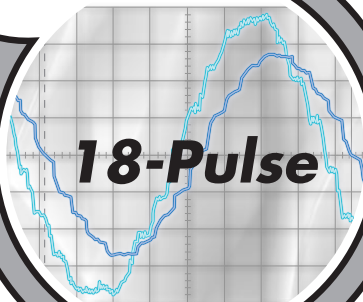


**TOSHIBA**

**ADJUSTABLE SPEED DRIVES**



**HX7 Series**



# Toshiba HX7

In some industrial applications, users need reliable and efficient adjustable speed drives that do not contribute significant harmonic distortion to the power grid. The HX7 meets this need. The HX7 is the newest addition to the Toshiba seven-series family, offering the latest technology and proven reliability.

- Patented 18-Pulse Design\*
- Small Footprint
- Powerful, User-Friendly Operator Interface
- Variety of Communication Options
- Optional Three-Contactor Bypass
- Optional Solid-State-Starter Bypass

1. Small Footprint with Uniform 24" Depth

2. User-Friendly Electronic Operator Interface (EOI)

3. Variety of User Configurable Options

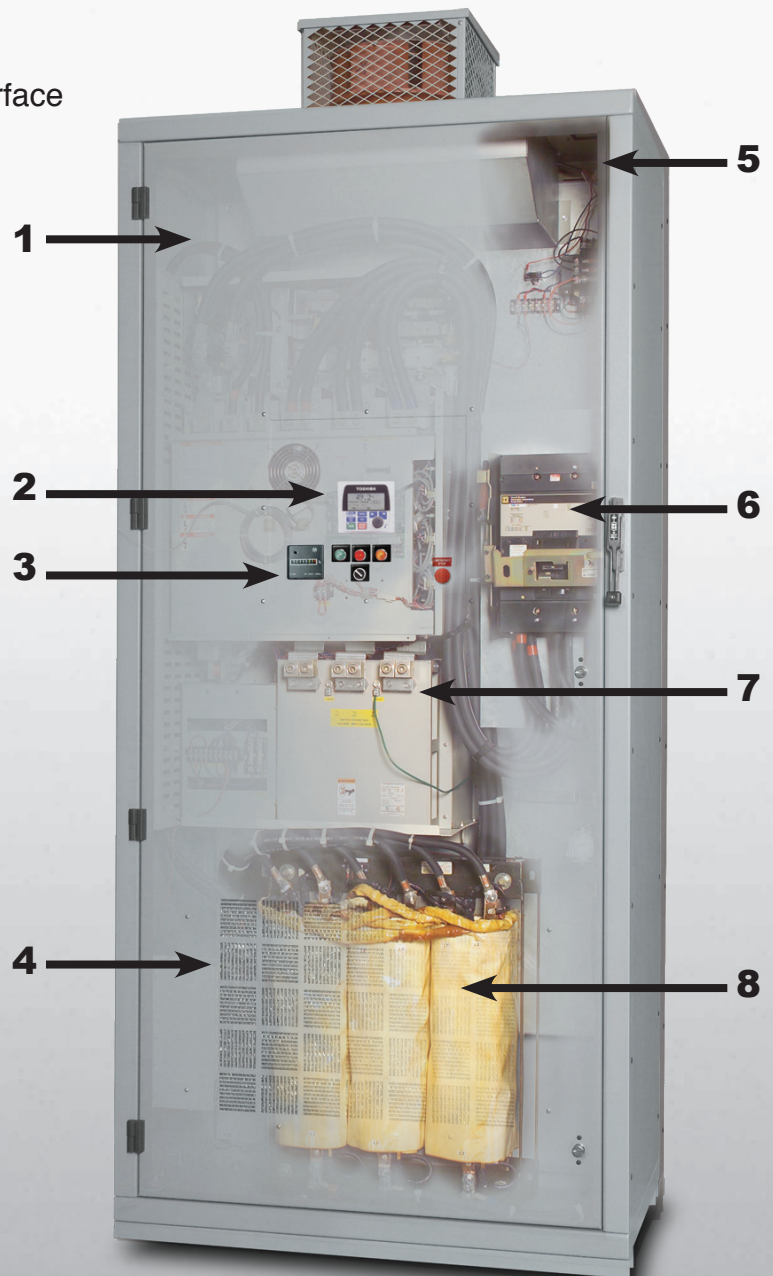
4. Gasketed and Filtered Enclosure is Force Ventilated

