

Lampiran 1. Data nilai Availability ratio mesin stranding 02 periode bulan Mei 2020

Tanggal	Working time machine (menit)	Planed downtime	adjustment shift	trouble (menit)	setup (menit)	waiting	loading time	availability losses	operating time	availability ratio %
1	1440	15	0	0	71	0	1425	71	1354	95.02%
2	900	15	0	135	128	0	885	263	622	70.28%
4	1440	0	0	0	39	0	1440	39	1401	97.29%
5	1440	0	0	0	98	0	1440	98	1342	93.19%
6	1440	0	0	0	60	0	1440	60	1380	95.83%
7	1440	0	0	50	58	0	1440	108	1332	92.50%
8	1440	15	0	85	73	0	1425	158	1267	88.91%
9	900	15	0	89	29	0	885	118	767	86.67%
11	1440	0	0	83	21	0	1440	104	1336	92.78%
12	1440	0	0	85	203	0	1440	288	1152	80.00%

Tabel lanjutan

13	1440	0	0	120	173	0	1440	293	1147	79.65%
14	1440	0	0	0	142	0	1440	142	1298	90.14%
15	1440	15	0	0	10	0	1425	10	1415	99.30%
16	900	15	0	0	8	0	885	8	877	99.10%
18	1440	0	0	20	10	0	1440	30	1410	97.92%
19	1440	0	0	0	94	0	1440	94	1346	93.47%
20	1440	0	0	0	105	0	1440	105	1335	92.71%
21	1440	0	0	0	119	0	1440	119	1321	91.74%
22	1440	15	0	0	136	0	1425	136	1289	90.46%
23	900	15	0	60	185	0	885	245	640	72.32%
25	1440	0	0	0	82	0	1440	82	1358	94.31%
26	1440	0	0	0	51	0	1440	51	1389	96.46%

Tabel lanjutan										
27	1440	0	0	0	33	0	1440	33	1407	97.71%
28	1440	0	0	0	104	0	1440	104	1336	92.78%
29	1440	15	0	0	27	0	1425	27	1398	98.11%
30	900	15	0	0	47	0	885	47	838	94.69%
Total	34740	150	0	727	2106	0	34590	2833	31757	2373.31%
Rata-rata										91.28%

Lampiran 2. Data nilai Availability ratio mesin stranding 02 periode bulan Juni 2020

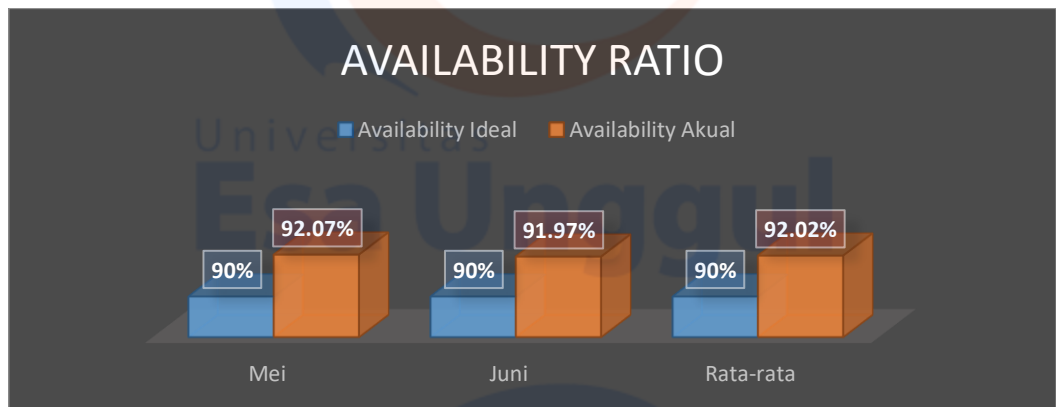
Tanggal	Working time machine (menit)	Planed downtime	adjustment shift	trouble (menit)	setup (menit)	waiting	loading time	availability losses	operating time	availability ratio%
1	1440	0	0	73	37	0	1440	110	1330	92.36%
2	900	0	0	0	95	0	900	95	805	89.44%
3	1440	0	0	0	56	0	1440	56	1384	96.11%
4	1440	0	0	0	92	0	1440	92	1348	93.61%
5	1440	15	0	0	61	0	1425	61	1364	95.72%
6	1440	15	0	209	150	0	1425	359	1066	74.81%
8	1440	0	0	0	102	0	1440	102	1338	92.92%
9	900	0	0	0	134	0	900	134	766	85.11%
10	1440	0	0	0	107	0	1440	107	1333	92.57%
11	1440	0	0	0	88	0	1440	88	1352	93.89%

