

Mazda Taiki



Flow design – a journey that explores the future of Mazda design



Since the 2002 launch of the Mazda Atenza (Mazda6 in export markets) as the first in a new generation of models, Mazda design has been earning the praise of customers, car specialists and designers around the world. Mazda concept car designs have firmly established a global reputation for eye-catching, Zoom-Zoom appeal – from the Mazda Senku concept car introduced at the 2005 Tokyo Motor Show, which went on to win the Grand Prix du Plus Beau Concept Car at the 21st Festival Automobile International in 2006 in Paris, to the sports car study, Mazda Kabura, winner of the 2006 Detroit Motor Show’s Aesthetic and Innovation Award.

Building on this solid foundation while still further advancing the design of Mazda cars and instilling an even sportier and more athletic look, I challenged our design team to develop a new form of expression that evokes a perception of motion, even when the car is standing still. This gave birth to the theme of “flow” design, as based on the Japanese word “Nagare”, which means “flow” or “the embodiment of movement”. We turned to nature for inspiration, focusing on images of motion created in nature by forces like wind and water. Natural flow lines are all around us – shapes etched in sand dunes by the wind, ocean waves as seen from above, lava flows running down the slopes of a volcano. All lend an intuitive sense of motion. But it was in making the transition from observing motion in nature as an expression of energy to applying it to a manmade object such as a car that we discovered what a thoroughly exciting and logical creative approach the design concept represented. This revelation allowed us to proceed to create one dramatic and unique design after another.

The first concept car created using this new approach was the Mazda Nagare, which US-based design team Chief Designer Franz von Holzhausen sees as a pure reflection of the flow design approach.

Mazda Ryuga followed closely after from Mazda’s Hiroshima Design Center, expressing the beauty of motion found in nature, as well as motion controlled by man. Chief

■ Mazda Taiki

Designer Yasushi Nakamuta explains, “The challenge was to incorporate elegant and refined design treatments that express Japanese concepts of mysterious beauty and intelligence within a dynamic body shape.”

Evidence of this approach can be observed in the side surfaces, which were inspired by the simple yet beautifully refined flow of carefully raked rocks found in Japanese karesansui gardens.

Mazda’s European Design Center presented us with the Mazda Hakaze design concept, aimed not only to suggest future possibilities for a compact crossover vehicle from Mazda, but also to offer a concept that fully considers practical application. Chief Designer Peter Birtwhistle sought to express the sensation of the wind blowing across the sand dunes, both in the textures used for the sides of the body, and within the interior as well. And true to this, repeated patterns across the exterior and interior, which evoke images of sand dunes, effectively express flow and motion.

Visitors to the 2007 Tokyo Motor Show will take delight in the Mazda Taiki, the fourth concept car in the series. Created by the Yokohama Design Center team led by Chief Designer, Atsuhiko Yamada, the Mazda Taiki represents a possible direction for design and technology to support the future of Mazda’s “Sustainable Zoom-Zoom” efforts. Innovative styling, instantly transporting the viewer’s senses into the future, doesn’t stop merely at making a design statement. Rather, it additionally encompasses highly functional beauty, featuring outstanding aerodynamic performance. Driving pleasure in a work-of-art cockpit achieves the right balance between Zoom-Zoom driving pleasure and environmentally responsible performance. The Mazda Taiki clearly offers an iconic look at the Mazda sports car of the future.

Starting with the debut of the Mazda Nagare at the Los Angeles Auto Show, the process of moving from west to east around the globe towards the unveiling of the Mazda Taiki in Tokyo as we explored future design possibilities was a journey of personal discovery for Mazda design. Still, it does not mean that we arrived at any specific goal. On the contrary, it marks a new beginning in the ongoing evolution of Mazda design.



