

# NC Polaris



Quality parts begin with precise graphic representation inside AutoCAD® or Autodesk Mechanical Desktop® (AMD). Tooled parts are input to the Nest Extension. The Nest Extension is an automatic nesting program that applies true shape nesting algorithms with parts inside parts, two levels deep. Nesting results are returned to AutoCAD or AMD for processing.

## AUTOMATIC NESTING

Years of research and large sums of money have been invested in developing automatic nesting programs. Until now, the results of these investments have only been available for use on mainframe computers at extremely high end-user cost.

The NC Polaris Nest Extension has broken the barrier of price/performance in automatic true shape nesting on a personal computer. Now you can utilize the power of computer logic to produce automatic nests at an affordable price.

The Nest Extension applies true shape nesting logic of irregular shapes for best fit including parts inside of parts, two levels deep.

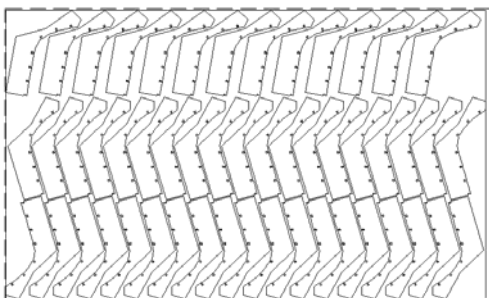
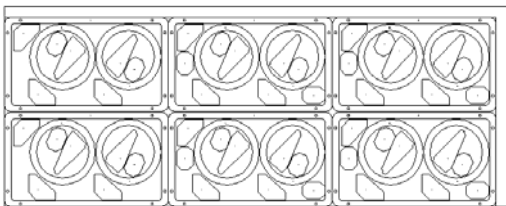
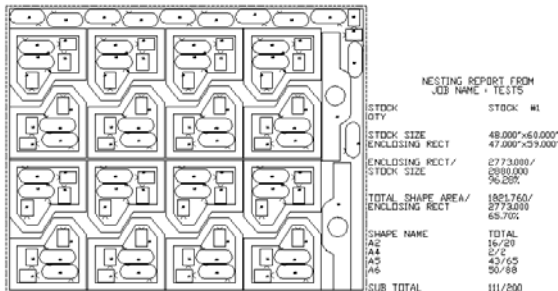
Comprehensive user interface facilitates entry of part numbers to be nested, part quantity, priority(s), and rotation constraints as well as plate or sheet size(s) and available quantities. Once the desired information is input,

the Nest Extension takes over and automatically nests parts quickly and accurately.

The entire nesting process takes seconds.

## THE APPLICATION

In many instances multiple part placement for profile cutting is desirable. The NC Polaris Nest Extension is ideally suited to fill this need. Totally integrated inside AutoCAD the NC Polaris Nest Extension automatically performs the logic of optimizing part placement. The Nest Extension always returns its results to AutoCAD. The nest results can be altered in AutoCAD interactively and automatically sorted and converted into NC code by NC Polaris. Your manufacturing rules are stored in NC Polaris' knowledge base to insure proper cutting procedures.



# Manufacturing Reality

## Automatic Nesting of Parts

The Nest Extension is an integration of a totally automatic true shape nesting program with NC Polaris. The Nest Extension combines the power of true shape nesting with tooled parts using 2 and 2-1/2D cutting cycles in NC Polaris. This is accomplished through the open architecture of the NC Polaris system.

The Nest Extension provides for multiple part placements on single or multiple stock sheets. This process is called nesting. Nesting logic automatically orients parts within assigned constraints to accomplish near optimum stock utilization. The nesting program utilizes true shape algorithms with logic that can place parts inside of other part openings up to two levels deep.

Parts containing tool path are assigned part numbers for automatic nesting. A stock size is given and the part constraints are specified. The Nest Extension considers rotation constraints, bridge width, stock size(s), part quantities, and priorities. The results of the automatic nests are presented to the user in AutoCAD for processing.

The user can let NC Polaris automatically control the sorting and cutting sequence of all the parts in a nest or interactively select the cutting order.

## Standard Features include:

- Optimization
- Job Edit/View
- Overlap Protection
- Reporting
- Part/Stock Manager
- Cut Path Sorting
- Interactive Nesting

## Optimization

The Nest Extension allows easy input of part shapes. The goal of optimization is to search through the numerous possible arrangements and present a near-optimum layout, taking into consideration part rotation, bridge width, and stock size. Automatic nesting assists in optimizing material utilization and shortens the time taken to decide on the best arrangement.

## Nest Job Edit/View

A user friendly Windows interface provides a simple input format for entering parts and jobs to be nested. Stock sheet information including size, number of different sizes and quantity is entered. Nesting allows for different sizes and types of stock in one job. Manufacturing information such as bridge width and x-y edge allowances is handled

in the job description. Part orientation constraints are easily entered in the dialog interface. When a single part is entered in a job the system automatically applies a maximize routine that mathematically determines the optimal layout.

The nesting of parts is automatic. A progress bar display is provided that gives you up-to-date information on how the nest is proceeding. Pairing of similar shapes, pairing of dissimilar shapes and packing information is provided during the nest process. Automatic nests are created quickly in seconds.

The graphic results of the nest jobs are displayed in AutoCAD with utilization information.

## Overlap Protection

NC Polaris provides a protection process that makes sure the lead-in and lead-out of a tool path do not affect nested parts. This feature, in combination with bridge width values, ensures that parts are placed as close as possible without overcutting adjacent parts.

## Reporting

A special requirement of nesting is percentage utilization and part count on each stock material. A full feature report containing Stock Size, Enclosed Nested Area, Total Shape Area, Enclosed Area, percentages and, Quantity of each part nested is provided.

## Cut Path Sorting

As a fully integrated module with NC Polaris, the Nest results facilitate manufacturing requirements. After the nest has been made, the process of cutting the parts begins. NC Polaris knows about nested parts and handles the fact that the inside of the part needs to be cut before the outside. NC Polaris automatically sorts the nested parts for minimum machine travel.

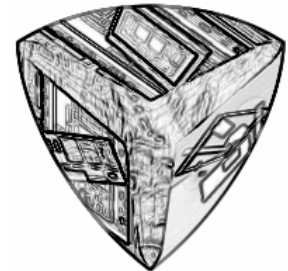
## Interactive Nesting

Full graphic display of nest results allows the individual editing of part positions. Conditions can arise where manufacturing techniques need to be applied for an appropriate nest. With automatic and interactive nesting, the system provides a full range of material utilization methods.

## More-More-More

The NC Polaris Nest Extension contains features beyond those mentioned here. Contact your local NC Polaris dealer for a demonstration.

## Nest

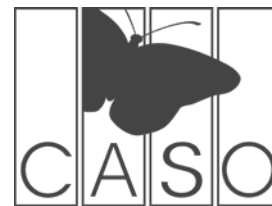


## Extension



*The NC Polaris Nest Extension nests complex jobs in seconds.*

## For More Information:



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