

01

2014

Customer Magazine  
of the INDEX Group

# TURNINGpoint

**INDEX** 



**100**  
YEARS  
**INDEX**

Turning machines  
1914 - 2014

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**THE  
NEW  
G-GENERATION**

100  
YEARS  
INDEX

Turning machines  
1914 - 2014

75  
YEARS  
TRAUB

Turning machines  
1938 - 2013

# 175 YEARS OF TURNING EXPERIENCE

## EDITORIAL

Dear Customers,  
Friends of the Company and Employees,

those of you who have been involved in the history and development of the German machine tool industry and its companies, will quickly be able to confirm that a great number of companies, including some illustrious names, have either been merged with others, or have disappeared completely.

In light of this we are delighted and justifiably proud to be able to celebrate the 100-year company anniversary of INDEX.

Take a quick look back over our company's history: Hermann Hahn, a salesman from Trochtelfingen in the Ostalbkreis region, founded „Werkzeugmaschinenfabrik INDEX“ on January 2nd, 1914. At that point in time he could not anticipate that the shots fired by a Serbian nationalist would kill the Austrian heir to the throne, Archduke Franz Ferdinand, in Sarajevo a couple of months later, triggering the First World War. He could also not anticipate that the world would change dramatically, thus threatening the start of his young company.

The first test for INDEX was the German mobilization which saw 2/3 of his workforce, which had grown to 70 employees, drafted into military service. After surviving these difficult war years, INDEX succeeded in establishing a leading position in the automatic turning machine sector with its legendary automatic lathes. Hermann Hahn died just a few days before the outbreak of World War Two. Along with his successor, Karl Tessky, who had become part owner of INDEX in 1929 with a 15% share, the responsibility now lay with his 32-year old son, Eugen C. Hahn. As a result of World War II, INDEX, which had around 850 employees by 1939, found itself once again in a difficult situation. After the war the company was dissolved and virtually all of the movable assets had to be shipped to a British competitor. However, INDEX withstood even this heavy blow

and by 1953 the company was already employing a staff 580-strong.

Then, despite a number of challenging crisis that affected the entire machine tool industry, the company continued to grow with its new products and a worldwide sales network. Eugen C. Hahn, who had no descendants, testified in his will that after his death his 85% share in INDEX would be incorporated into a non-profit organization, the „Eugen and Irmgard Hahn Foundation“ founded by him and his wife. Karl Tessky's 15% share is still owned by the family. Eugen C. Hahn's overriding wish for the foundation was that it should be used to maintain the company's autonomy and independence for the future through a stable, company-governed configuration. In addition, a portion of the company's earnings were to be used to sponsor not-for-profit projects through the foundation.

When we invite you to visit the exhibited products, you will recognize that our earlier motto, „Permanent progress in turning,“ continues to be implemented. You will also recognize that INDEX and TRAUB, who were able to celebrate their 75th anniversary in 2013, have both successfully managed to maintain a leading position in this very competitive market of discerning customers.

On the occasion of the company's 75th anniversary, Eugen C. Hahn expressed the following guiding principles: This achievement is not the result of intermittent development, or of favorable conditions, but rather of continuous efforts and hard work. First and foremost it is the result of the talent and diligence of all our employees whom we have to thank for our success. Secondly, it is to the result of entrepreneurial instinct regarding the needs of the market and customers, together with the foresight, courage, and trust in future development.

We must understand, however, that success is a thing of the past, and we must not simply look backwards. Today we need to recognize and address the problems of tomorrow in order to reap the rewards later. Unconventional thinking, creativity, ingenuity and fantasy combined with intellectual discipline will continue to be key.

Even 25 years later, these principles are not only still relevant, but we also feel beholden to them for the future.

Today we would like to thank our customers for their loyalty and the trust they place in our company and products. Rest assured that in the future we will endeavor to continue providing you with turning machines that contribute towards your economic success.

We will also keep you up-to-date on new products and applications on a regular basis through our new customer magazine, the first issue of which is made available to you today.

We look forward to your visit to our Open House and would like to thank you for your interest in our products.

Klaus Frick  
Chairman of the Supervisory Board

Reiner Hammerl, Uwe Rohfleisch und  
Dr. Bernd Walker  
Executive Board

# OPEN HOUSE

May 20 - 24, 2014

Welcome to the world of turning.

**Main Location:**

Deizisau

**Other locations:**

Esslingen and Reichenbach

▶▶ A Shuttle-Service will be available between the locations

**We look forward to your visit!**

Tuesday to Friday: 9 a.m. - 6 p.m.

Saturday: 8 a.m. - 14 p.m.

▶ **Highlights:**

+++ machine premieres +++ machine presentations +++ automation solutions +++  
+++ technology integration +++ process optimizations +++ factory tours +++  
+++ tool holders +++ machine accessories +++ historical machines +++  
+++ lectures & workshops +++ trainings +++ services +++  
+++ programming and simulation systems +++



