



# 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: +607-2519888 Fax: +607-2519999 E-mail: info@pantechgroup.com  
 http://www.pantech-group.com



Cert. No.: PC004871



Certified to NSF/ANSI 61



Cert. No.: ISO9001-0047465



Sarawaya Perindustrian Sdn Bhd  
 NO. 5 JIL PENDAFARAN : SPAN/B01/300-10/553/A/W-1

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

INSPECTION DOCUMENT: EX 10204: 2004 Type 3.1

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

Certificate No : PSA2-25945  
 Date : 20/01/2021

PO No.	Invoice No.	Product Specification	Dimensional & Inspection Specification										Delivery Condition	
			ASTM A312/A312M - 19 / ASME SA312/SA312M - 19					ASTM A999/A999M - 19/ ASME SA999/SA999M - 19					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					
JG158-10	8 inch Sch 10S x 6M	TP 304/304L	22	PASSED	PASSED	PASSED	PASSED	1100 PSI, 5s	PASSED	GOOD				
JG163-10	8 inch Sch 10S x 6M	TP 304/304L	5	PASSED	PASSED	PASSED	PASSED	1100 PSI, 5s	PASSED	GOOD				
JG193-10	8 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	PASSED	1100 PSI, 5s	PASSED	GOOD				
JG216-10	8 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	PASSED	1100 PSI, 5s	PASSED	GOOD				
JS131-10	8 inch Sch 10S x 6M	TP 304/304L	3	PASSED	PASSED	PASSED	PASSED	1100 PSI, 5s	PASSED	GOOD				

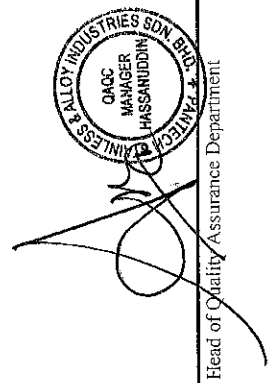
Specification	Chemical Composition (%)										Tensile Test <sup>1</sup>		Hardness, HRB	Remarks	
	C	Si	Mn	P	S	Cr	Ni	Pb	YS (ksi / MPa)	TS	E (%)				
Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	-	-	-	-	-	-	-
Min	-	-	-	-	-	18.00	8.00	-	-	-	-	-	-	-	-
Heat No.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JG158-10	0.020	0.42	1.13	0.027	0.002	18.15	8.03	< 0.01	205	515	35	354	673	51	79
JG163-10	0.018	0.41	1.12	0.026	0.002	18.08	8.01	< 0.01	342	632	55	340	648	51	78
JG193-10	0.023	0.48	1.17	0.028	0.002	18.09	8.02	< 0.01	340	648	51	339	645	54	80
JG216-10	0.021	0.41	1.19	0.031	0.002	18.16	8.04	< 0.01	349	671	50	349	671	50	81
JS131-10	0.018	0.45	1.04	0.030	0.001	18.11	8.01	< 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 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  
 \*2: NI: Ni6 Hydrochemically Tested  
 EDDY CURRENT REFERENCE TO ASTM G426-98 (Reapproved 2003) 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



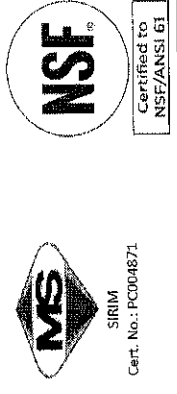
# MILL TEST CERTIFICATE

**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 I2B, 81700 PASIR GUDANG  
 JOHOR DARUL TAKZIM, MALAYSIA  
 Tel: +607-2511888 Fax: +607-2519999 E-mail: info@pantechalloy.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



MATERIAL MANUFACTURED APPROVAL ACCORDING TO  
 PED 2014/68/EU, ANNEX 1, PARA 4.3.  
 PED CERTIFICATE NO.:  
 0038/PED/MUM/1110006/1

Certificate No : PSA2-25901  
 Date : 15/01/2021

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	Hydrostatic Test	Inter-Granular Corrosion Test	Flattening	Eddy Current	Non Destructive Test	Dimensional / PMI/ Visual Inspection			
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test		Flattening		Inter-Granular Corrosion Test		Pressure / Hold	Result	Result		
JG140-10	1 inch Sch 10S x 6M	TP 304/304L	3	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
JG143-10	1 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
JG147-10	1 inch Sch 10S x 6M	TP 304/304L	33	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
JS174-10	1 inch Sch 10S x 6M	TP 304/304L	170	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
JG185-10	1 1/4 inch Sch 10S x 6M	TP 304/304L	41	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
Specification		Chemical Composition (%)												
		C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>		Hardness, HRB		Remarks
		0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS	TS	E	(%)	
	Heat No.	-	-	-	-	-	18.00	8.00	-	205	515	35	-	
	JG140-10	0.022	0.43	1.15	0.028	0.001	18.17	8.02	< 0.01	350	676	53	84	
	JG143-10	0.019	0.43	1.15	0.028	0.002	18.19	8.03	< 0.01	342	658	54	87	
	JG147-10	0.024	0.39	1.14	0.026	0.001	18.23	8.04	< 0.01	343	659	53	82	
	JS174-10	0.021	0.48	1.10	0.028	0.002	18.00	8.00	< 0.01	356	691	53	84	
	JG185-10	0.022	0.43	1.15	0.028	0.001	18.17	8.02	< 0.01	333	626	45	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 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 F;  
 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  
 EDDY CURRENT ACCORDING TO ASTM E26-98 (Reapproved 2005) #1 REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.8.4. PROCEDURE ACC. TO CLAUSE 22.3.9)  
 #2: NDT: Not Hydrostatically Tested

**TECH STAINLESS ALLOY INDUSTRIES SDN. BHD.**  
 CHQC  
 MANAGER  
 HASSAMUDDIN  
 Head of Quality Assurance Department



# MILL TEST CERTIFICATE

## PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD. (753428W)

(A MEMBER OF PANTECH GROUP HOLDINGS BERHAD, LISTED ON MAIN MARKET OF BURSA MALAYSIA)

KAWASAN PERINDUSTRIAN PASIR GUDANG, ZON I2B, 81700 PASIR GUDANG  
 JOHOR DARUL TAKZIM, MALAYSIA  
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 Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechsteel.com  
 http://www.pantech-group.com



Cert. No.: PC004871



Certified to NSF/ANSI 61



Cert. No.: ISO9001-0047465



Seroharjaya Park Industri Ait Negeri  
 NO. SUKIL PENDAFTARAN : SPAN/01/300-10/553/A/W-1

MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 2014/58/EU, ANNEX 1, PARA 4.3.  
 PED CERTIFICATE NO.: 0038/PED/MUM/1110006/1

