

HIGH PRODUCTION GRINDING SOLUTIONS

CG-PG



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 your competitiveness. We offer resourcefulness and engagement to bring innovative and personalised answers to your 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 you 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 you 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 your requirements 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 your service, 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 you.

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

Total availability to ensure maximum productivity

CG - PG

Our solution offers near 100% availability

The CG-PG range of external grinding machines is the answer to your most complex and demanding challenges. A family of solutions designed for maximum productivity, without compromising precision or quality.

With a level of investment tailored to their high performance levels, CG-PG machines guarantee long-life grinding solutions under the most demanding 24/7 manufacturing conditions.



Grinding machine range

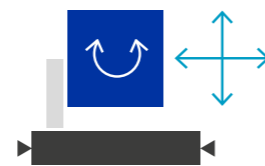
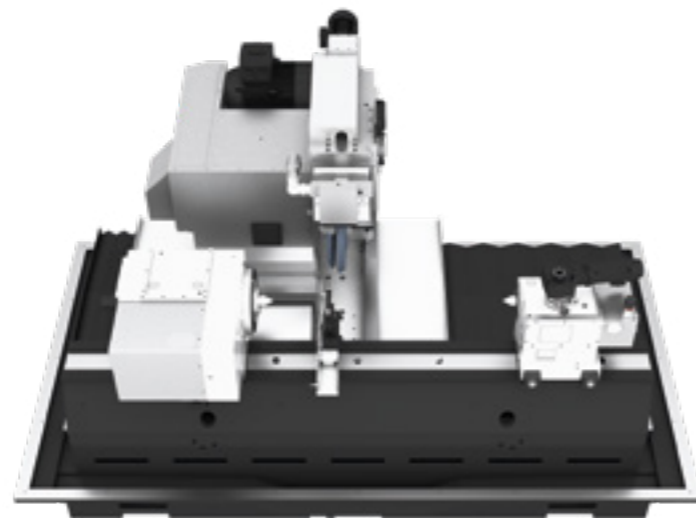


CG

High-production grinding machine. Best part/cost ratio

The DANOBAT CG grinding machine has been designed to meet the most challenging production requirements.

Among other options, it can be fitted with grinding wheels of up to 610 mm in diameter, a wide variety of automated loading systems and in/post-process measuring solutions.



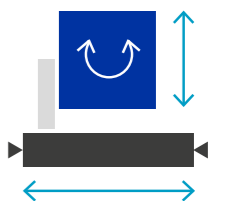
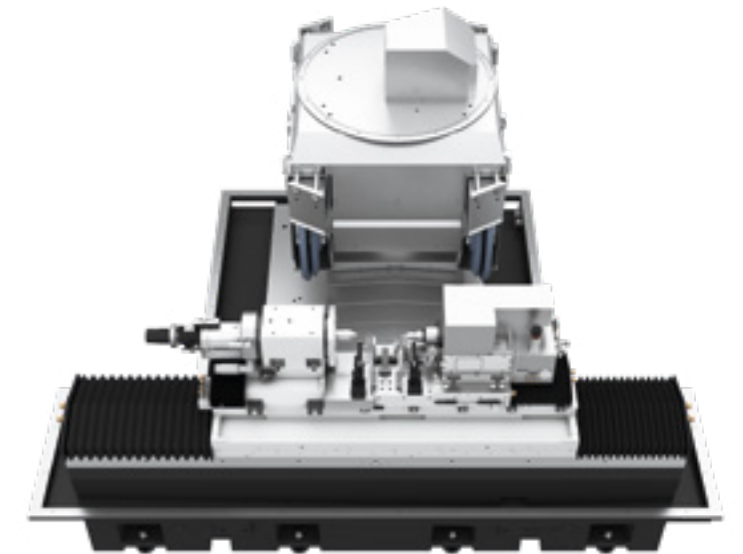
TECHNICAL CHARACTERISTICS	CG-600 / CG-1000
Max. distance between centres	600 mm - 1000 mm
Max. diameter to be ground	440 mm
Max. weight between centres	500 kg
Max. grinding wheel size	Ø 610 mm x 160 mm
Max. wheel peripheral speed	80 m/s

PG

The grinder for highly customisable solutions

The DANOBAT PG grinding machine is the ultimate tailor-made machine, offering a customised grinder for industrial environments that require maximum precision and high production volumes in small and medium size components.

Danobat offers several configurations, customised to your needs: internal and external wheels, super or conventional abrasives incorporating the latest dressing technologies, in/post-process measuring equipment, custom-made part-driving tooling, and much more.



