

# Odawara's Global Network

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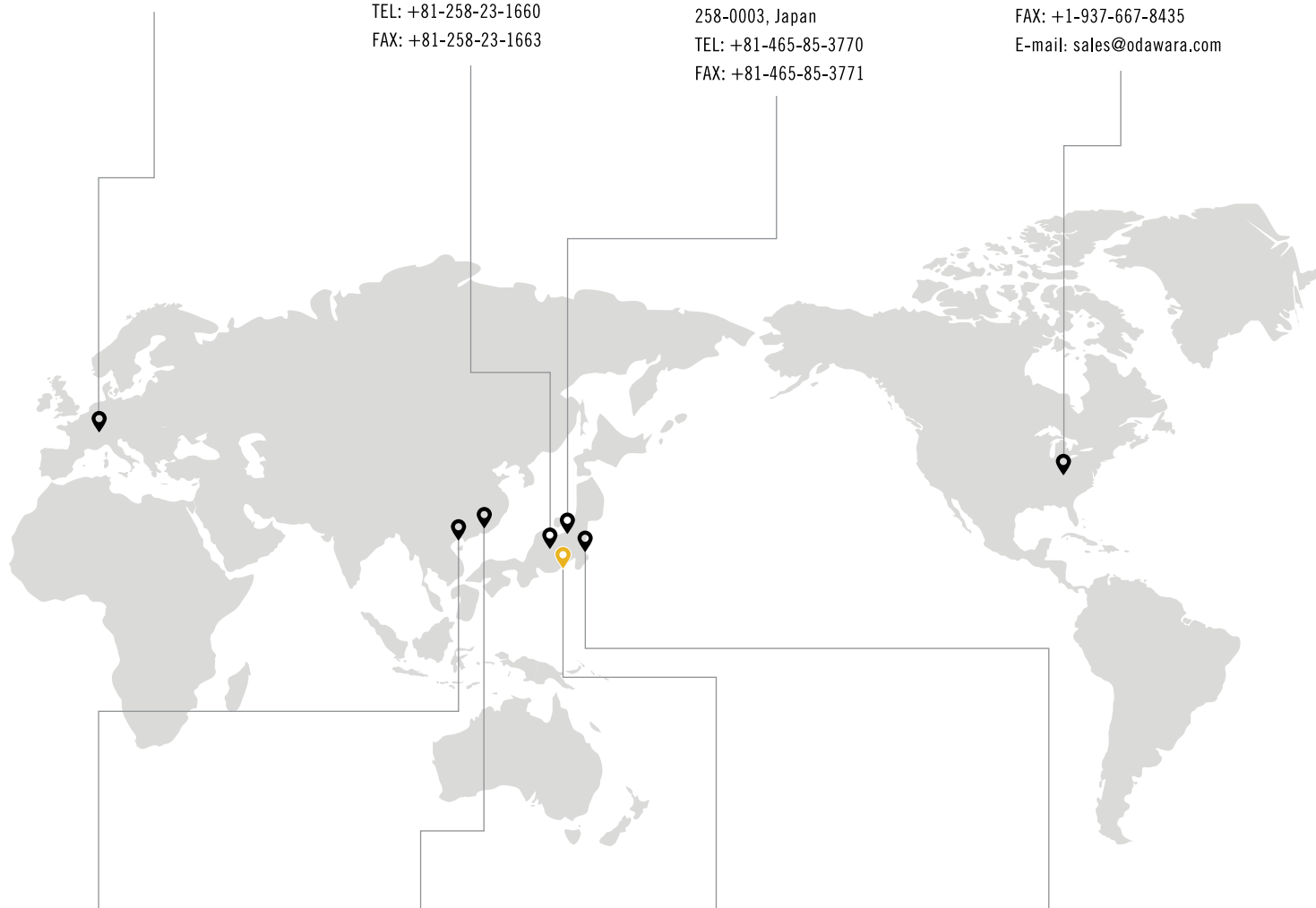
