All-New Mazda3 European Press Kit

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1. **All-new Mazda3**  
**At a glance**

Now with the complete line-up of SKYACTIV technology matched to its stunning ‘KODO – Soul of Motion’ design, the latest generation of Mazda’s all-time bestseller is destined to surpass consumers’ expectations.

- Remarkably economical and safe, despite its outstanding performance: Sustainable Zoom-Zoom at its best yet.
- Reflects more than ever Jinba Ittai driving, Mazda’s rider-and-horse-as-one feeling.
- The first Mazda to bring occupants online, safely and non-stop with MZD Connect, its new in-vehicle connectivity system, coupled with a new and improved human-machine interface (HMI).
- For a superior ownership experience in the C-segment, which represents some 25 per cent of the European passenger car market.
- Scheduled for launch in the UK during January 2014.

**Exterior design**  
An uncompromisingly alluring KODO look for an uncompromisingly competitive market segment, evolving the boldness of Mazda’s new-generation design theme to the brimming vitality of its sporty compact hatchback and fastback variants.

- Features the lower, wider KODO stance and cab-rearwards design together with boldly flared fenders and a raked profile rising towards the rear.
- Longer wheelbase with smaller front and rear overhangs hints at performance, also improving stability and safety, while creating more space for the engine as well as occupants.
- Advanced craftsmanship for a new level of build quality. Smallest possible gaps between body panels and doors that open with a surprisingly natural motion.
- The KODO face with its contoured signature wing grille flows into the solid, powerful character lines along the side of the body in an expression of energetic tension.
- Sleek new headlamps project the ‘glaring’ presence of a predator with a cleanly-structured lighting signature featuring a light-guiding ring, LEDs and inner lenses.
- Nine body colours available, including Soul Red Metallic and two all-new tones: Titanium Flash and Deep Crystal Blue, respectively inspired by emotion, sophistication and speed.
- Available with 16-inch and 18-inch wheels.

**Interior design & comfort**  
The all-new Mazda3 marks the debut of Mazda’s all-new interior, which is based on two contrasting cabin zones – a snug, purpose-oriented cockpit and a relaxed passenger atmosphere – separate but connected by the asymmetrical centre console and centre stack.
■ Ergonomically centre-focused driver’s space designed to enable an effortless focus on the road with all key driving-related controls positioned to allow relaxed operation and to minimise driver fatigue. Key elements include:

  » the Active Driving Display*, one of the first head-up displays in the C-segment
  » symmetrically-positioned pedals
  » a lower steering wheel
  » greater adjustment possibilities for the driver’s seat

■ Cab rearwards design with A-pillars moved 100mm to the rear improves forward visibility and the overall field of view.

■ A larger and more comfortable interior than previously, including best-in-class shoulder room.

■ A natural seating position with superb hold and stiffer, vibration-suppressing seatbacks for endless hours of superior comfort.

■ Emotionally stylish interior finish features a refined black keynote colour with sophisticated contrasts for a coherent look of quality.

■ Upholstery* comes in a choice of black leather (with red stitching), either alone or in combination with off-white leather (white, grey and red stitching); or fabric in black.

■ More cargo capacity than the outgoing hatchback. Fastback can now hold three large suitcases thanks to new hinges and a 100mm-wider boot opening.

■ Cabin storage designed for maximum convenience and access with minimal or no eye movement.

Connectivity & equipment
The people-oriented cabin of the all-new Mazda3 features an impressive selection of state-of-the-art information, entertainment and connectivity systems, designed for convenient and above all safe operation.

■ Cabin split into two segments – a safe-driving zone and an infotainment zone with an innovative new human-machine interface (HMI) designed for extremely safe and user-friendly interactivity:

  » All driving-related controls and information are set up to facilitate quick, precise reactions with no wasted movements or energy.

  » Active Driving Display* shows the most important real-time driving data directly in the driver’s forward field of view; all other driving information appears in the newly designed instrument cluster*.

  » 7-inch WVGA touchscreen display* located above the centre stack for communications and entertainment-related info.

  » Rotary commander* on the centre console redesigned for trouble-free blind operation of infotainment functions; certain features can also be accessed via voice command.

■ Other infotainment features include:

  » BOSE® 9-speaker premium sound system* designed exclusively for the all-new Mazda3, featuring BOSE® Centerpoint® 2 surround sound technology.

  » SMS, MMS and email display and readout functions in combination with a connected smartphone.
New navigation system offering more accurate route calculations, added destination search features, three years of free updates and support for up to 18 audio and 26 text languages.

■ Highly effective climate control system modified to use less energy, thereby saving fuel.
■ Comprehensive parking assist system* combining an audio warning signal and front and rear warning zones with a visual display.

* Availability depends on equipment package and market

Powertrains
The all-new Mazda3 is available with a range of advanced SKYACTIV powertrains, including a choice of three naturally-aspirated petrol engines and a turbodiesel coupled with automatic or manual transmissions. All engines feature SKYACTIV's lightweight design and come standard with Mazda's advanced i-stop (idle-stop) system. The SKYACTIV-G is also available with the company's i-ELOOP brake energy regeneration system.

SKYACTIV-G direct injection petrol engines feature:
■ a 14:1 compression ratio (world's highest in a mass-production model*)
■ a specially designed 4-2-1 exhaust system and enhanced fuel spray properties, plus other technologies, to counter the drawbacks to high compression
■ three powerplants available

The exceptionally frugal SKYACTIV-G 1.5-litre
Output
■ 100ps at 6,000rpm & 150Nm at 4,000rpm
Fuel consumption (combined) & CO₂ emissions**:
■ with six-speed manual: 56.4mpg & 118g/km
Emissions class: Euro 5

Standard and high-power versions of the SKYACTIV-G 2.0-litre
Output
■ Standard power: 120ps at 6,000rpm & 210Nm at 4,000rpm
■ High power: 165ps at 6,000rpm & 210Nm at 4,000rpm
Fuel consumption (combined) & CO₂ emissions**:
Standard power
■ with six-speed manual: 55.3mpg & 119g/km
■ with six-speed automatic: 50.4mpg & 128g/km
Emissions class: Euro 5
High power (hatchback only)
■ with six-speed manual and i-ELOOP: 48.7mpg & 135g/km
Emissions class: Euro 5

The SKYACTIV-D 2.2-litre common-rail clean diesel features:
■ a 14:1 compression ratio (world's lowest*)
■ a variable twin turbocharger
■ a balance shaft to offset vibrations
Output:
■ 150ps at 4,500rpm & 380Nm at 1,800rpm

Fuel consumption (combined) & CO₂ emissions**:
■ with six-speed manual: 72.4mpg & 104g/km
■ with six-speed automatic (hatchback only): 58.8mpg km & 127g/km

Emissions class: Euro 6

* Available as of September 2013
** All figures for fastback unless stated otherwise

SKYACTIV-Drive six-speed automatic transmission features:
■ full-range direct drive including a full-range lock-up clutch
■ a transmission computer linked with engine for quicker and smoother shifts
■ a kickdown switch to help the driver prevent unwanted downshifts

SKYACTIV-MT six-speed manual transmission delivers:
■ the light, crisp shifting style of the Mazda MX-5 roadster
■ more efficient packaging
■ better fuel economy than ever before

CHASSIS & BODY
Adapted for the C-segment, the SKYACTIV-Chassis and SKYACTIV-Body offer a unique combination of smooth aerodynamics, robust safety and minimised NVH on the all-new Mazda3 that raises this model’s abilities to a whole new level. All-new Mazda3 delivers superior linear handling and precise control, together with refined ride comfort, a remarkably quiet interior and better fuel economy.

