

# CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)

**ST&H CORPORATION**  
 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea  
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670  
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RPS 0160308 / 01

Certificate No. MJM9465-01/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment NORMALIZED (900°C X 0.5HR)

Certified to ISO9001:2008, ISO14001:2004,PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)				
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %	197	115 129	Indiv.	Ave.	Notch	Temp.	
			12.5	50.0	Max	Min	240	415							30.0
GCAPSTD21/2	CAP STD 2 1/2"	30	WBAFL	12.5	50.0	300	480	35		115	129				
GCAPSTD6	CAP STD 6"	50	WBAEY	12.5	50.0	275	490	38		115	128				
GCAPSTD14	CAP STD 14"	20	WAAIN	12.5	50.0	260	480	35		120	128				
GCAPSTD16	CAP STD 16"	30	WAAIN	12.5	50.0	260	480	35		120	128				
GCAPSTD18	CAP STD 18"	20	WAAIN	12.5	50.0	260	480	35		120	128				
GCAPXS6	CAP XH 6"	50	WBACB	12.5	50.0	305	475	35		129	134				
	BLANK		BLANK												

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
WBAFL		0.190	0.180	0.450	0.009	0.008	0.014	0.003	0.021	0.019	0.002						0.271			
WBAEY		0.190	0.190	0.460	0.008	0.007	0.014	0.011	0.008	0.004	0.002						0.272			
WAAIN		0.200	0.213	0.453	0.012	0.008	0.045	0.032	0.021	0.004	0.002						0.292			
WBACB		0.187	0.254	0.503	0.012	0.006	0.018	0.024	0.017	0.009	0.003						0.281			

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
 \* EXPORT COUNTRY - BUSAN, KOREA  
 \* COUNTRY OF ORIGIN - KOREA  
 \* AMOUNT USD112,140.45  
 \* TOTAL NET WEIGHT : 75,896.00 KGS  
 \* TOTAL GROSS WEIGHT : 77,496.00 KGS

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE



Manager of Q.A Dept. / J. W. PARK

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RPS 0160308 / 01

Certificate No. MJM9465-02/17 Date : JAN. 06. 2017  
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 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment NORMALIZED (900°C X 0.5HR)

Certified to ISO9001:2008, ISO14001:2004, PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)			
			D	GL	Y.S MPa	T.S MPa	E.L %	R.A %	197	Indiv.	Ave.	Notch	Temp.	
			mm	mm										
			12.5	50.0	Max	240	415	30.0			Test Result (J)		Ave.(J)	
GCNRS4X3	CON RED STD 4" X 3"	100	WAAGQ	12.5	50.0	Min	280	475	36		114	135		
GCNRS6X2	CON RED STD 6" X 2"	10	WAAGR	12.5	50.0		265	470	34		114	135		
GCNRS6X4	CON RED STD 6" X 4"	100	WAAGR	12.5	50.0		265	470	34		114	135		
GCNRS10X8	CON RED STD 10" X 8"	50	WAAEM	12.5	50.0		270	470	38		127	136		
GECRSD10X4	ECC RED STD 10" X 4"	20	WAAEM	12.5	50.0		270	470	38		127	136		
GECRSD10X6	ECC RED STD 10" X 6"	20	WAAEM	12.5	50.0		270	470	38		127	136		
GECRSD10X8	ECC RED STD 10" X 8"	20	WAAEM	12.5	50.0		270	470	38		127	136		
GCNRS12X6	CON RED STD 12" X 6"	10	WAAEU	12.5	50.0		275	475	37		122	134		
GCNRS12X8	CON RED STD 12" X 8"	20	WAAEN	12.5	50.0		265	470	38		122	135		
GCNRS12X10	CON RED STD 12" X 10"	20	WAAEN	12.5	50.0		265	470	38		122	135		

Heat No./ Batch No.	Max Min	Chemical Composition (%)											NDE								
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V				CE	UT	MT	PT			
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080							0.430			
WAAGQ		0.198	0.315	0.476	0.012	0.010	0.025	0.020	0.052	0.046	0.005							0.293			
WAAGR		0.230	0.368	0.510	0.009	0.013	0.022	0.030	0.060	0.032	0.007							0.332			
WAAEM		0.180	0.240	0.470	0.013	0.007	0.011	0.010	0.008	0.006	0.003							0.264			
WAAEU		0.200	0.290	0.420	0.011	0.007	0.008	0.006	0.009	0.005	0.003							0.274			
WAAEN		0.240	0.320	0.460	0.012	0.007	0.020	0.007	0.010	0.008	0.004							0.324			

