

**CERTIFICATE OF MATERIAL**  
 ( EN10204 : 2004 3.1 )

Customer:	Project:	PO No.: 6000160-00	Heat Treatment #1																
Spec. For Material : A/SA182 F304/304L+NACE (2017ED)	Chemical Composition (%)											DHI190429-44 S.T:1050°C X 9.5 HRS-W.C							
	Spec.	C	SI	Mn	P	S	Ni	Cr	Mo	V	Cu		Nb	Al	W	Ti	N	Caq	Co
	Min.	0.030	1.00	2.03	0.045	0.030	11.0	20.0									0.10		
Heat No. & Lot No. POSCO S036000-8429C	H	0.0185	0.419	0.743	0.0384	0.0014	8.863	18.174											
	P	0.0194	0.406	0.462	0.0359	0.0021	8.1324	18.251											

Raw Certificate No. : 181130-FX01PN-000441-008

Direction	Specimen		Spec.	Tension Test				Hardness (HBW)	Charpy Impact Test (10*10*55mm)			Bending Test	Dimensional Inspection
	Dia. mm	Gage Length mm		Yield Strength MPa	Tensile Strength MPa	Elongation %	Red. of Area %		Individual	Average	Notch Type		
#3	12.5	50.0	Min.	205	515	30	50					GOOD	
			Max.					237	Test Result			Visual Inspection	
L	12.5	50.0		270	552	42	72	161,165	2	3	Ave.	Temp.	GOOD
Description												Magnetic Particle Examination	
No.	Dimension						QTY	Mat. No. / PQR No.	Remark				
30	B16.5 150# SO RF 1/2"						15 EA		NACE MR0175/ISO 15166/MS103/ISO 17945 (2015ED)				N/A
31	B16.5 150# SO RF 1 1/4"						25 EA						Ultrasonic Examination
32	B16.5 150# SO RF 1 1/2"						25 EA		No repair welding				N/A
35	B16.5 150# SO RF 1"						50 EA		PED 2014/68/EU (Cert No.:CE-PED-MW-DHI-001-17-KOR)				Liquid Penetrant Examination
54	B16.5 300# SO RF 1 1/2"						15 EA		ISO 9001:2015 (Cert No.:10BK00980)				N/A
55	B16.5 300# SO RF 1"						25 EA		Melting process : EAF+VD				P.M.I
63	B16.5 150# SW RF 1/2" S/40S						10 EA						GOOD
64	B16.5 150# SW RF 1 1/2" S/40S						25 EA						
65	B16.5 150# SW RF 1" S/80S						25 EA						
98	B16.5 300# WN RF 1" S/80S						15 EA						
99	B16.5 300# WN RF 1" S/40S						15 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.

MANAGER OF Q.A. DEPT.  
 ISSUE  
 2019.09.10  
 Manager of Quality Assurance Dept.  
 DAE HEUNG IND. CO., LTD.

Notes : #1 Heat Treatment : N = Normalizing A = Annealing Q = Quenching T = Tempering R = Stress Relieving S = 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-Crossside L-Longitudinal Tr=Transverse T=Tangential R=Radial U=UW-13(Direction Parallel to the Axis of the Vessel)

Stock 4725021 05/19/2020  
  
 SSFLANGE 1-1/2IN 150# 304 SS RF  
 SLIP ON FLANGE