SKYACTIV-Chassis
■ Responds more faithfully than ever to driver input:
  » neutral, accurate steering through curves with smooth, predictable pitch and roll
  » harmonious linear response minimises the need for steering correction
■ Perfectly balanced suspension boosts comfort, agility and high-speed stability:
  » lighter yet stiffer, with suspension geometry and dampers enhanced to better absorb shocks from the road, but without detracting from handling
■ Electric power assisted steering system reworked to improve efficiency:
  » lower gear ratio increases agility, requiring less driver effort
  » smaller, lighter and more energy efficient system
■ Brake control and responsiveness increased by retuning the booster, reducing pedal play and using smaller cylinders:
  » particularly effective on wet roads together with new high-grip tyres
  » stopping distances among the best in the class
  » also helps to save fuel
SKYACTIV-Body

- Lighter yet stronger than the outgoing second-generation model:
  - high and ultra-high tensile steels now make up 60 per cent of the body (up 10 per cent)
  - body rigidity increased by 31 per cent (hatchback) and 28 per cent (fastback)
- Among the best aerodynamics on the market, with fuel economy and stability enhancing Cd values of 0.26 (fastback) and 0.275 (hatchback), achieved by:
  - adding an active air shutter*, which keeps the lower front grille closed whenever possible
  - streamlining air flow beneath the vehicle with new underbody covers and tyre defectors
  - using special turbulence-suppressing spoilers
- Body structure effectively absorbs and disperses impact energy away from the cabin using a multi-load path concept with straight, continuous structures, delivering excellent crash safety
- One of the quietest interiors in its class owing to:
  - new lightweight sound-absorbing materials that block noise paths into the cabin
  - vibration and noise-stifling improvements such as stiffer powertrains, softer dampers and improved engine intake and exhaust systems

* Availability depends on model

SAFETY

To protect occupants and pedestrians alike, Mazda has equipped the all-new Mazda3 with an array of advanced active safety technology as well as comprehensive passive safety innovations. As a result, the company expects top ratings from Euro NCAP and its traffic safety authority counterparts around the globe.

Active safety

- **Forward Obstruction Warning** (FOW)* keeps track of preceding vehicles at 9-to-124mph, issuing a warning sound and visual alert should the all-new Mazda3 get too close.
- **Smart Brake Support** (SBS)* pre-fills the brakes should FOW issue a warning, and then braking automatically if the system detects an imminent rear-end impact.
- **Smart City Brake Support** (SCBS)* is Mazda's low-speed autonomous emergency braking system, complementing SBS at speeds of 2.5-18.5mph, particularly during city driving.
- **Mazda Radar Cruise Control** (MRCC)* adjusts the throttle and applies brake pressure to maintain a safe distance from preceding vehicles at speeds up to 124mph.
- **Rear Vehicle Monitoring** (RVM)* warns of vehicles approaching from behind in adjacent lanes and the blind spots.
- **Lane Departure Warning System** (LDWS)* monitors lane markings at 40mph and up, alerting the driver of unintended lane changes.
- **Distance Recognition Support System** (DRSS)* calculates and displays the proximity and catch-up time to preceding vehicles at 18.5-to-124mph.
- **Emergency Stop Signal** (ESS)* rapidly blinks the four-way hazard lights to warn ensuing motorists of heavy braking from 31mph and up.
- **High Beam Control** (HBC)* automatically changes between high and low beams to avoid impairing other motorists.
- **Adaptive Front-lighting System** (AFS)* turns the headlamps to follow curves.
■ **Hill Launch Assist** (HLA)* brakes to prevent unwanted rolling during hill starts.
■ **Standard ABS** with **EBD** (Electronic Brakeforce Distribution) and brake assist (**EBA**), **DSC** (Dynamic Stability Control) and **TCS** (Traction Control System).

* Availability depends on equipment package and market

**Passive safety**
■ With stronger materials, straight, continuous members and reinforced joints, the highly-rigid yet lightweight SKYACTIV-Body is more secure on all sides.
■ Larger front-end crumple zones help absorb energy, channeling it around and away from the cabin along multi-load paths.
■ Side sills reinforced to prevent a front wheel encroaching into the cabin during a small overlap frontal impact.
■ A solid uninterrupted cage structure for the cabin controls the flow of energy for excellent side impact protection.
■ Enhanced rear frame set-up with a reinforced bumper, better absorbs impacts.
■ Trim and other interior components redesigned to reduce occupant injury potential.
■ Improved front seat cushion frame, seatback structure and headrests.
■ Rear seat components reinforced to stop luggage intruding into the cabin.
■ Standard front, side and curtain airbags along with front seatbelt pretensioners and load limiters.
■ A bonnet and front bumper designed to better protect the head and legs of pedestrians.
**HISTORY**

**Mazda3 demonstrates a decade of staying power**

When the very first Mazda3 rolled off the assembly line in Hofu, Japan back in June 2003, it delivered a rare combination of performance and handling with a cutting-edge exterior and interior design – all at a very competitive price – and made a splash with the media and consumers across the globe. The Zoom-Zoom generation had arrived in the compact class, and it was good, selling more than 2.2 million units and collecting 99 awards.

Putting a capital ‘S’ in ‘sports’ compact, the company introduced the high-performance Mazda3 MPS in 2006. One of the hottest hatches on the market, the 260ps MPS featured a special torque management system along with custom-tuned suspension and enlarged brakes to go with the aggressive yet not overstated look. “A riot to drive,” is how at least one reviewer put it.

The second generation Mazda3 drove onto the stage in 2009. Now with Sustainable Zoom-Zoom as its focus, the latest Mazda3 was safer and more frugal, but without compromising on its patented driving fun or already renowned reliability. Lighter than its predecessor, the new model was more responsive as well as more responsible. It introduced i-stop, Mazda’s revolutionary idle-stop system, which still delivers the world’s fastest restarts today, four years on. It also came with state-of-the-art safety technology such as the Adaptive Front-lighting System and Rear Vehicle Monitoring. The latter received a Euro NCAP Advanced Award and was the first such system available in the C-segment.

**A class above its classmates**

Unsurprisingly, with its bolder lines and more distinctive face, the second-generation version picked up where the original Mazda3 left off. Another 1.4 million units have been sold to date, and another 37 awards captured. These include best overall model in the J.D. Power 2011 German customer satisfaction survey after being the number one compact in 2010. Now, 10 years after it all began, the third generation is here. And déjà-vu, the all-new Mazda3 is another sensation – this time featuring the full SKYACTIV line-up of ultra-efficient lightweight technology and the award-winning KODO design – destined to enjoy another convention-defying decade!
2 Intro

Unleash your potential

Europe’s C-segment is notoriously competitive. With annual unit sales of around three million, it’s a class in which cars have to be more than merely different. To truly succeed, being good simply isn’t enough.

Building on its award-winning predecessor, developers of the all-new Mazda3 set out to come up with a car that actually interacts with its owner on several levels. On the surface, it’s a top quality means of transport, delivering an unmatched combination of performance, fuel efficiency and functionality in a package that’s as safe and practical as it is stunning to behold. It follows in the footsteps of its new generation forerunners: the Mazda CX-5 compact SUV that drives like a car, and the new Mazda6, which more recently took the mid-sized class by storm.

Like them, Mazda’s all-time bestseller gets the full range of lightweight SKYACTIV technology, optimised – like the latest adaptation of the company’s KODO design – for a compact’s size and agility. But its looks are more than just eye-catching. All-new Mazda3 grabs hold of the senses, bonding man and machine.

This relationship will flourish as the all-new Mazda3 exceeds expectations at every turn. In the way the door opens or how the controls are in exactly the right place. The brand-new interior connects occupants with the car, whether behind wheel having a typical Mazda at one-with-the-car Jinba Ittai experience or enjoying the trip in the relaxed, secure comfort of the passenger space.

Like a true partner, the all-new Mazda3 is revitalising, inspiring people to expand horizons. Look at how it handles, devoutly responding to driver input, cornering and delivering feedback with choreographed precision. It even links occupants to cyberspace with a new mobile connectivity concept, safely and conveniently bringing what they otherwise take for granted into the vehicle.

It’s all part of Sustainable Zoom-Zoom, Mazda’s vision-in-progress for safe and eco-friendly vehicles. Exceptionally low emissions let drivers enjoy the performance with a clear conscience. The all-new Mazda3 is at or near the top of its class in a list of other categories, too, from interior space and aerodynamics to acceleration, braking and more.
3 Exterior design

Harmony set in motion

One look at the all-new Mazda3 instantly stirs the spirit, grabbing hold of the onlooker. Behind this magnetism is the ‘KODO – Soul of Motion’ design theme. Inspired by the beauty and power of nature, Mazda developed KODO to take its distinctive sense of vitality and agility one step further and create an uncompromising new generation of cars that simply beg to be driven.

