



Nest with the Best®

Premium Software Solutions for Professional Fabricators

You can't afford
to compromise,
and now you
don't have to.



We help those who
are fighting to bring
the **FUTURE** to life.

High-tech software
that's easy to learn
and use, thanks
to an incredibly
intuitive
interface.

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We empower users to leverage their knowledge & achieve results that would never previously have been feasible.



IMPORT TO REPORT IN **5 CLICKS!**

Design changes. Material unavailability. Machine downtime. These are the challenges you have to overcome every day. SigmaNEST allows you to respond to mission-critical items in real time.

We help professional fabricators maximize material, machine and manpower utilization while providing visibility and control.



Total integration with CAD systems adapts nests when parts have to be modified.



Intuitive user interface makes it easy to learn and use.



With a team of engineers on call, you are never stranded facing machine downtime.



One seat of software can power all your machines, including new ones.

WE BELIEVE IN AUGMENTING YOUR TECHNICAL SKILL, NOT REPLACING IT.

We are engineers, not academics. The people on our team combine an uncompromising engineering curiosity with an unwavering focus on performing in the service of SigmaNEST users.

Not only that, but we love a challenge. With 20+ years of experience implementing solutions, we have seen it all. We know where you came from, and we know where you need to go. We are ready to take on your unique setup and develop a solution that propels your operation forward.

Why SigmaNEST?

We saw products that were too rigid to handle novel problems and automated approaches that failed to meet the adaptive needs of modern manufacturing. We saw systems that forced organizations to make unacceptable sacrifices in quality, efficiency and control.

We believe that you own your data. We free your organization from constraints imposed by outdated manufacturing systems. SigmaNEST liberates you to store, manage and utilize your data as you see fit. We help you harness the power in your organization's data in minutes rather than hours.

We reject the notion that constrained budgets necessarily mean a constrained ability to achieve outstanding results. For organizations who are serious about profitability and remaining competitive, we deliver the best software, the best engineering minds, and the conviction that even the hardest production problems yield to elegant solutions.

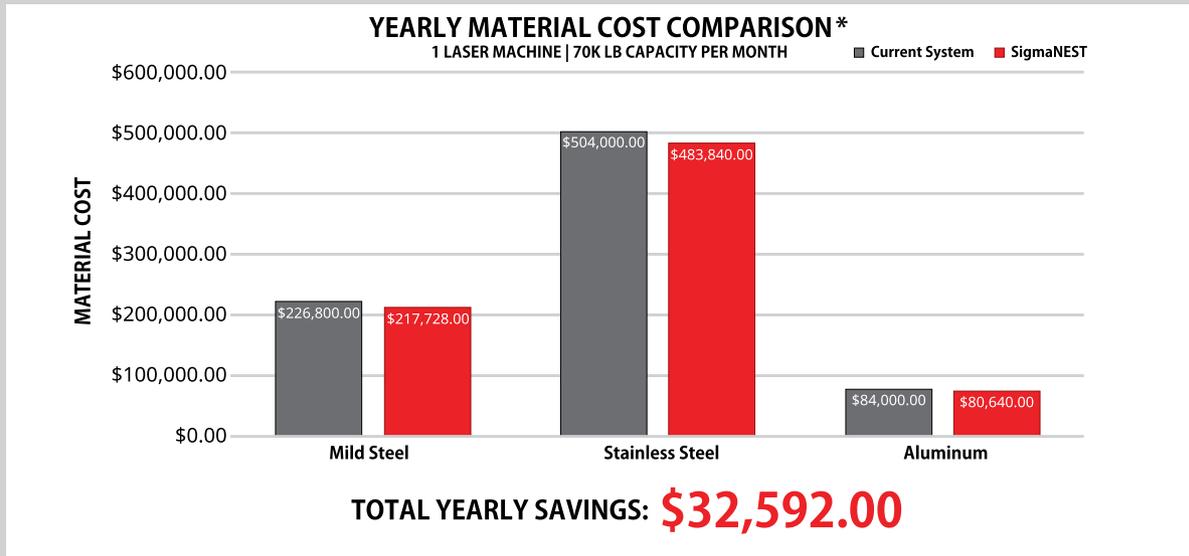
UNMATCHED CUSTOMIZATION

	AutoNEST	TrueShape	PowerPack
Native CAD	✓	✓	✓
Automatic or manual TrueShape™ nesting		✓	✓
Automatic optimized NC paths	✓	✓	✓
Adaptive multi-head nesting		✓	✓
One seat can power multiple machines	✓	✓	✓
Advanced NC: bridge, chain, common line			✓
Remnant inventory management			✓
Complete solid CAD integration for part and assembly files	✓	✓	✓

Invest for ROI

Legacy systems cripple your enterprise, leaving you mired in an infrastructure designed for the past and unequipped for the future. Meanwhile, the future and its challenges are upon you. Your enterprise confronts adaptive adversaries and new challenges every day. You cannot solve these problems with incompatible data sets isolated in disparate places, or worse, rely on the availability of individual experts to bail your team out when a challenge arises.

Faster cycle times. International competition. Capital investments that aren't achieving promised efficiency. These challenges are core to your business and are unified by one theme: either your enterprise moves into the future, or the evolving landscape of adversaries will ensure it never does. SigmaNEST emancipates you from the past. And it does so, very, very quickly. Within eight weeks, and in many cases within days, you will see operational results.



**Ask any SigmaNEST Sales Representative for a free ROI estimate.*



"The just-in-time capabilities of SigmaNEST have saved us more than \$100,000... each quarter."



MIKE DUGAN, T-Top Manufacturing

Our Why

Organizations around the world are using SigmaNEST to help them do their most important work. With SigmaNEST, fabricators are cutting valuable materials with minimal waste, manufacturers are producing innovative creations with tighter tolerances and better quality, and OEMs see their machines achieve peak performance. First and foremost, we are engineers. At our core, we aim to help others, to display engineering curiosity, to move at high velocity and to leave things well done.

HELP OTHERS

We have your back. That means you can reach us, and we have the necessary skills to help you. And not just by putting a band-aid on the problem, either. We stay innovative, and our team of mathematical geniuses develop algorithms to solve problems in the best possible ways.

ENGINEERING CURIOSITY

Our motto is "challenge accepted," because we don't shy away from complicated situations or bleeding edge technology. If your machine has a feature, we are the ones who run it (sometimes even before the machine manufacturer can). Bring us the impossible, and we will find a way to achieve what you need.

HIGH VELOCITY

We know time is money, so we get things done in an expedient way. But we won't quit until it's perfect. Even then we don't quit. We never stop innovating, and SigmaNEST X1 proves that. With more than 20 years behind us, we have created a version of SigmaNEST that surpasses all the rest. And there's more where that came from.

WELL DONE

As engineers, we value precision. We take pride in designing, developing and delivering elegant software and excellent solutions. We do our work well, and we get the job done — all the way. We exceed expectations.

Trusted by the most impressive companies in the world, our clients rely on us to keep their operations running at maximum capacity.

Maximize

Key Results Areas

Our work is incredibly complex: an amalgamation of computer science, advanced mathematics, electrical engineering, elemental physics and lean manufacturing methodology, to name a few. We aim our skills at the most critical areas of your business:



MATERIAL

Waste less on material through higher nest yield. On average, customers save 4% on material when they switch to SigmaNEST.



MOTION

Cut faster and more efficiently to increase your shop's capacity. Experience 20% faster cut times.



MANPOWER

Cut down on wasted time in your shop by empowering your team with fast software and increased automation. Programming can be done 5 times faster on average.



MANAGE

Integrate data from all areas of your operation to gain key insights and run more smoothly.



MACHINES

Run your machines from one seat of software, adding convenience and flexibility to your process. Doing this frees up more capacity for greater yield per machine.

**WE VIEW
SOFTWARE
AS A MEANS TO
AN END, NOT AS
THE END ITSELF**



OTIS

Otis Elevator required on-demand functionality allowing work orders to be created in their MRP system, then opened in a central software and processed with the push of a button. Minimizing skeleton material was vital, so nesting had to be tight without compromising part quality.

SigmaNEST Software and SigmaTEK Services were the answer. SigmaNEST adapts to even the highest level of automation with advanced modules and custom enhancements delivered by the SigmaTEK Services Group. SigmaNEST automated manual CAD work typically done before nesting.

Fabricating the highly customized parts of the deco line required different material types and thicknesses including stainless steel and brass, with costly satin/mirror finishes. Minimizing skeleton material was vital, and nesting had to be tight while maintaining the highest part quality. With the goal of little, if any, human intervention, nesting layouts had to be produced automatically. Soon after production began, scrap levels were slashed to 13% from Otis' projected 19.2%.

Equipment Details

- ▶ 4 Trumpf 2020 punch presses
- ▶ Mazak laser

Technical Requirements

- ▶ Nesting software (compatible with all cutting and punch machines) that automatically creates tight, efficient nests and reduces scrap
- ▶ Ability to interface with their other business systems
- ▶ Ability to monitor material usage continually



The Importance of Nesting

Material cost is the number one expense of manufacturing. SigmaNEST leverages proprietary artificial intelligence to produce the maximum possible yield with automatic nesting.

You'll consume less material for the same production output, lowering cost per part and improving productivity.

NESTING FOR COMPLEX MACHINES

- ▶ Under and/or around clamps
- ▶ Repositioning
- ▶ Multiple processes

PROJECTED
SCRAP

19.2%

REDUCTION
IN SCRAP

6.2%

MATERIAL CUT
IN MILLIONS

5.5 LBS

MATERIAL SAVED
IN THOUSANDS

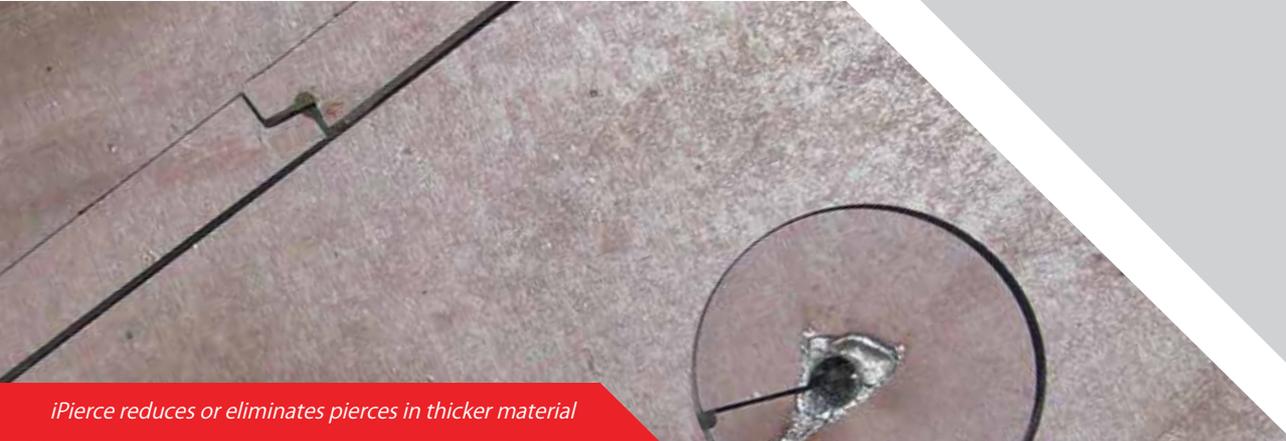
341 LBS

10+ TRUCK
LOADS SAVED





SigmaNEST is a modular software platform that enables users to customize their solution and tailor it perfectly to their businesses.



iPierce reduces or eliminates pierces in thicker material



Caterpillar, Inc. makes heavy duty equipment using heavy duty materials. Cutting parts out of thick material can be a battle, but Caterpillar was able to achieve exceptional results with SigmaNEST. In addition to saving four hours of cutting time per machine per day, their material yield per sheet improved by a total of 4% for an annual savings of \$180,000 in raw material costs. Caterpillar relies on SigmaNEST to meet their demanding production requirements and to deliver the quality their customers expect.

