



# Toyota Industries Close-up

Founded in 1926 by Japanese inventor Sakichi Toyoda as a manufacturing company of automatic looms, Toyota Industries has grown into a diverse enterprise covering a wide range of businesses, including textile machinery, automobiles, materials handling equipment and electronics. The following pages provide a closer look at our extensive range of business fields and product groups.

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Toyota Industries Close-up

**Materials Handling Equipment**

**TOYOTA Material Handling Company**

**A Solid Presence in World Markets**

TOYOTA Material Handling Company ("TMHC") develops, manufactures and markets a wide array of industrial vehicles. TMHC is a world leader in forklift trucks, with a full lineup of internal combustion and electric forklift trucks that range in capacity from 0.5 tons to over 40 tons. TMHC also offers skid steer loaders, tow tractors and other industrial vehicles. Additionally, TMHC manufactures and markets materials handling systems for picking, conveying, storing and sorting — such as racks, automatic guided vehicle systems, and automated

storage and retrieval systems — to address customer needs for enhancing the efficiency of their materials handling operations. TMHC's wealth of accumulated know-how in materials handling is based on the Toyota Production System and helps TMHC provide customers with optimal materials handling solutions.

Note: TMHC is an in-house company (a division of Toyota Industries) and not a legally incorporated entity. Toyota Industries' materials handling systems such as racks, automatic guided vehicle systems, and automated storage and retrieval systems are sold only in Japan.

**TOYOTA L&F**

**Products for the Japanese Market — Industrial Vehicles**



**GENEO (7FD25)**  
Internal Combustion Counterbalanced Forklift Truck



**GENEO-B (7FB15)**  
Electric Counterbalanced Forklift Truck



**GENEO-E (7FBE15)**  
Three-Wheel Electric Counterbalanced Forklift Truck



**GENEO-R (7FBR15)**  
Electric Reach Truck



**2TG25**  
Tow Tractor



**Jobsun (4SDK8)**  
Skid Steer Loader

**Products for the Japanese Market — Materials Handling Systems**



**Partner Rack  
(Rail-Less Mobile Type)**  
Rail-Less Mobile Rack



**Rack Sorter B**  
Automated Storage and Retrieval System (Plastic Container Type)



**Rack Sorter P**  
Automated Storage and Retrieval System (Pallet Type)



**Road Sorter H  
(ACBH10)**  
Automatic Guided Vehicle System



**2AFBR15**  
Automatic Guided Forklift Truck



**APLB8**  
Automatic Guided Pallet Truck

**Materials Handling Equipment**

**Aichi Corporation**



**Leading the Japanese Market for Aerial Work Platforms**

Aichi Corporation (“Aichi”) is a top manufacturer of special-purpose vehicles, with an approximately 66% share of the Japanese market for aerial work platforms in fiscal 2004. Aichi aims to serve as an indispensable partner to customers in providing solutions to their needs.

**Truck Mount Aerial Work Platforms**



**Self-Propelled Aerial Work Platforms**





Products for the North American Market



**7FGU70**  
Internal Combustion Pneumatic Tire  
Counterbalanced Forklift Truck



**7FGCU25**  
Internal Combustion Cushion Tire  
Counterbalanced Forklift Truck



**7FGCU35-BCS**  
Internal Combustion Cushion Tire  
Counterbalanced Forklift Truck—  
Boxcar Special Model



**7FBEU15**  
Three-Wheel Electric  
Counterbalanced Forklift Truck



**7FBCU25**  
Electric Cushion Tire  
Counterbalanced Forklift Truck



**7BRU23**  
Electric Reach Truck

Products for the European Market



**7FG/DF30**  
Internal Combustion Counterbalanced  
Forklift Truck with Deluxe Cabin



**7FBMF45**  
Electric Counterbalanced Forklift Truck



**7FBRE14**  
Electric Reach Truck



**7PML20**  
Electric Pallet Truck



**7FBEF18**  
Three-Wheel Electric Counterbalanced  
Forklift Truck



**LOP10CF**  
Low-Level Order Picker with Elevating Cabin

## Materials Handling Equipment

### BT Industries Group

#### Global Supplier of Warehouse Trucks

Headquartered in Sweden, BT Industries AB ("BT Industries") is the world's leading supplier of warehouse trucks.

