TOSHIBA

Leading Innovation

vlp technology™

WX9 ASD

LOW VOLTAGE DRIVE

TOSHIBA'S INDOOR 18-PULSE DRIVE SOLUTION

The next-generation WX9 adjustable speed drive is revitalizing the industry by combining Toshiba's proprietary, ground-breaking Virtual Linear Pump® (VLP) Technology with our patented 18-pulse copper-wound autotransformer design, and a common bus connection for multi-parallel KVA performance. By incorporating VLP Technology, the WX9 directly, precisely, and linearly controls pressure, flow, level, and temperature, which seamlessly controls multiple devices while balancing the load between them. This gives our customers an efficient drive with less cabling that eliminates significant harmonic content to the power grid, all while operating in a narrower footprint—leading to reduced energy consumption and production costs.

ADVANCED FEATURES FOR MAXIMUM DRIVE PERFORMANCE

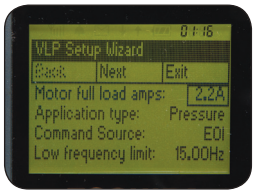
- ***Toshiba's Patented 18-Pulse Auto-Transformer Technology*** reduces harmonics (THD) that are reflected back into the power system.
  - Meets IEEE 519-1992 Guidelines without Added Filters
  - Reduces Ripple Voltage on DC Bus
  - Clean Sinusoidal Input Current Waveform
  - Up to 60% Reduction in Transformer Losses
- ***A Narrower Footprint*** makes the WX9 an ideal solution for maximizing real estate and reducing operating costs.
  - 32-Inch Depth on Models from 500 to 800 HP
  - Front Installation for Easier Replacement & Upgrades
- ***A Plain-English LCD Electronic Operator Interface (EOI)*** allows for quick, user-friendly programing. Faults are logged containing time and date stamps, as well as detailed information regarding operation at the time of the failure.Easy Start-Up Wizard
  - Easy Start-Up Wizard
  - Remote-Mount up to 1,000 Feet
  - Built-In Real-Time Clock
  - Flash-Upgradeable 9-Series EOI Software
  - Display Multiple Parameters Simultaneously
  - Maximizes Energy Savings on Variable Torque Loads
- ***Toshiba's Proprietary Windows®-Based ASD Pro Software*** is available at no additional cost. This easy-to-use software can be used to program and control the WX9, download parameter sets, and monitor real-time conditions.

A CLOSER LOOK INTO THE WX9

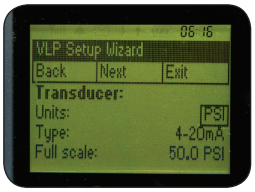
1.	Small Footprint with Standard 32" Depth
2.	User-Friendly Electronic Operator Interface
3.	Modular Inverter/Rectifier Assembly Unit
4.	Gasket & Filter Enclosure
5.	Top/Bottom Cable Entry; Top/Bottom Cable Exit
6.	100 kAIC Power Unit, 65 kAIC Breaker
7.	18-Pulse Integrated Phase-Shifting, Copper-Wound Auto-Transformer

VLP TECHNOLOGY MAKES PID TUNING A THING OF THE PAST

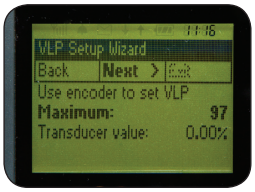
Our breakthrough VLP algorithm has taken PID and made it obsolete, completely reinventing how users control pressure, flow, levels, and temperature. With this new technology, after simply inputting a few values into the WX9, optimum control is attained. Toshiba's VLP Setup Wizard effortlessly guides the user through the entire process in five simple steps, with complete configuration and optimal system performance in only minutes.



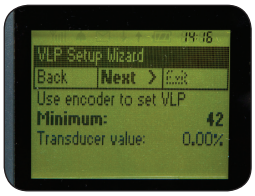
STEP 1:
Input
Motor's Electrical
Specifications



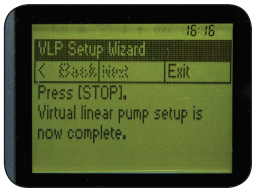
STEP 2:
Input
Transducer
Specifications



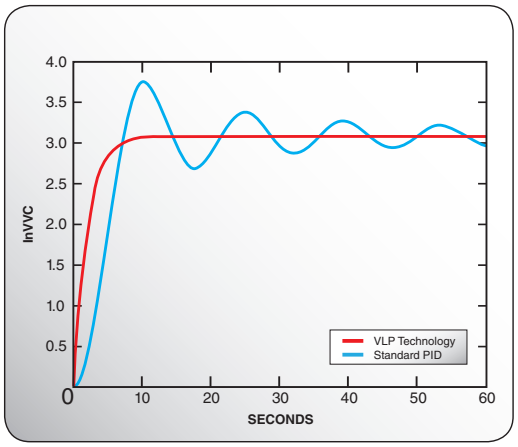
STEP 3:
Input
VLP Maximum



STEP 4:
Input
VLP Minimum



STEP 5:
Complete
VLP Setup



The setup process defines the operating boundaries by establishing a minimum VLP point and a maximum VLP point. By defining the minimum and maximum points, VLP creates an operating domain within the drive that is directly and proportionately related to the specific system to which it is connected.

