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For Immediate Release

Predicting Machining Outcomes before Making a Chip

Ashaway, RI - IQL (Independent Quality Labs, Inc.) introduces "LocusCAE.com" the first of a new generation of computer aided engineering (CAE) tools for predicting machining outcomes based on machine tool capability.

Precision manufacturers are challenged daily to design and troubleshoot demanding machining operations with increasingly tight tolerances, often resorting to costly iterative "make and measure" diagnostic methods or statistical process capability trials as they work to refine their manufacturing process. Processes are tweaked and offsets adjusted as production staff work to maintain process control. These approaches consume valuable production resources, extend lead times and often fail to identify the underlying "root cause".

LocusCAE.com provides the first of its kind CAE tool with a foundation based upon the simple practical concept of a "manufacturing process error budget". "Applying an 'error budget' or breaking down a manufacturing process into its components is intuitive for anyone in manufacturing," according to IQL Vice President Michael Mariani. "What's been missing are tools which accurately predict each component's contribution." LocusCAE predicts the impact of the machine tool's [capability](#) on the process. Understanding the machine tool's contribution significantly simplifies process design and diagnostics.

This new approach developed by IQL divides each machining operation into desired attributes and features, or Attribute Feature Pairings (AFPs). A simple example would be the location of a hole ... the location & tolerance define the "desired attribute" and the hole and reference surfaces represent the "features". LocusCAE is unique as it considers all surfaces being machined, both the hole as well as the reference surfaces, to predict the machining outcome.

LocusCAE can be used by Design Engineers to analyze part manufacturability, Production Planners and Procurement Staff to select the appropriate machining resource as well as by Manufacturing Engineers to design or troubleshoot machining operations.

IQL is a leader in the development and application of methods and tools for improving machining processes by aligning machine tool positioning capabilities with part feature tolerance requirements. The company's technology uses machine tool behavior to diagnose and resolve manufacturing issues related to challenging feature tolerances. With more than twenty years of experience, IQL is the preferred resource for manufacturers wishing to create and sustain "First Part Correct" manufacturing processes. For additional information, visit IQL at www.iqlinc.com.

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IQL™ A BETTER WAY TO ACHIEVE TOLERANCES

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Welcome to Locus CAE ...

Locus CAE is a unique tool that estimates machining outcomes. Tolerance consumption estimates are provided based upon desired part feature and tolerance requirements.

How it works ...

A simple two step process first guides feature attribute selection ... *position, size, form, etc.* then input of part geometry details ... *length, orientation, tolerance, etc.* and the class of machine tool being analyzed. Locus CAE then provides tolerance consumption estimates for each machine tool selected. Results are provided as a "percent of tolerance consumed".

Register as a free user and start using the only science based CAE tool for determining part manufacturability.

Validate Design Manufacturability

What Machining Capability is required to hold this tolerance?

Machine Tool Selection

Which Machine Tool should be used for this part?

Quickly Diagnosis Manufacturing Issues

How much tolerance is being consumed by the Machine Tool?

Identify Gaps in Production or Supply Chain Capability

What Machining Capability is needed in my Supply Chain?

Account Login

User Name:

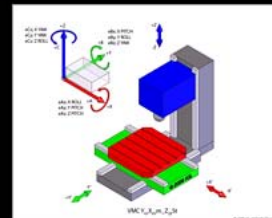
Password:

Login

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Forgot Password ?

Machine Tool SubClasses



C-Type Vertical Machining Center

Locus CAE from IQL www.locuscae.com

True Position of Hole to Hole

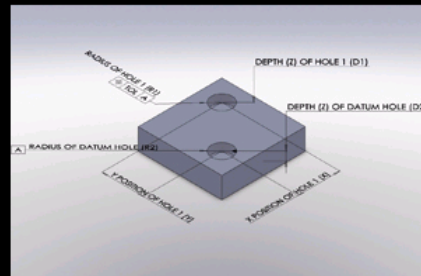
Analysis Results

Machine	Capability Index	Tolerance Consumed	PEN Analysis
Haas VF2 Std	3.2	31 %	● Analyze
VMC YxyXzym_ZzxSt A	3.3	30 %	● Analyze
VMC YxyXzym_ZzxSt AA	6.9	15 %	● Analyze
VMC YxyXzym_ZzxSt B	1.9	54 %	● Analyze

Units Inch
Time 12/6/2010 10:13:51 AM

Comments

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Inputs

Input	Code	Value
Radius of Hole 1	R1	.5
Depth(Z) of Hole 1	D1	1
X Position of Hole 1	X	4
Y Position of Hole 1	Y	4
Radius of Hole 2	R2	.5
Depth(Z) of Hole 2	D2	1
Tolerance Bandwidth	Tol	.001
Tool Length	TLen	3
Tool Diameter	TDia	.5

True Position (AFP) Tolerance Consumption Estimate for Vertical Machining Center

Machine Tool Error Sources

Machine: Haas VF2 Std Before SuperTuning
AFP: True Position of Hole to Hole

PEN	Axis	Description	Current Tool Machine Error Values	AFP Error Contribution	%
ebYy	y	Average Reversal	0.005 mm	0.00296	37.6 %
ebXx	x	Average Reversal	0.003 mm	0.00133	17.0 %
eYy	y	Linear Accuracy	23.400 μ /m	0.00080	10.2 %
erYy	y	Linear Repeatability	0.002 mm	0.00079	10.0 %
erXx	x	Linear Repeatability	0.002 mm	0.00066	8.5 %
eXx	x	Linear Accuracy	18.000 μ /m	0.00047	6.0 %
eYs	s	Geometric Radial Err	0.001 mm	0.00045	5.7 %
eXs	s	Geometric Radial Err	0.001 mm	0.00039	4.9 %
Total Machine Tool Tolerance Consumption:				0.00785	30.9 %
~Machine Tool Tolerance Consumption Target:				0.00635	25.0 %

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Done

Locus CAE Machine Tool Error Pareto Report