

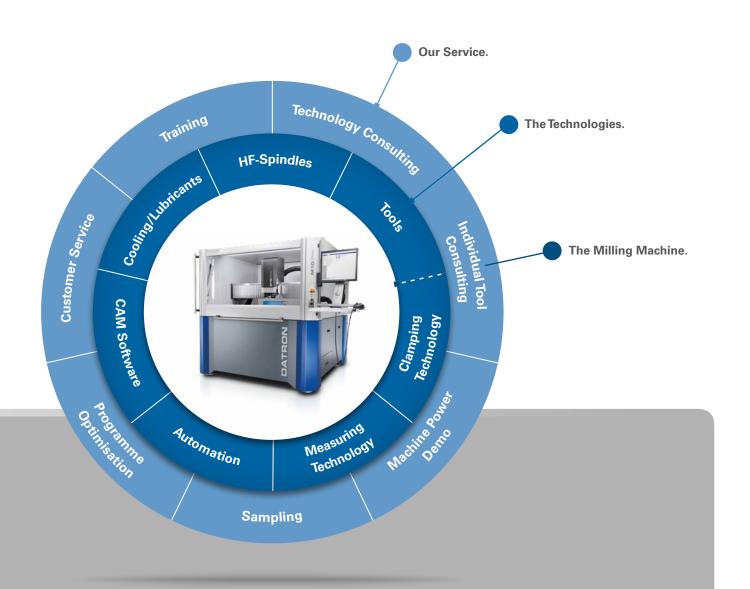




### More than just machine construction -

# You Are in Expert Hands From A to Z

We at DATRON see ourselves as your partner for a successful production. Our service: Everything from one source. DATRON not only offers cutting-edge machine construction with "Made in Germany" solidity and reliability: We accompany you through the entire workflow from technology consulting over the sales process, optimal maintenance and repair services up to training, and give you tips for a energy- and cost-efficient production.



# DATRON M10 Pro

# Precision and Dynamics when Machining Diverse Materials

The DATRON M10 Pro offers powerful dynamics and highest precision when milling conventional and high-tech materials, especially aluminium. This versatile high speed milling machine provides ultimate flexibility and productivity by fast adjusting to changing production requirements. You are productive and cost-effective starting with "1" piece.

#### Your benefits at a glance:

- Durable precision!
  Reliable observance of workpiece tolerances
- Time saving! Short processing times due to high cutting performance.
- Full flexibility! Short changeover times to machine different materials and workpiece types.
- Higher cost-effectiveness!

  Due to the efficient combination of DATRON engineering and proprietary control system with numerous accessory options, the versatile M10 Pro provides you with the added value that has been missing in your production so far, both, for small and large quantities.

