



DAIKOWT 347H



AUSTENITIC STAINLESS STEELS
347H

DESCRIPTION

Rod for joining base materials 321 and 347 for high service temperature applications

These Cr-Ni consumables, stabilized with niobium, are designed for welding titanium- or niobium-stabilized stainless steels, such as AISI 321 and 347. The presence of Nb helps prevent intergranular corrosion, even under particularly severe service conditions. The material is also suitable for cladding applications on mild steels, using a 309 intermediate layer as a transition metal. However, it should be noted that if dilution from the base metal results in a low-ferrite or fully austenitic weld metal, the cracking sensitivity may increase significantly. A carbon content between 0.04 and 0.08 % provides the joint with enhanced mechanical and structural strength at elevated temperatures, up to approximately 800 °C.

SPECIFICATIONS

EN ISO 14343-A	W 19 9 Nb	AWS A5.9	ER347
Shielding	I1	Positions	PA, PB, PC, PD, PE, PF
Current	DC-	Packaging Type	5kg carton tube

ASME QUALIFICATIONS	FERRITE	PREN	HARDNESS
F-No (QW432)	6	2-9 FN	19.83
A-No (QW442)	8		84HRB

CHEM. COMP. %	MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
C	0.055	Tensile strength R _m MPa	550 660
Mn	1.5	Yield strength R _{p0.2} MPa	350 450
Ni	10	Elongation A (L ₀ =5d ₀) %	25 42
Cr	19.5	Impact Charpy ISO-V	- 100J @ -50°C
Nb	0.6	Impact Charpy ISO-V	- -
P	0.02		
S	0.01		
Mo	0.1		
Si	0.35		
Cu	0.07		

WELDING PARAMETERS	1.6 mm	2.4 mm
Ampere	80A - 100A	110A - 160A
Voltage	-	-
Packaging	Ø 1,0÷4,0 mm	Ø 1,0÷4,0 mm
Packaging Type	5kg carton tube	5kg carton tube



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APPLICATION

Material 347H is designed for welding high-carbon 18/8 type stainless steels, specifically titanium-stabilized and niobium-stabilized steels such as 321H and 347H. Its main applications include ****catalytic crackers (known as cat crackers), cyclones, transfer lines, furnace components, steam piping, headers for superheaters, and various components of gas and steam turbines****. These are commonly used in petrochemical plants, chemical processes, and power generation industries. It is important to note that alloy 16.8.2 has been developed as a more ductile alternative to 347H consumables, to mitigate problems in the Heat Affected Zone (HAZ) in service, particularly in 347H base materials with thicknesses exceeding 12 mm. Therefore, when welding thicker sections of 321H/347H, 16.8.2 consumables are preferred. For welding 321/347 intended for general applications requiring corrosion resistance up to approximately 400 °C, the use of 347 or 308L consumables is recommended. For cryogenic applications requiring a Charpy lateral expansion greater than 0.38 mm at -196 °C, it is recommended to use an unstabilized, low-carbon filler metal with controlled ferrite. No preheating or Post-Weld Heat Treatments (PWHT) are required, while the maximum interpass temperature is set at 250 °C.

ALLOY TYPE

Controlled, high carbon Nb stabilized stainless steel for elevated temperature service.

MICROSTRUCTURE

Austenite with 2-9FN, typically 4FN (solid wire typically 8FN).

MATERIALS

EN W.Nr.: 1.4941 (X6CrNiTiB18-10), 1.4961 (X8CrNiNb16-13), 1.4878 (X8CrNiTi18-10)

ASTM: 321H, 347H

UNS: S32109, S34709

