

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

METALTEK INTERNATIONAL
 8600 Commercial Blvd.
 Pevely, MO 63070

February 28, 2005
 Lab No. 05P-0554
 P.O. No. 12516
 Page 1 of 2
 (Revised Report 3-2-05)

Attention: Rick Suria

REPORT OF CHARPY IMPACT TEST

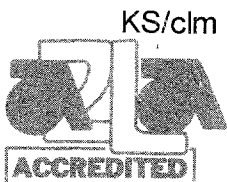
MATERIAL (SAMPLE ID): Electrode LNM 4455 & B316NF
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch, All Weld
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: +70°F

RESULTS:

ALL WELD	JOULES	FOOT LBS.	LATERAL EXPANSION	% SHEAR
LNM 4455-7	149	110	0.055	50
LNM 4455-8	130	96	0.050	50
LNM 4455-9	134	99	0.051	50
Average	138	102	0.052	50
ALL WELD	JOULES	FOOT LBS.	LATERAL EXPANSION	% SHEAR
B316NF-7	155	114	0.056	50
B316NF-8	151	111	0.053	50
B316NF-9	146	108	0.052	50
Average	151	111	0.054	50

Identification of tested specimen provided by client.


 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. DO NOT REPRODUCE.
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January 10, 2005
 Lab No. 05P-0008
 P.O. No. 12516
 Page 3 of 3

Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): HT# 27728, Alloy CF8 MnMN-MOD
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: -320°F

RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
27728-1	98	0.051	50
27728-2	91	0.060	50
27728-3	80	0.045	50
Average	90	0.052	50
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
27728-4	77	0.038	40
27728-5	86	0.055	50
27728-6	61	0.032	40
Average	75	0.042	43
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
27728-7	64	0.041	50
27728-8	67	0.043	50
27728-9	72	0.030	40
Average	68	0.038	47

Identification of tested specimens provided by client.



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

Karl Schmitz
 Karl Schmitz, Director
 Materials Testing

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 Page 2 of 3

Attention: **Chuck Ruud**

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): HT# 27728, Alloy CF8 MnMN-MOD
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: +70°F
RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
27728-1	139	0.097	100
27728-2	119	0.081	100
27728-3	167	0.091	100
Average	142	0.090	100
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
27728-4	170	0.107	100
27728-5	124	0.071	100
27728-6	129	0.060	100
Average	141	0.079	100
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
27728-7	141	0.103	100
27728-8	137	0.052	100
27728-9	150	0.114	100
Average	143	0.090	100

Identification of tested specimens provided by client.

Karl Schmitz
 Karl Schmitz, Director
 Materials Testing



Certificate No. 0317-01
 Certificate No. 03-7-02

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Attention: **Chuck Ruud**

REPORT OF MECHANICAL TESTS

SAMPLE ID: 3 Ea. HT# 27728, Alloy CF8 MnMN-MOD

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Yield Strength PSI	Tensile Strength PSI	Elongation (1.0" Gage Length)	
						in.	%
1	.0491	.0257	47.7	134,500	171,300	0.55	55.0
2	.0491	.0254	48.3	118,200	168,200	0.63	63.0
3	.0491	.0238	51.5	119,400	171,100	0.58	58.0

Round, reduced section tensiles

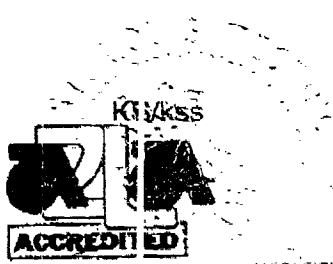
Yield taken at .2% offset

Tested in accordance with ASTM A 370-03a

*Test temperature -320°F

Identification of tested specimens provided by the client.

