

**INDEX**

# **E-MOBILITY SOLUTIONS**

HIGH-PRECISION, PROFITABLE MANUFACTURING SOLUTIONS FOR  
MAXIMUM PERFORMANCE



*better.parts.faster.*



# RELY ON EXPERIENCE & EXPERTISE

The worldwide "electromobility" market is seeing explosive growth. This confronts manufacturers of vehicles for private transport, recreational vehicles, but also increasingly utility vehicles or public service vehicles, with major challenges.

A great number of electric motor components, such as stator and rotor as well as drive shafts and crankshafts are being manufactured on INDEX turning centers, turn-mill centers, sliding headstock automatic lathes, and automatic production lathes already today.

Counting more than 100 years of experience in machine tool construction for customers in the field of mobility, INDEX development engineers have technological expertise in their genes, as the saying goes. That's something you can rely on!

## E-BIKES & PEDELECS [p. 04 – 07]

Components for electric motors and gears:

- E-bikes
- Pedelecs
- E-motorcycles
- E-mopeds
- E-quads



## THE BEST MANUFACTURING SOLUTION FOR PERFECT PERFORMANCE

- An extensive product range for nearly every e-mobility application
- Innovative turn-mill technologies
- Effective sliding headstock technologies
- High-output multi-spindle technology
- Integrated automation solutions
- Custom complete solutions
- Comprehensive iXservices
- "Made in Germany" engineering excellence



## UTILITY VEHICLES [p. 12 – 13]

Components for electric motors and gears:

- Utility vehicles
- Buses
- Construction and agricultural machinery
- Rail vehicles

## PERSONAL VEHICLES [p. 08 – 11]

Components for electric motors and gears







# UNIQUE CHALLENGES

## INDEX AUTOMATIC PRODUCTION LATHES

Automatic production lathes from INDEX are especially designed for high-efficiency production of typical machine-turned parts and complex CNC turned parts. The flexibility of CNC technology combined with the speed of traditional automatic lathes allows for profitable production in small to medium-sized batches.

### HIGHLIGHTS:

- Complete machining on main spindle and counter spindle
- Simultaneous machining with up to 3 tools
- Up to 42 tool stations for front and rear-end machining
- A wide range of automation solutions
- "Made in Germany" engineering excellence



#### E-bike motor | Drive shaft

- X46Cr13
- Dia. 40 mm | L 70 mm
- 35.6 seconds
- INDEX MS40-6 [Multi-spindle automatic lathe]



#### E-bike motor | Crankshaft

- 16MnCr5
- Dia. 28 mm | L 105 mm
- 90 seconds
- INDEX C100 [Automatic production lathe]







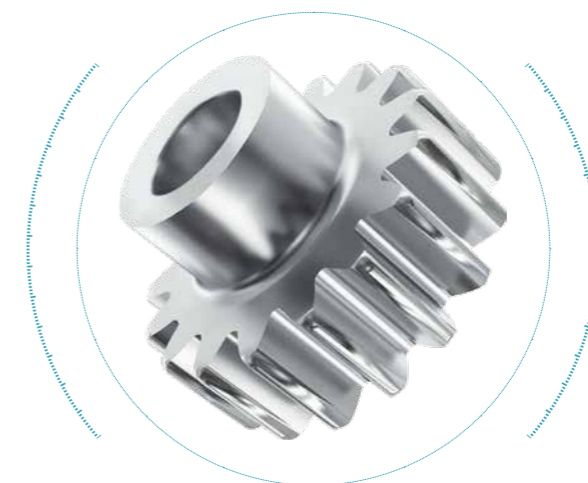
# WELL-BALANCED PRODUCTIVITY AND PRECISION

## INDEX MULTI-SPINDLE AUTOMATIC LATHES

Multi-spindle automatic lathes from INDEX combine the benefits of flexible CNC technology with the high productivity of multi-spindle technology. They can be used not only for volume production of a great variety of precision parts in the area of electromobility, but also for low-volume multi-variant production, considering the tremendously short setup times. In any case, our multi-spindle machines are impressive when it comes to their extreme cost-effectiveness.