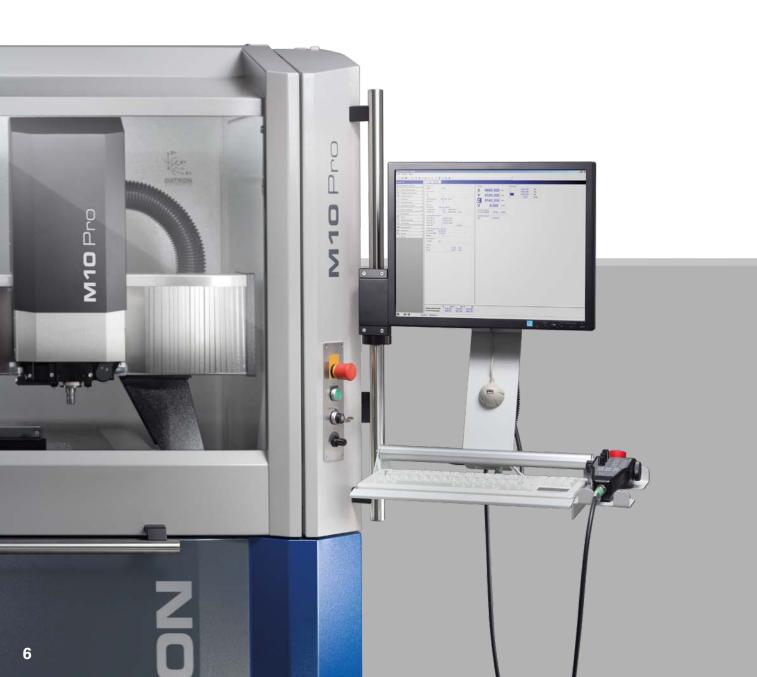




# Highlights of the M10 Pro

### Your Challenges Require Our Solution

- High precision by Heidenhain linear scales, high quality linear guides, ball screw spindles
- Stiff, low-vibration machine structure with high-precision granite table for an excellent surface quality when machining
- Very high cutting performance with smallest tools due to powerful synchronous spindles with up to 40,000 rpm and outputs from 3.0 kW to 8.0 kW, equipped with an HSK tool holder
- High dynamics in particular due to DATRON's PerfectCut Lookahead Buffer, short cycle times, high block rate and resolution, etc.
- More possibilities through the use of larger tools with internal cooling (optional with an 8.0 kW spindle)











#### Linear Scales

The integrated Heidenhain linear measuring system with a resolution of 40 nm ensures consistent precision during the milling process.

#### **2** Very Stable Construction

The M10 Pro owes its high dynamics and quality to its stiff, low-vibration structure. Its massive granite table allows optimum vibration damping and leads to precise milling results.

#### **3** Very Easy Accessibility

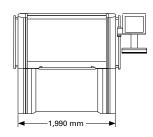
The machining area of the milling machine is fully accessible. The pneumatic lift gate (optional) allows the drastic reduction of set-up and idle times due to the short opening and closing times of just two

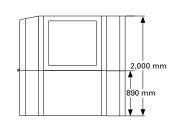
### **Ergonomic Chip Disposal Concept**

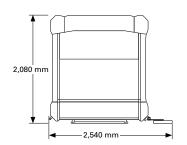
The spacious chip cart with optional chip conveyor is optimally designed for seria production. It can be moved with minimum effort even when fully loaded due to its lightweight wheels.

# Technical Data M10 Pro

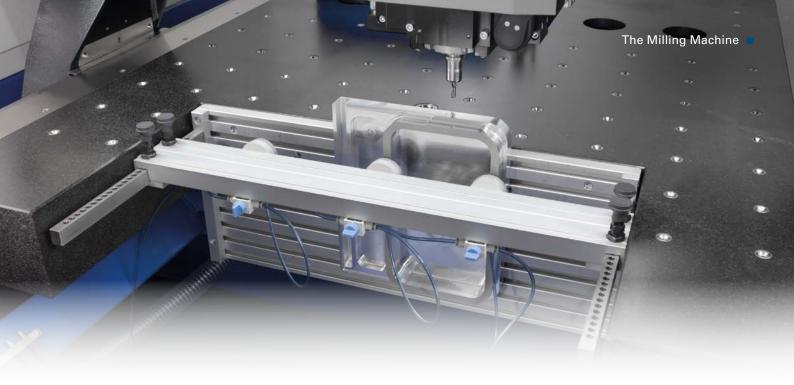






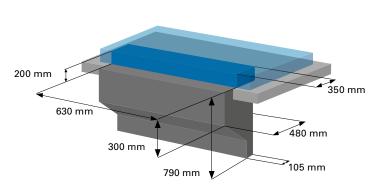


Technical Data	DATRON <b>M10 Pro, 3.0 kW</b>	DATRON M10 Pro, 8.0 kW			
Machine table	Solid Granite table with steel column, extremly rigid portal design with double-sided Y drive with covered guides				
Traverse path (X x Y x Z)	1,020 mm x 830 mm x 240 mm; with 720 mm tool changer in Y				
Portal passage	200 mm				
Dimensions without operating terminal (W x D x H)	1,990 mm x 2,080 mm x 2,000 mm				
Taper chuck integrated into the table	✓	✓			
Fast digital servo control with Microsoft® Windows® control computer	✓	✓			
Comfortable hand-held control unit	✓	✓			
Drive system: Brushless servo motors with absolute encoders, ball screw spindle for each axis	✓	<b>✓</b>			
Linear measuring system in all axes	✓	✓			
Chip conveyor	optional optional				
Minimal quantity lubrication	optional	optional Internal coolant supply (optional)			
Machining spindle	Precision-PowerS Syncro 3.0 3.0 kW HF spindle, up to 40,000 rpm	Precision-PowerS Syncro 8.0 8.0 kW synchronous HF spindle, up to 34,000 rpm			
Tool changer with integrated length sensor	11 tools with HSK-E 25 tool holding fixture (optional for 22 tools)	10 tools with HSK-E 32 tool holding fixture (optional for 20 tools)			
Feeds	up to 30 m/min				
Positioning feeds	up to 30 m/min				
Weight	approx. 2 t				
Article Number	OA13011A (with cut-out section) OA13011B (Full table)	0A13021A (with cut-out section) 0A13021B (Full table)			



