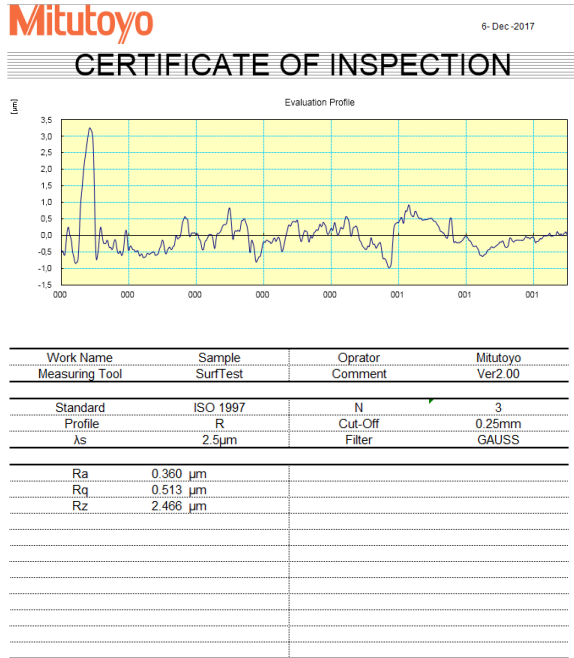


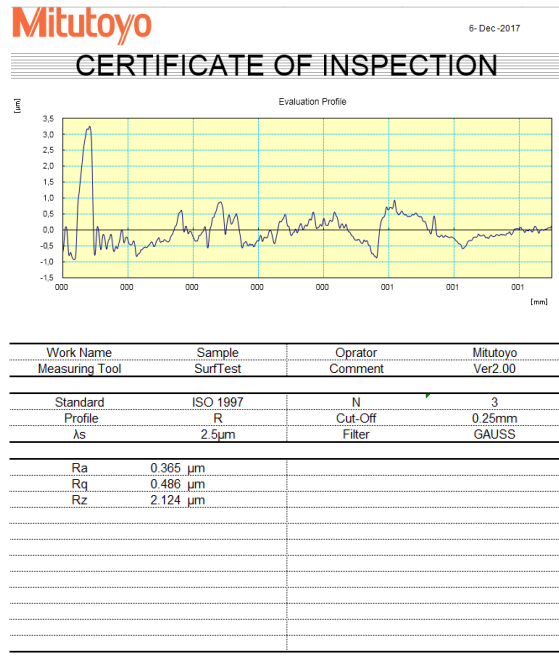
# LAMPIRAN

# Lampiran 1

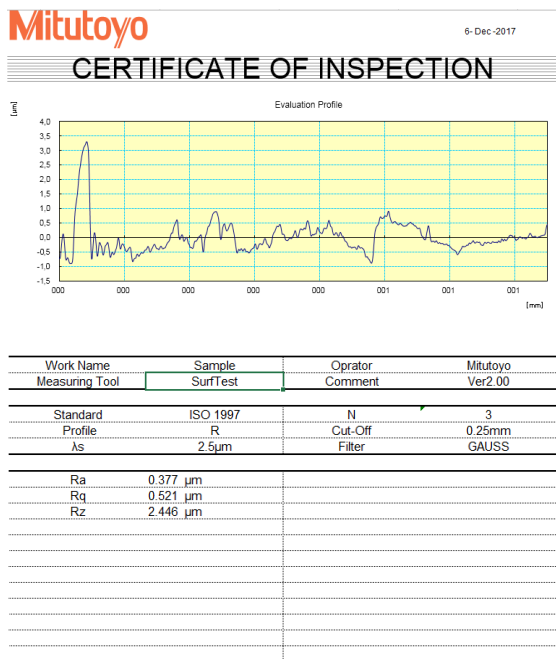
## Data Hasil Kekasaran Permukaan dengan *Depth Of Cut* 3 mm dan Rasio L/D pada Proses *Up Milling*



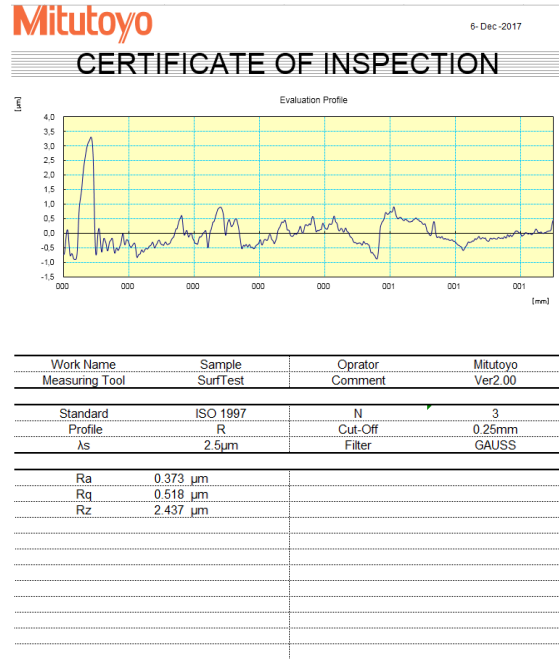
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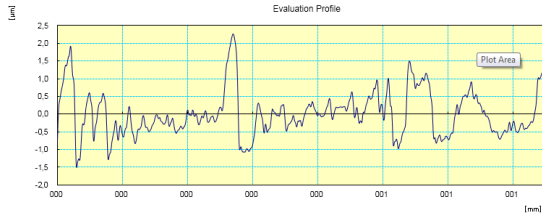


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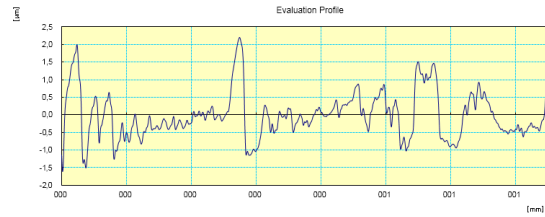
CERTIFICATE OF INSPECTION



Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
As	2.5µm	Filter	GAUSS
Ra	0.476 µm		
Rq	0.629 µm		
Rz	3.075 µm		

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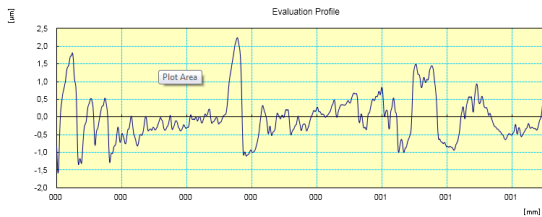
CERTIFICATE OF INSPECTION



Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
As	2.5µm	Filter	GAUSS
Ra	0.494 µm		
Rq	0.657 µm		
Rz	3.170 µm		

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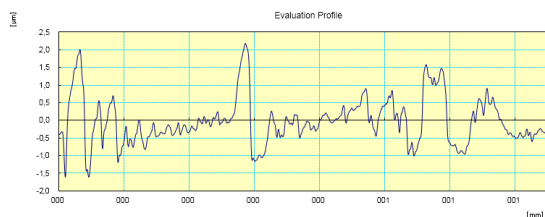
CERTIFICATE OF INSPECTION



Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
As	2.5µm	Filter	GAUSS
Ra	0.484 µm		
Rq	0.639 µm		
Rz	3.076 µm		

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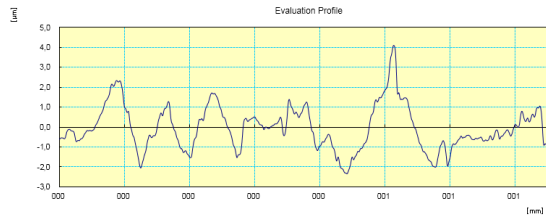
CERTIFICATE OF INSPECTION



Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
As	2.5µm	Filter	GAUSS
Ra	0.495 µm		
Rq	0.664 µm		
Rz	3.192 µm		

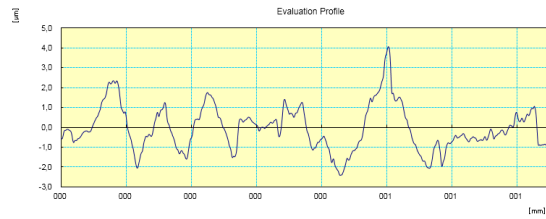
Copyright (C) 2013 Mitutoyo Corporation

CERTIFICATE OF INSPECTION



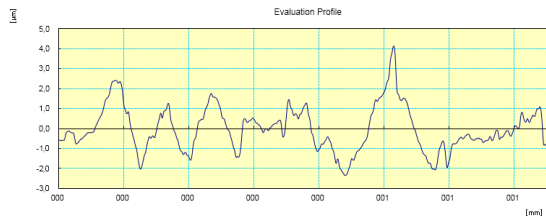
Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	0.881 µm		
Rq	1.109 µm		
Rz	4.890 µm		

