

**DESCRIPTION**

The UCAN sleeve anchor is a medium duty anchor ideal for applications in concrete, hollow block and brick. It is a mechanical expansion anchor assembled with an expansion sleeve, spacer, nut and washer. It is also available with flat head and hex bolt head types.

**FEATURES**

- Through fastening
- Anchor size is same as drill bit size
- Greater expansion than other types of anchors
- Suitable for hollow materials
- Long expansion sleeve  
(less concentration of stress on masonry)

**LIMITATIONS**

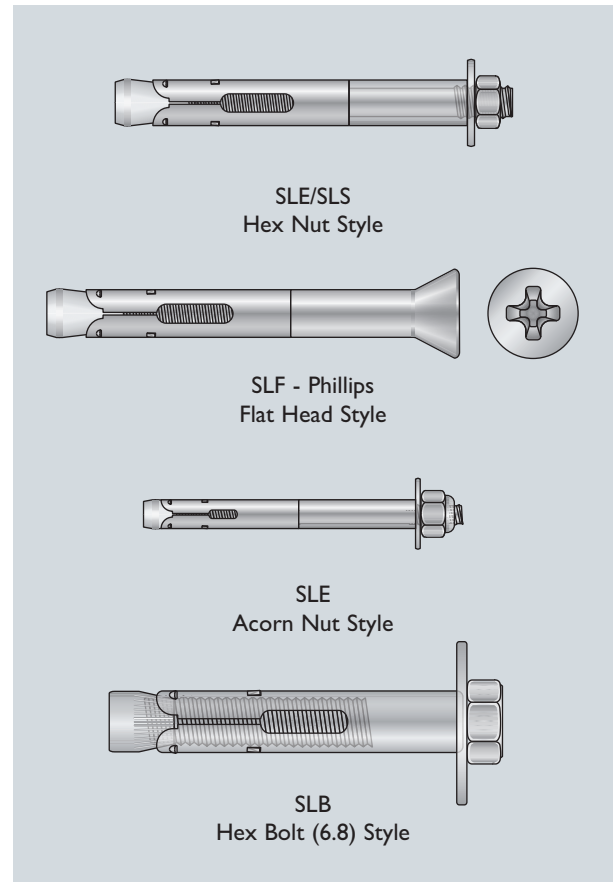
- Not recommended for uncured concrete (less than 7 days old), lightweight concrete, masonry block or brick

**TYPICAL APPLICATIONS**

- Fastening into block and brick
- Shelving and racking
- Window and door frames
- Sill plates
- Cable trays

**MATERIAL SPECIFICATIONS**

| Anchor Component  | Material Standard | Mechanical Properties               |                    |
|---|-------------------|-------------------------------------|--------------------|
|   |                   | F <sub>y</sub>                      | F <sub>u</sub>     |
| Carbon steel anchor body  | AISI C 1008-C1010 | 248.2 MPa (36 ksi)                  | 413.7 MPa (60 ksi) |
| Carbon steel spacer and expansion sleeves                       | cold rolled steel |                                     |                    |
| Stainless steel (304) anchor body, spacer and expansion sleeves | AISI grade 304    | 241.3 MPa (35 ksi)                  | 586.1 MPa (85 ksi) |
| Corrosion protection (carbon steel anchors)                     | ASTM B633 - 98e1  | 0.0002" (5 micron) electrodeposited |                    |