Tabel lanjutan

12	1440	15	0	0	71	0	1425	71	1354	95.02%
13	1440	15	0	0	109	0	1425	109	1316	92.35%
15	1440	0	0	0	69	0	1440	69	1371	95.21%
16	900	0	0	0	99	0	900	99	801	89.00%
17	1440	0	0	0	36	0	1440	36	1404	97.50%
18	1440	0	0	45	37	0	1440	82	1358	94.31%
19	1440	15	0	0	145	0	1425	145	1280	89.82%
20	1440	15	0	0	148	0	1425	148	1277	89.61%
22	1440	0	0	0	185	0	1440	185	1255	87.15%
23	900	0	0	0	50	0	900	50	850	94.44%
24	1440	0	0	0	83	0	1440	83	1357	94.24%
25	1440	0	0	0	46	0	1440	46	1394	96.81%

Tabel lanjutan

26	1440	15	0	0	151	0	1425	151	1274	89.40%
27	1440	15	0	0	91	0	1425	91	1334	93.61%
29	1440	0	0	0	59	0	1440	59	1381	95.90%
30	900	0	0	0	62	0	900	62	838	93.11%
Total	34740	120	0	327	2363	0	34620	2690	31930	2394.03%
Rata-rata										92.08%



Lampiran 3. Data nilai Performance ratio mesin stranding 02 periode bulan Mei 2020

Tanggal	Operating time (menit)	Total production (meter)	stoppage	waiting	Cycle time	net operating time	performance (%)
1	1354	10344	5	0	0.1	1349	76.68%
2	622	4837	5	0	0.1	617	78.40%
4	1401	11291	5	0	0.1	1396	80.88%
5	1342	10865	5	0	0.1	1337	81.26%
6	1380	8529	5	0	0.1	1375	62.03%
7	1332	11260	5	0	0.1	1327	84.85%
8	1267	12456	5	0	0.1	1262	98.70%
9	767	7045	5	0	0.1	762	92.45%
11	1336	12673	5	0	0.1	1331	95.21%
12	1152	5792	5	0	0.1	1147	50.50%

Tabel lanjutan

13	1147	8219	5	0	0.1	1142	71.97%
14	1298	11356	5	0	0.1	1293	87.83%
15	1415	11318	5	0	0.1	1410	80.27%
16	877	6458	5	0	0.1	872	74.06%
18	1410	10299	5	0	0.1	1405	73.30%
19	1346	12204	5	0	0.1	1341	91.01%
20	1335	10081	5	0	0.1	1330	75.80%
21	1321	9640	5	0	0.1	1316	73.25%
22	1289	5592	5	0	0.1	1284	43.55%
23	640	4828	5	0	0.1	635	76.03%
25	1358	9000	5	0	0.1	1353	66.52%
26	1389	10664	5	0	0.1	1384	77.05%

