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www.wimstechcomponents.com



Know About Us

WimsTech Precision Components is a precision engineering and manufacturing company specializing in high-quality mechanical seal metal components and industrial precision parts for a wide range of engineering applications. With a strong focus on accuracy, durability, and performance, the company delivers customized machining and component solutions to industries such as pumps, rotating equipment, process industries, power plants, petrochemicals, and heavy engineering sectors.

Backed by advanced manufacturing capabilities and a commitment to quality, WimsTech Precision Components manufactures reliable and high-performance products designed to meet demanding industrial standards and customer specifications.

Our Products & Services

- Mechanical Seal Components
- Mechanical seal metal components
- Carbon floating ring seals
- Labyrinth seals
- Ceramic coated sleeves and shafts
- Tungsten coated sleeves and shafts

Non-Ferrous Precision Components

- Brass components
- Bronze components
- Custom precision machined parts

Manufacturing Capabilities

WimsTech Precision Components is equipped to manufacture precision-engineered products with strict dimensional accuracy and superior surface finishing. The company focuses on:

- Precision CNC machining
- Custom fabrication
- High-quality coating solutions
- Wear-resistant component manufacturing
- Small, medium, and bulk production

Pump & Rotating Equipment Components

- Pump components
- Bearing bushes
- Bearing pedestals
- Precision shafts and sleeves

Quality Commitment

At WimsTech Precision Components, quality is the foundation of every product manufactured. The company follows stringent quality control processes to ensure:

- High dimensional accuracy
- Long service life
- Corrosion and wear resistance
- Reliable industrial performance
- Timely delivery and customer satisfaction

Industries Served

WimsTech Precision Components is equipped to manufacture precision-engineered products with strict dimensional accuracy and superior surface finishing. The company focuses on:

Our Products & Services

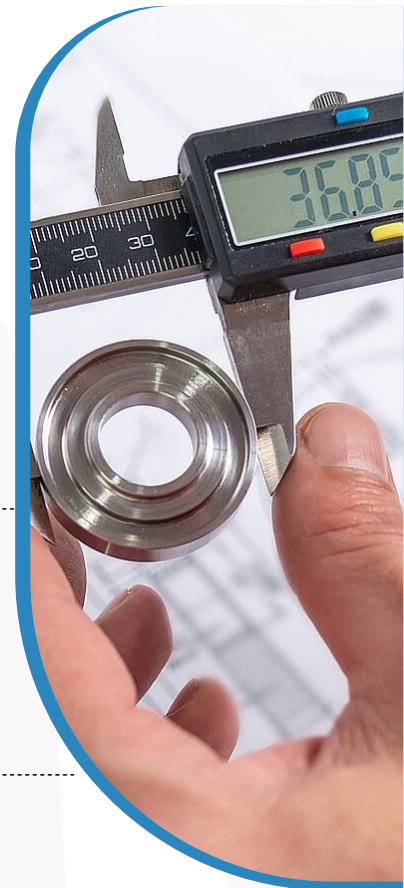
- Pump Manufacturing Industry
- Mechanical Seal Industry
- Oil & Gas
- Chemical & Process Plants
- Power Generation
- Marine Industry Heavy Engineering

Vision

To become a trusted global manufacturer of precision Components and engineering components through innovation, quality, and customer satisfaction.

Mission

To deliver high-performance precision components that exceed industry standards while building long-term relationships with customers through reliability and excellence.





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Carbon Floating Ring Seal

A Wimstech Carbon Floating Ring Seal is a highly reliable sealing solution designed for rotating equipment operating under high speed, high temperature, and demanding industrial conditions. These seals are widely used in compressors, turbines, pumps, blowers, and other process equipment where controlled leakage and long service life are essential.

The seal consists of precision-engineered carbon rings that float around the rotating shaft with minimal clearance, creating an effective sealing barrier while reducing friction and wear. The self-lubricating properties of carbon ensure smooth operation and excellent performance even in continuous-duty applications.

Our Carbon Floating Ring Seals are manufactured using high-quality carbon grades and precision metal components to provide superior durability, dimensional accuracy, and dependable sealing performance in critical applications.

Key Features:

- **High-Performance Labyrinth Seal:** Designed for sealing gases, dust, and vapors, with minimal gap and no additional lubrication required.
- **Split Design:** Ensures easy installation without dismantling the entire assembly, reducing downtime and enhancing operational efficiency.
- **Preassembled Units:** Designed for sealing rotating shafts in equipment like blowers, agitators, centrifuges, and dryers.
- **Sealing Plates in Series with Segmental Rings:** Reduces axial gap and leakage, ensuring efficient operation.
- **Easy Installation and Maintenance:** Split design allows for easy ring replacement without dismantling the machinery.

