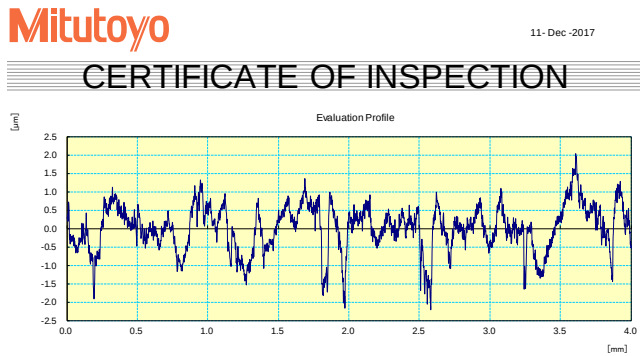
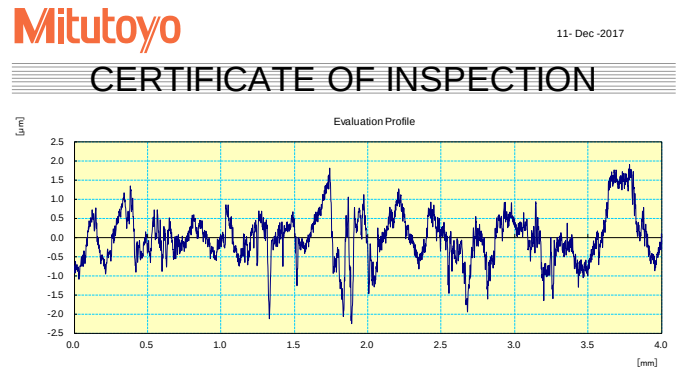


Data Hasil Kekasaran Permukaan pada *Depth of cut* 5 mm pada Proses *End Milling* Tanpa Menggunakan Magnet

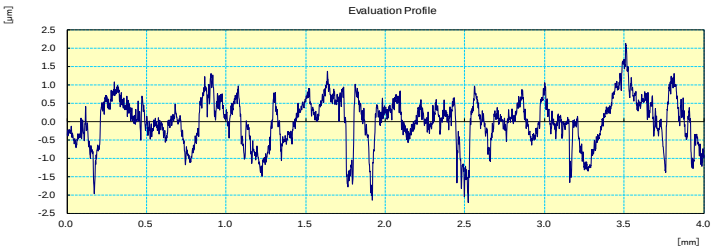
[illegible]

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[illegible]

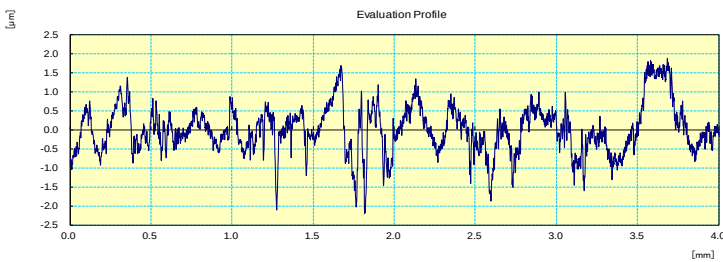
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Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	5
Profile	R	Cut-Off	0.8mm
As	2.5μm	Filter	GAUSS
Ra	0.502 μm		
Rq	0.637 μm		
Rz	3.228 μm		

CERTIFICATE OF INSPECTION



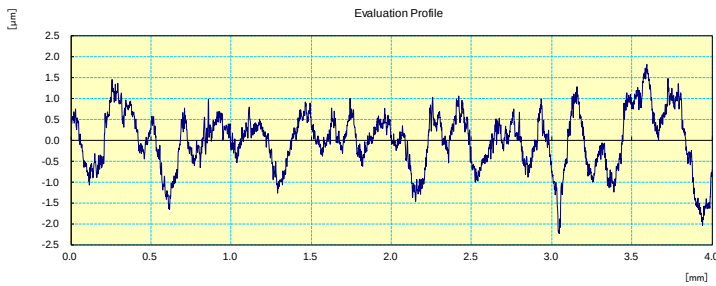
Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	5
Profile	R	Cut-Off	0.8mm
As	2.5μm	Filter	GAUSS
Ra	0.484 μm		
Rq	0.618 μm		
Rz	3.076 μm		

Data Hasil Kekasaran Permukaan pada *Depth of cut* 10 mm pada Proses *End Milling* Tanpa Menggunakan Magnet

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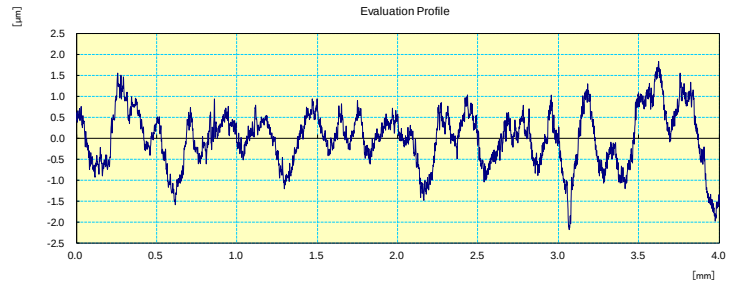
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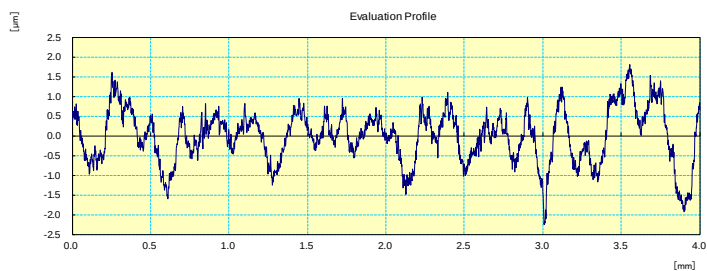
11- Dec -2017

