



401 S. Rohlwing Rd., Addison, IL 60101  
 630.543.8145 | [porterpipe.com](http://porterpipe.com)  
 ADDISON | CHICAGO | HAMMOND | ROCKFORD  
 MILWAUKEE | INDIANAPOLIS | MADISON

**PORTER**  
 PIPE & SUPPLY®

SALES ORDER #: 12860953-00  
 CUSTOMER PO #: 4500275925

## TALLY SHEET

LINE #	HEAT #	QTY OF HEAT	DESCRIPTION	PAGE	COMPLETED
1	HN1678	14	1/2 304 SS 3000# THRD HALF COU		Completed
1	HN1504	14	1/2 304 SS 3000# THRD HALF COU		Completed
2		0	1/2 304 SS 3000# SW HALF COUP		
3	HN1276	4	3/4 304 SS 3000# THRD HALF COU		Completed
4	HN1470	1	1X1/2 304 SS 3000# SW INSERT B		Completed
5		2	1 304 SS 3000# THRD HALF COUP		
6		5	1-1/2 304 SS 3000# THRD HALF C		
7	HN1415	4	1 304 SS 3000# SW 90 B16.11 A1		Completed
8	HN1512	2	1 304 SS 3000# SW TEE B16.11 A		Completed
9		9	1 304 SS 150# SW FLANGE STD RF		Waiting for vendor
10	255	22	1-1/2 304 SS 3000# SW 90 B16.1		Completed
11	212	4	1-1/2 304 SS 3000# SW TEE B16.		Completed
12	S210610AA09	15	1-1/2 304 SS 150# SW FLANGE ST		Completed
12	CH-21963	1	1-1/2 304 SS 150# SW FLANGE ST		Completed
13	CH-11440	2	1-1/2 304 SS 150# WN FLANGE ST	2	Completed
14	FGL0970	4	2 304 SS SCH10 WELD 90 B36.10/	3	
15	S49241	2	2 304 SS 150# THRD FLANGE RF B	4	
16	S49241	4	2 304 SS 150# SCH10 WN FLANGE		
17	S49241	4	2 304 SS 150# WN FLANGE STD RF		
18	1028275	2	2X1-1/2 304 SS SCH10 WELD CON	13	
19	64MWRA084	2	2X1-1/2 304 SS SCH40 WELD CON	14	
20	43DX903	2	3 304 SS SCH10 WELD 90 B36.10/	15	
21		2	3 304 SS SCH40 WELD 90 B36.10/		Waiting for vendor
22		2	3 304 SS 150# SCH10 WN FLANGE		Waiting for vendor
23	YU199440	2	3X2 304 SS SCH10 WELD CON RED	16	
24	43DW805	2	3X2 304 SS SCH40 WELD CON RED		
25		4	4 304 SS SCH40 WELD CAP B36.10		Waiting for vendor
26	MG515-1	2	4 304 SS SCH10 WELD 90 B36.10/	19	
27	CH-17573	1	4 304 SS 150# SCH10 WN FLANGE	20	
27	CH-19642	2	4 304 SS 150# SCH10 WN FLANGE	21	
28	K027080	2	6X4 304 SS SCH10 WELD CON RED	22	Completed
28	KG399-1	2	6X4 304 SS SCH10 WELD CON RED	23	Completed
29	A6652	6	6 304 SS 150# SLIP-ON FLANGE R	24	Completed



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

ISO 9001 : 2015 CERTIFICATE No. 04 100 011022

ADM. OFFICE: 504, SUKH SAGAR, N. S. PATKAR MARG,  
 MUMBAI 400 007, INDIA  
 Tel.: 91-22- 66290600. Fax.: 91-22-66290633/34  
 Website : [www.chandansteel.net](http://www.chandansteel.net)  
 Email : [csl@chandansteel.net](mailto:csl@chandansteel.net)  
 L/c. No. : ---  
 L/c. Date: ---

**WORKS:** Plot No. 35, Survey No.102/2 & 3 G. J. D. C., Umbergaon.  
 Village : Deheri, Tal- Umbergaon.  
 Dist Valsad, Gujarat - 396 171. INDIA.  
 Tel.: 91-260-256 2066 / 4367 / 1166. Fax.: 91-260-256 2287  
 E-mail : [exports@chandansteel.net](mailto:exports@chandansteel.net)

**INSPECTION CERTIFICATE 3.1**  
 ACCORDING TO EN 10204

TEXAS PIPE & SUPPLY CO. 2330 HOLMES ROAD HOUSTON, TEXAS 77051-1098 USA						Test Certificate No. : EXP/21-22/00017 -08 Date of Issue : 05.04.2021 P. O. No. : 280712 Invoice No. & Date : EXP/21-22/00017 Dtd.05.04.2021															
<b>ITEM DESCRIPTION</b> <b>STAINLESS STEEL FORGED &amp; FULLY MACHINED FLANGES</b>																					
PO. Sr.No.	HEAT NO.	Pcs	Box No.	Wt.Kgs	Grade	Item		Process Route													
8	CH-14141	14	59	15.62	F304/304L	3/4" WNRF 300 LBS 40S		Electric Induction Melting, A.O.D. Refining, Continuous Casting & Hot Forging													
10	CH-11532	758	59 & 61	1052.00	F304/304L	1-1/2" SORF 150 LBS															
13	CH-11459	1274	59 & 64	1068.08	F304/304L	1" THRF 150 LBS															
18	CH-11507	2066	59,62,65,67 & 70	2930.70	F304/304L	1-1/2" SWRF 150 LBS 40S															
5	CH-11440	420	73	750.00	F304/304L	1-1/2" WNRF 150 LBS 40S															
CHEMICAL COMPOSITION (Weight %)																					
PO. Sr.No.	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Ti	N	OTHERS									
8	0.024	0.40	1.82	0.041	0.016	18.21	-	8.06	-	-	0.082	-									
10	0.030	0.47	1.75	0.037	0.017	18.32	-	8.03	-	-	0.079	-									
13	0.030	0.45	1.70	0.039	0.016	18.03	-	8.07	-	-	0.077	-									
18	0.030	0.39	1.72	0.040	0.021	18.48	-	8.01	-	-	0.085	-									
5	0.026	0.46	1.65	0.037	0.021	18.05	-	8.10	-	-	0.076	-									
MECHANICAL PROPERTIES																					
PO. Sr.No.	0.2% Yield Strength N/mm <sup>2</sup> (Rp0.2)			Tensile Strength N/mm <sup>2</sup> (R <sub>m</sub> )		Elongation %	Reduction of Area %		Hardness (H.B.W.)												
8	275			595		54	78		166-168												
10	259			589		52	76		166-169												
13	285			602		49	66		168-172												
18	275			597		53	79		167-169												
5	265			573		51	72		158-160												
<b>Remarks:</b>																					
1. The material is solution annealed at minimum 1050 °C and water quenched. 2. Material is free from mercury and radio-active contamination and is found within the limits of the background radiation. 3. PMI test 100% satisfactory. 4. The material conforms to ASTM A 182-19, ASME SA 182-19 & Dimension confirms to ASME B16.5-17 Specification. 5. Visual and Dimensions inspection done and found satisfactory. 6. The material conforms to NACE MR0175/ISO 15156-3:2015 & NACE MR0103-2015. 7. The steel making is by Chandan Steel Limited, India. 8. Country of Melt - INDIA.																					

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



V.Y. NARAYANAN  
 SR. MANAGER Q. A.



# INSPECTION CERTIFICATE

(EN10204 3.1)

115, Eosil-ro, Yangsan-Si,  
Gyeongsangnam-Do, Korea  
TEL : 82-555-364-1800  
FAX : 82-555-362-7074

Customer	Allied Stainless	Certificate. No.	JH-22-0418
P.O. No.	PO40238	Date of Issue	2022-09-15
Hull No.(Project No.)	N/A	Dimension & VI	Good
Spec. for Material	A/SA403 WP304/304L	Spec. for Dimensional	ASME B16.9(2018ED)

## 1. ITEM DESCRIPTION

LOT No	Line	Raw Heat No	Description	Q'TY(P'cs)	Starting Material	NDE(Method : Result)
FEL0276	6	SD59355	90E(L) 10" S/10S W B.W.	162	A312 WELDED PIPE	N/A
FGL0930	8	9W414	90E(L) 4" S/10S W B.W.	256	A312 WELDED PIPE	N/A
FGL0933	11	SE32005	90E(L) 2" S/10S W B.W.	4100	A312 WELDED PIPE	N/A
FGL0970	11	SE32005	90E(L) 2" S/10S W B.W.	500	A312 WELDED PIPE	N/A

\* Heat Treatment Condition : 1040°C Solution Annealing & Water Quenching, Holding Time : 20 Min

## 2. CHEMICAL COMPOSITION(%)

Heat No.	Spec	C	Si	Mn	P	S	Ni	Cr						
	Max	0.03	1.0	2.00	0.045	0.030	11.0	20.0						
	Min						8.0	18.0						
SD59355	L	0.016	0.37	1.42	0.031	0.004	8.04	18.19						
9W414	L	0.020	0.41	1.25	0.028	0.003	8.03	18.23						
SE32005	L	0.025	0.44	1.43	0.029	0.003	8.05	18.16						
SE32005	L	0.025	0.44	1.43	0.029	0.003	8.05	18.16						

