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Precision Gears & Drive Components

COMPONENT PRODUCT BROCHURE

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ABOUT US

The Berg family has been the driving force and an integral part of the standardized precision mechanical components industry since its inception in 1953. Dennis Berg remains involved in this vibrant industry as the CEO of Ondrives.US Corp. bringing over 50 years of experience and knowledge to the business.

After running his own precision manufacturing company for over 15 years, Lee Berg merged his company with Ondrives.US in 2005. Lee is President of Ondrives.US Corp.

Ondrives.US Corp. has manufacturing facilities in Freeport, New York with sales and distribution efforts focused on North and South America. Ondrives Ltd. is located in Chesterfield, England with focused sales and distribution efforts in Europe and Asia.

Our manufacturing equipment is state of the art with new equipment being added regularly. The current facilities list for both companies can be found in the back of this brochure.

Together, the Ondrives companies are industry leaders and innovators, producing and distributing a vast array of gears, gearboxes, timing pulleys and belts, ground shafts, shaft couplings, fasteners and many other precision mechanical parts.

Application Engineers are available to assist customers in selecting the best component for a project. Our Design Engineers can design a complex gearbox or simple component to satisfy your needs.



www.Ondrives.US



Customer Service
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Freeport, New York 11520



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PRECISION SHAFT SUPPORTS



Standard Height Shaft Support



Low Profile Shaft Support



Custom Shaft Support

EASY-ACCESS™ LINEAR SHAFT SUPPORTS

Linear shaft supports, also called shaft support blocks, are machined components that position the shafts on which linear bushings or bearings slide. The shafts are typically installed in pairs, allowing a carriage or table (with installed bearings or bushings) to slide back and forth. The shafts must be aligned parallel to each other or the carriage will not operate smoothly.

Conventional shaft supports must be dismantled from their base in order to service shafts and bearings thus upsetting the critical parallel shaft alignment.

Ondrives.US manufactures "Easy-Access™" linear shaft supports with removable tops that allow shaft and bearing service without disturbing the base alignment of the support. This advantage saves significant time in realigning the critical parallel position of the shafts.

For a full explanation of the Easy-Access™ advantages, read our White Paper.

ondrivesus.com/resources/technical-notes-and-white-papers

Our popular Low Profile Shaft Supports have the lowest base to shaft height available. Standard Height Shaft Supports have the same footprint and shaft to base height as industry standard conventional linear shaft supports. Custom linear shaft supports or modifications to standard supports can be supplied.

Precision machined, aluminum shaft supports are less than 50% of the weight of conventional cast iron shaft supports. Ondrives.US top loading shaft supports are supplied with an anodize finish for corrosion protection and appearance.

The Ondrives.US Advantage - - Unique products shipped from stock

- Remove shafts without upsetting base alignment
- Maintain alignment while servicing shafts and bearings
- Customize easily
- Parallel and perpendicular surfaces for easily alignment
- 50% lighter weight than conventional cast iron supports
- Custom supports available
- Superior holding power
- Low Profile & Standard sizes available in stock

PRECISION GROUND SHAFTS

SHAFTS FOR LINEAR BEARINGS

Ondrives.US produces instrument quality, precision ground shafts in many materials, diameters, and lengths. Most are available for same day shipment.

C1060 Steel and 440 Stainless Shafts are hardened and ground to Rockwell \approx C60 hardness, these shafts were designed for use with linear recirculating ball bushings and high load and high friction applications.



SHAFTS FOR BALL BEARINGS & BUSHINGS

303 Stainless Steel Shafts are offered in 3 variations. This is a general purpose, non magnetic stainless steel. It may show slight magnetism in the smaller diameters or when work hardened.

- 303 Incremental shafts are toleranced for a snug fit in ABEC 3 to 9 ball bearings. Diameters range from 1/8" to 1/2" with 1/8" incremental lengths starting at 1" and up to 36".
- 303 Nominal shafts have nominal diameters from 1/16" to 1-1/4" and metric diameters from 1mm to 10mm.
- 303 Unchamfered shafts are intended for use by customers planning on doing secondary machining to the shafts. These are available in lengths of 12", 24", 36", 600mm and 900mm with diameters of 1/32" to 1-1/4" and 3mm to 30mm.

316 Stainless Shafts are often used for marine applications due to their resistance to salt water. 316 stainless steel shafts are stocked in nominal diameters from 1/32" to 3/8" and metric diameters from 1mm to 10mm.

17-4PH Stainless Shafts are precipitation hardened to approximately RC40 and 17-4PH Nominal shafts are carried in diameters from 1/32" to 3/8" and metric diameters from 1mm to 10mm.

Steel 12L14 Nominal Shafts are stocked in diameters of 1/32" to 3/8" and lengths up to 36".

Ondrives.US manufactures a unique range of **Grooved Shafts** in diameters from 1/4" to 1" and lengths from 3" to 12". Ideal for prototypes, the grooves are designed to fit standard retainer rings. Two grooves on one end of the shaft are spaced to fit popular ball bearing widths. The other end of the shaft has 4 or 5 grooves so the user is able to position components in a variety of positions.

Some Ondrives.US gearboxes have hollow bore inputs or outputs. We offer a basic selection of single ended or double ended shafts to assemble in these gearboxes. All gearbox shafts are supplied with keys and retainer rings.

- For P and PF series worm and wheel gearboxes use our P/PF gearbox shafts
- For E series crossed axis helical gearboxes use our E gearbox shafts
- For F series spur gearboxes, contact our Application Engineers to discuss your particular needs.

Email Drawings to: Sales@OnDrives.US to get a **FREE QUOTE!**

IDLER SUPPORTS

Ondrives.US created Flange Mounts and Stud Mounts for applications where bearings or other rotating components require mounting on walls or panels.

Flange Mounts fasten in place with four bolts (sold separately). The mounted component is held on the journal with shim spacers and a nylon insert lock nut supplied with each mount.

