

ORIGINAL

# QUALITY CERTIFICATE



주식회사 휴스틸

HUSTEEL Co., Ltd.

P/O No. : 16868  
L/C No. : M930221

CERTIFICATE No. : 140113-019

ISSUED DATE : 2014.01.13

MANUFACTURED No. : 2013-12-218

COMMODITY : E.R.W. STEEL PIPE

HEAD OFFICE : SHINAN B/D 15F, 943-19, DAECHE-DONG, KANGNAM-GU, SEOUL, KOREA

SUPPLIER : HUSTEEL CO., LTD.

SPECIFICATION : API 5LB PSL-1/ASTM A53B

DAEBUL PLANT : 3RO, DAEBUL INDUSTRIAL COMPLEX, SAMHO-EUP, YEONGAM-GUN, JEOLLANAM-DO, KOREA

CUSTOMER : PLESA ANAHUAC Y CIAS., S.A. DE C.V.

NO.	HEAT_NO	QUAN-TITY	TYPE	NOMINAL SIZE	ORDER SIZE			WEIGHT	TENSILE TEST						CHEMICAL COMPOSITION(%)																																
					O.D	W.T	LENGTH		DIR.	TS	YS	EL	YR	WTS	DIV	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Ti	B	CEQ	PCM																	
					inch	inch	ft																								lb/ft	PSI	%	%	PSI	-2				-3				-4		-5	-3
					*1		*2																								*3	*4		*5	*6												
01	198262	67	BPEB	16	16.000	0.250	20	42.09	T	70,775	48,586	37	69	74,691	H	16	1	84	13	3																											
02	M82448	3	BPEB	16	16.000	0.250	20	42.09	T	67,440	52,646	39	78	67,875	H	15	1	84	13	2	7	5	13	10	3	16	9	10																			
03	M81090	6	BPEB	16	16.000	0.250	20	42.09	T	66,279	51,776	39	78	69,035	H	15	1	84	13	2	7	5	12	10	2	10	7	10																			

NO.	HYDROSTATIC TEST			HEAT TREATMENT	ZINC COATING TEST		THREADS		HARDNESS TEST	IMPACT TEST		*13	FLATTENING OR BEND TEST	VISUAL & DIMENSION	METALLOGRAPHIC TEST	RESIDUAL MAGNETISM					
	T.P	H.T	RESULT		WZC	CST	TPI	ETL		( 0 ) °C		N · D · T									
	PSI	sec								°C	g/m <sup>2</sup>	TIMES					inch	HV	DIV	Energy (Ind, J)	SIZE
	*9				*10	*11		*12		*7	*8	FLANGE TEST					REVERSE FLATTENING TEST	CRUSH TEST			
01	670	5	GOOD	930																	
02	670	5	GOOD	930																	
03	670	5	GOOD	930																	

HARDNESS MAX 22 HRC AS PER NACE MR 0175

**N O T E**

\*1. Type of Pipe Ends  

BPE	Black Plain Ends	GPE	Galvanized Plain Ends
BPEB	BPE Bevelled	GPEB	GPE Bevelled
BTE	Black Threaded Ends	GTE	Galvanized Threaded Ends
BTC	Black Threaded & Coupled	GTC	Galvanized Threaded & Coupled

\*2. O.D : Outsid Diameter, W.T : Wall Thickness  
 \*3. Direction: L : Longitudinal, T : Transverse  
 \*4. Tensile Test -TS : Tensile Strength, YS : Yield Strength, YR : Yield Ratio, EL : Elongation, WTS : Weld tensile strength, Gauge Length : 2 inch, Y.P method : 0.5% Underload  
 \*5. H : Heat analysis, P : Product analysis \*6. -2 : x1/100, -3 : x1/1000, -4 : x1/10000, -5 : x1/10000, Tr : Trace \*7. B : Base Metal, W : Weld Line, H : Heat Affected Zone  
 \*8. Specimen Size -A:10x10mm, B:10x7.5mm, C:10x6.6mm, D:10x5.0mm, Direction: Transverse \*9. T.P : Testing Pressure, H.T : Holding Time \*10. Heat Treatment Seam Normalizing  
 \*11. WZC : Weight of Zinc Coating, CST : Copper Sulphate Test \*12. TPI : Threads per inch, ETL : Effective length of threads \*13. NDT : UT, Reference Standard 3.2 C Drilled Hole

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE ORDER AND ABOVE SPECIFICATION  
 THIS CERTIFICATE IS ISSUED ACCORDING TO EN 10204 3.1(ISO 10474 3.1 B)

