A Leading Provider of
Laminated Bus Bar Solutions

www.wdint.com
WDI – is a Canadian company that has main manufacturing facility in Suzhou, China

We are an engineering and manufacturing organization providing Laminated Bus Bars and complete engineering solutions to customers worldwide.

- Located at SND, Suzhou, China, near highway 312
- Suzhou Facility Space: 6,000 Square meters
- Total No. of Employees: 152
- No. of Engineers: 50
  - 5 with advanced degrees: M.Sc.; Ph. D.
  - 2 Registered Professional Engineers of Ontario

**Business Activities:**

**Suzhou, China**
- Engineering, R&D, Manufacturing, Sales & Marketing

**Toronto, Canada**
- SummitRG --North America Sales & Marketing, Technical Support
We serve customers worldwide in the following industries:

- Rail/Transportation
- Renewable Energy (Solar Power, Wind Power)
- Telecommunications
- Power conversion products
Our experienced design and application engineers provide complete engineering solutions and Fast-track product time to market.

Our design tools include; Solid Works, CAD and are the generic tools used to streamline the design process.

Government certified as a “High Technology and New Technology Enterprise”.

Received prestigious “Award of Excellence” from Suzhou SND, (The first and highest ranked technology industrial park in China).
Examples of top end voltage design projects by WDI for customers such as GE, Eaton, ABB, Siemens, Bombardier, China North Railway, China State Grid.

<table>
<thead>
<tr>
<th>Application</th>
<th>Working Voltage</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Wind Power</td>
<td>6,000 V</td>
<td>7 MW Wind converter</td>
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<tr>
<td></td>
<td>5,400V</td>
<td>6 MW Wind converter</td>
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<tr>
<td>Solar Power</td>
<td>1,100V</td>
<td>1.6 MW Solar inverter</td>
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<td>State Grid</td>
<td>45,000 V</td>
<td>Power transmission</td>
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<td></td>
<td>11,000 V</td>
<td>HVDC</td>
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<tr>
<td>Rail / Transit</td>
<td>3,600 V</td>
<td>9.6 MW Traction converter</td>
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<tr>
<td></td>
<td>4,200V</td>
<td>11 MW Traction converter</td>
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<tr>
<td>Industrial Converter</td>
<td>15,000V</td>
<td>Medium voltage converter</td>
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</tbody>
</table>
WDI’s edge-closed laminated bus bars are manufactured using our own proprietary laminating process technology.

UL recognized, our high voltage and heat resistant insulating materials provide the superior performance required to meet various industry applications.

The maximum size of our edge-closed LBB’s range from 800 mm x 1500 mm.
WDI’s Powder-painted Laminated Bus Bars, are manufactured using our proprietary powder-painting process and laminating technologies.

High performance insulating powder provides a continuous, tough, moisture and chemical resistant dielectric coating for our LBB’s.

Our dielectric coating thickness ranges between 0.2 mm ~ 3.00 mm, based on customers’ various applications and electrical requirements.

WDI’s powder-painted LBB’s offer a smooth, glossy appearance and superb electrical performance.
Flexible laminated bus bar (WDI’s patented technology*) is often used to link multi-sections inside the power conversion unit.

WDI’s Flexible LBB is designed at the lowest inductance, while providing a level of flexibility.

Our state-of-the-art design also provides less temperature rise and exceptional functional performance.
Based on customer's requirements, such as electrical, heat dissipation, and structural requirements, we are able to provide optimum structural design and sub-assembly services; integrating IGBT, Laminated Bus Bar, Capacitor, Heat Sink, and Capacitor Support.
Old Design

- Bus bar inductance reduced from 760nH to <10nH.
- Snubbers can be eliminated.
- The heat from IGBT may be dissipated more evenly; Capacitor cooling is more effective than previous design.

