

# E Series Features

Single Reduction  
Worm Gear Reducers

Double Reduction  
Worm - Worm Gear Reducers

Double Reduction  
Helical - Worm Gear Reducers

WASHGUARD® Reducers  
and GEAR+MOTOR™

Ratio Multipliers

Accessories

Oversized positively-retained high speed input shaft bearing for higher shock load capacity, shaft alignment and seal life. Ideal for frequent starting and reversing applications.

Precision mounting surfaces and extra threaded bolt holes on top and bottom for flexibility and to accept a wide range of stock mounting accessories.

Premium Grade 5 zinc-plated heat-treated bolts used throughout.

Push-off holes drilled and tapped into flange for quick motor removal on quill input styles (56 & 140TC frames).

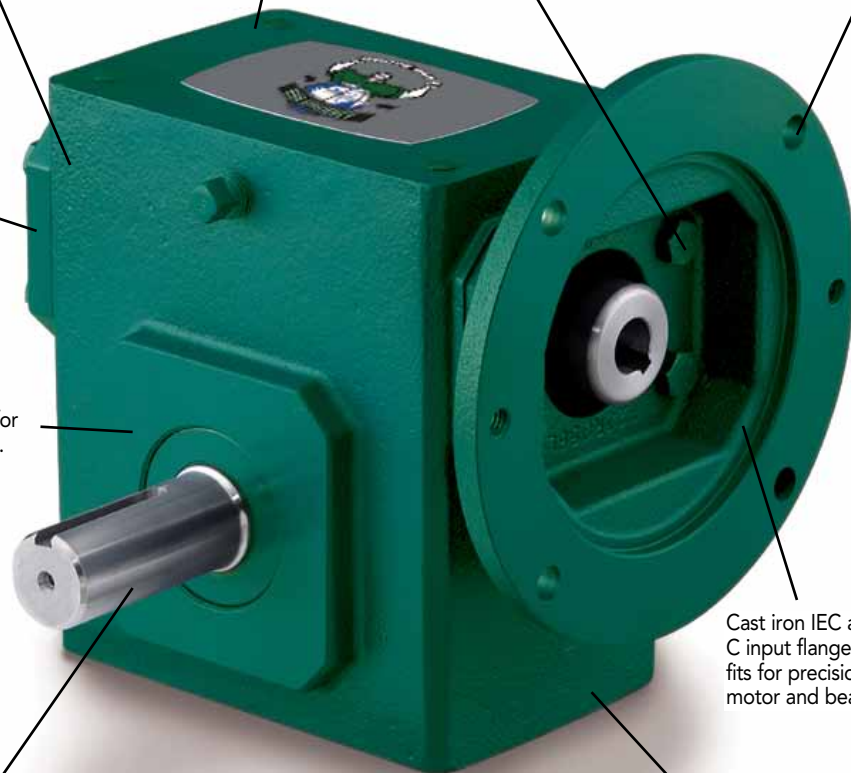
Factory filled with premium Mobil Glygoyle 460 polyalkylene glycol (PAG) lubricant.

Tapered roller bearings on output shaft for high overhung and thrust load capacities.

Robust output shaft of high strength steel alloy for superior torque and overhung load capacities.

Cast iron IEC and NEMA C input flange with machined fits for precision alignment of motor and bearings.

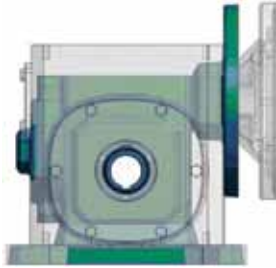
Multiple venting options for multi-position mounting.



## E Series Features

The Grove Gear IronMan E Series is a high efficiency, right angle gear reducer designed for increased torque density, reduced inventory and improved efficiency. By utilizing modified helical-bevel technology, the E Series is able to operate at 90% efficiency and can provide up to 60% higher torque than a typical worm gear reducer. Through various accessories and modular components, the E Series recreates the critical dimensions of a standard worm gearbox and provides the opportunity to reduce inventory.

### More Power



60% more torque than a typical worm gear reducer  
Opportunity to downsize motor and gear reducer

The Grove Gear IronMan E Series offers more torque density than a typical worm reducer in the same mounting footprint. It allows for motor and gear reducer downsizing opportunities.

### Less Inventory



Four models replace 10 typical worm gear reducer center distances  
Plug-in shafts and mounting accessories create hundreds of style combinations

With this modular design, 10 typical worm gear center distances can be replaced with just four E Series units. Plug-in shafts and mounting accessories create hundreds of style combinations. By utilizing these modular features, the E Series can be used as a drop in replacement to worm gear reducers.

### Higher Efficiency

90% operating efficiency  
Rapid payback through energy cost savings



Bravo® Single Reduction Reducers

Bravo® Worm - Worm Double Reducers

Bravo® Helical - Worm Double Reduction

Bravo® Accessory Kits

Helical - Inline Gear Reducers

Helical - Worm Gear Reducers

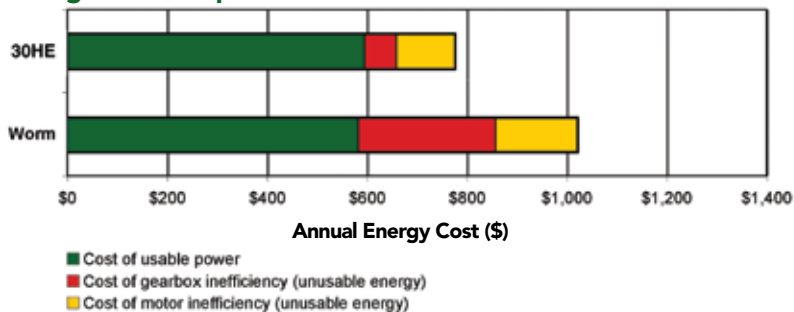
## E Series Features

The Grove Gear IronMan E Series Gear Reducer yields 90% operating efficiency and meets the increasing demand for high efficiency products in industrial applications. This revolutionary product utilizes modified helical-bevel technology to provide superior efficiency with the same dimensional footprint as worm gear reducers. The compact design is an ideal alternative to traditional high efficiency units. Placing greater attention on the efficiency of the entire power transmission system can reduce energy costs while boosting productivity, reliability and profitability.

	Worm Drive	ε Series
Gearbox Description	3" worm	30HE
Input Speed (rpm)	1750	
Gearbox Ratio (Input RPM / Output RPM)	60	59.79
Desired Output Torque (in-lbs)	1950	
Gearbox Operating Efficiency (%)	68.0%	90.0%
Select Motor	Standard 3-ph	LEESON WATTSAYER®
Motor HP	1.50	1.00
Motor Efficiency	83.0%	85.0%
Duty Cycle (hrs/day)	24	
Duty Cycle (days/week)	7	
Energy Cost (\$/kW-hr)	\$0.10	
Cost of usable power	\$588	\$590
Cost of gearbox inefficiency (unusable energy)	\$277	\$66
Cost of motor inefficiency (unusable energy)	\$177	\$116
<b>Annual Energy Cost Savings (\$)</b>	<b>\$270</b>	
<b>Annual Energy Savings (kW-hrs)</b>	<b>2,704</b>	

Typical operating example, actual savings will vary.

### Operating Cost Example



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