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

Certificate No : PSA2-25900  
 Date : 15/01/2021

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

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification				Delivery Condition																																																																																																								
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	Grade	Quantity (Length)	Eddy Current	Flattening	Inter-Granular Corrosion Test	Hydrostatic Test	Solution Treated, Pickled-Passivated, Plain Ends Square Cut																																																																																																							
APO-2009-0020	L000011034																																																																																																															
Heat No.	Size	Grade	Quantity (Length)	Eddy Current	Flattening	Inter-Granular Corrosion Test	Hydrostatic Test	Dimensional / PMI / Visual Inspection																																																																																																								
JG084-10	4 inch Sch 10S x 6M	TP 304/304L	23	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD																																																																																																							
JG144-10	4 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD																																																																																																							
JG146-10	4 inch Sch 10S x 6M	TP 304/304L	27	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD																																																																																																							
<table border="1"> <thead> <tr> <th rowspan="2">Specification</th> <th colspan="10">Chemical Composition (%)</th> <th rowspan="2">Remarks</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> <td>90</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>-</td> <td>-</td> </tr> <tr> <td>Heat No.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>JG084-10</td> <td>0.024</td> <td>0.42</td> <td>1.14</td> <td>0.025</td> <td>0.001</td> <td>18.20</td> <td>8.03</td> <td>&lt; 0.01</td> <td>205</td> <td>515</td> <td>35</td> <td>81</td> </tr> <tr> <td>JG144-10</td> <td>0.019</td> <td>0.43</td> <td>1.15</td> <td>0.028</td> <td>0.002</td> <td>18.19</td> <td>8.03</td> <td>&lt; 0.01</td> <td>377</td> <td>648</td> <td>54</td> <td>83</td> </tr> <tr> <td>JG146-10</td> <td>0.021</td> <td>0.41</td> <td>1.14</td> <td>0.027</td> <td>0.002</td> <td>18.25</td> <td>8.03</td> <td>&lt; 0.01</td> <td>367</td> <td>684</td> <td>50</td> <td>84</td> </tr> </tbody> </table>												Specification	Chemical Composition (%)										Remarks	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	-	-	-	-	90	Min	-	-	-	-	-	18.00	8.00	-	-	-	-	-	Heat No.													JG084-10	0.024	0.42	1.14	0.025	0.001	18.20	8.03	< 0.01	205	515	35	81	JG144-10	0.019	0.43	1.15	0.028	0.002	18.19	8.03	< 0.01	377	648	54	83	JG146-10	0.021	0.41	1.14	0.027	0.002	18.25	8.03	< 0.01	367	684	50	84
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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 \*2. NEL Not Hydrostatically Tested  
 \*3. E, ELONGATION \*4. REQUIREMENTS (REFERENCE TO ASTM E436-98 (Reapproved 2003))  
 EDDY CURRENT ACCORDING TO ASTM E436-98 (Reapproved 2003) \*5. REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.8.4. PROCEDURE ACC. TO CLAUSE 22.3.9

Signature of Head of Quality Assurance Department  
 PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD.  
 QACC MANAGER  
 HASSANUDDIN

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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http://www.pantech-group.com



Cert. No.: PC004871



Suruhanjaya Perkhidmatan Air Negara  
NO. SUJIL PENDAFTARAN: SPAN/BR/300/10/555/ANW-1



Cert. No.: ISO9001-0047465



Certified to NSF/ANSI 61

MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 2014/58/EU, ANNEX 1, PARA 4.3.  
PED CERTIFICATE NO.: 0038/PED/MUM/1110006/1

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

Certificate No : PSA2-25899  
Date : 15/01/2021

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

PO No.	Invoice No.	Product Specification	Dimensional & Inspection Specification										Delivery Condition		Remarks																																																																															
			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		Pressure / Hold	Result	2500 PSI, 5s	PASSED	GOOD																																																																														
				Eddy Current	Flattening	PASSED		Pressure	2500 PSI, 5s	PASSED																																																																																				
JS074-18	3/4 inch Sch 10S x 6M	TP 304/304L	127	PASSED	PASSED	PASSED	PASSED																																																																																							
<table border="1"> <thead> <tr> <th rowspan="2">Specification</th> <th colspan="10">Chemical Composition (%)</th> <th colspan="3">Tensile Test<sup>1</sup></th> <th rowspan="2">Hardness, HRB</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>205</td> <td>515</td> <td>35</td> <td>90</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>313</td> <td>578</td> <td>48</td> <td>-</td> </tr> <tr> <td>Heat No.</td> <td>0.018</td> <td>0.48</td> <td>1.04</td> <td>0.032</td> <td>0.001</td> <td>18.10</td> <td>8.02</td> <td>&lt; 0.01</td> <td></td> <td></td> <td></td> <td>88</td> </tr> <tr> <td>JS074-18</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>																	Specification	Chemical Composition (%)										Tensile Test <sup>1</sup>			Hardness, HRB	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	-	205	515	35	90	Min	-	-	-	-	-	18.00	8.00	-	313	578	48	-	Heat No.	0.018	0.48	1.04	0.032	0.001	18.10	8.02	< 0.01				88	JS074-18												
Specification	Chemical Composition (%)										Tensile Test <sup>1</sup>			Hardness, HRB																																																																																
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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 27 (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

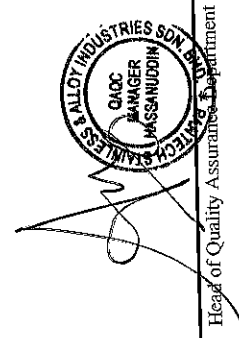
HEAT TREATMENT: SOLUTION TREATED AT MINIMUM 1050°C, RAPIDLY COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL'S HEAT ANALYSIS

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

\*2: NH- Non-Hydrostatically Tested

EDDY CURRENT ACCORDING TO ASTM E26-98 (Reapproved 2003)<sup>1</sup> 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 GUJANG, ZON 12B, 81700 PASIR GUJANG  
 JOHOR DARUL TAKZIM, MALAYSIA  
 Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechalloy.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



MATERIAL MANUFACTURER APPROVAL ACCORDING TO  
 PED 2014/58/ED, ANNEX 1, PAR 4.3.  
 PED CERTIFICATE NO.:  
 0038/PED/MUM/7.1110006/1

Certificate No : PSA2-25898  
 Date : 15/01/2021

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification				Delivery Condition														
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A999/A999M - 19 / ASME SA999/SA999M - 19	B 36.19M-2018 & B36.10M-2018	Solution Treated, Pickled-Passivated, Plain Ends Square Cut	Hydrostatic Test	Inter-Granular Corrosion Test	Pressure / Hold	Result	Dimensional / PMI/ Visual Inspection												
Heat No.	JG097-10	Size	10 inch Sch 10S x 6M	Grade	TP 304/304L	Quantity (Length)	14	Non Destructive Test	Flattening	PASSED	Eddy Current	PASSED	Inter-Granular Corrosion Test	PASSED	Pressure / Hold	NH	Result	-	Dimensional / PMI/ Visual Inspection	GOOD		
Specification		Chemical Composition (%)																				
		C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>										Hardness, HRB		Remarks
Max		0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS	TS	E										
Min		-	-	-	-	-	18.00	8.00	-	205	515	35										
Heat No.	JG097-10	0.024	0.43	1.19	0.025	0.001	18.17	8.04	< 0.01	336	646	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 MATERIALS HEAT ANALYSIS  
 \*1: YS: YIELD STRENGTH TS: TENSILE STRENGTH E: ELONGATION  
 \*2: NH: Not Hydrostatically Tested  
 EDDY CURRENT ACCORDING TO ASTM E26-98 (Reapproved 2005) \*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)

PTD 204534, JALAN PLATINUM UTAMA,  
KAWASAN PERINDUSTRIAN PASIR GUDANG, ZON I2B, 81700 PASIR GUDANG  
JOHOR DARUL TAKZIM, MALAYSIA  
Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechgroup.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



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

Certificate No : PSA2-25895  
Date : 15/01/2021

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	Hydrostatic Test Pressure / Hold 1100 PSI, 5s	Result PASSED	Dimensional /PMI/ Visual Inspection GOOD																																																																																		
APO-2008-0164	L000011030	ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	Quantity (Length)	Flattening	Inter-Granular Corrosion Test	Pressure / Hold 1100 PSI, 5s	Result PASSED	Dimensional /PMI/ Visual Inspection GOOD																																																																																		
Heat No.	Size	Grade	Quantity (Length)	Flattening	Inter-Granular Corrosion Test	Pressure / Hold 1100 PSI, 5s	Result PASSED	Dimensional /PMI/ Visual Inspection GOOD																																																																																		
JG158-10	8 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	1100 PSI, 5s	PASSED	GOOD																																																																																		
<table border="1"> <thead> <tr> <th rowspan="2">Specification</th> <th colspan="10">Chemical Composition (%)</th> <th rowspan="2">Hardness, HRB</th> <th rowspan="2">Remarks</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 (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> <td>90</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>205</td> <td>515</td> <td>35</td> <td>-</td> <td></td> </tr> <tr> <td>Heat No.</td> <td>0.020</td> <td>0.42</td> <td>1.13</td> <td>0.027</td> <td>0.002</td> <td>18.15</td> <td>8.03</td> <td>&lt; 0.01</td> <td>354</td> <td>673</td> <td>51</td> <td>79</td> <td></td> </tr> <tr> <td>JG158-10</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>											Specification	Chemical Composition (%)										Hardness, HRB	Remarks	C	Si	Mn	P	S	Cr	Ni	Pb	YS (MPa)	TS	E (%)	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.	0.020	0.42	1.13	0.027	0.002	18.15	8.03	< 0.01	354	673	51	79		JG158-10													
Specification	Chemical Composition (%)											Hardness, HRB	Remarks																																																																													
	C	Si	Mn	P	S	Cr	Ni	Pb	YS (MPa)	TS	E (%)																																																																															
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.	0.020	0.42	1.13	0.027	0.002	18.15	8.03	< 0.01	354	673	51	79																																																																														
JG158-10																																																																																										

