

A12313(21)

O 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. P5-29857-2-01
	CIL INSIDE SALES REP. L HINMAN			SHIPPED FROM SOLVAY, NY USA		CUSTOMER P.O. 5400160415-R05

QUANTITY SHIPPED 6546 LBS.

DESCRIPTION OF MATERIAL

CRU 316/316L RTA
 AMS-5648-K AMS-5653-F ASME SA-479-10 ASTM-A276-10 ASTM-A479-11 CBS 316L NACE-0 (EX.
 3.2, 3.4, 5.2.1), NACE MRO175-03

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 149 HRC SURFACE 4.7

LONGITUDINAL

TENSILE PSI 78,230 GRAIN SIZE # 4.5
 YLD. 2% PSI 36,370
 % ELONG4D 64.4 INTERGRANULAR CORROSION TEST OK PER ASTM A262, PRACTICE A FOR E
 RED/AREA% 78.5

AS SHIPPED MATERIAL CONDITION

MATERIAL ANNEALED AT 1950 DEG. F. AT TEMP 30 MINUTES - WATER QUENCHED.
 REDUCTION RATIO: 2.3:1

ADDITIONAL MATERIAL STATEMENTS

MATERIAL MELTED BY ELECTRIC FURNACE AND ARGON OXYGEN DECARBURIZATION REFINED.

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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,ANDE1086. 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, CHAPTER47.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 P. Mastrol

WILLIAM MASTROF - MANAGER OF QUALITY AND PROCESS ENGINEERING

From: Copper and Brass Sales CA

Cust. TECHNOWORX INC

Del.: 2402731175

CstAr

CstOr Darko

Wgt.: 314.000 LB

Date 10/03/2013

John R. Zambetti