CERTIFICATE OF INSPECTION



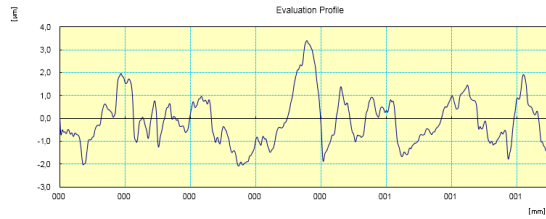
Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	0.889 µm		
Rq	1.120 µm		
Rz	5.564 µm		

CERTIFICATE OF INSPECTION



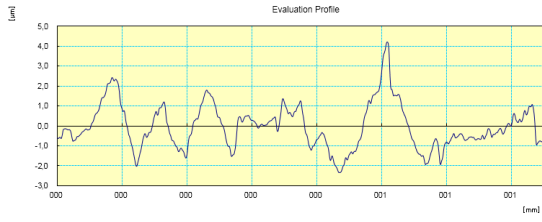
Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	0.888 µm		
Rq	1.119 µm		
Rz	4.944 µm		

CERTIFICATE OF INSPECTION



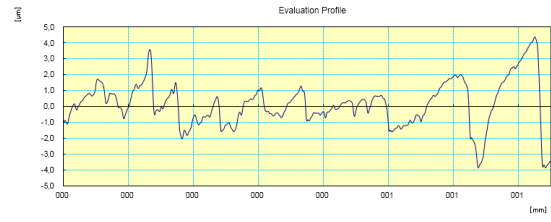
Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	0.891 µm		
Rq	1.062 µm		
Rz	4.403 µm		

CERTIFICATE OF INSPECTION



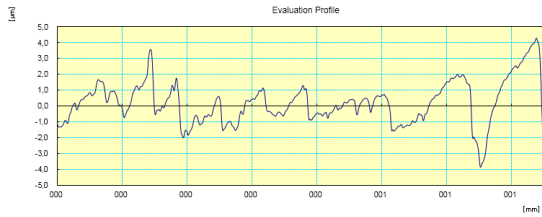
Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	0.894 µm		
Rq	1.129 µm		
Rz	5.239 µm		

CERTIFICATE OF INSPECTION



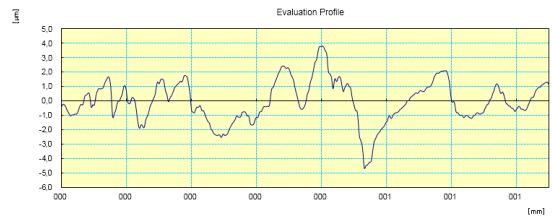
Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	1.082 µm		
Rq	1.297 µm		
Rz	5.595 µm		

CERTIFICATE OF INSPECTION



Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	1.031 µm		
Rq	1.241 µm		
Rz	5.513 µm		

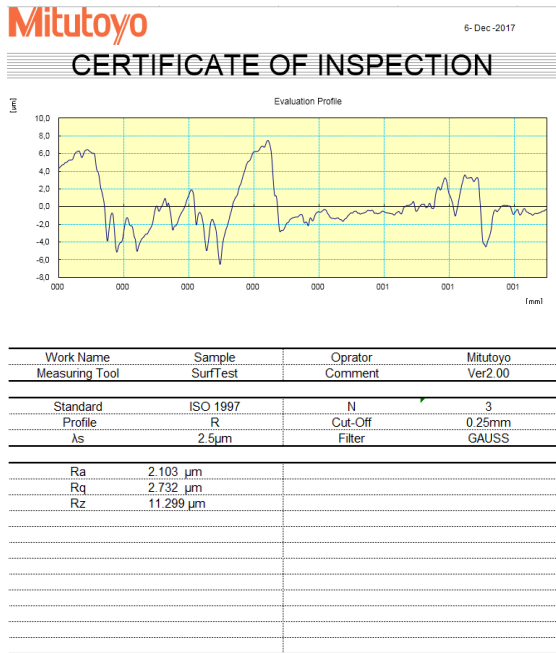
CERTIFICATE OF INSPECTION



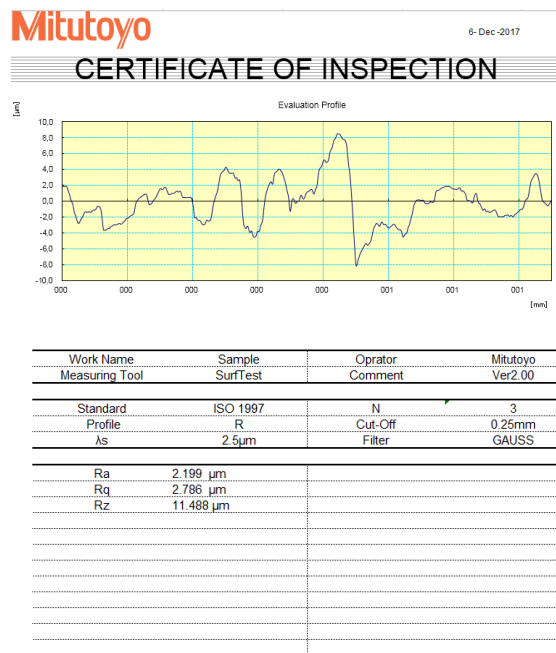
Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	1.149 µm		
Rq	1.373 µm		
Rz	5.468 µm		

## Lampiran 2

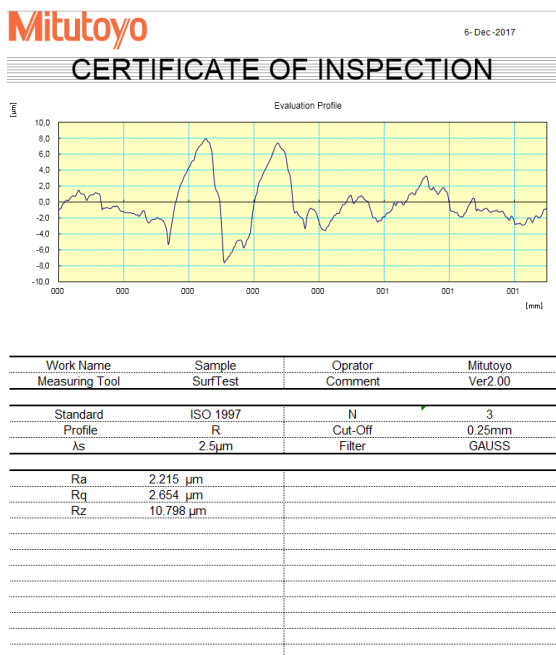
### Data Hasil Kekasaran Permukaan dengan *Depth Of Cut* 6 mm dan Rasio L/D pada Proses *Up Milling*



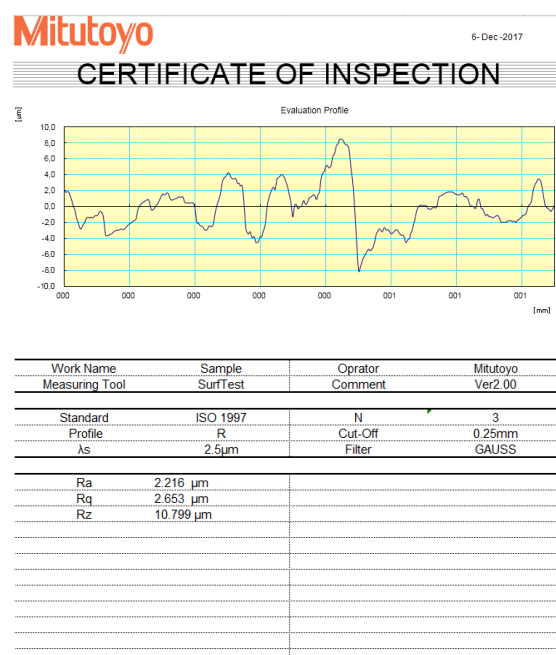
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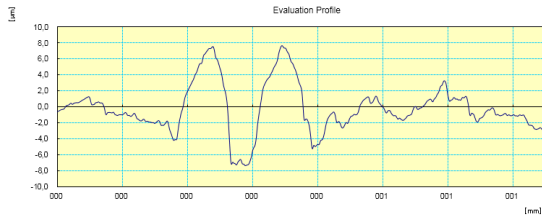


