



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:	60004517		
Model:	FV-16-300-150FF-TL-A36/TFE/SS-17.4-BG-FB-X		
Ref Job #	13842 Item #2		
P.O.:	P.O. 3500058708		
Serial #'s	221032-1	221032-2	
	221032-3	221032-4	
Tag #'s	93SP-2141 16IN ENDURANCE KNIFE GATE VALVE 150#	93SP-2141 16IN ENDURANCE KNIFE GATE VALVE 150#	
	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: 13842 Item #2

Model Number: FV-16-300-150FF-TL-A36/TFE/SS-17.4-BG-FB-X

Serial #: 221032-1 221032-2
221032-3 221032-4

Customer PO

P.O. 3500058708

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

1,100^{lbs}

Fabricast Valve Manufacturers ID: 2205103

221032-1

16"

FV-16-300-150FF-TL-A36/TFE/SS-17.4-BG-FB-X

S U N C O R

P.O. 3500058708

93SP-2141 16IN ENDURANCE KNIFE GATE VALVE 150#

13842

300^{PSI}

400^{°F}

0060004517

A36

17.4^{SS}

PTFE

CRN-0C10259.2

1,100^{LBS}

Fabricast Valve Manufacturers ID: 2205103

221032-2

16"

FV-16-300-150FF-TL-A36/TFE/SS-17.4-BG-FB-X

S U N C O R

P.O. 3500058708

93SP-2141 16IN ENDURANCE KNIFE GATE VALVE 150#

13842

300^{PSI}

400°F

0060004517

A36

17.4^{SS}

PTFE

CRN-0C10259.2

1,100^{LBS}

Fabricast Valve Manufacturers ID: 2205103

221032-3

16"

FV-16-300-150FF-TL-A36/TFE/SS-17.4-BG-FB-X

SUNCOR

P.O. 3500058708

93SP-2141 16IN ENDURANCE KNIFE GATE VALVE 150#

13842

300^{PSI}

400^{°F}

0060004517

A36

17.4^{SS}

PTFE

CRN-0C10259.2

1,100^{LBS}

Fabricast Valve Manufacturers ID: 2205103

221032-4

16"

FV-16-300-150FF-TL-A36/TFE/SS-17.4-BG-FB-X

SUNCOR

P.O. 3500058708

93SP-2141 16IN ENDURANCE KNIFE GATE VALVE 150#

13842

300^{PSI}

400^{°F}

0060004517

A36

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-A36/TFE/SS-17.4-BG-FB-X		
Serial Number:	221032-3	Ref. PO#:	13842 Item #2
Tag Number:	93SP-2141 16IN ENDURANCE KNIFE GATE VALVE 150#	Size:	16
Wetted Parts:	17.4ss	Design Pressure Body PSI/CWP:	300
Flange Material:	A36cs	Design Pressure Seat PSI/CWP:	300
Seat Type:	Resilient ☒	Bi-Direct ☒	Metal ☐
			Other ☐

BODY TEST

Each valve shall be given a shell test at a gauge pressure no less than 150% the 38°C (100°F) design pressure rating, rounded up to the next higher 1 bar (25 psi) increment. The test shall be made with water at a temperature not above 50°C (125°F). The pressure shall be able to be applied on all internal walls of the valve body (Gate not required to be in the valve. If gate is present, test shall be made with the valve in the partially open position). No visible leakage through the body material allowed. Leakage through the packing or gate seal shall not be cause for rejection. The shell test duration shall not be less than 10 minutes. Visually detectable leakage through the pressure boundary walls is not acceptable. Leakage through the stem or gate packing shall not be cause for rejection.

*TEST SHALL MEET OR EXCEED REQUIREMENTS OF ASME B16.34, MSS-SP-135, MSS-SP-81, or API 598

Test Pressure:	450 PSI	Test Duration:	10 minutes	Results of Test:	☒ PASS ☐ FAIL
Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9-16-22
QC Inspector (Print/Sign):	Lymon Alexander - Lymon Alexander			Date:	9-16-22
Source Inspector (Print/Sign):				Date:	

OPERATIONAL TEST

Open and close the valve 10 full cycles. The valve shall open and close smoothly without binding. After, visually inspect the body, gate, stem, and operator to ensure it meets customer and manufacturer specifications. The valve shall be considered acceptable if it operates smoothly through the entire cycle and meets manufacturer quality requirements.

Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9-16-22
QC Inspector (Print/Sign):	Lymon Alexander - Lymon Alexander			Date:	9-16-22
Source Inspector (Print/Sign):				Date:	

SEAT TEST

Each valve designed for shut-off or isolation service, shall be given a seat/closure test. The seat test shall follow the shell test. Each valve shall be given a seat test at a gauge pressure no less than 110% times the 38°C (100°F) design pressure rating, rounded up to the next higher 1 bar (25 psi) increment. The test shall be made with water at a temperature not above 50°C (125°F). The seat/closure test shall not be less than 2 minutes. For seat tests with double seating type (bi-directional), the test pressure shall be applied/tested on each side's seat. Tests shall be performed in the closed position.

Resilient Seat Types: Zero leakage shall occur

Metal Seat Types: Test pressure shall be 40 PSI. Maximum leakage of 40cc/min/NPS (MSS-SP-81/135) & .167cc/min/NPS (MSS-SP-61).

Class IV Leakage Rates: Test pressure shall be 40 PSI. Maximum leakage rates are based off of 0.01% valve capacity (Manufacturer predetermined Cv value) as gallons/minute.

