

# SCOT FORGE



8001 Winn Rd., Box 8  
Spring Grove, IL 60061  
847/587-1000  
FAX 847/587-2000

## PO # 34-12417 MATERIAL CERTIFICATION

H00160 3 SS  
Heat # G15087

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<b>S O T L O D</b>	CASTLE METALS 3400 N WOLF RD FRANKLIN PARK, IL 60131-1319	Shipping Information	Material Cert Number
		G15087	622225 f5039R0
			Revision Date
			01/27/2009

<b>Item 1 of 1</b>	
<b>Material</b>	316/316L Stainless Steel in accordance with Castle Metals specification 3316-98 Rev 30, ASTM A 193-07 (except paragraph 7.3), ASME SA 193 (except paragraph 6.3) 2007 Edition, ASTM A 276-08, ASTM A 479-06a, ASME SA 479 2007 Edition, Chemistry of ASTM A 182-08a, Chemistry of ASME SA 182 2007 Edition, AMS 5648K, AMS 5653F, AMS QQ-S-763B, NACE MR0175-2003
<b>Heat Treat</b>	per Specification
<b>Destructive Test</b>	per Specification
<b>Finish</b>	Rough Machine to sizes shown Straightness = 1/8" in 5 FT.
<b>Reference</b>	Access Code: 31022
<b>Size</b>	OD Random Len (inches) 11 132 to 156
<b>Surface</b>	500 RMS Saw Cut

<b>Heat Number</b>	<b># of Pieces</b>	<b>(MILL - UNIVERSAL STAINLESS)</b>
G15087	2	MSDS Previously Sent

Note: Additional prefix letter stamped on product with heat number is for our inventory purposes only and not relevant to heat number.

**Chemical Composition (Wt. %)**

C	Mn	P	S	Si	Ni	Cr	Mo	Cu	V	N
0.020	1.69	0.028	0.021	0.37	10.38	16.22	2.11	0.40	0.11	0.082

**Mechanical Properties:**

Pcs	Tensile PSI	Yield <sup>1</sup> PSI	Elongation in 2 - %	Reduction of Area %	Comments
1	80,275	40,621	59.5	78.7	LONGITUDINAL

<sup>1</sup>(Offset: .2%)

**Brinell Hardness Results:**

Pcs	3000 Kg Load
1	149
1	183

CASTLE METALS EDMONTON  
DATE RCVD 02/09/09  
ACC 31022  
APPROVED BY *AR*

7420-51 Ave Edmonton, AB T6B 3C1

Approved by: *Richard Gabrys*  
RICHARD GABRYS  
QUALITY ASSURANCE DIR.

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CASTLE METALS

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**622225 f5039R0**

### Other Testing or Inspections:

Solution anneal at 1925 degrees for 9 hours

ALL STEEL HAS BEEN MELTED AND MANUFACTURED IN THE UNITED STATES

6.15:1 FORGING REDUCTION FROM ORIGINAL INGOT

QUENCH MEDIA - WATER  
QUENCHANT 56 DEGREES F AT START OF QUENCH  
QUENCHANT 59 DEGREES F AT END OF QUENCH

MICRO EXAM PERFORMED PER ASTM E112 WITH RESULTS OF GS - 3

CORROSION SENSITIVE TEST PERFORMED PER ASTM A262 WITH RESULTS  
OF 0% DITCHING OBSERVED

MACRO ETCH PERFORMED PER ASTM E381 WITH RESULTS OF S1, R1, C1

Co = 0.13

NO WELD REPAIRS PERFORMED

### Compliance Statements:

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. We also certify that the material was not processed or cleaned with low melting point materials as alloying constituents, i.e. lead, zinc, cadmium, tin, antimony, bismuth, sulfur, or their compounds.

In accordance with the requirements of the Pressure Equipment Directive, all testing, inspection, and documentation is produced in accordance with EN 10204:2004 Type 3.1 and ISO 10474 Type 3.1.B

Material provided has been produced by Scot Forge under and approved quality program as defined within the Scot Forge QA Manual, Revision Dated 10/11/04.

The recording of false, fictitious or fraudulent statements or entries on this document may be punishable as a felony under Federal Statute.

The products supplied are in compliance with the quantity and quality requirements of the purchase order and specifications noted. The test reports represent the actual attributes of the items furnished and the test results are in full compliance with all applicable specifications and order requirements.

Approved by:

  
RICHARD GABRYS  
QUALITY ASSURANCE DIR.