



Westmoreland Mechanical Testing & Research, Inc.

P.O. Box 388
 Westmoreland Drive
 Youngstown, Pa. 15696-0388 U.S.A.
 Telephone: 724-537-3131 Fax: 724-537-3151
 Website: www.wmtr.com
 WMT&R is a technical leader in the material testing industry.



April 28, 2005

MetalTek International
 The Garndalest Division
 8600 Commercial Blvd.
 1-55 Industrial Park
 Pevely, MO 63070-1528

Attention: Rick Surra

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 4/1/2000.
 The following tests were performed on this order: TENSILE

TENSILE RESULTS: ASTM E21-03a
 Requirements: UTS ksi (Min 951Max ---) 0.2% YS ksi (Min 721Max ---) 4D Elong. % (Min 321Max ---) Modulus Msi (Min 211Max ---)
 SOAK TIME: 5 Minutes
 SPEED OF TESTING: 0.0050 in./in./min., 0.0500 in./min./in.
 MATERIAL: 316 S/S

Sample	Testlog Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus Msi	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	AIUR
Bar#1 (Lot#3012668/82743)	B75123	-320	187.7	126.3	33	22	27.1	37740	25394	0.5060	0.4471	2.00	2.65	0.20109020	M9	A
Bar#2 (Batch#W019711)	B75124	-320	166.9	109.5	34	27	26.4	33500	21990	0.5056	0.4315	2.00	2.67	0.20077240	M9	A

AIUR: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

DISPOSITION: Acceptable

Section 1 of 1
 WMT&R Report No. 5-26097
 P.O. No. 19386R9
 WMT&R Quote No. CN250563
 Req. No. 4315

KNOWINGLY OR WILLFULLY FALSIFYING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY PUNISHABLE UNDER FEDERAL STATUTES. THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF WMT&R, INC.

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

Matt Wolton
 Roy E. Starr Matt Wolton
 Technical Services Manager Tensile Supervisor
 April 28, 2005