CERTIFICATE OF INSPECTION

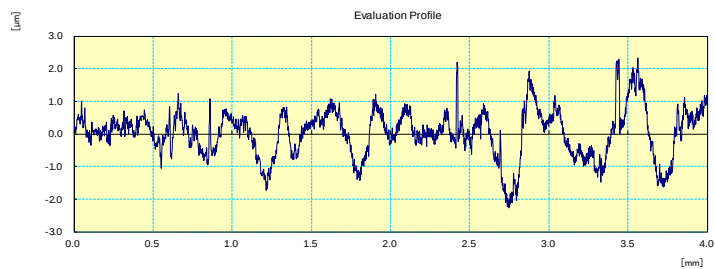
[illegible]

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CERTIFICATE OF INSPECTION

[illegible]

CERTIFICATE OF INSPECTION

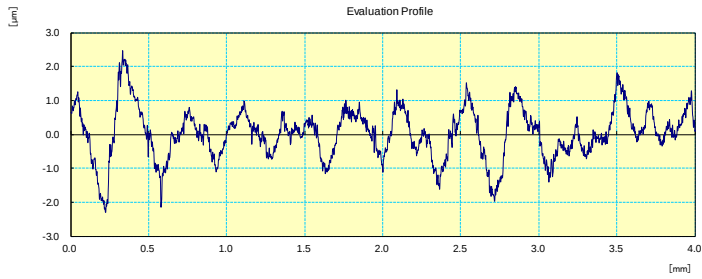
[illegible]

Data Hasil Kekasaran Permukaan pada *Depth of cut* 15 mm pada Proses *End Milling* Tanpa Menggunakan Magnet

Mitutoyo

11- Dec -2017

CERTIFICATE OF INSPECTION

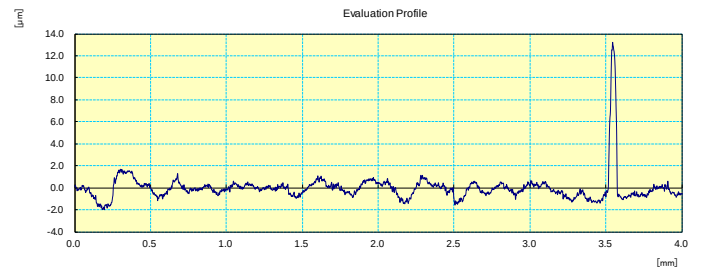
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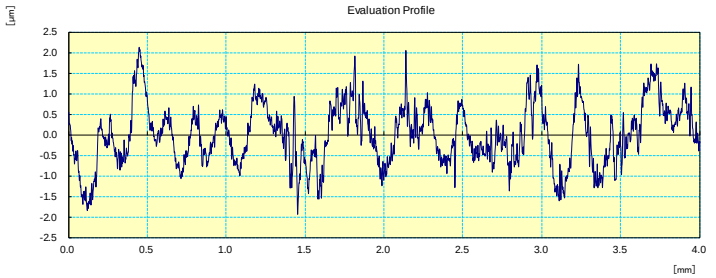
11- Dec -2017

CERTIFICATE OF INSPECTION

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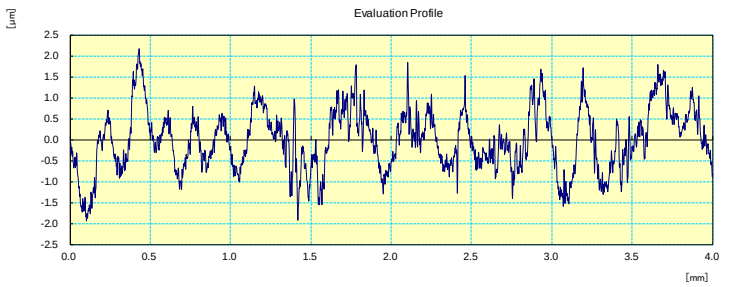
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Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	5
Profile	R	Cut-Off	0.8mm
λs	2.5μm	Filter	GAUSS
Ra	0.592 μm		
Rq	0.727 μm		
Rz	3.405 μm		

CERTIFICATE OF INSPECTION



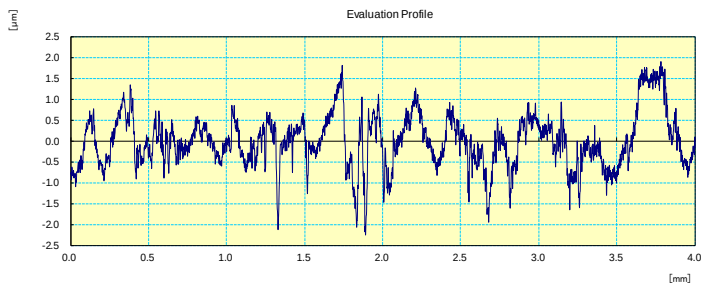
Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	5
Profile	R	Cut-Off	0.8mm
λs	2.5μm	Filter	GAUSS
Ra	0.599 μm		
Rq	0.734 μm		
Rz	3.362 μm		

