DAIKOWM Mo.B

GMAW

CREEP RESISTING STEELS
0.5Mo

DESCRIPTION

Copper coated rod for creep resisting ½Mo steels

Rod wire designed for prolonged elevated temperature service up to about 450°C for welding of low alloy and creep resistant steels. Application area includes boiler, pressure vessel, tanks, pipeline, and crane constructions as well as in structural steel engineering.

SPECIFICATIONS

EN ISO 21952-A	G MoSi	**AWS A5.28**	ER70S-A1
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)	2

CHEM. COMP. %	DEFAULT
C	0.09
Mn	1.2
Ni	0.15
Cr	0.15
P	0.01
S	0.01
Mo	0.5
Si	0.6
Cu	0.25

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	515	640
Yield strength $R_{p0.2}$ MPa	400	530
Elongation A (L_0=5d_0) %	19	26
Impact Charpy ISO-V	-	90J @ -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

0.5Mo

DESCRIPTION

APPLICATION

The alloy with a nominal 0.5% molybdenum offers a significant improvement in high-temperature performance compared to carbon-manganese steels (C-Mn). It is widely used in the **fabrication of vessels** and **pipelines** requiring resistance to creep rupture and ductility at temperatures up to about 450 °C. The molybdenum content also enhances resistance to hydrogen attack, making it ideal for use in chemical processing plants. The mechanical properties of the weld metal, both in the as-welded and stress-relieved conditions, are excellent for welding technical structural and general structural steels intended for ambient or sub-zero temperature service. Therefore, these consumables are closely related to high-strength manganese-molybdenum alloy steels. Preheat and interpass temperatures generally range from 100 °C to 250 °C, depending on the thickness of the material being welded and the degree of restraint. Post-weld heat treatment (PWHT) for tempering can vary depending on the applied code; extremes range from 550 °C to 720 °C, with the most common range being from 630 °C to 670 °C. For materials up to 20 mm thick, some codes allow omitting the PWHT.

ALLOY TYPE

Ferritic creep resisting 0.5%Mo steels for elevated temperature service.

MICROSTRUCTURE

In the stress-relieved condition the microstructure consists of acicular ferrite with some tempered bainite.

MATERIALS

EN W.Nr.: 10028-2 gr. 16Mo3 (1.5415), 16Mo5 (1.5423), 10MnMo 4 5 (1.5424), 11MnMo 4 5 (1.5425), GS-22Mo 4 (1.5419)
ASTM: A335 gr. P1, A209 & A 250 gr. T1, A336 gr. F1, A204 gr. A, B, C, A217 gr. WC1, A352 gr. LC1