Company Profile

Shenzhen INVT Electric Co., Ltd., founded in 2002, is a professional manufacturer of AC drives which has been widely recognized as leader in the field of AC drives in China. Thanks to high performance vector control algorithm and deep know-how of different kinds of applications, we have developed unique and outstanding frequency inverters to meet the most demanding needs of customers.

Depth of industry experience combined with innovative design talents in diverse technologies has ensured that INVT products are tough to beat. With competitively-priced, high-performance products and comprehensive support and service, we aim to be your most valued drives technology partner.

What we can offer

- CHV100 series close loop vector control inverter (1.5~315kW)
- CHE100 series sensorless vector control inverter (0.4~315kW)
- CHF100 series high performance universal inverter (0.75~845kW)
- CHV110 series energy saving cabinet (7.5~75kW)
- CHV130 series special inverter for wiring drawing (5.5~30kW)
- CHV150 series high speed inverter (6~3000Hz 1.5~22kW)
- CHV160 series special inverter for multi-pumps water supply (5.5~90kW)
- CHV170 series special inverter for tension control (4~110kW)
- CHV180 series special inverter for elevator (4~30kW)
- CHV series medium voltage inverter (690V/1140V 22~2800kW)
- CHH series high voltage inverter (3kV/6kV/10kV 315~2800kW)

Features

- Power range: 0.75~945kW
- Input voltage range: 380V/415V/440V/480V/525V ±15%
- Control mode: V/F control
- Speed adjust range: 1:100
- Simple PLC, Multi-Steps Speed control function, 16 steps speed can be set.
- Traverse control:Offer Multiple triangular wave to meet specific demand of textile industry
- PID control function
- None-Stop when instantaneous power off
- Speed trace function: Start the running motor smoothly
- Offer RS485 communication which support standard Modbus RTU and ASCII protocol
- Drive larger variable torque load directly, eliminate warehouse and fasten delivery time
- Length control: Implement constant length control by calculating the number of pulse
- Simple water supply control: Drive 1 variable speed pump and 2 fixed speed pumps
- Built-in DC reactor, improves power factor and efficiency

Typical Application

Pumps and fans, extruder, automatic production line, air conditioner, water supply, food machine, blender, packing machine, medicine machine, conveyor, blow molding machine, oil pump, fountain.

Wiring Diagram
**Features**

**CHE100 SERIES SENSORLESS VECTOR CONTROL INVERTER**

- Power range: 0.4-315kW
- Input voltage range: 220V/380V/415V/440V/480V/525V ± 15%
- Achieve excellent sensorless vector control based on DSP platform
- Static and rotation motor parameter autotune, ensure excellent vector control
- Independent duct design
- Built-in DC reactor above 18.5kW to improve power factor
- Traverse control: Offer multiple triangular wave to meet specific demand of textile industry
- Offer RS485 communication which support standard Modbus RTU and ASCII protocol
- Quick/Jog Function: Offer shortcut to view and modify function parameter in common use
- Support local and remote operation panel at same time, make commissioning more convenient

**CHE150 SERIES HIGH SPEED INVERTER**

- Power range: 1.5-22kW
- Output Frequency range: 0-3000Hz

**Typical Application**

- Textile, printing & dyeing, chemical fibers, paper making, wire-drawing, manipulator, solid warehouse, oxygen making machine, machine tools, air-compressor, ceramic machine

**Typical Applications:**

- High speed spinning machine, machine tools

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**Features**

**CHV100 SERIES CLOSE LOOP VECTOR CONTROL INVERTER**

- Power range: 1.5-315kW
- Input voltage range: 220V/380V/415V/440V/480V/525V ± 15%
- Adopt advanced modular design concept
- Dual-CPU control platform: 16 bit DSP is responsible for current vector arithmetic while 32 bit ARM is in charge of control function
- Static and rotation motor parameter autotune, ensure excellent vector control
- Achieve high-precision close-loop speed control and torque control using PG card to receive pulse signal from encoder
- Torque control: Offer multi-mode torque setting
- External LCD panel can monitor three parameters at the same time, Chinese/English selectable. Parameter copy function make several drives commissioning more convenient

