

SEPTEMBER 2024



REPORT

ISSUE 40

THE MAGAZINE FOR CUSTOMERS,
EMPLOYEES AND FRIENDS

AIMING
**HIGH -
STEP
BY STEP
INTO THE
FUTURE**



FACTS & FIGURES

5 GERMAN LOCATIONS
11 INTERNATIONAL SUBSIDIARIES
WORLDWIDE MORE THAN **850** EMPLOYEES
OVER **1000** SPECIAL CLAMPING SOLUTIONS PER YEAR
15 YEARS EXPERIENCE IN AUTOMATION
FOUNDED IN **1951**
INDUSTRY **4.0** DIGITAL FUTURE SOLUTIONS
OVER **55** DESIGN ENGINEERS
SPANNTOP INVENTED IN **1977**
IQ CLAMPING DEVICES WITH INTELLIGENCE
LIGHTWEIGHT CLAMPING DEVICES **CFRP** MADE OF CARBON FIBER
MORE THAN **150** PATENTS
MEASURING DEVICES SINCE **2008**

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Although the masculine form is used throughout, this is only to make the text easier to read and is not meant to exclude the feminine gender or others.

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Dear customers, dear employees, and dear friends,


You are looking at the 40th edition of our report, what a proud number! It also means that for the 40th time we are able to present you with amazing news from HAINBUCH. Our profession, technology, is simply fascinating. We can't stop pushing the limits of what is possible. And we love it when our creative flashes of inspiration help our customers to get to the top.

This is also the case in automation. For a long time, our industry dreamed of being able to automate production even for batch size 1. Our innovations over the last 15 years have brought us much closer to this vision. Step by step, with every single new solution. It has been a long and rocky road. But today we can say with a certain pride – we have made it. Automation of batch size 1 on lathes and grinding machines is not only possible, it has already been successfully implemented. The dream has come true. But read for yourself on the following pages.

Let us inspire you.

Sincerely,
HAINBUCH Executive Board


Sylvia Rall


Dr. Achim Feinauer


Gerhard Rall



AIMING HIGH – STEP BY STEP INTO THE FUTURE

The pursuit of excellence has made us the market leader in workholding technology. In over 70 years, we have worked step by step to make our customers' production better and better. The competence we have acquired in workholding technology over decades now also holds the key to successful automation.

- **Process stability:** The hexagonal clamping geometry from the SE variant makes the chucks superstrong and resistant to contamination.
- **Data, data, data:** The sensors in our IQ clamping devices allow data to be queried.
- **Set-up time killer:** The centroteX quick change-over interface enables entire clamping devices to be changed over in <1 minute.

THE BUILDING BLOCKS OF AUTOMATION

for small batch sizes on lathes or grinding machines

2023



Automation cell
Complete automation solutions based on contamination-resistant, easy-to-change and sensor-equipped workholding technology.

2021



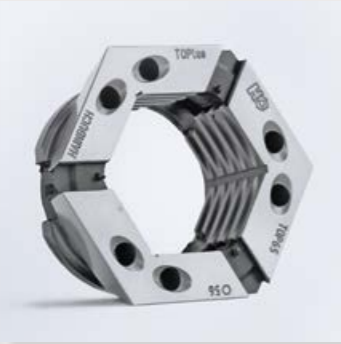
Automated clamping device change-over
With the centroteX AC quick change-over interface, entire clamping devices can be changed over unmanned – with highest precision.

2019



Automated change-over of clamping head and end-stop
With TOPlus AC clamping heads with or without end-stop can be changed over automatically.

2006



DEVELOPMENT SE clamping devices
The hexagonal clamping geometry is resistant to contamination, particularly precise and offers 25 % higher holding power.

2007



DEVELOPMENT IQ clamping devices
Sensory clamping devices, that can measure and clamp at the same time.

2011



DEVELOPMENT Quick change-over interface
Clamping device change-over in < 1 minute with a repeatability of $\leq 3 \mu\text{m}$ at the interface – without alignment.

