Unytite, Inc. One Unytite Drive Peru, IL 61354	**Test Report** **Assembly Installation Tension & Rotational Capacity**	Customer:	
		PO Number:	
		Quantity:	

Set Number: 40035-10879560

Description: 3/4-10 x 6 F3125 Grade F1852 Assembly Plain

Date Tested	Temperature (f)	Performed By	Test Method	Sample Plan (Qty)
3/7/2024	70	Nicholas Trump	ASTM F3125	ASTM F1470 Table 3 Sample Size C

Test Equipment	Model / Serial Number	Calibration Date
Tension Measuring System	HT-4000 / HT-1033 (V065384)	7/7/2023
Torque Measuring System	HT-4000 / HT-1033 (200760)	7/7/2023

Component Data	Size	Grade	Type	Finish	Lot No.
Bolt	3/4-10 x 6	F3125 Grade F1852	1	Plain	40035-10879560
Nut	3/4-10	A563 DH	1	Plain	39799-5805910002
Washer	3/4	F436	1	Plain	0124-985

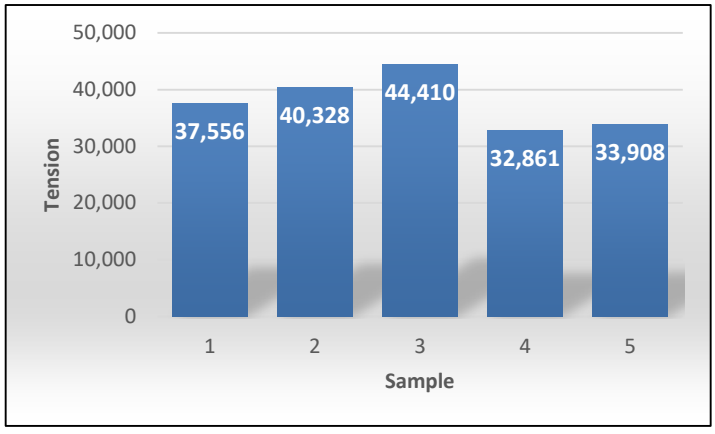
Assembly Installation Tension Test Results	Criteria	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Initial Tension (lbs)	3,000	3,345	3,085	3,263	3,630	3,280
Minimum Installation Tension (lbs)	29,450	37,556	40,328	44,410	32,861	33,908
Torque at Installation Tension (ft/lbs)	*	323	320	318	316	320

* For informatoinal purposes only

Rotational Capacity Test Results	Criteria	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Snug Tension (lbs)	3,000	3,000	3,000	3,000	NA	NA
Min Installation Tension (lbs)	28,000	28,553	28,364	28,301	NA	NA
Max Allowable Torque (ft/lbs)	437	272	245	253	NA	NA
Degrees of Rotation	360	361	361	361	NA	NA
Min Tension at Full Rotation (lbs)	32,000	46,108	47,850	46,713	NA	NA

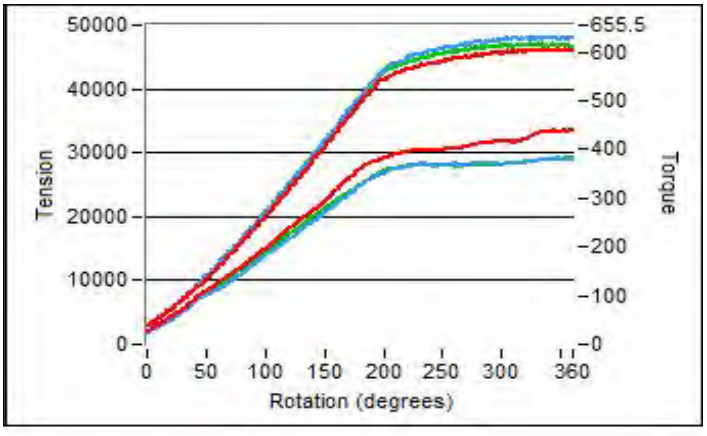
Assembly Tension Test Results

Tension Average (lbs): 37,813 **Standard Deviation: 4,735**



Rotational Capacity Test — Tension - - - Torque

Sample 1, Sample 2, Sample3, Sample 4, Sample 5



Notes:

We Certify this data is a true representation of information provided by the material supplier and our testing laboratory. This material test report relates only to the items listed on this document and may not be reproduced except in full.

