PRODUCT DESCRIPTION
The AC50 Silver is a two-component adhesive anchoring system. The system includes injection adhesive in plastic cartridges, mixing nozzles, dispensing tools and hole cleaning equipment. The AC50 Silver is designed for bonding threaded rod and reinforcing bar hardware into drilled holes in solid concrete base materials.

GENERAL APPLICATIONS AND USES
• Bonding threaded rod and reinforcing bar into hardened concrete
• Evaluated for installation and use in dry holes
• Can be installed in a range of base material temperatures

FEATURES AND BENEFITS
• Designed for use with threaded rod & reinforcing bar hardware elements
• Cartridge design allows for multiple uses using extra mixing nozzles
• Mixing nozzles proportion adhesive and provide simple delivery method into drilled holes
• Evaluated and recognized for long term and short term loading (see performance tables for applicable temperature ranges)

APPROVALS AND LISTINGS
Conforms to requirements of ASTM C 881, Types I, II, IV and V, Grade 3, Classes A & B (also meets Type III except for elongation)
Department of Transportation listings – see www.powers.com or contact transportation agency

GUIDE SPECIFICATIONS
CSI Divisions: 03 16 00- Concrete Anchors and 05 05 19 - Post-Installed Concrete. Adhesive anchoring system shall be AC50 Silver as supplied by Powers Fasteners, Inc., Towson, MD. Anchors shall be installed in accordance with published instructions and requirements of the Authority Having Jurisdiction.

PACKAGING
Dual (side-by-side) Cartridge:
28 fl. oz. (825 mL)
10:1 mix ratio

STORAGE LIFE & CONDITIONS
Fifteen months in a dry, dark environment with temperature ranging from 32°F to 86°F (0°C to 30°C)

ANCHOR SIZE RANGE (TYP.)
3/8” to 1” diameter threaded rod;
No. 3 to No. 8 reinforcing bar (rebar)

SUITABLE BASE MATERIALS
Normal-weight concrete
**Threaded Rod and Deformed Reinforcing Bar Material Properties**

<table>
<thead>
<tr>
<th>Steel Description (General)</th>
<th>Steel Specification (ASTM)</th>
<th>Nominal Anchor Size (inch)</th>
<th>Minimum Yield Strength, $f_y$ (ksi)</th>
<th>Minimum Ultimate Strength, $f_u$ (ksi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon rod</td>
<td>A 36 or F 1554 and Grade 36</td>
<td>3/8 through 1-1/4</td>
<td>36.0</td>
<td>58.0</td>
</tr>
<tr>
<td>Stainless rod (Alloy 304 / 316)</td>
<td>F 593, Condition CW</td>
<td>3/8 through 5/8</td>
<td>65.0</td>
<td>100.0</td>
</tr>
<tr>
<td>High strength carbon rod</td>
<td>A 193, Grade B7</td>
<td>3/8 through 1</td>
<td>105.0</td>
<td>125.0</td>
</tr>
<tr>
<td>Grade 60 reinforcing bar</td>
<td>A 615, A706, A 767, or A 996</td>
<td>3/8 through 1 (#3 through #8)</td>
<td>60.0</td>
<td>90.0</td>
</tr>
<tr>
<td>Grade 40 reinforcing bar</td>
<td>A 615</td>
<td>3/8 through 3/4 (#3 through #6)</td>
<td>40.0</td>
<td>70.0</td>
</tr>
</tbody>
</table>

Detail of Steel Hardware Elements used with Injection Adhesive System

![Diagram of Threaded Rod or Rebar with AC50 Silver™](image-url)
INSTALLATION INSTRUCTIONS FOR SOLID BASE MATERIALS