Equipment Details

- ▶ High-definition plasma with bevel
- ▶ Six-torch oxyfuel
- ▶ Combination plasma/punch
- ▶ Fiber laser
- ▶ CO2 laser
- ▶ Waterjet

Technical Requirements

- ▶ iPierce™ to reduce pierce time and eliminate unnecessary pierces for thick material
- ▶ Interface with their other business systems
- ▶ Continually monitor material usage
- ▶ Multi-head programming
- ▶ Exceptional hole cutting quality for bolt holes
- ▶ Open architecture post processor producing compact sub-routine code

Basic NC Capabilities

- ▶ Common line cutting
- ▶ Continuous cutting
- ▶ Automatic chain cutting
- ▶ Optimal feed rate control
- ▶ Head down rapid movement with automatic tip-up part avoidance
- ▶ Cutting technology database

Advanced NC Capabilities

- ▶ Maximum torch on-time
- ▶ Cut sequencing for minimum movement
- ▶ Multi-process sorting for fewer tool changes
- ▶ Sharp corner navigation with time-saving exact stop motion options
- ▶ Minimum heat distortion logic

SO WHY DO YOU NEED SIGMANEST?

SigmaNEST delivers the highest return on investment when we establish a true partnership with a customer. For us, this means gaining access to your hardest problems, the relevant data sources and the technical users who are deeply invested in

the way your process operates. For you, this means gaining access to our deployed team of tactical engineers who will work directly with you and implement SigmaNEST to overcome your most challenging problems.

WE HELP YOU OVERCOME

SigmaNEST is more than just nesting software:

It is a platform that connects individual operations to the entire company, streamlining your process from the office to the shop floor and back again.

PROCESS OPTIMIZATION

SimTrans™ allows you to connect every part of your process, eliminating rework and collecting data you need to manage operations effectively.

See page 16

OPERATIONS CONTROL

Color Offload helps machine technicians keep track of the work orders they are unloading after a job is done.

See page 18

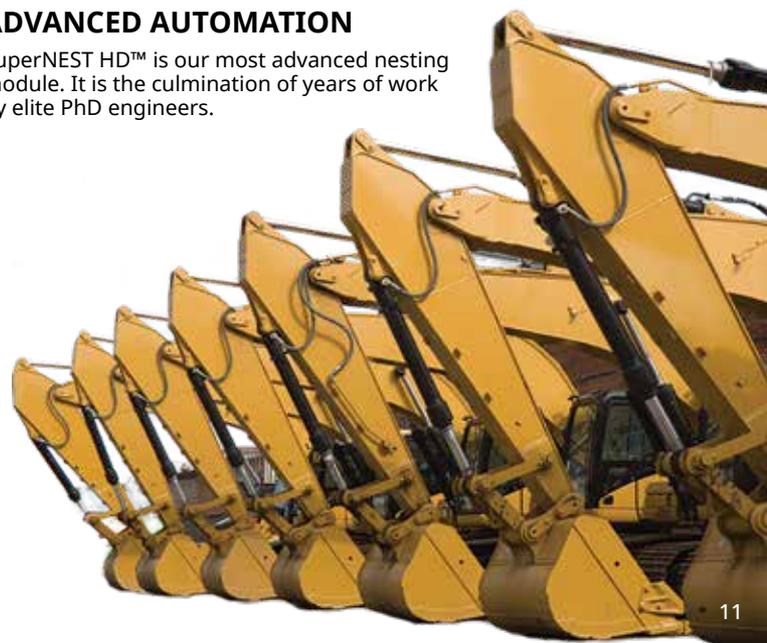
ORDER MANAGEMENT

The Quote Nesting™ module allows users to track orders from the time they come in until they are delivered to your client.

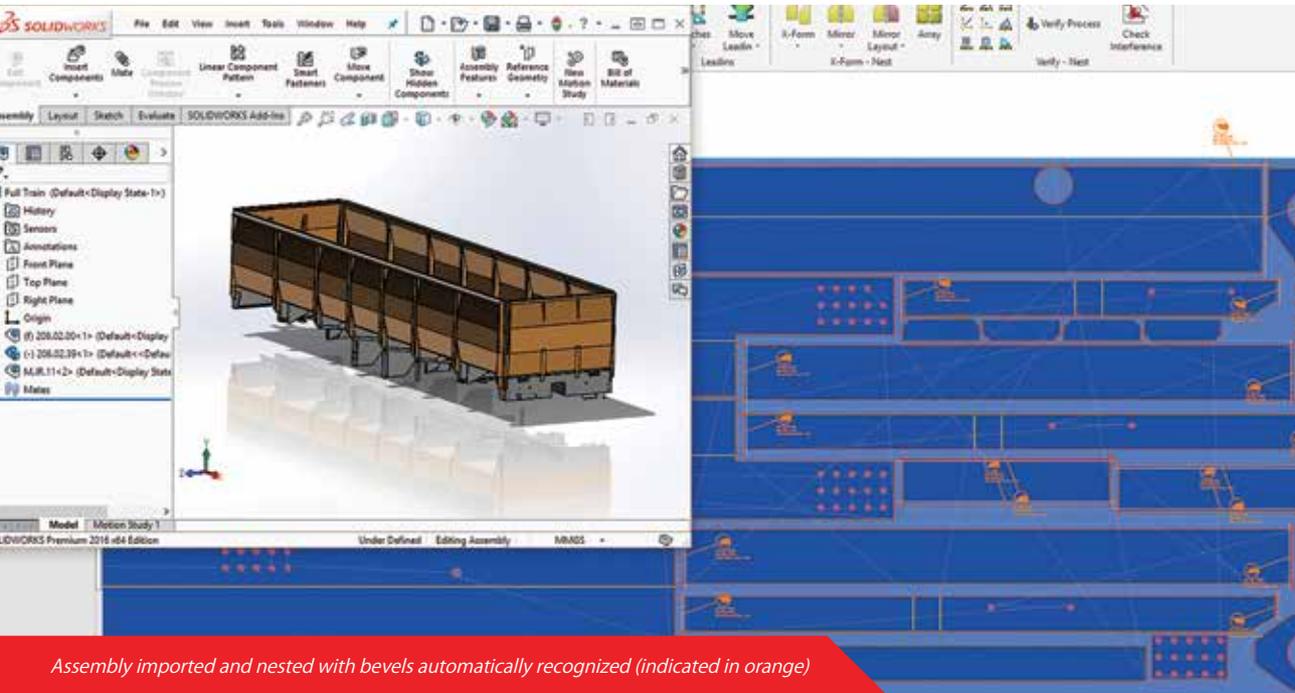
See page 15

ADVANCED AUTOMATION

SuperNEST HD™ is our most advanced nesting module. It is the culmination of years of work by elite PhD engineers.



CAD Integration

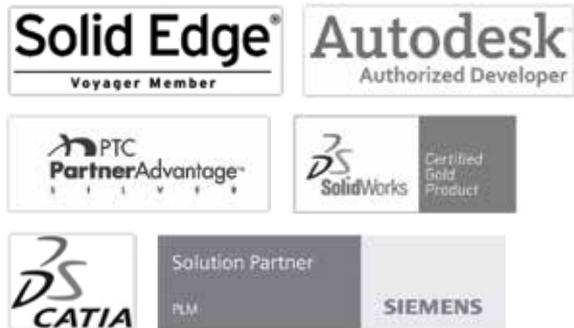


Assembly imported and nested with bevels automatically recognized (indicated in orange)

PDM Systems Supported:

- ▶ PTC WindChill
- ▶ SOLIDWORKS PDM
- ▶ Siemens Teamcenter
- ▶ Autodesk Vault

Our Partners:



Designed for integration

Our next-generation software is designed to connect the systems that are most important to your operations.

We follow industry standards and best practices, so none of your data is compromised. You can start with data from multiple sources. As part files, or even assembly files are imported into SigmaNEST, they are transformed into meaningful, accurate shapes that are ready to be nested and cut without losing material properties, bend tolerances or 3D features.

Part & Assembly Import

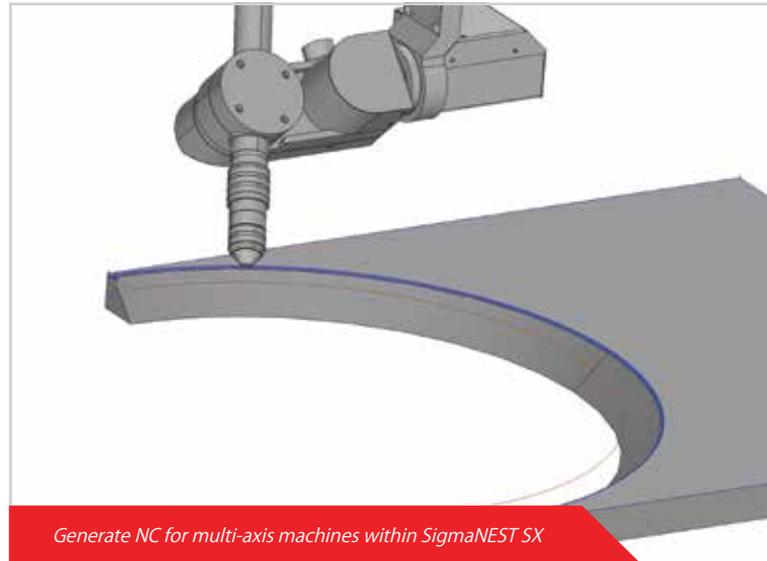
Native file formats supported:

- ▶ Autodesk Inventor
- ▶ SOLIDWORKS
- ▶ Siemens NX
- ▶ Solid Edge
- ▶ PTC Creo
- ▶ SpaceClaim
- ▶ Onshape
- ▶ CATIA
- ▶ DWG, DXF, IGES, DSTV, STEP

When you import a part or assembly into SigmaNEST, it recognizes all the features assigned in the 3D model. SigmaNEST can even sort through non-fabricated parts of an assembly (like bolts or electronics) to keep only the parts that need to be profile cut. Parts for fabrication are automatically unfolded. You can also nest whole assemblies with automatic bevel recognition.

Key Process: Bevel

One of the processes most dependent on proper file data transfer is beveling. Our engineers understand this. We have invested countless man hours in developing critical technology to ensure bevels are imported correctly as part and assembly files move from design to production.



Eliminate duplicate work by importing key part and assembly data.

By reducing friction between design and production, SigmaNEST dramatically improves the efficiency of the entire manufacturing process.

Run it All



Mayville Engineering Company (MEC) utilizes SigmaNEST to save thousands of man hours.

The Importance of Process Control

MEC has achieved complete control of their process. When they import a DXF, it is nested for the first available machine, the work order is integrated with their ERP system, and NC code is created. With SigmaNEST they can automate the process, but they can also jump in and modify things at any part of the workflow.

Key Features

- ▶ Advanced automatic tabbing
- ▶ Machine bed slat recognition
- ▶ Automatic customized report generation
- ▶ Real-time connection to ERP system
- ▶ Automatic inventory ordering

MEC Configuration

MEC is running around the clock. As one of the largest contract manufacturers in the nation, they have to remain flexible and responsive. To that end they are running an impressive configuration of machines, all integrated with their ERP system via SimTrans.

Equipment Details

- ▶ 12 Trumpf fiber and CO2 lasers
- ▶ 1 Messer plasma
- ▶ Running 3 shifts

"Center of gravity tabbing is my favorite feature ever. We probably save 8 man hours per week by just using that feature alone to cut down on part grinding and hunting down lost parts."



RAYMOND GERDOM,
Mayville Engineering Company



Quoting



The Importance of Accurate Quoting

Did you know it is possible to generate quotes for your job shop clients using the actual data from your shop? You can quote jobs based on how much the job will really cost you rather than guessing with generic overhead and material costs.