Data Hasil Kekasaran Permukaan pada *Depth of cut* 5 mm pada Proses *End Milling* Dengan Menggunakan Magnet

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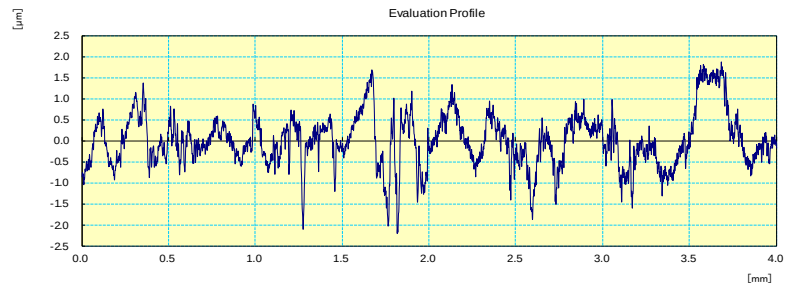
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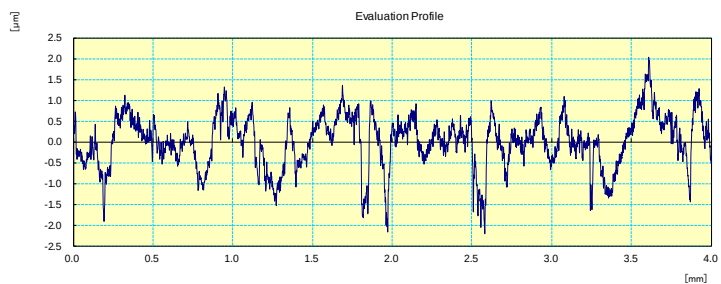
11- Dec -2017

CERTIFICATE OF INSPECTION

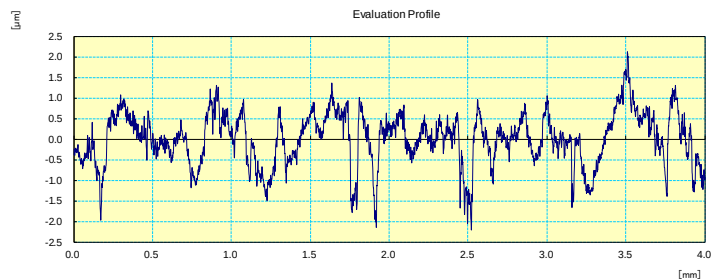
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CERTIFICATE OF INSPECTION

[illegible]

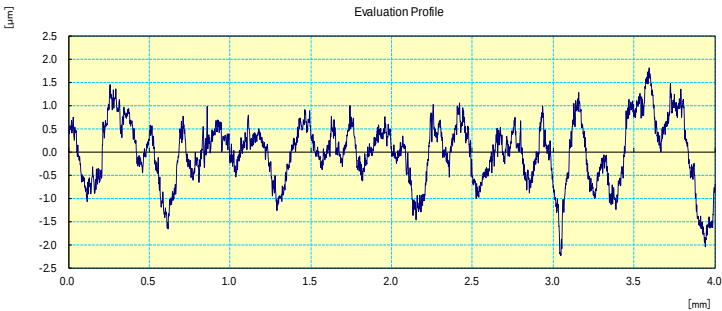
Lampiran 5

Data Hasil Kekasaran Permukaan pada *Depth of cut* 10 mm pada Proses *End Milling*
Dengan Menggunakan Magnet



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CERTIFICATE OF INSPECTION



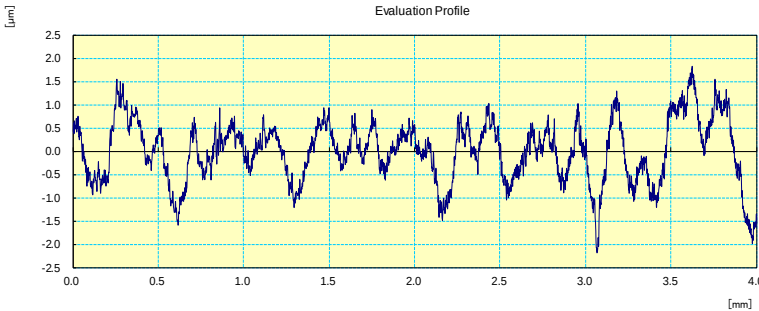
Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	5
Profile	R	Cut-Off	0.8mm
λs	2.5μm	Filter	GAUSS
Ra	0.542 μm		
Rq	0.656 μm		
Rz	3.044 μm		

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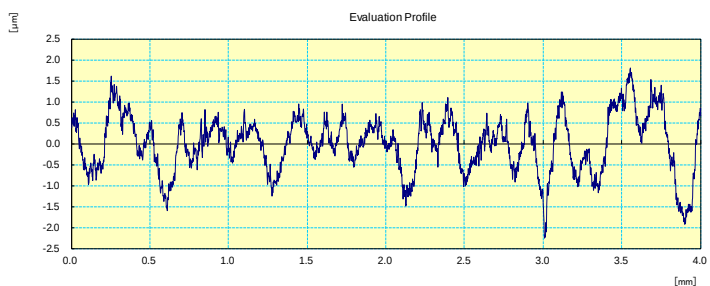
CERTIFICATE OF INSPECTION



