DATRON C5
5-axis Simultaneous Milling Machine

For Machining of Small Parts
Highly Dynamic – Precise – Powerful
DATRON C5 is especially convenient for precise and simultaneous 5 axis milling of small parts in a single clamping operation. All machinable materials up to a diameter of 60 mm are admissible, as well as milling of highly complex geometries. The automatic tool changer has 22 slots and a built-in tool length sensor. Short setup times, low energy consumption with a power input of less than 2.5 kWh on average and the excellent value for money relation allow having high profitability even at low volumes. And all this with a footprint of only 1 m².

Your advantages at a glance:

- **excellent surface quality** through rigid, vibration-free construction
- **perfect reproducibility with high process reliability** by using a rotary swivel axis with dynamic torque motor drive
- **very high machining performance with the smallest tools** through the use of a 1.8 kW high-speed precision spindle with up to 48,000 rpm
- **very high precision** with high-quality linear guide, ball screws and linear scales

Materials:
- Aluminium
- Composites
- Stainless steel
- Steel alloys
- Plastics
- Brass
- Cobalt chromium
- Zircon
- Platinum
- Graphite
- Precious metals
- and much more
DATRON CNC milling solutions for the
5-axis machining

Applications such as:
- Micromechanics
- Medical technology
- Tool and mould construction
- Watch and jewellery industry
- Prototype construction
- Dental technology
- Rapid prototyping
- Micro-system technology for analysis and diagnosis
- Aerospace
- Automotive providers
- Eyewear industry
Highly Dynamic – Precise – Powerful

Complex geometries, small-volumes, high-tech materials: Fast adjustment to new requirements with DATRON C5. Productive and cost-effective starting at a lot size of only 1 piece!

Saves energy:
Very low power consumption by means of highest efficiency of all aggregates.

Saves resources:
Minimum quantity lubrication from 30 ml/hour. Minimal cleaning costs.

Saves money:
Low-cost in purchase and operation.

Saves space:
Large machining table at extremely small footprint.
The 5-axis milling machine C5 in its basic configuration provides:

- 1.8 kW precision spindle with HSK-E 25 tool holder, up to 48,000 rpm
- High precision 4th/5th axis
- Automatic 22fold tool changer
- Integrated tool length sensor
- Heidenhain linear measuring system on all axes
- Optional zero-point clamping systems:
  - Zero Clamp
  - Polygrip for Erowa ITS 50 and 3R Macro
  - Defo Grip for workpiece direct clamping
- Programme driven minimum quantity cooling lubrication system
- Integrated camera (optional)

<table>
<thead>
<tr>
<th>Working area</th>
<th>DATRON C5</th>
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<tbody>
<tr>
<td>Traverse path (X x Y x Z)</td>
<td>153 mm x 100 mm x 100 mm</td>
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| Workpiece sizes (Examples)    | Cylindrical:
|                               | Diameter 60 mm, height 70 mm                   |
|                               | Diameter 100 mm, height 30 mm                  |
|                               | Cube (X x Y x Z):
|                               | 96 mm x 75 mm x 20 mm                         |
|                               | 50 mm x 50 mm x 60 mm                         |
| Tool length                   | 75 mm (from HSK face contact)                  |
| Machine dimensions            |                                               |
| Machine construction          | Solid cast steel frame, 4th/5th axis made of cast aluminium |
| Installation dimensions (W x D x H) without control unit | 940 mm x 1,190 mm x 1,910 mm |
| Weight                        | ca. 900 kg                                     |
| Supply                        |                                               |
| Voltage                       | 3 x 400 VAC/16A                                |
| Power input                   | 4,000 VA (max. fuse 3 x 16 A)                  |
| Air connection                | 7 - 10 bar, dry, clean, oil-free              |
| Ambient temperature           | 15 - 30 °C                                    |
| Machine housing               | Compact cabin with easy access for comfortable maintenance |
| USB interface                 | ✔                                              |
| Ethernet interface            | ✔                                              |
| Convenient manual control panel| ✔                                           |
| Minimal quantity lubrication  | ✔                                              |
| Built-in zero-point clamping system | ✔                        |
| Linear positioning measuring system on all axes | ✔ Resolution 5 nm |
| Tool changer                  | 22fold with tool length sensor                 |
| Machining spindle             | 1.8 kW, up to 48,000 rpm with HSK-E 25 tool holder |

Status display by means of signal LEDs integrated into the operating terminal to display machine status.