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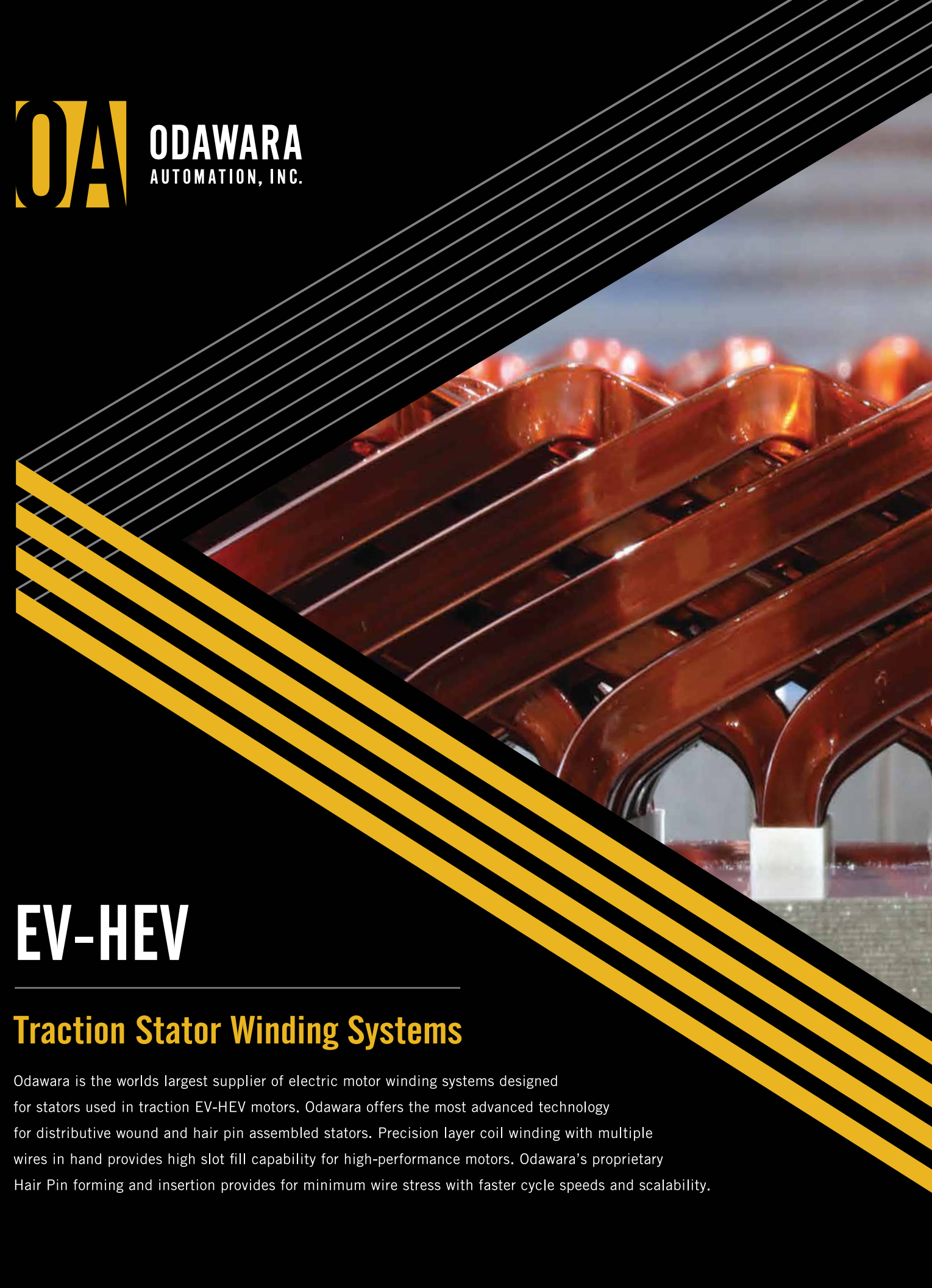
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# EV-HEV

