

Endurance Valve Products Ltd.

Vendor Code: 421643

P.O. Box 3007
Sherwood Park, Alberta
T8H 2T1
Phone: 780.416.9683 Fax: 780.416.9684
GST# 81449 9752

Packing Slip

DATE: August 31, 2022

09/09/22
KIT
5277

PURCHASE ORDER # 3500007374

SHIP TO: Endurance Valve Products Ltd.
% Suncor Energy Inc.
OS FIREBAG
Via Hwy 63 N of Fort McMurray
Firebag Site, AB T9H 3E3
PO# 3500007374
Location Code: AW03

5 Suncor

INSPECTED AT MCG (Authorized Personnel)	
NAME (mandatory)	Dwayne
ACCEPTED ☒ YES	BADGE # 682439
☐ NO	DATE Sept 9 / 2022
*SCM QA, Area QA, Area Reliability & Qualified Whse Inspectors	

LINE ITEM	DESCRIPTION	PART NUMBER	ORDER QUANTITY	SHIP QUANTITY
1	93SP-2140 10IN KNIFE GATE VALVE 150#	FV-10-300-150FF-TL-A516FP/TFE/ 304FP-17.4FP-WRFP-BG-FB-X	1	1
2	93SP-2141 16IN KNIFE GATE VALVE 150#	FV-16-300-150FF-TL-A516FP/TFE/ 304FP-17.4FP-WRFP-BG-FB-X	2	2
3	93SP-2140 10IN KNIFE GATE VALVE A50#	FV-10-300-150FF-TL-A516FP/TFE/ 304FP-17.4FP-WRFP-BG-FB-X	1	1
4	93SP-2141 16IN KNIFE GATE VALVE 150#	FV-16-300-150FF-TL-A516FP/TFE/ 304FP-17.4FP-WRFP-BG-FB-X	2	2
TOTAL:			6	6
Freight Carrier: Canadian Freightways (Acct# 1137212)				
Freight Terms: FCA Longview, WA / Collect to Suncor Energy				

Please Contact the Customer Service Department at 780.416.9683 with any questions or concerns

THANK YOU FOR YOUR BUSINESS!



ph: (780) 416-9683 fax: (780) 416-9684

www.endurancevalve.com

Documentation:

- Certificate of Compliance
- Hydrotest
- MTR's
- I.O.M's
- Endurance Stainless Steel Tag

Supplier:	Endurance Valve Products Ltd.	
Vendor Code:	421643	
Model:	FV-16-300-150FF-TL-A516FP/TFE/304FP-17.4FP-WRFP-BG-FB-X	
Ref Job #	13800 Item #4	
P.O.:	P.O. 4503148039	
Serial #'s	229554-1	229554-2

Tag #'s	Tag: 93SP-2141	Tag: 93SP-2141
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	CRN: 0C10259.2
Weight:	1,100 lbs



ph: (780) 416-9683 fax: (780) 416-9684
www.endurancevalve.com

Certificate of Compliance

Customer: Endurance Valve Products

P.O. Box 3007

Sherwood Park, Alberta

Purchase Order Number:

13800 Item #4

Model Number:

FV-16-300-150FF-TL-A516FP/TFE/304FP-17.4FP-
WRFP-BG-FB-X

Serial #:

229554-1

229554-2

Customer PO

P.O. 4503148039

WE DO HEREBY CERTIFY THAT ALL MATERIALS AS IDENTIFIED IN THE ATTACHED
DOCUMENTS ARE IN ACCORDANCE WITH THE SPECIFIED REQUIREMENTS OF THE
PURCHASE ORDER

THE FOLLOWING DOCUMENTS ARE ATTACHED:

TEST REPORTS

MTR'S

I.O.M'S

T Black

Regards,
Endurance Valve

CRN-0C10259.2

800^{LBS}

229554-1

16⁰⁰

Fabricast Valve Manufacturers ID: 2202955

FV-16-300-150FF-TL-A516FP/TFE/304FP-17.4FP-WRFP-BG-FB-X

P.O. 4503148039 / 3500007374

93SP-2141

13800

300^{PSI}

400°F

421643

A516Gr70

17.4^{SS}

PTFE

CRN-0C10259.2

800^{LBS}

229554-2

16⁰⁰

Fabricast Valve Manufacturers ID: 2202955

FV-16-300-150FF-TL-A516FP/TFE/304FP-17.4FP-WRFP-BG-FB-X

P.O. 4503148039 / 3500007374

93SP-2141

13800

300^{PSI}

400°F

421643

A516Gr70

17.4^{SS}

PTFE



Strive for Excellence

JAR-015

Hydrostatic Test Report

Issued by: HR

Effective Date: 8/16/2022

Rev. C

Pg. 1 of 1

APPROVED: 8/16/2022 11:00 AM - Stosh Zydek



Testing Procedure and Process

Valve Description	FV-16-300-150FF-TL-A516FP/TFE/304FP-17.4FP-WRFP-BG-FB-X					
Serial Number	229554-1	Ref. #	13800	Item #4	Size	16
Tag Number	Tag: 93SP-2141	Design Pressure Body PSI/CWP		300		
Wetted Parts	17.4ss	Flange Material	A516Gr70	Design Pressure Seat PSI/CWP		300
Seat Type	Resilient ☒	Bi-Direct ☒	Metal ☐	Other ☐		

BODY TEST

Using a calibrated pressure tester which is re-calibrated every 360 days, Valve shall be hydrostatically pressure tested at 1.5 times the rated working pressure with no visible leakage through the body material allowed. (Leakage through the packing or gate seal shall not be cause for rejection)

Test Pressure	450	PSI	Test Duration	10	Minutes
Results of Test	☒ PASS ☐ FAIL				
QC Inspector	Lyman Alexander Symon				Date 8.30.22
Source Inspector					Date

SEAT TEST

Apply test pressure to the closed gate at 40PSI (low pressure seat test) and then 1.1. times the rated pressure (high pressure test). Test shall be performed in both flow directions if applicable. Standard acceptance criteria for metal seats are a maximum leakage rate of 40cc/min/NPS (MSS-SP-81) and .167cc/min/NPS (MSS-SP-61) measured at 40PSI. Acceptance criteria for resilient seats are drip tight from 0 PSI to required test pressure. After test, the valve seat is dried with compressed air and wiped down with a dry towel. Leakage will be captured using a measurable catch vessel. *Note - Class IV Leakage Rates are based off of 0.01% Capacity.

Note: Class IV Leakage Rates are based on 100% capacity.								
Metal Seat Test	0	PSI	Leakage Side 1		N/A	Leakage Side 2		N/A
Resilient Seat Test	330	PSI	Leakage Side 1		0	Leakage Side 2		0
Test Duration		Side 1	2	Minutes		Side 2	2	Minutes
Test Results		Side 1	☒ PASS ☐ FAIL			Permissible Leakage		
Test Results		Side 2	☐ PASS ☐ FAIL	☐ Not Applicable			0.000	
Tester		Nicholas Hicks - Nicholas Hicks					Date	8.30.22
Source Inspector							Date	

OPERATIONAL TEST

Open and close the valve 10 full cycles. The valve should open and close smoothly without binding. After the operational test visually inspect the body, gate, stem and operator to ensure it meets Customer and Factory specifications. The valve shall be considered acceptable if it operates smoothly through the entire cycle and meets Factory Quality Requirements.

(For additional functional testing use form QF-82-05-1 to document results.)

QC Inspector	Lyman Alexander Symon	Date	8.30.22
Source Inspector		Date	



Strive for Excellence

JAR-015		Hydrostatic Test Report			
Issued by: HR		Effective Date: 8/16/2022		Rev. C	Pg. 1 of 1
APPROVED: 8/16/2022 11:00 AM - Stosh Zydek					
Testing Procedure and Process					
Valve Description	FV-16-300-150FF-TL-A516FP/TFE/304FP-17.4FP-WRFP-BG-FB-X				
Serial Number	229554-2	Ref. #	13800	Item #4	Size 16
Tag Number	Tag: 93SP-2141		Design Pressure Body PSI/CWP		300
Wetted Parts	17.4ss	Flange Material	A516Gr70	Design Pressure Seat PSI/CWP 300	
Seat Type	Resilient ☒	Bi-Direct ☒	Metal ☐	Other ☐	
BODY TEST					
Using a calibrated pressure tester which is re-calibrated every 360 days, Valve shall be hydrostatically pressure tested at 1.5 times the rated working pressure with no visible leakage through the body material allowed. (Leakage through the packing or gate seal shall not be cause for rejection)					
Test Pressure	450	PSI	Test Duration	10	Minutes
Results of Test	☒ PASS ☐ FAIL				
QC Inspector	Lyman Alexander Sepin - <i>Lyman Alexander Sepin</i>				Date 8-30-22
Source Inspector					Date
SEAT TEST					
Apply test pressure to the closed gate at 40PSI (low pressure seat test) and then 1.1 times the rated pressure (high pressure test). Test shall be performed in both flow directions if applicable. Standard acceptance criteria for metal seats are a maximum leakage rate of 40cc/min/NPS (MSS-SP-81) and .167cc/min/NPS (MSS-SP-61) measured at 40PSI. Acceptance criteria for resilient seats are drip tight from 0 PSI to required test pressure. After test, the valve seat is dried with compressed air and wiped down with a dry towel. Leakage will be captured using a measurable catch vessel. *Note - Class IV Leakage Rates are based off of 0.01% Capacity.					
Metal Seat Test	0	PSI	Leakage Side 1	N/A	Leakage Side 2 N/A
Resilient Seat Test	330	PSI	Leakage Side 1	0	Leakage Side 2 0
Test Duration	Side 1	2	Minutes	Side 2	2 Minutes
Test Results	Side 1	☐ PASS ☐ FAIL	Permissible Leakage		
Test Results	Side 2	☐ PASS ☐ FAIL	☐ Not Applicable 0.000		
Tester	Nicholas Hicks - <i>Nicholas Hicks</i>				Date 8-30-22
Source Inspector					Date
OPERATIONAL TEST					
Open and close the valve 10 full cycles. The valve should open and close smoothly without binding. After the operational test visually inspect the body, gate, stem and operator to ensure it meets Customer and Factory specifications. The valve shall be considered acceptable if it operates smoothly through the entire cycle and meets Factory Quality Requirements.					
(For additional functional testing use form QF-82-05-1 to document results.)					
QC Inspector	Lyman Alexander Sepin - <i>Lyman Alexander Sepin</i>				Date 8-30-22
Source Inspector					Date

539199



EVRAZ

EVRAZ INC. NA

Test Certificate

P.O. Box 1670, Regina, Saskatchewan, Canada S4P 3C7

Form TC1: Revision 2: Date 13 Feb 2017

Customer: VARSTEEL LTD 330-220 4TH STREET LETHBRIDGE AB T1J4J7				Customer P.O. No.: CTL-811				Mill Order No.: 41-258341-17				Shipping Manifest : RT121493																																							
				Product Description: ASTM A1011(04A)CS TYPE B MODIFIED SUM OF CU+NI+CR+MO = 1.30% MAX								Ship Date: 10 Jun 21 Cert Date: 10 Jun 21				Cert No: 071105542 (Page 1 of 1)																																			
												Size (Mln): 0.112 X 60.00 X COIL (IN)																																							
Tested Pieces				Tensiles								Charpy Impact Tests																																							
Heat Id	Place Id	Place Dimensions	Tst Loc	YS (PSI)	UTS (PSI)	%RA	Elong % 2In 8In	Tst Dir	Average Hardness	Abs. Energy(FTLB) 1 2 3 Avg				% Shear 1 2 3 Avg				Tst Temp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr																														
Heat Id 539199 Chemical Analysis <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td>C</td><td>Mn</td><td>P</td><td>S</td><td>Si</td><td>Tot Al</td><td>Cu</td><td>Ni</td><td>Cr</td><td>Mo</td><td>Co</td><td>V</td><td>Ti</td><td>B</td><td>N</td> </tr> <tr> <td>.05</td><td>.29</td><td>.014</td><td>.010</td><td>.27</td><td>.007</td><td>.40</td><td>.12</td><td>.17</td><td>.04</td><td>.001</td><td>.001</td><td>.001</td><td>.0002</td><td>.0084</td> </tr> </table> Melted In CAN																						C	Mn	P	S	Si	Tot Al	Cu	Ni	Cr	Mo	Co	V	Ti	B	N	.05	.29	.014	.010	.27	.007	.40	.12	.17	.04	.001	.001	.001	.0002	.0084
C	Mn	P	S	Si	Tot Al	Cu	Ni	Cr	Mo	Co	V	Ti	B	N																																					
.05	.29	.014	.010	.27	.007	.40	.12	.17	.04	.001	.001	.001	.0002	.0084																																					
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT THIS PRODUCT IS CERTIFIED TO CHEMISTRY ONLY BALANCE OF CHEMISTRY IS IRON (FE) MELTED AND POURED IN CANADA 539199 A0061 PCES: 1, WGT: 41980																																																			
Port Liners																																																			
(U) Cust Practice:										WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION										Approved By: <u>Kendal Dunnett</u> Quality Representative																															

