

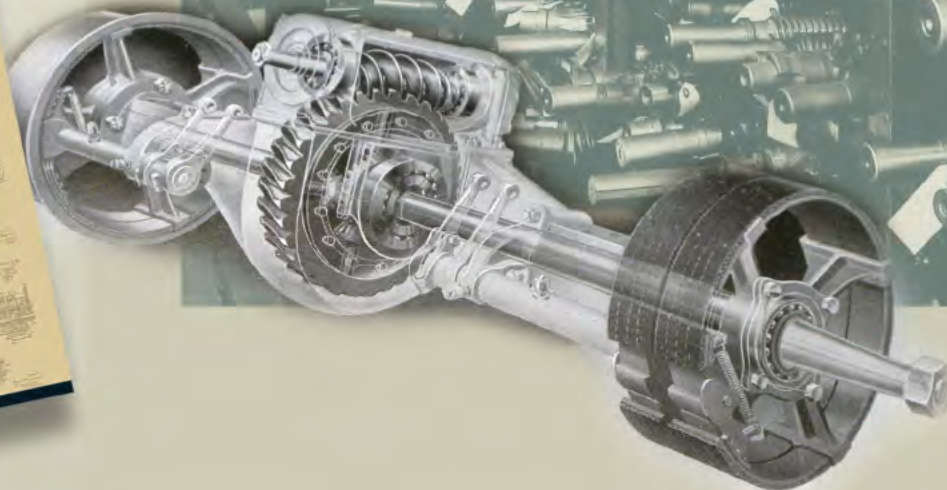
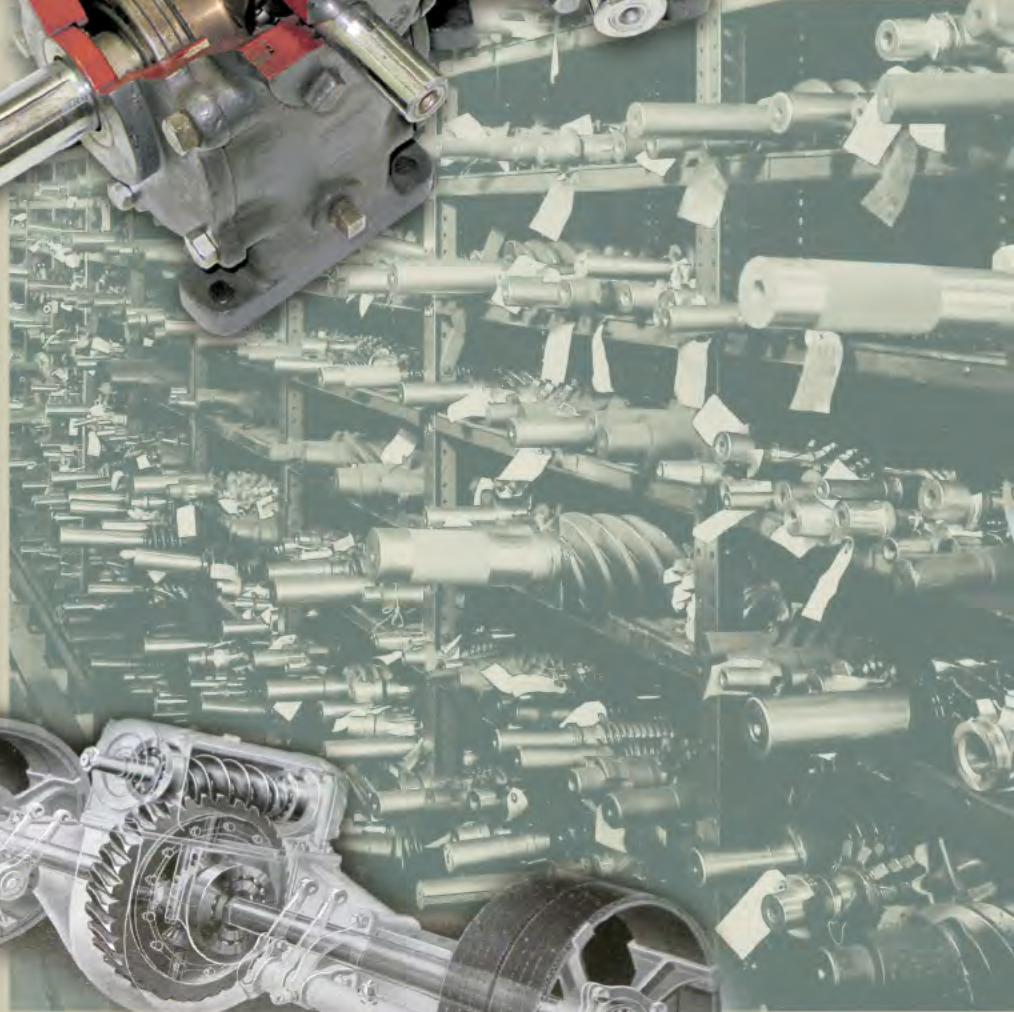
