SIGMA**NEST**®
S O F T W A R E

Nest with the BEST®

Letter from the CEO

Thank you for considering the SigmaNEST solution. SigmaTEK corporate culture is based on integrity, trust, cooperation, communication and passion for perfection. Our company has a strong team oriented approach, relentlessly striving to live up to our corporate culture.

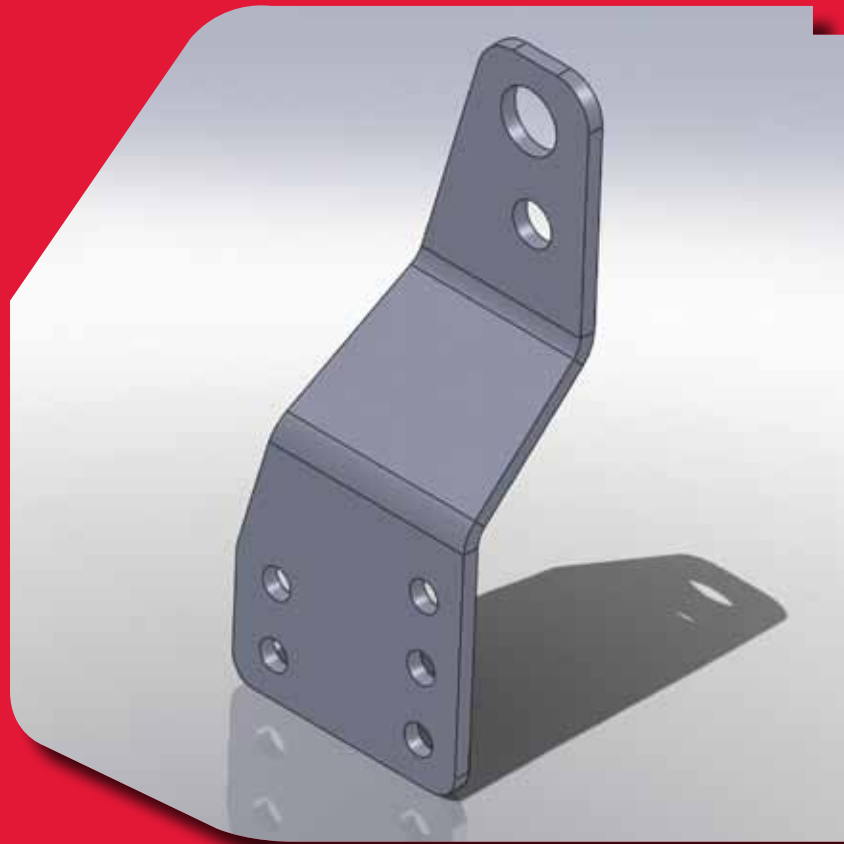Our focus is to provide our customers the best value possible. Everything else is meaningless.

We are committed to producing quality products and excellent service. With clear goals, internal training and a coaching mentality, we have developed one of the strongest teams in the sheet metal and nesting software business. Add to that state-of-the-art development processes and systems, SigmaTEK is ideally positioned to live up to its promises.

Earning your business will be an honor for us. You can expect an enthusiastic and committed partner.

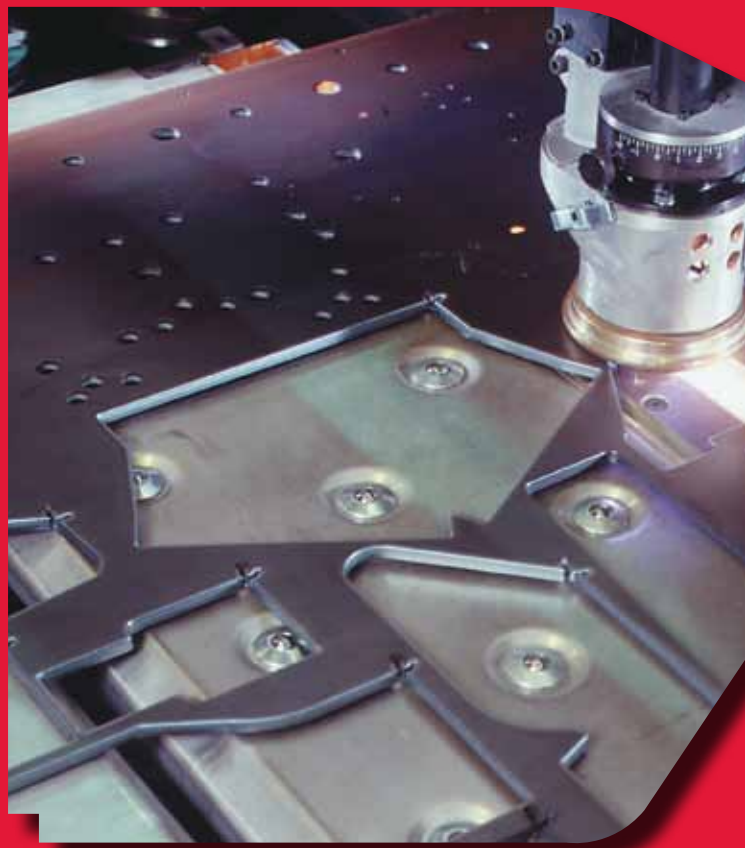Ben TerreBlanche

President and CEO

(513) 674-0005 (Office)

(513) 314-2177 (Mobile)

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THE LEADING PROFILE CUTTING AND SHEET METAL CAD/CAM SYSTEM IN THE WORLD

SigmaNEST simply has the best nesting technology in the industry. Central to the superiority of SigmaNEST is the proprietary nesting engine that is developed and maintained by a SigmaTEK team of mathematicians and engineers considered leaders in the field of material optimization in manufacturing. SigmaNEST serves nearly every industry—if you can cut it or punch it, we can nest it. And because SigmaNEST can be used on every type of machine, you can purchase a single, economical solution that's flexible and scalable.

SigmaNEST saves you valuable materials and manpower while never sacrificing quality. Integration with the most popular CAD and NC programs, a simple interface and the best customer support in the business, are all reasons why SigmaNEST is the industry leader with over 9,000 systems installed worldwide.

Clients

Construction & Agricultural Equipment

Bucyrus
Caterpillar
Deere Hitachi
John Deere
Komatsu Shearing
Sany Heavy Industries
Vermeer
Woods Equipment

Transportation & Military

Boeing
Cessna
Diamond Heavy Haul
General Dynamics Land Systems
Great Dane Trailers
McNeilus Truck
Nassco Builder
Northrup Grumman
Yutong China Bus

Job Shop

Alstom Power
Chicago Bridge & Iron Works
Grain Belt
Pasadena Tank
Shanghai Construction

Steel Service Centers

Alro Metals
Arcelor Mittal Italia
Castle Metals
Farwest Steel
Macsteel
Metals USA
Murray Group
O'Neal Steel
Ryerson Steel
Rolled Alloys
Russel Metals
Service Steel
West Central Steel

Punch Users

ABB, Inc.
MegaFab Whitney
Mitsubishi Japan
Otis Elevator
Overlanders Mfg.
Trinity Industries
Winnebago

MATERIAL
Waste less, save more

MOTION
Efficiency through optimized movement

MANPOWER
Quick to learn, easy to use

MANAGE
Intelligent data integration

MACHINES
Total operating flexibility

MATERIAL UTILIZATION

Material cost is the number one expense of manufacturing. SigmaNEST's advanced automatic nesting results in the best yield from your raw material with the minimum amount of waste possible. You'll consume less material for the same production output, lowering cost per part and improving productivity. Complete material inventory management makes remnant nesting easy and facilitates overall inventory reduction. Part-in-part nesting reduces rectangular cost per part.
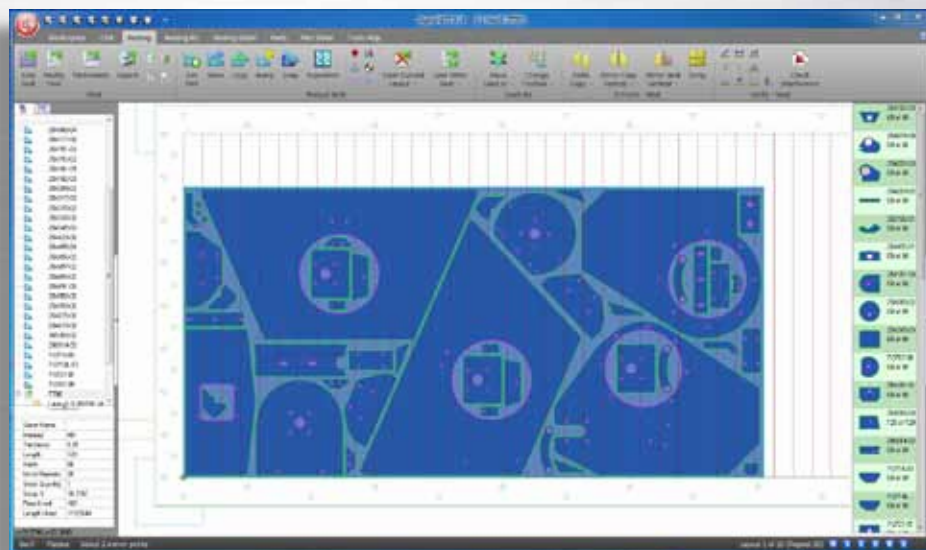
Faster

The SigmaTEK Research and Development team has developed the fastest, most sophisticated and most efficient nesting engine available in the industry. SigmaNEST can calculate the best sheet size combination for a multi-sheet nesting task, allowing you to order the most suitable raw material sizes.

Functional

SigmaNEST simplifies and automates challenging nesting and cutting tasks. It is the ideal tool for today's competitive environment.

