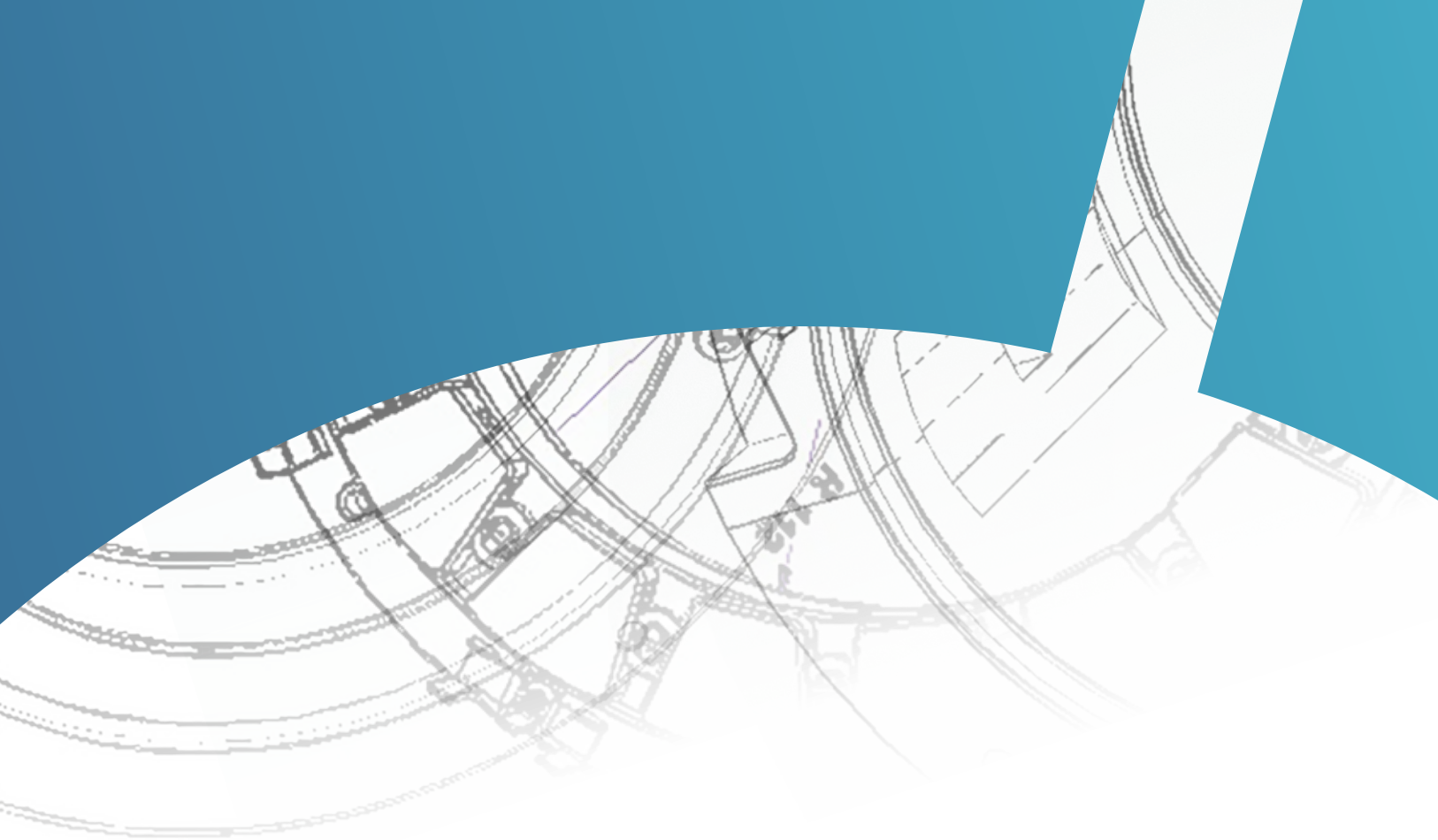


GTW is your innovative partner for the development, design and production of hydrodynamic white metal bearings

GTW BEARINGS s.r.o.

Our history

2025
New administrative centre – Chotíkov area

2024
Implementing of automation and robotics

2023
First laser cladding workplace

2022
Building of the new hall – Chotíkov area

2016
OHAS 18001 Certification according to current re-certification ISO 45001

2014
Building of the 4th production hall

2012
ISO 14001 Certification

2010
Building of the 3rd production hall

2007
Building of administrative centre

2006
ISO 9001 Certification

2003
Building of the 2nd production hall

1996
Founding of GTW BEARINGS s.r.o.

Příšov

Chotíkov

About GTW

GTW is specialized in development, construction and production of hydrodynamic white metal lined bearings.

