

# S-5!<sup>®</sup>

The Right Way!

The right way to attach almost anything to metal roofs!

## Installation Instructions

**S-5!<sup>®</sup> Warning!** Please use these products responsibly! Visit our website or contact your S-5! distributor for available load test results. The user and/or installer of these parts is responsible for all necessary engineering and design to ensure the S-5-KHD has been properly spaced and configured

**Notice to S-5! users:** Due to the many variables involved with specific panel products, climates, snow melt phenomena and job particulars, the manufacturer cannot and does not express any opinions as to the suitability of any S-5! assembly for any specific application and assumes no liability with respect thereto. S-5! products are tested for ultimate holding strength on various profile types and materials. This document is an installation guide only and the photographs and drawings herein are for the purpose of illustrating installation tools and techniques, not system designs. Information contained within is intended to apply to the document as a whole.

**The S-5-KHD was designed for the following profiles: Lysaght<sup>®</sup> Klip-Lok<sup>®</sup> 406, McElroy Mirage, Metal Sales Clip-Loc, and AEP-SPAN Klip-Rib<sup>®</sup>.**

## Tools Needed

The following tools are needed for **all** installations.

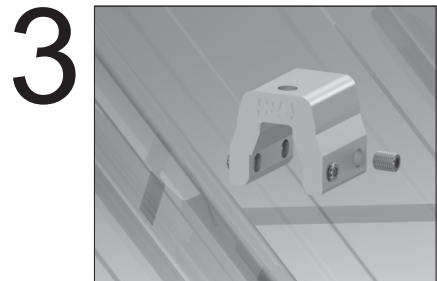
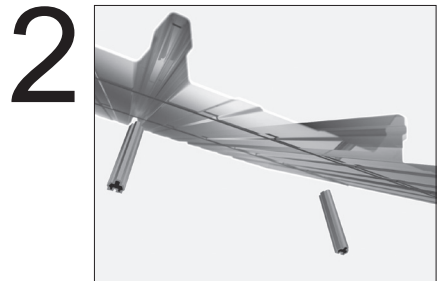
- String Line
- Tape Measure
- Felt Tip Marker
- Sealant
- Bit Tip (Included)
- Ratcheting Screw Gun
- Dial-Calibrated Torque Wrench  
(For accurate tension values, do NOT use a clicking torque wrench)

The following tools are needed only for **retrofit** installations.

- Hammer
- Crescent Wrench
- Punch

## To Install the S-5-KHD (New Construction)

1. Determining suitable clamp location: The S-5-KHD clamp can install anywhere along the intermediate rib, provided all four setscrews engage the concealed 6" insert and the end of the 6" insert is at least 12" from the roof panels attachment clip. Once suitable clamp location is determined, mark the underside and topside of the roof panel with a felt tip marker. The mark on the underside of the panel indicates the center point of where the 6" insert will snap into place, and the mark on the topside indicates the approximate location of where the clamp will be placed. Repeat this process for each clamp location.
2. Place sealant in the marked area - this will hold the insert into place while installing the roof panel. Snap the insert into place. The fit ranges from very tight to a little loose depending on the roof manufacturer and gauge of material (curling the roof panel some can help in this process). A measurement can be taken from the eave end of your roof panel to your center point mark - this will ensure locating the 6" insert can be accomplished should something happen to your mark. Note: Use of sealant is not for watertightness, as this is a non-penetrating system.
3. Once the roof is installed, locate your topside center mark mentioned in Step 1, and center a clamp in that location. Be certain the top bolt hole is in the proper orientation for the product or ancillary being attached. Tighten the setscrews on each side of the clamp evenly, by alternating tightening on each side of the clamp to the specified tension for all



## S-5-KHD Installation Instructions

setscrews. Caution: Do not over-tighten one side or the other. Be sure clamp and setscrews engage 6" insert.

4. String a line from each clamp on the end and install the remaining clamps along the string line.

**In order to function properly, the inserts should spread the rib slightly. The insert locations may be visible from the exterior side of the roof panel; this is unavoidable and should be expected (the roof panel clips also telegraph through).**

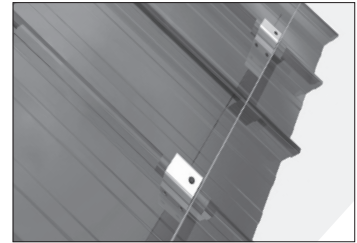
### To Install the S-5-KHD (Retrofit)

Use these instructions for retrofit installations or those that are not new construction (not all retrofits can be accommodated with this product). Due to the limiting factors, the only applications that are recommended are snow retention or other assemblies that can be located within 3–6" from the eave. For these installations, the 3" S-5-KHD insert is used.

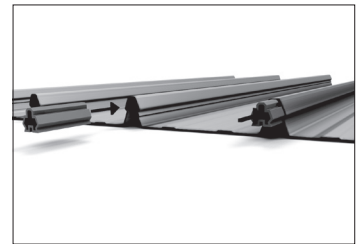
1. Inspection: A site survey is required to determine if the roof is pinned/attached at the end of the roof panel (eave) or the ridge. Next, measure the distance from the eave up to the first clip, do this on the inside of the seam.
  - A. If the roof is pinned at the eave and there is more than 3–4" of clearance from the roof edge to the clip, this product can be used.
  - B. If the roof is pinned at the ridge and there is 5–6"+ clearance, the product can most likely be used. Sufficient space is needed to allow for thermal expansion between the clip and the 3" S-5-KHD insert (space between roofing clip and KHD insert should never be less than 1.5").
2. Installation: Slide the 3" insert in from the bottom of the panel (or eave); if your situation is explained in 1A, then you may slide it up as far as you would like. This process is done by lightly tapping the insert with a hammer, if needed. If the insert twists during this process, use a crescent wrench to rotate the insert back into place before tapping it all the way in. A large punch can be used to tap the insert all the way into place. Be sure to place all the inserts the same distance from the eave.
3. Center the clamp over the insert. Be certain the top bolt hole is in the proper orientation for the product or ancillary being attached. Tighten the setscrews on each side of the clamp evenly, by alternating from side to side until the specified tension has been met for all setscrews. Caution: do not over-tighten one side or the other. Be sure clamp and setscrews engage 3" insert.

**Note:** When using this product with ColorGard® in a retrofit installation, be certain of the bolt hole orientation for Punched or Unpunched ColorGard.

**\*Be sure the project has been engineered, and note that this product can be combined with the S-5-K Grip and S-5-GX 10 insert if multiple rows are required.**



**Use a string line to properly align clamps**



**Slide the 3" insert in the bottom of the panel**



**Example of correctly installed S-5-KHD clamp**

#### **S-5!® Warning! Please use this product responsibly!**

S-5!® Warning! Please use this product responsibly! Products are protected by multiple U.S. and foreign patents. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. For published data regarding holding strength, fastener torque, patents, and trademarks, visit the S-5! website at [www.S-5.com](http://www.S-5.com). Copyright 2014, Metal Roof Innovations, Ltd. S-5! products are patent protected.

S-5! aggressively protects its patents, trademarks, and copyrights. Version 043014.