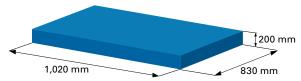
#### Table with cut-out:

- Table
- Machining area within the vertical clamping area
- Maximum workpiece size



### Standard Full Table:

Machining area





#### 40.000 rpm

High cutting performance with small tools. Highly dynamic HSC control system.



concentricity better than 2 um and HSK-E 25 tool insert



Optical Linear Measuring System with 40 nm resolution.



Solid, thermally stable granite table with very high evenness.



5-axis milling with rotary/ swivel table for precise multisided machining of small parts (optional).

# **HSC**Pro Control System

### Easy to Learn - Highly Productive

The HSCPro control technology, especially developed by DATRON, is the basis for the high performance of DATRON CNC milling machines.

Due to its high-performance fieldbus connection it allows imaging of the most complex machining procedures and offers other strengths:

- Powerful path processing/planning
- High-speed data processing rate up to 8,000 records per second
- High-performance control computer
- Drive amplifier from renowned manufacturers
- Brushless servo motors

The DATRON HSCPro control system is extremely powerful yet easy to use. This is achieved by a clear DATRON Windows®-based user interface and programming with plain text commands. The menu navigation is intuitive so even complex applications can be programmed easily.

Multiple macro commands are available for demanding milling, drilling and engraving applications. Likewise, existing library functions can be used or new ones can be created by the operator. CAM interfaces allow the use of already existing data.



#### HSCPro Gives You Maximum Machine Performance

#### HSCPro - Easy to use:

- Easy to learn intuitive menu navigation
- Fast operation by means of DATRON shortcuts
- Simple programming of powerful macro commands

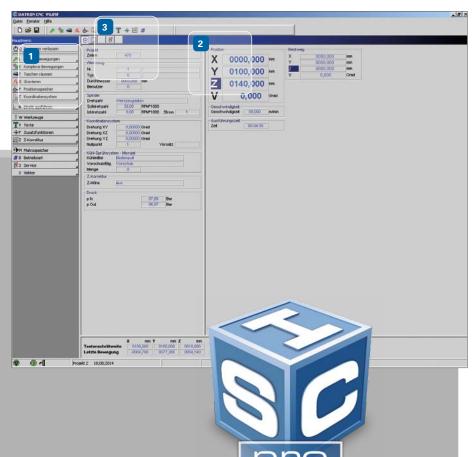
#### **Numerous functions:**

- Many milling cycles come pre-configured (e.g. pockets, holes, threads, conical countersinks)
- Continuous expansion through application-specific macros possible
- Protected areas as collision protection for clamping devices
- Different measurement cycles to calibrate the workpiece (including partial measurement field)
- Programme-controlled vacuum technology
- PerfectCut contour smoothing filter

- Pre-calculation of the machining time
- Powerful engraving commands
- Extensive font libraries
- Graphical representation of the milling machining paths

#### Maximum compatibility:

- Interfaces with all common CAD/CAM systems
- Import of DIN/ISO programming codes (DIW 66025)
- Import of HPGL, drilling data and CL-Print



#### User interface HSCPro v9

- Navigation with keyboard shortcuts for fast selection of machine functions.
- 2 Clear view of the machine status through detailed presentation
  - Position of the axes
  - Tool information
  - Spindle data
  - Cooling-lubricating system, etc.
- Different operating modes such as editor, simulation, fast setting over keyboard shortcuts.

