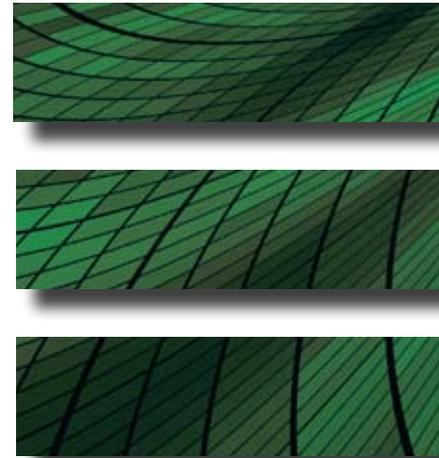


More Power.  
Less Inventory.  
Higher Efficiency.



*Patent Pending*

## IronMan $\mathcal{E}$ Series

High Efficiency Gear Reducers

**GROVE GEAR**  
*ELECTRA-GEAR*

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

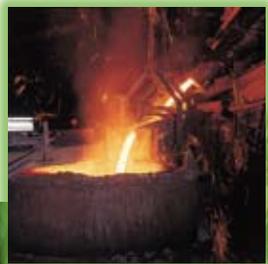
60% more torque than a typical worm gear reducer  
Opportunity to downsize motor and gear reducer

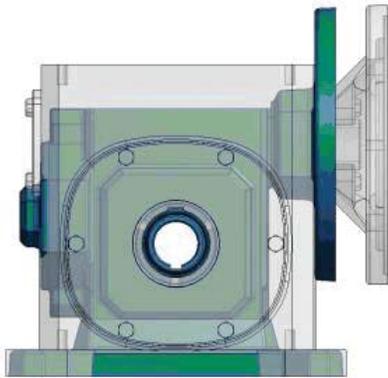
## Less Inventory

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

## Higher Efficiency

90% operating efficiency  
Rapid payback through energy cost savings





## More Power

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

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.



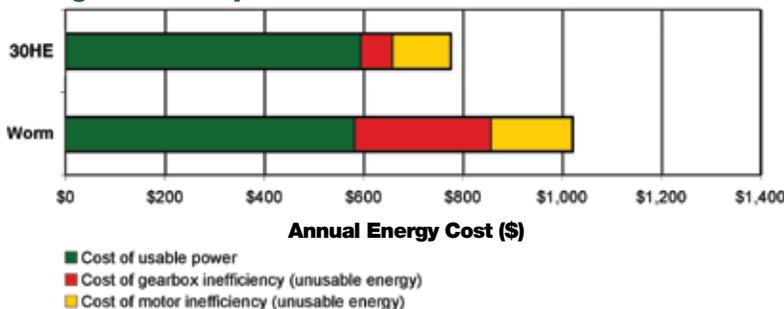
# Higher Efficiency

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.

