

01/10/2024 - 30/09/2024 REPORT

Description: Report on idle time average and max, consumption average and sum and finally average and sum of cost idle on riveting machine, laser cutter, assembly machine 1 and assembly machine 2 on last month, predicting values for next three days

Report on idle time average and max, consumption average and sum and finally average and sum of cost idle on riveting machine, laser cutter, assembly machine 1 and assembly machine 2 on last month, predicting values for next three days

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Machine: Riveting Machine

Computed KPIs:

Idle Time Avg: 15328.4 s

Idle Time Max: 45483.0 s

Consumption Avg: 0.00077 kWh

Consumption Sum: 0.06719 kWh

Cost Idle Avg: 0.00077 euro per kWh

Cost Idle Sum: 0.02311 euro per kWh

Forecasted KPIs:

Idle Time Avg:

- Value: 10623.34 s - Date: 2024-10-20

- Value: 15380.90 s - Date: 2024-10-21

- Value: 7891.64 s - Date: 2024-10-22

Idle Time Max:

- Value: 10623.34 s - Date: 2024-10-20

- Value: 15380.90 s - Date: 2024-10-21

- Value: 7891.64 s - Date: 2024-10-22

Consumption Avg:

- Value: 0.00057 kWh - Date: 2024-10-20

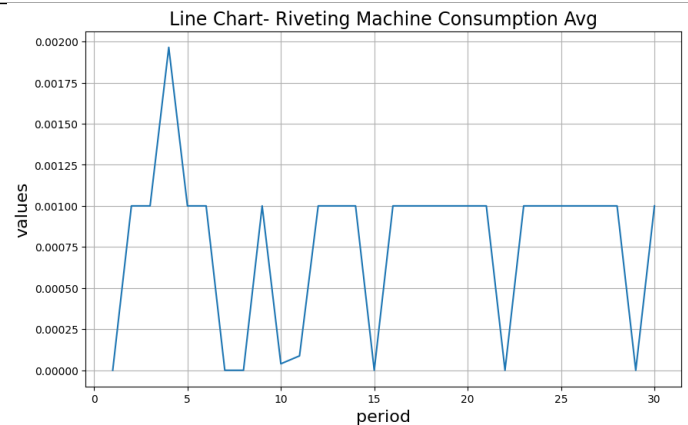
- Value: 0.00051 kWh - Date: 2024-10-21

- Value: 0.00044 kWh - Date: 2024-10-22

Consumption Sum:

- Value: 0.00261 kWh - Date: 2024-10-20

- Value: 0.00270 kWh - Date: 2024-10-21



- Value: 0.00220 kWh - Date: 2024-10-22

Cost Idle Avg:

- Value: 0.00163 euro per kWh - Date: 2024-10-20

- Value: 0.00164 euro per kWh - Date: 2024-10-21

- Value: 0.00161 euro per kWh - Date: 2024-10-22

Cost Idle Sum:

- Value: 0.00081 euro per kWh - Date: 2024-10-20

- Value: 0.00076 euro per kWh - Date: 2024-10-21

- Value: 0.00073 euro per kWh - Date: 2024-10-22

Machine: Laser Cutter

Computed KPIs:

Idle Time Avg: 8896.3 s

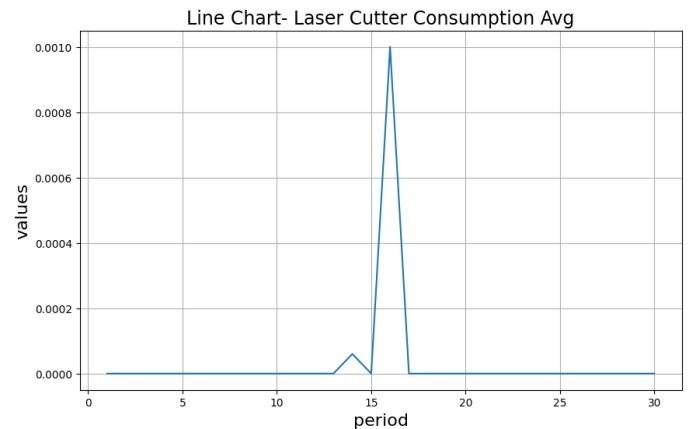
Idle Time Max: 36425.0 s

Consumption Avg: 0.00004 kWh

Consumption Sum: 0.00239 kWh

Cost Idle Avg: 0.00003 euro per kWh

Cost Idle Sum: 0.00104 euro per kWh



Forecasted KPIs:

Idle Time Avg:

- Value: 7840.77 s - Date: 2024-10-20

- Value: 14630.37 s - Date: 2024-10-21

- Value: 8589.88 s - Date: 2024-10-22

Idle Time Max:

- Value: 7840.77 s - Date: 2024-10-20

- Value: 14630.37 s - Date: 2024-10-21

- Value: 8589.88 s - Date: 2024-10-22

Consumption Avg:

- Value: 0.00000 kWh - Date: 2024-10-20

- Value: 0.00000 kWh - Date: 2024-10-21

- Value: 0.00000 kWh - Date: 2024-10-22

Consumption Sum:

- Value: 0.00001 kWh - Date: 2024-10-20

- Value: 0.00001 kWh - Date: 2024-10-21
- Value: 0.00002 kWh - Date: 2024-10-22

Cost Idle Avg:

- Value: 0.00001 euro per kWh - Date: 2024-10-20
- Value: 0.00001 euro per kWh - Date: 2024-10-21
- Value: 0.00001 euro per kWh - Date: 2024-10-22

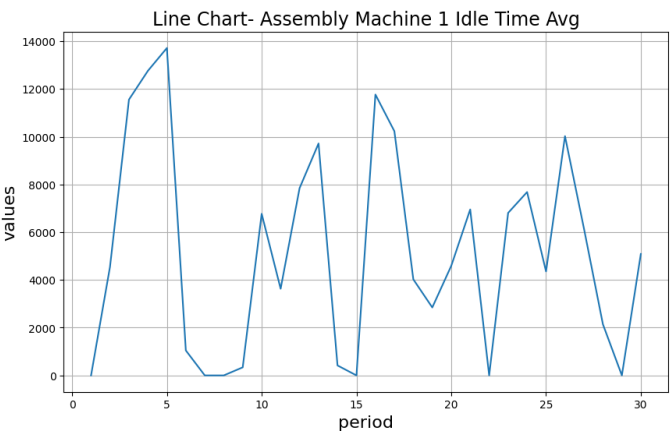
Cost Idle Sum:

- Value: 0.00001 euro per kWh - Date: 2024-10-20
- Value: 0.00001 euro per kWh - Date: 2024-10-21
- Value: 0.00001 euro per kWh - Date: 2024-10-22

Machine: Assembly Machine 1

Computed KPIs:

Idle Time Avg: 5167.5 s
Idle Time Max: 13717.0 s
Consumption Avg: 0.00103 kWh
Consumption Sum: 0.18141 kWh
Cost Idle Avg: 0.0008 euro per kWh
Cost Idle Sum: 0.024 euro per kWh



Forecasted KPIs:

Idle Time Avg:

- Value: 2720.75 s - Date: 2024-10-20
- Value: 2706.00 s - Date: 2024-10-21
- Value: 2567.62 s - Date: 2024-10-22

Idle Time Max:

- Value: 2720.75 s - Date: 2024-10-20
- Value: 2706.00 s - Date: 2024-10-21
- Value: 2567.62 s - Date: 2024-10-22

Consumption Avg:

- Value: 0.00076 kWh - Date: 2024-10-20
- Value: 0.00063 kWh - Date: 2024-10-21
- Value: 0.00067 kWh - Date: 2024-10-22

Consumption Sum:

- Value: 0.00661 kWh - Date: 2024-10-20
- Value: 0.00675 kWh - Date: 2024-10-21
- Value: 0.00591 kWh - Date: 2024-10-22

Cost Idle Avg:

- Value: 0.00060 euro per kWh - Date: 2024-10-20
- Value: 0.00055 euro per kWh - Date: 2024-10-21
- Value: 0.00057 euro per kWh - Date: 2024-10-22

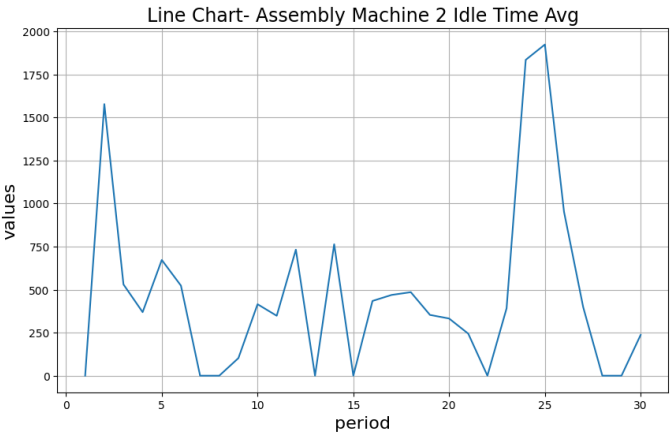
Cost Idle Sum:

- Value: 0.00097 euro per kWh - Date: 2024-10-20
- Value: 0.00063 euro per kWh - Date: 2024-10-21
- Value: 0.00115 euro per kWh - Date: 2024-10-22

Machine: Assembly Machine 2

Computed KPIs:

Idle Time Avg: 469.4 s
Idle Time Max: 1923.0 s
Consumption Avg: 0.0007 kWh
Consumption Sum: 0.02115 kWh
Cost Idle Avg: 0.0 euro per kWh
Cost Idle Sum: 0.0 euro per kWh



Forecasted KPIs:

Idle Time Avg:

- Value: 377.53 s - Date: 2024-10-20
- Value: 356.06 s - Date: 2024-10-21
- Value: 244.18 s - Date: 2024-10-22

Idle Time Max:

- Value: 377.53 s - Date: 2024-10-20
- Value: 356.06 s - Date: 2024-10-21
- Value: 244.18 s - Date: 2024-10-22

Consumption Avg:

- Value: 0.00026 kWh - Date: 2024-10-20
- Value: 0.00034 kWh - Date: 2024-10-21
- Value: 0.00019 kWh - Date: 2024-10-22

Consumption Sum:

- Value: 0.00036 kWh - Date: 2024-10-20
- Value: 0.00047 kWh - Date: 2024-10-21
- Value: 0.00024 kWh - Date: 2024-10-22

Cost Idle Avg:

- Value: 0.00002 euro per kWh - Date: 2024-10-20
- Value: 0.00002 euro per kWh - Date: 2024-10-21
- Value: 0.00002 euro per kWh - Date: 2024-10-22

Cost Idle Sum:

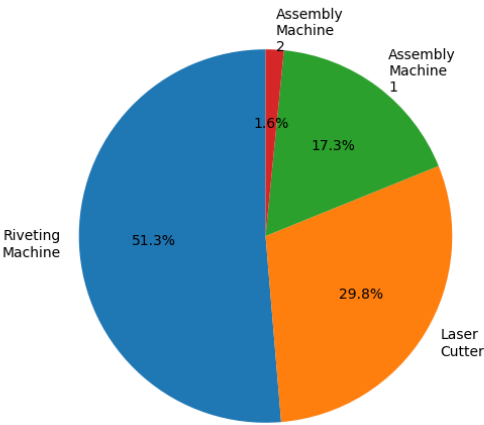
- Value: 0.00003 euro per kWh - Date: 2024-10-20
- Value: 0.00003 euro per kWh - Date: 2024-10-21
- Value: 0.00003 euro per kWh - Date: 2024-10-22

Summary

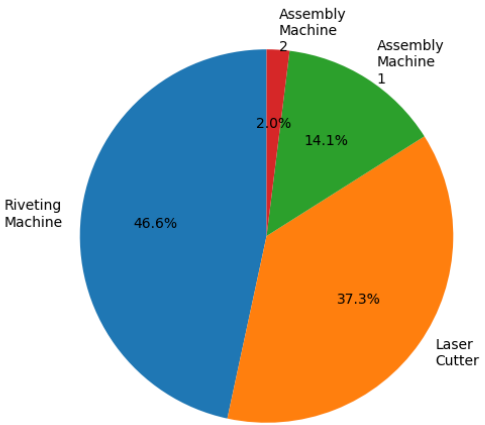
Machine Comparisons:

The Riveting Machine had the highest average and maximum idle time (15328.4 s and 45483.0 s respectively), followed by the Laser Cutter (8896.3 s and 36425.0 s), Assembly Machine 1 (5167.5 s and 13717.0 s), and Assembly Machine 2 (469.4 s and 1923.0 s)[1]. Assembly Machine 1 had the highest average and sum of power consumption (0.00103 kWh and 0.18141 kWh) and cost idle (0.0008 euro per kWh and 0.024 euro per kWh)[2]. Assembly Machine 2 had the lowest values across all computed KPIs[3].