*»The whole is more than the sum of its parts.«
[Aristotle]*

»HAINBUCH is gigantic and makes
the impossible possible.«

[Michael Rickert, MBS CNC-Technologie & Engineering GmbH]

The geometry of success

HEXAGONAL WORKHOLDING
TECHNOLOGY – THE STANDARD
OF TODAY AND TOMORROW

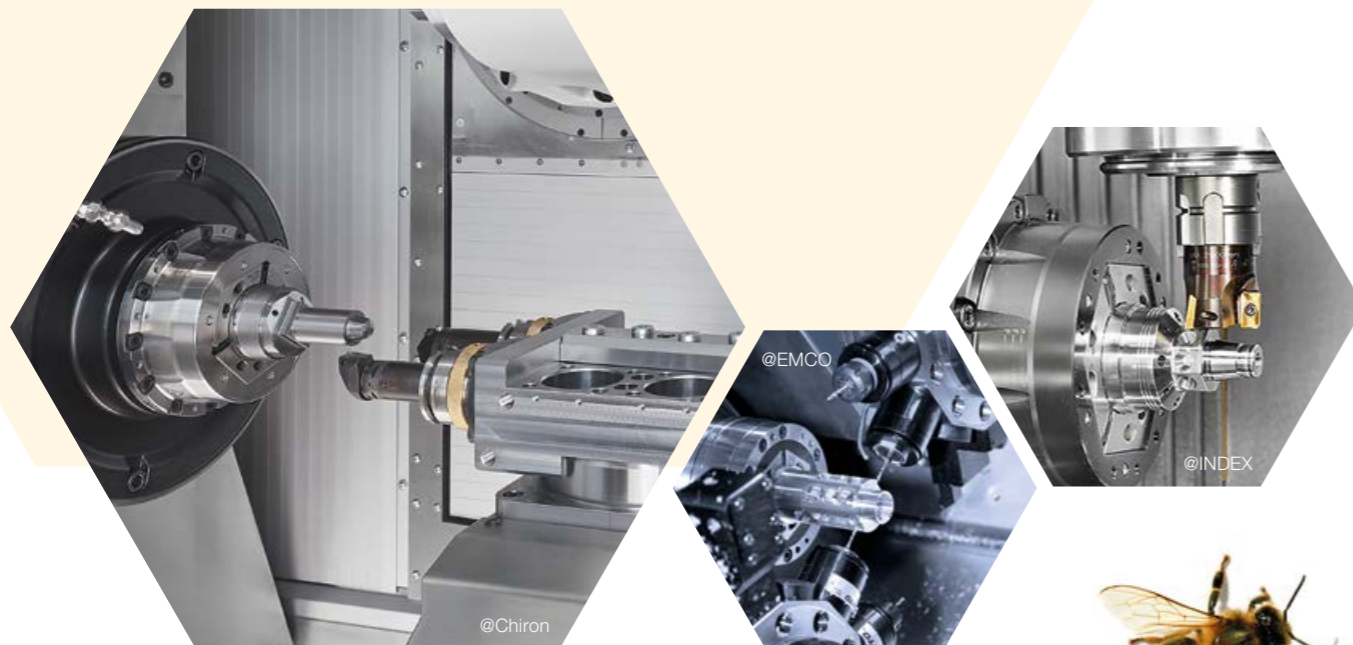
The best-known natural shape with six corners is probably the honeycomb in a beehive. This hexagonal shape impresses with its exceptional strength.

We were the first manufacturer to transfer this principle to the world of workholding technology. Our TOPlus chucks and MAXXOS mandrels convince through even distribution of clamping forces for highest precision and rigidity.

Your corners go well with my edges – hexagonal workholding technology offers unbeatable advantages




TOPlus – the precise and powerful chuck

You are perfectly equipped with the TOPlus chuck. It is ideal for machining, regardless of whether it is used in an automated process, with a quick change-over interface or in conventional operation.



