



UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	TURBALOY® 321 HQ-GRADE GTAW SOLID BARE WELDING WIRE IRON BASE		ISO 9001 AS 9100		DATA SHEET 5689	
			Revision A			
CROSS-REFERENCE CONFORMANCE SPECIFICATIONS	AMS 5689 (Chemistry Only) UNS S32100		18.Cr 10.5Ni 0.40Ti 321SS Alloy 30321			
METALLURGICAL BACKGROUND INFORMATION	TURBALOY® 321 undergoes a series of proprietary abrading and cleaning processes to remove all surface contaminants. These manufacturing processes ensure a consistent ultra-clean weld wire surface. TURBALOY® 321 is a Titanium stabilized, austenitic stainless engineering alloy used to fabricate base metal of similar composition. It is non-hardenable.					
MATERIALS TO BE WELDED AND APPLICATION	AMS 5645, 5510, 5570, 5576, 5559, 5557. ASTM A167, A240, A213, A249, A 269, A276, A314, A479, A473. Aircraft collector rings, exhaust manifolds, expansion joints. <i>NOTE:</i> Up to 70% of Ti can be lost in welding. GTAW is best for preserving Ti. Often AMS 5680 can be substituted as a filler wire. Weld with minimum heat input and apply stringer beads.					
WIRE CHEMISTRY WT%	Carbon	-	0.08	Nickel	9.00	12.00
	Manganese	-	2.00	Titanium	5x(C+N)	0.70
	Silicon	0.40	1.00	Molybdenum	-	0.75
	Sulfur	-	0.030	Copper	-	0.75
	Phosphorus	-	0.040	Nitrogen	-	0.10
	Chromium	17.00	19.00	Iron		Balance
WELD PROPERTIES	Melting point: 2600°F Hardness: annealed sheet 78HRB			Density: 7.9 g m/cc		
SIZES AND FORMS AVAILABLE	STRAIGHT LENGTHS			SPOOLED WIRE		
	5 lb. (2.2kg) packs 36" (914mm) lengths Flag tagged for traceability. (Double tagging and other lengths on request) Wide range of diameters.			Precision layer wound, with controlled cast and helix 12" (300mm) diameter spools standard 8" (200mm), 4" (100mm) and proprietary spool sizes on request. Wide range of diameters and spool weights.		
PACKAGING	Sealed polyethylene envelopes. (Desiccants optional)					

DFARS Compliant

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