



**The full spectrum from the innovation factory**



**SAUTER**  
The world turns with us!



Reception / Sales



Top: Directors; Bernhard Sauter and Heiko Müller



Bottom: Design engineer's meeting

**The experts in tool turrets**



Top: Quality inspection  
 Left: Production on the latest machines  
 Right: Sauter precision

Accuracy from start to finish

### **Innovations for maximum productivity**

Intuition, Ingenuity and Integrity, that is Sauter. World leader and trend setter in advanced tool carrier systems. Our highly qualified development staff continuously convert innovative ideas into cutting edge technologies. Our decades of experience and comprehensive knowledge guarantee advanced products and outstanding quality. We will find the optimum solution for all of your individual requirements and will give you competent, loyal and confidential service – from the very onset.

### **Our only yardstick is quality**

At Sauter, tradition, know-how and innovation are inseparably linked. A company in which management and employees have personal contact with each other and in which close collaborative relationships are fostered. Only the absolute best possible quality products are good enough for us and subsequently available to you. Quality that is assured by the latest manufacturing technologies and production facilities, and some 350 highly motivated, experienced employees. We offer you top quality products at exceptionally reasonable prices.



Company headquarters in Metzingen, Baden-Württemberg

**In demand across the Globe –  
Sauter, fast and reliable !**



Sauter is an ISO 9001 certified company

Modern, fully automatic logistics center

### **Unqualified commitment**

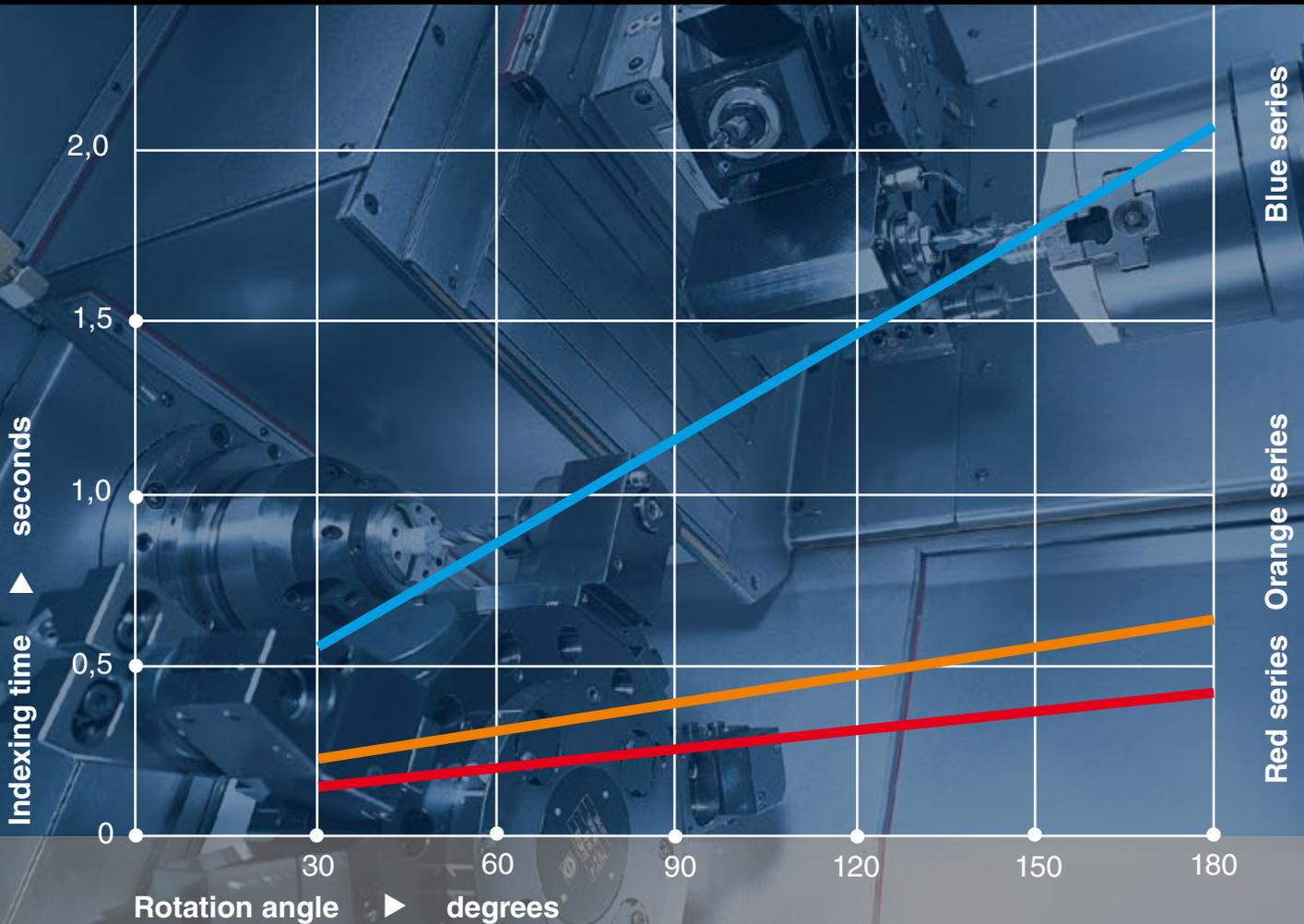
At Sauter, fairness and customer satisfaction are dominant aspects of all our business relationships. Where comprehensive personal care goes without saying. Our goal is for you and your customers to be able to operate more productively and more economically with Sauter tool turrets and spindle heads. That is our commitment to you, that is what we do our best to achieve, day after day.