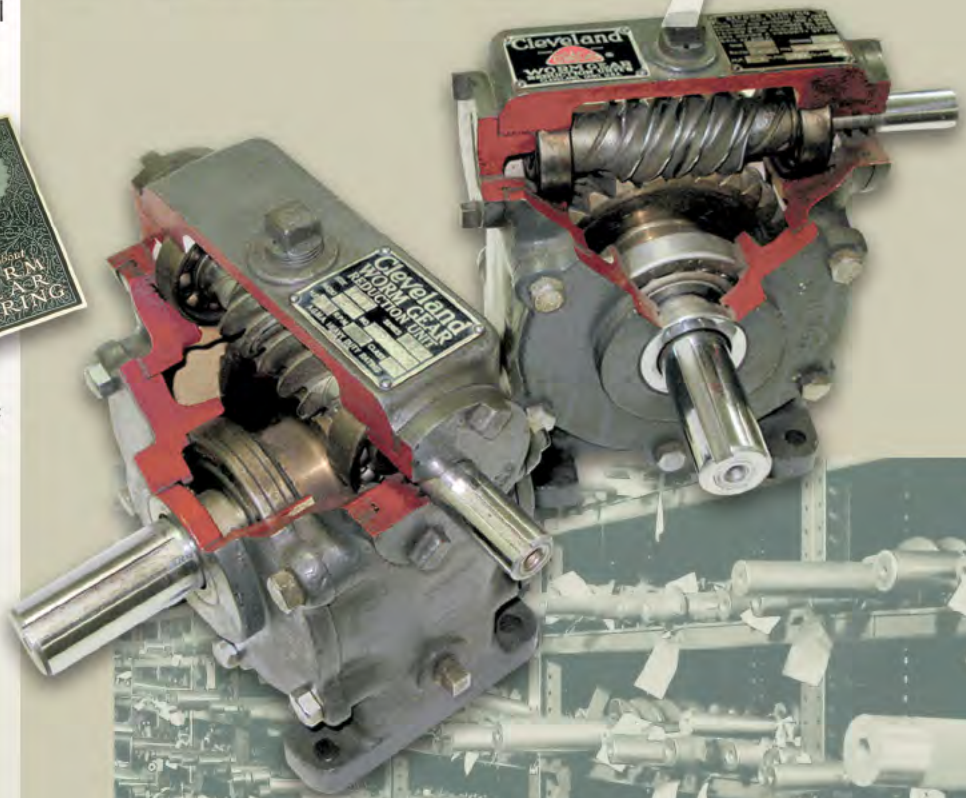
First in Gears.
First in Excellence.