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 T ABOVE, 1 INCLUDE AND BELOW DIRECT TEST FROM PIPE. LONGITUDINAL DIRECTION, GAUGE LENGTH 75 (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

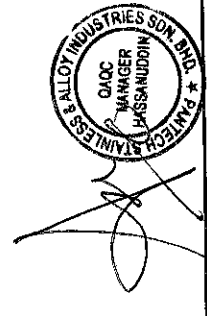
HARDNESS ACCORDING TO NACE-AR0175-2015 / ISO 15156-2015 & NACE-AR0103-2015

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)



Head of Quality Assurance Department



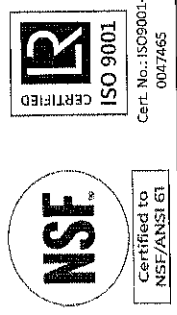
# MILL TEST CERTIFICATE

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

KAVASAN PERINDUSTRIAN PASIR GUDANG, ZON I2B, 81700 PASIR GUDANG  
 PTD 204334, JALAN PLATINUM UTAMA,  
 JOHOR DARUL TAKZIM, MALAYSIA  
 Tel: +607-2518888 Fax: +607-2519999 E-mail: info@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  
 Cert No.: ISO9001-0047465  
 MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 2014/68/EU, ANNEX 1, PARA 4.3.  
 PED CERTIFICATE NO.: 0038/PED/MUM/1110006/1

Certificate No : PSA2-25894  
 Date : 15/01/2021



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	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	1600 PSI, 5s	PASSED	1600 PSI, 5s	PASSED		1600 PSI, 5s
JG082-10	4 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD	GOOD		
JG084-10	4 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD	GOOD		
JG144-10	4 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD	GOOD		
JG146-10	4 inch Sch 10S x 6M	TP 304/304L	70	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD	GOOD		
Specification		Chemical Composition (%)										Tensile Test <sup>1</sup>		Hardness, HRB	
C	Si	Mn	P	S	Cr	Ni	Pb	YS (ksi / MPa)	TS	E (%)	YS	TS	E (%)		
0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	205	515	35	383	642	51	90	
-	-	-	-	-	18.00	8.00	-	377	648	54	367	684	50	-	
0.022	0.41	1.13	0.028	0.002	18.18	8.01	< 0.01	362	673	54	367	684	50	84	
0.024	0.42	1.14	0.025	0.001	18.20	8.03	< 0.01								
0.019	0.43	1.15	0.028	0.002	18.19	8.03	< 0.01								
0.021	0.41	1.14	0.027	0.002	18.25	8.03	< 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-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 E426-98 (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)

*[Signature]*  
 QA/QC MANAGER  
 HASSANUDDIN  
 PANTech STEEL INDUSTRIES SDN. BHD.  
 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,  
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 http://www.pantech-group.com



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

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

Certificate No : PSA2-25840  
 Date : 31/12/2020

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

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification										Delivery Condition	
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	Grade	Quantity (Length)	Non Destructive Test			Inter-Granular Corrosion Test			Hydrostatic Test		Dimensional /PMI/ Visual Inspection		
Heat No.	Size	Grade	Quantity (Length)	Eddy Current	Flattening	Corrosion Test	Pressure / Hold	Result	Dimensional /PMI/ Visual Inspection	Remarks					
JG107-10	10 inch Sch 10S x 6M	TP 304/304L	4	PASSED	PASSED	PASSED	NH	-	GOOD						
JG197-10	10 inch Sch 10S x 6M	TP 304/304L	4	PASSED	PASSED	PASSED	NH	-	GOOD						
JS177-10	10 inch Sch 10S x 6M	TP 304/304L	4	PASSED	PASSED	PASSED	NH	-	GOOD						
Chemical Composition (%)															
Specification	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>		Hardness, HRB				
Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS - (ksi / MPa)	TS		E (%)			
Mfn	-	-	-	-	-	18.00	8.00	-	205	515	35				
Heat No.															
JG107-10	0.024	0.50	1.15	0.028	0.001	18.10	8.04	< 0.01	350	671	55				
JG197-10	0.018	0.47	1.13	0.027	0.002	18.18	8.01	< 0.01	334	634	54				
JS177-10	0.014	0.46	1.03	0.034	0.002	18.03	8.00	< 0.01	352	678	59				

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 T ABOVE. \*1 INCLUDE AND BELOW DIRECT TEST FROM PIPE LONGITUDINAL DIRECTION, GAUGE LENGTH 7.62MM

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 1030°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)<sup>2</sup> 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

QABC  
 MANAGER  
 HASSANUDDIN  
 PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD.

Head of Quality Assurance Department



# MILL TEST CERTIFICATE

PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD. (733428W)  
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PTD 204334, JALAN PLATINUM UTAMA,  
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Tel: +607-2313888 Fax: +607-2519999 E-mail: info@pantechssalloy.com  
http://www.pantech-group.com



Supplies and Services  
NO. SUIL PENDAFTARAN : SPAN/SP/500-30/553/AW-1

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

MATERIAL MANUFACTURER APPROVAL ACCORDING TO  
PED 2014/66/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 : PSA2-25839  
Date : 31/12/2020

PO No.	Invoice No.	Product Specification	Dimensional & Inspection Specification	Delivery Condition								
APO-2009-0020	L000010983	ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A999/A999M - 18/ ASME SA999/SA999M - 19 B 36.19M-04 & B36.10M-04	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					
JE051-10	3/4 inch Sch 10S x 6M	TP 304/304L	11	Eddy Current	PASSED	2500 PSI, 5s	GOOD					
JS074-10	3/4 inch Sch 10S x 6M	TP 304/304L	50	Flattening	PASSED	2500 PSI, 5s	GOOD					
JS171-18	3/4 inch Sch 10S x 6M	TP 304/304L	19	PASSED	PASSED	2500 PSI, 5s	GOOD					
Specification	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>*1</sup>		Hardness, HRB	Remarks
Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS	TS	E (%)	
Min	-	-	-	-	-	18.00	8.00	-	-	-	-	
Heat No.	0.015	0.43	0.90	0.035	0.008	18.24	8.06	< 0.01	205	515	35	
JE051-10	0.018	0.48	1.04	0.032	0.001	18.10	8.02	< 0.01	345	613	54	
JS074-10	0.022	0.47	1.09	0.028	0.001	18.02	8.03	< 0.01	313	578	48	
JS171-18									352	670	50	

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) \*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 QAQC Manager  
QAQC MANAGER  
PASSANUDONN  
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: +607-2511888 Fax: +607-2519999 E-mail: info@pantechalloy.com  
http://www.pantech-group.com



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

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

Certificate No : PSA2-25836  
Date : 31/12/2020



Cert. No.: ISO9001-0047465

Certified to NSF/ANSI 61

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

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification				Delivery Condition	
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A991/A991M - 19 / ASME SA991/SA991M - 19	B 36.19M-04 & B36.10M-04	Solution Treated, Pickled-Passivated, Plain Ends Square Cut	Hydrostatic Test	Inter-Granular Corrosion Test	Dimensional / PMI/ Visual Inspection	
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test		Tensile Test <sup>1</sup>		Remarks	
				Eddy Current	Flattening	YS (ksi) / MPa	TS		
								Hardness, HRB	
Chemical Composition (%)									
	C	Si	Mn	P	S	Cr	Ni	Pb	E
Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	-
Min	-	-	-	-	-	18.00	8.00	-	-
Heat No.									
JG008-10	0.023	0.40	1.15	0.029	0.001	18.25	8.01	< 0.01	35
JG098-10	0.022	0.41	1.13	0.030	0.002	18.08	8.03	< 0.01	54
JG144-10	0.019	0.43	1.15	0.028	0.002	18.19	8.03	< 0.01	84
JG146-10	0.021	0.41	1.14	0.027	0.002	18.25	8.03	< 0.01	83

