VAOT LAB NO. _____

MATERIALS & RESEARCH SECTION

V Trans Working to Get You There
Vermont Agency of Transportation

Certification & Independent Assurance Unit

Record of Manufactured Certification

Type "A" Certification

NAME OF MANUFACTURER: **Seismic Energy Products, Inc.**

ADDRESS: **518 Progress Way, Athens, TX. 75751**

WE HEREBY CERTIFY: **Bearing Device Assembly (Steel Reinf. Elastomeric BR 500)**

IN THE QUANTITY OF: **54 Pieces - Laminated Pads**

FURNISHED BY: **Seismic Energy Products, Inc.**
(Contractor or Supplier)

FOR USE ON: Brattleboro **BRO 1442(35)**

IDENTIFIED BY: **Seismic Energy Products Sales Order Number: 58878**

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 1990/1995/2001/2006 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE STATED CONTRACT FOR PAY ITEM NUMBER(S) AS FOLLOWS: 531.10 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND / OR STANDARDS OF ALL MATERIALS FURNISHED.

Subscribed and sworn to me before

this __2nd__ day of __May__ 2014__

Notary Public

JESSICA LEE PARISH
Notary Public, State of Texas
My Commission Expires
April 12, 2016

Commission Expiring on __04/12/2016__

By: _____
Signature of Authorized Representative

TONY PEREZ
Name (Type or Print)

Title: Quality Assuance Manager
Company Status or Affiliation

NOTE: CERTIFICATIONS FOR MATERIALS REQUIRING A TYPE "C" OR "D" CERTIFICATION, WHEN SPECIFIED BY CONTRACT PROVISIONS, MUST INCLUDE MILL TEST REPORTS SHOWING CHEMICAL AND PHYSICAL ANALYSES.

THIS CERTIFICATION IS TO BE COMPLETED BY THE MANUFACTURER OF THE MATERIALS AND NOT BY THE SUPPLIER OR DEALER. THIS CERTIFICATION IS TO BE SENT TO:

Vermont Agency of Transportation
Materials & Research Section Attention: C & IA Unit
National Life Bldg. Drawer 33
Montpelier, Vermont 05633-5001

TA 562
Rev 01/00

MATERIAL CERTIFICATION
ELASTOMERIC MATERIAL

SEISMIC ENERGY PRODUCTS, INC.
518 Progress Way
Athens, Tx 75751
903-677-4369

CUSTOMER	SHIP TO
RENAUD BROS, INC. 283 FORT BRIGEMAN RD #2 VERNON, VT 05354 ATTN: CHARLES EZEQUELLE (802) 257-7383	RENAUD BROS. 283 FORT BRIGEMAN RD #2 VERNON, VT 05354

CUSTOMER P.O.	CUSTOMER JOB DESCRIPTION	SPECIFICATION
SIGNED QUOTE	BATTLEBORO PROJECT PROJECT #: BRO 1442(35)	STATE of VERMONT 2011 STANDARD SPECIFICATION SEC. 531 & 731 & SPECIAL PROVISIONS
SEP SO NUMBER 58878		
ELASTOMER LOT NUMBER 58878-3	ELASTOMER TYPE/DUROMETER NATURAL / 50	

