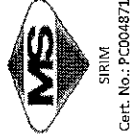




# MILL TEST CERTIFICATE

PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD. (733428W)  
(A MEMBER OF PANTECH GROUP HOLDINGS BERHAD, LISTED ON MAIN MARKET OF BURSA MALAYSIA)

PTD 204334, JALAN PLATINUM UTAMA,  
KAWASAN PERINDUSTRIAN PASIR GUDANG, ZON 12B, 81700 PASIR GUDANG  
JOBOR DARUL TAKZIM, MALAYSIA  
Tel: +607-2518838 Fax: +607-2519999 Website: www.pantechalloy.com  
http://www.pantech-group.com



Approval No.:  
ISO9001-0047465



MATERIAL MANUFACTURER APPROVAL ACCORDING TO  
PED 2014/68/EU, ANNEX 1, PARA 4.3.  
PED CERTIFICATE NO.:  
0343/PED/MUM/1110006/1

Customer : Unimech Engineering (M) Sdn Bhd  
Product : Welded Austenitic Stainless Steel Pipe

Certificate No : PSA2-28079  
Date : 15/06/2022

INSPECTION DOCUMENT: EN 10204 Type 3.1

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification										Delivery Condition	
		ASTM A312/A312M - 21 / ASME SA312/SA312M - 21	ASTM A999/A999M - 18/ ASME SA999/SA999M - 21	ASTM A999/A999M - 18/ ASME SECTION II PART A-2021		Non Destructive Test		Inter-Granular Corrosion Test		Hydrostatic Test		Dimensional/PMI/ Visual Inspection		Solution Treated, Pickled-Passivated, Plain Ends Square Cut	
Heat No.	Size	Grade	Quantity (Length)	Eddy Current		Flattening		Corrosion Test		Pressure / Hold		Result		Remarks	
				PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	2500 PSI, 5s	PASSED	GOOD	GOOD
KS175-10	1/2 inch Sch 10S x 6M	TP 304/304L	37	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	GOOD		
KS179-10	1/2 inch Sch 10S x 6M	TP 304/304L	571	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	GOOD		
KS179-18	1/2 inch Sch 10S x 6M	TP 304/304L	92	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	GOOD		
KG399-10	1 1/2 inch Sch 40S x 6M	TP 304/304L	3	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	GOOD		
LG057-10	1 1/2 inch Sch 40S x 6M	TP 304/304L	27	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	GOOD		
Specification	Chemical Composition (%)														
	C	Si	Mn	P	S	Cr	Ni	Pb	YS (KSI / MPa)	TS	E (%)	Hardness, HRB		Remarks	
Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	-	-	-	90			
Min	-	-	-	-	-	18.00	8.00	-	205	515	35	-			
Heat No.															
KS175-10	0.017	0.45	1.03	0.028	0.001	18.10	8.04	< 0.01	398	697	55	89			
KS179-10	0.010	0.48	0.94	0.027	0.002	18.08	8.00	< 0.01	339	629	50	84			
KS179-18	0.010	0.48	0.94	0.027	0.002	18.08	8.00	< 0.01	339	629	50	84			
KG399-10	0.026	0.36	1.14	0.034	0.002	18.30	8.01	< 0.01	401	697	50	84			
LG057-10	0.022	0.41	1.14	0.031	0.002	18.13	8.01	< 0.01	359	670	52	81			

WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED, SAMPLED, TESTED & INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE SPECIFICATION & PURCHASE ORDER.

AND WAS FOUND SATISFIED TO THE REQUIREMENTS. MATERIAL IS FREE FROM MERCURY & RADIOACTIVE CONTAMINATION

TENSILE REQUIREMENT: CONFORMS TO ASTM A570 - 12a STANDARD. SPECIMEN GAUGE WIDTH 19.2MM FOR 1" ABOVE, 1" INCLUDE AND BELOW DIRECT TEST FROM PIPE LONGITUDINAL DIRECTION. GAUGE LENGTH 12" (50mm)

NOTE: MADE IN MALAYSIA STEEL MAKING PROCESS: AODI VOD

WELDED BY ELECTRIC FUSION WELDING WITH PROCESS WITH NO FILLER METAL

INTERGRANULAR CORROSION TEST ACCORDING TO ASTM A262-10 PRACTICE E

HARDNESS ACCORDING TO NACE-MR0175-2015 / ISO 15156-2015 & NACE-MR0103-2015

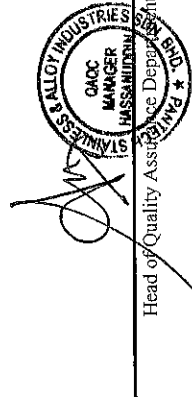
HEAT TREATMENT: SOLUTION TREATED AT MINIMUM 1050°C, RAPIDLY COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL'S HEAT ANALYSIS

\*1: YS: YIELD STRENGTH TS: TENSILE STRENGTH E: ELONGATION

EDDY CURRENT ACCORDING TO ASTM E2426-98 (Reapproved 2003) \*2: Nf: Not Hydrostatically Tested

REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.8.4, PROCEDURE ACC. TO CLAUSE 22.3.9)



Head of Quality Assurance Department



# MILL TEST CERTIFICATE

**PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD. (733428W)**  
(A MEMBER OF PANTECH GROUP HOLDINGS BERHAD, LISTED ON MAIN MARKET OF BURSA MALAYSIA)

PTD 204334, JALAN PLATINUM UTAMA,  
KAWASAN PERINDUSTRIAN PASIR GUDANG, ZON 12B, 81700 PASIR GUDANG  
JOHOR DARUL TAKZIM, MALAYSIA  
Tel: +607-2518888 Fax: +607-2519999 Website: www.pantechalloy.com  
http://www.pantech-group.com



Cert. No.: PC004871



Certified to NSF/ANSI 61



Approval No.: ISO5001-0047465



Suruhanjaya Perkhidmatan Air Negeri  
NO. SUJL. PENDAFTARAN : SPAN/BPI/500-10/653/A/W-1

MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 2014/68/EU ANNEX 1, PARA 4.3.  
PED CERTIFICATE NO.: 0343/PED/M/UM/71110006/1

Customer : Unimech Engineering (M) Sdn Bhd  
Product : Welded Austenitic Stainless Steel Pipe

Certificate No : PSA2-27930  
Date : 12/05/2022

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification										Delivery Condition	
		ASTM A312/A312M - 21 / ASME SA312/SA312M - 21	ASTM A999/A999M - 18/ ASME SA999/SA999M - 21 B 36.19M- 2018 & B36.10M-2018 / ASME SECTION II PART A-2021	Quantity (Length)	Non Destructive Test		Inter-Granular Corrosion Test		Hydrostatic Test		Dimensional / PMI/ Visual Inspection		Solution Treated, Pickled-Passivated, Plain Ends Square Cut		
Heat No.	Size	Grade	Quantity (Length)	Eddy Current	Flattening	Corrosion Test	Pressure / Hold	Result	Dimensional / PMI/ Visual Inspection	Tensile Test <sup>1</sup>		Hardness, HRB		Remarks	
				PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED		YS	TS	E			
										(ksi / MPa)	(%)	(%)			
KS177-10	1/2 inch Sch 10S x 6M	TP 304/304L	169	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	205	515	35	90		
LG048-10	1/2 inch Sch 40S x 6M	TP 304/304L	18	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	390	673	52	87		
LG059-10	1/2 inch Sch 40S x 6M	TP 304/304L	151	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	370	657	50	85		
LG066-10	3/4 inch Sch 40S x 6M	TP 304/304L	127	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	363	649	54	85		
KG394-10	1 1/2 inch Sch 40S x 6M	TP 304/304L	61	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	330	611	58	78		
										382	700	51	84		
Specification		Chemical Composition (%)													
		C	Si	Mn	P	S	Cr	Ni	Pb						
Max		0.035	1.00	2.00	0.045	0.030	20.00	11.00	-						
Min		-	-	-	-	-	18.00	8.00	-						
Heat No.															
KS177-10		0.014	0.44	0.98	0.028	0.001	18.18	8.03	< 0.01						
LG048-10		0.023	0.39	1.17	0.030	0.002	18.07	8.02	< 0.01						
LG059-10		0.027	0.35	1.15	0.030	0.001	18.17	8.05	< 0.01						
LG066-10		0.026	0.43	1.17	0.031	0.001	18.11	8.02	< 0.01						
KG394-10		0.025	0.43	1.18	0.027	0.002	18.11	8.04	< 0.01						

WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED, SAMPLED, TESTED & INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE SPECIFICATION & PURCHASE ORDER.

AND WAS FOUND SATISFIED TO THE REQUIREMENTS. MATERIAL IS FREE FROM MERCURY & RADIOACTIVE CONTAMINATION.

TENSILE REQUIREMENT: CONFORMS TO ASTM A370 - 12a STANDARD. SPECIMEN GAUGE WIDTH 19.2MM FOR 1" ABOVE, 1" INCLUDE AND BELOW DIRECT TEST FROM PIPE. LONGITUDINAL DIRECTION. GAUGE LENGTH 2" (50mm)

NOTE: MADE IN MALAYSIA STEEL MAKING PROCESS: AOD / VOD

WELDED BY ELECTRIC FUSION WELDING WITH PROCESS WITH NO FILLER METAL

INTERGRANULAR CORROSION TEST ACCORDING TO ASTM A262-10 PRACTICE E

HARDNESS ACCORDING TO NACE-MR017-2015 / ISO 15136-2015 & NACE-MR0103-2015

HEAT TREATMENT: SOLUTION TREATED AT MINIMUM 1050°C, RAPIDLY COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL'S HEAT ANALYSIS

\*1: YS: YIELD STRENGTH TS: TENSILE STRENGTH E: ELONGATION

EDDY CURRENT ACCORDING TO ASTM E426-98 (Reapproved 2003) \*2: NI: Not Hydrostatically Tested

