



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
 PTD 204334, JALAN PLATINUM UTAMA,
 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 MANUFACTURER APPROVAL ACCORDING TO
 PED 2014/68/EU, ANNEX 1, PARA 4.3.
 PED CERTIFICATE NO.:
 0038/PED/MUM/1110006/1

Certificate No : PSA3-11781
 Date : 11/05/2021

PO No.	Invoice No.	Product Specification	Dimensional & Inspection Specification	Delivery Condition										
APO-2104-0190	L000011562	ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A999/A999M - 18/ ASME SA999/SA999M - 19 B 36.19M-2018 & B36.10M-2018	Solution Treated, Pickled-Passivated, Plain Ends Square Cut										
Heat No.	Size	Grade	Quantity (Length)	Non Destructive Test	Inter-Granular Corrosion Test	Hydrostatic Test	Dimensional / PMI/ Visual Inspection							
HYA026-01113	3 inch Sch 40S x 6M	TP 316/316L	10	Eddy Current PASSED	Flattening PASSED	Pressure / Hold 2500 PSI, 5s	Result PASSED							
Chemical Composition (%)														
Specification														
Max	C	Si	Mn	P	S	Cr	Ni	Mo	Pb	Tensile Test ¹		Hardness, HRB	Remarks	
Min	0.035	1.00	2.00	0.045	0.030	18.00	14.00	3.00	-	YS MPa	TS MPa			E (%)
Heat No.	-	-	-	-	-	16.00	10.00	2.00	-	205	515			35
HYA026-01113	0.018	0.51	1.16	0.034	0.001	16.60	10.10	2.04	< 0.01	338	650			60

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" DIA VUL. 1" INCLUDING AND BELOW DIRECT TEST FROM PIPE. LONGITUDINAL DIRECTION. GAUGE LENGTH 2" (50mm)

NOTE: MADE IN MALAYSIA STEEL MAKING PROCESS AOD/VOOD WELDED BY ELECTRIC FUSION WELDING PROCESS WITH NO FILLER METAL

INTERGRANULAR CORROSION TEST ACCORDING TO ASTM A262-10 PRACTICE 1 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 IS TENSILE STRENGTH E ELONGATION * 2) NI Not Hydrostatically Tested

EDDY CURRENT ACCORDING TO ASTM E262-98 (Reapproved 2005) REQUIREMENTS (REFERENCE TO ASTM A999/A999M) 1.2 REQUIREMENTS, DISCONTINUITY ACC TO CLAUSE 2.2.3.8.4 PROCEDURE ACC TO CLAUSE 2.2.3.9)

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

Head of Quality Assurance Department



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 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



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

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 : PSA2-26425
 Date : 11/05/2021

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	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	Flattening		Eddy Current	Flattening	PASSED	PASSED	PASSED	PASSED	Pressure / Hold	Result	Result	Result	
KS039-10	3/4 inch Sch 10S x 6M	TP 304/304L	16		PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	PASSED	GOOD		
KS039-18	3/4 inch Sch 10S x 6M	TP 304/304L	22		PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	PASSED	GOOD		
KS047-10	3/4 inch Sch 10S x 6M	TP 304/304L	8		PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	PASSED	GOOD		
KG072-10	6 inch Sch 10S x 6M	TP 304/304L	15		PASSED	PASSED	PASSED	PASSED	PASSED	1300 PSI, 5s	PASSED	PASSED	GOOD		
KG077-10	6 inch Sch 10S x 6M	TP 304/304L	15		PASSED	PASSED	PASSED	PASSED	PASSED	1300 PSI, 5s	PASSED	PASSED	GOOD		
Chemical Composition (%)															
Specification		C	Si	Mn	P	S	Cr	Ni	Pb	Tensile Test ¹		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.		-	-	-	-	-	-	-	-	205	515	35	90		
KS039-10		0.014	0.45	0.90	0.027	0.002	18.06	8.00	< 0.01	357	672	66	87		
KS039-18		0.014	0.45	0.90	0.027	0.002	18.06	8.00	< 0.01	357	672	66	87		
KS047-10		0.018	0.48	1.03	0.025	0.001	18.10	8.02	< 0.01	342	657	67	80		
KG072-10		0.021	0.46	1.16	0.028	0.001	18.12	8.02	< 0.01	347	656	48	79		
KG077-10		0.025	0.42	1.16	0.026	0.001	18.15	8.01	< 0.01	347	656	48	77		

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

FENSILE 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" (30mm)

NOTE: 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
 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: TENSILE STRENGTH TS: TENSILE STRENGTH E: ELONGATION
 *2. NI: Not Hydrostatically Tested
 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 INDUSTRIES SDN. BHD.

