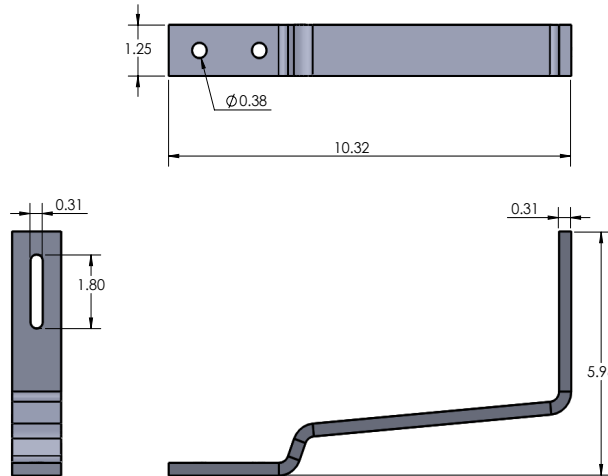


Flat Tile Hook



Part #	Rail Orientation
GR-HK-FLT-H	Horizontal
GR-HK-FLT-V	Vertical



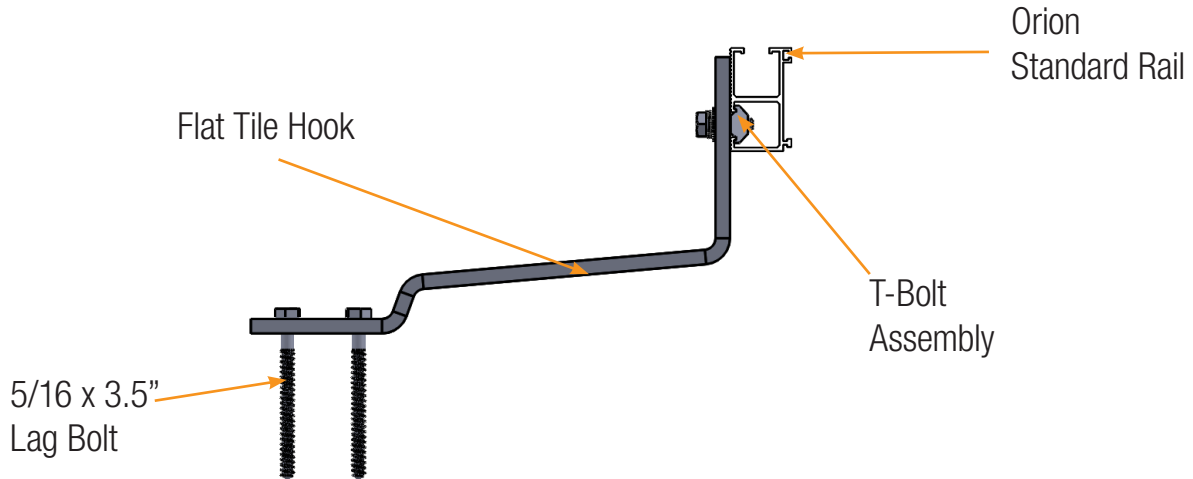
Features:

- Weight: 1.688lb
- Material: Galvanized Steel
- Hardware Material: 300 Series Stainless Steel
- Pre-assembled



Flat Tile Hook

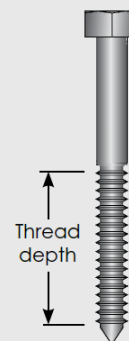
Installation Overview



- Remove tile and locate rafters. Drill 1/4" holes and backfill with sealant.
- Align Flat Tile Hook such that the Flat Tile Hook attaches to rafter and rests over preceding Flat Tile.
- Take 5/16 x 3.5: Lag Bolts and tighten into rafter, and replace Flat Tile over hook.
- Use T-Bolt assembly to attach to rail.

Lag pull-out (withdrawal) capacities (lbs) in typical roof lumber (ASD)

	Specific gravity	⁵ / ₁₆ " lag screw* specifications per inch thread depth
Douglas Fir, Larch	0.50	266
Douglas Fir, South	.46	235
Engelmann Spruce, Lodgepole Pine ¹	.46	235
Hem, Fir, Redwood (close grain)	.43	212
Hem, Fir (North)	.46	235
Southern Pine	.55	307
Spruce, Pine, Fir	.42	205
Spruce, Pine, Fir ²	.50	266



Sources: American Wood Council, NDS 2005, Table 11.2a, 11.3.2A.

Notes:

- (1) Thread must be embedded in the side grain of a rafter or other structural member integral with building structure.
- (2) Lag bolts must be located in the middle third of the structural member.
- (3) These values are not valid for wet service.
- (4) This table does not include shear capacities. If necessary, contact a local engineer to specify lag bolt size with regard to shear forces.
- (5) Install lag bolts with head and washer flush to surface (no gap). Do not over-torque.
- (6) Withdrawal design values for lag screw connections shall be multiplied by applicable adjustment factors if necessary. See Table 10.3.1 in the American Wood Council NDS for Wood Construction.

*Use flat washers with lag screws. t

¹MSR 1650 f & higher

²E of 2 million psi and higher grades of MSR and MEL