Capturing emotions

Always acclaimed and always distinctively Mazda, the latest Mazda3 nevertheless marks a rebirth of sorts. Mazda has come up with a truly passionate expression of ‘acceleration motion’, evolving KODO’s boldness for the strong, energetic C-segment proportions and a generally speedier look. Like prior KODO models, the all-new Mazda3 features a firm stance enhanced by the compact looking, cab rearwards design. Lower and wider than the outgoing model, the car’s raked profile, rising dramatically towards the rear and enhanced by the boldly flared fenders and large sporty alloy wheels at the corners, conveys agility and strength.

At first sight, the all-new Mazda3 ignites the imagination. The energetic tensions of the exterior forms are united with an enticing – and refreshingly uncommon – sensation of rhythm. Reflections off the glossy surface textures change like an emotion with the lighting and the viewer’s position, sometimes subtly, sometimes dramatically, but always capturing the senses and lifting the mood.

Quality in detail

One of Mazda’s priorities was to achieve a new level of precision and quality with the fit and finish of the all-new Mazda3. The company brought together design, development and manufacturing specialists to figure out ways of enhancing the joy of driving and owning the all-new Mazda3.

To minimise the gaps between body panels and doors, for instance, they studied everything from the way the doors were attached to paint thickness tolerances on the edges of the body panels. By taking a fresh look at improvement potential, Mazda was able to set stringent new quality targets. As a result, the gaps between the front door and fender, which tend to be wider than others, are actually smaller on the all-new Mazda3 than on many premium-class vehicles.

Tension with rhythm

Like its siblings, the all-new Mazda3 gets the distinct KODO face, featuring the contoured grille and the sculpted signature wing. The latter flows out from under the vertically enlarged grille to the headlamps, which glint like the eyes of a predator staring ahead. The Mazda3 was given a distinct headlamp design. The sleek, sharp shape and clean structure was made possible by positioning the turn signals outside the headlamp assembly. Consisting of LED light sources, inner lenses and a light-guiding ring, the eye-catching lighting signature imparts a ‘glaring’ presence that immediately says Mazda.
KODO is clearly about motion, expressed on the all-new Mazda3 with the undeniably rhythmical flow of its simple, solid character lines. Extending back from signature wings and headlamps along the sides of the car, they unite the powerful fenders to emphasise the car’s nimble agility.

Even when stationary, these shapes – along with the optically low centre of gravity – allude to the impression of pent-up energy, building expectations about the car’s performance. The enlarged wheelbase – 60mm longer than the outgoing Mazda3’s – allowed designers to shorten the front and rear overhangs for a more powerful KODO-inspired stance, in the process creating more space for the engine and improving crash safety, too.

The design theme adopted at the rear of the Mazda3 is similar to the front in many ways. Like the grille, the powerful and robust tailgate seems to protrude. As inspired as the headlamps, the tail lamp signature, which features sporty round tail light rings and quality two-tone internal finishing, is best described by the words “zooming away”.

Extraordinarily exacting
The first physical contact with the car is a crucial part of the buying experience, so Mazda’s engineers worked to ensure this is a surprisingly pleasant experience. In keeping with their focus on quality, developers meticulously analysed how people interact with the door, tweaking the hinges and moment of inertia to make the operation feel as natural as possible. Consequently, opening and closing the doors of the all-new Mazda3 is an exceptionally smooth, linear procedure, without the customary weighty feel. Together with the striking looks, it’s this sort of extraordinary thoroughness that enlivens the bonding process owners are destined to undergo with their all-new Mazda3.

The colours of SKYACTIV
The all-new Mazda3 comes in a choice of nine body colours. They include Soul Red Metallic (developed as perhaps the most emotionally appealing red ever, and first introduced on the Mazda6), as well as two brand-new Mazda colours: the sophisticated expression of Titanium Flash and Deep Crystal Blue, a hue inspired by the power and speed of a lightning bolt piercing a dark sky. The all-new Mazda3 is also available in Arctic White, Snowflake White Pearl, Aluminium Metallic, Meteor Gray, Jet Black, and Blue Reflex.

“At its heart, KODO expresses dynamic motion in every detail from the frame up, maximising the distinct appeal of each Mazda model. As applied to the all-new Mazda3, KODO symbolises design strength that lights a fire in the heart at first sight, stirring up anticipation of exciting new experiences to come.”

Koji Tabata, Chief Designer of the new Mazda3
4 Interior comfort
Born of ingenuity

While the exterior of the all-new Mazda3 is designed to raise expectations about the interior, the interior is destined to overachieve. Open the door, and viewers behold a treasure chest of refined comfort and ergonomics, with the seductive charm of surfaces that beg to be touched, and the sophisticated purity and clean coherence of a space that’s more people-oriented than ever.

This first impression is unlikely to result in later disappointment. Destined for all coming Mazdas after starting with the all-new Mazda3, the freshly compelling next-generation interior follows a revolutionary new concept: partitioned yet unifying. The cabin is divided into zones, with a snug cockpit that seems self-contained in the way everything is positioned to promote a driving experience that’s as safe, enjoyable and stress-free as possible. Meanwhile, the passenger space, in contrast, offers a reassuringly open, spacious and relaxed atmosphere.

The centre-focused driver’s zone contrasts with the relatively low passenger side dashboard, which manages to simultaneously impart freedom and security. The asymmetrical centre console marks the border between the two zones, demarcating their respective properties. Nevertheless, it manages at the same time to establish a feeling of connectedness, blending the two zones to create a kind of balance between the driver and passengers, who can share their experiences: the joy of driving or a relaxing, secure ride.

Typically Zoom-Zoom, all forms throughout the cabin face forward. Their origins appear to flow through the interior from a theoretical vanishing point in front of the car, intensifying the sense of motion and speed – even when the all-new Mazda3 is at a standstill.

Unifying perspectives
‘Cockpit’ is certainly the correct word for the driver’s space. Its powerful lines and ergonomic layout enable the driver to focus effortlessly on the road. Fittingly, the newest driver-friendly feature was borrowed from supersonic jet fighters. As one of the first models in the C-segment, the all-new Mazda3 comes with a new head-up display called the Active Driving Display*. It projects the most important driver information, such as speed and active safety system warnings, directly into in the driver’s forward line of view.

Drivers react best when comfortable, so Mazda positioned the controls needed to directly operate the vehicle in such a way as to maintain natural angles and thus a relaxed posture. The controls feel like extensions of the limbs. The steering wheel, for instance, is lower than in the outgoing Mazda3 and brings the car closer to the driver, while the pedals are laid out symmetrically to the left and right of the driver’s centre axis (with no offset) in optimal positions. The gearshift knob, too, is perfectly positioned. It all contributes to minimising strain on the driver and thus preventing fatigue.
The cab-rearwards design is a core KODO trademark, and the A-pillars on the all-new Mazda3 have been pushed back by 100mm. One advantage is improved forward visibility and an outstanding field of view. Along with the repositioned side mirrors, the improved visibility further alleviates stress potential for the driver, especially at intersections and in corners or bends. Mazda even studied eye points to fine-tune the shape and thickness of the A-pillars so they would also not have an oppressive effect on front occupants.

* Availability depends on equipment package

**Comfort**
The increased width and extended wheelbase on the all-new Mazda3 – the longest in the segment at 2,700mm, the same as the CX-5 – gave Mazda’s interior designers extra room to work with. Accordingly, both hatchback and fastback offer best-in-class shoulder room front and rear, and are one of the best in terms of legroom. The interior is, in fact, larger and more comfortable than its predecessor in most respects, from foot space to kneeroom and more. Mazda also maintained headroom, despite a 15mm reduction in the car’s overall height, by lowering the hip point of the seats.

The driver’s seat* offers 260mm of front-to-back adjustment, 80° of recline and 50mm of vertical adjustment. Mazda stuck to the fundamentals with seats that wrap around occupants, promoting a natural position with good support and plenty of hold.

The enhanced vibration-suppressing seatbacks feature a bolstered shoulder area and a larger cushion to go with their sleek, dynamic form, which complements the interior’s clean sporty style and solidity. Furthermore, because they’re even slimmer than before with concave hollows in the back, rear passengers get additional knee clearance.

There’s more room for their feet, too, since the front seat mounts were shifted further apart. The rear seats have an unrestricted feel thanks to narrower front headrests and shoulder sections, bigger rear windows, and the fact that the rear seating positions are closer to the middle. Occupants in the back simply get a better view of the world. As far as upholstery* goes, the all-new Mazda3 comes in a choice of black leather with red stitching, either alone or combined with off-white leather and white, grey and red stitching. Black fabric is also available with different patterns in a metallic lustre.