OPEN GEARING • MODULAR REDUCERS • CUSTOM DRIVES

Cleveland

Over our more than 100 years of designing and producing open worm gearing and enclosed drives, Cleveland Gear has provided solutions for a wide variety of critical industrial applications. Our gearing and drives have reliably performed in some of the most demanding operating conditions. From the initial worm gearsets produced for early automobiles and trucks to the production and processing of steel, the pulverizing of coal for electric power generation, the transport of material or moving thousands of people in the world's busiest airports and mass transit systems, Cleveland Gear has earned its reputation as **first in gears, first in excellence**. We are committed to the continuous improvement of our capabilities to ensure that our customers know they can continue to rely on Cleveland Gear for their gearing and enclosed gear drive needs.

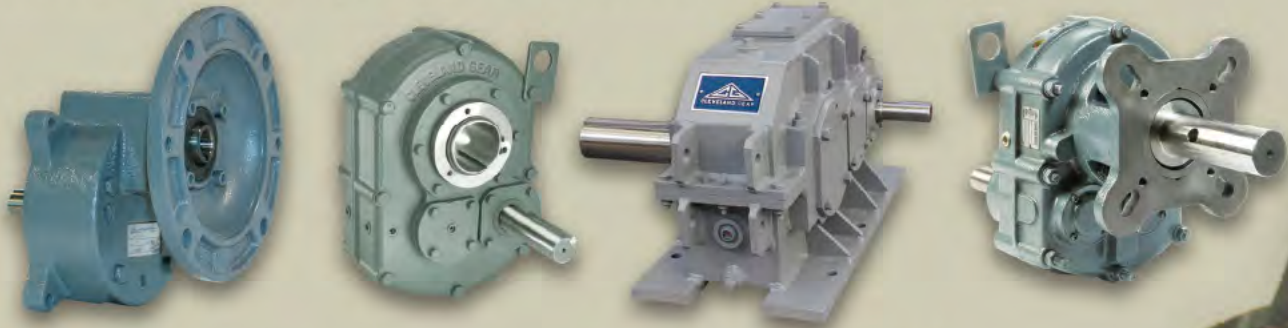
History



Enclosed Drives

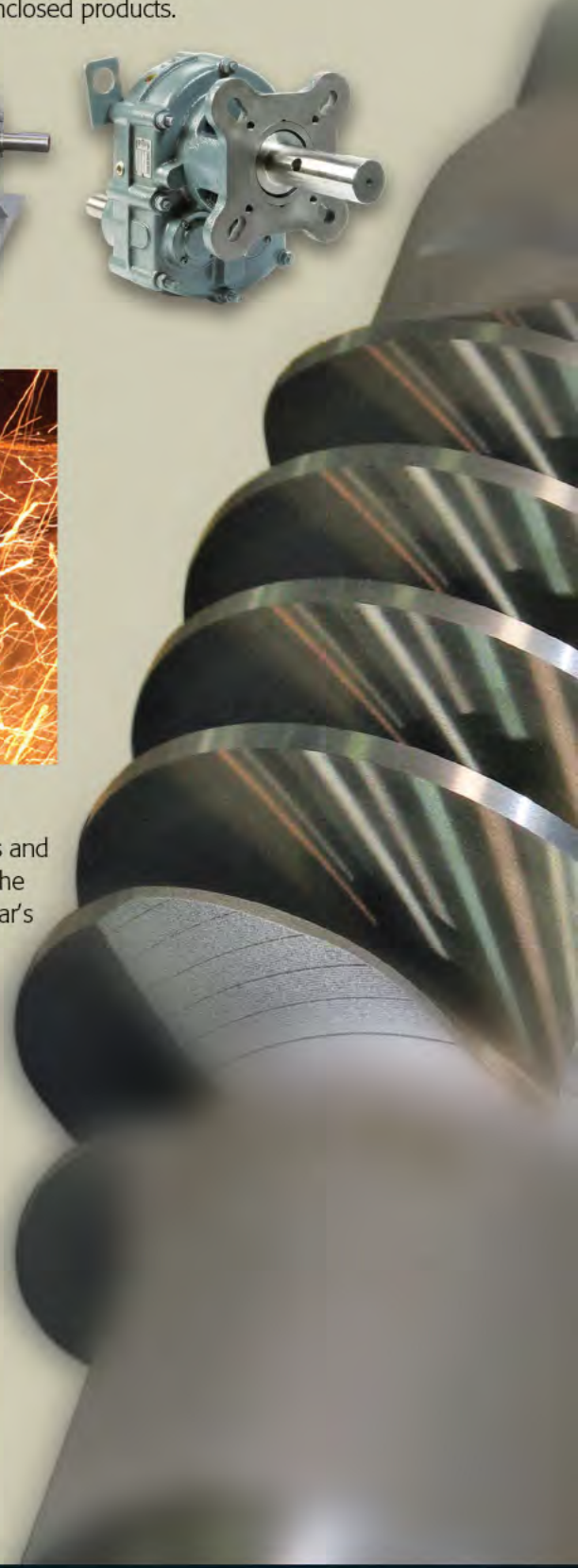
HELICAL GEAR DRIVES