*LEAKAGE RATES SHALL BE IN OCCORDANCE WITH REQUIRED SPECIFICATIONS

Metal Seat Test:	300 PSI	Leakage Side 1:	N/A	Leakage Side 2:	N/A
Resilient Seat Test:	330 PSI	Leakage Side 1:	0	Leakage Side 2:	0
Permissible Leakage:	0.00	Test Duration:	Side 1: 2 minutes	Side 2:	2 minutes
Test Results:		Side 1:	☒ PASS ☐ FAIL ☐ Not Applicable	Side 2:	☒ PASS ☐ FAIL ☐ Not Applicable
Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9-16-22
QC Inspector (Print/Sign):	Lymon Alexander - Lymon Alexander			Date:	9-16-22
Source Inspector (Print/Sign):				Date:	

Reference Documents: JA-014, JA-015



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-A36/TFE/SS-17.4-BG-FB-X			
Serial Number:	221032-1	Ref. PO#:	13842 Item #2	Size: 16
Tag Number:	93SP-2141 16IN ENDURANCE KNIFE GATE VALVE 150#	Design Pressure Body PSI/CWP:		300
Wetted Parts:	17.4ss	Flange Material:	A36cs	Design Pressure Seat PSI/CWP: 300
Seat Type:	Resilient ☒	Bi-Direct	☒	Metal ☐ Other ☐

BODY TEST

Each valve shall be given a shell test at a gauge pressure no less than 150% the 38°C (100°F) design pressure rating, rounded up to the next higher 1 bar (25 psi) increment. The test shall be made with water at a temperature not above 50°C (125°F). The pressure shall be able to be applied on all internal walls of the valve body (Gate not required to be in the valve. If gate is present, test shall be made with the valve in the partially open position). No visible leakage through the body material allowed. Leakage through the packing or gate seal shall not be cause for rejection. The shell test duration shall not be less than 10 minutes. Visually detectable leakage through the pressure boundary walls is not acceptable. Leakage through the stem or gate packing shall not be cause for rejection.

*TEST SHALL MEET OR EXCEED REQUIREMENTS OF ASME B16.34, MSS-SP-135, MSS-SP-81, or API 598

Test Pressure:	450 PSI	Test Duration:	10 minutes	Results of Test:	☒ PASS ☐ FAIL
Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9-16-22
QC Inspector (Print/Sign):	Lynnan Alexander Syme - Lynnan Alexander Syme			Date:	9-16-22
Source Inspector (Print/Sign):				Date:	

OPERATIONAL TEST

Open and close the valve 10 full cycles. The valve shall open and close smoothly without binding. After, visually inspect the body, gate, stem, and operator to ensure it meets customer and manufacturer specifications. The valve shall be considered acceptable if it operates smoothly through the entire cycle and meets manufacturer quality requirements.

Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9-16-22
QC Inspector (Print/Sign):	Lynnan Alexander Syme - Lynnan Alexander Syme			Date:	9-16-22
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*LEAKAGE RATES SHALL BE IN OCCORDANCE WITH REQUIRED SPECIFICAIONS

Metal Seat Test:	300	PSI	Leakage Side 1:	N/A	Leakage Side 2:	N/A
Resilient Seat Test:	330	PSI	Leakage Side 1:	Ø	Leakage Side 2:	Ø
Permissible Leakage:	0.00	Test Duration:	Side 1:	2 minutes	Side 2:	2 minutes
Test Results:		Side 1:	☒ PASS ☐ FAIL ☐ Not Applicable		Side 2:	☒ PASS ☐ FAIL ☐ Not Applicable
Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9-16-22	
QC Inspector (Print/Sign):	Lynnan Alexander Syme - Lynnan Alexander Syme			Date:	9-16-22	
Source Inspector (Print/Sign):				Date:		

Reference Documents: JA-014, JA-015



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-A36/TFE/SS-17.4-BG-FB-X			
Serial Number:	221032-2	Ref. PO#:	13842 Item #2	Size: 16
Tag Number:	93SP-2141 16IN ENDURANCE KNIFE GATE VALVE 150#		Design Pressure Body PSI/CWP:	300
Wetted Parts:	17.4ss	Flange Material:	A36cs	Design Pressure Seat PSI/CWP: 300
Seat Type:	Resilient ☒	Bi-Direct ☒	Metal ☐	Other ☐

BODY TEST

Each valve shall be given a shell test at a guage pressure no less than 150% the 38°C (100°F) design pressure rating, rounded up to the next higher 1 bar (25 psi) increment. The test shall be made with water at a temperature not above 50°C (125°F). The pressure shall be able to be applied on all internal walls of the valve body (Gate not required to be in the valve. If gate is present, test shall be made with the valve in the partially open position). No visible leakage through the body material allowed. Leakage through the packing or gate seal shall not be cause for rejection. The shell test duration shall not be less than 10 minutes. Visually detectable leakage through the pressure boundary walls is not acceptable. Leakage through the stem or gate packing shall not be cause for rejection.

*TEST SHALL MEET OR EXCEED REQUIREMENTS OF ASME B16.34, MSS-SP-135, MSS-SP-81, or API 598

Test Pressure:	450 PSI	Test Duration:	10 minutes	Results of Test:	☒ PASS ☐ FAIL
Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9.16.22
QC Inspector (Print/Sign):	Lymon Alexander Syme			Date:	9.16.22
Source Inspector (Print/Sign):				Date:	

OPERATIONAL TEST

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QC Inspector (Print/Sign):	Lymon Alexander Syme			Date:	9.16.22
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Class IV Leakage Rates: Test pressure shall be 40 PSI. Maximum leakage rates are based off of 0.01% valve capacity (Manufacturer predetermined Cv value) as gallons/minute.

*LEAKAGE RATES SHALL BE IN OCCORDANCE WITH REQUIRED SPECIFICAITONS

Metal Seat Test:	300	PSI	Leakage Side 1:	N/A	Leakage Side 2:	N/A
Resilient Seat Test:	330	PSI	Leakage Side 1:	0	Leakage Side 2:	0
Permissible Leakage:	0.00	Test Duration:	Side 1:	2 minutes	Side 2:	2 minutes
Test Results:		Side 1:	☒ PASS ☐ FAIL ☐ Not Applicable	Side 2:	☒ PASS ☐ FAIL ☐ Not Applicable	
Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9.16.22	
QC Inspector (Print/Sign):	Lymon Alexander Syme			Date:	9.16.22	
Source Inspector (Print/Sign):				Date:		

