

Products and Services Lineup

AISIN AISIN CORPORATION

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With specialized expertise in a wide range of business fields, we are able to meet a wide range of needs in areas that range from our core mobility business to fields such as energy.

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► Mobility

To achieve a mobility society that is friendly to the environment as well as humans, AISIN Group offers a wide range of products covering nearly all components that comprise an automobile through its high level technical capabilities.

Powertrain

To best meet the needs of our customers around the world, Aisin has a full product lineup of drive units for various types of vehicles, including electric and hybrid vehicles.

Main products installed in electric vehicles (BEV/HEV/PHEV/FCEV)

● For BEVs ● For HEVs/PHEVs ● For FCEVs

► eAxle



eAxle 150kW (for front-wheel drive)

AISIN ●

The EV unit functions as a power source for an electric vehicle, combining a motor, an inverter and a transaxle. Aisin has contributed to the achievement of top-class electric mileage among electric units by employing new technologies including the optimization of motor magnet arrangement and the use of low-viscosity oil for electric units.

Main applicable vehicles: bZ4X (Toyota), SOLTERRA (SUBARU)



eAxle 80kW (for rear-wheel drive)

AISIN ● ●

The eAxle is for rear-wheel drive or 4-wheel drive electric vehicles. By installing it in addition to the eAxle for front-wheel drive, the front and rear wheels can be powerfully driven by each axle.

Main applicable vehicles: bZ4X (Toyota), SOLTERRA (SUBARU)



eAxle 150kW

AISIN ● ● ●

This is an EV unit that is a power source of an electric vehicle. The high-efficiency 3-axis gear train and the optimized motor have realized compact size, light weight and high efficiency, and can be mounted on the front or rear of a vehicle.

Main applicable vehicles: MIRAI, C-HR, IZOA (Toyota), UX300e (LEXUS)



Electric 4WD unit

AISIN ●



eAxle 9.2kW (for rear-wheel drive)

AISIN ●

► Hybrid Transmission



High Torque Capacity RWD 2-Motor Multi Stage Hybrid Transmission

AISIN ●

Adopting a multistage shift device to a hybrid transmission enables more efficient use of engine and motor energy. Excellent acceleration performance and high fuel efficiency are achieved.

Main applicable vehicles: LC500h, LS500h (LEXUS)

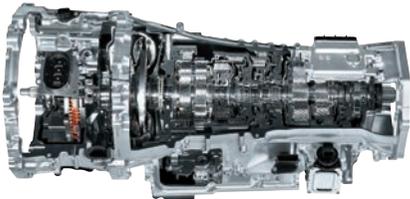


High Torque Capacity FWD 1-Motor Hybrid Transmission

AISIN ●

Lightweight and highly efficient 1-motor hybrid transmission combining a newly designed FWD 6-speed Automatic Transmission, drive motor, and start/engine disengagement clutch. Direct response during driving and a high-quality driving feel are achieved.

Main applicable vehicles: Crown CROSSOVER RS (Toyota)



High Torque Capacity RWD 1-motor hybrid transmission

AISIN ●



Medium Torque Capacity RWD 2-Motor Hybrid Transmission

AISIN ●



High Torque Capacity FWD 2-motor hybrid transmission

AISIN ●

► Fuel cell vehicle-related



Gas-liquid separator

AISIN ●

A device that separates the water particles produced by the chemical reaction of hydrogen and oxygen from exhaust gas and collects the particles.

Water particles are collected by circulating the exhaust gas in a spiral form and utilizing the inertial force of the water particles (a separation rate of 90% or more).



Stack case

AISIN ●

A case that is made by aluminum die-casting and houses a fuel cell (FC) stack, which is the heart of a fuel cell. The distance between the stacked cells and the stack case is secured evenly by welding the upper and lower cases by FSW (friction stir welding). Controlling an increase in physical size with a die-casting draft angle has resulted in a more compact product.

▶ Thermal Management-Related Products



Electric Water Pump for Battery Cooling

AISIN ● ●

The integration of control circuit, motor and pump enables a compact body size that achieves high compatibility to a variety of models. Optimized motor control reduces noise.



