DESCRIPTION/SUGGESTED SPECIFICATIONS

**Sleeve Type Anchors**—

SPECIFIED FOR ANCHORAGE INTO CONCRETE, MASONRY, GROUT-FILLED BLOCK AND HOLLOW BLOCK

Sleeve type anchors feature a split expansion sleeve over a threaded stud bolt body and integral expander, nut and washer.

Anchors are made of Plated Carbon Steel, or Type 18-8 Stainless Steel.

Anchors should be installed with carbide tipped hammer drill bits made in accordance to ANSI B212.15-1994.

Anchors are tested to ASTM E488 criteria.

**ADVANTAGES**

- Anchor diameter equals hole diameter
- Available in hex head and six other head styles
- Available 1/4 - 3/4" diameter up to 6-1/4" length
- Zinc plated carbon steel and 304 stainless steel
- Provides full 360° hole contact over large area and reduces concrete stress
- Heavy-loading capacity
- Preassembled for faster, easier installations
- Dynabolt can be installed through object to be fastened
- Sleeve design improves holding power
- No pre-spotting of holes necessary

**Available Head Styles**

Full range of head style, corrosion protection, and sizes makes the Dynabolt Sleeve the right product for almost any application.

<table>
<thead>
<tr>
<th>Phillips Flat Head (FS)</th>
<th>Hex Nut (HN)</th>
<th>Acorn Nut (AN)</th>
<th>Tie Wire (TW)</th>
<th>Round Head (RS)</th>
</tr>
</thead>
</table>

**INSTALLATION STEPS**

1. Use a bit with a diameter equal to the anchor. See selection chart to determine proper size bit for anchor used. Drill hole to any depth exceeding minimum embedment. Clean hole.
2. Insert assembled anchor into hole, so that washer or head is flush with materials to be fastened.
3. Expand anchor by tightening nut or head 2 to 3 turns.

**APPROVALS/LISTINGS**

Meets or exceeds U.S. Government G.S.A. Specification A-A-1922A
(Formerly GSA: FF-5-325 Group II, Type 3, Class 3)
Factory Mutual
California State Fire Marshal

**APPLICATIONS**

- Electrical junction boxes are common applications for the Dynabolt Sleeve anchor because it works well in solid concrete, concrete block, and brick. It is also available in several finished head styles.
- The Dynabolt Sleeve anchor works well in hollow materials like brick and block. It is available in zinc-plated carbon steel and 304 stainless steel.
- Door and window frames are commonly attached to the structure with Dynabolt Sleeve anchors because of their finished & threshold head styles and performance in block & brick.
**SELECTION CHART**

**Dynabolt**
Carbon Steel with Zinc Plating

**Typical Applications**—Shell ledgers, electrical boxes, conduit

**Environment**—Interior (non-corrosive)

**Level of Corrosion**—Low

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**SELECTION CHART**

**Dynabolt**
Type 304 Stainless Steel

**Typical Applications**—Cladding and Brick Ties

**Environment**—Slight to moderate degree of pollution

**Level of Corrosion**—Medium

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Call our toll free number 800-387-9652 or visit www.itredhead.com for general information.
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**SELECTION CHART**

**Dynabolt**
Type 304 Stainless Steel

**Typical Applications**—Cladding and Brick Ties

**Environment**—Slight to moderate degree of pollution

**Level of Corrosion**—Medium

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**DYNABOLT**
Carbon Steel with Zinc Plating

