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Most Innovative Plant

**MasterGrain/Weber
Manufacturing Technologies Inc.**



... Most Innovative Plant

MasterGrain Doors/Weber Manufacturing Technologies,

Midland, Ontario, Canada

Fiberglass entry doors have been on the market for decades now, but it has really been in the past decade that they have gained significant market share. One reason for that growth has been improvements in technology to provide better looking doors with more realistic woodgrains. Recognizing this trend, our judges selected Weber Manufacturing Technologies Inc.—one of the companies leading this development—with the Most Innovative Plant award.

Founded in 1962, Weber specializes in precision molds and tooling for automotive, aerospace, and home and building products, supplying such global companies as BMW, Ford and Boeing. Based in Midland, Ontario, it operates a 125,000-square-foot facility that houses six state-of-the-art, five-axis CNC machines; a full complement of 34 CNC contour mills, gun-drills, vertical mills, and EDM units; a 3,000 ton tryout and production press and a number of unique capabilities.

One of those unique technical capabilities involves the use of nickel vapor deposition for making molds that can capture fine surface details, including woodgrains. Weber says it has the world’s largest nickel vapor deposition facility for mold production in the world, with four production chambers and the capacity to produce mold shells up to nearly 6 feet x 10 feet.

The NVD technology has been used for fiberglass door skin tooling since the early 1990s. Initially offered to a single manufacturer, that technology is now used by Weber to produce its own line of MasterGrain doors and door components.

Grained fiberglass doors are traditionally developed using standard tooling processes including “acid etching” of the mold cavities. Significant strides have been made improving the artwork required for this process, however, the two dimensional nature of the artwork limits the tool-makers ability to replicate the three-dimensional nature of real woodgrains. Fine wood grains are especially difficult using the acid etching process.

MOLD MAKING PROCESS

MasterGrain’s process begins with the production of real wood door, which is constructed using carefully selected pieces of wood—including oak, mahogany and cherry—and inspected to assure high-quality aesthetics. This master door model is also inspected for dimensional accuracy using computerized measuring machines. Once approved, the replication process begins with the making



Originally a producer of tooling serving a variety of manufacturing industries, Weber uses a unique nickel vapor deposition process to produce molds that capture fine details.



The process of making a door mold begins with the construction of a real wood door.



Finished molds require careful handwork to assure true woodgrain details. These molds are used by Weber to press its fiberglass doorskins in an array of styles.

can be created, Weber officials state. This also enables it to create doors that are among the easiest to finish in the fiberglass door industry.

COMMITMENT TO QUALITY

Weber set up door manufacturing in Mexico and entered the market on its own in 2008 with an initial offering of 3 and 6 panel oak and Mahogany doors. Since then it has expanded its offering to include fir and cherry doors in 3 lines- the Rustic Collection, the Traditional Collection and the Craftsman Collection.

Due in large part to the attractiveness of its doors, Weber now works closely with two quality focused door manufacturers and a large national OEM. One of those companies is Tru Tech Doors, based outside Toronto, which utilizes its skins and door components for its Harbour Craft product line.

MasterGrain Doors has also established relationships with several major distributors, including GlassCraft Door Corp. in Houston, Texas in the U.S. In Canada, the company supplies doors to Richersons Enterprise Ltd., with operations in Richmond Hill, Ontario and Langley, B.C.; and Verre Select, based in Terrebonne, Que.



of a silicone master of the door model.

A hand-laid fiberglass cast is then created from the silicone master, which is stained and then inspected. The manufacturer conducts a close comparison between the wood model and cast sample to insure all grain features have been accurately replicated onto the cast part.

Once the cast part has been approved, the silicone master can be used to transfer the texture from the master model onto the mold that will be used to produce the fiberglass door skins. A silicone-coated mandrel is created from the master and is placed into the nickel vapor deposition chamber where, through a chemical reaction, nickel powder is vaporized then deposited onto the mandrel at the molecular level. The final nickel shell has similar strength properties as mold steel allowing fiberglass skins to be mass-produced for doors and doorlite frames.

The process not only gives products the look and feel of a real wood door, but virtually any texture or grain

... Special thanks to the 2011 Manufacturing Judges

The following manufacturing executives, representing companies that previously were honored with an award for Most Innovative Plant, served as judges in the manufacturing categories for the 2011 Crystal Achievement Awards. *Window & Door* is grateful that these recognized innovators offered their time and expertise to help us select the winners in the most innovative plant and machinery categories.

Gary Delman
Sunrise Windows

Greg Irving
Soft Lite LLC

Greg Dickey
Atlantic Windows

Alan Levin
Northeast Building Products



THE DIFFERENCE IS IN THE DETAILS



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