Thorsen, Chris - Supervisor, Quality

Unytite, Inc.
One Unytite Drive
Peru, IL 61354
Tel 815-224-2221
Fax 815-224-3434

INSPECTION CERTIFICATE

Job No: 40035 **Job Information** **Certified Date:** 3/6/24

Customer:

Customer Part No:

Customer PO No:

Ship To:

Shipped Qty:

Lot Number: 40035-10879560

Part Information

Part No: ASTM F3125-F1852 3/4-10 X 6 TC ASSY-08

Name: Grade F1852 (A325 TC) TC Assy, Type 1

Manufactured Quantity: 8,710

Applicable Specifications

Specification	Amend	Specification	Amend
ASME B1.1	2019	ASME B18.2.6	2019
ASTM F3125/F3125M	2023	ASTM F606/606M	2021
ASTM F788/F788M	2020		

Test Results

Test No: 29541 **Test**: F1852 Mechanical Properties

Description	Hardness (hrc) (HRC)	Tempering Temp (800 Degrees)	Tensile (lbs)	Proof Load	Shape & Dimension ASME B 18.2.1	Precision ASME B 1.1
Sample Inspection	32.0	896	50,122	Pass	Pass	Pass

Certified Chemical Analysis

Heat No	Grade	Manufacturer	C	Mn	P	S	Si	B
10879560	10B30	Charter Steel	0.3200	0.8600	0.0090	0.0050	0.2300	0.0027

Notes

All tests are in accordance with the latest revisions of the methods prescribed in the applicable SAE and ASTM Specifications.

The samples tested conform the specifications as described/listed above and were manufactured free of mercury contamination and there is no welding performed in the production of the products. No heats to which Bismuth, Selenium, Tellurium, or Lead was intentionally added have been used to produce products.
The steel was melted and manufactured in the U.S.A. and the product was manufactured and tested in the U.S.A.

We certify that this data is true representation of information provided by the material supplier and our testing laboratory. This certified material test report relates only to the items listed on this document and may not be reproduced except in full.

Thorsen, Chris - Supervisor, Quality

3/6/24

Date

CHARTER STEEL
A Division of
Charter Manufacturing Company, Inc.

EMAIL

1658 Cold Springs Road
Saukville, Wisconsin 53080
(262) 268-2400
1-800-437-8789
Fax (262) 268-2570

CHARTER STEEL TEST REPORT

Melted in USA Manufactured in USA

Unytite, Inc.
One Unytite Drive
Peru,IL-61354
Kind Attn :Jean Margherio

Cust P.O.	11441
Customer Part #	C10B30SC0.732D
Charter Sales Order	10374885
Heat #	10879560
Ship Lot #	4842331
Grade	10B30 M SK FG RHQ 49/64 RNDCOIL
Process	DD
Finish Size	0.7320
Ship date	01-MAR-24

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed below and that it satisfies these requirements. The recording of false, fictitious and fraudulent statements or entries on this document may be punishable as a felony under federal statute.

Test results of Heat Lot # 10879560

Lab Code: 7388

CHEM	C	MN	P	S	SI	NI	CR	MO	CU	SN	V
%Wt	.32	.86	.009	.005	.230	.04	.08	.02	.09	.006	.002

AL	N	B	TI	NB
.023	.0070	.0027	.020	.001

JOMINY(HRC)

J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12
54	53	52	50	39	28	25	23	22	22	22	21