BT Industries manufactures in seven plants in Europe and North America, where the company has particularly strong customer bases. BT Industries' products contribute to efficient

materials handling operations for customers in over 70 countries. BT Industries meets the needs of the entire spectrum of materials handling, with products including hand pallet trucks, electric pallet trucks, reach trucks, very narrow aisle trucks and counterbalanced forklift trucks. Some examples are shown below.

#### BT Products



**BT PRO LIFTER**  
Hand Pallet Truck



**BT PRO LIFTER M**  
Motorized Hand Pallet Truck



**BT ORION**  
Electric Pallet Truck



**BT IXION**  
Stacker Truck



**BT REFLEX AC**  
Reach Truck



**BT OPUS**  
Low-Level Order Picking Truck



**BT OPAL**  
High-Level Order Picking Truck



**BT VECTOR**  
Very Narrow Aisle Truck



**BT CARGO**  
Counterbalanced Truck

#### Raymond Products



**Raymond Model 7400**  
**Reach-Fork Truck**  
Reach Truck



**Raymond Model 112**  
**Pallet Truck**  
Electric Pallet Truck



**Raymond EASi Pacer**  
**Stand-Up Counterbalanced Truck**  
Electric Counterbalanced Truck



**Raymond EASi**  
**Orderpicker Truck**  
Order Picking Truck



**Raymond**  
**Swing-Reach Truck**  
Very Narrow Aisle Truck

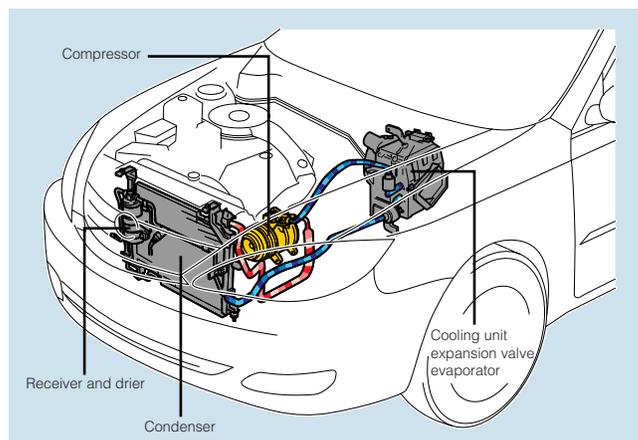
## Toyota Industries Close-up

### Automobile

## Compressor Division

### Compressors — the Core of Car Air-Conditioners

Car air-conditioners use the vaporized heat of refrigerants to cool the interiors of cars. The core of a car air-conditioner is the compressor. Boasting the top share of the world market for car air-conditioning compressors, Toyota Industries is a leading manufacturer of car air-conditioning compressors, employing outstanding, unrivaled technologies. These products include a continuous variable displacement compressor that automatically controls cooling in accordance with cabin temperature and the load on the engine. Our compact, lightweight 10-cylinder compressors with swash plate and fixed displacement are widely adopted by automakers in Japan and overseas. Additionally, with the aim of environmental protection, we are developing compressors that offer superb fuel efficiency and use CFC substitutes. The Division is also working on the development of electrically driven car air-conditioning compressors and compressors that use CO<sub>2</sub>, a natural refrigerant.



Toyota Industries manufactures compressors — devices that pressurize refrigerant gas, which must give off heat to liquefy (condense). When subject to increased pressurization, refrigerant gas becomes comparatively easier to liquefy. To cool the interior of vehicles, liquid (refrigerant) is cycled throughout a sealed air-conditioning system through a repeated process of vaporization (evaporation), liquefaction and re-vaporization.

