

# POWER TRANSMISSION SOLUTIONS FOR EVERY



Grove Gear IRONMAN  
High Efficiency  
Gear Reducers



Grove Gear IRONMAN  
GR Series  
Worm Gear Reducers



Grove Gear  
Stainless Steel  
Worm Gear Reducers



Grove Gear  
WASHGUARD®  
Worm Gear Reducers



Electra-Gear  
EL Series  
Worm Gear Reducers



Grove Gear IRONMAN  
NH Series  
Worm Gear Reducers

Recognized throughout the world as a leader in industrial-duty gear reducers, GEAR+MOTORS™ and integral gearmotors, Grove Gear offers a solution for every power transmission need. From single reduction worm gear reducers to quintuple reduction helical-bevel reducers Grove Gear is a one-stop shop.

Grove Gear IRONMAN is the industry's most comprehensive and superior line of gear reducers, available in right angle worm and high efficiency options. Electra-Gear offers the industry's only industrial-duty aluminum worm reducers designed and built in the U.S.A. Electra-Gear products are built with premium features from the IRONMAN line and offer a clean, paint-free finish perfect for washdown applications.

LeCENTRIC™ and Bravo® reducers are a compact and lightweight alternative to traditional cast iron units.

By combining a Grove Gear or Electra-Gear reducer with any LEESON or Lincoln c-face motor, a performance-matched GEAR+MOTOR™ or integral gearmotor is created instantly.

**GROVE GEAR** *ELECTRA-GEAR*

Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information

# APPLICATION



Grove Gear  
BRAVO®  
Gear Reducers



Grove Gear  
LeCENTRIC™  
Gear Reducers



## SERIES COMPARISON

**LEESON**®

### CAST IRON GR SERIES



- Grove Gear IRONMAN 800 Series
- Cast Iron Housing Construction
- Mounting dimensions are interchangeable with most industry standard reducers
- Designed with industry leading premium features as standard
- Combines the premium features of the LEESON IRONMAN with the industry's broadest product offering of the Grove Gear Flexaline
- GEAR+MOTOR™ Available

### CAST IRON NH SERIES



- Grove Gear IRONMAN Narrow Housing 800 Series
- Cast Iron Housing Construction
- Designed with industry leading premium features as standard
- Replacement for Grove Gear OE Series and original Alling Lander gear reducers
- Compact housing design to fit where other reducer brands cannot
- GEAR+MOTOR™ Available

### ALUMINUM EL SERIES



#### ELECTRA-GEAR

- Electra-Gear 800 Series
- Aluminum Housing Construction
- Lightweight design with all the premium features of the GR and NH series as standard
- Replacement to original Electra-Gear reducers
- GEAR+MOTOR™ Available

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Specifications are subject to change without notice



# 800 Series Gear Reducers Built For Industrial Use

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

**O-rings on input and output covers** eliminate gaskets, sealants and leaks.

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

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

**Seal Guard\*\*** on quill-input styles protects input seal from damage during motor installation.  
\*\* Sizes 813 through 852 only

**IronMan™ fine-grained, one-piece cast housing** for rigidity and alignment. Machined for precision alignment of worm, worm gear, bearings and mounting surfaces. Superior resistance to environmental contaminants with high heat dissipation and noise reduction.

**Bronze alloy worm gear** is premium quality bronze for maximum strength, lubricity and superior life.

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

**Mounting dimensions are interchangeable** with Baldor 900 series, Boston Gear, Browning Raider, Falk, Morse Invader and other "industry standard" reducers.

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

**Single-piece, alloy steel input worm shaft.** High lead angle worm is case-hardened, ground and polished for enhanced efficiency and noise reduction.

**High capacity oil reservoir** reduces noise, aids heat dissipation and lubricates for life. Multiple venting options for multi-position mounting. Factory filled with premium Mobil Glygoyle 460 polyalkalene glycol (PAG) lubricant.

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

**Viton® premium quality, double lip seals\*\*** throughout—on micro-finished surfaces—mean extended life, resistance to high temperature, abrasion and chemicals.

**Single output cover** design provides precise centering of gear for lower noise levels and higher overall gear efficiencies.