Operating Parameters:

Shaft Diameter: 1.000" ~ 10.000"

Pressure: -0.5 to 15 Bars

Temperature: -20 to 500°C

Speed: Up to 80 m/s

Materials of Construction:

Seal Rings: Carbon Graphite, CFT, GFT, PTFE-Compound

Springs: SS-316, Alloy-C-276, Inconel

Seal Housing: SS-316/Hast-C/Inconel-718

Sleeve: SS-316[Chrome Oxide Coated], Inconel, Hast-C-276

Applications

Compressors
Steam Turbines
Blowers
Pumps
Refinery Equipment
Petrochemical Plants
Power Plants
Process Industries





Labyrinth Seal

A Wimstech labyrinth seal is a type of non-contact seal used in rotating machines to reduce leakage of gases or fluids between areas of different pressure.

It is called a labyrinth seal because the fluid must pass through a complex “maze-like” path (labyrinth), which reduces its pressure and flow.

Construction

A labyrinth seal mainly consists of:

Seal teeth/ridges – thin sharp edges arranged in series

Rotor – rotating part connected to the shaft

Stator/Housing – stationary part around the rotor

Small clearance gap – between rotating and stationary parts

The teeth may be:

on the rotating part

on the stationary part

or on both.

Applications

Labyrinth seals are commonly used in:

Steam turbines

Gas turbines

Centrifugal compressors

Turbo

Chargers

Aircraft engines

Pumps and blowers

Advantages

Non-contact sealing

Very low wear

Long service life

Suitable for high speed

Can handle high temperatures

Requires little maintenance

Disadvantages

Small leakage always exists

Less effective than contact seals

Performance depends on clearance gap

Efficiency decreases if clearance increases





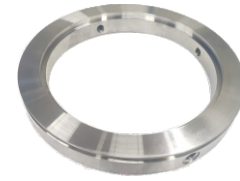
Mechanical Seal Components

Drive Collar

A drive collar is a mechanical component mounted on a shaft to transmit rotational motion or torque from one part to another. It helps drive or support rotating components such as seals, gears, bearings, or couplings.

It is commonly used in:

Pumps
Turbines
Compressors
Gearboxes and sealing systems.



Gland

A gland is a mechanical component used in sealing systems to hold and compress a seal or packing material around a rotating or moving shaft to prevent leakage of fluid or gas.

It is commonly used in:

Pumps
Valves
Compressors
Turbines and mechanical seals.



Housing

A housing is an outer protective structure or casing used to support, cover, and protect internal machine components such as bearings, seals, shafts, gears, or rotating parts.

It provides:

Proper alignment
mechanical support
and protection from dust, dirt, and damage



Rotary Part

A rotary part is any machine component that rotates or spins during operation. It transfers motion, power, or energy from one component to another in mechanical systems.

Rotary parts are important in:

Pumps,
Turbines,
Motors,
Compressors, Engines & Gear Systems.



Sleeve

A mechanical seal sleeve is a cylindrical component used in a rotating shaft assembly where a mechanical seal is installed, typically in pumps, compressors, or mixers. The sleeve sits on the shaft and provides a smooth, protected sealing surface for the mechanical seal to run against.

Sleeve are important in:

Centrifugal pumps
Chemical process industry
Oil & gas industry & etc.





Pumps Components

Housing Cover

A housing cover is a structural component that closes and seals a machine housing, typically in equipment like pumps, compressors, gearboxes, or mechanical seal chambers. In the context of a mechanical seal system or pump, the housing cover is the part that bolts onto the pump casing and encloses the internal assembly.

It is commonly used in:

Pumps
Mechanical seal housing
Compressors and mixers



Fastener

A fastener is a mechanical component used to join, fix, or secure two or more parts together in machines, structures, or assemblies.

What fasteners do:

Hold components together firmly
Allow assembly and disassembly
Maintain alignment of machine parts
Transfer load between connected parts



Shaft

A shaft is a mechanical component used in machines to transmit power, torque, and motion from one part to another.

What a shaft does:

Transfers rotational power from a motor or engine
Supports rotating parts like impellers, gears, or pulleys
Maintains alignment of moving components
Works with bearings and seals to enable smooth rotation



Shaft Sleeve

A shaft sleeve is a protective cylindrical tube fitted over a rotating shaft, commonly used in pumps, compressors, and other rotating equipment.