**Typical Applications**—Shell ledgers, electrical boxes, conduit

**Environment**—Interior (non-corrosive)

**Level of Corrosion**—Low

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**SELECTION CHART**

**Dynabolt**
Type 304 Stainless Steel

**Typical Applications**—Cladding and Brick Ties

**Environment**—Slight to moderate degree of pollution

**Level of Corrosion**—Medium

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### PERFORMANCE TABLE

**Dynabolt Sleeve Anchors**

#### Ultimate Tension and Shear Values in Concrete (Lbs/kN)*

<table>
<thead>
<tr>
<th>ANCHOR DIA. In. (mm)</th>
<th>INSTALLATION TORQUE Ft. Lbs. (Nm)</th>
<th>BOLT DIA. In. (mm)</th>
<th>MINIMUM EMBEDMENT DEPTH In. (mm)</th>
<th>ANCHOR TYPE (STEEL)</th>
<th>$f_c = 2000$ PSI (13.8 MPa)</th>
<th>$f_c = 3000$ PSI (20.7 MPa)</th>
<th>$f_c = 4000$ PSI (27.6 MPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TENSION Lbs. (kN)</td>
<td>SHEAR Lbs. (kN)</td>
<td>TENSION Lbs. (kN)</td>
</tr>
<tr>
<td>1/4 (6.4)</td>
<td>3.5 (4.7)</td>
<td>3/16 (4.8)</td>
<td>1-1/8 (28.6)</td>
<td>Carbon or Stainless</td>
<td>1,200 (5.3)</td>
<td>1,620 (7.2)</td>
<td>1,600 (7.1)</td>
</tr>
<tr>
<td>5/16 (7.9)</td>
<td>8 (10.8)</td>
<td>1/4 (6.4)</td>
<td>1-1/4 (31.8)</td>
<td></td>
<td>1,400 (6.2)</td>
<td>2,040 (9.1)</td>
<td>1,920 (8.5)</td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>14 (19.0)</td>
<td>5/16 (7.9)</td>
<td>1-1/2 (38.1)</td>
<td></td>
<td>1,620 (7.2)</td>
<td>2,560 (11.4)</td>
<td>2,240 (10.0)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>20 (27.1)</td>
<td>3/8 (9.5)</td>
<td>1-7/8 (47.6)</td>
<td></td>
<td>2,220 (9.9)</td>
<td>4,000 (17.8)</td>
<td>3,140 (14.0)</td>
</tr>
<tr>
<td>5/8 (15.9)</td>
<td>48 (65.1)</td>
<td>1/2 (12.7)</td>
<td>2 (50.8)</td>
<td>Carbon or Stainless</td>
<td>3,080 (13.7)</td>
<td>6,440 (28.6)</td>
<td>4,400 (19.6)</td>
</tr>
<tr>
<td>3/4 (19.1)</td>
<td>90 (122.0)</td>
<td>5/8 (15.9)</td>
<td>2-1/2 (57.2)</td>
<td></td>
<td>4,200 (18.7)</td>
<td>10,200 (45.4)</td>
<td>6,060 (27.0)</td>
</tr>
</tbody>
</table>

* For continuous extreme low temperature applications, use stainless steel.

### PERFORMANCE TABLE

**Dynabolt Sleeve Anchors**

#### Ultimate Tension and Shear Values in Lightweight Concrete (Lbs/kN)*

<table>
<thead>
<tr>
<th>ANCHOR DIA. In. (mm)</th>
<th>INSTALLATION TORQUE Ft. Lbs. (Nm)</th>
<th>BOLT DIA. In. (mm)</th>
<th>MINIMUM EMBEDMENT DEPTH In. (mm)</th>
<th>ANCHOR TYPE (STEEL)</th>
<th>$f_c = 4000$ PSI (27.6 MPa)</th>
<th>$f_c = 6000$ PSI (41.4 MPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TENSION Lbs. (kN)</td>
<td>SHEAR Lbs. (kN)</td>
</tr>
<tr>
<td>1/4 (6.4)</td>
<td>3.5 (4.7)</td>
<td>3/16 (4.8)</td>
<td>1-1/8 (28.6)</td>
<td>Carbon or Stainless</td>
<td>1,880 (8.4)</td>
<td>1,160 (5.2)</td>
</tr>
<tr>
<td>5/16 (7.9)</td>
<td>8 (10.8)</td>
<td>1/4 (6.4)</td>
<td>1-1/4 (31.8)</td>
<td></td>
<td>1,260 (5.6)</td>
<td>1,680 (7.5)</td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>14 (19.0)</td>
<td>5/16 (7.9)</td>
<td>1-1/2 (38.1)</td>
<td></td>
<td>1,620 (7.2)</td>
<td>2,300 (10.2)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>25 (33.9)</td>
<td>3/8 (9.5)</td>
<td>1-7/8 (47.6)</td>
<td></td>
<td>2,600 (11.6)</td>
<td>3,200 (17.4)</td>
</tr>
<tr>
<td>5/8 (15.9)</td>
<td>48 (65.1)</td>
<td>1/2 (12.7)</td>
<td>2 (50.8)</td>
<td>Carbon or Stainless</td>
<td>3,240 (14.4)</td>
<td>5,600 (24.9)</td>
</tr>
<tr>
<td>3/4 (19.1)</td>
<td>90 (122.0)</td>
<td>5/8 (15.9)</td>
<td>2-1/4 (57.2)</td>
<td></td>
<td>3,640 (16.2)</td>
<td>8,640 (38.4)</td>
</tr>
</tbody>
</table>

