GENERAL INFORMATION

POWER-STUD®
Stainless Steel Wedge Expansion Anchor

PRODUCT DESCRIPTION
The Power-Stud anchor, is a fully threaded, torque-controlled, wedge expansion anchor. It is available in a threaded version suitable for applications in solid concrete and grout-filled concrete masonry. The threaded version is produced in Type 304 and Type 316 stainless steel.

GENERAL APPLICATIONS AND USES
- Lighting Standards and Base Plates
- Sills and Support Ledgers
- Retrofit Projects and Machinery Anchorage
- Food and Beverage Facilities
- Water Treatment Plants and Marine Applications

FEATURE AND BENEFITS
+ Fully threaded, medium duty all-purpose anchor
+ Length ID stamped on each threaded anchor
+ Anchors can be installed through the fixture for hole spotting not required
+ Chamfered impact section prevents damage to threads
+ Clip design prevents spinning during installation
+ Nominal drill bit diameter same as anchor diameter

APPROVALS AND LISTINGS
- Tested in accordance with ASTM E488
- Underwriters Laboratory (UL Listed) – File No. EX1289 (see listing)
- Federal GSA Specification
  Meets the descriptive and proof load requirements of CID A-A-1923A, Type 4

GUIDE SPECIFICATIONS
CSI Divisions: 03 16 00 - Concrete Anchors, 04 05 19.16 - Masonry Anchors and 05 05 19 - Post-Installed Concrete Anchors. Expansion anchors shall be Power-Stud as supplied by DEWALT, Towson, MD. Anchors shall be installed in accordance with published instructions and the Authority Having Jurisdiction.
INSTALLATION SPECIFICATIONS

Type 304 and Type 316 Stainless Steel Power-Stud

<table>
<thead>
<tr>
<th>Dimension</th>
<th>1/4&quot;</th>
<th>3/8&quot;</th>
<th>1/2&quot;</th>
<th>5/8&quot;</th>
<th>3/4&quot;</th>
<th>7/8&quot;</th>
<th>1&quot;</th>
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</thead>
<tbody>
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<td>3/8</td>
<td>1/2</td>
<td>5/8</td>
<td>3/4</td>
<td>7/8</td>
<td>1</td>
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<tr>
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<td>7/16</td>
<td>9/16</td>
<td>11/16</td>
<td>13/16</td>
<td>15/16</td>
<td>1-1/8</td>
</tr>
<tr>
<td>Thread Size (UNC)</td>
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<td>3/8-16</td>
<td>1/2-13</td>
<td>5/8-11</td>
<td>3/4-10</td>
<td>7/8-9</td>
<td>1-8</td>
</tr>
<tr>
<td>Nut Height (in.)</td>
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<td>21/64</td>
<td>7/16</td>
<td>35/64</td>
<td>41/64</td>
<td>3/4</td>
<td>55/64</td>
</tr>
<tr>
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<td>13/16</td>
<td>1-1/16</td>
<td>1-3/4</td>
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<td>2-1/4</td>
<td>2-1/2</td>
</tr>
<tr>
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<td>7/8</td>
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<td>1-1/2</td>
<td>1-3/4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
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<td>9/16</td>
<td>3/4</td>
<td>15/16</td>
<td>1-1/8</td>
<td>1-5/16</td>
<td>1-1/2</td>
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<tr>
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<td>28</td>
<td>60</td>
<td>90</td>
<td>175</td>
<td>250</td>
<td>300</td>
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</tbody>
</table>

Nomenclature

- d = Diameter of anchor
- d<sub>b</sub> = Diameter of drill bit
- d<sub>f</sub> = Diameter of fixture clearance hole
- d<sub>w</sub> = Diameter of washer
- h = Base material thickness
- h<sub>v</sub> = Minimum embedment depth
- l = Overall length of anchor
- t = Fixture thickness

The minimum value of h should be 1.5h or 3" whichever is greater.

MATERIAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Anchor Component</th>
<th>Type 304 Stainless Steel Power-Stud</th>
<th>Type 316 Stainless Steel Power-Stud</th>
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</thead>
<tbody>
<tr>
<td>Anchor Body</td>
<td>Type 304Cu (1/4&quot;– 3/4&quot;, lengths up to 7”)</td>
<td>Type 316 Stainless Steel</td>
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<tr>
<td></td>
<td>Type 304 (7/8&quot;– 1&quot;, lengths up to 7”)</td>
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</tr>
<tr>
<td>Nut</td>
<td>Type 18-8 (300 Series) Stainless Steel</td>
<td>Type 316 Stainless Steel</td>
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<tr>
<td>Washer</td>
<td>Type 18-8 (300 Series) Stainless Steel</td>
<td>Type 316 Stainless Steel</td>
</tr>
<tr>
<td>Expansion Wedge</td>
<td>Type 18-8 (300 Series) Stainless Steel</td>
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</table>

Stainless steel anchor components are passivated.