SigmaNEST Quote Nesting™ allows you to quote based on:

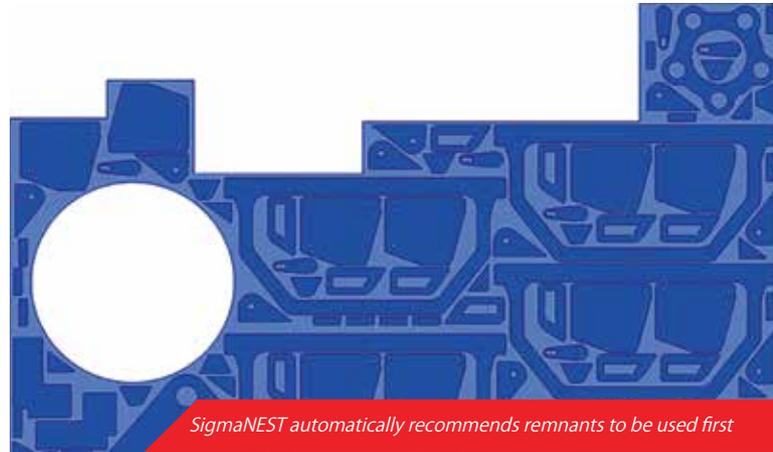
- ▶ Your remnant and inventory library updated real-time in SigmaNEST
- ▶ Bandwidth available on your cutting machines for the day or week
- ▶ Whether or not you can batch orders with other orders (and easily sort them with Color Offload™ - page 18)

SigmaNEST helps you bid profitably for jobs without having to guess, so you can compete in the marketplace.

Quote Nesting™ Features

- ▶ Standard batch of reports
- ▶ Custom reports available
- ▶ Standard shapes library
- ▶ Quotes can be tied to specific sheets in inventory
- ▶ Accurate time calculation for processing parts
- ▶ Quote with secondary process costs included in calculation

Quotation No: Q102		Attention: Randy Rhoads		Company: ABC Engineering		From: Estimator		Date: 10/17/2016 1:50:46 PM		Revision: 0		1 of 5 <small>SigmaTEK Systems International, LLC 1445 Kropfer Meadow Drive Cincinnati, Ohio, 45240 Phone: (513)674-0005 Fax: (513)674-0009</small>	
Item	Part Name	Material	Thick (in)	Size X x Y (in)	Weight (lbs.)	Material Cost	Operating Cost	Other Costs	Qty	Unit Price	Total Price		
1	L.10001	CR	0.105	17 x 10	4.17	\$2.45	\$0.90	\$0.00	1	\$3.33	\$3.33		
2	L.10002	CR	0.105	16 x 10	3.73	\$2.24	\$0.85	\$0.00	1	\$3.09	\$3.09		
3	L.10003	CR	0.105	59 x 13	22.42	\$10.81	\$2.10	\$0.00	1	\$12.91	\$12.91		
4	L.10004	CR	0.105	6 x 1	0.17	\$0.09	\$0.25	\$0.00	15	\$0.34	\$5.10		
5	L.10005	CR	0.105	64 x 39	66.85	\$35.68	\$3.99	\$0.00	1	\$39.67	\$39.67		



SigmaNEST automatically recommends remnants to be used first



SigmaNEST offers remnant and inventory tracking

JOB SHOP USERS:

- | | |
|-----------------------------|-------------------------|
| AW Mercer | Metko |
| D&S Manufacturing | Petersen Engineering |
| DeWys Manufacturing | Precision Waterjet |
| I&M Machine and Fabrication | Racine Metal Fab |
| Laser Cutting Services | Schorr Metals |
| LNS Turbo | T-Top Manufacturing |
| | Valley Iron Fabrication |

Maximize your shop's yield with SigmaNEST.



SigmaTEK Services



SIGMATEK SERVICES GROUP

The SigmaTEK Services Group (SSG) is our team of elite engineers capable of handling almost any situation. From special customization to complete automation and lights out operation, we are here to equip you with next-generation production technology.

CAPABILITIES

- ▶ Complete MRP integration
- ▶ Lights out manufacturing
- ▶ Custom reports
- ▶ Custom plug-ins
- ▶ Custom interface development
- ▶ Flexible solutions for your needs

SOFTWARE SPECIALIZATIONS

Load Manager (page 19)
 SimTrans (to right)
 Color Offload (page 18)
 Costing Module (to right)
 Quote Nesting™ Module
 Costing Configuration
 Automatic Engineering Conversion
 Custom Workflow Plugins

SIMTRANS

SimTrans is a communication module that connects your MRP/ERP system to your other software programs. When orders are entered into your MRP, they are communicated to SigmaNEST. Your CAD system and work orders are updated in real time.

ELIMINATE UNNECESSARY WORK

- ▶ Create and order parts and stock in SigmaNEST from the MRP/ERP system
- ▶ Sales enter an order – CAD office will not have to re-create the order
- ▶ Reduce mistakes between Sales and CAD office

ABILITY TO CREATE ISSUE-SPECIFIC TASKS

- ▶ Modify SigmaNEST work orders
- ▶ Cancel or archive SigmaNEST work orders
- ▶ Create SigmaNEST stock
- ▶ Run batch files
- ▶ Just-in-time feedback

COSTING MODULE

SigmaNEST Costing Module allows you to accurately determine costs and reselling prices for parts.

- ▶ Provides operating and material costs
- ▶ Customizable cost formula allows you to control the way SigmaNEST calculates your costs
- ▶ Provides data for rectangular, true shape, and nested costs
- ▶ Provides data for secondary operations (bending, paint, shipping) which can be used in quotes

Calculate your costs in a scientific way so you can price competitively and operate profitably.

SIGMAFUSION MODULE

SigmaFusion is a remote production status monitoring system designed to provide you with real-time updates on job progress and the status of workstations in your production area.

The SigmaFusion application provides you with instant access to production status monitoring from a single dashboard that is visual and easy to understand.

It allows you to have a complete overview of all tasks by tracking machine data from all workstations on the shop floor for items like error messages, downtimes, breaks, scheduled maintenance and current running job.

SigmaFusion increases the process reliability of cutting systems because it gives you instant feedback enabling you to react quickly to unscheduled downtimes and plan deviations.

BENEFITS

- ▶ **Reduced downtimes:** Increased machine availability due to quick reaction times.
- ▶ **Downtime detection and analysis:** Figure out what is causing the most delays in your production.
- ▶ **Attention to detail:** With the integrated IP or USB webcam support, keep your entire production environment in view.
- ▶ **Production optimization:** By keeping an eye on production you can quickly resolve issues and eliminate bottlenecks.
- ▶ **Historical data analysis:** Review data from the past to determine your future strategy.



SigmaFusion shows real-time production status & reports

The SSG offers complete integration and customization.

Advanced Solutions

Ask an Engineer:

What pain does Color Offload solve for customers?

"Color Offload helps machine operators sort parts after they have been cut. It makes re-cutting rejected parts easier, allowing them to reject a part and add it back into the queue automatically.

It also helps the person unloading the cutting table to keep track of different batches and work orders."



Color Offload makes it easy to work orders together

COLOR OFFLOAD™

The fabrication process does not end when the machine stops cutting. Parts have to be unloaded, stacked and shipped. Color Offload™ empowers you to cut multiple work orders on one sheet and provides a color-coded print-out to let the machine operator sort the parts by work order after they are cut.

The part colors can also coordinate with a process or part routing so that the operator can sort the parts by the next process or work center. For example, parts can be set aside for a press brake, machining, finishing, and so on.

- ▶ Parts or jobs can be color-coded to enable easy sorting.
- ▶ Time Saving: it takes a fraction of the time to separate parts being able to reference the color organization to put parts with specific jobs.
- ▶ Re-cutting parts: operator can reject parts putting them back in the queue automatically to be re-cut while tracking the problems associated with rejected parts.

Mixing work orders is no longer a cause for concern because the operator can easily organize the parts by color at the end.

Users can update the program on the shop floor so job status will be reflected in real time in the ERP/MRP system with the feedback loop from SimTrans.

THE IMPORTANCE OF MRP INTEGRATION

As business insights become increasingly important in the competitive manufacturing environment, SimTrans helps you get the most out of the data collected by SigmaNEST. It allows you to automate the creation of orders, parts and stock in SigmaNEST straight from your MRP system.

It also eliminates duplicate work because when the sales team enters a work order, the CAD team won't have to re-create it.

LOAD MANAGER

Part of the SigmaNEST Integration Suite, Load Manager schedules jobs for all machines to eliminate bottlenecks and downtime. It allows you to manage machines from a central operating dashboard. You can drag and drop jobs to different machines in real time, while job status is continuously updated in your operating dashboard.

Load Manager eliminates capacity problems by reducing bottlenecks on certain machines while other machines aren't being used.

- ▶ Schedule workloads digitally and deliver jobs on time
- ▶ Integration with Color Offload to schedule jobs in the correct order

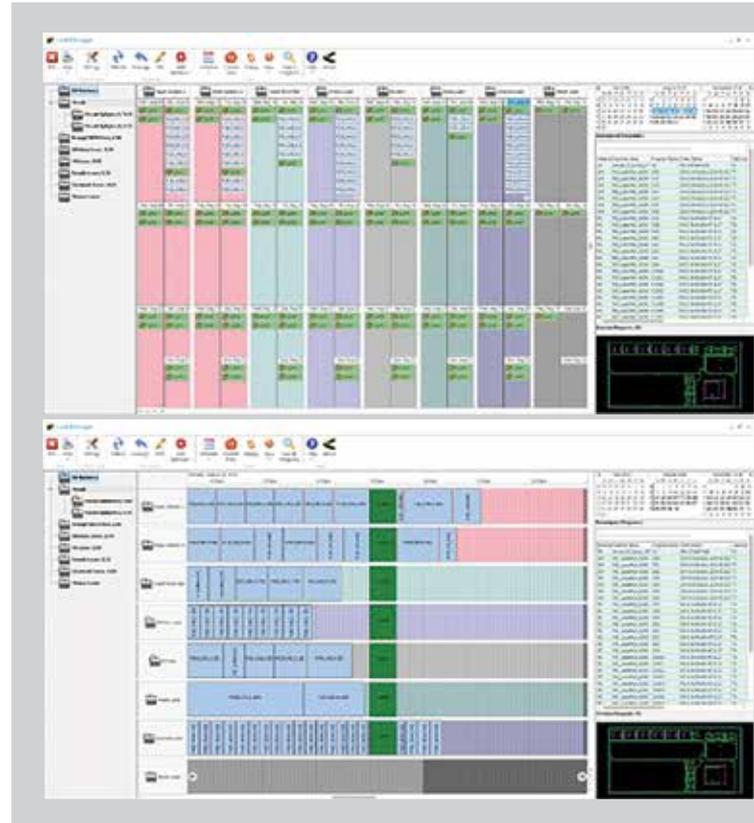
SIGMAWEB

A web-based quoting tool created for steel service centers and job shops to obtain customized quotes from their clients, SigmaWEB moves your operation to the cloud.

- ▶ Import standard SigmaNEST shapes
- ▶ Import DXF / DWG
- ▶ Rectangular cost model capability

Equip steel service centers to handle quoting:

- ▶ Roll-out mechanism about how the quotes are delivered
- ▶ White labeling support: self-service quoting host



Load Manager scheduling views

"We literally built our business around SigmaNEST."



RON DUFFY, Owner -
Laser Cutting Services, Inc.



With an intricate understanding of lean manufacturing, we help you be the best you can be. Run just-in-time with SigmaNEST.

SigmaTEK believes in continuous improvement. We use lean methodology to produce software, and we incorporate lean manufacturing principles into the way SigmaNEST operates so you can achieve the most optimal yield on every job. In addition to offering custom technology to run lights out, SigmaNEST has rapid response features that make just-in-time operating attainable: Continuous nesting allows you to run order after order without down-time; Artificial intelligence will calculate the material value and determine the level of work order mixing to yield best results.



DEFINE: SigmaNEST helps you understand and standardize your operation.



MEASURE: We help you track production data real-time from order to delivery.



