Lampiran Data History Kerusakan Mesin

Lampiran 1. Data kerusakan mesin *Welding Fail*

No.	Tanggal rusak	Komponen	Keterangan	Status	
				Diganti	Diperbaiki
1	04/01/2017	Welding roll	Welding roll buntu		✔
2	12/01/2017	Kontaktor	Kontaktor error	✔	
3	19/01/2017	Kontaktor	Kabel kontaktor putus		✔
4	20/01/2017	Kontaktor	Kabel kontaktor putus		✔
5	31/01/2017	Kontaktor	Kontaktor error	✔	
6	10/02/2017	Motor	Motor chain dog macet		✔
7	20/02/2017	Motor	Motor macet		✔
8	23/02/2017	Sensor	Sensor thermal macet	✔	
9	23/02/2017	Belt	Belt conveyor putus	✔	
10	27/02/2017	Sensor	Sensor conveyor error	✔	
11	28/02/2017	Belt	Belt conveyor putus	✔	
12	06/03/2017	Valve	Valve water chiller bocor	✔	
13	10/03/2017	Belt	Belt conveyor putus	✔	
14	20/03/2017	Motor	Motor elevator macet		✔
15	25/04/2017	Belt	Belt conveyor putus	✔	
16	27/04/2017	Welding roll	Welding roll buntu		✔
17	28/04/2017	Motor	Motor conveyor macet		✔
18	29/04/2017	Bearing	Bearing pulley pecah	✔	
19	09/05/2017	Valve	Valve water chiller bocor	✔	
20	12/05/2017	Belt	Belt conveyor putus	✔	
21	16/05/2017	Belt	Belt conveyor selip		✔
22	19/05/2017	Gear box	Gear box conveyor macet		✔
23	20/05/2017	Motor	Motor blower macet		✔
24	20/05/2017	Bearing	Bearing pulley pecah	✔	
25	02/06/2017	Kontaktor	Kontaktor palletizer error	✔	
26	07/06/2017	Bearing	Bearing tension pecah	✔	
27	12/06/2017	Belt	Belt conveyor putus	✔	
28	19/06/2017	Motor	Motor conveyor macet	✔	
29	10/07/2017	Belt	Belt conveyor putus	✔	
30	17/07/2017	Motor	Sensor palletizer error	✔	
31	20/07/2017	Gear box	Gear box terbakar	✔	
32	31/07/2017	Kontaktor	Kontaktor palletizer error	✔	
33	11/08/2017	Belt	Belt conveyor putus	✔	

34	12/08/2017	Belt	Belt conveyor macet		✔
35	14/08/2017	Belt	Belt Conveyor selip		✔
36	14/08/2017	Motor	Motor pemotong kawat error		✔
37	19/08/2017	Belt	Belt conveyor Selip		✔
38	22/08/2017	Sensor	Sensor conveyor error	✔	
39	28/08/2017	Belt	Belt conveyor putus	✔	
40	06/09/2017	Bearing	Bearing roll pecah	✔	
41	11/09/2017	Welding roll	Ganti upper welding roll	✔	
42	13/09/2017	Motor	Motor penggerak jammed		✔
43	29/09/2017	Sensor	Sensor palletizer error	✔	
44	30/09/2017	Kontaktor	Kontaktor palletizer error	✔	
45	02/10/2017	Belt	Belt conveyor putus	✔	
46	09/10/2017	Kontaktor	Kabel kontaktor putus		✔
47	17/10/2017	Welding roll	Welding roll buntu	✔	
48	21/10/2017	Belt	Belt conveyor putus	✔	
49	26/10/2017	Bearing	Bearing pecah		✔
50	31/10/2010	Sensor	Sensor conveyor error	✔	
51	06/11/2017	Shaft	Shaft roll conveyor aus		✔
52	08/11/2017	Welding roll	Welding roll buntu		✔
53	16/11/2017	Motor	Motor conveyor macet		✔
54	24/11/2017	Belt	Belt conveyor selip		✔
55	28/11/2017	Belt	Belt conveyor putus	✔	
56	02/12/2017	Belt	Belt conveyor putus	✔	
57	02/12/2017	Gear box	Penambahan oli gear box		✔
58	07/12/2017	Sensor	Sensor conveyor error	✔	
59	13/12/2017	Welding roll	Welding roll buntu		✔
60	15/12/2017	Sensor	Sensor palletizer error	✔	
61	19/12/2017	Gear box	Gear box macet		✔
62	27/12/2017	Kontaktor	Kontaktor error	✔	
63	29/12/2017	Belt	Belt conveyor putus	✔	

Lampiran 2. Waktu antar kerusakan komponen mesin *welding fail*

No.	Tanggal Kerusakan Komponen	TTF (Jam)	TTR (Menit)	Komponen Mesin
1	04/01/2017		45	Welding roll
2	12/01/2017		20	Kontaktor
3	19/01/2017	144	25	Kontaktor
4	20/01/2017	24	30	Kontaktor
5	31/01/2017	192	20	Kontaktor
6	10/02/2017		120	Motor
7	20/02/2017	190	50	Motor
8	23/02/2017		45	Sensor
9	23/02/2017		70	Belt
10	27/02/2017	95	50	Sensor
11	28/02/2017	119	75	Belt
12	06/03/2017		75	Valve
13	10/03/2017	239	60	Belt
14	20/03/2017	575	110	Motor
15	25/04/2017	863	70	Belt
16	27/04/2017	2231	30	Welding roll
17	28/04/2017	718	50	Motor
18	29/04/2017		60	Bearing
19	09/05/2017	503	135	Valve
20	12/05/2017	311	50	Belt
21	16/05/2017	71	85	Belt
22	19/05/2017		60	Gear box
23	20/05/2017	407	105	Motor
24	20/05/2017	383	25	Bearing
25	02/06/2017	2424	30	Kontaktor
26	07/06/2017	336	25	Bearing
27	12/06/2017	287	50	Belt
28	19/06/2017	694	60	Motor
29	10/07/2017	551	75	Belt
30	17/07/2017	647	50	Motor
31	20/07/2017	1223	60	Gear box
32	31/07/2017	1176	30	Kontaktor
33	11/08/2017	695	50	Belt
34	12/08/2017	23	70	Belt