Gel (working) Time and Curing Table

<table>
<thead>
<tr>
<th>Temperature of Base Material</th>
<th>Gel (Working) Time</th>
<th>Full Curing Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>°F</td>
<td>°C</td>
<td>120 minutes</td>
</tr>
<tr>
<td>5</td>
<td>-15</td>
<td>120 minutes</td>
</tr>
<tr>
<td>14</td>
<td>-10</td>
<td>90 minutes</td>
</tr>
<tr>
<td>23</td>
<td>-5</td>
<td>90 minutes</td>
</tr>
<tr>
<td>32</td>
<td>0</td>
<td>45 minutes</td>
</tr>
<tr>
<td>41</td>
<td>5</td>
<td>35 minutes</td>
</tr>
<tr>
<td>60</td>
<td>15</td>
<td>15 minutes</td>
</tr>
<tr>
<td>68</td>
<td>20</td>
<td>8 minutes</td>
</tr>
<tr>
<td>86</td>
<td>30</td>
<td>4 minutes</td>
</tr>
<tr>
<td>95</td>
<td>35</td>
<td>3 minutes</td>
</tr>
</tbody>
</table>

For installations in base material temperature between 5°F and 32°F the cartridge temperature must be conditioned to between 68°F and 95°F (20°C - 35°C).

Hole Cleaning Equipment Selection Table for AC50 Silver

<table>
<thead>
<tr>
<th>Threaded Rod Diameter (Inch)</th>
<th>Rebar Size (No.)</th>
<th>ANSI Drill Bit Diameter (Inch)</th>
<th>Min. Brush Diameter, Dmin (Inches)</th>
<th>Brush Length, L (Inches)</th>
<th>Steel Wire Brush (Cat. #)</th>
<th>Blowout Tool</th>
<th>Number Of Cleaning Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8</td>
<td>#3</td>
<td>7/16</td>
<td>0.475</td>
<td>6-3/4</td>
<td>08284</td>
<td>Compressed air nozzle only (min. 90 psi)</td>
<td>4x blowing</td>
</tr>
<tr>
<td>1/2</td>
<td>#4</td>
<td>9/16</td>
<td>0.600</td>
<td>6-3/4</td>
<td>08285</td>
<td>4x brushing</td>
<td></td>
</tr>
<tr>
<td>5/8</td>
<td>#5</td>
<td>3/4</td>
<td>0.790</td>
<td>7-7/8</td>
<td>08278</td>
<td>4x brushing</td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>#6</td>
<td>7/8</td>
<td>0.920</td>
<td>7-7/8</td>
<td>08287</td>
<td>4x brushing</td>
<td></td>
</tr>
<tr>
<td>7/8</td>
<td>#7</td>
<td>1</td>
<td>1.045</td>
<td>11-7/8</td>
<td>08288</td>
<td>4x brushing</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>#8</td>
<td>1-1/8</td>
<td>1.175</td>
<td>11-7/8</td>
<td>08289</td>
<td>4x brushing</td>
<td></td>
</tr>
</tbody>
</table>

INSTALLATION INSTRUCTIONS FOR SOLID BASE MATERIALS

DRILLING

1 - Drill a hole into the base material with a rotary hammer drill tool to the size and embedment required by the selected anchor (reference installation specifications for threaded rod and reinforcing bar). The tolerances of the carbide drill bit should meet the requirements of ANSI Standard B212.15. Precaution: Wear suitable eye and skin protection. Avoid inhalation of dusts during drilling and/or removal.

Note! After drilling and prior to hole cleaning, all standing water in the drilled bore hole must be removed if present to facilitate a dry hole condition. (e.g. vacuum, compressed air, etc.)

HOLE CLEANING: BLOW 4x, BRUSH 4x, BLOW 4x

2a - Starting from the bottom or back of the anchor hole, blow the hole clean using a compressed air nozzle (min. 90 psi) a minimum of four times (4x).

• Use a compressed air nozzle (min. 90 psi) for anchor rod 3/8” to 1” diameter or reinforcing bar (rebar) sizes #3 to #8.

2b - Determine wire brush diameter (reference hole cleaning equipment selection table) and attach the brush with adaptor to a rotary drill tool or battery screwgun. Brush the hole with the selected wire brush a minimum of four times (4x). A brush extension (supplied by Powers Fasteners, Cat. #08282) should be used for holes drilled deeper than the listed brush length.

