

MATERIAL RECEIVING INSPECTION REPORT

SALES ORDER NUMBER:	4463974-002	* NOTE: 1. MATERIAL TEST REPORTS (MTR'S) AND CRN NUMBERS ARE REQUIRED TO BE RECEIVED WITH EACH ORDER AND REVIEWED FOR COMPLIANCE TO MATERIAL SPECIFICATIONS AS ORDERED IF SPECIFIED IN THE CONTRACT DOCUMENTS. CONSULT THE PIPEWORX QUALITY MANUAL. 2. COMPLETE OVER / SHORT / DAMAGE REPORT IF REQUIRED AND MAKE NOTE IN REMARKS. 3. ATTACH OR REFERENCE ALL SUPPORTING DOCUMENTATION FOR TRACEABILITY (i.e. PO, PACKING SLIPS etc.). 4. ALL FITTING DESIGNS MUST BE REGISTERED WITH ALBERTA BOILERS SAFETY ASSOCIATION.
PIPEWORX JOB#:	162-113	
OWNER:	PEMBINA PIPELINE CORPORATION	
PO NUMBER:	4500089088	
DATE:	September 6, 2016	
Ordered By:	Brent Calvert	

ITEM #	PO ITEM#	Quantity	Size	Sch	Rating	Grade	DESCRIPTION	HEAT NUMBER	REC.	INITIAL	INSPECT FOR DAMAGE	MTR RECEIVED
2		2	2"	STD		Gr. 359 Cat II (M45C)	Elbow, 90 , LR, BW, 3.91mm WT, CSA Z245.11	58F08018/58G08025	YES	BC	ACCEPT	YES
5		35	2"	sch 80		WPL6	Elbow, 90 , LR, BW, sch 80, ASME B16.9, ASTM A-420-WPL6	14N01005	YES	BC	ACCEPT	YES
12		2	3/4"	3M	3000#	A350-LF2	Elbow, 90 , SW, 3000 CL ASME B16.11,ASTM A-350-LF2 CL1	59738	YES	BC	ACCEPT	YES
13		14	1"	3M	3000#	A350-LF2	Elbow, 90 , SW, 3000 CL ASME B16.11,ASTM A-350-LF2 CL1	59957	YES	BC	ACCEPT	YES
52		8	1"	sch 160		A333	Nipple, TOE X POE ASME B16.10M, ASTM A-333-GR-6 SMLS 100mm long	H02298	YES	BC	ACCEPT	YES
58		14	3/4"	sch 160		A333	Nipple, TOE X POE ASME B16.10M, ASTM A-333-GR-6 SMLS 100mm long	84KL	YES	BC	ACCEPT	YES
185		2	1"	sch 160		A333	Nipple, TBE ASME B16.10M, ASTM A-333-GR-6 SMLS 100mm long	84JD	YES	BC	ACCEPT	YES
54		27	3/4"	sch 160		A333	Nipple, PBE ASME B16.10M, ASTM A-333-GR-6 SMLS 100mm long	84Q8/8634	YES	BC	ACCEPT	YES
75		5	3/4"	3M	3000#	A350-LF2	Plug, Heavy Hex head, NPT, CL 3000, ASME B16.11, ASTM A350 GR. LF2 CL1	6997	YES	BC	ACCEPT	YES
76		8	1"	3M	3000#	A350-LF2	Plug, Heavy Hex head, NPT, CL 3000, ASME B16.11, ASTM A350 GR. LF2 CL1	RH1L	YES	BC	ACCEPT	YES
77		2	12" x 8"	sch 80		A350-LF2	Reducer, Conc, BW, sch 80 x sch 80, ASME B16.9, ASTM A-420-WPL6	917B	YES	BC	ACCEPT	YES
118		9	2" x 1"	sch 80		A350-LF2	Swage, Conc, BW, sch 80 x sch 80, BLE x PSE MSS SP-95, ASTM A-333-GR.6 SMLS	H02124/H02369	YES	BC	ACCEPT	YES
124		3	2" x 1"	sch 80		A350-LF2	Swage, ECC, BW, sch 80 x sch 80, BLE x PSE MSS SP-95, ASTM A-333-GR.6 SMLS	H2327	YES	BC	ACCEPT	YES
127		24	2"	sch 80		WPL6	Tee, Equal, BW, ASME B16.9, ASTM A-420-WPL6	15C11814	YES	BC	ACCEPT	YES
132		2	3/4"	3M	3000#	A350-LF2	Tee, Equal, BW, ASME B16.11, ASTM A350 GR. LF2 CL1	59793	YES	BC	ACCEPT	YES
133		13	1"	3M	3000#	A350-LF2	Tee, Equal, BW, ASME B16.11, ASTM A350 GR. LF2 CL1	59807	YES	BC	ACCEPT	YES
135		4	1"	3M	3000#	A350-LF2	Union,full , NPT, 3000# CL MSS SP-83 ASME B16.11, ASTM A350 GR. LF2 CL1	6930/ 1115 / M1AY	YES	BC	ACCEPT	YES

184		4	8" x 2"		A350-LF2	Weldolet, sch 80 x sch 80, MSS SP-97 ASME B16.11, ASTM A350 GR. LF2 CL1	59798	YES	BC	ACCEPT		YES
140		12	12" x 2"		A350-LF2	Weldolet, sch 80 x sch 80, MSS SP-97 ASME B16.11, ASTM A350 GR. LF2 CL1	YY0001	YES	BC	ACCEPT		YES
REMARKS (IF NCR IS ISSUED, NOTE NCR NUMBER):					Line 20- received 2 not 12. called MRC and we will receive 10 more Sept 7th.							
PIPEWORX QUALITY REPRESENTATIVE						DATE RECEIVED		SIGNATURE				
NAME: Winston Watchorn						Sept 6th, 2016						
TITLE: QC Project Manager												

If this order is placed under an existing contract, the terms of such existing contract shall apply. Otherwise, this order is subject to and governed by MRC Global's (General) Terms and Conditions of Sale (found at www.mrcglobal.com) by following the instructions on this site and also available by request, which terms and conditions are hereby incorporated by reference.



Sales Order
Number 4463974-002 **Page** 1
Printed 09/06/16 07:55

Deliver To:		From:		73-755		Customer Purchase Order	
PEMBINA WEST LIMITED		GRANDE PRAIRIE		4500089088		Customer Release/Requisition No.	
PARTNERSHIP		12102 - 101 AVE					
4000 585 - 8TH AVENUE SW		GRANDE PRAIRIE		AB T8V 8A9			
CALGARY		AB T2P 1G1				Ordered by: BRENT @ PIPEWORX	
Promised - 08/29/16		Salesman - MICHELLE WILSON		Ship VIA - WILL CALL		Terms - NET 30 DAYS	
Shipped - 09/06/16		Phone - (780) 532-9542		Freight Terms - PREPAID & ALLOW		A Customer Ship No. - 61723-0055	
BRENT 403-844-5751 MTR'S REQUIRED APPROVER NAME: GARTH HENRY ORDERED BY: BRENT							
CPO Line	Customer Part/Item ID	Ordered	Quantity Backorder	Shipped	Description	Line No.	
	16C11623	2		2	EA2 STD BLK CS LR 90 DEG WELD ELL CSAZ245.1 GR.359C2 S IMP MFG: BKL HLS: 58608018 MFG: BKL HLS: 58608025 SHIPPED 2 UNITS AT \$10.9100 TOTAL \$21.82	002	
	16C12580	35		35	EA2 XH BLK CS LR 90 DEG WELD ELL A/SA420WPL6 IMP MFG: BKL HLS: 14N01005 SHIPPED 35 UNITS AT \$6.5400 TOTAL \$228.90	003	
	18C10459	2		2	EA3/4 3000# BLK FS 90 DEG ELL THD SA350 LF2N IMP MFG: BF HLS: 59738 MFG: BF HLS: 59738 SHIPPED 2 UNITS AT \$11.3100 TOTAL \$22.62	004	
	18C10474	14		14	EA1 3000# BLK FS 90 DEG ELL THD SA350 LF2N IMP MFG: BF HLS: 59957 MFG: BF HLS: 59957 SHIPPED 14 UNITS AT \$14.0000 TOTAL \$196.00	005	
	21C10174	14		14	EA3/4 X 4 S160 BLK CS SMLS PIPE NIPPLE TOE X POE ASTM A333 GR.6 MFG: CAP HLS: 6470 SHIPPED 14 UNITS AT \$14.0000 TOTAL \$196.00	006	

CPO Line	Customer Part/Item ID	Quantity Ordered	Quantity Backorder	Shipped	Line No.	Description	
	21C10291	2		<i>B. 1/16</i>	007	SHIPPED 14 UNITS AT \$6.9600 TOTAL 2 EA 1 X 4 S160 BLK CS SMLS PIPE NIPPLE TBE ASTM A333 GR.6 MFG: CAP ✓ HLS: 84JD MFG: CAP HLS: 84JD	\$97.44
	21C10168	27		<i>B. 1/16</i>	008	SHIPPED 2 UNITS AT \$9.5800 TOTAL 27 EA 3/4 X 4 S160 BLK CS SMLS PIPE NIPPLE PBE ASTM A333 GR.6 MFG: CAP ✓ HLS: 84JD MFG: CAP HLS: 84JD	\$19.16
	18C12652	5		<i>B. 1/16</i>	009	SHIPPED 27 UNITS AT \$6.9600 TOTAL 5 EA 3/4 6000# BLK FS HEX HEAD PLUG THD SA350 LF2N IMP MFG: BF ✓ HLS: 84JD MFG: BF HLS: 6997	\$187.92
	18C12667	8		<i>B. 1/16</i>	010	SHIPPED 5 UNITS AT \$4.9600 TOTAL 8 EA 1 6000# BLK FS HEX HEAD PLUG THD SA350 LF2N IMP MFG: - ✓ HLS: 84JD	\$24.80
	16C12832	24		<i>B. 1/16</i>	011	SHIPPED 8 UNITS AT \$6.6600 TOTAL 24 EA 2 XH BLK CS WELD TEE A/SA420WPL6 IMP MFG: BKL ✓ HLS: 15C11814	\$53.28
	18C11521	2		<i>B. 1/16</i>	012	SHIPPED 24 UNITS AT \$16.1600 TOTAL 2 EA 3/4 3000# BLK FS TEE SW SA350 LF2N IMP MFG: BONNEY FORGE ✓ HLS: 59793	\$387.84
	18C11536	13		<i>B. 1/16</i>	013	SHIPPED 2 UNITS AT \$11.7000 TOTAL 13 EA 1 3000# BLK FS TEE SW SA350 LF2N IMP MFG: BF ✓ HLS: 59807 MFG: BF HLS: 59807	\$23.40
	18C11818	12		<i>B. 1/16</i>	014	SHIPPED 13 UNITS AT \$20.9600 TOTAL 12 EA 1 3000# BLK FS UNION THD SA350 LF2N IMP MFG: BF ✓	\$272.48

CPO Line	Customer Part/Item ID	Quantity Ordered	Quantity Shipped	Description	Line No.
				HLS: 6930 MFG: BF HLS: 6930 SHIPPED	
	18C14609	4	4	4 EA 2 X 10->8 XH BLK FS WELDOLET A350-LF2N IMP MFG: BF HLS: 59798 MFG: BF HLS: 59798 SHIPPED	015
	16C17216	2	2	2 EA 12 X 8 S80 BLK CS CONC WELD REDUCER A/SA420WPL6 IMP MFG: - HLS: 9178 SHIPPED	016
	18C1XXXX	2	2	2 EA 2" X 8-12" WOL S80 A350-LF2N MFG: - HLS: YY0001 SHIPPED	017
	21C13687	3	3	3 EA 2 X 1 XH CS CONC SWAGE NIPPLE BLE X PSE A420 WPL6 MFG: - HLS: 402124 SHIPPED	018
	21C18278	3	3	3 EA 2 X 1 XH CS ECC SWAGE NIPPLE BLE X PSE A420 WPL6 MFG: WESTBROOK HLS: H2327 SHIPPED	019
	21C17760	8	8	8 EA 1 X 4 S160 BLK CS SMLS PIPE NIPPLE TOE X POE ASTM A333 GR.6 MFG: - HLS: H02298 SHIPPED	020
	21C13687	6	6	6 EA 2 X 1 XH CS CONC SWAGE NIPPLE BLE X PSE A420 WPL6 MFG: - HLS: H02169 SHIPPED	021
				6 UNITS AT \$39,5600 TOTAL \$237.36	

RECEIVING INFO: Company:

Date:

Signed By:

Signature:

Tubes-

Box/Bag-

Crates-

Pallets-

1 Pieces-

Bundles-

Picked by-

CTD Checked by-

TDW Staged-

Order Weight-

486.81

Material Tot-

\$3249.05

Freight-S

.00 Other-S

.00

Tax-S

162.45

Total-S

3411.50

Purchaser: CCTF CORPORATION

INSPECTION CERTIFICATE

TO EN10204 3.1

Purchase Order No. 4810478-00
Job No. S759291767

Thai Benkan Co., Ltd.
58 Soi Watkrutai, Bangkok, Prapada
Samutprakarn, 10130 Thailand

D M Y Certificate No.
14/12/2015 T-2015070536

E-No.	Specification for Material Made from: Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection													
MD-894	ASTM A133 14 GR 40-15 GR WPL BECA Z245.11-13 DE 58 LATH M45C 95 REFERENCE MP01756015155-2 (Page 3) 2016 / MP0103-2017	ASME B16.3-2012 AND CSA Z245.11-13	Good	Good													
MFG. No.	Product & Size	(T+1)	Quantity	Hardness Actual Data													
58G08025	90EL LR 2 3 91 Z245.11-13 WPLB35B M45C 95		10	HB : 132 - 135													
	Material Heat No.	Item No.	Boron Composition (%)														
	J5K1052	7588305 16C11623	0.0001														
Specifi- cation	Chemical Composition %													*2 Tension Test		Hardness Max 197 HB : GO	
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	Y S	T S	E	Impact Test (J)
	X	100	X	X	X	X	X	X	X	X	X	X	X	MPa.			%
Min.		15	100											360	455	32	43
Max.	20.	40	135	30	10	35	40	25	12	60	80	20	40		825		43
	10	28	128	11	1	1	1	10	1	18	3	3	34	371	488	49	42

NORMALIZING 910 C x 40 MINUTES, W.Q.T.

C.E. = C+Fe(Mn/Su24+Cu15+Al20+Cr+Mo+V+Nb)/5+58)

The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.

Impact test to be performed by specimen in transverse orientation for fittings size 3 inch & above. For fittings below 3 inch, will be done by longitudinal.

Heat Number: 58G08025

MRC Global Part Number: 16C11623

MRC Global Part Description: 2 STD BLK CS LR 90 DEG WELD ELL

CSAZ245.1 GR.359C2 S IMP

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

1P: T: symbolized wall thickness in mm. * 2: YS Yield strength TS = Tensile strength B = Elongation

TZ 604

ITEM# Xzm
2
CE= .40

Quality Assurance Manager
Thai Benkan Co., Ltd.

Rungnape Kampaen

Purchaser: CCTF CORPORATION

INSPECTION CERTIFICATE

TO EN10204 3.1



Thai Benkan Co., Ltd.
58 Soi Watkrumai, Bangkok, Prapadeng,
Samutprakarn, 10130 Thailand.

Purchase Order No. 4810472-00
Job No. S759289860

D M Y Certificate No.
28/10/2015 T-2015070531

E-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection														
MD-855	ASTM A192 14/54/30.15 GR WPB-6CSA Z45 11-13 Q355N / AT 1 M457-52 AN-SINACE MP007515015153 2 (Refer 3) 3000 / MP0100-2017	ASME B16.9-2012 AND CSA Z245.11-13	Good	Good														
MFG. No.	Product & Size	Quantity	Hardness Actual Data															
58F08016	90EL LR 2 3.91 2245 11-13 WPL 6355 M45C SS	10	HB : 146 - 162															
	Material Heat No.	Item No.	Baran Composition (%)															
	J5K1052	7586305 16C11623	0.0001															
Specifi- cation	Chemical Composition %													Hardness Max 197 HB : GOOD				
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	Y S	T S	E	Impact Test (J) 10 x 2.5 x 2V AT -45 C	
	X	100	X	X	X	X	X	X	X	X	X	X	X	100	MPa.			%
		15	100												380	455	32	43
Min.																		
Max.	20	40	135	30	10	35	40	25	12	60	80	20	40		625		43	
	10	28	128	11	1	1	1	10	1	16	3	3	28	371	488	49	42	

NORMALIZING 910 C x 40 MINUTES, WQT

C.E. = C+F(Mn/6+S)/24+Cu/15+Ni/20+(Cr+Mo+V+Nb)/5+58)

The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements impact test to be performed by specimen in transverse orientation for fittings size 3 inch & above. For fittings below 3 inch, will be done by longitudinal

CERTIFICATE NO. 2015070531

MAGNETIC PARTICLE EXAMINATION FOR THE ONLY:

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength P = Elongation
TZ 6C4

Purongnua Kumpiranon

Quality Assurance Manager
Thai Benkan Co., Ltd.

ITEM # 2
CE = 0.4

MTR # 2

CSA2245.1 GR.359C2 S IMP

Heat Number: 58F08016
MRC Global Part Number: 16C11623
MRC Global Part Description: 2 STD BLK CS LR 90 DEG WELD ELL

CCTF CORPORATION

Purchaser :

INSPECTION CERTIFICATE

TO EN10204 3.1

481245 Base Order No.

Job No.
S75265756

Thai Benkan Co., Ltd
58 So. Wakkara, Bangkok, Thailand
Sarnprakan, 10136 Thailand

D M Y Certificate No.
14/01/2015 T - 2015030127

E-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection													
MD-555	ASTM A420F4/ASME SA420F4 WPL6 CSA Z45.11-13 (B 241) CAT 1 MGC Sour Service	ASME B16.9-2012, B16.10-2012	Good	Good													
MFG. No.	Product & Size	(T*1)	Quantity	Hardness Actual Data													
14N01005	90 EL WPL 6 2 S80		980	HB: 135-150													
	Material Heat No.	Item No.															
	J4LB913	7560893 16C12580															
Specifi- cation	Chemical Composition %													*2 Tension Test		Hardness Max 197 HB : GD	
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	Y.S	TS	E	Impact Test (J) 10 X 2.5 X 2V AT -45 °C
X	100	X	100	X	1000	X	100	X	100	X	1000	X	100		MPa.	%	
Min.		15	50											240	415	30	39
Max.	30	40	135	35	40	40	40	30	12		80	20	43		585		44
	12	25	128	13	3	1	2	12	2		0	0	38	324	462	59	42

NORMALIZING 910 °C X 0.5 HR. AIR COOLING

The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.

The material meet ANSI/MACE MR0175/ISO15153-2 (Region 3), 2003 & MRG103-2012

C.E. = C-Mn/64Cr-Mo-VY3-(Ni)-Cu/V15

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : T_m symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
TZ 6C/4

ITEM
Rungrapa Kampranon

Quality Assurance Manager

Thai Benkan Co., Ltd

CE=0.45

MTR #3

A/SA420WPL6 IMP

Heat Number: 14N01005
MRC Global Part Number: 16C12580
MRC Global Part Description: 2 XH BLK CS LR 90 DEG WELD ELL

CERTIFIED MILL TEST REPORT

ITEM # 8 *2*



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LOG NO. F00000000085475

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BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 07/07/2016

CUSTOMER

BONNEY ORDER NO. B000207545

ORDER NO.: S759307688

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
40 18C10459	12	59738	3/4 3000 LF2 90EL T SA/A350 LF2 CL1 Al 0.032 C 0.200 Cb 0.000 Co 0.004 Cr 0.050 Cu 0.080 Mn 1.020 Mo 0.007 Nb 0.011 Ni 0.030 P 0.006 S 0.020 Si 0.220 V 0.003 CE(Long Formula) = 0.39 T/S(Psi) 74,021 Y/S(Psi) 49,412 EL(%) 33.55 RA(%) 64.10 Brinell 132 BHN 132 BHN Charpy -50 F 29/72/45 (Ft-Lbs) Average 48.70
45 18C12709	75	1117	2 3M/6M LF2 HXPL T SA/A350 LF2 CL1 Al 0.028 C 0.200 Cb 0.014 Co 0.003 Cr 0.060 Cu 0.060 Mn 1.010 Mo 0.006 Ni 0.020 P 0.005 S 0.018 Si 0.220 V 0.004 CE(Long Formula) = 0.39 T/S(Psi) 75,713 Y/S(Psi) 51,483 EL(%) 36.85 RA(%) 62.92 Brinell 135 BHN 132 BHN Charpy -50 F 38/20/21 (Ft-Lbs) Average 26.30
47 18C10729	11	1224	3/4 3000 LF2 COUP T SA/A350 LF2 CL1 Al 0.028 C 0.200 Co 0.004 Cr 0.060 Cu 0.100 Mn 0.980 Mo 0.011 Nb 0.012 Ni 0.040 P 0.006 S 0.017 Si 0.220 V 0.003 CE(Long Formula) = 0.39 T/S(Psi) 72,779 Y/S(Psi) 51,830 EL(%) 32.30 RA(%) 62.02 Brinell 132 BHN 132 BHN Charpy -50 F 43/34/42 (Ft-Lbs) Average 39.70

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by *Kylee Ruiz*

Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2

MTR #4

CERTIFIED MILL TEST REPORT

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LOG NO. F00000000085475

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www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 07/07/2016

CUSTOMER

BONNEY ORDER NO. B000207545

ORDER NO.: S759307688

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
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1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
3. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
4. ITEM - 3, 4, 5, 6, 7, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 121, 122, 123, 124 -ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.
5. ITEM - 2, 4, 5, 6, 8, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 46, 48, 49, 51, 52, 53, 54, 55, 58, 59, 60, 61, 63, 64, 65, 68, 69, 70, 71, 72, 74, 75, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 113, 115, 116, 117, 118, 121, 122, 123 -CERTIFYING ASTM A105-14 / ASME SA105-15 EDITION.
6. ITEM - 4, 5, 6, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 46, 48, 51, 52, 53, 54, 55, 58, 59, 60, 61, 63, 64, 65, 68, 69, 70, 71, 72, 74, 75, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 113, 115, 116, 117, 118, 121, 122, 123 -THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
7. ITEM - 4, 5, 6, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 46, 48, 51, 52, 53, 54, 55, 58, 59, 60, 61, 63, 64, 65, 68, 69, 70, 71, 72, 74, 75, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 113, 115, 116, 117, 118, 121, 122, 123 -THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
8. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 -CERTIFYING TO ASTM A350 LF2 07 REVISION.
9. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 -THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by



Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2

MTR #4

CERTIFIED MILL TEST REPORT

ITEM # 3 7/2



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LOG NO. F00000000085475

Page 43 of 43

12

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 07/07/2016

CUSTOMER

BONNEY ORDER NO. B000207545

ORDER NO.: S759307688

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.
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GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
--

- | |
|---|
| 10. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 -THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2. |
| 11. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 -THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2. |
| 12. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 -THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS. |
| 13. ITEM - 2, 8, 25, 49, 82 -THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2. |
| 14. ITEM - 2, 8, 25, 49, 82 -THE MATERIAL SUPPLIED IDENTIFIED AS SA/A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS. |

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks

by

Kylee Ruiz

Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2

MTR # 4

CERTIFIED MILL TEST REPORT

ITEM # 4762



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LOG NO. M00000000000304

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CE = 0.41

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 07/21/2016

CUSTOMER
ORDER NO.:

BONNEY ORDER NO.

SHIP TO: MRC GLOBAL (CANADA) ULC
7072 - 112 AVE. SE
CALGARY AB T2C 4Z1
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO.	
			CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:	
1		59957 1 3000 LF2 90BL T	SA/A350 LF2 CL1	
18C10474			Al 0.026 C 0.210 Co 0.004 Cr 0.060 Cu 0.110 Mn 1.020 Mo 0.007 Nb 0.012 Ni 0.040 P 0.007 S 0.023 Si 0.240 V 0.004 CE(Long Formula) = 0.40 T/S(Psi) 75,336 Y/S(Psi) 51,934 EL(%) 32.90 RA(%) 61.92 Brinell 135 BHN 137 BHN Charpy -50 F 35/17/34 (Ft-Lbs) Average 28.70	

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. CERTIFYING TO ASTM A350 LF2 07 REVISION.
3. THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.
4. THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
5. THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
6. THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
7. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
8. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

Kylee Ruiz
QUALITY PROCESS MANAGER

CMTR: REV2

MTR #5

WESTBROOK

MATERIAL TEST REPORT

PO Box 53591
Edmonton, AB T6X0P0

Voice 780-490-4976
Fax 780 490 0471

ITEM # 12
+ 8
52, 118

To: MRC GLOBAL (CANADA) ULC
Order No.: 136452 Order Date: 9/01/2016

Purchase Order: C7554463974B1

Printed: 9/02/2016

Line: Description:

1 2 X T S80 A420 WPL6 CONC SWG BXP

***** Specifications - Heat Code H02124: *****
A350/A350M-13 LF2, SA350 LF2, A105, SA105, A420-13 WPL6,
SA420 WPL6, A234-13 WPB, SA234 WPB, A788, ASME B16.5,
B16.9, B16.11, B16.47, B1.20.1, MSS SP-25, SP-44, SP-79,
SP-83, SP-95, API 605, A.W.W.A.
STARTING MATERIAL: BAR

118 - CE = 0.37
52 - CE = 0.31

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.190	0.920	0.006	0.017	0.260	0.090	0.040	0.010
Cu:	V:	Al:	Cb:	C.E.:			
0.050	0.010	0.030	0.000	371			

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
71500	43300	34.00	70.00	BHN 146-151

Impact Results:

Test Temp:	Achieved Values:
-50F	50-30-33 FT/LBS

Comments:

Normalized.
Cold drawn.
Meets Nace MR-01-75/2009, MR-01-03/2010 and ISO 15156/2009.

Line: Description:

2 1 X 4 S160 A333 GR6 BLK SMLS NPL PXT

***** Specifications - Heat Code H02298: *****
A333/A333M-13 GR.6, SA333 GR.6, A420-13 WPL6, SA420 WPL6,
A540, A733, ASME B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.130	1.090	0.006	0.004	0.240	0.060	0.085	0.025
Cu:	V:	Cb:	C.E.:				
0.204	0.001	0.001	378				

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:	Bend:
68666	45342	49.00	HRB 67-77	OK	OK
Hydro(PSI):					
2500					

Impact Results:

Test Temp:	Achieved Values:
-50F	115-103-110 J

Comments:

Normalized 900C - 13 min.
Hot finished.
Charpy specimen size: .394 X .197"

We hereby certify that the contents of this Material Test Report are correct and accurate to the best of our knowledge and belief, that all test results are in compliance with the material specifications and that all material meets the dimensional requirements of the order. The products described have not come into contact with mercury or any of its components. Westbrook's USA Quality System is registered to ISO 9001, Certificate No. 32813. This document is in accordance with EN10204:2004 3.1 / DIN50049 3.1B and was electronically transmitted. This inspection certificate is issued under the authority of Westbrook Mfg's Quality Control Manager.



CapProducts, Ltd.
25 Winnipeg St
Vancouver, BC V6M 1L0

Phoenix * Capitol * Camco

CapProducts *CE=0.35*

ITEM # 658

Certified Mill Test Report

Commanding a Higher Standard™

Printed: 11/17/2015
Customer
MRC CANADA ULC
7072 - 112 AVE SE
CALGARY, AB T2C 4Z1

Certified: 06/18/2015
P.O. S 759 298175
Tag

Heat No A1366
Heat Code **34KL**
Phoenix Order # 1165263

Material ASTM A333 GR6 2011/ASME SA333 GR6 2010 Edition

Part Number
15130708PXTCSA

Description
3/4 X 4" SCH160 SMLS A333 GR6 PXT CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr	C Eq. Long	
0.1900	0.8400	0.0070	0.0070	0.1900	0.0180	0.0260	0.0750	0.3507	
Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0130	0.0010		0.0220	0.0000					0.0020

Additional Chemical Properties

Cr + Cu + Ni
0.1190

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
61,222	43,423	54.0%	0.0%	139	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average
46	46	52	48.00

* Hydro test passed. at 2500 psi.

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements.

We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Comments:
Meets ASME SA 106 Grade B Requirements.

Flattening test passed.

Charpy V Impact Tested at -56° C. Specimen size - 10 x 3.33 mm.

Heat Number: 1
MRC Global Part Number: 21C10174
MRC Global Part Description: 3/4 X 4 S160 BLK CS SMLS PIPE NIPPLE
TO EX POE ASTM A333 GR.6

MTR # 7



CapProducts, Ltd.
25 Winnipeg St
Vancouver, ON N0M 1L0

Phoenix * Capitol * Camco

CapProducts

ITEM # 7
186
CE = 29

Certified Mill Test Report

Commanding a Higher Standard™

Printed: 6/1/2016
Customer
MRC GLOBAL (CANADA) ULC
7072 - 112 AVE SE
CALGARY, AB T2C 4Z1

Certified: 06/08/2015
P.O. S 759 306223
Tag

Heat No A2947
Heat Code 843D
Phoenix Order # 1206501

Material ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Part Number
15131008CSA

Description
1X4 SCH 160 SMLS NIPL A333-GR6 CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr	C Eq. Long
0.1470	0.8300	0.0180	0.0040	0.2500	0.0490	0.0170	0.0660	0.3047

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0050	0.0040		0.0250	0.0000					0.0010

Additional Chemical Properties

Cr + Cu + Ni
0.1320

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
66,765	44,748	40.0%	0.0%	139	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average
76	69	62	69.00

* Hydro test passed. at 2500 psi.

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements.

We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Comments:

Flattening test passed.

Charpy V Impact Tested at -51° C. Specimen size - 10 x 5 mm.

MTR # 8

ITEM # 8 ^{7mm} ~~54~~ 54

CapProducts, Ltd.
25 Winnipeg St
Vancouver, ON N0M 1L0

Phoenix * Capitol * Camco
CapProducts CE = 0.29

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Certified Mill Test Report

Printed: 6/1/2016
Customer
MRC GLOBAL (CANADA) ULC
7072 - 112 AVE SE
CALGARY, AB T2C 4Z1

Certified: 12/17/2015
P.O. S 759 306223
Tag

Heat No A2416
Heat Code 84Q8
Phoenix Order # 1206501
Material ASTM A333 GR6 2013/ASME SA333 GR6 2015 Edition

Part Number
15130708PBECSA

Description
3/4 X 4 SCH160 SMLS NIPL A333 GR6 PBE CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr	C Eq. Long	
0.1500	0.8500	0.0120	0.0040	0.1600	0.0030	0.0300	0.0180	0.2985	
Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Tl
0.0030	0.0020			0.0000					0.0010

Additional Chemical Properties

					Cr + Cu + Ni	
					0.0510	

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
62,572	44,972	52.0%	0.0%	136	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average
39	44	42	41.67

* Hydro test passed. at 2500 psi.

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements.

We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Comments:

Flattening test passed.

Charpy V Impact Tested at -56° C. Specimen size - 10 x 3.33 mm.

Heat Number: 8
MRC Global Part Number: 21C10168
MRC Global Part Description: 3/4 X 4 S160 BLK CS SMLS PIPE NIPPLE PBE ASTM A333 GR.6

MTR # 9



Phoenix * Capitol * Camco CapProducts

Certified Mill Test Report

ITEM #874

54

CE = 0.27

Heat Code: 8634

Heat Number: 592913

Item: 15130708PBECSA 3/4X4 SCH160 SMLS NIPL A333 GR6 PBE CSA

Material: ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Chemistry Properties

C	Mn	P	S	Si	Cu	Cr
0.1300	0.7300	0.0070	0.0010	0.2100	0.0600	0.1500
Ni	Mo	V	Co	Al	Cb	N
0.0600	0.0300	0.0010			0.0110	
Pb	Sn	Ta	Ti	C Eq. Long		
			0.0020	0.2959		

Additional Chemical Properties

Mechanical Properties

Tensile(PSI)	Yield(PSI)	Elong. % in 2 in. or 4D	Reduction	HBW	HBW 2
68893	48878	46%		140	

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Avg.	Test Temp.
38	39	38	38.33	45

Bend Test Passed

Hydro Test Passed at 3000 psi

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements. We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Heat Code Remarks: Flattening test passed. Charpy V Impact Tested at -45° C. Specimen size - 10 x 5 mm.

MTR # 10

ITEM # *X 744*

CERTIFIED MILL TEST REPORT

LOG NO. F00000000085475

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75

CE = 0.42

BONNEY FORGE CORPORATION

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CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 07/07/2016

CUSTOMER

BONNEY ORDER NO. B000207545

ORDER NO.: S759307688

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
49 18C12619	50	6833	3/8 3M/6M A105 Q&T HXPL T SA/A105-QT Al 0.004 C 0.170 Co 0.000 Cr 0.070 Cu 0.180 Mn 0.640 Mo 0.026 N 0.008 Nb 0.000 Ni 0.080 P 0.009 S 0.007 Si 0.230 V 0.001 CE(Long Formula) = 0.31 T/S(PSI) 0 Y/S(PSI) 0 EL(%) 0.00 RA(%) 0.00 Brinell 156 BHN 169 BHN
82 18C12205	50	6715	1/2X 1/8 3M/6M QT HXBU T SA/A105-QT Al 0.048 C 0.150 Co 0.000 Cr 0.050 Cu 0.060 Mn 0.600 Mo 0.010 N 0.007 Nb 0.001 Ni 0.030 P 0.009 S 0.002 Si 0.100 V 0.001 CE(Long Formula) = 0.27 T/S(PSI) 0 Y/S(PSI) 0 EL(%) 0.00 RA(%) 0.00 Brinell 147 BHN 162 BHN
3 18C12667	50	1105	1 3M/6M LF2 HXPL T SA/A350 LF2 CL1 Al 0.024 C 0.210 Co 0.004 Cr 0.050 Cu 0.050 Mn 1.010 Mo 0.007 Nb 0.014 Ni 0.030 P 0.008 S 0.022 Si 0.210 V 0.003 CE(Long Formula) = 0.40 T/S(PSI) 74,832 Y/S(PSI) 53,421 EL(%) 34.90 RA(%) 61.19 Brinell 137 BHN 135 BHN Charpy -50 F 51/49/58 (Ft-Lbs) Average 52.70
7 18C12652	325	6997	3/4 3M/6M LF2 HXPL T SA/A350 LF2 CL1 Al 0.029 C 0.220 Co 0.004 Cr 0.050 Cu 0.090 Mn 1.030 Mo 0.018 Nb 0.011 Ni 0.040 P 0.006 S 0.024 Si 0.210 V 0.004 CE(Long Formula) = 0.41 T/S(PSI) 75,908 Y/S(PSI) 52,779 EL(%) 36.25 RA(%) 60.94 Brinell 137 BHN 135 BHN Charpy -50 F 41/84/38 (Ft-Lbs) Average 54.30

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2

MTR # 11

CERTIFIED MILL TEST REPORT

ITEM # 9



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LOG NO. F00000000085475

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www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 07/07/2016

CUSTOMER

BONNEY ORDER NO. B000207545

ORDER NO.: S759307688

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
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1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
3. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
4. ITEM - 3, 4, 5, 6, 7, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 121, 122, 123, 124 - ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.
5. ITEM - 2, 4, 5, 6, 8, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 46, 48, 49, 51, 52, 53, 54, 55, 58, 59, 60, 61, 63, 64, 65, 68, 69, 70, 71, 72, 74, 75, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 113, 115, 116, 117, 118, 121, 122, 123 - CERTIFYING ASTM A105-14 / ASME SA105-15 EDITION.
6. ITEM - 4, 5, 6, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 46, 48, 51, 52, 53, 54, 55, 58, 59, 60, 61, 63, 64, 65, 68, 69, 70, 71, 72, 74, 75, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 113, 115, 116, 117, 118, 121, 122, 123 - THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
7. ITEM - 4, 5, 6, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 46, 48, 51, 52, 53, 54, 55, 58, 59, 60, 61, 63, 64, 65, 68, 69, 70, 71, 72, 74, 75, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 113, 115, 116, 117, 118, 121, 122, 123 - THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
8. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 - CERTIFYING TO ASTM A350 LF2 07 REVISION.
9. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 - THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by *Kylee Ruiz*

Kylee Ruiz
QUALITY PROCESS MANAGER

CMTR: REV2

MTR # 11

CERTIFIED MILL TEST REPORT

ITEM # 9



The Best Value -
Price, Quality, Service
All The Time.

LOG NO. F00000000085475

Page 43 of 43

BONNEY FORGE CORPORATION

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 07/07/2016

CUSTOMER

BONNEY ORDER NO. B000207545

ORDER NO.: S759307688

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

10. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 -THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
11. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 -THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
12. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 -THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
13. ITEM - 2, 8, 25, 49, 82 -THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.
14. ITEM - 2, 8, 25, 49, 82 -THE MATERIAL SUPPLIED IDENTIFIED AS SA A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

Kylee Ruiz

QUALITY PROCESS MANAGER

MTR # 11

CMTR: REV2

ITEM #10 Pm

76

CE=0.36

 I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A. Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality@imlitaly.com MATERIAL TEST DEPARTMENT		COMPANY WITH QUALITY SYSTEM ISO 9001: 2008 CERTIFIED BY RINA CERT. N° 23/91/S	
INSPECTION CERTIFICATE EN 10204:2004 / 3.1		Nr 2016-C IML 27884 Data / Dated 01.03.2016	
TRANS AM PIPING PRODUCTS LTD. 9335 Endeavor Drive S.E. Calgary, Alberta T3S 0A1		Ordine / PO CI-15 - 673 C/O 4 Item 19 DDT / Delivery note 2016-2E301-0000269 Packing List 2016-2E301-0000269 Fattura / Invoice Ns. rif. / Our ref. 2015-2E201-0001300-0047	
Dest. TRANS AM PIPING PRODUCTS LTD. 9335 - Endeavor Drive S.E. Calgary, Alberta T3S 0A1			
Cod. colata Heat Code RH1L	Nr. colata Heat Nr 15/76098	Descrizione Description FITTING HEX H. PLUG 3/6M THRO NPT 1" A350/LF2	

Mat. in acc. a / Mat. in acc. to
 ASTM A350/A350M-15 Gr. LF2 cl 1
 ASME SA350/SA350M Gr. LF2 cl.1, ASME II PART A Ed.2013
 ANSI/NACE MR 0175 - ISO 15156 Ed.2015 / NACE MR 0103 Ed. 2012
 P E.D. 97/23/EC ANNEX 1 PAR. 4.3

Ann. mat. / Mat. remarks MATERIAL FULLY KILLED & FINE GRAIN PRACTICED																																																					
Elementi / Elements LADLE ANALYSIS LADLE ANALYSIS	<table border="1"> <thead> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>S</th> <th>P</th> <th>Cr</th> <th>Ni</th> <th>Mo</th> <th>Ti</th> <th>Cu</th> <th>V</th> <th>Nb</th> <th>N</th> </tr> </thead> <tbody> <tr> <td>0,185</td> <td>0,230</td> <td>1,030</td> <td>0,008</td> <td>0,011</td> <td>0,100</td> <td>0,050</td> <td>0,010</td> <td>0,020</td> <td>0,130</td> <td>0,021</td> <td>0,002</td> <td>0,000</td> </tr> <tr> <td>Al</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CE LF</td> <td>CE SF</td> <td>F1</td> <td>F2</td> <td>PREN</td> </tr> <tr> <td>0,027</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0,395</td> <td>0,357</td> <td>0,311</td> <td>0,110</td> <td>--</td> </tr> </tbody> </table>	C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu	V	Nb	N	0,185	0,230	1,030	0,008	0,011	0,100	0,050	0,010	0,020	0,130	0,021	0,002	0,000	Al								CE LF	CE SF	F1	F2	PREN	0,027								0,395	0,357	0,311	0,110	--
C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu	V	Nb	N																																									
0,185	0,230	1,030	0,008	0,011	0,100	0,050	0,010	0,020	0,130	0,021	0,002	0,000																																									
Al								CE LF	CE SF	F1	F2	PREN																																									
0,027								0,395	0,357	0,311	0,110	--																																									
CE LF=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15 CE SF=C+(Mn/6) F1=Cu+Ni+Cr+Mo+V F2=Cr+Mo																																																					
Provetta Test specimen Sez/Sect mm2 L. mm 122,65 50,00	Forma Shape 1=O - 2=□ 1 20																																																				
DUREZZA / HARDNESS HBW 152,0 - 158,0	RESILIENZA / IMPACT TEST Tipo/Type Provetta / Test Specimen °C 1-Joule 2-Joule 3-Joule Media/Average KV 10x10mm -50 41 55 50 48,7																																																				
Tratt. Term. / Heat treatment Normalized at 900°C / Air Cool ELECTRIC FURNACE																																																					
Dim in acc. a / Dim. acc. to ASME B16.11 Ed.2011 - ASME B1.20.1 Ed.2013 - MSS SP25 Ed.2013																																																					
Marcatura in acc. to Marking in acc. to MSS SP25 Ed. 2013	Vis. & Dim. SATISFACTORY																																																				
Origine Origin of Steel ITALY																																																					

Note / Notes
 100% MANUFACTURED IN ITALY
 SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS

UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT Boris Fizzotti - Manager Boris Fizzotti	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL IML or 
---	---	--

MTR
#12



INSPECTION CERTIFICATE

Customer : WFF FITTINGS & FLANGES (CANADA) LTD.
 Product : SEAMLESS CARBON STEEL BUTT WELD FITTINGS
 Spec : ASME SA 234/ASTM 420-14 WPL6 SS
 NACE MR0175/ISO15156-2 Sour Service
 Region 3 Annex A, MR0103 Sour**

(MILL TEST)
 ACCORDANCE WITH EN 10204-3.1
 CHUP HSIN ENTERPRISE CO., LTD.
 17, TUNG LI ROAD HSIAO KANG,
 KAOHSIUNG, TAIWAN, R.O.C.
 TEL:(07)831-9157 FAX:(07)821-7500, 831-2942

Certificate No : 00400154-0104
 Order No : 23419/C000543

Date : 2016/04/15

Starting Material		Specification for Inspection				Visual Inspection			Dimensional Inspection							
ASTM A333 GR-E		ASME B16.9-2012				GOOD			GOOD							
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test				Ave.					
							Test Temp	Size of specimen	Charpy V-Notch Impact Value J							
36	CON RED SMLS WPL6 S80	5	B356	311356	TPCO C102100010216		-45	10 X 10 X 55	165	160	156	160.33				
37	CON RED SMLS WPL6 S80	2	917B	311917	TPCO 13103985		-45	10 X 10 X 55	152	158	144	151.33				
38	CON RED SMLS WPL6 S80	2	606B	311606	TPCO 13104034		-45	10 X 10 X 55	148	140	142	143.33				
40	CON RED SMLS WPL6 S160	10	1265	341265	TPCO C102100010564		-45	10 X 10 X 55	52	46	50	49.33				
41	CON RED SMLS WPL6 S160	5	1265	341265	TPCO C102100010564		-45	10 X 10 X 55	52	46	50	49.33				
Specification	Chemical Composition%										Heat Treatment		REMARK			
	C	Si	Mn	P	S	CU	Ni	Cr	Mo	V	Nb	C.E		Y.S	T.S	E
	X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X1000	X1000	X100	P.S.I	P.S.I	%	HB
Mln.		15	50										35000	60000	30	
Max.	30	40	135	35	40	40	40	30	12	80	20	50		95000		197
36	17	22	94	10	9	16	5	3	1	10	5	37	44981	71100	44.0	132
37	12	23	122	13	8	9	3	8	1	2	2	35	40918	70500	43.5	138
38	13	24	124	12	7	8	3	5	1	2	1	36	41499	71200	34.0	137
40	17	24	96	13	6	9	3	4	2	<10	<5	35	50060	76900	40.0	134
41	17	24	96	13	6	9	3	4	2	<10	<5	35	50060	76900	40.0	134
NORM. 910°Cx0.75HR AC																
**Service/ CSA Z245.11 GR 241 CAT II SS Region 3 Annex A.																

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

ITEM # 13
 L.S. Tsai
 Chief of Quality Assurance Section
 CE=0.3

MTR
 #13

WESTBROOK

MATERIAL TEST REPORT

ITEM # **12** *74*P.O. Box 15614
Houston, Tx 77220-5614Voice 713 675 6438
Fax 713 675 9742

118

Sold To: WESTBROOK CANADA LTD
Order No.: 668316 Order Date: 6/21/2016Purchase Order: 801735/134764
Tag Number: MRC PO# S759307335

Printed: 6/23/2016

Line: Description:
26 2 X 1 S80 A234WPBN SP95 BLK CONC SWG TBE

CE = 0.37

***** Specifications - Heat Code W02566 ZC: *****
A29 GRADE 1018 MODIFIED, SA29, A234-11 WPB, SA234 WPB,
ASME B16.9, B1.20.1, MSS SP-25, SP-95, A.W.W.A.
STARTING MATERIAL: BAR
A234 WPBN, SA234 WPBN**Chemical Composition:**

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.170	0.620	0.006	0.024	0.110	0.070	0.060	0.020
Cu:	V:	Al:	Cb:	N:	Sn:	Pb:	Ti:
0.150	0.002	0.002	0.001	68 PPM	0.007	0.000	0.000
B:	Ca:	C.E.:					
0.000	.001	.305					

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:
66260	50747	30.00	BHN 74-75

Comments:

Normalized @ 1600-1650.
Hot finished.
Meets Nace MR-01-75/2009, MR-01-03/2010 and ISO 15156/2009.

Line: Description:
27 2 X 1 S80 A420 WPL6 CONC SWG BXP***** Specifications - Heat Code H02369: *****
A350/A350M-13 LF2, SA350 LF2, A105, SA105, A420-13 WPL6,
A420 WPL6, A234-13 WPB, SA234 WPB, A788, ASME B16.5,
B16.9, B16.11, B16.47, B1.20.1, MSS SP-25, SP-44, SP-79,
SP-83, SP-95, API 605, A.W.W.A.
STARTING MATERIAL: BAR**Chemical Composition:**

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.190	0.920	0.006	0.017	0.260	0.090	0.040	0.010
Cu:	V:	Al:	Cb:	C.E.:			
0.050	0.010	0.030	0.000	.371			

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
73000	45200	32.00	67.00	BHN 145-152

Impact Results:

Test Temp:	Achieved Values:
-50F	32-35-34 FT/LBS

Comments:

Normalized.
Cold drawn.
Meets Nace MR-01-75/2009, MR-01-03/2010 and ISO 15156/2009.

We hereby certify that the contents of this Material Test Report are correct and accurate to the best of our knowledge and belief, that all test results are in compliance with the material specifications and that all material meets the dimensional requirements of the order. The products described have not come into contact with mercury or any of its components. No weld repair performed. Westbrook's Quality System is registered to ISO 9001, Certificate #32813. This document is in accordance with EN10204:2004 3.1/DIN50049 3.1B and was electronically transmitted. This inspection certificate is issued under the authority of Westbrook's QA Manager.

CERTIFIED MILL TEST REPORT

ITEM # *K 7m*
118



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LOG NO. F00000000084123

Page 55 of 55

BONNEY FORGE CORPORATION

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 05/18/2016

CUSTOMER

BONNEY ORDER NO. B000205503

ORDER NO.: S759305664

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

10. ITEM - 4, 5, 14, 23, 36, 39, 49, 50, 51, 54, 56, 60, 61, 64, 65, 68, 69, 70, 72, 73, 74, 76, 81, 84, 86, 94, 95, 99, 103, 106, 109, 110, 114, 117, 118, 119, 123, 126, 130, 132, 134, 138, 143 -THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
11. ITEM - 4, 5, 14, 23, 36, 39, 49, 50, 51, 54, 56, 60, 61, 64, 65, 68, 69, 70, 72, 73, 74, 76, 81, 84, 86, 94, 95, 99, 103, 106, 109, 110, 114, 117, 118, 119, 123, 126, 130, 132, 134, 138, 143 -THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
12. ITEM - 4, 5, 14, 23, 36, 39, 49, 50, 51, 54, 56, 60, 61, 64, 65, 68, 69, 70, 72, 73, 74, 76, 81, 84, 86, 94, 95, 99, 103, 106, 109, 110, 114, 117, 118, 119, 123, 126, 130, 132, 134, 138, 143 -THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
13. ITEM - 1, 3, 9, 29, 47, 52 -THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.
14. ITEM - 1, 3, 9, 29, 47, 52 -THE MATERIAL SUPPLIED IDENTIFIED AS SA/A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2

MTR # 14

WESTBROOK

MATERIAL TEST REPORT

PO Box 53591
Edmonton, AB T6X0P0

Voice 780-490-4976
Fax 780 490 0471

ITEM # 12
+ 8
52, 118

S to: MRC GLOBAL (CANADA) ULC
Order No.: 136452 Order Date: 9/01/2016

Purchase Order: C7554463974B1

Printed: 9/02/2016

Line: Description:
1 2 X 1 S80 A420 WPL6 CONC SWG BXP

***** Specifications - Heat Code H02124: *****
A350/A350M-13 LF2, SA350 LF2, A105, SA105, A420-13 WPL6,
SA420 WPL6, A234-13 WPB, SA234 WPB, A788, ASME B16.5,
B16.9, B16.11, B16.47, B1.20.1, MSS SP-25, SP-44, SP-79,
SP-83, SP-95, API 605, A.W.W.A.
STARTING MATERIAL: BAR

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.190	0.920	0.006	0.017	0.260	0.090	0.040	0.010
Cu:	V:	Al:	Cb:	C.E.:			
0.050	0.010	0.030	0.000	371			

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
71500	43300	34.00	70.00	BHN 146-151

Impact Results:

Test Temp:	Achieved Values:
-50F	50-30-33 FT/LBS

Comments:

Normalized.
Cold drawn.
Meets Nuce MR-01-75/2009, MR-01-03/2010 and ISO 15156/2009.

Line: Description:
2 1 X 4 S160 A333 GR6 BLK SMLS NPL PXT

***** Specifications - Heat Code H02298: *****
A333/A333M-13 GR.6, SA333 GR.6, A420-13 WPL6, SA420 WPL6,
A540, A733, ASME B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.130	1.090	0.006	0.004	0.240	0.060	0.085	0.025
Cu:	V:	Cb:	C.E.:				
0.204	0.001	0.001	371				

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:	Bend:
68666	45342	49.00	HRB 67-77	OK	OK
Hydro(PSI):					
2500					

Impact Results:

Test Temp:	Achieved Values:
-50F	115-103-110 J

Comments:

Normalized 900C - 13 min.
Hot finished.
Charpy specimen size: .394 X .197"

We hereby certify that the contents of this Material Test Report are correct and accurate to the best of our knowledge and belief, that all test results are in compliance with the material specifications and that all material meets the dimensional requirements of the order. The products described have not come into contact with mercury or any of its components. Westbrook's USA Quality System is registered to ISO 9001, Certificate No. 32813. This document is in accordance with EN10204:2004 3.1 / DIN50049 3.1B and was electronically transmitted. This inspection certificate is issued under the authority of Westbrook Mfg's Quality Control Manager.

ITEM # 13, 24

Material Test Report

Page 1 of 1



WESTBROOK

Material Test Report

005203

MRC CANADA ULC

Description:

2 X 1 XH CS ECC SWAGE NIPPLE BLE-X PSE-A420 WPL6

***** Specifications - Heat Code H2327 *****

A350/A350M-11 LF2, SA350 LF2, A105, SA105, A420-10A WPL6,
SA420 WPL6, A234-11 WPB, SA234 WPB, A788, ASME B16.5,
B16.9, B16.11, B16.47, B1.20.1, MSS SP-25, SP-44, SP-79,
SP-83, SP-95, API 605, A.W.W.A.