### **In worldwide demand**

For decades, we have enjoyed one of the highest reputations for the development and production of innovative tool carrier systems. We supply a variety of tool turrets and spindle heads together with B-axis units for today's state of the art CNC lathes. In addition, we produce specially developed crown-type tool turrets for adaptable transfer and rotary indexing machines, plus high precision rotary tables for machining and grinding centers.

Type of usage	Medium volume production	High volume production	High volume production
Service life	● ●	● ● ● ●	● ● ● ●
Crash resistance	● ●	● ● ● ●	● ● ● ●
Turret drive	AC motor	Synchronous motor	Servomotor
Locking system	Electromechanical	Hydraulic	Hydraulic
Indexing speed	● ●	● ● ● ●	● ● ● ●
Suitability for back turning	●	● ● ●	● ● ● ●
Tool drive	Axial AC servomotor, two-motor system	Axial/radial AC servomotor, two-motor system	Axial/radial no additional motor, single motor system
			
	<b>Blue Series</b>	<b>Orange Series</b>	<b>Red Series</b>

## Disc type turret overview



### Common features of the Disc Type Tool Turrets

To provide you with rapid, straightforward information about our disc turrets, we have divided them into three reference colors. All offer the following advantages: High precision and a repetitive accuracy of  $\pm 1.6$  seconds of arc. Bi-directional rotation for the shortest possible indexing times, plus a non-lifting tool carrier ensuring increased functional reliability. Resistance to damage during collisions was achieved by the lower kinetic energy of the re-designed drive system and a special locking feature for the tool disc.

### Indexing times compared

The quicker indexing times of the orange and red series, by comparison with the blue series, resulted from two technical improvements. The possibility to achieve much faster indexing times plus the shorter locking and unlocking times of the Hirth coupling system have both proven extremely beneficial to increasing the overall performance.



## Principal features:

- Proven reliable time and time again
- Simple, electromechanical drive
- Straightforward control
- Economically priced
- Medium indexing time
- Suitable for medium volume production

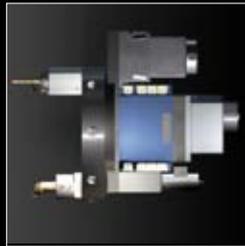
## Blue Series



### 0.5.480.5..

For detailed information, see PI 49

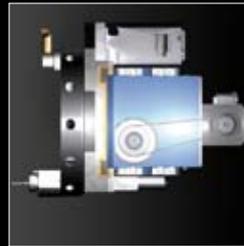
- Electromechanical drive system for rotation and locking
- Medium response time
- Tool drive system – Optional
- Axial or radial tool mounts