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**ESSLINGEN**



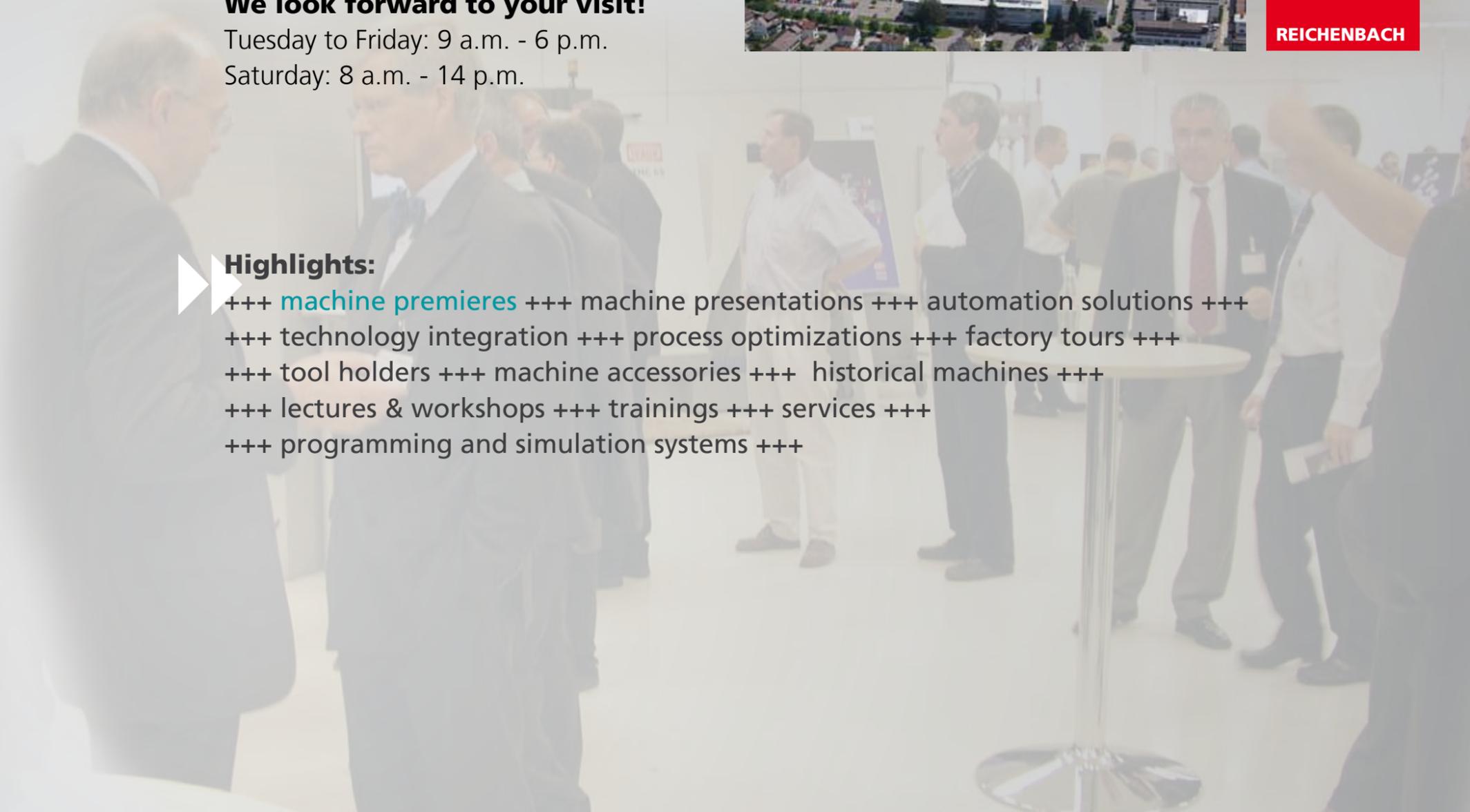
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**DEIZISAU**



Hauffstr. 4  
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**REICHENBACH**



# THE NEW G-GENERATION

## TURNING-MILLING or MILLING-TURNING

Get your workpieces and unit costs in shape with the INDEX G220. The design combines milling and turning machining processes in one machine concept.

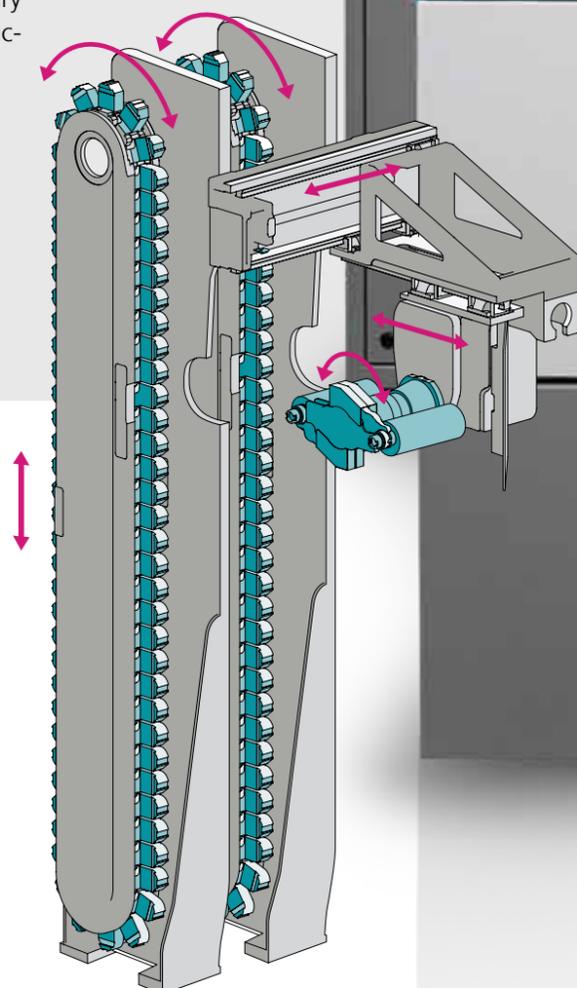
### The TURNING SPINDLES

- // Proven technology (energy-efficient synchronous technology)
- // Powerful and identical main and counter spindle
- // Max. 5,000 RPM / 24 kW / 190 Nm

### Fast tool change & large tool storage

A shuttle supplies the motorized milling spindle with the required tools from the tool magazine. With **70 (140) tool stations**, the G220 has a large stock of tools, contributing to **reduced setup costs**.

A chip-to-chip time of around six seconds also ensures short secondary processing times and a high productivity.





**DOWNLOAD BROCHURE**

Scan QR-Code.

**The MOTORIZED MILLING SPINDLE**

Powerful and dynamic:

- // Max. 18,000 RPM / 11 kW / 30 Nm
- // HSK-A40 tool mounting
- // Approx. 6 s chip-to-chip time
- // Y/B-axis running in hydrostatic bearings
- // 5-axis machining possible

**The CONTROL: Future-proof. Flexible. Innovative.**

- // C200-SL control is based on SIEMENS S840D solution line and SINAMICS drives
- // 18.5" full multi-touch screen
- // INDEX VirtualLine with VPro Programming Studio directly on the machine operating panel
- // Comprehensive technology cycles for error-free and optimal machining quality
- // System solutions for integration of measuring, loading, and handling requirements



— New machine design

— The **lower tool turret** with a Y-axis and a powerful tool drive ensures the possibility of three-dimensional machining on the main and counter spindle.

- // 7,200 RPM, 6 kW, 18 Nm (25%)
- // X axis 185 mm, rapid traverse 30 m/min
- // Y-axis +/-50 mm, rapid traverse 15 m/min
- // Z-axis 800 mm, rapid traverse 55 m/min

TRAUB automatic turning

# FAST, ACCURATE, EFFICIENT.

More speed and flexibility - the CNC production turning machine TRAUB TNK42 allows the production of both typical automatic turned parts up to 250 mm in length and of geometrically complex workpieces in large and medium volumes.



Compact machine design with up to 3 simultaneously working tool carriers for high productivity

**Powerful rear end machining unit**  
8 tool stations, including 5 live stations  
Extensive rear end machining possible  
Speed 12,000 RPM  
Power (25%) 5 kW  
Torque (25%) 5.3 Nm

**Upper tool holder with tool turret**  
10 stations (up to 20 with multi-tool holders)  
Large travel ranges (X = 140 mm / Z = 300 mm)  
Turret indexing by NC rotary axis  
Y-axis (interpolated), Y-travel:  $\pm 50$  mm  
Optional: **Dual Drive**



The vertical design of the machine with a setup-friendly work area not only provides good conditions for unobstructed chip flow but also significantly better ergonomics which facilitates setup operations. The basis for this is a vertical cast machine bed whose damping properties are prerequisite for high-precision cutting. With two tool turrets, a main spindle with C-axis and 42 mm bar capacity (7,000 RPM, max. 29 kW and 65 Nm) and a swiveling counter spindle for extensive rear end machining, the TNK42 offers high production rates at only 5.5 m<sup>2</sup> footprint (without bar loader).