SigmaNEST optimizes nests for:
- Common-line cutting, punching and shearing
- Bevel cutting
- Multi-head cutting with variable head count and spacing
- Continuous Nesting™ and production automation
- Supply Chain Optimization

WASTE LESS, SAVE MORE

SigmaNEST Advantages:

Powerful proprietary nesting engine

DynaPack balancing kit nesting, continuous nesting and clustering & static nesting for just-in-time efficiency while maintaining shop floor batch practicality

AutoDynamic nesting for punch tooling while minimizing tool changes and turret setup modifications

Convergent nesting for the latest technology in multi-sheet material optimization

SuperNest2 nesting for composites and TrueShape nesting on coil material

### Nesting for Shop Floor Productivity

- Work order nesting
- Mixed work orders with consolidation and staging
- Selective material grain consideration for press brake part repeatability and accuracy
- Kanban method-based filler part

Nesting for Complex Machines

- Under and/or around clamps
- Repositioning
- Bevel cutting
- Multiple processes
- Punch tool setup changes versus nesting yield balancing

REDUCE CYCLE TIME
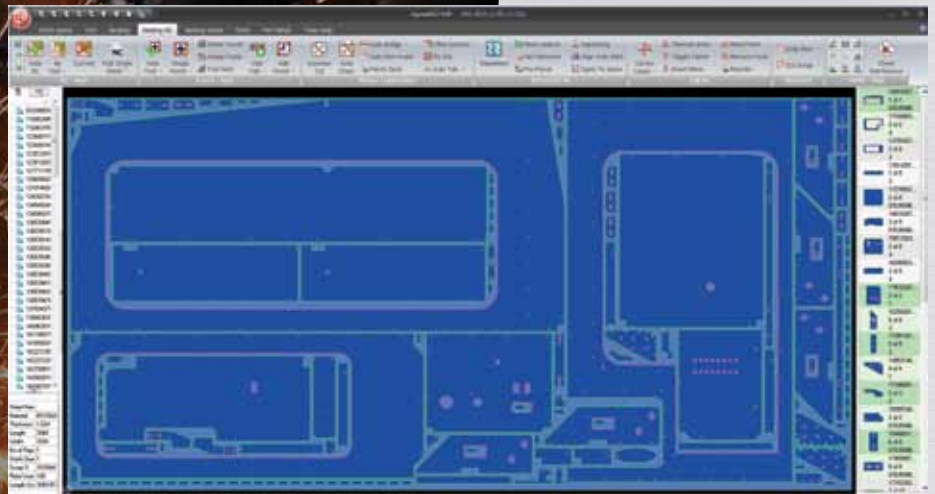
By optimizing cutting paths, pierces and other time-consuming factors, SigmaNEST can increase machine capacity by minimizing the cutting cycle time while maintaining part quality.

Nozzle Saver™

SigmaNEST Nozzle Saver technology allows users to get the most out of their consumables

- Eliminate pierces to reduce nozzle damage
- Cut faster with Smart NC
- Excellent cut quality, consistently

Pierce: The initial point at which a cutting machine penetrates material. Pierces damage the nozzle over time, limiting nozzle life.

MOTION OPTIMIZATION

Optimal tool path sequencing for machine cycle time reduction

- Common-line cutting
- Continuous cutting
- Automatic chain cutting
- Optimal feed rate control
- Cut direction and sequence
- Maximum torch on-time
- Cut sequencing for minimum movement
- Multi-process sorting for minimum tool changes
- Punch hit sequencing for minimum machine cycle time
- Multi-head programming
- Sharp corner navigation with optional time-saving exact stop motion
- Minimum heat distortion logic
- Open architecture post processor producing compact sub-routine code
- Cutting technology database
- Head down rapid movement with automatic tip-up part avoidance

Motion planning for tool life extension

- Pre-drill and pre-punch
- Automatic bridge cutting, which allows parts to be continuously cut from a single pierce
- Random router plunge depth
- Symmetric loading on punch tooling
- Pierce point elimination extending nozzle life
- iPierce™ pierce elimination
- Pre-pierce
- Automated bridge and chain cutting

Motion planning for part quality

SigmaNEST produces the most dimensionally accurate parts through advanced NC features that consider elemental requirements for all supported machine and material types.

- Vary cutting parameters on a part to minimize production time while maintaining cut quality. This is particularly useful with laser and waterjet cutters.
- Motion optimization to reduce heat distortion
- Appropriate edge quality
- Waterjet quality selection
- Laser quality selection
- Punch hit sequencing for sheet stability
- Automatic rivets for router
- Automatic vacuum table stability cutting for router
- Automatic tab and tab removal
- Strategic automatic lead-in placement for part quality
- Heat distortion avoidance
- Completely user-definable cut quality
- Automatic power ramping
- Cutting technology database
- User-definable special lead-ins
- Automatic dwell and exact stops
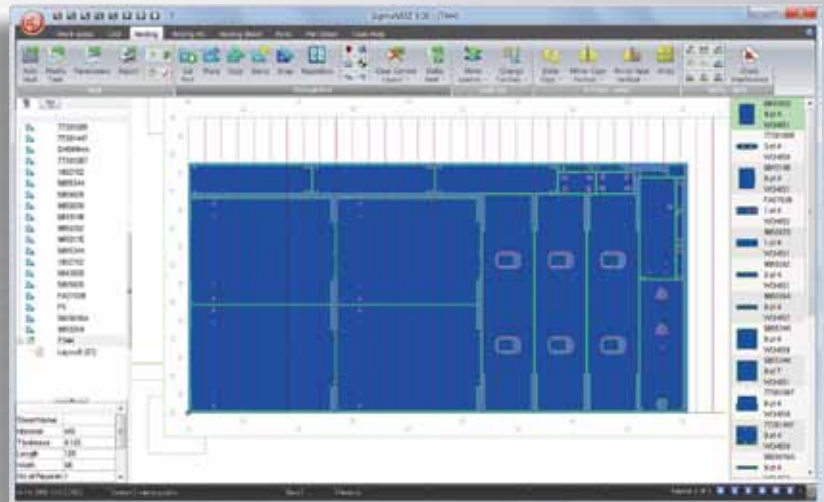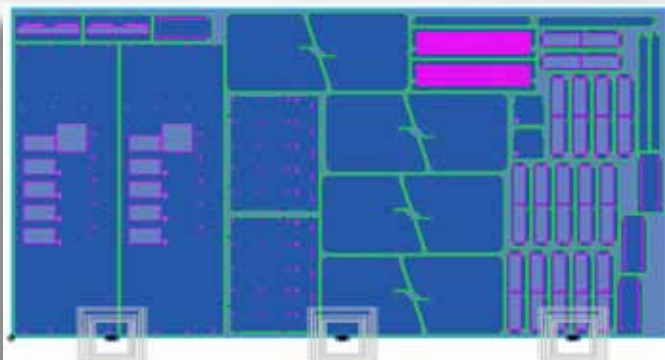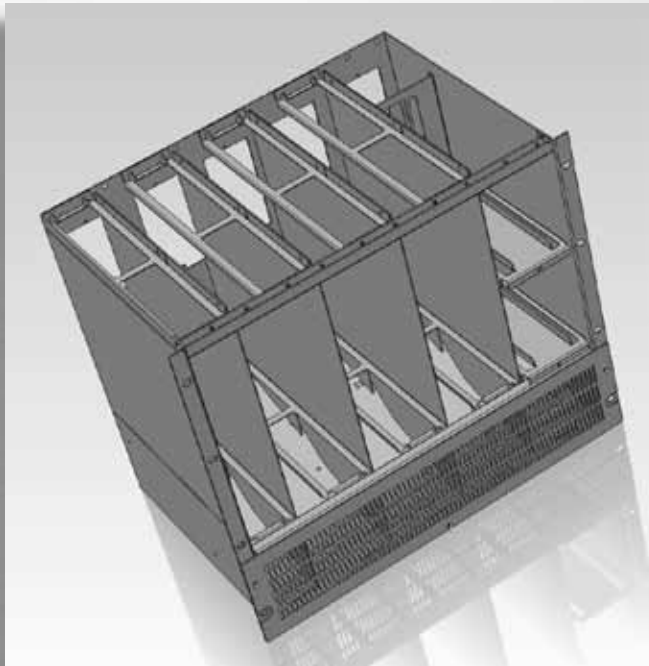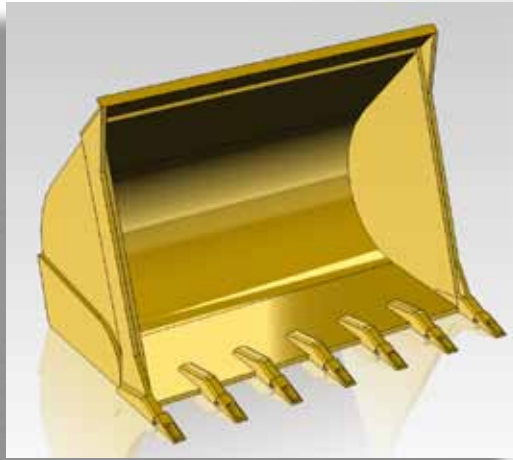
MANPOWER EFFICIENCY

SigmaNEST offers unequaled ease-of-use. By implementing the familiar Microsoft Office ribbon bar interface, SigmaNEST allows users to learn the software quickly. The intuitive organization makes it easy to navigate between features.

Standard Tools Maximize Efficiency

Process automation options

- Maximum flexibility in automating repetitive file processing work
- Batch import options for parts and assemblies from CAD system
- Application Programming Interface capability

SigmaNEST CAD Built In

- Standard shapes
- Open ended
- Programmable
- Complete geometry functionality
- Lines, arcs
- Splines
- Trim, fillet, copy

Reports

SigmaNEST's fully detailed reports are clear and accurate, providing all the information you need to streamline your cutting operation. You can easily customize the report layout to match your own requirements. Customizable fields include:

- Layout reports
- Barcode labels
- Utilization reports
- Tooling setup reports

Application Programming Interface

SigmaNEST is engineered to be flexible, and with the API Software Development Kit, users can develop plug-ins to customize the way they use the software. While maintaining the same interface, plug-in applications provide advanced automation for features such as importing geometry, integrating with MRP systems and much more. SigmaNEST offers the option to alter machine configurations, posts, part parameters, sheet parameters, task parameters, file locations, report layouts and standard shapes to name a few.

How we integrate with third party design software

SigmaNEST makes it easy to import files from third party software. Besides importing DXF, DWG and other major 2D file formats, SigmaNEST also offers the option to import 3D file formats directly. SigmaNEST's CAD importers eliminate time consuming data loss that often occurs when files have to be converted.