Heat Number

539199

Shipper No

16498

Customer PO#

DE-1069592

Customer Name

VARSTEEL LTD. - DELTA (INTERCI

Port Liners

3/16 A36

540798



Test Certificate

Form TC1: Revision 2: Date 13 Feb 2017

P.O. Box 1670, Regina, Saskatchewan, Canada S4P 3C7

Customer: VARSTEEL LTD. 330-220 4TH STREET LEATHERIDGE AB T1J4J7	Customer P.O. No.: DCTL-863 Product Description: CSA G40.21(2018)44/300/38W-ASTM A36(19) A709(01A)36/ASME SA36(01ED) CSA G40.21(2018)300W/260W	Mill Order No.: 41-258721-04 Shipping Manifest: RT127215
Size (Min): 0.178 X 60.00 X COIL (IN)		Ship Date: 04 Nov 21 Cert Date: 04 Nov 21 Cert No: 071111472 (Page 1 of 1)

Tested Pieces				Tensiles				Charpy Impact Tests									
Heat Id	Piece Id	Piece Dimensions	Tst Loc	YS (PSI)	UTS (PSI)	%RA	Elong %	Average Hardness			% Shear			Tst Dir	Tst Temp (mm)	BDWTT Temp	% Shr
								2in	3in	8in	1	2	3				
540798	C0005	0.308 X 60.00	L	56000	70000		38	T									
540798	C0006	0.183 X 60.00	L	63000	73000		35	T									

Heat Id	Chemical Analysis																Melted in CAN
	C	Mn	P	S	Si	Tot Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	CEV	
540798	.05	.84	.008	.005	.15	.053	.31	.19	.16	.06	.011	.003	.022	.0002	.0068	.27	

MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT

HOT-ROLLED COIL INTENDED FOR CONVERSION TO GRADE. CERTIFIED TO CHEMISTRY ONLY.

COIL END PHYSICAL TEST RESULTS, IF REPORTED, ARE FOR INFORMATION ONLY.

BALANCE OF CHEMISTRY IS IRON (FE)

MELTED AND POURED IN CANADA

540798 C0009 PCES: 1, WGT: 46780

Cust Practice:	WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION	Approved By: Kendal Dunnett Quality Representative
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Warehouse Transfer

From Delta Varsteel to Corporate C

Transfer No Heat Number

233606 540798

Customer Name Customer PO#

VARSTEEL LTD. - DELTA (INTERC) DE-1072731

Shipper No Heat Number

17288 540798

3/8 A36

541093

EVRAZ EVRAZ INC. NA**Test Certificate**

Form TC1: Revision 2: Date 13 Feb 2017

P.O. Box 1670, Regina, Saskatchewan, Canada S4P 3C7

Customer: VARSTEEL LTD 330-220 4TH STREET LETHBRIDGE AB T1J4J7			Customer P.O. No.: CTL-870			Mill Order No.: 41-258861-12			Shipping Manifest : RT128225										
Product Description: CSA G40.21(2018)44/300/38W;ASTM A36(19) A709(01A)36/ASME SA36(01ED) CSA G40.21(2004)260W			Ship Date: 30 Nov 21			Cert No: 071112181			(Page 1 of 1)										
			Cert Date: 30 Nov 21																
Size (Min): 0.365 X 60.00 X COIL (IN)																			
Tested Pieces			Tensiles						Charpy Impact Tests										
Heat Id	Piece Id	Piece Dimensions	Tst Loc	YS (PSI)	UTS (PSI)	%RA	Elong % 2in 8in	Tst Dir	Average Hardness	Abs. Energy(FTLB) 1 2 3 Avg			% Shear 1 2 3 Avg			Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Str
Heat Id 541093																			
Chemical Analysis C Mn P S Si Tot Al Cu Ni Cr Mo Cb V Ti B N .04 .60 .008 .010 .14 .046 .43 .13 .09 .03 .022 .001 .000 .0002 .0081 Melted in CAN																			
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT HOT-ROLLED COIL INTENDED FOR CONVERSION TO GRADE. CERTIFIED TO CHEMISTRY ONLY. COIL END PHYSICAL TEST RESULTS, IF REPORTED, ARE FOR INFORMATION ONLY. BALANCE OF CHEMISTRY IS IRON (FE) MELTED AND POURED IN CANADA 541093 B0275 PCES: 1, WGT: 42360																			
(u) Cust Practice:										WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION									
Approved By: Kendal Dunnett Quality Representative																			

Heat Number

541093

Shipper No

17351

Customer PO#

VARSTEEL LTD. - DELTA (INTERC) DE-1072988

Customer Name

1/2 A36

421037

EVRAZ

EVRAZ INC. NA

P.O. Box 1670, Regina, Saskatchewan, Canada S4P 3C7

Test Certificate

Form TC1: Revision 2: Date 13 Feb 2017

Customer: VARSTEEL LTD 330-220 4TH STREET LETHBRIDGE AB T1J4J7		Customer P.O. No.: CTL-867		Mill Order No.: 41-258804-08		Shipping Manifest: RT126390																																									
		Product Description: CSA G40.21(2018)44/300/38W; ASTM A36(19) A709(01A)36/ASME SA36(01ED) CSA G40.21(2004)260W				Ship Date: 12 Oct 21 Cert Date: 12 Oct 21																																									
		Size (Min): 0.490 X 60.00 X COIL (IN)				Cert No: 071110649 (Page 1 of 1)																																									
Tested Pieces		Tensiles		Charpy Impact Tests																																											
Heat Id	Piece Id	Piece Dimensions	Tst Loc	YS (PSI)	UTS (PSI)	%RA	Elong % 2in 8in	Tst Dir	Average Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tst %Shr																																
Heat Id Chemical Analysis Melted in <table border="1"> <tr> <td>C</td><td>Mn</td><td>P</td><td>S</td><td>Si</td><td>Tot Al</td><td>Cu</td><td>Ni</td><td>Cr</td><td>Mo</td><td>Cb</td><td>V</td><td>Ti</td><td>B</td><td>N</td><td></td> </tr> <tr> <td>421037</td><td>.06</td><td>.54</td><td>.012</td><td>.002</td><td>.17</td><td>.048</td><td>.26</td><td>.08</td><td>.09</td><td>.02</td><td>.023</td><td>.001</td><td>.001</td><td>.0001</td><td>.0082</td> </tr> </table> CAN																C	Mn	P	S	Si	Tot Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N		421037	.06	.54	.012	.002	.17	.048	.26	.08	.09	.02	.023	.001	.001	.0001	.0082
C	Mn	P	S	Si	Tot Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N																																	
421037	.06	.54	.012	.002	.17	.048	.26	.08	.09	.02	.023	.001	.001	.0001	.0082																																
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Cust Practice:		WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION				Approved By: Kendal Dunnelt Quality Representative																																									

Heat Number

421037

Shipper No

17351

Customer PO#

VARSTEEL LTD. - DELTA (INTERC) DE-1072988

Customer Name

Packing Box Sides

**Nut Retainers
Stuffer Ends**

TEST REPORT

IMR Report Number 202112606B

SUMMARY

One sample was received for mechanical testing.

The sample meets the specified tensile requirements for plates.

November 29, 2021

Rem Steel Sales, Inc
9109 N Wilbur
Portland, OR 97217

PO Number
7120

Date Received
November 18, 2021

Material
5/8" Plate Coupon

Material Identity
Heat# A1J022

Specification(s)
ASTM A572-21 ⁴¹, Gr. 50;
and ASTM A709-18, Gr. 50

ROOM TEMPERATURE TENSILE TEST

Laboratory Number	Tensile Strength (ksi)	Yield Point (ksi)	Elongation in 2" (%)	Orig. Gauge Width (in.)
2112606-2FTT	90.5	70.0	30	0.504
ASTM A572-21 ⁴¹ , Gr. 50 Req. (Min.)	65	50	19	
ASTM A709-18, Gr. 50 Req. (Min.)	65	50	19	

Yield point determined by 0.5% extension method
Direction = Transverse
Method(s): ASTM A370-20 and ASTM A6-19



Reviewed by

Elwin Aragorn

Elwin Aragorn
Technical Review

All procedures were performed in accordance with the IMR Quality Manual, current revision, and related procedures; and the P&W MCL Manual F-23 and related procedures as applicable. The information contained in this test report represents only the material tested and may not be reproduced, except in full, without the written approval of IMR Test Labs ("IMR"). IMR maintains a quality system in compliance with the ISO/IEC 17025 and is accredited by A2LA, certificate #1140.07. IMR will perform all testing in good faith using the proper procedures, trained personnel, and equipment to accomplish the testing required. Conformance will be based on results without measurement uncertainty applied, unless otherwise requested by the customer. IMR's liability to the customer or any third party is limited at all times to the amount charged for the services provided. All test samples will be retained for a minimum of 3 months and may be destroyed thereafter, unless otherwise specified by the customer. The recording of false, fictitious, or fraudulent statements or entries on this document may be punished as a felony under federal statutes. IMR Test Labs is a GEAE S-400 approved lab (Supplier Code T4280).

Rem Steel Sales, Inc

STATEMENT OF ANALYSIS

CONSIGNEE:

REM STEEL SALES INC.

9109 N WILBUR

DATE: 23 Oct 2021

BILL OF LADING NO.: MR447190

41-656998 41-656998 41-656998

41-656998 41-656998 41-656998

MILL ORDER NO.(s)

41-656998 41-656998

PORTLAND, OR 97217

PRODUCT: PIPE HSS

SHEET X PLATE COIL

THE ANALYSIS OF THE PRODUCT ON THIS LOAD IS AS FOLLOWS:

SIZE				GRADE					HEAT NO.				
ELEMENT - ALLOY THRESHOLD													
%C	%Mn	%B	%Ti	%Si	%Cu	%Ni	%Cr	%P	%S	%V	%CB	%Mo	%AL
—	1.65	.0008	0.05	0.60	0.40	0.30	0.30	—	—	0.10	0.06	0.08	0.30
0.000 X 0 X				SECONDS US					B1J594 B16				
0.17	0.88	.0000	0.006	0.04	0.32	0.31	0.23	0.013	0.003	0.003	0.001	0.06	0.028
0.000 X 0 X				SECONDS US					B1I609 D26				
0.16	0.81	.0001	0.006	0.04	0.28	0.11	0.13	0.010	0.006	0.003	0.001	0.03	0.035
0.000 X 0 X				SECONDS US					A1H043 D03				
0.16	1.20	.0001	0.006	0.05	0.41	0.22	0.17	0.018	0.003	0.069	0.029	0.03	0.027
0.000 X 0 X				SECONDS US					A1H043 D04				
0.16	1.20	.0001	0.006	0.05	0.41	0.22	0.17	0.018	0.003	0.069	0.029	0.03	0.027
0.000 X 0 X				SECONDS US					A1H043 D04				
0.16	1.20	.0001	0.006	0.05	0.41	0.22	0.17	0.018	0.003	0.069	0.029	0.03	0.027
0.000 X 0 X				SECONDS US					A1H043 D03				
0.16	1.20	.0001	0.006	0.05	0.41	0.22	0.17	0.018	0.003	0.069	0.029	0.03	0.027
0.000 X 0 X				SECONDS US					B1J507 B41				
0.16	1.05	.0002	0.009	0.18	0.36	0.26	0.41	0.009	0.002	0.052	0.028	0.04	0.035
0.000 X 0 X				SECONDS US					A1J022 B17				
0.16	1.08	.0002	0.008	0.18	0.37	0.27	0.42	0.012	0.001	0.050	0.029	0.03	0.039

We trust this is the information you require.
 Very truly yours,
 SSAB IOWA INC.