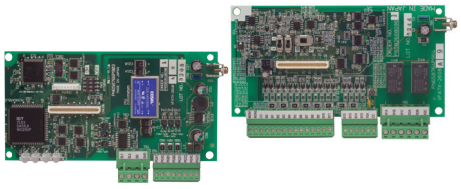
Once VLP points have been established, the WX9 performs the following functions:

- ***Monitors Multiple Systems*** for Friction Losses, Impeller Variations, & Other System Variables
- ***Adjusts System Accordingly*** to Ensure Only Necessary Pumps/Fans are Operating
- ***Balances Flow Rates*** for Each Operating Pump/Fan Under All Conditions
- ***Maintains Same Load*** for All Operating Pumps/Fans

COMMUNICATION OPTIONS

The WX9 supports many common industrial communication protocols. These include:

- DeviceNet
- Ethernet TCP/IP
- Modbus RTU
- Modbus+
- Metasys
- Profibus



APPLICABLE APPLICATIONS

- Blowers
- Compressors
- Conveyors
- Fans
- Mixers
- Pumps

APPLICABLE INDUSTRIES

- Aggregate & Concrete
- Chemical
- Mining & Mineral
- Oil & Gas
- Pulp & Paper
- Water/Wastewater





WX9 ASD

MODEL RANGE	500 HP	600 HP	700 HP	800 HP
Voltage Rating	460 V			
Dimensions (H x W x D)	97.5 x 64 x 32 in.			
Current Rating	628 A	740 A	900 A	960 A
POWER REQUIREMENTS				
Input Tolerance	Voltage: ±10%; Frequency ±2%			
Main Circuit	Three-Phase 460 V; Integrated Copper-Wound Auto-Transformer; IGBT Output			
Output Frequency	0 to 299 Hz			
CONTROL SPECIFICATIONS				
Control Method	Pulse-Width Modulation (PWM) Output Control with Integrated 18-Pulse Phase-Shifting Auto-Transformer			
V/Hz Control	V/Hz, Sensorless Vector Control, Variable Torque, Closed-Loop Vector Control, & Constant Torque (Optional)			
PWM Carrier Frequency	Factory Default at 2.2 kHz (Maximum Depends on Size of Drive)			
Frequency Setting	4 to 20 mA, 0 to 10 VDC Serial Communication Input, & Rotary Encoder Integrated into EOI			
Frequency Precision	Analog Input: ±0.2% of Maximum Output Frequency; Digital Input: 0.01% of Maximum Output Frequency			
Speed Regulation	Open Loop: Up to 0.1%, 60:1 Speed Range			
Main Protective Functions	Soft Stall, Current Limit, Overcurrent, Overheat, Short Circuit Protection (IGBT & Output Short Circuit), Overcharge, Overload, Undervoltage, Overvoltage, Ground Fault, & CPU Error			
Overload Current Rating	100% Continuous; 120% for One Minute			
CONTROL INTERFACE				
Digital Input	Eight Discrete Input Terminals Programmable to 67 Functions (May Be Increased Using Optional Hardware)			
Digital Output	Three Discrete Output Terminals Programmable to 64 Functions; 2 Form-A Contacts & 1 Form-C Contact			
Analog Input	Three Programmable: One 0 to 20 mA or 0 to 10 VDC Input, One 0 to 10 VDC Input, & One ±10 VDC Input			
Analog Outout	Two Programmable: One Programmable 4 to 20 mA or 0 to 10 VDC & One 4 to 20 mA Isolated Output			
Communication Ports	Ethernet, DeviceNet, Modbus (RTU/TCP/IP), NETPAC, BACnet, & TOSLINE-S20			
ELECTRONIC OPERATOR INTERFACE (EOI)				
Display	4x20 Graphical Full-English LCD Back-Lit Display for Programming, Monitoring, & Diagnostics			
LED Indicators	Run (Red)/Stop (Green), Hand (Green), & DC Bus Charge Indicator (Red)			
Keys	Hand/Auto, ESC, Run, Mode, & Stop/Reset			
Monitoring	Frequency Command Screen; Multiple Parameters Displayed: Output Current, DC Voltage, Output Voltage, Run Time, Comp. Frequency, Motor Load, Motor Overload, ASD Load, Output Power, RR Input, V/I Input, RX Input, RX2 Input, & AM/FM Output			
CONSTRUCTION				
Enclosure	ANSI 61 Grey; UL Type 1; Gasket & Filter; Free-Standing			
Power Cables	Top Entry for Input Cables; Bottom Exit for Motor Cables			
Cooling	Forced-Air Cooled			
Standards & Compliances	UL Listed in US & Canada, NEMA, & NEC			
AMBIENT CONDITIONS				
Ambient Temperature	14° to 104°F (–10° to 40°C)			
Altitude	Up to 3300 ft. Above Sea Level without Derate			
Humidity	95% Maximum (Non-Condensing)			
Installation	Indoor; No Direct Sunlight; Protect from Corrosive Gases			

TOSHIBA MOTORS & DRIVES DIVISION
- Adjustable Speed Drives
- Motors
- Motor Controls

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