Active Grille Shutter (Non-Visible)

Regulates frontal airflow to reduce aerodynamic drag.

**Application:**
- All Vehicle Types
- $C_D$ (Coefficient of Drag) Reduction
- $C_L$ (Coefficient of Lift) Reduction

**Magna Experience:**
- 14 Production Awards
- 2.5 Million Shipped Annually
- 4 Years Experience
- Passenger Car and PU/SUV Production
- Global Manufacturing Capability

<table>
<thead>
<tr>
<th>$C_D$ Benefit (Counts)</th>
<th>Fuel Savings (mpg)</th>
<th>CO2 Savings (g/km)</th>
<th>Mass Equivalent (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-15</td>
<td>0.18</td>
<td>2.14</td>
<td>35</td>
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</tbody>
</table>
Active Front Deflector

Redirects airflow which reduces underbody drag, Tire drag and front axis lift

Application:
- Pickup Trucks and SUVs (High Ride Vehicles) $C_D$ (Coefficient of Drag) Reduction
- Passenger Vehicles (Lower Ride Vehicles) $C_L$ (Coefficient of Lift) Reduction

Magna Experience:
- Passenger Car and PU/SUV Development
- Pick Up Truck/SUV Pre-Production
- Global Manufacturing Capability

<table>
<thead>
<tr>
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<th>CO2 Savings (g/km)</th>
<th>Mass Equivalent (kg)</th>
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<tbody>
<tr>
<td>16-20</td>
<td>0.297</td>
<td>3.60</td>
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**Active Underbody Panels**

Provides underbody air flow redirection that reduces vehicle aerodynamic drag and lift.

**Application:**
- Passenger Car
  - $C_D$ (*Coefficient of Drag*) Reduction
  - $C_L$ (*Coefficient of Lift*) Reduction
- Actuator Technology Under Development

**Magna Experience:**
- Passenger Car Development
- Global Manufacturing Capability

<table>
<thead>
<tr>
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<th>Mass Equivalent (kg)</th>
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<tbody>
<tr>
<td>9-17</td>
<td>0.21</td>
<td>2.53</td>
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Active Liftgate Spoiler

Rear Spoiler with Multi Mode Functionality AERO, SPORT and CLEAN settings

Application:
- Passenger Vehicles
- Aero Mode $C_D$ (Coefficient of Drag) Reduction
- Sport Mode $C_L$ (Coefficient of Lift) Reduction
- Clean Mode reduces debris collection on rear window

Magna Experience:
- SUV Development
- Global Manufacturing Capability

<table>
<thead>
<tr>
<th>$C_D$ Benefit (Counts)</th>
<th>Fuel Savings (mpg)</th>
<th>CO2 Savings (g/km)</th>
<th>Mass Equivalent (kg)</th>
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<tbody>
<tr>
<td>3-7</td>
<td>0.07</td>
<td>0.86</td>
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Application:
- Pickup Trucks
- $C_D$ (Coefficient of Drag) Reduction

Magna Experience:
- Pick Up Truck Development
- Global Manufacturing Capability

<table>
<thead>
<tr>
<th>$C_D$ Benefit (Counts)</th>
<th>Fuel Savings (mpg)</th>
<th>CO2 Savings (g/km)</th>
<th>Mass Equivalent (kg)</th>
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</thead>
<tbody>
<tr>
<td>16-22</td>
<td>0.27</td>
<td>3.27</td>
<td>53</td>
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