

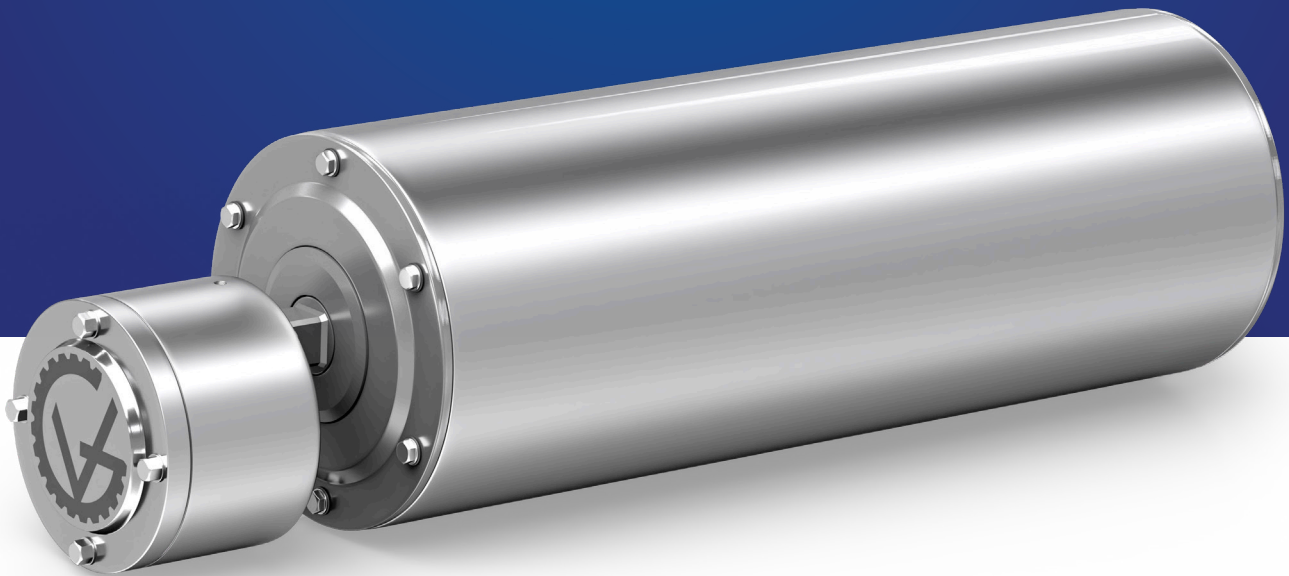


# Traditional Conveyor Drive

VS.

# IntelliDrive™ Drum Motor

PERMANENT MAGNET DRUM MOTOR TECHNOLOGY





## An efficiency comparison study was conducted to measure energy consumption, performance, and overall energy costs between a traditional external motor/gearbox drive and the **VDG IntelliDrive™ Permanent Magnet Drum Motor**.

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

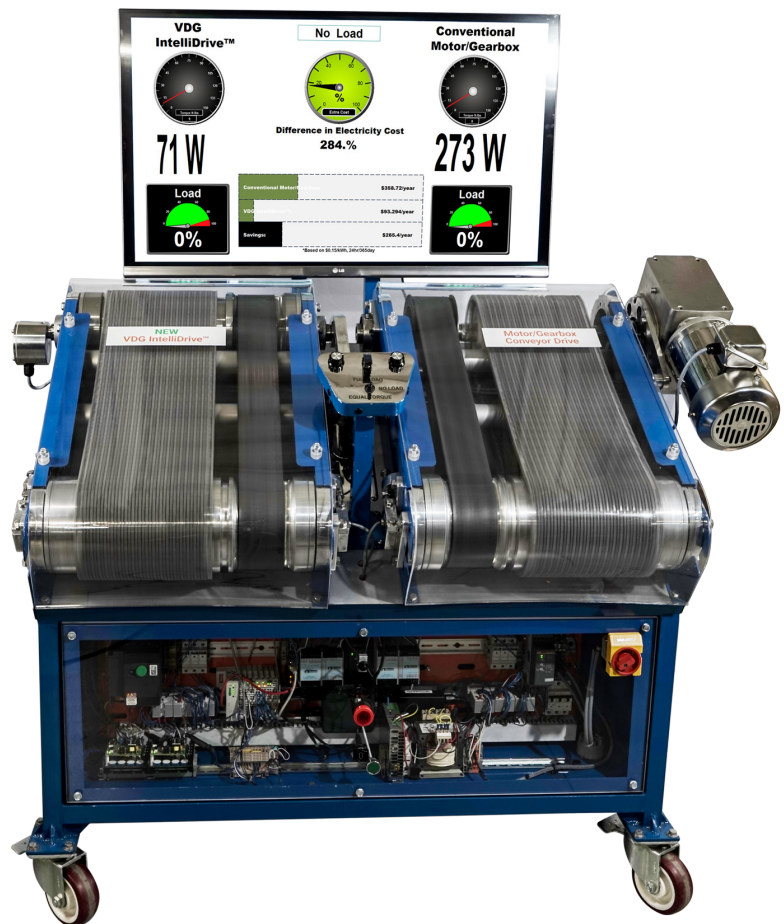
Both drives were subjected to three test criteria and measured for energy consumption, load capacity and annual energy cost based on \$0.15 kWh, 24 hrs/day, 365 days/yr.

