

# TURNINGpoint

**05**  
2018

top story INDEX G420 // p. 05

## COMPLETE MACHINING IN NEW DIMENSIONS

new: INDEX MS22-L // p. 22

### MULTI-SPINDLE WITH SWISS-TYPE FUNCTION

The new iXworld // p. 15

### THE WORLD OF DIGITAL INTEGRATION

## ► Exhibition highlights 2018

---



Discover the INDEX & TRAUB world of machining live on site.

You need a free ticket for one of the two trade fairs?  
Just send us an email to: [marketing@index-traub.com](mailto:marketing@index-traub.com)

We look forward to your visit!

Dear customers and friends of the company,

Digitization is one of the central opportunities of the coming years. At the same time, it also presents many companies with major challenges. This topic is currently being further accelerated by pleasing economic conditions: Companies are looking for (new) ways to use existing resources even more efficiently, not only for economic reasons, but also due to limited production capacities.

The spectrum of approaches ranges from the generation of operating data, through centrally controllable maintenance of all installed machines, to early detection of possible machine and process faults – in short: transparency of status and process data. In this context, the aim is always to increase the utilization of existing resources by optimizing processes and minimizing downtimes. But it is also important to become leaner, more flexible and faster in the machine environment.

Machine manufacturers and users are equally challenged here. Machine manufacturers by offering secure connectivity with clear transparency and control for the customer with regard to the transmitted data. On the basis of this data, practical functions should enable more efficient handling of the machine. On the part of the machine users, the willingness to provide the necessary data for the desired analyses is required.

In all fundamental considerations regarding the structures and processes associated with this in the future, the first steps in implementation must now be taken quickly. At our Open House 2018 in April, we already presented exemplary apps that help you, our customers, to increase transparency and efficiency in your production. We are consistently expanding our range of services in close dialog with you. Already in September, we will present further, new possibilities at IMTS in Chicago and at AMB in Stuttgart.

Of course, we will also be presenting innovative machine concepts again. In addition to the INDEX G420 turn-mill center presented for the first time, the sliding headstock version of the INDEX MS22 CNC multi-spindle machine and new automation solutions will be the focus of our new presentations. Experience our innovations in advance on the following pages.

We wish you an exciting read and look forward to your visit at IMTS in Chicago and/or at AMB in Stuttgart.

We invite you to join us in a successful future!

Dr. Dirk Prust, Reiner Hammerl und Harald Klaiber  
Executive board



## Productive manufacturing solutions

- 04** The new INDEX G420 turn-mill center – Complete machining in new dimensions
- 22** Multi-spindle with swiss-type function - INDEX MS22-L

## Innovative Technologies

- 14** Welcome to iXworld – the world of digital integration
- 20** New technologies for production: High-speed whirling & Chipmaster

## Successful together

- 10** Combination of turning & grinding in Czech Republic
- 18** Sliding headstock turning technology for medical technology in Japan
- 28** High-tech in the shadow of the Mont Blanc

Turn-mill center INDEX G420

# NEW DIMENSIONS

The new INDEX G420 is an innovative turn-mill center in a class of its own for high-performance machining of large workpieces. Especially when it comes to efficient production with high complexity and variance.



### Powerful motorized milling spindle

- Y/B quill kinematics
- 12.000 rpm / 26 kW / 150 Nm
- Complex 5-axis milling operations

### Workpiece handling unit

- 2 linear axes
- Parts up to 20 kg & Ø 120 mm

### Working area

- Turning length 1600 mm
- Optimized chip flow

### Tool turret

- 12 tool places each / live / VDI 40 (max. 5,400 rpm, 7.5 kW & 35 Nm)
- Linear Y axes ( $\pm 70$  mm)
- Optional: Turret steady

### Main & counter spindle

- Bar clearance Ø 102 mm
- Powerful motorized spindles (max. 3,500 rpm / 41 kW / 920 Nm)
- Chuck up to Ø 315 mm (optional: Ø 400 mm)

In many areas of modern metalworking there is no way around complete machining. Hardly any other machine tool manufacturer has implemented customer ideas in innovative machine concepts as consistently as the INDEX group with its G and R series. With the INDEX G420, a new outstanding turn-mill center of a special class has been developed.

The basis of the INDEX G420 is a mineral cast bed in monoblock design. The selected geometry and design provides such an extraordinarily high inherent stability that the machine can be removed from the hook during installation and can be installed on its three-point support without requiring a foundation.

With a machine weight of 22 tons and a footprint of 15 m<sup>2</sup>, this concept offers along with the generously dimensioned linear guides very good damping properties. In addition, a ratio of static masses to moving masses of significantly above 5 not only promises excellent stiffness, but also enables brilliant dynamic properties with pronounced low vibration.



 **Flange**  
Dimensions: D 180 x 120 mm  
Material: Steel



 **Turret head**  
Dimensions: 273 x 76 mm  
Material: Steel

Another unique feature is the vertical working area in connection with two turrets at the bottom, which has no inclined stem and thus ensures excellent chip flow. The chip conveyor can be mounted on the left or right side, depending on customer specifications, so that the available installation area can be used optimally.

Much attention was paid to ergonomics in the new development. All relevant components, such as main and counter spindles, turret, motorized milling spindle, and

#### Tool magazine

- > up to 58 tools or 115 tools  
HSK-T63 or Capto-C6



#### iXpanel - i4.0 ready

- > 18.5" touchscreen
- > Based on: Siemens S840D sl
- > Industry 4.0 features

More details:  
[index-traub.com/ixpanel](http://index-traub.com/ixpanel)

**Flange**

Dimensions: D 215 x 110 mm  
Material: Steel

**Bearing flange**

Dimensions: D 105 x 137 mm  
Material: Steel

**Shaft**

Dimensions: D 60 x 510 mm  
Material: Steel

tool magazine, are easily accessible for the operator. In addition, the loading and unloading area for setting up the tools for the motorized milling spindle has been positioned ergonomically at spindle height.

The Z axis slides of the upper turret with the motorized milling spindle and the Y/B axis with hydrodynamic bearing support are symmetrically designed as a gantry. With the high-performance drive (max. 26 kW, 150 Nm and 12,000 rpm) and the B axis driven directly by a torque

motor and featuring hydrodynamic bearing support, the most diverse drilling and milling operations can be carried out. A Y stroke of +/-170 mm, a swivel range of the B axis of +/-115 degrees, as well as a large X travel of 750 mm allow the operator to produce any geometry easily and productively with up to five-axis machining.

With the motorized milling spindle and the two turrets, the INDEX G420 can access a total of three tool carriers, which gives it an absolutely unique selling point on the market. The motorized spindle operates with a single or optional double-row tool magazine, which provides space for 58 or 115 tools (HSK-T63 or Capto C6). Tools up to a tool weight of 10 kg and a length of 500 mm can be used as standard. Therefore, the use of long projecting tools, particularly beneficial for multi-axis machining, also presents no problems.

Since each turret is equipped with 12 tool stations (VDI40), enough tools are available to cover even demanding tasks without requiring additional setup. This is therefore the right choice for even the smallest batch sizes.

For effective complete machining of long or shaft-shaped workpieces, a turret steady rest can be mounted on the turret as an additional tool. >>

**Handling unit**

- > 2 linear axes
- > Loading and unloading, and removal of remnants
- > Part weight up to 20 kg



For more information and detailed technical data:  
[index-traub.com/g420](http://index-traub.com/g420)



## Technical data INDEX G420

Working range turning length	1600 mm
<b>Main &amp; counter spindle</b>	
Spindle clearance	102 mm
Max. speed	3,500 rpm
Max. output	41 kW
Max torque	920 Nm
<b>Motorized milling spindle</b>	
	HSK-T63 (Capto-C6)
Max. speed	12,000 rpm
Max. output	26 kW
Max torque	150 Nm
Swivel range B	± 115°
<b>Tool magazine</b>	
	58 (115) locations
Max. tool weight	10 kg
Max. tool length	500 mm
<b>Tool carrier</b>	
	12 x VDI 40
Max. speed	5,400 rpm
Max. power	7.5 kW
Slide travel X / Y / Z	85 / ±70 / 1900 mm
<b>Dimensions</b>	
L x W x H in mm	5060 x 3000 x 3165

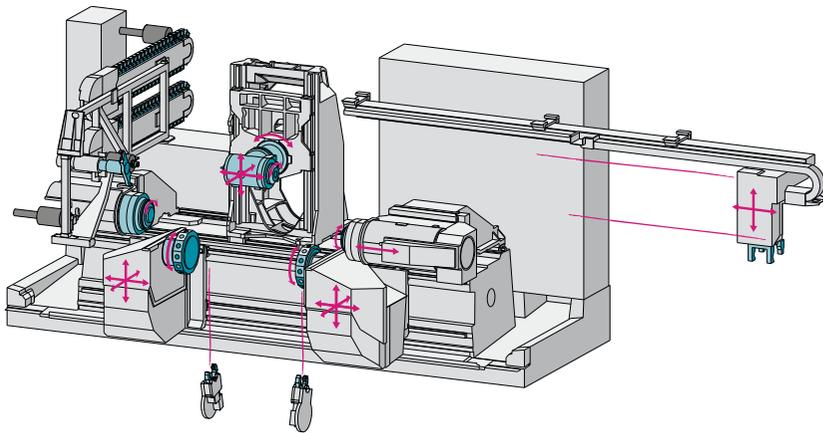
>>

Thanks to the large working area and the distance between the main and counter spindles, simultaneous machining is possible with the motorized milling spindle and the tool turrets at the main and counter spindles with no risk of collision. By moving the tool turrets down, away from the collision zone, each tool carrier can machine freely on both spindles.

