

## Welding Precautions — Steel

### Material

Item	Specification
Motorcraft® Premium Undercoating PM-25-A	—
Motorcraft® Rust Inhibitor Aerosol PM-24-A	—

General Equipment
3 Phase Inverter Spot Welder 254-00002
Compuspot 700F Welder 190-50080
I4 Inverter Spot Welder 254-00014
Inverter Welder with MIG Welder 254-00015

### General Specifications -Welding Specifications

Item	Specification
Plug Weld Hole	8 mm (0.31 in)
Weld Wire ER70S-3 or equivalent	0.9-0.11 mm (0.035-0.045 in)

### Weld Nugget Chart

Test Thickness of Metal (mm)	Nugget Size
0.7 + 0.7	4.3 mm (0.16 in)
0.7 + 0.7 + 0.7	4.3 mm (0.16 in)
0.9 + 0.9	4.7 mm (0.18 in)
0.9 + 0.9 + 0.9	4.7 mm (0.18 in)
1.0 + 1.0	5.2 mm (0.2 in)
1.0 + 1.0 + 1.0	5.2 mm (0.2 in)
2.0 + 2.0	7.1 mm (0.27 in)
2.0 + 2.0 + 2.0	7.1 mm (0.27 in)
3.0 + 3.0	8.7 mm (0.34 in)
3.0 + 3.0 + 3.0	8.7 mm (0.34 in)
3.0 + 0.7	4.3 mm (0.16 in)
0.7 + 3.0 + 1.0	5.2 mm (0.2 in)
2.0 + 2.0 + 0.7	4.3 mm (0.16 in)
0.9 + 0.9 + 2.0	4.7 mm (0.18 in)
2.0 + 0.9 + 1.0	5.2 mm (0.2 in)
1.0 + 3.0 + 1.0	5.2 mm (0.2 in)

3.0 + 1.0 + 2.0	7.1 mm (0.27 in)
0.9 + 0.7 + 0.9	4.3 mm (0.16 in)



**WARNING:** Invisible ultraviolet and infrared rays emitted in welding can injure unprotected eyes and skin. Always use protection such as a welder's helmet with dark-colored filter lenses of the correct density. Electric welding will produce intense radiation, therefore, filter plate lenses of the deepest shade providing adequate visibility are recommended. It is strongly recommended that persons working in the weld area wear flash safety goggles. Also wear protective clothing. Failure to follow these instructions may result in serious personal injury.



**WARNING:** Always wear protective equipment including eye protection with side shields, and a dust mask when sanding or grinding. Failure to follow these instructions may result in serious personal injury.

The correct equipment and settings must be used when welding mild or high-strength steel. Metal Inert Gas (MIG) and Squeeze-Type Resistance Spot Welding (STRW) are the preferred methods. Surfaces must be clean and free of foreign materials.

- The correct protective clothing should always be worn.
  - Correct eye protection must be worn.
  - Adequate ventilation must be provided to avoid accumulation of poisonous gases.
  - Foam sealers and sound deadeners located adjacent to the weld area should be removed or protected from exposure to heat as they are flammable.
  - A test weld should always be carried out on a test sample.
  - Follow equipment manufacturer's prescribed procedures and equipment settings for the type of weld being carried out.
  - Use grinding discs and wire brushes dedicated to the type of material being welded.
  - Follow equipment manufacturer's prescribed procedures and equipment settings for the type of weld being used. ER70S-2 or ER70S-6 wire are typically used for [MIG](#) welding steel.
  - Disconnect the battery ground cable from the battery. Refer to section [Section 414-01](#) .
  - Disconnect on-vehicle modules and protect them from possible heat damage and electrical currents when welding.
  - Components made of high-strength steel should not be heated to straighten or repair. Severely bent or kinked components should be replaced with new ones.
  - Factory spot welds may be substituted with either resistance spot welds or [MIG](#) plug welds. Spot/plug welds should equal factory welds in both location and quantity. Do not place a new spot weld directly over an original weld location. Plug weld hole should equal 8 mm (0.31 in) diameter.
  - Corrosion protection needs to be restored whenever it is necessary to sand or grind through painted surfaces or E-coat, or when bare metal repairs are made. Refer to [Restoring Corrosion Protection Following Repair](#) in this section.
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