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 19.0MM 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)<sup>2</sup> REQUIREMENTS (REFERENCE TO ASTM A991/A991M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.8.4. PROCEDURE ACC. TO CLAUSE 22.5.9)

Signature of Head of Quality Assurance Department  
QAQC MANAGER  
TECH BUSINESS & ALLOY INDUSTRIES SDN. BHD.  
M. HASSAMUDDIN

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,  
 JOHOR DARUL TAKZIM, MALAYSIA  
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 Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechsteel.com  
 http://www.pantech-group.com



SURUHSAJAYA PERKIDMULIAAN AIR NEGARA  
 NO. SIJIL PENDAFTARAN : SPAN/BP/300-10/553/A/W-1

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

Certificate No : PSA2-25778  
 Date : 21/12/2020

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

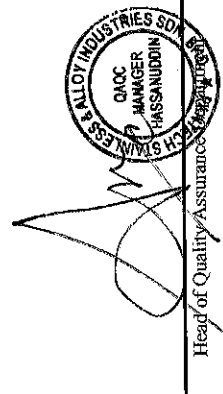
PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification										Delivery Condition					
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	Grade	Quantity (Length)	Eddy Current	Flattening	Inter-Granular Corrosion Test	Hydrostatic Test Pressure / Hold	Result	Dimensional / PMI/ Visual Inspection	Solution Treated, Pickled-Passivated, Plain Ends Square Cut								
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test			Tensile Test <sup>1</sup>		Hardness, HRB		Remarks								
JG097-10	10 inch Sch 10S x 6M	TP 304/304L	1	PASSED	PASSED	PASSED	YS	TS	E										
JG197-10	10 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	(%SI / MPa)	(%)											
JS177-10	10 inch Sch 10S x 6M	TP 304/304L	2	PASSED	PASSED	PASSED	205	515	35										
Specification	C	Si	Mn	P	S	Cr	Ni	Pb	Chemical Composition (%)		Remarks								
									0.035	1.00		2.00	0.045	0.030	20.00	11.00	-	-	90
									-	-		-	-	-	18.00	8.00	-	-	-
Max	0.024	0.43	1.19	0.025	0.001	18.17	8.04	< 0.01	336	646	55	78							
Min	0.018	0.47	1.13	0.027	0.002	18.18	8.01	< 0.01	334	634	54	80							
Heat No.	0.014	0.46	1.03	0.034	0.002	18.03	8.00	< 0.01	352	678	59	80							

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 1030°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 E296-98 (Reapproved 2003)<sup>2</sup> REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.9.4, PROCEDURE ACC. TO CLAUSE 22.3.9)



Head of Quality Assurance



# 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 12B, 81700 PASIR GUDANG  
JOHOR DARUL TAKZIM, MALAYSIA  
Tel: +607-2511888 Fax: +607-2519999 E-mail: info@pantechalloy.com  
http://www.pantech-group.com



Cert. No.: PC004871



Certified to NSF/ANSI 61



Cert. No.: ISO9001-0047465



Suruhanjaya Perindustrian Air Negeri  
NO. SUHL.PENDAFATARAN: SPAN/BB/300-10/553/AW-1

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

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

Certificate No : PSA2-25776  
Date : 21/12/2020

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-04 & B36.10M-04	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	PASSED	Pressure / Hold	Result		2100 PSI, 5s	PASSED	2100 PSI, 5s	PASSED																																																																															
JG098-10	3 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	PASSED	2100 PSI, 5s	PASSED	GOOD																																																																																			
JG146-10	3 inch Sch 10S x 6M	TP 304/304L	28	PASSED	PASSED	PASSED	PASSED	2100 PSI, 5s	PASSED	GOOD																																																																																			
<table border="1"> <thead> <tr> <th rowspan="2">Specification</th> <th colspan="10">Chemical Composition (%)</th> <th rowspan="2">Tensile Test<sup>1</sup></th> <th rowspan="2">Hardness, HRB</th> <th rowspan="2">Remarks</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> <td>-</td> <td>90</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>-</td> <td>-</td> <td>-</td> <td></td> </tr> <tr> <td>Heat No.</td> <td>JG098-10</td> <td>0.41</td> <td>1.13</td> <td>0.030</td> <td>0.002</td> <td>18.08</td> <td>8.03</td> <td>&lt; 0.01</td> <td>205</td> <td>515</td> <td>35</td> <td>81</td> <td></td> </tr> <tr> <td></td> <td>JG146-10</td> <td>0.41</td> <td>1.14</td> <td>0.027</td> <td>0.002</td> <td>18.25</td> <td>8.03</td> <td>&lt; 0.01</td> <td>330</td> <td>622</td> <td>48</td> <td>83</td> <td></td> </tr> </tbody> </table>											Specification	Chemical Composition (%)										Tensile Test <sup>1</sup>	Hardness, HRB	Remarks	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	-	-	-	-	-	90		Min	-	-	-	-	-	18.00	8.00	-	-	-	-	-	-		Heat No.	JG098-10	0.41	1.13	0.030	0.002	18.08	8.03	< 0.01	205	515	35	81			JG146-10	0.41	1.14	0.027	0.002	18.25	8.03	< 0.01	330	622	48	83	
Specification	Chemical Composition (%)											Tensile Test <sup>1</sup>	Hardness, HRB	Remarks																																																																															
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Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	-	-	-	-	90																																																																																
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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

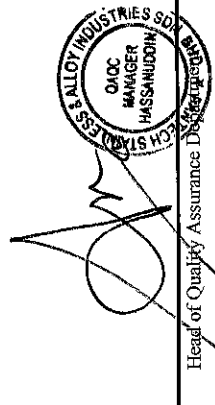
HEAT TREATMENT: SOLUTION TREATED AT MINIMUM 1050°C, RAPIDLY COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL'S HEAT ANALYSIS

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

\*2: NH: Not Hydrostatically Tested

EDDY CURRENT ACCORDING TO ASTM E456-98 (Reapproved 2003) 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 12B, 81700 PASIR GUDANG  
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Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechsteel.com  
http://www.pantech-group.com



MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 2014/68/EU ANNEX 1, PARA 4.3.  
PED CERTIFICATE NO.: 0038/PED/MUM/1110066/1

Certificate No : PSA2-25775  
Date : 21/12/2020

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

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification										Delivery Condition	
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	Grade	Quantity (Length)	Eddy Current	Flattening	Inter-Granular Corrosion Test	Hydrostatic Test Pressure / Hold	Result	Visual Inspection	Solution Treated, Pickled-Passivated, Plain Ends Square Cut				
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test										Dimensional / PMI/	
JE051-10	3/4 inch Sch 10S x 6M	TP 304/304L	47	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	
JS001-18	3/4 inch Sch 10S x 6M	TP 304/304L	1	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	
JS074-10	3/4 inch Sch 10S x 6M	TP 304/304L	69	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	
JS171-18	3/4 inch Sch 10S x 6M	TP 304/304L	57	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD	
Specification		Chemical Composition (%)												Remarks	
C		Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>						Hardness, HRB	
0.035		2.00	0.045	0.030	20.00	11.00	-	YS	TS	E	90				
-		-	-	-	18.00	8.00	-	205	515	35					
0.015		0.90	0.035	0.008	18.24	8.06	< 0.01	345	613	54					
0.018		1.04	0.032	0.001	18.10	8.02	< 0.01	363	689	53					
0.018		1.04	0.032	0.001	18.10	8.02	< 0.01	313	580	47					
0.022		1.09	0.028	0.001	18.02	8.03	< 0.01	352	670	50					

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 PPE. 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 E476-98 (Reapproved 2003)\* E: REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 2.2.3.8.4, PROCEDURE ACC. TO CLAUSE 2.2.3.9)

