DAIKOWT 2CrMoS

GTAW

CREEP RESISTING STEELS
2Cr1Mo

DESCRIPTION

Rod for 2¼% Cr-1% Mo steel resistant to creep

Rod characterized by a high content of silicon and manganese, designed to enhance weldability and weld metal quality. Developed for prolonged service at high temperatures up to about 600 °C, it is suitable for steam power plants (pipelines, valve bodies, turbine castings, boiler superheaters). It ensures corrosion resistance from sulfur-containing crude oil (250-450 °C) and excellent performance against hydrogen attack in chemical and petrochemical plants, such as hydrocrackers, coal liquefaction plants, and pressure vessels for ammonia (NH_3) up to 450 °C.

SPECIFICATIONS

EN ISO 21952-A	W CrMo 2 Si	**AWS A5.28**	ER90S-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)	4

CHEM. COMP. %	DEFAULT
C	0.07
Mn	1
Ni	0.08
Cr	2.5
P	0.01
S	0.01
Mo	0.9
Si	0.7
Cu	0.15

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	620	640
Yield strength $R_{p0.2}$ MPa	400	540
Elongation A (L_0=5d_0) %	15	21
Impact Charpy ISO-V	47J @ 20°C	150J @ 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 200 to 300 °C, post-weld heat treatment of test piece 690 to 750°C for 1h.

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DESCRIPTION

APPLICATION

The 2Cr1Mo consumables are designed to ensure durability and performance at high temperatures, up to 600 °C. These materials are widely used in steam power plants, essential for the construction of pipework, turbine casings, steam chambers, valve bodies, and boiler superheaters. Additionally, they are used in refineries for their resistance to corrosion caused by sulfur-containing crude oil, effectively operating at temperatures between 250 and 450 °C. In the chemical and petrochemical industry, these materials are crucial for resisting hydrogen attack. They are employed in the manufacture of hydrocrackers, coal liquefaction plants, and NH_3 pressure vessels operating up to 450 °C. Under welding conditions, the materials offer deposits with a hardness of 300 HV, ideal for build-up or hardfacing, metal-to-metal wear resistance, heavy impact, and repairs of P20 tool steel. A minimum preheat and interpass temperature of 250 °C is recommended, increased up to 300 °C for sections of considerable thickness, maintaining the temperature throughout the welding cycle and subsequently. Unless otherwise specified, it is imperative to perform post-weld heat treatment (PWHT), generally carried out at 690 °C, with duration varying based on the section thickness.

ALLOY TYPE

2¼Cr-1Mo alloyed steel consumables for elevated temperature service.

MICROSTRUCTURE

After PWHT, the microstructure consists of tempered bainite.

MATERIALS

EN W.Nr.: 11 CrMo 9-10 (1.7383), 10 CrMo 9-10 (1.7380), GS-18CrMo 9 10 (1.7379), GS-12CrMo 9 10 (1.7380), 6CrMo 9 10 (1.7385), 12CrMo 9 10 (1.7375)
ASTM: A387 Gr 21&22, A182 F22, A217 WC9, A234 WP22, A199 T21,T22, A200 T21,T22, A335 P22, A234 WP22