





Order No./계약번호 : 01S5667214

PO No./주문번호 : 22D0620070403

Supplier /주분자 : DK CORPORATION

Commodity : STAINLESS COLD ROLLED COIL /품명

Customer /고객사 : DK CORPORATION

Spec & Type : POSCO304(ASTM-A240M-304(2019ED)/ASME-SA240M-304(2019ED)) /규격

Size/치수 (mm)	Product No. /제품번호	Quantity /수량	Weight /중량 (kg)	Heat No. /재간번호	Position	Tensile Test /인장시험		Hardness /경도	Chemical Composition/화학성분								
						YS 0.2% (MPa)	TS (MPa)		EL (%)	C (%)	Si (%)	Mn (%)	P (%)	S (%)	Cr (%)	Ni (%)	N (ppm)
3x1524xC	QBG0958	1	20,673	SD59293	T	253	630	56	84.6	0.0498	0.386	1.062	0.0313	0.0061	18.145	8.055	354
	*** Sub Total (040) ***	1	20,673 (kg)		B	253	631	55	84.1								
	** Heat Treatment ** Solution Treatment Min 1040°C Quenching.	1	20,673 (kg)														
	*** Grade Total ***	1	20,673 (kg)														
	*** Grand Total ***																

==== Last Item ====

\* Position - T : Top, M : Middle, B : Bottom  
\* Tensile Test Direction : Transversal, Gauge Length : 50 mm(Rectangular),  
\* YP Method : 0.2 % off-set  
\* Division - L : Ladle Analysis

We hereby certify that the material herein has been made in accordance with the order and above specification.  
No repair welding was performed to the products.  
Test Certificate is issued according to ISO 10474/EN 10204 3.1.

CLIENT: **포스코**  
Reviewed/Conformed KUKIL INNITOT CO.,LTD.  
cases on Original Issue# TEL:(82)52-228-7500  
2024.10.18 WWW.KUKIL.COM

본 검사증명서 위, 변조시 사문서 위조수법 제231조2항에 불이력을 당할 수 있으며, 본 증서는 KOLAS와 관련이 없습니다.



**T.C.BAE**

Surveyor To :

# Mill Test Certificate/검사증명서



Metal Total Solutions

**Young - Jin Metal Co., Ltd.**

323-16, Geumsong-ro, Jicheon-myeon, Chilgok-gun, Gyeongsangbuk-do, Korea

Tel:054-977-0363 / Fax:054-977-0362

Customer : **한국일 INNTOT**

Spec. & Type : **ASTM-A240M-304/304L**

Certificate No./증명서번호 : **YJM-23-0207**

Surface Finish/표면마무리: **BA**

Date of issue/발행일자 : **Feb. 07, 2023**

Case No	Size (mm)	Product No.	Quantity (EA)	Weight (kg)	Heat No.	Tensile Test			Hardness (HV)	Chemical Composition(%)							
						YS (N/mm <sup>2</sup> )	TS (N/mm <sup>2</sup> )	EL (%)		C	Si	Mn	P	S	Cr	Ni	N
1	0.2 x 5.2	QGD1511	87	643	SE34170	294	652	50	167	0.0186	0.4340	1.4640	0.0328	0.0017	18.1620	8.0960	353
2	0.2 x 5.2	QGD1511	87	636	SE34170	294	652	50	167	0.0186	0.4340	1.4640	0.0328	0.0017	18.1620	8.0960	353
3	0.2 x 5.2	QGD1511	58	453	SE34170	294	652	50	167	0.0186	0.4340	1.4640	0.0328	0.0017	18.1620	8.0960	353
4	0.2 x 5.2	QGD1511	87	648	SE34170	294	652	50	167	0.0186	0.4340	1.4640	0.0328	0.0017	18.1620	8.0960	353
5	0.2 x 5.2	QGD1511	87	661	SE34170	294	652	50	167	0.0186	0.4340	1.4640	0.0328	0.0017	18.1620	8.0960	353
EN10204 3. 1.																	
**SOLUTION HEAT TREATMENT TEMPERATURE** 300 series 1,050℃~1,200℃																	
			<b>Total</b>														
			406		3,041												

**504-86-03556**  
 (주)영진금속 이도경  
 경북 칠곡군 지천면 금송로 323-16  
 제조·도매 **술원철술**

상기 제품은 제조 규격과 이상이 없음을 증명함.

Young Jin Metal Co., LTD.

**WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE ORDER AND SPECIFICATION.**

CHIEF OF QUALITY ASSURANCE DEPARTMENT

Do Kyoung, Lee

CLIENT: **한국일**

Reviewed/Conformed **KUKIL INNTOT CO.,LTD.**  
 cases on Original Issue TEL:(82)52-228-7500  
 2024.10.18 WWW.KUKIL.COM



CERTIFICATE NO: 20241016-03      PAGE : 1      DATE : 2024-10-16

CUSTOMER: PMS

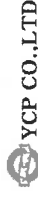
P/O NO.(W/O NO.): PMS-24-050-01

COMMODITY : SEAMLESS COLD-DRAWN CARBON STEEL TUBE FOR LOW-TEMPERATURE SERVICE

SPECIFICATION: ASME SA334 GR.6/SA1016(2023ED.)