»Despite its high precision, the TOPlus chuck is very robust and the process is always stable. That is what convinced us!«

[Head of Process Optimization and Automation Department]

- 
High strength and stability: Our hexagonal shape enables extreme load capacity and pressure distribution. The TOPlus chuck impresses with 25 % more holding power than the round SPANNTOP chuck – with the same tensile force of the clamping cylinder.
- 
Perfect fit: The hexagonal design ensures a seamless fit. Our products are characterized by their flat fit and resistance to contamination. The hexagonal shape of the TOPlus chuck also helps to absorb vibrations.
- 
Process reliability: Lubrication in combination with the tightness guarantee constant production conditions, maximum reliability and increase process safety.

MAXXOS – the super-strong mandrel

The MAXXOS mandrel impresses with its very high rigidity and maximum transmission forces. Thanks to the positive fit in every clamping position, it offers high process reliability – even for automated processes.






Experience MAXXOS!



»If I had known what I now know about mandrels, I would never have used anything else in my production.«

[Manager Operations – Gear Technology]

- 
Maximum holding power: The hexagonal clamping pyramid of the MAXXOS mandrel allows maximum transmission forces, while the segmented clamping bushing is absolutely positive in every position. This results in outstanding cutting performance with reduced tool wear.
- 
Robust and contamination-resistant: The positive fit of the clamping segments significantly reduces the mandrel's susceptibility to contamination, which increases efficiency and service life.
- 
Compact, versatile, always ready to use. That's exactly what our MAXXOS mandrels are! They enable 5-sided machining – with high-precision radial fixing.

With our hexagonal workholding technology, we have set the standard for tomorrow.

THE »CLEVER ONE« AMONG THE CLAMPING DEVICES

Intelligent clamping devices
for more process control



»Nothing is more powerful than an idea whose time has come.« [Victor Hugo]

In times of Industry 4.0 and the Internet of Things, IQ clamping devices open up completely new possibilities in workholding technology! These sensor-based clamping devices represent a fundamental shift towards an intelligent, data-oriented production method.

The sensor-based clamping devices can be integrated into a production process and transmit data contactlessly/wirelessly directly to the machine control system or the production IT network. The application can be useful for both raw part clamping and finished part clamping. Whether if used In-Line for a quality check of an intermediate operation or as a downstream measuring station – the application possibilities are diverse.

IQ clamping devices – clamping and measuring in one

- IQ clamping devices with integrated measuring intelligence
- For O.D. and I.D. measuring
- With modulator for communication between clamping device and machine



Understanding IQ!



Measuring and monitoring options



Workpiece contact

- Clamping and measuring in one step – without additional measuring machine [»inline measuring«]
- Accuracy: in $\varnothing \pm 0.01$ mm

Application example: Detects whether the correct diameter was produced in the upstream machining.



Temperature

- Measuring of the temperature of the clamping device
- Accuracy: ± 1 °C

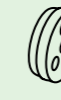
Application example: Detects a gradual temperature change, triggered by the machining process, which can be taken into account for measuring procedures.



RPM

- Measuring the RPMs of the clamping device
- Accuracy: ± 1 %

Application example: Ideal for »condition monitoring« for preparation of RPM-based analysis diagrams, detecting inertia losses.



Workpiece contact

- Detects the workpiece contact through sensors in the basic body and through the 3-point part support contact on the workpiece end-stop
- Minimum thickness of foreign objects: ≥ 0.03 mm

Application example: Detects chips on the workpiece end-stop without complex air sensing control with rotary unit and piping.



Workpiece clamping force

- Continuous clamping force monitoring directly on the workpiece
- Deviation from a calibrated clamping force value is determined [not an absolute measurement]

Application example: Detects whether clamping force that is suitable for the workpiece has been set on the hydraulic unit/clamping cylinder – this is the prerequisite for automated manufacturing of different workpieces.