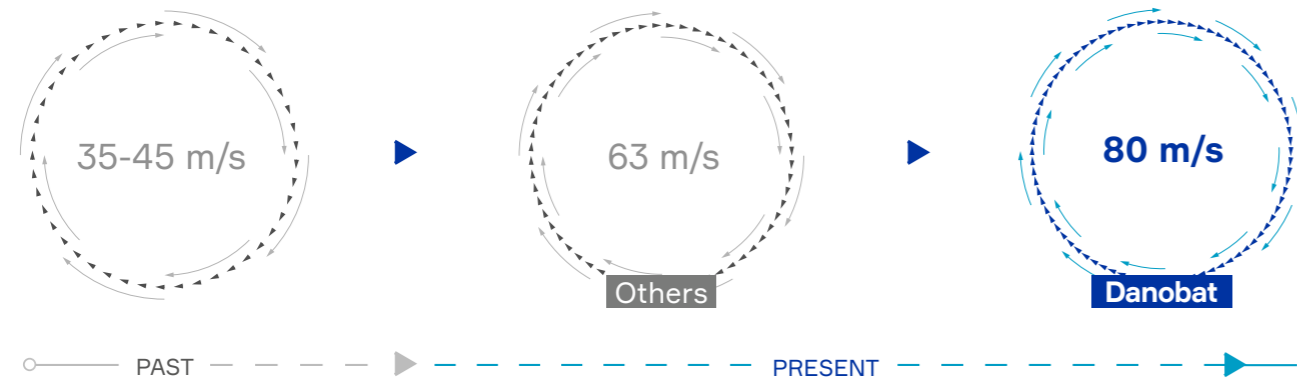
TECHNICAL CHARACTERISTICS	PG-600 / PG-1000
Max. distance between centres	600 mm - 1000 mm
Max. diameter to be ground	440 mm
Max. weight between centres	500 kg
Max. grinding wheel size	Ø 910 mm x 300 mm
Max. wheel peripheral speed	80 m/s - 120 m/s

Core technology

GO FAST! 80 m/s with conventional abrasive

A winning combination: speed and an in-depth understanding of grinding

- Higher removal rates = Higher productivity.
- Better surface quality.
- Lower wheel wear = Higher tool life.
- Thorough knowledge of the process working at high speed.



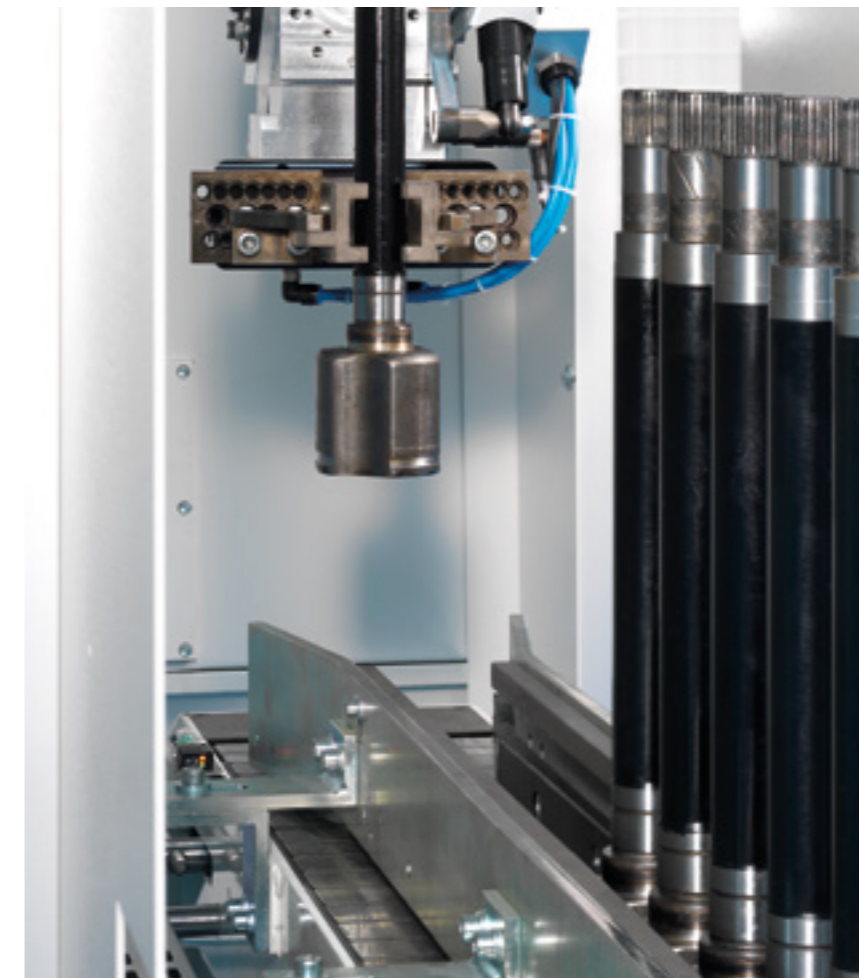
From technology to results

After several years of research and development in the area of advanced high added value solutions, sharing knowledge and experience with customers and providers, we have achieved a substantial improvement in grinding processes.

To do this, we have a network of Centres of Excellence — collaboration spaces where you can see, touch and test out for yourself the solutions that best meet your requirements.



SOLUTION	Wheel speed	Grinding time	Total time	Dressing frequency (parts)	G ratio (wheel wear)	Tool life (parts)
Past	60 m/s	17.15 s	30 s	25	23	139000
Present	80 m/s	11.8 s	24.2 s	52	48	290000
Comparison		-31 %	-19 %			109 %



IMPACT ON RESULT

- 19% reduction in time.
- Wheel life x2.

