



280 Henry St. Brantford, Ontario N3T5S7  
Tel. (519)758-8100 Fax. (519)756-2041

PF02 Rev 2 (10/15/2013)

CERTIFIED MATERIAL TEST REPORT

<b>Customer:</b> U.S. ALLOYS INC	<b>Customer Part No.:</b> A350LF2-17"
<b>Cust. P.O.:</b> 20387	<b>Item #:</b> 2
<b>Material Spec:</b> US ALLOYS USA/LF2-FN REV 4, ASME/ASTM SA/A350-18 LF2 CL 1, SA/A105-18	<b>Tag:</b>
<b>QA Desc:</b> SA/A698-17 GR C, SA/A675-14 (2019) GR 70, ASME 2019 EDITION	<b>Patriot Forge Shop Order#</b> V5438-1
<b>Description:</b> NORMALIZED ROUGH MACHINED TO 17.125" DIA X R/L	<b>Pce.Dash#s:</b> 1
	<b>Cert Pcs:</b> 1

<b>MILL DATA</b>		<b>HEAT #</b> CU617		<b>MILL NAME:</b> ELLWOOD QUALITY STEELS CO.															
C	Mn	P	S	Si	Cr	Mo	Ni	V	Cu	Al	H	Ti	Sn	Co	Nb	N	C/Cr		
%	%	%	%	%	%	%	%	%	%	%	PPM	%	%	%	%	%	%		
.20	1.25	.011	.003	.22	.12	.03	.16	.020	.12	.022	1.8	.001	.008	.005	.002	.0046	.46		

<b>HEAT TREATMENT</b>					
<b>Description</b>	<b>Temperature (F)</b>	<b>Soak Time (H.M)</b>	<b>Cooling</b>	<b>Load No</b>	<b>Other Info</b>
NORMALIZE	1650	13.25	AIR COOL	1002480	

<b>MECHANICAL PROPERTIES - TENSILE</b>							
<b>Yield</b>	<b>Ultimate</b>	<b>Elongation</b>	<b>Red of Area</b>	<b>Offset</b>	<b>Location</b>	<b>Direction</b>	<b>Comment</b>
(P.S.I.)	(P.S.I.)	(in 2" %)	(%)	(%)			
45900	75000	34	71	0.2	1/4TX1/4T	LONG	

<b>CHARPY V NOTCH IMPACT</b>						
<b>Temp</b>	<b>FT LBS</b>	<b>Lat Exp</b>	<b>Shear</b>	<b>Location</b>	<b>Direction</b>	<b>Comment</b>
		(MILS)	%			
-50 F	40	30	30	1/4TX1/4T	LONG	
-50 F	39	28	30	1/4TX1/4T	LONG	
-50 F	72	55	30	1/4TX1/4T	LONG	



280 Henry St. Brantford, Ontario N3T5S7  
 Tel. (519)758-8100 Fax. (519)756-2041  
**CERTIFIED MATERIAL TEST REPORT**

PF02 Rev 2 (10/15/2013)

Page 2 of 2

<b>Customer:</b> U.S. ALLOYS INC	<b>Customer Part No:</b> A350LF2-17"
<b>Cust. P.O.:</b> 20387	<b>Tag:</b>
<b>Item #:</b> 2	<b>Patriot Forge Shop Order#</b> V5438-1
<b>Material Spec:</b> US ALLOYS USA/LF2-FN REV 4, ASME/ASTM SA/A350-18 LF2 CL 1, SA/A105-18	<b>Pce.Dash#:</b> 1
<b>QA Desc:</b> SA/A696-17 GR C, SA/A675-14 (2019) GR 70, ASME 2019 EDITION	<b>Cert Pcs:</b> 1
<b>Description:</b> NORMALIZED ROUGH MACHINED TO 17.125" DIA X R/L	

**ADDITIONAL TESTS & ATTACHMENTS**

Test Name	Additional Test Notes
REDUCTION RATIO	4.68 : 1

**ADDITIONAL QUALITY STATEMENTS**

COUNTRY OF MELT: U.S.A  
 COUNTRY OF MANUFACTURE: CANADA  
 ELECTRIC FURNACE VACUUM DEGASSED  
 FULLY KILLED, FINE GRAIN MELTING PRACTICE  
 USA/4, EN 10204 3.1, MR-005 REV D1 & DIN 3.1 APPLIES  
 LEAD, MERCURY, RADDACTIVE AND WELD FREE  
 METALLURGICALLY PROCESSED PER NACE MR0175/ISO 15156 & MR0103, 2015 EDITION

**TEST NUMBER:** 166074

**HARDNESS DETAILS:** 132/135 HB(HLD)

SHIPMENT DETAILS:			
Piece ID	Ingot ID	Weight	Length
V5438-1		14210 LBS	214.875" LG

TEST REPORT FURNISHED  
 BY U.S. ALLOYS, INC.  
 ITEM LF2 17"  
 HT. CODE ICM CLR CODE Yellow/BLACK  
 DATE 6/17/2021 APP. BY JGL

\* NO WELD REPAIR WAS PERFORMED ON THESE PARTS.

\* These forgings have not come into direct contact with mercury or any of its compounds, nor with any mercury containing device during manufacturing, testing, inspection or storage.

\* All products supplied are in compliance with the quality requirements of the purchase order and specifications identified unless stated otherwise on this CMTR. All products outlined on this CMTR were produced in accordance with our quality manual.

**FORGED IN CANADA**

Date: June 9, 2021

Q.A. Assistant *Alison Fiddes*

Alison Fiddes

**PATRIOT FORGE CO.**

**QUALITY ASSURANCE**