# INSPECTION CERTIFICATE

## According to EN10204 3.1



YCP CO.,LTD  
1519-2, DADAE-DONG, SAHA-GU, BUSAN, KOREA  
TEL : (051)264-9300 FAX : (051)264-9200

NO	LOT NO	I. D	O. D	W. T	LENGTH(M)	Q'TY(PCS)	T.LENGTH(mm)	WEIGHT(kg)	REMARK	NOTE																																																																																							
											HEAT NO	TENSILE TEST	CHEMICAL COMPOSITION	FLAT TENSILE	STRAIGHT	F L A T T E S T	I M P A C T	C U R R E N T	S T A T I C	H A R D S S																																																																													
1	YC241010-01	--	19.05	1.650 (AVG)	5.569	388	2,160,772	1,529.8	900℃ FINAL TEMP.	G: GOOD																																																																																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="4" style="width: 10%;">*1 : CHEMICAL COMPOSITION</td> <td>MAX</td> <td>C</td> <td>30</td> <td>Si</td> <td>--</td> <td>Mn</td> <td>106</td> <td>T.S (*2)</td> <td>MIN</td> <td>415</td> <td>Y.P (*2)</td> <td>MIN</td> <td>240</td> <td>EL (*3)</td> <td>MIN</td> <td>30</td> </tr> <tr> <td>MIN</td> <td>--</td> <td>10</td> <td>29</td> <td>--</td> <td>--</td> <td>29</td> <td>512.3</td> <td>415</td> <td>240</td> <td>349.8</td> <td>37.0</td> </tr> <tr> <td>*1</td> <td>2</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>508.9</td> <td>348.7</td> <td>38.0</td> <td>38.0</td> <td>90</td> </tr> <tr> <td colspan="12"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>H</td> <td>16</td> <td>29</td> <td>123</td> <td>15</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> </tr> <tr> <td>P</td> <td>16</td> <td>30</td> <td>122</td> <td>14</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> </tr> </table> </td> </tr> </table>											*1 : CHEMICAL COMPOSITION	MAX	C	30	Si	--	Mn	106	T.S (*2)	MIN	415	Y.P (*2)	MIN	240	EL (*3)	MIN	30	MIN	--	10	29	--	--	29	512.3	415	240	349.8	37.0	*1	2	3	3	3	3	3	508.9	348.7	38.0	38.0	90	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>H</td> <td>16</td> <td>29</td> <td>123</td> <td>15</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> </tr> <tr> <td>P</td> <td>16</td> <td>30</td> <td>122</td> <td>14</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> </tr> </table>												H	16	29	123	15	8	8	8	8	8	8	8	8	8	8	8	8	P	16	30	122	14	9	9	9	9	9	9	9	9	9	9	9	9
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P	16	30	122	14	9	9	9	9	9	9	9	9	9	9	9	9																																																																																	
<p>*NOTE:SA334-1 and SA334-6:For each reduction of 0.01% below the specified carbon maximum, an increase of 0.05% manganese above the specified maximum will be permitted up to a maximum of 1.35%.</p>																																																																																																	

MANAGER OF Q.A DEPT  
**H. S. KIM**

WE HEREBY CERTIFY THAT THE MATERIALS HEREIN HAS BEEN MADE AND TESTED  
IN ACCORDANCE WITH ABOVE SPECIFICATIONS AND THE RESULT OF ALL TEST ARE ACCEPTABLE



# TUBOS REUNIDOS INDUSTRIAL, S.L.U

Barrio Sagarribai, 2 - 01470 AMURRIO (Spain)

EN 10204:2004 / 3.1

## CERTIFICADO DE CALIDAD MILL TEST CERTIFICATE

QUALITY  
MANAGEMENT  
SYSTEM  
certified by  
LRQA

THE BILLETS AND THE MATERIAL COVERED BY THIS CERTIFICATE ARE MANUFACTURED AT OUR STEEL PLANT IN AMURRIO, SPAIN.

PAG. 1 / 3

Nº 0000354092/2 Rev. 000

<b>CLIENTE:</b> CUSTOMER	KEONWOO METALS CO., LTD.	<b>PEDIDO / PARTIDA:</b> P. ORDER / ITEM	KTC-20-99974 005.
<b>PRODUCTO:</b> ARTICLE	TUBERÍA SIN SOLDADURA LAMINADA EN CALIENTE HOT FINISHED SEAMLESS TUBES	<b>REF. FABRICA:</b> WORK ORDER	300021013 000060
<b>EXTREMOS:</b> ENDS	RISELADOS BEVELLED ENDS	<b>PROTECCIÓN SUPERF:</b> EXT. COATING	LACA EXTERIOR EXTERNALLY DRY LACQUERED
<b>NORMA / GRADO:</b> API STANDARD AND GRADES	ASTM A333/A333M-16 / ASME II SA-333/SA-333M-19 / API 5L 2018 46TH ED PSL2 L360N/X52N/61	<b>PROCESO FUSION:</b> MELTING PROCESS	HORNO ELECTRICO DESGASIFICADO EN VACIO ELECTRIC FURNACE FULLY KILLED VACUUM DEGASSED FINE GRAIN PRACTICE
<b>ESPEC. ADICIONALES:</b> ADDITIONAL SPECS.	NACE MR0175/ISO 15156 ED. 2015 NACE MR0103/ISO 17945 ED. 2015	<b>DIMENSIONAL STD:</b>	ANSI/ASME B36.10M
<b>FAB. DE PALANQUILLA:</b> BILLETS MANUFACTURE		<b>FAB. DE PALANQUILLA:</b> BILLETS MANUFACTURE	COLADA CONTINUA CONTINUOUS CASTING
<b>DIMENSIONES:</b> DIMENSIONS	88,9 X 11,13 MM. X 6 M.		
<b>MARCAS:</b> MARKING	<b>ESTAMPADO:</b> DIE STAMPING		
	<b>PINTADO:</b> STENCILED	TRI API SPEC 5L 5L-6011 (SELLO API) (MM/AA) 88,9 11,1 L360N/X52N PSL2 SMLS HN (HEAT) 20.5 MPA 6,000 M ASTM/ASME A/SAS33 6/1 HFS LT -45 C	
	<b>CODIGO COLOR:</b> COLOUR CODE		
<b>EST. SUMINISTRO:</b> SUPPLYING COND	NORMALIZADO. ENFRIADO AL AIRE / NORMALIZED. AIR COOLED 960 °C 23 MIN		

**DESCRIPCION SUMINISTRO / DESCRIPTION OF DELIVERY**

ITEM FAB. T.R. ITEM	ITEM CLI. CLIENTS ITEM	LONG. INDIV (M) INDIVIDUAL LENGTH	COLADA CAST NR.	Nº TUBOS QUANTITY	LONG. TOTAL (M) LENGTH	PESO (KG) WEIGHT
000060		6,000	126230	41	246,000	5,212
<b>TOTAL</b>				41	246,000	5,212

Lista de Bultos / Packing List 707043

606-85-26047

전우메탈(주) 우태구

부산시 강서구 가리새2로 13번길32

제조 도매 파이프, 철강, 무역  
부 동 산 임



TUBOS REUNIDOS INDUSTRIAL GARANTIZA QUE TODOS LOS TUBOS CUBIERTOS POR ESTE CERTIFICADO CUMPLEN LOS REQUISITOS DEL PEDIDO Y CON LAS ESPECIFICACIONES ARRIBA MENCIONADAS.  
TUBOS REUNIDOS INDUSTRIAL CERTIFY THAT ALL THE TUBES COVERED BY THIS CERTIFICATE COMPLY WITH ORDER REQUIREMENTS AND ABOVE MENTIONED SPECIFICATIONS.