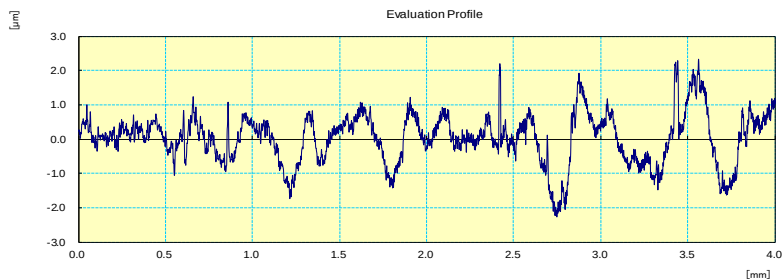
Work Name	Sample	Oprator	Mitutoyo
Measuring Tool	SurfTest	Comment	Ver2.00
Standard	ISO 1997	N	5
Profile	R	Cut-Off	0.8mm
λs	2.5μm	Filter	GAUSS
Ra	0.530 μm		
Rq	0.643 μm		
Rz	2.998 μm		

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[illegible]

CERTIFICATE OF INSPECTION

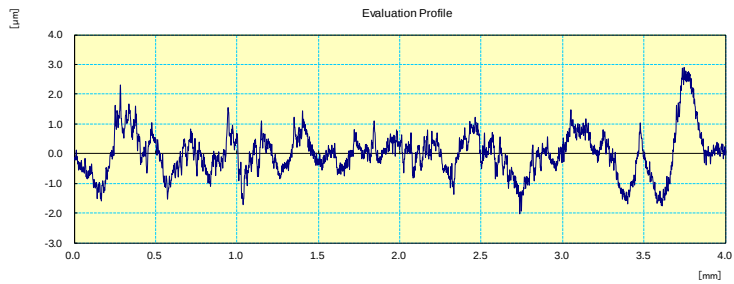
[illegible]

Data Hasil Kekasaran Permukaan pada *Depth of cut* 15 mm pada Proses *End Milling* Dengan Menggunakan Magnet



11- Dec -2017

CERTIFICATE OF INSPECTION

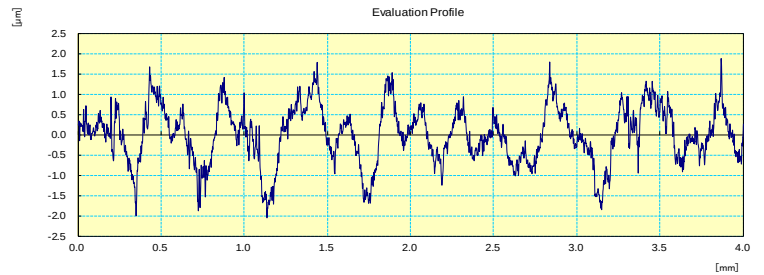
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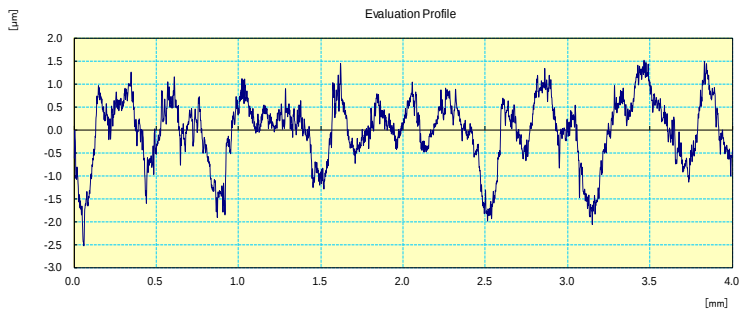
11- Dec -2017

CERTIFICATE OF INSPECTION

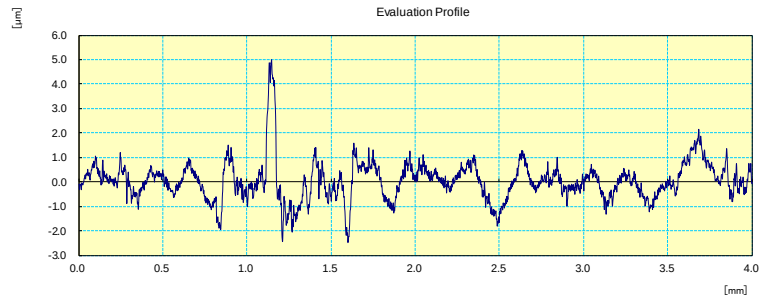
[illegible]

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CERTIFICATE OF INSPECTION

[illegible]

CERTIFICATE OF INSPECTION

[illegible]

Lampiran 7

Sampel Data Simpangan Getaran pada
Depth of cut 5 mm

Waktu	Dengan Magnet	Tanpa Magnet
01:03.8	-0.0027793	0.00332422
01:03.8	0.00088281	0.00210352
01:03.9	0.00210352	-0.00155859
01:03.9	0.00332422	0.00088281
01:04.0	0.00088281	-0.00033789
01:04.0	-0.00155859	-0.00033789
01:04.0	-0.0027793	-0.00033789
01:04.1	-0.00033789	-0.00033789
01:04.2	0.00088281	-0.00033789
01:04.2	0.00088281	0.00210352
01:04.3	-0.00155859	-0.00033789
01:04.3	0.00332422	0.00088281
01:04.3	0.00088281	0.00088281
01:04.4	0.00210352	0.00088281
01:04.4	-0.004	-0.00155859
01:04.5	-0.00155859	-0.004
01:04.6	-0.00155859	-0.00033789
01:04.6	0.00332422	0.00088281
01:04.7	-0.00033789	-0.00033789
01:04.7	0.00088281	0.00088281
01:04.7	0.00088281	-0.004
01:04.8	0.00332422	0.00332422
01:04.9	0.00088281	0.00088281