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
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 \* COUNTRY OF ORIGIN - KOREA  
 \* AMOUNT USD112,140.45  
 \* TOTAL NET WEIGHT : 75,896.00 KGS  
 \* TOTAL GROSS WEIGHT : 77,496.00 KGS

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Witnessed by / H. J. LEE



Manager of Q.A Dept. / J. W. PARK

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Certificate No. MJM9465-03/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V.  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment NORMALIZED (900°C X 0.5HR)

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Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)			
			D	GL	Y.S MPa	T.S MPa	E.L %	R.A %	197	Indiv.	Ave.	Notch	Temp.	
			mm	mm										
			12.5	50.0	Max	240	415	30.0			Test Result (J)		Ave.(J)	
GCNRS14X8	CON RED STD 14" X 8"	10	WAAGM	12.5	50.0	Min	280	475	36		120	136		
GCNRS14X12	CON RED STD 14" X 12"	10	WAAGM	12.5	50.0		280	475	36		120	136		
GECRS14X8	ECC RED STD 14" X 8"	5	WAAGM	12.5	50.0		280	475	36		120	136		
GECRS14X12	ECC RED STD 14" X 12"	10	WAAGM	12.5	50.0		280	475	36		120	136		
GCNRS16X10	CON RED STD 16" X 10"	10	WAACC	12.5	50.0		245	475	30		114	136		
GCNRS16X14	CON RED STD 16" X 14"	5	WAACC	12.5	50.0		245	475	30		114	136		
GCNRS18X10	CON RED STD 18" X 10"	5	WAACD	12.5	50.0		250	480	30		118	139		
GCNRS18X12	CON RED STD 18" X 12"	5	WAACD	12.5	50.0		250	480	30		118	139		
GCNRS18X16	CON RED STD 18" X 16"	5	WAACD	12.5	50.0		250	480	30		118	139		
GCNRS20X16	CON RED STD 20" X 16"	5	WBACC	12.5	50.0		290	500	35		118	134		

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
WAAGM		0.220	0.376	0.520	0.009	0.008	0.020	0.025	0.052	0.030	0.006						0.322			
WAACC		0.190	0.280	0.480	0.018	0.017	0.099	0.090	0.080	0.019	0.002						0.314			
WAACD		0.190	0.280	0.480	0.018	0.017	0.102	0.086	0.062	0.040	0.003						0.315			
WBACC		0.145	0.297	1.050	0.009	0.006	0.023	0.031	0.018	0.008	0.002						0.332			
BLANK																				

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RPS 0160308 / 01

Certificate No. MJM9465-04/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment NORMALIZED (900°C X 0.5HR)

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Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)				
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %	197		Indiv.	Ave.	Notch	Temp.	
			12.5	50.0	Max	Min	240	415	30.0		Test Result (J)			Ave.(J)	
GCNRS20X18	CON RED STD 20" X 18"	5	WBACC	12.5	50.0	290	500	35		118	134				
GCNRS24X16	CON RED STD 24" X 16"	3	WCADA	12.5	50.0	310	485	36		107	124				
GCNRS24X18	CON RED STD 24" X 18"	2	WCADA	12.5	50.0	310	485	36		107	124				
GCNRS24X20	CON RED STD 24" X 20"	2	WCADA	12.5	50.0	310	485	36		107	124				
GECRSD8X3	ECC RED STD 8" X 3"	10	WAACB	12.5	50.0	300	480	36		120	141				
GECRSD8X6	ECC RED STD 8" X 6"	50	WAACB	12.5	50.0	300	480	36		120	141				
	BLANK		BLANK					BLANK							

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
WBACC		0.145	0.297	1.050	0.009	0.006	0.023	0.031	0.018	0.008	0.002						0.332			
WCADA		0.204	0.229	0.451	0.017	0.008	0.024	0.003	0.014	0.008	0.002						0.286			
WAACB		0.210	0.240	0.550	0.011	0.004	0.008	0.003	0.040	0.020	0.002						0.308			

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RPS 0160308 / 01

Certificate No. MJM9465-05/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment HOT FORMED (620°C ~ 980°C)