Core technology

Optidress • The new way of dressing

Reduces:

- Non-productive time and collision risk, thanks to offset calculation algorithm.
- Non-productive time and wheel wear, thanks to automatic calculation of dressing passes required.
- Dressing cycle time, with optimised calculations of travels adapted to wheel shape.

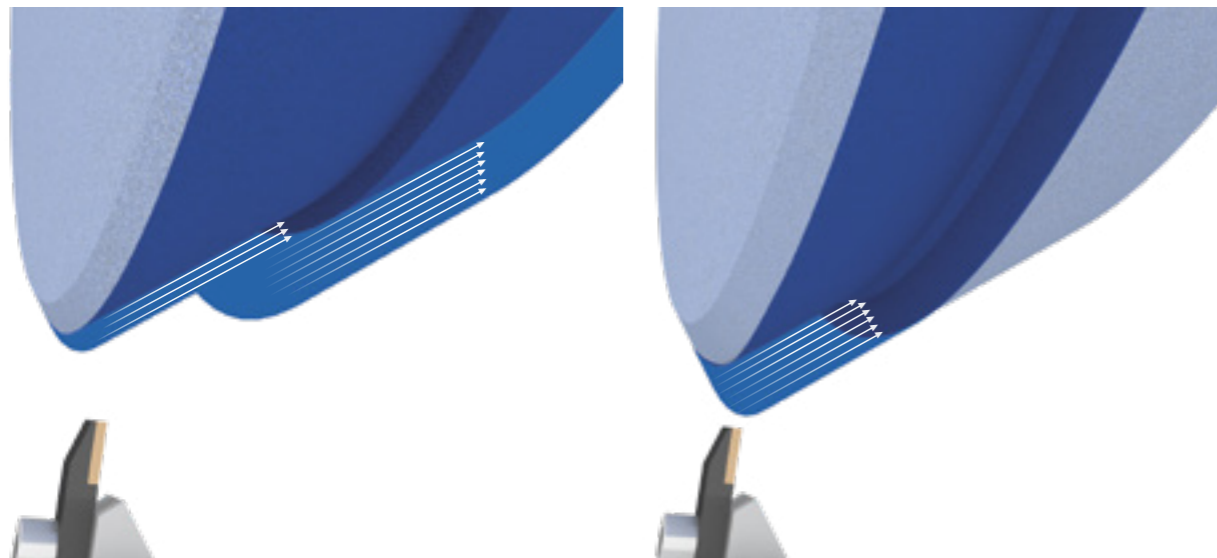
Up to 68% saving in non-productive time

Changing from one wheel profile to another

SOLUTION	Number of passes	Total time
Past	83	28.1 min
Present	83	11.2 min
Comparison		-16.9 min

Creating a profile from a new grinding wheel

SOLUTION	Number of passes	Total time
Past	95	22.3 min
Present	95	9.3 min
Comparison		-13 min



Workhead with built-in motor • Much more than a workhead



Low maintenance

- No wear parts—such as belt/pulleys— to reduce maintenance requirements.
- Lifetime lubrication for maintenance-free operation.

High-speed rotation of up to 5000 rpm

- Optimised idle times thanks to maximum acceleration of 100 rev/s².

Integrated diamond disc

- Disc fitted on workhead spindle = Increased machine capacities.
- No need to install additional spindles = Cost reduction.
- Increased machine reliability.

Quick changeover • Set-up times are a thing of the past



Wide range of pneumatic tailstocks with 80–600 mm strokes

- 80 mm.
- 175 mm.
- 600 mm on moving body.

Forward and backward positions of the quill programmable in all models.

Availability

We work to ensure that our grinding machines provide near 100% availability

Critical components built in-house

To ensure the highest precision levels in our solutions, we use our own in-house developments to design the critical elements of our machines. They are designed, developed, manufactured and installed by highly-qualified specialist personnel in state-of-the-art facilities.

- Workhead.
- B-axis.
- Wheel spindle.
- And much more.

Exchange program

Premium service at a minimum cost

At Danobat we offer comprehensive solutions without third-party intervention.

- Minimum service cost.
- Minimum delivery times.
- Direct response from Danobat without the need for external suppliers.



