INDEX TRAUB

The customer magazine of the INDEX Group

TURNING point

06
2019

*better.**parts.faster.***

Dear customers and friends of the company,

We are living in turbulent times. But when we look back, we see that this has always been the case. The only difference is the kind of challenges facing each particular time in history.

Now, after a good 20 years of concord and global prosperity, changes to the environment in which we operate have caused changes to the work environment. Political tensions and the establishment of trade barriers will leave their mark for some time to come. In addition, the dynamic disruption being enacted on the mainstay of our prosperity – the automobile – is likely to have a lasting effect. It will be interesting to see whether widespread prosperity is possible without this (combustion) engine of growth.

Despite changing conditions, though, the key challenges remain the same and predominantly concern flexibility and efficiency: flexibility to respond quickly and easily to new requirements and efficiency to reliably produce required quantities to exact quality standards while minimizing the use of resources. It's especially with regard to these twin aspects that we see ourselves in our role of supporting you, as your partner, as best we can.

In terms of flexibility, we have considerably simplified the setup of multi-spindle machines with the latest version of a tool holder interface, which we will be showcasing for the first time in the 3rd generation of the INDEX MS32-6 CNC multi-spindle automatic lathe. Additionally, the new MS32-6, with its grooving, boring and cross slides, can be configured to meet a wide range of customer requirements and, if necessary, can be converted with relatively little effort.

But it is the INDEX C200 *tandem* that marks a major step forward in terms of efficiency. The established C200, now also with tandem main and counter spindles, achieves double the output – for a low additional investment – over the same area as a single-spindle machine. The machine requires just a single operator and only a very minor energy increase.

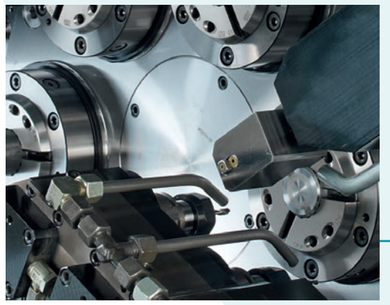
Whether you use INDEX, TRAUB, or third-party brands, our iX4.0 solutions provide you with the transparency you need regarding usage of your machinery. A growing range of apps provides analysis tools to help achieve higher machine utilization and thus greater efficiency and cost-effectiveness.

Our new machine rental program, with the option to buy, has also been designed with maximum flexibility in mind. It allows you to adjust your capacity to meet changing or hard-to-predict requirements at short notice – depending on the market situation.

Your success is our utmost concern. All these innovations are now briefly set out for you on the following pages. Beyond that, we would be delighted to demonstrate our products to you during EMO in Hanover this September.

It's time for you to be inspired by the treasure trove of opportunities offered by INDEX – inspiration for you personally and for your success!

Reiner Hammerl,
Dr. Dirk Prust,
and Harald Klaiber
INDEX Group
Executive Management
(from left to right)



Versatility is the strength of the INDEX MS32-6. Whether complex parts or different processes are involved – anything is possible.

Ideally equipped for a networked world – use iX4.0 for all the benefits of an IoT platform in your production processes.

For the construction of its largely customer-specific plant designs, Weber Maschinenbau requires some 14,000 different turned parts, in batch sizes of between 1 and 10.

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Grooving, drilling, and more

The new INDEX MS32-6 CNC multi-spindle automatic lathe is ideal for the series production of high-precision turned parts from bar stock with a diameter of up to 32 millimeters. Thanks to a flexible machine concept, the CNC multi-spindle machine can also be configured to make it a serious competitor to cam-controlled multi-spindle lathes, even for simple turned parts.

INDEX MS32-6 – the CNC multi-spindle automatic lathe for short setup and cycle times

We designed the new CNC-controlled MS32-6 multi-spindle automatic lathe to be freely configurable: It can be fully equipped with twelve cross slides and NC axes in X, Y, and Z axes, or set up exclusively with NC-controlled grooving and drilling slides. We were able to retain the proven features and elements of the current INDEX multi-spindle machines: The front-opening design with good accessibility and ergonomics, as well as various automation options that also enable the MS32-6 to machine chucked parts.

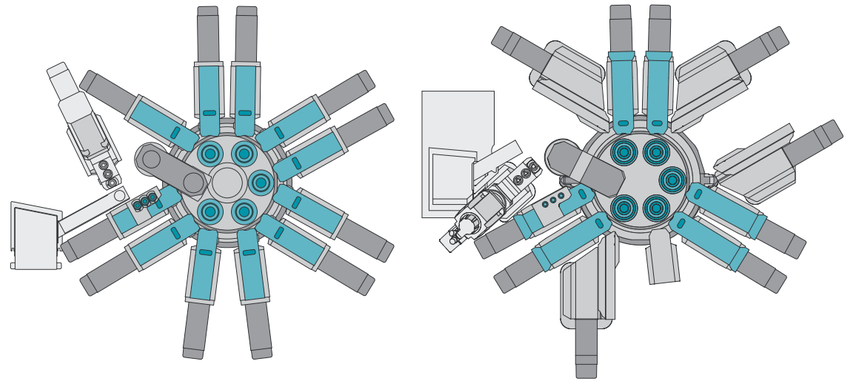
Ideal for complex high-precision turned parts when fully equipped

At its high-end equipment level, the INDEX MS32-6 features two V-shaped cross slides with NC X and Z axes at each spindle position. Swiveling synchronized spindles in positions 5 and 6 ensure ideal rear-end machining. Additional C and Y axes, together with live tools, provide users with a broad range of machining options such as off-center drilling, threading, contouring, and hobbing, or polygonal turning. ›

Our aim was to make the INDEX MS32-6 CNC multi-spindle automatic lathe as flexible as possible in its configuration. Thanks to the modular principle, the customer can design the machine according to his wishes – from the full equipment with twelve NC cross slides down to the minimum variant with just grooving and drilling slides.

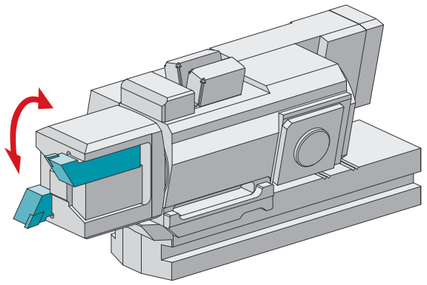
Karl-Heinz Schumacher
is Head of Development and Design of Multi-Spindle Machines at INDEX

Matching the INDEX MS32-6 is the new INDEX MBL32-6 bar loading magazine. It is available as a bundle loader and a bar loader in sizes 3300 mm and 4300.mm

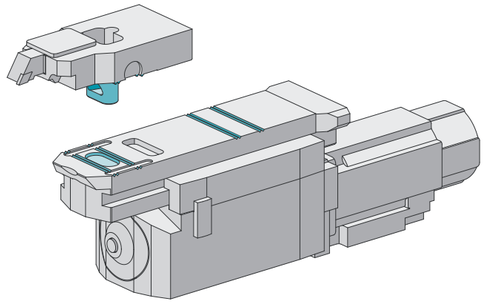


Versatility is the strength of the INDEX MS32-6. Whether complex parts or different processes are involved – anything is possible.

- A maximum of 12 tool carriers with 1 or 2 travel axes
- Transverse machining with live tools
- Customized configurations in every spindle position
- Variable use of tool carriers for internal and external machining
- 1 or 2 synchronous spindles
- Y-axes (optional)



For greater efficiency:
The compact twin turret can be mounted in five spindle positions.



Achieve 50% time-saving thanks to the INDEX quick clamping system with integrated W-serration on the cross slide. The tool holder is fixed in position using a tie rod and pre-tensioned wedge rod.

A key component is the fluid-cooled spindle drum with its six working spindles arranged in a pitch circle of 250 mm. The main spindle drive permits speeds of up to 8,000 rpm. During machining, an optimum speed is always available for each spindle position and cutting tool edge. The results are optimum chipping, maximum surface quality, short production times per piece, and extended tool life.

As cost-effective as an automatic cam-controlled machine for contour plunging

In place of full equipment, the INDEX MS32-6 can be fitted with grooving or boring slides in any spindle position required by the customer. This makes the CNC multi-spindle machine a truly cost-effective alternative to cam-controlled multi-spindle machines.
Cam-controlled machines set the standard when it comes to production times per piece. But they have a clear drawback: They are very time-consuming and complicated to set up, requiring specific qualifications on the part of the operator – which are increasingly rare.
When changing jobs, each individual cam on the cam-controlled machine needs to be changed and adjusted, which can take several hours. On the INDEX MS32-6, the grooving slides are designed as NC axes. The operator therefore simply installs the program – and everything is done.
The INDEX MS32-6 CNC multi-spindle machine is practically unbeatable in terms of its setup advantages and thus ensures low unit costs.

Tool holder change:
Setup times 50% faster

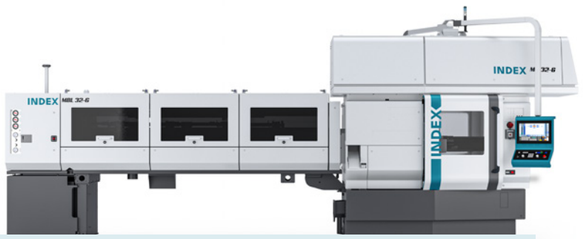
The MS32-6 succeeds in further simplifying various setup tasks. Each cross slide now has a W-serration, which significantly facilitates the µm-accurate alignment of the tool holder and prevents its misalignment. The operator can preset the tool holder externally, place it on the slide, and fix it in position using the newly developed INDEX quick clamping device. All that is then needed is a quick turn with the wrench and the holder is ready to use. This is true Plug&Play with great effect: Changing the holder is now 50% faster. Also important: Previous tool holders with dovetail mounting can still be used.

Save even more time

There are new drill and double drill holders for the slides with W-serration, which are no longer aligned in the machine but now in advance on the presetting unit. This shortens setup times from up to two hours to around ten minutes. The live units required for milling and polygonal turning are also available with W-serrations, meaning they can be precisely placed on the new slide.

