

# 2011 Mustang Overview

- For 2011, Mustang makes sports coupe news with a new high-performance, all-aluminum Duratec® 3.7-liter DOHC Ti-VCT V-6 that delivers 305 horsepower and 31 mpg highway – the first car ever to deliver this combination
- Six-speed transmissions – manual and automatic – combine with newly standard limited-slip differential and revised suspension for road-carving driving dynamics and handling
- New technology and convenience features combine with chassis and braking improvements to create a refined sports coupe that outclasses the competition

The 2011 Ford Mustang puts 305 high-performance horses in the hands of V-6 coupe buyers with a new all-aluminum double-overhead-camshaft (DOHC) engine that delivers 31 mpg on the highway with a six-speed automatic transmission.

The all-new six-speed automatic is joined by a six-speed manual transmission for the shift-it-yourself crowd, while handling and cornering is bolstered by the addition of Electric Power Assist Steering (EPAS) and a host of suspension improvements.

"This car marks a new era for Mustang," said David Pericak, Mustang chief nameplate engineer. "We're adding technology and fuel economy to Mustang's legendary reputation for handling and roadholding; it's really going to attract a whole new group of Mustang buyers."

## **New all-aluminum 3.7-liter V-6**

For 2011, Mustang's new 3.7-liter Duratec 24-valve V-6 uses advanced engineering to deliver its power and economy: Twin Independent Variable Camshaft Timing (Ti-VCT) adjusts the valvetrain in microseconds. Aluminum construction means light weight. It's an engine designed to crank out torque down low, rev to 7,000 rpm and deliver the mechanical music sports coupe lovers crave everywhere in between.

"This new V-6 engine really speaks to what Mustang is all about," said Barb Samardzich, Ford vice president of Global Powertrain Engineering. "It produces power everywhere in the rev range and loves to be pushed hard. The Duratec 3.7-liter builds on our promise to use advanced technology to deliver both power and fuel economy."

The high output is due largely to Ti-VCT, which allows variable control of valve operation across the rev range. The variable cams operate on a Direct Acting Mechanical Bucket (DAMB) valvetrain using polished buckets to reduce friction. The end result is as much as a 3 percent improvement in fuel economy and a 10 percent improvement in power output versus traditional engines without these advanced features.

Ti-VCT is complemented by specially tuned composite upper and lower intake manifolds for efficient air delivery and lighter weight. Ignition power is delivered by a high-energy coil-on-plug design, while piston-cooling jets and a lightweight die-cast aluminum cylinder block improve the durability and efficiency of the 3.7-liter V-6 design.

A die-cast aluminum deep-sump oil pan provides 10,000-mile oil change intervals, saving drivers money on maintenance and resulting in less waste in oil disposal.

Engineers also worked to ensure aggressive, high-performance sounds come from the new engine, from intake to exhaust. Not only does the retuned air intake system minimize losses, it also provides the driver with a satisfying intake rush on hard acceleration. The all-new dual exhaust system is mellow at idle but opens up with a howl at full-tilt, letting Mustang drivers know they're behind the wheel of a world-class sports coupe.

## **Powertrain improvements**

Drivers can get the most out of the new V-6 engine's output using either an all-new six-speed manual gearbox or a six-speed automatic transmission. Both come with the flexibility and fuel economy benefits of six forward ratios regardless of whether buyers want to shift for themselves or not.

Drivers who prefer a manual gearbox will enjoy the short throws and direct feel of the shifter along with the relaxed cruising permitted by the extra top gear ratio. Customers choosing the automatic will be pleasantly surprised to find the advanced six-speed transmission does not sacrifice fuel economy – or performance – for convenience, delivering 31 mpg highway with crisp, quick shifts that maximize torque and horsepower.

The automatic transmission also features a grade-assist or "hill mode" to improve drivability on hilly terrain. This technical innovation uses vehicle input – acceleration, pedal position, vehicle speed and brake status – to automatically determine the correct gear ratio while on an incline or decline. Hill mode eliminates sixth gear, extends lower gear operation on uphill climbs, and provides additional grade or engine braking for coast-downs.

The standard 2.73 rear axle provides an ideal blend of cruising fuel economy and acceleration, aided by the wide ratio spread permitted through the use of six forward speeds in the gearboxes. Performance enthusiasts can select an available 3.31 rear axle ratio for better off-the-line launch characteristics.

## **Fuel economy improvements**

Extra horsepower and refined engine operation will be the most noticeable features to new 2011 Mustang 3.7-liter V-6 buyers while projected class-leading fuel economy, also a standard feature, offers an additional bonus. The numbers speak for themselves:

- 19 mpg city and 31 highway with six-speed automatic transmission, up from 16 mpg city and 24 highway on the 2010 model with automatic – a 30 percent improvement
- 19 mpg city and 29 highway with six-speed manual transmission, up from 18 mpg city and 26 highway on the 2010 model with manual

Refinements throughout Mustang's body, powertrain and chassis design contribute to the improved fuel economy numbers. Examples include:

- The new EPAS system, which eliminates the drag of an engine-operated hydraulic power steering pump
- Six-speed transmissions that allow lower cruising revs without sacrificing off-the-line performance
- Aerodynamic improvements such as a new front fascia, tire spats on the rear wheels, modified underbody shields, a taller air dam and an added rear decklid seal

## **Handling and driving dynamics**

With so much additional horsepower standard, the 2011 Mustang received enhancements to its chassis to maintain the outstanding balance and driving behavior Mustang owners expect. Damper tuning and spring rates were revised to provide a smooth highway ride, while new rear lower control arms and stiffened stabilizer bar bushings improve stiffness and handling for better cornering response.