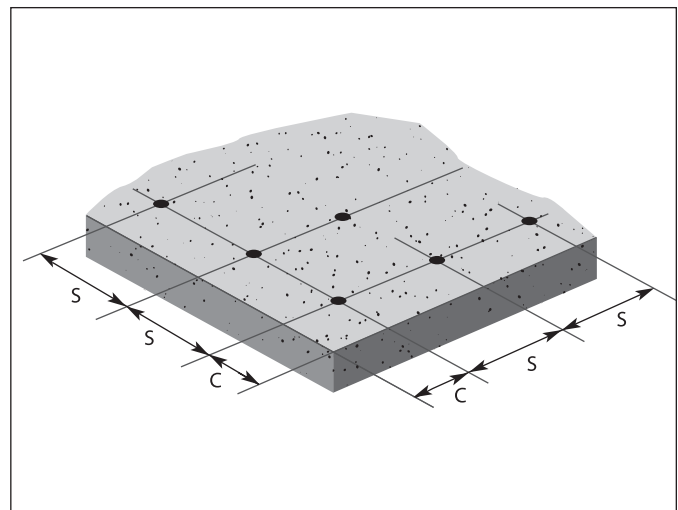
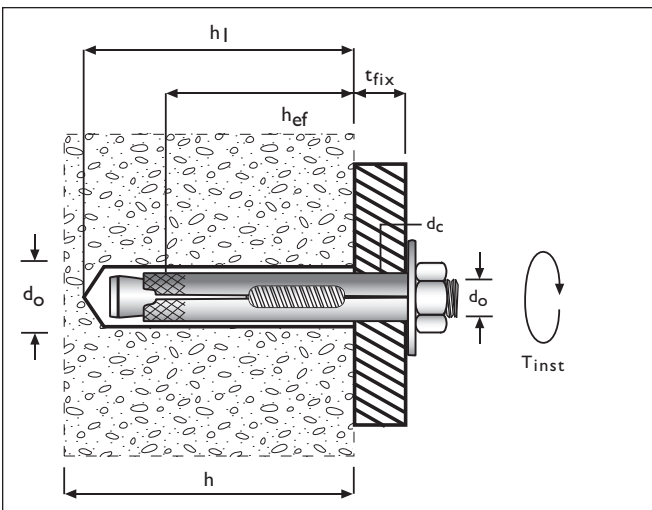
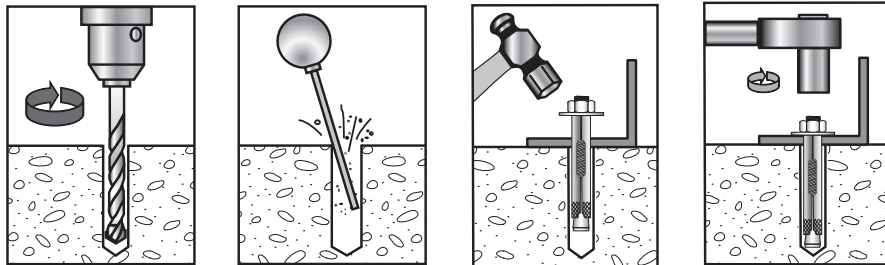
# SLEEVE ANCHOR

## INSTALLATION

### SLEEVE ANCHOR SETTING DETAILS

| Details  | Anchor size |        |       |       |       |       |
|--|-------------|--------|-------|-------|-------|-------|
|  | 1/4         | 5/16   | 3/8   | 1/2   | 5/8   | 3/4   |
| Anchor size / Drill bit / hole nominal diameter $d_o$ (in) | 1/4         | 5/16   | 3/8   | 1/2   | 5/8   | 3/4   |
| Internal thread dia. $d_a$ (in)                            | 3/16        | 1/4    | 5/16  | 3/8   | 1/2   | 5/8   |
| Clearance hole dia. $d_c$ (in)                             | 5/16        | 3/8    | 7/16  | 9/16  | 11/16 | 13/16 |
| Effective embedment / hole depth $h_{ef}$ / $h_l$ (in)     | 1-1/8       | 1-7/16 | 1-1/2 | 2-1/4 | 2-3/4 | 3-3/8 |
| Required anchor spacing for 100% performance $s$ (in)      | 2-1/2       | 3      | 3-3/4 | 5     | 6-1/4 | 7-1/2 |
| Minimum anchor spacing $s_{min}$                           | 1-1/4       | 1-1/2  | 1-7/8 | 2-1/2 | 3-1/8 | 3-3/4 |
| Required edge distance for 100% performance $c$ (in)       | 1-1/4       | 1-1/2  | 1-3/4 | 2-1/4 | 3-1/8 | 3-3/4 |
| Minimum edge distance $c_{min}$                            | 5/8         | 3/4    | 1     | 1-1/4 | 1-1/2 | 1-7/8 |
| Minimum base material thickness $h$ (in)                   | 3           | 3      | 3     | 4     | 4-1/2 | 5     |
| Max. installation torque $T_{inst}$ (ft x lbf)             | 3           | 5      | 12    | 20    | 50    | 85    |

