

# Standard Conveyor Drive VS. IntelliDrive™ Drum Motor

Founded in 1948, and established in North America since 1985, VDG is the world's leading designer and manufacturer of drum motors for all types of material handling belt conveyors such as food processing, mining and aggregate, airline baggage, postal and parcel, and others.

In-house research, development, manufacturing, and engineering, coupled with a global footprint of manufacturing facilities and service centers across the United States, Canada and Europe, places VDG as the market leader with unsurpassed quality control, expedited production, and fast delivery.

VDG adheres to a simple principle: design a superior product to meet customer needs in a changing marketplace.



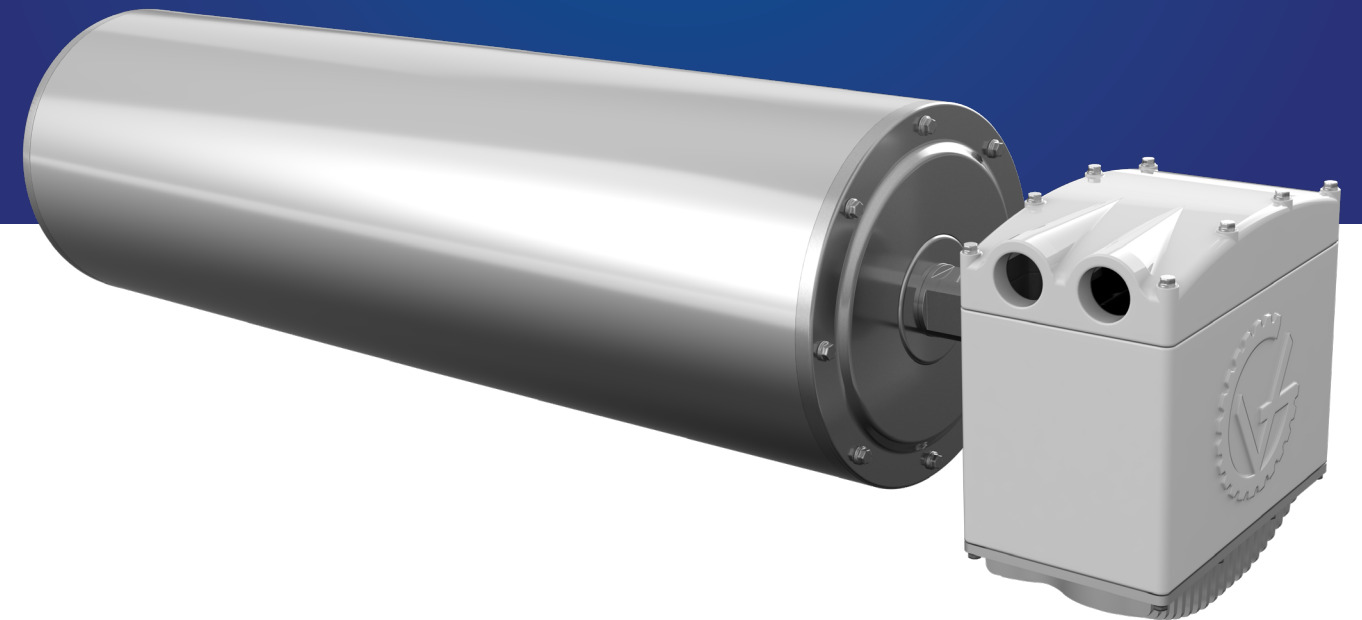
United States



Canada



Netherlands



Energy Efficiency Analysis Between Two Conveyor Drives

## OVERVIEW

A conveyor efficiency study was conducted to measure and compare energy losses and overall energy costs between a conventional externally mounted motor/gearbox configuration and the **VDG IntelliDrive™ permanent magnet motor technology with an integrated VFD.**

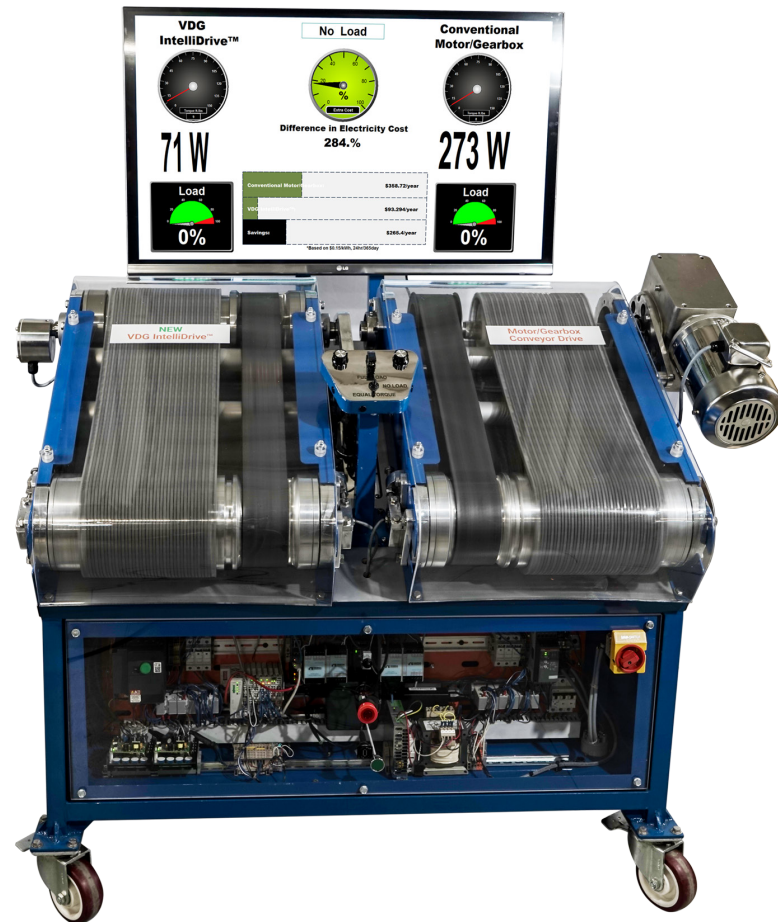
The study tested two identical conveyors, each using a 1 hp electric motor geared for conveyor belt velocity of 51 ft/min and mechanically connected to a dynamometer.

