PM DESIGN EXCELLENCE AWARDS—2020—AUTOMOTIVE

Innovation is at the hub of powder metallurgy (PM) manufacturing advancements in the automotive market. PM materials and consolidation processes are utilized to support the most demanding applications. Transmissions, engines, and chassis rely on performance components to provide durability and consistency.

It is with great pleasure that the Metal Powder Industries Federation announces the winners of the 2020 Powder Metallurgy Design Excellence Awards Competition in the automotive market segment.

AUTOMOTIVE GRAND PRIZE AWARDS

The Grand Prize in the Automotive—Engine Category for Conventional PM components has been awarded to Porite Taiwan Co. Ltd. and their customer Schaeffler Technologies AG & Co. KG, for a VVT sprocket used in a new generation E-VVT design that integrates a sprocket with the stator, and the function of the internal rotor is provided by the gear box.

A Grand Prize has been awarded to PMG Indiana Corporation in the Automotive—Transmission Category for Conventional PM components for a torque converter one-way-clutch stator assembly used in an 8-speed transmission made for FCA US LLC. In the locked position the part is subjected to a 350 Nm torque and traditionally the races are manufactured from wrought steel, or powder forged and case hardened to handle the high stress.

In the Automotive—Transmission Category for MIM components, a Grand Prize has been awarded to Phillips-Medisize – Metal Injection Molding for an actuator arm supplied to Means Industries and used in a 9-speed forward transmission assembly for General Motors and Ford Motor Co. The actuator arm is part of a Means patented selectable one-way clutch that replaces the reverse clutch.
**AUTOMOTIVE AWARDS OF DISTINCTION**

In the Automotive—Engine Category for Conventional PM components, an Award of Distinctions has been given to **Nichols Portland LLC** for a variable displacement vane-pump rotor used in an automotive engine lubrication system. The three-level part possesses numerous critical tolerance features achieved with minimal secondary operations.

The second Award of Distinction in the Automotive—Engine Category for Conventional PM components. This was given to **MPP** for a high-strength camshaft-bearing cap. The part is made using a PM aluminum-copper-magnesium alloy. The machinability of the PM aluminum alloy closely matches that of the cast aluminum heads, permitting consistent line boring prior to installation of the camshaft.

An Award of Distinction in the Automotive—Engine Category for MIM components has been given to **Indo-MIM Pvt. Ltd.** for three min-flow setting devices used in the turbocharger of a four-wheeler vehicle. The parts are made using MIM-316L and replaced components that were machined in multiple steps.

In the Automotive—Transmission Category for Conventional PM components, an Award of Distinction has been made to **Allied Sinterings Inc.** for a sear pin assembly. The part is used in a shift-by-wire automotive transmission actuator that causes an output shaft to rotate the sear pin, allowing a pawl to engage a default-to-park during a catastrophic transmission failure.

In the Automotive—Transmission Category for MIM components, an Award of Distinction has been given to **Indo-MIM Pvt. Ltd.** for a park lock lever manual override used in a vehicle handbrake.

An Award of Distinction has been given to **Indo-MIM Pvt. Ltd.** in the Automotive—Chassis Category for MIM components, for left- and right-hand-side cable guides used in a four-wheeler roof assembly. The MIM parts are made in a two-cavity mold and replaced expensive machined components.

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**Note:** Recipients of awards in the Special Technologies and Consumer Goods segments will be released via video on July 23 and July 30, respectively. As they are released, links to the videos will be posted on the MPIF website: [MPIF Award Winning Parts](https://www.mpif.org/)

**Editor's Note:** For further details or digital photos contact Dora Schember at MPIF [dschember@mpif.org](mailto:dschember@mpif.org) / 609-452-7700.

**About the Metal Powder Industries Federation**
Metal Powder Industries Federation is the North American trade association formed by the powder metallurgy industry to advance the interests of the metal powder producing and consuming industries and provides a single point of reference for all MPIF member companies.
2020 MPIF Design Excellence Automotive Award Winners

Back row: PM Cam (from stator assembly), VVT Sprocket, Can Pump Rotor
Middle row: Cable Guides, Park Lock Lever, Camshaft Bearing Cap
Front row: Actuator Arm, MIN-Flow Setting Devices, Sear Pin Assembly

Automotive Engine
Grand Prize
VVT Sprocket

Automotive Transmission
Grand Prize
Clutch Stator Assembly

Automotive Transmission—MIM
Grand Prize
Actuator Arms
Automotive Engine Award of Distinction
Vane Pump Rotors

Automotive Engine Award of Distinction
Camshaft Bearing Cap

Automotive Engine—MIM Award of Distinction
Min-Flow Settings Devices

Automotive Transmission Award of Distinction
Sear Pin Assembly

Automotive Transmission—MIM Award of Distinction
Park Lock Lever

Automotive Chassis—MIM Award of Distinction
Cable Guides

digital photos available upon request dschember@mpif.org