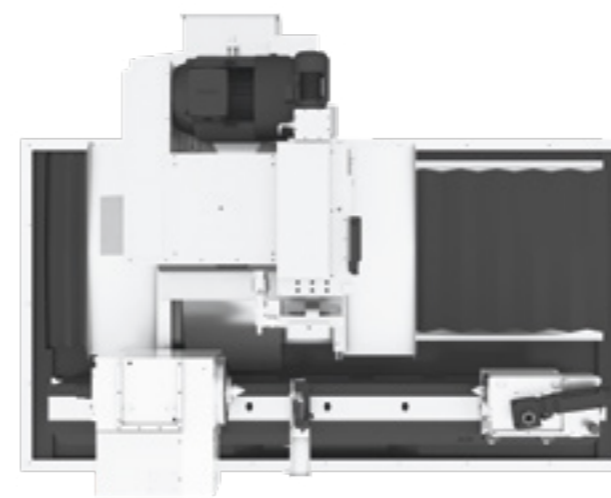
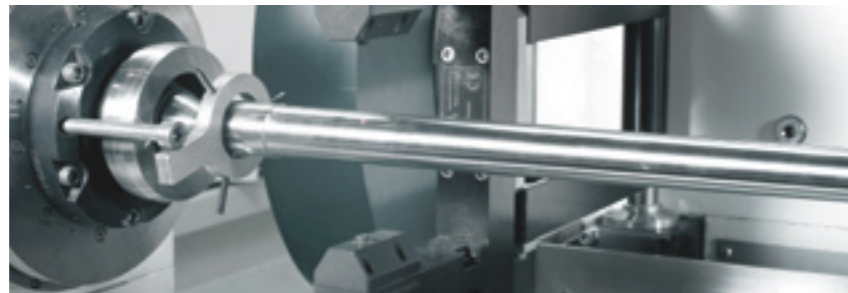
Customisable technology

Customisable wheelhead

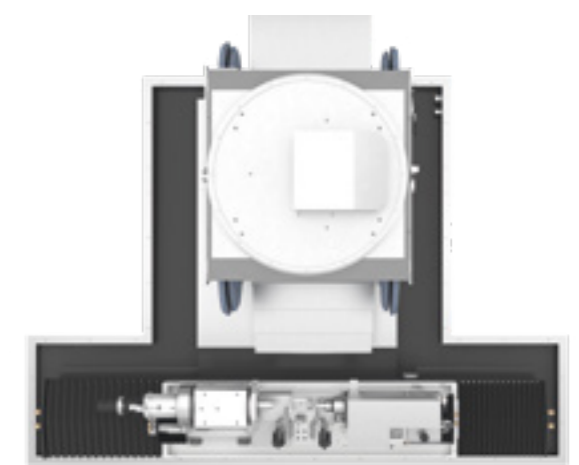
We can tailor our product to your requirements, developing and designing the optimal solution based on your specific needs.

We can include:

- Superfinishing.
- Laser gauges.
- Deburring system.
- And much more.



CG. Cross-slide architecture to reduce footprint.



PG. Independent slide architecture.