Certified to ISO9001:2008, ISO14001:2004, PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)			
			D	GL	Y.S MPa	T.S MPa	E.L %	R.A %	197	Indiv.	Ave.	Notch	Temp.	
			mm	mm										
			12.5	50.0	Max	240	415	30.0			Test Result (J)		Ave.(J)	
G45ELRS4018 LR 45D ELBOW SCH40 18"	2	WCACZ	12.5	50.0	Min	295	480	37		107	122			
G45ELRS8012 LR 45D ELBOW SCH80 12"	10	WCADC	12.5	50.0		320	490	38		120	128			
G45ELRS8016 LR 45D ELBOW SCH80 16"	10	WAADP	12.5	50.0		275	460	35		124	138			
G90ELRS8016 LR 90D ELBOW SCH80 16"	30	WAADP	12.5	50.0		275	460	35		124	138			
G45ELRSTD1 LR 45D ELBOW STD 1"	50	000096	12.5	50.0		320	525	36		110	124			
G90ELRSTD1 LR 90D ELBOW STD 1"	200	000096	12.5	50.0		320	525	36		110	124			
G45ELRSTD11/4 LR 45D ELBOW STD 1 1/4"	50	000129	12.5	50.0		295	490	36		107	118			
G90ELRSTD11/4 LR 90D ELBOW STD 1 1/4"	300	000129	12.5	50.0		295	490	36		107	118			
BLANK		BLANK								BLANK	BLANK			

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE								
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT				
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080							0.430						
WCACZ		0.190	0.230	0.420	0.017	0.006	0.027	0.008	0.012	0.008	0.002										0.268			
WCADC		0.190	0.235	0.456	0.014	0.009	0.028	0.009	0.015	0.005	0.002										0.275			
WAADP		0.210	0.380	0.460	0.011	0.009	0.054	0.065	0.110	0.020	0.004										0.319			
000096		0.190	0.210	0.470	0.008	0.003	0.022	0.016	0.012	0.008	0.002										0.277			
000129		0.216	0.190	0.460	0.013	0.010	0.030	0.005	0.013	0.011	0.002										0.301			

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
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Certificate No. MJM9465-06/17 Date : JAN. 06. 2017  
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ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)			
			D	GL	Y.S MPa	T.S MPa	E.L %	R.A %	197	Indiv.	Ave.	Notch	Temp.	
			mm	mm										
G45ELRSTD2 LR 45D ELBOW STD 2"	37	000075	12.5	50.0	325	510	36		110	120	Test Result (J)		Ave.(J)	
G45ELRSTD2 LR 45D ELBOW STD 2"	13	000127	12.5	50.0	290	490	38		112	123				
G45ELRSTD21/2 LR 45D ELBOW STD 2 1/2"	50	000128	12.5	50.0	320	475	33		115	129				
G90ELRSTD21/2 LR 90D ELBOW STD 2 1/2"	200	000128	12.5	50.0	320	475	33		115	129				
G45ELRSTD3 LR 45D ELBOW STD 3"	100	000107	12.5	50.0	295	485	33		112	121				
G90ELRSTD3 LR 90D ELBOW STD 3"	500	000107	12.5	50.0	295	485	33		112	121				
G45ELRSTD5 LR 45D ELBOW STD 5"	20	GCAEG	12.5	50.0	280	490	35		104	125				
BLANK		BLANK					BLANK			BLANK				

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE			
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V					CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080					0.430			
000075		0.190	0.210	0.520	0.018	0.008	0.012	0.012	0.009	0.010	0.002					0.283			
000127		0.207	0.215	0.430	0.014	0.009	0.035	0.015	0.010	0.024	0.002					0.291			
000128		0.199	0.216	0.496	0.013	0.004	0.028	0.006	0.013	0.020	0.002					0.291			
000107		0.180	0.210	0.430	0.017	0.012	0.023	0.008	0.008	0.011	0.002					0.259			
GCAEG		0.183	0.230	0.441	0.013	0.009	0.031	0.006	0.015	0.020	0.002					0.266			

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*J. W. PARK*



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Manager of Q.A Dept. / J. W. PARK

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RPS 0160308 / 01

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 Heat Treatment HOT FORMED (620°C ~ 980°C)