5. Top or Bottom Cable Entry/Exit

6. 65 KAIC Breaker

7. Proven Toshiba ASD Technology

8. Integrated Phase-Shifting Transformer

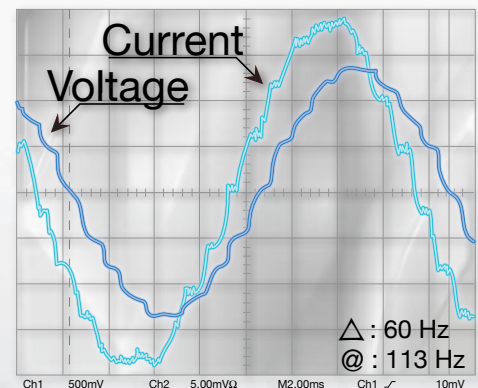
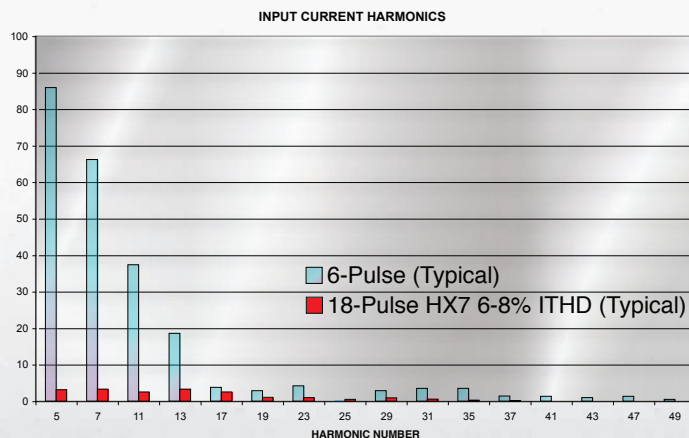


\* US Patent 6396723  
JP Patent 2000-179543 (Pending)

# The Drive Solution

Harmonic distortion can come from many sources including computers, fluorescent lights, copiers, and six-pulse drives. The HX7, with Toshiba's patented 18-pulse autotransformer design, removes the distortion that would normally be generated by a six-pulse drive.

- Typically Meets IEEE-519 Guidelines without Adding Filters
- Produces a Ripple-Free Voltage on DC Bus
- Clean Sinusoidal Input Current Waveform
- Up to 60% Reduction in Transformer Losses
- Typical Total Harmonic Current Distortion (ITHD) 6 to 8%
- True Power Factor > 0.98



## Small Footprint

The high cost of real estate and constraints of existing facilities make size an important consideration in drive selection.

- 500 HP Drive Only 42" Wide
  - 24" Depth on All Sizes
  - Integrated Phase-Shifting Autotransformer
  - Saves Real Estate on New Designs
  - Easy Replacement for Old Drives in Existing Facilities
- 
- 60 to 200 HP: 100"H x 30"W x 24"D
  - 250 to 500 HP: 100"H x 42"W x 24"D
  - 600 to 800 HP: 100"H x 76"W x 24"D
- (Addition of a bypass option will increase enclosure size.)



# for Harmonic Distortion

## Powerful, User-Friendly Operator Interface

The HX7 advanced Electronic Operator Interface (EOI) is so intuitive that the manual is usually not needed to make drive setting adjustments. The HX7 features menu-driven programming as well as direct access to all of the motor control parameters. A built-in rotary encoder makes programming quick and easy.