J13	J14	J15
21	20	20

J01.5MM	J03MM	J05MM	J07MM	J09MM	J11MM	J13MM	J15MM
52	51	49	46	37	30	27	23

JOMINY LAB=0358-01
JOMINY SAMPLE TYPE ENGLISH=R
JOMINY SAMPLE TYPE METRIC=C

Test results of Rolling Lot # 1392683

REDUCTION RATIO=66:1

Test results of Processing Lot #4842331

	# of Tests	Min Value	Max Value	Mean Value	
TENSILE (KSI)	1.0	98.2	98.2	98.2	TENSILE LAB = 0358-07
REDUCTION OF AREA (%)	1	55	55	55	RA LAB = 0358-07
ROCKWELL B (HRBW)	1	93	93	93	RB LAB = 0358-07
WIRE SIZE (Inch)	1	.7289	.7289	.7289	
WIRE OUT OF ROUND (Inch)	1	.0001	.0001	.0001	

Melt Source:

Charter Steel

Saukville, WI, USA

This MTR supersedes all previously dated MTRs for this order

Douglas Jones Division Mgr. of Quality Assurance

jonesdo@chartersteel.com

Trip: R5577525

Printed Date : 03/01/2024

CHARTER STEEL
A Division of
Charter Manufacturing Company, Inc.

1658 Cold Springs Road
Saukville, Wisconsin 53080
(262) 268-2400
1-800-437-8789
Fax (262) 268-2570

EMAIL

CHARTER STEEL TEST REPORT

Melted in USA Manufactured in USA

Unytite, Inc.
One Unytite Drive
Peru,IL-61354
Kind Attn :Jean Margherio

Cust P.O.	11441
Customer Part #	C10B30SC0.732D
Charter Sales Order	10374885
Heat #	10879560
Ship Lot #	4842331
Grade	10B30 M SK FG RHQ 49/64 RNDCOIL
Process	DD
Finish Size	0.7320
Ship date	01-MAR-24

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed below and that it satisfies these requirements. The recording of false, fictitious and fraudulent statements or entries on this document may be punishable as a felony under federal statute.

Specifications: **Manufactured per Charter Steel Quality Manual Rev Date 05/12/17**
Charter Steel certifies this product is indistinguishable from background radiation levels by having process radiation detectors in place to measure for the presence of radiation within our process & products.
Meets customer specifications with any applicable Charter Steel exceptions for the following customer documents:
Customer Document = RMS-002 & RMS-001 Revision = 11 Dated = 23-OCT-18

Additional Comments:

Melt Source:

Charter Steel

Saukville, WI, USA

This MTR supersedes all previously dated MTRs for this order

Douglas Jones Division Mgr. of Quality Assurance

jonesdo@chartersteel.com

Trip: R5577525

Printed Date : 03/01/2024

The following statements are applicable to the material described on the front of this Test Report:
1. The laboratory that generated the analytical or test results can be identified by the following key:

Certificate Number	Lab Code	Laboratory		Address
0358-01	7388	**CSSM**	Charter Steel Melting Division	1658 Cold Springs Road, Saukville, WI 53080
0358-02	8171	**CSSR**	Charter Steel Rolling	1658 Cold Springs Road, Saukville, WI 53080
0358-07	8171	**CSSP**	Charter Steel Processing Division	1658 Cold Springs Road, Saukville, WI 53080
0358-03	123633	**CSFP**	Charter Steel Ohio Processing Division	6255 US Highway 23, Rising Sun, OH 43457
0358-04	125544	**CSCM/ CSCR**	Charter Steel Cleveland	4300 E. 49th St., Cuyahoga Heights, OH 44125-1004
*	*	--	Subcontracted test performed by laboratory not in Charter Steel System	

2. When run by a Charter Steel laboratory, the following tests were performed according to the latest revisions of the specifications listed below, as noted in the Charter Steel Laboratory Quality Manual:

Test	Specifications	CSSM	CSSR	CSSP	CSFP	CSCM/ CSCR
Chemistry Analysis	ASTM E415; ASTM E1019	X				X
Macroetch	ASTM E381	X				X
Hardenability (Jominy)	ASTM A255; SAE J406; JIS G0561	X				X
Grain Size	ASTM E112	X	X	X	X	X
Tensile Test	ASTM E8; ASTM A370		X	X	X	X
Rockwelll Hardness	ASTM E18; ASTM A370	X	X	X	X	X
Microstructure (spheroidization)	ASTM A892		X	X	X	
Inclusion Content (Methods A, E)	ASTM E45		X			X
Decarburization	ASTM E1077		X	X	X	X

Charter Steel has been accredited to perform all of the above tests by the American Association for Laboratory Accreditation (A2LA). These accreditations expire 01/31/25. All other test results associated with a Charter Steel laboratory that appear on the front of this report, if any, were performed according to documented procedures developed by Charter Steel and are not accredited by A2LA.