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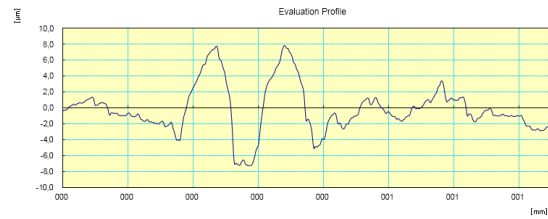
CERTIFICATE OF INSPECTION



Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	2.227 µm		
Rq	2.821 µm		
Rz	10.969 µm		

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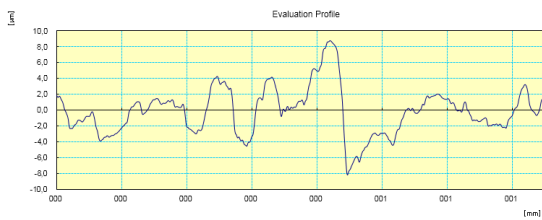
CERTIFICATE OF INSPECTION



Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	2.249 µm		
Rq	2.861 µm		
Rz	11.091 µm		

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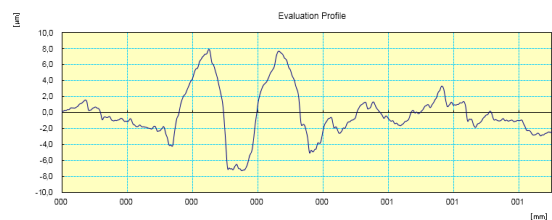
CERTIFICATE OF INSPECTION



Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	2.243 µm		
Rq	2.702 µm		
Rz	10.919 µm		

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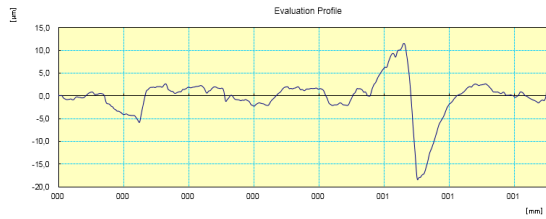
CERTIFICATE OF INSPECTION



Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	2.279 µm		
Rq	2.882 µm		
Rz	11.151 µm		

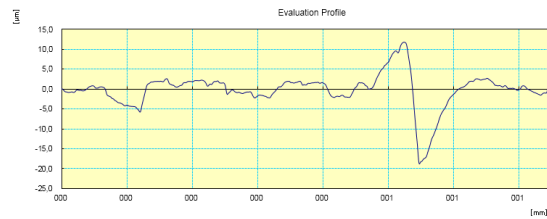
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CERTIFICATE OF INSPECTION



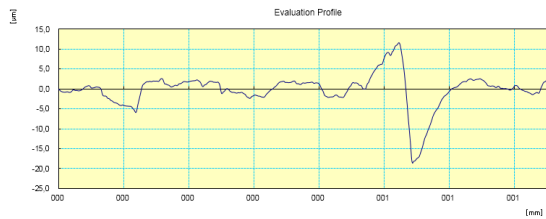
Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
As	2.5µm	Filter	GAUSS
Ra	2.565 µm		
Rq	3.588 µm		
Rz	15.605 µm		

CERTIFICATE OF INSPECTION



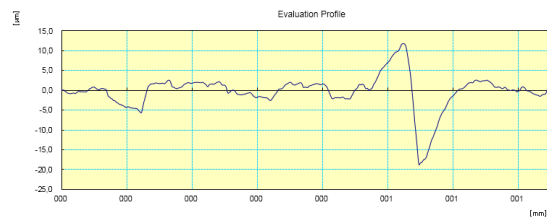
Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
As	2.5µm	Filter	GAUSS
Ra	2.582 µm		
Rq	3.647 µm		
Rz	15.899 µm		

CERTIFICATE OF INSPECTION



Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
As	2.5µm	Filter	GAUSS
Ra	2.586 µm		
Rq	3.664 µm		
Rz	16.315 µm		

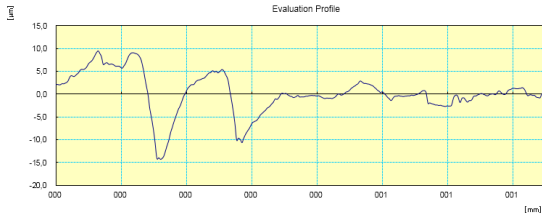
CERTIFICATE OF INSPECTION



Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
As	2.5µm	Filter	GAUSS
Ra	2.591 µm		
Rq	3.690 µm		
Rz	16.171 µm		



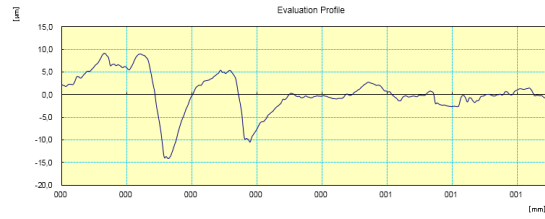
CERTIFICATE OF INSPECTION



Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	3.028 µm		
Rq	3.820 µm		
Rz	14.635 µm		

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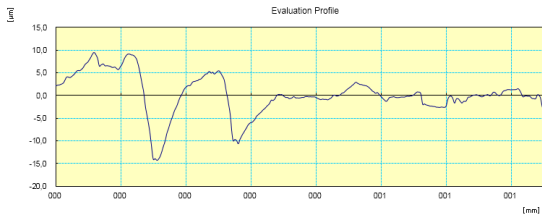
CERTIFICATE OF INSPECTION



Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	3.039 µm		
Rq	3.828 µm		
Rz	14.508 µm		

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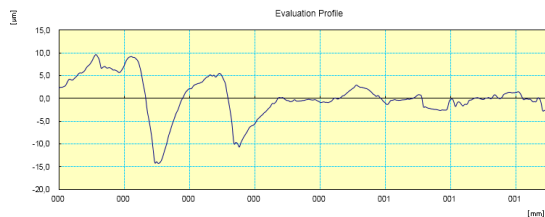
CERTIFICATE OF INSPECTION



Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	3.032 µm		
Rq	3.825 µm		
Rz	14.665 µm		

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CERTIFICATE OF INSPECTION



Work Name	Sample	Operator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	3
Profile	R	Cut-Off	0.25mm
λs	2.5µm	Filter	GAUSS
Ra	3.050 µm		
Rq	3.846 µm		
Rz	14.498 µm		

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Lampiran 3

**Data Amplitudo dengan *Depth of Cut* 3 dan Rasio L/D**

00:19,9	0,00210352	-0,00033789	0,00088281	0,00210352
00:20,0	0,00210352	0,00088281	0,00332422	-0,00155859
00:20,0	0,00210352	-0,00155859	0,00088281	0,00088281
00:20,1	0,00210352	0,00210352	0,00210352	0,00088281
00:20,1	0,00210352	-0,00155859	0,00088281	0,00332422
00:20,1	0,00210352	0,00210352	0,00454492	-0,00155859
00:20,2	0,00210352	-0,00155859	-0,00033789	0,00332422
00:20,3	0,00210352	0,00332422	0,00332422	0,00088281
00:20,3	0,00210352	-0,00277930	-0,00033789	0,00210352
00:20,4	0,00210352	0,00210352	0,00454492	-0,00033789
00:20,4	0,00210352	-0,00033789	-0,00033789	-0,00033789
00:20,4	0,00210352	0,00210352	0,00210352	0,00454492
00:20,5	0,00210352	-0,00155859	-0,00155859	0,00088281
00:20,5	0,00210352	0,00210352	0,00332422	0,00088281
00:20,6	0,00210352	0,00088281	-0,00155859	-0,00155859
00:20,6	0,00210352	0,00210352	0,00088281	0,00210352
00:20,7	0,00210352	-0,00155859	-0,00033789	0,00088281
00:20,8	0,00210352	0,00088281	-0,00155859	0,00088281
00:20,8	0,00210352	-0,00033789	0,00088281	-0,00400000
00:20,9	0,00210352	0,00210352	-0,00888281	0,00454492
00:20,9	0,00210352	-0,00155859	0,00088281	-0,00400000
00:21,0	0,00210352	0,00088281	-0,00033789	0,00088281
00:21,0	0,00210352	0,00088281	0,00210352	-0,00766211
00:21,1	0,00210352	-0,00033789	-0,00155859	0,00332422
00:21,1	0,00210352	-0,00277930	0,00332422	-0,00400000
00:21,1	0,00210352	0,00332422	-0,00400000	0,00332422
00:21,2	0,00210352	-0,00155859	0,00454492	-0,00155859
00:21,3	0,00210352	0,00210352	-0,00277930	0,00576562
00:21,3	0,00210352	-0,00277930	0,00454492	-0,00033789
00:21,3	0,00210352	0,00210352	0,00088281	0,00088281
00:21,4	0,00210352	-0,00033789	0,00332422	0,00088281
00:21,4	0,00210352	-0,00033789	-0,00522070	0,00210352
00:21,5	0,00210352	-0,00033789	0,00332422	0,00576562
00:21,5	0,00210352	0,00210352	-0,00766211	-0,00277930
00:21,6	0,00210352	0,00088281	0,00698630	0,00454492
00:21,6	0,00210352	-0,00033789	0,00332422	0,00210352
00:21,7	0,00210352	0,00088281	0,00332422	0,00576562
00:21,8	0,00210352	0,00210352	-0,00277930	0,00088281
00:21,8	0,00210352	0,00088281	-0,00033789	0,00332422
00:21,9	0,00210352	-0,00400000	-0,00400000	0,00088281
00:21,9	0,00210352	0,00576562	-0,00400000	0,00576562
00:22,0	0,00210352	-0,00277930	-0,00155859	-0,00400000
00:22,0	0,00210352	0,00088281	0,00088281	0,00332422