01:04.9	-0.0027793	0.00088281
01:04.9	-0.00155859	-0.00155859
01:05.0	0.00088281	-0.00033789
01:05.1	0.00332422	-0.00155859
01:05.1	-0.00033789	0.00088281
01:05.2	-0.00033789	-0.00033789
01:05.2	0.00088281	0.0069863
01:05.3	0.00332422	0.00210352
01:05.3	-0.00155859	-0.00155859
01:05.3	-0.00033789	-0.00033789
01:05.4	-0.0027793	0.00088281
01:05.4	0.00332422	0.00088281
01:05.5	0.00088281	-0.00155859
01:05.5	0.00210352	-0.0027793
01:05.6	-0.00155859	0.00088281
01:05.7	0.00210352	0.00332422
01:05.7	-0.00033789	-0.00033789
01:05.8	0.00088281	0.00210352
01:05.8	-0.00155859	-0.004
01:05.8	-0.00033789	0.00210352
01:05.9	-0.00033789	-0.0052207
01:06.0	0.00454492	-0.00033789
01:06.0	0.00088281	-0.004
01:06.1	-0.00155859	0.00088281
01:06.1	-0.00033789	0.00088281
01:06.1	-0.00033789	0.00088281
01:06.2	0.00088281	0.00210352
01:06.2	-0.0027793	0.00332422
01:06.3	-0.00155859	0.00088281
01:06.4	0.00088281	-0.00033789
01:06.4	0.00210352	-0.00033789
01:06.5	0.00210352	-0.00033789
01:06.5	-0.00155859	0.00210352
01:06.5	-0.00155859	0.00088281
01:06.6	-0.00155859	-0.00033789
01:06.7	0.00088281	0.00088281
01:06.7	-0.0027793	0.00210352
01:06.8	-0.00033789	-0.00033789
01:06.8	0.00088281	-0.00155859
01:06.8	0.00454492	-0.0027793
01:06.9	0.00088281	0.00088281
01:06.9	-0.00033789	0.00088281
01:07.0	-0.00155859	-0.00155859

01:07.1	-0.00033789	-0.00033789
01:07.1	0.00210352	0.00210352
01:07.2	0.00088281	0.00210352
01:07.2	0.00088281	0.00088281
01:07.2	-0.00033789	-0.00155859
01:07.3	0.00332422	0.00088281
01:07.4	0.00210352	-0.00033789
01:07.4	-0.00155859	-0.00033789
01:07.5	-0.00155859	-0.00155859
01:07.5	0.00210352	0.00088281
01:07.6	0.00088281	0.00454492
01:07.6	0.00088281	0.00088281
01:07.6	0.00088281	-0.00033789
01:07.7	-0.00155859	-0.00033789
01:07.8	0.00088281	0.00088281
01:07.8	0.00088281	-0.00033789
01:07.9	-0.00033789	-0.0027793
01:07.9	-0.00155859	-0.00033789
01:07.9	0.00088281	-0.00033789
01:08.0	0.00088281	0.00332422
01:08.0	0.00332422	-0.00033789
01:08.1	-0.0027793	0.00088281
01:08.2	0.00088281	0.00088281
01:08.2	-0.00155859	0.00210352
01:08.3	0.00088281	-0.0027793
01:08.3	-0.0027793	-0.00155859
01:08.3	-0.00033789	0.00088281
01:08.4	-0.00033789	0.00088281
01:08.4	0.00076562	-0.00033789
01:08.5	0.00088281	-0.00033789
01:08.6	0.00210352	0.00088281
01:08.6	0.00088281	0.00210352
01:08.6	-0.00033789	0.00088281
01:08.7	-0.00155859	-0.0027793
01:08.7	-0.00155859	0.00088281