### **PerfectCut**

Fast, Precise and Contour Accurate HSC Milling for Excellent Surface Quality

To achieve ideal reproductions of most complex geometries in HSC milling, DATRON has invented the surface smoothing package PerfectCut. With PerfectCut your DATRON M10 Pro, M8Cube and C5 achieve utmost performance levels . Moreover, they machine perfect surfaces and contours without the need for post-processing – thus enhancing your productivity!



# Production increase



You achieve high-quality milling results faster

- Significant improvement of manufacturing quality at shorter machine run times
- Less optimisation efforts when programming
- No reworking needed usually

### Better surface quality in a shorter time

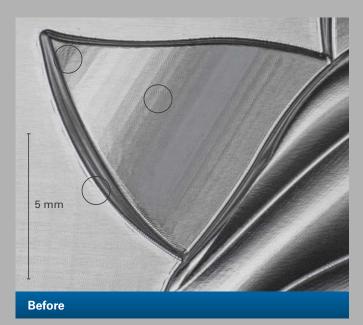


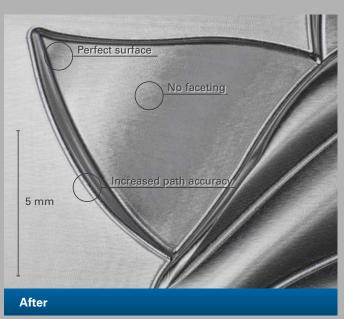
You achieve better workpiece surfaces within the same or a shorter production time

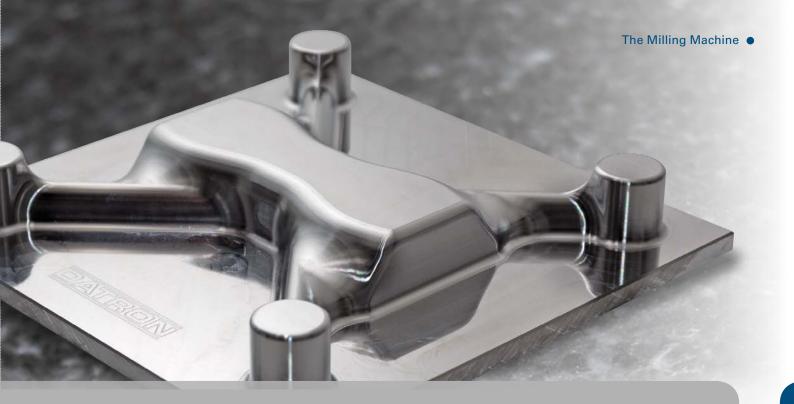
- Increased path accuracy
- No faceting
- Perfect surface



Original size







# Leading quality, particularly in micromachining



# You can mill even the smallest free-form surfaces and complex geometries and achieve perfect results

- Very high surface quality with all materials
- Fast processing with very short segment lengths
- Finest NC blocks with maximum feed rates

# Perfect results, faster



#### Your productivity reaches new heights

- Fast programming
- Fast calculation
- Fast production

# Your machine is protected



#### Your machine stays "fit" longer, even at high-volume production

- Less stress on all mechanic parts (especially the spindle) due to smooth running
- Higher capacity while protecting resources
- Increased end mill durability

# Fields of Application of the M10 Pro

The high-speed milling technology of the DATRON M10 Pro provides outstanding results in the following industries and applications:

#### Mould and model construction

- 3D aluminium moulds
- 3D rapid prototyping
- Small steel moulds



#### **Automotive supply**

- Machining of aluminium profiles
- Small steel moulds
- Precision CNC machining



#### **Electronics**

- Front panels and housings
- Membrane keyboards
- Test adapter drilling
- 3D rapid prototyping
- Drilling and milling of test devices
- Milling of solder frames
- PCB milling



#### **Aerospace**

- Machining of aluminium plates
- Machining of aluminium profiles
- Precision drilling

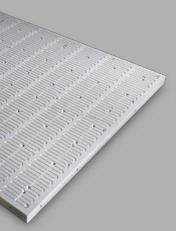


#### **Printing**

- Engraving of 3D stamps
- Construction of stamping dies
- Hot stamping dies
- Stamping tools



# Technologies That Make You Even More Successful!



#### Clamping technology

Whether pneumatic or vacuum clamping technology: DATRON systems feature high flexibility high comfort of use and short changeover times. (optional)



#### Measuring technology

short setup times, increased precision and cost-efficiency by automatically measuring reference edges and height profile. (optional)



# Cooling/lubricating system

cally optimised processes with minimum quantity cooling lubrication and correspondingly increased durability. (optional)



#### **HF** spindles

speeds up to 60,000 rpm and high concentricity guarantee high cutting performance and perfect machining results when using small tools. (optional)



#### **Suction – CleanCut**

Nearly chip-free work by means of highly-effective chip suction. No more time-consuming machine cleaning (optional).



