

### PERFORMANCE SPECIFICATIONS

**DrJ** TER No. 2010-02  
Construction Screw Properties

| DIAMETER | ALLOWABLE WITHDRAWAL (W) AND HEAD PULL-THROUGH (W <sub>H</sub> ) <sup>1,2,3,4</sup> |   |                          |   |                                     |   |
|----------|---|---|--------------------------|---|-------------------------------------|---|
|          | SOUTHERN PINE (SG=0.55)   |   | DOUGLAS-FIR (SG=0.50)    |   | HEM FIR & SPRUCE-PINE-FIR (SG=0.42) |   |
|          | WITHDRAWAL W (lbs./inch)  | HEAD PULL-THROUGH W <sub>H</sub> (lbs.) | WITHDRAWAL W (lbs./inch) | HEAD PULL-THROUGH W <sub>H</sub> (lbs.) | WITHDRAWAL W (lbs./inch)            | HEAD PULL-THROUGH W <sub>H</sub> (lbs.) |
| #6       | 140   | 179                                     | 133                      | 150                                     | 105                                 | 125                                     |
| #8       | 175   | 157                                     | 133                      | 157                                     | 127                                 | 123                                     |
| #10      | 190   | 315                                     | 176                      | 238                                     | 144                                 | 177                                     |

| DIAMETER | ALLOWABLE WITHDRAWAL (W) AND HEAD PULL-THROUGH (W <sub>H</sub> ) <sup>1,2</sup> |   |                          |   |                          |   |                          |   |                          |   |                          |   |
|----------|---|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|---|
|          | PLYWOOD 15/32" (0.39)   |   | PLYWOOD 19/32" (0.39)    |   | PLYWOOD 23/32" (0.50)    |   | OSB 15/32" (0.50)        |   | OSB 19/32" (0.50)        |   | OSB 23/32" (0.50)        |   |
|          | WITHDRAWAL W (lbs./inch)  | HEAD PULL-THROUGH W <sub>H</sub> (lbs.) | WITHDRAWAL W (lbs./inch) | HEAD PULL-THROUGH W <sub>H</sub> (lbs.) | WITHDRAWAL W (lbs./inch) | HEAD PULL-THROUGH W <sub>H</sub> (lbs.) | WITHDRAWAL W (lbs./inch) | HEAD PULL-THROUGH W <sub>H</sub> (lbs.) | WITHDRAWAL W (lbs./inch) | HEAD PULL-THROUGH W <sub>H</sub> (lbs.) | WITHDRAWAL W (lbs./inch) | HEAD PULL-THROUGH W <sub>H</sub> (lbs.) |
| #6       | 46  | -                                       | 73                       | -                                       | 144                      | -                                       | 36                       | -                                       | 41                       | -                                       | 41                       | -                                       |
| #8       | 51  | 120                                     | 83                       | 120                                     | 162                      | 212                                     | 36                       | 68                                      | 48                       | 78                                      | 52                       | 110                                     |
| #10      | 90  | 151                                     | 92                       | 177                                     | 186                      | 293                                     | 54                       | 78                                      | 54                       | 78                                      | 66                       | 110                                     |

- Tabulated withdrawal and head pull-through design values (W) and (W<sub>H</sub>) are shown at a C<sub>0</sub> = 1.0. Tabulated withdrawal and head pull-through values shall be adjusted by all applicable adjustment factors per *NDS Table 11.3.1*.
- Full withdrawal strength is calculated by multiplying the length of thread embedded in the main member by the tabulated reference withdrawal values.
- Head pull-through values for #6 diameter and larger in Southern pine, Douglas-Fir, Hem Fir and Spruce-Pine-Fir are minimum 1.0" side member thickness.
- Head pull-through values for #8 diameter and larger in Southern Pine, Douglas-Fir, Hem-Fir and Spruce-Pine-Fir are minimum 1.5" side member thickness.
- For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated values for specific gravity of 0.55.

| DIAMETER | BENDING YIELD STRENGTH <sup>1</sup> , f <sub>y</sub> (psi) | ALLOWABLE STEEL STRENGTH (lbs) |                    |
|----------|--|--------------------------------|--------------------|
|          |  | TENSILE                        | SHEAR <sup>2</sup> |
| #6       | 198,000  | 310                            | 265                |
| #8       | 187,000  | 460                            | 345                |
| #10      | 187,000  | 690                            | 545                |

