



# DAIKOWM 253MA



HIGH TEMPERATURE ALLOYS  
253MA

## DESCRIPTION

Iron based 22%Cr-10%Ni solid wire with excellent oxidation resistance

Formulated to match equivalent alloys with good hot strength coupled with excellent resistance to oxidation up to about 1100°C. The weld metal resistance to sulphidation under oxidising conditions is superior to many higher nickel heat-resistant alloys but not intended for wet corrosion applications. Combinations with alloys stabilised with Ti and Nb should be avoided, due to the possibility of embrittlement by Si-rich eutectics with these elements. Applications include furnaces and furnace parts, high temperature flues, exhaust and heat recuperator systems, combustion nozzles.

## SPECIFICATIONS

Shielding	M12, M13	Positions	PA, PB, PC, PD, PE, PF, PG
Current	DC+	Packaging Type	Drums, B300, D200 and D100 spools.

## FERRITE

~5 FN

## PREN

23.56

CHEM. COMP. %	DEFAULT	MECHANICAL PROPERTIES	PRODUCT	
C	0.07	Tensile strength R <sub>m</sub> MPa	700	
Mn	0.6	Yield strength R <sub>p0.2</sub> MPa	540	
Ni	10	Elongation A (L <sub>0</sub> =5d <sub>0</sub> ) %	38	
Cr	21	Impact Charpy ISO-V	57J @ 20°C	
N	0.16			
		WELDING PARAMETERS	1.0 mm	1.2 mm
P	0.025	Ampere	170A - 210A	180A - 260A
S	0.015	Voltage	24V - 28V	26V - 30V
Si	1.6	Packaging	Ø 0,8÷1,6mm	Ø 0,8÷1,6mm
		Packaging Type	Drums, B300, D200 and D100 spools.	Drums, B300, D200 and D100 spools.

## NOTES

Ce=0,005%





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DESCRIPTION

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## 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 (X6CrNiSiNc 19-10), 1.4828 (X15CrNiSi 20-12), 1.4835 (X9CrNiSiNc 21-11-2), 1.4893 (X8CrNiSiN 21 11), 1.4891 (X4CrNiSiN 18 10)

**UNS:** S30815

**PROPRIETARY:** 253MA (Outokumpu)