Solid CAD Integration

- Ability to open native CAD files
- Supports Part mode
- Supports Assembly mode
- Will unfold sheet metal parts
- Supports parametric configurations
- Automatic bevel edge recognition
- Automatic punch form tooling recognition
- Revision control tracking
- Drilling, tapping and pocket milling feature recognition
- Double sided processing recognition
- Automated part and feature masking

Solid CAD Systems Supported

- SolidWorks
- Autodesk Inventor
- Siemens PLM NX
- Siemens PLM Solid Edge
- Pro/Engineer
- CATIA V5 and V6
- STEP
- Parasolid
- ACIS solids
- 3D IGES (surface or wire frame)

2D CAD Importing

- Batch import
- Imported geometry correction
- Gaps
- Duplicates
- Scaling
- Smoothing filter
- Imported geometry manipulation
- Layer mapping to process
- Color and line-type mapping
- Pattern recognition
- Smart part recognition from multi-part layout drawings
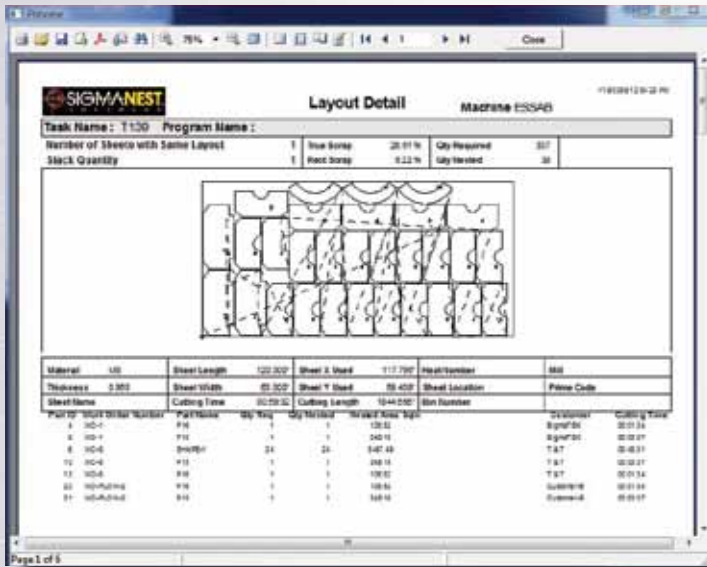- Automatic sequencing

CAD formats supported

- 2D CAD
- DXF, DWG
- 2D IGES
- NC Code (G-code; ESSI)
- PDF (raster and vector)

Structural CAD

- DSTV
- StruCAD
- Tekla
- Fabtrol
- Steel & Graphics
- Shipbuilding CAD
- AVEVA
- Shipconstructor
- Siemens PLM

MANAGEMENT

"I'm very impressed with how it works. It's very intelligent software."

George Moore,

Overlanders Manufacturing

Expansion Packs

Advanced optional modules that enhance the capabilities of SigmaNEST

Management Modules

Work Order Management and Job Tracking

- Work order sorting
- Work order scheduling
- Work in progress and completion
- Work load estimating

Inventory Management & Stock Control

- Raw material
- Remnant tracking
- Automatic sheet library updating

Reporting

- Completely customizable
- Complete list of standard reports
- Custom user definable reports
- Barcodes, calculations and graphics
- eReport to CSV, HTML or PDF
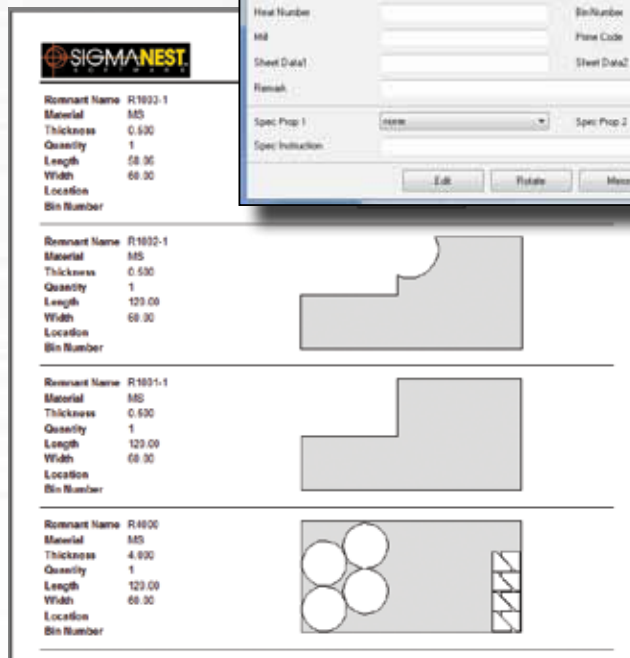
Part Quoting Cost Estimating Module

The Quoting Module offers advanced functionality that allows all quotes to be generated quickly and accurately. The module helps maintain communication between all those involved in the quoting process, allowing them to view quotes as they are generated so time is saved in tracking quote progress. As soon as a quote has been placed and accepted, the information in the quote can be converted directly into a SigmaNEST work order. No more re-entering data! Once a work order is created, the parts can be easily managed in SigmaNEST and can even be combined with other work orders to increase processing efficiency.

• Accurate cost estimating using finished part weight and cutting time
• Accurate material utilization estimate
• Material-based pricing
• User definable cost model allowing for mark-ups   or discounts
• Costing can include multiple processes
• Quote status tracking
• CRM interface
• Manage quote history including work order conversions and quote losses
• Quote single parts or multiple parts
• Track material source on customer or manufacturer supplied material
• Produce customizable reports, letters and cost models

INTEGRATION

Management Information Systems

SigmaNEST integrates with other business systems such as order entry, MRP/ERP, production planning, Product Data Management (PDM) and accounting to allow for bidirectional data communications and automation for the elimination of manual work, increasing productivity and efficiency.

SigmaTEK Services Group

SigmaTEK Automation and Integration solutions are developed, implemented and supported under the supervision of the SigmaTEK Services Group. The group consists of a team of experienced industrial engineering and IT consultants focused on the fabrication and manufacturing industry and the SigmaNEST customer base in particular.

- Business consulting with advanced solution implementation
- Online transaction processing and plate synchronization with inventory
- Centralized transaction gateway architecture
- Secure WAN data recovery
- Production schedule interface

MRP/ERP Systems Supported

- Oracle e-Business
- Oracle - JD Edwards
- Microsoft® Dynamics
- SAP
- Epicor
- Syspro
- Invera
- Infor
- Global Shop
- Job Boss
- MIE Track
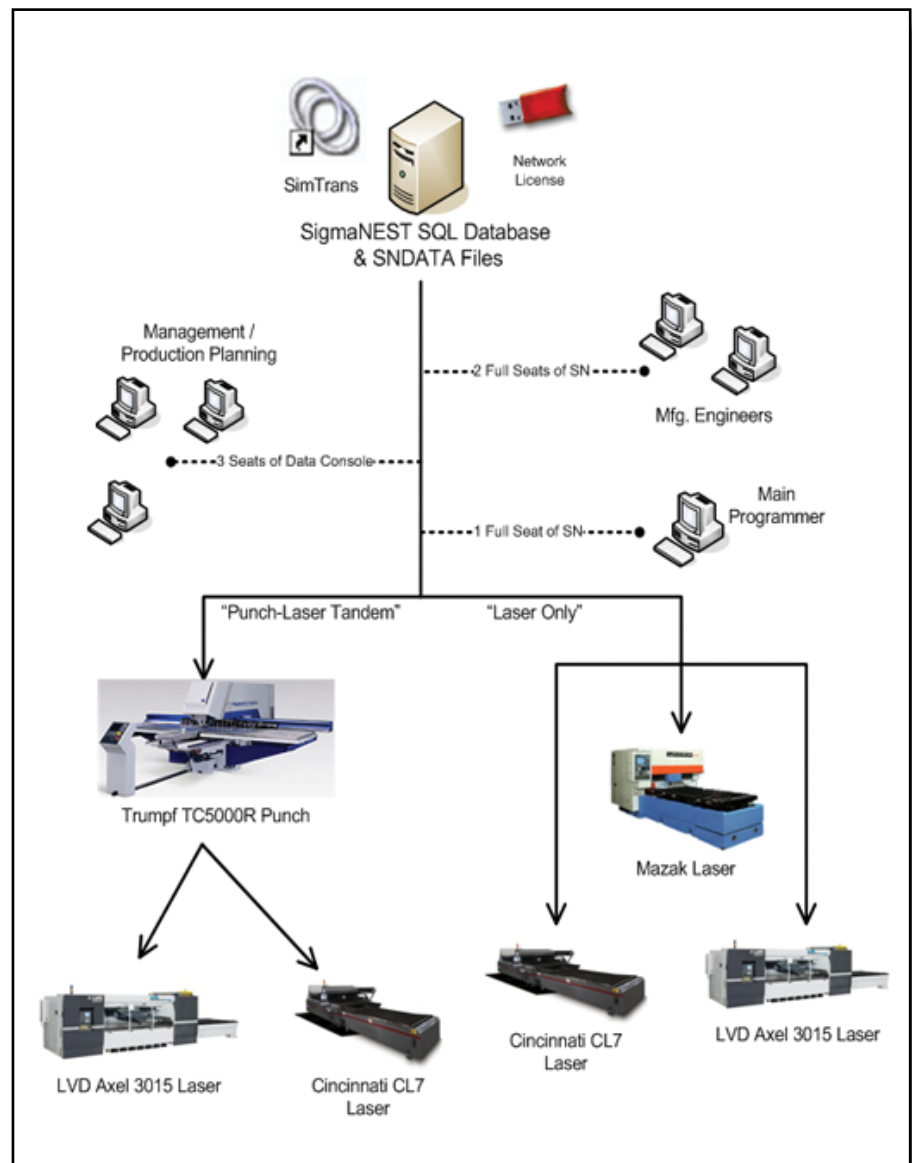
Integration Solutions

SimTrans Enterprise MRP/ERP Integration

SimTrans is an online transaction-based middleware module manager that serves as a bridge between the SigmaNEST database and Material Requirement Planning (MRP) systems, order entry or other management software solutions. SigmaNEST resides at the center of machining operations and maintains its own database of parts, work orders and materials.

SimTrans Enterprise is designed to take care of all data interchange between a central corporate office and its processing districts. The system interfacing is done from one location only. All data is distributed to the districts and then processing feedback is pushed to the central location for analysis and reporting to the business system.

- Wide area network (WAN) capable for multiple districts or plant connections
- Microsoft DTC architecture (Distributed Transaction Coordinator) reliability
- Bill of Material processing and part level batch importing
- Part production work order definition
- Bidirectional connection:
  - Work order transactions
  - Raw material transactions
  - Work order completion feedback
  - Raw material consumption feedback
- Data transfer mechanisms include Microsoft SQL, Oracle and/or web services
- Shop floor job completion through barcoding, machine CNC control log-file monitoring or shop floor console
- Material-based pricing synchronization for the Module

SimTrans PDM Integration

- Life cycle status trigger with product development workflow
- Background part revision updating
- Part revision tracking
- Teamcenter, Windchill and PDM Enterprise

"Having only one software for all our machines makes training easier. It's the same user interface."