**CHV180 SERIES HIGH SPEED INVERTER**

- Power range: 1.5-22kW
- Frequency range: 0-3000Hz

**Typical Applications:**

- High speed spinning machine, machine tools

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**Option card**

<table>
<thead>
<tr>
<th>Option Card</th>
<th>Picture</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series Communication Card</td>
<td><img src="image1.png" alt="Option Card 1" /></td>
<td>Offer RS232 and RS 485 dual physical communication interface, built-in MODBUS RTU and ASCII protocol</td>
</tr>
<tr>
<td>PG Card</td>
<td><img src="image2.png" alt="Option Card 2" /></td>
<td>Permit both push-and-pull input and open collector input, offer frequency division output, frequency division factor can be selected by dial switch, connect to the encoder by soft wire</td>
</tr>
<tr>
<td>I/O Extension Card</td>
<td><img src="image3.png" alt="Option Card 3" /></td>
<td>Offer more input/output terminals to enhance inverter external functions, RS 485 port is available</td>
</tr>
</tbody>
</table>
CHV110 SERIES ENERGY SAVING CABINET

- Power range: 7.5~75kW
- Input voltage range: 220V/380V/415V ± 15%
- Control Mode: Sensorless vector control, V/F control
- Frequency source: Compare pressure and flow signals output
- Transform 0~1A signal from pressure and flow proportional valve to standard 0~10V signal and give feedback to inverter
- Large torque at low frequency
- No delay for production cycle time because of prompt response
- Strong environmental adaptability: dust-proof, gas-proof, and corrosive-proof, prolonging service life of the equipment
- 18.5kW~75kW built-in DC reactor to improve power factor and eliminate harmonics
- Integrate bypass system to ensure system work properly and do not affect production
- Strong anti-jamming capability
- Energy saving rate is 5%~12% higher than V/F control
- Speed trace function: Start running motor smoothly
- Compact size, easy installation.

Typical Application

Injection Molding Card
Collect and process signal of pressure and flow of injection molding machine.

Injection molding machine, air compressor

Energy saving principle

CHV130/170 SERIES SPECIAL INVERTER FOR WIRING DRAWING AND TENSION CONTROL

CHV130 Series:
- Multi-speed synchronous, constant tension control
- Rolling control function
- Collocate special fluid characteristic module: Sequential annular control for water tank wire-drawing machine.
- Benchmark counterchange during synchronous control of starting/stoping
- Winding/unwinding control

Typical Application

Drawbench, wire drawing machine, metallurgy

CHV170 Series:
- Close loop tension control
- Open loop tension control
- Central winding/unwinding control
- Intelligent torque compensate control,
- Multidimension/lap control
- Zero speed tension control

Typical Application

Central winding/unwinding control, printing machine, dyeing machine, packaging machine, paper machine, chemical fiber etc..
**CHV160 SERIES SPECIAL INVERTER FOR MULTI-PUMPS WATER SUPPLY**

- **Features**
  - Power range: 5.5-90kW
  - Input voltage range: 220V/380V ± 15%
  - PID control function
  - Protection: multi kinds of protection and malfunction display
  - Configure general pump, dormancy pump, dirty water pump, carry 7 pumps at most.
  - Built-in clock chip
  - Support pressure setting in eight-segments time every day to adapt changing demand for water supply
  - Dormant, periodic alternate control, small-flow stop automatically and energy-saving operation
  - Liquid level detection and control of water inlet reservoir to prevent being polluted again
  - Offer RS485 and RS232 communication, support standard Modbus RTU and ASCII protocol

- **Typical Application**
  - Water supply of fire protection, Central air-conditioning system, Cycle cooling water, industrial boiler, Oil transportation pump, Water and sewage treatment

- **Water Supply Card**
  - Realize functions such as constant pressure water supply, multi pumps circular switch, dormant control, timing control, prevent water hammer, water level control, RS232 port etc.