### Fixed Displacement Type



**10S17 Compressor**  
(Fixed Displacement,  
Swash Plate Type)



**SCS06 Compressor**  
(Scroll Type)



**SV07 Compressor**  
(Vane Type)

### Continuous Variable Displacement Type



**7SBU16 Compressor**  
(Variable Displacement,  
Swash Plate Type)



**7SEU16 Compressor**  
(Externally Controlled,  
Variable Displacement,  
Clutchless Type)

### For Hybrid Vehicles



**ES18 Electric Compressor**  
(Hermetic Scroll Type)

### Auxiliary Car Heater



**Viscous-Type Power Heater**  
(Vehicle Cabin Supplementary  
Heater)

**Automobile**

## Vehicle Division

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### Building Safe, Environment-Friendly Cars

Toyota Industries currently assembles the Vitz (Yaris in Europe), RAV4 and Corolla Sedan under consignment from TMC. The fuel-efficient, environment-friendly Vitz is positioned as TMC's

strategic small car in global markets. The RAV4 sport utility vehicle is exported to the United States and Europe, while the Corolla Sedan is exported to the United States.



**Vitz**  
(Yaris in Europe)



**Corolla Sedan**



**RAV4**

**Automobile**

## Engine Division

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### From Small Cars to Large Industrial Vehicles

Toyota Industries manufactures diesel and gasoline engines ranging in capacity from 1500cc to 5200cc. Our car engines are manufactured on consignment from TMC and are all fitted in TOYOTA cars. In collaboration with TMC, we are developing environment-friendly diesel engines for automobiles that offer

high power and lighter weight, as well as low noise and vibration. Superior in output and environmental impact, our industrial engines are fitted in forklift trucks and other industrial vehicles manufactured by TMHC as well as in gas heat pumps and bus air conditioners.

### Diesel Engines

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**1CD Diesel Engine**  
(Displacement: 2.0 Liters, Used in the Avensis, RAV4 and Corolla for Europe)



**1HD-FTE Diesel Engine**  
(Displacement: 4.2 Liters, Used in the Land Cruiser)

### Gasoline Engines

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**2UZ Gasoline Engine**  
(Displacement: 4.7 Liters, Used in the Lexus LX470 and the Land Cruiser)



**1FZ-FE Gasoline Engine**  
(Displacement: 4.5 Liters, Used in the Land Cruiser)

## Toyota Industries Close-up

### Electronics

## Corporate Technical Center

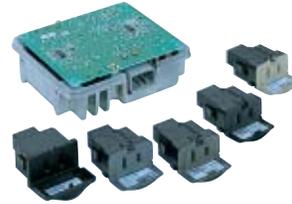
The Corporate Technical Center carries out product planning, design and manufacture of products related primarily to power supply and communications. The Center manufactures DC-AC inverters and DC-DC converters for hybrid cars, both of which are fitted in TOYOTA cars. It also develops and manufactures wireless LAN modules. Functioning as Toyota Industries' R&D base, the Center is involved in basic R&D in materials and other fields. The Center also conducts research in such leading-edge electronics fields as organic light-emitting diodes and radio tuner modules.