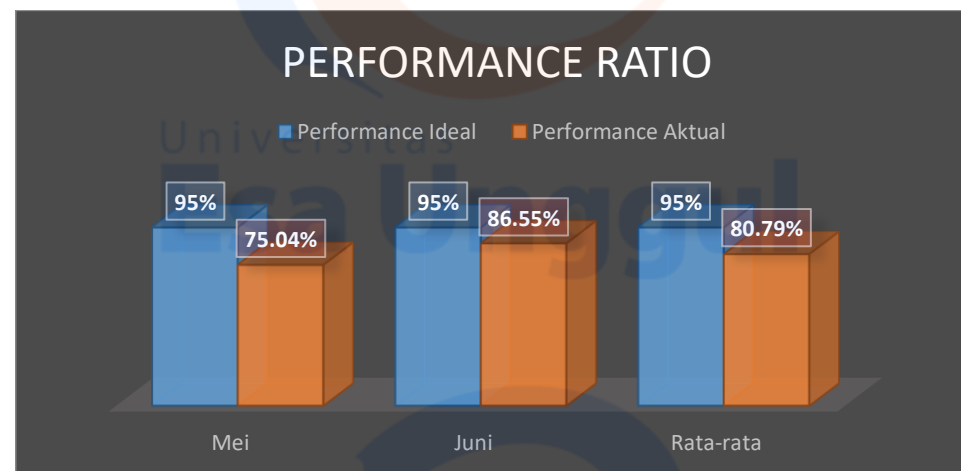
Tabel lanjutan							
27	1407	9368	5	0	0.1	1402	66.82%
28	1336	10182	5	0	0.1	1331	76.50%
29	1398	7051	5	0	0.1	1393	50.62%
30	838	6971	5	0	0.1	833	83.69%
Total	31757	238323	130	0	2.6	31627	1969.23%
Rata-rata							75.74%

Lampiran 4. Data nilai Performance ratio mesin stranding 02 periode bulan Juni 2020

Tanggal	Operating time (menit)	Total production (meter)	stoppage	waiting	Cycle time	net operating time	performance (%)
1	1330	11191	5	0	0.1	1325	84.46%
2	805	7448	5	0	0.1	800	93.10%
3	1384	13044	5	0	0.1	1379	94.59%
4	1348	12743	5	0	0.1	1343	94.88%
5	1364	11841	5	0	0.1	1359	87.13%
6	1066	8412	5	0	0.1	1061	79.28%
8	1338	10584	5	0	0.1	1333	79.40%
9	766	6695	5	0	0.1	761	87.98%
10	1333	10738	5	0	0.1	1328	80.86%
11	1352	10625	5	0	0.1	1347	78.88%

Tabel lanjutan							
12	1354	11824	5	0	0.1	1349	87.65%
13	1316	10856	5	0	0.1	1311	82.81%
15	1371	11592	5	0	0.1	1366	84.86%
16	801	6989	5	0	0.1	796	87.80%
17	1404	12386	5	0	0.1	1399	88.53%
18	1358	13496	5	0	0.1	1353	99.75%
19	1280	10081	5	0	0.1	1275	79.07%
20	1277	11252	5	0	0.1	1272	88.46%
22	1255	11112	5	0	0.1	1250	88.90%
23	850	7500	5	0	0.1	845	88.76%
24	1357	12605	5	0	0.1	1352	93.23%
25	1394	11458	5	0	0.1	1389	82.49%

Tabel lanjutan							
26	1274	10051	5	0	0.1	1269	79.20%
27	1334	10632	5	0	0.1	1329	80.00%
29	1381	11488	5	0	0.1	1376	83.49%
30	838	7624	5	0	0.1	833	91.52%
Total	31930	274267	130	0	2.6	31800	2247.09%
Rata-rata							86.43%