Danny Beem,
MOR/ryde International

True Shape	Rectangular	Nested	Calculated
$ 3.76	$ 11.93	$ 5.68	$ 5.77
$ 402.38	$ 1,176.00	$ 607.83	$ 617.48

Part and batch quotes with different nesting engines

ADVANCED CONSULTING SERVICES

Automation Solutions

- Machine Console™
- Color Offload™
- Automated Production Control System
- Production Load Manager
- Continuous Nesting System using DynaPack™ and SuperNest2™

Just-in-time Manufacturing Machine Console

- Machine Console is an advanced automation module that provides just-in-time nesting for work orders with short lead times
- Automates nesting according to work orders from MRP
- Generates a prioritized list of programs at the machine
- Programs are ranked according to MRP requirements for orders, stock and shop floor operations

THE NESTING AUTHORITY

Management Consulting Services

- Domain experts in LEAN manufacturing
- Extensive experience in operations engineering
- SigmaNEST advanced automation is available for:
  - Bevel processing
  - Laser FMS
  - Punch / Laser FMS
  - Punch automation
  - Advanced router
  - Sheet handler, part handler and stacking systems programming
- Custom software and application development
- System migration and implementation
- Supply chain optimization
- Custom Management Dashboard

EXPANSION PACKS
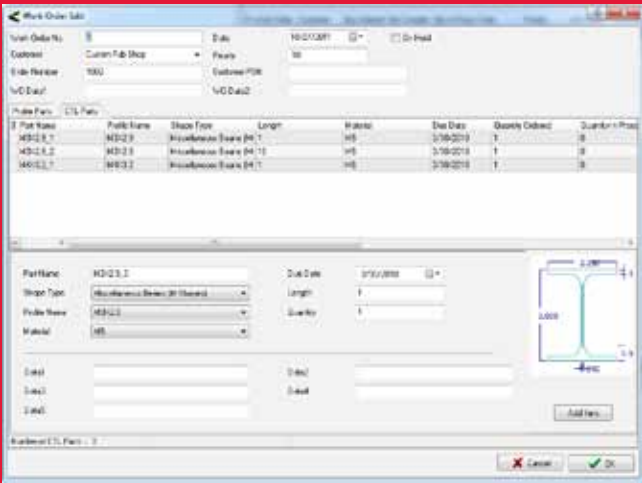
ShopCOMM™

ShopCOMM™ is an advanced communications module that links the SigmaNEST programming workstation to multiple cutting machines via Direct Numerical Control.

- Machine operator can access programs from the controller
- Connect cutting machine control units to Microsoft Windows local area network using serial (USB) communication

SolidNEST™ Design for Manufacturing

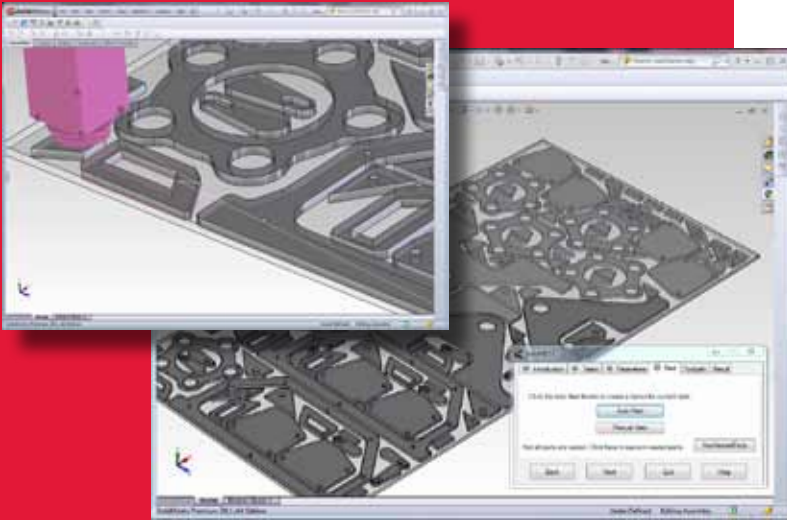SolidNEST™ is an automatic nesting and NC programming solution that runs seamlessly integrated inside SolidWorks®. It offers advanced nesting for profile cutting machines including laser, plasma, oxyfuel, waterjet, and router throughout the design cycle.

- Runs as add-in for SolidWorks
- Automatic nesting during design phase
- Supports Parts and Assemblies
- Supports configurations
- Full SigmaNEST material optimization engine
- Sheet metal punch tooling advisor
- DFM driven cost competitiveness
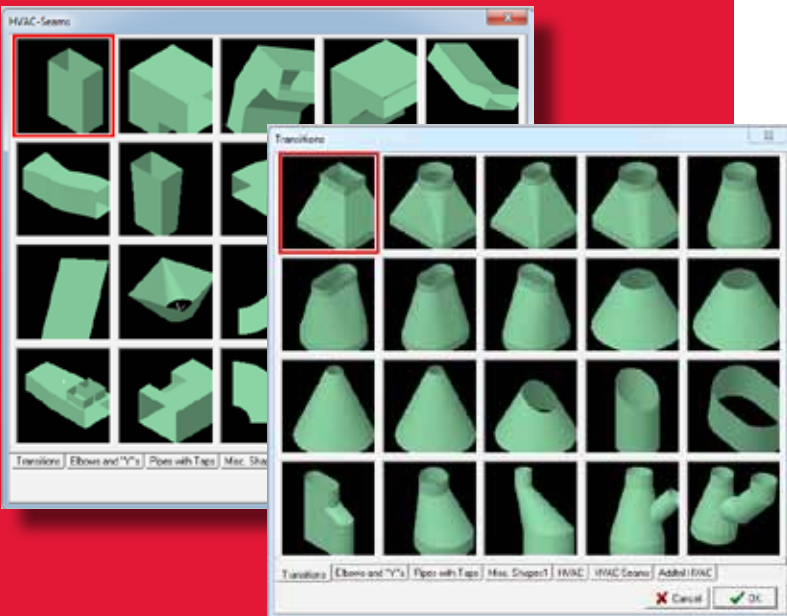
SigmaNEST Develop

- Develop Blow-pipe and HVAC fittings
- Square to Round
- Elbow
- Intersecting cones
- Y-piece
- 100+ shapes
- Boiler making transitions
- General fabrication applications

Cut-to-Length™

Cut-to-Length™ technology offers significant productivity increases for steel bar processing. It allows users to nest bar segments onto a certain length of stock, ensuring the least amount of lost scrap. Similar to nesting, if there are different lengths of linear parts needed, there is an optimum cut order to eliminate unnecessary waste. SigmaNEST will automatically calculate the best cut plan with minimal user interaction.

Save time - Completely automate the segment nesting process

Save money - Combine work orders according to bar type and thickness to eliminate costly remnants and scrap

Cut-to-Length is fully integrated with MRP and ERP systems to ensure optimal accuracy in quoting and operations. Remnants are recorded and updated to the system to track work orders that have been completed.

Applications
- Tube cutting
- Pipe cutting
- I-beam cutting

"SigmaNEST allowed us to improve our remnant utilization and reduce our scrap by 18%. The common-line cutting function decreased our cutting time by 30%."

Steve Engel Jr.,
Diamond Heavy Haul, Inc.

INCREASED FUNCTIONALITY

MANPOWER SUPPORT

- 🔴 SigmaTEK Office
- 🟢 SigmaNEST Value Added Reseller

Support

- SigmaTEK Connect User Community Web Portal
- Technical Support
- Software Subscription Membership
- Advantage Technical Support

SigmaTEK Academy

SigmaTEK Academy is a regular event hosted by SigmaTEK Systems, and sponsored by a group of industry experts and recognized players in the industry. The event offers a technical learning experience* for:

- Productivity improvement strategy
- The newest in manufacturing technology

*SigmaTEK Academy will not replace SigmaNEST Certified Training

THIS CERTIFICATE IS AWARDED TO

Ken Adams

FOR SUCCESSFUL COMPLETION OF

SigmaNEST 9.1 User Training Course
November 15-17, 2011

Mike McCarthy
Course Leader

Ben TerreBlanche
President & CEO

Certified Training

As with any software, training is vitally important to ensure that a user is knowledgeable with key functionality, has the opportunity to ask specific questions from experts in a learning setting and can ultimately work as efficiently as possible on the job.

• SigmaNEST User Class
• SigmaNEST Advanced Laser Class
• SigmaNEST Punching User Class
• SigmaNEST Advanced Router Class
• SigmaNEST Waterjet User Class
• SigmaNEST Beveling User Class
• SigmaNEST Material and Order Management User Class
• SigmaNEST Quoting and Estimating User Class
• SigmaNEST Plug-in Application Developer Class
• SimTrans Administrator Class

Certified Testing

SigmaNEST is easy to learn and easy to use, but it operates in complex and widely varying environments. The most effective way to get the best results with SigmaNEST is by attending one of our Certified Training Courses.

• CSNA – Certified SigmaNEST Associate
• CSNP – Certified SigmaNEST Professional
• Specialization Areas
• CSNP – Profiling
• CSNP – Punching
• CSNP – Router
• CSNE – Certified SigmaNEST Expert

SERVICE
EXCELLENCE

ROUTER

Create multi-spindle nested layouts effortlessly and prolong router bit life through depth tabs and tool oscillation. New Continuous Nesting™ technology combines the best aspects of static and dynamic nesting to produce the optimal balance between production throughput and material yield.

SigmaNEST for Router offers an advanced nesting solution that optimizes the technology of a CNC router with high-efficiency nesting, superior part quality and significant control of standard & advanced router cutting functions.