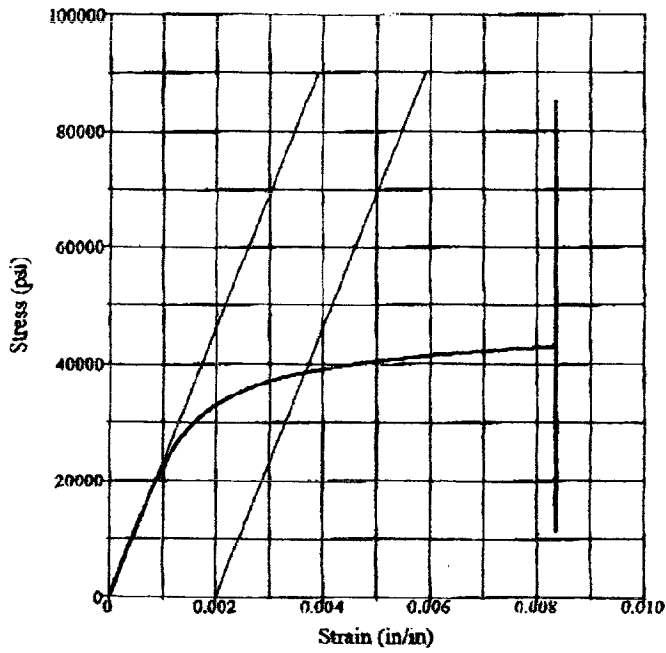
*Karl Schmitz, Director
 Materials Testing*



Certificate No. 039 4e
 Certificate No. 039 02

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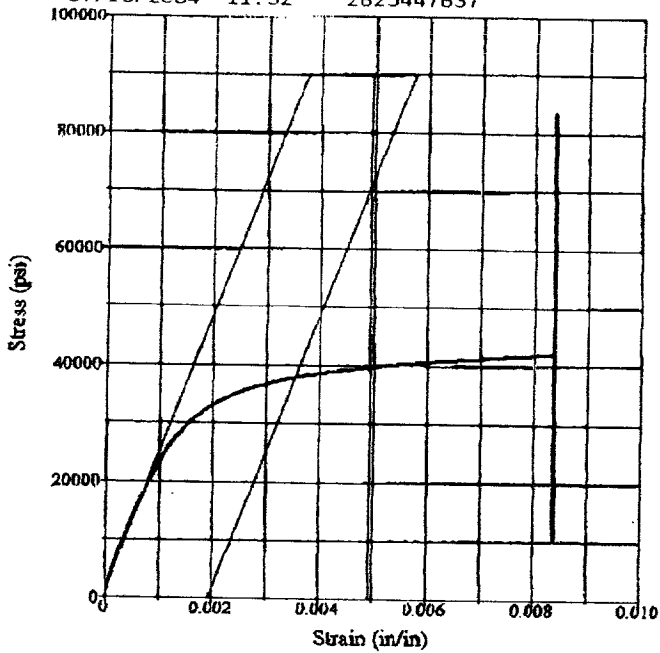


Test Results

Diameter: 0.5010 in
 After Test Diameter: 0.2900 in
 Area: 0.1971 in²
 After Test Area: 0.0661 in²
 Tensile Strength: 85130 psi
 Peak Load: 16779 lbf
 Tangent Modulus: 22997270 psi
 Load at Offset: 7595 lbf
 Stress at Offset: 38530 psi
 Stress at EUL: 40400 psi
 Load at EUL: 7962 lbf
 Reduction of Area: 66.5 %
 Total Elongation: 52.4 %
 Pretest Punch Length: 2 in
 Posttest Punch Length: 3.048 in