Lampiran 5. Data nilai Quality ratio mesin stranding 02 periode bulan Mei 2020

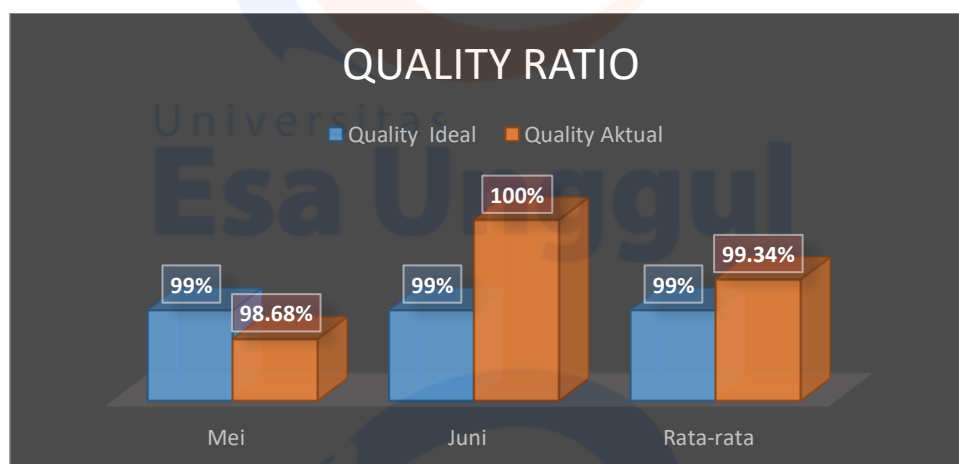
Tanggal	total production (rol)	defect (rol)	Quality ratio
1	11	0	100.00%
2	8	0	100.00%
4	7	0	100.00%
5	9	0	100.00%
6	8	0	100.00%
7	10	0	100.00%
8	11	0	100.00%
9	7	0	100.00%
11	6	0	100.00%
12	5	1	80.00%
13	4	0	100.00%
14	9	0	100.00%
15	8	0	100.00%
16	5	0	100.00%
18	11	0	100.00%
19	8	0	100.00%
20	10	0	100.00%
21	8	0	100.00%

Tabel lanjutan			
22	7	1	85.71%
23	6	0	100.00%
25	12	0	100.00%
26	7	0	100.00%
27	13	0	100.00%
28	6	0	100.00%
29	7	0	100.00%
30	4	0	100.00%
total	207	2	2565.71%
Rata-rata			98.68%

Lampiran 6. Data nilai Quality ratio mesin stranding 02 periode bulan Juni 2020

Tanggal	total production	defect	Quality ratio
1	2	0	100.00%
2	1	0	100.00%
3	4	0	100.00%
4	4	0	100.00%
5	2	0	100.00%
6	2	0	100.00%
8	2	0	100.00%
9	1	0	100.00%
10	5	0	100.00%
11	4	0	100.00%
12	3	0	100.00%
13	1	0	100.00%
15	4	0	100.00%
16	2	0	100.00%
17	3	0	100.00%
18	4	0	100.00%
19	2	0	100.00%
20	1	0	100.00%

Tabel lanjutan			
22	4	0	100.00%
23	2	0	100.00%
24	4	0	100.00%
25	2	0	100.00%
26	3	0	100.00%
27	2	0	100.00%
29	3	0	100.00%
30	2	0	100.00%
Total	69	0	2600.00%
Rata- rata			100.00%



Lampiran 7. Data nilai Overall Equipment Effectiveness mesin stranding 02 periode
bulan Mei 2020

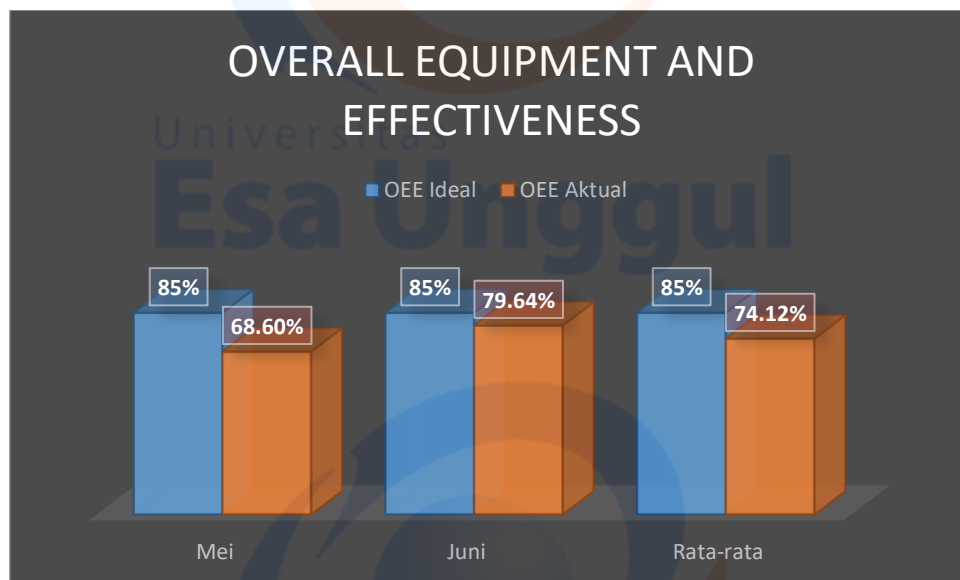
Tanggal	Availability ratio (%)	Performance Ratio (%)	Quality Ratio (%)	OEE (%)
1	95.02%	76.68%	100.00%	72.86%
2	70.28%	78.40%	100.00%	55.10%
4	97.29%	80.88%	100.00%	78.69%
5	93.19%	81.26%	100.00%	75.73%
6	95.83%	62.03%	100.00%	59.44%
7	92.50%	84.85%	100.00%	78.49%
8	88.91%	98.70%	100.00%	87.76%
9	86.67%	92.45%	100.00%	80.13%
11	92.78%	95.21%	100.00%	88.34%
12	80.00%	50.50%	80.00%	32.32%
13	79.65%	71.97%	100.00%	57.33%
14	90.14%	87.83%	100.00%	79.17%
15	99.30%	80.27%	100.00%	79.71%
16	99.10%	74.06%	100.00%	73.39%
18	97.92%	73.30%	100.00%	71.78%
19	93.47%	91.01%	100.00%	85.07%
20	92.71%	75.80%	100.00%	70.27%
21	91.74%	73.25%	100.00%	67.20%