\* L : Ladle Analysis, P: Product Analysis

## 3. MECHANICAL PROPERTIES

Heat No.	TENSILE TEST				TEST METHOD: HRB	Specimen Size	CHARPY-V IMPACT TEST (Test Temp : -196 °C)										
	Unit	Y.S(0.2%)	T.S	E.L			Direction Position	ABSORBED ENERGY (Unit : J)				LATERAL EXPANSION (Unit : mm)					
		MPa	MPa	%				Min:	(S)	(AVR)	1	2	3	AVR	1	2	3
SD59355	L,B	288	637	52		74, 75	10x2.5	L,B	62	51	46	53	0.93	0.81	0.78	0.84	
								L,W	58	61	55	58	0.92	0.95	0.91	0.93	
9W414	L,B	305	645	51		81, 80											
SE32005	L,B	268	628	50		80, 78											
SE32005	L,B	268	628	50		80, 78											

\* L : Longitudinal, T : Transvers, B : Base Metal, W : Weld Metal, Type For Tensile(1:Full Section, 2:Reduced Section - Pipe,3:Reduced Section - Plate)

Heat No	PMI	FLATTENING	I.G.C	HYDROSTATIC TEST	FERRITE	GRAIN SIZE
SD59355	100% PMI	N/A	GOOD	N/A	N/A	N/A
9W414	100% PMI	N/A	GOOD	N/A	N/A	N/A
SE32005	100% PMI	N/A	GOOD	N/A	N/A	N/A
SE32005	100% PMI	N/A	GOOD	N/A	N/A	N/A

## REMARK

- 1. Made in Korea
- 2. ASTM A403M(2019), ASME SA403(2019)
- 3. NACE MR0175/ISO15156(2015) // NACE MR0103/ISO17945(2015)
- 4. Free of Mercury, Free of Radiation.
- 5. No welding Repair
- 6. Pickled and Passivated.
- 7. IGC : ASTM A262 E

We certify this material has been manufactured and examined in accordance with all requirements of the specification and the results of all examination are acceptable

*S. J. KIM*

HEAD OF QUALITY MANAGEMENT



~PICOR® ~TUBE LINE® STAINLESS ~TUBE TEC® ~BRITE LINE®  
 170 Tubeway Drive 301 Brown Avenue Customer/Branch: PORTER PIPE & SUPPLY  
 Carol Stream, IL 60188 Sanford, FL 32771  
 Ph: 630-690-7000 Ph: 407-323-0940  
 Fax: 630-690-2108 Fax: 321-257-1006

# Certified Material Test Report

EN 10204:2004 3.1

PICK UP  
HAMMOND, IN 46323

Customer PO: 3050445-00  
Order Number: 0254416  
Date: 04/01/2024



Page: 1

## Remarks:

Description: 02.00" 150 RF THRD 304/L  
Item: I0824012-BL-KO

Heat Code: S49241  
Grade Marking: F304 / 304L

Spec ID: ASTM A182-21 / ASME SA182-15 ASME B16.5-20

Made From: Forging

Chemical Analysis								
Element	C	Si	Mn	P	S	Ni	Cr	N
Value %	0.023	0.45	1.49	0.033	0.007	8.51	18.17	0.065

Physical Analysis				
Test	Yield psi	Tensile psi	Elongation %	RED %
Value	42119	81845	56.8	72.1
Hardness				147,151 HBW

## MTR Notes

The referenced Brite Line flanges have been produced, tested and meet the requirements of ASTM A182-21, ASME SA182-15 and ANSI / ASME B16.5-20. Produced in accordance with ANSI / NACE MR0175/ISO 15156-2015 and ISO 17945 / MR0103-2015. Material is free from mercury contamination. 100% PMI tested: acceptable. No weld repair. Dimensional and visual inspection: no objections. PED 2014/68/EU. Manufactured in Korea.

This material has been solution annealed at a minimum temperature of 1900 degrees F and rapidly quenched below 500 degrees F.

We hereby certify that the finished goods listed herein have been inspected, tested and approved in accordance with the methods prescribed in the specifications cited herein. Based upon the results of such inspection and testing, we certify the purchased products and contents of this report meet the requirements of your purchase order. Quality system registered to ISO 9001: 2015 by TUV Cologne, certificate number 01 100 3199.

QMF 44 issue level 1

This report is authorized by  
Timothy P Warren  
V.P. of Quality Assurance.



~PICOR® ~TUBE LINE<sup>STAINLESS</sup>

~TUBE TEC® ~BRITE LINE®

170 Tubeway Drive

Carol Stream, IL 60188

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Fax: 630-690-2108

301 Brown Avenue

Sanford, FL 32771

Ph: 407-323-0940

Fax: 321-257-1006

# Certified Material Test Report

EN 10204:2004 3.1

Customer/Branch: PORTER PIPE & SUPPLY

PICK UP

ADDISON, IL 60101

Customer PO: 1455574-00

Order Number: 0253391

Date: 12/26/2023

TÜV Rheinland  
CERT  
ISO 9001

## Remarks:

Description: 02.00" 150 RF WN SCH 10S 304/L

Heat Code: S49241

Item: I0821212-BL-KO

Grade Marking: F304 / 304L

Spec ID: ASTM A182-21 / ASME SA182-15 ASME B16.5-20

Made From: Forging

Chemical/

Element	C	Si	Mn	P	S	Ni	Cr	N
Value %	0.023	0.45	1.49	0.033	0.007	8.51	18.17	0.065

Chemical Analysis

Physical Analysis

Test Value	Yield psi	Tensile psi	Elongation %	RED %
41974	82961	63.2	78.4	
Hardness 147,150 HBW				

## MTR Notes

The referenced Brite Line flanges have been produced, tested and meet the requirements of ASTM A182-21, ASME SA182-15 and ANSI / ASME B16.5-20. Produced in accordance with ANSI / NACE MR0175/ISO 15156-2015 and ISO 17945 / MR0103-2015. Material is free from mercury contamination. 100% PMI tested: acceptable. No weld repair. Dimensional and visual inspection: no objections. PED 2014/68/EU. Manufactured in Korea.

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301 Brown Avenue  
Sanford, FL 32771  
Ph: 407-323-0940  
Fax: 321-257-1006

# Certified Material Test Report

EN 10204:2004 3.1



TÜVRheinland®  
Precisely Right.

Customer PO: 1475067-00

Order Number: 0256126

Date: 09/04/2024

Page: 1

## Remarks:

Description: 02.00" 150 RF WN SCH 40S 304/L

Item: I0821412-BL-KO

Heat Code: S49241

Grade Marking: F304 / 304L

Spec ID: ASTM A182-21 / ASME SA182-15 ASME B16.5-20

Made From: Forging

Chemical Analysis								Physical Analysis					
Element	C	Si	Mn	P	S	Ni	Cr	N	Test	Yield psi	Tensile psi	Elongation %	RED %
Value %	0.023	0.452	1.49	0.033	0.007	8.51	18.17	0.065	Value	42104	85949	58.7	76.3

Hardness  
145,151 HBW

## MTR Notes

The referenced Brite Line flanges have been produced, tested and meet the requirements of ASTM A182-21, ASME SA182-15 and ANSI / ASME B16.5-20. Produced in accordance with ANSI / NACE MR0175/ISO 15156-2015 and ISO 17945 / MR0103-2015. Material is free from mercury contamination. 100% PMI tested: acceptable. No weld repair. Dimensional and visual inspection: no objections. PED 2014/68/EU. Manufactured in Korea.

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Ph: 630-690-7000 Ph: 407-323-0940  
Fax: 630-690-2108 Fax: 321-257-1006

# Certified Material Test Report

EN 10204:2004 3.1



Customer PO: 3050445-00

Order Number: 0254416

Date: 04/01/2024

Page: 1

## Remarks:

Description: 02.00" 150 RF THRD 304/L

Item: I0824012-BL-KO

Heat Code: S49241

Grade Marking: F304 / 304L

Spec ID: ASTM A182-21 / ASME SA182-15 ASME B16.5-20

Made From: Forging

## Chemical/ Chemical Analysis

Element	C	Si	Mn	P	S	Ni	Cr	N
Value %	0.023	0.45	1.49	0.033	0.007	8.51	18.17	0.065

Test	Yield psi	Tensile psi	Elongation %	RED %
Value	42119	81845	56.8	72.1
Hardness				
147,151 HBW				

## MTR Notes

The referenced Brite Line flanges have been produced, tested and meet the requirements of ASTM A182-21, ASME SA182-15 and ANSI / ASME B16.5-20. Produced in accordance with ANSI / NACE MR0175/ISO 15156-2015 and ISO 17945 / MR0103-2015. Material is free from mercury contamination. 100% PMI tested: acceptable. No weld repair. Dimensional and visual inspection: no objections. PED 2014/68/EU. Manufactured in Korea.