AMURRIO 18.03.2021

조정배 / 051-941-6078

CONTROL DE CALIDAD DE TUBOS REUNIDOS INDUSTRIAL  
TUBOS REUNIDOS INDUSTRIAL (QUALITY CONTROL)

Borja Sagarribai



**TUBOS REUNIDOS INDUSTRIAL, S.L.U**  
Barrio Sagarribai, 2 - 01470 AMURRIO (Spain)

EN 10204:2004 / 3.1

**CERTIFICADO DE CALIDAD**  
**MILL TEST CERTIFICATE**



PAG. 2 / 3

**N° 0000354092/2 Rev. 000**

ENSAYOS NO DESTRUCTIVOS / NON DESTRUCTIVE TESTS

ENSAYO / TEST	%CONTROL / TEST RATE (%)	REQUISITOS / REQUIREMENTS	RESULTADO / RESULT
VISUAL Y DIMENSIONAL/ VISUAL & DIMENSIONAL Insp.	100%		O.K.
P.HIDROSTATICA/ HYDROTEST	100%	2.970.0 PSI 5 SEC.	O.K.
CORRIENTES INDUCIDAS/ EDDY CURRENTS	100%	ASTM E 309, N12.5/HS 3.2 MM	O.K.
U.S. (LONGITUDINAL): ULTRASONIC TEST (LONG)	100%	ASTM E 213 12.5% W.T.NOTCH	O.K.
MAGNETISMO RESIDUAL RESIDUAL MAGNETISM		MAX 30.0 GAUSS	

ENSAYOS TECNOLÓGICOS Y METALÚRGICOS / TECHNOLOGICAL AND METALLURGICAL TEST

APLASTADO  
FLATTENING AC/ A/SA333/5L2018. PSL2 -OK

ANALISIS DE COLADA / CAST ANALYSIS

	C	Mn	Si	P	S	Cr	Ni	Mo	Cu	V	Ti	Nb	B	C.E.
MIN.		0,29	0,10											
MAX.	0,24	1,35	0,45	0,025	0,0100	0,300	0,3000	0,1200	0,4000	0,0800	0,0400	0,0200	0,0010	0,43
126239	0,1380	1,30	0,22	0,009	0,0045	0,069	0,0721	0,0999	0,1274	0,0680	0,0033	0,0050	0,0001	0,42

ANALISIS DE PRODUCTO / PRODUCT ANALYSIS

	C	Mn	Si	P	S	Cr	Ni	Mo	Cu	V	Ti	Nb	B	C.E.
MIN.		0,29	0,10											
MAX.	0,24	1,35	0,45	0,025	0,0100	0,300	0,3000	0,1200	0,4000	0,0800	0,0400	0,0200	0,0010	0,43
126239	0,1420	1,30	0,22	0,009	0,0052	0,070	0,0700	0,1000	0,1200	0,0690	0,0030	0,0050	0,0001	0,42
126239	0,1380	1,30	0,22	0,009	0,0057	0,070	0,0700	0,1000	0,1200	0,0690	0,0030	0,0050	0,0001	0,42

FORMULAS

	(01)	(02)
MIN.		
MAX.	0,150	0,250
126239	0,077	0,230
126239	0,077	0,230

(01) Nb + Ti + V  
(02) Pcm: C + Si/30 + (Cr + Mn + Cu)/20 + Ni/60 + Mo/15 + V/10 + 5\*B



조정배 /051-941-6078

AMURRIO 18.03.2021

606-85-26047

건우메탈(주) 우태구

부산시 강서구 가라세로 13번길22

제조도매 파이프, 철강, 무역  
부품 생산 임



CONTROL DE CALIDAD DE TUBOS REUNIDOS INDUSTRIAL  
TUBOS REUNIDOS INDUSTRIAL QUALITY CONTROL

Borja Eguibabal



**TUBOS REUNIDOS INDUSTRIAL, S.L.U**  
Barrio Sagarribai, 2 - 01470 AMURRIO (Spain)

EN 10204:2004 / 3.1

**CERTIFICADO DE CALIDAD**  
**MILL TEST CERTIFICATE**

QUALITY  
MANAGEMENT  
SYSTEM  
certified by  
LRQA

PAG. 3 / 3

**Nº 0000354092/2 Rev. 000**

**ENSAYOS DE TRACCIÓN / TENSILE TEST**

COLADA CAST	Nº	L/T (1)	TP (2)	DIMENSION ( mm )	L.ELAST. YIELD POINT ( Mpa ) (3)	R TRACC. T. STRENGTH ( Mpa )	ALARG. ELONG. ( % ) (4)	Estricción Reduction of Area (%)	DUREZA HARDNESS ( HRB )
MIN.					360	460			
MAX.					530	760			99
126239	1	L	P	19,50 x 10,800	382	528	40		82
126239	202/67	L	P	19,60 x 11,100	375	532	38		83

- (1) : L = LONGITUDINAL // T = TRANSVERSAL  
(2) : T = Full size tube // P = Strip specimen // C = Cylindrical // F = Flat specimen  
(3) : yield point (0,5%)  
(4) : Lo = 2" (50 mm)

**ENSAYOS DE IMPACTO - CHARPY V / IMPACT TEST**

COLADA CAST	Nº	L/T (1)	DIMENS ( mm )	Tª (°C)	RESILIENCIA IMPACT TEST ( J )	AVG ( J )
			10 10,00	-45	14 / 18	
126239	1	L	10 10,00	-45	200	188 197 195
126239	202/67	L	10 10,00	-30	198	183 169 183

- (1) : L = LONGITUDINAL // T = TRANSVERSAL

**ANEXOS / ANNEX**

FULLY KILLED  
RADIATION FREE  
MERCURY FREE  
NO WELD REPAIR

606-85-26047

건우메탈(주) 우태구

부산시 강서구 가리새2로 13번길32

계조도매 파이프, 철강, 무역  
부동산 임업, 칠장, 무역



조정배 / 051-941-6078

AMURRIO 18.03.2021

CONTROL DE CALIDAD DE TUBOS REUNIDOS  
INDUSTRIAL  
TUBOS REUNIDOS INDUSTRIAL QUALITY CONTROL

Rorja Eguizabal

# INSPECTION CERTIFICATE



**JFE Steel Corporation**

CHITA WORKS  
1, Kawasoki-cho 1-chome, Handa-City, Aichi Pref. 476-0011  
Japan

Date: MARCH 16, 2022 Page 1 / 3

Certificate No.	H230301772-000	Invoice No.	51-1127	JFE Code	SB22
Order No.	2N3T516-005	Shipper's Reference No.	228092 55021061		
Shipper	HANWA CO., LTD.				
Customer	KEONWOO METALS CO., LTD.				
Commodity	NOT FINISHED SEAMLESS CARBON STEEL PIPE				
Specification	ASTM A333M GRADE 6/ASME SA-333M GRADE 6 (2018/2021 ED)				
Size	114.30 X 11.13 X 6000				
Project Name					
Construction No.				Ship No.	
Reference No.					
Customer's Control No. 1					
Customer's Control No. 3	KTC-22-99949				