Length Identification (Threaded Version)

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<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
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<td>1&quot;</td>
<td>1-1/2&quot;</td>
<td>2&quot;</td>
<td>2-1/2&quot;</td>
<td>3&quot;</td>
<td>3-1/2&quot;</td>
<td>4&quot;</td>
<td>4-1/2&quot;</td>
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<tr>
<td>Up to but not including</td>
<td>1&quot;</td>
<td>1-1/2&quot;</td>
<td>2&quot;</td>
<td>2-1/2&quot;</td>
<td>3&quot;</td>
<td>3-1/2&quot;</td>
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<td>4-1/2&quot;</td>
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<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>Q</th>
<th>R</th>
<th>S</th>
<th>T</th>
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<td>7-1/2&quot;</td>
<td>8&quot;</td>
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<td>10&quot;</td>
<td>11&quot;</td>
<td>12&quot;</td>
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<tr>
<td>Up to but not including</td>
<td>6-1/2&quot;</td>
<td>7&quot;</td>
<td>7-1/2&quot;</td>
<td>8&quot;</td>
<td>8-1/2&quot;</td>
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<td>9-1/2</td>
<td>10&quot;</td>
<td>11&quot;</td>
<td>12&quot;</td>
<td>13&quot;</td>
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### Ultimate Load Capacities for Stainless Steel Power-Stud in Normal-Weight Concrete

<table>
<thead>
<tr>
<th>Anchor Diameter d (in.)</th>
<th>Minimum Embedment Depth h (in.)</th>
<th>Minimum Concrete Compressive Strength (f'_c)</th>
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<tr>
<td></td>
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<td>2,000 psi (13.8 MPa)</td>
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<td>4,000 psi (27.6 MPa)</td>
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<td>6,000 psi (41.4 MPa)</td>
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<td>Tension lbs. (kN)</td>
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<td>Shear lbs. (kN)</td>
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<tr>
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<td>Shear lbs. (kN)</td>
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<td>Tension lbs. (kN)</td>
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<td>Shear lbs. (kN)</td>
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</table>

1. Tabulated load values are for anchors installed in concrete. Concrete compressive strength must be at the specified minimum at the time of installation.
2. Ultimate load capacities must be reduced by a minimum safety factor of 4.0 or greater to determine allowable working load. Consideration of safety factors of 10 or higher may be necessary depending upon the application such as life safety or overhead.
<table>
<thead>
<tr>
<th>Anchor Diameter in. (mm)</th>
<th>Minimum Embedment Depth in. (mm)</th>
<th>2,000 psi (13.8 MPa)</th>
<th>4,000 psi (27.6 MPa)</th>
<th>Minimum Concrete Compressive Strength (f´c) 6,000 psi (41.4 MPa)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tension lbs. (kN)</td>
<td>Shear lbs. (kN)</td>
<td>Tension lbs. (kN)</td>
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<td>520</td>
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<td>395</td>
<td>520</td>
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<td>1,635</td>
<td>1,790</td>
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<td>4,280</td>
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<td></td>
<td>6-1/2 (165.1)</td>
<td>4,150</td>
<td>6,605</td>
<td>4,280</td>
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</tbody>
</table>

1. Allowable load capacities listed are calculated using and applied safety factor of 4.0. Consideration of safety factors of 10 or higher may be necessary depending upon the application such as life safety or overhead.
2. Allowable load capacities are multiplied by reduction factors found in the Design Criteria section when anchor spacing or edge distances are less than critical distances.
3. Linear interpolation may be used to determine allowable loads for intermediate embedments and concrete compressive strength.
# Ultimate and Allowable Load Capacities for Stainless Steel Power-Stud in Structural Lightweight Concrete