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ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)			
			D	GL	Y.S MPa	T.S MPa	E.L %	R.A %	197	Indiv.	Ave.	Notch	Temp.	
			mm	mm										
G45ELRSTD6 LR 45D ELBOW STD 6"	100	GCABF	12.5	50.0	285	485	32		110	120	Test Result (J)			Ave.(J)
G45ELRSTD8 LR 45D ELBOW STD 8"	100	000102	12.5	50.0	285	480	32		106	117				
G45ELRSTD12 LR 45D ELBOW STD 12"	50	GCAFO	12.5	50.0	305	475	40		107	125				
G45ELRSTD16 LR 45D ELBOW STD 16"	50	GCAGS	12.5	50.0	280	490	39		114	127				
G45ELRSTD18 LR 45D ELBOW STD 18"	10	WAAEN	12.5	50.0	265	470	38		122	135				
G45ELRSTD24 LR 45D ELBOW STD 24"	10	WAAEN	12.5	50.0	265	470	38		122	135				
G90ELRSTD18 LR 90D ELBOW STD 18"	10	WAAEN	12.5	50.0	265	470	38		122	135				
G90ELRSTD20 LR 90D ELBOW STD 20"	10	WAAEN	12.5	50.0	265	470	38		122	135				
G90ELRSTD24 LR 90D ELBOW STD 24"	10	WAAEN	12.5	50.0	265	470	38		122	135				
BLANK		BLANK												

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
GCABF		0.204	0.237	0.423	0.013	0.005	0.026	0.007	0.012	0.020	0.003						0.283			
000102		0.180	0.230	0.460	0.018	0.006	0.021	0.009	0.008	0.011	0.002						0.264			
GCAFO		0.208	0.258	0.560	0.019	0.009	0.080	0.012	0.031	0.012	0.002						0.323			
GCAGS		0.206	0.213	0.480	0.013	0.008	0.029	0.012	0.018	0.010	0.002						0.296			
WAAEN		0.240	0.320	0.460	0.012	0.007	0.020	0.007	0.010	0.008	0.004						0.324			

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
 \* EXPORT COUNTRY - BUSAN, KOREA  
 \* COUNTRY OF ORIGIN - KOREA  
 \* AMOUNT USD112,140.45  
 \* TOTAL NET WEIGHT : 75,896.00 KGS  
 \* TOTAL GROSS WEIGHT : 77,496.00 KGS

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE



Manager of Q.A Dept. / J. W. PARK

# CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)

**ST&H CORPORATION**  
 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea  
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670  
 E-mail : qm@stnhcorp.com



Certificate No. MJM9465-08/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment HOT FORMED (620°C ~ 980°C)

Certified to ISO9001:2008, ISO14001:2004, PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)					
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %	197		Indiv.	Ave.	Notch	Temp.		
			12.5	50.0	Max	Min	240	415	30.0		Test Result (J)			Ave.(J)		
G45ELRXS11/2 LR 45D ELBOW XH 1 1/2"	50	GCAEP	12.5	50.0			290	485	35		114	129				
G90ELRXS11/2 LR 90D ELBOW XH 1 1/2"	50	GCAEP	12.5	50.0			290	485	35		114	129				
G45ELRXS2 LR 45D ELBOW XH 2"	50	GBAFC	12.5	50.0			275	470	36		118	132				
G45ELRXS21/2 LR 45D ELBOW XH 2 1/2"	30	GBACF	12.5	50.0			275	470	32		121	134				
G90ELRXS21/2 LR 90D ELBOW XH 2 1/2"	50	GBACF	12.5	50.0			275	470	32		121	134				
G45ELRXS3 LR 45D ELBOW XH 3"	100	000093	12.5	50.0			335	510	30		110	122				
G45ELRXS4 LR 45D ELBOW XH 4"	50	GCAHD	12.5	50.0			290	475	35		121	132				
G90ESRSTD4 SR 90D ELBOW STD 4"	50	GCAHD	12.5	50.0			290	475	35		121	132				
BLANK		BLANK														

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE					
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT	
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080							0.430			
GCAEP		0.194	0.186	0.482	0.015	0.007	0.027	0.007	0.016	0.020	0.002							0.283			
GBAFC		0.210	0.200	0.460	0.009	0.005	0.008	0.003	0.014	0.009	0.002							0.290			
GBACF		0.200	0.230	0.420	0.008	0.006	0.018	0.003	0.024	0.009	0.002							0.276			
000093		0.210	0.230	0.460	0.012	0.008	0.020	0.014	0.008	0.008	0.002							0.294			
GCAHD		0.180	0.220	0.460	0.017	0.009	0.031	0.008	0.016	0.010	0.003							0.266			

