# DAIKOWM 1CrMo

GMAW

**CREEP RESISTING STEELS**
1CrMo

## DESCRIPTION

**Solid wire for creep resisting 1¼Cr- ½Mo steels**

Wire rod for prolonged elevated temperature service up to about 550°C, especially in steam generation power plants. Suitable for corrosion resistance to sulphur bearing crude oil at 250-450° C. Used in chemical and petro-chemical industries for resistance to hydrogen attack in fabrication of hydrocrackers, coal liquefaction plant and NH3 pressure vessel operating at up to 450° C. The wire has low levels of tramp elements (Sn, As, Sb and P) providing a low Bruscato Factor (X< 12 ppm) for temper embrittlement resistant applications.

## SPECIFICATIONS

| | | | |
|---|---|---|---|
| **EN ISO 21952-B** | G 1 CM | **AWS A5.28** | ER80S-B2 |
| **Shielding** | M20, M21 | **Positions** | PA, PB, PC, PD, PE, PF |
| **Current** | DC+ | **Packaging Type** | Drums, B300, D200 and D100 spools. |

## ASME QUALIFICATIONS

| | |
|---|---|
| **F-No (QW432)** | 6 |
| **A-No (QW442)** | 3 |

| CHEM. COMP. % | DEFAULT |
|---|---|
| C | 0.08 |
| Mn | 0.6 |
| Ni | 0.04 |
| Cr | 1.3 |
| P | 0.008 |
| S | 0.01 |
| Mo | 0.5 |
| Si | 0.55 |
| Cu | 0.15 |

| MECHANICAL PROPERTIES | MIN. PER STANDARD | PRODUCT |
|---|---|---|
| Tensile strength $R_m$ MPa | 550 | 610 |
| Yield strength $R_{p0.2}$ MPa | 470 | 500 |
| Elongation A ($L_0$=5$d_0$) % | 19 | 22 |
| Impact Charpy ISO-V | - | 100J @ 20°C |
| Impact Charpy ISO-V | - | - |

| WELDING PARAMETERS | 1.0 mm | 1.2 mm |
|---|---|---|
| Ampere | 180A - 240A | 190A - 250A |
| Voltage | 22V - 29V | 26V - 30V |
| Packaging | Ø 0,8÷1,6mm | Ø 0,8÷1,6mm |
| Packaging Type | Drums, B300, D200 and D100 spools. | Drums, B300, D200 and D100 spools. |





DAIKO

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DESCRIPTION



## APPLICATION

These consumables are designed for long-term use at high temperatures, up to 550 °C. The main applications include power plant components operating with steam, such as pipes, turbine casings, steam chambers, valve bodies, and boiler superheaters. Some materials are also used in refineries, offering resistance to corrosion from sulfur-containing crude oil, with operating temperatures between 250 and 450 °C. Additionally, these materials are used in the chemical and petrochemical industries, providing resistance to hydrogen attack in the production of hydrocrackers, coal liquefaction plants, and NH3 pressure vessels, operating up to 450 °C. In the as-welded condition, the materials offer deposits with a hardness of 300 HV, ideal for hardfacing, essential to withstand metal-to-metal wear and heavy impacts. A minimum preheat and interpass temperature of 200 °C is recommended, up to 300 °C for thicker sections, maintaining this temperature throughout the entire welding process and for a certain period afterwards. For most applications, it is essential to perform Post Weld Heat Treatment (PWHT), which generally occurs at a temperature of 690 °C, with duration varying based on material thickness.

## ALLOY TYPE

1¼Cr-½Mo alloyed steel consumables for elevated temperature service.

## MICROSTRUCTURE

After PWHT, the microstructure consists of tempered bainite.

## MATERIALS

**EN W.Nr.**: 13CrMo 4-5 (1.7355), 13CrMo 4-4 (1.7335), 16CrMo 4-4 (1.7337), 11CrMo 5-5 (1.7339), GS-25CrMo 4 (1.7128), GS-17CrMo 5-5 (1.7357)
**ASTM**: A387 Gr 11 & 12, A182 F11 & F12, A217 WC6 & WC11, A234 WP11 & WP12, A199 T11, A200 T11, A213 T11 & T12, A335 P11 & P12