Material Test Reports

Index

1. Myers-Aubrey Co
2. Process Solutions International
3. Quality Products & Sales, Inc.
4. Precision Fitting & Gauge Co.
5. Lee Supply
6. Lee Supply
7. Crown Products, Inc.
8. Lee Supply
9. Industrial Piping Specialists
10. Lee Supply
11. Lee Supply
12. Lee Supply
13. Lee Supply
14. Lee Supply
15. Lee Supply
16. Industrial Piping Specialists

PO Created for Reference - This is not an official PO

UOP RUSSELL LLC

Vendor: 130345 MYERS-AUBREY CO P.O Box: 470370 TULSA Oklahoma 74147-0370 USA Phone: 9186223500 Fax: 9186280349	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500747336** **Date :** NOV/18/2016 **Page :** 1 of 8
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** S447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.
We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.
See our Commitment Statement at http://www.honeywell.com/sites/sm.

UOP Russell Project: J447XX

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT or a special HONEYWELL/UOP/UOP Russell / Supplier TERMS & CONDITIONS are in place, then this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

The attached proposal is included only to clarify technical requirements and Scope of Work/Equipment/Services to be purchased.

Supplier#s "boilerplate" preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing.

The Product/Service prices stated herein are firm and can only be changed with the prior written consent of

Agreed & Accepted By:

_____
Authorized Signature of Seller

Authorized and Approved By Amanda Bussmeyer
Tax ID 3101720754
Buyer Phone 539-664-4811
Purchasing Return Fax 918-481-7427
Email Id amanda.bussmeyer@honeywell.com

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 130345 MYERS-AUBREY CO P.O Box: 470370 TULSA Oklahoma 74147-0370 USA Phone: 9186223500 Fax: 9186280349	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500747336** **Date :** NOV/18/2016 **Page :** 2 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

BUYER.

Our Contact Persons:
Purchasing = Amanda Bussmeyer 539-664-4811, Amanda.Bussmeyer@honeywell.com

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:

UOP Russell: accountspayable@uop.com

PLEASE REFERENCE OUR UOP RUSSELL JOB NUMBER & PO NO ON ALL DRAWINGS/DOCUMENTS THAT ARE SUBMITTED.
UOP RUSSELL WILL RETURN ANY ITEMS THAT DO NOT HAVE THIS INFORMATION CLEARLY STATED.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	1	Each		0.5-N2A1-23033	
VALVES		WAREHOUSE			
	M9VIC-44				
20	1	Each		0.5-N2A1-91003	
VALVES		WAREHOUSE			
	M9VIC-44				
30	1	Each		0.5-N2A1-96014	
VALVES		WAREHOUSE			
	M9VIC-44				
40	1	Each		0.5-N2A3-98009	
VALVES		WAREHOUSE			
	M9VIS-44				
50	1	Each		0.5-N2B1-33004	
VALVES		WAREHOUSE			
	M9VIC-44				

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A Honeywell Company

Vendor: 130345 MYERS-AUBREY CO P.O Box: 470370 TULSA Oklahoma 74147-0370 USA Phone: 9186223500 Fax: 9186280349	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500747336** **Date :** NOV/18/2016 **Page :** 3 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
60	1	Each		0.5-N2B1-33004	DEC/22/2016
VALVES		WAREHOUSE			
	M9VIC-44				
70	1	Each		0.5-N2B1-33022	
VALVES		WAREHOUSE			
	M9VIC-44				
80	1	Each		0.5-N2B1-33022	DEC/22/2016
VALVES		WAREHOUSE			
	M9VIC-44				
90	1	Each		0.5-N2B1-33053	
VALVES		WAREHOUSE			
	M9VIC-44				
100	1	Each		0.5-N2B1-33053	DEC/22/2016
VALVES		WAREHOUSE			
	M9VIC-44				
110	1	Each		0.5-N2B1-35010	
VALVES		WAREHOUSE			
	M9VIC-44				
120	1	Each		0.5-N2B1-36003	
VALVES		WAREHOUSE			
	M9VIC-44				
130	1	Each		0.5-N2B1-36008	
VALVES		WAREHOUSE			
	M9VIC-44				
140	1	Each		0.5-N2B1-96003	
VALVES		WAREHOUSE			
	M9VIC-44				

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Vendor: 130345 MYERS-AUBREY CO P.O Box: 470370 TULSA Oklahoma 74147-0370 USA Phone: 9186223500 Fax: 9186280349	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500747336** **Date :** NOV/18/2016 **Page :** 4 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
150	1	Each		0.5-N2B1-96017	
VALVES		WAREHOUSE			
	M9VIC-44				
160	1	Each		0.5-N2B2-31031	
VALVES		WAREHOUSE			
	M9VIS-44				
170	1	Each		0.5-N2B2-31033	
VALVES		WAREHOUSE			
	M9VIS-44				
180	1	Each		0.5-N2B3-31037	
VALVES		WAREHOUSE			
	M9VIS-44				
190	1	Each		0.5-N2B3C31023	
VALVES		WAREHOUSE			
	M9VIS-44				
200	1	Each		0.5-N2B3-32025	
VALVES		WAREHOUSE			
	M9VIS-44				
210	1	Each		0.5-N2B3-32028	
VALVES		WAREHOUSE			
	M9VIS-44				
220	1	Each		0.5-N2D1-21007	
VALVES		WAREHOUSE			
	M9VIC-44				
230	1	Each		0.5-N2D1-21046	
VALVES		WAREHOUSE			
	M9VIC-44				

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Vendor: 130345 MYERS-AUBREY CO P.O Box: 470370 TULSA Oklahoma 74147-0370 USA Phone: 9186223500 Fax: 9186280349	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500747336** **Date :** NOV/18/2016 **Page :** 5 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
240	1	Each		0.5-N2D1-21055	
VALVES		WAREHOUSE			
	M9VIC-44				
250	1	Each		0.5-N2D1-21065	
VALVES		WAREHOUSE			
	M9VIC-44				
260	1	Each		0.5-N3D1-22002	
VALVES		WAREHOUSE			
	M25HIC-44				
270	1	Each		0.5-N3D1-22007	
VALVES		WAREHOUSE			
	M25HIC-44				
280	1	Each		0.5-N2D1-23006	
VALVES		WAREHOUSE			
	M9VIC-44				
290	1	Each		0.5-N2D1-31010	
VALVES		WAREHOUSE			
	M9VIC-44				
300	1	Each		0.5-N2D1-31056	
VALVES		WAREHOUSE			
	M9VIC-44				
310	1	Each		0.5-N2D1-33025	
VALVES		WAREHOUSE			
	M9VIC-44				
320	1	Each		0.5-N2D1-33025	DEC/22/2016
VALVES		WAREHOUSE			
	M9VIC-44				

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 130345 MYERS-AUBREY CO P.O Box: 470370 TULSA Oklahoma 74147-0370 USA Phone: 9186223500 Fax: 9186280349	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500747336** **Date :** NOV/18/2016 **Page :** 6 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
330	1	Each		0.5-N2D1-34025	
VALVES		WAREHOUSE			
	M9VIC-44				
340	1	Each		0.5-N2D2-31012	
VALVES		WAREHOUSE			
	M9VIS-44				
350	1	Each		0.5-N2D2-31018	
VALVES		WAREHOUSE			
	M9VIS-44				
360	1	Each		0.5-N2D2-31047	
VALVES		WAREHOUSE			
	M9VIS-44				
370	1	Each		0.5-N2D2-34048	
VALVES		WAREHOUSE			
	M9VIS-44				
380	1	Each		0.5-N2D2-34061	
VALVES		WAREHOUSE			
	M9VIS-44				
390	1	Each		0.5-N2D3-33008	
VALVES		WAREHOUSE			
	M9VIS-44				
400	1	Each		0.5-N2D3-33008	DEC/22/2016
VALVES		WAREHOUSE			
	M9VIS-44				
410	1	Each		0.5-N2D3-31019	
VALVES		WAREHOUSE			
	M9VIS-44				

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 130345	Delivery terms:	Purchase Order 4500747336
MYERS-AUBREY CO P.O Box: 470370 TULSA Oklahoma 74147-0370 USA Phone: 9186223500 Fax: 9186280349	ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Date :** NOV/18/2016 **Page :** 7 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
420	1	Each		0.5-N2E1-31070	DEC/22/2016
VALVES		WAREHOUSE			
	M9VIC-44				
430	1	Each		0.5-N3A1-96018	
VALVES		WAREHOUSE			
	M25VIC-44				
440	1	Each		0.5-N3B1-31073	
VALVES		WAREHOUSE			
	M25VIC-44				
450	1	Each		0.5-N3B1-33002	
VALVES		WAREHOUSE			
	M25VIC-44				
460	1	Each		0.5-N3B1-33002	DEC/22/2016
VALVES		WAREHOUSE			
	M25VIC-44				
470	1	Each		0.5-N3B1-33040	
VALVES		WAREHOUSE			
	M25VIC-44				
480	1	Each		0.5-N3B1-33040	DEC/22/2016
VALVES		WAREHOUSE			
	M25VIC-44				
490	1	Each		0.5-N3B1-34050	
VALVES		WAREHOUSE			
	M25VIC-44				
500	1	Each		0.5-N3B3-32005	
VALVES		WAREHOUSE			
	M25VIS-44				

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Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
510	1	Each		0.5-N3D1-22001	
VALVES		WAREHOUSE			
	M25VIC-44				
520	1	Each		0.5-N3D1-22012	
VALVES		WAREHOUSE			
	M25HIC-44				
530	1	Each		0.5-N3D1-31069	
VALVES		WAREHOUSE			
	M25VIC-44				
540	1	Each		0.5-N3D2-34047	
VALVES		WAREHOUSE			
	M25VIS-44				
550	1	Each		0.5-N3E1-36013	
VALVES		WAREHOUSE			
	M25VIC-44				

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.

Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

NUCOR

NUCOR-LMP INC

Mill Certification
9/23/2016

2000 East First Street
MARYVILLE, MO 64468
(660) 582-3127
Fax: (660) 582-7730

Sold To: THE TRIDENT COMPANY
ACCOUNTS PAYABLE
PO BOX 853900
RICHARDSON, TX 75085-3900
(713) 462-2410
Fax: (713) 462-2959

Ship To: THE TRIDENT CO
9501 BAYTHORNE DRIVE
HOUSTON, TX 77041
(713) 462-2410

Customer P.O.	02039562	Sales Order	549538.1
Product Group	Cold Finish Bar	Part Number	334040
Grade	12L14 ASTM A108	Lot #	L1187343
Size	Hex 1.2500 (.0030)	Heat #	LA500018
Product	HX 1.2500" 12L14 12-0 CD	B.L. Number	L1-432616
Description	CF Grade 12L14	Load Number	L1-132671
Customer Spec		Customer Part #	

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed above and that it satisfies those requirements.

Qty Shipped LBS: 1,980 Qty Shipped Pcs: 36

Part Detail: HX 1.2500" 12L14 12-0 Cold Drawn
Process: Cold Drawn

C	Mn	P	S	Si	Cu	Cr	Ni	Mo	Sn	V	Pb
0.07%	1.15%	0.067%	0.331%	0.01%	0.04%	0.06%	0.02%	0.01%	0.002%	0.0000%	0.267%

Melting Process: BOF | Melting Mill: LAUREL STEEL | Country of Melting: DE

Reduction Ratio 42.0 :1 | Country of Rolling: DE

Yield Strength: 64882 PSI | Tensile Strength: 75236 PSI | Elongation: 23.7 % in 2"(% in 50.8mm)

Reduction in Area: 50.7 % | Rockwell B Surface: 77.0 HRB | Brinell Converted Surface: 141.0 HB

Specification Comments:

1. This material is free of mercury contamination.
2. No welding or weld repair was performed on this material.

RAW MTL # 11285780

HEAT # LA500018 H758

INSP J. Martinez DATE 9-23-16

Mark Herndon
QA SUPERVISOR

NUCOR-LMP INC

September 21, 2007

RE: EN 10204:2005 3.1

All material produced and shipped from NUCOR – LMP, INC. conforms to the requirements as specified in EN 10204:2005 3.1

This document can be sent as an addendum to the Material Certification (CMTR) as issued by NUCOR – LMP, INC. as documentation that NUCOR – LMP, INC. meets the requirements of specification EN 10204:2005 3.1.

Marlin R. Reverts
QA Supervisor
NUCOR – LMP, INC.

1128578O
LA500018 H758
J. Martinez 9-23-16

2000 EAST FIRST STREET MARYVILLE, MO 64468
Ph. (660) 582-2137 Fax (660) 582-7730
www.lmpsteel.com

NUCOR

NUCOR-LMP INC

Mill Certification
9/23/2016

2000 East First Street
MARYVILLE, MO 64468
(660) 582-3127
Fax: (660) 582-7730

Sold To: THE TRIDENT COMPANY
ACCOUNTS PAYABLE
PO BOX 853900
RICHARDSON, TX 75085-3900
(713) 462-2410
Fax: (713) 462-2959

Ship To: THE TRIDENT CO
9501 BAYTHORNE DRIVE
HOUSTON, TX 77041
(713) 462-2410

Customer P.O.	02039562	Sales Order	549538.1
Product Group	Cold Finish Bar	Part Number	334040
Grade	12L14 ASTM A108	Lot #	L1187343
Size	Hex 1.2500 (.0030)	Heat #	LA500018
Product	HX 1.2500" 12L14 12-0 CD	B.L. Number	L1-432616
Description	CF Grade 12L14	Load Number	L1-132671
Customer Spec		Customer Part #	

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed above and that it satisfies those requirements.

Qty Shipped LBS: 1,980 **Qty Shipped Pcs: 36**

Part Detail: HX 1.2500" 12L14 12-0 Cold Drawn
Process: Cold Drawn

C	Mn	P	S	Si	Cu	Cr	Ni	Mo	Sn	V	Pb
0.07%	1.15%	0.067%	0.331%	0.01%	0.04%	0.06%	0.02%	0.01%	0.002%	0.0000%	0.267%

Melting Process: BOF | Melting Mill: LAUREL STEEL | Country of Melting: DE

Reduction Ratio 42.0 :1 | Country of Rolling: DE

Yield Strength: 64882 PSI | Tensile Strength: 75236 PSI | Elongation: 23.7 % in 2"(% in 50.8mm)

Reduction in Area: 50.7 % | Rockwell B Surface: 77.0 HRB | Brinell Converted Surface: 141.0 HB

Specification Comments:

1. This material is free of mercury contamination.
2. No welding or weld repair was performed on this material.

RAW MTL # 11285780

HEAT # LA500018 H758

INSP J. Martinez DATE 9-23-16

Mark Herndon
QA SUPERVISOR

NUCOR-LMP INC

September 21, 2007

RE: EN 10204:2005 3.1

All material produced and shipped from NUCOR – LMP, INC. conforms to the requirements as specified in EN 10204:2005 3.1

This document can be sent as an addendum to the Material Certification (CMTR) as issued by NUCOR – LMP, INC. as documentation that NUCOR – LMP, INC. meets the requirements of specification EN 10204:2005 3.1.

Marlin R. Reverts
QA Supervisor
NUCOR – LMP, INC.

11285780
LA500018 H758
J. Martinez 9-23-16

2000 EAST FIRST STREET MARYVILLE, MO 64468
Ph. (660) 582-2137 Fax (660) 582-7730
www.lmpsteel.com

INSPECTION CERTIFICATE

11G280

This inspection certificate is issued according to 3.1/EN10204

Add:No.5, Renmin West Road, Yangshi Community, Luoshe Town, Huishan District, Wuxi, Jiangsu
Tel:(0510)83552939

Customer	无锡威鹏工业(集团)有限公司				Date	2014/10/08	L/C No.		File	20141000036
Steel Grade	316/316L	Commodity	stainless steel bar		Order No.	K302486	Invoice		P.O.NO.	SB140828007

Item	Box_no	Heat No.	Shape	Size(mm)	Quantity(P'cs)	Weight(kg)	Condition
01		11G280	H	31.75	34	594	CD
02		11G280	H	31.75	33	577	CD
03		11G280	H	31.75	33	577	CD

Nondestructive test

Workmanship

Heat Treatment Temperature :1040~1050 centigrade degree,Maintain time :1~ 2hours

Chemical Composition (WT%)

Kind of Test	C	Si	Mn	P	S	Ni	Cr	Mo	N
Spec.	MAX 0.03	MAX 1.00	MAX 2.00	MAX 0.045	MAX 0.030	14.00 10.00	18.00 16.00	3.00 2.00	MAX 0.10
01	0.016	0.34	1.82	0.028	0.029	10.09	16.6	2.08	0.056
02	0.016	0.34	1.82	0.028	0.029	10.09	16.6	2.08	0.056
03	0.016	0.34	1.82	0.028	0.029	10.09	16.6	2.08	0.056

Mechanical Properties

Hardness HB	Tensile Strength Mpa	Yield Strength Mpa	Elongation (%)	Reduction of Area (%)
	MIN 515	MIN 205	MIN 30	MIN 40
194	655	550	42	73
194	655	550	42	73
194	655	550	42	73

Condition
FC:Furnace Cooled A:Annealed
HR:Hot Rolled R:Reeled
CD:Cold Drawn B:Black Bar
ST:Smooth Turned P:Polished
CG:Centerless Grinding RT-Peeling
RS:Re Straight ness LT-Peeling
PL-Peeling
CDG:Cold Drawn Grinding
HRAPL:Annealed Peeling

remark
*ASTM A479
*INSPECTION DOCUMENT 3.1(EN10204)
*ASTM A262-E, meet Rohs standard
* M ercuiry free and no welding on raw material barstock

Shape
R : Round
H : Hexagonal
S : Square

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

RAW MTL # 7000004603

HEAT # 11G280 CODE CH158

INSP J. Martinez DATE 10-21-14

Ping Sen Kao

Q.A Manager

XW-3-06-PD-030 0301

INSPECTION CERTIFICATE

This inspection certificate is issued according to 3.1/EN10204

WUXI XINGHENG SPECIAL STEEL PRODUCTS CO., LTD.
Add:No.2, Renmin West Road, Yangshi Community, Luoshe Town, Huishan District, Wuxi, Jiangsu
Tel:(0510)83552939

Customer	力泰机电工业(昆山)有限公司				Date	2014/09/30	L/C No		File	20140930S6
Steel Grade	316/316L	Commodity	stainless steel bar		Order No	K302486	Invoice		P.O.NO.	SB140828007

Item	Box_no	Heat No.	Shape	Size(mm)	Quantity(P'cs)	Weight(kg)	Condition	Nondestructive test	Workmanship
01		11G280	H	31.75	31	542	CD		Heat Treatment Temperature :1040~1050 centigrade degree,Maintain time :1~2hours
02		11G280	H	31.75	35	612	CD		
03		11G280	H	31.75	36	630	CD		
04		11G280	H	31.75	33	577	CD		
05		11G280	H	31.75	32	560	CD		
06		11G280	H	31.75	34	594	CD		

Chemical Composition (WT%)

Kind of Test	C	Si	Mn	P	S	Ni	Cr	Mo	N
Spec.	MAX 0.03	MAX 1.00	MAX 2.00	MAX 0.045	MAX 0.030	14.00 10.00	18.00 16.00	3.00 2.00	MAX 0.10
01	0.016	0.34	1.82	0.028	0.029	10.09	16.6	2.08	0.056
02	0.016	0.34	1.82	0.028	0.029	10.09	16.6	2.08	0.056
03	0.016	0.34	1.82	0.028	0.029	10.09	16.6	2.08	0.056
04	0.016	0.34	1.82	0.028	0.029	10.09	16.6	2.08	0.056
05	0.016	0.34	1.82	0.028	0.029	10.09	16.6	2.08	0.056
06	0.016	0.34	1.82	0.028	0.029	10.09	16.6	2.08	0.056

Mechanical Properties

Hardness HB	Tensile Strength Mpa	Yield Strength Mpa	Elongation (%)	Reduction of Area (%)
	MIN 515	MIN 205	MIN 30	MIN 40
194	655	550	42	73
194	655	550	42	73
194	655	550	42	73
194	655	550	42	73
194	655	550	42	73
194	655	550	42	73

Condition
FC Furnace Cooled — A Annealed
HR Hot Rolled — R Reeled
CD Cold Drawn — B Black Bar
ST Smooth Turned — P Polished
CG Centerless Grinding — RT-Peeling
RS Re Straight ness — LT-Peeling
PL-Peeling
CDG Cold Drawn Grinding
HRAPL Annealed Peeling

remark.
*ASTM A479
*INSPECTION DOCUMENT 3.1(EN10204)
*ASTM A262-E. meet Rohs standard
* Mercury free and no welding on raw material barstock

RAW MTL # 1000004603

HEAT # 11G280 CODE CH158

INSP J. Martinez DATE 10-21-14

Shape :
R : Round
H : Hexagonal
S : Square

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

Ping Sen Kao

Q.A Manager

No repair of weld to products at all processes.

SGS

TEST REPORT

No. : SHIN1410042472ML
Date : Oct 17, 2014

CUSTOMER NAME: WAN TAI PRECISION IND(KUNSHAN) CO.,LTD.
ADDRESS: NO.1299 ZIZHU ROAD,KUNSHAN CITY JIANGSU 215316 CHINA

The following sample(s) was/ were submitted and identified on behalf of the client as:

Sample Name	:	130303S001W1
Product Specification	:	31.75
Product or Lot No.	:	ZHX14100501
Material and Mark	:	316/316L
Heat No.	:	11G280
Test Required	:	Chemical Composition Analysis, Tensile Test, Hardness Test
Date of Receipt	:	Oct 13, 2014
Testing Start Date	:	Oct 13, 2014
Testing End Date	:	Oct 17, 2014
Test result(s)	:	For further details, please refer to the following page(s)

Signed for
SGS-CSTC Standards Technical
Services (Shanghai) Co., Ltd.

Kelly Shi
Authorized signatory

RAW MTL # 2000004603
HEAT # 11G280 CODE CH158
INSP J. Martinez DATE 10-21-14

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SHNL 549250

No.69, Block 1159, East Kang Qiao Road, Pudong District, Shanghai, China 201319 t (86-21) 61196300 f (86-21) 68183122/68183920 www.sgsgroup.com.cn
中国·上海·浦东康桥东路1159弄69号 邮编: 201319 t (86-21) 61196300 f (86-21) 68183122/68183920 e sgs.china@sgs.com

SGS

TEST REPORT

No. : SHIN1410042472ML
Date : Oct 17, 2014

1.Chemical Composition Analysis:

Test Method: OES

Element	C	Si	Mn	P	S	Cr	Ni	Mo
Result ,%	0.014	0.35	1.79	0.033	0.008	16.75	10.17	2.11

2.Tensile Test:

Test Method: ASTM A370-14

Test item	Specimen type	Tensile strength (MPa)	Yield strength (0.2% offset) (MPa)	Elongation after fracture G =4D (%)
Result	Round specimen	619	445	49.5

3.Hardness Test:

Test Method: ASTM E10-12

Test item	Test position	Result		
HBW 10/3000	Core	198	197	198

RAW MTL # 7000004603
HEAT # 116280 CODE CH158
INSP J. Mullins DATE 10-21-14

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SHML 549251

No.69, Block 1159, East Kang Qiao Road, Pudong District, Shanghai, China 201319 t (86-21) 61196300 f (86-21) 68183122/68183920 www.sgsgroup.com.cn
中国·上海·浦东康桥东路1159弄69号 邮编: 201319 t (86-21) 61196300 f (86-21) 68183122/68183920 e sgs.china@sgs.com

Customer Name	Customer PO#	Shipper No	Heat Number
Pentair Flow Control AG - Harlingen	4500236647	8706	A145764

Steel Dynamics, Inc.
Engineered Bar Products Division

8000 N. County Road 225 East
Pittsboro, IN 46167
Phone: (317) 892-7000
Fax: (317) 892-7285

Certified Material Test Report

Cert #: 188270
Work Order: 174123
Load #: 220056
✓ Size: 2-1/4"
Mill Order: 1416627
Sales Order: 136124-1
Reference #:
Shape: Round
Grain Practice: ✓ Al Fine Grain (5-8) per ASTM A29
✓ Heat #: A145764
Customer:
Reference Desc:
✓ Grade: A350/LF2 Chem
✓ Reduction Ratio: 36.1 to 1
Issued: 1/9/2015 09:38:46
✓ PO #: 18102-2
End Use:
Length: 20'
Disposition: Rolled Prime

Ladle Chemistry Analysis (ASTM A29)

C ✓	Mn ✓	P ✓	S ✓	Si ✓	Al	Cu ✓	Ni ✓	Cr ✓	Mo ✓	Sn	N	V ✓	Cb ✓	B	Ca	W	Ti	Di
0.18	1.09	0.007	0.002	0.27	0.032	0.12	0.05	0.10	0.03	0.008	0.0057	0.038	0.000	0.0004	0.0017	0.000	0.001	0.83

Pb	Co	As	Sb	Zr	Bi	H	O	Ceq ✓	J-Factor
0.000	0.005	0.004	0.001	0.000	0.000	1.1		0.41	

Product Check Analysis (ASTM A29)

	C	Mn	P	S	Si	Al	Cu	Ni	Cr	Mo	Sn	N	V	Cb	Ti	B	Ca	O
Front																		
Back																		

Jominy (ASTM A255)

	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J12	J14	J16	J18	J20	J24	J28	J32
Calc'd																		
Front																		
Back																		

Microcleanliness (ASTM E45)

Method A								Method C		Method E	
AT	AH	BT	BH	CT	CH	DT	DH	S	O	SAM "B"	SAM "D"

Microcleanliness (DIN 50602)

K		M	
S	O	Tot	Tot

Decarb

Depth	% of Diameter

Grainsize

Austenitic	Ferritic

Macrostructure (ASTM E381)

S	R	C

Magnetic Particle Inspection

Frequency	Severity

Mechanical Properties (ASTM A370)

Tensile Properties					Hardness	
Tensile Strength	0.2% Yield Strength	% Elong (2")	% ROA	0.35% EUL Yield Strength	(MR)	(Surf)

Steel Dynamics - Engineered Bar Products has a quality system in place which has been certified ISO 9001:2008 compliant, including PED certification.

Comments/Specs

ASTM A576-90b ---- Electric Arc Furnace Melted - Vacuum Tank Degassed ✓ NACE MR-01-75 / ISO 15156 -2009 ✓ Normalize ---- Normalize ---- DIN EN 10204:2004 Issue 3.1 ✓ ASTM A350-12 LF2 Class 1 ✓ ASTM A896-90a Grade C ✓ ASTM A675-03 Grade 70 ✓ ASME SA350-04 LF-2 Class 1 ✓ ASME SA105-04 ✓ ASME SA696-04 Gr C ✓ ASME SA675-04 Gr 70 ✓ DIN 3.1.B ✓ Cameron MR-005 Rev. C1 ✓ NACE MR0103-2007 ✓ NACE MR0103-2003 ✓ U.S. Alloys Spec LF2-HN dtd 6-25-13 ---- ASTM A105/A105M -13 ✓ Pres Equip Direct(PED) 97/23/EC/7/2 Anx I, Par 4.3

Condition: Normalize, Straighten, Chamfer, Immersion UT ✓

✓ UT: Passed Ultrasonic Inspection

I hereby certify that the content of this report is correct and accurate, and that all tests and operations performed on this material were in compliance with applicable material specifications and purchaser designated requirements.

✓ Trevor Kipp - Rolling Mill Metallurgist

✓ Any alteration to this report voids Steel Dynamic's warranting of results. No weld repair has been performed on this material. This material is not radioactive and has not been exposed to radioactivity while under the control of Steel Dynamics. This material has not been exposed to mercury while under the control of Steel Dynamics. Unless otherwise noted, this material was melted, continually cast, and rolled in the USA; w/ all testing performed by Steel Dynamics.

Steel Dynamics Rev Level 1 [115] - 275

Retrieved on : 01/09/15 09:38:43

RAW MTL # 11285844

HEAT # A145764 CODE H826

INSP J. Martinez DATE 11-28-16

Customer Name	Customer PO#	Shipper No	Heat Number
Pentair Flow Control AG - Harlingen	4500236647	8706	A145764

Steel Dynamics, Inc.
Engineered Bar Products Division

5500 N. County Road 225 East
Pittsboro, IN 46167
Phone: (317) 892-7000
Fax: (317) 892-7285

Certified Material Test Report
Heat Treatment Addendum

Cert #: 188270
Work Order: 174123
Load #: 220056
Size: 2-1/4"

Mill Order: 1416627
Sales Order: 135124-1
Reference #:
Shape: Round

Heat #: A145764
Customer:
Reference Desc:
Grade: A350/LF2 Chem

Issued: 1/9/2015 09:38:46
PO #: 18102-2
End Use:
Length: 20'

Normalize		Austenitize		Quench Media			Temper		Stress Relieve	
Time ✓	Temp	Time	Temp	Type	Time	Temp	Time	Temp	Time	Temp
3.5 hrs	1670 F	hrs	°F		min	°F	hrs	°F	hrs	F

* Furnaces are calibrated to API 6A Annex M, and use atmospheric thermocouples.
** QTC is 12" prolongation from longitudinal orientation machined to a 0.505" buttonhead for tensile.

Charpy Impact (ASTM E23) (v-notch | 10mm x 10mm)

Sample ID	Orientation	Location		Temp(F)	Impact Energy (ft-lbs) 1	2	3	Avg	Lateral Expansion (0.001") 1	2	3	Avg	% Shear 1	2	3	Avg
57000	Longitudinal	Mid-Radius	Q1	-50 ✓	40 ✓	60 ✓	63 ✓	54 ✓	30	46	45	40	10	15	15	13

Hardness (ASTM A370)

Sample ID	Location		HB
57000	Mid-Radius	Q1	146 ✓
57010	Mid-Radius	Q2	146 ✓

Tensile (ASTM A370)

Sample ID	Orientation	Location		Tensile ✓	0.2% Yield ✓	%E (2") ✓	%ROA ✓
57000	Longitudinal	Mid-Radius	Q1	73,000 psi	45,000 psi	30	69

I hereby certify that the content of this report is correct and accurate, and that all tests and operations performed on this material were in compliance with applicable material specifications and purchaser designated requirements.

Garrett Bouyett - Bar Finishing Metallurgist

Any alteration to this report voids Steel Dynamic's warranting of results.

Steel Dynamics Rev Level 1 [115] - 351

Retrieved on : 01/09/15 09:38:46

RAW MTL # 11785844

HEAT # A145764 CODE H826

INSP J. Martinez DATE 11-28-16

Customer Name	Customer PO#	Shipper No	Heat Number
Pentair Flow Control AG - Harlingen	4500161711	5038	264538

VALBRUNA
SLATER STAINLESS, INC.
2400 TAYLOR STREET WEST - PO BOX 630
FORT WAYNE IN 46802 USA
PHONE 260.434.2800 - FAX 260.434.2801

Product Certification Report

Report Number: 5162520

Certified on Aug 10, 2015

Order I.D.	Order Date	Commodity Code			
1500851 002	5/14/15				
Dim 1	**Dim 2**	**Dim 3**	**Heat I.D.**	**Customer I.D.**	**Customer Purchase Order**
1.5000	.0000	.0000	264538	002771	4056
Product Shape	**Product Surface**				**Customer Grade**
Cold Drawn Squares	Cold Drawn Finish				316/316L
Length (inches)		**Bill of Lading #**	**Weight**		
132.000 Min. 156.000 Max.		425420		Melt Date: 2/02/15	

Ship To
RAM ALLOYS, LLC.
12227 B FM 529
HOUSTON, TX 77041

Sold To
VALBRUNA STAINLESS, INC.
2400 TAYLOR STREET WEST
FORT WAYNE, IN 46802

Lifts: 0020

AMS 5648L
EN 10204 3.1
UNS S31600/S31603
ASTMA 370-14
ASMESA 276 13 ED
SAE-AMS QQ-S-763D
ASTMA 182 14a (Chem. Only)

AMS 5653H
NACE MR0175/ISO 15156-3 2009
ASTMA 262-14
ASTM E112-12
ASTMA 276-15
ASTM A479 14
ASMESA 479-13

DIN 50049
QQ-S-763F Cond A
ASTMA 484-14a
ASME SA320-13 B8M CL.1
ASTMA 320-11a GR B8M
ASME SA182 13 ED (Chem Only)

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	Co	N
.024	1.29	.029	.027	.47	16.50	10.99	2.02	.53	.11	.073

BRINELL (Type A device) (E-10)

HBW
196

TENSILE PROPERTIES ASTM E8-13a

TS (PSI)	.2%YS (PSI)	%EL(2")	%RA
94200	76000	37.9	74.8

MACRO ASTM E340-13/E381-01

MACRO
OK

GRAIN SIZE ASTM E112-13

GRAIN SIZE	Etchant	Magnification X
7	Oxalic	100

ASTM A262-14 PR E(A Utilized)

OXALIC	Structure	Etchant	Magnification X	QUENCH	SENS(F)	SENS(HR)
OK	Step	Oxalic	500	Air	1250	1.50

No welding or weld repair done.
Material when shipped is free from contamination be mercury,radium, alpha source, and low melting elements.
Reduction Ratio Exceeds 4:1
Electric Furnace melted; AOD refined.
Chemical testing to one or more of the listed ASTM methods:
E415-14, E1019-11, E1086-14.
Location of tensile fracture: Inside gage length.
Chemical Analysis performed at Acciaierie Valbruna, Italy.

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes. Including Federal law Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info.
I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services Dennis Hackett

email: DHackett@valbruna.us

Dennis Hackett

RAW MTL # 11285837
HEAT # 264538 CODE H580
INSP J. Martin DATE 10-30-15

Customer Name	Customer PO#	Shipper No	Heat Number
Pentair Flow Control AG - Harlingen	4500161711	5038	264538

VALBRUNA
SLATER STAINLESS, INC.
2400 TAYLOR STREET WEST – PO BOX 630
FORT WAYNE IN 46802 USA
PHONE 260.434.2800 – FAX 260.434.2801

Product Certification Report

Report Number: 5162520

Order I.D.	Order Date	Commodity Code			
1500851 002	5/14/15				
Dim 1	**Dim 2**	**Dim 3**	**Heat I.D.**	**Customer I.D.**	**Customer Purchase Order**
1.5000	.0000	.0000	264538	002771	4056
Product Shape	**Product Surface**				**Customer Grade**
Cold Drawn Squares	Cold Drawn Finish				316/316L
Length (Inches)			**Bill of Lading #**	**Weight**	
132.000 Min. 156.000 Max.			425420		Melt Date: 2/02/15

Ship To	Sold To
RAM ALLOYS, LLC. 12227 B FM 529 HOUSTON, TX 77041	VALBRUNA STAINLESS, INC. 2400 TAYLOR STREET WEST FORT WAYNE, IN 46802

No mercury or low melting alloy contamination. No weld repair.
Melted and manufactured in Italy.
Material conforms to listed specifications and is DFARS compliant.
Quality system is compliant with ISO 9001:2008. Produced in accordance with EN 10204 3.1.

RAW MTL.# 11285837
HEAT # 264538 CODE H580
INSP J. Martinez DATE 10-30-15

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes. Including Federal law Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info.
I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services Dennis Hackett

email: DHackett@valbruna.us

Dennis Hackett

PO Created for Reference - This is not an official PO

UOP RUSSELL LLC

Vendor: 132268 PROCESS SOLUTIONS INTL INC P.O Box: 203815 DALLAS Texas 75320 USA Phone: 214-349-5200 Fax: 2143495256 Kind Attn : Sally Sloan	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500748385** **Date :** NOV/28/2016 **Page :** 1 of 4
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** S447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.
We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.
See our Commitment Statement at http://www.honeywell.com/sites/sm.

UOP Russell Project: J447XX

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT or a special HONEYWELL/UOP/UOP Russell / Supplier TERMS & CONDITIONS are in place, then this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

The attached proposal is included only to clarify technical requirements and Scope of Work/Equipment/Services to be purchased.

Supplier#s "boilerplate" preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing.

The Product/Service prices stated herein are firm and can only be changed with the prior written consent of

Agreed & Accepted By:

_____
Authorized Signature of Seller

Authorized and Approved By Amanda Bussmeyer
Tax ID 3101720754
Buyer Phone 539-664-4811
Purchasing Return Fax 918-481-7427
Email Id amanda.bussmeyer@honeywell.com

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A Honeywell Company

Vendor: 132268 PROCESS SOLUTIONS INTL INC P.O Box: 203815 DALLAS Texas 75320 USA Phone: 214-349-5200 Fax: 2143495256 Kind Attn : Sally Sloan	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500748385** **Date :** NOV/28/2016 **Page :** 2 of 4 **Plant :** 1401 RUSSELL WAREHOUSE

BUYER.

Our Contact Persons:
Purchasing = Amanda Bussmeyer 539-664-4811, Amanda.Bussmeyer@honeywell.com

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:

UOP Russell: accountspayable@uop.com

PLEASE REFERENCE OUR UOP RUSSELL JOB NUMBER & PO NO ON ALL DRAWINGS/DOCUMENTS THAT ARE SUBMITTED.
UOP RUSSELL WILL RETURN ANY ITEMS THAT DO NOT HAVE THIS INFORMATION CLEARLY STATED.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	272.00	Serv Value		2-C1B1-35003	JAN/17/2017
VALVES		WAREHOUSE			
	Titan-CV44LCBSM0200-PSI				
20	272.00	Serv Value		2-C1B2-32013	JAN/17/2017
VALVES		WAREHOUSE			
	Titan-CV44LCBSM0200-PSI				
30	272.00	Serv Value		2-C1B2-32015	JAN/17/2017
VALVES		WAREHOUSE			
	Titan-CV44LCBSM0200-PSI				
40	771.00	Serv Value		3-F1D2-31004	JAN/17/2017
VALVES		WAREHOUSE			
	440300-11001468-GO				
50	424.00	Serv Value		4-C1D1-21047	
VALVES		WAREHOUSE			
	Titan-CV46CSM0400-PSI				

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A Honeywell Company

Vendor: 132268 PROCESS SOLUTIONS INTL INC P.O Box: 203815 DALLAS Texas 75320 USA Phone: 214-349-5200 Fax: 2143495256 Kind Attn : Sally Sloan	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500748385** **Date :** NOV/28/2016 **Page :** 3 of 4 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
60	424.00	Serv Value		4-C1D1-23026	
VALVES		WAREHOUSE			
	Titan-CV46CSM0400-PSI				
70	668.00	Serv Value		6-C1B1-36004	
VALVES		WAREHOUSE			
	TITAN-CV44CSM0600-PSI				
80	668.00	Serv Value		6-C1B1-36009	
VALVES		WAREHOUSE			
	TITAN-CV44CSM0600-PSI				
90	1,693.00	Serv Value		6-F2B3-31066	
VALVES		WAREHOUSE			
	L10600-1107509K-GO				
100	1,024.00	Serv Value		6-F2B3-31068	
VALVES		WAREHOUSE			
	430600-1101066GO				
110	866.00	Serv Value		8-C1B1-33001	
VALVES		WAREHOUSE			
	TITAN-CV44CSM0800-PSI				
120	866.00	Serv Value		8-C1B1-33001	DEC/06/2016
VALVES		WAREHOUSE			
	TITAN-CV44CSM0800-PSI				
130	952.00	Serv Value		8-C1D1-21089	
VALVES		WAREHOUSE			
	Titan-CV46CSM0800-PSI				
140	1,254.00	Serv Value		10-C1B1-33023	
VALVES		WAREHOUSE			
	Titan-CV44CSM1000-PSI				

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132268 PROCESS SOLUTIONS INTL INC P.O Box: 203815 DALLAS Texas 75320 USA Phone: 214-349-5200 Fax: 2143495256 Kind Attn : Sally Sloan	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500748385** **Date :** NOV/28/2016 **Page :** 4 of 4 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
150	1,254.00	Serv Value		10-C1B1-33023	DEC/06/2016
VALVES		WAREHOUSE			
	Titan-CV44CSM1000-PSI				
160	7,690.00	Serv Value		10-F2B3C-31063	FEB/28/2017
VALVES		WAREHOUSE			
	L11000-110D30L0K-GO				
170	5,943.00	Serv Value		10-F2B3C-31065	FEB/28/2017
VALVES		WAREHOUSE			
	4310000-1100DE09PGO				

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.

Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

APPENDIX D

TRI LOK MOUNTING RECORD SHEET - MANUAL GEAR OPERATOR

Tri Lok Series Valve Information

SIZE (ND): 6"	**Rating (Class): 300**	**Body Style: ◊ Gate**	**◊ Lug ◊ Wafer ◊ D. Flange**
Serial No: ST5001339101		**Notes:**	

MANUAL GEAR INFORMATION

Manufacturer: MASTERGEAR		**Model(Size): M12**	
Serial No:N/A		Mechanism Type: 11.3	
MECHANICAL GAIN	Opening (at 0°): N/A	Closing (at 0°): N/A	
MAX INPUT TORQUE: In-lb		MAX OUTPUT TORQUE: ◊ 10,560 In-lb	

VALVE SERVICE CONDITION (CUSTOMER INFORMATION)

Working Temperature: 150 °F	TYPE OF PLANT: NGL HYDROCARBON SERVICES	
Working Pressure: 400 PSI	CUSTOMER:PROCESS SOLUTIONS, INC	END USER: UOP RUSSELL
Max differential pressure: 795 PSI	Leakage class or rate required: Zero	

TRI LOK VALVE TORQUE TABLE INFORMATION

Valve service: ◊ Shaft Side ◊ Disc Side ◊ Bidirectional

End to Close Torque	Operating: ◊ In-lb	Max Recom: 2,603 In-lb
Start to Open Torque	Operating: ◊ In-lb	Max Recom in-lb
Running Torque (if any)	Operating: ◊ In-lb	Max Recom. In-lb

MOUNTING INFORMATION

Actuator Orientation: STANDARD	**Refer to: WI-09-35**
Mounting date/time: 12/20/2016	**Travel stop setting date/time: 12/20/2016**
Notes:	**Operator's signature: BRIAN W.**

FUNCTIONAL TESTING INFORMATION

Functional test date/time: 12/20/2016		**Refer to Tri Lok WI: WI-09-24**
Measured input Torque	OPENING: ◊ Ft-lb	CLOSING: ◊ 224 IN-LBS
Components and accessories checked: YES		
Notes:		Operator's signature: A.M

VALVE SEAT TESTS WITH GEAR OPERATOR MOUNTED

SHAFT SIDE ◊ 795 PSI	**To ◊ API 598**	**◊ TRI-LOK WI-09-24**	Input torque:◊ 224 IN-lb ◊ .....N-m	
DISC SIDE ◊ 795 PSI	**To ◊ API 598**	**◊ TRI-LOK WI-09-24**	Input torque:◊ 224 IN-lb ◊ .....N-m	
SHELL TEST ◊ 1100 PSI	**To ◊API 598**	**◊ TRI-LOK WI-09-24**	**RESULT:◊Pass ◊Fail**	NOTES:

FINAL NOTES:

NON CONFORMANCE NUMBER (IF ANY).....	REFER TO TRI LOK DOCUMENT .....
NOTES:	

FINAL DOCUMENT PREPARED BY OPERATOR: ROBERTO. M.	**DATE 12/20/2016**	**FINAL DOCUMENT APPROVED BY SUPERVISOR:**

APPENDIX D

TRI LOK MOUNTING RECORD SHEET - MANUAL GEAR OPERATOR

Tri Lok Series Valve Information

SIZE (ND): 10"	**Rating (Class): 300**	**Body Style: ◊ Gate ◊ D.FLANGE ◊ Wafer ◊ LUG**	
Serial No: ST7000071103		**Notes:**	

MANUAL GEAR INFORMATION

Manufacturer: MasterGear		**Model(Size): M20**	
Serial No:N/A		Mechanism Type: 57	
MECHANICAL GAIN	Opening (at 0°): N/A	Closing (at 0°): N/A	
MAX INPUT TORQUE: In-lb		MAX OUTPUT TORQUE: ◊ 71,100 In-lb	

VALVE SERVICE CONDITION (CUSTOMER INFORMATION)

Working Temperature: - 150 °F TO 150 °F	TYPE OF PLANT: NGL Hydrocarbon	
Working Pressure: 550 PSI	CUSTOMER: PROCESS SOLUTION INC	END USER: Honeywell - OUP RUSSELL
Max differential pressure: 720 PSI	Leakage class or rate required: Zero	

TRI LOK VALVE TORQUE TABLE INFORMATION

Valve service: ◊ Shaft Side ◊ Disc Side ◊ Bidirectional

End to Close Torque	Operating: ◊ In-lb	Max Recom: 19,095 In-lb
Start to Open Torque	Operating: ◊ In-lb	Max Recom in-lb
Running Torque (if any)	Operating: ◊ In-lb	Max Recom. In-lb

MOUNTING INFORMATION

Actuator Orientation: STANDARD	**Refer to: WI-09-35**
Mounting date/time: 7/26/2017	**Travel stop setting date/time: 7/26/2017**
Notes:	**Operator's signature: R.M**

FUNCTIONAL TESTING INFORMATION

Functional test date/time: 7/26/2017		**Refer to Tri Lok WI: WI-09-24**
Measured input Torque	OPENING: ◊ Ft-lb	CLOSING: ◊ 335 IN-LBS
Components and accessories checked: YES		
Notes:		Operator's signature: R.M

VALVE SEAT TESTS WITH GEAR OPERATOR MOUNTED

SHAFT SIDE ◊ 790 PSI	**To ◊ API 598**	**◊ TRI-LOK WI-09-24**	Input torque: 335 IN-lb ◊ .....N-m	
DISC SIDE ◊ 790 PSI	**To ◊ API 598**	**◊ TRI-LOK WI-09-24**	Input torque:◊ 335 IN-lb ◊ .....N-m	
SHELL TEST ◊ 1100 PSI	**To ◊API 598**	**◊ TRI-LOK WI-09-24**	**RESULT ◊Pass ◊Fail**	NOTES:

FINAL NOTES:

NON CONFORMANCE NUMBER (IF ANY).....	REFER TO TRI LOK DOCUMENT .....

NOTES: **S.S TAG: 10 F2B3C**

FINAL DOCUMENT PREPARED BY OPERATOR: MIGUEL S.	**DATE 7/26/2017**	**FINAL DOCUMENT APPROVED BY SUPERVISOR:**

PO Created for Reference - This is not an official PO

A Honeywell Company

UOP RUSSELL LLC

Vendor: 132275 QUALITY PRODUCTS & SALES INC P.O Box: 7 BROKEN ARROW Oklahoma 74013 USA Phone: 918-251-0115 Fax: 9184551982 Kind Attn : Mike	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500754449** **Date :** JAN/05/2017 **Page :** 1 of 4
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** S447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.
We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.
See our Commitment Statement at http://www.honeywell.com/sites/sm.

UOP Russell Project: J447XX

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT or a special HONEYWELL/UOP/UOP Russell / Supplier TERMS & CONDITIONS are in place, then this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

The attached proposal is included only to clarify technical requirements and Scope of Work/Equipment/Services to be purchased.

Supplier#s "boilerplate" preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing.

The Product/Service prices stated herein are firm and can only be changed with the prior written consent of

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Amanda Bussmeyer
Tax ID 3101720754
Buyer Phone 539-664-4811
Purchasing Return Fax 918-481-7427
Email Id amanda.bussmeyer@honeywell.com

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132275 QUALITY PRODUCTS & SALES INC P.O Box: 7 BROKEN ARROW Oklahoma 74013 USA Phone: 918-251-0115 Fax: 9184551982 Kind Attn : Mike	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500754449** **Date :** JAN/05/2017 **Page :** 2 of 4 **Plant :** 1401 RUSSELL WAREHOUSE

BUYER.

Our Contact Persons:
Purchasing = Amanda Bussmeyer 539-664-4811, Amanda.Bussmeyer@honeywell.com

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:

UOP Russell: accountspayable@uop.com

PLEASE REFERENCE OUR UOP RUSSELL JOB NUMBER & PO NO ON ALL DRAWINGS/DOCUMENTS THAT ARE SUBMITTED.
UOP RUSSELL WILL RETURN ANY ITEMS THAT DO NOT HAVE THIS INFORMATION CLEARLY STATED.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	1	Each		FE-481 FLG	
FE'S		WAREHOUSE			
	3" 300# S/40 A105 RFWN ORIFICE FLANGE UNION WITH ZINC PLATED				
20	1	Each		FE-481 PLATE	
FE'S		WAREHOUSE			
	3" 300# PADDLE TYPE ORIFICE PLATE 1/8" THK. 304/304L SS				
30	1	Each		FE-141 FLG	
FE'S		WAREHOUSE			
	4" 600# S/80 A105 RFWN ORIFICE FLANGE UNION WITH ZINC PLATED				
40	1	Each		FE-141 PLATE	
FE'S		WAREHOUSE			
	4" 600# PADDLE TYPE ORIFICE PLATE 1/8" THK. 304/304L SS.				
50	1	Each		FE-602 FLG	
FE'S		WAREHOUSE			
	4" 900# S/80 A105 FULL FACE RTJWN ORIFICE FLANGE UNION WITH				

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132275 QUALITY PRODUCTS & SALES INC P.O Box: 7 BROKEN ARROW Oklahoma 74013 USA Phone: 918-251-0115 Fax: 9184551982 Kind Attn : Mike	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500754449** **Date :** JAN/05/2017 **Page :** 3 of 4 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
60	1	Each		FE-602 PLATE HOLDER	
FE'S		WAREHOUSE			
	4" 900# ZINC PLATED A516-70 STYLE 590 SCREW-DOWN RTJ ORIFICE PLATE HOLDER WITH (1) 1/32" THK. NON-ASBESTOS GASKET				
70	1	Each		FE-602 UNIVERSAL PLATE	
FE'S		WAREHOUSE			
	4" UNIVERSAL ORIFICE PLATE 1/8" THK. 304/304L SS.				
80	1	Each		FE-781 FLG	
FE'S		WAREHOUSE			
	6" 300# S/40 A105 RFWN ORIFICE FLANGE UNION WITH ZINC PLATED				
90	1	Each		FE-781 PLATE	
FE'S		WAREHOUSE			
	6" 300# PADDLE TYPE ORIFICE PLATE 1/8" THK. 304/304L SS.				
100	1	Each		FE-402 FLG	
FE'S		WAREHOUSE			
	8" 600# A350-LF2 S/XH RFWN ORIFICE FLANGE UNION WITH ZINC				
110	1	Each		FE-402PLATE	
FE'S		WAREHOUSE			
	8" 600# PADDLE TYPE ORIFICE PLATE 1/8' THK. 304/304L SS.				
120	1	Each		FE-501 FLG	
FE'S		WAREHOUSE			
	6" 600# S/80 A350-LF2 RFWN ORIFICE FLANGE UNION WITH ZINC				
130	1	Each		FE-501PLATE	
FE'S		WAREHOUSE			
	6" 600# PADDLE TYPE ORIFICE PLATE 1/8" THK. 304/304L SS.				
140	1	Each		FE-402A FLG	
FE'S		WAREHOUSE			

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132275 QUALITY PRODUCTS & SALES INC P.O Box: 7 BROKEN ARROW Oklahoma 74013 USA Phone: 918-251-0115 Fax: 9184551982 Kind Attn : Mike	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500754449** **Date :** JAN/05/2017 **Page :** 4 of 4 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
	4" 600# S/80 A350-LF2 RFWN ORIFICE FLANGE UNION WITH ZINC				
150	1	Each		FE-402A PLATE	
FE'S		WAREHOUSE			
	4" 600# PADDLE TYPE ORIFICE PLATE 1/8" THK. 304/304L SS				
160	1	Each		FE-402B FLG	
FE'S		WAREHOUSE			
	2" 600# A350-LF2 S/80 RFWN ORIFICE FLANGE UNION WITH ZINC				
170	1	Each		FE-402B PLATE	
FE'S		WAREHOUSE			
	2" 600# PADDLE TYPE ORIFICE PLATE 1/8" THK. 304/304L SS.				

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.

Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

NAS NORTH AMERICAN STAINLESS

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 116590 01
Customer: 2830 001

Mail To:
ROLLED ALLOYS
125 W. STERNS RD.
TEMPERANCE, MI 48182

Ship To:
ROLLED ALLOYS
125 W. STERNS RD.
TEMPERANCE, MI 48182

Date: 11/22/2015
Steel: 304/304L
Finish: 2B

Your Order: 0130935
NAS Order: AN 0680190 03
Corrosion: ASTM A262/14 A;180Bend-OK

PRODUCT DESCRIPTION:

STAINLESS STEEL COIL, C.R. ANNEALED & PICKLED. UNS 30400/30403
ASTM A240/15a,A480/14b,A666/15;ASME SA240/13,SA480/13,SA666/13
CHEM ONLY ON FOLLOWING ASTM: A276/13,A479/13a,A484/13a,A312/13
CHEM ONLY ON FOLLOWING ASME: SA312/13,SA479/13
AMS 5511H/5513J XMRK; MIL-5059D AMD3(X CRN MEAS); MIL-4043B
NACE MR0175/ISO 15156-3:2009 A, MR0103/07;QQS766D-A X MAG PERM
MIN. SOLUTION ANNEAL TEMP 1900F, WATER QUENCHED

REMARKS:

Mat'l is Free of Mercury Contamination. No weld repairs.
EN 10204:2004 3.1; RoHS 1 & 2 Compliant
Material is Free of Radioactive Contamination
Steel Making Process: EAF, AOD, & Cont. Casting
Product Mfg.by a Quality Mgt.Sys. in Conf. w/ISO 9001
*Melted & Manufactured in the USA; Mat'l is DFARs Compliant

Product ID #	Coil #	Thickness	Width	Weight	--------Length-------	Mark	Pieces	COMMODITY CODE
02X0Y7 B	* 02X0Y7 B	.1350	48.0000	10,710	COIL 499.90	1	1	

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS

CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

Chemical analysis per ASTM A751/08

HEAT	CM	C %	CO %	CR %	CU %	MN %	MO %	N %	NI %	P %
X0Y7	US	.0275	.2735	18.1225	.3730	1.8060	.3910	.0737	8.0050	.0300

S %	SI %
.0010	.2555

HEAT # X0Y7
TRACER # 0466880US

MECHANICAL PROPERTIES

Product ID #	Coil #	Loc	Dir	UTS KSI	20C .2% YS KSI	20C ELONG %-2"	% Hard RB	Tail Hard	A 262 'E' Pr E
02X0Y7 B	02X0Y7 B	F	T	91.65	46.17	53.76	84.00	85.00	OK

Receiving Inspection
By:
Date: 11-24-15

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical Dept. Mgr. Abhijeet Bhave 11/22/2015

4504754449 L44

3443-1

NUCOR
PLATE MILL

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

Mill Test Report

Page 1

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

NUCOR

Issuing Date : 03/23/2016 B/L No. : 440100 Load No. : 447577

Vehicle No: LW 62142

Sold To: STEEL SERVICE CENTER CLAREMORE OKLAHOMA

Ship To: STEEL SERVICE CENTER CLAREMORE OKLAHOMA

Specification: 1.2500" x 96.000" x 480.000"
ASTM A516 70-10(2015)/ASME SA516 70 PVQ 2013/2015 Normalized
Test Coupons at 1650 F NACE MR0175 Annex 2.1.2, MR0103 Section 2.1.2

Marking :

Heat No	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Al(tot)	V	Nb	Ti	N	Ca	B	Sn	Ceq	Pcm
6501826	0.20	1.03	0.012	0.000	0.23	0.21	0.10	0.09	0.03	0.023	0.009	0.001	0.002		0.0021	0.0004	0.010	0.42	0.28

		Tensile Test						Charpy Impacts										
Plate Serial No	Pieces	Tons	Dir.	(psi) Yield	(psi) Tensile	Elongation % in 2"	Elongation % in 8"	Dir.	1	(%) shear	2	(%) shear	3	(%) shear	Ave.	(%) shear	Size	Temp	Min Ave.
6501826-07	3	24.50	T	46,600	76,900		25.6												
			T	43,400	73,100		24.7	N											

Name: PIONEER STEEL
PO#: 628555
Count: 1
Size: 1 1/4 X 96 X 240 A516-70 PLATE
Heat#: 6501826 07

PIONEER STEEL, INC.
DATE 1-23-17 QTY. 3
PO# 6852
PART #
W/O #

NACE MR0175 ANNEX 2.1.2 COMPLIANT
Test coupons only, normalized 60 minutes per inch of thickness at 1650 F ± 25 F. Hold 30 minutes minimum. ;

Manufactured to fully killed fine grain practice by Electric Arc Furnace. Welding or weld repair was not performed on this material. Mercury has not been used in the direct manufacturing of this material. Produced as continuous cast discrete plate as-rolled, unless otherwise noted in Specification. For Mexico shipments: nhc-SalesMX@Nucor.com
Yield by 0.5EUL method unless otherwise specified. Ceq = C+(Mn/6)+((Cr+Mo+V)/5)+((Cu+Ni)/15)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B
Melted and Manufactured in the USA. ISO 9001:2008 certified (#010940) by SRI Quality System Registrar (#0985-09). PED 97/23/EC 7/2 Annex 1. Para. 4.3 Compliant. DIN 50049 3.1.B/EN 10204 3.1B(2004). DIN EN 10204 3.1(2005) compliant. For ABS grades only. Quality Assurance certificate 14-MMPQA-723

We hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with the applicable specifications, including customer specifications.

