

ORIGINAL

# QUALITY CERTIFICATE

**주식회사 휴스틸**  
(HUSTEEL CO.,LTD.)

계약서번호  
P/O No. : 11324  
L/C No. : M927155  
발급일자  
ISSUED DATE : 2012. 01. 19.  
제품명  
COMMODITY : E.R.W. STEEL PIPE  
제품규격  
SPECIFICATION : API 5L-B/ASTM A53B

□ HEAD OFFICE : Shinan B/D 15F, 943-19, Daechi-dong  
Kangnam-ku, SEOUL 135-845, KOREA  
□ DANGJIN PLANT: 569-1, BUGOK-RI, SONGAK-MYEON, DANGJIN-GUN,  
CHUNGCHEONGNAM-DO, KOREA  
■ DAEBUL PLANT: 11 BLOCK, DAEBUL NATIONAL INDUSTRIAL COMPLEX,  
NABUL-RI, SAMHO-MYEON, YOUNGAM-KUN, CHULLANAM-DO, KOREA

증명서번호  
CERTIFICATE No. : 20120119 - 011  
제조번호  
MANUFACTURED No.: 2011-12-210  
공급자  
SUPPLIER : HUSTEEL CO.,LTD.  
수요자  
CUSTOMER : PLESA ANAHUAC Y CIAS.,  
S.A.DE C.V.

ITEM NO.	HEAT NO. (LOT)	관종 TYPE	수량 QUANTITY (PIECES)	호칭경 NOMINAL SIZE (inch)	주문치수 ORDER SIZE			중량 WEIGHT (lb/ft)	인장시험 TENSILE TEST				화학적 CHEMICAL COMPOSITION(%)														
					바깥지름 O.D (mm)	두께 W.T. (in)	길이 LENGTH (ft)		인장강도 TS (psi)	인장강도 YS (psi)	연신율 EL (%)	항복비 YR (YS/TS)	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	Ti	B	PCM	CEQ
													-2	-3	-2	-3			-4			-3					
1	SP19363	BPEB	700	12 3/4	323.9	0.225	20'	30.13	67585	45830	34		14	17	79	15	4	16	15	11	1	12	2	11			
2	SP19366	BPEB	34	12 3/4	323.9	0.225	20'	30.13	68455	46410	40		13	11	75	14	8	15	19	10	1	11	3	10			
3	18672	BPEB	8	12 3/4	323.9	0.250	20'	33.41	65119	44815	38		19	10	69	20	4	15	15	11	1	11	2	12			
4	19146	BPEB	4	12 3/4	323.9	0.250	20'	33.41	65264	45250	44		14	17	79	15	4	16	15	11	1	12	2	11			
5	19928	BPEB	2	12 3/4	323.9	0.250	20'	33.41	65989	44960	41		17	12	75	12	5	18	11	10	1	13	2	12			
6	19930	BPEB	56	12 3/4	323.9	0.250	20'	33.41	66569	46265	37		17	17	74	13	4	15	13	10	1	11	1	10			
7	SB20615	BPEB	58	12 3/4	323.9	0.250	20'	33.41	63814	46410	40		14	10	70	11	4	16	14	8	1	13	3	12			
8	SB20880	BPEB	315	12 3/4	323.9	0.250	20'	33.41	65264	46700	41		16	12	73	15	7	13	18	10	1	12	1	11			
9	SP17422	BPEB	75	12 3/4	323.9	0.250	20'	33.41	64684	47135	36		15	14	69	15	7	13	17	10	1	11	1	11			
10	SP19366	BPEB	436	12 3/4	323.9	0.250	20'	33.41	68455	46410	40		12	11	75	13	7	13	15	9	1	12	1	10			

ITEM NO.	수압시험 HYDROSTATIC TEST		열처리온도 HEAT TREATMENT (°C)	비파괴 시험 NDT (U.T)	경도시험 HARDNESS TEST (HV)	외주장 CIRCUMFERENCE		용접부인장강도 TENSILE STRENGTH OF WELDS (psi)	아연도금시험 ZINC COATING TEST		VISUAL & DIMENSION	FLATTENING (BEND) TEST	W D T	R G T	M G T	S.T (%)	충격시험 IMPACT TEST		Res. Mag.	비고 REMARKS
	TP (psi)	RE-SULT				END	BODY		WZC (g/m²)	CST (TIMES)							P	ENERGY(J) SIZE: ①		
	⑤																( )°C	②		
1	840	GOOD	930	ACCEPT				68613			ACCEPT	GOOD							17	①Latest edition per API 5LB (44th,2008) & ASTM A53B(2010) ②HARDNESS MAX. 22 HRC AS PER NACE MR 0175
2	840	GOOD	930	ACCEPT				69483			ACCEPT	GOOD							16	
3	840	GOOD	930	ACCEPT				66147			ACCEPT	GOOD								
4	840	GOOD	930	ACCEPT				66292			ACCEPT	GOOD								
5	840	GOOD	930	ACCEPT				67017			ACCEPT	GOOD								
6	840	GOOD	930	ACCEPT				67597			ACCEPT	GOOD								
7	840	GOOD	930	ACCEPT				64842			ACCEPT	GOOD								
8	840	GOOD	930	ACCEPT				66292			ACCEPT	GOOD								
9	840	GOOD	930	ACCEPT				65712			ACCEPT	GOOD								
10	840	GOOD	930	ACCEPT				69483			ACCEPT	GOOD								