Both work spindles are fluid-cooled and, in addition to their high dynamics, power (41 kW) and torque (920 Nm), offer a bar clearance of 102 mm.

A size 340 clamping device can be used as standard. The max. chuck size is 400 mm. The maximum turning length of 1,600 mm allows economical machining of a very wide range of parts.

Optionally, a 2-axis handling unit can be integrated for loading and unloading as well as removal of remnants up to a part weight of 20 kg, so that the INDEX G420 has everything for low-manned/unmanned operation.



For more information and detailed technical data:  
[index-traub.com/g420](http://index-traub.com/g420)

## AEROSPACE SOLUTIONS

Due to its multifunctional complete machining possibilities and ultimate precision, the new INDEX G420 turn-mill center is ideally suited for the production of components for the aerospace industry.

Learn more about the versatility of INDEX and TRAUB machines in our brochure and the Aerospace Video.



**Rotor holder**  
Dimensions: D 16 x 180 mm  
Material: 1.4305



Additional information:  
[index-traub.com/aerospace](http://index-traub.com/aerospace)



Video Aerospace  
> [index-traub.com/aerospace-video](http://index-traub.com/aerospace-video)



Short machining times due to the perfect combination of turning & grinding in one center

# THE RESULTS SPEAK FOR THEMSELVES

At Continental in Trutnov, Czech Republic, safety parts are hard-turned and ground in large series and with utmost precision requirements on INDEX V160C universal turning and grinding centers.



More customer success stories  
can be found on our website:  
> [index-traub.com/success](https://index-traub.com/success)



The heart of every common rail system is the cylinder. Frank Todt, planning technologist responsible for this area at Continental, explains, "Here the diesel fuel is compressed and the pressure accumulator, i.e. the rail, is 'pumped up'. The rail then provides the injector with relatively uniform pressures of up to 2500 bar without adverse pressure peaks.

Of the cylinders, delivered as forged blanks (material 16MnCr5 tempered to 600 HV or 64 HRC), around two million units are currently manufactured in Trutnov in three different variants, primarily for the PSA Group and Ford. Production takes place around the clock, seven days a week. Frank Todt, who manages cylinder production in Trutnov from the Limbach plant and is responsible for the project, explains, "In the past, the cylinders were supplied as ready-to-install purchased parts, first pre-machined in the classic manner on a rotary cycle machine and then finish-machined on high-quality cylindrical grinding machines.

When Continental decided to carry out its own production in the future, one of the first tasks was to choose the right machine concept."

At the time, Continental was thinking primarily of classic grinding machines and only asked the INDEX group because a supplier had made good experiences with the V160C vertical turning/grinding centers. Helmut Anders, process technologist responsible for cylinder production at the Trutnov plant, recalls, "The original question was, 'can we achieve at all the accuracies with a standard lathe just like with a high-performance grinding machine.' We were very skeptical at the beginning, but already the first results convinced us."

#### **Precision and long-term accuracy**

The machine layout of the V160C is designed for the loads during turning operations. Significantly greater forces occur here than during grinding. Basically, the V160C is oversized in terms of stiffness and stability for grinding tasks, but of course this leads to good results in the field of precision and long-term accuracy.

Today, 13 INDEX V160C vertical lathes are lined up in the cylinder production section in Trutnov. Each of them is optimally customized to the respective requirements profile. Rainer Stoll, responsible INDEX area sales manager, explains, "The INDEX V160C is based on a modular design. At the beginning we have the basic machine and then decide in a joint discussion whether the customer machine needs a turret, an external grinding spindle or also two internal grinding spindles. If the requirements change over time, the configuration can be modified without major problems."

#### **Hard turning shortens process time**

Rainer Stoll describes the basic advantages of the INDEX V160C as follows: "Thanks to the process combination of turning/grinding, the user can always use the more cost-effective technology. In addition, hard turning and, of course, the optimized process time result in clear advantages," Frank Todt specifies, "For bores that are subsequently honed, we have completely eliminated the more time-consuming grinding process and rely solely on the significantly faster hard turning. Generally, it can even be said that almost all internal machining is done by hard turning today. This not only reduces the machining times, but we can also create optimum conditions for subsequent honing with a defined surface roughness." Today, three different variants are produced in Trutnov, with cycle times of 60 seconds per clamping. Helmut Anders explains, "The individual machines are not inter-linked, as we believe that an overall automated system is too susceptible to faults. With the circulating conveyor and the pick-up spindle, one operator is sufficient for the middle cylinder to ensure feeding and removal of parts



Frank Todt  
Continental

“With the required process capability indices, the number of expected defects per million parts is zero.”



About two million units of the cylinders in three different variants are manufactured in Trutnov.

on three machines. In addition, there is one setup engineer per shift, who maintains the machines, changes tools and takes the parts to the measuring devices.”

Frank Todt explains, “With the middle cylinder we achieve a machine running time of 60 seconds on the OP 10, for external and internal hard turning including measuring and external grinding. Since we map this operation on six machines simultaneously, we arrive at a system cycle time of 10 seconds. The core task of the second clamping on the OP 20 is the machining of the 40 mm long cylinder section with an internal grinding spindle at 120,000 rpm. The task is to machine the path and piston with such high precision that a metallic sliding seal is ensured. Due to the enormous pressures, mechanical seals can no longer be used to seal against the fluid.” In numbers: A roundness in the range of 0.003 mm with a roughness Rz of 0.5 and a profile depth Pt of 1 must be ensured over the entire length of the bore hole with a diameter of 6 mm. ‘Ensured’ is to be taken literally: With the required process capability index Cp of 2 and a CpK value of 1.67, the number of expected defects per million parts is zero. Frank Todt explains, “The functionally relevant dimensions of the cylinder are marked ‘safety’, which means danger to life and limb, so no compromises can be made there.”

#### Intelligent modular system

All INDEX V160C’s are pure standard machines that can be upgraded to customer-specific multifunctional machines by means of an intelligent modular system. For example, in addition to the live tool turret VDI30 with W-serration, an external grinding spindle with 6,000 rpm and a maximum diameter of 400 mm as well as four internal grinding spindles with up to 105,000 rpm are available for selection. If this is not sufficient, a high-performance spindle with 120,000 rpm can also be fitted.

And Frank Todt wants to mention another feature – the Virtual Machine software product: “We use it for component changes and program optimizations, which I usually create and check on my PC at our factory in Limbach. Then I transmit the program to Trutnov. Finally Mr. Todt again: “The investment in the INDEX machines paid off for us because we were able to integrate exactly the functions we needed for cylinder machining. And all this without having to resort to special purpose machines.”



Helmut Anders, process technologist at Continental, can provide more than 70 user cycles on the controls of the INDEX machines.



13  
success story  
grinding

The operator can always use the particular cheaper technology due to the process combination turning/grinding.



#### Continental in numbers (2016):

With annual sales of more than 40.5 billion, the Group employs around 230,000 people at more than 200 locations in 53 countries.

One of these sites is located at the foot of the Giant Mountains near the small Czech town of Trutnov. Founded by Infineon and later expanded by Siemens, the Trutnov plant has been part of Continental since 2008. Continental is represented here by the Engine Systems and Sensors & Actuators Division Powertrain business units. Around 1,200 employees manufacture components for exhaust gas recirculation, high-pressure pumps and sensors as well as actuators, turbo systems and common rail systems in the complex with almost 25,000 square meters of floor space.

