

## LAMPIRAN

Tabel Persediaan komponen mesin frais No. 1

No	Nama komponen	type	Jumlah Stok
1	Fan Belt	3HBJ-1692	15
2	Pin Spindle	TILEMENT	100
3	Cutter Tool	End Mill Cutter	150
4	Dinamo	186 FA	4
5	Gear Box	Gear Reducer	40

Tabel Downtime mesin Frais No. 1 dalam satu tahun 2021-2022

Tanggal	<i>Downtime</i> (menit)	Nama Komponen	Jenis Kerusakan	Biaya Pemeliharaan
05/09/20 21	35	Cutter Tool	Aus	400000
15/09/20 21	125	Pin Spindle	Patah	500000
18/09/20 21	460	Gear box	Aus/Pelumas an	1200000
25/09/20 21	185	Dinamo	Terbakar	1500000
28/09/20 21	25	Cutter Tool	Aus	300000
29/09/20 21	50	Fan belt	Putus	150000
20/10/20 21	35	Cutter Tool	Aus	395000
11/11/20 21	75	Fan Belt	Putus	200000
25/11/20 21	30	Cutter Tool	Aus	280000
18/12/20 21	28	Cutter Toll	Aus	240000
03/01/20 22	26	Cutter Tool	Aus	200000
07/01/20 22	56	Fan belt	Patah	180000
15/01/20 22	220	Gear Box	Aus/Pelumas an	900000
23/01/20 22	36	Cutter Toll	Aus	300000

Tanggal	<i>Downtime</i> (menit)	Nama Komponen	Jenis Kerusakan	Biaya Pemeliharaan
31/01/20 22	45	Gear Box	Aus/Pelumas an	300000
07/02/20 22	80	Pin Spindle	Patah	350000
18/02/20 22	30	Cutter Tool	Aus	280000
23/02/20 22	60	Gear Box	Aus/pelumas an	370000
12/03/20 22	34	Cutter Tool	Aus	300000
24/03/20 22	70	Pin Spindle	Patah	280000
17/04/20 22	68	Fan Belt	Putus	220000
24/04/20 22	26	Cutter Tool	Aus	200000
09/05/20 22	32	Cutter Tool	Aus	280000
14/05/20 22	75	Pin Spindle	Patah	320000
18/05/20 22	200	Dinamo	Terbakar	1700000
21/05/20 22	80	Gear box	Aus/Pelumas an	390000
26/05/20 22	60	Fan belt	Patah	190000
31/05/20 22	37	Cutter Tool	Aus	320000
13/06/20 22	65	Gear Box	Aus/Pelumas an	300000
19/06/20 22	25	Cutter Tool	Aus	190000
29/06/20 22	56	Pin Spindle	Patah	240000
04/07/20 22	31	Cutter Tool	Aus	270000
15/07/20 22	76	Fan Belt	Patah	330000
30/07/20 22	29	Cutter Tool	Aus	210000

Tanggal	<i>Downtime</i> (menit)	Nama Komponen	Jenis Kerusakan	Biaya Pemeliharaan
12/08/20 22	64	Pin Spindle	Patah	300000
14/08/20 22	25	Cutter Toll	Aus	190000
17/08/20 22	170	Dinamo	Terbakar	1100000
24/08/20 22	110	Gear box	Aus/Pelumas an	360000
30/08/20 22	28	Cutter Tool	Aus	200000
Jumlah	2962			

Tabel Persediaan komponen mesin bubut No. 2

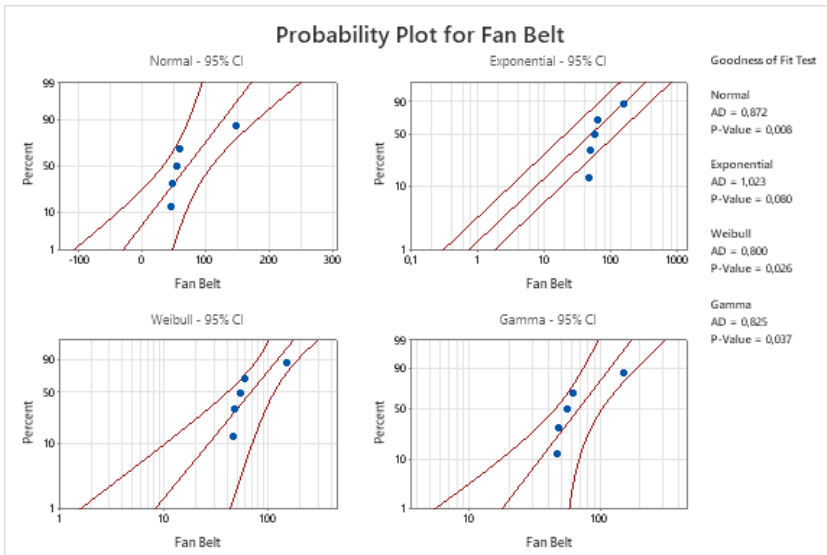
No	Nama komponen	type	Jumlah Stok
1	Chuck	3A-100901	10
2	Mata Pahat	WMLHL12-4C	50
3	Fead Shaft	K16	7
4	Dinamo	180F	2
5	Carriage	A394-1	20
6	tail Stock	DMG	30

Tabel Downtime mesin Bubut No. 2 dalam satu tahun 2021-2022

Tanggal	<i>Downtime</i> (menit)	Nama Komponen	Jenis Kerusakan	Biaya Pemeliharaan
15/09/20 21	98	Chuck	Oleng/seret	800000
26/09/20 21	12	Tail stock	Kotor	200000
30/09/20 21	37	Mata Pahat	Aus	300000
21/10/20 21	80	Carriage	Patah	480000
24/10/20 21	70	Fead shaft	Macet	500000
29/10/20 21	25	Mata Pahat	Aus	245000
02/12/20 21	30	Mata Pahat	Aus	280000

Tanggal	<i>Downtime</i> (menit)	Nama Komponen	Jenis Kerusakan	Biaya Pemeliharaan
25/12/20 21	15	Tail stock	Kotor	230000
11/01/20 22	102	Chuck	Oleng/seret	820000
19/01/20 22	240	Dinamo	Terbakar	1500000
31/01/20 22	20	Mata Pahat	Aus	200000
28/02/20 22	30	Mata Pahat	Aus	275000
08/03/20 22	17	Tail stock	Kotor	230000
18/03/20 22	79	Chuck	Oleng/seret	752000
29/03/20 22	27	Mata pahat	Aus	250000
02/04/20 22	65	Fead shaft	Macet	580000
23/04/20 22	26	Mata Pahat	Aus	245000
10/05/20 22	81	Chuck	Oleng/Seret	760000
19/05/20 22	32	Mata Pahat	Aus	270000
20/05/20 22	16	Tail stock	Kotor	210000
23/06/20 22	34	Mata Pahat	Aus	280000
01/08/20 22	25	Mata pahat	Aus	240000
20/08/20 22	16	Tail stock	Kotor	210000
Jumlah	1177			

# MTTF mesin frais no 1



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
5	0	72,2	43,8600	55	47	150	2,14444	4,66219

## Goodness of Fit Test

Distribution	AD	P
Normal	0,872	0,008
Exponential	1,023	0,080
Weibull	0,800	0,026
Gamma	0,825	0,037

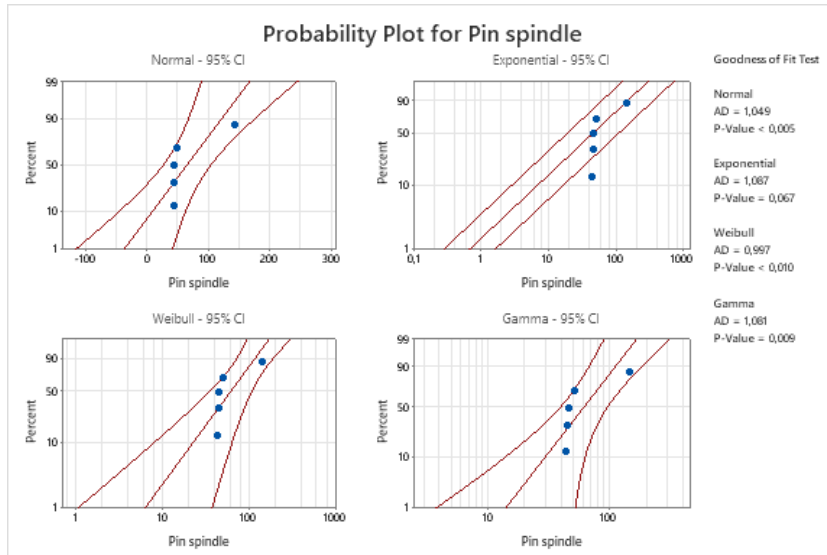
## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	72,20000		43,86000	
Exponential			72,20000	
Weibull		2,00447	82,21688	

