

TESCO's new **Endurance[®] Drive Vertical VFD** has the same features as our low-profile VFD, yet with a smaller footprint for more flexibility.

Reliable, clean-power, VFD solution for high heat environments

The TESCO Endurance Drive is a clean-power, outdoor variable frequency drive (VFD) specifically designed to perform reliably in severe environments. The unit has been engineered and tested for high outdoor temperatures. The VFD section has been sealed to protect the electronics from dust. The Endurance Drive requires no refrigerated A/C or outdoor buildings.

Advantages

- » Flexible lead times for emergency, fast-paced, 180-day, and quick turnaround projects
- » Easy to program and maintain
- » Energy efficient & budget-friendly
- » Includes wiring, operator devices, and comes fully assembled, ready for field terminations
- » Built to run in harsh environments where temperatures can soar to over 122°F
- » Runs consistently in high dust environments
- » Runs without refrigerated A/C
- » Removes the need for buildings/housings

Applications

- » Sewage lift stations
- » Booster pump stations
- » Well sites
- » Other variable-speed applications

Call us and see for yourself how Tesco Controls can make a difference on your next project.



Features

- » 5-year warranty
- » 50 Deg C Rated (122 Deg F)
- » No refrigerated cooling
- » High efficiency
- » Lower total cost of ownership
- » Tamper-resistant
- » Higher drive efficiency
- » IEEE 519 Compliant
- » UL LISTED – Complete unit full-load tested at UL facility
- » Flexible lead times

Communications

- » Modbus TCP/IP, Modbus RTU, Ethernet/IP and TCP/IP
- » DeviceNet
- » Profibus DP
- » Data Express Plus

Options

- » 60–to–400 horsepower
- » 6– or 18–pulse rectifier
- » NEMA type 3R or 3RX enclosures
- » Materials: 316SS, 304SS, galvanized
- » Control section
- » Choice of colors and finishes
- » Component Options
- » Enclosure Configurations – Low Profile or 90" High

Regional Offices

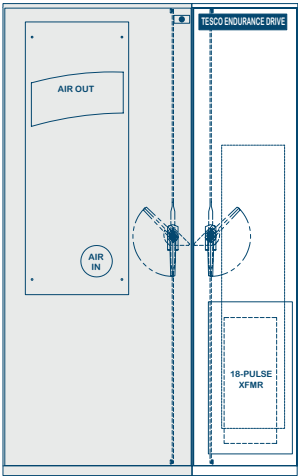
SPECIFICATIONS

ENDURANCE® DRIVE VERTICAL
CLEAN-POWER VFD SOLUTION



SECTION 1
VFD DRIVE

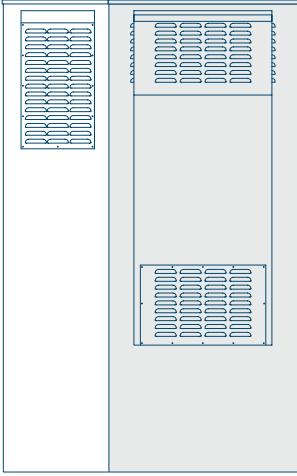
SECTION 2
TRANSFORMER



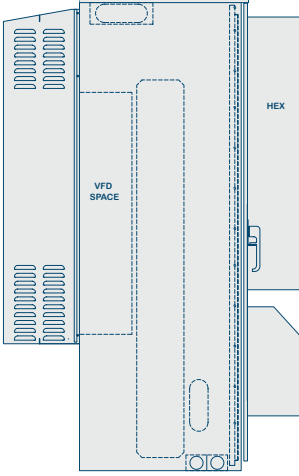
PANEL ELEVATION
(FRONT VIEW)

SECTION 2 (BACK)
TRANSFORMER

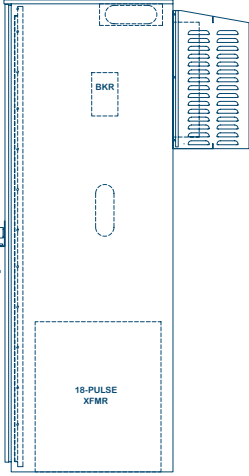
SECTION 1 (BACK)
VFD DRIVE



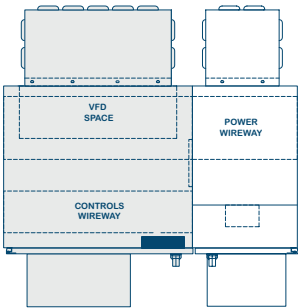
PANEL ELEVATION
(BACK VIEW)