#### **CNC** milling tools

intensive communication with our customers, we develop tools especially designed for high-speed machining.

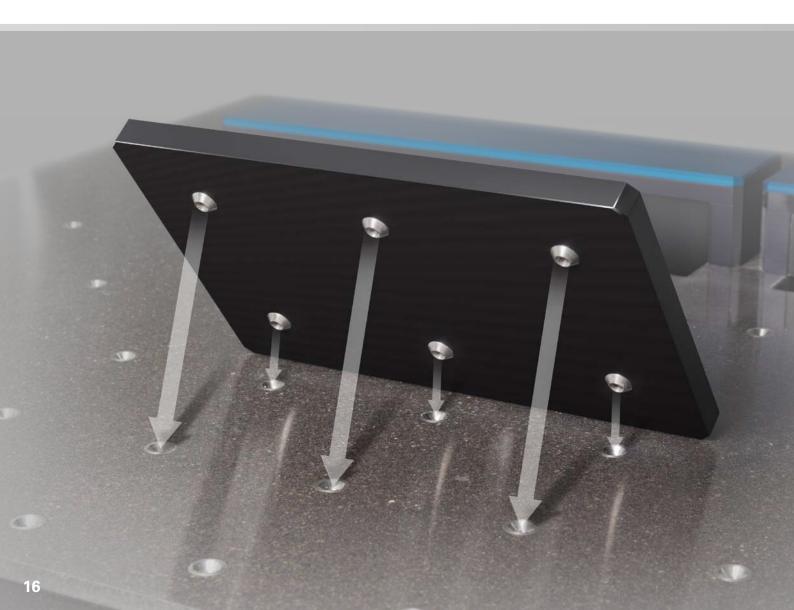
# **Module Clamping Technology**

The End of Tedious and Long Screwing and Setup Times!

Cost-efficient production by clamping within seconds: Usually, setup times can be reduced significantly with DATRON's modular clamping technology. The module plates are clamped directly onto the machine table using conical centring sleeves.

This applies to all machines with integrated cone clamping systems and allows very fast changing of clamping modules.

DATRON offers a variety of ready-made module clamping solutions: Module clamping plates with vacuum, T-slots with short-stroke clamping elements, clamping chucks or vices. We also design a custom clamping solution you may need. Benefit from our experience of hundreds of machines installed in the field!





# Vacuum Clamping Technology

Can't Be Clamped? - Yes, It Can!

Even the smallest pieces can be clamped using the high clamping forces of DATRON's sandwich vacuum plates. The patented VacuCard++ special cardboard is the perfect sacrificial layer. Extremely simple and easy to use. Just position the pieces and... done!

All DATRON machines can be equipped with DATRON's vacuum clamping technology. It allows very high clamping forces due to its especially developed sandwich construction, even in case of shapes and thinnest plate materials difficult to clamp otherwise. Module vacuum clamping plates, available in different sizes, are divided into segments which can be operated separately from each other with a vacuum distributor. Several different workpieces can also be clamped simultaneously.

Time-efficient optimum utilization machining, which allows a manufacturing of several individual pieces from a single plate, is also possible thanks to vacuum clamping technology. Highest machine utilization can also be achieved this way.

DATRON's VacuCard special cardboard is used to distribute the vacuum below the workpiece and as a sacrificial layer, allowing complete milling around workpieces and setting them apart.