35	14/08/2017	23	45	Belt
36	14/08/2017	671	50	Motor
37	19/08/2017	95	65	Belt
38	22/08/2017	3479	25	Sensor
39	28/08/2017	167	50	Belt
40	06/09/2017	1800	145	Bearing
41	11/09/2017	2664	230	Welding roll
42	13/09/2017	599	50	Motor
43	29/09/2017	816	25	Sensor
44	29/09/2017	1248	35	Kontaktor
45	02/10/2017	719	50	Belt
46	09/10/2017	191	30	Kontaktor
47	17/10/2017	716	60	Welding roll
48	23/10/2017	383	90	Belt
49	26/10/2017	1030	35	Bearing
50	31/10/2010	672	60	Sensor
51	06/11/2017		50	Shaft
52	08/11/2017	431	60	Welding roll
53	16/11/2017	1319	25	Motor
54	24/11/2017	695	45	Belt
55	28/11/2017	71	50	Belt
56	02/12/2017	71	40	Belt
57	02/12/2017	2687	60	Gear box
58	07/12/2017	767	45	Sensor
59	13/12/2017	719	50	Welding roll
60	15/12/2017	167	40	Sensor
61	19/12/2017	335	60	Gear box
62	27/12/2017	1560	30	Kontaktor
63	29/12/2017	503	50	Belt

Lampiran 3. Waktu antar kerusakan komponen *Belt*

No.	Tanggal Kerusakan Komponen	TTF (Jam)	TTR (Menit)	Komponen Mesin
1	23/02/2017		70	Belt
2	28/02/2017	119	75	Belt
3	10/03/2017	239	60	Belt
4	25/04/2017	863	70	Belt
5	12/05/2017	311	50	Belt
6	16/05/2017	71	85	Belt
7	12/06/2017	287	50	Belt
8	10/07/2017	551	75	Belt
9	11/08/2017	695	50	Belt
10	12/08/2017	23	70	Belt
11	14/08/2017	23	45	Belt
12	19/08/2017	95	65	Belt
13	28/08/2017	167	50	Belt
14	02/10/2017	719	50	Belt
15	23/10/2017	383	90	Belt
16	24/11/2017	695	45	Belt
17	28/11/2017	71	50	Belt
18	02/12/2017	71	40	Belt
19	29/12/2017	503	50	Belt

Lampiran 4. Waktu antar kerusakan komponen *Motor*

No.	Tanggal Kerusakan Komponen	TTF (Jam)	TTR (Menit)	Komponen Mesin
1	10/02/2017		120	Motor
2	20/02/2017	190	50	Motor
3	20/03/2017	575	110	Motor
4	28/04/2017	718	50	Motor
5	20/05/2017	407	105	Motor
6	19/06/2017	694	60	Motor
7	17/07/2017	647	50	Motor
8	14/08/2017	671	50	Motor
9	13/09/2017	599	50	Motor
10	16/11/2017	1319	25	Motor

Lampiran 5. Waktu antar kerusakan komponen Kontaktor

No.	Tanggal Kerusakan Komponen	TTF (Jam)	TTR (Menit)	Komponen Mesin
1	12/01/2017		20	Kontaktor
2	19/01/2017	144	25	Kontaktor
3	20/01/2017	24	30	Kontaktor
4	31/01/2017	192	20	Kontaktor
5	02/06/2017	2424	30	Kontaktor
6	31/07/2017	1176	30	Kontaktor
7	29/09/2017	1248	35	Kontaktor
8	09/10/2017	191	30	Kontaktor
9	27/12/2017	1560	30	Kontaktor

Lampiran 6. Waktu antar kerusakan komponen Sensor

No.	Tanggal Kerusakan Komponen	TTF (Jam)	TTR (Menit)	Komponen Mesin
1	23/02/2017		45	Sensor
2	27/02/2017	95	50	Sensor
3	22/08/2017	3479	25	Sensor
4	29/09/2017	816	25	Sensor
5	31/10/2010	672	60	Sensor
6	07/12/2017	767	40	Sensor
7	15/12/2017	167	40	Sensor

Lampiran 7. Waktu antar kerusakan komponen *Welding Roll*

No.	Tanggal Kerusakan Komponen	TTF (Jam)	TTR (Menit)	Komponen Mesin
1	04/01/2017		45	Welding Roll
2	27/04/2017	2231	30	Welding Roll
3	11/09/2017	2664	230	Welding Roll
4	17/10/2017	716	60	Welding Roll
5	08/11/2017	431	60	Welding Roll
6	13/12/2017	719	50	Welding Roll

Lampiran 8. Waktu antar kerusakan komponen Bearing

No.	Tanggal Kerusakan Komponen	TTF (Jam)	TTR (Menit)	Komponen Mesin
1	29/04/2017		60	Bearing
2	20/05/2017	383	25	Bearing
3	07/06/2017	336	25	Bearing
4	06/09/2017	1800	145	Bearing
5	26/10/2017	1030	35	Bearing

Lampiran 9. Waktu antar kerusakan komponen *Gear box*

No.	Tanggal Kerusakan Komponen	TTF (Jam)	TTR (Menit)	Komponen Mesin
1	19/05/2017		60	Gear Box
2	20/07/2017	1223	54	Gear Box
3	02/12/2017	2687	70	Gear Box
4	19/12/2017	335	60	Gear Box

Lampiran 10. Waktu antar kerusakan komponen *Valve*

No.	Tanggal Kerusakan Komponen	TTF (Jam)	TTR (Menit)	Komponen Mesin
1	06/03/2017		75	Valve
2	09/05/2017	503	135	Valve

