MILL'S QUALITY CERTIFICATES

SeAH Steel Corp.
(주)세 아 제 강

HEAD OFFICE; SEAH TOWER, 45 YANGHWA-RO, MAPO-GU, SEOUL, KOREA
POHANG PLANT; 14-1, JANGHEUNG-DONG, NAM-GU, POHANG

증명서번호 / CERTIFICATE NO.: E201303-0146-000603(5009422)
제 품 명 / COMMODITY : H.F.W STEEL PIPE
제 품 규 격 / SPECIFICATION : API 5LB PSL1/ASTM A53B(2012)

발 급 일 자 / DATE OF ISSUE : 2013.03.27
계 약 서 번 호 / L/C No. (P/O No.) : 1103108267
수 요 가 / CUSTOMER : PLESA
주 문 자 / SHIPPER : DUFERCO SA

NO.	HEAT NO. (BATCH NO.)	관 단 TYPE *1	주 문 치 수 ORDER SIZE	수 량 QUANTITY 본 수 PCS	총 길 이 TOTAL LENGTH	중량(M/T) WEIGHT	비 고 REMARK
1	4-3448 (SHN3141010)	BBE	10 " X 0.225 " X 6.120 M	406	2,484.720 M	93.401	* NACE MR 0175
2	4-3446 (SHN3152020)	BBE	14 " X 0.225 " X 6.120 M	370	2,264.400 M	111.363	* AS PER ATTACHED RIDER
3	4-3447 (SHN3152030)	BBE	14 " X 0.225 " X 6.120 M	421	2,576.520 M	126.713	* HEAT TREATMENT TEMPERATURE OF WELD SEAM : MIN 900℃
4	4-3445 (SHN3153010)	BBE	14 " X 0.225 " X 6.120 M	210	1,285.200 M	63.206	

NO.	HEAT NO (BATCH NO.)	HYDROSTATIC TEST 5 Sec. psi	RESULT	N.D.T U *2	VISUAL & DIMENSION	FLATTENING	SHOCK	COMPRESSION	RESIDUAL MAGNETISM GAUSS	BENDING *3	DRIFT	CRUSH	FLARING	FLANGE	REVERSE FLATTENING	ZINC COATING TEST WEIGHT OF ZINC COAT-ING	균일성 C.S *4	알칼리 ALK *5
기준 SPEC									30									
1	4-3448 (SHN3141010)	890	G	G	G	G			G									
2	4-3446 (SHN3152020)	690	G	G	G	G			G									
3	4-3447 (SHN3152030)	690	G	G	G	G			G									
4	4-3445 (SHN3153010)	690	G	G	G	G			G									

NO.	HEAT NO (BATCH NO.)	DESIG *6	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Ti		CEQ C2 *8	DIR *9	TENSILE STRENGTH psi	YIELD STRENGTH psi	E.L % *10	IMPACT TEST (℃) ENERGY Joule	SHEAR AREA %	HARDNESS TEST HRB	HEAT TREATMENT SN *11
			2			3		2	2	2	2	3	3	3										
			*7																					
기준 SPEC		MAX	26		120	30	30	50	50	50	15												99	
		MIN																60200	35500					
1	4-3448 (SHN3141010)	H	15	18	44	17	3									22								
		P	14	18	44	16	4	2	1	1	TR	2	1	1		22	T	68740	49310	33			83	G
		P	14	17	45	17	3	2	1	1	TR	2	1	1		22	W	78320						
2	4-3446 (SHN3152020)	H	18	18	48	22	3									26								
		P	17	18	49	22	4	1	1	1	TR	1	1	2		26	T	70920	46410	35			83	G
		P	18	18	47	21	5	1	1	2	TR	1	1	2		26	W	80350						
3	4-3447 (SHN3152030)	H	18	18	46	16	3									26								
		P	17	19	45	17	4	1	1	1	TR	2	1	2		25	T	69900	49160	36			82	G
		P	17	19	45	16	4	1	1	2	TR	2	1	2		25	W	78170						
4	4-3445 (SHN3153010)	H	18	18	45	16	3									26								
		P	17	17	46	16	4	2	1	1	TR	3	1	1		25	T	71210	48870	36			82	G
		P	17	19	45	15	3	2	1	1	TR	2	1	1		25	W	78750						