Electric Water Pump for Inverter Cooling

AISIN ● ●



Flow Shutting Valve

AISIN ● ●



Electric Oil Pump for xEV Cooling

AISIN ●

▶ Component Products



Damper for Hybrid Vehicles

AISIN ●



Electric Current Sensor

AISIN ● ●

Main products installed in internal combustion engine vehicle

▶ Automatic Transmission

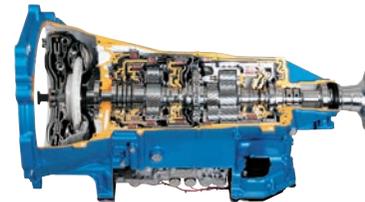


High Torque Capacity RWD 10-Speed Automatic Transmission

AISIN

Rhythmic and smooth shift change is achieved with cross gear steps. Weight reduction for components, improved hydraulic response, and accuracy achieve excellent responsiveness to the driver's acceleration.

Main applicable vehicles: LC500, LS500 (LEXUS)



Medium Torque Capacity RWD 8-Speed Automatic Transmission

AISIN



High Torque Capacity FWD 8-Speed Automatic Transmission

AISIN



Medium Torque Capacity FWD 6-Speed Automatic Transmission

AISIN

► CVT



Direct Shift CVT

AISIN

Realized outstanding fuel efficiency with direct and powerful driving performance, and top-class gear ratio range by adopting starting gear for CVT for the first time ever in the world.

Main applicable vehicles:
Corolla Sport, C-HR (Totota), UX (LEXUS)

► Manual Transmission



Small Torque Capacity CVT

AISIN



Medium Torque Capacity RWD 6-Speed Manual Transmission

AISIN



High Torque Capacity FWD 6-Speed Manual Transmission

AISIN

► Engine-Related Products



Electric Water Pump for Engine Cooling

AISIN

The electric water pump powered by a motor pumps cooling water to the engine to keep it at an optimal temperature. By cleverly changing the shape and layout of the motor magnet, the pump has become compact and lightweight.



Variable Valve Timing

AISIN

Optimal adjustment of engine intake and exhaust valve shutting timing according to driving conditions contributes to improved output, fuel efficiency and reduced emissions in comparison to conventional types.



Continuously Variable Capacity Oil Pump

AISIN

Incorporates the world's first "Internal Gear Mechanism". With a unique gear tooth form, it continually supplies the minimum oil necessary according to the engine's operating condition, contributing to improvement of fuel economy by reducing the demand on the engine driving the pump.



Variable Intake Manifold

AISIN

Contributes to improvement of engine output and reduced fuel consumption, by the use of highly airtight variable port length intake valve and a retractable tumble control valve and optimization of intake pulsation and flow velocity.



Exhaust Manifold & Converter

Aisin Takaoka



Piston

Art Metal Mfg.



Engine Front Module (timing chain case with water and oil pumps)

AISIN

► Other Products



High Torque Capacity Transercase

AISIN



High-μ Wet Friction Material for Automatic Transmission (Segment)

Aisin Chemical



High Heat-resistance Wet Friction Material for Automatic Transmission (Lock-up)

Aisin Chemical

Chassis & Vehicle Safety Systems

With the objective of achieving zero traffic accidents, we offer products and systems that enable advanced control of driving, turning and stopping as well as products that make the mobility experience more comfortable and enjoyable.

Parking and Driving Support-related



Automated Parking System

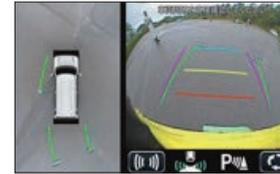
[AISIN](#)

Parking spaces can be detected using ultrasonic sensors and cameras. Since the target parking position is set automatically, the steering wheel is automatically activated by flipping a switch, making the car back into a parking space or parallel park while detecting obstacles.

Automated Emergency Brake System

[AISIN](#)

At low speeds, the system detects obstacles and automatically makes an emergency stop to prevent an accident.



Surround Monitoring System

[AISIN](#)

The system combines images from in-vehicle cameras to provide a bird's-eye view of the vehicle's surroundings, assisting in safety confirmation.



Driver Monitoring System

[AISIN](#)

The camera takes pictures of the driver to detect which direction the driver is facing and whether the driver's eyes are open or closed. It is used for systems that prevent the occurrence of accidents due to inattentive driving and dozing.

Brake-related



Cooperative Regenerative Brake System

[ADVICS](#)

This system contributes to improving regenerative efficiency and vehicle stability performance to enhance fuel economy. It is installed in electric vehicles, hybrid vehicles and other vehicles and controls the balance between hydraulic and regenerative brakes.