* Manual and power-adjustable versions available depending on equipment package and market

"Regarding the vehicle purely from a customer point of view, we aspired to come up with an interior space that evokes a sporty impression the instant you get into the driver’s seat. The well-crafted details lend a sense of sharpness to driving, to offer a lasting experience, getting the driver fully involved and putting passengers at ease. To simply make everyday operation more enjoyable and emotional.”

Kenichiro Saruwatari, Mazda3 Programme Manager
Tastefully functional

Consistent with the roomy effect, the front passenger side is highlighted by a horizontal decorative panel, which serves to ‘widen’ the space. The dashboard’s virtual lines extend through the harmonious side air vent louvres and door handles back to the B-pillars, accentuating the purity and unity of the cabin design. The centre stack also offers a simple, functional layout. The climate control system, which is located below the centre air vents, features a sleek three-dimensional look with circular controls. On top of the dash, the 7-inch touchscreen* is easily accessed by the passenger or driver, but without distracting the latter from operating the vehicle.

Overall, the interior finishing is emotional and stylish while at the same time adding a certain logic to the cabin – particularly in regard to the various controls and areas surrounding them. The sportiness of the black keynote colour is enhanced by contrasts that intensify the quality look and feel, such as the enthusiasm-sparking carbon fibre look or the black leather steering wheel with matching parking brake lever, armrests and gearshift boot*. Combinations like these or the dignified piano black surfaces set next to metallic satin chrome elements, confer a youthful sophistication.

* Availability depends on equipment package

Sensible stowage

Hatchback or fastback, the all-new Mazda3’s luggage compartment offers comfortable access to the abundant capacities of 364 and 419-litres respectively** – in both cases more than in the outgoing model. Fold down the rear seats of the hatchback, and there’s 1,263-litres of cargo space**. With its boot opening widened by 100mm, meanwhile, the fastback can now handle three 67cm suitcases.

Designed with the different interior zones in mind, the various cabin storage possibilities allow occupants and particularly the driver access to items with minimal eye movement. In the front there is a large stowage space at the bottom of the centre stack***, door pockets able to hold 1-litre bottles, and a sunglasses holder in the overhead console. Front and rear passengers also get large cup holders in the centre console or armrest.

** According to VDA measurement
*** Models without CD player
5  Connectivity, Functionality & Equipment: No more compromises

In tune with consumers’ demands in the modern world, Mazda has taken great strides towards making the automobile experience complete – acknowledging that the way people look at their cars is changing dramatically.

With all the features and functionality that people demand in vehicles today, motorists have to deal with more information than ever before. Consequently, Mazda focused on delivering the most enjoyable driving experience possible, while developing a new concept for the automobile cockpit which was needed if drivers are to safely digest increased input and take full advantage of advanced onboard systems.

Relieving strain
Mazda’s goal was to make interactivity and connectivity in the cabin more advanced than ever, but at the same time as usable – and safe to use – as possible. In doing so, company designers set out to minimise the danger stemming from inattention to the road ahead, distractions and physical stress. They created a new human-machine interface (HMI) for the all-new Mazda3 featuring an innovative set of displays and controls.

The most vital information is positioned to enable the driver to read it with negligible eye movement. Like the separate driver and passenger spaces, this concept distinguishes between a safe-driving zone and an infotainment zone. The various controls follow this model, too, with a consistent design and layout for each zone to distinguish their respective purposes.

Mazda developed intuitive mental models reflecting how users expect control and display systems to work to create an environment that enables drivers to judge and act without hesitation. The cockpit is designed to allow accurate reactions with little exertion of energy and no wasted movements, letting the driver maintain a stable posture while remaining relaxed and alert even on long trips.

The most frequently used controls and switches, including those needed to adjust driving operations, are mounted on the steering wheel. Those for infotainment features, meanwhile, are located elsewhere.

Farewell to confusion
Real-time driving information like speed, navigation system directions, and the status of i-ACTIVSENSE active safety systems, including warnings, are shown on the Active Driving Display*. Among the first vehicles in this segment with such a head-up display, all-new Mazda3 uses a clear panel mounted on top of the dash above the instrument cluster. The system, which adjusts automatically to ambient light, projects the information with the focal point around 1.5m ahead of the driver’s eye point, minimising focal adjustment and eye movement.
To avoid confusion, only three items appear simultaneously on the Active Driving Display. The most important piece of data is always at the top, changing according to priority. For example, an urgent active safety warning will immediately displace whatever information is at the lead – say the vehicle’s current speed – changing back again once the danger has ceased.

All other driver-related information can be found on the instrument panel, which was completely redesigned for the all-new Mazda3. It features a centred analogue tachometer with a digital speedometer flanked by two wing-shaped digital displays*. These show status information such as temperature, fuel level and odometers.

Communications and entertainment-related information from the infotainment zone appears on the new 7-inch display*, which is controlled either by touchscreen, voice command or the new rotary commander. Located on the dash above the centre stack rather than in it, the downward viewing angle for the driver was reduced from 28 degrees on the outgoing model to 15 degrees on the all-new Mazda3. So the display is less distracting for the driver and also easier for the front passenger to see and use. Whether setting a destination in the navigation system, searching for music to play on the BOSE® premium surround sound system*, checking emails or calling up the latest Facebook posts*, the path from ‘home’ to the desired operation is shorter than ever. Users can also set shortcuts to their favourite functions. Only “7 plus/minus 2” items appear on the screen at a time – the maximum people can handle at one time according to psychologists.

* Depending on equipment package

Safety first
Mazda also redeveloped the rotary commander located on the centre console to improve ‘blind’ operation of infotainment features. It is now positioned so that the driver simply has to remove one hand from the steering wheel and grip the dial in a natural, effortless motion without changing posture.

The new commander is surrounded by five buttons – one per finger – each corresponding to a specific function: navigation system, ‘home’, and audio system in the middle with ‘back’ and ‘favourites’ on the sides. There is also a volume knob next to the commander. All the controls can be accessed comfortably and conveniently with the elbow resting on the centre armrest.

Voice command* is another safe and ergonomic alternative for infotainment features like menu switching and selecting radio stations, as well as audio play/stop/skip or route map zoom. With a smartphone or music device connected, occupants can search music and contact list names or input addresses to the navigation system by voice.

* Does not work when AUX jack connected to another device

Interactivity: Safety first in the all-new Mazda3
Keeping the main sources of driver distraction in check

The downside to cars getting more connected and capable is the increasing scope for distracting the driver. Addressing this issue, Mazda isolated and defined the three principal types of
distraction – cognitive, visual and manual – and then set out to design a human-machine interface (HMI) that would effectively curtail each of them.

To minimise cognitive distraction – when the mind is no longer focused on operating the vehicle – cabin designers concentrated on decreasing confusion. They did this by allocating information into separate driving and non-driving related zones, and making the system as easy to use as possible.

The key to decreasing visual distraction is to reduce to a minimum the intervals in which a driver’s eyes are off the road ahead. For example, the time in which they look away from the road to a display, adjust focus and then decipher the desired information. Mazda devised formulas for measuring these intervals, which in turn enabled engineers to optimise display positioning and thereby viewing angles, as well as determine the most favourable text size, line spacing and quantity of information shown at any given time.

Finally Mazda also studied manual distraction: when the hands are off the wheel working other controls. The company’s engineers determined that the best ways to cut down here were to ensure a stable body position and provide an ergonomic and efficient control device that can be used without the need to look at it. Hence the new rotary commander debuting in the Mazda3 – another example of how much effort Mazda dedicates to safety, usability and a first-class automobile experience.

**Non-stop connectivity**

Mobile technology like smartphones has irreversibly changed lifestyles. Social media, too, has transformed the way people see and experience culture. Mazda now brings this reality into the car with MZD Connect, its brand-new mobile connectivity concept being introduced on the all-new Mazda3.

The in-vehicle system expands on features already available in Mazdas, like Bluetooth®, email, SMS and navigation, adding a whole new scale of connected convenience. Using a smartphone connected to the Mazda3 system via Bluetooth® or USB, Mazda3 occupants have safe and easy real-time access via the 7-inch display to infotainment services from Aha™. It offers a wide and growing range of mobile infotainment content and social media services, including tens of thousands of internet radio stations, Twitter and Facebook feeds, news, audio books and more.