Shipping

Export Declaration Exempt: NOEEI 30.36

REPORT OF CHEMICAL/PHYSICAL TESTS



SOLD TO
BRIDGE CITY STEEL
3865 NW ST HELENS RD
PORTLAND, OR 97210
USA

BRIDGE CITY STEEL
3865 NW ST HELENS RD
PORTLAND, OR 97210
USA

CERTIFICATE NO.	DATE	PAGE
1809314	Jan 24, 2022	1
MILL ORDER NO.	DATE	
372904		
CUSTOMER ORDER NO.		
227314		
JOB/REQ. NO.		
SHIPPING NO.	DATE	
1809314	01/24/2022	
CARRIER		
GREEN TRANSFER		
CAR/TRUCK NO.		
28		

THIS MATERIAL HAS BEEN MANUFACTURED, TESTED AND FOUND TO MEET THE SPECIFICATIONS AND PURCHASE ORDER REQUIREMENTS
EOS CARBON STRUCTURAL QUALITY PLATE ASTM A36-19/ASME SA36 2021 ASTM A709-18
GRADE 36 FOR LASER QUALITY APPLICATIONS NO WELD REPAIR. LASER QUALITY. KILLED
FINE GRAIN PRACTICE. AIM .03 SI, .19 C.

PHYSICAL PROPERTIES

ITEM NO.	DESCRIPTION	HEAT NO.	SLAB	YIELD PSI X 100	TENSILE PSI X 100	% ELONG 8" 2"	% RA	HARDNESS BHN	BEND TEST	IMPACTS
1	1.2500 X 96.000ME X 240.000									
	2 PCS 16336 LBS	RS5967		474	725	28				
2	0.7500 X 96.000ME X 240.000									
	4 PCS 19604 LBS	RS5173		625	800	23				
				466	720	38				
3	1.0000 X 96.000ME X 240.000									
	3 PCS 19602 LBS	RS5173		485	735	34				
	9 PCS 55542 LBS TOTALS									

Gussets
Gland Flange
Lifter Sides
Lifter Top
Yoke Top

CHEMICAL ANALYSIS

HEAT NO.	C	Mn	P	S	SI	Cu	NI	V	CB	AI	Cr	Mg	TI	B	N	Ca	CE	Mo	Grain Size
RS5967	.18	.91	.012	.003	.03	.32	.11	.003	.001	.033	.11	.03							
RS5173	.18	.87	.013	.001	.06	.33	.13	.003	.001	.054	.12	.02							
RS5173	.18	.87	.013	.001	.06	.33	.13	.003	.001	.054	.12	.02							

HEATS INDICATED WITH (+) WERE MELTED & POURED IN CANADA.
HEATS INDICATED WITH (+) WERE ROLLED IN THE USA.

END OF REPORT

I certify the above to be correct as contained in the records of EVRAZ INC. NA

By

Quality Systems Coordinator

[Signature]



EVRAZ INC. NA
EVRAZ Oregon Steel 14400 N. Rivergate Blvd., Portland, Oregon 97203

REPORT OF CHEMICAL/PHYSICAL TESTS



BRIDGE CITY STEEL
3865 NW ST HELENS RD
PORTLAND, OR 97210
USA

BRIDGE CITY STEEL
3865 NW ST HELENS RD
PORTLAND, OR 97210
USA

CERTIFICATE NO.	DATE	PAGE
1809314	Jan 24, 2022	1
MILL ORDER NO.	DATE	
372904		
CUSTOMER ORDER NO.		
227314		
JOB/REQ. NO.		
SHIPPING NO.	DATE	
1809314	01/24/2022	
CARRIER		
GREEN TRANSFER		
CAR/TRUCK NO.		
28		

THIS MATERIAL HAS BEEN MANUFACTURED, TESTED AND FOUND TO MEET THE SPECIFICATIONS AND PURCHASE ORDER REQUIREMENTS
EOS CARBON STRUCTURAL QUALITY PLATE ASTM A36-19/ASME SA36 2021 ASTM A709-18
GRADE 36 FOR LASER QUALITY APPLICATIONS NO WELD REPAIR. LASER QUALITY. KILLED
FINE GRAIN PRACTICE. AIM .03 SI , .19 C.

PHYSICAL PROPERTIES

ITEM NO	DESCRIPTION	HEAT NO.	SLAB	YIELD PSI X 100	TENSILE PSI X 100	% ELONG 8" 2"	% RA	HARDNESS BHN	BEND TEST	IMPACTS
1	1.2500 X 96.000ME X 240.000									
	2 PCS 16336 LBS	RS5967		474	725	28				
2	0.7500 X 96.000ME X 240.000									
	4 PCS 19604 LBS	RS5173		625	800 23	38				
				466	720					
3	1.0000 X 96.000ME X 240.000									
	3 PCS 19602 LBS	RS5173		485	735	34				
	9 PCS 55542 LBS TOTALS									

Gussets
Gland Flange
Lifter Sides
Lifter Top
Yoke Top

CHEMICAL ANALYSIS

HEAT NO.	C	Mn	P	S	SI	Cu	NI	V	Co	Al	Cr	Mo	Ti	B	N	Ca	CE	McQuinn Eln Grain Size
RS5967	.18	.91	.012	.003	.03	.32	.11	.003	.001	.033	.11	.03						
RS5173	.18	.87	.013	.001	.06	.33	.13	.003	.001	.054	.12	.02						
RS5173	.18	.87	.013	.001	.06	.33	.13	.003	.001	.054	.12	.02						

HEATS INDICATED WITH (1) WERE MELTED & POURED IN CANADA.
HEATS INDICATED WITH (+) WERE ROLLED IN THE USA.

END OF REPORT

I certify the above to be correct as contained in the records of EVRAZ INC. NA

By

Quality Systems Coordinator

[Signature]



EVRAZ INC. NA
Evraz Oregon Steel 14400 N. Rivergate Blvd., Portland, Oregon 97203

REPORT OF CHEMICAL/PHYSICAL TESTS

CERTIFICATE NO.	DATE	PAGE
1809314	Jan 24, 2022	1
MILL ORDER NO.	DATE	
372904		
CUSTOMER ORDER NO.		
227314		
JOB/REQ. NO.		
SHIPPING NO.	DATE	
1809314	01/24/2022	
CARRIER		
GREEN TRANSFER		
CAR/TRUCK NO.		
28		

	SOLD TO	BRIDGE CITY STEEL 3865 NW ST HELENS RD PORTLAND, OR 97210 USA	BRIDGE CITY STEEL 3865 NW ST HELENS RD PORTLAND, OR 97210 USA

THIS MATERIAL HAS BEEN MANUFACTURED, TESTED AND FOUND TO MEET THE SPECIFICATIONS AND PURCHASE ORDER REQUIREMENTS
 EOS CARBON STRUCTURAL QUALITY PLATE ASTM A36-19/ASME SA36 2021 ASTM A709-18
 GRADE 36 FOR LASER QUALITY APPLICATIONS NO WELD REPAIR. LASER QUALITY. KILLED
 FINE GRAIN PRACTICE. AIM .03 SI, .19 C.

PHYSICAL PROPERTIES

ITEM NO.	DESCRIPTION	HEAT NO.	SLAB	YIELD PSI X 100	TENSILE PSI X 100	% ELONG 8" 2"	% RA	HARDNESS BHN	BEND TEST	IMPACTS
1	1.2500 X 96.000ME X 240.000									
	2 PCS 16336 LBS	+! RS5967		474	725	28				
2	0.7500 X 96.000ME X 240.000									
	4 PCS 19604 LBS	+! RS5173		625 466	800 720	23 38				
3	1.0000 X 96.000ME X 240.000									
	3 PCS 19602 LBS	+! RS5173		485	735	34				
	9 PCS 55542 LBS TOTALS									

Gussets
Gland Flange
Lifter Sides
Lifter Top
Yoke Top

CHEMICAL ANALYSIS

HEAT NO.	C	Mn	P	S	Si	Cu	Ni	V	Cb	Al	Cr	Mo	Ti	B	N	Ca		CE	McQuaid Grain Size
+! RS5967	.18	.91	.012	.003	.03	.32	.11	.003	.001	.033	.11	.03							
+! RS5173	.18	.87	.013	.001	.06	.33	.13	.003	.001	.054	.12	.02							
+! RS5173	.18	.87	.013	.001	.06	.33	.13	.003	.001	.054	.12	.02							

HEATS INDICATED WITH (!) WERE MELTED & POURED IN CANADA.
 HEATS INDICATED WITH (+) WERE ROLLED IN THE USA.

..... END OF REPORT

I certify the above to be correct as contained in the records of EVRAZ INC. NA By _____

Quality Systems Coordinator

Gussets

TEST REPORT

IMR Report Number 202111333D

SUMMARY

One sample was received for mechanical testing.

The sample meets the specified tensile requirements of ASTM A572-21st, Gr. 50 for plates.

October 21, 2021

S. _____
7
Vancouver, WA

ROOM TEMPERATURE TENSILE TEST

PO Number
1052

Date Received
October 13, 2021

Material
1.25" Thick Steel Plate

Material Identity
Heat# B1H804

Specification(s)
ASTM A572-21st, Gr. 50

Laboratory Number	Tensile Strength (ksi)	Yield Point (ksi)	Elongation in 4D (%)	Orig. Gauge Dia. (in.)
2111333-4RTT	91.0	71.5	25	0.507
Specification Req. (Min.)	65	50	19	

Yield point determined by 0.5% extension method
Direction = Transverse @ 1/4 Thick
Method(s): ASTM A370-20 and ASTM A6-19



Reviewed by

Adam Shaney, CWI
Technical Review

All procedures were performed in accordance with the IMR Quality Manual, current revision, and related procedures; and the P&W MCL Manual F-23 and related procedures as applicable. The information contained in this test report represents only the material tested and may not be reproduced, except in full, without the written approval of IMR Test Labs ("IMR"). IMR maintains a quality system in compliance with the ISO/IEC 17025 and is accredited by A2LA, certificate #1140.07. IMR will perform all testing in good faith using the proper procedures, trained personnel, and equipment to accomplish the testing required. Conformance will be based on results without measurement uncertainty applied, unless otherwise requested by the customer. IMR's liability to the customer or any third party is limited at all times to the amount charged for the services provided. All test samples will be retained for a minimum of 3 months and may be destroyed thereafter, unless otherwise specified by the customer. The recording of false, fictitious, or fraudulent statements or entries on this document may be punished as a felony under federal statutes. IMR Test Labs is a GEAE S-400 approved lab (Supplier Code T4280).