Disc Brake

[ADVICS](#)

Consistent efficiency and reduction of brake noise and vibration are achieved at high levels. Manufacturing caliper parts from aluminum achieves lightweighting while also providing high rigidity.



Brake Assembly

[ADVICS](#)



Electric-Assisted Parking Brake

[ADVICS](#)



Brake Booster and Master Cylinder

[ADVICS](#)



ESC Modulator

[ADVICS](#)



Break Pedal Stroke Sensor

[AISIN](#)



Brake Caliper for Motorcycle

[ADVICS](#)



ABS Modulator for Motorcycles

[ADVICS](#)

Steering-related



Active Rear Steering System

[AISIN](#)

Automatically steers the rear wheel in the optimal direction according to vehicle status and steering wheel operation, enabling smaller turning radius at low speeds and improved stability at high speeds.



Power Tilt and Telescopic Steering Column

[AISIN](#)

Chassis-related



Damping Force Adjustable Absorber

[AISIN](#)

Powertrain-related products



Shift-By-Wire

[AISIN](#)

The by-wire technology for controlling shift operations with electric signals helps to realize automatic driving. Furthermore, it can simplify the shift lever to enable expansion of the cabin space.

Body

For the growing MaaS market, we leverage our capability of developing opening and closing systems and sensing technology to offer safe, comfortable mobility and vehicle entry/exit.

Door-related



Power Sliding Door System

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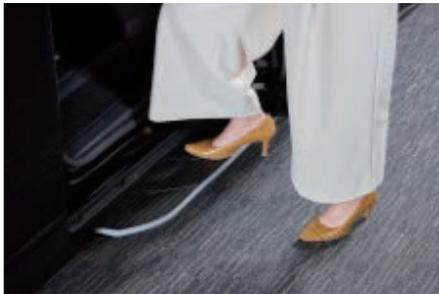
This system broadens the cabin space by building a drive unit in the sliding door or on the floor. It has already been adopted for many types of vehicles in Japan from micro/compact cars to minivans.



Power Back Door System

AISIN

Using a switch, the large back door can be opened and closed automatically. Convenient functions are incorporated, including the ability to open and close doors with foot movement, while both hands are occupied with groceries, baggage, etc.



Universal Step

AISIN

Using a "karakuri mechanism," which is activated without electricity, the steps are deployed and retracted as the power sliding door opens and closes. This ensures that everyone can easily and safely get in and out of the vehicle.



Aluminum Door Frame

Shiroki



Frame Molding (stainless steel)

Shiroki



Window Regulator

Shiroki



Power Door Latch

AISIN



Slide Door Closer

AISIN



Door Hinge

AISIN



Door Check

AISIN



Outside Handle-Smart Handle

AISIN



Interior Door Handle

AISIN

Roof, Exterior, and Structural-related



Sunroof

AISIN

We offer a broad product line, including multi-panel, panoramic, and standard sunroofs. We hold the largest domestic market share in Japan. Aisin sunroofs provide ventilation, lighting, and luxury, and give passengers a feeling of freedom thanks to excellent engineering and design.



Rocker EA Material

AISIN

It is assembled on the left and right sides of the battery case mounted under the floor of the electric vehicle to protect the battery from a side collision.



Grille Shutter

AISIN

By opening and closing fins with the shutter located in front of the radiator, the flow of wind into the grill is controlled. This can reduce air resistance and help improve fuel economy and mileage.



Active Front Spoiler

AISIN

The front spoiler, located under the front bumper of the vehicle, is deployed and retracted by the drive motor to reduce air resistance and contribute to improved fuel efficiency.



Spray-Type Damping Coat

Aisin Chemical



Structural Adhesive

Aisin Chemical



Air-purification Paint

Aisin Chemical

Seat-related



Pneumatic Seat

AISIN

Outstanding hold achieves improved handling stability during deceleration and cornering. By using an air-bag called bladder, a pump and a valve, pressure is applied to the passenger's body -- from the back to the femur -- further refreshing body and mind.



Occupant Detection Sensor

AISIN



Seat Sensor

AISIN



Roof Rail

AISIN



Crash Box

Aisin Keikinzoku

CSS (Connected & Sharing Solution)

As a manufacturer of world-class car navigation systems, we leverage our experience in navigation technologies to realize solutions that will contribute to safe and comfortable mobility in the cars and societies of the future.