Why GTW Bearings

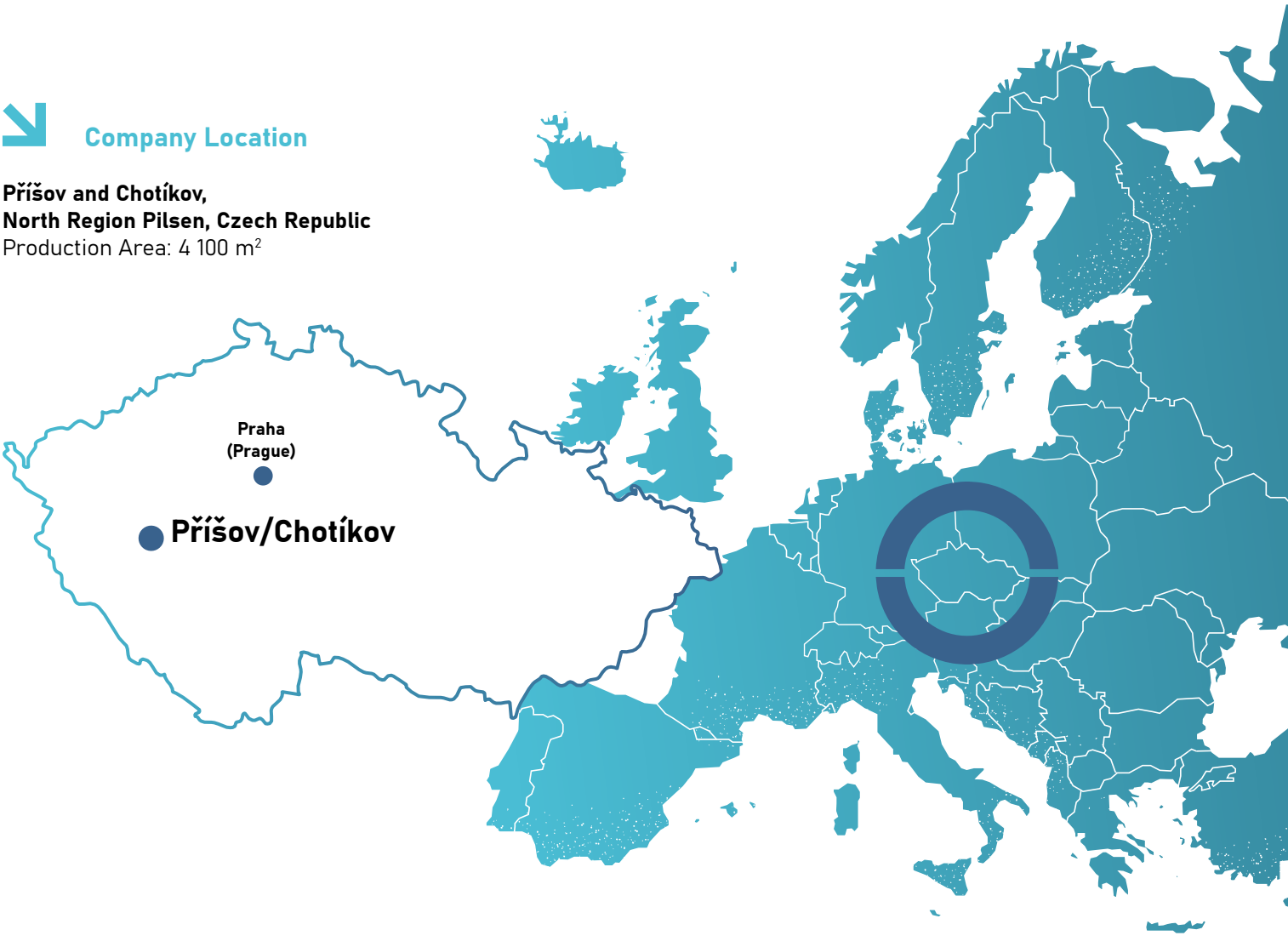
- Complete design responsibility
- Highly advanced engineering supported by 3D design
- Full technical support services
- Calculation of bearings
- High quality products
- Quality assurance according to ISO 9001
- Environmental certification according to ISO 14001
- Occupational Health and Safety certification according to ISO 45001

Bearing Application Areas

- Gas and steam turbines
- Electric engines and generators
- Plant equipment, Cement/Coal
- Gear units
- Pumps and water turbines
- Press and mechanical hammers
- Crushing plant equipment
- Piston compressors
- Turbo compressors
- Sugar refinery equipment

Company Location

Příšov and Chotíkov,
North Region Pilsen, Czech Republic
Production Area: 4 100 m^2



www.gtw.cz

Technical specification

White Metal Hydrodynamic Bearings

- Fixed Profile Journal Bearings
- Tilting Pad Journal Bearings
- Tilting Pad Thrust Bearings
- Bearing for Special Applications
- Bearing Systems

Technical Infrastructure

- Milling up to 7 t
- Turning up to 2,5 m
- Grinding up to 1 m
- Static casting up to 10 t
- Centrifugal casting up to Ø 1,1 m
- 3D Zeiss measuring machine