N ①TYPE BPE BLACK PLAIN ENDS BPEB BPE BEVELLED BTE BLACK THREADED ENDS BTC BLACK THREADED & COUPLED GPE GALVANIZED PLAIN ENDS GTE GALVANIZED THREADED ENDS GTC GALVANIZED THREAD & COUPLED  
O ②O.D. OUTSIDE DIAMETER ③W.T. WALL THICKNESS ④CHEMICAL COMPOSITION CHECK-ANALYSIS/UNIT -2:1/×100 -3:1/×1000 -4:1/×10000 TR TRACE ⑤TP TESTING PRESSURE ⑥NDT NON-DESTRUCTIVE TEST  
T E.T EDDY CURRENT TEST U.T ULTRASONIC TEST ⑦WZC WEIGHT OF ZINC COATING CST COPPER SULPHATE TEST ⑧WDT WELD DUCTILITY TEST RGT RING GAGE TEST MGT METALLOGRAPHIC TEST ⑨S.T STRAIGHTNESS  
E ⑩P=Position B:Base Metal, CL:Center Line ⑪SPECIMEN SIZE, A:10x10mm, B:10x7.5mm, C:10x6.7mm, D:10x5.0mm, ⑫RES.MAG.: RESIDUAL MAGNETISM

SIGNATURE \_\_\_\_\_ 본 제품은 관련 규격이 정한 시험 및 검사에 합격하였음을 증명합니다.  
WE HEREBY CERTIFY THAT THE PRODUCTS HEREIN HAVE BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND ALSO WITH THE REQUIREMENTS CALLED FOR THE ORDER.  
SIGNATURE *[Signature]*  
MANAGER OF QUALITY ASSURANCE TEAM

ORIGINAL

# QUALITY CERTIFICATE

**주식회사 휴스틸**  
(HUSTEEL CO.,LTD.)

증명서번호  
CERTIFICATE No. : 20120119 - 011  
제조번호  
MANUFACTURED No.: 2011-12-210  
공급자  
SUPPLIER : HUSTEEL CO.,LTD.  
수요자  
CUSTOMER : PLESA ANAHUAC Y CIAS., S.A.DE C.V.

계약서번호  
P/O No. : 11324  
L/C No. : M927155  
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ISSUED DATE : 2012. 01. 19.  
제품명  
COMMODITY : E.R.W. STEEL PIPE  
제품규격  
SPECIFICATION : API 5L-B/ASTM A53B

HEAD OFFICE : Shinan B/D 15F, 943-19, Daechi-dong  
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DANGJIN PLANT: 569-1,BUGOK-RI,SONGAK-MYEON, DANGJIN-GUN,  
CHUNGCHEONGNAM-DO,KOREA  
DAEBUL PLANT: 11 BLOCK,DAEBUL NATIONAL INDUSTRIAL COMPLEX,  
NABUL-RI, SAMHO-MYEON,YOUNGAM-KUN,CHULLANAM-DO,KOREA

ITEM NO.	HEAT NO. (LOT)	관종 TYPE	수량 QUANTITY (PIECES)	호칭경 NOMINAL SIZE (inch)	주문치수 ORDER SIZE			중량 WEIGHT (lb/ft)	인장시험 TENSILE TEST				화학성 CHEMICAL COMPOSITION(%)														
					바깥지름 O.D (mm)	두께 W.T. (in)	길이 LENGTH (ft)		인장강도 TS (psi)	인장강도 YS (psi)	연신율 EL (%)	항복비 YR (YS/TS)	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	Ti	B	PCM	CEQ
													-2	-3	-2	-3			-4			-3					
11	SP19376	BPEB	183	12 3/4	323.9	0.250	20'	33.41	64829	44815	40		17	10	68	12	9	19	15	10	1	11	1	12			
12	19930	BPEB	6	12 3/4	323.9	0.375	20'	49.61	63814	45105	44		13	10	79	10	3	16	18	10	1	12	3	11			
13	19931	BPEB	6	12 3/4	323.9	0.375	20'	49.61	64684	46410	43		17	12	75	12	5	18	11	10	1	13	2	12			
14	19932	BPEB	3	12 3/4	323.9	0.375	20'	49.61	65264	45975	38		17	17	74	13	4	15	13	10	1	11	1	10			
15	SQ57810	BPEB	31	12 3/4	323.9	0.375	20'	49.61	65699	44960	41		15	11	70	12	4	14	13	11	1	10	1	10			
16	SQ57812	BPEB	59	12 3/4	323.9	0.375	20'	49.61	65409	46990	42		16	10	78	9	4	13	18	10	1	11	3	12			
17	SQ57814	BPEB	77	12 3/4	323.9	0.375	20'	49.61	64249	46410	44		16	12	74	15	4	14	18	10	1	12	1	13			
18	SQ57808	BPEB	96	12 3/4	323.9	0.406	20'	53.57	65119	45685	42		14	11	64	17	7	17	13	9	1	12	2	11			
19	SQ57817	BPEB	80	12 3/4	323.9	0.406	20'	53.57	65989	45830	40		18	13	71	10	5	16	13	10	1	11	2	11			
20	SQ58415	BPEB	46	12 3/4	323.9	0.406	20'	53.57	63379	44525	41		13	15	79	12	3	15	18	9	1	11	2	10			