High cutting performance is ensured by the rigid and precise work spindle delivering a power of 29 kW (40% DC) at up to 7,000 RPM. In addition to bar stock machining, the TNK42 also allows the use of chucks up to 110 mm in diameter at a torque of 65 Nm (40% DC).

The upper tool turret has 10 stations with slide travels of X=140 mm and Z=300 mm. All stations in the upper turret can be equipped with live tool holders. Turret indexing is designed as an NC rotary axis with a direct measuring system without mechanical lock, thereby allowing fast positioning of the turrets at any angle. This allows multiple tool assignments at each station, so that the upper tool carrier can be equipped with up to 20 tools. The standard built-in

Y-axis for the two turrets is formed by the interpolated movement between the CNC turret indexing H-axis and the C-axis of the work spindle as well as the X-axis of the tool carrier. Through the combined motion in conjunction with the powerful tool drives, a large Y-travel of +/- 50 mm is provided for all turrets, e.g., to mill surfaces and grooves on workpieces or to drill axis-parallel off-center holes. The optionally available "Dual Drive" for the upper turret not only reduces secondary processing times thanks to chip-to-chip times of less than 0.4 seconds. The live tool holders also experience a significantly longer service life.

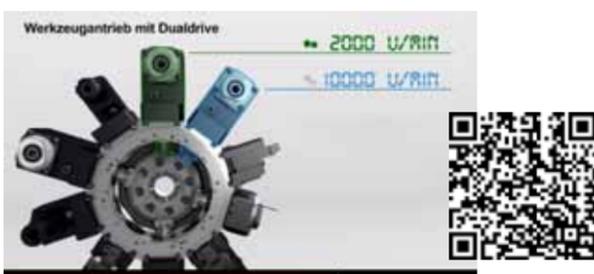
The lower cross slide - in addition to its function as a tool turret with 9 stations and identical functionality as the upper cross slide - also serves as a counter spindle that travels and swivels in three axes (X/H/Z) for rear end machining of workpieces.

#### Technical Data

Main / counter spindle	D 42 mm
Speed MS & CS	7,000 RPM
Power max. MS / CS	29 / 12 kW
Torque max. MS / CS	65 / 22.5 Nm
Turrets (stations)	2 (1x10 / 1x9)
Tool drive speed	12,000 RPM
Tool drive power	max. 9 kW
Torque (25% DC)	8 Nm
Y-axis	+/- 50 mm
Rapid traverse rate X / Z	30 / 50 (m/min)
Chip-to-chip time	< 0.4 s

#### ► Dual Drive

The new tool drive system from TRAUB, which ramps up the speed for the next tool during main time. ► Scanning QR-Code for Video.



Y functionality on both tool turrets:  
Milling of surfaces (Y-travel +/- 50 mm)



Operating panel of CNC control TRAUB TX8i-s

The TRAUB TX8i-s CNC control tailored to the TRAUB TNK42 combines performance with high reliability:

- // A 64-bit RISC processor and a PLC high-performance processor provide fast data processing and support short production times.
- // Graphics-supported interactive guidance also during setup
- // Comfortable process synchronization and optimization of program sequences of parallel machining processes
- // Visual control to avoid collision situations through graphical process simulation
- // Highly sensitive tool breakage monitoring

The precision turned parts by Laubscher are sought after – in all sectors.

# SUCCESSFUL PARTNERSHIPS

The customer/supplier relationship between the turned parts manufacturer Laubscher and INDEX began a few years after the foundation of the INDEX-Werke in 1914. A very trusting partnership has developed over a long period of time, extending to the development of new machinery – which has been to the benefit of both companies.



*Ultimate precision is required for parts in the medical technology sector  
Photo: Laubscher*



Do you know an independent turned parts manufacturer that has been doing business since 1846? The answer is: Laubscher Präzision AG in Täuffelen at Lake of Biel. After 168 years, it remains the oldest independent company in Switzerland in this sector and even one of the first industrial companies. Since there were no suitable turning machines available for purchase in the mid 19<sup>th</sup> century, Laubscher took on the task of building them itself. Soon after, around the year 1900, Laubscher introduced machine production and focused entirely upon the production of turned parts which at the time were supplied primarily to the watch industry in the Swiss Jura.

Laubscher's precise turned parts were and still are sought after – the operations in Täuffelen satisfied the needs of suppliers in other industries too. Laubscher also became the worldwide leading manufacturer of gramophone needles for schellac records. Further success stories include products such as compass needles as well as parts used in the 1970's for mechanical typewriters, calculating machines and accounting machines.

#### **Precision and reliability**

Times change, so do products. Today Laubscher supplies many turned parts for hydraulic components used in construc-

tion and agricultural machinery as well as locking cylinders for doors and the hugely important precision turned parts used in medical equipment. Small, high-precision watch parts remain a major constant feature of the product range: Screws, spring housings, bezels and push pieces represent almost 30 percent of the company's sales revenue. Every single one of Laubscher's customers expects ultra-high precision. They require tolerances within the  $\mu\text{m}$  range. Manfred Laubscher, Managing Director of Technology, reports: „For us a tolerance of 1/100 is extremely generous. The standard tolerance is more like 6  $\mu\text{m}$ . Where necessary we can also achieve long-term accuracy of less than 4  $\mu\text{m}$ , such as for the small round spring housing used in automatic watches.“

It is natural to believe that a company that has been around for 168 years bases itself upon long-term values and business rela-

tions when CNC technology emerged. Manfred Laubscher remembers: „Previously we were not known as drivers of innovation, although this changed radically. Today we sometimes purchase machines when they are still only available as a blueprint.“

#### Highly cost effective

In 1994 the investment in the ABC range from INDEX marked an important milestone. The company was able to drastically reduce the piece times using these CNC production turning machines. An ABC machine – which is still part of the INDEX product range today – makes it possible to process three tools at the same time. Manfred Laubscher is still impressed: „This was sensational and we were among the first to invest in this technology. This helped us take a gigantic step forwards.“ Another cornerstone in Laubscher's success was the

In the medical technology sector, for example, operating techniques require minimum invasion. Some of the devices must be tiny yet highly precise.“ As he knows exactly what the parts should cost he can derive an acceptable machine price. These considerations were included in the development of the INDEX MS16 and a pre-production machine was thoroughly tested in Täuffelen. The MS16 soon aroused a lot of interest among other turned parts manufacturers. During his presidency at the International Turned Parts Industry Association he invited a number of his colleagues to visit his company in 2012. He explains: „Our visitors all agreed that the INDEX MS16 is a machine that the market needs – and is a good basis for the future collaboration between Laubscher and INDEX.“

„Window shopping“ with a glimpse into the production hall: The production building with its outer glass walls located on the Hauptstrasse. Photo: Laubscher

“The INDEX MS16 is a machine that the market needs.”