ANALYZE: We provide you the tools to access and analyze your critical manufacturing data.



IMPROVE: SigmaNEST artificial intelligence finds room for improvement.



CONTROL: We don't lock down your data. You own it and we help you use it.

CONTROL YOUR DATA

We empower our users, we don't restrain them.

Our posts are open architecture, allowing advanced users to make customizations based on their preferences or unique requirements. If you know you need a change to your post, you don't have to send it overseas and wait for a tech to make the changes to a closed off, complex post. You can easily access cutting tables, part databases, engineering data, workspaces and more.

OPTIMIZE YOUR PROCESS

SigmaNEST helps you stay organized and efficient:

- ▶ Cut multiple work orders on one sheet without concern of parts getting lost
- ▶ Close work orders as soon as possible so part batches can be grouped together
- ▶ Reduce machine bottlenecks by balancing work order loads in real time
- ▶ Advanced nesting capabilities help you save on material

GENERAC

Unifying the Process with SigmaNEST

Generac Power Systems chose SigmaNEST in 2010 after a thorough investigation of CAD/CAM nesting best practices in their region. Their search led them to SigmaNEST and specifically an application called "Machine Console" that allows Generac to run their large collection of machines at the touch of a button. Not only did they switch from several nesting systems to one, but they switched MRP systems without a hitch as far as SigmaNEST was concerned.

INTEGRATION REQUIREMENTS

- ▶ CREO 2.0
- ▶ Windchill PDM
- ▶ SAP & previously IBM AS/400

GENERAC Results

Generac followed a phased approach of implementing SigmaNEST. They started with their lasers, followed by punch and finally waterjet. Each time they saw additional improvements. Generac relies on SigmaNEST for reporting on over 200 work orders per day.

MACHINES

- ▶ Amada fiber and CO2 laser with tower system
- ▶ Amada turret (7 total)
- ▶ 1 Coma
- ▶ Flow waterjet
- ▶ Replaced old lasers with new Amada lasers, all with the same platform of SigmaNEST



PROJECT TIME
BEFORE (PER KIT)

4 HRS

PROJECT TIME
WITH SIGMANEST

20 MIN

YIELD FOR LASER
WITH SIGMANEST

90%+

FAVORITE
FEATURE

NESTING FOR FIRST
AVAILABLE MACHINE

Machine Console

Machine Console makes just-in-time nesting at the machine a reality. Once a machine is free, the operator can start the next work order at the push of a button.

- ▶ No one person has to bear all the responsibility for nesting
- ▶ Most urgent work orders are queued up first
- ▶ Nesting for machine capabilities generates better yield
- ▶ Reduced bottlenecks and increased machine through-put



Tactical Success



Incredibly intuitive software design makes learning easy.

WE SUPPORT YOUR MACHINE:* ACCU-ONE | ACCURouter | ADIGE | ADVANCED CUTTING SYSTEMS | AERONAUT AUTOMATION | AIRGAS | AJAN | AKS | ALLEN BRADLEY | ALLTRA | **AMADA** | AMERICA CORPORATION | ANDERSON | ARISTO | ART | ASSYST BULLMER | ATOM | AUTOMETRIX | AXYZ | BAW | BAYKAL | BIESSE | BLACKMAN & WHITE | BLM | BODA | BRISTOW LASER | BURNY | BUSELLATO | **BYSTRONIC** | C&G | C.R. ONSRUD | CALYPSO | CINCINNATI | CNT MOTION | COHERENT | CONTROLLED AUTOMATION | CRIDLAND | CUTTING SYSTEMS | DATA TECHNOLOGY | DURMA | EAGLE | EASTMAN | ERMAKSAN | ESAB | ESPRIT | EUROMAC | EXACT | EZ CUT | FARLEY | FICEP | FINNPOWER | FLOW | GASPARINI | GERBER | GFM | HAAS | HACO | HAN'S LASER | **HK LASER** | HEIAN | HOLZMA | HOMAG | INGERSOLL RAND | IPG | JET EDGE | KALOX | KALTENBACH | **KINETIC** | KMT | KNUTH | KOHTAKI | KOIKE | KOMATSU | KOMO | KONGSBERG | LASER LAB | LECTRA | LOCKFORMER

Support



Support Network

Your success is our success, so when you become a SigmaNEST customer, we do what it takes to help you achieve your goals. From hands-on training classes to on-demand phone support, we are ready to back you up.

TRAINING

- ▶ Regularly held training sessions make it easy to find a class that fits your schedule
- ▶ Online registration is quick and simple

EXPERT SUPPORT ENGINEERS

- ▶ We have the most engineers on staff of any nesting company in the world

WE HAVE YOUR BACK

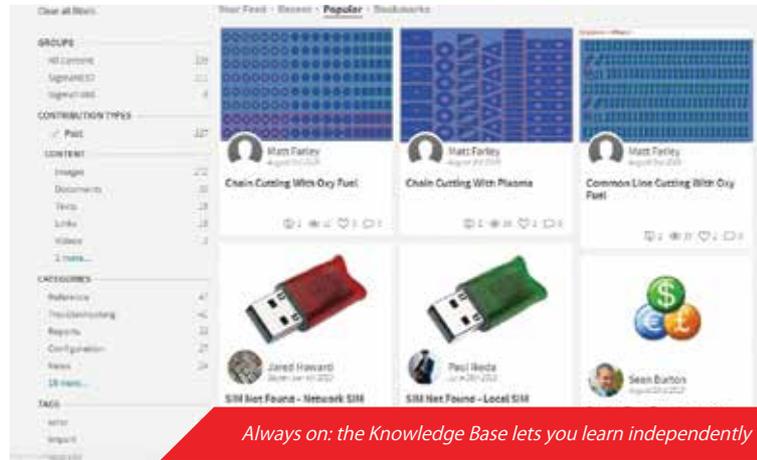
- ▶ Industry leading support hours and local engineers around the globe
- ▶ Connect with a real person when you need us
- ▶ Call, e-mail, come visit us or we can come to you

SIGMANEST COMMUNITY

- ▶ Knowledge Base access
- ▶ We help you stay up to speed with cutting edge SigmaNEST specifics
- ▶ Veteran users and the particularly curious SigmaNEST engineers share their advanced tips and tricks
- ▶ Share what you know

SIGMATEK ACADEMY

Join other manufacturing engineers to learn best practices and hone your SigmaNEST skills. SigmaTEK Academy takes place annually and gives you an opportunity to learn from the world experts on metal manufacturing.



Certifications

CSNE Certified SigmaNEST Engineer - As a CSNE you will stand out from the crowd in today's competitive job market.

CSNP Certified SigmaNEST Professional - As a CSNP you have to demonstrate extensive expertise as a SigmaNEST user.

CSNX Certified SigmaNEST Expert - The highest rank you can achieve in the SigmaNEST certification program is reserved for professionals who show advanced levels of knowledge and strategic expertise in how they use SigmaNEST.

| L-TEC | LVD | MACHMOTION | MAXIEM | **MAZAK** | MESSER (MG) | MICROSTEP | **MITSUBISHI** | **MULTICAM** | MURATA | NISSHINBO | NORTHWOOD | NTC AMERICA | NUKON | OMAX | ONSRUD | OTEMAN | PAR SYSTEMS | PATHFINDER | PEDDINGHAUS | PLASMA AUTOMATION | PLASMA CAM | PLASMA PROFILING | PRAXAIR | PRIMA | PRO-ARC | PROFILEMATIC | PROTEM | PTV | QUICK MILL | RETRO | RHINO | ROMEO ENGINEERING | ROUTECH | SAF | SALVAGNINI | SATO | SECTOR | SHODA | SHOPBOT | SHOPSABRE | SOITAAB | STRIPPIT | SUGINO | SYNRAD | TANAKA | TECHNI AUTOMATION | TECHNICUT | TECHNO, INC. | THERMWOOD | THOR | TOPS | TORCHMATE | TRACKER | **TRUMPF** | VECTOR | VICTOR | **VOORTMAN** | WARDJET | WATERJETPRO | WHITNEY | YAWEI NISSHINBO | YILDIRIM | ZINSER | ZUND

*NOT A COMPREHENSIVE LIST. YOU CAN RUN ALL OF YOUR MACHINES UNDER ONE SEAT OF SOFTWARE.



The USS Gerald R. Ford, commissioned in 2015, was manufactured using SigmaNEST.



X1

SIGMANEST
software

**INTRODUCING
INDUSTRY 4.0**



Fiber Laser



BASIC FEATURES

- ▶ Fly cutting
- ▶ Precision corner ramping
- ▶ Pierce on the fly
- ▶ Optimized cutting processes run your machine to achieve performance you were promised
- ▶ Best cutting conditions automatically selected

ADVANCED FEATURES

- ▶ CurvyRapids™
- ▶ New, one-click manual nesting or fully automatic nesting
- ▶ Intelligent part-in-part nesting
- ▶ Tip-up part prevention and avoidance for high speed cutting
- ▶ Intelligent tabbing placement based on center of gravity and other strategies

INDUSTRY LEADERS IN LASER

ACHIEVE OPTIMAL PERFORMANCE

Fiber laser machines have taken the market by storm. They promise faster, sharper, cleaner parts and less maintenance to boot. Operating costs are supposed to be lower, and material yield higher.

But did you know that SigmaNEST is one of the only software systems that provide different programming for fiber lasers than for CO2 lasers?

To get the results you were promised, the machine has to be run differently. Trust SigmaNEST to deliver the performance you were promised.

BENEFITS

- ▶ Faster cut times with better part quality
- ▶ Production-ready features make material loading and unloading faster and easier

CurvyRapids™

- ▶ Achieve smoother machine motion and increase drive life with CurvyRapids™
- ▶ Maintain a higher machine velocity and cut more product in less time
- ▶ Faster fly cutting around shapes

FLY CUTTING

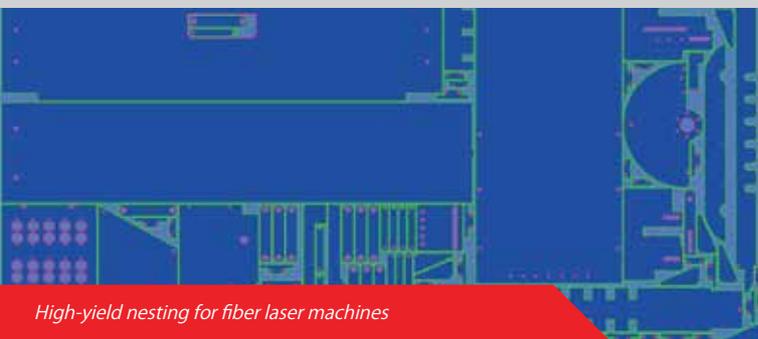
- ▶ Cut thinner material even faster by keeping the cutting head moving at maximum possible speed
- ▶ Achieve significantly faster cutting, especially on thinner material where you can pierce on the fly

PRECISION CORNER RAMPING

- ▶ Eliminate bad corners
- ▶ Corner cut paths are automatically optimized in SigmaNEST

SAFETY FEATURES

- ▶ Automatically fillet corners to achieve faster part cut times and improve part handling safety
- ▶ Use recessed tabs to free up time in your next operation and improve part handling safety for the operator



ACHIEVE THE SPEED YOU WERE PROMISED

C02 Laser



MACHINES

UNMATCHED PERFORMANCE

SigmaNEST incorporates advanced machine learning to improve the laser cutting process, eliminating part and equipment damage, while reducing consumable waste and maximizing machine throughput.

COMMON LINE CUTTING

When parts are nested edge to edge, it reduces the number of cuts required to make the parts on a sheet. It also eliminates the skeleton, to increase material yield and reduce time spent handling scrap.