T. A. Deprelis, Metallurgist

3/24/2016 9:16:48 AM

3443-1

NUCOR
PLATE MILL

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

Mill Test Report

Page 1

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

NUCOR

Issuing Date : 03/23/2016 B/L No. : 440100 Load No. : 447577

Vehicle No: LW 62142

Sold To: STEEL SERVICE CLAREMORE OKLAHOMA

Ship To: STEEL SERVICE CLAREMORE OKLAHOMA

Specification: 1.2500" x 96.000" x 480.000"
ASTM A516 70-10(2015)/ASME SA516 70 PVQ 2013/2015 Normalized
Test Coupons at 1650 F NACE MR0175 Annex 2.1.2, MR0103 Section 2.1.2

Marking :

Heat No	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Al(tot)	V	Nb	Ti	N	Ca	B	Sn	Ceq	Pcm
6501826	0.20	1.03	0.012	0.000	0.23	0.21	0.10	0.09	0.03	0.023	0.009	0.001	0.002		0.0021	0.0004	0.010	0.42	0.28

Tensile Test								Charpy Impacts											
Plate Serial No	Pieces	Tons	Dir.	(psi) Yield	(psi) Tensile	Elongation % in 2"	Elongation % in 8"	Dir.	1	(%) shear	2	(%) shear	3	(%) shear	Ave.	(%) shear	Size	Temp	Min Ave.
6501826-07	3	24.50	T	46,600	76,900		25.6												
			T	43,400	73,100		24.7	N											

Name: PIONEER STEEL
PO#: 628555
Count: 1
Size: 1 1/4 X 96 X 240 A516-70 PLATE
Heat#: 6501826 07

PIONEER STEEL, INC.
DATE 1-23-17 QTY. 1
PO# 68855
PART #
W/O #

NACE MR0175 ANNEX 2.1.2 COMPLIANT
Test coupons only, normalized 60 minutes per inch of thickness at 1650 F ± 25 F. Hold 30 minutes minimum. ;

Manufactured to fully killed fine grain practice by Electric Arc Furnace. Welding or weld repair was not performed on this material. Mercury has not been used in the direct manufacturing of this material. Produced as continuous cast discrete plate as-rolled, unless otherwise noted in Specification. For Mexico shipments: nhc-SalesMX@Nucor.com
Yield by 0.5EUL method unless otherwise specified. Ceq = C+(Mn/6)+((Cr+Mo+V)/5)+((Cu+Ni)/15)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B
Melted and Manufactured in the USA. ISO 9001:2008 certified (#010940) by SRI Quality System Registrar (#0985-09). PED 97/23/EC 7/2 Annex 1, Para. 4.3 Compliant. DIN 50049 3.1.B/EN 10204 3.1B(2004), DIN EN 10204 3.1(2005) compliant. For ABS grades only, Quality Assurance certificate 14-MMPQA-723

We hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with the applicable specifications, including customer specifications.

T. A. Deprelis, Metallurgist

3/24/2016 9:18:48 AM

NORMA (INDIA) LIMITED

48,Site IV industrial Area, Sahibabad, Ghaziabad-201010 (U.P) INDIA.
Tel: 91-120-2896091, 2895404 Fax: 91-120-2895930 E-mail: normaindia@gmail. com

Works Test Certificate

NORMA/LAB NO-11565/14-15		INVOICE NO. E-775		DATE:-24.03.15	
P. Order. No:	503/005062	Customer:-		Forging specification	ASTM A350 –LF2
Component	4"-600 # WNRF XH LF2 FLG.			Steel Supplier	Usha Martin Ltd.
Drawing No.					
Machining STD	ASME B16.5-2003 ANSI B16.5- 2003	Quantity:-	22Nos.	Mill Heat No.	B 3544

TEST RESULTS

NORMA HEAT NO- 102

CHEMICAL COMPOSTION

Elements %	Specified Composition	Actual	
		NORMA LAB	MILL T.C.
Carbon	0.30max.	0.19	0.21
Manganese	0.60-1.35	1.20	1.20
Silicon	0.15-0.35	0.20	0.23
Sulphur	0.040max.	0.005	0.003
Phosphorous	0.035max.	0.017	0.018
Chromium	0.30max.	0.016	0.020
Nickel	0.40max.	0.007	0.010
Copper	0.40max.	0.009	0.010
Molybdenum	0.12max.	0.001	0.007
Vanadium	0.080max.	0.0008	0.002
Columbium	0.02max.	0.001	---
Carbon Equivalent (CE)	0.47max.	0.395	0.417

MECHANICAL PROPERTIES.

PROPERTIES	SPECIFIED	OBTAINED
Hardness HB.	197max.	149-163
Yield Strength (mpa)	250.00 min.	350.09
Tensile Strength (mpa)	485-655.	541.86
%Elongation in 50mm / 4D	22.00 min	32.40
% Reduction of Area	30.00 min.	60.25
Impact Value at (-46°C) temp.	20J min	46,54,48.

Specified carbon as per Purchase Order 0.25max.

Serrated face as per MSS-SP-6 With in limits of 125-250AARH

Heat-Treatment: Normalized at temp. 920°C

CARBON EQUIVALENT (CE)

$$CE = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

MARKING AS PER MSS-SP-25-2008
4"-600 XH SA/A105 N/SA 350 LF 2 CL1 N 102 B16.5 NORMA INDIA.

Remarks:-We here by certify that the material described here in has been tested in accordance with the applicable specifications referred above and meets the requirements as per EN10204/3.1B&NACE Standard-MR0175-2003/ISO15156,MR0103.

Country of Origin-India.

Checked by: Metallurgist

Certified by:
Quality Control Manage

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http://www.verypdf.com

Demo (http://www.verypdf.com)

CLIENTE / Customer / Client

CERTIFICADO DE INSPECCION

Inspection Certificate - Certificat de Réception

DIN EN 10204 / 3.1
ISO 10474 / 3.1

FECHA: Date: 16/06/2015 | N.º No. 173487 | HOJA: Page: 1

SGI 1922164 SGI 0000236 SGI 0009987 ULMA FORJA, S.COOP.
Management Systems certified by LRQAE

B.º Zubillaga, 3 - Apdo. 14
20560 OÑATI (Gipuzkoa) SPAIN
Tel.: 34 - 943 780552
Fax: 34 - 943 781808
E-mail: ulma@ulmapiping.com

PRODUCTO / Article - Produit: FLANGES

SU PEDIDO N.º / Your Order No. / Votre Cde. N.º: 205919-CALIFORNIA

DE / of. - de: 31/12/2014

Certified acc. PED 97/23/EC+AD2000-W0 by TÜV Rheinland N.º 01 202 E/Q 02 7443

Packing List: 118089

NORMAS APLICABLES / Requirements - Normes Applicables: ASME B16.5-13

MARCA DEL FABRICANTE / Mark of factory / Marque du fabricant

MATERIAL CORRESPONDIENTE / Material Correspondent - Qualité: ASME SA105M-13, ASTM A105M-14

MODO DE FUSION (*) / Steel Making - Elaboration de l'acier: NACE MR0175/ISO15156-02-09 & MR0103-12

E = Elec. Y = Oxigeno básico

DEPARTAMENTO / Section / Département: QUALITY ASSURANCE

PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	OBSERVACIONES Remarks Observations (*)	COLADA N.º Heat No N.º Coulée	RESISTENCIA T Strength Resist Rupt N/mm2	LIMITE ELAST Y Strength 0,2 % N/mm2	ALARGAM. Elongation Allongement Lo:50mm/4d %	ESTRICCION Red Area Striction %	RESILIENCIA Impact test Résilience Joules	PROBETA SPECIMEN CHARPY V 10x10mm MEDIA Average Moyenne	ºC	DUREZA Hardness Dureté HBW
15 WN240CLT03000008	5	WN 24 300LB XS RF A105N	NE	14AV5	513	316	28,30	57,00				156 161
22 WN060CLT06000008	24	WN 6 600LB XS/80 RF A105N	NE	B30A5	518	323	27,40	45,00				152 156
38 WN040CLT250000XX	24	WN 4 2500LB XXS RTJ A105N V01 S/CHAF	NE	A70A5	494	297	35,00	58,70				149 152
39 WN060CLT250000XX	3	WN 6 2500LB XXS RF/RTJ A105N V01 S/CHAF	NE	04AV5	512	316	30,90	53,90				161 164
39 WN060CLT250000XX	3	WN 6 2500LB XXS RF/RTJ A105N V01 S/CHAF	NE	16AV5	504	300	33,20	65,30				147 148

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

COLADA N.º Heat No N.º Coulée	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	CEq %				Origin of Steel
04AV5	0,190	0,210	0,990	0,010	0,006	0,075	0,110	0,014	0,002	0,003	0,260	0,025	0,001	0,398				Spain
14AV5	0,200	0,230	1,030	0,010	0,006	0,081	0,120	0,025	0,002	0,004	0,270	0,026	0,001	0,420				Spain
16AV5	0,200	0,210	0,960	0,009	0,009	0,067	0,140	0,021	0,001	0,003	0,230	0,029	0,001	0,403				Spain
A70A5	0,190	0,210	0,980	0,009	0,007	0,050	0,080	0,010	0,002	0,002	0,140	0,027	0,003	0,380				France
B30A5	0,200	0,210	0,940	0,016	0,004	0,040	0,080	0,015	0,005	0,001	0,170	0,031	0,002	0,385				France

- Las dimensiones y la condición superficial se hallaron 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 FORJA S. COOP.
Dpto. de Garantía de calidad
Quality Assurance Dept.

(*) OBSERVACIONES: Remarks Observations: N_NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR.

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MEL435 / 36499 / 8.0RFWN#60XHL / 8" 600# RFWN XH A350 LF2

melesi

FLANGES FORGED

CERTIFICATO DI COLLAUDO
WORKS CERTIFICATE
CERTIFICAT D'ESSAIS

N. 114252 — 02/11/15 — 1/1

DDT/ORDER: 27/04/15 — COMMESSA: 56010

N.RIF.	ITEM	N/QUANTITY	DESCRIZIONE / DESCRIPTION / DESIGNATION	LOTTI
LB5880	5	80	A350LF2 0° UNI 600 RF SCH XS	LOT 19 125-250 RMS
LB5880	5	80	A350LF2 0° UN 600 RF SCH XS	LOT 20 125-250 RMS
LB5981	6	32	A350LF2 0° UN 600 RF SCH STD	LOT 23 125-250 RMS
LB5981	6	80	A350LF2 0° UN 600 RF SCH STD	LOT 25 125-250 RMS
LB5981	6	80	A350LF2 0° UN 600 RF SCH STD	LOT 26 125-250 RMS
LB5981	6	80	A350LF2 0° UN 600 RF SCH STD	LOT 28 125-250 RMS

N.	MATERIALE / MATERIAL / MATERIAU	COLATA / HEAT / COULEE	ACCIAIERIA / STEEL PLANT / ACIERIE	ORDINE CLIENTE / CUSTOMER ORDER
LB5880	ASTM A350 LF2 CL1 13	36499	RIVA	275
LB5981	ASTM A350 LF2 CL1 13	36134	RIVA	2611

ANALISI CHIMICA / CHEMICAL ANALYSIS / COMPOSITION CHIMIQUE

N. RIF.	C	Mn	Si	P	S	Cr	Ni	Mo	Nb	V	Cu	Al	Sn	* C.Eq
Min			0,150											
Max	0,250	1,600	0,350	0,025	0,025									
LB5880Lad	0,165	1,130	0,220	0,011	0,014	0,100	0,060	0,020	0,002	0,022	0,170	0,026	0,010	0,397
LB5880Che	0,167	1,140	0,218	0,010	0,013	0,096	0,054	0,018	0,002	0,020	0,164	0,027	0,009	0,398
LB5981Lad	0,175	1,160	0,240	0,014	0,012	0,150	0,100	0,020	0,002	0,028	0,156	0,022	0,008	0,425
LB5981Che	0,172	1,140	0,238	0,013	0,011	0,147	0,096	0,018	0,002	0,027	0,146	0,022	0,007	0,417

PROVE MECCANICHE / MECHANICAL TESTS / ESSAIS MECANIQUES

N. RIF.	Ø mm.	SO mm2	LU mm.	RS.VELO. LIMITE MPA	R.TENSILE RUPTURE MPA	A %-ELONG. ALLONGEM. 2"	C %-REDUCT. STRICTION	RESILIENZA / IMPACT TEST / RESILIENCE MEDIO / AVERAGE MOYEN Joule		MINIMO MINIMUM Joule		TIPO TYPE	TEMP. °C	DUREZZA / HARDNESS Brinell 10-3000-30
				250,00	485,00	22,00	30,00	27						
LB5880	12,70	126,65	50,80	380,30	541,40	32,50	65,10	40	44	48		KV	- 46	153/155
SHEAR AREA								55	56	64		%		
LB5981	12,70	126,65	50,80	375,20	545,50	31,00	63,30	44	46	49		KV	- 46	152/155
SHEAR AREA								57	60	65		%		

N. RIF.	TRATTAMENTI TERMICI / HEAT TREATMENTS / TRAITEMENTS THERMIQUES
LB5880	Normalizzazione / Normalisation B=0,0000
LB5981	Normalizzazione / Normalisation B=0,0000

Acc. DIN50049 3.1B/EN10204 3.1 Surface and dimensional check according to ASME B16,5 2013.
Steel made by electric furnace fully killed fine grain practice. (*)CEq. by long formula.
Material acc. to NACE MR 01-75 / ISO 15156.
Material acc. to NACE MR 01-03.

ESITO DELLE PROVE / TEST RSULT / RESULTS DES ESSAIS: FAVOREVOLE, SATISFACTORY SATISFAISANT

TRADE MARK | P. GEN. A. MELESI & C. | COLLAUDATORE / INSPECTOR / INSPECTEUR: Uberti p.i. Lino | ENTE COLLAUDATORE / INSPECTION AGENCY / AUTHORITY DE RECETTE

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R.N. GUPTA & COMPANY LTD., C-55, FOCAL POINT, LUDHIANA -141 010 (INDIA)

MATERIAL / MILL TEST CERTIFICATE EN 10204 : 2004 - 3.1

CERTIFICATE NO. 6199 DATE 24/08/2013

NAME OF BUYER

RAW MATERIAL SPECIFICATION : ASTM A105-11A/ASME SA105-11A

SPECIFICATION FOR INSPECTION :ANSI/ASME B16.5-2009.

P.O NO.

INVOICE NO.

MECHANICAL REQUIREMENTS

Sr. No.	Description	Qty (PCS)	Heat No.	Supp. Code	Y.S(PSI) Min 36,000	T.S(PSI) Min. 70,000	E% Min 22%	R.A% Min 30%	Heat Treatment	Soaking Time (Min.)	Hardness BHN 137-187
1	6 300# WNRF STD FLGS	236	H 4476	22	48092	76868	31.20	62.82	AS FORGED		148 - 150
2	6 300# WNRF STD FLGS	136	H 4473	20	50818	79611	30.20	61.52	AS FORGED		158 - 160
3	6 300# WNRF STD FLGS	65	H 4453	31	43838	73545	30.24	59.89	AS FORGED		145 - 147
4	18 150# BLRF FLG	50	H 4460	2	48203	76963	30.24	60.43	AS FORGED		151 - 153
5	16 300 WNRF XH	50	H 4469	19	48856	77982	32.15	63.86	AS FORGED		152 - 154

CHEMICAL REQUIREMENTS

Sr. No.	Heat No.	SPECIFIED ELEMENTS						UNSPECIFIED ELEMENTS				
		C.E. 0.47% Max	C 0.35 Max	Mn 0.60-1.25	P 0.035 Max.	S 0.04 Max.	Si .10 -0.35	Cu 0.40 Max.	Ni 0.40 Max	Cr 0.30 Max.	Mo 0.12 Max.	V 0.05 Max.
1	H 4476	0.37	0.21	1.20	0.009	0.008	0.23	0.002	0.020	0.013	0.012	0.003
2	H 4473	0.43	0.21	1.12	0.025	0.002	0.30	0.056	0.066	0.100	0.003	0.006
3	H 4453	0.37	0.21	0.90	0.021	0.013	0.25	0.002	0.008	0.012	0.008	0.003
4	H 4460	0.37	0.21	0.89	0.025	0.019	0.30	0.006	0.014	0.017	0.012	0.003
5	H 4469	0.41	0.21	1.17	0.011	0.011	0.23	0.002	0.026	0.016	0.019	0.002

Material in accordance with NACE MRO 175-2003 and NACE MRO 103

All Products were manufactured, Sampled, Tested and Inspected Solely by the manufacturer shown on this Test Report in accordance with Indicated specification and were found to meet the requirements.

No Weld Repair was performed and all products are free of Weld Repair.All Products are free of Mercury Contamination and Radioactivity.

Note:- We hereby confirm that our QA system comply with the requirements of Annex I, Clause 4.3 of PED 97/23/EC and it is certified by M/s Det Norske Veritas vide Certificate No. 95036-2011-CE-IND-DNV Dated 31-03-2014 ISO 9001-2008 Certificate No. is 39752-2008-QA-INDIA-RvA.01 Dated 23/07/2011. Products also conform to requirements of ASTM A105-05/ASME SA105

For R.N. GUPTA & COMPANY LTD.

METALLURGIST

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NORMA (INDIA) LIMITED

48,Site IV industrial Area, Sahibabad, Ghaziabad-201010 (U.P) INDIA.
Tel: 91-120-2896091, 2895404 Fax: 91-120-2895930 E-mail: normaindia@gmail. com

Works Test Certificate

NORMA/LAB NO-8402/14-15		INVOICE NO.		DATE:-17-12-14	
P. Order. No:		Customer:-		Forging specification	ASME SA105 -09 ASTM A105 -12
Component	4"-600# WNRF XH FLG.			Steel Supplier	Usha Martin Ltd.
Drawing No.					
Machining STD	ANSI B16.5- 2009 ASME B16.5- 2009	Quantity:-	83Nos.	Mill Heat No.	B 3544

TEST RESULTS — NORMA HEAT NO-102

CHEMICAL COMPOSTION

Elements %	Specified Composition	Actual	
		NORMA LAB	MILL T.C.
Carbon	0.35max.	0.19	0.21
Manganese	0.60-1.05	1.20	1.20
Silicon	0.10-0.35	0.20	0.23
Sulphur	0.040max.	0.005	0.003
Phosphorous	0.035max.	0.017	0.018
Chromium	0.30max.	0.016	0.020
Nickel	0.40max.	0.007	0.010
Copper	0.40max.	0.009	0.010
Molybdenum	0.12max.	0.001	0.007
Vanadium	0.080max.	0.0008	0.002
Carbon Equivalent (CE)	0.47max.	0.395	0.417

MECHANICAL PROPERTIES.

PROPERTIES	SPECIFIED	OBTAINED
Yield Strength (mpa)	250.00 min.	350.09
Tensile Strength (mpa)	485.00 min.	541.86
%Elongation in 50mm / 4D	22.00 min	32.40
Hardness HB.	187. max.	149-163
% Reduction of Area	30.00 min.	60.25

Remarks:- We here by certify that the material described here in has been tested in accordance with the applicable specifications referred above and meets the requirements as per EN10204/3.1B & NACE Standard-MR0175-2003.MR0103.
"As per ASTM A105 Table 1 Note:-For each reduction of 0.01% below the specified carbon maximum(0.35%).an increase of 0.06% manganese above the specified maximum (1.05%)will be permitted up to maximum 1.35%.
Country of Origin-India.

Specified carbon as per Purchase Order 0.25max.

Serrated face as per MSS-SP-6 With in limits of 125-250AARH

H.T-: Normalized at temp 920°C

CARBON EQUIVALENT (CE)

$$CE = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

MARKING AS PER MSS-SP-25-2008
4"-600 XH SA/A105 102 B16.5 NORMA INDIA.

Checked by: Metallurgist

Certified by: Quality Control Manager

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WESTERN OF TEXAS FORGE & FLANGE CO.

1299 Hwy 69 * Kountze, Texas 77625 USA, * 877-246-2429

CERTIFIED MATERIAL TEST REPORT

TO:	P.O.#:	TAG#:	BMT#:
QUALITY PRODUCTS	6846		26587

SPECIFICATIONS	DESCRIPTION	HT CODE	TYPE	C	Mn	P	S	Si	Mo	Cr
ASME SA350 LF-2/CL.1	2PR- 3" 600 WN ORIF RF 80 ALL WITH JS HOLES ALL LESS TAPS	B6329	LF-2-CL.1	.18	1.12	.008	.002	.22	.023	.07

Ni	Cu	Cb	V
.09	.22	.002	.016

ASTM, SEC.1; 2016 ED.
ASTM, SEC. 2; 2016 ED.
ASME , 2015 ED.

Yield(psi)	Tensile(psi)	%El	%Ra	HBW
47,356	72,756	36	77	134/134

NORMALIZED @ 1750°F FOR 3 HRS
TEMPERED @ 1375°F FOR 3 HRS

CVN @ -50°F

ENERGY FT LBS	MILS LAT EXP	%SHEAR
148-87-115	.086-.063-.078	90-40-70

Country of MFG: USA

We certify the material described herein has been manufactured, tested and examined, and meets all referenced specification and requirements. Quality Management System is ISO 9001:2008, PED Certified, and complies according to EN 10204:2004, 3.1. Original referenced documents and certificates are retained for a minimum of 10 years.

Date:	Signed:	Printed Name:	Title:
1-24-17	Wayne E Peninger	Wayne Peninger	Q/A Document Coordinator

Any act of tampering, modification, alteration, counterfeiting. falsification, and/or any other action which modifies the contents of this test certificate, shall constitute a violation of applicable civil and/or criminal laws. Any such act will void the certifications of this certificate.

WESTERN OF TEXAS FORGE & FLANGE CO.

1299 Hwy 69 * Kountze, Texas 77625 USA, * 877-246-2429

CERTIFIED MATERIAL TEST REPORT

TO:	P.O.#:	TAG#:	BMT#:
QUALITY PRODUCTS	6846		26587

SPECIFICATIONS	DESCRIPTION	HT CODE	TYPE	C	Mn	P	S	Si	Ni	Cr
ASME SA350 LF-2/CL.1	1PR- 2" 600 WN ORIF RF 80 ALL WITH JS HOLES ALL LESS TAPS	B6231	LF-2-CL.1	.17	1.08	.010	.022	.25	.10	.15

Mo	Cu	Cb	V
.04	.21	.002	.025

ASTM, SEC.1; 2016 ED.
ASTM, SEC. 2; 2016 ED.
ASME , 2015 ED.

Yield(psi)	Tensile(psi)	%El	%Ra	HBW
46,465	70,473	37.5	75	131/131

NORMALIZED @ 1750°F FOR 3 HOURS
TEMPERED @ 1375°F FOR 3 HOURS
COUNTRY OF MFG: USA

LCVN @ -50°

FT LBS	LAT EXP MILS	%SHEAR
126-175-118	81-N/B-87	60-N/B-60

We certify the material described herein has been manufactured, tested and examined, and meets all referenced specification and requirements. Quality Management System is ISO 9001:2008, PED Certified, and complies according to EN 10204:2004, 3.1. Original referenced documents and certificates are retained for a minimum of 10 years.

Date:	Signed:	Printed Name:	Title:
1-24-17		Wayne Peninger	Q/A Document Coordinator

Any act of tampering, modification, alteration, counterfeiting, falsification, and/or any other action which modifies the contents of this test certificate, shall constitute a violation of applicable civil and/or criminal laws. Any such act will void the certifications of this certificate.

WTFF-MTR, Rev. 1, 7-23-2012

WESTERN OF TEXAS FORGE & FLANGE CO.

1299 Hwy 69 * Kountze, Texas 77625 USA, * 877-246-2429

CERTIFIED MATERIAL TEST REPORT

TO:	P.O.#:	TAG#:	BMT#:
QUALITY PRODUCTS	6854		26601

SPECIFICATIONS	DESCRIPTION	HT CODE	TYPE	C	Mn	P	S	Si	Ni	Cr
ASME SA350 LF-2/CL.1	1PR- 3" 600 WN ORIF RF 80 W/ JS HOLES LESS TAPS	B6231	LF-2-CL.1	.17	1.08	.010	.022	.25	.10	.15

Mo	Cu	Cb	V
.04	.21	.002	.025

ASTM, SEC.1; 2016 ED.
ASTM, SEC. 2; 2016 ED.
ASME , 2015 ED.

Yield(psi)	Tensile(psi)	%El	%Ra	HBW
46,465	70,473	37.5	75	140/140

NORMALIZED @ 1750°F FOR 3 HOURS
TEMPERED @ 1375°F FOR 3 HOURS
COUNTRY OF MFG: USA

LCVN @ -50°

FT LBS	LAT EXP MILS	%SHEAR
126-175-118	81-N/B-87	60-N/B-60

We certify the material described herein has been manufactured, tested and examined, and meets all referenced specification and requirements. Quality Management System is ISO 9001:2008, PED Certified, and complies according to EN 10204:2004, 3.1. Original referenced documents and certificates are retained for a minimum of 10 years.

Date:	Signed:	Printed Name:	Title:
1-25-17		Wayne Peninger	Q/A Document Coordinator

Any act of tampering, modification, alteration, counterfeiting, falsification, and/or any other action which modifies the contents of this test certificate, shall constitute a violation of applicable civil and/or criminal laws. Any such act will void the certifications of this certificate.

WTFF-MTR. Rev. 1, 7-23-2012

AMERIFORGE FLANGE
an AFGlobal Company

Material Test Report

Heat Code: ADV

ISO 9001:2008 Certified

AmeriForge Flange Products
An AFGlobal Company
13770 Industrial Rd. Houston, TX 77015
Sales: (713) 868-4421 Fax: (713) 455-8366

ACECO VALVE INC. 15020	PO: 18697	Sales Order: 142969	Line: 2
PO BOX 339	Item Code: 0301300602-0021R	Qty Shipped: 400	
MOUNDS, OK 74047	Item Desc: FLG 03.00 0300 WN OFU XH A105 NRM CDFRG		
	Supplier: CMC	Supplier Heat: 3053441	
Spec: ASTM A105/A105N-(14)/ASME SA 105/SA 105N-(13) Section II Part A - Normalized			

Element	(%wt)	Ladle	Product	EPCRA	CAS#
C	Carbon	0.19			
Mn	Manganese	1.03		✓	7439-96-5
P	Phosphorous	0.018			
S	Sulphur	0.024			
Si	Silicon	0.21			
Cu	Copper	0.30		✓	7440-50-8
Ni	Nickel	0.08		✓	7440-02-0

Element	(%wt)	Ladle	Product	EPCRA	CAS#
Cr	Chromium	0.16		✓	7440-47-3
Mo	Molybdenum	0.026			
V	Vanadium	0.002			
Cb	Columbium	0.002			
C.E.		0.42			
CuNiCrMoV		0.568			
CrMo		0.19			

Mechanical Testing

Test Lab	AFG
Test Bar Size	Sacrificial Piece
HBW	156 - 156
Elg (%)	34
RA (%)	55
Tensile Specimen Size (in)	.253
Tensile (ksi)	78
Yield (ksi)	47.1
Gauge Length	1

Heat Treat

Norm. Temp. (F)	1675
Norm. (Hrs)	4
Norm. Cooling Type	AIR
Norm. Location	AFG

Other

EF	Y

Product compliant with NACE MR0175 / ISO 15156 and NACE MR0103 latest edition and flange dimensions to ASME B16.5 - 2013.

* No Weld repair performed.
* Ladle Chemical Analysis results are reported from the raw material suppliers MTR.
* Forgings are capable of passing hydrostatic test compatible with the appropriate rating.
* Elongation taken from a round specimen.
* Yield strength was determined using the .2% offset method.
* All material supplied under this order is certified to be free of mercury contamination and no mercury bearing equipment was used in manufacturing, fabrication or testing.
* When reported on MTR: Tensile Testing Per ASTM E8; Brinell Hardness Per ASTM E10; Charpy Testing Per ASTM E23
* AF Global manufactures materials according to a certified Quality Management System conforming to ISO 9001:2008 and PED 97/23/EC, Annex 1, Section 4.3

Reviewed
Date: 4/6/15
By:

The recording of false, fictitious, or fraudulent statement or entries on this document may be punishable as a felony under federal statute.

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility alone to determine whether your facility is required to submit a Toxic Release Inventory Report under EPCRA Section 313.

Certification No.: 1186616
Certification Date: 3/12/2015
Issued By: Falishia Walker

This report is issued in compliance with the requirements of EN10204 3.1/ ISO 10474 3.1.b

Rina Sane - Metallurgical Lab Manager

PIP2540 / DBYH / 6.0FFRTJ#90XHD / 6"HUB#...

Piping Products, Inc.

FORGED STEEL FLANGES AND SPECIAL FITTINGS
1681 Kress St., Houston, Texas 77020-8126
Ph: (713) 675-5374, (800) 775-5374, Fax: (713) 675-7910

*** MILL TEST REPORT ***

S LEE SUPPLY
O PO BOX 1475
L
D TULSA, OK 74101

S LEE SUPPLY
H 821 EAST INDEPENDENCE
I
P TULSA, OK 74101

CUST #: LEE01
CUST PO: 17-0388-DL
DATE: 02/06/17
PPI S/O #: 279118
TAG #: 707730-DL

ITEMS

COUNTRY OF MANUF: USA

ITM	DESCRIPTION	
10	4 900 RTJ FULL FACE WN XH	SA105N
20	6 900 FULL FACE RTJ WN XH	A/SA105N

CHEMICAL PROPERTIES

ITM	HEAT NO.	C	SIL	MN	PHOS	SUL	CR	NI	MO	N	CO	CU	V	AL	NB	C/EQ
10	DCFD	0.200	0.210	1.000	0.011	0.015	0.090	0.070	0.013	0.000	0.000	0.220	0.000	0.000	0.001	0.407
20	DBYH	0.210	0.220	1.020	0.015	0.016	0.110	0.070	0.023	0.000	0.000	0.210	0.000	0.000	0.003	0.425

PHYSICAL PROPERTIES

ITM	YIELD STRENGTH	TENSILE STRENGTH	ELONG. % IN 2"	RED. AREA	BHN HARDNESS	CHARPY TEST	Forge Country Of Origin
10	49,800	79,200	30.00	55.00	156-156		USA
20	48,900	80,700	32.00	60.00	159-163		USA

ITEM NOTES

10 NORM @ 1675F 4HRS AIR.
20 NORM @ 1675F 4HRS AIR.

ORDER NOTES

ASME SA105-05 ASTM A105-05 EN10204 3.1

Additional Notes or Comments:

We hereby certify that all test results and process information contained herein are correct and true as contained in the records of the company.

Quality Assurance Asst. Mgr.

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UOP RUSSELL LLC

Vendor: 132265 PRECISION FITTING & GAUGE CO 1214 S JOPLIN AVE TULSA Oklahoma 74112 USA Phone: 918-834-5011 Fax: 9188345961 Kind Attn : John Butts	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500754747** **Date :** JAN/06/2017 **Page :** 1 of 2
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** S447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.
We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.
See our Commitment Statement at http://www.honeywell.com/sites/sm.

UOP Russell Project: J447XX

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT or a special HONEYWELL/UOP/UOP Russell / Supplier TERMS & CONDITIONS are in place, then this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

The attached proposal is included only to clarify technical requirements and Scope of Work/Equipment/Services to be purchased.

Supplier#s "boilerplate" preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing.

The Product/Service prices stated herein are firm and can only be changed with the prior written consent of

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Amanda Bussmeyer
Tax ID 3101720754
Buyer Phone 539-664-4811
Purchasing Return Fax 918-481-7427
Email Id amanda.bussmeyer@honeywell.com

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132265 PRECISION FITTING & GAUGE CO 1214 S JOPLIN AVE TULSA Oklahoma 74112 USA Phone: 918-834-5011 Fax: 9188345961 Kind Attn : John Butts	**Delivery terms:** ZF5 - FOB Origin - Prepaid & Add DESTINATION	**Purchase Order 4500754747** **Date :** JAN/06/2017 **Page :** 2 of 2 **Plant :** 1401 RUSSELL WAREHOUSE

BUYER.

Our Contact Persons:
Purchasing = Amanda Bussmeyer 539-664-4811, Amanda.Bussmeyer@honeywell.com

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:

UOP Russell: accountspayable@uop.com

PLEASE REFERENCE OUR UOP RUSSELL JOB NUMBER & PO NO ON ALL DRAWINGS/DOCUMENTS THAT ARE SUBMITTED.
UOP RUSSELL WILL RETURN ANY ITEMS THAT DO NOT HAVE THIS INFORMATION CLEARLY STATED.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	1	Each		LT-402	
LT-402		WAREHOUSE			
	YSTR73D-21CS(Y)B0-KJGJBCDNT-A-AHB-11CA-21A0-0000				
20	4	Each		VENT BUSHING	
LT-402		WAREHOUSE			
	30369540-501				
30	4	Each		VENT PLUG	
LT-402		WAREHOUSE			
	30369468-501				

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.
Send acknowledgement and all correspondence to Buyer.
In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

Honeywell SmartLine Calibration Report

RJG Control # 76407
MODEL NUMBER: YSTR73D-21CS(Y)B0-KJGJBCDNT-A-AHB-11C-A-21A0-00-0000
SERIAL NUMBER: C4000003676645
TAG NUMBER: LT-402
CUSTOMER P/O NUMBER: 6041649
PROM I.D. NUMBER S430865SL1H6 Mem I.D.

Comm Mode: Hart Damping: 0.5 PV Type: SR w/SV
Failsafe: Upscale Conformity: Linear

lrv (lower range val) 0 psig
urv (upper range val) 30 psig

Ranged -1000 to 1000 inH2O @ 68F

% Scale	Applied Pressure	Expected Xmtr Voltage Output	Actual Xmtr Voltage Output	Actual Xmtr Pressure Output	Error (% Span)	PASS/ FAIL
100	30	5.000	4.999	29.9925	-.025	PASS
75	22.5	4.000	4.000	22.5	0	PASS
50	15	3.000	3.001	15.0075	.025	PASS
25	7.5	2.000	1.999	7.4925	-.025	PASS
0	0	1.000	1.000	0	0	PASS

Note:

If Customer specified range is below minimum span specifications, actual values may fall outside of expected values.

DATA RECORDED BY: Nestor Luna DATE: 3-17-2017

We Certify that the instrument covered by this certificate has been tested in accordance with, and has been found to meet the Honeywell requirements for this model number, and has been calibrated on equipment which has accuracy traceable to the National Institute of Standards and Technology.

STANDARDS TRACEABILITY:
PRESSURE STANDARDS: Ruska 7252i 20/1000 psi - RJ20006 CALIBRATED: 6-29-2016

VOLTMETER: N/A CALIBRATED:

PO Created for Reference - This is not an official PO

A Honeywell Company

UOP RUSSELL LLC

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802359** **Date :** SEP/19/2017 **Page :** 1 of 1
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.

We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.

See our Commitment Statement at http://www.honeywell.com/sites/sm.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	5	Each	5035028	UNION, 1, 3000LB, SW A105	
SK2 SPLS		WAREHOUSE			

Your material number 1.03UNIONSWF
Rel. ord. against contract 4600005884Item 04870
1" UNION, SW, 3000LB FS, A-105

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.

Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Clint Pollard
Tax ID 3101720754
Buyer Phone 539-664-4853
Purchasing Return Fax 918-481-7427
Email Id clint.pollard@honeywell.com

BWL4516 / CA0659 / 1.03UNIONSWE / 1" 3000# SW UNION A105N

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

An ISO 9001 : 2008 Registered Manufacturer

J-447xx
802359

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 163539
ORDER NO. : 54010

INVOICE NO. : 5200008863
L/C NO. :

PAGE : 81
DATE : 12/01/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
56	0110654 CA0659	360 PCS	UNION NUT(CCT) - BODY(RCD) A105 1" 3000# S/W 52U 3010 C: 0.19 Si : 0.18 Mn: 0.99 P: 0.014 S: 0.005 Cu: 0.16 Cr : 0.07 N : 0.06 Mo: 0.014 V: 0.001 Nb: 0 N: 0.0069 Ti : 0.0018 CE: 0.39 TS(KSI) : 79.1 YS 0.2%(KSI) : 55.8 EL(%) : 32.8 R.A.(%) : 63.4 HARDNESS 1(HBW) : 144 HARDNESS 2(HBW) : 145

REMARK :
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N - 14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS MSS SP-83 - 2014
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT : NORMALIZED: 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNAIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q-12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWD0839 REV: 4

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) (http://www.verypdf.com)

PO Created for Reference - This is not an official PO

A Honeywell Company

UOP RUSSELL LLC

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802398** **Date :** SEP/19/2017 **Page :** 1 of 2
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.

We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.

See our Commitment Statement at http://www.honeywell.com/sites/sm.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	4	Each	5041032	1/2" BALL VALVE, THRD APOLLO 76-103-01)	
SK1 SPLS		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 07330 1/2" BALL VALVE, THRD. 2000 LB (APOLLO MODEL 76-103-01)				
20	1	Each	5041033	3/4" BALL VALVE, THRD APOLLO 76-104-01)	
SK1 SPLS		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 07340 3/4" BALL VALVE, THRD. 2000 LB (APOLLO MODEL 76-104-01)				
30	3	Each	5035028	UNION, 1, 3000LB, SW A105	
SK1 SPLS		WAREHOUSE			

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Clint Pollard

Tax ID 3101720754

Buyer Phone 539-664-4853

Purchasing Return Fax 918-481-7427

Email Id clint.pollard@honeywell.com

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802398** **Date :** SEP/19/2017 **Page :** 2 of 2 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			

Your material number 1.03UNIONSWF

Rel. ord. against contract 4600005884Item 04870

1" UNION, SW, 3000LB FS, A-105

GENERAL CONDITIONS OF PURCHASE

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Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

An ISO 9001 : 2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

J-447
802398

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 163539
ORDER NO. : 54010

INVOICE NO. : 5200008863
L/C NO. :

PAGE : 81
DATE : 12/01/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
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REMARK :
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THE FITTING SUPPLIED IDENTIFIED AS MSS SP-83 - 2014
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT : NORMALIZED: 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO : 01 202 ROC/Q-12 0247
NO WELD REPAIR MATERIAL ADDED.

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

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(http://www.verypdf.com)

PO Created for Reference - This is not an official PO

UOP
A Honeywell Company

UOP RUSSELL LLC

Vendor: 132119 CROWN PRODUCTS INC P.O Box: 9157 TULSA Oklahoma 74157 USA Phone: 918-446-4591 Fax: 9184464743 Kind Attn : Diane DiLibero	**Delivery terms:** DAP - Delivered at Place DELIVERED	**Purchase Order 4500802417** **Date :** SEP/19/2017 **Page :** 1 of 7
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.

We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.

See our Commitment Statement at http://www.honeywell.com/sites/sm.

Please "Acknowledge" receipt of this PO, actual pricing, and delivery date to: bruce.hoop@honeywell.com.

****

Partial shipments will not be accepted, unless agreed upon by UOP Russell Procurement or Warehouse Management personnel. Contact (stephen.williams2@honeywell.com) for special requests. SELLER TO SHIP BY SKID NUMBER, EQUIPMENT NUMBER, OR ITEM NUMBER, UNLESS BUYER INDICATES IN WRITING OTHERWISE.

****

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT, or HONEYWELL/UOP/UOP Russell TERMS & CONDITIONS are in place, this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

Supplier#s #boilerplate# preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing. The Product/Service prices stated herein are firm and can only be changed with the prior written consent of BUYER.

****

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Clint Pollard
Tax ID 3101720754
Buyer Phone 539-664-4853
Purchasing Return Fax 918-481-7427
Email Id clint.pollard@honeywell.com

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A Honeywell Company

Vendor: 132119 CROWN PRODUCTS INC P.O Box: 9157 TULSA Oklahoma 74157 USA Phone: 918-446-4591 Fax: 9184464743 Kind Attn : Diane DiLibero	**Delivery terms:** DAP - Delivered at Place DELIVERED	**Purchase Order 4500802417** **Date :** SEP/19/2017 **Page :** 2 of 7 **Plant :** 1401 RUSSELL WAREHOUSE

UOP accountspayable@
uop.com

****

Please direct all communications to:

Bruce Hoop
UOP Russell
Phone: 539-664-4820
Fax: 918-481-7427
Email: bruce.hoop@honeywell.com

****

1. IMPORTANT! IN ORDER TO ASSURE PROMPT PAYMENT, PLEASE SEND YOUR ORIGINAL INVOICE TO THE ADDRESS SHOWN AS INDICATED ON THE FACE OF THIS PURCHASE ORDER.
2. ALL INVOICES AND DOCUMENTATION MUST CONTAIN THE UOP PURCHASE ORDER NUMBER AND UOP PROJECT NUMBER.
3. FINAL INVOICES WILL NOT BE PAID UNTIL ALL VENDOR DOCUMENTATION AS DEFINED BELOW IS RECEIVED BY UOP RUSSELL.
4. CHANGES: SELLER IS NOT TO PROCEED WITH ANY CHANGES TO THE SCOPE OF SUPPLY WHICH WILL AFFECT PRICE OR DELIVERY, UNTIL SUCH CHANGES HAVE BEEN APPROVED BY UOP RUSSELL SPECIFYING ENGINEER AND UOP RUSSELL BUYER. FAILURE TO ADHERE TO THIS POLICY WILL BE CAUSE FOR REJECTION OF SELLERS INVOICE(S).
5. SELLER IS TO SUPPLY PACKING LISTS ON THE INSIDE AND OUTSIDE OF ALL BOXES, CARTONS AND CONTAINERS AND DOCUMENTATION MUST CONTAIN THE UOP RUSSELL PURCHASE ORDER NUMBER AND UOP RUSSELL PROJECT NUMBER.
6. COPY OF PACKING SLIP, BOL, AND INVOICE TO BE FORWARDED TO: stephen.williams2@honeywell.com.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	1	Each	5040637	GASKET, 1.5, 150LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			

Your material number 100101006
Rel. ord. against contract 4600004962Item 00450
1 1/2" GASKET, 1/8" THK, 150LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132119 CROWN PRODUCTS INC P.O Box: 9157 TULSA Oklahoma 74157 USA Phone: 918-446-4591 Fax: 9184464743 Kind Attn : Diane DiLibero	**Delivery terms:** DAP - Delivered at Place DELIVERED	**Purchase Order 4500802417** **Date :** SEP/19/2017 **Page :** 3 of 7 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
20	1	Each	5040719	GASKET, 3, 150LB RF, CG/304/GRAPH/SS	
CRYO SPLS		WAREHOUSE			
	Rel. ord. against contract 4600004962Item 01130				
	3" GASKET, 1/8" THK, 150LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, SS GUIDE RING				
30	2	Each	5040720	GASKET, 4, 150LB RF, CG/304/GRAPH/SS	
CRYO SPLS		WAREHOUSE			
	Rel. ord. against contract 4600004962Item 01810				
	4" GASKET, 1/8" THK, 150LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, SS GUIDE RING				
40	8	Each	5040638	GASKET, 2, 150LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
	Your material number 100101007				
	Rel. ord. against contract 4600004962Item 00460				
	2" GASKET, 1/8" THK, 150LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING				
50	2	Each	5040639	GASKET, 3, 150LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
	Your material number 100101009				
	Rel. ord. against contract 4600004962Item 00470				
	3" GASKET, 1/8" THK, 150LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING				
60	2	Each	5040640	GASKET, 4, 150LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
	Your material number 100101001				
	Rel. ord. against contract 4600004962Item 00480				
	4" GASKET, 1/8" THK, 150LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING				
70	10	Each	5040641	GASKET, 6, 150LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
	Your material number 100101015				
	Rel. ord. against contract 4600004973Item 00020				
	6" GASKET, 1/8" THK, 150LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING				
80	2	Each	5040642	GASKET, 8, 150LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			

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A Honeywell Company

Vendor: 132119 CROWN PRODUCTS INC P.O Box: 9157 TULSA Oklahoma 74157 USA Phone: 918-446-4591 Fax: 9184464743 Kind Attn : Diane DiLibero	**Delivery terms:** DAP - Delivered at Place DELIVERED	**Purchase Order 4500802417** **Date :** SEP/19/2017 **Page :** 4 of 7 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			

Your material number 100101019
Rel. ord. against contract 4600004962Item 00500
8" GASKET, 1/8" THK, 150LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING

90	2	Each	5040721	GASKET, 6, 150LB RF, CG/304/GRAPH/SS	
CRYO SPLS		WAREHOUSE			

Rel. ord. against contract 4600004962Item 01140
6" GASKET, 1/8" THK, 150LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, SS GUIDE RING

100	2	Each	5040847	GASKET, 3, 300LB RF, CG/304/GRAPH/SS	
CRYO SPLS		WAREHOUSE			

Rel. ord. against contract 4600004962Item 01650
3" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, SS GUIDE RING

110	4	Each	5040832	GASKET, 4, 300LB RF, CG/304/GRAPH/CS	
CRYO SPLS		WAREHOUSE			

Rel. ord. against contract 4600004962Item 01680
4" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, CS GUIDE RING

120	9	Each	5040849	GASKET, 6, 300LB RF, CG/304/GRAPH/SS	
CRYO SPLS		WAREHOUSE			

Rel. ord. against contract 4600004962Item 01190
6" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, SS GUIDE RING

130	4	Each	5040850	GASKET, 8, 300LB RF, CG/304/GRAPH/SS	
CRYO SPLS		WAREHOUSE			

Rel. ord. against contract 4600004962Item 01200
8" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, SS GUIDE RING

140	1	Each	5040772	GASKET, 12, 300LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			

Your material number 100103016
Rel. ord. against contract 4600004962Item 00680
12" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING

150	20	Each	5040769	GASKET, 6, 300LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			

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Vendor: 132119 CROWN PRODUCTS INC P.O Box: 9157 TULSA Oklahoma 74157 USA Phone: 918-446-4591 Fax: 9184464743 Kind Attn : Diane DiLibero	**Delivery terms:** DAP - Delivered at Place DELIVERED	**Purchase Order 4500802417** **Date :** SEP/19/2017 **Page :** 5 of 7 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
	Your material number 100103013				
	Rel. ord. against contract 4600004962Item 00650				
	6" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING				
160	10	Each	5040770	GASKET, 8, 300LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
	Your material number 100103014				
	Rel. ord. against contract 4600004962Item 00660				
	8" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING				
170	3	Each	5040768	GASKET, 4, 300LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
	Your material number 100103010				
	Rel. ord. against contract 4600004962Item 00640				
	4" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING				
180	21	Each	5040767	GASKET, 3, 300LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
	Your material number 100103008				
	Rel. ord. against contract 4600004962Item 00630				
	3" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING				
190	11	Each	5040766	GASKET, 2, 300LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
	Your material number 100103006				
	Rel. ord. against contract 4600004962Item 00620				
	2" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING				
200	5	Each	5040764	GASKET, 1, 300LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
	Your material number 100103003				
	Rel. ord. against contract 4600004962Item 00600				
	1" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING				
210	2	Each	5040961	GASKET, 6, 600LB RF, CG/304/GRAPH/CS	
CRYO SPLS		WAREHOUSE			
	Rel. ord. against contract 4600004962Item 01350				

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Vendor: 132119 CROWN PRODUCTS INC P.O Box: 9157 TULSA Oklahoma 74157 USA Phone: 918-446-4591 Fax: 9184464743 Kind Attn : Diane DiLibero	**Delivery terms:** DAP - Delivered at Place DELIVERED	**Purchase Order 4500802417** **Date :** SEP/19/2017 **Page :** 6 of 7 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
				6" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, CS GUIDE RING	
220	2	Each	5040976	GASKET, 4, 600LB RF, CG/304/GRAPH/SS	
CRYO SPLS		WAREHOUSE			
				Rel. ord. against contract 4600004962Item 01290	
				4" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, SS GUIDE RING	
230	3	Each	5040974	GASKET, 2, 600LB RF, CG/304/GRAPH/SS	
CRYO SPLS		WAREHOUSE			
				Rel. ord. against contract 4600004962Item 00900	
				2" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, SS GUIDE RING	
240	1	Each	5040972	GASKET, 1, 600LB RF, CG/304/GRAPH/SS	
CRYO SPLS		WAREHOUSE			
				Rel. ord. against contract 4600004962Item 01270	
				1" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, SS GUIDE RING	
250	3	Each	5040898	GASKET, 8, 600LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
				Your material number 100106006	
				Rel. ord. against contract 4600004962Item 00820	
				8" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING	
260	17	Each	5040897	GASKET, 6, 600LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			
				Your material number 100106005	
				Rel. ord. against contract 4600004962Item 00810	
				6" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING	
270	8	Each	5040962	GASKET, 8, 600LB RF, CG/304/GRAPH/CS	
CRYO SPLS		WAREHOUSE			
				Rel. ord. against contract 4600004962Item 01470	
				8" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, GRAPHITE FILLER, CS GUIDE RING	
280	7	Each	5040894	GASKET, 2, 600LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			

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Vendor: 132119 CROWN PRODUCTS INC P.O Box: 9157 TULSA Oklahoma 74157 USA Phone: 918-446-4591 Fax: 9184464743 Kind Attn : Diane DiLibero	**Delivery terms:** DAP - Delivered at Place DELIVERED	**Purchase Order 4500802417** **Date :** SEP/19/2017 **Page :** 7 of 7 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			

Your material number 100103006
Rel. ord. against contract 4600004973Item 00060
2" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING

290	4	Each	5040893	GASKET, 1.5, 600LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			

Your material number 100103005
Rel. ord. against contract 4600004962Item 00770
1 1/2" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING

300	2	Each	5040896	GASKET, 4, 600LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			

Your material number 100106002
Rel. ord. against contract 4600004962Item 00800
4" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING

310	4	Each	5040892	GASKET, 1, 600LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			

Your material number 100103003
Rel. ord. against contract 4600004962Item 00760
1" GASKET, 1/8" THK, 600LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING

320	16	Each	5040771	GASKET, 10, 300LB RF, CG/304/SUPER/CS	
CRYO SPLS		WAREHOUSE			

Your material number 100103015
Rel. ord. against contract 4600004962Item 00670
10" GASKET, 1/8" THK, 300LB RF, SPIRALWOUND, 304SS WINDING, FLEXITE SUPER FILLER, CS GUIDE RING

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.
Send acknowledgement and all correspondence to Buyer.
In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

CERTIFIED MILL TEST REPORT

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LOG NO. F00000000098998 Page 1 of 5

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: LEE SUPPLY COMPANY **DATE** 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS **BONNEY ORDER NO.** B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

J-447xx
802417

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
1	25	59961	3/4 3000 LF2 90EL S — SA/A350 LF2 CL1
			Al 0.022 C 0.200 Co 0.003 Cr 0.060 Cu 0.080 Mn 1.030 Mo 0.008 Nb 0.015
			Ni 0.030 P 0.006 S 0.025 Si 0.240 V 0.004
			CE(Long Formula) = 0.39
			T/S(PSI) 74,500 Y/S(PSI) 49,800 EL(%) 34.00 RA(%) 67.00
			Brinell 146 BHN 143 BHN
			Charpy -50 F 46/37/41 (Ft-Lbs)
			Average 41.30
2	50	50161	1 3000 LF2 90EL S — SA/A350 LF2 CL1
			Al 0.022 C 0.200 Co 0.002 Cr 0.040 Cu 0.060 Mn 1.030 Mo 0.004 Nb 0.014
			Ni 0.020 P 0.006 S 0.020 Si 0.250 V 0.003
			CE(Long Formula) = 0.39
			T/S(PSI) 71,065 Y/S(PSI) 49,370 EL(%) 37.75 RA(%) 67.02
			Brinell 139 BHN 137 BHN
			Charpy -50 F 52/64/62 (Ft-Lbs)
			Average 59.30
3	5	59900	11/2 3000 LF2 90EL S — SA/A350 LF2 CL1
			Al 0.025 C 0.190 Co 0.004 Cr 0.080 Cu 0.070 Mn 0.980 Mo 0.005 Nb 0.014
			Ni 0.030 P 0.007 S 0.020 Si 0.220 V 0.004
			CE(Long Formula) = 0.38
			T/S(PSI) 74,542 Y/S(PSI) 48,786 EL(%) 36.70 RA(%) 65.23
			Brinell 132 BHN 135 BHN
			Charpy -50 F 43/34/25 (Ft-Lbs)
			Average 34.00

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

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
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CUSTOMER: LEE SUPPLY COMPANY **DATE** 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS **BONNEY ORDER NO.** B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
4	5	59802	1X1X3/4 3000 LF2 TEE S — SA/A350 LF2 CL1
			Al 0.024 C 0.210 Cb 0.000 Co 0.004 Cr 0.060 Cu 0.050 Mn 1.050 Mo 0.008 Nb 0.013 Ni 0.030 P 0.007 S 0.018 Si 0.210 V 0.004
			CE(Long Formula) = 0.40
			T/S(PSI) 75,640 Y/S(PSI) 51,440 EL(%) 36.05 RA(%) 60.94
			Brinell 135 BHN 137 BHN
			Charpy -50 F 47/26/21 (Ft-Lbs) Average 31.30
5	50	1302 MALE	1 3M LF2 UNAR S — SA/A350 LF2 CL1
			Al 0.039 C 0.210 Cb 0.000 Co 0.002 Cr 0.030 Cu 0.030 Mn 1.020 Mo 0.009 Nb 0.012 Ni 0.020 P 0.006 S 0.022 Si 0.230 V 0.003
			CE(Long Formula) = 0.39
			T/S(PSI) 77,850 Y/S(PSI) 52,470 EL(%) 33.45 RA(%) 56.35
			Brinell 132 BHN 132 BHN
			Charpy -50 F 33/15/29 (Ft-Lbs) Average 25.70
		1421 FEMALE	1 3M LF2 UNAR S — SA/A350 LF2 CL1
			Al 0.025 C 0.210 Co 0.003 Cr 0.040 Cu 0.070 Mn 1.030 Mo 0.006 Nb 0.012 Ni 0.030 P 0.009 S 0.019 Si 0.230 V 0.005
			CE(Long Formula) = 0.40
			T/S(PSI) 80,865 Y/S(PSI) 56,573 EL(%) 34.65 RA(%) 60.10
			Brinell 139 BHN 144 BHN
			Charpy -50 F 21/40/38 (Ft-Lbs) Average 33.00

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by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

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CUSTOMER: LEE SUPPLY COMPANY **DATE** 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS **BONNEY ORDER NO.** B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
		M1AY	1 3M LF2 UNAR S SA/A350 LF2 CL1
		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) = 0.41 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
6	10	1412	1/2 3000 LF2 COUP T SA/A350 LF2 CL1 Al 0.022 C 0.200 Co 0.003 Cr 0.030 Cu 0.060 Mn 1.010 Mo 0.006 Nb 0.015 Ni 0.030 P 0.009 S 0.017 Si 0.230 V 0.003 CE(Long Formula) = 0.38 T/S(PSI) 74,500 Y/S(PSI) 52,000 EL(%) 33.00 RA(%) 66.00 Brinell 146 BHN 144 BHN Charpy -50 F 47/53/45 (Ft-Lbs) Average 48.30
7	50	50119	1/2 3000 LF2 TEE T SA/A350 LF2 CL1 Al 0.020 C 0.200 Co 0.002 Cr 0.030 Cu 0.030 Mn 1.050 Mo 0.002 Nb 0.015 Ni 0.020 P 0.009 S 0.017 Si 0.220 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 76,183 Y/S(PSI) 53,557 EL(%) 35.80 RA(%) 66.57 Brinell 139 BHN 139 BHN Charpy -50 F 22/61/60 (Ft-Lbs) Average 47.70

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

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CUSTOMER ORDER NO.: 17-4771-DS **BONNEY ORDER NO.** B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
8	100	6784	1/2 3M/6M LF2 RDPL T SA/A350 LF2 CL1 Al 0.024 C 0.210 Co 0.004 Cr 0.040 Cu 0.060 Mn 0.980 Mo 0.004 N 0.004 Nb 0.014 Ni 0.030 P 0.009 S 0.016 Si 0.190 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 75,181 Y/S(PSI) 54,218 EL(%) 36.55 RA(%) 64.66 Brinell 144 BHN 141 BHN Charpy -50 F 23/43/48 (Ft-Lbs) Average 38.00
9	25	1491	3/4 3M/6M LF2 RDPL T SA/A350 LF2 CL1 Al 0.031 C 0.200 Co 0.002 Cr 0.040 Cu 0.050 Mn 1.030 Mo 0.004 Nb 0.014 Ni 0.020 P 0.006 S 0.027 Si 0.240 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 73,500 Y/S(PSI) 51,500 EL(%) 34.00 RA(%) 69.00 Brinell 141 BHN 141 BHN Charpy -50 F 18/37/52 (Ft-Lbs) Average 35.70

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by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

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CUSTOMER: LEE SUPPLY COMPANY **DATE** 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS **BONNEY ORDER NO.** B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

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. 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.