Twin turret boosts efficiency

Another new development that increases efficiency is a small twin turret with rigid tools that can be mounted on the slide in five spindle positions. Hydraulically controlled, the tool can be changed within half a second. The twin turret is ideal for roughing short parts first before then finishing them. Equipped with a spare tool, it is an alternative for use with materials that are difficult to machine as a way of "doubling" life. **X**



INDEX MS32-6

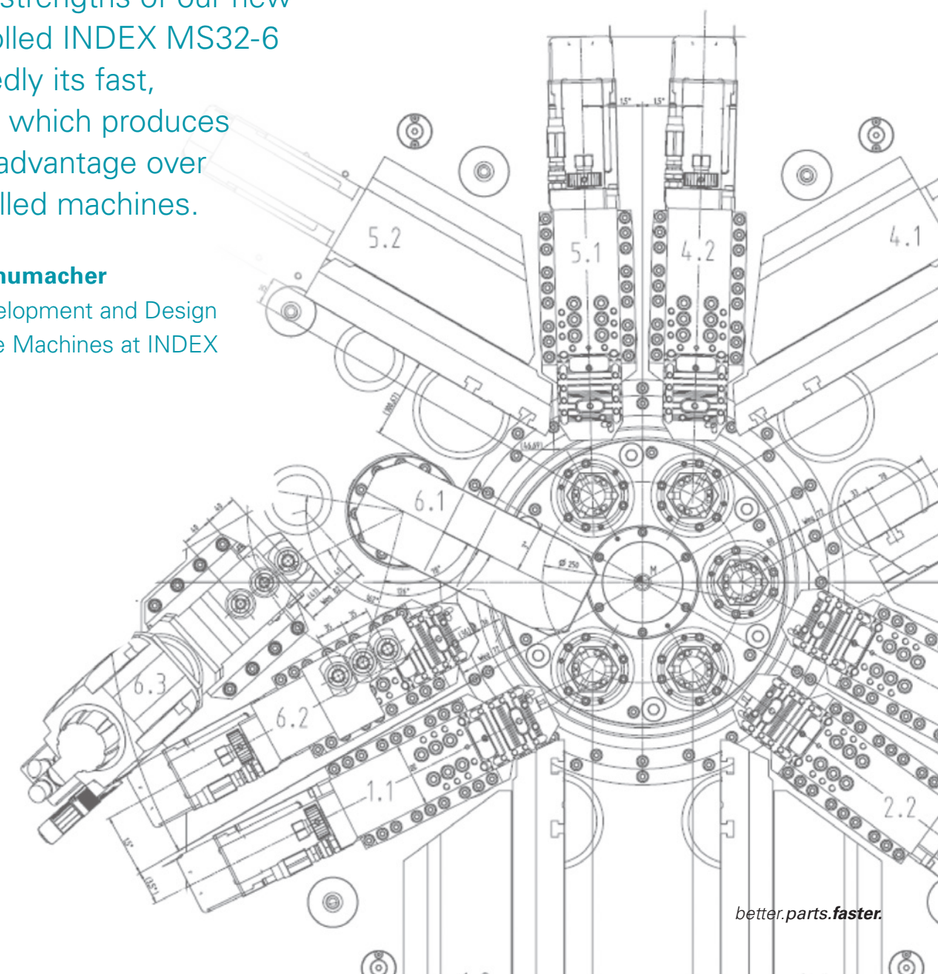
- Front-opening machine
- Free configuration of tool carriers (cross, grooving, and drilling slides)
- Swiveling synchronous spindle for rear-end machining
- Fluid-cooled spindle drum with minimized thermal growth
- Quick clamping system for tool holder
- Compact twin turret on tool slide
- iXpanel – i4.0 ready operating system with 18.5" touchscreen and Siemens S840D sl
- MBL32-6 3300/4300 loading magazine
- Chuck part machining with loading and unloading system

info

One of the strengths of our new CNC-controlled INDEX MS32-6 is undoubtedly its fast, easy setup, which produces a unit cost advantage over cam-controlled machines.

Karl-Heinz Schumacher
is Head of Development and Design of Multi-Spindle Machines at INDEX

Find out more at
› **index-traub.com/ms32**



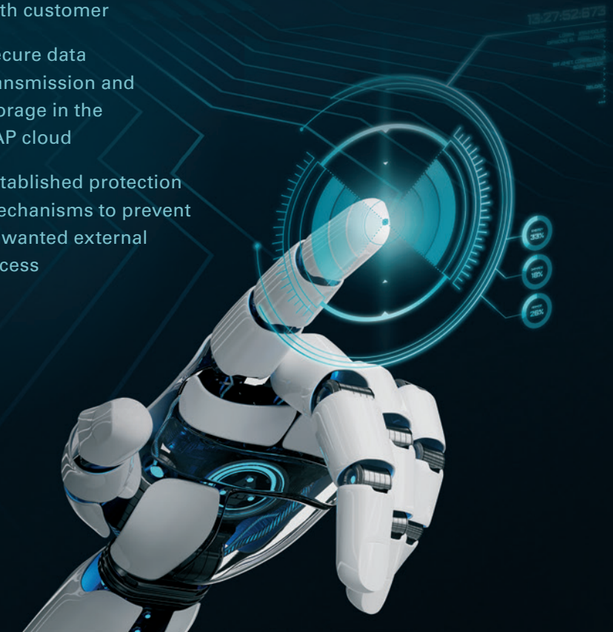
Your entry ticket to the digital future

Since July 2019, we have been supplying new machines with the **iX4.0 *go*** starter package on request. It allows our customers to use all iX4.0 applications free of charge for twelve months. An IoT connector providing easy link-up to the connected world has been developed for existing and third-party machines.

The INDEX **iX4.0** IoT platform – here together with the INDEX G200 turning and milling center and the iXcenter robot cell.

Keyword security

- No strain on the controller (only required data is transmitted)
- Data ownership and control remains with customer
- Secure data transmission and storage in the SAP cloud
- Established protection mechanisms to prevent unwanted external access



Get going easily and without risk

Big data, predictive maintenance, machine learning, AI ... – discussions relating to the Industry 4.0 environment are full of buzzwords. Within this complex market, choosing the right path is a difficult process for everyone involved. That said, however, not starting at all is not a solution.

With iX4.0 *go*, we have developed a service that enables an easy and risk-free start. The machine connection is set up at the factory free of charge and can be used immediately. Customers can make full use of all of the iX4.0 applications available in iXworld for twelve months.

We are here to provide support in the process. Thanks to the open, non-proprietary INDEX solution, it is also easy to connect older INDEX and third-party machines using the IoT connector.

Boost competitiveness

iX4.0 *go* makes it possible to increase machine uptimes, thereby reducing overhead. The **Status Monitor** processes MDA and ODA data to ensure transparency of unscheduled downtimes and is the basis of in-depth root cause analyses. This application is complemented by the established **AlarmMessenger**, which supports customers in operations with minimum operator input. As an example, the operator is notified if the machine can no longer operate because of a lack of material. If a fault occurs, **OnlineDocument** makes it possible to display the technical documentation directly on the machine or any browser-enabled device – thus removing the need to search in folders. Service personnel receive information on preventive maintenance schedules through the **ServiceManager** app. This allows them to carry out this work outside scheduled production times. If a fault still occurs during operation, it can often be remedied without the need for an engineer using RemoteServices. Alarms that have been triggered can be analyzed using **AlarmReport**. Issues can then be preventively corrected. Last but not least, spare parts can be found and ordered online using **SparepartFinder**. ›

With a spare parts stock level of over 95%, the machine will be back up and running in no time.

Condition monitoring – a good investment in the future

An unscheduled outage occurring on a machine often requires emergency repairs. It is therefore a good idea to identify potential failures as early as possible and organize repair measures outside of production times.

In the first step, data from the machine components is read out and displayed using the iX4.0 apps. The load status can be seen immediately at the component level and a check of the preventive maintenance can be initiated. If values have already reached threshold levels, they can be used in AlarmMessenger to trigger push messages. In addition to registering any functioning abnormalities, **TempCheck**'s temperature monitoring can supply important information for the analysis of process deviations.

So don't delay and **start using iX4.0 *go* now!** X

Stay on top of your production at all times with **StatusMonitor**. **SpindleCheck** supplies important information for analyzing the heart of your machine.

Ideally equipped with the iX4.0 apps

› **index-traub.com/ix40**

Machine management

Machinery management

Identification of spare parts

Collation of all technical documents

Overview of pending/ completed maintenance

Machine performance

Management of production jobs

Overview of MDA/ODA data

Notification of critical statuses

Overview of critical statuses (alarms)

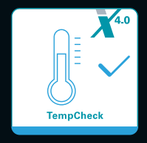
Display of collisions

Condition monitoring

Spindle monitoring

Axis monitoring

Machine fill level monitoring



Temperature curve monitoring

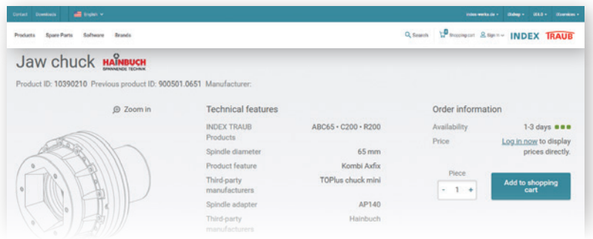
Tool holder Clamping devices Spare parts Raw material

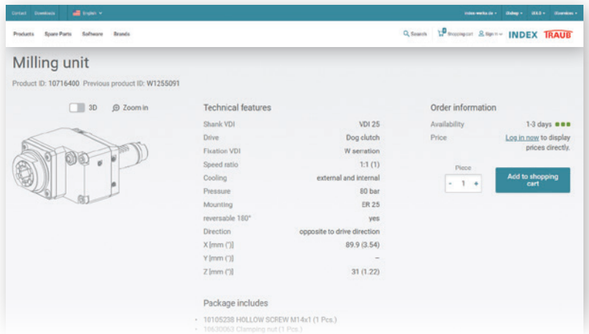
The procurement portal for all your machine needs

Over 1,000 customers are already using our iXshop – more than 200,000 times a year. They cover their needs for tool holders, accessories, clamping devices, spare parts, and raw materials – all from a single source and, if required, integrated within their own ERP system. With stock levels covering over 95% of the 130,000 items listed, fast delivery is guaranteed.

Boost your competitiveness with optimized procurement!
Are complex processes and the multitude of purchasing channels making procurement complicated and expensive? Then switch to iXshop to reduce costs and increase your competitiveness. Since every company has its own specific procurement process with different requirements, iXshop has implemented a variety of functions to make your day-to-day business easier.