ELASTOMER TESTING RESULTS

STANDARD	DESCRIPTION	REQUIREMENT	TEST VALUE	RESULT
ASTM D2240	DUROMETER HARDNESS - SHORE A	50 ± 5 Points	51	PASS
ASTM D412	TENSILE STRENGTH	2250 psi. min	3482	PASS
	ULTIMATE ELONGATION	450 % Min.	610	PASS
ASTM D573	HEAT RESISTANCE (70 HRS @ 158°F)			
	CHANGE IN: DUROMETER HARDNESS	±10 Points, Maximum	1.5	PASS
	CHANGE IN: TENSILE STRENGTH	-25%, Maximum	-11.3	PASS
	CHANGE IN: ULTIMATE ELONGATION	-25%, Maximum	5.7	PASS
ASTM D395	COMPRESSION SET (22 HRS @ 158°F)	25 Maximum	5	PASS
ASTM D1149	OZONE RESISTANCE (25 pphm @ 100°F for 24 hours)	No Cracks	0	PASS
ASTM D746	LOW TEMPERATURE BRITTLENESS (-55°F)	No Failure	0	PASS
ASTM D1043	INSTANTANEOUS THERMAL STIFFENING (-50°F)	< 4 times stiffness at 73°F	1.8	PASS
AASHTO CH 18	LOW TEMPERATURE CRYSTALLIZATION (21 days @ -35°F)	< 4 times stiffness at 73°F	1.5	PASS
ASTM D4014	SHEAR MODULUS - ANNEX A1	100 psi ± 15%	99.7	PASS
ASTM D429(B)	ADHESION (Bond made during vulcanization)	40 lbs. min.	63.3 RT 100%	PASS
	PROOF LOAD: 1.5 X DESIGN LOAD	No Failure	PASS	PASS

The material used in manufacture complies with the State of Vermont 2011 Standard Specifications Sections 531 & 731 and any Special Provisions.

QUALITY ASSURANCE MANAGER

2-May-2014
DATE

THE STATE OF TEXAS

COUNTY OF HENDERSON

Before ME, the undersigned, a Notary Public in and for said county and state on this day personally appeared TONY PEREZ *known to me to be the person whose name subscribed to the foregoing instrument acknowledged to me that he executed the same for the purpose of consideration therein expressed.*

Given under my hand and seal of office the __2nd__ day of __May__ A.D., 2014__

(L.S.) Jessica Lee Parish

NOTARY PUBLIC IN AND FOR HENDERSON COUNTY, TEXAS

JESSICA LEE PARISH
Notary Public, State of Texas
My Commission Expires
April 12, 2016

Item (03) 2-1/2" - 2-5/8" X 8" X 10" LAM PAD W/ ONE 1/8" - 1/4" TAPERED INTERNAL PLATE & THREE 10 GA SHIMS QTY: 28

AISC CERTIFIED FABRICATOR

FRIEDMAN INDUSTRIES, Incorporated
P.O. Box 214-Armorel, Ar 72310
(870)763-4013

DATE: 3/24/14

TEST REPORTS

CUSTOMER: SEISMIC ENERGY PRODUCTS
LOCATION: ATHENS, TX
PURCHASE ORDER # 28651
VENDOR: NUCOR
INVOICE: A54375
ATTN: CLINT McAREE

MELTED & MFG IN USA

CUT FROM COIL

COIL / HEAT NUMBER		SIZE	SPECIFICATIONS	
885920 / 134564		3/16X60	A36	
*893265 / 235530		10GAX60	A1011-40	
926157 / 238270		12GAX62	"	
926164 / 137965		"	"	

CHEMICAL ANALYSIS

COIL / HEAT NUMBER	C	MN	P	S	SI	CU	NI	CR	MO	AL	V	NB	N	TI
885920 / 134564	0.18	0.68	0.011	0.001	0.03	0.12	0.05	0.05	0.01	0.03	0.002	0.001	0.006	0.002
893265 / 235530	0.18	0.7	0.008	0.001	0.03	0.12	0.04	0.05	0.01	0.03	0.002	0	0.008	0.001
926157 / 238270	0.07	0.46	0.009	0.001	0.02	0.14	0.05	0.05	0.01	0.04	0	0.001	0.007	0.004
926164 / 137965	0.06	0.46	0.01	0.002	0.02	0.12	0.05	0.6	0.01	0.03	0	0.001	0.007	0.003

PHYSICAL PROPERTIES

COIL / HEAT NUMBER		YIELD POINT (KSI)				TENSILE STRENGTH(KSI)			ELONG %
885920 / 134564 F / M		48.272 / 49.417				68.136 / 69.284			29.0 / 29.0
893263 / 235530 F		44.299				64.172			30
893265 / 235530 F		53.384				73.26			29
926157, 926158 / 238270 F		48.3 / 48.3				64.2 / 64.2			31.0 / 31.0
926159, 926164 / 137965 F		48.1 / 45.4				61.3 / 61.0			29.0 / 33.0

We hereby certify that the above figures are correct as contained in the records of Friedman Industries, Inc.

