236 | 3.053 (77.55)
9237 | 3.353 (85.17)

14200 Series Motor with G42A (PG14700)

Motor | Length Lmax in (mm)
--- | ----------------|
14201 | 2.933 (75.01)
14202 | 3.203 (81.36)
14203 | 3.703 (94.06)
14204 | 4.078 (103.6)
14205 | 4.453 (113.1)
14206 | 4.953 (125.8)
14207 | 5.703 (144.9)

For use with the following motor series:
9230 Series Motor with G42A (PG9630)

Standard Construction
- Metal gearing for high torque capacity
- Output ball bearing for high radial loads

Options
- Alternate mounting and shaft configurations
- Additional ratios available

Notes:
1 Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection, and operating conditions.
2 Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.

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www.pittman-motors.com
Gearboxes

G42B Planetary Gearbox

M3 X 0.5 ISO
4 HOLES EQ. SPD.
ON A Ø1.260 (Ø32.0) B.C.

Ø.3148 (Ø7.995)
Ø.3144 (Ø7.986)
Ø1.653 (Ø42.00)
Ø1.299 (Ø33.0)
Ø .984±.020
(25.0±0.5)
Ø .79 (2.0)
.118 (3.0)
.110 (2.8)
.673 (17.1)

L MAX.

M4 X 0.7 ISO
4 HOLES EQ. SPD.
ON A Ø1.417 (Ø36.0) B.C.

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(Ø25.00 +.000 - .084)

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Standard Construction
- Economical plastic gearing for reduced audible noise
- Sintered metal output bearing

Options
- Alternate mounting and shaft configurations
- Additional ratios available
- Output ball bearing for high radial loads

Notes:
1 Maximum load represents gearbox capability only. Continuous torque capability will vary with gear ratio, motor selection, and operating conditions.
2 Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.

For use with the following motor series:

9230 Series Motor with G42B (PG9630)

14200 Series Motor with G42B (PG14700)

N2300 Series Motor with G42B (PG2310)

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# Gearboxes

## G51A Spur Gearbox

### Standard Gears

- Ø2.000 (Ø50.80)
- Ø1.125 (Ø28.58)
- Ø1.123 (Ø28.53)
- Ø.2496 (Ø6.340)
- Ø.2493 (Ø6.332)

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### Options

- Alternate mounting and shaft configurations
- Output ball bearing for high radial loads
- Special greases for extreme operating temperatures
- Delrin or helical gear clusters for reduced noise (select ratios)
- Shortened overall lengths (select ratios)

### Notes:

1. Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection, and operating conditions.
2. Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.

## N2300 Series Motor with G51A (GN2310)

(Available with ratios: 5.9, 19.7, 65.5, 218.4)

<table>
<thead>
<tr>
<th>Motor</th>
<th>Length Lmax in (mm)</th>
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<tbody>
<tr>
<td>N2311</td>
<td>1.532 (38.91)</td>
</tr>
<tr>
<td>N2312</td>
<td>1.982 (50.34)</td>
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<tr>
<td>N2313</td>
<td>2.482 (62.43)</td>
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<tr>
<td>N2314</td>
<td>3.362 (85.17)</td>
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## For use with the following motor series:

### 8540 Series Motor with G51A (GM8840)

### 9230 Series Motor with G51A (GM9230)

### 14200 Series Motor with G51A (GM14900)

<table>
<thead>
<tr>
<th>Motor</th>
<th>Length Lmax in (mm)</th>
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</thead>
<tbody>
<tr>
<td>N2311</td>
<td>1.532 (38.91)</td>
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## Motor Length Lmax

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<tr>
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<td>3.703 (94.06)</td>
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<tr>
<td>14204</td>
<td>4.076 (103.6)</td>
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<td>14205</td>
<td>4.453 (113.1)</td>
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<td>14206</td>
<td>4.953 (125.8)</td>
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<td>14207</td>
<td>5.703 (144.9)</td>
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# Gearboxes
## G51A Spur Gearbox