Signature of QAQC Manager HASSANUDDIN  
Head of Quality Assurance



# 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 E-mail: info@pantechalloy.com  
 http://www.pantech-group.com



SIRM  
 Cert. No.: PC004871



Certified to  
 NSF/ANSI 61



Cert. No.: ISO9001-  
 0047465



NO. SHIL PENDAFTARAN: SPAN/BPI/300-10/553/A/W-1

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

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

Certificate No : PSA2-25774  
 Date : 21/12/2020

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-04 & B36.10M-04	Solution Treated, Pickled-Passivated, Plain Ends Square Cut	Hydrostatic Test	Dimensional /PMI/ Visual Inspection				
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test		Inter-Granular Corrosion Test	Pressure / Hold	Result	GOOD		
JG162-10	5 inch Sch 10S x 6M	TP 304/304L	10	Eddy Current	Flattening	PASSED	1500 PSI, 5s	PASSED			
Chemical Composition (%)											
Specification	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>	Hardness, HRB	Remarks
	Max	1.00	2.00	0.045	0.030	20.00	11.00	-			
Min	-	-	-	-	-	18.00	8.00	-	-	-	-
Heat No.	0.018	0.41	1.12	0.026	0.002	18.08	8.01	< 0.01	205	515	35
JG162-10									335	632	43

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 1056°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 Hydroscintically Tested

EDDY CURRENT ACCORDING TO ASTM E466-98 (Reapproved 2003)<sup>4</sup> REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3 & 4. PROCEDURE ACC. TO CLAUSE 22.3.9)

*(Signature)*  
 OACC MANAGER  
 HASSANUDDIN  
 PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD.

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)

KAWASAR PERINDUSTRIAN PASIR GUDANG, ZON 12B, 81700 PASIR GUDANG  
JOHOR DARUL TAKZIM, MALAYSIA  
Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechsteel.com  
http://www.pantech-group.com



Cert. No.: IS09001-0047465

MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 2014/09/EU, ANNEX 1, PARA 4.3.  
PED CERTIFICATE NO.: 0038/PED/MUM/1110006/1



INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

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

Certificate No : PSA2-25773  
Date : 21/12/2020

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification				Delivery Condition																																																																																			
		Size	Grade	Quantity (Length)	Eddy Current	Flattening	Inter-Granular Corrosion Test	Pressure / Hold	Result	Remarks																																																																																	
APO-2012-0081	L000010913	14 inch Sch 10S x 6M	TP 304/304L	1	PASSED	PASSED	PASSED	NH	-	GOOD																																																																																	
		14 inch Sch 10S x 6M	TP 304/304L	1	PASSED	PASSED	PASSED	NH	-	GOOD																																																																																	
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19		ASTM A999/A999M - 18/ ASME SA999/SA999M - 19 B 36.19M-04 & B36.10M-04				Solution Treated, Pickled-Passivated, Plain Ends Square Cut																																																																																			
<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 colspan="2">Tensile Test<sup>1</sup></th> <th rowspan="2">Hardness, HRB</th> </tr> <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>YS</td> <td>TS</td> <td>E (%)</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>-</td> </tr> <tr> <td>Heat No.</td> <td>0.024</td> <td>0.39</td> <td>1.16</td> <td>0.029</td> <td>0.001</td> <td>18.17</td> <td>8.04</td> <td>&lt; 0.01</td> <td>205</td> <td>515</td> <td>35</td> </tr> <tr> <td>JG013-10</td> <td>0.018</td> <td>0.45</td> <td>1.04</td> <td>0.030</td> <td>0.001</td> <td>18.11</td> <td>8.01</td> <td>&lt; 0.01</td> <td>343</td> <td>641</td> <td>54</td> </tr> <tr> <td>JS132-10</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>334</td> <td>638</td> <td>58</td> </tr> </thead> </table>										Specification	Chemical Composition (%)										C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>		Hardness, HRB	Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS	TS	E (%)	Min	-	-	-	-	-	18.00	8.00	-	-	-	-	Heat No.	0.024	0.39	1.16	0.029	0.001	18.17	8.04	< 0.01	205	515	35	JG013-10	0.018	0.45	1.04	0.030	0.001	18.11	8.01	< 0.01	343	641	54	JS132-10									334	638	58
Specification	Chemical Composition (%)																																																																																										
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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-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: NH: Not Hydrostatically Tested

EDDY CURRENT ACCORDING TO ASTM E426-99 (Reapproved 2003)<sup>1</sup> REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.3.4, PROCEDURE ACC. TO CLAUSE 22.3.9)

Signature of QAQC Manager  
QAQC MANAGER  
KATECH ENGINEERING & ALLOY INDUSTRIES SDN. BHD.  
KASSANUDDIN  
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 12B, 81700 PASIR GUDANG  
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Tel: +607-2519888 Fax: +607-2519999 E-mail: info@pantechssalloy.com  
http://www.pantech-group.com



Cert. No.: PC004871



Certified to NSF/ANSI 61



Cert. No.: ISO9001-0047465



SURUTANJAYA, POKERANJAYA, AIR NEGARA  
NO. SHIL PENDAFTARAN: SPAN/BI/300-10/553/AW-1

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

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

Certificate No : PSA2-25771  
Date : 21/12/2020

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 A998/A998M - 18 / ASME SA998/SA998M - 19	B 36.19M-04 & B36.10M-04	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		Pressure / Hold	Result																																																																		
JS177-10	10 inch Sch 10S x 6M	TP 304/304L	4	PASSED	PASSED	PASSED	NH	-	GOOD																																																																	
<table border="1"> <thead> <tr> <th rowspan="2">Specification</th> <th colspan="8">Chemical Composition (%)</th> <th rowspan="2">Tensile Test<sup>1</sup></th> <th rowspan="2">Hardness, HRB</th> <th rowspan="2">Remarks</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> <td>90</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>205</td> <td>515</td> <td>35</td> <td>-</td> <td></td> </tr> <tr> <td>Heat No. JS177-10</td> <td>0.014</td> <td>0.46</td> <td>1.03</td> <td>0.034</td> <td>0.002</td> <td>18.03</td> <td>8.00</td> <td>&lt; 0.01</td> <td>352</td> <td>678</td> <td>59</td> <td>80</td> <td></td> </tr> </tbody> </table>										Specification	Chemical Composition (%)								Tensile Test <sup>1</sup>	Hardness, HRB	Remarks	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	-	-	-	-	90		Min	-	-	-	-	-	18.00	8.00	-	205	515	35	-		Heat No. JS177-10	0.014	0.46	1.03	0.034	0.002	18.03	8.00	< 0.01	352	678	59	80	
Specification	Chemical Composition (%)								Tensile Test <sup>1</sup>		Hardness, HRB	Remarks																																																														
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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 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 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

\*2: NH: Not Hydrostatically Tested

EDDY CURRENT ACCORDING TO ASTM E426-98 (Reapproved 2003)<sup>1</sup> REQUIREMENTS (REFERENCE TO ASTM A998/A998M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.8.4, PROCEDURE ACC. TO CLAUSE 22.3.9)

DACC MANAGER  
HASSANUDDIN  
TECH STAINLESS & ALLOY INDUSTRIES SDN. BHD.  
Head of Quality Assurance Department



# MILL TEST CERTIFICATE

**PANTECH STAINLESS & ALLOY INDUSTRIES SDN. BHD. (733428W)**  
 1A MEMBER OF PANTECH GROUP HOLDINGS BERHAD, LISTED ON MAIN MARKET OF BURSA MALAYSIA (A)

FD 204934 - JALAN PLATANUM UTAMA,  
 EKAWASAN PERINDUSTRIAN PASIR GUDANG ZON 12B, 81700 PASIR GUDANG  
 JOHOR DARUL TAKZIM, MALAYSIA  
 Tel: +607-2519888 Fax: +607-2519999 E-mail: info@pantechgroup.com  
 http://www.pantech-group.com



SIRIM  
 Cert. No.: PC004871



Certified to  
 NSF/ANSI 61



Cert. No.: ISO9001-0047465



Suruhanjaya Perkhidmatan Air Bersih  
 NO. SUKIL PENDAFTARAN : SPAN/87/300-10/553/AW-1

MATERIAL MANUFACTURER APPROVAL ACCORDING TO  
 PED 2014/68/EU ANNEX 1, PAR 4.3.  
 PED CERTIFICATE NO. :  
 0036/PED/MUM/1110066/1