- Import multi-depth information from 3D CAD files directly
- Variable depth for improved tool life
- Common-line nesting allows maximum material yield
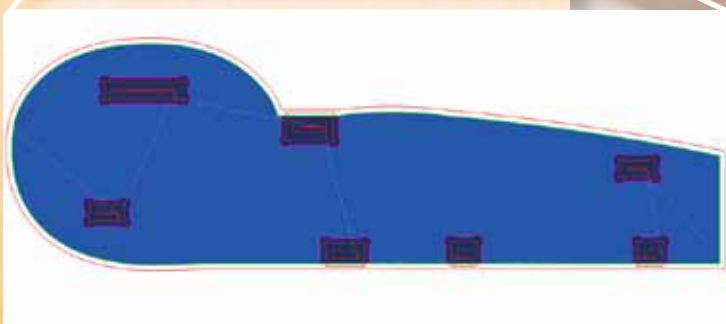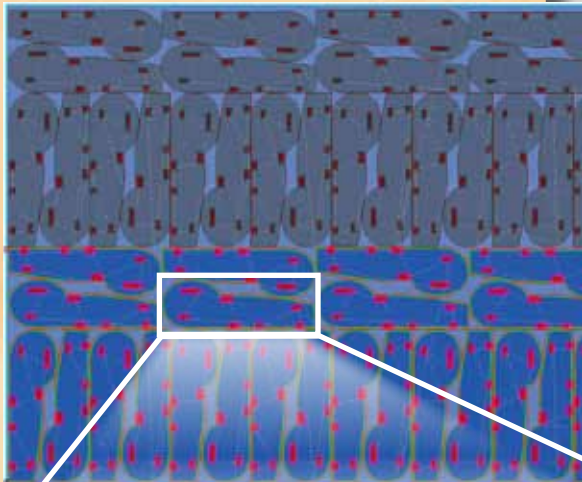
KNIFE CUTTER

Optimize stack height for multi-layer nesting. Accurate corner cutting with angle recognition and "pizza wheel" control.

The SigmaNEST knife cutting module offers an advanced nesting and NC programming solution to optimize CNC knife cutting technology through tight and accurate nesting, improved part quality and significant control of standard knife cutter functions.

- Extend tool life and lower tooling costs
- Improve machine time and reduce part movement by utilizing ramping
- Improve workflow planning with accurate time and cost estimates
- Produce cleaner cuts and accurate sharp corners by setting compensation values for each blade
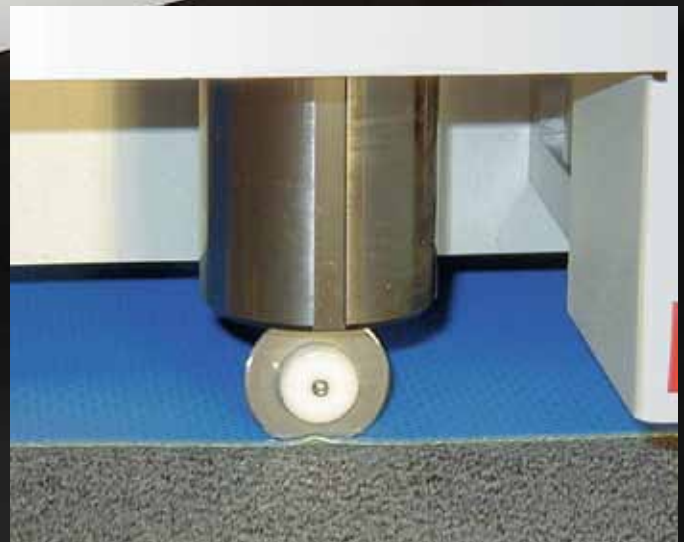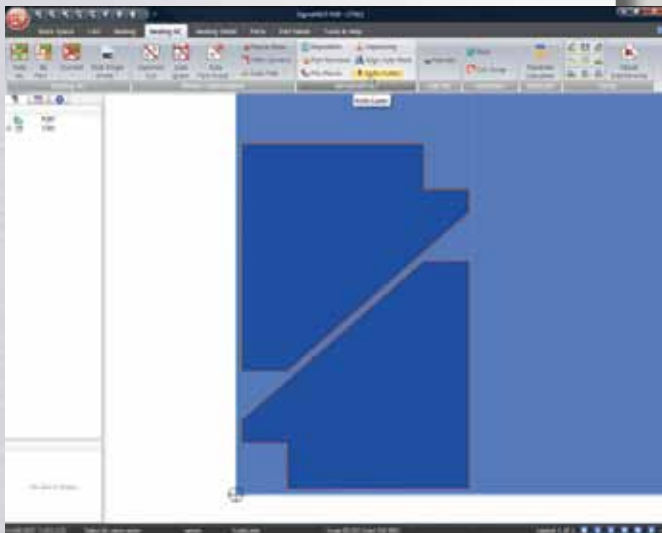
TUBE AND PIPE CUTTING
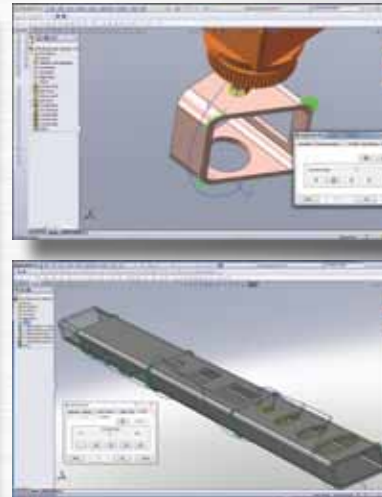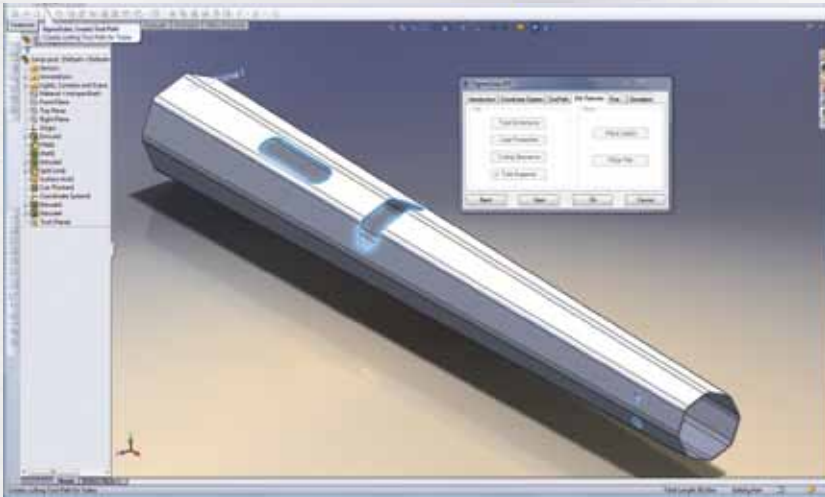
SigmaTUBE™

A complete tube-cutting software solution that runs seamlessly integrated inside SolidWorks®. Designed for tube-cutting laser and plasma machines, SigmaTUBE offers linear nesting for round pipe, rectangular tube, and other cross sections.

Because SigmaTUBE is an add-in module in the SolidWorks design interface, it allows users who are comfortable with SolidWorks to generate NC code for tube-cutting machines without exporting assemblies or parts out of SolidWorks. In doing so, SigmaTUBE eliminates the time-consuming procedure of exporting design components into a CAM software system for processing.

- CAD Geometry and Modeling using SolidWorks part mode
- SolidWorks assembly mode
- Parametric surface intersections
- Sketch projection and wrap
- Feature suppression for cutting
- Space frame and tube frame
- Weldments
- Automatic separation by cross section
- Instance count control from BOM
- Workspace concept (like SigmaNEST)
- Revision control (auto flag on part change)
- Automatic or manual lead-in/lead-out placement
- 3D simulation of the cutting process that shows part in process, cutting head and machine

Intelligent Feature Recognition

The intelligent detection of SigmaTUBE allows users to speed up the process of generating NC code for a project without spending valuable time to manually configure every required feature.

Tube Recognition

- Round tube
- Rectangular tube
- Square tube
- General convex tube
- Extruded sections
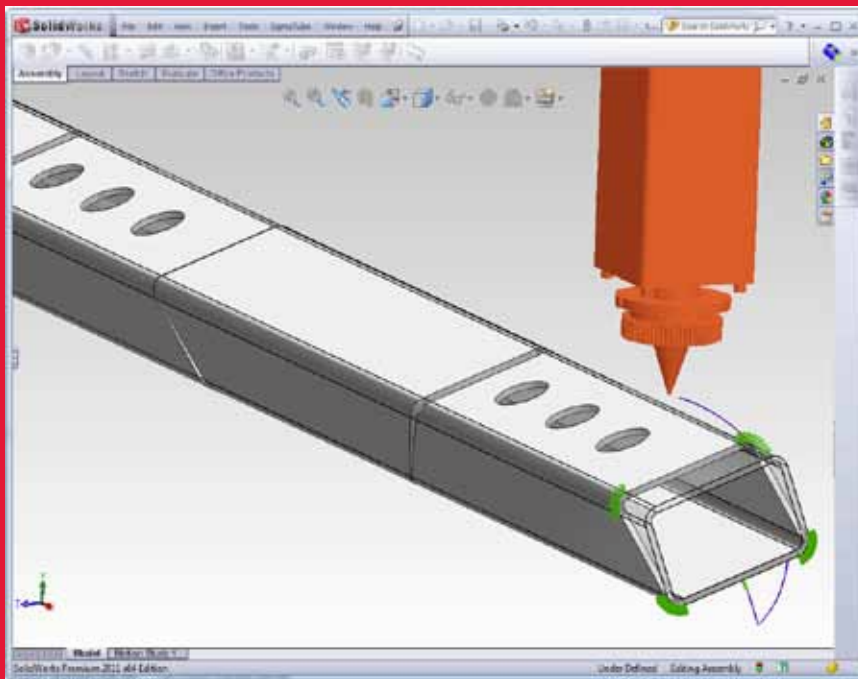
Beam Recognition

- Angle iron
- I-Beam

Cut-Out and End-Cut Feature Recognition

- Straight end cuts
- Miter cuts
- Holes
- Cutouts

Cutting technology database

- Area lookup feed rate control
- Square tube knuckle laser cut conditions
- Ramping for waterjet

SigmaTUBE Rotary Cutting

- Automatic tool path generation
- Part mode tool path
- Assembly mode tool path
- Programmable tube supports
- Realistic tool path simulation
- Contour segmentation when needed
- Sub-routine code available
- 4-Axis tube-wall thickness compensation
- 5-Axis motion
- Separate tail stock and local X-axis control
- Lock rotation for small hole cutting
- Automatic tool path sequencing

SigmaTUBE Nesting

All nesting and tool path data is stored with the SolidWorks assembly compatible with PDM or product data management systems.