ITEM NO.	수압시험 HYDROSTATIC TEST		열처리온도 HEAT TREATMENT (°C)	비파괴 시험 NDT (U.T)	경도시험 HARDNESS TEST (HV)	외주장 CIRCUMFERENCE		용접부인장강도 TENSILE STRENGTH OF WELDS (psi)	아연도금시험 ZINC COATING TEST		VISUAL & DIMENSION	FLATTENING (BEND) TEST	W D T	R G T	M G T	S.T (%)	충격시험 IMPACT TEST		Res. Mag.	비고 REMARKS
	TP (psi)	RE-SULT				END	BODY		WZC (g/m²)	CST (TIMES)							P	ENERGY(J) SIZE: ①		
11	840	GOOD	930	ACCEPT				65857			ACCEPT	GOOD							17	①Latest edition per API 5LB (44th,2008) / ASTM A53B(2010) ②HARDNESS MAX. 22 HRC AS PER NACE MR 0175
12	1260	GOOD	950	ACCEPT				64842			ACCEPT	GOOD							16	
13	1260	GOOD	950	ACCEPT				65712			ACCEPT	GOOD								
14	1260	GOOD	950	ACCEPT				65292			ACCEPT	GOOD								
15	1260	GOOD	950	ACCEPT				66727			ACCEPT	GOOD								
16	1260	GOOD	950	ACCEPT				65437			ACCEPT	GOOD								
17	1260	GOOD	950	ACCEPT				65277			ACCEPT	GOOD								
18	1360	GOOD	950	ACCEPT				66147			ACCEPT	GOOD								
19	1360	GOOD	950	ACCEPT				67017			ACCEPT	GOOD								
20	1360	GOOD	950	ACCEPT				64507			ACCEPT	GOOD								

N ①TYPE BPE BLACK PLAIN ENDS BPEB BPE BEVELLED BTE BLACK THREADED ENDS BTC BLACK THREADED & COUPLED GPE GALVANIZED PLAIN ENDS GTE GALVANIZED THREADED ENDS GTC GALVANIZED THREAD & COUPLED  
O ②O.D. OUTSIDE DIAMETER ③W.T. WALL THICKNESS ④CHEMICAL COMPOSITION CHECK-ANALYSIS/UNIT -2:1/×100 -3:1/×1000 -4:1/×10000 TR TRACE ⑤TP TESTING PRESSURE ⑥NDT NON-DESTRUCTIVE TEST  
T E.T EDDY CURRENT TEST U.T ULTRASONIC TEST ⑦WZC WEIGHT OF ZINC COATING CST COPPER SULPHATE TEST ⑧WDT WELD DUCTILITY TEST RGT RING GAGE TEST MGT METALLOGRAPHIC TEST ⑨S.T STRAIGHTNESS  
E ⑩P=Position B:Base Metal, CL:Center Line ⑪SPECIMEN SIZE, A:10x10mm, B:10x7.5mm, C:10x6.7mm, D:10x5.0mm, ⑫RES.MAG. : RESIDUAL MAGNETISM

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제품규격  
SPECIFICATION : API 5L-B/ASTM A53B

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DAEBUL PLANT: 11 BLOCK,DAEBUL NATIONAL INDUSTRIAL COMPLEX,  
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수요자  
CUSTOMER : PLESA ANAHUAC Y CIAS.,  
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ITEM NO.	HEAT NO. (LOT)	관종 TYPE	수량 QUANTITY (PIECES)	호칭경 NOMINAL SIZE (inch)	주문치수 ORDER SIZE			중량 WEIGHT (lb/ft)	인장시험 TENSILE TEST				화학성 CHEMICAL COMPOSITION(%)														
					바깥지름 O.D (mm)	두께 W.T. (in)	길이 LENGTH (ft)		인장강도 TS (psi)	인장강도 YS (psi)	연신율 EL (%)	항복비 YR (YS/TS)	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	Ti	B	PCM	CEQ
													-2	-3	-2	-3			-4				-3				
21	SP19364	BPEB	110	14	355.6	0.225	20'	33.13	65119	46410	45		15	15	73	15	3	19	15	9	1	11	1	12			
22	SB20870	BPEB	187	14	355.6	0.250	20'	36.75	65264	45975	43		12	11	75	13	7	13	15	9	1	12	1	10			
23	SP18938	BPEB	33	14	355.6	0.250	20'	36.75	66279	44670	40		13	18	65	12	3	16	15	8	1	12	3	11			
24	SP19364	BPEB	140	14	355.6	0.250	20'	36.75	66424	45395	37		18	15	69	18	7	13	14	11	1	12	1	10			
25	SQ57865	BPEB	11	14	355.6	0.375	20'	54.62	65119	44960	40		12	10	73	15	5	16	12	10	1	10	2	11			
26	SQ57867	BPEB	50	14	355.6	0.375	20'	54.62	63379	46410	40		15	11	75	12	4	15	11	10	1	11	1	10			
27	SB21342	BPEB	67	14	355.6	0.500	20'	72.16	63814	45975	39		12	11	75	13	7	13	15	9	1	12	1	10			
28	05054	BPEB	1	16	406.4	0.250	20'	42.09	66714	45685	41		15	17	70	11	5	12	18	11	1	13	2	10			
29	19927	BPEB	55	16	406.4	0.250	20'	42.09	65699	44670	42		17	10	68	12	9	19	15	10	1	11	1	12			
30	19928	BPEB	26	16	406.4	0.250	20'	42.09	65989	46410	41		15	11	73	10	4	13	19	10	1	11	1	10			