#### Continental Automotive CZ s.r.o.

Volanovská 518  
CZ - 541 01 Trutnov

[www.continental-corporation.com](http://www.continental-corporation.com)



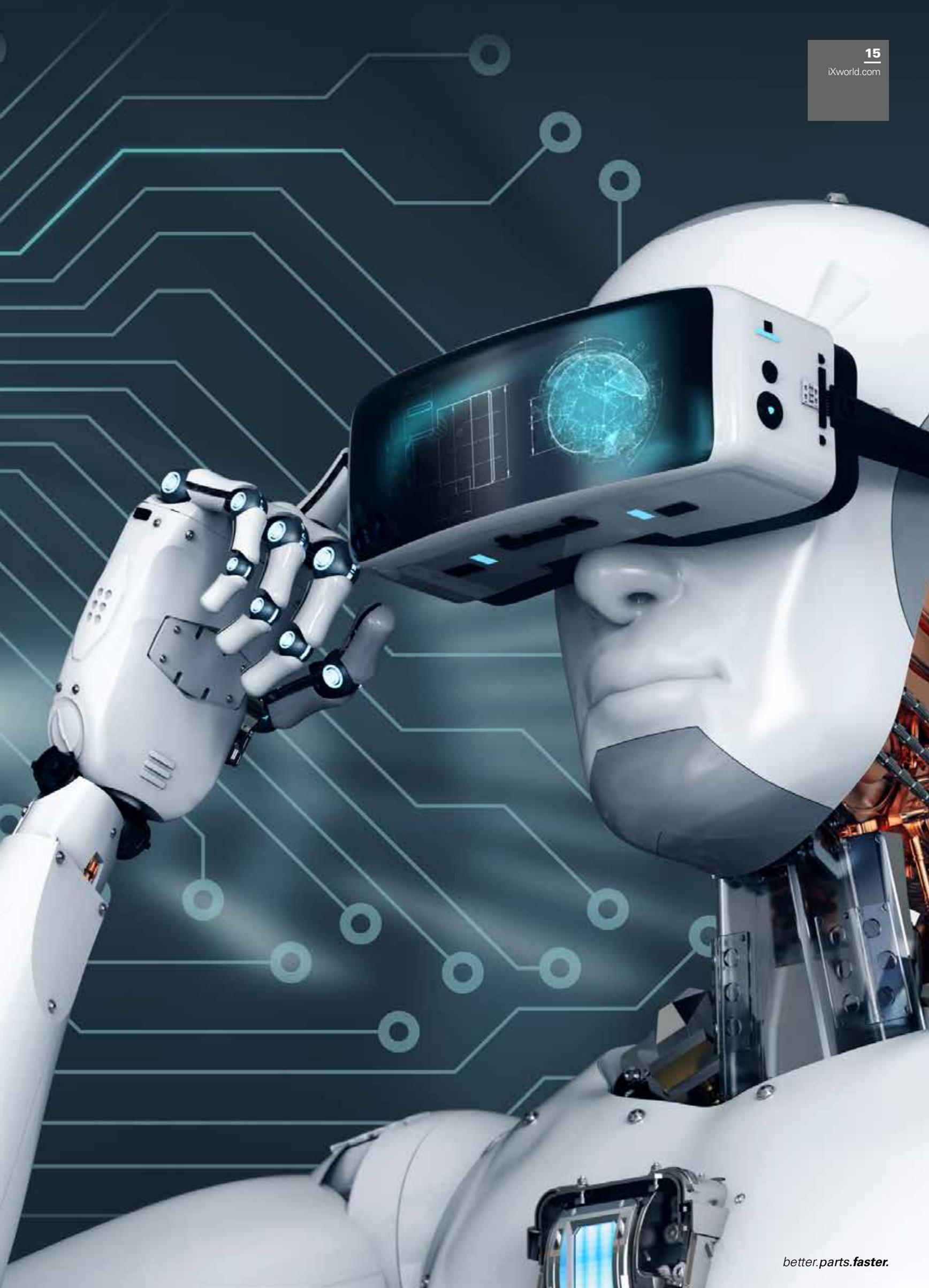
better.parts.faster.

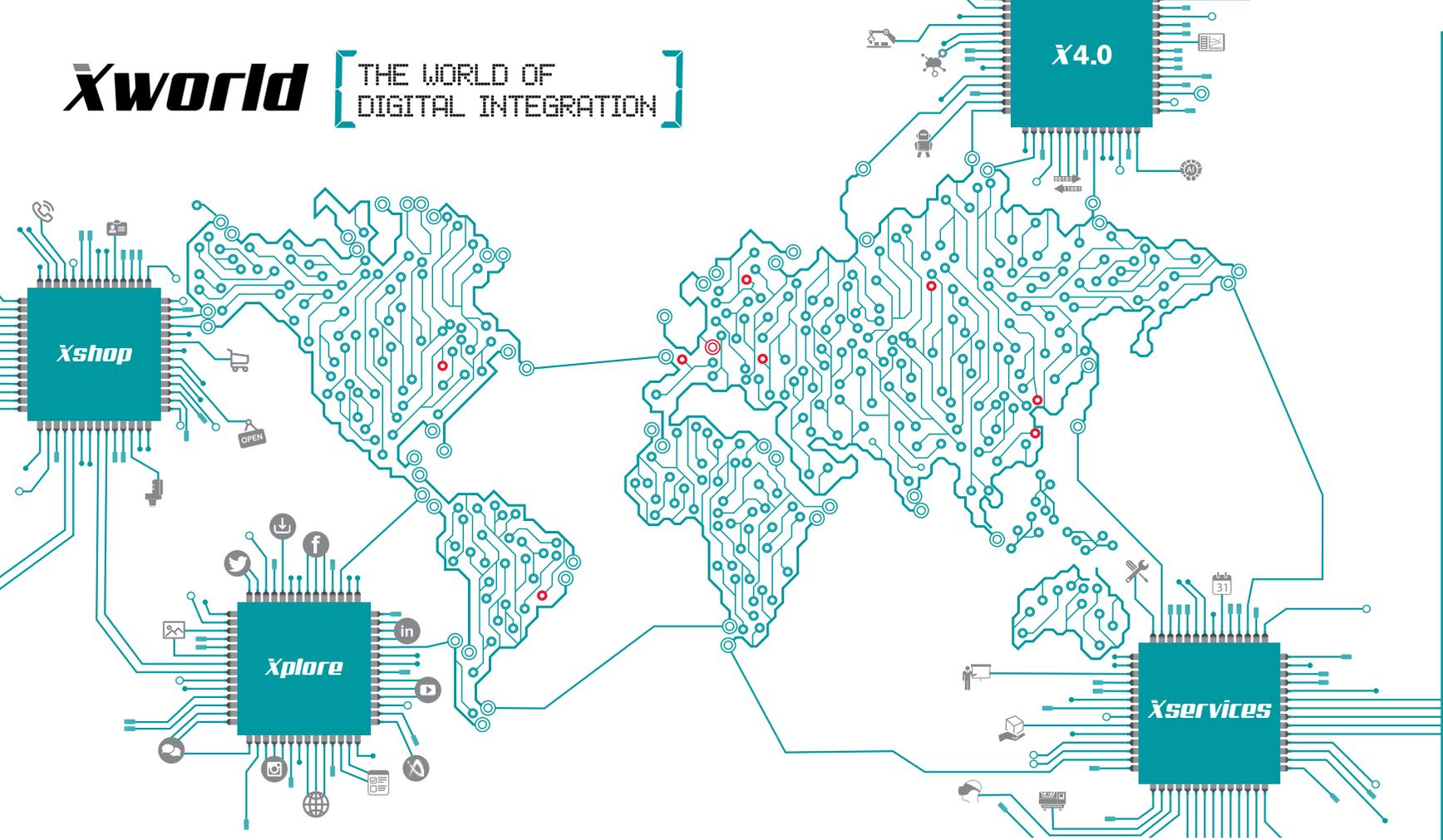
***ixworld***

## THE WORLD OF DIGITAL INTEGRATION

With **ixworld**, the INDEX group presents the concept of a cloud-based platform, which will profitably support the user in many areas.

Via the **ixplore**, **ixshop**, **ixservices** or **ix4.0** portals, users can call up digital support for their entire process chain.





With the “iXworld” platform, users can call up digital support for their processes, from information acquisition when purchasing machines, through machine operation, to service and spare parts procurement.

The advantages for customers were the focus of the development of iXworld. Werner Bothe, Head of Digitization, emphasizes: “We have developed a concept that leverages current digital capabilities to improve customer processes and bring economic benefits and added value to the user. In addition, we have taken care to simplify the handling of the existing data world for the user.”