4-28-05

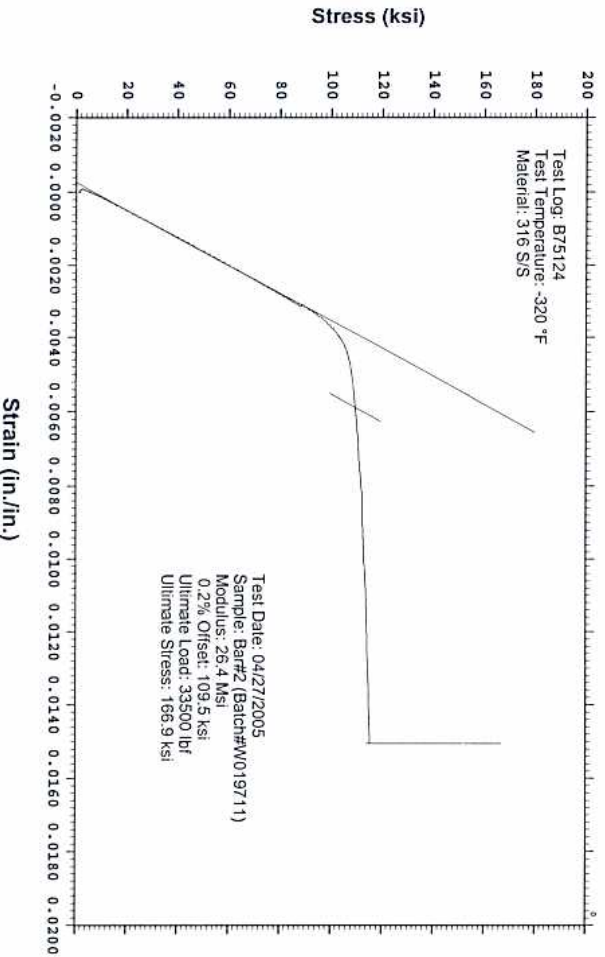
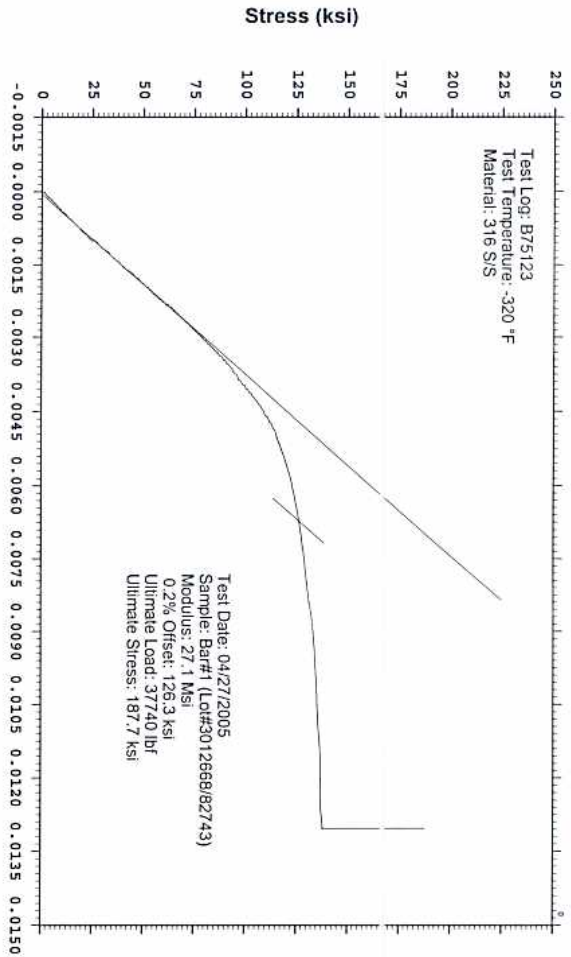
WESTMORELAND MECHANICAL TESTING & RESEARCH, Inc

Stress vs. Strain

Phone: (724)537-3131

Customer: MetalTek International
WMT&R Report: 5-26097

P.O. No.: 19386R9
WMT&R Quote No.: QN250563



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621-01 & 621-02

August 23, 2005

CERTIFICATION

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

WMTR Report No. 5-32228
 Requisition No. 4335

Attention: Jim Galaske

Subject: All processes, performed upon the material as received, were conducted at WMTR, Inc. in accordance with the WMTR Quality Assurance Manual, Rev. 9, dated 4/1/2000.
 The following tests were performed on this order: IMPACT and TENSILE

IMPACT RESULTS: ASTM E23-02

No Requirements

MATERIAL: Lincoln LNM4455

SAMPLE TYPE: Charpy V-Notch

DISPOSITION: Report

Reference	Lot No. Batch No. Specimen ID	Test Log Number	Sample Size	Temp. °F	Energy ft-lbs	Mils Lat Exp	% Shear Fracture	AUIR
Lincoln LNM4455	3018926 78309 CVN-1	C26832	Standard	-320	33	17	20	Report
Lincoln LNM4455	3018926 78309 CVN-2	C26833	Standard	-320	36	22	25	Report
Lincoln LNM4455	3018926 78309 CVN-3	C26834	Standard	-320	40	18	40	Report
Lincoln LNM4455	3017006 72262 CVN-1	C26835	Standard	-320	55	26	30	Report
Lincoln LNM4455	3017006 72262 CVN-2	C26836	Standard	-320	53	34	30	Report
Lincoln LNM4455	3017006 72262 CVN-3	C26837	Standard	-320	51	34	30	Report

AUIR: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

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Roy E. Starr/Matt Wojton
 Technical Services Manager / Tensile Supervisor

August 23, 2005

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 Danbury U.K. ~ Tel. +44 (0) 1295 261211*