HOUGH

11/4 A572-50

STATEMENT OF ANALYSIS

CONSIGNEE:

DATE: 27 Sep 2021

BILL OF LADING NO.: MR445036

MILL ORDER NO.(s) 41-655074 41-655074

COVVER, WA 98662

PRODUCT: PIPE HSS

SHEET X PLATE COIL

THE ANALYSIS OF THE PRODUCT ON THIS LOAD IS AS FOLLOWS:

SIZE				GRADE				HEAT NO.					
ELEMENT - ALLOY THRESHOLD													
%C	%Mn	%B	%Ti	%Si	%Cu	%Ni	%Cr	%P	%S	%V	%CB	%Mo	%AL
—	1.65	.0008	0.05	0.60	0.40	0.30	0.30	—	—	0.10	0.06	0.08	0.30
0.000 X 0 X				SECONDS US					B1H803 D23				
0.17	1.23	.0002	0.008	0.18	0.36	0.20	0.16	0.011	0.004	0.039	0.003	0.04	0.030
0.000 X 0 X				SECONDS US					B1H803 D23				
0.17	1.23	.0002	0.008	0.18	0.36	0.20	0.16	0.011	0.004	0.039	0.003	0.04	0.030
0.000 X 0 X				SECONDS US					B1H803 D23				
0.17	1.23	.0002	0.008	0.18	0.36	0.20	0.16	0.011	0.004	0.039	0.003	0.04	0.030
0.000 X 0 X				SECONDS US					B1H803 D23				
0.17	1.23	.0002	0.008	0.18	0.36	0.20	0.16	0.011	0.004	0.039	0.003	0.04	0.030
0.000 X 0 X				SECONDS US					B1H803 D23				
0.17	1.23	.0002	0.008	0.18	0.36	0.20	0.16	0.011	0.004	0.039	0.003	0.04	0.030
0.000 X 0 X				SECONDS US					B1H803 D23				
0.17	1.23	.0002	0.008	0.18	0.36	0.20	0.16	0.011	0.004	0.039	0.003	0.04	0.030
0.000 X 0 X				SECONDS US					B1H804 D36				
0.16	1.18	.0000	0.007	0.04	0.39	0.19	0.16	0.013	0.004	0.068	0.030	0.04	0.030
0.000 X 0 X				SECONDS US					B1H804 D35				
0.16	1.18	.0000	0.007	0.04	0.39	0.19	0.16	0.013	0.004	0.068	0.030	0.04	0.030
0.000 X 0 X				SECONDS US					B1I522 A07				
0.05	1.43	.0000	0.014	0.04	0.27	0.07	0.15	0.011	0.004	0.005	0.045	0.02	0.029

We trust this is the information you require.

Very truly yours.

SSAB IOWA INC.

Shipping

Export Declaration Exempt: NOEEI 30.36

BRIDGE CITY STEEL
(516) PLATE SA516 GR 70
3/4" X 96.0000" X 240.0000"
PART NO.

3/4 AS16-70 PO/Rel 226213

N22783

Certificate of Mill Test Results

SO POR-044505-001

10Mar21

Pg 1/1

Attn:

EVRAZ

EVRAZ INC. NA

Evraz Oregon Steel 14400 N Rivergate Blvd., Portland, Oregon 97203

REPORT OF CHEMICAL/PHYSICAL TESTS

	SOLD TO	F 4 US	N22783 36	42 USA	CERTIFICATE NO. 1710634	DATE Jan 13, 2020	PAGE 1
				MILL ORDER NO. 347452		DATE	
				CUSTOMER ORDER NO. POR-6412			
				JOB REQ. NO.			
				SHIPPING NO. 1710634		DATE 01/13/2020	

THIS MATERIAL HAS BEEN MANUFACTURED, TESTED AND FOUND TO MEET THE SPECIFICATIONS AND PURCHASE ORDER REQUIREMENTS
CARBON STEEL PRESSURE VESSEL QUALITY PLATE ASTM A516-17 GRADE 70 ASME SA516
GRADE 70 2017. AS ROLLED KILLED FINE GRAIN NO WELD REPAIR. PRESSURE VESSEL
QUALITY. KILLED FINE GRAIN PRACTICE. NACE MR0175 P.2 ANNEX A (continued)

CARRIER
GREEN TRANSFER
CARTRUCK NO.
745

PHYSICAL PROPERTIES

ITEM NO	DESCRIPTION	HEAT NO.	SLAB	YIELD PSI X 100	TENSILE PSI X 100	% ELONG 8" 2"	% RA	HARDNESS BHN	BEND TEST	IMPACTS
	COMPLIANT. REPORT ALL RESIDUALS PERS SA20 ITEMS WITH (*) ALSO MEET ASTM/ASME A516 GR65. ITEMS WITH (**) ALSO MEET ASTM/ASME A516 GR60. INSPECTION CERTIFICATE									
3.1	EN10204 :2004 DIN 50049 3.1.B.									
1	0.7500 X 96.0000 X 480.000									
	2 PCS 19602 LBS	N22783	A28	555	815	35				
	2 PCS 19602 LBS	N22787	A24	550	820	35				
	4 PCS 39204 LBS TOTALS									

Horseshoe (Body)

CHEMICAL ANALYSIS

HEAT NO.	C	Mn	P	S	Si	Cu	Ni	V	Co	Al	Cr	Mo	Ti	B	N	Ca		CE	McQuaid Brn Grain Size
N22783	.20	1.34	.015	.005	.29	.01	.05	.027		.033	.02		.002						
N22783:	Cb=<0.005, Mo=<0.005, B=<0.0005																		
N22787	.20	1.30	.015	.004	.31	.01	.05	.023		.034	.03		.002						
N22787:	Cb=<0.005, Mo=<0.005, B=<0.0005																		
HEATS INDICATED WITH (+) WERE MELTED & MANUFACTURED IN THE USA. HEATS INDICATED WITH (*) WERE ROLLED IN THE USA.																			

..... END OF REPORT

I certify the above to be correct as contained in the records of EVRAZ INC. NA By

Aaron Capps
Quality Coordinator

1606312

1" ASME-7C

PART NO.

Attn:

NUCOR
P.O. Box 279
Winston, NC 27986
(252) 356-3700

Mill Test Report
Page 7

1505 River Rd
Cofield, NC 27922
(252) 356-3700

Issuing Date: 09/09/2021 BIL No.: 602386 Load No.: 617828 Our Order No.: 191356/4 Cust. Order No.: HOU-10202
Vehicle No: NOKL 725223 Sold To: RAIL SITE
Specification: 1.0000" x 95.000" x 480.000" STAINLESS STEEL
ASTM A516 70/65/60-77/ASME SA516-70/65/60 PVQ 2019/2021
Normalized Plate NACE MR0175 Annex 2.1.2 (2016), MR0175 (2010)
Section 2.1.2 Compliant (2015) 13.1.1, 13.1.2 Vacuum Degassed

Marking:

Heat No	C	Mn	P	S	Si	Cu	NI	Cr	Mo	Al(c)	V	Nb	Ti	N	Ca	B	Sn	Ceq	Pcm
1606312	0.20	1.02	0.012	0.001	0.19	0.16	0.08	0.11	0.01	0.031	0.005	0.002	0.002	0.0053	0.0017	0.0001	0.005	0.41	0.27

Plate Serial No	Pieces	Tons	Dir.	Tensile Test			Heat Treat		
				Yield (psi)	Tensile (psi)	Elong. % in 2"	Norm (°F)	Time (min)	Temper (°F)
1606312-05	1	6.53	H-T	47,100	74,600	52.5	1650	41	

Plate Serial No	Pieces	Tons	Dir.	Absorbed Energy (Ft-lbs)			Charpy Impacts		
				(ft-lbs)	(ft-lbs)	(ft-lbs)	(in.)	(in.)	(in.)
1606312-05	1	6.53	H-L	78.5	83.4	78.0	80.0	15	

Port Flanges (Body)
Top Flange
Yoke Pads

TEST COUPONS TAKEN FROM HEAT TREATED PLATE

Place frequency charpy

Manufactured to fully killed fine grain practice by Electric Arc Furnace. Welding or weld repair was not performed on this material. We hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with the applicable specifications, including customer specifications.
Mercury has not been used in the direct manufacturing of this material. Produced as continuous cast steel plate, unless otherwise noted in Specification. For Medco shipping info: Sales@medco.com
Yield by 0.5% EL method unless otherwise specified. Ceq = C + (Mn/6) + (Cr + Ni + V)/5 + (Cu + Nb)/15
Pcm = C + (Si/30) + (Mn/20) + (Cr/20) + (Ni/60) + (Mo/15) + (V/10) + S
Killed and Manufactured in the USA, ISO 9001:2015 certified, PED 2014/68/EU, 97/23/EC 7/2 Annex 1, Para. 4.3 Compliant API Q1-1951
DIN 50049 3.1, EN 10204 3.1B (1993) DIN EN 10204 3.1 (2005) compliant, ABS QA-382456
T. A. DiPrella, Metallurgist
9/19/2021 11:35:30 AM



運錫鋼鐵股份有限公司
YUEN CHANG STAINLESS STEEL CO., LTD.
Y C S S

Port Liners

檢驗證明書

高雄市前金區中正四路 235 號 13F
13F, No. 235 Jungjeng 4th Road, Chianjin
Chiuh, Kaohsiung, Taiwan
TEL : 886-7-9695858 FAX : 886-7-9685768
https://www.yuenchang.com.tw

Certificate No. : 11006080006

MILL TEST / QUALITY CONTROL CERTIFICATES

列印日期 ISSUE DATE : 2021/06/08

客戶名稱 Customer	Central National Canada ULC 38 Ancon Road WoodBridge, Ontario L4H 2A9, Canada			Invoice NO. : QEP574/21 PI NO. : IN21062 PO NO. : OP6067961		
商品描述 Desc. Of Goods	Prime Cold Rolled Stainless Steel Sheets, Slit Edge, AS PER ASTM A-240/ASME SA-240 ASTM A-480/ASME SA-480					
項目 Item	鋼捲編號 Coil No.	爐號 A Unique Heat Number	鋼種 Steel Grade	表面 Finish	產品尺寸 Thickness x Width x Length	淨重 Net Weight (KGS)
IE006	02S35247-021	✚ YU195151	304/304L	2B	✚ 16GA x 60IN x 120IN	1,636
IE007	02S35247-022	YU195151	304/304L	2B	16GA x 60IN x 120IN	1,635
IE008	9Y774L01-020	✚ 9Y774	304/304L	2B	✚ 14GA x 60IN x 120IN	1,719
IE001	9Y400L04-016	9Y400	304/304L	2B	12GA x 60IN x 120IN	1,731
IE003	9Y400L04-028	✚ 9Y400	304/304L	2B	✚ 12GA x 60IN x 120IN	1,732
IE005	9Y400L04-029	✚ 9Y400	304/304L	2B	✚ 12GA x 60IN x 120IN	1,731
IE002	05S41947-019	✚ YU495874	304/304L	2B	✚ 11GA x 60IN x 120IN	1,746
IE004	05S41947-024	YU495874	304/304L	2B	11GA x 60IN x 120IN	1,745

化學成份 Actual Mill Chemical

Item	C	Si	Mn	P	S	Cr	Ni	Cu	N	Mo
IE006	0.0190	0.34	0.80	0.036	0.0030	18.18	8.05	0.46	0.0580	0.29
IE007	0.0190	0.34	0.80	0.036	0.0030	18.18	8.05	0.46	0.0580	0.29
IE008	0.0200	0.40	1.40	0.034	0.0020	18.09	8.02	0.05	0.0550	0.04
IE001	0.0270	0.40	1.24	0.032	0.0013	18.28	8.05	0.04	0.0680	0.04
IE003	0.0270	0.40	1.24	0.032	0.0013	18.28	8.05	0.04	0.0680	0.04
IE005	0.0270	0.40	1.24	0.032	0.0013	18.28	8.05	0.04	0.0680	0.04
IE002	0.0230	0.34	0.87	0.030	0.0100	18.25	8.14	0.19	0.0430	0.06
IE004	0.0230	0.34	0.87	0.030	0.0100	18.25	8.14	0.19	0.0430	0.06

機械性質 Mechanical Property Test Reports

Item	T.S N/MM2	Y.S(0.2%) N/MM2	Elong A50(%)	HRBW	HRB
IE006	643	313	55.0		84.0
IE007	643	313	55.0		84.0
IE008	662	287	53.0	83.0	
IE001	633	307	56.0	84.0	
IE003	633	307	56.0	84.0	
IE005	633	307	56.0	84.0	
IE002	668	337	50.0	88.0	
IE004	668	337	50.0	88.0	

QC ACCEPTED
DATE 10-19-21
WTLS

-652658

YUEN CHANG STAINLESS STEEL CO., LTD.
Authorized Signature

QC Manager

David Wang

茲證明本廠所製產品，均依材料規格製造及試驗，並符合規格之要求。

We hereby certify that the products described herein have been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification.