Quantity	40	Mass	6,800 kg	Total Length	
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MFG. No.	Heat No.	Products
S2050-01	Z-65913	40

### Chemical Composition (%)

MFG. No.		C	Si	Mn	P #1	S #1	Cu	NI	Cr	Mo	
*a	Max L	24		135	25	25	40	40	30	12	*a: Standard Spec. (ASTM A333M-6) Sampling Position: Base Metal
	Min L		10	29							
	Max P	24		195	25	25	40	40	30	12	
	Min P		10	29							
*b	Max L	24		135	25	25	40	40	30	12	*b: Standard Spec. (ASME SA-333M-6) Sampling Position: Base Metal
	Min L		10	29							
	Max P	24		195	25	25	40	40	30	12	
	Min P		10	29							
*c	Max L										*c: Customer Spec. Sampling Position: Base Metal
	Min L										
	Max P										
	Min P										
S2050-01	L	13	22	86	12	4	1	1	2		L: Ladle Analysis P: Product Analysis CEQI (SC2): C+(Mn+Si)/6+(Cr+Mo+V)/5+(Ni+Cu)/15 #1: X1000 Others: X100
	P	13	23	85	13	5	1	<1	1		
	P	13	23	85	12	5	1	<1	1		
MFG. No.		V	Nb	CEQI							
*a	Max L	8	2								
	Min L										
	Max P	8	2								
	Min P										
*b	Max L	8	2								
	Min L										
	Max P	8	2								
	Min P										
*c	Max L			43							
	Min L										
	Max P			43							
	Min P										
S2050-01	L	<1	<1	32							
	P	<1	<1	32							
	P	<1	<1	32							

606-85-26047

건우메탈(주) 우태구

부산시 강서구 가리새2로 13번길32

제조도매: 파이프, 철강, 무역  
부동산: 임



조정배 / 051-941-6078

WE HEREBY CERTIFY THAT THE MATERIALS DESCRIBED HEREIN HAVE BEEN MANUFACTURED, SAMPLED, INSPECTED AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION(S), AND THAT THEY SATISFY THE REQUIREMENTS.



# INSPECTION CERTIFICATE



**JFE Steel Corporation**

CHUWA HOUSU  
1, Kawasaki-cho 1-chome, Nado-City, Aichi Pref. 475-8011  
Japan

Date : MARCH 16, 2023 Page 2 / 3

Certificate No. : N2308D1772-000  
Order No. : 2H3T516-005

### Tensile Test

MFG. No.	YS	Variation	TS	El (%)	
*a	Max Min	240	415	30	*a: Standard Spec. (ASTMA333M-6) Sampling Position : Base Metal Direction : Longitudinal Type of Specimen : Strip 25.4 mm G. L. : 50 mm Unit : MPa Kind of YS : 0.2 % offset method
*b	Max Min	240	415	30	
S2050-01	398 303		448 441	47 47	Unit : MPa Kind of YS : 0.2 % offset method

### Impact Test

MFG. No.	Min	Absorbed Energy			
		Each	2 pcs	Ave	
*a	Min	11	14	14	*a: Standard Spec. (ASTMA333M-6) Sampling Position : Base Metal Direction : Longitudinal Type of Specimen : 2V Test Temperature : 10X7.5 Unit : J
*b	Min	11	14	14	
S2050-01		199 222 181		204	*b: Standard Spec. (ASMESA333M-6) Sampling Position : Base Metal Direction : Longitudinal Type of Specimen : 2V Test Temperature : 10X7.5 Unit : J

### Hardness Test

MFG. No.	Each	Variation				Mid				Inner				V. Ave
		(1)	(2)	(3)	Ave	(1)	(2)	(3)	Ave	(1)	(2)	(3)	Ave	
S2050-01	I								126					

### Flattening Test

Heat Treatment  
N.D.R.

GOOD  
Normalizing 925°C X 5H  
Standard Spec. (ASTMA333M-6) : ET  
Standard Spec. (ASMESA333M-6) : ET  
Customer Spec. : UT  
ET: GOOD  
UT: GOOD



### Visual & Dimension

GOOD

조장배 / 051-941-6078

WE HEREBY CERTIFY THAT THE MATERIALS DESCRIBED HEREIN HAVE BEEN MANUFACTURED, SAMPLED, INSPECTED AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION(S), AND THAT THEY SATISFY THE REQUIREMENTS.

606-85-26047

전우메탈(주) 우태구

부산시 강서구 가리새2로 139(233)

부동산 임, 실장, 부임



# INSPECTION CERTIFICATE



JFE Steel Corporation

CHITA WORKS  
1, Kawasaki-cho 1-chome, Handa-City, Aichi Pref. 475-8611  
Japan

Date: MARCH 18, 2023 Page 3 / 9

Certificate No. : N230301772-000  
Order No. : 2N3T516-005

**Remarks**

EN10204 3.1  
NO WELD REPAIR  
FULLY KILLED  
NACE MR0175/ISO15156, NACE MR0103/ISO17945 (HARDNESS ONLY)  
FINE GRAIN PRACTICE

606-85-26047

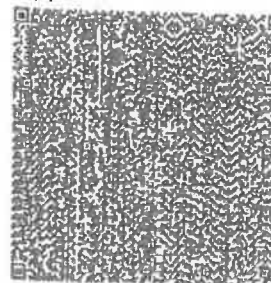
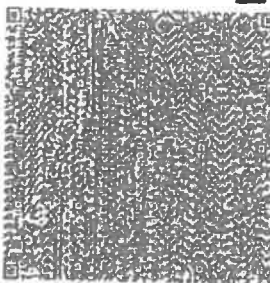
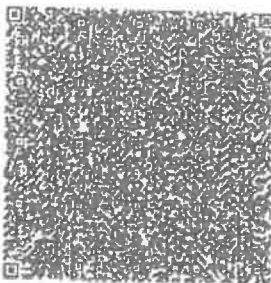
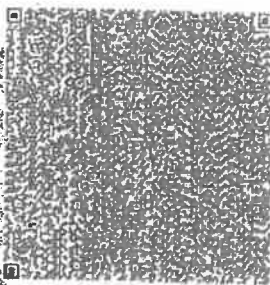
권우메탈(주) 우태구

부산시 강서구 가리새로 13번길32

제조도매 파이프, 철강, 무역  
부 동 산 입 대



조정배 / 051-941-6078



This Inspection Certificate can be checked with the QR code. <http://www.jfe-steel.co.jp/en/millsteel.htm>

WE HEREBY CERTIFY THAT THE MATERIALS DESCRIBED HEREIN HAVE BEEN MANUFACTURED, SAMPLED, INSPECTED AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION(S), AND THAT THEY SATISFY THE REQUIREMENTS.

