

MEDICAL SOLUTIONS

High-precision, profitable manufacturing solutions for
the medical technology sector



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Excellence is a requirement

Surgically precise and safe processes are essential in medical applications. The high-precision and dynamic automatic lathes and turn-mill centers from INDEX and TRAUB are optimally designed for the manufacture of complex implants, prostheses, instruments, and other devices. Solutions that are individually matched to customer requirements ensure top performance: from planning and process and technology development to implementation and achieving the required quality.

Your product idea is our challenge. Decades of experience across the full range of the medical sector empower us to assist you in finding the best solution for your requirements. With our manufacturing solutions and expertise, you're in excellent hands – regardless of the materials, production strategies, and quality requirements.

Your advantage: Uncompromising precision and surface quality with maximum productivity.



PRECISION WITH BITE

Multifunctional, complete machining of precision dental parts

Dental components are characterized by maximum precision and the lowest possible tolerances. The required surface qualities for implants, abutments, and drill heads for dental instruments made of titanium or stainless steel are perfectly achieved with INDEX and TRAUB automatic lathes and turn-mill centers. The high rigidity and thermal stability of our machines ensure the optimum quality of your products.

Patient-specific abutments

- TiAl6V4
- 2.5 x 12 mm
- 215 seconds
- TRAUB TNL12
[Sliding headstock automatic lathe]



Abutment body

- TiAl6V4
- 4 x 8 mm
- 224 seconds
- TRAUB TNL12
[Sliding headstock automatic lathe]



Crown forceps

- Stainless steel 1.4021
- L 150 mm
- 720 seconds
- INDEX G220 [Turn-mill center]



Patient-specific abutment

- TiAl6V4
- 4 x 8 mm
- 300 seconds
- TRAUB TNL 20-9B
[Sliding headstock automatic lathe]



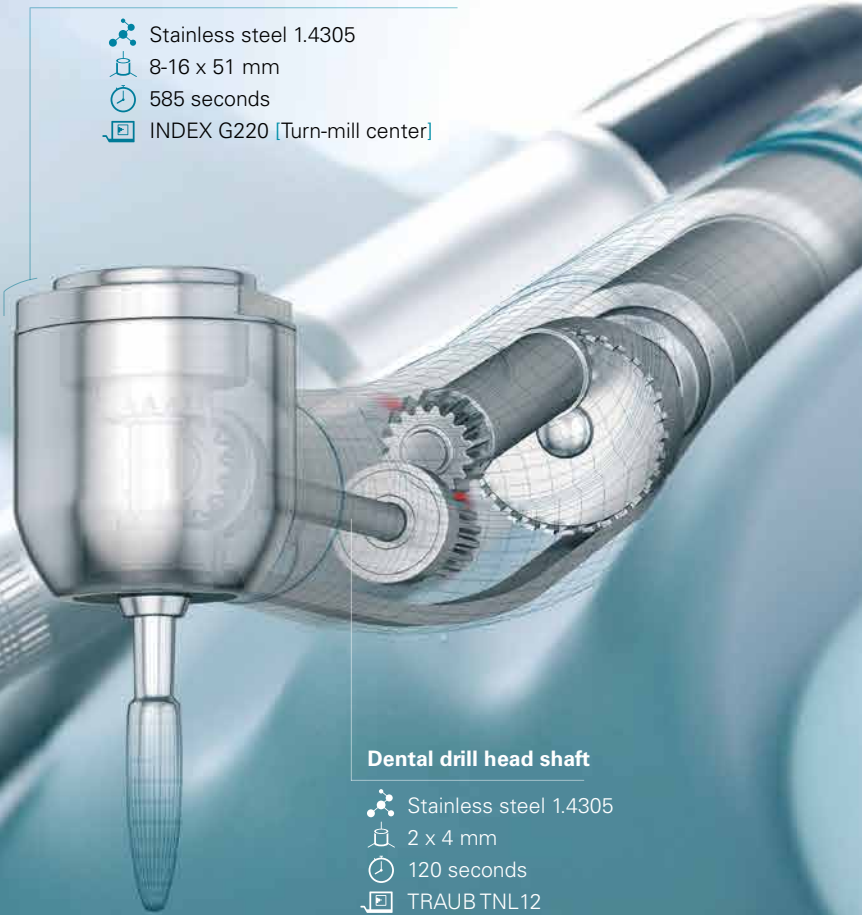
Dental drill head

- Stainless steel 1.4305
- 12 x 75 mm
- 630 seconds
- INDEX G220 [Turn-mill center]



