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CERTIFICATE OF MATERIAL

(EN10204 ; 2004 3.1)

Certificate No. : DH-202107-123

Date : 2021/07/07

Page : 1 of 2

Customer ALLIED GROUP	Project:	P.O No.: PO21917	Heat Treatment ※1 DHH210215-28 S.T:1050°C X 10.75 HRS-W.C																
Spec. For Material : A/SA182 F316/316L+NACE (2017ED)	※2 Chemical Composition (%)																		
	Spec.	C		Si	Mn	P	S	Ni	Cr	Mo	V	Cu	Nb	Al	W	Ti	N	Ceq	PREN
	Min.							10.0	16.0	2.00									
Max.	0.030	1.00	2.00	0.045	0.030	14.0	18.0	3.00							0.10				
Heat No. & Lot No. : WALSIN 6E450-1215E	H	0.013	0.35	1.63	0.027	0.0002	10.04	16.56	2.04							0.0296		23.8	
	P																		

Raw Certificate No. : A2008140127

Direction ※3	Specimen		Spec.	Tension Test				Hardness (HBW)	Charpy Impact Test (10*10*55mm)			Bending Test	Dimensional Inspection	
	Dia. in.	Gage Length in.		Yield Strength ksi	Tensile Strength ksi	Elongation %	Red. of Area %		Individual MIN.	Average MIN.	Notch Type			
	0.5	2		Min.	75	30	50		Test Result					
T	0.5	2	Max.	36	78	64	80	159,167	1	2	3	Ave.	Temp.	GOOD
														Visual Inspection
														GOOD
														Magnetic Particle Examination
														N/A
														Ultrasonic Examination
														N/A
														Liquid Penetrant Examination
														N/A
														P.M.I
														DH-PMI-210622-05 GOOD

No.	Description	Q'ty	Item No./POR No.	Remark
23	B16.5 150# WN FF 8" S/40S	10 EA		- NACE MR0175/ISO15156,NACE MR0103 - No repair welding - PREN = Cr+3.3Mo+16N - SI unit(specimen-12.5mmX 50.0mm) : Y.S-251MPa / T.S-540MPa - Intergranular Corrosion Test Test Method : ASTM A262-15 Practice E Test Report No.: 212565-G03736 Result : Accepted - All material supplied is certified to be free of Mercury contamination and no mercury bearing equipment was used during manufacturing
24	B16.5 150# WN RF 2" S/80S	50 EA		
25	B16.5 150# WN RF 2" S/40S	125 EA		
26	B16.5 150# WN RF 2" S/10S	75 EA		
30	B16.5 150# SO FF 8"	50 EA		
34	B16.5 150# SO RF 2 1/2"	100 EA		
35	B16.5 150# SO RF 2"	250 EA		
36	B16.5 150# SO RF 1"	150 EA		
38	B16.5 150# BL FF 2"	25 EA		
39	B16.5 150# BL RF 1 1/2"	150 EA		
40	B16.5 150# BL RF 1"	150 EA		
41	B16.5 150# SW RF 3" S/40S	25 EA		

We here by 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.

Inspector: _____

Notes : ※1 Heat Treatment : N = Normalizing A = Annealing Q = Quenching T = Tempering R : Stress Relieving S.T : Solution Treatment SA = Solution Annealing
 STA = Stabilized Annealed O = Other QT = Quenching Tempering Z = Stabilization NT = Normalizing Tempering
 A.C = Air Cooled W.C = Water Cooled F.C = Furnace Cooled O.C = Oil Cooled R.C = Rapid Air Cooling S.A = Solution Annealing W.Q = Water Quenched

※2 TR : Trace

※3 Direction : C=Crosswide L=Longitudinal Tr=Transverse T=Tangential R=Radial U=UW-13(Direction Parallel to the Axis of the Vessel)