Services

Repairs of Damaged Bearings

- Time and cost-effective solution for your bearings

Bearings Damage Analysis and Statistics

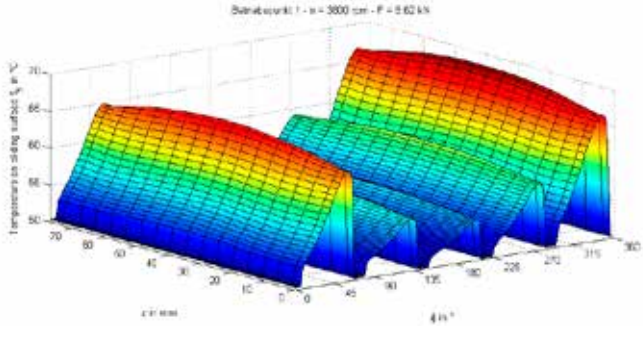
- Comparison with vast internal database

Aftermarket

- Machine downtimes can lead to considerable losses off affected enterprise due to damaged bearings. GTW specializes in the remanufacturing of journal bearings and also the professional repair of your damaged bearings.
- For your bearings, GTW offers Aftermarket products: such as New, Refurbished or Repaired spare parts and accessories.

Research & Development

GTW is a member of German Research Association for Combustion Engines FVV.
Bearings Calculations with Special Softwares – COMBROS.
The R&D department focuses on development of new products and follows through with the testing process at testing stations in the Czech Republic.
R&D department proposes and creates custom-designs bearings for multiple types of machines, based on technical calculations.
Technical calculations outputs include matrixes of stiffness and damping, power losses, determination of temperatures, minimal oil film thickness in a bearing and many others important factors.



GTW Journal & Thrust Bearing Test Rig

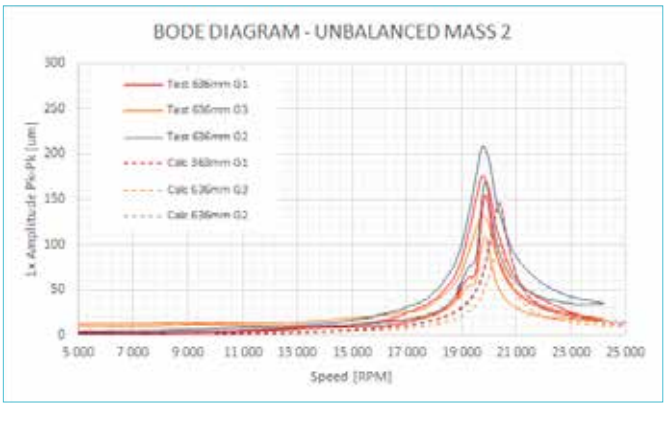
All our new products are carefully tested before launch.
We also test them in order to refine the calculations precisely, allowing us to compare the calculated values with the measured values. Measured values include: oil flow through each bearing separately, oil inlet and outlet temperatures, power loss, bearing temperature, eccentricity ratio, thrust and journal load and vibration.

Journal bearing testing

- The maximum speed on a low-speed shaft 10,000 rpm (pinion speed 40,380 rpm)
- Pitch velocity 150 m/s
- Maximum load 7 MPa ~ 25 kN

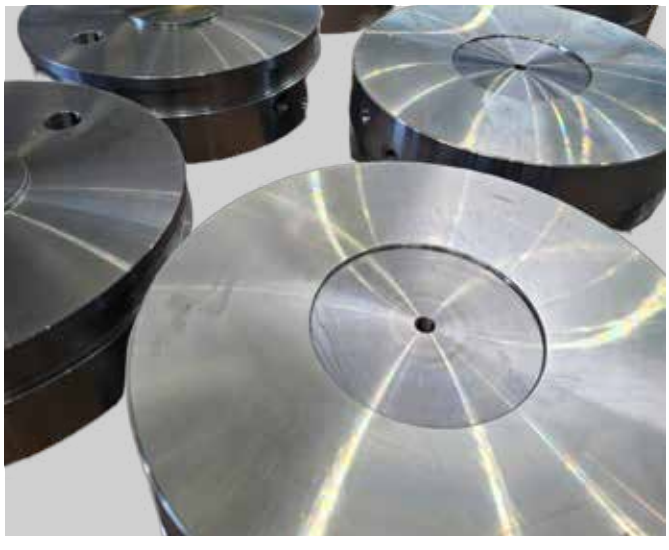
Thrust bearing testing

- The maximum speed on a low-speed shaft 5,000 rpm (pinion speed 20,190 rpm)
- Pitch velocity 120 m/s
- Maximum load 5 MPa ~ 50 kN
- incl. Measuring of thrust load

