

The Turbine, Coach Close, Shireoaks Business Triangle, Shireoaks, Worksop, Notts. S81 8AP  
T: +44 (0)1909 512130 F: +44 (0)1909 512149  
E-mail: [sales@vaalto.com](mailto:sales@vaalto.com) [www.vaalto.com](http://www.vaalto.com)

## Vaaltometer Benefits

The use of the Vaaltometer gives many benefits including:

- Reduced Down Time
- Increased Efficiency
- Higher Profits
- Increased Output
- Reduced Operating Costs

These benefits are achieved by:

- Real Time Machine Monitoring  
View the current status of all machines, instantly see which machines are stopped  
Be able to respond to problems more quickly and identify and eliminate recurring issues  
Give production managers the tools needed to exercise better control  
This can result in a 2 – 4% reduction of idle time
- Targeting Machine Down Time  
Understand and quantify the causes of unplanned down time  
Concise down time reports focus attention on the major causes of lost capacity  
Reduction in frequent short stops often gives a 5 - 10% reduction in down time  
Reduction in long stops often gives a 5 - 15% reduction in down time  
Provide on-line information to speed up machine repair & maintenance
- Machine Speed Regulation & Optimisation  
Prevent under speed production, even small speed deviations are detected  
Reducing under speed running can yield a 1 - 2% increase in output  
Increase target machine speeds  
Optimising machine speeds can typically add a further 0 - 6%
- Scheduling & Batch Tracking  
Predict batch end times - changeover crews and equipment can be prepared in good time  
This can reduce changeover times by 10 – 20%  
Accurate batch tracking removes the need for overruns  
Eliminating overruns can increase efficiency by 1 – 2%
- Raw Materials Monitoring  
Monitor raw materials supply to each machine to ensure a continuous supply  
Can reduce machine down time by 1 - 5%
- Motivation  
Encourage competition and demonstrate how important efficiency is to your business  
Monitor performance and learn from best practice how to become more efficient
- Reduced Administration  
The Vaaltometer automates data collection removing the need for paper records and saving time. Automated reporting removes the errors introduced by manual data manipulation

## 1. Improved Shop Floor Management

The Vaaltometer continuously collects machine utilisation and down time data from all monitored machines. This information is then presented on one of the Vaaltometer's dash board displays, which provides an instant picture of the condition of every machine.

## 2. Regulation & Optimisation of Machine Speeds

The Vaaltometer accurately measures production speeds against target levels for each machine. Small variations in machine speed will often go unnoticed by operators whereas a monitoring system can immediately alert the need for corrective action to be taken. Such variations can provide efficiency increases of 1 - 2%

The Vaaltometer helps optimise machine running speeds. In many manufacturing facilities machines run throughout their life at the default speed set when installed. Where machine speeds can be varied it is often possible to make small speed increases without adverse effects. The availability of continuously recorded data allows for later analysis and can be used to determine the maximum machine speed that can be sustained without adverse effects. Where machine speeds can be varied, speed optimisation can yield efficiency increases of 1 - 6%

## 3. Reducing Machine Down Time

Reducing machine down time has an instant beneficial effect on production efficiency and output. However, without accurate information on the real amount and the causes of down time it can sometimes be a difficult to see how machine down time can be reduced.

The Vaaltometer continuously and automatically captures and records machine status with down times accurate to one second and exact stoppage reasons for every machine.

Down time can often be categorised in terms of minor or major stops....

- Minor stops

Short duration stops are usually where the machine is stopped for the operator to rectify a 'minor' problem then restart the machine. Most businesses are unable to accurately quantify short duration stoppage times, as they tend to go unrecorded by operators - who are often too busy and may see them as insignificant.

With the Vaaltometer, all stoppage time is accurately recorded so it is easy to exactly quantify the down time caused by short stoppages. Although often seen as negligible, accumulated short duration stops can be surprisingly large. Reducing the causes of short duration stops not only increases efficiency but also eases the burden on operators and results in improved man-machine ratio.

- Major stops

The Turbine, Coach Close, Shireoaks Business Triangle, Shireoaks, Worksop, Notts. S81 8AP  
T: +44 (0)1909 512130 F: +44 (0)1909 512149  
E-mail: [sales@vaalto.com](mailto:sales@vaalto.com) [www.vaalto.com](http://www.vaalto.com)

Identifying the causes of long duration stops is particularly beneficial as focussing attention on these can greatly reduce down time. To provide accurate information of long duration stops the system not only records down time but also stoppage reasons. To do this, machines is interlocked after being stopped for a pre-set time and can only be started again once a valid down time reason has been provided. This ensures that the operator is obliged to enter the reason for the stoppage at the time the stoppage occurs, not at the end of his shift when he may have forgotten or feel tempted to alter the reason to be recorded.

#### 4. Improved Planning & Scheduling

Each new production run or batch is uniquely identified by the Vaaltometer. The status of each run or batch is calculated in real time, automatically comparing actual production against quantity required, forecasting the time of completion.