<table>
<thead>
<tr>
<th>Anchor Diameter</th>
<th>Install Torque T&lt;sub&gt;inst&lt;/sub&gt; ft-lbs.</th>
<th>Min. Embed. Depth h&lt;sub&gt;v&lt;/sub&gt; in. (mm)</th>
<th>Minimum Concrete Compressive Strength f&lt;sub&gt;c&lt;/sub&gt;</th>
<th>Shear, lbs (kN)</th>
<th>Tension, lbs (kN)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>f&lt;sub&gt;c&lt;/sub&gt; ≥ 3,000 psi (20.7 MPa)</td>
<td>4,000 psi (27.6 MPa)</td>
<td>5,000 psi (34.5 MPa)</td>
</tr>
<tr>
<td>1/4 (6.4)</td>
<td>4</td>
<td>1-1/8 (28.6)</td>
<td>720 (3.2) 180 (0.8) 960 (4.3) 240 (1.1) 1,200 (5.4) 300 (1.4) 720 (3.2) 180 (0.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>20</td>
<td>1-5/8 (41.3)</td>
<td>1,600 (7.2) 400 (1.8) 1,940 (8.7) 485 (2.2) 2,300 (10.4) 575 (2.6) 1,840 (8.3) 460 (2.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>30</td>
<td>2-1/4 (57.2)</td>
<td>2,820 (12.9) 705 (3.2) 3,180 (14.3) 795 (3.6) 3,560 (16.0) 890 (4.0) 5,040 (22.7) 1,260 (5.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/8 (15.9)</td>
<td>65</td>
<td>3-3/8 (85.7)</td>
<td>5,060 (25.2) 1,265 (5.7) 5,600 (25.2) 1,400 (6.3) 6,140 (27.6) 1,535 (6.9) 9,880 (44.5) 2,470 (11.1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Tabulated load values are for anchors installed in sand-lightweight concrete. Concrete compressive strength must be at the specified minimum at the time of installation. Allowable load capacities listed are calculated using and applied safety factor of 4.0. Consideration of safety factors of 10 or higher may be necessary depending upon the application such as life safety or overhead.

2. Allowable load capacities are multiplied by reduction factors found in the Design Criteria section when anchor spacing or edge distances are less than critical distances.
Ultimate and Allowable Load Capacities for Stainless Steel Power-Stud in Grout-Filled Concrete Masonry

<table>
<thead>
<tr>
<th>Anchor Dia. (mm)</th>
<th>Install Torque (ft-lbs)</th>
<th>Install Embed. Depth (mm)</th>
<th>Min. Edge Distance (mm)</th>
<th>Min. End Distance (mm)</th>
<th>Load Type</th>
<th>Critical Distance (Full Anchor Capacity)</th>
<th>Critical Load Factor</th>
<th>Minimum Distance (Reduced Capacity)</th>
<th>Minimum Load Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4 (6.4)</td>
<td>4</td>
<td>1-1/8 (28.6)</td>
<td>3-3/4 (95.3)</td>
<td>3-3/4 (95.3)</td>
<td>Tension</td>
<td>1.230</td>
<td>1.230</td>
<td>245</td>
<td>245</td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>20</td>
<td>1-5/8 (41.3)</td>
<td>5-5/8 (142.9)</td>
<td>5-5/8 (142.9)</td>
<td>Tension</td>
<td>1.670</td>
<td>1.230</td>
<td>335</td>
<td>245</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>30</td>
<td>2-1/4 (57.2)</td>
<td>7-1/2 (190.5)</td>
<td>7-1/2 (190.5)</td>
<td>Tension</td>
<td>2.260</td>
<td>1.230</td>
<td>450</td>
<td>1,245</td>
</tr>
<tr>
<td>5/8 (15.9)</td>
<td>65</td>
<td>2-3/4 (69.9)</td>
<td>9-3/8 (238.1)</td>
<td>9-3/8 (238.1)</td>
<td>Tension</td>
<td>3.170</td>
<td>1.230</td>
<td>525</td>
<td>1,245</td>
</tr>
<tr>
<td>3/4 (19.1)</td>
<td>90</td>
<td>3-3/8 (85.7)</td>
<td>11-1/4 (285.8)</td>
<td>11-1/4 (285.8)</td>
<td>Tension</td>
<td>4.085</td>
<td>1.230</td>
<td>615</td>
<td>1,950</td>
</tr>
</tbody>
</table>

1. Tabulated load values are for anchors installed in normal-weight concrete units conforming to ASTM C 90. Mortar must be minimum Type N. Masonry cells may be grouted. Masonry compressive strength must be at the specified minimum at the time of installation (f’m ≥ 1,500 psi).
2. Allowable load capacities listed are calculated using and applied safety factor of 5.0. Consideration of safety factors of 10 or higher may be necessary depending upon the application such as life safety or overhead.
3. The tabulated values are for anchors installed at a minimum of 12 anchor diameters on center for 100 percent capacity. Spacing distances may be reduced to 6 anchor diameters on center provided the capacities are reduced by 50 percent. Linear interpolation may be used for intermediate spacing.