**High Torque Gears**

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<th>Ø1.123 (Ø28.53)</th>
<th>Ø.2496 (Ø6.340)</th>
<th>Ø.2493 (Ø6.332)</th>
<th>.204 (5.18)</th>
<th>.310 (7.87)</th>
<th>.329 (8.38)</th>
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| #10-32 UNF-2B .250 (6.35) DEEP REF. | 2 HOLES 180° APART ON A Ø1.500 (Ø38.10) B.C. |

### Reduction Ratio Designation

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**Standard Construction**

- Sintered bronze output bearing
- High torque gearbox features hardened sintered steel spur gears

**Options**

- Alternate mounting and shaft configuration
- Output ball bearing for high radial loads
- Delrin or helical gear clusters for reduced noise (select ratios)
- Special greases for extreme operating temperatures
- Shortened overall lengths (select ratios)

Notes:

1. Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection, and operating conditions.
2. Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.

### For use with the following motor series:

#### 8540 Series Motor with G51A (GM8840)

For use with the following motor series:

#### 9230 Series Motor with G51A (GM9230)

#### N2300 Series Motor with G51A (GN2310)  
(Available with ratios: 5.9, 19.7, 65.5, 218.4)

#### 14200 Series Motor with G51A (GM14900)  
(Available with ratios: 5.9, 19.7, 65.5, 218.4)

---

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**Gearboxes**

**G51A Spur Gearbox**

Wide Face Gears

---

**Reduction Ratio Designation**

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<td>CCW</td>
<td>CCW</td>
<td>CCW</td>
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**Standard Construction**

- Wide face gearboxes feature sintered steel spur gears
- Sintered bronze output bearing

**Options**

- Alternate mounting and shaft configurations
- Output ball bearing for high radial loads
- Durable or helical gear clusters for reduced noise (select ratios)
- Special greases for extreme operating temperatures
- Shortened overall lengths (select ratios)

**Notes**

1. Maximum load represents gearbox capability only. Continuous load torque capability will vary with gear ratio, motor selection, and operating conditions.
2. Shaft rotation is designated while looking at output shaft with motor operating in a clockwise direction. Gearboxes have bi-directional capability.

**N2300 Series Motor with G51A (GN2310)**

(Available with ratios: 5.9, 19.7, 65.5, 218.4)

---

**For use with the following motor series:**

**8540 Series Motor with G51A (GM8840)**

**9230 Series Motor with G51A (GM9230)**

**14200 Series Motor with G51A (GM14900)**

(Available with ratios: 5.9, 19.7, 65.5, 218.4)

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**PITTMAN PRODUCTS**
343 Godshall Drive, Harleysville, PA 19438
USA: +1 267 933 2100 - Europe: +33 240928751 - Asia: +86 21 5763 1258
www.pittman-motors.com
Gearboxes

G3000 Planetary Gear Reducer

- 2.25 inch (57.15 mm) square NEMA 23
- Continuous Torques up to 60 lb-in (6.78 Nm)
- Peak Torques up to 90 lb-in (10.17 Nm)
- Ratios 5, 10, 15, 25, 50 & 100 Standard
- "Clamp On" Pinion
- Low Cost Powder Metal Gearing Assembly
- 75 lbs. (34 kg) Radial and Axial Load Capacity
- "Bolt On" to NEMA 23 Motors

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1) Backlash accuracy will be typically less than 3 Deg.
2) Add gear length to motor length

Typical Combinations Gear # VDC Motor Length mm / in Perform Units 5 10 15 25 50 100

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<tr>
<th>Gear #</th>
<th>Motor #</th>
<th>Voltage</th>
<th>Motor Length mm / in</th>
<th>Perform</th>
<th>Units</th>
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<th>10</th>
<th>15</th>
<th>25</th>
<th>50</th>
<th>100</th>
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