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621-01 & 621-02
ACCREDITED



August 23, 2005

CERTIFICATION

MetatTek International

WMTR Report No. 5-32228

IMPACT RESULTS: ASTM E23-02

No Requirements

MATERIAL: Metrude B316NF

SAMPLE TYPE: Charpy V-Notch

DISPOSITION: Report

Reference	Lot No. Batch No. Specimen ID	Testlog Number	Sample Size	Temp. °F	Energy ft-lbs	Mils Lat Exp	% Shear Fracture	AVUR
Metrude B316NF	W021735 CVN-1	C26838	Standard	-320	51	24	30	Report
Metrude B316NF	W021735 CVN-2	C26839	Standard	-320	44	25	30	Report
Metrude B316NF	W021735 CVN-3	C26840	Standard	-320	50	33	30	Report

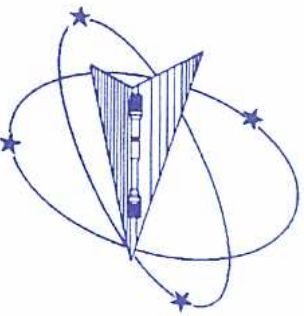
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Matthew Wojton
 Roy E. Starr
 Technical Services Manager / Tensile Supervisor

8-23-05
 August 23, 2005



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621-01 & 621-02



August 23, 2005

CERTIFICATION

MetaTek International
The CoraVedol Division
8600 Commercial Blvd.
I-55 Industrial Park
Pevely, MO 63070-1528

WMTR Report No. 5-32228
Requisition No. 4335

Attention: Jim Galaske

Subject: All processes, performed upon the material as received, were conducted at WMTR&R, Inc. in accordance with the WMTR&R Quality Assurance Manual, Rev. 9, dated 4/1/2000.
The following tests were performed on this order: IMPACT and TENSILE

TENSILE RESULTS: ASTM E21-03a

Requirements: UTS ksi (Min 95Mmax ---) 0.2% YS ksi (Min 72Mmax ---) 4D Elong. % (Min 32Mmax ---) Modulus Msi (Min 21Mmax ---)

SOAK TIME: 5 Minutes

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

MATERIAL: Lincoln LNM4455

DISPOSITION: Acceptable

Reference	Lot No. Batch	Testlog Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus Msi	Ult. Load lbf	0.2% YLD. lbf
Lincoln LNM4455	3017006 72262 T1	C26830	-320	176.4	112.4	48	41	23.2	16980	10820

AUUR: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

DISPOSITION: Acceptable

Reference	Lot No. Batch	Testlog Number	Orig. Dia. (in.)	Final Dia. (in.)	4D Orig GL (in.)	4D Final GL (in.)	Orig. Area (sq. in.)	Machine Number	AUUR
Lincoln LNM4455	3017006 72262 T1	C26830	0.3501	0.2678	1.40	2.07	0.09626626	M9	A

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Roy E. StarMatt Wojton
Technical Services Manager _____ Tensile Supervisor

August 23, 2005



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621-01 & 621-02



August 23, 2005

MetalTek International

CERTIFICATION

WMT&R Report No. 5-32228

TENSILE RESULTS: ASTM E21-03a

Requirements: UTS ksi (Min 95IMax ---) 0.2% YS ksi (Min 72IMax ---) 4D Elong. % (Min 32IMax ---) Modulus Msi (Min 21IMax ---)

SOAK TIME: 5 Minutes

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

MATERIAL: Metrupe B316NF

Reference	Lot No. Batch		Testlog Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus Msi	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	AVUR
	No. Specimen ID	W021735 T1																
Metrupe B316NF	W021735	T1	C26831	-320	166.6	102.1	38	31	24.3	16070	9842	0.3504	0.2912	1.40	1.93	0.09643131	M9	A

DISPOSITION: Acceptable
 AVUR: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

TENSILE RESULTS: ASTM E21-03a

Requirements: UTS ksi (Min 95IMax ---) 0.2% YS ksi (Min 72IMax ---) 4D Elong. % (Min 32IMax ---) Modulus Msi (Min 21IMax ---)