STARTING MATERIAL: BAR

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.170	0.830	0.027	0.027	0.210	0.020	0.010	0.000
Cu:	V:	Al:	Cb:	Sb:	Ti:	C.E.	
0.000	0.004	0.031	0.001	0.009	0.002	3.13	

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
70400	43700	38.50	69.50	BHN 124

Impact Results:

Test Temp:	Achieved Values:
-50F	20-20-35 FT/LB

Comments:

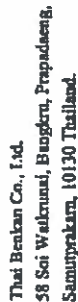
NORMALIZED.

Meets Nace MR-01-75/2009, MR-01-03/2010 and ISO 15156/2009.

We certify only the chemistry and physical results shown for the referenced Heat Code as
furnished by the Producing Mill. The Description is the responsibility of the requesting party.
This document was electronically transmitted and is in accordance with EN10204 3.1/DIN50049 3.1B.

Heat Number: H2
MRC Global Part Number: 21C18278
MRC Global Part Description: 2 X 1 XH CS ECC SWAGE NIPPLE BLE-X PSE A420 WPL6

10/23/2015
MTR # 16



D	M	Y	Certificate No.
09/10/2015		T-	2015031338

Purchase Order No. 4810470-W Job No. 5759269848

TO EN10204 3.1

INSPECTION CERTIFICATE

E-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection														
MD-857	ASTM A420-14 / ASME SA420-18 GR WPL8 CSA Z45 11-13 GR J41 CAT B IMSC Sour Service	ASME B16.9-2012, B16.25-2012	Good	Good														
MFG. No.	Product & Size	(r.t.)	Quantity	Hardness Actual Data														
15C11814	TWPL8 2 S80		65495	HB 125 - 145														
	Material Heat No.	Item No.																
	J4LC459	7561873 16C12832																
Specifi- cation	Chemical Composition %													*2 Tension Test		Hardness Max 197 HB : GOOD		
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	YS	TS	E	Impact Test (J)	
x 100	x 100	x 100	x 1000	x 1000	x 1000	x 100	x 100	x 100	x 100	x 1000	x 1000	x 1000	x	MPa			%	10 X 2.5 X 2V AT -45 °C
Min.		15	50											240	415	30	46	
Max.	30	40	135	35	40	40	40	30	12		80	20	40		585		42 AVE 44	
	11	25	133	10	1	2	3	13	1		0	0	36	312	457	63	44	

NORMALIZING 910 C X 10 MINUTES AIR COOLING

The fittings were manufactured sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.

The material meet ANSI/NACE MR0175/ISO15156-2 (Region 3) 2009 & MR0103-2012

$$C.R. = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15$$

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY:

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : T^o symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
TZ 6C/4

GOOD

Quality Assurance Manager -
Thai Benkan Co., Ltd.

er TEM # 14

(27)

MTR #17

Heat Number: 15C11814
MRC Global Part Number: 16C12832
MRC Global Part Description: 2 XH BLK CS WELD TEE A/SA420WPL6 IMP

ITEM # 18 KH
132

CERTIFIED MILL TEST REPORT

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LOG NO. F0000000083487

Page 41 of 58 CE=.41

BONNEY FORGE CORPORATION

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(614) 542-2545 • (800) 345-7548 • FAX (614) 542-4906

www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 04/26/2016

CUSTOMER

BONNEY ORDER NO. B000204450

ORDER NO.: S759304729

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO
			CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
46	75	59789	1 6000 LF2 90EL S
18C12775			SA/A350 LF2 CL1
			Al 0.026 C 0.210 Co 0.003 Cr 0.030 Cu 0.040 Mn 1.030 Mo 0.004 Nb 0.013
			Ni 0.020 P 0.006 S 0.018 Si 0.170 V 0.004
			CE(Long Formula) = 0.39
			T/S(Psi) 75,551 Y/S(Psi) 51,758 EL(%) 36.30 RA(%) 60.19
			Brinell 132 BHN 132 BHN
			Charpy -50 F 91/36/36 (Ft-Lbs)
			Average 54.30
52	50	59793	3/4 3000 LF2 TEE S
18C11521			SA/A350 LF2 CL1
			Al 0.022 C 0.210 Co 0.004 Cr 0.050 Cu 0.040 Mn 1.040 Mo 0.005 Nb 0.016
			Ni 0.030 P 0.006 S 0.025 Si 0.190 V 0.006
			CE(Long Formula) = 0.40
			T/S(Psi) 73,812 Y/S(Psi) 51,473 EL(%) 36.95 RA(%) 57.65
			Brinell 135 BHN 130 BHN
			Charpy -50 F 44/33/67 (Ft-Lbs)
			Average 48.00
54	50	6851	3/4 3000 LF2 CAP T
18C10588			SA/A350 LF2 CL1
			Al 0.024 C 0.210 Co 0.003 Cr 0.030 Cu 0.050 Mn 1.030 Mo 0.005 N 0.002
			Nb 0.013 Ni 0.020 P 0.005 S 0.025 Si 0.200 V 0.004
			CE(Long Formula) = 0.39
			T/S(Psi) 72,711 Y/S(Psi) 51,592 EL(%) 36.35 RA(%) 58.93
			Brinell 132 BHN 132 BHN
			Charpy -50 F 28/99/113 (Ft-Lbs)
			Average 80.00

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by *Kylee Ruiz*

Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2

MTR #18

Heat Number: 51
MRC Global Part Number: 18C11521
MRC Global Part Description: 3/4 3000# BLK FS TEE SW SA350 LF2N IMP

ITEM # 15

132

CERTIFIED MILL TEST REPORT

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LOG NO. F00000000083487

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BONNEY FORGE CORPORATION

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 04/26/2016

CUSTOMER

BONNEY ORDER NO. B000204450

ORDER NO.: S759304729

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
3. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
4. ITEM - 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 32, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 152, 153, 154, 155, 156, 157, 158 - ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.
5. ITEM - 1, 2, 3, 4, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 18, 19, 20, 22, 23, 24, 28, 29, 30, 31, 32, 33, 34, 35, 38, 40, 41, 44, 47, 48, 49, 50, 53, 55, 56, 57, 58, 59, 62, 63, 64, 69, 70, 71, 73, 74, 75, 79, 82, 84, 85, 88, 89, 92, 94, 96, 97, 98, 99, 100, 101, 103, 104, 105, 107, 113, 114, 116, 117, 118, 119, 120, 121, 125, 126, 127, 128, 130, 131, 132, 134, 135, 136, 137, 139, 142, 143, 150, 153, 154, 155, 156, 157, 158 - CERTIFYING ASTM A105-14 / ASME SA105-15 EDITION.
6. ITEM - 2, 3, 4, 7, 8, 9, 10, 12, 13, 14, 15, 18, 19, 20, 22, 23, 24, 28, 30, 31, 32, 34, 35, 38, 40, 41, 44, 47, 48, 49, 50, 53, 55, 56, 57, 58, 59, 62, 63, 64, 69, 70, 71, 73, 74, 75, 79, 82, 84, 85, 88, 89, 92, 94, 96, 97, 98, 99, 100, 101, 103, 104, 105, 107, 113, 114, 116, 117, 118, 119, 120, 121, 125, 126, 127, 128, 130, 131, 132, 134, 135, 136, 137, 139, 142, 143, 150, 153, 154, 155, 156, 157, 158 - THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
7. ITEM - 2, 3, 4, 7, 8, 9, 10, 12, 13, 14, 15, 18, 19, 20, 22, 23, 24, 28, 30, 31, 32, 34, 35, 38, 40, 41, 44, 47, 48, 49, 50, 53, 55, 56, 57, 58, 59, 62, 63, 64, 69, 70, 71, 73, 74, 75, 79, 82, 84, 85, 88, 89, 92, 94, 96, 97, 98, 99, 100, 101, 103, 104, 105, 107, 113, 114, 116, 117, 118, 119, 120, 121, 125, 126, 127, 128, 130, 131, 132, 134, 135, 136, 137, 139, 142, 143, 150, 153, 154, 155, 156, 157, 158 - THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
8. ITEM - 5, 11, 21, 25, 26, 27, 36, 37, 39, 42, 43, 45, 46, 52, 54, 60, 61, 65, 66, 67, 68, 72, 76, 77, 78, 80, 81, 83, 86, 87, 90, 91, 93, 95, 102, 106, 108, 109, 110, 111, 112, 115, 122, 123, 124, 133, 138, 140, 141, 145, 146, 147, 148, 149, 152 - CERTIFYING TO ASTM A350 LF2 07 REVISION.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks

by

Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2

MTR # 18

Heat Number: 5544J
MRC Global Part Number: 18C11521
MRC Global Part Description: 3/4 3000# BLK FS TEE SW SA350 LF2N IMP

ITEM #

18
132

CERTIFIED MILL TEST REPORT



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LOG NO. F00000000083487

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BONNEY FORGE CORPORATION

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 04/26/2016

CUSTOMER

BONNEY ORDER NO. B000204450

ORDER NO.: S759304729

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.

CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

9. ITEM - 5, 11, 21, 25, 26, 27, 36, 37, 39, 42, 43, 45, 46, 52, 54, 60, 61, 65, 66, 67, 68, 72, 76, 77, 78, 80, 81, 83, 86, 87, 90, 91, 93, 95, 102, 106, 108, 109, 110, 111, 112, 115, 122, 123, 124, 133, 138, 140, 141, 145, 146, 147, 148, 149, 152 - THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.
10. ITEM - 5, 11, 21, 25, 26, 27, 36, 37, 39, 42, 43, 45, 46, 52, 54, 60, 61, 65, 66, 67, 68, 72, 76, 77, 78, 80, 81, 83, 86, 87, 90, 91, 93, 95, 102, 106, 108, 109, 110, 111, 112, 115, 122, 123, 124, 133, 138, 140, 141, 145, 146, 147, 148, 149, 152 - THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
11. ITEM - 5, 11, 21, 25, 26, 27, 36, 37, 39, 42, 43, 45, 46, 52, 54, 60, 61, 65, 66, 67, 68, 72, 76, 77, 78, 80, 81, 83, 86, 87, 90, 91, 93, 95, 102, 106, 108, 109, 110, 111, 112, 115, 122, 123, 124, 133, 138, 140, 141, 145, 146, 147, 148, 149, 152 - THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
12. ITEM - 5, 11, 21, 25, 26, 27, 36, 37, 39, 42, 43, 45, 46, 52, 54, 60, 61, 65, 66, 67, 68, 72, 76, 77, 78, 80, 81, 83, 86, 87, 90, 91, 93, 95, 102, 106, 108, 109, 110, 111, 112, 115, 122, 123, 124, 133, 138, 140, 141, 145, 146, 147, 148, 149, 152 - THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
13. ITEM - 1, 6, 16, 29, 33 - THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.
14. ITEM - 1, 6, 16, 29, 33 - THE MATERIAL SUPPLIED IDENTIFIED AS SA/A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2

MTR #18

Heat Number: 5544
MRC Global Part Number: 18C11521
MRC Global Part Description: 3/4 3000# BLK FS TEE SW SA350 LF2N IMP

CERTIFIED MILL TEST REPORT



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LOG NO. F00000000084123

Page 47 of 55

ITEM # 15
133

BONNEY FORGE CORPORATION

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CE = 0.39

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 05/18/2016

CUSTOMER

BONNEY ORDER NO. B000205503

ORDER NO.: S759305664

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
103 18C13288	25	59537	5 -3 X 3/4 3000 LF2 THRD T SA/A350 LF2 CL1 Al 0.028 C 0.200 Co 0.003 Cr 0.050 Cu 0.040 Mn 1.020 Mo 0.008 N 0.004 Nb 0.011 Ni 0.020 P 0.007 S 0.019 Si 0.190 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 73,262 Y/S(PSI) 51,236 EL(%) 35.00 RA(%) 63.71 Brinell 135 BHN 135 BHN Charpy -50 F 38/44/46 (Ft-Lbs) Average 42.70
106 18C12223	25	6819	1/2X1/4 3M/6M LF2 HXBU T SA/A350 LF2 CL1 Al 0.035 C 0.210 Co 0.002 Cr 0.060 Cu 0.030 Mn 1.010 Mo 0.006 N 0.003 Nb 0.014 Ni 0.020 P 0.004 S 0.015 Si 0.220 V 0.003 CE(Long Formula) = 0.40 T/S(PSI) 75,779 Y/S(PSI) 52,207 EL(%) 34.20 RA(%) 59.94 Brinell 135 BHN 137 BHN Charpy -50 F 59/44/71 (Ft-Lbs) Average 58.00
109 18C11536	25	59807	1 3000 LF2 TEE S SA/A350 LF2 CL1 Al 0.019 C 0.200 Co 0.000 Cr 0.040 Cu 0.040 Mn 1.000 Mo 0.004 Nb 0.012 Ni 0.020 P 0.007 S 0.020 Si 0.230 V 0.003 CE(Long Formula) = 0.38 T/S(PSI) 74,691 Y/S(PSI) 49,638 EL(%) 36.70 RA(%) 66.89 Brinell 135 BHN 132 BHN Charpy -50 F 33/27/28 (Ft-Lbs) Average 29.30

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2

MTR # 19

CERTIFIED MILL TEST REPORT

ITEM #16

LOG NO. F00000000084123

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BONNEY FORGE CORPORATION

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CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 05/18/2016

CUSTOMER

BONNEY ORDER NO. B000205503

ORDER NO.: S759305664

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.

CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
3. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
4. ITEM - 2, 4, 5, 6, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143 -ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.
5. ITEM - 1, 2, 3, 6, 7, 8, 9, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 32, 33, 34, 35, 37, 38, 40, 41, 42, 43, 44, 45, 46, 47, 48, 52, 53, 55, 57, 58, 59, 62, 63, 66, 71, 75, 77, 78, 79, 80, 82, 83, 85, 87, 88, 89, 91, 92, 93, 96, 97, 98, 100, 101, 102, 104, 105, 107, 108, 111, 112, 113, 115, 116, 120, 121, 122, 124, 125, 127, 128, 129, 131, 133, 135, 136, 137, 139, 140, 141, 142 -CERTIFYING ASTM A105-14 / ASME SA105-15 EDITION.
6. ITEM - 2, 6, 7, 8, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 30, 32, 33, 34, 35, 37, 38, 40, 41, 42, 43, 44, 45, 46, 48, 53, 55, 57, 58, 59, 62, 63, 66, 71, 75, 77, 78, 79, 80, 82, 83, 85, 87, 88, 89, 91, 92, 93, 96, 97, 98, 100, 101, 102, 104, 105, 107, 108, 111, 112, 113, 115, 116, 120, 121, 122, 124, 125, 127, 128, 129, 131, 133, 135, 136, 137, 139, 140, 141, 142 -THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
7. ITEM - 2, 6, 7, 8, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 30, 32, 33, 34, 35, 37, 38, 40, 41, 42, 43, 44, 45, 46, 48, 53, 55, 57, 58, 59, 62, 63, 66, 71, 75, 77, 78, 79, 80, 82, 83, 85, 87, 88, 89, 91, 92, 93, 96, 97, 98, 100, 101, 102, 104, 105, 107, 108, 111, 112, 113, 115, 116, 120, 121, 122, 124, 125, 127, 128, 129, 131, 133, 135, 136, 137, 139, 140, 141, 142 -THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
8. ITEM - 4, 5, 14, 23, 36, 39, 49, 50, 51, 54, 56, 60, 61, 64, 65, 68, 69, 70, 72, 73, 74, 76, 81, 84, 86, 94, 95, 99, 103, 106, 109, 110, 114, 117, 118, 119, 123, 126, 130, 132, 134, 138, 143 -CERTIFYING TO ASTM A350 LF2 07 REVISION.
9. ITEM - 4, 5, 14, 23, 36, 39, 49, 50, 51, 54, 56, 60, 61, 64, 65, 68, 69, 70, 72, 73, 74, 76, 81, 84, 86, 94, 95, 99, 103, 106, 109, 110, 114, 117, 118, 119, 123, 126, 130, 132, 134, 138, 143 -THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2

MTR # 19

CERTIFIED MILL TEST REPORT

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LOG NO. F00000000085236

ITEM # *17/14*
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BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

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www.bonneyforge.com

135
CE = .39

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 06/28/2016

CE = .40

CUSTOMER

BONNEY ORDER NO. B000206901

ORDER NO.: S759307041

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO.	CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
15	175	59910	1 3000 LF2 90EL T	SA/A350 LF2 CL1
18C10474			Al 0.030 C 0.190 Co 0.004 Cr 0.050 Cu 0.080 Mn 1.050 Mo 0.006 Ni 0.030 P 0.006 S 0.015 Si 0.250 V 0.004 CE(Long Formula) = 0.38 T/S(Psi) 77,239 Y/S(Psi) 49,388 EL(%) 35.25 RA(%) 63.09 Brinell 135 BHN 135 BHN Charpy -50 F 51/79/53 (Ft-Lbs) Average 61.00	
22	100	59910	1 3M LF2 UNAR T	SA/A350 LF2 CL1
18C11818		MALE	Al 0.028 C 0.210 Co 0.003 Cr 0.040 Cu 0.050 Mn 1.000 Mo 0.004 N 0.004 Nb 0.015 Ni 0.020 P 0.005 S 0.025 Si 0.210 V 0.003 CE(Long Formula) = <i>0.39</i> T/S(Psi) 70,152 Y/S(Psi) 48,050 EL(%) 35.15 RA(%) 59.78 Brinell 130 BHN 130 BHN Charpy -50 F 88/25/87 (Ft-Lbs) Average 66.70	<i>CE = 0.40</i>
		1115	1 3M LF2 UNAR T	SA/A350 LF2 CL1
18C11818		FEMALE	Al 0.025 C 0.200 Co 0.003 Cr 0.030 Cu 0.060 Mn 1.020 Mo 0.005 Nb 0.012 Ni 0.020 P 0.005 S 0.019 Si 0.230 V 0.003 CE(Long Formula) = <i>0.38</i> T/S(Psi) 71,740 Y/S(Psi) 48,334 EL(%) 36.00 RA(%) 63.14 Brinell 132 BHN 132 BHN Charpy -50 F 18/37/30 (Ft-Lbs) Average 28.30	<i>CE = 0.39</i>

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Billie Jo Clemens

Billie Jo Clemens

QUALITY PROCESS MANAGER

MTR # 20

CMTR: REV2

CERTIFIED MILL TEST REPORT

ITEM # *135*

Page 35 of 55



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LOG NO. F00000000085236

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CE = 0.41

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 06/28/2016

CUSTOMER

BONNEY ORDER NO. B000206901

ORDER NO.: S759307041

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

		<i>MLAY</i>	<i>13MLF2 UNAR T</i>	SA/A350 LF2 CL1
18C11818		NUT	Al 0.020 C 0.190 Co 0.000 Cr 0.160 Cu 0.170 Mn 0.970 Mo 0.030 Nb 0.001 Ni 0.120 P 0.020 S 0.018 Si 0.200 V 0.000 CE(Long Formula) = <i>0.41</i> T/S(Psi) 72,293 Y/S(Psi) 47,735 EL(%) 33.30 RA(%) 67.48 Brinell 135 BHN 135 BHN Charpy -50 F 46/48/53 (Ft-Lbs) Average 49.00	

39	4	1242	3/4 3M/6M LF2 RDPL T	SA/A350 LF2 CL1
18C15320			Al 0.033 C 0.200 Co 0.004 Cr 0.080 Cu 0.090 Mn 0.980 Mo 0.009 Nb 0.015 Ni 0.050 P 0.010 S 0.024 Si 0.230 V 0.004 CE(Long Formula) = 0.39 T/S(Psi) 72,961 Y/S(Psi) 49,247 EL(%) 35.80 RA(%) 60.97 Brinell 135 BHN 135 BHN Charpy -50 F 39/31/14 (Ft-Lbs) Average 28.00	

42	40	59809	1 3000 LF2 TEE T	SA/A350 LF2 CL1
18C11692			Al 0.026 C 0.210 Co 0.003 Cr 0.030 Cu 0.040 Mn 1.030 Mo 0.004 Nb 0.012 Ni 0.020 P 0.006 S 0.018 Si 0.170 V 0.004 CE(Long Formula) = 0.39 T/S(Psi) 75,551 Y/S(Psi) 51,758 EL(%) 36.30 RA(%) 60.19 Brinell 132 BHN 132 BHN Charpy -50 F 91/36/36 (Ft-Lbs) Average 54.30	

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by *Billie Jo Clemens*

Billie Jo Clemens

QUALITY PROCESS MANAGER MTR # 20

CMTR: REV2

CERTIFIED MILL TEST REPORT

ITEM # *17*
135

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LOG NO. F00000000085236

Page 54 of 55

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 06/28/2016

CUSTOMER

BONNEY ORDER NO. B000206901

ORDER NO.: S759307041

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
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1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
3. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
4. ITEM - 2, 3, 5, 6, 7, 8, 9, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 30, 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 57, 59, 60, 61, 62, 63, 64, 65, 66, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 94, 95, 96, 97, 98, 100, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156 -ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.
5. ITEM - 2, 4, 6, 7, 8, 10, 11, 12, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 35, 36, 37, 38, 40, 41, 43, 44, 47, 48, 49, 50, 55, 58, 60, 61, 65, 68, 72, 73, 74, 76, 79, 82, 83, 84, 85, 86, 88, 89, 90, 91, 92, 94, 97, 98, 99, 100, 101, 102, 103, 106, 107, 108, 109, 110, 111, 114, 116, 117, 118, 120, 121, 122, 124, 126, 128, 131, 132, 133, 134, 135, 136, 137, 138, 139, 142, 145, 147, 148, 151, 152, 153, 156 -CERTIFYING ASTM A105-14 / ASME SA105-15 EDITION.
6. ITEM - 2, 6, 7, 8, 11, 12, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 29, 30, 31, 32, 33, 35, 36, 37, 38, 40, 41, 43, 44, 47, 48, 49, 50, 55, 60, 61, 65, 68, 72, 73, 74, 76, 79, 82, 83, 84, 85, 86, 88, 89, 90, 91, 92, 94, 97, 98, 100, 101, 102, 106, 107, 108, 109, 110, 111, 114, 116, 117, 118, 120, 121, 122, 124, 126, 128, 131, 132, 133, 134, 135, 136, 137, 138, 139, 142, 145, 147, 148, 151, 152, 153, 156 -THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
7. ITEM - 2, 6, 7, 8, 11, 12, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 29, 30, 31, 32, 33, 35, 36, 37, 38, 40, 41, 43, 44, 47, 48, 49, 50, 55, 60, 61, 65, 68, 72, 73, 74, 76, 79, 82, 83, 84, 85, 86, 88, 89, 90, 91, 92, 94, 97, 98, 100, 101, 102, 106, 107, 108, 109, 110, 111, 114, 116, 117, 118, 120, 121, 122, 124, 126, 128, 131, 132, 133, 134, 135, 136, 137, 138, 139, 142, 145, 147, 148, 151, 152, 153, 156 -THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
8. ITEM - 3, 5, 9, 15, 22, 39, 42, 45, 46, 51, 52, 53, 54, 57, 59, 62, 63, 64, 66, 69, 70, 71, 75, 77, 78, 80, 81, 87, 95, 96, 104, 105, 113, 115, 119, 123, 125, 127, 129, 130, 140, 141, 143, 144, 149, 150, 154, 155 -CERTIFYING TO ASTM A350 LF2 07 REVISION.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by *Billie Jo Clemens*

Billie Jo Clemens

QUALITY PROCESS MANAGER

MTR # 20

CMTR: REV2

ITEM # 18
7mm
135

CERTIFIED MILL TEST REPORT



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LOG NO. F00000000085236

Page 55 of 55

BONNEY FORGE CORPORATION

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 06/28/2016

CUSTOMER

BONNEY ORDER NO. B000206901

ORDER NO.: S759307041

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO.
			CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
9.	ITEM - 3, 5, 9, 15, 22, 39, 42, 45, 46, 51, 52, 53, 54, 57, 59, 62, 63, 64, 66, 69, 70, 71, 75, 77, 78, 80, 81, 87, 95, 96, 104, 105, 113, 115, 119, 123, 125, 127, 129, 130, 140, 141, 143, 144, 149, 150, 154, 155		-THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.
10.	ITEM - 3, 5, 9, 15, 22, 39, 42, 45, 46, 51, 52, 53, 54, 57, 59, 62, 63, 64, 66, 69, 70, 71, 75, 77, 78, 80, 81, 87, 95, 96, 104, 105, 113, 115, 119, 123, 125, 127, 129, 130, 140, 141, 143, 144, 149, 150, 154, 155		-THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
11.	ITEM - 3, 5, 9, 15, 22, 39, 42, 45, 46, 51, 52, 53, 54, 57, 59, 62, 63, 64, 66, 69, 70, 71, 75, 77, 78, 80, 81, 87, 95, 96, 104, 105, 113, 115, 119, 123, 125, 127, 129, 130, 140, 141, 143, 144, 149, 150, 154, 155		-THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
12.	ITEM - 3, 5, 9, 15, 22, 39, 42, 45, 46, 51, 52, 53, 54, 57, 59, 62, 63, 64, 66, 69, 70, 71, 75, 77, 78, 80, 81, 87, 95, 96, 104, 105, 113, 115, 119, 123, 125, 127, 129, 130, 140, 141, 143, 144, 149, 150, 154, 155		-THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
13.	ITEM - 4, 10, 27, 58, 99, 103		-THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.
14.	ITEM - 4, 10, 27, 58, 99, 103		-THE MATERIAL SUPPLIED IDENTIFIED AS SA/A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Billie Jo Clemens

Billie Jo Clemens

QUALITY PROCESS MANAGER

MTR #20

CMTR: REV2



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CERTIFIED MILL TEST REPORT

LOG NO. F00000000085475

Page 36 of 45

ITEM # 184

BONNEY FORGE CORPORATION

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CE = 0.40

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 07/07/2016

CUSTOMER

BONNEY ORDER NO. B000207545

ORDER NO.: S759307688

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
67 18C13315	25	59693	10 -6 X 1 3000 LF2 THRD T SA/A350 LF2 CL1 Al 0.028 C 0.200 Co 0.030 Cr 0.060 Cu 0.060 Mn 1.030 Mo 0.005 N 0.003 Nb 0.015 Ni 0.020 P 0.005 S 0.020 Si 0.210 V 0.003 CE(Long Formula) = 0.39 T/S(Psi) 72,303 Y/S(Psi) 49,309 EL(%) 37.25 RA(%) 65.60 Brinell 132 BHN 132 BHN Charpy -50 F 35/34/39 (Ft-Lbs) Average 36.00
73 18C14609	50	59798	10 -8 X 2 XS LF2 WELD B SA/A350 LF2 CL1 Al 0.024 C 0.210 Co 0.004 Cr 0.050 Cu 0.050 Mn 1.010 Mo 0.007 Nb 0.014 Ni 0.030 P 0.008 S 0.022 Si 0.210 V 0.003 CE(Long Formula) = 0.40 T/S(Psi) 75,008 Y/S(Psi) 51,086 EL(%) 35.95 RA(%) 65.51 Brinell 132 BHN 132 BHN Charpy -50 F 26/31/27 (Ft-Lbs) Average 28.00
76 18C10687	50	6859	1/4 3000 LF2 COUP T SA/A350 LF2 CL1 Al 0.028 C 0.210 Co 0.002 Cr 0.040 Cu 0.050 Mn 0.990 Mo 0.006 N 0.003 Nb 0.012 Ni 0.020 P 0.004 S 0.021 Si 0.220 V 0.004 CE(Long Formula) = 0.39 T/S(Psi) 74,917 Y/S(Psi) 55,923 EL(%) 36.15 RA(%) 59.44 Brinell 135 BHN 132 BHN Charpy -50 F 75/57/37 (Ft-Lbs) Average 56.30

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

Kylee Ruiz

QUALITY PROCESS MANAGER

MTR # 21

CMTR: REV2

ITEM # *184*

CERTIFIED MILL TEST REPORT



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LOG NO. F0000000085475

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BONNEY FORGE CORPORATION

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www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 07/07/2016

CUSTOMER

BONNEY ORDER NO. B000207545

ORDER NO.: S759307688

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
3. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
4. ITEM - 3, 4, 5, 6, 7, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 121, 122, 123, 124 - ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.
5. ITEM - 2, 4, 5, 6, 8, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 46, 48, 49, 51, 52, 53, 54, 55, 58, 59, 60, 61, 63, 64, 65, 68, 69, 70, 71, 72, 74, 75, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 113, 115, 116, 117, 118, 121, 122, 123 - CERTIFYING ASTM A105-14 / ASME SA105-15 EDITION.
6. ITEM - 4, 5, 6, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 46, 48, 51, 52, 53, 54, 55, 58, 59, 60, 61, 63, 64, 65, 68, 69, 70, 71, 72, 74, 75, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 113, 115, 116, 117, 118, 121, 122, 123 - THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
7. ITEM - 4, 5, 6, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 46, 48, 51, 52, 53, 54, 55, 58, 59, 60, 61, 63, 64, 65, 68, 69, 70, 71, 72, 74, 75, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 107, 108, 109, 113, 115, 116, 117, 118, 121, 122, 123 - THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
8. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 - CERTIFYING TO ASTM A350 LF2 07 REVISION.
9. ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124 - THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

Kylee Ruiz

QUALITY PROCESS MANAGER MTR # 21

CMTR: REV2

CERTIFIED MILL TEST REPORT

ITEM # *184*



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LOG NO. F00000000085475

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BONNEY FORGE CORPORATION

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC GLOBAL (CANADA) ULC

DATE 07/07/2016

CUSTOMER

BONNEY ORDER NO. B000207545

ORDER NO.: S759307688

SHIP TO: MRC GLOBAL (CANADA) ULC

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
10.	ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124	-THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.	
11.	ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124	-THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.	
12.	ITEM - 3, 7, 40, 45, 47, 50, 56, 57, 62, 66, 67, 73, 76, 90, 94, 110, 111, 112, 114, 119, 124	-THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.	
13.	ITEM - 2, 8, 25, 49, 82	-THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.	
14.	ITEM - 2, 8, 25, 49, 82	-THE MATERIAL SUPPLIED IDENTIFIED AS SA/A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.	

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

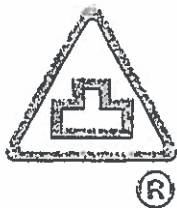
Kylee Ruiz

Kylee Ruiz

QUALITY PROCESS MANAGER

MTR #21

CMTR: REV2



BOTH-WELL STEEL FITTINGS CO., LTD.

ITEM # 207m
140

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY, TAIWAN, R.O.C.(81460)
TEL : (886)7-3711536, 3710497, 3720260 FAX : (886)7-371-3864, 3713882
WEB SITE : <http://www.bothwell.com.tw> E-Mail : box@bothwell.com.tw

An ISO 9001 : 2008 Registered Manufacturer

CE = 0.42

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER : WFF FITTINGS AND FLANGES (CANADA) LTD.

CERT NO.: 161809

INVOICE NO. : 5200006529

DATE : 07/04/2016

ORDER NO.: E000774

L/C NO. :

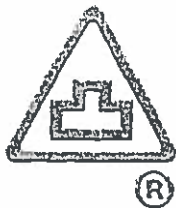
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
71	3SD161 Y077	20 PCS	OUTLET REDUCING WAY LF2 CL1 24"-14"X2" S160 BW C:0.21 Si:0.24 Mn:1.22 P:0.016 S:0.005 Cu:0.02 Cr:0.09 Ni:0.01 Mo:0.004 V:0.002 Nb:0.002 N:- CE:0.43 TS(KSI):88.4 YS 0.2%(KSI):72.3 EL(%):28.0 R.A.(%):68.2 HARDNESS 1(HBW):169 HARDNESS 2(HBW):171
72	82065 Y019	1 PCS	OUTLET REDUCING WAY LF2 CL1 24"-6"X1" 6000# NPT C:0.210 Si:0.190 Mn:0.690 P:0.014 S:0.016 Cu:0.020 Cr:0.050 Ni:0.020 Mo:0.000 V:0.000 Nb:0.010 N:- Ti:0.01 CE:0.34 TS(KSI):76.6 YS 0.2%(KSI):58.3 EL(%):34.0 R.A.(%):71.3 HARDNESS 1(HBW):137 HARDNESS 2(HBW):137
72	6SC0964 Y073	14 PCS	OUTLET REDUCING WAY LF2 CL1 24"-6"X1" 6000# NPT C:0.21 Si:0.24 Mn:1.22 P:0.016 S:0.005 Cu:0.02 Cr:0.09 Ni:0.01 Mo:0.00 V:0.002 Nb:0.002 N:- CE:0.43 TS(KSI):83.2 YS 0.2%(KSI):66.7 EL(%):32.8 R.A.(%):76.5 HARDNESS 1(HBW):150 HARDNESS 2(HBW):153
74	6SE0501 Y0001	15 PCS	OUTLET REDUCING WAY LF2 CL1 12"-8"X2" XS BW C:0.19 Si:0.24 Mn:1.22 P:0.017 S:0.008 Cu:0.01 Cr:0.09 Ni:0.01 Mo:0.01 V:0.01 Nb:0.01 Ti:0.01 CE:0.42 TS(KSI):78.8 YS 0.2%(KSI):61.5 EL(%):33.4 R.A.(%):78.0 HARDNESS 1(HBW):143 HARDNESS 2(HBW):145

WE CERTIFY THE ABOVE MENTIONED FITTINGS HAVE BEEN MANUFACTURED,
SAMPLED, TESTED, AND INSPECTED IN ACCORDANCE WITH THE
SPECIFICATIONS SHOWN

C.C. Huang
Q.C. MANAGER

C.L. Ko
INSPECTOR



BOTH-WELL STEEL FITTINGS CO., LTD.

ITEM # 20
140

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY, TAIWAN, R.O.C.(81460)
TEL : (886)7-3711536, 3710497, 3720260 FAX : (886)7-371-3864, 3713882
WEB SITE : <http://www.bothwell.com.tw> E-Mail : box@bothwell.com.tw

An ISO 9001 : 2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER : WFF FITTINGS AND FLANGES (CANADA)LTD.

CERT NO.:161809

INVOICE NO. : 5200006529

DATE : 07/04/2016

ORDER NO.:E000774

L/C NO. :

ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
------	--------------------------	-----	---

REMARK :

THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A350 -15, ASME SA350 -2015ED, LF2 CL.1

THE FITTING SUPPLIED IDENTIFIED AS MSS SP-97 - 2012

THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH SPECIFICATION(SURFACE & DIM) : GOOD

STANDARD : CHEMICAL COMPOSITION(%) & MECHANICAL PROPERTIES.

	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)
MIN	-	0.15	0.60	-	-	-	-	-	-	-	-
MAX	0.30	0.30	1.35	0.035	0.040	0.40	0.30	0.40	0.12	0.08	0.02
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-	-	-	-	-	70	-	36	22	30	-
MAX	-	-	-	-	0.47	95	-	-	-	-	197

HEAT TREATMENT : QUENCHED: 900°C(1652°F) W.Q./TEMPERED : 670°C(1238°F) A.C.

CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15

FULLY KILLED AND FINE GRAIN PRACTICE

WE CERTIFY THE ABOVE MENTIONED FITTINGS HAVE BEEN MANUFACTURED,
SAMPLED, TESTED, AND INSPECTED IN ACCORDANCE WITH THE
SPECIFICATIONS SHOWN

C.C. Huang
Q.C. MANAGER

C.L. Ko
INSPECTOR

MATERIAL RECEIVING INSPECTION REPORT

PACKING SLIP NUMBER:	4463974-011	* NOTE: 1. MATERIAL TEST REPORTS (MTR'S) AND CRN NUMBERS ARE REQUIRED TO BE RECEIVED WITH EACH ORDER AND REVIEWED FOR COMPLIANCE TO MATERIAL SPECIFICATIONS AS ORDERED IF SPECIFIED IN THE CONTRACT DOCUMENTS. CONSULT THE PIPEWORX QUALITY MANUAL. 2. COMPLETE OVER / SHORT / DAMAGE REPORT IF REQUIRED AND MAKE NOTE IN REMARKS. 3. ATTACH OR REFERENCE ALL SUPPORTING DOCUMENTATION FOR TRACEABILITY (i.e. PO, PACKING SLIPS etc.). 4. ALL FITTING DESIGNS MUST BE REGISTERED WITH ALBERTA BOILERS SAFETY ASSOCIATION.
PIPEWORX JOB#:	162-113	
OWNER:	PEMBINA PIPELINE CORPORATION	
PO NUMBER:	4500089088	
DATE:	Wednesday, September 07, 2016	
Ordered By:	Brent Calvert	

ITEM #	PO ITEM#	Quantity	Size	Sch	Rating	Grade	DESCRIPTION	HEAT NUMBER	REC.	INITIAL	DAMAGE ACCEPT	MTR RECEIVED
159		21'	2"	STD		A/ASME SA333 6 CSAZ245.1 GR. 359C2	2. STD. CS, SMLS PIPE BE SRL ASTM A/ASME SA333 6 CSAZ245.1 GR. 359C2	9168	YES	WW	ACCEPT	YES
186		4	1"	160		ASTM SA333 GR.6	1 X 4 S160 BLK CS SMLS PIPE NIPPLE TBE ASTM A333 GR.6	84JD 867J	YES	WW	ACCEPT	YES

REMARKS (IF NCR IS ISSUED, NOTE NCR NUMBER):

PIPEWORX QUALITY REPRESENTATIVE	DATE RECEIVED	SIGNATURE
NAME: Winston Watchorn	Sept 7th, 2016	
TITLE: QC Project Manager		

If this order is placed under an existing written contract, the terms of such existing contract shall apply. Otherwise, this order is subject to and governed by MRC Global's General Terms and Conditions of Sale (found at www.mrcglobal.com) by following the instructions on this site and also available by request, which terms and conditions are hereby incorporated by reference.

Sales Order
Number 4463974-011 Page 1
Printed 09/07/16 11:48



Deliver To: PEMBINA WEST LIMITED
PARTNERSHIP
4000 585 - 8TH AVENUE SW
CALGARY AB T2P 1G1

From: GRANDE PRAIRIE
12102 - 101 AVE
GRANDE PRAIRIE AB T8V 8A9

Customer Purchase Order
4500089088
Customer Release/Requisition No.

Ordered by: BRENT @ PIPEWORX

Promised - 08/29/16 Salesman - MICHELLE WILSON Ship VIA - WILL CALL
Shipped - 09/07/16 Phone - (780) 532-9542 Freight Terms - PREPAID & ALLOW A Customer Ship No. - 61723-0055

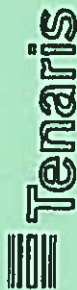
BRENT 403-844-5751
MTR'S REQUIRED
APPROVER NAME: GARTH HENRY
ORDERED BY: BRENT

CPO Line	Customer Part/Item ID	Quantity		Description	Liability No
		Ordered	Shipped		
	03C30354	20		21 FT 2 STD CS SMLS PIPE BE SRL ASTM A/ASME SA333 6 CSAZ245.1 GR.359C2 MFG: NA HLS: 84JD SHIPPED	03
	21C10291	4		4 EA 1 X 4 S160 BLK CS SMLS PIPE NIPPLE TBE ASTM A333 GR. 5 MFG: NA HLS: 9168 SHIPPED	03
				21 UNITS AT \$5.0700 TOTAL \$106.47	
				4 UNITS AT \$9.5800 TOTAL \$38.32	

Signed By: Winston Watda Signature: [Signature]

RECEIVING INFO: Company:

Tubes-Order Weight-	Box/Bag-	Crates-	Pallets-	Pieces-	Bundles-	Tax-S	Staged-
80.41			\$144.79	Freight-S	.00	7.24	Total-S
							152.03



INSPECTION CERTIFICATE 3.1 CERTIFICADO DE INSPECCIÓN 3.1

EN 10204 3.1: 2004

Tubos de Acero de Mieres, S.A.
Carretera Mijales Vascos KM 43.7 84
48940 Vitoria-Gasteiz, Vizcaya, Spain
C.P. 48940 VITORIA
(945) 229 996 (1100 fax)
(945) 229 996 1000 fax

Customer / Cliente: MRC MIDFIELD		Customer's Order Item / Orden Cliente - Item: S 759 277866 ITEM 16		Customer's References / Ref. del Cliente: N/A		Manufacturer's Works Order N° / Confirmación de Venta: 227145/16	
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED		Product Type / Tipo de Producto: LINE PIPE SEAMLESS		Surface / Superficie: VARNISHED		Ends / Extremos: BARNISHED	
Laminado en caliente sin costura		CONDUCCIÓN SIN COSTURA		Steel Grade / Grado de acero: GR.16/359		Ends / Extremos: NORMAL BEVEL	
Standard or Specification / Norma o Especificaciones: CSA Z245.1-14/MARZO 2014, ASTM A333/13, ASME SA333/2010		Length / Longitud: 18.04 / 21.96 FT		Quantity / Cantidad: 292 Pcs/Pz		Normal Weight / Peso Nominal: 3.66 LB/FT	
Dimensions / Dimensiones: 2.375 X 0.154 INGH		Schedule / Cédula: BCH 040		1930.270 MTS		5.44 KG/M	

TENSILE TEST / ENSAYO DE TENSION

Heat N° Calefacción N°	Sample N° Muestra N°	Specimen condition Condición de la probeta	Test Temp. Temp. ensayo	Y.S. Eli 0.50 %	U.T.S. Req.	Y.S./U.T.S. Req. Max	Elongation / Alargamiento	Lo	Min.	Max.	Obt.
8083	81552	B	AM	78.33	RT	75.254	83.461	0.90	2	18.9	23.0
81552	81443	B	AM	78.33	RT	82.155	75.425	0.82	2	18.8	31.0

AM: As manufactured / Según proceso de fabricación	LS: Location of sample / Ubicación de la muestra	OR: Orientation / Orientación	SC: Specimen condition / Condición de la probeta
B: Body / Cuerpo	Max: Maximum / Máximo	Req. Max Required maximum / Máximo requerido	SS: Strip specimen / Muestra rectangular
L: Longitudinal / Longitudinal	Min: Minimum / Mínimo	Req. Required / Requerido	U.T.S: Ultimate tensile strength / Resistencia
Lo: Initial length / Longitud inicial	Obt: Obtained / Obtenido	RT: Room temperature / Temperatura ambiente	Y.S: Yield strength / Fluencia

CHEMICAL COMPOSITION / COMPOSICIÓN QUÍMICA

		Composition % / Composición %													
		X 100							X 1000						
		C	Mn	Si	Mo	Cr	P	S	V	Nb	NI	Cu	Sn	Al	Ti
H	Max	25	135	50	12	30	25	10	80	20	400	400	-	-	-
	Min	-	40	10	-	-	-	-	-	-	-	-	-	-	-
P	Max	25	135	50	12	30	25	10	80	20	400	400	-	-	-
	Min	-	40	10	-	-	-	-	-	-	-	-	-	-	-
Coleda N°	Muestra N°	H	9	97	29	0.9	4	7	1	38	1	30	91	7	21
8083	00001														

This certificate is issued by a computerized system and is valid with electronic signature. On the original certificate the trade-mark grain oriented "Tenaris" is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subjected to the law.

Este certificado se emite mediante sistema computarizado y es válido con firma electrónica. El certificado original posee impreso el logo "Tenaris" en color verde. En caso de que el poseedor del certificado entregue una copia, deberá garantizar la conformidad con el original haciéndose responsable por cualquier uso ilegal o indebido. Cualquier alteración y/o falsificación estará sujeta a la ley.

FOR03171

MTR # 23

ITEM #159



INSPECTION CERTIFICATE 3.1

CERTIFICADO DE INSPECCIÓN 3.1

EN 10204 3.1: 2004

Tubos de Acero de México, S.A.
Carretera México Veracruz Km 431.7 SM
Calle Valencia Tepetitla, Veracruz, Veracruz
C.P. 91897 MEXICO
(52) 228 889 1100 (e)
(52) 228 989 1800 fax

Number / Número:
15026980

Page / Página:
3 / 7

Date / Día: July 07, 2015

Customer / Cliente: MRC MIDFIELD		Customer's Order Item / Orden Cliente - Item: IS 759 277686 ITEM 15		Customer's Reference / Ref. del Cliente: N/A		Manufacturer's Order N° / Confirmación de Venta: 227145/15	
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED LAMINADO EN CALIENTE SIN COSTURA		Product Type / Tipo de Producto: LINE PIPE SEAMLESS CONDUCCION SIN COSTURA		Surface / Superficie: VARNISHED BARNIZADO			
Standard or Specification / Normas o Especificaciones: CSA Z245.1-14/MARZO 2014, ASTM A333/13, ASME SA333/2010		Steel Grade / Grado de acero: GR. 15/359		Ends / Extremos: NORMAL BEVEL BISelado NORMAL			
Dimensions / Dimensiones: 2.375 X 0.154 INCH 60.3 X 3.9 MM		Schedule / Cédula: SCH 040		Quantity / Cantidad: 292 Pcs/Pz 6332.907 FT 1930.270 MTS		Nominal Weight / Peso Nominal: 3.66 LB/FT 5.44 KG/M	

THROUGH WALL HARDNESS / DUREZA EN EL ESPESOR

Required values		Individuals / Individuales			Average / Promedio			Hardness type/Tipo de dureza:HRC				
Heat N°	Valores requeridos	Min. -	Max. 22.0	Var. -	Min. -	Max. -	Var. -					
Coleda N°	Sample N°	Specimen condition						Qued.				
	Muestra N°	Ls			Sc			Escala				
		B			AM			HRBW				
9168	81443							1	2	3	Avg	
								81.3	80.0	80.0	BD.4	

AM: As manufactured / Según proceso de fabricación

Var: Variation / Variación

Av: Average / Promedio

Sc: Specimen condition / Condición de la probeta

MM: Middle well / Centro

Qu: Quadrant / Cuadrante

MM: Minimum / Mínimo

Max: Maximum / Máximo

Min: Minimum / Mínimo

IMPACT TEST / ENSAYO DE IMPACTO

Heat N° Caleña N°	Sample N° Muestra N°	Orientation/Orientación: L			Temp: -45			Unit / Unidad: ft/lb			Shear area / Área dúctil %			Lateral Expansion/Expansión Lateral mm		
		Ind. Min.	Req.	Max.	Ind. Min.	Req.	Max.	Ind. Min.	Req.	Max.	Ind. Min.	Req.	Max.	Ind. Min.	Req.	Max.
9168	81443	Size / Tamaño			Results / Resultados			Results / Resultados			Results / Resultados			Results / Resultados		
		mm			mm			mm			mm			mm		
		10 x 3.3			10 x 3.3			10 x 3.3			10 x 3.3			10 x 3.3		

AM: As manufactured / Según proceso de fabricación

Req: Required / Requerido

Ind: Individual / Individual

Min: Minimum / Mínimo

Max: Maximum / Máximo

Var: Variation / Variación

Qu: Quadrant / Cuadrante

MM: Middle well / Centro

Sc: Specimen condition / Condición de la probeta

MM: Minimum / Mínimo

Max: Maximum / Máximo

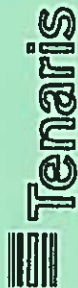
Min: Minimum / Mínimo

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark green colored "Tenaris" is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any untruthful or not allowed use. Any alteration and/or falsification will be subjected to the law.

Este certificado se emite mediante sistema computarizado y es válido con firma electrónica. El certificado original posee impreso al logo "Tenaris" color verde. En caso de que el poseedor del certificado entregue una copia, deberá garantizar la conformidad con el original haciéndose responsable por cualquier uso falso o no autorizado. Cualquier alteración y/o falsificación estará sujeta a la ley.

FOR03171

MTR # 23



INSPECTION CERTIFICATE 3.1
CERTIFICADO DE INSPECCIÓN 3.1
EN 10204 3.1: 2004

Tubos de Acero de México, S.A.
Carretera México Veracruz KM 433.7 EN
Delicias Veracruz México
C.P. 91897 MEXICO
(52) 229 968 1100 Tel
(52) 229 968 1600 Fax

Customer / Cliente: MRC MIDFIELD	Customer's Order Item / Orden Cliente - Item: S 769 277686 ITEM 16	Customer's References / Ref. del Cliente: N/A	Manufacturer's Works Order N° / Confirmación de Venta: 227145/15
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED LAMINADO EN CALIENTE SIN COSTURA	Product Type / Tipo de Producto: LINE PIPE SEAMLESS CONDUCCION SIN COSTURA	Surface / Superficie: VARNISHED BARNIZADO	Ends / Extremos: NORMAL BEVEL BISELAO NORMAL
Standard or Specification / Normas o Especificaciones: CSA Z245.1-14/MARZO 2014, ASTM A333/13, ASME SA333/2010	Steel Grade / Grado de acero: GR.16/359	Quantity / Cantidad: 232 Pcs/Pz 6332.907 FT 1930.270 MTS	Nominal Weight / Peso Nominal: 3.66 LB/FT 5.44 KG/M
Dimensions / Dimensiones: 2.375 X 0.154 INCH 60.3 X 3.9 MM	Schedule / Cédula: SCH 40	Length / Longitud: 18.04 / 21.98 FT 5.50 / 6.70 MTS	

BENDING / DOBLEZ

Standard / Norma:		Sample N° / Muestra N°		Result / Resultado	
Heat N° / Coleta N°	8083	Sample N° / Muestra N°	8143	Result / Resultado	Good / Bueno

HYDROSTATIC TEST / PRUEBA HIDRAULICA

Pressure / Presión	Time / Tiempo	Results / Resultado
Unit / Unidad	Seconds / Segundos	
mpa	5	Satisfactory / Satisfactorio

HEAT TREATMENT / TRATAMIENTO TERMICO

Heat treatment / Tratamiento térmico: Pipe / Tubo		
Quench media of heat treatment process / Medio de enfriamiento del tratamiento térmico: Water / Agua		
Temperature Scale / Escala de Temperatura: °C		
Type / Tipo	Temperature / Temperatura	Permanence / Permanencia (Mins.)
Quenched / Templada	855	39
Tempered / Revenido	563	60

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark, green colorist "Tenaris" is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one labing "Tenaris" color verde. En caso de que el poseedor del certificado entregue una copia, deberá garantizar la conformidad con el original haciéndolo Tenaris color verde. Cualquier alteración por cualquier medio legal o indebido. Cualquier alteración por falsificación estará sujeta a la ley.