本廠產品無輻射污染，並且不含汞。The material described above is free from radiation contamination and mercury.

除訂單特別註明，否則板正面或鋼捲外側表面被視為主要表面。Unless specified on the order, the main side of sheets and plates, or the outside surface of coils and

HTS 85074

HTS 7304

This MTR contains 1 page (Page# 1

MTR#:TSCLO0526099.GI

0831441

Manufacturer / Fabricante outokumpu		Type of document / Tipo de documento INSPECTION CERTIFICATE CERTIFICADO DE INSPECCION according to / de acuerdo con EN 10204-3.1		Document number / Nº de certificado: 07217021 0000526099 / Page / Pagina: 1 / 2																																																																																						
1 Steel Drive; P.O. Box 13000; Calvert, AL 36513-1300		Customer/Ship to / Cliente Customer's order number / Nº de Pedido Cliente : L96855 Manufacturer's works order no. / Nº de Pedido Manufactura : 901292126 / 005 Delivery note no. / Nº de Entrega : 85736855 / 010 Product / Producto Stainless Steel Hot Rolled Sheets/Hojas																																																																																								
Terms of delivery / Condiciones de entrega ASTM A240/A240M-20a, ASME SA-240 Sec. II part A Ed.2021 ASTM A480/A480M-19, ASME SA-480 Sec. II part A Ed.2019 SAE AMS 5511 K SAE AMS 5513 J ASTM A276-17, A312-21, A479-20, A484-20b Chemical only ASME SA312-19, SA479-20 for Chemical Composition ASTM A666-15 SAE AMS QQ-S-7630 for Chemical composition. NACE MR0103 / ISO 17845: 2015 NACE MR0175 / ISO 15156-3: 2015		Steel Grade and Quality / Acero TYPE 304L/304 UNS S30403 UNS S30400																																																																																								
Customer's material no./ Nº de material del cliente .18860120304L/1/TA		Product dimensions (Thickness / Width / Length) / Dimensiones (Espesor / Ancho / Largo) 4.76 mm x 1,524.00 mm x 3,048.00 mm 0.1875 inch x 60.0000 inch x 120.0000 inch		Steaming procedure / Proceso de manufact. ACD		Finish/ Acabado 11a / 107 No.1																																																																																				
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Originator of the document / Originador del documento / Outokumpu Stainless USA, LLC An ISO 9001:2015 certified company ISO 17025:2017 accredited testing lab by ANAB EU PED 2014/68/EU, Annex I, 4.3 certified Certificate is generated automatically / Certificado es generado automáticamente		The information provided is a true copy of data on file / Los valores mostrados corresponden a los datos archivados Alejandro Carrillo Ramos Name of signer / Nombre del expedido				Date of issue and validation / Fecha de emisión y validación 07/21/2021 This document shall not be altered or reproduced, except in full. Falsification, alterations, or false statements or entries may be prosecuted by law.																																																																																				

Inv: 1085935
Heat: 534315
Date: 11/01/2021

BRIDGE CITY STEEL INC# PO/Rel: 227108
STAINLESS PLATE SPL 3/16" x 60" x 120" HRAP ASTM A-240

Wear Rings Face

MILL TEST REPORT

TA CHEN INTERNATIONAL, INC.
www.tachen.com

This MTR contains: 2 pages (Page: 1)

Cust#: WESPRT Company#: WEST COAST METALS
MTR#: TSCL/TSCL00406499.pdf PO#: SO#: 31372144304L#1 Bundle: 3187941 Heatno: 525113

Manufacturer / Fabricante 		Type of document / Tipo de documento INSPECTION CERTIFICATE CERTIFICADO DE INSPECCION according to / de acuerdo con EN 10204-3.1		Document number / N° de certificado. 0000406499 / Page / Pagina: 1 / 2							
1 Steel Drive; P.O. Box 13000; Calvert, AL 36513-1300 TA CHEN INTERNATIONAL CORP. 5855 OBISPO AVE LONG BEACH CA 90805-3715 USA		Customer/Ship to / Cliente TA CHEN INTERNATIONAL CORP., LONG BEACH Customer's order number / N° de Pedido Cliente. L82546 Manufacturer's work order no. / N° de Pedido Manufactura. 901255696 / 001 Delivery note no. / N° de Entrega. 85609247 / 010 Product / Producto SHEET/HOJAS/BLECH									
Terms of delivery / Condiciones de entrega ASTM A240/A240M-17, ASME SA-240 Sec. II part A Ed.2017 ASTM A240/A240M-18, ASME SA-240 Sec. II part A Ed.2017 ASTM A480/A480M-18, ASME SA-480 Sec. II part A Ed.2017 ASTM A480/A480M-18a, ASME SA-480 Sec. II part A Ed.2017 SAE AMS 5511 J SAE AMS 5513 J ASTM A276-17, A312-18a, A479-18, A484-18a Chemical Only ASTM A666-15 ASME SA312-18a, SA479-18 for Chemical Composition NACE MR0175 / ISO 15156-3: 2015 NACE MR0103 / ISO 17945: 2015		Steel Grade and Quality / Acero TYPE 304L/304 UNS S30403 UNS S30400									
Customer's material no. / N° de material del cliente 31372144304L#1/TA		Product dimensions (Thickness / Width / Length) / Dimensiones (Espesor / Ancho / Largo) 7.94 mm x 1,828.80 mm x 3,657.60 mm 0.3125 inch x 72.0000 inch x 144.0000 inch		Steelmaking procedure / Proceso de manufact. AOD							
Finish / Acabado 11a / 1D / No.1											
Packing No. / N° de Empaque	No. of pieces / Piezas	Actual weight / Peso actual	Coil No. / Bobina No.	Heat No. / Colada	Inspection lot / Lote de inspeccion						
3187941	3	2,767 lb / 1,255 kg	846605	525113	1000611558						
3187943	3	2,765 lb / 1,254 kg	846605	525113	1000611558						
3187946	3	2,767 lb / 1,255 kg	846605	525113	1000611558						
3187948	3	2,751 lb / 1,248 kg	846605	525113	1000611558						
Sum / Suma		12	11,050 lb / 5,012 kg								
Heat / Colada	Country of Mkt / País de colada	Chemical composition / Composicion Quimica									
525113	USA	Chemical analysis per ASTM A751-14a									
		% C	% Si	% Mn	% P	% S	% Cr	% Mo	% Ni	% N	% Cu
		0.025	0.34	1.28	0.031	0.0010	18.19	0.33	8.02	0.057	0.48
Sample Position / Localiz. de la muestra		TRANSVERSE									
Inspection lot / Lote de inspeccion		Mechanical testing per ASTM A370-18									
		YS0.2%	TS	EL. A2"	HRB						
		PSI / MPa	PSI / MPa	%							
1000611558		48,006 / 331	93,981 / 648	54.6	82						
1000611559		51,051 / 352	95,141 / 656	54.3	83						
Resistant to intergranular corrosion / Resistente contra corrosión inter-granular:		ASTM A 262-15, PRACTICE E - Sample Acceptable									
Dimensions-surface / Dimensiones-Superficie:		OK									
Positive Material Identification (PMI) / Control de identidad (análisis espectrográfico):		OK									
Heat Treat: Solution anneal 1900°F/1040°C Min, Air and water quench											
Bending test per ASTM E290-14 OK											
Originator of the document / Originador del documento Outokumpu Stainless USA, LLC An ISO 9001:2015 certified company An ISO 17025: 2005 accredited lab EU PED 2014/68/EU, Annex I, 4.3 certified Certificate is generated automatically / Certificado es generado automáticamente		The information provided is a true copy of data on file / Los valores mostrados corresponden a los datos archivados  Alejandro Carrillo Ramos Name of expert / Nombre del experto				Date of issue and validation / Fecha de emisión y validación 05/06/2019 This document shall not be altered or reproduced, except in full. Fraudulent, fictitious, or false statements or entries may be prosecuted by law.					

MILL TEST REPORT

TA CHEN INTERNATIONAL, INC.
www.tachen.com

This MTR contains: 2 pages (Page: 2)

Cust#: WESPRT Company#: WEST COAST METALS
MTR#: TSCL/TSCL00406499.pdf PO#: SO#:
Item: 31372144304L#1 Bundle: 3187941 Heatno: 525113

Manufacturer / Fabricante 	Type of document / Tipo de documento INSPECTION CERTIFICATE CERTIFICADO DE INSPECCION according to / de acuerdo con EN 10204-3.1	Document number / 05/06/2019 Nº de certificado. 0000406499 / Page / Pagina: 2 / 2
No welding or weld repairs were performed on this material DFARS 225.872-1 Compliant No intentional additions of Mercury compounds were made or used Free of radioactive contamination EU RoHS Directive 2011/65/EU Compliant Product manufactured in the USA Country of Melt as per ISO 3166-1 We hereby certify that the material herein has been made and tested in accordance with the listed specifications and that the results of all tests are acceptable.		
Originator of the document / Originador del documento Outokumpu Stainless USA, LLC An ISO 9001:2015 certified company An ISO 17025: 2005 accredited lab EU PED 2014/68/EU, Annex I, 4.3 certified Certificate is generated automatically / Certificado es generado automáticamente	The information provided is a true copy of data on file / Los valores mostrados corresponden a los datos archivados  Alejandro Carrillo Ramos Name of expert / Nombre del experto	Date of issue and validation Fecha de emisión y validación 05/06/2019 This document shall not be altered or reproduced, except in full. Fraudulent, fictitious, or false statements or entries may be prosecuted by law.

Original Certificate:
Originator of Inspection Document:
Aussteller der Bescheinigung:

SIJ ACHONI, d.o.o.
KRT-KAKOVOST
Cesta Borisa Kidriča 44
61-4270 Jasenica
Slovenia, EU

Tel.: +386 4 584 10 16
Fax: +386 4 584 10 71
E-Mail: gorazd.kosic@acron.si
W: <http://www.acron.si>

Präzernitl certifikat 3.1 / Inspection Certificate 3.1 / Abnahmeprüfzeugnis 3.1 EN 10204:2004 St. dokumente / Document No. / Beschäftigungs Nr. 10164054-20030266-177319 z / dated / vom 23.04.2021	Kupčeva št. naročila / Kundenbestell Nr. 11879-52250 St. Dobavnege lista / Packing list No. / Lieferschein Nr. 10164054 z / dated / vom 23.04.2021	Datum izdaje / Date of issue / Ausgabedatum 23.04.2021
Prefornitk / Consignee / Empfänger JACQUET WEST 22400 LUCERNE STREET 90745 CARSON UNITED STATES	Kupčeva št. izdelka / Purchaser Article No. / Artikel Nr. des Kunden 20030266 z / dated / vom 02.02.2021 Proizvajaleva št. naročila / Manufacturer's works order No. / Werkseutrag Nr.	