SOAK TIME: 5 Minutes

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

MATERIAL: Lincoln LNM4455

Reference	Lot No. Batch		Testlog Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus Msi	Codes	Ult. Load lbf	0.2% YLD. lbf
	No. Specimen ID	3018926 78309 T1										
Lincoln LNM4455	3018926	78309 T1	C26829	-320	157.5	114.3	16	18	23.3	H	15210	11030

DISPOSITION: Unacceptable
 AVUR: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Reference	Lot No. Batch		Testlog Number	Orig. Dia. (in.)	Final Dia. (in.)	4D Orig GL (in.)	4D Final GL (in.)	Orig. Area (sq. in.)	Machine Number	AVUR
	No. Specimen ID	3018926 78309 T1								
Lincoln LNM4455	3018926	78309 T1	C26829	0.3506	0.3168	1.40	1.63	0.09654142	M9	U

DISPOSITION: Unacceptable
 AVUR: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Requirements provided by MetalTek International
 H - Failed outside gage length.

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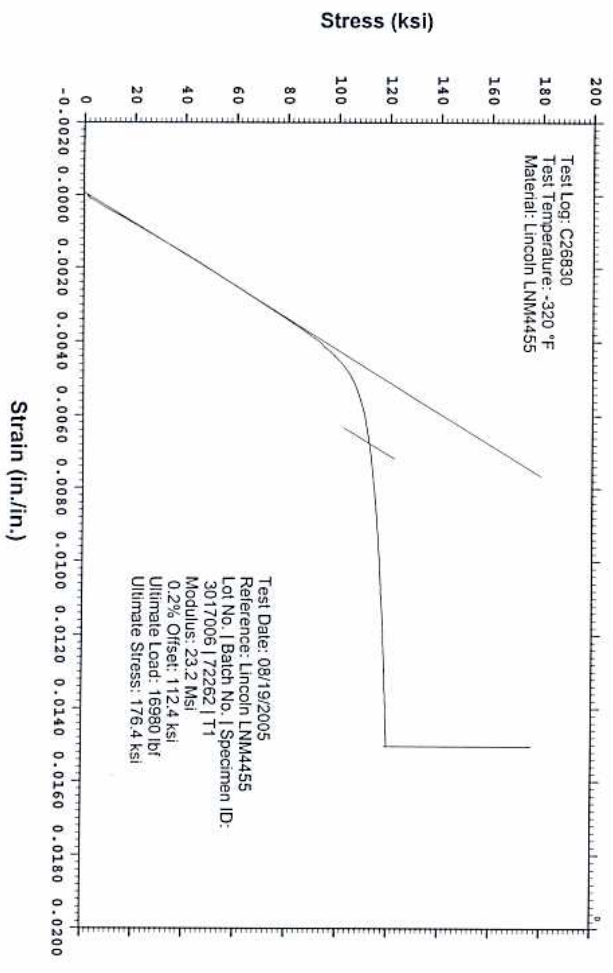