Gamma

4,73062 15,26227

\* Scale: Adjusted ML estimate



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
5	0	66,2	44,1328	46	44	145	2,21564	4,92393

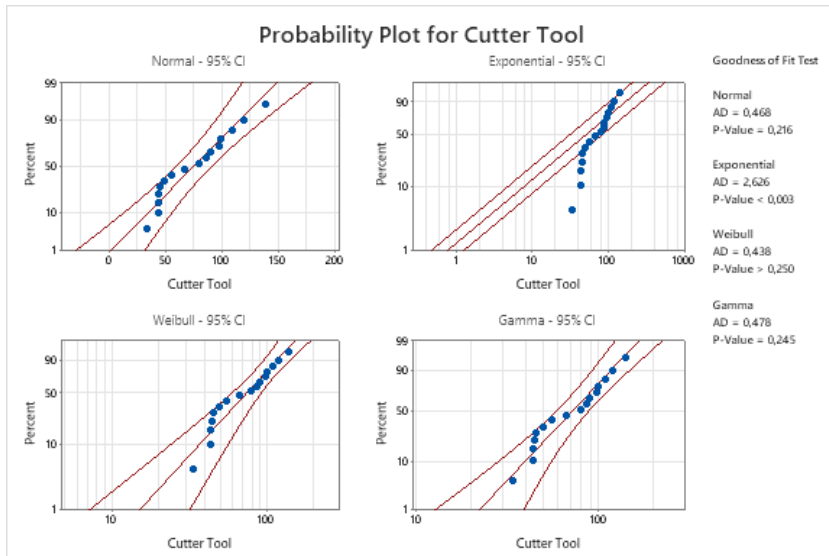
## Goodness of Fit Test

Distribution	AD	P
Normal	1,049	<0,005
Exponential	1,087	0,067
Weibull	0,997	<0,010
Gamma	1,081	0,009

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	66,20000		44,13275	
Exponential			66,20000	
Weibull		1,85261	75,37068	
Gamma		4,09410	16,16962	

\* Scale: Adjusted ML estimate



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
16	0	75,6875	32,0515	73,5	34	140	0,478922	-0,848509

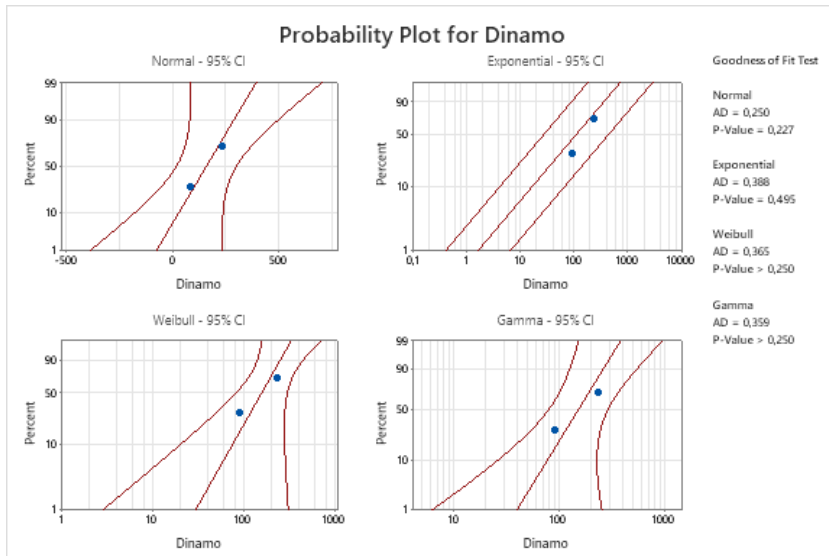
## Goodness of Fit Test

Distribution	AD	P
Normal	0,468	0,216
Exponential	2,626	<0,003
Weibull	0,438	>0,250
Gamma	0,478	0,245

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	75,68750		32,05146	
Exponential			75,68750	
Weibull		2,66033	85,51273	
Gamma		5,93284	12,75738	

\*Scale: Adjusted ML estimate



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
2	0	163	101,823	163	91	235	*	*

## Goodness of Fit Test

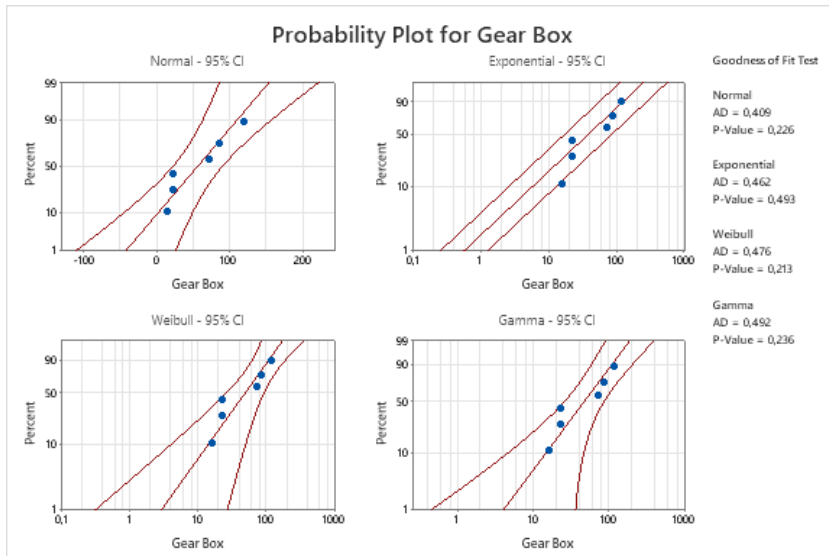
Distribution	AD	P
Normal	0,250	0,227
Exponential	0,388	0,495
Weibull	0,365	>0,250
Gamma	0,359	>0,250

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	163,00000		101,82338	
Exponential			163,00000	
Weibull		2,52903	184,90944	
Gamma		4,76749	34,18993	

\* Scale: Adjusted ML estimate





## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
6	0	56,6667	42,3352	47,5	16	119	0,514533	-1,60771

## Goodness of Fit Test

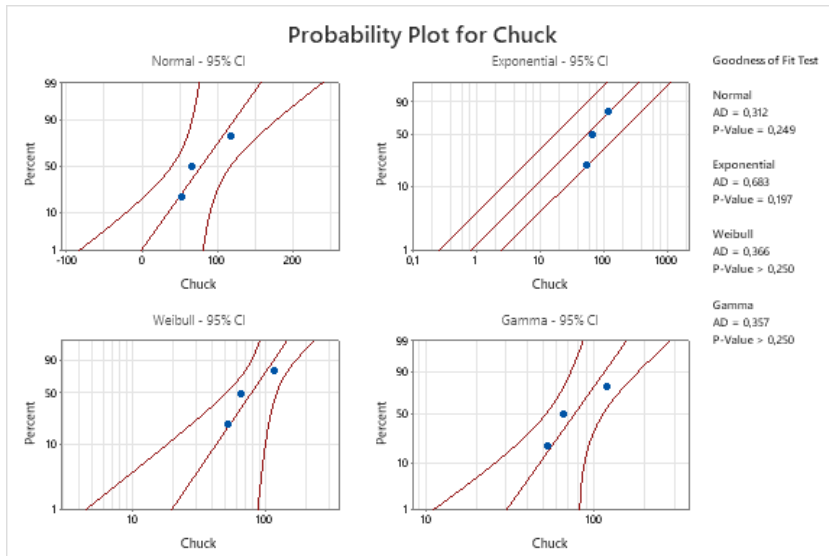
Distribution	AD	P
Normal	0,409	0,226
Exponential	0,462	0,493
Weibull	0,476	0,213
Gamma	0,492	0,236