- **Wiring Diagram for four variable speed pumps**

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**CHV180 SERIES SPECIAL INVERTER FOR ELEVATOR**

- **Features**
  - Power range: 4-30kW
  - Input voltage range: 380V ± 15%
  - Running function: inspect running, emergency running, force deaccelerate running
  - Holding braking, contactor control
  - Starting torque compensation
  - PG card: synchronous PG Card, Asynchronous PG Card
  - Starting weight up function
  - Energy saving function with RBU unit
  - S curve acceleration/deceleration function
  - More than 30 kinds of protection
  - S curve to make elevator work smoothly
  - AVR (Auto Voltage Regulation)

- **Typical Application**
  - Elevator, crane

- **PG Card**
  - Permit both push-and-pull input and open collector input
  - Offer frequency division output, frequency division factor can be selected by dial switch
  - Connect to encoder by soft wire
  - Select asynchronous or synchronous PG card according to encoder type

- **Elevator control wiring diagram**

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**Elevator Control Layout**
**CHV SERIES MEDIUM VOLTAGE INVERTER**

- Power range: 22~2800kW
- Input voltage range: 690V/1140V ±15%
- Adopt high voltage (3300V) IGBT as power module to improve reliability
- Soft start and soft stop for large power rating motor
- Use fiber optic to transmit PWM signal to eliminate interference
- High power factor, low harmonics
- Customized frame size to meet specific requirement
- Cooling method: Water-cooled or heat tube cooling
- Explosion-proof cabinet is optional
- Chassis/cubicle selectable

**Features**

**Typical Application**

Belt transportation machine in mine, screw transportation machine, fan, water pump, oil pump

**DBU BRAKING UNIT**

- High braking capability: Brake continuously for full load when braking rate is 50% brake for five minutes for full load when braking rate is 100%.
- Wide voltage range: Offer six braking threshold voltage
- Comprehensive protection function: prevent inverter from short circuit of braking resistor

**RBU REGENERATIVE BRAKING UNIT**

- Adopt IGBT as regenerative module, ensure low harmonics to the mains. (THD is less than 4% compared with traditional rectifier unit)
- High braking capability: 200% overload
- Wide voltage range: 350~1600V/530~760V, braking threshold voltage is adjustable

**CHH SERIES HIGH VOLTAGE INVERTER**

- Power range: 315~2800kW
- Input voltage range: 3KV/6KV/10KV ±15%
- Control mode: Multi-level SVPWM modulation
- Input frequency: 50Hz
- Output frequency: 0~120Hz
- Efficiency: >96%
- Input power factor: >0.98
- Total harmonic distortion (THD): <4%
- Starting torque: >50%
- Frequency resolution: 0.01Hz
- Electrical isolation: Transformer and fiber optics
- Communication: Modbus RTU
- Noise class: <75dB
- Control voltage: 220V AC
- Overload capacity: 120% rated current for 60 s
- Protection class: IP 20
- Cooling method: Forced cooling
- Operation interface: Touch screen
- Protection function: Overcurrent, overvoltage, overload, phase failure, overheat, communication, IGBT failure, etc.
- Installation place: In house
- Ambient temperature: -10~40 degree
- Relative humidity: 5%~95%

**Features**

**Typical Application**

Power plant, Water supply, Cement, Iron & steel, Petrochemical, Oil & gas
HCM SUPERVISORY CONTROL SOFTWARE

Features

- One host computer control INVt multi-inverters or multi-type inverter
- Optimize communication module, promote communication efficiency
- Compatible, self-identity INVt CH series inverter.
- Monitor any two inverters at one time
- Monitor speed adjustable, flexible monitor running inverter
- Alterable and inspect inverter parameter, use analog oscillograph monitor inverter analog parameter and ports status
- Flexible log function, trace and reserve information between host and inverter
- Flexible control function
- Open configuration

