G-TECH 253MA

SMAW

HIGH TEMPERATURE ALLOYS
253MA

DESCRIPTION

253MA coated electrode

This electrode deposits a weld metal very resistant to sulphidation under oxidising conditions. Resistance to nitriding and carburisation is satisfactory except under reducing conditions where higher nickel alloys are superior. Also satisfactory for dissimilar combinations of materials with related levels of alloying. No preheat required, it is desirable to keep interpass below 150°C. Applications include furnaces and furnace parts, high temperature flues, exhaust and heat recuperator systems, combustion nozzles.

SPECIFICATIONS

EN ISO 3581-A	E 21 10 N	**Shielding**	-
Positions	PA, PB, PC, PD, PE, PF	**Current**	DC+;
Packaging Type	Carton box		

FERRITE

~5 FN

PREN

24.73

CHEM. COMP. %	DEFAULT
C	0.06
Mn	0.8
Ni	16
Cr	22
N	0.15
P	0.005
S	0.003
Mo	0.1
Si	1.5
Cu	0.2

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	-	700
Yield strength $R_{p0.2}$ MPa	-	540
Elongation A (L_0=5d_0) %	-	38
Impact Charpy ISO-V	-	57J @ 20°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS	2.5 mm	3.2 mm	4.0 mm
Ampere	60A - 90A	80A - 110A	100A - 150A
Voltage	-	-	-
Packaging	55 pcs/kg	30 pcs/kg	19 pcs/kg
Packaging Type	Carton box	Carton box	Carton box

NOTES

Pcs/kg is indicative, actual number may vary ± 5%.

253MA

DESCRIPTION

APPLICATION

Designed to match with equivalent alloys, this material offers excellent heat resistance and significant oxidation stability up to approximately 1100 °C. Its resistance to sulfidation under oxidizing conditions is superior compared to many other heat-resistant alloys with a higher nickel content. Resistance to nitriding and carburizing is also satisfactory, except in reducing conditions, where alloys with higher nickel content are more performant. The product is also satisfactory for welding dissimilar material combinations with related alloy levels. However, controlling hot cracking in welding metals with high silicon content depends on the presence of ferrite during solidification. Therefore, it is crucial to pay attention when evaluating dilution with dissimilar materials that might promote fully austenitic solidification, as in the case of 310-type alloys and other high-nickel content alloys. Combinations with titanium-stabilized and especially niobium-stabilized alloys should be avoided due to the risk of embrittlement from the formation of silicon-rich eutectics. Main applications include furnaces and related components, high-temperature chimney flues, exhaust and heat recovery systems, as well as combustion nozzles. No preheating is required; it is recommended to maintain the interpass temperature below 150 °C.

ALLOY TYPE

Iron based 22%Cr-10%Ni alloy with controlled additions of C, Si, N and rare earths, predominantly cerium, with excellent oxidation resistance.

MICROSTRUCTURE

Austenite with controlled ferrite of about 5FN.

MATERIALS

EN W.Nr.: 1.4818 (X6CrNiSiNCe 19-10), 1.4828 (X15CrNiSi 20-12), 1.4835 (X9CrNiSiNCe 21-11-2), 1.4893 (X8CrNiSiN 21 11), 1.4891 (X4CrNiSiN 18 10)
UNS: S30815
PROPRIETARY: 253MA (Outokumpu)