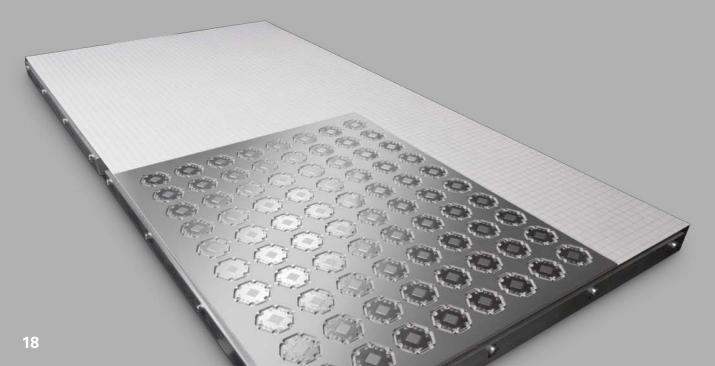
The new "VacuCard++" even allows machining small and delicate workpieces due to its self-adhesive surface.

#### Advantages:

- Very short setup times
- Allows time-efficient optimum utilization machining
- Deformation-free and vibration-free clamping of thin plates
- Allows complete milling around workpieces and separating them

#### Application:

- Clamping of sheet materials
- Clamping of flat housings
- Clamping of materials and shapes difficult to clamp otherwise





### **Short-Stroke Clamping Elements Overview**

#### KSE-AS

Short-stroke clamping element for automatic clamping operation

#### Advantages:

- Automatic opening and closing
- Fast changeover
- Adjustable clamping pressure
- Compact design

#### Application:

- Flexible clamping of different workpieces
- Mass production

#### KSE-PH

Pneumatic-hydraulic short-stroke clamping elements

#### Advantages:

- One-handed operation
- Fast changeover
- Adjustable clamping pressure
- Compact design

#### Application:

- Flexible clamping of different workpieces
- Batch production





### **Sensor XYZ**

### Awesome in Every Dimension

The XYZ sensor is a three-dimensional touch sensor. With its help you can reduce the setup times of your milling machine considerably. You increase accuracy and reliability when referencing your workpiece.

By using the XYZ sensor, your production attains higher cost-efficiency. Time-consuming setups are a thing of the past. A special feature is automatic compensation, even height tolerances of materials, for example for perfect bevels even of large components, precision depthmachining, and much more.

It is amazing how easy some components can be machined with our measuring sensor.

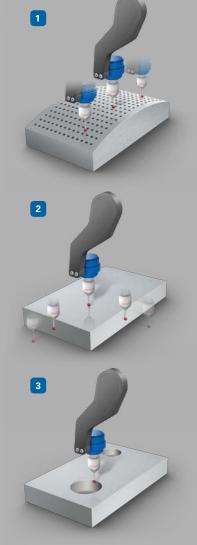


#### **How It Works**

Just swing it into the machining area to increase production quality within seconds or to check dimensional accuracy: The XYZ sensor allows you to consistently optimise your production.

#### Material Surfaces

The surface of the material is measured by grid scanning. The altitude profile created this way is corrected immediately by the CNC programme or the engraving programme. Navigate away from any uncertainties quickly, easily and comfortably.



### Corners and Edges

height of the workpiece can be calculated precisely with just one measurement. Three measurements allow determining both the height of the material and the exact position of a rectangular edge of a workpiece.

#### Advantage:

The determination of reference points on workpieces is achieved much more accurately with the XYZ sensor and within a fraction of the time of conventional methods.

### **3** Centres of Workpieces

The centres of circular or rectangular islands or cut-outs can be determined automatically.

#### Advantage:

The centre of the workpiece can be precisely determined within just a few seconds, without needing long setup times. For example, by measuring two holes drilled for reference, a non-angular clamping can be compensated by rotating the coordinate system.

# **Cooling/Lubrication Systems**

DATRON minimum quantity cooling lubrication systems are based on years of application experience. Depending on the cooling medium, there are minimal residues or none at all. No cleaning, no degreasing: a great advantage for many applications.

### **DATRON EK-M cooling/lubrication system**

This minimum quantity cooling/lubrication system can be used with different coolants/lubricants and is designed for reliable and reproducible results in milling and engraving processes with particularly small amounts of fluid.

There are three different spray head variants available for this system:

#### **EK-VM-R**

The circular spray head for HSK-E 25 spindles has four nozzles and is used in connection with CleanCut and machines with 11-fold tool changer.



#### EK-VM-4+

Spray head with four adjustable nozzles and bundled jet. It can be used for both spindles with HSK or directions shank clamping.



