



Tutorial, productivity optimization

selection free analysis



Economic Optimization

Evaluate your production from an economic viewpoint (service without additional tests). We determine the best cutting settings to reduce your production costs.



Production Optimization

Evaluate the productivity of your machining process and determine the optimal cutting parameters to increase your productivity.



D.O.E to improve machining

We guide you step by step to launch any type of design of experiment to improve any manufacturing process (grinding, design of cutting tools, etc.).



Statistical Analysis

If you are hesitating between various cutting conditions, we conduct statistical analyses to determine the best one.



Reduction of torque

We find the right machining conditions to reduce torsion in your parts.



Improvement of the roughness

We find the right cutting conditions to reduce roughness of your parts to a minimum.



Tool life

We find the right machining conditions to prolong the life of your tools.



Accuracy and vibrations

We guide you step by step to determine the origin of inaccuracies or signs of vibration in your machined parts.



Reduction of burr.

We find the right machining conditions to reduce burrs on your parts.



Kriging Interpolation

We predict new values and results based on trials you already conducted randomly and without plans.

sélectionnez le
service

select the service

More info on the services

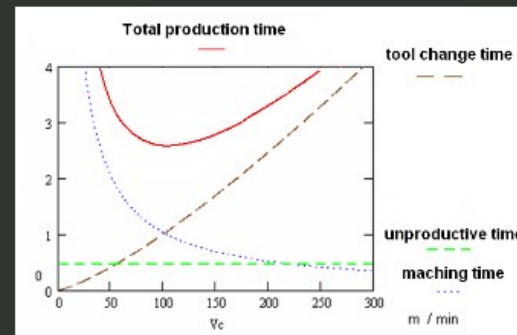


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Informations sur
l'optimisation de
la production

Optimization of the productivity of machining

Description

[Description](#)[User manual](#)[Choice of factors](#)[See an example](#)[Open / New Project](#)

The time of manufacturing is the sum of the time of the machining and the time for the change of the tools. Increasing the cutting speed (V_c) and feed rate (f) you reduce the execution time of a machining operation, thus reducing the component of machining-time. By cons probably tool wear appear faster. The time for the change of the tool will increase when increasing cutting speed (V_c) or the feed rate (f).

The search for the optimum from the production point of view is based on the identification of the set of cutting parameters which allows a certain machining operation at the minimum time. (Finding this optimum one can easily get an important advantage).

information on
productivity
optimization





TestVersion / v1.11

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Project Management of type: "Optimisation production"

Current Projects

Name:	Creation	Last Access
<input type="radio"/> fraisescie	04/02/2010	03/05/2012
<input type="radio"/> cbn_ec	22/03/2010	16/11/2012
<input type="radio"/> demo_fraise_sciage	08/04/2010	01/12/2010
<input type="radio"/> valid_demo_optec	02/12/2010	16/11/2012
<input type="radio"/> prova_notest	30/04/2012	07/11/2012
<input type="radio"/> demo_prod	16/11/2012	16/11/2012

Open Delete

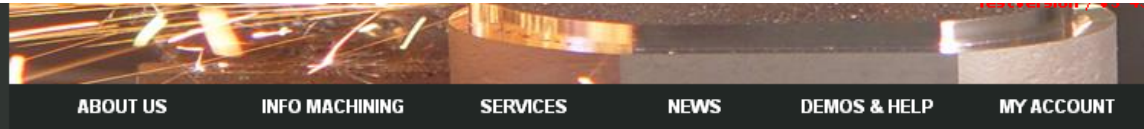
Create a new project:

Name: demo_prod Create

définir le nom du projet

set the project name





Optimisation production - Project : "demo_prod"

Step 1 - Enter the economic information:

Check your machine's performance in terms of productivity. The economic optimization aims to identify the cutting parameters that provide the best solution from productivity point of view.