Note: Carbide tipped drill bits shall conform to ANSI B 212.15



**DESIGN DATA**

**AVERAGE ULTIMATE LOADS**  
 Normal weight stone aggregate concrete

| Anchor Size | Embedment   | 2000 psi (14.0 MPa) |      |        |      | 4000 psi ( 27.6 MPa) |      |       |     |
|-------------|-------------|---------------------|------|--------|------|----------------------|------|-------|-----|
|             |             | Tension             |      | Shear  |      | Tension              |      | Shear |     |
| in          | inch (mm)   | lbf                 | kN   | lbf    | kN   | lbf                  | kN   | lbf   | kN  |
| 1/4         | 1-1/8 (28)  | 959                 | 4.3  | 1,428  | 6.4  | 1,342                | 6.0  | n/a   | n/a |
| 5/16        | 1-7/16 (36) | 1,248               | 5.6  | 2,169  | 9.7  | 1,327                | 5.9  | n/a   | n/a |
| 3/8         | 1-1/2 (38)  | 1,625               | 7.2  | 3,064  | 13.6 | 2,311                | 10.3 | n/a   | n/a |
| 1/2         | 2-1/4 (57)  | 3,172               | 14.1 | 5,017  | 22.3 | 4,743                | 21.1 | n/a   | n/a |
| 5/8         | 2-3/4 (69)  | 4,556               | 20.3 | 8,552  | 37.9 | 6,179                | 27.5 | n/a   | n/a |
| 3/4         | 3-3/8 (76)  | 6,943               | 30.9 | 10,036 | 44.6 | 9,525                | 42.4 | n/a   | n/a |

**ALLOWABLE LOADS**  
 Normal weight stone aggregate concrete

| Anchor Size | Embedment   | 2000 psi (14.0 MPa) |     |       |      | 4000 psi ( 27.6 MPa) |      |       |     |
|-------------|-------------|---------------------|-----|-------|------|----------------------|------|-------|-----|
|             |             | Tension             |     | Shear |      | Tension              |      | Shear |     |
| in          | inch (mm)   | lbf                 | kN  | lbf   | kN   | lbf                  | kN   | lbf   | kN  |
| 1/4         | 1-1/8 (28)  | 240                 | 1.1 | 357   | 1.6  | 335                  | 1.5  | n/a   | n/a |
| 5/16        | 1-7/16 (36) | 312                 | 1.4 | 542   | 2.4  | 332                  | 1.5  | n/a   | n/a |
| 3/8         | 1-1/2 (38)  | 406                 | 1.8 | 766   | 3.4  | 578                  | 2.6  | n/a   | n/a |
| 1/2         | 2-1/4 (57)  | 793                 | 3.6 | 1,254 | 5.6  | 1,185                | 5.3  | n/a   | n/a |
| 5/8         | 2-3/4 (69)  | 1,139               | 5.1 | 2,138 | 9.5  | 1,545                | 6.9  | n/a   | n/a |
| 3/4         | 3-3/8 (76)  | 1,736               | 7.7 | 2,509 | 11.2 | 2,381                | 10.6 | n/a   | n/a |

**LOAD ADJUSTMENT FACTORS - ANCHOR SPACING**

| Anchor Spacing<br>(inch) | Anchor Diameter |      |      |      |      |      |  |
|--------------------------|-----------------|------|------|------|------|------|--|
|                          | 1/4             | 5/16 | 3/8  | 1/2  | 5/8  | 3/4  |  |
| 1-1/4                    | 0.70            |      |      |      |      |      |  |
| 1-1/2                    | 0.76            | 0.70 |      |      |      |      |  |
| 1-7/8                    | 0.85            | 0.78 | 0.70 |      |      |      |  |
| 2-1/2                    | 1.00            | 0.90 | 0.80 | 0.70 |      |      |  |
| 2-3/4                    | 1.00            | 0.95 | 0.84 | 0.73 |      |      |  |
| 3                        |                 | 1.00 | 0.88 | 0.76 |      |      |  |
| 3-1/8                    |                 |      | 0.92 | 0.79 | 0.70 |      |  |
| 3-3/4                    |                 |      | 1.00 | 0.85 | 0.75 | 0.70 |  |
| 4-1/4                    |                 |      |      | 0.91 | 0.80 | 0.74 |  |
| 5                        |                 |      |      | 1.00 | 0.88 | 0.81 |  |
| 5-3/4                    |                 |      |      |      | 0.95 | 0.87 |  |
| 6-1/4                    |                 |      |      |      | 1.00 | 0.91 |  |
| 7                        |                 |      |      |      |      | 0.98 |  |
| 7-1/2                    |                 |      |      |      |      | 1.00 |  |