In addition, analysis of the clamping force measurement data enables reliable-process manufacturing and is an important component of maintenance as-needed.

Competitive advantage all along the line

HAINBUCH's sensory clamping devices monitor the predefined, optimum clamping forces. They prevent scrap because deviations from the standard e.g. due to contamination are detected at an early stage. The process remains stable and machine availability constant. By evaluating the transmitted data maintenance intervals for the machine and tool can be planned according to need and condition.

In addition to the clamping force measurement, the workpiece diameter is also of great importance. Early detection of tool wear enables optimum tool change timing – neither too early nor too late. This makes the best possible use of the tool's service life.

The quality of the manufactured parts is improved, process reliability is enhanced and process stability is increased.

In search of the last μm

Highest demands on the finishing touches

In 2019, a precision milling cutter was used to write 10 micrometers of lettering on a hair. This microscopically small » μm « is highly relevant in production. We at HAINBUCH are also often looking for the last μm in hard machining.

How can workholding technology support the user in high-precision, low-maintenance and time-saving manufacturing?

MAXIMUM PRECISION FOR EVERY PART

In addition to precise concentricity and avoiding pitch errors during gear cutting, high-precision production also requires highest repeatability. The **TOPlus premium chuck** with its hexagonal clamping geometry offers highest precision with an accuracy of **less than 5 μm** when changing the clamping head. For I.D. clamping applications HAINBUCH also has the right solution in the portfolio – the **MAXXOS mandrel**. For customer projects accuracies of **less than 2 μm** are achieved here.

TROUBLE-FREE PRODUCTION

Precision only contributes to higher sales if the production process runs smoothly. One advantage is therefore the vulcanization of clamping elements as a barrier against con-

tamination. For products with hexagonal clamping geometry, the positive fit provides an optimum seal on all sides. This prevents chips and dirt from getting inside the spindle and into the clamping device.

FLEXIBILITY AS A COMPETITIVE ADVANTAGE

The HAINBUCH SYSTEM also provides excellent service when grinding. By working with a basic clamping device and adaptations, any required clamping situation can be set up quickly. Changing over from O.D. to I.D. clamping or using a magnetic module is only a matter of minutes.

A family of parts can be produced quickly with just one mandrel and various clamping bushings. With only slightly different internal diameters, only the segmented clamping bushing are changed, the mandrel remains on the machine. This increases machine uptime and simplifies warehousing.

IN ACTION AT THE CUSTOMER



»The accuracy of the clamping devices is just as important as the technical advice in order to overcome clamping problems. HAINBUCH always has a good solution solution.«

Head of the Grinding Shop

Mandrel for gear hobbing [Type 213]

A HAINBUCH mandrel type 213 is used on the Kapp Niles KNG 350 Expert gear cutting center for gear hobbing. Thanks to its slim but robust design, this mandrel offers the highest clamping forces in the smallest installation space. The axial pull-back effect ensures flat contact of the workpieces. The segmented clamping bushing is offset and therefore enables short clamping lengths.

HAINBUCH CELEBRATES OPEN HOUSE

We were able to offer over 1,000 guests a unique insight into our world of workholding technology and automation. During the tours of our production facilities, the groups stood close together at our machines. The live demonstration of an automated clamping device change-over was also a magnet for visitors.

Food trucks, hands-on stations, a children's program and the cake buffet from the charity organization »Stückchen Himmel e.V.« offered great entertainment for the whole family.

MARBACH
JUNE 22nd,
2024

WE ARE
THANKFUL
FOR THE HUGE
INTEREST
IN HAINBUCH!





SHAPING THE FUTURE: INSIGHTS INTO THE VOCATIONAL TRAINING AT HAINBUCH

In a rapidly changing work environment, it is essential that training also keeps pace. We talk to the training team at HAINBUCH about the challenges and innovations in apprenticeship and how HAINBUCH is tackling the shortage of skilled workers.

