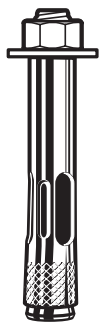


## Dynabolt Sleeve



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

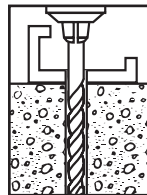
Sleeve type anchors feature a split expansion sleeve over a threaded stud bolt body and integral expander, nut and washer.

Anchors are made of Zinc-Plated Carbon Steel, or Type 304 Stainless Steel.

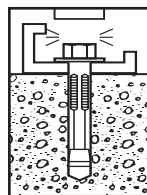
Anchors should be installed with carbide tipped hammer drill bits made in accordance to ANSI B212.15-1994.

Anchors are tested to ASTM E488 criteria.

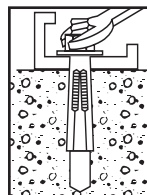
## INSTALLATION STEPS



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.



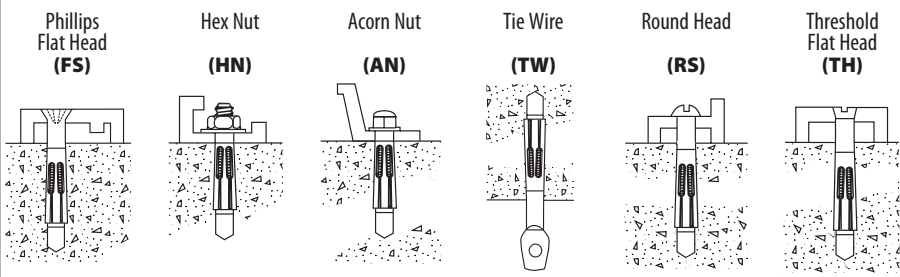
2. Insert assembled anchor into hole, so that washer or head is flush with materials to be fastened.



3. Expand anchor by tightening nut or head 2 to 3 turns.

## Available Head Styles

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



## APPROVALS/LISTINGS

Meets or exceeds U.S. Government G.S.A.

Specification A-A-1922A

(Formerly GSA: FF-S-325 Group II, Type 3, Class 3)

Factory Mutual

California State Fire Marshal

## PERFORMANCE TABLE

### Dynabolt Sleeve Anchors

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

| ANCHOR DIA.<br>In. (mm) | INSTALLATION TORQUE<br>Ft. Lbs. (Nm) | BOLT DIA.<br>In. (mm) | MINIMUM EMBEDMENT DEPTH<br>In. (mm) | ANCHOR TYPE (STEEL) | f'c = 2000 PSI (13.8 MPa) |                    | f'c = 3000 PSI (20.7 MPa) |                    | f'c = 4000 PSI (27.6 MPa) |                    |
|-------------------------|--------------------------------------|-----------------------|-------------------------------------|---------------------|---------------------------|--------------------|---------------------------|--------------------|---------------------------|--------------------|
|                         |                                      |                       |                                     |                     | TENSION<br>Lbs. (kN)      | SHEAR<br>Lbs. (kN) | TENSION<br>Lbs. (kN)      | SHEAR<br>Lbs. (kN) | TENSION<br>Lbs. (kN)      | SHEAR<br>Lbs. (kN) |
| 1/4 (6.4)               | 3.5 (4.7)                            | 3/16 (4.8)            | 1-1/8 (28.6)                        | Carbon or Stainless | 1,200 (5.3)               | 1,215 (5.4)        | 1,325 (5.9)               | 1,215 (5.4)        | 1,450 (6.4)               | 1,215 (5.4)        |
| 5/16 (7.9)              | 8 (10.8)                             | 1/4 (6.4)             | 1-1/4 (31.8)                        |                     | 1,400 (6.2)               | 2,040 (9.1)        | 1,920 (8.5)               | 2,220 (9.9)        | 2,600 (11.6)              | 2,400 (10.7)       |
| 3/8 (9.5)               | 14 (19.0)                            | 5/16 (7.9)            | 1-1/2 (38.1)                        |                     | 1,620 (7.2)               | 2,560 (11.4)       | 2,240 (10.0)              | 2,800 (12.5)       | 3,100 (13.8)              | 3,040 (13.5)       |
| 1/2 (12.7)              | 20 (27.1)                            | 3/8 (9.5)             | 1-7/8 (47.6)                        |                     | 2,220 (9.9)               | 4,000 (17.8)       | 3,140 (14.0)              | 4,500 (20.0)       | 4,400 (19.6)              | 5,000 (22.2)       |
| 5/8 (15.9)              | 48 (65.1)                            | 1/2 (12.7)            | 2 (50.8)                            |                     | 3,080 (13.7)              | 6,440 (28.6)       | 4,400 (19.6)              | 7,240 (32.2)       | 6,120 (27.2)              | 8,080 (35.9)       |
| 3/4 (19.1)              | 90 (122.0)                           | 5/8 (15.9)            | 2-1/4 (57.2)                        |                     | 4,200 (18.7)              | 10,200 (45.4)      | 6,060 (27.0)              | 11,600 (51.6)      | 8,900 (39.6)              | 13,100 (58.3)      |