An example is connecting the machines through an edge computer. It collects the acquired data (from the controller as well as from fixed and mobile sensors), performs some pre-processing if necessary, and sends it to the processing software in the cloud precisely as required. By selecting specific apps, the customer decides which data is transferred to the cloud. As edge computer, INDEX relies on the use of the so-called Genubox, which has already been delivered for some time with every machine as a gateway for the company’s Teleservice. As a result, these machines are already prepared for iX4.0 as well.

iXworld is used through the four available portals iXplore, iXshop, iXservices, and iX4.0. These have a uniform user interface, so that the different portals appear to the user “as an application made of one piece.”

iXplore provides the user with all important information about the INDEX Group and its range of products and services offered. This includes technical information about the machines and, in the future, about their configuration on the web. Collaboration between INDEX and its customers is simplified and streamlined by sharing documents through a common collaboration platform. This is a useful application, for example, in composing the machine configuration during the procurement process.

The iXshop replaces, among other things, the tried-and-tested INDEX Infoshop. In the future, all products required for the operation of INDEX and TRAUB machines can be procured through this portal. Also spare parts and services around the machines can be ordered through the iXshop.

### **iX4.0 – IoT-Platform**

- Monitoring operating states, Usage analysis and manufacturing processes
- Push messages (SMS/email) e.g., in case of disruptions
- Condition monitoring (e.g., monitoring of temperatures & motor data)
- Machines from 2007 onwards are iX4.0 ready
- Secure data connection
- OPC UA interface

### **iXservices – Service portal**

- Overview of the entire equipment
- Online documentation
- Spare parts identification (parts lists, 3D models)
- Error management with tracking
- Remote services (data glasses)
- Maintenance and care management
- Links customer ERP with iXservices

### **iXshop – Equipment portal**

- Online procurement of all products & services related to the machines
- Clear account administration (order history, open orders)
- Links customer ERP with iXshop
- Responsive design

### **iXplore – Experience INDEX**

- Information about products and services
- Information about the company and events
- Technical information
- Collaboration platform for simplified processes (e.g., for quotation and order processing)

## Received "100 Places for Industry 4.0" award

The Ministry of Economics, Labor and Housing of Baden-Württemberg has awarded the current prize winners of the "100 Places for Industry 4.0 in Baden-Württemberg" competition. A total of 28 companies and institutions were awarded prizes for successfully implementing digitization solutions in day-to-day operations.

"Industry, medium-sized businesses and start-ups in Baden-Württemberg are well on their way into the digitized future, as the projects awarded today impressively show," said Ministerial Director Leßner-Kraus (right) at the award ceremony in the Old Palace in Stuttgart.

The competition rewards innovative concepts from businesses that are successful with intelligent networking of production and value creating processes. INDEX-Werke was awarded for its innovative "Virtual Machine" product. The Technical Managing Director Dr. Dirk Prust (left) and Head of Control Technology Eberhard Beck (middle) proudly accepted the certificate.

Users can always review their current orders and their order history. As a special highlight, iXshop offers customers the opportunity to connect their ERP system online to ixworld. This allows customers to easily integrate the procurement of C-material into their approval process and logistics organization.

iXservices is a service portal that manages all customer machines, including those from third parties. It offers troubleshooting and repair management as well as maintenance and service management. INDEX customers will be supported in the future even in complying with legal regulations (e.g., testing of pressure tanks). Users can identify their required spare parts in the service portal, either by the classic spare parts list or using an interactive 3D model. With one click, the desired spare part is then placed into the shopping cart and can be ordered via iXshop. iXservices also provides a variety of tools that can be used, for example, to determine cycle times. When service is needed, remote access and customer support via data glasses and teleservice are also possible.

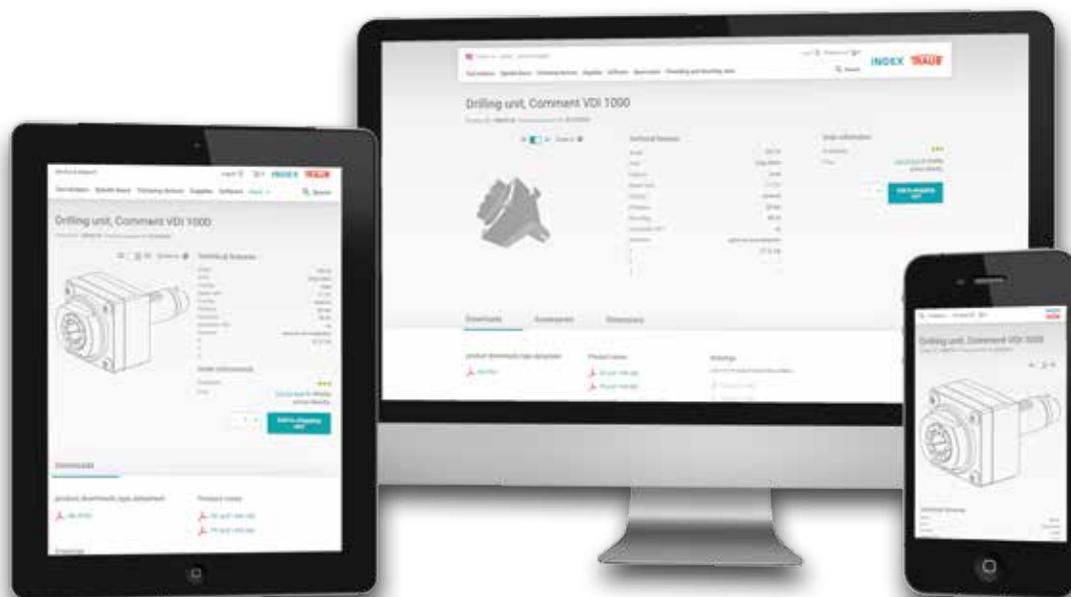
iX4.0, finally, is the IoT platform that integrates production machines into the digital world. It provides the user with status data from the machines for further analyses, and fault messages on mobile terminals (e.g., for monitoring machines during unattended operation). It is particularly important for INDEX to be able to connect also machines of the so-called brownfields with the cloud. On the basis of the established OPC protocol, it is possible to integrate machines of all controllers used by INDEX, dating back to about 2007.



**BRAND NEW:**  
[ixshop.index-traub.com](http://ixshop.index-traub.com)

# Xshop

The equipment portal  
around the machines



- ⊕ The complete equipment online
- ⊕ Responsive Design
- ⊕ Opening hours: 24/7

Complex sliding headstock lathe technology from Germany for Japanese medical technology

# SUCCESS ALWAYS HAS ITS REASONS

Europe remains the centre of precision machining of medical parts and devices. Other regions, for example Japan, are catching up quickly, however. So, it is certainly no coincidence that so many successful companies in the machining technology sector look for the 'Made in Germany' label.



Still, a large number of surgical instruments and implants are exported to Japan from the West. The local manufacturers, however, have so far failed to adapt their products to the specific requirements of the users there. The implants and surgical instruments are designed for western people, even making some practitioners concerned that these implants represent a higher risk of complications for Asian patients. So it is no wonder that more and more companies are being founded in Japan that produce medical products for the Asian market.

One of the first was Ryushi Takayama, founder and president of Takayama Instrument Inc. located in Yanaka, Tokyo, Japan. He has been working for more than 30 years in the manufacture of medical devices and in this time has developed his company into one of the world's

leading brands for neurosurgical instruments, which today exports its Kamiyama-style micro scissors, for example, to more than 30 countries. And over the years he has become a avowed fan of European machine tools: "Particularly in Europe it is not only the development of medical products that is quickly progressing. At the same rate the corresponding tools and machines are also being developed. In this context, the Japanese machine tool industry still has some catching up to do. With the difficult to process materials, problems have arisen again and again with local machine tools. On the material side, we mostly need to grapple with titanium alloys or other hard-to-machine materials. Due to the long cycle times, difficult clamping conditions and the resulting collisions, a great variety of problems can arise here. To avoid this, it is necessary to modify machines, adapt processing pro-





grams, use special tools and more frequently change out cutting oils and tools. I am firmly convinced that the machining of special materials such as titanium (Ti6Al-4V) or high-alloy stainless steel do not allow compromises on any level."

And furthermore: "At the same time, medical parts are generally highly varied and produced in small batches at that. This makes the number of necessary programs very high, which seriously complicates handling these parts for the machine operators and programmers. If additionally, the rotational properties of a machine are not close to optimal, the CNC programs become very extensive and plenty of time is required to check them and set up the machine."