SLEEVE ANCHOR



LOAD ADJUSTMENT FACTORS - EDGE DISTANCE

| SHEAR              |                 |      |      |      |      |      | TENSION            |                 |      |      |      |      |      |
|--------------------|-----------------|------|------|------|------|------|--------------------|-----------------|------|------|------|------|------|
| Edge Dist.<br>inch | Anchor Diameter |      |      |      |      |      | Edge Dist.<br>inch | Anchor Diameter |      |      |      |      |      |
|                    | 1/4             | 5/16 | 3/8  | 1/2  | 5/8  | 3/4  |                    | 1/4             | 5/16 | 3/8  | 1/2  | 5/8  | 3/4  |
| 5/8                | 0.50            |      |      |      |      |      | 5/8                | 0.60            |      |      |      |      |      |
| 3/4                | 0.60            | 0.50 |      |      |      |      | 3/4                | 0.72            | 0.60 |      |      |      |      |
| 1                  | 0.93            | 0.63 | 0.50 |      |      |      | 1                  | 0.86            | 0.69 | 0.60 |      |      |      |
| 1-1/4              | 1.00            | 0.83 | 0.67 | 0.50 |      |      | 1-1/4              | 1.00            | 0.87 | 0.69 | 0.60 |      |      |
| 1-1/2              |                 | 1.00 | 0.80 | 0.60 |      |      | 1-1/2              |                 | 1.00 | 0.83 | 0.76 | 0.60 |      |
| 1-3/4              |                 |      | 0.93 | 0.70 | 0.50 |      | 1-3/4              |                 |      | 0.93 | 0.83 | 0.62 |      |
| 1-7/8              |                 |      | 1.00 | 0.75 | 0.55 | 0.50 | 1-7/8              |                 |      | 1.00 | 0.85 | 0.73 | 0.60 |
| 2-1/4              |                 |      |      | 0.90 | 0.68 | 0.60 | 2-1/4              |                 |      |      | 0.90 | 0.74 | 0.62 |
| 2-1/2              |                 |      |      | 1.00 | 0.77 | 0.67 | 2-1/2              |                 |      |      | 1.00 | 0.76 | 0.66 |
| 2-3/4              |                 |      |      |      | 0.86 | 0.73 | 2-3/4              |                 |      |      |      | 0.88 | 0.74 |
| 3-1/8              |                 |      |      |      | 1.00 | 0.83 | 3-1/8              |                 |      |      |      | 1.00 | 0.87 |
| 3-1/2              |                 |      |      |      |      | 0.93 | 3-1/2              |                 |      |      |      |      | 0.95 |
| 3-3/4              |                 |      |      |      |      | 1.00 | 3-3/4              |                 |      |      |      |      | 1.00 |

ANCHOR SELECTION

Hex Nut Style

| Part No.  | Bolt Dia. (inch) | Anchor Dia. (inch) | Anchor Length (inch) | Min. Embedment (inch) | Fastens material up to (inch) |
|-----------|------------------|--------------------|----------------------|-----------------------|-------------------------------|
| SLE14138* | 3/16             | 1/4                | 1-3/8                | 1                     | 3/8                           |
| SLE14214* | 3/16             | 1/4                | 2-1/4                | 1                     | 1-1/4                         |
| SLE516112 | 1/4              | 5/16               | 1-1/2                | 1                     | 1/2                           |
| SLE516212 | 1/4              | 5/16               | 2-1/2                | 1                     | 1-1/2                         |
| SLE38178  | 5/16             | 3/8                | 1-7/8                | 1-1/4                 | 5/8                           |
| SLE383    | 5/16             | 3/8                | 3                    | 1-1/4                 | 1-3/4                         |
| SLE12214  | 3/8              | 1/2                | 2-1/4                | 1-1/2                 | 3/4                           |
| SLE123    | 3/8              | 1/2                | 3                    | 1-1/2                 | 1-1/2                         |
| SLE124    | 3/8              | 1/2                | 4                    | 1-1/2                 | 2-1/2                         |
| SLE126    | 3/8              | 1/2                | 6                    | 1-1/2                 | 4-1/2                         |
| SLE58214  | 1/2              | 5/8                | 2-1/4                | 2                     | 1/4                           |
| SLE58414  | 1/2              | 5/8                | 4-1/4                | 2                     | 2-1/4                         |
| SLE586    | 1/2              | 5/8                | 6                    | 2                     | 4                             |
| SLE34212  | 5/8              | 3/4                | 2-1/2                | 2-1/4                 | 1/4                           |
| SLE34414  | 5/8              | 5/8                | 4-1/4                | 2-1/4                 | 2                             |
| SLE34614  | 5/8              | 3/4                | 6-1/4                | 2-1/4                 | 4                             |