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by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

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UOP
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UOP RUSSELL LLC

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802429** **Date :** SEP/19/2017 **Page :** 1 of 3
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.
We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.
See our Commitment Statement at http://www.honeywell.com/sites/sm.

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT or a special HONEYWELL/UOP/UOP Russell / Supplier TERMS & CONDITIONS are in place, then this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

Supplier#s "boilerplate" preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing.

Total PO price is a "NOT TO EXCEED" value without written consent from the Buyer in the form of a PO Addendum.

Our Contact Persons:
Purchasing = Clint Pollard, 539-664-4853, Clint.Pollard@honeywell.com

Agreed & Accepted By:

_____
Authorized Signature of Seller

Authorized and Approved By Clint Pollard
Tax ID 3101720754
Buyer Phone 539-664-4853
Purchasing Return Fax 918-481-7427
Email Id clint.pollard@honeywell.com

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Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802429** **Date :** SEP/19/2017 **Page :** 2 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:
UOP Russell: accountspayable@uop.com
Please "Acknowledge" receipt of this PO, actual pricing, and delivery date to: Clint.Pollard@Honeywell.com.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	14	Each		PLUG RD SOLID, 0.5, 6M, TH A105	
SKID 2		WAREHOUSE			
	Please deliver to: Company RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA OK 74015 USA				
20	1	Each		SWGC, 1/2X1/4, S/160 TBE A234WPB	
SKID 2		WAREHOUSE			
	1/2"x1/4" SWAGE, CONC, S/160, A-234-WPB TBE Please deliver to: Company RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA OK 74015 USA				
30	8	Each		PLUG RD SOLID, 0.5, 6M, TH A105	
CRYO		WAREHOUSE			
	Please deliver to: Company RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA OK 74015 USA				
40	3	Each		PLUG RD SOLID, 0.5, 6M, TH A105	
DEHY		WAREHOUSE			

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Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802429** **Date :** SEP/19/2017 **Page :** 3 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			

Please deliver to:
Company
RUSSELL WAREHOUSE
760 WEST MAIN PARKWAY
CATOOSA OK 74015
USA

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.

Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

BWL4665 / CA0566 / 50RDHDPLUGF / 1/2" ROUND HEAD PLUG A105N

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

An ISO 9001 : 2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

J-447
802429

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 162966
ORDER NO. : 52985

INVOICE NO. : 5200008512
L/C NO. :

PAGE : 1
DATE : 10/11/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
17	0108653 CA0566	450 PCS	ROUND PLUG A105 1/2" 3000#/6000# NPT 42RP3004 C:0.19 Si:0.19 Mn:1.01 P:0.013 S:0.006 Cu:0.10 Cr:0.06 N:0.06 Mo:0.013 V:0.002 Nb:0.000 Ni:0.0058 Ti:0.0019 CE:0.38 TS(KSI):74.6 YS 0.2%(KSI):55.1 EL(%):35.3 R.A.(%):67.6 HARDNESS 1(HBW):141 HARDNESS 2(HBW):143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED: 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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

CAN 18385 / 74ET / 50X25C160TT / 1/2 X 1/4" S160 TXT CONC

Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

Phoenix • Capitol • Camco

CapProducts

Commanding a Higher Standard℠

Certified Mill Test Report

Printed: 6/14/2017
Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

Certified: 04/15/2016
P.O. 17-3177-DS
Tag

Heat No 74ET(A105)
Heat Code 74ET
Phoenix Order # 1290568

Material ASTM A105-2014 / ASME SA105-2015 Edition

Part Number	Description
48200005	1/2X1/4 160 WPB CONC SWG TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2200	0.8200	0.0140	0.0280	0.2200	0.2500	0.1100	0.1400

C Eq. Long
0.4165

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0300	0.0090		0.0290	0.0800					

Additional Chemical Properties

Cr + Cu + Ni
0.5000

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
80,400	68,000	26.1%	64.1%	164	152

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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.

Meets ASME SA-181-70 2013 Edition. Manufactured in the USA.

BWL4665 / CA0566 / 50RDHDPLUGF / 1/2" ROUND HEAD PLUG A105N

BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY, TAIWAN, R.O.C.(81460)
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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 :
CERT NO. : 162966
ORDER NO. : 52985

INVOICE NO. : 5200008512
L/C NO. :

PAGE : 1
DATE : 10/11/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
17	0108653 CA0566	450 PCS	ROUND PLUG A105 1/2" 3000#/6000# NPT 42RP3004 C: 0.19 Si: 0.19 Mn: 1.01 P: 0.013 S: 0.006 Cu: 0.10 Cr: 0.06 N: 0.06 Mo: 0.013 V: 0.002 Nb: 0.000 Ni: 0.0058 Ti: 0.0019 CE: 0.38 TS(KSI): 74.6 YS 0.2%(KSI): 55.1 EL(%): 35.3 R.A.(%): 67.6 HARDNESS 1(HBW): 141 HARDNESS 2(HBW): 143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
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PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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

BWL4665 / CA0566 / 50RDHDPLUGF / 1/2" ROUND HEAD PLUG A105N

BOTH-WELL STEEL FITTINGS CO., LTD.

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An ISO 9001 : 2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 162966
ORDER NO. : 52985

INVOICE NO. : 5200008512
L/C NO. :

PAGE : 1
DATE : 10/11/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
17	0108653 CA0566	450 PCS	ROUND PLUG A105 1/2" 3000#/6000# NPT 42RP3004 C: 0.19 Si : 0.19 Mn: 1.01 P: 0.013 S: 0.006 Cu: 0.10 Cr: 0.06 N : 0.06 Mo: 0.013 V: 0.002 Nb: 0.000 Ni: 0.0058 Ti : 0.0019 CE: 0.38 TS(KSI) : 74.6 YS 0.2%(KSI) : 55.1 EL(%) : 35.3 R.A.(%) : 67.6 HARDNESS 1(HBW) : 141 HARDNESS 2(HBW) : 143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
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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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
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SPECIFICATIONS SHOWN

C. C. Huang
Q.C. MANAGER

C. L. Ko
INSPECTOR

PO Created for Reference - This is not an official PO

A Honeywell Company

UOP RUSSELL LLC

Vendor: 121666 INDUSTRIAL PIPING SPECIALISTS INC P.O Box: 581270 TULSA Oklahoma 74158 USA Kind Attn : Trey Hamra	**Delivery terms:** FOB - Free on board FREE ON BOARD	**Purchase Order 4500802438** **Date :** SEP/19/2017 **Page :** 1 of 3
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.

We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.

See our Commitment Statement at http://www.honeywell.com/sites/sm.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	1	Each	5034566	ELL 90, 1, 3000LB, SW A182F304/L	
CRYO		WAREHOUSE			
	Rel. ord. against contract 4600005882Item 00640 1" ELL, 90 SW, 3000LB FS, A-182-F304/304L				
20	1	Each	5034436	ELL 90, 0.5, 3000LB, TH A182F304/L	
CRYO		WAREHOUSE			
	Rel. ord. against contract 4600005882Item 00600 1/2" ELL, 90 THRD, 3000LB FS, A-182-F304/304L				
30	5	Each	5036051	NIP, 0.5, TBE X 3" A312TP304/L	
CRYO		WAREHOUSE			

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Clint Pollard

Tax ID 3101720754

Buyer Phone 539-664-4853

Purchasing Return Fax 918-481-7427

Email Id clint.pollard@honeywell.com

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 121666 INDUSTRIAL PIPING SPECIALISTS INC P.O Box: 581270 TULSA Oklahoma 74158 USA Kind Attn : Trey Hamra	**Delivery terms:** FOB - Free on board FREE ON BOARD	**Purchase Order 4500802438** **Date :** SEP/19/2017 **Page :** 2 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
	Rel. ord. against contract 4600005882Item 01340 1/2" NIPPLE, S/80S EFW, A-312-TP304/304L TBE X 3"				
40 CRYO	1	Each WAREHOUSE	5036332	NIP, 0.5, TOE X 6" A312TP304/L	
	Rel. ord. against contract 4600005882Item 01420 1/2" NIPPLE, S/80S EFW, A-312-TP304/304L TOE X 6"				
50 CRYO	1	Each WAREHOUSE	5034668	PLUG RD SOLID, 0.5, 6M, TH A182F304/L	
	Rel. ord. against contract 4600005882Item 02210 1/2" PLUG, SOLID STEEL, ROUND HEAD, A-182-F304/304L, THRD				
60 CRYO	3	Each WAREHOUSE	5034669	PLUG RD SOLID, 0.75, 6M, TH A182F304/L	
	Rel. ord. against contract 4600005882Item 02230 3/4" PLUG, SOLID STEEL, ROUND HEAD, A-182-F304/304L, THRD				
70 CRYO	2	Each WAREHOUSE	5034873	TEE, 0.5, 3000LB, TH A182F304/L	
	Rel. ord. against contract 4600005882Item 03470 1/2" TEE, TH, 3000LB FS, A-182-F304/304L				
80 CRYO	5	Linear Ft WAREHOUSE	5034046	PIPE, 1, S/10S EFW A312TP304/L	
	Rel. ord. against contract 4600005882Item 01780 1" PIPE, S/10S EFW, A-312-TP304/304L				
90 CRYO	2	Linear Ft WAREHOUSE	5034047	PIPE, 1, S/40S EFW A312TP304/L	
	Rel. ord. against contract 4600005882Item 01810 1" PIPE, S/40S EFW, A-312-TP304/304L				
100 CRYO	15	Linear Ft WAREHOUSE	5034048	PIPE, 1, S/80S EFW A312TP304/L	
	Rel. ord. against contract 4600005882Item 01830				

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 121666 INDUSTRIAL PIPING SPECIALISTS INC P.O Box: 581270 TULSA Oklahoma 74158 USA Kind Attn : Trey Hamra	**Delivery terms:** FOB - Free on board FREE ON BOARD	**Purchase Order 4500802438** **Date :** SEP/19/2017 **Page :** 3 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			

1" PIPE, S/80S EFW, A-312-TP304/304L

GENERAL CONDITIONS OF PURCHASE

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Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

[| 4500802438 | J447XX | 5034566 | HN0269] | [LN: 1] | T0397844-1 | F13S904/L |

PO#: TP553963 Pack# :494817 Order#: 1084348 Lot# : BWL.HN0269 Desc: 1 3M SW 90 A/SA182 304/L BWL

BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY, TAIWAN, R.O.C.(81460)
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WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

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MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER : GLOBAL STAINLESS SUPPLY,INC. PAGE : 6
CERT NO. : 170147 INVOICE NO. : 5200009091 DATE : 01/17/2017
ORDER NO. : 217131 L/C NO. : ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
7	4S589 HN0269	2,000 PCS	90D ELBOW F304L 1" 3000# S/W 90D103043000S0-BWL C:0.022 Si:0.32 Mn:1.86 P:0.032 S:0.025 Cu:0.43 Cr:18.12 Ni:8.07 Mo:- N:0.08 TS(KSI):86.7 YS 0.2%(KSI):35.7 EL(%):64.5 R.A.(%):75.4 HARDNESS 1(HBW):178 HARDNESS 2(HBW):178

REMARK :
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A182 -16, ASME SA182-2015 ED, F304/F304L
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	-	-	-	-	-	18.0	8.0	-	-	-
MAX	0.030	1.00	2.00	0.045	0.030	-	20.0	11.0	-	-	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-					75		30	30	50	-
MAX	0.10					-		-	-	-	235

HEAT TREATMENT : SOLUTION: 1060°C(1940°F) W.Q.
MERCURY FREE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15

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

[| 4500802438 | J447XX | | HN0379] | [LN: 2] | T0397844-1 | F.53T904/L |

PO#: TP531904 Pack# :436291 Order#: 1044889 Lot# : BWL.HN0379 Desc: 1/2 3M THR 90 A/SA182 304/L BWL

BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY, TAIWAN, R.O.C.(81460)
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An ISO 9001 : 2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER : GLOBAL STAINLESS SUPPLY,INC.
CERT NO. : 163010
ORDER NO. : 215536
INVOICE NO. : 5200008584
L/C NO. :
PAGE : 47
DATE : 10/17/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. / HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. / CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
49	9SC0069 HN0379	300 PCS	90D ELBOW F304L 1/2" 3000# NPT 900053043000TD-BWL C:0.027 Si:0.45 Mn:1.79 P:0.030 S:0.024 Cu:0.38 Cr:18.25 Ni:8.18 N:0.08 TS(KSI):85.2 YS 0.2%(KSI):37.2 EL(%):63.6 R.A.(%):76.1 HARDNESS 1(HBW):154 HARDNESS 2(HBW):156

REMARK :
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A182 -16, ASME SA182-2015 ED, F304/F304L
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	-	-	-	-	-	18.0	8.0	-	-	-
MAX	0.030	1.00	2.00	0.045	0.030	-	20.0	11.0	-	-	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-					75		30	30	50	-
MAX	0.10					-		-	-	-	235

HEAT TREATMENT : SOLUTION: 1060°C(1940°F) W.Q.
MERCURY FREE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15

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

BW-D0839 REV:4

[| 4500802438 | J447XX | | 86FZ] | [LN: 3] | T0397844-1 | D.5X380NP4/L |

Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

Phoenix * Capitol * Camco

CapProducts

Commanding a Higher Standard℠

Certified Mill Test Report

Printed: 4/5/2017
Customer
INDUSTRIAL PIPING SPECIALISTS
P.O. BOX 581270
TULSA, OK 74158

Certified: 03/10/2017
P.O. TP539243
Tag

Heat No 160907S06
Heat Code 86FZ
Phoenix Order # 1273774
Material ASTM A312-2015 304/304L / ASME SA312-2015 Edition

Part Number
15220506

Description
1/2 X 3 SCH80SMLS NIP 304/L

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.0150	1.3700	0.0250	0.0020	0.4400		8.2700	18.3700

C Eq. Long
4.4687

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti

Additional Chemical Properties

Cr + Cu + Ni
26.6400

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
83,397	36,550	56.0%	0.0%	136	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.

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.

This material conforms to the metallurgical and hardnes requirements of ISO 15156. This material was solution annealed at 1900 F (Min) and was water quenched to below 500 F in less than 3 minutes.

Comments:

Flattening test passed.

[| 4500802438 | J447XX | | 766N] | [LN: 5] | T0397844-1 | D.5RDPL4/L |

Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

Phoenix * Capitol * Camco

CapProducts

Commanding a Higher Standard$_{sm}$

Certified Mill Test Report

Printed: 2/2/2017
Customer
INDUSTRIAL PIPING SPECIALISTS
P.O. BOX 581270
TULSA, OK 74158

Certified: 01/19/2017
P.O. TP530500
Tag

Heat No 225R
Heat Code 766N
Phoenix Order # 1253355
Material ASTM A182-2015 F304/F304L/ASME SA182-2015 Edition

Part Number	Description
33135005	1/2 RD HD PLUGS F304/304L

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.0210	1.4800	0.0300	0.0280	0.2300	0.4300	8.5100	18.0900

C Eq. Long
4.5577

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.3800	0.0000		0.0000	0.0000	0.0700				

Additional Chemical Properties

Cr + Cu + Ni
27.0300

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
95,300	67,830	52.7%	71.7%	176	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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.

This material was solution annealed at 1900 F (Min) and was water quenched to below 500 F in less than 3 minutes.
Manufacturered in the USA.

[| 4500802438 | J447XX | | 768N] | [LN: 6] | T0397844-1 | D.75RDPL4/L |

Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

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Certified Mill Test Report

Printed: 4/5/2017
Certified: 03/07/2017

Customer
INDUSTRIAL PIPING SPECIALISTS
P.O. BOX 581270
TULSA, OK 74158

P.O. TP539243
Tag

Heat No 25947
Heat Code 768N
Phoenix Order # 1273774

Material ASTM A182-2015 F304/F304L/ASME SA182-2015 Edition

Part Number
33135007

Description
3/4 RD HD PLUGS F304/304L

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.0220	1.6200	0.0340	0.0280	0.3600	0.5000	8.0700	18.1000

C Eq. Long
4.5433

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.3000	0.0000		0.0000	0.0000	0.0740				

Additional Chemical Properties

Cr + Cu + Ni
26.6700

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
104,000	74,000	42.0%	69.0%	209	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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.

This material was solution annealed at 1900 F (Min) and was water quenched to below 500 F in less than 3 minutes.
Manufacturered in the USA.

[| 4500802438 | J447XX | | HN0326] | [LN: 7] | T0397844-1 | F.53TTE4/L |

PO#: TP550109 Pack# :485771 Order#: 1078232 Lot# : BWL.HN0326 Desc: 1/2 3M THR TEE A/SA182 304/L BWL

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)7-371-3864, 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 : GLOBAL STAINLESS SUPPLY,INC. PAGE : 77
CERT NO. : 163010 INVOICE NO. : 5200008584 DATE : 10/17/2016
ORDER NO. : 216536 L/C NO. : ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
79	9SF0203 HN0326	489 PCS	TEE F304L 1/2" 3000# NPT TE00S3043000T0-BWL C:0.022 Si:0.47 Mn:1.88 P:0.028 S:0.023 Cu:0.29 Cr:18.16 Ni:8.14 N:0.09 TS(KSI):83.3 YS 0.2%(KSI):37.4 EL(%):61.1 R.A.(%):78.9 HARDNESS 1(HBW):185 HARDNESS 2(HBW):167

REMARK :
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A182 -16, ASME SA182-2015 ED, F304/F304L
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	-	-	-	-	-	18.0	8.0	-	-	-
MAX	0.030	1.00	2.00	0.045	0.030	-	20.0	11.0	-	-	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-					75		30	30	50	-
MAX	0.10					-		-	-	-	235

HEAT TREATMENT : SOLUTION: 1060℃(1940℉) W.Q.
MERCURY FREE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15

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

[| 4500802438 | J447XX | | I04325] | [LN: 40] | T0397844-1 | D.5X680NPTO4/L |

WESTBROOK

MATERIAL TEST REPORT

1111 LOCKWOOD DR.
HOUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

Sold To: *INDUSTRIAL PIPING SPECIALIST* **Purchase Order:** *TP549976* **Printed:** *7/21/2017*
Order No.: *707554* **Order Date:** *7/12/2017*

Line: **Description:**
1 *1/2 X CLO S80 A/SA312 T304/304L SMLS NPL*
TBE

****** Specifications - Heat Code I04122: ******
A312/A312M-13B TP304/304L, SA312 TP304/304L, A403-13A WP304/304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:
0.017	*1.370*	*0.038*	*0.002*	*0.360*	*18.160*	*8.070*

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
81652	*36403*	*48.00*	*HRB 79*	*GOOD*

Comments:
Corrosion test per A262 Practice E.
Annealed heat treatment 1042C, 22 min, rapid water quench.
Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015. D.5XCL80NP4/L

Line: **Description:**
2 *1/2 X 2 S80 A/SA312 T304/304L SMLS NPL*
TBE

****** Specifications - Heat Code I04122: ******
A312/A312M-13B TP304/304L, SA312 TP304/304L, A403-13A WP304/304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:
0.017	*1.370*	*0.038*	*0.002*	*0.360*	*18.160*	*8.070*

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
81652	*36403*	*48.00*	*HRB 79*	*GOOD*

Comments:
Corrosion test per A262 Practice E.
Annealed heat treatment 1042C, 22 min, rapid water quench.
Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015. D.5X280NP4/L

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.

WESTBROOK

MATERIAL TEST REPORT

1111 LOCKWOOD DR.
HOUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

Sold To: *INDUSTRIAL PIPING SPECIALIST* **Purchase Order:** *TP549976* **Printed:** *7/21/2017*
Order No.: *707554* **Order Date:** *7/12/2017*

Line: **Description:**
3 *1/2 X 6 S80 A/SA312 T304/304L SMLS NPL PXT*

****** Specifications - Heat Code I04325: ******
A312/A312M-16 TP304/304L, SA312 TP304/304L, A403-16 WP304/304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:
0.018	*1.360*	*0.025*	*0.001*	*0.330*	*18.240*	*8.030*

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:	Hydro(PSI):
77500	*34000*	*49.00*	*HRB 82-83*	*ACCEPTABLE*	*2500*

Comments:
Corrosion test per A262 Practice E.
Solution annealed 1060C, held 2 minutes/mm minimum, water quench.
Cooled to below 800F in 3 minutes or less. Pickled & passivated.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015.

D.5X680NPTO4/L

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.

WESTBROOK

MATERIAL TEST REPORT

1111 LOCKWOOD DR.
HOUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

Sold To: *INDUSTRIAL PIPING SPECIALIST* **Purchase Order:** *TP549976* **Printed:** *7/21/2017*
Order No.: *707554* **Order Date:** *7/12/2017*

Line: **Description:**
4 ***3/4 X CLO S80 A/SA312 T304/304L SMLS NPL TBE***

****** Specifications - Heat Code I03995: ******
A312/A312M-13B TP304/304L, SA312 TP304/304L, A403-13A WP304/ 304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:
0.021	*1.010*	*0.039*	*0.004*	*0.370*	*18.200*	*8.080*

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
97895	*40608*	*66.00*	*HRB 78*	*OK*

Comments:
Corrosion test per A262 Practice E.
Solution heat treatment 1050C x 1.5m/min. Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015. D.75XCL80HP4/L

Line: **Description:**
5 ***3/4 X 2 S80 A/SA312 T304/304L SMLS NPL TBE***

****** Specifications - Heat Code I03995: ******
A312/A312M-13B TP304/304L, SA312 TP304/304L, A403-13A WP304/ 304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:
0.021	*1.010*	*0.039*	*0.004*	*0.370*	*18.200*	*8.080*

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
97895	*40608*	*66.00*	*HRB 78*	*OK*

Comments:
Corrosion test per A262 Practice E.
Solution heat treatment 1050C x 1.5m/min. Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015.

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.

WESTBROOK

MATERIAL TEST REPORT

1111 LOCKWOOD DR.
HOUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

Sold To: *INDUSTRIAL PIPING SPECIALIST* **Purchase Order:** *TP549976* **Printed:** *7/21/2017*
Order No.: *707554* **Order Date:** *7/12/2017*

****** Specifications - Heat Code I03672: ******
A312/A312M-14B TP304/304L, SA312 TP304/304L, A403-14 WP304/304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:	Cu:
0.025	0.880	0.033	0.002	0.390	18.250	8.060	0.030	0.132

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
92819	39448	66.50	HRB 77-78	ACCEPTABLE

Comments:
Corrosion test per A262 Practice E.
Solution annealed 1060C and water quenched. Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2009, MR-01-03/2010, and ISO 15156/2009. D.75X280NP4/L

Line: **Description:**
6 ***3/4 X 3 S80 A/SA312 T304/304L SMLS NPL PBE***

****** Specifications - Heat Code I03995: ******
A312/A312M-13B TP304/304L, SA312 TP304/304L, A403-13A WP304/304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:
0.021	1.010	0.039	0.004	0.370	18.200	8.080

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
97895	40608	66.00	HRB 78	OK

Comments:
Corrosion test per A262 Practice E.
Solution heat treatment 1050C x 1.5m/min. Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015. D.75X380NPB4/L

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.

WESTBROOK

MATERIAL TEST REPORT

1111 LOCKWOOD DR.
HOUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

Sold To: *INDUSTRIAL PIPING SPECIALIST* **Purchase Order:** *TP549976* **Printed:** *7/21/2017*
Order No.: *707554* **Order Date:** *7/12/2017*

Line: **Description:**
7 *3/4 X 4 S80 A/SA312 T304/304L SMLS NPL*
TBE

****** Specifications - Heat Code I03995: ******
A312/A312M-13B TP304/304L, SA312 TP304/304L, A403-13A WP304/304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:
0.021	*1.010*	*0.039*	*0.004*	*0.370*	*18.200*	*8.080*

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
97895	*40608*	*66.00*	*HRB 78*	*OK*

Comments:
Corrosion test per A262 Practice E.
Solution heat treatment 1050C x 1.5m/min. Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015.

D.75x480NP4/L

Line: **Description:**
8 *3/4 X 4 S80 A/SA312 T304/304L SMLS NPL*
PBE

****** Specifications - Heat Code I03995: ******
A312/A312M-13B TP304/304L, SA312 TP304/304L, A403-13A WP304/304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:
0.021	*1.010*	*0.039*	*0.004*	*0.370*	*18.200*	*8.080*

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
97895	*40608*	*66.00*	*HRB 78*	*OK*

Comments:
Corrosion test per A262 Practice E.
Solution heat treatment 1050C x 1.5m/min. Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015.

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.

WESTBROOK

MATERIAL TEST REPORT

1111 LOCKWOOD DR.
HOUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

Sold To: *INDUSTRIAL PIPING SPECIALIST* **Purchase Order:** *TP549976* **Printed:** *7/21/2017*
Order No.: *707554* **Order Date:** *7/12/2017*

Line: **Description:**
9 *1 X 3 S80 A/SA312 T304/304L SMLS NPL PBE*

****** Specifications - Heat Code I04084: ******
A312/A312M-16 TP304/304L, SA312 TP304/304L, A403-16 WP304/304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:	Cu:
0.024	*0.950*	*0.032*	*0.002*	*0.380*	*18.240*	*8.100*	*0.060*	*0.290*

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
98765	*45829*	*48.00*	*HRB 81-82*	*GOOD*

Comments:
Corrosion test per A262 Practice E.
Soluiton annealed 1060C and water quenched. Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015. D1X380NPB4/L

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.

WESTBROOK

MATERIAL TEST REPORT

1111 LOCKWOOD DR.
HOUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

Sold To: *INDUSTRIAL PIPING SPECIALIST* **Purchase Order:** *TP549976* **Printed:** *7/21/2017*
Order No.: *707554* **Order Date:** *7/12/2017*

Line: **Description:**
10 *1 X 3 S80 A/SA312 T304/304L SMLS NPL PXT*

****** Specifications - Heat Code I04084: ******
A312/A312M-16 TP304/304L, SA312 TP304/304L, A403-16 WP304/304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:	Cu:
0.024	0.950	0.032	0.002	0.380	18.240	8.100	0.060	0.290

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
98765	45829	48.00	HRB 81-82	GOOD

Comments:
Corrosion test per A262 Practice E.
Soluiton annealed 1060C and water quenched. Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015. D1X380NPTOE4/L

Line: **Description:**
11 *1 X 4 S80 A/SA312 T304/304L SMLS NPL PBE*

****** Specifications - Heat Code I04084: ******
A312/A312M-16 TP304/304L, SA312 TP304/304L, A403-16 WP304/304L, SA403 WP304/304L, A733, A960, ASME B36.19M, B1.20.1, MSS SP-25, SP-95
STARTING MATERIAL: PIPE & TUBE

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:	Cu:
0.024	0.950	0.032	0.002	0.380	18.240	8.100	0.060	0.290

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Flattening:
98765	45829	48.00	HRB 81-82	GOOD

Comments:
Corrosion test per A262 Practice E.
Soluiton annealed 1060C and water quenched. Pickled.
Cold finished. Eddy current test in lieu of hydro.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015. D1X480NPB4/L

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.

[| 4500802438 | J447XX | | OC514019] | [LN: 8] | T0397844-1 | WE110S04/L |

MATERIAL TEST REPORT

Sold To: 2425000	Ship To: 2425000
INDUSTRIAL PIPING SPECIALISTS/TULSA 606 N. 145TH EAST AVE. TULSA OK 74116	INDUSTRIAL PIPING SPECIALISTS/TULSA 606 N. 145TH EAST AVE. TULSA OK 74116

Purchase Order: TP550107
Sales Order: 222066
Material: M063131510900 A/SA312 T304L 1" S10
Delivery / File Nbr: 80374485

Description: ASTM A312-17 ASME SA312-15
WELDED STAINLESS STEEL PIPE, TP304/TP304L

Test: REVERSE BEND TEST PASSED. FLATTENING TEST PASSED. REVERSE FLATTENING TEST PASSED. NDT ELECTRIC TESTED TO ASTM A999, TEST METHOD E426 USING A DRILL-HOLE REF. STD. HYDRO TEST NOT PERFORMED. . .75" WIDTH STRIP 2" GAUGE LGTH .

Heat Number: OC514019

		%
CARBON	LDL	0.021
MANGANESE	LDL	1.550
PHOSPHORUS	LDL	0.026
SULFUR	LDL	0.001
SILICON	LDL	0.370
NICKEL	LDL	8.070
CHROMIUM	LDL	18.250

Ultimate (PSI)	86,592 / 87,094
Yield (PSI)	39,137 / 39,479
Elongation (%)	73 / 73
Hardness (RB)	76 / 76

We hereby certify that the above figures are correct as contained in the records of the company and that each batch has been manufactured, sampled, tested and inspected in accordance with the applicable specification stated above. This Document conforms to the requirements of Specification EN 10204 Inspection Document Type 3.1.
Webco does not use mercury in testing or production of its stainless steel products.
According to our records and to the best of Webco's knowledge, understanding and belief, this product was not contaminated during manufacture in our facilities.
This document was prepared by means of electronic processing and isvalid without signature.

Date: 07/19/2017

Brian Latimer
Stainless Tech. Services Mgr.
blatimer@webcoindustries.com

501 Foster Road
Mannford OK 74044

[| 4500802438 | J447XX | | OC513475] | [LN: 9] | T0397844-1 | WE140S04/L |

MATERIAL TEST REPORT

Sold To: 2425000	Ship To: 2425000
INDUSTRIAL PIPING SPECIALISTS/TULSA 606 N. 145TH EAST AVE. TULSA OK 74116	INDUSTRIAL PIPING SPECIALISTS/TULSA 606 N. 145TH EAST AVE. TULSA OK 74116

Purchase Order: tp538110
Sales Order: 216359
Material: M063131513300 A/SA312 T304L 1" S40
Delivery / File Nbr: 80365130

Description: ASTM A312-16A ASME SA312-15
WELDED STAINLESS STEEL PIPE, TP304/TP304L

Test: REVERSE BEND TEST PASSED. FLATTENING TEST PASSED. REVERSE FLATTENING TEST PASSED. FLARE TEST PASSED. NDT ELECTRIC TESTED TO ASTM A999, TEST METHOD E426 USING A DRILL-HOLE REF. STD. HYDRO TEST NOT PERFORMED. . .75" WIDTH STRIP 2" GAUGE LGTH . HYDRO TEST NOT PERFORMED. .75" WIDTH STRIP 2" GAUGE LGTH

Heat Number:		OC513475	OC513476
		%	%
CARBON	LDL	0.024	0.023
MANGANESE	LDL	1.320	1.360
PHOSPHORUS	LDL	0.028	0.027
SULFUR	LDL	0.001	0.001
SILICON	LDL	0.370	0.310
NICKEL	LDL	8.000	8.030
CHROMIUM	LDL	18.120	18.220

**Not Reported

Ultimate (PSI)	83,328 / 88,809	76,120 / 78,672
Yield (PSI)	38,940 / 44,760	34,020 / 37,290
Elongation (%)	71 / 72	68 / 70
Hardness (RB)	83 / 83	84 / 84

We hereby certify that the above figures are correct as contained in the records of the company and that each batch has been manufactured, sampled, tested and inspected in accordance with the applicable specification stated above. This Document conforms to the requirements of Specification EN 10204 Inspection Document Type 3.1.
Webco does not use mercury in testing or production of its stainless steel products.
According to our records and to the best of Webco's knowledge, understanding and belief, this product was not contaminated during manufacture in our facilities.
This document was prepared by means of electronic processing and isvalid without signature.

Date: 03/29/2017

Tucker Melvin
KST Quality Manager
tmelvin@webcoindustries

18256 West HWY 66
Kellyville OK 74039

SNI.7580S304/L, SNI180S304/L, SNI.580S304/L

製品検査証明書
INSPECTION CERTIFICATE

新日鐵住金株式会社
NIPPON STEEL & SUMITOMO METAL CORPORATION

本　　社：〒100-8071 東京都千代田区丸の内二丁目6番1号
HEAD OFFICE : 2-6-1 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8071 JAPAN
大分製鐵所[光地区]：〒743-8510 山口県光市大字島田3434番地
OITA WORKS [HIKARI AREA]
: 3434, SHIMATA, HIKARI-SHI, YAMAGUCHI, 743-8510, JAPAN

注　文　者：
SHIPPER　K&I TUBULAR CORPORATION
注文者照合番号：
REFERENCE No.　HBS1700Y
契約番号：
CONTRACT No.　4-848-N3-5-X-E907
商　品　名：COLD DRAWN SEAMLESS STAINLESS STEEL
COMMODITY　PIPE
規　　格：ASTM A312/ASME SA-312 GRADE
SPECIFICATION　TP304/TP304L/ASTM A376/ASME SA-376 GRADE TP304

需要家：MARUBENI-ITOCHU TUBULARS AMERICA
CUSTOMER　INC.
需要家管理番号：
CUSTOMER'S CONTROL No.
施　主：
CLIENT

証明書番号：
CERTIFICATE No.　14120175-01
発行年月日：
DATE OF ISSUE　14-12-19

特　　記：PO HR054732, A312-14, SA-312/A376/SA-376-13, NO WELD REPAIR, MERCURY NOT DETECTABLE, MIL-P-24691/3, A262/E, P
NOTE　ED97/23/EC, COUNTRY OF MELT: JAPAN, PICKLED & PASSIVATED　　E07

行番 ITEM No.	寸法 SIZE	員数 NUMBER OF PRODUCT	質量 MASS Kg	U曲げ半径 U-BEND RADIUS (mm)	検査番号 INSPECTION No. YEAR	製造番号 MANUFACTURING No.	規格区分 DIVISION OF STANDARD	製鋼番号 CAST No.	H/P	C	Si	Mn	P	S	Ni	Cr	Mo	Co	引張試験 TENSILE TEST (G.L 2") TEST SPECIMEN	ORIENTATION	耐力 YS KSI	引張強さ TS KSI	伸び EL %	FLATTENING TEST	FLARING TEST	REVERSE FLATTENING TEST	硬さ試験 HARDNESS TEST HV	水圧試験 HYDROSTATIC TEST	CRT A262 PR. E
								MIN							800	1800						30	75	35					
								MAX		35	75	200	45	30	1100	2000											248		
01	N3/4"XS80SX21" ±24"	6	92		4	9NLT87	E61734	H	25	48	105	33	2	801	1807		23		1	L	45	92	63	G			165		G
01		89	1364		4	9NLT87	E61738	H	28	48	104	32	4	802	1803		23		1	L	43	91	62	G			158		G
02	N1"XS80SX21" ±24"	234	5289		4	9NLT86	E61734	H	25	48	105	33	2	801	1807		23		1 1	L L	47 45	94 89	67 67	G G			157		G
02		5	113		4	9NLT86	E61738	H	28	48	104	32	4	802	1803		23		1	L	46	90	67	G			163		G
03	N1/2"XS80SX21" ±24"	1	11		4	9NMT25	E57077	H	27	50	104	30	2	800	1807		22		1	L	45	91	60	G			167		G

外観・寸法　VISUAL & DIMENSIONS : GOOD

非破壊検査　NON-DESTRUCTIVE INSPECTION
ET(A999 DRILLED HOLES) : G.

熱処理　HEAT TREATMENT
SH　2010DEG.F X 1MIN.　W.Q.

NACE MR0175/0103 ISO15156 HARDNESS ONLY
EN10204 3.1
THE VALUE OF HYDROSTATIC TEST IS ASSURED BY SUBSTITUTING N.D.I. FOR HYDROSTATIC TEST

注記 NOTES ●1 JIS(4:No.4, 5:No.5, 1:No.11, A:No.12A, B:No.12B, C:No.13B), Strip(E:1/2in width, F:3/4in width, G:1in width), I:Full Section,
●2 L:縦方向 Longitudinal, T:横方向 Transverse, GL:標点距離 Gauge Length
YS:Yield Strength, TS:Tensile Strength, EL:Elongation, G:合格 Good
CIT:シャルピー衝撃試験 Charpy Impact Test, CRT:腐食試験 Corrosion Test
AGS/FGS:オーステナイト/フェライト結晶粒度 Austenitic/Ferritic Grain Size No.
SP:硫黄プリント Sulphur Print, AP:透磁率 Amplitude Permeability
NMI:非金属介在物 Non Metallic Inclusion, HNT:焼入性試験 Hardenability Test
MDT:脱炭層深さ試験 Measuring Decarburized Depth Test
H/P:溶鋼分析/製品分析 Heat Analysis/Product Analysis
SH:固溶化熱処理 Solution Heat-treatment, BT:曲げ Bend Test
ET/UT/PT:渦流/超音波/浸透探傷試験 Eddy Current/Ultrasonic/Penetrant Test

上記注文品は、御指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。
WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.
お問合せ先　CONTACT ADDRESS : PIPE-IPP@JP.NSSMC.COM

SURVEYOR TO

S. Saito
斎藤 俊太郎 SHUNTARO SAITO
大分製鐵所　品質保証室長
HEAD OF DEPARTMENT
QUALITY ASSURANCE DEPT.
OITA WORKS

[| 4500802438 | J447XX | E61734] | [LN: 10] | T0397844-1 | SNI180S304/L |

製品検査証明書
INSPECTION CERTIFICATE

新日鐵住金株式会社
NIPPON STEEL & SUMITOMO METAL CORPORATION

本　　社：〒100-8071 東京都千代田区丸の内二丁目6番1号
HEAD OFFICE : 2-6-1 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8071 JAPAN

大分製鐵所 [光地区]：〒743-8510 山口県光市大字島田３４３４番地
OITA WORKS [HIKARI AREA]
: 3434, SHIMATA, HIKARI-SHI, YAMAGUCHI, 743-8510 JAPAN

注　文　者：
SHIPPER　K&I TUBULAR CORPORATION

注文者照合番号：
REFERENCE No.　HBS1700Y

契約番号：
CONTRACT No.　4-848-N3-5-X-E907

商　品　名：COLD DRAWN SEAMLESS STAINLESS STEEL
COMMODITY　PIPE

規　　格：ASTM A312/ASME SA-312 GRADE
SPECIFICATION　TP304/TP304L/ASTM A376/ASME SA-376 GRADE TP304

需要家：MARUBENI-ITOCHU TUBULARS AMERICA
CUSTOMER　INC.

需要家管理番号：
CUSTOMER'S CONTROL No.

施　主：
CLIENT

証明書番号：
CERTIFICATE No.　14120175-02E

発行年月日：
DATE OF ISSUE　14-12-19

特　　記：PO HR054732, A312-14, SA-312/A376/SA-376-13, NO WELD REPAIR, MERCURY NOT DETECTABLE, MIL-P-24691/3, A262/E, P
NOTE　ED97/23/EC, COUNTRY OF MELT: JAPAN, PICKLED & PASSIVATED

E07

行番 ITEM No.	寸法 SIZE	員数 NUMBER OF PRODUCT	質量 MASS Kg	U曲げ半径 U-BEND RADIUS (mm)	検査番号 INSPECTION No. TEST	製造番号 MANUFACTURING No.	規格区分 DIVISION OF STANDARD	製鋼番号 CAST No.	H/P	化学成分 CHEMICAL COMPOSITION (%) C	Si	Mn	P ※	S ※	Ni	Cr	Mo	Co	引張試験 TENSILE TEST 1=TEST SPECIMEN 2=ORIENTATION	耐力 YS KSI	引張強さ TS KSI	伸び EL %	FLATTENING TEST	FLARING TEST	REVERSE FLATTENING TEST	硬さ試験 HARDNESS TEST	水圧試験 HYDROSTATIC TEST	CRT		
								MIN							800	1800				30	75	35							
								MAX		35	75	200	45	30	1100	2000										248			
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外観・寸法　VISUAL & DIMENSIONS : GOOD

非破壊検査　NON-DESTRUCTIVE INSPECTION
ET(A999 DRILLED HOLES) : G.

熱処理　HEAT TREATMENT
SH　2010DEG.F X 1MIN.　W.Q.

NACE MR0175/0103 ISO15156 HARDNESS ONLY
EN10204 3.1
THE VALUE OF HYDROSTATIC TEST IS ASSURED BY SUBSTITUTING N.D.I. FOR HYDROSTATIC TEST

注記 NOTES ※1 JIS(4:No.4, 5:No.5, 1:No.11, A:No.12A, B:No.12B, C:No.13B), Strip(E:1/2in width, F:3/4in width, G:1in width), W:Full Section,
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YS:Yield Strength, TS:Tensile Strength, EL:Elongation, G:合格 Good
CIT:シャルピー衝撃試験 Charpy Impact Test, CRT:腐食試験 Corrosion Test
AGS/FGS:オーステナイト/フェライト結晶粒度 Austenitic/Ferritic Grain Size No.
SP:硫黄プリント Sulphur Print, AP:透磁率 Amplitude Permeability
NMI:非金属介在物 Non Metallic Inclusion, HNT:焼入性試験 Hardenability Test
MDT:脱炭層深さ試験 Measuring Decarburized Depth Test
H/P:溶鋼分析/製品分析 Heat Analysis/Product Analysis
SH:固溶化熱処理 Solution Heat-treatment, BT:曲げ Bend Test
ET/UT/PT:渦流/超音波/浸透探傷試験 Eddy Current/Ultrasonic/Penetrant Test

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お問合せ先　CONTACT ADDRESS : PIPE-IPP@JP.NSSMC.COM

SURVEYOR TO

S. Saito
斉藤 俊太郎　SHUNTARO SAITO
大分製鐵所　品質保証室長
HEAD OF DEPARTMENT
QUALITY ASSURANCE DEPT.
OITA WORKS

[| 4500802438 | J447XX | E61734] | [LN: 10] | T0397844-1 | SNI180S304/L |

PO Created for Reference - This is not an official PO

A Honeywell Company

UOP RUSSELL LLC

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DELIVERED	**Purchase Order 4500802440** **Date :** SEP/19/2017 **Page :** 1 of 3
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.

We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.

See our Commitment Statement at http://www.honeywell.com/sites/sm.

Please "Acknowledge" receipt of this PO, actual pricing, and delivery date to: clint.pollard@honeywell.com.

****

Partial shipments will not be accepted, unless agreed upon by UOP Russell Procurement or Warehouse Management personnel. Contact (clint.pollard@honeywell.com) for special requests. SELLER TO SHIP BY SKID NUMBER, EQUIPMENT NUMBER, OR ITEM NUMBER, UNLESS BUYER INDICATES IN WRITING OTHERWISE.

****

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT, or HONEYWELL/UOP/UOP Russell TERMS & CONDITIONS are in place, with an effective date between the parties of <DATE>, this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

Supplier#s #boilerplate# preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing. The Product/Service prices stated herein are firm and can only be changed with the prior written consent of BUYER.

****

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Clint Pollard
Tax ID 3101720754
Buyer Phone 539-664-4853
Purchasing Return Fax 918-481-7427
Email Id clint.pollard@honeywell.com

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DELIVERED	**Purchase Order 4500802440** **Date :** SEP/19/2017 **Page :** 2 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

UOP accountspayable@
uop.com

****

Please direct all communications to:

Clint Pollard
UOP Russell
Phone: 539-664-4853
Fax: 918-481-7427
Email: clint.pollard@honeywell.com

****

1. IMPORTANT! IN ORDER TO ASSURE PROMPT PAYMENT, PLEASE SEND YOUR ORIGINAL INVOICE TO THE ADDRESS SHOWN AS INDICATED ON THE FACE OF THIS PURCHASE ORDER.
2. ALL INVOICES AND DOCUMENTATION MUST CONTAIN THE UOP PURCHASE ORDER NUMBER AND UOP PROJECT NUMBER.
3. FINAL INVOICES WILL NOT BE PAID UNTIL ALL VENDOR DOCUMENTATION AS DEFINED BELOW IS RECEIVED BY UOP RUSSELL.
4. CHANGES: SELLER IS NOT TO PROCEED WITH ANY CHANGES TO THE SCOPE OF SUPPLY WHICH WILL AFFECT PRICE OR DELIVERY, UNTIL SUCH CHANGES HAVE BEEN APPROVED BY UOP RUSSELL SPECIFYING ENGINEER AND UOP RUSSELL BUYER. FAILURE TO ADHERE TO THIS POLICY WILL BE CAUSE FOR REJECTION OF SELLERS INVOICE(S).
5. SELLER IS TO SUPPLY PACKING LISTS ON THE INSIDE AND OUTSIDE OF ALL BOXES, CARTONS AND CONTAINERS AND DOCUMENTATION MUST CONTAIN THE UOP RUSSELL PURCHASE ORDER NUMBER AND UOP RUSSELL PROJECT NUMBER.
6. VENDOR TO SUPPLY THE FOLLOWING INFORMATION
a) Harmonized Tariff Code for export on all components
b) ECCN number on all components
c) Country of Origin on all components
7. COPY OF PACKING SLIP, BOL, AND INVOICE TO BE FORWARDED TO:
clint.pollard@honeywell.com.

Item	Quantity	Unit	Material	Description	Delivery Date	Unloading Point	Goods Recipient

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DELIVERED	**Purchase Order 4500802440** **Date :** SEP/19/2017 **Page :** 3 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	1	Each	5034670	PLUG RD SOLID, 1, 6M, TH A182F304/L	
CRYO		WAREHOUSE			

Rel. ord. against contract 4600004976Item 02180

1" PLUG, SOLID STEEL, ROUND HEAD, A-182-F304/304L, THRD

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.

Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

79 / HN0401 / 1.0T4RDHDPLUG / 1" ROUND HEAD PLUG 304/304L

PO#: 17-4452-DS Pack# :493277 Order#: 1083372 Lot# : BWL.HN0401 Desc: 1 3M/6M THR RD PLUG A/SA182 304/L BWL

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

An ISO 9001 : 2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

447-802440

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 163010
ORDER NO. : 215536

INVOICE NO. : 5200008584
L/C NO. :

PAGE : 72
DATE : 10/17/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
75	9SG0113 HN0401	424 PCS	ROUND PLUG F304L 1" 3000#/6000# NPT RPD103043000T0-BWL C:0.020 Si:0.42 Mn:1.85 P:0.038 S:0.025 Cu:0.39 Cr:18.44 Ni:8.19 N:0.08 TS(KSI):84.8 YS 0.2%(KSI):35.7 EL(%):64.6 R.A.(%):77.1 HARDNESS 1(HBW):154 HARDNESS 2(HBW):156

REMARK :
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A182 -16. ASME SA182-2015 ED. F304/F304L
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	-	-	-	-	-	18.0	8.0	-	-	-
MAX	0.030	1.00	2.00	0.045	0.030	-	20.0	11.0	-	-	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-					75		30	30	50	-
MAX	0.10					-		-	-	-	235

HEAT TREATMENT : SOLUTION: 1060°C(1940°F) W.Q.
MERCURY FREE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15

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

BW-D0839 REV:4

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A Honeywell Company

UOP RUSSELL LLC

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802441** **Date :** SEP/19/2017 **Page :** 1 of 8
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.

We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.

See our Commitment Statement at http://www.honeywell.com/sites/sm.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	1	Each	5034310	CPLG FULL, 1, 3000LB, SW A105	
CRYO		WAREHOUSE			
	Your material number 1.03CPLGSWF				
	Rel. ord. against contract 4600005884Item 04380				
	1" CPLG, SW, 3000LB FS, A-105				
20	1	Each	5034326	CPLG FULL, 1, 3000LB, SW A350LF2	
CRYO		WAREHOUSE			
	Your material number 1.03TCPLGL				
	Rel. ord. against contract 4600005884Item 04400				
	1" CPLG, SW, 3000LB FS, A-350-LF2				

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Clint Pollard

Tax ID 3101720754

Buyer Phone 539-664-4853

Purchasing Return Fax 918-481-7427

Email Id clint.pollard@honeywell.com

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Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
30	4	Each	5034502	ELL 90, 1, 3000LB, SW A105	
CRYO		WAREHOUSE			
	Your material number 1.0390SWF				
	Rel. ord. against contract 4600005884Item 04490				
	1" ELL, 90 SW, 3000LB FS, A-105				
40	9	Each	5034534	ELL 90, 1, 3000LB, SW A350LF2	
CRYO		WAREHOUSE			
	Your material number 1.0390SWL				
	Rel. ord. against contract 4600005884Item 04550				
	1" ELL, 90 SW, 3000LB FS, A-350-LF2				
50	4	Each	5034372	ELL 90, 0.5, 3000LB, TH A105	
CRYO		WAREHOUSE			
	Your material number .50T390F				
	Rel. ord. against contract 4600005884Item 04410				
	1/2" ELL, 90 THRD, 3000LB FS, A-105				
60	4	Each	5034404	ELL 90, 0.5, 3000LB, TH A350LF2	
CRYO		WAREHOUSE			
	Your material number .50T390L				
	Rel. ord. against contract 4600005884Item 04460				
	1/2" ELL, 90 THRD, 3000LB FS, A-350-LF2				
70	1	Each	5025066	FLG RF BLIND, 3, 300LB, A105	
CRYO		WAREHOUSE			
	Your material number 3.0RFBLD#30F				
	Rel. ord. against contract 4600005884Item 00480				
	3" FLG, RF BLIND 300LB , A-105				
80	1	Each	5024909	FLG RFSW, 1.5, 150LB, XH A105	
CRYO		WAREHOUSE			
	Your material number 1.5RFSW#15XHF				
	Rel. ord. against contract 4600005884Item 00190				
	1 1/2" FLG, RFSW 150LB XH, A-105				

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Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
90	1	Each	5025053	FLG RFSW, 1, 300LB, XH A105	
CRYO		WAREHOUSE			
	Your material number 1.0RFSW#30XHF Rel. ord. against contract 4600005884Item 00440 1" FLG, RFSW 300LB XH, A-105				
100	2	Each	5025189	FLG RFSW, 1, 600LB, S/160 A105	
CRYO		WAREHOUSE			
	Your material number 1.0RFSW#60160F Rel. ord. against contract 4600005884Item 00700 1" FLG, RFSW 600LB S/160, A-105				
110	3	Each	5025760	FLG RFSW, 1, 600LB, S/160 A350LF2	
CRYO		WAREHOUSE			
	Your material number 1.0RFSW#60160L Rel. ord. against contract 4600005884Item 01090 1" FLG, RFSW 600LB S/160, A-350-LF2				
120	2	Each	5025761	FLG RFSW, 1.5, 600LB, S/160 A350LF2	
CRYO		WAREHOUSE			
	Your material number 1.5RFSW#6016L Rel. ord. against contract 4600005884Item 01100 1 1/2" FLG, RFSW 600LB S/160, A-350-LF2				
130	1	Each	5035488	NIP, 1.5, XH, PBE X 4" A106B	
CRYO		WAREHOUSE			
	Your material number 1.5A106XHF Rel. ord. against contract 4600005884Item 05300 1 1/2" NIPPLE, XH SMLS, A-106-B PBE X 4"				
140	4	Each	5035713	NIP, 1, TBE X 4" A333-6	
CRYO		WAREHOUSE			
	Your material number 1.0X4.0160A333 Rel. ord. against contract 4600005884Item 05660 1" NIPPLE, S/160 SMLS, A-333-6 TBE X 4"				

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Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
150	6	Each	5035985	NIP, 1, TOE X 4" A333-6	
CRYO		WAREHOUSE			
	Your material number TOENIPPLES				
	Rel. ord. against contract 4600005884Item 05880				
	1" NIPPLE, S/160 SMLS, A-333-6 TOE X 4"				
160	8	Each	5035337	NIP, 0.5, TBE X 3" A106B	
CRYO		WAREHOUSE			
	Your material number .50X3.0160SML				
	Rel. ord. against contract 4600005884Item 05080				
	1/2" NIPPLE, S/160 SMLS, A-106-B TBE X 3"				
170	4	Each	5035609	NIP, 0.5, TOE X 3" A106B	
CRYO		WAREHOUSE			
	Your material number TOENIPPLES				
	Rel. ord. against contract 4600005884Item 05440				
	1/2" NIPPLE, S/160 SMLS, A-106-B TOE X 3"				
180	3	Each	5035643	NIP, 0.5, TOE X 6" A106B	
CRYO		WAREHOUSE			
	Your material number TOENIPPLES				
	Rel. ord. against contract 4600005884Item 05570				
	1/2" NIPPLE, S/160 SMLS, A-106-B TOE X 6"				
190	23	Each	5035694	NIP, 0.5, TBE X 3" A333-6	
CRYO		WAREHOUSE			
	Your material number .50X3.0160333				
	Rel. ord. against contract 4600005884Item 05630				
	1/2" NIPPLE, S/160 SMLS, A-333-6 TBE X 3"				
200	1	Each	5035966	NIP, 0.5, TOE X 3" A333-6	
CRYO		WAREHOUSE			
	Your material number TOENIPPLES				
	Rel. ord. against contract 4600005884Item 05810				
	1/2" NIPPLE, S/160 SMLS, A-333-6 TOE X 3"				

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Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
210	2	Each	5036000	NIP, 0.5, TOE X 6" A333-6	
CRYO		WAREHOUSE			
	Your material number TOENIPPLES				
	Rel. ord. against contract 4600005884Item 05890				
	1/2" NIPPLE, S/160 SMLS, A-333-6 TOE X 6"				
220	1	Each	5035331	NIP, 0.5, XH, TBE X 3" A106B	
CRYO		WAREHOUSE			
	Your material number .50X3.0XHSML				
	Rel. ord. against contract 4600005884Item 05050				
	1/2" NIPPLE, XH SMLS, A-106-B TBE X 3"				
230	1	Each	5035365	NIP, 0.5, XH, TBE X 6" A106B	
CRYO		WAREHOUSE			
	Your material number .50X6.0XHSML				
	Rel. ord. against contract 4600005884Item 05170				
	1/2" NIPPLE, XH SMLS, A-106-B TBE X 6"				
240	4	Each	5035695	NIP, 0.75, TBE X 3" A333-6	
CRYO		WAREHOUSE			
	Your material number .75X3.0160A333				
	Rel. ord. against contract 4600005884Item 05640				
	3/4" NIPPLE, S/160 SMLS, A-333-6 TBE X 3"				
250	2	Each	5034637	PLUG RD SOLID, 0.75, 6M, TH A105	
CRYO		WAREHOUSE			
	Your material number .75RDHDPLUGD				
	Rel. ord. against contract 4600005884Item 04580				
	3/4" PLUG, SOLID STEEL, ROUND HEAD, A-105, THRD				
260	9	Each	5034652	PLUG RD SOLID, 0.5, 6M, TH A350LF2	
CRYO		WAREHOUSE			
	Your material number .50RDHDPLUGL				
	Rel. ord. against contract 4600005884Item 04610				
	1/2" PLUG, SOLID STEEL, ROUND HEAD, A-350-LF2, THRD				

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Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
270	5	Each	5034653	PLUG RD SOLID, 0.75, 6M, TH A350LF2	
CRYO		WAREHOUSE			
	Your material number .75RDHDPLUGL				
	Rel. ord. against contract 4600005884Item 04620				
	3/4" PLUG, SOLID STEEL, ROUND HEAD, A-350-LF2, THRD				
280	1	Each	5034758	TEE RED, 1X1/2, 3000LB, TH A105	
CRYO		WAREHOUSE			
	Your material number 1.0X.50T3RTEED				
	Rel. ord. against contract 4600005884Item 04640				
	1"X1/2" TEE RED, THRD, 3000LB FS, A-105				
290	1	Each	5032963	SWGC, 1 1/2X1/2, S/160 LB-ST A234WPB	
CRYO		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 03590				
	1 1/2"X1/2" SWAGE, CONC, S/160, A-234-WPB LEB-TSE				
300	1	Each	5033147	SWGC, 1 1/2X1, S/160 BBE A420WPL6	
CRYO		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 03700				
	1 1/2"X1" SWAGE, CONC, S/160, A-420-WPL6 BBE				
310	2	Each	5033325	SWGC, 1X1/2, S/160 TBE A420WPL6	
CRYO		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 03750				
	1"X1/2" SWAGE, CONC, S/160, A-420-WPL6 TBE				
320	1	Each	5033324	SWGC, 3/4X1/2, S/160 TBE A420WPL6	
CRYO		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 03740				
	3/4"X1/2" SWAGE, CONC, S/160, A-420-WPL6 TBE				
330	4	Each	5034868	TEE, 0.5, 3000LB, SW A105	
CRYO		WAREHOUSE			
	Your material number .503TEESWD				
	Rel. ord. against contract 4600005884Item 04690				

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Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
	1/2" TEE, SW, 3000LB FS, A-105				
340	1	Each	5034932	TEE, 1.5, 3000LB, SW A105	
CRYO		WAREHOUSE			
	Your material number 1.5X1.0RTEESW				
	Rel. ord. against contract 4600005884Item 04790				
	1 1/2" TEE, SW, 3000LB FS, A-105				
350	2	Each	5034871	TEE, 0.5, 3000LB, SW A350LF2	
CRYO		WAREHOUSE			
	Your material number .503TEESWL				
	Rel. ord. against contract 4600005884Item 04700				
	1/2" TEE, SW, 3000LB FS, A-350-LF2				
360	4	Each	5034872	TEE, 0.5, 3000LB, TH A105	
CRYO		WAREHOUSE			
	Your material number .50T3TEEF				
	Rel. ord. against contract 4600005884Item 04710				
	1/2" TEE, TH, 3000LB FS, A-105				
370	5	Each	5034875	TEE, 0.5, 3000LB, TH A350LF2	
CRYO		WAREHOUSE			
	Your material number .50T3TEEL				
	Rel. ord. against contract 4600005884Item 04720				
	1/2" TEE, TH, 3000LB FS, A-350-LF2				
380	2	Each	5035031	UNION, 1, 3000LB, SW A350LF2	
CRYO		WAREHOUSE			
	Your material number 1.03UNIONSWL				
	Rel. ord. against contract 4600005884Item 04880				
	1" UNION, SW, 3000LB FS, A-350-LF2				
390	50	Linear Ft	5033766	PIPE, 1, S/160 SMLS A106-B	
CRYO		WAREHOUSE			

Order Price Unit is LF

Your material number 1.0A106S160F
Rel. ord. against contract 4600005884Item 03790

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Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
	1" PIPE, S/160 SMLS, A-106-B				
400	43	Linear Ft	5033911	PIPE, 1, S/160 SMLS A333-6	
CRYO		WAREHOUSE			

Order Price Unit is LF

Your material number 1.0A333S160F
Rel. ord. against contract 4600005884Item 04120
1" PIPE, S/160 SMLS, A-333-6

410	10	Linear Ft	5033767	PIPE, 1, XH SMLS A106-B	
CRYO		WAREHOUSE			

Order Price Unit is LF

Your material number 1.0A106XHF
Rel. ord. against contract 4600005884Item 03800
1" PIPE, XH SMLS, A-106-B

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.

Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

BWL4133 / CA0546 / 1.03CPLGSWF / 1" 3000# S/W FULL CPLG A105N

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

An ISO 9001 : 2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

447-802441

ACCORDING TO EN 10204 3.1

CSYO Fittings

CUSTOMER :
CERT NO. : 162366
ORDER NO. : 52183

INVOICE NO. : 5200008151
L/C NO. :

PAGE : 1
DATE : 08/22/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
34	354062 CA0546	1,000 PCS	FULL CPLG A105 1" 3000# S/W 52CP3010 C:0.18 Si:0.21 Mn:0.82 P:0.011 S:0.005 Cu:0.05 Cr:0.06 N:0.03 Mo:0.01 V:0.003 Nb:0.002 N 0.0076 Ti:0.002 CE:0.34 TS(KSI):73.0 YS 0.2%(KSI):45.0 EL(%):36.0 R.A.(%):68.0 HARDNESS 1(HBW):143 HARDNESS 2(HBW):144

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED: 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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

BWD0839 REV:4

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY **DATE** 04/06/2017

CUSTOMER ORDER NO.: 17-1921-DS **BONNEY ORDER NO.** B000220476

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
4	10	1288	1 3000 LF2 COUP S SA/A350 LF2 CL1
			Al 0.028 C 0.210 Co 0.004 Cr 0.030 Cu 0.070 Mn 1.070 Mo 0.012 Nb 0.011
			Ni 0.040 P 0.006 S 0.024 Si 0.220 V 0.003
			CE(Long Formula) = 0.40
			T/S(PSI) 77,505 Y/S(PSI) 53,816 EL(%) 34.10 RA(%) 54.49
			Brinell 132 BHN 135 BHN
			Charpy -50 F 25/26/28 (Ft-Lbs)
			Average 26.30
5	10	6748	3/4 3M LF2 UNAR S SA/A350 LF2 CL1
		MALE	Al 0.030 C 0.210 Co 0.003 Cr 0.040 Cu 0.060 Mn 0.970 Mo 0.004 N 0.004
			Nb 0.014 Ni 0.030 P 0.011 S 0.024 Si 0.200 V 0.004
			CE(Long Formula) = 0.39
			T/S(PSI) 74,433 Y/S(PSI) 54,086 EL(%) 37.10 RA(%) 62.90
			Brinell 144 BHN 141 BHN
			Charpy -50 F 16/12/18 (Ft-Lbs)
			Average 15.30
		6970	3/4 3M LF2 UNAR S SA/A350 LF2 CL1
		FEMALE	Al 0.024 C 0.220 Co 0.004 Cr 0.050 Cu 0.070 Mn 1.030 Mo 0.005 Nb 0.013
			Ni 0.030 P 0.007 S 0.021 Si 0.200 V 0.004
			CE(Long Formula) = 0.41
			T/S(PSI) 73,504 Y/S(PSI) 49,046 EL(%) 35.30 RA(%) 60.69
			Brinell 132 BHN 132 BHN
			Charpy -50 F 54/37/25 (Ft-Lbs)
			Average 38.70

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

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www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY

DATE 04/06/2017

CUSTOMER ORDER NO.: 17-1921-DS

BONNEY ORDER NO. B000220476

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
		M1AY	3/4 3M LF2 UNAR S SA/A350 LF2 CL1
		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) = 0.41
			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
6	25	1302	1 3M LF2 UNAR S SA/A350 LF2 CL1
		MALE	Al 0.039 C 0.210 Cb 0.000 Co 0.002 Cr 0.030 Cu 0.030 Mn 1.020 Mo 0.009 Nb 0.012 Ni 0.020 P 0.006 S 0.022 Si 0.230 V 0.003
			CE(Long Formula) = 0.39
			T/S(PSI) 77,850 Y/S(PSI) 52,470 EL(%) 33.45 RA(%) 56.35
			Brinell 132 BHN 132 BHN
			Charpy -50 F 33/15/29 (Ft-Lbs)
			Average 25.70
		6881	1 3M LF2 UNAR S SA/A350 LF2 CL1
		FEMALE	Al 0.033 C 0.200 Co 0.003 Cr 0.030 Cu 0.020 Mn 1.040 Mo 0.004 N 0.002 Nb 0.015 Ni 0.020 P 0.004 S 0.018 Si 0.220 V 0.003
			CE(Long Formula) = 0.38
			T/S(PSI) 70,941 Y/S(PSI) 47,309 EL(%) 36.95 RA(%) 60.38
			Brinell 135 BHN 132 BHN
			Charpy -50 F 44/51/30 (Ft-Lbs)
			Average 41.70

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

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BFG13309 / 1288 / 1.03CPLGSWL / 1" 3000# SW FULL CPLG A350 LF2

CERTIFIED MILL TEST REPORT

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LOG NO. F00000000093938 Page 6 of 6

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY

DATE 04/06/2017

CUSTOMER ORDER NO.: 17-1921-DS

BONNEY ORDER NO. B000220476

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
15	50	6784	1/2 3M/6M LF2 RDPL T SA/A350 LF2 CL1

Al 0.024 C 0.210 Co 0.004 Cr 0.040 Cu 0.060 Mn 0.980 Mo 0.004 N 0.004
Nb 0.014 Ni 0.030 P 0.009 S 0.016 Si 0.190 V 0.004
CE(Long Formula) = 0.39
T/S(PSI) 75,181 Y/S(PSI) 54,218 EL(%) 36.55 RA(%) 64.66
Brinell 144 BHN 141 BHN
Charpy -50 F 23/43/48 (Ft-Lbs)
Average 38.00

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

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BWL4615 / CA0612 / 1.0390SWF / 1" 3000# SW 90 A105N

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)7-371-3864, 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 :

CERT NO. : 162366 INVOICE NO. : 5200008151 PAGE : 1
ORDER NO. : 52183 L/C NO. : DATE : 08/22/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
38	16601976 CA0612	2,500 PCS	90D ELBOW A105 1" 3000# S/W 52E 3010 C: 0.21 Si: 0.27 Mn: 0.93 P: 0.009 S: 0.006 Cu: 0.01 Cr: 0.03 N: 0.01 Mo: 0.003 V: 0.004 Nb: 0.003 CE: 0.37 TS(KSI): 77.0 YS 0.2%(KSI): 48.7 EL(%): 32.4 R.A.(%): 66.8 HARDNESS 1(HBW): 145 HARDNESS 2(HBW): 147

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWD0839 REV: 4

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY **DATE** 07/18/2017

CUSTOMER ORDER NO.: 17-3845-DS **BONNEY ORDER NO.** B000225221

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
1	35	59961	3/4 3000 LF2 90EL S — SA/A350 LF2 CL1 Al 0.022 C 0.200 Co 0.003 Cr 0.060 Cu 0.080 Mn 1.030 Mo 0.008 Nb 0.015 Ni 0.030 P 0.006 S 0.025 Si 0.240 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 74,500 Y/S(PSI) 49,800 EL(%) 34.00 RA(%) 67.00 Brinell 146 BHN 143 BHN Charpy -50 F 46/37/41 (Ft-Lbs) Average 41.30
2	35	50112	1 3000 LF2 90EL S — SA/A350 LF2 CL1 Al 0.024 C 0.210 Co 0.002 Cr 0.030 Cu 0.040 Mn 1.000 Mo 0.004 Nb 0.015 Ni 0.020 P 0.009 S 0.019 Si 0.220 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 75,685 Y/S(PSI) 51,709 EL(%) 37.50 RA(%) 62.56 Brinell 139 BHN 137 BHN Charpy -50 F 52/52/49 (Ft-Lbs) Average 51.00
3	5	59900	11/2 3000 LF2 90EL S — SA/A350 LF2 CL1 Al 0.025 C 0.190 Co 0.004 Cr 0.080 Cu 0.070 Mn 0.980 Mo 0.005 Nb 0.014 Ni 0.030 P 0.007 S 0.020 Si 0.220 V 0.004 CE(Long Formula) = 0.38 T/S(PSI) 74,542 Y/S(PSI) 48,786 EL(%) 36.70 RA(%) 65.23 Brinell 132 BHN 135 BHN Charpy -50 F 43/34/25 (Ft-Lbs) Average 34.00

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

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www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY **DATE** 07/18/2017

CUSTOMER ORDER NO.: 17-3845-DS **BONNEY ORDER NO.** B000225221

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
4	5	59802	1X1X3/4 3000 LF2 TEE S SA/A350 LF2 CL1 Al 0.024 C 0.210 Cb 0.000 Co 0.004 Cr 0.060 Cu 0.050 Mn 1.050 Mo 0.008 Nb 0.013 Ni 0.030 P 0.007 S 0.018 Si 0.210 V 0.004 CE(Long Formula) = 0.40 T/S(PSI) 75,640 Y/S(PSI) 51,440 EL(%) 36.05 RA(%) 60.94 Brinell 135 BHN 137 BHN Charpy -50 F 47/26/21 (Ft-Lbs) Average 31.30
5	5	59969	1 3000 LF2 TEE S SA/A350 LF2 CL1 Al 0.035 C 0.210 Co 0.004 Cr 0.060 Cu 0.080 Mn 0.990 Mo 0.008 Nb 0.014 Ni 0.040 P 0.006 S 0.021 Si 0.250 V 0.004 CE(Long Formula) = 0.40 T/S(PSI) 70,245 Y/S(PSI) 49,268 EL(%) 33.05 RA(%) 61.81 Brinell 135 BHN 135 BHN Charpy -50 F 33/41/29 (Ft-Lbs) Average 34.30
6	2	6748 MALE	3/4 3M LF2 UNAR S SA/A350 LF2 CL1 Al 0.030 C 0.210 Co 0.003 Cr 0.040 Cu 0.060 Mn 0.970 Mo 0.004 N 0.004 Nb 0.014 Ni 0.030 P 0.011 S 0.024 Si 0.200 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 74,433 Y/S(PSI) 54,086 EL(%) 37.10 RA(%) 62.90 Brinell 144 BHN 141 BHN Charpy -50 F 16/12/18 (Ft-Lbs) Average 15.30

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by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

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CUSTOMER: LEE SUPPLY COMPANY **DATE** 07/18/2017

CUSTOMER ORDER NO.: 17-3845-DS **BONNEY ORDER NO.** B000225221

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
		6970	3/4 3M LF2 UNAR S SA/A350 LF2 CL1
		FEMALE	Al 0.024 C 0.220 Co 0.004 Cr 0.050 Cu 0.070 Mn 1.030 Mo 0.005 Nb 0.013
			Ni 0.030 P 0.007 S 0.021 Si 0.200 V 0.004
			CE(Long Formula) = 0.41
			T/S(PSI) 73,504 Y/S(PSI) 49,046 EL(%) 35.30 RA(%) 60.69
			Brinell 132 BHN 132 BHN
			Charpy -50 F 54/37/25 (Ft-Lbs)
			Average 38.70
		M1AY	3/4 3M LF2 UNAR S SA/A350 LF2 CL1
		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) = 0.41
			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
7	75	1302	1 3M LF2 UNAR S SA/A350 LF2 CL1
		MALE	Al 0.039 C 0.210 Cb 0.000 Co 0.002 Cr 0.030 Cu 0.030 Mn 1.020 Mo 0.009
			Nb 0.012 Ni 0.020 P 0.006 S 0.022 Si 0.230 V 0.003
			CE(Long Formula) = 0.39
			T/S(PSI) 77,850 Y/S(PSI) 52,470 EL(%) 33.45 RA(%) 56.35
			Brinell 132 BHN 132 BHN
			Charpy -50 F 33/15/29 (Ft-Lbs)
			Average 25.70

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by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

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www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY **DATE** 07/18/2017

CUSTOMER ORDER NO.: 17-3845-DS **BONNEY ORDER NO.** B000225221

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
		6881	1 3M LF2 UNAR S SA/A350 LF2 CL1
		FEMALE	Al 0.033 C 0.200 Co 0.003 Cr 0.030 Cu 0.020 Mn 1.040 Mo 0.004 N 0.002
			Nb 0.015 Ni 0.020 P 0.004 S 0.018 Si 0.220 V 0.003
			CE(Long Formula) = 0.38
			T/S(PSI) 70,941 Y/S(PSI) 47,309 EL(%) 36.95 RA(%) 60.38
			Brinell 135 BHN 132 BHN
			Charpy -50 F 44/51/30 (Ft-Lbs)
			Average 41.70
		M1AY	1 3M LF2 UNAR S SA/A350 LF2 CL1
		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) = 0.41
			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
8	40	50111	1/2 3000 LF2 TEE T SA/A350 LF2 CL1
			Al 0.023 C 0.210 Co 0.003 Cr 0.040 Cu 0.050 Mn 1.010 Mo 0.004 Nb 0.014
			Ni 0.020 P 0.008 S 0.016 Si 0.240 V 0.003
			CE(Long Formula) = 0.39
			T/S(PSI) 77,810 Y/S(PSI) 51,527 EL(%) 33.75 RA(%) 59.60
			Brinell 139 BHN 141 BHN
			Charpy -50 F 30/49/27 (Ft-Lbs)
			Average 35.30

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by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

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CUSTOMER: LEE SUPPLY COMPANY **DATE** 07/18/2017

CUSTOMER ORDER NO.: 17-3845-DS **BONNEY ORDER NO.** B000225221

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
9	5	50141	1 3000 LF2 TEE T SA/A350 LF2 CL1 Al 0.027 C 0.210 Co 0.002 Cr 0.030 Cu 0.060 Mn 1.000 Mo 0.004 Nb 0.013 Ni 0.020 P 0.007 S 0.020 Si 0.240 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 76,965 Y/S(PSI) 50,730 EL(%) 34.40 RA(%) 62.07 Brinell 137 BHN 137 BHN Charpy -50 F 47/49/64 (Ft-Lbs) Average 53.30
10	10	1312	1 6000 LF2 COUP T SA/A350 LF2 CL1 Al 0.026 C 0.200 Co 0.003 Cr 0.040 Cu 0.090 Mn 0.980 Mo 0.008 Nb 0.013 Ni 0.040 P 0.005 S 0.022 Si 0.220 V 0.003 CE(Long Formula) = 0.38 T/S(PSI) 73,280 Y/S(PSI) 48,573 EL(%) 33.70 RA(%) 62.26 Brinell 132 BHN 132 BHN Charpy -50 F 70/31/54 (Ft-Lbs) Average 51.70
11	100	6784	1/2 3M/6M LF2 RDPL T SA/A350 LF2 CL1 Al 0.024 C 0.210 Co 0.004 Cr 0.040 Cu 0.060 Mn 0.980 Mo 0.004 N 0.004 Nb 0.014 Ni 0.030 P 0.009 S 0.016 Si 0.190 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 75,181 Y/S(PSI) 54,218 EL(%) 36.55 RA(%) 64.66 Brinell 144 BHN 141 BHN Charpy -50 F 23/43/48 (Ft-Lbs) Average 38.00

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by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY

DATE 07/18/2017

CUSTOMER ORDER NO.: 17-3845-DS

BONNEY ORDER NO. B000225221

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

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. 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

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BWL4520 / CA0681 / 50T300F / 1/2" 3000# THRD 90 A105N

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)7-371-3864, 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 :
CERT NO. : 163198
ORDER NO. : 53327

INVOICE NO. : 5200008621
L/C NO. :

PAGE : 1
DATE : 10/31/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
14	16604688 CA0681	1,150 PCS	90D ELBOW A105 1/2" 3000# NPT 42E 3004 C: 0.20 Si: 0.26 Mn: 0.94 P: 0.017 S: 0.010 Cu: 0.01 Cr: 0.04 N: 0.01 Mo: 0.006 V: 0.002 Nb: 0.004 CE: 0.37 TS(KSI): 75.1 YS 0.2%(KSI): 49.7 EL(%): 28.2 R.A.(%): 65.9 HARDNESS 1(HBW): 143 HARDNESS 2(HBW): 146

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWD0839 REV: 4

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PMW560 / G8D / .50T390L / 1/2" 3000# THRD 90 A350 LF2

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PENNSYLVANIA MACHINE WORKS, INC.
201 BETHEL AVENUE ASTON, PA 19014
(610) 497-3300 – FAX (610) 497-3325

US
US DROP FORGE CO.
P.O BOX 131 – ROUTE 561
1386 AUBURN ROAD WOODWICH TOWNSHIP, NJ 08525
(856) 467-0900 – FAX (856) 467-4989

CERTIFIED MATERIAL TEST REPORT

LEE SUPPLY CO.
P.O. BOX 1475
TULSA, OK 74101

P.O. 175253DS
ORDER # 03 317741
9/20/17

1/2 **3MTD 90** **LF2** QTY: 10

HEAT CODE: **G8D** MATERIAL: **LF2**
ASTM SPEC: A350 SPEC. YEAR: 12 SPEC. REV:
HEAT TREATMENT: NORMALIZED
UNS NUMBER: K03011

CHEMICAL ANALYSIS

C	MN	P	S	SI	NI	CR	MO	CU	AL	V
.210	.950	.014	.036	.240	.080	.150	.040	.170	.022	.004

CB	SN
.001	.010

PHYSICAL ANALYSIS

YS (PSI)	TS (PSI)	%EL 4D % 4D	%RA %	HARDNESS (HB)	HARDNESS2 (HB)	CHARP1 FT/LB	CHARP2 FT/LB	CHARP3 FT/LB
46100	72500	33.000	64.000	140	143	31.000	40.000	61.000

CHARP AV FT/LB	TEST@TMP (F)	C.E=
44.000	-50	.42

NORMALIZED @ 1625F For 4.00 HOUR, AIR COOL

Country of Origin: United States. Country of Origin is Country of Melt.
Manufactured to: ASME B16.11

ASTM A350-02B
ASME SECTION II SA350 LF2 2015 & 2017 EDITION
MATERIAL I/A/W ASME SEC II SA SPECIFICATION-CERTIFICATE I/A/W EN10204:2004 TYPE 3.1 AND ISO10474:2013 TYPE 3.1
MATERIAL MEETS NACE-MR0175/ISO15156-2009
MATERIAL IS CAPABLE OF PASSING A HYDROSTATIC TEST COMPATIBLE WITH THE RATING OF THE FINISHED FITTING
THE ABOVE MATERIAL IS A350-LF2 CLASS 1
MATERIAL MEETS NACE-MR0103-2007
CHARPY IMPACT SPECIMEN SIZE : 10 BY 10 (MM) AND IMPACT TEST TEMPERATURE STATED IN NEGATIVE DEGREES F.
DURING MANUFACTURE AND PROCESSING, THIS PRODUCT DID NOT COME IN DIRECT CONTACT WITH POLYCLORINATED BIPHENYLS (PCB'S), MERCURY OR ANY OF ITS COMPOUNDS NOR WITH ANY MERCURY CONTAINING DEVICE THAT EMPLOYED A SINGLE BOUNDARY OF CONTAINMENT.
NO WELD REPAIRED MATERIAL - MADE IN THE U.S.A.
AS OF THE ORIGINAL MTR PRINT DATE, ARTICLES AS SUPPLIED BY PENN MACHINE HAVE NO INTENDED SUBSTANCE RELEASE, NOR CONTAIN ANY SIGNIFICANT AMOUNT (DO NOT EXCEED 0.1 WT%) OF CHEMICAL COMPOUNDS ON THE EU CANDIDATE LIST OF SVHC (ARTICLE 59(10)) PER ECHA GUIDELINE RIP 3.8, AND THUS THERE IS NO OBLIGATON TO REGISTER THEM UNDER REACH.

WE HEREBY CERTIFY THAT THE REPORTED FIGURES ARE CORRECT AS CONTAINED IN THE RECORDS OF THE CORPORATION.

James B Friant
(ELECTRONIC SIGNATURE)
JAMES B. FRIANT
QUALITY MANAGER

MANUFACTURERS OF Penn FORGED PIPE FITTINGS
QUALITY • SERVICE • PARTNERSHIP
www.pennusa.com

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DUR25 / 45-15 / 3.0RFBLD#30F / 3" 300# RF BLIND A105

CERTIFIED MATERIAL TEST REPORT EN 10204:2004-3.1

ISO 9001:2008

Certificate No. DF- 35 F

Date of Issue :- 25.08.2015

MATERIAL	ASTM A 105-09 / ASME SA 105-09	BUYER	PARTY P.O. No.	50815DDF,10915DDF,61315DDF
Specification	ANSI/ASME B-16.5 - 2009		SUPPLIER CODE	15F035
			INVOICE NO.	35

Marking as per be MSS-SP-25-1978 :-

MECHANICAL REQUIREMENTS

Sr. No.	DESCRIPTION	Qty. (Pcs.)	Heat No.	Y.S. (MPa) Min. 250.0	T.S. (MPa) Min. 485.0	E% Min. 22%	R.A.% Min. 30%	Heat Treatment	Soaking Time (Min.)	Hardness BHN 137-187
1	5" 300 RF SO	30	44-15	308.89	527.12	35.44	59.65	NA -	NA -	144-146
2	3" 300 BL RF	312	45-15	322.03	534.81	32.00	54.84	NA -	NA -	144-146
3	2 1/2" 300 RF WN STD	50	45-15					NA -	NA -	144-146
4										
5										

CHEMICAL REQUIREMENTS

Sr. No.	Heat No.	SPECIFIED ELEMENTS					UNSPECIFIED ELEMENTS				
		C. 0.35 Max.	Mn 0.60-1.05	P 0.035 Max.	S 0.04 Max.	Si .10-0.35 Max.	Cu 0.40 Max.	Ni 0.40 Max.	Cr 0.30 Max.	Mo 0.12 Max.	V 0.08 Max.
1	44-15										
2		0.209	0.966	0.024	0.017	0.274	0.014	0.020	0.026	0.005	0.008
3	45-15	0.201	0.927	0.022	0.021	0.213	0.012	0.020	0.021	0.003	0.008
4											
5											

Certificate that the materials described above are in accordance with the order and specifications.
Material in accordance with NACE MR 0175-2003 and NACE MR 0103
All normalised material are heat treated at temp. 920 degree centigrade

COUNTRY OF ORIGIN : INDIA

For DURABLE FLANGES

Q.C. Supervisor

DURABLE FLANGES PVT. LTD.
Plot. No. 54,Sector-6
Faridabad - (INDIA)

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NOR1898 / 198 / 1.5RFSW#15XHF / 1-1/2" 150# RFSW XH A105

NORMA (INDIA) LIMITED

48,Site IV industrial Area, Sahibabad, Ghaziabad-201010 (U.P) INDIA.
Tel: 91-120-2896091, 2895404 Fax: 91-120-2895930 E-mail: normaindia@gmail. com

Works Test Certificate

NORMA/LAB NO-8230/15-16		INVOICE NO.		DATE:-25.11.15	
P. Order. No:		Customer:-		Forging specification	ASME SA105 -13 ASTM A105 -13
Component	1½"-150# SWRF XH FLG.			Steel Supplier	R.I.N.L
Drawing No.					
Machining STD	ANSI B16.5- 2013 ASME B16.5- 2013	Quantity:-	525Nos.	Mill Heat No.	501220

TEST RESULTS — NORMA HEAT NO-198

CHEMICAL COMPOSTION

Elements %	Specified Composition	Actual	
		NORMA LAB	MILL T.C.
Carbon	0.35max.	0.226	0.22
Manganese	0.60-1.05	0.91	0.92
Silicon	0.10-0.35	0.179	0.17
Sulphur	0.040max.	0.018	0.019
Phosphorous	0.035max.	0.020	0.022
Chromium	0.30max.	0.004	0.008
Nickel	0.40max.	0.006	---
Copper	0.40max.	0.003	---
Molybdenum	0.12max.	0.002	---
Vanadium	0.080max.	0.001	---
Carbon Equivalent (CE)	0.47max.	0.380	0.375

MECHANICAL PROPERTIES.

PROPERTIES	SPECIFIED	OBTAINED
Yield Strength (mpa)	250.00 min.	334.41
Tensile Strength (mpa)	485.00 min.	558.05
%Elongation in 50mm / 4D	22.00 min	30.63
Hardness HB.	187. max.	153-163
% Reduction of Area	30.00 min.	60.74

Specified carbon as per Purchase Order 0.25max.

Serrated face as per MSS-SP-6 With in limits of 125-250AARH

CARBON EQUIVALENT (CE)

$$CE = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

MARKING AS PER MSS-SP-25-2008
1½"-150 XH SA/A105 198 B16.5 NORMA INDIA.

Remarks:- We here by certify that the material described here in has been tested in accordance with the applicable specifications referred above and meets the requirements as per EN10204/3.1B & NACE Standard-MR0175-2003.MRO103.
"As per ASTM A105 Table 1 Note:-For each reduction of 0.01% below the specified carbon maximum(0.35%),an increase of 0.06% manganese above the specified maximum (1.05%)will be permitted up to maximum 1.65%.
Country of Origin-India /Melt: INDIA.

Checked by: Metallurgist

Certified by: Quality Control Manager

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BAL1437 / 500506 / 1.0RFSW#30XHF / 1" 300# RFSW XH A105

AN ISO 9001:2008 COMPANY

BALKRISHNA STEEL FORGE PVT. LTD.

Works : NH-8B,Shitala Mata Mandir Road,Beyond G.E.B. Sub station, Shapar (Veraval), Dist.: RAJKOT-360 024. GUJARAT, INDIA.
Ph.: +91 2827 252777,Fax : +91 2827-252507,E-mail : info@balkrishnaforge.com Web.: www.balkrishnaforge.com

MANUFACTURING TEST CERTIFICATE

CERTIFICATION AS PER EN 10204: 3.1

TC NO. BF/07634 DT. 02.10.2016

CUSTOMER NAME :- INV. NO./EC NO.- Dt:

P.O. No.			P.O. DT.							
Sr. No.	DESCRIPTION	Part code	P.O. SR NO.	INV. SR NO.	QTY	MATERIAL	MILL HEAT NO.	H.L. NO.	DIMENSION STD
1	3/4" 300# SW RF STD	L3KRS.75-BI	50	27	100	ASTM-A105-14	500506	500506	ASME B16.5-13
2	1" 300# SW RF STD	L3KRS1-BI	51	28	50	ASTM-A105-14	500506	500506	ASME B16.5-13
3	1" 300# SW RF XH	L3KRX1-BI	52	29	50	ASTM-A105-14	500506	500506	ASME B16.5-13
4	2" 300# THRD RF	L3TR2-BI	54	30	150	ASTM-A105-14	080315	080315	ASME B16.5-13
5	2-1/2" 300# THRD RF	L3TR2.5-BI	55	31	50	ASTM-A105-14	2600495	2600495	ASME B16.5-13
6	1" 150# SO FF	L1SF1-BI	62	34	100	ASTM-A105-14	500506	500506	ASME B16.5-13
7	2" 150# SO FF	L1SF2-BI	63	35	361	ASTM-A105-14	080409	080409	ASME B16.5-13

Chemical Composition			C%	Mn%	P%	S%	Si%	Cu%	Ni%	Cr%	Mo%	V%	Nb%	N%	CE.
Std. Reqmnt.		MIN.	0.18	0.60			0.10								
		MAX	0.25	1.05	0.035	0.040	0.35	0.40	0.40	0.30	0.12	0.02	0.02		0.43
Check Analysis	500506		0.21	0.89	0.025	0.014	0.20	0.01	0.01	0.03	0.01	0.00	0.00	--	0.37
	080315		0.21	1.00	0.015	0.008	0.29	0.03	0.01	0.02	0.00	0.00	0.00	--	0.38
	2600495		0.22	0.95	0.024	0.020	0.18	0.04	0.06	0.01	0.00	0.00	0.00	--	0.23
	080409		0.20	0.89	0.014	0.011	0.22	0.03	0.02	0.01	0.00	0.00	0.00	--	0.21

MECHANICAL PROPERTIES		U.T.S. N/mm2	Y.S.(0.2% Offset) N/mm2	ELONGATION%	REDUCTION IN AREA%	HARDNESS (BHN)	HEAT TREATMENT DETAILS	IMPACT ENERGY ABSORBED AT °C Specimen (J) 1	2	3		Avg.(J)
Std. Requirement		485 MIN.	250 MIN.	22% MIN.	30% MIN.	137 TO 187						
Result	500506	509.23	355.51	37.20	66.60	146-159	AS FORGED	-	-	-		-
	080315	521.89	315.61	32.80	54.40	146-159	AS FORGED	-	-	-		-
	2600495	512.55	345.22	34.80	74.70	146-156	AS FORGED	-	-	-		-
	080409	520.73	338.64	33.50	61.20	146-159	AS FORGED	-	-	-		-

Identification Size,Pressure Rating,Type,Nominal Bore,SA/A105 ,B-16, Heat Lot No., INDIA

Remark:-

- Materials Was manufactured,sampled,Tested and inspected in accordance with specification(s) solely by the manufacturer listed herein and was found to meet the requirements.
- No weld repair was performed.
- Materials is free of mercury and radioactive contamination.
- All the above heats are melted in india.

We hereby certify that the above mentioned items conform to requirements of - ASTM A-105-14 / ASME SA 105, NACE MR0103-12,NACE MR0175 / ISO15156-2009.

(Metallurgist)

QA HEAD

P:LB:10 REV.00, Dt.-15.05.2013

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JAI1193 / 224 / 1.0RFSW#60160F / 1" 600# RFSW S160 A105

JAI AUTO PVT. LIMITED

B-44/52, Site IV industrial Area, Sahibabad , Ghaziabad, (U.P)
Tel: +91-120-4380042, 4111732, Fax No. +91-120-4111731, E-Mail:info@jaiauto.in

Works Test Certificate

DATE: 14-10-2014

JAPL/LAB NO: 14-15/1560		INVOICE NO.: J1415-053	
Purchase Order No	7001569HOU	Customer	
Component	1" -600 # SWRF SCH-160 FLG.		
Drawing No.		Quantity	150Nos.
Machining STD	ANSI B16.5- 2013 ASME B16.5- 2013		

Forging specification	ASME SA 105 ASTM A105- 05
Steel Supplier	BHUSHAN STEEL
Mill Heat No.	14G-255

JAPL. HEAT NO: 224

TEST RESULTS

CHEMICAL COMPOSTION

Element %	Specified Composition	Actual	
		JAPL LAB	MILL T.C.
Carbon	0.35max	0.20	0.18
Manganese	0.60-1.05	0.88	0.88
Silicon	0.10-0.35	0.22	0.27
Sulphur	0.040max	0.012	0.019
Phosphorous	0.035max	0.030	0.023
Chromium	0.30max	0.17	0.064
Nickel	0.40max	0.043	0.007
Copper	0.40max	0.026	0.022
Molybdenum	0.12max	0.012	0.008
Vanadium	0.08max	0.0004	0.003
Carbon Equivalent (CE)	0.47max	0.390	0.344

MECHANICAL PROPERTIES

PROPERTIES	SPECIFIED	OBTAINED
Yield Strength (mpa)	250.00min.	333.96
Tensile Strength (mpa)	485.00min.	545.73
%Elongation in 50mm / 4D	22.00min.	29.60
Hardness HBW	187max.	153-156
% Reduction of Area	30.00min.	63.04

Remarks:- We hereby certify that the product satisfies the requirement of ASTM A 105 and material described here in has been tested in accordance with the applicable specifications referred above and meets the requirements as per EN10204/3.1B & NACE MRO-175 & ISO 15156. Product does not come in contact with mercury and lead during the manufacturing process. No weld repair was performed and all products are free of weld repair

Specified carbon as per Purchase Order 0.25%max.

Serrated face as per MSS-SP-6 With in limits of 125-250AARH

CARBON EQUIVALENT (CE)

$$CE = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

H.T. Normalized at temp. 920c.

MARKING AS PER MSS-SP-25-2013

1"- 600 SCH-160 SA105N 224 B16.5 JAPL INDIA

Checked by: Rahul
Metallurgist

Certified by: Sushil
Quality Control Manager

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NOR1538 / 542 / 1.0RFSW#60160L / 1" 600# RFSW S160 A350 LF2

NORMA (INDIA) LIMITED

48,Site IV industrial Area, Sahibabad, Ghaziabad-201010 (U.P) INDIA.
Tel: 91-120-2896091, 2895404 Fax: 91-120-2895930 E-mail: normaindia@gmail. com

Works Test Certificate

NORMA/LAB NO-2733/15-16		INVOICE NO.		DATE:-23.06.15	
P. Order. No:		Customer:-		Forging specification	ASTM A350- LF2
Component	1"-600 # SWRF S 160 LF2 FLG.				
Drawing No.				Steel Supplier	Usha Martin Ltd.
Machining STD	ASME B16.5-2013 ANSI B16.5- 2013	Quantity:-	100Nos.	Mill Heat No.	21932

TEST RESULTS — NORMA HEAT NO- 542

CHEMICAL COMPOSTION

Elements %	Specified Composition	Actual	
		NORMA LAB	MILL T.C.
Carbon	0.30max.	0.215	0.21
Manganese	0.60-1.35	1.16	1.17
Silicon	0.15-0.35	0.22	0.23
Sulphur	0.040max.	0.009	0.010
Phosphorous	0.035max.	0.013	0.014
Chromium	0.30max.	0.019	0.020
Nickel	0.40max.	0.010	0.010
Copper	0.40max.	0.009	0.010
Molybdenum	0.12max.	0.0009	0.0008
Vanadium	0.080max.	0.003	---
Columbium	0.02max.	0.002	---
Carbon Equivalent (CE)	0.47max.	0.413	0.410

MECHANICAL PROPERTIES.

PROPERTIES	SPECIFIED	OBTAINED
Hardness HB.	197max.	149-163
Yield Strength (mpa)	250.00 min.	391.86
Tensile Strength (mpa)	485-655.	545.92
%Elongation in 50mm / 4D	22.00 min	30.60
% Reduction of Area	30.00 min.	66.86
Impact Value at (-46°C) temp.	20J min	54,46,52.

Remarks: We here by certify that the material described here in has been tested in accordance with the applicable specifications referred above and meets the requirements as per EN10204/3.1B, NACE Standard-MR0175-2003/ISO15156 & MR0103.

Country of Origin/Melt: India.

Specified carbon as per Purchase Order 0.25max.

Serrated face as per MSS-SP-6 With in limits of 125-250AARH

H.T-: Normalized at temp. 920°C

CARBON EQUIVALENT (CE)

$$CE = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

MARKING AS PER MSS-SP-25-2008
1"-600 S 160 SA/A105 N/SA 350 LF 2 CL1 542 B16.5 NORMA INDIA.

Checked by: Metallurgist

Certified by: Quality Control Manager

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MFF15367 / 13/77263 / 10RFSW#60160L / 1" 600# RFSW S160 A350 LF2
MF24688 / 13/77263 / F6L2RBHHB010 / 1" 600# A-350 LF2 RTJ BF HH

METALFAR PRODOTTI INDUSTRIALI SPA A01
23861 CESANA BRIANZA (LC) - ITALY
VIA G. PARINI, 28
PHONE + 39 031 655441 - FAX +39 031 655149
quality.mff@farmas.com

COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV = ISO 9001 = = ISO 14001 =

INSPECTION CERTIFICATE EN 10204:2004 / 3.1 A02 — Nr A03 2014-C_MFF-02174 — Data / Dated 29.04.2014 Z02

Ordine / PO A07	
Item	163
Packing List	2014-3E301-0001818
Fattura / Invoice	2014-3E401-0001603
Ns. rif. / Our ref. A06	2013-3E201-0002788-0161

A08 US

Cod. colata B07 / Heat Code	Nr. colata B07 / Heat Nr	Quantità B08 / Quantity	Descrizione / Description B01 - (B09 - B11)
	13/77263	106,00	BOSSED 600 LRF 1" LF2CL1

Mat. in acc. a / Mat. in acc. to B02: ASTM/ASME A 350/SA 350 M - 13 ASME CODE SECT. II, PART A, ED. 2013
ASTM A350 LF2 CL1
NACE MR-0175/2009 ISO 15156
NACE MR-0103/2012
Q.A.S.IN ACCORD.WITH PRESS.EQUIPM.DIRECT.97/23/EC(PED) ANNEX I,PARAGRAPH 4.3 CERT.MLN 0531016/01

Elementi / Elements (C01 - C02)	C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu	V	Nb	N
LADLE ANALYSIS	0,185	0,210	0,880	0,008	0,012	0,150	0,080	0,020	0,025	0,180	0,005	0,002	0,000
	Al								CE LF	CE SF	F1	F2	PREN
LADLE ANALYSIS	0,025								0,394	0,342	0,435	0,170	--

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		Forma C10 / Shape	°C C05	Snervamento>0,2% C11 / Yield Strength>0,2%	Snervamento>1,0% C11 / Yield Strength>1,0%	Rottura C12 / Tensile	Allungamento C13 / Elongation	Contrazione C15 / Reduction of area
Sez/Sect mm2	L mm	1=O - 2=□		MPa	MPa	MPa	%	%
126,60	50,80	1	20	327,0	--	519,0	34,0	68,0

DUREZZA / HARDNESS C22		RESILIENZA / IMPACT TEST					
HBW	Tipo/Type C40	Provetta / Test Specimen	°C C03	1-Joule C42	2-Joule C42	3-Joule C42	Media/Average C43
152,0 - 154,0	KV	10x10 mm	-46	72	70	66	69,3

Tratt. Term. / Heat treatment C70	NORMALIZED AT 930 C - COOLED IN STILL AIR	ELECTRIC FURNACE
Dim in acc. a / Dim. acc. to B14	ASME/ANSI B16.5 -2013	
Finitura / Roughness	125/250 MICROINCH AARH MAX	

Marcatura in acc. B08 / Marking in acc. to	MSS SP25 Ed. 2013	Vis. & Dim.	SATISFACTORY	Origine / Origin of Steel	ITALY

Note / Notes: 100% MANUFACTURED IN ITALY
MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION

UFFICIO CONTROLLO QUALITA' A05 / QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO Z03 / INSPECTION AUTHORITY	MARCHIO PRODUZIONE A04 / MANUFACTURER'S SYMBOL
Ing. Frigerio		MFF

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Machine Shop Certificate of Conformance

Sales Order: 81036

Customer PO: 15-0834-DS

Work Approved By: Bob Kellar, Machine Shop Manager

Date: 2/26/2015

Line #	Qty	Product Description	Manf	Heat #	Machine Work Performed
1	11	1 600 HH BLIND LF2	MF	12/30355	MACH TO RFSW S1600
3	29	1 600 HH BLIND LF2	MF	13/77263	MACH TO RFSW S1600

Notes:

All machining and/or modifications are performed to meet the dimensional requirements of the applicable specification unless agreed otherwise

- ANSI/ASME B16.5 for Flanges NPS 24 and smaller
- ANSI/ASME B16.47 for Weld Neck and Blind Flanges NPS 26 and larger
- ANSI/ASME B16.9 for Wrought Buttweld Fittings
- ANSI/ASME B16.11 for Pressure Fittings
- MSS SP-75 for High Yield Fittings, NPS 16 - 48

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Piping Products, Inc.

FORGED STEEL FLANGES AND SPECIAL FITTINGS
1681 Kress St., Houston, Texas 77020-8126
Ph: (713) 675-5374, (800) 775-5374, Fax: (713) 675-7910

*** MILL TEST REPORT ***

LEE SUPPLY
PO BOX 1475

TULSA OK 74101

CUST #: LEE01
CUST PO:
DATE: 06/02/17
PPI S/O #:

ITEMS Country of Manuf: USA

ITEM DESCRIPTION
1 1/2 600 RF SW 160 SA350 LF2-CL1 125-250 AARH

CHEMICAL PROPERTIES

ITEM	HEAT NO.	C	SIL	MN	PHOS	SUL	CR	NI	MO	N	CO	CU	V	AL	NB	C/EQ
	DCNO	0.180	0.230	0.950	0.016	0.020	0.110	0.070	0.017	0.000	0.000	0.220	0.000	0.000	0.000	0.383

PHYSICAL PROPERTIES

ITEM	YIELD STRENGTH	TENSILE STRENGTH	ELONG. % IN 2"	RED. AREA	BHN HARDNESS	CHARPY TEST	Forge Country Of Origin
	54,963	78,431	25.00	67.53	170-170	V.NOTCH -50F 20/24/23	USA

ITEM NOTES

HARD@1675F 2.3 HRS WATER QUENCH; TEMP@1150F 4.55HR A/C.

ORDER NOTES

Additional Notes or Comments:

We hereby certify that all test results and process information contained herein are correct and true as contained in the records of the company.

Quality Assurance Asst. Mgr.

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PIP2700 / DCNO / 1.5RFSW#60160L /s 1-1/2" 600# RFSW S160 A350 LF2

NIK373 / 1170399 / 1.5A106XHF / 1-1/2 XH A106B SMLS PIPE

ИНТЕРПАЙП
НИКО ТЬЮБ

ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ
"ИНТЕРПАЙП НИКО ТЬЮБ"
Украина, г. Никополь, пр. Трубников, 56
Тел./факс +38 (05662) 2-10-70

ИНСПЕКЦИОННЫЙ СЕРТИФИКАТ № 0844
INSPECTION CERTIFICATE № 0844
EN 10204-2004/3.1 / ISO 10474-2013

Грузополучатель / BUYER: North American Interpipe, Inc. 1800 West Loop South, Suite 1350, Houston, Texas 77027, USA

Контракт № / Contract #: COC16/1217

Заводской заказ № / Production order #: 005947

Номер заказа клиента / Customer's ref: #PO#10P21811

Страна / Country: USA

Транспортное средство № / Vehicle №: 67175356

Дата / Date: 21.02.2017г.

Лист / Sheet: 1 Листов / Sheets: 1

Наименование и код товара / Description and code of goods	Наименование стандартов / Specifications	Класс поставки / Class of delivery	Тип резьбы / Thread type
Трубы стальные бесшовные горячекатаные для трубопроводов / Seamless steel hot-rolled pipes for pipelines	ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME SA53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012		

№ поз. / Item No	Номер пакета / Bundle #	Номера труб / Pipe #	Марка стали / Grade: краткое обозначение / Brief Designation	Номер плавки / Heat #	Номер партии / Inspection Lot #	Размеры / Dimensions: диаметр / OD, дюйм / inch	толщина стенки / WT, дюйм / inch	длина / length, фут / ft	общая длина / Total length, фут / ft	шт / pieces	Фактический вес / Actual weight: брутто / gross, фунт / lb	нетто / net, фунт / lb
1.	17-14-01383		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 088	7 066
2.	17-14-01384		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 055	7 033
3.	17-14-01387		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
4.	17-14-01381		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
5.	17-14-01386		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 066	7 044
6.	17-14-01385		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 044	7 022
7.	17-12-04278		B/C	1170399	1272	1.900	0.200	21.0-21.3	1384.0	65	5 027	5 004
8.	17-14-01382		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 088	7 066
9.	17-14-01379		B/C	1170399	1270	1.900	0.200	21.0-21.3	1934.6	91	7 099	7 077
10.	17-14-01380		B/C	1170399	1270	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
11.	17-14-01388		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 066	7 044
12.	17-12-04250		B/C	1170399	1270	1.900	0.200	21.0-21.3	1415.6	67	5 247	5 225
13.	17-12-04284		B/C	1170399	1271	1.900	0.200	21.0-21.3	873.0	41	3 219	3 197
14.	17-12-04244		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
15.	17-12-04251		B/C	1170399	1270	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
16.	17-12-04253		B/C	1170399	1270	1.900	0.200	21.0-21.3	929.6	44	3 450	3 428
17.	17-12-04247		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 088	7 066
18.	17-12-04285		B/C	1170399	1272	1.900	0.200	21.0-21.3	638.8	30	2 359	2 337
19.	17-12-04242		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
20.	17-12-04259		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 077	7 055
21.	17-12-04258		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 088	7 066
22.	17-12-04260		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 044	7 022
23.	17-12-04499		B/C	1170399	1279	1.900	0.200	21.0-21.3	638.8	30	2 359	2 337
24.	17-12-04249		B/C	1170399	1271	1.900	0.200	21.0-21.3	1436.7	68	5 335	5 313
		NPS 1 1/2		Sch 80 XS			TOTAL/ИТОГО		40168.1	1892	147 261	146 732

BUNDLES/ПАКЕТОВ 24

INTERPIPE
NIKO TUBE

LIMITED LIABILITY COMPANY
"INTERPIPE NIKO TUBE"
UKRAINE, Nikopol, 56, Trubnikov ave. Tel./fax +38 (05662) 2-10-70

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NIK373 / 1170399 / 1.5A106XHF / 1-1/2 XH A106B SMLS PIPE

ИНСПЕКЦИОННЫЙ СЕРТИФИКАТ № 0844
INSPECTION CERTIFICATE № 0844

Лист 1 Sheet | Листов 1 Sheets

Химический состав по сертификатным данным на заготовку и результаты контроля химического состава металла труб
Heat analysis acc. to the billet manufacturer certificate & results of chemical analysis of pipes

Номер плавки Heat #	Лаборатория Laboratory	Химический состав в % Chemical composition %												Завод изготовитель заготовки Steel supplier
		C x100	Mn x100	Si x100	S x1000	P x1000	Cr x100	Ni x100	Cu x100	Mo x1000	Ti x1000	V x1000	Nb x1000	
	min													
	max													
1170399	DneprSteel	21.2	87.5	22.2	5	11	8.3	10.1	15.5	19	2	2	2	"MP"DNEPROSTEEL"LLC
	NIKOTUBE*	20	86	23	5	10	8	10	14	20	3	1	1	ООО"МЗ"Днепросталь"
	NIKOTUBE*	21	86	23	5	10	8	10	14	19	3	1	1	

Анализ плавки согласно сертификата завода-изготовителя/Heat analysis acc.to the manufacturer certificate.*-control analysis of pipes/"-контрольный анализ от труб.
Сталь произведена методом плавления в электродуговой печи с последующей непрерывной разливкой. Сталь полностью раскисленная и мелкозернистая. Сталь раскисленная алюминием. Адрес завода изготовителя заготовок: Украина, 49051, г.Днепропетровск, ул.Винокурова, 4/ Steel has been produced by the EAF with continuous casting process. Steel is fully killed and made to fine grain practice. Aluminium killed steel. The address of steel supplier: Ukraine,49051, Dnipropetrovsk, 4 Vinokurova str.

Результаты испытаний труб - Test results for pipes

Номер партии Lot#	Механические свойства Mechanical Properties																
	Испытание на растяжение Tensile test									Испытание на удар /Impact test							
	Предел прочности Tensile strength	Предел текучести R0,5 Yield strength R0,5	Относительное удлинение Elongation	Отношение отов Ratio otov	Ориентация образцов Specimens orientation*	Ширина полосового образца Width of strip specimen	Диаметр цилиндрического образца Diameter of cylindrical specimen	Длина образца Length of specimen	Твердость Hardness Среднее значение Average		Ориентация*Orientation*	Тип надреза, температура Type of notch, temperature	Нормалы/Norm	Ср.значение Average		Площадь сдвига, Shear area	Размер образца ** Specimens size **
	PSI	PSI	%			дюйм/ inch	дюйм/ inch	дюйм/ inch	HRB	HRC						%	дюйм/ inch
min	70000	40000	24.0	-					-	-			min				
max	-	-	-	-					100	22							
1270	78500	62000	30.5		L	0.750		1.970	83 84 84 av.84	<22							
1271	77000	56500	32.0		L	0.750		1.970	83 83 82 av.83	<22							
1272	80500	59500	30.5		L	0.750		1.970	85 85 85 av.85	<22							
1273	77000	60500	33.0		L	0.750		1.970	83 83 83 av.83	<22							
1279	82000	57000	30.0		L	0.750		1.970	85 86 86 av.86	<22							

* L - Продольный образец / Longitudinal specimen; T - поперечный образец / transverse specimen
** Результаты испытаний уменьшенных образцов пересчитаны на полноразмерные/Non-fullsize specimens results convert to fullsize (10x10mm)

Прочие виды контроля / Other tests

Вид испытания / Type of test	Параметры / Criteria	Результаты контроля /Test results
Загиб / Bend test	Pipes have been tested on bend. Трубы прошли испытание на загиб**	Удовлетворительно / Satisfactory
Испытание гидравлическим давлением / Hydrostatic test	100% /2500 PSI / 5 sec**	Удовлетворительно / Satisfactory
Визуальный контроль / Visual inspection	По стандарту / As per Standard**	Удовлетворительно / Satisfactory
Контроль геометрических параметров / Dimensional inspection	По стандарту / As per Standard**	Удовлетворительно / Satisfactory

Состояние поставки / Delivery condition

Общие условия / General condition	Трубы изготовлены и испытаны в соответствии с требованиями ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME A53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012 и заказа / Pipes were produced and inspected according to requirements of ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME SA53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012and order's requirements
Покрытие / Coating	Трубы покрыты черным лаком Quakercoat 720 / Pipes are coated with black varnish Quakercoat 720
Фаска (если требуется) / Bevelled ends if required	Трубы обрезаны под прямым углом .Pipes are cut off under a right angle .
Защита концов / Protection of pipe ends	Концы труб оснащены пластиковыми колпачками / The ends of pipes are equipped by plastic caps
Дополнительная информация / Additional information	Ремонт сверкой запрещен. /No weld repair

Страна происхождения: Украина. Country of origin: Ukraine.
Ваши предложения по улучшению продукции просим направлять на эл.адрес / Please send Your proposals for improving the product by e-mail or fax or by phone
Sergey.Pichakov@nstp.interpipe.biz fax +38(0566)639379 phone +38(0566)638649
e-mail: info@ua.interpipe.biz Phone: 17133330333 Fax: 17133330330
Этот инспекционный сертификат относится только к перечисленной в нем продукции. Недопустимо внесение изменений или другое неправомерное использование сертификата.
This inspection certificate is only for the listed products. Modification or unauthorized use of the certificate is strictly prohibited. Violations can be considered as forgery and is subject to prosecution
Инспекционный сертификат оформлен и проверен контролером сертификатором КОНДРАТЕЦ О.П.
/Inspection Certificate was drawn up and checked by the Certificate Inspector KONDRATEC O.P.
Дата: 21.02.2017 Date:
Подпись инспектора 3-й стороны : Signature of 3-rd Part Inspector:
Подпись ОТК Signature QCD

REVIEWED BY KLOKO 22.02.2017

Э1 O.Vydysh

ТОВ "ІНТЕРПАЙП НІКО ТЬЮБ" 1 СЛУЖБА ЯКОСТІ м. Нікополь

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Certified Mill Test Report

Heat Code: 84JD
Heat Number: A2947
Item: 15131008CSA: 1X4 SCH 160 SMLS NIPL A333-GR6 CSA

Material: ASTM A333 GR6 2011/ASME SA333 GR6 2010 Edition

Chemistry Properties

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

Additional Chemical Properties

Mechanical Properties

Tensile(PSI)	Yield(PSI)	Elong. % in 2 in. or 4D	Reduction	HBW	HBW 2
66765	44748	40%		139	

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Avg.	Test Temp.
76	69	62	69.00	51

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 -51° C. Specimen size - 10 x 5 mm.

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25 Winnipeg St
Vanastra, ON N0M 1L0

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Certified Mill Test Report

Printed: 8/24/2017
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CAPITOL MANUFACTURING
1125 CAPITOL RD
CROWLEY, LA 70526

Certified: 07/28/2017
P.O. 4034151 - PO Created
Tag

Heat No 785542
Heat Code 86L4
Phoenix Order # 1307860
Material ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Part Number	Description
15131012CSA	1X6" SCH160 SMLS BK STL NIPL A333 GR6 CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1700	0.7100	0.0100	0.0020	0.1800	0.1400	0.0900	0.1200

C Eq. Long
0.3341

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0300	0.0020			0.0010					0.0020

Additional Chemical Properties

Cr + Cu + Ni
0.3500

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
67,172	43,234	35.2%	0.0%	136	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
39	54	38	43.67	48

* 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 independentinspectors 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 -48° C. Specimen size - 10 x 5 mm.

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Certified Mill Test Report

Printed: 8/31/2017
Certified: 06/21/2017

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-4826-DS
Tag

Heat No E66276
Heat Code 76FN
Phoenix Order # 1309361

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number
15130506

Description
1/2 X 3" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1640	0.7910	0.0130	0.0020	0.2490	0.0140	0.0210	0.0600

C Eq. Long
0.3118

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0070	0.0010		0.0290	0.0002					

Additional Chemical Properties

Cr + Cu + Ni
0.0950

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
63,490	45,527	34.9%	0.0%	112	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2500 psi.

* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

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Certified Mill Test Report

Printed: 4/5/2017
Certified: 06/02/2016

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-1857-DS
Tag

Heat No 5F4412
Heat Code 74U7
Phoenix Order # 1273750

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15130512	1/2 X 6" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2500	0.7500	0.0090	0.0080	0.2500	0.2300	0.1400	0.1000

C Eq. Long
0.4257

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0200	0.0100		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.4700

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
78,000	49,000	43.0%	0.0%	0	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.
* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

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Printed: 3/20/2017
Certified: 02/15/2017

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-1493-DS
Tag

Heat No 2602018
Heat Code 7639
Phoenix Order # 1270380

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15130524	1/2 X 12" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1800	0.7500	0.0140	0.0040	0.2000	0.0070	0.0060	0.0100

C Eq. Long
0.3084

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0018	0.0010		0.0340	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.0230

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
66,540	50,339	41.8%	0.0%	0	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2500 psi.

* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

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Certified Mill Test Report

Printed: 9/7/2017
Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

Certified: 09/07/2017
P.O. 17-4826-DS
Tag

Heat No E66311
Heat Code 76FM
Phoenix Order # 1309361

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15130524	1/2 X 12" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1780	0.7700	0.0130	0.0010	0.2500	0.0140	0.0120	0.0700

C Eq. Long
0.3235

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0060	0.0010		0.0320	0.0002					

Additional Chemical Properties

Cr + Cu + Ni
0.0960

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
63,618	42,910	35.8%	0.0%	112	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2500 psi.

* Bend test passed.

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.

Meets ASME SA 106 Grade B Requirements.

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Certified Mill Test Report

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CROWLEY, LA 70526

Certified: 01/14/2016
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Tag

Heat No A3069
Heat Code 84MJ
Phoenix Order # 1309513
Material ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Part Number	Description
15130506CSA	1/2 X 3 SCH 160 SMLS NIPL A333 GR6 CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1900	0.8110	0.0180	0.0050	0.2050	0.0060	0.0420	0.0380

C Eq. Long
0.3372

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0040	0.0020		0.0280	0.0000					0.0020

Additional Chemical Properties

Cr + Cu + Ni
0.0860

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
64,596	46,347	47.0%	0.0%	139	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
28	34	35	32.33	49

* 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 independentinspectors 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 -49.5° C. Specimen size - 10 x 3.33 mm.

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Certified: 01/26/2016

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CROWLEY, LA 70526

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Heat No A3069
Heat Code 84MJ
Phoenix Order # 1296243

Material ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Part Number
15130512CSA

Description
1/2 X 6 SCH 160 SMLS NIPL A333 GR6 CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1900	0.8110	0.0180	0.0050	0.2050	0.0060	0.0420	0.0380

C Eq. Long
0.3372

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0040	0.0020		0.0280	0.0000					0.0020

Additional Chemical Properties

Cr + Cu + Ni
0.0860

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
64,596	46,347	47.0%	0.0%	139	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
28	34	35	32.33	49

* 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 independentinspectors 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 -49.5° C. Specimen size - 10 x 3.33 mm.

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CAM10140 / 84AJ / 5X12.0160SMLL / 1/2 X 12" S160 SMLS NIPPLE

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Certified Mill Test Report

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1125 CAPITOL RD
CROWLEY, LA 70526

Certified: 12/29/2014
P.O. 4033200 - PO Created
Tag

Material No Specification Assigned 2005

Heat No 113175
Heat Code 84AJ
Phoenix Order # 1085101

Part Number
15130524LT

Description
1/2 X 12" SCH 160 SMLS NIPL A333-GR6

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1400	0.7800	0.0070	0.0030	0.2600	0.2000	0.0800	0.1100

C Eq. Long
0.3175

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0300	0.0040			0.0014					0.0000

Additional Chemical Properties

Cr + Cu + Ni
0.3900

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
67,202	44,126	42.0%	0.0%	141	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average
35	41	38	38.00

* Hydro test passed. at 2500 psi.
* Eddy Current test passed.

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 -50° C. Specimen size - 10 x 3.99 mm.

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Customer
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PO BOX 1475
TULSA, OK 74101

P.O. 17-3688-DS
Tag

Heat No 4F5236
Heat Code 767B
Phoenix Order # 1296212

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15110506	1/2 X 3" XHSML BK STL NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2700	0.7500	0.0070	0.0110	0.2700	0.2200	0.1500	0.0700

C Eq. Long
0.4417

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0300	0.0100		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.4400

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
79,000	47,000	39.0%	0.0%	147	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.
* Bend test passed.

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.

Meets ASME SA 106 Grade B Requirements.

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Certified Mill Test Report

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Certified: 08/08/2017

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-4826-DS
Tag

Heat No E67278
Heat Code 76H7
Phoenix Order # 1309361

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15110512	1/2 X 6" XHSML BK STL NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1680	0.7750	0.0130	0.0030	0.2100	0.0180	0.0200	0.0730

C Eq. Long
0.3159

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0070	0.0010		0.0300	0.0020					

Additional Chemical Properties

Cr + Cu + Ni
0.1110

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
72,308	55,383	40.2%	0.0%	130	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2500 psi.

* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

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Printed: 9/5/2017
Certified: 08/06/2015

Customer
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1125 CAPITOL RD
CROWLEY, LA 70526

P.O. 4034159 - PO Created
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Heat No A1366
Heat Code 84KL
Phoenix Order # 1309513

Material ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Part Number	Description
15130706CSA	3/4X3 SCH 160 SMLS NIPL A333 GR6 CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1900	0.8400	0.0070	0.0070	0.1900	0.0180	0.0260	0.0750

C Eq. Long
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	Test Temp.
46	46	52	48.00	56

* 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 independentinspectors 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.

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BWL4666 / CA0320 / 75RDHDPLUGF / 3/4" ROUND HEAD PLUG A105N

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MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :

CERT NO. : 161048 INVOICE NO. : 5200007210 PAGE : 1
ORDER NO. : 49766 L/C NO. : DATE : 04/19/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
31	0104940	400 PCS	ROUND PLUG A105 3/4" 3000#/6000# NPT 42RP3006
	CA0320		C:0.18 Si:0.19 Mn:0.85 P:0.017 S:0.007 Cu:0.11 Cr:0.07
			N:0.05 Mo:0.01 V:0.002 Nb:0 Ni:0.008 Ti:0.0016 CE:0.35
			TS(KSI):75.3 YS 0.2%(KSI):53.2 EL(%):32.2 R.A.(%):67.5
			HARDNESS 1(HBW):141 HARDNESS 2(HBW):142

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-12
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWD0839 REV:4

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www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY

DATE 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS

BONNEY ORDER NO. B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
1	25	59961	3/4 3000 LF2 90EL S — SA/A350 LF2 CL1 Al 0.022 C 0.200 Co 0.003 Cr 0.060 Cu 0.080 Mn 1.030 Mo 0.008 Nb 0.015 Ni 0.030 P 0.006 S 0.025 Si 0.240 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 74,500 Y/S(PSI) 49,800 EL(%) 34.00 RA(%) 67.00 Brinell 146 BHN 143 BHN Charpy -50 F 46/37/41 (Ft-Lbs) Average 41.30
2	50	50161	1 3000 LF2 90EL S — SA/A350 LF2 CL1 Al 0.022 C 0.200 Co 0.002 Cr 0.040 Cu 0.060 Mn 1.030 Mo 0.004 Nb 0.014 Ni 0.020 P 0.006 S 0.020 Si 0.250 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 71,065 Y/S(PSI) 49,370 EL(%) 37.75 RA(%) 67.02 Brinell 139 BHN 137 BHN Charpy -50 F 52/64/62 (Ft-Lbs) Average 59.30
3	5	59900	11/2 3000 LF2 90EL S — SA/A350 LF2 CL1 Al 0.025 C 0.190 Co 0.004 Cr 0.080 Cu 0.070 Mn 0.980 Mo 0.005 Nb 0.014 Ni 0.030 P 0.007 S 0.020 Si 0.220 V 0.004 CE(Long Formula) = 0.38 T/S(PSI) 74,542 Y/S(PSI) 48,786 EL(%) 36.70 RA(%) 65.23 Brinell 132 BHN 135 BHN Charpy -50 F 43/34/25 (Ft-Lbs) Average 34.00

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

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CUSTOMER: LEE SUPPLY COMPANY

DATE 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS

BONNEY ORDER NO. B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
4	5	59802	1X1X3/4 3000 LF2 TEE S — SA/A350 LF2 CL1 Al 0.024 C 0.210 Cb 0.000 Co 0.004 Cr 0.060 Cu 0.050 Mn 1.050 Mo 0.008 Nb 0.013 Ni 0.030 P 0.007 S 0.018 Si 0.210 V 0.004 CE(Long Formula) = 0.40 T/S(PSI) 75,640 Y/S(PSI) 51,440 EL(%) 36.05 RA(%) 60.94 Brinell 135 BHN 137 BHN Charpy -50 F 47/26/21 (Ft-Lbs) Average 31.30
5	50	1302 MALE	1 3M LF2 UNAR S — SA/A350 LF2 CL1 Al 0.039 C 0.210 Cb 0.000 Co 0.002 Cr 0.030 Cu 0.030 Mn 1.020 Mo 0.009 Nb 0.012 Ni 0.020 P 0.006 S 0.022 Si 0.230 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 77,850 Y/S(PSI) 52,470 EL(%) 33.45 RA(%) 56.35 Brinell 132 BHN 132 BHN Charpy -50 F 33/15/29 (Ft-Lbs) Average 25.70
		1421 FEMALE	1 3M LF2 UNAR S — SA/A350 LF2 CL1 Al 0.025 C 0.210 Co 0.003 Cr 0.040 Cu 0.070 Mn 1.030 Mo 0.006 Nb 0.012 Ni 0.030 P 0.009 S 0.019 Si 0.230 V 0.005 CE(Long Formula) = 0.40 T/S(PSI) 80,865 Y/S(PSI) 56,573 EL(%) 34.65 RA(%) 60.10 Brinell 139 BHN 144 BHN Charpy -50 F 21/40/38 (Ft-Lbs) Average 33.00

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

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www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY **DATE** 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS **BONNEY ORDER NO.** B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
		M1AY	1 3M LF2 UNAR S SA/A350 LF2 CL1
		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) = 0.41
			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
6	10	1412	1/2 3000 LF2 COUP T SA/A350 LF2 CL1
			Al 0.022 C 0.200 Co 0.003 Cr 0.030 Cu 0.060 Mn 1.010 Mo 0.006 Nb 0.015
			Ni 0.030 P 0.009 S 0.017 Si 0.230 V 0.003
			CE(Long Formula) = 0.38
			T/S(PSI) 74,500 Y/S(PSI) 52,000 EL(%) 33.00 RA(%) 66.00
			Brinell 146 BHN 144 BHN
			Charpy -50 F 47/53/45 (Ft-Lbs)
			Average 48.30
7	50	50119	1/2 3000 LF2 TEE T SA/A350 LF2 CL1
			Al 0.020 C 0.200 Co 0.002 Cr 0.030 Cu 0.030 Mn 1.050 Mo 0.002 Nb 0.015
			Ni 0.020 P 0.009 S 0.017 Si 0.220 V 0.004
			CE(Long Formula) = 0.39
			T/S(PSI) 76,183 Y/S(PSI) 53,557 EL(%) 35.80 RA(%) 66.57
			Brinell 139 BHN 139 BHN
			Charpy -50 F 22/61/60 (Ft-Lbs)
			Average 47.70

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

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www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY

DATE 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS

BONNEY ORDER NO. B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
8	100	6784	1/2 3M/6M LF2 RDPL T — SA/A350 LF2 CL1 Al 0.024 C 0.210 Co 0.004 Cr 0.040 Cu 0.060 Mn 0.980 Mo 0.004 N 0.004 Nb 0.014 Ni 0.030 P 0.009 S 0.016 Si 0.190 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 75,181 Y/S(PSI) 54,218 EL(%) 36.55 RA(%) 64.66 Brinell 144 BHN 141 BHN Charpy -50 F 23/43/48 (Ft-Lbs) Average 38.00
9	25	1491	3/4 3M/6M LF2 RDPL T — SA/A350 LF2 CL1 Al 0.031 C 0.200 Co 0.002 Cr 0.040 Cu 0.050 Mn 1.030 Mo 0.004 Nb 0.014 Ni 0.020 P 0.006 S 0.027 Si 0.240 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 73,500 Y/S(PSI) 51,500 EL(%) 34.00 RA(%) 69.00 Brinell 141 BHN 141 BHN Charpy -50 F 18/37/52 (Ft-Lbs) Average 35.70

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

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY

DATE 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS

BONNEY ORDER NO. B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

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. 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

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BFG13195 / 1242 / .75RDHDPLUGL / 3/4" ROUND HEAD PLUG A350 LF2

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LOG NO. F00000000090420 Page 1 of 2

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www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY **DATE** 12/27/2016

CUSTOMER ORDER NO.: 16-5921-TK **BONNEY ORDER NO.** B000215433

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
1	3	1238	11/2 3M/6M LF2 HXPL T SA/A350 LF2 CL1
			Al 0.032 C 0.200 Cb 0.000 Co 0.003 Cr 0.040 Cu 0.080 Mn 1.030 Mo 0.005
			Nb 0.012 Ni 0.040 P 0.007 S 0.021 Si 0.230 V 0.004
			CE(Long Formula) = 0.39
			T/S(PSI) 73,417 Y/S(PSI) 49,521 EL(%) 33.05 RA(%) 59.53
			Brinell 132 BHN 132 BHN
			Charpy -50 F 38/41/66 (Ft-Lbs)
			Average 48.30
2	10	1343	1/2 3000 LF2 COUP T SA/A350 LF2 CL1
			Al 0.020 C 0.220 Co 0.002 Cr 0.070 Cu 0.010 Mn 1.040 Mo 0.002 Nb 0.012
			Ni 0.010 P 0.008 S 0.022 Si 0.230 V 0.004
			CE(Long Formula) = 0.41
			T/S(PSI) 73,353 Y/S(PSI) 49,525 EL(%) 35.75 RA(%) 61.83
			Brinell 132 BHN 135 BHN
			Charpy -50 F 58/47/43 (Ft-Lbs)
			Average 49.30
3	25	6784	1/2 3M/6M LF2 RDPL T SA/A350 LF2 CL1
			Al 0.024 C 0.210 Co 0.004 Cr 0.040 Cu 0.060 Mn 0.980 Mo 0.004 N 0.004
			Nb 0.014 Ni 0.030 P 0.009 S 0.016 Si 0.190 V 0.004
			CE(Long Formula) = 0.39
			T/S(PSI) 75,181 Y/S(PSI) 54,218 EL(%) 36.55 RA(%) 64.66
			Brinell 144 BHN 141 BHN
			Charpy -50 F 23/43/48 (Ft-Lbs)
			Average 38.00

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 Billie Jo Clemens
Billie Jo Clemens
QUALITY PROCESS MANAGER

CMTR: Rev2

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CUSTOMER: LEE SUPPLY COMPANY **DATE** 12/27/2016

CUSTOMER ORDER NO.: 16-5921-TK **BONNEY ORDER NO.** B000215433

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
4	50	1242	3/4 3M/6M LF2 RDPL T SA/A350 LF2 CL1

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

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 Billie Jo Clemens
Billie Jo Clemens
QUALITY PROCESS MANAGER

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Certified Mill Test Report

Printed: 8/16/2017
Certified: 06/30/2017

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-4502-DS
Tag

Heat No 177250
Heat Code 722GGG
Phoenix Order # 1305696

Material ASTM A105-2014 / ASME SA105-2015 Edition

Part Number	Description
12201414	1 X 1 X 1/2 3M THD RED TEE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2200	0.9500	0.0120	0.0200	0.2300	0.2000	0.0860	0.1260

C Eq. Long
0.4352

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0280	0.0350		0.0020	0.0020					

Additional Chemical Properties

Cr + Cu + Ni
0.4120

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
88,000	60,500	30.0%	65.0%	181	183

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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.

Meets ASME SA-181-70 2013 Edition. Manufactured in the USA.

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Crowley, LA 70526

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Certified Mill Test Report

Printed: 3/22/2017
Certified: 12/29/2016

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-1494-DS
Tag

Heat No 74JF
Heat Code 74JF
Phoenix Order # 1270492

Material ASTM A234-2011a WPB / ASME SA234-2010 Edition

Part Number	Description
48201425	1 1/2X1/2 160 WPB CON SWGBXT

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2100	0.9300	0.0070	0.0280	0.2200	0.1900	0.0680	0.1100

C Eq. Long
0.4150

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0190	0.0350			0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.3680

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
84,000	57,200	23.0%	39.0%	169	162

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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.

Manufactured in the USA.

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WBR3075 / H02214 / 1.5X1.0C160BBL / 1-1/2 X 1" S160 BXB CONC SWAGE

WESTBROOK MATERIAL TEST REPORT

11 LOCKWOOD DR.
OUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

ld To: *LEE SUPPLY* **Purchase Order:** *16-5214-DS* **Printed:** *11/08/2016*
rder No.: *681469* **Order Date:** *11/02/2016* **Tag Number:** *TAG# 704263 DL*

---

ine: **Description:**
1 1/2 X 3/4 S80 A420 WPL6 CONC SWG BXT

******* Specifications - Heat Code H01089: ********
350/A350M-11 LF2, SA350 LF2, A105, SA105, A420-10A WPL6,
A420 WPL6, A234-11 WPB, SA234 WPB, A788, ASME B16.5,
16.9, B16.11, B16.47, B1.20.1, MSS SP-25, SP-44, SP-79,
P-83, SP-95, API 605, A.W.W.A.
TARTING MATERIAL: BAR

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.190	*0.920*	*0.008*	*0.015*	*0.220*	*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:
70000	*42600*	*32.00*	*68.00*	*BHN 134-136*

Impact Results:

Test Temp:	Achieved Values:
-50F	*50-63-42 FT/LBS*

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

---

ine: **Description:**
1 1/2 X 3/4 S80 A420 WPL6 CONC SWG BBE

******* Specifications - Heat Code H01089: ********
350/A350M-11 LF2, SA350 LF2, A105, SA105, A420-10A WPL6,
A420 WPL6, A234-11 WPB, SA234 WPB, A788, ASME B16.5,
16.9, B16.11, B16.47, B1.20.1, MSS SP-25, SP-44, SP-79,
P-83, SP-95, API 605, A.W.W.A.
TARTING MATERIAL: BAR

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.190	*0.920*	*0.008*	*0.015*	*0.220*	*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:
70000	*42600*	*32.00*	*68.00*	*BHN 134-136*

Impact Results:

Test Temp:	Achieved Values:
-50F	*50-63-42 FT/LBS*

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

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

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WESTBROOK MATERIAL TEST REPORT

'11 LOCKWOOD DR.
OUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

ld To: LEE SUPPLY
rder No.: 681469 Order Date: 11/02/2016

Purchase Order: 16-5214-DS
Tag Number: TAG# 704263 DL

Printed: 11/08/2016

ne: Description:
1 1/2 X 1 S160 A420 WPL6 CONC SWG BBE

******* Specifications - Heat Code H02314: ********
350/A350M-11 LF2, SA350 LF2, A105, SA105, A420-10A WPL6,
A420 WPL6, A234-11 WPB, SA234 WPB, A788, ASME B16.5,
16.9, B16.11, B16.47, B1.20.1, MSS SP-25, SP-44, SP-79,
P-83, SP-95, API 605, A.W.W.A.
TARTING MATERIAL: BAR

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.190	0.900	0.008	0.013	0.230	0.080	0.020	0.010
Cu:	**V:**	**Al:**	**Cb:**	**C.E.:**			
0.050	0.010	0.030	0.000	.364			

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
73500	44200	31.00	69.00	BHN 143-146

Impact Results:

Test Temp:	Achieved Values:
-50F	56-34-29 FT/LBS

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

hereby certify that the contents of this Material Test Report are correct and accurate to
e best of our knowledge and belief, that all test results are in compliance with the material
ecifications and that all material meets the dimensional requirements of the order. The
oducts described have not come into contact with mercury or any of its components. No weld
pair performed. Westbrook's Quality System is registered to ISO 9001, Certificate #32813.
is document is in accordance with EN10204:2004 3.1/DIN50049 3.1B and was electronically trans-
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WESTBROOK MATERIAL TEST REPORT

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OUSTON, TX 77020

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Fax 713 675 9742

ld To: *LEE SUPPLY* **Purchase Order:** *16-5214-DS* **Printed:** *11/08/2016*
rder No.: *681469* **Order Date:** *11/02/2016* **Tag Number:** *TAG# 704263 DL*

---

ne: Description:
1 1/2 X 1 S160 A420 WPL6 CONC SWG BBE

******* Specifications - Heat Code H02314: ********
350/A350M-11 LF2, SA350 LF2, A105, SA105, A420-10A WPL6,
\420 WPL6, A234-11 WPB, SA234 WPB, A788, ASME B16.5,
16.9, B16.11, B16.47, B1.20.1, MSS SP-25, SP-44, SP-79,
P-83, SP-95, API 605, A.W.W.A.
TARTING MATERIAL: BAR

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.190	*0.900*	*0.008*	*0.013*	*0.230*	*0.080*	*0.020*	*0.010*
Cu:	**V:**	**Al:**	**Cb:**	**C.E.:**			
0.050	*0.010*	*0.030*	*0.000*	*.364*			

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
73500	*44200*	*31.00*	*69.00*	*BHN 143-146*

Impact Results:

Test Temp:	Achieved Values:
-50F	*56-34-29 FT/LBS*

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

---

ne: Description:
2 X 1 1/2 S40 A420 WPL6 CONC SWG BBE

******* Specifications - Heat Code H03031: ********
350/A350M-13 LF2, SA350 LF2, A105, SA105, A420-13 WPL6,
\420 WPL6, A234-13 WPB, SA234 WPB, A788, ASME B16.5,
16.9, B16.11, B16.47, B1.20.1, MSS SP-25, SP-44, SP-79,
P-83, SP-95, API 605, A.W.W.A.
TARTING MATERIAL: BAR

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.210	*0.940*	*0.007*	*0.024*	*0.250*	*0.090*	*0.050*	*0.010*
Cu:	**V:**	**Al:**	**Cb:**	**C.E.:**			
0.060	*0.010*	*0.030*	*0.000*	*.395*			

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
71000	*43000*	*35.00*	*69.00*	*BHN 162-162*

Impact Results:

Test Temp:	Achieved Values:
-50F	*44-55-67 FT/LBS*

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

hereby certify that the contents of this Material Test Report are correct and accurate to
e best of our knowledge and belief, that all test results are in compliance with the material
ecifications and that all material meets the dimensional requirements of the order. The
oducts described have not come into contact with mercury or any of its components. No weld
pair performed. Westbrook's Quality System is registered to ISO 9001, Certificate #32813.
is document is in accordance with EN10204:2004 3.1/DIN50049 3.1B and was electronically trans-
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WESTBROOK MATERIAL TEST REPORT

11 LOCKWOOD DR.
OUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

ld To: *LEE SUPPLY* **Purchase Order:** *16-5214-DS* **Printed:** *11/08/2016*
rder No.: *681469* **Order Date:** *11/02/2016* **Tag Number:** *TAG# 704263 DL*

ne: **Description:**
1 1/2 X 1 1/4 S160 A234WPB SP95 BLK CONC SWG TXB

****** Specifications - Heat Code W01041 TA: ********
106-13 GR.B, SA106 GR.B, A234-13 WPB, SA234 WPB, A530, 733, ASME B36.10, B1.20.1, MSS SP-25, SP-95
TARTING MATERIAL: A106B PIPE & TUBE
234-13 WPBN, SA234 WPBN

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.150	*0.660*	*0.013*	*0.004*	*0.240*	*0.117*	*0.100*	*0.032*
Cu:	**V:**	**Al:**	**Cb:**	**Ti:**	**B:**	**C.E.:**	
0.276	*0.001*	*0.004*	*0.001*	*0.001*	*.0003*	*.315*	

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Bend:	Hydro(PSI):
72764	*46826*	*34.00*	*HRB 72-78.*	*OK*	*3000*

Comments:
Normalized @ 920C - 7 min.
Hot finished.
Meets Nace MR-01-75/2009, MR-01-03/2010 and ISO 15156/2009.

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

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WESTBROOK MATERIAL TEST REPORT

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ld To: *LEE SUPPLY* **Purchase Order:** *16-5214-DS* **Printed:** *11/08/2016*
rder No.: *681469* **Order Date:** *11/02/2016* **Tag Number:** *TAG# 704263 DL*

ne: **Description:**
1/2 X 1/4 S80 A234WPBN SP95 BLK CONC SWG BXT

****** Specifications - Heat Code W01451 ZZ: ********
105/A105M-11, SA105, A234-11 WPB, SA234 WPB, ASME B16.5, 16.9, B16.11, B16.36, B1.20.1, MSS SP-25, SP-44, SP-79, P-83, SP-95, API-605, A.W.W.A.
TARTING MATERIAL: BAR/BILLET/FORGING
234-07 WPBN, SA234 WPBN

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.200	*0.990*	*0.009*	*0.009*	*0.220*	*0.080*	*0.300*	*0.010*
Cu:	**V:**	**Al:**	**Cb:**	**C.E.:**			
0.120	*0.010*	*0.030*	*0.000*	*.413*			

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
80500	*53000*	*31.00*	*69.00*	*BHN 150-152*

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

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

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PMW547 / 1G5F / 1.0X.50C160TTL / 1 X 1/2" S160 TXT CONC SWAGE

TEXAS PMW, INC.
315 NORTH WAYSIDE DRIVE HOUSTON, TX 77020
(713) 675-7600 – FAX (713) 675-7920

PENNSYLVANIA MACHINE WORKS, INC.
201 BETHEL AVENUE ASTON, PA 19014
(610) 497-3300 – FAX (610) 497-3325

US DROP FORGE CO.
P.O. BOX 131 – ROUTE 551
1365 AUBURN ROAD WOOLWICH TOWNSHIP, NJ 08085
(856) 467-0500 – FAX (856) 467-4882

CERTIFIED MATERIAL TEST REPORT

LEE SUPPLY CO.
P.O. BOX 1475
TULSA, OK 74101

P.O. 175008DS
ORDER # 03 317099
9/12/17

1X1/2 S160 TBE CSWG WPL6 QTY: 20

HEAT CODE: **1G5F** MATERIAL: **WPL6**
ASTM SPEC: A420 SPEC. YEAR: 13 SPEC. REV:
HEAT TREATMENT: NORMALIZED
UNS NUMBER: K03011

CHEMICAL ANALYSIS

C	MN	P	S	SI	NI	CR	MO	CU	AL	V	CB	SN
.190	.980	.012	.029	.230	.150	.140	.045	.300	.033	.002	.002	.010

PHYSICAL ANALYSIS

YS (PSI)	TS (PSI)	%EL 4D % 4D	%RA %	HARDNESS (HB)	HARDNES2 (HB)	CHARP1 FT/LB	CHARP2 FT/LB	CHARP3 FT/LB	CHARP AV FT/LB	TEST@TMP (F)	C.E=
52500	76000	30.000	61.000	137	143	106.000	144.000	37.000	95.660	-50	.42

NORMALIZED @ 1725F For 1.50 HOUR

Country of Origin: Canada. Country of Origin is Country of Melt.
Manufactured to: MSS SP-95

MATERIAL I/A/W ASME SEC II SA SPECIFICATION-CERTIFICATE I/A/W EN10204:2004 TYPE 3.1 AND ISO10474:2013 TYPE 3.1
MATERIAL MEETS NACE-MR0175/ISO15156-2009
MATERIAL IS CAPABLE OF PASSING A HYDROSTATIC TEST COMPATIBLE WITH THE RATING OF THE FINISHED FITTING
CERTIFICATE I/A/W EN 10204:2004 TYPE 3.1 AND ISO10474:2013 TYPE 3.1
CHARPY IMPACT SPECIMEN SIZE : 10 BY 10 (MM) AND IMPACT TEST TEMPERATURE STATED IN NEGATIVE DEGREES F.
STARTING MATERIAL = SEAMLESS BAR
MATERIAL MEETS NACE MR0103-2012
ASTM A420-04
ASME SECTION II SA420 WPL6 2015 & 2017 EDITION
MATERIAL I/A/W ASME SEC II SA SPECIFICATION-CERTIFICATE I/A/W EN10204:2004 TYPE 3.1 AND ISO10474:2013 TYPE 3.1
MATERIAL MEETS NACE-MR0175/ISO15156-2009
MATERIAL IS CAPABLE OF PASSING A HYDROSTATIC TEST COMPATIBLE WITH THE RATING OF THE FINISHED FITTING
CHARPY IMPACT SPECIMEN SIZE : 10 BY 10 (MM) AND IMPACT TEST TEMPERATURE STATED IN NEGATIVE DEGREES F.
STARTING MATERIAL = SEAMLESS BAR
MATERIAL MEETS NACE MR0103-2012
DURING MANUFACTURE AND PROCESSING, THIS PRODUCT DID NOT COME IN DIRECT CONTACT WITH POLYCLORINATED BIPHENYLS (PCB'S), MERCURY OR ANY OF ITS COMPOUNDS NOR WITH ANY MERCURY CONTAINING DEVICE THAT EMPLOYED A SINGLE BOUNDARY OF CONTAINMENT.
NO WELD REPAIRED MATERIAL - MADE IN THE U.S.A.
AS OF THE ORIGINAL MTR PRINT DATE, ARTICLES AS SUPPLIED BY PENN MACHINE HAVE NO INTENDED SUBSTANCE RELEASE, NOR CONTAIN ANY SIGNIFICANT AMOUNT (DO NOT EXCEED 0.1 WT%) OF CHEMICAL COMPOUNDS ON THE EU CANDIDATE LIST OF SVHC (ARTICLE 59(10)) PER ECHA GUIDELINE RIP 3.8, AND THUS THERE IS NO OBLIGATON TO REGISTER THEM UNDER REACH.

WE HEREBY CERTIFY THAT THE REPORTED FIGURES ARE CORRECT AS CONTAINED IN THE RECORDS OF THE CORPORATION.

James B Friant
(ES-ELECTRONIC SIGNATURE)
JAMES B. FRIANT
QUALITY MANAGER

MANUFACTURERS OF Penn FORGED PIPE FITTINGS
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1L1F / .75X.50C160TTL / 3/4 X 1/2" S160 TXT CONC SWAG

TEXAS PMW, INC.
315 NORTH WAYSIDE DRIVE HOUSTON, TX 77020
(713) 675-7808 – FAX (713) 675-7820

PENNSYLVANIA MACHINE WORKS, INC.
201 BETHEL AVENUE ASTON, PA 19014
(610) 497-3300 – FAX (610) 497-3325

US DROP FORGE CO.
P.O BOX 131 – ROUTE 551
1368 AUBURN ROAD WOODWICH TOWNSHIP, NJ 08085
(856) 467-0600 – FAX (856) 467-1068

CERTIFIED MATERIAL TEST REPORT

LEE SUPPLY CO.
P.O. BOX 1475
TULSA, OK 74101

P.O. 175328DS
ORDER # 03 317890
9/21/17

3/4X1/2 S160 TBE CSWG WPL6 QTY: 2

HEAT CODE: **1L1F** MATERIAL: **WPL6**
ASTM SPEC: A420 SPEC. YEAR: 13 SPEC. REV:
HEAT TREATMENT: NORMALIZED
UNS NUMBER: K03011

CHEMICAL ANALYSIS

C	MN	P	S	SI	NI	CR	MO	CU	TI	AL
.200	1.040	.006	.029	.230	.020	.050	.004	.050	.001	.032

N	CO	SB	V	CB	SN
.003	.004	.002	.004	.016	.006

PHYSICAL ANALYSIS

YS (PSI)	TS (PSI)	%EL 4D % 4D	%RA %	HARDNESS (HB)	HARDNES2 (HB)	CHARP1 FT/LB	CHARP2 FT/LB	CHARP3 FT/LB
68500	94500	31.000	67.000	137	143	173.000	148.000	138.000

CHARP AV FT/LB	TEST@TMP (F)	C.E=
153.000	-50	.39

NORMALIZED @ 1725F For 1.50 HOUR

Country of Origin: Canada. Country of Origin is Country of Melt.
Manufactured to: MSS SP-95

MATERIAL I/A/W ASME SEC II SA SPECIFICATION-CERTIFICATE I/A/W EN10204:2004 TYPE 3.1 AND ISO10474:2013 TYPE 3.1
MATERIAL MEETS NACE-MR0175/ISO15156-2009
MATERIAL IS CAPABLE OF PASSING A HYDROSTATIC TEST COMPATIBLE WITH THE RATING OF THE FINISHED FITTING
CHARPY IMPACT SPECIMEN SIZE : 10 BY 10 (MM) AND IMPACT TEST TEMPERATURE STATED IN NEGATIVE DEGREES F.
STARTING MATERIAL = SEAMLESS BAR
MATERIAL MEETS NACE MR0103-2012
DURING MANUFACTURE AND PROCESSING, THIS PRODUCT DID NOT COME IN DIRECT CONTACT WITH POLYCLORINATED BIPHENYLS (PCB'S), MERCURY OR ANY OF ITS COMPOUNDS NOR WITH ANY MERCURY CONTAINING DEVICE THAT EMPLOYED A SINGLE BOUNDARY OF CONTAINMENT.
NO WELD REPAIRED MATERIAL - MADE IN THE U.S.A.
AS OF THE ORIGINAL MTR PRINT DATE, ARTICLES AS SUPPLIED BY PENN MACHINE HAVE NO INTENDED SUBSTANCE RELEASE, NOR CONTAIN ANY SIGNIFICANT AMOUNT (DO NOT EXCEED 0.1 WT%) OF CHEMICAL COMPOUNDS ON THE EU CANDIDATE LIST OF SVHC (ARTICLE 59(10)) PER ECHA GUIDELINE RIP 3.8, AND THUS THERE IS NO OBLIGATON TO REGISTER THEM UNDER REACH.

WE HEREBY CERTIFY THAT THE REPORTED FIGURES ARE CORRECT AS CONTAINED IN THE RECORDS OF THE CORPORATION.

James B Friant
[ES-ELECTRONIC SIGNATURE]
JAMES B. FRIANT
QUALITY MANAGER

MANUFACTURERS OF Penn FORGED PIPE FITTINGS
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Capitol Manufacturing
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Crowley, LA 70526

Phoenix ™ Capitol ™ Camco
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Certified Mill Test Report

Printed: 5/30/2017
Certified: 11/12/2015

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-2915-DS
Tag

Heat No 499842
Heat Code 59HH
Phoenix Order # 1286870

Material ASTM A105-2011a / ASME SA105-2010 Edition

Part Number	Description
12401005	1/2 FS 3M SW TEE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1800	0.7300	0.0100	0.0170	0.1900	0.1900	0.0900	0.1100

C Eq. Long
0.3489

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0300	0.0030								

Additional Chemical Properties

Cr + Cu + Ni
0.3900

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
85,500	59,000	27.0%	64.0%	179	179

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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 independentinspectors 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

Meets ASME SA-181-70 2013 Edition. Manufactured in the USA.

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BWL5070 / CA0441 / 1.52TEESWE / 1-1/2" 3000# SW TEE A105N

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)7-371-3864, 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 : :
CERT NO. : 152363
ORDER NO. : 52182

INVOICE NO. : 5200004692
L/C NO. :

PAGE : 1
DATE : 08/22/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
38	351935 CA0441	40 PCS	TEE A105 1-1/2" 3000# S/W 52T 3014 C: 0.19 Si: 0.20 Mn: 0.84 P: 0.010 S: 0.008 Cu: 0.12 Cr: 0.09 N: 0.05 Mo: 0.01 V: 0.003 Nb: 0 N 0.0105 Ti: 0.001 CE: 0.36 TS(KSI): 74.2 YS 0.2%(KSI): 49.4 EL(%): 32.2 R.A.(%): 63.7 HARDNESS 1(HBW): 141 HARDNESS 2(HBW): 143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWD0839 REV: 4

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PMW484 / D6P / .503TEESWL / 1/2" 3000# SW TEE A350 LF2

TEXAS PMW, INC.
315 NORTH MAYBERRY DRIVE HOUSTON, TX 77022
(713) 675-7600 – FAX (713) 675-7623

PENNSYLVANIA MACHINE WORKS, INC.
201 BETHEL AVENUE ASTON, PA 19014
(610) 497-3300 – FAX (610) 497-3326

US DROP FORGE CO.
P.O BOX 131 – ROUTE 681
1365 ALBURTIS ROAD WOODWICH TOWNSHIP, NJ 08560
(856) 467-0080 – FAX (856) 467-4660

CERTIFIED MATERIAL TEST REPORT

LEE SUPPLY CO.
P.O. BOX 1475
TULSA, OK 74101

P.O. 124270DS
ORDER # 03 315134
8/01/17

1/2 **3MSW TEE** **LF2** QTY: 4

RACK# RW0651
HEAT CODE: **D6P** MATERIAL: **LF2**
ASTM SPEC: A350 SPEC. YEAR: 07 SPEC. REV:
HEAT TREATMENT: NORMALIZED
UNS NUMBER: K03011

CHEMICAL ANALYSIS

C	MN	P	S	SI	NI	CR	MO	CU	AL	V
.210	.950	.014	.036	.240	.080	.150	.040	.170	.022	.004

CB	SN
.001	.010

PHYSICAL ANALYSIS

YS (PSI)	TS (PSI)	%EL 4D	%RA	HARDNESS (HB)	HARDNES2 (HB)	CHARP1 FT/LB	CHARP2 FT/LB	CHARP3 FT/LB
46100	72500	33.00	64.00	140	143	31.000	40.000	61.000

CHARP AV FT/LB	TEST@TMP (F)	C.E=
44.000	-50	.42

NORMALIZED @ 1625F For 4.00 HOUR, AIR COOL

Country of Origin: United States. Country of Origin is Country of Melt.
Manufactured to: ASME B16.11

ASTM A350-02B
ASME SECTION II SA350 LF2 2015 EDITION NO ADDENDA
MATERIAL I/A/W ASME SEC II SA SPECIFICATION-CERTIFICATE I/A/W EN10204:2004 TYPE 3.1 AND ISO10474:2013 TYPE 3.1
MATERIAL IS CAPABLE OF PASSING A HYDROSTATIC TEST COMPATIBLE WITH THE RATING OF THE FINISHED FITTING
THE ABOVE MATERIAL IS A350-LF2 CLASS 1 AND MATERIAL MEETS NACE-MR0175/ISO15156:2009
MATERIAL MEETS NACE-MR0103-2007
CARBON EQUIVALENT (CE) CALCULATED AS CE = C+(MN/6)+((CR+MO+V)/5)+((NI+CU)/15)
CHARPY IMPACT SPECIMEN SIZE : 10 BY 10 (MM) AND IMPACT TEST TEMPERATURE STATED IN NEGATIVE DEGREES F.
DURING THE MANUFACTURE AND PROCESSING OF THIS PRODUCT, IT DID NOT COME IN DIRECT CONTACT WITH MERCURY
OR ANY OF ITS COMPOUNDS NOR WITH ANY MERCURY CONTAINING DEVICE THAT EMPLOYED A SINGLE BOUNDARY OF CONTAINMENT.
NO WELD REPAIRED MATERIAL - MADE IN THE U.S.A

WE HEREBY CERTIFY THAT THE REPORTED FIGURES ARE CORRECT AS CONTAINED IN THE RECORDS OF THE CORPORATION.

James B Friant
(ES-ELECTRONIC SIGNATURE)
JAMES B. FRIANT
QUALITY MANAGER

MANUFACTURERS OF Penn FORGED PIPE FITTINGS
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BWL4950 / CA0731 / .50T3TEEF / 1/2" 3000# THRD TEE A105N

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)7-371-3864, 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 : SMITH-COOPER INTERNATIONAL, INC. PAGE : 1
CERT NO. : 171585 INVOICE NO. : 5200009773 DATE : 06/02/2017
ORDER NO. : 56552 L/C NO. : ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
37	16608299	252 PCS	TEE A105 1/2" 3000# NPT 42T 3004
	CA0731		C:0.21 Si:0.27 Mn:0.96 P:0.012 S:0.006 Cu:0.01 Cr:0.03
			N:0.01 Mo:0.005 V:0.003 Nb:0.003 CE:0.38
			TS(KSI):75.4 YS(KSI):48.5 EL(%):33.6 R.A.(%):62.1
			HARDNESS 1(HBW):142 HARDNESS 2(HBW):144

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2016
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS(KSI)	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70	36		22	30	-
MAX	-				0.43	-	-		-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
FREE FROM RADIATION CONTAMINATION
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.:01 202 ROC/Q 12 0247

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

BWD0839 REV: 4

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BFG13413 / 50119 / .50T3TEEL / 1/2" 3000# THRD TEE A350 LF2

CERTIFIED MILL TEST REPORT

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LOG NO. F00000000098998 Page 1 of 5

BONNEY FORGE CORPORATION
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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY **DATE** 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS **BONNEY ORDER NO.** B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
1	25	59961	3/4 3000 LF2 90EL S SA/A350 LF2 CL1 Al 0.022 C 0.200 Co 0.003 Cr 0.060 Cu 0.080 Mn 1.030 Mo 0.008 Nb 0.015 Ni 0.030 P 0.006 S 0.025 Si 0.240 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 74,500 Y/S(PSI) 49,800 EL(%) 34.00 RA(%) 67.00 Brinell 146 BHN 143 BHN Charpy -50 F 46/37/41 (Ft-Lbs) Average 41.30
2	50	50161	1 3000 LF2 90EL S SA/A350 LF2 CL1 Al 0.022 C 0.200 Co 0.002 Cr 0.040 Cu 0.060 Mn 1.030 Mo 0.004 Nb 0.014 Ni 0.020 P 0.006 S 0.020 Si 0.250 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 71,065 Y/S(PSI) 49,370 EL(%) 37.75 RA(%) 67.02 Brinell 139 BHN 137 BHN Charpy -50 F 52/64/62 (Ft-Lbs) Average 59.30
3	5	59900	11/2 3000 LF2 90EL S SA/A350 LF2 CL1 Al 0.025 C 0.190 Co 0.004 Cr 0.080 Cu 0.070 Mn 0.980 Mo 0.005 Nb 0.014 Ni 0.030 P 0.007 S 0.020 Si 0.220 V 0.004 CE(Long Formula) = 0.38 T/S(PSI) 74,542 Y/S(PSI) 48,786 EL(%) 36.70 RA(%) 65.23 Brinell 132 BHN 135 BHN Charpy -50 F 43/34/25 (Ft-Lbs) Average 34.00

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

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CERTIFIED MILL TEST REPORT

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LOG NO. F00000000098998 Page 2 of 5

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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: LEE SUPPLY COMPANY **DATE** 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS **BONNEY ORDER NO.** B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
4	5	59802	1X1X3/4 3000 LF2 TEE S — SA/A350 LF2 CL1
			Al 0.024 C 0.210 Cb 0.000 Co 0.004 Cr 0.060 Cu 0.050 Mn 1.050 Mo 0.008 Nb 0.013 Ni 0.030 P 0.007 S 0.018 Si 0.210 V 0.004
			CE(Long Formula) = 0.40
			T/S(PSI) 75,640 Y/S(PSI) 51,440 EL(%) 36.05 RA(%) 60.94
			Brinell 135 BHN 137 BHN
			Charpy -50 F 47/26/21 (Ft-Lbs) Average 31.30
5	50	1302	1 3M LF2 UNAR S — SA/A350 LF2 CL1
		MALE	Al 0.039 C 0.210 Cb 0.000 Co 0.002 Cr 0.030 Cu 0.030 Mn 1.020 Mo 0.009 Nb 0.012 Ni 0.020 P 0.006 S 0.022 Si 0.230 V 0.003
			CE(Long Formula) = 0.39
			T/S(PSI) 77,850 Y/S(PSI) 52,470 EL(%) 33.45 RA(%) 56.35
			Brinell 132 BHN 132 BHN
			Charpy -50 F 33/15/29 (Ft-Lbs) Average 25.70
		1421	1 3M LF2 UNAR S — SA/A350 LF2 CL1
		FEMALE	Al 0.025 C 0.210 Co 0.003 Cr 0.040 Cu 0.070 Mn 1.030 Mo 0.006 Nb 0.012 Ni 0.030 P 0.009 S 0.019 Si 0.230 V 0.005
			CE(Long Formula) = 0.40
			T/S(PSI) 80,865 Y/S(PSI) 56,573 EL(%) 34.65 RA(%) 60.10
			Brinell 139 BHN 144 BHN
			Charpy -50 F 21/40/38 (Ft-Lbs) Average 33.00

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

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: LEE SUPPLY COMPANY **DATE** 08/28/2017

CUSTOMER ORDER NO.: 17-4771-DS **BONNEY ORDER NO.** B000227273

SHIP TO: LEE SUPPLY COMPANY
821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
		M1AY	1 3M LF2 UNAR S — SA/A350 LF2 CL1
		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) = 0.41 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
6	10	1412	1/2 3000 LF2 COUP T — SA/A350 LF2 CL1 Al 0.022 C 0.200 Co 0.003 Cr 0.030 Cu 0.060 Mn 1.010 Mo 0.006 Nb 0.015 Ni 0.030 P 0.009 S 0.017 Si 0.230 V 0.003 CE(Long Formula) = 0.38 T/S(PSI) 74,500 Y/S(PSI) 52,000 EL(%) 33.00 RA(%) 66.00 Brinell 146 BHN 144 BHN Charpy -50 F 47/53/45 (Ft-Lbs) Average 48.30
7	50	50119	1/2 3000 LF2 TEE T — SA/A350 LF2 CL1 Al 0.020 C 0.200 Co 0.002 Cr 0.030 Cu 0.030 Mn 1.050 Mo 0.002 Nb 0.015 Ni 0.020 P 0.009 S 0.017 Si 0.220 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 76,183 Y/S(PSI) 53,557 EL(%) 35.80 RA(%) 66.57 Brinell 139 BHN 139 BHN Charpy -50 F 22/61/60 (Ft-Lbs) Average 47.70

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8	100	6784	1/2 3M/6M LF2 RDPL T SA/A350 LF2 CL1 Al 0.024 C 0.210 Co 0.004 Cr 0.040 Cu 0.060 Mn 0.980 Mo 0.004 N 0.004 Nb 0.014 Ni 0.030 P 0.009 S 0.016 Si 0.190 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 75,181 Y/S(PSI) 54,218 EL(%) 36.55 RA(%) 64.66 Brinell 144 BHN 141 BHN Charpy -50 F 23/43/48 (Ft-Lbs) Average 38.00
9	25	1491	3/4 3M/6M LF2 RDPL T SA/A350 LF2 CL1 Al 0.031 C 0.200 Co 0.002 Cr 0.040 Cu 0.050 Mn 1.030 Mo 0.004 Nb 0.014 Ni 0.020 P 0.006 S 0.027 Si 0.240 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 73,500 Y/S(PSI) 51,500 EL(%) 34.00 RA(%) 69.00 Brinell 141 BHN 141 BHN Charpy -50 F 18/37/52 (Ft-Lbs) Average 35.70

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TULSA OK 74106
United States

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. 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.

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821 EAST INDEPENDENCE STREET
TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
1	25	59961	3/4 3000 LF2 90EL S — SA/A350 LF2 CL1
			Al 0.022 C 0.200 Co 0.003 Cr 0.060 Cu 0.080 Mn 1.030 Mo 0.008 Nb 0.015
			Ni 0.030 P 0.006 S 0.025 Si 0.240 V 0.004
			CE(Long Formula) = 0.39
			T/S(PSI) 74,500 Y/S(PSI) 49,800 EL(%) 34.00 RA(%) 67.00
			Brinell 146 BHN 143 BHN
			Charpy -50 F 46/37/41 (Ft-Lbs)
			Average 41.30
2	50	50161	1 3000 LF2 90EL S — SA/A350 LF2 CL1
			Al 0.022 C 0.200 Co 0.002 Cr 0.040 Cu 0.060 Mn 1.030 Mo 0.004 Nb 0.014
			Ni 0.020 P 0.006 S 0.020 Si 0.250 V 0.003
			CE(Long Formula) = 0.39
			T/S(PSI) 71,065 Y/S(PSI) 49,370 EL(%) 37.75 RA(%) 67.02
			Brinell 139 BHN 137 BHN
			Charpy -50 F 52/64/62 (Ft-Lbs)
			Average 59.30
3	5	59900	11/2 3000 LF2 90EL S — SA/A350 LF2 CL1
			Al 0.025 C 0.190 Co 0.004 Cr 0.080 Cu 0.070 Mn 0.980 Mo 0.005 Nb 0.014
			Ni 0.030 P 0.007 S 0.020 Si 0.220 V 0.004
			CE(Long Formula) = 0.38
			T/S(PSI) 74,542 Y/S(PSI) 48,786 EL(%) 36.70 RA(%) 65.23
			Brinell 132 BHN 135 BHN
			Charpy -50 F 43/34/25 (Ft-Lbs)
			Average 34.00

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TULSA OK 74106
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
4	5	59802	1X1X3/4 3000 LF2 TEE S — SA/A350 LF2 CL1
			Al 0.024 C 0.210 Cb 0.000 Co 0.004 Cr 0.060 Cu 0.050 Mn 1.050 Mo 0.008
			Nb 0.013 Ni 0.030 P 0.007 S 0.018 Si 0.210 V 0.004
			CE(Long Formula) = 0.40
			T/S(PSI) 75,640 Y/S(PSI) 51,440 EL(%) 36.05 RA(%) 60.94
			Brinell 135 BHN 137 BHN
			Charpy -50 F 47/26/21 (Ft-Lbs)
			Average 31.30
5	50	1302 MALE	1 3M LF2 UNAR S — SA/A350 LF2 CL1
			Al 0.039 C 0.210 Cb 0.000 Co 0.002 Cr 0.030 Cu 0.030 Mn 1.020 Mo 0.009
			Nb 0.012 Ni 0.020 P 0.006 S 0.022 Si 0.230 V 0.003
			CE(Long Formula) = 0.39
			T/S(PSI) 77,850 Y/S(PSI) 52,470 EL(%) 33.45 RA(%) 56.35
			Brinell 132 BHN 132 BHN
			Charpy -50 F 33/15/29 (Ft-Lbs)
			Average 25.70
		1421 FEMALE	1 3M LF2 UNAR S — SA/A350 LF2 CL1
			Al 0.025 C 0.210 Co 0.003 Cr 0.040 Cu 0.070 Mn 1.030 Mo 0.006 Nb 0.012
			Ni 0.030 P 0.009 S 0.019 Si 0.230 V 0.005
			CE(Long Formula) = 0.40
			T/S(PSI) 80,865 Y/S(PSI) 56,573 EL(%) 34.65 RA(%) 60.10
			Brinell 139 BHN 144 BHN
			Charpy -50 F 21/40/38 (Ft-Lbs)
			Average 33.00

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United States

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		M1AY	1 3M LF2 UNAR S SA/A350 LF2 CL1
		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) = 0.41
			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
6	10	1412	1/2 3000 LF2 COUP T SA/A350 LF2 CL1
			Al 0.022 C 0.200 Co 0.003 Cr 0.030 Cu 0.060 Mn 1.010 Mo 0.006 Nb 0.015
			Ni 0.030 P 0.009 S 0.017 Si 0.230 V 0.003
			CE(Long Formula) = 0.38
			T/S(PSI) 74,500 Y/S(PSI) 52,000 EL(%) 33.00 RA(%) 66.00
			Brinell 146 BHN 144 BHN
			Charpy -50 F 47/53/45 (Ft-Lbs)
			Average 48.30
7	50	50119	1/2 3000 LF2 TEE T SA/A350 LF2 CL1
			Al 0.020 C 0.200 Co 0.002 Cr 0.030 Cu 0.030 Mn 1.050 Mo 0.002 Nb 0.015
			Ni 0.020 P 0.009 S 0.017 Si 0.220 V 0.004
			CE(Long Formula) = 0.39
			T/S(PSI) 76,183 Y/S(PSI) 53,557 EL(%) 35.80 RA(%) 66.57
			Brinell 139 BHN 139 BHN
			Charpy -50 F 22/61/60 (Ft-Lbs)
			Average 47.70

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9	25	1491	3/4 3M/6M LF2 RDPL T SA/A350 LF2 CL1 Al 0.031 C 0.200 Co 0.002 Cr 0.040 Cu 0.050 Mn 1.030 Mo 0.004 Nb 0.014 Ni 0.020 P 0.006 S 0.027 Si 0.240 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 73,500 Y/S(PSI) 51,500 EL(%) 34.00 RA(%) 69.00 Brinell 141 BHN 141 BHN Charpy -50 F 18/37/52 (Ft-Lbs) Average 35.70

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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.
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Tubular Products
273 Genl. Hertzog Rd,
Peacehaven Vereeniging 1939
P O Box 48 Vereeniging 1930
South Africa

Telephone +27 (0)16 450 4220
Fax +27 (0)16 423 4906

MATERIAL TEST CERTIFICATE
SEAMLESS TUBE

Licensed under API Spec 5L and SCT
5L - 0319
5CT - 0419

ISO 9001: 2008
DE-395997 QM

Test Certificate
EN 10204:2004 TYPE 3.1

ArcelorMittal

Customer:		Customer Order/Contract No:	SUS2 155193
Order No:	4000023013	Material No:	1000039843
Certificate Reference No:	040062086435	Cast/Heat No:	1609643
Product:	FULLY KILLED HOT FINISHED CARBON STEEL SEAMLESS TUBES		Page 1 of 1
Specification:	ISO3183:2012/API 5L:2012 L245/L290/B/X42 PSL1 ASTM A53B:12 A106B/C.15 A530.12 ASME SA53B.15 SA106B/C.15 SA530.15		
Product Marking:	ARCELORMITTAL SA ISO3183/Spec 5L-0319 MONOGRAM 01-17 ASTM/ASME A/SA106B/C A53B 1.315 0.250 20.000 L245/B L290/X42 PSL1 SMLS TESTED 3000 psi CAST NO: 1609643 PROD/O NO: T0142301310 MADE IN SOUTH AFRICA NDE		

General Information

Quantity	Mass	Dimensions			Total Length
		Tube OD	Thickness	Length	
703	40,047.705(lb)	1.315(")	0.250(")	20.000 (ft)	14,060.000(ft)

Steel making process	Final Rolling Operation
Electric Arc	As Rolled
	Final hot rolling finished above 1580°F and cooled in still air

Chemical Composition

R22-(V+Nb+Ti) R24-(Nb+V)

Element(%)	C	Si	Mn	S	P	Cr	Ni	Mo	Cu	V	Al	Ti	Sn	Ca	N	B	Nb	CE	R22	R24
Minimum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maximum	0.200	-	1.30	0.030	0.030	0.50	0.50	0.150	0.500	-	-	-	-	-	-	-	-	0.41	0.15	0.060
Heat	0.181	0.26	0.84	0.003	0.012	0.03	0.01	0.001	0.005	0.002	0.028	0.006	0.001	0.0000	0.0050	0.0000	0.0010	0.33	0.01	0.003
Product	0.1810	0.2550	0.8360	0.0030	0.0120	0.0270	0.0110	0.0010	0.0050	0.0020	0.0280	0.0060	0.0010	-	0.0050	-	0.0010	0.3274	-	-
Product (ADD)	0.1810	0.2550	0.8360	0.0030	0.0120	0.0270	0.0110	0.0010	0.0050	0.0020	0.0280	0.0060	0.0010	-	0.0050	-	0.0010	0.3274	-	-

Mechanical Properties

Specification Limits	UTS (Rm) MPa	UTS (Rm) psi	Yield (0.5%) MPa	Yield (0.5%) psi	% EL 2 inch
Minimum		70000		42000	30.0
Maximum		-		-	-
(1) Actual		72663		48007	48.0
(2) Actual		76144		49022	49.0
(3) Actual					
(4) Actual					

	UTS (Rm) MPa	UTS (Rm) psi	Yield (0.5%) MPa	Yield (0.5%) psi	% EL 2 inch
(5) Actual					
(6) Actual					
(7) Actual					
Orientation & type of tensile test	Longitudinal, Section				
Width of tensile piece (inch)	Full Section				
Orientation of impact test piece					

OTHER TESTS	
Category	Result
Bending	Passed
Flattening	Passed
Hydrostatic	3000 psi for 5 Sec
NDI: EMI	PASS - ASTM E570 - 12.5% NOTCH
NDI: UT	UT not required
HV 22 lbs	160 163 165

Remarks:

Material in accordance with NACE MR0175:2015/ISO15156-2:2015, MR0103:2015. Dimensions to ASME B36.10M-2015. The material conform to the hot yield strength requirements as per ASME, Sect II, Pt D, Table Y-1, 2015. All the material conform to the visual and dimensional requirements and is made to a suitable fine grain practice.