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	56,66667		42,33517	
Exponential			56,66667	
Weibull		1,49786	63,04279	
Gamma		1,95986	28,91360	

\* Scale: Adjusted ML estimate

## MTTF mesin BUBUT no 2



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
3	0	79	34,3948	66	53	118	1,45786	*

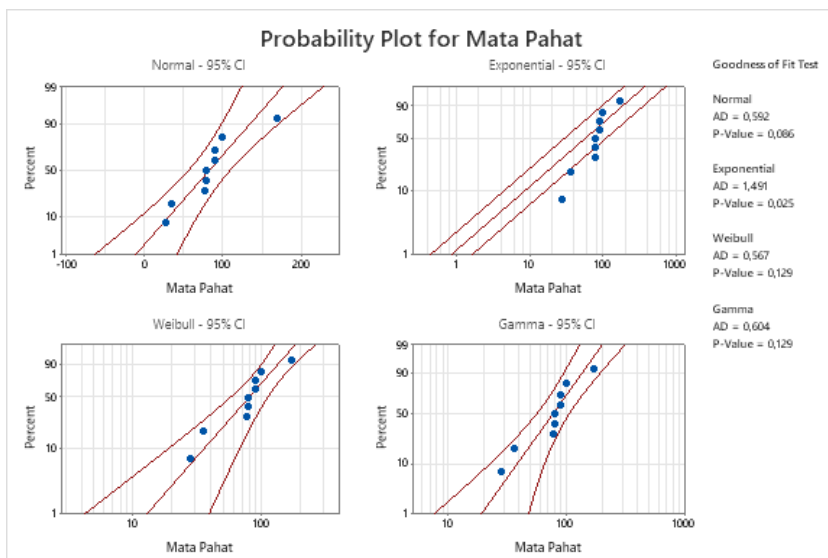
## Goodness of Fit Test

Distribution	AD	P
Normal	0,312	0,249
Exponential	0,683	0,197
Weibull	0,366	>0,250
Gamma	0,357	>0,250

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	79,00000		34,39477	
Exponential			79,00000	
Weibull		3,05776	88,75393	
Gamma		8,60389	9,18189	

\* Scale: Adjusted ML estimate



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
9	0	83,5556	40,6667	80	28	170	0,888178	2,33892

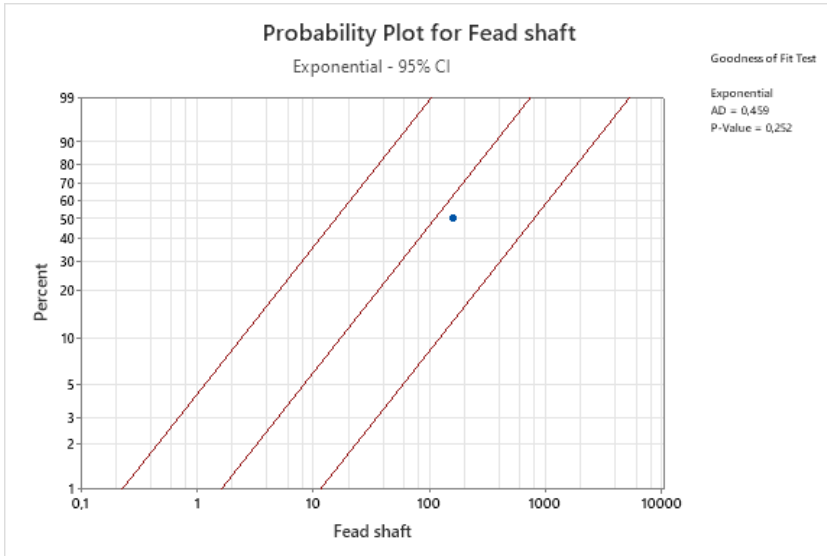
## Goodness of Fit Test

Distribution	AD	P
Normal	0,592	0,086
Exponential	1,491	0,025
Weibull	0,567	0,129
Gamma	0,604	0,129

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	83,5556		40,6667	
Exponential			83,5556	
Weibull		2,31064	94,41264	
Gamma		4,43527	18,83891	

\* Scale: Adjusted ML estimate



## Descriptive Statistics

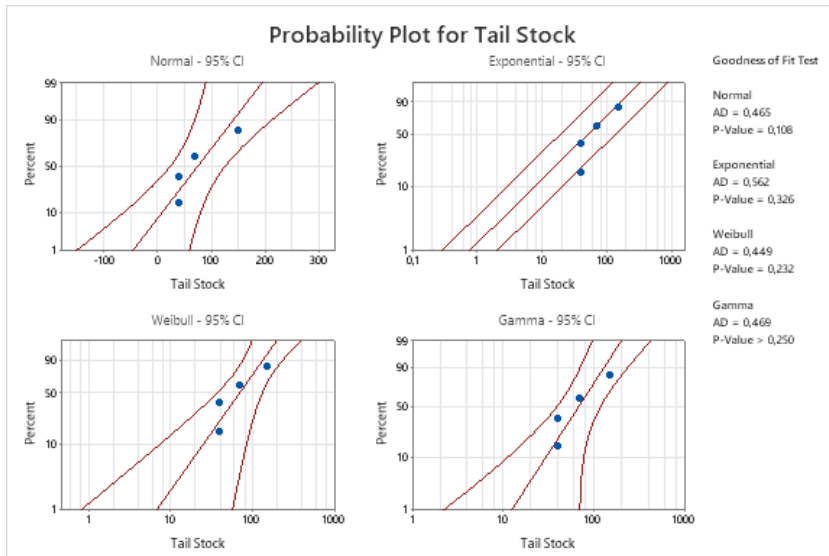
N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
1	0	160	*	160	160	160	*	*

## Goodness of Fit Test

Distribution	AD	P
Exponential	0,459	0,252

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Exponential			160,00000	



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
4	0	75	51,9615	55	40	150	1,59662	2,34019

## Goodness of Fit Test

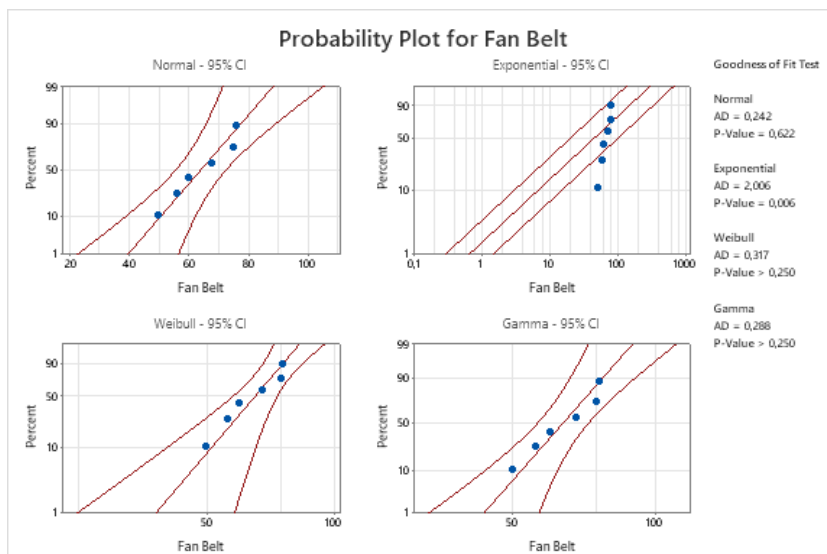
Distribution	AD	P
Normal	0,465	0,108
Exponential	0,562	0,326
Weibull	0,449	0,232
Gamma	0,469	>0,250

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	75,00000		51,96152	
Exponential			75,00000	
Weibull		1,81606	85,19737	
Gamma		3,31662	22,61341	

\* Scale: Adjusted ML estimate

# MTTR mesin frais no 1



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
6	0	64,1667	10,5530	64	50	76	-0,121364	-1,81239