**DC-DC Converter  
for the Prius**



**Wireless LAN  
Module**



**DC-AC Inverter  
(Pre-Installed Type)**

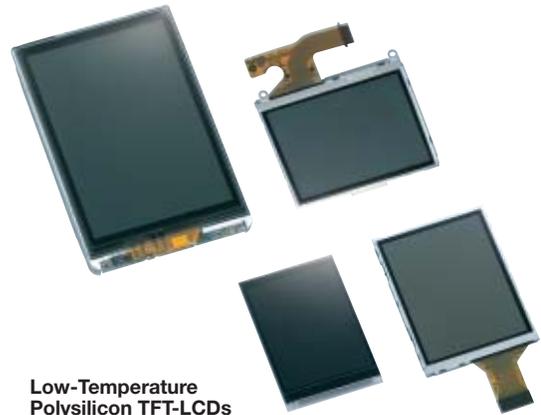


**Radio Tuner  
Module**

### Electronics

## ST Liquid Crystal Display Corp.

ST Liquid Crystal Display Corp. ("ST-LCD") was established in 1997 as a 50-50 joint venture with Sony Corporation to manufacture low-temperature polysilicon TFT-LCD panels. Combining Sony's superb LCD technology and Toyota Industries' expertise in quality control and manufacturing technology, ST-LCD produces high-quality, high-performance LCD panels using the Toyota Production System. These LCD panels are energy-efficient and offer high resolution as well as high numerical aperture. They also facilitate the integration of the display device and its driver circuits into a single TFT glass substrate. The resultant reduction in cost and miniaturization of the display unit allow the LCD panel to be used in a wide range of applications, including mobile phones, digital video and still cameras, and personal digital assistants.



**Low-Temperature  
Polysilicon TFT-LCDs**

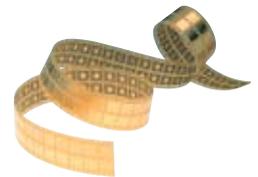
### Electronics

## TIBC Corporation

TIBC Corporation ("TIBC"), a joint venture between Toyota Industries and Ibiden Co., Ltd., manufactures ball grid array (BGA) plastic package substrates and flexible printed circuit (FPC) substrates for smart cards. TIBC's products are sold through Ibiden to major integrated device manufacturers worldwide for use in a wide range of electronic and information equipment.



**Ball Grid Array (BGA)  
Plastic Package Substrates**



**Flexible Printed Circuit (FPC)  
Substrates**

## Textile Machinery

### Textile Machinery Division

#### Innovation and Creativity in the Global Textile Industry

Tracing its origin to the founding of Toyota Industries, the Textile Machinery Division develops and produces spinning and weaving machinery, which is marketed to customers around the world. To stay ahead of ever-advancing market needs, the Textile Machinery Division is enhancing its products with the latest

communications, mechatronics and other technologies. Toyota Industries is a global leader in the manufacture of air-jet looms, ring spinning frames and roving frames. The Textile Machinery Division continues its commitment to customer satisfaction with a complete range of high-quality products that meet the needs of today's global textile industry.

#### Weaving Machinery



JAT710 Air-Jet Loom



LW600 Series Water-Jet Loom

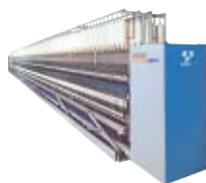


Mackee Eagle  
Sizing Machine for Spun Yarn



Filamaster Express 610  
Sizing Machine for Filament Yarn

#### Spinning Machinery



RX240NEW Ring Spinning Frame



FL100 Roving Frame



DX8 Drawing Frame



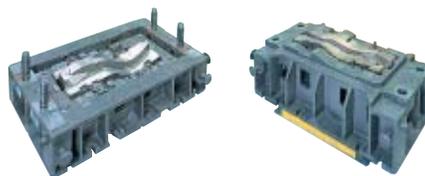
VC5A Comber

#### Others

### Automotive Stamping Dies

#### Superior Stamping Die Manufacturing Technologies

Toyota Industries designs and manufactures high-precision, high-quality automotive stamping dies for its Vehicle Division and TMC. Toyota Industries will continue to contribute to TMC's production of superior vehicles with stamping dies that offer excellent quality, cost efficiency and fast delivery times.



Stamping Dies

#### Others

### Manufacturing Equipment

#### Designing and Producing Manufacturing Equipment In-House

Toyota Industries carries out in-house manufacturing of key machining and assembly equipment for its various divisions such as the Compressor Division, Engine Division and ST-LCD, giving them a competitive edge.



Sealing Equipment  
for LCDs



NC Machine Tool  
for Aluminum Parts