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

Certificate No : PSA2-28840  
 Date : 31/12/2020

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-04 & B36.10M-04	Solution Treated, Pickled-Passivated, Plain Ends Square Cut	Pressure / Hold	Result	Dimensional / PMI/ Visual Inspection		
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test			Hydrostatic Test		Remarks	
				Eddy Current	Flattening	Inter-Granular Corrosion Test	Pressure / Hold	Result		
JG107-10	10 inch Sch 10S x 6M	TP 304/304L	4	PASSED	PASSED	PASSED	NH	-	GOOD	
JG197-10	10 inch Sch 10S x 6M	TP 304/304L	4	PASSED	PASSED	PASSED	NH	-	GOOD	
JS177-10	10 inch Sch 10S x 6M	TP 304/304L	4	PASSED	PASSED	PASSED	NH	-	GOOD	
Chemical Composition (%)										
Specification	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>	
									YS - (KSI / MPa)	E (%)
Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	-	90
Min	-	-	-	-	-	18.00	8.00	-	-	-
Heat No.	0.024	0.50	1.15	0.028	0.001	18.10	8.04	< 0.01	205	515
JG107-10	0.018	0.47	1.13	0.027	0.002	18.18	8.01	< 0.01	350	671
JG197-10	0.014	0.46	1.03	0.034	0.002	18.03	8.00	< 0.01	334	634
JS177-10									352	678

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 HACE-M80175-2013 / ISO 15156-2015 & HACE-M80105-2015

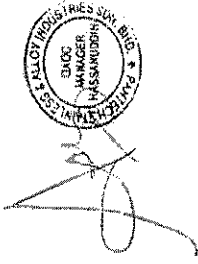
HEAT TREATMENT: SOLUTION TREATED AT MINIMUM 1050°C, RAPIDLY COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIALS HEAT ANALYSIS

\*1. YS: YIELD STRENGTH E: ELONGATION

\*2. NE: Not Heat Treated

REQUIREMENTS REFERENCE TO ASTM E56-99 (Reapproved 2003)<sup>1</sup> REQUIREMENTS REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS DISCONTINUITY ACC. TO CLAUSE 72.3.4. PROCEDURE ACC. TO CLAUSE 72.3.9



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 204634, JALAN PLATINUM UTAMA,  
KAWASAN PERINDUSTRIAN PASIR GUDANG, ZON 12B, 81700 PASIR GUDANG  
JOHOR DARUL TAKZIM, MALAYSIA  
Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechalloy.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



Cert. No.: ISO9001-0047465

MATERIAL MANUFACTURER APPROVAL ACCORDING TO  
PED 2034/68/EU, ANNEX 1, PARA 4.3.  
PED CERTIFICATE NO.:  
0038/PED/MUM/1110006/1



# SPAN

SIRIM  
Cert. No.: PP087201  
NO. SUIL PENDAFTARAN : SPAN/KP/A/00883-2011

Certificate No : PSA2-25716  
Date : 14/12/2020

PO No.	Invoice No.	Product Specification	Dimensional & Inspection Specification	Delivery Condition									
APO-2008-0164	L000010860	ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A999/A999M - 18/ ASME SA999/SA999M - 19 B 36. 19M-04 & B36. 10M-04	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						
JB073-10	3 inch Sch 10S x 6M	TP 304/304L	1	Eddy Current PASSED	PASSED	Pressure / Hold 2100 PSI, 5s PASSED	GOOD						
JG084-10	3 inch Sch 10S x 6M	TP 304/304L	19	PASSED	PASSED	2100 PSI, 5s PASSED	GOOD						
Chemical Composition (%)													
Specification	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	-	-	-	-	-	
Heat No.	0.021	0.35	1.17	0.027	0.001	18.10	8.10	< 0.01	205	515	35	-	
JB073-10	0.024	0.42	1.14	0.025	0.001	18.20	8.03	< 0.01	340	609	50	81	
JG084-10									356	635	47	84	

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 12" (60mm)

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 A362-10 PRACTICE F

HARDNESS ACCORDING TO NACE-MR01-75-2015 / 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

\*2: NR: Not Mechanically Tested

REQUIREMENTS (REFERENCE TO ASTM E245-98 (Reapproved 2003)) 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)  
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 KAWASAN PERINDUSTRIAN PASIR GUDANG, ZON 12B, 81700 PASIR GUDANG  
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 http://www.pantech-group.com



SURUJAYA PERKHIDMATAN AIR NEGERI  
 NO. SUJIL PENDAFTARAN : SPAN/KP/A/00883-2011



SIRIM  
 Cert. No.: PPO37201



Cert. No.: ISO9001-0047465

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

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

Certificate No : PSA2-25696  
 Date : 14/12/2020

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-04 & B36.10M-04					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	Remarks			
				Eddy Current	Flattening	PASSED		Pressure / Hold	Result					
JE052-10	12 inch Sch 10S x 6M	TP 304/304L	6	PASSED	PASSED	PASSED	PASSED	NH	-	GOOD				
JE053-10	12 inch Sch 10S x 6M	TP 304/304L	8	PASSED	PASSED	PASSED	PASSED	NH	-	GOOD				
JS075-10	12 inch Sch 10S x 6M	TP 304/304L	1	PASSED	PASSED	PASSED	PASSED	NH	-	GOOD				
<b>Chemical Composition (%)</b>														
Specification Max Min Heat No.	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>			Hardness, HRB		
	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS - (ksi / MPa)	TS	E (%)			
JE052-10	0.020	0.43	1.42	0.030	0.002	18.00	8.00	-	205	515	35	90		
JE053-10	0.025	0.47	1.43	0.027	0.001	18.00	8.02	< 0.01	334	634	55	80		
JS075-10	0.021	0.43	0.99	0.033	0.002	18.20	8.03	< 0.01	335	627	51	81		
									338	643	52	79		

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 12" (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: SUIF TENS 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. NH, Not Hydrostatically Tested

REQUIREMENTS, REFERENCE TO ASTM E246-98 (Reapproved 2003)<sup>1</sup> REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.3.4, PRODUCE ACC. TO CLAUSE 22.3.9

Signature of Head of Quality Assurance Department  
 OACC MANAGER HASSANUDIN  
 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: +607-2519888 Fax: +607-2519999 E-mail: info@pantechsteel.com  
 http://www.pantech-group.com



SURUJAYA PERKHIDMATAN AIR NEGARA  
 NO. SUJIL PENDAFTARAN : SPAN/KP/A/000883-2011

Cert. No.: ISO9001-0047465  
 MATERIAL MANUFACTURER APPROVAL ACCORDING TO  
 PED 2014/68/EU, ANNEX 1, PARA 4.3.  
 PED CERTIFICATE NO.:  
 0038/PED/MUM/1110006/1

Certificate No : PSA2-25694  
 Date : 14/12/2020

SIRIM  
 Cert. No.: PP087201

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

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

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification				Delivery Condition						
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	Grade	Quantity (Length)	Eddy Current	Flattening	Inter-Granular Corrosion Test	Hydrostatic Test Pressure / Hold	Result	Solution Treated, Pickled-Passivated, Plain Ends Square Cut				
APO-2009-0086	L000010841													
Heat No.	Size	Grade	Quantity (Length)	Eddy Current	Flattening	Inter-Granular Corrosion Test	Hydrostatic Test Pressure / Hold	Result	Dimensional/PMI/ Visual Inspection					
JG102-10	14 inch Sch 10S x 6M	TP 304/304L	2	PASSED	PASSED	PASSED	NH	-	GOOD					
JG108-10	14 inch Sch 10S x 6M	TP 304/304L	4	PASSED	PASSED	PASSED	NH	-	GOOD					
JG111-10	14 inch Sch 10S x 6M	TP 304/304L	2	PASSED	PASSED	PASSED	NH	-	GOOD					
JS132-10	14 inch Sch 10S x 6M	TP 304/304L	2	PASSED	PASSED	PASSED	NH	-	GOOD					
<b>Chemical Composition (%)</b>														
Specification	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>			Hardness, HRB	Remarks	
Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS (ksi / MPa)	TS	E (%)			
Min	-	-	-	-	-	18.00	8.00	-	-	-	-	-	90	
Heat No.									205	515	35			
JG102-10	0.027	0.42	1.20	0.028	0.001	18.24	8.03	< 0.01	331	619	49		81	
JG108-10	0.024	0.50	1.15	0.028	0.001	18.10	8.04	< 0.01	334	638	58		82	
JG111-10	0.026	0.50	1.14	0.029	0.001	18.25	8.01	< 0.01	368	678	57		78	
JS132-10	0.018	0.45	1.04	0.030	0.001	18.11	8.01	< 0.01	334	638	58		84	