- **Direct order function** – If the entire process is the responsibility of a single person, select your items, place them in the cart and order – online orders placed by 3:30 pm are usually sent the same day.
- **Quote/order function** – If you use a manual ordering process, request a quote and use it as a purchasing document, enter it in the ERP system, and use the order number as a reference for your order in iXshop – for the fastest possible delivery and full order transparency.
- **Integration function** – If your procurement process is system-supported. Log in to the customer system, switch to iXshop, fill the cart, return the customer-specific purchase requisition, customer approval workflow, transmit the order to the INDEX ERP system – procurement without changing media and all fully automated. ›





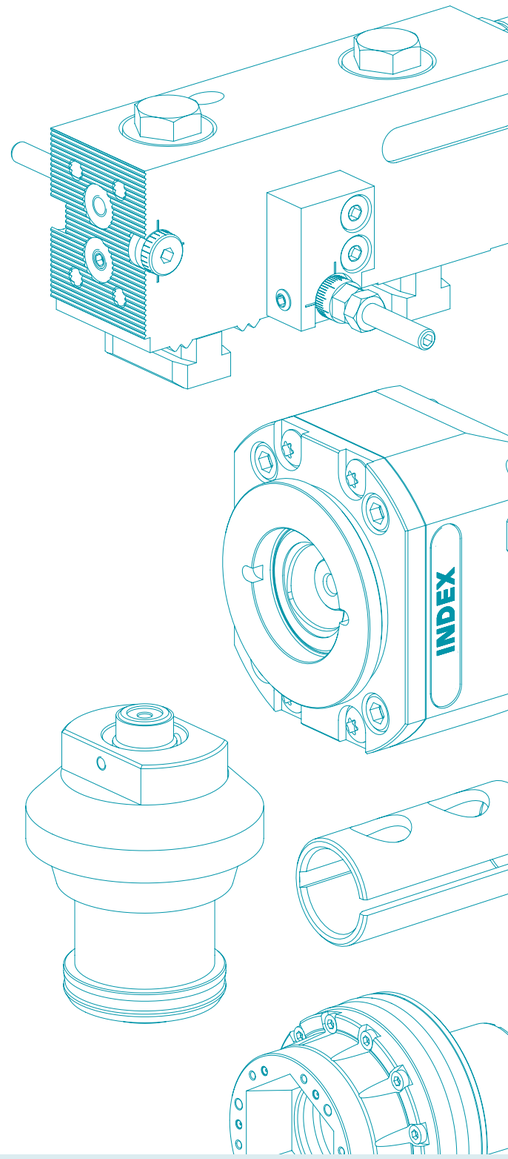
Easy and intuitive in use:
Technical data, availability, and pricing – the latest information at a glance

All from a single source – stop searching and start finding!
The extensive range of products already available in iXshop is growing all the time – with integrated brand stores for products related to all aspects of your production process. It is increasingly possible to meet your purchasing requirements from a single source. The intelligent search functions in iXshop further ensure that you find everything you need quickly and easily. And all this without the need to obtain complex information or research catalogs from many different sources. INDEX iXshop – "Procurement 4.0".

Online shopping partnership
As part of the INDEX in-house exhibition, the partnership with Klöckner & Co, the digital pioneer in the online sale of raw materials, was officially sealed. Registered users of iXshop can now purchase raw materials online – on very favorable conditions and with reliable delivery times. Harald Klaiber, Commercial Managing Director of the INDEX Group and Ricardo de Sousa, Managing Director of kloeckner.i GmbH, are very optimistic that customers will make use of the combined range in the INDEX iXshop. X

The number of integrated brand stores is growing. Use them to find every product you need for your production process.

BALLUFF
FESTO
HAINBUCH SPANNENDE TECHNIK
klöckner & co
Schlenker SPANNWERKZEUGE
TRELLEBORG



Register for free now to enjoy the benefits:
› **ixshop.index-traub.com**

- Currently 130,000 listed items
- Orders placed by 3:30 pm are usually sent out the same day
- Find what you need quickly with intelligent search functions
- All information at a glance
- Procurement processes to match your needs
- Straightforward returns processing

Please contact us for availability in your country.

info

At Weber it's not only the sausage that is meaty!

For the construction of its largely customer-specific plant designs, Weber Maschinenbau requires some 14,000 different turned parts, in batch sizes of between 1 and 10. Its production operation in Neubrandenburg is automated as far as possible and highly productive, while at the same time ensuring a high degree of flexibility. Two networked INDEX G220 turn-mill centers form the core of the solution installed there.

A report by Manfred Flohr // magazine “maschine+werkzeug”

The ham feed to the slicer alone makes it very clear that this installation comprising around 2,000 components requires a huge amount of turned parts.

High-performance machines for the food industry

Weber Maschinenbau in Neubrandenburg produces high-performance cutting machines, known as slicers. These are used by the food industry to slice sausage meat, cheese, or ham, divide them into portions right down to the exact gram required and then package them for sale. With its sale of 300 slicers, the global market leader sold more in the last year than all the competition put together.
Weber has an entire series of machine types in its portfolio, and configures such installations according to customer requirements. "We have a very large proportion of new parts," comments Robert Schwaber, Sales Director at Weber. "Anyone familiar with a new part process knows what it involves in terms of effort."

The almost exclusively stainless steel slicers contain around 2,000 different parts on average. Weber's vertical range of manufacture is very significant; even the necessary screws are manufactured in-house. In terms of turning alone, there are around 14,000 different parts in total. In addition to various product lines and customer-specific variants, an expansion to the portfolio is also contributing to this. Until two years ago, Weber primarily built slicers, but the company is now operating as a supplier of complete systems, which also incorporate packaging and labeling.

In order to keep ahead of the game, which included a growing business volume and an increasing lack of specialist skills, intelligent manufacturing solutions were required. After extensive research, the movers and shakers at Weber established that no complete solutions existed on the market for metal cutting of the parts they required and which met all their needs. Without further ado, they created a concept; and approached INDEX with it.
"We were presented with the task of manufacturing complex workpieces using a flexible system," recalls Michael Czudaj, Sales Director for Germany at INDEX, explaining how the joint project came about. "Turn-mill centers were the ideal solution as they included all the required technologies. A high degree of automation was also necessary." This was significantly more challenging than Weber might have liked. "At the start, we wanted the 'jack of all trades' approach – raw material in, finished part out," says Carsten Toboldt, metal cutting foreman.

Lights-out machining of a wide range of parts

The relevant tool stock also had to be conceived. Frank Brunner, Head of the Metal-Cutting Department at Weber, explained how crucial this is to smooth production: "Automatic tool changing on the machine is important, if we are to achieve lights-out production of the range of parts that we have planned for the plant. To be able to do this over weekends also, the machines must contain a multitude of tools. As the wearing of stainless tool is quite significant, we also require an adequate number of sister tools."

Michael Czudaj sums up the task facing INDEX: "The challenges for us were the automatic tool change, automatic clamping equipment change, automated loading and unloading of semifinished parts, and routing of the finished parts out of the production cell – and all of this, using two networked machines."

The overall concept of the production line could then be implemented as follows: INDEX supplied two G220 turn-mill centers, with a customized automation interface.
Promot provided the automation, inclusive of master computer, management systems, and software development.

One special feature is the automatic clamping equipment change, which Czudaj lists as a significant challenge. It has to function in a totally reliable manner – even where no operator is present at the machine, but instead a robot is responsible for setup. To achieve this, the project team set up a ›

Lots of components in small batches are typical of the production operation at Weber in Neubrandenburg.

The Weber slicers generate up to 2500 slices a minute. The larger models process multiple products in parallel, and achieve a throughput of up to 40 tons of sausage or cheese per shift in ongoing operation.

above The metal cutting parameters are, as before, entered on the machine controls.

below Assembly of a slicer, for which some 2000 parts are required; including many turned parts.

Together we've done it! (from left): Andre Idziak, Michael Czudaj, Valentin Trettenbrein, Frank Riemer, and Carsten Toboldt.

threefold safety prompt after the clamping equipment change. This required significant input from INDEX and also Promot.

A few months in, the new plant is now in constant operation at Neubrandenburg – three shifts, seven days a week, 24 hours around the clock. Entirely unmanned shifts run on the weekend.

In the plant hall, the complex interaction between all components of the automated plant has become large-scale. Centrally located between the two G220s from INDEX are a Kardex Shuttle XP 250 and the Promot master computer. A gantry runs above both turn-mill centers, which loads the machines with clamping equipment and raw materials. While a machining operation is in progress, everything required for the upcoming jobs is prepared here. During an automatic clamping equipment change, the gripper removes one collet, and inserts a new one with the corresponding next diameter. This is followed by the incorporated safety prompts. Following approval, the previously measured raw material bar is fed into the main spindle, and the data is loaded from the server to the machine.

All tools are housed directly in the INDEX G220 tool magazines. The double chains provide 140 HSK-40 tool pockets. Around 60% of the tool pockets are fitted with special toolholders, each of which holds three individual tools. If the life of a tool expires, the tool simply cycles forward one position, and work can continue with the substitute tool. "We arrived at this solution in order to be able to cater to the wide variety of parts, without wasting too much space on sister tools," explains Carsten Toboldt. "We obtained inspiration for this from INDEX." Not only the 18-tool pockets on the turret (VDI 25 with INDEX W toothing) but also the milling spindle attached above can be equipped with up to four fixed tools (VDI 25) thanks to index-specific tool bars. ›

> We have created a solution that is an example of how production in Germany can remain cost-effective.
>
> **Robert Schwabe**
> Weber Maschinenbau

Ample space in the machine room

Specific characteristics of the INDEX G220 are particularly useful to this project. The motorized milling spindle with HSK 40 can reach up to 18,000 revolutions per minute, and also has four additional toolholders on the side. What is extremely important for users who, like Weber, are focused on productivity and flexibility is a working space that allows operations to be carried out using this motorized milling spindle and the turret, with virtually zero risk of collision. "It is not easy, for example, to be able to carry out central machining with the motorized milling spindle on the main spindle or counter spindle, while at the same time being able to work centrically with the turret – this is what is required of the working space with such combinations," comments Czudaj. Frank Brunner confirms that the large working area was one of the criteria for selecting INDEX as the machine partner. Additional plus points are the large tool magazine, and the workpiece removal handling, which is available as standard.

What it means when a productive finisher deals exclusively with small batches becomes apparent in the area in front of the new production line. Side by side, lines of small, blue, chipped boxes, containing finished parts originating from the machine, are lined up here. Each contains only a few parts; some even just one. The finished parts travel from the machine, directly into the boxes, via a conveyor.

Currently, Weber manufactures 1,100 different parts using the installation. For the master computer, this means it needs to handle 1,100 different programs. None of the project members denies that it took a significant amount of effort to get the system up and running as desired. The result achieved, however, speaks for itself. If you wanted to achieve the same machine operating time with a manned process, you would need three, instead of the current two, INDEX machines, according to Frank Brunner. The use of personnel is also significantly lower: whereas nine employees would be required to operate the three machines, just three operators are needed to operate the two automated machines.

Automation keeps production cost-effective

"We are proud of what we have achieved together," declares Robert Schwabe. "We have created a solution that is an example of how production in Germany can remain cost-effective." At INDEX, we believe that, even for highly diversified components, an increasing number of companies are opting for automation solutions. "INDEX has a range of solutions, which are able to optimally fulfill individual customer requirements," says Michael Czudaj. X

You can find more customer success stories here:

› **index-traub.com/success**

About the Weber Group

From precisely weighted slicing right up to arranging and packaging of sausage, meat, and cheese: Weber Maschinenbau is one of the leading system providers for slicing applications. The company started out in the manufacture of derinding and membrane skinning machines.

The Weber Group is headquartered in Breidenbach, Central Hesse. Weber Maschinenbau employs around 1,400 people, at 24 sites. To date, the company has remained under family ownership, and is headed up by Tobias Weber, the eldest son of the company's founder, Günther Weber.

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info

INDEX C200 *tandem* doubles your productivity

Even in its standard version, the INDEX C200 production turning machine is synonymous with productivity in single-spindle bar turning. The newly developed INDEX C200 *tandem* nevertheless succeeds in creating further potential for cost-effectiveness. Thanks to its unique concept, it doubles part output without increasing the amount of space, energy, or manpower required.