Stud Mounts are screwed into a user supplied threaded hole using the wrench flats on the stud mount flange. The mounted component is held on the journal with shim spacers and a supplied retainer ring.

Both are supplied with a thin integral shim spacer that contacts the inner race of a mounted ball bearing and prevents the outer race of the bearing from contacting the bearing support flange.

The Ondrives.US Advantage - - Unique Products for all applications

- For mounting of gears, ball bearings, sprockets, pulleys
- Diameters of .2500" to 1.000", Metric versions available
- Made from 1215 steel, Zinc plated
- RoHS Compliant
- Shim Spacers Supplied
- Lock Nut supplied with Flange Mount supports
- Retainer Ring supplied with Stud Mount supports
- Integral Inner Race Shim Spacer

Flange Bearing Support

Stud Bearing Support

BEARING AND SHAFT SHIMS

Ball bearings consist of an Inner Race and an Outer Race that capture a set of balls and together make a very low friction bearing. Preloading of the ball bearing requires opposite axial forces to be exerted on the inner race and the outer race. This action brings the set of balls into optimum contact with both races.

Ondrives.US makes Inner Race Shims and Outer Race Shims that are dimensioned to contact either the inner or outer race of standard ball bearings.

We also make Ball Bearing Shaft Collars that have an integral inner race spacer on one side of the collar for positioning and preload of ball bearings on shafts.

The Ondrives.US Advantage - - Precision shims from stock

- Shim thickness from .002 \pm .0005 to .500 \pm .002
- Inner race diameters starting at .079"
- Outer race diameters up to 1.120"
- Stainless and aluminum shims available
- Inch and Metric sizes available
- Use to preload ball bearings
- Use as shaft spacers
- Use on shoulder screws

PRECISION MECHANICAL COMPONENTS

PRECISION BALL BEARINGS

ABEC quality **Ball Bearings** are available in bore sizes from 3/64 to 1-1/4 inch. Unshielded and double shielded bearings are available in 440 stainless steel or 52100 steel. Flanged and plain bearings are offered. Ondrives sales staff will be happy to assist you in selecting ball bearings.

Plain Type - No Flange



Open

Shielded

Flanged Type



Open

Shielded

PRECISION BRONZE BEARINGS

Oil-impregnated **Precision Bronze Bearings** are made to the same dimensions and tolerances as ABEC ball bearings. Available bore sizes range from 3/64" to 1/2 inch. They are offered in both flanged and plain types.



Plain

Flanged

BRONZE BUSHINGS

Sintered **Bronze Bushings** are oil impregnated and require no additional lubrication. Available bore sizes range from 1/8" to 1 inch. They are offered in both flanged and plain types.



Plain

Flanged

Email Drawings to: Sales@OnDrives.US to get a **FREE QUOTE!**

MECHANICAL COMPONENTS



MOTOR MOUNT CLAMPS & SYNCRO MOUNT CLEATS

Many small motors, gear boxes and other devices are supplied with mounting flanges that need to be held in place with small clamps.

Ondrives.US Motor Mount Clamps are designed for this purpose. Our clamps are available in anodized aluminum, 303 or 416 stainless steel. Clamps for various flange heights are offered.



Ball Bearing



Bronze Bushing



Large Diameter



Roller Bearing

CAM FOLLOWERS

Ondrives.US manufactures Cam Followers in 4 different types:

- Stainless steel **Ball Bearing** followers with bearing diameters ranging from 1/4" to 7/8 inch. They are supplied with lock washers and nuts.
- Precision oil-impregnated **Bronze Bushing** cam followers have bearing diameters ranging from 1/4" to 5/8 inch. They are supplied with lock washers and nuts.
- Hardened steel **Roller Bearing** cam followers with bearing diameters ranging from 1/4" to 3/4 inch. Available in inch and metric sizes with static load ratings to 2250 lbs.
- Stud mounted **Large Diameter** cam followers with bearing diameters ranging from 7/8" to 2 inch.



Our White Paper on Feather Keys explains the advantages in detail.

ondrives.us/resources/technical-notes-and-white-papers

FEATHER KEYS

Feather Keys are drive keys that transmit torque from a shaft to a driven component. They are square keys with radiused ends.

The mating slot in the shaft is machined with an end mill that matches the radius of the feather key. Once installed, the key is contained in the machined pocket and cannot move axially. It is not necessary to have a set screw hold the key in position.

The Ondrives.US Advantage:

Feather keys are better than other keys

- Easy Hassle-free assembly and disassembly
- Stays in place, cannot slip out
- Quick, hassle-free field replacement
- No set screw to tighten
- Use with existing components
- Inch and metric Feather Keys
- Same torque as similar sized square and rectangular keys
- Feather Keys are pre-cut to exact lengths

SHAFT COLLARS

Shaft collars are used to position components on shafts. Ondrives.US manufactures precision shaft collars in 303 stainless steel and aluminum.

Standard Shaft Collars are made in non-magnetic 303 stainless steel. They have precision bores held to $\pm .0005"$ tolerance. Inch and metric bores are available from $5/64"$ to 16mm. Standard Collars are supplied with one set screw and a spot or pre-drill at 90 degrees from the screw. Use the pre-drill to drill through the collar and shaft to install a dowel or spring pin.

Ball Bearing Shaft Collars are the same as our Standard Collars. Plus they have a small journal on one side of the collar, designed to mate with the inner race of ball bearings. This permits the collar to preload the ball bearing without interference contact with the outer race of the bearing, eliminating the installation of a shim spacer. They have precision bores held to $\pm .0005"$ tolerance. Inch and metric bores are available from $5/64"$ to 1 inch.

Four Screw Shaft Collars are supplied with four set screws 90 degrees apart. They have a looser bore tolerance than our Standard or Ball Bearing Collars and do not have a pre-drill hole for permanent installation. Four Screw Collars are generally narrower in width and are supplied in 303 stainless steel or anodized aluminum. Available bore sizes range from $1/8"$ to $5/8"$ and from 2.5mm to 16mm.