00:22,1	0,00210352	-0,00277930	-0,00277930	-0,00277930
00:22,1	0,00210352	0,00454492	0,00210352	0,00332422
00:22,1	0,00210352	-0,00277930	0,00210352	-0,00277930
00:22,2	0,00210352	0,00210352	0,00332422	-0,00155859
00:22,3	0,00210352	-0,00155859	0,00088281	-0,00400000
00:22,3	0,00210352	0,00454492	0,00210352	-0,00277930
00:22,4	0,00210352	-0,00277930	0,00088281	-0,00033789
00:22,4	0,00210352	0,00088281	0,00332422	-0,00277930
00:22,5	0,00210352	-0,00155859	0,00088281	-0,00033789
00:22,5	0,00210352	0,00332422	-0,00033789	-0,00400000
00:22,6	0,00210352	-0,00033789	0,00210352	-0,00033789
00:22,6	0,00210352	0,00088281	0,00088281	-0,00522070
00:22,7	0,00210352	-0,00033789	0,00454492	0,00210352
00:22,7	0,00210352	0,00088281	-0,00155859	0,00088281
00:22,8	0,00210352	-0,00033789	0,00332422	0,00088281
00:22,8	0,00210352	-0,00033789	-0,00400000	-0,00155859
00:22,9	0,00210352	-0,00033789	0,00088281	0,00332422
00:22,9	0,00210352	-0,00033789	0,00332422	-0,00033789
00:23,0	0,00210352	-0,00033789	0,00210352	0,00454492
00:23,0	0,00210352	-0,00155859	0,00210352	-0,00522070
00:23,0	0,00210352	0,00332422	-0,00155859	0,00332422
00:23,1	0,00210352	-0,00033789	0,00454492	0,00088281
00:23,1	0,00210352	0,00088281	-0,00033789	0,00332422
00:23,2	0,00210352	-0,00155859	0,00332422	-0,00033789
00:23,2	0,00210352	0,00332422	-0,00277930	0,00210352
00:23,3	0,00210352	-0,00400000	0,00576562	0,00088281
00:23,4	0,00210352	0,00088281	0,00088281	0,00210352
00:23,4	0,00210352	-0,00277930	0,00698630	0,00088281
00:23,5	0,00210352	0,00332422	0,00088281	0,00210352
00:23,5	0,00210352	-0,00400000	0,00332422	0,00088281
00:23,6	0,00210352	0,00088281	0,00210352	0,00210352
00:23,6	0,00210352	-0,00033789	0,00454492	-0,00033789
00:23,7	0,00210352	0,00210352	0,00088281	0,00332422
00:23,7	0,00210352	-0,00155859	0,00210352	-0,00277930
00:23,8	0,00210352	0,00088281	0,00454492	-0,00033789
00:23,8	0,00210352	0,00088281	0,00210352	-0,00766211
00:23,8	0,00210352	0,00210352	0,00088281	0,00088281
00:23,9	0,00210352	-0,00155859	-0,00033789	-0,00522070
00:23,9	0,00210352	0,00210352	-0,00155859	0,00088281
00:24,0	0,00210352	-0,00033789	0,00332422	-0,00888281
00:24,0	0,00210352	0,00210352	-0,00400000	0,00454492
00:24,1	0,00210352	-0,00155859	-0,00155859	-0,00155859
00:24,1	0,00210352	0,00088281	-0,00277930	0,00332422
00:24,2	0,00210352	-0,00033789	-0,00033789	-0,00155859
00:24,2	0,00210352	0,00210352	-0,00033789	0,00332422

00:24,3	0,00210352	-0,00155859	-0,00522070	0,00210352
00:24,4	0,00210352	0,00088281	0,00332422	0,00088281
00:24,4	0,00210352	0,00088281	-0,00033789	0,00210352
00:24,4	0,00210352	0,00088281	-0,00033789	0,00088281
00:24,5	0,00210352	-0,00277930	-0,00033789	0,00576562
00:24,6	0,00210352	0,00088281	-0,00033789	-0,00033789
00:24,6	0,00210352	0,00210352	0,00088281	0,00454492
00:24,6	0,00210352	0,00088281	-0,00033789	-0,00155859
00:24,7	0,00210352	0,00088281	0,00088281	0,00454492
00:24,8	0,00210352	-0,00277930	0,00332422	-0,00277930
00:24,8	0,00210352	0,00210352	0,00210352	0,00210352
00:24,8	0,00210352	-0,00522070	0,00210352	-0,00277930
00:24,9	0,00210352	0,00332422	0,00088281	0,00454492
Rata-rata	0,00129989	0,00018403	0,00024740	0,00029061

