WHITE PAPER

8 WAYS
TO EVALUATE A NEST

Optimation®
WE DELIVER ECONOMIC PERFORMANCE

How production requirements factor into a nest is at the heart of an effective nesting strategy.

Manufactures know there are countless production opportunities and requirements to be considered when fabricating parts on a punch, laser, plasma, waterjet or other fabrication machine. How those requirements factor into a nest is at the heart of an effective nesting strategy.

Consider these points when nesting:

1. CAN THE MACHINE TOOL PRODUCE THE NEST AS DESIGNED?

If the programmer does not take into consideration the machine requirements (reach, repositions, tooling stations, kerf allowances, etc.), the production may be stalled or halted to address unforeseen problems. Part quality may suffer, the machine may be damaged, and certainly production time will be lost. Creating a quality nest means taking into consideration the ability to produce it.

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2. DOES THE TOOL PATH CREATED RETAIN ENOUGH MATERIAL INTEGRITY TO HOLD THE SHEET TOGETHER THROUGHOUT THE DUTY CYCLE?

If the skeleton falls apart before the parts can be off loaded, a potential hazard is created. Parts, the machine or personal injury to the operator can occur. Ideally, the tool path should be intelligently programmed to accommodate whatever manner of offloading with no risk.

3. DOES THE NEST REFLECT THE MOST PRIORITY PARTS IF WARRANTED?

Material efficiency is most often important. But sometimes, a "hot part" trumps material efficiency in terms of priorities. And even when material efficiency is the priority, are "hot parts" still effectively addressed in the nest? Optimal nests consider the real world manufacturing environment with all of its often competing priorities.

4. ARE THE INDIVIDUAL PARTS WITHIN AN ORDER HELD TOGETHER IN THE SAME OR SUCCESSIVE NESTS?

Order cohesion can be critical to managing the downstream production flow. If parts in one order are spread over multiple nests, which could be cut hours apart, the opportunity for damaged or lost parts increases. A nest should keep parts within orders together and have supporting documentation that identifies the status and location of each part and order.

5. DOES MANUFACTURING THE NEST CREATE ANY POTENTIAL HAZARDS?

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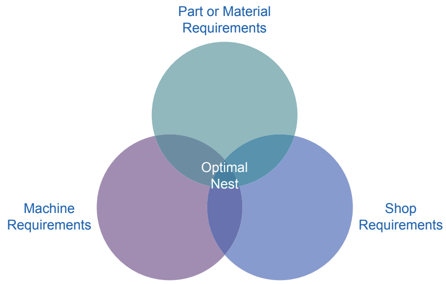
Slugs. Loose parts. Floating Scrap. These are all machine operator nightmares and an invitation for machine downtime. If the nest is not created to prevent their occurrence, any savings gained in material efficiency will be lost in rework and repair.

6. DID THE TIME SPENT PROGRAMMING THE NEST JUSTIFY THE RESULTS? OR WAS THE PROGRAMMER'S TIME OPTIMALLY SPENT?

The programmer's time is valuable and comes at a cost. Is an extra hour or two creating or manipulating a nest worth the additional material savings? Depending on the cost of the material or other production factors it may be justified. But it is important to weigh all costs – including programming time – when evaluating a nest.

7. IS THE NEST MEETING THE IDEAL BALANCE BETWEEN ALL PRODUCTION REQUIREMENTS (MATERIAL EFFICIENCY, PROGRAMMING TIME, THROUGHPUT)?

When looking at the nest, it should reflect the priorities you have set for your production. And each manufacturer has unique standards. If material



efficiency is the only criteria, then it should be the most material efficient nest possible. If programming or shop time, throughput, inventory management, or overhead are important, it should reflect these production demands as well.

8. IS THE NEST MATERIAL EFFICIENT?

➤ Even a small percentage increase in material can return large savings.

If material efficiency is an important criterion, does the nest make use of all material saving opportunities? Does the nest calculate part rotations at fixed angles (90, 180 degrees) or does it take full advantage of all angles, i.e. 123.574 degrees, to find the best part orientation. Does it create mirror parts, 180-degree pairs, or parts within holes? Does it take advantage of common cut or common punch situations to save material? Does it take advantage of trim strips through – in the case of punch – clamp repositioning? Even a small percentage increase in material can return large savings.