3. The test results on the front of this report are the true values measured on the samples taken from the production lot. They do not apply to any other sample. Any statement of conformity is based on simple acceptance, whether the test result is within or outside the specification/acceptance limits. Measurement uncertainty is not taken into account in the statement of conformity.
4. This test report cannot be reproduced or distributed except in full without the written permission of Charter Steel. The primary customer whose name and address appear on the front of this form may reproduce this test report subject to the following restrictions:
   - It may be distributed only to their customers
   - All pages must be reproduced in full
5. This certification is given subject to the terms and conditions of sale provided in Charter Steel's acknowledgement (designated by our Sales Order number) to the customer's purchase order. Both order numbers appear on the front page of this Report.
6. Where the customer has provided a specification, the results on the front of this test report conform to that specification unless otherwise noted on this test report.
7. Certificate type 3.1 per EN 10204 rev. 2005-01
8. Charter Steel melting is a continuous cast electric arc furnace
9. The steel for this order meets the following compliance/ regulatory standards: DFARS, REACH, RoHS, and Conflict Minerals
10. No Mercury was used in the manufacture or processing of this product.
11. No weld or repair has been performed.



Unytite, Inc.
One Unytite Drive
Peru, IL 61354
Tel 815-224-2221
Fax 815-224-3434

INSPECTION CERTIFICATE

Job No: 39799 **Job Information** **Certified Date:** 2/29/24

Customer:

Customer Part No:

Customer PO No:

Ship To:

Shipped Qty:

Lot Number: 39799-5805910002

Part Information



Part No: A563 3/4-10 DH HHN ASSY-08

Name: ASTM A563 HHN, Grade DH, Assy Lub Nut

Manufactured Quantity: 122,420

Applicable Specifications

Specification	Amend	Specification	Amend
ASME B1.1	2019	ASME B18.2.2	2022
ASTM A563/A563M	2021	ASTM F606/606M	2021
ASTM F812	2022		

Test Results

Test No: 29512 **Test**: A563 DH Mechanical Properties

Description	Hardness (HRC)	Tempering Temp (800 degree F Min)	Proof Load (Pass ASTM Min LBS)	Shape & Dimension ASME B18.2.2	Thread Precision ASME B18.1.1	Visual ASTM F812
Sample Inspection	28.2	1,211	58,450	Pass	Pass	Pass

Certified Chemical Analysis

Heat No	Grade	Manufacturer	C	Mn	Si
5805910002	1045	Gerdau Ameristeel	0.4500	0.6800	0.2100

Notes

All tests are in accordance with the latest revisions of the methods prescribed in the applicable SAE and ASTM Specifications.

The samples tested conform the specifications as described/listed above and were manufactured free of mercury contamination and there is no welding performed in the production of the products. No heats to which Bismuth, Selenium, Tellurium, or Lead was intentionally added have been used to produce products.
The steel was melted and manufactured in the U.S.A. and the product was manufactured and tested in the U.S.A.

We certify that this data is true representation of information provided by the material supplier and our testing laboratory. This certified material test report relates only to the items listed on this document and may not be reproduced except in full.