[illegible]

Znaka izdela / Marking of the product / Kennzeichnung des Erzeugnisses	Znak proizvajalca Manufacturer's mark Zeichen des Herstellers	Oznaka jekla Steel designation Stahlbezeichnung	Tabel Nr. Plate No.	Sličešča št. Sheet No.	Dimenzije izdelka Product dimensions Abmessungen des Erzeugnisses	Zig kontrolna Stamp of the works inspector	Zig prevzemalca Stamp of the inspection representative

2	317177	2131465501	1864.19	1835.00	0.750 / 79.00 / 240.00	1	2131465501
Poz.	St. Sarze	St. Sarze	1000g	1000g	1000g	St. Sarze	1000g
Item.	Heat No.	Heat No.	Mass	Actual mass	Product dimension	No. of pieces	Sample No.
Poz.	Schmelzen Nr.	Tablet Nr.	Mass	ist Masse	Masse des Erzeugnisses	Stückzahl	Probe Nr.

Nach Izdehave jake / Steelmaking process / Stahlerstellungungsverfahren E + AOD + VD

JACQUET
FICHE#
45988

To potrditi, ki ga podpisavajo v zvezi s poslovanjem, informacijo sistema, je v skladu EN 12024, ods. 5 v veljavni različici podpisala.
 Diese Bescheinigung wurde durch ein genehmigtes Datenverarbeitungssystem erstellt und ist gemäß EN 12024, abs. 5 ohne Unterschrift gültig.
 This Certificate has been issued by a qualified Electronic Data System and is valid acc. to EN 12024, para. 5 without Signature.
 Odgovorno oseba/Werstattungsverantwortlicher/Expert: Gorazd Kosar

LLLE #4 h-LI_nOSL: h2011 #02

Pogoplot topolite obdeave / Heat treatment details / Wärmebehandlung Details
Solution annealing at 1900°F +/- 25°F (1038°C +/- 14°C) for a time commensurate with thickness and cooling to below 90°F (32°C).

[illegible]

Idola / Hardness / Härte (HB)					
St. sarze	St. vzorca	Sample No.	Probe Nr.		
Heiz No.					
Stimmen Nr.					
Zählve	MIN				
Anforderung	MAX				
231465501		353.0		302.0	
317177					

JACQUET
FICHE#
45989

To potrdilo, ki ga izdelajemo z uprabo poslovnomo-informacijskega sistema, je v skladu EN 10204, ods.5 in velja brez podpisa.
 Diese Bescheinigung wurde durch ein geprüftes Datenverarbeitungssystem erstellt und ist gemäss EN 10204, abs.5 ohne Unterschrift gültig.
 This Certificate has been issued by a qualified Electronic Data System and is valid acc. to EN 10204, para.5 without Signature.
 Odkrovnoma osoba/Verfasserassachverhaltendiger/Works Expert Gorazd Kosec

Pogoj simulacijske toplotne obdelave H 900 / Simulation Heat treatment details H 900 / Simulation Wärmebehandlung Details H 900
Precipitation hardening on Test Specimens at 900°F +/-10°F (482°C +/- 6°C) for 60 minutes +/- 5 minutes

Mehanske lastnosti - simulacija toplotne obdelave / Mechanical properties - simulation of the heat treatment / Mechanische Eigenschaften - Simulation der Wärmebehandlung														
Sl. sarže Heat No. Schmelzen Nr.	Sl. vzorca Sample No. Probe Nr.	Smer vzorca Sample orientation Proben lage			Meja plastičnosti Yield or proof strength Streck- oder Dehngrenze (KSI)		Nat. trdnost Tensile str. Zugfestigkeit (KSI)	Zg. meja plastičnosti Upper Yield strenght Obere Streckgrenze (KSI)	Kontrakcija Reduction of area Bruchseinschnürung (%)	Raztezek Elongation Bruchdehnung (%)			Razmerje Ratio Beziehung	Trdota Hardness Härte
		T/L	T/B	1/2; 1/3; 1/4; S2	Rp0,2	Rp1,0	Rm	Reh	Z	A5	A50	A80	Rp/Rm	
Zahteve Requirements Anforderung		MIN	170.0 190.00 35.0 10.0											
		MAX												
317177	2131465501	T	T	S2	173.9		192.76		41.0	11.0				
T- Prečno / Transverse / Quer L- Vzdotžno / Longitudinal / Längs T- Glava / Top / Kopf B- Noga / Bottom / Fuss 1/2 - Odvzem vzorca na sredini / Taking the sample at the center of product / Unter der Probe in der Mitte des Produkt 1/3 - Odvzem vzorca po deb 1/3 pod površino / Thickness 1/3 under the surface / Dicke 1/3 unter der Oberfläche 1/4 - Odvzem vzorca po deb 1/4 pod površino / Thickness 1/4 under the surface / Dicke 1/4 unter der Oberfläche S2- Odvzem vzorca po deb 2 mm pod površino / Thickness 2 mm under the surface / Dicke 2 mm unter der Oberfläche														

Trdota - simulacija toplotne obdelave / Hardness - simulation of the heat treatment / Härte - Simulation der Wärmebehandlung (HB)													
Sl. sarže Heat No. Schmelzen Nr.	Sl. vzorca Sample No. Probe Nr.	Meritev / Measurement / Messungen											
Zahteve Requiem Anforderung	MIN	1											
	MAX	375.0											
317177	2131465501	444.0											
		401.0											

JACQUET
FICHE#
45989

Kemikalna Analiza / Chemical Composition / Chemische Zusammensetzung											
St. Sarže / Heat No. / Schmelzen Nr.						317177					
%C	%Si	%Mn	%P	%S	%Cr	%Ni	%Cu	%Mo	%Nb	%Ta	%Co
0.033	0.311	0.830	0.013	0.0010	15.16	4.22	3.339	0.057	0.212	0.008	0.013

Dodatne zahteve / Additional requirements / Zusätzliche Anforderungen :
St. sarže / Heat No. / Schmelzen Nr.: 317177

Nb+Ta 0.220

Kontrola oznak, identifikacije, površine, oblike in dimenzij / Control of marking and identification, surface appearance, shape and dimensional properties / Prüfung von Kennzeichnung, Identifizierung, Oberfläche, Form und Maße :
ASME SA 480 Ed.2019 OK
ASTM A480/A480M-20 OK

Neporušitvene preiskave / Non destructive test / Zerstörungsfreie Prüfungen

Ultrazvočni pregled: / Ultrasonic inspection: / Ultraschallprüfung :
Ultrazvočni pregled po EN10160-S2-E3: OK / Ultrasonic inspection acc.EN10160-S2-E3: OK / Ultraschallprüfung nach. EN10160-S2-E3: OK

Uprizoritev vsebnosti / Content representation / FERT measured / Acc. AMS 2315 / FERT eingegeben / Acc. AMS 2315			
St. vzorca Sample No. Probe Nr.	St. sarže Heat No. Schmelzen Nr.	%	
Zahteve Requirem Anforderung	MIN MAX	5.0	
2131465501	317177	0.1	



To potrjuje, ki ga izdajamo z uporabo poslovno-informacijskega sistema, je v skladu EN 10204, ods.5 in velja brez podpisa.
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This Certificate has been issued by a qualified Electronic Data System and is valid acc. to EN 10204, para.5 without Signature.
Odgovorna oseba/Werkssachverständiger/Works Expert: Gorazd Kosec

Opombe / Remarks / Bemerkungen

Potrjujemo da dobavljeni izdelki ustrezajo zahtevam naročila / We confirm herewith that the delivered products comply with the purchase order / Es wird bestätigt, daß die Erzeugnisse den Bestellenforderungen entsprechen
Država porekla = Država izdelave taline = Država izdelave slaba - SLOVENIA - EU / Country of Origin = Country of melt = Country of slab: SLOVENIA - EU /
Herkunftsland = Land der schmelze = Land der Branne - SLOVENIA - EG
Material ni kontaminiran z živim srebrom. / Free from Known Contamination with Mercury. / Keine kontamination mit Quecksilber.
Material je skladen z RoHS direktivo. Podrobnosti na: <https://sij.acroni.si/assets/magazine-files/RoHS-declaration-April-2020.pdf> / Material fully comply with RoHS directive, Details on: <https://sij.acroni.si/assets/magazine-files/RoHS-declaration-April-2020.pdf> / Material ausgestattet mit RoHS-Richtlinien, Einzelheiten auf: <https://sij.acroni.si/assets/magazine-files/RoHS-declaration-April-2020.pdf>

Sistem vodenja kakovosti je certificiran po ISO 9001. Št. Certifikata: 12 100 6200 TMS. Izdajatelj: TÜV SÜD Management Service GmbH. / Quality Management System is certified according to ISO 9001. Certificate no. 12 100 6200 TMS, issued by TÜV SÜD Management Service GmbH. / Qualitätsmanagementsystem zertifiziert nach ISO 9001. Zertifikat Nr. 12 100 6200 TMS der TÜV SÜD Management Service GmbH.

Meritve sevanja: NI RADIOAKTIVNEGA ONESNAŽENJA / Measuring Radiation: NO RADIOACTIVE CONTAMINATION / messen: KEINE ERHÖHTE RADIOAKTIVITÄT

Spektrometerska analiza PMI v skladu API RP 578: OK / Spectrometer Sorting Test PMI according API RP 578: OK / Spektrometer Sortiertest PMI nach API RP 578: OHNE BEANSTANDUNG

Vizualni pregled: OK / Visual Inspection: OK / Sichtprüfung: OHNE BEANSTANDUNG

Hardness for grade 410 we can guarantee 35-45HRC acc to AMS 5504

DFARS compliant per 252.225.7003 and 252.225.872-1

**JACQUET
FICHE#
45989**

To potrdilo, ki ga izdelamo z uporabo poslovnno-informacijskega sistema, je v skladu EN 10204, ods.5 in velja brez podpisa.
Diese Bescheinigung wurde durch ein geeignetes Datenverarbeitungssystem erstellt und ist gemäss EN 10204, abs.5 ohne Unterschrift gültig.
This Certificate has been issued by a qualified Electronic Data System and is valid acc. to EN 10204, para.5 without Signature.
Odgovorna oseba/Workssachverständiger/Works Expert: Gorazd Koscec