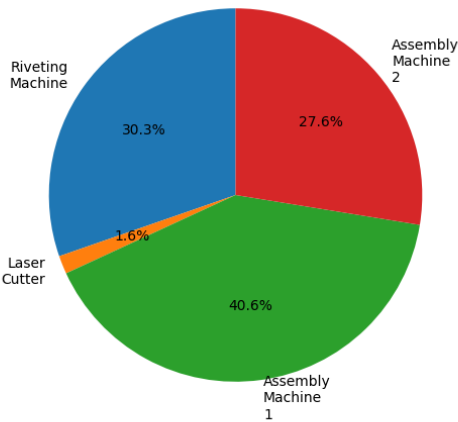
Idle Time Avg



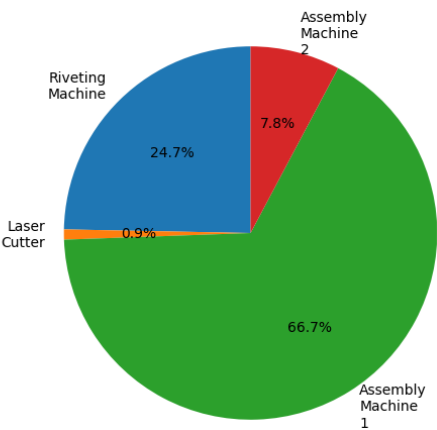
Idle Time Max



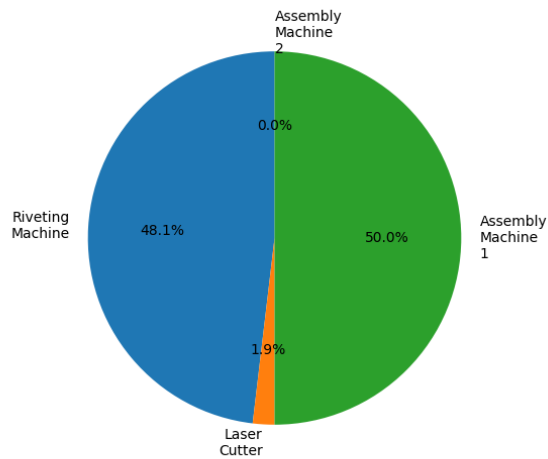
Consumption Avg



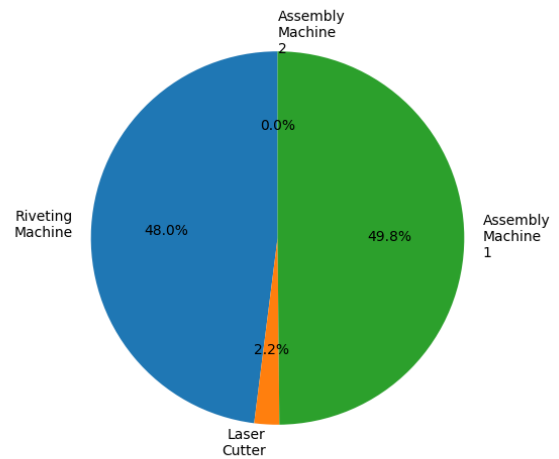
Consumption Sum



Cost Idle Avg



Cost Idle Sum



Predicted Values Insights:

Predictions indicate a decrease in average idle time for all machines over the next three days, with the Riveting Machine and Laser Cutter showing the most significant fluctuations[4]. Consumption and cost idle are also predicted to vary, but the overall trends are less pronounced[5].

Suggestions:

Investigate the cause of the high idle time, particularly for the Riveting Machine and Laser Cutter[6]. Further analysis is needed to understand and optimize machine usage and energy efficiency for all machines[7]. The consistently low cost_idle_sum for Assembly Machine 2 requires investigation to understand if this is accurate or reflects a data reporting issue[3].

Appendix

Reference Number: [1]

Context:

```
{
  "Machine_Name": "Assembly Machine 1",
  "KPI_Name": "consumption_sum",
  "Predicted_value": [
    0.006605808157473803,
    0.006753153633326292,
    0.005911384709179401
  ],
  "Lower_bound": [
    0.0030957169365137815,
    0.003119098488241434,
    0.00019802892347797751
  ],
  "Upper_bound": [
    0.010869715362787247,
    0.011740334331989288,
    0.017532527446746826
  ],
  "Confidence_score": [
    0.95,
    0.95,
    0.95
  ],
  "Measure_unit": "kWh",
  "Date_prediction": [
    "2024-10-20",
    "2024-10-21",
    "2024-10-22"
  ],
  "Error_message": "",
  "Forecast": true
}
```

[Source: Predictor](#)