Quality Assurance Manager: PJ Venter *Date of Release: 2017.01.31* *Certified by:*

We hereby certify that the material was manufactured, tested and inspected to and fully comply with the requirements of referenced specifications. No changes, amendments or additions may be made to this document. Any changes which are effected shall invalidate this certificate.

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HOT ROLLING PIPE CO.,LTD VIETNAM

MILL TEST CERTIFICATE

Purchaser		Product	Seamless Steel Pipes	PAGE	
Manufacturer	HOT ROLLING PIPE CO.,LTD VIETNAM	Contract No.	W15-310 / 10718	Certificate No.	HRP2015051501
Standard	ASTM/ASME:A/SA53 GR B(2013) A/SA106 GR B/C(2014) A/SA333-GR 1/6 (2013) API 5L(45th Ed 2013)	Date Of List	15-May-15	Stamp of Company Quality Department	HOT ROLLING PIPE CO.,LTD VIET NAM Quality department
Specification	1" B PSL1 21FT	License No.	API 5L-0918		

O.D.	1.315in	Total Pieces	392	PCS	Total Weight	23378.88	LB	Total Length	8232.00	FT	Making Method	Normalizing
W.T.	0.250in	Total Bundles	7			10.614	MT		2509.11	M		

No	Heat No	Lot No.	PCS	Y.S Ksi	T.S Ksi	E.L %	C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Nb	Hardness HBW 1	HBW 2	HBW 3	HBW 4	Size 10*3.3 L (J) -49℃			(J) Average Value
1	15-200566	092301	392	57.0	80.0	33.5	0.170	0.270	0.970	0.015	0.012	0.020	0.010	0.030	0.002	0.001	0.010	180	175	179	175	18	19	20	19
							0.170	0.280	0.960	0.015	0.012	0.020	0.010	0.030	0.001	0.002	0.010	—	—	—	—	—	—	—	—
2																									
3																									
4																									
5																									
6																									

bend test		Pass		flattening test	— —	Hydrostatic Test	2470psi	No weld repair		Pass		Coating		Pass	
U.T	Pass	M.T	Pass	W.T.Measure	Pass		SS	VisualDimension		Pass		Mercury And Lead Free		Pass	

Remark

The inspection and testing procedures are according to EN10204 3.1; NDT according to NACE MR0175.
The material meets NACE MR0175/ISO 15156 and MR 0103
If no inspect department stamp, no mill's inspector's signature, the Certificate is regarded as the non-effective. And if not authorized by the mill's inspector, any amendments are regarded as non-effective.

Address: HNGH TRACH TEXTILE FORESTRY PARK INDUSTRIAL,HNGH TRACH DISTRICT, DONG NAI PROVINCE, VIETNAM

Inspection Director: Lister

TEL 0084613566038 FAX 0084613566039

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EN 10204-3.1 QUALITY CERTIFICATE № 1452/09

Seller (Exporter)

Joint-Stock Company "Pervouralsk New Pipe Plant"

Made in Russia

Buyer (Address, country)

Contract№ 27031301KLSA on 17.08.2015

Order-Nariad № 1,S-1

Export Licence

Freight car №

Order № 2204447/15

Description of goods	Standard	Type of pack	Quantity
Seamless Carbon Steel Pipe Cold-Deformed for High-Temperature Service	ASTM A106(14)NDE/ASME SA106(08)/ASTM A53(12)/ASME SA53(01)/ASME B36.10M(2004)	in bundles	11

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter (inches)	Wall (inches)	Length feet			Gross	Net
1	3f2859	з500	Gr.B/Gr.C	1.050	0.154	20-21	1102	175		2.48
2	5f5869	з297	"	1.315	0.179	"	573	90		1.80
3	"	з271	"	1.315	0.179	"	599	94		1.90
						Total:				

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications. Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
1	0.30	0.77	0.26	0.008	0.013	0.16	0.12	0.22	0.005	0.013
2,3	0.25	0.76	0.25	0.014	0.008	0.10	0.16	0.19	0.01	0.02

Mechanical Properties

Item №	Tensile strength Psi	Yield strength Psi	Elongation (%)	Hardness HRB units
1	91000	51000	27	87
				87
2	80000	59000	27	81
				80
3	78000	57000	29	82
				82

NOTE: Pipes without beveled. Pipes are with outside covered black varnish coating. Tubes have been tested by non-destructive method with satisfactory result. The present requirements are correspond to NACE MR 0175. Pipes are produced ungalvanized, threadless. Number of contractor's order PO №10F15312HDP. Each pipe is subjected to hydraulic [illegible] pipe is held under pressure during 5 seconds: [illegible] at 2500 psi with satisfactory result.

Bend test is satisfactory.

Цех технического контроля

Marking: is made [illegible] order

Signatures: **Date: 2/10/2015**

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PER430 / 5F5870 / 1.0A106XHF / 1 XH A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1452/09

Seller (Exporter)

Joint-Stock Company "Pervouralsk New Pipe Plant"

Made in Russia

Buyer (Address, country)

Contract№ 27031301KLSA on 17.08.2015

Order-Narlad № 1,S-1

Export Licence

Freight car №

Order № 2284447/15

Description of goods	Standard	Type of pack	Quantity
Seamless Carbon Steel Pipe Cold-Deformed for High-Temperature Service	ASTM A106(14)NDE/ASME SA106(08)/ASTM A53(12)/ASME SA53(01)/ASME B36.10M(2004)	in bundles	

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter (inches)	Wall (inches)	Length feet			Gross	Net
4	5f5870	э972	Gr.B/Gr.C	1.315	0.179	20-21	718	114		2.27
5	5f5869	э273	"	1.315	0.179	"	573	90		1.80
6	5f2310	э299	"	1.900	0.200	"	338	53		1.76
						Total:				

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications. Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
4	0.24	0.83	0.28	0.010	0.008	0.10	0.14	0.19	0.01	0.02
5	0.25	0.76	0.25	0.014	0.008	0.10	0.16	0.19	0.01	0.02
6	0.23	0.79	0.22	0.011	0.007	0.07	0.10	0.17	0.01	0.02

Mechanical Properties

Item №	Tensile strength Psi	Yield strength Psi	Elongation (%)	Hardness HRB units
4	81000	54000	26	74
				76
5	80000	59000	27	81
				80
6	73000	47000	34	78
				80

NOTE: Pipes without beveled. Pipes are with outside covered black varnish coating. Tubes have been tested by non-destructive method with satisfactory result. The present requirements are correspond to NACE MR 0175. Pipes are produced ungalvanized, threadless. Number of contractor's order PO №10F15312HDP. Each pipe is subjected to hydraulic [illegible] pipe is held under pressure during 5 seconds. Test pressure 2500 psi with satisfactory result.

Bend test is satisfactory.

Marking: is made as per requirements of the order

Signatures: Date: 2/10/2015

Цех технического контроля

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PER430 / 5F5870 / 1.0A106XHF / 1 XH A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1452/09

Seller (Exporter)

Joint-Stock Company "Pervouralsk New Pipe Plant"

Made in Russia

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Contract№ 27031301KLSA on 17.08.2015

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Freight car №

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Description of goods	Standard	Type of pack	Quantity
Seamless Carbon Steel Pipe Cold-Deformed for High-Temperature Service	ASTM A106(14)NDE/ASME SA106(08)/ASTM A53(12)/ASME SA53(01)/ASME B36.10M(2004)	in bundles	

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter (inches)	Wall (inches)	Length feet			Gross	Net
7	5f2310	э290	Gr.B/Gr.C	1.900	0.200	20-21	332	52		1.73
8	"	э269	"	1.900	0.200	"	267	42		1.39
9	5f4408	э276	"	1.900	0.200	"	298	47		1.56
						Total:				

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications.
Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
7,8	0.23	0.79	0.22	0.011	0.007	0.07	0.10	0.17	0.01	0.02
9	0.25	0.75	0.30	0.008	0.009	0.11	0.14	0.23	0.01	0.01

Mechanical Properties

Item №	Tensile strength Psi	Yield strength Psi	Elongation (%)	Hardness HRB units
7	73000	47000	34	78
				80
8	73000	43000	33	73
				76
9	73000	50000	30	78
				78

NOTE: Pipes without beveled. Pipes are with outside covered black varnish coating. Tubes have been tested by non-destructive method with satisfactory result. The present requirements are correspond to NACE MR 0175. Pipes are produced ungalvanized, threadless. Number of contractor's order PO №10F15312HDP. Each pipe is subjected to hydraulic [illegible] pressure, pipe is held under pressure during 5 seconds, [illegible] test 2500 psi with satisfactory result.

Bend test is satisfactory

Marking: is made [illegible] requirements of the order

Signatures:

Date: 2/10/2015

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PER430 / 5F5870 / 1.0A106XHF / 1 XH A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1452/09

Seller (Exporter)

Joint-Stock Company "Pervouralsk New Pipe Plant"

Made in Russia

Buyer (Address, country)

Contract№ 27031301KLSA on 17.08.2015

Order-Nariad № 1,S-1

Export Licence

Freight car №

Order № 2204447/15

Description of goods	Standard	Type of pack	Quantity
Seamless Carbon Steel Pipe Cold-Deformed for High-Temperature Service	ASTM A106(14)NDE/ASME SA106(08)/ASTM A53(12)/ASME SA53(01)/ASME B36.10M(2004)	in bundles	

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter (inches)	Wall (inches)	Length feet			Gross	Net
10	5f4408	э300	Gr.B/Gr.C	1.900	0.200	20-21	357	56		1.86
11	"	э275	"	1.900	0.200	"	337	53		1.78
						Total:	5494	866	20.385	20.33

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications.
Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
10,11	0.25	0.75	0.30	0.008	0.009	0.11	0.14	0.23	0.01	0.01

Mechanical Properties

Item №	Tensile strength Psi	Yield strength Psi	Elongation (%)	Hardness HRB units
10	80000	48000	29	81
				83
11	72000	54000	30	78
				76

NOTE: Pipes without beveled. Pipes are with outside covered black varnish coating. Tubes have been tested by non-destructive method with satisfactory result. The present requirements are correspond to NACE MR 0175. Pipes are produced ungalvanized, threadless. Number of contractor's order PO №10F15312HDP. Each pipe is subjected to hydraulic test pressure, pipe is held under pressure during 5 seconds. Applied pressure test 2500 psi with satisfactory result.

Bend test is satisfactory

Marking: is made as per requirements of the order

Signatures: **Date: 2/10/2015**

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PMW578 / 1L9U / 1.0X4.0160A333 / 1 X 4" S160 SMLS NIPPLE A333

TEXAS PMW, INC.
315 NORTH WAYSIDE DRIVE HOUSTON, TX 77020
(713) 678-7800 – FAX (713) 678-7020

PENNSYLVANIA MACHINE WORKS, INC.
201 BETHEL AVENUE ASTON, PA 19014
(610) 497-3300 – FAX (610) 497-3325

US DROP FORGE CO.
P.O BOX 131 – ROUTE 551
1305 AUBURN ROAD WOODWICH TOWNSHIP, NJ 08085
(856) 467-0600 – FAX (856) 467-4686

CERTIFIED MATERIAL TEST REPORT

LEE SUPPLY CO.
P.O. BOX 1475
TULSA, OK 74101

P.O. 175477DL
ORDER # 03 318255
9/27/17

447-802441

1X4 S160 TBE SNPL A333-6 QTY: 4

CUST PART# 5035713 1 WEEK TAG #722373 DL RACK RW0622
HEAT CODE: **1L9U** MATERIAL: **GR6**
ASTM SPEC: A333 SPEC. YEAR: 16 SPEC. REV:
HEAT TREATMENT: NORMALIZED
UNS NUMBER: K03011

CHEMICAL ANALYSIS

C	MN	P	S	SI	NI	CR	MO	CU	TI	V
.120	1.080	.011	.002	.230	.121	.095	.017	.277	.020	<.001

CB	SN	B
<.001	<.010	<.001

PHYSICAL ANALYSIS

YS (PSI)	TS (PSI)	%EL 4D % 4D	HARDNESS (HB)	HARDNES2 (HB)	CHARP1 FT/LB	CHARP2 FT/LB	CHARP3 FT/LB	CHARP AV FT/LB
50000	71000	36.000	147	147	157.000	156.000	153.000	155.330

TEST@TMP (F)	EDDY	C.E=
-50	OK	.35

NORMALIZED @ 1652F For .13 HOUR, FURNACE

Country of Origin: Spain. Country of Origin is Country of Melt.

ASTM A333-13
ASME SECTION II SA333 GR.6 2017 EDITION
MATERIAL HAS PASSED A SATISFACTORY HYDROSTATIC TEST PER THIS SPECIFICATION
FLATTENING TEST = SATISFACTORY
CERTIFICATE I/A/W EN 10204:2004 TYPE 3.1 AND ISO10474:2013 TYPE 3.1
ANSI/NACE MR0103/ISO17945:2015 SECTION 5.2
ANSI/NACE MR0-175/ISO15156-2:2015 SECTIONS A.2.1.2 AND A.2.1.3
DURING MANUFACTURE AND PROCESSING, THIS PRODUCT DID NOT COME IN DIRECT CONTACT WITH POLYCLORINATED BIPHENYLS (PCB'S), MERCURY OR ANY OF ITS COMPOUNDS NOR WITH ANY MERCURY CONTAINING DEVICE THAT EMPLOYED A SINGLE BOUNDARY OF CONTAINMENT.
NO WELD REPAIRED MATERIAL - MADE IN THE U.S.A.
AS OF THE ORIGINAL MTR PRINT DATE, ARTICLES AS SUPPLIED BY PENN MACHINE HAVE NO INTENDED SUBSTANCE RELEASE, NOR CONTAIN ANY SIGNIFICANT AMOUNT (DO NOT EXCEED 0.1 WT%) OF CHEMICAL COMPOUNDS ON THE EU CANDIDATE LIST OF SVHC (ARTICLE 59(10)) PER ECHA GUIDELINE RIP 3.8, AND THUS THERE IS NO OBLIGATON TO REGISTER THEM UNDER REACH.

WE HEREBY CERTIFY THAT THE REPORTED FIGURES ARE CORRECT AS CONTAINED IN THE RECORDS OF THE CORPORATION.

James B Friant
(ES-ELECTRONIC SIGNATURE)
JAMES B. FRIANT
QUALITY MANAGER

MANUFACTURERS OF Penn FORGED PIPE FITTINGS
QUALITY • SERVICE • PARTNERSHIP
www.pennusa.com

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A Honeywell Company

UOP RUSSELL LLC

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802442** **Date :** SEP/19/2017 **Page :** 1 of 8
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.

We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.

See our Commitment Statement at http://www.honeywell.com/sites/sm.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		**Goods Recipient**			
10	14	Each	5041032	1/2" BALL VALVE, THRD APOLLO 76-103-01)	
SKID 1		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 07330 1/2" BALL VALVE, THRD. 2000 LB (APOLLO MODEL 76-103-01)				
20	1	Each	5041033	3/4" BALL VALVE, THRD APOLLO 76-104-01)	
SKID 1		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 07340 3/4" BALL VALVE, THRD. 2000 LB (APOLLO MODEL 76-104-01)				
30	2	Each	5034512	ELL 45, 1.5, 3000LB, SW A105	
SKID 1		WAREHOUSE			

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Clint Pollard

Tax ID 3101720754

Buyer Phone 539-664-4853

Purchasing Return Fax 918-481-7427

Email Id clint.pollard@honeywell.com

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A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802442** **Date :** SEP/19/2017 **Page :** 2 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
	Your material number 1.5345SWD Rel. ord. against contract 4600005884Item 04520 1 1/2" ELL, 45 SW, 3000LB FS, A-105				
40	12	Each	5034501	ELL 90, 0.75, 3000LB, SW A105	
SKID 1		WAREHOUSE			
	Your material number .75390SWF Rel. ord. against contract 4600005884Item 04480 3/4" ELL, 90 SW, 3000LB FS, A-105				
50	12	Each	5034502	ELL 90, 1, 3000LB, SW A105	
SKID 1		WAREHOUSE			
	Your material number 1.0390SWF Rel. ord. against contract 4600005884Item 04490 1" ELL, 90 SW, 3000LB FS, A-105				
60	2	Each	5034372	ELL 90, 0.5, 3000LB, TH A105	
SKID 1		WAREHOUSE			
	Your material number .50T390F Rel. ord. against contract 4600005884Item 04410 1/2" ELL, 90 THRD, 3000LB FS, A-105				
70	5	Each	5025189	FLG RFSW, 1, 600LB, S/160 A105	
SKID 1		WAREHOUSE			
	Your material number 1.0RFSW#60160F Rel. ord. against contract 4600005884Item 00700 1" FLG, RFSW 600LB S/160, A-105				
80	38	Each	5035337	NIP, 0.5, TBE X 3" A106B	
SKID 1		WAREHOUSE			
	Your material number .50X3.0160SML Rel. ord. against contract 4600005884Item 05080 1/2" NIPPLE, S/160 SMLS, A-106-B TBE X 3"				
90	1	Each	5035354	NIP, 0.5, TBE X 4" A106B	
SKID 1		WAREHOUSE			
	Your material number .50X4.0160SML				

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A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802442** **Date :** SEP/19/2017 **Page :** 3 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
	Rel. ord. against contract 4600005884Item 05140 1/2" NIPPLE, S/160 SMLS, A-106-B TBE X 4"				
100	1	Each	5035371	NIP, 0.5, TBE X 6" A106B	
SKID 1		WAREHOUSE			
	Your material number .50X6.0160SML Rel. ord. against contract 4600005884Item 05190 1/2" NIPPLE, S/160 SMLS, A-106-B TBE X 6"				
110	7	Each	5035338	NIP, 0.75, TBE X 3" A106B	
SKID 1		WAREHOUSE			
	Your material number .75X3.0160SML Rel. ord. against contract 4600005884Item 05090 3/4" NIPPLE, S/160 SMLS, A-106-B TBE X 3"				
120	5	Each	5035610	NIP, 0.75, TOE X 3" A106B	
SKID 1		WAREHOUSE			
	Your material number TOENIPPLES Rel. ord. against contract 4600005884Item 05450 3/4" NIPPLE, S/160 SMLS, A-106-B TOE X 3"				
130	2	Each	5035627	NIP, 0.75, TOE X 4" A106B	
SKID 1		WAREHOUSE			
	Your material number TOENIPPLES Rel. ord. against contract 4600005884Item 05520 3/4" NIPPLE, S/160 SMLS, A-106-B TOE X 4"				
140	3	Each	5035644	NIP, 0.75, TOE X 6" A106B	
SKID 1		WAREHOUSE			
	Your material number TOENIPPLES Rel. ord. against contract 4600005884Item 05580 3/4" NIPPLE, S/160 SMLS, A-106-B TOE X 6"				
150	1	Each	5035332	NIP, 0.75, XH, TBE X 3" A106B	
SKID 1		WAREHOUSE			
	Your material number .75X3.0XHSML Rel. ord. against contract 4600005884Item 05060				

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A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802442** **Date :** SEP/19/2017 **Page :** 4 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
	3/4" NIPPLE, XH SMLS, A-106-B TBE X 3"				
160	1	Each	5035604	NIP, 0.75, XH, TOE X 3" A106B	
SKID 1		WAREHOUSE			
	Your material number TOENIPPLES				
	Rel. ord. against contract 4600005884Item 05410				
	3/4" NIPPLE, XH SMLS, A-106-B TOE X 3"				
170	1	Each	5035492	NIP, 1, PBE X 4" A106B	
SKID 1		WAREHOUSE			
	Your material number 1.0A106S160F				
	Rel. ord. against contract 4600005884Item 05320				
	1" NIPPLE, S/160 SMLS, A-106-B PBE X 4"				
180	7	Each	5035339	NIP, 1, TBE X 3" A106B	
SKID 1		WAREHOUSE			
	Your material number 1.0X3.0160SML				
	Rel. ord. against contract 4600005884Item 05100				
	1" NIPPLE, S/160 SMLS, A-106-B TBE X 3"				
190	28	Each	5035611	NIP, 1, TOE X 3" A106B	
SKID 1		WAREHOUSE			
	Your material number TOENIPPLES				
	Rel. ord. against contract 4600005884Item 05460				
	1" NIPPLE, S/160 SMLS, A-106-B TOE X 3"				
200	7	Each	5035628	NIP, 1, TOE X 4" A106B	
SKID 1		WAREHOUSE			
	Your material number TOENIPPLES				
	Rel. ord. against contract 4600005884Item 05530				
	1" NIPPLE, S/160 SMLS, A-106-B TOE X 4"				
210	6	Each	5035358	NIP, 1.5, TBE X 4" A106B	
SKID 1		WAREHOUSE			
	Your material number 1.5A106S160F				
	Rel. ord. against contract 4600005884Item 05160				
	1 1/2" NIPPLE, S/160 SMLS, A-106-B TBE X 4"				

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A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802442** **Date :** SEP/19/2017 **Page :** 5 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
220	12	Each	5035630	NIP, 1.5, TOE X 4" A106B	
SKID 1		WAREHOUSE			
	Your material number TOENIPPLES				
	Rel. ord. against contract 4600005884Item 05540				
	1 1/2" NIPPLE, S/160 SMLS, A-106-B TOE X 4"				
230	10	Each	5034637	PLUG RD SOLID, 0.75, 6M, TH A105	
SKID 1		WAREHOUSE			
	Your material number .75RDHDPLUGD				
	Rel. ord. against contract 4600005884Item 04580				
	3/4" PLUG, SOLID STEEL, ROUND HEAD, A-105, THRD				
240	6	Each	5034638	PLUG RD SOLID, 1, 6M, TH A105	
SKID 1		WAREHOUSE			
	Your material number 1.0RDHDPLUGD				
	Rel. ord. against contract 4600005884Item 04590				
	1" PLUG, SOLID STEEL, ROUND HEAD, A-105, THRD				
250	1	Each	5032963	SWGC, 1 1/2X1/2, S/160 LB-ST A234WPB	
SKID 1		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 03590				
	1 1/2"X1/2" SWAGE, CONC, S/160, A-234-WPB LEB-TSE				
260	3	Each	5033052	SWGC, 1X1/2, S/160 TBE A234WPB	
SKID 1		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 03680				
	1"X1/2" SWAGE, CONC, S/160, A-234-WPB TBE				
270	3	Each	5033051	SWGC, 3/4X1/2, S/160 TBE A234WPB	
SKID 1		WAREHOUSE			
	Rel. ord. against contract 4600005884Item 03670				
	3/4"X1/2" SWAGE, CONC, S/160, A-234-WPB TBE				
280	3	Each	5034813	TEE RED, 1X3/4, 3000LB, SW A105	
SKID 1		WAREHOUSE			
	Your material number 1.0X.753TEESWD				

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802442** **Date :** SEP/19/2017 **Page :** 6 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
	Rel. ord. against contract 4600005884Item 04650 1"X3/4" TEE RED, SW, 3000LB FS, A-105				
290	3	Each	5034758	TEE RED, 1X1/2, 3000LB, TH A105	
SKID 1		WAREHOUSE			
	Your material number 1.0X.50T3RTEED Rel. ord. against contract 4600005884Item 04640 1"X1/2" TEE RED, THRD, 3000LB FS, A-105				
300	8	Each	5034900	TEE, 1, 3000LB, SW A105	
SKID 1		WAREHOUSE			
	Your material number 1.03TEESWF Rel. ord. against contract 4600005884Item 04750 1" TEE, SW, 3000LB FS, A-105				
310	1	Each	5034932	TEE, 1.5, 3000LB, SW A105	
SKID 1		WAREHOUSE			
	Your material number 1.5X1.0RTEESW Rel. ord. against contract 4600005884Item 04790 1 1/2" TEE, SW, 3000LB FS, A-105				
320	2	Each	5034872	TEE, 0.5, 3000LB, TH A105	
SKID 1		WAREHOUSE			
	Your material number .50T3TEEF Rel. ord. against contract 4600005884Item 04710 1/2" TEE, TH, 3000LB FS, A-105				
330	3	Each	5035012	UNION, 0.75, 3000LB, SW A105	
SKID 1		WAREHOUSE			
	Your material number .753UNIONSWF Rel. ord. against contract 4600005884Item 04850 3/4" UNION, SW, 3000LB FS, A-105				
340	17	Each	5035028	UNION, 1, 3000LB, SW A105	
SKID 1		WAREHOUSE			
	Your material number 1.03UNIONSWF Rel. ord. against contract 4600005884Item 04870				

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A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802442** **Date :** SEP/19/2017 **Page :** 7 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
	1" UNION, SW, 3000LB FS, A-105				
350	6	Each	5035060	UNION, 1.5, 3000LB, SW A105	
SKID 1		WAREHOUSE			
	Your material number 1.53UNIONSWF				
	Rel. ord. against contract 4600005884Item 04910				
	1 1/2" UNION, SW, 3000LB FS, A-105				
360	3	Linear Ft	5033779	PIPE, 1.5, XH SMLS A106-B	
SKID 1		WAREHOUSE			
Order Price Unit is LF					
	Your material number 1.5A106XHF				
	Rel. ord. against contract 4600005884Item 03820				
	1 1/2" PIPE, XH SMLS, A-106-B				
370	2	Linear Ft	5033760	PIPE, 0.75, S/160 SMLS A106-B	
SKID 1		WAREHOUSE			
Order Price Unit is LF					
	Your material number .75A106S160F				
	Rel. ord. against contract 4600005884Item 03770				
	3/4" PIPE, S/160 SMLS, A-106-B				
380	65	Linear Ft	5033766	PIPE, 1, S/160 SMLS A106-B	
SKID 1		WAREHOUSE			
Order Price Unit is LF					
	Your material number 1.0A106S160F				
	Rel. ord. against contract 4600005884Item 03790				
	1" PIPE, S/160 SMLS, A-106-B				
390	4	Linear Ft	5033778	PIPE, 1.5, S/160 SMLS A106-B	
SKID 1		WAREHOUSE			
Order Price Unit is LF					
	Your material number 1.5A106S160F				
	Rel. ord. against contract 4600005884Item 03810				
	1 1/2" PIPE, S/160 SMLS, A-106-B				

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Denny Lee	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802442** **Date :** SEP/19/2017 **Page :** 8 of 8 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
400	5	Linear Ft	5033793	PIPE, 4, STD SMLS A106-B	
SKID 1		WAREHOUSE			

Order Price Unit is LF

Your material number 4.0A106STDF
Rel. ord. against contract 4600005884Item 03890
4" PIPE, STD SMLS, A-106-B

410	5	Linear Ft	5033761	PIPE, 0.75, XH SMLS A106-B	
SKID 1		WAREHOUSE			

Order Price Unit is LF

Your material number .75A106XHF
Rel. ord. against contract 4600005884Item 03780
3/4" PIPE, XH SMLS, A-106-B

420	10	Linear Ft	5033767	PIPE, 1, XH SMLS A106-B	
SKID 1		WAREHOUSE			

Order Price Unit is LF

Your material number 1.0A106XHF
Rel. ord. against contract 4600005884Item 03800
1" PIPE, XH SMLS, A-106-B

430	15	Linear Ft	5033760	PIPE, 0.75, S/160 SMLS A106-B	
SKID 1		WAREHOUSE			

Order Price Unit is LF

Your material number .75A106S160F
Rel. ord. against contract 4600005884Item 03770
3/4" PIPE, S/160 SMLS, A-106-B

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.
Send acknowledgement and all correspondence to Buyer.
In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

BWL4939 / CA0474 / 1.5345SWF / 1-1/2" 3000# SW 45 A105N

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

An ISO 9001 : 2008 Registered Manufacturer

J-447
802442

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER : SMITH-COOPER INTERNATIONAL, INC.
CERT NO. : 162146
ORDER NO. : 51860
INVOICE NO. : 5200008043
L/C NO. :
PAGE : 1
DATE : 07/29/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
37	353029 CA0474	75 PCS	45D ELBOW A105 1-1/2" 3000# S/W 52F 3014 C: 0.19 Si : 0.20 Mn: 0.84 P: 0.009 S: 0.008 Cu: 0.11 Cr: 0.13 N : 0.07 Mo: 0.02 V: 0.003 Nb: 0.002 Ni 0.0079 Ti : 0.001 CE: 0.37 TS(KSI) : 78.1 YS 0.2%(KSI) : 60.1 EL(%) : 32.5 R.A.(%) : 69.3 HARDNESS 1(HBW) : 143 HARDNESS 2(HBW) : 146

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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

BWD0839 REV: 4

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BWL5051 / CA0534 / 75300SWF / 3/4" 3000# SW 90 A105N

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

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MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 162966
ORDER NO. : 52985

INVOICE NO. : 5200008512
L/C NO. :

PAGE : 1
DATE : 10/11/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
22	0108143 CA0534	507 PCS	90D ELBOW A105 3/4" 3000# S/W 52E 3006 C: 0.19 Si : 0.19 Mn: 0.96 P: 0.015 S: 0.004 Cu: 0.11 Cr: 0.06 N : 0.03 Mo: 0.013 V: 0.003 Nb: 0.000 Ni 0.0076 Ti : 0.0018 CE: 0.37 TS(KSI) : 76.8 YS 0.2%(KSI) : 53.3 EL(%) : 31.4 R.A.(%) : 68.6 HARDNESS 1(HBW) : 141 HARDNESS 2(HBW) : 143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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

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BWL4614 / CA0662 / L0390SWF / 1" 3000# SW 90 A105N

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

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MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 162366
ORDER NO. : 52183

INVOICE NO. : 5200008151
L/C NO. :

PAGE : 1
DATE : 08/22/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
38	16601595 CA0662	1,100 PCS	90D ELBOW A105 1" 3000# S/W 52E 3010 C: 0.21 Si : 0.27 Mn: 0.90 P: 0.016 S: 0.006 Cu: 0.01 Cr: 0.03 N : 0.01 Mo: 0.004 V: 0.002 Nb: 0.003 CE: 0.37 TS(KSI) : 74.3 YS 0.2%(KSI) : 49.9 EL(%) : 35.4 R.A.(%) : 66.8 HARDNESS 1(HBW) : 147 HARDNESS 2(HBW) : 149

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N - 14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

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BWL4520 / CA0681 / 90T300F / 1/2" 3000# THRD 90 A105N

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)7-371-3864, 3713882
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MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 163198
ORDER NO. : 53327

INVOICE NO. : 5200008621
L/C NO. :

PAGE : 1
DATE : 10/31/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
14	16604688 CA0681	1,150 PCS	90D ELBOW A105 1/2" 3000# NPT 42E 3004 C: 0.20 Si : 0.26 Mn: 0.94 P: 0.017 S: 0.010 Cu: 0.01 Cr: 0.04 N : 0.01 Mo: 0.006 V: 0.002 Nb: 0.004 CE: 0.37 TS(KSI) : 75.1 YS 0.2%(KSI) : 49.7 EL(%) : 28.2 R.A.(%) : 65.9 HARDNESS 1(HBW) : 143 HARDNESS 2(HBW) : 146

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH SPECIFICATION(SURFACE & DIMJ.: GOOD
STANDARD : CHEMICAL COMPOSITION(%) & MECHANICAL PROPERTIES.

	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)
MIN	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
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AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

WE CERTIFY THE ABOVE MENTIONED FITTINGS HAVE BEEN MANUFACTURED,
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C. C. Huang
Q.C. MANAGER

C. L. Ko
INSPECTOR

BWD0839 REV: 4

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JAI1193 / 224 / 1.0RFSW#60160F / 1" 600# RFSW S160 A105

JAI AUTO PVT. LIMITED

B-44/52, Site IV industrial Area, Sahibabad , Ghaziabad, (U.P)
Tel: +91-120-4380042, 4111732, Fax No. +91-120-4111731, E-Mail:info@jaiauto.in

Works Test Certificate

DATE: 14-10-2014

INVOICE NO.: J1415-053

JAPL/LAB NO: 14-15/1560			
Purchase Order No	7001569HOU	Customer	
Component	1" -600 # SWRF SCH-160 FLG.		
Drawing No.		Quantity	150Nos.
Machining STD	ANSI B16.5- 2013 ASME B16.5- 2013		

Forging specification	ASME SA 105 ASTM A105- 05
Steel Supplier	BHUSHAN STEEL
Mill Heat No.	14G-255

JAPL. HEAT NO: 224

TEST RESULTS

CHEMICAL COMPOSTION

Element %	Specified Composition	Actual	
		JAPL LAB	MILL T.C.
Carbon	0.35max	0.20	0.18
Manganese	0.60-1.05	0.88	0.88
Silicon	0.10-0.35	0.22	0.27
Sulphur	0.040max	0.012	0.019
Phosphorous	0.035max	0.030	0.023
Chromium	0.30max	0.17	0.064
Nickel	0.40max	0.043	0.007
Copper	0.40max	0.026	0.022
Molybdenum	0.12max	0.012	0.008
Vanadium	0.08max	0.0004	0.003
Carbon Equivalent (CE)	0.47max	0.390	0.344

MECHANICAL PROPERTIES

PROPERTIES	SPECIFIED	OBTAINED
Yield Strength (mpa)	250.00min.	333.96
Tensile Strength (mpa)	485.00min.	545.73
%Elongation in 50mm / 4D	22.00min.	29.60
Hardness HBW	187max.	153-156
% Reduction of Area	30.00min.	63.04

Remarks:- We hereby certify that the product satisfies the requirement of ASTM A 105 and material described here in has been tested in accordance with the applicable specifications referred above and meets the requirements as per EN10204/3.1B & NACE MRO-175 & ISO 15156. Product does not come in contact with mercury and lead during the manufacturing process. No weld repair was performed and all products are free of weld repair

Specified carbon as per Purchase Order 0.25%max.

Serrated face as per MSS-SP-6 With in limits of 125-250AARH

CARBON EQUIVALENT (CE)

$$CE = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

H.T. Normalized at temp. 920c.

MARKING AS PER MSS-SP-25-2013

1"- 600 SCH-160 SA105N 224 B16.5 JAPL INDIA

Checked by: Rahul
Metallurgist

Certified by: Sushil
Quality Control Manager

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JAI1200 / 394 / 1.0RFSW#60160F / 1" 600# RFSW S160 A105

JAI AUTO PVT. LIMITED

B-44/52, Site IV industrial Area, Sahibabad , Ghaziabad, (U.P)
Tel: +91-120-4380042, 4111732, Fax No. +91-120-4111731, E-Mail:info@jaiauto.in

Works Test Certificate

JAPL/LAB NO: 15-16/ INVOICE NO.: JLDH-090 DATE: 11-12-2015

Purchase Order No P1011711 Customer Forging specification ASME SA 105 ASTM A105-05

Component 1 " -600 # SWRF SCH-160 FLG. Steel Supplier R.I.N.L.

Drawing No.

Machining STD ANSI B16.5- 2013 ASME B16.5- 2013 Quantity 15Nos.

Mill Heat No. 15E-0680

JAPL. HEAT NO: 394

TEST RESULTS

CHEMICAL COMPOSTION

Element %	Specified Composition	Actual JAPL LAB	Actual MILL T.C.
Carbon	0.35max	0.21	0.19
Manganese	0.60-1.05	0.70	0.68
Silicon	0.10-0.35	0.18	0.21
Sulphur	0.040max	0.015	0.006
Phosphorous	0.035max	0.017	0.016
Chromium	0.30max	0.006	
Nickel	0.40max	0.003	—
Copper	0.40max	0.003	—
Molybdenum	0.12max	0.0001	—
Vanadium	0.08max	0.0001	—
Carbon Equivalent (CE)	0.47max	0.328	0.303

MECHANICAL PROPERTIES

PROPERTIES	SPECIFIED	OBTAINED
Yield Strength (mpa)	250.00min.	318.68
Tensile Strength (mpa)	485.00min.	502.86
%Elongation in 50mm / 4D	22.00min.	31.40
Hardness HBW	187max.	149-153
% Reduction of Area	30.00min.	55.19

Remarks:- We hereby certify that the product satisfies the requirement of ASTM A 105 and material described here in has been tested in accordance with the applicable specifications referred above and meets the requirements as per EN10204/3.1B & NACE MRO-175 & ISO 15156. Product does not come in contact with mercury and lead during the manufacturing process. No weld repair was performed and all products are free of weld repair

Specified carbon as per Purchase Order 0.25%max.

Serrated face as per MSS-SP-6 With in limits of 125-250AARH

H.T:-Normalized at temp. 920c.

CARBON EQUIVALENT (CE)

$$CE = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

MARKING AS PER MSS-SP-25-2013

1 "- 600 SCH-160 SA105N 394 B16.5 JAPL INDIA

Checked by:

Metallurgist

Certified by:

Quality Control Manager

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YKC27 / 7312 / 1.0RFSW#60160F / 1" 600# RFSW S160 A105

MILL INSPECTION CERTIFICATE

(EN 10204 3.1)

Certificate No. : YKF-170513
Customer
Material : ASME / ASTM SA/A105
Criterial : ASME / ANSI B 16.5

Order No : 476/005007
P.O. No. : 17-350-DS
Issued date : MAY. 11, 2017
Item : HOT FORGED FLANGE

YOUNG KWANG KG
#229, GAMJEONCHEON-RO, SASANG-GU,
BUSAN, KOREA

TEL:051-326-0011,
FAX:051-326-0122

No	Description or Dimension	Q'ty	Mechanical Properties	Tension Test				Hardness Test	Charpy Impact Test	Bend Test
			Specification / Heat No.	Y.S Mpa	T.S Mpa	E.L %	R.A %	HB	Test temp. Unit	Radius :
				MIN 250	MIN 485	MIN 22	MIN 30	MAX 187	Avg. Min.	Angle :
1	600# SWRF S160 1"	150	7312	285	490	26.0	62.4	142	N/A	N/A
2	150# SWRF XS 1 1/2"	400	7312	285	490	26.0	62.4	142	N/A	N/A
3	600# SWRF S160 1 1/2"	175	7312	285	490	26.0	62.4	142	N/A	N/A
4	150# WNRF STD 12"	5	7303	288	485	24.0	61.8	153	N/A	N/A
5	300# WNRF STD 12"	5	7303	288	485	24.0	61.8	153	N/A	N/A

Heat Treatment																
Normalizing ℃ h							Quenching ℃ h					Solution ℃ h				
Annealing ℃ h							Tempering ℃ h					Treatment				
Chemical Composition		C	Si	Mn	P	S	Cr	Mo	Ni	Cu	V	Nb				
Std. Requirement		MAX 0.35	0.10 ~0.35	0.60 ~1.05	MAX 0.035	MAX 0.040	MAX 0.30	MAX 0.12	MAX 0.40	MAX 0.40	MAX 0.08	MAX 0.02				
Heat No.	7312	0.17	0.20	0.75	0.020	0.022	0.02	0.01	0.03	0.11	0.00	0.00			UT	N/A
	7312	0.17	0.20	0.75	0.020	0.022	0.02	0.01	0.03	0.11	0.00	0.00			MT	N/A
	7312	0.17	0.20	0.75	0.020	0.022	0.02	0.01	0.03	0.11	0.00	0.00			PT	N/A
	7303	0.20	0.19	0.78	0.110	0.016	0.06	0.02	0.04	0.09	0.00	0.00			Dimension and Visual	GOOD
	7303	0.20	0.19	0.78	0.110	0.016	0.06	0.02	0.04	0.09	0.00	0.00				

Remark

■ ASME B16
□ B2220

We hereby certify that the materials herein has been tested and inspected in accordance with the above specification, and the results been satisfied with its requirements.

YOUNG KWANG KG
H. T. Park
MANAGER
QUALITY ASSURANCE DEPT.

Manager of Quality Control Dept.

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PO BOX 1475
TULSA, OK 74101

P.O. 17-4826-DS
Tag

Heat No E66276
Heat Code 76FN
Phoenix Order # 1309361

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15130506	1/2 X 3" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1640	0.7910	0.0130	0.0020	0.2490	0.0140	0.0210	0.0600

C Eq. Long
0.3118

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0070	0.0010		0.0290	0.0002					

Additional Chemical Properties

Cr + Cu + Ni
0.0950

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
63,490	45,527	34.9%	0.0%	112	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2500 psi.

* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

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Heat Code: 74U7
Heat Number: 5F4412
Item: 15130508: 1/2 X 4" SCH 160 SMLS NIPL

Material: ASTM A106-2014 / ASME SA106-2015 Edition

Chemistry Properties

C	Mn	P	S	Si	Cu	Cr
0.2500	0.7500	0.0090	0.0080	0.2500	0.2300	0.1000
Ni	**Mo**	**V**	**Co**	**Al**	**Cb**	**N**
0.1400	0.0200	0.0100		0.0000	0.0000	
Pb	**Sn**	**Ta**	**Ti**	**C Eq. Long**		
				0.4257		

Additional Chemical Properties

Mechanical Properties

Tensile(PSI)	Yield(PSI)	Elong. % in 2 in. or 4D	Reduction	HBW	HBW 2
78000	49000	43%			

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Avg.	Test Temp.

Bend Test Passed Eddy Current Passed

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.

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P.O. 17-1493-DS
Tag

Heat No 5F4412
Heat Code 74U7
Phoenix Order # 1270380

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15130512	1/2 X 6" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2500	0.7500	0.0090	0.0080	0.2500	0.2300	0.1400	0.1000

C Eq. Long
0.4257

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0200	0.0100		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.4700

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
78,000	49,000	43.0%	0.0%	0	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.

* Bend test passed.

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 independentinspectors 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

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P.O. 17-2914-DS
Tag

Heat No 2505915
Heat Code 74WQ
Phoenix Order # 1286889

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15130706	3/4 X 3" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1700	0.7100	0.0100	0.0050	0.2000	0.0040	0.0050	0.0120

C Eq. Long
0.2920

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0023	0.0011		0.0340	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.0210

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
76,557	57,817	40.3%	0.0%	143	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.

* Bend test passed.

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 independentinspectors 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

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Tag

Heat No Z32472
Heat Code 73FF
Phoenix Order # 1305370

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number	Description
15130712	3/4 X 6" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2600	0.7800	0.0060	0.0200	0.2300	0.0700	0.0500	0.0700

C Eq. Long
0.4280

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0460	0.0340		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.1900

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
77,000	47,000	28.0%	0.0%	0	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.
* Bend test passed.

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.

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Certified: 03/24/2017
P.O. 17-1857-DS
Tag

Heat No 2505915
Heat Code 74WQ
Phoenix Order # 1273750

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15130716	3/4 X 8" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1700	0.7100	0.0100	0.0050	0.2000	0.0040	0.0050	0.0120

C Eq. Long
0.2920

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0023	0.0011		0.0340	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.0210

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
76,557	57,817	40.3%	0.0%	143	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.
* Bend test passed.

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 independentinspectors 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

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P.O. 17-0836-DS
Tag

Heat No 1323
Heat Code 74YM
Phoenix Order # 1262233

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15130724	3/4 X 12" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1700	0.7300	0.0210	0.0070	0.2700	0.0210	0.0110	0.0150

C Eq. Long
0.2972

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0010	0.0010		0.0270	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.0470

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
71,529	65,206	42.3%	0.0%	143	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2500 psi.

* Bend test passed.

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 independentinspectors 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

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P.O. 17-0836-DS
Tag

Heat No 2602029
Heat Code 7638
Phoenix Order # 1262233

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15110706	3/4 X 3" XHSML BK STL NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1700	0.7500	0.0160	0.0040	0.1800	0.0070	0.0050	0.0080

C Eq. Long
0.2983

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0031	0.0012		0.0290	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.0200

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
69,093	51,688	46.8%	0.0%	0	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2500 psi.

* Bend test passed.

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 independentinspectors 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

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CAM19339 / 74JA / 75X6.0XHSML / 3/4 X 6" XH SML NPPLE

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TULSA, OK 74101

P.O. 17-4826-DS
Tag

Heat No 4F3219
Heat Code 74JA
Phoenix Order # 1309361

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number	Description
15110712	3/4 X 6" XHSML BK STL NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2300	0.7600	0.0080	0.0120	0.2600	0.2300	0.1500	0.1000

C Eq. Long
0.4060

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0100	0.0100		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.4800

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
82,000	54,000	32.0%	0.0%	0	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.
* Bend test passed.

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 independentinspectors 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

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MATERIAL TEST CERTIFICATE
SEAMLESS TUBE

Licensed under API Spec 5L and 5CT
5L - 0319
5CT - 0419

ISO 9001: 2015
QE-395997 QM

Test Certificate EN 10204:2004 TYPE 3.1

ArcelorMittal

Customer:		Customer Order/Contract No:	SUSD 154764
Order No:	4000022794	Material No:	1000039843
Certificate Reference No:	040062044534	Cast/Heat No:	1607861
Product:	FULLY KILLED HOT FINISHED CARBON STEEL SEAMLESS TUBES		Page 1 of 1
Specification:	ISO3183:2012/API 5L:2012 L245/L290/B/X42 PSL1 ASTM A53B.12 A106B/C.15 A530.12 ASME SA53B.15 SA106B/C.15 SA530.15		
Product Marking:	ARCELORMITTAL SA ISO3183/Spec 5L-0319 MONOGRAM 11-16 ASTM/ASME A/SA106B/C A53B 1.315 0.250 20.000 L245/B L290/X42 PSL1 SMLS TESTED 3000 psi CAST NO: 1607861 PROD/O NO: T1142279410 MADE IN SOUTH AFRICA NDE		

General Information

Quantity	Mass	Dimensions			Total Length
		Tube OD	Thickness	Length	
356	20,280.204(lb)	1.315(")	0.250(")	20.000 (ft)	7,120.000(ft)

Steel making process	Final Rolling Operation
Electric Arc	As Rolled: Final hot rolling finished above 1580°F and cooled in still air

Chemical Composition

R22-(V+Nb+Ti) R24-(Nb+V)

Element(%)	C	Si	Mn	S	P	Cr	Ni	Mo	Cu	V	Al	Ti	Sn	Ca	N	B	Nb	CE	R22	R24
Minimum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maximum	0.200	-	1.30	0.030	0.030	0.50	0.50	0.150	0.500	-	-	-	-	-	-	-	-	0.41	0.15	0.060
Heat	0.170	0.25	0.86	0.006	0.012	0.03	0.01	0.004	0.007	0.002	0.026	0.002	0.001	0.0007	0.0068	0.0001	0.0020	0.32	0.01	0.004
Product	0.1700	0.2500	0.8600	0.0060	0.0120	0.0250	0.0120	0.0040	0.0070	0.0020	0.0260	0.0020	0.0010	0.0007	0.0068	0.0001	0.0020	0.3208	0.0060	0.0040
Product (ADD)	0.1700	0.2500	0.8600	0.0060	0.0120	0.0250	0.0120	0.0040	0.0070	0.0020	0.0260	0.0020	0.0010	0.0007	0.0068	0.0001	0.0020	0.3208	0.0060	0.0040

Mechanical Properties

Specification Limits	UTS (Rm) MPa	UTS (Rm) psi	Yield (0.5%) MPa	Yield (0.5%) psi	% EL 2 Inch
Minimum		70000		42000	30.0
Maximum		-		-	-
(1) Actual		72663		63961	47.0
(2) Actual		73824		64686	47.0
(3) Actual					
(4) Actual					

	UTS (Rm) MPa	UTS (Rm) psi	Yield (0.5%) MPa	Yield (0.5%) psi	% EL 2 Inch
(5) Actual					
(6) Actual					
(7) Actual					
Orientation & type of tensile test	Longitudinal, Section				
Width of tensile piece (inch)	Full Section				
Orientation of impact test piece					

OTHER TESTS	
Category	Result
Bending	Passed
Flattening	Passed
Hydrostatic	3000 psi for 5 Sec
NDI: EMI	PASS - ASTM E570 - 12.5% NOTCH
NDI: UT	UT not required
HV 22 lbs	161 167 169

Remarks:

Material in accordance with NACE MR0175:2015/ISO15156-3:2015, MR0103:2015. Dimensions to ASME B36.10M-2015.
The material conform to the hot yield strength requirements as per ASME, Sect II, Pt D, Table Y-1, 2015. All the material conform to the visual and dimensional requirements and is made to a suitable fine grain practice.

Quality Assurance Manager: PJ Venter *Date of Release: 2016.11.15* *Certified by:*

We hereby certify that the material was manufactured, tested and inspected to and fully comply with the requirements of referenced specifications. No changes, amendments or additions may be made to this document. Any changes which are effected shall invalidate this certificate.

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Crowley, LA 70526

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Certified Mill Test Report

Printed: 8/23/2017
Certified: 08/15/2017

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-4503-DS
Tag

Heat No 2539
Heat Code 76EW
Phoenix Order # 1305370

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15131006	1 X 3" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2000	0.7400	0.0160	0.0090	0.2400	0.0080	0.0100	0.0300

C Eq. Long
0.3308

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0005	0.0010		0.0290	0.0003					

Additional Chemical Properties

Cr + Cu + Ni
0.0480

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
67,629	38,998	40.2%	0.0%	119	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2500 psi.

* Bend test passed.

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.

Meets ASME SA 106 Grade B Requirements.

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Customer
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TULSA, OK 74101

P.O. 17-4503-DS
Tag

Heat No 2539
Heat Code 76EW
Phoenix Order # 1305370

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15131012	1 X 6" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2000	0.7400	0.0160	0.0090	0.2400	0.0080	0.0100	0.0300

C Eq. Long
0.3308

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0005	0.0010		0.0290	0.0003					

Additional Chemical Properties

Cr + Cu + Ni
0.0480

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
67,629	38,998	40.2%	0.0%	119	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2500 psi.

* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

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Customer
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PO BOX 1475
TULSA, OK 74101

P.O. 17-4826-DS
Tag

Heat No 1016391521
Heat Code 76DT
Phoenix Order # 1309361

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15131016	1 X 8" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1415	0.7292	0.0159	0.0067	0.2153	0.0227	0.0221	0.0229

C Eq. Long
0.2716

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0036	0.0015		0.0323	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.0677

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
64,666	43,511	50.7%	0.0%	137	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2970 psi.

* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

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Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-2170-DS
Tag

Heat No 45247
Heat Code 73ZX
Phoenix Order # 1276965

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number	Description
15131508	1-1/2 X 4" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2600	0.7900	0.0070	0.0060	0.2600	0.0400	0.0400	0.0200

C Eq. Long
0.4118

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0260	0.0280		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.1000

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
77,000	45,000	31.0%	0.0%	0	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.
* Bend test passed.

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.

Meets ASME SA 106 Grade B Requirements.

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CA 11828 Capitol/Manufacturing 73ZX / 1.5X4.0160SML / Phoenix Capitol LS 1-1/2 X 4" SCH 160 SML S NIPPLE

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Certified: 12/28/2015

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-3053-KB
Tag

Heat No 45247
Heat Code 73ZX
Phoenix Order # 1288605

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number
15131508

Description
1-1/2 X 4" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2600	0.7900	0.0070	0.0060	0.2600	0.0400	0.0400	0.0200

C Eq. Long
0.4118

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0260	0.0280		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.1000

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
77,000	45,000	31.0%	0.0%	0	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.
* Bend test passed.

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.

Meets ASME SA 106 Grade B Requirements.

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Printed: 5/30/2017
Certified: 11/05/2014

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-2914-DS
Tag

Heat No 45247
Heat Code 73ZX
Phoenix Order # 1286889

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number	Description
15131516	1-1/2 X 8" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2600	0.7900	0.0070	0.0060	0.2600	0.0400	0.0400	0.0200

C Eq. Long
0.4118

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0260	0.0280		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.1000

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
77,000	45,000	31.0%	0.0%	0	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.
* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

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Printed: 8/15/2017
Certified: 06/03/2016

Customer
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PO BOX 1475
TULSA, OK 74101

P.O. 17-4503-DS
Tag

Heat No 99323
Heat Code 74GI
Phoenix Order # 1305370

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number	Description
15131516	1-1/2 X 8" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2600	0.8000	0.0060	0.0020	0.2500	0.0400	0.0300	0.1300

C Eq. Long
0.4380

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0290	0.0410		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.2000

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
79,000	50,000	27.0%	0.0%	159	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.

* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

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BWL5171 / 4107 / 75RDHDPLUGF / 3/4" ROUND HEAD PLUG A105N

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, 3713886
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

ISO 9001:2008 Management System
TÜVRheinland CERTIFIED
An ISO 9001:2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO: 141241
ORDER NO: 38145

INVOICE NO: 5200000713
L/C NO:

PAGE : 1
DATE : 05/03/2014
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT CODE	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES. SUPPLIER.
51	335403 4107	4,189 PCS	ROUND PLUG A105 3/4" 3000#/6000# NPT C:0.19 SI:0.20 MN:0.83 P:0.019 S:0.009 CU:0.19 CR:0.10 NI:0.06 MO:0.02 V:0.002 NB:0.002 N:- CE:0.369 TS(KSI):74.7 YS 0.2%(KSI):52.4 EL(%):36.6 R.A.(%):65.5 HARDNESS1(HBW):143 HARDNESS2(HBW):144

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-12, ASME SA105N-2013ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS 1.0%(KSI)	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-09 / MR0103-12
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWD0839 REV: 3

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BOTH-WELL STEEL FITTINGS CO., LTD.

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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 :
CERT NO. : 161179
ORDER NO. :

INVOICE NO. :
L/C NO. :

DATE : 05/05/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
26	0107932 CA0486	480 PCS	ROUND PLUG A105 1" 3000#/6000# NPT 42RP3010 C: 0.19 Si : 0.21 Mn: 0.97 P: 0.018 S: 0.005 Cu: 0.11 Cr: 0.09 N : 0.05 Mo: 0.015 V: 0.004 Nb: 0.001 Ni 0.0104 Ti : 0.0025 CE: 0.38 TS(KSI) : 76.9 YS 0.2%(KSI) : 53.2 EL(%) : 35.2 R.A.(%) : 65.4 HARDNESS 1(HBW) : 143 HARDNESS 2(HBW) : 145

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-12
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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

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WB38024 / W18861ZZ / 1.5X 50C160BT / 1-1/2 X 1/2" S160 BXT CONC

WESTBROOK MATERIAL TEST REPORT

111 LOCKWOOD DR.
HOUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

Sold To: LEE SUPPLY **Purchase Order:** 16-5956-DS **Printed:** 12/20/2016
Order No.: 686205 **Order Date:** 12/20/2016

Line: **Description:** 1 1/2 X 1/2 S160 A234WPB SP95 BLK CONC SWG BXT **Line Tag Number:** TAG#706428 DL RACK MW1405B

***** Specifications - Heat Code W18861 ZZ: ******
A105/A105M-09, SA105, A234-07 WPB, SA234 WPB, ASME B16.5, B16.9, B16.11, B16.36, MSS SP-25, SP-44, SP-79, SP-83, SP-95, API-605, A.W.W.A.
STARTING MATERIAL: BAR/BILLET/FORGING
A234-07 WPBN, SA234 WPBN

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.200	0.940	0.014	0.008	0.220	0.120	0.010	0.003
Cu:	**V:**	**C.E.:**					
0.030	0.003	.384					

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
72519	51488	29.50	66.00	HBW 148-150

Comments:
Hardness only to NACE MR-01-75/2009
Normalized 1600F for 10-15 minutes then still air cooled.
Hot rolled. Also meets MR-01-03/2010 and ISO 15156/2009.

I 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.