**DESIGN CRITERIA (ALLOWABLE STRESS DESIGN)**

**Combined Loading**

For anchors loaded in both shear and tension, the combination of loads should be proportioned as follows:

\[ \frac{N_u}{N_n} + \frac{V_u}{V_n} \leq 1 \]  

Where:  
- \( N_u \) = Applied Service Tension Load  
- \( N_n \) = Allowable Tension Load  
- \( V_u \) = Applied Service Shear Load  
- \( V_n \) = Allowable Shear Load

**LOAD ADJUSTMENT FACTORS FOR SPACING AND EDGE DISTANCES**

**Anchor Installed in Normal-Weight Concrete**

<table>
<thead>
<tr>
<th>Anchor Dimension</th>
<th>Load Type</th>
<th>Critical Distance (Full Anchor Capacity)</th>
<th>Critical Load Factor</th>
<th>Minimum Distance (Reduced Capacity)</th>
<th>Minimum Load Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spacing (s)</td>
<td>Tension and Shear</td>
<td>s&lt;sub&gt;u&lt;/sub&gt; = 2.0h&lt;sub&gt;v&lt;/sub&gt;</td>
<td>F&lt;sub&gt;KL&lt;/sub&gt; = F&lt;sub&gt;KS&lt;/sub&gt; = 1.0</td>
<td>s&lt;sub&gt;min&lt;/sub&gt; = h&lt;sub&gt;v&lt;/sub&gt;</td>
<td>F&lt;sub&gt;KL&lt;/sub&gt; = F&lt;sub&gt;KS&lt;/sub&gt; = 0.50</td>
</tr>
<tr>
<td>Edge Distance (c)</td>
<td>Tension</td>
<td>c&lt;sub&gt;u&lt;/sub&gt; = 12d</td>
<td>F&lt;sub&gt;K&lt;/sub&gt; = 1.0</td>
<td>c&lt;sub&gt;min&lt;/sub&gt; = 5d</td>
<td>F&lt;sub&gt;K&lt;/sub&gt; = 0.75</td>
</tr>
<tr>
<td></td>
<td>Shear</td>
<td>c&lt;sub&gt;u&lt;/sub&gt; = 12d</td>
<td></td>
<td>c&lt;sub&gt;min&lt;/sub&gt; = 5d</td>
<td>F&lt;sub&gt;K&lt;/sub&gt; = 0.75</td>
</tr>
</tbody>
</table>

**Anchor Installed in Structural Lightweight Concrete**

<table>
<thead>
<tr>
<th>Anchor Dimension</th>
<th>Load Type</th>
<th>Critical Distance (Full Anchor Capacity)</th>
<th>Critical Load Factor</th>
<th>Minimum Distance (Reduced Capacity)</th>
<th>Minimum Load Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spacing (s)</td>
<td>Tension and Shear</td>
<td>s&lt;sub&gt;u&lt;/sub&gt; = 2.0h&lt;sub&gt;v&lt;/sub&gt;</td>
<td>F&lt;sub&gt;KL&lt;/sub&gt; = F&lt;sub&gt;KS&lt;/sub&gt; = 1.0</td>
<td>s&lt;sub&gt;min&lt;/sub&gt; = h&lt;sub&gt;v&lt;/sub&gt;</td>
<td>F&lt;sub&gt;KL&lt;/sub&gt; = F&lt;sub&gt;KS&lt;/sub&gt; = 0.50</td>
</tr>
<tr>
<td>Edge Distance (c)</td>
<td>Tension</td>
<td>c&lt;sub&gt;u&lt;/sub&gt; = 12d</td>
<td>F&lt;sub&gt;K&lt;/sub&gt; = 1.0</td>
<td>c&lt;sub&gt;min&lt;/sub&gt; = 5d</td>
<td>F&lt;sub&gt;K&lt;/sub&gt; = 0.95</td>
</tr>
<tr>
<td></td>
<td>Shear</td>
<td>c&lt;sub&gt;u&lt;/sub&gt; = 12d</td>
<td></td>
<td>c&lt;sub&gt;min&lt;/sub&gt; = 5d</td>
<td>F&lt;sub&gt;K&lt;/sub&gt; = 0.30</td>
</tr>
</tbody>
</table>

