MV1000
MEDIUM VOLTAGE AC DRIVE
175 HP TO 16,000 HP
MV1000
MEDIUM VOLTAGE AC DRIVE

Simple     Robust     Compact     Reliable     Safe     Feature Packed

Yaskawa Quality: Second to None

We’re the only industrial drives and motion control manufacturer to win the Deming prize – the most prestigious quality award in manufacturing. Yaskawa constantly tracks and measures product failures in time (FIT). The actual FIT data demonstrates a high quality and reliability rate that is the envy of our industry.

- Internal Assembly Failure Rate 0.001%
- Field Assembly Failure Rate 0.00062%

Internal Assembly Failure Rate 0.01%
Field Assembly Failure Rate 0.0062%

Input Fused Disconnect with Contactor
Cooling Fans
Control Section
Multi-Pulse Transformer
Power Cells
MV1000 Features and Advantages

Yaskawa Smart Harmonic Technology, Exceeds IEEE-519 Requirements

Motor Friendly 17-Level Phase-to-Phase Waveform

Easy Maintenance with Modular Construction

A1000 Drive Based Parameters
- Simple to operate, adjust, and tune
- Remote diagnostics with DriveWizard

Fiber-Optic Based Controls for High Reliability (MTBF > 200,000 Hrs)

User Friendly Digital Operator
- Plain English
- Advanced monitoring
- Real Time Clock for Event Logging
- Five (5) line LCD display
- Same keypad interface used in 1000 series VDs
- Multiple languages
Advanced Features

- Power Dip Ride Through
- Kinetic Energy Braking (KEB) Function
- Closed Transition Sync Transfer and Capture
- Speed Search
- Automatic Restart
- Auto Tuning
- Open Loop Vector
- V/Hz Control

Synchronous Transfer from AC Source to Drive

Voltage Waveform Display
- Utility supply voltage (Vrs: 1500V/div.)
- Drive output voltage (Vuv: 1500V/div.)
Utility and drive perfectly synchronized

Current Waveform Display
- Drive output current (100A/div.)
- Utility supply current (100A/div.)
- Motor current (100A/div.)
No disturbance to motor current

Yaskawa Global Support Network
### Control Characteristics

- **Control Methods**: V/f Control (V/f), Open Loop Vector Control (OLV), Closed Loop Vector Control (CLV)
- **Frequency Control Range**: 0.01 to 120 Hz
- **Frequency Accuracy** (Temperature Fluctuation):
  - Digital input: within ±0.01% of the max output frequency (-10°C to +40°C)
  - Analog input: within ±0.5% of the max output frequency (-10°C ± 40°C)
- **Frequency Setting Resolution**:
  - Digital inputs: 0.01 Hz
  - Analog inputs: 1/2048 of the maximum output frequency (11-bit plus sign)
- **Output Frequency Resolution**: 0.001 Hz
- **Frequency Setting Methods**: -10 to +10 V, 0 to +10 V, 4 to 20 mA
- **Starting Torque**: V/f: 130% at 3 Hz, OLV: 130% at 0.3 Hz, CLV: 130% at 0 r/min
- **Speed Control Range**: V/f: 1:20, OLV: 1:100, CLV: 1:1000
- **Speed Control Accuracy**:
  - V/f: ± 2 to 3%, OLV: ± 0.5%, (25 °C ± 10 °C)
  - CLV: ± 0.02% (25 °C ±10 °C)
- **Speed Response**: OLV: 10 Hz, CLV: 50 Hz
- **Accel/Decel Time**: 0.0 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)

### Protection Function

- **Motor Protection**: Electronic thermal overload relay
- **Momentary Overcurrent Protection**: Drive stops when output current exceeds 132%
- **Overload Protection**: Drive stops after 60 s at 110% of rated output current
- **Overvoltage Protection**: Power Cell VPN > 1035 VDC
- **Undervoltage Protection**: Power Cell VPN < 300 VDC
- **Momentary Power Loss Ride-Thru**: Resumes operation if power loss is less than 2 s (standard) (UPS Required)
- **Overheat Protection**: Power Cell = Thermistor, Transformer = PT100 and Thermal Switch
- **Ground Fault Protection**: Electronic circuit protection

### Operating Environment

- **Ambient Temperature**: -5 to +40°C (up to +50°C with output current derate)
- **Humidity**: 95% RH or less (no condensation)
- **Storage Temperature**: -20 to +60 °C (short-term temperature during transportation)
- **Altitude**: Up to 2000 m without derating, up to 4000 m with output current and voltage derating

### Communication Protocols (Optional)

- EtherNet/IP
- DeviceNet
- Modbus TCP/IP
- Modbus RTU
- PROFIBUS DP
- PROFINET

### Product Range

<table>
<thead>
<tr>
<th>Voltage (kV)</th>
<th>Output (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.6</td>
<td>11</td>
</tr>
<tr>
<td>3.3</td>
<td>4.16</td>
</tr>
<tr>
<td>2.4</td>
<td>2.4</td>
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</tbody>
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- **Common Specifications**
  - 700 - 13,200 HP
  - 330 - 9,000 HP
  - Parallel Unit up to 10,000 HP
  - 175 - 4,000 HP
  - 200 - 2,750 HP
  - (UL/CSA Listed)
  - 300 - 5,000 HP
  - (UL/CSA Listed)
  - Parallel Unit up to 16,000 HP
Yaskawa is the leading global manufacturer of low and medium voltage AC inverter drives, AC servo systems, machine controllers, and industrial robots. Our standard products, as well as tailor-made solutions, are well-known and have a high reputation for outstanding quality and reliability.