Laurens van den Acker
General Manager, Design Division



Mazda Taiki Concept – aimed at helping create a sustainable society

Mazda Taiki reflects one possible direction for a future generation of Mazda sports cars aimed at helping create a sustainable society. The fourth concept car in the Nagare design series, Mazda Taiki, further evolves the “flow” theme to establish a breathtaking presence that clearly defines its Nagare credentials, and visually expresses the atmosphere – called taiki in Japanese – that wraps the Earth in its protective mantle. Centering around the performance rotary engine sports packaging that is synonymous with the Mazda name, technologies introduced for the Mazda Taiki include the next-generation RENESIS (rotary engine 16X [refer to “New Environmental and Safety Technology” press kit for more information]), which sets new standards for environmental and driving performance, a front-engine rear-wheel -drive layout, unique 2-seat configuration, and others which convey an image of lightness. The effect integrates perfectly the design theme to realize unbeatable aerodynamic performance.

The flow of air as a design concept

An evolution of Nagare design: the form of a car that operates in harmony with the environment; the creation of an iconic Mazda sports car symbolized by its next-generation RENESIS. To bring these concepts together and create a design worthy of the Nagare design series, chief designer Atsuhiko Yamada presented his team with a single objective: create “a design that visually expresses the flow of air”.



“The preceding three concept cars in the Nagare series each took a hint from nature, such as the flow of water or the patterned surface of wind-swept sand dunes. In contrast, we wanted the concept car for the Tokyo Motor Show to convey both the beauty and power of nature, while also emphasizing the importance and the wonderful splendor of our environment. That led to our focusing on the air that blankets our planet and our desire to apply Nagare design in visually representing this entity, which is normally invisible to the eye.”, Chief Designer Atsuhiko Yamada’s words summarize, and as the very name of the concept car makes clear, Mazda Taiki’s futuristic design embodies Mazda’s determination to build cars that contribute to the realization of a sustainable society.

Hagoromo exterior embodies celestial robes waving on a breeze

The challenge to create "a design that visually expresses the flow of air" was inspired by the image of a pair of Hagoromo – the flowing robes that enable a celestial maiden to fly in Japanese legend – floating down from the sky. In addition to drawing sketch after sketch in various attempts to capture the right look, the designers also tried unique approaches, such as soaking cloth in plaster and then hanging it to dry while flapping in the wind, thereby capturing the motion of air in solid form. This gave birth to an innovative design, one with a nimble, light appearance and flowing contours that naturally capture the hearts and imaginations of those who see it. The basic proportions begin with the stretched coupe form of a front-engine rear-wheel-drive layout, the short overhangs, and the liberating feel of the all-glass canopy, which combine to express a harmony of elegance and sportiness. The lower of the layered hagoromo flows from the front fenders to the sides, where it wraps under the body and gracefully curves up at the rear. The other hagoromo flows from the hood through the shoulder lines it etches, past the unique independent rear fender design, and lends a seductive curve to the rear deck. The fusion of these flowing upper and lower surfaces not only creates a visual depiction of flowing air, it also minimizes body volume for a trim, well-toned appearance, as well as creating a sense of floating lightly on air. This sensation is further amplified by the Ozonic Silver paint that was specially developed for this project. The outer panels of the doors, which open widely toward the front, form a relief that symbolizes the accelerating flow of air actually experienced by the designer during wind tunnel tests.



Aerodynamic performance with a drag coefficient of 0.25 and zero lift

The design team sought to achieve an extremely high level of aerodynamic performance through a combination of design and technologies. A bird's-eye view of the Mazda Taiki body shows how much its width is tapered from front to rear. From the side, one sees the smooth line of the flat underside kick up dramatically at the rear of the body. Validating the designer's wish to visually capture the motion of flowing air, wind tunnel testing proved the excellent aerodynamic performance inherent in the design. The distinctive shape around the rear wheels, which channels air flowing back from the front fender through a 'tunnel' formed between the body and rear fender, also proved effective in creating downforce. The already high aerodynamic potential of the original form was then fine tuned, the end result being an excellent drag coefficient of 0.25 and zero lift.

