Robot & Automation

Robot / System / Material Handling / Laser / Undercarriage / R&D Center
Beyond your wish, DRB Fatec

Business areas

- **Robot**
  - Spot Welding
  - Arc Welding
  - Jig
  - Handling
  - Clean

- **System**
  - Press Automation
  - Hydro-Forming
  - TWB

- **Material Handling**
  - System Engineering
  - Auto Storage System
  - Sorting System
  - Conveying & Handling
  - IT & Software
Undercarriage for Mini Excavator

Anti-Vibration Undercarriage

Field Robot R&D

Laser Applications R&D

Welding Engineering R&D

Laser Cutting

Laser Micro Machining

FPD Inspection

FPD Indexer

Laser & Display

Undercarriage

R&D Center

- Undercarriage for Mini Excavator
- Anti-Vibration Undercarriage

- Field Robot R&D
- Laser Applications R&D
- Welding Engineering R&D

Laser & Display

Undercarriage

R&D Center
Robot Division has been developing automated equipment and providing service to implement various automation systems using industrial robots since 1990. With our superior 3D design and robot simulation capabilities, we are providing welding automation and handling automation systems including the jig based on our advanced spot and arc welding technologies. Based on customer satisfaction through superior quality systems and services, we will be your best robot system partners.
**Clean**

- High-rigidity body with beltless structure
- Minimizing bending and vibration with improved safety
- Equipped with a function of vibration control and restraint
- Lineup capable of managing up to 5G~8/9G.

**Spot**

- Robot & Controller
- Spot Welding Gun
- Time Contactor
- Tip Dresser
- Auto Tool Changer
- Sub Devices

**Arc**

- Robot & Controller
- Welder (OTC)
- Welding Torch
- Wire Feeding Unit
- Positioner
- Jig Operation

**Jig**

- 3D Simulation
- Interference check for Jig & Welding Gun

**Handling**

- Car parts Assembly Automation
- Multi-Purpose Durability Tester
- CNC Auto Loading

- 7/8 Axes Carriage
- Link Type
- Vertical Articulated Type

- Robot & Controller
- Welder (OTC)
- Welding Torch
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- Sub Devices
- Robot & Controller
- Welder (OTC)
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- Sub Devices
Based on our experience, expertise and robot application technology accumulated in the field of factory automation, we analyze processes to provide safe and efficient systems. For automation solutions for Press Automation, Hydro-Forming and TWB systems, we support line configurations suitable to customer’s characteristics. In addition, our consistent service systems of design, installation test operation, training and A/S will maximize customer’s ROI efficiency.
Material Handling Systems Team provides total solutions for the Automated Storage Systems, the Unmanned Transfer Systems (AGV, EMS, RGV), the Conveyors, the Airport Automation Systems (BHS, CHS, and Catering System) and the Sorting Systems to the various industrial fields, i.e. Motors, Chemicals, Electronics, Pharmacies, Airports and Postal logistics centers.
System Engineering

Checking the efficiency and safety of a system through previous simulation of the system
• Optimization of the distribution of loads
• Analysis of bottleneck section & Establishment of threshold value
• Materials mobilization plan and projection
• Verification of operation status through a test-run before installation
• Inspection of control programs

Auto Storage System

Effective management of warehousing process (storage, retrieval and inventory) using computer-based information systems and automation facilities
• Accurate inventory management
• Safekeeping of warehoused items in good condition.
• Real-time provision of management information
• Reduction of workforce & Industrial Disaster
• Rack Building / Unit Rack / Auto Crane / Carousel Rack

Sorting System

Product
• Cross Belt Sorter
• Tilt Tray Sorter
• Slide Shoe Sorter
• Narrow Belt Sorter

Conveying & Handling System

Product
• Conveyor
• RGV
• AGV
• EMS
• Assembly & processing lines for engine and transmission shop
• Sub-lines for car assembling shop

IT & Software

Product
• Local Control System
• Automatic Warehouse Management System
• Logistics management System
• Integrated Manufacturing System
• RFID & Vision System
The Laser & Display Team of Dongil Fatec is manufacturing the Macro Inspection System used for inspecting the defects on the surface of manufactured glass products, which is an indispensable part of the manufacturing process of FPD products, including TFT-LCD and PDP. We also have INDEXER, a system for the transfer of glasses or cells between individual work processing equipment and the main logistics system. We have also developed laser-based industrial processors used in processing, welding and inspection as well as those used in the FPD and semiconductor manufacturing process. We are also actively pursuing expansion into markets worldwide based on our technological prowess.
FPD Inspection & Indexer

FPD Inspection : Robot Macro
- Enabling an operator to move the glass substrate freely in a small, confined area for detecting defects
- Using multi-axis and multi-articulated robot system
- Glass holder using special materials that can realize high-rigidity, weight-reduction, and low vibration.
- High performance illumination system
- Macro Pointer application
- Review Camera application