### 0.5.473.5..

For detailed information, see PI 49

- Design features of the 480 series
- Tool drive without spindle positioning
- Tools are individually driven
- Axial tool mounts



### 0.5.493.5..

For detailed information, see PI 31.2

- Design features of the 473 series
- Integrated Y-axis



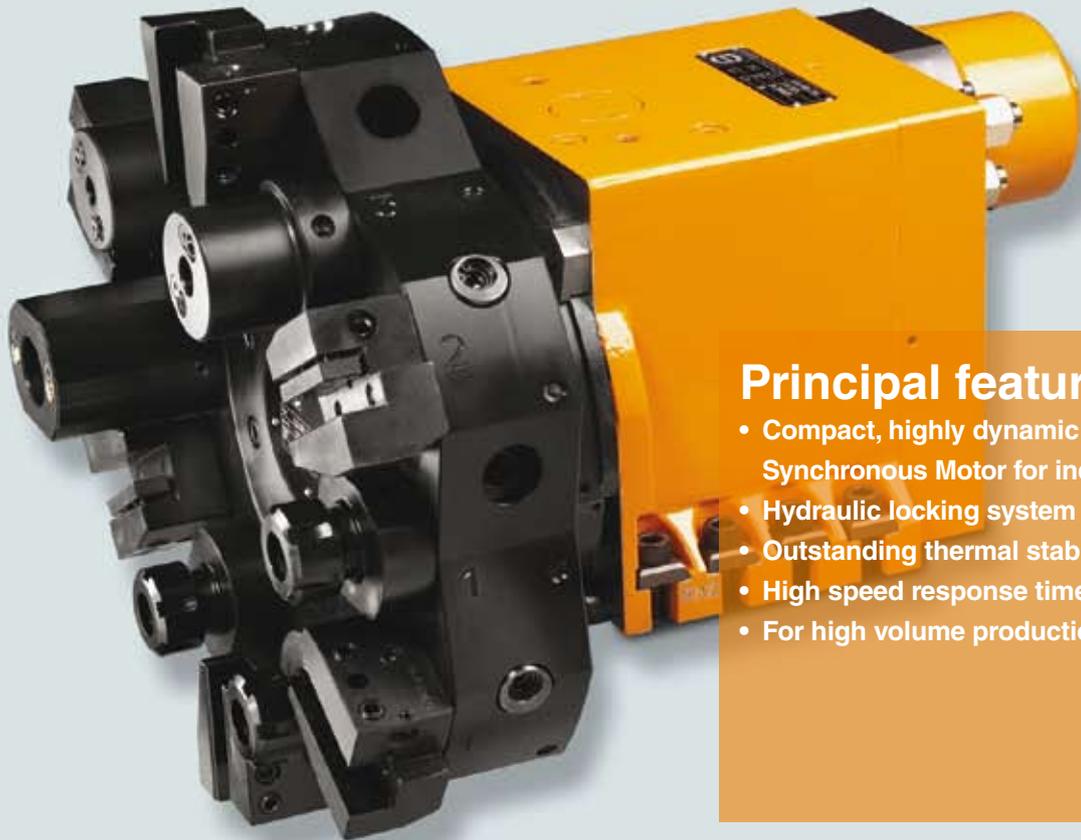
### EK 501

For detailed information, see PI 42

- Compact, self contained control system
- Suitable for most models of tool turrets
- To perform and monitor all the functions of the turret without a live tool drive system
- For function and status monitoring of turret drives with a live tool drive system

## >> Proven thousands of times over

The electromechanical disc turrets of the 'Blue series' have proven themselves time and time again through many years of service. They require no additional media services for locking and unlocking, such as hydraulics or compressed air. Moreover, with the Sauter control unit, they are both easy to control and good value for money. An additional AC servomotor is required for the live tool drive version.