Although many companies claim to offer common line cutting, the level of automation and precision that SigmaNEST offers is unmatched.

iPierce™

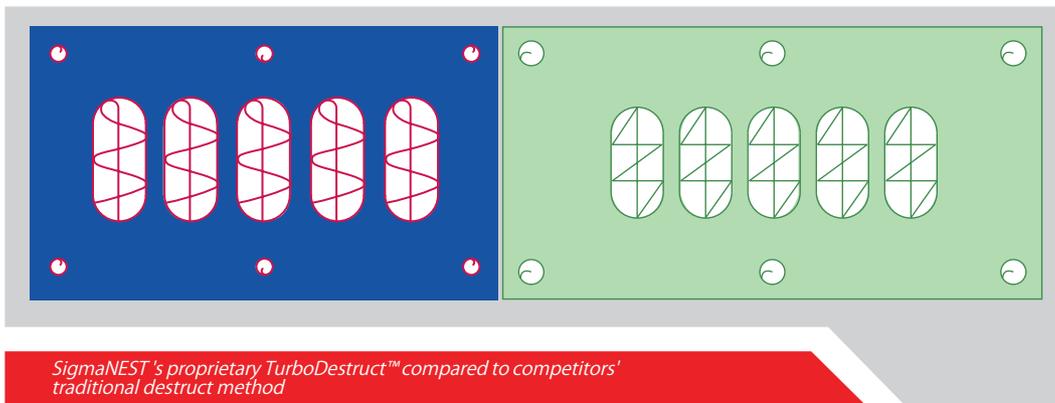
Exclusively available in SigmaNEST, this pierce-reduction feature reduces machine cycle time and consumables usage. Find out how Caterpillar, Inc. uses iPierce on page 10.

BASIC FEATURES

- ▶ Common line nesting (manual & automatic)
- ▶ Support for multi-axis laser cutting
- ▶ Micro welds, crop sheet and skeleton destruct improves material handling
- ▶ Intelligent NC toolpath generation

ADVANCED FEATURES

- ▶ TurboDestruct™ reduces pierces on internal cutouts
- ▶ Smart conditional tabbing with machine slat recognition
- ▶ Automatic feed rate control for intricate contours
- ▶ Support for robotic removal systems



LASER

"We have gone from nesting one process in six hours to nesting five processes in four hours."

CLINT WORBANSKI,
CAD Manager - Brunswick Steel





Punch Press

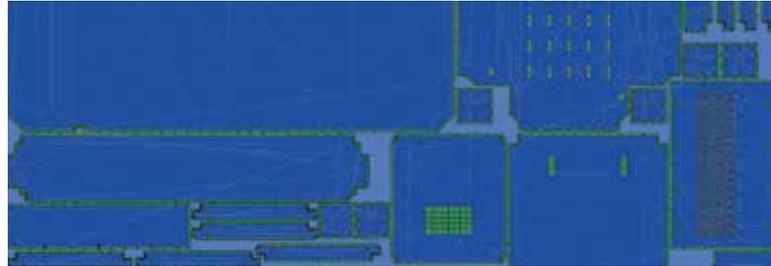


BASIC FEATURES

- ▶ Fast and easy-to-use automatic punching
- ▶ Precise and innovative functions for manual tooling
- ▶ Automatic repositioning for full sheet utilization with clamp recognition
- ▶ Easy micro-joint placement before and after tooling
- ▶ Tool clearances / tool database
- ▶ Dead zone clearances
- ▶ Clamp recognition
- ▶ Common line punching

ADVANCED FEATURES

- ▶ Punch with tabbing
- ▶ Real-time tooling for most recent tool set reduces setup time
- ▶ SigmaNEST learns your favorite tooling combinations with the Create Tool Pattern function
- ▶ Common line punch with micro-joint and tabs
- ▶ Part removal & drop door supported
- ▶ Part handler support



MASTER PUNCH PRODUCTION

IMPROVE YOUR PROCESS

Punch technology has advanced tremendously in the last 5 years, and SigmaNEST has been on the leading edge of running punch presses to maximum capability. Don't get left behind with software designed for programming punch machines from 20 years ago. The artificial intelligence behind SigmaNEST automates the important things, like rolling tools and family part groups, while optimizing tooling sequences and reducing programmer intervention.

NC OPTIMIZATION

- ▶ SigmaNEST optimizes NC programming to make it as efficient as possible
- ▶ With smart NC, SigmaNEST nests to reduce both tool wear and tool changes needed

LIGHTS OUT OPERATIONS

- ▶ SigmaNEST supports automatic robotic part sorting and stacking systems
- ▶ Nest for the night
- ▶ SigmaNEST will run your material handling systems

**See page 20-21 for more on just-in-time production*

SUPPORTED MACHINES

Amada	Peddinghaus
Euromac	Prima Power
LVD Strippit	Salvagnini
Murata	Trumpf
Nisshinbo	Whitney

MAXIMIZE, AUTOMATE, EXPAND



SigmaBEND



MACHINES

GET THE JOB DONE WELL

Cutting parts is only half the battle. If you can't bend them properly, it doesn't help to improve your nest yields. SigmaBEND is specifically designed to take the guesswork out of bending parts.

- ▶ Increase machine up-time by up to 50%
- ▶ Decrease overall processing time for bent parts
- ▶ Verify quotes before committing to a price
- ▶ Accurate k-factor and flat pattern with tooling
- ▶ Eliminate trial and error in your bending process

BASIC FEATURES

- ▶ Imports all major CAD system parts and unfolds them
- ▶ Tool database
- ▶ K-factor storage per material

ADVANCED FEATURES

- ▶ Back bending
- ▶ Step bending (radius bends)
- ▶ Visual bend process simulation



3D animation of entire bend process takes the risk out of bending complex parts

"Nesting one complete batch of parts with our previous software laid out the job on 265 sheets. It took 40 man-hours from our engineering team to whittle that down to 200 sheets. Now, using SigmaNEST we lay out the job on 200 sheets in about 8 hours, allowing our engineers to focus on more productive tasks."

AW Mercer - General Manager, **TIM MEADE**,
uses SigmaNEST for Murata





Oxyfuel



BASIC FEATURES

- ▶ Multi-torch nesting
- ▶ Chain and bridge cutting
- ▶ Pre-pierce to optimize consumable yield
- ▶ Automatic multi-pass sequencing

ADVANCED FEATURES

- ▶ Variable torch spacing
- ▶ Chain cutting for fewer pieces
- ▶ iPierce automatically reduces the number of pierces needed
- ▶ Thermal locks maintain skeletal integrity by keeping parts in position

QUALITY FOR THICK MATERIAL

SigmaNEST knows heavy plate, and SigmaNEST X1 is the culmination of over 20 years of experience programming machines to cut some of the thickest material out there. We deliver exceptional edge quality, while reducing machine wear and lowering cutting times. SigmaNEST can help you compete into the future.

SERIOUS NESTING

- ▶ Artificial intelligence calculates perfect part clearance for your machine and material combination
- ▶ Maximize yield while reducing additional work needed to finalize parts
- ▶ Nest for pierce reduction automatically
- ▶ Automatic chain cutting
- ▶ Common line nesting

BENEFITS

- ▶ Leverage multi-torch nesting strategies optimized for automatic and manual torch spacing
- ▶ Achieve significant decreases in pierce quantities with chain cutting and bridge cutting technologies and extend torch tip life
- ▶ Pre-pierce on thicker material to reduce time in gas changes and also extend torch tip life
- ▶ Easy leadin placement to reduce part distortion due to heat buildup

SUPPORTED MACHINES

AirGas	Hypertherm
Burny	Koike
C&G	Messer (MG)
Esab	Soitaab

IMPROVE YOUR YIELD IMMEDIATELY

Waterjet



MACHINES

SPEED DOESN'T KILL

When you use SigmaNEST, you will achieve faster cut times without sacrificing on edge quality or material integrity. SigmaNEST automatically calculates the perfect parameters to speed your process up and still deliver the quality your clients demand.

SigmaNEST's Auto NC feature maximizes the cut path efficiency while Advanced NC features like automatic common line cutting make it possible to cut more jobs faster.

SigmaNEST offers several cut qualities to output the highest feed rates available for a given material, thickness, and surface finish. Lookup tables contain cutting conditions for each material and thickness available. Cut quality can be assigned globally to a nest, to an individual part, or to a specific contour.

MASTER BEVELING

SigmaNEST delivers unparalleled accuracy when it comes to beveling.

- ▶ Automatically nest for bevels
- ▶ Automatic clearance recognition
- ▶ Import bevel attributes directly and accurately from solid part or assembly files
- ▶ Get great nesting and excellent bevel programming in one software solution
- ▶ 3D bevel simulation gives you greater control over the process

**See page 33 for more information on beveling*

BASIC FEATURES

- ▶ Tail wash management
- ▶ Feed rate control
- ▶ Support 5-axis
- ▶ Set up quality per edge

ADVANCED FEATURES

- ▶ Variable kerf programming
- ▶ Seamless bevel part nesting
- ▶ Store remnants for later use
- ▶ Motion optimization to improve part quality

SIGMANEST OFFERS MORE

- ▶ Easier programming
- ▶ Motion optimization
- ▶ Common line cutting
- ▶ Versatile & user-friendly interface
- ▶ Run your waterjet with the same seat of software that you use to run your other cutting machines

SPECIALTY MATERIALS

We have helped our clients cut some of the most precious materials used in manufacturing. We understand elemental physics and take those principles into consideration when developing cutting parameters for waterjet machines. We have perfected the lead-in times and feed rates for nearly every material out there.

"We have customers that send us their nesting sheets to copy from the various software programs they use and when we run the same parts through SigmaNEST, we are able to beat their nesting pretty much every time. It is great software and easy to use."

JON BARRON, General Manager -
I&M Machine & Fabrication





High Definition Plasma



BASIC FEATURES

- ▶ Bolt Hole Quality with BHQ™
- ▶ Optimized cut sorting for fewer gas changes with BHQ™
- ▶ Customizable leadin table
- ▶ Chain cutting
- ▶ Bridge cutting
- ▶ Better quality corner loops
- ▶ Automatic leadins

ADVANCED FEATURES

- ▶ Attain longer consumable life with iPierce™
- ▶ Open architecture technology table
- ▶ Full support for machine add-ons such as marking and drilling attachments
- ▶ Bevel
- ▶ Custom specialized leadins

"Quality plasma cutting makes a great addition to the machine shop. Accurate NC simulation makes jigs and fixtures for oddly shaped parts a cinch."



SILAS CURFMAN, FSI Fabrication -
Agricultural Equipment Manufacturer

PLASMA CUTTING EXPERTS

SigmaNEST offers unmatched plasma cutting technology. In addition to developing totally unique features for plasma tables, the artificial intelligence in SigmaNEST evaluates cutting parameters in real time, providing automatic improvements in cut times, consumable yield and edge quality.

- ▶ Pierce reduction & elimination algorithms
- ▶ Reduce cut time
- ▶ Reduce head wear & tear - cuts operating cost
- ▶ Reduce clean up time

COMPLETE PROGRAMMING FREEDOM

Experience ease of programming in a mixed torch environment. Get the best parts on any machine regardless of power supply and controller configuration.

BHQ - RETHINK HOLE QUALITY

SigmaNEST BHQ™ improves on market leading hole quality cutting strategies to not only offer bolt hole quality, but optimize for taper, roundness and machine run time in the process.

- ▶ Automatic leadin lookup based on hole size and material thickness, process and power
- ▶ Customizable parameters to achieve edge quality that fits your needs

BHQ can be used with mixed hardware configurations. You can achieve the quality you need with any high-definition-ready plasma system, and may not need to invest in a new setup to improve your cutting results.

Bevel



MASTER BEVELING

SigmaNEST is the leader in beveling technology for any cutting process. From plasma on mild steel to waterjet on marble, we deliver bevels with precision and speed.

From design to production, SigmaNEST makes the beveling process intuitive and achievable. Import almost any file format you like, and SigmaNEST will pick up the bevel data stored in the file. As your parts are nested, beveled edges are taken into consideration automatically and nests are optimized around the cutting tolerances required to produce accurate edge bevels.

In addition to automatic bevel transitions, SigmaNEST gives visual updates to allow operators the ability to double-check quality in real time.