Lampiran 8

Sampel Data Simpangan Getaran pada *Depth of cut* 10 mm

Waktu	Dengan Magnet	Tanpa Magnet
00:16.4	-0.00034	0.000883
00:16.5	-0.00034	0.000883
00:16.5	0.000883	0.002104
00:16.6	0.005766	-0.00278
00:16.6	-0.00278	-0.00034
00:16.6	0.000883	-0.00034
00:16.7	-0.004	0.003324
00:16.8	0.002104	0.002104
00:16.8	0.002104	-0.00034
00:16.9	0.002104	-0.004
00:16.9	-0.00034	-0.00034
00:16.9	0.002104	-0.00644
00:17.0	0.002104	0.003324
00:17.0	0.000883	-0.00034
00:17.1	-0.004	-0.00278
00:17.1	-0.00278	0.002104
00:17.2	-0.00034	0.004545
00:17.3	0.003324	0.008207
00:17.3	0.002104	0.000883
00:17.4	-0.00034	-0.00278
00:17.4	0.000883	-0.004
00:17.5	-0.00034	-0.00156
00:17.5	0.000883	0.003324
00:17.6	-0.00034	0.002104
00:17.6	-0.004	-0.00156
00:17.6	0.000883	0.000883
00:17.7	0.000883	0.000883
00:17.7	0.003324	0.003324
00:17.8	0.002104	0.000883
00:17.8	-0.00034	-0.004
00:17.9	-0.00034	-0.00156
00:17.9	-0.00034	-0.00278
00:18.0	0.002104	0.002104
00:18.0	-0.00156	0.003324
00:18.1	-0.00156	-0.00156
00:18.1	0.002104	0.002104
00:18.2	0.002104	-0.00278
00:18.3	0.003324	0.002104
00:18.3	0.000883	0.000883
00:18.4	-0.00522	-0.00278
00:18.4	0.000883	-0.00278
00:18.5	-0.00034	-0.00034
00:18.5	0.004545	0.003324
00:18.6	-0.00278	0.003324
00:18.6	0.003324	-0.00156
00:18.6	0.002104	0.000883
00:18.7	0.004545	-0.00156
00:18.7	-0.00278	0.002104
00:18.8	-0.00034	0.002104
00:18.8	-0.00156	-0.00156
00:18.9	0.002104	-0.00034
00:19.0	0.002104	-0.00034
00:19.0	0.000883	0.003324
00:19.1	-0.00034	0.003324
00:19.1	0.002104	0.002104
00:19.1	0.002104	-0.00156
00:19.2	-0.00034	-0.00156
00:19.3	-0.00156	0.000883
00:19.3	-0.00278	0.000883
00:19.4	0.002104	-0.00156
00:19.4	0.002104	-0.00156
00:19.5	0.002104	-0.00156
00:19.5	-0.00034	0.002104
00:19.6	0.000883	0.002104
00:19.6	-0.00034	0.004545
00:19.6	0.002104	-0.00156
00:19.7	-0.00156	-0.00156
00:19.7	0.000883	-0.00156
00:19.8	-0.00034	0.002104
00:19.8	0.002104	0.000883
00:19.9	0.002104	0.000883
00:20.0	0.002104	-0.00034
00:20.0	-0.00278	0.002104
00:20.1	0.000883	0.003324
00:20.1	-0.00156	0.003324
00:20.1	0.002104	0.000883
00:20.2	-0.00156	-0.00522
00:20.3	-0.00034	-0.00156
00:20.3	0.002104	0.000883

00:20.4	0.002104	0.003324
00:20.4	0.002104	0.000883
00:20.4	-0.00156	-0.00156
00:20.5	-0.00278	0.002104
00:20.5	-0.00034	0.000883
00:20.6	0.002104	0.002104
00:20.6	0.000883	-0.00034
00:20.7	-0.00034	-0.004
00:20.8	0.000883	-0.00034
00:20.8	0.002104	-0.00034
00:20.9	0.003324	0.002104
00:20.9	-0.00278	0.002104
00:21.0	-0.00156	-0.00156

00:21.0	-0.00278	-0.00034
00:21.1	0.003324	0.000883
00:21.1	0.002104	0.000883
00:21.1	0.000883	0.002104
00:21.2	-0.00034	-0.00766
00:21.3	0.000883	-0.00034
00:21.3	0.002104	-0.00278
00:21.3	-0.00034	0.004545
00:21.4	-0.00278	0.002104

Lampiran 9

Sampel Data Simpangan Getaran pada *Depth of cut* 15 mm

Waktu	Dengan Magnet	Tanpa Magnet
00:09.4	-0.00156	-0.00156
00:09.5	-0.00278	-0.00156
00:09.5	0.000883	0.002104
00:09.6	0.004545	0.003324
00:09.6	0.004545	0.000883
00:09.6	-0.00034	-0.00034
00:09.7	-0.00034	-0.00034
00:09.8	0.000883	-0.00034
00:09.8	0.002104	0.003324
00:09.8	0.000883	-0.00034
00:09.9	-0.00156	-0.00034
00:10.0	-0.00034	-0.00522
00:10.0	0.000883	0.002104
00:10.0	0.003324	0.000883
00:10.1	0.002104	0.006986
00:10.1	-0.00034	-0.00034
00:10.2	-0.00034	-0.00034
00:10.2	-0.00156	0.000883
00:10.3	0.002104	0.000883
00:10.4	-0.00034	0.002104
00:10.4	-0.00034	0.002104
00:10.5	-0.004	-0.00156
00:10.5	0.000883	-0.00034
00:10.5	0.002104	0.000883
00:10.6	0.003324	0.003324
00:10.7	-0.00156	0.002104
00:10.7	-0.00034	-0.00034
00:10.7	-0.00278	-0.00278
00:10.8	0.000883	-0.00156
00:10.8	0.000883	0.002104
00:10.9	0.002104	0.000883
00:11.0	-0.00034	0.000883
00:11.0	-0.00156	-0.00034
00:11.1	0.000883	-0.00034
00:11.1	0.000883	0.002104
00:11.2	0.003324	0.000883
00:11.2	-0.00278	-0.00034
00:11.3	-0.00156	-0.00156
00:11.3	-0.00156	-0.00278