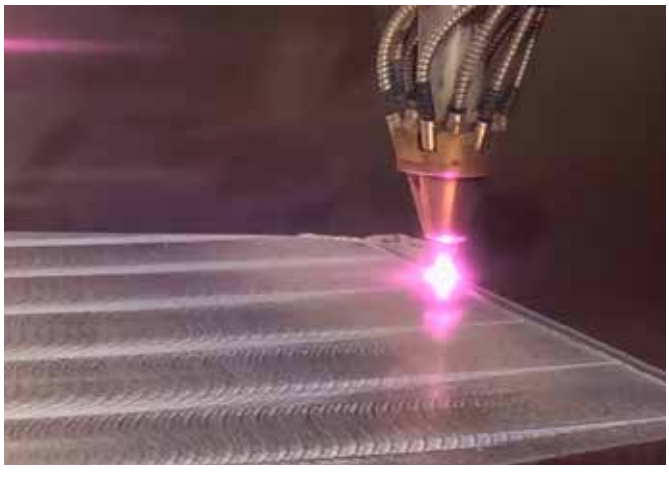


LASER CLADDING SYSTEM

Laser cladding of white metal is an innovative process which involves a laser beam to melt white metal powder, and consequently cladded on the substrate. Full process of cladding is automatised by robot. GTW has two laser workplaces for application process of thrust and journal parts.



GTW LASER WORKPLACES AND KEY FEATURES



- Application thrust parts without weight limitation and journal parts up to 1,5 t
- Maximum laser power 6 kW
- Robot and positioner FANUC
- Possible application for repairs
- Less consumption of the white metal material and energy
- Minimum of manual processes

MATERIALS

White metal (Tin basis)

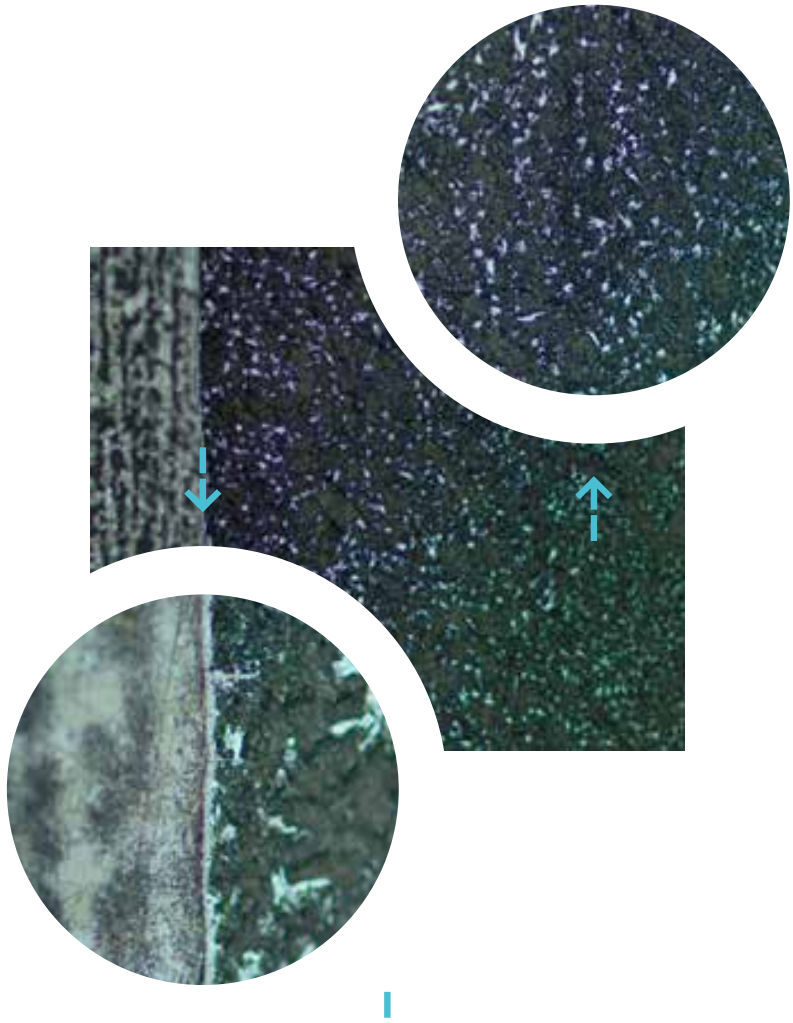
- SnSb8Cu4 (GTW 89)
- SnSb12Cu6Zn (GTW 81ZnAg)
- Grain size 45-160µm

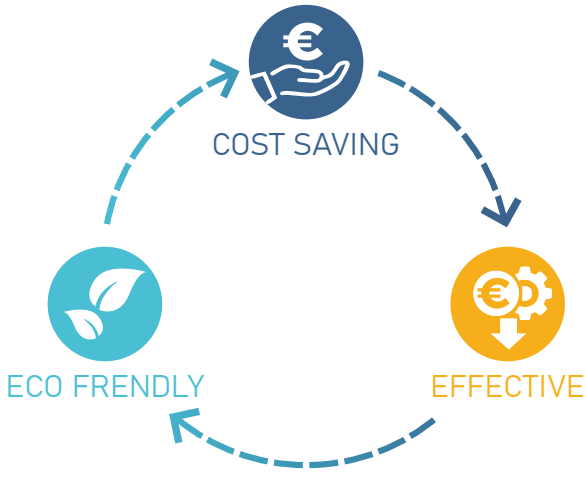
Base steel materials

- DIN S355/S235
- DIN C10/C15
- 42CrMo4
- Etc.