SigmaNEST delivers unparalleled accuracy when it comes to beveling.

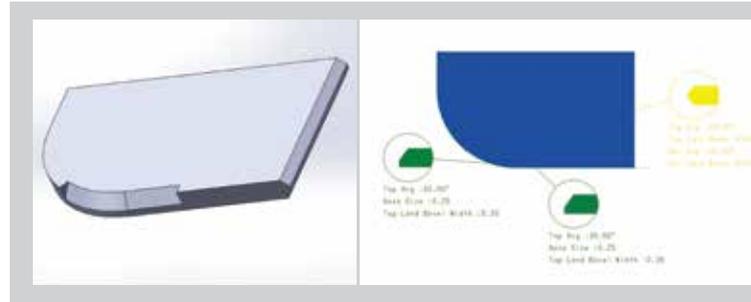
- ▶ Automatically nest for bevels
- ▶ Automatic clearance recognition
- ▶ Import bevel attributes directly and accurately from solid part or assembly files
- ▶ Get great nesting and excellent bevel programming in one software solution
- ▶ 3D simulation of bevels give you greater insights into the process
- ▶ Achieve more with swarf beveling

Strong support for different kinematic configurations:

- ▶ V, Y, and K bevels
- ▶ Variable angle bevel
- ▶ Full position vector post (X, Y, Z, I, J, K)
- ▶ 5-axis bevel support

SIGMANEST OFFERS MORE

- ▶ Easier programming with beveling inside SigmaNEST
- ▶ Automatic bevel transitions
- ▶ Tag your proven bevel setups as trusted for faster setup time and better part quality



Bevel features assigned in a solid model will automatically be recognized and imported into SigmaNEST.

SUPPORTED BEVEL MACHINES

Waterjet Bevel	Techni	Kinetic
AKS	WardJet	Koike
Calypso	Plasma Bevel	Komatsu
ESAB	AKS	Lockformer
Flow	ALLtra	MachMotion
Hypertherm	BAW	Messer (MG)
Ingersoll Rand	C&G	MultiCAM
Jet Edge	Cutting Systems	Peddinghaus
KMT	Esab	Proarc
MachMotion	EZ Cut	Rhino
Maxiem	Farley	Sector
MultiCAM	Ficpe	Soitaab
Omax	Haco	Tanaka
Par	Hypertherm	Voortman
		Whitney

- ▶ Faster bevel processing
- ▶ Elimination of redundant bevel application
- ▶ Quickly recognize and adjust for new bevel setups

BASIC FEATURES

- ▶ Built-in tech table
- ▶ Automatic transitioning
- ▶ Customizable bevels

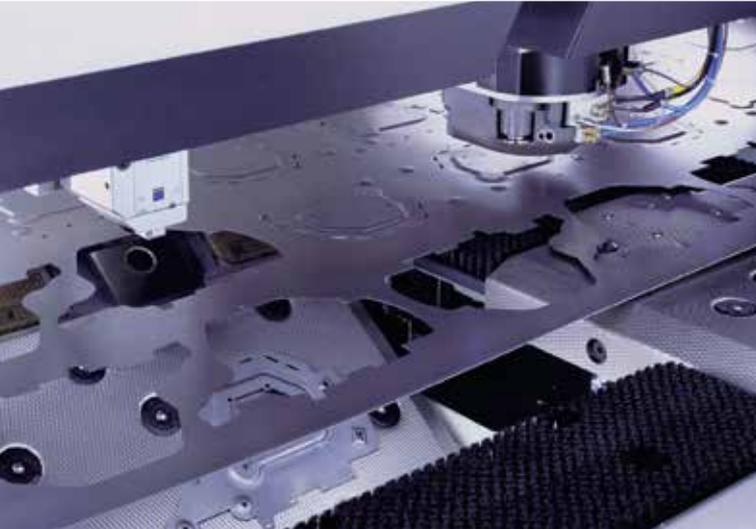
ADVANCED FEATURES

- ▶ Communicate bevel attributes with string tags on your CAD model with text-to-bevel
- ▶ Automatic bevel recognition
- ▶ Nesting with beveled edge
- ▶ Take full control of your land sizes with sub-bevel technology





Punch Combination



BASIC FEATURES

- ▶ Automatic and manual NC toolpath
- ▶ Tool Management and substitution
- ▶ Automatic and manual punch tooling
- ▶ Automatic tabbing and micro-joints
- ▶ Auto-repositioning

ADVANCED FEATURES

- ▶ 2D CAD capabilities
- ▶ Drop door support
- ▶ Pre-piece punching
- ▶ Part handler support

PROGRAM COMPLEX MACHINES

SigmaNEST offers automatic nesting and programming for machines with custom features and capabilities. Whether you are running a combination, or a multi-process machine, SigmaNEST can program it. SigmaNEST offers multi-process nest optimization and will automatically generate NC code to run all the features of your machine. With more capable equipment, you demand more capable software. Whether you are combining punch with laser or plasma, SigmaNEST offers the right mix of flexible tools to get the job done easily.

BENEFITS

- ▶ The benefits you receive with SigmaNEST on punch, plasma, and laser are amplified with a combination machine
- ▶ Maximize yield per sheet
- ▶ Save engineering time through simplified programming and more efficient machine output
- ▶ Higher efficiencies in tool and work order management
- ▶ Save time with fewer tool changes
- ▶ Automatic recognition of best sheet in inventory, including non-rectangular remnants
- ▶ Improved shop floor planning with accurate costs and time estimates

SUPPORTED COMBINATION & MULTI-PROCESS MACHINES

Punch Combination	Punch Combination with Shearing	Multi-process
Amada		ACCU-ONE
Murata	LVD Strippit	Farley
Peddinghaus	Prima Power	Ficep
Trumpf	Salvagnini	Kinetic
Whitney		Messer
		Murata
		Peddinghaus
		Voortman

MAKE COMPLEXITY ACHIEVABLE

Multi-Process

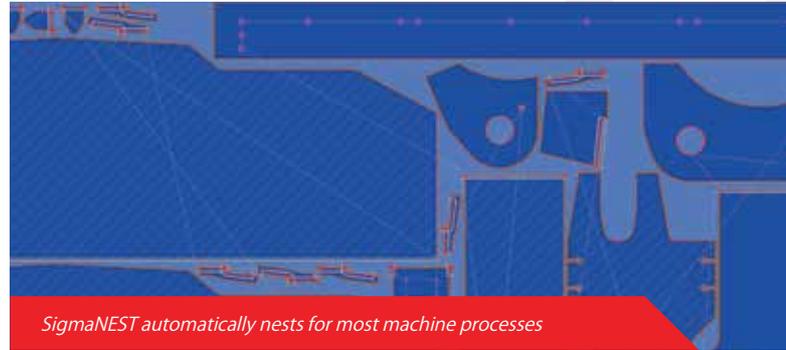


MACHINES

MAXIMUM FLEXIBILITY

SigmaNEST leads the industry in running multi-process machines. In addition to nesting and generating NC to run all machine processes available, SigmaNEST optimizes the toolpath to dramatically reduce cutting time.

- ▶ Automatically nest for multiple processes
- ▶ Faster cutting time
- ▶ Apply advanced SigmaNEST NC functions for multi-process cutting
- ▶ Take advantage of your machine's capabilities

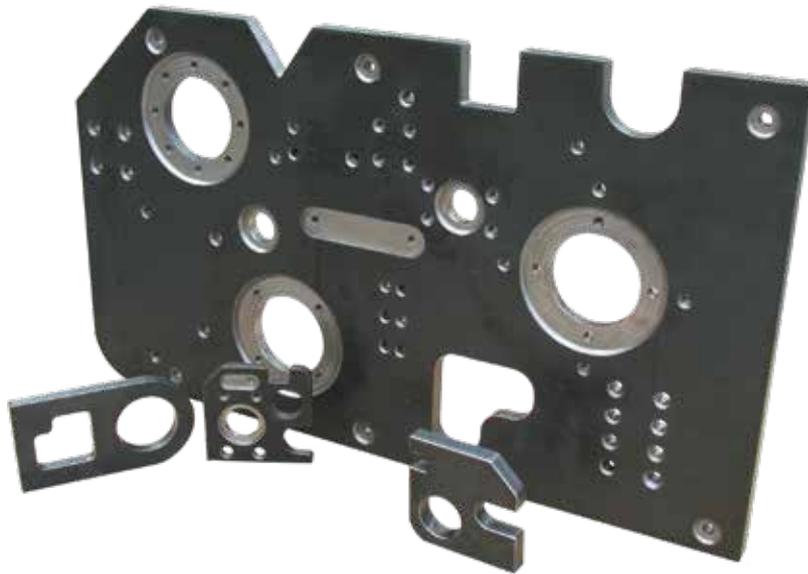


BASIC FEATURES

- ▶ Drilling/tapping
- ▶ Milling
- ▶ Beveling
- ▶ Tool sorting
- ▶ Marking
- ▶ Slots

ADVANCED FEATURES

- ▶ Helical milling
- ▶ Process-specific zones
- ▶ Tool life management
- ▶ Swarf beveling support



"The ease of interface use and the ability to program multiple machines with the same software makes this a perfect choice for our facility."



Router



BASIC FEATURES

- ▶ Profiling with tool life management
- ▶ Pocketing variable depths
- ▶ Maximum yield nesting
- ▶ Nest-based processing for speed and automation
- ▶ Automatic drilling that supports multi-spindle and drill blocks

ADVANCED FEATURES

- ▶ Extra clearance when cutting small parts
- ▶ Intelligence to properly cut complicated materials
- ▶ Multi-head nesting automation
- ▶ Import 3D models and automate nesting and toolpath with customizable batch commands (*see page 12*)
- ▶ Automatic processing of double-sided parts and sheets

AUTOMATE ROUTER PROGRAMMING

SigmaNEST provides industry leading automation for routers cutting any material type. Whether you are cutting carbon fiber, wood, or aluminum, the artificial intelligence in SigmaNEST will impress you. Not only can you run your router with multiple cutting heads, but you can also program your drill. SigmaNEST delivers unmatched cutting times and will automatically nest according to your machine's specific configuration.

BENEFITS

Ideal for:

- ▶ Nest-based tool optimization for fewer tool changes
- ▶ Intelligent cutting sequences for both vacuum and roller hold down tables
- ▶ Full support for multi-spindle machines with shuttle tables for maximum throughput

NC OPTIMIZATION

- ▶ SigmaNEST recognizes possible efficiencies in NC programming automatically
- ▶ With smart NC, SigmaNEST nests to reduce both tool wear and tool changes needed
- ▶ Auto slug destruction to extend tool life and eliminate tool breakage
- ▶ SigmaNEST offers better part qualities with strategies for onion skinning and tabbing to keep parts in place

SUPPORTED MACHINES

Accu-Router	C.R. Onsrud	Northwood
Anderson	Haas	ROUTECH
ART	Heian	Shoda
AXYZ	Homag	ShopBot
Biesse	Komo	Techno, Inc.
Busellato	MultiCAM	Thermwood

MATERIALS

- ▶ Composites
- ▶ Aluminum
- ▶ Metal
- ▶ Wood
- ▶ Engineered materials (MDF, plywood, etc.)

INDUSTRIES

- ▶ Upholstered furniture
- ▶ Custom cabinets
- ▶ Boats
- ▶ Aerospace
- ▶ Recreational equipment (RV's, etc.)

KNIFE CUTTING TECHNOLOGY

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. Our nesting software's extensive list of features will transform your knife cutting operations.

- ▶ Ply identification - labels attachments, supports fixed and indexable marking systems
- ▶ Part structure and ply fiber management
- ▶ Repositioning functionality allows for full hands-off automation and unattended running
- ▶ Hop over and cut back functionality
- ▶ Higher material usage and process efficiency when paired with SigmaNEST composite nesting

ENGINEERED MATERIALS

SigmaNEST understands the complications that arise from working with materials that have been designed to be tough. We help you get the most out of your machine and your material by taking tool wear & tear into consideration automatically.

