

SA-E58

## METHARD 1050

MMA (SMAW)

## MMA ELECTRODE WITH RUTILE METAL POWDER

## PRODUCT DESCRIPTION

MMA electrode with rutile metal powder type flux made on carbon steel core wire. Electrode coating is designed to give sound porosity-free deposits coupled with smooth operation. Recovery is about 200% with respect to core wire, 65% with respect to whole electrode.

## SPECIFICATIONS

ISO 14700 E Fe16

## MATERIALS TO BE WELDED

Surfacing of mild and low alloy steels.

## APPLICATIONS

This electrode gives a high alloy complex chromium carbide deposit to produce very high hardness, resistance to extreme abrasion and thermal stability up to 600°C, coupled with reasonable corrosion resistance. The deposit is not machinable but can be ground if necessary.

Used for equipment in contact with hot metal, slag and hot gases at temperatures in excess of 600°C. For applications requiring high resistance to thermal shock one of the cobalt based Cobstel types should be considered. For ambient temperature applications Methard 850 or 950 (E-55) are more economic alternatives.

Used for surfacing **slag crushers, ore processors, furnace guides, rollers and moulds, in the steel, ceramic, cement, pottery and glass industries.**

## MICROSTRUCTURE

In the as-welded condition the microstructure consists of an austenitic alloy matrix (bulk hardness 500-600HV) and a large proportion of chromium and complex alloy carbides (1500-2000HV).

## WELDING GUIDELINES

Preheat to 200-450°C and slow cool to minimise surface cracking. Use a stringer bead or wide weave for maximum coverage.

Build-up is normally limited to 2 layers (maximum 3). Surface crazing or cracking (checking) is normal but can be minimised by preheating and slow cooling. For large build-ups or any surfacing on 13%Mn steels use a buffer layer of a 307 type (data sheet E-21).

## CHEMICAL COMPOSITION (WELD METAL WT %)

|     | C   | Mn  | Si | Cr | Mo+Nb+V+W |
|-----|-----|-----|----|----|-----------|
| typ | 4.5 | 0.2 | 1  | 28 | 12        |

## ALL-WELD MECHANICAL PROPERTIES

| Typical hardness: | HRC   | HV      |
|-------------------|-------|---------|
| As welded         | 62-66 | 750-850 |

These values are for guidance only actual hardness is dependent on base material, number of layers, cooling rate and welding conditions.

## WELDING POSITIONS (ISO/ASME)



PA/1G



PB/2F

## OPERATING PARAMETERS, DC +VE OR AC (OCV: 70V MIN)

| Diameter (mm) | 4.0 |
|---------------|-----|
| min. A        | 150 |
| max. A        | 220 |

## FUME DATA (WT % TYPICAL)

Fume composition, wt % typical:

| Fe | Mn | Cr | Mo | V   | F | OES (mg/m³) |
|----|----|----|----|-----|---|-------------|
| 25 | 4  | 12 | 2  | 0.5 | 3 | 0.4         |

## PACKAGING DATA

|           | Dia.<br>(mm) | Length<br>(mm) | Item number | No of pieces |     | Weight (kg) |      |
|-----------|--------------|----------------|-------------|--------------|-----|-------------|------|
|           |              |                |             | can          | box | can         | box  |
| METAL CAN | 4.0          | 350            | MH1050-40   | 38           | 114 | 4.2         | 12.6 |

**Redrying:** 200-300°C/h-2h to restore to as-packed condition. Maximum 350°C, 3 cycles, 10h total

MAINTENANCE &amp; REPAIR