THAI MITSUWA PUBLIC CO., LTD

- Corporate Profile -

As of Aug 22, 2018
I Corporate Profile

- General Company Information
- Certificate & Environmental Assessment

II Factory Layout & Equipment (Pathum Thani)

- Plastic Injection Molds Processing Line
- Paint & Printing Processing Line
- Others (Assembling, QA/QC, Mold Shop etc….)
Corporate Profile

Company Location

Mitsuwa Electric Industry Co., Ltd (Principle Share Holder)

Pathumthani Headquarter & Factory (58 km from SVM Airport)

-Korat Factory (203 km from SVM Airport)

Pathumthani Headquarter (1st Factory in Thai)

Korat Factory (2nd Factory in Thai)
Corporate Philosophy

“Manufacturing products to fulfill customers' requirements, with supply high quality products, delivery on time and continuous improvement for customer satisfaction”

History of Mitsuwa Group

1959  Mitsuwa Electric Industry Co.,Ltd has been established in Osaka, Japan
1962  Plastic Molding Factory has been established in Osaka, Japan
1987  Thai Mitsuwa Public Co.,Ltd has been established in Thailand
1998  Magnesium project has started in Osaka Factory.
2003  Listed on MAI, the Stock Exchange of Thailand
2004  2nd Factory at Korat in Thailand has been established.
2011  Korat Factory has started the operation of Magnesium molding products.
Mitsuwa Electric Industry Co., Ltd

Establishment: December, 1959
Paid Capital: 98,000,000 JPY
Employees: 280
Thai Mitsuwa Public Company Limited

Establishment : November, 1987 (Operation start July, 1988)
Paid Capital : 199,500,000 BAHT (As of April 2005)
Business Line : Plastic and Magnesium Injection Molding
Mold Design, Manufacturing & Repair
Employees : Consolidated 2,261 (Pathumthani 1,194 / Korat 1,067)
Stock Market : Oct, 2003 Listed on
The Stock Exchange of Thailand (code: TMW)
Thai Mitsuwa
Annual Sales Revenues 2017

Total 2,967 Million Bath

Mold 5%
Other Income 1%

Magesium
Korat 28%

Plastic
Pathumthani 56%

Plastic Korat 10%

Revenue by Industry

- Automotive 43%
- OA&Home Appliance 24%
- Magnesium 5%
- Mold 5%

(Ref. 2017 Annual Report)
Corporate Profile

Thai Mitsuwa Main Business Line

- Plastic Parts
  - OA & Home Appliances
- Plastic Parts Automotive
- Magnesium Parts
  - Camera
- Mold Shop
Corporate Profile

TMW Main Business Line
(Plastic Injection Products)

- Electric Appliances
  (Office Automation & Home Appliance)

- Automotive

Sales Revenue

- Automobile Industry: 64%
- Home Appliance & Office Automation: 36%

(Ref. 2017 Annual Report)
Corporate Profile

Plastic Injection: Automotive Parts

- Exterior Parts
- Interior Parts
- Car audio Parts
- Motor Cycle Parts

Client:

- Honda
- Suzuki
- Pioneer
- Calsonic Kansei
- KASAI
- Valeo
- TOYODENSO
- TOYODA GOSEI
- HAYASHI TELEMPU
Plastic Injection: Electric Appliances (Home & Office Appliance)

Corporate Profile

Client:

- Aiphone
- Ricoh
- OKI
- Canon
- Daikin
- Mitsubishi
- Toshiba
Corporate Profile

Magnesium Injection: Electric Appliances (Home Appliance)

Home Appliance
(Mirror less Single Lens Reflex Camera etc...)

~Korat Factory Magnesium Thixomolding Operation Line~

Client:

Canon
Sony
Nikon
Fujifilm
Panasonic
Olympus
RICOH
Corporate Profile

ISO Certificate

TMW Quality Policy:
Strive to develop Products with the best quality. Keep the Customer's Delivery on time. Perform Risk Management in order to fulfill our customer's satisfaction with continuous improvement.

*The International Automotive Task Force (IATF) 16949:2016 automotive standard was released in October 2016. TMW has already completed the Audit and the Certificate will be issued on Sep, 2018.
The Ministry of Industry has set up the green industry project to put forward and promote the industrial sector to conduct environmentally-friendly operations. TMW’s efforts for environmental initiatives are recognized nationally and our awards are as follows.