## Lampiran 4

**Data Amplitudo *Depth of Cut* 4 dan Rasio L/D**

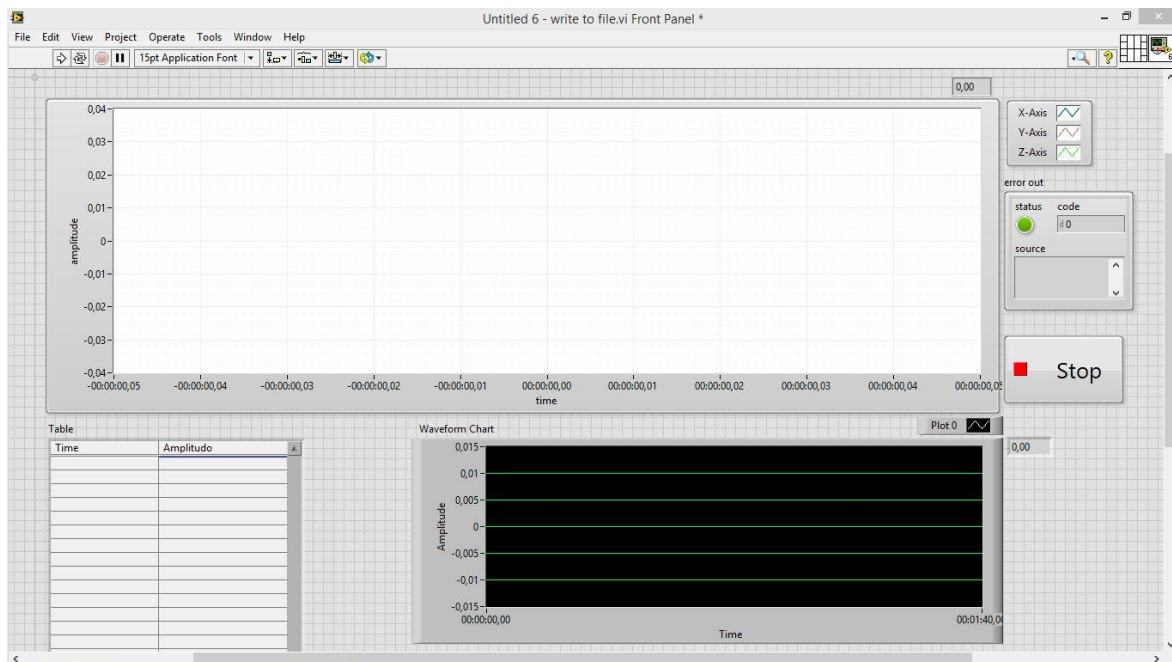
00:39,9	-0,00400000	0,00210352	-0,00033789	0,00088281
00:40,0	0,00210352	0,00088281	-0,00155859	-0,01010352
00:40,0	-0,00155859	-0,00033789	0,00454492	0,00210352
00:40,0	0,00332422	-0,00155859	0,00088281	-0,01010352
00:40,1	-0,00400000	0,00210352	0,00576562	0,00576562
00:40,2	0,00210352	-0,00277930	-0,00155859	-0,00400000
00:40,2	-0,00155859	0,00088281	-0,00400000	0,00332422
00:40,2	0,00332422	-0,00400000	0,00332422	-0,00033789
00:40,3	-0,00155859	0,00210352	0,00088281	0,00454492
00:40,3	0,00210352	-0,00155859	-0,00277930	0,00088281
00:40,4	-0,00155859	0,00088281	0,00210352	0,00088281
00:40,5	0,00454492	-0,00277930	0,00210352	-0,00033789
00:40,5	-0,00277930	0,00210352	0,00210352	0,00454492
00:40,5	0,00088281	-0,00033789	0,00332422	-0,00400000
00:40,6	-0,00033789	0,00210352	-0,00033789	0,00210352
00:40,7	0,00210352	-0,00277930	-0,00644141	-0,00033789
00:40,7	-0,00155859	0,00210352	0,00210352	0,00088281
00:40,8	-0,00033789	-0,00033789	-0,00522070	0,00088281
00:40,8	-0,00033789	-0,00033789	0,00332422	0,00332422
00:40,9	0,00210352	-0,00033789	-0,00400000	-0,00033789
00:40,9	-0,00155859	0,00332422	0,00332422	0,00454492
00:41,0	-0,00033789	-0,00033789	0,00210352	-0,00033789
00:41,0	0,00088281	-0,00033789	-0,00033789	-0,00033789
00:41,1	0,00088281	-0,00155859	0,00088281	0,00088281
00:41,1	0,00088281	0,00088281	0,00210352	-0,00400000
00:41,1	-0,00155859	-0,00155859	0,00210352	0,00088281
00:41,2	0,00210352	0,00088281	0,00210352	0,00088281
00:41,3	0,00088281	-0,00277930	-0,00522070	-0,00033789
00:41,3	-0,00033789	0,00210352	-0,00155859	-0,00155859
00:41,3	-0,00155859	0,00088281	0,00210352	0,00454492
00:41,4	0,00210352	0,00088281	-0,00522070	-0,00155859
00:41,5	-0,00277930	-0,00033789	0,00332422	0,00454492
00:41,5	0,00210352	0,00088281	-0,00277930	-0,00155859
00:41,6	-0,00400000	-0,00033789	0,00454492	-0,00033789
00:41,6	0,00210352	0,00088281	0,00088281	-0,00033789
00:41,6	-0,00155859	-0,00155859	0,00210352	-0,00400000
00:41,7	0,00210352	0,00088281	-0,00033789	-0,00277930
00:41,7	-0,00400000	0,00088281	0,00210352	0,00088281
00:41,8	0,00210352	-0,00033789	-0,00644141	-0,00277930

00:41,8	-0,00033789	-0,00033789	0,00088281	0,00088281
00:41,9	0,00210352	0,00088281	-0,00522070	-0,00277930
00:42,0	-0,00277930	0,00210352	0,00332422	-0,00155859
00:42,0	0,00454492	-0,00033789	-0,00400000	0,00454492
00:42,1	-0,00033789	-0,00033789	0,00454492	-0,00033789
00:42,1	0,00210352	-0,00033789	-0,00277930	-0,00522070
00:42,1	-0,00400000	0,00332422	-0,00155859	0,00210352
00:42,2	0,00210352	-0,00155859	0,00332422	-0,00400000
00:42,3	-0,00155859	-0,00033789	0,00332422	0,00210352
00:42,3	0,00332422	-0,00033789	0,00088281	-0,00033789
00:42,3	-0,00277930	0,00210352	0,00210352	0,00088281
00:42,4	0,00210352	-0,00277930	0,00332422	-0,00033789
00:42,5	0,00088281	-0,00033789	-0,00033789	0,00454492
00:42,5	0,00210352	-0,00155859	0,00088281	-0,00766211
00:42,5	-0,00277930	0,00210352	-0,00522070	0,00454492
00:42,6	0,00210352	-0,00033789	0,00454492	-0,00522070
00:42,7	-0,00033789	0,00088281	-0,00033789	0,00454492
00:42,7	0,00088281	-0,00155859	-0,00033789	0,00088281
00:42,8	-0,00033789	0,00332422	-0,00277930	0,00210352
00:42,8	0,00088281	-0,00033789	0,00210352	-0,00277930
00:42,9	0,00088281	-0,00033789	-0,00400000	0,00576562
00:42,9	-0,00033789	-0,00033789	0,00698630	-0,00155859
00:43,0	0,00088281	0,00454492	-0,00644141	0,00454492
00:43,0	-0,00033789	0,00088281	-0,00033789	-0,00033789
00:43,0	0,00210352	-0,00033789	0,00088281	-0,00155859
00:43,1	-0,00155859	0,00088281	0,00576562	0,00088281
00:43,1	-0,00033789	0,00210352	-0,00155859	-0,00155859
00:43,2	-0,00155859	-0,00033789	0,00332422	-0,00033789
00:43,2	0,00454492	0,00088281	0,00088281	0,00088281
00:43,3	-0,00277930	-0,00033789	0,00210352	0,00332422
00:43,4	0,00088281	0,00332422	0,00088281	0,00088281
00:43,4	-0,00155859	0,00088281	-0,00400000	-0,00155859
00:43,5	0,00454492	-0,00155859	0,00088281	-0,00033789
00:43,5	-0,00277930	-0,00277930	0,00698630	0,00332422
00:43,6	0,00210352	0,00332422	-0,00400000	-0,00400000
00:43,6	-0,00033789	-0,00033789	0,00210352	0,00576562
00:43,6	0,00332422	-0,00155859	0,00210352	-0,00644141
00:43,7	-0,00033789	-0,00033789	0,00088281	-0,00277930
00:43,7	0,00210352	0,00210352	0,00210352	0,00088281
00:43,8	-0,00033789	0,00088281	0,00088281	0,00088281
00:43,8	0,00210352	-0,00033789	-0,0088281	-0,00155859