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FOR03171

ATR # 23

ITEM #159



INSPECTION CERTIFICATE 3.1
CERTIFICADO DE INSPECCION 3.1
EN 10204 3.1: 2004

Tubos de Acero de México, S.A.
Carretera México Veracruz KM 433.7 SN
Delicias Veracruz Tuxtla, Veracruz, Veracruz
C.P. 81987 MEXICO
(52) 228 088 1100 Tel
(52) 228 988 1800 Fax

Number / Número:
15026980
Page / Página:
5 / 7
Date / Día: July 07, 2015

Customer / Cliente: MRC MIDFIELD		Customer's Order Item / Orden Cliente - Item: S 789 277668 ITEM 16		Customer's Reference / Ref. del Cliente: N/A		Manufacturer's Works Order N° / Confirmación de Venta: 227145/15	
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED		Product Type / Tipo de Producto: LINE PIPE SEAMLESS		Surface / Superficie: VARNISHED		Ends / Extremos: BARNIZADO	
Laminado en caliente sin costura		CONDUCCION SIN COSTURA		Steel Grade / Grado de acero: GR.16/359		Normal Bevel	
Standard or Specification / Normas o Especificaciones: CSA Z245.1-14/MARCH 2014, ASTM A333/13, ASME SA333/2010		Length / Longitud: 18.04 / 21.98 FT		Quantity / Cantidad: 292 Pcs/Pz		Biselado Normal	
Dimensions / Dimensiones: 2.375 X 0.154 INCH		Schedule / Cédula: SCH 040		23058.167 LB		Nominal Weight / Peso Nominal: 3.56 LB/FT	
60.3 X 3.9 MM		5.50 / 6.70 MTS		1930.270 MTS		6.44 KG/M	

SUPPLEMENTARY INFORMATION / INFORMACION SUPLEMENTARIA

Supplementary Information / Información Suplementaria	
Manufactured by Tenaris Tamsa	Elaborado por Tenaris Tamsa
Steel making process	Fabricación del acero:
Electric Arc Furnace-Ladle Furnace-Continuous Casting Machine.	Horno de Acero Eléctrico-Horno de Alación-Máquina de Colada Continua.
Fully Killed Steel	Acero calmado con aluminio
Material free from Mercury contamination	Material libre de contaminación de Mercurio
Not repaired by welding	No reparado por soldadura
Non destructive test. Satisfactory	Control no destructivo. Satisfactorio
Inspection method	Método de Inspección
EMI - FLVI - MPI	EMI - FLVI - MPI
MATERIAL ACCORDING TO NACE MR0175 / ISO 15156-2, 2009	MATERIAL DE ACUERDO A NACE MR0175 / ISO 15156-2, 2009
AND NACE MR0103, 2010 ONLY FOR HARDNESS 22 HRC MAX.	Y NACE MR0103, 2010 SOLO DUREZA MAX. 22 HRC
ASTM A333/13, ASME SA333/2010 GR. 16, CSA Z 245.1-14/MARCH 2014, GR. 359 CATII SS	ASTM A333/13, ASME SA333/2010 GR. 16, CSA Z 245.1-14/MARCH 2014, GR. 359 CATII SS
REL M4VC MIN 3	REL M4VC MIN 3
SUM Mo-Cr-Ni-Cu-V MAX 1	SUM Mo-Cr-Ni-Cu-V MAX 1
CERTIFICATE ACCORDING TO EN 10204 3.1: 2004	CERTIFICADO DE ACUERDO A EN 10204 3.1: 2004

MARKING / MARCACION

Marking / Marcación	
PIPE STENCIL: TENARIS TM ASTM A333/ASME SA333 / CSA Z245.1 #FE1 60.3 3.90 5.44 SCH 040 GR. 16/359 CAT	MASCARILLA DE TUBO ESTARCIDO: TENARIS TM ASTM A333/ASME SA333 / CSA Z245.1 #FE1 60.3 3.90 5.44 SCH 040 GR. 16/359 CAT

This certificate is issued by a computerized system and it is valid with electronic signatures. On the original certificate the trade name green colored "Tenaris" is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subjected to the law.

FOR03171

MTR # 23



INSPECTION CERTIFICATE 3.1
CERTIFICADO DE INSPECCIÓN 3.1
EN 10204 3.1: 2004

Tubos de Acero de México, S.A.
Carretera México Veracruz KM 433.7 BN
Delmó Valencuela Tejeda, Veracruz, Veracruz
C.P. 81897 MEXICO
(52) 228 986 1100 164
(52) 228 986 1600 164

Customer / Cliente: MRC MIDFIELD		Customer's Order Item / Orden Cliente - Item: S 759 277866 ITEM 16		Customer's Reference / Ref. del Cliente: N/A		Manufacturer's Order N° / Confirmación de Venta: 227146115	
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED		Product Type / Tipo de Producto: LINE PIPE SEAMLESS		Surface / Superficie: VARNISHED		Ends / Extremos: BARNIZADO	
Laminado en caliente sin costura		CONDUCCION SIN COSTURA		Steel Grade / Grado de acero: GR.16/359		Ends / Extremos: NORMAL BEVEL	
Standard or Specification / Normas o Especificaciones: CSA Z245.1-14/MARZO 2014, ASTM A333/13, ASME SA333/2010		Length / Longitud: 18.04 / 21.98 FT		Quantity / Cantidad: 292 Pcs/Pz		BISelado NORMAL	
Dimensions / Dimensiones: 2.375 X 0.154 INCH		Schedule / Cedula: SCH 8040		Weight / Peso: 23058.167 LB		Nominal Weight / Peso Nominal: 3.66 LB/FT	
60.3 X 3.9 MM		5.90 / 6.70 MTS		1930.270 MTS		5.44 KG/M	

MARKING / MARCACION

Marking MARCACION		II SS QT M45C S #A# MT #K# KG HEAT #C# O.P. 255150 / #N# 31115625-16065759277656-16	
MADE IN MEXICO		MADE IN MEXICO	
WHERE:		COMDE:	
Heat number #C#		Número de colada #C#	
Manufacturing Date #PE#		Fecha de fabricación #PE#	
Net weight of pipe in Kgs #K#		Peso real de tubo en Kgs #K#	
Length in #A#		Longitud del tubo en #A#	
Pipe number #N#		Número de secuencia #N#	

SUMMARY REPORT / REPORTE RESUMEN

Heat N° Colada N°	Quantity Cantidad (Piezas)	Length Longitud (ft)	Weight Peso (Tons)
8083	14	258.98	81.37
			0.435

Average length per pipe Longitud promedio por tubo (ft)	Nominal weight per pipe Peso nominal por tubo (kg/m)
21.688	5.418
6.611	3.641

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark "Tenaris" is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subjected to the law.

Este certificado se emite mediante sistema computarizado y es válido con firma electrónica. El certificado original posee impreso el logo "Tenaris" color verde. En caso de que el poseedor del certificado entregue una copia, deberá garantizar la conformidad con el original haciéndose responsable por cualquier uso ilegal o indebido. Cualquier alteración y/o falsificación estará sujeta a la ley.

FOR03171

MTR # 23

ITEM # 159



INSPECTION CERTIFICATE 3.1
CERTIFICADO DE INSPECCIÓN 3.1
EN 10204 3.1: 2004

Tubos de Acero de México, S.A.
Carretera México Veracruz KM 433.7 SM
Delimito Valencuela Tejeda, Veracruz, Veracruz
C.P. 91607 MEXICO
(52) 229 898 1100 Int
(52) 229 898 1800 Int

Customer / Cliente: MRC MIDFIELD		Customer's Order Item / Orden Cliente - Item: S 759 277686 ITEM 16		Customer's Reference / Ref. del Cliente: N/A		Manufacturer's Works Order N° / Confirmación de Venta: 227145/15	
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED		Product Type / Tipo de Producto: LINE PIPE SEAMLESS		Surface / Superficie: VARNISHED		BARNIZADO	
Standard or Specification / Normas o Especificaciones: CSA Z245.1-14/MARZO 2014, ASTM A333/13, ASME SA333/2010		Steel Grade / Grado de acero: GR. 16/369		Ends / Extremos: NORMAL BEVEL		BISELADO NORMAL	
Dimensions / Dimensiones: 2.375 X 0.154 INCH 60.3 X 3.9 MM		Schedule / Cálculo: SCH 040		Quantity / Cantidad: 292 Pcs/Pz		Nominal Weight / Peso Nominal: 3.66 LB/FT 5.44 KG/M	
Length / Longitud: 18.04 / 21.98 FT 5.50 / 6.70 MTS		GR. 16/369		Nominal Weight / Peso Nominal: 3.66 LB/FT 5.44 KG/M			

This is to certify that the product described here has been manufactured, sampled, tested, and inspected in accordance with purchaser order requirements. This certificate is not a declaration of origin nor may it be used as a declaration of origin.

Por el presente certificamos que el material aquí descrito ha sido fabricado, muestreado, ensayado e inspeccionado de acuerdo a los requisitos de su orden de compra. Este certificado no es, ni puede ser usado, como una declaración de origen.

CUSTOMER - THIRD PARTY

TENARIS QUALITY DEPARTMENT SIGNATURE

INSPECTION COMPANY
COMPAÑIA DE INSPECCIÓN
NO APLICA
Employee Name: N/A

QUALITY CERTIFICATION DEPT.
DEPTO. DE CERTIFICACIÓN DE CALIDAD
Antonio Fontanes González

CHIEF OF QUALITY CERTIFICATION DEPT.
RESPONSABLE DEL DEPTO. DE CERTIFICACIÓN DE CALIDAD
Angel César Altmann Gil

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the three-part print colored "Tenaris" is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one linking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subjected to the law.

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MTR #23

FOR03171

ITEM # 159

**Sales Order #:****Ship-To:**

Pembina

Page 2 of Control #

Order Taken By:

Shipping Branch #:

Date:

Ship Date:

Ship Via:

Customer PO#:

4500089088

CustRel#/Well#/AFE#:

Ordered by:

Sebastian

Phone:

506 627 9184

Credit Card #:

Card Type: (circle):

Visa MC AMEX

Expiration Date:

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Pink -Control Form



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Date Received _____

Signature:



CapProducts, Ltd.
25 Winnipeg St
Vancouver, ON N0M 1L0

Phoenix * Capitol * Camco

ITEM #186

CapProducts

186

Certified Mill Test Report

Commanding a Higher Standard™

Printed: 6/1/2016
Customer
MRC GLOBAL (CANADA) ULC
7072 - 112 AVE SE
CALGARY, AB T2C 4Z1

Certified: 06/08/2015
P.O. S 759 306223
Tag

Heat No. A2947
Heat Code 843D
Phoenix Order # 1206501

Material ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

CE = 0.29

Part Number
15131008CSA

Description

TX4 SCH 160 SMLS NIPL A333-GR6 CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr	C Eq. Long	
0.1470	0.8300	0.0180	0.0040	0.2500	0.0490	0.0170	0.0660	0.3047	
Mo	V	Co	Al	Cl	N	Ph	Sn	Ta	Ti
0.0050	0.0040		0.0250	0.0000					0.0010

Additional Chemical Properties

Cr + Cu + Ni
0.1320

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
66,765	44,748	40.0%	0.0%	139	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average
76	69	62	69.00

* Hydro test passed. at 2500 psi.

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements.

We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Comments:

Flattening test passed.

Charpy V Impact Tested at -51° C. Specimen size - 10 x 5 mm.

MTR # 24

ITEM #186
186Phoenix * Capitol * Camco
CapProducts

CE = 0.38

Certified Mill Test Report

Heat Code: 867J

Heat Number: A4354

Item: 15131008PBECSA 1X4 SCH 160 SMLS NIPL A333-GR6-PBE-GSA

Material: ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Chemistry Properties

C	Mn	P	S	Si	Cu	Cr
0.1630	1.3000	0.0140	0.0070	0.3020	0.0090	0.0390
Ni	Mo	V	Co	Al	Cb	N
0.0260	0.0050	0.0030		0.0300	0.0000	
Pb	Sn	Ta	Ti	C Eq. Long		
			0.0020	0.3914		

Additional Chemical Properties

Mechanical Properties

Tensile(PSI)	Yield(PSI)	Elong. % in 2 in. or 4D	Reduction	HBW	HBW 2
67445	46575	38%		139	

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Avg.	Test Temp.
114	118	116	116.00	52

Hydro Test Passed at 2500 psi

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements. We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Heat Code Remarks: Flattening test passed, Charpy V Impact Tested at -52° C. Specimen size - 10 x 5 mm.

MTR # 25

MATERIAL RECEIVING INSPECTION REPORT

SALES ORDER NUMBER:	482967
PIPEWORX JOB#:	162-113
OWNER:	PEMBINA PIPELINE CORPORATION
PO NUMBER:	4500084343
DATE:	Wednesday, August 24, 2016
Ordered By:	PEMBINA PIPELINE CORPORATION

*** NOTE:**

1. MATERIAL TEST REPORTS (MTR'S) AND CRN NUMBERS ARE REQUIRED TO BE RECEIVED WITH EACH ORDER AND REVIEWED FOR COMPLIANCE TO MATERIAL SPECIFICATIONS AS ORDERED IF SPECIFIED IN THE CONTRACT DOCUMENTS. CONSULT THE PIPEWORX QUALITY MANUAL.
2. COMPLETE OVER / SHORT / DAMAGE REPORT IF REQUIRED AND MAKE NOTE IN REMARKS.
3. ATTACH OR REFERENCE ALL SUPPORTING DOCUMENTATION FOR TRACEABILITY (i.e. PO, PACKING SLIPS etc.)
4. ALL FITTING DESIGNS MUST BE REGISTERED WITH ALBERTA BOILERS SAFETY ASSOCIATION.

ITEM #	PO ITEM#	Quantity	Size	Sch	Rating	Grade	DESCRIPTION	HEAT NUMBER	REC.	INITIAL	INSPECT FOR DAMAGE	MTR RECEIVED
4		1	12"	9.53mm WT		Gr. 359 Cat II (M45C)	ELBOW, 90°, LR, BW, 9.53mm WT, CSA Z245.11, GR 359 CAT II (M45C)	C16W9	YES	BC	ACCEPT	YES
7		12	12"	sch 80		WPL6	ELBOW, 90°, LR, BW, SCH 80, ASME B16.9, ASTM A-420-WPL6	093D, 58P01012, A697, D1JHT, XW32	YES	BC	ACCEPT	YES
8		5	2"	sch 80s		A-403-WP316	ELBOW, 90°, LR, BW, SCH 80S, ASME B16.9, ASTM A-403-WP316	LD141007-04	YES	BC	ACCEPT	YES
9		5	6"	STD		A-403-WP316	ELBOW, 90°, LR, BW, STD, ASME B16.9, ASTM A-403-WP316	63Z7907, M140105, M150084	YES	BC	ACCEPT	YES
10		1	8"	STD		A-403-WP316	ELBOW, 90°, LR, BW, STD, ASME B16.9, ASTM A-403-WP316	DRA039-03-103LR	YES	BC	ACCEPT	YES
14		2	3"		150#	A-182 F316	FLANGE, BLIND RF, 150 CL, ASME B16.5, ASTM A-182 F316	98473/1	YES	BC	ACCEPT	YES
16		5	2"		600#	A-350-LF2	FLANGE, BLIND RF, 600 CL, ASME B16.5, ASTM A-350-LF2 CL1	517056	YES	BC	ACCEPT	YES
17		6	2"		600#	A-350-LF2	FLANGE, BLIND RF, 600 CL, ASME B16.5, ASTM A-350-LF2 CL1 (C/W 3/4 NPT TAP)	TL10009537	YES	BC	ACCEPT	YES
22		6	2"			GR 359 CAT II (M45C)	FLANGE, BLIND RF, PN 100, CSA Z245.12, GR 359 CAT II (M45C) (C/W 3/4 NPT TAP)	35593/20	YES	BC	ACCEPT	YES
24		2	2" x 1"			GR 359 CAT II (M45C)	FLANGE, REDUCING HUB RFSW, PN 100, CSA Z245.12, GR 359 CAT II (M45C)	8913-14/20	YES	BC	ACCEPT	YES
29		10	2"	sch 80s	150#	A-182 F316	FLANGE, RFWN, 150 CL, SCH 80S, ASME B16.5, ASTM A-182 F316	S12093/1	YES	BC	ACCEPT	YES
30		3	3"	STD	150#	A-182 F316	FLANGE, RFWN, 150 CL, STD, ASME B16.5, ASTM A-182 F316	EL8JX	YES	BC	ACCEPT	YES
32		7	6"	STD	150#	A-182 F316	FLANGE, RFWN, 150 CL, STD, ASME B16.5, ASTM A-182 F316	97906/1	YES	BC	ACCEPT	YES
33		5	8"	STD	150#	A-182 F316	FLANGE, RFWN, 150 CL, STD, ASME B16.5, ASTM A-182 F316	12/1480, 166SS, 89985/1, SF565A	YES	BC	ACCEPT	YES
36		48	2"	sch 80	600#	A350-LF2	FLANGE, RFWN, 600 CL, SCH 80, ASME B16.5, ASTM A-350-LF2 CL1	2807068103, D1405256, TL10012465	YES	BC	ACCEPT	YES
37		22	12"	sch 80	600#	A350-LF2	FLANGE, RFWN, 600 CL, SCH 80, ASME B16.5, ASTM A-350-LF2 CL1	TL10010753, TL10013511	YES	BC	ACCEPT	YES
38		2	2"	sch 80s	600#	A-182 F316	FLANGE, RFWN, 600 CL, SCH 80S, ASME B16.5, ASTM A-182 F316	37080/1	YES	BC	ACCEPT	YES
40		2	10"	sch 80	900#	A350-LF2	FLANGE, RFWN, 900 CL, SCH 80, ASME B16.5, ASTM A-350-LF2 CL1	A02M5	YES	BC	ACCEPT	YES

41		16	2"	3.91mm WT	PN 100	GR 359 CAT II (M45C)	FLANGE, RFWN, PN 100, 3.91mm WT, CSA Z245.12, GR 359 CAT II (M45C)	31232/21, 9428-14/20	YES	BC	ACCEPT		YES
42		4	10"	9.27mm WT	PN 100	GR 359 CAT II (M45C)	FLANGE, RFWN, PN 100, 9.27mm WT, CSA Z245.12, GR 359 CAT II (M45C)	A14M5	YES	BC	ACCEPT		YES
78		1	4" x 2"	STD X SCH 80S		A-403-WP316	REDUCER, CONC., BW, STD X SCH 80S, ASME B16.9, ASTM A-403-WP316	042543	YES	BC	ACCEPT		YES
79		2	8" x 6"	STD X STD		A-403-WP316	REDUCER, CONC., BW, STD X STD, ASME B16.9, ASTM A-403-WP316	MR140433	YES	BC	ACCEPT		YES
80		3	12" x 10"	9.53mm WT X 9.27mm WT		GR 359 CAT II (M45C)	REDUCER, ECC., BW, 9.53mm WT X 9.27mm WT, CSA Z245.11, GR 359 CAT II (M45C)	56F28004-1	YES	BC	ACCEPT		YES
81		2	12" x 10"	SCH 80 X SCH 80		WPL6	REDUCER, ECC., BW, SCH 80 X SCH 80, ASME B16.9, ASTM A-420-WPL6	632M08-3	YES	BC	ACCEPT		YES
83		1	6" x 1"		3000#	A-182 F316	SOCKOLET, 3000 CL, MSS SP-97, ASTM A-182 F316	T2397	YES	BC	ACCEPT		YES
84		2	8"	12.7mm THK (16.7 mm OAT)	150#	A-240 T316	SPECTACLE BLIND, RF, 150 CL, ASME B16.48, ASTM A-240 T316, 12.7mm THK (16.7 mm OAT)	YLQ	YES	BC	ACCEPT		YES
86		6	12"	41.1mm THK (55.1 mm OAT)	600#	A516 GR. 70N	SPECTACLE BLIND, RF, 600 CL, ASME B16.48, ASTM A516 GR. 70N, 41.1mm THK (55.1 mm OAT)	XPP,XQS, YGT, YXH, ZBF, ZDU	YES	BC	ACCEPT		YES
87		2	2"	9.7mm THK (23.7 mm OAT)	600#	A516 GR. 70N	SPECTACLE BLIND, RF, 600 CL, ASME B16.48, ASTM A516 GR. 70N, 9.7mm THK (23.7 mm OAT)	YNW	YES	BC	ACCEPT		YES
3	88	20	2"		150#	316SS/FLEXIBLE GRAPHITE	GASKET, RF, 150 CL, ASME B16.20, 316SS/FLEXIBLE GRAPHITE, SPIRAL WOUND C/W 316SS IR & OR	N/A	YES	BC	ACCEPT		N/A
89		5	3"		150#	316SS/FLEXIBLE GRAPHITE	GASKET, RF, 150 CL, ASME B16.20, 316SS/FLEXIBLE GRAPHITE, SPIRAL WOUND C/W 316SS IR & OR	N/A	YES	BC	ACCEPT		N/A
99		28	12"		600#	316SS/FLEXIBLE GRAPHITE	GASKET, RF, 600 CL, ASME B16.20, 316SS/FLEXIBLE GRAPHITE, SPIRAL WOUND C/W 316SS IR & CS OR	N/A	YES	BC	ACCEPT		N/A
121		3	1" X 3/4"	SCH 80 X SCH 80		A-333-GR6	SWAGE, CONC., SCH 80 X SCH 80, PBE, MSS SP-95, ASTM A-333-GR6 SMLS	K2973	YES	BC	ACCEPT		YES
125		3	10"	9.27mm WT		GR 359 CAT II (M45C)	TEE, BARRED EQUAL, BW, 9.27mm WT, CSA Z245.11, GR 359 CAT II (M45C)	57B18017	YES	BC	ACCEPT		YES
126		1	12"	9.53mm WT		GR 359 CAT II (M45C)	TEE, EQUAL, BW, 9.53mm WT, CSA Z245.11, GR 359 CAT II (M45C)	946285	YES	BC	ACCEPT		YES
128		2	12"	sch 80		WPL6	TEE, EQUAL, BW, SCH 80, ASME B16.9, ASTM A-420-WPL6	5Z469	YES	BC	ACCEPT		YES
130		1	3"	STD		A-403-WP316	TEE, EQUAL, BW, STD, ASME B16.9, ASTM A-403-WP316	63Z4503	YES	BC	ACCEPT		YES
131		2	6"	STD		A-403-WP316	TEE, EQUAL, BW, STD, ASME B16.9, ASTM A-403-WP316	63BP124	YES	BC	ACCEPT		YES
134		1	8" x 6"	STD X STD		A-403-WP316	TEE, REDUCING, BW, STD X STD, ASME B16.9, ASTM A-403-WP316	D0606401	YES	BC	ACCEPT		YES
38	138	13	10" x 2"	9.27mm WT X 3.91mm WT		A-350-LF2	WELDOLET, 9.27mm WT X 3.91mm WT, MSS SP-97, ASTM A-350-LF2 CL1	JRFS, SSUX, VSSR	YES	BC	ACCEPT		YES

139		3	12" X 2"	9.53mm WT X 3.91mm	A-350-LF2	WELDOLET, 9.53mm WT X 3.91mm WT, MSS SP-97, ASTM A-350-LF2 CL1	JRFS, VRRB, VSSR	YES	BC	ACCEPT		YES
142		4	6" x 2"	STD X SCH 80S	A-182 F316	WELDOLET, STD X SCH 80S, MSS SP 97, ASTM A-182 F316	T2399	YES	BC	ACCEPT		YES
143		1	8" x 2"	STD X SCH 80S	A-182 F316	WELDOLET, STD X SCH 80S, MSS SP 97, ASTM A-182 F316	T2138	YES	BC	ACCEPT		YES
REMARKS (IF NCR IS ISSUED, NOTE NCR NUMBER):					Original fittings replaced due to illegible stencil (10) improper wall thickness (78). See replacement order 4500089088.							
PIPEWORX QUALITY REPRESENTATIVE						DATE RECEIVED		SIGNATURE				
NAME: Keith Noble						8/24/2016						
TITLE: QC Inspector												



Alberta (780) 440-2000
Prairie (204) 467-8797
Eastern (519) 763-1114

Packing Slip Ver 1.0 01/2010 01/29

PACKING SLIP / BORDEREAU VENTE

CUSTOMER ACCOUNT NO. / NO. DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED / DATE DE COMMANDE 1-Mai-2016	DATE RECEIVED / DATE D'EGEE 15-Aug-2016	DATE SHIPPED / DATE D'EXPEDITION 24-Aug-2016
PLEASE REFER TO THIS NUMBER ON ALL ENQUIRIES PREERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE			
DE NO./No 482967		PA MESSAGE	

PEMBINA PIPELINE
TBD

EXPEDIERA SHIP TO

MTR APPROVED R.B.

PO RELEASE NUMBER / NUMERO DE RELACHE DU BC A/E: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANT(TE) DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION

LAST USAGE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	COUNTRY / PAYS	PACKAGE / PAQUET	CUSTOMER SECTION / SECTION CLIENT
2	Weld Fittings 2 (60.3mm O.D.) STD LR 90 DEG ELBOW CSA GR359 CAT 2 M45C Part # WF 2 STD 90 L6/52 Heat Number: 57E00037 Manufacturer: BKL - Thai Benkan			SHIPPING: 1.00 UOM: EA Ordered: 1.00 Prev. Shipped: 0.00 Backordered: 0.00	00002000001.00

4	Weld Fittings 12 (323.8mm O.D.) STD LR 90 DEG ELBOW CSA GR359 CAT 2 M45C Part # WF 12 STD 90 L6/52 Heat Number: 615W9 Manufacturer: Eme Fittings			SHIPPING: 1.00 UOM: EA Ordered: 1.00 Prev. Shipped: 0.00 Backordered: 0.00	00004000001.00
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5	Weld Fittings 2 (60.3mm O.D.) EXTRA HEAVY LR 90 DEG ELBOW A/SA420-WPL6 COMM. Part # WF 2 XS 90 L6C Heat Number: 3292 Manufacturer: Chup Hsin Enterprise Co			SHIPPING: 35.00 UOM: EA Ordered: 35.00 Prev. Shipped: 0.00 Backordered: 0.00	00005000035.00
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TALLY SHEET NO. / NO. DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO. DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 1/21
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Packing Slip Version C: 10-2016 0129

PACKING SLIP / BORDEREAU DE VENTE

CUSTOMER ACCOUNT NO. / NO. DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED / DATE DE COMMANDE 1-Mar-2016	DATE REC'D / DATE EXGEE 15-Aug-2016	DATE SHIPPED / DATE D'EXPEDITION 24-Aug-2016
EXPEDIER A SHIP TO PEMBINA PIPELINE TBD			
DE NO./No 482967			

PL MESSAGE

PO RELEASE NUMBER / NUMÉRO DE RELÂCHE DU BC: A/E: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANTE DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION
		CUSTOMER P.O. NO. / No BC DU CLIENT 4500084343

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER SECTION / SECTION CLIENT
7	Weld Fittings 12 (323.8mm O.D.) Sch.80 LR 90 DEG ELBOW AISA420-WPL6 COMM. Part # WF 12 80 90 L6C Heat Number: 093D / 58P01012 / A697 / D1BEE / A443 Manufacturer: Chup Hsin Enterprise Co / BKL - Thai Benkan / Chup Hsin Enterprise Co / Erne Fittings / Vallourec Fittings Line Comment :		SHIPPING: 12.00 UOM: EA Ordered: 19.00 Prev. Shipped: 0.00 Backordered: 7.00	PALLET1, PALLET2	00007000012.00
8	Weld Fittings 2 (60.3mm O.D.) 80S LR 90 DEG ELBOW A403-WP316/316L SS Part # WF 2 80S 90 316 Heat Number: 0D141007-04 Manufacturer: LUDA Development Ltd Tagging:		SHIPPING: 5.00 UOM: EA Ordered: 5.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	00008000005.00
9	Weld Fittings 6 (168.3mm O.D.) STANDARD LR 90 DEG ELBOW A403-WP316/316L SS Part # WF 6 STD 90 316 Heat Number: 05122002 / md100105 / nt150084 Manufacturer: KT Fittings Sdn Bhd / S.P. United Industry SDN. BHD / S.P. United Industry SDN. BHD		SHIPPING: 5.00 UOM: EA Ordered: 5.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	00009000005.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 2/21
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CONCO
PIPE & SUPPLY COMPANY
A Division of
Russell Metals

PEMBINA PIPELINE
4000, 525 - 8 AVENUE SW
CALGARY, AB, T2P 1G1
Contact: Erin Fraser

FACTURER A
BILL TO

PACKING SLIP / BORDEREAU DE VENTE

CUSTOMER ACCOUNT NO./No. DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED/DATE DE COMMANDE 1-Mar-2016	DATE RECEIVED/DATE D'EGEE 15-Aug-2016	DATE SHIPPED/DATE D'EXPEDITION 24-Aug-2016
PEMBINA PIPELINE TBD			
EXPEDIER A SHIP TO			
DE NO./No 482967			
PLEASE REFER TO THIS NUMBER ON ALL ENQUIRIES PRENEZ DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE			

PL MESSAGE

PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: AFE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANT(E) DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION
CUSTOMER P.O. NO. / No BC DU CLIENT 4500084343		

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER REGION / REGION CLIENT
10	Weld Fittings 8 (219.1mm O.D.) STANDARD LR 90 DEG ELBOW A403-WP316/316L SS Part # WF 8 STD 90 316 Heat Number: m150073 Manufacturer: S.P. United Industry SDN. BHD		SHIPPING: 1.00 UOM: EA Ordered: 1.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	00010000001.00
12	Forged Steel 3/4 (26.7mm O.D.) 3000# (20.7MPa) 90 DEG ELBOW SOCKET WELD A/SA350-LF2 CL1 Part # FS 75 3M 90 S LF Heat Number: 4031 Manufacturer: Both-Well Tagging:		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET3	00012000002.00
13	Forged Steel 1 (33.4mm O.D.) 3000# (20.7MPa) 90 DEG ELBOW SOCKET WELD A/SA350-LF2 CL1 Part # FS 1 3M 90 S LF Heat Number: 435 Manufacturer: Delcorte		SHIPPING: 14.00 UOM: EA Ordered: 14.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET3	00013000014.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE	BILL OF LADING NO. / NO DE CONNAISSANCE	PICKED BY / PREPARE PAR	TOTAL WEIGHT / POIDS TOTAL	PAGE
	324392	awhite	16,086 lbs.	3/21

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Packing Slip Version 2.1 0 2016 01 29

PACKING SLIP / BORDEREAU DE VENTE

CUSTOMER ACCOUNT NO. DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED / DATE DE COMMANDE 1-Mar-2016	DATE REC'D / DATE D'EGEE 15-Aug-2016	DATE SHIPPED / DATE D'EXPEDITION 24-Aug-2016
PEMBINA PIPELINE TBD			
PLEASE REFER TO THIS NUMBER ON ALL ENQUIRIES PRIERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE			
DE NO./No			482967

PA MESSAGE

PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: AFE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANT(E) DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION

4500084343
CUSTOMER P.O. NO. / No BC DU CLIENT

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER SECTION / SECTION CLIENT
14	Flanges 3 (88.9mm O.D.) 150# RAISED FACE BLIND A182-F316/F316L SS Part # F 3 1 R B 316 Heat Number: 38473/1 Manufacturer: Babitz		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	00014000002.00
16	Flanges 2 (60.3mm O.D.) 600# RAISED FACE BLIND AISA350-LF2 CL1 Part # F 2 6 R B LF Heat Number: 517056 Manufacturer: San Eng Steel Tagging:		SHIPPING: 5.00 UOM: EA Ordered: 5.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET7	000160000005.00
17	Flanges 2 (60.3mm O.D.)X3/4" 600# RAISED FACE THREADED AISA350-LF2 CL1 Part # F 2X.75 6 R T LF Heat Number: 110009537 Manufacturer: Tri-Lad		SHIPPING: 6.00 UOM: EA Ordered: 6.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET7	000170000006.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 4/21
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Certified System
 ISO 9001
 2008

PACKING SLIP / BORDEREAU DE VENTE

PEMBINA PIPELINE
 4000, 525 - 8 AVENUE SW
 CALGARY, AB, T2P 1G1
 Contact: Erin Fraser

FACTURER A
 BILL TO

CUSTOMER ACCOUNT NO. DE COMPTE DU
PEMBIN PIP

DATE ORDERED/DATE DE
 COMMANDE
1-Mar-2016

DATE REC'D/DATE EXGEE
15-Aug-2016

DATE SHIPPED/DATE
 D'EXPEDITION
24-Aug-2016

PLEASE REFER TO THIS NUMBER ON ALL ENQUIRIES
 PRIERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE



DE NO./No 482967

PA MESSAGE



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: A/E: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANT(E) DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION

CUSTOMER P.O. NO. / No BC DU CLIENT
4500084343

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER EDITION / SECTION CLIENT
22	Flanges 2X.75 600# RAISED FACE THREADED CSA GR359 CAT 2 M45C Part # F 2X.75 6 R T LF/52 Heat Number: 3303120 Manufacturer: Nicola Galperli Tagging:		SHIPPING: 6.00 UOM: EA Ordered: 6.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET7	 00022000006.00
24	Flanges 2 (60.3mm O.D.) X1 (33.4mm O.D.) 600# RAISED FACE SOCKET WELD XS BORE CSA GR359 CAT 2 M45C Part # FL 2X1 6 R SW XS LF/52 Heat Number: 3303120 Manufacturer: Galperli Tagging: Line Comment: W/ HUB		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET5	 00024000002.00

29	Flanges 2 (60.3mm O.D.) 150# RAISED FACE WELD NECK SCH 80s A182-F316/316L SS Part # FL 2 1 R W 80S 316 Heat Number: 3209311 Manufacturer: Bebilz		SHIPPING: 10.00 UOM: EA Ordered: 10.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET11	 00029000010.00
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TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 5/21
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Alberta (780) 440-2000
Prairies (204) 467-8797
Eastern (519) 763-1114

Packing Slip Version: C.1.0 2016 01.29

PACKING SLIP / BORDEREAU DE VENTE

CUSTOMER ACCOUNT NO./No. DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED/DATE DE COMMANDE 1-Mar-2016	DATE RECEIVED/DATE D'EGEE 15-Aug-2016	DATE SHIPPED/DATE D'EXPEDITION 24-Aug-2016
PEMBINA PIPELINE TBD			
EXPEDIER A SHIP TO			
PLEASE REFER TO THIS NUMBER ON ALL ENQUIRIES PRIERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE			
DE NO./No 482967			

PL MESSAGE

PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: AFE: MJ15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALES PERSON / REPRESENTANTE DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION
CUSTOMER P.O. NO. / No BG DU CLIENT 4500084343		

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER REFERENCE / REFERENCE CLIENT
30	Flanges 3 (88.9mm O.D.) 150# RAISED FACE WELD NECK STD BORE A182-F316/316L SS Part # FL 3 1R W STD 316 Heat Number: 97906/1 Manufacturer: EN Corporation		SHIPPING: 3.00 UOM: EA Ordered: 3.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	000300000003.00
32	Flanges 6 (168.3mm O.D.) 150# RAISED FACE WELD NECK STD BORE A182-F316/316L SS Part # FL 6 1R W STD 316 Heat Number: 97906/1 Manufacturer: Bebitz		SHIPPING: 7.00 UOM: EA Ordered: 7.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	000320000007.00
33	Flanges 8 (219.1mm O.D.) 150# RAISED FACE WELD NECK STD BORE A182-F316/316L SS Part # FL 8 1R W STD 316 Heat Number: 4271430-1-655a / 8998511-af55a Manufacturer: CHANDAN STEEL LIMITED / Paramount Forge / Bebitz / SANGHVI FORGIN & ENGINEERING LTD.		SHIPPING: 5.00 UOM: EA Ordered: 5.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	000330000005.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE	BILL OF LADING NO. / NO DE CONNAISSANCEMENT	PICKED BY / PREPARE PAR	TOTAL WEIGHT / POIDS TOTAL	PAGE
	324392	awhite	16,086 lbs.	6/21

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Audena (1/00) 440-2000
Prairies (204) 467-8787
Eastern (519) 763-1114



PACKING SLIP / BORDEREAU DE VENTE

CUSTOMER ACCOUNT NO. DE COMPTE DU PEMBIN PIP		DATE ORDERED/DATE DE COMMANDE 1-Mar-2016	DATE RECD/DATE EXGEE 15-Aug-2016	DATE SHIPPED/DATE D'EXPEDITION 24-Aug-2016	PLEASE REFER TO THIS NUMBER ON ALL ENQUIRIES PRIERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE
PEMBINA PIPELINE TBD					DE NO./No 482967

FACTURERA
BIE

PEMBINA PIPELINE
4000, 525 - 8 AVENUE SW
CALGARY, AB, T2P 1G1
Contact: Erin Fraser

PL MESSAGE

PO RELEASE NUMBER / NUMERO DE RELACHE DU BIC: AFE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANTE DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION
		CUSTOMER P.O. NO. / No BC DU CLIENT 4500084343

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER SECTION / SECTION CLIENT
36	Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK XS A/SA350-LF2 CL1 Part # FL 2 6 R W XS LF Heat Number: 2807088103 / D1405256 / J110012465 Manufacturer: San Eng Steel / Futawa Flange / Tri-Lad		SHIPPING: 46.00 UOM: EA Ordered: 46.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET7	000360000046.00
37	Flanges 12 (323.8mm O.D.) 600# RAISED FACE WELD NECK SCH 80 A/SA350-LF2 CL1 Part # FL 12 6 R W 80 LF Heat Number: 1110010753 / 1110013511 Manufacturer: Tri-Lad / Tri-Lad		SHIPPING: 22.00 UOM: EA Ordered: 22.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET15, PALLET16 , PALLET17, PALLET1 8, PALLET19, PALLET 20	000370000022.00
38	Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK SCH 80s A182-F316/316L SS Part # FL 2 6 R W 80S 316 Heat Number: 37080/1 Manufacturer: Bebitz Tagging:		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	000380000002.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 7/21
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Packing Slip Version C: 1.0 2019 01.29

PACKING SLIP / BORDEREAU D'EMPAQUETAGE

CUSTOMER ACCOUNT NO./NO DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED/DATE DE COMMANDE 1-Mar-2016	DATE RECEIVED/DATE D'ENTREE 15-Aug-2016	DATE SHIPPED/DATE D'EXPEDITION 24-Aug-2016
PEMBINA PIPELINE TBD			
SHIP TO / DESTINATAIRE SHIP TO / DESTINATAIRE			
DE NO./No 482967			

PL MESSAGE



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: AFE: M15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANT(IE) DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION

CUSTOMER P.O. NO. / No BC DU CLIENT
4500084343

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGES / PAQUETS	CUSTOMER SECTION / SECTION CLIENT
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40	Flanges 10 (273mm O.D.) 900# RAISED FACE WELD NECK SCH 80 A/SA350-LF2 CL1 Part # FL 10 9 R W 80 LF Heat Number: 402M5 Manufacturer: ULMA		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET5	00040000002.00
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41	Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK STD CSA GR359 CAT 2 Part # FL 2 6 R W STD LF/52 Heat Number: 31232/21 / 8428-1420 Manufacturer: Nicola Galperini / Nicola Galperini		SHIPPING: 16.00 UOM: EA Ordered: 16.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET7	00041000016.00
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42	Flanges 10 (273mm O.D.) 600# RAISED FACE WELD NECK STD CSA GR359 CAT 2 Part # FL 10 6 R W STD LF/52 Heat Number: A14M5 Manufacturer: ULMA Tagging:		SHIPPING: 4.00 UOM: EA Ordered: 10.00 Prev Shipped: 0.00 Backordered: 6.00	PALLET4	00042000004.00
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TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 8/21
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Packing Slip Version 0.1 U2016.01.20

PACKING SLIP / BORDEREAU DE VENTE

CUSTOMER ACCOUNT NO./No. DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED/DATE DE COMMANDE 1-Mar-2016	DATE REC'D/DATE REÇUE 15-Aug-2016	DATE SHIPPED/DATE D'EXPÉDITION 24-Aug-2016
PEMBINA PIPELINE TBD			
EXPÉDIER À SHIP TO			
DE NO./No 482967			

PL MESSAGE



PO RELEASE NUMBER / NUMÉRO DE RELÂCHE DU BC: A/E: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANTE(D) DES VENTES Ward Nathan
SHIPPED FROM / EXPÉDIE DE TBD	SHIPPED VIA / EXPÉDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPÉDITION
CUSTOMER P.O. NO. / No BC DU CLIENT 4500084343		

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITÉ	PACKING / PAQUET	CUSTOMER SERIAL / SÉRIENUMÉRO
52 Cust Seq # 52	Nipples 1 (33.4mm O.D.)X4 (101.6mm) SCH 160 THRD X PLAIN ENDS SA333-6/A333-6 Part # N 1X4 160 TXP S3 Heat Number: 64UV Manufacturer: Cap Products		SHIPPING: 8.00 UOM: EA Ordered: 8.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET3	00052000008.00
54 Cust Seq # 54	Nipples 3/4 (26.7mm O.D.)X4 (101.6mm) SCH 160 PLAIN BOTH ENDS SA333-6/A333-6 Part # N .75X4 160 PBE S3 Heat Number: 524354 / 184FV Manufacturer: Benteler / Cap Products		SHIPPING: 14.00 UOM: EA Ordered: 14.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET3	00054000014.00
55 Cust Seq # 55	Nipples 1 (33.4mm O.D.)X4 (114.3mm O.D.) SCH 160 THREAD BOTH ENDS A312 TP316/316L SS Part # N 1X4 160 TBE 316 Heat Number: 1808 Manufacturer: Halima Corporation		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	00055000002.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTRÔLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCEMENT awhite	PICKED BY / PRÉPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 9/21
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 Prairies (204) 467-8797
 Eastern (519) 763-1114



PEMBINA PIPELINE
 4000, 525 - 8 AVENUE SW
 CALGARY, AB, T2P 1G1
 Contact: Erin Fraser

EXPEDIER A
 SHIP TO

PEMBINA PIPELINE
 TBD

CUSTOMER ACCOUNT NO./No. DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED/DATE DE COMMANDE 1-Mar-2016	DATE REC'D/DATE EXGEE 15-Aug-2016	DATE SHIPPED/DATE D'EXPEDITION 24-Aug-2016
PLEASE REFER TO THIS NUMBER ON ALL ORDERS PRIERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE			
DE NO./No 482967			

PA MESSAGE



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: A/E: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANTE(S) DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	FREIGHT / PORT
SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION		
CUSTOMER P.O. NO. / No BC DU CLIENT 4500084343		

LINE / LIGNE	DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGING / EMBALLAGE	CUSTOMER SECTION / SECTION CLIENT
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56	Nipples 3/4 (26.7mm O.D.)X4 (101.6mm) SCH 160 THRD BOTH ENDS SA333-6/A333-6 Part # N.75X4 160 TBE S3 Heat Number: 148323 Manufacturer: Cap Products		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET3	 000560000002.00
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57	Nipples 1 (33.4mm O.D.)X4 (101.6mm) SCH 160 PLAIN BOTH ENDS SA333-6/A333-6 Part # N 1X4 160 PBE S3 Heat Number: 148323 Manufacturer: Benteler		SHIPPING: 27.00 UOM: EA Ordered: 27.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET3	 00057000027.00
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75	Forged Steel 3/4 (26.7mm O.D.) 6000# (41.4MPa) HEX HEAD PLUG THREADED A/SA 350-LF2 CL1 Part # FS.75 6M HP T LF Heat Number: 148323 Manufacturer: Delcorte Tagging:		SHIPPING: 5.00 UOM: EA Ordered: 10.00 Prev. Shipped: 0.00 Backordered: 5.00	PALLET3	 00075000005.00
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TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 10/21
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Packing Slip Version C 10-2016 01-29

PACKING SLIP / BORDEREAU DE VENTE

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PIPE & SUPPLY COMPANY
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Russell Metals

ISO 9001
Certified System

PEMBINA PIPELINE
4000, 525 - 8 AVENUE SW
CALGARY, AB, T2P 1G1
Contact: Erin Fraser

EXPEDIER A
SHIP TO
PEMBINA PIPELINE
TBD

CUSTOMER ACCOUNT NO. / NO. DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED / DATE DE COMMANDE 1-Mar-2016	DATE REC'D / DATE EXGEE 15-Aug-2016	DATE SHIPPED / DATE D'EXPEDITION 24-Aug-2016
PLEASE REFER TO THIS NUMBER ON ALL INVOICES PRIERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE			
DE NO./No 482967			

PA MESSAGE



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: A/E: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANT(ES) DES VENTES Ward Nathan
SHIPPED FROM / EXPEDE DE TBD	SHIPPED VIA / EXPEDE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION 4500084343 CUSTOMER P.O. NO. / No BC DU CLIENT

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PROJET	CUSTOMER SECTION / SECTION CLIENT
76	Forged Steel 1 (33.4mm O.D.) 6000# (41.4MPa) HEX HEAD PLUG THREADED A/SA350-LF2 CL1 Part # FS 1 6M HP T LF Heat Number: 144C Manufacturer: Delcorle Tagging:		SHIPPING: 8.00 UOM: EA Ordered: 8.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET3	 00076000008.00
77	Weld Fittings 12 (323.8mm O.D.)X8 (219.1mm O.D.) Sch.80 CONCENTRIC REDUCER A/SA420-WPL6 COMM. Part # WF 12X8 80 CO L6C Heat Number: 144C Manufacturer: Chup Hsin Enterprise Co		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET3	 00077000002.00
78	Weld Fittings 4 (114.3mm O.D.)X2 (60.3mm O.D.) STD/80S CONCENTRIC REDUCER A403-WP316/316L SS Part # WF 4X2 STD/80S CO 316 Heat Number: 11208-024 Manufacturer: Shanghai Max Fittings Co., Ltd		SHIPPING: 1.00 UOM: EA Ordered: 1.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET11	 00078000001.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE white	PICKED BY / PREPARE PAR white	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 11/21
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 Prairies (204) 467-8797
 Estrie (519) 763-1114



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 PIPE & SUPPLY COMPANY
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FACTURER A
 BILL TO

PEMBINA PIPELINE
 4000, 525 - 8 AVENUE SW
 CALGARY, AB, T2P 1G1
 Contact: Erin Fraser

EXPEDIER A
 SHIP TO

PEMBINA PIPELINE
 TBD

CUSTOMER ACCOUNT NO. / NO. DE COMPTE DU
 CLIENT
PEMBIN PIP

DATE ORDERED / DATE DE
 COMMANDE
1-Mar-2016

DATE RECD / DATE ENVOIE
 INSTRUCTIONS
15-Aug-2016

DATE SHIPPED / DATE
 D'EXPEDITION
24-Aug-2016

PLEASE REFER TO THIS NUMBER ON ALL INVOICES
 PRIERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE



DE NO./No 482967

PA MESSAGE



PO RELEASE NUMBER / NUMERO DE RELACHE DU BG: A/E: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANTE DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	FREIGHT / PORT
SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION 1		CUSTOMER P.O. NO. / No BC DU CLIENT 4500084343

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER SECTION / SECTION CLIENT
79	Weld Fittings 8 (219.1mm O.D.)X6 (188.3mm O.D.) STANDARD CONCENTRIC REDUCER A403-WP316/316L SS Part # WF 8X6 STD CO 316 Heat Number: W140433 Manufacturer: S.P. United Industry SDN. BHD		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	000790000002.00
80	Weld Fittings 12 (323.8mm O.D.)X10 (273mm O.D.) STD ECCENTRIC REDUCER CSA GR369 CAT 2 M45C Part # WF 12X10 STD EC L6/52 Heat Number: 55128004-1 Manufacturer: BKL - Thai Benkan		SHIPPING: 3.00 UOM: EA Ordered: 3.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET12	000800000003.00
81	Weld Fittings 12 (323.8mm O.D.)X10 (273mm O.D.) Sch.80 ECCENTRIC REDUCER A/SA420-WPL6 Part # WF 12X10 80 EC L6 Heat Number: 632m08-3 Manufacturer: Awaji		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET12	000810000002.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE white	PICKED BY / PREPARE PAR white	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 12/21
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PACKING SLIP / BORDEREAU DE VENTE

DATE ORDERED/DATE DE COMMANDE 1-Mar-2016	DATE READY/DATE ENVOI 15-Aug-2016	DATE SHIPPED/DATE D'EXPEDITION 24-Aug-2016
CUSTOMER ACCOUNT NO./No. DE COMPTE DU CLIENT PEMBIN PIP		
PLEASE REFER TO THIS NUMBER ON ALL INVOICES PRENEZ CE NUMERO SUR TOUTE DEMANDE DE		
DE NO./No		482967

PEMBINA PIPELINE
 TBD

EXPEDIER A
 SHIP TO

PEMBINA PIPELINE
 4000, 525 - 8 AVENUE SW
 CALGARY, AB, T2P 1G1
 Contact: Erin Fraser

FACTURER A
 BILLET

PA MESSAGE



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: AFE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANTE DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	FREIGHT / PORT
SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION		
CUSTOMER P.O. NO. / No. BC DU CLIENT 4500084343		

LINE / LIGNE	DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER EDITION / EDITION CLIENT
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87	Flanges 2 (60.3mm O.D.) 600# RAISED FACE SPEC BLIND A/ISA16-70N Part # F 2 6 R SPEC A516 Heat Number: V1W Manufacturer: Global Machine		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET14	00087000002.00
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88	Miscellaneous Gaskets 2 (60.3mm O.D.) 150# 316SS - GRAPHOIL CS OUTER/316SS INNER Part # G 2 1 316G 316CGI Tagging:		SHIPPING: 20.00 UOM: EA Ordered: 20.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET6	000880000020.00
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89	Miscellaneous Gaskets 3 (88.9mm O.D.) 150# 316SS - GRAPHOIL CS OUTER/316SS INNER Part # G 3 1 316G 316CGI Tagging:		SHIPPING: 5.00 UOM: EA Ordered: 5.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET6	000890000005.00
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TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAINSEMENT white	PICKED BY / PREPARE PAR white	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 14/21
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Packing Slip Version C 1.0 2016 01 29

PACKING SLIP / BORDEREAU DE VENTE

CUSTOMER ACCOUNT NO / NO DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED / DATE DE COMMANDE 1-Mar-2016	DATE REC'D / DATE D'EGEE 15-Aug-2016	DATE SHIPPED / DATE D'EXPEDITION 24-Aug-2016
PLEASE REFER TO THIS NUMBER ON ALL ENQUIRIES PRIERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE			
DE NO / No 482967			
PIL MESSAGE			

PEMBINA PIPELINE
TBD
EXPEDIER A
SHIP TO

PEMBINA PIPELINE
4000, 525 - 8 AVENUE SW
CALGARY, AB, T2P 1G1
Contact: Erin Fraser

FACTURER A
BILL TO



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: AFE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALES PERSON / REPRESENTANTE DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION
		CUSTOMER P.O. NO. / No BC DU CLIENT 4500084343

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGES / PAQUET	CUSTOMER SECTION / SECTION CLIENT
99	Miscellaneous Gaskets 12 (323.8mm O.D.) 500# 316SS - GRAPHOIL CS OUTER/316SS INNER Part # G 12 6 316G 316CGI Tagging		SHIPPING: 28.00 UOM: EA Ordered: 28.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET6	00099000028.00
118	Swage Nipples 2X1 XS CONCENTRIC BEV.LGE. x PLN.SML. A420-WPL6 Part # SW 2X1 XS CO BLPS L6 Heat Number: K3185 / K3192 Manufacturer: Keddco / Keddco		SHIPPING: 9.00 UOM: EA Ordered: 9.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET3	00118000009.00
121	Swage Nipples 1X.75 XS CONCENTRIC PLAIN BOTH ENDS A420-WPL6 Part # SW 1X.75 XS CO PBE L6 Heat Number: K2975 Manufacturer: Keddco		SHIPPING: 1.00 UOM: EA Ordered: 4.00 Prev Shipped: 0.00 Backordered: 3.00	PALLET12	00121000001.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNASEMENT awhite	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 15/21
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Prairies (204) 467-8797
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Certified System
ISO 9001
2008

PACKING SLIP / BORDEREAU DE VENTE

CUSTOMER ACCOUNT NO. / NO. DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED / DATE DE COMMANDE 1-Mar-2016	DATE READY / DATE EXGEE 15-Aug-2016	DATE SHIPPED / DATE D'EXPEDITION 24-Aug-2016
PLEASE REFER TO THIS NUMBER ON ALL ENQUIRIES PRENEZ DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE			
DE NO./NO			482967

PEMBINA PIPELINE
TBD

EXPEDIERA
SHIP TO

PEMBINA PIPELINE
4000, 525 - 8 AVENUE SW
CALGARY, AB, T2P 1G1
Contact: Erin Fraser

FACTURER A
BILL TO



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: APE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANTE DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION

CUSTOMER P.O. NO. / No. BC DU CLIENT
4500084343

PA MESSAGE

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER SECTION / SECTION CLIENT
124 Cust Seq # 124	Swage Nipples 2X1 XS ECCENTRIC BEVLGE. x PLN.SML. A420-WPL6 Part # SW 2X1 XS EC BLPS L6 Heat Number: K23356 K23356 Manufacturer: Kedddco / Kedddco		SHIPPING: 3.00 UOM: EA Ordered: 3.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET3	 001240000003.00
125 Cust Seq # 125	Weld Fittings 10 (273mm O.D.) STANDARD STRAIGHT TEE L6/52-BARRED Part # WF 10 STD T L6/52-BARRED Heat Number: S4513017 Manufacturer: MISC Line Comment : ** Machined through to full bore, welded c/w two 3/8" x 2" SA51670N flat bars, post weld heat treated (stress relief) & all welds MPI tested c/w all results **		SHIPPING: 3.00 UOM: EA Ordered: 3.00 Prev Shipped: 0.00 Backordered: 0.00		 001250000003.00
126 Cust Seq # 126	Weld Fittings 12 (323.8mm O.D.) STD WELD TEE CSA GR359 CAT 2 M45C Part # WF 12 STD T L6/52 Heat Number: S46285 Manufacturer: Tectubi Raccordi		SHIPPING: 1.00 UOM: EA Ordered: 1.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET12	 001260000001.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCEMENT awhite	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 16/21
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Eastern (519) 763-1114



PACKING SLIP / BORDEREAU DE VENTE

AT EASE REFER TO THIS NUMBER ON ALL ENQUIRIES PRIERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE	
DE NO./No	482967

PA MESSAGE

PEMBINA PIPELINE

TBD

EXPEDIER A
SHIP TO

PEMBINA PIPELINE
4000, 525 - 8 AVENUE SW
CALGARY, AB, T2P 1G1
Contact: Erin Fraser

FACTURERA
BILL TO



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: AFE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANT(IE) DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	FREIGHT / PORT
SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION		

4500084343
CUSTOMER P.O. NO. / No BC DU CLIENT

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER SECTION / SECTION CLIENT
127	Weld Fittings 2 (60.3mm O.D.) XS WELD TEE A/ISA420-WPL6 Part # WF 2 X S T L6 Heat Number: 14N11613 / 15C11625 / 15C11601 / 15C11612 Manufacturer: BKL - Thai Benkan / BKL - Thai Benkan / BKL - Thai Benkan / BKL - Thai Benkan		SHIPPING: 24.00 UOM: EA Ordered: 24.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET3	00127000024.00
128	Weld Fittings 12 (323.8mm O.D.) Sch.80 WELD TEE A/ISA420-WPL6 Part # WF 12 80 T L6 Heat Number: 57486 Manufacturer: Awaji		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET7	00128000002.00

130	Weld Fittings 3 (88.9mm O.D.) STANDARD STRAIGHT TEE A403-WP316/316L SS Part # WF 3 STD T 316 Heat Number: 10321503 Manufacturer: Kanzen Tetsu Sdn Bhd		SHIPPING: 1.00 UOM: EA Ordered: 1.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	00130000001.00
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TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 17/21
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Eastern (519) 763-1114



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PIPE & SUPPLY COMPANY
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PACKING SLIP / BORDEREAU DE VENTE

DATE REÇU / DATE EXGEE
15-Aug-2016

DATE ORDERED / DATE DE
COMMANDE
1-Mar-2016

DATE SHIPPED / DATE
D'EXPÉDITION
24-Aug-2016

PLEASE REFER TO INB NUMBER ON ALL ENQUIRIES
PRIERE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE



DE NO./No 482967

PA MESSAGE

PEMBINA PIPELINE
TBD
EXPEDIER A
SHIP TO

PEMBINA PIPELINE
4000, 525 - 8 AVENUE SW
CALGARY, AB, T2P 1G1
Contact: Erin Fraser

FACTURER A
BILLET



PO RELEASE NUMBER / NUMÉRO DE RELÂCHE DU BC: AFE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALES PERSON / REPRESENTANT(ES) DES VENTES Ward Nathan
SHIPPED FROM / EXPÉDIE DE TBD	SHIPPED VIA / EXPÉDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPÉDITION
		CUSTOMER P.O. NO. / No BC DU CLIENT 4500084343

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITÉ	PACKAGE / PAQUET	CUSTOMER DESIGN / SECTION CLIENT
131	Weld Fittings 6 (168.3mm O.D.) STANDARD STRAIGHT TEE A403-WP316/316L SS Part # WF 6 STD T 316 Heat Number: 63bp124 Manufacturer: KT Fittings Sdn Bhd		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET11	 00131000002.00
132	Forged Steel 3/4 (26.7mm O.D.) 3000# (20.7MPA) TEE SOCKET WELD A/SA350-LF2 CL1 Part # FS 75 3M T S LF Heat Number: 63bp124 Manufacturer: Delcorte		SHIPPING: 2.00 UOM: EA Ordered: 2.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET3	 00132000002.00
133	Forged Steel 1 (33.4mm O.D.) 3000# (20.7MPA) TEE SOCKET WELD A/SA350-LF2 CL1 Part # FS 1 3M T S LF Heat Number: 63bp124 Manufacturer: Delcorte		SHIPPING: 13.00 UOM: EA Ordered: 13.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET3	 00133000013.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 18/21
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PACKING SLIP / BORDEREAU DE VENTE

DATE ORDERED / DATE DE COMMANDE 1-Mar-2016	DATE RECEIVED / DATE D'EGEE 15-Aug-2016	DATE SHIPPED / DATE D'EXPEDITION 24-Aug-2016
CUSTOMER ACCOUNT NO / NO DE COMPTE DU CLIENT PEMBIN PIP		
PEMBINA PIPELINE TBD		
DE NO / No 482967		

PA MESSAGE



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: AFE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANTE DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION
CUSTOMER P.O. NO. / No BC DU CLIENT 4500084343		

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER SECTION / SECTION CLIENT
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134	Weld Fittings 8 (219.1mm O.D.) X6 (168.3mm O.D.) STANDARD REDUCING TEE A403-WP316/316L SS		SHIPPING: 1.00 UOM: EA Ordered: 1.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET11	00134000001.00
	Part # WF 8X6 STD RT 316 Heat Number: 30506401 Manufacturer: Sung Kwang Bend				

135	Forged Steel 1 (33.4mm O.D.) 3000# (20.7MPa) UNION THREADED A/SA350-LF2 CL1		SHIPPING: 4.00 UOM: EA Ordered: 4.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET3	00135000004.00
	Part # FS 1 3M U T LF Heat Number: 0411 Manufacturer: Delcorte				

137	Forged Steel 1 (33.4mm O.D.) 3000# (20.7MPa) UNION SOCKET WELD A/SA350-LF2 CL1		SHIPPING: 8.00 UOM: EA Ordered: 8.00 Prev. Shipped: 0.00 Backordered: 0.00	PALLET3	00137000008.00
	Part # FS 1 3M U S LF Heat Number: 30506401 Manufacturer: Delcorte / ULMA				

TALLY SHEET NO / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 19/21
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 Prairies (204) 467-9797
 Eastern (519) 763-1114



PACKING SLIP / BORDEREAU D'EXPEDITION

DATE ORDERED/DATE DE COMMANDE 1-Mar-2016	DATE RECEIVED/DATE D'ENTREE 15-Aug-2016	DATE SHIPPED/DATE D'EXPEDITION 24-Aug-2016
CUSTOMER ACCOUNT NO./No. DE COMPTE DU CLIENT PEMBIN PIP		
PLEASE REFER TO THIS NUMBER ON ALL ENQUIRIES PRENEZ CE NUMERO SUR TOUTE DEMANDE DE		
DE NO./No		482967

PEMBINA PIPELINE

TBD

EXPEDIER A
SHIP TO

PEMBINA PIPELINE
 4000, 525 - 8 AVENUE SW
 CALGARY, AB, T2P 1G1
 Contact: Erin Fraser

FACTURER A
BILL TO



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: AFE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALES PERSON / REPRESENTANTE DES VENTES Ward Nathan
SHIPPED FROM / EXPEDE DE TBD	SHIPPED VIA / EXPEDE PAR TBD	FREIGHT / PORT
SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION		
CUSTOMER P.O. NO. / No. BC DU CLIENT 4500084343		

LINE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PACQUET	CUSTOMER SIGNATURE / SIGNATURE CLIENT
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138	O'lets 2 (60.3mm O.D.) STD WELDOLET 10X8 AISA350-LF2 CL1 Part # O 2 STD W 10X8 LF Heat Number: JRF8 / 884X / 1558 Manufacturer: MEGA / MEGA Tagging: 10" RUN		SHIPPING: 13.00 UOM: EA Ordered: 13.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET12	 00138000013.00
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139	O'lets 2 (60.3mm O.D.) STD WELDOLET 12X8 AISA350-LF2 CL1 Part # O 2 STD W 12X8 LF Heat Number: JRF8 / 884X / 1558 Manufacturer: MEGA / MEGA Tagging: 12" RUN		SHIPPING: 3.00 UOM: EA Ordered: 3.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET12	 001390000003.00
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140	O'lets 2 (60.3mm O.D.) XS WELDOLET 36X8 AISA350-LF2 CL1 Part # O 2 XS W 36X8 LF Heat Number: 80893 Manufacturer: WFI Tagging: 8" RUN		SHIPPING: 4.00 UOM: EA Ordered: 4.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET3	 001400000004.00
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TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE awhite	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 20/21
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MANUFACTURING

PACKING SLIP / BORDEREAU DE VENTE

CUSTOMER ACCOUNT NO./No. DE COMPTE DU CLIENT PEMBIN PIP	DATE ORDERED/DATE DE COMMANDE 1-Mar-2016	DATE RECD/DATE EXGEE 15-Aug-2016	DATE SHIPPED/DATE D'EXPEDITION 24-Aug-2016
PLEASE REFER TO THIS NUMBER ON ALL ENQUIRIES PREPARE DE MENTIONNER CE NUMERO SUR TOUTE DEMANDE DE			
DE NO./No 482967			

PA MESSAGE

PEMBINA PIPELINE
TBD

PEMBINA PIPELINE
4000, 525 - 8 AVENUE SW
CALGARY, AB, T2P 1G1
Contact: Erin Fraser



PO RELEASE NUMBER / NUMERO DE RELACHE DU BC: APE: M/15228	CUSTOMER CONTACT / CLIENT CONTACT Erin Fraser	INSIDE SALESPERSON / REPRESENTANTE DES VENTES Ward Nathan
SHIPPED FROM / EXPEDIE DE TBD	SHIPPED VIA / EXPEDIE PAR TBD	FREIGHT / PORT TBD
SHIPPING INSTRUCTIONS / INSTRUCTIONS D'EXPEDITION		

4500084343
CUSTOMER P.O. NO. / No BC DU CLIENT

LIVE / LIGNE	DESCRIPTION / DESCRIPTION	UNIT PRICE / PRIX UNITAIRE	QUANTITY / QUANTITE	PACKAGE / PAQUET	CUSTOMER SECTION / SECTION CLIENT
141 Cust Seq # 141	O'lets 2 (60.3mm O.D.) XS WELDOLET 36X8 AISA350-LF2 CL1 Part # O 2 XS W 36X8 LF Heat Number: 50993 Manufacturer: WFI Tagging: 12" RUN		SHIPPING: 12.00 UOM: EA Ordered: 12.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET3	 00141000012.00
142 Cust Seq # 142	Olets 2 (60.3mm O.D.) 80S WELDOLET 6" RUN SIZE A182F316/316L Part # O 2 80S W 6 316 Heat Number: 12395 Manufacturer: Both-Well Tagging: 6" RUN		SHIPPING: 4.00 UOM: EA Ordered: 4.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET12	 00142000004.00
143 Cust Seq # 143	Olets 2 (60.3mm O.D.) 80S WELDOLET 8" RUN A182F316/316L Part # O 2 80S W 8 316 Heat Number: 12138 Manufacturer: Both-Well Tagging: 8" RUN		SHIPPING: 1.00 UOM: EA Ordered: 1.00 Prev Shipped: 0.00 Backordered: 0.00	PALLET12	 00143000001.00

TALLY SHEET NO. / NO DE FEUILLE DE CONTROLE 324392	BILL OF LADING NO. / NO DE CONNAISSANCE 324392	PICKED BY / PREPARE PAR awhite	TOTAL WEIGHT / POIDS TOTAL 16,086 lbs.	PAGE 21/21
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Angela Legault

From: Jennifer Ross
Sent: Monday, September 19, 2016 2:27 PM
To: Angela Legault
Subject: FW: 4839 - RE: Stainless materials
Attachments: 008.JPG; 003.JPG

Fyi, as per our discussion please enter the pipe

From: Bhavik Patel
Sent: Monday, September 12, 2016 3:54 PM
To: 'brent calvert'
Cc: Jessie St. Nicolaas; Stephanie Court; Jennifer Ross; Chad Johannsen; Mark Gajewski
Subject: 4839 - RE: Stainless materials

Hi Brent,

There are total of five (5) 20' 6" pipes that we received for this job. All the 6" pipes have some contaminations, which we will clean it up and use it. There were two (2) 20' pieces were initially rejected and put on OS&D report. One of the two pieces, we will clean and use it. The other one has extensive contamination near one end which we are planning to throw away. We might have enough surpluses to cut approximately 1 meter contaminated piece and still fabricate all the spools. Please see attached couple of pictures for your information.

Regards,

Bhavik Patel, E.I.T., PMP | Project Manager
ClearWater Fabrication LP

bpatel@clearwater-energy.ca
Main: 780-464-4230

From: brent calvert [<mailto:brentc@pipeworx.ca>]
Sent: September-12-16 11:25 AM
To: Bhavik Patel
Cc: Jessie St. Nicolaas
Subject: Stainless materials

Hello Bavic, I will be replacing the 4x2 conc and 8" 90. The new materials will be delivered either today or tomorrow. What is the final word on the 6" pipe being contaminated? Will it need to be replaced?

Have a wonderful day,
Brent Calvert
Cell # 403-844-5751



Lot 215C 26229, Twp 531A Zone 2

Acheson, AB T7X 5A4

Cell : 403-844-5751

Bus: 780-960-2730

www.pipeworx.ca

"PIPEWORX" WHERE SAFETY & QUALITY ARE #1



MRC Global DELIVERY RECEIPT

This order is placed under an existing contract. The terms of such existing contract shall apply. Otherwise, this order is subject to and governed by MRC Global's General Terms and Conditions of Sale. Signed at: www.mrcglobal.com it by following the instructions on this site and also available by request. Which terms and conditions are hereby incorporated by reference.



Sales Order
Number 4463974-023 Page 1
Printed 09/19/16 10:22

Deliver To: PEMBINA WEST LIMITED
PARTNERSHIP
4000 585 - 8TH AVENUE SW
From: GRANDE PRAIRIE
12102 - 101 AVE
GRANDE PRAIRIE AB T8V 8A9

73-755 Customer Purchase Order
4500089088
Customer Release/Requisition No.

CALGARY AB T2P 1G1
Promised - 08/29/16 Salesman - MICHELLE WILSON Ship Via - WILL CALL
Shipped - 09/19/16 Phone - (780) 532-9542 Freight Terms - PREPAID & ALLOW A Customer Ship No. - 61723-0055

Ordered by: BRENT @ PIPEWORX

BRENT 403-844-5751
MTR'S REQUIRED
APPROVER NAME: GARTH HENRY
ORDERED BY: BRENT

CPO Line	Customer Part/Item ID	Quantity	Description	Line No.
✓	73C1XXXX	1	1 EA 4" X 2" S40 X S80 RED CONC 316SS	044
			MFG: HLS: 042543	
			SHIPPED 1 UNITS AT \$161.0000 TOTAL \$161.00	
✓	73C1XXXX	1	1 EA 8" WELD 90 SCH40 316SS	045
			MFG: HLS: DRA039-03-1031R	
			SHIPPED 1 UNITS AT \$862.9800 TOTAL \$862.98	

ClearWater
Fabrication LP
JOB No: 4839
SUPPLIER: WJSE
P.O. No:
MRR No: 1
LOG No: 12798-0510
RECEIVED BY: Sept 19/16
RECEIVED BY: Sept 19/16

RECEIVING INFO: Company:		Date:	Signed By:	Signature:	
Tubes- Order Weight-	Box/Bag-	Crates-	Pallets-	Pieces-	Bundles-
.00	.00	Material Tot- \$1023.98	Freight-S	Picked by- .00	Other-S .00
				Tax-S 51.20	Total-S 1075.18

ITEM # 4
CE = 0.37

Order#: 482967 Seq: 4 PO#: 4500084343 Heat#: C16W9 Mill: Erne Fittings
Part#: WF 12 STD 90 L6/52 Part Desc: Weld Fittings 12 (323.8mm O.D.) STD LR 90 DEG ELBOW CSA GR359 CAT 2 M45C

erne fittings gmbh A-8824 Schlinz Hauptstrasse 48 Austria/Europe Telefon +43/5524 501-0 Telefax +43/5524 501-930 Reg. No. 12 100 3064		Abnahmeprüfzeugnis Inspection Certificate EN 10204 - 3.1		Artikelbezeichnung [designation] elbows TR-90-S-WPL6/52/359CAT12-STD-SEG	
Kunde [customer] Comco Pipe & Supply Company 5910 - 17 Street N.W. CDN-T6P 1S5 Edmonton, Alberta		Zeugnis Nr. [cert. no.] 01546916-PD Rev. 04/05/2016 Code-Nr. [code no.] CH-10009 Ident. Nr. [ident. no.] Unsere Auftrags-Nr./Art.Nr. [our order no./item no.] 181325DM-0070 / 135028 Ihre Bestell. Nr. [your order no.] E1-6827 Menge [quantity] 8		Anforderungen der Bestellung [requirements of the order] ASME B16.9-12 + CSA Z245.11-13 LR, material:WPL6/52/Gr.359 Cat-II, TR-fitting:MSS-SP-75-2014/ASTM A860-14, ASTM A420-14/ASME SA420-15, TR-addit fitting:CSA Z245.11-13, NACE MR0175/ISO15156-2:2009A.2, NACE MR0103-2012 2.1 and 4, customer specific:SEGMENTABLE, certificate:EN 10204/3.1+B.C., drawing:135028 Rev.1, rust protection:Millstandard, execution:Seamless	
Vormaterial [base material] 73325RS16		Hersteller [manufacturer] Vallourec		Dichtheitsprüfung [leakage test] Bar 150	
Analyse [analysis] Schmelze Nr. [heat no.] Index 1 339728 2 339728		Erschmelzungsart [melting process] Y C Si Mn P S Cr Mo Ni Cu V Nb Al B Ti N Ceq 0.15 0.19 1.25 0.012 0.002 0.130 0.010 0.020 0.110 0.050 0.017 0.030 0.0002 0.027 0.0070 0.41 0.144 0.19 1.27 0.01372 0.00224 0.118 0.006 0.02 0.101 0.057 0.016 0.029 0.00012 0.026 0.008 0.4		J-Faktor [J-Factor]: (Si + Mn) * (P + Sn) * 10000 CEQ [CEQ]: C + (Mn / 6) + (Cr + Mo + V) / 5 + (Cu + Ni) / 15	
Mech.-technologische Prüfung [mech. technological test]					
Proben Nr. [test no.] 50P_289 50P_289 50P_300		Zugversuch [tensile test] Dehngg. [yield str.] Rp0.2 65000 Zugfestigkeit [tensile str.] Rm (PSi) 83000 Temp. +22 °C +22 °C +22 °C		Kerbschlagbiegeversuch [notched bar impact test] Form: Querschnitt [cross sec.] (mm²) 28.5 PR-Lage [pos. of sample] L T Temp. -46 °C -46 °C -46 °C	
Härteprüfung [hardness test] 160-170 HB Wärmebehandlung [heat treatment] quenched and tempered 940 °C / 710 °C 20 MIN, 100 MIN Cooling in water (in motion) / in still air		Kerbschlagarbeit [impact values] (J) 203-177-175 200-178-191		Kerbschlagarbeit [impact values] (J) 203-177-175 200-178-191	
Kennzeichnung [marking] @ 15 AUSTRIA / Z245.11-13 / 359 / M46C / SS / A / SA420 / A860 / WPL6 / WPHY52 / C16W8 / 12" / STD / SEG M					
Besichtigung und Ausmessung [visual inspection and dimensional check] o.B./o.K.					
Bemerkungen [remarks] hot formed over mandrel C.E.=C+F((Mn/6) + (Si/24) + (Cu/15) + (Ni/20) + ((Cr+Mo+V+Nb)/5) + 58) = 0.37					

Die gelieferten Produkte erfüllen die in der Bestellung festgelegten Anforderungen.
 The products supplied are in compliance with the requirements of the order.
 The products were manufactured, sampled, tested and inspected in accordance with the specifications and were found to meet the requirements.
 Abnahmebeauftragter [inspection representative]
 04/05/16 Pape Djana
 Dieses Dokument wurde elektronisch erstellt und ist ohne Unterschrift gültig. [The certificate is issued by the computerized system and is valid without signature.]
 73 - 323
 Zertifiziert nach DGR 97/23/EG Anhang I - Absatz 4.3 durch TÜV SÜD Industrie Service, Benannte Stelle 0036, Zertifikat Nr. DGR-0036-QS-W 129/2002/MUC [Certified acc. to PED 97/23/EG Annex I, Paragraph 4.3 by TÜV SÜD Industrie Service, Notified Body 0036, Certificate No. DGR-0036-QS-W 129/2002/MUC]

MTR # 26

Order#: 482967 Seq: 7 PO#: 4500084343 Heat#: 093D Mill: Chup Hsin Enterprise Co
Part#: WF 12 80 90 L6C Part Desc: Weld Fittings 12 (323.8mm O.D.) Sch.80 LR 90 DEG ELBOW A/SA420-WPL6 COMM.



INSPECTION CERTIFICATE

Customer	: SEYBOLD INTERNATIONAL CORP.	(MILL TEST)	Certificate No	: O0400085-0101
Product	: SEAMLESS LOW TEMPERATURE CARBON	ACCORDANCE WITH EN 10204-3.1	Order No	: 7010682/E1-6289
Spec	: STEEL BUTT WELD FITTINGS	CHUP HSIN ENTERPRISE CO., LTD.	Date	: 2015/08/26
	: ASME SA420/ ASTM A420 WPL6-14	17, TUNG LI ROAD HSIAO KANG,		
	: CSA Z245.11-13 Gr 241 Cat II/ EN10204 3.1/NACE MR0175-09/ ISO 15156-09/MR0103-12	KAOHSIUNG, TAIWAN, R.O.C.		
			TEL:(07)831-9157	FAX:(07)821-7500, 831-2942

Starting Material			Specification for Inspection				Visual Inspection			Dimensional Inspection						
ASTM A333 GR-6			ASME B16.9-2012				GOOD			GOOD						
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test			Ave.						
							Test Temp	Size of specimen	Charpy V-Notch Impact Value J							
4	90 E L/R SMLS WPL6 True S80	21	B056	311056	TIANJIN C102100010660		-45	10 X 10 X 55	158	172	168	166				
6	90 E L/R SMLS WPL6 True S80	14	B056	331093	TIANJIN 12103362		-45	10 X 10 X 55	112	106	108	108.67				
Specifi- cation	Chemical Composition%										Heat Treatment	REMARK				
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V			Nb	C.E	Tension Test	
X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X100	X1000	X1000	X100	P.S.I	P.S.I	%	HB
Min.		15	50										35000	60000	30	
Max.	30	40	135	40	40	40	40	40	12	80	20	50		95000		197
4	14	21	97	7	5	3	1	3	8	3	3	32	46247	67835	33.0	132-133
6	19	26	61	12	9	9	1	3	2	1	1	31	45726	69958	34.2	139-140
ELONGATION SPECIMEN																
															8.75mm Round	Longitudinal
															12.50mm Round	Longitudinal

$$\text{C.E.} = \text{C} + \text{Mn} / 6 + (\text{Cr} + \text{Mo} + \text{V}) / 5 + (\text{Ni} + \text{Cu}) / 15$$

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

L. S. Tsai

Chief of Quality Assurance Section

MTR # 27

CE=0.31

Order#: 482967 Seq: 7 PO#: 4500084343 Heat#: 58P01012 Mill: BKL - Thai Benkan
 Part#: WF 12 80 90 L6C Part Desc: Weld Fittings 12 (323.8mm O.D.) Sch.80 LR 90 DEG ELBOW A/SA420-WPL6 COMM.

BENKAN.

Thai Benkan Co., Ltd.
 58 Soi Wetrarat, Bangkok, Prapadaeng
 Samutprakarn, 10130 Thailand.

D M Y Certificate No.
 28/03/2018 T- 2018020451

INSPECTION CERTIFICATE

TO EN10204 3.1

Purchaser: COMCO PIPE AND SUPPLY COMPANY

Purchase Order No. E1-8549

Job No.

B-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection													
ME-015	ASTM A420-14/ASME SA420-16 WPL6 CSA Z46.1-13/EN 241 CAT B (WPL6 S)	ASME B16.9-2012,B16.25-2012	Good	Good													
MFG. No.	Product & Size	(T:*)	Quantity	Hardness Actual Data													
58P01012	90 EL WPL6 12 S80		12/20	HB:120,124,130													
	Material Heat No.	Chemical Composition%(Note1)	Baron (%)														
	J5KA134	Ti = 1	0.0001														
Specifi- cation	Chemical Composition %													*2 Tension Test		HARDNESS MAX 197 HB : 000C	
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	Y S	T S	E	Impact Test (J)
	X 100	100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 1000	X 1000	X 1000	X 100	MPa.		%	10 X 10 X 2V AT -45 °C
Min.		15	50											240	415	30	352
Max.	23	40	135	35	40	40	40	30	12		80	20	40		585		352
	12	25	128	10	1	1	2	14	1		0	0	37	308	487	57	352
																	AVE. 352

NORMALIZING 810 C X 40 MINUTES AIR COOLING The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.

(Note 1) : Specification of Ti Composition (%) : Max 11 (Ti x 100) Material according to ANSI/ASME MR0175/ISO 15156-2-2009 Annex A & MR0103-2012 (SSC Region 3)

*Fully killed and fine grain practiced" "Steel making process : Basic Oxygen" Tensile test with longitudinal specimen and 50 mm. gauge length.

C.E. = C+Mn/61(Cr+Mo+V)/5+(Ni+Cu)/15

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and slip with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
 Form.TZ-6/11

Rungrapa Kamphae
 Quality Assurance Manager
 Thai Benkan Co., Ltd.

MTR #28

ITEM # 7

CE = 0.29

Order#: 482967 Seq: 7 PO#: 4500084343 Heat#: A697 Mill: Chup Hsin Enterprise Co
 Part#: WF 12.80 90 L6C Part Desc: Weld Fittings 12 (323.8mm O.D.) Sch.80 LR 90 DEG ELBOW A/SA420-WPL6 COMM.

INSPECTION CERTIFICATE



Customer : SEYBOLD INTERNATIONAL CORP.
 Product : SMIS LOW TEMPERATURE CARBON STEEL BW FITTINGS
 Spec : ASME SA420/ ASTM A420 WPL6-14
 CSA Z245.11-13 Gr 2A1 Cat II/
 EN10204 3.1/NACE MR0175-09/
 ISO 15156-09/MRO103-12

(MILL TEST)
 ACCORDANCE WITH EN 10204-3.1
 CHUP HSIN ENTERPRISE CO., LTD.
 17, TUNG LI ROAD HSIAO KANG,
 KAOHSIUNG, TAIWAN, R.O.C.
 TEL:(07)831-9157 FAX:(07)821-7500, 831-2942

Certificate No : 00500004-0101
 Order No : 7011166
 Date : 2016/02/18

Starting Material		Specification for Inspection				Visual Inspection			Dimensional Inspection						
ASTM A333 GR-6		ASME B16.9-2012				GOOD			GOOD						
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test			Ave.					
							Test Temp	Size of specimen	Charpy V-Notch Impact Value J						
2	90 E L/R SMLS WPL6 S80	12	A697	341697	TPCO C102100010511		-45	10 X 10 X 55	44	35	42	40.33			
3	90 E L/R SMLS WPL6 S80	12	A697	341697	TPCO C102100010511		-45	10 X 10 X 55	44	35	42	40.33			
4	90 E L/R SMLS WPL6 S80	12	A697	341697	TPCO C102100010511		-45	10 X 10 X 55	44	35	42	40.33			
Specifi- cation	Chemical Composition%								Hardness Test		Heat Treat- ment	REMARK			
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V			Nb	C.E	Y.S
	X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X1000	X1000	X100	P.S.I	P.S.I	%
Min.		15	50										35000	60000	30
Max.	30	40	135	40	40	40	40	40	12	80	20	30		95000	
2	15	23	85	12	6	6	1	3	0.2	2	2	31	44737	68926	33.2
3	15	23	85	12	6	6	1	3	0.2	2	2	31	44737	68926	33.2
4	15	23	85	12	6	6	1	3	0.2	2	2	31	44737	68926	33.2
ELONGATION SPECIMEN															
NORM.															
910°C															
12.5mm Round Longitudinal															
x0.75HR															
AC															
12.5mm Round Longitudinal															

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

L.S. Tsai

Chief of Quality Assurance Section

MTR # 29

ITEM # 7

CE = 0.37

Order#: 482967 Seq: 7 PO#: 4500084343 Heat#: D1JHT Mill: Erne Fittings
 Part#: WF 12 80 90 L66 Part Desc: Weld Fittings 12 (323.8mm O.D.) Sch. 80 LR 90 DEG ELBOW A/SA420-WPL6 COMM.

erne fittings gmbh A-6824 Schlins Hauptstrasse 48 Austria/Europe Telefon ++43/5524 501-0 Telefax ++43/5524 501-930 Reg. No. 12 100 364		Abnahmeprüfzeugnis Inspection Certificate EN 10204 - 3.1		Artikelbezeichnung [designation] elbows LR 90 DEG ELBOW A/SA420-WPL6 COMM.	
Kunde [customer] Comco Pipe & Supply Company 5910 - 17 Street N.W. CDN-T6P 1S5 Edmonton, Alberta		Zeugnis Nr. [cert. no.] 011710/16-EM Datum [date] 05/04/2016 Code-Nr. [code no.] Ident. Nr. [ident. no.] D1JHT Unsere Auftrags-Nr./Art.Nr. [our order no./item no.] 181325DM-0050 / 002483 Ihre Bestell. Nr. [your order no.] E1-6827 Menge [quantity] 30		Anforderungen der Bestellung [requirements of the order] ASME B16.9-2012 LR, material WP.L6, TR-fitting ASTM A 420/A 420M-14, ASME SA-420/SA-420M-15, TR-addit fitting NACE MR0175/ISO15156-2:2009A.2, NACE MR0103-2012 2.1 and 4, certificate: EN 10204/3.1, rust protection: Millstandard, Impact-test: -50°C, execution: Seamless, This material meets the mech. and chem. req. of CSA Z245.11-13 Gr. 290 Cat. II	
Vormaterial [base material] 14042215 Rohrzeugnis-Nr. [tube work's cert. no.] TPCO		Hersteller [manufacturer] TPCO		Dichtheitsprüfung [leakage test] ASTM E570	
Analyse [analysis] Index 1 Schmelze Nr. [heat no.] 140197 Erhmelzungsart [melting process] E 1 = Schmelzanalyse [heat analysis] CEQ [CEQ]: J-Faktor [J-Factor]: (Si + Mn) * (P + Sn) * 10000 C + (Mn / 6) + (Cr + Mo + V) / 5 + (Cu + Ni) / 15		C 0.16 Si 0.21 Mn 1.14 P 0.007 S 0.003 Cr 0.08 Mo 0.03 Ni 0.04 Cu 0.06 Nb 0.01 V 0.01 Al 0.035 B <0.0005 Ti 0.01 N 0.0060 Ca 0.0027 Ceq 0.37		Härteprüfung [hardness test] 140-151 HB Wärmebehandlung [heat treatment] quenched and tempered temperature 940 °C / 640 °C Cooling in water (in molten) / in still air	
Proben Nr. [test no.] EC6_266 Zugversuch [tensile test] Dehngr. [yield str.] Rp 0.2 398 Temp. +22 °C Dehngr. [tensile str.] Rm (MPa) 519 PR-Lage [pos. of sample] L PR-Lage [pos. of sample] L Dehnung [elongation] AD (%) 34 Temp. - 50 °C Querschnitt [cross sec] (mm²) 80 Kerbschlagarbeit [impact values] (J) 234-223-247		Mech.-technologische Prüfung [mech. technological test] Kerbschlagbiegeversuch [notched bar impact test] Form: ISO-V		Zusatzmarkierung [add. mark.] Die gelieferten Produkte erfüllen die in der Bestellung festgelegten Anforderungen. [The products supplied are in compliance with the requirements of the order]. The products were manufactured, sampled, tested and inspected in accordance with the specifications and were found to meet the requirements. Abnahmebeauftragter [inspection representative] 05/04/16 Ender Mathias Dieses Dokument wurde elektronisch erstellt und ist ohne Unterschrift gültig. [The certificate is issued by the computerized system and is valid without signature.] S - 322	
Kennzeichnung [marking] @ QS AUSTRIA / A / SA420 / WPL6 / D1JHT / 12" / S80		Besichtigung und Ausmessung [visual inspection and dimensional check] o.B./o.K.		Benmerkungen [remarks] hot formed over mandrel	

MTR # 30

ITEM # 7

Order#: 482967 Seq: 7 PO#: 4500084343 Heat#: XW32 Mill: Vallourec Fittings
 Part#: WF 12 80 90 L6C Part Desc: Weld Fittings 12 (323.8mm O.D.) Sch.80 LR 90 DEG ELBOW A/SA420-WPL6 COMM.

CE = 0.36



Vallourec Fittings
 Vallourec Fittings = former Interfit (Name Change 01/10/2013)
 B.P 10132 59602 MAUBEUGE FRANCE
 Tél : 03.27.69.11.01

Raccords à Souder
 Butt Welding Fittings
 Schweissformstücke

Client : COMCO PIPE-EDMONTON WAREHOUSE
 Consignee 4203-53RD AVENUE
 Besteller EDMONTON, AB

COMCO PIPE SUPPLY COMPANY
 5910 - 17th Street
 PO BOX 457
 Canada

INSPECTION CERTIFICATE
 EN 10204 3.1

GQ-0001

N° de Cde Usine
 Mill Ref 1500891 003
 Werks-Nr 1601500

N° Certificat
 Certificate Nr 16-04603
 Zeugnis Nr

Cde Client N° : E1-6548
 Your Order Nr VM3876
 Bestell-Nr

Spécifications :
 Specifications :
 Spezifikationen :

Acier et Normes WPL6 ASTM A420 (2014) ASTM A960 (2015)
 Steel and Standard ASME SA420 SII - Part A (2015)
 Werkstoff und Norm ASME B16-9 (2012) ASME B16-25 (2012)
 NACE MR0175 / ISO 15156 (2009) NACE MR0103 (2012)

PED 97/23/EC Annex 1 par 4.3 + 7.5
 Certificate No : 01 202 F/Q-02 0035
 ASME SA 420 Section II - Part D - Table Y1 (2013)

Matière de départ
 Raw Material / Werkstoff

Tubes sans soudure / Seamless Tube / Nahtlose Rohre
 Acier procédé Oxygène / Oxygen Steel / Sauerstoff Stahl

VALLOUREC DEUTSCHLAND - Rath
 Acier calmé / Killed Steel / beruhigter Stahl

Etat de livraison
 Delivery Condition / Lieferzustand

Formés à chaud entre / Hot formed between / Warm verformt / 780°C - 980°C
 Normalisé / Normalized / Normalisierend 920°C

Marquage
 Marking / Stempelung

Sur pièces en creux low stress
 Low stress hard stamp
 Kennzeichnung auf dem Fitting durch kerbfreie Einprägung

V" 12" S 80 WPL6 FRANCE XW32

If = Starting April 2014

Poste N°
 Item Nr
 Pos Nr

Nombre
 Number
 Stückzahl

N° Certificat Matière
 Raw Material
 Rohzeugnis Nr

Code
 Marking
 Markierung

Coulée N°
 Heat Nr
 Schmelze

Dimensions / Sizes / Abmessungen

003

5

64403RS15

XW32

335489

90° LONG RADIUS ELBOW 12" S 80

CARACTERISTIQUES CHIMIQUES - CHEMICAL ANALYSIS - SCHMELZENANALYSE

Sur Tube
 On pipe analysis

Coulée N° Heat Nr Schmelze	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	V	Al	Sn	Ti	Nb	B
	0.300	0.150 0.400	0.500 1.350	0.035	0.040	0.300	0.120	0.400	0.400	0.080				0.020	
335489	0.180	0.240	0.940	0.014	0.002	0.080	0.030	0.030	0.030	0.002	0.027	0.002	0.004	0.001	

Carbone équivalent / Carbon equivalent / Kohlenstoffäquivalent
 C F : C + (Mn / 6) = 0.337

(Maxi : 0.41)
 L F : C + (Mn / 6) + ((Cr + V + Mo) / 5) + ((Cu + Ni) / 15) = 0.363

CARACTERISTIQUES MECANIQUEES MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN

Sur Matière de départ
 from Raw Material
 vom Vormaterial

Essais de Traction / Tensile Tests / Zugversuch			(longitudinal direction)		Dureté Hardness test on fittings Härte HBW
Limite Elastique Yield Point / Streckgrenze Re	2	240 MPA	Résistance Rupture Tensile strength / Zugfestigkeit 415 ≤ Rm ≤ 585 MPA	Allongement Elongation / Dehnung 2" A% ≥ 30	
334 MPa			473 MPa	2" 47,5 %	146 147 145

Résilience / Impact Test / Kerbschlagarbeit : Sur pièces / On fittings / am Fittings

Essai Test Versuch	Test 1	Test 2	Test 3	Moyenne Unité Mean Units Mittelwert Einheit	Type : KV Specimen Muster	Température -46° Celsius or -50.8°F PED 97/23/EC Annex 1 Par 4.3 + 7.5
Kvc 10x10	≥ 13	≥ 13	≥ 13	≥ 17		
15-00602	66,1	88,8	117,8	90,9 Joules	10 x 10 mm	Long / Long / Längs



Date : 20/04/2016
 LE RESPONSABLE
 QUALITE
 P. LEFEBVRE

WE CERTIFY THAT THE DELIVERED PRODUCTS WERE
 MANUFACTURED, SAMPLED, TESTED AND INSPECTED IN
 ACCORDANCE WITH THE SPECIFICATION OF THE ORDER.

MTR # 31

Order#: 482967 Seq: 8 PO#: 4500084343 Heat#: LD141007-04 Mill: LUDA Development Ltd
Part#: WF 2 80S 90 316 Part Desc: Weld Fittings 2 (60.3mm O.D.) 80S LR 90 DEG ELBOW A403-WP316/316L SS



LUDA
DEVELOPMENT LTD.

HONG KONG OFFICE: UNIT H1, 3/F, KAISER ESTATE PHASE 2, 47-53 MAN YUE STREET, HUNGKONG, KOWLOON, HONG KONG.
UNIT L1, 3/F, KAISER ESTATE PHASE 2, 47-53 MAN YUE STREET, HUNGKONG, KOWLOON, HONG KONG.

LUFA (TIANJIN) INDUSTRIAL CO., LTD.
WANG GUO DAI TOWN PECHING CITY SHANDONG CHINA
TEL: (852)2594 8774 FAX: (852)2714 3493
E-mail: info@luda.hk Website: www.luda.hk.com

INSPECTION CERTIFICATE (EN 10204 3.1)

ORDER NO. EP 115530				CONTRACT NO. L021481		ARTICLE FITTING		MATERIAL GRADE ASTM A516 / SA516-11 Wp 116010L-5		PRODUCT STANDARD ASME B16.3 - 2012		CERT. NO. A1505-05		DATE: 18 Feb 15	
PURCHASER: UNIFORM ALLOY'S (EDMONTON) LTD				RE: HEAT NO.		HEAT TREATMENT: SOLUTION ANNEALED		SOLUTION ANNEALED		INSPECTION (SATISFACTORY)		TEMPERATURE: 1007°C			
ITEM NO.	HEAT NO.	SIZE INCH	WALL THK.	DESCRIPTION		METHOD		QUANTITY (PCS)		VISUAL AND DIMENSIONAL INSPECTION					
51	L0140627-12	6"2"	40S	RED TEE		SA1S		15		☒					
52	L0140627-12	4"x3"	40S	RED TEE		SA1S		10		☒					
53	L0141007-04	2"x3"	80S	CON RED		SA1S		42		☒					
54	010-301	3"x1.127"	80S	CON RED		SA1S		5		☒					
55	L0141029-07	4"x2"	80S	CON RED		SA1S		6		☒					
56	L0141007-04	2"x1.127"	80S	CON RED		SA1S		10		☒					
57	1340271	1/2"	80S	WOD ELBOW LR		SA1S		25		☒					
58	L0140713-10	3/4"	80S	WOD ELBOW LR		SA1S		17		☒					
59	L0140723-07	1"	80S	WOD ELBOW LR		SA1S		30		☒					
60	L0141005-04	2"	80S	WOD ELBOW LR		SA1S		75		☒					

CHEMICAL COMPOSITION										MECHANICAL PROPERTIES				
ITEM NO.	HEAT NO.	C	Mn	P	S	Si	NI	Cr	Mo	TENSILE STRENGTH	YIELD STRENGTH	ELONGATION %	HARDNESS	
		%	%	%	%	%	%	%	%	MPa	MPa	(in 2 inch)	HRB	
51	L0140627-12	0.028	2.00	0.045	0.006	1.00	10.00	10.00	2.00	510	205	22	80	
52	L0140627-12	0.027	1.16	0.024	0.002	0.47	12.21	16.52	2.35	507	273	48	80	
53	L0141037-04	0.025	1.14	0.029	0.002	0.35	10.13	16.14	2.42	506	274	61	75	
54	010-301	0.026	1.16	0.024	0.002	0.47	10.25	16.43	2.22	507	272	55	70	
55	L0141029-07	0.027	1.14	0.029	0.003	0.35	10.13	16.34	2.05	506	275	63	65	
56	L0141007-04	0.025	1.14	0.029	0.002	0.35	10.13	16.14	2.42	506	274	61	75	
57	1340271	0.024	0.50	0.031	0.004	0.55	10.40	16.50	2.14	507	281	56	70	
58	L0140713-10	0.025	1.16	0.024	0.002	0.47	10.25	16.25	2.24	579	267	50	80	
59	L0140723-07	0.028	1.16	0.024	0.002	0.47	10.33	16.53	2.22	573	281	48	80	
60	L0141005-04	0.025	1.14	0.029	0.002	0.35	10.13	16.14	2.42	506	274	61	75	

We hereby certify that the product described herein has been made in accordance with the above specifications and also with the requirements called for by the above order and which has been tested to the satisfaction of the Inspector.

Standard Machinery approved with Certificate no. 37-102-123-123-123; TUV RCM to issue Certificates of specific product conformity in accordance with Pressure Equipment Directive 97/23/EC Annex 1, Article 4.3

Standard Machinery approved with Certificate no. 04/001-3008 Certificate no. 04/001-02-2555 and ISO 14001:2015 Certificate no. 01112E2003LR14

Standard Machinery approved with Certificate no. 04/003-2008 Certificate no. 04-1195-CH

NAME: CHEN YINCHEN ID: 2020010101010101

MTR # 32

Order#: 482967 Seq: 9 PO#: 4500084343 Heat#: 63Z7907 Mill: KT Fittings Sdn Bhd
Part#: WF 6 STD 90 316 Part Desc: Weld Fittings 6 (168.3mm O.D.) STANDARD LR 90 DEG ELBOW A403-WP316/316L SS

CERTIFICATE NO : 9137170 (3) DATE : 10/04/2015
CONTRACT NO : 9206886
SHIPPER : KT FITTINGS SDN BHD
ORDER NO. : EP-116869
CUSTOMER : UNIFIED ALLOYS
PRODUCT : STAINLESS STEEL BUTT WELD FITTINGS
SPECIFICATION : ASTM A403/ASME SA403-13

MILL TEST REPORT IN ACCORDANCE TO EN 10204 3.1



KT FITTINGS
S E N D I R I A N B E R H A D
KT Fittings Sdn Bhd
Company No: 639955-H
Lot 8095, Jalan Sungai Rasau 32, Kawasan 16, Sungai Rasau,
41300 Klang, Selangor Darul Ehsan, Malaysia
Tel : +603-3344 9733 Fax : +603-3344 9722
Website : www.ktfittings.com Email : ktfittings@ktfittings.com

PRODUCT SIZE	QUANTITY PCS	TOTAL LENGTH	WEIGHT KGS	HEAT NUMBER	TENSILE TEST				HARD- NESS TEST HRC	FRACTURE TEST MPA	FLAT TENSILE TEST	CORROSION TEST IN ACCORDANCE TO	CHEMICAL COMPOSITION (W%)							
					YS	TS	EL	LB					C	SI	Mn	P	S	Ni	Cr	Mo
					N	N	N	N					X 100	X 100	X 1000	X 1000	X 1000	X 100	X 100	X 100
WP316/316L W X 3"	5	-	11	6387308	205	515	28	79	-	-	-	-	3.0	100	200	45	30	1040	1600	200
X SCH40S X 90 LR ELBOW													2.8	34	127	27	2	1400	1800	300
WP316/316L W X 3"	18	-	83	6387310	281	595	53	79	-	-	-	-	2.4	62	93	34	3	1013	1666	203
X SCH40S X 90 LR ELBOW													2.4	56	106	29	2	1021	1690	311
WP316/316L W X 3"	3	-	7	6387317	311	611	46	80	-	-	-	-	2.4	56	106	29	2	1021	1690	206
X SCH40S X 90 LR ELBOW													1.7	46	121	32	1	1007	1657	204
WP316/316L W X 3"	4	-	9	6387318	311	611	46	80	-	-	-	-	1.7	46	121	32	1	1007	1657	204
X SCH40S X 90 LR ELBOW													2.2	47	183	32	1	1010	1700	207
WP316/316L W X 4"	38	-	158	6387206	296	579	48	85	-	-	-	-	2.2	47	183	32	1	1010	1700	207
X SCH40S X 90 LR ELBOW													2.5	45	124	26	1	1004	1651	201
WP316/316L W X 4"	12	-	50	6387721	296	565	48	83	-	-	-	-	2.5	58	102	31	2	1006	1675	208
X SCH40S X 90 LR ELBOW													2.0	48	115	20	1	1020	1660	204
WP316/316L W X 6"	12	-	115	6377907	303	589	55	87	-	-	-	-								
X SCH40S X 90 LR ELBOW																				
WP316/316L W X 6"	3	-	29	6377908	309	592	54	87	-	-	-	-								
X SCH40S X 90 LR ELBOW																				
WP316/316L W X 1" X 3/4"	5	-	1	6385611	310	565	50	83	-	-	-	-								
X SCH10S X CON REDUCER																				
WP316/316L W X 3" X 2"	30	-	15	6387715	290	579	49	85	-	-	-	-								
X SCH10S X CON REDUCER																				
WP316/316L W X 1-1/2" X 1"	6	-	1	6388615	310	579	50	83	-	-	-	-								
X SCH40S X CON REDUCER																				

QA DEPARTMENT

- Dimensions are in accordance to latest edition of ANSI B16.9
- Dimension as per ASME B16.9 - 2012
- Hardness are in accordance to NACE MR 0175 - 2009 and NACE MR 0103 - 2012

LOW KLEEN HENG
QA NUMBER

HEAT TREATMENT: 1050 DEGREE CELSIUS QUENCHED IN WATER

NOTE: Y.S. = Yield Strength
T.S. = Tensile Strength
EL = Elongation in 50mm
16d = 1600 Psi
114d = 11400 Psi
Country of Origin = Malaysia

A subsidiary of FACB Industries Incorporated Berhad

KY/DOC/QA-22

Order#: 482967 Seq: 9 PO#: 4500084343 Heat#: M150084 Mill: S.P. United Industry SDN. BHD
Part#: WF 6 STD 90 316 Part Desc: Weld Fittings 6 (168.3mm O.D.) STANDARD LR 90 DEG ELBOW A403-WP316/316L SS

INSPECTION CERTIFICATE

Cert. In **UNIFIED ALLOYS (EDMONTON) LTD**



S.P. UNITED INDUSTRY SDN. BHD.
(COMPANY NO. 1015745-M)

COMPANY NO. 368524 W7

P.T. 741745, KAWASAN PERUSAHAAN NDLAJ,
11800 NIMAI NEGERI PERUM.

TEL: 606-7991577 7991676 7991677

E-mail: spunited@compuserve.com / spunited@compuserve.com

Page 11 (R)

SEPTEMBER 30, 2015

Certificate No.: 15-10-0814
(登録番号)

Product
(品名)

STAINLESS STEEL 90 DEG LONG RADIUS ELBOW

Product Specification
(規格)

ASTM A403-2013a / ASME SA403-2013 / ASME B16.9-2012
MSS SP-43-2013 WP-W 316/316L

Specification for Pipe (Raw Material)
(材料規格)

ASTM A312 TP 316/316L

* Size (寸法)	Dimension in mm (寸法)			Heat No. (炉牌番号)	Quantity (数量)	Surface Inspection (外観検査)	Dimension Inspection (寸法検査)	S. P. I. Code No.
	Outside Dia (外径)	Thickness (厚さ)	Radius (半径)					
1 2"x40S	60.33	3.91		M140397	100	GOOD	GOOD	22342000
2 4"x40S	114.30	6.02		M150222	125	GOOD	GOOD	22344000
3 6"x40S	168.28	7.11		M150084 ✓	30	GOOD	GOOD	22346000
4 8"x40S	219.08	8.18		M150073	10	GOOD	GOOD	22348000

Pipe Manufacturer:
(管状造り)

J. J. YC INOX CO., LTD
2.4 KANZEN TEISU SON BHD

Chemical Composition of Pipe (Raw Material) %
(化学成分)

* Heat No. (炉牌番号)	C x 100	Si x 100	Mn x 100	P x 1000	S x 1000	Ni x 100	Cr x 100	Mo x 100	Type of Specimen (試験片)	YS Mpa (引張強さ)	TS Mpa (引張強さ)	EL% (伸率) (GL-50mm)	EL% (伸率) (標準値)	Flattening Test (へら試験)	HT Mpa (引張強さ)	Hardness Test HRB
1 M140397	2.1	53	100	27	2	1019	1688	207		286	607	53		GOOD	GOOD	76
2 M150222	1.9	33	138	28	1	1005	1676	202		334	603	50		GOOD	GOOD	85
3 M150084	2.1	56	97	30	2	1014	1679	206		319	581	54		GOOD	GOOD	85
4 M150073	2.0	36	141	31	2	1010	1670	203		301	601	52		GOOD	GOOD	83
Specification	MAX 3.0	MAX 100	MAX 200	MAX 45	MAX 30	MAX 1800	MAX 1600	MAX 200		MIN 205	MIN 515	MIN 28				

YS=Yield Strength (0.2%), EL=Elongation, H=Hardness Test
TS=Tensile Strength, OI=Gauge Length, HT=Hydrostatic Test
Mechanical Properties of Pipe (Raw Material)
(機械的性質)

Remarks
* Hardness sec. to NACE MR0175 / ISO 15156-3: 2009, MR01 03:2012
INTERGRANULAR CORROSION TEST (ASTM A262B) - OK, PMI CHECK GOOD, ISO 9001 / EN 10904: 2009
AFTER TREATMENT: 1000 DEGREE C FOR 1 HOUR

Certificate No. : 15-10-0814
(管理番号)

TEL 006-7993577, 7993676, 7993677 FAX: 006-7993466
E-mail: spunitest@amanytc.com / spunitest@amanytc.com

MATERIAL WAS MAINTAINED AT 180 DEGREES CELSIUS QUENCHED IN WATER

MATERIAL IS FREE OF MERCURY CONTAMINATION AND IS FREE OF WELD REPAIR.

