

HEAVY DUTY CYLINDRICAL GRINDING SOLUTIONS

HG-WT



Innovative solutions for a better future

At Danobat, we are committed to introducing positive change in people, business and the environments we work in. We do this by developing innovative solutions that enable us to face future challenges.

We generate high value technological solutions that improve our clients' competitiveness. We offer resourcefulness and engagement to bring innovative and personalised answers to different challenges. We are committed to the process and the results from the beginning right through to the end, and adapt to each necessity, offering assurance and guaranteeing a 100% meaningful experience.

We are experts in the design and manufacture of precise, high added-value, customised solutions. Our process has become an attitude and a way of doing things: the Danobat way. Qualified specialists, in-house technology, backing for innovation and, of course, a corporate culture that places value on people and puts the customer at the heart of its organisational system.

We boost change



Innovative Solutions

We specialise in producing high value-added, innovative technological solutions that help industry to become more competitive.

Our mission is to provide a response tailored to the requirements of our customers, based on our expertise in the technologies applied to industrial manufacturing with intelligence, commitment, creativity, rigour and professionalism.

- Holistic solutions.
- Grinders.
- Lathes.
- Measuring systems.
- Advanced engineering services.
- System integration.
- Automation.



Digital Focus

Digital technology has transformed the way in which we shop, travel and communicate.

We think and act digitally. We are interconnected and so are our production systems and equipment. The latest advances in digital technology are at the service of our customers, and we focus on developing our own solutions using advanced technology.

- Danobat Digital Suite - Intuitive interfaces.
- Data System - Connected machines.
- Control System - Digital factory.
- Smart Machining - Smart components.
- Real-time, remote information.
- In-house software for controlling machines, cells and lines.



Advanced Services

At Danobat we offer the services the industry needs, such as corrective maintenance strategies and spare parts services, but we always try to go one step further and anticipate changes in the sector. Accordingly, we provide a broad range of high value-added services which are completely customised to meet the challenges faced by our customers.

- Process simulation.
- Production simulation.
- Advanced training.
- Inspections & quality control checks.
- Maintenance service.
- All-round spares maintenance.
- Software & hardware enhancements.
- Process optimisation.
- Obsolescence management.

Heavy duty cylindrical grinding solutions

HG - WT

Strategic industries such as energy, transmissions, railway, capital goods and aerospace require innovative solutions that ensure maximum profitability.

In this catalogue we present our heavy duty horizontal grinding machine range, conceived in close collaboration with end users to provide a complete tailor-made solution, comprising the machine itself and all related processes.



Horizontal grinding range



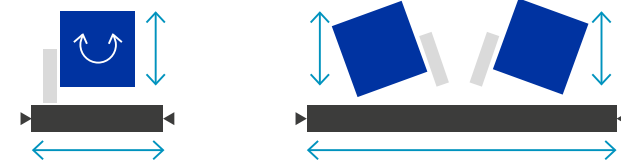
HG

Moving table configuration

These cylindrical grinding machines have been designed to fulfil the requirements of a wide range of applications from 1500 mm up to 5000 mm in length.

The most demanding industries can benefit from tailor-made configurations for turbine shafts, large transmissions, axles for rail units and landing gear components, among other examples.

Complex processes with in-process measuring, special dressing systems and custom enhancements have been developed accordingly. The structure of independent axes is ideal for a single or double wheelhead, to optimise versatility with sequential grinding operations.



TECHNICAL CHARACTERISTICS	HG-62	HG-72	HG-92
Max. distance between centres	2000 mm	4000 mm	5000 mm
Max. diameter to be ground	500 mm	840 mm	1040 mm
Max. weight between centres	500 kg	1500 kg	5000 kg
Max. grinding wheel diameter	760 mm	915 mm	1060 mm
Max. wheelhead power	22 kW	45 kW	45 kW
Max. wheel peripheral speed	60/100 m/s	60/100 m/s	60/100 m/s

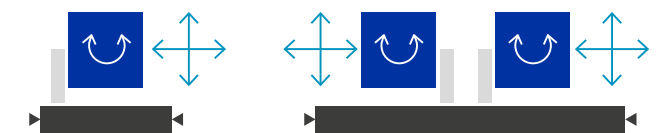
WT

Cross slides configuration

With capacity for components of up to 15 tonnes in weight and 10000 mm in length, the WT machine range can grind even the heaviest cylindrical workpieces.

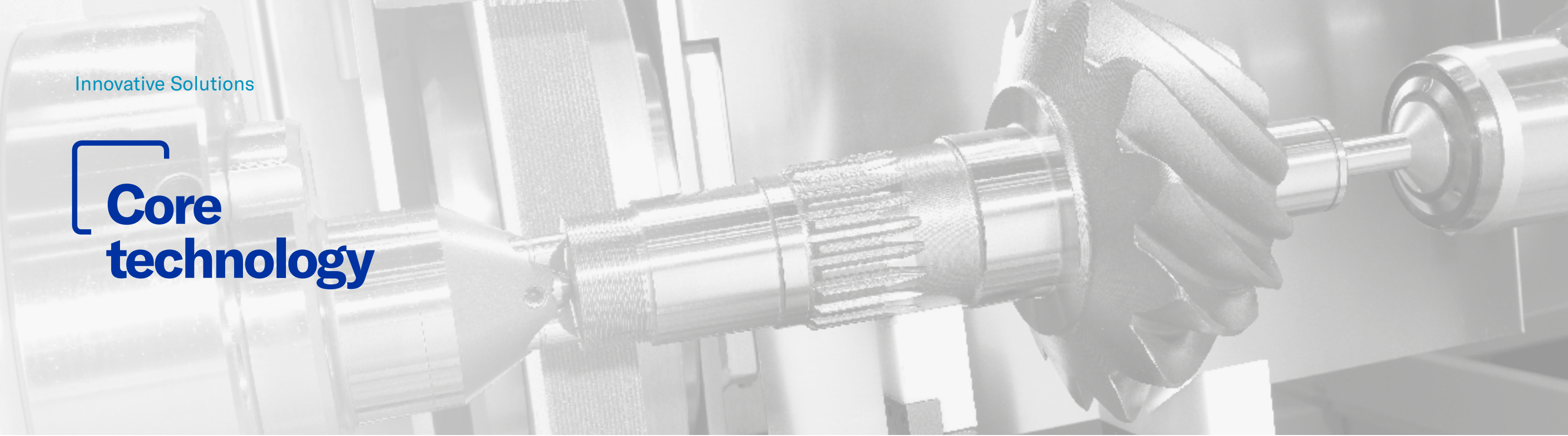
Special grinding needs with high-end solutions are the key value for the largest manufacturers of parts such as extrusion screws, printing rolls, machine tool components and electric motor shafts.