Integrated clamping system for electrodes Polygrip for EROWA ITS 50 and 3R Macro (optional).

48,000 rpm
High milling performance with small tools. High dynamic HSC control system.

Precision spindle with a concentricity better 2 µm and HSK-E 25 tool holding fixture.

Integrated zero-point clamping system with ± 0.5 µm repeatability (optional).

Optical linear position measuring system with ± 5 nm resolution.
Examples of workpiece sizes

Cubic components

Cylindrical components

Angular variance 4th/5th axis

Highly dynamic - precise - powerful

Complex geometries, small volumes, high-tech materials: DATRON C5
With DIN/ISO standard interfaces,
DATRON machines are compat-
ible with all popular 3D-CAD/CAM
programs, such as Mastercam,
SolidCAM or Pro/E.

**DATRON Machine Software**
The “DATRON CNCv9” machine
software offers convenient func-
tionality for quick setup and CNC
programming and acquisitions
3D CNC files of any size.

**4th/5h axis with torque
motor**
High performance, dynamic,
torque, stiffness and precision
for all speeds due to water-
cooled, low-maintenance
torque motors.

**22fold tool changer**
Easy inserting of up to four tools
at once. Automatic tool length
measurement up to 35 mm. Tool
change possible during process-
ing; no aditional traverse path
necessary for changing process.

**Position measuring
systems**
Increased thermal stability and
absolute accuracy due to high-
precision position measuring
systems from Heidenhain in all
five axes. Resolution 40 nm.

**1.8 kW HF Spindle**
High-frequency spindles with
speeds from 5,000 up to 48,000
rpm, and spindle runout better
than 2 µm and HSK-E 25
clamping system. For high
cutting performance and perfect
machining results when using
small tools.

**Zero-point-point clamping
element**
Short set-up times, high
repeatability and precision.
Different clamping techniques
available for individual
requirements.

**Minimum quantity
cooling/lubrication
system**
Guaranteed optimum milling
results, maximum tool life and
minimum consumption. Filling
level sensor and easy refill.
Patent Pending.

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DATRON
CNC milling tools

Profitable Milling, Drilling and Engraving

DATRON offers innovative HSC-milling and engraving tools for even greater success in your production.

“Made in Germany” quality:
- Development
- Testing
- Production

Precision:
- Drilling from 0.1 mm
- Milling from 0.2 mm
- Thread milling from M1

Economy:
- Max. cutting performance
- Max. lifetime
- Max. process safety
Steel and other hard materials

High Performance
DATRON offers specially optimized milling tools for efficient processing of steel and other hard materials. Double-flute end mills with coating are the first choice for micro-processing due to efficient chip removal. DATRON offers Cutters with diameters from 0.9 to 2.5 mm with short and very short cutting lengths; drills with diameters from 0.15 mm to 6.5 mm. Four-flute end mills with toric cut, corner radius and coating – with a diameter from 2 mm to 10 mm - also milling deep cavities reliably and fast. Coated double flute ball nose end mills, available from 0.6 mm to 3 mm are ideal for 3D processing.

Nonferrous metals and plastics

High wear resistance
Their unsurpassed chip removal performance turns single flute end mills into a high-performance tool for non-ferrous metals and plastics. These are easily cut by DATRON in their standard versions, polished edge, toric cut, balanced with ball nose end or left-spiralled, available with diameters from 0.3 mm to 10 mm and various cutting lengths. Highest quality surface results are obtained with double-flute end mills with different helix angles available with diameters from 0.3 mm to 10 mm. Threads starting with M1 can be machined in an extremely fast and reliable manner with DATRON’s thread mill, milling thread mill and multi-thread mill.
From installation up to many years of product support: You can count on us!

DATRON guarantees highly effective machine operation, even many years after purchase, worldwide! By means of practical instruction and training, you will benefit from the full potential of our machines, right from the start. The latest diagnostic tools and in-depth know-how of our staff ensure smooth running of your production. Our proven spare parts service and our customer-optimized maintenance program minimize downtimes significantly.