Both the main and counter spindles on the INDEX C200 *tandem* provide a bar clearance of 52 mm. With 20/25 kW, a maximum torque of 115 Nm, and a top speed of 4,500 rpm, they ensure powerful machining. The counter spindle slide supports high dynamic response with a rapid traverse of up to 50 m/min.

An innovative idea has become reality with the INDEX C200 *tandem* horizontal turning machine. In exactly the same machine housing as the INDEX C200, the main and counter spindles have each been replaced by a 52 double spindle, doubling production capacity. The three VDI-30 tool turrets that can be used simultaneously have remained the same in terms of their arrangement, power, speed and feed rate. What is new is a turret head that enables the mounting of five double tool holders. They are equipped with identical tools in pairs – fixed or live –, which are used in parallel on the main and counter spindles for front-end and rear-end machining. As a result, many former single-spindle machining processes can now be carried out with double spindles on the INDEX C200 *tandem*.

Automatic loading and unloading

When using the INDEX C200 *tandem*, which has been consistently designed for productivity, the bar material is fed by the specially developed INDEX MBL52 *tandem* bar loading magazine, which allows two material bars to be fed in at the same time.

The integrated handling device was also newly developed. Two grippers ensure that the two parts, finished at the same time, are removed, placed on a conveyor belt, and then quickly conveyed out of the machine without damage.

Quality and precision

The patented SingleSlide guide system is of course also used for the tandem version of the C200. It improves the damping properties and thus results in advantages such as up to 30 percent longer tool life and better workpiece quality.

Ready for Industry 4.0

The INDEX C200 *tandem* is controlled using the Siemens S840D sl, which in combination with an 18.5" touchscreen forms the basis of the INDEX iXpanel – i4.0 ready operating system. The latter is used, among other things, for complete integration of the machine into the customer's network structure, which is common in modern production environments.

Key to reducing costs

Doubled productivity

- Low personnel resources
- In a single machine footprint
- With barely more than 10% energy requirement
- For only around 1/3 greater investment

The acquisition costs are thus significantly lower than those for two single-spindle automatic lathes with the same specifications, which would be required for the same parts output. And the operating costs are largely the same as those for a single machine. After all, there is no difference in terms of space and energy requirements, control cabinet, hydraulics, chip conveyor, coolant system, and necessary personnel. **X**

INDEX C200 *tandem*

- Highly productive machining of bar stock turned parts
- 2x2 powerful motorized spindles of identical design
- Generous work area with compact outer dimensions
- Ideal vibration damping and high dynamic response thanks to INDEX SingleSlide guide system
- Specifically matched INDEX MBL52 *tandem* bar loader
- Integrated removal device
- iXpanel – i4.0 ready operating system with 18.5" touchscreen and Siemens S840D sl

info

Programming complex workpieces simply, quickly, and reliably

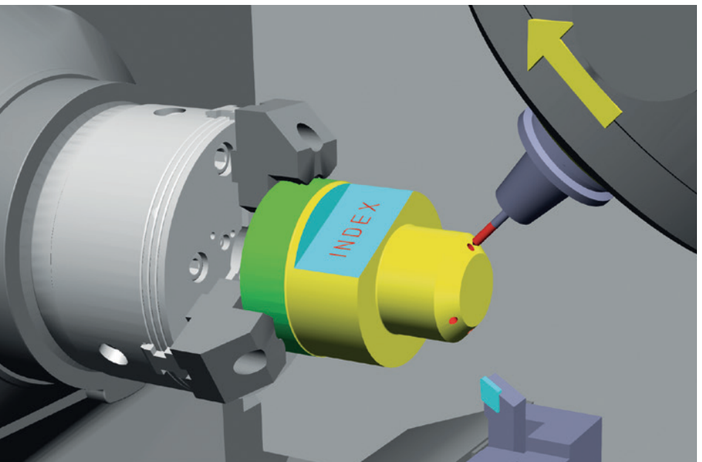
The INDEX VPro programming studio offers powerful and field-oriented programming support for INDEX machines, especially in combination with the “Virtual Machine” simulation software. Thanks to simple and convenient interactive guidance, even less experienced users can quickly and reliably create a complete and immediately executable NC program.

Parallel machining of workpieces with several tool slides and different technologies on INDEX lathes and turning and milling centers opens up new possibilities for process design and thus economic potential. Their use, however, needs to be skilfully and comprehensively programmed.

INDEX VPro interactive programming offers superior support. Irrespective of the machining technology selected, e.g. turning, drilling, milling, or grinding, VPro provides “step-by-step dialogs” as a 1:1 representation of the machine equipment that can be used to carry out even complex machining jobs easily, quickly, and reliably. The various machining operations are launched from identical screens across all machine types, and continued step by step in dialog boxes until all of the tasks to be carried out on the workpiece have been completed.

The result is a clearly structured and legible NC program that can also be changed at any time. The technology cycles integrated in the program can also be re-engineered and adapted without restriction. In addition, the program is free of writing and syntax errors and always lists command sequences in the correct order. This ensures reliability and efficiency during setup and reduces programming times by more than 50%.

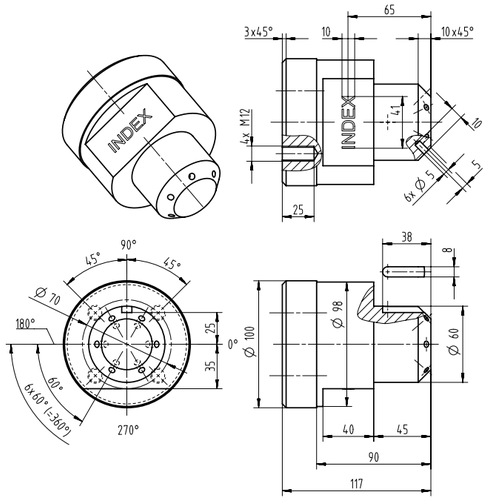
But VPro can do even more: In addition to the workpiece machining described above, VPro also supports the programming of additional equipment in the machine using 1:1 dialogs, thus also controlling the programming of workpiece loading and unloading sequences used in the machine. VPro not only stands for perfect programming support, but also ensures short setup cycles and high system availability in production. **X**



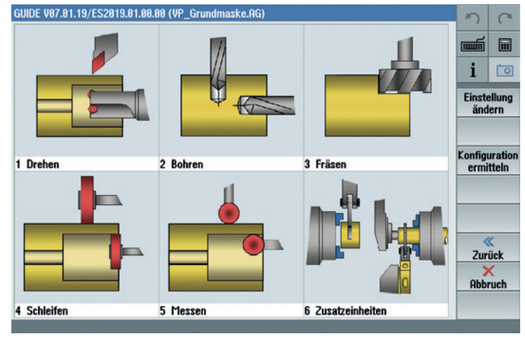
INDEX VPro programming support reproduces machine configurations exactly. Only those machining operations that can actually be carried out using the available machine equipment are offered.

Find out more at
› **index-traub.com/virtualpro**

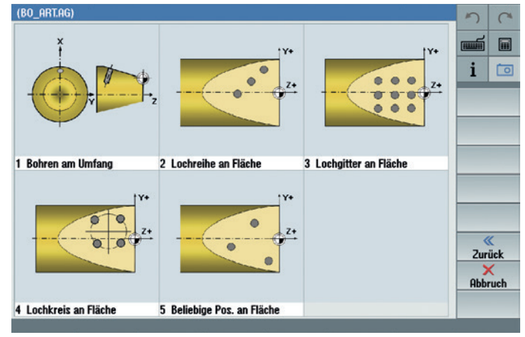
1. Example of a machining task



2. Machining steps



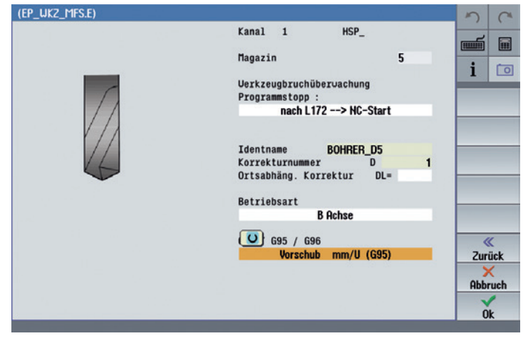
Identical screens on all machines for starting the programming of a machining sequence.



Progressively detailed dialog boxes for machining selection “drilling on an inclined surface”.

3. Output CNC code

```
 MSG("Bohren")¶
 GXY273¶
L140(0,4,0)¶
L171("BOHRER_D5",3)¶
L172(0)¶
 GXY273¶
L184(0,0,45,,,,0,)¶
L180(-45,15,0,0)¶
 SETMS(1)¶
 D1 G95 S1=6000 M1=3 F0.1¶
 G0 X2 Y0 Z-5¶
 M10=150¶
 H50=60¶
 M11=8¶
MCALL CYCLE82(2,0,1,-10,,0,00,3,000012,00000,,,,)¶
 C0¶
 C60¶
 C120¶
 C180¶
 C240¶
 C300¶
MCALL¶
 L181¶
 M11=9¶
 M10=151¶
 M1=5¶
```



Technological machining parameters can be individually specified within the machining operations.

Programming time is reduced by up to 50% and the clearly structured user guidance enables a valid CNC code, even for complex workpieces.

Eberhard Beck is Head of Control Technology at INDEX

*better.**parts.faster.***

Flexibility is key for fully machined turned parts

As soon as the customer sends the drawing, Haager GmbH gets to work with programming, process optimization, and manufacture – all with the aim of producing workpieces that exit the machine fully deburred and corresponding precisely to the most demanding of customer requirements. To achieve this, the toll manufacturer relies on TRAUB CNC sliding headstock automatic lathes. The latest investment is a TRAUB TNL20-9B. **By Julia Dusold // magazine "fertigung"**

Markus Arny heads up CNC technology at Haager GmbH. His responsibility is to program the manufacture of parts in such a way that it can run unsupervised throughout the night and over the weekend.
Photo: Julia Dusold

Haager GmbH was founded more than 100 years ago, and is now in its fifth generation of family ownership. The Pforzheim company started out in the jewelry business. Some 15 years ago, then CEO Jörg Haager moved on to parts for medical products, manufactured on lathes that had been used from the early days of his business. Since then, the company's growth has been continuous.
Now, Haager generates about 85 percent of its turnover with medical technology. Manufactured workpieces are primarily individual parts. They are subject to stringent technical requirements on account of the high demands in terms of deburring, surface quality, visual impression, and tolerances.

Haager set itself the goal of producing fully finished parts, straight from the machine, without any operator supervision – this alone brings its own challenges. "The main task is to program the part in such a way that we can achieve lights-out operation overnight and on weekends," says Markus Arny, CNC Technology Director at Haager GmbH. Firstly, chip flow must be optimized to allow unmanned production to take place at all. Secondly, the often highly complex parts cannot have any burrs whatsoever.

In the toll manufacturer's lathe shop, the machine park was initially made up of machines from different manufacturers; until Jörg Haager, the current engineering CEO Lorenz Haager's predecessor, opted for a TRAUB CNC sliding headstock automatic lathe TNL12. As the TNL12 design fulfilled all expectations, a second was purchased shortly afterwards. At this time, Markus Arny – with his 30 years of previous metal cutting experience – joined the company. ›

As our parts can often be extremely complex, the bottom line for us is always the diversity of the tools available – and this is ensured at TRAUB.