1. Allowable load values found in the performance data tables are multiplied by reduction factors when anchor spacing or edge distances are less than critical distances. Linear interpolation is allowed for intermediate anchor spacing and edge distances between critical and minimum distances. When an anchor is affected by both reduced spacing and edge distance, the spacing and edge reduction factors must be combined (multiplied). Multiple reduction factors for anchor spacing and edge distance may be required depending on the anchor group configuration.
### Mechanical Anchors

**Spacing Load Adjustment Factors for Normal-Weight and Lightweight Concrete (Continued Below)**

<table>
<thead>
<tr>
<th>Dia. (in.)</th>
<th>1/4</th>
<th>3/8</th>
<th>1/2</th>
<th>5/8</th>
</tr>
</thead>
<tbody>
<tr>
<td>h (in.)</td>
<td>b</td>
<td>b</td>
<td>b</td>
<td>b</td>
</tr>
<tr>
<td>Dia. (in.)</td>
<td>1-1/8</td>
<td>1-1/2</td>
<td>2</td>
<td>2-3/4</td>
</tr>
<tr>
<td>s (in.)</td>
<td>3-1/4</td>
<td>4</td>
<td>5-1/2</td>
<td>4</td>
</tr>
<tr>
<td>s_w (in.)</td>
<td>3-1/4</td>
<td>4</td>
<td>5-1/2</td>
<td>4</td>
</tr>
<tr>
<td>h (in.)</td>
<td>b</td>
<td>b</td>
<td>b</td>
<td>b</td>
</tr>
<tr>
<td>Dia. (in.)</td>
<td>1-1/8</td>
<td>1-1/2</td>
<td>2</td>
<td>2-3/4</td>
</tr>
<tr>
<td>s (in.)</td>
<td>3-1/4</td>
<td>4</td>
<td>5-1/2</td>
<td>4</td>
</tr>
<tr>
<td>s_w (in.)</td>
<td>3-1/4</td>
<td>4</td>
<td>5-1/2</td>
<td>4</td>
</tr>
</tbody>
</table>

### Spacing Load Adjustment Factors for Normal-Weight and Lightweight Concrete (Continued from Above)

<table>
<thead>
<tr>
<th>Dia. (in.)</th>
<th>3/4</th>
<th>7/8</th>
<th>1</th>
<th>1-1/4</th>
</tr>
</thead>
<tbody>
<tr>
<td>h (in.)</td>
<td>b</td>
<td>b</td>
<td>b</td>
<td>b</td>
</tr>
<tr>
<td>Dia. (in.)</td>
<td>3-3/8</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>s (in.)</td>
<td>3-3/4</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>s_w (in.)</td>
<td>3-3/4</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Notes:
- Critical spacing (s_w) is equal to 2 embedment depths (2h_v) at which the anchor achieves 50% of load.
- Minimum spacing (s_w) is equal to 1 embedment depth (h_v) at which the anchor achieves 50% of load.
### Edge Distance Load Adjustment Factors for Normal-Weight Concrete

#### Edge Distance, Tension (F<sub>nc</sub>)

<table>
<thead>
<tr>
<th>Diameter (in.)</th>
<th>1/4</th>
<th>3/8</th>
<th>1/2</th>
<th>5/8</th>
<th>3/4</th>
<th>7/8</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>c&lt;sub&gt;r&lt;/sub&gt; (in.)</td>
<td>1-1/4</td>
<td>1-7/8</td>
<td>2-1/2</td>
<td>3-1/8</td>
<td>3-3/4</td>
<td>4-3/8</td>
<td>5</td>
</tr>
<tr>
<td>1-1/4</td>
<td>0.75</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1-5/8</td>
<td>0.80</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1-7/8</td>
<td>0.84</td>
<td>0.75</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>0.86</td>
<td>0.76</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>1.00</td>
<td>0.86</td>
<td>0.79</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3-1/8</td>
<td>1.00</td>
<td>0.87</td>
<td>0.79</td>
<td>0.75</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3-3/4</td>
<td>1.00</td>
<td>0.93</td>
<td>0.84</td>
<td>0.79</td>
<td>0.75</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>1.00</td>
<td>0.95</td>
<td>0.86</td>
<td>0.80</td>
<td>0.76</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4-1/2</td>
<td>1.00</td>
<td>0.99</td>
<td>0.88</td>
<td>0.82</td>
<td>0.78</td>
<td>0.75</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>1.00</td>
<td>1.00</td>
<td>0.93</td>
<td>0.86</td>
<td>0.81</td>
<td>0.78</td>
<td>0.75</td>
</tr>
<tr>
<td>6</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.91</td>
<td>0.86</td>
<td>0.82</td>
<td>0.79</td>
</tr>
<tr>
<td>6-1/4</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.93</td>
<td>0.87</td>
<td>0.83</td>
<td>0.79</td>
</tr>
<tr>
<td>7</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.93</td>
<td>0.88</td>
<td>0.84</td>
</tr>
<tr>
<td>7-1/2</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.93</td>
<td>0.88</td>
<td>0.84</td>
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<td>0.86</td>
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</tr>
<tr>
<td>10-1/2</td>
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<td>1.00</td>
<td>1.00</td>
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<td>1.00</td>
<td>1.00</td>
<td>0.95</td>
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<td>1.00</td>
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<td>1.00</td>
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<tr>
<td>15</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Notes: For anchors loaded in tension, the critical edge distance (c<sub>r</sub>) is equal to 12 anchor diameters (12d) at which the anchor achieves 100% of load. Minimum edge distance (c<sub>m</sub>) is equal to 5 anchor diameters (5d) at which the anchor achieves 75% of load.*

