



UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	TURBALOY[®] 414 LC MC-GRADE GTAW SOLID BARE WELDING WIRE COBALT BASE		ISSUED JANUARY 2007		DATA SHEET 1745 (2)	
			REVISION NO. A			
CROSS-REFERENCE CONFORMANCE SPECIFICATIONS	FSX 414LC USW 1745V		52Co 29.5Cr 10Ni 7W 0.70Mn GE B50A823			
METALLURGICAL BACKGROUND INFORMATION	<p>TURBALOY[®] 414 LC is produced by vacuum induction melting and re-melting techniques. The final wire is manufactured by special lubricant-free, roller-die forming followed by surface abrasion and cleaning processes.</p> <p>These manufacturing processes ensure consistent metallurgical integrity of the alloy with regard to control of trace elements and physical purity of the welding wire surface.</p> <p>TURBALOY[®] 414 LC is a Co-Cr-Ni-W-C alloy with elevated temperature wear and oxidation resistance. Similar composition to AMS 5789 but with greater resistance to crack propagation in service.</p>					
MATERIALS TO BE WELDED AND APPLICATIONS	<p>Nozzle guide vane refurbishment. GE land based turbines</p> <p>GE B50A823</p> <p>Casting repair.</p>					
WIRE CHEMISTRY WT%	Carbon	0.10	0.15	Zirconium	-	0.01
	Silicon	0.60	1.00	Copper	-	0.15
	Manganese	0.60	1.00	Boron	-	0.003
	Sulfur	-	0.008	Lanthanum	0.02	0.07
	Phosphorus	-	0.010	Oxygen	-	0.005 (50ppm)
	Chromium	28.5	30.5	Nitrogen	-	0.0100 (100ppm)
	Nickel	9.5	11.5	Hydrogen	-	0.0010 (10ppm)
	Tungsten	6.50	7.6	Cobalt		Balance
	Iron	-	0.50			
WELD PROPERTIES						
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 pool sizes on request. Wide range of diameters and spool weights.			
PACKAGING	Sealed, air-evacuated, argon purged Vapor Barrier envelopes with desiccants ensure full protection from atmospheric contamination and prolonged shelf-life.					

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