Manager, Keonwoo Metals

**INSPECTION CERTIFICATE**

CERTIFICATE NO. :BYYP2629-01 PAGE : 1/2 DATE :2019-02-12

CUSTOMER :KEONWOOD METALS CO., LTD.  
ORDER NO. :  
SHIPPER :NIPPON STEEL & SUMITOMO METAL CORP. 111 5252 ANK8348B 8-84B-N3-5-Y-A038-01  
COMMODITY :SEAMLESS HOT FINISHED CARBON STEEL PIPE  
STANDARD :ASTM A333M-16 / ASME 2017 EDITION SA-333M GR. 6  
SPECIFICATION :TSC-2300R5  
MILL WORK NO. :BYYP2629 O. D. :168.3mm W. T. :10.97mm LENGTH:6000mm QUANTITY:63pcs. MASS:16066kg  
HEAT NO. :J8K4534  
PRODUCTS PCS. :83

HEAT TREATMENT :NORMALIZED(900 C X 5min. A.C.)

**CHEMICAL COMPOSITION(%)**

SPEC. MIN. MAX.	*1	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb	*CEQ
		*2		*2									
	R	-	10	29	-	-	-	-	-	-	-	-	-
	R	30	-	105	25	25	40	30	40	12	8	2	43
HEAT NO. J8K4534	L	11	31	126	11	2	25	12	36	2	0	2	39
	P	11	30	126	10	2	23	13	37	3	0	2	39
	P	11	30	126	10	2	23	13	37	3	0	2	39

\*1 R:LADLE & PRODUCT ANALYSIS L:LADLE ANALYSIS P:PRODUCT ANALYSIS \*2:X1000 OTHER:X100  
\*CEQ:C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/15  
\*FOR EACH REDUCTION OF 0.01% CARBON BELOW 0.30%, AN INCREASE OF 0.05% MANGANESE ABOVE 1.06% IS PERMITTED TO A MAXIMUM OF 1.35% MANGANESE.

**TENSILE TEST**

SPEC. MIN. MAX.	*1 *2	YS	TS	EL.		
		*3	*3	%		
	L B	M	240	M	415	30
	L B	M	-	M	-	-
HEAT NO. J8K4534	L B	M	360	M	504	40
	L B	M	358	M	503	41
	L B	M	364	M	506	40
	L B	M	361	M	504	40

TYPE OF SPECIMEN:STRIP 25mm WIDTH \*1 SAMPLING DIRECTION L:LONGITUDINAL \*2 SAMPLING POSITION B:BASE METAL  
\*3 UNIT N:MPa GAUGE LENGTH:50.0mm KIND OF YS:0.6% EXTENSION UNDER LOAD

606-85-26047  
권우메탈(주) 우대구  
부산시강서구 카라세로 13번길32  
제조 도매  
부동산



**IMPACT TEST(-48.0 C 2mm V-Notch 10X7.50)**

SPEC. MIN. MAX.	*1 *2	*3 *4	AVG			
			*5	11/14	14	
	L B	E J	*5	11/14	14	
	L B	E J	-	-	-	
			[1]	[2]	[3]	
HEAT NO. J8K4534	L B	E J	171	207	161	180



WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

조정배 /051-941-6078

*Y. Itoh*

YUJIN ITO  
HEAD OF DEPARTMENT  
QUALITY ASSURANCE DEPARTMENT

<An Important Message To Our Customers>  
This certification is intended only for products listed. Modification to or unauthorized use of this certification is strictly prohibited. Offences may be regarded as forgery of documents and be subject to criminal prosecution if you have any questions on this certification, you can contact us by facsimile or e-mail as shown below:  
Fax. No. : +81-3-6857-4926 E-mail: pipe-ipp@jp.nssc.com NO. 057306K19



This certificate is a printed copy of the original electric document as of 2019-02-18



**INSPECTION CERTIFICATE**

CERTIFICATE NO. : BYYF2629-01      PAGE : 2/2      DATE : 2019-02-12

[1] [2] [3]: SPECIMEN NO.  
ABSORBED ENERGY \*5: VALUE OF ONE PIECE/EACH VALUE OF TWO PIECES AVG: AVERAGE VALUE OF ONE SET (3 PIECES)  
\*1 SAMPLING DIRECTION L: LONGITUDINAL \*2 SAMPLING POSITION B: BASE METAL \*3 E: ABSORBED ENERGY \*4 UNIT J: Joule

FLATTENING TEST: ACCEPTABLE  
VISUAL & DIMENSIONS: ACCEPTABLE  
HYDROSTATIC TEST 19.0MPa: GUARANTEED BUT NOT CONDUCTED  
ULTRASONIC EXAMINATION: ACCEPTABLE  
POSITIVE MATERIAL IDENTIFICATION TEST (SPARK TEST): ACCEPTABLE  
NO WELD REPAIR  
CERTIFIED ACCORDING TO PED2014/68/EU, ANNEX I, PAR. 4.3 BY TUEV RHEINLAND INDUSTRIE SERVICES GmbH  
(NOTIFIED BODY, ID-No. 0035/CERTIFICATE No. 01 202 J/Q-02 0017)  
NACE MR0175/ISO 15186-2, NACE MR0103/ISO 17945 HARDNESS (HRC 22 MAX.): GUARANTEED  
VACUUM DEGASSED  
STEEL HAS BEEN FULLY KILLED  
FINE GRAIN PRACTICE  
EN 10204 3.1

606-85-26047

건우메탈(주) 우태구

부산시 강서구 가리새2로 13번길32

제조, 도매      파이프, 철강, 무역  
부      흥      산      입



조정배 / 051-941-6078

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

*Y. Itoh*

YUJIN ITO

HEAD OF DEPARTMENT  
QUALITY ASSURANCE DEPARTMENT

<An Important Message To Our Customers>

This certification is intended only for products listed. Modification to or unauthorized use of this certification is strictly prohibited. Offences may be regarded as forgery of documents and be subject to criminal prosecution. If you have any questions on this certification, you can contact us by facsimile or e-mail as shown below;

Fax. No. : +81-3-6867-4928      E-mail: pipe-ipp@jp.nssc.com

NO. 057306K19



This certificate is a printed copy of the original electric document as of 2019-02-18



Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13688

**BENTELER**

Steel/Tube

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1**  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1  
EN 10204:2006-01