Lampiran 11. Waktu antar kerusakan komponen *Shaft*

No.	Tanggal Kerusakan Komponen	TTF (Jam)	TTR (Menit)	Komponen Mesin
1	06/11/2017		50	Shaft

Lampiran 12. Data histogram komponen *Belt*

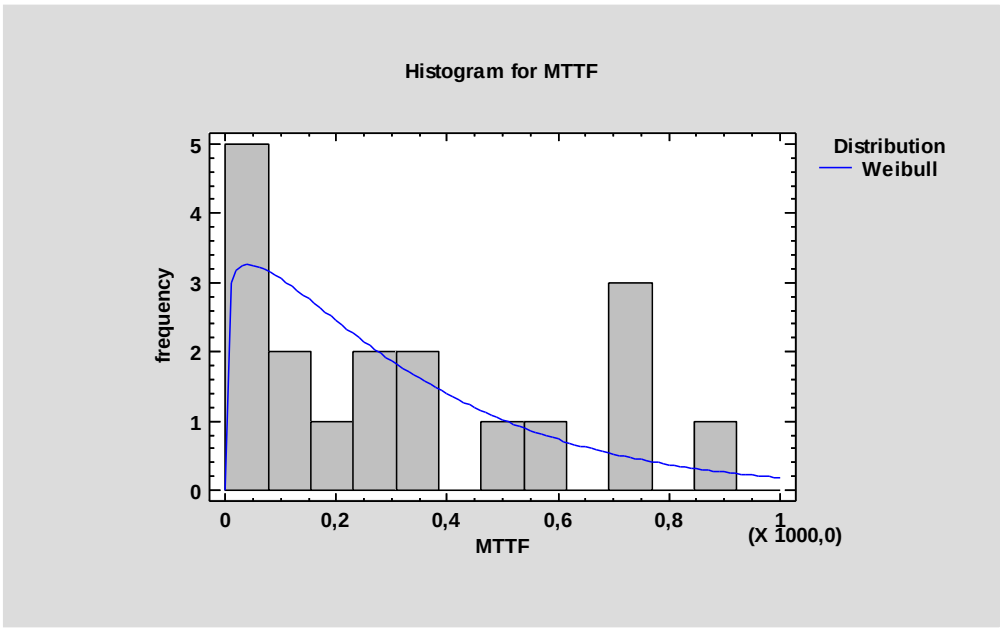
BELT

Data variable: MTTF

18 values ranging from 23,0 to 863,0

Fitted Distributions

Weibull
shape = 1,11118
scale = 339,678



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,121038
DMINUS	0,120422
DN	0,121038
P-Value	0,954633

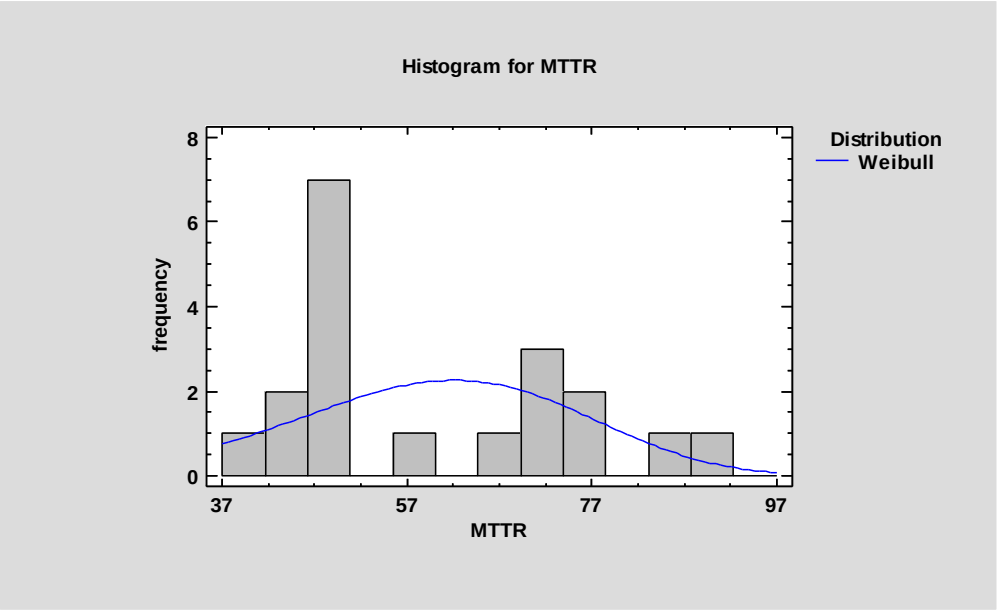
The StatAdvisor

This pane shows the results of tests run to determine whether MTTF can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTF comes from a Weibull distribution with 95% confidence.

BELT

Data variable: MTTR
19 values ranging from 40,0 to 90,0
Fitted Distributions

Weibull
shape = 4,47597
scale = 65,7126



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,271365
DMINUS	0,11514
DN	0,271365
P-Value	0,121842

The StatAdvisor

This pane shows the results of tests run to determine whether TTR can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that TTR comes from a Weibull distribution with 95% confidence.