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

## PERFORMANCE TABLES

### **Dynabolt Sleeve Anchors** *Ultimate Tension and Shear Values in Lightweight Concrete (Lbs/kN)\**

| ANCHOR DIA.<br>In. (mm) | INSTALLATION TORQUE<br>Ft. Lbs. (Nm) | BOLT DIA.<br>In. (mm) | MINIMUM EMBEDMENT DEPTH<br>In. (mm) | ANCHOR TYPE<br>(STEEL) | f'c = 4000 PSI (27.6 MPa) |                    | f'c = 6000 PSI (41.4 MPa) |                    |
|-------------------------|--------------------------------------|-----------------------|-------------------------------------|------------------------|---------------------------|--------------------|---------------------------|--------------------|
|                         |                                      |                       |                                     |                        | TENSION<br>Lbs. (kN)      | SHEAR<br>Lbs. (kN) | TENSION<br>Lbs. (kN)      | SHEAR<br>Lbs. (kN) |
| 1/4 (6.4)               | 3.5 (4.7)                            | 3/16 (4.8)            | 1-1/8 (28.6)                        | Carbon or Stainless    | 870 (3.9)                 | 730 (3.2)          | 1,066 (4.7)               | 894 (4.0)          |
| 5/16 (7.9)              | 8 (10.8)                             | 1/4 (6.4)             | 1-1/4 (31.8)                        |                        | 1,260 (5.6)               | 1,680 (7.5)        | 1,440 (6.4)               | 2,220 (9.9)        |
| 3/8 (9.5)               | 14 (19.0)                            | 5/16 (7.9)            | 1-1/2 (38.1)                        |                        | 1,620 (7.2)               | 2,300 (10.2)       | 2,240 (10.0)              | 2,800 (12.5)       |
| 1/2 (12.7)              | 25 (33.9)                            | 3/8 (9.5)             | 1-7/8 (47.6)                        |                        | 2,600 (11.6)              | 3,920 (17.4)       | 3,160 (14.1)              | 4,840 (21.5)       |
| 5/8 (15.9)              | 48 (65.1)                            | 1/2 (12.7)            | 2 (50.8)                            |                        | 3,240 (14.4)              | 5,600 (24.9)       | 4,300 (19.1)              | 7,840 (34.9)       |
| 3/4 (19.1)              | 90 (122.0)                           | 5/8 (15.9)            | 2-1/4 (57.2)                        |                        | 3,640 (16.2)              | 8,640 (38.4)       | 5,800 (25.8)              | 12,480 (55.5)      |

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

For AN-1405, Ultimate Pullout: 500 lbs. & Ultimate Shear: 1751 lbs. based on 4,000 psi.