The cross-slide configuration keeps the heavy parts stable while also optimising the machine's footprint. The structure can be used for a single or double wheelhead to maximise productivity with simultaneous grinding operations such as our WT-72 for mass production of axles for rolling stock and rear axles for trucks.



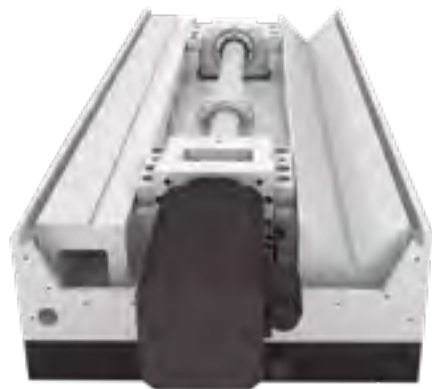
TECHNICAL CHARACTERISTICS	WT-72	WT-92	WT-100
Max. distance between centres	6000 mm	8000 mm	10000 mm
Max. diameter to be ground	840 mm	1040 mm	1250/1600 mm
Max. weight between centres	1500 kg	5000 kg	8000/15000 kg
Max. grinding wheel diameter	1060 mm	1250 mm	1250 mm
Max. wheelhead power	45 kW	45 kW	45 kW
Max. wheel peripheral speed	60/100 m/s	60/100 m/s	60/100 m/s

Core technology



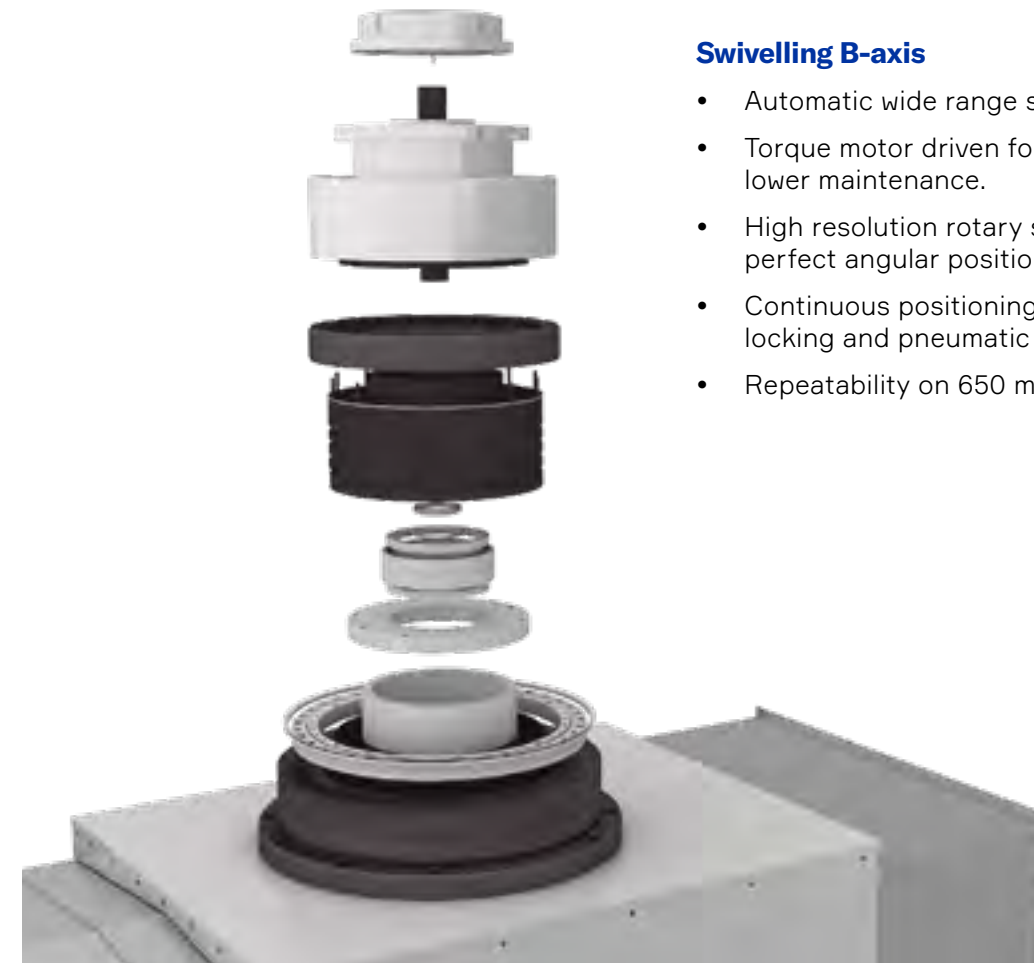
Machine structure

- Made of stress-relieved pearlitic cast iron.
- Optimised with finite element calculation.
- Stability and rigidity required for optimum grinding accuracy.
- Coolant channels especially designed to guarantee maximum thermal stability.



X and Z axes

- Axes architecture design through the centre of gravity for eliminating vibration.
- Moving slides with ground and hand-scraped V and flat slideways, including antifriction coating to avoid thermal expansion and stick slip effects.
- Driven by a ballscrew with direct coupling to CNC servomotor.
- High resolution linear scale to control the positioning.