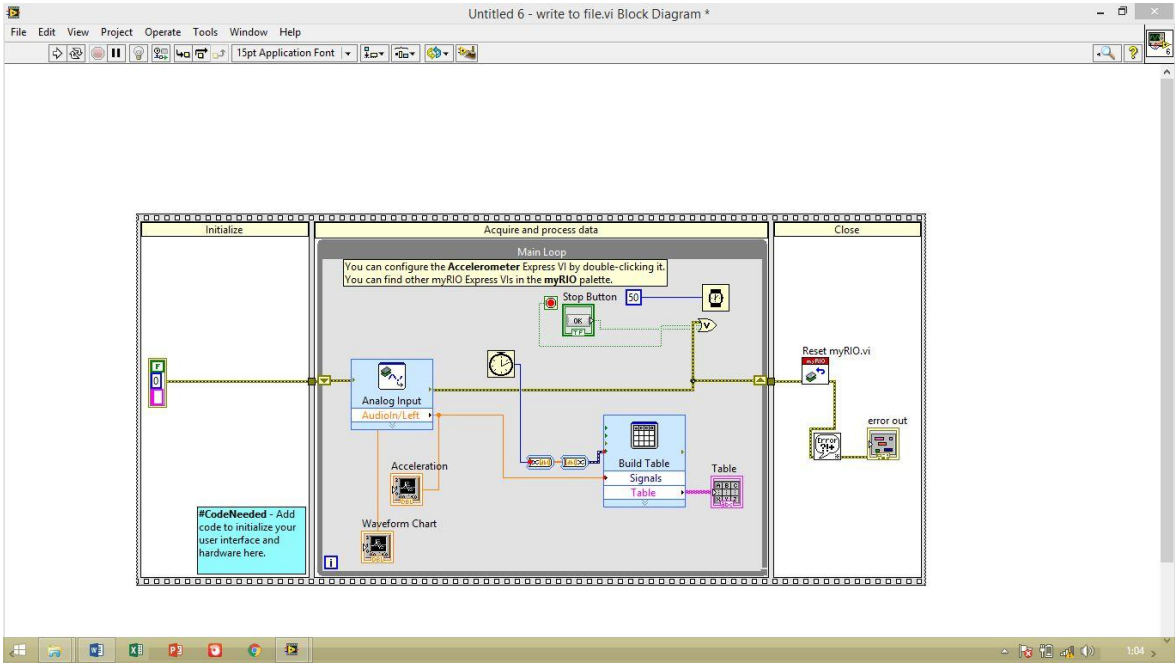
00:43,9	-0,00033789	-0,00033789	0,00454492	0,00576562
00:44,0	-0,00033789	0,00210352	-0,00155859	-0,00033789
00:44,0	-0,00033789	0,00088281	0,00332422	0,00454492
00:44,0	0,00210352	-0,00155859	0,00088281	-0,00522070
00:44,1	-0,00033789	0,00210352	-0,00033789	-0,00155859
00:44,1	-0,00155859	-0,00033789	-0,00277930	0,00210352
00:44,2	-0,00033789	0,00210352	0,00454492	-0,00155859
00:44,2	0,00210352	-0,00277930	-0,00644141	0,00088281
00:44,3	-0,00155859	-0,00033789	-0,00033789	0,00332422
00:44,3	0,00088281	0,00088281	0,00332422	-0,00155859
00:44,4	-0,00033789	0,00210352	-0,00277930	0,00454492
00:44,5	0,00088281	-0,00522070	0,00088281	-0,00155859
00:44,5	0,00088281	0,00332422	0,00088281	0,00088281
00:44,5	-0,00155859	-0,00155859	0,00332422	0,00332422
00:44,6	0,00088281	0,00332422	0,00088281	0,00210352
00:44,7	0,00088281	-0,00155859	0,00088281	-0,00155859
00:44,7	0,00088281	0,00332422	-0,00766211	0,00210352
00:44,8	-0,00155859	-0,00155859	0,00820700	-0,00277930
00:44,8	0,00088281	0,00332422	-0,00644141	0,00210352
00:44,8	0,00088281	-0,00400000	0,00210352	0,00088281
00:44,9	0,00088281	0,00210352	-0,00155859	0,00210352
Rata-rata	0,00037414	0,00035225	0,00043405	0,00033381

## Lampiran 5

### Tampilan Software LabVIEW 2013



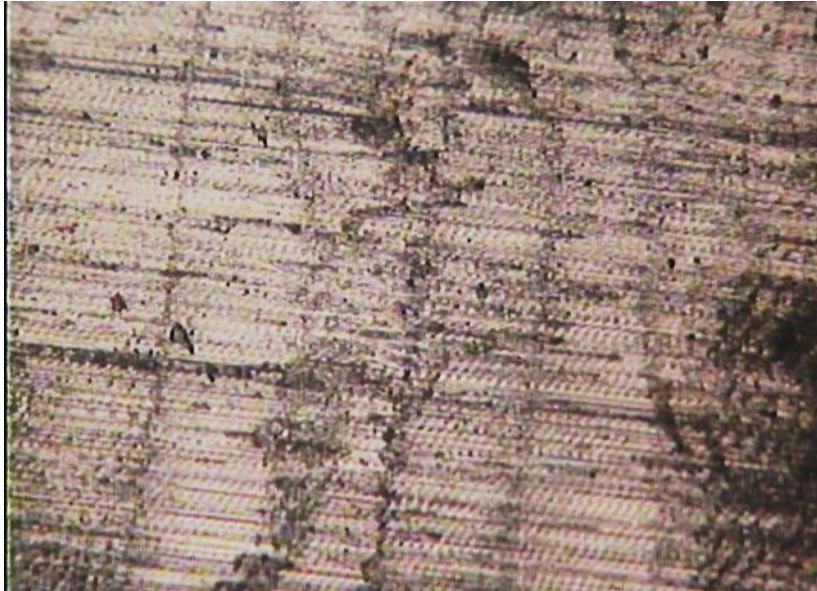




Lampiran 6

**Gambar Benda Kerja dengan Foto Mikrostruktur**

**Gambar foto mikrostruktur *Depth of Cut* 3 mm dan Rasio L/D**



Gambar foto mikrostruktur *Depth of Cut* 3 mm dan Rasio L/D=3



Gambar foto mikrostruktur *Depth of Cut* 3 mm dan Rasio L/D=4



Gambar foto mikrostruktur *Depth of Cut* 3 mm dan Rasio  $L/D=5$

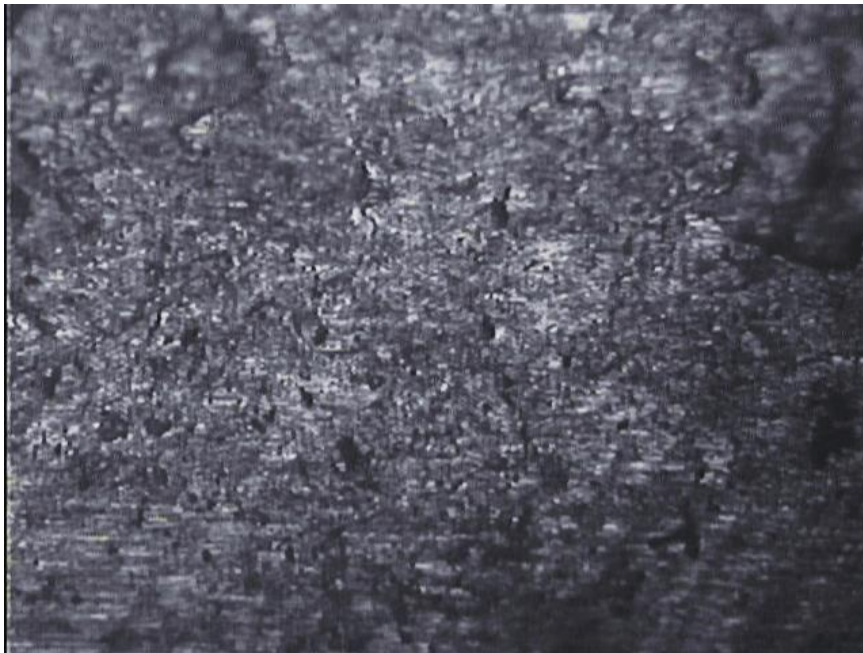


Gambar foto mikrostruktur *Depth of Cut* 3 mm dan Rasio  $L/D=6$

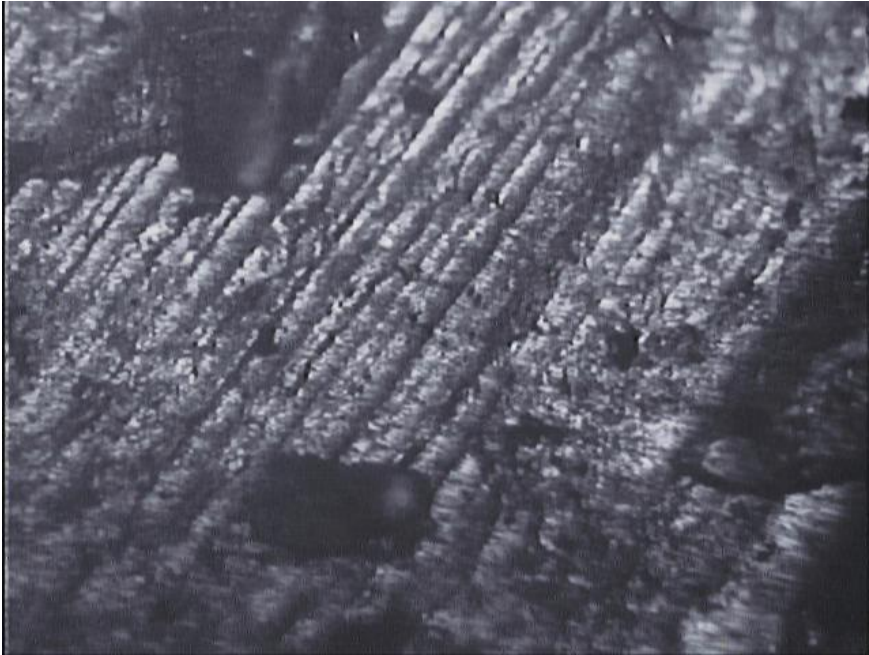
**Gambar foto mikrostruktur *Depth of Cut* 3,5 mm dan Rasio L/D**