### Principal features:

- Compact, highly dynamic Sauter Synchronous Motor for indexing drive
- Hydraulic locking system
- Outstanding thermal stability
- High speed response times
- For high volume production

## Orange Series



### 0.5.440. ...

For detailed information, see PI 43.2

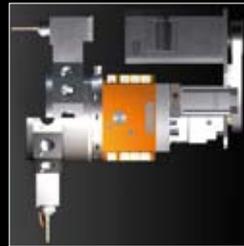
- Compact, highly dynamic synchronous motor for indexing drive functions
- Hydraulic locking
- High speed responses
- Tool drive system – Optional
- Axial or radial tool mount



### 0.5.433. .../436. ...

For detailed information, see PI 43.2

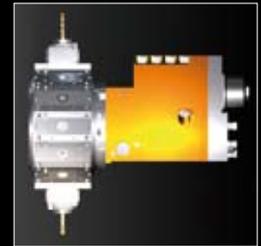
- Design features of the 440 series
- Tool drive system 433 is without spindle positioning
- Tool drive system 436 is with spindle positioning
- Tools individually driven
- Axial tool mounts



### 0.5.435. ...

For detailed information, see PI 43.2

- Design features of the 440 series
- Tool drive is with spindle positioning
- Tools individually driven
- Tool disc designed for both conventional and back turning
- Radial tool mounts



### 0.5.437. ...

For detailed information, see PI 51

- Design features of the 440 series
- Direct tool drive motor integrated into the tool disc
- Speeds up to 12,000 rpm
- Tools with Sauter precision interface
- Radial tool mounts
- Specially designed housing for sub-spindle machine applications

### >> Superior performance with synchronous technology

Synchronous technology makes the 'Orange series' of modern tool disc turrets even faster. An additional AC servomotor is required for the live tool drive version.



## Principal features:

- Sauter Synchronous Motor for indexing drive functions
- Hydraulic locking
- No rotary position encoder, offers increased functional reliability.

## Our “Triple Pack”

### Plus point 1

#### SAUTER tool turret

,Orange series' tool turret

For further details, see Product Information PI 43.2

### Plus point 2

#### SAUTER Synchronous Motor

Its compact design facilitates the integration of the tool turret into a smaller than usual working envelope. With no rotary encoder, this model offers increased reliability even in the most demanding environments.

### Plus point 3

#### SAUTER electronic control system

This features a single interface, it's self contained and is compatible with all machine tool control systems. A turret status display is also incorporated in the control system.

## >> All the advantages of Sauter's latest technology in a single package

For this turret, Sauter has developed a drive package for the fastest possible cycle times. This is achieved by minimizing the non-productive times of a typical control system and by automatically adjusting the rotational speed to the specific tool mass loaded onto the turret. No additional CNC axis is required. The Sauter electronic control system features a single interface, operates independently and is compatible with all machine tool control systems.



### Principal features:

- Speeds up to 12,000 rpm with near silent operation
- Tool resetting times reduced by up to 40%.
- Increase in repetitive accuracy by a factor of 20
- Exceptionally compact design occupying up to 25% less space
- Sauter motor and control system for optimum indexing and drive functions