Reference Number: [2]

Context:

```
{
  "Machine_Name": "Assembly Machine 1",
  "Machine_Type": "any",
  "KPI_Name": "cost_idle_sum",
  "Value": 0.024000000000000004,
  "Measure_Unit": "euro per kWh",
  "Date_Start": "2024-09-01",
  "Date_Finish": "2024-09-30",
  "Aggregator": "sum",
  "Forecast": false
}
```

[Source: KPI Engine](#)

Reference Number: [3]

Context:

```
{
  "Machine_Name": "Assembly Machine 2",
  "KPI_Name": "cost_idle_sum",
  "Predicted_value": [
    2.7673782824422233e-05,
    2.8332960937405005e-05,
    2.8882277547381818e-05
  ],
  "Lower_bound": [
    2.3718701413599774e-05,
    2.3718701413599774e-05,
    2.3718701413599774e-05
  ],
  "Upper_bound": [
    3.470504088909365e-05,
    3.470504088909365e-05,
    3.470504088909365e-05
  ],
  "Confidence_score": [
    0.95,
    0.95,
    0.95
  ],
  "Measure_unit": "euro per kWh",
  "Date_prediction": [
    "2024-10-20",
    "2024-10-21",
    "2024-10-22"
  ],
  "Error_message": "",
  "Forecast": true
}
```

Source: [Predictor](#)

Reference Number: [4]

Context:

```
{
  "Machine_Name": "Assembly Machine 1",
  "KPI_Name": "idle_time_max",
  "Predicted_value": [
    2720.7509765625,
    2705.9921875,
    2567.624267578125
  ],
  "Lower_bound": [
    1457.2840576171875,
    1377.7591552734375,
    1163.02734375
  ],
  "Upper_bound": [
    3877.156494140625,

```

```
6794.43408203125,
5237.60205078125
],
"Confidence_score": [
0.95,
0.95,
0.95
],
"Measure_unit": "s",
"Date_prediction": [
"2024-10-20",
"2024-10-21",
"2024-10-22"
],
"Error_message": "",
"Forecast": true
}
```

Source: Predictor

Reference Number: [5]

```
Context:
{
"Machine_Name": "Laser Cutter",
"KPI_Name": "consumption_sum",
"Predicted_value": [
1.0656936865416355e-05,
9.320157914771698e-06,
1.734082070470322e-05
],
"Lower_bound": [
9.320157005276997e-06,
9.320157005276997e-06,
9.320157005276997e-06
],
"Upper_bound": [
9.320157005276997e-06,
9.320157005276997e-06,
0.00014299785834737122
],
"Confidence_score": [
0.95,
0.95,
0.95
],
"Measure_unit": "kWh",
"Date_prediction": [
"2024-10-20",
"2024-10-21",
"2024-10-22"
],
"Error_message": "",
"Forecast": true
}
```

Reference Number: [6]

Context:

```
{
  "Machine_Name": "Laser Cutter",
  "KPI_Name": "idle_time_max",
  "Predicted_value": [
    7840.76953125,
    14630.369140625,
    8589.8759765625
  ],
  "Lower_bound": [
    4053.426025390625,
    6734.36669921875,
    631.8099365234375
  ],
  "Upper_bound": [
    12266.7333984375,
    23253.740234375,
    17275.599609375
  ],
  "Confidence_score": [
    0.95,
    0.95,
    0.95
  ],
  "Measure_unit": "s",
  "Date_prediction": [
    "2024-10-20",
    "2024-10-21",
    "2024-10-22"
  ],
  "Error_message": "",
  "Forecast": true
}
```

Source: Predictor

Reference Number: [7]

Context:

```
{
  "Machine_Name": "Assembly Machine 1",
  "KPI_Name": "consumption_avg",
  "Predicted_value": [
    0.0007638530223630369,
    0.0006321202963590622,
    0.0006727969157509506
  ],
  "Lower_bound": [
    0.00031864133779890835,
    0.00017266784561797976,
    0.00013472355203703046
  ],

```

```
"Upper_bound": [  
0.0015626163221895695,  
0.00135051179677248,  
0.0012986683286726475  
],  
"Confidence_score": [  
0.95,  
0.95,  
0.95  
],  
"Measure_unit": "kWh",  
"Date_prediction": [  
"2024-10-20",  
"2024-10-21",  
"2024-10-22"  
],  
"Error_message": "",  
"Forecast": true  
}
```

[Source: Predictor](#)