ITEM NO.	수압시험 HYDROSTATIC TEST		열처리온도 HEAT TREATMENT (°C)	비파괴 시험 NDT (U.T)	경도시험 HARDNESS TEST (HV)	외주장 CIRCUMFERENCE		용접부인장강도 TENSILE STRENGTH OF WELDS (psi)	아연도금시험 ZINC COATING TEST		VISUAL & DIMENSION	FLATTENING (BEND) TEST	W D T	R G T	M G T	S.T (%)	충격시험 IMPACT TEST		Res. Mag.	비고 REMARKS
	TP (psi)	RE-SULT				END	BODY		WZC (g/m²)	CST (TIMES)							P	ENERGY(J) SIZE: ①		
	⑤																	( )°C		
21	770	GOOD	930	ACCEPT				66147			ACCEPT	GOOD							17	①Latest edition per API 5LB (44th,2008) / ASTM A53B(2010)
22	770	GOOD	930	ACCEPT				66292			ACCEPT	GOOD							16	
23	770	GOOD	930	ACCEPT				67307			ACCEPT	GOOD								
24	770	GOOD	930	ACCEPT				67452			ACCEPT	GOOD								②HARDNESS MAX. 22 HRC AS PER NACE MR 0175
25	1150	GOOD	950	ACCEPT				66147			ACCEPT	GOOD								
26	1150	GOOD	950	ACCEPT				64407			ACCEPT	GOOD								
27	1530	GOOD	950	ACCEPT				64846			ACCEPT	GOOD								
28	670	GOOD	930	ACCEPT				67742			ACCEPT	GOOD								
29	670	GOOD	930	ACCEPT				66727			ACCEPT	GOOD								
30	670	GOOD	930	ACCEPT				67017			ACCEPT	GOOD								

N ①TYPE BPE BLACK PLAIN ENDS BPEB BPE BEVELLED BTE BLACK THREADED ENDS BTC BLACK THREADED & COUPLED GPE GALVANIZED PLAIN ENDS GTE GALVANIZED THREADED ENDS GTC GALVANIZED THREAD & COUPLED  
O ②O.D. OUTSIDE DIAMETER ③W.T. WALL THICKNESS ④CHEMICAL COMPOSITION CHECK-ANALYSIS/UNIT -2:1/×100 -3:1/×1000 -4:1/×10000 TR TRACE ⑤TP TESTING PRESSURE ⑥NDT NON-DESTRUCTIVE TEST  
T E.T EDDY CURRENT TEST U.T ULTRASONIC TEST ⑦WZC WEIGHT OF ZINC COATING CST COPPER SULPHATE TEST ⑧WDT WELD DUCTILITY TEST RGT RING GAGE TEST MGT METALLOGRAPHIC TEST ⑨S.T STRAIGHTNESS  
E ⑩P=Position B:Base Metal, CL:Center Line ⑪SPECIMEN SIZE, A:10x10mm, B:10x7.5mm, C:10x6.7mm, D:10x5.0mm, ⑫RES.MAG.: RESIDUAL MAGNETISM

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제품규격  
SPECIFICATION : API 5L-B/ASTM A53B

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 DANGJIN PLANT : 569-1, BUGOK-RI, SONGAK-MYEON, DANGJIN-GUN, CHUNGCHEONGNAM-DO, KOREA  
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					바깥지름 O.D (mm)	두께 W.T. (in)	길이 LENGTH (ft)		인장강도 TS (psi)	인장강도 YS (psi)	연신율 EL (%)	항복비 YR (YS/TS)	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	Ti	B	PCM	CEQ
													-2	-3	-2	-3			-4			-3					
31	19932	BPEB	2	16	406.4	0.250	20'	42.09	67150	45540	36		16	10	64	12	5	15	16	9	1	10	2	13			
32	19934	BPEB	2	16	406.4	0.250	20'	42.09	66860	46265	38		15	11	73	10	4	13	19	10	1	11	1	10			
33	20073	BPEB	6	16	406.4	0.250	20'	42.09	68165	46120	36		12	15	77	10	3	14	15	11	1	10	2	11			
34	20075	BPEB	1	16	406.4	0.250	20'	42.09	66569	47425	42		19	10	69	20	4	15	15	11	1	11	2	12			
35	M33539	BPEB	5	16	406.4	0.250	20'	42.09	65844	46410	43		15	15	73	15	3	19	15	9	1	11	1	12			
36	SB23175	BPEB	26	16	406.4	0.250	20'	42.09	66860	46265	40		14	14	85	12	5	14	12	11	1	11	3	11			
37	SF09379	BPEB	76	16	406.4	0.250	20'	42.09	67150	45540	45		14	17	79	15	4	16	15	11	1	12	2	11			
38	SP18798	BPEB	101	16	406.4	0.250	20'	42.09	65989	46410	42		17	12	75	12	5	18	11	10	1	13	2	12			
39	SP20664	BPEB	67	16	406.4	0.250	20'	42.09	67730	46265	41		17	17	74	13	4	15	13	10	1	11	1	10			
40	18653	BPEB	39	16	406.4	0.375	20'	62.64	68165	47425	40		13	11	67	10	5	14	20	8	1	10	1	11			