The wire brush diameter should be checked periodically during use. The brush must be replaced if it becomes worn (less than Dmin, reference hole cleaning equipment selection table) or does not come into contact with the sides of the drilled hole.

2c - Finally, blow the hole clean again a minimum of four times (4x).

• Use a compressed air nozzle (min. 90 psi) for anchor rod 3/8” to 1” diameter or reinforcing bar (rebar) sizes #3 to #8. When finished the hole should be clean and free of dust, debris, ice, grease, oil or other foreign material.

PREPARING

3 - Check adhesive expiration date on cartridge label. Do not use expired product. Review Material Safety Data Sheet (MSDS) before use. Cartridge temperature must be between 32°F - 95°F (0°C - 35°C) when in use. Consideration should be given to the reduced gel time of the adhesive in warm temperatures.

Attach a supplied mixing nozzle to the cartridge. Do not modify the mixer in any way and make sure the mixing element is inside the nozzle. Load the cartridge into the correct dispensing tool. A new mixing nozzle must be used for every working interruption longer than the published working times (reference gel time and curing time table) as well as for new cartridges.
4 - Prior to inserting the anchor rod or rebar into the filled bore hole, the position of the embedment depth has to be marked on the anchor. Verify anchor element is straight and free of surface damage.

5 - For new cartridges and nozzles: prior to dispensing into the anchor hole, squeeze out separately a minimum three full strokes of the mixed adhesive. Discard non-uniform adhesive until the mixed adhesive shows a consistent gray color. Review and note the published working and cure times (reference gel time and curing time table) prior to injection of the mixed adhesive into the cleaned anchor hole.

**INSTALLATION**

6 - Fill the cleaned hole approximately two-thirds full with mixed adhesive starting from the bottom or back of the anchor hole. Slowly withdraw the mixing nozzle as the hole fills to avoid creating air pockets or voids. For embedment depth greater than 7-1/2” an extension nozzle must be used with the mixing nozzle.

Piston plugs (see Adhesive Piston Plug Table) must be used with and attached to mixing nozzle and extension tube for horizontal installations with anchor rod from 3/4” to 1” diameter and rebar sizes #6 to #8. Insert piston plug to the back of the drilled hole and inject as described in the method above. During installation the piston plug will be naturally extruded from the drilled hole by the adhesive pressure.

**Attention!** Do not install anchors overhead.

7 - The anchor should be free of dirt, grease, oil or other foreign material. Push clean threaded rod or reinforcing bar into the anchor hole while turning slightly to ensure positive distribution of the adhesive until the embedment depth is reached. Observe the gel (working) time.

8 - Be sure that the anchor is fully seated at the bottom of the hole and that some adhesive has flowed from the hole and all around the top of the anchor. If there is not enough adhesive in the hole, the installation must be repeated. Minor adjustments to the anchor may be performed during the gel time but the anchor shall not be moved after final placement and during cure.

**CURING & FIXTURE**

9 - Allow the adhesive anchor to cure to the specified full curing time prior to applying any load (reference gel time and curing time table).

Do not disturb, torque or load the anchor until it is fully cured.

10 - After full curing of the adhesive anchor, a fixture can be installed to the anchor and tightened up to the maximum torque (reference gel time and curing time table) by using a calibrated torque wrench.

Take care not to exceed the maximum torque for the selected anchor.