- Dialogue interface for step-by-step programming
- TrueShape nesting
- Multi-task automatically grouping sections for nesting

SigmaTUBE Data Integration

- Work order tracking
- Raw material and remnant tracking
- SimTrans MRP integration compatible

SolidCAD Geometry Importing

- SolidWorks (Native)
- Parasolid
- Siemens NX
- Inventor
- Pro/Engineer

Benefits

- Faster turnaround time for orders
- Optimized material utilization and machine performance
- Empower your programmer to be more productive
- No separate CAM system required
- Complex programming made easy
- Automatically generate NC tool path from solid part geometry

MULTI-AXIS
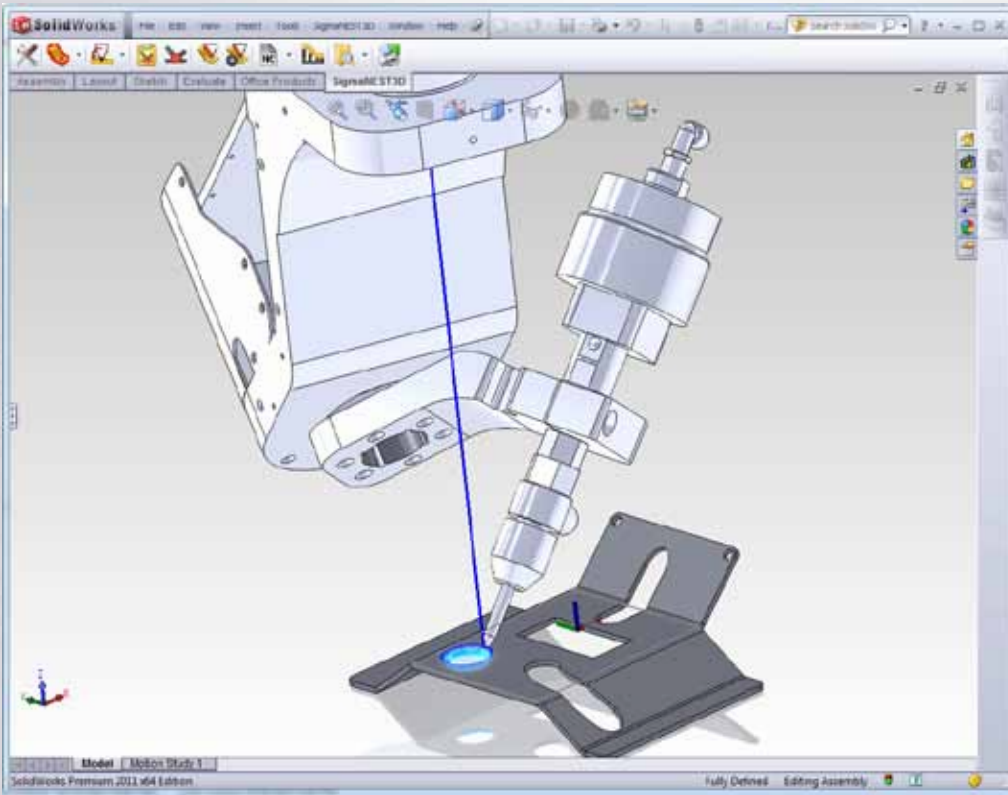
SigmaNEST 3D

A 5-axis CAM system with automatic feature recognition and automatic tool path generation for 5-axis laser, waterjet and plasma cutting machines. SigmaNEST 3D is seamlessly integrated inside SolidWorks, operating as an add-in within the familiar graphical user interface to allow maximum ease-of-use. The work piece, modeled with fixturing in an assembly, allows in context simulation and collision detection.

• Supports 3D surface and solid models

• CATIA, Siemens PLM, Pro/ENGINEER geometry importing

• STEP, IGES, DXF, Inventor data import

3D Tool Path Creation

• 5-Axis laser, plasma and waterjet

• NC tool paths created using feature data from native SolidWorks parts files

• Automatic tool path generation

• Interactive tool path manipulation

• Tool path sequencing

Supported 5-axis cutting machines

Mazak
NTC
Prima Power
Trumpf
Omax
Wardjet
Flow

Collision Detection

- Continuous, collision free tool paths
- Intelligent collision detection through a full 3D simulation of cutting process
- If interference is detected, SigmaNEST 3D can reprogram NC path to ensure cuts can be completed without collision

Fixture Generation

- Automatic fixture generation
- Fixture parts can be nested and 2D programmed
- Fixture interference is avoided through automatic collision detection during the full cutting simulation

Cut Orientation

3D laser cutting is extremely effective

when used to cut holes for intersecting cylinders or parts with unique hole geometries. SigmaNEST 3D uses strategic algorithms to ensure that cuts are oriented correctly in relation to material level.

- Cut condition control
- Cutter radius compensation
- Automatic part feature recognition
- Bevels and normal cuts can be achieved

PRESS BRAKES

SigmaBEND™

Direct workflow from 3D Sheet Metal CAD model to Press Brake program and 2D blank for profile cutting and/or punching

- Bend sequence calculation
- Collision detection
- Press brake tooling plan
- Bend allowance based on actual tooling
- Accurate unfolded blank size
- Press brake work instruction sheet
- Eliminates trial and error test parts on the press brake

Speed

- Faster, more reliable programming away from machine tool
- Shorter programming time with CAD integration and automatic features
- Shorter set-up time with quick access to fabrication information
- Better re-use of NC programs
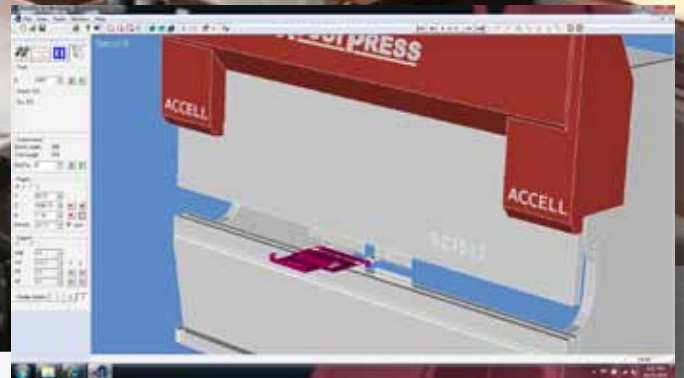
Quality

- Fewer design errors:
  - Centralized database
  - Integrated with the CAD/CAM system
- Check the process via realistic bending simulation
- Eliminate costly programming errors with collision check

Flexibility

- CAM system - direct switching between different press brakes
- Better production planning
- Less dependent on a specific person's knowledge with standardized programming

PRECISION SHEET METAL

SigmaNEST has placed great emphasis on being able to run all major machine types and brands. A single software solution for all cutting punching and metal processing machines.

Precision Sheet Metal

SigmaNEST is the leading CAD/CAM system for programming CNC profile cutting and punching machines. Directly interfaced with production management and sheet metal design, SigmaNEST ensures the best results in part quality, material utilization, machine motion optimization, material handling, accurate estimates and management information. SigmaNEST supports FMS systems, part handlers and lights-out automation. Special sheet metal features include:

- Accurate blank size from SigmaBEND press brake tooling module
- Automatic feature recognition
- Tool and die management
- Tolerance control
- Punching between and under clamps
- Special tooling and forming
- Wilson Wheel bead, jog and cut
- AutoDynamic punch tooling
- Turret setup tracking for optimized production run

Punch Press CNC

SigmaNEST AutoDynamic™ nesting optimizes production to achieve the lowest cost per part while maximizing machine output automatically through:

- Punch tooling
- Material yield
- Managing machine cycle time and work order priorities
- Common-line punching
- Tool life management
- Automatic micro tabs

Laser CNC

SigmaNEST offers complete support for:

- Nesting
- Advanced material handling
- Part removal and sorting systems

Punch Press & Turret Punch

SigmaNEST provides advanced part nesting for punch machines. It is ideal for environments that utilize single or multiple machine types because it works with all major punch press, turret punch and combo machines.

LASER PUNCH

Repositioning Punch Zone

- Automatic overlap repositioning commands and full manual override options
- Punch sequencing with repositioning for sheet stability
- Automatic repositioning
- Flip sheet and rotate sheet
- Optimized repositions for rail tool and turret tool changes where machine reach is limited

Part Removal and Micro Tabs

- Conditional tabbing
- Dedicated tab-tool support
- Multiple trap door support
- Punch sequencing and drop hits for drop door and/or automated part removal

Combination Punch-Laser machines

SigmaNEST's Advanced NC programming capabilities support a wide range of combination machine configurations. These include:

- Number of hits
- Lights out manufacturing
- Load/unload sheets
- Part removal and part stacking

Efficiency Fact:

Create Advanced TrueShape nests in the dead zone and under clamps by using resolved repositioning.

LASER

Safety Zones

- Turret position availability depending on tool safety zones
- Form tool sequencing to avoid form feature damage
- Dynamic clamp safety zones depending on tool and turret station used

Tool Sorting

- Punching under clamps and in dead zone using clamp avoidance and automated repositioning
- Right angle shear support
- Louvres and form features
- Sorting for sheet stability
- User definable sort logic

Tabbing and Repositioning

- Manually place tabs before or after tooling
- Dedicate tab tool support

Supported Combo Machines

- Plasma/punch combo machines
- Laser/punch combo machines
- Combination router/drill
- Combination plasma/drill

Tool Life Tracker

SigmaNEST Tool Life Tracker allows manufacturers to monitor the life of their tooling. By tracking the following, SigmaNEST will help you keep your tools sharpened and your part quality at a maximum:

- Number of hits
- Number of times tool has been sharpened
- Re-sharpen tool advisor

Gantry Laser

Optimize machine motion through common-line cutting and tip-up part avoidance, reducing cycle time. Automatic power ramping at the corners ensures quality parts automatically.

- Vaporizing
- Pierce on the fly
- Micro welds & tabs

PLATE LASER

Bevel Programming

Intricate Operations Made Easy

Auto-bevel function allows multi-axis bevel contouring to be programmed effortlessly, including knife, land, blind and "K" bevels.