- Bending yield strength, f<sub>y</sub>, is determined in accordance with *ASTM F1575* using minor thread diameter when fastener is tested in thread section.
- Shear strength is determined in accordance with *AISI S904* using minor thread diameter when fastener is tested in threaded section.

| DIAMETER    | REFERENCE LATERAL SHEAR VALUE <sup>4,5,6</sup> , Z (lbf) |                                    |   |             |               |
|-------------|--|------------------------------------|---|-------------|---------------|
|             | MINIMUM MAIN MEMBER PENETRATION <sup>2</sup> (in)        | MINIMUM SIDE MEMBER THICKNESS (in) | WOOD SPECIES (SPECIFIC GRAVITY <sup>2,3</sup> ) |             |               |
|             |  |                                    | SP (0.55)                                       | DF-L (0.50) | SPF/HF (0.42) |
| #8 x 1-1/2" | 3/4"   | 3/4"                               | 70  | 59          | 43            |
| #8 x 2"     | 1-1/4"   | 3/4"                               | 80  | 70          | 55            |

- SI: 1 in = 25.4 mm, 1 lbf = 4.45 N
- Penetration depth includes the length of tapered tip.
  - The species applies to both the main and the side members. Where the Members are different specific gravities, use the lower of the two.
  - For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated values for specific gravity of 0.55.
  - The fastener orientation shall be perpendicular to the grain, and the underside of the fastener head shall be installed flush with the surface of the side member.
  - Lateral design values apply to both perpendicular grain (Z<sub>⊥</sub>) and parallel to grain (Z<sub>∥</sub>) orientations.
  - Tabulated lateral design values shall be adjusted by all applicable adjustment factors per *NDS 11.3.1*.



# Unidrive Pan Head Zinc

## Multi-Material Pan Head



| DIAMETER    | REFERENCE LATERAL SHEAR VALUE, Z (lbf)            |                                    |  |                             |
|-------------|---|------------------------------------|--|-----------------------------|
|             | MINIMUM MAIN MEMBER PENETRATION <sup>1</sup> (in) | MINIMUM SIDE MEMBER THICKNESS (in) | REFERENCE LATERAL SHEAR VALUE <sup>1-3,4</sup> , Z (lbf) |                             |
|             |   |                                    | OSB <sup>5</sup> (0.50)                                  | PLYWOOD <sup>5</sup> (0.39) |
| #8 x 1-1/4" | 13/16"  | 7/16"                              | 40   | -                           |
| #8 x 1-1/4" | 25/32"  | 15/32"                             | 40   | 33                          |
| #8 x 1-1/4" | 21/32"  | 19/32"                             | 42   | 32                          |
| #8 x 1-1/2" | 1-1/16"   | 7/16"                              | 51   | -                           |
| #8 x 1-1/2" | 1-1/32"   | 15/32"                             | 50   | 44                          |
| #8 x 1-1/2" | 29/32"  | 19/32"                             | 49   | 41                          |
| #8 x 1-1/2" | 25/32"  | 23/32"                             | 51   | 39                          |
| #8 x 2"     | 1-9/16"   | 7/16"                              | 53   | -                           |
| #8 x 2"     | 1-17/32"  | 15/32"                             | 54   | 46                          |
| #8 x 2"     | 1-13/32"  | 19/32"                             | 59   | 48                          |
| #8 x 2"     | 1-9/32"   | 23/32"                             | 64   | 51                          |

SI: 1 in = 25.4 mm, 1 lbf = 4.45 N

<sup>1</sup> Reference lateral design values apply to two-member single shear connections where the side member is OSB or plywood, the main member is SPF (SG = 0.42), and the fastener is installed in the face of the member and oriented perpendicular to the grain. The underside of the fastener head shall be installed flush with the surface of the side member.

<sup>2</sup> Penetration depth includes the length of the tapered tip.

<sup>3</sup> Lateral design values apply to both perpendicular to grain ( $Z_{\perp}$ ) and parallel to grain ( $Z_{\parallel}$ ) orientations.

<sup>4</sup> Tabulated lateral design values shall be adjusted by all applicable adjustment factors per *NDS Table 11.3.1*.

<sup>5</sup> OSB shall comply with *DOC PS 2* and have a minimum specific gravity of 0.50. Plywood shall comply with *DOC PS 1* and have a minimum specific gravity of 0.39.