Benteler Steel/Tube GmbH - Postfach 1340 - 33043 Paderborn - Deutschland  
DAEYEOON Metal Co., Ltd  
2287, Gangdong-Dong  
618-801 BUSAN-GANGSEO-GU  
SOUTH KOREA

Dokument-Nr.: 65-817888/001/P  
Document No.:

Kunden-Bestell-Nr.: HL1140327  
Purchase Order No.:

Benteler Auftrags-Nr.: 1598653  
Benteler Order No.:

Versandanzeigen-Nr.: 6543895  
Dispatch Note No.:

Produkt: NAHTLOSE STAHLROHRE  
Product: SEAMLESS STEEL TUBES

Produkt: TUBES D'ACIER SANS SOUDURE

Lieferbedingungen:

Terms of delivery:

Conditions de livraison:

Maße - Toleranzen:

Dimensions-tolerances:

Dimensions-tolerances:

Stahlisorte:

Steel grade:

Nuance d'acier:

Lieferzustand:

Delivery condition:

État de livraison:

Produktkennzeichnung:

Product marking:

Marquage du produit:

AEZ = Ätzstrichbeschriftung, Etching ink marking, Graveure à l'encre · FK = Farbschablonierung, colour marking, marquage par couleur · FS = Farbschablonierung, paint stenciling, marquage par peinture · FSD = Farbatrahldrucker, Colour jet printer, Imprimante à jet d'encre de couleur · LK = Laserkennzeichnung, Laser marking, Marquage laser · PKE = Ebeltrennzeichnung, tag marking, marquage sur étiquette · PS = Prägestempel, die stamp, marquage par poinçonnage · TS = Tintenstrahlkennzeichnung, ink jet spray marking, imprimante à jet d'encre

Pos.	Stück	Maße	Länge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions	Length	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Posta	Nombre	Dimensions	Longueur	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
0010	204	2" NPS * sched. 160	6000,00	13674	585163			
		mm	m	kg				

Blatt: 1 / 7  
Page:

Hersteller: Warmrohrwerk Dinisaken  
Manufacturer: IDIN EN ISO 9001, ISO/TS-18948 CERTIFIED BY TÜV NORD CERT  
Producteur: IPED 97/23/EC CERTIFIED BY TÜV NORD SYSTEMS

Herstellerzeichen:  
Manufacturer's brand:  
Marque du producteur:

Stempel des Abnahmebeauftragten: WA  
Stamp of the inspection representative:  
Poinçon du contrôleur:

Stahlerschmelzungsverfahren: ELEKTROSTAHL  
Steelmaking process: ELECTRIC FURNACE  
Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

ASTM-A 333-2013-HF, ASME SA-333-HF, ASME Section II Part A Edition 2013, ANSI/INACE MRO175/ISO 15156-2: 2009

length acc. to customer request, ASME SA-999 ASME Section II Part A Edition 2013, ASTM-A 999-2013

GRADE 1, GRADE 6

Normalized

FS: BENTELER BENTELER SIGN A333-HF-SA333-HF 1/6 SMLS LT 50 WA DIMENSIONS SCHEDULE HEAT-NO.



65-817888/001/P

Dokument-Nr.:  
Document No.:  
No. du document:

ABNAHMEPRÜFZEUGNIS EN 10204-3.1

INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

Pos.	Stück	Maße	Länge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions	Length	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions	Longueur	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
		mm	m	kg				
0020	162	3" NPS * Sched. 160	6000,00	20961	585528			
0030	42	4" NPS * Sched. 80	6000,00	5715	585163			
0040	52	4" NPS * Sched. 120	6000,00	8874	585528			
0050	42	4" NPS * Sched. 160	6000,00	8529	585900			

Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	AL	V	NB
Item	Heat No.												
Poste	No. de coulée												
0010	585163	0,120	0,190	0,73	0,006	0,005	0,12	0,02	0,08	0,16	0,033	0,001	0,001
0020	585528	0,130	0,320	1,23	0,008	0,002	0,14	0,06	0,25	0,18	0,043	0,063	0,012
0030	585163	0,120	0,190	0,73	0,006	0,005	0,12	0,02	0,08	0,16	0,033	0,001	0,001
0040	585528	0,130	0,320	1,23	0,008	0,002	0,14	0,06	0,25	0,18	0,043	0,063	0,012
0050	585900	0,130	0,310	1,24	0,006	0,003	0,12	0,06	0,25	0,18	0,041	0,069	0,014

1. Formel:  $CEV = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) < = 0,43 \%$

Formelergebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr	1. Formel
Item	Heat No.	1. Formula
Poste	No. de coulée	1. Formule
0010	585163	0,286
0020	585528	0,416
0030	585163	0,286
0040	585528	0,416
0050	585900	0,415

Dokument-Nr.: 65-817888/001/P

ABNAHMEPRÜFZEUGNIS EN 10204-3.1

INSPECTION CERTIFICATE EN 10204-3.1  
 CERTIFICAT DE RECEPTION EN 10204-3.1

Prüf-Nr.:  
 Inspection No.:  
 No. du certificat:

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	AL	V	NB
Item	Heat No.												
Poste	No. de coulée												
0010	585163	0,110	0,180	0,74	0,005	0,005	0,12	0,02	0,08	0,16	0,034	0,001	0,001
0010	585163	0,120	0,180	0,74	0,006	0,005	0,12	0,03	0,08	0,15	0,034	0,001	0,001
0020	585528	0,120	0,300	1,24	0,008	0,002	0,13	0,06	0,25	0,17	0,041	0,064	0,014
0020	585528	0,120	0,290	1,24	0,008	0,002	0,14	0,05	0,24	0,18	0,042	0,065	0,015
0030	585163	0,130	0,200	0,78	0,005	0,004	0,12	0,02	0,08	0,16	0,031	0,001	0,001
0030	585163	0,110	0,180	0,73	0,006	0,005	0,12	0,02	0,08	0,16	0,033	0,001	0,001
0030	585163	0,130	0,200	0,76	0,005	0,004	0,12	0,03	0,08	0,16	0,030	0,001	0,001
0030	585163	0,110	0,190	0,73	0,005	0,005	0,12	0,02	0,08	0,16	0,032	0,001	0,001
0040	585528	0,130	0,300	1,23	0,008	0,002	0,13	0,06	0,25	0,17	0,042	0,063	0,014
0040	585528	0,120	0,310	1,23	0,008	0,002	0,14	0,05	0,26	0,16	0,043	0,064	0,014
0050	585900	0,130	0,290	1,26	0,005	0,003	0,12	0,05	0,23	0,17	0,041	0,071	0,017
0050	585900	0,130	0,280	1,27	0,005	0,003	0,11	0,06	0,24	0,16	0,041	0,071	0,016