GEAR & SHAFT CLAMPS

These clamps can be used to fasten split hub gears or to position components on shafts. The clamps can easily be loosened for repositioning without damaging the shaft or gear.

Split Clamps are available in anodized aluminum or 303 stainless steel. Inch and metric bores range from $3/32"$ to 16mm. These can be permanently assembled by installing a dowel or spring pin.

Balanced Clamps are lighter in weight and have less inertia than the Split Clamps. They are available in 303 stainless steel, 416 stainless steel and low carbon steel. Inch and metric bores range from $3/16"$ to 13mm.



THRUST BEARINGS, THRUST WASHERS & RETAINERS

Thrust Bearings are simple devices that can carry significant axial load. Ondrives.US Thrust Bearings are available in inch and metric sizes with load ratings on the larger sizes exceeding 500 lbs.

Thrust bearings consist of two hardened washers and a ball retainer. Retainers, washers, and 3 piece bearing sets can be purchased separately.

The Ondrives.US Advantage - - Thrust bearings carry the load

- Load ratings to 545 lbs.
- Lightweight nylon retainer
- Natural lubricity
- Carbon Steel or Corrosion resistant Stainless Steel
- Extremely quiet operation
- Good for continuous use up to 250 ° F

Email Drawings to: Sales@OnDrives.US to get a **FREE QUOTE!**

PRECISION FASTENERS



SHOULDER SCREWS

Shoulder Screws are unique in the fastener industry. Most screws are designed to hold items rigidly together, but the function of a shoulder screw is to allow rotational or axial motion of the component that is mounted on the screw.

Common uses of these screws include mounting gears, pulleys and other rotating parts. A cam follower is created by installing a bearing on the screw. Components can be mounted on shoulder screws and held in an axial position with springs.

Shoulder screws are often referred to as “Shoulder Bolts” and when used in die sets they are called “Stripper Bolts”. Both inch and metric shoulder screws are in stock at Ondrives.US for immediate delivery.

Ondrives.US offers the broadest range of precision grade shoulder screws available. Precision shoulder screws have undersize shoulder diameters and oversize shoulder lengths for free rotation and axial movement of components.

For an alternate product or for larger journal diameters to mount your rotating component, see our Bearing Mounts.

A comprehensive explanation of the characteristics and uses can be found in our **Shoulder Screw White Paper**.

ondrivesus.com/resources/technical-notes-and-white-papers

TIPPED SET SCREWS

Conventional cup point set screws are frequently used to mount rotating components onto shafts. The cup point tip is designed to cut into the mating shaft. This impression raises a circular ridge on the shaft and creates a strong connection. While this is an advantage in permanent applications, it causes problems in situations where the shaft needs to be repositioned or removed. The raised circular ridge on the shaft caused by the cup point set screw resists repositioning of the mounted component and can damage both the shaft and the component.

Ondrives.US makes set screws with half-dog tips in nylon or brass and with oval tips in silver solder. These tipped set screws have graduated hardness and hold components in place without damage to the shaft or component.



Brass Tip Set Screw



Silver Tip Set Screw



Nylon Tip Set Screw

THUMB SCREWS

Ondrives.US offers machined thumb screws in 303 and 416 stainless steel. Our plastic head thumb screws are available with stainless or alloy steel screws and with either round or rosette heads.

The Ondrives.US Advantage:

- Various lengths available.
- Thread sizes from 4-40 to 3/8-16
- Metric thumb screws are available
- Thread locking via nylon pellet, nylon strip or patch is available
- Custom thumb screws made to order



DOWEL PINS

Ondrives.US produces instrument quality, precision ground dowel pins in many materials, diameters, and lengths. Most precision are available for same day shipment.

Inch and metric dowel pins are available in 303, 416 stainless steel and alloy steel. Nominal fit and interference fit are offered. Diameters range from 1/32" to 1/2" and 0.8mm to 12mm. For longer steel dowel pins and larger diameters, refer to our shafts. Custom sizes made to order.

303 Stainless Steel pins are offered in 3 variations. This is a general purpose, non magnetic stainless steel. It may show slight magnetism in the smaller diameters or when work hardened.



CUSTOM SCREWS

Ondrives.US screws are produced on precision screw machines or CNC turning centers. We hold tight tolerances and smooth finishes. Shoulder screws, thumb screws, thumb nuts, captive screws, seal screws, male and female standoffs and complete custom parts can be supplied.

Please contact our Application Engineers to discuss your particular needs.



Email Drawings to: Sales@OnDrives.US to get a **FREE QUOTE!**

FLEXIBLE COUPLINGS & CLUTCHES

MISALIGNMENT COUPLINGS

Shaft couplings are devices that connect two shafts together so that one shaft can drive the other. Rigid shaft couplings accomplish this goal but they do not deal with angular and radial misalignment or axial movement that may exist between the shafts. When rigid couplings connect shafts that are mounted in bearing supports or are a component of a gearbox or motor, the misalignment will eventually cause premature damage to the bearings that support the shafts. The misalignment may also cause friction, heat, vibration, and noise.

Misalignment shaft couplings are designed to absorb the misalignment between the shafts. Ondrives offers various types of misalignment shaft couplings to solve every type of misalignment problem and to protect the supporting bearings.



Bellows



Spiral Beam



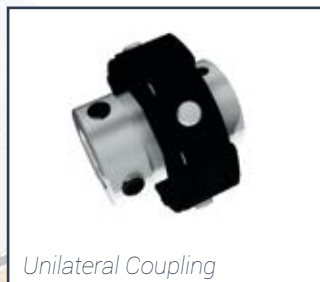
Servo-Beam™



Step-Beam™



Jaw & Cardan Jaw



Unilateral Coupling



Sliding Disc



Membrane



Zero Backlash Universal Joints



Acetal U-Joints



Servo High-Gain Coupling



Double Loop

Ondrives.US Engineers have developed a White Paper "How to select Shaft Couplings" ondrivesus.com/resources/technical-notes-and-white-papers to assist you in the selection of the most appropriate shaft to shaft coupling for your application. Couple to almost any shaft diameter with Ondrives.US Bore Reducers.