TESTING of the white metal layer DIN ISO 4386-2

- We managed to achieve the same or higher bond strengths values than conventional methods of white metal application.
- According to results, the laser cladding process at least equivalent to conventional casting methods.

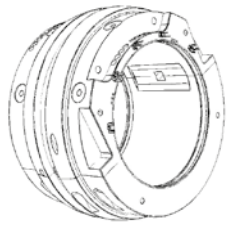




PRODUCTS

JOURNAL COMPONENTS

- Fixed Profile Journal Bearings
- Fixed Profile Journal Bearings with Pressure Dam
- Tilting Pad Journal Bearings

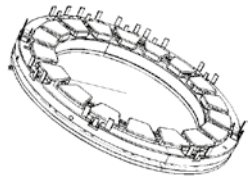


THRUST COMPONENTS

- Thrust Pads type WK
- Thrust Pads type WA
- Thrust Pads type WD
- Other types of Thrust Pads

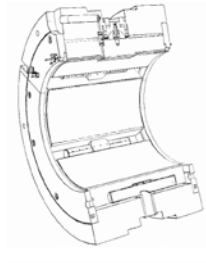
SELF-EQUALIZING THRUST BEARINGS

- GTW standardized sizes
- Custom design
- Combine bearing with journal bearing



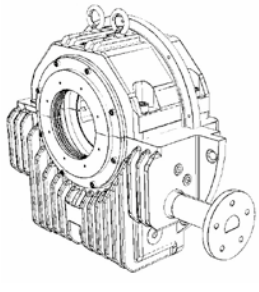
JOURNAL BEARINGS WITH BALL & SOCKET

- GTW standardized sizes
- Custom design
- Combine bearing with thrust tilting pad bearing



BEARING SYSTEMS

- Pedestal Bearing WP
- Centre Flange Bearings WM
- Side Flange Bearings WF



BEARINGS AND PARTS FOR SPECIAL APPLICATIONS

- Electrically Insulated Bearings
- Static Poured Bearings
- Planet-Gear Bolts

LARGE OVERSIZE BEARINGS

- Bearings and parts for high load and low speed application

JOURNAL COMPONENTS

Fixed Profile Journal Bearings

- Diameter up to 2500 mm
- With or without hydrostatic jacking

- Various types of profiles and white metal
- With or without adjustable outer diameter

Pressure Dam

Bearings with high stability in an unloaded condition, which is ensured by a so-called pressure dam.
Profile bearings with pressure dam (bearing with fixed geometry) have a wide range of application in both slow-speed and high-speed machines, thanks to the range of possible geometries of their sliding surfaces.

The thrust-journal design is a standard application
Diameter up to 2500 mm.
Various types of profiles for inner bore.
Possible design with adjustable outer diameter.

JOURNAL COMPONENTS

Tilting Pad Journal Bearings

- Shaft diameter from 30 up to 500 mm for high speed machines
- Variable range of properties stable properties of bearing run

Advantages of Tilting Pad Journal Bearings

- Maximum possible stability of rotating parts
- Low sensitivity to load direction
- Oil flow can be minimised, which reduces loss

Advantages of GTW Tilting Pad Journal Bearings

- Designed for the transfer of journal loads with optimal dynamic features and minimum power loss
- Optimised lubrication of bearings enables minimum power loss
- Simple and universal design
- Provision of static and dynamic performance data are standard

General Information

- These bearings are used in high speed machines, mostly in turbo gearboxes, industrial turbines and turbocompressors.

THRUST COMPONENTS

Thrust Pads type WK

- Pad sizes ranging from 90 to 710 mm
- Main application for WK thrust bearings is in vertical roller mill gearboxes, where high static and dynamic loads have to be absorbed.

- The support of the thrust tilting pads on a spherical surface guarantees an all-round tilting movement and therefore perfect hydrodynamic function of the bearing.

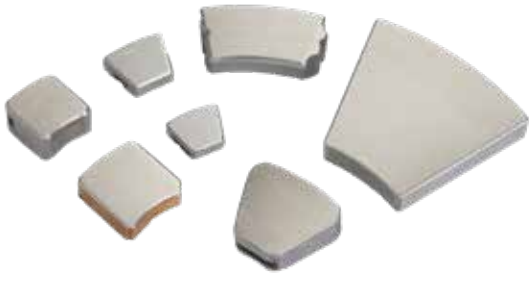
Thrust Pads type WA

- Pad diameters ranging from Ø 20 to Ø 630 mm
- WA thrust pads are circular and have an attached spherical surface on the back, enabling an all-round tilting movement.