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# Certified Material Test Report

EN 10204:2004 3.1

**Customer/Branch:** PORTER PIPE & SUPPLY

PICK UP

ADDISON, IL 60101

**Customer PO:** 1455574-00

**Order Number:** 0253391

**Date:** 12/26/2023

TÜV Rheinland

**CERT**

ISO 9001

## Remarks:

**Description:** 02.00" 150 RF WN SCH 10S 304/L

**Heat Code:** S49241

**Item:** I0821212-BL-KO

**Grade Marking:** F304 / 304L

**Spec ID:** ASTM A182-21 / ASME SA182-15 ASME B16.5-20

**Made From:** Forging

Chemical/

Element	C	Si	Mn	P	S	Ni	Cr	N
Value %	0.023	0.45	1.49	0.033	0.007	8.51	18.17	0.065

Chemical Analysis

Physical Analysis

Test Value	Yield psi 41974	Tensile psi 82961	Elongation % 63.2	RED % 78.4
Hardness	147,150 HBW			

## MTR Notes

The referenced Brite Line flanges have been produced, tested and meet the requirements of ASTM A182-21, ASME SA182-15 and ANSI / ASME B16.5-20. Produced in accordance with ANSI / NACE MR0175/ISO 15156-2015 and ISO 17945 / MR0103-2015. Material is free from mercury contamination. 100% PMI tested: acceptable. No weld repair. Dimensional and visual inspection: no objections. PED 2014/68/EU. Manufactured in Korea.

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301 Brown Avenue  
Sanford, FL 32771  
Ph: 407-323-0940  
Fax: 321-257-1006

Customer/Branch: PORTER PIPE & SUPPLY  
PICK UP  
ADDISON, IL

Remarks:

Description: 02.00" 150 RF WN SCH 40S 304/L

Item: I0821412-BL-KO

Heat Code: S49241

Grade Marking: F304 / 304L

Spec ID: ASTM A182-21 / ASME SA182-15 ASME B16.5-20

Made From: Forging

Chemical/

Element	C	Si	Mn	P	S	Ni	Cr	N
Value %	0.023	0.452	1.49	0.033	0.007	8.51	18.17	0.065

Chemical Analysis

Test	Yield psi	Tensile psi	Elongation %	RED %
Value	42104	85949	58.7	76.3
	Hardness			
	145,151 HBW			

MTR Notes

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QMF 44 issue level 1



Customer PO: 1475067-00

Order Number: 0256126

Date: 09/04/2024

Page: 1

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# Certified Material Test Report

EN 10204:2004 3.1



Customer PO: 3050445-00

Order Number: 0254416

Date: 04/01/2024

Page: 1

## Remarks:

Description: 02.00" 150 RF THRD 304/L

Item: I0824012-BL-KO

Heat Code: S49241

Grade Marking: F304 / 304L

Spec ID: ASTM A182-21 / ASME SA182-15 ASME B16.5-20

Made From: Forging

## Chemical/ Chemical Analysis

Element	C	Si	Mn	P	S	Ni	Cr	N
Value %	0.023	0.45	1.49	0.033	0.007	8.51	18.17	0.065

Test	Yield psi	Tensile psi	Elongation %	RED %
Value	42119	81845	56.8	72.1
Hardness				
147,151 HBW				

## MTR Notes

The referenced Brite Line flanges have been produced, tested and meet the requirements of ASTM A182-21, ASME SA182-15 and ANSI / ASME B16.5-20. Produced in accordance with ANSI / NACE MR0175/ISO 15156-2015 and ISO 17945 / MR0103-2015. Material is free from mercury contamination. 100% PMI tested: acceptable. No weld repair. Dimensional and visual inspection: no objections. PED 2014/68/EU. Manufactured in Korea.

This material has been solution annealed at a minimum temperature of 1900 degrees F and rapidly quenched below 500 degrees F.

We hereby certify that the finished goods listed herein have been inspected, tested and approved in accordance with the methods prescribed in the specifications cited herein. Based upon the results of such inspection and testing, we certify the purchased products and contents of this report meet the requirements of your purchase order. Quality system registered to ISO 9001: 2015 by TUV Cologne, certificate number 01 100 3199.

QMF 44 issue level 1

This report is authorized by  
Timothy P Warren  
V.P. of Quality Assurance.



~PICOR® ~TUBE LINE<sup>STAINLESS</sup>

~TUBE TEC® ~BRITE LINE®

170 Tubeway Drive

Carol Stream, IL 60188

Ph: 630-690-7000

Fax: 630-690-2108

301 Brown Avenue

Sanford, FL 32771

Ph: 407-323-0940

Fax: 321-257-1006

# Certified Material Test Report

EN 10204:2004 3.1

**Customer/Branch:** PORTER PIPE & SUPPLY

PICK UP

ADDISON, IL 60101

**Customer PO:** 1455574-00

**Order Number:** 0253391

**Date:** 12/26/2023

TÜV Rheinland  
CERT  
ISO 9001

## Remarks:

**Description:** 02.00" 150 RF WN SCH 10S 304/L

**Heat Code:** S49241

**Item:** I0821212-BL-KO

**Grade Marking:** F304 / 304L

**Spec ID:** ASTM A182-21 / ASME SA182-15 ASME B16.5-20

**Made From:** Forging

Chemical/

Element	C	Si	Mn	P	S	Ni	Cr	N
Value %	0.023	0.45	1.49	0.033	0.007	8.51	18.17	0.065

Chemical Analysis

Physical Analysis

Test Value	Yield psi	Tensile psi	Elongation %	RED %
41974	82961	63.2	78.4	Hardness 147,150 HBW

## MTR Notes

The referenced Brite Line flanges have been produced, tested and meet the requirements of ASTM A182-21, ASME SA182-15 and ANSI / ASME B16.5-20. Produced in accordance with ANSI / NACE MR0175/ISO 15156-2015 and ISO 17945 / MR0103-2015. Material is free from mercury contamination. 100% PMI tested: acceptable. No weld repair. Dimensional and visual inspection: no objections. PED 2014/68/EU. Manufactured in Korea.

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~PICOR® ~TUBE LINE®

STAINLESS

~TUBE TEC® ~BRITE LINE®

170 Tubeway Drive  
Carol Stream, IL 60188  
Ph: 630-690-7000  
Fax: 630-690-2108

301 Brown Avenue  
Sanford, FL 32771  
Ph: 407-323-0940  
Fax: 321-257-1006

Customer/Branch: PORTER PIPE & SUPPLY  
PICK UP  
ADDISON, IL

Remarks:

Description: 02.00" 150 RF WN SCH 40S 304/L

Item: I0821412-BL-KO

Heat Code: S49241

Grade Marking: F304 / 304L

Spec ID: ASTM A182-21 / ASME SA182-15 ASME B16.5-20

Made From: Forging

Chemical/

Element	C	Si	Mn	P	S	Ni	Cr	N
Value %	0.023	0.452	1.49	0.033	0.007	8.51	18.17	0.065

Chemical Analysis

Test	Yield psi	Tensile psi	Elongation %	RED %
Value	42104	85949	58.7	76.3
	Hardness			
	145,151 HBW			

MTR Notes

The referenced Brite Line flanges have been produced, tested and meet the requirements of ASTM A182-21, ASME SA182-15 and ANSI / ASME B16.5-20. Produced in accordance with ANSI / NACE MR0175/ISO 15156-2015 and ISO 17945 / MR0103-2015. Material is free from mercury contamination. 100% PMI tested: acceptable. No weld repair. Dimensional and visual inspection: no objections. PED 2014/68/EU. Manufactured in Korea.

This material has been solution annealed at a minimum temperature of 1900 degrees F and rapidly quenched below 500 degrees F.

We hereby certify that the finished goods listed herein have been inspected, tested and approved in accordance with the methods prescribed in the specifications cited herein. Based upon the results of such inspection and testing, we certify the purchased products and contents of this report meet the requirements of your purchase order. Quality system registered to ISO 9001: 2015 by TUV Cologne, certificate number 01 100 3199.

QMF 44 issue level 1



Customer PO: 1475067-00

Order Number: 0256126

Date: 09/04/2024

Page: 1

This report is authorized by  
Timothy P Warren  
V.P. of Quality Assurance.



TA CHEN STAINLESS PIPE CO., LTD.