### PERFORMANCE TABLE

**Dynabolt Sleeve Anchors**

#### Ultimate Tension and Shear Values in Masonry Units (Lbs/kN)*

<table>
<thead>
<tr>
<th>ANCHOR DIA. In. (mm)</th>
<th>INSTALLATION TORQUE Ft. Lbs. (Nm)</th>
<th>BOLT DIA. In. (mm)</th>
<th>MINIMUM EMBEDMENT DEPTH In. (mm)</th>
<th>ANCHOR TYPE (STEEL)</th>
<th>LIGHTWEIGHT</th>
<th>MEDIUM WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HOLLOW CORE</td>
<td>GROUT FILLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TENSION Lbs. (kN)</td>
<td>SHEAR Lbs. (kN)</td>
</tr>
<tr>
<td>1/4 (6.4)</td>
<td>3.5 (4.7)</td>
<td>3/16 (4.8)</td>
<td>1-1/8 (28.6)</td>
<td>Carbon or Stainless</td>
<td>1,120 (5.0)</td>
<td>1,360 (6.0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>640 (2.8)</td>
<td>640 (2.8)</td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>15 (20.3)</td>
<td>5/16 (7.9)</td>
<td>1-1/2 (38.1)</td>
<td>Carbon or Stainless</td>
<td>1,360 (6.0)</td>
<td>2,560 (11.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,160 (5.2)</td>
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<td>1/2 (12.7)</td>
<td>25 (33.9)</td>
<td>3/8 (9.5)</td>
<td>1-7/8 (47.6)</td>
<td>Carbon or Stainless</td>
<td>1,160 (5.2)</td>
<td>2,560 (11.4)</td>
</tr>
<tr>
<td>5/8 (15.9)</td>
<td>55 (74.6)</td>
<td>1/2 (12.7)</td>
<td>2 (50.8)</td>
<td>Carbon or Stainless</td>
<td>- - - - - -</td>
<td>- - - - - -</td>
</tr>
<tr>
<td>3/4 (19.1)</td>
<td>90 (122.0)</td>
<td>5/8 (15.9)</td>
<td>2-1/2 (63.5)</td>
<td>Carbon or Stainless</td>
<td>- - - - - -</td>
<td>- - - - - -</td>
</tr>
</tbody>
</table>

* Allowable values are based upon a 4 to 1 safety factor. Divide by 4 for allowable load values. The tabulated values are for anchors installed in a minimum of 12 diameters on center and a minimum edge distance of 6 diameters for 100 percent anchor efficiency. Spacing and edge distance may be reduced to 6 diameter spacing and 3 diameter edge distance, provided the values are reduced 50 percent. Linear interpolation may be used for intermediate spacings and edge distances.

### Combined Tension and Shear Loading—for Dynabolt Anchors

Allowable loads for anchors subjected to combined shear and tension forces are determined by the following equation: 

\[ \frac{Ps}{Pt} + \frac{Vs}{Vt} \leq 1 \]

- $Ps$ = Applied tension load
- $Vs$ = Applied shear load
- $Pt$ = Allowable tension load
- $Vt$ = Allowable shear load