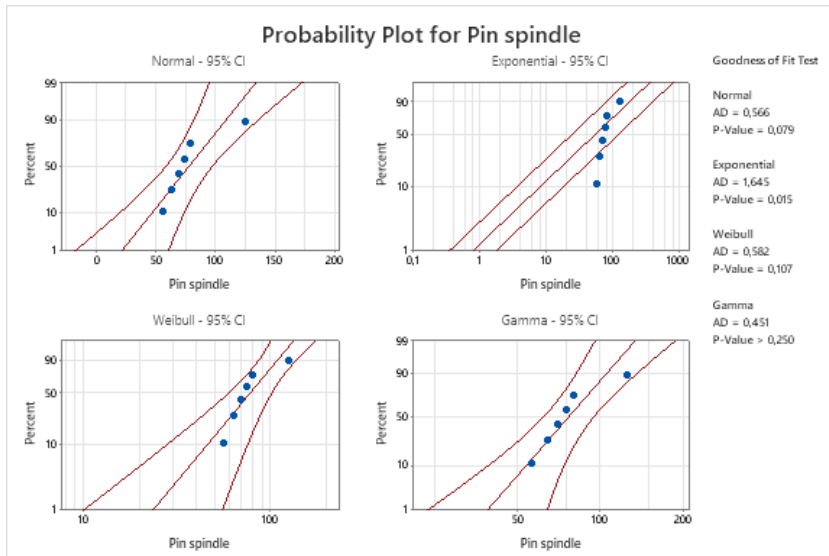
## Goodness of Fit Test

Distribution	AD	P
Normal	0,242	0,622
Exponential	2,006	0,006
Weibull	0,317	>0,250
Gamma	0,288	>0,250

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	64,16667		10,55304	
Exponential			64,16667	
Weibull		7,84453	68,32962	
Gamma		43,35960	1,47987	

\* Scale: Adjusted ML estimate



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
6	0	78,3333	24,3530	72,5	56	125	1,80575	3,77780

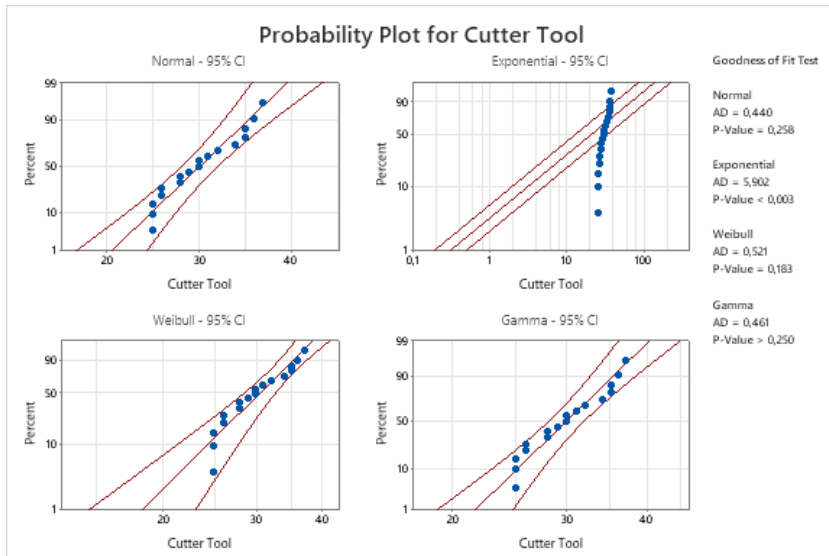
## Goodness of Fit Test

Distribution	AD	P
Normal	0,566	0,079
Exponential	1,645	0,015
Weibull	0,582	0,107
Gamma	0,451	>0,250

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	78,33333		24,35296	
Exponential			78,33333	
Weibull		3,53242	86,77647	
Gamma		14,77886	5,30036	

\* Scale: Adjusted ML estimate



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
17	0	30,1176	4,12132	30	25	37	0,269216	-1,29206

## Goodness of Fit Test

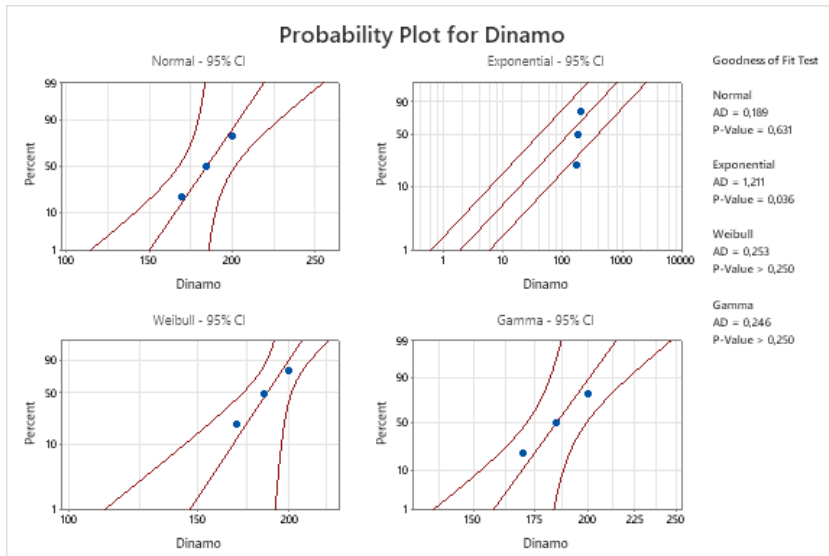
Distribution	AD	P
Normal	0,440	0,258
Exponential	5,902	<0,003
Weibull	0,521	0,183
Gamma	0,461	>0,250

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	30,11765		4,12132	
Exponential			30,11765	
Weibull		8,24269	31,90566	
Gamma		57,30711	0,52555	

\* Scale: Adjusted ML estimate





## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
3	0	185	15	185	170	200	0	*

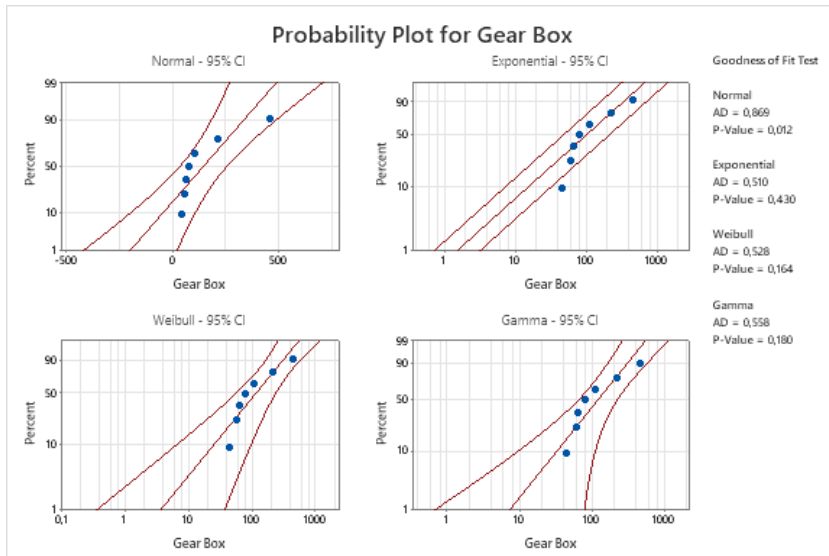
## Goodness of Fit Test

Distribution	AD	P
Normal	0,189	0,631
Exponential	1,211	0,036
Weibull	0,253	>0,250
Gamma	0,246	>0,250

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	185,00000		15,00000	
Exponential			185,00000	
Weibull		17,37307	190,74779	
Gamma		227,58239	0,81289	

\* Scale: Adjusted ML estimate



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
7	0	148,571	149,352	80	45	460	1,94710	3,68128

## Goodness of Fit Test

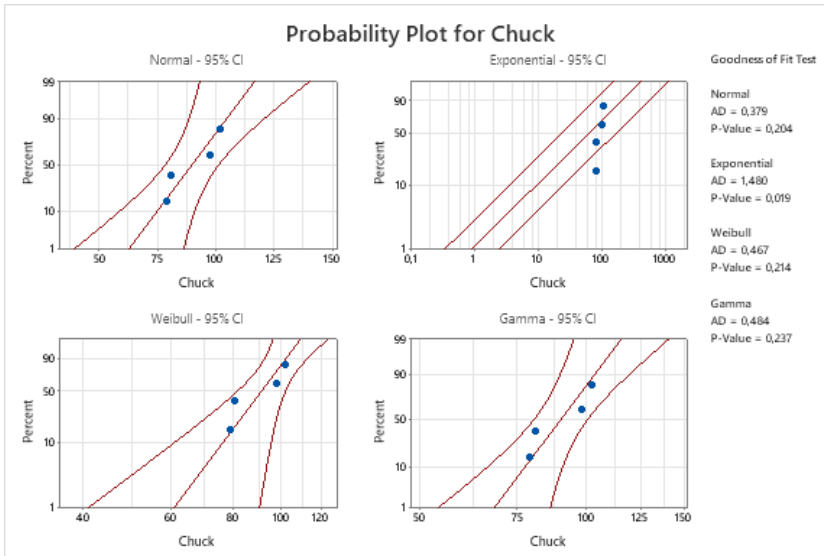
Distribution	AD	P
Normal	0,869	0,012
Exponential	0,510	0,430
Weibull	0,528	0,164
Gamma	0,558	0,180

