Specialized Technology for
RAILWAY INDUSTRY
DANOBAT is a leading global solution supplier for the manufacturing and maintenance of railway rolling stock components. The Railways business unit of DANOBAT offers comprehensive solutions to all manufacturing processes of rolling stock parts: from the axle or the wheel, through the wheelset and to the bogie. Integral or partial solutions adapted to the customer’s real needs. It also provides consultancy services to customers with specific requirements, based on its expert knowledge and wide sector experience. Its sensitivity to technological excellence, high precision of its products and the special care taken in adapting to the real needs of the customer means they are able to create solid avant-garde solutions. DANOBAT is capable of high adaptability, reliability and pro-activeness, accompanying the client in the improvement of manufacturing processes. Over 60 years of experience in the machine tools and manufacturing systems market allow DANOBAT to offer competitive solutions to customers in their individual needs, providing high value added solutions.

REFERENCES
WHEREVER YOU ARE, YOU KNOW YOU CAN COUNT ON THE EXPERTISE OF DANOBAT

WE ARE CLOSE TO OUR CUSTOMERS, PROVIDING EFFECTIVE RESPONSE AND THE BEST SOLUTIONS. PROFESSIONAL AND CUSTOMIZED SERVICE IN DEADLINES AGREED WITH THE CUSTOMER.
THE BENEFITS OF A SERVICE WITH SPECIALIZED KNOWLEDGE

SERVICE EXCELLENCE TO PROVIDE THE BEST SOLUTION

DANOBAT has modern facilities and its highly qualified human team with proven experience, make it possible to produce leading customized equipment for each of its customers. It fulfills the most demanding requirements in terms of productivity, flexibility and accuracy from design to implementation in addition to correct maintenance of its solutions.

CONSTANT EVOLUTION

Its products are constantly changing through a Research and Development centre 100% specialized in manufacturing and production technologies, to improve processes, identify opportunities and actively collaborate with the client to develop solutions and new business ideas. This ensures that product design and productivity can be continually improved and adapted to the latest technological innovations.

PROJECT MANAGEMENT

DANOBAT has a strong qualified team of Project Managers, who lead the entire process of engineering, procurement, production, assembly and commissioning pursuant to PMBOK (Project Management Body of Knowledge) methodology to achieve operational excellence. DANOBAT Project Managers are PMI (Project Management Institute) certified as Project Management Professional (PMP) and have been specifically trained to successfully lead and direct complex projects.
A collaborative and client focused approach in order to define the draft project that most adapts to your particular case.

- Consulting and development of project ideas
- Accurate cycle time calculations with process simulation software
- Throughput and process flow guaranteed by a plant simulation software
- Preliminary layout design
- Advice on financial sources

A comprehensive functional solution, detailed in project design and derived through utilization of world class engineering principle and standards.

- Detailed analysis to meet current and future needs
- Optimized work flow oriented solutions and productivity studies
- Detailed layout designs and foundation drawings based on customer workshop limitations
- Interface control documents for equipment integration,
- Communication between machines and local database connections
- Application of regulations and standards (UIC, AAR, Gost...)
- Safety plans and risk assessment studies: FMECA studies, Hazard identification studies, Hazop operability studies, among others

Deliver optimal availability and reliability, process integrity, increased safety and sustainability, and reduced life cycle cost and risk.

- Supply of turnkey production lines and maintenance workshops
- Project management, project coordination, supplier coordination and follow up using:
  - HR Management Plans
  - Quality Management Plans
  - Project Execution Plans
  - Project Management Plans
  - Project communicator plans
  - Key supplier coordination and management
- Start up coordination and final commissioning
- Training programs and full documentation sets
- Machine automatic programing based on proven and customized CAM systems
- Customized monitoring system with traceability and quality reports
- Production ramp up assistance

A tailored service, based on our own highly qualified staff.

- Worldwide service with local offices and technicians
- Production assistance service
- Tailored maintenance services
- Reengineering of processes, adapting to new requirements or regulation, software update, integration of new equipment,...
SPECIALIZED TECHNOLOGY FOR RAILWAY INDUSTRY

TURNKEY PRODUCTION LINES AND MAINTENANCE WORKSHOPS

DANOBAT goes far beyond machinery provision. It also works as a technology partner providing engineering solutions to its clients from project planning to final execution likewise the subsequent machine life.
SPECIALIZED TECHNOLOGY FOR RAILWAY INDUSTRY

TURNKEY PRODUCTION LINES AND MAINTENANCE WORKSHOPS

DANOBAT vast experience in the railway sector, enables efficient implementation of any project regardless of its complexity.
**ENDS MACHINE**

DANOBAT ends facing machine has been specifically designed and manufactured for railway axle application and is able to accomplish the operations listed below:

- **01.** Performs all operations that are required at the ends of the axles
- **02.** No penalization for the tool change time
- **03.** Suitable for solid and hollow axles

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**HORIZONTAL LATHES**

The DANOBAT 4 axes TCN-16 heavy duty range has been designed to create new high standards in turning, drilling and tapping of railway axles with precision and high productivity. Machines can be equipped with part measuring equipment, loading/unloading systems, automatic steady rests, automatic tool presetting system, special chucks for railway axles, two turrets, etc.

DANOBAT also offers a specific range for roughing operations of forging axles which require high stock removal. These machines are equipped with double headstock with 130 kW each.

