



# INSPECTION CERTIFICATE

( EN 10204 - 3.1 )

**Sambu**  
**SAMBU STAINLESS FORGING CO.,LTD**  
 17,Hwajonsandan 5-ro 14beon-gil,  
 Gangseo-gu, Busan, Korea  
 Tel : 051316-3241 Fax : 051316-3242

Mat'l Specification : ASME SA266GR2N (2023 ED)  
 Customer : 피엠에스(주)  
 Project Name : HX-127

Certificate No. : IC202409-129-001  
 Date : 2024/09/10  
 P.O No. : PMS-24-050-03

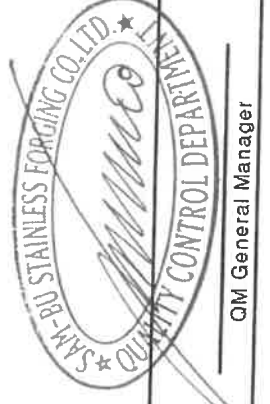
Heat No	Spec	Tensile Test * 1													Impact Test			Bend Test	Order Entry No	
		MFG Heat I.D No.		Specimen		Y.S		T.S		E.L		R.A		Hardness (HBW)		Temp.	Notch			Unit
		Q'ty (EA)	D	G.L	MPa	MPa	%	%	197	137	Size : 10x10x55 (mm)	2V	J	Min.	2	3	Avg.			
0D760*1D600*T90	T	2	12.5	50	304	514	36.9	72.1	145 / 141	1	2	3					N/A	A202408-315-003 A202408-315-004		
0D760*1D600*T65	T	1	***** BLANK *****										1	2	3					

Chemical Composition (%) * 3														Customer's Requirement				
Heat No	Spec	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Nb	V	N	AI				
998858	H	0.1933	0.238	0.959	0.0144	0.0018	0.02	0.04	0.00	0.022	0.001	0.003	0.0045	0.027				
	P																	

Heat Treatment * 4		Dimension & Visual		NDE * 5	
N : 910°C X 5.5Hrs A.C		GOOD	UT	MT	PT
			N/A (N/A)	N/A (N/A)	N/A (N/A)



We hereby certify that the material herein has been manufactured, tested and inspected in accordance with the above specification.

\_\_\_\_\_  
 QM General Manager

Surveyor \_\_\_\_\_

- 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 (φ)
  - \*2 -- Location : L=Longitudinal, Tr=Transverse, T=Tangential, R=Radial, U=Hubbed Tension Test 6.25 x 25.0mm (ASME SEC VIII Div. 1 PARA UM-13.3)
  - \*3 -- Chemical Composition : H=Heat Analysis, P=Product Analysis, Tr=Trace Element
  - \*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.
  - \*5 -- F.C=Furnace Cooled, O.C=Oil Cooled, AC.C=Accelerated Cooled
  - Surface Condition : A.F=As Forged, R.M=Rough Machined, F.M=Finish Machined





# CERTIFICATE MATERIAL TEST REPORT

(CERTIFICATE TO EN 10204 3.1)



**SHIN WOO METAL CO., LTD.**  
 10, Hamansandan 3-gil, Gunbuk-myeon,  
 Haman-gun, Gyeongsangnam-do, Korea  
 Tel. : + 82 - 55 - 585 - 2830  
 Fax. : + 82 - 55 - 585 - 2836  
 http://www.ShinWooMetal.net

Certificate No.: SWM-20241016-002

Order NO. : PMS-24-050-12

Customer : PMS

Project Name : HX-127

Material : ASME SEC.II PART A SA350 LF2 CL1  
 (2023ED)

Issued date : October, 16, 2024

Page : 1 of 1

Heat No.	Spec	Chemical Composition(%)											UT *5	GOOD	ESU-SM-240926-01			
		C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu	Nb				AL	CEQ	
S09561	Min	-	0.15	0.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Max	0.30	0.30	1.35	0.035	0.040	0.40	0.30	0.12	0.08	0.40	0.02	0.000	0.030	0.35	-	-	-
	H	0.1877	0.257	0.933	0.0098	0.0030	0.02	0.02	0.001	0.032	0.000	0.000	0.000	0.030	0.35	-	-	-
	P																	

▶ Remark Heat treatment report No. : SWH-20241016-002  
 MPS No. : M24-050-13SF Rev.0

UT : ASTM A388/ASME Sec.VIII Div.2, Part3, Para.3.3.4

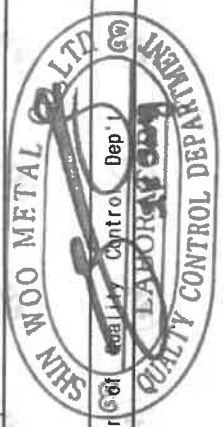
No.	Description or Dimension	Q'ty	*3 Tension Test			Hardness Test			Impact Test			Bend Test	
			Y.S MPa	T.S MPa	E.L %	(HBW)	R.A %	(10X10X55L)	Test Temp : -46 °C	Notch : 2mmV	Unit : J	Radius :	Angle :
2	ASME B16.5 300# LWN RF 2" L/230	2 EA	Min	485	22	-	197	1	2	16	-	-	
3	ASME B16.5 300# WN RF 2" S/160	10 EA	Max	655	-	-	143,144	68	70	59	65.6	-	
4	ASME B16.5 300# WN RF 3" S/160	2 EA	L	340	30	67							
5	ASME B16.5 300# WN RF 4" S/120	2 EA											
6	ASME B16.5 300# WN RF 6" S/80	2 EA											

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Heat Treatment *4	910 °C		5.3 hrs		A.C	
	Normalizing	Solution	Tempering	Stabilization	Quenching	Annealing
	°C	°C	hrs	hrs	°C	hrs
					°C	hrs

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

- Note :
- \*1. H=Heat Analysis, P=Product Analysis
  - \*2. L=Longitudinal, T=Tangential, Tr=Transverse, R=Radial
  - \*3. Tensile Test : Y.S=Yield Strength(0.2% OffSet), T.S=Tensile Strength, E.L=Elongation, R.A=Reduction of Area.
  - \*4. A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.
  - \*5. UT : Ultrasonic Examination, MT : Magnetic Examination, PT : Penetrant Testing



Manager