SCOT FORGE

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

PO # 34-12419
MATERIAL CERTIFICATION

H00160 3 SS
Heat # G14954

SOLD	Shipping Information	Material Cert Number	Revision Date
CASTLE METALS 3400 N WOLF RD FRANKLIN PARK, IL 60131-1319	G14954.	622226 f3967R0	01/20/2009

Item 1 of 1

Material	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
Heat Treat	per Specification
Destructive Test	per Specification
Finish	Rough Machine to sizes shown Straightness = 1/8" in 5 FT
Reference	Access Code: 31026
Size	OD Random Len (inches) 16 84 to 168
Surface	500 RMS Saw Cut

Heat Number	# of Pieces	(MILL - UNIVERSAL STAINLESS)
G14954	1	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
0.014	1.71	0.024	0.023	0.28	10.26	16.66	2.10	0.26	0.06	0.082

Mechanical Properties:

Pcs	Tensile PSI	Yield[1] PSI	Elongation in 2 - %	Reduction of Area %	Comments
1	77,250	38,303	61.5	77.9	LONGITUDINAL

[1](Offset: .2%)

Brinell Hardness Results:

Pcs	3000 Kg Load
1	170
1	170

CASTLE METALS EDMONTON
DATE RCVD 02/09/09
IAC 31026
APPROVED BY AR
7420-51 Ave Edmonton, AB T6B 3C1

Approved by: Richard Gabrys
RICHARD GABRYS
QUALITY ASSURANCE DIR.

SCOT FORGE
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Material Cert Number
622226 f3967R0

Other Testing or Inspections:

Solution anneal at 1925 degrees for 13 hours

ALL STEEL HAS BEEN MELTED AND MANUFACTURED IN THE UNITED STATES

4.18:1 FORGING REDUCTION FROM ORIGINAL INGOT

CAST METHOD - INGOT

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

MACRO ETCH PERFORMED PER ASTM A262 WITH RESULTS OF S1, R1, C1

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

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.

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