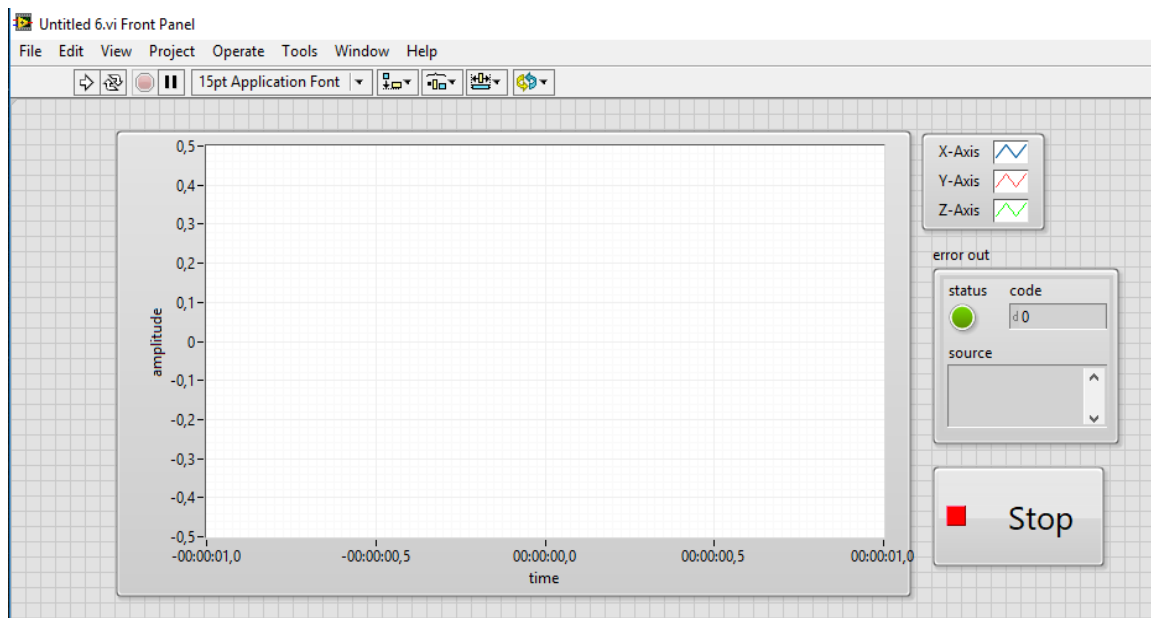
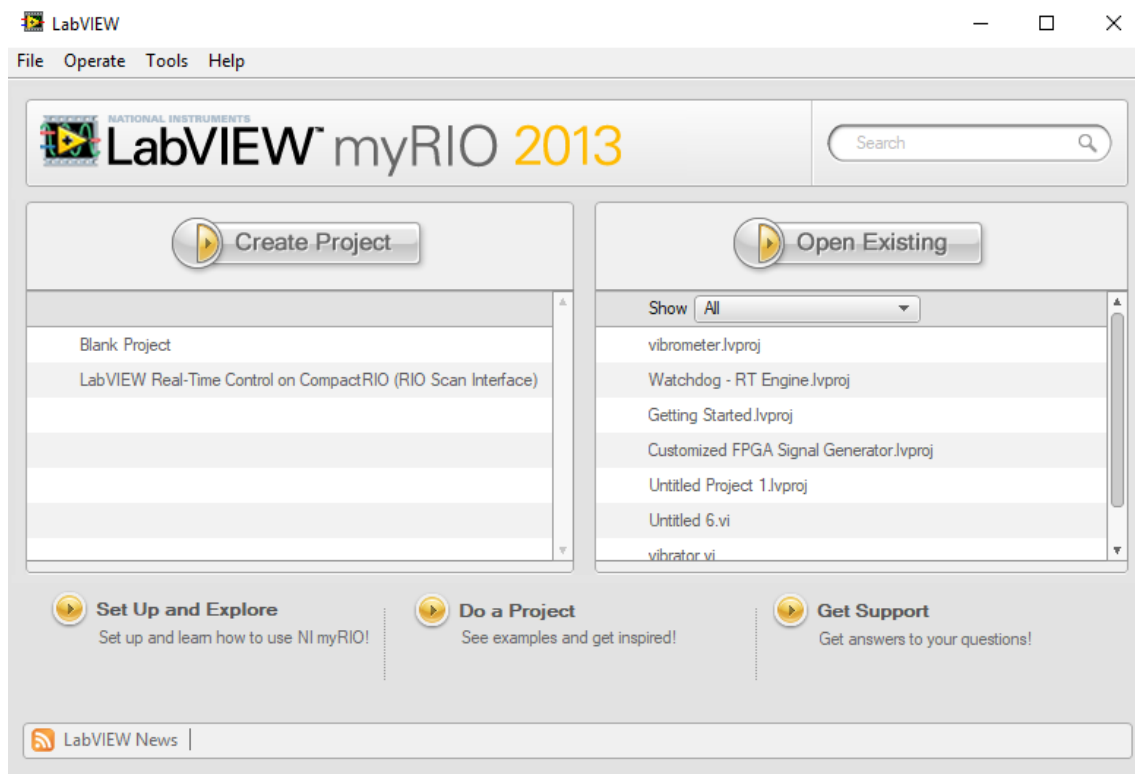
00:11.4	0.003324	0.000883
00:11.4	0.000883	-0.00156
00:11.5	0.000883	0.004545
00:11.5	-0.004	-0.00034
00:11.6	-0.00034	-0.00156
00:11.6	-0.00034	-0.00156
00:11.7	0.003324	0.000883
00:11.7	-0.00034	0.002104
00:11.7	0.000883	-0.00034
00:11.8	-0.00156	-0.00278
00:11.8	0.000883	0.000883
00:11.9	0.002104	0.000883
00:11.9	0.002104	0.004545
00:12.0	-0.00522	0.002104
00:12.0	-0.00034	-0.00156
00:12.1	-0.00156	-0.00156
00:12.2	0.003324	-0.00156
00:12.2	0.002104	0.000883
00:12.2	0.000883	0.002104
00:12.3	-0.00278	-0.00034
00:12.4	0.000883	-0.00034
00:12.4	0.000883	0.000883
00:12.4	0.003324	0.000883
00:12.5	-0.00156	0.003324
00:12.6	-0.00156	-0.00034
00:12.6	0.000883	-0.00156
00:12.7	0.002104	-0.004
00:12.7	0.004545	-0.00034
00:12.8	0.002104	0.000883
00:12.8	-0.00156	0.004545
00:12.9	-0.00278	-0.00156
00:12.9	0.000883	0.002104
00:12.9	0.002104	-0.00156
00:13.0	0.002104	0.002104
00:13.1	-0.00034	0.002104
00:13.1	-0.00034	0.000883
00:13.1	0.000883	-0.00766
00:13.2	0.002104	0.000883
00:13.2	0.003324	0.000883
00:13.3	-0.00156	0.003324