ITEM NO.	수압시험 HYDROSTATIC TEST		열처리온도 HEAT TREATMENT (°C)	비파괴 시험 NDT (U.T)	경도시험 HARDNESS TEST (HV)	외주장 CIRCUMFERENCE		용접부인장강도 TENSILE STRENGTH OF WELDS (psi)	아연도금시험 ZINC COATING TEST		VISUAL & DIMENSION	FLATTENING (BEND) TEST	W D T	R G T	M G T	S.T (%)	충격시험 IMPACT TEST		Res. Mag.	비고 REMARKS
	TP (psi)	RE-SULT				P	ENERGY(J) SIZE: ⑩		WZC (g/m²)	CST (TIMES)										
																	END	BODY		
31	670	GOOD	930	ACCEPT				68178			ACCEPT	GOOD				0.1			17	①Latest edition per API 5LB (44th,2008) / ASTM A53B(2010)  ②HARDNESS MAX. 22 HRC AS PER NACE MR 0175
32	670	GOOD	930	ACCEPT				67831			ACCEPT	GOOD				0.1			16	
33	670	GOOD	930	ACCEPT				69152			ACCEPT	GOOD				0.1				
34	670	GOOD	930	ACCEPT				67352			ACCEPT	GOOD				0.1				
35	670	GOOD	930	ACCEPT				66852			ACCEPT	GOOD				0.1				
36	670	GOOD	930	ACCEPT				67810			ACCEPT	GOOD				0.1				
37	670	GOOD	930	ACCEPT				68171			ACCEPT	GOOD				0.1				
38	670	GOOD	930	ACCEPT				17163			ACCEPT	GOOD				0.1				
39	670	GOOD	930	ACCEPT				68821			ACCEPT	GOOD				0.1				
40	1000	GOOD	950	ACCEPT				69193			ACCEPT	GOOD				0.1				

N ①TYPE BPE BLACK PLAIN ENDS BPEB BPE BEVELLED BTE BLACK THREADED ENDS BTC BLACK THREADED & COUPLED GPE GALVANIZED PLAIN ENDS GTE GALVANIZED THREADED ENDS GTC GALVANIZED THREAD & COUPLED  
O ②O.D. OUTSIDE DIAMETER ③W.T. WALL THICKNESS ④CHEMICAL COMPOSITION CHECK-ANALYSIS/UNIT -2:1/×100 -3:1/×1000 -4:1/×10000 TR TRACE ⑤TP TESTING PRESSURE ⑥NDT NON-DESTRUCTIVE TEST  
T E.T EDDY CURRENT TEST U.T ULTRASONIC TEST ⑦WZC WEIGHT OF ZINC COATING CST COPPER SULPHATE TEST ⑧WDT WELD DUCTILITY TEST RGT RING GAGE TEST MGT METALLOGRAPHIC TEST ⑨S.T STRAIGHTNESS  
E ⑩P=Position B:Base Metal, CL:Center Line ⑪SPECIMEN SIZE, A:10x10mm, B:10x7.5mm, C:10x6.7mm, D:10x5.0mm, ⑫RES.MAG. : RESIDUAL MAGNETISM

SIGNATURE \_\_\_\_\_ 본 제품은 관련 규격이 정한 시험 및 검사에 합격하였음을 증명합니다.  
WE HEREBY CERTIFY THAT THE PRODUCTS HEREIN HAVE BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND ALSO WITH THE REQUIREMENTS CALLED FOR THE ORDER.  
SIGNATURE *W.Y. Choi*  
MANAGER OF QUALITY ASSURANCE TEAM

ORIGINAL

# QUALITY CERTIFICATE

**주식회사 휴스틸**  
(HUSTEEL CO.,LTD.)

증명서번호  
CERTIFICATE No. : 20120119 - 011  
제조번호  
MANUFACTURED No. : 2011-12-210  
공급자  
SUPPLIER : HUSTEEL CO.,LTD.  
수요가  
CUSTOMER : PLESA ANAHUAC Y CIAS., S.A.DE C.V.

계약서번호  
P/O No. : 11324  
L/C No. : M927155  
발급일자  
ISSUED DATE : 2012. 01. 19.  
제품명  
COMMODITY : E.R.W. STEEL PIPE  
제품규격  
SPECIFICATION : API 5L-B/ASTM A53B

□ HEAD OFFICE : Shinan 8/D 15F, 943-19, Daechi-dong  
Kangnam-ku, SEOUL 135-845, KOREA  
□ DANGJIN PLANT : 569-1, BUGOK-RI, SONGAK-MYEON, DANGJIN-GUN,  
CHUNGCHEONGNAM-DO, KOREA  
■ DAEBUL PLANT : 11 BLOCK, DAEBUL NATIONAL INDUSTRIAL COMPLEX,  
NABUL-RI, SAMHO-MYEON, YOUNGAM-KUN, CHULLANAM-DO, KOREA