Wheelheads CG ● Wheelheads PG ●

Straight



●● S1



● S5

Angular

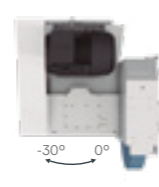


●● A1

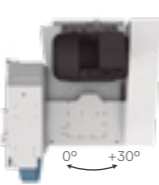


● A5

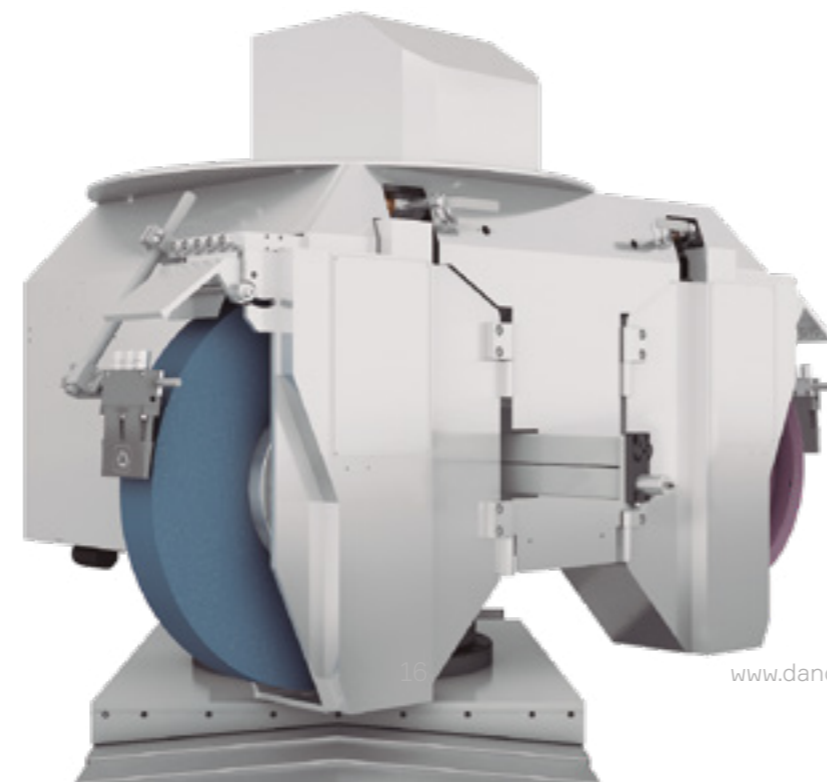
BL-axis



●● BL1



● BL5



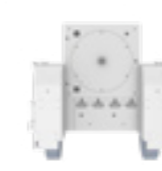
Swivelling B-axis



●● B1



●● B2



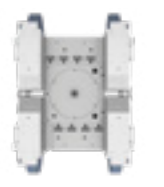
●● B3



● B5



●● B6



● B7



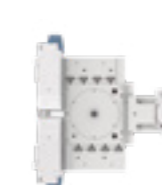
●● B8



●● B9



●● B10

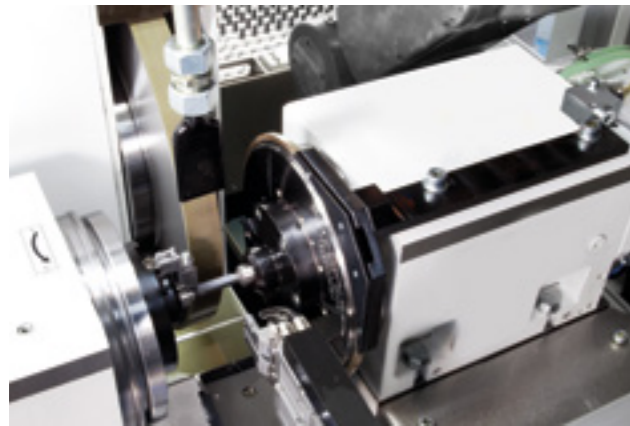


●● B11



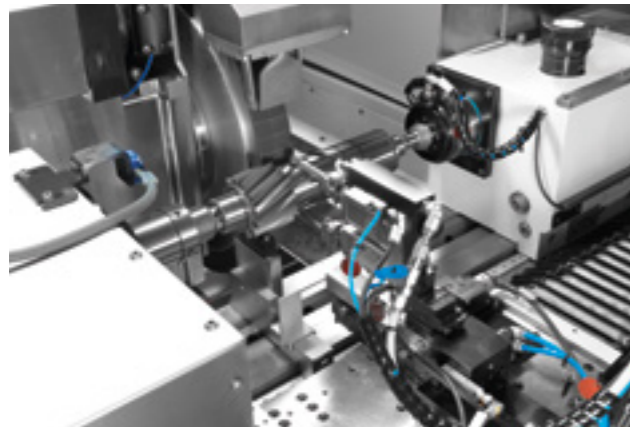
● B12

Customisable technology



Counter spindle

Shaft-type parts requiring complete OD grinding in a single set-up can be driven by synchronised friction force of centres. To this end, the conventional tailstock is replaced by a counter spindle, offering solutions for strokes of up to 600 mm.



Integrated measuring system

The CG-PG high level of customisability also extends to its measuring systems, which can be mounted on the machine table, wheelhead or even the machine bed.

We can install standard or wide-range systems, touch probe, match-grinding measuring devices and even non-contact laser measuring equipment.



Traditional or CNC steady rest

For long, slim components a steady rest usually needs to be positioned on the table. As well as commercially available automatic hydraulic steadies, the CG-PG can also be fitted with a Danobat-developed CNC steady rest. The clamping diameter can be programmed automatically for each part type. The steady rest moves automatically (W axis controlled by CNC), to ensure that it is always positioned opposite the grinding wheel.



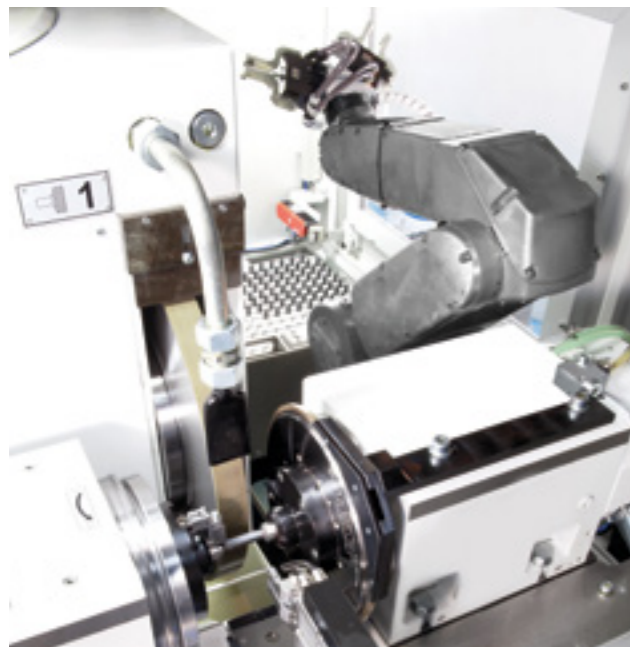
Automatic taper adjustment

The automatic taper correction system ensures the best results when critical cylindricity specifications are required, or in multiple diameter single-plunge grinding.

Automated solutions

To ensure shorter production times and thus increase productivity, two different types of integrated loading can be offered with CG-PG machines. Both were developed in modular form at Danobat and are compact, efficient and low-cost.