Thorsen, Chris - Supervisor, Quality

2/29/24
Date

CERTIFIED MATERIAL TEST REPORT

GERDAU

US-ML-MIDLOTHIAN
300 WARD ROAD
MIDLOTHIAN, TX 76065
USA

CUSTOMER SHIP TO	CUSTOMER BILL TO
UNYTITE INC LASALLE PLANT 325 CIVIC ROAD LA SALLE,IL 61301 USA	UNYTITE INC 1 UNYTITE DR PERU,IL 61354-9710 USA

GRADE	SHAPE / SIZE	DOCUMENT ID:
1045R5F	Round Bar / 1"	0001054581

LENGTH	WEIGHT	HEAT / BATCH
25'01.50"	42,954 LB	**58059100**/02

SALES ORDER	CUSTOMER MATERIAL Nº
13502840/000020	B1045SC1.0000-3 F

SPECIFICATION / DATE or REVISION
ASTM A29-23
ASTM A576-17

CUSTOMER PURCHASE ORDER NUMBER	BILL OF LADING	DATE
PO11286	1327-0000564086	01/26/2024

CHEMICAL COMPOSITION

C (%)	Mn (%)	P (%)	S (%)	Si (%)	Cu (%)	Ni (%)	Cr (%)	Mo(%)	Sn (%)	V (%)	Nb (%)	Al (%)	Ti (%)	B (%)
0.45	0.68	0.015	0.034	0.21	0.26	0.09	0.20	0.027	0.007	0.025	0.000	0.000	0.002	0.0000

HARDENABILITY
DI A255 (Inches)
1.53

COMMENTS / NOTES

Macro per ASTM E381: S-2, R-2, C-2 maximums not exceeded

Gerdau's steel is 100% recyclable. Support the circular economy through our Metals Recycling Partnership. For details, visit www2.gerdau.com/metals-recycling, or contact metalsrecycling@gerdau.com.

The above figures are certified chemical and physical test records as contained in the permanent records of the Company. We certify that these data are correct and in compliance with specified requirements. No weld repair was performed on this material. The material has not been in contact with mercury while in Gerdau possession. This material, including the billets, was melted in the USA. CMTR complies with EN 10204 3.1.

BHASKAR YALAMANCHILI
QUALITY DIRECTOR
Phone: (409) 267-1071 Email: Bhaskar.Yalamanchili@gerdau.com

WADE LUMPKINS
QUALITY ASSURANCE MGR.
Phone: 972-779-3118 Email: Wade.Lumpkins@gerdau.com

TECHNICAL STAMPING, INC.

50600 E. RUSSELL SCHMIDT BLVD.
CHESTERFIELD TWP., MI 48051
PH(586)948-3285 / FX(586)948-3286

MATERIAL CERTIFICATION

CUSTOMER NAME	CUSTOMER ORDER NUMBER	DATE
Unytite, Inc	P011426	1/31/2024

PART NUMBER - CUSTOMER LOT NO.	LOT NUMBER	QUANTITY
3/4" F436	0124-985	240,000

STEEL GRADE	HEAT	C	MN	P	S	SI	AL	REVISION
	32346440	.51	.74	.011	.001	.27	.027	F436-19

SPECIFICATION	ACTUAL	GAUGE
O.D - 1.436 - 1.500	1.439 - 1.444	CALIPER
I.D - .813 - .845	.820 - .824	CALIPER, PIN GAUGE
THICKNESS- .122 - .177	.126 - .130	MICROMETER
FLAT- Max .010	.009	CALIPER
HEAT TREAT - 38 - 45 HRC	41.4 - 43.0	
PLATING-	N/A	
OTHER	N/A	

WE HEARBY CERTIFY THIS PRODUCT WAS PRODUCED UNDER A ISO-9001:2015 QUALITY ASSURANCE SYSTEM. ISO-9001:2015
ALL MATERIALS ARE MADE AND MELTED IN THE U.S.A. THIS PRODUCT WAS MANUFACTURED IN CHESTERFIELD, MICHIGAN, U.S.A. THIS PRODUCT CONFORMS TO ALL REQUIREMENTS FOR WASHERS AS PRODUCED ACCORDING TO A.S.T.M. F-436-19. THE ABOVE TEST RESULTS APPLY ONLY TO THE ITEMS TESTED. THIS TEST REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT PRIOR WRITTEN APPROVAL

Sherrie Mickon

AUTHORIZED SIGNATURE

CERTIFIED ISO 9001:

" MADE AND MANUFACTURED IN THE USA"

USA HEAT TREATING INC.
4500 Lee Road, Unit B Cleveland Ohio 44128

ISO 9001 Registered Company

OrderDate:	Order#:
1/15/2024	189367

Original Order:

CERTIFICATION

Company Name

Technical Stamping Inc.