Manfred Laubscher, CEO  
Laubscher Präzision AG

onships. Manfred Laubscher describes the basis for his company's reliability: „It is extremely important to us that we supply the ordered parts in the required quality, within the specified deadline and at the agreed price. This has been internalized by all our employees.“ Smiling, Michael Laubscher also explains that another success factor is the know-how that has built up among the workforce over the years, enabling the company to make the „impossible“ possible. „This is a basic prerequisite for maintaining the ongoing advantage through high precision and quality.“

#### Best prerequisites

The entire process chain is befitting at Laubscher – from the indoor climate conditions in the production hall to the tools used and the utilization of the right tools and cooling lubricants. A glimpse into the modern production hall is enough to ascertain which machines play a pivotal role in the production process: Automatic lathes from INDEX. As testified by the high number of installed INDEX and TRAUB machines (of which there are currently around 40), there is a special relationship between Laubscher and INDEX. The key characteristic is continuity. Manfred Laubscher explains: „I know about the early days from what my grandfather told me. Laubscher purchased the first INDEX machine – an INDEX 12 – in the 1920's. My grandfather discovered it when he traveled to Germany and he advised the management board to buy one. Laubscher decided to purchase this fixed headstock lathe from INDEX as the machine offered advantages compared with other common sliding headstock lathes. It was delivered by train and horse-drawn cart.“

After 1945 Laubscher stepped up its collaboration with INDEX. The company went on to purchase the 18, C29 and ER lathes from INDEX. Laubscher was initially cau-

introduction of the multi-spindle automatics in 1998. „We hesitated about this technology for a long time,“ explains Manfred Laubscher „other turned parts manufacturers were years ahead of us. However this changed overnight when INDEX brought the complete CNC multi-spindles onto the market. We recognized the MS32C as an opportunity and made a purchase.“ As is the case with most of the business transactions between Laubscher and INDEX, the company Springmann Werkzeugmaschinen in Neuchatel was involved in the introduction of the multi-spindle automatics. Head of Sales Philippe Dubois explains: „Springmann has been the exclusive agent for INDEX in Switzerland since 1920. Therefore it was our role to support Laubscher with the introduction of the INDEX multi-spindle automatics. At the time this was a large and courageous step for Laubscher, especially since the 32-mm bar capacity of the machine was too high for typical Laubscher parts, all of which measured less than 10 mm in diameter.“

#### More than just a customer/supplier relationship

The first steps in multi-spindle machining also marked the start of an even closer relationship. Over many years the two companies – and their employees – have grown to know and appreciate each other. Furthermore, Mr. Laubscher is one of the most knowledgeable experts when it comes to the market for turned parts and the increasing requirements of the machines. Therefore it always pays to listen carefully to what he has to say.

As such it was no surprise that INDEX acted upon Mr. Laubscher's suggestion to develop a small multi-spindler – the INDEX MS16C. Manfred Laubscher explains: „The trend in the market is clearly moving towards smaller and more complex parts.



#### Manufacturer of turned parts with long-standing tradition

Laubscher Präzision AG was founded in 1846 and is still a family-owned business. The brothers Hans-Peter, Manfred and Dr. Raphael Laubscher are the sixth generation of the family to run the company and the seventh generation is already integrated into the business. Around 250 employees – 180 of which are in production – work over a production area measuring approximately 20,000 m<sup>2</sup> and another building offering a further 4,000 m<sup>2</sup> is currently under construction. These employees produce ready-to-install precision turned parts with diameters ranging from 0.3 to 42 mm. Different types of steel, precious metal, non-ferrous metal and light metal are machined along with other special materials. Depending on the customer's requirements, the batch sizes range from one thousand units to several million units. In addition to machining for turning, milling, grinding and threading operations, Laubscher also undertakes the operations for heat treatment and galvanic plating treatment.

#### Laubscher Präzision AG

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www.laubscher-precision.ch

Powerful machining

# UNIVERSAL TURNING IN A NEW DIMENSION

Through the use of field-proven components, the flexible INDEX IT600 is designed to manufacture medium and small lot sizes of mold making, tooling and prototyping considerably faster and more economically than with conventional universal lathes.

By the innovative arrangement of the tool turrets with interpolated CNC turret indexing axes and the use of field-proven components, the Universal Lathe INDEX IT600 promises increased productivity and time savings during setup.

In conjunction with a standard interpolated Y-axis in the upper 14-station turret and an additional lower multifunction turret with 10 stations that can accommodate even very long boring bars and ensures a stable tailstock function, the machine provides a high performance density. With a spindle clearance of 65 mm both for machining of up to 600 mm long workpieces between

centers and chuck parts up to a turning diameter of 380 mm with the usual INDEX precision.

The upper tool turret with carriage paths of  $X = 220$  mm and  $Z = 600$  mm is primarily intended for external and transverse machining. The indexing movement is designed as a CNC rotary axis without mechanical lock, thereby allowing a freely programmable angle position of the turret. This allows multiple tool assignments at each station. The Y-axis is generated by the interpolated movement of the CNC turret indexing axis and between the X-axis and the C-axis of the work spindle. Through the combined

motion, large Y-travels of 150 mm are available for live tools at 7 stations.

A novelty in this universal lathe is the optional lower second tool carrier with carriage paths of  $Z = 650$  mm and  $X = 110$  mm, which is mainly for internal machining in a separate machining plane. In addition to 7 turret stations with VDI mountings, there are 3 recessed UniFlex mountings to hold extra long tools. High feed forces of up to 17,500 N are provided by the multifunction turret, which can also be used as a tailstock on which alignment errors of the tailstock center can be corrected to micron accuracy through NC programming.