Protects the shaft surface from wear and corrosion:
Provides a smooth sealing surface for mechanical seals

Reduces damage from:

Abrasion
Chemical attack
Fretting (vibration wear)
Makes maintenance easier (replace sleeve instead of repairing shaft)



Wear Ring

A wear ring is a replaceable component used in pumps and rotating equipment to control internal leakage and reduce wear between rotating and stationary parts.

What it does:

Maintains a small clearance between rotating and stationary parts
Reduces fluid leakage from high-pressure to low-pressure zones inside the pump
Protects expensive components like the impeller and casing from direct wear
Acts as a sacrificial part that is replaced during maintenance





Brass & Bronze Components

Brass and bronze components are widely used in mechanical equipment (especially pumps, valves, and fittings) because both are copper-based alloys, but they behave differently in service.

Brass components

Brass = Copper + Zinc

Common components made from brass:

Bushes (plain bearings)
Valve seats and valve bodies (low pressure)
Fittings (elbows, couplings, nipples)
Small gears and instrument parts
Impellers (small pumps, light duty)

Key properties

Good machinability (easy to cut and shape)
Good corrosion resistance (mild environments)
Smooth surface finish
Lower strength compared to steel/bronze

Typical use

Water systems
Light industrial applications
Plumbing and instrumentation



Bronze components

Bronze = Copper + Tin (sometimes with other elements like aluminum, silicon, phosphor)

Common components made from bronze

Wear rings (pump casing/impeller rings)
Bush bearings (heavy duty)
Pump impellers (industrial pumps)
Thrust washers
Valve seats (high pressure systems)

Key properties

Higher strength than brass
Better wear resistance
Better performance under load and friction
Good resistance to seawater and corrosive fluids

Typical use

Pumps (especially centrifugal and marine pumps)
Heavy-duty machinery
High load rotating equipment





Machine Components

Machine components are the basic parts that make up any mechanical system and work together to transmit power, support loads, and produce motion.

Main machine components

1. Shaft

Rotating member that transmits torque and motion

Used in pumps, motors, gearboxes

2. Bearing

Supports rotating shafts

Reduces frictionTypes: ball bearing, roller bearing, bush bearing

3. Fasteners

Join machine parts together

Examples: bolts, nuts, screws, studs

4. Gears

Transfer motion and change speed/torque

Types: spur, helical, bevel, worm gears

5. Coupling

Connects two shafts together

Transfers power between them

6. Seal components

Prevent leakage of fluids or gases

Types: mechanical seals, O-rings, packing

7. Housing / casing

Outer body that holds internal parts

Provides protection and alignment

8. Bearings housing / pedestal

Supports bearings and shaft alignment

Reduces vibration

9. Impeller (in pumps)

Rotating part that moves fluid

Converts mechanical energy to fluid energy

10. Springs

Provide force and flexibility

Used in seals, valves, and mechanisms

11. Bushes / sleeves

Reduce wear between moving parts

Provide smooth surface for rotation

Machine components are like the building blocks of a machine, where each part has a specific job like:

Moving (shaft, gears)

Supporting (bearings, housing)

Connecting (fasteners, couplings)

Sealing (mechanical seals, o-rings)





Ceramic Coated Sleeve

A ceramic coated sleeve is a shaft sleeve that has a thin layer of ceramic material applied on its surface to improve wear, corrosion, and heat resistance—especially in pumps and mechanical seal applications.

What it is:

Base component:

usually stainless steel or alloy steel shaft sleeve

Surface layer: ceramic coating (hard, non-metallic layer)

Applied using processes like:

Thermal spraying

Plasma coating

HVOF (High Velocity Oxygen Fuel)

Why ceramic coating is used

It enhances sleeve performance in harsh conditions:

1. High wear resistance

Protects against abrasion from slurry, sand, and particles

Extends sleeve life significantly

2. Corrosion resistance

Resists acids, chemicals, and seawater environments

3. Reduced friction

Smooth surface improves mechanical seal life

Lowers heat generation at seal interface

4. High temperature stability

Suitable for high-speed and high-heat applications

Where it is used

Slurry pumps (mining, cement) Chemical process pumps

Paper and pulp industry

Offshore and marine pumps

High-performance mechanical seal areas

Role in mechanical seal system

Mechanical seal runs on the sleeve surface

Ceramic coating provides a hard, smooth sealing track

Prevents shaft/sleeve groove formation (fretting + scoring)

A ceramic coated sleeve is like a super-hardened protective skin on the shaft sleeve that makes it last much longer in tough pumping conditions.





Tungsten Coated Sleeve

A tungsten coated sleeve (more correctly called a tungsten carbide coated sleeve) is a shaft sleeve with a very hard tungsten-based coating applied on its surface to improve wear and corrosion resistance in harsh rotating equipment.

