

# Certificate of Test **A12381 (18")**

Cert Date: 06/27/13

REVISED COPY ORIGINAL SENT 02/08/13

S 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. P5-29855-2-R1
				HEAT NO. A12381
CIL INSIDE SALES REP. L HINMAN		SHIPPED FROM SOLVAY, NY USA		CUSTOMER P.O. 5400160415-R05
QUANTITY SHIPPED 5688 LBS.				CUSTOMER PART NO. SSRD02147

**DESCRIPTION OF MATERIAL**

SIZE  
 CRU 316/316L RTA 18.000 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) NACE-MR-01-75-03

**CHEMICAL ANALYSIS**

C	MN	P	S	SI	NI	CR	MO	CU	N
.029	1.79	.025	.024	.47	10.33	16.45	2.15	.20	.080

**AS SHIPPED PROPERTIES**

HARDNESS  
 BHN 141 RC 11.1  
 LONGITUDINAL  
 TENSILE PSI 81,000 GRAIN SIZE # 4.0  
 YLD. 2% PSI 35,320  
 % ELONG4D 59.4 INTERGRANULAR CORROSION TEST OK PER ASTM A262, PRACTICE A FOR E  
 RED/AREA% 76.3

**AS SHIPPED MATERIAL CONDITION**

MATERIAL ANNEALED AT 1950 DEG. F. FOR 30 MINUTES AND WATER QUENCHED.  
 REDUCTION RATIO: 2.9:1

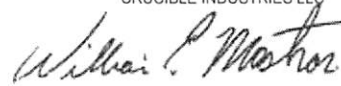
**ADDITIONAL MATERIAL STATEMENTS**

MATERIAL MELTED BY ELECTRIC FURNACE AND ARGON OXYGEN DECARBURIZATION REFINED.

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 MASTROE - MANAGER OF QUALITY AND PROCESS ENGINEERING