### HIGHLIGHTS:

- Up to 8 spindles and 16 tools in simultaneous use
- 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
- A wide range of automation solutions
- "Made in Germany" engineering excellence



**Electric motor**  
**E-axle | Planetary gear**

- 16MnCrS5
- Dia. 20 mm | L 25 mm
- 11 seconds
- INDEX MS24-6  
[Multi-spindle automatic lathe]



# INNOVATIVE PRODUCT IDEAS

## PRECISE, FAST, AND EFFICIENT

The faster and more precise, the better. However, this should not come without the corresponding performance up and down the process chain. Our E-Mobility Solutions provide our customers with the machines and services they require to achieve a sustainable and efficient production for their products. We deliver the manufacturing solution that is the best and most profitable for them. Effective, reliable, and from a single source.

### Electric motor | Dog clutch gear

- 15NiCr13+HH - forged
- Dia. 113 mm | L 55 mm
- 1200 seconds
- INDEX G220 [Turn-mill center]



### Electric motor | E-axle | Pinion shaft

- 16MnCr5
- Dia. 70 – 90 mm | L 150 – 200 mm
- 600 seconds
- INDEX G220 [Turn-mill center]



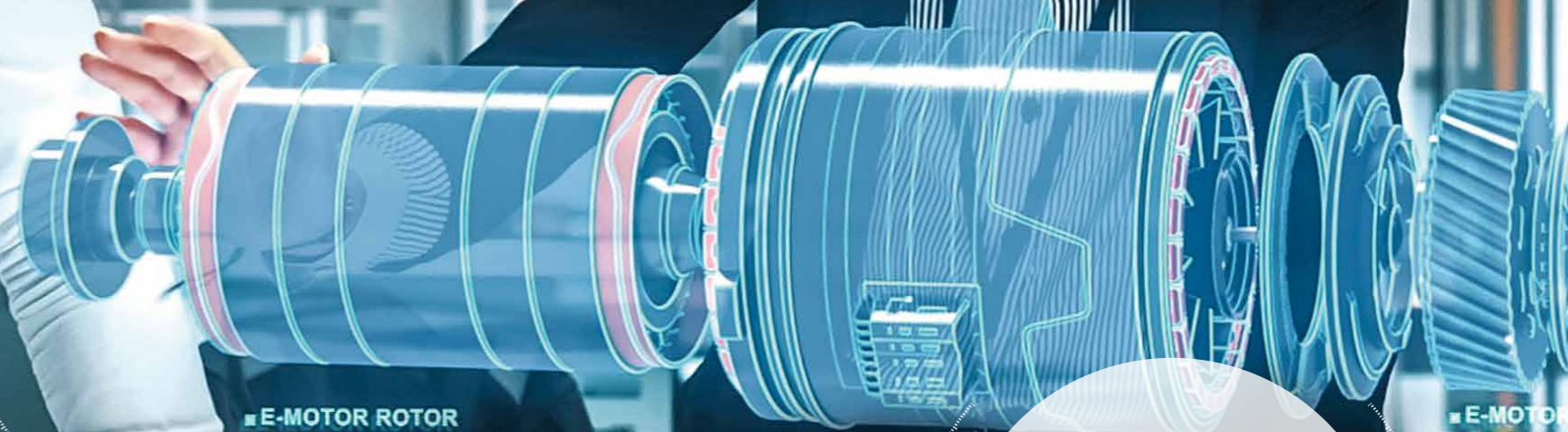


# SMART MANUFACTURING CONCEPTS

```

1: SELECT * FROM ?_catalog_visual WHERE param_id = ?
2:
3: IF ($category) $f_criterion[category_id] = $category;
4: IF ($material) $f_criterion[material_id] = $material;
5:
6: $search_criterion = "AND";
7: $catalog_rec['category_id'] = "$f_criterion[category_id]";
8:
9: IF (isset($search_param_arr[0]) && trim($search_param_arr[0]))
10: {
11:     $search_criterion = "AND";
12:     $catalog_rec['name'] LIKE "%$search_param_arr[0]%" OR
13:     $catalog_rec['name_long'] LIKE "%$search_param_arr[0]%"
14: }
15:
16: FOR ($i=1; $i<=$search_param_quantity; $i++) IF (isset($f_criterion[param_$i])) && trim($search_param_arr[$i])
17: {
18:     $search_criterion = "AND";
19:     $catalog_rec['name'] LIKE "%$search_param_arr[$i]%" OR
20:     $catalog_rec['name_long'] LIKE "%$search_param_arr[$i]%"
21: }
22:
23: $f_search_param = $DB->selectRow("SELECT * FROM ?_catalog_param WHERE param_id = ?");
24:

```



E-MOTOR ROTOR

E-MOTOR H...

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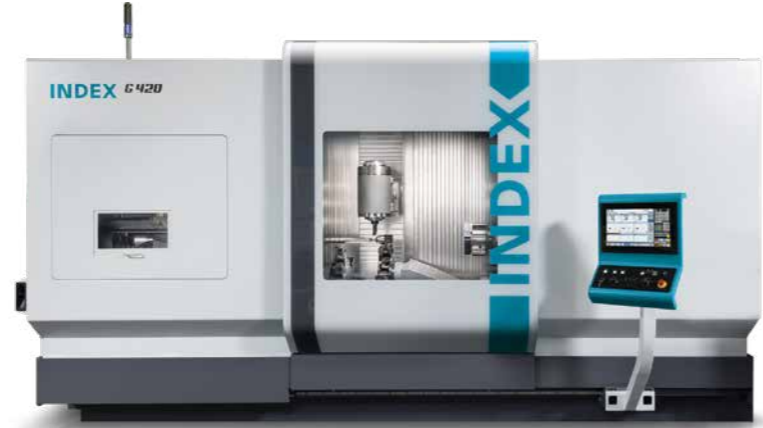
## INDEX TURN-MILL TECHNOLOGY

INDEX and TRAUB turn-mill centers are setting standards for economic, high-precision solutions tailored to the customers' needs. They stand for complete machining with a great variety of integrated technologies, such as turning, milling, gear cutting, grinding, and many more. Index offers economic and technologically superior solutions for the machining of simple to highly complex parts.



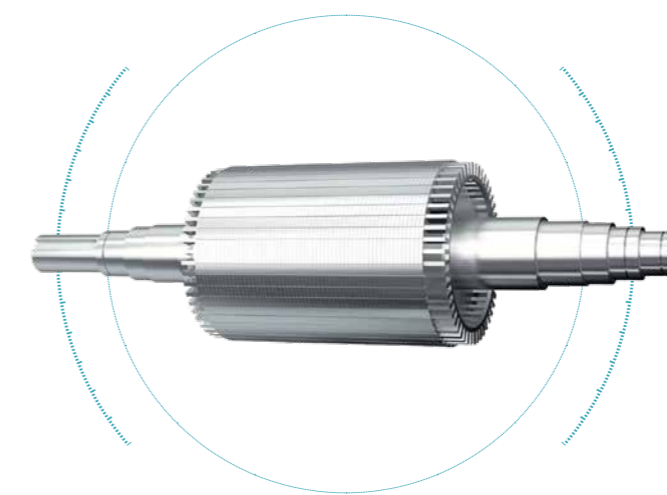
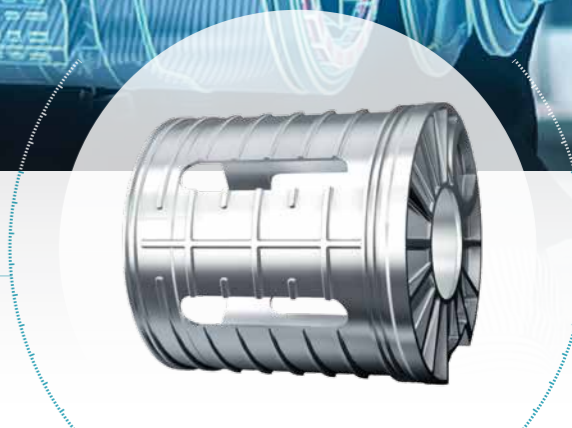
## HIGHLIGHTS:

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



## Electric motor | Stator housing

- Aluminum – 4.5 kg
- Dia. 240 – 260 mm | L 225 – 250 mm
- 600 seconds
- INDEX G420 [Turn-mill center]



## Electric motor | Rotor shaft

- C55
- Dia. 100 – 150 mm | L 150 – 450 mm
- 300 seconds
- INDEX G420 [Turn-mill center]



# BEST PERFORMANCE FOR LARGE TASKS







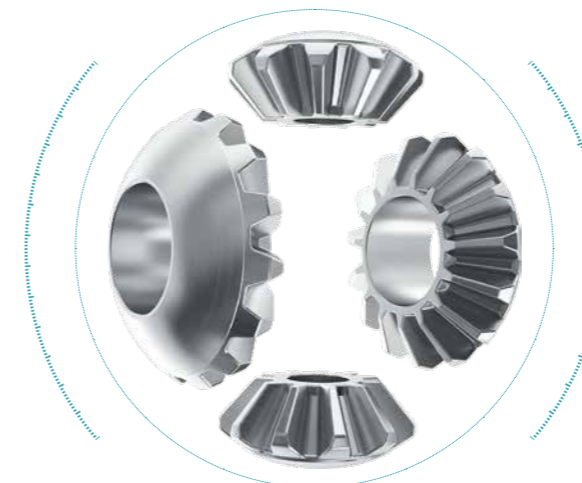
## POWERFUL COMPLETE MACHINING

Our INDEX G420 and INDEX G520 turn-mill centers achieve excellent machining results even for large-sized components. In addition to turning lengths of up to 2,300 mm and chuck diameters of up to 500 mm, our large turn-mill centers above all offer impressively powerful drives in all axes—ideal for their great variety of manufacturing tasks.







### Electric motor | Rotor shaft

-  42CrMo4
-  Dia. 40 – 60 mm | L 150 – 450 mm
-  350 seconds
-  INDEX G520 [Turn-mill center]



### Differential | Pinion

-  20NiCrMoS6-4 – forged
-  Dia. 55 – 72 mm | L 20 – 30 mm
-  15-17 seconds
-  INDEX MS52-6 – Robot loading [Multi-spindle automatic lathe]



# QUALITY & COSTS UNDER FULL CONTROL

## ALWAYS THE BEST SOLUTION— ALL FROM A SINGLE SOURCE

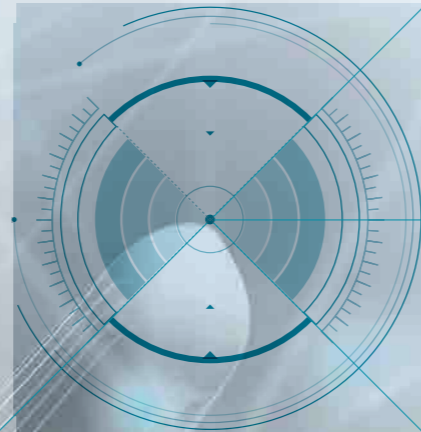
In addition to its diverse range of machines, INDEX offers extensive automation solutions from bar loading magazines all the way to modular robot cells. A wide selection of machine services complement the offering.

With its 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 IoT platform for everything to do with your machines—from procurement to operation and service.