Markus Arny
CNC Technology Director at Haager GmbH

He continued to develop the initial line, also choosing to rely on TRAUB machines. "We now have twelve in total," he reports. Another is already on order.
"As we are a toll manufacturer, we must be particularly flexible," explains Arny. Requirements can vary significantly between each job, and the broadest range of workpiece sizes must be accommodated. Which justifies the latest investment: "We established that we needed even more complex workpieces, and additional axes, for our manufacturing. For this reason, we procured a TRAUB TNL20-9B."

In the selection of this machine, availability and the sophisticated technology required to ensure the required accuracy were critical. "The TRAUB machines fulfill precisely our requirements," explains Arny. "There are many options and equipment variants on offer. For instance, a probing system is integrated in the TNL20. This made our decision even easier." In addition, the production manager particularly values the machine's rigidity, vibration damping, tool life, and surface qualities of the parts produced on the machine.
The TRAUB TNL20-9B has a main spindle and a counter spindle that travels in the X and Z directions. The rear machining ability in particular, provided by the counter spindle, helps to achieve the objective of obtaining fully finished parts straight off the machine. The TNL20-9B has two tool turrets, the upper of which can be rotated in the B axis. "The B axis is particularly helpful to us in our orders for the medical industry," says Arny. "This is because these jobs frequently require parts in which inclined surfaces, inclined bores, or other milling operations must be achieved."

The Haager GmbH lathe shop has 12 TRAUB lathes, which are mainly used to produce parts and assemblies for the medical industry.
Photo: Julia Dusold

Other features related to the future use of TRAUB machines are the solutions in the digitalization field. iXworld, a cloud-based platform, provides digital support for machine operation, service, and the procurement of replacement parts. Haager is already registered on this platform, and is now moving forward jointly with the INDEX Group toward the future of digitalization. X

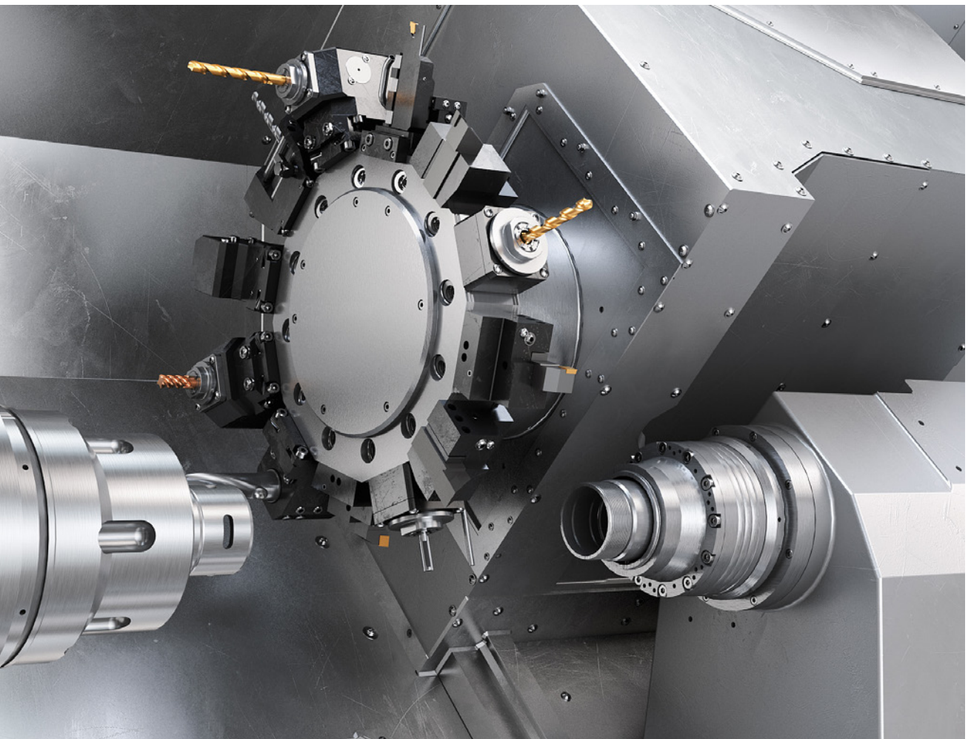
A pair of universal machines for powerful machining and high precision

The common platform used by the INDEX B400 and TRAUB TNA400 CNC universal turning machines is now being expanded. The B500 and TNA500 add to the series with larger, more powerful spindles. All four universal machines feature fascinating highlights, such as an optional counter spindle for complete machining and a range of automation solutions.

Bonus: The four universal machines are all available with counter spindles.

Powerful and precise machining of customized flange and shaft parts, as required with rear-end machining and automation – this is what is promised by the "group of four" universal turning machines: the INDEX B400 and TRAUB TNA400, launched in 2018, together with the new INDEX B500 and the TRAUB TNA500. The four machine types all have a great deal in common. They use the same machine bed, the same cover, and the same inner cover. The slide system is also identical on all four.

One difference is the installed control technology. While the INDEX B400 and B500 are fitted with the latest Siemens Sinumerik 840D sl, the TRAUB TNA400 and TNA500 use the TRAUB TX8i-s V8 controller based on Mitsubishi controls. In addition, the main and counter spindles on the new 500 universal machines are one size larger. Instead of the A8/A6 spindle combination in the 400 series, A11/A8 spindles here ensure around 40% more power and torque. ›



Watch film now:

› **index-traub.com/b400-video**

› **index-traub.com/tna400-video**

25CrMo4
Sleeve Ø 250 x 230 mm

20NiCrMo2-2
Ball screw nut Ø 78 mm

C45
Shaft Ø 65 x 400 mm

Ideal for a wide range of parts. INDEX B400/500 and TRAUB TNA400/500 enable parts machining in the chuck up to 500 mm diameter, from the bar up to 102 mm.

Counter spindle for precise rear-end machining

To support long workpieces, the TNA series offers the possibility of using a tailstock mounted on generously dimensioned roller guides. As an option, however, the machines are also available with a counter spindle, which allows the user to use the parts machined on the main spindle for rear-end machining with precise positioning and concentricity.

Now also with VDI40 radial turret

In the counter spindle versions, all universal machines are equipped with the INDEX-typical radial turret. What is new is the possibility of selecting a radial turret with VDI40 holders instead of the previous VDI30 version, which enables a slightly larger turning diameter and provides the live tools with a higher torque.

The twelve stations of the radial turrets are equipped with the patented W-serration. Their profile ensures that the basic holders on the tool turret can be aligned reliably and quickly. Repeatability achieves results in the micron range.

Instead of the radial turret, installation of a disk-type turret is alternatively possible. It reveals its advantages, in particular, when using large solid drills or boring bars, since this design principle means that forces are transmitted vertically into the turret.

High efficiency through automation

The INDEX B400/B500 and TRAUB TNA400/500 universal turning machines excel in more than just small batch production. Options are also available for machining medium-size batches. There is, for example, an optional bar package for use in attaching a bar loader, which consists of a hollow clamping cylinder and a remnant and workpiece removal unit. This handling device can accommodate workpieces up to a main and counter spindle size corresponding to the bar clearance and place them on a conveyor belt.

Starting next year, the universal machines will be prepared for use with the iXcenter robot cell, which supports fully automated operation. Among other things, it includes a space-saving vertical storage unit with up to 22 stacked pallets. The robot loads the pallet storage unit with raw parts and can remove the pallets with finished parts at any time without interrupting production. **X**

INDEX B400/500 and TRAUB TNA400/500

- Clearly structured and ergonomic work area concept
- Rigid mineral cast bed in 45° block design
- Working spindles with belt drive for high torque
- Optional counter spindle
- Radial turret for 12 tools with VDI30 or VDI40 holders
- Disk-type turret with VDI40 holders also available for TRAUB TNA400/500
- Optional bar package with integrated removal device
- iXpanel – i4.0 ready operating system

info

INDEX Corporation – Evolving to grow market share and meet customers' needs

While 2018 was a strong year for INDEX around the world, INDEX Corporation capitalized on its existing growth trend to achieve truly dramatic results. Responsible for the US and Canadian markets, the company has grown sales significantly since 2016 and brought the benefits of INDEX and TRAUB machines to a broader cross-section of customers.

INDEX Corporation was formed in 1983 in Shelton, Connecticut. In 2002, the company's headquarters relocated to Noblesville, Indiana to be more centrally located within its region and better reach the concentration of manufacturers in the US Midwest. For many years the company experienced routine business cycles with slow, but mostly steady growth. That pattern has changed dramatically over the past several years, thanks to a series of interrelated and complementary factors, including:

- Strategic expansion and refinement of sales channels
- Significant investment
- Expansion of the workforce
- Training and professional development of staff

Reshaping sales channels

Historically, INDEX Corporation sold direct to many customers throughout the US and Canada. This proved exceptionally challenging, as much of that target audience is geographically dispersed across a land mass nearly twice the size of Europe.

With nearly the whole of INDEX Corporation's territory now covered locally by highly skilled and knowledgeable distributors, these efforts have started to yield results and introduce a broader range of manufacturers to INDEX and TRAUB technology. In 2018, thirty percent of the company's order bookings were from new customers, a trend that must be sustained for future growth.