All-new Mazda3 occupants can listen to the latest tweets or Facebook posts using the text-to-voice readout function, replying with “like” or post audio messages with the “shout” function. Or send and receive email and SMS messages with the sender ID on the display. Readout works here too, as do onscreen edit and reply features.

MZD Connect also supports playback from other connected mobile devices and works in 25 languages for audio and 38 for text. Connecting is simple via the external hub, which includes USB and AUX ports as well as an SD card slot for the navigation system. The hub is conveniently positioned in the centre stack or, on models with CD player, in the box at the rear of the centre console. Either way, storage cavities are on hand for the mobile devices.
MZD Connect offers a range of vehicle information through Mazda’s own applications, too, including maintenance reminders and warnings as well as the Eco-display. It shows the status and activity rates of the i-ELOOP brake energy regeneration system and i-stop idle-stop system, as well as fuel economy and CO₂ emissions, enabling drivers to track changes and history.

**Aha™: “One-stop content”**
Aha™ is a cloud-based automotive grade internet connectivity platform. Available for the first time at Mazda with the all-new Mazda3, Aha™ is designed to provide a single integration point bringing a wide range of free web-based infotainment content safely into the vehicle.

Using a radio-like audio format, the Aha™ concept is to make this content as easy to use as a car radio and thus provide internet infotainment in a manner conducive to safe use in a vehicle environment. Aha™ lets the user access and organise their favourite web content on their phone, then seamlessly integrates the experience in their car. Aha™ is accessible in the all-new Mazda3 via a free smartphone app and covers most of Europe.

Free content currently includes more than 40,000 stations, from radio, podcasts and social media to audio books, personalised location-based services and more. Services are expanding continually, too. Since all system updates take place via the cloud, the platform is future-proof, keeping things as simple as possible on the car and user side.

**Mazda3 navigation system**
With a variety of comfort and convenience features, the navigation system on the all-new Mazda3 helps drivers reach their destinations safely, less stressfully and better informed.

**Key features include:**
- Safer, easier and more relaxed for the driver, since turn-by-turn directions are shown on the Active Driving Display* as well as the centre stack display*.
- Real-time information (via smartphone) using RDS-TMC along with accumulated statistical traffic congestion data (stored with the maps) and the latest online traffic info to deliver the most accurate route calculations.
- Search destinations as well as filling stations, points of interest and weather forecasts:
  - accesses current fuel prices online, also allowing drivers to choose filling stations as destinations
  - displays the latest online weather and forecasts for anywhere along the route
  - destination search also possible on the internet via smartphone, or set destinations from a mobile phone contact list
- Available throughout Europe** with map data on the navigation system SD card, including:
  - three years of free updates (maps and directions) transferable via SD card
  - support for up to 18 audio and 26 text languages

* Availability depends on equipment package
** Individual service availability and tariffs may vary according to country
Premium surround sound from Bose®
Developed together with BOSE® especially for the all-new Mazda3, the new 9-speaker BOSE®
premium sound system* features the latest in playback technology and plenty of power.
Uncompromising like the Mazda3’s SKYACTIV technology, the system comes with the most
advanced audio features ever, yet weighs 20 per cent less and is more energy efficient than its
predecessor. For example, since the amplifier generates less heat, there is no need for large
metal cooling fins. So it’s lighter and smaller, but with no trade-off in performance.

The audio system features Centerpoint® 2 digital signal processing, which analyses the frequency
of the sound source to deliver a rich virtual multi-channel surround experience, even from MP3 and
other compressed files or the radio and audio content accessible via the new MZD Connect mobile
connectivity system*.

The Mazda3 marks the debut for Centerpoint® 2 in the C-segment. AudioPilot® 2 noise
compensation technology, compensates for the effects of unwanted outside sounds from road
surfaces, changing speeds, and even an open window. It uses a cabin microphone to monitor
ambient noise, automatically adjusting the music signal accordingly – and letting the driver focus
on the road.

High-performance 9-speaker layout with digital amplifier:
① 1 x 8cm Twiddler centrefill neodymium mid-high-range speaker in the instrument panel
② 2 x 6cm neodymium Twiddler mid-high-range speakers in the instrument panel
③ 2 x 23cm Nd woofers in the front doors
④ 2 x 13cm wide-range speakers in the rear doors
⑤ 2 x 6cm Twiddler mid-high-range speakers in the rear deck (fastback) or C-pillar (hatchback)
⑥ Digital amplifier with BOSE digital signal processing: ■ 8 channels of customised
equalisation
■ AudioPilot® 2 noise compensation technology with cabin microphone
■ Centerpoint® 2 signal processing circuitry
■ SurroundStage® signal processing circuitry

* Availability varies according to equipment package
6 Powertrains
The hearts beating inside

Under the bonnet, all-new Mazda3 offers buyers a choice of three naturally-aspirated petrol powerplants and one turbodiesel. The former include the brand-new SKYACTIV-G 1.5-litre, a highly efficient and exceptionally frugal engine, capable of 56.4mpg (combined cycle) when paired with the six-speed SKYACTIV-MT manual gearbox. That’s good for CO₂ emissions* of 118g/km – a 20 per cent improvement over the 1.6-litre MZR engine it replaces thanks to the unique SKYACTIV-G technologies. These include its lightweight design, exceptionally high 14:1 compression ratio, 4-2-1 exhaust manifold and i-stop, Mazda’s idle-stop system, which is standard equipment on the all-new Mazda3.

At the same time, the SKYACTIV-G 1.5 produces more torque (150Nm @ 4,000rpm) than the outgoing 1.6-litre, delivering it more smoothly and at lower rpm. With a competitive 100ps at 6,000rpm, this all-new Mazda3 manages the 0-62mph dash* in 10.7 seconds and has a top speed* of 115mph.

The all-new Mazda3 also comes with the SKYACTIV-G 2.0-litre in two variants. The high-power version generates 165ps at 6,000rpm and 210Nm at 4,000rpm. Available for the hatchback with manual shift and i-ELOOP, Mazda’s unique brake energy regeneration system, it reaches 62mph in 8.2 seconds with a terminal speed of 130mph. At 48.7mpg and 135g/km, fuel consumption and CO₂ emissions are very respectable for such performance – and 14 per cent better than its 2.0-litre MZR DISI i-stop predecessor despite generating 10 per cent more horsepower and torque.

Power to run
The standard power SKYACTIV-G 2.0-litre produces 120ps at 6,000rpm and, like its sibling, 210Nm at 4,000rpm. Available for both body styles with either the SKYACTIV-Drive automatic or SKYACTIV-MT manual transmission, this economical option combines first-rate fuel efficiency and CO₂ emissions* – 55.3mpg with 119g/km (manual) and 50.4mpg with 128g/km (automatic) – with respective sprint times* of 8.8 and 10.3 seconds, topping out at 123mph.

The SKYACTIV-D clean diesel also uses extreme compression and lightweight design as the basis for powerful yet remarkably fuel-efficient engines. Featuring a twin turbocharger and a common-rail system with multi-hole piezo injectors, the SKYACTIV-D 2.2-litre delivers an unprecedented combination of excellent mileage and dynamic performance while significantly reducing nitrogen oxide (NOx) and soot emissions. Unusually for a diesel, the 380Nm of maximum torque at 1,800rpm and 150ps at 4,500rpm offer satisfying pull from a standstill through to its 5,500rpm redline.

With a SKYACTIV-D 2.2-litre under its bonnet, the all-new Mazda3 takes only 8.0 seconds to reach 62mph with a manual and 9.7 seconds for the automatic (hatchback only), with respective top speeds* of 132mph and 125mph. Fuel economy and CO₂ emissions* are 72.4mpg and 104g/km (fastback with manual), and 58.8mpg and 127g/km (hatchback with automatic). The SKYACTIV-D
2.2-litre is truly clean, too, complying with Euro 6 emissions standards long before it takes effect in September 2014, and without needing pricey NOx after treatment.

* All figures for sedan unless stated otherwise

**The allure of SKYACTIV**

In two short years on the market, Mazda’s pioneering SKYACTIV powertrains have taken the automobile world by storm, securing an ever-growing list of awards around the globe. Here is a small selection of them:

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“We were striving in every respect with the all-new Mazda3 for a genuinely accomplished vehicle, and our award-winning SKYACTIV engines and transmissions are clearly a vital part of this programme. We’ve taken a truly novel approach here to come up with engines and transmissions that are loads of fun yet still affordable to buy and reliable and economical to operate. That’s because, like several other aspects of this car, it was designed with the customer in mind, not the competition.”