CUTTING TOOLS

- ▶ Bevel knife
- ▶ Straight knife
- ▶ Creasing wheel
- ▶ Pizza cutter knife
- ▶ Oscillating knife

SUPPORTED MACHINES

XYZ
Eastman
Gerber
Lectra
MultiCAM
Zund

BASIC FEATURES

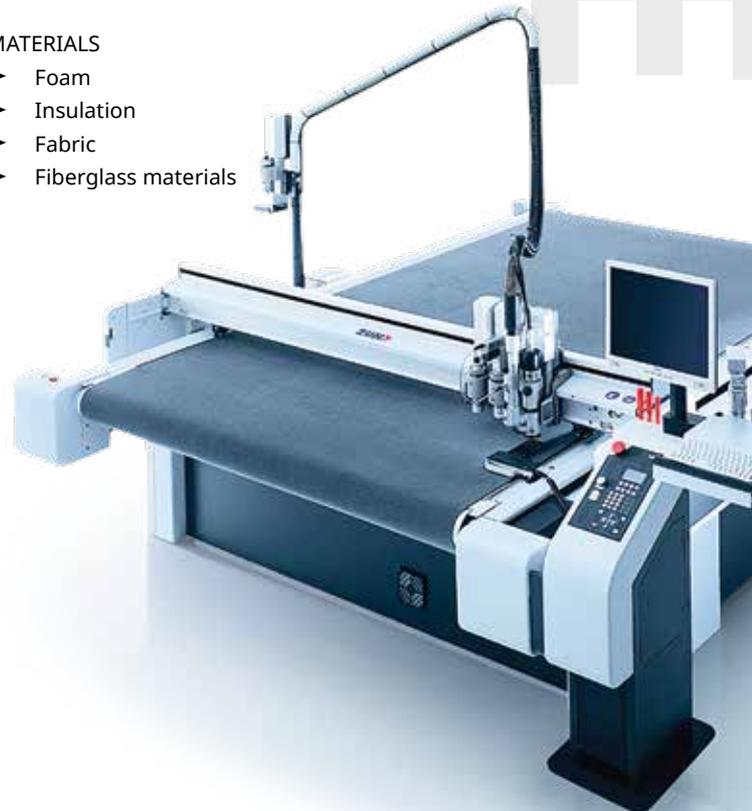
- ▶ Composite material NC with unique parameters
- ▶ Maximum yield nesting
- ▶ Common line nesting
- ▶ Produce cleaner cuts and accurate sharp corners by setting compensation values for each blade

ADVANCED FEATURES

- ▶ Pattern matching
- ▶ Remnant tracking & nesting
- ▶ Supports more CAD file formats for import than any other nesting solution
- ▶ Optimize stack height for multi-layer nesting

MATERIALS

- ▶ Foam
- ▶ Insulation
- ▶ Fabric
- ▶ Fiberglass materials



20%
FASTER CYCLE
TIME
AT MADISON COMPONENTS

"Updates for a part change used to take 3 hours, now it takes 5 minutes or less. And with 10 machines running at 20% more up-time, this software is like having an extra machine and a half."



SigmaTUBE



BASIC TUBE FEATURES

- ▶ Automatic nesting for assemblies
- ▶ Capability to automatically separate and nest assembly files containing many different tube types, shapes, and materials
- ▶ Automatic detection of machinable features
- ▶ Automatic toolpath and NC code generation
- ▶ Feature suppression for cutting
- ▶ Compatible with rectangular, round, or free-form tube

ADVANCED TUBE FEATURES

- ▶ Generate NC code for tube-cutting machines without exporting assemblies or parts out of SOLIDWORKS
- ▶ Multi-task automatically groups sections for nesting

SUPPORTED MACHINES

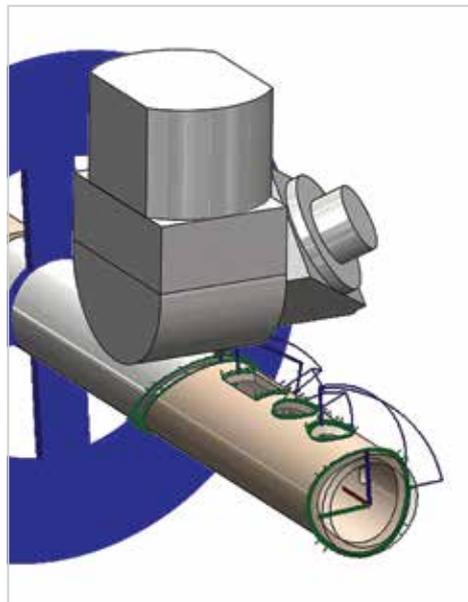
Altmar	EazyTUBE
Alltra	HK
Amada	Mazak
Balliu Laser	Mitsubishi Laser
BLM	MultiCAM
Bystronic	Soitabb
Custom Laser	Trumpf
Custom Router	

VERSATILE PROGRAMMING FOR TUBE CUTTERS

SigmaTUBE is a complete tube cutting solution for 4, 5, and 6-axis tube cutting machines that automatically processes and programs entire assemblies. SigmaTUBE is a fully integrated SOLIDWORKS add-in capable of programming all tube shapes and sizes.

SigmaTUBE is the fastest full assembly processing tube software in the business. SigmaTUBE is capable of programming entire assembly files of multiple different shapes and sizes all at once. SigmaTUBE is also the only tube software fully integrated with SOLIDWORKS offering the truest CAD to CAM nesting tube solution.

Our assembly processing has the capability to pick up only tube parts for nesting as well as process the entire assembly file of rectangular, round, angle, channel, and I-beam parts in one process. The SigmaNEST Auto Task feature makes separating these different profiles and materials a single button click and our nesting algorithm ensures the best possible stock usage.



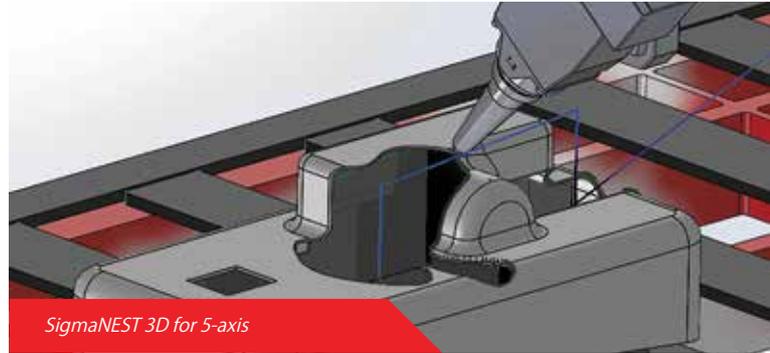
SIGMANEST 3D

SigmaNEST 3D is a 5-axis CAM system with automatic feature recognition and automatic toolpath generation for 5-axis laser, waterjet and plasma cutting machines. The system is fully integrated within SOLIDWORKS. The workpiece, modeled with fixturing in an assembly, allows in context simulation and collision detection.

- ▶ SOLIDWORKS user interface
- ▶ One click toolpath generation
- ▶ Trim Line 3D sketch – Surface model toolpath
- ▶ Automated Fixture design
- ▶ Real-time 3D Simulation
- ▶ Quick path editing tools
- ▶ Collision checks
- ▶ Shop Report generation

Main benefit of 3D for our customers is the seamless integration with SOLIDWORKS.

- ▶ Designed to NC inside SOLIDWORKS® environment



SigmaNEST 3D for 5-axis

- ▶ Allows easy iterations between design and NC
- ▶ Intuitive work flow and easy-to-use interface
- ▶ Full associativity between geometry and toolpath
- ▶ Portability of toolpath data with CAD model
- ▶ Powerful options for toolpath customization

SIGMADSTV

DSTV EXPORT

The DSTV export tool sits inside SOLIDWORKS as a plug-in. The user can import files into SOLIDWORKS and export these files to DSTV. The plugin requires a working version of SOLIDWORKS 2015 or higher and module MX2300 on a SigmaTEK License SIM.

BATCH PROCESSING

Create the batch file using our custom batch creator by browsing to the folder containing all of the SOLIDWORKS parts that need converted. The batch will process parts, export the DSTV files, and report any errors that occur during processing.

CUSTOM PART PARAMETERS

Users have the ability to enter in custom parameters and information about DSTV. The DSTV export will automatically detect what type of profile you are working with and export the necessary geometry.

AUTOMATIC TOOL RECOGNITION

DSTV export will automatically detect holes and allow the user to customize the drill/tap attributes on parts. For instance, if the customer receives a file with drill or tapping attributes, but lacks the proper tool, the user can substitute the missing tool for another without having to change the part geometry in SOLIDWORKS.



"We looked at using three other products, but SigmaTUBE gave us the best versatility of going from our model directly to NC data on the machine."





Automation



Operate your LiftMaster sheet manager through SigmaNEST

BASIC FEATURES

- ▶ Stacking and unloading sheets on shelves for the ultimate workflow management
- ▶ Utilize less labor by taking advantage of SigmaNEST's storage capabilities

ADVANCED FEATURES

- ▶ Made specifically for TRUMPF LiftMaster
- ▶ Maximizes productivity by providing uninterrupted material flow as sheets are loaded, cut, and unloaded

LIFTMASTER STORAGE SYSTEMS

SigmaNEST runs the Trumf LiftMaster which is a machine that automatically loads and unloads for laser cutting machines. Using suction cups, the LiftMaster seamlessly transfers sheets in and out of the machine for easy organization on the shopfloor and later, storage. The LiftMaster offers optimal space utilization to keep your production floor clear and able to operate.

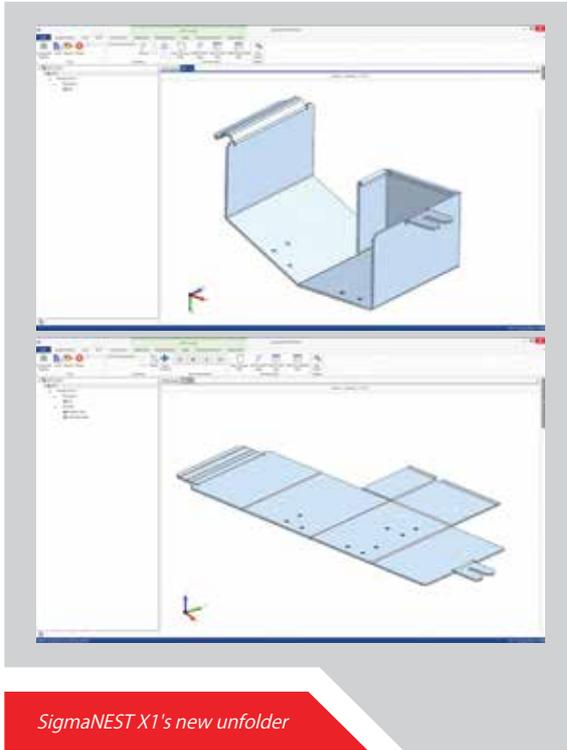
Designed specifically for Trumf LiftMaster machines, SigmaNEST for Storage allows you to maximize efficiency by automating material management.

SUPPORTED LIFTMASTER MACHINES

LiftMaster Compact
 LiftMaster Store
 LiftMaster Linear Basic
 LiftMaster Linear
 LoadMaster
 LiftMaster
 LiftMaster Sort
 LiftMaster Store Linear
 SortMaster
 LiftMaster Compact
 LiftMaster Shuttle

ACHIEVE GREATER INTEGRATION

SigmaNEST SX



SigmaNEST X1's new unfolders

UNFOLDER

The SigmaNEST SX Unfolder supports STEP files, allowing users to unfold their 3D parts two different ways:

- ▶ Interactive: displays a visual representation of the 3D-part unfolding
- ▶ Non-interactive: unfolds the STEP file behind the scenes with no visual representation on the process

Users can quickly unfold all 3D parts by selecting the "Unfold All" option within the interface. Once their parts are unfolded, users can export the flat pattern for nesting in SigmaNEST. Upon completing the 3D unfolding process, users can export the flat pattern as a separate STEP or DXF file. The Unfolder module is extremely useful for users who are consistently cutting 3D parts and needing to generate the flat patterns to make that possible with 2D cutting machines.