## Mill Test Report

TCBW71232

**Commodity** : STAINLESS STEEL BUTT-WELDING FITTING      **Customer** : TA CHEN INTERNATIONAL, INC.      EN 10204-3.1  
**Specification** : CONCENTRIC REDUCER  
**Grade** : ASTM A403/A403M-2020      **Destination** : MORROW      NO. 125 HSIN-TIEN 2ND ST.,  
ASME SA403-2021 ANSI B16.9-2018/ASME B16.9-2018      **Customer O/N** : LA5315/C533-20 Certificate No : WB0483009  
**Delivery Condition**: PICKLED AND PASSIVATED      **Factory O/N** : QA02W6515      Date : 2022/9/27      INVOICE No : QA02WB0483  
**Grade** : WP304/304L-W      **Customer O/N** : LA5315/C533-20 Certificate No : WB0483009  
**Delivery Condition**: PICKLED AND PASSIVATED      **Factory O/N** : QA02W6515      Date : 2022/9/27      INVOICE No : QA02WB0483

Certified to  
NSF/ANSI 3-15-G

Item No.	Case No. (Crate No.)	Heat No.	Size	Quantity (Pcs)	Weight (Kgs)	Chemical Composition in %								
						C	Si	Mn	P	S	Ni	Cr	Mo	N
06 040		YU280529	1"X 3/4"	SCH40S	3	0.0220	0.3500	0.8800	0.0370	0.0050	8.1400	18.100	-	0.0340
07 040		1021007	1-1/4"X 1"	SCH40S	2	0.0100	0.4800	0.9600	0.0300	0.0010	8.0700	18.160	-	0.0550
08 010		1020377	1-1/2"X 1"	SCH10S	50	0.0180	0.4800	0.9700	0.0290	0.0014	8.0700	18.140	-	0.0500
09 040		K027082	1-1/2"X 1"	SCH40S	7	0.0200	0.4600	0.9500	0.0340	0.0025	8.0600	18.110	-	0.0510
10 040		1028275	2"X 1-1/2"	SCH10S	60	0.0230	0.4700	0.9300	0.0360	0.0016	8.0600	18.180	-	0.0530

Total 122

## Remarks

Item No.	Tensile Test (Gage Lth=50mm)					Hardness	Bend	HT TEMP °F Quenching In Water	Dimension And Surface Condition				Melt Source	Remarks
	0.2% Yield Strength PSI	1.0% Yield Strength PSI	Tensile Strength PSI	Elongation %	Test HRB									
	30000		75000	L28				1900	-					
06	47000	-	86000	40		79.00		1904	OK					TAIWAN
07	50000	-	95000	38		83.00		1904	OK					CHINA
08	47000	-	97000	49		86.00		1904	OK					CHINA
09	34000	-	92000	40		84.00		1904	OK					CHINA
10	47000	-	97000	50		83.00		1904	OK					CHINA

1. FITTINGS TO BE IN CONFORMANCE WITH AND MARKED AS PER THE LATEST EDITION OF B16.9 OR B16.49, AS APPLICABLE
2. NO WELD REPAIR WAS PERFORMED AND ALL ITEMS ARE FREE OF WELD REPAIR
3. MATERIAL ARE FREE OF MERCURY CONTAMINATION AND RADIOACTIVITY
4. ALL PRODUCTS WERE MANUFACTURED, SAMPLED, TESTED AND INSPECTED SOLELY BY THE MANUFACTURER INDICATED ON THIS DOCUMENT IN ACCORDANCE WITH INDICATED SPECIFICATION(S) AND
5. NACE MR0175/ISO 15156-3-15 ANNEX A: OK
6. NACE MR0103-15 MEETS REQUIREMENT OF ASTM A403-07/ASME

We hereby certify the above statement to be true and correct every detail  
TA CHEN has established a QMS according to ISO 9001, which is certified by LRQ/(ISO 9001-0067066)

Manager of Inspection Section/George Yang

**Heat:** 64MWRA084  
**Your PO:** 1428622-00

2" X 1 1/2" S/40S CONC RED A/SA 403  
WP 304/L-W

### MATERIAL INSPECTION CERTIFICATE

To EN10204 3.1/ISO 10474 3.1B

THAI BENKAN CO.,LTD.

**BENKAN**

Purchaser Name :

TBC PO No. : SF-325

Customer PO No. : 71106

Benkan No. :

JOB No. :

58 Moo 13 Soi Suksawat 70, Bangkrue Phrapadaeng, Samutprakarn 10130. THAILAND  
Telephone : 66 (0) 2463 0074. 66 (0) 463 6235-7 FAX/SIMILE: 66 (0) 463 6238, 66 (0) 463 8241

D/M/Y 14/06/2022 Certificate No. : T202214005006 Rev. No. : 0

<b>Specification for Product</b>	ASTM A403/A403M-20/ASME SA403/SA403M-21										MFG No.	64MWRA084		Seamless or Weld	WELD	Pipe/Plate	PIPE		
	NACE MR0175/ISO 15156-3 : 2015										Product Description		RC WP304W/304LW 2 X 11/2 S40S				Quantity	102	
	Specification for Inspection		ASME B16.9-2018,B16.25-2017																
<b>Starting Material</b>		<b>Heat No.</b>		VCB072784						<b>Heat treatment</b>		SOLUTION ANNEALING : 1060 C X 30 MINUTES W.Q.							
% Chemical content		C x100	Si x100	Mn x100	P x1000	S x1000	Ni x100	Cr x100	Mo x100										
<b>Required Maximum</b>		3.0	100	200	45	30	1,100	2,000											
<b>Required Minimum</b>							800	1,800											
<b>Heat Analysis</b>		2.3	41	123	30	1	805	1,810											
<b>Tension test</b>		Gauge length 50 mm.						<b>Hardness test</b>											
TP Direction : Longitudinal								HRB	Req Max.	90									
MPa	Req.Min.	Req.Max.	Actual results					Fitting	79										
Yield Strength	205		292													<b>Visual Examination</b>	Good		
Tensile Strength	515		652													<b>Dimensional Inspection</b>	Good		
% Elongation	28		54													100.00 % PMI :	GOOD		
								<b>Supplementary Note :</b>											
								Material is manufacturer mercury free and free from mercury contamination											
								The fittings are in accordance with the PED 2014/68/EU											
								The raw material manufacturer has detected it to be free from radioactive contamination.											
								The fittings were manufactured, sampled, tested, and inspected in accordance with the specification											
								The base material is free of weld repair as per ASTM A960 S66											

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



Akemitsu Kondo

**Quality Assurance Manager**  
**Thai Benkan Co.,Ltd.**

Form No. TZ-6ZV/0



MAC Piping Materials Sdn. Bhd.  
Company No : 1250791-W  
Lot 8095, Jalan Sungai Rasau 32,  
Kawasan 16, Sungai Rasau, 41300 Klang,  
Selangor Darul Ehsan, Malaysia  
Tel : +603-3344 9733 Fax : +603-3344 9722  
Website : www.macpiping.com  
Email : enquiry@macpiping.com

07/202/9030/WZ/2302/18  
07/202/9030/WP/2302/18  
PED2014/68/EU

TUV SUD Asia Pacific  
ISO 9001 : 2015  
Certificate Registration No. : TUV100 13 4226

# MILL TEST REPORT

## IN ACCORDANCE TO EN 10204 3.1

CERTIFICATE NO : MAC9203384 (1) DATE : 24.04.2024

INVOICE NO. : INVE00916  
CONTRACT NO. : SO-1082/1125/1129  
SHIPPER : MAC PIPING MATERIALS SDN BHD

PURCHASE ORDER NO : P1015159/198/911/957

CUSTOMER : INTERGROWTH INDUSTRY INC

PRODUCT : STAINLESS STEEL BUTT WELD FITTINGS (WELDED)  
SPECIFICATION : ASTM A403/ASME SA403M-19  
MATERIAL GRADE : WP304/304L-W (WELDED)

NO.	DESCRIPTION OF GOODS (PRODUCT, SIZE, SCHEDULE, GRADE)	PRODUCT CODE	PO No.	QUANTITY (PCS)	WEIGHT (KGS)	HEAT NUMBER	MECHANICAL TEST			HARD- NESS TEST (HRB)	NON- DESTRUCTIVE TEST (NDT)					CHEMICAL COMPOSITION (wt%)							
							Y.S.	T.S.	EL %							C	Si	Mn	P	S	Ni	Cr	Mo
							mm²	mm²	(L)		RT	UT	MT	PT	ET	X 100	X 1000	X 100					
							205	515	28	AVR						-	-	-	-	-	800	1800	-
							88									3.0	100	200	45	30	1200	2000	-
1	ELBOW 90 1" SCH 40S 304/L (W)	04401-16	P1015958	200	30	43DW606	291	650	54	87	N/A	N/A	N/A	N/A	N/A	1.9	36	88	35	4	801	1808	-
2	ELBOW 90 1" SCH 40S 304/L (W)	04401-16	P1015958	25	3.75	43XK361	309	659	56	85	N/A	N/A	N/A	N/A	N/A	2.1	38	118	24	3	804	1819	-
3	ELBOW 90 1-1/4" SCH 40S 304/L (W)	04401-20	P1015958	60	15.6	43DT202	296	669	55	87	N/A	N/A	N/A	N/A	N/A	2.3	43	108	30	5	801	1829	-
4	ELBOW 90 1-1/2" SCH 10S 304/L (W)	01401-24	P1015958	300	87	43DW601	297	668	56	86	N/A	N/A	N/A	N/A	N/A	2.1	34	91	32	6	801	1822	-
5	ELBOW 90 2" SCH 40S 304/L (W)	04401-32	P1015958	280	179.2	43DX110	294	636	57	86	N/A	N/A	N/A	N/A	N/A	2.3	40	113	17	4	803	1810	-
6	ELBOW 90 2-1/2" SCH 10S 304/L (W)	01401-40	P1015958	6	4.86	43DW405	302	641	59	87	N/A	N/A	N/A	N/A	N/A	2.3	39	109	36	4	802	1828	-
7	ELBOW 90 2-1/2" SCH 10S 304/L (W)	01401-40	P1015958	144	116.64	43DX902	285	667	54	86	N/A	N/A	N/A	N/A	N/A	1.8	39	102	27	5	803	1804	-
8	ELBOW 90 3" SCH 10S 304/L (W)	01401-48	P1015958	440	536.8	43DX104	260	672	52	85	N/A	N/A	N/A	N/A	N/A	1.7	44	152	29	2	805	1810	-
9	ELBOW 90 3" SCH 10S 304/L (W)	01401-48	P1015958	320	390.4	43DX903	279	642	56	84	N/A	N/A	N/A	N/A	N/A	2.5	39	101	32	3	801	1813	-
10	ELBOW 90 3" SCH 40S 304/L (W)	04401-48	P1015958	115	244.95	43DW416	283	642	57	85	N/A	N/A	N/A	N/A	N/A	2.4	34	107	33	1	803	1835	-
11	ELBOW 90 4" SCH 10S 304/L (W)	01401-64	P1015958	120	236.4	43DW407	279	636	56	85	N/A	N/A	N/A	N/A	N/A	2.6	37	107	27	1	802	1816	-
12	ELBOW 90 6" SCH 10S 304/L (W)	01401-96	P1015958	150	732	43DW409	291	672	56	86	N/A	N/A	N/A	N/A	N/A	2.5	40	115	30	4	801	1810	-
13	ELBOW 90 6" SCH 40S 304/L (W)	04401-96	P1015958	16	159.68	43DW609	278	659	63	85	N/A	N/A	N/A	N/A	N/A	1.8	39	149	24	3	812	1812	-