00:13.4	-0.00278	0.002104
00:13.4	-0.00156	-0.00034
00:13.4	0.002104	-0.00156
00:13.5	0.003324	-0.00034
00:13.6	0.000883	0.002104
00:13.6	-0.00034	0.002104
00:13.6	-0.00156	-0.00034
00:13.7	0.000883	-0.00156
00:13.7	0.000883	-0.00156
00:13.8	0.002104	0.003324
00:13.9	-0.00278	0.002104

00:13.9	-0.00156	0.000883
00:13.9	0.002104	-0.00156
00:14.0	0.003324	-0.004
00:14.1	0.002104	-0.00034
00:14.1	-0.00156	0.000883
00:14.2	-0.00278	0.004545
00:14.2	0.000883	-0.00034
00:14.2	0.000883	-0.00278
00:14.3	0.003324	0.002104
00:14.3	-0.00156	0.000883
00:14.4	-0.00034	0.003324

Lampiran 10

Tampilan Software Labview 2013



Hasil Uji Foto Mikro pada Benda Kerja Hasil Proses *End Milling*

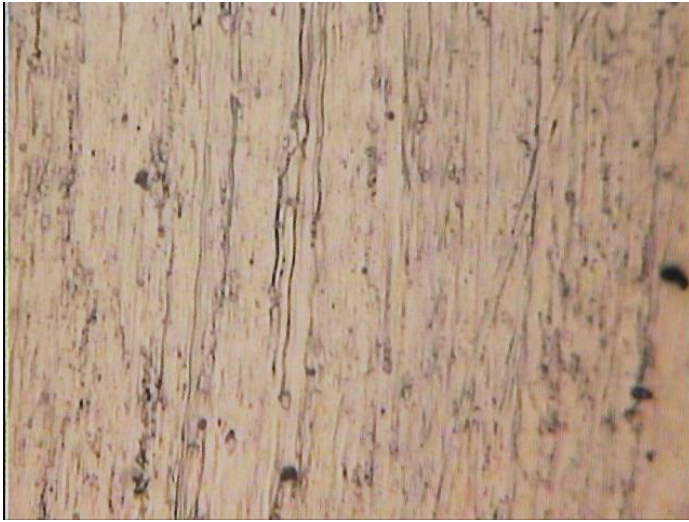


Foto mikro benda kerja hasil proses *End Milling* Dengan Variasi *Depth of cut* 50 mm dengan menggunakan magnet



Foto mikro benda kerja hasil proses *End Milling* Dengan Variasi *Depth of cut* 50 mm tanpa menggunakan magnet



Foto mikro benda kerja hasil proses *End Milling* Dengan Variasi *Depth of cut* 100 mm dengan menggunakan magnet



Foto mikro benda kerja hasil proses *End Milling* Dengan Variasi *Depth of cut* 100 mm tanpa menggunakan magnet



Foto mikro benda kerja hasil proses *End Milling* Dengan Variasi *Depth of cut* 150 mm tanpa menggunakan magnet



Foto mikro benda kerja hasil proses *End Milling* Dengan Variasi *Depth of cut* 150 mm tanpa menggunakan magnet

Lampiran 12

Uji Besar Medan Magnet



KEMENTERIAN RISET, TEKNOLOGI DAN PENDIDIKAN TINGGI
UNIVERSITAS BRAWIJAYA
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM

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<http://mipa.ub.ac.id> E-mail : mipa@ub.ac.id

Yang bertanda tangan dibawah ini menerangkan dengan sesungguhnya bahwa mahasiswa:

Nama : Aryo Aprianto
Nim : 1250602020111039
Instansi : Universitas Brawijaya
Program Studi : Teknik Mesin

Benar-benar telah melakukan penelitian dan pengambilan data pengujian kekuatan magnet menggunakan alat Tesla meter di Laboratorium Fisika Lanjutan Fakultas MIPA Universitas Brawijaya Malang pada tanggal 14 September 2017, guna keperluan penyusunan skripsi dengan judul :

"Pengaruh *Depth of cut* Terhadap Kekasaran Permukaan Alumunium 6061 Pada Proses *End Milling* Dengan Peredaman Magnet Permanen"

Hasil Pengujian

No.	Jenis Magnet	Kekuatan (mT)
1	Neodymium N35 (Magnet 1)	1430
2	Neodymium N35 (Magnet 2)	1430

Mengetahui,
Kepala laboratorium Fisika Lanjutan,

Drs. Unggul Pundjung Juswono, M.Sc
NIP 19650111 199002 1002