Swivelling B-axis

- Automatic wide range swivelling.
- Torque motor driven for zero backlash and lower maintenance.
- High resolution rotary scale to control perfect angular positioning.
- Continuous positioning with mechanical locking and pneumatic unlocking system.
- Repeatability on 650 mm radius $\pm 1 \mu\text{m}$.

Core technology

Precision assemblies unit

Specialised precision assemblies unit, staffed by a qualified fitters team with broad experience in bearing and spindle elements.

Each assembly is performed in a clean-room environment at a controlled temperature and documented to ensure traceability and interchangeability if replacements are needed.

The quality control checks run at all stages of the assembly process, ensure precision and provide a test bench where every single component undergoes running-in tests.



Workheads & tailstock

- Modular designs for best application adaptability.
- Selected materials and designs for stable temperature performance.
- Compressed air lifting systems for comfortable set ups.

Grinding spindles

- First-class quality spindles customised for application.
- High-precision bearings with lifetime constant grease lubrication.
- Selected materials for stable temperature performance, driven by built-in motor.
- Cutting speeds automatically controlled with frequency drives.
- Independent temperature control and efficient liquid-cooling system.



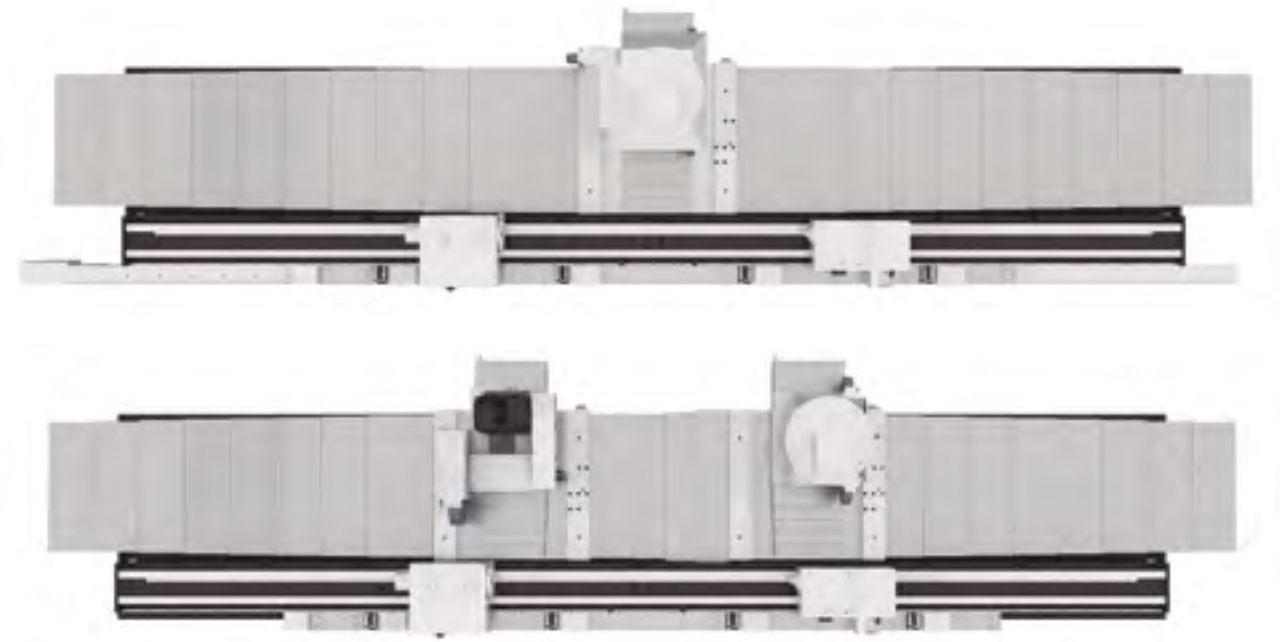
Versatility

Modular wheelhead

We have an extensive portfolio of wheelhead options for allowing multiple operations in a single set up—from straight or angular infeed types, swivelling BL-axis for OD and tapers, to full B-axis rotation bodies, that can hold multiple configurations of external spindles, internal spindles and measuring systems to provide you with the most flexible grinding solution.



HG. Table moving configuration with single wheelhead or double wheelhead for sequential grinding.



WT. Cross-slide configuration with single wheelhead or double wheelhead for simultaneous grinding.

