CNC Engineering Inc.

Implementing Technology For Improved Productivity

MANAGEMENT CONTROL AND REPORTING

Manufacturing Event Monitoring

In-Process Part Acceptance

- In Process Part Acceptance
- User Defined Inspection Sequences and Criteria
- Automatic Data Input From Probes, Gages, Etc.
- Automatic Feature Analysis Based on User Defined Criteria
- Automatic Operator Messaging and Warnings
- Full Text Reports
- Automatic E-mail of Results & Discrepancies to Quality Department

OVERVIEW

The In-Process Part Acceptance package provides a computerized procedure for part inspection and acceptance while a part moves through production.

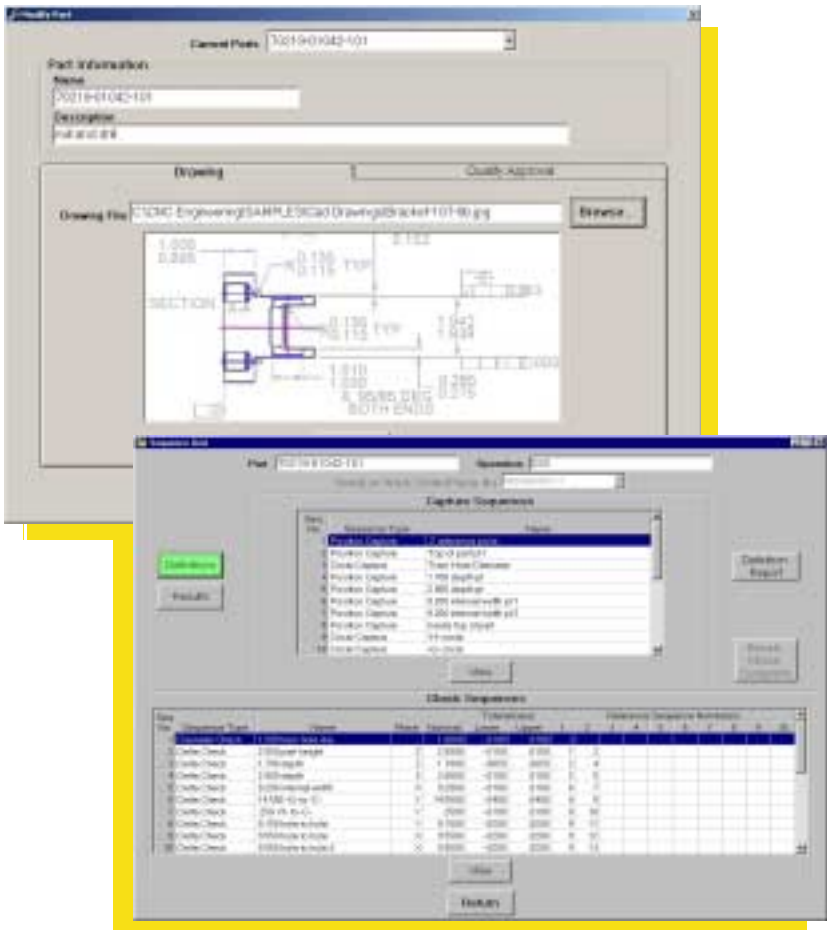
The In-Process Part Acceptance system consists of three modules all connected to a common network-enabled database.

- Process Sequence and Acceptance Criteria Definition Module
- Machine Tool and Gage Interface Module
- Operator Input and Analysis Module

THE PROCESS SEQUENCE AND ACCEPTANCE CRITERIA DEFINITION MODULE

This module allows the quality engineering staff to develop a "template" of input value sequences, definitions and analysis criteria for each part.

Sequence input definitions include X, Y, Z coordinate values and/or circle center and diameter values. Analysis criteria include Delta Check, Dimension Tolerance Check, Flatness Check, True Position Check, Manual Value Input and Visual Notation Inspection Check Off. Each sequence may have both text and read-only blueprint information.

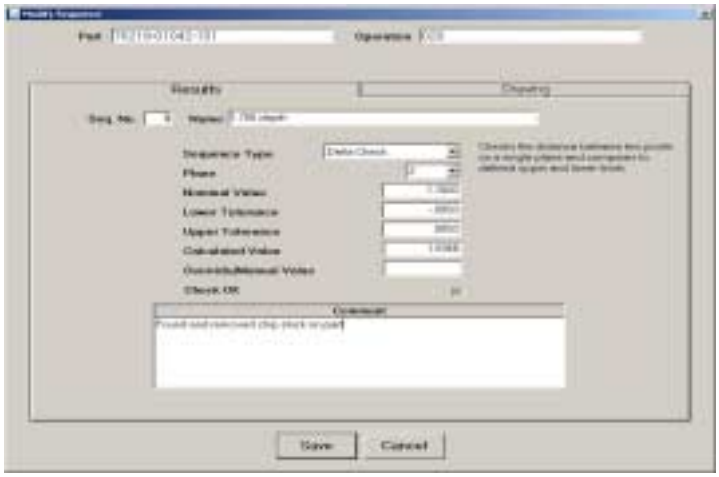


This module runs on one or more computers in the engineering department. As parts move through the manufacturing steps on the shop floor the appropriate "template" is selected based on the active part and operator number.

MACHINE TOOL AND GAGE INTERFACE MODULE

The Machine Tool and Gage Interface Module supports data input from automatic data gathering devices such as probes on a CNC control, or electronic gages.

This module typically runs in the background on a computer adjacent to the operator and / or CNC control. The module collects the automated information and transfers the data to the appropriate part-specific records in the common network-enabled database.



OPERATOR INPUT AND ANALYSIS MODULE

The Operator Input and Analysis Module displays the automatically collected data to the operator then gives the operator the opportunity to input any manual values. If automatically collected values are out of range, the operator is provided the opportunity to manually measure the dimension and correct any discrepancies. For example: A chip many not have been washed from the part and may have caused an invalid probe result.

Once all dimension information is obtained, the production module analyzes the data using the ...

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sequences and formulas provided by the Process Sequence and Acceptance Criteria Definition Module. Any discrepancies are flagged and, if the part is not acceptable an e-mail with an attached report is automatically sent to the quality department.

All inspection results are written to a common network-enabled ODBC compliant database. These values can then be used for automatic report generation, additional statistical analysis and archiving.

REPORTS

A full set of text reports is created at the end of each inspection. These reports may be printed for the operator to attach to the part and an archive version may be automatically sent to the Quality Control Department.

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