PO 13800 Item #4
16" FV-150 T-Lok
Gate PMI

INTERNATIONAL INSPECTION

Reading No	Time	Type	Duration	Units	Sequence	Item Description	Material ID	Cr	Cr Error	Ni	Ni Error	Results
1	8/1/2022 6:53	System Check	53.52	cps	Final	System Check 1 of 2						Pass
2	8/1/2022 6:54	System Check	55.24	cps	Final	System Check 2 of 2						Pass
3	8/1/2022 6:55	General Metals	10	%	Final	IARM 35NN Calibration Standard	1.25Cr(P11) : 0.75	1.089	0.047	0.156	0.046	Pass
4	8/1/2022 7:00	General Metals	10	%	Final	Job# 132-1 2" UNI (1 of 1)	SS-316 : 0.00	16.58	0.156	10.322	0.199	Pass
S/N 229554-1	5	8/1/2022 7:06 General Metals	10	%	Final	Job# 955-4 16" UNI (1 of 2)	17-4 PH : *1.81	15.23	0.145	4.219	0.137	Pass
S/N 229554-2	6	8/1/2022 7:09 General Metals	10	%	Final	Job# 955-4 16" UNI (2 of 2)	17-4 PH : 0.80	15.56	0.153	4.005	0.141	Pass
7	8/1/2022 7:16	General Metals	10	%	Final	Job# 955-2 16" UNI (1 of 2)	17-4 PH : 1.45	15.25	0.149	4.108	0.14	Pass
8	8/1/2022 7:18	General Metals	10	%	Final	Job# 955-2 16" UNI (2 of 2)	17-4 PH : 1.42	15.46	0.147	4.096	0.136	Pass
9	8/1/2022 7:22	General Metals	10	%	Final	Job# 132-2 3" UNI (1 of 1)	SS-316 : 0.80	16.71	0.15	9.992	0.188	Pass
10	8/1/2022 7:24	General Metals	10	%	Final	Job# 108-1 8" UNI (1 of 2)	SS-304 : 0.28	18.21	0.164	7.91	0.181	Pass
11	8/1/2022 7:24	General Metals	10	%	Final	Job# 108-1 8" UNI (2 of 2)	SS-304 : 0.70	17.97	0.159	7.949	0.178	Pass
12	8/1/2022 7:26	General Metals	10	%	Final	Job# 103-1 10" TLOK (1 of 2)	17-4 PH : *2.71	15.82	0.151	4.463	0.142	Pass
14	8/1/2022 7:27	General Metals	10	%	Final	Job# 103-1 10" TLOK (2 of 2)	17-4 PH : *2.24	15.5	0.151	4.709	0.148	Pass
15	8/1/2022 7:28	General Metals	10	%	Final	Job# 103-2 16" TLOK (1 of 4)	17-4 PH : *1.80	15.23	0.147	4.322	0.14	Pass
16	8/1/2022 7:29	General Metals	10	%	Final	Job# 103-2 16" TLOK (2 of 4)	17-4 PH : 1.56	15.08	0.143	4.119	0.135	Pass
17	8/1/2022 7:29	General Metals	10	%	Final	Job# 103-2 16" TLOK (3 of 4)	17-4 PH : *1.79	15.28	0.152	4.195	0.143	Pass
18	8/1/2022 7:29	General Metals	10	%	Final	Job# 103-2 16" TLOK (4 of 4)	17-4 PH : 1.47	15.33	0.146	4.113	0.136	Pass
24	8/1/2022 7:34	General Metals	10	%	Final	Job# 098 18" UNI (1 of 1)	17-4 PH : *2.22	15.31	0.148	4.623	0.145	Pass
25	8/1/2022 7:35	General Metals	10	%	Final	Job# 138-2 28" DS (1 of 2)	SS-304 : 0.57	17.95	0.17	7.966	0.191	Pass
26	8/1/2022 7:36	General Metals	10	%	Final	Job# 138-2 28" DS (2 of 2)	SS-304 : 0.09	18	0.17	7.855	0.189	Pass
27	8/1/2022 7:38	General Metals	10	%	Final	Job# 078-1 4" UNI (1 of 2)	SS-304 : 1.16	18.1	0.157	7.95	0.175	Pass
28	8/1/2022 7:38	General Metals	10	%	Final	Job# 078-1 4" UNI (2 of 2)	SS-304 : 1.50	18.13	0.159	7.925	0.176	Pass
29	8/1/2022 7:41	General Metals	10	%	Final	Job# 105-1 6" UNI (1 of 1)	17-4 PH : *2.21	15.46	0.157	4.67	0.153	Pass
30	8/1/2022 7:41	General Metals	10	%	Final	Job# 110 6" UNI (1 of 1)	17-4 PH : *2.22	15.56	0.146	4.649	0.142	Pass
31	8/1/2022 7:43	General Metals	10	%	Final	IARM 35NN Calibration Standard	1.25Cr(P11) : 0.75	1.073	0.045	0.143	0.043	Pass

17-4PH Composition Range

Chromium (Cr): 15.0 - 17.5

Nickel (Ni): 3.0 - 5.0

316 Composition Range (ASME Sec.II)

Chromium (Cr): 16.0 - 18.0

Nickel (Ni): 10.0 - 14.0

304L Composition Range (ASME Sec.II)

Chromium (Cr): 18.0 - 20.0

Nickel (Ni): 8.0 - 13.0

Technician: Daniel C Rosian 8/1/2022

D. Rosian

Reading No	Time	Type	Duration	Units	Sequence	Item Description	Material ID	Ni	Ni Error	Cr	Cr Error	Results
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ARMI MBH

ANALYTICAL LTD

ISO Certified • 9001 • 17025 • 17043 • 17034

Certificate of Analysis

IARM 35NN

Low Alloy Steel / F11 / 1/4Cr 1/2Mo / UNS K11572

Certified Reference Material

Values listed in wt.% with estimated uncertainties

Al	0.0134 ± 0.0005	As	0.0047 ± 0.0002	B	0.0003 ± 0.0001	Ca	0.0010 ± 0.0001
Co	0.0089 ± 0.0002	Cr	1.086 ± 0.001	Cu	0.174 ± 0.001	Fe*	97.22 ± 0.01
Mn	0.331 ± 0.001	Mo	0.478 ± 0.002	Nb	0.0017 ± 0.0001	Ni	0.125 ± 0.001
P	0.0063 ± 0.0001	Pb	0.0022 ± 0.0001	S	0.0038 ± 0.0005	Sb	0.0025 ± 0.0001
Si	0.559 ± 0.004	Sn	0.0087 ± 0.0001	Ta	0.0012 ± 0.0001	Ti	0.0019 ± 0.0001
V	0.0056 ± 0.0001	W	0.0035 ± 0.0001				

*Iron has been calculated as a balance element and was not directly measured by WD-XRF

Description and Intended Use

This **Certified Reference Material** comes in the form of a solid metal disk approximately 3mm thick by 35mm diameter. The intended use of this certified reference material may include, but is not limited to, the calibration of instruments and the validation of analytical methods. Independent evaluation for the intended use of this material should be conducted by the user.

Instructions for Use

1. The test surface is on the opposite side of the labeled surface, which includes the material identification. The entire thickness of the disk is certified. However, the user is cautioned not to measure disks less than 2 mm thick when using X-ray fluorescence spectrometry. Each packaged disk has been prepared by finishing the test surface using a lathe. The user must determine the correct surface preparation procedure for each analytical technique. The user is cautioned to use care when either resurfacing the disk or performing additional polishing, as these processes may contaminate the surface.
2. The material should be stored in a cool, dry location when not in use.

Analytical Reference Materials International • 276 Abby Road • Manchester, NH 03103
Telephone (603) 935-4100 • Fax (603) 935-4101 • www.ARMIL.com • ARMIL@LSCgroup.com

IARM-35NN-F

6/30/2020 1/2



ph: (780) 416-9683 fax: (780) 416-9684
www.endurancevalve.com

INSTALLATION & MAINTENANCE

Valve: 150# TLOK

Flange Bolting: See bolt/torque chart

DESCRIPTION:

The FV-150 T-LOK is a fabricated knife-gate valve. It has two body liners and a seat all made of Teflon or UHMW. It is a bi-directional flow valve and can be installed inline facing either direction. Multiple rows of packing are used to seal the gate outside the flow area. The pressure rating of the FV-150 T-LOK is 150# - 300 CWP (cold working pressure). The Manufacturer will provide test reports with shipment

SHIPPING & STORAGE:

All valves are normally shipped in the "closed" position. Small valves (2" – 6") may be packaged in individual boxes. Larger valves and large quantities will be packaged on pallets, skids, or in boxes and will require a forklift, or appropriate machine, for moving. Storage should be a clean dry environment, such as a warehouse.

INSTALLATION:

Install the valve to the mating pipe flange using proper fastener size and length. Thread size will be provided with each valve. If fasteners are not included in the ordered shipment, customer/installer will need to obtain proper fasteners themselves and must measure the valve and flanges to ensure correct length. Studs and nuts should be used when possible to make fitting easier. Be careful not to bottom-out fasteners in the chest during installation as that area is usually a pressure boundary and can be adversely affected if stress is applied from fasteners. Washers should be used to help shorten the penetration of bolts in the chest holes when needed. (Reference Flange Installation Instructions)

Torque charts can be referenced for the mating flange fasteners in the installation process but will vary according to gasket type, size, and thickness used. Use the cross-torque pattern method for tightening the fasteners. Mating flanges must be parallel and true with each other and the valve. Do not use the valve to pull together or push apart the two mating pipes. After installation, open and close the valve to assure smooth operation.



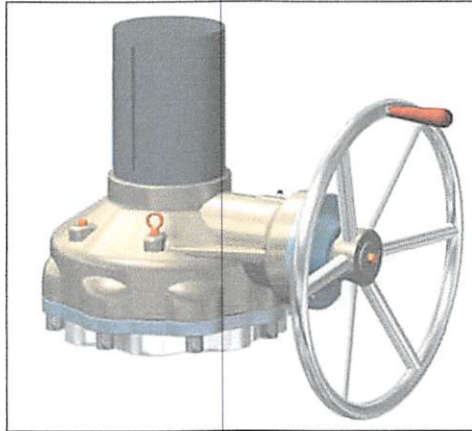
ph: (780) 416-9684 fax: (780) 416-9684
www.endurancevalve.com

MAINTENANCE:

The only item requiring maintenance/adjustment on the knife-gate valve is the packing. After shipment and installation, the packing gland may require adjustment to stop any leaks, especially if the valve has been in storage for a long period of time. When adjusting the packing gland fasteners, it is best to move along both sides of the gland to ensure even adjustment. To stop a leak, normally just a small amount of tightening per fastener is required. Do not tighten fasteners more than is necessary to stop the leak.

Valve Size	Bolt Size	Torque FT. lbs.
2"-4"	5/8"-11 UNC	55 (+/-5)
6"-8"	3/4"-10 UNC	65 (+/-5)
10"-12"	7/8"-9 UNC	110 (+/-10)
14"-16"	1"-8 UNC	135 (+/-10)
18"-20"	1-1/8"-8 UNC	150 (+/-10)
24"-30"	1-1/4"-8 UNC	200 (+/-10)
32"-48"	1-1/2"-8 UNC	250 (+/-10)

SAMBO INDUSTRIAL BEVEL GEAR OPERATORS



BEVEL GEAR BOX

* MATERIAL & FEATURE

1) MATERIAL

HOUSING	Ductile Iron or WCB
BASE	Ductile Iron or WCB
END CAP	Ductile Iron or WCB
PINION	SCM440
BEVEL GEAR	SCM4
DRIVE SLEEVE	A105
STEM CAP	A36
LOCK NUT	A105

2) FEATURE

We have two kinds of manual bevel gear operator type, one is bevel gear and the other is be helical gear. The latter was bevel-spur gear. It has been changed helical gear, because of so rotating among the spur gears.

GENERAL TYPE ----- SB-VS10 SB-V8 (USED BEVEL GEAR)

SUPPORT BOX TYPE-1 - SB-V3-1 SB-V8-1 (USED BEVEL- HELICAL GEAR)

SUPPORT BOX TYPE-2 - SBV2-20 SBV8-20 (USED BEVEL- BEVEL GEAR)

SUPPORT BOX TYPE-3 - SBV2-20-1 SBV8-20-1 (USED BEVEL- BEVEL-BEVEL GEAR)

INSTALLATION

1) Mounting to valve

If the bevel gear operator has been supplied with a hand-wheel, it is recommended that it is fitted to the gearbox before mounting on the valves. About that, be careful the P.C. and tap size of gear box base.

2) Maintenance

Under normal operating conditions no maintenance is required for the bevel gear operator but should the valve be taken out of service for overhaul, the bevel gear operator baseplate may be removed and the grease changed using one of the following recommended lubricants.

Manufacturer : Yong Kang CO.,LTD

Name : Grease(GRANT SUPER GREASE)

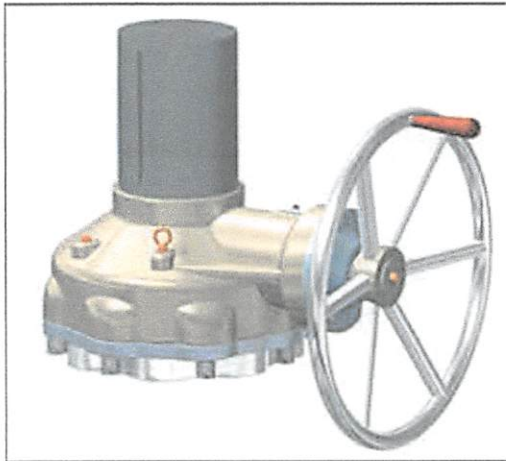
Temperature Range : -4°F □ 284°F (-20°C □ +140°C)

DEVICE OF OPERATION

1) **HAND WHEEL** : Hand-wheel can be located in quadrant, giving you good adaptability. You can install very easily, attach the wheel to the pinion, and a nut and screw.