<table>
<thead>
<tr>
<th>Threaded Rod Diameter (Inch)</th>
<th>Rebar Size (No.)</th>
<th>ANSI Drill Bit Diameter (Inch)</th>
<th>Plug Size (Inch)</th>
<th>Plastic Plug (Cat. #)</th>
<th>Horizontal Installations</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4</td>
<td>#6</td>
<td>7/8</td>
<td>7/8</td>
<td>08300</td>
<td></td>
</tr>
<tr>
<td>7/8</td>
<td>#7</td>
<td>1</td>
<td>1</td>
<td>08301</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>#8</td>
<td>1-1/8</td>
<td>1-1/8</td>
<td>08303</td>
<td></td>
</tr>
</tbody>
</table>

A plastic extension tube must be used with piston plugs.
### ULTIMATE AND ALLOWABLE LOAD CAPACITIES FOR AC50 SILVER

#### Installed with Threaded Rod in Normal Weight Concrete (based on bond strength/concrete capacity)\(^1,2,3,4,5,6,7\)

<table>
<thead>
<tr>
<th>Nominal Anchor Diameter (in.)</th>
<th>Minimum Embedment Depth (d_e) (in.)</th>
<th>Minimum Concrete Compressive Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ultimate Tension Load Capacity (lbs.)</td>
<td>Allowable Tension Load Capacity (lbs.)</td>
</tr>
<tr>
<td>2,500 psi</td>
<td>3,000 psi</td>
<td>4,000 psi</td>
</tr>
<tr>
<td>3/8</td>
<td>3-3/8</td>
<td>6,520</td>
</tr>
<tr>
<td>1/2</td>
<td>4-1/2</td>
<td>11,860</td>
</tr>
<tr>
<td>5/8</td>
<td>5-5/8</td>
<td>18,520</td>
</tr>
<tr>
<td>3/4</td>
<td>6-3/4</td>
<td>22,420</td>
</tr>
<tr>
<td>1</td>
<td>9</td>
<td>29,005</td>
</tr>
</tbody>
</table>

1. Allowable load capacities listed are calculated using an applied safety factor of 4.0. Consideration of safety factors of 10 or higher may be necessary depending on the application, such as life safety.
2. Linear interpolation may be used to determine allowable loads for intermediate embedments and compressive strengths.
3. The tabulated load values are applicable to single anchors installed at critical edge and spacing distances and where the minimum member thickness is 2 times the embedment depth.
4. The tabulated load values are applicable for dry concrete. Holes must be drilled with a hammer drill and an ANSI carbide drill bit.
5. Adhesives experience reductions in capacity at elevated temperatures. See the in-service temperature chart for allowable load capacities.
6. Allowable bond strength/concrete capacity must be checked against allowable steel strength in tension to determine the controlling allowable load.
7. Allowable shear capacity is controlled by allowable steel strength for the given conditions.

#### Installed with Reinforcing Bar in Normal Weight Concrete (based on bond strength/concrete capacity)\(^1,2,3,4,5,6,7\)

<table>
<thead>
<tr>
<th>Nominal Anchor Diameter (in.)</th>
<th>Minimum Embedment Depth (d_e) in.</th>
<th>Minimum Concrete Compressive Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ultimate Tension Load Capacity (lbs.)</td>
<td>Allowable Tension Load Capacity (lbs.)</td>
</tr>
<tr>
<td>2,500 psi</td>
<td>3,000 psi</td>
<td>4,000 psi</td>
</tr>
<tr>
<td>#3</td>
<td>3-3/8</td>
<td>6,225</td>
</tr>
<tr>
<td>#4</td>
<td>4-1/2</td>
<td>10,480</td>
</tr>
<tr>
<td>#5</td>
<td>5-5/8</td>
<td>15,340</td>
</tr>
<tr>
<td>#6</td>
<td>6-3/4</td>
<td>15,545</td>
</tr>
<tr>
<td>#8</td>
<td>9</td>
<td>34,095</td>
</tr>
<tr>
<td>#8</td>
<td>12</td>
<td>39,060</td>
</tr>
</tbody>
</table>

1. Allowable load capacities listed are calculated using an applied safety factor of 4.0. Consideration of safety factors of 10 or higher may be necessary depending on the application, such as life safety.
2. Linear interpolation may be used to determine allowable loads for intermediate embedments and compressive strengths.
3. The tabulated load values are applicable to single anchors installed at critical edge and spacing distances and where the minimum member thickness is 2 times the embedment depth.
4. The tabulated load values are applicable for dry concrete. Holes must be drilled with a hammer drill and an ANSI carbide drill bit.
5. Adhesives experience reductions in capacity at elevated temperatures. See the in-service temperature chart for allowable load capacities.
6. Allowable bond strength/concrete capacity must be checked against allowable steel strength in tension to determine the controlling allowable load.
7. Allowable shear capacity is controlled by allowable steel strength for the given conditions.