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	148,57143		149,35177	
Exponential			148,57143	
Weibull		1,22008	160,23441	
Gamma		1,65258	89,90283	

\* Scale: Adjusted ML estimate

## MTRR mesin BUBUT no 2



### Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
4	0	90	11,6905	89,5	79	102	0,0751082	-5,28453

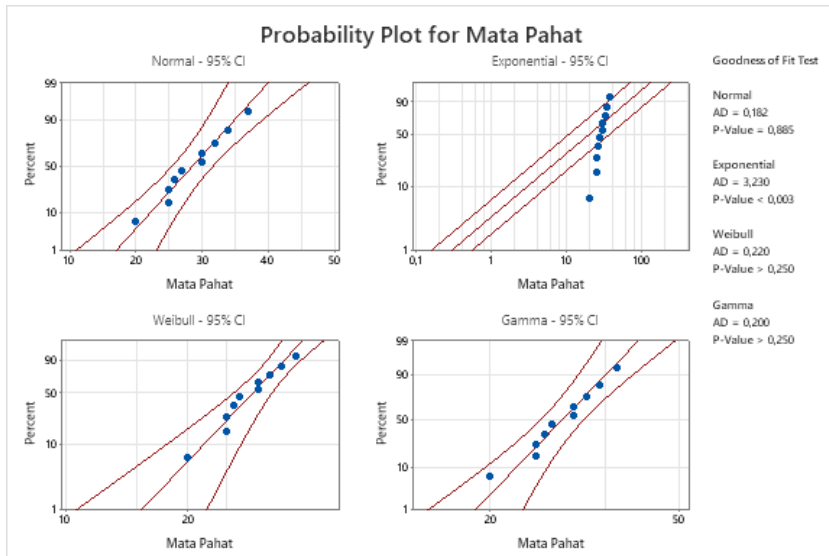
### Goodness of Fit Test

Distribution	AD	P
Normal	0,379	0,204
Exponential	1,480	0,019
Weibull	0,467	0,214
Gamma	0,484	0,237

### ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	90,00000		11,69045	
Exponential			90,00000	
Weibull		10,43595	94,57860	
Gamma		78,90219	1,14065	

\* Scale: Adjusted ML estimate



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
10	0	28,6	4,99333	28,5	20	37	0,0489959	-0,186548

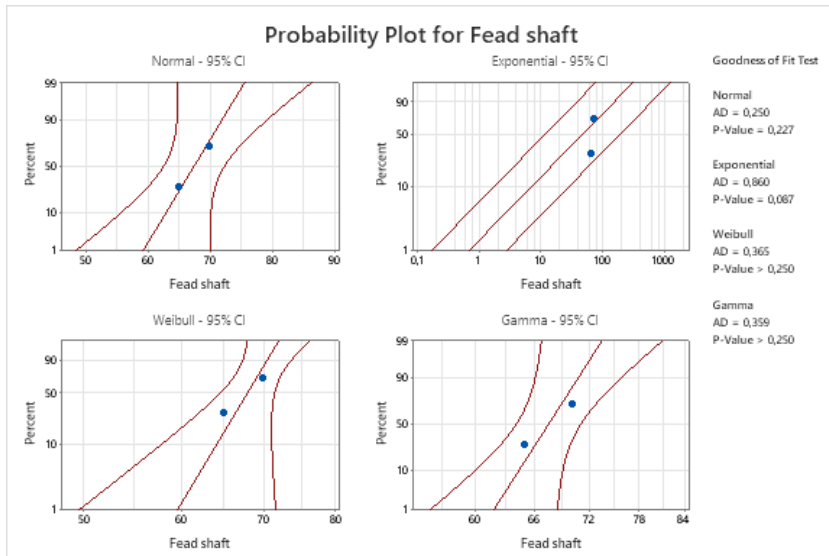
## Goodness of Fit Test

Distribution	AD	P
Normal	0,182	0,885
Exponential	3,230	<0,003
Weibull	0,220	>0,250
Gamma	0,200	>0,250

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	28,60000		4,99333	
Exponential			28,60000	
Weibull		6,69656	30,61650	
Gamma		35,56643	0,80413	

\* Scale: Adjusted ML estimate



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
2	0	67,5	3,53553	67,5	65	70	*	*

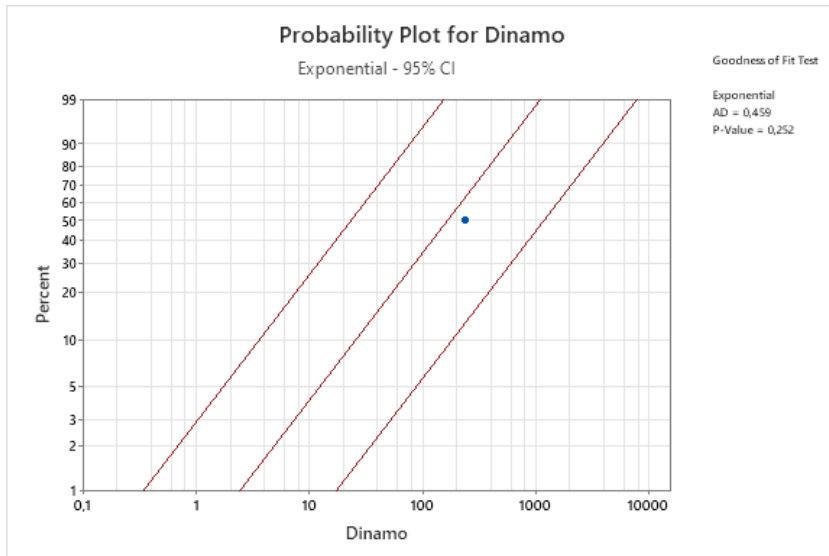
## Goodness of Fit Test

Distribution	AD	P
Normal	0,250	0,227
Exponential	0,860	0,087
Weibull	0,365	>0,250
Gamma	0,359	>0,250

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	67,50000		3,53553	
Exponential			67,50000	
Weibull		32,37651	68,70143	
Gamma		728,66651	0,09263	

\* Scale: Adjusted ML estimate



## Descriptive Statistics

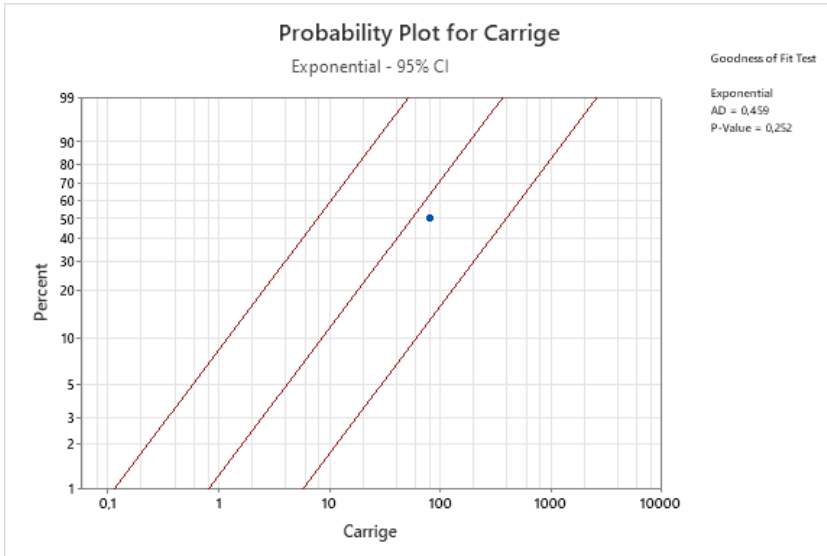
	N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
	1	0	240	*	240	240	240	*	*

