

# ZERO EMISSIONS

# WIGGINS YARD eBULL

*Wiggins has been manufacturing  
forklifts for over 60 years.  
Engineered for the owner, designed  
for the operator.*



- » Zero Emissions
- » Motion Alerts – visual and audible
- » Radar and Back Up camera
- » Unique Battery Management System for extended service life and safety
- » Unique battery design keeps battery packs safe
- » Vibration and Shock component mounting
- » Significantly lower operating and maintenance costs compared to diesel
- » Bundling with Charge Stations available – Level II or DC Fast Charge
- » SAFE - ANSI/ITSDF B56.1 and UL-583 Conformance

## ALL ENERGY IS FROM UNIQUE HIGH VOLTAGE LITHIUM ION BATTERY PACKS, DESIGNED AND BUILT BY THOR TRUCKS.

### ZERO EMISSIONS

Wiggins eBull Series is Zero Emission. Stay ahead of the approaching regulations that will eliminate diesel engines in all Off-Highway equipment. With a 10 year equipment replacement cycle, for example, the time to start electrification at your facility is now. Tier IV engines are only a temporary step on the way to Zero Emissions.

### CLEAN AND QUIET POWERTRAIN

All energy is from unique high voltage Lithium Ion battery packs, designed and built by Thor Trucks. Safe High Voltage 720 VDC keeps power delivery strong and efficient while helping to keep weight and costs down. High Torque, direct drive, AC electric motor feeds power to our proven drive axles for high pulling power and gradability. Zero Emissions for clean operations inside buildings and ships, without fumes, soot, or noise.

### SAFETY IS ESSENTIAL

Reverse Backup Camera; Daylight Strobes when moving; optional rear facing radar with audible and visual warnings to operator; optional noise makers include conventional backup alarm and modern White Noise Generator to alert nearby pedestrians. Battery technology is unique with a tested cell configuration that eliminates the potential for cascade failures. Steel protects batteries to prevent damage from falling objects or side collisions. Park Brake automatically applies if there is a loss of hydraulic power. Hydraulic wet disc brakes in the main drive axle are fully capable of stopping the fully loaded machine in the distance required by the ITSDF B56.1 Safety Standard, even without the help normally provided by the electric drive motor.

### PROTECTIONS

Wiring, circuit protections, connectors, and overall design protect the batteries and all electrical components from damage, comply with UL-583 and B56.1 safety standards. Batteries are protected





by steel enclosures, high capacity cooling systems for each pack, vibration and shock isolation mounting. The Battery Management System balances charging and discharging rates, controls temperatures throughout the battery packs, prolongs battery lifetime. The Vehicle Control Unit controls power and temperatures in the liquid cooled electric motors and inverters. Radiator Protection includes expanded metal screen.

## RANGE OF MODELS

Wiggins' first unit is 36,000 lbs at 24 inch load center (16 Tonne at 600 mm). Well over 100 kWh of on-board energy storage support 8 hour shifts, or double shifts with DC Fast Charge opportunity charging. Wiggins offers up to 88,000 lbs at 48 inch load center (40 Tonne at 1200 mm), with over 250 kWh estimated on board storage.

## MINIMAL MAINTENANCE

Change the air filters on the battery cooling system once a year. Wiggins uses 5 year life, non-toxic Polypropylene Coolant, and long life All-Weather hydraulic fluid. Optional Automatic Greasing of is available for mast and steer axle. Since the electrical drive motor does most of the braking, hydraulic axle brakes may last the life of the machine. On-Board Diagnostics assist with maintenance and repairs.

## CONVENIENCE

High Capacity Charge ports are located on both sides of machine for ease of parking when at the charge station. Level 2 A/C charging





with 1 or 2 on-board chargers and CCS1 DC Fast Charging up to 100 kW provide additional charging convenience. Hydraulic system is separate from drive motor, eliminating the need for an inching pedal. A full speed lift can happen while stationary. No transmission means no shifting gears, operator only selects direction of travel. The Brake Pedal communicates with the drive motor and hydraulic brake systems to provide smooth and reliable braking. Display shows power usage and energy remaining.

## **SAVES OPERATING DOLLARS**

No engine oil or filter changes, no DEF, no diesel fuel spills, no transmission oil or filter changes. Electricity has higher energy efficiency than diesel and costs less per shift to operate. Check with your utility for further cost reductions through programmed Time-Of-Use charging.

## **OPPORTUNITIES FOR GRANT SUPPORT**

Wiggins has partners with knowledge of government incentives for Zero Emissions programs. Contact us to explore your options in your state, and to perform a site visit. Help us help you feel great about saving money, contributing to cleaner air and water, and staying ahead of regulations. Clean, Quiet, Strong are all well-known features associated with Electric Vehicles.

## **FLEXIBILITY FOR THE FUTURE**

The latest Battery Chemistry, Fuel Cells, Super Capacitors, Solid State Batteries, Mega-Fast Chargers. These make the news every few weeks, it seems. Wiggins has designed flexibility into the eBull to reduce costs of upgrades and conversions going into the future. Wiggins balances innovation with practicality to achieve the best combination of performance and longevity!

## **AND: IT'S A WIGGINS!**

Designed and built for long life and strong like a bull. Many Wiggins forklifts delivered in the last 60 years are still working for their owners or are commanding high resale value. We know, because we provide parts and repair support for units that started service decades ago. Join our customer family with confidence of a fair and comprehensive warranty coupled with on-going support.

DEALER INFORMATION:

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