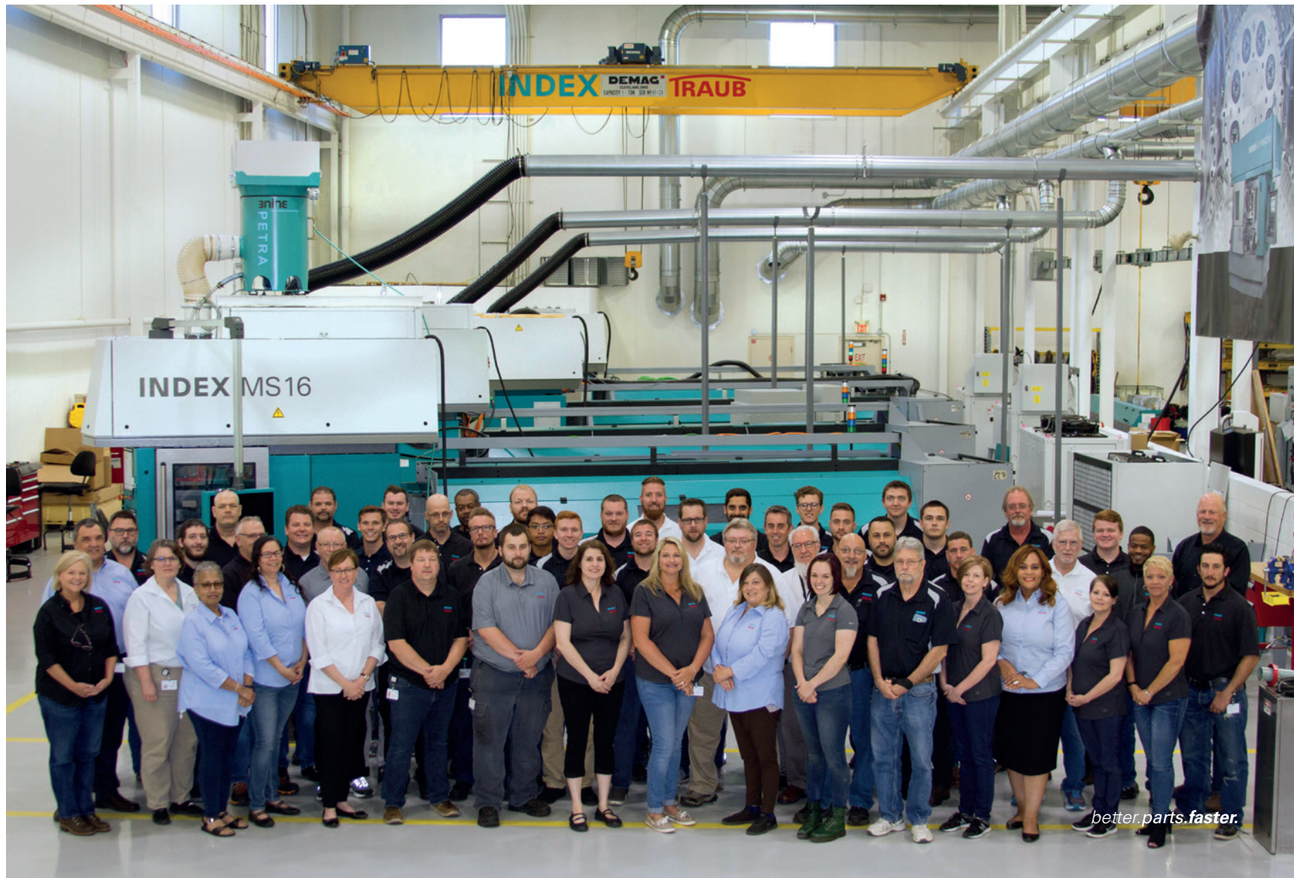
Investing in future success

INDEX Corporation adopted SAP as its new ERP over the close of 2018 and beginning of 2019. Prior to that, the company had already switched over to SAP CRM software. During that same time window, various restructurings were carried out to further increase efficiency. These large-scale changes will provide long-term benefits for our customers. ›

top Tom Clark, an industry specialist with decades of relevant experience, joined INDEX Corporation as president and CEO at the start of 2017.

right Soon thereafter, Mike Huggett, another industry professional with extensive executive experience, joined the company as sales manager.

From its headquarters in Noblesville, Indiana, INDEX Corporation supports our customers in the US and Canada together with 18 distributor partners.



KEY FACTS

80
employees

60,000 sq ft
(5,574 sq m)
headquarters in
Noblesville (Indiana)

45,000
spare parts

18
distributor partners
across the US
and Canada

100
service personnel
between internal
and distributor staff

INDEX Corporation is also further investing in its distributor network, working to train service personnel at distributors on machine setups and as regards troubleshooting. Our local organizational structure helps to significantly reduce arrival times for service engineers in a region as large as North America.

Initial steps to increase inventories have been taken to boost our ability to supply spare parts. The modernization of office spaces, accompanied by organizational changes, is set to increase our efficiency – especially in communications with our customers.

The most important factor related to successful growth, however, is our step-up in investment in the workforce, which has grown from 58 to over 80 employees since 2017. New positions have been created in many departments, with a clear focus on Service and Application. This ensures that INDEX Corporation is in a position not just to meet but actually exceed customer expectations, now and in the future.

Guided by shared values

INDEX Corporation has long operated under the guiding principle that success requires the right mix not only of products, but people as well. Visitors to the company's Noblesville offices will see this "P-squared" message visibly posted throughout the facility, along with the phrase "Good Individually – Best Together". This statement reflects both the commitment to hiring world class employees, as well as a reminder that these individuals' accomplishments will be greater when working together as a team.
INDEX Corporation employees embody the key values – integrity, innovation, quality, trust, respect, and teamwork –, thereby driving the culture of excellence found throughout the company.

Capitalizing on market conditions

Increasing numbers of orders have created growth opportunities for many manufacturers in the US and Canada in 2018. At the same time, however, the market continues to face a significant skilled labor shortage. This is precisely where INDEX Corporation comes in, as its INDEX and TRAUB machines' productivity, reliability and potential for automation all empower manufacturers to significantly expand output without the need for additional workers.

These capabilities have resonated with the market. INDEX Corporation is now set to continue exceeding growth expectations in the years ahead. **X**

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Reaching the Next Generation

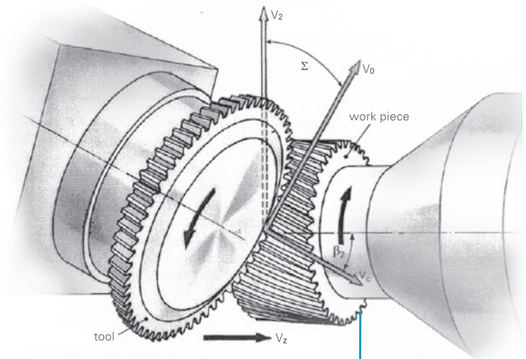
While the North American skilled labor shortage generates opportunities for INDEX Corporation with manufacturers, it also creates significant issues in recruiting and maintaining the workforce needed to serve an expanded customer base. Cultural factors have pushed a generation of young people away from careers in manufacturing and experienced professionals are retiring significantly faster than they are being replaced.

INDEX Corporation has worked to counter this trend by collaborating with local high schools, technical schools and colleges. For the past several years, the company has participated in the "Trailblazer program", a local initiative to place engineering students in internships within the manufacturing industry. The company has also participated in career fairs and hosted students from a variety of educational institutions.

As a result of these efforts, INDEX Corporation has hosted a steady stream of interns. Upon completion of their training, multiple past interns have joined the company as full-time employees. By taking an active role in workforce development, the company is building a long-term competitive advantage that translates into direct benefit for its customers.

Innovative technologies: Power Skiving

"Power skiving offers a significant productivity advantage over previous gear cutting methods such as gear hobbing and shaping. In addition, gears that could previously either not be produced at all or were extremely time-consuming are now possible." Volker Sellmeier explains the highly productive process for manufacturing of gears and possible applications.



In power skiving, the work-piece and tool form a type of cross-helical gear box.

Power skiving requires suitable machine tools with absolutely backlash-free, directly driven motor milling spindles for the highly dynamic conditions of the manufacturing process. These are electronically coupled via a special power skiving control cycle. One special technical feature: This coupling can be used throughout the complete speed range. Power skiving can be implemented on INDEX single-spindle and multi-spindle machines.

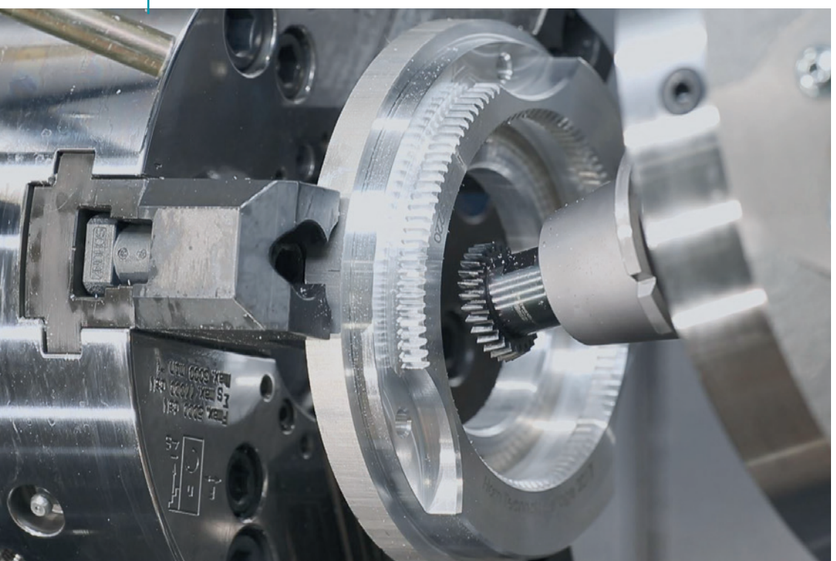
Power skiving has seen increasing popularity in recent years, even though it is essentially "old hat". The Prussian inventor and industrialist Julius Wilhelm von Pittler applied for a patent for the process as early as 1910. However, Pittler's idea was far ahead of its time, as the purely mechanical machines of the time were not yet able to meet the high demands made on machine tools by the process.

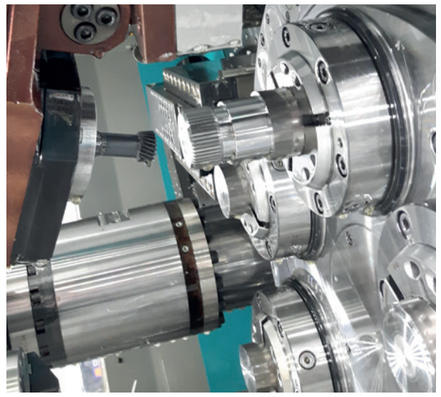
For external and internal gears

The process requires a very precise and absolutely backlash-free coupling of the rotational speed of the tool and the workpiece at high speeds. At INDEX, we solve this problem by developing and manufacturing our own directly driven workpiece and tool spindles. Their speeds are coupled with each other by means of a special power skiving control cycle. Multiple cutting passes, helical gears, and both external and internal gears can thus be implemented quickly and easily.

Up to ten times faster

Running gears, splines, gears with tightly fitting interference contours, and even internal gears that can otherwise only be made using time-consuming shaping can be reliably produced up to ten times faster. Depending on the workpiece and clamping situation, the reliably producible gear qualities are in the IT 6-8 range. X





Watch film here
› **index-traub.com/power-skiving-video**

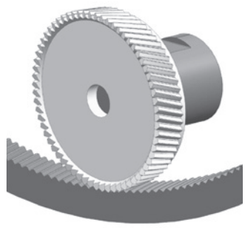
By now we have also implemented power skiving on INDEX multi-spindle machine tools. Thanks to the high productivity of the process, power skiving no longer determines the cycle time for the majority of components. This enables the extremely cost-effective manufacturing of gear components in large batch sizes.

Dr. Volker Sellmeier is Head of Technology Development at INDEX

Productivity of the process: Shaping vs. Power skiving

Tested on the example of an aerospace component with the following specifications:
Module m = 0.635 mm
Number of teeth z = 226
Reference circle diameter d = 143.51 mm
Stainless steel

Shaping
- Shaping insert
- Single tooth shaping on turret
- Tooth cutting time: 210 seconds
- Tool life quantity 4 parts



Power skiving
- 5 infeeds
- +1 finishing cut
- Tooth cutting time: 20 seconds
- Tool life quantity 40 parts

With a significantly shorter tool exit path, even tightly fitting shoulders are no problem.

