DAIKOWM SG2 HQ

GMAW

CARBON STEELS
STRUCTURAL STEEL

DESCRIPTION

Copper coated GMAW wire for welding carbon and C-Mn steels with special surface treatment

Copper coated wires for welding carbon and carbon-manganese steels with tensile strength up to 500 MPa. The special surface treatment ensures consistent welding performance, low spatters and optimal rod feeding. Used for the fabrication of vessel, pipework and for structural steel applications. Due to the high current load capacity, the stable arc and the nearly residual free weld surface the wire offers the best conditions for productive welding processes. Excellent feeding characteristics provides high wire feed rates especially during robotic welding.

SPECIFICATIONS

EN ISO 14341-A	G 42 4 M21/C1 3 Si1	**AWS A5.18**	ER70S-6
Certifications	CE	**Shielding**	M21, C1
Positions	PA, PB, PC, PD, PE, PF, PG	**Current**	DC+
Packaging Type	Drums, B300, D200 and D100 spools.		

ASME QUALIFICATIONS

F-No (QW432)	6
A-No (QW442)	1

CHEM. COMP. %	DEFAULT
C	0.06
Mn	1.47
Cr	0.03
P	0.013
S	0.014
Si	0.82
Cu	0.03

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	490	560
Yield strength $R_{p0.2}$ MPa	420	460
Elongation A (L_0=5d_0) %	22	30
Impact Charpy ISO-V	27J @ -40°C	60J @ -40°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS	1.2 mm
Ampere	150A - 310A
Voltage	28V - 32V
Packaging	Ø 0,8÷1,6mm
Packaging Type	Drums, B300, D200 and D100 spools.

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STRUCTURAL STEEL

DESCRIPTION

APPLICATION

Carbon-manganese steels (C-Mn) are the backbone for a wide range of applications in the structural engineering industry. Welding of these steel structures can be successfully achieved provided the material composition is known, appropriate precautions are adopted, and qualified procedures are followed. Weldability varies based on the type of C-Mn steel, and there is a risk of defects such as hydrogen cracking, solidification cracking, or reheat cracking, which depend on specific operating conditions. The proposed consumables offer effective resistance to these issues, emphasizing the importance of a carefully defined welding process. Preheating and post-weld heat treatment (PWHT) are not always necessary, but their adoption depends on the type and thickness of the base material. The desired mechanical properties in the welded joint can be achieved using appropriate consumables. However, the complex structural transformations that occur during the welding thermal cycle require careful evaluation of critical parameters such as the toughness and hardness of the heat-affected zone (HAZ).

ALLOY TYPE

Consumables for welding mild and C-Mn steels of 340-510MPa tensile strength.

MICROSTRUCTURE

Predominantly ferrite.

MATERIALS

Carbon and carbon-manganese steels encompass a wide range of structural and pressure-grade materials commonly used in construction, mechanical engineering, and industrial plant applications. Among the EN-standardized grades are non-alloy structural steels intended for general use, known for their good weldability and progressively higher mechanical strength. The “P” grades, on the other hand, are pressure vessel steels typically used in boilers and heat exchangers. Equivalent ASTM specifications cover a similar scope of applications and are widely adopted internationally for structural components, piping, and fittings exposed to pressure or high temperatures. Lastly, API specifications are typical of the oil & gas sector, particularly for the production of pipelines used in hydrocarbon transport, offering increasing levels of mechanical strength and specific performance requirements.
EN W.Nr.: S 235 JR, S 235 J0, S 235 J2+N, S 275, S 275 J0, S 275 J2+N, S 355 JR, S 355 J0, S 355 J2+N, S 355 K2+N, P 235 GH, P 265 GH, P 295 GH
ASTM: A36, A106 gr. A, A106 gr. B, A106 gr. C, A139, A210 gr. A1, A210 gr. C, A234 gr. WPB, A334 gr. 1, A216 gr. WCA, A216 gr. WCB, A216 gr. WCC
API: A, B, X42, X52, X60

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