Wheelheads

Straight



S1



S5

Angular

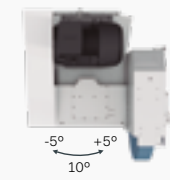


A1

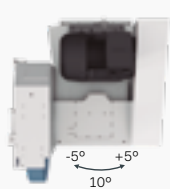


A5

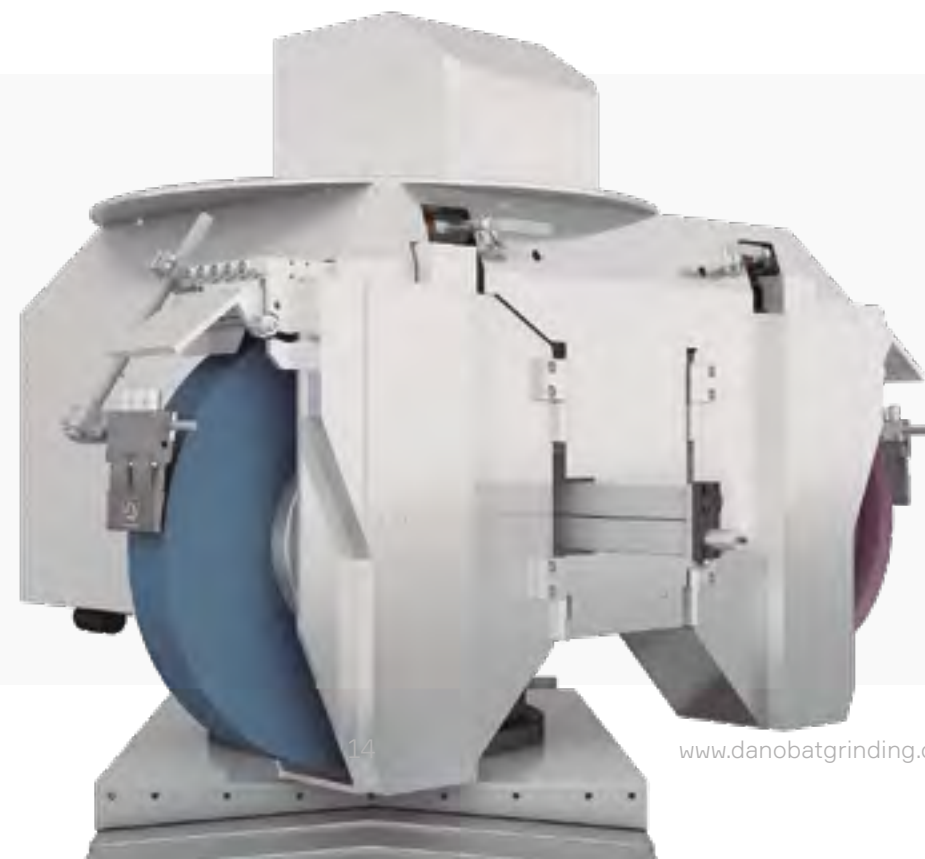
BL-axis



BL1



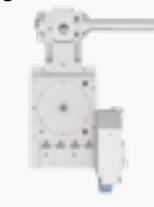
BL5



Swivelling B-axis



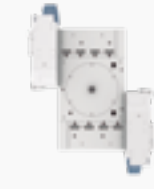
B1



B2



B5



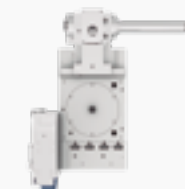
B6



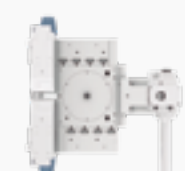
B8



B9



B10



B11



B12

Accessories

These are some of the technological solutions, which add high value to your application manufacturing, helping your factory be more competitive.

Our expert team with a high level of specialisation, is at your disposal to study your needs and provide a tailored machine

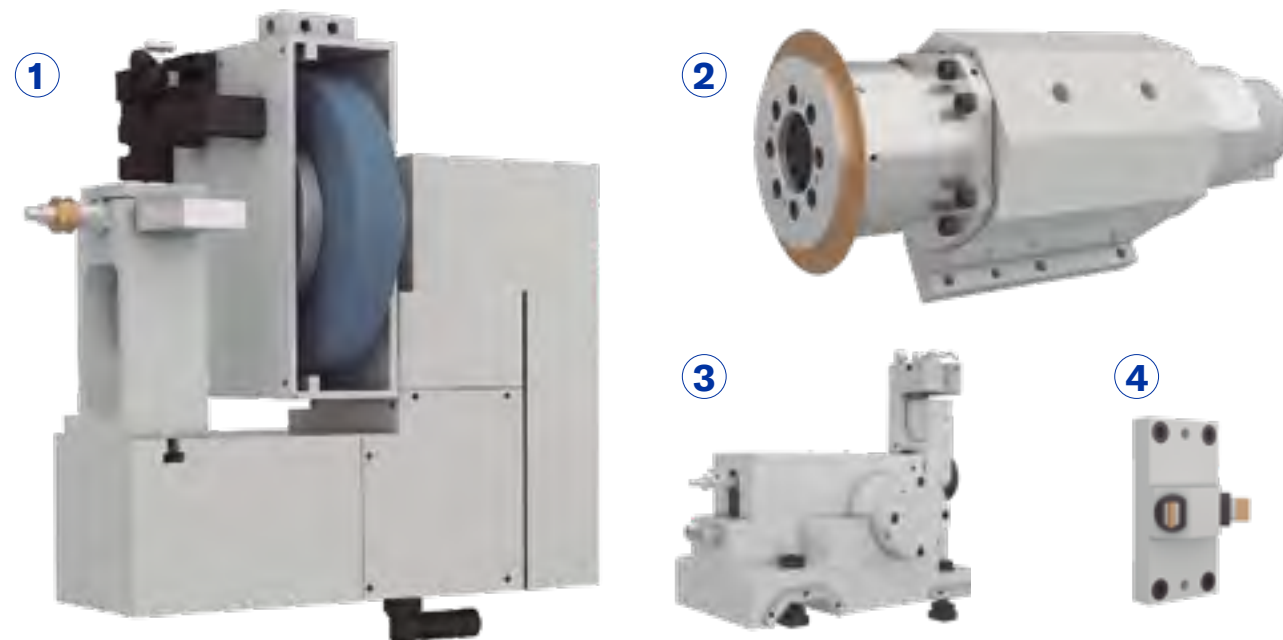
configuration with intelligence, commitment, creativity, rigour and professionalism.

All of these solutions are backed by advanced engineering services, meaning that working in partnership with your organisation, we can anticipate future trends in the industry.

Tooling. 1. Clamping & driving automatic systems for railway axle application / 2. Internal grinding steady rests / 3. External grinding steady rests / 4. V-supports with handwheel height adjustment



Dressing systems. 1. Resin-bonded diamond wheel truing system / 2. Dressing disc spindle / 3. Internal grinding wheel dressing system / 4. Standard chisel diamond holder



Measuring systems. 1. Non-contact measuring type / 2. Touch probe / 3. Danobat MDM



3 Absolute multi-diameter measuring system, for in-process measuring of different continuous and discontinuous surfaces, as well as post-process measuring for diameters, roundness and cylindricity within the complete mechanical working range.

