

MAHLE Ingenuity Award - Scope

The variety of MAHLE products for passenger cars and commercial vehicles demonstrates our company’s unique system competencies. Our products and engineering services address all crucial issues related to the powertrain and to air conditioning technology—from engine systems, filtration, and electrics/mechatronics through to thermal management. MAHLE is offering this award program for collegiate motorsport teams that demonstrate their application of an innovative component.

Your student motorsport team can choose to submit the Ingenuity from anyone one of the three Business Units/Profit Center areas listed below. Choose a component(s) used on your team’s vehicle and explain the applied Ingenuity specific to a related product that MAHLE manufactures. Examples of MAHLE components are listed in the table below. The team will need to provide supporting evidence by using engineering principles, tools, and execution showing how your team gained a competitive advantage with the innovative design. The winning teams will receive cash prizes of \$1000 for first place, \$750 for second place and \$500 for third place overall. Awards will be given out by our executive leadership team and you will have an opportunity to meet them on a one on one basis. Files can be emailed to: innovation.award@us.mahle.com

MAHLE Product Overview/Award Segments

Business Unit (BU) or Profit Center (PC)	Components Produced
<p>Engine Systems and Components Business Unit 1 (BU1)</p> <p>MAHLE Powertrain Profit Center 4 (PC4)</p>	<p>Aluminum pistons for gasoline engines, piston assemblies, and complete power cell units. Piston rings, piston pins, connecting rods, cylinder liners, bearings, and bushings for combustion engines. Complete valve train systems and their components, camshafts, valves, and valve actuating components.</p> <p>Design, development, calibration for IC engine, hybrid and electric powertrains. Full suite of powertrain and vehicle testing facilities in Plymouth, MI and globally. Control systems, diagnostics and cyber security services to vehicle manufacturers.</p>
<p>Filtration and Engine Peripherals Business Unit 2 (BU2)</p>	<p>Filter modules for fuel, oil, and air filtration as well as cabin air filters. Air intake modules for gasoline engines, cylinder head covers with integrated oil mist separation, controlled oil pump systems, oil coolers for engine/transmission applications, and activated carbon canister modules for tank ventilation.</p>
<p>Thermal Management Business Unit 3 (BU3)</p>	<p>Wax elements, thermostat inserts, integral thermostats, housing thermostats, operating map thermostats, bypass thermostats, transmission oil thermostats, water valves, thermostiches, coolant regulators, oil temperature regulators and inserts, sleeve valve thermostat inserts. Heat exchangers for stationary application Complete HVAC systems, condensers, evaporators, storage evaporators and evaporator coatings, heater cores, blowers, air vents. Control panels for passenger car and commercial vehicle air conditioning systems. Cooling plates and chillers for lithium-ion battery cooling. Cooling modules, expansion tanks, high- and low-temperature radiators, exhaust gas coolers, direct and indirect charge air coolers, power steering oil coolers. VISCO® clutches and fans as well as VISCO® coolant pumps for commercial vehicle applications.</p>

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Team Information

Team Name:

Team Number:

MAHLE Ingenuity Award completed by

First and Last Name:

Email:

Phone Number:

Ingenuity Process

Name of MAHLE functional area your team's ingenuity would be categorized under (BU1/PC4, BU2 or BU3):

Name of the ingenuity your team applied to improve the product compared to the original design.

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Please describe the ingenuity your team applied to enhance the existing product/design:

Please describe how this ingenuity helped your team gain a competitive advantage:

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What type of engineering tools were used to prove your ingenuity provided an advantage and/or solved an existing problem:

Was the ingenuity able to be produced in a cost effective manner? Please describe and provide a business case:



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Please include any reference photos or 3D representations to help show the product ingenuity your team chose for this award in the spaces below.