



Metalworking

Sandvik Coromant Amps Up Tools for Surging EV Market

James Langford | Jul 05, 2023

One of the first things new drivers are taught is to keep their eyes on the road so they can respond to changing conditions.

The same principle applies to automakers, who are shifting from traditional gasoline-powered vehicles to electric cars, and suppliers like Sandvik Coromant who are developing the tools required to handle the industry's overhauled production techniques and new materials.

Not only has Sandvik Coromant seen an increase in aluminum components as EV-makers try to reduce vehicle weight, the company also expects use of high-strength steels for some parts to continue to rise, reaching 38 percent by 2030 compared with just 15 percent in 2010. It's expanding and adapting its lineup to meet that demand.

"Electric vehicle components are new to suppliers, and they are struggling to find the best ways to machine them," says Yoshikazu Shinoya, Sandvik Coromant's product solution manager for aluminum. "That requires companies with the engineering capabilities that we have, and we are increasing our capabilities more and more."

Such adjustment is vital for auto suppliers, since all-electric vehicles rely on a streamlined power train that requires only about 20 movable components compared with more than 2,000 for the internal combustion engines that dominated the industry for more than a century.

While much will depend on how the electric vehicle market develops—hybrid cars that power batteries with internal combustion engines require a slightly higher number of components than traditional gas engines, for instance—its shift is occurring rapidly.

Half of the Auto Market

In the U.S. alone, electric vehicle sales have climbed more than 40 percent a year since 2016, according to ***consulting firm McKinsey.***

Both Europe and the U.S., meanwhile, have set regulations including tighter environmental standards for fossil fuel usage that they hope will help electric vehicles capture 50 percent of the market by 2030, in time for bans in some countries on sales of new gas-powered vehicles five years later.

Watch: *CoroMill Dura: Solid End Mill for Multi Materials*

Sandvik Coromant's investment in supplying the changing market includes its purchase last year of ***Spanish cutting-tool maker Preziss***, which has the capability of making customized polycrystalline diamond (PCD) mills for machining aluminum parts.

While automakers used aluminum in some parts of gas-powered vehicles—engine blocks, for example—they're now using it in structural components that have custom shapes and holes and require unique tools to produce, says Sandvik Coromant Strategic Relations Manager Michael Standridge.

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Yoshikazu Shinoya
Sandvik Coromant

One example is housings for the stator, the stationary part of an electric motor's rotary system.

Sandvik Coromant also provides an array of ready-made tools geared toward machining electric vehicle components. Among them are the:

M610 milling cutter: A stand-alone milling cutter for finishing milling of bi-metal materials such as aluminum and gray cast iron. Sandvik Coromant says it stands out from typically complex bi-metal mill cutters that require adjustment, lowering feed rates, because it requires no setup or adjustment and delivers workpieces without chipping, burring or scratching.

M5B90 milling cutter: A face milling cutter, the M5B90 features unique axial and radial positioning of inserts, allowing fewer teeth than conventional cutters. Combined with a wiper insert, that design ensures burr-free cutting and a smooth surface finish that's well-suited for cylinder heads, for example, Shinoya says. The tool also delivers minimized cycle times and close component tolerance while supporting high-volume production. It can cut to depths of about 1 millimeter, while its cousin, the M5C90 has inserts along the outer diameter to cut to depths of up to 5 millimeters.

CoroDill 400: The drill's open flute, strong core and optimized features—including polished flutes, open notch and close supporting margins—deliver straight holes and improved surface finish. Its use on a crankcase made of aluminum and silicon delivered both a 30 percent increase in tool life and reduced exit burring.

How is growth in the electric vehicle market changing the types of tools you need? Tell us in the comments below.

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