ITEM NO.	HEAT NO. (LOT)	관종 TYPE	수량 QUANTITY (PIECES)	호칭경 NOMINAL SIZE (inch)	주문치수 ORDER SIZE			중량 WEIGHT (lb/ft)	인장시험 TENSILE TEST				화학성 CHEMICAL COMPOSITION(%)														
					바깥지름 O.D (mm)	두께 W.T. (in)	길이 LENGTH (ft)		인장강도 TS (psi)	인장강도 YS (psi)	연신율 EL (%)	항복비 YR (YS/TS)	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	Ti	B	PCM	CEQ
													-2	-3	-2	-3			-4			-3					
41	19928	BPEB	8	16	406.4	0.375	20'	62.64	65844	45685	37		15	11	66	10	3	17	11	8	1	11	1	10			
42	19934	BPEB	6	16	406.4	0.375	20'	62.64	65554	47715	40		15	9	73	15	4	15	12	11	1	10	1	12			
43	M32849	BPEB	1	16	406.4	0.500	20'	82.85	65699	46845	40		18	15	70	11	5	16	10	10	1	11	3	11			
44	M32852	BPEB	26	16	406.4	0.500	20'	82.85	67875	46265	44		11	11	68	13	7	13	15	8	1	10	1	10			
45	SP17956	BPEB	2	16	406.4	0.500	20'	82.85	65554	46990	42		14	17	79	15	4	16	15	11	1	12	2	11			
46	19928	BPEB	2	18	457.0	0.250	20'	47.44	65264	47135	41		13	11	75	14	8	15	19	10	1	11	3	10			
47	20075	BPEB	1	18	457.0	0.250	20'	47.44	65554	47715	39		10	13	81	10	3	13	15	9	1	11	1	13			
48	M30704	BPEB	1	18	457.0	0.250	20'	47.44	67150	46410	42		12	10	75	13	4	12	10	9	1	10	1	10			
49	M34008	BPEB	1	18	457.0	0.250	20'	47.44	65989	45975	41		13	15	83	10	4	11	11	8	1	11	3	11			
50	SF09379	BPEB	65	18	457.0	0.250	20'	47.44	66860	46265	40		15	14	69	9	5	19	15	10	1	10	1	11			

ITEM NO.	수압시험 HYDROSTATIC TEST		열처리온도 HEAT TREATMENT (°C)	비파괴 시험 NDT (U.T)	경도시험 HARDNESS TEST (HV)	외주장 CIRCUMFERENCE		용접부인장강도 TENSILE STRENGTH OF WELDS (psi)	아연도금시험 ZINC COATING TEST		VISUAL & DIMENSION	FLATTENING (BEND) TEST	W D T	R G T	M G T	S.T (%)	충격시험 IMPACT TEST		Res. Mag.	비고 REMARKS
	TP (psi)	RE-SULT				WZC (g/m²)	CST (TIMES)		P	ENERGY(J) SIZE: ①										
																	⑤	⑥		
41	1000	GOOD	950	ACCEPT				66872			ACCEPT	GOOD							17	①Latest edition per API 5LB (44th,2008) / ASTM A53B(2010) ②HARDNESS MAX. 22 HRC AS PER NACE MR 0175
42	1000	GOOD	950	ACCEPT				66696			ACCEPT	GOOD							16	
43	1340	GOOD	950	ACCEPT				66727			ACCEPT	GOOD								
44	1340	GOOD	950	ACCEPT				68903			ACCEPT	GOOD								
45	1340	GOOD	950	ACCEPT				66652			ACCEPT	GOOD								
46	600	GOOD	930	ACCEPT				66293			ACCEPT	GOOD								
47	600	GOOD	930	ACCEPT				66391			ACCEPT	GOOD								
48	600	GOOD	930	ACCEPT				68173			ACCEPT	GOOD								
49	600	GOOD	930	ACCEPT				67171			ACCEPT	GOOD								
50	600	GOOD	930	ACCEPT				67831			ACCEPT	GOOD								

N ①TYPE BPE BLACK PLAIN ENDS BPEB BPE BEVELLED BTE BLACK THREADED ENDS BTC BLACK THREADED & COUPLED GPE GALVANIZED PLAIN ENDS GTE GALVANIZED THREADED ENDS GTC GALVANIZED THREAD & COUPLED  
O ②O.D. OUTSIDE DIAMETER ③W.T. WALL THICKNESS ④CHEMICAL COMPOSITION CHECK-ANALYSIS/UNIT -2:1/×100 -3:1/×1000 -4:1/×10000 TR TRACE ⑤TP TESTING PRESSURE ⑥NDT NON-DESTRUCTIVE TEST  
T E.T EDDY CURRENT TEST U.T ULTRASONIC TEST ⑦WZC WEIGHT OF ZINC COATING CST COPPER SULPHATE TEST ⑧WDT WELD DUCTILITY TEST RGT RING GAGE TEST MGT METALLOGRAPHIC TEST ⑨S.T STRAIGHTNESS  
E ⑩P=Position B:Base Metal, CL:Center Line ⑪SPECIMEN SIZE, A:10x10mm, B:10x7.5mm, C:10x6.7mm, D:10x5.0mm, ⑫RES.MAG.: RESIDUAL MAGNETISM