Analogue oscillograph

Main Interface With Log

Port oscillograph

Main Interface With Status

TECHNICAL DATA

<table>
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<tr>
<th>Features</th>
<th>Description</th>
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</thead>
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<tr>
<td><strong>POWER SUPPLY</strong></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>Single-phase: 220V ±15%</td>
</tr>
<tr>
<td></td>
<td>Three-phase: 220V/380V/400V/480V/575V ±15%</td>
</tr>
<tr>
<td>Frequency</td>
<td>50Hz/60Hz (47~43Hz)</td>
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<tr>
<td>Power factor Cosφa</td>
<td>0.95</td>
</tr>
<tr>
<td>Power range</td>
<td>0.4~315kW</td>
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<tr>
<td>Control method</td>
<td>16 bit DSP 105 DM</td>
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<tr>
<td>Control type</td>
<td>SVFM current vector control</td>
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<tr>
<td>Control mode</td>
<td>Sensorless vector control (SVC)</td>
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<tr>
<td>Carrier Frequency</td>
<td>1.0kHz</td>
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<tr>
<td>Frequency Range</td>
<td>0~400kHz</td>
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<tr>
<td>Speed Accuracy</td>
<td>&gt;90.0% (max speed: 150kW, min speed: 0.2%)</td>
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<tr>
<td>Starting torque</td>
<td>150% Min at 0.9s (SVC)</td>
</tr>
<tr>
<td></td>
<td>150% Min at 0.9s (SVC)</td>
</tr>
<tr>
<td>Overload Capacity</td>
<td>150% rated current for 50s</td>
</tr>
<tr>
<td>Efficiency</td>
<td>&gt;90% (constant)</td>
</tr>
<tr>
<td>S-Curve</td>
<td>Standard</td>
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<tr>
<td>V/F Curve</td>
<td>Linear, Torque</td>
</tr>
<tr>
<td></td>
<td>slewdown(1, 1.5, 2.0 order)</td>
</tr>
<tr>
<td>S-Curve</td>
<td>Linear, Torque</td>
</tr>
<tr>
<td></td>
<td>slewdown(2.0 order)</td>
</tr>
<tr>
<td><strong>ADVANCED CONTROL</strong></td>
<td></td>
</tr>
<tr>
<td>Realize smooth start of rotation motor with big inertia load</td>
<td></td>
</tr>
<tr>
<td>Length control</td>
<td>N/A</td>
</tr>
<tr>
<td>Tension control</td>
<td>0-100% frequency range</td>
</tr>
<tr>
<td>Multi-speed</td>
<td>16</td>
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<tr>
<td>Torque control</td>
<td>N/A</td>
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<tr>
<td>Torque control</td>
<td>Standard</td>
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<tr>
<td><strong>PERFORMANCE</strong></td>
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<td>Speed control</td>
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<tr>
<td>V/F</td>
<td>Speed range: 1~1000</td>
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<tr>
<td></td>
<td>Resolution: 0.01Hz (digital)</td>
</tr>
<tr>
<td></td>
<td>Maximum frequency: 0.1% (analog)</td>
</tr>
<tr>
<td>Vector control with PO</td>
<td>Speed range: 1~1000</td>
</tr>
<tr>
<td></td>
<td>Resolution: 0.01Hz (digital)</td>
</tr>
<tr>
<td></td>
<td>Maximum frequency: 0.1% (analog)</td>
</tr>
<tr>
<td>Analog</td>
<td>2 channels (0~10V/20mA)</td>
</tr>
<tr>
<td>Digital</td>
<td>4 channels (100k)</td>
</tr>
<tr>
<td>Analog</td>
<td>1 channel (0~5V/20mA)</td>
</tr>
<tr>
<td>Output</td>
<td>2 channels (255~255V)</td>
</tr>
<tr>
<td>Digital</td>
<td>6 channels (128)</td>
</tr>
<tr>
<td>Digital</td>
<td>1 channel (999~999V)</td>
</tr>
<tr>
<td>COMMUNICATION</td>
<td>RS232 or RS485</td>
</tr>
<tr>
<td>SAFETY</td>
<td>Protection: 0<del>1000ms without derating, 1000</del>400ms with derating</td>
</tr>
<tr>
<td></td>
<td>Humidity: 95% no condensation allowed</td>
</tr>
<tr>
<td>ENVIROMENT</td>
<td>Input: IGBT phase fault, Overcurrent, Overvoltage, Undervoltage, Overload, Overheat, External fault, etc</td>
</tr>
<tr>
<td>Certificates</td>
<td>CE</td>
</tr>
</tbody>
</table>