- **01.** High stock removal: Machines can be equipped with double headstock of up to 76 kW each.
- **02.** The powerful live tools in combination with the “C” axis provide the possibility of performing drilling and tapping operations in a single machine.
- **03.** High dimensional stability and high damping coefficient, which guarantee the machining precision.
The rolling machine has been specifically designed and manufactured to carry out rolling operations of cylindrical and transitional radii surfaces of railway axles.

01. “B” AXIS (0º TO 35º) TO ACHIEVE THE REQUIRED WORKING ANGLE
02. COMPLIES WITH GOST STANDARDS AMONG OTHERS
03. CAN FIT UP TO 8 ROLLERS AT ONE TIME

ROLLING MACHINE

DANOBAT HG and WT grinding machines have been designed for the machining of railway axles.

In order to obtain maximum performance, machines can be equipped with measuring equipment, loading/unloading systems, automatic wheel balancing system incorporating gap and crash, axial positioning system and taper correction, among others.

01. DOUBLE WHEELHEAD CONFIGURATION ALLOWS GRINDING IN ONE SET UP GUARANTEEING ABSOLUTE CONCENTRICITY OF BOTH ENDS. A WIDE RANGE OF WHEELHEAD CONFIGURATIONS IS AVAILABLE: STRAIGHT, ANGULAR, “B” AND “BL” AXES WHICH ARE DRIVEN BY AN INTEGRATED TORQUE MOTOR.
02. DIAMETERS AND RADIUS/FACES GROUND IN THE SAME PLUNGE. MINIMUM CYCLE TIME.
03. WHEELS OF UP TO Ø760 X 350 mm OR Ø915 X 300 mm DRIVEN BY 45 kW MOTOR, ARE ASSEMBLED ON HYDROSTATIC BEARING SPLINDLES, ROLLER BEARING OR ON DANOBAT DESIGNED ELECTROSPINDLES.

GRINDING MACHINES
BORING MACHINE

Boring machine for high precision railway wheels hub borings, in production or maintenance workshops. The solution consists of a boring unit with vertical displacement and a fixed non-rotary table where the railway wheel is mounted.

01. RIGID COLUMN MOUNTING A MOVING UNIT FOR VERTICAL DISPLACEMENT OF THE ROTARY BORING TOOL
02. HIGHLY ACCURATE BORING BAR GREASED PACKED FOR LIFETIME DURATION
03. DIFFERENT OPTIONS FOR LOADING/UNLOADING DEPENDING ON PRODUCTION REQUIREMENTS

HIGH SPEED HORIZONTAL MACHINING CENTER

The DANOBAT machining centre, has been specifically designed and manufactured for high-speed machining of railway bogie cast iron and steel parts. The machining centre is built around a single-spindle module mounted on three axes, optimally laid out on a movable column, allowing a highly dynamic functionality combined with a high structural rigidity.

01. FULL PART (BRIDGE OR LATERAL) MACHINED IN ONE SINGLE CLAMPING
02. REDUCED CYCLE TIME
03. DIFFERENT LOADING OPTIONS
The DANOBAT vertical lathes for wheels have been specially designed for the railway industry application. The lathe is equipped with two independent RAM, mounted on a X-Z cross slide each. The solution stands out for its rigidity, productivity and maintainability.

01. HIGH PRODUCTION OUTPUT, WITH A MOTOR POWER OF UP TO 190 kW
02. MINIMUM TOOL CHANGE TIME
03. MODULAR DESIGN, CAN BE FITTED TO PERFORM DIFFERENT OPERATIONS
The underfloor wheel lathe is a machine tool specifically designed for corrective maintenance of railway rolling surfaces and brake discs, which does not require train axle dismantling. It is also designed to regenerate the wheel profiles subject to normal wear and deformation caused by the wheels travelling along the tracks.

01. Low civil work requirements due to shallower pit
02. Optimum bogie clamping
03. Improved safety by integration with shunting car

Dimensional control of rolling stock components is essential for any rail maintenance activity. With these measurement equipments the wheel/axle can be measured as per international standards.

01. Journal and wheelset diameters and runouts for axle measuring system
02. Main wheelset dimensions, wheel profile, axial and radial runout, back to back distance and journal for wheelset measuring system.
03. All measurements are non contact and as per the international standards
PORTAL WHEEL LATHE

The DANOBAT portal wheel lathe, model DPL-2600, has been specifically designed and manufactured for wheelset maintenance applications.

01. NO MARKS ON THE WHEELS: FRICTION ROLLER BASED WHEELSET DRIVING SYSTEM WITH CONTACT AREA ON WHEELS FLANGE
02. LOADING/UNLOADING OF THE KICK AND ROLL
03. INTEGRATED MEASURING EQUIPMENT

DYNAMIC BOGIE TEST RIG

The innovative dynamic bogie test rig developed by DANOBAT is intended to be the decisive support tool for assessing the correct maintenance of the bogie rotary parts and bearings.

The rig has four rolling traction modules to carry out dynamic testing and simulate operation speeds of over 100 km/h. The rig can be optionally equipped with a loading gantry.

The bogie condition monitoring offers new opportunities to increase reliability and safety, in addition to lower maintenance costs. Using condition detection systems and applying sophisticated algorithms for data processing can detect incipient damage enabling sufficient time for repairs before significant mechanical failures occur.

01. CONDITION BASED MAINTENANCE
02. OPERATIONAL COST REDUCTION
03. MODULAR CONFIGURATION