## Integral direct tool drive system

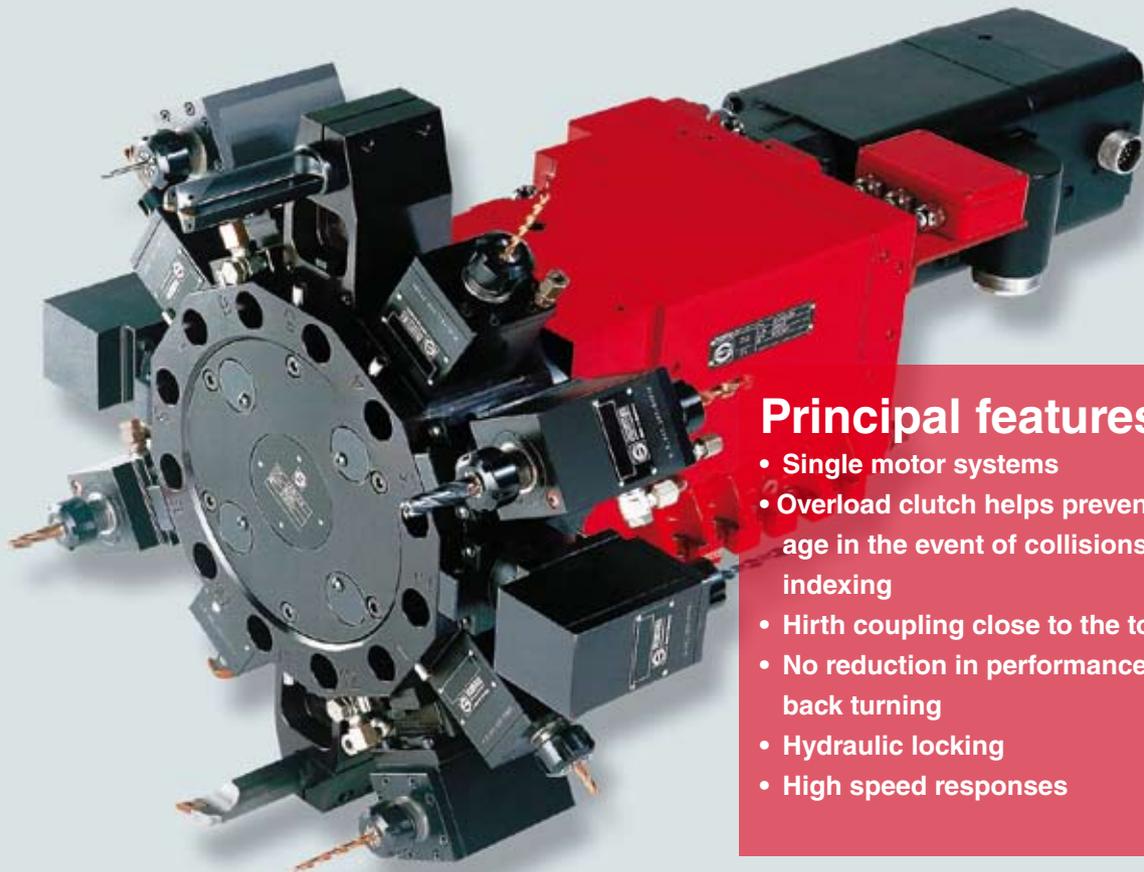


0.5.437. ...

For detailed information, see PI 51

### >> High performance turret with direct tool drive

This turret is designed to operate at ultra high speed, efficiently and economically. Our secret - we have integrated the exceptionally compact high-performance motor directly into the tool disc. The tools are driven without a gear train or gears, are free from vibrations and extremely quiet. The tool disc, motor and drive elements form a completely self-contained and sealed system and are extremely well protected from contamination or other outside influences. For you, this means even greater reliability. As this version is exceptionally compact, it can be easily integrated into your new lathe designs.



## Principal features:

- Single motor systems
- Overload clutch helps prevent damage in the event of collisions during indexing
- Hirth coupling close to the tool disc
- No reduction in performance when back turning
- Hydraulic locking
- High speed responses

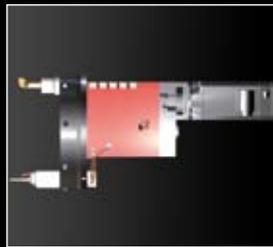
## Red Series



### 0.5.450. ...

For detailed information, see PI 21.3

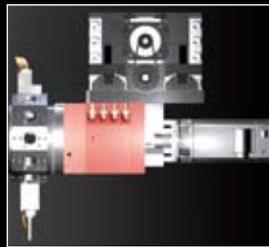
- Indexing and tool drive with a single AC servomotor
- Specially designed housing for back turning
- Tool drive with spindle positioning
- Tools individually driven
- Hydraulic locking
- Radial tool mounts



### 0.5.456. ...

For detailed information, see PI 21.3

- Indexing and tool drive with a single AC servomotor
- Specially designed housing for back turning
- Tool drive with spindle positioning
- Tools individually driven
- Hydraulic locking
- Axial tool mounts



