

DuraGal[®] Profiles

THE DIFFERENCE IS DURAGAL

WELDING DURAGAL[®]

DuraGal[®] Profiles are made from low carbon structural steels. As with other zinc-based coated steels, the weldability of DuraGal[®] Profiles are affected by a coating layer of Zinc, Aluminium, and Magnesium (Al/Zn/Mg) which are metals with a low melting point compared to the base metal. In arc welding, Zn/Al/Mg coated steels are more susceptible to spatter, blow holes, crack-induced decline in joint strength and other defects.

However, DuraGal[®] Profiles can be welded into joints with adequate strength using traditional welding methods, even spot welding, when good welding practices are observed.

There are many variable factors that influence the quality of welds, including types of welding machines and shapes of joints. Tests should be carried out prior to fabrication to establish optimal welding parameters and procedures should remain in accordance to AS/NZS 1554.1.



WELDING PRACTICES FOR DURAGAL[®] PROFILES

1. WELDING EQUIPMENT: DuraGal[®] Profiles can be welded with most off-the-shelf welding machines. Welding results can be further improved with the use of inverter controlled welding machines developed to reduce weld spatter. Similarly, the use of silicon free anti-spatter spray in the weld spatter zone will reduce damage to the DuraGal[®] Profile coating.

2. WELDING CONSUMABLES: Welding wires for carbon steel and structural steel can be used but to reduce spatter, blow holes, pits and other defects, it is advisable to use welding wires developed specially for galvanised steels.

3. SHEILDING GAS: The combination of pulse current and 80% Argon/20% CO₂ gas will tend to decrease spatter.

4. WELDING CURRENT & VOLTAGE: The initial welding temperature should be set slightly higher as more heat is absorbed by the evaporation of the coating material (the current should be raised by 5%-10%).

5. WELDING SPEED: When such defects as blowholes or pits are found, the welding speed should be set lower than when welding uncoated steels. Good beads are achieved when weld speed is slow enough to release zinc vapour from the surface of the molten metal pool.

6. INSTALLATION OF GAPS: Lap fillet welding tends to frequently cause such defects as blowholes or pits. The most effective way to prevent this is to create gaps between steel sheets, a gap of 0.6mm to 1.5mm will substantially reduce these defects. This is recommended by Weld Australia (formerly known as the WTIA).