**The choice is yours:**

SIEMENS or  
FANUC control



Find out more about  
the **INDEX IT600!**

### Main Spindle

Speed: 4,000 RPM  
Power (40%): 18.5 kW  
Torque (40%): 352 Nm



### HIGHLIGHTS IT600

- // **High productivity** by a second turret
- // External and transverse machining with the upper tool turret (integrated interpolated **Y-axis** as standard)
- // Internal machining with **multifunction turret**: 7 turret stations with VDI30 & 3 UniFlex mountings for, e.g., deep-hole drills
- // Tailstock function in the lower turret, **sturdy CNC tailstock** with large stroke
- // Vertical machine bed for optimal chip flow
- // Cost-effective and precise machining of simple to complex workpieces and from small to medium batch sizes
- // The **control**: Choice of SIEMENS S840D solution line and FANUC 32i-B

### Wide range of parts

Wide variety of workpieces from barstock up to 65 mm and in the chuck up to 250 mm



SAE1045  
Blank 65x400 mm



AlMgSi1  
Bar Ø 45 mm



SAE4130  
Blank 250x230 mm



SAE 1045  
Drawn Bar Ø 50,8 mm



Measurable improvements in production with the sliding/fixed headstock automatic lathe TNL32

# IDEAL FOR ANY PRODUCTION TASK

The turrets of the TRAUB TNL32 designed as NC rotary axes are indexing extremely fast and they can also be freely positioned. This allows the use of multiple tools, which reduces the chip-to-chip times and increases the tool pool in the work area. Conclusion: Less setting up and higher productivity.

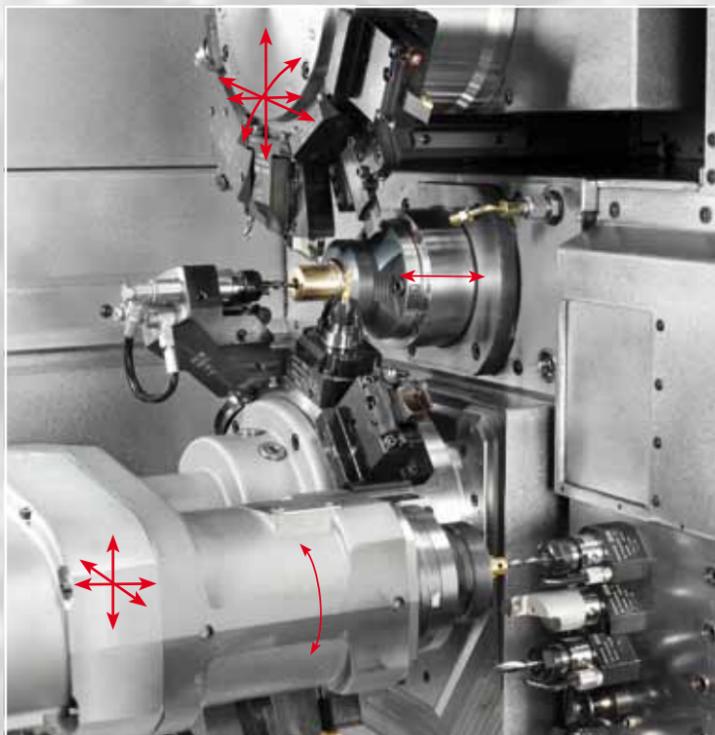


Get a firm grasp on your production:  
Control **TRAUB TX8i-s**  
with **WinFlexIPS<sup>Plus</sup>**

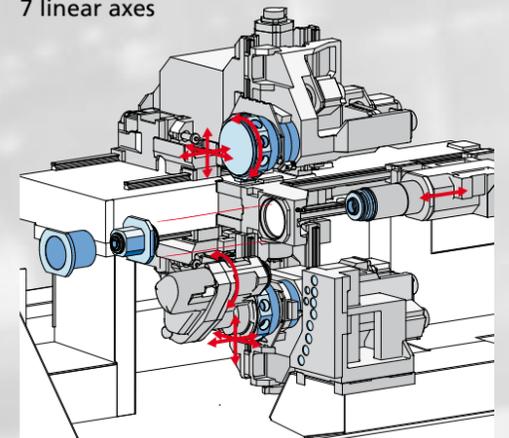
## TRAUB TNL32 // Technical Data

Main spindle / Counter spindle	Ø 32 mm
Speed MS / CS max.	8,000 / 8,000 RPM
Power MS / CS max.	10.7 / 4.5 kW
Headstock (sliding/fixed)	305 / 127 mm
Turret / Stations	2 / 10 each
Tool drive speed max.	12,000 RPM
Tool drive power max.	3.4 kW

**CHIP-TO-CHIP-TIME: < 0,4 s**



**TNL32-7**  
7 linear axes

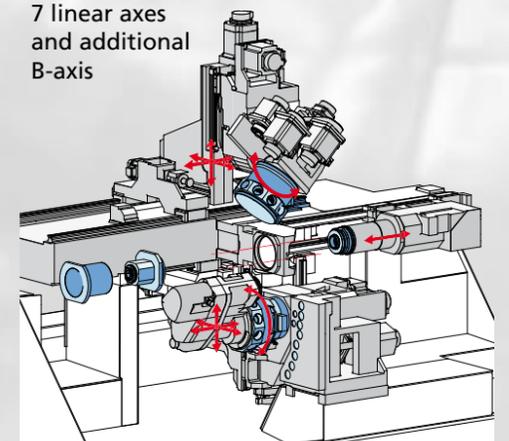


### 3 Variants for even more flexibility

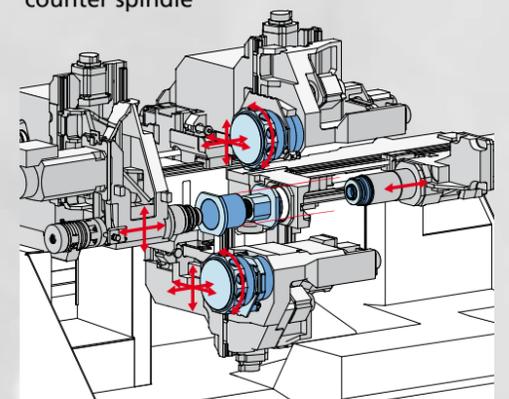
The machine design that was tuned to meet the varied requirements of typical long-turned and short-turned parts, gives you a range of benefits:

- // **Simultaneous machining** with up to 3 tools (each tool with variable feed rate)
- // Easy and quick changeover between sliding and fixed headstock operation
- // Excellent accessibility through a large sliding cover
- // Clearly structured work area with large axis travels and big tooling circles
- // **Ultimate precision** by thermo-symmetrical machine design
- // Accurate and complex rear end machining
- // Turret indexing designed as an NC rotary axis
- // Large tool pool can be equipped with multiple tool holders
- // Dual Drive: innovative tool drive system

**TNL32-7B**  
7 linear axes  
and additional  
B-axis



**TNL32-9**  
9 linear axes and independent  
counter spindle



W&H Dentalwerk cuts an impressive figure through innovative products and structures

# TEAMWORK FOR WORLD LEADER

W&H is one of the leading manufacturers of dental precision instruments and devices. Important success factors include product innovations as well as an innovative business structure with teamwork and a day portion model. The highly qualified employees have access to a fleet of machines that enable the manufacture of highly integrated components.