\*2: NI: Not Hydrostatically Tested

Head of Quality Assurance Department  
QAQC MANAGER  
M. S. SHUDIN



# MILL TEST CERTIFICATE

PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD. (733428W)  
(A MEMBER OF PANTECH GROUP HOLDINGS BERHAD, LISTED ON MAIN MARKET OF BURSA MALAYSIA)

PTD 204334, JALAN PLATINUM UTAMA,  
KAWASAN PERINDUSTRIAN PASIR GUDANG, ZON I2B, 81700 PASIR GUDANG  
JOHOR DARUL TAKZIM, MALAYSIA  
Tel: +607-2518888 Fax: +607-2519999 Website: www.pantechsteel.com  
http://www.pantech-group.com

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

Customer : Unimech Engineering (M) Sdn Bhd  
Product : Welded Austenitic Stainless Steel Pipe



Certified to NSF/ANSI 61

Approval No.: ISO9001-0047465

MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 2014/68/EU, ANNEX 1, PARA 4.3.  
PED CERTIFICATE NO.: 0343/PED/MUM/1110006/1



Cert. No.: PC004871



Suruhanjaya Perkhidmatan Air Negeri  
NO. SUII PENDAFTARAN: SPAN/BM/500-10/553/A/W-1

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification				Delivery Condition			
		ASTM A312/A312M - 21 / ASME SA312/SA312M - 21	ASTM A999/A999M - 18 / ASME SA999/SA999M - 21 B 36.19M-2018 & B36.10M-2018 / ASME SECTION II PART A-2021	Quantity (Length)	Grade	Non Destructive Test	Inter-Granular Corrosion Test	Hydrostatic Test	Solution Treated, Pickled-Passivated, Plain Ends Square Cut	Dimensional / PMI/ Visual Inspection	
Heat No.	Size										
KS179-10	3/4 inch Sch 10S x 6M		TP 304/304L	Flattening	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
LG050-10	3/4 inch Sch 40S x 6M	200	TP 304/304L	Eddy Current	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
LG066-10	3/4 inch Sch 40S x 6M	47	TP 304/304L	Cracking	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
LG048-10	1 1/2 inch Sch 10S x 6M	61	TP 304/304L	Flattening	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
LG059-10	1 1/2 inch Sch 10S x 6M	239	TP 304/304L	Eddy Current	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
Chemical Composition (%)											
Specification	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>		
	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS (ksi / MPa)	TS	E (%)
Max	-	-	-	-	-	18.00	8.00	-	-	-	90
Min	-	-	-	-	-	18.00	8.00	-	205	515	35
Heat No.									340	640	52
KS179-10									357	660	54
LG050-10									330	611	58
LG066-10									407	685	52
LG048-10									423	699	49
LG059-10											87
											Hardness, HRB
											79
											83
											78
											86
											87

WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED, SAMPLED, TESTED & INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE SPECIFICATION & PURCHASE ORDER, AND WAS FOUND SATISFIED TO THE REQUIREMENTS. MATERIAL IS FREE FROM MERCURY & RADIOACTIVE CONTAMINATION.

WELDED BY ELECTRIC FUSION WELDING WITH PROCESS WITH NO FILLER METAL

INTERGRANULAR CORROSION TEST ACCORDING TO ASTM A262-10 PRACTICE E

HARDNESS ACCORDING TO NACE-MR0175-2015 / ISO 15156-2013 & NACE-MR0104-2015

HEAT TREATMENT: SOLUTION TREATED AT MINIMUM 1050°C, RAPIDLY COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL'S HEAT ANALYSIS

\*1: YS: YIELD STRENGTH TS: TENSILE STRENGTH E: ELONGATION

EDDY CURRENT ACCORDING TO ASTM E426-98 (Reapproved 2003)\*2: REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12, REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.8.4, PROCEDURE ACC. TO CLAUSE 22.3.9)

\*2: NH: Not Hydrostatically Tested

NOTE: STEEL MAKING PROCESS: AOD / VOD

MADE IN MALAYSIA

WELDED BY ELECTRIC FUSION WELDING WITH PROCESS WITH NO FILLER METAL

INTERGRANULAR CORROSION TEST ACCORDING TO ASTM A262-10 PRACTICE E

HARDNESS ACCORDING TO NACE-MR0175-2015 / ISO 15156-2013 & NACE-MR0104-2015

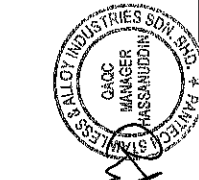
HEAT TREATMENT: SOLUTION TREATED AT MINIMUM 1050°C, RAPIDLY COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL'S HEAT ANALYSIS

\*1: YS: YIELD STRENGTH TS: TENSILE STRENGTH E: ELONGATION

EDDY CURRENT ACCORDING TO ASTM E426-98 (Reapproved 2003)\*2: REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12, REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.8.4, PROCEDURE ACC. TO CLAUSE 22.3.9)

\*2: NH: Not Hydrostatically Tested



Signature of GACC Manager Hassamuddin

Head of Quality Assurance Department