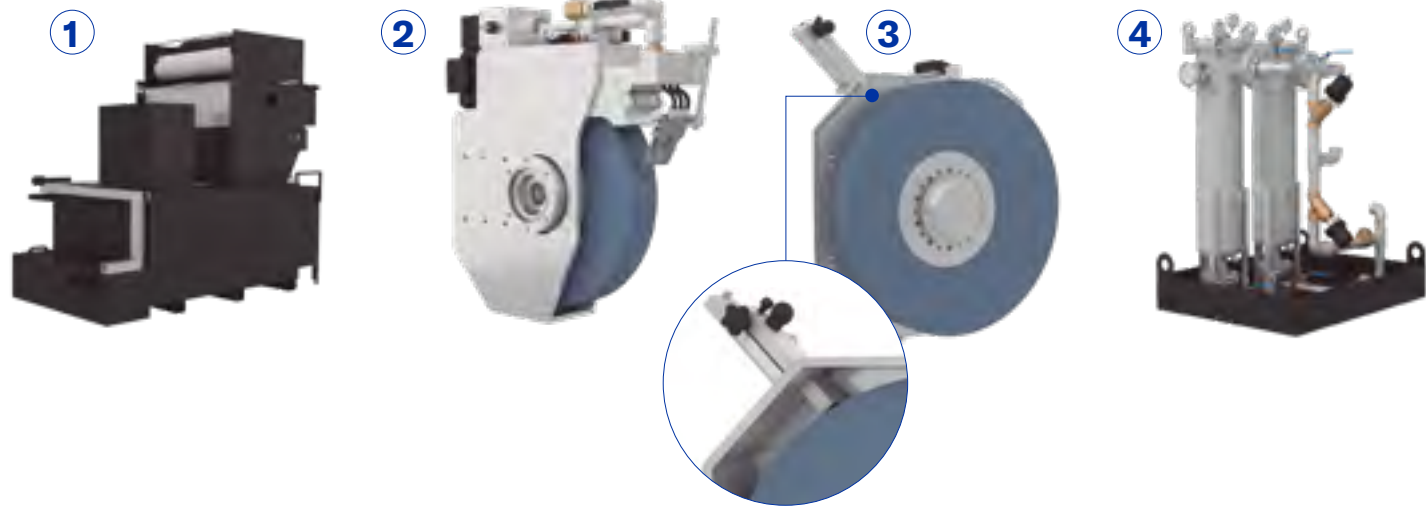
Different models for different diameter ranges to optimise the measurements in each application.

Fully integrated software to easy command & visualise grinding operations to the most demanding tolerances.

Precision ± 1.5 µm
Repeatability 2 µm
Resolution 0.1 µm

Accessories

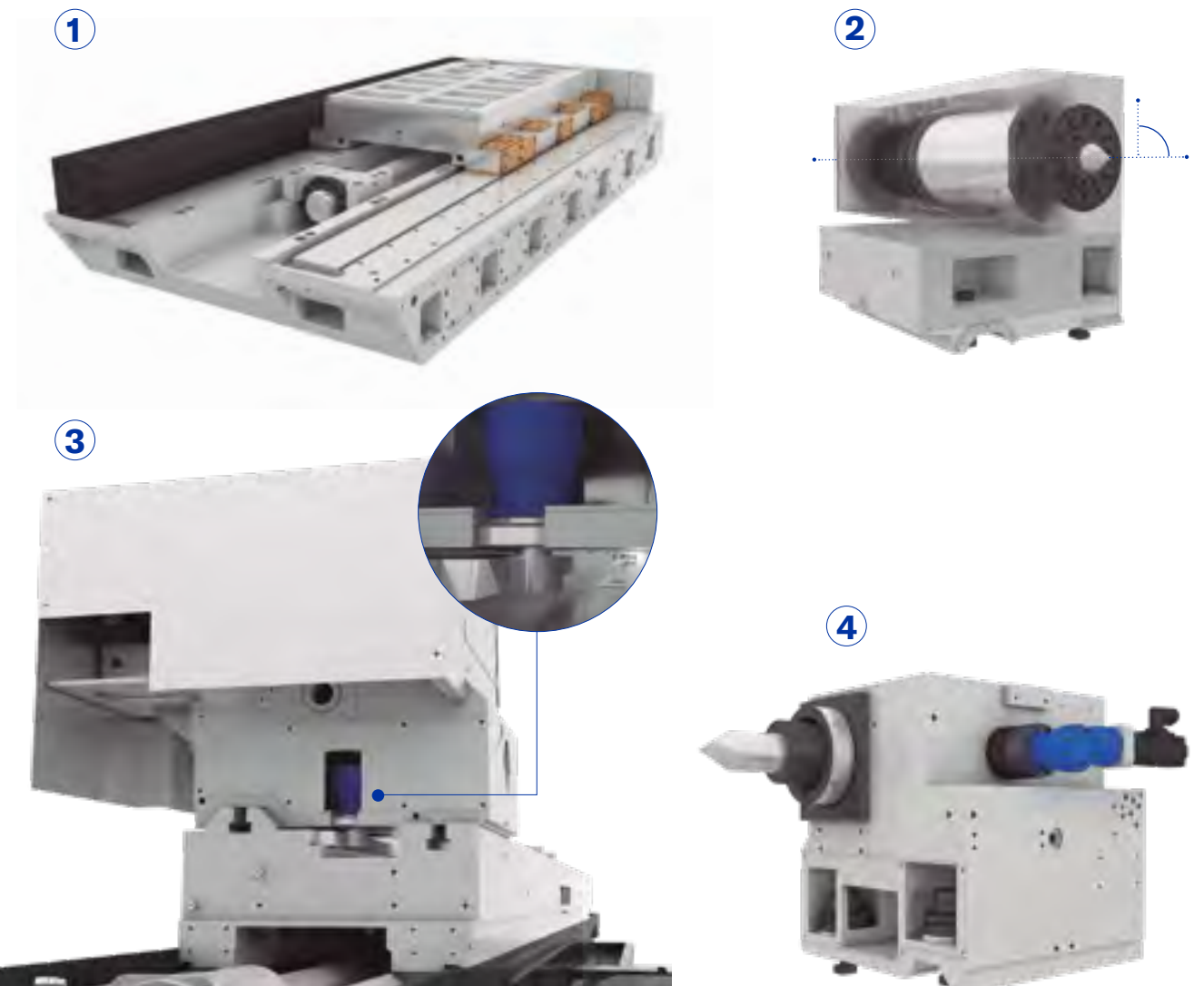
Coolant systems. 1. Coolant filtering system / 2. 3D printed nozzles with automatic CNC compensation / 3. High pressure wheel cleaning / 4. Fine filtering system