The cutting speed

results from the rotation and inclination of the tool and can be calculated using the following formula: $v_c = \pi * D_{tool} * n * sin(\Sigma)/cos(\beta)$
With a straight gear ($\beta = 0°$) and an axis cross-angle of $\Sigma = 15°$, the cutting rate is thus now just around 25% of the circumferential speed. Especially with small tool wheel diameters, this requires high spindle speeds.

v_c = cutting rate / D_{tool} = tool diameter / n = tool rotational speed /
Σ = axis cross-angle (angle between tool and workpiece axis) /
β = gear helix angle

Power skiving is available on these INDEX machines:

INDEX R200 / R300 turning and milling centers

INDEX G220 turning and milling center

INDEX G420 turning and milling center

INDEX MS22, MS32, MS40, MS52 multi-spindle automatic lathes

The INDEX G200 is highly productive. When compared to the turning and milling centers used previously, the benefits are significant.

Sébastien Ripoche
SAS Ouest Décolletage

Intricately machined components of brass for communication technology

Powerful and easy to operate – the benchmark for complete machining

French industry boasts numerous high-tech companies of world renown – such as Airbus, Arianespace, and Renault. In turn, these companies rely on suppliers of high-quality mechanical assemblies and components. At the close of 2017, Ouest Décolletage opted for the G200 turning and milling center from INDEX. What were their reasons, and what were their experiences?

"I have a clear vision of where we want to be with our operations 20 years from now," says Sébastien Ripoche, proprietor of the ARBM Group located in the west of France, which is made up of a total of five companies. The CEO quickly made an impression, with his clearly evident skillset and energy; talents which he used to build a group of five metalworking companies virtually from scratch, over the course of some 20 years. His companies supply mechanical components to customers in high-tech industries such as aerospace, medical engineering, robotics, petrochemicals, and communication technologies. The central element of the Group is Ouest Décolletage, which the skilled metalworker founded in 1997 with one employee. At that time, the start-up had just two lathes at its disposal, which it operated in a three-shift operation to produce cost-effective mill-turned parts for suppliers.

Creating a high-tech group of companies via strategy and perseverance

"With simple parts, the long-term growth and yield that can be achieved is limited. For this reason, we wanted to break into the market segment for the production of complex, high-precision parts, made from difficult-to-machine materials, in small-to-medium batch sizes, as quickly as possible," recalls Sébastien Ripoche. And he succeeded: his 2-man operation quickly grew into a powerful manufacturer of high-tech components, which now employs 140 people. At the moment, Sébastien Ripoche is strategically preparing the Group to face the challenges of the next two decades. The aim is close supplier relationships with high-tech consumers, for complex individual items and low-volume production. Of course, this also relies on the plant implementing state-of-the-art machine tools.

Starting with the first INDEX G200

"In truth, I originally imagined a multi-spindle machine, but then – I was bowled over by the INDEX G200 turning and milling center – even though, at that time, it only existed on paper," says Monsieur Ripoche, with a smile. In principle, he embarked on this mission for two reasons: The first was that the machine – in conceptual terms – could do everything it needed to, for the markets he serves. What was of paramount importance was the ability to carry out all the operations required for the completion of the components on one and the same machine; so that the plant delivers a completely finished part. Each onward routing and each retooling ultimately costs money, increases internal logistical and administrative effort, and compromises the level of precision that can be achieved.
The second and equally important reason for his choice was INDEX's reputation in terms of the quality and reliability of their products, and the efficiency of their customer service. ›

You can find more customer success stories here:

› **index-traub.com/success**

Partners from the outset: INDEX sales engineer François Peschoux, in discussion with CEO Sébastien Ripoche, and operators (l to r)

Today, with the first machine firmly established, he can be sure that he made exactly the right decision.

Experience to date

"Following delivery of the machine at the start of December 2017, installation and commissioning ran smoothly," says Monsieur Ripoche. INDEX France provided the training. After familiarization and initial tests, the manufacture of complex parts was already in progress by the beginning of March 2018. If queries arose, additional support was provided by telephone, with no lengthy wait times. Overall, the commissioning – carried out by INDEX technicians – ran more quickly and smoothly than anticipated. Happily, the INDEX G200 also delivered the productivity it had promised. In comparison to the turning and milling centers used previously, cycle times improved by close to 70%.

Benefits of the "Virtual Machine"

"Once the INDEX G200 was in position, our guys initially had their reservations," Sébastian Ripoche recalls. For one thing, the new machine had a Siemens controller, in place of the familiar Fanuc CNC. Furthermore, employees had concerns about the high working speed, as they felt that programming errors could quickly result in scrappage and tool damage. Here, use of the INDEX Virtual Machine software during the initial training proved exceptionally helpful.

Fundamentally, this software allows the entire machining process to be executed on a PC screen. The control panel of the Siemens S840D sl control is also illustrated, as are 3D models of the spindles, toolholders and also of the component.

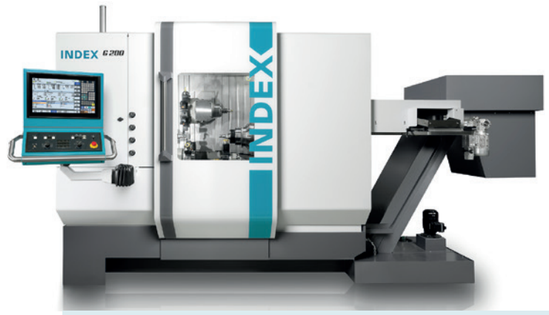
The entire machining process is shown, one-to-one, virtually on-screen. The benefits are reliable collision monitoring, shortened setup times, and optimized machining rates. In principle, it is possible to move from the Virtual Machine, with an already tested executable program, direct to production.

Even at the training stage, the Virtual Machine proved to be an outstanding tool, which fully familiarized the employees with the required programming. This facilitated rapid acceptance. "And this is a crucial point as, from my point of view, ultimate validation of the new technology lies with the employees, and is not decreed by the boss," emphasizes Sébastian Ripoche. ›

Elaborately machined steel flange
Photo: Klaus Vollrath

The start of a strategic partnership

"To sum up the experiences gained, for me, I have found a strategic partner in INDEX, with whom I wish to continue close collaboration in the future," concludes Monsieur Ripoche. Fundamentally, he is not only considering here the available machine program, along with the aspects of quality, service, and consultancy; but also the clear vision of the future, and the significant potential in terms of new developments that must be aligned with the future challenges facing the market. X



The INDEX G200 turning and milling center

The G200 is a flexible and powerful turning and milling center, with 65 mm spindle clearance, 165 mm chuck diameter, and 660 mm turning length. The machine has two spindles and three toolholders, with Y axes. Both spindles can also be used independently of one another. This allows up to four tools to be clamped simultaneously.

Classic bar stock feed via loading magazine, as well as supply via trusted gantry feed-out systems are now also complemented by the integrated iXcenter robot solution. This allows you, for example, to feed and remove chucked parts from a pallet system to and from the machine, using a 6-axis robot.

The robust rigidity of the INDEX G200, combined with thermodynamic stability and effective vibration damping, ensures optimal conditions for the manufacture of workpieces subject to stringent requirements in terms of quality and accuracy.

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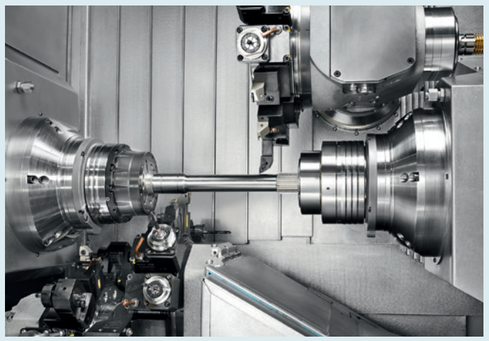


info

Restored to former strength and accuracy

Britta Hoffmann, CEO of Schlenker Spannwerkzeuge, applies a principle to her manufacturing: one machining technology – one brand of machine. And for her turning requirements, this is TRAUB. In order to reliably fulfill the demanding accuracy requirements, Hoffmann arranged for its TRAUB TNC lathe to undergo an extensive refit. **By Holger Röhr // magazine "mav"**

Britta Hoffmann has achieved significant success with her corporate strategy.
Photo: mav/Röhr

You can find more customer success stories here:
› **index-traub.com/success**

The overriding impression from a visit to Schlenker is this: awe-inspiring. The main products offered by the Villingen-Schwenningen company are collets, guide bushings, bearings, and clamping sleeves for many major machine toolbuilders.

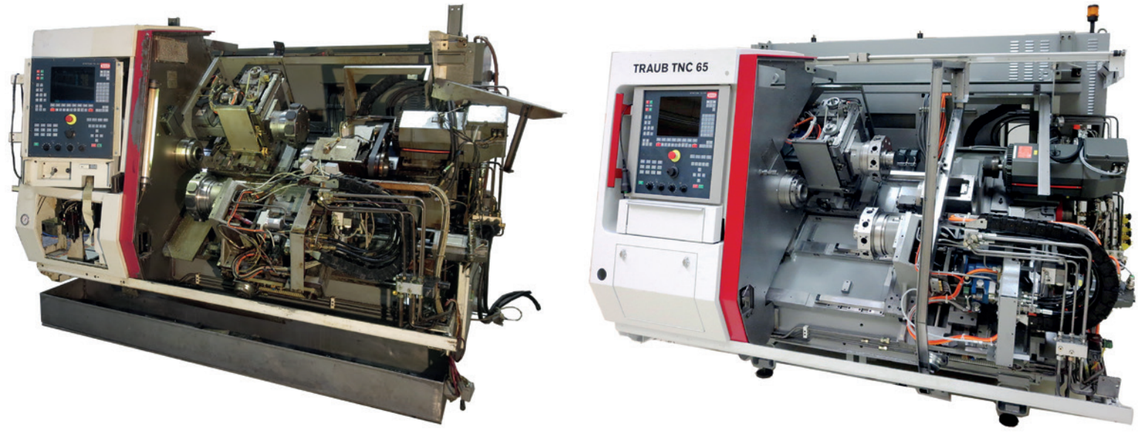
Highest accuracy requirements

"In total, we produce 40,000 different items," explains Britta Hoffmann. "Naturally, this includes many variants. But 40% of our products are truly specialist clamping equipment, which not only has to be ground to a specific diameter, but which also demands individual geometries. All parts are manufactured from bars. Batch sizes range from a few units, right through to mid-volume production. Our strength is in the manufacture of clamping devices to precise customer requirements; and all that along with extremely reasonable turnaround times." Here, the parts produced by Schlenker are subject to the most stringent of accuracy requirements. Ultimately, these components – collets, guide bushings – are particularly critical in terms of the accuracy that can be achieved by the machines in which they are used.

Proof the concept works is also the steady growth that is evident at Schlenker. In 2017, Hoffmann decided to procure its seventh TRAUB lathe. At the same time, it was decided to carry out a comprehensive refit of an almost-twelve-year-old TRAUB TNC65. This would allow continued attainment of the required accuracies, and would restore the machine's performance to an optimal level.