Thrust Pads type WD

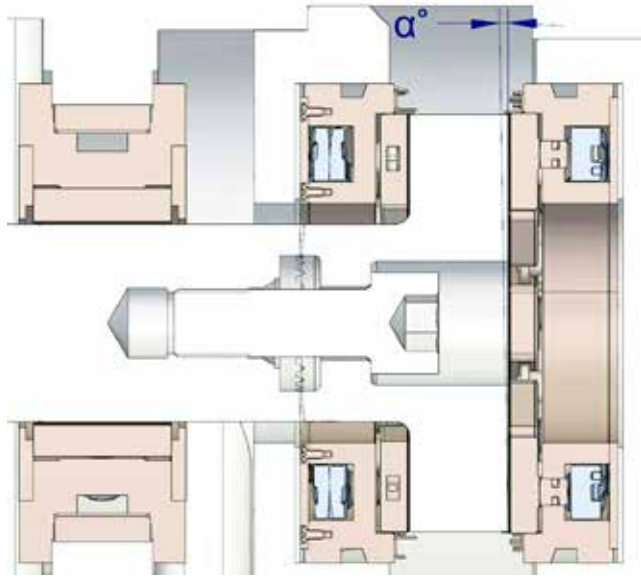
- Pad diameters ranging from Ø 16 to Ø 315 mm

Other types of Thrust Pads



- WD thrust pads are sliding components with a disk spring support GTW also offers a number of thrust pads, which can be designed either by us or by the customer.

SELF-EQUALIZING THRUST BEARINGS



The system of self-equalizing elements is used in cases where, due to thermal deformation or bending of the shaft, there occurs a misalignment between the collar and the bearing.

GTW Self-equalizing Thrust Bearings can be:

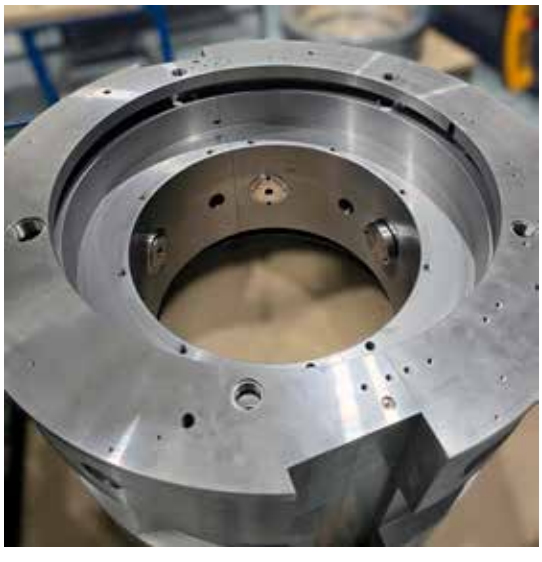
- combined with several types of journal bearings, including the unique modular design of GTW bearings
- custom-designed to fulfill all customer specifications and requirements, which is also used for retrofits
- equipped with load cells to measure the actual thrust load
- used for a variety of applications

Load Cells
to measure the actual thrust load

Combine Bearing
with self-equalizing system

JOURNAL BEARINGS WITH BALL & SOCKET

The self-equalizing element system (Ball & Socket) is used in cases where, due to thermal deformation, bending of the shaft or inaccurate manufacturing/ assembly, there may be a misalignment between the axis of the shaft and the axis of the bearing.



GTW Ball & Socket system / self-equalizing journal bearings can be:

- Combined with other types of thrust bearings incl. bearings for modular GTW constructions
- Custom-designed according to the specifications and requirements of the customer, incl. for use in retrofits
- Used in a range of industrial applications
- Two versions of B&S bearings with different internal geometry, both suitable for many different cases

BEARING SYSTEMS

Pedestal Bearings WP

- According to DIN 31 690, these bearings are manufactured for shaft diameters ranging from 140 to 900 mm.
- Due to their versatility, Pedestal Bearings are used in a wide variety of applications, such as turbo generators, hydro generators, water turbines and pumps, blowers, motors and generators.

Centre Flange Bearings WM

- According to DIN 31 694, these bearings are manufactured for shaft diameters ranging from 140 to 450 mm.
- These bearings are usually applied in horizontal electrical machines such as generators and motors.
- They are mounted directly into the machine shield with one side extending into the machine.

Side Flange Bearings WF

- According to DIN 31 693, these bearings are manufactured for shaft diameters ranging from 140 to 450 mm.
- These bearings are usually applied in horizontal electrical machines such as generators and motors.
- They are mounted directly to the outside of the machine.

