



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 214334, JALAN PLATINUM UTAMA,
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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 : PSA2-26685
Date : 30/08/2021

INSPECTION DOCUMENT: EN 10204, 2004 Type 3.1

PO No.	Invoice No.	Product Specification	Dimensional & Inspection Specification	Delivery Condition								
APO-2107-0075	L000011828	ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A999/A999M - 18/ ASME SA999/SA999M - 19 B 36.19M-2018 & B36.10M-2018	Solution Treated, Pickled-Passivated, Plain Ends Square Cut								
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test								
ISA398-04112	5 inch Sch 40S x 6M	TP 304/304L	7	Eddy Current PASSED Flattening PASSED								
				Inter-Granular Corrosion Test PASSED								
				Hydrostatic Test Pressure / Hold 2500 PSI, 5s PASSED								
				Dimensional / PMI/ Visual Inspection GOOD								
Chemical Composition (%)												
Specification	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test ¹		Hardness, HRB	Remarks
	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS	TS		
Max												
Min									205	515	35	90
Heat No.									332	637	58	76
ISA398-04112												

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-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 MATERIALS HEAT ANALYSIS

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

*2: NH: Not Hydrostatically-Tested

EDDY CURRENT ACCORDING TO ASTM E426-98 (Reapproved 2003)⁴¹ 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)

KAWASAN PERINDUSTRIAN PASIR GUDANG, ZON 128, 81700 PASIR GUDANG
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Cert. No.: PC004871



Certified to NSF/ANSI 61



Cert. No.: ISO9001-0047465



Suruhanjaya Pendaftaran Air Bersih
 NO. SUJL PENDAFTARAN: SPAN/BP/300-10/553/A/W-1

MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 2014/68/FEL/ANNEX 1, PAR 4.3.
 PED CERTIFICATE NO.: 0038/PED/MUM/1110006/1

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

Certificate No : PSA2-26504
 Date : 09/06/2021

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification				Delivery Condition				
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A999/A999M - 18 / ASME SA999/SA999M - 19	B 36.19M- 2018 & B36.10M-2018		Solution Treated, Pickled-Passivated, Plain Ends Square Cut						
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test			Inter-Granular Corrosion Test	Hydrostatic Test		Dimensional / PMI / Visual Inspection		
				Eddy Current	Flattening	PASSED		Pressure / Hold	Result			
KG022-10	1 1/2 inch Sch 40S x 6M	TP 304/304L	11	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG029-10	1 1/2 inch Sch 40S x 6M	TP 304/304L	25	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG108-10	1 1/2 inch Sch 40S x 6M	TP 304/304L	64	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG103-10	4 inch Sch 40S x 6M	TP 304/304L	20	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG080-10	10 inch Sch 40S x 6M	TP 304/304L	4	PASSED	PASSED	PASSED	PASSED	NIH	-	GOOD		
Specification		Chemical Composition (%)										
	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test ^{*1}		Hardness, HRB	Remarks
	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS (ksi / MPa)	TS		
						18.00	8.00	-	205	515	35	90
KG022-10	0.020	0.44	1.16	0.028	0.002	18.18	8.02	< 0.01	408	698	49	81
KG029-10	0.023	0.40	1.11	0.026	0.001	18.13	8.03	< 0.01	379	683	57	80
KG108-10	0.025	0.40	1.12	0.032	0.001	18.10	8.03	< 0.01	376	696	65	78
KG103-10	0.028	0.40	1.14	0.032	0.002	18.19	8.02	< 0.01	347	662	67	79
KG080-10	0.025	0.42	1.16	0.026	0.001	18.15	8.01	< 0.01	333	635	54	77

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 - E2 STANDARD. SPECIMEN GAUGE WIDTH 1/2" MIN 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-MR0175-2015 / ISO 15156-2015 & NACE-MR0105-2015

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 E26-88 (Reapproved 2003)[†] REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.4, PROCEDURE ACC. TO CLAUSE 22.3.5)

†2. NI: Not Hydrostatically Tested

Signature of Head of Quality Assurance Department
 Head of Quality Assurance Department



MILL TEST CERTIFICATE

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MATERIAL MANUFACTURER APPROVAL ACCORDING TO
 PED 2014/68/EU, ANNEX 1, PARA 4.3.
 PED CERTIFICATE NO.:
 0058/PED/MUM/1110006/1