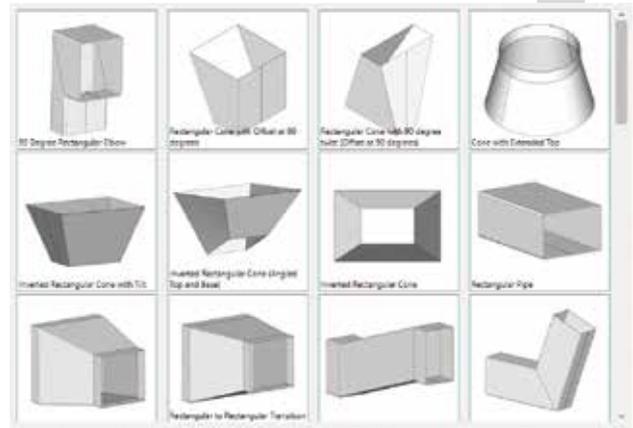
SIGMANEST DEVELOP

SigmaNEST SX Develop is a user-friendly program for creating flat patterns for transitions, offsets, elbows, and various other welded fittings. The software allows quick and easy construction of three-dimensional models, from which flat patterns are developed at the touch of a button. Develop has the capability of importing wireframe geometry from other CAD applications.

It also provides a library of standard shapes that you can modify. The ability to select unique models from the Standard Shapes Library, allows maximum performance in minimal time.

SIGMANEST HVAC FUNCTIONALITY

- ▶ Expandable library of shapes organized into categories
- ▶ Live preview of the shape while editing its parameters
- ▶ Material specific unfolding based on k-factors yield more accurate flat patterns
- ▶ Automatic and manual seam placement and management



ADVANCED UNFOLDER FEATURES

- ▶ Intelligent and simplistic automation for every part of your shop
- ▶ Centralized programming hub for all manufacturing operations
- ▶ Personalize your programs in SigmaNEST SX and have total control over your machine(s)
- ▶ Create 3D shapes inside SigmaNEST SX and unfold them

ADVANCED DEVELOP FEATURES

- ▶ Customizable bend lines
- ▶ Diverse 2D and 3D export capabilities for integrating with other products like SigmaNEST
- ▶ Automated batch processing for shape creation

Made with SigmaNEST



Carroll Racing builds indestructible monster cars using SigmaTUBE



Terex makes heavy-duty forklifts designed for extreme working conditions



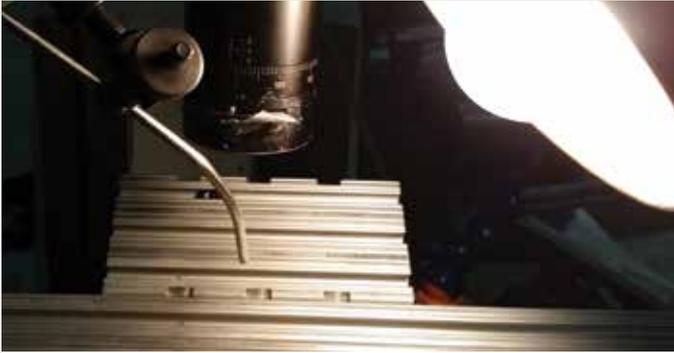
Sea Ray Boats makes speed boats and yachts with SigmaNEST for router



Spudnik makes machines that can harvest huge amounts of crops year around

TAKE IT TO THE NEXT LEVEL

How much longer can you afford to keep using software that just doesn't work?



Microgroup creates heart stents using SigmaTUBE for laser



Canam Group constructed Yankee Stadium and Gillette Stadium



NASA uses SigmaNEST to build space craft... talk about tight tolerances



Bombardier Sifang Transportation uses SigmaNEST to make bullet trains

SigmaNEST users are some of the coolest companies in the world.

“The automatic features in SigmaNEST get better with each release. I am impressed by the improved automatic nesting and sequencing power and wanted to say keep up the good work!”



KEVIN STOUT - Caid Industries

The Importance of an ROI

SigmaNEST will provide a return on your investment in five key aspects



MATERIAL

Waste less on material through higher nest yield. On average, customers save 4% on material when they switch to SigmaNEST.



MOTION

Cut faster and more effectively to increase your shop's capacity. Experience 20% faster cut times.



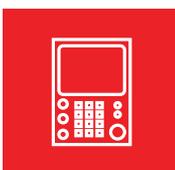
MANPOWER

Cut down on wasted time in your shop by empowering your team with fast software and increased automation. Programming can be done 5 times faster on average.



MANAGE

Integrate data from all areas of your operation to gain key insights and run more smoothly.



MACHINES

Run your machines from one seat of software, adding convenience and flexibility to your process. Doing this frees up more capacity for greater yield per machine.

SIGMANEST CAN GROW WITH YOUR ORGANIZATION

SigmaTEK is committed to adding features and to continuous improvement. Upgrading SigmaNEST to the latest version provides many benefits to your business. As we continuously improve our solutions, some of our improvements and enhancements require changes to your workflow and/or post processor.

In order to allow you to take advantage of the benefits of the newest software version while at the same time reducing the risk of disruption to your workflow and processes, we have developed three SigmaNEST Upgrade Services in addition to our Subscription Membership.

ACHIEVE THE EXCEPTIONAL

Receive automatic upgrades and unlimited support

SigmaNEST software is essential to getting the job done. We are constantly updating SigmaNEST to operate with the latest in machine technology and your other software applications so it performs optimally. With an annual subscription, you get access to the most recent SigmaNEST updates and stay compatible with the latest versions of Windows, CAD software and other applications you use daily. As a member of the SigmaTEK Subscriber Base, you get lots of benefits.

WE ARE HERE FOR YOU

- ▶ Exclusive access to the SigmaNEST User Knowledge Base
- ▶ Telephone and e-mail Technical Support
- ▶ Live web-based Technical Support
- ▶ Extended support hours so you can get help when you need it

DIY UPDATING MADE EASY

- ▶ Get access to the latest version of SigmaNEST
- ▶ Live Update button makes it easy to update to the next release
- ▶ Update your software when it is convenient for you
- ▶ SigmaNEST User Knowledge Base offers best practices and resources from Technical Support

WHY UPDATE YOUR SOFTWARE?

- ▶ Leverage the latest fabricating technology on your equipment you already own. You may not need a new machine!
- ▶ Get access to cutting edge SigmaNEST features and see even more improvement in your efficiency.
- ▶ If you don't update SigmaNEST, it may not work properly with new versions of Windows, CAD software or other business systems that update automatically.



SigmaNEST 365™



Run SigmaNEST from any platform!

SigmaTEK products available in the cloud

SigmaNEST 365 is a powerful way for companies to deliver the world's leading CAD/CAM automated nesting software to who needs it, when they need it. With the flexibility of software based licensing, SN365 brings cross-platform capabilities to IT professionals supporting multiple teams, in the office or the field. Whether programming in the office on a workstation or checking a customer order from your tablet over the cloud, SN365 provides the flexibility needed to stay competitive in today's fast-paced manufacturing environment.

- ▶ Centralized cloud/server deployment
- ▶ Server updates to latest release available
- ▶ Works on older operating systems
- ▶ Flexibility to add or remove licenses as needs change
- ▶ Low-impact soft-licensing of products and individual SigmaNEST modules
- ▶ Government-compliant Microsoft Azure support for DoD applications

Advantages

- ▶ True Software as a Service product: always up to date
- ▶ Adjust your workflow outside of the office
- ▶ Real-time access to network files over the cloud
- ▶ Soft-licensing means no extra hardware required
- ▶ Redesigned dynamic scale GUI takes full advantage of touch based interaction with SigmaNEST
- ▶ Support and training included in simplified pricing

Benefits

- ▶ No installation requirements
- ▶ Extremely powerful cloud computing power on simple, inexpensive workstations
- ▶ Get server-level power on any computer
- ▶ Eliminate the need to update SigmaNEST on every user workstation
- ▶ SigmaNEST 365 provides full disaster recovery with data always secure in the cloud
- ▶ Monthly subscription payment model
- ▶ Centralized cloud/server deployment
- ▶ Server updates to latest release available
- ▶ Works on older operating systems
- ▶ Flexibility to add or remove licenses as needs change
- ▶ Low-impact soft-licensing of products and individual SigmaNEST modules
- ▶ Government-compliant Microsoft Azure support for DoD applications



FULLY CUSTOMIZABLE SOLUTION

We help professional fabricators maximize material, machine and manpower utilization while providing visibility and control.

For more information on customizing your solution, call 513.674.0005.

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

**Quality, efficiency,
and control.**

LEGEND	
Module Included	☑
Module Optional	⊗

SIGMANEST PACKAGES

	AutoNEST	True Shape	Techno	Maximizer	PowerPack
GEOMETRY MODULES					
CAD Import DXF, DWG, IGES, DSTV	☑	☑	☑	☑	☑
2D CAD Package	☑	☑	☑	☑	☑
Standard Shapes Library	☑	☑	☑	☑	☑
Smoothing Filter	☑	☑	☑	☑	☑
Scanline Raster to Vector	☑	☑	☑	☑	☑
Parts Database	☑	☑	☑	☑	☑
NESTING MODULES					
Rectangular Nesting	☑	☑	☑	☑	☑
Part to Part Nesting	☑	☑	☑	☑	☑
Shear Nesting	⊗	☑	☑	☑	☑
True Shape Nesting		☑	☑	☑	☑
HD True Shape		☑	☑	☑	☑
Advanced Nesting	⊗	☑	☑	☑	☑
SuperNEST HD	⊗	☑	☑	☑	☑
Continuous Nesting		☑	☑	☑	☑
SigmaNEST SX Unfolder Module	⊗	⊗	⊗	⊗	⊗
SigmaNEST SX Develop Module	⊗	⊗	⊗	⊗	⊗
TOOLPATH MODULES					
Profile AutoNC	☑	☑	☑	☑	☑
Advanced NC Profiling Module	☑	☑	☑	☑	☑
Common Line	☑	☑	☑	☑	☑
CurvyRapids™	☑	☑	☑	☑	☑
TurboDestruct™	☑	☑	☑	☑	☑
iPierce	☑	☑	☑	☑	☑
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	☑	☑	☑	☑	☑
Common Line Punching	☑	☑	☑	☑	☑
AutoDynamic Punch	☑	☑	☑	☑	☑
BHQ	☑	☑	☑	☑	☑
PRODUCTIVITY MODULES					
Job Tracking and Scheduling Module	⊗	⊗	⊗	☑	☑
Inventory Control Module	☑	☑	☑	☑	☑
Quoting and Estimating Module	☑	☑	☑	☑	☑
Supply Chain Advisor					⊗
INTEGRATION MODULES					
SimTrans Real-Time MRP Interface				☑	☑
SimTrans SOLIDWORKS Enterprise PDM Interface				☑	☑
SimTrans Teamcenter PDM Interface				☑	☑
SimTrans Windchill PDMLink Interface				☑	☑
AUTOMATION MODULES					
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				⊗	⊗
CAD INTERFACE MODULES					
SOLIDWORKS Interface	☑	☑	☑	☑	☑
Autodesk Inventor Interface	☑	☑	☑	☑	☑
Siemens Solid Edge Interface	☑	☑	☑	☑	☑
Siemens PLM NX CAD Geometry Interface	☑	☑	☑	☑	☑
CATIA Interface	☑	☑	☑	☑	☑
Creo Interface	☑	☑	☑	☑	☑
SpaceClaim Interface	☑	☑	☑	☑	☑
Onshape Interface	☑	☑	☑	☑	☑
Windchill PDMLink Interface	☑	☑	☑	☑	☑



Nest with the Best®