Ship Name

Technical Stamping Inc.
50600 E. Russell Schmidt Blvd.
Chesterfield MI 48051

PO:	Lot:	Heat:	BinNumber:
1474	0124-985	32346440	535 920 913 C39 C33

ProductName: **F0034m**
ProductDescription: **3/4" F436 WASHER**
Containers: **5** Tub(s)
Quantity/Weight: **8172** LBS. **220864** PCS:
Material: **.51C/.74Mn**
Pre-Process: **-N/A**
Process: **Neutral Harden (Oil Quench)**
Post-Process: **Soluble Oil Finish**

Certification

Test Results:

SPECIFICATION RC 38/45
RC 41.4-43.0

The above order has been processed and inspected. USA HT certifies that all samples tested were within the above stated specified hardness.

Approved By: Douglas W. DeLaney Date: 1/18/2024

Douglas W. DeLaney
Quality Manager

Proudly processed in the United States of America

2284

CERTIFICATE OF ANALYSIS

GRAND STEEL

Release No: 82985

Sold to: Technical Stamping, INC.
50600 E. Russell Schmidt Blvd.
Chesterfield, MI. 48051

Ship to: Techincal Stamping, INC.
50600 E. Russell Schmidt Blvd.
Chesterfield, MI. 48051

Date: 1/03/2024
Time 12:06:20

Melted and Manufactured in the USA

Chemistry Heat Number 32346440

nValue: rValue: SS:

C: .51	Mn: .74	P: .011	S: .001	Si: .27
Cu: .10	Al: .027	CB: .004	V: .002	Ni: .04
Cr: .07	Ti: .001	N: .007	Mo: .020	Ca: .003
Zr:	Sb:	B: .0004	Sn: .005	Nb: .004

Master Tag# 23B113445

☐ A2LA LAB TEST # _____
☐ MILL TEST RESULTS _____
☐ OTHER

2284

Steel Dynamics®
Flat Roll Group

Steel Dynamics Sales North America, Inc.
4500 County Rd 59
Butler, IN 46721 United States
Telephone (260) 868-8000

Metallurgical Certification

Cert # 4282275 - Cert/Ship Date : 12/06/2023 07:48

Ship To	Grand Steel Products, Inc. 51100 Pontiac Trail Wixom, MI 48393 United States	**Contact** Jim Barnett *Sales* P: 248-960-9200 F: 1-248-960-9254
Sold To	Grand Steel Products, Inc. 51100 Pontiac Trail Wixom, MI 48393 United States	**Contact** Jim Barnett *Sales* P: 248-960-9200 F: 1-248-960-9254

Length	1,935 ft	**Width**	51.5000 in	**Chem Treat**	No
Weight (A)	43,520 lb	**Gauge**	0.1220 in | Min	**Oiled**	No

Coil #	23B113445	**Coil Alias**	
Order #	778712	**Heat #**	32346440
Line Item #	6	**PO #**	27204 - 6
Part #			
Alt Part #			
Material Spec.	SAE 1050		
Product Desc.	Prime Hot Rolled Band		
Cert Comment			
Surface Treatment			

Ladle Chemical Analysis (%)

C	Mn	P	S	Si	Al	Cu	Ni	Cr	Mo	Sn	N	V	Nb	Ti	B	Ca	Pb	Zr
0.51	0.74	0.011	0.001	0.27	0.027	0.10	0.04	0.07	0.02	0.005	0.007	0.002	0.004	0.001	0.0004	0.003	0.000	0.0013

Mechanical Properties (if applicable)

Kyle Vanover
Metallurgist

Shipped from Butler, IN, USA

Melted, thin slab cast and rolled by proud Americans in Butler, IN, USA.

SDI does not weld or repair Prime Hot Rolled Band products.

All tests were performed according to applicable standards and are correct as contained in the records of the company.