Lampiran 13. Data histogram komponen *Motor*

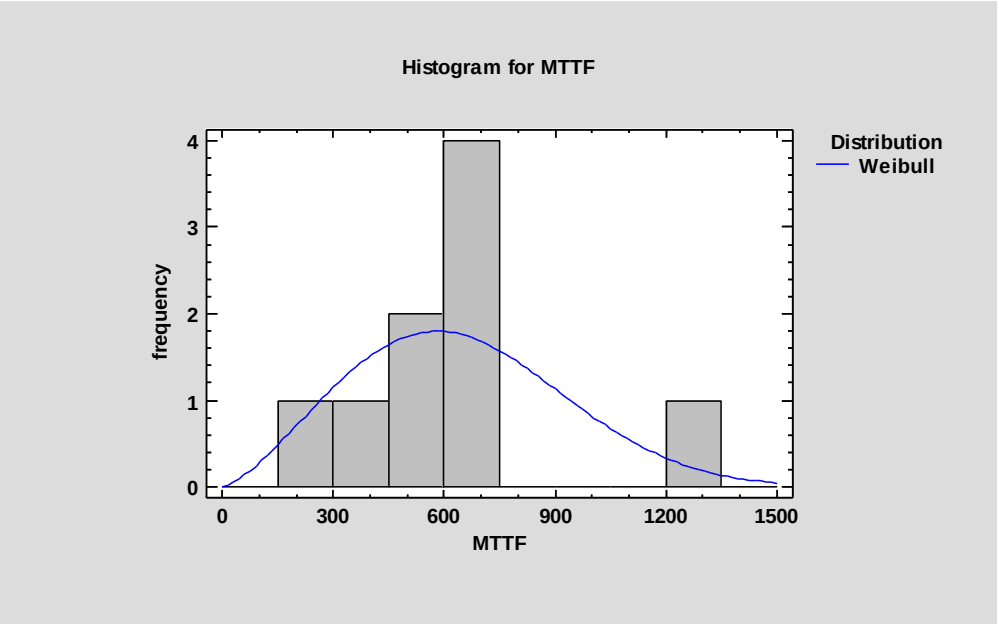
MOTOR

Data variable: MTTF

9 values ranging from 190,0 to 1319,0

Fitted Distributions

Weibull
shape = 2,37737
scale = 729,329



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,270457
DMINUS	0,211249
DN	0,270457
P-Value	0,541218

The StatAdvisor

This pane shows the results of tests run to determine whether MTTF can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTF comes from a Weibull distribution with 95% confidence.

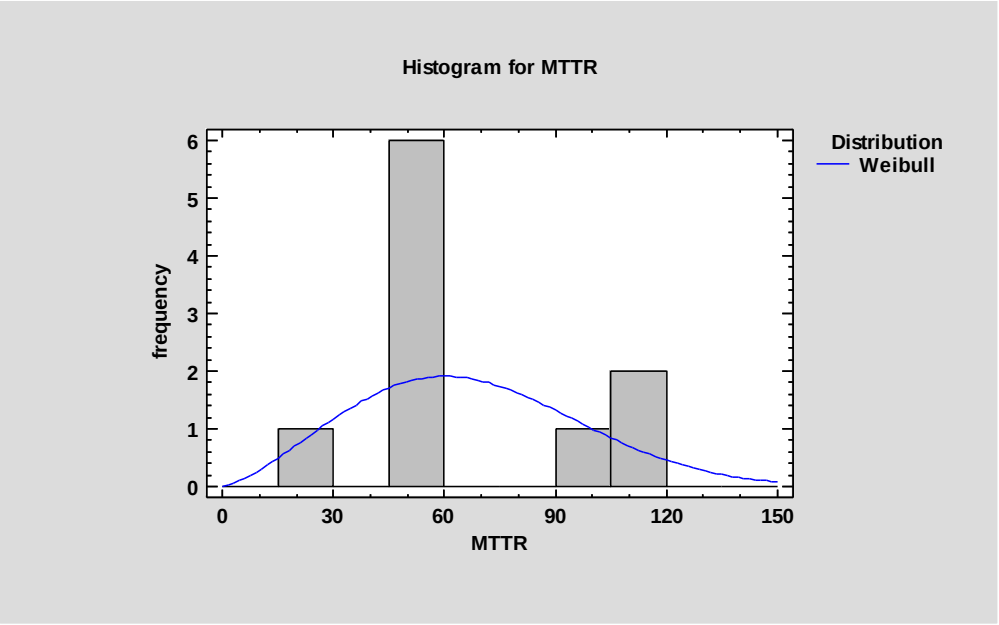
MOTOR

Data variable: MTTR

10 values ranging from 25,0 to 120,0

Fitted Distributions

Weibull
shape = 2,36557
scale = 75,9778



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,289594
DMINUS	0,210406
DN	0,289594
P-Value	0,374976

The StatAdvisor

This pane shows the results of tests run to determine whether TTR can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that TTR comes from a Weibull distribution with 95% confidence.

Lampiran 14. Data histogram komponen Kontaktor

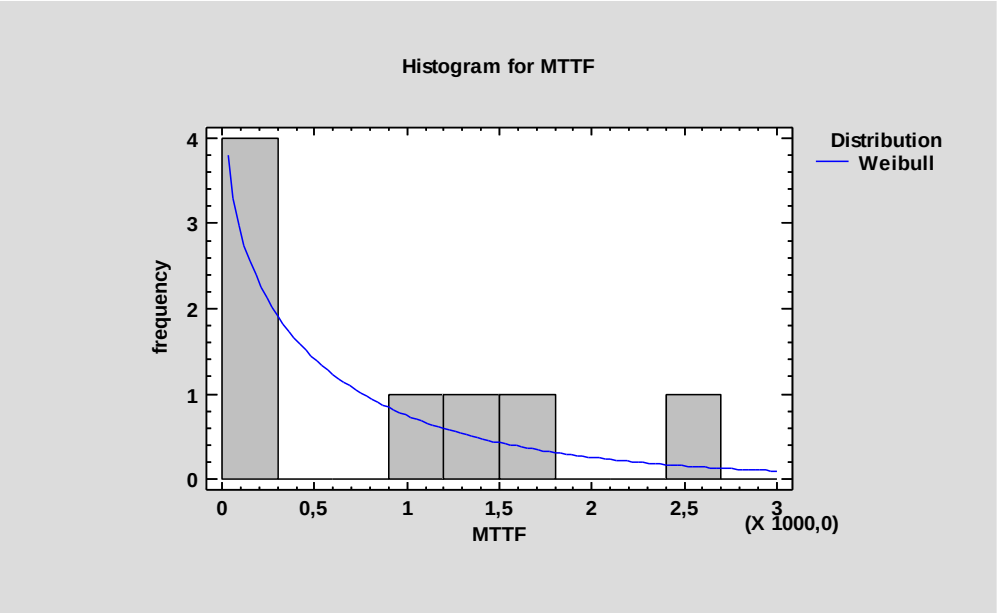
KONTAKTOR

Data variable: MTTF

8 values ranging from 24,0 to 2424,0

Fitted Distributions

Weibull
shape = 0,861341
scale = 811,259



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,249
DMINUS	0,24763
DN	0,249
P-Value	0,704102