Reference Documents: JA-014, JA-015



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-A36/TFE/SS-17.4-BG-FB-X			
Serial Number:	221032-4	Ref. PO#:	13842 Item #2	Size: 16
Tag Number:	93SP-2141 16IN ENDURANCE KNIFE GATE VALVE 150#	Design Pressure Body PSI/CWP:		300
Wetted Parts:	17.4ss	Flange Material:	A36cs	Design Pressure Seat PSI/CWP: 300
Seat Type:	Resilient ☒	Bi-Direct ☒	Metal ☐	Other ☐

BODY TEST

Each valve shall be given a shell test at a gauge pressure no less than 150% the 38°C (100°F) design pressure rating, rounded up to the next higher 1 bar (25 psi) increment. The test shall be made with water at a temperature not above 50°C (125°F). The pressure shall be able to be applied on all internal walls of the valve body (Gate not required to be in the valve. If gate is present, test shall be made with the valve in the partially open position). No visible leakage through the body material allowed. Leakage through the packing or gate seal shall not be cause for rejection. The shell test duration shall not be less than 10 minutes. Visually detectable leakage through the pressure boundary walls is not acceptable. Leakage through the stem or gate packing shall not be cause for rejection.

*TEST SHALL MEET OR EXCEED REQUIREMENTS OF ASME B16.34, MSS-SP-135, MSS-SP-81, or API 598

Test Pressure:	450 PSI	Test Duration:	10 minutes	Results of Test:	☒ PASS ☐ FAIL
Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9.16.22
QC Inspector (Print/Sign):	Lymon Alexander Syme			Date:	9.16.22
Source Inspector (Print/Sign):				Date:	

OPERATIONAL TEST

Open and close the valve 10 full cycles. The valve shall open and close smoothly without binding. After, visually inspect the body, gate, stem, and operator to ensure it meets customer and manufacturer specifications. The valve shall be considered acceptable if it operates smoothly through the entire cycle and meets manufacturer quality requirements.

Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9.16.22
QC Inspector (Print/Sign):	Lymon Alexander Syme			Date:	9.16.22
Source Inspector (Print/Sign):				Date:	

SEAT TEST

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Class IV Leakage Rates: Test pressure shall be 40 PSI. Maximum leakage rates are based off of 0.01% valve capacity (Manufacturer predetermined Cv value) as gallons/minute.

*LEAKAGE RATES SHALL BE IN OCCORDANCE WITH REQUIRED SPECIFICAIONS

Metal Seat Test:	300	PSI	Leakage Side 1:	N/A	Leakage Side 2:	N/A
Resilient Seat Test:	330	PSI	Leakage Side 1:		Leakage Side 2:	
Permissible Leakage:	0.00	Test Duration:	Side 1:	2 minutes	Side 2:	2 minutes
Test Results:		Side 1:	☒ PASS ☐ FAIL ☐ Not Applicable		Side 2:	☒ PASS ☐ FAIL ☐ Not Applicable
Tester (Print/Sign):	Nicholas Hicks - Nicholas Hicks			Date:	9.16.22	
QC Inspector (Print/Sign):	Lymon Alexander Syme			Date:	9.16.22	
Source Inspector (Print/Sign):				Date:		

Reference Documents: JA-014, JA-015

1192 #12

539199



EVRAZ INC. NA

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

Test Certificate

Form TCI: Revision 2: Date 13 Feb 2017

Customer: VARSTEEL LTD 330-220 4TH STREET LETHBRIDGE AB T1L 1J4J7		Customer P.O. No.: CTL-811		Mill Order No.: 41-258341-17		Shipping Manifest: RT121493						
Product Description: ASTM A1011/1041/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	Piece Id	Piece Dimensions	Tst Loc (PSI)	YS (PSI)	UTS (PSI)	%RA Elong % Tst 2in 8in Dir	Average Hardness 1 2 3 Avg	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir Siz (mm)	BDWTT Tmp %Shr
539199	C	Mn .29 P .014 S .010 Si .27	Tot Al .007 Cu .40 Ni .12 Cr .17 Mo .04	.001	.001	.001	.0002	.0084				
Melted In CAN												
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 PCS: 1, WGT: 41980												
Port Liners												
Cust Practice:				WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION								
				Approved By: Kendal Dunnett Quality Representative								

Wrap (Body)

Warehouse Transfer

From Delta Varsteel to Corporate C

Transfer No

233606

Heat Number

540798

Customer Name

VARSTEEL LTD. - DELTA (INTERC

Customer PO#

DE-1072731

Shipper No

17288

Heat Number

540798

Test Certificate

Form TCI: Revision 2: Date 13 Feb 2017

EVRAZ

EVRAZ INC. NA

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

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

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

Chemical Analysis

Heat Id	C	Mn	P	S	Si	Tot Al	Cu	Ni	Cr	Mo	Co	Al	V	Ti	B	N	CEV	Melted in
540798	.05	.84	.008	.005	.15	.053	.31	.19	.16	.06	.011	.003	.022	.0002	.0068	.27		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
540798 C0009 PCES: 1, WGT: 46780

(0)	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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3/8 A36

541093



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-870				Mill Order No.: 41-258861-12				Shipping Manifest: RT128225			
Product Description: CSA G40.21(2018)/44/300/38W/ASIM A36(19) A709(01A)/36/ASME SA36(01ED) CSA G40.21(2004)260W				Ship Date: 30 Nov 21 Cert Date: 30 Nov 21				Cert No: 071112181 (Page 1 of 1)							
Size (Mm): 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 %	Tst Dir	Average Hardness	Abs. Energy (FTLB)	% Shear	Tst Temp	Tst Dir (mm)	BDWTT Temp % Shr	
Heat Id	C	Mn	P	S	Si	Tot Al	Cu	Ni	Cr	Mo	Co	V	Ti	B	N
541093	.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

Stuffer Sides

(u) Cust Practice:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION

Approved By: Kendal Dunnett
Quality Representative

Customer Name Customer PO# Shipper No Heat Number

VARSTEEL LTD. - DELTA (INTERC) DE-1072988 17351 541093

1/2 A36 421037

EVRAZ EVRAZ INC. NA P.O. Box 1670, Regina, Saskatchewan, Canada S4P 3C7
Test Certificate
Form TCI: 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.: 41-25804-08 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