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WESTBROOK MATERIAL TEST REPORT

111 LOCKWOOD DR.
HOUSTON, TX 77020

Voice 713 675 6438
Fax 713 675 9742

Sold To: LEE SUPPLY
Order No.: 714434 Order Date: 9/18/2017

Purchase Order: 17-5104-DS

Printed: 9/19/2017

Line: Description: 1 X 1/2 S160 A234WPBN SP95 GALV CONC SWG TBE

Line Tag Number: MW1406A

***** Specifications - Heat Code W22410 ZE: ******
A105/A105M-14, SA105, A234-14 WPB, SA234 WPB, ASME B16.5,
B16.9, B16.11, B16.36, B1.20.1, MSS SP-25, SP-44, SP-79,
SP-83, SP-95, API-605, A.W.W.A.
STARTING MATERIAL: BAR/BILLET/FORGING
A234-14 WPBN, SA234 WPBN

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.230	0.840	0.013	0.007	0.190	0.110	0.040	0.020
Cu:	**V:**	**C.E.:**					
0.100	0.009	.407					

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
73969	45687	30.50	56.00	HRB 73

Comments:
Normalized 1679F, 30 minutes, still air cooled.
Cold drawn.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015.

Line: Description: 1 X 1/2 S160 A234WPBN SP95 GALV CONC SWG TBE

Line Tag Number: MW1406A

***** Specifications - Heat Code W22410 ZE: ******
A105/A105M-14, SA105, A234-14 WPB, SA234 WPB, ASME B16.5,
B16.9, B16.11, B16.36, B1.20.1, MSS SP-25, SP-44, SP-79,
SP-83, SP-95, API-605, A.W.W.A.
STARTING MATERIAL: BAR/BILLET/FORGING
A234-14 WPBN, SA234 WPBN

Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.230	0.840	0.013	0.007	0.190	0.110	0.040	0.020
Cu:	**V:**	**C.E.:**					
0.100	0.009	.407					

Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
73969	45687	30.50	56.00	HRB 73

Comments:
Normalized 1679F, 30 minutes, still air cooled.
Cold drawn.
Meets Nace MR-01-75/2015, MR-01-03/2012, and ISO 15156/2015.

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.

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Crowley, LA 70526

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Commanding a Higher Standard℠

Certified Mill Test Report

Printed: 6/14/2017
Certified: 07/28/2015

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-3177-DS
Tag

Heat No 497580
Heat Code 743Y
Phoenix Order # 1290568

Material ASTM A234-2011a WPB / ASME SA234-2010 Edition

Part Number	Description
48200010	3/4 X 1/2 160 WPB CONC SWG TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2200	0.8200	0.0090	0.0330	0.2400	0.1900	0.1200	0.0800

C Eq. Long
0.3979

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0200	0.0030		0.0210	0.0080					

Additional Chemical Properties

Cr + Cu + Ni
0.3900

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
76,900	59,800	28.4%	60.6%	159	165

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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.

Manufactured in the USA.

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BWL5102 / CA0616 / 1.0X-753TEESWE / 1 X 3/4" 3000# SW RED TEE

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)7-371-3864, 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 :
CERT NO. : 163694
ORDER NO. : 54269

INVOICE NO. : 5200008947
L/C NO. :

PAGE : 1
DATE : 12/15/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
43	356715 CA0616	80 PCS	RED TEE A105 1"X3/4" 3000# S/W 52RT3010006 C: 0.18 Si: 0.20 Mn: 0.83 P: 0.011 S: 0.009 Cu: 0.15 Cr: 0.10 N: 0.04 Mo: 0.01 V: 0.004 Nb: 0.002 Ni 0.0079 Ti: 0.001 CE: 0.35 TS(KSI): 74.4 YS 0.2%(KSI): 52.1 EL(%): 34.8 R.A.(%): 68.0 HARDNESS 1(HBW): 141 HARDNESS 2(HBW): 143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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

BWD0839 REV: 4

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Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

Phoenix - Capitol - Camco
CapProducts

Commanding a Higher Standard℠

Certified Mill Test Report

Printed: 7/26/2017
Certified: 06/30/2017

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-4104-DS
Tag

Heat No 177250
Heat Code 722GGG
Phoenix Order # 1300312

Material ASTM A105-2014 / ASME SA105-2015 Edition

Part Number	Description
12201414	1 X 1 X 1/2 3M THD RED TEE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2200	0.9500	0.0120	0.0200	0.2300	0.2000	0.0860	0.1260

C Eq. Long
0.4352

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0280	0.0350		0.0020	0.0020					

Additional Chemical Properties

Cr + Cu + Ni
0.4120

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
88,000	60,500	30.0%	65.0%	181	183

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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.

Meets ASME SA-181-70 2013 Edition. Manufactured in the USA.

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BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY, TAIWAN, R.O.C.(81460)
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MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 163694
ORDER NO. : 54269

INVOICE NO. : 5200008947
L/C NO. :

PAGE : 72
DATE : 12/15/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
45	0107769 CA0453	540 PCS	TEE A105 1" 3000# S/W 52T 3010 C: 0.19 Si : 0.19 Mn: 0.86 P: 0.014 S: 0.005 Cu: 0.12 Cr: 0.05 N : 0.06 Mo: 0.01 V: 0.001 Nb: 0 Ni: 0.0083 Ti : 0.0019 CE: 0.36 TS(KSI) : 74.8 YS 0.2%(KSI) : 53.8 EL(%) : 34.4 R.A.(%) : 64.8 HARDNESS 1(HBW) : 141 HARDNESS 2(HBW) : 143

REMARK :
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N - 14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT : NORMALIZED: 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO : 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

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BWL5070 / CA0441 / 1.52TEESWE / 1-1/2" 3000# SW TEE A105N

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CUSTOMER : PAGE : 1
CERT NO. : 152363 INVOICE NO. : 5200004692 DATE : 08/22/2016
ORDER NO. : 52182 L/C NO. : ORIGIN : TAIWAN

ITEM	RAW HEAT NO. / HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. / CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
38	351935	40 PCS	TEE A105 1-1/2" 3000# S/W 52T 3014
	CA0441		C: 0.19 Si : 0.20 Mn: 0.84 P: 0.010 S: 0.008 Cu: 0.12 Cr: 0.09
			N : 0.05 Mo: 0.01 V: 0.003 Nb: 0 N 0.0105 Ti : 0.001 CE: 0.36
			TS(KSI) : 74.2 YS 0.2%(KSI) : 49.4 EL(%) : 32.2 R.A.(%) : 63.7
			HARDNESS 1(HBW) : 141 HARDNESS 2(HBW) : 143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N - 14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO : 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWD0839 REV: 4

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ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 162149
ORDER NO. : 51861

INVOICE NO. : 5200008027
L/C NO. :

PAGE : 1
DATE : 07/29/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
34	16400243 CA0581	385 PCS	TEE A105 1/2" 3000# NPT 42T 3004 C:0.20 Si:0.24 Mn:1.00 P:0.014 S:0.006 Cu:0.01 Cr:0.03 N:0.01 Mo:0.003 V:0.005 Nb:0.003 CE:0.38 TS(KSI):74.6 YS 0.2%(KSI):50.8 EL(%):33.4 R.A.(%):65.9 HARDNESS 1(HBW):144 HARDNESS 2(HBW):146

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWD0839 REV: 4

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ACCORDING TO EN 10204 : 3.1

CUSTOMER : SMITH-COOPER INTERNATIONAL, INC. PAGE : 1
CERT NO. : 1702001714 INVOICE NO. : 5200009316 DATE : 04/13/2017
ORDER NO. : L/C NO. : ORIGIN : TAIWAN

ITEM	RAW/HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) PHYSICAL PROPERTIES.
	0110654 CA0659	100 PCS	UNION NUT(CCT)-BODY(ROD) A105 3/4" 3000# S/W C:0.19 Si:0.18 Mn:0.99 P:0.014 S:0.005 Cu:0.16 Cr:0.07 N:0.06 Mo:0.014 V:0.001 Nb:0 Ni:0.0069 Ce:0.39 TS(KSI):79.1 YS 0.2%(KSI):55.8 EL(%):32.8 R.A.(%):63.4 HARDNESS1(HBW):144 HARDNESS2(HBW):145

REMARK :
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS MSS SP-83 - 2014
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
FREE FROM RADIATION CONTAMINATION

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

C.C. Huang C.L. Ko

Q.C. MANAGER INSPECTOR

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BWL4516 / CA0659 / 1.03UNIONSWE / 1" 3000# SW UNION A105N

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MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 163539
ORDER NO. : 54010

INVOICE NO. : 5200008863
L/C NO. :

PAGE : 81
DATE : 12/01/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
56	0110654 CA0659	360 PCS	UNION NUT(CCT)-BODY(ROD) A105 1" 3000# S/W 52U 3010 C:0.19 Si:0.18 Mn:0.99 P:0.014 S:0.005 Cu:0.16 Cr:0.07 N:0.06 Mo:0.014 V:0.001 Nb:0 Ni 0.0069 Ti:0.0018 CE:0.39 TS(KSI):79.1 YS 0.2%(KSI):55.8 EL(%):32.8 R.A.(%):63.4 HARDNESS 1(HBW):144 HARDNESS 2(HBW):145

REMARK :
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS MSS SP-83 - 2014
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT : NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWD0839 REV: 4

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MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :

CERT NO. : 162966
ORDER NO. : 52985

INVOICE NO. : 5200008512
L/C NO. :

DATE : 10/11/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
29	0103437 CA0216	210 PCS	UNION NUT(OCT)-BODY(ROD) A105 1-1/2" 3000# S/W 52U 3014 C: 0.18 Si: 0.18 Mn: 0.86 P: 0.011 S: 0.005 Cu: 0.097 Cr: 0.071 N: 0.04 Mo: 0.014 V: 0.002 Nb: 0.000 Ni 0.0076 Ti: 0.0018 CE: 0.35 TS(KSI): 78.1 YS 0.2%(KSI): 55.0 EL(%): 32.0 R.A.(%): 64.5 HARDNESS 1(HBW): 141 HARDNESS 2(HBW): 143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS MSS SP-83 - 2014
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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

BWD0839 REV: 4

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BWL5054 / CA0216 / 1.53UNIONSWE / 1-1/2" 3000# SW UNION A105N

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)7-371-3864, 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 :
CERT NO. : 162966
ORDER NO. : 52985

INVOICE NO. : 5200008512
L/C NO. :

PAGE : 1
DATE : 10/11/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
29	0103437 CA0216	210 PCS	UNION NUT(OCT)-BODY(ROD) A105 1-1/2" 3000# S/W 52U 3014 C: 0.18 Si: 0.18 Mn: 0.86 P: 0.011 S: 0.005 Cu: 0.097 Cr: 0.071 N: 0.04 Mo: 0.014 V: 0.002 Nb: 0.000 Ni: 0.0076 Ti: 0.0018 CE: 0.35 TS(KSI): 78.1 YS 0.2%(KSI): 55.0 EL(%): 32.0 R.A.(%): 64.5 HARDNESS 1(HBW): 141 HARDNESS 2(HBW): 143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS MSS SP-83 - 2014
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
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AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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C.L. Ko
INSPECTOR

BWD0839 REV: 4

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BWL4051 / CA0586 / 1.53UNIONSWE / 1-1/2" 3000# SW UNION A105N

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)7-371-3864, 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 :
CERT NO. : 162146
ORDER NO. :

INVOICE NO. :
L/C NO. :

PAGE : 1
DATE : 07/29/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
48	0108651 CA0586	120 PCS	UNION NUT(CCT)-BODY(ROD) A105 1-1/2" 3000# S/W 52U 3014 C:0.19 Si:0.19 Mn:1.00 P:0.013 S:0.007 Cu:0.09 Cr:0.10 N:0.05 Mo:0.016 V:0.003 Nb:0.001 N 0.0062 TI:0.0021 CE:0.39 TS(KSI):78.3 YS 0.2%(KSI):54.3 EL(%):33.8 R.A.(%):66.7 HARDNESS 1(HBW):143 HARDNESS 2(HBW):146

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS MSS SP-83 - 2014
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
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BWD0839 REV: 4

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NIK373 / 1170399 / 1.5A106XHF / 1-1/2 XH A106B SMLS PIPE

ИНТЕРПАЙП
НИКО ТЬЮБ

ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ
"ИНТЕРПАЙП НИКО ТЬЮБ"
Украина, г. Никополь, пр. Трубников, 56
Тел./факс +38 (05662) 2-10-70

ИНСПЕКЦИОННЫЙ СЕРТИФИКАТ № 0844
INSPECTION CERTIFICATE № 0844
EN 10204-2004/3.1 / ISO 10474-2013

Грузополучатель / BUYER: North American Interpipe, Inc. 1800 West Loop South, Suite 1350, Houston, Texas 77027, USA

Контракт № / Contract #: COC16/1217

Заводской заказ № / Production order #: 005947

Номер заказа клиента / Customer's ref #: PO#10P21811

Страна / Country: USA

Транспортное средство № / Vehicle №: 67175356

Дата / Date: 21.02.2017г.

Лист / Sheet: 1 Листов / Sheets: 1

Наименование и код товара / Description and code of goods	Наименование стандартов / Specifications	Класс поставки / Class of delivery	Тип резьбы / Thread type
Трубы стальные бесшовные горячекатаные для трубопроводов / Seamless steel hot-rolled pipes for pipelines	ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME SA53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012		

№ поз. / Item No	Номер пакета / Bundle #	Номера труб / Pipe #	Марка стали / Grade: краткое обозначение / Brief Designation	Номер плавки / Heat #	Номер партии / Inspection Lot #	Размеры / Dimensions: диаметр / OD	толщина стенки / WT	длина / length	общая длина / Total length	шт / pieces	Фактический вес / Actual weight: брутто / gross	нетто / net
						дюйм / inch	дюйм / inch	фут / ft	фут / ft		фунт / lb	фунт / lb
1.	17-14-01383		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 088	7 066
2.	17-14-01384		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 055	7 033
3.	17-14-01387		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
4.	17-14-01381		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
5.	17-14-01386		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 066	7 044
6.	17-14-01385		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 044	7 022
7.	17-12-04278		B/C	1170399	1272	1.900	0.200	21.0-21.3	1384.0	65	5 027	5 004
8.	17-14-01382		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 088	7 066
9.	17-14-01379		B/C	1170399	1270	1.900	0.200	21.0-21.3	1934.6	91	7 099	7 077
10.	17-14-01380		B/C	1170399	1270	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
11.	17-14-01388		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 066	7 044
12.	17-12-04250		B/C	1170399	1270	1.900	0.200	21.0-21.3	1415.6	67	5 247	5 225
13.	17-12-04284		B/C	1170399	1271	1.900	0.200	21.0-21.3	873.0	41	3 219	3 197
14.	17-12-04244		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
15.	17-12-04251		B/C	1170399	1270	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
16.	17-12-04253		B/C	1170399	1270	1.900	0.200	21.0-21.3	929.6	44	3 450	3 428
17.	17-12-04247		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 088	7 066
18.	17-12-04285		B/C	1170399	1272	1.900	0.200	21.0-21.3	638.8	30	2 359	2 337
19.	17-12-04242		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
20.	17-12-04259		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 077	7 055
21.	17-12-04258		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 088	7 066
22.	17-12-04260		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 044	7 022
23.	17-12-04499		B/C	1170399	1279	1.900	0.200	21.0-21.3	638.8	30	2 359	2 337
24.	17-12-04249		B/C	1170399	1271	1.900	0.200	21.0-21.3	1436.7	68	5 335	5 313
		NPS 1 1/2		Sch 80 XS			TOTAL/ИТОГО		40166.1	1892	147 261	146 732

BUNDLES/ПАКЕТОВ 24

INTERPIPE
NIKO TUBE

LIMITED LIABILITY COMPANY
"INTERPIPE NIKO TUBE"
UKRAINE, Nikopol, 56, Trubnikov ave. Tel./fax +38 (05662) 2-10-70

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NIK373 / 1170399 / 1.5A106XHF / 1-1/2 XH A106B SMLS PIPE

ИНСПЕКЦИОННЫЙ СЕРТИФИКАТ № 0844
INSPECTION CERTIFICATE № 0844

Лист 1 Sheet | Листов 1 Sheets

Химический состав по сертификатным данным на заготовку и результаты контроля химического состава металла труб
Heat analysis acc. to the billet manufacturer certificate & results of chemical analysis of pipes

Номер плавки Heat #	Лаборатория Laboratory	Химический состав в % Chemical composition %												Завод изготовитель заготовки Steel supplier
		C x100	Mn x100	Si x100	S x1000	P x1000	Cr x100	Ni x100	Cu x100	Mo x1000	Ti x1000	V x1000	Nb x1000	
min														
max														
1170399	DneprSteel	21.2	87.5	22.2	5	11	8.3	10.1	15.5	19	2	2	2	"MP"DNEPROSTEEL"LLC
	NIKOTUBE*	20	86	23	5	10	8	10	14	20	3	1	1	ООО"МЗ"Днепросталь"
	NIKOTUBE*	21	86	23	5	10	8	10	14	19	3	1	1	

Анализ плавки согласно сертификата завода-изготовителя/Heat analysis acc.to the manufacturer certificate.*-control analysis of pipes/*-контрольный анализ от труб.

Сталь произведена методом плавления в электродуговой печи с последующей непрерывной разливкой. Сталь полностью раскисленная и мелкозернистая. Сталь раскисленная алюминием. Адрес завода изготовителя заготовки: Украина, 49051, г.Днепропетровск, ул.Винокурова, 4/ Steel has been produced by the EAF with continuous casting process. Steel is fully killed and made to fine grain practice. Aluminium killed steel. The address of steel supplier: Ukraine,49051, Dnipropetrovsk, 4 Vinokurova str.

Результаты испытаний труб - Test results for pipes

Номер партии Lot#	Механические свойства Mechanical Properties																
	Испытание на растяжение Tensile test										Испытание на удар /Impact test						
	Предел прочности Tensile strength	Предел текучести R0,5 Yield strength R0,5	Относительное удлинение Elongation	Отношение σтек Ratio σтек	Ориентация образцов Specimens orientation*	Ширина полосового образца Width of strip specimen	Диаметр цилиндрического образца Diameter of cylindrical specimen	Длина образца Length of specimen	Твердость Hardness Среднее значение Average		Ориентация*Orientation*	Тип надреза, температура Type of notch, temperature	Норматив/Norm	Ср.значение Average	Площадь сдвига, Shear area	Размер образца ** Specimens size **
	PSI	PSI	%			дюйм/ inch	дюйм/ inch	дюйм/ inch	HRB	HRC					%	дюйм/ inch
min	70000	40000	24.0	-					-	-			min			
max	-	-	-	-					100	22						
1270	78500	62000	30.5		L	0.750		1.970	83 84 84 av.84	<22						
1271	77000	56500	32.0		L	0.750		1.970	83 83 82 av.83	<22						
1272	80500	59500	30.5		L	0.750		1.970	85 85 85 av.85	<22						
1273	77000	60500	33.0		L	0.750		1.970	83 83 83 av.83	<22						
1279	82000	57000	30.0		L	0.750		1.970	85 86 86 av.86	<22						

* L - Продольный образец / Longitudinal specimen; T - поперечный образец / transverse specimen
** Результаты испытаний уменьшенных образцов пересчитаны на полноразмерные/Non-fullsize specimens results convert to fullsize (10x10mm)

Прочие виды контроля / Other tests

Вид испытания / Type of test	Параметры / Criteria	Результаты контроля /Test results
Загиб / Bend test	Pipes have been tested on bend. Трубы прошли испытание на загиб"	Удовлетворительно / Satisfactory
Испытание гидравлическим давлением / Hydrostatic test	100% /2500 PSI / 5 sec"	Удовлетворительно / Satisfactory
Визуальный контроль / Visual inspection	По стандарту / As per Standard"	Удовлетворительно / Satisfactory
Контроль геометрических параметров / Dimensional inspection	По стандарту / As per Standard"	Удовлетворительно / Satisfactory

Состояние поставки / Delivery condition

Общие условия / General condition	Трубы изготовлены и испытаны в соответствии с требованиями ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME A53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012 и заказа / Pipes were produced and inspected according to requirements of ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME SA53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012and order's requirements
Покрытие / Coating	Трубы покрыты черным лаком Quakercoat 720 / Pipes are coated with black varnish Quakercoat 720
Фаска (если требуется) / Bevelled ends if required	Трубы обрезаны под прямым углом .Pipes are cut off under a right angle .
Защита концов / Protection of pipe ends	Концы труб оснащены пластиковыми колпачками / The ends of pipes are equipped by plastic caps
Дополнительная информация / Additional information	Ремонт сваркой запрещен. /No weld repair

Страна происхождения: Украина. Country of origin: Ukraine.
Ваши предложения по улучшению продукции просим направлять на эл.адрес / Please send Your proposals for improving the product by e-mail or fax or by phone
Sergey.Filchakov@nstp.interpipe.biz fax +38(0566)639379 phone +38(0566)639649
e-mail: info@ua.interpipe.biz Phone: 17133330333 Fax: 17133330390
Этот инспекционный сертификат относится только к перечисленной в нем продукции. Недопустимо внесение изменений или другое неправомерное использование сертификата.
This inspection certificate is only for the listed products. Modification or unauthorized use of the certificate is strictly prohibited. Violations can be considered as forgery and is subject to prosecution
Инспекционный сертификат сформирован и проверен контролером сертификатором КОНДРАТЕЦ О.П.
Inspection Certificate was drawn up and checked by the Certificate Inspector KONDRATEC O.P.

Дата: 21.02.2017 Date
Подпись инспектора 3-й стороны : Signature of 3-rd Part Inspector:
Подпись ОТК Signatures QCD

REVIEWED BY KLOKOV 22.02.2017

Э1 0.Vydysh

ТОВ "ІНТЕРПАЙП НІКО ТЬЮБ" 1 СЛУЖБА ЯКОСТІ м. Нікополь

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PER400 / 90024 / .75A106S160F / 3/4 S160 A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1243/09

Seller (Exporter)

Made in Russia

Joint-Stock Company "Pervouralsk New Pipe Plant"

Buyer (Address, country)

Contract№ 27-03/13-01/KLF on 27.03.2013

Order-Nariad № 9,S-1

Freight car №

Export Licence

Order № 2205198/14

Description of goods	Standard	Type of pack	Quantity
Seamless Carbon Steel Pipe for High-Temperature Service	ASTM A106(14)NDE/ASME SA106/ASTM A53(12)/ASME SA53/ASME B36.10M	in bundles	13

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter, inches	Wall, inches	Length, feet			Gross	Net
1	90024	э9	Gr.B/Gr.C	1.050	0.219	20-21	597	94		1.83
2	"	э452	"	1.050	0.219	"	454	72		1.38
3	4f5235	э341	"	1.315	0.133	"	654	104		1.62
4	4f5237	э337	"	1.315	0.133	"	516	82		1.26
5	4f5226	э228	"	1.315	0.179	"	573	90		1.81
6	4f5231	э487	"	1.315	0.179	"	447	70		1.41
7	4f5234	э119	"	1.315	0.179	"	556	87		1.77
						Total:				

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications. Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
1,2	0.24	0.73	0.24	0.005	0.005	0.11	0.03	0.05	0.024	0.029
3	0.27	0.77	0.28	0.009	0.007	0.07	0.14	0.22	0.01	0.02
4	0.26	0.75	0.25	0.008	0.008	0.09	0.15	0.22	0.01	0.02
5	0.23	0.77	0.26	0.007	0.007	0.07	0.15	0.22	0.01	0.02
6	0.25	0.80	0.31	0.006	0.005	0.06	0.15	0.18	0.01	0.04
7	0.27	0.80	0.26	0.010	0.007	0.07	0.14	0.21	0.01	0.02

Mechanical Properties

Item №	Tensile strength, psi	Yield strength, psi	Elongation (%)
1	71000	43000	28
2	75000	45000	33
3	80000	55000	24
4	80000	48000	30
5	79000	55000	29
6	84000	56000	30
7	82000	61000	22

NOTE: Pipes have been tested by non-destructive method with satisfactory result. Pipes are produced ungalvanized, threadless. The present requirements are correspond to NACE MR 0175(2009).

Bend test is satisfactory.

Marking: is made as per requirements of the order

Signature

Date: 5/11/2014

Отдел технического контроля №51

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PER400 / 90024 / .75A106S160F / 3/4 S160 A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1243/09

Seller (Exporter)

Joint-Stock Company "Pervouralsk New Pipe Plant"

Made in Russia

Buyer (Address, country)

Contract№ 27-03/13-01/KLF on 27.03.2013

Order-Nariad № 9,S-1

Export Licence

Order № 2205198/14

Freight car №

Description of goods	Standard	Type of pack	Quantity
Seamless Carbon Steel Pipe for High-Temperature Service	ASTM A106(14)NDE/ASME SA106/ASTM A53(12)/ASME SA53/ASME B36.10M	in bundles	

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter, inches	Wall, inches	Length, feet			Gross	Net
8	36716	3462	Gr.B/Gr.C	1.315	0.250	20-21	326	51		1.40
9	"	3458	"	1.315	0.250	"	306	48		1.33
10	"	3456	"	1.315	0.250	"	339	53		1.46
11	"	312	"	1.315	0.250	"	542	85		2.31
12	"	36	"	1.315	0.250	"	313	49		1.34
13	"	3486	"	1.315	0.250	"	339	53		1.46
						Total:	5962	938	20.98	20.38

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications. Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
8-13	0.24	0.76	0.27	0.003	0.005	0.05	0.03	0.05	0.025	0.03

Mechanical Properties

Item №	Tensile strength, psi	Yield strength, psi	Elongation (%)
8	76000	45000	35
9	75000	42000	30
10	74000	48000	31
11	70000	47000	28
12	72000	46000	38
13	74000	48000	31

NOTE: Pipes have been tested by non-destructive method with satisfactory result. Pipes are produced ungalvanized, threadless. The present requirements are correspond to NACE MR 0175(2009).

Test is satisfactory.

Marking is made as per requirements of the order

Date: 5/11/2014

Отдел технического контроля №51

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ArcelorMittal South Africa Limited
Tubular Products
273 Genl. Hertzog Rd,
Peacehaven Vereeniging 1939
P O Box 48 Vereeniging 1930
South Africa

Telephone +27 (0)16 450 4220
Fax +27 (0)16 423 4906

MATERIAL TEST CERTIFICATE
SEAMLESS TUBE

Licensed under API Spec 5L and 5CT
5L - 0319
5CT - 0419
ISO 9001: 2008
DE-39 5997 QM
Test Certificate EN 10204:2004 TYPE 3.1
ArcelorMittal

Customer:		Customer Order/Contract No:	SUS2 155193
Order No:	4000023013	Material No:	1000039843
Certificate Reference No:	040062086435	Cast/Heat No:	1609643
Product:	FULLY KILLED HOT FINISHED CARBON STEEL SEAMLESS TUBES		Page 1 of 1
Specification:	ISO3183:2012/API 5L:2012 L245/L290/B/X42 PSL1 ASTM A53B:12 A106B/C:15 A530:12 ASME SA53B:15 SA106B/C:15 SA530:15		
Product Marking:	ARCELORMITTAL SA ISO3183/Spec 5L-0319 MONOGRAM 01-17 ASTM/ASME A/SA106B/C A53B 1.315 0.250 20.000 L245/B L290/X42 PSL1 SMLS TESTED 3000 psi CAST NO: 1609643 PROD/O NO: T0142301310 MADE IN SOUTH AFRICA NDE		

General Information

Quantity	Mass	Dimensions			Total Length
		Tube OD	Thickness	Length	
703	40,047.705(lb)	1.315(")	0.250(")	20.000 (ft)	14,060.000(ft)

Steel making process	Final Rolling Operation
Electric Arc	As Rolled
	Final hot rolling finished above 1580°F and cooled in still air

Chemical Composition

R22-(V+Nb+Ti) R24-(Nb+V)

Element(%)	C	Si	Mn	S	P	Cr	Ni	Mo	Cu	V	Al	Ti	Sn	Ca	N	B	Nb	CE	R22	R24
Minimum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maximum	0.200	-	1.30	0.030	0.030	0.50	0.50	0.150	0.500	-	-	-	-	-	-	-	-	0.41	0.15	0.060
Heat	0.181	0.26	0.84	0.003	0.012	0.03	0.01	0.001	0.005	0.002	0.028	0.006	0.001	0.0000	0.0050	0.0000	0.0010	0.33	0.01	0.003
Product	0.1810	0.2550	0.8360	0.0030	0.0120	0.0270	0.0110	0.0010	0.0050	0.0020	0.0280	0.0060	0.0010	-	0.0050	-	0.0010	0.3274	-	-
Product (ADD)	0.1810	0.2550	0.8360	0.0030	0.0120	0.0270	0.0110	0.0010	0.0050	0.0020	0.0280	0.0060	0.0010	-	0.0050	-	0.0010	0.3274	-	-

Mechanical Properties

Specification Limits	UTS (Rm) MPa	UTS (Rm) psi	Yield (0.5%) MPa	Yield (0.5%) psi	% EL 2 inch
Minimum		70000		42000	30.0
Maximum		-		-	-
(1) Actual		72663		48007	48.0
(2) Actual		76144		49022	49.0
(3) Actual					
(4) Actual					

	UTS (Rm) MPa	UTS (Rm) psi	Yield (0.5%) MPa	Yield (0.5%) psi	% EL 2 inch
(5) Actual					
(6) Actual					
(7) Actual					
Orientation & type of tensile test	Longitudinal, Section				
Width of tensile piece (inch)	Full Section				
Orientation of impact test piece					

OTHER TESTS	
Category	Result
Bending	Passed
Flattening	Passed
Hydrostatic	3000 psi for 5 Sec
NDI: EMI	PASS - ASTM E570 - 12.5% NOTCH
NDI: UT	UT not required
HV 22 lbs	160 163 165

Remarks:

Material in accordance with NACE MR0175:2015/ISO15156-2:2015, MR0103:2015. Dimensions to ASME B36.10M-2015. The material conform to the hot yield strength requirements as per ASME, Sect II, Pt D, Table Y-1, 2015. All the material conform to the visual and dimensional requirements and is made to a suitable fine grain practice.

Quality Assurance Manager: PJ Venter *Date of Release: 2017.01.31* *Certified by:*

We hereby certify that the material was manufactured, tested and inspected to and fully comply with the requirements of referenced specifications. No changes, amendments or additions may be made to this document. Any changes which are effected shall invalidate this certificate.

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MIS331 / 072069649 / 1.5A106S160D / 1-1/2 S160 A106B SMLS PIPE

MST
SEAMLESS TUBE & PIPE

TEST REPORT

8737 MICHIGAN SEAMLESS TUBE SOUTH LYON, MICHIGAN 48178

SHIPMENT 001

ORDER NUMBER	CUSTOMER ORDER NUMBER	DATE	OFC	COM		DI WI	NET SLS	GR SLS	ACCOUNT NUMBER	US		PAGE
075608	10P23677	01/27/17	24	00		16	08	01	06832020000	A1	2CB	1

SOLD TO

SHIP TO

SN :
TR :
INV :

ROUTING
COLLECT/OPEN TOP/FULLY TARPED/FOB SOUTH LYON MI/*RTG BELOW CUST PU

ANALYSIS	SHAPE	PRODUCT	FC	ANNEAL	REQUESTED
1026	ROUND	COLD DRAWN		PER SPEC	

SPECIFICATION		CMST	DESCRIPTION	PROMISE
SEAMLESS	ASTM/ASME A/SA 106BC 15		CD CARBON PIPE	03/03/17

SPECIAL INSTRUCTIONS
BLUE UV_ ECT. MTR TO CERT TO A106B/A106C, A53B TYPE S, NACE MR 0175 & 0103, EN10204 3.1 & DIN 50 049 3.1. MELT & MFG IN USA. HEAT TREAT TIME, TEMP & TRACE ELEMENTS. SHIP +0/-10%. *RTG-CALL STACI @ 303-288-3033 W/READY FOR PICK UP. EMAIL SHIPPING DOCS

ITEM	QUANTITY	O.D.	I.D.	WALL	LENGTH	WT/FT	WEIGHT	
		1.900		.281 AVG		4.859		09:41:20 02/21/17

ITM NUM	BALE NUM	--BALE-- PCS	FTG	HEAT NO.	LENGTH	ITM STATUS	PART NUMBER
1	1 W	37	777	072069649	CUT 21' .000"	COM	

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Al	REMARKS
072069649	.240	.790	.009	.018	.210	.040	.120	.020	.090	.018	EF GERDAU
CHECK	.253	.742	.013	.026	.190	.043	.115	.016	.094	.021	V .003
CHECK	.273	.739	.015	.027	.168	.044	.117	.013	.117	.020	NB .001
											TI .001

HEAT NO.	ULT. STR. PSI	YIELD, PSI	% ELONG 2"	HARDNESS	HYDRO TEST PSI	ULTRA SONIC %	EDDY CURRENT	EXPANSION
072069649	73,276	49,875	51.3	HRB 75-76			OK	

BEND	FLATTEN	FLARE	REV. FLATTEN	FLANGE
OK				

MELTED & MANUFACTURED USA
NORMALIZED @ 1650F FOR 24 MINUTES
TENSILE: FULL SIZE LONGITUDINAL

Manager - Quality Assurance

We hereby certify that the reported data are correct according to Michigan Seamless Tube tests and those of its suppliers.

9.2.P8.F9 Rev.

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ISC853 / 1607732 / 4.0A106STDMATERIAL TAS106BSMLS PIPE

ArcelorMittal South Africa Limited
Tubular Products
273 Genl. Hertzog Rd,
Peacehaven Vereeniging 1939
P O Box 48 Vereeniging 1930
South Africa

Telephone +27 (0)16 450 4220
Fax +27 (0)16 423 4906

SEAMLESS TUBE

Licensed under API Spec 5L and 5CT
5L - 0319
5CT - 0419

ISO 9001: 2008
DE-395997 QM

Test Certificate
EN 10204:2004 TYPE 3.1

ArcelorMittal

Customer:	Lee Supply Co., LLC	Customer Order/Contract No:	SUS6 155933
Order No:	4000023546	Material No:	1000042260
Certificate Reference No:	040062175656	Cast/Heat No:	1607732
Product:	FULLY KILLED HOT FINISHED CARBON STEEL SEAMLESS TUBES		Page 1 of 1
Specification:	ISO3183:2012/API 5L:2012 L245/L290/B/X42 PSL1 ASTM A53B.12 A106B/C.15 A530.12 ASME SA53B.15 SA106B/C.15 SA530.15		
Product Marking:	ARCELORMITTAL SA ISO3183/Spec 5L-0319 MONOGRAM 06-17 ASTM/ASME A/SA106B/C A53B 4.500 0.237 40.000 L245/B L290/X42 PSL1 SMLS TESTED 3000 psi CAST NO: 1607732 PROD/O NO: T0542354610 MADE IN SOUTH AFRICA NDE		

General Information

Quantity	Mass	Dimensions			Total Length
		Tube OD	Thickness	Length	
200	86,468.821(lb)	4.500(")	0.237(")	40.000 (ft)	8,000.000(ft)

Steel making process	Final Rolling Operation
	As Rolled
Basic Oxygen Furnace	Final hot rolling finished above 1580°F and cooled in still air

Chemical Composition

R22-(V+Nb+Ti) R24-(Nb+V)

Element(%)	C	Si	Mn	S	P	Cr	Ni	Mo	Cu	V	Al	Ti	Sn	Ca	N	B	Nb	CE	R22	R24
Minimum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maximum	0.200	-	1.30	0.030	0.030	0.50	0.50	0.150	0.500	-	-	-	-	-	-	-	-	0.41	0.15	0.060
Heat	0.120	0.23	1.22	0.002	0.014	0.03	0.01	0.002	0.005	0.057	0.024	0.011	0.002	0.0020	0.0090	0.0005	0.0005	0.34	0.07	0.058
Product	0.1200	0.2300	1.2200	0.0020	0.0140	0.0280	0.0100	0.0020	0.0050	0.0570	0.0240	0.0110	0.0020	0.0020	0.0090	0.0005	0.0005	0.3417	0.0685	0.0575
Product (ADD)	0.1200	0.2300	1.2200	0.0020	0.0140	0.0280	0.0100	0.0020	0.0050	0.0570	0.0240	0.0110	0.0020	0.0020	0.0090	0.0005	0.0005	0.3417	0.0685	0.0575

Mechanical Properties

Specification Limits	UTS (Rm) MPa	UTS (Rm) psi	Yield (0.5%) MPa	Yield (0.5%) psi	% EL 2 inch
Minimum		70000		42000	30.0
Maximum		-		-	-
(1) Actual		71068		54389	32.0
(2) Actual		71793		54969	36.0
(3) Actual					
(4) Actual					

	UTS (Rm) MPa	UTS (Rm) psi	Yield (0.5%) MPa	Yield (0.5%) psi	% EL 2 inch
(5) Actual					
(6) Actual					
(7) Actual					
Orientation & type of tensile test		Longitudinal, Strip			
Width of tensile piece (inch)		1 Inch			
Orientation of impact test piece					

OTHER TESTS	
Category	Result
Flattening	Passed
Hydrostatic	3000 psi for 5 Sec
NDI: EMI	PASS - ASTM E570 - 12.5% NOTCH
NDI: UT	UT not required
HV 22 lbs	153 154 154

Remarks:

Material in accordance with NACE MR0175:2015/ISO15156-2:2015, MR0103:2015. Dimensions to ASME B36.10M-2015. The material conform to the hot yield strength requirements as per ASME, Sect II, Pt D, Table Y-1, 2015. All the material conform to the visual and dimensional requirements and is made to a suitable fine grain practice.

Quality Assurance Manager: PJ Venter *Date of Release: 2017.07.03* *Certified by:*

We hereby certify that the material was manufactured, tested and inspected to and fully comply with the requirements of referenced specifications. No changes, amendments or additions may be made to this document. Any changes which are effected shall invalidate this certificate.

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Demo (http://www.verypdf.com)

MIS328 / 00A160747 / .75A106XHD / 3/4 XH A106B SMLS PIPE

TEST REPORT

SHIPMENT

6147 MICHIGAN SEAMLESS TUBE SOUTH LYON, MICHIGAN 48178 001

ORDER NUMBER	CUSTOMER ORDER NUMBER	DATE	OFC	COM	DI WI	NET SLS	GR SLS	ACCOUNT NUMBER	US		PAGE
072531	10P20839	05/17/16	24	00	16	08	01	06832020000	A1	1CB	1

SHIP TO

SN 2
TR 3
INV 3

ROUTING

COLLECT/OPEN TOP/TARPED/FOB SOUTH LYON MI/*RTG BELOW CUST PU

ANALYSIS	SHAPE	PRODUCT	FC	ANNEAL	REQUESTED
1026	ROUND	COLD DRAWN		PER SPEC	06/17/16

SPECIFICATION		CMST	DESCRIPTION	PROMISE
SEAMLESS	ASTM/ASME A/SA 106BC 15		CD CARBON PIPE	06/17/16

SPECIAL INSTRUCTIONS

BLUE UV_ ECT. MTR TO CERT TO A106B/A106C, A53B TYPE S, NACE MR 0175 & MR 0103, EN 10204 3.1 & DIN 50 049 3.1. MELT & MFG IN THE USA. HT TRT TIME & TEMP. TRACE ELEMENTS. SHIP +0/-10%. *RTG-CALL STACI @ 303-288-3033 WHEN READY FOR PICK UP. EMAIL SHIP DOCS TO:

ITEM	QUANTITY	O.D.	I.D.	WALL	LENGTH	WT/FT	WEIGHT	
		1.050		.154 AVG		1.474		08:59:55 06/15/16

ITM NUM	BALE NUM	--BALE-- PCS	FTG	HEAT NO.		LENGTH		ITM STATUS	PART NUMBER
1	1 W	91	1911	00A160747	CUT	21'	.000"	COM	
1	2 W	91	1911	00A160747	CUT	21'	.000"	COM	

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Al	REMARKS
00A160747	.260	.750	.006	.019	.250	.060	.140	.030	.170	.021	EF SDI
CHECK	.272	.705	.010	.017	.234	.066	.137	.033	.142	.019	V.000
CHECK	.273	.712	.009	.016	.239	.066	.138	.034	.146	.020	NB.000 TI.0(

HEAT NO.	ULT. STR. PSI	YIELD, PSI	% ELONG 2"	HARDNESS	HYDRO TEST PSI	ULTRA SONIC %	EDDY CURRENT	EXPANSION
00A160747	74,087	53,817	45.2	HRB 77-82			OK	

BEND	FLATTEN	FLARE	REV. FLATTEN	FLANGE
OK				

MELTED & MANUFACTURED USA
NORMALIZED @ 1650F FOR 24 MINUTES
TENSILE: FULL SIZE LONGITUDINAL

Manager - Quality Assurance

We hereby certify that the reported data are correct according to Michigan Seamless Tube tests and those of its suppliers.

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HOT ROLLING PIPE CO.,LTD VIETNAM

MILL TEST CERTIFICATE

Purchaser	PSI PIPE TRADE LLC	Product	Seamless Steel Pipes	PAGE			
Manufacturer	HOT ROLLING PIPE CO.,LTD VIETNAM	Contract No.	PO163745-00/REF.2457	Certificate No.			HRP2016100305
Standard	ASTM A53-B 2010/ASME SA53-B 2011. ASTM A106-B 2011/ASME SA 106-B 2011 EN 10204/3.1	Date Of List	3-Oct-16	Stamp of Company Quality Department	HOT ROLLING PIPE CO.,LTD VIET NAM Quality department		
Specification	1" B	License No.	API 5L-0918				

O.D.	1.315in	Total Pieces	1230	PCS	Total Weight	49127.70	LB	Total Length	22892.81	FT	Making Method	Cold-Drawn
W.T.	0.179in	Total Bundles	36			22.3	MT		6977.73	M		

Description of goods: 169,500FEET (157.44MT) +/-10PCT OF SEAMLESS PRESSURE PIPE; STANDARDS: ASTM A53-B 2010/ASME SA53-B 2011. ASTM A106-B 2011/ASME SA 106-B 2011 EN 10204/3.1. BLACK MILL LACQUER,VARNISH FOR PROTECTION FROM RUST,PLAIN ENDS SQUARE CUT

No	Heat No	Lot No.	PCS	Y.S	T.S	E.L	Chemical Composition%										Hardness				Size			
							C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	HBW 1	HB W2	HBW 3	HBW 4	(J)			(J) Average Value
				Mpa	Mpa	%																		
1	16-107632	632005	381	320.0	465.0	42.0	0.20	0.22	0.49	0.019	0.004	0.02	0.01	0.01	0.02	0.002	150	151	151	151	—	—	—	—
							0.20	0.22	0.49	0.019	0.004	0.02	0.01	0.01	0.02	0.002	151	150	151	151	—	—	—	—
2	16-107632	632006	381	315.0	465.0	43.0	0.20	0.22	0.49	0.019	0.004	0.02	0.01	0.01	0.02	0.002	144	144	144	143				
							0.20	0.22	0.49	0.019	0.004	0.02	0.01	0.01	0.02	0.002	144	143	143	144				
3	16-107632	632007	377	320.0	460.0	43.0	0.20	0.22	0.49	0.019	0.004	0.02	0.01	0.01	0.02	0.002	143	143	142	141				
							0.20	0.22	0.49	0.019	0.004	0.02	0.01	0.01	0.02	0.002	142	142	143	141				
4	16-107632	632008	91	315.0	460.0	44.5	0.20	0.22	0.49	0.019	0.004	0.02	0.01	0.01	0.02	0.002	152	151	152	151				
							0.20	0.22	0.49	0.019	0.004	0.02	0.01	0.01	0.02	0.002	150	152	151	151				

bend test	Pass	flattening test	— —	Hydrostatic Test	850psi	No weld repair	Pass	Coating	Pass		
U.T	Pass	M .T	Pass	W.T.Mesure	Pass		5S	Visual&Dimensions	Pass	Mercury And Lead Free	Pass

Remark The inspection and testing procedures are according to EN10204 3.1: NDT according to ASTM E213. The material meets NACE MR0175/ISO 15156 and MR 0103
If no inspect department stamp, no mill's inspector's signature, the Certificate is regarded as the non-effective. And if not authorized by the mill's inspector, any amendments are regarded as non-effective.

Address:NHON TRACH TEXTILE INDUSTRY PARK INDUSTRIAL,NHON TRACH DISTRICT, DONG NAI PROVINCE, VIETNAM.	Inspection Director		Lister	TEL
Address:The billet made in ZENITH. ZHONGWU ROAD CHANGZHOU CITY CHINA.				0084613566038

FAX
0084613566039

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PER400 / 90024 / .75A106S160F / 3/4 S160 A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1243/09

Seller (Exporter)

Joint-Stock Company "Pervouralsk New Pipe Plant"

Made in Russia

Buyer (Address, country)

Contract№ 27-03/13-01/KLF on 27.03.2013

Order-Nariad № 9,S-1

Freight car №

Export Licence

Order № 2205198/14

Description of goods	Standard	Type of pack	Quantity
Seamless Carbon Steel Pipe for High-Temperature Service	ASTM A106(14)NDE/ASME SA106/ASTM A53(12)/ASME SA53/ASME B36.10M	in bundles	13

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter, inches	Wall, inches	Length, feet			Gross	Net
1	90024	э9	Gr.B/Gr.C	1.050	0.219	20-21	597	94		1.83
2	"	э452	"	1.050	0.219	"	454	72		1.38
3	4f5235	э341	"	1.315	0.133	"	654	104		1.62
4	4f5237	э337	"	1.315	0.133	"	516	82		1.26
5	4f5226	э228	"	1.315	0.179	"	573	90		1.81
6	4f5231	э487	"	1.315	0.179	"	447	70		1.41
7	4f5234	э119	"	1.315	0.179	"	556	87		1.77
						Total:				

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications. Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
1,2	0.24	0.73	0.24	0.005	0.005	0.11	0.03	0.05	0.024	0.029
3	0.27	0.77	0.28	0.009	0.007	0.07	0.14	0.22	0.01	0.02
4	0.26	0.75	0.25	0.008	0.008	0.09	0.15	0.22	0.01	0.02
5	0.23	0.77	0.26	0.007	0.007	0.07	0.15	0.22	0.01	0.02
6	0.25	0.80	0.31	0.006	0.005	0.06	0.15	0.18	0.01	0.04
7	0.27	0.80	0.26	0.010	0.007	0.07	0.14	0.21	0.01	0.02

Mechanical Properties

Item №	Tensile strength, psi	Yield strength, psi	Elongation (%)
1	71000	43000	28
2	75000	45000	33
3	80000	55000	24
4	80000	48000	30
5	79000	55000	29
6	84000	56000	30
7	82000	61000	22

NOTE: Pipes have been tested by non-destructive method with satisfactory result. Pipes are produced ungalvanized, threadless. The present requirements are correspond to NACE MR 0175(2009).

Bend test is satisfactory.

Marking: is made as per requirements of the order

Signature

Date: 5/11/2014

ОТК ТЕХНИЧЕСКОГО КОНТРОЛЯ №51

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PER400 / 90024 / .75A106S160F / 3/4 S160 A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1243/09

Seller (Exporter)

Joint-Stock Company "Pervouralsk New Pipe Plant"

Made in Russia

Buyer (Address, country)

Contract№ 27-03/13-01/KLF on 27.03.2013

Order-Nariad № 9,S-1

Export Licence

Freight car №

Order № 2205198/14

Description of goods	Standard	Type of pack	Quantity
Seamless Carbon Steel Pipe for High-Temperature Service	ASTM A106(14)NDE/ASME SA106/ASTM A53(12)/ASME SA53/ASME B36.10M	in bundles	

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter, inches	Wall, inches	Length, feet			Gross	Net
8	36716	3462	Gr.B/Gr.C	1.315	0.250	20-21	326	51		1.40
9	"	3458	"	1.315	0.250	"	306	48		1.33
10	"	3456	"	1.315	0.250	"	339	53		1.46
11	"	312	"	1.315	0.250	"	542	85		2.31
12	"	36	"	1.315	0.250	"	313	49		1.34
13	"	3486	"	1.315	0.250	"	339	53		1.46
						Total:	5962	938	20.98	20.38

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications. Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
8-13	0.24	0.76	0.27	0.003	0.005	0.05	0.03	0.05	0.025	0.03

Mechanical Properties

Item №	Tensile strength, psi	Yield strength, psi	Elongation (%)
8	76000	45000	35
9	75000	42000	30
10	74000	48000	31
11	70000	47000	28
12	72000	46000	38
13	74000	48000	31

NOTE: Pipes have been tested by non-destructive method with satisfactory result. Pipes are produced ungalvanized, threadless. The present requirements are correspond to NACE MR 0175(2009).

Test is satisfactory.

Marking is made as per requirements of the order

Date: 5/11/2014

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(http://www.verypdf.com)

PO Created for Reference - This is not an official PO

UOP
A Honeywell Company

UOP RUSSELL LLC

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802561** **Date :** SEP/20/2017 **Page :** 1 of 3
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.

We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.

See our Commitment Statement at http://www.honeywell.com/sites/sm.

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT or a special HONEYWELL/UOP/UOP Russell / Supplier TERMS & CONDITIONS are in place, then this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

Supplier#s "boilerplate" preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing.

Total PO price is a "NOT TO EXCEED" value without written consent from the Buyer in the form of a PO Addendum.

Our Contact Persons:
Purchasing = Clint Pollard, 539-664-4853, Clint.Pollard@honeywell.com

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Clint Pollard
Tax ID 3101720754
Buyer Phone 539-664-4853
Purchasing Return Fax 918-481-7427
Email Id clint.pollard@honeywell.com

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802561** **Date :** SEP/20/2017 **Page :** 2 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:
UOP Russell: accountspayable@uop.com
Please "Acknowledge" receipt of this PO, actual pricing, and delivery date to: Clint.Pollard@Honeywell.com.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	3	Each		1/2" BALL VALVE, THRD APOLLO 76-103-01)	
SKID 3		WAREHOUSE			
20	1	Each		3/4" BALL VALVE, THRD APOLLO 76-104-01)	
SKID 3		WAREHOUSE			
30	2	Each		CPLG FULL, 1, 3000LB, SW A105	
SKID 3		WAREHOUSE			
40	3	Each		ELL 90, 1, 3000LB, SW A105	
SKID 3		WAREHOUSE			
50	1	Each		ELL 90, 1.5, 3000LB, SW A105	
SKID 3		WAREHOUSE			
60	2	Each		ELL 90, 0.5, 3000LB, TH A105	
SKID 3		WAREHOUSE			
70	1	Each		FLG RFSW, 1.5, 150LB, XH A105	
SKID 3		WAREHOUSE			
80	1	Each		FLG RFSW, 1, 150LB, XH A105	
SKID 3		WAREHOUSE			
90	4	Each		NIP, 0.5, TBE X 3" A106B	
SKID 3		WAREHOUSE			
100	3	Each		NIP, 0.5, TOE X 3" A106B	
SKID 3		WAREHOUSE			
110	1	Each		NIP, 1.5, XH, PBE X 4" A106B	
SKID 3		WAREHOUSE			

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802561** **Date :** SEP/20/2017 **Page :** 3 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
120	3	Each		PLUG RD SOLID, 0.75, 6M, TH A105	
SKID 3		WAREHOUSE			
130	1	Each		SWGC, 1 1/2X3/4, XH LB-ST A234WPB	
SKID 3		WAREHOUSE			
140	1	Each		TEE, 1, 3000LB, SW A105	
SKID 3		WAREHOUSE			
150	20	Linear Ft		PIPE, 1, XH SMLS A106-B	
SKID 3		WAREHOUSE			
160	15	Linear Ft		PIPE, 1.5, XH SMLS A106-B	
SKID 3		WAREHOUSE			

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.

Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

BWL5126 / CA0546 / 1.03GPLGSWF / 1" 3000# SW FULL CPLG A105N

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

An ISO 9001 : 2008 Registered Manufacturer

447802561

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 162366
ORDER NO. : 52183

INVOICE NO. : 5200008151
L/C NO. :

PAGE : 1
DATE : 08/22/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
34	354062 CA0546	1,000 PCS	FULL CPLG A105 1" 3000# S/W 52CP3010 C:0.18 Si:0.21 Mn:0.82 P:0.011 S:0.005 Cu:0.05 Cr:0.06 N:0.03 Mo:0.01 V:0.003 Nb:0.002 N 0.0076 Ti:0.002 CE:0.34 TS(KSI):73.0 YS 0.2%(KSI):45.0 EL(%):36.0 R.A.(%):68.0 HARDNESS 1(HBW):143 HARDNESS 2(HBW):144

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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

BWL4615 / CA0612 / 1.0399SWF / 1" 3000# SW 90 A105N

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

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MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 162366
ORDER NO. : 52183

INVOICE NO. : 5200008151
L/C NO. :

PAGE : 1
DATE : 08/22/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
38	16601976 CA0612	2,500 PCS	90D ELBOW A105 1" 3000# S/W 52E 3010 C: 0.21 Si: 0.27 Mn: 0.93 P: 0.009 S: 0.006 Cu: 0.01 Cr: 0.03 N: 0.01 Mo: 0.003 V: 0.004 Nb: 0.003 CE: 0.37 TS(KSI): 77.0 YS 0.2%(KSI): 48.7 EL(%): 32.4 R.A.(%): 66.8 HARDNESS 1(HBW): 145 HARDNESS 2(HBW): 147

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNAIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWL4774 / CA0689 / 1.5390SWF / 1-1/2" 3000# SW 90 A105N

BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY, TAIWAN, R.O.C.(81460)
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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 :
CERT NO. : 163198
ORDER NO. : 53327

INVOICE NO. : 5200008621
L/C NO. :

PAGE : 1
DATE : 10/31/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
34	M3702059 CA0689	153 PCS	90D ELBOW A105 1-1/2" 3000# S/W 52E 3014 C: 0.20 Si : 0.24 Mn: 0.93 P: 0.010 S: 0.003 Cu: 0.04 Cr : 0.03 N : 0.02 Mo: 0.005 V: 0.004 Nb: 0.007 CE: 0.37 TS(KSI) : 77.1 YS 0.2%(KSI) : 49.0 EL(%) : 31.0 R.A.(%) : 64.0 HARDNESS 1(HBW) : 145 HARDNESS 2(HBW) : 148

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH SPECIFICATION(SURFACE & DIMJ.: GOOD
STANDARD : CHEMICAL COMPOSITION(%) & MECHANICAL PROPERTIES.

	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)
MIN	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNAIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO : 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

BWL4520 / CA0681 / 90T300E / 1/2" 3000# THRD 90 A105N

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)7-371-3864, 3713882
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An ISO 9001 : 2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO. : 163198
ORDER NO. : 53327

INVOICE NO. : 5200008621
L/C NO. :

PAGE : 1
DATE : 10/31/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
14	16604688 CA0681	1,150 PCS	90D ELBOW A105 1/2" 3000# NPT 42E 3004 C: 0.20 Si : 0.26 Mn: 0.94 P: 0.017 S: 0.010 Cu: 0.01 Cr : 0.04 N : 0.01 Mo: 0.006 V: 0.002 Nb: 0.004 CE: 0.37 TS(KSI) : 75.1 YS 0.2%(KSI) : 49.7 EL(%) : 28.2 R.A.(%) : 65.9 HARDNESS 1(HBW) : 143 HARDNESS 2(HBW) : 146

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO : 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

NOR1898 / 198 / 1.5RFSW#15XHF / 1-1/2" 150# RFSW XH A105

NORMA (INDIA) LIMITED

48,Site IV industrial Area, Sahibabad, Ghaziabad-201010 (U.P) INDIA.
Tel: 91-120-2896091, 2895404 Fax: 91-120-2895930 E-mail: normaindia@gmail. com

Works Test Certificate

NORMA/LAB NO-8230/15-16		INVOICE NO.		DATE:-25.11.15	
P. Order. No:		Customer:-		Forging specification	ASME SA105 -13 ASTM A105 -13
Component	1½"-150# SWRF XH FLG.			Steel Supplier	R.I.N.L
Drawing No.					
Machining STD	ANSI B16.5- 2013 ASME B16.5- 2013	Quantity:-	525Nos.	Mill Heat No.	501220

TEST RESULTS — NORMA HEAT NO-198

CHEMICAL COMPOSTION

Elements %	Specified Composition	Actual	
		NORMA LAB	MILL T.C.
Carbon	0.35max.	0.226	0.22
Manganese	0.60-1.05	0.91	0.92
Silicon	0.10-0.35	0.179	0.17
Sulphur	0.040max.	0.018	0.019
Phosphorous	0.035max.	0.020	0.022
Chromium	0.30max.	0.004	0.008
Nickel	0.40max.	0.006	---
Copper	0.40max.	0.003	---
Molybdenum	0.12max.	0.002	---
Vanadium	0.080max.	0.001	---
Carbon Equivalent (CE)	0.47max.	0.380	0.375

MECHANICAL PROPERTIES.