2) **ACTUATOR** : If you would like to increase RPM, you may use an actuator.

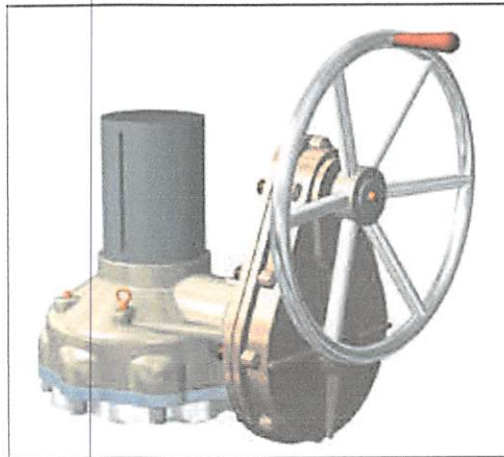
3) **CHAIN WHEEL** : Overhead or inaccessible valves, when equipped with this device, may be conveniently and safely operated from the floor.



GENERAL TYPE-HORIZONTAL
TYPE-1 Stair

Specifications

- SB-VS10~SB-VS20
- SB-V0~SB-V2
- SB-V3~SB-V5
- SB-V6~SB-V8



SUPPORT BOX TYPE HORIZONTAL
TYPE - 2 Stairs

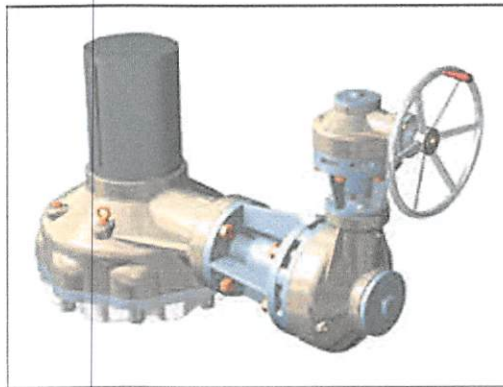
Specifications

- SB-V3-1~SB-V6-1
- SB-V7-1~SB-V8-1



SUPPORT BOX TYPE VERTICAL
TYPE - 2 Stairs

Specifications
- SBV2-20~SBV8~20



SUPPORT BOX TYPE HORIZZONTAL
TYPE - 3 Stairs

Specifications
SBV2~20-1~SBV8~20-1

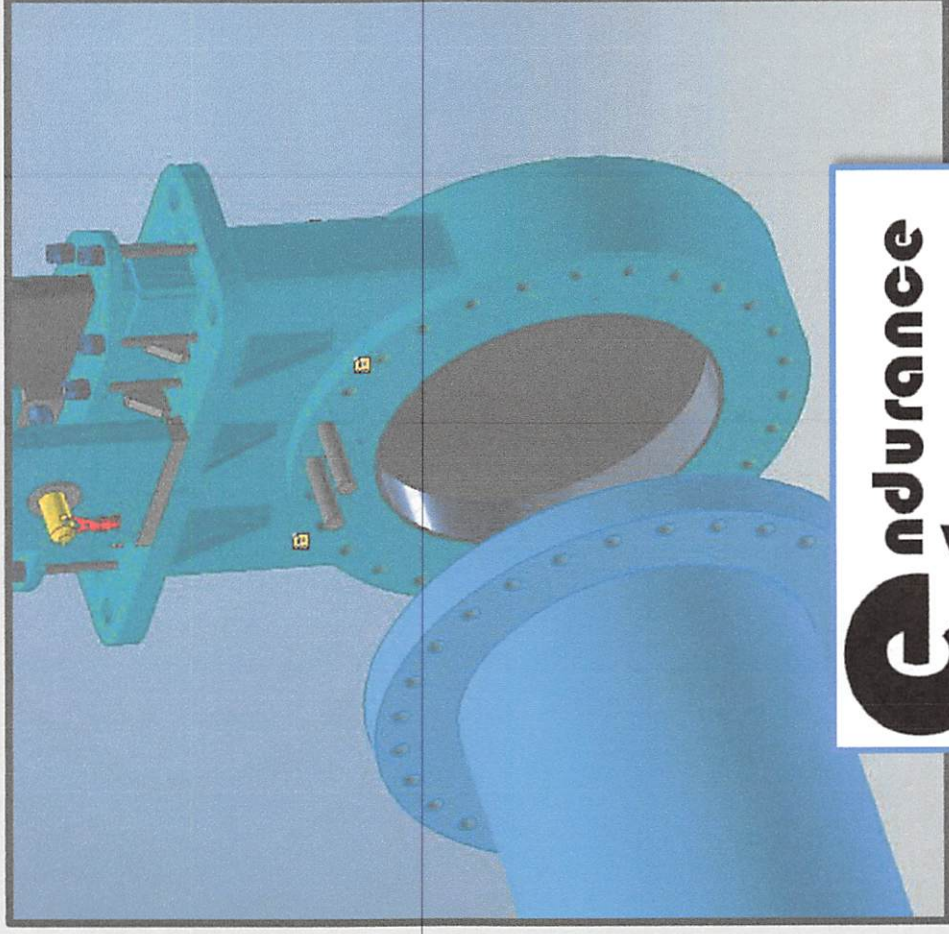
BOLTING STUDS TO VALVE-PIPING

Engineering



STEP 1

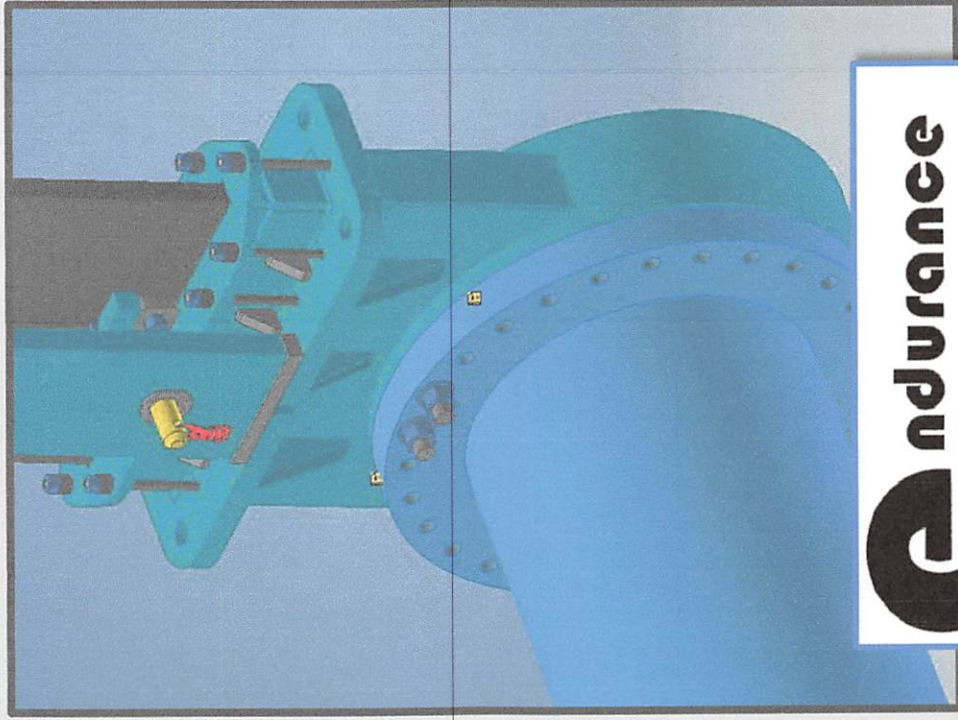
- Begin with 2 studs threaded into the valve next to each other



Endurance
Valve

STEP 2

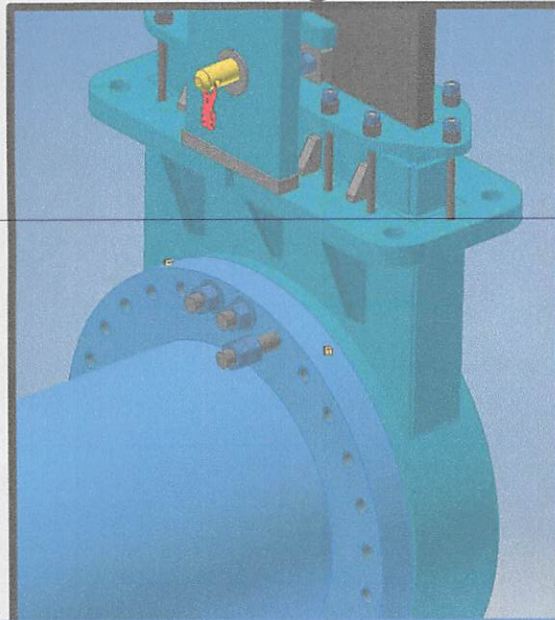
- Line-up to piping and slide flush to pipe and hand snug nuts w/washer



Endurance
Valve

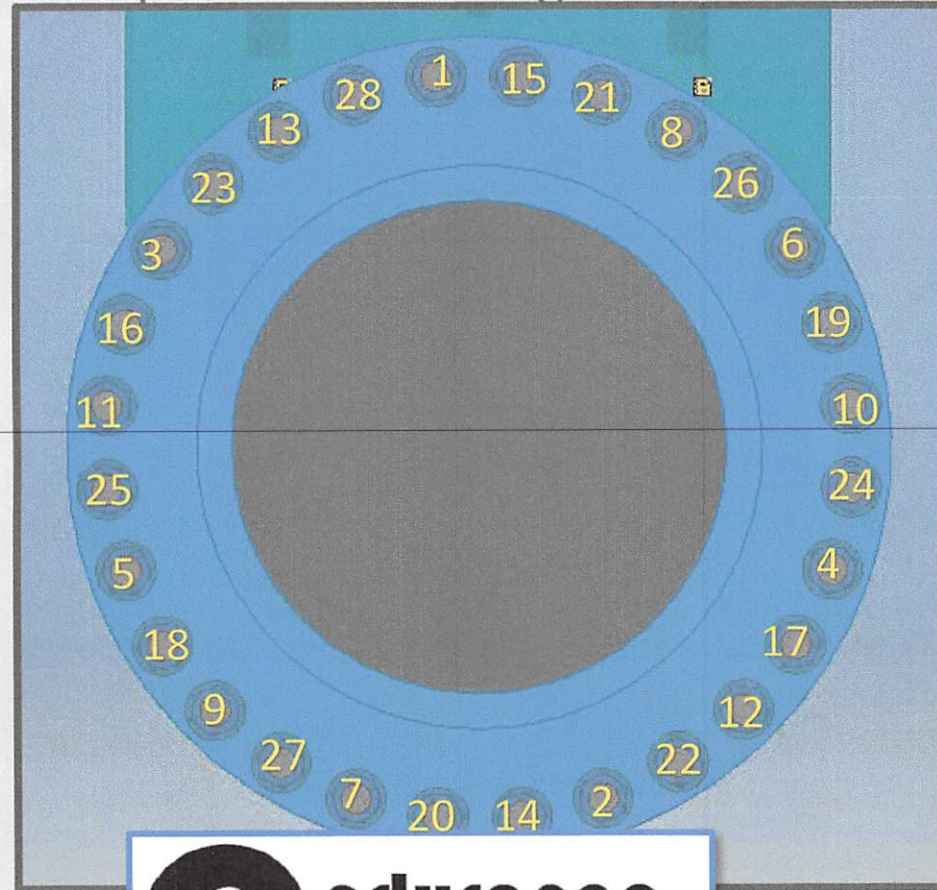
STEP 3

- Thread a nut $\frac{3}{4}$ of the way down another stud.
- Thread a 2nd nut down to the 1st nut.
- Place a washer on the longest side of the stud
- Thread stud by hand into the valve snug and remove upper nut
- Loosen nut and thread remaining stud into valve



STEP 4

- Thread remaining studs and nuts into valve hand snug
- Then torque* in sequence shown in gradual increasing torque.



*torque sequence changes per valve size

