

Ogihara America Corporation, Quality finish

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Mike Zimmerman and Larry Snowden of automotive stampers Ogihara America Corporation explained to Mike Boswell how objective measurement and a versatile workforce help the pursuit of value and quality



A long time ago I made my first visit to Rolls Royce's motor car factory at Crewe, England. One lasting memory of that young undergraduate's visit was the inspection of body panel finish. An inspector would go over the finished bodywork with a low-power frosted-glass lamp bulb in which you can just see the outline of the filament through the frosted glass. If he could not see that outline perfectly reflected in the paint finish, that panel was rejected and sent back for reworking.

When it comes to a quality finish on automotive bodywork, the base metal is just as important as the paint. The inspection of body panels at Ogihara is not just left to a man with a lamp, but is also carried out using state-of-the-art optical measuring. This enables Ogihara to repeatably build Class A external automotive body panels to the exacting standards required by Ford for its premium Lincoln, Jaguar, and other brands such as Mercedes-Benz.

Ogihara has produced stamping dies in Japan for over half a century and has had a presence in North America since 1987 when it opened an automotive stamping and sub-assembly plant in Howell, MI, to serve the Big Three Detroit automotive giants and other prospective customers. More recently it commissioned a plant in Birmingham, AL, to supply panels to Daimler- Chrysler's subsidiary, Mercedes-Benz US International. When asked why the OEM's now prefer outsourcing their panels, Zimmerman explains that when cars had long production runs and few derivatives it made sense to invest in plant and tooling with the inherent added value of in-house stamping and pressing. The modern automotive industry makes more frequent model-year changes and there is a trend to increase niche marketing where the number of variants increases and the runs of individual part numbers are reduced. This makes more of a case for outsourcing. "We're looking for more niche opportunities," says Zimmerman, Ogihara's director of manufacturing.

As Ogihara currently supplies only to the auto industry, it makes sense for the customer to purchase the prime materials (steel) to take advantage of bulk purchase economies but to allow contractors like

Ogihara to schedule the day-to-day requirements. The steel comes from sources within the US, and most ordering is Kanban-controlled with some material flow controlled by engineering release data. An MRP system oversees the scheduling and keeps the manufacturing operations lean.

Ogihara's specialty is in Class A quality panels: This means the visible surfaces of finished vehicles, which means principally fenders, hoods, trunk-lids, doors, bodysides, and roof panels, areas of high visibility for the customer. "It's anything you can see," Zimmerman explains. To further the development of high quality panels, Ogihara's substantial engineering capability is researching new materials such as high strength steels and developing techniques in the expanding use of aluminum panels for vehicle bodies. The engineering function is important to Ogihara. While the OEM's take full responsibility for exterior styling and basic functional engineering, its engineers take a significant role in the design-for-manufacture (DFM) processes. "We absolutely insist on this; it's the only way we can guarantee a good-value product," says executive consultant Snowden. He claims that is part of what sets Ogihara apart from some other stampers, who keep a small engineering facility to reduce costs; he went on to say: "Using our engineering expertise, we can achieve cost-effective manufacturing and higher quality." As an illustration of what the DFM initiatives can do, he cites examples where a typically seven-operation panel can, with Ogihara's DFM, be produced in perhaps three or four manufacturing steps. Ogihara's engineers have also advised OEM's on the now all-important aims of weight saving, using technologies involving high-strength steels as well as aluminum and magnesium.

Ogihara's attention to quality is borne out by the ISO 9000-series accreditations with the addition of corporate acceptance standards like Ford's Q1 and DaimlerChrysler's Gold Award. These standards, difficult to maintain for Class A panels, are achieved at least partly using objective surface measurement technology, utilizing a Defracto surface measurement machine. For measuring the accuracy of panel profiles, the Zeiss SMM-DSE Measuring Machine capabilities include laser scanning, CAD-integrated, and SPC reporting software, full BIW measuring in the X, Y, and Z planes of 7000, 2850, and 2400 millimeters. Data is monitored and transmitted electronically. For sub-assemblies, welds are NDT-tested by ultrasonics per the control plan on a per product basis; a full destruct test is carried out each month. Both Ogihara and the customer OEM's review these frequencies according to FMEA studies.

A possibly surprising fact, given Ogihara's attention to quality, is that no protective coating is applied to panels before they leave the plant. "Our WIP and finished stock on site is minimal," says Zimmerman. "We ship to the customer fast enough to remove any corrosion issues."

The second key commitment at Ogihara is flexibility. There may be many different products being processed at the Howell plant at any one time and it is important to keep up with the fluctuating demand of the OEM's—order volume can change on a daily basis. The press tools can undergo a die change in as little as 16 minutes. "We can have high quality pressings off the machine within 30 minutes of initiating a changeover," says Zimmerman.

For the future, Oghara is looking first at new technologies and also possibly beyond the automotive sector. Oghara invests heavily in R&D the 45 highly qualified engineers (out of a total workforce of some 500) are looking at new forming methods including superplastic metal flow.