## Goodness of Fit Test

Distribution	AD	P
Exponential	0,459	0,252

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Exponential			240,00000	



## Descriptive Statistics

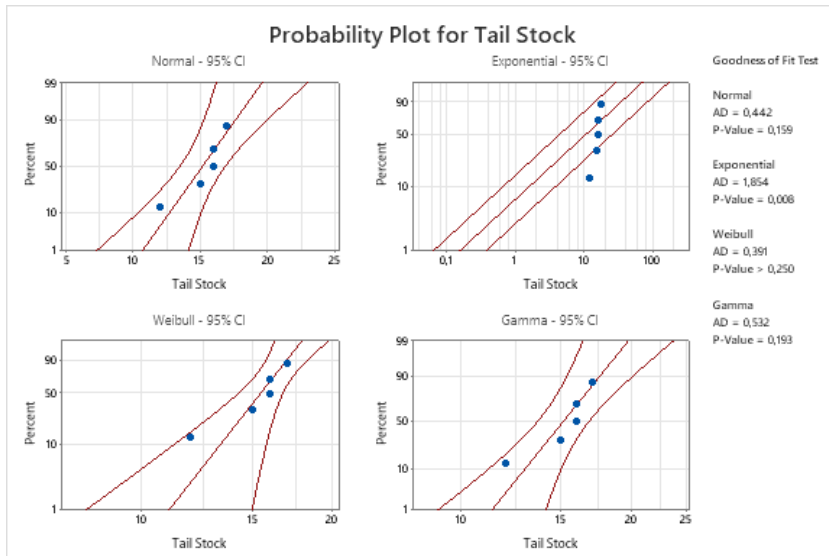
	N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
	1	0	80	*	80	80	80	*	*

## Goodness of Fit Test

Distribution	AD	P
Exponential	0,459	0,252

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Exponential			80,00000	



## Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
5	0	15,2	1,92354	16	12	17	-1,51747	2,60774

## Goodness of Fit Test

Distribution	AD	P
Normal	0,442	0,159
Exponential	1,854	0,008
Weibull	0,391	>0,250
Gamma	0,532	0,193

## ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	15,20000		1,92354	
Exponential			15,20000	
Weibull		12,68524	15,90189	
Gamma		71,33154	0,21309	

\* Scale: Adjusted ML estimate



Tabel Z Distribusi Normal

z	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08
-3.5	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
-3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
-3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
-3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005
-3.1	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007
-3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010
-2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014
-2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020
-2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027
-2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037
-2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049
-2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066
-2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087
-2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113
-2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146
-2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188
-1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239
-1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301
-1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375
-1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465
-1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571
-1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694
-1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838
-1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003
-1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190
-1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401
-0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635
-0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894
-0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177
-0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483
-0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810
-0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156
-0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520
-0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897
-0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286
-0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535

**Tabel nilai keandalan mesin frais No. 1**

Tp (Hari)	Fan Belt	pin spindle	Cutter Tool	Dinamo	Gear Box
1	0,999855	0,999667	0,999993	0,9441	0,9066
2	0,999418	0,998799	0,999954	0,9429	0,9032
3	0,998689	0,997456	0,999865	0,9418	0,8997
4	0,997668	0,995668	0,99971	0,9406	0,8944
5	0,996355	0,993458	0,999476	0,9394	0,8907
6	0,994751	0,990841	0,999149	0,9382	0,8849
7	0,992857	0,987832	0,998717	0,937	0,881
8	0,990675	0,984444	0,998171	0,9357	0,877
9	0,988206	0,980687	0,997499	0,9345	0,8708
10	0,985453	0,976574	0,996691	0,9332	0,8665
11	0,982418	0,972113	0,995738	0,9319	0,8621
12	0,979103	0,967316	0,994631	0,9306	-1445
13	0,975511	0,962191	0,993361	0,9292	0,8508
14	0,971646	0,956749	0,99192	0,9279	0,8461
15	0,967509	0,950999	0,9903	0,9265	0,8389
16	0,963106	0,94495	0,988493	0,9251	0,834
17	0,958439	0,938611	0,986493	0,9236	0,8264
18	0,953513	0,931992	0,984292	0,9222	0,8212
19	0,948331	0,925103	0,981884	0,9207	0,8159
20	0,942899	0,917951	0,979263	0,9192	0,8078
21	0,93722	0,910546	0,976423	0,9177	0,8023
22	0,9313	0,902899	0,973359	0,9162	0,7967
23	0,925143	0,895017	0,970065	0,9147	0,7881
24	0,918755	0,88691	0,966537	0,9147	0,7823
25	0,912141	0,878587	0,962771	0,9131	0,7764
26	0,905306	0,870058	0,958762	0,9115	0,7673
27	0,898256	0,861331	0,954507	0,9099	0,7611
28	0,890997	0,852417	0,950003	0,9082	0,7549
29	0,883535	0,843323	0,945247	0,9066	0,7454
30	0,875876	0,834059	0,940237	0,9049	0,7389
31	0,868025	0,824634	0,93497	0,9032	0,7291
32	0,85999	0,815057	0,929446	0,9015	0,7224
33	0,851776	0,805338	0,923663	0,8997	0,7157

Tp (Hari)	Fan Belt	pin spindle	Cutter Tool	Dinamo	Gear Box
34	0,843391	0,795484	0,91762	0,898	0,7054
35	0,834841	0,785506	0,911318	0,8962	0,6985
36	0,826132	0,775411	0,904755	0,8944	0,6915
37	0,817272	0,765209	0,897934	0,8925	0,6808
38	0,808266	0,754907	0,890854	0,8907	0,6736
39	0,799123	0,744516	0,883518	0,8888	0,6664
40	0,789848	0,734042	0,875928	0,8869	0,6554
41	0,78045	0,723495	0,868084	0,8849	0,648
42	0,770934	0,712883	0,859992	0,883	0,6368
43	0,761308	0,702214	0,851653	0,881	0,6293
44	0,75158	0,691495	0,843072	0,879	0,6217
45	0,741755	0,680735	0,834252	0,877	0,6103
46	0,731841	0,669942	0,825198	0,8749	0,6026
47	0,721846	0,659122	0,815915	0,8729	0,5948
48	0,711775	0,648284	0,806408	0,8708	0,5832
49	0,701636	0,637435	0,796684	0,8686	0,5753
50	0,691436	0,626581	0,786747	0,8665	0,5675
51	0,681183	0,615731	0,776606	0,8643	0,5557
52	0,670881	0,60489	0,766266	0,8621	0,5478
53	0,660539	0,594066	0,755735	0,8599	0,5359
54	0,650164	0,583265	0,74502	0,8577	0,5279
55	0,639761	0,572492	0,734131	0,8554	0,5199
56	0,629337	0,561755	0,723073	0,8531	0,508
57	0,618899	0,55106	0,711858	0,8508	0,5
58	0,608454	0,540411	0,700492	0,8485	0,492
59	0,598007	0,529815	0,688986	0,8461	0,4801
60	0,587564	0,519277	0,677349	0,8438	0,4721
61	0,577132	0,508803	0,66559	0,8413	0,4641
62	0,566717	0,498396	0,653719	0,8389	0,4522
63	0,556324	0,488063	0,641746	0,8365	0,4443
64	0,545959	0,477808	0,629682	0,834	0,4325
65	0,535628	0,467635	0,617536	0,8315	0,4247
66	0,525337	0,457548	0,605319	0,8289	0,4168
67	0,515089	0,447552	0,593043	0,8264	0,4052