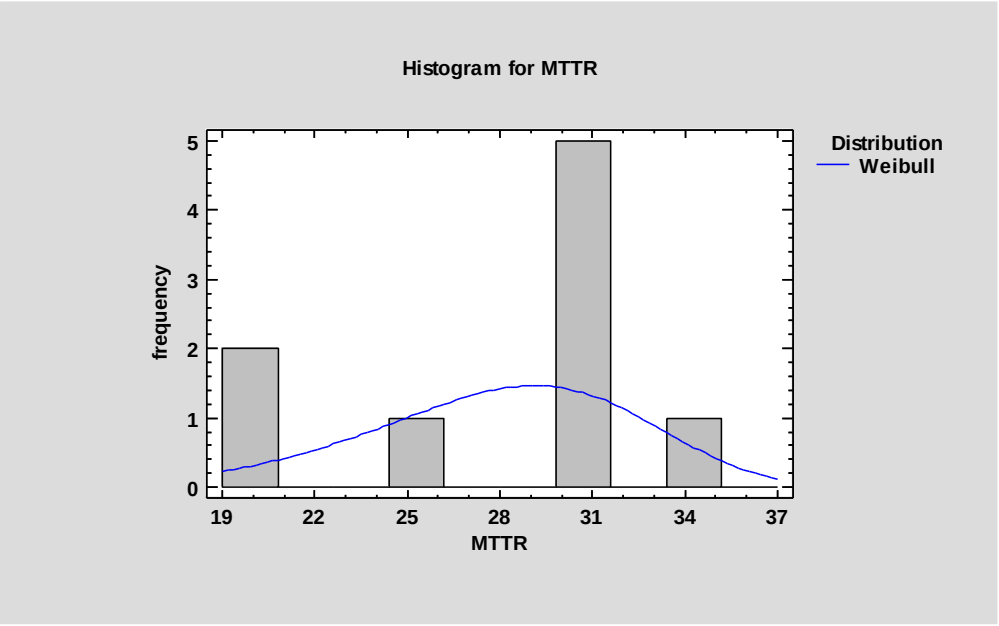
The StatAdvisor

This pane shows the results of tests run to determine whether MTTF can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTF comes from a Weibull distribution with 95% confidence.

KONTAKTOR

Data variable: MTTR
9 values ranging from 20,0 to 35,0
Fitted Distributions

Weibull
shape = 7,23757
scale = 29,7277



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,232507
DMINUS	0,323049
DN	0,323049
P-Value	0,306186

The StatAdvisor

This pane shows the results of tests run to determine whether MTTR can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTR comes from a Weibull distribution with 95% confidence.

Lampiran 15. Data histogram komponen Sensor

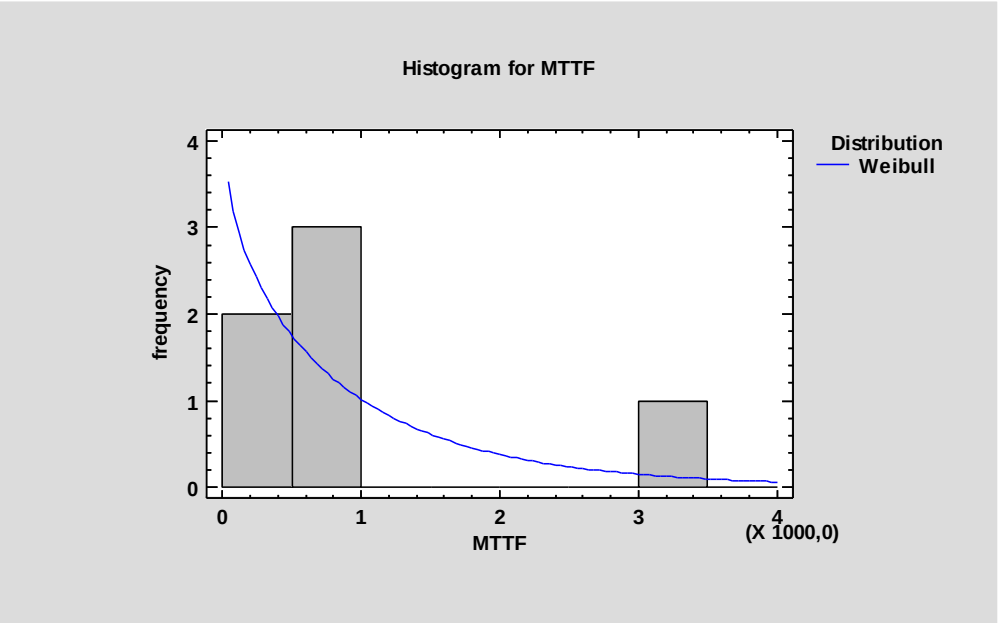
SENSOR

Data variable: MTTF

6 values ranging from 95,0 to 3479,0

Fitted Distributions

Weibull
shape = 0,919225
scale = 956,676



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,254814
DMINUS	0,181257
DN	0,254814
P-Value	0,830764

