

MATERIAL TEST CERTIFICATE

(EN 10204 - 3.1)

Certificate No. : FT202306-160-001
 Date : 2023/06/14
 P.O No. : PO53682
 MPS. No. :

Felix MR No. : O202303-017 Rev. 0
 Mat'l Specification : ASTM A182 F304/304L-21/ASME SA182 F304/304L-2021ED
 Customer : Allied Group
 Project Name :



85, Mieumsandan 3-ro, Gangseo-gu,
 Tel : +82-51-796-7870 (REP.)



Description	Total Q'ty : 975 EA	Q'ty (EA)	Lot No	Spec	+2	Tensile Test * 1						Hardness (HB)	Impact Test				Material Code		
						Specimen		Y.S	T.S	E.L	R.A		Temp.	Notch	Unit				
						D	G.L	MPa		%									
													Size :	Avg.					
1	B16.5 #150 WN FF 2" SCH40S	75	N220612AS05 CA4		T	6.25	25.0	292.7	621.3	57.8	78.4	154 / 155					4L1WFS2		
2	B16.5 #150 WN RF 2" SCH10S	200															4L1WRA2		
6	B16.5 #150 S0 FF 2"	250															4L1SF2		
7	B16.5 #150 S0 RF 1 1/2"	350															4L1SR1.5		
10	B16.5 #150 TH RF 1 1/2"	100															4L1TR1.5		
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Heat No	Spec	Chemical Composition (%) * 3														REMARK
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	N	Al	PREN	
		Min	-	-	-	-	-	8.0	18.0					-		
N220612AS05	Max	0.030	1.00	2.00	0.045	0.030	11.0	20.0					0.10			
	H	0.022	0.362	1.34	0.039	0.0018	8.03	18.15					0.076		19.366	
	P															

Heat Treatment *4 S : 1050°C X 2Hrs W.C	Dimension & Visual	NDE		
		UT	MT	PT
		ACCEPT	N/A (N/A)	N/A (N/A)

_____ Surveyor	We hereby certify that the material herein has been manufactured, tested and inspected in accordance with the above specification.	_____ Manager / Q.C Team
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Notes : *1 -- Tensile Test : Y.S=Yield Strength, T.S=Tensile Strength, E.L=Elongation, R.A=Reduction of Area, G.L=Gauge Length(mm), D=Diameter(ø)
 *2 -- Location : L=Longitudinal, Tr=Transverse, T=Tangential, R=Radial, U=Hubbed Tension Test 6.25x25.0mm (ASME SEC VIII Div.1 PARA UW-13.3)
 *3 -- Chemical Composition : H=Heat Analysis, P=Product Analysis
 *4 -- Heat Treatment : N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S=Solution Treated, S.R=Stress Relieved, S.T=Stabilization Heat Treatment, A.C=Air Cooled, W.C=Water Cooled, F.C=Furnace Cooled, O.C=Oil Cooled, A.C=Accelerated Cooled By Water
 CE : C + (Mn/6) + (Cr+Mo+V)/5 + (Ni+Cu)/15