上記の製品は、当該煩瑣及び、注文の要求事項に適合するものと認めます。

THE PETER

MTR # 36
35



MILL TEST CERTIFICATE

PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD. (733428W)
 (A MEMBER OF PANTECH GROUP HOLDINGS BERHAD, LISTED ON MAIN MARKET OF BURSA MALAYSIA)
 PTD 204334, JALAN PLATINUM UTAMA
 KAWASAN PERINDUSTRIAN PASIR GUDANG, ZONE 12B, 81700 PASIR GUDANG
 JOHOR DARUL TAKZIM, MALAYSIA
 Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechssalloy.com
 http://www.pantech-group.com



Cert. No.: KJR 6012814

PED CERTIFICATE NO.:
0038/PED/MUM/111006/1

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

Customer:
Product:

Seamless Austenitic Stainless Steel Fitting

Certificate No: PSA3-FT-2041
Date: 29 Sept 2015

PO No.		Invoice No.		Product Specification		Dimension & Inspection Specification		Date: 29 Sept 2015							
70313APSS		E0000000365		ASTM A403/A403M - 14 / ASME SA 403/SA403M - 13		ASME B16.9 - 12 / ASTM A960/A960M - 10 / ASME SA 960/SA960M - 10									
Heat No.		Product & Size		Quantity (pcs)		Material Grade		Visual / Dimension / PMI Examination		Remarks					
EBA014-02-103LR		8" SCH 10s 90° LR ELBOW		37		WP316/316L-S		PASSED		-					
DRA014-01-103LR		10" SCH 40s 90° LR ELBOW		2		WP316/316L-S		PASSED		-					
EBA022-02-103LR		10" SCH 40s 90° LR ELBOW		13		WP316/316L-S		PASSED		-					
EBA011-01-103LR		8" SCH 40s 90° LR ELBOW		42		WP316/316L-S		PASSED		-					
DRA039-03-103LR		8" SCH 40s 90° LR ELBOW		8		WP316/316L-S		PASSED		-					
Specification		Chemical Composition (%)													
Max		C	Si	Mn	P	S	Cr	Ni	Mo	Pb	YS (KSI/MPa)	TS (%)	Hardness (HRB)	Inter-granular corrosion test	
Min		0.030	1.00	2.00	0.045	0.030	18.00	14.00	3.00	-	-	-	90		
Heat No.		-	-	-	-	-	16.00	10.00	2.00	-	-	-	-		-
EBA014-02-103LR		0.025	0.36	0.06	0.034	0.002	16.59	11.10	2.03	< 0.10	205	515	28		-
DRA014-01-103LR		0.024	0.50	1.09	0.042	0.004	16.73	11.15	2.06	< 0.10	250	560	50		PASSED
EBA022-02-103LR		0.026	0.35	0.60	0.030	0.004	16.66	11.05	2.12	< 0.10	280	595	53	PASSED	
EBA011-01-103LR		0.012	0.35	0.93	0.035	0.001	16.94	11.24	2.05	< 0.10	235	540	44	PASSED	
DRA039-03-103LR		0.024	0.50	1.09	0.042	0.004	16.73	11.15	2.06	< 0.10	267	573	60	PASSED	
										< 0.10	285	595	54	PASSED	
WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED, SAMPLED, TESTED & INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATION AND WAS FOUND SATISFIED TO THE REQUIREMENTS. HAS BEEN MANUFACTURED IN THE UNITED STATES OF AMERICA.															

WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED, SAMPLED, TESTED & INSPECTED IN ACCORDANCE WITH TYPE 3.1
 AND WAS FOUND SATISFIED TO THE REQUIREMENTS. MATERIAL IS FREE FROM MERCURY & RADIOACTIVE CONTAMINATION.

NOTE: MADE IN MALAYSIA

PIPE RAW MATERIAL - WELDING BY ELECTRIC FUSION WELDING PROCESS

INTERGRANULAR CORROSION TEST ACCORDING TO ASTM A262-10 PRACTICE E

HARDNESS ACCORDING TO NACE-MR-01-75 (1980 Revison) / ISO 15156 - 09 & NACE MR0100-2012

HEAT TREATMENT: SOLUTION TREATED AT MINIMUM 1050°C, RAPIDLY COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL'S HEAT ANALYSIS

*1 YS: YIELD STRENGTH TS: TENSILE STRENGTH E: ELONGATION

[Signature]
 Head of Quality Assurance Department
 Haziqah Abd Talhar

Order#: 482967 Seq: 14 PO#: 4500084343 Heat#: 98473/1 Mill: Bebitz
Part#: F 3 1 R B 316 Part Desc: Flanges 3 (88.9mm O.D.) 150# RAISED FACE BLIND A182-F316/F316L SS



BEBITZ



Flanschenwerk Bebitz GmbH - Lebendorfer Str. 1 - 06420 Bebitz / GERMANY
Tel. +49 34691 40 0 - Fax +49 3469140 329 - Email: flanges@bebitz.de
Bebitz Flanges Works Pvt. Ltd. - Survey No. 140/2, Saravali Boisar - Taluka Palghar - Thane 401501 -
Maharashtra, INDIA Tel. +91-0-9049991039/42/43 - Fax +91-0-2525 274266/67 - Email: quality@bebitz.in

Abnahmeprüfzeugnis 3.1 / Inspection certificate 3.1 / Certificat de reception 3.1
nach (A02) / acc. DIN EN 10204 : 2005 Nr. (A03) / No.15-55383 Datum (Z02) / Date 06-04-2015

Zeichen des Herstellers (A04)
Manufacturer's brand



Stempel des Abnehmers (Z03)
Stamp of the testing engineer



Überprüft als Hersteller nach AD-Merkblatt W0 / TRD100 und VdTUV Werkstoffblätter 350/3, 354, 399. / Approved as manufacturer acc. AD-Merkblatt W0 / TRD100 and VdTUV Material Sheets 350/3, 354, 399.
Zertifiziert nach DGR 97/23/EG durch TÜV CERT Zertifizierungsst. für Druckgeräte der TÜV NORD GmbH Co KG, Benannte Stelle Nr. 0045. / Certified acc. to PED 97/23/EC, certifying body for pressure equipment TÜV NORD GmbH Co KG, registration no. 0045.

Besteller Unified Alloys (Edmonton) Ltd
(A06) 8835-50 AVENUE
Customer EDMONTON, AB T6E 5H4 CANADA

Bestell-Nr (A07) / Order-No EP-116548
Auftrag (A08) / Order BFW/3190
Lieferschein / Delivery No. 2536118
Position (B07.1) / Item 6

Stck (B08) Bezeichnung (B01; B09 - B11)
Quantity Product

200 **3 inch Blind Flange 150 lbs raised Face**

Schmelze/Prüflos (B07)
Heat no./Test no.

98473/1

Material F 316/F 316L ASTM A 182M-11a / ASME SA-182M
(B02; B05) austenitis. > 1040 °C and quenched in water

Anford. ASME B 16.5-2003
(B03) NACE MR0175-2011 / MR0103-2010 - DIN EN ISO 15156-3 : 2009
Require- 2011a ASME Boiler & Pressure Vessel Code - Section II Part A
ments PMI-tested 100%, IGC-test acc. to DIN EN ISO 3651-2 Test A / ASTM A 262 practice E

Schmelzenanalyse (C71 - C92) / Ladie analysis

Erschmelzung (C70) / Melting process E

C	Si	Mn	P	S	Cr	Ni	TI	Mo	Nb	V	N	Cu	Al	PREN
0.021	0.45	1.59	0.039	0.022	16.80	10.02		2.05			0.070			24.68

Mechanische Prüfungen / Mechanical tests

$$CEV = C + \frac{Mn}{6} + \frac{V + Mo + Cr}{5} + \frac{Ni + Cu}{15} \quad PREN = Cr + 3.3 \times Mo + 16 \times N$$

Probenlage (C02): q/t / Position of Specimen: q/t Tensile Test - ASTM A 370						KV / Charpy Impact Test EN ISO 148-1 (V-notch, Position of specimen: q/t)			Härte (C32) Hardness ISO 6506-1			
Temp (C03) °C	Streckgr. (C11) / Yield strength 0,2% N/mm²		Zugfestigk. (C12) Tensile strength N/mm²		Dehng. (C13) Elongation %	Einschnürr. Red. of area %	Temp. (C03) °C	Einzelwerte (C42) Single values J		MW (C43) Average J	HBW 10/3000	
20	min	205		515	30.0	50	20					
	max											
20		310	341	556	60.2	68	20	160	164	168	164.0	162

Besichtigung und Ausmessung ohne Beanstandungen. (D01) / Results of inspection and dimension without objections.
Die gestellten Anforderungen sind erfüllt. (Z01) / The product meets the requirements.

Ranjan Kumar Jena,
Inspection Representative of the Manufacturer (Z02)
Bebitz Flanges Works Pvt. Ltd. Saravali Boisar, INDIA

Ranjan

MTR # 37

Order#: 482967 Seq: 16 PO#: 4500084343 Heat#: 517056 Mill: San Eng Steel
 Part#: F 2 6 R B L F Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE BLIND A/SA350-LF2 CL1

Certificate No.: SE1558A2
 Date: 04/27/2016
 Page: 1 OF 2

(MILL TEST CERTIFICATE)
 EN10204-3.1.B(DIN50049/3.1.B)
 Customer: SEYBOLD INTERNATIONAL CORP.
 Order No.: 7011658(1)-COMCQ

SAN ENG STEEL FORGING CO LTD
 311, Jen Hein Road, Jen Wu District
 Kaohsiung, Taiwan, R.O.C.
 TEL: 07-3724248 ; FAX: 07-3712923
 URL: www.saneng.com.tw
 e-mail: saneng@ksts.seed.net.tw



PRODUCT			MATERIAL SPECIFICATIONS			DIMENSIONAL SPECIFICATIONS												
FORGED CARBON STEEL FLANGES			ASTM A-350 LF2-15 CL-1/ASME SA-350 LF2-13 CL-1			ASME B16.5-13 CSA Z245.12												
Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)														CE(%)
				C	Si	Min	P	S	Cu	Cr	Ni	Mo	V	Nb	N			
1		600 BLRF 2" LF2	25 PCE	0.209	0.280	1.120	0.018	0.008	0.018	0.043	0.058	0.005	0.011	0.001	0.004			
2		300 BLRF 3" LF2	50 PCE	0.210	0.200	1.120	0.015	0.003	0.010	0.010	0.010	0.002	0.005	0.001	0.007			
3		600 THRF 3" LF2	10 PCE	0.220	0.220	1.180	0.016	0.006	0.009	0.020	0.005	0.005	0.001	0.007	0.401			
4		300 BLRF 4" LF2	50 PCE	0.207	0.240	1.130	0.015	0.012	0.007	0.033	0.049	0.005	0.006	0.005	0.408			
5		150 BLRF 6" LF2	25 PCE	0.220	0.210	1.170	0.019	0.007	0.010	0.010	0.010	0.004	0.004	0.001	0.420			
6		300 BLRF 8" LF2	50 PCE	0.200	0.210	1.140	0.022	0.004	0.010	0.030	0.010	0.001	0.004	0.001	0.398			
7		300 WNRF XS 10" LF2	20 PCE	0.220	0.180	1.130	0.020	0.007	0.009	0.020	0.010	0.002	0.004	0.002	0.415			
8		600 WNRF XS 10" LF2	20 PCE	0.210	0.210	1.170	0.020	0.007	0.010	0.010	0.010	0.002	0.006	0.003	0.410			
9		600 WNRF XS 2" LF2	200 PCE	0.200	0.210	1.110	0.018	0.009	0.007	0.010	0.010	0.004	0.004	0.001	0.390			
10		600 WNRF XS 2" LF2	10 PCE	0.200	0.210	1.110	0.018	0.009	0.007	0.010	0.010	0.004	0.004	0.001	0.390			
Item No.	Heat No.	T.S.(*) (MPa)	Y.S.(*) (MPa)	E.L.(*) (%)	Hardness (HB)	R.A.(*) (%)	Impact Test Temp: -46°C			Material Supplier	HEAT TREATMENT(*)		REMARKS					
							Minimum	2	3		N	H						
1	517056	524.0	339.0	36.0	153/150	70.4	121.0	141.0	129.0	NTMK	880°Cx4HRS	CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A.						
2	4888442	524.0	376.0	36.0	153/151	70.0	104.0	80.0	83.0	ACOMINAS	CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A.							
3	4803012	529.0	368.0	35.0	153/151	71.3	90.0	51.0	84.0	ACOMINAS	CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A.							
4	511985	527.0	374.0	35.4	153/151	70.4	123.0	114.0	127.0	NTMK	CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A.							
5	2807068403	531.0	370.0	35.8	154/151	70.4	108.0	103.0	115.0	ACOMINAS	SERVICE-09 (FOR USE AS WELDING NECK AND BLIND FLANGES ONLY)							
6	4723483	516.0	368.0	37.0	152/150	69.5	124.0	84.0	115.0	ACOMINAS	TEST SPECIMEN SIZE: 10X10							
7	4803156	516.0	366.0	36.4	153/150	70.4	114.0	107.0	67.0	ACOMINAS	TRANSVERSE IMPACT TEST TEMP: -46°C							
8	4888479	522.0	374.0	34.4	153/149	69.5	151.0	84.0	102.0	ACOMINAS	MIN TO C RATIO IS GREATER THAN 3.0"							
9	2807068103	514.0	378.0	35.6	152/150	70.4	120.0	121.0	122.0	ACOMINAS	FORGING REDUCTION RATIO: 6.5							
10	2807068103	514.0	376.0	35.6	152/150	70.4	120.0	121.0	122.0	ACOMINAS								
*1. T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.																		
*2. N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.																		
*3. C.E. Value = C + (Mn/8) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15																		
We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.																		
															Manager of Quality Assurance Dept			

Order#: 482967 Seq: 17 PO#: 4500084343 Heat#: TL10009537 Mill: Tri-Lad
 Part#: F 2X.75 6 R T LF Part Desc: Flanges 2 (60.3mm O.D.)X3/4" 600# RAISED FACE THREADED A/SA350-LF2 CL1



ISO 9001:2008

TRILAD Flanges and Fittings, Inc.

172 Turbo Drive
 Sherwood Park, AB, CANADA T8H 2J6
 (PHONE) 780-464-7774
 (FAX) 780-464-0044
www.tri-lad.com

CERTIFIED MATERIAL TEST REPORT

Certificate No. 14202049

EN 10204 3.1

Date of Report 11/26/2014

Customer

AB

Customer Order No.
112614-STKQuantity
50Tri-Lad Order No. Line No.
753745 1

Specification A350-LF2-CL 1	STOCK	Heat Treatment NORMALISED
Item Description 2 X.75 600 THD RF LF2 CL1	(885351)	Temperature Init 1706 F 930 C
Shop Order/Trace No.		Time N=1.15HRS
Lot No.		Lot Definition
Heat Code TL10009537		
C.E. 41	Melt Practice EF	

Chemical Composition										
Heat Product	C .18	Mn 1.18	P .027	S .013	Si .28	Cu .04	Ni .03	Cr .12	Mo .01	V .001
Heat Product	Nb .00									
Heat Product										

Mechanical Properties									
Yield	Tensile	Elongation	Reduction of Area	Hardness	Impact Test	Impact Values			Shear Fracture
Ksi 64	Ksi 81			HBW 159	Temperature	Ft-lbs	81	71	89
Mpa 443	Mpa 555	29 %	48 %	HBW 159	M50 F	Joules	110	96	121
					M46 C				
Tensile Specimen		STD RD							
Lateral Expansion		Impact Type	Impact Orientation	Starting Material			Impact Specimen		
		VNOTCH	TANGENTIAL				FULL SIZE		

Notes	
Cr+Mo <= 0.32%	0.14
Cr+Cu+Mo+Ni+V <= 1.00%	0.22
Mn/C >= 3.0	6.56
CE = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15	0.41
ASTM A350-12 LF2 CLASS 1	CSA Z245.12-09 GR 248 CAT 11 M46C SS
ASME SA350 2010 Ed 2011A Addendum LF2 CLASS	ANSI/NACE MR0175/ISO15156:2009(E)
	NACE MR0103 LATEST ED.
	NACE MR0175/ISO15156-09

Material is in accordance with the applicable Standard to which it is ordered including:
 ASME Sect II, ASME B16.5, B16.9, B16.36, B16.47, CSA, MSS, AWWA C-207.

NO WELD REPAIR

Material conforms to both ASTM (A) and ASME (SA) applicable specifications.

We hereby certify that all information presented on this CMTR conforms to the above specification.

We hereby certify the results to be a true copy of the records of the company.

Troy Gorrell
 Q.C. Inspector

MTR # 39

Order#: 482967 Seq: 22 PO#: 4500084343 Heat#: 35593/20 Mill: Nicola Galperti VA Desc: C/W .75" TAP
Part#: F 2X.75 6 R T LF/52 Part Desc: Flanges 2X.75 600# RAISED FACE THREADED CSA GR359 CAT 2 M45C

 OFFICINE NICOLA GALPERTI E FIGLIO S.p.A. Capitale Sociale € 2.682.500,00 interamente versato Sede Legale e Amministrativa: 23834 DERVID (LO) - Via Enrico Fermi, 48 C.C.I.A.A. Lecco n. 00205890130 - R.E.A. 78818 - C.F. e P.IVA IT00205890130 Stabilimento - Uffici Amministrativi / Warehouse - Offshore - Molding section: 22010 GERA LARIO (LO) - Via Tivolo Fontana, 4 - Tel. 0344-87200 - Fax 0344-87210 E-mail: segreteria@ngf.it - ngf@ngf.it CERTIFICATO DI COLLAUDO EN 10204 TEST CERTIFICATE EN 10204		SPEZZ. LE / MESSRS: COMCO PIPE & SUPPLY CO. LTD A DIVISION OF RUSSEL METALS INC. 5910- 17TH STREET EDMONTON, ALBERTA T5J 2K1 (CA)																	
		NS. ORDINE / INTERNAL JOB 151343																	
CERTIFICATO / M.T. CERTIFICATE N. 001768/1		DATA / DATE 21/01/2016																	
VS. ORDINE / YOUR E1-6435 REV.3 (STOCK)		DATA / DATE 26/10/2015																	
POS / ITEM	DESCRIZIONE / DESCRIPTION	QUANTITA' / QTY	MATERIALE / MATERIAL	N° COLATA / PROVA HEAT N°/TEST N°	ACCIAIERIA STEEL MILL														
013/015	2" 600 LB RF LF/52 B1 FSF4	25.5	ASTM/ASME SA350-LF2-CL	35593/20	RIVA ACC. SPA														
ANALISI CHIMICA / CHEMICAL ANALYSIS																			
#	C %	MN %	SI %	P %	S %	CR %	NI %	MO %	CU %	V %	SN %	AL %	NO %	TI %	N %	B %	H %	O %	
A	0.165	1.160	0.240	0.0090	0.0110	0.070	0.050	0.010	0.130	0.024	0.007	0.0230	0.001	0.013	0.0010	0.0001	0.0001	0.001	
A	0.165	1.165	0.230	0.0080	0.0100	0.065	0.055	0.010	0.125	0.020	0.007	0.0250	0.001	0.013	0.0010	0.0001	0.0001	0.001	
A	CAX																		
A	0.001	0.2840 0.080 0.358 0.39 0.2750 0.075 0.359 0.39																	
NOTE / NOTES 04=Copper+Nickel+Chromium+Molybd.+Vanadium 03=Chromium + Molybdenum FC=Carbon Equivalent Short Formula FL=Carbon Equivalent Long Formula						CIP=NI+CR+MO+V CR=MO C=(MN/5) C+((MN/5)+((CR+MO+V)/5))=((NI+CU)/15)													
CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES						RESILLENZA / CHARTY TEST													
#	TIPO TYPE	DIAMETRO PROVETTA mm-INCH	SEZIONE AREA mm²	LUNGHEZZA LENGHT mm	TEMP. TEMPERATURE °C	ROTTURA TOLE Mda	SNERVAMENTO YIELD Mda	ALL. ELONG %	CONTR. REDUCT. %	TIPO TYPE KV	TEMP. TEMPERATURE °C	VALORI / VALUES Joule			DUREZZA HB HARDNESS (AVERAGE)				
A	S	12.50	122.70	50.00	20	485	360	22.0	30.0		-50	Min. 21 Med. 27			197				
A	O	12.50	122.70	50.00	20	573	382	31.6	21.2		-50	106 - 111 - 115			173				
NOTE / NOTES Lateral Exp/Shear Area: (Average) A = mm.1.30/ 90%						G = CYZENTLE / OBTAINED S = STANDARD													
TRATTAMENTI TERMICI / HEAT TREATMENTS						NOTE GENERALI / GENERAL NOTES													
A	Material: ASTM/ASME SA350-LF2 CL.1 Ed.2014					FINITURE / ROUGHNESS FSF4=Ra = 125 AARB													
A	Normalized at 900 dgr.C for 1 h.-Cooling from 900 dgr.C in still air					STANDARD B1 = ASME B16.5 ED.13 Inch STD													
NOTE / NOTES Finial according to NACE MR-0103 Ed.2012 and NACE MR-0175/ISO 16156 Annex A Ed.2009. Material according to ASME B16.5 Ed.2013.																			
MARCHIO DI FABBRICA TRADE MARK		DATA COLLAUDO INT. INT. INSPECT DATE 21/01/2016		COLLAUDATORE INT. INT. INSPECTOR P. CESARE						Certified acc. PED 97/23/EC By LLOYD'S Register No. LFC 18212									
ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY																			

MT2 # 40

Order#: 482967 Seq: 24 PO#: 4500084343 Heat#: 8913-14/20 Mill: Galperti

Part#: FL 2X1 6 R SW XS LF/52 Part Desc: Flanges 2 (60.3mm O.D.)X1 (33.4mm O.D.) 600# RAISED FACE SOCKET WELD XS BORE CSA GR359 CAT 2 M45C



OFFICINE NICOLA GALPERTI E FIGLIO S.p.A.

Capitale Sociale € 2.817.500,00 interamente versato
Sede Legale e Amministrazione: 23024 DERIVO (BG) - Via Trivio Form. 48
C.G.I.A. A. Lecco n. 65209660138 - R.E.A. 76916 - C.F. e P.IVA 1166228090138
Sede Operativa: Officina dimostrativa / Warehouse - Warehouse: Officina - 02344-97710
23010 QERA LARIO (CO) - Via Trivio Form. 48 - Tel. 0344-97720 - Fax 0344-97710
E-mail: galperti@galperti.com - www.galperti.com

CERTIFICATO DI COLLAUDO EN 10204
TEST CERTIFICATE EN 10204

TIS ORDINE: INTERNAL JOB

131281

SARTI 11-12595

GALPERTI CANADA ULC

3931 - 76 AVENUE
EDMONTON, ALBERTA, T6B 2S8 (CDN)

TAV. ORIGINAL

022694/1

DATA DATE

16/06/2014

UL DNDP: YEAR

E1609 REV.1

DATA DATE

02/08/2013

POS. ITEM	DESCRIPTION	QUANTITA	SA	MATERIALE	MATERIAL	N° COLATA / PROVA	ACCIAIERIA
015/015	FLANGE RAISED FACE HR-01-75	800 S	CSA	Z245.12-13	GR.359 C	8913-14/20	OLIFER/ACP SPA

4 1/2" SW XS

ANALISI CHIMICA / CHEMICAL ANALYSIS

#	C %	MN %	SI %	P %	S %	CR %	FE %	MO %	CU %	V %	SN %	AL %	NI %	TI %	N %	CO %	B %	H %
A	0.180	1.210	0.200	0.0050	0.0020	0.070	0.180	0.043	0.130	0.023	0.007	0.0200	0.0007	0.001	0.0088	0.007	0.0004	0.0002
A C	0.179	1.213	0.226	0.0040	0.0020	0.059	0.171	0.053	0.147	0.020	0.007	0.0360	0.0007	0.001	0.0088	0.007	0.0004	0.0002
A	0.001	0.006	0.002	0.0020										0.41	0.113	0.381	0.42	
A C	0.001	0.006	0.002	0.0020										0.4500	0.112	0.381	0.42	

NOTE / NOTES

C - ANALISI DI PRODOTTO / CHECK ANALYSIS

04=Copper+Nickel+Chromium+Molybd.+Vanadium CU+NI+CR+MO+V
03=Chromium + Molybdenum CR+MO
FC=Carbon Equivalent Short Formula C+(Mn/G)
FL=Carbon Equivalent Long Formula C+(Mn/G)+((CR+MO+V)/5)+((NI+CU)/15)

CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES

TRAZIONE / TENSILE										RESISTENZA / CHARNY TEST			
#	TIPO	DIA. PROVA	SEZIONE	LUNGHEZZA	TEMP.	RETTURA	SPERIMENTO	ALL.	CONTR.	TIPO	TEMP.	VALORI	VALORI
		PROVA	AREA	LENGHT	TEMPERATURE	TENSILE	R.D	ELONG.	REDUCT.	TYPE	TEMP.	Joule	MIN. MED. MAX.
A S		12.50	122.70	50.00	20	455	359	20.0			-50	Min. 27 Med. 27	197
A O		12.50	122.70	50.00	20	554	378	30.2	68.8		-50	94 - 99 - 105	173

NOTE / NOTES

0 - OTTENUTE / OBTAINED
S - STANDARD

TRATTAMENTI TERMICI / HEAT TREATMENTS

A Material: CSA Z245.12-13 GR.359 CAT11 MISC SS
A Normalized at 900 dgr.C for 1 h.-Cooling from 900 dgr.C in still air

NOTE GENERALI / GENERAL NOTES

FINITURA / ROUGHNESS
FSF4+Ra = 125 AARH

STANDARD
B1 = ASME B16.5 ED.13 Inch STD

NOTE / NOTES

Flanges comply with the Requirements specified for Sour Service (Region 3) in HACE HR0103, HACE HR0175/ISO 15156-2 and C When used in the specific conditions detailed in the STD

MARCHIO DI FABBRICA
TRADE MARK



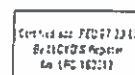
DATA COLLAUDO INT.

16/06/2014

COLLAUDATORE INT.

G. CANCELINI

ENTE UFFICIALE DI COLLAUDO
INSPECTION AUTHORITY



MTR # 41

Order#: 482967 Seq: 29 PO#: 4500084343 Heat#: S12093/1 Mill: Bebitz
Part#: FL 2 1 R W 80S 316 Part Desc: Flanges 2 (60.3mm O.D.) 150# RAISED FACE WELD NECK SCH 80s A182-F316/316L SS



BEBITZ



Flanschenwerk Bebitz GmbH - Lebendorfer Str. 1 - 06420 Bebitz / GERMANY
Tel. +49 34691 40 0 - Fax +49 3469140 329 - Email: flanges@bebitz.de
Bebitz Flanges Works Pvt. Ltd. - Survey No. 140/2, Saravali Bolar - Taluka Palghar - Thane 401501 -
Maharashtra, INDIA Tel. +91-0-9049991038/42/43 - Fax +91-0-2525 274266/67 - Email: quality@bebitz.in

Abnahmeprüfzeugnis 3.1 / Inspection certificate 3.1 / Certificat de reception 3.1

nach (A02) / acc. DIN EN 10204 : 2005 Nr. (A03) / No. 15-57638 Datum (Z02) / Date 5/21/2015

Zeichen des Herstellers (A04)
Manufacturer's brand



Stempel des Abnehmers (Z03)
Stamp of the testing engineer



Überprüft als Hersteller nach AD-Merkblatt W0 / TRD100 und VdTUV Werksloßblätter 350/3, 354, 399. / Approved as manufacturer
acc. AD-Merkblatt W0 / TRD100 and VdTUV Material Sheets 350/3, 354, 399.
Zertifiziert nach DGR 97/23/EG durch TÜV CERT Zertifizierungsges. für Druckgeräte der TÜV NORD GmbH Co KG, Benannte Stelle
Nr. 0045. / Certified acc. to PED 97/23/EC, certifying body for pressure equipment TÜV NORD GmbH Co KG, registration no. 0045.

Besteller Unified Alloys (Edmonton) Ltd
(A06) 8835-50 AVENUE
Customer EDMONTON, AB T6E 5H4 CANADA

Bestell-Nr (A07) / Order-No EP-117608
Auftrag (A08) / Order BFW/3242
Lieferschein / Delivery No. 2536306
Position (B07.1) / Item 115

Stck (B08) Bezeichnung (B01; B09 - B11)
Quantity Product

Schmelze/Prüflos (B07)
Heat no./Test no.

480 2 inch Welding Neck Flange 150 lbs S80s raised Face

S12093/1

Material F 316/F 316L ASTM A 182M-11a / ASME SA-182M
(B02; B05) austenitis. > 1040 °C and quenched in water

Anford. ASME B 16.5-2003

(B03) NACE MR0175-2011 / MR0103-2010 - DIN EN ISO 15156-3 : 2009

Requisi- 2011a ASME Boiler & Pressure Vessel Code - Section II Part A

ments PMI-tested 100%, IGC-test acc. to DIN EN ISO 3651-2 Test A / ASTM A 262 practice E

Schmelzenanalyse (C71 - C92) / Ladle analysis

Erschmelzung (C70) / Melting process E

C	Si	Mn	P	S	Cr	Ni	Ti	Mo	Nb	V	N	Cu	Al	PREN
0.018	0.36	1.78	0.040	0.020	16.69	10.18		2.05			0.068			24.51

Mechanische Prüfungen / Mechanical tests

$$CEV = C + \frac{Mn}{5} + \frac{V + Mo + Cr}{5} + \frac{Ni + Cu}{15} \quad PREN = Cr + 3.3 \times Mo + 16 \times N$$

Probenlage (C02): q/t / Position of Specimen: q/t

Tensile Test - ASTM A 370

$$l_0 = 4d_0$$

KBV / Charpy Impact Test EN ISO 148-1
(V-notch, Position of specimen: q/t)

Härte (C32)
Hardness
ISO 6506-1

Temp (C03) °C	Streckgr. (C11) / Yield strength 0.2% N/mm²	1.0% N/mm²	Zugfestigk. (C12) Tensile strength N/mm²	Dehng. (C13) Elongation %	Einachn. Red. of area %	Temp. (C03) °C	Einzelwerte (C42) Single values J	MW (C43) Average J	HBW 10/3000
20	min 205 max		515	30.0	50	20			
20	301	338	578	60.3	68	20	164 168 172	168.0	158

Besichtigung und Ausmessung ohne Beanstandungen. (D01) / Results of inspection and dimension without objections.
Die gestellten Anforderungen sind erfüllt. (Z01) / The product meets the requirements.

Ranjan Kumar Jena,
Inspection Representative of the Manufacturer (Z02)
Bebitz Flanges Workes Pvt.Ltd., Saravali, Bolar, INDIA

F - QAC-09-04

MTA # 42

Order#: 482967 Seq: 30 PO#: 4500084343 Heat#: EL8JX Mill: E N Corporation
 Part#: FL 3 1 R W STD 316 Part Desc: Flanges 3 (88.9mm O.D.) 150# RAISED FACE WELD NECK STD BORE A182-F316/316L SS



E N CORPORATION

Lot 2, 4 & 6, Block 16, Phase IV, Cavite Export Processing Zone
 Authority, PEZA, Rosario, Cavite, Philippines 4106

TEL : (+63) 46-437-1022-25 FAX : (+63) 46-437-1018, 21

MILL TEST REPORT

PURCHASER :

DATE : 2014/09/27

P. O. NO.: EP-112563

S/C NO.: 0230ED

PRODUCT : STAINLESS STEEL FORGED FLANGE RF

HEAT NO.	QTY.	DESIGNATION	SPECIFICATION
EL8JX	250	316L/316 J W N S 40 150LB	ASME B16.5-2013/MSS SP25-1998

CHEMICAL ANALYSIS OF MATERIAL

HEAT NO.	C	Mn	Si	P	S	Cr	Ni	Mo	N	SPECIFICATION
Maxi	0.030	2.00	1.00	0.045	0.030	16.0 - 18.0	10.0 - 14.0	2.0 - 3.0	0.100	ASTM A/SA182-2013
EL8JX	0.029	1.26	0.53	0.036	0.005	16.81	10.03	2.02	0.033	

MECHANICAL CHARACTERISTICS

HEAT NO.	T.S-PSI	Y.S-PSI	%-E.L.	%-R.A.	HEAT-TREAT.	HARDNESS	DIMENSION	P.M.I.
Mini	75,000	30,000	30	50	1040 - 1150 °C	≤90.0 HRB		
EL8JX	76,100	35,500	48	58	1050 °C	74.0 HRB	OK	OK

MATERIAL RESISTANT TO INTERCRYSTALLINE CORROSION ICC TEST ACCORDING TO ASTM A282-10 PRACTICE E. MATERIAL IS MANUFACTURED MERCURY FREE AND FREE FROM MERCURY CONTAMINATION AND RADIO ACTIVITY. MATERIAL IS IN ACCORDANCE WITH NACE MRO 175-SECOND EDITION, MRO 103-2007, ISO 15156-2009 COMPLIANT, ISO 9001:2008, PED 87/23/EC CERTIFIED, EN10204:2005-3.1
 MATERIAL RECEIVED SOLUTION TREAT & WATER QUENCHED AT 1080 DEGREE C. MATERIAL WAS MANUFACTURED, SAMPLED, TESTED AND INSPECTED IN ACCORDANCE WITH ASTM A182-13 AND ASTM A981-08A AND HAS BEEN FOUND TO MEET THE REQUIREMENTS. MATERIALS ARE FREE OF WELD REPAIR

COUNTRY OF ORIGIN: PHILIPPINES



3150RFWN46

FACTORY INSPECTOR:

王偉華
 DAVID WANG

QUALITY ASSURANCE DEPARTMENT

N-1409054025

SM-005-0

MTR # 43

Order#: 482967 Seq: 32 PO#: 4500084343 Heat#: 97906/1 Mill: Bebitz
Part#: FL 6 1 R W STD 316 Part Desc: Flanges 6 (168.3mm O.D.) 150# RAISED FACE WELD NECK STD BORE A182-F316/316L SS



BEBITZ



Flanschenwerk Bebitz GmbH - Lebendorfer Str. 1 - 06420 Bebitz / GERMANY
Tel. +49 34691 40 0 - Fax +49 3469140 329 - Email: flanges@bebitz.de
Bebitz Flanges Works Pvt. Ltd. - Survey No. 140/2, Saravali Boisar - Taluka Palghar - Thane 401501 -
Maharashtra, INDIA Tel. +91-0-9049991038/42/43 - Fax +91-0-2525 274266/67 - Email: quality@bebitz.in

Abnahmeprüfzeugnis 3.1 / Inspection certificate 3.1 / Certificat de reception 3.1 nach (A02) / acc. DIN EN 10204 : 2005 Nr. (A03) / No.15-55381 Datum (Z02) / Date 06-04-2015

Zeichen des Herstellers (A04)
Manufacturer's brand



Stempel des Abnehmers (Z03)
Stamp of the testing engineer



Überprüft als Hersteller nach AD-Merkblatt W0 / TRD100 und VdTUV Werkstoffblätter 350/3, 354, 399. / Approved as manufacturer acc. AD-Merkblatt W0 / TRD100 and VdTUV Material Sheets 350/3, 354, 399.
Zertifiziert nach DGR 97/23/EG durch TÜV CERT Zertifizierungsst. für Druckgeräte der TÜV NORD GmbH Co KG, Benannte Stelle Nr. 0045. / Certified acc. to PED 97/23/EC, certifying body for pressure equipment TÜV NORD GmbH Co KG, registration no. 0045.

Besteller Unified Alloys (Edmonton) Ltd
(A06) 8835-50 AVENUE
Customer EDMONTON, AB T6E 5H4 CANADA

Bestell-Nr (A07) / Order-No EP-116548
Auftrag (A08) / Order BFW/3190
Lieferschein / Delivery No. 2536118
Position (B07.1) / Item 67

Stck (B08) Bezeichnung (B01; B09 - B11)
Quantity Product

77 5 inch Welding Neck Flange 150 lbs S40s raised Face

Schmelze/Prüflos (B07)
Heat no./Test no.

97906/1

Material F 316/F 316L ASTM A 182M-11a / ASME SA-182M
(B02; B05) austenitis. > 1040 °C and quenched in water

Anford. ASME B 16.5-2003
(B03) NACE MR0175-2011 / MR0103-2010 - DIN EN ISO 15156-3 : 2009
Require- 2011a ASME Boiler & Pressure Vessel Code - Section II Part A
ments PMI-tested 100%, IGC-test acc. to DIN EN ISO 3851-2 Test A / ASTM A 262 practice E

Schmelzenanalyse (C71 - C92) / Ladle analysis

Erschmelzung (C70) / Melting process E

C	Si	Mn	P	S	Cr	Ni	TI	Mo	Nb	V	N	Cu	Al	PREN
0.026	0.49	1.70	0.035	0.021	16.90	10.08		2.04			0.080			24.91

Mechanische Prüfungen / Mechanical tests

$$CEV = C + \frac{Mn}{5} + \frac{V + Mo + Cr}{5} + \frac{Ni + Cu}{15} \quad PREN = Cr + 3,3 \times Mo + 16 \times N$$

Probenlage (C02): q/t / Position of Specimen: q/t Tensile Test - ASTM A 370						l ₀ = 4 d ₀		KBV / Charpy Impact Test EN ISO 148-1 (V-notch, Position of specimen: q/t)			Härte (C32) Hardness ISO 6506-1	
Temp (C03) °C	Streckgr. (C11) / Yield strength 0,2% N/mm²		Zugfestigk. (C12) Tensile strength N/mm²		Dehng. (C13) Elongation %	Einschnürr. Red. of area %	Temp. (C03) °C	Einzelwerte (C42) Single values J			MW (C43) Average J	HBW 10/3000
20	min 205 max		515		30.0	50	20					
20	307	329	570		54.0	72	20	184	168	176	176.0	167

Besichtigung und Ausmessung ohne Beanstandungen. (D01) / Results of inspection and dimension without objections.
Die gestellten Anforderungen sind erfüllt. (Z01) / The product meets the requirements.

Ranjan Kumar Jena,
Inspection Representative of the Manufacturer (Z02)
Bebitz Flanges Works Pvt Ltd, Saravali Boisar, INDIA

Ranjan Jena

MTL # 45

Order#: 482967 Seq: 33 PO#: 4500084343 Heat#: 12/1480 Mill: CHANDAN STEEL LIMITED
Part#: FL 8 1 R W STD 316 Part Desc: Flanges 8 (219.1mm O.D.) 150# RAISED FACE WELD NECK STD BORE A182-F316/316L SS



CHANDAN STEEL LIMITED
(GOVT. OF INDIA RECOGNISED EXPORT HOUSE)

ISO 9001:2008 CERTIFICATE No. 04 100 011023-EJ

AD 2000 - MERKBLATT 110 - REG.Nr. 07 203 1423 WY 1263 09

PED 97/21/EC - CERTIFICATE No. 07 203 1423 WZ 1264/09

ADM. OFFICE: 304, SUNKI SAGAR, N. S. PATKAR MARG,

MUMBAI 400 007, INDIA

Tel: 91-22-66290600. Fax: 91-22-66290633/34

Website : www.chandansteel.net

Email : cs@chandansteel.net

L/c. No. : —

L/c. Date: —

WORKS: Plot No. 35, G. I. D. C., Umbergaon

Dist Valsad, Gujarat - 396 171.

Tel: 91-260-256 2066 / 4367 / 2166. Fax: 91-260-256 2287

E-mail : exports@chandansteel.net

INSPECTION CERTIFICATE 3.1
ACCORDING TO EN 10204

UNIFIED ALLOYS (EDMONTON) 8835 - 50 AVENUE, EDMONTON, ALBERTA, CANADA T6E 5H4							Test Certificate No. : EXP/0627-12/2012-13 Rev 01 Date of Issue : 31.10.2012 Rev on 16.12.2015 P. O. No. : EP-99251 Invoice No. & Date : EXP/0627/2012-13 Dtd. 31.10.2012						
ITEM DESCRIPTION STAINLESS STEEL FORGED & FULLY MACHINED FLANGES													
Sr.No	Heat No.	Pcs	Box No.	Wt.Kgs	Grade	Item	Process Route						
1	12/1376	33	27	48.84	F 316/L	3/4" L J FF 600 LBS	Electric Induction Melting, A.O.D. Refining, Continuous Casting & Hot Forging						
2	12/1270	17	27	32.13	F 316/L	1"x3/4" THD RF 600 LBS							
3	12/1049	22	28	400.62	F 51	2" SORF 150 LBS DUPLEX							
4	12/1049	4	8	9.32	F 51	2" SORF 150 LBS DUPLEX							
5	09/171	2	8	7.86	F 51	3" SORF 150 LBS DUPLEX							
CHEMICAL COMPOSITION (Weight %)													
Sr.No	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Ti	N	OTHERS	
1	0.028	0.60	1.59	0.043	0.013	16.76	2.03	10.08	-	-	0.0480	-	
2	0.027	0.39	1.63	0.043	0.015	16.87	2.05	10.05	-	-	0.0600	-	
3	0.029	0.49	1.57	0.036	0.020	16.95	2.01	10.08	-	-	0.0510	-	
4	0.028	0.46	1.43	0.030	0.012	21.23	2.62	5.07	-	-	0.1220	-	
5	0.024	0.60	1.90	0.030	0.010	22.02	3.02	4.70	-	-	0.1450	-	
MECHANICAL PROPERTIES													
Sr.No	0.2% Yield Strength N/mm ² (R _{p0.2})		Tensile Strength N/mm ² (R _m)		Elongation %		Reduction of Area %		Hardness (B. H. N.)				
1	309		593		50		76		179-183				
2	292		589		52		71		176-180				
3	265		559		50		76		161-165				
4	512		668		38		70		170-176				
5	528		700		40		66		168-172				
Remarks:													
1. The material is solution annealed at minimum 1050 °C and water quenched.													
2. Material is free from mercury and radio-active contamination and is found within the limits of the background radiation.													
3. PMI test 100% satisfactory.													
4. Micro Structure Reveals Austenitic grains with annealing twins and is free from carbide precipitation (At 500 X).													
5. Inter-Granular Corrosion Test as per ASTM A - 262 - 10 (Pr.E) satisfactory.													
6. The material conforms to ASTM A 182 - 11/ ASME SA 182 - 10 & Dimension confirms to ANSI B16.5 - 09 Specification.													
7. Visual and Dimensions Inspection 100% satisfactory.													
8. The material hardness complies with NACE MR 0175/ISO 15156 -03 : 2009 & NACE MR 0103-2012													

We hereby certify that, the material described herein,
and supplied are in compliance with the requirements of the order.



V. Y. NARAYAN
SR. MANAGER Q. A.

Order#: 482967 Seq: 33 PO#: 4500084343 Heat#: 166SS Mill: Paramount Forge
Part#: FL 8 1 R W STD 316 Part Desc: Flanges 8 (219.1mm O.D.) 150# RAISED FACE WELD NECK STD BORE A182-F316/316L SS

ALLIAGES UNIFIES (QUEBEC) UNIFIED ALLOYS P.O. - EP115084 S.O. - 342011

ISO 9001
2008

PARAMOUNT FORGE™
MANUFACTURERS OF : FORGED FLANGES & FITTINGS



TEST CERTIFICATE
TYPED IN EN10204(1.1)

CUSTOMER:		EPTC-23743		DATE: 12/07/12	
P.O. NO & DATE: 717016 DTD: 11/04/2012		INSPECTION AGENCY: -			
P.O. SR. NO.	DESCRIPTION	SIZE	DIMENSION	MATERIAL	HEAT NO. QTY. (Nos.)
75	WNRF FLANGES 150# SCH40	4" NPS	ASME B16.5 2009	ASTM/A312 F316/316L 2010	166SS 80
76	WNRF FLANGES 150# SCH40	6" NPS	ASME B16.5 2009	ASTM/A312 F316/316L 2010	166SS 60
77	WNRF FLANGES 150# SCH40	8" NPS	ASME B16.5 2009	ASTM/A312 F316/316L 2010	166SS 20
78	WNRF FLANGES 150# SCH40	10" NPS	ASME B16.5 2009	ASTM/A312 F316/316L 2010	064SS 10
80	WNRF FLANGES 300# SCH40	3" NPS	ASME B16.5 2009	ASTM/A312 F316/316L 2010	166SS 05

CHEMICAL COMPOSITION %

HEAT NO.	C	MN	P	S	SI	CU	NI	CR	MO	V	N	TI	CKO
166SS	0.014	1.48	0.019	0.021	0.34	--	10.19	16.83	2.03	--	0.057	--	--
166SS	0.014	1.48	0.019	0.021	0.34	--	10.19	16.83	2.03	--	0.057	--	--
166SS	0.014	1.48	0.019	0.021	0.34	--	10.19	16.83	2.03	--	0.057	--	--
064SS	0.022	0.86	0.035	0.006	0.40	--	10.08	16.63	2.03	--	0.085	--	--
166SS	0.019	1.47	0.014	0.020	0.43	--	10.18	17.31	2.05	--	0.083	--	--

PHYSICAL PROPERTIES

HEAT NO.	UTS		Y.S	%EL	RED. IN	HARDNESS	CHARPY V IMPACT TEST			
	MPa	MPa					TEMP.	1	2	3
166SS	591.13	288.02	59.36	61.31	<22 HRC	--	--	--	--	--
166SS	591.13	288.02	59.36	61.31	<22 HRC	--	--	--	--	--
166SS	591.13	288.02	59.36	61.31	<22 HRC	--	--	--	--	--
064SS	631.39	315.64	63.30	71.17	<22 HRC	--	--	--	--	--
166SS	621.22	313.37	64.30	71.76	<22 HRC	--	--	--	--	--

HEAT NO.	HEAT TREATMENT	HEAT TREATMENT TEMP.	LAD REP NO.
166SS	SOLUTION ANNEALED	1050 °C & WATER QUENCHED	PF/2012/794 & 11/15/056
166SS	SOLUTION ANNEALED	1050 °C & WATER QUENCHED	PF/2012/794 & 11/15/056
166SS	SOLUTION ANNEALED	1050 °C & WATER QUENCHED	PF/2012/794 & 11/15/056
064SS	SOLUTION ANNEALED	1050 °C & WATER QUENCHED	PF/2012/794 & 11/15/056
166SS	SOLUTION ANNEALED	1050 °C & WATER QUENCHED	PF/2012/794 & 11/15/056

REMARKS:
100% PAI TEST & FOUND SATISFACTORY.
ASTM A262 IGC PRACTICE 'B' TEST SATISFACTORY.
GEIGER - MULLER TEST SATISFACTORY - NIL RADIOACTIVITY.
MATERIAL CONFORMS TO NACE MR0175 (2003), NACE MR0183 (2007) & ISO 15166.

Signature/Seal Of Surveyor		PARAMOUNT FORGE Manager QC	
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Registered Office : 3, Guru Himmol Bldg., 140, Dr. Masarambhas Road, Mazgaon, Mumbai - 400 010.
☎ : 91-22-2373 2866 / 6676 0879 / 2378 0807 ☎ : 91-22-2373 2857

Factory : 99/100, 260/283, Jawahar Industrial Estate, Kamolha - 410 208, Panvel, (Dist. Raigadh)
☎ : 91-22-2742 0801, 2742 0718, 2742 5058 ☎ : 91-22-2742 0802, 2742 6300
E: pforg@bom5.vsnl.net.in Website: www.pforgeindia.com

Order#: 482967 Seq: 33 PO#: 4500084343 Heat#: 89985/1 Mill: Bebitz
Part#: FL 8 1 R W STD 316 Part Desc: Flanges 8 (219.1mm O.D.) 150# RAISED FACE WELD NECK STD BORE A182-F316/316L SS

ALLIAGES UNIFIES (QUEBEC) UNIFIED ALLOYS P.O. - EP115084 S.O. - 342011



BEBITZ



Flanschenwerk Bebitz GmbH - Lebendorfer Str. 1 - 05420 Bebitz / GERMANY
Tel. +49 04081 40 0 - Fax +49 04081 40 329 - Email: flanges@bebitz.de
Bebitz Flanges Works Pvt. Ltd. - Survey No. 140/2, Saravali Bolar - Taluka Palghar - Thane 401501 -
Maharashtra, INDIA Tel. +91-0-8048981039/4243 - Fax +91-0-2585 87488/87 - Email: quality@bebitz.in

Abnahmeprüfzeugnis 3.1 / Inspection certificate 3.1 / Certificat de reception 3.1
nach (A02) / acc. DIN EN 10204 : 2005 Nr. (A03) / No. 12-64744 Datum (Z02) / Date 10/19/2012

Zeichen des Herstellers (A04)
Manufacturer's brand



Stempel des Abnehmers (Z03)
Stamp of the testing engineer



Überprüft als Hersteller nach AD-Merkblatt W0 / TRD100 und VdTUV Werkstoffblätter 350/3, 364, 399. / Approved as manufacturer acc. AD-Merkblatt W0 / TRD100 and VdTUV Material Sheets 350/3, 364, 399.
Zertifiziert nach DGR 8723/EG durch TÜV CERT Zertifizierungsges. (für Druckgeräte der TÜV NORD GmbH Co KG, Benannte Stelle Nr. 0045, / Certified acc. to PED 87/23/EC, certifying body for pressure equipment TÜV NORD GmbH Co KG, registration no. 0045.

Besteller
(A05)
Customer

Bestell-Nr (A07) / Order-No 720143
Auftrag (A08) / Order BFW/2031
Lieferschein / Delivery No. 2532702
Position (B07.1) / Item 29

Stück (B06) Bezeichnung (B01; B08 - B11)
Quantity Product

12

8 inch Welding Neck Flange 150 lbs Sch. 40-raised Face

Schmelz- / Prüflos (B07)
Heat no. / Test no.

89985/1

Material F 316/F 316L ASTM A 182M-11a / ASME SA-182M
(B02; B05) austenitis. > 1040. °C and quenched in water.

Anford. ASME B 16.5-2003

(B03) NACE MR0175-2011 / MR0103-2010 - DIN EN ISO 15156-3 : 2009

Requisi- 2011 a ASME Boiler & Pressure Vessel Code - Section II Part A

ments PMI-tested 100%, IGC-test acc. to DIN EN ISO 3851-2 Test A / ASTM A 262 practice E

Schmelzenanalyse (C71 - C02) / Ladlo analysis

Erschmelzung (C70) / Melting process E

C	Si	Mn	P	S	Cr	Ni	TI	Mo	Nb	V	N	Cu	Al	PREN
0.020	0.47	1.72	0.038	0.025	15.55	10.04		2.01			0.080			24.47

$$CGV = C + \frac{Mn}{5} + \frac{V + Mo + Cr}{5} + \frac{Ni + Cu}{15} \quad PREN = Cr + 3.3 \times Mo + 16 \times N$$

Mechanische Prüfungen / Mechanical tests

Probenlage (C02): q1 / Position of Specimen: q1						KV / Charpy Impact Test				Härte (C32)	
Tensile Test - ASTM A 370						DIN EN 10045-1				Hardness	
Temp (C03) °C	Seizig. (C11) Yield strength t2% N/mm²	1,0% N/mm²	Zugfestig. (C12) Tensile strength N/mm²	Dehng. (C13) Elongation %	Einschröng. Red. of area %	Temp (C03) °C	Einschwer. (C42) Single values J	AV (C43) Average J		HBW 2.5/187,5	
20 min	205		515	30.0	50	20					
20 max	293	335	587	59.3	72	20	182	170	178	178.0	153

Besichtigung und Ausmessung ohne Beanstandungen, (D01) / Results of inspection and dimension without objections.
Die gestellten Anforderungen sind erfüllt. (Z01) / The product meets the requirements.

