

Westmoreland Mechanical Testing & Research, Inc.

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Youngstown, Pa. 15696-0388 U.S.A.

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WMT&R is a technical leader in the material testing industry.

June 17, 2005

MetalTek International
The Carondelet Division
8600 Commercial Blvd.
I-55 Industrial Park
Pewee, MO 63070-1528

Attention: Rick Suria

Subject:

All processes, performed upon the material as received, were conducted at WMT&R, Inc. in accordance with the WMT&R Quality Assurance Manual, Rev. 9, dated 4/12/2000.
The following tests were performed on this order: TENSILE

TENSILE RESULTS: ASTM E21-03a

SOAK TIME: 5 Minutes

SPEED OF TESTING: 0.0030 in./in./min., 0.0500 in./min./in.

MATERIAL: Metaltek CF8MNMnMOD

Sample	Test Log Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus ksi	Codes	Ult. Load lbf	0.2% YLD. lbf	Orig. Dia. (in.)	Final Dia. (in.)	4D Orig GL (in.)	4D Final GL (in.)	Orig. Area (sq. in.)	Machine Number	Machine	A1UR
A1 (Z1)	C03040	-320	165.1	95.5	51	37	25.9	—	33210	19210	0.5060	0.4002	2.00	3.02	0.20109020	M9	R	R
A1 (Z2)	C03041	-320	165.1	94.6	59	51	25.4	—	33120	18980	0.5054	0.3543	2.00	3.18	0.20061359	M9	R	R
A1 (Z3)	C03042	-320	168.7	101.8	58	57	25.2	—	33840	20420	0.5054	0.3305	2.00	3.18	0.20061359	M9	R	R
C2 (Z1)	C03043	-320	163.6	94.0	51	41	25.9	D	32840	18880	0.5056	0.3891	2.00	3.03	0.20077240	M9	R	R
C2 (Z2)	C03044	-320	162.4	91.7	61	61	25.0	—	32580	18390	0.5054	0.3163	2.00	3.21	0.20061359	M9	R	R
C2 (Z3)	C03045	-320	165.5	93.9	61	61	25.7	—	33230	18850	0.5058	0.3163	2.00	3.21	0.20077240	M9	R	R

D - Failed outside middle half of gage length.

FORCING OR UNLAWFULLY TAMPERING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE, FICTITIOUS OR MISLEADING STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A VIOLATION OF FEDERAL LAWS AND FEDERAL STATUTES. THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF WMT&R, INC.

Testing Specialists for Aerospace, Automotive, and Material Testing Fields
Locations in Youngstown, PA U.S.A. ~ Tel (724) 537-3131 and
Banbury U.K. ~ Tel +44 (0) 1295 261211

Technical Services Manager

June 17, 2005



421-01 & 421-02

Section 1 of 1

WMT&R Report No. 5-29323

Req. No. 5394



Materials Testing Laboratory

2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085

METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

June 14, 2005
Lab No. 05P-1741
P.O. No. 12516
Page 1 of 3

Attention: Chuck Ruud


REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): Alloy CF8 MNMn-Mod, A-1 COIL
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: 293°K / 68° F

RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-7	152	0.125	100
Z1-8	152	0.086	100
Z1-9	182	0.089	100
Average	162	0.100	100
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z2-7	152	0.131	100
Z2-8	164	0.084	100
Z2-9	170	0.105	100
Average	162	0.107	100
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z3-7	196	0.117	100
Z3-8	164	0.104	100
Z3-9	142	0.088	100
Average	167	0.103	100

Identification of tested specimen provided by client.


Karl Schmitz, Director
Materials Testing



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REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): Alloy CF8 MNMn-Mod, A-1 COIL

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch


SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 77°K / -320°F

RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-7	82	0.040	60
Z1-8	73	0.053	60
Z1-9	78	0.045	60
Average	78	0.046	60
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z2-7	94	0.061	70
Z2-8	90	0.053	70
Z2-9	76	0.057	70
Average	87	0.057	70
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z3-7	59	0.028	30
Z3-8	83	0.059	40
Z3-9	72	0.043	40
Average	71	0.043	37

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Attention: CHUCK RUUD

REPORT OF MECHANICAL TESTS

SAMPLE ID: 3 EA., A-1 COIL, Z1, Z2, Z3

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Modules of Elasticity	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length)	
							in.	%
Z1	0.1886	.0716	62.0	21.8 Msi	37600	85700	1.06	53.0
Z2	0.1886	0.0707	62.5	21.5 Msi	35500	79300	1.11	55.5
Z3	0.1940	0.0855	55.9	21.7 Msi	36800	82100	1.02	51.0


Round, reduced section room temperature tensiles

Yield taken at .2% offset

Tested in accordance with ASTM A 370

Identification of tested specimens provided by the client.