INTEGRATED AUTOMATION SYSTEMS



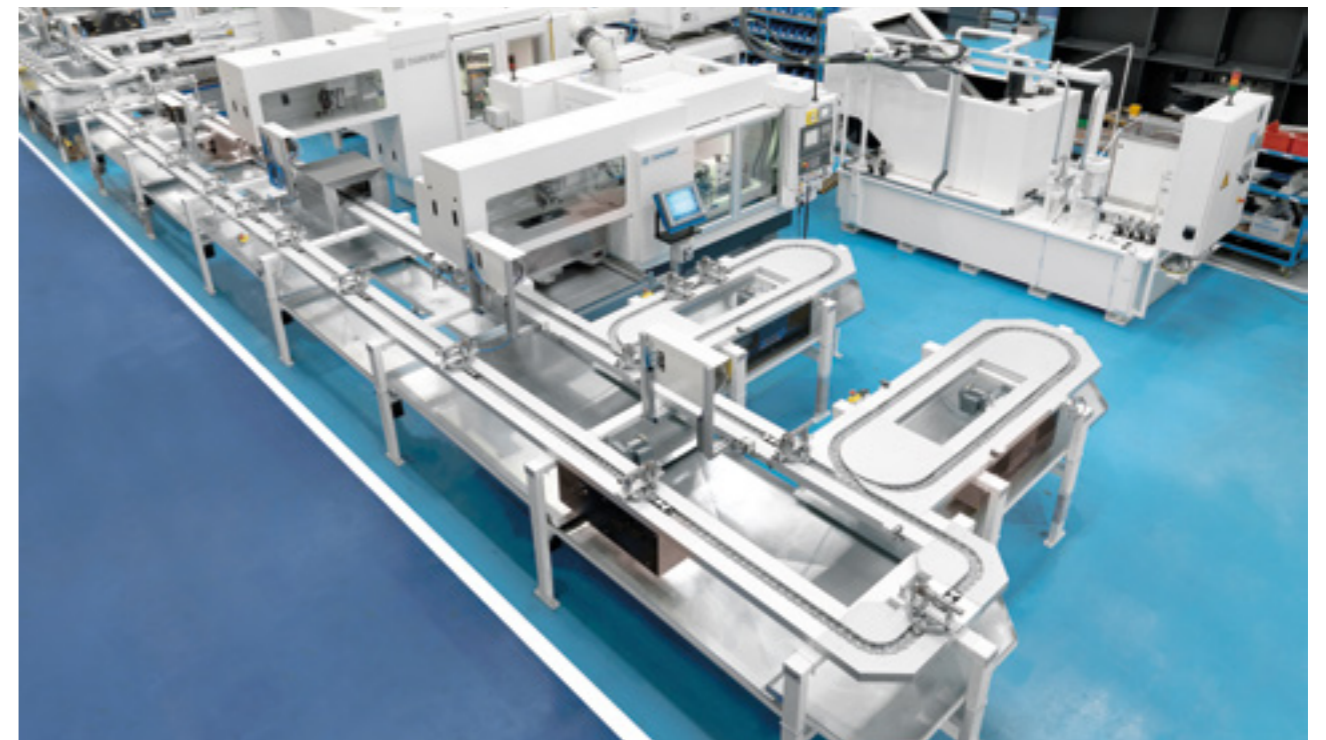
We offer complete solutions to meet your requirements, using either **QUICKMOTION** loaders or integrated **FLEXMOTION** robots.

Benefits:

- An integrated gantry loader with single arm and two grippers on rotary module.
- Standard dimension capacity for parts: L = 400 mm, Ø 50 mm, Weight = 3,5 kg (10 kg with single gripper).
- Loading / unloading time: <6 seconds.
- Workpiece feed by chain conveyor with possibility of quick length adjustment.
- We can provide SPC and NOK workpiece outlets on demand.
- User interface integrated in machine CNC.

Apart from standard integrated automation solutions, external turnkey systems can be provided to meet specific your requirements.

TURNKEY AUTOMATION SYSTEMS



Automation systems provided with workpiece infeed or stack cell systems tailored to the customer's specific requirements.

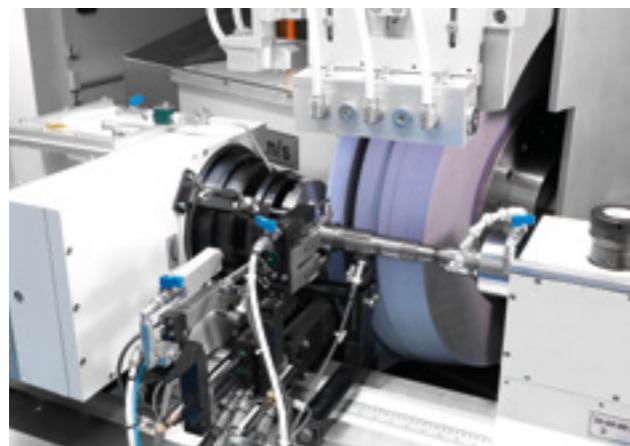
- External portal for loading of parts from top hatch.
- External robot handling solutions with loading from front door, side door or top hatch.
- Workpiece infeed by chain or palletized conveyors, stack cells, etc.
- SPC and NOK part channels.
- Blowing or drying of ground parts.