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SIGNATURE *W. Y. Kim*  
MANAGER OF QUALITY ASSURANCE TEAM

**ORIGINAL**

# QUALITY CERTIFICATE

**주식회사 휴스틸**  
(HUSTEEL CO.,LTD.)

계약서번호  
P/O No. : 11324  
L/C No. : M927155  
발급일자  
ISSUED DATE : 2012. 01. 19.  
제품명  
COMMODITY : E.R.W. STEEL PIPE  
제품규격  
SPECIFICATION : API 5L-B/ASTM A53B

HEAD OFFICE : Shinan B/D 15F, 943-19, Daechi-dong  
Kangnam-ku, SEOUL 135-845, KOREA  
DANGJIN PLANT: 569-1,BUGOK-RI,SONGAK-MYEON, DANGJIN-GUN,  
CHUNGHEONGNAM-DO,KOREA  
DAEBUL PLANT: 11 BLOCK,DAEBUL NATIONAL INDUSTRIAL COMPLEX,  
NABUL-RI, SAMHO-MYEON,YOUNGAM-KUN,CHULLANAM-DO,KOREA

증명서번호  
CERTIFICATE No. : 20120119 - 011  
제조번호  
MANUFACTURED No. : 2011-12-210  
공급자  
SUPPLIER : HUSTEEL CO.,LTD.  
수요자  
CUSTOMER : PLESA ANAHUAC Y CIAS.,  
S.A.DE C.V.

ITEM NO.	HEAT NO. (LOT)	관종 TYPE	수량 QUANTITY (PIECES)	호칭경 NOMINAL SIZE (inch)	주문치수 ORDER SIZE			중량 WEIGHT (lb/ft)	인장시험 TENSILE TEST				화학성 CHEMICAL COMPOSITION(%)															
					바깥지름 O.D (mm)	두께 W.T. (in)	길이 LENGTH (ft)		인장강도 TS (psi)	인장강도 YS (psi)	연신율 EL (%)	항복비 YR (YS/TS)	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	Ti	B	PCM	CEQ	
					②	③						-2	-3	-2	-3	④												
51	SQ36846	BPEB	3	18	457.0	0.250	20'	47.44	68600	47860	42		13	11	72	18	3	16	11	10	1	12	3	11				
52	M33530	BPEB	46	18	457.0	0.375	20'	70.65	68020	47135	44		16	13	75	12	5	18	15	10	1	11	1	10				
53	SP18990	BPEB	92	20	508.0	0.250	20'	52.78	66714	48295	40		14	15	70	15	3	16	16	11	1	10	2	11				
54	SP20701	BPEB	84	20	508.0	0.250	20'	52.78	67440	47715	43		12	17	83	12	4	14	18	10	1	12	1	11				
55	SP20703	BPEB	7	20	508.0	0.250	20'	52.78	66424	46120	36		12	15	77	10	3	14	15	11	1	10	2	11				
56	SB21445	BPEB	28	20	508.0	0.500	20'	104.23	66860	46990	40		14	14	85	11	9	19	11	8	1	12	1	11				
57	SF09235	BPEB	28	20	508.0	0.500	20'	104.23	65989	46265	42		14	17	79	15	4	16	15	11	1	12	2	11				
58	SP15942	BPEB	13	20	508.0	0.500	20'	104.23	65699	45685	37		17	12	75	12	5	18	11	10	1	13	2	12				
59	SQ39072	BPEB	35	24	610.0	0.250	20'	63.47	68165	46700	42		15	14	69	15	7	13	17	10	1	11	1	11				
60	SQ55721	BPEB	55	24	610.0	0.250	20'	63.47	66279	47860	39		12	11	75	13	7	13	15	9	1	12	1	10				

ITEM NO.	수압시험 HYDROSTATIC TEST		열처리온도 HEAT TREATMENT (°C)	비파괴 시험 NDT (U.T)	경도시험 HARDNESS TEST (HV)	외주장 CIRCUMFERENCE		용접부인장강도 TENSILE STRENGTH OF WELDS (psi)	아연도금시험 ZINC COATING TEST		VISUAL & DIMENSION	FLATTENING (BEND) TEST	W D T	R G T	M G T	S.T (%)	충격시험 IMPACT TEST		Res. Mag.	비고 REMARKS
	TP (psi)	RE-SULT				END	BODY		WZC (g/m²)	CST (TIMES)							P	ENERGY(J) SIZE: ①		
	⑤																	( )°C		
51	600	GOOD	930	ACCEPT				69623			ACCEPT	GOOD				0.1		17	①Latest edition per API 5LB (44th,2008) / ASTM A53B(2010) ②HARDNESS MAX. 22 HRC AS PER NACE MR 0175	
52	890	GOOD	950	ACCEPT				69812			ACCEPT	GOOD				0.1		16		
53	540	GOOD	930	ACCEPT				67802			ACCEPT	GOOD				0.1				
54	540	GOOD	930	ACCEPT				68462			ACCEPT	GOOD				0.1				
55	540	GOOD	930	ACCEPT				67431			ACCEPT	GOOD				0.1				
56	1070	GOOD	950	ACCEPT				67802			ACCEPT	GOOD				0.1				
57	1070	GOOD	950	ACCEPT				67012			ACCEPT	GOOD				0.1				
58	1070	GOOD	950	ACCEPT				66720			ACCEPT	GOOD				0.1				
59	450	GOOD	930	ACCEPT				69135			ACCEPT	GOOD				0.1				
60	450	GOOD	930	ACCEPT				67309			ACCEPT	GOOD				0.1				

