

# PortaMelt Sample Preparation

## Model 2701X Electric Arc Button Remelt Furnace

The newly redesigned Model 2701X Electric Arc Button Remelt Furnace now makes remelting more user-friendly. This new design is both smaller in size and weight. It features a 3 way valve to easily switch between vacuum and argon and includes all necessary hoses and fittings. The electrical box has been eliminated now employing a direct electrical hook-up method to connect the Furnace to the welder. The water valve has been relocated to the front for conveniently controlling the melt temperature making adjustments much easier than on the older model.

The Model 2701X Electric Arc Button Remelt Furnace is primarily used for remelting metals and alloys into specimen buttons characteristic of a larger volume of material. The resulting specimen is then used for spectrographic elemental analysis and alloy research.

The range of metals and alloys that can be remelted are from aluminum at 1220° F and copper at 1983° F through steels at 2600° to 2800° F, to titanium at 3040° F, and chromium at 3380° F. The Model 2701X Electric Arc Button Remelt Furnace will remelt metal alloys up to 3600° F.

The Model 2701X Electric Arc Button Remelt Furnace gets its power from a 500 amp DC welder that is optionally available. A 400 to 600 amps DC welder would be suitable to melt most alloys.

The sample charge can be in the form of slugs, welding wire, cuttings, drillings, powders or grindings. A minimum charge of 50 grams of steel will provide a sample of 1-1/4" diameter and approximately 1/4" thick.

The melting time for most high temperature alloys is in the order of 50 to 60 seconds. This speed results in low volatilization; for example, boron in the range of .003% in high temperature steel shows no loss. The violence of the spark provides thorough stirring and consequently good homogeneity in the specimen.

*For more information, contact:*

Anodes of carbon graphite or tungsten can be provided. The furnace is designed for use with an argon atmosphere resulting in a clean specimen. The melt is made in a water-cooled, commercially pure copper crucible that may be tilted to drop release the sample after it has cooled. There is no contamination to or from the crucible due to its temperature differential with the sample. It is simple in operation and requires little maintenance.



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In addition to the Model 2701X Electric Arc Button Remelt Furnace, all systems require the following options:

Welder, 400 to 600 amps DC  
Vacuum Pump, 7 CFM

Spare Anodes and Bushings

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