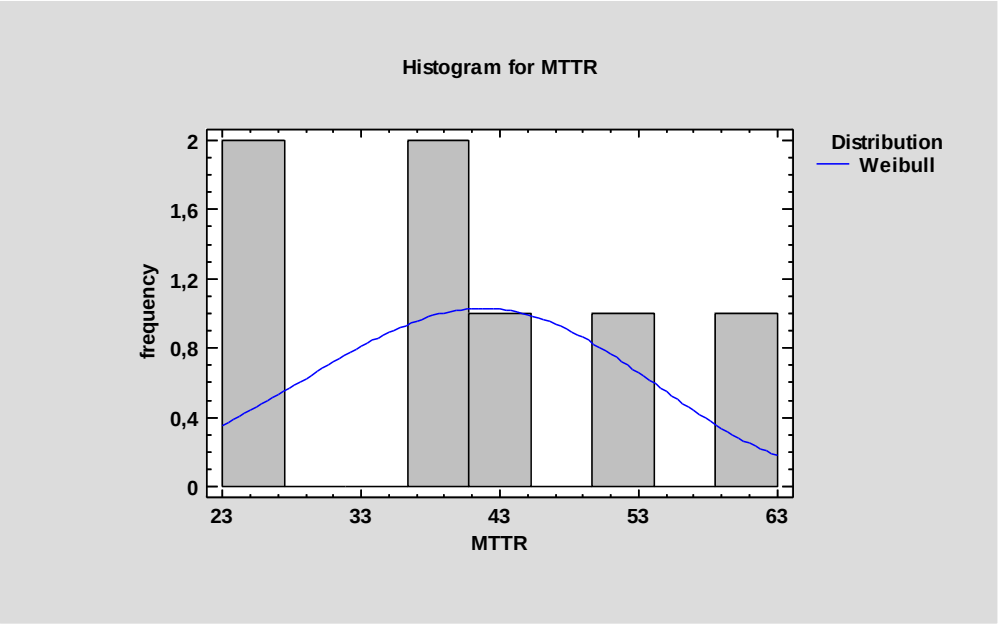
The StatAdvisor

This pane shows the results of tests run to determine whether MTTF can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTF comes from a Weibull distribution with 95% confidence.

SENSOR

Data variable: MTTR
7 values ranging from 25,0 to 60,0
Fitted Distributions

Weibull
shape = 3,90945
scale = 45,085



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,190797
DMINUS	0,179747
DN	0,190797
P-Value	0,960791

The StatAdvisor

This pane shows the results of tests run to determine whether MTTR can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTR comes from a Weibull distribution with 95% confidence.

Lampiran 16. Data histogram komponen *Welding Roll*

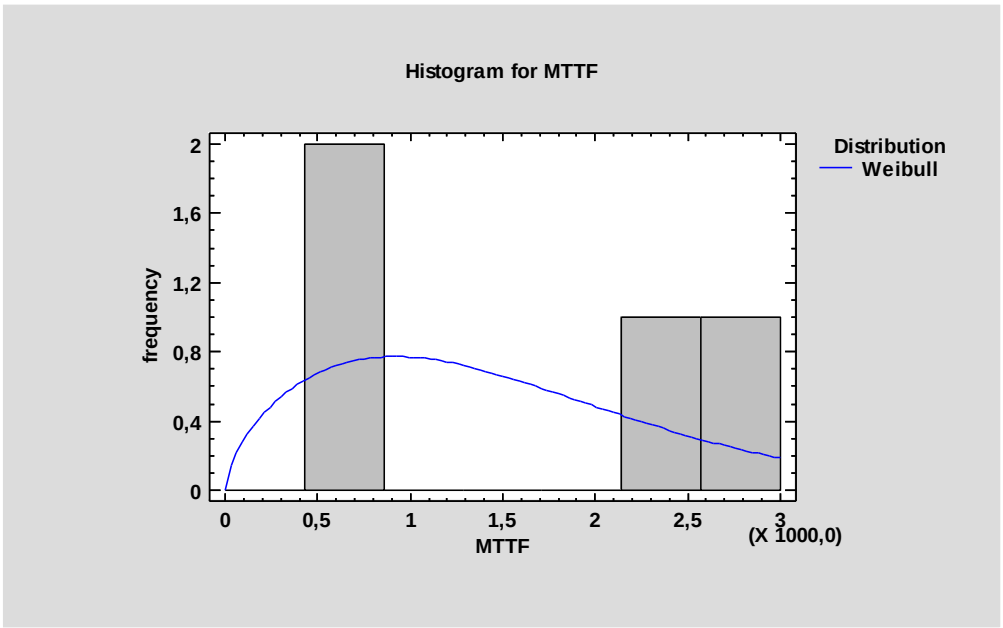
WELDING ROLL

Data variable: MTTF

4 values ranging from 431,0 to 2664,0

Fitted Distributions

Weibull
shape = 1,60069
scale = 1689,17



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,276375
DMINUS	0,290076
DN	0,290076
P-Value	0,889423

The StatAdvisor

This pane shows the results of tests run to determine whether MTTF can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTF comes from a Weibull distribution with 95% confidence.