# Equipment of the Machine With Minimum Quantity Lubrication Device on Aerosol basis.\*

- Allows outside lubrication and (with appropriate tools) also internal lubrication
- Allows lubricant supply in narrow grooves pockets/holes
- Suitable for fatty alcohols and oils
- Low consumption



<sup>\*</sup> Only available for 8.0 kW spindle

# **DATRON CNC Synchronous Spindles**

Precision in the μ-Range, Speeds up to 40,000 rpm

DATRON offers the appropriate spindle for every machining PowerS operation: from the extremely powerful precision synchronous spindle to the robust and cost effective "workhorse". All DATRON spindles have in common their high quality, precision and durability.

The expert selection of the right spindle for your individual application is a particularly important point when configuring your milling machine.

Our experts will be happy to advise you about the spindle offering the most efficient solution for you.

Powerful and extremely precise high-frequency spindles with an HSK-E tool holder. For the highest quality with great cutting performance.

PowerS Syncro 3.0 with 3.0 kW and up to 40,000 rpm, HSK-E 25 tool holder; liquid cooling

PowerS Syncro 8.0 with 8.0 kW and up to 34,000 rpm, HSK-E 32 tool holder; liquid cooling (optionally with internal coolant supply)

Spindle type Spindle performance	Speed range (1/min)	Tool clamping technology	max. shank diameter/max. tool diameter for automatic tool changer (mm)	Internal cooling	Cooling/lubrication system
PowerS Syncro 3.0 HF-Spindle 3.0 kW	1,000 - 40,000	HSK-E 25	10/20	Liquid cooling	Minimum quantity cooling lubrication systems 5I/9I with filling level sensor
PowerS Syncro 8.0 HF-Spindle 8.0 kW	100 - 34,000	HSK-E 32	12/24	Liquid cooling	Minimum quantity cooling lubrication systems 5l/9l with filling level sensor (optionally with internal coolant supply)



## CleanCut\*

Save Time and Work Cleanly: The CleanCut Suction System Is Highly Effective.

DATRON's CleanCut system provides highly effective chip suction. By means of this suction technology especially developed for plate-machining, almost chip-free working is possible. Time-consuming machine cleaning is no longer necessary.

Perfect for sensitive surfaces: Chips are vacuumed off without any contact. Automatic extension and retraction of the suction head provide further time-savings.

#### **Properties:**

- Programme-controlled swinging in and out
- Precise adjustment of surface distance
- Contact-free suction
- Compatible with tool-changing station and XYZ sensor
- Automatic swinging in and out with parking function activated
- Available for spindles with direct-shank and HSK-E 25 inserts
- Possibility of minimum quantity lubrication

<sup>\*</sup> Only available for 3.0 kW spindle

# **CNC Milling Tools**

### Profitable Milling, Drilling, and Engraving

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





#### Precision:

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



#### **Cost-efficiency:**

- Maximum cutting performance
- Maximum durability
- Maximum process safety



#### "Made in Germany" quality:

- Development
- Testing
- Production



#### DATRON Technology:

- Intelligent geometries
- Patented tools
- The most modern grinding machines



#### Individual tools:

- Development and manufacture according to customer specifications
- Suitable for specific applications
- Production in the shortest time

# **Aluminium**



#### **High Performance**

High cutting performance, quiet operation and smooth surfaces: Milling tools such as the patented single flute end mill with counterbalanced cut, DATRON's two flute end mills for smoothing and planing, or our threading tools, support you in profitable machining of light metals.



### Milling Tools for **Plastics/Composites/Foams**

#### Wear-Resistant







## **Customer Service**

From the Installation to Many Years of Product Support: You Can Count on Us!

DATRON guarantees maximum efficiency in the operation of our machines, even many years after the 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 the in-depth expertise of our staff ensure a smooth running of your production.

Our proven spare parts service and our customeroptimised maintenance programme minimize downtimes significantly. When you purchase a DATRON system, you receive much more than just a machine with controls you get a team of experts that fully supports you!

For more information about our Customer Service, please visit

## www.service.datron.de

#### Local

We are represented wherever we are needed. The local service team of our representatives abroad is at your disposal. 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 offices and agents.