SLIP CLUTCHES AND DRAG BRAKES

Ondrives.US mechanical clutches are rotary friction clutches with adjustable or fixed drag or slip torque. Whenever the load exceeds the set torque, controlled slip takes place between the hub and housing. These slip clutches can be supplied for shaft to shaft applications or for shaft to component drives



*Component Mount
Torque up to 26.6 in.lb.*



*Low Backlash, High Torque
up to 500 in-lb*



*Pneumatic Clutch
Torque - 12 to 75 in-lb*



*Friction Clutches Basic clutch +
Oldham coupling*



*Vertical, Thrust Capable
Torque - 12 to 100 in-lb*



*Compact clutch
Torque - 2 to 10 in-lb*

Mechanical clutches can be used as:

- **Torque limiters** - interrupts continuity between power source and load when this reaches a pre-determined level.
- **Tensioning device or Drag brake** - maintains tension in a filament or tape winding operation by exerting drag on the feed spool.
- **Overrun device** - absorbs residual inertia of a motor when the load is braked or reaches a terminal stop. Good for soft starts, cushioned stops and overload protection.
- **Overload protection** - clutch slips when mechanism is jammed. This protects the operator and machinery.
- **Torque control** - drive screws, bottle caps etc... to a fixed torque setting.
- **Indexing** - motor runs continuously while the clutch slips until the next index.
- **Hinge position** - hold a hinged door or lid at any position, fingertip reposition.

Email Drawings to: Sales@OnDrives.US to get a **FREE QUOTE!**

PULLEY STOCK



Pulley stock is a length of machined pulley teeth that the user can then machine to create custom pulleys. They are ideal for prototypes and for wider than normal pulley applications.

Pulley stock is available in many tooth sizes, pitches and tooth forms in both aluminum and steel. Supplied with a journal on one end, they can be held with standard machine tool collets or chucks. The other end of the pulley stock is supplied with a centered hole for support while the pulley stock is being machined.

Custom pulley stock can be made to order.
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BORE REDUCERS



Bore Reducers are sometimes referred to as bore reducer sleeves or bushings, are simple adaptors that slip into the bore hole of a rotating component and reduce the bore diameter to a smaller size. Shaft couplings that have identical bore diameters on both ends are quickly and inexpensively converted to combination bore couplings. When fitted to set screw hubs, bore adapters prevent the screws from scoring the shafts and permit repeated re-positioning and easy removal of the coupling.

Ondrives.US Bore Reducers are available in brass (smaller sizes only), aluminum and stainless steel. The brass and aluminum bore adapters feature a feathered head which sits in the chamfer at the bore entry and prevents over-insertion.

Ondrives.US Engineers have developed a White Paper “How to select Shaft Couplings”
ondrivesus.com/resources/technical-notes-and-white-papers
to assist you in the selection of the most appropriate shaft to shaft coupling for your application.
Couple to almost any shaft diameter with Ondrives.US Bore Reducers.

TIMING PULLEYS & BELTS

TIMING PULLEYS

Timing Pulleys are drive components that transmit rotary motion between parallel axis. Pulleys require very little maintenance, and the only maintenance that is generally required is periodic adjustment of belt tension. They can be used for speed reduction, speed increase, or simply to transfer rotary motion from one axis to another.

Just like gears, the ratio is determined by dividing the number of grooves of the two pulleys in the pair. Timing pulleys belong to the synchronous drives category of components because they maintain relative positions and do not slip or creep, unlike flat, v-shaped and ribbed belts.

However, it is possible for a belt to jump or skip a groove, causing the assembly to lose indexing. This will happen if the system is not properly tensioned, is angularly misaligned, or too much torque is attempted to be transmitted. Timing pulleys are able to transfer power as well as precise position. How precise this positioning is will depend on the groove profile, type of belt, and pulley quality.



TIMING BELTS

Timing Belts work to transmit motion, with low backlash, between pulleys on separate shafts. They are like chains, but do not require lubrication and provide long life with quiet operation. Timing belts are composed of a tension member with s-z twist, the body material, and sometimes a protective layer on the belt's teeth.

Timing Belts are available in the same profiles and sizes as timing pulleys, and with a range of teeth. In shorter lengths, belts with nearly all consecutive number of teeth are readily available. Longer belts are not made in as large a variety of lengths and number of teeth.

Beyond choosing a custom belt width, customization of belts is not recommended unless for very specific application requirements such as environmental, material, and other requirements.



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PRECISION GEARS & GEAR RACKS

Gears are important mechanical components in many devices ranging from small watches to huge drive wheels of ships. They rotate in mesh with other gears to transmit power, provide speed reduction and increase torque. They can also change the direction of rotation and some can change the angle of axis. When a gear is meshed with a Gear Rack, it converts rotary motion to linear motion.

Gears are a positive drive and unlike V belts and flat belt drives, will not slip or creep. Virtually any ratio reduction can be attained with a series of gears.



Spur



Helical



Bevel & Miter



Worm Gear



Worms



Anti-Backlash



Gear Rack, Rectangular



Gear Rack, Round



Pinion Shaft

Ondrives.US has many decades of experience manufacturing fine pitch and coarse pitch gears, inch and metric gears, commercial quality and high quality gears to AGMA (American Gear Manufacturers Association) standards.

When selecting any style of gear, it is necessary that the Pitch and Pressure Angle of both gears be identical.

Ondrives.US offers the widest standard range of gear types: Spur gears, Anti-Backlash gears, Worm gears and Worms, Helical gears, Bevel gears, Miter gears, Pinion Shafts, Cluster gears, Gear Racks, Gear Segments, Sector Gears, Hobbed gears, Shaped gears, and Ground gears.