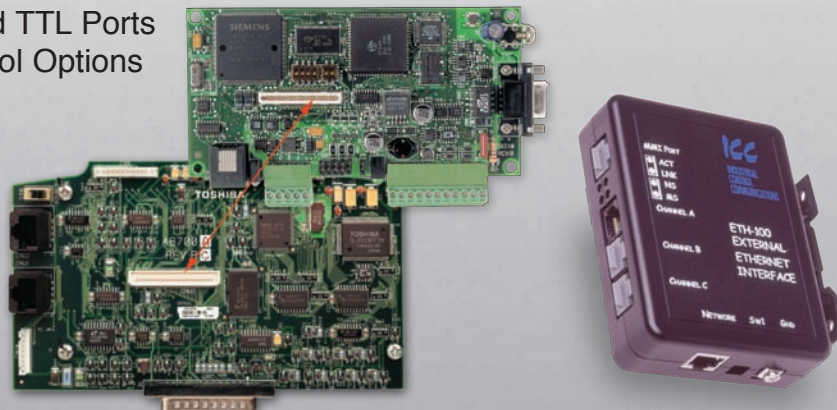
- Easy Start-Up Wizard
- Remote-Mountable up to 1000 Feet
- Real-Time Clock Option
- Flash-Upgradable EOI Software
- Displays Multiple Parameters Simultaneously
- Standard Keypad Design for Low Voltage and Medium Voltage Drives



## Variety of Communication Options

In today's fast-paced manufacturing world, coordinated systems require communications from drive-to-drive and drive-to-system. Built-in ports and a variety of option cards provide versatility in communication selection.

- Built-In RS232/485 and TTL Ports
- Communication Protocol Options
  - Profibus
  - DeviceNet
  - Modbus RTU
  - Modbus+
  - Metasys
  - Ethernet