SURVEYOR: \_\_\_\_\_ MANAGER OF Q.A TEAM: *[Signature]*

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NO.	HEAT_NO	QUANTITY PCS	TYPE *1	NOMINAL SIZE	ORDER SIZE			WEIGHT lb/ft	TENSILE TEST						CHEMICAL COMPOSITION(%)																				
					O.D inch	W.T inch	LENGTH ft		DIR.	TS PSI	YS %	EL %	YR %	WTS PSI	DIV	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Ti	B	CEQ	PCM					
					*2				*3	*4			*5	*6			-2			-3			-4			-5		-3							
04	198263	119	BPEB	16	16.000	0.250	20	42.09	T	68,020	45,685	38	67	75,851	H	16	1	84	14	2															
05	M83106	64	BPEB	16	16.000	0.250	20	42.09	T	67,005	53,662	36	80	68,890	H	15	1	85	14	2	8	6	16	10	2	14	6	10							
06	M90371	23	BPEB	18	18.000	0.250	20	47.44	T	67,730	54,532	38	81	71,791	H	6	2	82	14	3	18	13	27	21	9	136	7	10							

NO.	HYDROSTATIC TEST			HEAT TREATMENT °C	ZINC COATING TEST		THREADS		HARDNESS TEST HV	IMPACT TEST ( 0 ) °C			*13 N · D · T ( UT )	FLATTENING OR BEND TEST	VISUAL & DIMENSION	METALLOGRAPHIC TEST	RESIDUAL MAGNETISM
	T.P	H.T	RESULT		WZC	CST	TPI	ETL		Energy (Ind. J)	SIZE	GOOD	GOOD	GOOD	GOOD	GOOD	
	PSI	sec			g/m <sup>2</sup>	TIMES	inch	inch		DIV	inch	FLANGE TEST	REVERSE FLATTENING TEST	CRUSH TEST			
04	670	5	GOOD	930													
05	670	5	GOOD	930													
06	600	5	GOOD	930													

HARDNESS MAX 22 HRC AS PER NACE MR 0175

**N O T E**

\*1. Type of Pipe Ends  

BPE	Black Plain Ends	GPE	Galvanized Plain Ends
BPEB	BPE Bevelled	GPEB	GPE Bevelled
BTE	Black Threaded Ends	GTE	Galvanized Threaded Ends
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SURVEYOR \_\_\_\_\_ MANAGER OF Q.A TEAM \_\_\_\_\_

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Main table with columns: NO., HEAT\_NO, QUANTITY, TYPE, NOMINAL SIZE, ORDER SIZE (O.D, W.T, LENGTH), WEIGHT, TENSILE TEST (TS, YS, EL, YR, WTS), CHEMICAL COMPOSITION (%).

Table with columns: NO., HYDROSTATIC TEST, HEAT TREATMENT, ZINC COATING TEST, THREADS, HARDNESS TEST, IMPACT TEST, \*13 N · D · T, FLATTENING OR BEND TEST, VISUAL & DIMENSION, METALLOGRAPHIC TEST, RESIDUAL MAGNETISM.

\*1. Type of Pipe Ends, \*2. O.D : Outsided Diameter, \*3. Direction, \*4. Tensile Test, \*5. H : Heat analysis, \*6. -2 : x1/100, \*7. B : Base Metal, \*8. Specimen Size, \*9. T.P : Testing Pressure, \*10. Heat Treatment, \*11. W.Z.C : Weight of Zinc Coating, \*12. T.P.I : Threads per inch, \*13. N.D.T : UT, Reference Standard 3.2 C Drilled Hole

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Main table with columns: NO., HEAT\_NO, QUANTITY, TYPE, NOMINAL SIZE, ORDER SIZE (O.D, W.T, LENGTH), WEIGHT, TENSILE TEST (DIR, TS, YS, EL, YR, WTS), CHEMICAL COMPOSITION (%), and various test parameters.

Table for detailed tests: HYDROSTATIC TEST, HEAT TREATMENT, ZINC COATING TEST, THREADS, HARDNESS TEST, IMPACT TEST, \*13 N · D · T, FLATTENING OR BEND TEST, VISUAL & DIMENSION, METALLOGRAPHIC TEST, RESIDUAL MAGNETISM.

Notes section containing \*1.Type of Pipe Ends, \*2. O.D : Outsidi Diameter, \*3. Direction, \*4. Tensile Test, \*5. H : Heat analysis, \*6. -2 : x1/100, \*7. B : Base Metal, \*8. Specimen Size, \*9. T.P : Testing Pressure, \*10. Heat Treatment, \*11. W.ZC : Weight of Zinc Coating, \*12. T.P.I : Threads per inch, \*13. NDT : UT, \*10. Heat Treatment Seam Normalizing Reference Standard 3.2 C Drilled Hole.

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SURVEYOR
MANAGER OF Q.A TEAM