DAIKOFCW 1CrMoB

FCAW

CREEP RESISTING STEELS
1CrMo

DESCRIPTION

Basic flux cored wire for flat and horizontal position

Basic flux cored wire for prolonged elevated temperature service up to about 550°C, especially in steam generation power plants. 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 applications. The wire shows excellent weldability in flat and horizontal position, smooth and bright bead, very low spatter losses, easy to remove slag and exceptional mechanical properties even at low temperatures.

SPECIFICATIONS

EN ISO 17634-A	CrMo1 B M 3	**AWS A5.36**	E80T5-M21PY-B2
Shielding	M21	**Positions**	PA, PB, PC
Current	DC+	**Packaging Type**	BS300 spool

ASME QUALIFICATIONS

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

CHEM. COMP. %	DEFAULT
C	0.06
Mn	1.1
Cr	1.2
P	0.02
S	0.02
Mo	0.5
Si	0.45
Cu	0.15

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	550	610
Yield strength $R_{p0.2}$ MPa	470	470
Elongation A (L_0=5d_0) %	17	18
Impact Charpy ISO-V	-	47J @ 20°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS	1.2 mm	1.6 mm
Ampere	100A - 300A	160A - 420A
Voltage	16V - 28V	31V - 35V
Packaging	Ø 1,2÷1,6mm	Ø 1,2÷1,6mm
Packaging Type	BS300 spool	BS300 spool

NOTES

Rutile version available upon request. Preheat and interpass temperature 150 to 250 °C, post-weld heat treatment of test piece 660 to 700°C for 1h.

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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