WDI New Design
WDI made the following improvements:

- Reduced the number of bus bars from 3 to 2.
- Simplified installation
- Reduced inductance (from IGBT to snubber) from 11.76nH to 0.6nH
Continuously provide value-added engineering services to customers. Through optimal design, we help customer to reduce product costs from design stage.

**Year 2011**  The original design. 3 Layers, 6 EA / System

**Year 2012**  Revision 1  The layers of Laminated Bus Bar is reduced from 3 to 2; 6 EA / System. The overall size is smaller. Cost reduction 43.7% achieved.

**Year 2012**  Revision 2  Structure is simplified (1+3 structure)

**Year 2013**  Improved electrical performance. The inductance is greatly reduced; structure is more compact. 1 EA / System. Cost reduction was 46.8%.

**Year 2014**  Optimized design for better process and productivity; further cost reduction was 18.5%
Manufacturing Capabilities

In-house manufacturing equipment and production lines for all key processes - such as CNC lathing, CNC milling, CNC punching/forming, brazing, laminating, powder painting, and testing, to ensure internal control of critical processes and total product quality.

Lean manufacturing, high standard 5S, and Visual Factory management concepts are used in WDI’s Production System.
WDI is an ISO 9001 certified company.

WDI have passed the IRIS (International Railway Industry Standard) assessment and received certificate in Sep. 2012.

WDI’s successful implementation of the IRIS system is part of our continuous-improvement effort toward the highest level of total quality, product life-cycle and project management.
CERTIFICATE OF ASSESSMENT

AQA International, LLC, attests that:

Suzhou West Deane Machinery Inc.
No. 15, Yunxin Road, New District, Suzhou City, Jiangsu Province, China 215151

with a scope of:
Manufacture of Laminate Busbar


“Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2008 requirements may be obtained by consulting the organization.”

The effectiveness of this certificate shall be validated by periodic surveillance audit of AQA for maintenance.
Validity of certificate please visit at www.aqa-china.com

Certificate No.: CN013006
Registration Period: 02/25/2010 to 02/24/2013
Initial Registration: 02/25/2010

CEO, AQA International

CERTIFICATE

awarded to
Suzhou West Deane Machinery Inc.
No. 15 Yun Xin Road, New district, Suzhou, China 215151 Suzhou China

DEKRA Certification GmbH

confirms, as an IRIS approved certification body, that the Management System of the above organization has been assessed and found to be in accordance with the

International Railway Industry Standard (IRIS)
Revision 02, May 2009

for the activity of Design and development & Manufacturing for the scopes of certification 20 (Single railway component/s)
Design and development, Manufacturing of Laminated Bus Bar

Certificate valid from: 20/08/2012
Certificate valid until: 24/07/2016

Current date: 19/09/2012
Certificate-Register-No.: 70091207

* Pending that the subsequent surveillance audits are successful before the anniversary of this validity date.

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<th>Date</th>
<th>Type</th>
<th>Power (KW)</th>
<th>Converter Model#</th>
<th>Product Description</th>
<th>Customer Part No.</th>
<th>Project Loader</th>
<th>Notes</th>
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中国北铁铁路项目列表 - 示例

- **Project #**
- **Date**
- **Type**
- **Power (KW)**
- **Converter Model#**
- **Product Description**
- **Customer Part No.**
- **Project Loader**
- **Notes**
WDI’s Strengths

- Zero-defect high quality Laminated Bus Bar products.
- Strong engineering and R & D discipline. Con-current design and engineering support to customers both domestic and overseas.
- In-house manufacturing for all processes (except plating), to ensure total process quality control.
- Lead time for samples are generally 3 weeks therefore reducing new product development time to market.
- Proprietary lamination technology for “Z” and “L” shaped Laminated Bus Bars which eliminate the risk of damage to insulation films, and increases product partial discharge performance.
- Sixteen (16), automatic lamination machines eliminating bottle-necks in production capacity.
- Expansion capacity to meet increased customer demands and future business development.
- Lean manufacturing method is used in production process to realize total product cost control.
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Thank You