He specifies: "European machines have a different philosophy. They are lightweight and compact, but at the same time very rigid and dynamic. In contrast, the Japanese machine tool, depending on the size of the machine, is heavy and powerful. I believe that the know-how of the European machine manufacturers in the field of medical technology, which has grown over the years, has led to excellent solutions."

Swiss-type lathe I recently came upon the INDEX agency YKT. A complex TRAUB sliding headstock machine with two turrets, a deep hole drilling device and a B-axis for complex lathe and milling work. I decided to visit the manufacturer immediately, to get more information and was very surprised to find all the functions that I imagined and wished for fully satisfied by the TRAUB machines."

"In machining tests, we managed straight away to create a hole measuring 0.7 mm and a depth of approximately 60 mm in titanium. I was absolutely convinced by this and ultimately prompted to purchase a TRAUB TNL18 on the spot and a TRAUB TNL32 shortly after, even if the costs of European machine tools could be 2-to-3 times as high as for Japanese machines."

The outstanding performance of the long lathe clearly made up for this disadvantage. In addition to the sturdy workmanship and the sustainable quality, the much higher productivity and the option of complete machining of a variety of its complex products in one machine was the decisive factor for the purchase.

“We develop the end products together with the surgeons. Understanding the user, as well as selecting the machine, is extremely important.”

Ryushi Takayama

So it is no wonder that Ryushi Takayama primarily looks for European products when investing in machine tools. "I think it is very important in the machine selection process to very intensively think about what you specifically need and which manufacturer is able to offer an adequate product."

On the Japanese market we haven't found what we're looking for. With European machine manufacturers this is different. Tell the manufacturers your production problems and requirements and an idea on how to implement these requirements in a solution develops immediately."

For example: When he decided on investing in a long automated lathe, whose advantages in the areas of machine geometry and multi-functional processing he was acquainted with on trips to Europe and the United States, he searched mostly within the field of European lathes. The requirement profile included: two turrets, deep-hole machining, use of a B-axis for complex processing in a machine. "In search of a suitable

This was not possible before. For example, during the production of a surgical instrument made of titanium, a deep drilled hole with a diameter of 1.2 mm and a depth of 100 mm had to undergo post-processing on another machine. Thanks to complete machining of these components on the TRAUB TNL32, the cycle time of 80 s was cut in half to 40 s. At the same time, the service life of the deep-hole drill used was increased by a factor of approximately 5 - 6.

In addition to the high processing speed of the INDEX products, he was also impressed by the variety of available tool holders, the good chip flow and, finally, also reduced use of personnel.



#### YKT Corporation // Sales partner

5-7-5, Yoyogi Shibuya-Ku  
JP - Tokyo 151-8567

ykt100@ykt.co.jp  
www.ykt.co.jp

#### Takayama Instrument Inc.

Yanaka, Taito-ku  
JP - Tokyo

www.takayamamicro.com



New production process

# High-Speed WHIRLING®



The high-speed whirling technique was developed for the production of bone screws with simultaneous turning and whirling operations. It offers considerable advantages for the manufacture of thread-type components, which are reflected in a reduction of production times, costs and an increased tool life.

## Your advantages:

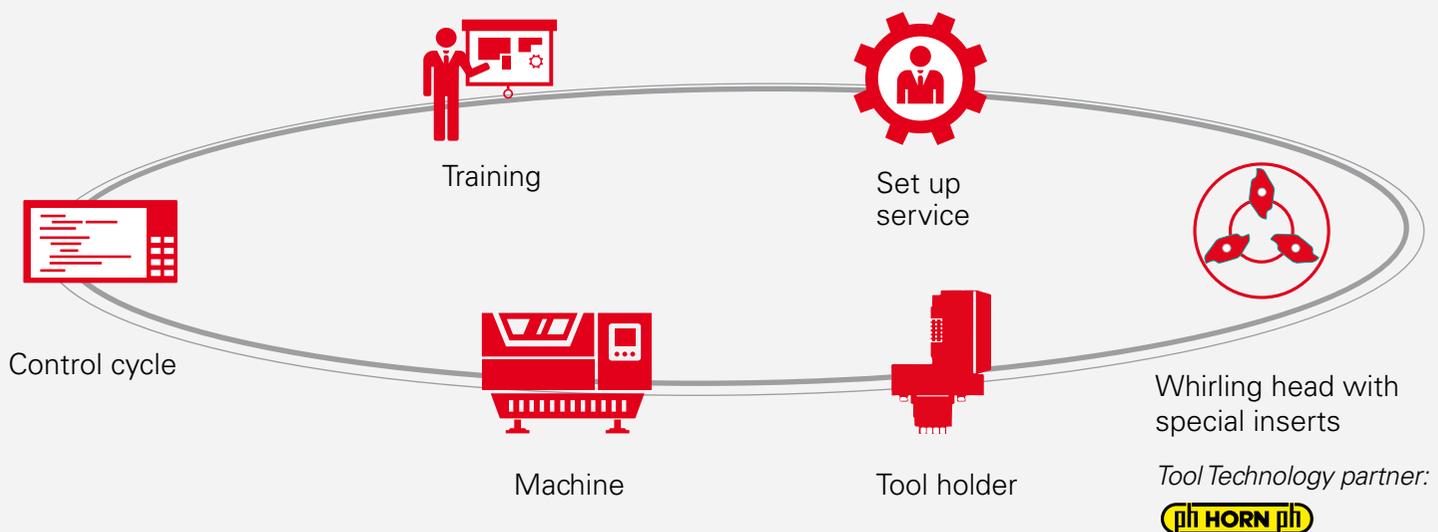
- ✓ Increase in productivity by up to **40%** by simultaneous turning and higher feed rates
- ✓ Lower unit costs
- ✓ Easy machining of multiple-start & conical threads
- ✓ Reduction of tool wear
- ✓ Higher surface quality

## Video High-speed whirling



▶ [index-traub.com/high-speed-whirling](http://index-traub.com/high-speed-whirling)

## Technology package High-speed whirling



Optimized chip breakage

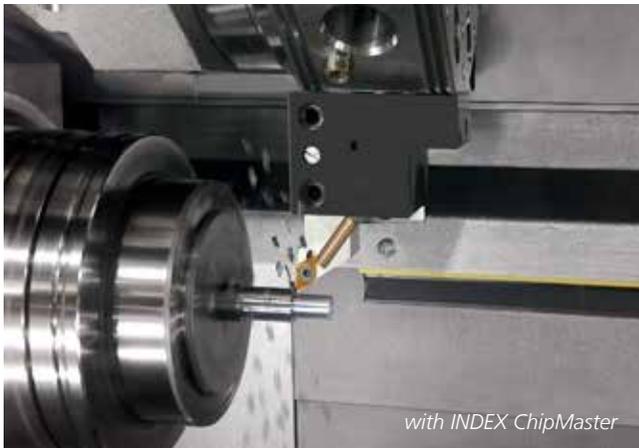
# PREVENTING CHIP CLUSTERS



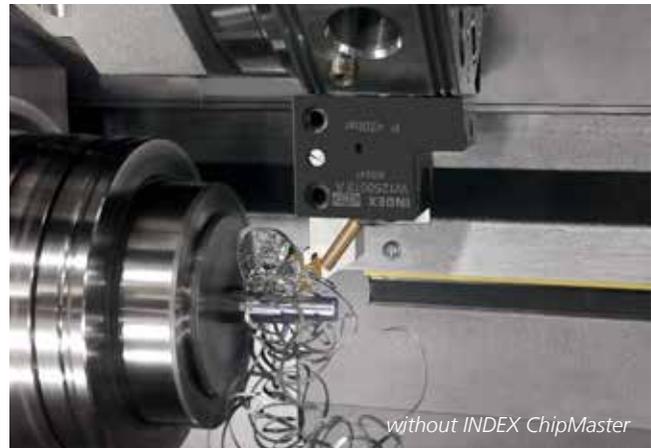
With the new ChipMaster chip breaking software integrated in the cycles, INDEX ensures controlled chip breaking during machining (longitudinal turning, face turning, contour turning and cutting off) of all materials used and at the same time ensures greater process reliability and higher productivity.

