DAIKOWT 253MA

GTAW

HIGH TEMPERATURE ALLOYS
253MA

DESCRIPTION

Rod with 22% Cr-10% Ni iron base with excellent oxidation resistance

Developed for welding equivalent alloys requiring excellent thermal resistance and outstanding oxidation resistance up to approximately 1100 °C. The weld metal shows superior sulfuration resistance compared to many nickel-based alloys intended for high-temperature service, although it is not recommended for applications in moist, corrosive environments. It is recommended to avoid use in combination with Ti and Nb stabilized alloys, to prevent possible embrittlement phenomena from silicon-rich eutectics. Typical applications include furnaces and related components, high-temperature flue pipes, exhaust and heat recovery systems, combustion nozzles.

SPECIFICATIONS

EN ISO 14343-A	W 21 10 N	**Werkstoff Number**	~1.4829
Shielding	I1	**Positions**	PA, PB, PC, PD, PE, PF
Current	DC-	**Packaging Type**	5kg carton tube

FERRITE

~5 FN

PREN

23.56

CHEM. COMP. %	DEFAULT
C	0.07
Mn	0.6
Ni	10
Cr	21
N	0.16
P	0.025
S	0.015
Si	1.6

MECHANICAL PROPERTIES	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

WELDING PARAMETERS	1.6 mm	2.4 mm
Ampere	95A - 135A	145A - 205A
Voltage	-	-
Packaging	Ø 1,6÷3,2mm	Ø 1,6÷3,2mm
Packaging Type	5kg carton tube	5kg carton tube

NOTES

Ce=0,005%

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)