What it is

Base material: Usually stainless steel (SS304 / SS316) or alloy steel sleeve

Coating: Tungsten Carbide (WC) layer

Applied using processes

like: HVOF (High Velocity Oxygen Fuel spray)

Plasma spray coating

Why tungsten coating is used

Tungsten carbide is one of the hardest engineering coatings, so it is used when conditions are extreme:

1. Very high wear resistance

Excellent against:

Slurry

Sand

Abrasive chemical

Smearing fluids

2. High hardness

Much harder than stainless steel and even ceramic in some cases

Reduces scoring and groove formation on sleeve

3. Long seal life

Mechanical seal runs on a very stable surface

Reduces leakage caused by surface wear

4. Good corrosion resistance (with proper binder)

Especially in chemical and seawater applications

Where it is used

Slurry pumps (mining, dredging, cement)

Chemical process pumps

Paper and pulp industry

High-speed industrial pumps

Severe wear environments

Role in mechanical seal system

Mechanical seal faces run on the tungsten-coated sleeve surface

Prevents:

shaft grooving

sleeve scoring

seal face instability

Improves reliability in continuous-duty pumps

A tungsten coated sleeve is like a super armor layer on the shaft sleeve, designed for the most aggressive wear conditions in industrial pumps.





Bearing Bush

A bearing bush (also called a bushing or plain bearing) is a cylindrical component that supports and guides a rotating shaft by providing a smooth, low-friction surface.

What it does

- Supports the shaft radial load (side load)
- Reduces friction between shaft and housing
- Maintains alignment of rotating parts
- Acts as a wear-resistant interface between moving parts

Where it is used

- Pumps (especially centrifugal and slurry pumps)
- Compressors
- Electric motors (small/medium)
- Gearboxes
- Marine shafts
- Agricultural machinery

Types of bearing bushes

1. Plain bush (solid sleeve type)

- Simple cylindrical sleeve
- Most common design

2. Flanged bush

- Has a flange to take axial load
- Prevents axial movement

3. Split bush

- Two-piece design for easy installation/removal

4. Sleeve bearing with lubrication grooves

- Designed to hold oil or grease

Materials used

- Bronze (very common in pumps and heavy load systems)
- Brass (light-duty applications)
- Babbitt metal (white metal bearings, good for high speed)
- PTFE / composite (low friction, chemical resistance)
- Graphite-filled materials (self-lubricating)

In pump applications

In pumps, bearing bushes:

- Support the pump shaft
- Maintain concentric rotation
- Work with lubrication (oil, grease, or process fluid)
- Help reduce vibration and wear

A bearing bush is like a smooth protective sleeve that the shaft rotates inside, replacing rolling motion with controlled sliding motion.





Bearing Pedasted

A bearing pedestal (often written as bearing pedestal) is a rigid support structure that holds and houses a bearing and keeps a rotating shaft properly aligned in machines like pumps, motors, and compressors.

What it does

- Supports the bearing that carries the shaft
- Maintains precise alignment of the rotating shaft
- Absorbs vibration and load forces
- Provides a stable mounting base on machine frames or foundations

Where it is used

- Centrifugal pumps
- Compressors
- Electric motors (large size)
- Turbines
- Industrial gearboxes

Construction

- A bearing pedestal typically includes:
 - Base structure (cast iron or steel body)
 - Bearing housing seat
 - Lubrication ports (oil/grease system)
 - Cover or cap for protection
 - Sometimes cooling or sealing arrangements

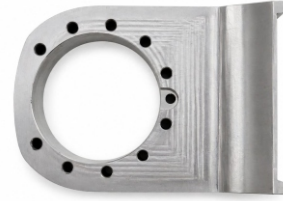
Materials used

- Cast iron (most common)
- Cast steel (heavy-duty applications)
- Fabricated steel (large machinery)
- Sometimes ductile iron for higher strength

Role in a pump system

- In pumps:
 - The shaft runs through bearings mounted in the pedestal
 - The pedestal keeps the shaft:
 - aligned with the impeller
 - stable during rotation
 - It reduces:
 - vibration
 - deflection
 - bearing failure risk

A bearing pedestal is like a strong foundation block that holds the bearing in perfect position so the shaft can rotate smoothly and safely.





Pumping Ring

A pumping ring is a rotating component fitted on a shaft (usually inside a bearing housing or seal chamber) that helps in circulating lubricating oil or flushing fluid within a machine.

