

Daifuku provides material handling systems that store, convey, and sort items efficiently to customers spanning a wide range of industries worldwide. Daifuku offers the best solutions that are suited to the specific characteristics of various industries and markets, employing comprehensive capabilities ranging from consulting and structuring systems to after-sales service that supports the stable, long-term operations of its systems. Daifuku is continuing to boost the competitive edge of its customers by providing complete support for its systems.

Daifuku's complete support



# Evolving from a manufacturer of material handling systems to a systems integrator

### > Emphasis on Providing Comprehensive Systems

Daifuku does more than just manufacture material handling systems and equipment. Daifuku is active in a full spectrum of business fields, from production to distribution and services. Daifuku discusses with its customers to clarify the real issues they need to address, and is, therefore, able to offer the best solutions for responding to next-generation issues. Under its fouryear business plan covering the period through fiscal 2016, Daifuku aims to evolve from being a manufacturer of material handling systems to securing a superior competitive position as a Value Innovator.

# > Creating the Best Customer Solutions with Real Simulations

Daifuku contributes to securing a superior competitive edge for its customers by visualization of their whole systems. Specialist engineers prepare plans that meet customer requests and then create a working computerized model that simulates systems in actual operation using Daifuku's original simulation system. By repeating this simulation under various conditions, Daifuku structures the optimal and best systems for its customers.

#### **Daifuku's Solutions**

Sector	Item Handled	Challenge	
harmaceutical	Medicines	Streamlining of small-lot deliveries	Automatic su picking line
ood	Beverages	Effective use of space plus labor saving	Automated of linked to pro
ood	All types of food products	Dealing with increased demand in logistics and aging facilities	Automation operation
Distribution	Toys	Need for increasing sorting capacity and eliminating human error	Introduction and warehou systems
Distribution	Logistics	Reduction of logistics costs and human error	Automation a warehouse of
lanufacturing	Machinery	Shortening of operation time and maintaining material quality	Introduction warehouse a management
griculture	Rice	Maintaining quality in storage	Increased sto increased en managemen

#### Solution upply to a digital

cold storage system duction lines of storage/retrieval

of automated sorters use management

and acceleration of perations of automated and inventory t system orage capacity and phasis on inventory t

#### Mahindra & Mahindra (India): Shortening Lead Time by Making Use of Vertical Open Space

Mahindra & Mahindra Limited, one of the largest automobile manufacturers in India, manufactures about 200,000 cars a year in five models on mixed production lines. In 2013, Daifuku delivered a painted body buffer system that uses a unit-load automated warehouse system. The system operates as a temporary storage for the painted car body and retrieves it to the assembly line in the proper order. This system features the use of vertical open space to store the body instead of the conventional method of storing on flat conveyors. Under the previous method, the lead time to send the body down the assembly line was a maximum of 30 minutes, but the automated warehouse makes it possible to pinpoint and deliver the body when and where it is needed. This shortens the lead time to a minimum of two minutes



Mahindra & Mahindra's automotive plant

#### > Special Feature



#### > Customer Needs Are the Starting Point

One of Daifuku's strengths is its capability to develop and offer the best comprehensive systems to meet customer requests. These requests include the environment where the distribution point is located, special features of items to be handled, the frequency of shipments, and the budget for investment in the systems. To respond to today's growing attention to corporate social responsibility, Daifuku also proceeds to develop products and systems that give due regard to safety and the natural environment.

#### > Responding to Changes in the Industrial Structure

Daifuku is continuing to innovate by improving and combining its accumulated expertise and technologies and applying these to new industrial fields. In the 1980s when demand for semiconductors rose sharply, Daifuku developed overhead monorail systems for semiconductor cleanroom factories, an upgrade from the "Telelift," which was used for transporting medical records in hospitals and books in libraries. In addition, Daifuku developed cleanroom storage systems for flat-panel display factories, using its conventional automated warehouse system technologies, to meet increased demand in the 2000s. Also, as the economy and society change, Daifuku's developments for newly emerging industries have been highly

appraised. These include systems for convenience store chains, agricultural produce shipments, pharmaceutical wholesalers, 100-yen (or US\$1) stores, and e-commerce or online stores.





#### Daifuku's High-Rise Research Facility: **Solving Problems on High-Rise** Construction

The high-rise research facility, which tests 40m high automated warehouse stacker cranes, has developed a swaycontrol technology.

For more storage quantity in limited spaces, taller warehouses are needed. But, as these structures increase in height, sway of the upper part of cranes increases, and items cannot be stored and retrieved until swav subsides. This has an impact on the cycle time.

Amid increased demand for larger and higher-throughput automated warehouse systems for large distribution centers, Daifuku's own sway-control technology solves these problems. Since this technology can also be applied in Europe and the U.S., where restrictions on the height of these structures are less strict than in Japan, the work of the high-rise research facility is becoming increasingly important.



High-rise research facility at the Shiga Works





#### > Trust in the Daifuku Brand Built on Thorough After-Sales Service

What customers need, first of all, are systems delivered and operating on time and capable of performing up to specifications. Next, they need the stable operation of their systems. After delivering systems, Daifuku's staff provide support\* tailored to customer needs based on thorough product knowledge. In the case of automobile production line systems, the origin of its business since installing Japan's first-ever conveyor system at an auto factory in 1957, Daifuku has compiled an impressive record of installations and accumulated know-how on facility upgrades. This support capability continues to lead to increased orders. Daifuku's capabilities are especially evident when it comes to the challenging level of work that requires equipment modifications and expansions without stopping the existing production lines.

\* Examples of this support include Daifuku's intensive on-site service, which keeps factories running 24 hours a day, 365 days a year, and the upgrade and retrofit services to accommodate changes in auto models and production plans in automobile factories. In the case of airport baggage handling systems, Daifuku supplies not only the systems but also provides airport facility operation and maintenance services

## > Entering the U.S. Market together with Japanese Automakers

The capabilities of Japanese manufacturing have spread around the globe. Daifuku systems support these capabilities from the perspective of material handling. In the 1980s, when Japanese automakers entered the North American market, Daifuku set up a subsidiary to support automobile production in the market. For more than 30 years since then, Daifuku has consolidated a strong base in North America by compiling an extensive installation record in the market and also providing systems to Detroit's Big Three automakers. Favorable automobile sales are projected to continue in the U.S., and Daifuku will draw on its long experience in the market to upgrade the aging facilities and undertake new projects.

#### **Quake-Absorbing Racks: Bolstering Business Continuity** following Natural Disasters

When earthquakes occur, making a rapid recovery is important. For example, there is a greater need to reliably provide pharmaceutical supplies after a disaster happens. This is why Daifuku developed its quakeabsorbing storage racks that dampen the impact of earthquake shocks and prevent items from falling. As the importance for risk management has increased in recent years, these racks are being used. Daifuku believes that responding to such needs is one of its missions, as the leading manufacturer of material handling systems, and part of its social responsibility. Daifuku's capabilities for restoring operations at customer sites after disasters, such as earthquakes and floods, have received a high appraisal.

#### Concept of Quake-Absorbing Backs