While Mustang's aerodynamic improvements were designed mainly to improve fuel economy, engineers also adjusted the vehicle's front/rear lift balance. The result is a car that tracks more securely and feels more "planted" to the road surface at higher speeds, helping to keep the tires in better contact with the pavement.

The addition of EPAS marks a new era in driving dynamics for Mustang owners. Steering effort at parking lot speeds is reduced, while high-speed and highway feel is improved for more precise steering and handling. Because the belt-driven power steering pump is eliminated, EPAS provides a quieter vehicle with fewer components drawing engine power.

EPAS also enables new technologies that adjust for minor driving annoyances. Drift-Pull Compensation adjusts the steering to correct for crosswinds and minor road crowning, while Active Nibble Control helps eliminate the "shimmy" felt at high speeds when a wheel is out of balance or a brake rotor is warped. Both conditions are alleviated by EPAS independent of driver input, helping ensure Mustang delivers a smooth, comfortable driving experience in all conditions.

Mustang buyers choosing the new V-6 will also get a standard limited-slip differential that provides better handling and more sure-footed grip in poor weather conditions by directing engine torque to the rear wheel with the most traction. When the time comes to slow things down, the 2011 Mustang is also equipped with larger four-wheel Anti-lock Braking System (ABS) disc brakes, with 12.4-inch front and 11.8-inch rear rotors.

### **Refinements complement advanced features**

To reinforce the sporty nature of the 2011 Mustang, all V-6 models will come standard with new instrument cluster graphics, including a speedometer that reads up to 160 mph and a tachometer that reads to 8,000 rpm, reflecting the free-revving style of the new engine.

Additional lightweight soundproofing measures help filter unpleasant, high-frequency noises, while a tuned intake and dual exhaust add the sounds Mustang buyers relish.

Occupants also benefit from new door seals and a rear wheel arch liner that reduce road noise for a quieter, more enjoyable drive, all with minimal weight gain compared to the 2010 model.

Enthusiasts who want a premium performance-oriented Mustang V-6 can opt for the new Performance Package, which will be available in August 2010. Designed for driving enthusiasts, the Mustang V-6 Performance Package comprises:

- A 3.31 rear axle ratio for quicker off-the-line acceleration
- Firmer Mustang GT suspension
- 19-inch wheels
- Summer performance tires for improved grip
- A strut tower brace for increased chassis rigidity
- Unique electronic stability control calibration with sport mode for performance driving

For 2011, Mustang also ups the ante on technology and convenience features, including a standard driver's message center in the instrument cluster and integrated blind-spot mirrors in the side-view mirror housings.

Ford's MyKey™ system, designed to encourage safer teen driving and seat belt use, also is newly available on Mustang. MyKey allows owners to program the vehicle key using the driver's message center to incorporate features such as limited top vehicle speed and audio volume, a traction control system that cannot be deactivated, a persistent Belt-Minder® seat belt reminder and various speed alert chimes.

### **Stiff structure helps handling, safety**

Mustang's technological advances are also incorporated in the structure of the vehicle, where improvements in body stiffness contribute to the coupe and convertible's driving performance and have a parallel benefit in accident protection. A stiff vehicle structure like that found on Mustang helps protect the cabin from deformation and intrusion in an impact.

Mustang also uses high-strength steel in its body structure and ultra-high-strength steel in the door intrusion beams for additional side-impact protection.

The front structure's crush zones are computer-designed to absorb energy in a controlled manner and help dissipate it before it can reach the passenger compartment. Ford engineers have run thousands of design iterations of the Mustang's front rails to arrive at an octagonal shape that helps spread crash forces evenly to aid in protecting occupants.

State-of-the-art technology adds to the convenience and safety of the 2011 Mustang, from the availability of the latest version of Ford SYNC®, with applications such as Traffic, Directions & Information, 911 Assist™ and Vehicle Health Report, to standard AdvanceTrac® Electronic Stability Control, which complements the all-speed traction control and standard ABS.

Additional standard safety equipment includes the Personal Safety System™, which features dual-stage driver and front passenger air bags, seat belt pretensioners and Belt-Minder.

### **Evocative exterior and interior design**

For 2011, Mustang exterior styling reflects the successful 2010 redesign, with new headlamps, lower fascias, fenders and grille capped by a powerdome hood that adds to the muscular appearance while functionally allowing for enhanced air cooling of the engine.

Mustang's washer-fluid nozzles are tucked into the cowl, while the antenna resides at the rear, both changes creating a cleaner appearance while also reducing wind noise.

Front fenders feature taut, sculptured wheel flares, like a tight skin stretched over the wheels. A classic spear character line on the doors leads to a modern indication of "hip" rear fenders. "The modern design provides Mustang with aggressive, forward direction, like it's ready to jump," said Darrell Behmer, Mustang chief designer.

The rear end design features aggressively angled corners, a sculptured decklid and prominent badge. A rearview camera incorporated into the spoiler is available on some models.

Mustang taillamps feature three LED bulbs firing sequentially from the inside for turn indication. The sequential bulbs were a distinct Mustang feature in the '60s, while the vertical reverse lamps evoke a modern version of the Ford classic three-lens taillamp.

Inside, the new speedometer and tachometer are housed in a one-piece instrument panel. The design is crafted in seamless soft-touch TPO (Thermoplastic Olefin) skin fully encompassing available genuine aluminum-finish panels.

Mustang's chrome-ringed gauges and dual-vane air register vents are precisely crafted and positioned, and the instrument panel and console flow as one shape – another strong connection to Mustang heritage.

The 2011 Mustang will be built at the AutoAlliance International Plant in Flat Rock, Mich. The new 3.7-liter V-6 will be built at Ford's recently retooled Cleveland Engine Plant No. 1. The 2011 Ford Mustang goes on sale this spring.