These data, as all data in this website, are managed strictly confidential: without human intervention

Enter the currency you want use for posting

1- Actual machining time of the work piece (or of the operation). Note: it is just the time of actual contact between tool and material	<input type="text" value="132"/>	sec
2- Unproductive fixed time required for loading of the part (or to start an operation)	<input type="text" value="16"/>	sec
3- Fixed time lost in unproductive displacements, travels, operations of measure ... etc. (or other machining operations not considered for optimization)	<input type="text" value="50"/>	sec
4- Unproductive time. Example: loading time of the tool magazine, when optimizing the production of work piece (or time change of the tool, in case of optimization with respect to a single machining operation)	<input type="text" value="1800"/>	sec
5- Time of production of the piece (or operation). Note: this is the time delay between the beginning and end of work for the realization of a piece (or a machining operation). This time serves as a check and must correspond to 1 + 2 + 3.	<input type="text" value="198"/>	sec

[Next](#)

définir l'unité de temps et les données

set time unit and data



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Optimisation production - Project : "demo_prod"

Step 3: Information on your existing machining conditions:

The following table gives the total time for the machining operation under the current conditions.

Machining time	132	sec
Improductive time	75	sec
Total time	207	sec

It would appear that the cutting parameters that you currently use are too prudent.

You can print a report with these evaluations on your production

[Create a Report](#)

You can search for more efficient cutting parameters in terms of productivity. (This possibility requires testing). In this case press the button: - Next-

[Back](#)[Next](#)

vous obtenez
une évaluation
de votre usinage

you get an
assessment of
your machining





Vous obtenez une évaluation de votre productivité,
sans aucun essai ...

... vous pouvez continuer et obtenir une
optimisation.

You get an evaluation about the productivity of
your machining, without any trial ...

... from here, you can go ahead and
obtain an optimization.



La démarche en ce cas est très similaire à celle des plans des expériences. (Voir le didacticiel pour «amélioration de l'usinage ») .



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Optimisation production - Project : "demo_prod"

Step 2 /10- Select the factors that influence the time of machining:

Choose the factors you believe have an influence on the machining time and life of the tool (4 maximum):

Factor Vc Add

You selected 2 factor (s)

Vc Delete

fz Delete

Step 3 / 10 - Validate the proposed plan of trials or choose the plan that best suits:

You can make a plan of 4 trials (2 factors at 2 levels) or plan to 9 trials (2 factors at 3 levels)

Making a plan 4 trials

N° essai	Facteur 1	Facteur 2
1	1	1
2	1	2
3	2	1

choisissez des facteurs ...

vous obtenez un plan des essais

selects the factors ...

you get a design of experiments

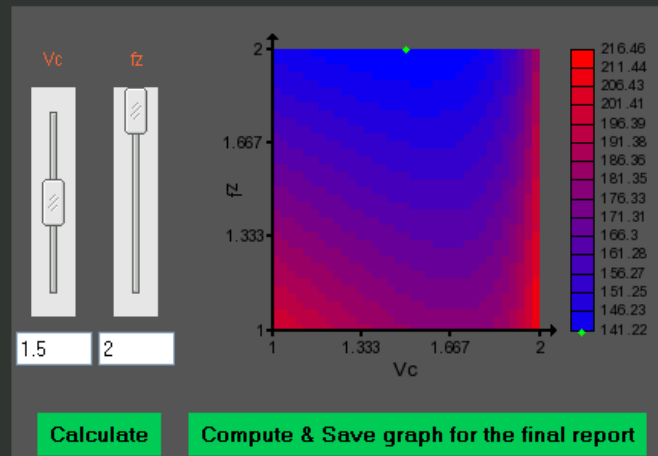
The approach in this case is very similar to the plans of experiences. (See the tutorial for "improving machining").





Step 9 / 10 - Results:

Based on the experimental plan, you can predict the result by setting the factors as per your wishes:



The table below provides a forecast of the tool life and production time in following conditions:

V_c : 1.5 f_z : 2

Time (piece or operation)	121.5	sec
Number (pieces or operations)	93.5	operations
Refill time	19.251	sec/operation
Total actual time	140.751	sec/operation

Warning: unusually, an inconsistency may arise (values negative or too large). If this happens, make sure you have correctly entered the measures. It is possible that the mathematical model compute incoherent values, in quite specific regions of the factors. This does not mean that the entire model is wrong.

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Continue

de 207 sec. par
opération, à 140 !

from 207 sec. per
operation to 140 !





Bon travail

Good work



**Tutorial,
productivity optimization**

Exploring machining