Why do the refit?

"The aim of the refit is to restore the machine to its original state. That is, it should subsequently perform exactly as it could when new. In the case of the TRAUB TNC 65, this is for example a spindle concentricity of below 3 µm," explains Alexander Hoffmann, Tooling & Refit Director at the INDEX Group. To achieve this objective, the machine is fully dismantled for the refit and thoroughly cleaned. All wear parts are replaced. The same applies to cables and hydraulic lines. The spindle bearings are replaced, and, even in the control cabinet, ›



How the nearly twelve-year-old TNC65 looked before the refit. After the refit, the machine not only looks as good as new – it is also at least as accurate as it was on initial delivery.

numerous parts are exchanged. Bearing seats are also reworked. The tool turret discs are replaced, and even the motors are reconditioned. All of which are measures that are crucial to ensuring the overall accuracy of the machine.

INDEX Regional Sales Director, Ralf Ziegler, adds: "In this way, INDEX guarantees high machine accuracy after each refit: a standard acceptance part, with measurement and geometry report, is produced. Here, it can also happen that the machine is even more accurate after the refit than the original new machine was."

Complete trust in the manufacturer

Did Britta Hoffmann also consider other providers for the refit, who may even have been cheaper under certain circumstances? "No. Even when the full overhaul costs around half of the as-new price of the machine, from my perspective, there is no alternative. For me, the most important element is trust. I have this trust only in the manufacturer himself. I can also give you an example. Together with INDEX, we have managed to incorporate spring steel slots in our collets; something which was previously impossible in this profile. Therefore we are continuing to develop further, and that in itself brings the true added value." One more benefit is that the customer receives another twelve-month warranty on the machine after the refit. Britta Hoffmann: "Following one refit, a clamping cylinder broke. Under the warranty, this was smoothly and quickly replaced, free of charge."

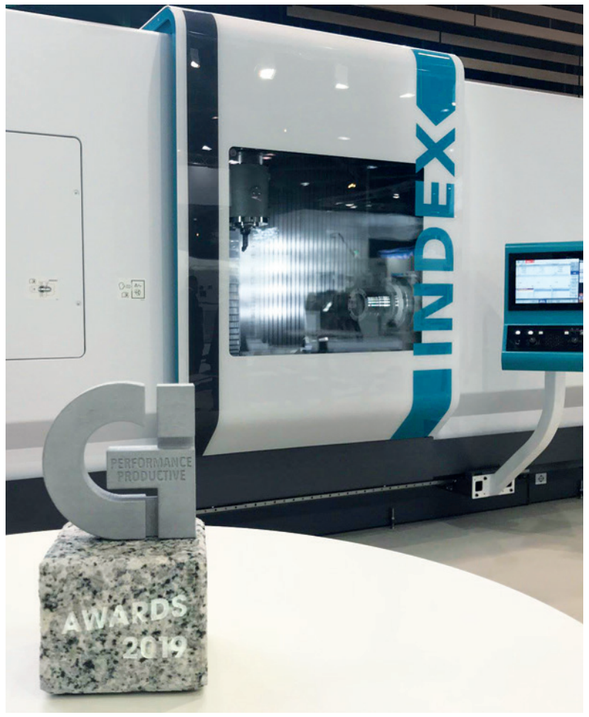
In addition to restoration of machine accuracy, all programs, tools, and equipment can continue to be used unchanged following a refit, a plus point that was also very important to Hoffmann. The machine has continued to run in a 3-shift operation. Its current accuracy is at the same level as when it was initially delivered; and with the result that performance is excellent. X

Schlenker Spannwerkzeuge
› **www.schlenker-spannwerkzeuge.de**

The aim of the refit is to restore the machine to its original state, to its former glory! It should subsequently perform exactly as it could when new.

Alexander Hoffmann
is Head of Tooling & Refit at INDEX

NEWS TICKER



Excellent

In February, the INDEX G420 turning and milling center won the Innovation Award at the Global Industrie exhibition in Lyon. The award, in the *Performance Productivity* category, recognizes the flexibility and productivity of the new INDEX solution.

umati
universal machine tool interface

A common language connects machines

The easier machines can share information, the more efficient they are. This is why the *VDW (the German Machine Tool Builders' Association)* has developed a common standard together with a number of partners: "umati" *(universal machine tool interface)* is a universal interface that can integrate machine tools and systems in IT ecosystems.
At EMO 2019 in Hanover, the INDEX Group will be showing the umati connection of machinery to a central VDW system.

100 ORTE Industrie 4.0

Another award for INDEX

As part of a competition, the "Allianz Industrie 4.0 Baden-Württemberg" honors innovative concepts from the world of business that successfully and intelligently interconnect production and value creation processes. In addition to innovative qualities, the expert panel also assesses the extent to which digital solutions can be successfully implemented in everyday operations.
INDEX has now received the "100 Places for Industry 4.0 in Baden-Württemberg" award for the second time, this year for the INDEX iXworld cloud platform.

Find the right machine

Which workpieces do you want to produce, and which machine can you use? Try the new machine selection tool at
www.index-traub.com/machineselector

Robot cell iXcenter

With the iXcenter robot cell, blanks and/or finished parts can be supplied and discharged quickly, safely and flexibly. In addition to the INDEX C100/C200 automatic lathes, it is now also available for all INDEX and TRAUB universal lathes, the TRAUB TNL20 and the INDEX G200 turning and milling center. Find out more at:
www.index-traub.com/ixcenter

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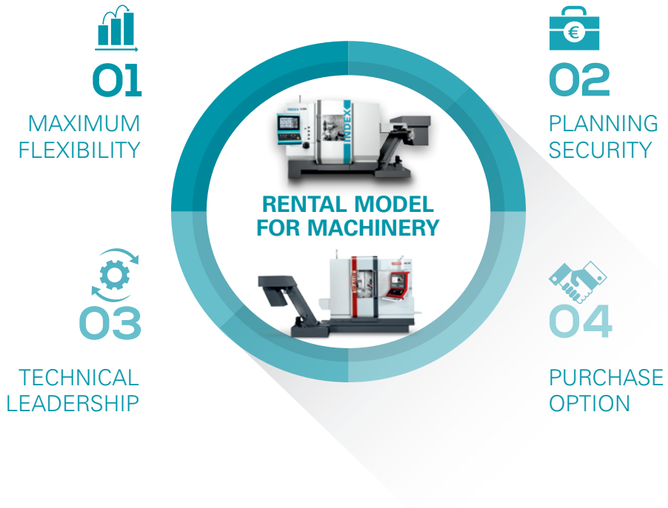
Need a machine to provide additional production capacity? Want to increase production to handle a specific job but still protect your liquidity? Benefit from our smart rental model. Please contact us for more informations.



Internet of Things

Digitization/Industry 4.0 were at the heart of the "Day of Action 4.0" at Villingen vocational school on April 4, 2019. During a festive ceremony, the new TRAUB TNX65 turning and milling center was put into operation. The INDEX Group recommends connection of the machines to the INDEX iX4.0 IoT platform.
From left to right: District Administrator Sven Hinterseh, Dr. Dirk Prust, Managing Director of the INDEX Group, Chamber of Commerce and Industry Managing Director Thomas Albiez and Principal Siegfried Kärcher in front of the new TRAUB TNX65 turning and milling center.

Take off

The Paris Air Show 2019 *Salon International de l'Aéronautique et de l'Espace – Paris Le Bourget* was held in mid-June 2019. INDEX was there with its own booth for the first time.

Experience the world of machining live

Exhibition and event highlights 2019/2020

EMO // GER
2019-09-16 to 2019-09-21, Hanover

CMTS // CAN
2019-09-30 to 2019-10-03, Ontario

ITM // MEX
2019-10-09 to 2019-10-11, Leon

MSV // CZE
2019-10-07 to 2017-10-11, Brünn

METALEX // THA
2019-11-20 to 2019-11-23, Bangkok

NORTEC // GER
2020-01-21 to 2020-01-24, Hamburg

METAV // GER
2020-03-10 to 2020-03-13, Düsseldorf

SIMODEC // FR
2020-03-10 to 2020-03-13, La Roche

TECHNISHOW // NL
2020-03-17 to 2020-03-20, Utrecht

GLOBAL INDUSTRIE // FR
2020-03-31 to 2020-04-03, Paris

SAVE THE DATE!
OPEN HOUSE 2020

Save the date!
OPEN HOUSE 2020
2020-04-21 to 2020-04-24
Reichenbach

We look forward to seeing you at our in-house exhibition.

More exhibition dates and information can be found at www.index-traub.com

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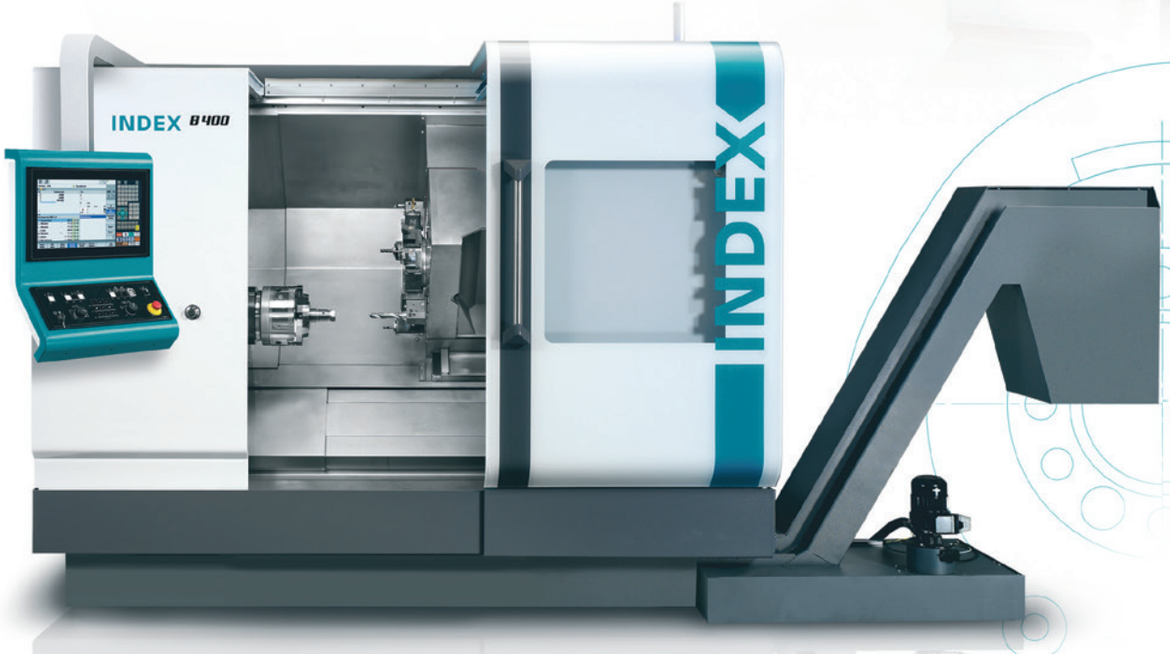

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