Size (Min): 0.490 X 60.00 X COIL (IN)
Ship Date: 12 Oct 21
Cert Date: 12 Oct 21
Cert No: 071110649
(Page 1 of 1)

Tested Pieces				Tensiles				Charpy Impact Tests			
Heat Id	Piece Id	Piece Dimensions	Tst Loc (FSD)	YS (FSD)	UTS (FSD)	%RA Elong % Tst 2in 8in Dir	Average Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Temp	Tst Tst Dir Siz Temp %Str (mm)

Chemical Analysis													
Heat Id	C	Mn	P	S	Si	Ta	Al	Cu	Ni	Cr	Mo	Co	V
421037	.06	.54	.012	.002	.17	.048	.26	.08	.09	.02	.023	.001	.001
													B
													N
													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
421037 A0042 PCS: 1, WGT: 42400 421037 A0043 PCS: 1, WGT: 42560

Packing Box Sides

(u) Cust Practice: WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION
Approved By: Kendal Dummel
Quality Representative

**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

ROOM TEMPERATURE TENSILE TEST

PO Number
7120

Date Received
November 18, 2021

Material
5/8" Plate Coupon

Material Identity
Heat# A1J022

Specification(s)
ASTM A572-21 ^{§1}, Gr. 50;
and ASTM A709-18, Gr. 50

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 ^{§1} , 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).

STATEMENT OF ANALYSIS

CONSIGNEE:

REM STEEL SALES INC.

DATE: 23 Oct 2021

BILL OF LADING NO.:

MR447190

41-656998 41-656998 41-656998

41-656998 41-656998 41-656998

9109 N WILBUR

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



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

REPORT OF CHEMICAL/PHYSICAL TESTS



ISO 9001
REGISTERED
PLATE PRODUCER

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.

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		
CART/BUCK NO.		
28		

PHYSICAL PROPERTIES										IMPACTS
ITEM NO	DESCRIPTION	HEAT NO.	SLAB	YIELD PSI X 100	TENSILE PSI X 100	% ELONG 8" 2"	% RA	HARDNESS BHN	BEND TEST	
1	1.2500 X 96.000ME X 240.000									
	2 PCS 16336 LBS	+1 RS5967		474	725	28				
2	0.7500 X 96.000ME X 240.000									
	4 PCS 19604 LBS	+1 RS5173		625	800 23	38				
				466	720					
3	1.0000 X 96.000ME X 240.000									
	3 PCS 19602 LBS	+1 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	McQand En Grain Size
+1 RS5967	.18	.91	.012	.003	.03	.32	.11	.003	.001	.033	.11	.03						
+1 RS5173	.18	.87	.013	.001	.06	.33	.13	.003	.001	.054	.12	.02						
+1 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

[Signature]
Quality Systems Coordinator

REPORT OF CHEMICAL /PHYSICAL TESTS

 EVRAZ		EVRAZ INC. NA		REPORT OF CHEMICAL/PHYSICAL TESTS	
EVRAZ Oregon Steel 14400 N. Rivergate Blvd., Portland, Oregon 97203					
 ISO 9001 REGISTERED		S O L D T O			
 US PLATE PRODUCER		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.					
CARRIER GREEN TRANSFER		SHIPPING NO. 1809314		DATE 01/24/2022	
CART/BUCK NO. 28		CUSTOMER ORDER NO. 227314		MILL ORDER NO. 372904	
		JOB/REQ. NO.		DATE	

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	+1 RS5967		474	725	28				
2	0.7500 X 96.000ME X 240.000									
	4 PCS 19604 LBS	+1 RS5173		625 466	800 720	23 38				
3	1.0000 X 96.000ME X 240.000									
	3 PCS 19602 LBS	+1 RS5173		485	735	34				
	9 PCS 55542 LBS TOTALS									

Gussets
Gland Flange
Lifter Sides
Lifter Top
Yoke Top

CHEMICAL ANALYSIS

[illegible]

END OF REPORT

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

By

Quality Systems Coordinator



EVRAZ INC. NA

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

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

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.

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

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			474	725	28				
2	0.7500 X 96.000ME X 240.000									
	4 PCS 19604 LBS			625	800	23				
				466	720	38				
3	1.0000 X 96.000ME X 240.000									
	3 PCS 19602 LBS			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	McQuand Em Grain Size
+1 RS5967	.18	.91	.012	.003	.03	.32	.11	.003	.001	.033	.11	.03						
+1 RS5173	.18	.87	.013	.001	.06	.33	.13	.003	.001	.054	.12	.02						
+1 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

John J. Bickel

Gussets

TEST REPORT

IMR Report Number 202111333D

SUMMARY

One sample was received for mechanical testing.

October 21, 2021

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

S. _____
7 _____
Version _____

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).

B21H804
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

Attn:

EVRAZ EVRAZ INC. NA 1400 N. Rivergate Blvd., Portland, Oregon 97203		REPORT OF CHEMICAL/PHYSICAL TESTS		CERTIFICATE NO. 1710634	DATE Jan 13, 2020	PAGE 1
ISO 9001 REGISTERED US PATENT PENDING		42		MILL ORDER NO. 347452	DATE	
S O L D T O		NUE 36		CUSTOMER ORDER NO. POR-6412		
US PATENT PENDING		USA		SOURCE NO.		
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)		SHIPPING NO. 1710634		DATE 01/13/2020		
		CARRIER GREEN TRANSFER				
		CARTON NO. 745				
PHYSICAL PROPERTIES						
HEAT NO.	DESCRIPTION	YIELD PSI X 100	TENSILE PSI X 100	% ELONG 8" 2"	% RA	HARDNESS BHN
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						
2 PCS 19602 LBS						
4 PCS 39204 LBS TOTALS						
CHEMICAL ANALYSIS						
HEAT NO.	C	Mn	P	S	Si	Cu
N22783	20	1.34	0.15	0.005	29	0.01
N22783	Ch=<0.005	Mo=<0.005	B=<0.0005	Mo=<0.0005	B=<0.0005	B=<0.0005
N22787	20	1.30	0.15	0.004	31	0.01
N22787	Ch=<0.005	Mo=<0.005	B=<0.0005	B=<0.0005	B=<0.0005	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

16060312

1" AS16.24

PO/Rel

PART NO.