The new cycle-integrated chip breaking software, INDEX ChipMaster, sets new standards for your production. It optimizes chip breakage at variable feed rates. Independent of the material (e.g., aluminum, non-ferrous metals, stainless steels, titanium) of your workpiece, the speed

and the type of machining on the machine – INDEX ChipMaster is the ideal solution for economically optimized turning operations. The newly developed software can easily be used on INDEX lathes with current Siemens controls, or retrofitted if necessary.



with INDEX ChipMaster



without INDEX ChipMaster

## Your advantages

- ✓ Less scrap
- ✓ Fewer unplanned interventions by operators/maintenance personnel
- ✓ Increased tool life
- ✓ Higher productivity and process reliability
- ✓ Customer-specifically parameterizable and adaptable
- ✓ Can be used on INDEX single and multi-spindle machines, retrofittable
- ✓ Cost-effective solution



Further information & video:  
[index-traub.com/chipmaster](http://index-traub.com/chipmaster)

The new INDEX MS22-L for highly productive turning of long parts

# MULTI-SPINDLE WITH SWISS-TYPE FUNCTION



For more information and detailed technical data:  
[index-traub.com/ms22-l](http://index-traub.com/ms22-l)

The newly developed INDEX MS22-L enables highly productive machining of typical long turned parts on a multi-spindle automatic lathe. With the simultaneous use of up to 11 tools, the MS22-L is among the world's most productive solutions for the production of long turned parts.

## Technical highlights

- > 6 high-precision motorized spindles
- > Bar clearance 5 mm to 22 mm
- > Workpiece length up to 200 mm
- > 2 tool carriers per work spindle



## iXpanel - i4.0 ready

- > 18.5" touchscreen
- > Based on: Siemens S840D sl
- > Industry 4.0 features

More details:  
[index-traub.com/ixpanel](http://index-traub.com/ixpanel)

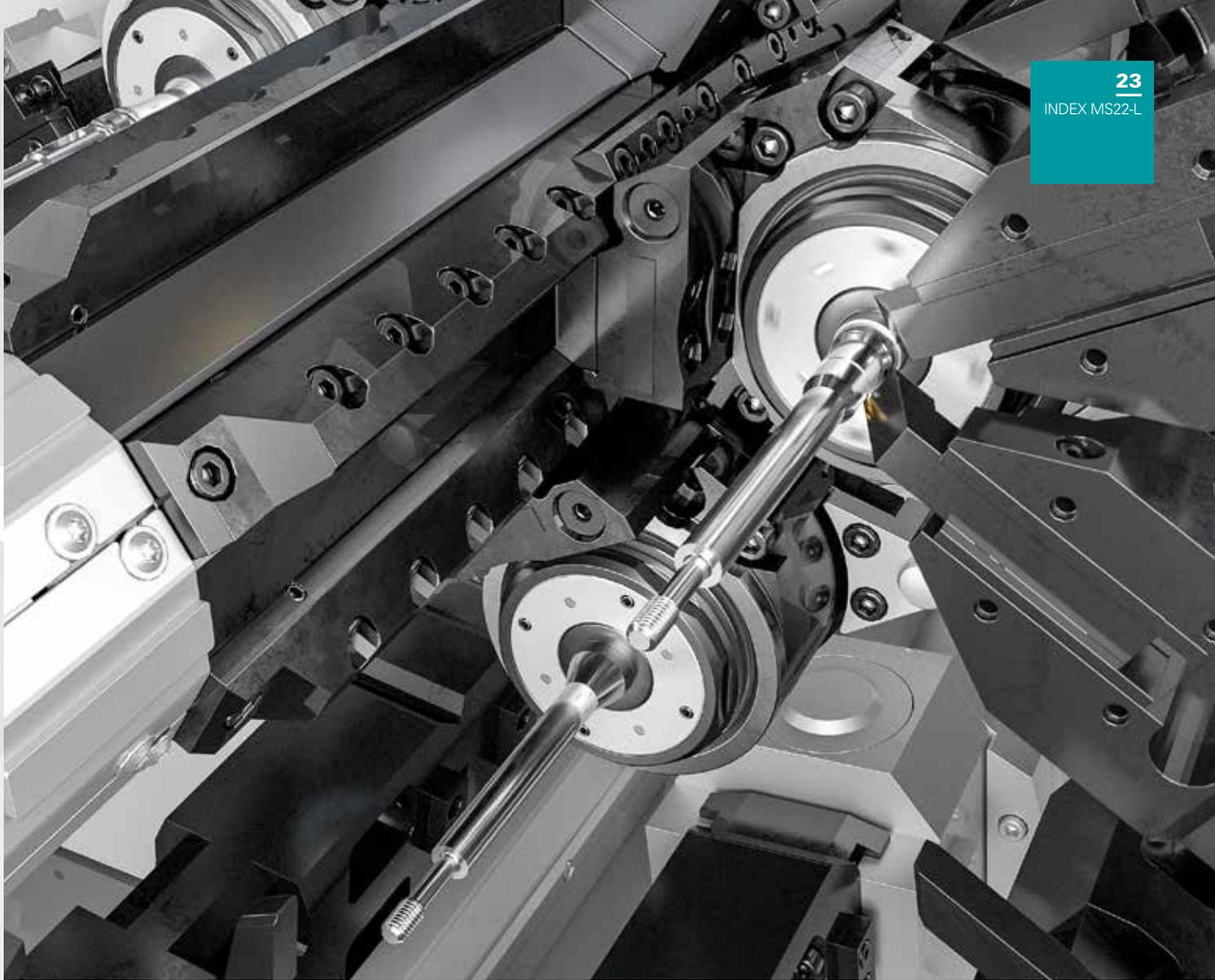
## Machine concept

- > Compact front-open design
- > Integrated swiveling synchronized spindle for rear-end machining
- > Damage-free storage of finished parts on conveyor belt
- > Versatile machining options thanks to C and Y axes
- > Use of live tools (e.g., milling)



## Shaft

Dimensions: D 16 x 180 mm  
Material: 1.4305



“ The MS22-L can achieve a part output of up to six single-spindle automatic lathes. ”

**INDEX multi-spindle swiss-type principle**

The core of the swiss-type turning unit is the centered guide block, set up on the spindle drum, on which the 6 long turning sleeves are moving.

The animation video of the MS22-L shows you exactly how the principle works.

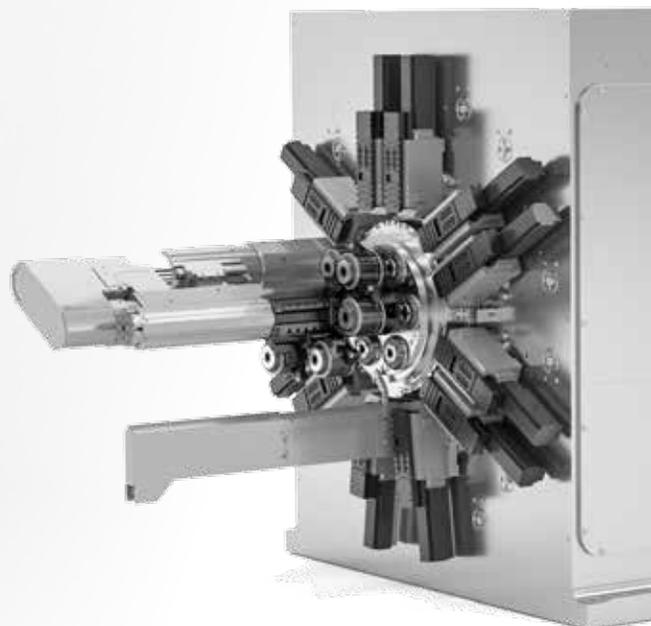
 Animation MS22-L  
> [index-traub.com/ms22-l-video](http://index-traub.com/ms22-l-video)



 **Drive shaft**  
Dimensions: D 14 x 100 mm  
Material: 1.4305



 **Bone screw**  
Dimensions: D 11 x 64 mm  
Material: Titanium



*better.parts.faster.*

INDEX France celebrates its 40th anniversary

# CUSTOMER ORIENTATION PAYS OFF

INDEX France was founded 40 years ago in Les Ulis in the greater Paris area. Today, the company employs 60 people together with its branch in Bonneville in the Haute-Savoie region.



INDEX France has every reason to celebrate. In addition to the company's 40th anniversary, the French subsidiary of the INDEX Group sold 113 machines last year, significantly exceeding its original targets. And that's no coincidence, but the result of a consistently customer-oriented strategy.

This includes, for example, a thorough understanding of the needs of the many regions. Laurent Boyer, Sales Manager in Haute-Savoie also emphasizes this, "Each of our sales regions has its own market conditions, industrial sectors and customer expectations. This is already very different within France, and French-speaking Belgium, Luxembourg and the Maghreb countries also have their own requirements."