Tabel lanjutan				
22	90.46%	43.55%	85.71%	33.77%
23	72.32%	76.03%	100.00%	54.98%
25	94.31%	66.52%	100.00%	62.73%
26	96.46%	77.05%	100.00%	74.32%
27	97.71%	66.82%	100.00%	65.29%
28	92.78%	76.50%	100.00%	70.97%
29	98.11%	50.62%	100.00%	49.66%
30	94.69%	83.69%	100.00%	79.24%
Total	2373.31%	1969.23%	2565.71%	
Rata-rata				68.60%

Lampiran 8. Data nilai Overall Equipment Effectiveness mesin stranding 02 periode bulan Juni 2020

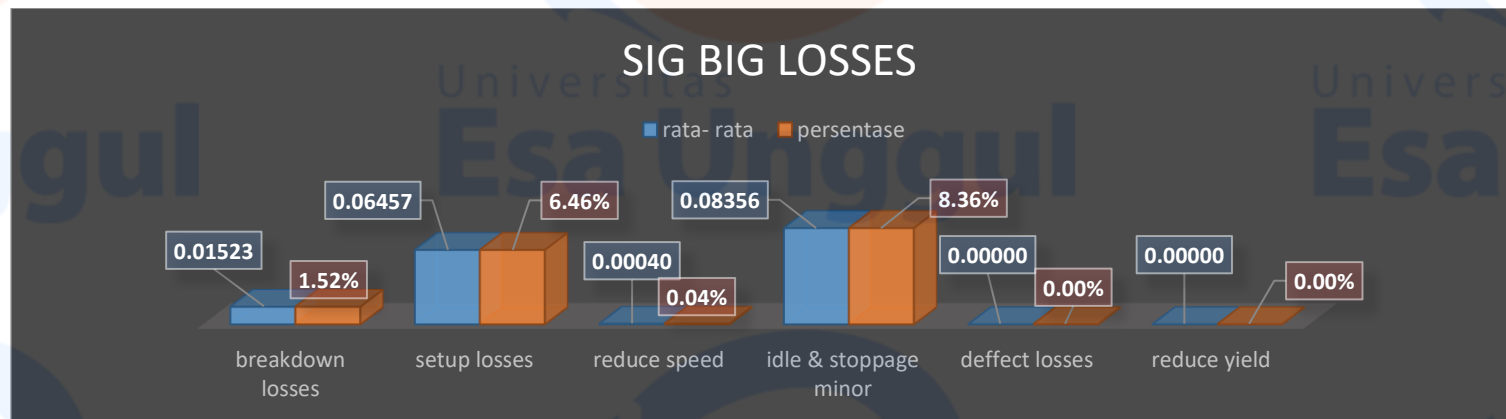
Tanggal	Availability ratio (%)	Performance Ratio (%)	Quality Ratio (%)	OEE (%)
1	92.36%	84.46%	100.00%	78.01%
2	89.44%	93.10%	100.00%	83.27%
3	96.11%	94.59%	100.00%	90.91%
4	93.61%	94.88%	100.00%	88.82%
5	95.72%	87.13%	100.00%	83.40%
6	74.81%	79.28%	100.00%	59.31%
8	92.92%	79.40%	100.00%	73.78%
9	85.11%	87.98%	100.00%	74.88%
10	92.57%	80.86%	100.00%	74.85%
11	93.89%	78.88%	100.00%	74.06%
12	95.02%	87.65%	100.00%	83.28%
13	92.35%	82.81%	100.00%	76.47%
15	95.21%	84.86%	100.00%	80.79%
16	89.00%	87.80%	100.00%	78.14%
17	97.50%	88.53%	100.00%	86.32%
18	94.31%	99.75%	100.00%	94.07%
19	89.82%	79.07%	100.00%	71.02%
20	89.61%	88.46%	100.00%	79.27%

