



Dunkirk Specialty Steel, LLC.

830 Brigham Road | Dunkirk, NY 14048

(716) 366-1000

Materials Testing Laboratory  
Heat Treating

Material Certification

MLI ORDER: 0075002  
PART NUMBER: 72221181  
SERIAL NUMBER: DNK-0075002-G23806-92938

Certificate of Conformance - Part 1 of 2  
P.O. DATE: 12/21/2016

Part 1 - PAGE NUMBER: 1 of 1  
PRINTED: 3/20/17 14:25

Material Description: STAINLESS STEEL ROUND BAR N60 EAF+AOD ANNEALED CENTERLESS GROUND ASTM A484-16, ASTM A262-15 (Practice E), AMS 5848D, ASTM A276-16a (S21800 condition A), ASTM A193-16 (B86/S21800 Class 1C), ASTM A479-16a (S21800 condition A), UNS# S21800, ABB STAL 23 67 52 Ed. 1 (08/98),

Size 1.5000 DIAM X 132.0000 MIN/ 156.0000 MAX RANDOM LENGTH

Head Number	C	MN	SI	S	P
G23806	0.068	8.32	4.16	0.001	0.029
	CR 16.36	W <0.05	V 0.07	NI 8.42	MO 0.40
	CO 0.10	CU 0.42	SN 0.004	PB	CB 0.03
	TA	AL <0.01	TI 0.02	FE	B
	O	MG	CA	SE	ZR
	AG	BI	N 0.16	H	CQ

TENSILE: DIR. T/S KSI 107.3 0.2% Y/S KSI 52.9 %EL 64.81 %R/A 72.15  
LONG.

HARDNESS: 200 HBW

GRAIN SIZE: 7.5 (ETCHANT: 40/30/30 HCL ACID/ACETIC ACID/NITRIC ACID, MAGNIFICATION 100X)

MACRO ETCH: as-received - TEST WAS PERFORMED BY UNIVERSAL STAINLESS, BRIDGEVILLE, PA  
S - 1 R - 1 C - 1

MICROSTRUCTURE: ACCEPTABLE  
INTERGRANULAR CORROSION TEST: O.K. (ASTM-A262-15 PRACTICE E) - TEST WAS PERFORMED BY NSL METALLURGICAL TESTING LAB

THIS MATERIAL WAS SOLUTION ANNEALED AT A MINIMUM TEMPERATURE OF 1950°F +/- 25°F FOR AN APPROPRIATE TIME, FOLLOWED BY WATER QUENCH

/S/Amy Giordano  
*Amy Giordano*

/S/Neel Shah  
*Neel Shah*

Date: 03/20/17

Prepared by: Amy Giordano

Neel Shah, Metallurgist

Melted and manufactured in compliance with DFARS 252.225-7009 ALT 1. Melted and chemistry tested by USAP in Bridgeville, PA., USA. Material Manufactured in USA. Certification IAW DIN 50 049/EN 10204 3.1. Material complies with EU directive 2002/95/EC (RoHS). The test results shown are certified to be a correct statement of records that were derived from testing samples of the material. Results meet applicable specifications. No welding was performed on the material supplied on this order. Material is free from mercury contamination. Material has not been cleaned prior to heat treatment. Material is of NAFTA origin. This material was produced under the Dunkirk Specialty Steel Quality Management System documented in QP Manual, Rev. 12 dated 12/21/2016, conforming to NCA-3800. Material testing was performed in accordance with applicable (latest revision) in accordance with ASTM A370, A604, E8, E10, E18, E23, E45, E57, E88, E139, E381, E572, E1019, STP-CHEM-GDS, E1444, & AMS 2315. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes, including Federal Law, Title 18, Chapter 47. Test results are maintained in company records. This certification shall not be produced, except in full, without written approval of Dunkirk Specialty Steel. Material is free from Radioactive Contamination. Safety Data Sheets (SDS) are available at www.univstainless.com. If applicable: Decarb test - furnace atmosphere is Argon; Corrosion Test (ASTM A262 Practice A) - Etchant used -10% Oxalic Acid; Microstructure @ magnification 250 - 500X. Unless otherwise stated, Percentage Elongation is measured in 4D. Speed of Testing: 0.005 in/in/min.; 0.05 in/in/min.