DAIKOWS MnMo

SAW

HIGH YIELD STRENGTH STEELS
80-90ksi

DESCRIPTION

Low alloy solid wire for high yield strength steels

High strength low alloy submerged arc welding wire with improved elevated temperature performance over that of C-Mn steels. Used for the fabrication of vessel and associated pipework demanding creep rupture strength and ductility up to about 450°C. Good toughness at low temperatures.

SPECIFICATIONS

EN ISO 14171-A	S4Mo	**AWS A5.23**	EA3
Shielding	DAIKOFLUX 490-W, 491-W	**Positions**	PA, PB, PC
Current	DC/AC	**Packaging Type**	K415 spool and drums.

ASME QUALIFICATIONS

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

CHEM. COMP. %	DEFAULT
C	0.07
Mn	1.6
Ni	0.06
Cr	0.08
P	0.01
S	0.01
Mo	0.4
Si	0.6
Cu	0.15

MECHANICAL PROPERTIES	PRODUCT
Tensile strength R_m MPa	640
Yield strength $R_{p0.2}$ MPa	510
Elongation A (L_0=5d_0) %	22
Impact Charpy ISO-V	70J @ -20°C

WELDING PARAMETERS	2.4 mm	3.2 mm	4.0 mm
Ampere	350A - 450A	430A - 530A	480A - 580A
Voltage	27V - 31V	27V - 31V	28V - 32V
Packaging	Ø 2,0÷4,0mm	Ø 2,0÷4,0mm	Ø 2,0÷4,0mm
Packaging Type	K415 spool and drums.	K415 spool and drums.	K415 spool and drums.

NOTES

SAW mechanical properties depend on wire/flux combination, refer to flux TDS.

V 01/2024

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DESCRIPTION

APPLICATION

Low-alloy high-strength steels offer excellent performance at elevated temperatures compared to C-Mn steels, making them ideal for manufacturing pressure vessels and related piping. These materials provide significant resistance to creep rupture and maintain ductility up to about 450 °C, also exhibiting good toughness at low temperatures. They are perfect for the production of high-strength steels intended for use in stress-relief conditions. These consumables, characterized by a low nickel content, are specifically designed for the process piping and fittings of offshore oilwell head, conforming to the requirements of the NACE MR0175 standard. This ensures optimal resistance to sulfide stress cracking in sour environments, combined with good toughness even at subzero temperatures. They are also used for the repair of medium-strength low-alloy steel castings, where only stress-relieving treatment, instead of normalizing and tempering (N+T), needs to be applied. The precise requirements for preheating and post-weld heat treatment (PWHT) depend on the base material to be welded. Typically, preheat/interpass temperatures are between 100 and 250 °C. A PWHT is required.

ALLOY TYPE

Low alloy steel consumables with MnMo additions for welding high strength steels with ultimate tensile strength to 620 MPa (90ksi).

MICROSTRUCTURE

In the stress relieved condition the microstructure consists of tempered bainite.

MATERIALS

EN W.Nr.: P295 G H, P355 G H, 16Mo2, 17Mo3, 14Mo6, S275, S355, S420, S275, S355, S420
ASTM: A 487 Gr 2A, 2B & 2C

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