## **iXservices**

### The service platform

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

## **X4.0**

### The IoT platform

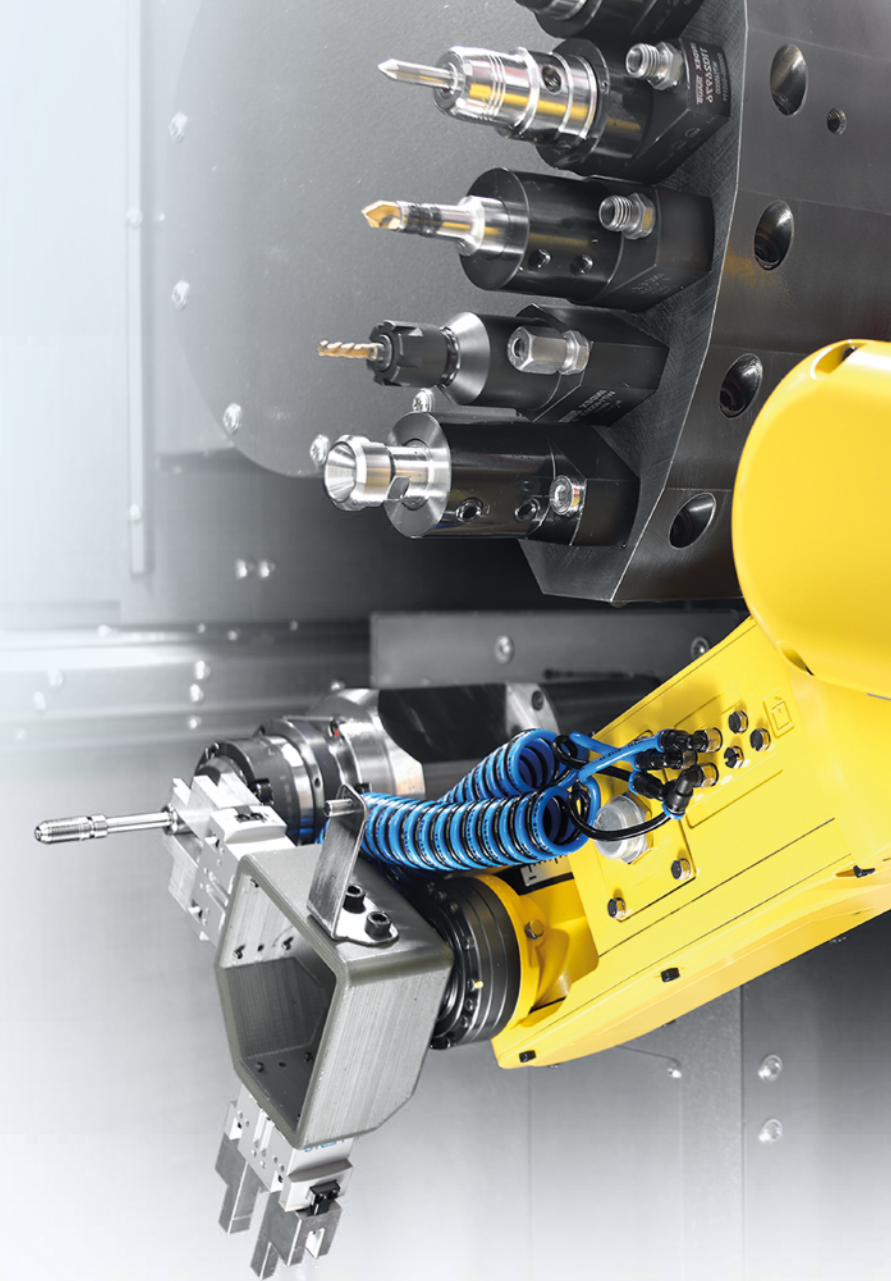
X4.0 is the INDEX IoT platform that allows you to integrate all of your production machines into the digital world.

## **Xshop**

### 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



## INTELLIGENT AUTOMATION— FOR EVEN GREATER FLEXIBILITY AND COST-EFFECTIVENESS

Automation solutions “Made by INDEX” ensure intelligent handling of your workpieces. We offer a wide range of options for our complete machine range, from bar loading magazines to machine-integrated or robot automation, all the way to customized, application-specific solutions.

- Everything from a single source
- Flexible standard modular system
- Custom expansion options



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