Attn:

PLATE MILL GROUP
P.O. Box 279
Winston, NC 27386
(252) 356-3700

1505 River Rd
Cofield, NC 27922
(252) 358-3700

Mill Test Report

Page 7

Issuing Date: 09/09/2021 B/L No.: 601386 Load No.: 617828 Our Order No.: 191355/4 Cust. Order No.: HOU-10202
Vehicle No: NOKL 725223 Solid To: Ship To: RAIL SITE
Specification: 1.0000" x 96.000" x 480.000"
ASTM A516 70/85/17/ASME SA516-70/85/17 P/Q 2019/2021
Normalized Plate NACE MR0175 Annex 2.1.2 (2015), MR0103 (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(tot)	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	0.063	0.0017	0.0001	0.006	0.41	0.27

Plate Serial No	Pieces	Tensile (psi)	Yield (psi)	Dir.	Tensile Test			Heat Treat	Time (min)	Temp (°F)	Time (min)
					Norm (°F)	Elong. % in 2"	Elong. % in 8"				
1606312-05	1	6.53	H-T	47,100	74,600	52.5	1650	41			

Plate Serial No	Pieces	Absorbed Energy (Ft-Lbs)			Charpy Impacts			Lateral Expansion (in.)			Shear (%)			Temp (°F)	Size
		(ft-lbs)	(ft-lbs)	(ft-lbs)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(%)	(%)	(%)		
1606312-05	1	6.53	H-L	78.6	83.4	79.0	80.0	15						-50	10mm

Port Flanges (Body)
Top Flange
Yoke Pads

TEST COUPONS TAKEN FROM HEAT TREATED PLATE
Piece frequency charpy;

Manufactured to fully killed free 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.
Mechanical properties as specified in the contract. For Mexico Shipments: MS-SASX@maur.com
Yield by 0.5%EL method unless otherwise specified. Ceq = C+(Mn/6)+(Cr+Ni+V/5)+(Cu+Ni/15)
Pcm = C+(S/30)+(Mn/20)+(Cr/20)+(Ni/60)+(Pb/15)+(V/10)+SE
Milled and Manufactured in the USA, ISO 9001:2015 certified, PED 2014/68/EU, 9723/EC 7/2 Annex 1, Para. 4.3 Compliant API Q1-1851
DIN 5049 2.1/EN 10204 3.1/EN 10204 3.1/1993y DIN EN 10204 3.1(2005) compliant, ABS QA-3824/86
T. A. Depietre
T. A. Depietre, Metallurgist
9/10/2021 11:36:30 AM



運鋁鋼鐵股份有限公司
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
Chiu, 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

INTLS

-652658

YUEN CHANG STAINLESS STEEL CO., LTD.

Authorized Signature

茲證明本廠所列產品，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

QC Manager

David Wang

MILL TEST REPORT

This MTR contains 1 page (Page# 1)

Customer: WESPRT PO#:P040233 SO#:LGGKW0

MTR#:TSCLO0526099.GI

Item:18860120304L#1 Bundle:3366279 Heat#:534315

083144

Certificate of Mill Test Results

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

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 0000526099 / Page / Pagina: 1 / 2	
1 Steel Drive; P.O. Box 13000; Calvert, AL 36513-1300			Customer/Ship to / Cliente Customer's order number / N° de Pedido Cliente L96855 Manufacturer's works order no. / N° de Pedido Manufactura 901292126 / 006 Delivery note no. / N° de Entrega 85736655 / 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-763D for Chemical composition. NACE MR0103 / ISO 17945: 2015 NACE MR0175 / ISO 15156-3: 2015			Steel Grade and Quality / Acero TYPE 304L/304 UNS S30403 UNS S30400		
Customer's material no. / N° 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		Steelmaking procedure / Proceso de manufact. AOD Finish / Acabado 11a / 10 / No.1	
Packing No. / N° de Empaque	No. of pieces / Piezas	Actual weight / Peso actual	Coil No. / Bobina No.	Heat No. / Calada	Inspection lot / Lote de inspeccion
3366267	8	3,049 lb / 1,383 kg	896558	534315	1000745441
3366268	8	3,062 lb / 1,389 kg	896558	534315	1000745441
3366269	8	3,060 lb / 1,388 kg	896558	534315	1000745441
3366270	8	3,053 lb / 1,385 kg	896558	534315	1000745441
3366271	8	3,051 lb / 1,384 kg	896558	534315	1000745441
3366277	8	3,064 lb / 1,390 kg	896558	534315	1000745441
3366278	8	3,062 lb / 1,389 kg	896558	534315	1000745441
3366279	8	3,058 lb / 1,387 kg	896558	534315	1000745441
3366280	8	3,058 lb / 1,387 kg	896558	534315	1000745441
3366281	8	3,056 lb / 1,386 kg	896558	534315	1000745441
3366282	8	3,073 lb / 1,394 kg	896558	534315	1000745441
Sum / Suma	88	33,646 lb / 15,262 kg			
Heat / Calada	Country of Melt / Pais de colada	Chemical composition / Composicion Quimica			
534315	USA	% C	% Si	% Mn	% P
		0.024	0.32	1.29	0.030
		% S	% Cr	% Mo	% Ni
		0.0011	18.10	0.21	8.03
		% N	% Cu		
		0.059	0.36		
Originator of the document / Origenador 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 automaticamente		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 07/21/2021 This document shall not be altered or reproduced, except in full. Falsification, forgery, or false statements or entries may be prosecuted by law.	

BRIDGE CITY STEEL INC#
STAINLESS PLATE SPL 3/16" x 60" x 120" HRAP ASTM A-240 304L

MILL TEST REPORT

TA CHEN INTERNATIONAL, INC.