Tp (Hari)	Fan Belt	pin spindle	Cutter Tool	Dinamo	Gear Box
68	0,504892	0,437651	0,580716	0,8238	0,3974
69	0,494749	0,427848	0,568351	0,8212	0,3897
70	0,484665	0,418147	0,555957	0,8186	0,3783
71	0,474646	0,408551	0,543546	0,8159	0,3707
72	0,464695	0,399063	0,531129	0,8133	0,3632
73	0,454818	0,389686	0,518715	0,8106	0,352
74	0,445018	0,380424	0,506316	0,8078	0,3446
75	0,4353	0,371278	0,493942	0,8051	0,3336
76	0,425667	0,362251	0,481603	0,8023	0,33
77	0,416124	0,353345	0,469311	0,7995	0,3192
78	0,406673	0,344563	0,457074	0,7967	0,3085
79	0,397319	0,335906	0,444904	0,7939	0,3015
80	0,388064	0,327377	0,432809	0,7939	0,2946
81	0,378912	0,318976	0,4208	0,791	0,2843
82	0,369865	0,310705	0,408886	0,7881	0,2776
83	0,360927	0,302565	0,397076	0,7852	0,2709
84	0,352101	0,294558	0,385379	0,7823	0,2611
85	0,343387	0,286685	0,373803	0,7794	0,2546
86	0,33479	0,278945	0,362357	0,7764	0,2451
87	0,326311	0,271341	0,351048	0,7734	0,2389
88	0,317951	0,263872	0,339885	0,7704	0,2327
89	0,309714	0,256539	0,328874	0,7673	0,2236
90	0,3016	0,249342	0,318023	0,7642	0,2177
91	0,293611	0,242281	0,307337	0,7611	0,2119
92	0,285749	0,235357	0,296824	0,758	0,2033
93	0,278014	0,228569	0,286488	0,7549	0,1977
94	0,270408	0,221917	0,276337	0,7517	0,1922
95	0,262932	0,2154	0,266373	0,7486	0,1841
96	0,255586	0,209019	0,256603	0,7454	0,1788
97	0,248372	0,202772	0,24703	0,7422	0,1736
98	0,241289	0,196659	0,237658	0,7389	0,166
99	0,234339	0,19068	0,22849	0,7357	0,1611
100	0,22752	0,184833	0,21953	0,7324	0,1539
101	0,220835	0,179117	0,21078	0,7291	0,1492

Tp (Hari)	Fan Belt	pin spindle	Cutter Tool	Dinamo	Gear Box
102	0,214281	0,173532	0,202243	0,7257	0,1446
103	0,207861	0,168076	0,193919	0,7224	0,1379
104	0,201572	0,162749	0,185812	0,719	0,1335
105	0,195416	0,157549	0,17792	0,7157	0,1292
106	0,189391	0,152475	0,170247	0,7123	0,123
107	0,183497	0,147525	0,162791	0,7088	0,119
108	0,177734	0,142698	0,155552	0,7054	0,1151
109	0,1721	0,137992	0,148531	0,7019	0,1093
110	0,166595	0,133407	0,141726	0,6985	0,1056
111	0,161218	0,12894	0,135136	0,695	0,1003
112	0,155969	0,12459	0,128761	0,6915	0,0968
113	0,150845	0,120355	0,122597	0,6879	0,0934
114	0,145846	0,116233	0,116644	0,6844	0,0885
115	0,14097	0,112224	0,110899	0,6808	0,0853
116	0,136217	0,108324	0,10536	0,6772	0,0823
117	0,131585	0,104533	0,100023	0,6736	0,0778
118	0,127073	0,100848	0,094886	0,67	0,0749
119	0,122678	0,097268	0,089946	0,6664	0,0721
120	0,118401	0,09379	0,085199	0,6628	0,0681
121	0,114238	0,090413	0,080641	0,6591	0,0655
122	0,110189	0,087135	0,076269	0,6554	0,0618
123	0,106252	0,083955	0,07208	0,6517	0,0594
124	0,102424	0,080869	0,068068	0,648	0,0571
125	0,098705	0,077877	0,06423	0,6443	0,0537
126	0,095093	0,074976	0,060561	0,6406	0,0516
127	0,091586	0,072164	0,057057	0,6368	0,0495
128	0,088182	0,069441	0,053714	0,6331	0,0465
129	0,084879	0,066802	0,050527	0,6293	0,0446
130	0,081675	0,064248	0,047491	0,6255	0,0427
131	0,078569	0,061775	0,044602	0,6217	0,0401
132	0,075558	0,059382	0,041856	0,6179	0,0384
133	0,072641	0,057068	0,039247	0,6141	0,0359
134	0,069816	0,054829	0,036771	0,6103	0,0344
135	0,06708	0,052665	0,034423	0,6064	0,0329

Tp (Hari)	Fan Belt	pin spindle	Cutter Tool	Dinamo	Gear Box
136	0,064433	0,050574	0,032198	0,6064	0,0307
137	0,061872	0,048553	0,030093	0,6026	0,0294
138	0,059394	0,046601	0,028102	0,5987	0,0281
139	0,056999	0,044716	0,026221	0,5948	0,0262
140	0,054684	0,042896	0,024446	0,591	0,025
141	0,052448	0,04114	0,022772	0,5871	0,0239
142	0,050288	0,039446	0,021195	0,5832	0,0222
143	0,048202	0,037812	0,01971	0,5793	0,0212
144	0,046189	0,036237	0,018314	0,5753	0,0197
145	0,044247	0,034718	0,017002	0,5714	0,0188
146	0,042374	0,033255	0,01577	0,5675	0,0179
147	0,040569	0,031845	0,014616	0,5636	0,0166
148	0,038828	0,030488	0,013534	0,5596	0,0158
149	0,037151	0,029181	0,012521	0,5557	0,015
150	0,035536	0,027923	0,011574	0,5517	0,0139
151	0,033981	0,026712	0,010689	0,5478	0,0136
152	0,032484	0,025548	0,009864	0,5438	0,0125
153	0,031044	0,024428	0,009094	0,5398	0,0116
154	0,029659	0,023351	0,008376	0,5359	0,011
155	0,028328	0,022316	0,007709	0,5319	0,0104
156	0,027048	0,021322	0,007088	0,5319	0,0096
157	0,025818	0,020367	0,006511	0,5239	0,0091
158	0,024637	0,01945	0,005976	0,5199	0,0084
159	0,023502	0,01857	0,00548	0,516	0,008
160	0,022413	0,017725	0,005021	0,512	0,0075
161	0,021369	0,016914	0,004595	0,508	0,0069
162	0,020367	0,016136	0,004202	0,504	0,0066
163	0,019406	0,015391	0,003839	0,5	0,0062

**Tabel nilai keandalan mesin bubut No. 2**

TP(Hari)	Chuck	Mata Pahat	Fead shaft	Tail stock
1	0,9884	0,999973	0,993769	0,999688
2	0,9875	0,999954	0,987578	0,998902
3	0,9864	0,999865	0,981425	0,997708
4	0,9854	0,99971	0,97531	0,996139
5	0,9842	0,999476	0,969233	0,994215
6	0,983	0,999149	0,963194	0,991954
7	0,9817	0,998717	0,957193	0,989368
8	0,9803	0,998171	0,951229	0,98647
9	0,9793	0,997499	0,945303	0,98327
10	0,9778	0,996691	0,939413	0,979778
11	0,9761	0,995738	0,93356	0,976003
12	0,9744	0,994631	0,927743	0,971953
13	0,9726	0,993361	0,921963	0,967637
14	0,9706	0,99192	0,916219	0,963062
15	0,9686	0,9903	0,91051	0,958236
16	0,9664	0,988493	0,904837	0,953166
17	0,9641	0,986493	0,8992	0,947859
18	0,9616	0,984292	0,893597	0,942323
19	0,9591	0,981884	0,88803	0,936566
20	0,9573	0,979263	0,882497	0,930592
21	0,9545	0,976423	0,876998	0,924411
22	0,9515	0,973359	0,871534	0,918028
23	0,9484	0,970065	0,866104	0,91145
24	0,9452	0,966537	0,860708	0,904685
25	0,9418	0,962771	0,855345	0,897738
26	0,9382	0,958762	0,850016	0,890617
27	0,9345	0,954507	0,84472	0,883328
28	0,9306	0,950003	0,839457	0,875878
29	0,9265	0,945247	0,834227	0,868272
30	0,9222	0,940237	0,829029	0,860519
31	0,9192	0,93497	0,823864	0,852624
32	0,9147	0,929446	0,818731	0,844594
33	0,9099	0,923663	0,81363	0,836435