NOTE: *1 ~ *11: Refer To Others

OTHERS:
*1-BBE:Black Beveled End(30°)
*2-U:Weld Seam Ultrasonic Test
*6-H:Heat(Ladle) Analysis, P:Product Analysis *7-2:X100, 3:X1000 *8-C2:C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
*9-T:Base Metal Transverse, W:Weld Part Transverse *10-E.L:Elongation *11-S.N:Seam Normalizing *G:GOOD *Tr:Trace

* THIS CERTIFICATE IS ISSUED ACCORDING TO EN 10204 3.1 (ISO 10474 3.1.B)

Surveyor :

- WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH ABOVE SPECIFICATION AND THE RESULTS OF ALL TEST ARE ACCEPTABLE.
- THE USE OF THE MATERIAL OUTSIDE THE SPECIFICATIONS INDICATED ON THIS CERTIFICATE MAY CAUSE SAFETY AND/OR MONETARY PROBLEMS. FURTHERMORE, ANY ORGANIZATION OR PERSON(S) WHO DELIBERATELY MODIFIES THE CERTIFICATE WILL BE PROSECUTED FOR FORGING AN OFFICIAL DOCUMENT (ACCORDING TO THE PROVISIONS OF THE CRIMINAL CODE 231)

Manager of Q.M Dept.
N. J. Baek

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5	4-3444 (SHN3222070)	BBE	12 " X 0.225 " X 6.120 M	203	1,242.360 M	55.571	* NACE MR 0175
6	4-3444 (SHN3223010)	BBE	12 " X 0.225 " X 6.120 M	63	385.560 M	17.246	* AS PER ATTACHED RIDER
7	4-4156 (SHN3223020)	BBE	12 " X 0.225 " X 6.120 M	425	2,601.000 M	116.343	* HEAT TREATMENT TEMPERATURE OF WELD SEAM : MIN 900℃
8	4-3447 (SHN3223030)	BBE	12 " X 0.225 " X 6.120 M	67	410.040 M	18.341	

NO.	HEAT NO (BATCH NO.)	HYDROSTATIC TEST 5 Sec. psi	RESULT	N·D·T U *2	VISUAL & DIMENSION	FLATTENING	SHOCK	COMPRESSION	RESIDUAL MAGNETISM GAUSS	BENDING *3	DRIFT	CRUSH	FLARING	FLANGE	REVERSE FLATTENING	ZINC COATING TEST WEIGHT OF ZINC COAT-ING	균일성 C.S *4	알칼리 ALK *5
기준 SPEC									30									
5	4-3444 (SHN3222070)	750	G	G	G	G			G									
6	4-3444 (SHN3223010)	750	G	G	G	G			G									
7	4-4156 (SHN3223020)	750	G	G	G	G			G									
8	4-3447 (SHN3223030)	750	G	G	G	G			G									

NO.	HEAT NO (BATCH NO.)	DESIG *6	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Ti		CEQ C2 *8	DIR *9	TENSILE STRENGTH psi	YIELD STRENGTH psi	E.L % *10	IMPACT TEST (℃) ENERGY Joule	SHEAR AREA %	HARDNESS TEST HRB	HEAT TREATMENT SN *11
			*7 2			*7 3		*7 2	*7 2	*7 2	*7 2	*7 3	*7 3	*7 3										
기준 SPEC		MAX	26		120	30	30	50	50	50	15												99	
		MIN																60200	35500					
5	4-3444 (SHN3222070)	H	17	17	44	15	3									24								
		P	16	18	45	17	4	1	1	2	TR	2	2	1		24	T	69470	51340	36			83	G
		P	16	17	43	16	4	1	2	2	TR	2	2	1		24	W	76870						
6	4-3444 (SHN3223010)	H	17	17	44	15	3									24								
		P	18	16	43	17	4	2	1	2	TR	2	2	1		26	T	72220	50610	36			82	G
		P	17	18	44	16	3	2	1	2	TR	2	2	1		25	W	77740						
7	4-4156 (SHN3223020)	H	16	18	48	14	6									24								
		P	16	18	49	14	5	1	1	2	TR	2	1	1		25	T	70630	52640	36			83	G
		P	17	18	49	13	6	1	1	2	TR	2	1	1		26	W	76140						
8	4-3447 (SHN3223030)	H	18	18	46	16	3									26								
		P	17	19	45	17	4	1	1	1	TR	2	2	2		25	T	69610	52790	35			82	G
		P	17	20	46	17	4	1	1	1	TR	2	2	1		25	W	79040						

NOTE *1 ~ *11: Refer To Others

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