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

Certificate No : PSA2-26503
 Date : 09/06/2021

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification				Delivery Condition																																																																																			
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A999/A999M - 18/ ASME SA999/SA999M - 19 B 36.19M-2018 & B36.10M-2018	ASTM A999/A999M - 18/ ASME SA999/SA999M - 19	ASTM A999/A999M - 18/ ASME SA999/SA999M - 19	Solution Treated, Pickled-Passivated, Plain Ends Square Cut	Dimensional /PMI/ Visual Inspection																																																																																				
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test		Inter-Granular Corrosion Test	Hydrostatic Test		Remarks																																																																																		
				Eddy Current	Flattening		Pressure / Hold	Result																																																																																			
KG073-10	1 inch Sch 40S x 8M	TP 304/304L	9	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD																																																																																		
KG105-10	1 inch Sch 40S x 8M	TP 304/304L	355	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD																																																																																		
<table border="1"> <thead> <tr> <th rowspan="2">Specification</th> <th colspan="10">Chemical Composition (%)</th> </tr> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> <th>Cr</th> <th>Ni</th> <th>Pb</th> <th>YS (KSI / MPa)</th> <th>TS</th> <th>E (%)</th> </tr> </thead> <tbody> <tr> <td>Max</td> <td>0.035</td> <td>1.00</td> <td>2.00</td> <td>0.045</td> <td>0.030</td> <td>20.00</td> <td>11.00</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>Min</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>18.00</td> <td>8.00</td> <td>-</td> <td>-</td> <td>-</td> <td>90</td> </tr> <tr> <td>Heat No.</td> <td>0.021</td> <td>0.39</td> <td>1.20</td> <td>0.027</td> <td>0.002</td> <td>18.15</td> <td>8.02</td> <td>< 0.01</td> <td>205</td> <td>515</td> <td>35</td> </tr> <tr> <td>KG073-10</td> <td>0.028</td> <td>0.41</td> <td>1.15</td> <td>0.034</td> <td>0.001</td> <td>18.12</td> <td>8.03</td> <td>< 0.01</td> <td>351</td> <td>652</td> <td>52</td> </tr> <tr> <td>KG105-10</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>353</td> <td>659</td> <td>68</td> </tr> </tbody> </table>										Specification	Chemical Composition (%)										C	Si	Mn	P	S	Cr	Ni	Pb	YS (KSI / MPa)	TS	E (%)	Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	-	-	-	Min	-	-	-	-	-	18.00	8.00	-	-	-	90	Heat No.	0.021	0.39	1.20	0.027	0.002	18.15	8.02	< 0.01	205	515	35	KG073-10	0.028	0.41	1.15	0.034	0.001	18.12	8.03	< 0.01	351	652	52	KG105-10									353	659	68
Specification	Chemical Composition (%)																																																																																										
	C	Si	Mn	P	S	Cr	Ni	Pb	YS (KSI / MPa)	TS	E (%)																																																																																
Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	-	-	-																																																																																
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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 T 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 F

HARDNESS ACCORDING TO NACE MR0175-2015 / ISO 15156-2:2015 & NACE MR0105-2015

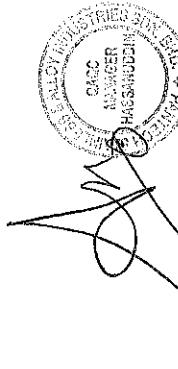
HEAT TREATMENT: SOLUTION TREATED AT MINIMUM 1050°C, RAPIDLY COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL'S HEAT ANALYSIS

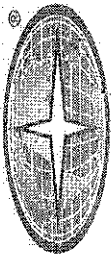
*1 YS: YIELD STRENGTH TS: TENSILE STRENGTH E: ELONGATION

*2: NEE: Not Hydrostatically Tested

EDDY CURRENT ACCORDING TO ASTM E246-98 (Reapproved 2003)*1. 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)

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Tel: +607-2518888 Fax: +607-2519999 Website: www.pantechssalloy.com
http://www.pantech-group.com



Suruhanjaya Pendaftaran Air Bersih
NO. SUL. PENDAFTARAN : SPAN/BP/300-10/553/AW-1

MATERIAL MANUFACTURER APPROVAL ACCORDING TO
PED 2014/66/EU, ANNEX 1, PARA 4.3.
PED CERTIFICATE NO. :
0343/PED/NUM/1110006/1

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

Certificate No : PSA2-26534
Date : 17/06/2021

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification				Delivery Condition			
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A999/A999M - 18 / ASME SA999/SA999M - 19	B 36.19M- 2018 & B36.10M-2018	Solution Treated, Plain Ends Square Cut	Solution Treated, Plain Ends Square Cut	Visual Inspection	Dimensional /PMI/			
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test		Inter-Granular Corrosion Test	Hydrostatic Test		Remarks		
				Eddy Current	Flattening		Pressure / Hold	Result			
KG093-10	3/4 inch Sch 40S x 6M	TP 304/304L	9	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG097-10	3/4 inch Sch 40S x 6M	TP 304/304L	120	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG136-10	3/4 inch Sch 40S x 6M	TP 304/304L	71	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG023-18	1 inch Sch 40S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG026-10	1 inch Sch 40S x 6M	TP 304/304L	3	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
Specification		Chemical Composition (%)									
Max	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test ¹	Hardness, HRB	
Min	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-			YS -kSI / MPa
Heat No.	-	-	-	-	-	18.00	8.00	-	205	515	35
KG093-10	0.021	0.38	1.12	0.029	0.001	18.22	8.03	< 0.01	354	637	68
KG097-10	0.029	0.40	1.17	0.032	0.001	18.24	8.02	< 0.01	349	641	71
KG136-10	0.024	0.40	1.15	0.037	0.001	18.05	8.03	< 0.01	340	639	56
KG023-18	0.026	0.41	1.12	0.027	0.001	18.18	8.02	< 0.01	353	658	51
KG026-10	0.021	0.46	1.16	0.028	0.001	18.12	8.02	< 0.01	358	669	55

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-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 E466-98 (Reapproved 2003)⁴¹ REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.8.4. PROCEDURE ACC. TO CLAUSE 22.3.9)

*2: NEI: Not Hydrostatically Tested

Signature of Head of Quality Assurance Department
DACC
QUALITY ASSURANCE
SPAN INDUSTRIES SDN BHD

Head of Quality Assurance Department