Dental drill head

- Stainless steel 1.4305
- 8-16 x 51 mm
- 585 seconds
- INDEX G220 [Turn-mill center]



Dental drill head shaft

- Stainless steel 1.4305
- 2 x 4 mm
- 120 seconds
- TRAUB TNL12
[Sliding headstock automatic lathe]

Implant body

- TiAl6V4
- 4 x 15 mm
- 241 seconds
- TRAUB TNL12
[Sliding headstock automatic lathe]

TRAUB sliding headstock technology | Highlights

- Simultaneous machining with 2, 3, or 4 tools
- Easy changeover between sliding and fixed headstock operation
- Generously dimensioned work area
- TRAUB TX8i-s V8 control technology with iXpanel
- Various automation solutions
- "Made in Germany" engineering excellence







TRUST IN PERFECTION

Complete machining of orthopaedic and osteosynthesis products





High-precision products for the fields of orthopaedic and osteosynthesis require maximum reliability and durability.

Whether you are producing implants, bone pins, or bone screws, you can trust INDEX manufacturing solutions. Capable of fully producing parts from bar stock or with a single chucking, our machines meet your applications' stringent demands with a high degree of flexibility.





Bone pin

-  TiAl6V4
-  10 x 316 mm
-  720 seconds
-  TRAUB TNL32
[Sliding headstock automatic lathe]





Polyaxial pedicle screw

-  TiAl6V4
-  6 x 50 mm
-  35 seconds
-  INDEX MS22-8
[Multi-spindle automatic lathe]





Hip cup

-  Cobalt-chrome
-  28 x 56 mm
-  749 seconds
-  INDEX G220 [Turn-mill center]





Hip cup inlay

-  Polyethylene (UHMWPE)
-  26 x 54 mm
-  216 seconds
-  INDEX G220 [Turn-mill center]





Hip stem neck

-  Cobalt-chrome
-  4-13 x 60 mm
-  720 seconds
-  INDEX G220 [Turn-mill center]





Polyaxial tulip head

-  TiAl6V4
-  14 x 15 mm
-  60 seconds
-  INDEX MS22-8
[Multi-spindle automatic lathe]





Monoaxial pedicle screw

-  TiAl6V4
-  8 x 70 mm
-  490 seconds
-  TRAUB TNL20-9B
[Sliding headstock automatic lathe]

Hip ball

-  TiAl6V4
-  Ø 50 mm
-  278 seconds
-  TRAUB TNX65
[Turn-mill center]

Tulip-head locking screw

-  TiAl6V4
-  5 x 10 mm
-  114 seconds
-  TRAUB TNL20-9B
[Sliding headstock automatic lathe]



INDEX multi-spindle technology | Highlights

- Up to 8 spindles and 16 tools in simultaneous use
- Grooving and boring slide for high cutting performance and short machining times
- Easy access to the front-opening work area
- Bar or chucked part machining
- Siemens Sinumerik 840D sl with iXpanel
- Various automation solutions
- "Made in Germany" engineering excellence

DESIGNED FOR TOP PERFORMANCE

High-precision machining of prosthetic products

Prosthetics, especially for artificial limbs, are becoming increasingly sophisticated. End users now expect these components to be suitable for everyday use, user friendly, flexible in application and capable of high performance under extreme stress.

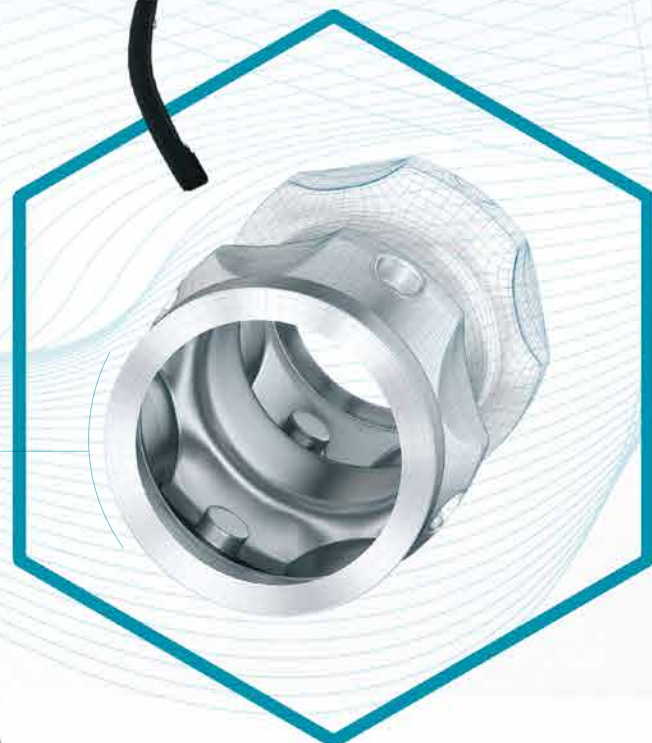
Prosthetics manufacturers using INDEX machines expect this same list of attributes from our solutions.