Friedman Industries, Inc.

By: T. E. Edwards

NUCOR STEEL
SHEET MILL GROUP

A Division of Nucor Corp
Hickman, AR 870/762-2100

METALLURGICAL TEST

Date Printed: 8/20/13 Page 2 of 3

Sold To	FRIEDMAN INDUSTRIES PO BOX 214 ARMOREL, AR 72310
Ship To	FRIEDMAN INDUSTRIES PLANT SITE ARMOREL, AR 72310

Order/Line	H311880-12	Product	HOT BAND	B/L #	767535	Ship Date	8/20/13
P/O Number	4538	Dimensions	.1280 MIN x 60.0000 MIN (INCHES)			Vehicle #	NSA90
Description	SAE C1018						

With the following modifications:

Heat 235530 Coil ID 893265.0000 893267.0000

Heat	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	V	Nb	N	Ti	B	Ca	Sb
235530	.18	.70	.008	.001	.03	.12	.04	.05	.01	.005	.03	.002	.000	.008	.001	.000	.002	.001

All goods are sold subject to the description, specifications and terms and conditions set forth on the face and reverse side, or otherwise provided with, Nucor Steel's order acknowledgement.
Tensile specimens are tested in accordance with ASTM A-370 specification: standard rectangular test configuration (Figure 3) with 2 inch gauge length and a 2% offset yield method. Steel is aluminum killed and produced to a fine grain practice.
This material has been produced in compliance with the chemistry and established rolling practices of the ordered specification. If material is ordered to a chemistry only, testing is not performed by producer.
Materials certified to most current revision of ASTM specifications.
We hereby certify the above is correct as contained in the records of the corporation.

100% MELTED AND MANUFACTURED IN THE USA

Chad Gentry

"Nondestructive Testing Specialist"

January 17, 2014 Lab No: L2698

Friedman Industries
P.O. Box 214
Armorel, AR 72310

Attention: Mr. Terry Eveland 128 x 60

Subject: Tensile, Yield and Elongation Test Results

REPORT OF TEST

Sample Number	Heat Number	Yield	Tensile	Elongation %
893263-F	235530	44,299	64,172	30

The above sample does meet the physical requirements of A1011-40.

(Tested in accordance with ASTM A370-12)

Respectfully Submitted
AIT, LLC KT
William E Jackson
William E. Jackson

5101 Wilfong Road ▪ Memphis, TN 38134 ▪ Phone: 901-373-6992 ▪ Fax: 901-373-5825

"Nondestructive Testing Specialist"

Friedman Industries
P.O. Box 214
Armorel, AR 72310

March 18, 2014
Lab No: L2966

Attention: Mr. Terry Eveland

128x60

Subject: Tensile, Yield and Elongation Test Results

REPORT OF TEST

Sample Number	Heat Number	Yield	Tensile	Elongation %
893265-F	235530	53,384	73,260	29
890155-F	134932	45,796	65,637	30

The above samples do meet the physical requirements of A1011-40.

(Tested in accordance with ASTM A370-12)

Respectfully Submitted
AIT, LLC JCT

William E. Jackson
William E. Jackson

5101 Wilfong Road • Memphis, TN 38134 • Phone: 901-373-6992 • Fax: 901-373-5825

02/06/2012 12:25 #391 P.001/006
8/0 /63 1029
Friedman Industries

FRIEDMAN INDUSTRIES, Incorporated
P.O. Box 214-Armorel, Ar 72310
(870)763-4013

DATE: 2/6/12
CUSTOMER: SEISMIC ENERGY PRODUCTS
LOCATION: ATHENS, TX
PURCHASE ORDER # 26070
VENDOR: NUCOR
INVOICE: A46979
ATTN: CLINT McAREE

TEST REPORTS

MELTED & MFG IN USA

CUT FROM COIL

COIL / HEAT NUMBER	SIZE	SPECIFICATIONS
737652 / 221066 *	1/4X60	A36
700836 / 116129	11GAX60	A1011-40
728625 / 118444 —	–12GAX62	"