► MaaS Initiatives



Rideshare Service “Choisoko”

AISIN

We provide a rideshare service using locationbased technology for the elderly and inaccessible communities. We provide this service according to local characteristics and needs, and currently operate it in over 50communities.

* As of June 2023



Road Maintenance and Management Support Service “Michi-log”

AISIN



Logistics Support Service

AISIN

► Car Navigation System-related



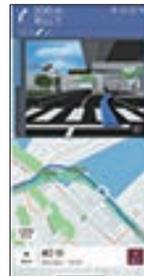
Toyota Lexus Genuine Connected Navigation

AISIN



Genuine navigation for Stellantis in Japan

AISIN



Car Navigation App for Smartphones (MoviLink)

AISIN

► ECU



ISUZU Map Locator ECU for Japan

AISIN

Aftermarket

Leveraging our strength as a comprehensive automotive parts manufacturer, we provide a wide range of aftermarket parts, supplies, and maintenance services to the global market. Aiming to expand our business, we started operation of Jms Komaki-Minami store in 2022.

Repair and maintenance products Jms Komaki-Minami store



Repair and maintenance products



Jms Komaki-Minami store

► Energy Solutions

We contribute to creating more environmentally conscious cities by providing clean and highly efficient energy-related products. We have also worked to increase resilience in infrastructure, such as expanding electricity supply in the event of a large-scale power outage due to a natural disaster.

AISIN is striving to be an essential part of sustainability by promoting our SDGs initiatives and energy system solutions that are necessary to reach a zero carbon society.



Cogeneration System for Residential Use

AISIN

ENE-FARM is a system that generates electricity by extracting hydrogen from gas delivered to each household to cause a reaction with oxygen. COREMO is a system that uses electricity generated by a gas engine. These are energy-saving systems that use heat created at the time of power generation for hot-water supply.

Residential cogeneration systems will help provide a future-oriented, comfortable living conditions and will assist in developing environmentally friendly communities around the world.



Gas Heat Pump Air-conditioner (GHP)

AISIN



Shower-Toilet Seat

AISIN



Peltier Modules (For optical telecommunications)

AISIN

▶ New Business

We continue to expand in new business fields and create new value.

▶ Cabin monitoring



Child Presence Detection System

AISIN

We are developing a system that can accurately recognize the presence of a child and notify individuals outside the vehicle if a child is left alone in the car. The system, which detects the presence of an unattended child, uses high-precision sensing technology that can detect even the slightest chest movement when a child breathes.

▶ Speech recognition application



A real-time speech recognition application "YYProbe"

AISIN

YYProbe is a real-time speech-to-text app. It is used to facilitate communication with people who have hearing difficulties.

Through the combination of a transparent display integrated with an acrylic panel, the system has been deployed to support the information desk of local government offices.

* The app currently supports Japanese only

▶ Personal Mobility



ILY-Ai

AISIN

ILY-Ai is a multi-functional personal shopping mobility partner that can be modified for a variety of user needs. The first ILY-Ai was produced in March of 2015, with continuous evaluation and improvement taking place ever since. In March 2020, AISIN began leasing ILY-Ai models to shopping centers to provide a leisurely shopping experience.

▶ Technology for converting water molecules



AIR

AISIN

This technology allows conversion of water molecules in the air into extremely small water particles* which are used in the beauty field for regulating the moisture environment of hair and skin, and improving the function of the skin barrier.

Furthermore, we are conducting research and development for use in the agriculture industry as well as various other fields.

* One-six hundredth the size of those produced by general steam vaporizers

▶ Pendulum acceleration reduction technology



PARS (Pendulum Acceleration Reduction System)

AISIN

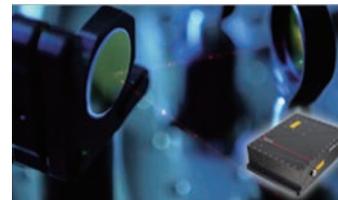
PARS technology reduces the effects of acceleration/deceleration and pitching/yawing caused by turning.

With the pendulum principle in use, even large objects can be optimally controlled with low power consumption.

We are working on its development to contribute to the stable movement of people and goods regardless of road conditions and vehicle behavior.

▶ Others

▶ Fiber Laser



IMRA Laser

AISIN

▶ Audio Equipments-related



TAOC Speaker System

Aisin Takaoka