Test Summary

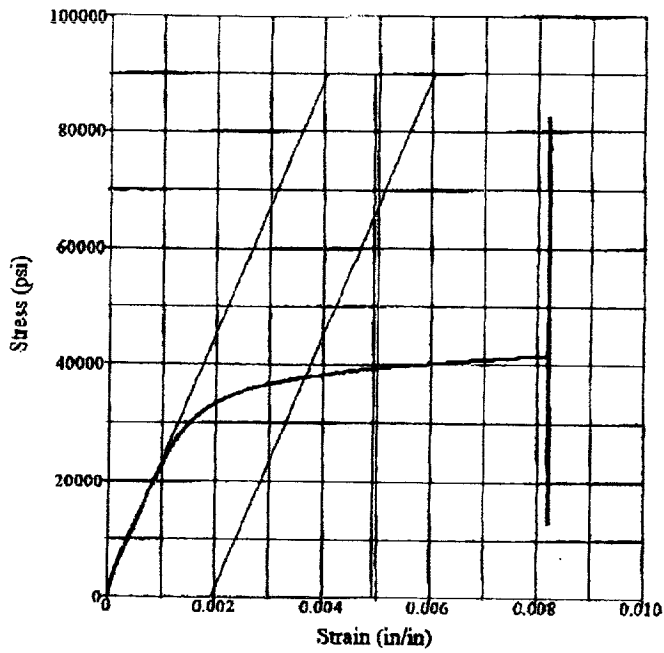
Counter: 15092
 Elapsed Time: 00:02:24
 Heat Number: 24752
 Comments:
 Job no. 1: CARONDELET
 Job no. 2:
 Job no. 3:
 Grade: 8MN
 Sample: TBAR
 Operator: MM
 Cert: N
 YS (2 OR 5): 2
 Procedure Name: 30 YS SER # 1199 2
 Start Date: 7/15/2004
 Start Time: 11:43:06 AM
 End Date: 7/15/2004
 End Time: 11:45:30 AM
 Workstation: Wisconsin Centrifugal
 Tested By: MANTYH



Test Results
 Diameter: 0.5020 in
 After Test Diameter: 0.2990 in
 Area: 0.1979 in²
 After Test Area: 0.0702 in²
 Tensile Strength: 83510 psi
 Peak Load: 16526 lbf
 Tangent Modulus: 23562550 psi
 Load at Offset: 7490 lbf
 Stress at Offset: 37840 psi
 Stress at EUL: 39620 psi
 Load at EUL: 7840 lbf
 Reduction of Area: 64.5 %
 Total Elongation: 54.9 %
 Pretest Punch Length: 2 in
 Posttest Punch Length: 3.098 in

Test Summary

Counter: 15091
 Elapsed Time: 00:02:54
 Heat Number: 24751
 Comments:
 Job no. 1: CARONDELET
 Job no. 2:
 Job no. 3:
 Grade: RMN
 Sample: TBAR
 Operator: MM
 Cert: N
 YS (2 OR 5): 2
 Procedure Name: 30 YS SER # 1199 2
 Start Date: 7/15/2004
 Start Time: 11:36:55 AM
 End Date: 7/15/2004
 End Time: 11:39:49 AM
 Workstation: Wisconsin Centrifugal
 Tested By: MANTYH



Test Results
 Diameter: 0.5000 in
 After Test Diameter: 0.3000 in
 Area: 0.1963 in²
 After Test Area: 0.0707 in²
 Tensile Strength: 82470 psi
 Peak Load: 16188 lbf
 Tangent Modulus: 21831340 psi
 Load at Offset: 7409 lbf
 Stress at Offset: 37750 psi
 Stress at EUL: 39220 psi
 Load at EUL: 7698 lbf
 Reduction of Area: 64.0 %
 Total Elongation: 54.4 %
 Pretest Punch Length: 2 in
 Posttest Punch Length: 3.088 in

Test Summary

Counter: 15090
 Elapsed Time: 00:02:16
 Heat Number: 24750
 Comments:
 Job no. 1: CARONDELET
 Job no. 2:
 Job no. 3:
 Grade: 8MN
 Sample: TBAR
 Operator: MM
 Cert: N
 YS (2 OR 5): 2
 Procedure Name: 30 YS SER # 1199 2
 Start Date: 7/15/2004
 Start Time: 11:31:32 AM
 End Date: 7/15/2004
 End Time: 11:33:48 AM
 Workstation: Wisconsin Centrifugal
 Tested By: MANTYH