



G-TECH Mo.B

SMAW

CREEP RESISTING STEELS
0.5Mo

DESCRIPTION

Basic coated electrode for creep resisting steels and cast steels up to 450°C

Designed for prolonged elevated temperature service up to about 450°C, especially in fabrication of vessel, pipework, and valve bodies. These electrodes have good weldability in all positions. Its basic coating ensures excellent positional welding characteristics with good gap bridging ability. The weld pool and slag are easy to control and facilitate the achievement of a clean bead surface even in narrow preparations and in root pass. Ready striking and deslagging.

SPECIFICATIONS

EN ISO 3580-A	E Mo B 42 H5	AWS A5.5	E7018-A1
Shielding	-	Positions	PA, PB, PC, PD, PE, PF
Current	DC+, AC	Packaging Type	Carton box

ASME QUALIFICATIONS

F-No (QW432)	4
A-No (QW442)	2

CHEM. COMP. %	DEFAULT	MECHANICAL PROPERTIES	MIN. PER STANDARD			PRODUCT
C	0.07	Tensile strength R _m MPa	490			680
Mn	0.8	Yield strength R _{p0.2} MPa	390			580
Ni	0.05	Elongation A (L ₀ =5d ₀) %	22			22
P	0.015	Impact Charpy ISO-V	-			90J @ -20°C
S	0.01	Impact Charpy ISO-V	-			-
Mo	0.5					
Si	0.6					
Cu	0.05					
		WELDING PARAMETERS	2.5 mm	3.2 mm	4.0 mm	5.0 mm
		Ampere	65A - 90A	90A - 130A	140A - 180A	190A - 230A
		Voltage	-	-	-	-
		Packaging	45 pcs/kg	21 pcs/kg	14 pcs/kg	10 pcs/kg
		Packaging Type	Carton box	Carton box	Carton box	Carton box

NOTES

Pcs/kg is indicative, actual number may vary ± 5%. Preheat and interpass temperature <200°C.



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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