Cleveland Gear offers a wide variety of Helical Enclosed Drives. These include our Ratio Multipliers, Shaft Mount and Screw Conveyor Drives, Standard Parallel Shaft and Custom Enclosed products.



WORM GEAR DRIVES

Our pre-engineered worm drives offer the broadest range of size, configurations and output torques in the industry. The Modular "M" Series (1.33"-5.25" CD) and the newly redesigned Millennium Series (5"-12" CD) drives continue Cleveland Gear's tradition of rugged reliability established with its "AF & RF" Series (3"-36" CD) drives. The "WG" Series offers drives with metric center distances in both universal and traditional mounting configurations. All of these drives can be furnished with a variety of input and output options.



WORM GEARING

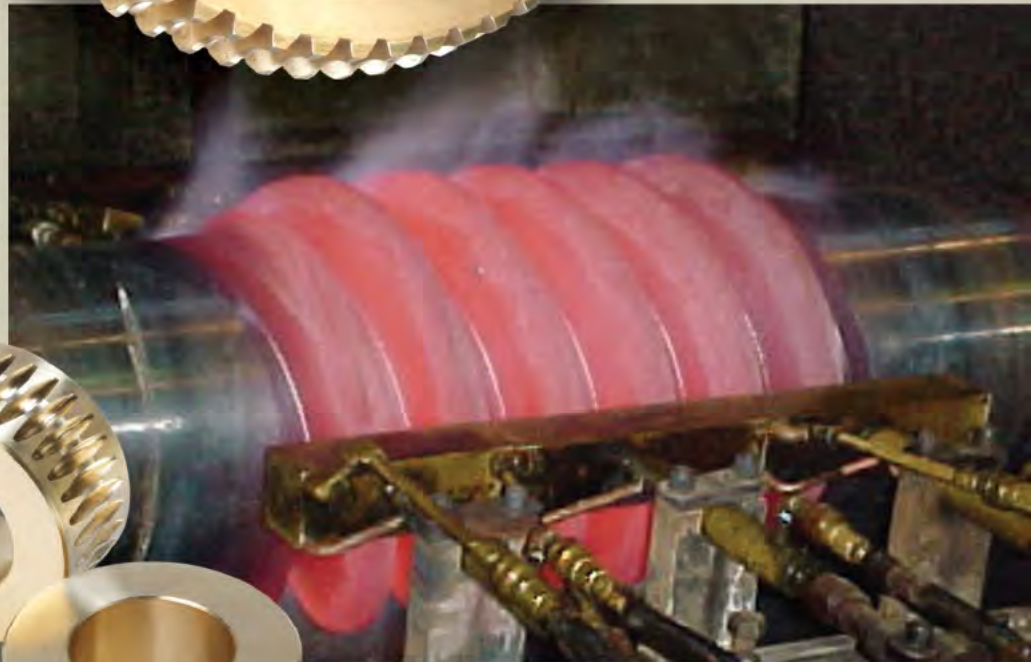
As with its enclosed drives, Cleveland Gear offers the broadest range of worm gearing (3"–54"CD) in the industry. We can cut up to a 108" diameter gear. With over 2,100 hobs in stock, we can produce a multitude of ratios. Where a useable hob is not available, we will design and produce a custom hob in our facility. Our hob designs optimize the efficiency and power transmission of the gearset.