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
 \* EXPORT COUNTRY - BUSAN, KOREA  
 \* COUNTRY OF ORIGIN - KOREA  
 \* AMOUNT USD112,140.45  
 \* TOTAL NET WEIGHT : 75,896.00 KGS  
 \* TOTAL GROSS WEIGHT : 77,496.00 KGS

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE



Manager of Q.A Dept. / J. W. PARK



# CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)

**ST&H CORPORATION**  
 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea  
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670  
 E-mail :qm@stnhcorp.com



Certificate No. MJM9465-09/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment HOT FORMED (620°C ~ 980°C)

Certified to ISO9001:2008, ISO14001:2004,PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)			
			D	GL	Y.S MPa	T.S MPa	E.L %	R.A %	197	Indiv.	Ave.	Notch	Temp.	
			mm	mm										
G45ELRXS5 LR 45D ELBOW XH 5"	10	000084	12.5	50.0	290	510	33		109	114	Test Result (J)			Ave.(J)
G45ELRXS8 LR 45D ELBOW XH 8"	50	GBACB	12.5	50.0	270	480	34		118	138				
G90ELRS4016 LR 90D ELBOW SCH40 16"	30	WCACW	12.5	50.0	265	465	35		113	127				
G90ELRS8020 LR 90D ELBOW SCH80 20"	4	GAAAL	12.5	50.0	270	465	35		108	121				
G90ELRSTD11/2 LR 90D ELBOW STD 1 1/2"	500	000132	12.5	50.0	320	495	34		113	120				
BLANK		BLANK							BLANK	BLANK				

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
000084		0.200	0.230	0.460	0.017	0.016	0.011	0.007	0.012	0.011	0.002						0.282			
GBACB		0.220	0.210	0.420	0.008	0.007	0.014	0.004	0.010	0.008	0.002						0.295			
WCACW		0.180	0.220	0.480	0.019	0.008	0.027	0.006	0.014	0.003	0.002						0.268			
GAAAL		0.230	0.352	0.500	0.008	0.010	0.018	0.015	0.048	0.020	0.004						0.325			
000132		0.210	0.225	0.450	0.015	0.010	0.030	0.007	0.016	0.020	0.002						0.295			

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
 \* EXPORT COUNTRY - BUSAN, KOREA  
 \* COUNTRY OF ORIGIN - KOREA  
 \* AMOUNT USD112,140.45  
 \* TOTAL NET WEIGHT : 75,896.00 KGS  
 \* TOTAL GROSS WEIGHT : 77,496.00 KGS

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE



Manager of Q.A Dept. / J. W. PARK

# CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)

**ST&H CORPORATION**  
 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea  
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 E-mail :qm@stnhcorp.com



Certificate No. MJM9465-10/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment HOT FORMED (620°C ~ 980°C)

Certified to ISO9001:2008, ISO14001:2004,PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)			
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %	197	Indiv.	Ave.	Notch	Temp.	
			12.5	50.0	Max	Min	240	415						30.0
G90ELRSTD4 LR 90D ELBOW STD 4"	500	000154	12.5	50.0	310	495	34		102	119				
G90ELRSTD5 LR 90D ELBOW STD 5"	50	000071	12.5	50.0	280	510	34		109	120				
G90ELRSTD6 LR 90D ELBOW STD 6"	400	000119	12.5	50.0	300	490	36		110	121				
G90ELRSTD8 LR 90D ELBOW STD 8"	200	000121	12.5	50.0	325	490	35		106	115				
G90ELRSTD10 LR 90D ELBOW STD 10"	50	GCADU	12.5	50.0	300	495	36		115	129				
BLANK		BLANK							BLANK	BLANK				

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
000154		0.197	0.216	0.496	0.010	0.008	0.049	0.016	0.009	0.020	0.003						0.295			
000071		0.208	0.200	0.482	0.011	0.006	0.030	0.014	0.017	0.008	0.004						0.299			
000119		0.200	0.250	0.460	0.023	0.012	0.014	0.010	0.015	0.009	0.002						0.283			
000121		0.180	0.220	0.510	0.014	0.017	0.012	0.008	0.011	0.006	0.002						0.270			
GCADU		0.176	0.220	0.416	0.017	0.013	0.025	0.006	0.017	0.008	0.002						0.253			