### ALLOWABLE LOAD CAPACITIES FOR AC50 SILVER

#### Installed into Uncracked Normal-Weight Concrete with Threaded Rod and Reinforcing Bar (Based on Steel Strength)\(^1,2\)

<table>
<thead>
<tr>
<th>Nominal Rod Diameter or Rebar Size (in. or #)</th>
<th>A36 or F1554 Grade 36</th>
<th>A193, Grade 87</th>
<th>F 593, CW (SS)</th>
<th>Grade 60 Rebar</th>
<th>Grade 40 Rebar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tension (lbs.)</td>
<td>Shear (lbs.)</td>
<td>Tension (lbs.)</td>
<td>Shear (lbs.)</td>
<td>Tension (lbs.)</td>
<td>Shear (lbs.)</td>
</tr>
<tr>
<td>3/8 or #3</td>
<td>2,115</td>
<td>1,090</td>
<td>4,375</td>
<td>2,225</td>
<td>3,630</td>
</tr>
<tr>
<td>1/2 or #4</td>
<td>3,755</td>
<td>1,940</td>
<td>7,775</td>
<td>4,055</td>
<td>6,470</td>
</tr>
<tr>
<td>5/8 or #5</td>
<td>5,870</td>
<td>3,025</td>
<td>12,150</td>
<td>6,260</td>
<td>10,130</td>
</tr>
<tr>
<td>3/4 or #6</td>
<td>8,455</td>
<td>4,355</td>
<td>17,495</td>
<td>9,010</td>
<td>12,400</td>
</tr>
<tr>
<td>7/8 or #7</td>
<td>11,450</td>
<td>5,930</td>
<td>23,810</td>
<td>12,150</td>
<td>16,860</td>
</tr>
<tr>
<td>1 or #8</td>
<td>15,105</td>
<td>7,745</td>
<td>31,100</td>
<td>16,020</td>
<td>22,020</td>
</tr>
</tbody>
</table>

1. Allowable load capacities listed are calculated for the steel element type as defined by AISC (ASD).
2. Allowable steel strength in tension must be checked against allowable bond strength/concrete capacity in tension to determine the controlling allowable load.
3. The tabulated load values are applicable to single anchors installed at critical edge and spacing distances and where the minimum member thickness is 2 times the embedment depth.

#### In-Service Temperature Chart For Allowable Load Capacities\(^1\)

<table>
<thead>
<tr>
<th>Base Material Temperature</th>
<th>Reduction Factor For Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>°F</td>
<td>°C</td>
</tr>
<tr>
<td>0</td>
<td>-18</td>
</tr>
<tr>
<td>32</td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>70</td>
<td>20</td>
</tr>
<tr>
<td>90</td>
<td>30</td>
</tr>
<tr>
<td>110</td>
<td>40</td>
</tr>
<tr>
<td>140</td>
<td>60</td>
</tr>
<tr>
<td>180</td>
<td>80</td>
</tr>
</tbody>
</table>
### AC50 Silver Cartridges

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Description</th>
<th>Std. Ctn.</th>
<th>Pallet</th>
</tr>
</thead>
<tbody>
<tr>
<td>08497</td>
<td>AC50 Silver 28 fl. oz. dual cartridge</td>
<td>8</td>
<td>400</td>
</tr>
</tbody>
</table>

One mixing nozzle is packaged with each cartridge. AC50 Silver mixing nozzles must be used to ensure complete and proper mixing of the adhesive.

