

Certificate of Test

Cert Date: 1/29/14
 REVISED COPY ORIGINAL SENT 01/11/13

A12313 (19")

L D T O	COPPER & BRASS SALES INC 22355 WEST ELEVEN MILE ROAD SOUTHFIELD, MI 48034	S H I P T O	COPPER & BRASS SALES 4143 101ST STREET EDMONTON AB T6E 0A4, CANADA	CIL ORDER NO. P5-29856-2-01
				HEAT NO. A12313
	CIL INSIDE SALES REP. L HINMAN	SHIPPED FROM SOLVAY, NY USA	CUSTOMER P.O. 5400160415-R05	CUSTOMER PART NO. SSRD01614

QUANTITY SHIPPED 5878 LBS.

DESCRIPTION OF MATERIAL

SIZE

CRU 316/316L RTA 19.000 RD
 AMS-5648-K AMS-5653-F ASME SA-479-10 ASTM-A276-10 ASTM-A479-11 CBS 316LNACE-0 (EX. 3.2, 3.4, 5.2.1) ANSI/NACE MR0175/ISO 15156-3 2ND ED 2009-10-15

CHEMICAL ANALYSIS

C	MN	P	S	SI	NI	CR	MO	CU	N
.030	1.72	.025	.022	.63	10.56	16.56	2.18	.30	.082

AS SHIPPED PROPERTIES

HARDNESS

BHN MID-RADIUS 141 RB SURFACE 78
 LONGITUDINAL
 TENSILE PSI 83,170 GRAIN SIZE # 3.5
 YLD. 2% PSI 38,760
 % ELONG4D 59.2 INTERGRANULAR CORROSION TEST OK PER ASTM A262, PRACTICE A FOR E
 RED/AREA% 76.6

AS SHIPPED MATERIAL CONDITION

MATERIAL ANNEALED AT 1950 DEG. F. - WATER QUENCHED.
 REDUCTION RATIO: 2.6:1

ADDITIONAL MATERIAL STATEMENTS

MATERIAL MELTED BY ELECTRIC FURNACE AND ARGON OXYGEN DECARBURIZATION REFINED.
 ULTRASONIC PERFORMED TO ASTM-388/API6A - RESULTS ACCEPTABLE

THANK YOU FOR SELECTING A QUALITY PRODUCT MELTED AND MANUFACTURED WITH PRIDE AT CRUCIBLE INDUSTRIES LLC LOCATED IN SOLVAY, NY 13209, USA. WE PROVIDE MATERIAL THAT IS FREE FROM MERCURY CONTAMINATION AND RADIATION AT THE TIME OF SHIPMENT. NO WELD REPAIR IS DONE. CRUCIBLE INDUSTRIES LLC HOLDS A CERTIFICATE OF REGISTRATION TO ISO 9001:2008, PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC 7/2 ANNEX 1, PARAGRAPH 4.3 AND WORKS UNDER THE GUIDELINES OF NCA 3800 USING QP MANUAL DATED 8/28/12. WE ARE COMPLIANT WITH EU DIRECTIVE 2002/95/EC (ROHS), REACH, EN 10204 2004 3.1, AND DFARS 252.225.7001, 7002, 7008, 7009. MATERIAL IS OF NAFTA ORIGIN. MATERIAL TESTING IS PERFORMED ON A PROLONGATION OF THE BAR IN COMPLIANCE WITH INDUSTRY STANDARDS ASTM A370 E8, E10, E18, E23, E45, E112, E381, E604, E572, E1019, ANDE1088. 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. PRODUCTS, TECHNICAL DATA, TECHNOLOGY, AND SERVICES OF CRUCIBLE INDUSTRIES LLC ARE SUBJECT TO U.S. EXPORT CONTROLS UNDER THE APPLICABLE LAWS AND REGULATIONS OF THE UNITED STATES.

THE ABOVE MATERIAL WAS MANUFACTURED AND TESTED ACCORDANCE WITH ABOVE SPECIFICATIONS AND IS IN CONFORMANCE WITH THE SPECIFICATION REQUIREMENTS.

CRUCIBLE INDUSTRIES LLC

CERTIFIED BY



WILLIAM MASTROE - MANAGER OF QUALITY AND PROCESS ENGINEERING