Indexer
- Equipment for the transfer of glass substrates or cells in FPD manufacturing processes
- Based on the clean robot developed by Nachi Fujikoshi of Japan
- Applicable to various types of mass production lines
- Special grabber that can save the footprint for equipment installation and reduce the tact time
- Models for 15.4” to 32” wide type and for 32” to 57” large-sized type
- Self-Inversion function

Laser Cutting & Micro Machining

Laser Cutting : Flying Optic Type
- Optical fiber beam delivery system
- High-speed processing technology
- Better quality of processed goods
- Easier maintenance and repair
- Operation cost reduction

Laser Micro Machining
- Repair Machine
- Via Hole Drilling Machine
- Laser Micro Cutting Machine
- Laser Micro Welding Machine
- Various applications using DPSS Laser and Fiber Laser
Modular undercarriage system provides customers with the best-integrated solution. This can be achieved by making modules of undercarriage parts that can be installed on the superstructure of heavy equipments such as construction vehicles, farming equipment, and transport equipment. With its-exclusive patent rights related to undercarriage, DRB Fatec has been developing new technologies for reducing noise and vibration and yet increasing comfort of ride, always with the operators in mind.
Undercarriage for Mini Excavator

- Providing modular undercarriage system
- Realizing integrated-system with DRB’s exclusive patent rights and excellent design prowess.
- Offering more stable and differentiated designs
- Enhancing customers’ competitiveness by reducing equipment weight and production costs.

Anti-Vibration Undercarriage

- Retaining exclusive patent rights to the new technology, “Engineered Rubber Bridge,” working as multi suspension
- Reducing the fatigue of operators by minimizing the overall vibration when driving and working
- Securing more tread in contact with the ground to help the equipment stand stably on rugged ground
- Extending the durability of components significantly

Highly Sophisticated Design Process

Developing a stable and rapidly responsive system through high grade design process

- CAD
  • 3D Modeling
- CAE(Dynamics)
  • Dynamic Analysis
- CAE(Statics)
  • Static Analysis
We are engaged in development of technologies concerning intelligent field robots used in firefighting, security and national defense sectors, regarding it as one of the important next-generation growth engines, with the intention to contribute to the happiness and peace of humankind.
Developing Robots

FIRO (Firefighting Robot)
• This robot can be sent to the burning sites inaccessible to firefighters for the purpose of obtaining geographical information on the sites while detecting humans trapped inside, and tracing fire sources
• Reducing human losses and shortening of working time for firefighting
• Making ways for firefighters to work with a greater ease in high temperatures
• Fighting fire independently from firefighters

Mobile Platform
• Mobile Platform in rubber track system
• Hybrid motor system
• A variety of utilities (Surveillance, Security, Military Defense, and Research)

<table>
<thead>
<tr>
<th></th>
<th>Firefighting Robot (FIRO - 1)</th>
<th>Fire-Scout Robot (FIRO - 2)</th>
<th>Mobile Platform (M.P)</th>
</tr>
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<tbody>
<tr>
<td>Size(L x W x H)</td>
<td>1435 x 830 x 910mm</td>
<td>810 x 530 x 210mm</td>
<td>1900 x 1360 x 730mm</td>
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<tr>
<td>Weight</td>
<td>480kgf</td>
<td>40kgf</td>
<td>700kgf</td>
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<tr>
<td>Max Velocity</td>
<td>20km/hr</td>
<td>8km/hr</td>
<td>20km/hr</td>
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<tr>
<td>Stair-climbing</td>
<td>35 m*</td>
<td>35 m*</td>
<td>35 m*</td>
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<tr>
<td>Traction Motor</td>
<td>DC motor</td>
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<tr>
<td>Operating Time</td>
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<td>7(+1)hr</td>
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<tr>
<td>Main Power</td>
<td>LI-PB</td>
<td>LI-PB</td>
<td>Hybrid Type</td>
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</tbody>
</table>

Autonomous Navigation System : under Development Specification
• An error range of ±1 m
• Inclinometer, compass sensor for data transfer, and GUI-based monitoring
• Visual Interface : Window XP Based
Dongil Fatec Co., Ltd.

Head Office and Plant  25-6, Geumsa-Dong, Geumjeong-Gu, Busan, Korea
Tel. 82-51-523-5370  Fax. 82-51-523-5390

Cheonan Plant  16-1 Block, the 4th provincial industry complex, Jiksahn-eup, Cheonan-city, Chungcheongnam-do, Korea

Ahnyang Plant  1029-32 Hogae-dong, Dongahn-gu, Ahnyang-city, Gyunggi-do, Korea

Beijing Affiliate  The 8th factory of Yeondong International Industry Department at the National Environment Conservation and Industry, Tongju-gu, Beijing
Tel. 86-10-6059-2461, Fax. 86-10-6059-2467

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