Prosthetic components

- Stainless steel 1.4305
- 80 x 285 mm
- 960 seconds
- INDEX G220 [Turn-mill center]

Prosthetic components

- Stainless steel 1.4305
- 13 x 50 mm
- 520 seconds
- INDEX G220 [Turn-mill center]



Prosthetic components

- Stainless steel 1.4305
- 80 x 120 mm
- 720 seconds
- INDEX G220 [Turn-mill center]

INDEX turn-mill technology | Highlights

- Highly dynamic motorized milling spindles for high-performance turn-mill machining
- Short cycle times thanks to multifunctional complete machining
- Fast tool changeover and large tool capacity
- High rigidity and thermal stability for maximum precision and surface accuracy
- Various automation solutions
- "Made in Germany" engineering excellence



MICROSCOPICALLY PRECISE

Profitable high-precision machining of medical instruments

Medical instruments are an extension of a doctor's natural abilities. Designed for challenging working conditions, the instruments must complement the sensitivity and precision of the surgeon.

INDEX turn-mill centers contribute to the production of high-quality medical instruments and devices with the highest precision.

Endoscope components

- Stainless steel 1.4305
- 100 x 30 mm
- 330 seconds
- INDEX G200 [Turn-mill center]

Endoscope components

- Stainless steel 1.4305
- 90 x 30 mm
- 405 seconds
- INDEX G200 [Turn-mill center]

Microscope components

- Stainless steel 1.4305
- 60 x 200 mm
- 480 seconds
- INDEX G200 [Turn-mill center]

Tissue forceps jaw part

- Stainless steel 1.4305
- 1.5 x 5 mm
- 440 seconds
- TRAUB TNL 20-9B [Sliding headstock automatic lathe]



INDEX turn-mill technology | Highlights

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EFFECTIVE USE OF TOP TECHNOLOGY

Innovations perfectly tailored to medical applications

For decades, INDEX has been working with a wide range of technologies, such as grinding, polygon turning, high-speed whirling, deep-hole drilling, gear cutting, deburring, marking, and measuring. The technological diversity that can be deployed on INDEX and TRAUB machines is almost inexhaustible. Our engineers speak your language.

High-Speed WHIRLING®

Multi-start thread whirling and external turning in one operation

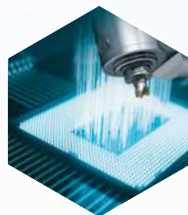
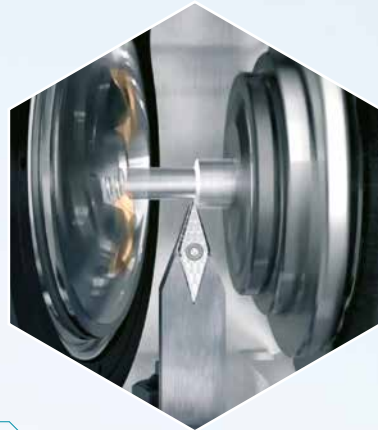
- Up to 40% time reduction
- Low unit cost thanks to machining of multi-start and conical threads
- Thread whirling possible during machining (at same time as turning)
- Increased tool life
- Better surface quality

INDEX *virtual machine*

- 3D model of the actual machine with all INDEX tool carriers and spindles
- Machining simulation
- Collision monitoring
- Shortened setup time
- Identical behavior of virtual and actual machines
- Optimized machining rate



The iXpanel operating concept provides access to networked production. With iXpanel, your employees always have the relevant information for efficient production right at the machine.