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
 \* EXPORT COUNTRY - BUSAN, KOREA  
 \* COUNTRY OF ORIGIN - KOREA  
 \* AMOUNT USD112,140.45  
 \* TOTAL NET WEIGHT : 75,896.00 KGS  
 \* TOTAL GROSS WEIGHT : 77,496.00 KGS

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE



Manager of Q.A Dept. / J. W. PARK

# CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)

**ST&H CORPORATION**  
 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea  
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670  
 E-mail : qm@stnhcorp.com



Certificate No. MJM9465-11/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment HOT FORMED (620°C ~ 980°C)

Certified to ISO9001:2008, ISO14001:2004, PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)					
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %	197		Indiv.	Ave.	Notch	Temp.		
			12.5	50.0	Max	Min	240	415	30.0		Test Result (J)			Ave.(J)		
G90ELRSTD14 LR 90D ELBOW STD 14"	50	WAAEM	12.5	50.0			270	470	38		127	136				
G90ELRSTD16 LR 90D ELBOW STD 16"	50	000150	12.5	50.0			290	485	31		105	124				
G90ELRXS1 LR 90D ELBOW XH 1"	100	000098	12.5	50.0			305	490	36		110	117				
G90ELRXS2 LR 90D ELBOW XH 2"	200	000134	12.5	50.0			310	470	34		108	123				
G90ELRXS3 LR 90D ELBOW XH 3"	200	GCAGV	12.5	50.0			290	475	35		106	128				
BLANK		BLANK									BLANK	BLANK				

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
WAAEM		0.180	0.240	0.470	0.013	0.007	0.011	0.010	0.008	0.006	0.003						0.264			
000150		0.199	0.219	0.446	0.010	0.008	0.039	0.012	0.010	0.021	0.003						0.286			
000098		0.210	0.240	0.480	0.014	0.007	0.015	0.012	0.023	0.008	0.002						0.297			
000134		0.207	0.240	0.510	0.016	0.010	0.034	0.010	0.020	0.004	0.002						0.302			
GCAGV		0.186	0.195	0.436	0.010	0.012	0.030	0.006	0.013	0.005	0.002						0.267			

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
 \* EXPORT COUNTRY - BUSAN, KOREA  
 \* COUNTRY OF ORIGIN - KOREA  
 \* AMOUNT USD112,140.45  
 \* TOTAL NET WEIGHT : 75,896.00 KGS  
 \* TOTAL GROSS WEIGHT : 77,496.00 KGS

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE



Manager of Q.A Dept. / J. W. PARK

# CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)

**ST&H CORPORATION**  
 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea  
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670  
 E-mail : qm@stnhcorp.com



Certificate No. MJM9465-12/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment HOT FORMED (620°C ~ 980°C)

Certified to ISO9001:2008, ISO14001:2004, PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)			
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %	197		Indiv.	Ave.	Notch	Temp.
			12.5	50.0	Max Min	240 415	30.0		Test Result (J)		Ave.(J)			
G90ELRXS5 LR 90D ELBOW XH 5"	50	000089	12.5	50.0	325	510	34		112	125				
G90ELRXS6 LR 90D ELBOW XH 6"	100	GCAHL	12.5	50.0	320	470	32		112	131				
G90ELRXS8 LR 90D ELBOW XH 8"	50	GCABQ	12.5	50.0	285	475	33		109	130				
G90ESRSTD6 SR 90D ELBOW STD 6"	50	GCAGN	12.5	50.0	295	480	35		112	130				
G90ESRSTD8 SR 90D ELBOW STD 8"	20	WAAFC	12.5	50.0	270	460	34		124	136				
BLANK		BLANK							BLANK	BLANK				

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
000089		0.210	0.220	0.460	0.008	0.006	0.012	0.014	0.010	0.008	0.002						0.293			
GCAHL		0.207	0.231	0.394	0.018	0.011	0.032	0.008	0.014	0.002	0.002						0.282			
GCABQ		0.215	0.240	0.420	0.011	0.005	0.021	0.004	0.012	0.020	0.002						0.292			
GCAGN		0.210	0.242	0.422	0.016	0.008	0.026	0.007	0.008	0.010	0.003						0.288			
WAAFC		0.180	0.260	0.442	0.008	0.008	0.010	0.011	0.023	0.008	0.006						0.261			

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
 \* EXPORT COUNTRY - BUSAN, KOREA  
 \* COUNTRY OF ORIGIN - KOREA  
 \* AMOUNT USD112,140.45  
 \* TOTAL NET WEIGHT : 75,896.00 KGS  
 \* TOTAL GROSS WEIGHT : 77,496.00 KGS