\*Acorn Nut

Hex Bolt Style

| Part No. | Bolt Dia. (inch) | Anchor Dia. (inch) | Anchor Length (inch) | Min. Embedment (inch) | Fastens material up to (inch) |
|----------|------------------|--------------------|----------------------|-----------------------|-------------------------------|
| SLB38178 | 5/16             | 3/8                | 1-7/8                | 1-3/8                 | 1/4                           |
| SLB38214 | 5/16             | 3/8                | 2-1/4                | 1-3/8                 | 7/8                           |
| SLB383   | 5/16             | 3/8                | 3                    | 1-3/8                 | 1-5/8                         |
| SLB12214 | 3/8              | 1/2                | 2-1/4                | 1-3/4                 | 1/2                           |
| SLB12234 | 3/8              | 1/2                | 2-3/4                | 1-3/4                 | 1                             |
| SLB124   | 3/8              | 1/2                | 4                    | 1-3/4                 | 2-1/4                         |

**ANCHOR SELECTION CONT'D**

**Flat Head Style**

| Part No.  | Bolt Dia. (in) | Anchor Dia. (in) | Anchor Length (in) | Min. Embedment (in) | Fastens material up to (in) |
|-----------|----------------|------------------|--------------------|---------------------|-----------------------------|
| SLF14138  | 3/16           | 1/4              | 1-3/8              | 1                   | 3/8                         |
| SLF142    | 3/16           | 1/4              | 2                  | 1                   | 1                           |
| SLF143    | 3/16           | 1/4              | 3                  | 1                   | 2                           |
| SLF144    | 3/16           | 1/4              | 4                  | 1                   | 3                           |
| SLF14514  | 3/16           | 1/4              | 5-1/4              | 1                   | 4-1/4                       |
| SLF516212 | 1/4            | 5/16             | 2-1/2              | 1                   | 1-1/2                       |
| SLF516312 | 1/4            | 5/16             | 3-1/2              | 1                   | 2-1/2                       |
| SLF38234  | 5/16           | 3/8              | 2-3/4              | 1-1/4               | 1-1/2                       |
| SLF384    | 5/16           | 3/8              | 4                  | 1-1/4               | 2-3/4                       |
| SLF385    | 5/16           | 3/8              | 5                  | 1-1/4               | 3-3/4                       |
| SLF386    | 5/16           | 3/8              | 6                  | 1-1/4               | 4-3/4                       |

**Hex Nut Style (Stainless Steel)**

| Part No.  | Bolt Dia. (inch) | Anchor Dia. (inch) | Anchor Length (inch) | Min. Embedment (inch) | Fastens material up to (inch) |
|-----------|------------------|--------------------|----------------------|-----------------------|-------------------------------|
| SLS14138  | 3/16             | 1/4                | 1-3/8                | 1                     | 3/8                           |
| SLS516112 | 1/4              | 5/16               | 1-1/2                | 1                     | 1/2                           |
| SLS516212 | 1/4              | 5/16               | 2-1/2                | 1                     | 1-1/2                         |
| SLS38178  | 5/16             | 3/8                | 1-7/8                | 1                     | 7/8                           |
| SLS383    | 5/16             | 3/8                | 3                    | 1-1/4                 | 1-3/4                         |
| SLS123    | 3/8              | 1/2                | 3                    | 1-1/2                 | 1-1/2                         |

**SPECIFICATION**

The following sample specification clause is arranged for inclusion in any one of a variety of master specification sections utilizing the Construction Specifications Canada (CSC) format. Square brackets [...] indicate alternatives, data required, or need for the specifier to fill in information.

**ANCHORS (FASTENERS)**

Expansion anchors shall be [diameter and length to suit load and fixture requirements] UCAN Sleeve Anchors, supplied by UCAN Fastening Products. Anchors to be [zinc plated and have grade ASTM A307 carbon steel] [Type 304 Stainless Steel] anchor body, and installed according to the manufacturers published instructions.