Gambar foto mikrostruktur *Depth of Cut* 3,5 mm dan Rasio L/D=3



Gambar foto mikrostruktur *Depth of Cut* 3,5 mm dan Rasio L/D=4

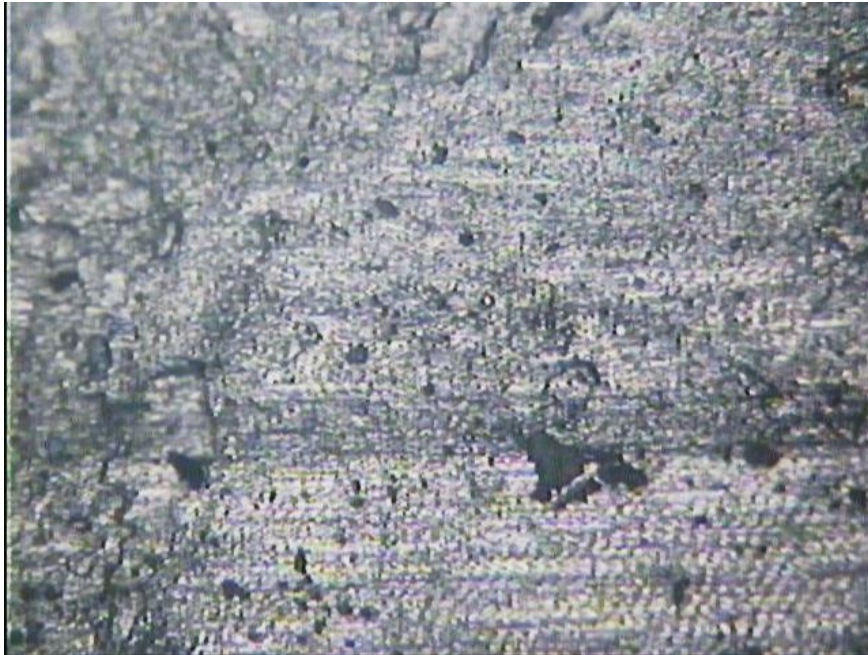


Gambar foto mikrostruktur *Depth of Cut* 3,5 mm dan Rasio  $L/D=5$

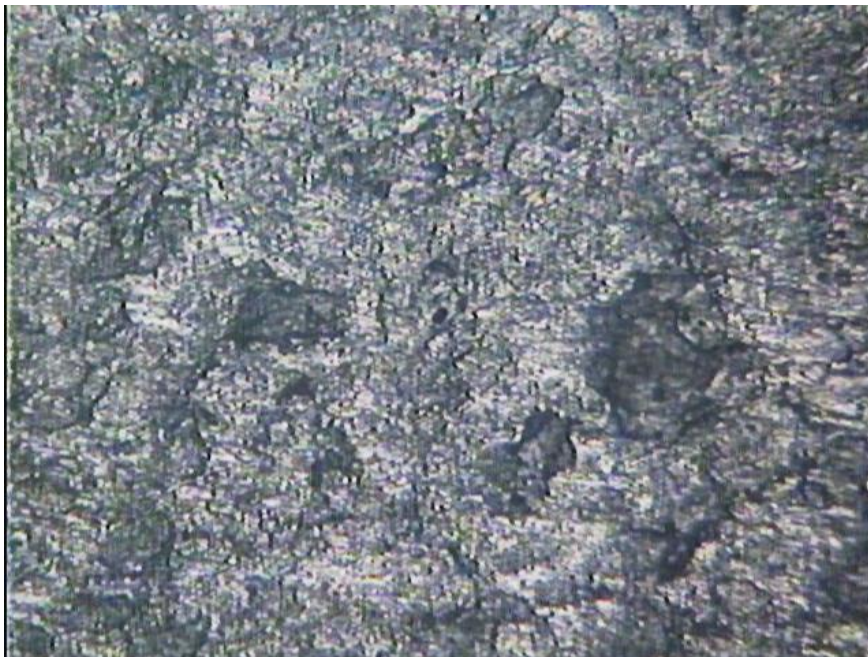


Gambar foto mikrostruktur *Depth of Cut* 3,5 mm dan Rasio  $L/D=6$

**Gambar foto mikrostruktur *Depth of Cut* 4 mm dan Rasio L/D**



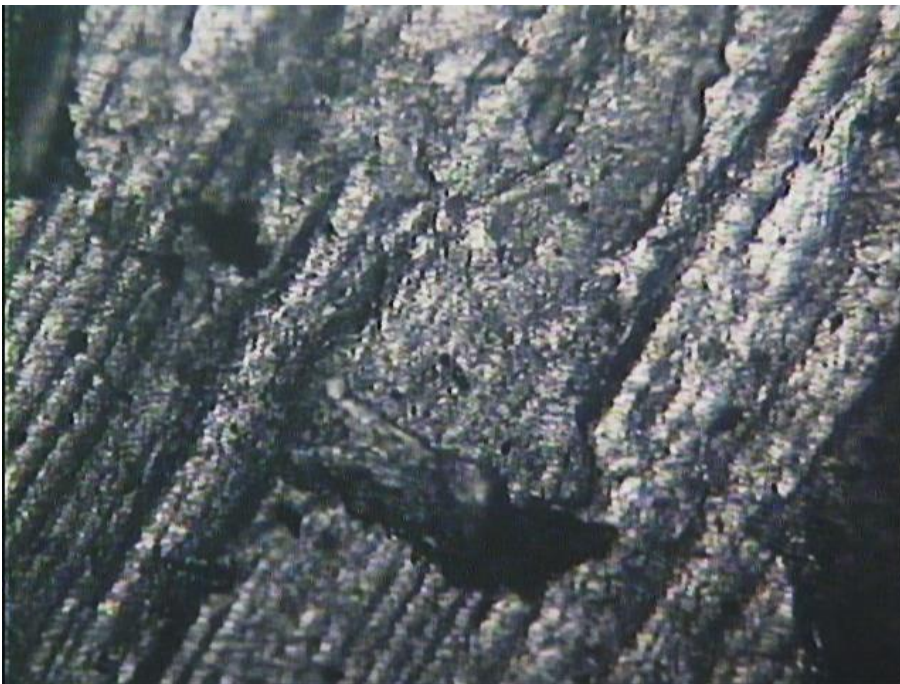
Gambar foto mikrostruktur *Depth of Cut* 4 mm dan Rasio L/D=3