Hideo Mochizuki  
Deputy Programme Manager
**Mazda Motor Corp. Powertrain Development Division**

**Shifting ahead**
Specially developed to complement SKYACTIV engines, both six-speed SKYACTIV transmissions offered for the all-new Mazda3 respond faithfully to the driver’s intentions, delivering linear power directly to the front wheels while also contributing to significantly improved fuel economy. The SKYACTIV-Drive automatic, available for many Mazda3 engine and body style combinations, shifts smoothly and precisely while giving the driver exceptional control over downshift behaviour.

The sporty shifting of the SKYACTIV-MT manual gearbox is reminiscent of Mazda’s famous MX-5 roadster with its satisfyingly short, direct stroke. Both gearboxes are lighter and more compact than those on the outgoing Mazda3.

Nevertheless, performance is only one aspect of the sportscar feeling. The handling of the all-new Mazda3 is every bit up to these capable powertrains, particularly in the way the car does exactly what the driver wants.

**The SKYACTIV-G 2.0-litre: “Rightsized” for the real world**
Most automakers have adopted a downsizing strategy, particularly for their petrol engines, reducing the displacement and sometimes the number of cylinders, while adding technology such as turbochargers to restore power output. The theory is that a lighter engine makes for a more efficient car.

Defying convention as always, Mazda has foregone this approach with its range of four-cylinder SKYACTIV-G petrol power plants, opting instead for ultra-high compression ratios, natural aspiration and a lightweight design to come up with the best possible balance between output and fuel efficiency.

A prime example of this philosophy is the 120ps standard power SKYACTIV-G 2.0-litre offered on the all-new Mazda3. Designed to compete against downsized turbo engines with similar horsepower ratings, this 2.0-litre delivers comparable overall performance and combined New European Driving Cycle fuel economy. Where it really sets itself apart is in real-world fuel efficiency* – such as on Europe’s high-speed motorways – since the SKYACTIV-G uses less fuel than its downsized and turbocharged counterparts in all areas of the power band except the lower range.

It also enables more linear acceleration, with a smoother performance curve and extra pull, particularly at high rpm. Overall, it’s a truly customer-oriented solution for the all-new Mazda3 and in line with Mazda’s Jinba Ittai horse-and-rider-as-one driving experience.

**SKYACTIV-D: Clean, smooth, quiet and fun**
A product of out of the box thinking, Mazda’s SKYACTIV-D cleverly utilises extremely low compression to amplify the strengths of compression-ignition engines while diminishing the drawbacks.
Core technology:

- **A 14:1 compression ratio**, the world’s lowest*, significantly enhances engine efficiency and fuel economy with:
  - combustion timing optimised for a better expansion ratio
  - egg-shaped piston tops that quickly spread injected fuel across the combustion chamber for ideal distribution
  - multi-hole piezo injectors enabling nine injections per cycle at up to 2,000 bar
    - injection patterns tailored to engine conditions
    - stable, efficient engine start-ups, even when cold
  - exhaust variable valve lifts, which stabilise combustion to prevent a cold engine from misfiring by allowing hot exhaust gas to re-enter the chamber
- A low compression engine creates less strain and mechanical friction, enabling the use of lightweight materials and components such as:
  - an aluminium engine block
  - a thinner cylinder head and piston walls
  - a smaller diameter crankshaft
  - an integrated exhaust manifold

- **Twin turbocharging** featuring two turbochargers that operate selectively according to driving conditions – the smaller one at low rpm and the larger one at higher rpm – and switches between the two for the most efficient turbo boost at mid-range revs.
  - utilises a large intercooler for more low-rpm torque and responsiveness as well as outstanding high-range output, particularly for a diesel
  - produces a synergetic effect with low compression for superb performance without turbo lag
  - delivers outstanding fuel economy up to 72.4mpg (or 104g/km of CO₂)**
- Far cleaner than today’s conventional diesels, with considerably lower NOX and soot emissions:
  - complies with Euro 6 (which does not take effect until Sept. 2014)
  - does not require expensive exhaust aftertreatment
- Standard i-stop idle-stop system

  * Available in a mass production model as of September 2013
  ** Mazda3 fastback with SKYACTIV-MT manual

i-ELOOP: Harnessing brake energy the Mazda way

A key component of Sustainable Zoom-Zoom, Mazda’s commitment to minimising the environmental impact of its vehicles, the i-ELOOP brake energy regeneration system is indeed one of a kind. Short for “Intelligent Energy Loop”, i-ELOOP is the first such system ever in a passenger car that stores recovered electricity in a capacitor.

Specifically, Mazda adopted an electric double-layer capacitor (EDLC) rather than a dedicated battery. The large capacity EDLC captures and stores energy very quickly during the deceleration phase, which typically lasts only 10 seconds. In contrast, the lead acid starter batteries normally used in vehicles are far more limited in their charging and storage capabilities. Another benefit of
EDLCs is their durability: they can be recharged over and over with minimal deterioration, unlike the lithium-ion batteries used in electric vehicles, for example.

i-ELOOP uses a 12V-25V variable voltage alternator to efficiently generate power from the moment the accelerator is released, fully charging the EDLC in as little as seven seconds – well within a deceleration cycle. Then the DC/DC converter steps down the voltage of the electricity in the EDLC to 12V to power electrical engine components as well as the headlamps, climate control and audio systems. Surplus electricity goes to the starter battery.

A full capacitor charge can normally run the vehicle’s electrical systems for long enough that there is no need to revert to battery power even when Mazda’s i-stop system has shut the car off at a traffic light. In fact, during stop-and-go city driving, charging often resumes before the capacitor is fully discharged, so i-ELOOP can satisfy most if not all of the car’s electricity needs. This frees up the engine output normally required to drive the alternator. Together with i-stop, i-ELOOP thus hikes real-world fuel economy by up to 10 per cent under everyday urban driving conditions.

**i-stop: Standard fuel-saving innovation**

Mazda’s unique fuel-saving idle-stop system, i-stop, is the only such system available that uses combustion energy for the restart. The i-stop system’s sophisticated control module switches the engine off in the ideal cycles for restarting: the ignition/expansion stroke (petrol) or compression stroke (diesel). In fact, i-stop actually waits for the right moment before shutting the engine down. Plus, because it all takes only a fraction of a second, the driver doesn’t even notice.

As a result, i-stop delivers the fastest restarts in the industry: 0.35 seconds on SKYACTIV-G petrol engines and only 0.40 seconds for SKYACTIV-D diesels – on the first compression stroke rather than the second, as with conventional systems. The engines restart when the driver presses the clutch (manual transmission) or releases the brake (automatic), but only if the seatbelt is fastened and the doors closed.
7 Chassis & Body
Driven by enthusiasm

Always a thrilling drive, the all-new Mazda3’s nimble handling and faithful linear responsiveness has evolved to a previously unseen degree of sophistication. The driver’s bond with the Mazda3 strengthens with each journey.

First introduced on the Mazda CX-5 and the new Mazda6 – each a model of driving joy in their respective classes – the lightweight SKYACTIV-Chassis and SKYACTIV-Body combine high-performance behaviour with superb aerodynamics, safety and NVH. These qualities are even more pronounced on the lighter Mazda3, made-to-order for SKYACTIV with its compact C-segment proportions.

Mazda tuned the all-new Mazda3’s SKYACTIV-Chassis to respond more faithfully than ever to driver intentions. During cornering, the driver experiences something like absolute control, with the tyres gripping the road as the car’s neutral steering guides it accurately through the curve. There’s very little sign of the understeer common to front-wheel drives, with a smooth and desirably predictable pitch and roll as the load shifts from one side of the car to another. The harmonious linear response to and feedback from lateral and longitudinal g-forces means there is rarely the need for steering correction. There is no overreaction from the car, either, when braking into a curve, turning through it or accelerating out of it. The driver knows exactly what to do, and it’s quite a fulfilling feeling.

Smooth transitions
The perfectly-balanced Jinba Ittai suspension and steering serves up an exceptionally comfortable yet nimble and reassuring experience. High-tensile steel (780MPa) was used for the lower suspension arms on the front MacPherson struts and rear multi-link trailing arms. This not only makes the suspension lighter, but also smooths load transfers and with it changes in cornering g-forces. Because the front suspension is mounted on a new perimeter frame with an increased castor angle and trail, it improves self-aligning torque and high-speed stability.