CUSTOM GEARS

Ondrives.US has been producing custom gears for many decades. We can either build to print or help you design a custom gear to your specification.

Almost any pitch, pressure angle and tooth form can be supplied. We can produce your custom gear in almost any machineable material and diameter.

Ondrives.US Engineering and Manufacturing Departments coordinate with our customers to ensure your design requirements are satisfied.



ondrives.us
Custom Products
— Made to Order —

The Ondrives.US Advantage:
Small prototype or high production quantities.

- Custom gears made in almost any material
- Ratios are almost unlimited
- Inch or Metric gears
- Broad selection of gear styles
- 30 plus years of experience in manufacturing gears
- Gears for Instrumentation, Servo drives, Encoders or Power Transmission

Call or contact us today. Our Applications Engineers are available for simple recommendations or for a complete gear design to your specifications.

Phone: (888) 260-7466
Fax: (516) 771-6444
Email us: Sales@Ondrives.US

Email Drawings to: Sales@OnDrives.US to get a FREE QUOTE!

HIGH PRECISION GEAR MANUFACTURING

DESIGNED TO YOUR REQUIREMENTS

Ondrives.US Makes Custom Gears and Gearboxes Every Day.

Our expertise in designing and building an extensive line of standard gearboxes is used to design gearboxes exactly how you want them. The Ondrives.US facility and equipment are especially geared to units from miniature to 900Nm output torque.

Whether you need right angle gearboxes, parallel shaft gearboxes, crossed axis gearboxes it doesn't matter. We know how to build them.

If you have a design, we can build to it and we will reverse engineer a sample. From the initial concept our application engineers will work with you to bring it to fruition.



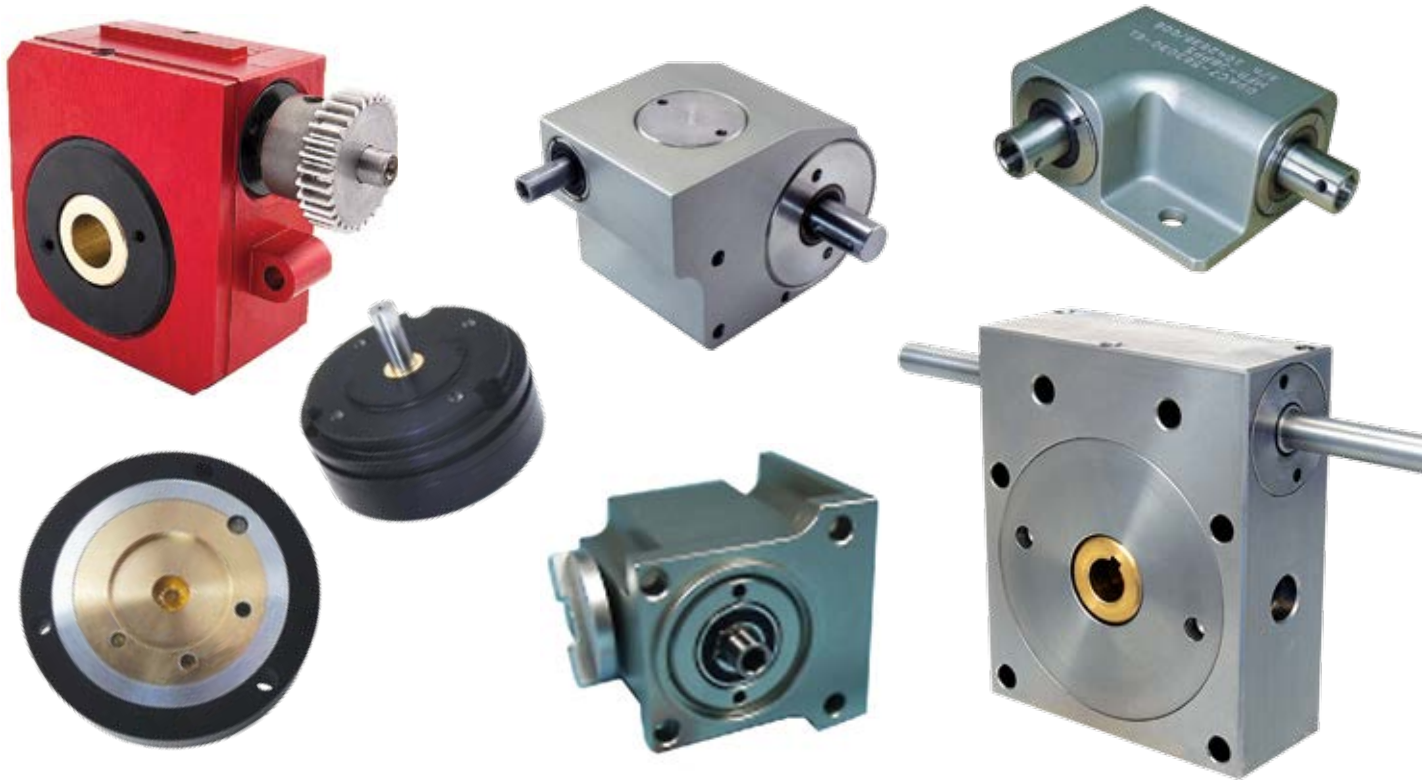
Ondrives.US has a very comprehensive manufacturing facility with a broad range of capabilities. We can make the part you need to your drawing or specifications.

CUSTOM GEARBOX DESIGNS

LARGE QUANTITY OR SMALL - WE DO IT ALL!