Details that capture the image of flowing air

Flowing illumination

The edges of the blades that comprise the grille are fitted with ultra-fine rows of brilliant LEDs. The rear combination lamps and door-mounted turn signal lamps employ unique Mazda technology and appear to shine through the body color but are distinguishable only when lit. The effect throughout creates the illusion of flowing air being transformed into lights visible to the human eye.

Dynamic tire tread pattern and wheel design

A collaborative effort with the tire designers and engineers created 22-inch tires for the Mazda Taiki that are dynamic in size and feature a bold tread pattern modeled after a flowing motif. The turbine wheel design was inspired by the turbo fan blades of a jet engine and developed in close collaboration with wheel engineers to create a unique design. (Cooperation: The Yokohama Rubber Co., Ltd., Enkei Corporation).



Koinobori interior design

Inspired by Japanese koinobori – the decorative "climbing carp streamers" that fly proudly in the early May skies of Japan – the notion of creating an Air-tube became the concept word for the interior design. In accordance, everything from the dashboard and seats down to the door trim creates the dynamic sensation that the flow of the wind is being visually depicted.

At the same time, the design team created a unique ambience for each half of the

interior. The colors and materials clearly divide the cabin into black and white zones, and the strength of the design lines expresses a dynamic yet gentle quality.

On the driver's side, the dashboard twists in dynamic fashion and continues on the cushion of the driver's seat. The independent seatback and headrest also create a new expression of flowing lightly, as though on a breeze. Black trim used as the keynote color, creates an environment that better helps the driver concentrate on driving.

The passenger 'zone' provides the relaxing comfort of a lounge chair surrounded by plenty of legroom. The white trim color helps accent the resulting expression of roomy comfort that truly befits a passenger seat.

The design concept aims for a new form of sports car cabin. The center shelf between the driver and passenger seats can be effectively used as flexible utility space.

Interior details that emphasize flow

The cabin precludes any sense of symmetry or adherence to any prescribed design doctrine. Each part embodies flowing wind, instilling a light, airy feel that also creates an organic, dream-like ambience.

Structural beauty with emotion

The transparent teardrop roof that covers the cabin is reinforced by a truss frame with flowing contours that constitute one part of the body structure. The same design theme is also applied to the steering column and seat frame of the driver's seat. To make the beautiful contours of this frame design clearly visible, the cushion and back for the driver's seat are made from a clear elastic silicone plastic material.

Zen calligraphy with a shine

The black and white genuine leather of the interior features flowing calligraphic strokes painted on the surface using a gloss paint that contains metallic pigment. A new technique developed through collaboration with textile designers allowed an artist to use a brush to visually recreate the flow of the wind. The lines follow the contours of the dashboard and seats to further emphasize the sense of flow. The material surface is coated using a process that is unique to Mazda.

(Cooperation: NUNO Corporation)

Tachometer that renders visible the beat of the rotary engine

Extending gracefully to embrace the steering wheel and driver's seat, the respective edges of the dashboard each feature a row of red LEDs that function as the tachometer. Streams of red light flow toward the front on either side of the driver to visually depict leaps in engine RPM. The result is dynamic visual feedback that expresses the emotion of driving.

Advanced human-machine interface (HMI)

To further advance safety performance and take it to new levels for the future, Mazda is actively working on an HMI that will make communication between driver and machine smoother and easier, as well as further developing advanced active safety technologies. Multi-control switches for the respective systems are integrated into the rotary-inspired steering wheel in a design that allows drivers to perform all driving operations without removing their hands from the steering wheel. Also integrated into the steering wheel is a multi-display that provides the driver with a variety of information displays.



Mazda Taiki – Specifications

Dimensions	Overall length	4620 mm
	Overall width	1950 mm
	Overall height	1240 mm
	Wheelbase	3000 mm
	Seating capacity	2 people
Engine	Type	Next Generation RENESIS
Transmission	Type	Dry twin clutch 7-speed power shift
Suspension (Front/Rear)	Type	Double wishbone
Tires	Type	195/40 R22 YOKOHAMA ADVAN Super-E spec PROTOTYPE 007