Applications



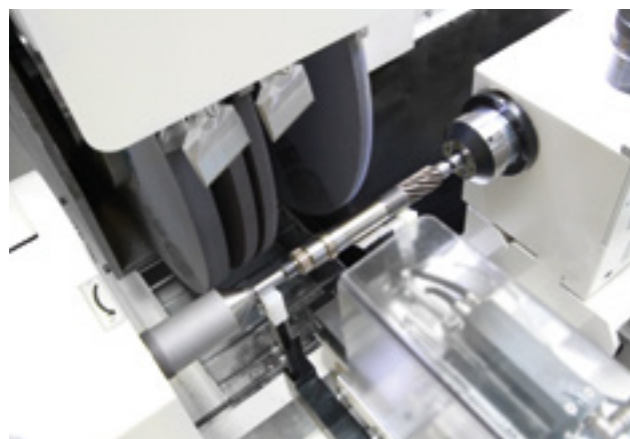
CV Joint

- Solution for short / long variations.
- Seal work-surface grinding, meeting “no lead” requirements.
- 0 to 30 degree wheelhead swivel configuration, allowing two different grind wheels to be fitted on a single wheelhead. Maximum productivity in long tulips.
- Machine developed for easy integration into our customers’ production lines.



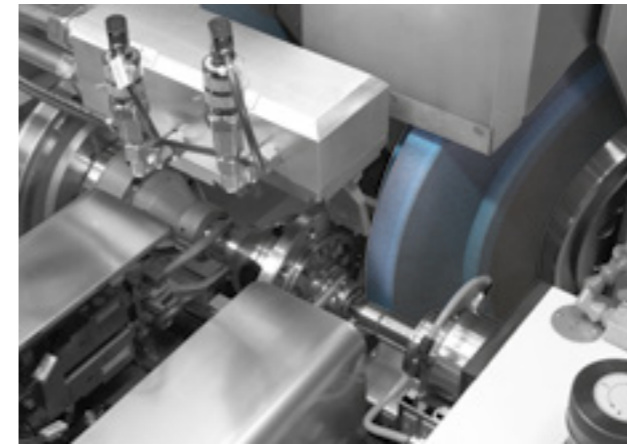
Gearbox shaft

- Wheel width up to 350 mm for simultaneous multiple diameter grinding.
- Optional automatic taper correction.
- Optimum solutions for all gearbox families such as Automatic, CVT, DCT and Manual.



Steering pinion

- 4-second load/unload solution.
- Set of up to 4 wheels mounted on the wheelspindle.
- Diamond disc dressing:
 - Wheel shape flexibility.
 - Longer dressing tool life.



Differential case

Alternative solution to hard turning operations with grinding machine.

- Shorter cycle time.
- Radical tool cost reduction.
- Higher machining process stability.



Rear axle

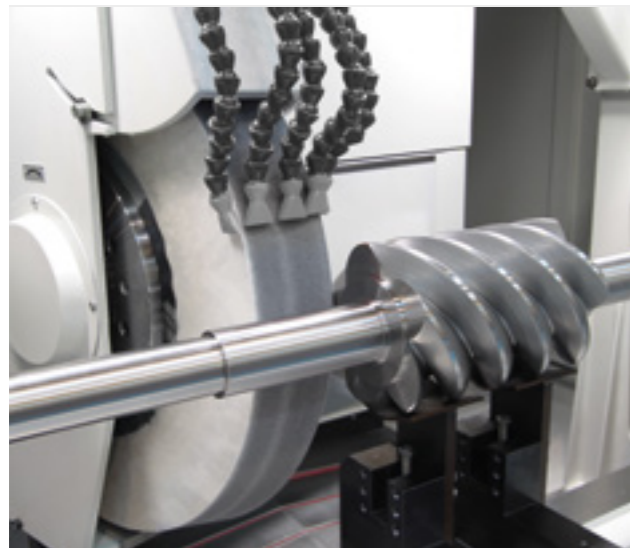
- Integral grinding solutions for:
 - Axle shaft.
 - Pinion shaft.
 - Tube.
- Thread grinding on pinion shaft available on demand.



Tools and toolholders

- Fully automatic part reference change. No operator required.
- Wide range 600 mm stroke tailstock on moving body.
- Automatic taper correction.
- Wide range of in-process measuring units, up to 50 mm diameter range.

Applications



Screw compressors

- High-rigidity wheelspindle to cover most critical part demands such as:
 - Large axial face grinding.
 - Interrupted surface grinding.
- Automatic face driving system to grind complete parts in a single setup.
- Wheelhead arranged for left/right side angular approach.



Components for textile machinery

- Grinding of narrow workpieces for the textile industry.
- Maximum productivity combining rough and finish wheels.
- Highest-precision clamping to meet critical internal/external geometrical requirements.



Electric motor shafts

- Turnkey drive systems included, such as face drivers, pyramidal centres, automatic chucks.
- Single plunge-by-plunge grinding or multiple simultaneous diameters to adapt to the size of your production batches.
- Automatic part setup of different references using wide-range tailstock.



Small and medium gears

- Fully customized solution for small/medium size gears:
 - Integrated loading/unloading system for fast part change.
- Replace hard turning operations with grinding machine.
 - Shorter cycle time.
 - Radical tool cost reduction.
 - Higher machining process stability.

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 for you 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 you: 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 for 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.