Cleveland Gear developed its "Master Worm System" as a service to its customers – almost from the first gearset we produced. When a new gearset is introduced into production, a master worm and worm plug gauge are also produced. This allows the customer to replace a worm or worm gear individually, and ensures that the "as initially produced" gear tooth form and contact is repeated for the replacement worm or gear.

Cleveland Gear has standardized on centrifugally cast bronze for its worm gears. The exact alloy is chosen by our engineers to provide the most reliable service for our customers' applications. We have also produced gears from customer specified materials, such as ductile iron, to meet the needs of their applications.



Open



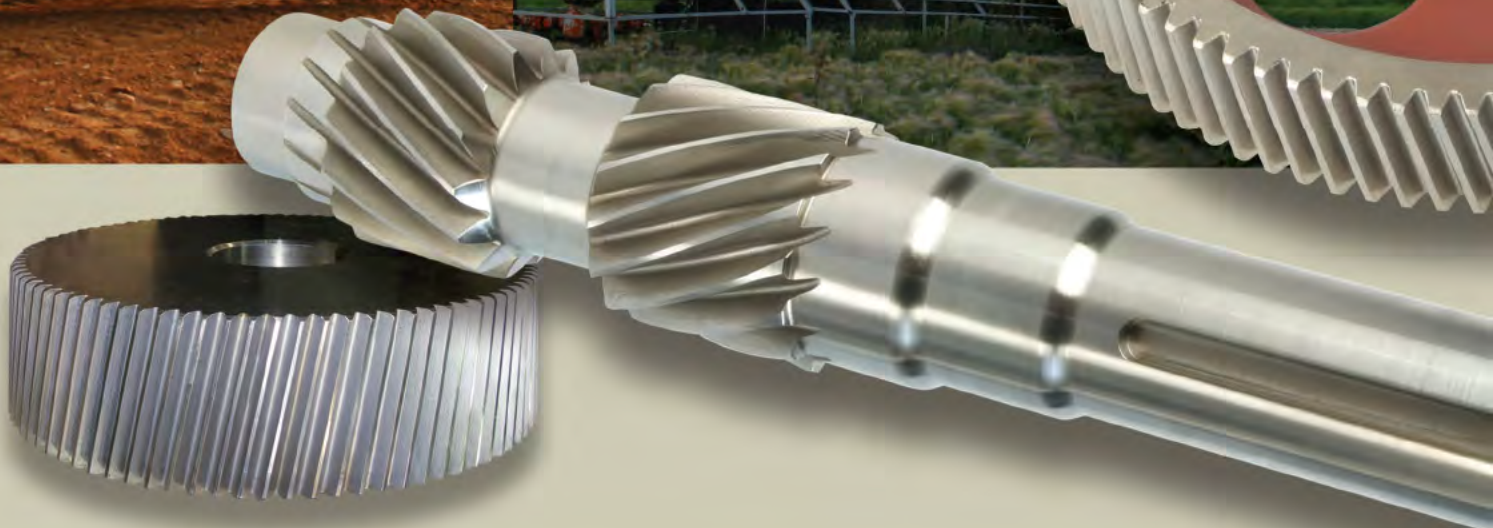
We control the case hardening of our worms in our facility and choose the steel alloy and heat treatment to optimize the results of our flame hardening process. Other case hardening methods are available when our customers express a preference and the process will produce the desired results for their applications. All of our worm threads are precision ground and subjected to non-destructive testing prior to shipment.

