

Roofing Spike® Anchor

PRODUCT DESCRIPTION

For roofing applications, the Spike is a one-piece, vibration resistant anchor available for use in fastening insulation, single-ply membrane, wood, and metal to structural concrete roof decks. This version of the Spike has a Perma-Seal™ coating, and is designed for use in conjunction with Powers insulation or membrane plates.

GENERAL APPLICATIONS AND USES

- Fastening insulation, single-ply membrane, wood and metal to structural concrete decks.

APPROVALS AND LISTINGS

Factory Mutual Research Corporation – Now known as FM Global (FM Approvals)
Structural Concrete Deck – J.I. 1K6A7.AM, J.I. 0N9A2.AM, J.I. 1M4A5.AM
Fully Adhered Single-Ply and Modified Bitumen Coverings (All Decks) – J.I. 1T9A4.AM

MATERIAL SPECIFICATIONS

| Anchor Component | Component Material |
|------------------|--------------------------|
| Anchor Body | Grade 8.2 Carbon Steel |
| Coating | Perma-Seal Fluoropolymer |

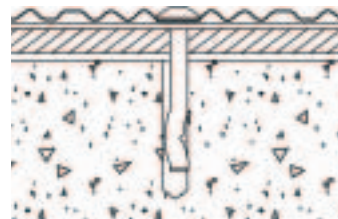
INSTALLATION SPECIFICATIONS

| Diameter | Component Material |
|--------------------------------------|--------------------|
| | 1/4" |
| ANSI Drill Bit Size, d_{bit} (in.) | 1/4 |
| Fixture Clearance Hole (in.) | 5/16 |
| Head Size, O.D. (in.) | 1/2 |
| Head Height (in.) | 7/64 |

Installation Guidelines



Drill a hole into the base material to the depth of at least 1/2" deeper than the embedment required. The tolerances of the drill bit used should meet the requirements of ANSI Standard B212.15. Blow the hole clean of dust and other material.



Drive the anchor through the plate into the anchor hole until the head is firmly seated. Be sure the anchor is driven to the required embedment depth.

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Roofing Spike

ANCHOR MATERIALS

Perma-Seal Coated Carbon Steel

ANCHOR SIZE RANGE (TYP.)

1/4" x 1" to 1/4" x 14"

SUITABLE BASE MATERIALS

Normal-Weight Concrete
Concrete Masonry

PERFORMANCE DATA

Ultimate Load Capacities for Roofing Spike in Normal-Weight Concrete^{1,2}

| Anchor Diameter d in. (mm) | Minimum Embedment Depth h_e in. (mm) | Minimum Concrete Compressive Strength (f'_c) | | | | | |
|---------------------------------------|---|--|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | 3,000 psi (20.7 MPa) | | 4,000 psi (27.6 MPa) | | 5,000 psi (34.5 MPa) | |
| | | Tension lbs. (kN) | Shear lbs. (kN) | Tension lbs. (kN) | Shear lbs. (kN) | Tension lbs. (kN) | Shear lbs. (kN) |
| 1/4 (6.4) | 1 1/4 (31.8) | 1,100 (5.0) | 2,500 (11.3) | 1,550 (7.0) | 2,750 (12.4) | 1,700 (7.7) | 2,100 (9.5) |

1. The values listed above are ultimate load capacities which should be reduced by a minimum safety factor of 4.0 or greater to determine the allowable working load.
2. Linear interpolation may be used to determine ultimate loads for intermediate compressive strengths.

PERFORMANCE DATA

Allowable Load Capacities for Roofing Spike in Normal-Weight Concrete^{1,2}

| Anchor Diameter <i>d</i> in. (mm) | Minimum Embedment Depth <i>h_v</i> in. (mm) | Minimum Concrete Compressive Strength (<i>f'_c</i>) | | | | | |
|--|--|---|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | 3,000 psi (20.7 MPa) | | 4,000 psi (27.6 MPa) | | 5,000 psi (34.5 MPa) | |
| | | Tension lbs. (kN) | Shear lbs. (kN) | Tension lbs. (kN) | Shear lbs. (kN) | Tension lbs. (kN) | Shear lbs. (kN) |
| 1/4 (6.4) | 1 1/4 (31.8) | 275 (1.2) | 625 (2.8) | 390 (1.8) | 690 (3.1) | 425 (1.9) | 525 (2.4) |