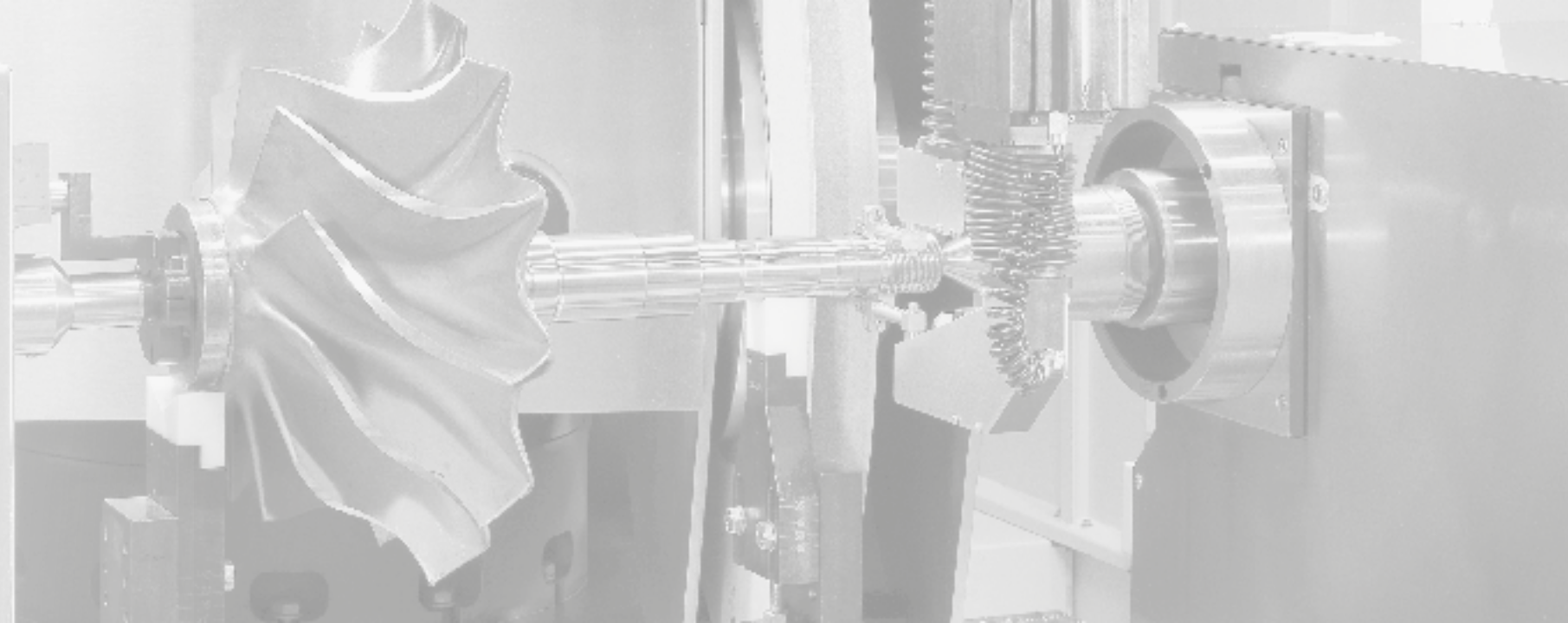
Special spindles. 1. Hydrostatic spindles / 2. Internal mandrel & spindles



Machine enhancements. 1. Hydrostatic guides for wheelhead X-axis / 2. C-axis rotary encoder for workhead / 3. Automatic tailstock displacement / 4. Automatic taper correction



Applications



Extrusion screws

- Automatic solution to grind extrusion screws.
- Combined solution with measuring systems and CNC-controlled auto-centring steady rests to maximise production capacity.
- The ideal solution for geometrically complex workpieces.
- Grinding of all types of materials: molybdenum, Inconel, HVOF, chromium, tungsten carbide, steel and ceramic alloys, among others.



Transmission shafts

- High accuracy requirements obtained in heavy duty parts.
- B-axis solution for machining versatility on both ends of the gear shaft.
- Reduction on set up times due to optional automatic tailstock movement over table.
- Burnishing attachment integrated.
- Taper measuring.

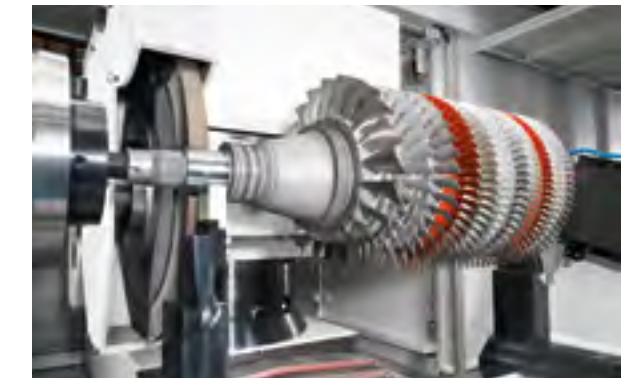
Printing rolls

- High accuracy and surface finish requirements obtained due to hydrostatic guides on wheelhead axis.
- Customised software for concave and convex contours grinding.
- Straight wheel up to \varnothing 1250 mm.
- Danobat absolute multi-diameter measuring system fully integrated in the main control panel.



Assembled gas turbine rotors

- Integration of all operations in one single set up.
- Optimisation of complete rotor manufacturing cycle time.
- Capability for wet or dry grinding depending on customer's engine manual.
- Customised clamping and driving fixtures for each rotor types.



Rotor shafts

- Internal / external grinding.
- Machine application focused on grinding base material, chrome plating and tungsten carbide.
- Specific dressing and truing device for diamond grinding wheels.
- Customised driving solutions.
- Additional high filtering systems for tight surface finish requirements.
- Capability for fitting superfinishing attachments.