This MTR contains:2 pages (Page:1)

Cust#: WESPRT Company#: WEST COAST METALS

www.tachen.com

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 / 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 works 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 Melt/ Pais 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 Mechanical testing per ASTM A370-18										
Inspection lot/ Lote de inspeccion	YS0.2% PSI / MPa	TS PSI / MPa	EI. A2" %	HRB							
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 automaticamente		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.**

This MTR contains:2 pages (Page:2)

Cust#: WESPRT Company#: WEST COAST METALSwww.tachen.com**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 automaticamente	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.

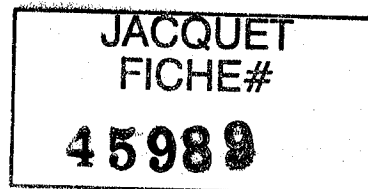
Prezemni certifikat 3.1 / Inspection Certificate 3.1 / Abnahmeprüfzeugnis 3.1 EN 10204:2004		Prejemnik / Consignee / Empfänger JACQUET WEST 22400 LUCERNE STREET 90745 CARSON UNITED STATES	
Št. dokumenta / Document No. / Bescheinigungs Nr. 10164054-20030266-177319	z / dated / vom 23.04.2021	Proizvajalčeva št. naročila / Manufacturer's works order No. / Werksauftrag Nr. 20030266 z / dated / vom 02.02.2021	
Kupčeva št. naročila / Purchaser's order No. / Kundenbestell Nr. 11879-52250		Kupčeva št. izdelka / Purchaser Article No. / Artikel Nr. des Kunden	
Št. Dobavnega lista / Packing list No. / Lieferschein Nr. 10164054	z / dated / vom 23.04.2021		
Št. Računa / Account No. / Kontonummer 2120101008657		Datum izdaje / Date of issue / Ausgabedatum 23.04.2021	

Izdelek / Product / Erzeugnis		
DEBELA PLOČEVINA / HOT ROLLED PLATE / WARMGEWALZTES GROBBLECH		SINOXX 4542
Zahteve / Requirements / Anforderungen	Oznaka jekla / Steel designation / Stahlbezeichnung	
ASME SA-693 BPVC.II.A-2019 (ANNEALED)	S17400	630
ASTM A 693:2016 (annealed)	S17400	630
SAE AMS 5604-J (LAB.H900 ANNEALED) (Acroni is not AS9100 certified)	S17400	630
Customer Grade	HOT ROLLED STAINLESS STEEL 17-4PH	
Specifikacija kupca / Customer specification No. / Kundenspezifikation		
Dodatne zahteve / Supplementary requirements / Zusätzliche anforderung		
Dobavno stanje / Product delivery condition / Lieferzustand des Erzeugnisses		
ŽARJENO / ANNEALED / GEGLÜHT		
Stanje površine / Surface finish / Oberflächenbehandlung		
Brez popravila z varjenjem / No weld repair / Keine Schweißreparatur		

Oznake izdelka / Marking of the product / Kennzeichnung des Erzeugnisses						
Znak proizvajalca Manufacturer's mark Zeichen des Herstellers	Oznaka jekla Steel designation Stahlbezeichnung	Št. plošče Plate No. Tafel Nr	Št. sarže Heat No. Schmelzen Nr.	Dimenzije izdelka Product dimensions Abmessungen des Erzeugnis	Zig kontrolorja Stamp of the works inspector Stempel des Werkssachverständigen	Zig prevzemalca Stamp of the inspection representative Stempel des Abnahmebeauftragten
SIJ ACRONI						
Dodatne Oznake / Other marks / Andere Kennzeichen						

Obseg dobave / Extent of material delivery / Umfang der Lieferung							
Poz. Item. Pos.	Št. Sarže Heat No. Schmelzen Nr.	Št. plošče Plate No. Tafel Nr.	Teoretična teža Mass Masse (kg)	Teža neto Actual mass Ist Masse (kg)	Dimenzije izdelka Product dimension Maße des Erzeugnisses (inch)	Št. kosov No. of pieces Stückzahl	Št. vzorca Sample No. Probe Nr.
2	317177	2131465501	1864.19	1835.00	0.750 / 79.00 / 240.00	1	2131465501

Način izdelave jekla / Steelmaking process / Stahlherstellungsverfahren E + AOD + VD



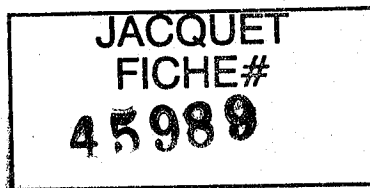
To potrдіlo, ki ga izdajamo z uporabo poslovno-informacijskega sistema, je v skladu EN 10204, ods.5 in velja brez podpisa.
Diese Bescheinigung wurde durch ein geeignetes Datenverarbeitungs-system erstellt und ist gemaess EN 10204, abs.5 ohne Unterschrift gueltig.
This Certificate has been issued by a qualified Electronic Data System and is valid acc. to EN 10204, para.5 without Signature.
Odgovorna oseba/Werkssachverstaendiger/Works Expert: Gorazd Kosec

Pogoji toplotne obdelave / 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).

Mehanske lastnosti pri sobni temperaturi +20°C / Mechanical properties at room temperature +20°C / Mechanische Eigenschaften bei Raumtemperatur +20°C														
St. sarže Heat No. Schmelzen Nr.	St.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 Brucheinschnürung (%)	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												
		MAX												
317177		2131465501		T	T	S2	126.04	147.50	6.0					
T- Prečno / Transverse / Quer L- Vzdolžno / 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 / Hardness / Härte (HB)		
St. sarže Heat No. Schmelzen Nr.	St. vzorca Sample No. Probe Nr.	Meritev / Measurement / Messungen
		1
Zahteve Requirem Anforderung		MIN
		MAX
317177	2131465501	353.0
		302.0



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/Werkssachverstaendiger/Works Expert: Gorazd Kosec

Pogoji 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														
St. sarže Heat No. Schmelzen Nr.	St. 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 Brucheinschnürung (%)	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- Vzdolžno / 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)													
St. sarže Heat No. Schmelzen Nr.	St. vzorca Sample No. Probe Nr.	Meritev / Measurement / Messungen											
		1											
Zahteve Requirem Anforderung	MIN	375.0											
	MAX	444.0											
317177	2131465501	401.0											