Even the outside of the W&H Dentalwerk in Bürmoos indicates how modern and open the company is. Photo: W&H

The first thing that visitors notice at W&H Dentalwerk in the Austrian town of Bürmoos near Salzburg is the open and friendly atmosphere. The modern and bright architecture predominantly made of glass highlights that this is a special industrial operation. The W&H Group continues to be a hugely successful developer and producer of dental precision devices and instruments. The company that was founded in 1890 in Berlin and moved to Bürmoos in 1944 has been under the ownership of the Malata family since 1958 and now employs around 1,000 staff around the world. The „family philosophy“ is firmly established among all of the company's employees along with the values of commitment, appreciation and trust. The company encourages high levels of motivation through efficient teamwork and flat hierarchies.

The current W&H product range includes instruments for tooth restoration, prosthetics and mechanical root canal treatment as well as surgical straight and contra-angle handpieces for inserting implants, along with the associated drive units. The company also manufactures devices such as Air Scaler and Piezo Scaler that are used for professional prophylaxis. Furthermore, W&H offers instruments and devices for the hygiene and maintenance sector as well as for dental laboratories. The product range is extensive and 95% of it is exported to over 110 countries. For this reason, besides the production facilities in Bürmoos and the Italian town of Brusapor-to, there are currently 19 subsidiaries in the key European, Asian and North American countries.

## Innovation through motivation

Over the last forty years, W&H has succeeded in bringing many innovations onto the market. Each year it files a number of patents designed to enable more pleasant and effective dental treatment. In 1979 W&H succeeded in building a comfort push-button system in a contra-angle handpiece with turbine that enables instruments to be changed easily. A more recent highlight: In 2007 W&H was the first global manufacturer to bring sterilized LED's onto the market that can be integrated into dental instruments.

Dipl.-Ing. Roman Gratzler, a member of the company management team, explains: „We focus completely upon the needs of our customers at all times, and not just when we are developing our products. This focus continues through to the after sales



Each component in the mechanically-driven contra-angle handpiece requires maximum precision in order for the tool to ultimately achieve 200,000 rpm and have a long service life. Figure: W&H



Roman Gratzler: „The TRAUB machines are very precise, the technology is amazing. Even when it comes to the after-sales service we are treated in the way one would expect from a good partnership.“

service where we always try to offer the customer quick, competent and reliable support.“

Behind all the innovative products is a multi-layer business model with a special organizational structure. The team structure is quite unique and is in place in all areas of the business from administration to production. Most of the 625 employees at the site work in small teams with a maximum of seven people. They steer and manage themselves as much as possible – without a team leader.

As part of the management team, Roman Gratzler is responsible for the areas of production and engineering. He reports: „We have a total of 23 teams in the production area, which I only advise or supervise in the event of problems. They operate like small profit centers and look after the costs incurred, work allocation, the machinery and equipment. They order materials and spare parts – they simply have complete responsibility for their area.“

This requires a high level of competence at both a social and a technical level from each individual employee. „It works,“ confirms Gratzler „even if it has taken time to develop. If other companies wanted to copy the system overnight it would not work.“

The same rings true for W&H products. „The sophisticated design of the individual components is the best copy protection“ reasons Roman Gratzler. Competition in the dental technology sector is fierce, especially in the Netherlands. W&H counters this through innovations of the highest standard, created through the know-how of its employees that has built up over many years.

One example: When carious areas in the tooth enamel need to be treated, the dentist can use different W&H products. He either uses the air-powered turbine that drives the tool with up to 380,000 rpm, or he uses a mechanically-driven straight and contra-angle handpiece that includes two gear speeds with ball bearings and reaches 200,000 rpm. Each of these devices contains tiny precision parts that are very challenging to produce.

To master the production of these parts, W&H uses highly trained employees who have usually learned these skills within the company. They operate a fleet of machines including around 120 CNC machines for turning, milling, grinding, wire eroding, laser cutting, laser welding and honing. Turning is usually the first work step. There are 30 TRAUB machines, among others, in the production hall that are used for this purpose. Roman Gratzler reports: „In the 1970's we were already using the first TRAUB machines. Since then you will now only find modern machine series such as the TNL 12, TNL 26 and more recently the TNL 18 and TNL 32.“ The first TRAUB fixed headstock automatic lathe, the TNL 12, was supplied in 2005, tested thoroughly and found to be good. Service was even included in the assessment as system availability needs to remain as high as possible. The after sales support is therefore extremely important. „A good hotline, quick delivery of spare parts and competent service personnel“, is how

the W&H operational manager describes his preferences. „TRAUB was able to impress us in this respect as well as on the technological side. The machines are very precise, the technology is unique.“

#### First-class employees and machines

W&H operators reap enormous benefits from the machines. They can turn with an accuracy of 4 to 5  $\mu\text{m}$ . Even greater precision when required: A special part is produced in series production whereby a drawing tolerance of 3  $\mu\text{m}$  is even maintained from the bar. The precision is retained without the need for post-machining, although the part does then go through a hardening process.

The length and geometry of a component determines which machine it is machined on. As most components have turned and milled contours, nearly all the turning machines at W&H can also be used for milling. Roman Gratzler recognizes the strength of its supplier TRAUB in this respect as the machines effortlessly offer the necessary milling performance. In the future we will focus upon machines that have a B-axis in addition to the linear XYZ axes. „The geometric complexity of the workpieces is continually increasing“, reasons Roman Gratzler. „Our products must be small so that the dentist can hold them in his or her hand. As such an increasing number of functions and feeds are integrated into the given installation space. This requires different holes in a great many angular positions that can only be reasonably drilled with a B-axis.“

#### Delivery of the exact number of pieces

Now W&H does not produce precision components in large-scale production, however. It tries to minimize the

batch size. On the one hand the stock turnover and stock on hand should be low and on the other hand the company can respond quickly to market changes or legal regulations.

W&H is logistically geared towards the day portion model. This means that in one day the products are assembled using the individual parts, after which they are tested, packaged and dispatched. There is no large interim storage facility. Furthermore all the sold parts are reproduced on a 20-day cycle. The production of virtually precise quantities is only worthwhile however if the non-productive times are kept low. Roman Gratzler again makes reference to his highly qualified employees in production who take on a wide variety of tasks in order to avoid time-consuming handovers and interfaces. They receive the drawings from the developer and exchange directly with him. They act as programmers, set-up specialists and operators. Each employee even maintains his machines and is responsible for the machine environment. He also determines which tools are to be used. W&H operates in-house tool construction, where special tools are manufactured that offer several functions and contribute towards quicker production of parts.