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 19.25MM FOR 1" ABOVE, 1" INCLUDE AND BELOW DIRECT TEST FROM PIPE. LONGITUDINAL DIRECTION, GAUGE LENGTH 12" (304mm)

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 TREAT ANALYSIS

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

EDDY CURRENT ACCORDING TO ASTM 926-98 (Reapproved 2003)\*2: REQUIREMENTS (REFERENCE TO ASTM A999/A999M-15)

\*2: NH: Not Hydrostatically Tested

REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.8.4. PROCEDURE ACC. TO CLAUSE 25.3.9)

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 PASTIR-GUDANG, ZON 12B, 81700 PASTIR GUDANG  
PTD 204334, JALAN PLATINUM UTAMA,  
JOHOR DARUL TAKZIM, MALAYSIA  
Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechalloy.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



# SPAN

Suruhanjaya Perkhidmatan Air Negara  
NO. SUIJ PENDAFTARAN : SPAN/KP/A/00883-2011

Cert. No.: ISO9001-0047465

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

Certificate No : PSA2-256693  
Date : 14/12/2020

SIRIM  
Cert. No.: PP087201

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-04 & B36.10M-04	Solution Treated, Pickled-Passivated, Plain Ends Square Cut	Hydrostatic Test Pressure / Hold	Result	Dimensional / PMI/ Visual Inspection																																																																																																																									
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test		Inter-Granular Corrosion Test	Pressure / Hold	Result <td>Dimensional / PMI/ Visual Inspection</td>	Dimensional / PMI/ Visual Inspection																																																																																																																								
JG084-10	3 inch Sch 10S x 6M	TP 304/304L	19	Eddy Current	Flattening	PASSED	2100 PSI, 5s	PASSED	GOOD																																																																																																																								
JG146-10	3 inch Sch 10S x 6M	TP 304/304L	57	PASSED	PASSED	PASSED	2100 PSI, 5s	PASSED	GOOD																																																																																																																								
JG082-10	4 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD																																																																																																																								
JG084-10	4 inch Sch 10S x 6M	TP 304/304L	40	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD																																																																																																																								
JGA119-01112	4 inch Sch 10S x 6M	TP 304/304L	10	PASSED	PASSED	PASSED	1600 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 colspan="2">Tensile Test<sup>1</sup></th> <th rowspan="2">Hardness, HRB</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Max</th> <th>0.035</th> <th>1.00</th> <th>2.00</th> <th>0.045</th> <th>0.030</th> <th>20.00</th> <th>11.00</th> <th>-</th> <th>YS ksi / MPa</th> <th>TS ksi / MPa</th> <th>E (%)</th> <th></th> </tr> </thead> <tbody> <tr> <td>Heat No.</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>18.00</td> <td>8.00</td> <td>-</td> <td>205</td> <td>515</td> <td>35</td> <td>90</td> <td></td> </tr> <tr> <td>JG084-10</td> <td>0.024</td> <td>0.42</td> <td>1.14</td> <td>0.025</td> <td>0.001</td> <td>18.20</td> <td>8.03</td> <td>&lt; 0.01</td> <td>356</td> <td>635</td> <td>47</td> <td>84</td> <td></td> </tr> <tr> <td>JG146-10</td> <td>0.021</td> <td>0.41</td> <td>1.14</td> <td>0.027</td> <td>0.002</td> <td>18.25</td> <td>8.03</td> <td>&lt; 0.01</td> <td>352</td> <td>655</td> <td>52</td> <td>83</td> <td></td> </tr> <tr> <td>JG082-10</td> <td>0.022</td> <td>0.41</td> <td>1.13</td> <td>0.028</td> <td>0.002</td> <td>18.18</td> <td>8.01</td> <td>&lt; 0.01</td> <td>383</td> <td>642</td> <td>51</td> <td>86</td> <td></td> </tr> <tr> <td>JG084-10</td> <td>0.024</td> <td>0.42</td> <td>1.14</td> <td>0.025</td> <td>0.001</td> <td>18.20</td> <td>8.03</td> <td>&lt; 0.01</td> <td>377</td> <td>648</td> <td>54</td> <td>81</td> <td></td> </tr> <tr> <td>JGA119-01112</td> <td>0.022</td> <td>0.39</td> <td>1.16</td> <td>0.027</td> <td>0.002</td> <td>18.30</td> <td>8.02</td> <td>&lt; 0.01</td> <td>357</td> <td>656</td> <td>56</td> <td>83</td> <td></td> </tr> </tbody> </table>										Specification	Chemical Composition (%)										C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>		Hardness, HRB	Remarks	Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS ksi / MPa	TS ksi / MPa	E (%)		Heat No.	-	-	-	-	-	18.00	8.00	-	205	515	35	90		JG084-10	0.024	0.42	1.14	0.025	0.001	18.20	8.03	< 0.01	356	635	47	84		JG146-10	0.021	0.41	1.14	0.027	0.002	18.25	8.03	< 0.01	352	655	52	83		JG082-10	0.022	0.41	1.13	0.028	0.002	18.18	8.01	< 0.01	383	642	51	86		JG084-10	0.024	0.42	1.14	0.025	0.001	18.20	8.03	< 0.01	377	648	54	81		JGA119-01112	0.022	0.39	1.16	0.027	0.002	18.30	8.02	< 0.01	357	656	56	83	
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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 NACH-HR0175-2013 / ISO 15156-2015 & NACE-MR0103-2015

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

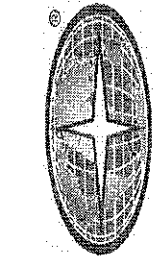
CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIALS DEAT ANALYSIS

\*1. YS: YIELD STRENGTH E: ELONGATION

\*2. NI: Not Hydrostatically Tested

EDDY CURRENT ACCORDING TO ASTM E426-98 (Reapproval 2003)<sup>41</sup> REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.8.4. PROCEDURE ACC. TO CLAUSE 22.3.9)

Signature of Head of Quality Assurance  
OAGC  
MANAGER  
HASANUDDIN



# 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 204354, JALAN PLATINUM UTAMA,  
 KAWASAN PERINDUSTRIAN PASIR GUDANG, ZON 12B, 31700 PASIR GUDANG  
 JOHOR DARUL TAKZIM, MALAYSIA  
 Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechsteel.com  
 http://www.pantech-group.com



MATERIAL MANUFACTURER APPROVAL ACCORDING TO  
 PED 2014/68/EU, ANNEX 1, PARA 4.3.  
 PED CERTIFICATE NO.:  
 0038/PED/MUM/1110096/1

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

Certificate No : PSA2-25995  
 Date : 29/01/2021

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

PO No.	Invoice No.	Product Specification	Dimensional & Inspection Specification	Delivery Condition									
APO-2012-0039	L000011135	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									
JG205-10	4 inch Sch 10S x 6M	TP 304/304L	33	Eddy Current PASSED Flattening PASSED Inter-Granular Corrosion Test PASSED Hydrostatic Test Pressure / Hold 1600 PSI, 5s PASSED Dimensional /PMI/ Visual Inspection GOOD									
Specification	Chemical Composition (%)												
Max	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>		Hardness, HRB	Remarks	
Min	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS	TS			E (%)
Heat No.	-	-	-	-	-	18.00	8.00	-	205	515			35
JG205-10	0.022	0.43	1.13	0.031	0.001	18.11	8.02	< 0.01	346	670			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 A 370 - 12a STANDARD, SPECIMEN GAUGE WIDTH 19.2MM FOR 1" ABOVE, 1" INCLUDE AND BELOW DIRECT TEST FROM PIPE. LONGITUDINAL DIRECTION, GAUGE LENGTH L7 (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