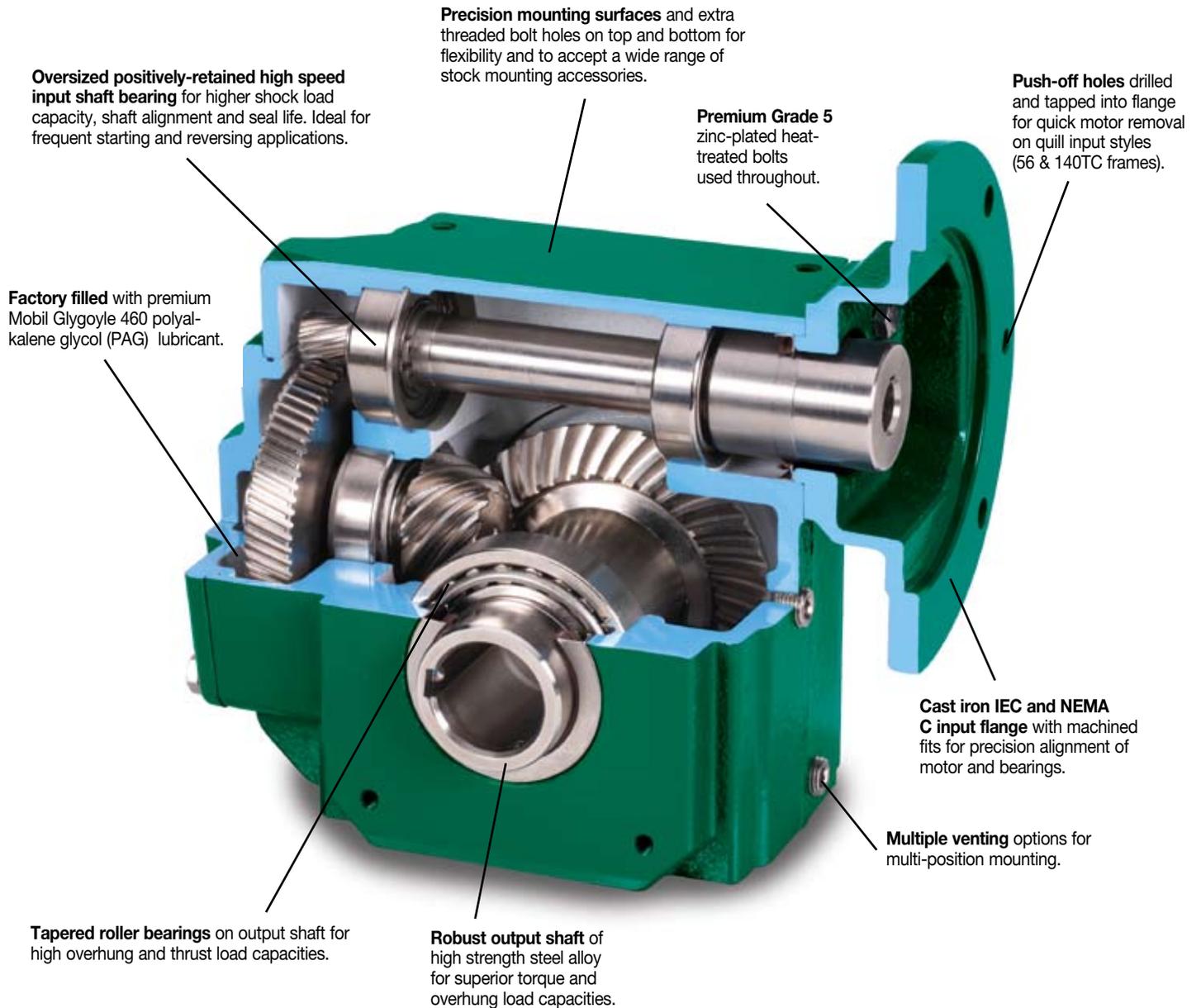
	Worm Drive	Ɛ Series
Gearbox Description	3" worm	30HE
Input Speed (rpm)	1750	
Gearbox Ratio (Input RPM / Output RPM)	60	59.79
Desired Output Torque (in-lbs)	1950	
Gearbox Operating Efficiency (%)	68.0%	90.0%
Select Motor	Standard 3-ph	LEESON WATTSVERE®
Motor HP	1.50	1.00
Motor Efficiency	83.0%	85.0%
Duty 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



# Premium Features



## Quick Selection

Based on required output RPM and input motor horsepower, read across chart to see where an E Series reducer would be appropriate. As a rule of thumb, use 1.00 service factor chart for applications having uniform loads with up to 10 hours service duration per day. This chart is to be considered as a guide only. Contact Factory with specific application information.

Nom. Ratio	1/2	3/4	1	1-1/2	2	3	5	7-1/2	10	15	20
7/1						18HE	24HE	24HE	33HE		
10/1						18HE	24HE	33HE	33HE	43HE	43HE
15/1					18HE	24HE	24HE	33HE	43HE	43HE	
20/1					18HE	24HE	33HE	43HE	43HE		
30/1				18HE	24HE	33HE	43HE	43HE			
40/1			18HE	24HE	24HE	33HE	43HE				
50/1		18HE	24HE	24HE	33HE	43HE					
60/1	18HE	24HE	24HE	33HE	33HE	43HE					

## Sample Model Numbers

### Solid Output Shaft - E Series

**BMQ 24HE - 11.36 - L - 56**  
 Style    Size    Ratio    Shaft Orientation    Input Type

### Hollow Output Shaft - E Series

**HMQ 26HE - 11.36 - H - 56 - 23**  
 Style    Size    Ratio    Shaft Orientation    Input Type    Bore Code