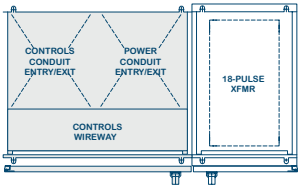
PANEL ELEVATION
(LEFT SIDE VIEW)
VFD SECTION ONLY



PANEL ELEVATION
(RIGHT SIDE VIEW)
XFMR SECTION ONLY



TOP VIEW



PANEL BASE PLAN
(REAR FAN ENCLOSURES
AND HEX NOT SHOWN)

DIMENSIONS

Nominal HP (460 V)	60	75	100	150	200	250	300	400
Full Load Amps (A)	77	96	124	190	240	302	370	480
6-Pulse	H	90.0 inches						
	W	36.0 inches						
	D	Base Plan: 32.0 inches (Overall: 56.6 inches)						
18-Pulse	H	90.0 inches						
	W	56.0 inches						
	D	Base Plan: 32.0 inches (Overall: 56.6 inches)						

SPECIFICATIONS



56
Schedule
Contract GS-07-0414X

TESCO Endurance® Drive

Model Range	60 to 400 HP
Voltage Rating	380 to 480V

POWER REQUIREMENTS

Input Tolerance	Voltage $\pm 10\%$; Frequency $\pm 2\%$
Output Frequency	0 to 299 Hz

CONTROL SPECIFICATIONS

Control Method	Sinusoidal pulse-width modulation (PWM) with VLP Technology
Voltage Regulation	Main circuit voltage feedback control: Automatic, Fixed, & Off
V/Hz Control	Constant torque, variable torque, automatic torque boost, sensorless vector control, 5-point V/Hz custom curve, & PG feedback Vector control
PWM Carrier Frequency	Adjustable 0.5 to 15 kHz (consult factory for drive specific information)
Frequency Setting	Rotary encoder integrated into EOI, 0 to 10 VDC, ± 10 VDC, 4 to 20 mA, digital input, binary input, & motorized potentiometer input
Frequency Precision	Analog input $\pm 0.2\%$ of maximum output frequency; discrete/communications input $\pm 0.01\%$ of maximum output frequency
Speed Regulation	Open loop: up to 0.1%; closed loop: up to 0.01%
Main Protective Functions	Overcurrent, overvoltage, inverter overheat, load-side short circuit, ground fault, VFD overload, communications error, autotuning error, emergency stop, undervoltage, overtorque, open-output phase, motor overload, low operating current, option PCB error, & gate array error
Overload Current Rating	100% continuous; 120% for one minute

CONTROL INTERFACE

Digital Input	Eight discrete input terminals programmable to 68 functions
Digital Output	Three discrete output terminals programmable to 64 functions; two form-A contacts, one 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 Output	Two programmable: both 4 to 20 mA output
Communication Ports	Half/full duplex RS485/RS232 & TTL port

VLP TECHNOLOGY

Start & Stop Points	Determine start/stop based on user-set values, transducer feedback signal, & programmable discrete input terminal; work with delay timer to ensure pump does not start/stop too frequently due to unstable/fluctuating input signal
Sleep Timer	Shuts off pump after running for user-specified time at VLP minimum
Run External Device	Turns on external booster pumps to support primary pump only when necessary
No-Flow/Low NPSH Cut-Off	Stops pump once loss of water feed or closed output valve has been detected
Sealing Water/Vacuum Priming	Monitors water flow/water level & starts pump once water flows through seal or pump is full of water

CONSTRUCTION

Enclosure	Custom paint; NEMA 3R/NEMA 3RX; free-standing; front-access only
Power Cables	Bottom access for input/motor cables
Cooling	Air cooled; heat sink out the back; heat exchanger
Standards & Compliances	IEEE, UL listed in US & Canada, NEMA, NEC, & American Recovery & Reinvestment Act Compliant (ARRA)

AMBIENT CONDITIONS

Ambient Temperature	14°F to 122°F (-10 to 50°C)
Altitude	4500 ft. above sea level (higher altitude with derating)
Humidity	95% maximum (non-condensing)
Installation	Indoor/outdoor; protect from corrosive gases

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Corporate Headquarters

8440 Florin Road
Sacramento, CA 95828
(916) 395-8800

Regional Offices

42015 Remington Ave. Suite 102
Temecula, CA 92590
(951) 308-6450

1315-B Dayton St.
Salinas, CA 93901
(831) 754-6838

213 Sage St.
Carson City, NV 89706
(800) 94-TESCO

10699 Airline Hwy. Suite B
Baton Rouge, LA 70816
(800) 94-TESCO

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