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

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# GROVE GEAR ELECTRA-GEAR

*Geared To Be The Best*



"Patent Pending"

## Grove Gear IronMan E Series High Efficiency Gear Reducers

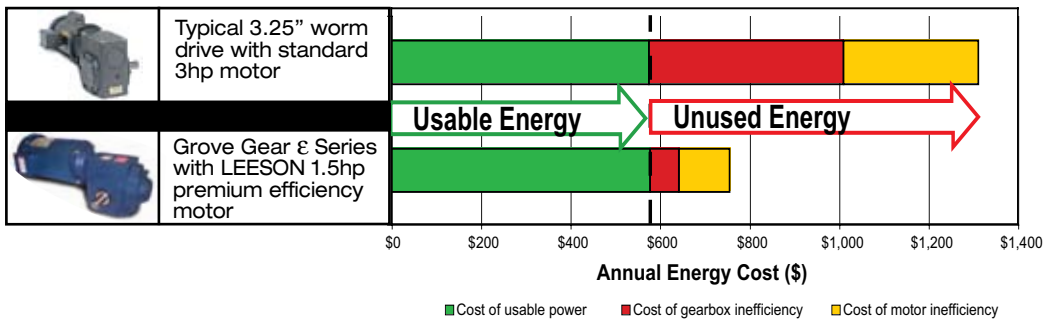
### Product Highlights:

- Green product: 90% operating efficiency
- Up to 60% torque increase
- Interchangeable to major brands
- Rapid Payback – Up to \$550 savings annually per motor horsepower
- 4 models available

### Standard Features:

- 2 stage ratios to 60:1; 3 stage ratios to 450:1
- Available preassembled with LEESON WATSAVER® premium efficiency motors
  - Filled with premium synthetic lubricant - meets USDA Class H1 standards
  - Viton® double-lip seals

### Operating Cost Example\*



### Annual Savings\*

- 42% energy savings (\$550)
- 5,500 kW-hrs
- 3.9 tons of CO<sub>2</sub>\*\*

GEARING

\*Based on 60:1 Ratio, 2600 in. lbs. output torque, 1800 rpm input, 24/5 duty cycle

\*\* 7.18x10<sup>-4</sup> tons CO<sub>2</sub>/kW-hrs (source:www.epa.gov)



## Reduce. Conserve. Evolve.

Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information

# HIGH EFFICIENCY GEAR REDUCERS

Grove Gear offers a complete line of high efficiency gearing products including: helical inline, helical bevel, helical worm and parallel shaft reducers. System operating efficiency is maximized with gear reducer efficiencies up to 97%. In many cases, high efficiency gear products can do the same job as a conventional worm drive, but with a smaller motor and lower energy consumption. All Grove Gear high efficiency gearing products offer decreased motor power requirements, no thermal limitations, industry standard mounting capability and modular design.

	STANDARD	GROVE GEAR HIGH EFFICIENCY GEAR REDUCERS				
	Worm	Helical Worm	Helical Bevel	Helical Inline	Helical Parallel Drives	LeCentric Inline
<b>Ratios</b>	5:1 thru 60:1	Up to 3000:1	Up to 3400:1	Up to 3700:1	Up to 3333:1	Up to 280:1
<b>Housing</b>	Cast Iron, Aluminum, & Stainless Steel	Cast Iron & Stainless Steel	Cast Iron & Stainless Steel	Cast Iron & Stainless Steel	Cast Iron	Aluminum
<b>C-Flange</b>	Standard Product Offering					
<b>Integral Motor</b>	Available	Available	Available	Available	Available	Not Available
<b>Self-Locking</b>	Not Guaranteed	Not Guaranteed	Not Guaranteed	Not Guaranteed	Not Guaranteed	Not Guaranteed
<b>Minimum Backlash</b>	Available	No	No	No	No	No
<b>Hollow Bore Output</b>	Standard Product Offering			No	Available	No
<b>Solid Shaft Output</b>	Standard Product Offering					
<b>Thermal Limits</b>	No	No	No	No	No	No
<b>Efficiency</b>	48% - 85%	46% - 83%	85% - 95%	90% - 97%	90 - 97%	93 - 97%