NOTE :

Y.S = Yield Strength      SCH = Schedule  
T.S = Tensile Strength      R.T = Radiography Test  
E.L. = Elongation In 50mm      U.T = Ultrasonic Test  
(or 4D), min, %      M.T = Magnetic Practice Test  
1Ksi = 1,000 Psi      E.T = Electromagnetic Test  
1Mpa=1N/mm² = 0.145038 ksi      P.T = Dye Penetrant Test

### Note

\* HEAT TREATMENT : 1080 DEGREE CELSIUS QUENCHED IN WATER (15-30 minute holding time)  
\* Products conform to ASME B16.9 2018 and ASME Sec II Part A-2019 SA-403/SA-403M 2019, Cold formed , annealed and quenched, bevelled ends to ASME B16.25,  
\* Materials was produced in accordance with the prescribed certification.  
\* Materials are in accordance to NACE MR 0175 (ISO 15156-1 & 15156-3 -2015) & NACE MR 0103 -2015,(Latest Edition)  
\* Intergranular Corrosion Test are in Accordance to ASTM A262 Practice E : Passed  
\* Surface and dimension check has been carried out 100% to all products  
\* Pickled and Passivated

\* Products are mercury free and free from mercury contamination  
\* Raw material manufacturer has detected it to be free from radioactive contamination.  
\* All fittings are confirmed 100% P.M.I tested  
\* Stainless steelmaking : Electric arc furnace  
\* Certified according to AD2000 W0 and PED2014/68/EU Annex 1, Paragraph 4.3  
\* Country of Origin Malaysia





# QUALITY CERTIFICATE



Tecnología en Inoxidable

Planta: Catarroja 866, San Nicolas Tolentino. Iztapalapa 09850. México.  
www.techtube.com.mx info@techtube.com.mx

ISO 9001:2008  
No. Cert MX 15-299 1356

Date: 03/02/2023  
Delivery / Reference: 61764 / PO44672  
Certificate No.: 109522

Customer No.: CEA002  
Customer: Allied Stainless Group Inc.  
Address: Mykawa Road No7200  
Houston  
Houston, 77033, TX

Item	Quantity (Pc)	Item Code	Description	Specification
1	27.00	4FRCS1.5X1	S.S. Concentric Reducer A403 WP NPS 1 1/2in x 1in Sch 40s Tp 304/304L	A403-20 WP
2	49.00	4FRCS2X1.5	S.S. Concentric Reducer A403 WP NPS 2in x 1 1/2in Sch 40s Tp 304/304L	A403-20 WP
2	1.00	4FRCS2X1.5	S.S. Concentric Reducer A403 WP NPS 2in x 1 1/2in Sch 40s Tp 304/304L	A403-20 WP
3	4.00	4FRCA2X1.25	S.S. Concentric Reducer A403 WP NPS 2 1/2in x 1 1/4in Sch 10s Tp 304/304L	A403-20 WP
3	46.00	4FRCA2X1.25	S.S. Concentric Reducer A403 WP NPS 2 1/2in x 1 1/4in Sch 10s Tp 304/304L	A403-20 WP
4	100.00	4FRCA3X1.5	S.S. Concentric Reducer A403 WP NPS 3in x 1 1/2in Sch 10s Tp 304/304L	A403-20 WP
5	100.00	4FRCS3X2	S.S. Concentric Reducer A403 WP NPS 3in x 2 1/2in Sch 40s Tp 304/304L	A403-20 WP
6	1,255.00	4FRCA3X2	S.S. Concentric Reducer A403 WP NPS 3in x 2in Sch 10s Tp 304/304L	A403-20 WP
7	30.00	4FRCA4X3	S.S. Concentric Reducer A403 WP NPS 4in x 3in Sch 10s Tp 304/304L	A403-20 WP
7	145.00	4FRCA4X3	S.S. Concentric Reducer A403 WP NPS 4in x 3in Sch 10s Tp 304/304L	A403-20 WP
8	15.00	6FRCA1X.5	S.S. Concentric Reducer A403 WP NPS 1in x 1/2in Sch 10s Tp 316/316L	A403-20 WP
9	20.00	6FRCS2.5X2	S.S. Concentric Reducer A403 WP NPS 2 1/2in x 2in Sch 40s Tp 316/316L	A403-20 WP
10	40.00	6FRCS2X1.5	S.S. Concentric Reducer A403 WP NPS 2in x 1 1/2in Sch 40s Tp 316/316L	A403-20 WP
11	90.00	6FRCS2X1	S.S. Concentric Reducer A403 WP NPS 2in x 1in Sch 40s Tp 304/304L	A403-20 WP
12	86.00	6FRCS3X1.5	S.S. Concentric Reducer A403 WP NPS 3in x 1 1/2in Sch 40s Tp 316/316L	A403-20 WP
13	50.00	6FRCS3X2.5	S.S. Concentric Reducer A403 WP NPS 3in x 2 1/2in Sch 40s Tp 316/316L	A403-20 WP

GESTIÓN DE CALIDAD

J. SÁNCHEZ

REMARKS:

NOTES:



TECHTUBE  
Tecnología en Inoxidable

# QUALITY CERTIFICATE



Planta: Catarroja 866, San Nicolas Tolentino. Iztapalapa 09850. México.  
www.techtube.com.mx info@techtube.com.mx

ISO 9001:2008

No. Cert MX 15-299 1356

Date: 03/02/2023

Delivery / Reference: 61764 / PO44672

Certificate No.: 109522

Customer No.: CEA002

Customer: Allied Stainless Group Inc.

Address: Mykawa Road No7200

Houston

Houston, 77033, TX

Item	Quantity (Pc)	Item Code	Description										Specification			
CHEMICAL ANALYSIS																
			TP 316/316L	MIN-MAX	MAX 0.035	MAX 2.0	MAX 0.045	MAX 0.030	MAX 1.0	16.0-18.0	10.0-14.0	2.0-3.0	0	MIN 75000 PSI	MIN 30000 PSI	MIN 30%
			TP 304/304L	MIN-MAX	MAX 0.035	MAX 2.0	MAX 0.045	MAX 0.030	MAX 1.0	18.0-20.0	8.0-10.0	0	0	MIN 75000 PSI	MIN 30000 PSI	MIN 30%
Item	Heat Treatment		C	Mn	P	S	Si	Cr	Ni	Mo	Pb	T.S.	0.2% Y.S.	E.L.	Hardness	
1	YU198600		0.024	0.940	0.039	0.004	0.430	18.070	8.060	0.000	0.000	95410 psi	46835 psi	51.00	85	
2	YU198600		0.024	0.940	0.039	0.004	0.430	18.070	8.060	0.000	0.000	95410 psi	46835 psi	51.00	85	
2	C34AY2200366		0.020	1.080	0.026	0.003	0.450	18.250	8.150	0.000	0.000	91590 psi	40556 psi	49.00	85	
3	C34AW2201002		0.022	1.400	0.034	0.002	0.370	18.200	8.010	0.000	0.000	97150 psi	42195 psi	51.00	84	
3	C34AW220102		0.019	1.050	0.031	0.002	0.340	18.080	8.020	0.000	0.000	90225 psi	40185 psi	49.00	85	
4	YU199440		0.023	0.670	0.036	0.003	0.420	18.310	8.190	0.000	0.000	98020 psi	49445 psi	49.00	85	
5	PCC040109		0.020	1.340	0.032	0.002	0.340	18.080	8.020	0.000	0.000	95555 psi	41760 psi	56.00	84	
6	YU199440		0.023	0.670	0.036	0.003	0.420	18.310	8.190	0.000	0.000	98020 psi	49445 psi	49.00	85	
7	C34AW2201001		0.027	1.250	0.031	0.001	0.460	18.150	8.010	0.000	0.000	97730 psi	42340 psi	53.00	85	
7	C34AY2103987		0.026	0.650	0.036	0.002	0.360	18.020	8.070	0.000	0.000	98020 psi	42195 psi	51.00	85	
8	C37AY2102670		0.022	1.330	0.026	0.002	0.470	16.810	10.020	2.030	0.000	84825 psi	42920 psi	58.00	80	
9	PCC050397		0.018	1.370	0.028	0.001	0.430	16.780	10.020	2.030	0.000	92800 psi	42630 psi	58.00	84	
10	C37AW2101974		0.019	1.130	0.024	0.002	0.480	16.310	10.060	2.060	0.000	89595 psi	37556 psi	51.00	87	

GESTIÓN DE CALIDAD

J. SÁNCHEZ

REMARKS:

NOTES:



TECHTUBE  
Tecnología en Inoxidable

# QUALITY CERTIFICATE



Planta: Catarroja 866, San Nicolas Tolentino. Iztapalapa 09850. México.  
www.techtube.com.mx info@techtube.com.mx

ISO 9001:2008

No. Cert MX 15-299 1356

Date: 03/02/2023

Delivery / Reference: 61764 / PO44672

Certificate No.: 109522

Customer No.: CEA002

Customer: Allied Stainless Group Inc.