This allows the production planning and sales department to be kept informed of the status and forecast delivery times of every order in the factory.

#### 5. Elimination of OVERRUNS

In some industries, where it is difficult to keep track of production quantities, production runs are planned with an overrun percentage above the actual required quantity. This ensures that sufficient product is made but is wasteful in materials, energy and labour.

The Vaaltometer can provide an accurate measure of production in real time and when the required quantity is produced the system can alert the operator or automatically stop the run.

Eliminating overruns reduces the usage of materials, energy and labour and frees up machine capacity. This can result in an increase in efficiency of around 1 - 2%

#### 6. Automatic Job Costing

By inputting costing values for raw materials, energy, labour rates and finished goods the system can automatically calculate the relative profitability of any job or production run.

#### 7. Reduction in Paperwork & Administration

The Vaaltometer not only eliminates the need for manual data collection, filling in of forms and data inputting to spreadsheets etc. but also provides the information in a form which is easy to analyse thereby further reducing wasted time. This can often save 30 to 60 minutes per shift and information flow from one shift to the next is greatly improved. Time saved on data collection and inputting allows more time for evaluation, analysis and other more productive work.

#### 8. Reduced Capital Investment

The Turbine, Coach Close, Shireoaks Business Triangle, Shireoaks, Worksop, Notts. S81 8AP  
T: +44 (0)1909 512130 F: +44 (0)1909 512149  
E-mail: [sales@vaalto.com](mailto:sales@vaalto.com) [www.vaalto.com](http://www.vaalto.com)

Any reduction in machine downtime, elimination of under speed running and optimisation of machine speeds will inevitably give an increase in plant capacity.

For companies who are approaching the limit of their production capacity, this form of monitoring can provide a low cost alternative to major capital investment. In some cases it has been possible to save over £1,000,000 on new machinery as a result of a £35,000 investment in a machine utilisation and down time monitoring system.

The Turbine, Coach Close, Shireoaks Business Triangle, Shireoaks, Worksop, Notts. S81 8AP  
T: +44 (0)1909 512130 F: +44 (0)1909 512149  
E-mail: [sales@vaalto.com](mailto:sales@vaalto.com) [www.vaalto.com](http://www.vaalto.com)

## In Summary

- Real time production information allows problems to be addressed before it is too late
- Average machine speeds are improved
- The length and causes of down time are fully understood, leading to informed remedial action
- Machine change over times are reduced
- Manufacturing overruns are eliminated
- The need for manual data entry is reduced to a minimum
- Motivation and performance is improved
- Production control and planning is more effective
- Production management is able to exercise better control
- Up-to-date and accurate information is available to all departments
- Profitability is increased

The Turbine, Coach Close, Shireoaks Business Triangle, Shireoaks, Worksop, Notts. S81 8AP  
 T: +44 (0)1909 512130 F: +44 (0)1909 512149  
 E-mail: [sales@vaalto.com](mailto:sales@vaalto.com) [www.vaalto.com](http://www.vaalto.com)

Typical example of savings made from implementing a site wide Vaaltometer installation.

<b>Typical manufacturing situation</b>		
Plant capacity - number of machines	40	
Orders per machine per year	52	
Average order duration	107 hours	
Available production time per machine per year		
5 days production per week, x 24 hours per day x 52 weeks	6,240 hours	
Less - 28 days non productive (holiday shut downs etc.)	672 hours	
Total production hours available per year	5,568 hours	
Average hourly rate per machine	£20	
Machine down time = 11% due to :-	612 hours per machine	
Short & long duration stops	6% = 334 hours	
Awaiting orders or materials	2% = 111 hours	
Change over times	3% = 167 hours	
Overrun safety factor	1%	

<b>Calculation of financial savings &amp; payback</b>		
Reduction in down time		
10% due to remedial action to short & long stops		
334 hours per machine x 40 machines x 10%	1336 hours per year	
Saving = 1336 hours per year x £20 per hour		£26,720 per year
1% due to improved planning & scheduling		
111 hours per machine x 40 machines x 1%	44 hours per year	
Saving = 44 hours per year x £20 per hour		£880 per year
10% due to more efficient change overs		
167 hours per machine x 40 machines x 10%	668 hours per year	
Saving = 668 hours per year x £20 per hour		£13,360 per year
Optimisation of machine speeds		
1% improved machine speed by tighter control		
40 machines x 5568 hours x 89% availability x 1%	1982 hours per year	
Saving = 1982 hours per year x £20 per hour		£39,640 per year
Elimination of overruns		
Based on elimination of overruns on 25% of orders;		
40 machines x 52 orders x 107 hours per order x 25% x 1%	556 hours per year	
Saving = 556 hours x £20 per hour		£11,120 per year
Reduction in administration (Data collection & inputting)		
Assume 35% saving of a staff member in production administration		
Saving on cost of employment 35% x £16,000		£5,600 per year
Total savings per year		£97,320 per year

After system purchase and associated costs of implementation this level of saving would indicate a typical payback period of between 9 to 12 months.