The Ondrives.US Advantage:

- Application Engineering Assistance.
- Design Service
- Output Torques From Instrumentation to 900Nm
- Greased for Life
- Sealed Units to IP Standards.
- Very Low Backlash Available if Required
- Speed Reducers or Speed Increaseers
- High Precision Gears and ABEC Ball Bearings

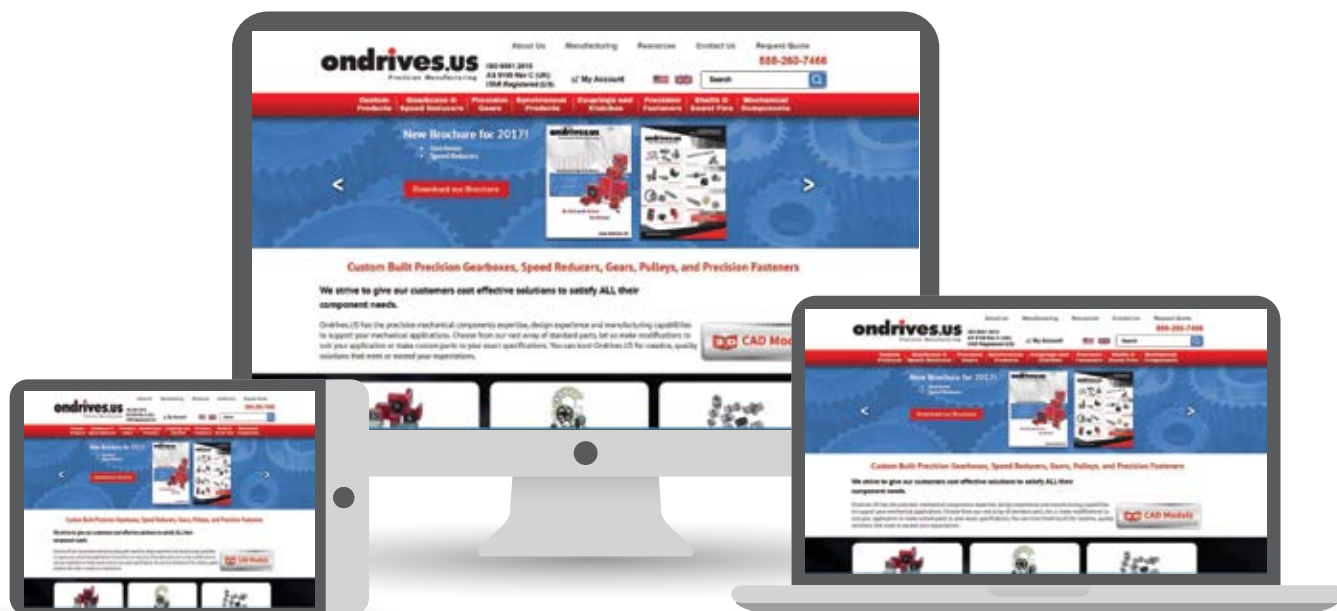


Don't see what you need, contact us at: 1-888-260-7466 or Sales@Ondrives.US

**See our full line of Gearboxes in our
Gearbox and Speed Reducer Brochure**

Email Drawings to: Sales@OnDrives.US to get a **FREE QUOTE!**

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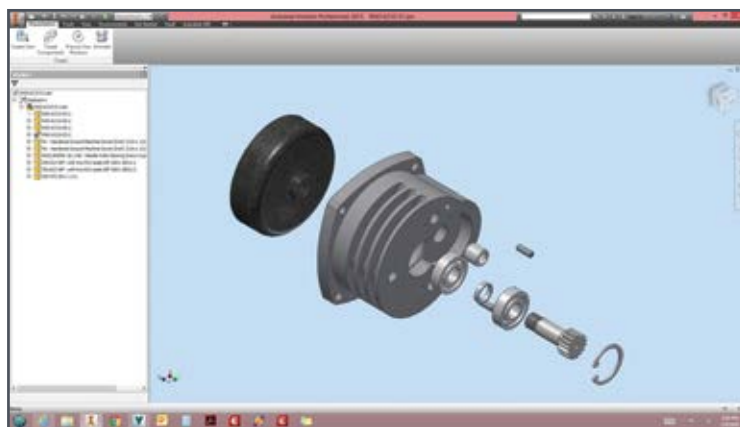


www.ondrives.us

Ondrives.US has the precision mechanical components expertise, design experience and manufacturing capabilities to support your mechanical applications. Choose from our vast array of standard parts which can be modified to suit your application or make custom parts to your exact specifications. You can trust Ondrives.US for creative, quality solutions that meet or exceed your expectations.

ondrives.us

 **3D CAD Models**



3D CAD models are available on our website for most of our standard products, with more models being added regularly. 2D drawings and dimensional tables are found on product PDF's also on our site.



ondrives.us
Precision Gears & Drive Components

**BLH30
BLHT30**

**e-cad
Drawings
Available**

GEARBOXES

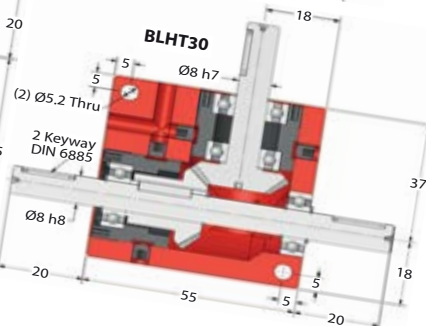
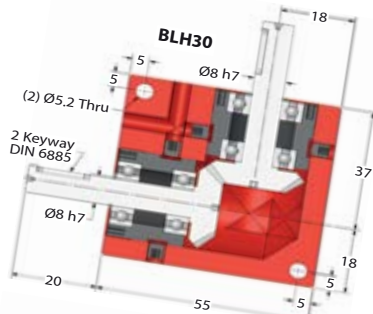
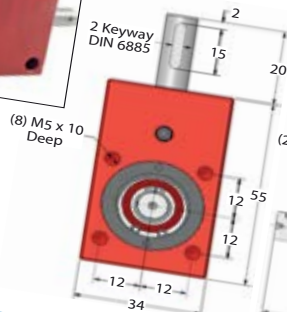
Bevel & Bevel Tee Heavy Duty Gearbox
Hardened Bevels 1.32 – 4.4 Nm **1:1 - 2:1**



BLH30



BLHT30



Standard ≈1°	Part Number		Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg·m²)
	Low Backlash ≤30'	Red. Backlash ≤10'			
BLH30-1	BLH30-1A	BLH30-1AR	1:1	88%	4.34 x 10 ⁻⁷
BLH30-2	BLH30-2A	BLH30-2AR	2:1	88%	8.41 x 10 ⁻⁸
BLHT30-1	BLHT30-1A	BLHT30-1AR	1:1	88%	4.34 x 10 ⁻⁷
BLHT30-2	BLHT30-2A	BLHT30-2AR	2:1	88%	8.41 x 10 ⁻⁸

Weight: BLH: 0.28 kg, BLHT: 0.30 kg.
Output Backlash: ≈1°
Max. Input Speed: 3,000 Rpm.
Greased for Life: Shell Gadus S2 V220AD 2.