TRAUB sliding headstock turning technology

e.g. production of a bone screw on a TRAUB TNL20-9B



Milling with "Torx Pro"

Easy programming of the Torx contour



Internal thread whirling M1.4 x 0.3 with fluid spindle

Fluid spindle advantages:

- Flexible use on any turret station
- Speed is programmable via ecofluid pump
- No converter/cabling in the work area



3D contour deburring with "DeburrPro"

Process optimization directly on the machine

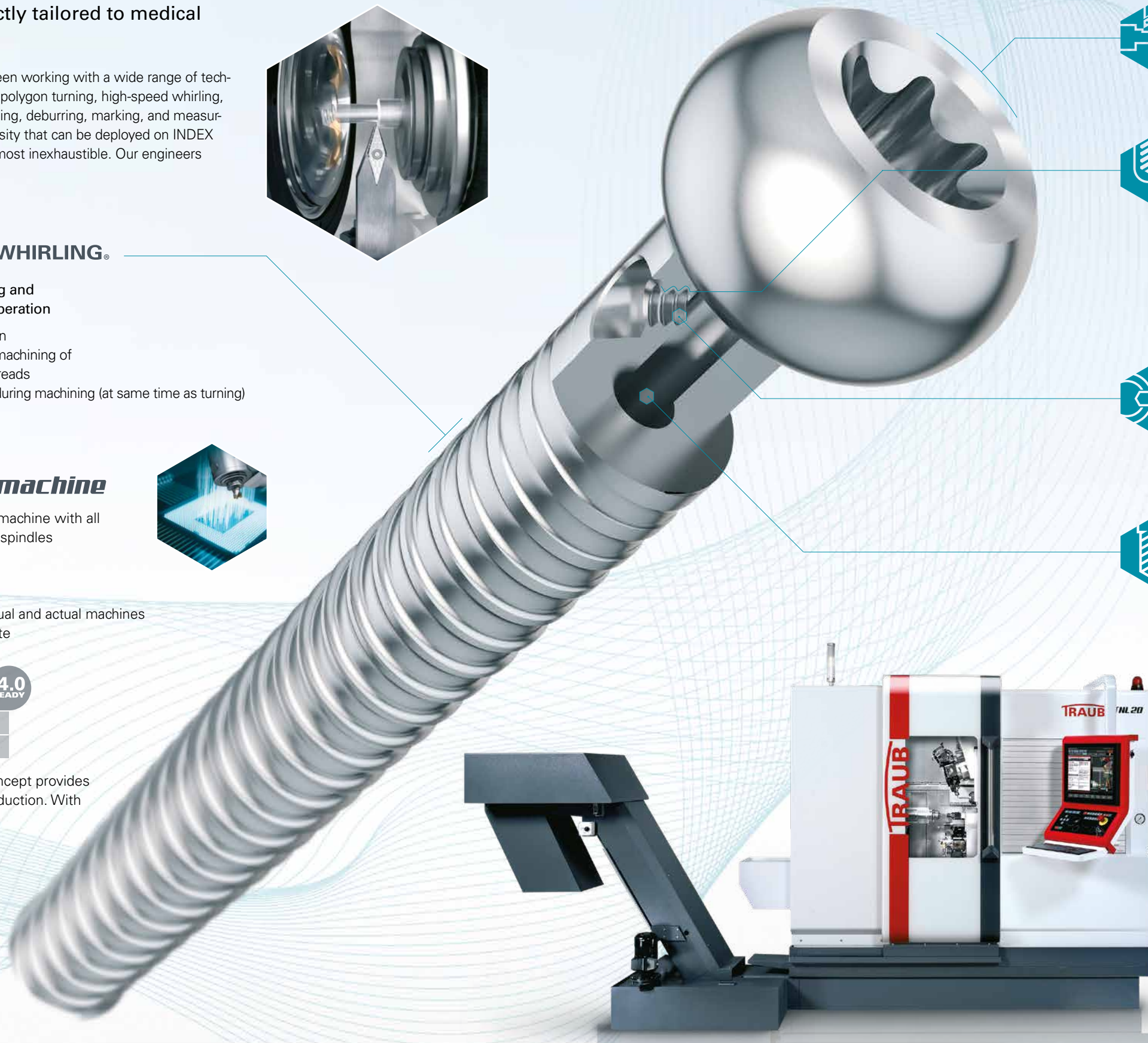


Deep-hole drilling with internal coolant up to 140 bar

TRAUB *winflex* IPSPLUS

Fast and flexible creation and optimization of programs

- Quick and easy programming with dialog screens
- Integrated 3D simulation with a new engine for precise optimization on a computer or directly on the machine
- The programming system can be upgraded with new functions at any time: e.g. streamline milling, DeburrPro, Torx Pro, 3D step import, etc.