JACQUET
FICHE#
45989

Kemična 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

Določitev vsebnosti ferita po AMS 2315 / FERIT measured Acc.AMS 2315 / FERITE gemessen Acc.AMS 2315			
St. vzorca Sample No. Probe Nr.	St. sarže Heat No. Schmelzen Nr.		
Zahteve Requirem Anforderung	MIN MAX		
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.
Diese Bescheinigung wurde durch ein geeignetes Datenverarbeitungs-system erstellt und ist gemaess EN 10204, abs.5 ohne Unterschrift gueltig.
This Certificate has been issued by a qualified Electronic Data System and is valid acc. to EN 10204, para.5 without Signature.
Odgovorna oseba/Werkssachverstaendiger/Works Expert: Gorazd Kosec

Opombe / Remarks / Bemerkungen

Potrujemo 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 Bestellanforderungen entsprechen

Država porekla = Država izdelave taline = Država izdelave slaba - SLOVENIJA - EU / Country of Origin = Country of melt = Country of slab: SLOVENIA - EU / Herkunftsland = Land der schmelze = Land der Bramme - SLOVENIA - EG

Material ni kontaminiran z živim srebrom. / Free from Known Contamination with Mercury. / Keine kontamination mit Quecksilber.

Material je skladiščen 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 as acc to AMS 5504

DFARS compliant per 252.225.7003 and 252.225.872-1



To potrdilo, ki ga izdajamo z uporabo poslovno-informacijskega sistema, je v skladu EN 10204, ods.5 in velja brez podpisa.
Diese Bescheinigung wurde durch ein geeignetes Datenverarbeitungs-system 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/Werkssachverständiger/Works Expert: Gorazd Kosec

PO 13842 Item #2
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	
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	
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	
032-1	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
032-2	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
032-3	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
032-4	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 $\frac{1}{4}$ Cr 1 $\frac{1}{2}$ Mo / 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 38mm 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 unit 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 • ARMI@LCgroup.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# - 150 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.



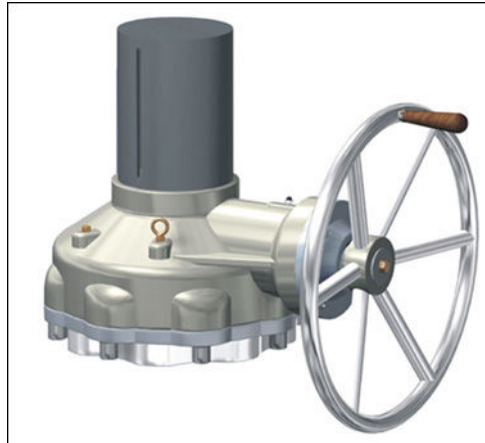
ph: (780) 416-9683 fax: (780) 416-9684
www.endurancevalve.com

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 adaptation. You can install very easily, attach the wheel to the pinion, and a nut a 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

