



APPLICATION INSTRUCTIONS

HBWR Series Weldable Rosette Strain Gage

A. SURFACE PREPARATION

1. Inspect sensor location on specimen for deep pitting and correct gage location. (Figure 1)
2. Clean entire area with flapper wheel or coarse sander. Metal should be free of all rust and pitting.
3. Locally clean the gage sensor area with fine flapper or sandpaper. Metal should have almost a "polished" look to it. (Figure 3)

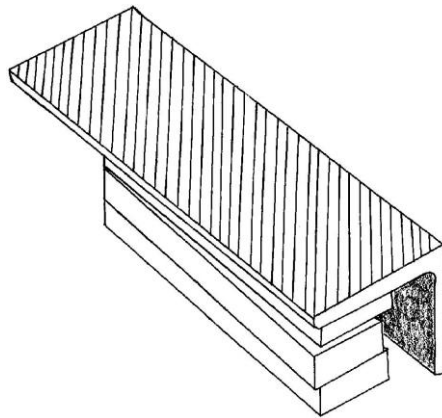


Figure 1: SPECIMEN

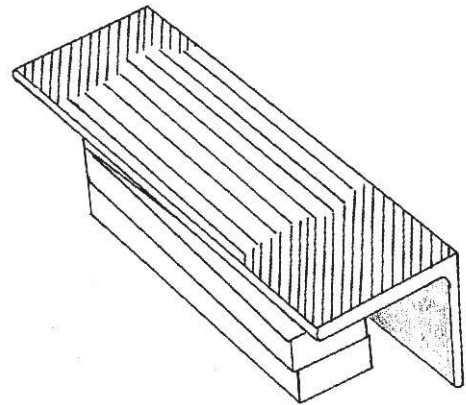


Figure 2: ROUGH CLEAN

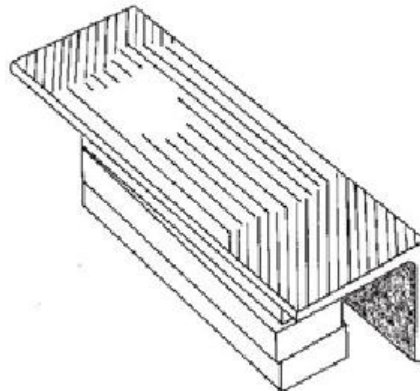


Figure 3: FINAL CLEAN

B. GAGE INSTALLATION

1. Using a capacitive discharge spot welder, establish proper weld schedule with sample carriers supplied with gage. A power setting of 12 - 18 watt seconds with a probe force of 3 - 6 pounds is a good starting point. Start low and gradually increase power until a good weld is achieved. Grasp the practice shim with a pair of pliers and peel from specimen. After proper welding the removal of the carrier will be difficult and will leave small weld nuggets on the specimen. The nuggets should be 40 to 60 mils in diameter. (Figure 4) (See Installation Tips C-1)
2. Remove strain gage from packaging and inspect for dust and particles that may be on the gages from shipping. Wipe welding area with gauze pad or clean cloth. Bend transition section tabs down to the sides of the water proofing compound. Bend the transition sections tabs flush with the bottom of the waterproofing compound. (Figure 5)
3. Position strain gage in proper location.
4. Tack weld transition section tabs with 3 to 5 spot welds on each side. This will hold the strain gage in position while the remaining welds are made.

