Title:
A Gearboxes Manual - 90 Degree Gearboxes

Word Count:
734

Summary:
Dowel Pins are industrial fasteners that are used in aerospace, military, construction and other industrial industries. Their primary function is for fastening two components but they are frequently used as an alignment or locating pin for components that are disassembled and reassembled. Frequently they are used as a hinge pin between pivoting components or as an axel for a rotating element.

Keywords:
gearboxes, 90 degree gearboxes, right angle gearbox, bevel gearbox, straight bevel gearbox, zero bevel gearboxes, spiral bevel gear boxes

Article Body:
A gearbox is the system of gears and/or the hydraulic system that transmit mechanical power from a prime mover – such as an engine or electric motor – to a typically rotary output device at a lower angular momentum but a higher motive torque. Gearboxes have found use in a wide variety of different — often stationary — applications. Transmissions are also used in agricultural, industrial, construction, mining and vehicle equipment. In addition to ordinary transmission equipped with gears, such equipment makes extensive use of the hydrostatic drive and electrical adjustable - speed drives.

A Gearbox is also called gear head, gear reducers or speed reducers. They are available in broad range of sizes, capacities and speed ratios. Gearing arrangement for gearbox includes spur, helical, planetary, bevel, worm, and cycloidal.

90 degree gear box

A 90 degree gearbox, also known as a right angle gearbox, transmits torque at 90 degrees to the input shaft. It features a variety of mounting holes which enable it to be mounted easily in almost any position.

Right angle gearboxes contain input shafts that are positioned perpendicular to

the output shafts. Right angle gear boxes have up to 98% efficiency levels and are common in printing presses and glass cutting equipment.

Bevel Gearbox

A Bevel gear is a gear wheel with tapered teeth meshed with another so that their shafts are at an angle of 90 degrees. They connect intersecting axes. A bevel gear box is yet another right angle gearbox solution with a much higher efficiency. It has a low ratio. The ratio of a bevel gearbox is reached at by dividing the number of the teeth of the larger wheel by the number of teeth of the smaller wheel. It is also known a right angle bevel gearbox. In bevel gearboxes, 2 axles cross at a point and engage by means of a pair of conical gears. These gears enable a change in the axes of rotation of the respective shafts, commonly at 90 degrees. There are four types of bevel gear boxes:

Straight bevel gearboxes - They have a conical pitch surface and straight teeth tapering towards an apex.

Zero bevel gear boxes - This is similar to a bevel gear except the teeth are curved. In essence, zero bevel gear boxes are spiral bevel gear boxes with a spiral angle of zero.

Spiral bevel gear boxes - The teeth are curved teeth at an angle allowing contact and motion to be gradual and smooth.

Hypoid bevel gearboxes - These are similar to spiral bevel except that the pitch surfaces are hyperboloids rather than cones. Pinion can be offset above or below gear center, thus allowing larger pinion diameter, and longer life and smoother mesh.

Wear and tear is common in gear boxes. This mostly occurs as a result of contamination and degradation of the lubricant. Therefore the oil used should be free from contamination. Breathers are often used to allow airflow on the gear box.

As there are moving parts in gearboxes, they have to be well preserved. It is important to take care of gearboxes. An annual check of all switches and sensors as well as cooler condition should be performed to ensure its long life and trouble free performance.

About the author

Rino Mechanical Components Inc. is a manufacturing resource which specializes in production of all types of mechanical components, including air motors. Mechanical parts are custom made as per the client's specifications. A guarantee of two years is provided with all products. All equipment is of top quality made exactly to the consumer's liking.