THE ANATOMY OF PERFECTION

Wide range of applications thanks to modular, configurable machine solutions

With their modular design, INDEX machines enable custom production solutions. Together with our experienced technology experts, create your ideal INDEX machine via a large number of configurable options.

High-quality assemblies, including a range of spindles, turrets, steady rests, automation modules, and tool magazines, ensure the best possible design for your machine. At INDEX, we're also experts in the entire field of turning and milling: from universal lathes, turn-mill centers, and sliding headstock automatic lathes to highly productive multi-spindle automatic lathes.

Flexible productivity with the modular system

Example: INDEX G220 turn-mill center

Sliding headstock automatic lathes

TRAUB sliding headstock automatic lathes are designed for the exact and productive machining of long parts with diameters of up to 32 mm. These machines can quickly and easily be converted to fixed headstock automatic lathes.

Turn-mill centers

INDEX turn-mill centers set the standard in profitable complete machining from bar stock or with chucked parts.

Production turning machines

INDEX production turning machines are ideal for the productive machining of series parts – with up to 4 cutting edges in simultaneous operation.

Multi-spindle automatic lathes

INDEX multi-spindle technology – with up to 8 spindles and 16 tools – is a benchmark in high-volume production of high-precision workpieces.

Automation

Automation solutions are available for all INDEX and TRAUB machines. From the integrated iXcenter automation system to custom gantry, belt, or robot cells – we have the best option for your application.

QUALITY AND COSTS UNDER FULL CONTROL

Always the best solution – all from a single source

In addition to our diverse range of machine solutions, INDEX offers extensive automation solutions from bar loaders to robot cells. A wide selection of machine services are also available.

INDEX is already an experienced player in the world of digital integration. With our iXworld cloud platform, INDEX offers connectivity for your entire machine fleet. In addition, we'll be happy to support you with our wide range of services, from setup and retrofitting to optimizing your processes or training your machine operators, application engineers, and service personnel.



iXworld

The world of digital integration

iXworld is the cloud platform for everything to do with your machines – from procurement to operation to service.

iXservices

The platform for digital services

iXservices is the INDEX service platform that uses advanced technology to quickly return your machine to production in the event of a malfunction.

iX4.0

The IoT platform

iX4.0 is the INDEX IoT platform that allows you to integrate all of your production machines into the digital world.

iXshop

The procurement portal

Order more than 130,000 quality parts easily and efficiently

- Quickly find accessories and components
- Comprehensive product information
- Clear price transparency
- Fast delivery – same-day shipment

iXcenter – intelligent automation – increased flexibility and cost-effectiveness

With the optional iXcenter robot cell, blanks and/or finished parts can be supplied and discharged quickly, safely, and flexibly. The robot cell is ergonomically integrated into the machine. It can easily be moved to the left during the setup process, thus allowing unhindered access to the machine's working area. During production, the robot cell is fixed in front of the machine's work area. The robot then accesses the work area via the machine's automatically opening door.

INDEX MEDICAL TECHNOLOGY CENTER

Advice, process technology, and feasibility evaluation

Process development

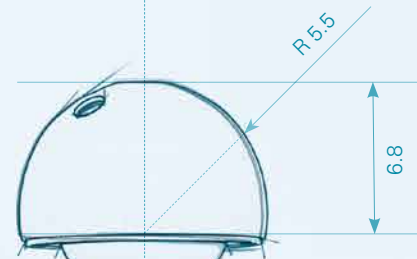
Clamping device testing

Tool testing

Material behavior

Sample machining

Cooling lubricants



40°



Space for innovative ideas and developments

INDEX engineers with extensive expertise in medical technology and many years of experience in machine tool construction develop application-specific solutions together with customers at the in-house "INDEX Medical Technology Center".

Turning tests and test machining, as well as clamping device and tool testing, are among the recurring daily tasks performed at the center. Together with our users, we work to develop the best process and machining strategies. This ensures safety and saves both time and cost.

We support you in the validation of your production processes in accordance with the requirements and quality standards that apply worldwide.

Core tasks & advantages

- Development of process and machining strategies
- Testing and sample machining of medical and micro-mechanical products made of aluminum, stainless steel, titanium, cobalt-chrome, and plastics
- Programming the machining of the workpiece
- Time calculations & feasibility studies
- Selection of appropriate clamping devices
- Tool design
- Project support
- Extensive training program

The standard supports the fundamental requirements of EU Directives 90/385/EEC on active implantable medical devices, 93/42/EEC on medical devices, and 98/79/EC on in vitro diagnostic medical devices.



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