Address: Mykawa Road No7200

Houston

Houston, 77033, TX

Item	Quantity (Pc)	Item Code	Description								Specification			
11	C37AW2101974	0.019	1.130	0.024	0.002	0.480	16.310	10.060	2.060	0.000	89595 psi	37556 psi	51.00	87
12	VCC070971	0.021	1.350	0.026	0.002	0.460	16.790	10.200	2.050	0.000	92800 psi	41905 psi	59.00	85
13	VCC070971	0.021	1.350	0.026	0.002	0.460	16.790	10.200	2.050	0.000	92800 psi	41905 psi	59.00	85

Hydrostatic test: yes (), No (X), Eddy eddy currents: yes (X), No (), We certify that the material described here corresponds to the casting number and composition as provided by the raw material supplier. The material was subjected to an annealing solution heat treatment at 1050 ° C and cooled with water, based on the requirements of the reference standard. No welding repairs were made. In addition, it meets the requirements of MSS-SP43-13, NACE MR0175-15 and CERT TO EN10204-3.1 2004. Country of origin: Mexico

GESTIÓN DE CALIDAD  
J. SÁNCHEZ

REMARKS:

NOTES:



# MILL TEST CERTIFICATE

PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD. (733428W)

(A MEMBER OF PANTECH GROUP HOLDINGS BERHAD, LISTED ON MAIN MARKET OF BURSA MALAYSIA)

PTD 204334, JALAN PLATINUM UTAMA,

KAWASAN PERINDUSTRIAN PASIR GUDANG, ZONE 12B, 81700 PASIR GUDANG

JOHOR DARUL TAKZIM, MALAYSIA

Tel: +607-2518888 Fax: +607-2519999 Website: [www.pantechssalloy.com](http://www.pantechssalloy.com)

<http://www.pantech-group.com>



Approval No.:  
IS9001-0047465

MATERIAL MANUFACTURER APPROVAL ACCORDING TO  
PED 2014/68/EU, ANNEX 1, PARA 4.3.  
PED CERTIFICATE NO.:  
0343/PED/MUM/1110006/1

## INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

Customer: New Courage Global Limited On Behalf Of Merit Brass Company

Certificate No: PSA2-FT-51473

Product: Welded Austenitic Stainless Steel Fitting

Date: 27 June 2024

PO No.	Invoice No.	Product Specification		Dimension & Inspection Specification							Delivery Condition			
NC240419 (P1017456)	E000006583	ASTM A403/A403M - 22 / ASME SA 403/SA403M - 23				ASME B16.9 - 18 / ASTM A960/A960M - 23 / ASME SA 960/SA960M - 23/ ASME SECTION II PART A-2023							Solution Treated, Pickled-Passivated	
Heat No.	Product & Size				Quantity (pcs)		Material Grade			Visual / Dimension / PMI Examination		Remarks		
MG472-1	3"	SCH 40s	90° LR ELBOW		93		WP304/304L-W			PASSED		04401-48		
MG515-1	4"	SCH 10s	90° LR ELBOW		215		WP304/304L-W			PASSED		01401-64		
MG414-1	4"	SCH 40s	90° LR ELBOW		65		WP304/304L-W			PASSED		04401-64		
NG023-1	6"	SCH 10s	90° LR ELBOW		46		WP304/304L-W			PASSED		01401-96		
MG508-1	6"	SCH 40s	90° LR ELBOW		3		WP304/304L-W			PASSED		04401-96		
NG008-1	6"	SCH 40s	90° LR ELBOW		62		WP304/304L-W			PASSED		04401-96		
LG606-1	8"	SCH 10s	90° LR ELBOW		11		WP304/304L-W			PASSED		01401-128		
MG487-1	1 1/2"	SCH 10s	45° Lr ELBOW		50		WP304/304L-W			PASSED		01402-24		
MG205-1	2"	SCH 40s	45° Lr ELBOW		65		WP304/304L-W			PASSED		04402-32		
MG124-1	2 1/2"	SCH 40s	45° Lr ELBOW		40		WP304/304L-W			PASSED		04402-40		
Specification	Chemical Composition (%)									Tensile Test *1			Hardness (HRB)	Inter-granular corrosion test
	C	Si	Mn	P	S	Cr	Ni	Pb		YS	TS	E		
	Max	0.030	1.00	2.00	0.045	0.030	20.00	11.00	-	-	-	-		
Min	0.030	1.00	2.00	0.045	0.030	20.00	11.00	-	-	-	-	90		
Heat No.	-	-	-	-	-	18.00	8.00	-	205	515	28	-		
MG472-1	0.028	0.33	1.35	0.026	0.002	18.23	8.01	< 0.01	317	593	51	79	PASSED	
MG515-1	0.020	0.34	1.13	0.027	0.002	18.16	8.02	< 0.01	366	670	51	84	PASSED	
MG414-1	0.019	0.37	1.38	0.027	0.002	18.24	8.02	< 0.01	343	653	46	80	PASSED	
NG023-1	0.023	0.32	1.11	0.027	0.002	18.08	8.02	< 0.01	343	639	52	81	PASSED	
MG508-1	0.025	0.34	1.15	0.027	0.001	18.02	8.01	< 0.01	334	656	56	77	PASSED	
NG008-1	0.024	0.34	1.12	0.028	0.002	18.10	8.02	< 0.01	331	648	47	77	PASSED	
LG606-1	0.026	0.32	1.37	0.032	0.002	18.10	8.02	< 0.01	341	637	53	81	PASSED	
MG487-1	0.021	0.35	1.39	0.029	0.003	18.15	8.01	< 0.01	420	657	44	89	PASSED	
MG205-1	0.027	0.34	1.35	0.027	0.003	18.17	8.03	< 0.01	376	674	50	82	PASSED	
MG124-1	0.024	0.38	1.41	0.037	0.003	18.19	8.03	< 0.01	385	668	51	89	PASSED	

WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED, SAMPLED, TESTED & INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE SPECIFICATION & PURCHASE ORDER;

AND WAS FOUND SATISFIED TO THE REQUIREMENTS. MATERIAL IS FREE FROM MERCURY & RADIOACTIVE CONTAMINATION.

TENSILE REQUIREMENT: CONFORMS TO ASTM A370-22 STANDARD. SPECIMEN GAUGE WIDTH 19.2MM FOR 3" ABOVE & 3" BELOW DONE SIMULATION TEST FROM PIPE, LONGITUDINAL DIRECTION, GAUGE LENGTH 2" (50mm)

NOTE: MADE IN MALAYSIA

STEEL MAKING PROCESS : AOD / VOD

PIPE RAW MATERIAL - WELDED BY ELECTRIC FUSION WELDING PROCESS WITH NO FILLER METAL

INTERGRANULAR CORROSION TEST ACCORDING TO ASTM A262-15 PRACTICE E

HARDNESS ACCORDING TO NACE-MR0175-2015 / ISO 15156 -2015 & NACE-MR0103-2015

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

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIALS HEAT ANALYSIS

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

MATERIAL CONFORMS TO THE SPECIFICATION / STANDARD SHOWN

GENERAL MARKING FORMAT : NSF®-61 PANTECH S.A. [PRODUCT TYPE FOR LR/SR ONLY] [SIZE] [THICKNESS] A/SA403 [GRADE] HEAT NO. [HEAT NO.] MALAYSIA

Pantech Stainless & Alloy Industries Sdn. Bhd.  
200601013677 (733428-W)  
PTD 204334, Jalan Platinum Utama,  
Kawasan Perindustrian Pasir Gudang, Zon 12B,  
81700 Pasir Gudang, Johor.  
Tel: +607-2518888 Fax: +607-2519999

QAC  
MANAGER  
HASANNUDDIN  
PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD.