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE



Manager of Q.A Dept. / J. W. PARK



# CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)

**ST&H CORPORATION**  
 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea  
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670  
 E-mail : qm@stnhcorp.com



RPS 0160308 / 01

Certificate No. MJM9465-14/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment NORMALIZED (900°C X 0.5HR)

Certified to ISO9001:2008, ISO14001:2004, PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)				
			D	GL	Y.S MPa	T.S MPa	E.L %	R.A %	Indiv.	Ave.	Notch	Temp.			
			mm	mm											
			12.5	50.0	Max	240	415	30.0		197	Test Result (J)			Ave.(J)	
			Min			265	465	34		120 135					
GRETS3X2	RED TEE STD 3" X 2"	100	WAAGP	12.5	50.0		270	470	38		127 136				
GRETS10X4	RED TEE STD 10" X 4"	20	WAAEM	12.5	50.0		270	470	38		127 136				
GRETS10X6	RED TEE STD 10" X 6"	20	WAAEM	12.5	50.0		270	470	38		127 136				
GRETS10X8	RED TEE STD 10" X 8"	20	WAAEM	12.5	50.0		270	470	38		127 136				
GEQTS4020	TEE SCH40 20"	2	WCAFJ	12.5	50.0		275	475	35		114 128				
GEQTS8010	TEE SCH80 10"	10	WCACY	12.5	50.0		310	490	39		113 127				
GRETS12X10	RED TEE STD 12" X 10"	5	WAAEU	12.5	50.0		275	475	37		122 134				
	BLANK		BLANK								BLANK				

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
WAAGP		0.210	0.280	0.480	0.008	0.008	0.015	0.022	0.060	0.045	0.003						0.305			GOOD
WAAEM		0.180	0.240	0.470	0.013	0.007	0.011	0.010	0.008	0.006	0.003						0.264			GOOD
WCAFJ		0.190	0.230	0.480	0.015	0.010	0.042	0.005	0.016	0.018	0.002						0.282			GOOD
WCACY		0.194	0.227	0.427	0.014	0.006	0.031	0.005	0.008	0.002	0.002						0.273			GOOD
WAAEU		0.200	0.290	0.420	0.011	0.007	0.008	0.006	0.009	0.005	0.003						0.274			GOOD

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
 \* EXPORT COUNTRY - BUSAN, KOREA  
 \* COUNTRY OF ORIGIN - KOREA  
 \* AMOUNT USD112,140.45  
 \* TOTAL NET WEIGHT : 75,896.00 KGS  
 \* TOTAL GROSS WEIGHT : 77,496.00 KGS

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Witnessed by / H. J. LEE



Manager of Q.A Dept. / J. W. PARK

# CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)

**ST&H CORPORATION**  
 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea  
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 E-mail : qm@stnhcorp.com



RPS 0160308 / 01

Certificate No. MJM9465-15/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment NORMALIZED (900°C X 0.5HR)

Certified to ISO9001:2008, ISO14001:2004, PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)			
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %	197		Indiv.	Ave.	Notch	Temp.
			12.5	50.0	Max	Min	240	415	30.0		Test Result (J)			Ave.(J)
GRETSD16X10	5	WAAGA	12.5	50.0	265	470	35		120	141				
GRETXS4X2	20	WAAEW	12.5	50.0	270	470	36		124	136				
GEQTSTD21/2	20	000131	12.5	50.0	295	470	36		119	130				
GEQTSTD3	100	GCAFH	12.5	50.0	290	505	34		109	128				
GEQTSTD4	100	000118	12.5	50.0	295	495	32		108	113				
BLANK		BLANK					BLANK			BLANK				

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE					
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT	
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080							0.430			
WAAGA		0.180	0.324	0.502	0.007	0.009	0.012	0.018	0.035	0.028	0.006							0.275			GOOD
WAAEW		0.210	0.325	0.410	0.013	0.007	0.009	0.008	0.010	0.005	0.006							0.283			GOOD
000131		0.188	0.207	0.490	0.010	0.013	0.050	0.010	0.007	0.005	0.002							0.282			GOOD
GCAFH		0.203	0.241	0.490	0.012	0.006	0.028	0.005	0.012	0.006	0.002							0.292			GOOD
000118		0.190	0.230	0.440	0.016	0.012	0.021	0.008	0.013	0.008	0.003							0.271			GOOD