We offer more detailed information in a supplemental catalogue.

BEARINGS FOR SPECIAL APPLICATIONS

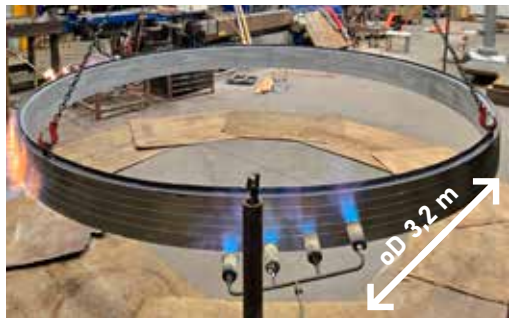
Electrically Insulated Bearings

These bearings are designed with

- Insulated fitted plates or electrical insulation of the whole outer diameter.

For both types of bearings, GTW uses only materials with the highest-graded mechanical and electrical properties.

Large Oversize Bearings



OTHER PRODUCTS

Planet-Gear Bolts

Planet-Gear Bolts are steel parts with white metal lining on the outer diameter for planetary gears.

CUSTOMER REFERENCE

SIEMENS

DOOSAN

WIKOV

FLENDER

MAAG

RENK

VOITH

Lufkin Gears
a Baker Hughes business

Atlas Copco

ANDRITZ

REINTJES
POWERTRAIN SOLUTIONS

Baker Hughes
BRUSH Power Generation

[pekrun]

