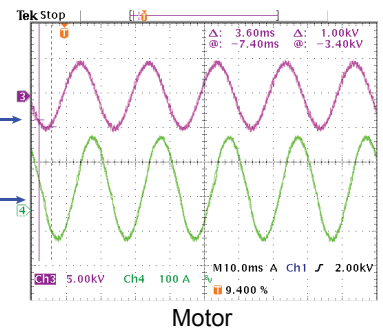
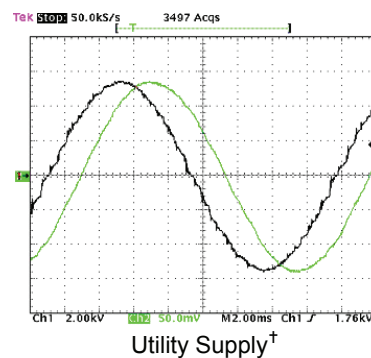
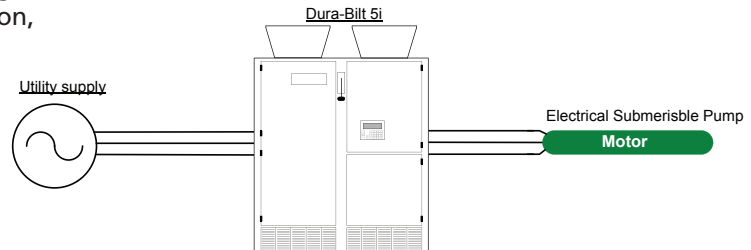


# Dura-Bilt 5i MV

**TMEiC**  
We drive industry

## 4000 Series for ESP Applications 600 – 1000 HP\* (447 – 746 kW)\*

The Dura-Bilt5i MV series of medium voltage ac fed drives deliver simple operation in a robust and compact design, providing a cost-effective solution for any application, especially with long cable lengths.



### Features

- Compact design with integrated sine wave filter
- Control System Toolbox configuration with tuneup wizards, trending, and simulator
- Graphic keypad with drive control
- Integral medium voltage disconnect option
- Inverter power modules with medium voltage IGBTs
- 24-pulse AC to DC diode converter
- Air-cooled inverter
- Filtered output voltage waveform
- Sensorless vector control
- Roll-out inverter power modules
- Copper wound transformer included as standard
- Transformer electrostatic shield and lightning arrestors included as standard
- Remote Connectivity Module

† Utility current trace displaced in time for clarity

### Benefits

- Smaller equipment rooms and easier layout
- Common configuration tool across TMEiC's family of drives
- Lower-cost startups, ease of maintenance, faster checkout
- No operator training required
- No added space needed up to 7.2 kV
- Fewer devices for higher reliability
- Power-system friendly, IEEE 519 compliant
- Extends IGBT life and saves space
- Motor-friendly, no restriction on cable length
- Matches drive to process needs
- Fast repair and maintenance
- Cooler operation in a smaller package
- Reliability and power disturbance tolerance
- Quick and secured troubleshooting saving valuable time in lost production

\*115% Overload (OL) for 60 seconds; other OL ratings available

# Dura-Bilt5i MV 4000 Series for ESP Applications

## Ratings, Dimensions and Weights

HP* (kW)	Height inches (mm)	Width inches (mm)	Depth inches (mm)	Est. Wt. lbs. (kg)
600- 1000 (447 - 796 kW)	104 (2642)	74 (1880)	44 (1118)	7500 (3409)

## Control I/O

Control Area	Specifications
Analog Inputs	(2) $\pm 10$ V or 4-20 mA, configurable, differential
Analog Outputs	(3) $\pm 10$ V, 8-bit, configurable, 10mA max
Digital Inputs	(2) 24-110 V dc or 48-120 V ac; (6) 24 V dc, configurable
Digital Outputs	(6) 50 V dc open collector 50 mA; (5) are usually provided with interposing relays
Speed Feedback Encoder Input	High-resolution tach, 125 kHz, 5 or 15 V dc diff. input, A Quad B, with marker
LAN Interface Options	Profibus-DP, ISBus, DeviceNet™, TOSLINE®-S20, or Modbus RTU/Ethernet
Motor Temperature Sensor	High-resolution torque motor temperature feedback: 1 K $\Omega$ platinum resistor or 100 $\Omega$ platinum RTD (uses analog input with signal conditioner)

