

ArcMelt 4305

Description:

Proprietary composite alloy wire (PCAW) made exclusively for the TWAS process. The deposited composition produces a hard, abrasive, corrosion resistant coating with added lubricity.

Application:

This is the first coating material designed exclusively as an economical substitute for hard chrome replacement. ArcMelt's 4305 is particularly useful in large scale applications and when thicker coatings are required. This coating has excellent pitting, corrosion resistance and improved mechanical properties. It is extremely dense and can be ground and polished to below 5 micro inches. The surface hardness is comparable for bearing use, while the body of the coating remains ductile at 45 Rc. This coating is excellent for metal to metal contact when little or no lubrication is available.

Wire Characteristics:

Wire Size	3/32" (2.3mm) dia.
Cast/Helix	meets AWS C2.25
Lube Free	

Physical Deposit Characteristics:

Deposit Efficiency	> 80 %
Bond Strength (ASTM-C-633) ¹	> 6,500 psi @ .040" (1.02mm)
Coating Texture	< 200 μ in @ .200" (5.08mm) thick
Coating Through Hardness	45 Rc
Finish (ground)	Excellent
Thickness Limitation ²	> .225" (5.72mm)

¹ Bond strength measured using 3M™ Scotch Weld Epoxy Adhesive 2214 High Density

² Prepared using 24 Grit Aluminum Oxide at 80 psi.

Spraying:

Spray Rate

> 25 lbs/hr (11.34 kg/hr)

Results:



As-sprayed surface .050" (1.27mm) thick, using cored wire.



As-sprayed surface .225" (5.72mm) thick, using ArcMelt's composite wire.

Safety Recommendations:

All Nickel-Chromium alloys produce hazardous fumes. While spraying, all personnel should be made aware of the need for proper respiratory protection. Observe normal spraying practices and proper air flow patterns. For general spray practices, see AWS publications AWS C2.1-73, "Recommended Safe Practices for Thermal Spraying" and AWS TSS-85, "Thermal Spraying Practice, Theory and Application." Thermal spraying is a completely safe process when performed in accordance with proper safety measures. Become familiar with OSHA safety regulations before starting a spray operation.

Storage Requirements:

All ArcMelt spooled wire shall be packaged and stored in the same fashion, regardless of the specific alloy type.

Spooled wire shall be packaged in plastic bags containing a desiccant pack to protect from moisture. Wire should be stored in a dry, well ventilated area where relative humidity and temperature are of ambient conditions. Boxes should be protected from water, and labels should not be removed. Partially spooled wire should be repackaged into plastic bags containing a desiccant pack and put back into the correct cardboard box for storage. Boxes should be taped or stapled shut when not in use to guard against contamination. Wire should be protected from contamination (dust, grinding grit, etc.) during use and storage.

When ArcMelt 4300 series wire is exposed to an amount of moisture that questions the integrity of the wire, we recommend a "Bake-Out" at 150°-200°F (66°-93°C) in order to remove any moisture.



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