Gambar foto mikrostruktur *Depth of Cut* 4 mm dan Rasio L/D=4



Gambar foto mikrostruktur *Depth of Cut* 4 mm dan Rasio L/D=5

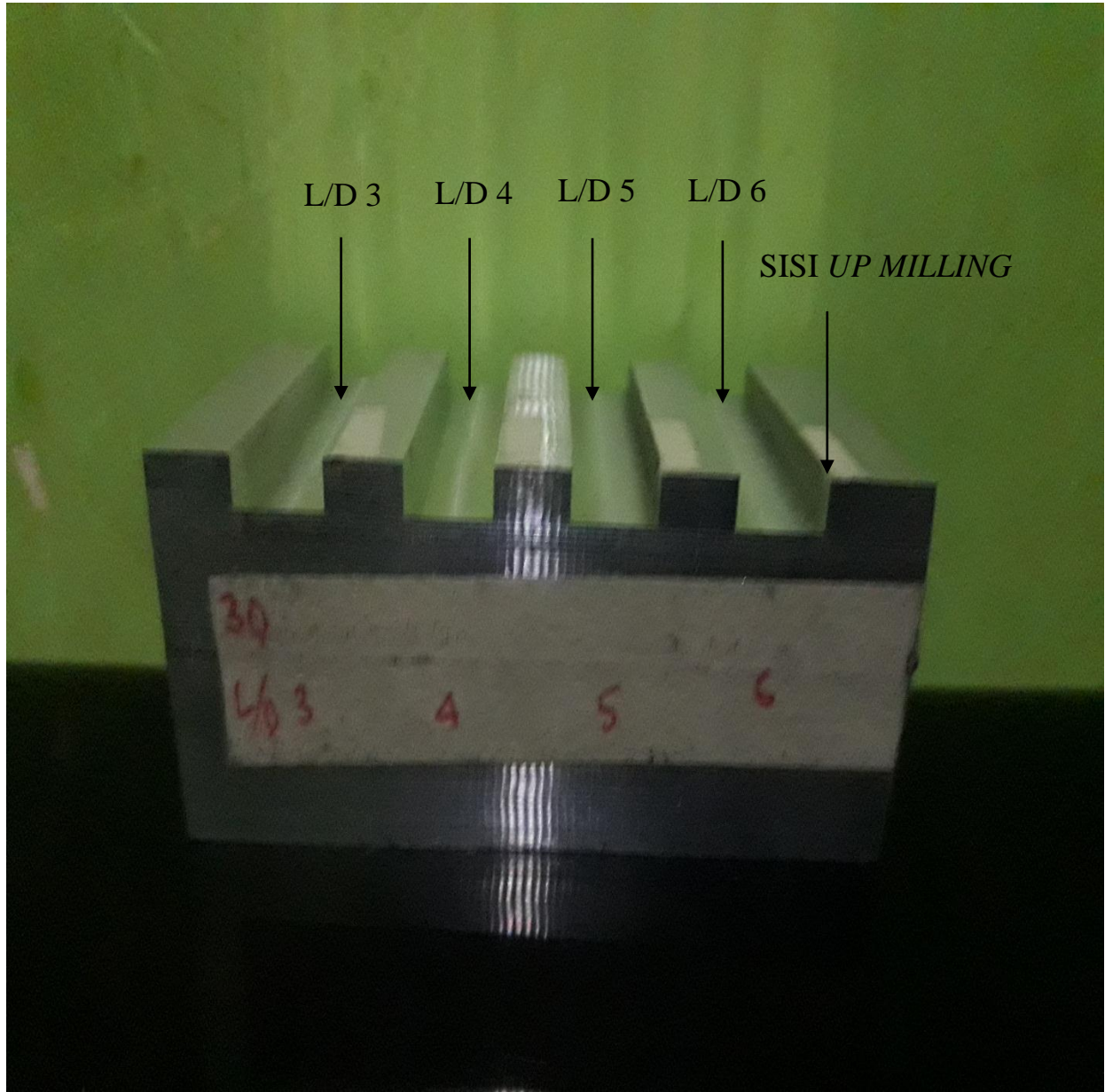


Gambar foto mikrostruktur *Depth of Cut* 4 mm dan Rasio L/D=6

Lampiran 7

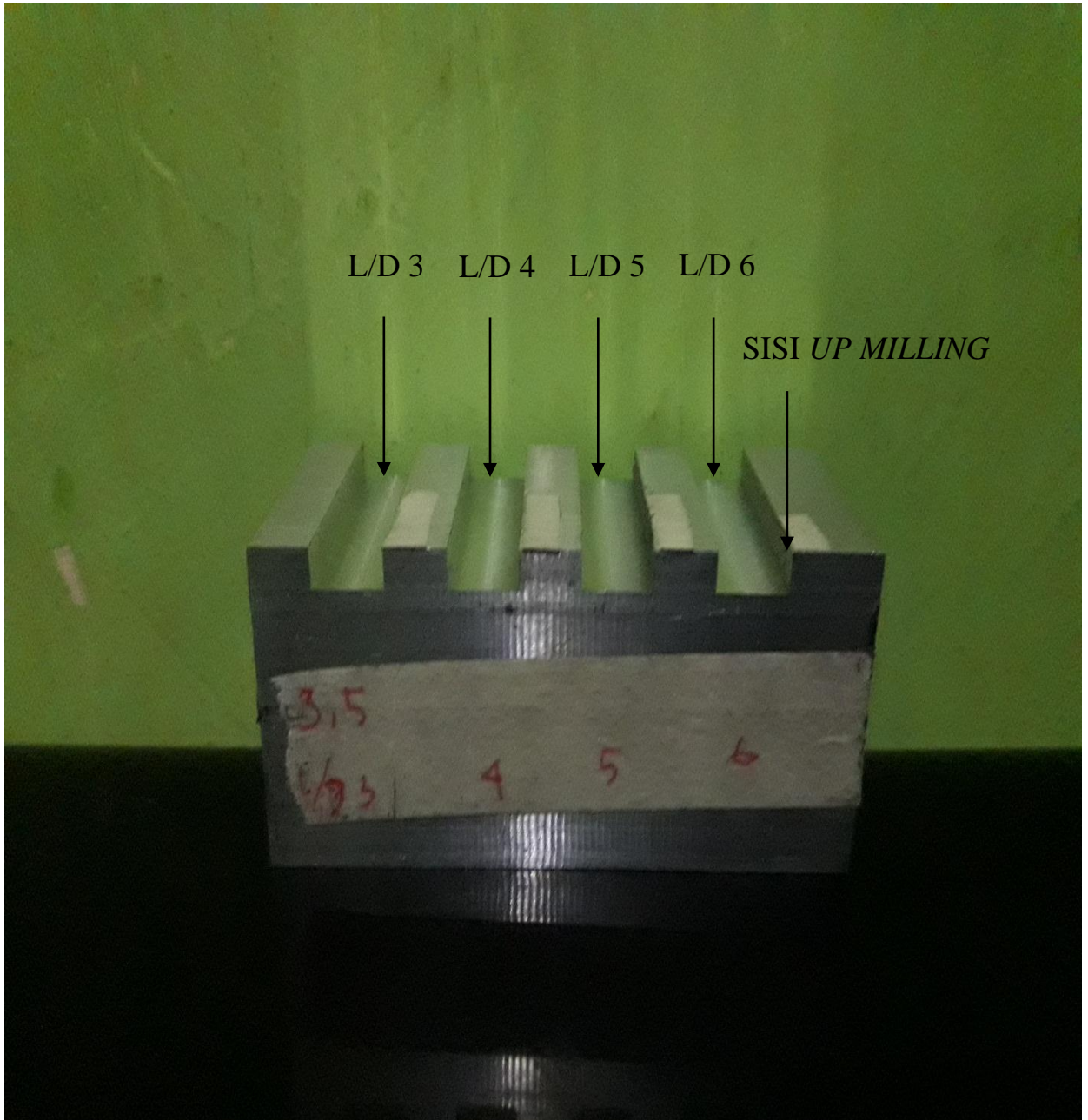
**Gambar Benda Kerja**

*Depth of Cut 3 mm dan Rasio L/D*





*Depth of Cut 3,5 mm dan Rasio L/D*



*Depth of Cut 4 mm dan Rasio L/D*



Lampiran 8

Data hasil Pengujian Alumunium 6061

SPECTRO		PT H P METAL S INDONESIA		122804				
Method:	AI-01					12/8/2017 7:32:20 PM		
Comment:	Orientation Al-Base	Element Concentration						
Sample No.:		Sample ID:						
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
	%	%	%	%	%	%	%	%
1	0.602	0.143	0.405	0.0198	1.01	0.131	0.0549	0.0298
2	0.620	0.148	0.409	0.0206	1.05	0.128	0.0603	0.0268
3	0.616	0.147	0.412	0.0200	1.04	0.130	0.0607	0.0270
	Na	Ca	Ni	Pb	P	Sn	Sb	Sr
	%	%	%	%	%	%	%	%
1	0.0024	0.00059	0.0090	0.0012	< 0.00050	< 0.00050	0.00076	0.00014
2	0.0013	0.00078	0.0093	0.0013	< 0.00050	< 0.00050	0.00072	< 0.00010
3	0.0021	0.00060	0.0090	0.0012	< 0.00050	< 0.00050	0.0012	< 0.00010
	Be	Zr	Bi	Cd	Al			
	%	%	%	%	%			
1	0.00009	0.0018	< 0.00030	0.0010	97.6			
2	0.00009	0.0017	< 0.00030	0.00080	97.5			
3	0.00009	0.0017	< 0.00030	0.00080	97.5			

SPECTRO		PT H P METAL S INDONESIA		122804				
Method:	AI-01					12/8/2017 7:32:20 PM		
Comment:	Orientation Al-Base	Element Concentration						
Sample No.:		Sample ID:						
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
	%	%	%	%	%	%	%	%
Ø (3)	0.614	0.147	0.408	0.0202	1.03	0.130	0.0557	0.0281
	Na	Ca	Ni	Pb	P	Sn	Sb	Sr
	%	%	%	%	%	%	%	%
Ø (3)	0.0019	0.00071	0.0093	0.0012	< 0.00050	< 0.00050	0.00090	0.00011
	Be	Zr	Bi	Cd	Al			
	%	%	%	%	%			
Ø (3)	0.00009	0.0017	< 0.00030	0.00087	97.6			

- 1 -

*LABORAT 12/2017*  
*168*  
*Jeffrey.*  
**M. JEFFRY.**