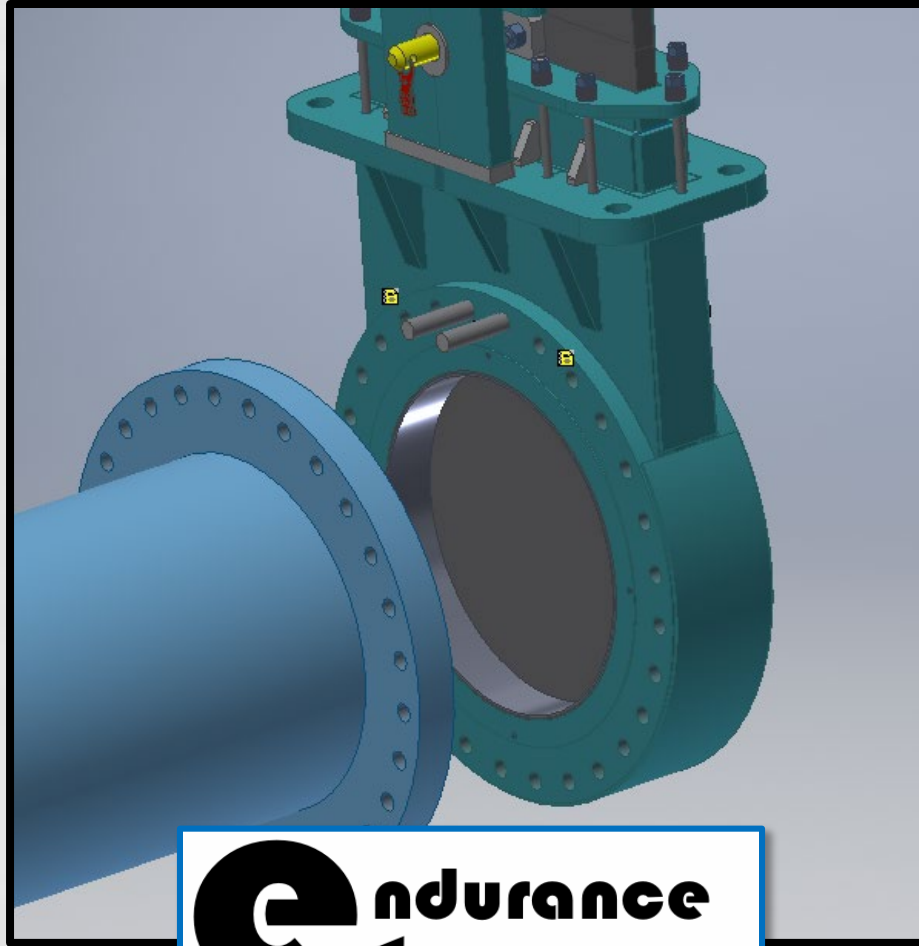
BOLTING STUDS TO VALVE-PIPING

Engineering



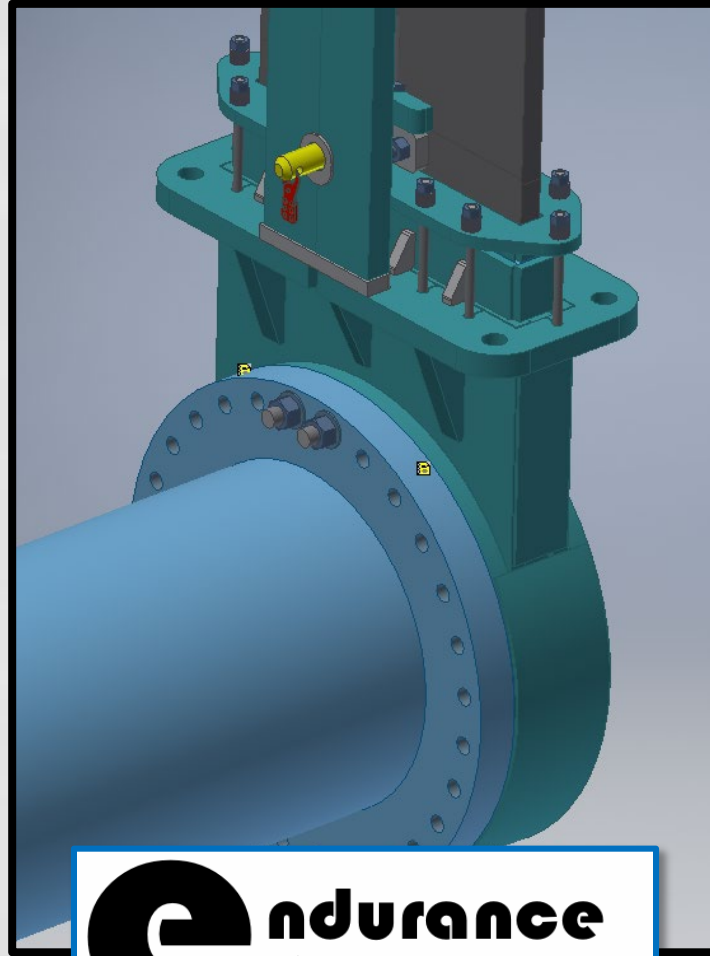
STEP 1

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



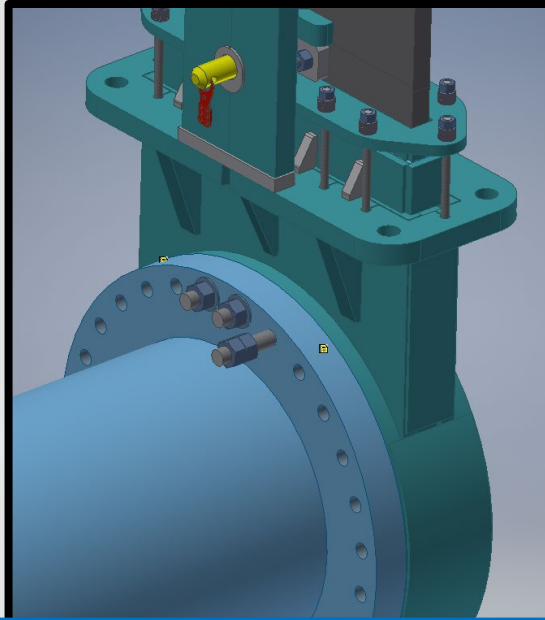
STEP 2

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



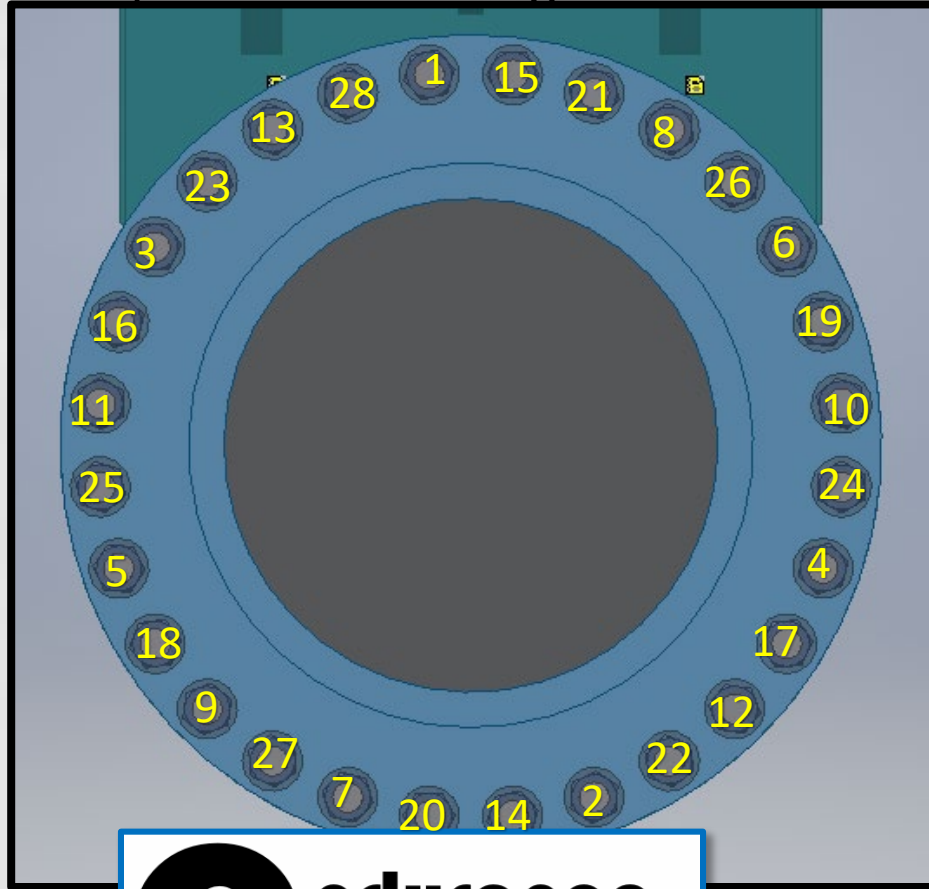
STEP 3

- 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