Test studies revealed that the conveyor belt driven by the **VDG IntelliDrive™** had **significant energy and cost savings** compared to the traditional motor/gearbox conveyor drive. The study indicated 284% difference in electrical cost

under no load condition (Test 3), and 63.6% difference when equal amount of ft.-lbs. of torque was applied to each drive (Test 1). When both drives were subjected to full load condition (Test 2), although both drives consumed the same amount of energy, the IntelliDrive™ delivered 60% more torque. In addition, the electrical savings with the IntelliDrive™ was achieved without loss of torque or belt-pull.

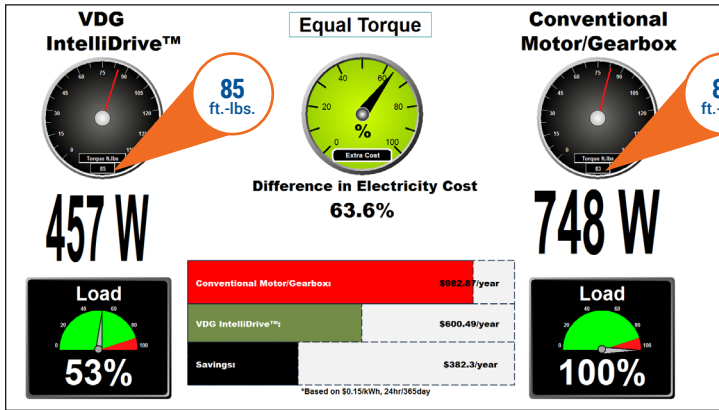
Results clearly indicate that a conveyor driven by the IntelliDrive™ PM drum motor is overall the most efficient, saves energy, costs, and prolongs the lifespan of the drive compared to a traditional conveyor drive system.

The **IntelliDrive™** drum motor encloses all moving components, including the permanent magnet motor that is coupled in-line with the gear reducer, inside the drum with a **lifespan of 80,000 hours before maintenance**. The VDG IntelliDrive™ eliminates safety hazards and maintenance cost associated with external motor/gearbox systems.



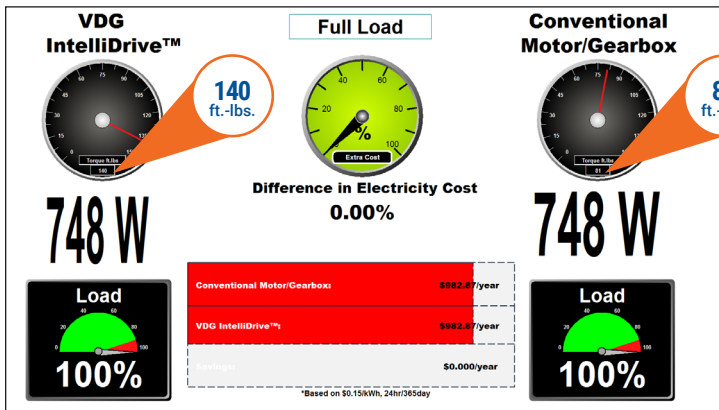


## TEST 1 CRITERIA: Both drives loaded to produce same amount of torque.



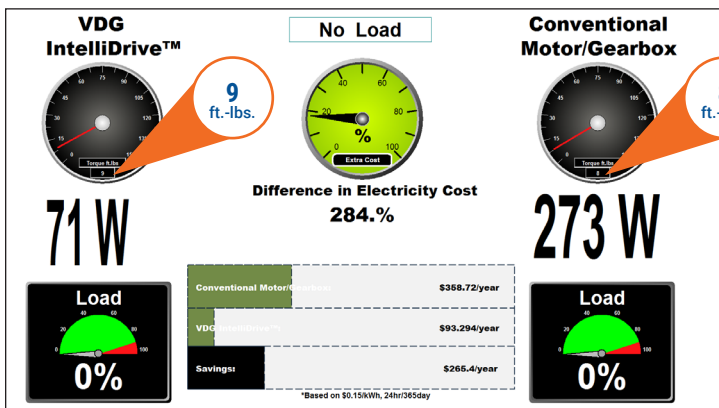
	VDG IntelliDrive™	Conventional Motor/Gearbox
Torque	85 ft.-lbs.	83 ft.-lbs.
Motor load	<b>53%</b>	100%
Energy consumption	<b>457 watts</b>	748 watts
Energy cost <sup>†</sup>	<b>\$600.49/year</b>	\$982.87/year

## TEST 2 CRITERIA: Both drives at 100% motor load.



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

## TEST 3 CRITERIA: Both drives at 0% motor load.



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