Electric motors

- Automatic face-driving systems to grind complete parts in a single set up.
- Both side wheelhead angular approach.
- Combined solution with measuring systems and auto-centring / follow-up steady rests to maximise production capacity.
- The ideal solution for geometrically complex workpieces: conical and cylindrical, screws with variable pitch and hardened screws.

Digital Focus

In order to advance towards the creation of smart factories, where all equipment is interconnected and can operate autonomously, we have a value proposition comprising solutions developed in-house, combining the latest digital technology and over 65 years' experience in machine tools and production systems.

Danobat's digital offering focuses on two main benefits for our customers: solution efficiency and user friendliness.

Data System

A platform for data capture, storage and processing to deliver the right information for monitoring machine condition. This is the ideal decision-making tool for optimising machine utilisation.

The technology allows you to:



Get real-time and historical information on a wide range of key machine parameters.



Monitor your machine anytime, anywhere.



Get automatic reports to support your decision making.



Improve machine utilisation by anticipating any system failure.



Work with optimised machining processes, to get best quality with minimum energy consumption.



Connect easily to corporate IT systems (ERP, MES, PLM ...).



Danobat Digital Suite

User-friendly interface for intuitive operation that assists the operator and helps in optimising machining processes.



Main facts:



User friendly and intuitive with outstanding usability.



Centralised information for fast and simple access.



Multiple operation aids to easy, efficient and accurate grinding.



Fully integrated with the latest multi-touch technology.



Digital support: machine documentation, troubleshooting and dynamic preventive maintenance schedule.



Energy efficient solution, thanks to the energy management module.

Based on its long experience, Danobat understands the machine user's needs and has designed a programming assistant that makes it quick and easy to follow the most complex cycles.



EXECUTION

Most relevant machining information displayed in a single view.

- Machining cycle progress.
- Key process variable display.
- Alarm visualisation with troubleshooting.



OPERATIONS

A clearer, more comprehensive list of operations showing the main parameters so that they are easier for the user to understand.

- Intelligent cycles library based on machine configuration for grinding, dressing and measuring operations.
- Easy navigation and configurable structure definition.
- Quick program operations for fast and easy programming.



INTEGRATED MODULES

Multiple optional integrated modules:

- Profile editor.
- Contour module.
- Threads module.
- Forms module.
- CAD files import.

Advanced Services

Danobat offers worldwide specialised services throughout your equipment life cycle. From engineering services for the design of machining processes and set up of the machine to technical service and spare parts.

We have an extensive network of professionals working in over 40 countries, capable of meeting customers' needs wherever they are and ensuring fast attention, effectiveness and proximity.

Danobat Centres of Excellence

An international centre working in the machining of high precision components to help our customers become more competitive by maximising their efficiency and productivity.

We have the resources required for excellence-based operation: latest-generation Danobat technology in machining, measuring, software and control, piloted by highly qualified staff working exclusively on our challenges and those of our customers.

Our centres of excellence are focal points for cooperation with customers, suppliers and other partners to generate high-value applied knowledge in manufacturing processes.

Original spare parts

We understand the critical importance of machine availability to ensure production output. We therefore have a wide stock of original spare parts (more than 100,000 item references) ready to be dispatched immediately to our customers from different warehouses around the world.

Corrective, preventive, predictive maintenance

We offer collaboration agreements for regular machine-status checks, to prevent the most common machine issues.

Digitisation of manufacturing and our nonstop monitoring solution can help identify patterns and predict future errors. And for any that can't be predicted, our worldwide service team can help get the machine up and running again with rapid attention.





Competitiveness is increasing in all sectors and as your needs become more sophisticated, the services you require also get ever more complex. Evolving your machine to cater to new needs requires know-how not only of the machine itself but of industries, machining processes and manufacturing environments.

Our expert team can help guide you towards the path of increased competitiveness.

Inspections

We place all our experience and knowledge of the equipment at your service to provide you with a real picture of your machine's status.

Process optimisation

Detailed studies of machining processes to provide an optimised solution that offers technical, production, quality and financial improvements. The optimal solution may include the development of specific machining and measuring cycles and engineering of specialised tools and fixtures.

Production optimisation

Years of experience dealing with a huge variety of challenges in a wide range of industries enable us to detect opportunities where others only see problems. An exhaustive analysis of your processes and workflows provides the input we need to develop a simulation model that will help you maximise output.

Retooling & Retrofitting

We can't control your future needs, but we can work with you to prepare for them. We perform retooling to help you face new challenges and even retrofitting to give your machine a second life-new components, new functionalities and a longer machine life.

Obsolescence management

Avoid future problems with component availability. Future-proof your machine. We propose and perform changes to obsolete components, anticipating any issues that could halt production due to lack of a spare part that may never arrive.

Software & hardware updates

Hardware and software are constantly being updated and upgraded. So if you want to keep your machine at the cutting edge, we have the right solution for you.

We install hardware and software upgrades to ensure an extended life cycle and performance improvements.

Advanced training

Get the most from your Danobat machine. Customised training in machine work modes, programming, cycles and specific functions, drive compensation, alarm messages, recovery instructions, preventive maintenance, etc.

The Danobat way

If you want to achieve different results, you have to do things differently. That is the Danobat way. Qualified specialists, in-house technology, backing for innovation and, of course, a corporate culture that values people and puts the customer at the heart of its organisational system, creating an ecosystem that fosters co-creation and generates real, lasting, sincere partnerships.

A modus vivendi and modus operandi that bring us together and provide meaningful experience for both customers and our own team. Commitment, honesty, responsibility and trust to create innovative solutions that are fully customised, useful and profitable.

01 Experts close to you

The experience of our staff and our focus on working alongside our customers are Danobat's key distinguishing features.