Ranjan Kumar Jena,
Abnahmebeauftragter des Herstellers (Z02)
Inspection Representative of the Manufacturer



F - QAC-09-04

Order#: 482967 Seq: 33 PO#: 4500084343 Heat#: SF565A Mill: SANGHVI FORGING & ENGINEERING LTD.
Part#: FL 8 1 R W STD 316 Part Desc: Flanges 8 (219.1mm O.D.) 150# RAISED FACE WELD NECK STD BORE A182-F316/316L SS

HEAT NO.		S.R.NO.	QUANTITY	ITEM DESCRIPTION	MATERIAL DESCRIPTION	DIMEN. STANDARD
SF 562 A	46	4	8" X 150# WNRP S10	A182 F304/304L	ASME B16.5 (2003)	
SF 740 A	48	10	8" X 150# WNRP S10	A182 F304/304L	ASME B16.5 (2003)	
SF 740 A	51	50	4" X 150# WNRP S40	A182 F304/304L	ASME B16.5 (2003)	
SF 716B	51	3	3" X 600# WNRP S80	A182 F304/304L	ASME B16.5 (2003)	
SF 716B	52	15	1 1/2" X 150# WNRP S10	A182 F316/316L	ASME B16.5 (2003)	
SF 781 B	53	10	10" X 150# WNRP S10	A182 F316/316L	ASME B16.5 (2003)	
SF 740 B	54	200	3" X 150# WNRP S40	A182 F316/316L	ASME B16.5 (2003)	
SF 797 B	55	25	6" X 150# WNRP S40	A182 F316/316L	ASME B16.5 (2003)	
SF 797 B	56	7	8" X 150# WNRP S40	A182 F316/316L	ASME B16.5 (2003)	
SF 563 B	56	8	8" X 150# WNRP S40	A182 F316/316L	ASME B16.5 (2003)	

HEAT NO.	C %	Mn %	Si %	P %	S %	Cr %	Ni %	Mo %	N %	TI %	Cu %	V %
SF 563 A	0.029	1.470	0.340	0.039	0.018	17.030	10.082	2.010	0.037	-	-	-
SF 563 A	0.030	1.720	0.470	0.039	0.030	16.310	8.800	-	0.051	-	-	-
SF 563 B	0.021	1.600	0.329	0.035	0.015	16.580	10.100	2.030	0.036	-	-	-
SF 716B	0.027	0.800	0.350	0.029	0.022	16.250	10.100	2.030	0.036	-	-	-
SF 740 A	0.021	1.753	0.381	0.020	0.021	16.315	8.254	0.221	-	-	-	-
SF 760 B	0.030	0.750	0.390	0.080	0.030	16.260	10.100	2.040	0.040	-	-	-
SF 760 A	0.024	1.250	0.410	0.030	0.023	16.240	8.130	-	0.061	-	-	-
SF 781 B	0.017	1.348	0.305	0.041	0.023	17.170	10.020	2.810	0.064	-	-	-
SF 797 B	0.027	0.980	0.180	0.030	0.011	16.340	10.150	2.060	0.039	-	-	-
SF 810 A	0.028	1.400	0.430	0.030	0.021	16.250	8.198	0.390	0.061	-	-	-

HEAT NO.	Yield Point (MPa)		Tensile Strength (MPa)	Elongation		Reduction Area %	Hardness HRC
	0.2%	1%		0.5mm	%		
SF 562 A	329.36	-	574.48	50.00	63.38	72.07	175-178
SF 563 B	237.00	-	560.10	50.00	59.00	74.68	148-149
SF 716B	236.00	-	547.09	50.00	58.80	74.68	170-171
SF 760 A	375.00	-	671.80	50.00	58.85	69.57	180-182
SF 760 B	299.00	-	621.80	50.00	64.50	78.14	160-162
SF 565 A	278.48	-	537.48	35.00	58.14	77.75	150-151
SF 781 B	225.00	-	682.90	50.00	51.88	72.79	149-151
SF 797 B	283.00	-	578.60	50.40	63.00	73.12	150-155
SF 740 A	274.84	-	586.00	50.00	52.34	70.50	128-137
SF 810 A	378.00	-	625.00	38.00	54.36	82.12	151-159

HEAT NO.	HEAT TREATMENTS	REMARKS
SF 562 A	SOLUTION ANNEALED AT 1040 C SOAKING FOR 1 HR AND QUENCH IN WATER	1. All Products are PVE checked & Complied to the requirements of ASME B16.5 2. We certify that the items supplied by us conform strictly to dimensions & material specification of the order.
SF 563 B	SOLUTION ANNEALED AT 1040 C SOAKING FOR 1 HR AND QUENCH IN WATER	
SF 716B	SOLUTION ANNEALED AT 1040 C SOAKING FOR 1 HR AND QUENCH IN WATER	
SF 760 A	SOLUTION ANNEALED AT 1040 C SOAKING FOR 1 HR AND QUENCH IN WATER	
SF 760 B	SOLUTION ANNEALED AT 1040 C SOAKING FOR 1 HR AND QUENCH IN WATER	
SF 565 A	SOLUTION ANNEALED AT 1040 C SOAKING FOR 1 HR AND QUENCH IN WATER	
SF 781 B	SOLUTION ANNEALED AT 1040 C SOAKING FOR 1 HR AND QUENCH IN WATER	
SF 797 B	SOLUTION ANNEALED AT 1040 C SOAKING FOR 1 HR AND QUENCH IN WATER	
SF 740 A	SOLUTION ANNEALED AT 1040 C SOAKING FOR 1 HR AND QUENCH IN WATER	
SF 810 A	SOLUTION ANNEALED AT 1040 C SOAKING FOR 1 HR AND QUENCH IN WATER	

TRADE MARK	SIZE - RATING - TYPE SPECIFICATION/GRADE DIM STD - HEAT NO	8150RFUNH46
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Order#: 482967 Seq: 36 PO#: 4500084343 Heat#: 2807068103 Mill: San Eng Steel

Part#: FL 2 6 R W XS LF Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK XS A/SA350-LF2 CL1

Certificate No.: SE1558A2
Date: 04/27/2016
Page: 1 OF 2

MILL TEST CERTIFICATE

EN10204-3.1.B(DIN50049/3.1.B)
Customer: SEYBOLD INTERNATIONAL CORP.
Order No.: 701155813-COMCO

SAN ENG STEEL FORGING CO LTD
311, Jen Hsin Road, Jen Wu District
Kaohsiung, Taiwan, R.O.C.
TEL: 07-3724249 / FAX: 07-3712923
URL: www.saneng.com.tw
e-mail: saneng@ksts.seed.net.tw



PRODUCT			MATERIAL SPECIFICATIONS			DIMENSIONAL SPECIFICATIONS														
FORGED CARBON STEEL FLANGES			ASTM A-950 LF2 15 CL 1/ASME SA-350 LF2 13 CL 1			ASME B16.5-13 CSA Z245.12														
Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)															CE(*)	
			Min Max	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N					
1		600 BLRF 2" LF2	25 PCE	0.209	0.280	1.120	0.016	0.008	0.018	0.043	0.058	0.005	0.011	0.001	0.004				0.412	
2		300 BLRF 3" LF2	50 PCE	0.210	0.200	1.120	0.015	0.003	0.010	0.010	0.010	0.002	0.005	0.001	0.007				0.401	
3		600 THRF 3" LF2	10 PCE	0.220	0.220	1.180	0.018	0.006	0.007	0.020	0.020	0.005	0.005	0.001	0.007				0.424	
4		300 BLRF 4" LF2	50 PCE	0.207	0.240	1.130	0.015	0.012	0.008	0.033	0.049	0.005	0.006	0.005	0.005				0.408	
5		150 BLRF 6" LF2	25 PCE	0.220	0.210	1.170	0.019	0.007	0.010	0.010	0.010	0.004	0.004	0.001	0.004				0.420	
6		300 BLRF 8" LF2	50 PCE	0.200	0.210	1.140	0.022	0.004	0.010	0.030	0.010	0.001	0.004	0.001	0.008				0.398	
7		300 WNRFX XS 10" LF2	20 PCE	0.220	0.180	1.130	0.020	0.007	0.009	0.020	0.010	0.002	0.004	0.002	0.007				0.415	
8		600 WNRFX XS 10" LF2	20 PCE	0.210	0.210	1.170	0.020	0.007	0.010	0.010	0.010	0.002	0.006	0.003	0.007				0.410	
9		600 WNRFX XS 2" LF2	200 PCE	0.200	0.210	1.110	0.018	0.009	0.007	0.010	0.010	0.004	0.004	0.001	0.004				0.390	
10		600 WNRFX XS 2" LF2	10 PCE	0.200	0.210	1.110	0.018	0.009	0.007	0.010	0.010	0.004	0.004	0.001	0.004				0.390	
Item No.	Heat No.	T.S. (MPa)	Y.S. (MPa)	E.L. (%)	Hardness (HB)	RA. (%)	Impact Test Temp: -46°C Minimum: 20.0 Joule	HEAT TREATMENT(*)		REMARKS										
1	517056	524.0	339.0	38.0	153/150	70.4	121.0	1	129.0	NTMK	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS
2	4888442	524.0	378.0	36.0	153/151	70.0	141.0	2	80.0	NTMK	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS
3	4603012	529.0	366.0	35.0	153/151	71.3	80.0	3	51.0	NTMK	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS
4	511985	527.0	374.0	35.4	153/151	70.4	114.0		114.0	NTMK	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS
5	2807068403	531.0	370.0	35.8	154/151	70.4	103.0		103.0	NTMK	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS
6	4723463	516.0	368.0	37.0	152/150	69.5	84.0		84.0	NTMK	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS
7	4803156	516.0	356.0	36.4	153/150	70.4	107.0		107.0	NTMK	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS
8	4888479	522.0	374.0	34.4	153/149	69.5	84.0		84.0	NTMK	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS
9	2807068103	514.0	378.0	35.6	152/150	70.4	121.0		121.0	NTMK	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS
10	2807068103	514.0	378.0	35.6	152/150	70.4	121.0		121.0	NTMK	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS	ACOMINAS

*1: T.S. = Tensile Strength, Y.S. = Yield Strength, E.L. = Elongation, R.A. = Reduction of Area.

*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T.=Solution Treated, S.R.=Stress Relieved, A.C.=Air Cooled, F.C.=Furnace Cooled, W.C.=Water Cooled, O.C.=Oil Cooled.

*3: C.E. Value = $C + (Mn/6) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15$

We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.

Manager of Quality Assurance Dept

MTR # 50

Order#: 482967 Seq: 36 PO#: 4500084343 Heat#: D1405256 Mill: Futawa Flange
Part#: FL 2 6 R W XS LF Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK XS A/SA350-LF2 CL1

INSPECTION CERTIFICATE

Approved according to ISO9001

Certificate No. T140242002

ISO 10474.3.1 / EN 10204 3.1 Certificate



FUTAWA FLANGE WORKS CO., LTD.

6-3-6 ISONOKAMI-CHO,
KOSHINWADA-SHI, OSAKA, JAPAN

TEL 072-497-1001

Certificate No.: TSK-2014-242		INSPECTION CERTIFICATE		Approved according to ISO9001		FUTAWA FLANGE WORKS CO.,LTD. 6-3-1 ISHOKAWA-CHO, KISHIWADA-SHILOSUGAJI-YAM TEL 072-437-1001	
Date: December 31, 2014				Certificate No. T140242002			
Customer: Allied Fitting Canada				ISO 10474.3.1 / EN 10204 3.1 Certificate			
Material: ASTM A350/ASME SA350 LF2 CL1							
P.O. No.: 471545FJ(121)							

Item No.	Description	Quantity	Heat No	Material	Heat Treatment Condition	Technical Requirements Specifications / Reference Standards
2	ROUSE VLN NF XH F	150	D1405256	ASTM A350/ASME SA350 LF2 CL1	Normalized @ 800 °C / 1,00h	1 ASME SA350/ASTM A350-2004 2 ASTM A 981 - 2012 3 ASTM A 370 - 2012 4 ASME B16.5-2009 Smooth Finish to MSS-SPG 5 NACE MR-0175-2008 6 NACE MR-0103-2012 7 ISO 15156-2-2008

Item No.	Heat No	Steel Milb Heat No.	% C	% Si	% Mn	% P	% S	% Cr	% Ni	% Cu	% V	% Mo	% Nb	% Ti	CE ^W	C-HB-CastMaxV	C-HB-Cent-Mo	C-HB-Mo
1	D1405256	D1405256	0.23 Max	0.16	0.80	0.035 Max	0.007	0.30	0.40	0.40	0.08	0.12	0.02	Max	--	1.00	--	0.32 Max
			0.200	0.240	0.980	0.014	0.007	0.019	0.017	0.012	0.004	0.003	0.002	0.000	0.002	0.035	0.070	0.022
			0.210	0.250	0.980	0.012	0.006	0.020	0.020	0.010	0.010	0.010	0.010	0.000	0.000	0.000	0.000	0.030

Item No.	Heat No	Material	Transverse-Tensile Test (d = 12.8 mm ; CL = 40 mm; Temp : 20 °C)			Hardness, HB		Transverse-Impact Test-Cherry V		Remarks
			Y. Strength (N/mm²)	T. Strength (N/mm²)	Elongation (%)	Reduction of Area (%)	Load: 2000 kg & Ind: 16 mm Bar	Energy J (10 x 16 mm) at	Temp : 48 °C	
1	D1405256	LF2 CL1	250 Min Mpa	485 - 855 Mpa	22 Min %	30 Min %	Average 187 Max	J ≥ 20	Σ NI ≥ 20	1 Hardness according to NACE MR-0175-2008. 2 RF / FF machined finish : Ra 125-250 µm 3 Heat treatment was in accordance with ASTM 4 Coating method : air. 5 100 % Visual Inspection - satisfactory 6 All material supplied is certified to be free of Mercury contamination and no mercury bearing equipment was used during manufacturing.
			325	524	31.6	62.5	148 156 159	100 81 52	76	

Note: 1) LF2 CL1 CE = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/6



FUTAWA
ESTD SINCE 1949
SURVEYOR

MTL# 50

Order#: 482967 Seq: 36 PO#: 4500084343 Heat#: TL10012465 Mill: Tri-Lad
Part#: FL 2 6 R W XS LF Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK XS A/SA350-LF2 CL1



ISO 9001:2008

TRILAD Flanges and Fittings, Inc.

172 Turbo Drive
Sherwood Park, AB, CANADA T8H 2J6
(PHONE) 780-464-7774
(FAX) 780-464-0044
www.tri-lad.com

CERTIFIED MATERIAL TEST REPORT

Certificate No.	16228718	EN 10204 3.1	Date of Report	1/18/2016
Customer			Customer Order No.	01/18/16-STK
			Quantity	300
			Tri-Lad Order No.	903684
			Line No.	1

Specification	A350-LF2-CL 1	STOCK	Heat Treatment	NORMALISED
Item Description	2 600 WN XS RF	(85776)	Temperature	Init: 1706 F 930 C
Shop Order/Trace No.			Time	N=1.45HRS
Lot No.			Lot Definition	
Heat Code	TL10012465			
C.E.	42	Melt Practice	EF	

Chemical Composition										
	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V
Heat Product	.19	1.18	.031	.015	.27	.05	.06	.13	.01	.001
Heat Product	Nb	.00								
Heat Product										

Mechanical Properties										Shear Fracture
Yield	Tensile	Elongation	Reduction of Area	Hardness	Impact Test	Impact Values				
Ks1 57	Ks1 82			HBW 167	Temperature	Ft-lbs	125	133	136	
Mpa 351	Mpa 567	27 %	53 %	HBW 167	M50 F	Joules	169	180	184	
					M46 C					
Tensile Specimen	STD RD									
Lateral Expansion		Impact Type	Impact Orientation	Starting Material		Impact Specimen				
		VNOTCH	TANGENTIAL			FULL SIZE				

Notes	
Cr+Mo <= 0.32%	0.14
Cr+Cu+Mo+N1+V <= 1.00%	0.25
Mn/C >= 3.0	6.21
CE = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15	0.42
ASTM A350-15 LF2 CLASS 1	CSA Z245.12-13 GR 248 CAT II M46C SS
ASME SA350 2013 Ed LF2 CLASS 1	ANSI/NACE HR0175/ISO15156:2009(E)
	NACE HR0103 LATEST ED.
	NACE HR0175/ISO15156-09

Material is in accordance with the applicable Standard to which it is ordered including:
ASME Sect II, ASME B16.5, B16.9, B16.36, B16.47, CSA, MSS, AWWA C-207.

NO WELD REPAIR

Material conforms to both ASTM (A) and ASME (SA) applicable specifications.

We hereby certify that all information presented on this CMTR conforms to the above specification.

We hereby certify the results to be a true copy of the records of the company.

Troy Gorrell
Q.C. Inspector

MTR #52

Order#: 482967 Seq: 37 PO#: 4500084343 Heat#: TL10010753 Mill: Tri-Lad
 Part#: FL 12 6 R W 80 LF Part Desc: Flanges 12 (323.8mm O.D.) 600# RAISED FACE WELD NECK SCH 80 A/SA350-LF2 CL1



ISO 9001:2008

TRILAD Flanges and Fittings, Inc.

172 Turco Drive
 Sherwood Park, AB, CANADA T8B 2J6
 PHONE: 780-464-7774
 (FAX) 780-464-0044
 www.tri-lad.com

CERTIFIED MATERIAL TEST REPORT

Certificate No.	15215527	EN 10204 3.1	Date of Report	6/10/2015
Customer	AB		Customer Order No.	AR.84
			Quantity	29
			Tri-Lad Order No.	777726
			Line No.	1

Specification	A350-LF2-CL 1	STOCK	Heat Treatment	NORMALISED
Item Description	12 600 WN S80 RF	(842885)	Temperature	Init 1700 F 925 C
Shop Order/Trace No.			Time	N=2.30HRS
Lot No.			Lot Definition	
Heat Code	TL10010753			
C.E.	.42	Melt Practice	EF	

Chemical Composition											
Heat Product	C .21	Mn 1.20	P .017	S .007	Si .24	Cu .00	Ni .01	Cr .01	Mo .01	V .003	
Heat Product	Nb .01										
Heat Product											

Mechanical Properties											
Yield	Ksi 51	Tensile	Ksi 78	Elongation	34 %	Reduction of Area	68 %	Hardness	HBW 152	Impact Test	Temperature
Mpa 352	Mpa 536							HBW 156	M50 F	Ft-lbs	31 25 28
									M46 C	Joules	42 34 38
Tensile Specimen	STD RD										
Lateral Expansion	Impact Type		Impact Orientation		Starting Material		Impact Specimen				
	VNOTCH		TANGENTIAL				FULL SIZE				

Notes											
Cr+Mo <= 0.32%						0.02					
Cr+Cu+Mo+Ni+V <= 1.00%						0.04					
Mn/C >= 3.0						5.71					
CE = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15						0.42					
ASTM A350-12 LF2 CLASS 1						CSA Z245.12-09 GR 248 CAT II M46C SS					
ASME SA350 2010 Ed 2011A Addendum LF2 CLASS						ANSI/NACE MR0175/ISO15156:2009(E)					
						NACE MR0103 LATEST ED.					
						NACE MR0175/ISO15156-09					

Material is in accordance with the applicable Standard to which it is ordered including:
 ASME Sect II, ASME B16.5, B16.9, B16.36, B16.47, CSA, MSS, AWWA C-207.

NO WELD REPAIR MERCURY FREE

Material conforms to both ASTM (A) and ASME (SA) applicable specifications.

We hereby certify that all information presented on this CMTR conforms to the above specification.

We hereby certify the results to be a true copy of the records of the company.

Troy Gorrell
 Q.C. Inspector

MTR #53

ITEM # 37

Order#: 482967 Seq: 37 PO#: 4500084343 Heat#: TL10013511 Mill: Tri-Lad
 Part#: FL 12 6 R W 80 LF Part Desc: Flanges 12 (323.8mm O.D.) 600# RAISED FACE WELD NECK SCH 80 A/SA350-LF2 CL1



ISO 9001:2008

TRILAD Flanges and Fittings, Inc.

172 Turbo Drive
 Sherwood Park, AB, CANADA T8H 2J6
 (PHONE) 780-464-7774
 (FAX) 780-464-0044
www.tri-lad.com

CERTIFIED MATERIAL TEST REPORT

Certificate No. 16238029

EN 10204 3.1

Date of Report 6/20/2016

Customer

AB

Customer Order No.
538951Quantity
150Tri-Lad Order No. Line No.
922838 1

Specification A350-LF2-CL 1	STOCK	Heat Treatment NORMALISED
Item Description 12 600 WN S80 RF	(842885)	Temperature Init 1706 F 930 C
Shop Order/Trace No.		Time N=3.00HRS
Lot No.		Lot Definition
Heat Code TL10013511		
C.E. .42	Melt Practice EF	

Chemical Composition										
Heat Product	C .20	Mn 1.27	P .015	S .010	Si .25	Cu .01	Ni .01	Cr .02	Mo .00	V .001
Heat Product	Nb .00									
Heat Product										

Mechanical Properties													
Yield		Tensile		Elongation	Reduction of Area	Hardness		Impact Test	Impact Values			Shear Fracture	
Ksi	46	Ksi	80	34 %		HBW	149	Temperature	Ft-lbs	162	133		131
Mpa	318	Mpa	554			HBW	149	M50 F	Joules	220	180		178
Tensile Specimen				STD RD		73 %	M46 C						
Lateral Expansion				Impact Type		Impact Orientation			Starting Material			Impact Specimen	
				VNOTCH		TANGENTIAL						FULL SIZE	

Notes

Cr+Mo <= 0.32%	0.02
Cr+Cu+Mo+Ni+V <= 1.00%	0.04
Mn/C >= 3.0	6.35
CE = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15	0.42

ASTM A350-15 LF2 CLASS 1
 ASME SA350 2013 Ed LF2 CLASS 1

CSA Z245.12-13 GR 248 CAT II M46C SS
 ANSI/NACE MR0175/ISO15156:2009(E)
 NACE MR0103 LATEST ED.
 NACE MR0175/ISO15156-09

Material is in accordance with the applicable Standard to which it is ordered including:
 ASME Sect II, ASME B16.5, B16.9, B16.36, B16.47, CSA, MSS, AWWA C-207,
 NO WELD REPAIR

Material conforms to both ASTM (A) and ASME (SA) applicable specifications.
 We hereby certify that all information presented on this CMTR conforms to the above specification.

We hereby certify the results to be a true copy of the records of the company.

Troy Gorrell
 Q.C. Inspector

MTR # 54

Order#: 482967 Seq: 38 PO#: 4500084343 Heat#: 37080/1 Mill: Bebitz
Part#: FL 2 6 R W 80S 316 Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK SCH 80s A182-F316/316L SS



BEBITZ



Flanschenwerk Bebitz GmbH - Lebendorfer Str. 1 - 06420 Bebitz / GERMANY
Tel. +49 34691 40 0 - Fax +49 3469140 329 - Email: flanges@bebitz.de
Bebitz Flanges Works Pvt. Ltd. - Survey No. 140/2, Saravali Bolar - Taluka Palghar - Thane 401501 -
Maharashtra, INDIA Tel. +91-0-9049991039/42/43 - Fax +91-0-2525 274266/67 - Email: quality@bebitz.in

Abnahmeprüfzeugnis 3.1 / Inspection certificate 3.1 / Certificat de reception 3.1
nach (A02) / acc. DIN EN 10204 : 2005 Nr. (A03) / No.15-57631 Datum (Z02) / Date 5/21/2015

Zeichen des Herstellers (A04)
Manufacturer's brand



Stempel des Abnehmers (Z03)
Stamp of the testing engineer



Überprüft als Hersteller nach AD-Merkblatt W0 / TRD100 und VdTUV Werkstoffblätter 350/3, 354, 399. / Approved as manufacturer
acc. AD-Merkblatt W0 / TRD100 and VdTUV Material Sheets 350/3, 354, 399.
Zertifiziert nach DGR 97/23/EG durch TÜV CERT Zertifizierungsst. für Druckgeräte der TÜV NORD GmbH Co KG, Benannte Stelle
Nr. 0045. / Certified acc. to PED 97/23/EC, certifying body for pressure equipment TÜV NORD GmbH Co KG, registration no. 0045.

Besteller Unified Alloys (Edmonton) Ltd
(A06) 8835-50 AVENUE
Customer EDMONTON, AB T6E 5H4 CANADA

Bestell-Nr (A07) / Order-No EP-117608
Auftrag (A08) / Order BFW/3242
Lieferschein / Delivery No. 2536306
Position (B07.1) / Item 118

Stück (B08) Bezeichnung (B01; B09 - B11)
Quantity Product

Schmelze/Prüflos (B07)
Heat no./Test no.
37080/1

217 2 inch Welding Neck Flange 600 lbs S80s raised Face

Material F 316/F 316L ASTM A 182M-14a / ASME SA-182M
(B02; B05) austenitis. > 1040 °C and quenched in water

Anford. ASME B 16.5-2003

(B03) NACE MR0175-2011 / MR0103-2010 - DIN EN ISO 15156-3 : 2009

Require- 2011a ASME Boiler & Pressure Vessel Code - Section II Part A

ments PMI-tested 100%, IGC-test acc. to DIN EN ISO 3651-2 Test A / ASTM A 262 practice E

Schmelzenanalyse (C71 - C92) / Ladie analysis

Erschmelzung (C70) / Melting process E

C	Si	Mn	P	S	Cr	Ni	TI	Mo	Nb	V	N	Cu	Al	PREN
0.023	0.36	1.65	0.039	0.022	16.88	10.02		2.03			0.073			24.75

$$CEV = C + \frac{Mn}{6} + \frac{V + Mo + Cr}{5} + \frac{Ni + Cu}{15} \quad PREN = Cr + 3,3 \times Mo + 16 \times N$$

Mechanische Prüfungen / Mechanical tests

Probenlage (C02): q/t / Position of Specimen: q/t						l ₀ = 4 d ₀				KCV / Charpy Impact Test EN ISO 148-1 (V-notch, Position of specimen: q/t)			Härte (C32) Hardness ISO 6506-1	
Tensile Test - ASTM A 370														
Temp (C03) °C	Streckgr. (C11) / Yield strength		Zugfestigk. (C12) Tensile strength		Dehng. (C13) Elongation %	Einschnürr. Red. of area %	Temp. (C03) °C	Einzelwerte (C42) Single values		MW (C43) Average				
	0,2% N/mm ²	1,0% N/mm ²	N/mm ²					J		J				
20	min 205 max		515		30.0	50	20							
20	300	341	604		58.1	69	20	164	168	172	168.0		161	

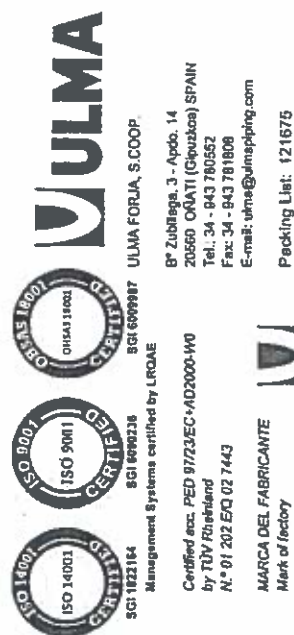
Besichtigung und Ausmessung ohne Beanstandungen. (D01) / Results of inspection and dimension without objections.
Die gestellten Anforderungen sind erfüllt. (Z01) / The product meets the requirements.

Ranjan Kumar Jena,
Inspection Representative of the Manufacturer (Z02)
Bebitz Flanges Workes Pvt.Ltd., Saravali, Bolar, INDIA

F - QAC-09-04

MTR # 55

Order#: 482967 Seq: 40 PO#: 4500084343 Heat#: A02M5 Mill: ULMA VA Desc: TAPER BORED TO RAISED WELD NECK S80
Part#: FL 10 9 R W 80 LF Part Desc: Flanges 10 (273mm O.D.) 900# RAISED FACE WELD NECK SCH 80 A/SA350-LF2 CL1



DN EN 10204 / 3.1
ISO 10747 / 3.1

CERTIFICADO DE INSPECCION

Inspection Certificate - Certificat de Réception

HOJA: 2
Page: 2

FECHA: 21/12/2015
Date:

N° 177106
No.

CLIENTE / Customer / Client
COMCO PIPE & SUPPLY COMPANY
A DIVISION OF RUSSEL METALS
5910-17 ST. NW PO BOX 487
EDMONTON ALBERTA T5J 2K1 CANADA

PRODUCTO: SU PEDIDO N° E1-8438
Article - Product Your Order No.
NORMAS APLICABLES: ASME B16.5-13
Requirements - Normes Applicables

MATERIAL CORRESPONDIENTE: ASME SA350LF2CL1-2-16, ASTM A350LF2CL1-2-15
Material Correspondent - Qualité
MODELO DE FUSION: ASME SA105M-15, ASTM A105M-14
Steel Making - Elaboration de l'acier
E = Elec. Y = Origine Española

DE 26/10/2015
of - de

DEPARTAMENTO: QUALITY ASSURANCE
Section
MARCA DEL FABRICANTE: ULMA
Mark of factory
Certified acc. PED 97/23/EC + MD2000-W0
by TÜV Rheinland
N° 01 202 EQ 02 7443
SGI 6099987
SGI 6099238
SGI 1022164
Management Systems certified by LRQAE

PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description	LOTE	OBSERVACIONES Remarks Observations	COLADA N° Heat No N° Coulee	RESISTENCIA T. Strength Resist Tensile N/mm ²	ELONGACION Elongation Allongement %	ESTRUCION Red. Area Striction %	RESILIENCIA Impact test Résistance Joules	CHARTY V 10x10mm MEDIA Average Moynage mm	DUREZA Hardness Dureté HRC
3	6	WN 18 300LB S80 RF A350LF2 V01 SICHAF	07D15	NE	19MV5	529	29.50	50.30	82	84	161 163
5	2	WN 20 800LB S160 RTJ A350LF2 V01 SICHAF	12N15	NE	F5MV4	539	28.70	56.10	77	79	172 175
7	12	WN 8 900LB S160 RTJ A350LF2	23N15	NE	C30A5	505	33.10	60.70	48	51	147 151
12	12	WN 12 300LB S80 RF A350LF2	16N15	NE	A08M5	522	31.30	53.60	71	75	159 165
13	16	WN 12 300LB XS RF A350LF2	11D15	NE	A08M5	540	28.60	56.40	73	78	164 168
15	24	WN 6 300LB STD/40 RF A350LF2	18N15	NE	A08M5	542	28.00	50.80	83	74	164 167
21	6	WN 20 150LB XS/30 RF A350LF2	10N15	NE	C15A5	522	25.00	48.80	61	64	172 175
25	6	WN 18 300LB S80 RF A350LF2 V01 SICHAF	07D15	NE	19MV5	529	29.50	50.30	82	84	161 163

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

C %	SI %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	CEq %
0.173	0.223	1.222	0.016	0.002	0.088	0.090	0.010	0.010	0.067	0.161	0.036	0.005	0.426
0.140	0.260	1.350	0.016	0.004	0.081	0.079	0.027	0.001	0.076	0.225	0.039	0.002	0.425
0.180	0.240	1.240	0.011	0.004	0.050	0.080	0.014	0.003	0.068	0.170	0.035	0.000	0.430
0.180	0.230	1.220	0.010	0.004	0.060	0.080	0.013	0.002	0.068	0.180	0.032	0.000	0.430
0.180	0.250	1.230	0.009	0.006	0.050	0.080	0.020	0.001	0.066	0.150	0.031	0.000	0.428
0.180	0.210	0.950	0.010	0.008	0.074	0.101	0.023	0.001	0.000	0.220	0.041	0.001	0.379
0.190	0.210	0.960	0.008	0.002	0.064	0.084	0.018	0.001	0.000	0.266	0.030	0.001	0.390
0.170	0.240	1.220	0.010	0.003	0.110	0.110	0.015	0.010	0.067	0.160	0.032	0.005	0.430

(*) OBSERVACIONES:
Remarks
Observations

N° NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR.

MTR # 56

- Les dimensions y la condition superficial se hallan satisfactorias.
- Dimension and surface condition were found acceptable.
- Les dimensions et états de surface sont satisfaisants.

- Los materiales citados cumplen las normas aplicables.
- Manufacturing requirements are satisfied.
- Les normes applicables sont respectées.

EL INSPECTOR
Works Inspector - L'inspecteur
ULMA FORJAS S. COOP.
Dpto. de Garantía de calidad
Quality Assurance Dept.

Order#: 482967 Seq: 41 PO#: 4500084343 Heat#: 31232/21 Mill: Nicola Galperti
Part#: FL 2 6 R W STD LF/52 Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK STD CSA GR359 CAT 2 M45C

		OFFICINE NICOLA GALPERTI E FIGLIO S.p.A. Capitale Sociale C 2 592.000.00 interamente versato Sede Legale e Amministrativa: 23824 DERIVIO (LC) - Via Enrico Fermi, 48 C.G. I.A.A. Lecco n. 00206980136 - R.E.A. 79816 - C.F. e P. IVA 000206980136 Sede Operativa: 23824 DERIVIO (LC) - Via Enrico Fermi, 48 - Officina - 0344-97210 23010 OGERA LARIO (CO) - Via Trivio Fuentes, 4 - Tel. 0344-97200 - Fax 0344-97210 E-mail: galperti@galperti.com - www.galperti.com		SPETT. LE / MESSRS: COMCO PIPE & SUPPLY CO. LTD A DIVISION OF RUSSEL METALS INC. 5910-17TH STREET EDMONTON, ALBERTA T5J 2K1 (CDN)														
		CERTIFICATO DI COLLAUDO TEST CERTIFICATE		NS ORDINE / INTERNAL JOB 130096														
DATA / DATE 10/05/2013		VS ORDINE / YOUR E1-3896 REV.1 (STOCK)		DATA / DATE 11/01/2013														
POS / ITEM 115/115		DESCRIZIONE / DESCRIPTION 2" 600 MM RF STD LF/52 B1 FSF4 NACE MR-01-75		QUANTITA' / QUANTITY 50 S														
MATERIALE / MATERIAL CSA Z245.12-09 GR 359		N° COLATA / PROVA 31232/21		ACCIAIERIA RIVA ACC. SPA														
ANALISI CHIMICA / CHEMICAL ANALYSIS																		
#	C %	MN %	SI %	P %	S %	CR %	NI %	MO %	CU %	V %	SN %	AL %	NB %	TI %	N %	B %	O %	CA %
A	0.180	1.180	0.240	0.017	0.012	0.140	0.070	0.010	0.170	0.024	0.008	0.025	0.001	0.011				
A C	0.180	1.185	0.230	0.015	0.005	0.135	0.065	0.010	0.165	0.020	0.005	0.030	0.001	0.011				
A															0.414	0.150	0.376	0.427
A C															0.395	0.145	0.377	0.425
NOTE / NOTES 04=Copper+Nickel+Chromium+Molybd.+Vanadium CU+NI+CR+MO+V 03=Chromium + Molybdenum CR+MO FC=Carbon Equivalent Short Formula C+(MN/6) FL=Carbon Equivalent Long Formula C+(MN/6)+((CR+MO+V)/5)+((NI+CU)/15)						C = ANALISI DI PRODOTTO / CHECK ANALYSIS												
CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES						RESILIENZA / CHARPY TEST												
#	TIPO TYPE	DIAMETRO PROVETTA mm	SEZIONE AREA mm²	LUNGHEZZA LUNGHT mm	TEMP TEMPERATURE C	ROTTURA TENSILE Mpa	SNERVAMENTO YSLD Mpa	ALL ELONG %	CONTR. REDUCT %	TIPO TYPE KV	TEMP. TEMPERATURE C	VALORI / VALUES Joule		DUREZZA HB HARDNESS (AVERAGE)				
A S		12.50	122.70	50.00	20	485	360	22.0	30.0		-50	Min. 27 Med. 27		197				
A O		12.50	122.70	50.00	20	556	397	27.5	69.5		-50	106 - 109 - 111		165				
NOTE / NOTES Lateral Exp/Shear Area (Average) A = mm.1.50/ 90%						O = OTTENUTE / OBTAINED S = STANDARD												
TRATTAMENTI TERMICI / HEAT TREATMENTS						NOTE GENERALI / GENERAL NOTES												
#	Normalized at 900 dgr.C for 1 h.-Cooling from 900 dgr.C in still air					FINITURE / ROUGHNESS FSF4=Ra = 125 AARH												
A						STANDARD B1 = ASME B16.5 ED.09 Inch STD												
MARCHIO DI FABBRICA TRADE MARK						DATA COLLAUDO INT INT. INSPECT DATE 10/05/2013		COLLAUDATORE INT INT. INSPECTOR P. CESARE		ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY						Certificat acc. PED 97/23/CE By Lloyd's Register Inc. I NC 100212		

Order#: 482967 Seq: 41 PO#: 4500084343 Heat#: 31232/21 Mill: Nicola Galperti
 Part#: FL 2 6 R W STD LF/52 Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK STD CSA GR359 CAT 2 M45C



The Original

OFFICINE NICOLA GALPERTI & FIGLIO S.p.A.

Capitale Sociale C2 582 500 interamente versato

Sede Legale e Amministrativa:

23824 DERVIO (LC) - Via Enrico Fermi, 46

C.C.I.A.A. Lecco n.00205990138 - R.E.A. n. 79816 C.F. e P.IVA IT00205990138

Stabilimento - Uffici Amministrativi / Workshop - Warehouse - Offices - Mailing address:

22010 GERA LARIO (CO) - Località S. Agata - Tel. (0344) 97200

Telefax (0344) 97210 - E-MAIL ADDRESS: galperti@galperti.com

WEB SITE : galperti.com



Certificate of Material Compliance

Page 1 of 1

Date 10/05/2013

CLIENT	COMCO PIPE & S.	SUPPLIER	OFFICINE NICOLA GALPERTI E FIGLIO
CLIENT ORDER No.	E1-3896 REV.1 (STOCK)	SUPPLIER'S Ref.No.	130096
ITEMS : SEE ATTACHED LIST	ATTACHED CERTIFICATES : 036491/1 to 036557/1		

We hereby certify that all items supplied for the above purchase order meet all requirements of the applicable specifications of manufacture, the purchase order item descriptions, purchase specifications and purchase order requirements. We certify that all applicable heat treatments, chemical analysis, mechanical tests, non destructive examinations, welding procedures, etc., as required in the purchase order, were performed and that the results were in accordance with the requirements of the purchase order. We certify that all required analysis and tests were performed on final production parts, or on specimens which were representative in all respects, of the final production part. We certify that all the instruments used for all the measurements are properly calibrated according to our internal procedure P011.

MATERIAL ACCORDING TO : **NACE MR-01-75/ ISO 15156**

S.AGATA : 10/05/2013

p.Off. NICOLA GALPERTI & FIGLIO S.p.A.

P. Cesare
 (Quality control department)

MTR # 57

Order#: 482967 Seq: 41 PO#: 4500084343 Heat#: 5123221 Mill: Nicola Galperti
 Part#: FL 2 6 R W STD LF/52 Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK STD CSA GR359 CAT 2 M45C



OFFICINE NICOLA GALPERTI & FIGLIO S.p.A.
 Capitale Sociale €2.582.500 interamente versato
 Sede Legale e Amministrativa:
 23824 DERVIO (LC) - Via Enrico Fermi, 48
 C.C.I.A.A. Lecco n.0025990178 - P.E.A.n. 79815 C.F. e P.IVA n.0025990138
 Stabilimento - Offici Amministrativi/Workshop - Warehouse - Offices - Mailing address:
 22010 GERA LARIO (CO) - Località S. Agata - Tel. (0344) 97200
 Telefax (0344) 97210 - E-MAIL ADDRESS: galperti@galperti.com
 WEB SITE: galperti.com



Certified acc. PED
 97/23/EC
 By LLOYDS Register

DECLARATION LETTER

Client: Comco Pipe & S.

Date: 20/09/2013

Subject: Declaration Letter from Galperti

P.O.: E1-3896 REV.1 (STOCK) - E1-3119 REV.3 (STOCK) - E1-2752 REV.1 (STOCK)

We, Officine Nicola Galperti & Figlio SpA, confirm that all the material on P.O. E1-3896, 3119 and 2752 for Comco Pipe & S. is to CSA GR.359 CAT II M45C SOUR SERVICE.

Best Regards.

P.Cesare
 (QC dept.)

Off.ne NICOLA GALPERTI & F.lio S.p.A.
 Località S. Agata - 22010 GERA LARIO (CO)
 Tel. 0344/97200 - Telefax 0344/97210

Order#: 482967 Seq: 41 PO#: 4500084343 Heat#: 9428-14/20 Mill: Nicola Galperti
Part#: FL 2 6 R W STD LF/52 Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK STD CSA GR359 CAT 2 M45C

		OFFICINE NICOLA GALPERTI E FIGLIO S.p.A. Capitale Sociale € 2.862.800,00 interamente versato Sede Legale e Amministrativa: 23824 DERIVIO (LC) - Via Enrico Fermi, 48 C.C.A.A. Lecco n.00206980138 - R.E.A. 79815 - C.F. e P.IVA IT00206980138 Stabilimento: Uffici Amministrativi / Warehouse: Warehouse: Differ: Mailing address: 22010 GERA LARIO (CO) - Via Trivio Fuentes, 4 - Tel. 0344-97200 - Fax 0344-97210 E-mail: galperti@galperti.com - www.galperti.com		SPETT LE / MESSRS COMCO PIPE & SUPPLY CO.LTD A DIVISION OF RUSSEL METALS INC. 5910- 17TH STREET EDMONTON, ALBERTA T5J 2K1 (CDN)														
		CERTIFICATO DI COLLAUDO TEST CERTIFICATE		NS ORDINE / INTERNAL JOB 131784														
DATA / DATE 27/05/2014		DATA / DATE 12/11/2013		DATA / DATE 12/11/2013														
POS / ITEM 123/123		DESCRIZIONE / DESCRIPTION 2" 600 MM RF STD LF/52 B1 FSF4 NACE MR-01-75		QUANTITA' / S/A 25 S														
MATERIALE / MATERIAL CSA Z245.12-09 GR359		N° COLATA / PROVA 9428-14/20		ACCIAIERIA STEEL MILL OLIFER/ACP SPA														
ANALISI CHIMICA / CHEMICAL ANALYSIS																		
	C %	MN %	SI %	P %	S %	CR %	N %	MO %	CU %	V %	SN %	AL %	NB %	TI %	N %	CO %	B %	H %
A	0.170	1.170	0.190	0.0060	0.0020	0.130	0.120	0.065	0.090	0.012	0.005	0.0200	0.001	0.002	0.0064	0.006	0.0002	0.0001
A	0.166	1.158	0.202	0.0070	0.0020	0.144	0.119	0.058	0.109	0.010	0.005	0.0286	0.001	0.002	0.0064	0.006	0.0002	0.0001
	O %	AS %	SB %	CA %											04 %	03 %	FC %	FL %
A	0.001	0.004	0.003	0.0020											0.4170	0.195	0.365	0.42
A	0.001	0.004	0.003	0.0020											0.4400	0.202	0.359	0.41
NOTE / NOTES 04=Copper+Nickel+Chromium+Molybd.+Vanadium CU+NI+CR+MO+V 03=Chromium + Molybdenum CR+MO FC=Carbon Equivalent Short Formula C+(MN/6) FL=Carbon Equivalent Long Formula C+(MN/6)+((CR+MO+V)/5)+((NI+CU)/15)																		
CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES																		
TRAZIONE / TENSILE										RESILIENZA / CHARPY TEST								
	TIPO TYPE	DIAMETRO PROVETTA MM	SEZIONE AREA MM ²	LUNGHEZZA LENGHT MM	TEMP. TEMPERATURE C	ROTTURA TENSILE Mpa	SNERVAMENTO YIELD Mpa	ALL. ELONG %	CONTR. REDUCT %	TIPO TYPE KV	TEMP. TEMPERATURE C	VALORI / VALUES Joule			DUREZZA HB HARDNESS (AVERAGE)			
A	S	12.50	122.70	50.00	20	455	360	20.0			-50	Min. 27 Med. 27			197			
A	O	12.50	122.70	50.00	20	569	374	28.7	71.4		-50	111 - 113 - 117			165			
NOTE / NOTES Lateral Exp/Shear Area (Average) A = mm.1.25/ 75%																		
TRATTAMENTI TERMICI / HEAT TREATMENTS Normalized at 900 dgr.C for 1 h.-Cooling from 900 dgr.C in still air										NOTE GENERALI / GENERAL NOTES FINITURE / ROUGHNESS FSF4=Ra = 125 AARH STANDARD B1 = ASME B16.5 ED.13 Inch STD								
NOTE / NOTES Material: CSA Z245.12-09 GR 359 CAT II M45C Material Sour Service.																		
MARCHIO DI FABBRICA TRADE MARK 		DATA COLLAUDO INT. INT. INSPECT DATE 27/05/2014				COLLAUDATORE INT. INT. INSPECTOR G. CANCLINI				  								
ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY		MTR #58																

ITEM #41

Order#: 482967 Seq: 41 PO#: 4500084343 Heat#: 9428-14/20 Mill: Nicola Galperti
 Part#: FL 2 6 R W STD LF/52 Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE WELD NECK STD CSA GR359 CAT 2 M45C



The Original

OFFICINE NICOLA GALPERTI & FIGLIO S.p.A.

Capitale Sociale C' 582.500 interamente versato

Sede Legale e Amministrativa

23824 DERVIO (LC) - Via Enrico Fermi, 46

C.C.I.A.A. Lecco n. 00205990138 - R.E.A. n. 79815 C.F. e P.IVA IT00205990138

Stabilimento - Uffici Amministrativi / Workshop - Warehouse - Offices - Mailing address:

22010 GERA LARIO (CO) - Località S. Agata - Tel. (0344) 97200

Telefax (0344) 97210 - E-MAIL ADDRESS: galperti@galperti.com

WEB SITE

galperti.com

**Certificate of Material
Compliance**

Page 1 of 1

Date 27/05/2014

CLIENT : COMCO PIPE	SUPPLIER : OFFICINE NICOLA GALPERTI E FIGLIO
CLIENT ORDER No. : E1-4675	SUPPLIER'S Ref.No. : 131784
ITEMS: ALL ITEMS	ATTACHED CERTIFICATES : 020411/1 TO 020443/1

We hereby certify that all items supplied for the above purchase order meet all requirements of the applicable specifications of manufacture, the purchase order item descriptions, purchase specifications and purchase order requirements. We certify that all applicable heat treatments, chemical analysis, mechanical tests, non destructive examinations, welding procedures, etc., as required in the purchase order, were performed and that the results were in accordance with the requirements of the purchase order. We certify that all required analysis and tests were performed on final production parts, or on specimens which were representative in all respects, of the final production part. We certify that all the instruments used for all the measurements are properly calibrated in according to our internal procedure P007.

MATERIAL ACCORDING TO : **Nace MR-01-75 / ISO 15156**

S.AGATA : 27/05/2014

p.Off. NICOLA GALPERTI & FIGLIO S.p.A.

G. CANCLINI 
 (Quality control department)

MTR #58

ITEM #42

Order#: 482967 Seq: 42 PO#: 4500084343 Heat#: A14M5 Mill: ULMA VA Desc: TAPERED TO STD
Part#: FL 10 6 R W STD LF/52 Part Desc: Flanges 10 (273mm O.D.) 600# RAISED FACE WELD NECK STD CSA GR359 CAT 2 M45C



CERTIFICADO DE INSPECCION
Inspection Certificate - Certificat de Réception

DIN EN 10204 / 3.1
ISO 10474 / 3.1

FECHA: 19/01/2016 N.º 177439
Date: Page: 5

DE
of - de 28/10/2015

SU PEDIDO N.º
Your Order No. E1-5436

NORMAS APLICABLES
Requirements - Normes Applicables

PRODUCTO
Article - Produit

MATERIAL CORRESPONDIENTE CSA-Z245.12-13 GR359 CAT II-SS

NACE MR0175/ISO15156-02-09 & MR0103-12
Clause 7.2.1.4, Annex A.2 and SSC Region 3.

MODOS DE FUSION (*)
Steel Making - Elaboration de l'acier

PARTIDA Item	CANTIDAD Quantity	DESCRIPCION Description	OBSERVACIONES Remarks	COLADA N.º Heat No	RESISTENCIA T. Strength	ALARGAMIENTO Elongation	ESTRICCION Red. Area	RESILIENCIA Impact test	CHAPV V 1010mm	DUREZA Hardness
17	12	42-10 600LB STD 10 RF CSA GR359 CAT II	NE	18D15	528	30,80	55,40	71	77	157 161
18	24	WN 10 800LB XS80 RF CSA GR359 CAT II	NE	17D15	522	31,80	58,30	79	73	164 168
24	12	WN 10 600LB S80 RF CSA GR359 CAT II	NE	17D15	522	31,80	58,30	79	73	164 168

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

C %	SI %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	CEq %
0,170	0,240	1,260	0,010	0,004	0,059	0,074	0,008	0,000	0,069	0,182	0,030	0,002	0,425

(*) OBSERVACIONES:
Remarks

Observations

EL INSPECTOR
Works Inspector - L'inspecteur

ULMA
ULMA FORJES S. COOP.
Dpto. de Garantía de calidad
Quality Assurance Dept.

MTR #59

Order#: 482967 Seq: 42 PO#: 4500084343 Heat#: A14M5 Mill: ULMA VA Desc: TAPERED TO STD
Part#: FL 10 6 R W STD LF/52 Part Desc: Flanges 10 (273mm O.D.) 600# RAISED FACE WELD NECK STD CSA GR359 CAT 2 M45C

CHECK ANALYSIS - PRODUCT ANALYSIS



ULMA Forja, S. Coop.
B.º Zubillaga, 3 - P.O. Box 14
20560 ORATÍ (Gipuzkoa) SPAIN
Tel.: (43) 78 05 52 - Fax: (43) 78 18 08

Ensayo solicitado por:

Test required by

Pedido N.º

PO No.

Fecha:

Data

COMCO PIPE & SUPPLY COMPANY

E1-6436

26/10/2015

Page:

Page

Carific

MTC No.

Fecha:

Date:

[illegible]Observaciones:
Remarks:

Jefe de Laboratorio
Laboratory Chief

ULMA
ULMA FORJAS S. COOP.
Dpto. de Garantía de Calidad
Quality Assurance Dept.