» **HOW IS APPRENTICESHIP CHANGING IN TERMS OF CONTENT?**

The apprenticeship content is increasing, and the prior knowledge for this has not always been acquired at school. As trainers, we are therefore required to teach the content using methodology and, of course, lots of practical experience. Individual support is always particularly important to us, which is geared towards the different requirements of the apprentices. New content that we as a company introduce into the training plans includes 3D printing, SolidWorks software training, resilience training and sustainability.

» **HOW DO THE APPRENTICES REACT TO THESE CHANGES?**

Today's apprentices are very committed and articulate their needs and expectations more clearly. They are extroverted, inquisitive and want to understand why and how things work instead of just accepting them.

» **WHAT ROLE DO SOFT SKILLS AND PERSONAL DEVELOPMENT PLAY?**

These aspects are becoming increasingly important. We rely on methods that promote mental strength and also strengthen pride in one's own abilities. Self-organization, for example through project planning and execution in social media projects, is also an important learning content. In our training workshop, future skilled workers are close to our production and learn how to deal with coordination processes and deadlines.

» **IS THERE ROOM FOR CREATIVITY IN APPRENTICESHIP?**

Absolutely! We encourage our apprentices to develop and implement their own ideas. Projects such as the pencil sharpener [see info box] or our Instagram channel »HAINBUCH Ausbildung« show how creative and independent they can work.

» **WHICH PROFESSIONAL FIELDS WILL BE PARTICULARLY IN DEMAND IN THE FUTURE?**

Mechatronic technicians are in high demand because of their versatility in electronics, mechanics and programming. The need and demand for mechatronic technicians is so high that we train them ourselves. Experts in the fields of automation and digitalization are also becoming increasingly important. We take this into account in our training content and also when introducing new apprenticeships.

» **HOW DOES HAINBUCH ENCOUNTER THE SHORTAGE OF SKILLED WORKERS?**

Our approach is a comprehensive personnel development concept, that includes transparency and continuous communication. We attach great importance to employer branding in order to show that HAINBUCH is a very attractive employer. Among the benefits that we offer our employees include attractive remuneration, the employee program happy@HAINBUCH program, team events and the job bike leasing.



Instagram Account



Career portal

APPRENTICE PROJECT: OVERSIZED SHARPENER BASED ON A LATHE WITH HAINBUCH CHUCK AND AUTOMATIC COUNTING SYSTEM

Industrial mechanics and mechatronics apprentices and a mechanical engineering student were given the task of creating a demonstration object for apprenticeship fairs. The project included independent project planning, costing and, of course, design and production.



+++ NEWS WORLDWIDE +++

UK

DAVE THOMPSELL

HAINBUCH UK UNDER NEW MANAGEMENT

Dave Thompsell will be in charge of HAINBUCH UK in future. He has worked for over 30 years in the mechanical engineering industry in various sales positions. Amongst others he was Sales & Business Manager at Automatic Engineers [Hinckley] Ltd.

We bid farewell to Nick Peter, Managing Director until July 2024, to his well-deserved retirement. Nick played a big part in making HAINBUCH UK what it is today. Many thanks for his tireless commitment!



USA

AUTOMATION

EXPERIENCE LIVE AT IMTS

Automation is often the missing puzzle piece for an efficient, future-proof production. We show our automated production cell with the automated change-over of complete clamping devices at various trade fairs and bring automation to life!

From Marbach, a trade fair cell went on a trip to Chicago in the summer. Visitors at IMTS can experience how the production of small batches can also be automated.

SWEDEN

CHRISTIAN ENQUIST

HAINBUCH SVENSKA UNDER NEW SALES MANAGEMENT

With Christian Enquist, an internationally experienced market expert takes over the sales management of HAINBUCH Svenska. Christian has been employed by our subsidiary HAINBUCH Sweden since April 2024. His previous positions included Atlas Copco, GM Saab and Scania.



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