## IRONMAN HIGH EFFICIENCY GEAR REDUCERS



### Helical Worm

- 4 sizes available in reducer, GEAR+MOTOR™ and integral gearmotor designs
- Input horsepower ratings up to 17 HP
- Available in double, triple and quadruple reduction with ratios from 7:1 to 3400:1
- Solid output shaft and hollow output shaft available in all sizes
- Hardened and ground steel worm shaft and high capacity bronze alloy worm gear give you the advantages of worm gearing with the efficiency of helical gearing



### Helical Bevel

- 6 sizes available in reducer, GEAR+MOTOR™, and integral gearmotor designs
- Input horsepower ratings to 130 HP
- Available in triple and quintuple reduction with ratios from 6.2:1 to 3400:1
- Solid output shaft and hollow output shaft available in all sizes
- Precision carburized and hardened spiral bevel gearing for quiet, efficient, right angle speed reduction



### Helical Inline

- 10 sizes available in reducer, GEAR+MOTOR™, and integral gearmotor designs
- Input horsepower ratings to 125 HP
- Available in double, triple and quadruple reduction with ratios from 2.2:1 to 3700:1
- Base mount and output flange designs available in all sizes



**GROVE GEAR** ELECTRA-GEAR

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## IRONMAN HIGH EFFICIENCY GEAR REDUCERS

### Helical Parallel Drives

- Power ratings from 1/4 to 20 HP
- Ratios from 3.42:1 thru 3333:1
- Output speeds .5 rpm to 280 rpm
- Universal base, flange and hollow bore mounting with competitive interchange capability
- Precision carburized and hardened crowned helical gearing
- Double lip spring loaded seals with precision ground seal journals
- High capacity ball and tapered bearings with splash lubrication, factory filled
- Enhanced high tensile strength steel shafting with low notch sensitivity
- Optimum structural designed housings made of high strength alloy case iron



## LeCENTRIC INLINE GEAR REDUCERS

- LeCentric inline reducers available in four sizes with ratings to 15 HP and in ratios from 3.5:1 to 280:1
- Fit into small spaces. Up to one third smaller than other brands
- Sealed for life, never change or add oil
- Lightweight OEM design suitable for mobile equipment and difficult installations
- Mounting dimensions are interchangeable with most major worldwide competitors



## IRONMAN HIGH EFFICIENCY STAINLESS STEEL REDUCERS

- Helical-Inline and Helical-Bevel reducers available.
- 316 stainless steel housing and covers.
- 303 stainless steel output shaft.
- Viton® double-lip seals.
- Vent-free "sealed-for-life" design with Enviroseal technology.
- Factory filled with premium Mobil Glygoyle 460 polyalkalene glycol lubricant - meets USDA Class H1 standards.



## IRONMAN HIGH EFFICIENCY WASHGUARD® REDUCERS

- Helical-Inline, Helical-Worm, Helical-Bevel and Parallel Shaft Drives available.
- Factory-filled with premium Mobil Glygoyle 460 polyalkalene glycol lubricant - meets USDA Class H1 standards.
- Viton® double-lip seals.
- Patented Forsheda V-ring on output shaft provides extra protection from contaminants.
- O-ring on "flat-faced" input flange provides a positive seal against moisture intrusion.
- Food grade white epoxy paint.



Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information

# WASHGUARD GEAR REDUCERS & GEAR+MOTOR™ SOLUTIONS

With gear reducers in epoxy painted cast iron, polished aluminum and stainless steel, Grove Gear offers a solution for any washdown application.

**GOOD**



## CAST IRON WASHGUARD® GEAR REDUCERS

Grove Gear **IRONMAN WASHGUARD®** reducers are designed and built to withstand the rigors of high pressure washdown environments in food service and other wet or humid conditions. A white, food-grade epoxy finish provides superior durability in wet environments and resists caustic cleaning solutions. All standard cast iron products are available enhanced with WASHGUARD® features assuring trouble-free operation.

**BETTER**



## ALUMINUM PLATINUM GEAR REDUCERS

**EL Series PLATINUM** aluminum gear reducers are a light weight, yet durable alternative for food processing and washguard environments featuring a smooth, polished and paint-free finish. They are available off-the-shelf or customized to your exact specifications. Available in worm gear reducers, ratio multipliers and small, helical-concentric reducers.

