

HYPOWER™
by  **TEREX®**

LEAN, CLEAN AND GREEN



 **TEREX®**

WORKS FOR YOU.™

SAVE FUEL. REDUCE

The HyPower™ hybrid system by Terex is a simple, robust and retrofittable system that allows utility service trucks to become state-of-the-art Plug-In Hybrid Electric Vehicles (PHEVs). It's designed to operate the boom, lights/flashers, and optional cab heat/air conditioning, and exportable power without starting the vehicle's engine.

SIMPLE SOLUTION

The HyPower™ system has fewer components than other plug-in hybrid electric vehicle technologies. The system seamlessly transitions from Hybrid to Standard PTO mode automatically for charging. Best of all, it offers full hydraulic operation of the aerial device without any noticeable differences to the operator.

EASY RETROFIT

The HyPower™ system is self-contained, so it works on virtually any gas or diesel stock chassis with a PTO provision — even older trucks. The system does not interrupt the chassis driveline, allowing for a simple retrofit.

110V CONVENIENCE

The HyPower™ system requires no special charging equipment. Primary system charging uses a standard 110V, 15-amp outlet through the on-board portable charger to take advantage of lower “off peak” rates. Recharging takes a minimum of eight hours to recharge and condition the batteries.

3-WAY INTERFACE

A control interface allows communication between the chassis, unit and hybrid system to monitor key functions, including: interlocks (park brake set, transmission in neutral, outriggers extend); engine (off/on, RPM); PTO switch (hybrid/conventional operation); and PTO (engaged/disengaged). The system controller can start and stop the truck engine to recharge the system while maintaining uninterrupted hydraulic boom and tool controls to the operator.



◀ Compared to a conventional chassis, HyPower™ can save up to 1.2 gallons of fuel per hour.¹ That can add up to a savings of 1,500 gallons of fuel per year.

¹HyPower™ 8 and 12 with cab comfort; based on 7,000 miles/year, 1,250 jobsite hours/year.

EMISSIONS. ELIMINATED.



HYPOWER™ 8 AND 12 FEATURES ²

- Compared to a conventional chassis, Terex estimates the HyPower™ 8 and 12 hybrid systems can reduce diesel fuel consumption by up to 7.5 gallons each work day, which would offset 14 metric tons of CO₂ each year. (Based on 250 working days/year.)
- The system is designed to also allow you to operate the boom while recharging the batteries and cooling the system through an integrated motor generator.
- Hybrid battery system supports operation of standard chassis accessories, such as marker lights, strobe lights and radios.
- Options include a cab comfort system (provides heating or air conditioning without having to start the chassis engine) and a 3.8 kW inverter for exportable power.
- Operating voltage: 408V

HOW DOES THE SYSTEM RECHARGE?

- Primary: Plug-in mode (no special equipment needed). Plug in to a standard 110V outlet with a 15 amp circuit.
- Secondary: Advanced battery management system monitors charge level and automatically starts chassis to recharge batteries if required. When the Hybrid system has depleted its batteries, there are 2 chassis recharge modes.
 - Automatic Mode: The system restarts seamlessly and runs for 5 minutes of “engine on.” This provides up to 15 minutes of boom operation.
 - Manual Mode: The operator may select manual mode for a longer charge when 110V power is not available. This will provide up to a 30 minute charge cycle.

²When the HyPower™ 12 system is used on Digger Derricks, PTO operation is required for digger and full speed winch function. Winch function can be operated at a reduced speed and capacity in hybrid mode. (HyPower™ 12 system only)

ATE JOBSITE NOISE.

► HyPower™ 8 & 12 Monitor

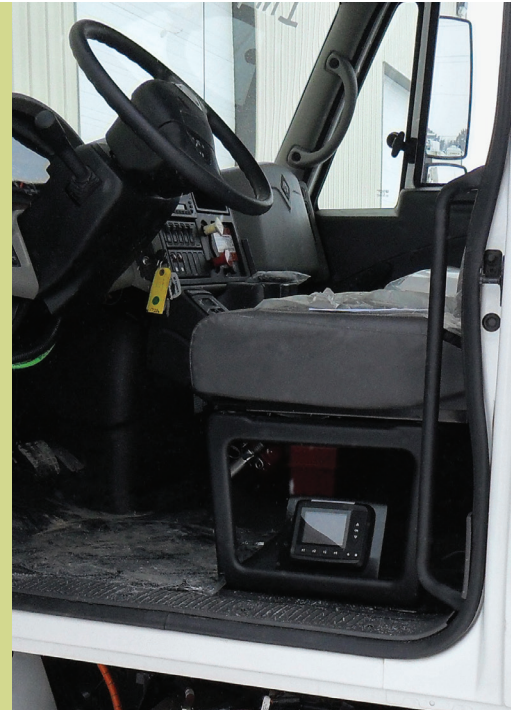
Easy-to-use interface communicates system status and mode

Startup: Displays each system boot-up check point

Hybrid Mode: Displays HyPower™ battery state of charge %, battery temperature, chassis battery voltage and operation type (high flow or low flow enable)

Engine Charge Mode: Displays chassis RPM during charging in addition to the same information as Hybrid Mode

Plug-In Mode: Displays charge information



HYPOWER™ 5 AND 7 FEATURES

- Compared to a conventional chassis, the HyPower™ 5 and 7 hybrid systems save up to .7 gallons of fuel per hour.
- Advanced battery management system monitors charge level and automatically starts chassis engine to recharge batteries if required.
- Tailshelf-mounted battery packs provide open bed space and easy maintenance access. (Optional larger batteries for increased run time.)
- Options include a cab comfort system (provides heating or air conditioning without having to start the chassis engine), the ability to have the battery charge during road travel, and a 3.0 kW inverter for portable power.





