DAIKOWT 1CrMoS

GTAW

CREEP RESISTING STEELS
1CrMo

DESCRIPTION

Rod for 1¼% Cr-0.5% Mo creep-resistant steel

Rod characterized by a high percentage of silicon and manganese, specifically developed to improve weldability and deposit quality. Developed for continuous use at high temperatures up to about 550 °C, it is the ideal choice for steam generation power plants. Offers resistance to corrosion from sulfur-containing crude oil (250-450 °C), excellent performance against hydrogen attack, and low presence of harmful elements, ideal for chemical and petrochemical plants; used in pressure vessels for ammonia (NH_3) up to 450 °C.

SPECIFICATIONS

EN ISO 21952-A	W CrMo 1 Si	**AWS A5.28**	ER80S-G
Shielding	I1	**Positions**	PA, PB, PC, PD, PE, PF
Current	DC-	**Packaging Type**	5kg carton tube

ASME QUALIFICATIONS

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

CHEM. COMP. %	DEFAULT
C	0.08
Mn	1
Ni	0.04
Cr	1.2
P	0.008
S	0.01
Mo	0.47
Si	0.66
Cu	0.15

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	550	620
Yield strength $R_{p0.2}$ MPa	0	510
Elongation A (L_0=5d_0) %	0	22
Impact Charpy ISO-V	-	100J @ 20°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS	1.6 mm	2.4 mm
Ampere	95A - 135A	145A - 205A
Voltage	-	-
Packaging	Ø 1,2÷3,2mm	Ø 1,2÷3,2mm
Packaging Type	5kg carton tube	5kg carton tube

NOTES

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

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