**BEST**



## STAINLESS STEEL GEAR REDUCERS

**Premium WASHGUARD® All-Stainless** reducers offer superior corrosion protection. Our stainless steel housing, shaft, covers and external hardware offer an exceptionally long life. Each reducer comes with USDA H1 synthetic oil, eliminating the need for oil changes. Our premium stainless gear reducers are supplied with 316 grade stainless steel housing and covers. These premium reducers offer superior corrosion protection, and can withstand the harshest conditions. Available in worm gear reducers, ratio multipliers, helical-concentric and helical-bevel reducers.



**GEAR+  
MOTOR™**

## STOCK GEAR+MOTOR™

By combining Grove Gear long lasting, energy efficient gear reducers with performance matched LEESON or Lincoln motors, you can maximize system efficiency and rely on unmatched product strength, precision and dependability.

**Save Money. Save Energy. Save the Environment.**

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## CHEMICAL COMPATIBILITY SUMMARY

Material	Reaction Level to Material		
	Cast Iron	Aluminum	316 Stainless
Ammonia Anhydrous	D	B	A
Acetic Acid	D	B	B
Arsenic Acid	D	D	A
Barium Chloride	C	D	A
Barium Sulfate	B	B	B
Beer	D	A	A
Butter	D	A	A
Butyl Alcohol	A	B	C
Calcium Chloride	C	D	B
Carbonic Acid	D	B	A
Catsup	D	D	A
Citric Acid	D	C	A
Chlorine (Dry)	A	C	A
Detergents	N/A	B	A
Diethylene Glycol	A	B	A
Formaldehyde	D	A	A
Grape Juice	D	N/A	A
Lactic Acid	D	B	B
Mayonaise	D	A	A
Nitric Acid (50%)	D	D	A
Salad Dressing	D	B	A
Soap Solutions	A	C	A
Sodium Hydroxide (80%)	D	D	B
Sodium Hypochlorite (<20%)	D	D	C
Sodium Sulfide	A	C	B
Soy Sauce	D	A	A
Sulfuric Acid (<10%)	C	D	B
Sulfur Dioxide	N/A	C	A
Tannic Acid	C	C	A
Turpentine	A	C	B
Vegetable Juice	D	D	A
Vinegar	D	D	A
Water, Fresh	D	B	A
Water, Salt	D	B	B
Whey	N/A	B	A
Whiskey and Wines	D	C	A
Zinc Chloride	D	D	B
Zinc Sulfate	D	D	A

**A** = Excellent  
**B** = Good, minor effect  
**C** = Fair, moderate affect (not recommended for continuous use)  
**D** = Severe effect, not recommended  
 N/A = Information not available

- Viton® double-lip seals - up to five times more durable than nitrile seals - provide added resistance to chemicals
- Patented Forsheda V-ring on output shaft provides extra protection from contaminants
- O-ring on “flat-faced” input flange provides a positive seal against moisture intrusion
- Food grade white epoxy paint
- Food-Grade Synthetic Lubricant, Mobil PAG 460 or equivalent, meets USDA Class H1 standards
- Enviroseal feature provides a vent-free and “sealed for life” design

**GOOD**

- Nine sizes available to 29 HP
- Available in single, double and triple reduction with ratios from 5:1 to 216,000:1
- Worm gear reducers and helical-worm gear reducers
- Clean, polished and paint-free finish
- Lightweight alternative to cast iron
- Lower cost alternative to stainless steel
- Superior corrosion resistance to painted cast iron
- Food-Grade Synthetic Lubricant, Mobil PAG 460 or equivalent, meets USDA Class H1 standards
- Stainless steel shafts and hardware

**BETTER**

- O-ring on face of input flange provides a positive seal against moisture intrusion
- Stainless steel output shaft
- Stainless steel hardware, including square-head pipe plugs to eliminate particle entrapment in vent locations
- Enviroseal eliminates the need for a vent, creating a “sealed for life” design
- Viton® double-lip shaft seals for superior resistance to chemicals common in washdown applications
- Food-Grade Synthetic Lubricant, Mobil PAG 460 or equivalent, meets USDA Class H1 standards
- Housing and covers are 300 series cast stainless steel to withstand extreme environments

**BEST**



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