MAN

Ingeteam
ELECTRIFYING A SUSTAINABLE FUTURE

AERZEN
EXPECT PERFORMANCE

Howden

ELECON
GEARING THE FUTURE

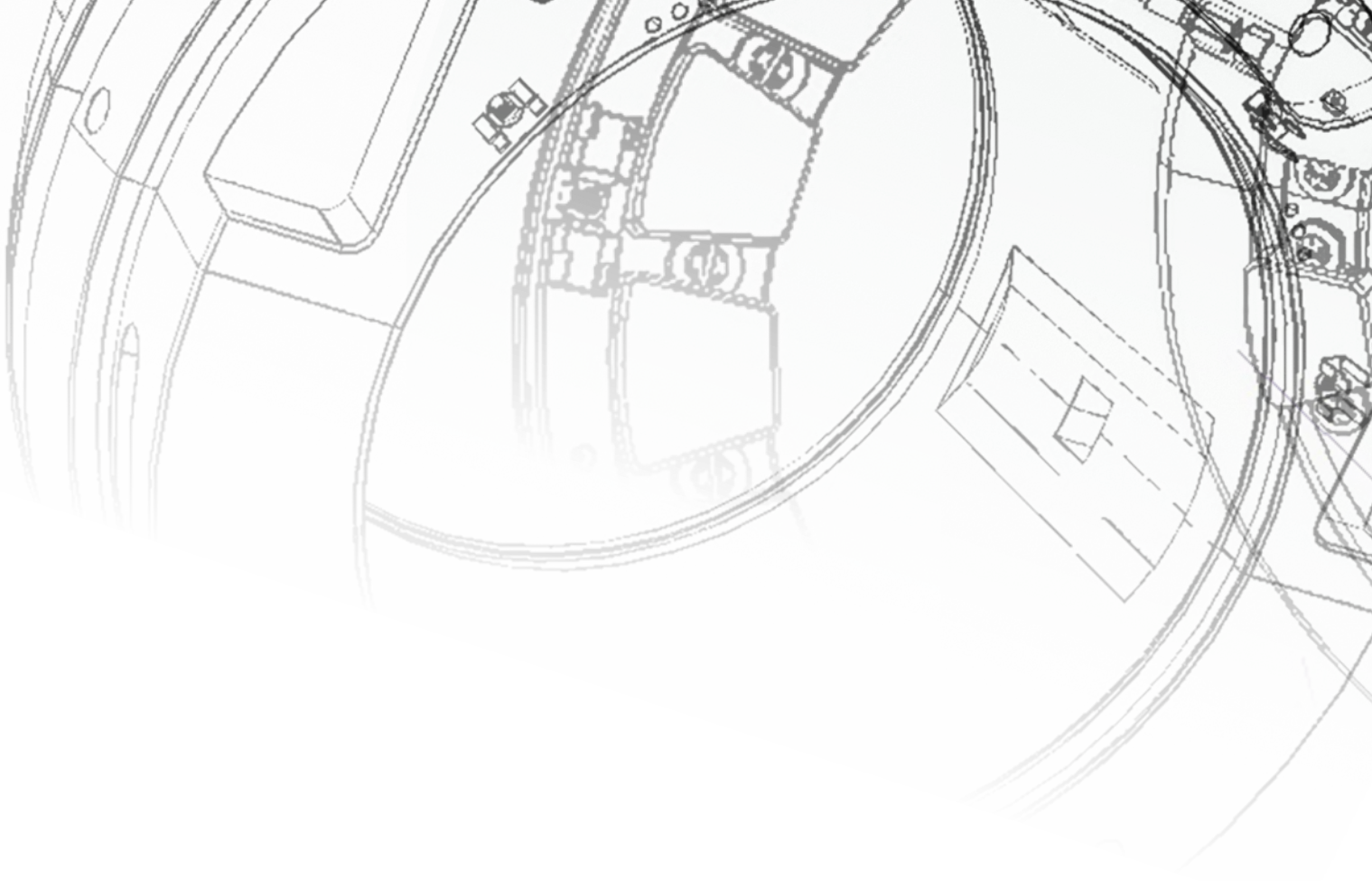
BOLOGNESI
ESTABLISHED IN 1909

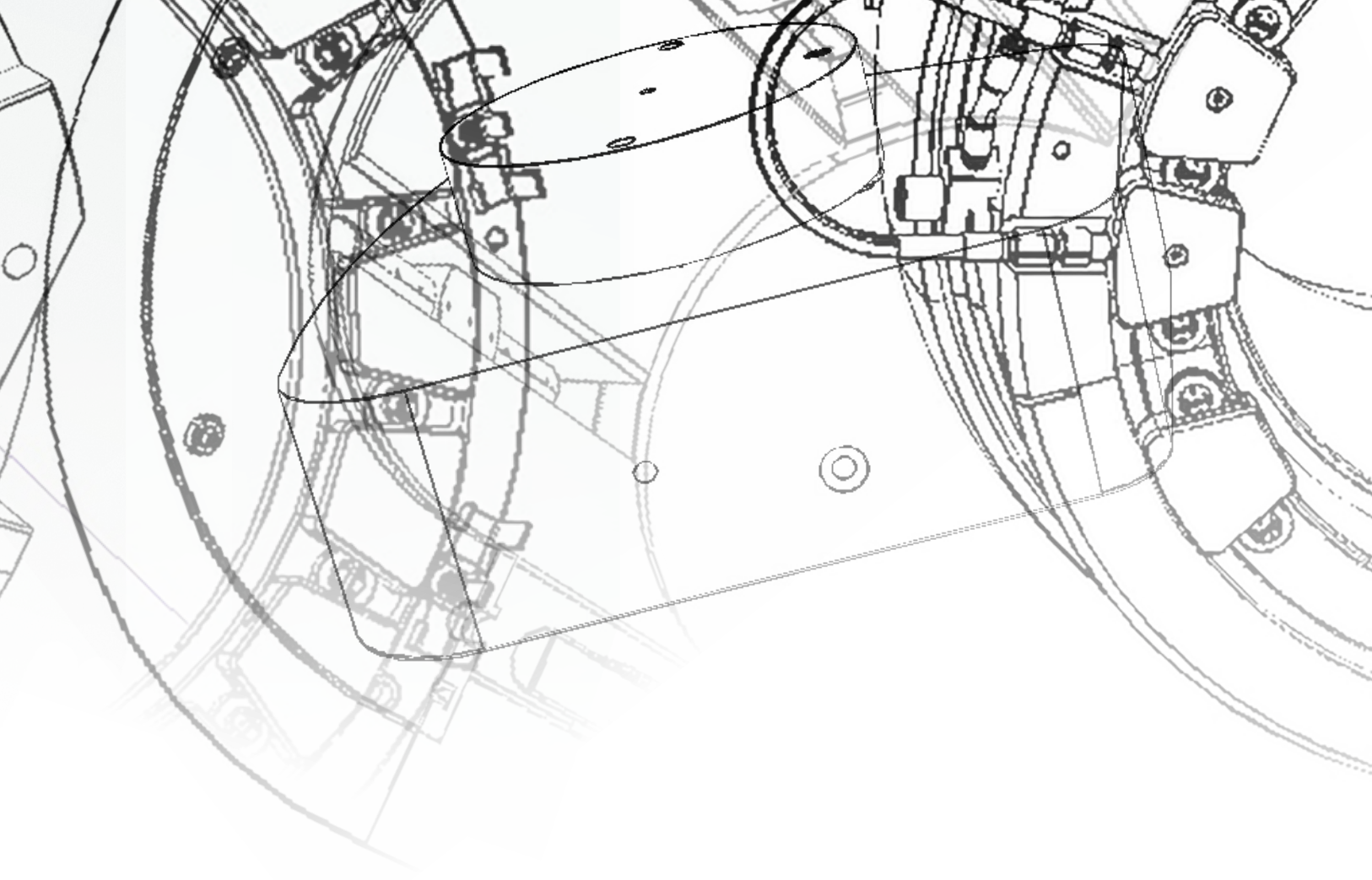
Santasalo

LITOSTROJ

SMI Simms Machinery
INTERNATIONAL

HYOSUNG





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OF THE CZECH REPUBLIC

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