A certified green label (Green Label) study and analysis of product life cycle (LCI-LCA) to reduce pollution and reduce greenhouse gas emissions, which projects are a part of implementation proactive environmental conservation of the Ministry of industry.
With the aim of reducing CO2 emissions, TMW has installed solar panels and storage batteries on the rooftops of the office and factories in 2018.
I  Corporate Profile

II  Factory Layout & Equipment  (Pathum Thani)

- Plastic Injection Molds Processing Line
- Paint & Printing Processing Line
- Others (Assembling, QA/QC, Mold Shop etc...)
Pathumthani Headquarter & Factory
Total Site Area: 60,404 m²
Building Space: 32,013 m²
Corporate Profile

Organization Chart
(Pathumthani Headquarter & Factory)

President & CEO
Mr. Yamada Hiroshi

Factory Manager
Factory Manager Mr. Tsuruhara
Vice Factory Manager Mr. Phaitoon Kladkhiew

QMR
MR. Mr. Phaitoon Kladkhiew

Administration
Accounting/BOI
Mr. Takeguchi

Production Control
Delivery / Packing
Mr. Morita / Mrs. Fumiko

Production
(Injection)
Mr. Somchart

Production
(Spray&Assy)
Mr. Handa (Advisor)

Quality Assurance
Mr. Okubo

Engineering
Mr. Hosoya / Mr. Oriuchi / Mr. Yoneuchiyama

Sales & Marketing
Mr. Sakaguchi
Mr. Kamada (Electric) / Mr. Tsujimoto (Automotive)

ISO
Equipment List:

- **Normal Injection Molding Machine**
  30 Ton – 1600 Ton = Total 98 sets

- **Double Color Injection Molding Machine**
  120 Ton = Total 7 sets

- **Heat & Cool Injection Molding Machine**
  130, 250, 450, 650 Ton = Total 15 sets

**Machine Maker:**
JSW, FANUC, Mitsubishi, Sumitomo, Toshiba, Meiki, Nisset etc...

<table>
<thead>
<tr>
<th>NO.</th>
<th>MACHINE (TON)</th>
<th>SETS</th>
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<tbody>
<tr>
<td>1</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
<td>13</td>
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<td>3</td>
<td>55</td>
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<td>6</td>
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<td>1</td>
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<tr>
<td>7</td>
<td>120 (DOUBLE INJ.)</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>130 (H&amp;C)</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>140</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>140 (H&amp;C)</td>
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</tr>
<tr>
<td>11</td>
<td>150</td>
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<tr>
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<td>16</td>
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<tr>
<td>17</td>
<td>250</td>
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<tr>
<td>18</td>
<td>250 (H&amp;C)</td>
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<tr>
<td>19</td>
<td>280 (H&amp;C)</td>
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<td>21</td>
<td>350</td>
<td>8</td>
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<tr>
<td>22</td>
<td>450</td>
<td>16</td>
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<tr>
<td>23</td>
<td>450 (H&amp;C)</td>
<td>3</td>
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<tr>
<td>24</td>
<td>650</td>
<td>4</td>
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<tr>
<td>25</td>
<td>650 (H&amp;C)</td>
<td>2</td>
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<td>26</td>
<td>660 (H&amp;C)</td>
<td>3</td>
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<td>27</td>
<td>850</td>
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<tr>
<td>28</td>
<td>850 (H&amp;C)</td>
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<tr>
<td>29</td>
<td>1300</td>
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<td>30</td>
<td>1600</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>120</strong></td>
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</tbody>
</table>
Outline of Factory

Inspection Tool; QA Inspection Department
TMW can conduct variety of inspections to ensure conformity of product specification and quality.

CMM (Capability Maturity Model) Auto / Manual Machine

- Microscope
- Digital Calipers / Gloss Meter
- Push Pull Gauge for Tensile & Compressive Test
Factory Layout

Plastic Injection Molds Processing Line

Factory 1: Normal Mold Injection Machine 30 ton-450 ton
Factory 5: Double Molding Injection and Normal Machine 100-300 ton
Factory Layout

Plastic Injection Molds Processing Line

Factory 6: Large Scale Injection Molding Machine 850-1600 ton
Factory 7: Hot/Cold Thermal Cycling of Injection Molds Machine 130 ton-650 ton
Hot/Cold Thermal Cycling of Injection Molds Technology

Utilizing Thermal Cycling System (LPG, Boiler, Chiller, Water Temperature Controller) for Mold Heating & Cooling Phase.

**LPG** | **BOILER** | **CHILLER** | **RO Unit**
---|---|---|---
![LPG Image] | ![Boiler Image] | ![Chiller Image] | ![RO Unit Image]

**Controller** | **MOLD**
---|---
![Controller Image] | ![Mold Image]
Advanced Injection Molding Technology

Case Study: Hot/Cold Thermal Cycling of Injection Molds Technology

Heat/cool molding process also enables the use of glass-reinforced structural materials for high-gloss finish applications and increasing gloss by 50% to 90% and reducing surface roughness.

