



# 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

ISO 3581-A	E 21 10 N	AWS	-
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	-
Positions	PA, PB, PC, PD, PE, PF	Current	DC+;

ASME QUALIFICATIONS	FERRITE	PREN	HARDNESS
F-No (QW432)	-	~5 FN	24.73
A-No (QW442)	-		

CHEM. COMP. %	DEFAULT	MECHANICAL PROPERTIES	MIN	VARIANT
C	0.06	Tensile strength R <sub>m</sub> MPa	-	700
Mn	0.8	Yield strength R <sub>p0.2</sub> MPa	-	540
Ni	16	Elongation A (L <sub>0</sub> =5d <sub>0</sub> ) %	-	38
Cr	22	Impact Charpy ISO-V	-	57J @ 20°C
N	0.15	Impact Charpy ISO-V	-	-
P	0.005			
S	0.003			
Mo	0.1			
Si	1.5			
Cu	0.2			

  

WELDING PARAMETERS	2.5 mm	3.2 mm	4 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

V 01/2024



The information in this datasheet is the result of detailed research and is considered accurate as of the publication date. However, we cannot guarantee its complete accuracy, and it is subject to change without notice. Actual results may vary due to many factors like welding procedures, material composition, temperature conditions, bevel configuration, and specific manufacturing techniques. We accept no liability for any errors or omissions in this datasheet. For the most current information, please visit [www.daikowelding.com](http://www.daikowelding.com).



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DESCRIPTION

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## APPLICATION

Crafted to align with equivalent alloys, this welding material provides robust hot strength coupled with outstanding oxidation resistance up to around 1100°C. Its resistance to sulfidation under oxidizing conditions surpasses many higher nickel heat-resistant alloys. While demonstrating satisfactory resistance to nitriding and carburization, it falls short under reducing conditions where higher nickel alloys excel. Furthermore, it proves suitable for dissimilar combinations of materials with similar alloying levels. Yet, the management of hot cracking in this high-silicon weld metal relies on the presence of some ferrite during solidification. Thus, caution is warranted when contemplating dilution by dissimilar materials that might encourage fully austenitic solidification, as observed in type 310 and other high nickel alloys. Avoiding combinations with alloys stabilized with Ti and especially Nb is recommended to avert potential embrittlement by Si-rich eutectics with these elements. Applications encompass furnaces, furnace parts, high-temperature flues, exhaust and heat recuperator systems, and combustion nozzles. No preheating is necessary and maintaining an interpass temperature below 150°C is advisable.

## 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).