Input/Output Key: KK2-14.

Testing in your application is necessary.
You will need to assess duty cycles and confirm gearbox suitability with your own calculations.
All figures listed are to be used for guidance only.

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Output Torque Nm

Rpm Input	Reduction Ratio	
	1:1	2:1
3000	1.65	1.32
2000	1.87	1.45
1000	2.20	1.76
500	2.51	2.00
100	3.38	2.70
50	3.20	3.00
10	4.40	3.54

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Ratio

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1:1
1:2
2:1
3:1
4:1
5:1
6:1

Unit System

Material

Box Height (mm)

Box Length (mm)

Max Input Rpm

Box Width (mm)

Efficiency @ 1000 RPM

Weight (g)

Mount Tap Hole

Mount Hole Height (mm)

Input Bore (mm)

Mount Hole Width Mm (mm)

Price

Type

Output Torque Nm @ 1000 rpm

Output Torque Nm @ 3000 rpm

Input Key Length (mm)

Output Bore (mm)

Input Key Width (mm)

Output Key Height (mm)

Output Key Length (mm)

Input Keyway Height (mm)

Output Key Width (mm)

Use Double Shaft

Use Output Key

Home » Gearboxes & Speed Reducers » Crossed Axis Gearboxes

Crossed Axis Gearboxes

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Helical gearboxes are the most common type of gearbox for vehicle and equipment transmissions. Also called crossed axis gearboxes, these devices can generate large amounts of thrust, using bearings to support the thrust load. When mounted to perpendicular shafts, helical gearboxes can be used to adjust the rotation angle by 90°.

Ondrives US has been designing, engineering, and manufacturing high performance crossed axis gearboxes for decades. Our reliable, high performance E Series right angle helical gear boxes are available in numerous sizes and configurations to meet your application requirements. E Series 90 degree helical gear boxes deliver output torque values as high as 62 Nm, with minimal backlash.

Download our free [helical gearbox spec sheet](#) or see individual product listings for additional information and specifications.

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Documents:

[Download Product Specifications PDF](#)

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	Model	Unit System	Material	Price	
	E15-1	metric	Alum./Steel	\$100.14	Select
	E15-10	metric	Alum./Steel	\$100.14	Select
	E15-2	metric	Alum./Steel	\$100.14	Select
	E15-20	metric	Alum./Steel	\$100.14	Select
	E15-3	metric	Alum./Steel	\$100.14	Select
	E15-4	metric	Alum./Steel	\$100.14	Select
	E15-60	metric	Alum./Steel	\$100.14	Select
	E15-5	metric	Alum./Steel	\$100.14	Select

Online Catalog Home Page: ondrives.us/online-catalog

TECH NOTES AND WHITE PAPERS



Ondrives.US Engineers continue to develop Technical Data Sheets and White Papers dealing with topics of interest that are closely related to our products and services.

Our White Papers are designed to educate our customers and potential customers about our products. Tech Notes help in the decision making process between comparative products



WHITE PAPERS:

- **Shoulder Screws White Paper**
Published in the November 2011 issue of Machine Design
- **Linear Shaft Supports White Paper**
The Advantage or "Top Loading" Linear Shaft Supports
- **Feather Keys White Paper**
Feather Keys - The Forgotten and Ignored Drive Component
- **Working with Dimensional Tolerances**
Published in the May 2012 issue of Machine Design Magazine.
- **Precision Gears Technical Data Terms**
Definitions and Formulas for Spur, Helical, Bevel & Worm Wheel Gears

TECH NOTES:

- **Gearbox Selection Guide**
Published in the October 2009 issue of Design World Magazine.
- **Inertia and Gearbox Selection**
Inertia and the use of Inertia Figures to Aid Gearbox Selection
- **Misalignment Coupling Selection Guide**
Items to Consider When Choosing Shaft Misalignment Couplings



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USA & UK FACILITIES LISTS

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Turning: 11 Units

- 1 DMG MORI NLX1500SY – **NEW 2016**
- 1 Haas SL10 Chucker
- 2 Haas SL10 w/ Servo Bar 300
- 3 Omniturn GT75
- 4 Omniturn Conversion

Swiss Turning: 10 Units

- 1 Star SR20
- 2 Star SB16D
- 1 Star SA16
- 1 Star SH16
- 1 Citizen B12
- 2 Tsugami B205-III – **NEW 2017**
- 1 Tsugami S255 – **NEW 2018**

Machining Centers: 4 Units

- 1 Haas VF1
- 1 Haas VF2
- 1 Haas VF2SS
- 1 Hardinge V-460 – **NEW 2019**

Inspection: 5 Units

- 1 Tesa Micro-Hite 3D CMM
- 1 Deltronic Image Master Optical Comparator
- 1 Nikon Profile Projector Model 6C
- 1 Vari-Roll VR-G2 Precision Gear Checker – **NEW 2016**
- 1 Keyence IM-7000 – **NEW 2018**

Gear Cutting: 33 Units

- 2 Mikron 120
- 14 Mikron 79
- 6 Mikron 132
- 1 Mikron 102.5 Spur and Helical Hobbing Machine
- 3 Fellows Gear Shaper #3
- 2 Fellows Gear Shaper #7
- 3 Barber Colman 6-10
- 1 Barber Colman 16-16
- 1 Barber Colman 16-36