02 The value of people

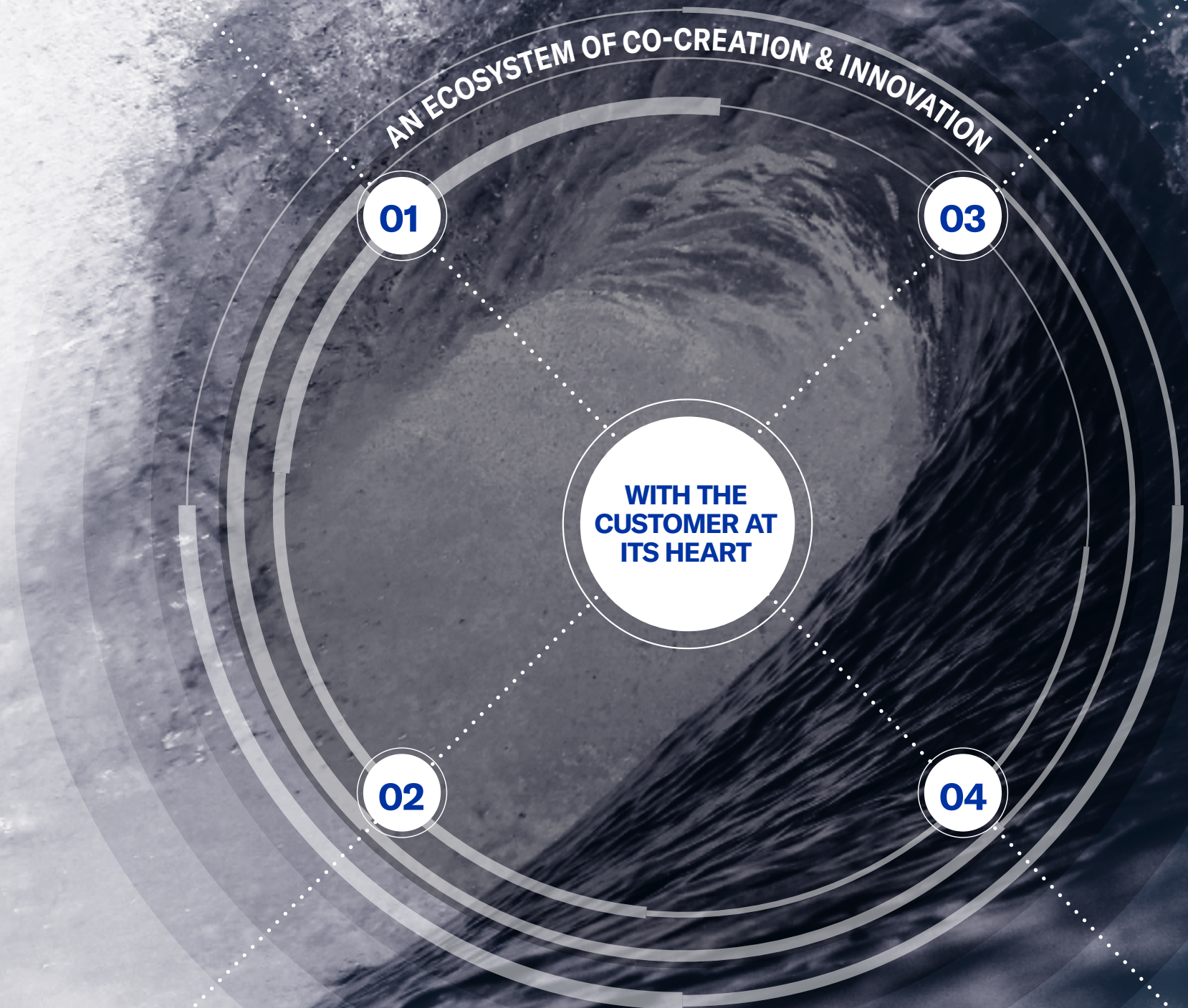
Commitment, enthusiasm, self-motivation, a feeling of belonging, initiative, creativity and adaptability to a changing environment: these are just some of the features that define the people who make up Danobat.

03 In-house technology

Precision in results and ease-of-use are our watchwords in all the solutions we provide. That is why we specialise in developing intuitive, easy-to-handle in-house technology.

04 Bringing the future closer through innovation

Danobat's track record can only be understood in terms of its firm, sustained backing for innovation. Since our earliest days more than sixty years ago innovation has been in our very bones. It is now our most recognisable identifying trait.





www.danobatgrinding.com

SPAIN

Danobat

Arriaga kalea 21
E-20870 Elgoibar
Gipuzkoa
T + 34 943 748 044
danobat@danobat.com

GERMANY

Danobat-Overbeck

Konrad-Adenauer-Str. 27
35745 Herborn
T + 49 (0) 2772 801 0
danobatoverbeck@danobat.com

ITALY

Danobat

Regione Cartesio 58
15012 Bistagno (AL)
T + 39 0144 441615
danobatsrl@danobat.com

RUSSIA

Danobatgroup

Ul. Argunovskaya 3/1
129075 Moscow
T +7 499 685-16-42
info@danobatgroupussia.ru

UNITED KINGDOM

Danobat

1 Sturrock Way · Bretton
Peterborough
Cams · PE3 8YF
T + 44 (0) 1733 265566
danobatLtd@danobat.com

USA & CANADA

Danobat

1914 S.Houston Ave.
Humble, Texas 77396
T + 1 281 812 4259
danobatinc@danobat.com

BRAZIL

Danobat

Centro empresarial Perdices
Rúa Turiassu, 591
05005-001 São Paulo
T +55 113 082 90 80
danobatLtda@danobat.com

CHINA

Danobatgroup

907B · Tower A Phoenix Place
Jia 5 Shuguangxili, Chaoyang District
100028 Beijing
T + 86 10 6467 3639
info@danobat.cn

104, Building No. 5
526 Fute East 3rd Rd.,
Waigaoqiao Free Trade Zone,
200131 Shanghai
T + 86 021 6111 8696
info@danobat.cn

INDIA

Danobatgroup

Office No-7 · Business Avenue · 2nd Floor
Niyoshi Park Road · Sanghvi Nagar · Aundh
411007 Pune, Maharashtra
T +91 20 2589 7648
danobatgroupindia@danobatgroup.com

DANOBATGROUP

