## **NBM** The Future of Flat Panel Processing



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For greater material yield, true shape nesting offers the ultimate in savings. This process can only be achieved efficiently through the use of a CNC Router with flow through material holding capabilities.

**Nested-Based Manufacturing** (NBM) offers many advantages to woodworking companies, particularly those that manufacture product assembled from flat panel components. NBM differs from traditional manufacturing techniques where sheets of raw material such as MDF and plywood are "busted up" into square and rectangular pieces on a saw. These pieces are then further processed on several manual machines or a CNC machining centre to produce completed components that are ready to assemble. Nested-Based Manufacturing eliminates these needless, repetitive processing steps by combining program geometries onto a full sheet for machining.

Nested-based manufacturing enables flat panel producers to cut various shapes from a single sheet, in one easy process. A CNC router is used to machine complete parts for cabinets, furniture, store fixtures, etc., including sizing, grooving, boring, pocketing and shaping. Also, odd shaped parts such as tops for corner cabinets can be interlocked rather than having to be first cut into rectangles with the saw and then cut to shape using a CNC machine. Because NBM allows parts to be fully nested on a sheet, you will get a better material yield than you would with a saw and a point-topoint, allowing a more cost-efficient operation.

For smaller companies NBM helps even the playing field with larger companies due to the high production capabilities that this technique brings. In fact, smaller companies may have an advantage because their fixed costs are not as great as larger facilities with lots of staff. Smaller companies can purchase one machine to do all or most of their machining operations with minimal staff.

Larger companies benefit from controlling the yield per sheet better through the high optimisation of the NBM process. Flexibility for custom applications is another benefit. Also, capital outlay for a CNC Router is less when compared to a beam saw and point to point machine.

A high-end CNC Router can process a full sheet in 4 to 8 minutes. Using an 8-minute machining time with a 4-minute load/unload time equals five sheets per hour x 8 hours = 40 sheets per day with one operator. A Nested-Based environment will provide your company the ability to have fewer highly paid employees. It also allows you to be far less dependent on even your best employees because the required job skills are definitive and trainable.

Material handling is an important reason for the justification of Nested-Based Manufacturing. In many cabinet shops personnel spend as much time handling, stacking and un-stacking parts as they do processing parts. With NBM the machine operator simply loads the sheet onto the CNC Router and presses the start cycle button. While the sheet is being processed the operator can perform secondary tasks such as assembling parts that have just come of the machine, thus maximizing his time. Because NBM uses a CNC Router with a high volume vacuum pump and flow through work holding, set-up time is virtually eliminated. This offers a huge advantage over manual machines that need to be adjusted for every part or series of parts. This also has a big advantage over a CNC point-to-point machine as there are no individual programs to write or load, no pod rails to adjust, and no special considerations to be made for throughcutting. This lack of set-up time provides the perfect opportunity to employ a Just-In-Time (JIT) manufacturing approach, allowing a company to become a great deal more responsive to fluctuating sales.

Because parts produced in a Nested-Based environment are extremely accurate and offer a superior edge finish, assembling the finished components is easier and takes less time. The end result is a product of superior quality that took less time to produce and wasted less material.

Higher margins, less labour, more coordinated production, better quality products, and increased general predictability are the benefits one can expect from Nested Based Manufacturing.