Gearing

HELICAL GEARING

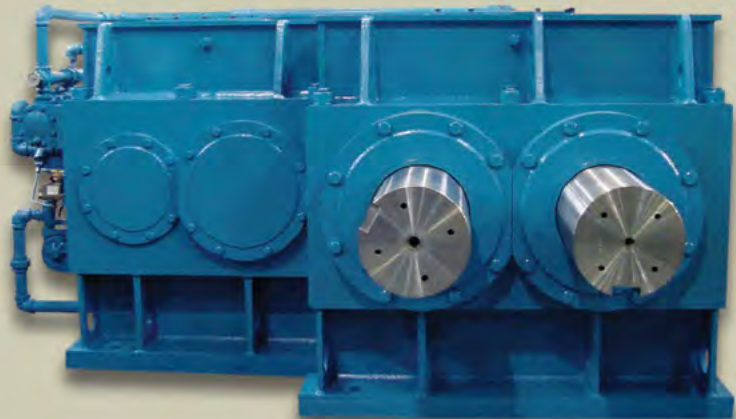
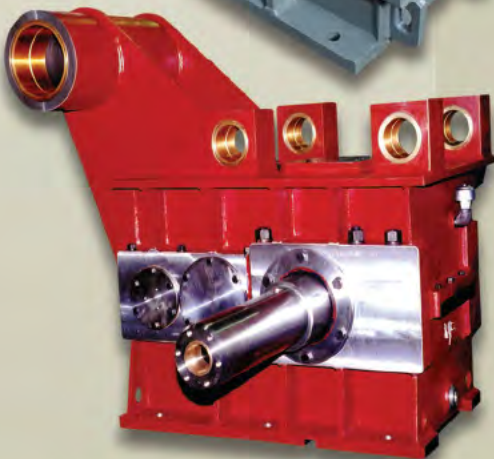
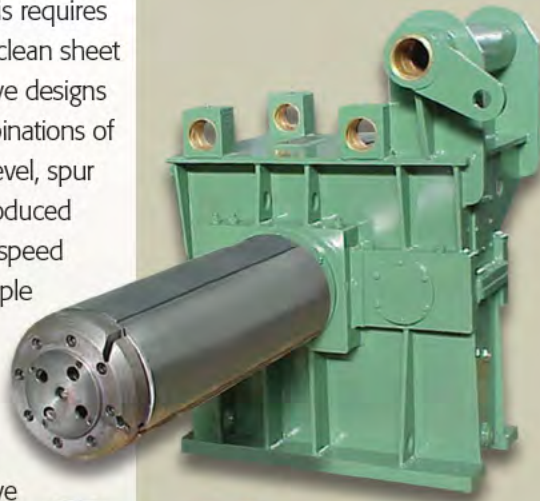
Cleveland Gear also manufactures spur gears, helical gears and double-helical gears. We can design this type of gearing or produce high quality gearing to our customer's designs and specifications. Cleveland offers our customer's both thru-hardened and case carburized & ground gearing.

We can accommodate all types of heat treatment. Today, we manufacture products that are flame hardened, nitrided, induction hardened and case carburized. Cleveland Gear can hob helical and spur gears up to a 2.4 meter O.D.



Custom Drives

Cleveland Gear has a long-standing tradition of working with its customers to develop the most cost effective enclosed drive design for any application. Often, this requires designing a drive from a clean sheet of paper. Our custom drive designs utilize all types and combinations of gearing- worm, helical, bevel, spur or planetary. We have produced both single and multiple speed drives in single to quadruple reductions with output torques up to eight (8) million inch-pounds. Cleveland Gear can also upgrade your existing drive or duplicate an older drive integrating current mounting dimensions. The reliability of our enclosed drives often results in forty to fifty years of uninterrupted service.



Gearbox Repair & Service

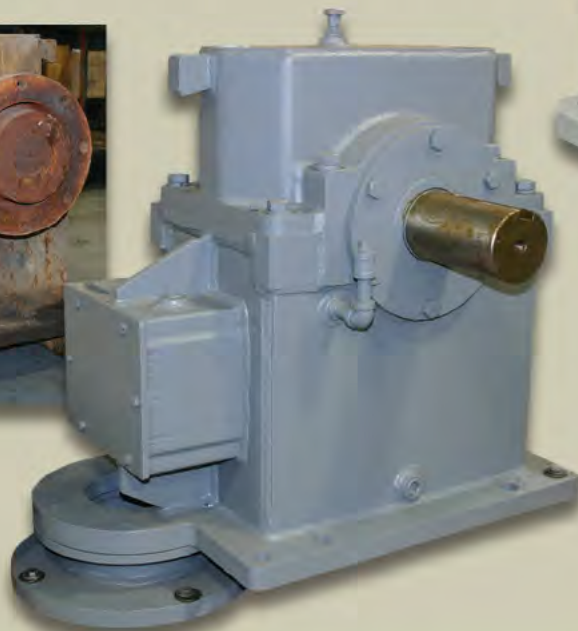
Cleveland Gear will repair and refurbish drives of all types. We have the experience and engineering expertise to evaluate and repair Cleveland Gear reducers, as well as gear drives produced by most other manufacturers.