# Meets or Exceeds Your Specifications

HX7 Standard Specifications														
Item														
Voltage Class	460 V													
Maximum HP	60	75	100	125	150	200	250	300	350	400	500	600	700	800
Drive Rating (A)	77	96	124	156	190	240	302	370	450	480	628	740	900	960
Dimensions (in.)	100 H x 30 W x 24 D						100 H x 42 W x 24 D					100 H x 76 W x 24 D		
Power Requirements														
Output Frequency	0 to 299 Hz													
Main Circuit	Three-Phase, 460 V Input Auto-Transformer, 18-Pulse Design with Circuit Breaker, IGBT Output													
Control Power	DC Bus Control Power													
Tolerance	Voltage: $\pm 10\%$ ; Frequency: $\pm 2\%$													
Control Specifications														
Control Method	Sine Wave PWM System; Flux-Field Current Vector Control													
V/Hz Control	Constant Torque, Variable Torque, Open-Loop Vector, Auto or Manual Torque Boost, Five-Point V/Hz Custom Curves													
Overload Rating	120% for 60 Seconds; 100% Continuous													
Frequency Setting	Rotary Encoder Integrated into EOI, 0 to 10 V, $\pm 10$ V, 4 to 20 mA, Binary Input, Motorized Potentiometer Input													
Frequency Precision	Analog Input: $\pm 0.2\%$ of Maximum Output Frequency; Digital Input: $\pm 0.01\%$ of Maximum Output Frequency													
Frequency Resolution	Panel Operation: 0.01 Hz; Analog Input 10 to 12-Bit A to D Converter: 0.1 Hz													
Acceleration/Deceleration	0.1 to 6000 Seconds													
Speed Regulation	Up to 0.1%; 60:1 Speed Range													
Torque Regulation	10% Regulation; Less than 2% Ripple from 50 to 100% Range													
Set Point Control (PID)	Proportional Gain, Integral Gain, Feedback Setting Upper/Lower Deviation Limits; Feedback Source Delay Filter, Feedback Setting Differential Gain													
Analog Inputs	Four Programmable: One 4 to 20 mA, One 0 to 10 V, One -10 to +10 V, One 1 to 10 k $\Omega$ Potentiometer Connection													
Analog Outputs	Two Programmable to 31 Functions													
Input Terminals	Eight Discrete Input Terminals Programmable to 67 Functions; Expandable to N-Value													
Output Contacts	Three Output Terminals Programmable to 52 Functions; Form-C Contacts Rated 250 VAC, Two Amps Inductive													
Signal Isolation	Available Three-Channel Signal Isolation for AM/FM Outputs and II Terminal Input, Rated at 750 V													
Control Board Communication Ports	RS232/485 and TTL Ports Standard													
Data Transmission	Profibus, DeviceNet, Modbus RTU, Modbus+, Metasys, Ethernet (Some Devices External)													
Main Protective Functions	Current Limit, Overcurrent, Overvoltage, Undervoltage, Load-Side Short Circuit, Load-Side Ground Fault, Armature Short, Overtorque, ASD Overload, Motor Overload, Heatsink Overheat, Open-Output Phase, Loss of Feedback, CPU Error, Communications Error													
Soft Stall	Automatic Load-Reduction Control During Overload													
Retry	Can Automatically Clear Fault upon Trip; Programmable to 10 Retries with up to 10 Seconds Between Each Retry													
Restart	Able to Restart to Catch a Spinning Motor													
Interface														
LCD/EOI (Liquid Crystal Display)/(Electronic Operator Interface)	128 x 64 Pixel Backlit LCD; Able to Display Multiple Parameters on One Screen; Keypad Operable from External Power Source; Flash-Upgradeable Software Includes Multi-Function Rotary Encoder													
LED Indicators	Run (Red)/Stop (Green), Remote/Local (Green), DC Bus Charge Indication (Red)													
Keypad	Local/Remote, Monitor/Program, Run, Enter, ESC, Stop/Reset, Up, Down													
Monitoring	Main Display Shows Two Monitored Items Continuously or Scrolls up to 40 Items													
Selectable Display Units	User-Selectable and Configurable, Along with Scaling Factor Multiplier; Voltage Display Selectable Between Volts or Percentage; Current Display Selectable Between Amps or Percentage													
EOI Communication Ports	RS232/485 and TTL Ports Standard													
Remote Mounting	Remote-Mountable up to 1000 Feet													
Construction														
Enclosure	NEMA 1, IP20, Gasketed and Filtered													
Panel Construction	Free-Standing, Front-Access Maintenance, Top/Bottom Cable Access													
Cooling	Force-Air Cooled; Top-Mounted Fans Removable During Shipment or Installation													
Color	ANSI-61 Gray													
Ambient Conditions														
Ambient Temperature	0 to 40°C (32 to 104°F)													
Humidity	Maximum 95% (Non-Condensing)													
Altitude	1000 Meters (3300 Feet) Above Sea Level Without Derating													
Installation	Indoor; Keep Out of Direct Sunlight; Protect from Corrosive and/or Explosive Gases													
Standards														
Electrical Compliance	NEC, ANSI													

# TOSHIBA INTERNATIONAL CORPORATION



North American Headquarters and Manufacturing Facility (Houston, TX)

## TOSHIBA – Quality by Design

Toshiba's culture and history are strongly rooted in quality. Our designs are technologically innovative, and our products are manufactured from start to end using only the highest quality domestic and foreign parts.

## Product Warranty

Toshiba offers a comprehensive warranty program on its full line of industrial products. Consult your salesperson or the factory for specific information.

## Need to Know More?

Be sure to visit our website located at [www.toshiba.com/ind](http://www.toshiba.com/ind) for the latest information on Toshiba products and services.

## Customer Support Services

Toshiba offers 24-hour service nationwide. For assistance of any type call: 1-800-231-1412.



**ADJUSTABLE SPEED DRIVES   MOTORS   CONTROLS   UPS   INSTRUMENTATION   PLC**

# TOSHIBA

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