1. Allowable load capacities listed are calculated using an applied safety factor of 4.0.

2. Linear interpolation may be used to determine allowable loads for intermediate compressive strengths.

Ultimate and Allowable Load Capacities for Roofing Spike in Hollow Concrete Masonry^{1,2}

| Anchor Diameter <i>d</i> in. (mm) | Minimum Embedment Depth <i>h_v</i> in. (mm) | <i>f_m</i> ≥ 3,000 psi (20.7 MPa) | | | |
|--|--|---|-----------------------|-------------------------|-----------------------|
| | | Ultimate Load | | Allowable Load | |
| | | Tension lbs. (kN) | Shear lbs. (kN) | Tension lbs. (kN) | Shear lbs. (kN) |
| 1/4 (6.4) | 1 1/4 (31.8) | 800 (3.6) | 2,100 (9.5) | 160 (0.7) | 420 (1.9) |

1. Tabulated load values are for anchors installed in minimum 6-inch wide, Grade N, Type II, medium and normal-weight concrete masonry units. Mortar must be minimum Type N. Masonry prism compressive strength must be 1,500 psi minimum at the time of installation.

2. Allowable loads are based on average ultimate values using a safety factor of 5.0.

ORDERING INFORMATION

Roofing Spike

| Cat. No. | Anchor Size | Drill Diameter | Min. Embedment | Std. Box | Std. Carton | Wt./100 |
|----------|---------------|----------------|----------------|----------|-------------|---------|
| 3811 | 1/4" x 1 1/4" | 1/4" | 7/8" | 500 | 500 | 2 1/2 |
| 3723 | 1/4" x 1 1/2" | 1/4" | 1 1/4" | 500 | 500 | 2 1/2 |
| 3725 | 1/4" x 2" | 1/4" | 1 1/4" | 500 | 500 | 3 |
| 3727 | 1/4" x 2 1/2" | 1/4" | 1 1/4" | 500 | 500 | 4 |
| 3729 | 1/4" x 3" | 1/4" | 1 1/4" | 500 | 500 | 4 1/2 |
| 3731 | 1/4" x 3 1/2" | 1/4" | 1 1/4" | 500 | 500 | 5 |
| 3733 | 1/4" x 4" | 1/4" | 1 1/4" | 500 | 500 | 6 |
| 3735 | 1/4" x 4 1/2" | 1/4" | 1 1/4" | 500 | 500 | 6 1/2 |
| 3737 | 1/4" x 5" | 1/4" | 1 1/4" | 500 | 500 | 7 |
| 3739 | 1/4" x 5 1/2" | 1/4" | 1 1/4" | 500 | 500 | 7 1/2 |
| 3741 | 1/4" x 6" | 1/4" | 1 1/4" | 250 | 250 | 8 |
| 3743 | 1/4" x 6 1/2" | 1/4" | 1 1/4" | 250 | 250 | 8 1/2 |
| 3745 | 1/4" x 7" | 1/4" | 1 1/4" | 250 | 250 | 9 1/2 |
| 3747 | 1/4" x 7 1/2" | 1/4" | 1 1/4" | 250 | 250 | 10 1/2 |
| 3749 | 1/4" x 8" | 1/4" | 1 1/4" | 250 | 250 | 11 |
| 3753 | 1/4" x 9" | 1/4" | 1 1/4" | 250 | 250 | 12 |
| 3757 | 1/4" x 10" | 1/4" | 1 1/4" | 250 | 250 | 13 |
| 3765 | 1/4" x 11" | 1/4" | 1 1/4" | 100 | 100 | 14 |
| 3769 | 1/4" x 12" | 1/4" | 1 1/4" | 100 | 100 | 15 |
| 3773 | 1/4" x 13" | 1/4" | 1 1/4" | 100 | 100 | 16 |
| 3777 | 1/4" x 14" | 1/4" | 1 1/4" | 100 | 100 | 17 |



Roofing Spike Installation Tools

| Cat. No. | Description | Guide I.D. | Std. Box | Wt./Each |
|----------|-------------------|------------|----------|----------|
| 3790 | Spike Driver 1000 | 1/2" | 1 | 1/4 |
| 3791 | Spike Driver 2000 | 1/2" | 1 | 1/4 |

