



HYSTER SALES TIPS

XN Series 80 Volt vs. 36 or 48 Volts

The Safe Choice

There has been some discussion regarding when and where to quote an 80 volt system with the E – XN series. Although at first glance, one would think 80 volts is definitely the way to go. More volts, more power – right? Not necessarily true. With some input from Mark Estock and Tony Zaderej of EnerSys, I've put together a few thoughts:

E - XN Efficiency

95% of the users of 4 wheel cushion electric trucks out there use 36 or 48 volt electrical systems. Our Engineers have optimized the design of the systems around a 36 volt or 48 volt package to provide the best performance and energy efficiencies. As you have seen in the launch materials, our previous design was up to 10% more efficient than our competition. Our NEW XN design has gone a step beyond, and is now up to 20% more efficient than most competitors. Major WOW factor.

Why can't I get as many useable Amp Hours / kWh with an 80 volt E – XN versus a 48 volt system?

The E – XN series has limited battery compartment space (and height) due to the position of the traction and hydraulic system components. To incorporate an 80V battery, the manufacturers use the existing battery tray to package 40 cells rather than 24 (or 18) cells in order to get 80 volts. An 80 volt battery will NOT GET the same useable Amp Hours / kWh as a 48 volt, given the limited height of a conventional battery compartment. Note the battery compartment height, with rollers is 23.5".

With a 48V; 24-100-21 battery you get 46.6 kWh.

With an 80V; 40-100-11 battery you only get 38.8 kWh.

So why then can I get the power and efficiency out of a J40-65Z AC, and not an E45-70XN?

The J 40-65Z AC is a DBB (Drop Battery Box) truck. The battery sits down on the frame of the truck, and the cell configuration (cell height) is not as restricted. The cell height of a DBB is 31" rather than 23.5". You can pack an 80 volt 775 AH, 60.5 kWh battery into a 33.9" battery box. That's A LOT of 80 volt power!

So, why even bother with an 80 volt system in an E –XN? What are its advantages?

Great question! –

THINK TEMPERATURE!

Higher voltage = lower current draw

Lower current draw = less heat, cooler running components

Cooler running components = energy efficiency opportunities

We all agree that a cooler running truck reduces your overall cost of operations and extends the life of costly electrical and hydraulic components (improved dependability and durability).

THINK FAST CHARGE!

Fast Charge or Rapid Charge systems prefer higher voltages – the higher the voltage, the better. Heat (watts) is generated from current, not voltage. The higher the voltage, the lower the heat. With a higher voltage system, more kWh can be put back more quickly when charging the battery.

There are however downsides of an 80 volt system which also need to be considered. An 80 volt battery costs more (more plates), and there is actually more heat retained in the battery itself (more plates in the same space = less electrolyte, less cooling).

Going fast charge? Consider going 80 volt.
But consider all the ramifications – talk to your battery representative.