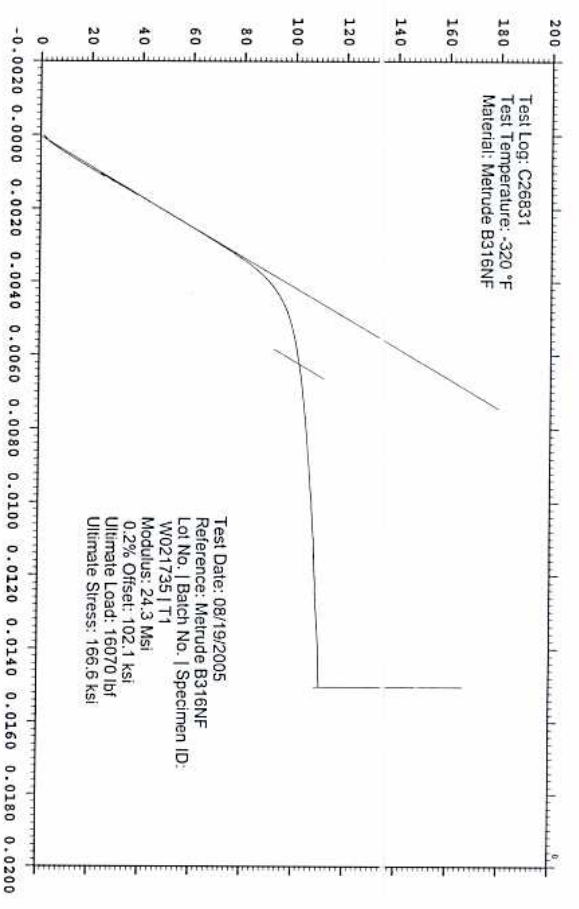
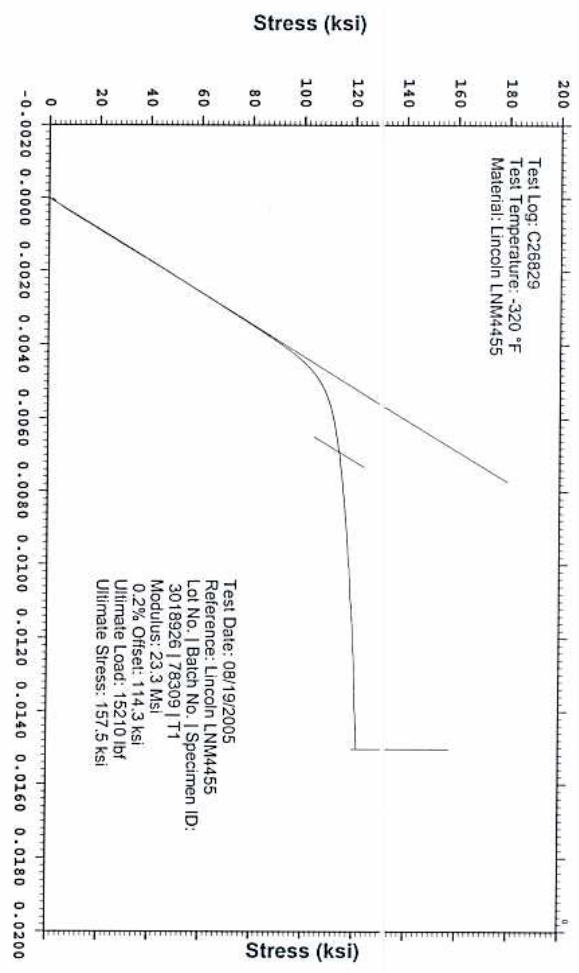
Bainbridge, VA ~ Tel: +44 (0) 1205 261211

Matthew Wojton
 Roy E. StarrMatt Wojton
 Technical Services Manager / Tensile Supervisor
 August 23, 2005

8-23-05

Customer: MetalTek International
WMT&R Report: 5-32228

Requisition No.: 4335





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



KS/IV

Karl Schmitz, Director
Materials Testing

Identification of tested specimens provided by the client.

Tested in accordance with ASTM A 370-03a

Yield taken at .2% offset

Round, reduced section all weld tensiles

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

- 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

REPORT OF MECHANICAL TESTS

Attention: **CHUCK RUUD**

METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

August 8, 2005
Lab No. 05P-2334
P.O. No. 21324
Page 1 of 3

2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085
Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.