Head of Quality Assurance Department



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

ISO 9001 : 2015 CERTIFICATE No. 04 100 011022

**ADM. OFFICE:** 504, SUKH SAGAR, N. S. PATKAR MARG,  
MUMBAI 400 007, INDIA  
Tel: 91-22-66290600. Fax: 91-22-66290633/34  
Website : [www.chandansteel.net](http://www.chandansteel.net)  
Email : [csl@chandansteel.net](mailto:csl@chandansteel.net)  
**I/c. No. :** —  
**I/c. Date:** —

**WORKS:** Plot No. 35, Survey No.102/2 & 3 G. I. D. C.  
Village : Deheri, Tal- Umbergaon.  
Dist Valsad, Gujarat - 396 171. INDIA.  
Tel.: 91-260-256 2066 / 4367 / 1166. Fax.: 91-260-256 2287  
E-mail : [exports@chandansteel.net](mailto:exports@chandansteel.net)

**INSPECTION CERTIFICATE 3.1**  
ACCORDING TO EN 10204

Merit Brass Company One Merit Drive PO Box 43127 Cleveland · OH · 44143 USA	Test Certificate No. : EXP/22-23/00699 -02 Date of Issue : 30.09.2022 P.O. No. : P1012111-3 Invoice No. & Date : EXP/22-23/00699 Dtd.30.09.2022
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**ITEM DESCRIPTION**  
STAINLESS STEEL FORGED & FULLY MACHINED FLANGES

SR. NO.	ARTICLE NO.	Heat No.	Pcs	Box No.	Wt.Kgs	Grade	Item	Process Route
9	A450L-128	CH-17514	4	19	50.67	F304/304L	8" SORF 150 LBS	Electric Induction Melting, A.O.D. Refining Continuous Casting & Hot Forging.
13	A45140L-48	CH-17487	24	19	125.18	F304/304L	3" WNRF 150 LBS 40	
14	A45140L-64	CH-17573	40	19	295.56	F304/304L	4" WNRF 150 LBS 40	
22	A435BL-128	CH-17520	10	19	190.45	F304/304L	8" BLRF 150 LBS	
25	A452L-32	CH-16205	3	19	7.14	F304/304L	2" LJFF 150 LBS	

**CHEMICAL COMPOSITION (Weight %)**

SR. NO.	ARTICLE NO.	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Ti	N	OTHERS
9	A450L-128	0.024	0.48	1.56	0.038	0.003	18.38	-	8.00	-	-	0.075	-
13	A45140L-48	0.020	0.44	1.70	0.038	0.008	18.36	-	8.01	-	-	0.078	-
14	A45140L-64	0.027	0.59	1.61	0.035	0.002	18.36	-	8.00	-	-	0.076	-
22	A435BL-128	0.025	0.45	1.61	0.039	0.006	18.25	-	8.05	-	-	0.070	-
25	A452L-32	0.021	0.43	1.76	0.036	0.004	18.12	-	8.08	-	-	0.080	-

**MECHANICAL PROPERTIES**

SR. NO.	ARTICLE NO.	0.2% Yield Strength N/mm <sup>2</sup> (R <sub>p0.2</sub> )	Tensile Strength N/mm <sup>2</sup> (R <sub>m</sub> )	Elongation %	Reduction of Area %	Hardness (H.B.W.)
9	A450L-128	257	558	54	72	168-172
13	A45140L-48	256	559	57	72	158-161
14	A45140L-64	265	569	53	69	168-171
22	A435BL-128	262	565	57	74	160-163
25	A452L-32	260	557	61	74	160-164

**Remarks:**

- Each heat treatment batch is having about 6000 Kgs of Weight.
- The material is solution annealed at minimum 1050 °C and water quenched.
- Material is free from mercury and radio-active contamination and is found within the limits of the background radiation.
- PMI test 100% satisfactory.
- Inter-Granular Corrosion Test as per ASTM A262-15(2021) (Pr.E):- Satisfactory.
- The material conforms to ASTM A 182 - 20, ASME SA 182 - 21 & Dimension confirms to ASME B16.5 - 20 Specification.
- Visual and Dimensions inspection done and found satisfactory.
- The material conforms to NACE MR0175/ISO 15156-3:2015 & NACE MR0103-2015.
- Marking Details - MATERIAL SPECIFICATION, SIZE, GRADE, HEAT NO., CHANDAN
- Country of Melt - INDIA.

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



*Rosa*

V.Y. NARAYANAN  
SR. MANAGER Q. A.



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

ISO 9001 : 2015 CERTIFICATE No. 04 100 011022

**ADM. OFFICE:** 504, SUKH SAGAR, N. S. PATKAR MARG,

Chowpatty MUMBAI 400 007, INDIA

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

Website : [www.chandansteel.net](http://www.chandansteel.net)

Email : [csl@chandansteel.net](mailto:csl@chandansteel.net)

I/c. No. : ---

I/c. Date: ---

Works : Plot # 31 to 36, 45 to 49/2, 142 (Exp. Area), G.I.D.C. Umbergaon,

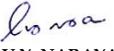
Survey No. 102/2 & 102/3, Village - Dehri, Dist. - Valsad, Gujarat - 396171 India.

Tel. : (+91) 260 7128999/800/802.

Email : [info@chandansteel.com](mailto:info@chandansteel.com)

GSTIN - 24AAACC4713B1ZG

**INSPECTION CERTIFICATE 3.1**  
ACCORDING TO EN 10204

Merit Brass Company One Merit Drive PO Box 43127 Cleveland · OH · 44143 USA							Test Certificate No. : EXP/23-24/00757 -15 Date of Issue : 17.08.2023 P.O. No. : P1014876-1-CLEVELAND Invoice No. & Date : EXP/23-24/00757 Dtd.17.08.2023																	
<b>ITEM DESCRIPTION</b> <b>STAINLESS STEEL FORGED &amp; FULLY MACHINED FLANGES</b>																								
SR. NO.	ARTICLE NO.	Heat No.	Pcs	Box No.	Wt.Kgs	Grade	Item		Process Route															
13	A450L-192	CH-19568	5	5	135.01	F304/304L	12" SORF 150 LBS		Electric Induction Melting, A.O.D. Refining Continuous Casting & Hot Forging.															
19	A450L-64	CH-18525	50	11	268.66	F304/304L	4" SORF 150 LBS																	
20	A450L-80	CH-20020	40	11	276.34	F304/304L	5" SORF 150 LBS																	
23	A45110L-64	CH-19642	30	12	208.98	F304/304L	4" WNRF 150 LBS 10																	
21	A45110L-32	CH-19749	5	14	12.99	F304/304L	2" WNRF 150 LBS 10																	
CHEMICAL COMPOSITION (Weight %)																								
SR. NO.	ARTICLE NO.	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Ti	N	OTHERS											
13	A450L-192	0.022	0.48	1.65	0.040	0.006	18.14	-	8.12	-	-	0.067	-											
19	A450L-64	0.022	0.46	1.77	0.039	0.020	18.35	-	8.05	-	-	0.081	-											
20	A450L-80	0.023	0.44	1.69	0.039	0.017	18.35	-	8.10	-	-	0.071	-											
23	A45110L-64	0.024	0.42	1.72	0.040	0.020	18.35	-	8.10	-	-	0.075	-											
21	A45110L-32	0.023	0.39	1.55	0.042	0.015	18.00	-	8.02	-	-	0.075	-											
MECHANICAL PROPERTIES																								
SR. NO.	ARTICLE NO.	0.2% Yield Strength N/mm <sup>2</sup> (R <sub>p0.2</sub> )			Tensile Strength N/mm <sup>2</sup> (R <sub>m</sub> )		Elongation %	Reduction of Area %		Hardness (H.B.W.)														
13	A450L-192	271			568		55	69		168-171														
19	A450L-64	264			573		61	74		157-162														
20	A450L-80	279			567		58	76		168-171														
23	A45110L-64	266			568		59	80		160-164														
21	A45110L-32	274			574		63	76		164-167														
<b>Remarks:</b>																								
1. The material is solution annealed at minimum 1050 °C and water quenched. 2. Material is free from mercury and radio-active contamination and is found within the limits of the background radiation. 3. PMI test 100% satisfactory. 4. Inter-Granular Corrosion Test as per ASTM A262-15(2021) (Pr.E):- Satisfactory. 5. The material conforms to ASTM A 182 - 22, ASME SA 182 - 21 & Dimension confirms to ASME B16.5 - 20 Specification. 6. Visual and Dimensions inspection done and found satisfactory. 7. The material conforms to NACE MR0175/ISO 15156-3:2015 & NACE MR0103-2015. 8. Marking Details - MATERIAL SPECIFICATION, SIZE, GRADE, HEAT NO., CHANDAN 9. Country of Melt - INDIA.																								
We hereby certify that, the material described herein, and supplied are in compliance with the requirements of the order.																								
  V.Y. NARAYANAN SR. MANAGER Q. A.																								



TA CHEN STAINLESS PIPE CO., LTD.