REMARK \* CARBON STEEL FITTINGS MADE FROM PIPE  
 \* EXPORT COUNTRY - BUSAN, KOREA  
 \* COUNTRY OF ORIGIN - KOREA  
 \* AMOUNT USD112,140.45  
 \* TOTAL NET WEIGHT : 75,896.00 KGS  
 \* TOTAL GROSS WEIGHT : 77,496.00 KGS

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE



Manager of Q.A Dept. / J. W. PARK

# CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)

**ST&H CORPORATION**  
 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea  
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670  
 E-mail : qm@stnhcorp.com



Certificate No. MJM9465-16/17 Date : JAN. 06. 2017  
 Customer PLESA ANAHUAC Y CIAS., S.A. DE C.V.  
 Contract No. 24426  
 Spec. For Material ASTM/ASME A/SA234-15 WPB,NACE MR0175/ISO15156-2009  
 Heat Treatment NORMALIZED (900°C X 0.5HR)

Certified to ISO9001:2008, ISO14001:2004, PED97/23/EC by LRQA

Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)					
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %	197		Indiv.	Ave.	Notch	Temp.		
			12.5	50.0	Max	Min	240	415	30.0		Test Result (J)			Ave.(J)		
GEQTSTD6 TEE STD 6"	200	WAAGR	12.5	50.0			265	470	34		114	135				
GEQTSTD10 TEE STD 10"	50	GCAGA	12.5	50.0			330	475	36		114	127				
GEQTSTD14 TEE STD 14"	5	WAAGM	12.5	50.0			280	475	36		120	136				
GEQTSTD16 TEE STD 16"	5	WAACC	12.5	50.0			245	475	30		114	136				
GEQTSTD18 TEE STD 18"	5	WAACD	12.5	50.0			250	480	30		118	139				
BLANK		BLANK														

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
WAAGR		0.230	0.368	0.510	0.009	0.013	0.022	0.030	0.060	0.032	0.007						0.332			GOOD
GCAGA		0.192	0.242	0.550	0.013	0.005	0.109	0.003	0.022	0.004	0.002						0.308			GOOD
WAAGM		0.220	0.376	0.520	0.009	0.008	0.020	0.025	0.052	0.030	0.006						0.322			GOOD
WAACC		0.190	0.280	0.480	0.018	0.017	0.099	0.090	0.080	0.019	0.002						0.314			GOOD
WAACD		0.190	0.280	0.480	0.018	0.017	0.102	0.086	0.062	0.040	0.003						0.315			GOOD

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 E-mail : qm@stnhcorp.com



RPS 0160308 / 01

Certificate No. MJM9465-17/17 Date : JAN. 06. 2017  
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Dimensional inspection ASME B16.9 - 2012

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)		Charpy Impact Test (10X10mm Specimen Size)			
			D	GL	Y.S MPa	T.S MPa	E.L %	R.A %	197	Indiv.	Ave.	Notch	Temp.	
			mm	mm										
GEQTSTD20 TEE STD 20"	4	WBACC	12.5	50.0	290	500	35		118	134	Test Result (J)			Ave.(J)
GEQTSTD24 TEE STD 24"	4	WCADA	12.5	50.0	310	485	36		107	124				
GEQTXS2 TEE XH 2"	100	000079	12.5	50.0	305	495	35		114	125				
GEQTXS8 TEE XH 8"	20	WAAHX	12.5	50.0	270	465	32		118	130				
BLANK		BLANK												

Heat No./ Batch No.	Max Min	Chemical Composition (%)														NDE				
		C	SI	Mn	P	S	Cr	Mo	Ni	Cu	V						CE	UT	MT	PT
		0.300	0.100	1.060	0.050	0.058	0.400	0.150	0.400	0.400	0.080						0.430			
WBACC		0.145	0.297	1.050	0.009	0.006	0.023	0.031	0.018	0.008	0.002						0.332		GOOD	
WCADA		0.204	0.229	0.451	0.017	0.008	0.024	0.003	0.014	0.008	0.002						0.286		GOOD	
000079		0.230	0.210	0.490	0.017	0.008	0.009	0.010	0.006	0.009	0.002						0.316			GOOD
WAAHX		0.210	0.260	0.430	0.012	0.008	0.034	0.045	0.054	0.035	0.005						0.304		GOOD	

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