G-TECH 96

SMAW

HIGH YIELD STRENGTH STEELS
110ksi

DESCRIPTION

Basic coated electrode for high strength low alloy steels

Basic coated, Mn-Ni-Mo-alloyed electrode with high ductility and crack resistant for high-strength fine-grained constructional steels. Low-temperature ductility at -50°C. Easy weldability in all positions except vertical-down. Very low hydrogen content. Typical applications include construction (HSLA), pressure vessels and pipes and generally load carrying structures having high demands on low weight. Preheat and interpass follow the rules required by the base material.

SPECIFICATIONS

ISO 18275-A	E 69 5 Mn2NiMo B 42	**AWS A5.5**	E11018-M
DIN	-	**Werkstoff Number**	-
Certifications	-	**Shielding**	-
Positions	PA, PB, PC, PD, PE, PF	**Current**	DC+, AC

ASME QUALIFICATIONS

F-No (QW432)	4
A-No (QW442)	12

FERRITE

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PREN

-

HARDNESS

-

CHEM. COMP. %

	DEFAULT
C	0.06
Mn	1.5
Ni	2.2
Cr	0.025
P	0.01
S	0.01
Mo	0.4
Si	0.3
Cu	0.3

MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R_m MPa	760	770
Yield strength $R_{p0.2}$ MPa	690	700
Elongation A (L_0=5d_0) %	16	20
Impact Charpy ISO-V	47J @ -50°C	47J @ -50°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS

	2.5 mm	3.2 mm	4 mm	
Ampere	70A - 90A	100A - 140A	140A - 180A	180A -
Voltage	-	-	-	
Packaging	52 pcs/kg	21 pcs/kg	14 pcs/kg	9 p
Packaging Type	Carton box	Carton box	Carton box	Carto

110ksi

DESCRIPTION

APPLICATION

Designed for welding quenched and tempered, as well as thermomechanically rolled fine-grained structural steels and high-strength tubes, these consumables yield exceptionally tough weld metal at low temperatures. Their notable deformability makes them well-suited for crane, building, and vehicle constructions. The precise addition of micro-alloying elements ensures excellent ductility and crack resistance despite the high strength. Preheat considerations should align with the base material and thickness, with materials intended for welding by these high-strength consumables typically requiring a minimum preheat of 100°C. Caution is advised with certain HSLA steels, as interpass temperatures exceeding 200°C may lead to reduced strength and toughness. Post-weld heat treatment (PWHT) requirements generally hinge on the base material and application.

ALLOY TYPE

Mn-Ni-Mo low alloy consumables for welding high strength steels with ultimate tensile strength up to 750 MPa (110 ksi).

MICROSTRUCTURE

The microstructure of all the consumables is predominantly ferrite; some will contain high proportions of acicular ferrite for optimum aswelded toughness

MATERIALS

For joining of quenched and tempered and thermomechanically rolled fine-grained structural steels. For use in building, crane and vehicle constructions.

EN W.Nr.: S690QL1, L555M, S690Q, S690QL, S690QL1, S650MC, S700MC.

ASTM: A 514 Gr. F, H, Q.

API: 5L X80, 5L X90, 5L X100.

PROPRIETARY: N-A-XTRA® M 700 (ThyssenKrupp), Strenx® 700 (SSAB).