Tabel lanjutan				
22	87.15%	88.90%	100.00%	77.48%
23	94.44%	88.76%	100.00%	83.83%
24	94.24%	93.23%	100.00%	87.86%
25	96.81%	82.49%	100.00%	79.86%
26	89.40%	79.20%	100.00%	70.81%
27	93.61%	80.00%	100.00%	74.89%
29	95.90%	83.49%	100.00%	80.07%
30	93.11%	91.52%	100.00%	85.22%
Total	2394.03%	2247.09%	2600.00%	
Rata-rata				79.64%



Lampiran 9. Data nilai Six Big Losses mesin standing 02 periode bulan Juni 2020

Bulan	Availability		Performance		Quality		total
	Breakdown losses	Setup losses	Reduce speed	Idle & stoppage minor	Deffect losses	Reduce yield	
Mei	2.10176%	6.08846%	0.05984%	8.56606%	0.00058%	0.00058%	16.81728%
Juni	0.94454%	6.82553%	0.01993%	8.14558%	0.00000%	0.00000%	15.93558%
Total	3.04630%	12.91399%	0.07977%	16.71164%	0.00058%	0.00058%	32.75170%
Rata-rata	1.52315%	6.45700%	0.03989%	8.35582%	0.00029%	0.00029%	16.37585%



Lampiran 10. Jenis defect yang terjadi pada saat proses produksi periode bulan Mei dan Juni 2020

Klasifikasi Cacat fiber optik mesin Stranding		november	desember
Attenuasi Tinggi	High Attenuation		
Binder Putus	Binder Broken		
Contruction NC	Contruction NC		
Core Putus	Core Broken		
Tube Putus	Tube Broken	1	
Diameter Tube Mengecil	Tube Smaller Diameter		
Fiber Putus	Fiber Broken		
Fiber Bending	Fiber bending		
Warna Tube NC / Pudar	Color Tube NC / Color Tube Faded		
Panjang Kurang	Length Less	1	
Alarm Detector (Jendol)	Alarm Detector (Swollen)		
Water Blocking Yarn Putus	Water Blocking Yarn Broken		
Visual Tube Gepeng	Visual Tube Oval		
Warna Fiber NC / Tipis	Color Fiber NC / Color Fiber Faded		
Mesin Masalah	Machine Problem		
Salah Penggunaan Material/suply	Wrong Use of Materials/Suply		
Filler Putus	Filler Broken		
Mati Listrik	Powerless		
Panjang OTDR Tidak Sama	OTDR Length not Same		
Visual Tube Keriput	Visual Tube Wrinkle		

Tabel lanjutan			
FRP Putus	FRP Broken		
Visual Core NC	Visual Core NC		
Gulungan Kabel Tidak Rapih	Cable Winding Sloven		
TTF Kendor	TTF Lossened up		
Total cacat		2	0

Lampiran 11 Penerapan kaizen 5S pada tools



1. Membuat caddy tools



3. Pemilahan tools yang akan dibutuhkan



2. Membuat indikasi SOP dan Instruksi kerja



4. Penataan tools sesuai urutan kebutuhan