Both drives were subjected to three test criteria for measuring energy consumption in watts, capacity in percentage and annual energy cost (based on \$0.15 kWh, 24 hrs/day, 365 days/yr).

Test studies revealed that the conveyor belt driven by the **VDG IntelliDrive™** drum motor had a **significant energy and cost savings** compared to the conventional motor/gearbox conveyor drive.

The study showed a 284% difference in electrical cost under no load conditions (empty conveyor) and 63% difference when equal amount of ft.-lbs. of torque was applied to each drive. Under full load (100% motor load), although both drives consumed 748 watts of energy, the IntelliDrive™ produced up to 2x the amount of ft.-lbs. of torque. In addition, the electrical savings with the IntelliDrive™ is achieved without loss of torque or belt-pull.

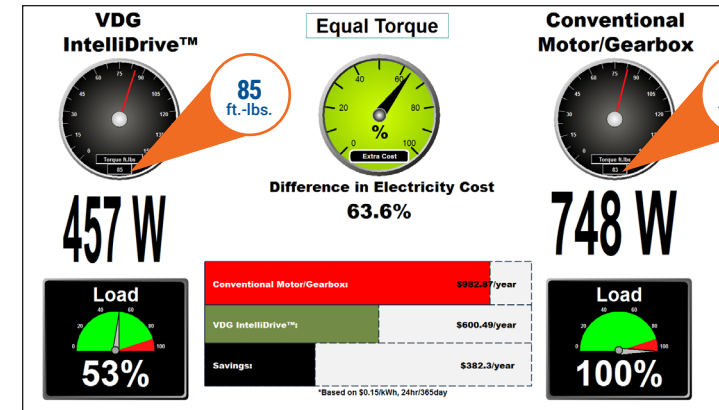
Results clearly indicates that a conveyor driven by the compact IntelliDrive™ drum motor is overall the most efficient conveyor drive, saves energy and cost, prolongs motor life-span of the drive when compared to a conventional external motor/gearbox system.



The **IntelliDrive™** drum motor design, contains the permanent magnet motor coupled in-line with the gear reducer and all external moving components are enclosed inside the drum, eliminates safety hazards and maintenance associated with external motor/gearbox systems, and increases operator safety.

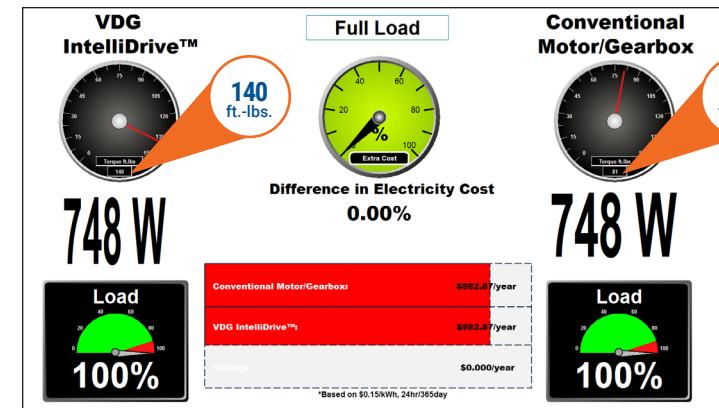
## RESULTS

**TEST 1: Both drives loaded to produce same amount of torque.**



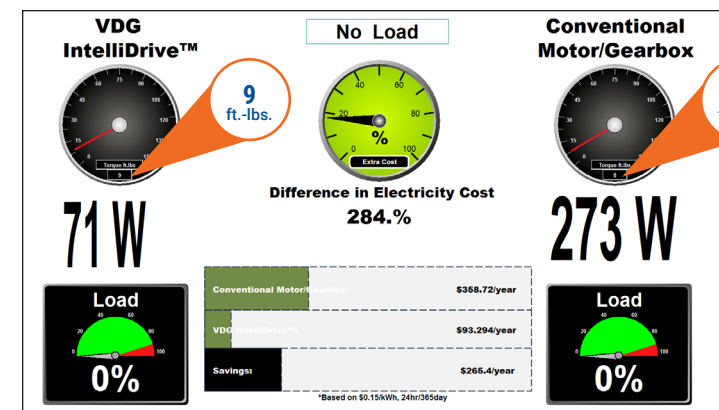
	VDG IntelliDrive™	Conventional Motor/Gearbox
Torque	85 ft.-lbs.	83 ft.-lbs.
Motor load	53%	100%
Energy consumption	457 watts	748 watts
Energy cost†	\$600.49/year	\$982.87/year

**TEST 2: Both drives at 100% motor load.**



	VDG IntelliDrive™	Conventional Motor/Gearbox
Torque	140 ft.-lbs.	81 ft.-lbs.
Motor load	100%	100%
Energy consumption	748 watts	748 watts
Energy cost†	\$982.87/year	\$982.87/year

**TEST 3: Both drives at 0% motor load.**



	VDG IntelliDrive™	Conventional Motor/Gearbox
Torque	9 ft.-lbs.	8 ft.-lbs.
Motor load	0%	0%
Energy consumption	71 watts	273 watts
Energy cost†	\$93.29/year	\$358.72/year

† based on \$0.15 kWh, 24 hrs/day, 365 days/yr