### Cartridge System Mixing Nozzles

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Description</th>
<th>Std. Pkg.</th>
<th>Std. Ctn.</th>
</tr>
</thead>
<tbody>
<tr>
<td>08294</td>
<td>Extra mixing nozzle (with 8” extension) for AC50 Silver</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>08281</td>
<td>Mixing nozzle extension, 8” minimum</td>
<td>2</td>
<td>24</td>
</tr>
</tbody>
</table>

### Dispensing Tools for Injection Adhesive

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Description</th>
<th>Std. Box</th>
<th>Std. Ctn.</th>
</tr>
</thead>
<tbody>
<tr>
<td>08494</td>
<td>28 fl. oz. Standard metal manual tool</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>08444</td>
<td>28 fl. oz. Battery powered tool (cordless)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>08496</td>
<td>28 fl. oz. Pneumatic tool</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Hole Cleaning Tools and Accessories

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Description</th>
<th>Std. Pkg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>08284</td>
<td>Wire brush for 7/16&quot; ANSI hole (3/8&quot; rod or #3 rebar)</td>
<td>1</td>
</tr>
<tr>
<td>08285</td>
<td>Wire brush for 9/16&quot; ANSI hole (1/2&quot; rod or #4 rebar)</td>
<td>1</td>
</tr>
<tr>
<td>08286</td>
<td>Wire brush for 11/16&quot; ANSI hole (5/8&quot; rod or #5 rebar)</td>
<td>1</td>
</tr>
<tr>
<td>08278</td>
<td>Wire brush for 3/4&quot; ANSI hole (5/8&quot; rod or #5 rebar)</td>
<td>1</td>
</tr>
<tr>
<td>08287</td>
<td>Wire brush for 7/8&quot; ANSI hole (3/4&quot; rod or #6 rebar)</td>
<td>1</td>
</tr>
<tr>
<td>08288</td>
<td>Wire brush for 1&quot; ANSI hole (7/8&quot; rod or #7 rebar)</td>
<td>1</td>
</tr>
<tr>
<td>08289</td>
<td>Wire brush for 1-1/8&quot; ANSI hole (1&quot; rod or #8 rebar)</td>
<td>1</td>
</tr>
<tr>
<td>08283</td>
<td>SDS-Plus adapter for steel brushes</td>
<td>1</td>
</tr>
<tr>
<td>08296</td>
<td>Standard drill adapter for steel brushes (e.g. Jacobs Chuck)</td>
<td>1</td>
</tr>
<tr>
<td>08282</td>
<td>Steel brush extension, 12&quot;</td>
<td>1</td>
</tr>
<tr>
<td>08292</td>
<td>Air compressor nozzle with extension</td>
<td>1</td>
</tr>
<tr>
<td>08465</td>
<td>Adjustable torque wrench with 1/2&quot; square drive (10 to 150 ft.-lbs.)</td>
<td>1</td>
</tr>
<tr>
<td>08466</td>
<td>Adjustable torque wrench with 1/2&quot; square drive (25 to 250 ft.-lbs.)</td>
<td>1</td>
</tr>
</tbody>
</table>

### Adhesive Pistons

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>08300</td>
<td>7/8&quot; Plug</td>
<td>7/8&quot;</td>
<td>3/4&quot;</td>
<td>#6</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>08301</td>
<td>1&quot; Plug</td>
<td>1&quot;</td>
<td>7/8&quot;</td>
<td>#7</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>08303</td>
<td>1-1/8&quot; Plug</td>
<td>1-1/8&quot;</td>
<td>1&quot;</td>
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# Powders Fasteners - Branch Information