Comparison Table

<table>
<thead>
<tr>
<th>Advantage Point</th>
</tr>
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<tbody>
<tr>
<td>- High-gloss finish applications.</td>
</tr>
<tr>
<td>- Weight saving compared with CS Product (1.2kg &gt;&gt; 500g)</td>
</tr>
</tbody>
</table>
Factory 8  Automated Robotic Spray Line, Clean Room and Laser Marking

Our Automated Robotic Spray Line optimizes cost & cycle time reduction.
**Factory 9  Electrostatic Spray Painting by Automation Robot (For Mass Production)**

Electrostatic spray painting can reduce the loss of problems with uneven coverage and overspray that result from using a regular spray painter.
Factory 3  UV Spray & Dry, Vacuum Evaporation
In high vacuum, evaporated particles can travel directly to the deposition target.

- Pre-treatment
- Under-Coating
- UV Dry
- Vacuum Evaporation
- Clear-Coating

Bell Jar (Vacuum Chamber) & Tungsten Filament
Factory Layout

Painting Processing Line

Factory 5 & Factory 8 (Laser Marking Machine)

Interior Button for Automobile Parts
Factory Layout

Printing Processing Line

Factory 5 Silk Screen & Pad Printing, Hot Stamp Line

Silk Screen & Pad Printing

Hot Stamp
Assembling & Packing Process Line;  
Factory 5  Assembling Line  
(Manual Assembling, Vibration Welding, Laser Cutting)

[Diagram of factory layout showing Assembling Process Line for Factory 5 with annotations for different factories and areas.]
Vibration Welding Technology;

The vibration welding process is suitable for welding of compatible thermoplastic parts along flat seams which have to be high strength, pressure tight and hermetically sealed.

Two plastic parts are in frictional contact with each other.

Certain frequency, amplitude and pressure.
# Outline of Factory

## TMW Mold Shop Equipment List:

<table>
<thead>
<tr>
<th>MACHINE</th>
<th>SETS</th>
</tr>
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<tbody>
<tr>
<td>1. WIRT CUT MACHINE</td>
<td></td>
</tr>
<tr>
<td>SP43 MAKINO</td>
<td>1</td>
</tr>
<tr>
<td>2. MACHINING CENTER</td>
<td></td>
</tr>
<tr>
<td>V33 MAKINO</td>
<td>1</td>
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<tr>
<td>V33I MAKINO</td>
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<tr>
<td>F3 MAKINO</td>
<td>1</td>
</tr>
<tr>
<td>MCV-560 OKK</td>
<td>1</td>
</tr>
<tr>
<td>KE-55 MAKINO</td>
<td>1</td>
</tr>
<tr>
<td>3. EDM MACHINE</td>
<td></td>
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<tr>
<td>AQ35L SODICK</td>
<td>1</td>
</tr>
<tr>
<td>AG60L SODICK</td>
<td>1</td>
</tr>
<tr>
<td>4. RADIAL DRILLIN</td>
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</tr>
<tr>
<td>NSR-1260D NAMSUN</td>
<td>1</td>
</tr>
<tr>
<td>5. LATHE MACHINE</td>
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</tr>
<tr>
<td>NARA4311 NAMSUN</td>
<td>1</td>
</tr>
<tr>
<td>6. MILLING MACHINE</td>
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</tr>
<tr>
<td>NSM-4 NAMSUN</td>
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<tr>
<td>7. PRECISION SURFACE GRINDING MACHINE</td>
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<tr>
<td>ACC-350 OKAMOTO</td>
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</tr>
<tr>
<td>63ST OKAMOTO</td>
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</tr>
<tr>
<td>ACC105DX OKAMOTO</td>
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</tr>
<tr>
<td>8. ARGON MACHINE</td>
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<tr>
<td>SW9800 SANWA</td>
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</tr>
<tr>
<td>9. LASER WELDING MACHINE</td>
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<tr>
<td>SWA150 SISMA</td>
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<tr>
<td>CAD/CAM UNIGRAPHICS</td>
<td>5</td>
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<tr>
<td>MICROSCOP MITUTOYO</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>
Outline of Factory

Delivery;

We offer comprehensive door-to-door transport services, using our owned company truck forwarding timely to your local parts assembling site in Thailand.

Owned Company Truck, Fabrication shop of plastic box and warehouse
THAI MITSUWA PUBLIC CO., LTD

Thank you...

“Manufacturing products to fulfill customers' requirements, with supply high quality products, delivery on time and continuous improvement for customer satisfaction”