The positioning of rear suspension links and hardness of the bushings improves the lateral grip of the rear tyres. By moving the trailing arm position forward, the dampers can better absorb road influences. The dampers themselves were optimised to strike an ideal balance between nimble handling at low to medium speeds and stability when going faster, while ensuring good ride comfort and secure braking. Measures used on the new Mazda6 chassis to improve rigidity, such as expanded cross-sections and larger side members, were carried over to the frame of the all-new Mazda3. The result is a top-class chassis in terms of stiffness.

The electric power assist steering’s lower gear ratio – 14:1 versus 16.2:1 on the outgoing model – means less steering wheel movement, enhancing agility and helping avoid driver fatigue, particularly on winding roads and in the city. The system is also smaller, lighter and more energy efficient. The brakes get smaller cylinders, retuned boosters and reduced pedal play to suppress
motion resistance. These changes improve brake control, responsiveness and fuel economy. In combination with new high-grip tyres, they’re particularly effective on wet roads. Stopping distances are considerably shorter than the first and second-generation models and among the best in the C-segment.

Responsibly refined
Like the SKYACTIV-Chassis, the SKYACTIV-Body on the all-new Mazda3 features a stiffer yet lighter structure. That boosts fuel economy and safety as well as ride comfort and driving enjoyment – or in other words the emotional and economic well-being of its owner. Common to all SKYACTIV models, the body follows a concept of continuous frameworks, straightened sections and reinforced joints to disperse impact energy throughout the structure but around the cabin. It also contains far more high and ultra-high tensile steels than the outgoing Mazda3.

This makes the all-new Mazda3 stronger – torsional rigidity is 31 per cent higher on the hatchback and 28 per cent on the fastback – and lighter at the same time. The aerodynamics contribute further to the Mazda3’s superb stability and fuel economy. Mazda engineers streamlined the air flow beneath the car with, for example, new underbody covers and tyre deflectors.

Driving dynamics: More than meets the eye
“Predictable and responsible handling is, of course, dependent on things like steering, brake, accelerator and transmission response as well as suspension, aerodynamics and body stiffness. But there’s more to it than that. To achieve the fun-to-drive sensation in the all-new Mazda3, we also worked to maximise the communication between the car and driver. And that starts inside the car in the cockpit with the user interface, meaning driving position and posture, the layout of the controls, the seating and support, and visibility, for example around the A-pillars and door mirrors. The reason we make such an effort here stems from our passion for Jinba Ittai, the at one-with-the-car driving feeling pioneered on the Mazda MX-5 roadster.”

Takeo Moriuchi
Deputy Programme Manager
Mazda Motor Corp. Vehicle Development Division

Mazda engineers also added an active air shutter*, which smooths airflow by keeping the lower front grill closed unless the engine needs air for cooling. Added fuel efficiency enhancing advantages here include faster engine warm-ups and closer to ideal operating temperatures. By also optimising upper body airflow, the rear spoilers on the hatchback roof and fastback boot produce a symbiotic effect with underfloor airflow to suppress turbulence. As a result, the all-new Mazda3’s drag coefficients – 0.26 for the fastback and 0.275 for the hatchback** – are among the best available today on a mass-production vehicle.

Smooth, quiet comfort with improved refinement
Lighter cars tend to vibrate and produce more cabin noise, so Mazda carefully analysed NVH sources, such as the engine and tyres, blocking noise paths into the cabin and channeling them to

* Availability depends on equipment package and market
** With active air shutter
sound-absorbing materials fitted in strategic locations like the dashboard, floor mats, under the rear deck behind the back seats and in the side trim of the luggage compartment. The lightweight sound insulation is especially effective at blocking unpleasant high-frequency noise.

A balance shaft was also added to the SKYACTIV-D 2.2-litre to curb vibration entering the cabin via the engine mounts. Other components, like the stiffer powertrain, softer dampers and improved engine intake and exhaust systems, also help reduce cabin noise and road-induced vibration. As a result, the interior of the all-new Mazda3 is one of the quietest in its class.

**Shedding weight on the all-new Mazda 3**

Mazda has a thing about weight. Actually, it’s more of an obsession. A lighter car is more fun to drive, as well as easier on the environment, since it consumes less to perform better. Hence the company’s ‘gram strategy’, which has Mazda engineers continually in search of ways to shed weight that won’t compromise strength or safety.

Despite performance-enhancing changes that normally add weight – like bigger brakes to match the bigger wheels – the hatchback version* of the all-new Mazda3 is much lighter than the outgoing model. With curb weights** starting at 1,190kg it’s one of the lightest members of the C-segment.

**Measures which shed weight:**

- Adopting lightweight SKYACTIV powertrains.
- Thoroughly reviewing 300-plus body components, increasing the proportion of high-tensile steels in the bodyshell from 50 to 60 per cent on the new model:
  - 780MPa high tensile steel now makes up 9 per cent of the total (up from 4 per cent)
  - 980MPa ultra-high tensile steel used for first time on a Mazda3 (to reinforce the side sills)
  - 1,800MPa ultra-high tensile steel for front and rear bumper reinforcement (now 4kg lighter)
  - fewer parts used in the front frame (now 38 per cent lighter)
  - component shapes optimised to increase strength but not weight (e.g. body shell now more rigid and 1kg lighter)
- Suspension system enhancements include:
  - 780MPa steel for lower front suspension arms and rear trailing arms (a first for Mazda)
  - eliminating weld flanges using a new manufacturing process for lighter and stiffer welds
  - maintaining front suspension weight despite the new perimeter frame
  - rear suspension also enhanced yet no heavier
- New electronic power assisted steering system does away with the hydraulic pump and piping, also featuring a lightweight ECU assembly with integrated steering motor:
  - 2kg lighter than outgoing Mazda3’s electro-hydraulic steering system
- Front seats are bolstered with high-tensile steel on their internal structure, eliminating the need for active headrests; the rear seats, meanwhile, have a modified shape and shorter cushion:
  - saves another 7kg
- Fewer electrical harnesses and shorter cable routings cut 3 kg off the electrical system.
- Improved tyre and brake structures along with thinner mudguards for another 4.4kg in savings.

* With SKYACTIV-D 2.2 and SKYACTIV-MT manual, excluding driver
8 Safety

Defence in depth

As a reliable companion, Mazda engineered the all-new Mazda3 to protect those inside it and around it – in more ways than at first meet the eye.

The extraordinary interplay between the suspension, steering, brakes and powertrains on the all-new Mazda3 enhances control and with it safety. So do the interior layout and comfort by minimising driver stress, fatigue and distraction. Simply put, Mazda has built a safer car, coming up with a lightweight design that makes the all-new Mazda3 easier to handle, yet whose rigid body and chassis structures eagerly absorb impact energy.

Protracted protection

The protective ethos can be summed up by Mazda Proactive Safety, the company's comprehensive approach to preventing accidents. The focus is to help the driver at every step along the way, from recognising potential hazards to minimising the risks of a collision (and then the damage should one nonetheless occur) and protecting both occupants and pedestrians. The concept can be divided into three categories that support and build on one another: active safety (preventing risks), pre-crash safety (avoiding an accident or reducing damage) and passive safety (limiting harm to people).

i-ACTIVSENSE is Mazda's term for its advanced range of sensor-based and radar-supported safety technology. The first line of defence – active safety – is to recognise potential dangers and notify the driver, who can then make an informed reaction.

Four systems help the driver keep an eye on events occurring around the vehicle. The radar-based Rear Vehicle Monitoring system (RVM) tells the driver when vehicles are approaching the all-new Mazda3 from behind in adjacent lanes – including the blind spots – by activating an LED in the corresponding side mirror. If the driver signals to change lanes, the LED flashes and a buzzer sounds. RVM, which won a Euro NCAP Advanced Award in 2011 after being introduced on the outgoing Mazda3, now works at speeds as low as 18.5mph rather than 37mph.

The Lane Departure Warning System (LDWS) watches the lane markings at 40mph and higher, alerting the driver with audible (rumble strip sound) and visual warnings should it detect unplanned lane changes. The Distance Recognition Support System (DRSS) looks well ahead of the car, calculating and displaying the proximity and catch-up time to preceding vehicles at 18.5-to-124mph.