## USA Locations

<table>
<thead>
<tr>
<th>City</th>
<th>Address</th>
<th>Contact</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>5405 Buford Hwy Suite 410 Nocorso, GA 30071-3984</td>
<td>Jeff Hatchett</td>
<td>678-966-0020</td>
<td>678-966-9242</td>
</tr>
<tr>
<td>Atlanta</td>
<td>5405 Buford Hwy Suite 410 Nocorso, GA 30071-3984</td>
<td>Ryan Raica</td>
<td>678-966-0020</td>
<td>678-966-9242</td>
</tr>
<tr>
<td>Boston</td>
<td>2 Powers Lane, Brewster, NY 10509</td>
<td>Jack Armour</td>
<td>800-524-3244</td>
<td>877-871-1965</td>
</tr>
<tr>
<td>Charlotte</td>
<td>3491 West Tremont Avenue, Charlotte, NC 28203</td>
<td>Bob Ausby</td>
<td>704-375-5012</td>
<td>704-376-5517</td>
</tr>
<tr>
<td>Chicago</td>
<td>2472 Wisconsin Avenue, Downers Grove, IL 60515</td>
<td>Dan Gilligan</td>
<td>630-960-3156</td>
<td>630-960-3912</td>
</tr>
<tr>
<td>Dallas</td>
<td>1301 IH 35 North, Suite #118, Carrollton TX 75006</td>
<td>Matt Henderson</td>
<td>972-466-5985</td>
<td>972-466-3674</td>
</tr>
<tr>
<td>Denver</td>
<td>2475 West Second Street #35, Denver, CO 80223</td>
<td>Jared Herrnett</td>
<td>303-322-9202</td>
<td>303-322-9228</td>
</tr>
<tr>
<td>Detroit</td>
<td>26000 Wavreng Avenue, Oak Park, MI 48323</td>
<td>Glen Gaddis</td>
<td>248-543-8000</td>
<td>248-543-8007</td>
</tr>
<tr>
<td>Florida</td>
<td>2412 Lake Lane, Orlando, FL 32804</td>
<td>John Christy</td>
<td>407-366-4920</td>
<td>407-366-4920</td>
</tr>
<tr>
<td>Houston</td>
<td>1338 North Promenade, Suite 100, Stafford, TX 77477</td>
<td>Vaughn Edelman</td>
<td>281-491-0351</td>
<td>281-491-0367</td>
</tr>
<tr>
<td>Indianapolis</td>
<td>15290 Stoney Creek Way, Noblesville, IN 46060</td>
<td>Ian Jones</td>
<td>317-733-1668</td>
<td>317-733-1696</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>2761 Dow Avenue, Tustin, CA 92780</td>
<td>John Kenney</td>
<td>714-731-2500</td>
<td>714-731-2566</td>
</tr>
<tr>
<td>Maryland</td>
<td>3137-B Pepny Drive, Landover, MD 20785</td>
<td>Chris Van Sickle</td>
<td>301-733-1722</td>
<td>301-341-5119</td>
</tr>
<tr>
<td>Milwaukee</td>
<td>12020 W. freight Street, Milwaukee, WI 53222</td>
<td>Donn Rudersen</td>
<td>414-466-2400</td>
<td>414-466-3993</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>351 Wilson Street, NE Minneapolis, MN 55413</td>
<td>Josh Nelson</td>
<td>612-331-3770</td>
<td>612-331-3349</td>
</tr>
<tr>
<td>Missouri</td>
<td>3225 Harvester Road, Kansas City, KS 66115</td>
<td>Don James, Jr.</td>
<td>816-472-5033</td>
<td>816-472-5040</td>
</tr>
<tr>
<td>New Orleans</td>
<td>102 Sampson Street, Houston, TX 77003</td>
<td>Gary Button</td>
<td>713-228-1524</td>
<td>713-228-1528</td>
</tr>
<tr>
<td>New York</td>
<td>2 Powers Lane, Brewster, NY 10509</td>
<td>Matt Repav</td>
<td>800-524-3244</td>
<td>877-871-1965</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>2 Powers Lane, Brewster, NY 10509</td>
<td>Greg Stephenson</td>
<td>800-524-3244</td>
<td>877-871-1965</td>
</tr>
<tr>
<td>Phoenix</td>
<td>3602 E. Southern Ave, Suite S Phoenix, AZ 85040</td>
<td>Patrick Stydy</td>
<td>602-431-8024</td>
<td>602-431-8027</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>1360 Island Avenue, Mckees Rocks, PA 15136</td>
<td>Bill Dugan</td>
<td>412-771-3010</td>
<td>412-771-9898</td>
</tr>
<tr>
<td>Portland</td>
<td>14221 NE 190th St., Suite 1/2, Woodinville, WA 98072</td>
<td>Bob Ausby</td>
<td>714-731-2500</td>
<td>714-731-2566</td>
</tr>
<tr>
<td>Salt Lake City</td>
<td>3120 W. California Ave, Suite E, Salt Lake City, UT 84104</td>
<td>Don Manning</td>
<td>801-466-9428</td>
<td>801-466-3083</td>
</tr>
<tr>
<td>San Francisco</td>
<td>28970 Hopkins Street, Suite B+4, Hayward, CA 94546</td>
<td>John O’Brien/Craig Heering</td>
<td>510-293-1500</td>
<td>510-293-1505</td>
</tr>
<tr>
<td>Seattle</td>
<td>14221 NE 190th St., Suite 1/2, Woodinville, WA 98072</td>
<td>Bob Ausby</td>
<td>714-731-2500</td>
<td>714-731-2566</td>
</tr>
<tr>
<td>Tennessee</td>
<td>237 Blanton Avenue, Nashville, TN 37210</td>
<td>Jamie Wilkes/John Hazen, Sr.</td>
<td>615-248-2667</td>
<td>615-248-2676</td>
</tr>
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## International Locations