KS/tlv


Karl Schmitz, Director
Materials Testing



PRODUCT CONFORMANCE REPORT

**LINCOLN®
ELECTRIC**

Product LNM 4455 Size(s) mm 1,2
 Class. EN 12072-99: G 20 16 3 Mn L Lot/Batch 3018926/78309
 Item No. 692129

Customer CK SUPPLY Quantity 450,0 KG
 Contact Ernie Simpson Customer ref. P.O.: SL 057549
 Eureka (MISSOURI) 63025 LSW Order No. SD424496
 UNITED STATES

Chemical analysis (%)										EN10204 3.1B
C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N	
0,02	0,4	7,3	0,019	0,001	20,1	16,3	2,9	0,1	0,200	

Mechanical tests, all weld metal	EN10204
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Additional information	EN10204
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Remarks

The product identified above has been manufactured, tested and supplied in compliance with a Quality Assurance Programme that fulfils the requirements of EN 29000/ ISO 9000/BS 5750 or similar standard.
 We herewith certify that the product complies with the above-mentioned standards.
 Certified ISO 9001:2000.

Company	Issued by	Function	Date	Cert.No.
Lincoln Smitweld B.V.	P. van Etteger	QS Manager	10/02/2005	3018926/7830
Registered Office	Telephone:	Fax:		
Nieuwe Dukenburgseweg 20	31 24 3522911	31 24 3522200		
6534 AD NIJMEGEN				





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8600 Commercial Blvd.
Pevely, MO 63070

August 8, 2005
Lab No. 05P-2334
P.O. No. 21024
Page 1 of 3

Attention: **CHUCK RUUD**

REPORT OF MECHANICAL TESTS

SAMPLE ID: 1) STOCK# LNM 4455, LINCOLN LOT 3018926/78309
2) STOCK# LNM 4455, LINCOLN LOT 3017006/72262
3) STOCK# LNM 4455, LINCOLN LOT 3012668/82743
4) STOCK# B316NF METRODE, W021735

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Modules of Elasticity	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length)	
							in.	%
1	0.1385	0.0897	54.3	24.5 Msi	56900	93900	0.84	42.0
2	0.1886	0.0935	50.4	24.9 Msi	54900	92100	0.85	42.5
3	0.1909	0.0951	50.2	22.6 Msi	57400	93700	0.83	41.5
4	0.1901	0.0962	49.4	23.0 Msi	54800	88200	0.75	37.5

Round, reduced section all weld tensiles

Yield taken at .2% offset

Tested in accordance with ASTM A 370-03a

Identification of tested specimens provided by the client.

KS/tlv


Karl Schmitz, Director
Materials Testing



Certificate No. 0397-01
Certificate No. 0397-02

AN OFFICIAL COPY OF TEST REPORT WILL BE PROVIDED BY THIS LABORATORY ON REQUEST.
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August 8, 2005
Lab No. 05P-2334
P.O. No. 21324
Page 2 of 3

Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): STOCK# LNM 4455, LINCOLN LOT 3018926/78309
STOCK# LNM 4455, LINCOLN LOT 3017006/72262

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm (All Weld)


TEMPERATURE OF TEST: 293°K

REQUIREMENTS:

ALL WELD	FOOT LBS.	LATERAL EXPANSION	% SHEAR
78309-7	97	0.074	50
78309-8	96	0.076	50
78309-9	108	0.075	50
Average	100	0.075	50
ALL WELD	FOOT LBS.	LATERAL EXPANSION	% SHEAR
72262-7	126	0.098	50
72262-8	102	0.080	50
72262-9	123	0.087	50
Average	117	0.088	50

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Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): STOCK# LNM 4455, LINCOLN LOT 3012668/82743
 STOCK# B316NF METRODE, W021735

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm (All Weld)

TEMPERATURE OF TEST: 293°K

REQUIREMENTS:

ALL WELD	FOOT LBS.	LATERAL EXPANSION	% SHEAR
82743-7	100	0.082	50
82743-8	99	0.076	50
82743-9	94	0.072	50
Average	98	0.077	50
ALL WELD	FOOT LBS.	LATERAL EXPANSION	% SHEAR
W021735-7	102	0.101	50
W021735-8	88	0.073	50
W021735-9	88	0.080	50
Average	93	0.085	50

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