Particularly widespread and in great demand are the INDEX multi-spindle machines. They are used by the aviation industry in south-western France as well as by

the numerous automotive suppliers represented in the Alps and Jura. In addition, many customers in northern France and Wallonia work with this type of machine. In these regions, however, there are also many users of smaller machines such as the ABC series. In the east and west of the country, as well as in the Lyon region, mostly precision mechanics is represented. Sliding headstock machines and turn-mill centers are often sold here.

INDEX turning machines were sold in France long before INDEX France was founded. Based on the strong industrial growth from 1970 to 1975 and thanks to the introduction of digital control, INDEX was able to gain significant market shares in France during this period, which ultimately formed the basis for the foundation of its own French subsidiary in Les Ulis in the greater Paris area in 1978. Shortly afterwards, an additional branch was opened in Scionzier in the Haute-Savoie Alpine



## A powerful, future-oriented team

INDEX France currently employs 60 people, all of whom are characterized by high competence, flexibility and versatility. Nearly 40 percent of them are German-speaking, which simplifies correspondence with the parent company. Also important: For some years now, the French location has been training more and more people itself, making sure that it conveys comprehensive knowledge. This means: the trainees also learn many things outside their core qualification and spend several months in various departments and plants of the parent company.



Bonneville



Les Ulis

region. Another milestone occurred in the mid-1980s, when INDEX was the first manufacturer worldwide to launch multi-spindle machines with CNC control.

Since then, both French locations have grown equally and are constantly gaining new customers. To cope with this growth, the Alpine branch soon moved into new buildings in Bonneville, expanded them in 2001 and integrated a much-used showroom in which machines are presented and demonstrated.

But machines can also be demonstrated at the Les Ulis site, as Christophe Pangault, technical director of INDEX France, emphasizes. "However, we also use the premises for customer training courses in programming and setting up the machines. We also offer training courses, such as for Virtual Machine, always tailored to the needs of our customers. We also have a full training and service center here." >>



- 1 The modern showroom in Bonneville with a fantastic view on the lake and the Alps
- 2 Best advice: The best production strategy is discussed in dialog with the customer
- 3 Ready: The machines are set up for customer-specific applications



4

In order to be well prepared for the future, INDEX France works with the same IT systems as the parent company and is therefore always up to date with the latest information.

INDEX France is also strongly represented at the Open House in Germany. The INDEX Group has been organizing an in-house exhibition for customers and partner companies every year since 2014.



5

The management of the French INDEX branch consider service and customer service to be equally important.

INDEX France always takes this opportunity actively and looks after the numerous French customers.

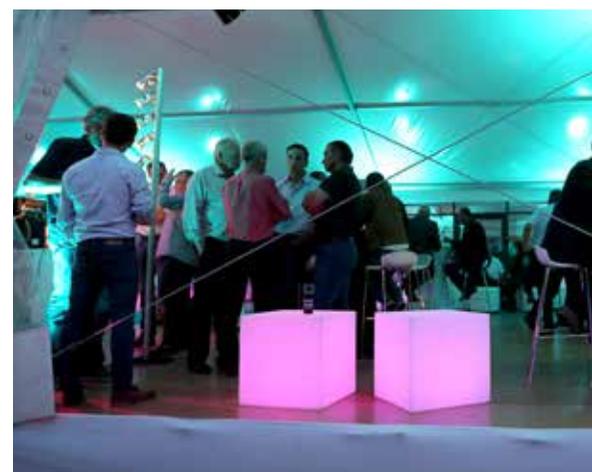
In order to meet future requirements even better, additional technicians are currently being hired and trained. 21 specialists are currently employed in the field and on the hotline to support their customers with great competence.

By the way: The date for the open house trip to Germany has already been set for 2019 – from March 27 to 28.

- 4 Modern communication: Colleagues from Bonneville and Paris exchange information on current topics via video conference.
- 5 Competent service: Highly trained specialists support the customer on the hotline and during on-site service calls.

## 40 years are celebrated!

INDEX France celebrated its 40<sup>th</sup> anniversary with customers on June 14, 2018. In the showroom in Bonneville, in addition to a multi-spindle automatic lathe INDEX MS16, conviviality, memories, music, and fine delicacies were in the foreground. In short: a successful and entertaining evening in an atmospheric ambience that all guests visibly enjoyed.



## In demand

Interview with Christophe Pangault, Technical Director (right), and Laurent Boyer, Sales Director Haute-Savoie region (left).



### *What makes INDEX France stand out?*

L. Pangault: In erster Linie durch die qualifizierten und engagierten Mitarbeiter sowie durch die große Selbstständigkeit der beiden Niederlassungen. Wir haben eine Struktur, die es uns erlaubt, Projekte von A bis Z zu betreuen. Das heißt, wir konfigurieren die benötigten Maschinen in enger Zusammenarbeit mit unseren Kunden – von der Prozessentwicklung über den Werkzeugbedarf bis hin zur Inbetriebnahme, etwaigen Schulungsmaßnahmen und späteren Servicearbeiten. Dabei können wir uns auch stets auf die Unterstützung durch die Ingenieure der Muttergesellschaft verlassen, wenn wir diese benötigen.

### *INDEX France is currently very successful. How do you see the future?*

C. Boyer: Das Jahr 2017 war wirklich hervorragend. Wir haben unsere Ziele deutlich übertroffen. Aber auch die Zukunft sehe ich positiv. Wir sind optimistisch, aber auch vorsichtig und gehen daher von einer Normalisierung des Geschäfts aus.

### *Many companies currently have difficulties in finding qualified employees. You too?*

L. Pangault: Yes, of course, this affects us just as much as the entire industry. In this respect, we are very pleased that our employees feel comfortable with us and that we do not have a high fluctuation rate.

We are also increasingly training young people – for example, in partnership with the CFAI association. And this qualification of our own employees does not end after the first vocational qualification, but continues throughout the entire career at INDEX. We are not only constantly developing our machines and services, but also the know-how of our employees.



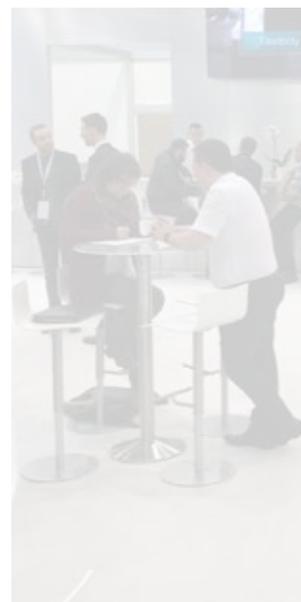
### SAVE THE DATE

Don't miss any of the trade fairs INDEX France will be present at:

**MICRONORA // Besançon**  
9/25 - 9/28/2018

**SIANE // Toulouse**  
10/23 - 10/25/2018

**INDUSTRIE // Lyon**  
3/5 - 3/8/2019



### CONTACT

#### INDEX France s.a.r.l.

1A, avenue du Québec  
ZA de Courtaboeuf  
91941 LES ULIS CEDEX  
Phone +33 (0) 1 69 18 76 76

399, avenue de la Roche Parnale  
74130 BONNEVILLE  
Phone +33 (0) 4 50 25 65 34

> [info@index-france.fr](mailto:info@index-france.fr)  
> [www.index-france.fr](http://www.index-france.fr)



Innovative medium-sized company relies on precision and flexibility of multi-spindle machines

## HIGH TECH IN THE SHADOW OF THE MONT BLANC

To be successful in contract machining in the long term, a company must be able to offer more than quality and favorable prices. The French medium-sized company JCM Décolletage masters the increasing demand of customers for flexibility regarding quantities and deadlines as well as further services with great success.

“We have developed from a traditional bar-turning machine operator to a very broad-based machining specialist with a high service share,” explains Michel Jiguet-Covex, owner and managing director of JCM Décolletage in Sallanches (FRA). This region within sight of Mont Blanc is a center of the French metal industry. Founded by Jiguet-Covex in 1979, the company initially began producing series parts on low-cost and highly productive automatic lathes. It was recognized early on that the best strategy for the future is to expand the range of technologies and services offered step by step.

### Complete package of services ...

Instead of limiting themselves to cheap mass-produced parts according to drawing

specifications, the company consistently pursued the path to becoming a full-service provider capable of offering its customers the required process chain, including the necessary additional services, right up to development partnership in the design of new products. In addition to the production of prototypes and pre-series, these development services also include the complete development of the production process.

Today, JCM supplies numerous industries from automotive manufacturers through mechanical engineering and aerospace to medical technology.