PROPERTIES	SPECIFIED	OBTAINED
Yield Strength (mpa)	250.00 min.	334.41
Tensile Strength (mpa)	485.00 min.	558.05
%Elongation in 50mm / 4D	22.00 min	30.63
Hardness HB.	187. max.	153-163
% Reduction of Area	30.00 min.	60.74

Specified carbon as per Purchase Order 0.25max.

Serrated face as per MSS-SP-6 With in limits of 125-250AARH

CARBON EQUIVALENT (CE)

$$CE = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

MARKING AS PER MSS-SP-25-2008
1½"-150 XH SA/A105 198 B16.5 NORMA INDIA.

Remarks:- We here by certify that the material described here in has been tested in accordance with the applicable specifications referred above and meets the requirements as per EN10204/3.1B & NACE Standard-MR0175-2003.MRO103.
"As per ASTM A105 Table 1 Note:-For each reduction of 0.01% below the specified carbon maximum(0.35%).an increase of 0.06% manganese above the specified maximum (1.05%)will be permitted up to maximum 1.65%.
Country of Origin-India /Melt: INDIA.

Checked by: Metallurgist

Certified by: Quality Control Manager

NOR1873 / 291 / 1.0RFSW#15XHF / 1" 150# RFSW XH A105

NORMA (INDIA) LIMITED

48,Site IV industrial Area, Sahibabad, Ghaziabad-201010 (U.P) INDIA.
Tel: 91-120-2896091, 2895404 Fax: 91-120-2895930 E-mail: normaindia@gmail. com

Works Test Certificate

NORMA/LAB NO-11882/15-16		INVOICE NO.E-521		DATE:-26.03.16	
P. Order. No:	211676	Customer:-		Forging specification	ASME SA105 -13 ASTM A105 -13
Component	1"-150# SWRF XH FLG.			Steel Supplier	R.I.N.L
Drawing No.					
Machining STD	ANSI B16.5- 2013 ASME B16.5- 2013	Quantity:-	1397Nos.	Mill Heat No.	510209

TEST RESULTS — NORMA HEAT NO-291

CHEMICAL COMPOSTION

Elements %	Specified Composition	Actual NORMA LAB	Actual MILL T.C.
Carbon	0.35max.	0.238	0.21
Manganese	0.60-1.05	0.915	0.96
Silicon	0.10-0.35	0.261	0.19
Sulphur	0.040max.	0.008	0.013
Phosphorous	0.035max.	0.015	0.007
Chromium	0.30max.	0.005	---
Nickel	0.40max.	0.002	---
Copper	0.40max.	0.004	---
Molybdenum	0.12max.	0.002	---
Vanadium	0.080max.	0.002	---
Carbon Equivalent (CE)	0.47max.	0.393	0.371

MECHANICAL PROPERTIES.

PROPERTIES	SPECIFIED	OBTAINED
Yield Strength (mpa)	250.00 min.	315.97
Tensile Strength (mpa)	485.00 min.	537.63
%Elongation in 50mm / 4D	22.00 min	27.76
Hardness HB.	187. max.	159-163
% Reduction of Area	30.00 min.	58.83

Specified carbon as per Purchase Order 0.25max.

Serrated face as per MSS-SP-6 With in limits of 125-250AARH

CARBON EQUIVALENT (CE)

$$CE = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

MARKING AS PER MSS-SP-25-2008
1"-150 XH SA/A105 291 B16.5 NORMA INDIA.

Remarks:- We here by certify that the material described here in has been tested in accordance with the applicable specifications referred above and meets the requirements as per EN10204/3.1B & NACE Standard-MR0175-2003. MR0103.
"As per ASTM A105 Table 1 Note:-For each reduction of 0.01% below the specified carbon maximum(0.35%).an increase of 0.06% manganese above the specified maximum (1.05%)will be permitted up to maximum 1.65%.
Country of Origin /Melt: INDIA.

Checked by: Metallurgist

Certified by: Quality Control Manager

Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

Phoenix * Capitol * Camco

CapProducts

Commanding a Higher Standard℠

Certified Mill Test Report

Printed: 8/31/2017
Certified: 06/21/2017

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-4826-DS
Tag

Heat No E66276
Heat Code 76FN
Phoenix Order # 1309361

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15130506	1/2 X 3" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1640	0.7910	0.0130	0.0020	0.2490	0.0140	0.0210	0.0600

C Eq. Long
0.3118

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0070	0.0010		0.0290	0.0002					

Additional Chemical Properties

Cr + Cu + Ni
0.0950

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
63,490	45,527	34.9%	0.0%	112	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Hydro test passed. at 2500 psi.

* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

Phoenix ® Capitol ™ Camco

CapProducts

Commanding a Higher Standard℠

Certified Mill Test Report

Printed: 4/5/2017
Certified: 06/02/2016

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-1857-DS
Tag

Heat No 5F4412
Heat Code 74U7
Phoenix Order # 1273750

Material ASTM A106-2014 / ASME SA106-2015 Edition

Part Number	Description
15130512	I/2 X 6" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2500	0.7500	0.0090	0.0080	0.2500	0.2300	0.1400	0.1000

C Eq. Long
0.4257

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0200	0.0100		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.4700

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
78,000	49,000	43.0%	0.0%	0	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.
* Bend test passed.

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 independentinspectors 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

Meets ASME SA 106 Grade B Requirements.

NIK373 / 1170399 / 1.5A106XHF / 1-1/2 XH A106B SMLS PIPE

ИНТЕРПАЙП
НИКО ТЬЮБ

ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ
"ИНТЕРПАЙП НИКО ТЬЮБ"
Украина, г. Никополь, пр. Трубников, 56
Тел./факс +38 (05662) 2-10-70

ИНСПЕКЦИОННЫЙ СЕРТИФИКАТ № 0844
INSPECTION CERTIFICATE № 0844
EN 10204-2004/3.1 / ISO 10474-2013

Грузополучатель / BUYER: North American Interpipe, Inc. 1800 West Loop South, Suite 1350, Houston, Texas 77027, USA

Контракт № / Contract #: COC16/1217

Страна / Country: USA

Заводской заказ № / Production order #: 005947

Номер заказа клиента / Customer's ref #: PO#10P21811

Транспортное средство № / Vehicle №: 67175356

Лист / Sheet: 1 Листов / Sheets: 1

Дата / Date: 21.02.2017г.

Наименование и код товара / Description and code of goods				Наименование стандартов / Specifications							Класс поставки / Class of delivery	Тип резьбы / Thread type
Трубы стальные бесшовные горячекатаные для трубопроводов / Seamless steel hot-rolled pipes for pipelines				ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME SA53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012								
№ поз. / Item No	Номер пакета / Bundle #	Номера труб / Pipe #	Марка стали / Grade: краткое обозначение / Brief Designation	Номер плавки / Heat #	Номер партии / Inspection Lot #	Размеры / Dimensions: диаметр / OD, дюйм / inch	толщина стенки / WT, дюйм / inch	длина / length, фут / ft	общая длина / Total length, фут / ft	шт / pieces	Фактический вес / Actual weight: брутто / gross, фунт / lb	нетто / net, фунт / lb
1.	17-14-01383		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 088	7 066
2.	17-14-01384		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 055	7 033
3.	17-14-01387		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
4.	17-14-01381		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
5.	17-14-01386		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 066	7 044
6.	17-14-01385		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 044	7 022
7.	17-12-04278		B/C	1170399	1272	1.900	0.200	21.0-21.3	1384.0	65	5 027	5 004
8.	17-14-01382		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 088	7 066
9.	17-14-01379		B/C	1170399	1270	1.900	0.200	21.0-21.3	1934.6	91	7 099	7 077
10.	17-14-01380		B/C	1170399	1270	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
11.	17-14-01388		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 066	7 044
12.	17-12-04250		B/C	1170399	1270	1.900	0.200	21.0-21.3	1415.6	67	5 247	5 225
13.	17-12-04284		B/C	1170399	1271	1.900	0.200	21.0-21.3	873.0	41	3 219	3 197
14.	17-12-04244		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
15.	17-12-04251		B/C	1170399	1270	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
16.	17-12-04253		B/C	1170399	1270	1.900	0.200	21.0-21.3	929.6	44	3 450	3 428
17.	17-12-04247		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 088	7 066
18.	17-12-04285		B/C	1170399	1272	1.900	0.200	21.0-21.3	638.8	30	2 359	2 337
19.	17-12-04242		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
20.	17-12-04259		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 077	7 055
21.	17-12-04258		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 088	7 066
22.	17-12-04260		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 044	7 022
23.	17-12-04499		B/C	1170399	1279	1.900	0.200	21.0-21.3	638.8	30	2 359	2 337
24.	17-12-04249		B/C	1170399	1271	1.900	0.200	21.0-21.3	1436.7	68	5 335	5 313
			NPS 1 1/2	**Sch 80 XS**			**TOTAL/ИТОГО**		**40166.1**	**1892**	**147 261**	**146 732**

BUNDLES/ПАКЕТОВ 24

INTERPIPE
NIKO TUBE

LIMITED LIABILITY COMPANY
"INTERPIPE NIKO TUBE"
UKRAINE, Nikopol, 56, Trubnikov ave. Tel./fax +38 (05662) 2-10-70

NIK373 / 1170399 / 1.5A106XHF / 1-1/2 XH A106B SMLS PIPE

ИНСПЕКЦИОННЫЙ СЕРТИФИКАТ № 0844
INSPECTION CERTIFICATE № 0844

Лист 1 Sheet | Листов 1 Sheets

Химический состав по сертификатным данным на заготовку и результаты контроля химического состава металла труб
Heat analysis acc. to the billet manufacturer certificate & results of chemical analysis of pipes

Номер плавки Heat #	Лаборатория Laboratory	Химический состав в % Chemical composition % C x100	Mn x100	Si x100	S x1000	P x1000	Cr x100	Ni x100	Cu x100	Mo x1000	Ti x1000	V x1000	Nb x1000	Завод изготовитель заготовки Steel supplier
min														
max														
1170399	DneprSteel	21.2	87.5	22.2	5	11	8.3	10.1	15.5	19	2	2	2	"MP"DNEPROSTEEL"LLC
	NIKOTUBE"	20	86	23	5	10	8	10	14	20	3	1	1	ООО"MS"Днепросталь"
	NIKOTUBE"	21	86	23	5	10	8	10	14	19	3	1	1	

Анализ плавки согласно сертификата завода-изготовителя/Heat analysis acc.to the manufacturer certificate."-control analysis of pipes/"- контрольный анализ от труб.
Сталь произведена методом плавления в электродуговой печи с последующей непрерывной разливкой. Сталь полностью раскисленная и мелкозернистая. Сталь раскисленная алюминием. Адрес завода изготовителя заготовки: Украина, 49051, г.Днепропетровск, ул.Винокурова, 4/ Steel has been produced by the EAF with continuous casting process. Steel is fully killed and made to fine grain practice. Aluminium killed steel. The address of steel supplier: Ukraine,49051, Dnipropetrovsk, 4 Vinokurova str.

Результаты испытаний труб - Test results for pipes

Номер партии Lot#	Механические свойства Mechanical Properties: Испытание на растяжение Tensile test: Предел прочности Tensile strength	Предел текучести R0,5 Yield strength R0,5	Относительное удлинение Elongation	Отношение σтек Ratio σтек	Ориентация образцов Specimens orientation*	Ширина полоскового образца Width of strip specimen	Диаметр цилиндрического образца Diameter of cylindrical specimen	Длина образца Length of specimen	Твердость Hardness Среднее значение Average		Испытание на удар /Impact test: Ориентация*Orientation*	Тип надреза, температура Type of notch, temperature	Норматив/Norm	Ср.значение Average	Площадь сдвига, Shear area	Размер образцов ** Specimens size **
	PSI	PSI	%			дюйм/ inch	дюйм/ inch	дюйм/ inch	HRB	HRC					%	дюйм/ inch
min	70000	40000	24.0	-					-	-			min			
max	-	-	-	-					100	22						
1270	78500	62000	30.5		L	0.750		1.970	83 84 84 av.84	<22						
1271	77000	56500	32.0		L	0.750		1.970	83 83 82 av.83	<22						
1272	80500	59500	30.5		L	0.750		1.970	85 85 85 av.85	<22						
1273	77000	60500	33.0		L	0.750		1.970	83 83 83 av.83	<22						
1279	82000	57000	30.0		L	0.750		1.970	85 86 86 av.86	<22						

* L - Продольный образец / Longitudinal specimen; T - поперечный образец / transverse specimen
** Результаты испытаний уменьшенных образцов пересчитаны на полноразмерные/Non-fullsize specimens results convert to fullsize (10x10mm)

Прочие виды контроля / Other tests

Вид испытания / Type of test	Параметры / Criteria	Результаты контроля /Test results
Загиб / Bend test	Pipes have been tested on bend. Трубы прошли испытание на загиб"	Удовлетворительно / Satisfactory
Испытание гидравлическим давлением / Hydrostatic test	100% /2500 PSI / 5 sec"	Удовлетворительно / Satisfactory
Визуальный контроль / Visual inspection	По стандарту / As per Standard"	Удовлетворительно / Satisfactory
Контроль геометрических параметров / Dimensional inspection	По стандарту / As per Standard"	Удовлетворительно / Satisfactory

Состояние поставки / Delivery condition

Общие условия / General condition	Трубы изготовлены и испытаны в соответствии с требованиями ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME A53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012 и заказа / Pipes were produced and inspected according to requirements of ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME SA53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012and order's requirements
Покрытие / Coating	Трубы покрыты черным лаком Quakercoat 720 / Pipes are coated with black varnish Quakercoat 720
Фаска (если требуется) / Beveled ends if required	Трубы обрезаны под прямым углом .Pipes are cut off under a right angle .
Защита концов / Protection of pipe ends	Концы труб оснащены пластиковыми колпачками / The ends of pipes are equipped by plastic caps
Дополнительная информация / Additional information	Ремонт сваркой запрещен. /No weld repair

Страна происхождения: Украина. Country of origin: Ukraine.
Ваши предложения по улучшению продукции просим направлять на эл.адрес / Please send Your proposals for improving the product by e-mail or fax or by phone
Sergey.Pichakov@nstp.interpipe.biz fax:+38(0566)639379 phone:+38(0566)639649
e-mail: info@us.interpipe.biz Phone: 17133330333 Fax: 17133330330
Этот инспекционный сертификат относится только к перечисленной в нем продукции. Недопустимо внесение изменений или другое неправомерное использование сертификата.
This inspection certificate is only for the listed products. Modification or unauthorized use of the certificate is strictly prohibited. Violations can be considered as forgery and is subject to prosecution
Инспекционный сертификат оформлен и проверен контролером сертификатором КОНДРАТЕЦ О.П.
Inspection Certificate was drawn up and checked by the Certificate Inspector KONDRATEC O.P.

Дата: 21.02.2017 Date
Подпись инспектора 3-й стороны : Signature of 3-rd Part Inspector:
Подпись ОТК Signature QCD

REVIEWED BY KLOKOV 22.02.2017

Э1 O.Vydysh

ТОВ "ІНТЕРПАЙП НІКО ТЬЮБ" СЛУЖБА ЯКОСТІ м. Нікополь

BWL5171 / 4107 / 75RDHDPLUGF / 3/4" ROUND HEAD PLUG A105N

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, 3713886
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

ISO 9001 2008 Management System
TÜVRheinland CERTIFIED
An ISO 9001:2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER :
CERT NO: 141241
ORDER NO: 38145

INVOICE NO: 5200000713
L/C NO:

PAGE : 1
DATE : 05/03/2014
ORIGIN: TAIWAN

ITEM	RAW HEAT NO. HEAT CODE	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES. SUPPLIER.
51	335403 4107	4,189 PCS	ROUND PLUG A105 3/4" 3000#/6000# NPT C: 0.19 SI: 0.20 MN: 0.83 P: 0.019 S: 0.009 CU: 0.19 CR: 0.10 NI: 0.06 MO: 0.02 V: 0.002 NB: 0.002 N: - CE: 0.369 TS(KSI): 74.7 YS 0.2%(KSI): 52.4 EL(%): 36.6 R.A.(%): 65.5 HARDNESS1(HBW): 143 HARDNESS2(HBW): 144

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-12, ASME SA105N-2013ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH SPECIFICATION(SURFACE & DIM.): GOOD
STANDARD: CHEMICAL COMPOSITION(%) & MECHANICAL PROPERTIES.

	C	Si	Mn	P	S	Cu	Cr	N	Mo	V	Cb(Nb)
MIN	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS 1.0%(KSI)	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-09 / MR0103-12
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO: 01 202 ROC/Q 12 0247
NO WELD REPAIR MATERIAL ADDED.

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

CAT18384 / 74UD / 1.5X75CXHBT / 1 1/2 X 3/4" XH BXT CONC SWAG

Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

Phoenix* Capitol* Camco
CapProducts

Commanding a Higher Standard™

Certified Mill Test Report

Printed: 6/14/2017
Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

Certified: 12/12/2016
P.O. 17-3177-DS
Tag

Heat No 74UD
Heat Code 74UD
Phoenix Order # 1290568
Material ASTM A234-2011a WPB / ASME SA234-2010 Edition

Part Number
48101426

Description
1 1/2X3/4 XH WPB CON SWG BXT

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2500	0.7700	0.0100	0.0100	0.2500	0.2200	0.1100	0.1100

C Eq. Long
0.4263

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0100	0.0100		0.0000	0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.4400

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
85,000	52,000	25.5%	0.0%	169	162

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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.

Manufactured in the USA.

BWL4775 / CA0453 / 1.03TEESWE / 1" 3000# SW TEE A105N

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)7-371-3864, 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 :
CERT NO. : 163694
ORDER NO. : 54269

INVOICE NO. : 5200008947
L/C NO. :

PAGE : 72
DATE : 12/15/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
45	0107769 CA0453	540 PCS	TEE A105 1" 3000# S/W 52T 3010 C:0.19 Si:0.19 Mn:0.86 P:0.014 S:0.005 Cu:0.12 Cr:0.05 N:0.06 Mo:0.01 V:0.001 Nb:0 Ni:0.0083 Ti:0.0019 CE:0.36 TS(KSI):74.8 YS 0.2%(KSI):53.8 EL(%):34.4 R.A.(%):64.8 HARDNESS 1(HBW):141 HARDNESS 2(HBW):143

REMARK :
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT : NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO : 01 202 ROC/Q-12 0247
NO WELD REPAIR MATERIAL ADDED.

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

PER430 / 5F5870 / 1.0A106XHF / 1 XH A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1452/09

Seller (Exporter)

Joint-Stock Company "Pervouralsk New Pipe Plant"

Made in Russia

Buyer (Address, country)

Contract№ 27031301KLSA on 17.08.2015

Order-Nariad № 1,S-1

Export Licence

Freight car №

Order № 2204447/15

Description of goods	Standard	Type of pack	Quantity
Seamless Carbon Steel Pipe Cold-Deformed for High-Temperature Service	ASTM A106(14)NDE/ASME SA106(08)/ASTM A53(12)/ASME SA53(01)/ASME B36.10M(2004)	in bundles	11

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter (inches)	Wall (inches)	Length feet			Gross	Net
1	3f2859	э500	Gr.B/Gr.C	1.050	0.154	20-21	1102	175		2.48
2	5f5869	э297	"	1.315	0.179	"	573	90		1.80
3	"	э271	"	1.315	0.179	"	599	94		1.90
						Total:				

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications.
Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
1	0.30	0.77	0.26	0.008	0.013	0.16	0.12	0.22	0.005	0.013
2,3	0.25	0.76	0.25	0.014	0.008	0.10	0.16	0.19	0.01	0.02

Mechanical Properties

Item №	Tensile strength Psi	Yield strength Psi	Elongation (%)	Hardness HRB units
1	91000	51000	27	87
				87
2	80000	59000	27	81
				80
3	78000	57000	29	82
				82

NOTE: Pipes without beveled. Pipes are with outside covered black varnish coating. Tubes have been tested by non-destructive method with satisfactory result. The present requirements are correspond to NACE MR 0175. Pipes are produced ungalvanized, threadless. Number of contractor's order PO №10F15312HDP. Each pipe is subjected to hydraulic pressure, pipe is held under pressure during 5 seconds. Test pressure test 2500 psi with satisfactory result.

Bend testing satisfactory.

Marking: is made as per requirements of the order

Signatures: Date: 2/10/2015

PER430 / 5F5870 / 1.0A106XHF / 1 XH A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1452/09

Seller (Exporter)

Joint-Stock Company "Pervouralsk New Pipe Plant"

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Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter (inches)	Wall (inches)	Length feet			Gross	Net
4	5f5870	э972	Gr.B/Gr.C	1.315	0.179	20-21	718	114		2.27
5	5f5869	э273	"	1.315	0.179	"	573	90		1.80
6	5f2310	э299	"	1.900	0.200	"	338	53		1.76
						Total:				

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications. Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
4	0.24	0.83	0.28	0.010	0.008	0.10	0.14	0.19	0.01	0.02
5	0.25	0.76	0.25	0.014	0.008	0.10	0.16	0.19	0.01	0.02
6	0.23	0.79	0.22	0.011	0.007	0.07	0.10	0.17	0.01	0.02

Mechanical Properties

Item №	Tensile strength Psi	Yield strength Psi	Elongation (%)	Hardness HRB units
4	81000	54000	26	74
				76
5	80000	59000	27	81
				80
6	73000	47000	34	78
				80

NOTE: Pipes without beveled. Pipes are with outside covered black varnish coating. Tubes have been tested by non-destructive method with satisfactory result. The present requirements are correspond to NACE MR 0175. Pipes are produced ungalvanized, threadless. Number of contractor's order PO №10F15312HDP. Each pipe is subjected to hydraulic [illegible] pipe is held under pressure during 5 seconds. Test pressure 2500 psi with satisfactory result.

Bend test is satisfactory.

Marking: is made as per requirements of the order

Signatures: Date: 2/10/2015

PER430 / 5F5870 / 1.0A106XHF / 1 XH A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1452/09

Seller (Exporter)

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Seamless Carbon Steel Pipe Cold-Deformed for High-Temperature Service	ASTM A106(14)NDE/ASME SA106(08)/ASTM A53(12)/ASME SA53(01)/ASME B36.10M(2004)	in bundles	

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter (inches)	Wall (inches)	Length feet			Gross	Net
7	5f2310	3290	Gr.B/Gr.C	1.900	0.200	20-21	332	52		1.73
8	"	3269	"	1.900	0.200	"	267	42		1.39
9	5f4408	3276	"	1.900	0.200	"	298	47		1.56
						Total:				

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications. Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
7,8	0.23	0.79	0.22	0.011	0.007	0.07	0.10	0.17	0.01	0.02
9	0.25	0.75	0.30	0.008	0.009	0.11	0.14	0.23	0.01	0.01

Mechanical Properties

Item №	Tensile strength Psi	Yield strength Psi	Elongation (%)	Hardness HRB units
7	73000	47000	34	78
				80
8	73000	43000	33	73
				76
9	73000	50000	30	78
				78

NOTE: Pipes without beveled. Pipes are with outside covered black varnish coating. Tubes have been tested by non-destructive method with satisfactory result. The present requirements are correspond to NACE MR 0175. Pipes are produced ungalvanized, threadless. Number of contractor's order PO №10F15312HDP. Each pipe is subjected to hydraulic pressure, pipe is held under pressure during 5 seconds, [illegible] test 2500 psi with satisfactory result.

Bend test satisfactory.

Marking: is made under requirements of the order

Signatures: **Date: 2/10/2015**

PER430 / 5F5870 / 1.0A106XHF / 1 XH A106B SMLS PIPE

EN 10204-3.1 QUALITY CERTIFICATE № 1452/09

Seller (Exporter)

Joint-Stock Company "Pervouralsk New Pipe Plant"

Made in Russia

Buyer (Address, country)

Contract№ 27031301KLSA on 17.08.2015

Order-Nariad № 1,S-1

Export Licence

Freight car №

Order № 2204447/15

Description of goods	Standard	Type of pack	Quantity
Seamless Carbon Steel Pipe Cold-Deformed for High-Temperature Service	ASTM A106(14)NDE/ASME SA106(08)/ASTM A53(12)/ASME SA53(01)/ASME B36.10M(2004)	in bundles	

Item №	Nos. of Heats	Nos. of Lots	Grades of steel	Dimensions			Metrage	Number of pcs.	Mass (tons)	
				Diameter (inches)	Wall (inches)	Length feet			Gross	Net
10	5f4408	s300	Gr.B/Gr.C	1.900	0.200	20-21	357	56		1.86
11	"	s275	"	1.900	0.200	"	337	53		1.78
						Total:	5494	866	20.385	20.33

It is hereby certified that the quality of goods mentioned in this Quality Certificate is in conformity with standards and specifications.
Visual and dimensional control: no remarks.

Quality characteristics of goods

Compositions (%)

Item №	C	Mn	Si	S	P	Cr	Ni	Cu	V	Mo
10,11	0.25	0.75	0.30	0.008	0.009	0.11	0.14	0.23	0.01	0.01

Mechanical Properties

Item №	Tensile strength Psi	Yield strength Psi	Elongation (%)	Hardness HRB units
10	80000	48000	29	81
				83
11	72000	54000	30	78
				76

NOTE: Pipes without beveled. Pipes are with outside covered black varnish couting. Tubes have been tested by non-destructive method with satisfactory result. The present requirements are correspond to NACE MR 0175. Pipes are produced ungalvanized, threadless. Number of contractor's order PO №10F15312HDP. Each pipe is subjected to hydraulic test pressure, pipe is held under pressure during 5 seconds. Hydraulic test 2500 psi with satisfactory result.

Bend test is satisfactory

Marking: is made as per requirements of the order

Signatures:

Date: 2/10/2015

NIK373 / 1170399 / 1.5A106XHF / 1-1/2 XH A106B SMLS PIPE

ИНТЕРПАЙП
НИКО ТЬЮБ

ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ
"ИНТЕРПАЙП НИКО ТЬЮБ"
Украина, г. Никополь, пр. Трубников, 56
Тел./факс +38 (05662) 2-10-70

ИНСПЕКЦИОННЫЙ СЕРТИФИКАТ № 0844
INSPECTION CERTIFICATE № 0844
EN 10204-2004/3.1 / ISO 10474-2013

Грузополучатель / BUYER: North American Interpipe, Inc. 1800 West Loop South, Suite 1350, Houston, Texas 77027, USA

Контракт № / Contract #: COC16/1217

Заводской заказ № / Production order #: 005947

Страна / Country: USA

Номер заказа клиента / Customer's ref: #PO#10P21811

Транспортное средство № / Vehicle №: 67175356

Лист / Sheet: 1 Листов / Sheets: 1

Дата / Date: 21.02.2017г.

Наименование и код товара / Description and code of goods				Наименование стандартов / Specifications							Класс поставки / Class of delivery	Тип резьбы / Thread type
Трубы стальные бесшовные горячекатаные для трубопроводов / Seamless steel hot-rolled pipes for pipelines				ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME SA53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012								
№ поз. / Item No	Номер пакета / Bundle #	Номера труб / Pipe #	Марка стали / Grade: краткое обозначение / Brief Designation	Номер плавки / Heat #	Номер партии / Inspection Lot #	Размеры / Dimensions: диаметр / OD, дюйм / inch	толщина стенки / WT, дюйм / inch	длина / length, фут / ft	общая длина / Total length, фут / ft	шт / pieces	Фактический вес / Actual weight: брутто / gross, фунт / lb	нетто / net, фунт / lb
1.	17-14-01383		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 088	7 066
2.	17-14-01384		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 055	7 033
3.	17-14-01387		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
4.	17-14-01381		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
5.	17-14-01386		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 066	7 044
6.	17-14-01385		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 044	7 022
7.	17-12-04278		B/C	1170399	1272	1.900	0.200	21.0-21.3	1384.0	65	5 027	5 004
8.	17-14-01382		B/C	1170399	1273	1.900	0.200	21.0-21.3	1934.6	91	7 088	7 066
9.	17-14-01379		B/C	1170399	1270	1.900	0.200	21.0-21.3	1934.6	91	7 099	7 077
10.	17-14-01380		B/C	1170399	1270	1.900	0.200	21.0-21.3	1934.6	91	7 077	7 055
11.	17-14-01388		B/C	1170399	1279	1.900	0.200	21.0-21.3	1934.6	91	7 066	7 044
12.	17-12-04250		B/C	1170399	1270	1.900	0.200	21.0-21.3	1415.6	67	5 247	5 225
13.	17-12-04284		B/C	1170399	1271	1.900	0.200	21.0-21.3	873.0	41	3 219	3 197
14.	17-12-04244		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
15.	17-12-04251		B/C	1170399	1270	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
16.	17-12-04253		B/C	1170399	1270	1.900	0.200	21.0-21.3	929.6	44	3 450	3 428
17.	17-12-04247		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 088	7 066
18.	17-12-04285		B/C	1170399	1272	1.900	0.200	21.0-21.3	638.8	30	2 359	2 337
19.	17-12-04242		B/C	1170399	1271	1.900	0.200	21.0-21.3	1922.7	91	7 077	7 055
20.	17-12-04259		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 077	7 055
21.	17-12-04258		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 088	7 066
22.	17-12-04260		B/C	1170399	1272	1.900	0.200	21.0-21.3	1937.6	91	7 044	7 022
23.	17-12-04499		B/C	1170399	1279	1.900	0.200	21.0-21.3	638.8	30	2 359	2 337
24.	17-12-04249		B/C	1170399	1271	1.900	0.200	21.0-21.3	1436.7	68	5 335	5 313
			NPS 1 1/2	Sch 80 XS			TOTAL/ИТОГО		40166.1	1892	147 261	146 732
							BUNDLES/ПАКЕТОВ 24					

INTERPIPE
NIKO TUBE

LIMITED LIABILITY COMPANY
"INTERPIPE NIKO TUBE"
UKRAINE, Nikopol, 56, Trubnikov ave. Tel./fax +38 (05662) 2-10-70

NIK373 / 1170399 / 1.5A106XHF / 1-1/2 XH A106B SMLS PIPE

ИНСПЕКЦИОННЫЙ СЕРТИФИКАТ № 0844
INSPECTION CERTIFICATE № 0844

Лист 1 Sheet | Листов 1 Sheets

Химический состав по сертификатным данным на заготовку и результаты контроля химического состава металла труб
Heat analysis acc. to the billet manufacturer certificate & results of chemical analysis of pipes

Номер плавки Heat #	Лаборатория Laboratory	Химический состав в % Chemical composition %												Завод изготовитель заготовки Steel supplier
		C x100	Mn x100	Si x100	S x1000	P x1000	Cr x100	Ni x100	Cu x100	Mo x1000	Ti x1000	V x1000	Nb x1000	
	min													
	max													
1170399	DneprSteel	21.2	87.5	22.2	5	11	8.3	10.1	15.5	19	2	2	2	"MP"DNEPROSTEEL"LLC ООО"МЗ"Днепросталь"
	NIKOTUBE"	20	86	23	5	10	8	10	14	20	3	1	1	
	NIKOTUBE"	21	86	23	5	10	8	10	14	19	3	1	1	

Анализ плавки согласно сертификата завода-изготовителя/Heat analysis acc.to the manufacturer certificate."-control analysis of pipes/"-контрольный анализ от труб.
Сталь произведена методом плавления в электродуговой печи с последующей непрерывной разливкой. Сталь полностью раскисленная и мелкозернистая. Сталь раскисленная алюминием. Адрес завода изготовителя заготовки: Украина, 49051, г.Днепропетровск, ул.Винокурова, 4/ Steel has been produced by the EAF with continuous casting process. Steel is fully killed and made to fine grain practice. Aluminium killed steel. The address of steel supplier: Ukraine,49051, Dnipropetrovsk, 4 Vinokurova str.

Результаты испытаний труб - Test results for pipes

Номер партии Lot#	Механические свойства Mechanical Properties															
	Испытание на растяжение Tensile test									Испытание на удар /Impact test						
	Предел прочности Tensile strength	Предел текучести R0,5 Yield strength R0.5	Относительное удлинение Elongation	Отношение σ/σ Ratio σ/σ	Ориентация образца Specimens orientation*	Ширина полоскового образца Width of strip specimen	Диаметр цилиндрического образца Diameter of cylindrical specimen / длина образца Length of specimen		Твердость Hardness Среднее значение Average		Ориентация*Orientation"	Тип надреза, температура Type of notch, temperature	Норматив/Norm	Ср.значение Average	Площадь сдвига, Shear area	Размер образца ** Specimens size **
	PSI	PSI	%			дюйм/ inch	дюйм/ inch	дюйм/ inch	HRB	HRC					%	дюйм/ inch
min	70000	40000	24.0	-					-	-			min			
max	-	-	-	-					100	22						
1270	78500	62000	30.5		L	0.750		1.970	83 84 84 av.84	<22						
1271	77000	56500	32.0		L	0.750		1.970	83 83 82 av.83	<22						
1272	80500	59500	30.5		L	0.750		1.970	85 85 85 av.85	<22						
1273	77000	60500	33.0		L	0.750		1.970	83 83 83 av.83	<22						
1278	82000	57000	30.0		L	0.750		1.970	85 86 86 av.86	<22						

* L - Продольный образец / Longitudinal specimen; T - поперечный образец / transverse specimen
** Результаты испытаний уменьшенных образцов пересчитаны на полноразмерные/Non-fullsize specimens results convert to fullsize (10x10mm)

Прочие виды контроля / Other tests

Вид испытания / Type of test	Параметры / Criteria	Результаты контроля /Test results
Загиб / Bend test	Pipes have been tested on bend. Трубы прошли испытание на загиб"	Удовлетворительно / Satisfactory
Испытание гидравлическим давлением / Hydrostatic test	100% /2500 PSI / 5 sec"	Удовлетворительно / Satisfactory
Визуальный контроль / Visual inspection	По стандарту / As per Standard"	Удовлетворительно / Satisfactory
Контроль геометрических параметров / Dimensional inspection	По стандарту / As per Standard"	Удовлетворительно / Satisfactory

Состояние поставки / Delivery condition

Общие условия / General condition	Трубы изготовлены и испытаны в соответствии с требованиями ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME A53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012 и заказа / Pipes were produced and inspected according to requirements of ASTM A106/A106M-2015/ ASME SA106/SA106M-2015/ ASTM A53/A53M-2012/ ASME SA53/SA53M-2015/ NACE MR0175-2015/ NACE MR0103-2012and order's requirements
Покрытие / Coating	Трубы покрыты черным лаком Quakercoat 720 / Pipes are coated with black varnish Quakercoat 720
Фаска (если требуется) / Bevelled ends if required	Трубы обрезаны под прямым углом .Pipes are cut off under a right angle .
Защита концов / Protection of pipe ends	Концы труб оснащены пластиковыми колпачками / The ends of pipes are equipped by plastic caps
Дополнительная информация / Additional information	Ремонт сварной запрещен. /No weld repair

Страна происхождения: Украина. Country of origin: Ukraine.
Ваши предложения по улучшению продукции просим направлять на эл.адрес / Please send Your proposals for improving the product by e-mail or fax or by phone
Sergey.Pichalov@nap.interpipe.biz fax +38(0566)639378 phone +38(0566)639649
e-mail: Info@ua.interpipe.biz Phone: 17133330333 Fax: 17133330380
Этот инспекционный сертификат относится только к перечисленной в нем продукции. Недопустимо внесение изменений или другое неправомерное использование сертификата.
This inspection certificate is only for the listed products. Modification or unauthorized use of this certificate is strictly prohibited. Violations can be considered as forgery and is subject to prosecution
Инспекционный сертификат оформлен и проверен контролером сертификатором КОНДРАТЕЦ О.П.
Inspection Certificate was drawn up and checked by the Certificate inspector KONDRATEC O.P.

Дата: 21.02.2017 Date
Подпись инспектора 3-й стороны : Signature of 3-rd Part Inspector:
Подпись ОТК Signatures QCD

REVIEWED by KLOKOV 22.02.2017

Э1 O.Vydysh

ТОВ "ІНТЕРПАЙП НІКО ТЬЮБ" 1 СЛУЖБА ЯКОСТІ м. Нікополь

PO Created for Reference - This is not an official PO

A Honeywell Company

UOP RUSSELL LLC

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802562** **Date :** SEP/20/2017 **Page :** 1 of 3
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.

We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.

See our Commitment Statement at http://www.honeywell.com/sites/sm.

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT or a special HONEYWELL/UOP/UOP Russell / Supplier TERMS & CONDITIONS are in place, then this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

Supplier#s "boilerplate" preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing.

Total PO price is a "NOT TO EXCEED" value without written consent from the Buyer in the form of a PO Addendum.

Our Contact Persons:
Purchasing = Clint Pollard, 539-664-4853, Clint.Pollard@honeywell.com

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Clint Pollard
Tax ID 3101720754
Buyer Phone 539-664-4853
Purchasing Return Fax 918-481-7427
Email Id clint.pollard@honeywell.com

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802562** **Date :** SEP/20/2017 **Page :** 2 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:
UOP Russell: accountspayable@uop.com
Please "Acknowledge" receipt of this PO, actual pricing, and delivery date to: Clint.Pollard@Honeywell.com.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	1	Each		NIP, 0.75, TOE X 5.375" A106B	
SKID 1		WAREHOUSE			
	3/4" NIPPLE, S/160 SMLS, A-106-B TOE X 5 3/8" Please deliver to: Company RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA OK 74015 USA				
20	27	Each		PLUG RD SOLID, 0.5, 6M, TH A105	
SKID 1		WAREHOUSE			
	Please deliver to: Company RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA OK 74015 USA				
30	4	Each		SWGC, 1 1/2X1, S/160 TBE A234WPB	
SKID 1		WAREHOUSE			
	Please deliver to: Company RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA OK 74015 USA				
40	1	Each		TEE RED, 1 1/2X3/4, 3000LB, SW A105	
SKID 1		WAREHOUSE			

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802562** **Date :** SEP/20/2017 **Page :** 3 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			

1 1/2"x3/4" TEE, RED SW, 3000LB FS, A-105
Please deliver to:
Company
RUSSELL WAREHOUSE
760 WEST MAIN PARKWAY
CATOOSA OK 74015
USA

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.
Send acknowledgement and all correspondence to Buyer.
In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

CAN 19140 / 76CT / 75X8 0160SML / 3/4 X 8" S160 SMLS NIPPLE

Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

Phoenix Capitol Camco

CapProducts

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Certified Mill Test Report

Printed: 8/15/2017
Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

Certified: 07/28/2017
P.O. 17-4503-DS
Tag

Heat No 91158
Heat Code 76CT
Phoenix Order # 1305370

Material ASTM A106-2014 / ASME SA106-2015 Edition

J-447
802562

Part Number
15130716

Description
3/4 X 8" SCH 160 SMLS NIPL TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2500	0.7700	0.0050	0.0050	0.2500	0.0500	0.0200	0.0400

C Eq. Long
0.4018

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0250	0.0290			0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.1100

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
76,000	45,000	30.0%	0.0%	144	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

* Eddy Current test passed.
* Bend test passed.

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.

Meets ASME SA 106 Grade B Requirements.

BWL4797 / CA0566 / 50RDHDPLUGE / 1/2" ROUND HEAD PLUG A105N

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)7-371-3864, 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 :
CERT NO. : 162966
ORDER NO. : 52985

INVOICE NO. : 5200008512
L/C NO. :

PAGE : 1
DATE : 10/11/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
17	0108653 CA0566	450 PCS	ROUND PLUG A105 1/2" 3000#/6000# NPT 42RP3004 C: 0.19 Si: 0.19 Mn: 1.01 P: 0.013 S: 0.006 Cu: 0.10 Cr: 0.06 N: 0.06 Mo: 0.013 V: 0.002 Nb: 0.000 Ni: 0.0058 Ti: 0.0019 CE: 0.38 TS(KSI): 74.6 YS 0.2%(KSI): 55.1 EL(%): 35.3 R.A.(%): 67.6 HARDNESS 1(HBW): 141 HARDNESS 2(HBW): 143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO.: 01 202 ROC/Q 12 0247

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

Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

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CapProducts

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Certified Mill Test Report

Printed: 5/10/2017
Certified: 04/19/2016

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-1858-DS
Tag

Heat No 74JF
Heat Code 74JF
Phoenix Order # 1273826

Material ASTM A234-2011a WPB / ASME SA234-2010 Edition

Part Number	Description
48200027	1 1/2X1 160 WPB CONC SWG TBE

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2100	0.9300	0.0070	0.0280	0.2200	0.1900	0.0680	0.1100

C Eq. Long
0.4150

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0190	0.0350			0.0000					

Additional Chemical Properties

Cr + Cu + Ni
0.3680

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
84,000	57,200	23.0%	39.0%	169	162

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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

Manufactured in the USA.

Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

Phoenix • Capitol • Camco

CapProducts

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Certified Mill Test Report

Printed: 2/3/2017
Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

Certified: 02/02/2017
P.O. 17-0261-DS
Tag

Heat No 166605
Heat Code 727CCCC
Phoenix Order # 1255325
Material ASTM A105-2014 / ASME SA105-2015 Edition

Part Number	Description
12401426	1-1/2x1-1/2x3/4 3M SW RED TEE A105

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2100	0.9200	0.0090	0.0210	0.2200	0.1600	0.0690	0.1040

C Eq. Long
0.4104

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0190	0.0360								

Additional Chemical Properties

Cr + Cu + Ni
0.3330

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
90,000	60,000	28.0%	65.0%	183	187

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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 independentinspectors 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

Meets ASME SA-181-70 2013 Edition. Manufactured in the USA.

PO Created for Reference - This is not an official PO

UOP
A Honeywell Company

UOP RUSSELL LLC

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802564** **Date :** SEP/20/2017 **Page :** 1 of 3
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.

We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.

See our Commitment Statement at http://www.honeywell.com/sites/sm.

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT or a special HONEYWELL/UOP/UOP Russell / Supplier TERMS & CONDITIONS are in place, then this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

Supplier#s "boilerplate" preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing.

Total PO price is a "NOT TO EXCEED" value without written consent from the Buyer in the form of a PO Addendum.

Our Contact Persons:
Purchasing = Clint Pollard, 539-664-4853, Clint.Pollard@honeywell.com

Agreed & Accepted By:

_____

Authorized Signature of Seller

Authorized and Approved By Clint Pollard
Tax ID 3101720754
Buyer Phone 539-664-4853
Purchasing Return Fax 918-481-7427
Email Id clint.pollard@honeywell.com

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802564** **Date :** SEP/20/2017 **Page :** 2 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:
UOP Russell: accountspayable@uop.com
Please "Acknowledge" receipt of this PO, actual pricing, and delivery date to: Clint.Pollard@Honeywell.com.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	1	Each		PLUG RD SOLID, 0.5, 6M, TH A105	
SKID 3		WAREHOUSE			

Please deliver to:
Company
RUSSELL WAREHOUSE
760 WEST MAIN PARKWAY
CATOOSA OK 74015
USA

20	2	Each		SWGC, 1X1/2, XH-S/160 LB-TS A234WPB	
SKID 3		WAREHOUSE			

1"x1/2" SWAGE, CONC, XH-S/160, A-234-WPB LEB-TSE
Please deliver to:
Company
RUSSELL WAREHOUSE
760 WEST MAIN PARKWAY
CATOOSA OK 74015
USA

30	3	Each		TEE RED, 1 1/2X1/2, SW, 3000LB A105	
SKID 3		WAREHOUSE			

1 1/2"x1/2" TEE RED, SW, 3000LB FS, A-105
Please deliver to:
Company
RUSSELL WAREHOUSE
760 WEST MAIN PARKWAY
CATOOSA OK 74015
USA

PO Created for Reference - This is not an official PO

UOP
A Honeywell Company

Vendor: 132205 LEE SUPPLY P.O Box: 1475 TULSA Oklahoma 74101 USA Phone: 918-587-8181 Fax: 9185823471 Kind Attn : Jan	**Delivery terms:** DAP - Delivered at Place DESTINATION	**Purchase Order 4500802564** **Date :** SEP/20/2017 **Page :** 3 of 3 **Plant :** 1401 RUSSELL WAREHOUSE

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.

Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

BWL5170 / CA0566 / 50RDHDPLUGF / 1/2" ROUND HEAD PLUG A105N

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)7-371-3864, 3713882
WEB SITE : http://www.bothwell.com.tw E-Mail : box@bothwell.com.tw

An ISO 9001 : 2008 Registered Manufacturer

447

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

4500802564

CUSTOMER :
CERT NO. : 162966
ORDER NO. : 52985

INVOICE NO. : 5200008512
L/C NO. :

PAGE : 1
DATE : 10/11/2016
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
17	0108653 CA0566	450 PCS	ROUND PLUG A105 1/2" 3000#/6000# NPT 42RP3004 C: 0.19 Si : 0.19 Mn: 1.01 P: 0.013 S: 0.006 Cu: 0.10 Cr: 0.06 N : 0.06 Mo: 0.013 V: 0.002 Nb: 0.000 Ni 0.0058 Ti : 0.0019 CE: 0.38 TS(KSI) : 74.6 YS 0.2%(KSI) : 55.1 EL(%) : 35.3 R.A.(%) : 67.6 HARDNESS 1(HBW) : 141 HARDNESS 2(HBW) : 143

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N - 14, ASME SA105N-2015ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-15/ISO 15156-15/MR0103-15
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO : 01 202 ROC/Q 12 0247

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

BWD0839 REV: 4

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Capitol Manufacturing
1125 Capitol Avenue
Crowley, LA 70526

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Commanding a Higher Standard℠

Certified Mill Test Report

Printed: 8/31/2017
Certified: 06/06/2017

Customer
LEE SUPPLY CO
PO BOX 1475
TULSA, OK 74101

P.O. 17-4831-DS
Tag

Heat No NF103301
Heat Code 76AJ
Phoenix Order # 1309486

Material ASTM A234-2011a WPB / ASME SA234-2010 Edition

Part Number	Description
48201414	1X1/2 160 WPB CONC SWG BXT

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.2100	0.9300	0.0090	0.0060	0.2100	0.1400	0.2900	0.1100

C Eq. Long
0.4215

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0200	0.0090		0.0230	0.0020					

Additional Chemical Properties

Cr + Cu + Ni
0.5400

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
82,000	62,300	30.0%	67.0%	170	165

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
N/A	N/A	N/A	N/A	N/A

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 independentinspectors 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

Manufactured in the USA.

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BWL4137 / CA0368 / 1.5X 503TEESWE / 1-1/2 X 1/2" 3000# SW RED TEE

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)7-371-3864, 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 :
CERT NO. : 153267
ORDER NO. : 48315

INVOICE NO. : 5200006677
L/C NO. :

PAGE : 1
DATE : 11/06/2015
ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
42	123301 CA0368	76 PCS	RED TEE A105 1-1/2"X1/2" 3000# S/W 52RT3014004 C: 0.19 Si : 0.20 Mn: 0.84 P: 0.013 S: 0.008 Cu: 0.11 Cr : 0.07 N : 0.05 Mo: 0.02 V: 0.002 Nb: 0.001 Ni: 0.0104 Ti : 0.001 CE: 0.36 TS(KSI) : 74.7 YS 0.2%(KSI) : 50.6 EL(%) : 33.6 R.A.(%) : 66.4 HARDNESS 1(HBW) : 143 HARDNESS 2(HBW) : 145

REMARK:
THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N-13, ASME SA105N-2013ED
THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2011
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	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-				-	70		36	22	30	-
MAX	-				0.43	-		-	-	-	187

HEAT TREATMENT: NORMALIZED 900°C(1652°F) A.C.
STEEL MAKING PROCESS : ELECTRIC FURNACE
CONFORMS TO NACE MR0175-09/ISO15156-09/MR0103-12
FULLY KILLED AND FINE GRAIN PRACTICE
SCI LOGO THAT APPEARS ON THESE FITTINGS IS A
REGISTERED TRADEMARK OF SMITH-COOPER INTERNATIONAL
AND REPRESNETS MATREIAL DISTRIBUTED BY THIS COMPANY.
PED 97/23/EC CERTIFICATE NO : 01 202 ROC/Q 12 0247

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

BWD0839 REV: 4

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BOTH-WELL STEEL FITTINGS CO., LTD.

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STANDARD : CHEMICAL COMPOSITION(%) & MECHANICAL PROPERTIES.

	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)
MIN	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
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BWD0839 REV: 4

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UOP
A Honeywell Company

UOP RUSSELL LLC

Vendor: 121666 INDUSTRIAL PIPING SPECIALISTS INC P.O Box: 581270 TULSA Oklahoma 74158 USA	**Delivery terms:** FOB - Free on board FREE ON BOARD	**Purchase Order 4500804652** **Date :** SEP/28/2017 **Page :** 1 of 2
Deliver To: RUSSELL WAREHOUSE 760 WEST MAIN PARKWAY CATOOSA Oklahoma 74015 USA	**Bill To:** UOP RUSSELL LLC c/o Honeywell International PO Box 981762 El Paso, Texas 79998 - 1762 Or Email Invoice To: PMTUSInvoice981762@Honeywell.com	**Plant:** 1401 RUSSELL WAREHOUSE **Currency :** USD **Proj Network# :** J447XX

All Invoices, Correspondence & Shipping-Papers must reference PO Number & PO Line Item and Proj. Network# where applicable.
We are a responsible care company and are committed to achieving health, safety and environmental excellence with your help.
See our Commitment Statement at http://www.honeywell.com/sites/sm.

Unless a previously signed MASTER EQUIPMENT PURCHASE AGREEMENT or a special HONEYWELL/UOP/UOP Russell / Supplier TERMS & CONDITIONS are in place, then this PURCHASE ORDER and any product/service associated with this PURCHASE ORDER will be governed by the following documents:

1) The representations made on the face of this Purchase Order.
2) Honeywell International Inc. Purchase Order Terms and Conditions.
3) Technical specifications from Honeywell referenced in the items.
4) Other documents referenced in Honeywell's request for proposal.

Supplier#s "boilerplate" preprinted terms and conditions, whether attached, affixed, or otherwise submitted are expressly denied. Any additional or different terms proposed by SELLER are hereby rejected unless expressly consented to by Honeywell in writing.

Total PO price is a "NOT TO EXCEED" value without written consent from the Buyer in the form of a PO Addendum.

Our Contact Persons:
Purchasing = Clint Pollard, 539-664-4853, Clint.Pollard@honeywell.com

Agreed & Accepted By:

_____
Authorized Signature of Seller

Authorized and Approved By Clint Pollard
Tax ID 3101720754
Buyer Phone 539-664-4853
Purchasing Return Fax 918-481-7427
Email Id clint.pollard@honeywell.com

PO Created for Reference - This is not an official PO

A Honeywell Company

Vendor: 121666 INDUSTRIAL PIPING SPECIALISTS INC P.O Box: 581270 TULSA Oklahoma 74158 USA	**Delivery terms:** FOB - Free on board FREE ON BOARD	**Purchase Order 4500804652** **Date :** SEP/28/2017 **Page :** 2 of 2 **Plant :** 1401 RUSSELL WAREHOUSE

If there are any issues regarding invoices, please email Accounts Payable at one of the following addresses:
UOP Russell: accountspayable@uop.com
Please "Acknowledge" receipt of this PO, actual pricing, and delivery date to: Clint.Pollard@Honeywell.com.

Item	Quantity	Unit	Material	Description	Delivery Date
Unloading Point		Goods Recipient			
10	1	Each		UNION, 1, 3000LB, TH A182F304/L	
CRYO SPLS		WAREHOUSE			

GENERAL CONDITIONS OF PURCHASE

In addition to the terms and conditions noted on the face of this document, this purchase order is subject to the Honeywell International and its subsidiaries GENERAL TERMS AND CONDITIONS OF PURCHASE, attached hereto and incorporated herein (if not attached, will be provided upon request). If this purchase order references a statement of work or any other document required in the performance of this purchase order that document is deemed incorporated herein and shall become a binding part of the Purchase Order.

Send acknowledgement and all correspondence to Buyer.

In addition, Seller shall promptly notify Buyer if any chemical substance constituting or contained in the products sold to Buyer hereunder is not on the Toxic Substance Control Act(TSCA) Chemical Substance Inventory, or is covered by a significant new use or control regulation under TSCA and shall properly label the substance and provide to the Buyer proper information about the substance, including a current Material Safety Data Sheet.

4500804652

[| 4500804652 | J447XX | | 8MU] | [LN: 1] | T0398576-1 | FA13TUN4/L |

I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A. A01
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 A02

Nr A03 2016-C_IML-28910 Data / Dated 21.12.2016 Z02

ITEX PIPING PRODUCTS LLC A06
13411 West Road
HOUSTON, TX 77041 US

		A07
Ordine / PO	I-TP527669/B	
Item	44	
DDT / Delivery note	2016-2E301-0001461	
Packing List	2016-2E301-0001461	
Fattura / Invoice	2016-2E401-0001388	A08
Ns. rif. / Our ref.	2016-2E201-0001770-0028	

Dest. INDUSTRIAL PIPING SPECIALIST A05
606 NORTH 145 EAST AVENUE
TULSA OK 74116 US

Cod. colata B07 Heat Code	Nr. colata B07 Heat Nr	Quantità B08 Quantity	Descrizione B01 - (B09 - B11) Description
8MU	382911	100,00	FITTING UNION F/F THRD NPT 3M 1" F304L (NUT/MALE/FEMALE)

Mat. in acc. a / Mat. in acc. to B02 ASTM A182/A182M-15 Gr. F304/F304L
ASME SA182/SA182M Gr. F304/F304L, ASME II PART A Ed.2015
ANSI/NACE MR 0175 - ISO 15156 Ed.2015 / NACE MR 0103 Ed. 2012
P.E.D. 2014/68/EU ANNEX 1 PAR. 4.3

Ann. mat. / Mat. remarks B02 MATERIAL DESCALED & PICKLED
PMI TEST 100%: SATISFACTORY
INTERGRANULAR CORROSION TEST ACCORDING TO ASTM A262 PRACTICE "E": SATISFACTORY

Elementi / Elements (C71 - C82)	C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu	V	Nb	N
LADLE ANALYSIS	0,020	0,380	1,460	0,029	0,037	18,100	8,000	0,000	0,000	0,000	0,000	0,000	0,087
	Al								CE LF	CE SF	F1	F2	PREN
LADLE ANALYSIS	0,000								4,417	0,263	26,100	18,100	19,492

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		Forma C10 Shape	°C C03	Snervamento>0,2% C11 Yield Strength>0,2%	Snervamento>1,0% C11 Yield Strength>1,0%	Rottura C12 Tensile	Allungamento C13 Elongation	Contrazione C15 Reduction of area
Sez/Sect mm2	L. mm	1=O - 2=□		MPa	MPa	MPa	%	%
122,65	50,00	1	20	355,0	--	633,0	51,6	73,8

DUREZZA / HARDNESS C22		RESILIENZA / IMPACT TEST					
HBW	Tipo/Type C40	Provetta / Test Specimen	°C C03	1-Joule C42	2-Joule C42	3-Joule C42	Media/Average C43
180,0 - 186,0	KV	10x10mm	-10	221	205	206	210,7

Tratt. Term. / Heat treatment C70	Solution Treated at 1050°C / Water Cool	ELECTRIC FURNACE
Dim in acc. a / Dim. acc. to B14	MSS SP83 Ed.2014 - ASME B1.20.1 Ed.2013 - MSS SP25 Ed.2013	

Marcatura in acc. B06 Marking in acc. to	MSS SP25 Ed. 2013	Vis. & Dim.	SATISFACTORY	Origine Origin of Steel	SPAIN

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

UFFICIO CONTROLLO QUALITA' A05 QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO Z03 INSPECTION AUTHORITY	MARCHIO PRODUZIONE A04 MANUFACTURER'S SYMBOL
Boris Fizzotti - Q.C. Manager		IML or