Sharing the road

At Mazda, active safety also involves assisting other vehicles. One such feature is the Emergency Stop Signal (ESS), which rapidly flashes the four-way hazard lights to warn other motorists when the all-new Mazda3 brakes heavily from at least 31mph.
High Beam Control (HBC) is another, using a camera to detect approaching vehicles and automatically switching between low and high beams to avoid impairing the vision of other motorists. It also changes to low beams on well-lit roads and at speeds under 18.5mph.

On the topic of vision, Mazda’s latest compact can even see around curves at night. The Adaptive Front-lighting System (AFS) predicts the shape of the curve ahead based on steering input and speed, turning the headlamps in the right direction.

Hill Launch Assist (HLA) is another helpful system that maintains brake pressure to prevent rolling back during hill starts.

If the accident risk grows, i-ACTIVSENSE pre-crash safety technology kicks in. Like the systems listed above, these too warn the driver of potential danger. However, as names like Mazda Radar Cruise Control (MRCC) and Smart Brake Support (SBS) suggest, they’ll also take evasive action if necessary to avoid an accident or limit the damage. Naturally, the all-new Mazda3 also has standard ABS with electronic brakeforce distribution (EBD) and brake assist (EBA) as well as dynamic stability control (DSC) and traction control (TCS).

On all sides…
Accidents still may happen, and the all-new Mazda3 is more secure than ever, with a formidable array of occupant-focused passive safety innovations. First and foremost, its lightweight yet highly rigid SKYACTIV-Body that is built to absorb impacts from all directions – front, side or rear – and channel those forces around the cabin.

At the front, impact forces are absorbed by x-shaped crush cans and channeled through the multi-load paths built into the SKYACTIV-Body. Improvements here include a revised side sill structure to prevent the wheel intruding into the cabin during a small overlap frontal impact. Milder collisions at up to 9.0mph, are absorbed by easy-to-replace bolted-on parts to avoid expensive damage to the frame and engine components.

For side impacts, a solid uninterrupted structure joining the roof and B-pillars to the underbody minimises cabin deformation and thus injury potential, again by controlling the flow of collision energy. Reinforced joints, additional impact bars and roof reinforcement cross-sections at double the size of the outgoing model are just some of the advancements built into the all-new Mazda3.

As for rear-end collisions, the all-new Mazda3 features an enhanced double-hat shaped rear frame, and bumper reinforcement made from 1,800MPa ultra-high tensile steel. These and other measures maximise the energy absorbed, protecting the cabin while preventing fuel tank ruptures.

…and on the inside
Absorbing impact energy was a major concern in the cabin, too. From the hollowed-out armrests to the new shock-absorbing trim material on the A- and B-pillars, Mazda redesigned numerous interior components and trim sections to soften any blow with occupants during an accident.
The all-new Mazda3 comes standard with the full range of front, side and curtain airbags as well as front seatbelts pretensioners for better restraint during a collision and load limiters, which subsequently loosen the belt to prevent excessive chest pressure. The seat cushion frame, seatback structure and headrests were redesigned to reduce injury potential. ISOFIX child seat anchorages are standard in the rear seats, while the rear seatbacks, mounts, hinges, catches and strikers have all been reinforced to prevent luggage from encroaching into the cabin. Finally, the bonnet and front bumper are designed to minimise injury resulting from an impact with a pedestrian’s head and legs.

After subjecting the all-new Mazda3 to diverse crash tests, the company is confident that it complies with the strictest crash safety criteria worldwide. Mazda is confident that all-new Mazda3 will achieve a 5-star safety rating from Euro NCAP as well as its traffic safety counterparts across the globe.

New technologies in brief:

**Forward Obstruction Warning (FOW)**
A microwave radar sensor-based system, FOW keeps track of preceding vehicles at 9.5-to124mph, issuing a warning sound and visual “BRAKE” alert in place of the DRSS indicator should the all-new Mazda3 get too close.

**Smart Brake Support (SBS)**
An autonomous emergency braking system, SBS works hand-in-hand with FOW to monitor vehicles up to 140m ahead. Should FOW issue a warning, SBS first pre-fills the brakes and then applies them with a force corresponding to the level of danger. The pre-fill is cancelled if the driver responds to mitigate the risk. SBS, which like FOW works at 9.5-to-124mph, thus helps prevent or at least reduce the severity of a rear impact, even at high speeds.

**Smart City Brake Support (SCBS)**
Designed primarily for urban driving, SCBS is Mazda’s low-speed emergency braking system. It utilises a near-infrared sensor to monitor preceding vehicles travelling at 2.5-to-18.5mph and up to 6m away. Like SBS, SCBS pre-fills the brakes if there is an increased accident risk, applying them when necessary. The two systems complement each other perfectly, covering the 2.5-to-124mph speed range, and should normally prevent collisions entirely on dry roads at 18.5mph or less.

Vehicles with autonomous emergency braking systems have up to 27 per cent fewer accidents than those without them, according to Euro NCAP, considerably reducing injuries. Euro NCAP will be adding assessments of these systems to their vehicle safety ratings in 2014. So, unlike 79 per cent of models available in Europe*, the all-new Mazda3 – like the Mazda6 and Mazda CX-5 – is already equipped for tomorrow.

**Mazda Radar Cruise Control (MRCC)**
Another related system, MRCC also uses microwave radar to keep an eye on preceding vehicles. It automatically adjusts the throttle and brake pressure to maintain a safe trailing distance, which is
preset by the driver. First introduced on the Mazda6, the system is now available for the all-new Mazda3.

MRCC functions at 18.5-to-124mph, enabling the system to adapt flexibly to changing traffic conditions. If a high-speed motorway becomes congested, for example, MRCC automatically adjusts to significantly shorten trailing distances. It remains in operation when, say, exiting the motorway, decelerating on a curved off-ramp and then following a vehicle accelerating down the next road, only shutting off if the car’s speed falls below 12.5mph.

The radar sensor accurately detects vehicles at up to 140m under any conditions – at night, in pouring rain or blinding sunlight. It therefore takes a huge load off the driver's shoulders, relieving stress and preventing fatigue – especially on long-distance journeys.

* As of mid-2012; source: Euro NCAP
9 Sustainability
Minimising environmental impact

Zoom-Zoom stands for the exhilaration of experiencing motion, and it’s at the root of everything we do at Mazda. Our cars have to be fun to drive. But we’re also committed to minimising their environmental impact.

Mazda therefore put the “Sustainable” into its Zoom-Zoom. The Sustainable Zoom-Zoom vision is to provide every customer who purchases a Mazda with an exceptionally fun-to-drive, safe and environmentally friendly vehicle.

Based on this vision, Mazda came up with a building block strategy aimed at continuously boosting vehicle efficiency, first by enhancing the base technology and reducing weight (see SKYACTIV), and then adding auxiliary systems such as i-stop and i-ELOOP. Mazda’s lifecycle assessment process confirms that we’ve successfully reduced the emissions from new Mazda models of CO₂, a greenhouse gas, as well as nitrogen and sulphur oxides (NOx and SOx), which cause acid rain. Mazda was also the first carmaker to adopt low-VOC (volatile organic compound) sealants, paints and adhesives for the cabin.

Recycling is another essential component of Sustainable Zoom-Zoom. These days, some 80 per cent by weight of the materials that go into a car are already recycled. These are mainly metals. Dealing with the remaining 20 per cent, which is mostly plastics and glass, pose a real challenge. At Mazda, however, we have made some notable progress.

Take old bumpers, for example. Turning them into raw plastic resin for new bumpers is harder than you might think. Many of the “input” parts are more than 10 years old, meaning they contain different paint adhesives and plastic compositions. Some also have expensive-to-remove metals. Our engineers overcame these issues in-house with a worldwide unique automated recycling technology for end-of-life bumpers. Together with an efficient system for collecting and processing used bumpers, Mazda reduced the overall cost to below that of new material. The company even developed a process to extract more paint from recycled bumper resin, enabling a higher proportion of recycled material to be used while still achieving the desired standard of quality.

New cars, meanwhile, are made from recycling-friendly substances such as polypropylene thermoplastic resin, which is used (among other things) on the instrument panel and trim of the all-new Mazda3 and the latest generation Mazda6. At the same time, harmful materials are being phased out entirely. Mazda is dedicated to delivering continuous improvement – with no compromises – and not just preaching about it.