<table>
<thead>
<tr>
<th>Country</th>
<th>Address</th>
<th>Contact</th>
<th>Phone</th>
<th>Fax</th>
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</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Factory 1, 20th Abbott Road, Dandenong, South Victoria 3175</td>
<td>Peter Pratis</td>
<td>+61 3 8878 5888</td>
<td>+61 3 8878 5899</td>
</tr>
<tr>
<td>Canada</td>
<td>6275 Millbrook Drive, Mississauga, Ontario L5N 9X6</td>
<td>Joe Dilkos</td>
<td>1-800-567-7188</td>
<td>1-800-265-9680</td>
</tr>
<tr>
<td>China</td>
<td>B/L Lujiazhu Fund Tower, No. 101, Zhu Lin Road, PuDong District, Shanghai, China 200122</td>
<td>Tina Ge</td>
<td>+86-21-6162-1858</td>
<td>+86-21-5080-5107</td>
</tr>
<tr>
<td>Europe</td>
<td>Westerkolk 208, 1771 SV Weeningwerd, Netherlands</td>
<td>Colin Earl</td>
<td>+31 88 769 377</td>
<td>+31 227 594 759</td>
</tr>
<tr>
<td>Manitoba</td>
<td>1810 Dublin Avenue Man. Winnipeg, R3H OH3</td>
<td>Distributor</td>
<td>204-633-0064</td>
<td>204-694-1261</td>
</tr>
<tr>
<td>New Zealand</td>
<td>PO Box 302 076 North Harbour Auckland</td>
<td>Clay Siesto</td>
<td>64 9415 2425</td>
<td>64 9415 2627</td>
</tr>
<tr>
<td>Quebec</td>
<td>721 Melissa Avenues, Dorval, Quebec H9P 2S5</td>
<td>Allain Hill</td>
<td>514-631-4216</td>
<td>514-631-2583</td>
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## Latin & Caribbean Distribution Inquiries

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Address</th>
<th>Contact</th>
<th>Phone</th>
<th>Fax</th>
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<tbody>
<tr>
<td>Latin America</td>
<td></td>
<td>Allan Herbstein</td>
<td>505-767-67749</td>
<td>877-871-1965</td>
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</table>

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Note: The information and data contained within this documentation was current as of April 2014. The information is for marketing purposes only and is subject to change and updates as needed. Powers Fasteners, Inc. reserves the right to change designs and specifications without notice or liability for such changes. Please contact Powers Fasteners for the most current and up to date available information or reference to our website at www.powders.com.