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KS/ty

Karl Schmitz, Director
Materials Testing

Identification of tested specimen provided by client:

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

REQUIREMENTS:

TEMPERATURE OF TEST: 293°K

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

SPECIMEN TYPE: "A" Vee Notch

SPECIFICATION: ASTM A 370-03a

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

REPORT OF CHARPY IMPACT TEST

Attention: Chuck Ruud

METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevly, MO 63070

August 8, 2005
Lab No. 05P-2334
P.O. No. 21324
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METALTEK INTERNATIONAL
 8600 Commercial Blvd.
 Pevely, MO 63070
 Attention: Chuck Ruud

August 8, 2005
 Lab No. 05P-2334
 P.O. No. 21324
 Page 3 of 3

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
W02-735-7	102	0.101	50
W02-735-8	88	0.073	50
W02-735-9	88	0.080	50
Average	93	0.085	50

Identification of tested specimen provided by client.

Karl Schmitz, Director
 Materials Testing

KS/tiv



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

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KS/tw

Karl Schmitz, Director
Materials Testing

Identification of tested specimen provided by client

ALL WELD METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
LNM,455-1	52	0.027	40
LNM,455-2	50	0.022	40
LNM,455-3	50	0.016	20
Average	51	0.022	33

MATERIAL (SAMPLE ID): 1 Ea., Material (1) LNM455, Lot # 3012668/82743
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: -320°F
REQUIREMENTS: 45 ft. lbs.

REPORT OF CHARPY IMPACT TEST

METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070
Attention: Chuck Ruud

April 6, 2005
Lab No. 05P-1007
P.O. No. 12516
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Certificate No. 0397-01
Certificate No. 0397-02



KS/tw

Karl Schmitz, Director
Materials Testing

Identification of tested specimen provided by client.

ALL WELD METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
B316NF-1	48	0.030	30
B316NF-2	52	0.027	30
B316NF-3	44	0.027	30
Average	48	0.028	30

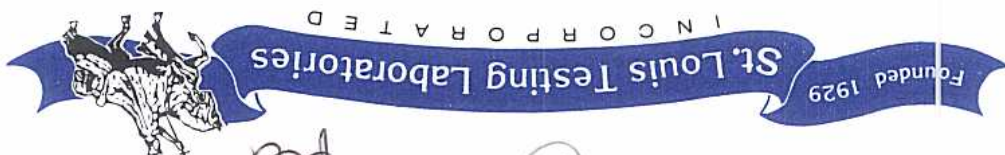
MATERIAL (SAMPLE ID): (2) Metrode B316NF, Batch # WO19711
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: -320°F
REQUIREMENTS: 45 ft. lbs.

REPORT OF CHARPY IMPACT TEST

METALTEK INTERNATIONAL
 8600 Commercial Blvd.
 Pevely, MO 63070
 Attention: Chuck Raud

April 6, 2005
 Lab No. 05P-1007
 P.O. No. 12516
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KS/ty

Karl Schmitz, Director
Materials Testing

Identification of tested specimen provided by client:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
LNM4455-7	104	0.085	100
LNM4455-8	106	0.093	100
LNM4455-9	99	0.084	100
Average	103	0.087	100

MATERIAL (SAMPLE ID): LNM 4455, LINCOLN LOT 3018513/78308
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: 293°K

REPORT OF CHARPY IMPACT TEST

METALTEK INTERNATIONAL
 8600 Commercial Blvd.
 Pevely, MO 63070
Attention: Chuck Ruud

August 16, 2005
 Lab No. 05P-2532
 P.O. No. 21324
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KS/iv

Karl Schmitz
Karl Schmitz, Director
Materials Testing

Round, reduced section tensiles
Yield taken at .2% offset
Tested in accordance with ASTM A 370-03a
Identification of tested specimens provided by the client.

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Yield Strength PSI	Tensile Strength PSI	Elongation in. (2.0" Gage Length) %	Modules of Elasticity
LNM4455	0.1932	0.0866	55.2	65200	95200	0.76	23.4

SAMPLE ID: LNM 4455, LINCOLN LOT 3018513/78308

REPORT OF MECHANICAL TESTS

METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070
Attention: CHUCK RUUD

August 16, 2005
Lab No. 05P-2532
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