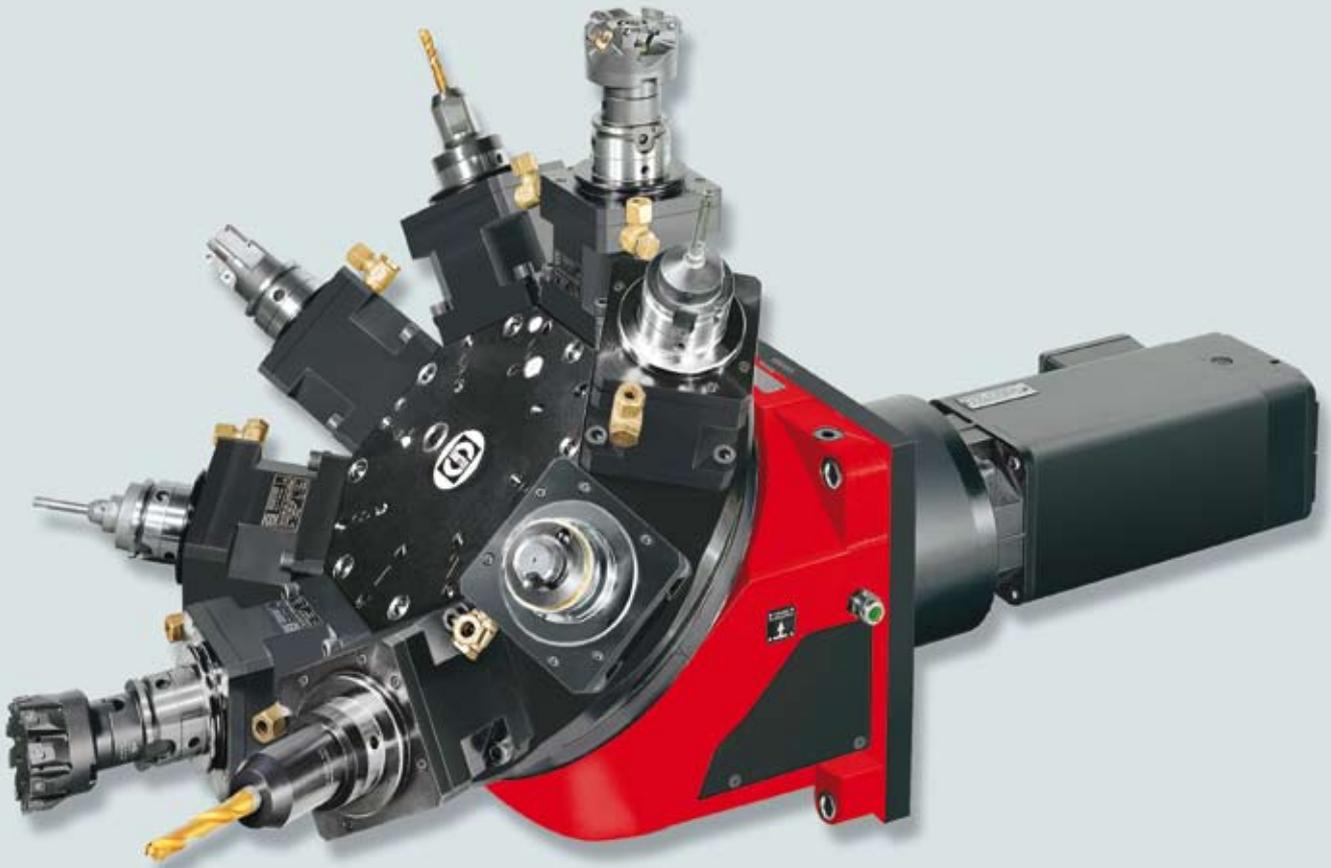
### 0.5.453. ...

For detailed information, see PI 31.2

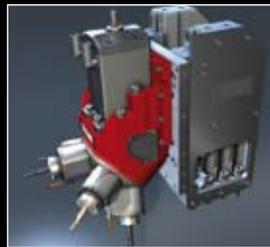
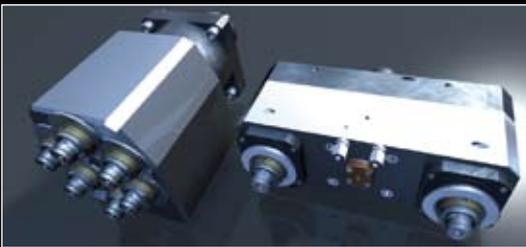
- Design features of the 450 series
- Integral Y-axis
- Tools individually driven

## >> High-performance turret with single motor systems

A modern disc turret with strengthened housing and integrated neck makes it particularly suitable for back turning/ sub-spindle applications. The single motor technology used for indexing and to drive the tools, makes it a high-performance turret both in terms of engineering and economy.