CHEMICAL ANALYSIS

COIL / HEAT NUMBER	C	MN	P	S	SI	CU	NI	CR	MO	AL	V	NB	N	TI
737652 / 221066	0.19	0.68	0.008	0.004	0.03	0.15	0.05	0.04	0.01	0.04	0.003	0	0.008	0.001
700836 / 116129	0.06	0.48	0.007	0.004	0.02	0.14	0.05	0.05	0.01	0.04	0.003	0.001	0.007	0.001
728625 / 118444 —	0.07	0.47	0.008	0.005	0.01	0.13	0.05	0.04	0.01	0.03	0.002	0	0.01	0

PHYSICAL PROPERTIES

COIL / HEAT NUMBER	YIELD POINT (KSI)	TENSILE STRENGTH(KSI)	ELONG %
737648 / 221066 F / M	51.979 / 50.591	71.761 / 70.731	29.0 / 30.0
737650 / 221066 F / M	50.127 / 50.831	69.061 / 70.479	30.0 / 29.0
700836 / 116129 F	43.486	63.357	27
728623 / 118444 F	45.2	62.8	32
728625 / 118444 F	43.8	60.8	34

We hereby certify that the above figures are correct as contained in the records of Friedman Industries, Inc.

Friedman Industries, Inc.

By: T. E. Ehrland

From:Friedman Industries 870 763 1029 02/06/2012 12:25 #391 P.002/006

NUCOR STEEL
SHEET MILL GROUP

A Division of Nucor Corp
Hickman, AR 870/762-2100

METALLURGICAL TEST

Date Printed: 1/26/12 Page 2 of 3

Sold To: FRIEDMAN INDUSTRIES
P.O. BOX 214

ARMOREL, AR 72310

Ship To: FRIEDMAN INDUSTRIES
PLANT SITE

ARMOREL, AR 72310

Order/Line	H289265-17	Product	HOT BAND	H/L #	688265
P/O Number	4294	Dimensions	.2420 MIN x 60.0000 MIN (INCHES)	Ship Date	1/26/12
Description	SAE C1018			Vehicle #	NSA36

With the following modifications:

Heat 221066 Coil ID 737650.0000 737652.0000

Heat	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	V	Nb	N	Ti	B	Ca	Sb
221066	.19	.68	.008	.004	.03	.15	.05	.04	.01	.005	.04	.003	.000	.008	.001	.000	.003	.000

All goods are sold subject to the description, specifications and terms and conditions set forth on the face and reverse side, or otherwise provided with, Nucor Steel's order acknowledgement.
Tensile specimens are tested in accordance with ASTM A-370 specification: standard rectangular test configuration (Figure 3) with 2 inch gauge length and a 2% offset yield method. Steel is aluminum killed and produced to a fine grain practice.
This material has been produced in compliance with the chemistry and established rolling practices of the ordered specification. If material is ordered to a chemistry only, testing is not performed by producer.
Materials certified to most current revision of ASTM specifications.
We hereby certify the above is correct as contained in the records of the corporation.

100% MELTED AND MANUFACTURED IN THE USA

Chad Gentry

METC1100

Rev. 12/18/08 FRM-014-HM

"Nondestructive Testing Specialist"

January 30, 2012 Lab No: L7977

Friedman Industries
P.O. Box 214
Armorel, AR 72310

Attention: Mr. Terry Eveland 24 2x 60

Subject: Tensile, Yield and Elongation Test Results

REPORT OF TEST

Sample Number	Heat Number	Yield	Tensile	Elongation %
730200-F	118572	48,582	68,306	29
730200-M	118572	47,995	67,874	29
737648-F	221066	51,979	71,761	29
737648-M	221066	50,591	70,731	30
737650-F	221066	50,127	69,061	30
737650-M	221066	50,831	70,479	29

The above samples do meet the physical requirements of A36.

(Tested in accordance with ASTM A370-06).

Respectfully Submitted
AIT, LLC. KT

William E. Jackson
William E. Jackson

5101 Wilfong Road • Memphis, TN 38134 • Phone: 901-373-6992 • Fax: 901-373-5825