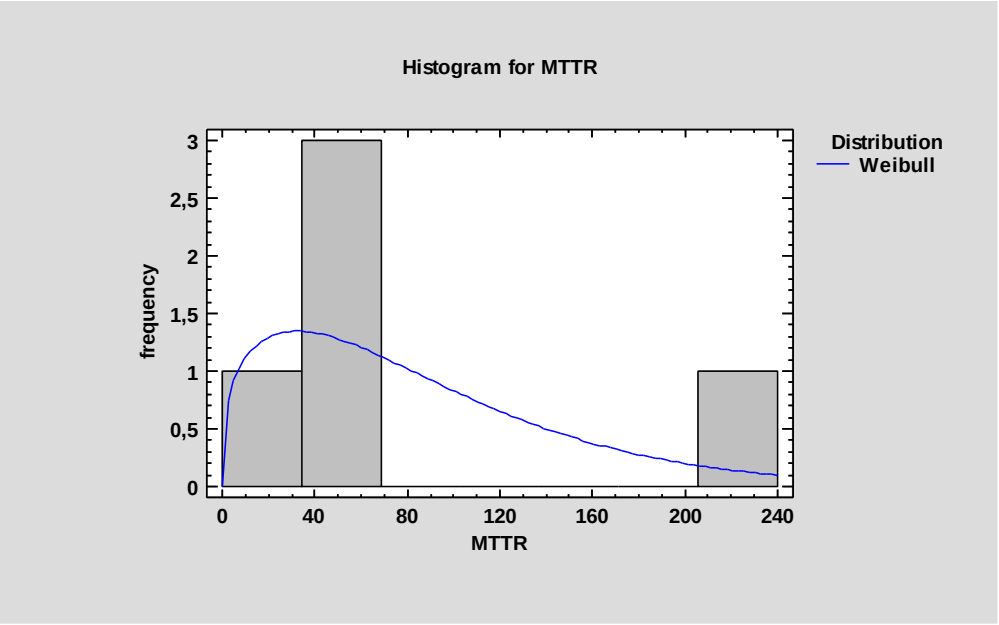
WELDING ROLL

Data variable: MTTR

5 values ranging from 30,0 to 230,0

Fitted Distributions

Weibull
shape = 1,32088
scale = 93,5023



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,373182
DMINUS	0,199711
DN	0,373182
P-Value	0,500637

The StatAdvisor

This pane shows the results of tests run to determine whether MTTR can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTR comes from a Weibull distribution with 95% confidence.

Lampiran 17. Data histogram komponen *Bearing*

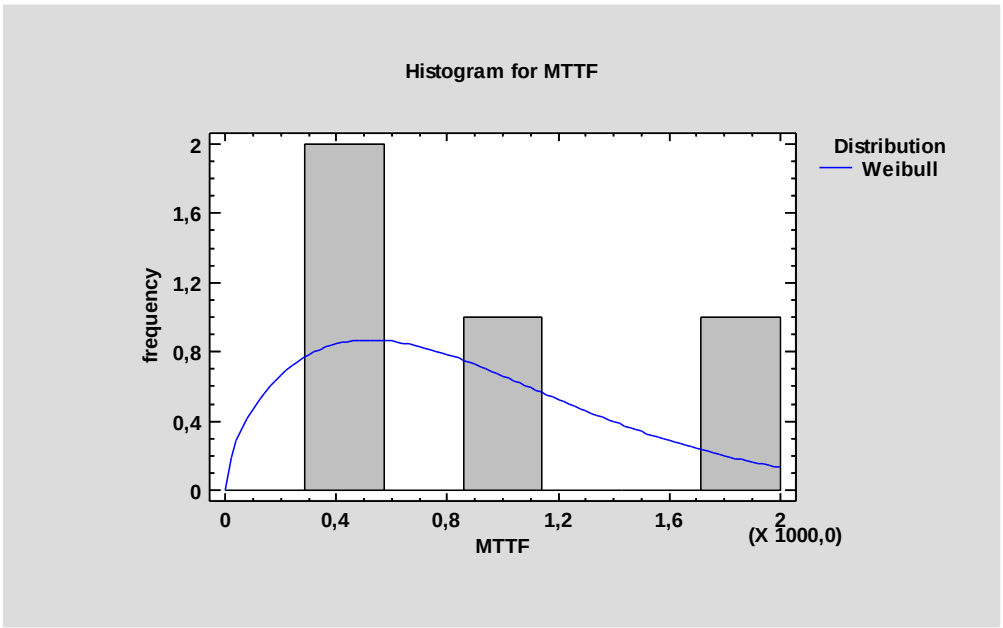
BEARING

Data variable: MTTF

4 values ranging from 336,0 to 1800,0

Fitted Distributions

Weibull
shape = 1,57182
scale = 994,898



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,300094
DMINUS	0,171087
DN	0,300094
P-Value	0,864034

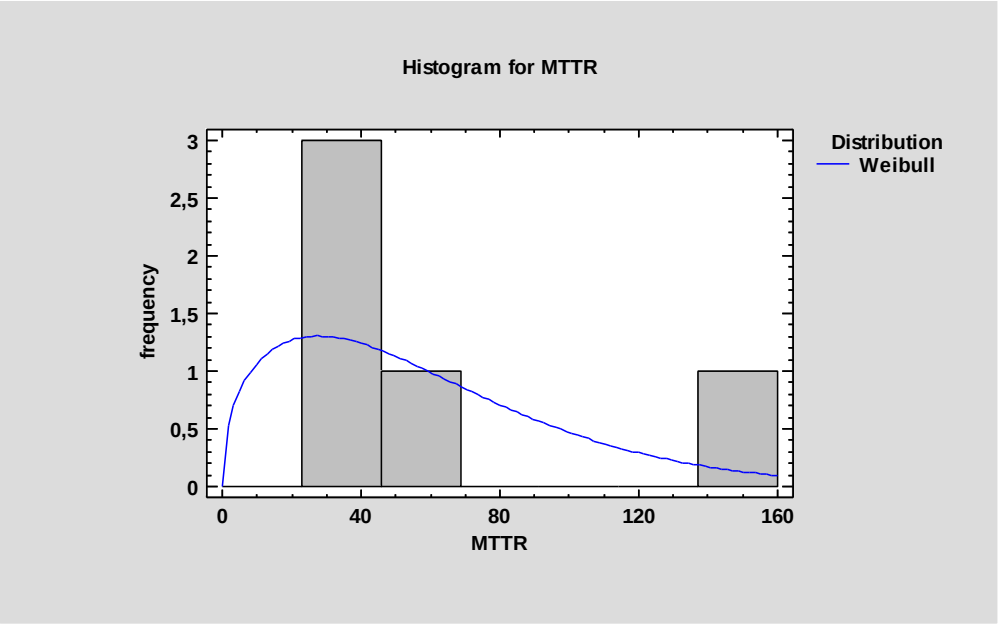
The StatAdvisor

This pane shows the results of tests run to determine whether MTTF can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTF comes from a Weibull distribution with 95% confidence.