For Cleveland Gear gear drives, because of our "Master Worm System", we have the capability to produce worms and gears originally installed in the reducers. We can offer both in the field service and full in the factory refurbishment.

On other manufacturer's reducers, we will disassemble the gearbox, recording all critical data and inspecting all components. This information is recorded on a "strip report". As part of this process, Cleveland Gear will classify the gearing, housing etc... as a) re-usable, b) repairable or c) needs replacing. All of this information is then provided to the customer, along with photographs for their review.

On very large or highly critical applications, non-destructive testing services are available including magnetic particle, dye penetration and ultrasonic testing. Once a repair has been completed, all units are spin tested and parameter checked prior to shipment.

Cleveland Gear's rebuild capabilities will provide a quality refurbishment, offering many years of trouble free operation. On many of these refurbishments, where necessary, Cleveland Gear can upgrade the original design while maintaining the existing external dimensions.



CLEVELAND GEAR'S LIBRARY OF INFORMATION

"MUSTS" FOR YOUR ENGINEERING DEPARTMENT



Catalog #410-
"M" Series Modular Speed Reducers
 Ratings and dimensional data for the 1.33" to 5.25" center distance drives, both single and double reduction worm gear drives. Accessory kit information is provided. Part numbering and configuration data is also included.



Catalog #412-
Inline Helical Ratio Multipliers
 Create Double Reduction Helical Worm gear units from stock components. Available in three case sizes, NEMA flange sizes 56C to 210TC. Offered & stocked in 5 ratios.



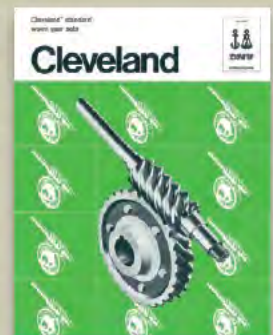
Catalog #SMCG-
Helical Shaft Mount and Screw Conveyor Reducers
 Shaft mount reducers available in sizes 2-10. Size 2-6 designed for Screw Conveyor applications with CEMA adapter kits/shafts. Suitable for AGMA Class I, II or III applications.



Catalog #700-
Millennium Gear Drives
 Catalog provides data on ratings, dimensions, and design configurations for 5"-12" C.D. drives. Universal mounting with motor adapters & helical attachments.



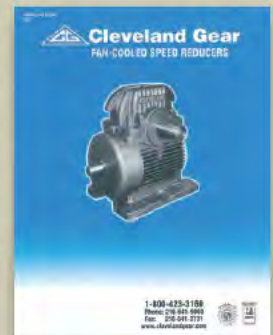
Catalog #750-
Standard Parallel & Custom Drives
 Standard Parallel Shaft, Reverse Engineered and Custom Enclosed Gear Drives Brochure. Provides information on our capabilities and depicts units & the applications Cleveland has manufactured.



Catalog #600-
Cleveland Open Worm Gearing
 Provides dimensional and rating data for a broad range of ratios in center distances from 3" through 30". Dimensions for both bolt on and composite type gears are shown.



Catalog #810-
"WG" Series Speed Reducers
 Ratings, selection and dimensional information for 40mm to 200mm center distance drives in rugged cast iron housings. Includes single reduction and double reduction models.



Catalog #500-
Fan-Cooled Speed Reducers
 Selection and dimensional data for both the worm over and worm under designs in single reduction, helical worm, and double worm configurations.



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