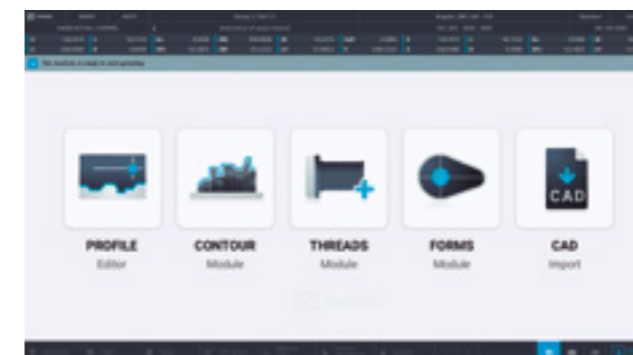
- Machining cycle progress.
- Key process variable display.
- Alarm visualisation with troubleshooting.



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 your needs wherever you 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 you become more competitive by maximising your 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 yours.

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 you from different warehouses around the world.

Corrective and preventive 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 you 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 you 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 you 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

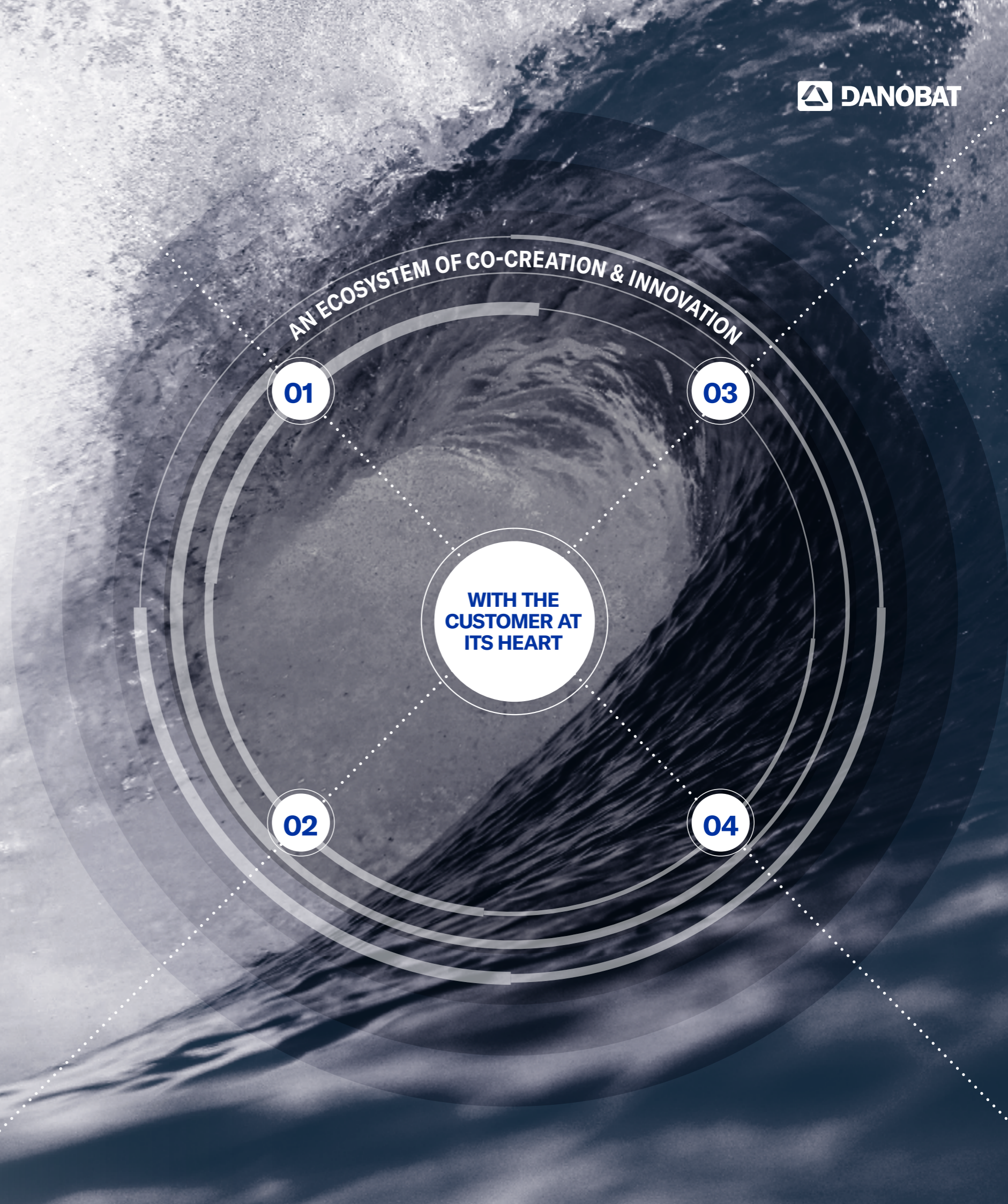
Commitment, enthusiasm, self-motivation, a feeling of belonging, initiative, creativity and adaptability to a changing environment: these are just some of the features that define the people who make up Danobat.

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.





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