N ①TYPE BPE BLACK PLAIN ENDS BPEB BPE BEVELLED BTE BLACK THREADED ENDS BTC BLACK THREADED & COUPLED GPE GALVANIZED PLAIN ENDS GTE GALVANIZED THREADED ENDS GTC GALVANIZED THREAD & COUPLED  
O ②O.D. OUTSIDE DIAMETER ③W.T. WALL THICKNESS ④CHEMICAL COMPOSITION CHECK-ANALYSIS/UNIT -2:1/100 -3:1/1000 -4:1/10000 TR TRACE ⑤TP TESTING PRESSURE ⑥NDT NON-DESTRUCTIVE TEST  
T E.T EDDY CURRENT TEST U.T ULTRASONIC TEST ⑦WZC WEIGHT OF ZINC COATING CST COPPER SULPHATE TEST ⑧WDT WELD DUCTILITY TEST RGT RING GAGE TEST MGT METALLOGRAPHIC TEST ⑨S.T STRAIGHTNESS  
E ⑩P=Position B:Base Metal, CL:Center Line ⑪SPECIMEN SIZE, A:10x10mm, B:10x7.5mm, C:10x6.7mm, D:10x5.0mm, ⑫RES.MAG. : RESIDUAL MAGNETISM

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SIGNATURE *[Signature]*  
MANAGER OF QUALITY ASSURANCE TEAM

**ORIGINAL**

# QUALITY CERTIFICATE

**주식회사 휴스틸**  
(HUSTEEL CO.,LTD.)

계약서번호 :  
P/O No. : 11324  
L/C No. : M927155  
발급일자 : 2012. 01. 19.  
제품명 :  
COMMODITY : E.R.W. STEEL PIPE  
제품규격 :  
SPECIFICATION : API 5L-B/ASTM A53B

HEAD OFFICE : Shinan B/D 15F, 943-19, Daechi-dong  
Kangnam-ku, SEOUL 135-845, KOREA  
DANGJIN PLANT: 569-1,BUGOK-RI,SONGAK-MYEON, DANGJIN-GUN,  
CHUNGCHEONGNAM-DO,KOREA  
DAEBUL PLANT: 11 BLOCK,DAEBUL NATIONAL INDUSTRIAL COMPLEX,  
NABUL-RI, SAMHO-MYEON,YOUNGAM-KUN,CHULLANAM-DO,KOREA

증명서번호 : 20120119 - 011  
CERTIFICATE No. : 20120119 - 011  
제조번호 : 2011-12-210  
MANUFACTURED No.: 2011-12-210  
공급자 : HUSTEEL CO.,LTD.  
SUPPLIER : HUSTEEL CO.,LTD.  
수요자 : PLESA ANAHUAC Y CIAS.,  
CUSTOMER : PLESA ANAHUAC Y CIAS.,  
S.A.DE C.V.

ITEM NO.	HEAT NO. (LOT)	관종 TYPE	수량 QUANTITY (PIECES)	호칭경 NOMINAL SIZE (inch)	주문치수 ORDER SIZE			중량 WEIGHT (lb/ft)	인장시험 TENSILE TEST				화학성 CHEMICAL COMPOSITION(%)														
					바깥지름 O.D (mm)	두께 W.T. (in)	길이 LENGTH (ft)		인장강도 TS (psi)	인장강도 YS (psi)	연신율 EL (%)	항복비 YR (YS/TS)	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	Ti	B	PCM	CEQ
													-2	-3	-2	-3				-4				-3			
61	SQ59020	BPEB	6	24	610.0	0.250	20'	63.47	67875	46555			15	15	73	15	3	19	15	9	1	11	1	12			

N ①TYPE BPE BLACK PLAIN ENDS BPEB BPE BEVELLED BTE BLACK THREADED ENDS BTC BLACK THREADED & COUPLED GPE GALVANIZED PLAIN ENDS GTE GALVANIZED THREADED ENDS GTC GALVANIZED THREAD & COUPLED  
O ②O.D. OUTSIDE DIAMETER ③W.T. WALL THICKNESS ④CHEMICAL COMPOSITION CHECK-ANALYSIS/UNIT -2:1/×100 -3:1/×1000 -4:1/×10000 TR TRACE ⑤TP TESTING PRESSURE ⑥NDT NON-DESTRUCTIVE TEST  
T E.T EDDY CURRENT TEST U.T ULTRASONIC TEST ⑦WZC WEIGHT OF ZINC COATING CST COPPER SULPHATE TEST ⑧WDT WELD DUCTILITY TEST RGT RING GAGE TEST MGT METALLOGRAPHIC TEST ⑨S.T STRAIGHTNESS  
E ⑩P=Position B:Base Metal, CL:Center Line ⑪SPECIMEN SIZE, A:10x10mm, B:10x7.5mm, C:10x6.7mm, D:10x5.0mm, ⑫RES.MAG.: RESIDUAL MAGNETISM

SIGNATURE: \_\_\_\_\_  
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