

Tools

- 1/4" x 1-1/2" Structural self-drilling screws (Daktronics part number HC-5164221).
- Variable-speed drill with no-load maximum speed of 1800 rpm (not provided). Refer to **Figure 2**.

Each self-drilling screw has a 3/4" band of thread sealant coating applied to the top side of the screw thread. Refer to **Figure 1**.

It is recommended to use a DeWalt DCF622 or similar screw gun with clutch system, to prevent stripping or twisting off screws. Check the specifications on the side of the screw gun to verify the drill speed. The screw gun may have one, two, or three transmission speeds or have a variable trigger.

Impact drivers may be used, if the speed can be controlled below 1800 rpm and the torque can be set to limit the screw stripping or twisting off.

Installation

Install the display sections per the display manual and the contract-specific Shop Drawing.

Select Correct Drill Settings

Note: For the fastest installation, use roughly 40 to 50 lbs of end load (pressing force) when at approximately 1800 rpm. If the drill is not within the specified rpm range, these are the potential problems: higher speeds tend to burn the tips of the screws, and lower speeds work fine for installation but take significantly longer to drill through base material. Do not use any end load when threading and seating the screws and slow the drill to approximately 300 rpm. Allow the drill's own power to thread and seat the screw.

Use one of the following methods to set the drill for proper screw installation.

- **Method 1:** Perform a trial run in a non-production tube area. Run two to three screws in a non-critical location to ensure the torque is set properly.
- **Method 2:** Begin installing screws on the lowest clutch setting, increasing the torque until it is set properly.



Figure 1: Self-Drilling Screw with Sealant



Figure 2: Drill

Drill Screws

Drill the self-drilling screw through the center of the slotted hole in the mounting bracket, allowing for any adjustments with the display. Refer to **Figure 3**.

Screws will self-drill through material 3/16" to 5/16" thick. The screws may be used in material up to 3/8" thick, but a pre-drilled hole of 7/32" is required.

After the displays are leveled and adjusted, install the remaining screws in the circular holes. Refer to **Figure 4**. Displays must be attended at all times if the screws are only installed in the slotted hole. If wind speeds are expected to be above 20 mph, the screws in the circular holes must be installed for strength.

If the screws need to be removed during any part of the installation, do not reuse them, as the sealant may be compromised. If the screw spins freely in its seated position, it is stripped and must be replaced. Refer to **Replace Stripped Screws (p.1)** for further instructions. Testing shows that stitch welds in HSS steel tubes may cause faulty (burnt) tips while drilling. Because the hardness of the weld affects the screw's ability to penetrate the base metal, installations may need to use pre-drilled pilot holes at any stitch weld locations.

For stringer mounting applications, a 1/2" drain hole is recommended on the bottom side of the HSS stringers at all anticipated low points (end of cantilevers and mid-span points). Refer to **Figure 5**.

For vertical mounting applications, a 1/2" drain hole in the bottom cap plate is recommended.

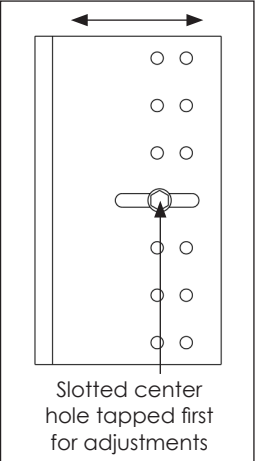


Figure 3: Adjust Clip



Figure 4: Seated Screws

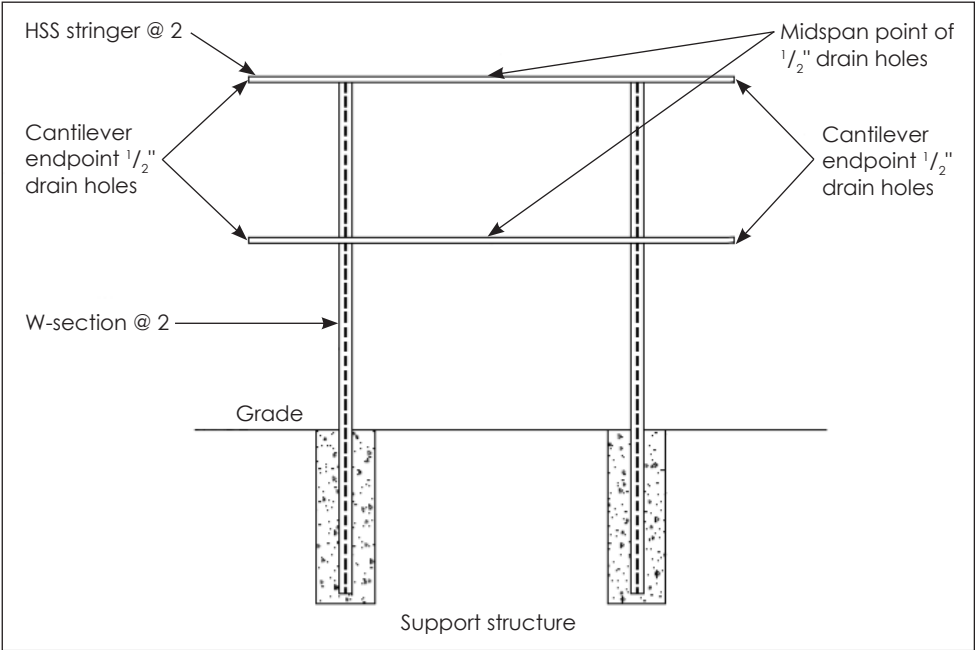


Figure 5: Drain Hole Locations for Horizontal Mounting Applications

Replace Stripped Screws

These steps explain how to remove and replacing a stripped screw when it is involuntarily stripped in the base metal. If stripping occurs on multiple screws, adjust the drill torque. It is very rare for multiple screws to strip.

1. Remove the screw in question and replace it with a new screw to verify the original screw was not defective. If the new screw is still stripped, continue with **Step 2**.
2. Determine the new hole locations based on the design requirements shown in **Figure 6**, **Figure 7**, and **Figure 8**.

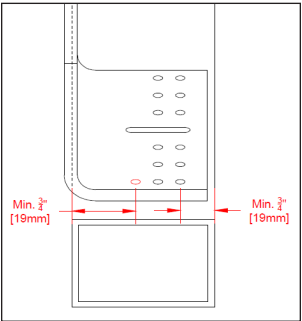


Figure 6: Offset from Square Edge

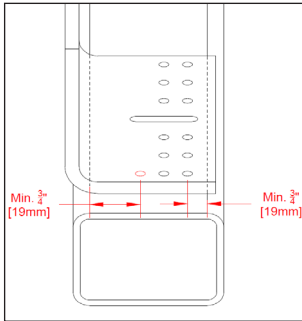


Figure 7: Offset from Round Edge

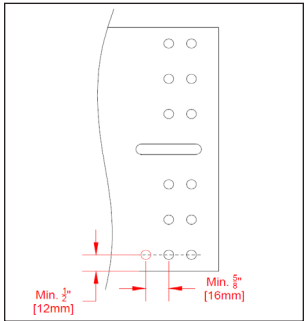


Figure 8: Offset from Hole and Edge

Note: *Measurement applies to any holes used for final mounting (screw installed in hole).

3. Remove the bracket from the sign cabinet. Drill a 17/64" diameter clearance hole at the previously determined location and re-install the bracket. It is recommended to use touch-up paint on field-drilled holes, to prevent rust.
4. Install the screws per the previous sections and seal all open holes on the top or sides of the steel HSS with architectural, exterior-grade silicone caulk.