## Mill Test Report

TCBW71943

**Commodity** : STAINLESS STEEL BUTT-WELDING FITTING  
**Customer** : TA CHEN INTERNATIONAL, INC. EN 10204-3.1  
**CONCENTRIC REDUCER**  
**Specification** : ASTM A403/A403M-2020 NO. 125 HSIN-TIEN 2ND ST.,  
**ASME SA403-2021 ANSI B16.9-2018/ASME B16.9-2018** JENG-TEH, TAINAN, TAIWAN  
**Grade** : WP304/304L-W TEL:(06)2793254 FAX:(06)270138  
**Delivery Condition:** PICKLED AND PASSIVATED COUNTRY ORIGIN: TAIWAN

**Customer O/N** : LA6118 **Certificate No :** WB0555008

**Factory O/N** : QA02W8287 **Date :** 2022/11/17 **INVOICE No :** QA02WB0555

Certified to  
NSF/ANSI/BS-G

Item No.	Case No. (Crate No.)	Heat No.	Size	Quantity (Pcs)	Weight (Kgs)	Chemical Composition in %										
						C	Si	Mn	P	S	Ni	Cr	Mo	N		
06 004		K028448	4"X 3"	SCH10S	35	-	-	-	-	8.00	18.00	-	-	-		
07 004		K027521	6"X 3"	SCH10S	4	0.030	1.000	2.000	0.045	0.030	12.00	20.00	-	-		
08 004		K027080	6"X 4"	SCH10S	18	-	-	-	-	-	-	-	-	-		
09 004		K028887	6"X 5"	SCH10S	3	0.0130	0.4900	0.9300	0.0320	0.0018	8.0900	18.160	-	0.0490		
10 004		K027058	8"X 5"	SCH10S	1	0.0150	0.4800	0.9900	0.0300	0.0009	8.0700	18.120	-	0.0490		
						Total	61	Remarks								

Item No.	Tensile Test (Gage Lth=50mm)					Hardness Test HRB	Bend Test	HT TEMP °F Quenching In Water	Dimension And Surface Condition				Melt Source	Remarks				
	0.2% Yield Strength PSI	1.0% Yield Strength PSI	Tensile Strength PSI	Elongation %														
	30000	75000	L28															
06 44000	-	90000	57		84.00			1904	OK				CHINA		1. NACE MR0175/ISO15156-3-15 ANNEX A : OK 2. NACE MR0103-15 3. MERCURY FREE			
07 30000	-	82000	59		83.00			1904	OK				CHINA					
08 31000	-	83000	58		84.00			1904	OK				CHINA					
09 34000	-	87000	67		85.00			1904	OK				CHINA					
10 39000	-	89000	48		84.00			1904	OK				CHINA					

We hereby certify the above statement to be true and correct every detail  
 TA CHEN has established a QMS according to ISO 9001, which is certified by LRQ/ISO 9001-0067066)

  
 Manager of Inspection Section/George Yang



## INSPECTION CERTIFICATE

PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD. (733428W)

(A MEMBER OF PANTECH GROUP HOLDINGS BERHAD, LISTED ON MAIN MARKET OF BURSA MALAYSIA)

PTD 204334, JALAN PLATINUM UTAMA

KAWASAN PERINDUSTRIAN PASIR GUDANG, ZONE 12B, 81700 PASIR GUDANG

JOHOR DARUL TAKZIM, MALAYSIA

Tel: +607-2518888 Fax: +607-2519999 Website: www.pantechssalloy.com

<http://www.pantech-group.com>



Certified to  
NSF/ANSI 61

Approval No.:  
ISO9001-0047465

MATERIAL MANUFACTURER APPROVAL ACCORDING TO  
PED 2014/68/EU, ANNEX 1, PARA 4.3.  
PED CERTIFICATE NO.:  
0343/PED/MUM/1110006/1

### INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

Purchaser: Statewell On Behalf Of Allied Stainless Group INC  
Product: Welded Austenitic Stainless Steel Fitting

Certificate No: PSA2-FT-38654  
Date: 20 May 2022

Order No.	Invoice No.	Starting Material	Specification for Fittings - Welded						Specification for Inspection				
			ASTM A403/A403M - 20 / ASME SA 403/SA403M - 21						ASME B16.9 - 18 / ASTM A960/A960M - 20 / ASME SA 960/SA960M - 21 / ASME SECTION II PART A-2021				
Heat No.	Product & Size						Quantity (pcs)	Material Grade	Dimensional / Visual/ PMI Inspection		Remarks		
KG399-1	6" X 4"	SCH 10s	CON-REDUCER			100	WP304/304L-W		PASSED		4FRCABX4		
<b>Chemical Composition (%)</b>													
Max	C	Si	Mn	P	S	Cr	Ni	Pb	YS (KSI / MPa)	TS (KSI / MPa)	E (%)	Hardness (HRB)	
	0.030	1.00	2.00	0.045	0.030	20.00	11.00	-	-	-	-	1	2
Min	-	-	-	-	-	18.00	8.00	-	205	515	28	90	
	0.026	0.36	1.14	0.034	0.002	18.30	8.01	< 0.01	332	619	50	61	60
<b>PASSED</b>													
Heat No. KG399-1													
Inter-granular corrosion test													

WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED, SAMPLED, TESTED & INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE SPECIFICATION & PURCHASE ORDER:

AND WAS FOUND SATISFIED TO THE REQUIREMENTS MATERIAL IS FREE FROM MERCURY & RADIOACTIVE CONTAMINATION

TENSILE REQUIREMENT CONFORMS TO ASTM A370-12a STANDARD. SPECIMEN GAUGE WIDTH 19.2MM FOR 3" ABOVE & 3" BELOW DONE SIMULATION TEST FROM PIPE LONGITUDINAL DIRECTION, GAUGE LENGTH 2" (50mm)

NOTE MADE IN MALAYSIA STEEL MAKING PROCESS: AOD / VOD

PIPE RAW MATERIAL - WELDED BY ELECTRIC FUSION WELDING PROCESS WITH NO FILLER METAL

INTERGRANULAR CORROSION TEST ACCORDING TO ASTM A292-10 PRACTICE F

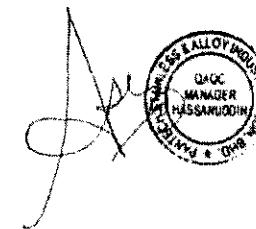
HARDNESS ACCORDING TO NACE-MR0175-2015 / ISO 15156-2015 & NACE-MR0103-2015

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

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL'S HEAT ANALYSIS

\*1 YS YIELD STRENGTH TS TENSILE STRENGTH E ELONGATION

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Head of Quality Assurance Department

# MATERIAL TEST CERTIFICATE (EN10204 3.1)

CUSTOMER : ALLIED STAINLESS GROUP, INC.

PO. NO. : PO60818

MPS. NO. : N/A

PROJECT NAME : N/A

FELIX MR NO.: FO2308-005 Rev.0

SPECIFICATION : ASTM A182 F304/F304L-22

ASME SA182 F304/F304L-2021ED



Felix Metal Tech Co., Ltd.

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CERTIFICATE NO. : FV230828-006

PAGE : 1 OF 1

DATE : 2023-08-28

Description	Q'ty (EA)	Lot No.	Tension Test *1							Hardness Test	Impact Test									
			Spec. Min. Max.	Size of Specimen		Y.S.	T.S.	E.L.	R.A.		Temp. : °C									
				D	G.L.															
			mm	mm	mm						HBW	J	Min. Avg.							
13 #150 SO RF 6"	200	A6652 CM42	T	12.5	50	285.4	556.6	62.8	77.0	156, 156										
4L1SR6							<< B L A N K >>													
	TOTAL 200																			
<b>Heat Treatment *4</b> S : 1050°C x 2.0 hrs, WC		Heat No.	Chemical Composition(%) *3																	
			Spec. Min. Max.	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V							
				0.03	1.00	2.00	0.045	0.030	8.00	18.00										
				0.03	1.00	2.00	0.045	0.030	13.00	20.00			0.10							
<b>Remark</b>		A6652	H	0.021	0.45	1.63	0.041	0.015	8.05	18.10			0.08							
<ul style="list-style-type: none"> <li>- NACE MR0175/ISO15156-3 -2015 : HRC22 Max(=HB237)</li> <li>- NACE MR0103-2015</li> <li>- Country of Forging: VIET NAM</li> <li>- IGC Test : ASTM A262 Method E -&gt; Passed</li> <li>- No weld repair was performed.</li> <li>- Free of Mercury contamination and no mercury bearing equipment was used during manufacturing.</li> </ul>		Dimension & Visual				PMI			UT		MT		PT							
		Accepted (ASME B16.5-2020)				Accepted			N/A		N/A		N/A							
<b>Abbreviation</b>																				
<b>*1. Tension Test :</b> Y.S. = Yield Strength, T.S. = Tensile Strength, E.L. = Elongation, R.A. = Reduction of Area, G.L. = Gauge Length(mm), D. = Diameter(Ø)																				
<b>*2. Location :</b> L = Longitudinal, Tr = Transverse, T = Tangential, R = Radial																				
<b>*3. Chemical Composition :</b> H = Heat Analysis, P = Product Analysis																				
<b>*4. Heat Treatment :</b> N = Normalized, A = Annealed, Q = Quenched, T = Tempered, S = Solution Treated, S.R. = Stress Relieved, A.C. = Air Cooled, W.C. = Water Cooled, F.C. = Furnace Cooled																				
<b>*5. CE :</b> C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15																				
Surveyor		We hereby certify that the material herein has been tested, inspected and satisfied in accordance with the above specification.																		



Nguyễn Tiến Bình

Manager / Q.M. Team