1. Formel:  $CEV = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) < = 0,43 \%$

Formelergebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr	1. Formel
Item	Heat No.	1. Formula
Poste	No. de coulée	1. Formule
0010	585163	0,277
0010	585163	0,288
0020	585528	0,405
0020	585528	0,405
0030	585163	0,304
0030	585163	0,275
0030	585163	0,302
0030	585163	0,275

Prüf-Nr.: 65-817888/001/P

Dokument-Nr.:  
Document No.:  
No. du document:

ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Formelresultate / Formula results / Résultats des formules

Pos.	Schmelzen-Nr	1. Formel
Item	Heat No.	1. Formula
Poste	No. de coulée	1. Formule
0040	585528	0,413
0040	585528	0,403
0050	585900	0,414
0050	585900	0,416

Prüfergebnisse / Test results / Résultats des essais

Die Rohre wurden zerstörungsfrei geprüft:

The tubes are non destructive tested:

Les tubes ont passé un essai non destructif:

ET-test: acc. to ASME SA-999, ASTM-A 999; ET - Test method: acc. to ASTM-E 309; for imperfections

Augensichtkontrolle: PASSED  
Visual inspection: PASSED  
Examen visuel: PASSED

Maßkontrolle: PASSED  
Dimensions examination: PASSED  
Vérification des dimensions: PASSED

Ringfaltversuch: PASSED  
Flattening test: PASSED  
Essai d'aplatissement: PASSED

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probenahme erfolgte an Vielfachlängen.

The sampling was carried out on multiple lengths.

L'échantillonnage était réalisé aux longueurs multiples.

Zugversuch längs Streifenprobe / Tensile test longitudinal Strip test specimen / Essai de traction longitudinale Bande découpée sur tube

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung	Einschnürung
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation	Area reduction
Poste	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Coefficient de striction
Anforderungen			R <sub>eH</sub>	R <sub>m</sub>	A <sub>2</sub> "	1. Formel	
Requirements			PSI	PSI	%	1. Formula	
Exigences			MIN 34809	60191-114580	MIN 35	1. Formule	
0010	000001	585163	19,00 X 8,80	41046	61496	46,00	
0010	000002	585163	19,00 X 8,60	42641	62221	44,00	
0010	000003	585163	19,00 X 8,80	41916	62076	46,00	
0010	000004	585163	19,00 X 8,50	41481	61351	42,00	

Zugversuch längs Streifenprobe / Tensile test longitudinal Strip test specimen / Essai de traction longitudinale Bande decoupee sur tube

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung	Einschnürung
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation	Area reduction
Poste	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Coefficient de striction
Anforderungen			mm	ReH	Rm	A2"	1. Formel
Requirements			mm	PSI	PSI	%	1. Formula
Exigences				MIN 34809	60191-114580	MIN 35	1. Formule
0010	000005	585163	19,00 X 8,90	41771	61641	44,00	
0010	000006	585163	19,00 X 8,60	41626	62076	44,00	
0010	000007	585163	19,00 X 8,70	40901	60771	44,00	
0010	000008	585163	19,00 X 8,50	41191	61351	44,00	
0010	000009	585163	19,00 X 8,70	42496	62946	42,00	
0010	000010	585163	19,00 X 8,80	41336	61786	44,00	
0010	000011	585163	19,00 X 9,00	41191	61061	46,00	
0020	000001	585528	25,40 X 11,30	58740	77160	46,00	
0020	000002	585528	25,40 X 10,90	57870	76145	46,00	
0020	000003	585528	25,40 X 10,90	58305	76725	44,00	
0020	000004	585528	25,40 X 10,90	59756	77885	44,00	
0020	000005	585528	25,40 X 11,10	58885	77595	44,00	
0020	000006	585528	25,40 X 11,10	58595	77885	44,00	
0020	000007	585528	25,40 X 11,40	59885	77015	42,00	
0020	000008	585528	25,40 X 11,60	58450	76725	46,00	
0020	000009	585528	25,40 X 11,20	58015	76580	46,00	
0030	000001	585163	25,40 X 8,60	46122	65847	40,00	
0030	000001	585163	25,40 X 9,00	40756	60336	44,00	
0030	000002	585163	25,40 X 8,50	45542	66572	44,00	
0030	000002	585163	25,40 X 8,70	40901	61931	42,00	
0030	000003	585163	25,40 X 8,60	46557	66572	44,00	
0040	000001	585528	25,40 X 11,20	56710	77305	42,00	
0040	000002	585528	25,40 X 11,20	56855	76870	42,00	

ABNAHMEPRÜFZEUGNIS EN 10204-3.1 Dokument-Nr.: 65-817888/001/P  
INSPECTION CERTIFICATE EN 10204-3.1 Document No.:  
CERTIFICAT DE RECEPTION EN 10204-3.1 No. du document:

Zugversuch längs Streifenprobe / Tensile test longitudinal Strip test specimen / Essai de traction longitudinale Bande decoupee sur tube

Pos. Item Poste	Proben-Nr. Specimen No.	Schmelzen-Nr. Heat No.	Probenabmessung Specimen dimensions	Streckgrenze Yield strength	Zugfestigkeit Tensile strength	Dehnung Elongation	Einschnürung Area reduction
	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Coefficient de striction
Anforderungen Requirements Exigences	mm	mm	mm	ReH PSI MIN 34809	Rm PSI 60191-114560	A2" % MIN 35	1. Formel 1. Formula 1. Formula
0040	000003	585528	25,40 X 11,20	57870	75275	44,00	
0050	000001	585900	25,40 X 13,30	59901	78030	44,00	
0050	000002	585900	25,40 X 13,80	60191	77885	43,00	
0050	000003	585900	25,40 X 13,70	58450	77015	44,00	

Kerbschlagbiegeversuch Notched bar impact test / Essai de flexion par choc (résilience) [1 CHARPY\_V1]