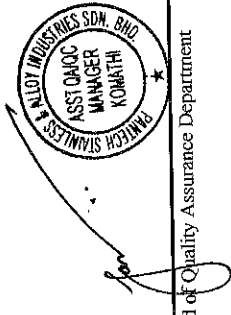
HEAT TREATMENT: SOLUTION TREATED AT MINIMUM 1050°C, RAPIDLY COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL'S HEAT ANALYSIS

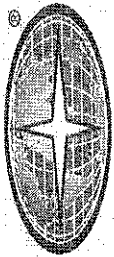
\*1: YS: YIELD STRENGTH TS: TENSILE STRENGTH E: ELONGATION

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



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 244334, JALAN PLATINUM UTAMA,  
JOHOR DARUL TAKZIM, MALAYSIA  
KAWASAN PERINDUSTRIAN PASIR GUDANG, ZON 12B, 81700 PASIR GUDANG  
Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechsteel.com  
http://www.pantech-group.com

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1



Cert. No.: PC004871



Certified to NSF/ANSI 61



Cert. No.: ISO9001-0047485



Suruhanjaya Perkhidmatan Air Negara  
NO. SUJIL PENDAFTARAN: SPAN/BP/300-10/553/A/W-1

MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 2014/68/EU, ANNEX 1, PARA 4.3.  
PED CERTIFICATE NO.: 0038/PED/MUM/1111006/1

Certificate No : PSA2-25994  
Date : 29/01/2021

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

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification										Delivery Condition		Remarks	
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A999/A999M - 18 / ASME SA999/SA999M - 19 B 36.19M- 2018 & B36.10M-2018	Non Destructive Test	Flattening	Inter-Granular Corrosion Test	Hydrostatic Test	Visual Inspection	Solution Treated, Pickled-Passivated, Plain Ends Square Cut	Pressure / Hold	Result	Dimensional /PMI/					
Heat No.	Size	Grade	Quantity (Length)	Eddy Current	Flattening	Inter-Granular Corrosion Test	Pressure / Hold	Result	Dimensional /PMI/	Solution Treated, Pickled-Passivated, Plain Ends Square Cut	Pressure / Hold	Result	Dimensional /PMI/	Visual Inspection	GOOD		
JG149-10	2 inch Sch 10S x 6M	TP 304/304L	4	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		2500 PSI, 5s	PASSED	GOOD	GOOD			
JS174-10	2 inch Sch 10S x 6M	TP 304/304L	178	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD		1600 PSI, 5s	PASSED	GOOD	GOOD			
JG144-10	4 inch Sch 10S x 6M	TP 304/304L	65	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD		1600 PSI, 5s	PASSED	GOOD	GOOD			
JG148-10	4 inch Sch 10S x 6M	TP 304/304L	1	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD		1600 PSI, 5s	PASSED	GOOD	GOOD			
JG151-10	4 inch Sch 10S x 6M	TP 304/304L	1	PASSED	PASSED	PASSED	1600 PSI, 5s	PASSED	GOOD		1600 PSI, 5s	PASSED	GOOD	GOOD			
Specification	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>							Hardness, HRB	Remarks
Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS (ksi / MPa)	TS	E (%)						
Min	-	-	-	-	-	18.00	8.00	-	205	515	35						
Heat No.	-	-	-	-	-	-	-	-	364	691	54						
JG149-10	0.023	0.44	1.13	0.028	0.002	18.05	8.02	< 0.01	347	651	49						
JS174-10	0.021	0.48	1.10	0.028	0.002	18.00	8.00	< 0.01	367	684	50						
JG144-10	0.019	0.43	1.15	0.028	0.002	18.19	8.03	< 0.01	345	658	54						
JG148-10	0.024	0.39	1.14	0.026	0.001	18.23	8.04	< 0.01	363	683	47						
JG151-10	0.022	0.41	1.13	0.028	0.002	18.18	8.01	< 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 Z' (50mm)

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

WELDED BY ELECTRIC FUSION WELDING 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

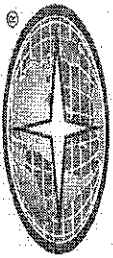
\*1: YS: YIELD STRENGTH TS: TENSILE STRENGTH E: ELONGATION

EDDY CURRENT ACCORDING TO ASTM E405-98 (Reapproval 2003)<sup>2</sup> REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.1.8.4, PROCEDURE ACC. TO CLAUSE 22.3.9)

\*2: NH: Not Hydrostatically Tested



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 I2B, 81700 PASIR GUDANG  
 JOHOR DARUL TAKZIM, MALAYSIA  
 Tel: +607-2518888 Fax: +607-2519999 E-mail: info@pantechsales.com  
 http://www.pantech-group.com



MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 201.4/68/EU, ANNEX 1, PARA 4.3.  
 PED CERTIFICATE NO.: 0038/PED/MUM/1110006/1

INSPECTION DOCUMENT: EN 10204, 2004, Type 3.1

Certificate No : PSA2-25993  
 Date : 29/01/2021

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

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	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	Pressure / Hold	Result	Dimensional / PMI/ Visual Inspection	Remarks			
JG089-10	2 inch Sch 10S x 6M	TP 304/304L	7	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	2500 PSI, 5s	PASSED	GOOD				
JG140-10	2 inch Sch 10S x 6M	TP 304/304L	37	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	2500 PSI, 5s	PASSED	GOOD				
JG141-10	2 inch Sch 10S x 6M	TP 304/304L	6	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	2500 PSI, 5s	PASSED	GOOD				
JG143-10	2 inch Sch 10S x 6M	TP 304/304L	20	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	2500 PSI, 5s	PASSED	GOOD				
JG147-10	2 inch Sch 10S x 6M	TP 304/304L	7	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	2500 PSI, 5s	PASSED	GOOD				
Chemical Composition (%)															
Specification	C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test <sup>1</sup>		Hardness, HRB				
Max	0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	YS	TS	E (%)	90			
Min	-	-	-	-	-	18.00	8.00	-	-	-	-	-			
Heat No.	-	-	-	-	-	-	-	-	205	515	35	-			
JG089-10	0.023	0.45	1.16	0.030	0.001	18.01	8.04	< 0.01	359	681	47	79			
JG140-10	0.022	0.43	1.15	0.028	0.001	18.17	8.02	< 0.01	364	678	49	82			
JG141-10	0.025	0.40	1.17	0.027	0.001	18.12	8.05	< 0.01	385	703	54	83			
JG143-10	0.019	0.43	1.15	0.028	0.002	18.19	8.03	< 0.01	352	639	53	83			
JG147-10	0.024	0.39	1.14	0.026	0.001	18.23	8.04	< 0.01	367	664	52	84			

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 12" (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 E566-98 (Reapproved 2003)<sup>47</sup> REQUIREMENTS (REFERENCE TO ASTM A999/A999M-12 REQUIREMENTS, DISCONTINUITY ACC. TO CLAUSE 22.3.9)

\*2: NRE: Not Hydrostatically Tested



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 E-mail: info@pantechalloy.com  
 http://www.pantech-group.com



Cert. No.: ISO9001-007465

MATERIAL MANUFACTURER APPROVAL ACCORDING TO PED 2024/68/EU, ANNEX 1, PARA 4.3.  
 PED CERTIFICATE NO.: 0038/PED/MUM/71110006/1



NO. SUIL PENDAFTARAN : SPAN/BI/300-10/553/A/W-1

INSPECTION DOCUMENT: EN 10204: 2004 Type 3.1

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

Certificate No : PSA2-25992  
 Date : 29/01/2021

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	Hydrostatic Test Pressure / Hold	Result	Dimensional / PMI / Visual Inspection	Remarks																																																																						
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JS075-10	12 inch Sch 10S x 6M	TP 304/304L	4	Eddy Current	Flattening	PASSED	PASSED	NH	-	GOOD																																																																					
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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 15136-2015 & 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 E426-98 (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)

\*2: NH: Not Hydrostatically Tested



Head of Quality Assurance Department