## Display and Diagnostics

	Specifications
PC Configuration	Control System Toolbox for configuration, local and remote monitoring, animated block diagrams, dynamic live and capture buffer based trending, fault diagnostics, commissioning wizard, and regulator tune-up wizards. Ethernet 10 Mbps point to point or multi-drop, each drive has its own IP address
Keypad and Display	Backlit LCD, animated displays <ul style="list-style-type: none"> <li>Parameter editing</li> <li>Four configurable bar graphs</li> <li>Drive control</li> </ul>
Instrumentation Interface	Two analog outputs dedicated to motor current feedback, five analog outputs can be mapped to variables for external data logging and analysis
Power Sensor Test	Tests each medium voltage sensor. At the conclusion of the test, status of any failed sensor is displayed.

## Additional Specifications

### Power System Input and Harmonic Data

- Voltage: up to 7.2 kV, 3-phase, +10%/-10% continuous
- Tolerates power dips up to 30% without tripping, complete control power loss ride through of 100 msec
- Frequency: 60 Hz or optional 50 Hz
- Displacement power factor (PF): 0.95 lag
- True PF: greater than 0.95 lag from 10% to 100% load
- $\leq 3\%$  THD (current distortion)
- Meets IEEE 519-1992 standards without filters
- Lightning arrestors included as standard
- Top or bottom cable entry

### Converter Type

- AC fed 24-pulse diode, non-regenerative

### Transformer

- Copper winding
- Electrostatic shield
- 115°C rise
- Insulation class: 220°C
- Cooling: forced air
- Optional fan power secondary winding

### Inverter

- NPC (Neutral-Point-Clamped) configuration
- 3300 V IGBTs for margin, minimum parts count
- Control optically isolated from MV circuits for safety
- Roll-out phase modules for fast maintenance and repair

### Applicable Standards

- CUL, CE, UL 347A, NEMA ICS 6, NEMA ICS 7,



### Safety Features

- Integral MV disconnect option, door mechanically interlocked
- Door electrical interlocks included as standard

### Output

- 0-120 Hz, 3% or less motor current harmonic distortion
- Filtered sine wave output for motor-friendly waveform
- Integrally mounted output filter

### Operating Environment and Needs

- Temperature: 0° to +40°C no derating; Up to +50°C with derating
- Altitude: Up to 3300 ft/1000 m a.m.s.l. no derating; Up to 10,000 ft/3280 m a.m.s.l. with derating
- Fan Power (by user): 460 V, 3-phase, 60 Hz, 3.5-10 kVA (or from optional main transformer auxiliary winding)

### Cooling

- Air-cooled with redundant fan option
- Separate converter and inverter cooling paths

### Sound

- Less than 79 dBA, at 3.1 ft (1m) from enclosure

### Control

- Non-volatile memory for parameters and fault data
- Vector control with or without speed feedback
- Motor simulation mode allows functional testing of system (PLC, LAN interface, and drive I/O)
- Automatic (power loss) restart function for remote applications

### Vector Control Accuracy and Response

- Speed regulator: 20 rad/s
- $\pm 0.01\%$  speed regulation with speed sensor,  $\pm 0.5\%$  without
- Torque response: 500 rad/s
- Torque accuracy:  $\pm 3\%$  with temp sensor,  $\pm 10\%$  without

### Protective Functions

- Inverter overcurrent, overvoltage
- Loss of phase and low/loss of system voltage
- Motor ground fault
- Loss of dc link
- Motor overload
- Over-temperature

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