### **Dynabolt Sleeve Anchors** *Ultimate Tension and Shear Values in Concrete Masonry Units (Lbs/kN)\**

| ANCHOR DIA.<br>In. (mm) | INSTALLATION TORQUE<br>Ft. Lbs. (Nm) | BOLT DIA.<br>In. (mm) | MINIMUM EMBEDMENT DEPTH<br>In. (mm) | ANCHOR TYPE<br>(STEEL) | LIGHTWEIGHT                |                              |                              |                              | MEDIUM WEIGHT              |                              |                              |                              |
|-------------------------|--------------------------------------|-----------------------|-------------------------------------|------------------------|----------------------------|------------------------------|------------------------------|------------------------------|----------------------------|------------------------------|------------------------------|------------------------------|
|                         |                                      |                       |                                     |                        | HOLLOW CORE                |                              | GROUT FILLED                 |                              | HOLLOW CORE                |                              | GROUT FILLED                 |                              |
|                         |                                      |                       |                                     |                        | TENSION<br>Lbs. (kN)       | SHEAR<br>Lbs. (kN)           | TENSION<br>Lbs. (kN)         | SHEAR<br>Lbs. (kN)           | TENSION<br>Lbs. (kN)       | SHEAR<br>Lbs. (kN)           | TENSION<br>Lbs. (kN)         | SHEAR<br>Lbs. (kN)           |
| 1/4 (6.4)               | 3.5 (4.7)                            | 3/16 (4.8)            | 1-1/8 (28.6)                        | Carbon<br>Stainless    | 1,120 (5.0)<br>640 (2.8)   | 1,215 (5.4)<br>1,620 (7.2)   | 1,120 (5.0)<br>640 (2.8)     | 1,215 (5.4)<br>1,620 (7.2)   | 1,120 (5.0)<br>640 (2.8)   | 1,215 (5.4)<br>1,620 (7.2)   | 1,120 (5.0)<br>640 (2.8)     | 1,215 (5.4)<br>1,620 (7.2)   |
| 3/8 (9.5)               | 15 (20.3)                            | 5/16 (7.9)            | 1-1/2 (38.1)                        | Carbon<br>Stainless    | 1,360 (6.0)<br>1,160 (5.2) | 2,560 (11.4)<br>2,560 (11.4) | 1,360 (6.0)<br>1,160 (5.2)   | 2,560 (11.4)<br>2,560 (11.4) | 1,360 (6.0)<br>1,160 (5.2) | 2,560 (11.4)<br>2,560 (11.4) | 1,360 (6.0)<br>1,160 (5.2)   | 2,560 (11.4)<br>2,560 (11.4) |
| 1/2 (12.7)              | 25 (33.9)                            | 3/8 (9.5)             | 1-7/8 (47.6)                        | Carbon<br>Stainless    | N/A<br>N/A                 | N/A<br>N/A                   | 2,220 (9.9)<br>2,100 (9.3)   | 4,000 (17.8)<br>4,000 (17.8) | N/A<br>N/A                 | N/A<br>N/A                   | 2,220 (9.9)<br>2,100 (9.3)   | 4,000 (17.8)<br>4,000 (17.8) |
| 5/8 (15.9)              | 55 (74.6)                            | 1/2 (12.7)            | 2 (50.8)                            | Carbon<br>Stainless    | N/A<br>N/A                 | N/A<br>N/A                   | 3,080 (13.7)<br>3,080 (13.7) | 6,440 (28.6)<br>6,440 (28.6) | N/A<br>N/A                 | N/A<br>N/A                   | 3,080 (13.7)<br>2,820 (12.5) | 6,440 (28.6)<br>6,440 (28.6) |
| 3/4 (19.1)              | 90 (122.0)                           | 5/8 (15.9)            | 2-1/2 (63.5)                        | Carbon                 | N/A                        | N/A                          | 4,200 (18.7)                 | 10,200 (45.4)                | N/A                        | N/A                          | 4,200 (18.7)                 | 10,200 (45.4)                |

\* 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:

$$(P_s/P_t) + (V_s/V_t) \leq 1$$

$P_s$  = Applied tension load

$V_s$  = Applied shear load

$P_t$  = Allowable tension load

$V_t$  = Allowable shear load