Secondary Operations: 12 Units

- 1 Sunnen MBBB1660 Honing Machine
- 1 Pioneer Broach
- 1 Haas HA5C
- 1 Haas HTS6
- 2 Rotary Transfer Machines, 6 Station
- 6 Centerless Grinders

Marking: 1 Unit

- 1 Tykma Zetalase Fiber 10

Ondrives LTD. Chesterfield, UK



Gear Grinding: 2 Units

- 1 Niles-Kapp ZE400 Gear Profile Grinding Machine
- 1 Gleason Phoenix 280G Spiral Hypoid HRH Curvic Bevel Grinder

Diameter & Bore Grinding: 1 Units

- 1 Studer S21 CNC Universal Grinder

Gear Cutting: 5 Units

- 3 P90 Gleason Pfauter CNC Gear Cutting and Worm Milling Machine
- 1 P60 Gleason Pfauter CNC Gear Cutting and Worm Milling Machine
- 1 Lorenz LS156 CNC Gear Shaping Machine

Machining Centers: 8 Units

- 2 Doosan Horizontal HC400 7 Pallet and Twin Pallet
- 1 Doosan Vertical NM510
- 2 Dugard 760 Vertical
- 1 Bridgeport Vertical VMC800X
- 1 Quasar Vertical MV204II
- 1 DMU50 DMG 5 Axis

Turning: 14 Units

- 4 Mazak QT Nexus 200MSY (1 Gantry 3 Barfed)
- 4 Mazak Smart 200 (2 Barfed)
- 2 Colchester Multi-Turn 2000

- 1 Colchester Live tooling Bar Fed Lathe
- 1 Doosan Puma 400B1 Doosan Lynx with Bar Feed
- 1 Doosan 3100Y with Bar Feed

EDM: 1 Unit

- 1 Agie Charmilles CUT200 CNC Wire

Eroding Inspection: 5 Units

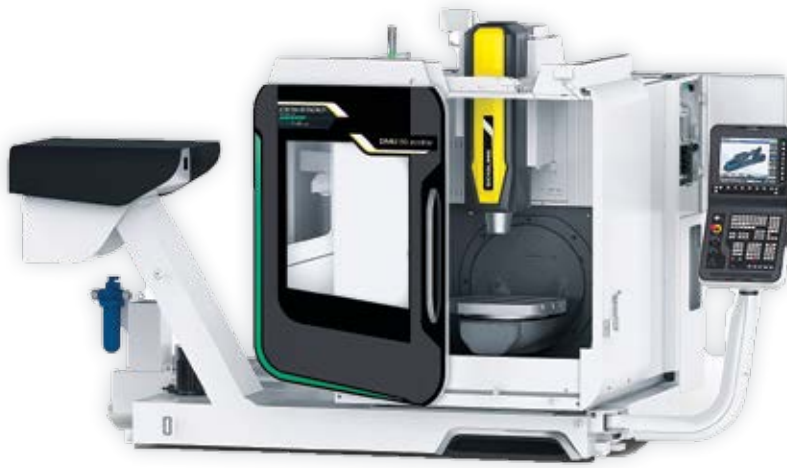
- 1 Gleason 475GMS Gear Analytical Inspection Closed Loop with Gleason Phoenix 280G
- 1 Wenzel Inova Gear Inspection Machine
- 1 Mitutoyo CNC Crysta Apex C574 CMM
- 1 TESA-SCAN 50 Plus Optical Measurement
- 1 Surface Scan for Surface Roughness Testing

Marking: 1 Unit

- 1 Trumpf TruMark Station 501

Secondary Operations: 2 Units

- 1 Delapena E1000 CNC Honing Machine
- 1 Leistritz Polymat 25 Keywaying Machine



MORI SEIKI DMU 50 ECOLINE



DMG MORI NLX1500SY



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Precision Gears & Drive Components



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Ondrives.US Corp. NY, USA and Ondrives Ltd. Chesterfield, UK are leading manufacturers of precision gears, gearboxes and mechanical drive components. Through continued investments in state of the art manufacturing equipment and technology we remain at the forefront of precision manufacturing and continue to deliver quality, reliability and service.

With our qualified and experienced design team we are able to offer a complete service from design, modifications and prototypes through production volumes. Our engineers are always available to assist you with applications, product selection and any technical inquiries.

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CAPABILITIES

Machining Capabilities:

- Gear Cutting
- Gearboxes and Reducers
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 - CNC Lathes
 - Manual Lathes
- Precision Milling
 - CNC Mills
 - Manual Mills
- Centerless Grinding
- Engraving
- Honing
- Precision Assembly
- Custom Machine Parts up to 14" Diameter
 - Gears
 - Speed Reducers
 - Shoulder Screws
 - Thumb Screws
 - Machine Screws
 - Collars
 - Clamps
 - Shaft Couplings
 - Clutches
 - Shaft Supports
 - Shafts and Dowel Pins
- Complete CAD/CAM Drafting, Design, and Machine Downloading Capabilities

Production Capabilities:

- Prototype to Large Production Quantities

Material Options:

- Most Machinable Materials, Including:
 - Aluminum
 - Brass
 - Bronze
 - Plastic
 - Steel
 - Stainless Steel
 - Titanium

Quality and Inspection:

- ISO 9001:2015 Certified
- ITAR Registered
- Certified Inspection and Test Equipment
- Coordinate Measuring Machine (CMM)
- AGMA Gear Tolerancing to Q14

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Engineering and Design:

Ondrives.US employs Application Engineers to assist our customers in the selection of the best product for the application. If the project requires a custom product, our design engineers will create a solution to meet the customer's specifications. Two dimensional drawings or 3D CAD models can be supplied for the customers' approval prior to production.

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Our Mission:

To offer cost effective solutions, expert service and timely delivery for our customer's mechanical components needs.

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PRECISION GEARS & GEAR RACKS

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