MTR # 59

* Machined to be 4" 5/40 x 2" 5/80 *

ernie fittings gmbh A-1024 Steiris Industriestraße 49 1110 Wien Telefon +43 1 5024 501-0 Telefax +43 1 5024 501-430		ernie fittings gmbh A-1024 Steiris Industriestraße 49 1110 Wien Telefon +43 1 5024 501-0 Telefax +43 1 5024 501-430	
Kunde (customer) Unified Alloys 8835 - 50 Avenue CON-T8E 5H4 Edmonton, Alberta		Abnahmeprüfzeugnis Inspection Certificate EN 10204 - 3.1 Zeugnis Nr. (cert. no.) 035774H1-HG Datum (date) 23/08/2011 Schmelze Nr. (heat no.) 042543 Ident. Nr. (ident. no.) 132450TD-0410/008539 Unsere Auftrags-Nr./Art.Nr. (our order no./item no.) Ihre Bestell. Nr. (your order no.) EP-93713 Menge (quantity) 2	
Artikelbezeichnung (designation) reducers KO-S-WP315/318L-4"12" S80S Anforderungen der Bestellung (requirements of the order) ASME B16.9-2007, material WP 316/316L-S, TR-680g-ASTM A 403/A 403M-10, ASME SA-403/SA-403M-Ed.07/08, TR-34g Eding: NACE MR017/ISO 15663-2:2003, A 1.5 and A2, NACE MR0103-2007 2.5 and 4, customer specific NACE MR0175-98 spectral, execution: Seamless		Artikelbezeichnung (designation) reducers KO-S-WP315/318L-4"12" S80S Anforderungen der Bestellung (requirements of the order) ASME B16.9-2007, material WP 316/316L-S, TR-680g-ASTM A 403/A 403M-10, ASME SA-403/SA-403M-Ed.07/08, TR-34g Eding: NACE MR017/ISO 15663-2:2003, A 1.5 and A2, NACE MR0103-2007 2.5 and 4, customer specific NACE MR0175-98 spectral, execution: Seamless	
Vormaterial (base material) Analyse (analysis) Index 1 Schmelze Nr. (heat no.) 042543 Ermittlungsart (melting process) EP-AOD C Si Mn P S Cr Mo Ni Cu Nb B N Co 0.018 0.47 1.42 0.008 0.001 16.90 2.18 11.20 0.20 0.0015 0.004 0.000		Metall-technologische Prüfung (met. technological test) Zugversuch (tensile test) Proben (test no.) 200534 Temp. (temp.) +20 °C Dehnung (elongation) 272 Bruchzeit (time to fracture) 5.60 Kerbschlagversuch (Charpy impact test) Form: Querschnitt (cross sec.) Temp. (temp.) 141-149 HB Härteprüfung (hardness test)	
Kennzeichnung (marking) AUSTRIA / WP316 / 316L-S / 0.0254 / 4"12" / S80S Bestätigung und Ausmessung (visual inspection and dimensional check) o.B./o.K. Bemerkungen (remarks) cold formed Intergranular corrosion test acc. ASTM A262E: o.B., PMI 100% spectral: o.k.		Zusatzmarkierung (add. mark.) Die gezeigten Produkte entsprechen den Anforderungen der Bestellung hinsichtlich Herstellung, Problemlösung, Testen und Prüfen. (The supplied products comply with the requirements of the order (making, manufacturing, testing and inspection).) (our Werkstättensiegel (for Works Inspection) 23/08/11 Grabner Hand Dieses Dokument wurde elektronisch erstellt und ist ohne Unterschrift gültig. (This certificate is issued by the computerized system and is valid without signature) 23 - 321	

ITEM # 79

Order#: 482967 Seq: 79 PO#: 4500084343 Heat#: MR140433 Mill: S.P. United Industry SDN. BHD

Part#: WF 8X6 STD CO 316 Part Desc: Weld Fittings 8 (219.1mm O.D.)X6 (168.3mm O.D.) STANDARD CONCENTRIC REDUCER A403-WP316/316L SS

Page : 1
(頁)Date : NOVEMBER 27, 2015
(日付)Certificate No. : IS-11-0649
(管理番号)

INSPECTION CERTIFICATE

S.P. UNITED INDUSTRY SDN. BHD.

(COMPANY NO. 36824 W)

P.T. 741745, KAWASAN PERUSAHAAN NIAL

71800 NILAI, NEGERI SEMBILAN DARUL KHUSUS, MALAYSIA

TEL: 606-7993577, 7993676, 7993677 FAX: 606-7994166

Email: spunited@sireamys.com / spunited@isind.net.my



Cust to UNITED ALLOYS (EDMONTON) LTD

Order No. : ISUN4012
(注文番号)

P.O. No. : EP-118926

Product Specification (規格)				Product Specification (規格)				Specification for Pipe (Raw Material) (材料規格)								
STAINLESS STEEL CONCENTRIC REDUCER				ASTM A312 TP 316/316L												
Size (寸法)	Outside Dia (外径)	Thickness (厚さ)	Heat No. (炉番番号)	Quantity (数量)	Surface Inspection (表面検査)	Dimension Inspection (寸法検査)	S. P. I. Code No.									
1" x 6" x 40S	219.08x168.28	8.18x7.11	MR140433	5	GOOD	GOOD	32348060									
Pipe Manufacturer : YC INOX CO., LTD																
Chemical Composition of Pipe (Raw Material) % (化学成分)								Mechanical Properties of Pipe (Raw Material) (機械的性質)								
Heat No. (炉番番号)	C x 100	Si x 100	Mn x 100	P x 1000	S x 1000	Ni x 100	Cr x 100	Mo x 100	Type of Specimen (試験片)	YS Mpa (耐力)	TS Mpa (引張強さ)	EL% (伸率) (GL-50mm)	EL% (伸率) Standard (標準値)	Flattening Test (へんろ試験) (水圧試験)	IT Mpa	Hardness Test HRC
1 MR140433	2.0	58	87	31	1	1000	1680	207		287	601	53		GOOD	GOOD	85
Specification	MAX 3.0	MAX 100	MAX 200	MAX 45	MAX 30	MAX 1000	MAX 1800	MAX 300		MIN 205	MIN 515	MIN				

Remarks : * Hardness acc. to NACE MR0175/ISO 15156-3: 2009, MR0103:2012
INTERGRANULAR CORROSION TEST (ASTM A262) - OK. PMI CHECK GOOD. ISO 9001 / EN 10204-3.1 PER 9721SEC ANNEX 1 PARAGRAPH 4.3
HEAT TREATMENT 1020 DEGREE CELSIUS QUENCHED IN WATER
MATERIAL WAS MANUFACTURED, SAMPLED, TESTED AND INSPECTED IN ACCORDANCE WITH INDICATED SPECIFICATIONS AND WAS FOUND TO MEET THE
REQUIREMENTS. NO WELD REPAIR WAS PERFORMED AND ALL ITEMS SUPPLIED ARE FREE OF WELD REPAIR.
MATERIAL IS FREE OF MERCURY CONTAMINATION AND RADIOACTIVITY.

We hereby certify that the above products meet the requirements of the relevant standard and of the customer order.
(上記の製品は、当該規格及び、注文の要求事項に適合することを証明します。)

TBH PETER
Head of Quality Control Dept.
品質管理部長

MTR #61

MR #62

ITEM # 83

Order#: 482967 Seq: 83 PO#: 4500084343 Heat#: T2397 Mill: Both-Well
 Part#: O 1 3M S 6 316 Part Desc: Olets 1 (33.4mm O.D.) 3000# (20.7MPa) SOCKOLET 6" RUN SIZE A182F316/316L



BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY TAIWAN R.O.C.(81460)
 TEL : (886)7-3711536, 3710497, 3720280 FAX : (886)7-3713864, 3713886
 WEB SITE : <http://www.bothwell.com.tw> E-Mail : box@bothwell.com.tw



MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER : UNIFIED ALLOYS
 CERT NO. : 150606
 ORDER NO. : EP-115064

INVOICE NO. : 5200004721
 L/C NO. :

PAGE : 190
 DATE : 03/07/2015
 ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
240	4A239 T2397	25 PCS	OUTLET REDUCING BAY F316L (1"X6" 3000# S/A) C:0.016 SI:0.39 MN:1.75 P:0.027 S:0.020 CU:- CR:16.81 NI:10.03 NO:2.02 V:- NB:- N:0.05 TS(KSI):76.0 YS 0.2%(KSI):32.3 EL(%):63.2 R.A.(%):76.5 HARDNESS 1(HRW):165 HARDNESS 2(HRW):166

REMARK :

THE MATERIAL SUPPLIED (IDENTIFIED AS ASTM A182 -14, ASME SA182 -2013ED, F316/F316L)
 THE FITTING SUPPLIED IDENTIFIED AS MSS SP-97 - 2012
 THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH SPECIFICATION(SURFACE & DIM) : GOOD
 STANDARD : CHEMICAL COMPOSITION(%) & MECHANICAL PROPERTIES.

	C	SI	Mn	P	S	Cu	Cr	NI	NO	V	CU(Kb)
MIN	-	-	-	-	-	-	16.0	10.0	2.00	-	-
MAX	0.030	1.00	2.00	0.045	0.030	-	18.0	14.0	3.00	-	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HRW)
MIN	-	-	-	-	-	75	-	30	50	-	-
MAX	0.10	-	-	-	-	-	-	-	-	-	-

HEAT TREATMENT : SOLUTION: 1060°C(1940°F) N.Q.

CONFORMS TO NACE MR0175-09/ISO15156-09/HRD103-12

WE CERTIFY THE ABOVE MENTIONED FITTINGS HAVE BEEN MANUFACTURED,
 SAMPLED, TESTED, AND INSPECTED IN ACCORDANCE WITH THE
 SPECIFICATIONS SHOWN

C.C. Huang
 Q.C. MANAGER

C.L. Ko
 INSPECTOR

MTR #64

Order#: 482967 Seq: 84 PO#: 4500084343 Heat#: YLQ Mill: Global Machine

Part#: F 8 1 R SPEC ASTM A240 316 Part Desc: Flanges 8 (219.1mm O.D.) 150# RAISED FACE SPEC BLIND ASTM A240 316 12.7 MM THK

GLOBAL
MACHINE & SUPPLY INC.

6803-71 Street
Edmonton, Alberta
T6B 2M5

Phone: 780-450-9757
Fax: 780-450-0298

MILL TEST REPORT

Date: December 4, 2015

HEAT CODE: YLQ

Description: Spectacle Product 6-150, 8-150

Material Designation: ASME SA240 316/316L

NACE: MR0175/ISO 15156-3 2009 & MR0103/07

Material Supplier: North American Stainless Canada Inc., via Rolark Stainless Steel

Heat Number: V7R0

Work Order: 140643

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Cb	Al	Nb	V	Ti	N
.0242	1.2215	.0335	.0010	.3195	16.6065	2.0020	10.0250	.5100	---	---	---	---	---	.0439

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (RB)	Charpy @ - 51°F (FT>LB)	Test Direction
48.20	90.54	55.33	67.93	87.50	---	

MISCELLANEOUS

Steelmaking Process:

Condition of Material: Solution Annealed 1900°F, water quenched.

Grain Size:

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed:

Quality Assurance Representative

Original Material plate
ASTM A240 316/316L
Cekel P.O. 1411
Work Order 140643

MTR # 65

MILL TEST REPORT

Date: June 12, 2015

Heat Code: XPP

Description: Spectacle Product 30-150, 12-600

Material Designation: SA516-70N

Material Supplier: Dillinger Hutte via Edmonton Exchanger

Heat Number: 413148-43887

Work Order: 137422, 155960

NACE: MR0175/ISO 15156-2 2009 Annex A & MR0103 2007

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Sn	AL	Nb	V	Ti	N
.188	1.17	.008	.0012	.373	.043	.051	.054	.022	.000	.032	.000	.001	.002	.0073

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (HBW)	Charpy @ -51°F (FTLB)	Test Direction	CE
49.2	74.5	35	---	139	76, 56, 96 (76)		41

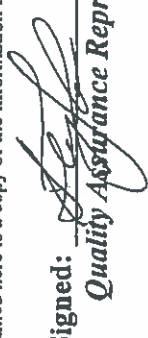
MISCELLANEOUS

Steelmaking Process:

Condition of Material: Normalized @ 1670°F, cooled in still air.

Grain Size: ASTM Specification A20/ A 20M

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: 

Quality Assurance Representative

Original Material plate

ASTM A516-70N
Chemical: 11066
WGS: 117421

NTR #66

ITEM #86

Order#: 482967 Seq: 86 PO#: 4500084343 Heat#: XPP Mill: Global Machine
Part#: F 12 6 R SPEC A516 Part Desc: Flanges 12 (323.8mm O.D.) 600# RAISED FACE SPEC BLIND A/SA516-70N

Order#: 482967 Seq: 86 PO#: 4500084343 Heat#: XQS Mill: Global Machine
Part#: F 12 6 R SPEC A516 Part Desc: Flanges 12 (323.8mm O.D.) 600# RAISED FACE SPEC BLIND A/SA516-70N

Phone: 780-450-9757
Fax: 780-450-0298

Date: June 19, 2015

MILL TEST REPORT

HEAT CODE: **XQS**
Description: **Spectacle Product 30-150, 56-150, 12-600**
Material Designation: **SA516-70N**
Material Supplier: **Dillinger Hutte via Edmonton Exchanger**
Heat Number: **414150-69037**
Work Order: **137350, 138027, 155961**

NACE: **MR0175/ISO 15156-2 2009 Annex A & MR0103 2010**

GLOBAL
MACHINE & SUPPLY INC.
6803-71 Street
Edmonton, Alberta
T6B 2M5

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Ca	Al-T	B	Nb	V	Ti	N
.172	1.17	.007	.0008	.377	.035	.007	.031	.027	.0021	.034	.0002	.000	.000	.002	.0069

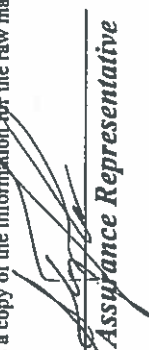
MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (HBW)	Charpy @ - 51°F (FT.LB)	Test Direction	C.E.
50.8	74.4	36	—	139	72, 93, 41 (69)	—	38

MISCELLANEOUS

Steelmaking Process:
Condition of Material: Normalized @ 1670°F. Cooled in still air
Grain Size: ASTM Specification A20/ A 20M

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: 
Quality Assurance Representative

Original Material's plate
ASTM A516-70N
Chemical P. 10: 13089
W.D.: 117350

MTR #67

Order#: 482967 Seq: 86 PO#: 4500084343 Heat#: YGT Mill: Global Machine
 Part#: F 12 6 R SPEC A516 Part Desc: Flanges 12 (323.8mm O.D.) 600# RAISED FACE SPEC BLIND A/SA516-70N

GLOBAL
 MACHINE & SUPPLY INC.
 6803-71 Street
 Edmonton, Alberta
 T6B 2M5

Phone: 780-450-9757
 Fax: 780-450-0298

MILL TEST REPORT

Date: November 4, 2015

Heat Code: YGT

Description: Spacer Ring 10-150 Full Face. Spectacle Product 12-600, 8-1500

Material Designation: SA516-70N

NACE: MR0175/ISO 15156-2 2009 Annex A & MR0103 2010

Material Supplier: Nippon Steel Corp. via Edmonton Exchanger

Heat Number: G8039-070730806

Work Order: 140219, 140864, 155961

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Ca	B	Nb	V	Ti	N
.16	1.42	.007	.003	.37	.01	.00	.02	.01	.0022	.0000	.011	.00	.00	.0031

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (HBW)	Charpy @ -50°F (FTLB)	Test Direction	CE
50	75	33	---	147	239, 227, 207 (224)		.40

MISCELLANEOUS

Steelmaking Process:

Condition of Material: Normalized @ 910°C for 10 minutes

Grain Size: ASTM Specification A20/ A 20M

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: 
 Quality Assurance Representative



MTR #68

Order#: 482967 Seq: 86 PO#: 4500084343 Heat#: YXH Mill: Global Machine
Part#: F 12 6 R SPEC A516 Part Desc: Flanges 12 (323.8mm O.D.) 600# RAISED FACE SPEC BLIND A/SA516-70N

Phone: 780-450-9757
Fax: 780-450-0298

Date: April 5, 2016

MILL TEST REPORT

GLOBAL
MACHINE & SUPPLY INC.
6803-71 Street
Edmonton, Alberta
T6B 2M5

Heat Code: **YXH**

Description: **Spectacle Product 12-600** Vent Blind 10-600

Material Designation: **SA516-70N**

Material Supplier: Hyundai Steel Company via Edmonton Exchanger

Heat Number: N22254-FA48339301

Work Order: 143330, 155961

NACE: MR0175/ISO 15156-2 2009 Annex A & MR0103 2010

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	B	S.A.L	Nb	V	Ti	N
.1718	1.170	.0134	.0017	.337	.17	.00	.17	.114	.0001	.024	.014	.002	.002	.0041

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ -50.8°F (FTLB)	Test Direction	CE
52.4	80.1	34	---	153.2	120, 116, 136 (124)		.420

MISCELLANEOUS

Steelmaking Process:

Condition of Material: Normalized @ 1634°F for 72 min.

Grain Size: ASTM Specification A20/A 20M

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: _____

Quality Assurance Representative

Original Material plate

ASTM A516-70N
Chemical: 24186
W.D.: 14330

MTR #69



6803-71 Street
Edmonton, Alberta
T6B 2M5

Phone: 780-450-9757
Fax: 780-450-0298

MILL TEST REPORT

Heat Code: **ZRF**

Description: **Spectacle Product 12-600**

Material Designation: **SA516-70N**

Material Supplier: Hyundai Steel Company via Edmonton Exchanger

Heat Number: N24935-FA49042801

Work Order: 155510

Date: May 6, 2016

NACE: MR0175/ISO 15156-2 2009 Annex A & MR0103

Order#: 482967 Seq: 86 PO#: 4500084343 Heat#: ZBF Mill: Global Machine
Part#: F 12 6 R SPEC A516 Part Desc: Flanges 12 (323.8mm O.D.) 600# RAISED FACE SPEC BLIND A/SA516-70N

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	B	S.A.L	Ca	Nb	V	Ti	N
.1689	1.181	.0095	.0017	.346	.19	.00	.18	.120	.0002	.032	.0017	.013	.002	.002	.0028

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (HB)	Charpy @ -50.8°F (FTLB)	Test Direction	CE
50.7	78.2	34	---	148.9	196, 113, 153, (154)	---	.424

MISCELLANEOUS

Steelmaking Process:

Condition of Material: Normalized @ 1634°F for 72 min.

Grain Size: ASTM Specification A20/A 20M

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed:

[Signature]
Quality Assurance Representative

Original Material Spec

ASTM SA516-70N
Charpy @ -50.8°F
W.D. 155510

MTR #70

ITEM # 86

Order#: 482967 Seq: 86 PO#: 4500084343 Heat#: ZDU Mill: Global Machine
 Part#: F 12 6 R SPEC A516 Part Desc: Flanges 12 (323.8mm O.D.) 600# RAISED FACE SPEC BLIND A/SA516-70N

Phone: 780-450-9757
 Fax: 780-450-0298

Date: June 3, 2016

MILL TEST REPORT

GLOBAL
 MACHINE & SUPPLY INC.
 6803-71 Street
 Edmonton, Alberta
 T6B 2M5

Heat Code: ZDU

Description: Spectacle Product 12-600

Material Designation: SA516-70N

Material Supplier: Dillinger Hutte via Edmonton Exchanger

Heat Number: 426691-93978

Work Order: 155961

NACE: MR0175/ISO 15156-2 2009 Annex A & MR0103

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Sn	AL-T	B	Ca	Nb	V	Ti	N
.186	1.19	.009	.0009	.381	.040	.008	.037	.027	.001	.035	.0000	.0017	.000	.000	.002	.0071

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (HBW)	Charpy @ -51°F (FTLB)	Test Direction	CE
49.2	75.0	36	---	143	116, 111, 66, (98)	---	.40

MISCELLANEOUS

Steelmaking Process:

Condition of Material: Normalized @ 1670°F, cooled in still air.

Grain Size: ASTM Specification A20/ A 20M

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed:

Quality Assurance Representative

Original Material plate

ASTM SA516-70N
 Global P.O.: 50178
 W.O.: 155961

Order#: 482967 Seq: 87 PO#: 4500084343 Heat#: YNW Mill: Global Machine
 Part#: F 2 6 R SPEC A516 Part Desc: Flanges 2 (60.3mm O.D.) 600# RAISED FACE SPEC BLIND A/SA516-70N

Phone: 780-450-9757
 Fax: 780-450-0298

Date: December 31, 2015

MILL TEST REPORT

NACE: MR0175/ISO 15156-2 2009 Annex A & MR0103

GLOBAL
 MACHINE & SUPPLY INC.
 6803-71 Street
 Edmonton, Alberta
 T6B 2M5

Heat Code: **YNW**

Description: Spectacle Product 3/4-300, 1-150, 1-3/600, 2-150, 2-600

Material Designation: SA516-70N

Material Supplier: Essar Steel Algoma Inc., via Canadian Plate Products

Heat Number: 1052B3-AS6221

Work Order: 140934, 141042, 141149, 141187, 141945

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	B	AL	Sn	V	Ti	Ca
.18	1.27	.013	.005	.360	.03	.00	.01	.02	.0003	.037	---	.017	.003	.00280

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (HBW)	Charpy @ .50°F (FTLB)	Test Direction	CE
56.0	78.0	28	---	163	102, 115, 125 (114)		.40

MISCELLANEOUS

Steelmaking Process:

Condition of Material: Normalized @ 1670°F 12 min.

Grain Size: ASTM Specification A20/A 20M

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: 

Quality Assurance Representative

Original Material plate

ASTM A516-70N
 Global P.O. 24724
 W.O. 140934

Order#: 482967 Seq: 121 PO#: 4500084343 Heat#: K2973 Mill: Keddco

Part#: SW 1X.75 XS CO PBE L6 Part Desc: Swage Nipples 1X.75 XS CONCENTRIC PLAIN BOTH ENDS A420-WPL6



HOME

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Material Test Report

Report Number: 27719

Date: 29/01/2016

Description: 1/2 SWAGE A BULL PLUGS

Heat Treatment: NORM

Specification: ASME ASTM A234 WPB420-WPL6

Material: C1022

Year of Revision:

GRN: 0A7470.5CR1

Comment: NACE MR0103-07 MR0175/ISO 15156-2-03

Additional Comment: DUAL CERTIFIED TO A234/WPB

Chemical Analysis

Heat Code: K2973

Heat Number: NF14201211

C	0.18	Cu	0.14	Al	0.025
Mn	0.93	Ni	0.32	Ti	0
P	0.007	Cr	0.09		0
S	0.005	Mo	0.02		0
Si	0.21	V	0.012		0
N	0	Cb/Nb	0.002		0

Carbon Equivalency Formula Used:
 $C + (Mn/6) + (Cr + Mo + V)/5 + (Ni + Cu)/15$
 CE = 0.18

Mechanical Tests

Yield PSI: 54310

Tensile PSI: 74916

Elongation: 22 % @ 8" "

Reduction of Area % 71

Size: 1.315" RND

Brinell Hardness: 140

Charpy Impact Test

Individual Values: -50 F

(V1) 95 ft/lbs (V2) 100 ft/lbs (V3) 72 ft/lbs

This Material Test Report meets DIN 50 049/EN 10 204 3.1, B Standard 1995

We hereby Certify that the material described has been tested in accordance with the specifications, and the results are correct as contained in the records of the Company.

Lisa Bidtner
 Q.A. Manager L. Bidtner

Sarnia, Ontario
 645 Keddco St., Sarnia, ON, N7T 6G3
 Toll Free: 1-866-511-1381

Edmonton, Alberta
 3911 - 76th Ave., Edmonton, AB, T6B 2S8
 Toll Free: 1-877-465-0303

Houston, Texas
 12107-2 Old Huffmeister Rd., Cypress, TX, 77429
 Toll Free: 1-855-539-7016

Order#: 482967 Seq: 125 PO#: 4500084343 Heat#: 57618017 Mill: MISC
 Part#: WF 10 STD T L6/52-BARRED Part Desc: Weld Fittings 10 (273mm O.D.) STANDARD STRAIGHT TEE L6/52-BARRED



Fort Saskatchewan, Alberta
 103 Westmeads Drive, T8L 3X7

CUSTOMER:		Goralta Oilfield Supply Ltd.		REPORT#	16290
BILLING ADDRESS:		1603 - 70 Avenue, Edmonton, AB. T6P 1N5		DATE:	13-Jun-16
JOB LOCATION:		Goralta Oilfield Supply Ltd.		PAGE 1 of 1	
JOB NUMBER:		NA	INSPECTION ON:	INSPECTION TECHNIQUE	MT
MATERIAL TYPE:		As Listed	CODE:	ASME SECTION V-	Article 7
				P.O. / AFE#	89861
				Pre and Post Stress Weld Scraper Bars	
				MPI performed as per CSA Z245.11	

TESTING EQUIPMENT & MATERIALS

EQUIPMENT	TECHNIQUE	TEST MEDIUM	Done Time
✓ HAND YOKE	MT-AC ✓	Magnaflux WCP-2 White Contrast	✓ 15m
Model:B300	MT-DC	Magnaflux 7HF (Black Mag. Suspension)	✓ Cont.
Serial:886	Continuous ✓	Grey Dry Particle	
✓ Flashlight (>100fc @ surface)	Residual ✓	Magnaflux (Visible Water Washable Penetrant)	
✓ Black Light Output (>1000µW/cm2)	Mag. Time 5Sec	Magnaflux Liquid Spray Developer	
Back Light (Fluorescent) (<1fc for Fluorescent)	DeMag. Time N/A	Magnaflux Fluorescent Particle Suspension	
		Pre-Clean: Wire Brushing	✓

INSPECTION RESULTS

	Quantity	Item	Material Type	Size	Thickness	Description/Comments	ACC	REJ
1	3	Scraper Bars	Gr.359	10"	STD	Tee Scraper Bar Fillet Welds	✓	
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

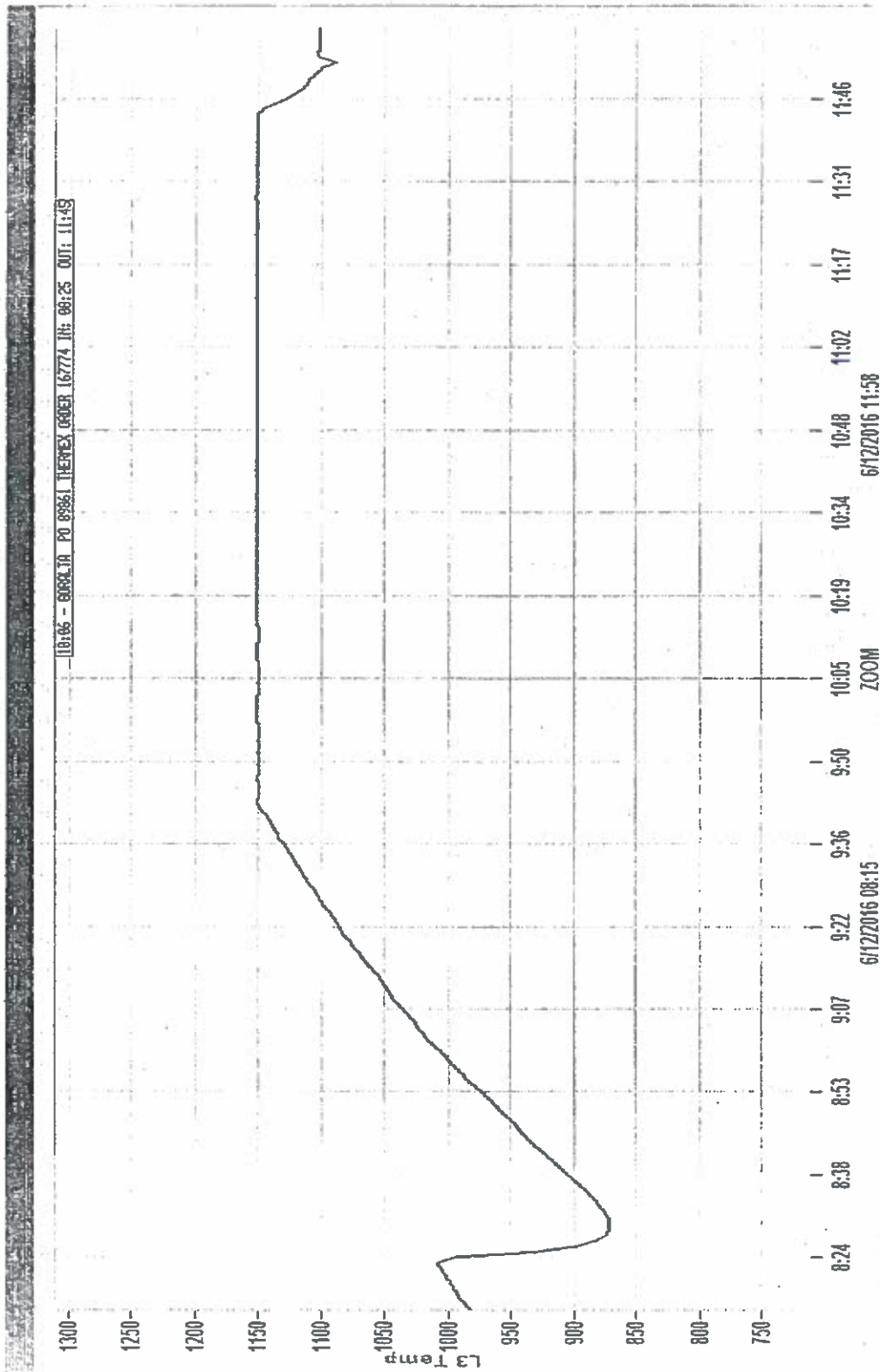
TBI Inspector: B. Music #6289		THIS IS AN INTERPRETATION. NOT A GUARANTEE! CGSB MT #6289 BILLY JACK MUSIC #6289	Consumables	
TBI Assistant:			Regular Hours	
			Overtime Hours	
			Mileage	
By acceptance of this report, the client accepts the results of this inspection.			Substance	

MTR # 77

ITEM # 125

Order#: 482967 Seq: 125 PO#: 4500084343 Heat#: 576T8017 Mill: MISC
Part#: WF 10 STD T L6/52-BARRED Part Desc: Weld Fittings 10 (273mm O.D.) STANDARD STRAIGHT TEE L6/52-BARRED

FURNACE TEMPERATURE CHART



Legend
L3 Temp
Garfield System
ISO 9001

MTR # 77

Order#: 482967 Seq: 125 PO#: 4500084343 Heat#: 57b18017 Mill: MISC
 Part#: WF 10 STD T L6/52-BARRED Part Desc: Weld Fittings 10 (273mm O.D.) STANDARD STRAIGHT TEE L6/52-BARRED



Thai Benkan Co., Ltd.
 58 Soi Wukruad, Bangkru, Prapadaeng,
 Samutprakarn, 10130 Thailand.

D M Y Certificate No.
 04/12/2014 T-2014070532

INSPECTION CERTIFICATE

TO EN10204 3.1

Purchaser: COMCO PIPE AND SUPPLY COMPANY

Job No.

Purchase Order No.
E1-4823 REV.2

E-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection																
MD-341	ASTM A182-12/ASME SA 182-12 GR. WP. NCSA Z245.11-12 GR359 CAT 1 M45C DS ANSI/ASME A182-12/ASME SA 182-12 GR359 / MRO103-2012 (RSC Rupture 3)	ASME B16.9-2012 AND CSA Z245.11-13	Good	Good																
MFG. No.	Product & Size	(T*1)	Quantity																	
57B18017	T Z245.11-13 WPL8/359 M45C SS 10 9.27		15																	
	Base Material Heat No.		Hardness Actual Data																	
	J415919		120,130,144																	
Specifi- cation	Chemical Composition %														*2 Tension Test		Hardness Max 197 HBW : GOOD			
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	Ti	B	Ca	C.E.	Y S	T S	E	Impact Test (J) 10 x 6.7 x 2V AT -45 C
Min.		15	50														380	455	32	288
Max.	23	40	135	30	10	35	40	25	12	60	80	20	5	5				625		290
*3 II	11	26	133	12	0	2	2	13	1	41	0	0	1	1			381	538	40	290
*3 P	11	26	133	12	0	2	2	13	1	22	3	3	1	1						AVE. 289

NORMALIZING 910 C x 0.5 HR., W.Q.T The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.
 * Impact test to be performed by specimen in transverse orientation for fittings size 3 inch & above. For fittings below 3 inch, will be done by longitudinal.

* 3 (P) C.E. = C+Fe(Mn/6+Si/24+Cu/15+Ni/20+Cr+Mo+V+Nb)/5+5B) (CSA Spec.)

* Fully killed and fine grain practiced

C.E. = C+Mn/6+Cr+Mo+V+Ni/5+Cu/15

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY: GOOD

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation * 3 : P-Product Analysis II-Ladle Analysis
 Form TZ-67/1

Rungrapa Kamphanon

Quality Assurance Manager
 Thai Benkan Co., Ltd.

MTR # 77

Order#: 482967 Seq: 126 PO#: 4500084343 Heat#: 946285 Mill: Tectubi Raccordi
Part#: WF 12 STD T L6/52 Part Desc: Weld Fittings 12 (323.8mm O.D.) STD WELD TEE CSA GR359 CAT 2 M45C



Via Roma 160, 28027 Podenzano (PC), Italy
mail: info@tectubiraccordi.com
Tel: ++39 0523555111
Fax: ++39 0523555318

TECTUBI RACCORDI S.p.A.

NUMBER 117787-4
REVISION
DATE 17/04/2015

INSPECTION CERTIFICATE EN 10204 - 2004

3.1 3.2

CLIENT:

ORDER:

JOB:

CLIENT ITEM 57 Q.ty 100 DESCRIPTION 12 STD SCH. STD - SM 5
HEAT 946285 - N
CHEMICAL COMPOSITION
HEAT 946285 - N
min. max.
C 0.30 1.60 0.50 0.05 0.06 0.120 1.250 0.310 0.012 0.001
Si 0.110 1.220 0.290 0.011 0.001
P 0.120 0.120 0.150 0.070 0.014 0.090 0.0002 0.400
S 0.120 0.120 0.150 0.070 0.013 0.080 0.0001
Ni 1.00 1.50 1.00 0.13 0.10 0.25 0.001
Cu 0.120 0.120 0.150 0.070 0.014 0.090 0.0002 0.400
Cr 0.25 0.110 0.120 0.120 0.150 0.070 0.013 0.080 0.0001
Mn 1.60 0.50 0.06 0.05 0.06 0.120 1.250 0.310 0.012 0.001
Fe 0.110 1.220 0.290 0.011 0.001
P 0.120 0.120 0.150 0.070 0.014 0.090 0.0002 0.400
S 0.120 0.120 0.150 0.070 0.013 0.080 0.0001
Ni 1.00 1.50 1.00 0.13 0.10 0.25 0.001
Cu 0.120 0.120 0.150 0.070 0.014 0.090 0.0002 0.400
Cr 0.25 0.110 0.120 0.120 0.150 0.070 0.013 0.080 0.0001
Mn 1.60 0.50 0.06 0.05 0.06 0.120 1.250 0.310 0.012 0.001
Fe 0.110 1.220 0.290 0.011 0.001

BY LADLE ANALYSIS

SPECIFICATION CSA Z245.11-13

MATERIAL GR 359

STEEL MAKER TENARIS / DALMINE

CERT. N. 01/1500162

RAW MATERIAL PIPE

BY CHECK ANALYSIS

MECHANICAL PROPERTIES
Tensile Test
Temp. °C
Y.S. U.T.S. E% Elong. Sample
min. max. min. max. min. max. min. max. min. max.
395 557 36.8 T 10x7.5 132-139-146 80-80-85 1.21-1.3-1.34 156-167 0.71
307382
Manufacturing method: Cold Formed
Heat treatment: Normalizing at 920°C (1H11* WTH) still air cooling
Visual and dimensional examination in accordance with:
ASME B16.9 - Ed. 2012
ASME B16.25 - Ed. 2012

ON FINISHED FITTINGS

ON RAW MATERIAL

SUPPLEMENTARY REQ. ...

ACTIVITIES	CERTIFICATE
RESULT	
ACTIVITIES	CERTIFICATE
RESULT	

Work Inspector

DATE

SIGNATURE

DATE

SIGNATURE

Third part Inspector

SIGNATURE

DATE

We hereby certify that the materials listed below have been manufactured in compliance with the order and mentioned rules.

EU DIRECTIVE 97/23/EC ANNEX I SECT. 4.3 & 7.5

MTR # 78

ITEM # 130

Order#: 482967 Seq: 130 PO#: 4500084343 Heat#: 63Z4503 Mill: Kanzen Tetsu Sdn Bhd
Part#: WF 3 STD T 316 Part Desc: Weld Fittings 3 (88.9mm O.D.) STANDARD STRAIGHT TEE A403-WP316/316L SS

CERTIFICATE NO : 9115870 (S) DATE : 30/06/2012

CONTRACT NO : 9264499

SHIPPER : KANZEN TETSU SDN BHD

ORDER NO. : EP-98458

CUSTOMER : UNIFIED ALLOYS

PRODUCT : STAINLESS STEEL WELD FITTINGS

SPECIFICATION : FITTINGS WITH A403/A403M 904318-97a

MILL TEST REPORT IN ACCORDANCE TO EN 10204 3.1



Kanzen Tetsu Sdn Bhd
Company No. 118827-W
S.O. Box 77272, Lot 4 Persiaran Permaisuri
Seri 7/23, 40700 Shah Alam, Selangor Darul Ehsan, Malaysia.
Tel: (603) 5543 0200 Fax: (603) 5541 5777
http://www.kanzen-tetsu.com e-mail: info@kanzen-tetsu.com

PRODUCT SIZE	QUANTITY PCS	TOTAL LENGTH	WEIGHT KGS	HEAT NUMBER	TENSILE TEST				HARD- NESS TEST HV0.05	HYDRO- STATIC TEST MPa	FLAT TENSILE TEST	CORROSION TEST IN ACCORDANCE TO	CHEMICAL COMPOSITION (wt %)									
					F _U N/mm ²		A ₅ %	E _L %					C	Si	Mn	P	S	Ni	Cr	Mo		
					min	max																
WP316/316L N X 6" X 3" X SCH40S X CON REDUCER	1	-	3	6313402	285	515	78	-	-	-	-	-	-	3.0	100	200	45	50	1400	1000	300	
WP316/316L N X 6" X 4" X SCH40S X CON REDUCER	6	-	20	6317907	322	601	50	86	-	-	-	-	-	2.3	42	80	29	2	1005	1004	201	
WP316/316L N X 4" X 3" X SCH40S X TEE REDUCER	4	-	6	6301509	303	589	55	87	-	-	-	-	-	2.2	47	100	32	1	1010	1000	207	
WP316/316L N X 1" X SCH40S X 3T TEE	5	-	1	6312703	275	601	51	80	-	-	-	-	-	1.9	63	111	31	2	1046	1044	204	
WP316/316L N X 3" X SCH40S X 5T TEE	25	-	38	6316201	290	601	51	84	-	-	-	-	-	2.4	59	105	20	1	1044	1070	201	
WP316/316L N X 6" X SCH40S X 3T TEE	6	-	44	6319004	286	591	52	84	-	-	-	-	-	2.3	49	174	34	1	1011	1710	203	
WP316/316L N X 6" X SCH40S X 3T TEE	12	-	66	6319107	282	595	51	87	-	-	-	-	-	1.8	45	100	30	2	1000	1710	204	
WP316/316L N X 3" X SCH40S X 3T TEE	30	-	78	6315011	303	606	57	80	-	-	-	-	-	2.4	48	174	35	1	1000	1700	202	
WP316/316L N X 3" X SCH40S X 3T TEE	70	-	103	6315011	311	594	60	83	-	-	-	-	-	2.5	38	91	31	2	1006	1045	201	
WP316/316L N X 4" X SCH40S X 3T TEE	75	-	157	6312706	274	602	51	79	-	-	-	-	-	2.3	42	81	32	1	1004	1047	202	
WP316/316L N X 2" X SCH40S X CAP	6	-	1	6300402	331	631	48	87	-	-	-	-	-	2.5	38	104	26	3	1043	1042	205	
		-											-	2.1	60	175	34	1	1010	1710	206	

1050 DEGREE CELSIUS QUENCHED IN WATER

HEAT TREATMENT:

U.S. = Yield strength
F_T = Tensile strength
A₅ = Elongation
E_L = Reduction of area
1100 = 1000°F
1100 = 593°C
Country of Origin = Malaysia

Heat numbers are in accordance to NACE MR 0175 / ISO 15156-3 and NACE MR 0103
(Latest Edition)

QA DEPARTMENT

100% TEST NEWS
100% TEST NEWS

MTP #80

ITEM #131

Order#: 482967 Seq: 131 PO#: 4500084343 Heat#: 63BP124 Mill: KT Fittings Sdn Bhd

Part#: WF 6 STD T 316 Part Desc: Weld Fittings 6 (168.3mm O.D.) STANDARD STRAIGHT TEE A403-WP316/316L SS

CERTIFICATE NO : 9136937 (1) DATE : 20/10/2014

CONTRACT NO : 9206810

SHIPPER : KT FITTINGS SDN BHD

ORDER NO. : TP-33791

CUSTOMER : UNIFIED ALLOYS

PRODUCT : STAINLESS STEEL BUTT WELD FITTINGS

SPECIFICATION : ASTM A403/ASME SA403W-13

MILL TEST REPORT

IN ACCORDANCE TO EN 10204 3.1



FITTINGS

SENDIRIAN BERHAD

KT Fittings Sdn Bhd

Company No: 63955-H
 Lot 8095, Jalan Sungai Rasau 32, Kawasan 16, Sungai Rasau,
 41300 Klang, Selangor Darul Ehsan, Malaysia
 Tel: +603-3344 9733 Fax: +603-3344 9722
 Website: www.facbi.com Email: ktfittings@facbi.com

PRODUCT SIZE	QUANTITY	TOTAL LENGTH	WEIGHT	HEAT NUMBER	TENSILE TEST			HARDNESS TEST (HRC)	HYDROSTATIC TEST (MPa)	FLAT TENSILE TEST	CORROSION TEST IN ACCORDANCE TO	CHEMICAL COMPOSITION (wt%)						
					Y.S.	T.S.	EL. %					C	Si	Mn	P	S	Ni	Cr
					N/mm ²	N/mm ²	N/mm ²					X 100	X 100	X 1000	X 1000	X 1000	X 100	X 100
WP316/316L N X 8" X 6"	6	-	17	63BP012	205	515	28	-	-	-	-	3.0	100	200	45	30	1000	1600
X SCH10S X ECC REDUCER												1.4	65	60	32	2	1014	1653
WP316/316L N X 3"	15	-	24	63BP004	279	578	56	77	-	-	-	1.9	34	139	28	3	1003	1679
X SCH10S X ST TEE	2	-	19	63BP120	277	597	50	79	-	-	-	1.1	48	105	31	2	1024	1664
WP316/316L N X 6"	3	-	29	63BP124	290	569	50	83	-	-	-	1.1	48	105	31	2	1024	1664
X SCH10S X ST TEE	15	-	37	63BP702	290	569	50	83	-	-	-	2.0	39	126	35	3	1003	1661
WP316/316L S X 8"																		
X SCH10S X CAP																		

QA DEPARTMENT

Dimensions are in accordance to latest edition of ANSI B16.9

Dimension as per ASME B16.9 - 2012

Hardness are in accordance to NACE MR 0175 / ISO 15156-3 and NACE MR 0103

(Latest Edition)
 A subsidiary of FACBI Industries Incorporated Berhad

HEAT TREATMENT: 1050 DEGREE CELSIUS QUENCHED IN WATER

NOTE:
 Y.S. = Tensile Strength
 T.S. = Tensile Strength
 EL. % = Elongation in %
 HRC = Rockwell C Hardness
 1kg = 1,000 Ppd
 1kg = 1,000 Ppd
 Country of Origin = Malaysia

LOW KEER HENG
 QA MANAGER

KY/DOO/QA-22

MTR #81

ITEM # 134

Order#: 482967 Seq: 134 PO#: 4500084343 Heat#: D0606401 Mill: Sung Kwang Bend

Part#: WF 8X6 STD RT 316 Part Desc: Weld Fittings 8 (219.1mm O.D.)X6 (168.3mm O.D.) STANDARD REDUCING TEE A403-WP316/316L SS

MATERIAL TEST & INSPECTION CERTIFICATE															
CUSTOMER: SUNGKWANG BEND CO., LTD.(SKB) 1720, Songjeong Dong, Gangseo Gu, Busan Korea TEL: 42-001-3300-450 FAX: 42-001-3300-335 http://www.skbent.com According to DIN 90409 3.1 / EN 10204 3.1 / ISO 10174 3.1															
PURCHASE ORDER NO.		DATE OF ORDER		CERTIFICATE NO.											
-		17/01/2017		COL000000001											
STARTING MATERIAL		SPEC. FOR MATERIAL		ASTM/SAE/ASME/EN/ISO/BS/...											
-		-		-											
STARTING MATERIAL		SPEC. FOR INSPECTION		ASME B16.3											
-		-		-											
DESCRIPTION		QTY		HEAT NO.											
REDUCING TEE		2		D123456											
SIZE		SIZE		SIZE											
8" X 6"		8" X 6"		8" X 6"											
CHEMICAL COMPOSITIONS (TABLE P - PRODUCT)															
STR		C		Mn		P		S		Si		Cu		Ni	
NOM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ACT		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
DIN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ASTM		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
SAE		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
EN		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
ISO		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
BS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
JIS		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GB		0.03		0.03		0.005		0.005		0.03		0.03		0.03	
GOST		0.03		0.03		0.005		0.005		0.03		0.03		0.03	

Order#: 482967 Seq: 138 PO#: 4500084343 Heat#: JRFS Mill: MEGA
Part#: O 2 STD W 10X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 10X8 A/SA350-LF2 CL1

MERGE

INSPECTION CERTIFICATE
Certificato d'ispezione

REPORT N. Rapporto N.		TC-014630-15-0005		Issued on Emissione il		19/05/2015		Customer Cliente		Job n. / Com. n.		14620		Page n./ Pagina n.		23 of 28									
Revision Revisione		0		According to In accordo a		EN 10204:2005		Type Tipo		3.1		Purchase order and project/Ordine e progetto 12015AMG													
DESCRIPTION / DESCRIZIONE																									
Test Prova	Item Pos.	Qty Q.tà	Customer code Codice cliente	Material Materiale	Heat Colata	Product Prodotto																			
BDCK	307	2	A/SA105-14	371231	MEGALET S. 6000 NPT A/SA105N 4x6																				
JURT	316	2	A/SA105-14	418590	MEGALET S. 6000 SW A/SA105N 3x14-16																				
JSSD	318	10	A/SA350-14 LF2 CL1	221834	MEGALET Sch. STD A/SA350 LF2 CL1 3x3-5																				
SSXS	319	25	A/SA350-14 LF2 CL1	216632	MEGALET Sch. STD A/SA350 LF2 CL1 1x6-36																				
JRFS	321	40	A/SA350-14 LF2 CL1	13/76109	MEGALET Sch. STD A/SA350 LF2 CL1 1x6-36																				
HEAT TREATMENT DATA AND REFERENCES TO OTHER CERTIFICATES / Dettagli di trattamento termico e riferimenti ad altri certificati																									
BDCK	MATERIAL PRODUCED BY ELECT FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. 17805 B3 NUOVA SIN*1740 B4 METALFAR*NU-000%																								
JURT	MATERIAL PRODUCED BY ELECT FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR. CERT.1137668IMS*0001MEGA*																								
JSSD	MATERIAL PRODUCED BY ELECT FURNACE-QUENCHED AT 920 C TEMPERED AT 630 C CERT.13 EVASI*0004MEGA																								
SSXS	MATERIAL PRODUCED BY ELECT FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR CERT.110 EVASI*CERT.1306-2 TTR																								
JRFS	MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 870 C TEMPERED AT 640 C CERT.327 EVASI MEGA																								
Test Prova	Item Pos.	Orientation Direz.	Specimen / Provino Shape - A [mm] ² L [mm] Forma - Sezione Lungh.	Yield strength Snerv [Mpa] Rottura [Mpa]	Tensile strength Rottura [Mpa]	Elongation Allung. [%]	Red. Of Area Contraz. [%]	Dimens. Dimens. (mm)	Temp. T [°C]	Abs. Energy Energia ass. [J]	Shear A Area d [%]	Lat Exp Esp. lat. (mm)	Bend [B] Flatt. (F) Plega	Hardness Durezza											
BDCK	7/2	LONG	Round 122.300 50.000	319.000	534.000	29.000	48.000	10x10x55	-46	124 - 105 - 161	-	-	-	HBW 160 - 162											
JURT	7/2	LONG	Round 122.300 50.000	367.000	546.200	35.300	74.500	10x10x55	-46	87 - 33 - 90	-	-	-	HBW 173 - 175											
JSSD	7/2	LONG	Round 30.500 25.000	345.300	532.100	29.300	66.900	10x10x55	-46	89 - 63 - 79	-	-	-	HBW 163 366											
SSXS	7/2	LONG	Round 30.500 25.000	355.100	542.500	29.600	65.300	10x10x55	-46	89 - 63 - 79	-	-	-	HBW 156 - 159											
JRFS	7/2	LONG	Round 30.500 25.000	378.200	532.100	31.400	73.100	10x10x55	-46	59 - 62 - 64	-	-	-	HBW 165 - 170											
Test Prova	C	SI	Mn [%]	P [%]	S [%]	Cr [%]	Ni [%]	Mo [%]	Ti [%]	Cu [%]	V [%]	Al [%]	Co [%]	Nb [%]	N [%]	Sn [%]	W [%]	B [%]	Fe [%]	Zr [%]	CE ^A [%]	PREN ^C [%]	X fact. ^C [%]	J fact. ^C [%]	
BDCK	0.1900	0.2800	0.9200	0.0030	0.0130	0.1200	0.0900	0.0300	0.0020	0.2300	0.0010	0.0220	0.0010	0.0020	0.0040	0.0086	0.0210	0.0140	0.0040	0.0040	0.3948	0.3895	0.4000	0.3802	0.3802
JURT	0.1750	0.2400	1.0000	0.0020	0.0110	0.1200	0.0900	0.0200	0.0022	0.2000	0.0030	0.0220	0.0010	0.0040	0.0086	0.0210	0.0140	0.0040	0.0040	0.0040	0.3948	0.3895	0.4000	0.3802	0.3802
JSSD	0.1680	0.1900	1.0430	0.0070	0.0100	0.1110	0.1300	0.0450	0.0020	0.2410	0.0050	0.0210	0.0010	0.0040	0.0086	0.0210	0.0140	0.0040	0.0040	0.0040	0.3948	0.3895	0.4000	0.3802	0.3802
SSXS	0.1610	0.2140	1.0200	0.0050	0.0070	0.0980	0.1240	0.0220	0.0020	0.2380	0.0040	0.0260	0.0010	0.0040	0.0086	0.0210	0.0140	0.0040	0.0040	0.0040	0.3948	0.3895	0.4000	0.3802	0.3802
JRFS	0.1950	0.2200	0.9600	0.0100	0.0140	0.1100	0.0600	0.0100	0.0020	0.1800	0.0210	0.0240	0.0010	0.0040	0.0086	0.0210									

Form OC-01-01 Rev. 0 2013-03-15

M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzorosciole (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail inspection@mega-illings.com

MTR # 83

Order#: 482967 Seq: 138 PO#: 4500084343 Heat#: JRES Mill: MEGA
Part#: O 2 STD W 10X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 10X8 A/SA350-LF2 CL1

M.E.G.A.

INSPECTION CERTIFICATE

Certificato d'ispezione

REPORT N. Rapporto N.	TC-014620-15-0005	Issued on Emesso il	19/05/2015	Customer Cliente		Job n. / Com. n.	14620	Page n. / Pagina n.	28 of 28
Revision Revisione	0	According to In accordo a	EN 10204:2005	Type Tipo	3.1	Purchase order and project/Ordine e progetto	12015AMG		

We hereby certify that all items supplied for the above purchase orders meet all the requirements of the applicable specification of manufacture, the purchase item descriptions, purchase specifications and purchase order requirements. Visual, dimensional and marking check of items supplied has been carried out by our internal inspectors with satisfactory results.

The chemical and mechanical values shown on the EN 10204 certificate are true copy of the mill test certificate issued by the steel mill, or by the laboratory that determined it. All material is certified to be mercury free. No weld repair was performed. Marking was performed by low stress stamps in accordance with MSS SP25.

Manufacturing standards:

- 45° and 90° elbows, tees, crosses, full and half couplings, caps, square, hexagonal and round plugs, hexagonal and flush bushings are manufactured in accordance with ASMEB. 16.11; threads in accordance with ANSI/ASME B1.20.1.
 - Outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and MSS-SP-97
 - Seamless swage nipples are manufactured in accordance with: BS3799-74 or MSS SP95-86
 - Seamless pipe nipples are manufactured in accordance with: B36.10-95 or B36.19-85
 - Flanged outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and B.16.5
 - Unions are manufactured in accordance with: BS 3799 or MSS SP-83
- When the length of flanged nipple is not specified in the description, it is 150 mm.
The material is according to ASTM and ASME Boiler and Pressure Vessel Code Section II.
When the Edition/Revision of the listed standards is not mentioned, it is assumed to be the latest.

