

MT # 693080

H00160 3  
SS  
R9132



ORDER NO.  
**441313**

CASTLE METALS  
3400 N WOLF RD  
FRANKLIN PARK, IL 60131-1319

**MATERIAL CERTIFICATION**  
WE'RE CERTIFIED ISO 9001:2000

CUSTOMER ORDER NUMBER 01-23722	ITEM 1	OF 1	CUSTOMER JOB NUMBER	DATE SHIPPED
PART NUMBER A/C 31023	B/P NUMBER		F.O.B. SCOT FORGE VIA	DATE PREPARED 07/15/2004

**DESCRIPTION OF MATERIAL AND SPECIFICATIONS**

ROUND BAR  
T-316/T-316L STAINLESS STEEL PER 3316-98 REV 20  
IN ACCORDANCE WITH:  
AMS 5648K  
AMS 5653F  
ASME SA-182 2001 ED 2003 AD GRADE F316/F316L  
ASME SA-193 2001 ED 2003 AD CLASS 1 GRADE B8M  
ASME SA-479 2001 ED 2003 AD TYPE 316/316L CONDITION "A"  
ASME SA-484 2001 ED 2003 AD  
ASTM A-182-04 GRADE F316/316L  
ASTM A-193-04 CLASS 1 GRADE B8M  
ASTM A-276-04 TYPE 316/316L CONDITION "A"  
ASTM A-479-04 TYPE 316/316L CONDITION "A"  
ASTM A-484-03a  
AMS-QQ-S 763 DATED 7-98  
SAE-AMS-S-7720 DATED SEP 1997 (EXCEPT COPPER .75 MAX)  
UNS S31600, S31603  
13" O.D. X 132/156" R/L  
SOLUTION ANNEAL FROM 1900 DEGREES F MINIMUM  
STRAIGHTNESS - 1/8" IN 5 FEET  
MECHANICAL TEST REQ'D TO MEET  
75,000 TENSILE 30,000 YIELD ( 0.2% OFFSET)  
30 % ELOG. 50 % RED  
MICRO EXAM REQUIRED PER ASTM E-112 FOR GRAIN SIZE  
MACROETCH REQUIRED PER AMS-S-7720 AMEND 1  
INTERGRANULAR CORROSION TEST REQUIRED PER  
ASTM A-262, PRACTICE E  
ROUGH MACHINE TO SIZES SHOWN - WITH 500 RMS  
TOLERANCE : PLUS 7/32" MINUS 0"  
PAINT BOTH ENDS 1/2 BROWN & 1/2 GREEN

NO. OF PIECES 1 HEAT NUMBER G93080 (MILL - UNIVERSAL STAINLESS)  
Additional prefix letter stamped on product with heat (MSDS PREVIOUSLY SENT)  
number is for SCOT FORGE inventory purposes only and  
not relevant to heat number

GRAIN	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	N
	0.019	1.72	0.023	0.018	0.32	10.26	16.37	2.06	0.28	0.090

CASTLE METALS I.P.

REC'D 7/19/04 IAC 31023  
APPROVED BY

THIS IS TO CERTIFY THAT THE REPORTED LADLE ANALYSIS (AND/OR TESTS) SHOWN ON THIS REPORT ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY

APPROVED BY:   
RICHARD GABRYS  
QUALITY ASSURANCE DIR.

H00160 3 N  
SS  
R9192  
HEAT# G9308U



ORDER NO.  
**441313**

CASTLE METALS  
3400 N WOLF RD  
FRANKLIN PARK, IL 60131-1319

**MATERIAL CERTIFICATION**  
WE'RE CERTIFIED ISO 9001:2000

MECHANICAL PROPERTIES

PCS	TENSILE PSI	YIELD PSI (.2% OFFSET)	ELONGATION IN 2 - %	REDUCTION OF AREA %	COMMENTS
1	81,500	38,900	61.4	76.3	

HARDNESS RESULTS

PCS	BRINELL 3000 KG LOAD
1	187

SOLUTION ANNEAL AT 1925 DEGREES FOR 9 HOURS

ALL STEEL HAS BEEN MELTED AND MANUFACTURED IN THE UNITED STATES

4.4:1 REDUCTION FROM ORIGINAL INGOT

CAST METHOD INGOT

INTERGRANULAR CORROSION PER ASTM A-262 = 0% DITCHING OBSERVED

We certify that the material listed was not processed with mercury bearing instruments and/or equipment which might cause contamination, nor was mercury handled in the immediate vicinity during the manufacturing process.

Testing, inspection, and documentation in accordance with EN 10204, Section 3.1.B

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