What it does

- Creates fluid circulation inside the bearing housing
- Helps in cooling the bearings
- Ensures proper lubrication distribution
- Prevents oil stagnation and overheating
- In some designs, assists in seal chamber flushing

Where it is used

- Centrifugal pumps (bearing housings)
- Compressors
- Turbo machinery
- High-speed rotating equipment

How it works

The pumping ring is mounted on the rotating shaft
As the shaft rotates, the ring acts like a small impeller
It moves oil or lubricant through:
bearing chambers
cooling passages
return lines

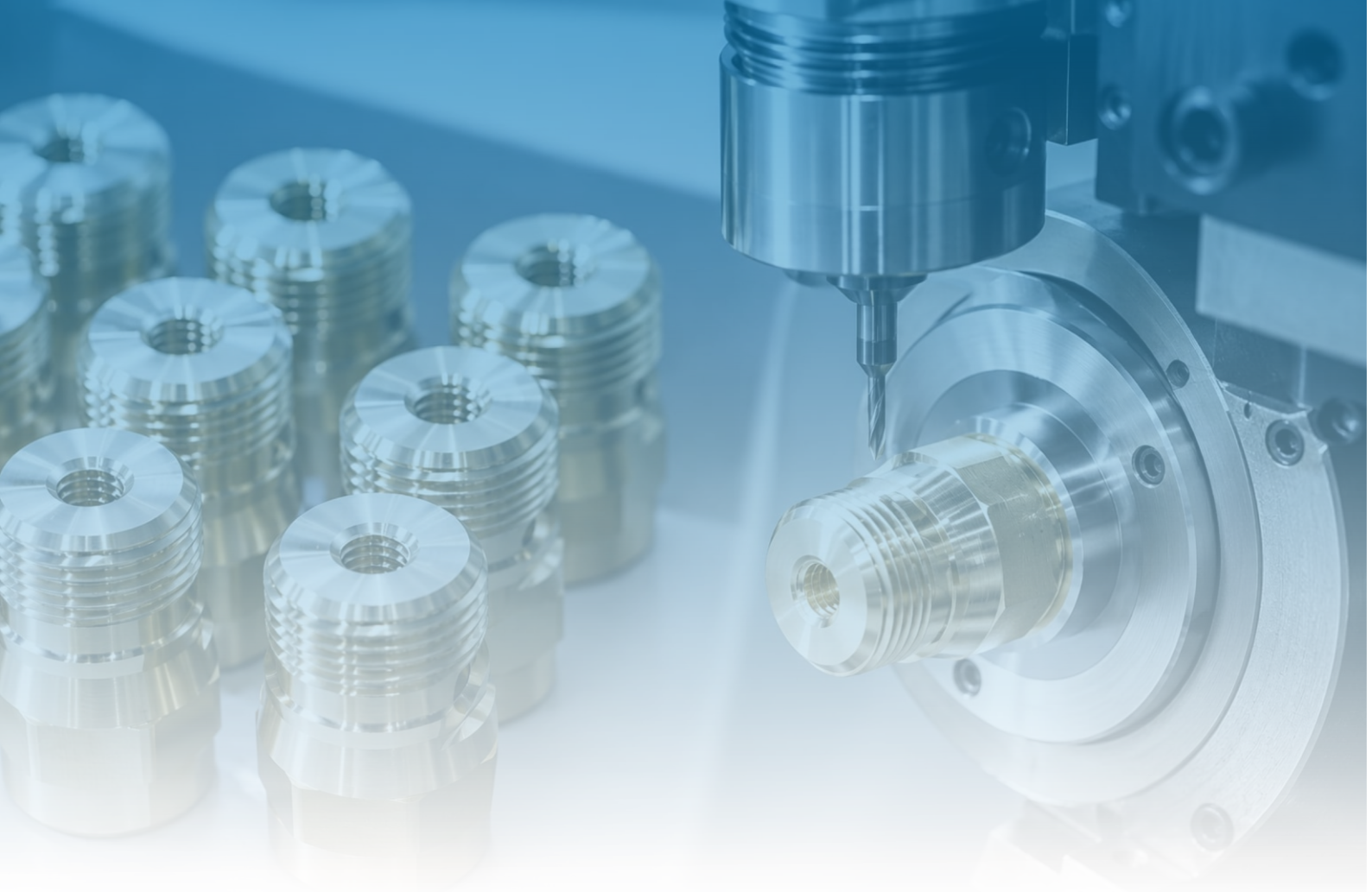
Types of pumping rings

- Radial vane type ring (most common)
- Axial flow ring
- Centrifugal disc type
- Integral shaft-machined grooves (in some designs)

In pump bearing systems

A pumping ring helps:
Keep bearings at safe operating temperature
Improve lubrication reliability
Extend bearing life
Reduce need for external oil pumps in some systems





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