Head of Quality Assurance Department



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 http://www.pantech-group.com



SIRIM
 Cert. No.: PC004871



NO. SUIH PENDAFTARAN: SPAN/BP/300-10/553/A/W-1



Certified to
 NSF/ANSI 61



Cert. No.: IS09001-0047465

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 : PSA2-26426
 Date : 11/05/2021

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	Quantity (Length)	Eddy Current	Flattening	Inter-Granular Corrosion Test	Pressure / Hold	Result	Solution Treated, Pickled-Passivated, Plain Ends Square Cut																																																																	
Heat No. KG074-10	Size 8 inch Sch 10S x 6M	Grade TP 304/304L	Quantity (Length) 30	PASSED	PASSED	PASSED	PASSED	1100 PSI, 5s	PASSED	Dimensional / PMI/ Visual Inspection GOOD																																																																	
<table border="1"> <thead> <tr> <th rowspan="2">Specification</th> <th colspan="7">Chemical Composition (%)</th> <th colspan="2">Tensile Test¹</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>-</td> <td>205</td> <td>515</td> <td>35</td> <td></td> </tr> <tr> <td>Heat No. KG074-10</td> <td>0.021</td> <td>0.39</td> <td>1.20</td> <td>0.027</td> <td>0.002</td> <td>18.15</td> <td>8.02</td> <td>< 0.01</td> <td>342</td> <td>651</td> <td>49</td> <td>79</td> <td></td> </tr> </tbody> </table>											Specification	Chemical Composition (%)							Tensile Test ¹		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. KG074-10	0.021	0.39	1.20	0.027	0.002	18.15	8.02	< 0.01	342	651	49	79	
Specification	Chemical Composition (%)							Tensile Test ¹		Hardness, HRB		Remarks																																																															
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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 12" (30mm)

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 NA 1-MH0175-2015/ISO 15156-2015 & NA 1-MH0105-2015

HEAT TREATMENT SOLUTIONS TREATED AT MINIMUM 1050°C RAMPED & COOLED WITH WATER

CHEMICAL COMPOSITION CAPTURED FROM RAW MATERIAL SHEET ANALYSIS

*1 YS: YIELD STRENGTH E: ELONGATION

*2 NI: Not Individually Tested

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)

[Signature]
 QAQC
 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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http://www.pantech-group.com



SIRIM
Cert. No.: PC004871



NO. SIJIL PENDAFTARAN : SPAN/BP/300-10/553/A/W-1



Certified to
NSF/ANSI 61

MATERIAL MANUFACTURER APPROVAL ACCORDING TO
PED 2014/68/EU, ANNEX 1, PARA 4.3.
PED CERTIFICATE NO.:
00388/PED/MUM/1110006/1

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

Certificate No : PSA2-26427
Date : 11/05/2021

INSPECTION DOCUMENT EN 10204 - 2004 Type 3.1

PO No.	Invoice No.	Product Specification		Dimensional & Inspection Specification						Delivery Condition			
		ASTM A312/A312M - 19 / ASME SA312/SA312M - 19	ASTM A999/A999M - 18 / ASME SA999/SA999M - 19	Non Destructive Test		Inter-Granular Corrosion Test		Hydrostatic Test		Solution Treated, Pickled-Passivated, Plain Ends Square Cut			
Heat No.	Size	Grade	Quantity (Length)	Eddy Current	Flattening	PASSED	PASSED	PASSED	Pressure / Hold	Result	Dimensional / PMI/ Visual Inspection		
JG144-10	1 1/2 inch Sch 10S x 6M	TP 304/304L	53	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG013-10	1 1/2 inch Sch 10S x 6M	TP 304/304L	81	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG064-10	1 1/2 inch Sch 10S x 6M	TP 304/304L	66	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
KG060-10	2 inch Sch 10S x 6M	TP 304/304L	111	PASSED	PASSED	PASSED	PASSED	PASSED	2500 PSI, 5s	PASSED	GOOD		
Specification	Chemical Composition (%)												
	C	Si	Mn	P	S	Cr	Ni	Pb	YS (ksi / MPa)	TS	E (%)	Hardness, HRB	Remarks
0.035	1.00	2.00	0.045	0.030	20.00	11.00	-	-	-	-	90		
Heat No.	-	-	-	-	18.00	8.00	-	-	205	515	35	-	
JG144-10	0.019	0.43	1.15	0.028	0.002	18.19	8.03	< 0.01	432	692	44	80	
KG013-10	0.021	0.39	1.23	0.032	0.002	18.04	8.02	< 0.01	384	674	62	86	
KG064-10	0.019	0.41	1.12	0.027	0.002	18.12	8.03	< 0.01	383	669	45	83	
KG060-10	0.024	0.41	1.14	0.024	0.002	18.05	8.02	< 0.01	360	678	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 T ABOVE, T INCLUDE AND BELOW DIRECT TTS, FROM PIPE LONGITUDINAL DIRECTION, GAUGE LENGTH 2" (50mm)

NOTE: MADE IN MALAYSIA STEEL MAKING PRACTICES ADD'VD

WELDED BY ELECTRIC FUSION WELDING WITH PROCESS WITH FLOW OF HELIUM METAL

INTERGRANULAR CORROSION TEST ACCORDING TO ASTM A262-10 PRACTICE

HARDNESS ACCORDING TO ASTM E18 / ISO 15156:2015 & NACE MR0103:2015

HEAT TREATMENT SOLUTION HEATED 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 2003)*2 REQUIREMENTS REFERENCE TO ASTM A999/A999M 12 REQUIREMENTS, DISCONTINUITY ACC TO CLAUSE 22.18.4 PROCEDURE ACC TO CLAUSE 22.19.9

*2: Nil Halsteads/ft tested

Head of Quality Assurance Department