When you purchase of a DATRON system, you receive much more than just a machine with controls: you get a team of experts that fully supports you!

More information on our customer service and possible training

www.service.datron.de
Decentralization
We are present everywhere where we are needed. With our representatives abroad, you have their service team at your disposal on site. Closeness saves time and money: for this reason, DATRON offers several service centres in Germany and worldwide at many of our more than 20 representative agencies.

Cost-effectiveness
Tele-service, e-Messenger, remote maintenance: we offer the latest information technologies for the fastest possible diagnoses and cost effective.

Friendliness and reliability
Our hotline will help you to find solutions and solve problems, even with software and programming issues. A comprehensive stock of spare parts guarantees the shortest delivery times.

Competence
Trained staff and many years of application experience and practice at our own premises guarantee the high quality of the DATRON service worldwide. The result is that you get sound and competent advice and fast troubleshooting in the event of a malfunction.
What machine is best for your manufacturing process depends on many individual parameters. Therefore, sound technical advice and the creation of samples are part of our most important services.

The detailed analysis of your production task forms the basis for our expert advice to optimize your entire production process.

**DATRON Technology Centre**

We offer:
- Creation of client-customized samples according to drawings (in printed or electronic form)
- Product demonstrations of our CNC milling machines
- Technology consulting for CAD/CAM selection, clamping techniques and high-speed DATRON mini-tools
DATRON AG
Dedicated Employees, Innovative Products

“We develop, produce and distribute innovative CNC milling machines for the processing of future-oriented materials such as aluminium and composite materials, dental milling machines for the efficient processing of all common denture materials in dental laboratories and high-performance dosing machines for industrial sealing and bonding applications.”

Strong focus on customer value, cost-effectiveness, low power consumption and flexible customization through modular lightweight construction are features in common of our products. Standard solutions can be configured in a very high degree for individual customer requirements.

Manufacturing and automation processes can be significantly improved due to matching components already designed in the development stages and the resulting technologically superior characteristics of the DATRON products. This does not only lead to higher production quality, but also reduces manufacturing costs!

DATRON’s Core Products:

CNC processing machines for high speed milling and 3D engraving

Milling, drilling and engraving of aluminium and plastics. High production speeds and excellent results are achieved with rotation speeds up to 60,000 rpm.

We are market leader in Germany in the field of front panel and housing processing.

Dental CAD/CAM milling/grinding machines

The ultracompact 5-axis milling/grinding machines are suitable for machining all common dental materials. Equipped with 8-fold automation and 12-fold tool changer, DATRON’s machines are the best choice for industrial dental mass production with high reliability, speed and precision.

VDispenser® - Dispensing Systems for precise and rapid bonding and sealing

Our precise volume dispensing technology is available and patented worldwide. Strong cost advantages result in mass production due to the high dosing quality and speed of the systems.

Tools for high-speed machining

In high-speed processing, the quality of the tools is essential for processing results. Our technology and consulting expertise allows our clients to produce more economically than the competition.

Technical Support

Training, service hotline, maintenance, sale of accessories and spare parts: the professional service and expert advice in all fields leads to high customer satisfaction and to the award of the “Deutschlands Kundenchampions 2011” (Germany’s Customer Champion 2011) seal.
DATRON CNC milling machines and DATRON quality tools are perfectly matched. The combination of machine and tool ensures the highest level of quality, precision and process reliability for your production.

**Machine Overview**

**Powerful and highly accurate**

DATRON M10 Pro

**Productive and versatile**

DATRON M8Cube

**Large-sized and efficient**

DATRON ML  
DATRON MV
Productive and cost-effective

DATRON M8
DATRON M85

Compact and cost-effective

DATRON M7
DATRON M75

5-axis, precise and compact

DATRON C5
DATRON D5
DATRON offers products and services for manufacturing and automation. The common feature for our products is the high level of innovation and the strong orientation toward customer benefit. DATRON products are „problem solvers.” Due to the practical layout of the overall systems and the technologically excellent characteristics, our products can radically improve your production or automation processes. Thanks to consistent modularisation, DATRON offers standard solutions which can be configured to a great extent to meet individual customer requirements. In addition, we support our customers with a wide range of services.

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