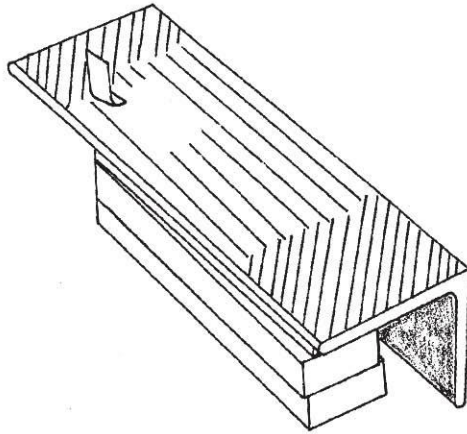


Figure 4: WELD TEST SCHEDULE

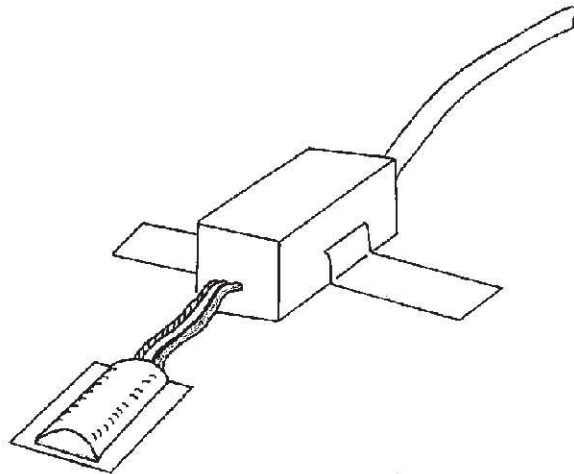


Figure 5: SENSOR READY FOR PROPER INSTALLATION

5. Tack the center gage in place with one (1) weld at each of the side alignment marks. Carefully remove the tape.
6. Continue welding the gage in place. The first line of welds should be adjacent to the hermetic sealant 1/16" on center. Sequence on welds should be:
 - a) Row 1 starting at the crotch of the hermetic sealant to the tip.
 - b) Row 2 starting at the crotch of the hermetic sealant to the tip.
 - c) Row 3 starting at the beginning of Row 1 to the tip.
 - d) Row 4 beginning at the corner of the hermetic sealant to the tip
 - e) Rows 5, and 6 similar to Rows 3 and 4.
 - f) Row 7 across the tips of all 3 sensor locations.
 - g) Row 8 staggered outboard of the first row of welds as shown.

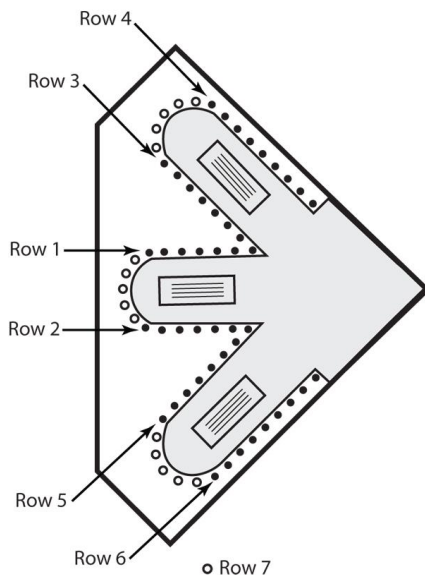


Figure 6

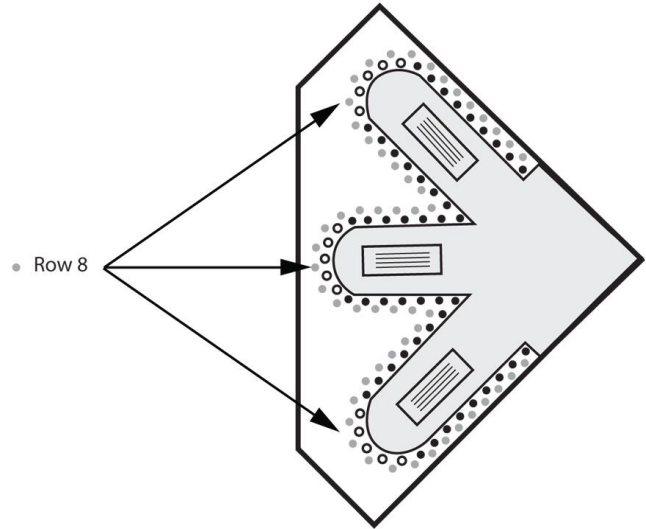


Figure 7

7. Moisture proofing such as zinc spray or silicon sealant may be applied to protect the parent metal from oxidation for long term applications.
9. Anchor cables with strapping for mechanical fatigue resistance if necessary.
10. Attach lead wire in place by routing through thin wall tubing or continuously strap welding a strip (3 to 5 mils thick) of stainless steel over the leads.
11. Hook up gage to strain indicator and record zero balance reading.
12. The installation is now complete.



C. INSTALLATION TIPS

2. Probe should be dressed with fine sandpaper to provide a 1/32" tip radius. Dress probe frequently (after every gage installation) or whenever severe sparking has occurred. (Figure 6)
5. When installing, care must be taken to insure intimate contact between the sensor and the curved surface.

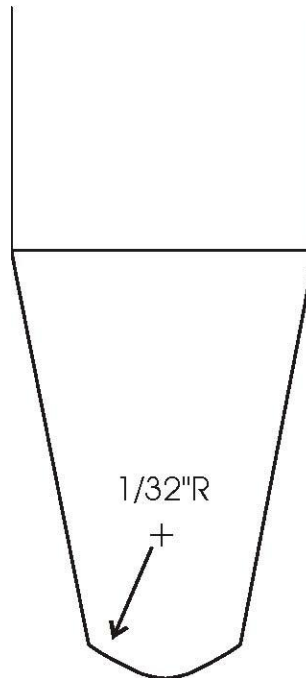


Figure 6: PROBE TIP GEOMETRY