#### **Cost-Efficient**

Teleservices, e-Messenger, remote maintenance: We offer the latest information technologies for the fastest possible diagnoses and cost-efficient technical service.



### Friendly and Reliable

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



### **Expertise**

Trained staff and many years of application experience and in-house practice guarantee the high quality of DATRON's service worldwide. As a result you receive sound and competent technical advice and quick fixes in the event of trouble.





# **Technology Centre**

Which machine is best for your manufacturing process depends on many individual parameters. Sound technica advice and the creation of samples are therefore among our most important services. An accurate analysis of your production requirements is the basis for our expert advice to optimise your entire production process.

#### We offer:

- Creation of client-customised samples according to drawings (in printed or electronic form)
- Product demonstrations of our CNC milling machines
- Technological advice on CAD/CAM selection, clamping technology and DATRON's high-speed milling-tools

# **Turnkey Solutions**

With an extensive range of accessories and the knowledge of our experts, we optimise DATRON machine configuration for your production. Choose among several machine sizes and a range of powerful spindles.

The choice is yours: Expand a particular machine with the appropriate clamping technology, the optimum cooling spray system, rotary axes, sensors, automation, CAD/CAM software packages and much more.

We provide our customers with:

- Tailor-cut solutions
- Individual application advice
- Integrated clamping technology and automated solutions
- On-site installation and training
- Industry-leading service and support



# **Complete Process Chain**

Profit from the profound knowledge of our experts in many fields of production technology. We will be happy to advise you in optimising all stages of the production chain: From CAD design to CAM data generation, clamping and measuring technology, tool and cooling technology up to the entire material flow.

Tuning and optimising the entire process chain often leads to crucial cost and quality advantages!



# **Efficient and Energy-saving**

Energy-efficient machines and the cost-effective use of resources play an increasingly important role in production processes. Through their innovative lightweight construction and energy-efficient drive technology, DATRON machines are more cost-effective already today. DATRON milling machines require on average less than 2.5 kW/h, even at high cutting capacities. The proprietary minimum quantity cooling lubrication system developed by DATRON also offers a highly cost-efficient and environmentally-friendly solution.





#### Saves energy:

Very low power consumption by means of highest efficiency of al aggregates.



#### Saves money:

Low-cost in purchase and operation.



#### Saves resources:

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



#### Saves space:

Large machining table at extremely small footprint.



# Innovative Technology "Made in Germany"

continuously improve our products, our experts are

manufacturing processes. Our innovation strength is

to service.

## **Machine Overview**

DATRON'S CNC milling machines and DATRON'S quality tools are perfectly matched to each other. The combination of machine, tools and accessories ensures highest quality, precision and process reliability for your production.

### Powerful and highly accurate

DATRON M10 Pro



### Productive and versatile

DATRON M8Cube



### Compact and cost-effective

DATRON **M7**DATRON **M75** 



### Large-sized and efficient

DATRON **ML**Cube



### 5-axis, precise and compact

DATRON **C5**DATRON **D5** 



### About us

#### **DATRON AG**

#### **Dedicated staff and innovative products**

We develop, produce and distribute innovative CNC milling machines for the machining 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 dispensing machines for industrial sealing and bonding applications.

Strong focus on customer value, a very good priceperformance ratio, low power consumption and flexible adaptation through modular lightweight construction are a common feature of all our products. Standard solutions can be adapted to a very large extent to individual customer requirements.

Production and automation processes can be improved significantly due to components matched already during their development and the resulting superior technological features of DATRON's products. This not only leads to higher production quality, but also to lower manufacturing costs!

#### **DATRON's core products are:**

### CNC milling machines for high-speed milling and 3D engraving

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

We are the market leaders in Germany in the field of front panel and housing machining.

#### 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 machines 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 dispensing quality and speed of our systems.

#### Tools for high-speed machining

The quality of the tools is essential to determine machining results in high-speed machining. Our technological and advising expertise enables our customers to produce more economically than their competitors.

#### **Technical customer support**

Training, service hotline, maintenance, accessories and spare parts sales: Our professional service and expert advice in all fields leads to high customer satisfaction and to the "German Customer's Champion 2011" award.









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by email: info@datron.de



**or online at**: www.datron.de