The employee on the machine is also responsible for the quality of the parts produced. Roman Gratzler explains: „We do not have a QA department that checks and approves all parts. Each individual checks his work until the parts are supplied in the assembly. The controls in place first involve checking the fully assembled end products that are then supplied directly to the customer.“



W&H also develops innovative couplings and powerful micromotors that enable high performance in a narrow space. Each and every small individual part is produced in Bürmoos.  
Photos: W&H



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INDEX ABC65 - the next evolutionary step

# PLACE OF ACTION: SERIES PRODUCTION

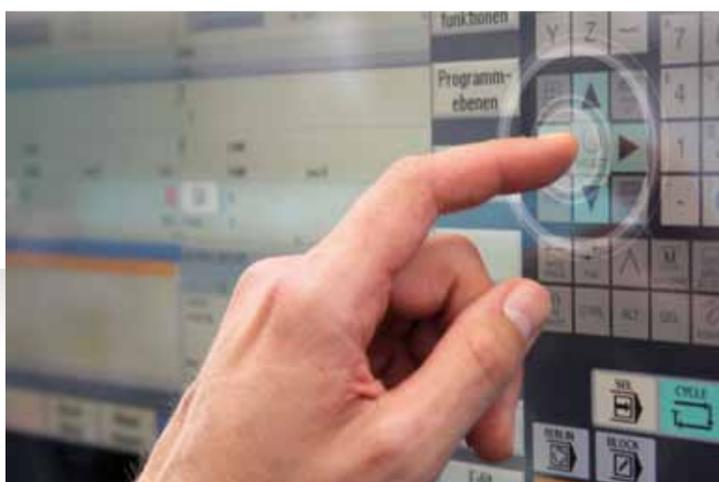
High axis acceleration, fast traversing and indexing speeds, Y-axes and a newly designed rear end machining unit open up new perspectives in terms of productivity and workpiece complexity for CNC automatic lathes.



## HIGH PERFORMANCE DENSITY

- // compact machine design with up to **3 simultaneously working tool carriers**
- // tool turret with NC rotary axis enables extremely short **chip-to-chip times < 0.4 s**
- // swivel counter spindle for versatile rear end machining of workpieces
- // **2 standard Y-axes** (Interpolation of X-, C- & H-axis)
- // dynamic main spindle with electric collet feed for short idle times
- // vertical machine bed for free chip flow and good user ergonomics
- // high manufacturing precision with elaborate cooling concept





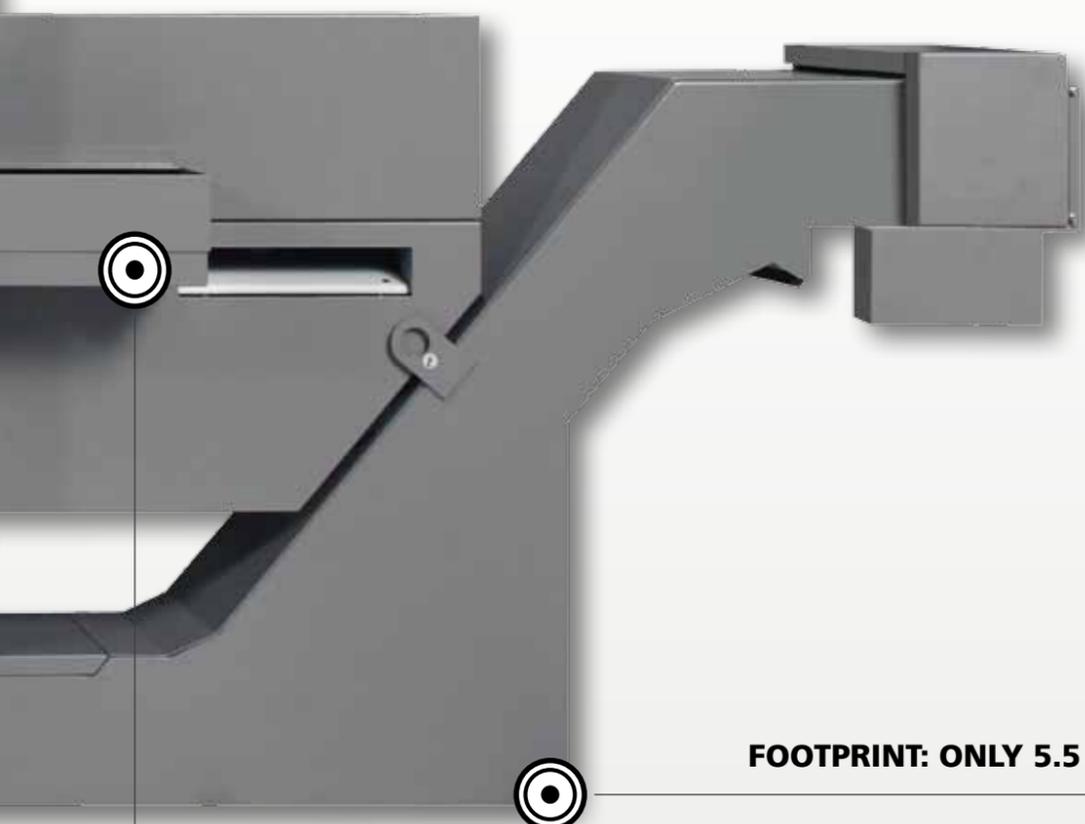
CNC control with full touch-sensitive glass surface (multi-touch) and brand new user-friendly features

**18.5" WIDESCREEN DISPLAY**



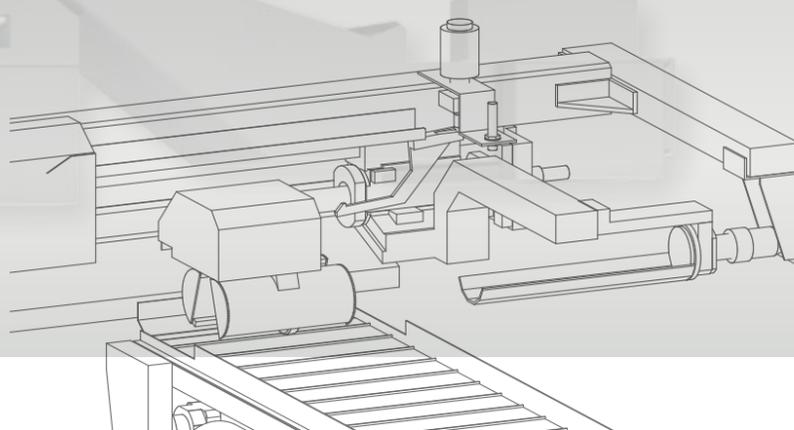
**THE CONTROL – PIONEERING**

The latest INDEX control generation C200-4D sl, based on the Siemens Sinumerik 840D Solution Line, was complemented by an 18.5-inch wide-screen display with full multi-touch surface. Because by means of touch technology, various selection and control switches on the machine control panel could be integrated directly into the screen. Only those switches and buttons are displayed, depending on the machine situation, that actually apply to the current machine status. Enabled buttons and switches available for selection are selectively backlit, illegal ones are dimmed, and necessary operator actions are indicated by flashing buttons.