TP(Hari)	Chuck	Mata Pahat	Fead shaft	Tail stock
34	0,9049	0,91762	0,80856	0,828153
35	0,8997	0,911318	0,803523	0,819755
36	0,8944	0,904755	0,798516	0,811248
37	0,8888	0,897934	0,793541	0,802636
38	0,883	0,890854	0,788597	0,793927
39	0,877	0,883518	0,783684	0,785127
40	0,8708	0,875928	0,778801	0,776241
41	0,8643	0,868084	0,773948	0,767275
42	0,8599	0,859992	0,769126	0,758236
43	0,8531	0,851653	0,764334	0,74913
44	0,8461	0,843072	0,759572	0,739961
45	0,8389	0,834252	0,75484	0,730736
46	0,8315	0,825198	0,750137	0,721461
47	0,8238	0,815915	0,745463	0,71214
48	0,8159	0,806408	0,740818	0,70278
49	0,8078	0,796684	0,736203	0,693385
50	0,7995	0,786747	0,731616	0,683961
51	0,791	0,776606	0,727057	0,674514
52	0,7852	0,766266	0,722527	0,665048
53	0,7764	0,755735	0,718026	0,655568
54	0,7673	0,74502	0,713552	0,646079
55	0,758	0,734131	0,709106	0,636586
56	0,7486	0,723073	0,704688	0,627094
57	0,7389	0,711858	0,700298	0,617607
58	0,7291	0,700492	0,695934	0,60813
59	0,719	0,688986	0,691598	0,598668
60	0,7088	0,677349	0,687289	0,589223
61	0,6985	0,66559	0,683007	0,579802
62	0,6879	0,653719	0,678752	0,570407
63	0,6808	0,641746	0,674523	0,561043
64	0,67	0,629682	0,67032	0,551714
65	0,6591	0,617536	0,666144	0,542423
66	0,648	0,605319	0,661993	0,533174
67	0,6368	0,593043	0,657869	0,523971



TP(Hari)	Chuck	Mata Pahat	Fead shaft	Tail stock
68	0,6255	0,580716	0,65377	0,514817
69	0,6141	0,568351	0,649696	0,505715
70	0,6026	0,555957	0,645649	0,496669
71	0,591	0,543546	0,641626	0,487681
72	0,5793	0,531129	0,637628	0,478755
73	0,5675	0,518715	0,633655	0,469893
74	0,5596	0,506316	0,629707	0,461098
75	0,5478	0,493942	0,625784	0,452373
76	0,5359	0,481603	0,621885	0,443721
77	0,5239	0,469311	0,61801	0,435143
78	0,512	0,457074	0,61416	0,426642
79	0,5	0,444904	0,610333	0,418221
80	0,488	0,432809	0,606531	0,409881
81	0,4761	0,4208	0,602752	0,401624
82	0,4641	0,408886	0,598996	0,393453
83	0,4522	0,397076	0,595264	0,385368
84	0,4404	0,385379	0,591555	0,377373
85	0,4325	0,373803	0,58787	0,369467
86	0,4207	0,362357	0,584207	0,361653
87	0,409	0,351048	0,580567	0,353933
88	0,3974	0,339885	0,57695	0,346307
89	0,3859	0,328874	0,573355	0,338776
90	0,3745	0,318023	0,569783	0,331342
91	0,3632	0,307337	0,566233	0,324006
92	0,352	0,296824	0,562705	0,316768
93	0,3409	0,286488	0,559199	0,309629
94	0,33	0,276337	0,555715	0,302591
95	0,3192	0,266373	0,552252	0,295653
96	0,3121	0,256603	0,548812	0,288817
97	0,3015	0,24703	0,545392	0,282082
98	0,2912	0,237658	0,541994	0,275449
99	0,281	0,22849	0,538617	0,268919
100	0,2743	0,21953	0,535261	0,262492
101	0,2611	0,21078	0,531926	0,256167

TP(Hari)	Chuck	Mata Pahat	Fead shaft	Tail stock
102	0,2514	0,202243	0,528612	0,249946
103	0,242	0,193919	0,525319	0,243827
104	0,2327	0,185812	0,522046	0,237811
105	0,2236	0,17792	0,518793	0,231898
106	0,2148	0,170247	0,515561	0,226088
107	0,209	0,162791	0,512349	0,220379
108	0,2005	0,155552	0,509156	0,214773
109	0,1922	0,148531	0,505984	0,209269
110	0,1841	0,141726	0,502832	0,203866
111	0,1762	0,135136	0,499699	0,198564
112	0,1685	0,128761	0,496585	0,193362
113	0,1611	0,122597	0,493491	0,18826
114	0,1539	0,116644	0,490417	0,183257
115	0,1469	0,110899	0,487361	0,178352
116	0,1401	0,10536	0,484325	0,173545
117	0,1357	0,100023	0,481307	0,168835
118	0,1292	0,094886	0,478308	0,164222
119	0,123	0,089946	0,475328	0,159703
120	0,117	0,085199	0,472367	0,155279
121	0,1112	0,080641	0,469423	0,150949
122	0,1056	0,076269	0,466499	0,146712
123	0,1003	0,07208	0,463592	0,142566
124	0,0951	0,068068	0,460704	0,138511
125	0,0901	0,06423	0,457833	0,134545
126	0,0853	0,060561	0,454981	0,130668
127	0,0808	0,057057	0,452146	0,126879
128	0,0778	0,053714	0,449329	0,123177
129	0,0735	0,050527	0,446529	0,119559
130	0,0694	0,047491	0,443747	0,116026
131	0,0655	0,044602	0,440983	0,112577
132	0,0618	0,041856	0,438235	0,109209
133	0,0582	0,039247	0,435505	0,105922
134	0,0548	0,036771	0,432791	0,102714
135	0,0516	0,034423	0,430095	0,099585

TP(Hari)	Chuck	Mata Pahat	Fead shaft	Tail stock
136	0,0485	0,032198	0,427415	0,096533
137	0,0455	0,030093	0,424752	0,093557
138	0,0427	0,028102	0,422105	0,090656
139	0,0409	0,026221	0,419476	0,087829
140	0,0384	0,024446	0,416862	0,085074
141	0,0359	0,022772	0,414265	0,08239
142	0,0336	0,021195	0,411684	0,079775
143	0,0314	0,01971	0,409119	0,07723
144	0,0294	0,018314	0,40657	0,074751
145	0,0274	0,017002	0,404037	0,072339
146	0,0274	0,01577	0,401519	0,069992
147	0,0239	0,014616	0,399018	0,067708
148	0,0222	0,013534	0,396531	0,065487
149	0,0207	0,012521	0,394061	0,063327
150	0,0197	0,011574	0,391606	0,061227
151	0,0183	0,010689	0,389166	0,059185
152	0,017	0,009864	0,386741	0,057202
153	0,0158	0,009094	0,384331	0,055274
154	0,0146	0,008376	0,381937	0,053402
155	0,0136	0,007709	0,379557	0,051584
156	0,0125	0,007088	0,377192	0,049818
157	0,0116	0,006511	0,374842	0,048104
158	0,0107	0,005976	0,372507	0,046441
159	0,0099	0,00548	0,370186	0,044827
160	0,0091	0,005021	0,367879	0,043261

## BAB 6 BIOGRAFI PENULIS



Willy Widyaswara Pradana, laki-laki lahir di Kediri, 11 Juni 1997. Anak pertama dari dua bersaudara dari orang tua Wijiono dan Lely Ernaningsih. Penulis pertama kali memasuki pendidikan dasar formal di SDN Tanon 1 Papar Kediri pada tahun 2004 dan lulus pada tahun 2010. Penulis yang sama melanjutkan pendidikan di SMPN 1 Purwoasri Kediri dan lulus pada tahun 2013. Setelah lulus SMP, penulis melanjutkan ke SMK Krian 1 dan lulus pada tahun 2016. Dan pada tahun 2018, penulis terdaftar sebagai mahasiswa di Universitas 17 Agustus 1945 Surabaya Fakultas Teknik Jurusan Teknik Industri dan lulus pada tahun 2022.

Saya tidak ingin menjadi mahasiswa yang terbaik di kampus, yang saya inginkan ialah ketika saya lulus nanti saya ingin bisa berguna bagi orang lain atau instansi dimanapun saya berada. Jika ada guru dan dosen yang bertemu dengan saya mereka akan bilang kepada setiap orang dia adalah siswa atau mahasiswa yang saya banggakan. Dengan ketekunan dan motivasi yang besar untuk belajar dan berusaha, penulis telah menyelesaikan pekerjaan Tugas Akhir ini. Semoga tugas akhir ini dapat memberikan kontribusi positif bagi dunia pendidikan.