## Crown-type tool turret



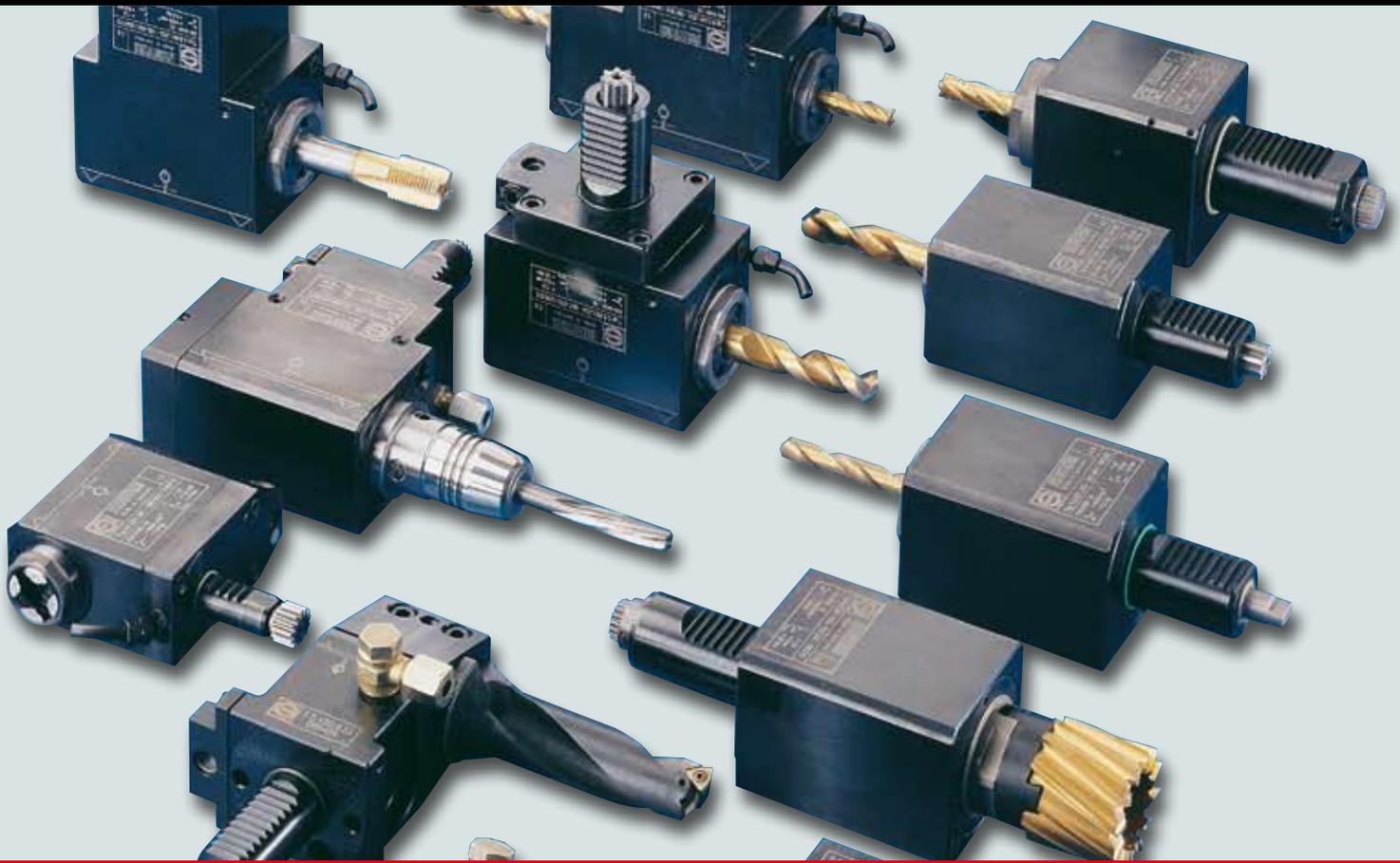
0.5.170. ...