- Repositioning, clamp avoidance and part removal using drop doors, part chutes or part handlers
- Automatic bevel feature recognition from all major 3D CAD systems
- Multi-torch bevel support

Advanced Bevel Capabilities

- V, Y and K bevels
- Automatic height sensing management
- Swarf cutting
- Variable angle bevel
- Blind bevel
- Automatic multi-pass sequencing
- Triple-torch start-up windows
- Full position vector post (X, Y, Z, I, J, K)
- Rotator mapping in post or control
- Bevel feature recognition
- Multiple corner loop types
- 5-Axis bevel support

Benefits of SigmaNEST Bevel Technology

- Nesting for bevels to ensure clearance for maximum material utilization
- Kerf in computer or control
- Part settings for bevels, grain constraints and lead in/outs can be saved to the part library for future use
- Detailed graphical reports support accurate production planning, routing and scheduling

SigmaNEST Bevel is available for:

- ESAB
- Koike
- Mazak
- MG
- NTC
- Prima Power
- Tanaka

WATERJET

Automatic corner ramping eliminates tail wash and gouging of material, producing higher quality parts. SigmaNEST supports multi-nozzle cutting on new and remnant material.

- Feed rate ramping to eliminate tail wash gouging
- Definable edge quality

Create the perfect balance of feed rate based on material, thickness, number of nozzles, orifice size and machineability index
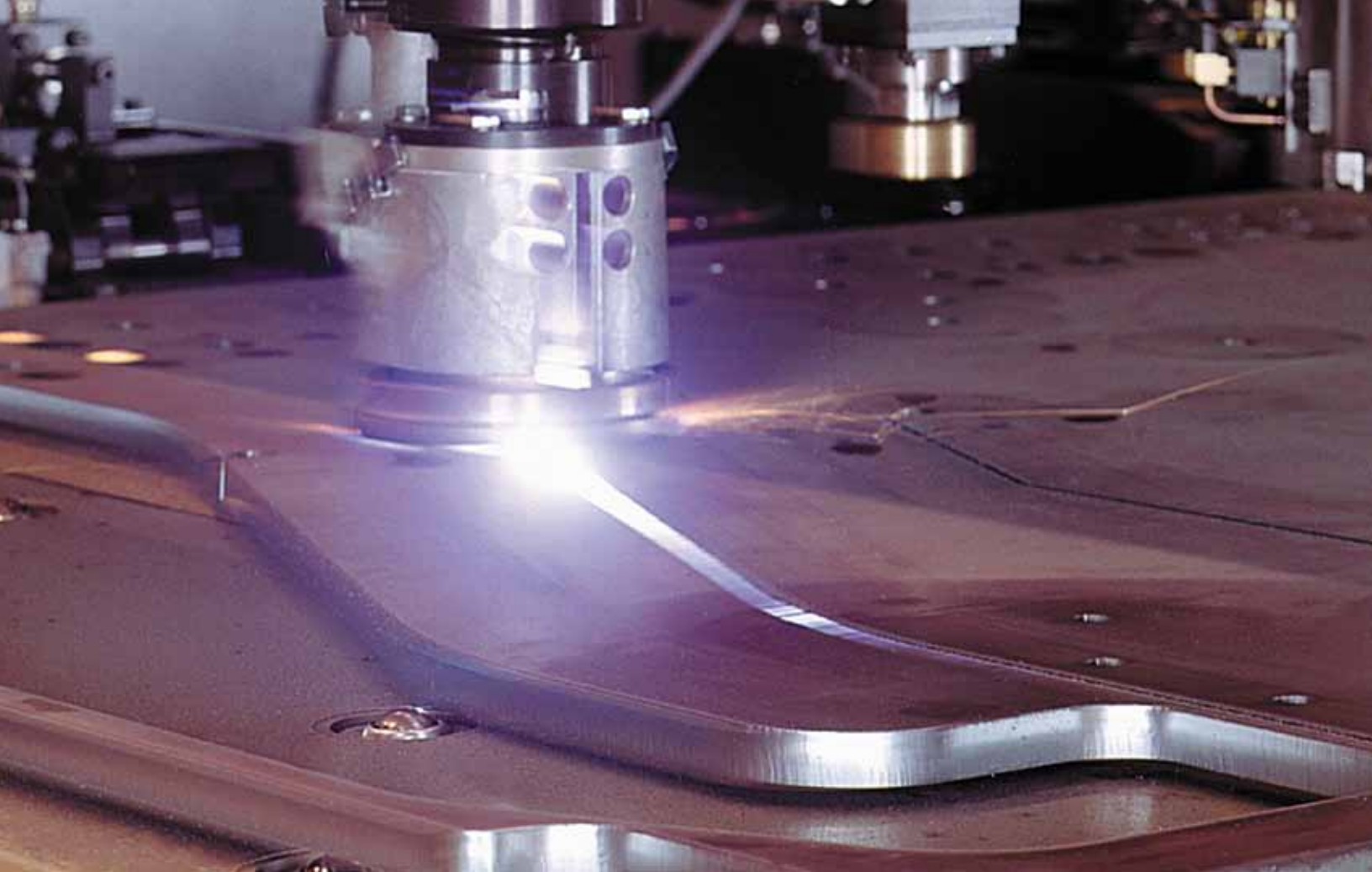
- Information is stored with the part file for later use
- Interactive layer mapping on CAD files enables each section to have different processes and/or quality settings applied

"SigmaNEST makes us far more competitive with its flexibility in terms of scrap efficiency, part placement and inventory tracking."

Paul Rak,
Veriform Industries

PLASMA/PUNCH

Plasma/Punch Combo CNC

- Tool path sequencing
- Replacement tool advisor

Combo Machine Configurations

SigmaNEST's Advanced NC programming capabilities support a wide range of combination machine configurations. These include:

- Plasma / punch combo machines
- Laser / punch combo machines
- Combination router / drill
- Combination plasma / drill
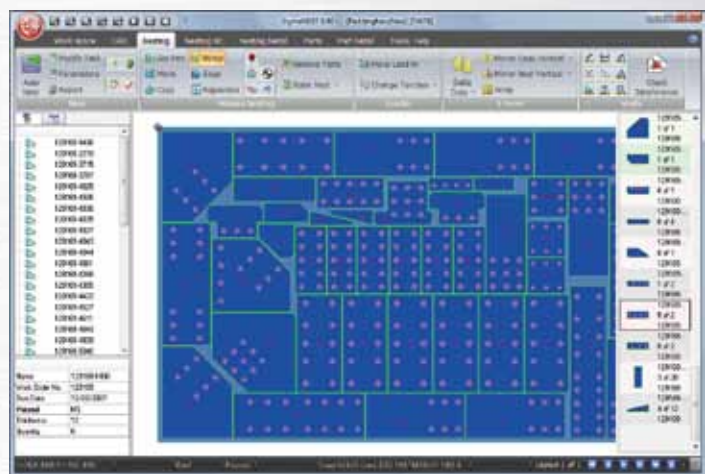
Advanced Cutting Processes

SigmaNEST supports the latest advances in laser, plasma and waterjet cutting technology. This includes automatic pulsing, power ramping, variable feed rates, and pierce-on-the-fly. SigmaNEST will utilize all the unique cutting functions and cutting technologies on your machine ensuring peak performance while integrating with the rest of your company's systems.

Fabricator Machine CNC

Multi-process Machines

SigmaNEST allows Advanced TrueShape nesting into the dead zone and under clamps through resolved repositioning.

- Punch and shave (for drill quality holes)
- Features that require multiple hits
- Threaded holes

Available for:

- Plasma
- Oxyfuel
- Drilling
- Punching
- Mill

FABRICATOR MACHINE
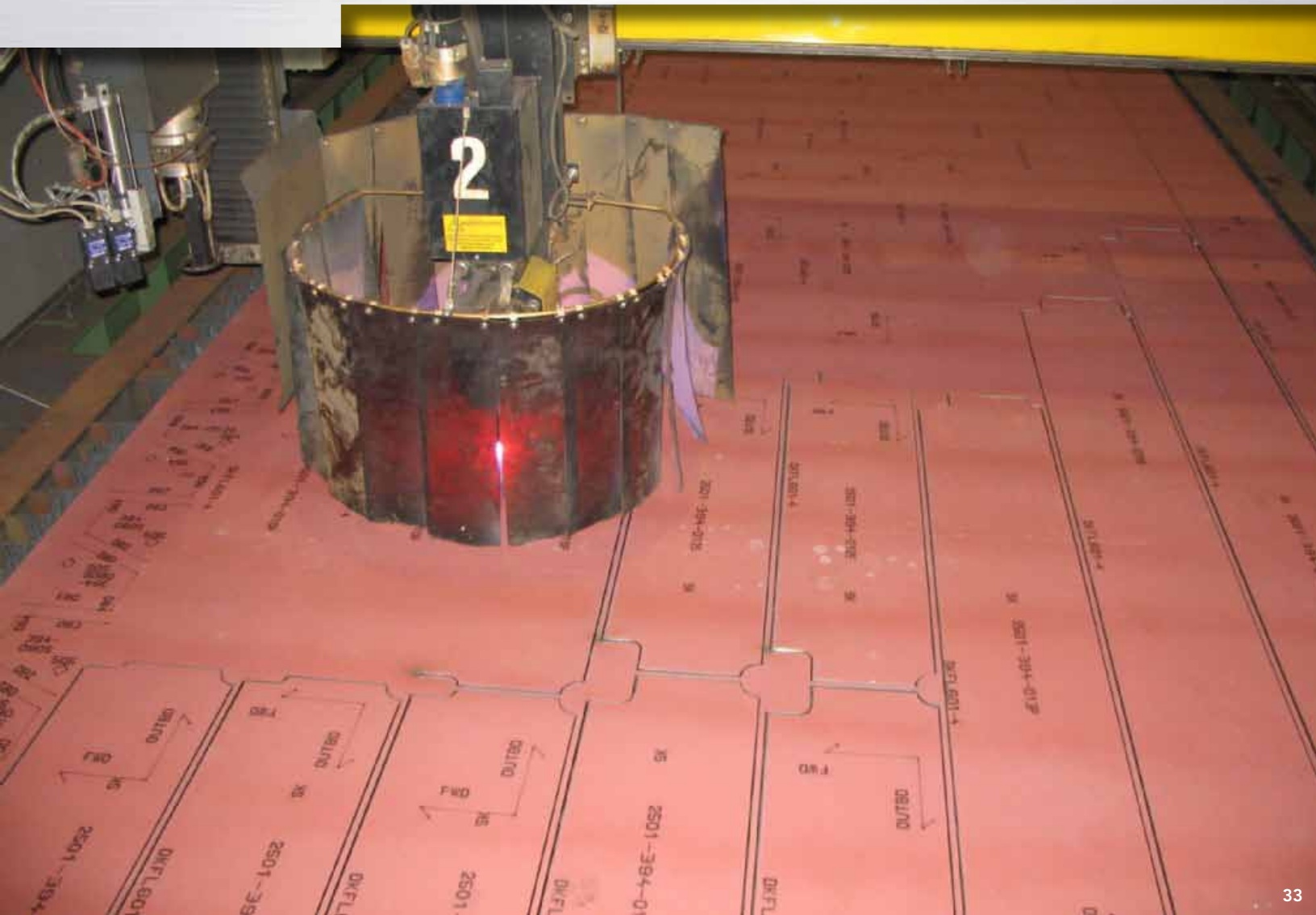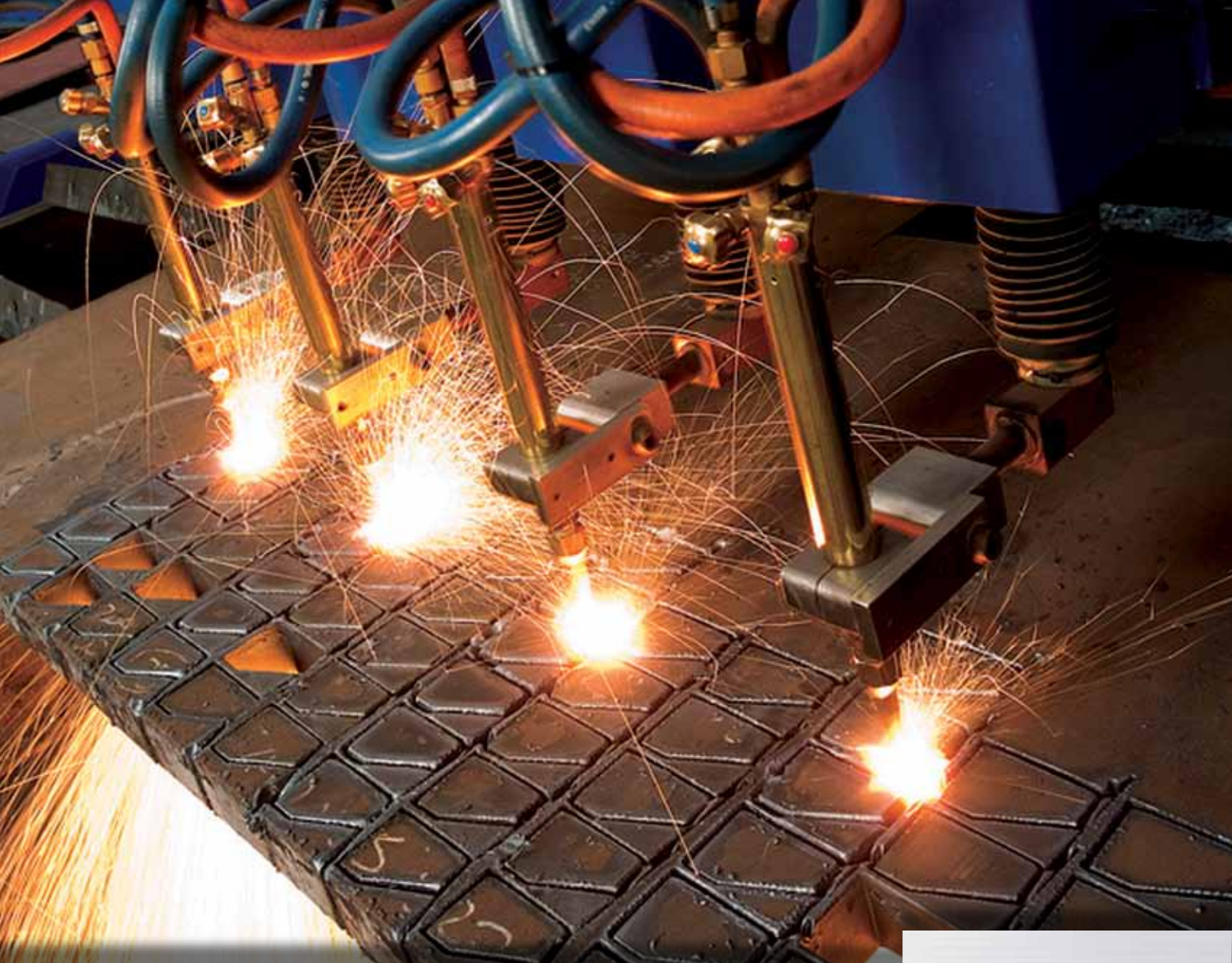
OXYFUEL

Multi-torch Oxyfuel

SigmaNEST permits access to your remnant inventory and automatically nests parts for multi-torch burning, resulting in reduced overall material inventory. Cutting technology considers and compensates for thermal distortion, even in very thick plate.

PLASMA

Precision Plasma

Automatic continuous cutting reduces machine cycle time and prolongs nozzle life. SigmaNEST's powerful nesting with just-in-time capability provides nesting layouts in less time than it takes to change a sheet on the cutting machine.

Power supplies:

- Kaliburn
- Hypertherm
- ESAB
- Komatsu
- Thermal Dynamics
- Kjellberg

SigmaTEK Products

SigmaNEST AutoNEST

An entry-level nesting and NC programming system that is quick to learn and easy to use.

SigmaNEST Punch Basic

An entry-level punch solution that is effective yet easy to operate.

SigmaNEST TrueShape

A more efficient, fully functional nesting and NC programming package for processing rectangular raw material.

SigmaNEST Techno

Advanced TrueShape nesting and Advanced NC programming.

SigmaNEST Maximizer

Included in this fully functional nesting and NC programming package are work order management, scheduling, inventory control and remnant nesting capabilities.

SigmaNEST PowerPack

The most complete and advanced SigmaNEST package includes production management, inventory control, advanced automatic nesting and machine motion optimization.

SigmaNEST Punch Techno

Advanced nesting, tooling and NC programming.

SigmaNEST Punch PowerPack

The most complete and advanced SigmaNEST package for turret punch programming includes production management, AutoDynamic™ nesting and punch tool management.
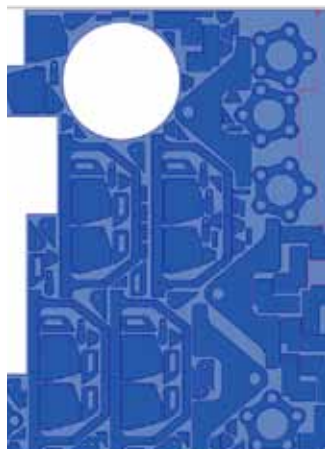
5%

What is 5% of your material worth per year?

	SNX101 SigmaNEST AutoNEST	SNX102 SigmaNEST True Shape	SNX300 SigmaNEST Techno	SNX302 SigmaNEST Maximizer	SNX303 SigmaNEST PowerPack	SNX120 SigmaNEST Punch Basic	SNX121 SigmaNEST Punch Techno	SNX305 SigmaNEST Punch PowerPack
Module Included ●								
Module Optional ○								
CAD Import DXF, DWG, IGES, DSTV	●	●	●	●	●	●	●	●
2D CAD Package	●	●	●	●	●	●	●	●
Standard Shapes Library	●	●	●	●	●	●	●	●
Smoothing Filter	○	○	○	○	○	○	○	○
Scanline Raster to Vector	○	○	○	○	○	○	○	○
Parts Database	●	●	●	●	●	●	●	●
Rectangular Nesting	●	●	●	●	●	●	●	●
Part to part Nesting	●	●	●	●	●	●	●	●
Shear Nesting	○	○	○	○	○	○	○	○
True Shape Nesting		●	●	●	●	○	●	●
Non-rectangular Sheet Nesting			●	●	●			
Advanced Nesting			●	○	●	○	●	●
SuperNest2				○		○	○	○
Continuous Nesting					○			
Profile AutoNC	●	●	●	●	●	○	○	○
Advanced NC Profiling Module			●	○	●			
Common Line			●		●			
iPierce			●		●			
Continuous Cutting			●		●			
Internal Auto-tooling						●	●	●
AutoDynamic Punch						○	●	●
Common Line punching							●	●
Knife cutting Module	○	○	○	○	○			
Router Module	○	○	○	○	○			
Advanced Router Module			○		○			
Drilling Module	○	○	○	○	○			
Waterjet cutting Module	○	○	○	○	○			
Bevel programming			○		○			
Profile/Punch Combination Machine Module			○		○		○	○
Right Angle Shear NC Module						○	○	○
Job Tracking and Scheduling Module	○	○	○	●	●		○	●
Inventory Control Module	○	○	○	●	●		○	●
Quoting and Estimating Module	○	○	○	○	○	○	○	○
Supply Chain Advisor				○	○			○
SimTrans Real-time MRP interface				○	○			○
SimTrans SolidWorks Enterprise PDM Interface				○	○			○
SimTrans Teamcenter PDM Interface				○	○			○
SimTrans Windchill PDMLink Interface				○	○			○
SigmaNEST Automation Development Kit					○			○
SigmaNEST API Module					○			○
SigmaNEST Advanced Batch Module					●			●
Load/Unload Programming Module			○	○	○		○	○
SigmaNEST FMS Line Control Interface			○	○	○		○	○
SigmaNEST Sim Genie FMS Line Controller system			○	○	○		○	○
SolidWorks Interface	○	○	○	○	○	○	○	○
AutoDesk Inventor Interface	○	○	○	○	○	○	○	○
Siemens SolidEdge Interface	○	○	○	○	○	○	○	○
Siemens PLM NX CAD Geometry Interface	○	○	○	○	○	○	○	○
CATIA CAD Geometry Interface	○	○	○	○	○	○	○	○
ProEngineer Interface	○	○	○	○	○	○	○	○
SpaceClaim Interface	○	○	○	○	○	○	○	○

SigmaNEST Phases of Implementation

Phase I Nesting and NC
- Solid CAD Interface
- Nesting
- NC Programming
- FMS and Part Handler

Phase II Management
- Work Order Management
- Inventory Control
- Quoting and Estimating

Phase III Integration
- MRP / ERP Integration
- PDM Integration

Phase IV Full Automation
- Machine Console
- Color Offload
- APCon
- Load Manager
- Supply Chain Optimization

Important Information

Support
Support@sigmanest.com
513-674-0005 extension 2

Sales
Sales@sigmanest.com
513-674-0005 extension 1

Current Users
Register at connect.sigmanest.com to manage your personal SigmaNEST account.

www.sigmanest.com

SIGMANEST

The world's most efficient nesting solution