Yield strength detected by 0.2% off-set method

Austenitic and duplex stainless steels have been pickled and passivated. Machined surfaces do not require pickling and passivation.

M.E.G.A. is approved with certificate 75/2002/MUC by T.U.V. (certification Body N.0036) to issue certificate of specific product control in accordance with the Pressure Equipment Directive 97/23/EC (PED) Annex 1, Paragraph 4.3.

Testing equipment used:

- Tensile test machine Galdabini Quasar 250 serial No. VAOG - Procedure QC-03 Rev. 1
 - Impact test Cermac JB-W500 serial No. 04031 - Procedure QC-02 Rev. 1
 - Hardness test Wolpert Dia Testor 2RC serial No. 8900298/0001 - Procedure QC-04 Rev. 0
 - Chemical analysis spectrometer Baird DV4 serial No. P017 (ASTM E415 and E1086) - Procedure QC-07 Rev. 0
- The product are manufactured in Italy.

Quality Inspector representative

Ispettore controllo qualità

Ricardo Scorselli

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trademark M.E.G.A. is printed in green color.

Form QC-01-01 Rev. 0 2013-03-15

M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzosoriole (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail inspection@mega-filings.com

MTR # 83

INSPECTION CERTIFICATE
Certificato d'Ispezione

REPORT N. Rapporto N.		TC-014620-15-0005		Issued on Emissione il		19/05/2015		Customer Cliente		Job n. / Com. n.		14620		Page n. / Pagina n.		24 of 28					
Revision Revisione		0		According to In accordo a		EN 10204:2005		Type Tipo		3.1		Purchase order and project/Ordine e progetto 12015AMG									
Test Prova	Item Pos.	Qty Q.tà	Customer code Codice cliente	Material Materiale	Heat Cottita	DESCRIPTION / DESCRIZIONE															
SSFA	321	10		A/SA350-14 LF2 CL1	1273926	MEGALET Sch. STD. A/SA350 LF2 CL1 2x8-12															
SSUX	321	50		A/SA350-14 LF2 CL1	1376109	MEGALET Sch. STD. A/SA350 LF2 CL1 4x10-12															
PSRF	338	5		A/SA350-14 LF2 CL1	074522/07	MEGALET S. 3000 NPT A/SA350 LF2 CL1 4x10-12															
SSXS	342	300		A/SA350-14 LF2 CL1	216632	MEGALET S. 3000 SW A/SA350 LF2 CL1 1x6-36															
PSFN	345	50		A/SA350-14 LF2 CL1	1T 33083	MEGALET S. 3000 SW A/SA350 LF2 CL1 2x3															
HEAT TREATMENT DATA AND REFERENCES TO OTHER CERTIFICATES / Dettagli di trattamento termico e riferimenti ad altri certificati																					
Test Prova	MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 920 C TEMPERED AT 630 C																				
SSFA	MATERIAL PRODUCED BY ELECT. FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR.																				
SSUX	MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 920 C TEMPERED AT 640 C																				
PSRF	MATERIAL PRODUCED BY ELECT. FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR.																				
SSXS	MATERIAL PRODUCED BY ELECT. FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR.																				
PSFN	MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 930 C TEMPERED AT 640 C																				
Test	Test loc.	Test Preso a	Specimen Shape Forma	Specimen Dim. A [mm]	Specimen Dim. B [mm]	Specimen Dim. C [mm]	Yield strength Snerv [Mpa]	Tensile strength Rottura [Mpa]	Elongation Allung. [%]	Red. Of Area Contraz. [%]	Dimens. (mm)	Dimens. (mm)	Temp. [°C]	Abs. Energy Energia ass. [J]	Shear A Area d [%]	Lat Exp. Exp. Lat. [mm]	Bend [°]	Hardness Durezza			
SSFA	T/2	LONG	Round	30.500	25.000	337.200	499.500	512.400	31.400	70.800	10x10x55	10x10x55	-46	45 - 40 - 51	-	-	-	HBW 160 - 164			
SSUX	T/2	LONG	Round	30.400	25.000	338.200	512.400	523.500	32.800	72.900	10x10x55	10x10x55	-46	59 - 70 - 68	-	-	-	HBW 146 - 149			
PSRF	T/2	LONG	Round	59.400	35.000	344.200	523.500	542.500	29.600	65.300	10x10x55	10x10x55	-46	89 - 83 - 79	-	-	-	HBW 142 - 146			
SSXS	T/2	LONG	Round	30.500	25.000	355.100	542.500	559.000	27.200	62.300	10x10x55	10x10x55	-46	66 - 64 - 66	-	-	-	HBW 150 - 159			
PSFN	T/2	LONG	Round	30.600	25.000	388.000	559.000	572.000	27.200	62.300	10x10x55	10x10x55	-46	66 - 64 - 66	-	-	-	HBW 163 - 167			
Test	Test C	Test Si	Test Mn	Test S	Test P	Test Cr	Test Ni	Test Mo	Test Ti	Test Cu	Test V	Test Al	Test Co	Test Nb	Test N	Test Fe	Test Zr	Test CE ^A	Test PREN ^A	Test X fact. ^C	Test J fact. ^D
SSFA	0.1800	0.2400	0.8700	0.0100	0.0090	0.0600	0.0500	0.0100	0.0190	0.1200	0.0180	0.0250	0.0010	0.0010	0.0080	0.0080	0.3539	0.3539	0.3539	0.3539	
SSUX	0.1950	0.2200	0.9600	0.0100	0.0140	0.1100	0.0600	0.0100	0.0220	0.1800	0.0240	0.0240	0.0020	0.0020	0.0100	0.0020	0.3994	0.3994	0.3994	0.3994	
PSRF	0.1800	0.2350	1.0500	0.0030	0.0170	0.1050	0.0180	0.0050	0.0030	0.0260	0.0260	0.0260	0.0017	0.0017	0.0010	0.0010	0.3803	0.3803	0.3803	0.3803	
SSXS	0.1610	0.2140	1.0200	0.0050	0.0070	0.0980	0.1280	0.0220	0.0230	0.0040	0.0260	0.0260	0.0010	0.0010	0.0080	0.0080	0.3633	0.3633	0.3633	0.3633	
PSFN	0.1900	0.2300	0.8600	0.0100	0.0100	0.0600	0.0100	0.0100	0.0100	0.1300	0.0290	0.0290	0.0020	0.0020	0.0080	0.0080	0.3633	0.3633	0.3633	0.3633	
REMARKS / Note																					
1: MATERIAL ACCORDING TO NACE MR0175/ISO 15156-1-2-3 Ed. 2009. MATERIAL ACCORDING TO NACE MR0103 Ed.2012																					
2: MATERIAL ACCORDING TO ASME Sect. II Part. A 2013 EDITION.																					
A: CE = C + Mn/6 + (Cr+Mo+V)/5 + (Cu+Ni)/15 B: PREN = Cr + 3.3Mo + 16N C: X factor = (10P + 55b+45n+As)/100 - elements expressed in ppm D: J factor = ((Mn + Si) / P + Sn) x 10E4																		Quality Inspector representative Ispettore controllo qualità			
																		Riccardo Scarcelli			

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M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzorosciate (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661189 - Fax +39 035 665535 - E-mail inspection@mega-illtngs.com

MTR # 84

Order#: 482967 Seq: 138 PO#: 4500084343 Heat#: ~~SSUX~~ Mill: MEGA
Part#: O 2 STD W 10X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 10X8 A/SA350-LF2 CL1

M.E.G.A.

INSPECTION CERTIFICATE

Certificato d'ispezione

REPORT N. Rapporto N.	TC-014620-15-0005	Issued on Emissione	19/05/2015	Customer Cliente		Job n. / Com. n. Purchase order and project/Ordine e progetto	14620 12015AMG	Page n. / Pagina n. 28 of 28
Revision Revisione	0	According to In accordo a	EN 10204:2005	Type Tipo	3.1			

We hereby certify that all items supplied for the above purchase orders meet all the requirements of the applicable specification of manufacture, the purchase item descriptions, purchase specifications and purchase order requirements. Visual, dimensional and marking check of items supplied has been carried out by our internal inspectors with satisfactory results.

The chemical and mechanical values shown on the EN 10204 certificate are true copy of the mill test certificate issued by the steel mill, or by the laboratory that determined it. All material is certified to be mercury free. No weld repair was performed. Marking was performed by low stress stamps in accordance with MSS SP25.

Manufacturing standards:

- 45° and 90° elbows, tees, crosses, full and half couplings, caps, square, hexagonal and round plugs, hexagonal and flush bushings are manufactured in accordance with ASMEB.16.11; threads in accordance with ANSI/ASME B1.20.1.
 - Outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and MSS-SP-97
 - Seamless swage nipples are manufactured in accordance with: BS3799-74 or MSS SP95-86
 - Seamless pipe nipples are manufactured in accordance with: B36.10-95 or B36.19-85
 - Flanged outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and B.16.5
 - Unions are manufactured in accordance with: BS 3799 or MSS SP-83
- When the length of flanged nipple is not specified in the description, it is 150 mm.
The material is according to ASTM and ASME Boiler and Pressure Vessel Code Section II.
When the Edition/Revision of the listed standards is not mentioned, it is assumed to be the latest.

Yield strength detected by 0.2% off-set method

Austenitic and duplex stainless steels have been pickled and passivated. Machined surfaces do not require pickling and passivation.

M.E.G.A. is approved with certificate 75/2002/MUC by T.U.V. (certification Body N.0036) to issue certificate of specific product control in accordance with the Pressure Equipment Directive 97/23/EC (PED) Annex 1, Paragraph 4.3.

Testing equipment used:

- Tensile test machine Galdabini Quasar 250 serial No. VADG – Procedure QC-03 Rev. 1
 - Impact test Cermac JB-W500 serial No. 04031 – Procedure QC-02 Rev. 1
 - Hardness test Wolpert Dia Testor 2RC serial No. 8900298/0001 – Procedure QC-04 Rev. 0
 - Chemical analysis spectrometer Balrd DV4 serial No. P017 (ASTM E415 and E1086) – Procedure QC-07 Rev. 0
- The product are manufactured in Italy.

Riccardo Scorsetti

Quality inspector representative

Ispettore controllo qualità

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Form QC-01-01 Rev. 0 2013-03-15

M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzorosale (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail inspection@mega-fittings.com

MTR # 84

Order#: 482967 Seq: 138 PO#: 4500084343 Heat#: VSSR Mill: MEGA
Part#: O 2 STD W 10X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 10X8 A/SA350-LF2 CL1

MEGA

INSPECTION CERTIFICATE

Certificato d'ispezione



REPORT N. Rapporto N.		TC-013230-14-0001		Issued on Emesso il		04/07/2014		Customer Cliente		ALLIED FITTING CANADA		Job n. / Com. n.		13230		Page n. / Pagina n.		30 of 36													
Revisione		0		According to In accordo a		EN 10204:2005		Type Tipo		3.1		Purchase order and project/Ordine e progetto		52014AMG																	
DESCRIPTION / DESCRIZIONE																															
Test Prova		Item Pos.		Qty Q.tà		Customer code Codice cliente		Material Materiale		Heat Corta		Product Prodotto																			
VDAT		216		22				A/SA350-13 LF2 CL1		11779800		MEGALET Sch-STD LF2 CL1 2 X5-6																			
JSHC		217		65				A/SA350-13 LF2 CL1		12773826		MEGALET Sch-STD LF2 CL1 2 X8-12																			
VRRB		217		1				A/SA350-13 LF2 CL1		12772457		MEGALET Sch-STD LF2 CL1 2 X8-12																			
VSSR		217		34				A/SA350-13 LF2 CL1		11779800		MEGALET Sch-STD LF2 CL1 2 X14-36																			
VRRB		218		100				A/SA350-13 LF2 CL1		12772457		MEGALET Sch-STD LF2 CL1 2 X14-36																			
HEAT TREATMENT DATA AND REFERENCES TO OTHER CERTIFICATES / Dettagli di trattamento termico e riferimenti ad altri certificati																															
VDAT		MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 910 C TEMPERED AT 600 C																													
JSHC		MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 920 C TEMPERED AT 630 C																													
VRRB		MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 880 C TEMPERED AT 640 C																													
VSSR		MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 900 C TEMPERED AT 630 C																													
VRRB		MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 880 C TEMPERED AT 640 C																													
TENSILE TEST / Trazione																															
Test		Test loc.		Orient.		Specimen / Provino		Yield strength		Tensile strength		Elongation		Red. Of Area		Dimens.		T		CVN (KV) / Prova di resilienza		Bend		Flatten.		Hardness					
Prova		Prova a		Direz.		Shape Forma		A [mm] ² Sezione		L [mm] Lunghezza		Snerv. Mlni.		Rottura [Mpa]		Allung. [%]		Min.		Max.		Lat Exp Esp. Lat.		Plega		Schiecc.		Durezza			
VDAT		T/2		LONG		Round		31.400		25.000		380.200		518.100		31.400		74.200		10x10x55		-46		58-65-59		-		-		159-164	
JSHC		T/2		LONG		Round		30.600		25.000		336.300		498.900		31.800		65.400		10x10x55		-46		39-44-49		-		-		153-156	
VRRB		T/2		LONG		Round		30.300		25.000		332.800		492.400		35.100		74.300		10x10x55		-46		37-42-61		-		-		158-160	
VSSR		T/2		LONG		Round		30.600		25.000		341.300		520.100		34.000		65.300		10x10x55		-46		89-73-99		-		-		160-165	
VRRB		T/2		LONG		Round		30.300		25.000		332.800		492.400		36.100		74.300		10x10x55		-46		37-42-61		-		-		158-160	
Test		C		SI		SI		S		P		Cr		Ni		Mo		Ti		Cu		V		Al		Co		Nb		Fe	
VDAT		0.2000		0.2200		0.8500		0.0090		0.0100		0.0500		0.0100		0.0210		0.1500		0.0200		0.0230		0.0080		0.0010		0.0010		0.0080	
JSHC		0.1800		0.2400		0.8700		0.0100		0.0090		0.0600		0.0500		0.0100		0.0190		0.1200		0.0180		0.0080		0.0010		0.0010		0.0020	
VRRB		0.2000		0.1800		0.9100		0.0100		0.0090		0.1000		0.0500		0.0100		0.0220		0.1500		0.0190		0.0020		0.0010		0.0010		0.0020	
VSSR		0.2000		0.2200		0.8500		0.0100		0.0090		0.0900		0.0500		0.0100		0.0210		0.1500		0.0200		0.0080		0.0010		0.0010		0.0020	
VRRB		0.2000		0.1800		0.9100		0.0100		0.0090		0.1000		0.0500		0.0100		0.0220		0.1500		0.0190		0.0020		0.0010		0.0010		0.0020	
REMARKS / Note																															
1: MATERIAL ACCORDING TO NACE MR0175/ISO 15156-1-2-3 Ed 2009																															
2: MATERIAL ACCORDING TO NACE MR0103 Ed 2012																															
3: Material according to ASME Sect. II Part A 2013 Edition.																															
Quality inspector representative										Inspector control quality																					
Emmanuel Centemeri										Inspector control quality																					

Form QC 01-01 Rev. 0 2013-03-15

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trademark M.E.G.A. is printed in green color.

M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzorosciale (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail inspection@mega-fillings.com

MTR # 85

Order#: 482967 Seq: 138 PO#: 4500084343 Heat#: VSSB Mill: MEGA
 Part#: O 2 STD W 10X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 10X8 A/SA350-LF2 CL1

M.E.G.A.

INSPECTION CERTIFICATE

Certificato d'ispezione



REPORT N. Rapporto N.	TC-013230-14-0001	Issued on Emissione il	04/07/2014	Customer Cliente	ALLIED FITTING CANADA	Job n. / Com. n.	13230	Page n. / Pagina n.	36 of 36
Revision Revisione	0	According to In accordo a	EN 10204:2005	Type Tipo	3.1	Purchase order and project/Ordine e progetto	52014AMG		

We hereby certify that all items supplied for the above purchase orders meet all the requirements of the applicable specification of manufacture, the purchase item descriptions, purchase specifications and purchase order requirements. Visual, dimensional and marking check of items supplied has been carried out by our internal inspectors with satisfactory results.

The chemical and mechanical values shown on the EN 10204 certificate are true copy of the mill test certificate issued by the steel mill, or by the laboratory that determined it. All material is certified to be mercury free. No weld repair was performed. Marking was performed by low stress stamps in accordance with MSS SP25.

Manufacturing standards:

- 45° and 90° elbows, tees, crosses, full and half couplings, caps, square, hexagonal and round plugs, hexagonal and flush bushings are manufactured in accordance with ASMEB.16.11; threads in accordance with ANSI/ASME B1.20.1.
- Outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and MSS-SP-97
- Seamless swage nipples are manufactured in accordance with: BS3799-74 or MSS SP95-86
- Seamless pipe nipples are manufactured in accordance with: B36.10-95 or B36.19-85
- Flanged outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and B.16.5
- Unions are manufactured in accordance with: BS 3799 or MSS SP-83

When the length of flanged nipple is not specified in the description, it is 150 mm.

The material is according to ASTM and ASME Boiler and Pressure Vessel Code Section II.

When the Edition/Revision of the listed standards is not mentioned, it is assumed to be the latest.

M.E.G.A. is approved with certificate 75/2002/MUC by T.U.V. (certification Body N.0036) to issue certificate of specific product control in accordance with the Pressure Equipment Directive 97/23/EC (PED) Annex 1, Paragraph 4.3.

Testing equipment used:

- Tensile test machine Galdabini Quasar 250 serial No. VAOG – Procedure QC-03 Rev. 1
 - Impact test Cernac JB-W500 serial No. 04031 – Procedure QC-02 Rev. 1
 - Hardness test Wolpert Dia Testor 2RC serial No. 8900298/0001 – Procedure QC-04 Rev. 0
 - Chemical analysis spectrometer Balrd DV4 serial No. P017 (ASTM E415 and E1086) – Procedure QC-07 Rev. 0
- The product are manufactured in Italy.

Quality control laboratory Laboratorio controllo qualità	Emmanuel Centeneri
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Form QC-01-01 Rev. 0 2013-09-15

M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzorosciate (Bergamo) - Italy - VAT IT 00210080166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail Inspection@mega-fittings.com

MTR #85

Order#: 482967 Seq: 139 PO#: 4500084343 Heat#: JRFS Mill: MEGA

Part#: O 2 STD W 12X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 12X8 A/SA350-LF2 CL1

M.E.G.A.**INSPECTION CERTIFICATE**
Certificato d'ispezione

REPORT N. Rapporto N.		TC-014620-15-0005		Issued on Emesso il		19/05/2015		Customer Cliente		Job n. / Com. n.		14620		Page n. / Pagina n.		23 of 28	
Revision Revisione		0		According to In accordo a		EN 10204:2005		Type Tipo		3.1		Purchase order and project/Ordine e progetto		12015AMG			
DESCRIPTION / DESCRIZIONE																	
Test Prova	Item Pos.	Qty Q.tà	Customer code Codice cliente	Material Materiale	Heat Cottura	Product Prodotto											
BDCK	307	2		A/SA105-14	371231	MEGALET S. 6000 NPT A/SA105N 4x6											
JURT	316	2		A/SA105-14	418590	MEGALET S. 6000 SW A/SA105N 3x14-16											
JSSD	318	10		A/SA350-14 LF2 CL1	221834	MEGALET Sch. STD A/SA350 LF2 CL1 1x3-5											
SSXS	319	25		A/SA350-14 LF2 CL1	216632	MEGALET Sch. STD A/SA350 LF2 CL1 1x6-36											
JRFS	321	40		A/SA350-14 LF2 CL1	1376109	MEGALET Sch. STD A/SA350 LF2 CL1 1x6-36											
RAW AND FORGING MATERIAL CERTIFICATES / Certificati di accielleria/forgia																	
Test Prova	HEAT TREATMENT DATA AND REFERENCES TO OTHER CERTIFICATES / Dettagli di trattamento termico e riferimenti ad altri certificati																
BDCK	MATERIAL PRODUCED BY ELECT. FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. 17805.83 NUOVA SIA5*1740.84 METALFAR Nb=004%																
JURT	MATERIAL PRODUCED BY ELECT. FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR. CERT.1137668.JMS*0001MEGA*																
JSSD	MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 920 C TEMPERED AT 630 C CERT.13 EVASI*0044MEGA																
SSXS	MATERIAL PRODUCED BY ELECT. FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR. CERT.110.EVASI*0044MEGA																
JRFS	MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 870 C TEMPERED AT 640 C CERT.327.EVASI MEGA																
TENSILE TEST AT ROOM TEMPERATURE / Trazione a temperatura ambiente																	
Test Prova	Test loc.	Specimen Shape	Yield strength Snerv [Mpa]	Tensile strength Rottura [Mpa]	Elongation Allung. [%]	Red. Of Area Contraz. [%]	Dimens. (mm)	Temp. [°C]	Abn. Energy Energia ass. [J]	Shear A Area d [%]	Lat Exp Esp. Lat. [mm]	Bend [B] Pieg. [°]	Hardness Durezza				
BDCK	T/2	Round	319.000	534.000	29.000	48.000	10x10x55	-46	124 - 105 - 161	-	-	-	HBW 160 - 162				
JURT	T/2	Round	367.000	546.200	35.300	74.500	10x10x55	-46	87 - 93 - 90	-	-	-	HBW 173 - 175				
JSSD	T/2	Round	345.300	532.100	29.300	66.900	10x10x55	-46	89 - 83 - 79	-	-	-	HBW 163 - 166				
SSXS	T/2	Round	355.100	542.500	29.600	65.300	10x10x55	-46	59 - 62 - 64	-	-	-	HBW 156 - 159				
JRFS	T/2	Round	378.200	522.100	31.400	73.100	10x10x55	-46	-	-	-	-	HBW 165 - 170				
Test Prova	C	SI	Min	Mo	Y	Al	Nb	N	W	B	Fe	Zr	CE ^A	PREN ^B	X fact. ^C	J fact. ^D	
BDCK	0.1900	0.2800	0.9200	0.0030	0.0130	0.1200	0.0900	0.0300	0.2300	0.0010	0.0020	0.0086	0.0120	0.0040	0.0086	0.0010	
JURT	0.1750	0.2400	1.0000	0.0020	0.0110	0.1200	0.0900	0.0200	0.2000	0.0030	0.0020	0.0086	0.0120	0.0040	0.0086	0.0010	
JSSD	0.1680	0.1900	1.0430	0.0070	0.0100	0.1110	0.1500	0.0450	0.2410	0.0050	0.0210	0.0040	0.0120	0.0040	0.0050	0.0010	
SSXS	0.1610	0.2140	1.0200	0.0050	0.0070	0.0980	0.1280	0.0220	0.2380	0.0040	0.0260	0.0040	0.0120	0.0040	0.0050	0.0010	
JRFS	0.1950	0.2200	0.9600	0.0100	0.0140	0.1100	0.0600	0.0100	0.1800	0.0020	0.0240	0.0020	0.0100	0.0020	0.0020	0.0010	

REMARKS / Note

1: MATERIAL ACCORDING TO NACE MR0175/ISO 15156-1:2-3 Ed.2009. MATERIAL ACCORDING TO NACE MR0103 Ed.2012

2: MATERIAL ACCORDING TO NACE MR0175/ISO 15156-1:2-3 Ed.2009. MATERIAL ACCORDING TO NACE MR0103 Ed.2012

MTR #86

Quality inspector representative
Isipatore controllo qualità

Ricardo Scorsetti

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trademark M.E.G.A. is printed in green color.

Form QC-01-03 Rev. 0 2013-03-15

M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzoscale (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail Inspection@mega-illings.com

Order#: 482967 Seq: 139 PO#: 4500084343 Heat#: JPI S Mill: MEGA
Part#: O 2 STD W 12X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 12X8 A/SA350-LF2 CL1

MEGA

INSPECTION CERTIFICATE

Certificato d'ispezione



REPORT N. Rapporto N.	TC-014620-15-0005	Issued on Emissione	19/05/2015	Customer Cliente	Job n. / Com. n.	14620	Page n. / Pagina n.	28 of 28
Revision Revisione	0	According to In accordo a	EN 10204:2005	Type Tipo	Purchase order and project/Ordine e progetto 12015AMWG			

We hereby certify that all items supplied for the above purchase orders meet all the requirements of the applicable specification of manufacture, the purchase item descriptions, purchase specifications and purchase order requirements. Visual, dimensional and marking check of items supplied has been carried out by our internal inspectors with satisfactory results.

The chemical and mechanical values shown on the EN 10204 certificate are true copy of the mill test certificate issued by the steel mill, or by the laboratory that determined it. All material is certified to be mercury free. No weld repair was performed. Marking was performed by low stress stamps in accordance with MSS SP25.

Manufacturing standards:

- 45° and 90° elbows, tees, crosses, full and half couplings, caps, square, hexagonal and round plugs, hexagonal and flush bushings are manufactured in accordance with ASMEB.16.11; threads in accordance with ANSI/ASME B1.20.1.
- Outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and MSS-SP-97
- Seamless swage nipples are manufactured in accordance with: BS3799-74 or MSS SP95-86
- Seamless pipe nipples are manufactured in accordance with: B36.10-95 or B36.19-85
- Flanged outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and B.16.5
- Unions are manufactured in accordance with: BS 3799 or MSS SP-83

When the length of flanged nipple is not specified in the description, it is 150 mm.

The material is according to ASTM and ASME Boiler and Pressure Vessel Code Section II.

When the Edition/Revision of the listed standards is not mentioned, it is assumed to be the latest.

Yield strength detected by 0.2% off-set method

Austenitic and duplex stainless steels have been pickled and passivated. Machined surfaces do not require pickling and passivation.

M.E.G.A. is approved with certificate 75/2002/MUC by T.U.V. (certification Body N.0036) to issue certificate of specific product control in accordance with the Pressure Equipment Directive 97/23/EC (PED) Annex 1, Paragraph 4.3.

Testing equipment used:

- Tensile test machine Galdabini Quasar 250 serial No. VAOG - Procedure QC-03 Rev. 1
- Impact test Cermac JB-W5000 serial No. 04031 - Procedure QC-02 Rev. 1
- Hardness test Wolpert Dia Testor 2RC serial No. 8900298/0001 - Procedure QC-04 Rev. 0
- Chemical analysis spectrometer Balrd DV4 serial No. P017 (ASTM E415 and E1086) - Procedure QC-07 Rev. 0

The product are manufactured in Italy.

Quality Inspector representative
Ispettore controllo qualità

Ricardo Scorselli

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trademark M.E.G.A. is printed in green color.

Form QC-01-01 Rev. 0 2013-03-15

M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzoscale (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail inspection@mega-filings.com

Order#: 482967 Seq: 139 PO#: 4500084343 Heat#: VRRB Mill: MEGA

Part#: O 2 STD W 12X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 12X8 A/SA350-LF2 CL1

M.E.G.A.**INSPECTION CERTIFICATE**

Certificato d'ispezione

REPORT N. Rapporto N.	TC-010124-13-0001	Issued on Emissa il	29/08/2013	Customer Cliente		Job n. Commessa n.	10124	Page n. Pagina n.	21 of 31
Revision Revisione	0	According to In accordo a	EN 10204-2:2005	Type Tipo	3.1	Purchase order Ordine	20113AMG		

DESCRIPTION / DESCRIZIONE

Test Prova	Item Pos.	Qty Q.tà	Customer code Codice cliente	Material Materiale	Heat Colata	Product Prodotto
VCUX	79	100		A350/L1 LF2 CL1	11/79800	MEGALET Sch-STD LF2 CL1 2x3.1/2-4
UTDU	80	100		A350/L1 LF2 CL1	05/78037	MEGALET Sch-STD LF2 CL1 2 X5-6
VRRB	81	50		A350/L1 LF2 CL1	12/72457	MEGALET Sch-STD LF2 CL1 2 X5-12
KCNB	82	10		A350/L1 LF2 CL1	07/79886	MEGALET Sch-STD LF2 CL1 2 X14-36
PCUA	82	40		A350/L1 LF2 CL1	09/77961	MEGALET Sch-STD LF2 CL1 2 X14-36

HEAT TREATMENT DATA AND REFERENCES TO OTHER CERTIFICATES / Dettagli di trattamento termico e riferimenti ad altri certificati

VCUX	UTDU	VRRB	KCNB	PCUA
MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 900 C TEMPERED AT 610 C /CERT.12061.MEGA/1°S85433MEGA	MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 900 C TEMPERED AT 610 C /CERT.11445.MEGA/1°S78663MEGA	MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 880 C TEMPERED AT 640 C /CERT.407.EVASI/1°S90337MEGA	MATERIAL PRODUCED BY ELECTRIC FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.53.EVASI/1°S48433MEGA	MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 900 C TEMPERED AT 600 C /CERT.191.EVASI/1°S64277 MEGA

Test Prova	Test loc.	Orient. Direz.	Specimen / Provino		Yield strength		Tensile strength		Elongation Allung. [%]	Red. Of Area Contraz. [%]	Dimens. Dimens. [mm]	Temp. [°C]	T	Abs. Energy Energia ass. [J]	Shear A Area d [%]	Lat Exp Esp. Lab. [mm]	Bend Piega	Flatness Schiazz.	Hardness Durezza [HBN]
			Shape Forma	Size Sezione	A [mm ²]	L [mm]	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
VCUX	T/2	LONG	Round	30,500	25,000	331,200	508,400	30,200	66,800	66,800	10x10x55	-46	49-53-59	40-47-54	—	—	—	—	153-156
UTDU	T/2	LONG	Round	32,200	25,000	429,000	514,400	31,200	75,000	75,000	10x10x55	-50	40-47-54	—	—	—	—	—	159-163
VRRB	T/2	LONG	Round	30,300	25,000	332,800	492,400	36,100	74,300	74,300	10x10x55	-46	37-42-61	—	—	—	—	—	158-164
KCNB	T/2	LONG	Round	60,100	35,000	358,000	529,000	28,900	65,200	65,200	10x10x55	-50	70-72-70	—	—	—	—	—	153-157
PCUA	T/2	LONG	Round	30,600	25,000	367,000	528,000	29,400	64,700	64,700	10x10x55	-50	74-68-72	—	—	—	—	—	156-161
Test Prova	C	SI	Min	S	P	Cr	Ni	Mo	Ti	Cu	V	Al	Co	Nb	N	Sn	W	B	Fe
VCUX	0,2000	0,2200	0,8500	0,0090	0,0100	0,0900	0,0500	0,0100	0,0210	0,1500	0,0200	0,0230	0,0010	0,0010	0,0010	0,0080	—	—	—
UTDU	0,1850	0,1800	0,9400	0,0060	0,0150	0,1200	0,0600	0,0100	0,0180	0,2400	0,0200	0,0200	0,0010	0,0010	0,0020	0,0090	—	—	—
VRRB	0,2000	0,1800	0,9100	0,0090	0,0100	0,1000	0,0500	0,0100	0,0220	0,1500	0,0190	0,0260	0,0020	0,0020	0,0070	0,0070	—	—	—
KCNB	0,1950	0,2000	0,8800	0,0100	0,0150	0,0800	0,0500	0,0100	0,0190	0,1400	0,0160	0,0280	0,0010	0,0010	0,0070	0,0070	—	—	—
PCUA	0,1900	0,2100	0,9000	0,0080	0,0100	0,0900	0,0600	0,0100	0,0230	0,1700	0,0160	0,0250	0,0010	0,0010	0,0070	0,0070	—	—	—

REMARKS / Note

1: MATERIAL ACCORDING TO NACE MR0175/ISO 15156-1-2-3 Ed. 2009. MATERIAL ACCORDING TO NACE MR0103/2010.

A: CE = C + Mn/6 + (Cr+Mo+V)/5 + (Cu+Ni)/15 | B: PREN = Cr + 3.3Mo + 16N

C: X factor = (10P + 55Si + 45Mn + 45Al)/100 - elements expressed in ppm

D: J factor = ((Mn + Si) / (P + Sn)) x 104

Quality control laboratory
Laboratorio controllo qualità

Simone Maffioletti

Form QC-01-01 Rev. 0 2013-03-15

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M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzorosciale (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail inspection@mega-littings.com

MTR # 87

Order#: 482967 Seq: 139 PO#: 4500084343 Heat#: VRRB Mill: MEGA

Part#: O 2 STD W 12X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 12X8 A/SA350-LF2 CL1

M.E.G.A.**INSPECTION CERTIFICATE**
Certificato d'ispezione

REPORT N. Rapporto N.	TC-010124-13-0001	Issued on Emissione il	29/08/2013	Customer Cliente		Job n. Commessa n.	10124	Page n. Pagina n.	31 of 31
Revision Revisione	0	According to In accordo a	EN 10204:2005	Type Tipo	3.1	Purchase order Ordine	20113AMG		

We hereby certify that all items supplied for the above purchase orders meet all the requirements of the applicable specification of manufacture, the purchase item descriptions, purchase specifications and purchase order requirements. Visual, dimensional and marking check of items supplied has been carried out by our internal inspectors with satisfactory results.

The chemical and mechanical values shown on the EN 10204 certificate are true copy of the mill test certificate issued by the steel mill, or by the laboratory that determined it. All material is certified to be mercury free. No weld repair was performed. Marking was performed by low stress stamps in accordance with MSS SP25.

Manufacturing standards:

- 45° and 90° elbows, tees, crosses, full and half couplings, caps, square, hexagonal and round plugs, hexagonal and flush bushings are manufactured in accordance with ASME B.16.11; threads in accordance with ANSI/ASME B1.20.1.
- Outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and MSS-SP-97
- Seamless swage nipples are manufactured in accordance with: BS3799-74 or MSS SP95-86
- Seamless pipe nipples are manufactured in accordance with: B36.10-95 or B36.19-85
- Flanged outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and B.16.5
- Unions are manufactured in accordance with: BS 3799 or MSS SP-83

When the length of flanged nipple is not specified in the description, it is 150 mm.

The material is according to ASTM and ASME Boiler and Pressure Vessel Code Section II.

When the Edition/Revision of the listed standards is not mentioned, it is assumed to be the latest.

M.E.G.A. is approved with certificate 75/2002/MUC by T.U.V. (certification Body N.0036) to issue certificate of specific product control in accordance with the Pressure Equipment Directive 97/23/EC (PED) Annex 1, Paragraph 4.3.

Testing equipment used:

- Tensile test machine Galdabini Quasar 250 serial No. VAOG - Procedure QC-03 Rev. 1
- Impact test Cermac J8-W500 serial No. 04031 - Procedure QC-02 Rev. 1
- Hardness test Wolpert Dia Testor 2RC serial No. 8900298/0001 - Procedure QC-04 Rev. 0
- Chemical analysis spectrometer Baird DVA serial No. P017 (ASTM E415 and E1086) - Procedure QC-07 Rev. 0

The product are manufactured in Italy.

Quality control laboratory Laboratorio controllo qualità	Simone Maffioletti
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Form QC-01-01 Rev. 0 2013-03-15

M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzosola (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail inspection@mega-fittings.com

Order#: 482967 Seq: 139 PO#: 4500084343 Heat#: VSSR Mill: MEGA
Part#: O 2 STD W 12X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 12X8 A/SA350-LF2 CL1



INSPECTION CERTIFICATE

Certificato d'ispezione

M.E.G.A.

REPORT N. Rapporto N.		TC-013230-14-0001		Issued on Emissione		04/07/2014		Customer Cliente		ALLIED FITTING CANADA		Job n. / Com. n.		13230		Page n. / Pagina n.		30 of 36									
Revision Revisione		0		According to In accordo a		EN 10204:2005		Type Tipo		3.1		Purchase order and project/Ordine e progetto		52014AMG													
DESCRIPTION / DESCRIZIONE																											
Test Prova		Qty Q.tà		Customer code Codice cliente		Material Materiale		Heat Caldia		Product Prodotto																	
VDAT		216		22		A/SA350-13 LF2 CL1		11/79800		MEGALET Sch-STD LF2 CL1 2 X5-6																	
JSNC		217		65		A/SA350-13 LF2 CL1		12/73926		MEGALET Sch-STD LF2 CL1 2 X8-12																	
VRRB		217		1		A/SA350-13 LF2 CL1		12/72457		MEGALET Sch-STD LF2 CL1 2 X8-12																	
VSSR		217		34		A/SA350-13 LF2 CL1		11/79800		MEGALET Sch-STD LF2 CL1 2 X8-12																	
VRRB		218		100		A/SA350-13 LF2 CL1		12/72457		MEGALET Sch-STD LF2 CL1 2 X14-36																	
HEAT TREATMENT DATA AND REFERENCES TO OTHER CERTIFICATES / Dettagli di trattamento termico e riferimenti ad altri certificati																											
VDAT		MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 910 C TEMPERED AT 600 C																									
JSNC		MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 920 C TEMPERED AT 630 C																									
VRRB		MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 880 C TEMPERED AT 640 C																									
VSSR		MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 900 C TEMPERED AT 630 C																									
VRRB		MATERIAL PRODUCED BY ELECTRIC FURNACE-QUENCHED AT 880 C TEMPERED AT 640 C																									
TENSILE TEST / Trazione																											
Test Prova		Orient. Dir.		Specimen / Provino		Yield strength Snerv.		Tensile strength Rottura		Elongation Allung.		Red. Of Area Concuss.		Dimens. Diment.		Temp. T°		CVN (KV) / Prova di resilienza		Bend Pieg.		Flatten. Schacci.		Hardness Durezza			
				Shape Forma		A [mm] Sezione		L [mm] Lunghezza		Min. Min.		Max. Max.		Min. Min.		Max. Max.		T T°		Y Y		Zr Zr		X fact. X fact.		J fact. J fact.	
VDAT		T/2		Round		31.400		25.000		380.200		518.100		31.400		74.200		10x10x55		-46		58-65-59		-		159-164	
JSNC		T/2		Round		30.600		25.000		336.300		498.900		31.800		65.400		10x10x55		-46		39-44-49		-		153-156	
VRRB		T/2		Round		30.300		25.000		332.800		492.400		36.100		74.300		10x10x55		-46		37-42-61		-		158-160	
VSSR		T/2		Round		30.600		25.000		341.300		520.100		34.000		65.300		10x10x55		-46		89-73-99		-		160-165	
VRRB		T/2		Round		30.300		25.000		332.800		492.400		36.100		74.300		10x10x55		-46		37-42-61		-		158-160	
Test Prova		C		Si		Mn		P		S		Ni		Ti		Cu		V		Al		Co		Nb		Fe	
VDAT		0.2000		0.2200		0.8500		0.0090		0.0100		0.0500		0.0210		0.1500		0.0200		0.0230		0.0010		0.0080		0.3789	
JSNC		0.1800		0.2400		0.8700		0.0090		0.0100		0.0500		0.0190		0.1700		0.0180		0.0250		0.0010		0.0080		0.3539	
VRRB		0.2000		0.1800		0.9100		0.0090		0.0100		0.0500		0.0210		0.1500		0.0200		0.0260		0.0010		0.0020		0.3907	
VSSR		0.2000		0.2200		0.8500		0.0090		0.0100		0.0500		0.0210		0.1500		0.0200		0.0230		0.0010		0.0080		0.3789	
VRRB		0.2000		0.1800		0.9100		0.0090		0.0100		0.0500		0.0210		0.1500		0.0200		0.0260		0.0010		0.0020		0.3907	
REMARKS / Note																											
1. MATERIAL ACCORDING TO NACE MR0175/ISO 15156-1 2. Ed.2009																											
2. MATERIAL ACCORDING TO NACE MR0103 Ed.2012																											
3. Material according to ASME Sect. II Part A 2013 Edition.																											
Quality inspector representative Ispezione controllo qualità										Emmanuel Centemil																	

Form QC-01-01 Rev. 0 2013 03-15

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trademark M.E.G.A. is printed in green color.

M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzorosciate (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail inspection@mega-fittings.com

MTR #88

Order#: 482967 Seq: 139 PO#: 4500084343 Heat#: VSSR Mill: MEGA
 Part#: O 2 STD W 12X8 LF Part Desc: O'lets 2 (60.3mm O.D.) STD WELDOLET 12X8 A/SA350-LF2 CL1

MEGA

INSPECTION CERTIFICATE

Certificato d'ispezione



REPORT N. Rapporto N.	TC-013230-14-0001	Issued on Emissione	04/07/2014	Customer Cliente	ALLIED FITTING CANADA	Job n. / Com. n.	13230	Page n. / Pagina n.	36 of 36
Revision Revisione	0	According to In accordo a	EN 10204:2005	Type Tipo	3.1	Purchase order and project/Ordine e progetto 5201AAMG			
					172 TURBO DRIVE SHERWOOD PARK, ALBERTA T8H 2J6 - CANADA				

We hereby certify that all items supplied for the above purchase orders meet all the requirements of the applicable specification of manufacture, the purchase item descriptions, purchase specifications and purchase order requirements. Visual, dimensional and marking check of items supplied has been carried out by our internal inspectors with satisfactory results.

The chemical and mechanical values shown on the EN 10204 certificate are true copy of the mill test certificate issued by the steel mill, or by the laboratory that determined it. All material is certified to be mercury free. No weld repair was performed. Marking was performed by low stress stamps in accordance with MSS SP25.

Manufacturing standards:

- 45° and 90° elbows, tees, crosses, full and half couplings, caps, square, hexagonal and round plugs, hexagonal and flush bushings are manufactured in accordance with ASMEB.16.11; threads in accordance with ANSI/ASME B1.20.1.
- Outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and MSS-SP-97
- Seamless swage nipples are manufactured in accordance with: BS3799-74 or MSS SP95-86
- Seamless pipe nipples are manufactured in accordance with: B36.10-95 or B36.19-85
- Flanged outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and B.16.5
- Unions are manufactured in accordance with: BS 3799 or MSS SP-83

When the length of flanged nipple is not specified in the description, it is 150 mm.

The material is according to ASTM and ASME Boiler and Pressure Vessel Code Section II.

When the Edition/Revision of the listed standards is not mentioned, it is assumed to be the latest.

M.E.G.A. is approved with certificate 75/2002/MUC by T.U.V. (certification Body N.0036) to issue certificate of specific product control in accordance with the Pressure Equipment Directive 97/23/EC (PED) Annex 1, Paragraph 4.3.

Testing equipment used:

- Tensile test machine Galdabini Quasar 250 serial No. VAOG - Procedure QC-03 Rev. 1
 - Impact test Cermac JB-W500 serial No. 04031 - Procedure QC-02 Rev. 1
 - Hardness test Wolpert Dia Testor 2RC serial No. 8900298/0001 - Procedure QC-04 Rev. 0
 - Chemical analysis spectrometer Baird DV4 serial No. P017 (ASTM E415 and E1086) - Procedure QC-07 Rev. 0
- The product are manufactured in Italy.

Quality control laboratory
Laboratorio controllo qualità

Emmanuel Centemeri

Form QC-01.01 Rev. 0 2013-09-15

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M.E.G.A. S.p.A. - Via Dalla Chiesa, 3 - 24020 Scanzorosciate (Bergamo) - Italy - VAT IT 00210060166 - Ph. +39 035 661280 / 661199 - Fax +39 035 665535 - E-mail inspection@mega-fittings.com

ITEM # 42

Order#: 482967 Seq: 142 PO#: 4500084343 Heat#: T2399 Mill: Both-Well
 Part#: O 2 80S W 6 316 Part Desc: Olets 2 (60.3mm O.D.) 80S WELDOLET 6" RUN SIZE A182F316/316L

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 :2004 3.1

CUSTOMER : ALLIED FITTING CANADA

CERT. NO : 133971

ORDER NO : 100413ABWS

INVOICE NO : BW01310210141

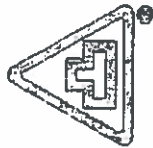
L/C NO :

DATE : 12/22/2013

PAGE : 8 ORIGIN : TAIWAN

柏緯鐵工股份有限公司
 BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY, TAIWAN R.O.C.(81460)
 TEL: +886-7-3711536, 3710497, 3720260 FAX: +886-7-3713864, 3713882
 Web site: http://www.bothwell.com.tw e-mail: box@bothwell.com.tw



web site: http://www.bonwell.com.tw

e-mail: bon@bothwell.com.tw

ITEM	BW HT. CD.	RAW MATERIAL HEAT NO.	DESCRIPTION	SPECIFICATION FOR		QUANTITY	MATERIAL		INSPECTION SURFACE	DIM.
				FITTING			ASTM A182 -13 ASME SA182 -2013ED F316 / 316L			
048	T2399	44238	OUTLET STRAIGHT-WAY 2"x4"-6" STD BW	30 PC		30 PC				
053	T2415	95SD0021	OUTLET STRAIGHT-WAY 2"x8"-36" STD BW	60 PC		60 PC				
057	T2182	PS-0488	OUTLET STRAIGHT-WAY 1-1/4"x4"-36" 3000# S/W	10 PC		10 PC				GOOD
059	T254	10839	OUTLET STRAIGHT-WAY 3"x8"-12" STD BW	10 PC		10 PC				GOOD
063	T2399	44238	OUTLET STRAIGHT-WAY 2"x4"-6" STD BW	30 PC		30 PC				

ITEM	BW HT. CD.	CHEMICAL COMPOSITION (%)												MATERIAL SUPPLIER			
		C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Co(Nb)	N				Al
	Min	0.030	1.00	2.00	0.045	0.030	-	16.0	10.0	2.00	-	-	0.10	-	-	-	-
	Max	0.018	0.40	1.73	0.027	0.028	-	18.0	14.0	3.00	-	-	-	-	-	-	-
048	T2399	0.018	0.40	1.73	0.027	0.028	-	16.75	10.01	2.02	-	-	0.05	-	-	-	-
053	T2415	0.024	0.46	1.65	0.029	0.026	-	17.24	10.55	2.03	-	-	0.06	-	-	-	-
057	T2182	0.019	0.390	1.420	0.040	0.018	-	16.410	10.080	2.060	-	-	0.057	-	-	-	-
059	T254	0.020	0.330	1.080	0.024	0.021	-	16.640	12.070	2.110	-	-	0.062	-	-	-	-
063	T2399	0.018	0.40	1.73	0.027	0.028	-	16.75	10.01	2.02	-	-	0.05	-	-	-	-

ITEM	BW HT. CD.	MECHANICAL PROPERTIES										HEAT TREATMENT		ADDITIONAL TEST/REMARKS	
		T. S. (KSI)	Y. S. (KSI)	EL. (%)	R of A (%)	Hardness (HBW)(AVG)	Charpy Impact T / 0 °C			SOLUTION					
	Min	75	30	30	50	-	MIN./AVG.	1	2	3	AVG.	1060°C W.Q.		CONFORMS TO NACE MR0175-09/MR0103-12	
	Max	79.7	34.9	62.0	76.5	163	1	2	3	AVG.					
048	T2399	79.7	34.9	62.0	76.5	163	235	1	2	3	AVG.	MERCURY FREE			
053	T2415	79.5	33.6	65.2	76.5	150	153					MERCURY FREE			
057	T2182	79.5	39.3	64.0	77.3	155	156					MERCURY FREE			
059	T254	84.1	46.8	53.4	72.9	167	163					MERCURY FREE			
063	T2399	79.7	34.9	62.0	76.5	163	165					MERCURY FREE			

WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT.

C.C. Huang

Y.Y. Chang

Q.C. MANAGER

INSPECTOR

YUAN YAO CHANG

CHEN CHI HUANG

WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT.

C.C. Huang
 Q.C. MANAGER
 CHEN CHI HUANG

Y.Y. Chang
 INSPECTOR
 YUAN YAO CHANG

BW-D0839 REV: 2

MTR #89

ITEM # 143

Order#: 482967 Seq: 143 PO#: 4500084343 Heat#: T2138 Mill: Both-Well
 Part#: O 2 80S W 8 316 Part Desc: Olets 2 (60.3mm O.D.) 80S WELDOLET 8" RUN A182F316/316L

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 : 2004 3.1

CUSTOMER :

CERT. NO : 120969

ORDER NO : 083011P8WS

INVOICE NO : BWD1110009103A

L/C NO :

DATE : 04/07/2012

PAGE : 10 ORIGIN : TAIWAN

柏緯鐵工股份有限公司

高雄市仁武區鳥林里仁心路 303 號

BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, JEN-HSIN ROAD JEN-WU DISTRICT

KAOHSIUNG CITY, TAIWAN R.O.C. (81460)

TEL: 886-7-871-0497, 371-1536, 372-0260

FAX: 886-7-871-9864, 871-8882

web site: http://www.bothwell.com.tw e-mail: bothwell@bothwell.com.tw or box@bothwell.com.tw

An ISO 9001:2008 Registered Manufacturer



ITEM	HT. CD.	RAW MATERIAL HEAT NO.	DESCRIPTION	SPECIFICATION FOR		INSPECTION	
				QUANTITY	MATERIAL	FITTING	SURFACE DIM.
764	T2187	9S80259	OUTLET STRAIGHT-WAY 2"x4"-6" S80S BW	25 PC	ASTM A182 -07	NSS SP-97 - 2006	GOOD
765	T2138	9S-9900	OUTLET STRAIGHT-WAY 2"x8"-36" S80S BW	25 PC	ASME SA182 -A08		GOOD
766	T2159	9S80211	OUTLET STRAIGHT-WAY 2-1/2"x3" S80S BW	5 PC	F316 / 316L		GOOD
767	T2159	9S80211	OUTLET STRAIGHT-WAY 2-1/2"x3-1/2"-4" S80S BW	2 PC			
768	T2041	9Y011	OUTLET STRAIGHT-WAY 2-1/2"x5"-8" S80S BW	2 PC			

ITEM	HW HT. CD.	CHEMICAL COMPOSITION (%)														MATERIAL SUPPLIER	
		C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Ch(Nb)	N	Al	Ti		Zr
Min		-	-	-	-	-	-	16.00	10.00	2.000	-	-	-	-	-	-	-
Max		0.030	1.000	2.000	0.045	0.030	-	18.00	15.00	3.000	-	-	0.100	-	-	-	-
764	T2187	0.025	0.260	1.810	0.032	0.024	-	17.22	10.47	2.020	-	-	0.070	-	-	-	-
765	T2138	0.024	0.355	1.460	0.038	0.018	-	16.57	10.10	2.050	-	-	0.060	-	-	-	-
766	T2159	0.023	0.430	1.590	0.026	0.026	-	17.27	10.55	2.080	-	-	0.070	-	-	-	-
767	T2159	0.023	0.430	1.590	0.026	0.026	-	17.27	10.55	2.080	-	-	0.070	-	-	-	-
768	T2041	0.030	0.410	1.540	0.027	0.025	-	17.11	10.43	2.030	-	-	0.100	-	-	-	-

ITEM	HW HT. CD.	MECHANICAL PROPERTIES										HEAT TREATMENT	ADDITIONAL TEST/REMARKS	
		T. S. (KSI)	Y. S. (KSI)	EL. (%)	R of A (%)	Hardness (HB)(AVG)	Charpy Impact			SOLUTION				
							°F / 0 °C							
							MIN. / AVG.	1	2		3			AVG.
Min		75.0	30.0	30.0	50.0	-								
Max		-	-	-	-	235								
764	T2187	88.7	46.7	51.4	71.7	178	178							
765	T2138	78.1	37.9	66.0	75.0	150	151							
766	T2159	80.6	40.1	70.4	75.0	156	156							
767	T2159	80.6	40.1	70.4	75.0	156	156							
768	T2041	84.2	39.3	57.0	75.2	163	162							

WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT.

C.C. Huang

Q.C. MANAGER
CHEN CHI HUANG

Y.Y. Chang

INSPECTOR
YUAN YAO CHANG

BW-D0839 REV:1

MTR #90