BEARING

Data variable: MTTR
5 values ranging from 25,0 to 145,0
Fitted Distributions

Weibull
shape = 1,42194
scale = 64,5482



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,257823
DMINUS	0,228611
DN	0,257823
P-Value	0,893775

The StatAdvisor

This pane shows the results of tests run to determine whether MTTR can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTR comes from a Weibull distribution with 95% confidence.

Lampiran 18. Data histogram komponen *Gear box*

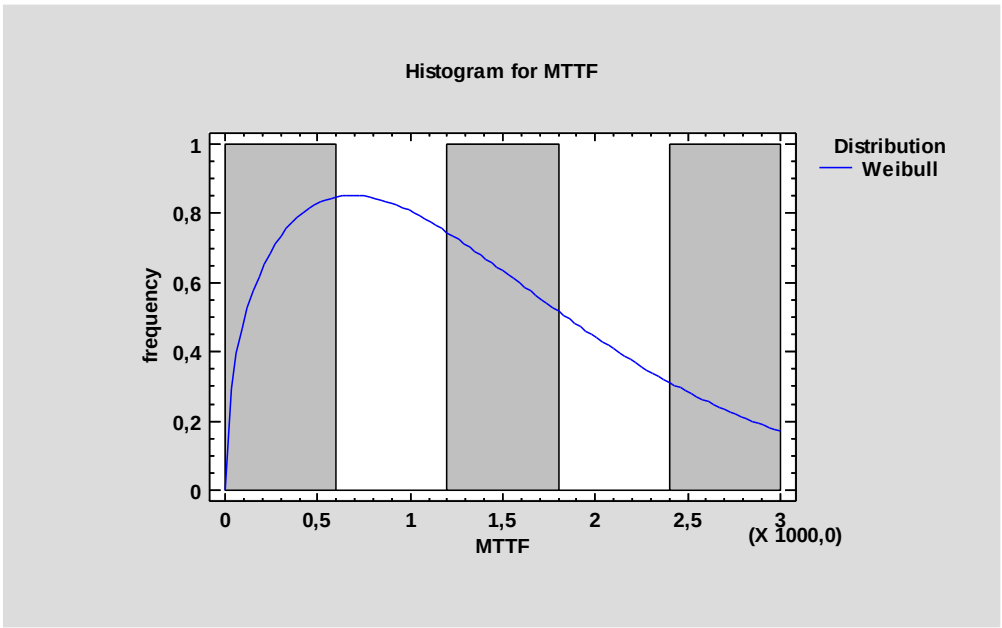
GEAR BOX

Data variable: MTTF

3 values ranging from 335,0 to 2687,0

Fitted Distributions

Weibull
shape = 1,43787
scale = 1559,89



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,229611
DMINUS	0,220934
DN	0,229611
P-Value	0,997418

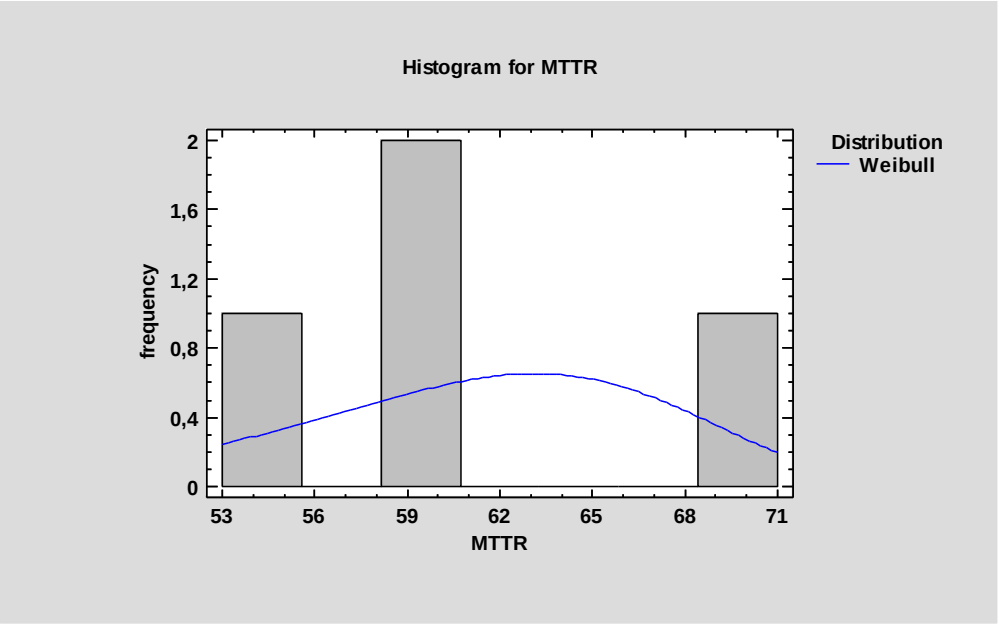
The StatAdvisor

This pane shows the results of tests run to determine whether MTTF can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTF comes from a Weibull distribution with 95% confidence.

GEAR BOX

Data variable: MTTR
4 values ranging from 54,0 to 70,0
Fitted Distributions

Weibull
shape = 10,9422
scale = 63,7142



Kolmogorov-Smirnov Test

	Weibull
DPLUS	0,345536
DMINUS	0,189176
DN	0,345536
P-Value	0,726042

The StatAdvisor

This pane shows the results of tests run to determine whether MTTR can be adequately modeled by a Weibull distribution. Since the smallest P-value amongst the tests performed is greater than or equal to 0,05, we can not reject the idea that MTTR comes from a Weibull distribution with 95% confidence.