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Praxair and TAFE Arc Spray 18/5 Stainless Steel Wire - 55T

Material Review:

Made exclusively for arc spraying. Characteristics of the coating are its excellent resistance to corrosion, low shrink, and better machinability. Uses are similar to those of 18/8 Stainless.

Arc Spray 55T Stainless wire can be sprayed with any Praxair and TAFE Arc Spray gun.

Arc Spray 55T Stainless wire meets Department of Defense Specification MIL-W-6712C, Table I, Stainless, 18/5.

CAUTION: All Praxair and TAFE wires have been optimized for arc spraying. Use of alternate wires usually cause problems such as excessive tip wear, spitting and feeding problems. We only recommend Praxair and TAFE certified wires.

Application Review:

Primary usefulness is for coating inside diameters where shrink has previously been a major problem, and where heavy coatings are required. Coating applications have been rebuilt hydraulic rams, food industry rollers, and a variety of machine elements.

| Composition: | |
|--|---|
| Carbon | 0.06 |
| Phosphorus | Trace |
| Sulphur | Trace |
| Manganese | 8 |
| Nickel | 5 |
| Chromium | 18 |
| Silicon | 0.08 |
| Iron | Balance |
| Coating Physical Properties | |
| Wire Size | 1/16" (1.6 mm) |
| Deposit Efficiency | 83 Percent* |
| Melting Point | 2600°F (1427°C) (approx.) |
| Bond Strength | 4156 psi blasted surface (28.7 MPa) |
| Coating Texture | Variable** |
| Hardness | 92-94 R _b 360 Knoop ₁₀₀ |
| Coating Density | 6.94 gm/cc* |
| Coating Weight | 0.036 lbs/ft ² /mil |
| Shrink | 0.008 in/in (cm/cm) (approximate) |
| Spraying (inert chamber with argon): | |
| Spray Rate | 10 lbs/hr/100 amps (4.5 kg/hr/100 amps) |
| Coverage (wire consumption) | 0.8 oz/ft ² /0.001" (0.98 kg/m ² /100 microns) |
| Spray Pattern***(approximate 8" standoff) | Cross Nozzle/Positioner - 1" (2.5 cm) vertical height x 1-3/4" (4.4 cm) width Slot Nozzle/Positioner - 2" (5 cm) vertical height x 1" (2.5 cm) width |
| Length of wire per lb | 96 ft. (1/16") |

* Depends on air pressure, standoff, nozzle cap and target size.

** 6" standoff, 40 psi - 8830, depends on air pressure - fine with high psi, average with medium psi, and rough with low psi.

*** Higher air pressures, smaller wire (1/16"), and lower amperage with red nozzle cap gives smallest diameter pattern

Spraying Procedure:

| | Coating Type | | | |
|---|------------------------|------------------------------------|------------------------------------|------------------------|
| | Normal 8830/8835 | Arc Jet 8830/8835 | Arc Jet 9000 | 9000 |
| Atomizing Air Pressure:Primary Secondary | 50 ^c --- | 50 ^c 40 ^c | 60 ^c 60 ^c | 60 ^c --- |
| Nozzle Cap | Blue | * | Green | Green |
| Nozzle/Positioner (Cross=C; Slot=S) | Short C | ** | Long C | Long C |
| Arc Load Volts ^a | 29-30 | 29-30 | 30-32 | 30-32 |
| Amps ^b | 50-300 | 50-300 | 50-300 | 50-300 |
| Standoff Inches | 5-7 | 3-5 | 3-5 | 5-7 |
| Coating Thickness/Pass-mils | 5 | 5 | 5 | 5 |
| Coating Texture-microinches aa | 200-350 | 150-250 | 150-250 | 200-350 |

Using excessive voltage reduces quality of coating. Voltage should be adjusted to give minimum noise and smooth arc operation. Excessive voltage causes larger particles and poor spray pattern. Too low a voltage will cause popping.

Be sure not to overheat substrate even if this means stopping to allow cooling, use air jet cooling if greater speed is required. Note that on some applications where preheating is tolerable, preheating work to 300°F can improve bond and deposit efficiency.

NOTE: Standard air caps and positioners can be used in 8830 or 9000 systems.

- * P/N 450729 8830 Arc Jet Air Cap
- ** P/N 620074 Arc Jet Modified Short Cross (8830 & 9000)

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- a When using power lead extensions other than the normal 12 foot furnished, the voltage must be increased by approximately 3.4 volts per 50 foot extension; i.e. add 3.4 volts to the recommended voltage setting for a given wire if the extension is increased to a 50 foot length.
 - b Can vary between 50-300 depending on size of workpiece and traverse speed.
 - c For finer finish, raise air pressure at point of finish.

Use of Praxair and TFA's 75B® ire as a Bond Coat:

In most applications Praxair and TFA's 75B® BondArc® wire eliminates the need for surface roughening. The following section outlines steps to be followed when using this material.

Note again that the 75B coating does not self-bond on many non-ferrous materials and normal surface preparation must be used.

Clean the surface to a white virgin metal by grit blasting, grinding or polishing clean surface with emery cloth.

It must be a clean white metal surface free of grease, oil and handprints.

DO NOT HANDLE AFTER THE SURFACE HAS BEEN PREPARED.

1. Use short nozzle/positioner and blue nozzle cap.
2. Set spray pressure air at 50-60 psig (do this while air is "ON" or flowing).
3. Run at 150 amps at 30 load volts.
4. Gun distance from work 3 to 4 inches.
5. Move gun over surface uniformly to give coverage over complete surface.
6. Continue buildup with selected material using 50 psig spray pressure on console (this 50 psig is for general metallizing; for coarser coatings decrease 5 psig; for finer coatings increase 5 to 10 psig, depending on the finish required).

Finishing:

Arc spray 55T may be machined easily or ground to achieve a desired finish.

Hazards:

All chromium alloys produce hazardous fumes. While spraying, all personnel should be made aware of the need for complete respiratory protection. Observe normal spraying practices, respiratory protection and proper air flow patterns advised. 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 local safety regulations before starting spray operations. DO NOT operate your spraying equipment or use the spray material supplied before you have thoroughly read the Praxair and TAFE Instruction Manual.

A Material Safety Data Sheet will be sent with each initial purchase and updated as required.

DISREGARDING THESE INSTRUCTIONS MAY BE DANGEROUS TO YOUR HEALTH.

The Information provided herein is believed to be accurate and reliable; however, results may vary with workpiece preparation and operator technique. Praxair and TAFE warrants only that the wires are free of defects in material and workmanship. No other warranty is expressed or implied.



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