### ... Flexibility ...

“Another of our maxims is to respond as flexibly as possible to customer requirements,” reveals M. Jiguet-Covex. In principle, this is

also part of the company’s service philosophy, as he explains. This starts with the response time to requests. A first statement is sent to the customer within the same day if possible. Flexibility also includes the aspects of materials, dimensions and quantities. In addition to practically all common industrial metals, plastics are machined as well. Series sizes are flexible. The company handles everything from small series to quantities of several million units and thus offers the customer a “one-stop shop”.

### ... and a wide range of technologies

“For the same reason, we have systematically expanded our technology range over the years,” says D. Grandjacques. Therefore, around 10% of annual sales are consistently invested in new machines.



1 In partnership: (from left) Michel Jiguet-Covex (JCM), Laurent Boyer, Sophie Penigot, Benoît Eture (all INDEX France) and David Grandjacques (JCM)

2 JCM Décolletage now has its second INDEX MS40 multi-spindle machine

3 These steel components for a road construction machine were case-hardened after roughing and finished in hard condition.

4 Michel Jiguet-Covex, owner and managing director of JCM Décolletage

Photos: Klaus Vollrath



“We have again opted for an INDEX machine because we have had a very good experience with it.”



Michel Jiguet-Covex

At present, the production is divided into four different areas. The “classic” automatic lathe shop with multi-spindle lathes mainly controlled by cam plates was expanded in 2013 and 2017 by two CNC-controlled INDEX MS40 multi-spindle automatic lathes. These allow simultaneous processing of bars up to 40 mm in diameter on 6 spindles and are much easier and faster to convert.. In two In other departments, complex parts are manufactured on 26 CNC-controlled sliding or fixed headstock automatic lathes, which can handle high-precision and very complex machining operations. This is where predominantly parts for electronics, aerospace and medical technology are manufactured.

#### Why the INDEX MS40 was chosen

“The decision to purchase the INDEX MS40 was made solely because we wanted to address new, as yet untapped market segments with this system,” smiles Jiguet-Covex. With the cam-controlled multi-spindle machines previously used, certain categories of parts with higher requirements in terms of geometric complexity and precision simply could not be produced. The existing single-spindle machines, on the other hand, could not keep up in terms of productivity and costs. With the new systems, he was able to manufacture more sophisticated

products at competitive costs and at the same time react much more flexibly to requests for smaller series or to sudden fluctuations in order activity. His experience was so positive that he has now purchased another INDEX MS40, which is used together with a fully automatic inspection and assembly device for the manufacture of a sophisticated module for automotive turbochargers.

#### Close partnership with the manufacturer

“We have again opted for an INDEX machine because we have had good experience with these products and with the local representative,” M. Jiguet-Covex sums up. They were always very satisfied with the service, advice and training provided by the manufacturer. Beyond normal business relations, there is also a development partnership with INDEX, for example, to assess new tasks with regard to their feasibility or to develop special accessories for special applications.

#### JCM Décolletage

320 av. André Lasquin  
F - 74700 Sallanches

info@jcm-decolletage.fr  
www.jcm-decolletage.fr



### Siemens award goes to INDEX group

At the Open House 2018, Siemens AG, a long-standing partner for control technology, used this venue to honor INDEX. The occasion: At the start of 2018, INDEX was able to sell the 1000th license of the Industry 4.0 "Virtual Machine" product, a development by INDEX based on Siemens control technology. The licensee was Paul Bippus GmbH & Co KG in Oberndorf am Neckar, which acquired the 1000th machine as part of an investment in a INDEX MS22-8 multi-spindle automatic lathe.

The Virtual Machine is a digital 1:1 copy of a real machine and offers great potential for increasing productivity. With Virtual Machine, the user can virtually plan, test and even optimize in advance new startups and machining processes, away from production, in real time and with 100% transferability to the real machine.

>> [www.index-traub.com/virtualmachine](http://www.index-traub.com/virtualmachine)



From left to right:  
Jürgen Albrecht, Siemens AG, Dr. Dirk Prust, Technical Director INDEX, Eberhard Beck, Head of Control Technology INDEX, Martin Melzer, Bippus GmbH & Co. KG, Jürgen Köhler, Siemens AG

### Market presence strengthened

To increase the market presence and to intensify the customer service, the regional sales in Poland and Czech Republic was strengthened with additional partners and INDEX employees.

Our sales and service partner Galika who has been established in both countries for years, will still be available without limitation for the customers of the INDEX group in these important markets.

>> [www.index-traub.com/locations](http://www.index-traub.com/locations)

### Gold medal for the G200 turn-mill center

During the Machtool trade fair in Poznan, Poland, the INDEX G200 turn-mill center was awarded the Zloty Award in gold. The prize honors innovative and productive technologies and was presented to the INDEX sales team during a public ceremony. >> [index-traub.com/g200](http://index-traub.com/g200)



The INDEX sales team in Poland: Norbert Hartwich (2nd from left) and Dominik Twardawa (3rd from left) at the award ceremony



### Variety of variants completed

The sliding headstock lathe TRAUB TNL20 is particularly suitable for workpieces of medium and high complexity. In addition to the previous variants of TNL20-11 with front working attachment and the TNL20-9, the TNL20-9B variant completes the available options of the machine. Thanks to the additional B axis in the upper tool turret, complex parts and contour elements can be machined at any angular position without having to resort to angled tool holders for operations such as milling, drilling or transverse threading.



more info & technical data:  
[index-traub.com/tnl20](http://index-traub.com/tnl20)

### New design and automation

The two productive automatic lathes INDEX C100 and INDEX C200 are available in the new machine design with the start of January 2019. As an option, the automatic lathes can be expanded with the iXcenter robot cell to automate manufacturing processes efficiently.

>> [index-traub.com/automaticlathes](http://index-traub.com/automaticlathes)



Explore the world of turning and milling with INDEX and TRAUB in social media.

 [index-traub.com/youtube](https://www.youtube.com/index-traub.com)

 [index-traub.com/linkedin](https://www.linkedin.com/index-traub.com)

 [index-traub.com/industryarena](https://www.index-traub.com/industryarena)

 [index-traub.com/facebook](https://www.facebook.com/index-traub.com)

 [index-traub.com/instagram](https://www.instagram.com/index-traub.com)

 [index-traub.com/twitter](https://www.twitter.com/index-traub.com)

## TRADE FAIRS & EVENTS

### IMTS // USA

September 10 - 15, 2018 / Chicago

### AMB // GER

September 18 - 22, 2018 / Stuttgart

### MICRONORA // FRA

September 25 - 29 / Besancon

### MSV // CZE

October 1 - 5, 2018 / Brünn

### MAKTEK // TUR

October 2 - 7, 2018 / Istanbul

### BI-MU // ITA

October 9 - 13, 2018 / Mailand

### JIMTOF // JAP

November 1 - 6, 2018 / Tokio

Additional trade show dates can be found on the web at:

[www.index-traub.com/events](https://www.index-traub.com/events)

## LEGAL NOTICE

**TURNING**point 05.2018  
September 2018

### Publisher

INDEX-Werke GmbH & Co. KG Hahn & Tessky  
Plochingen Str. 92  
73730 Esslingen  
Phone +49 (0) 711 3191-0  
info@index-werke.de  
www.index-werke.de

**Responsible for the content**  
Reiner Hammerl

**Project management & Layout**  
Stefan Müller-Recktenwald

### Editorial Support

k+k-PR GmbH, Augsburg  
Klaus Vollrath

### Printing

WAHL-DRUCK GmbH, Aalen

### Photos

INDEX-Werke GmbH & Co. KG Hahn & Tessky  
iStockphoto: S. 9 - frankpeters / S.25 - eugenesergeev

Please note: All pronouns referring to customers and employees are intended to refer to either men or women.

### Copyright © 2018

INDEX-Werke GmbH & Co. KG Hahn & Tessky  
All rights reserved. All images, graphics, and text is subject to copyright and other laws protecting intellectual property. No part of this publication may be copied, re-produced, or modified without express written permission from INDEX-Werke GmbH & Co. KG Hahn & Tessky.

## UP TO DATE

Don't miss any events and news.  
Sign up for our newsletter!

>> [www.index-traub.com/newsletter](https://www.index-traub.com/newsletter)





**INDEX**  
**TRAUB**

# **OPEN** **HOUSE** **2018**

▶ MARCH, 26 - 29



## **SAVE THE DATE !**

Please mark your calendar for this week.  
We look forward to your visit.

▶ Review: video & photos of Open House 2018:  
**[index-traub.com/openhouse](http://index-traub.com/openhouse)**

*better.parts.faster.*