- CT: Constant torque application, VT: variable torque application
### SELECTION GUIDE

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Power Rating (W)</th>
<th>Part Number</th>
<th>Rated Current (A)</th>
<th>Breaking Unit</th>
<th>Braking Resistor</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>220V</td>
<td>5-10</td>
<td>CH2-250-5</td>
<td>10</td>
<td>Built-in</td>
<td>-</td>
<td>140 x 180</td>
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<tr>
<td></td>
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<td>CH2-250-10</td>
<td>15</td>
<td>Built-in</td>
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<td>160 x 230</td>
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<td>CH2-250-20</td>
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<td>Built-in</td>
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<td>CH2-250-40</td>
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<td>Built-in</td>
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<td>240 x 330</td>
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<td>CH2-250-60</td>
<td>60</td>
<td>Built-in</td>
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<td>300 x 400</td>
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<tr>
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<td>CH2-250-75</td>
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<td>Built-in</td>
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<td>340 x 450</td>
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<td>CH2-250-100</td>
<td>100</td>
<td>Built-in</td>
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<td>400 x 550</td>
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<td></td>
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<td>CH2-250-150</td>
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<td>Built-in</td>
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<td>500 x 700</td>
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<td>200</td>
<td>Built-in</td>
<td>-</td>
<td>600 x 850</td>
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<td>CH2-250-300</td>
<td>300</td>
<td>Built-in</td>
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<td>800 x 1200</td>
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<td>CH2-250-400</td>
<td>400</td>
<td>Built-in</td>
<td>-</td>
<td>1200 x 1500</td>
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</table>

**SELECTION GUIDE OF REACTOR AND FILTER**

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<thead>
<tr>
<th>Power</th>
<th>DC reactor</th>
<th>Input reactor</th>
<th>Output reactor</th>
<th>Input filter</th>
<th>Output filter</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Model number</td>
<td>Specification</td>
<td>Model number</td>
<td>Specification</td>
<td>Model number</td>
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<tr>
<td>0.6kW</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
<td>NFD-053</td>
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<tr>
<td>0.75kW</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
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</tr>
<tr>
<td>1.5kW</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
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<tr>
<td>2.2kW</td>
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<td>3A/0.5mH</td>
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<tr>
<td>3.7kW</td>
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<td>3A/0.5mH</td>
<td>DCL-003-02H</td>
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<tr>
<td>5.5kW</td>
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<td>3A/0.5mH</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
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<td>7.5kW</td>
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<td>11kW</td>
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<td>3A/0.5mH</td>
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<td>15kW</td>
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<td>18.5kW</td>
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<td>3A/0.5mH</td>
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<td>DCL-003-02H</td>
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<td>NFD-053</td>
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<td>150kW</td>
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<td>3A/0.5mH</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
<td>NFD-053</td>
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<td>185kW</td>
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<td>3A/0.5mH</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
<td>NFD-053</td>
</tr>
<tr>
<td>220kW</td>
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<td>3A/0.5mH</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
<td>NFD-053</td>
</tr>
<tr>
<td>300kW</td>
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<td>3A/0.5mH</td>
<td>DCL-003-02H</td>
<td>3A/0.5mH</td>
<td>NFD-053</td>
</tr>
</tbody>
</table>

**Diagram Image:**

![Diagram Image](https://example.com/diagram.png)