

STOODITE® 21

Shielded Metal Arc Welding Electrode

AWS Classification A5.13/A5.13M:2010 ECoCr-E

Stoodite 21 coated electrodes deposit a low carbon austenitic type cobalt alloy with excellent work hardenable high temperature strength and impact resistance. These deposits are quite stable during thermal cycling, making them a favorite for hot die materials. Resistance to galling (self-mating), corrosion, and cavitation erosion make Stoodite 21 a good choice for valve trim on steam and fluid control valve bodies and seats. It bonds well to all weldable steels, including stainless.

TYPICAL MECHANICAL PROPERTIES

| | |
|-------------------------------|-------------------|
| Abrasion Resistance | Fair |
| Impact Resistance | Excellent |
| Corrosion Resistance | Good |
| Hardness (2 layer), HRC | 24 – 28 |
| Hardness (work hardened), HRC | 45 – 45 |
| Hot Hardness | Excellent |
| Magnetic | No |
| Deposit Layers | 3 Maximum |
| Surface Cross Check | No |
| Machinability | Use carbide tools |

TYPICAL DEPOSIT CHEMISTRY (WT%)

| | |
|------------|---------|
| Carbon | 0.2 |
| Chromium | 27.9 |
| Iron | 3.4 |
| Manganese | 0.5 |
| Molybdenum | 5.2 |
| Nickel | 2.5 |
| Silicon | 0.7 |
| Tungsten | 0.1 |
| Cobalt | Balance |

TYPICAL APPLICATIONS

- Steam valves
- Forging dies
- Chemical and petrochemical valves
- Hydro-turbine cavitation repair
- Hot shears
- Piercing plugs

OPERATIONAL CHARACTERISTICS/WELDING PARAMETERS (DCEP)

| | |
|--------------------------------------------|-------------------|
| 1/8" (3.2 mm) Current, amp Position | 90 – 120 Flat |
| 5/32" (4.0 mm) Current, amp Position | 135 – 160 Flat |
| 3/16" (4.8 mm) Current, amp Position | 160 – 180 Flat |
| 1/4" (6.4 mm) Current, amp Position | 220 – 270 Flat |

Note: Minimum preheat recommended is 400°F (204°C).
Required preheat will depend on base material composition and component dimensions.

STANDARD SIZES & PACKAGING

| Diameter | Packaging | Part # |
|----------------|---------------------------|--------------|
| 1/8" (3.2 mm) | 10 lb (4.5 kg) Vacuum Pak | 812101205125 |
| 5/32" (4.0 mm) | 10 lb (4.5 kg) Vacuum Pak | 812101205156 |
| 3/16" (4.8 mm) | 10 lb (4.5 kg) Vacuum Pak | 812101205187 |
| 1/4" (6.4 mm) | 10 lb (4.5 kg) Vacuum Pak | 812101205250 |

PDS-CO-E-004
Revision 5
October 16, 2015

NOTICE - Failure to follow manufacturer's directions for use may result in equipment or material failure and void any applicable warranty. The data provided or referenced herein is provided for informational purposes only, without guarantee or warranty and represents "typical" results when Stoodie products are used in accordance with internal Stoodie procedures. Other tests and procedures may produce differing results. Stoodie expressly disclaims any liability resulting from reliance on this data.

PROTECT YOURSELF AND OTHERS - Users should read and follow all recommended guidance on health and safety from their employer, the supplier, the manufacturer, and government authorities. These, at a minimum including the Warning Labels on the products and the Safety Data Sheets ("SDS"). The SDS and additional safety information may be found on materials or links at: Stoodie.com.

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