DAIKOWS S2Si

SAW

CARBON STEELS
STRUCTURAL STEEL

DESCRIPTION

Solid SAW wire for C-Mn steel

Copper coated wire for submerged arc welding of C-Mn steels, structural steels, pressure vessels steels, fine-grained steels, etc. Suitable for single pass or multipass welding of non alloy steels. It can be used for boilers fabrication, industrial machinery construction, car production. The minimum guaranteed yield reaches a maximum of 460Mpa for applications down to -40 ° C depending on the flux combination. The higher silicon content increases the welding fluidity and improve the bead appearance.

SPECIFICATIONS

EN ISO 14171-A	S2Si	**AWS A5.17**	EM12k
Certifications	CE	**Shielding**	DAIKOFLUX 470-W, 480-W, 490-W
Positions	PA, PB, PC	**Current**	DC/AC
Packaging Type	K415 spool and drums.		

ASME QUALIFICATIONS

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

CHEM. COMP. %

C	0.08
Mn	1.15
Ni	0.07
Cr	0.05
P	0.02
S	0.01
Mo	0.02
Si	0.5
Cu	0.1

MECHANICAL PROPERTIES

	PRODUCT
Tensile strength R_m MPa	510
Yield strength $R_{p0.2}$ MPa	410
Elongation A (L_0=5d_0) %	29
Impact Charpy ISO-V	60J @ -40°C

WELDING PARAMETERS

	2.4 mm	3.2 mm	4.0 mm
Ampere	350A - 450A	430A - 530A	480A - 580A
Voltage	26V - 30V	27V - 32V	27V - 32V
Packaging	Ø 2,0÷4,8mm	Ø 2,0÷4,8mm	Ø 2,0÷4,8mm
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.

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