Pos. Item Poste	Proben-Nr. Specimen No.	Schmelzen-Nr. Heat No.	Probenabmessung Specimen dimensions	Probenlage Specimen position	Prüftemperatur Test temperature	Kerbschlagarbeit Absorbed energy	Kerbschlagzähigkeit Impact strength	Verf.-Bruchanteil Shear fracture
	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouvette	Position de l'éprouvette	Température d'essai	Energie absorbée	Résistance au choc	Rupture ductile
Anforderungen Requirements Exigences	Länge Length Longueur	Breite Width Largeur	Höhe Height Hauteur	längs (L) longitudinal (L) longitudinal (L)	GRAD °C	einzel single individuelle	einzel single individuelle	einzel single individuelle
	mm	mm	mm	quer (Q) transversal (Q) transversal (Q)		J MIN 011	J/cm² MIN 014	%
0010	000001	585163	55	L	-45	118		
			7,50	L		55		
			7,50	L		116		
0030	000001	585163	55	L	-45	194		
			7,50	L		196		
			7,50	L		125		
0030	000001	585163	55	L	-45	169		
			7,50	L		145		
			7,50	L		177		

Dokument-Nr.: 65-817888/001/P

Prüf-Nr.:  
Inspection No.:

ABNAHMEPRÜFZEUGNIS EN 10204-3.1

INSPECTION CERTIFICATE EN 10204-3.1

No. du document:

CERTIFICAT DE RECEPTION EN 10204-3.1

Kerbschlagbiegeversuch Notched bar impact test / Essai de flexion par choc (résilience) [1] CHARPY\_V]

Pos. Proben-Nr. Schmelzen-Nr. Probenabmessung	Probenlage	Prüftemperatur	Kerbschlagarbeit	Kerbschlagzähigkeit	Verf.-Bruchanteil
Item Specimen No. Heat No. Speciman dimensions	Specimen position	Test temperature	Absorbed energy	Impact strength	Shear fracture
Poste No. de l'éprouv. No. de coulée	Dimensions de l'éprouvette	Température d'essai	Energie absorbée	Résistance au choc	Rupture ductile
Anforderungen	Länge Breite Höhe		einzel mittel	einzel mittel	einzel mittel
Requisiments	Length Width Height		single average	single average	single average
Exigences	Longueur Largeur Hauteur		individuelle moyenne	individuelle moyenne	individuelle moyenne

	mm	mm	mm	J	J	J/cm <sup>2</sup>	J/cm <sup>2</sup>	%	%
	55	10,00	10,00	MIN 014	MIN 014	MIN 018			
0020 000001 585528	55	10,00	10,00	L	137	144	149		
0040 000001 585528	55	10,00	10,00	L	181	200	189		
0050 000001 585900	55	10,00	10,00	L	154	158	168		

Wärmebehandlung / Heat treatment / Traitement thermique

Normalized: 900 °C

Vermerk / Remark / Remarque

NACE Standard: Hardness acc. to ANSI/NACE MR0175/ISO 15156: HRC max 22., Hardness acc. to Standard MR0103 HRC max. 22.;  
Certificate remarks: fully killed fine grained steel, No weld repair has been carried out; Certificate-Remark: Tubes are suitable for a hydrostatic test acc. to A/SA 999.

Verkäufer(in) / Sales personnel / Personns chargés : Mrs Schönweiss, Tel.: 05254 81-204234, Fax: 204-289

Dinslaken, 23.06.2014, TEL.: 02064.623-5360 FAX: 02064.623-5390

Abnahmebeauftragter

Inspection representative

Contrôleur

DR. BASEL KEITA / SEMIZ

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.  
We certify that the supplied products comply with the order specification. This document was prepared by means of electronic data processing and is valid without signature.

Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.

# HANEDA

## INSPECTION CERTIFICATE

DALIAN HANEDA STEEL TUBE CO.,LTD.

Guanfangchun Longwangtang Lushunkou District  
Dalian, China

Date 2023-6-7 Cert.No. DH23005-1

Control No. DH23005 P.O.No. CNSPO-230200

Ship No. Project No.

Marks Works No.

Purchaser: BU IL PIPE CO.

Supplier: CNS TRADING

Commodity: Seamless Cold Drawn Finished Carbon Steel Pipes Acc.to Specification: STPG/STS/SPT 370 NO.1-2 S-C

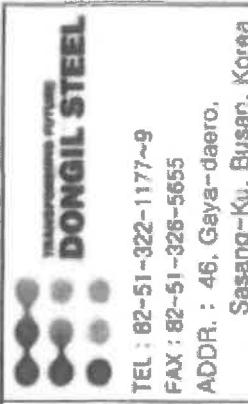
Mfg.No.	O.D.	Size W.T.	Length in mm	No.of Piece	Quantity Mass kg	Visual & Dimensions	Hydrostatic Test MPa	Bend	Flattening	Flaring	Hardness HRB	Eddy Current Test	Impact Test	Remarks
Test Pieces Type		Yield Point in N/mm <sup>2</sup> min.215	Tensile Strength in N/mm <sup>2</sup> min.370	Elongation in % G.L.50mm min.30	Heat. No.	C x100	Si x100	Mn x100	P x1000	S x1000				
2300501	8A	Sch80	6000	309	1481	Good			Good		71.1/70.2	Good		Fine Heat Treatment Condition Annealed 680°C X 12min.
Total				309	1481	Standard			e=0.08					
2300501	No.11	328/335	435/437	41/42	13803470-1									EN10204-3.1/ISO10474-3.1 NACE MR0175/ISO15156-2(2015) NACE MR0103/ISO17945(2015) HARDNESS(HRC2 MAX):GUARANTEED

ORIGINAL

We hereby certify that the material described herein has been manufactured, examined and tested in accordance with the above specification and the customer's purchase specification.  
Note: Yield Strength 0.2% offset method.  
Note: Steel made by Basic Oxygen process.



Sub Chief of Quality Control Section



# MILL TEST CERTIFICATE

## 검사증명서

CUSTOMER 신한스틸(주)  
 CERT No. B-240718-0005  
 LOT No. BA2406002  
 COMMODITY Cold Drawn Steel  
 Round Bar

ST'L GRADE	SS400		
SPECIFICATION			
SIZE	LENGTH	Q'TY	WEIGHT
MM	M	B/D	KG
10mm	4.00	2	1.992

KIND / SPEC	Chemical Composition									
	C	SI	Mn	P	S	Cr	Ni	Mo	Cu	
Unit	x100	x100	x100	x1000	x1000	x100	x100	x100	x100	
HEAT No.										
SF50353	17	22	75	14	8					

Mechanical properties			
Y.S	T.S	E.L	R.A
N/mm <sup>2</sup>	N/mm <sup>2</sup>	%	%

[Note] Mechanical properties do not apply CD bars.

To apply. a Carbon Steel(do not CD bars). Low alloy Steel

WE HEREBY CERTIFY THAT THE MATERIAL HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION  
 상기 제품은 검사의 결과 지정된 규격에 합격한 것을 증명함.

Band Test (180°)

The steel for plates

B. S. Kim

Dept. manager

Date. 2024-07-18