#### Edge Distance, Shear (F<sub>Vc</sub>)

<table>
<thead>
<tr>
<th>Diameter (in.)</th>
<th>1/4</th>
<th>3/8</th>
<th>1/2</th>
<th>5/8</th>
<th>3/4</th>
<th>7/8</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>c&lt;sub&gt;r&lt;/sub&gt; (in.)</td>
<td>1-1/4</td>
<td>1-7/8</td>
<td>2-1/2</td>
<td>3-1/8</td>
<td>3-3/4</td>
<td>4-3/8</td>
<td>5</td>
</tr>
<tr>
<td>1-1/4</td>
<td>0.35</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1-5/8</td>
<td>0.49</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1-7/8</td>
<td>0.58</td>
<td>0.35</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>2</td>
<td>0.63</td>
<td>0.38</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2-1/2</td>
<td>0.81</td>
<td>0.50</td>
<td>0.35</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>1.00</td>
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<td>-</td>
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</tr>
<tr>
<td>3-1/8</td>
<td>1.00</td>
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<td>3-3/4</td>
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<td>0.81</td>
<td>0.58</td>
<td>0.44</td>
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<td>-</td>
</tr>
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<td>0.88</td>
<td>0.63</td>
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<td>0.38</td>
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<td>-</td>
</tr>
<tr>
<td>4-3/8</td>
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<td>0.54</td>
<td>0.43</td>
<td>0.35</td>
<td>-</td>
</tr>
<tr>
<td>4-1/2</td>
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<td>1.00</td>
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<td>0.44</td>
<td>0.36</td>
<td>-</td>
</tr>
<tr>
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<td>1.00</td>
<td>0.81</td>
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<td>0.50</td>
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<td>0.35</td>
</tr>
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<td>6</td>
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<td>1.00</td>
<td>1.00</td>
<td>0.78</td>
<td>0.63</td>
<td>0.52</td>
<td>0.44</td>
</tr>
<tr>
<td>6-1/4</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.81</td>
<td>0.66</td>
<td>0.55</td>
<td>0.47</td>
</tr>
<tr>
<td>7</td>
<td>1.00</td>
<td>1.00</td>
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*Notes: For anchors loaded in shear, the critical edge distance (c<sub>r</sub>) is equal to 12 anchor diameters (12d) at which the anchor achieves 100% of load. Minimum edge distance (c<sub>m</sub>) is equal to 5 anchor diameters (5d) at which the anchor achieves 35% of load.*
### Edge Distance Load Adjustment Factors for Lightweight Concrete

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Notes: For anchors loaded in tension, the critical edge distance (c\_cr) is equal to 12 anchor diameters (12d) at which the anchor achieves 100% of load. Minimum edge distance (c\_min) is equal to 5 anchor diameters (5d) at which the anchor achieves 95% of load.

#### Edge Distance, Shear (F_{vc})

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Notes: For anchors loaded in shear, the critical edge distance (c\_cr) is equal to 12 anchor diameters (12d) at which the anchor achieves 100% of load. Minimum edge distance (c\_min) is equal to 5 anchor diameters (5d) at which the anchor achieves 30% of load.
### ORDERING INFORMATION

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The published length is the overall length of the anchor. Allow for fixture thickness plus one anchor diameter for the nut and washer thickness when selecting a length.