**FOOTPRINT: ONLY 5.5 m<sup>2</sup>**

Fast and gentle workpiece removal by a CNC-controlled shuttle



For more Information about the control and the virtual machine > Scan QR-Code

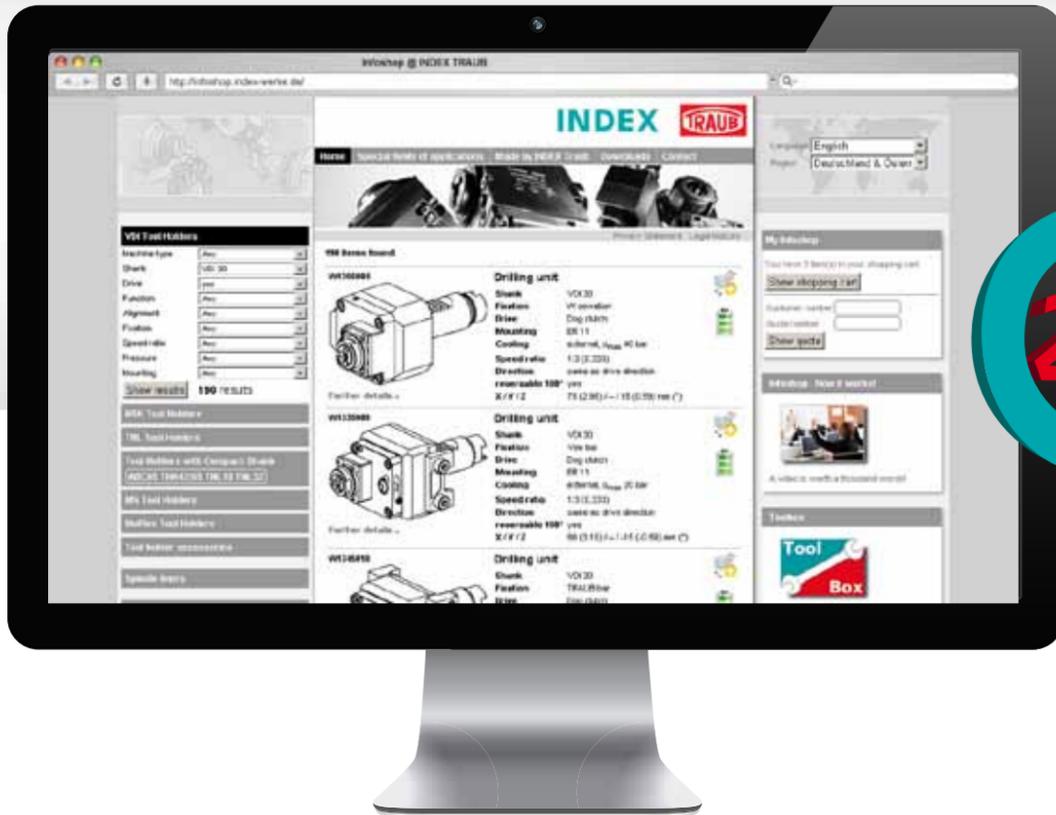


**Technical Data**

Main / Counter spindle	Ø 65 mm
Speed MS & CS	6,000 RPM
Power max. MS / CS	35 / 9 kW
Torque max. MS / CS	120 / 20 Nm
Turret speed max.	12,000 RPM
Turret drive power max.	9 kW
Turret torque max.	11.25 Nm
Slide travel X / Y / Z	140 / ± 50 / 300 mm

# Order around the clock

Infoshop – the information and equipment portal



Around 8,000 interested parties and customers now visit our Infoshop every month. This is not least the achievement of the development team, which has expanded the portal gradually with much commitment and a focus on customer needs. So, in the fifth year of the shop, virtually no wish is left unfulfilled – as many users confirm.

In 2009, the Infoshop was launched as a purely informational site for tool holders. To date, it has evolved into an equipment portal with a wide range of products and services around turning machines.

### From A to Z – everything is there

The Infoshop offers almost everything that is needed to use INDEX and TRAUB turning machines. Approximately 80,000 accessories and spare parts are always available online. In addition to tool holders, spindle reductions, clamping devices, tools and fixtures, maintenance kits, spare parts, training and products for tool presetting are offered today. Over 97% of the items offered are available directly from stock.

Besides a powerful search function, a special hallmark of the portal is also the provision of technical information such as data sheets, 3D models and product notes. When a tool holder has been found, suitable accessories for this product are also made available at a glance.

An automated service allows customers to request offers that can later be simply converted into an order around the clock (24/7). This requires no cumbersome registration procedure, but only the customer number and e-mail address. Should more information be required, our well-trained consultants are happy to assist. They can be called via a direct service phone number to give competent information.

### Packages – good value for your money

The value package machines are a new feature in the anniversary year of the INDEX Group. These are CNC lathes featuring a selected full configuration at an attractive price-performance ratio. The Infoshop provides suitable tool holders and the available accessories

for these machines. All the components are perfectly matched. This makes value package machines ready to go for safe operation right from the start.

### Sophisticated repair and replacement service

The core competencies of the tool holder section includes expert repair of holders and synchronous spindles in OEM quality.

To shorten shipping and transit times, a free on-site pick-up service has been set up together with a logistics partner. Defective tool holders are picked up directly from the customer's site after placing the order. Processing documents, parts provisioning and capacity planning are already prepared at the plant during transit of the returned tool holders. This contributes to the fact that repaired standard tool holders are back at the customer's site typically after four to five days.

For very urgent orders or production bottlenecks, we offer a replacement holder service that allows minimizing the machine downtime even further.

Since INDEX and TRAUB focus not only on the sale of machinery, the Infoshop is continuously developed further and the range of products is expanded step by step.



## FAIRS & EVENTS

### IMTS // USA

08.09. - 13.09.2014, Chicago

### AMB // Germany

16.09 - 21.09.2014, Stuttgart

### MICRONORA // France

23.09 - 26.09.2014, Besancon

### PRODEX // Switzerland

18.11. - 21.11.2014, Basel

### JIMTOF // Japan

30.10. - 04.11.2014, Tokio

### INTEC // Germany

24.02 - 27.02.2015, Leipzig

You will find further exhibition dates online:

[www.index-werke.de](http://www.index-werke.de)

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**INDEX**



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**CNC turning machines  
including selected full features  
at an attractive price.**

▶▶ More information: [www.index-traub.com](http://www.index-traub.com)



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