DIFFERENT IN ALL THE RIGHT WAYS

Saving fuel while reducing noise and emissions shouldn't force you to compromise on features. With the HyPower™ hybrid system by Terex, you don't have to.

Almost all other plug-in hybrid electric vehicle technologies are better suited for stop-and-go applications. The Terex® HyPower™ system is designed specifically for the utility industry. It's ideal for utility trucks that spend long periods of time working from a stationary position.

That's just the beginning of the advantages. The HyPower™ system is designed to power jobsite operations for a typical working day. Some competitive systems offer as little as 5 minutes of continuous boom operation without starting the engine. The HyPower™ system

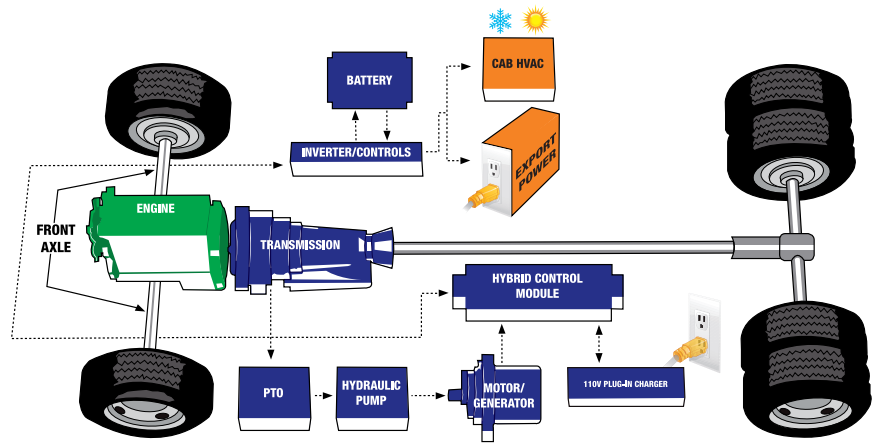
dramatically reduces engine run time, so it saves on maintenance costs. And fewer engine hours should increase the life of your vehicle.

Some competitive hybrid systems have reduced towing capacity. That's not the case with the HyPower™ system. Unlike other systems that typically require a chassis redesign, the HyPower™ system is a quick retrofit on virtually any gas or diesel chassis with a power take-off (PTO) provision. It's also designed to minimize the weight that's added to the chassis.

For reliable performance in a wide variety of weather conditions, the HyPower™ system is an excellent choice. It all adds up to a different kind of hybrid system — one that works for you in all the ways that count.

THE HYPOWER™ HYBRID SYSTEM

- Capable of being immersed in water up to the chassis frame rails.
- Optional integrated all-electric chassis cabin HVAC system using the hybrid battery system.
- Emergency Power can be used if hybrid faults and options installed.
- Does not affect standard ground clearance.



Specifications

	HyPower™ 8 and 12 (Distribution Line Truck)	HyPower™ 5 and 7 (Trouble Truck)
Recharge system	110V-15 Amp	110V-15 Amp
Duty cycle	100% continuous operation	100% continuous operation
Battery type	AGM* lead acid (34)	AGM* lead acid (4) Optional Lithium battery is also available
Battery life cycle	AGM = Approximately 3 to 5 years	AGM = Approximately 3 to 5 years Lithium = Approximately 7 years
Operating range	0 - 120° F (-17° to 48°C) battery temperature	0 - 120° F (-17° to 48°C) battery temperature
"Engine On" recharger	PTO-driven generator	Recharges from truck alternator
Driveline interface	Industry standard Power Take Off (PTO) mounting	Industry standard Power Take Off (PTO) mounting
System hydraulic pump	Industry standard hydraulic pump	Industry standard hydraulic pump
Motor generator cooling	Integrated into aerial device hydraulic system	Air cooled
Ground clearance	Standard chassis ground clearance	Standard chassis ground clearance
System weight	Approximately 2,500 lbs.	Approximately 700 lbs.
Cabin HVAC (optional)	All electronic (7,000 btu cooling/5,100 btu heating)	All electronic (7,000 btu cooling/5,100 btu heating)
Exportable power (optional)	3.8 kW inverter	3.0 kW inverter

*Absorbent Glass Mat, a class of Valve Regulated Lead Acid (VRLA) battery in which electrolytes are absorbed into a fiberglass mat. Batteries are Ensyr's Odyssey sealed batteries.

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