## Traction Stator Winding Systems

Odawara is the worlds largest supplier of electric motor winding systems designed for stators used in traction EV-HEV motors. Odawara offers the most advanced technology for distributive wound and hair pin assembled stators. Precision layer coil winding with multiple wires in hand provides high slot fill capability for high-performance motors. Odawara's proprietary Hair Pin forming and insertion provides for minimum wire stress with faster cycle speeds and scalability.





## INSERTION: COIL INSERTION Winding Method

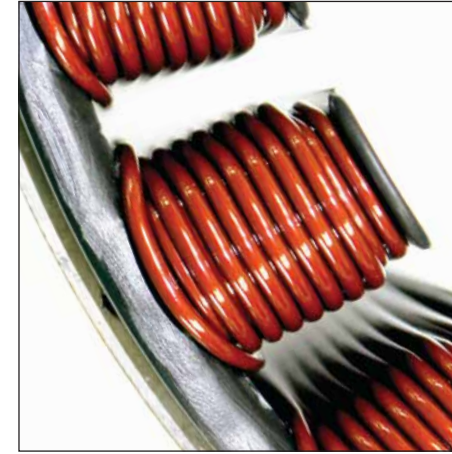
Coils are wound on forms and then transferred to a coil inserter tool to be inserted into the stator.

### MOTOR APPLICATIONS

**Automotive:** Generator/Alternator for EV/HEV, EPS and Air Conditioner

**Home Appliance:** Washing Machine, Compressors for Air Conditioners/Refrigerators

**Industrial:** Various Applications



## NEEDLE: NEEDLE Winding Method

Coils are wound directly into slots of motor parts through multiple winding needles.

### MOTOR APPLICATIONS

**Automotive:** EPS, Electric Water Pump, Electric Oil Pump, Electric Air Conditioner

**Home Appliance:** Direct Drive Washing Machine, Compressor for Air Conditioner, etc.

**Industrial:** Various Types of Stepping Motors

**Office:** Various Applications

# OA

Serving motor manufacturers with innovation and quality

# THE HIGHEST QUALITY ELECTRIC MOTOR MANUFACTURING EQUIPMENT AVAILABLE

Supported by World Class Engineering and Innovation from R&D to Final Production Equipment



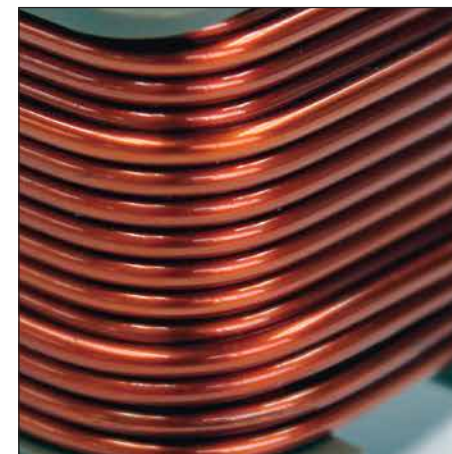
## HAIR PIN: HAIR PIN STATOR ASSEMBLY

Square or rectangle wire is formed into a 3D form. The resultant Hair Pins are then set into a multi-layered circular array and inserted simultaneously into an insulated stator core. The open ends are then twisted and welded together to provide the current path.

### MOTOR APPLICATIONS

**Automotive:** Electric Vehicles, Hybrid Vehicles, Off-Road Vehicles

**Industrial:** Power Generation, High Torque Applications



## SEGMENT: PART ROTATING Winding Method

Coils are wound directly on motor parts by rotating the segment

### MOTOR APPLICATIONS

**Automotive:** Generator for EV/HEV, Driving Assistance for HEV, EPS, etc

**Industrial:** Various Types of Servo Motors