For detailed information, see R 60, PI 25.3

### >> Crown-type tool turret

With this turret, we achieve high performance machining for transfer and rotary indexing machines with up to eight individual tools or multiple spindle heads and through the rapid exchange of duplicate tools. Simple resetting means exceptional adaptability and productivity. But even this is not enough. Our crown type turrets offers still more advantages such as using a single AC servomotor for both indexing and tool drive, plus a greater interference free tooling zone through the angled arrangement of the tools. High speed operation and resilience to damage during a collision all add to the benefits using our crown turrets.

Sauter tool turrets fulfill the most demanding criteria for rapid, precise production. And, if the tooling is also sourced from Sauter, you have made the optimum choice. Because we nobody knows how Sauter products work well together, better than what we do.



## The ideal combination – Sauter tool turret and Sauter tooling



DIN 5480

For detailed information,  
see PI 29.3

with the Sauter patented  
spindle torsion lock

DIN 5482

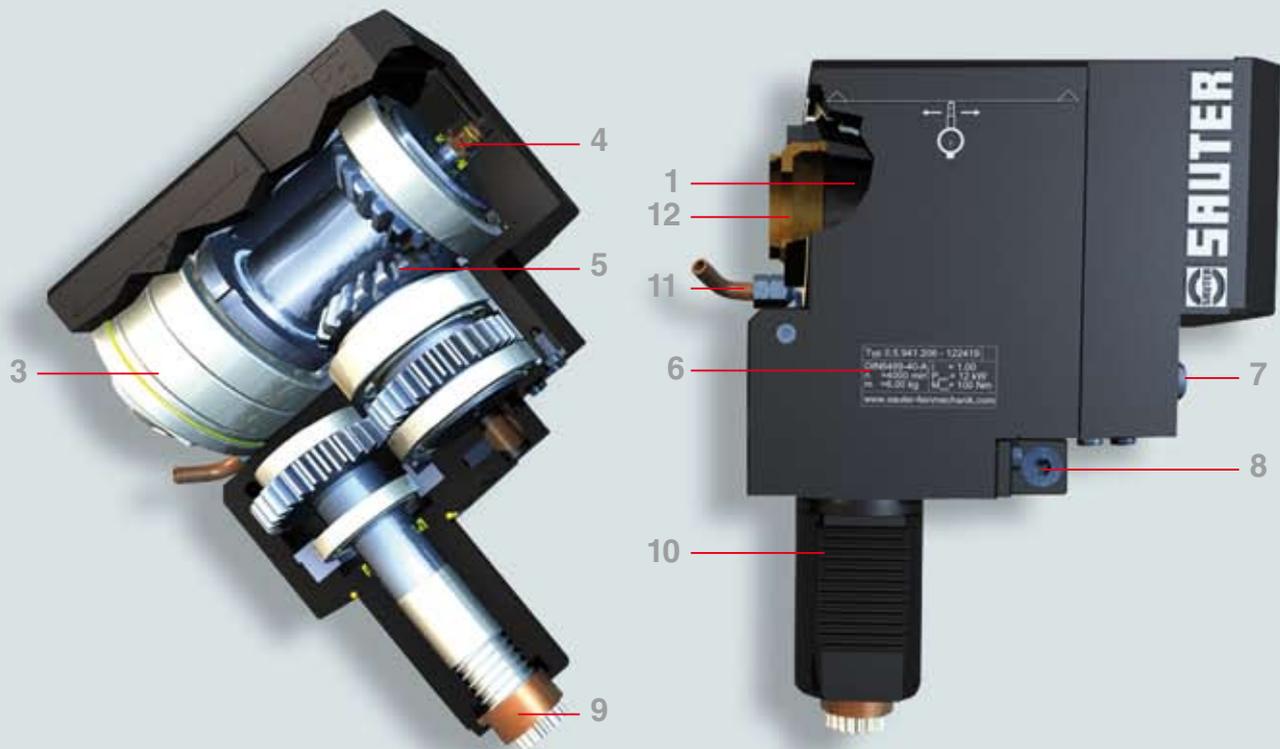
For detailed information,  
see PI 14.2

DIN 1809

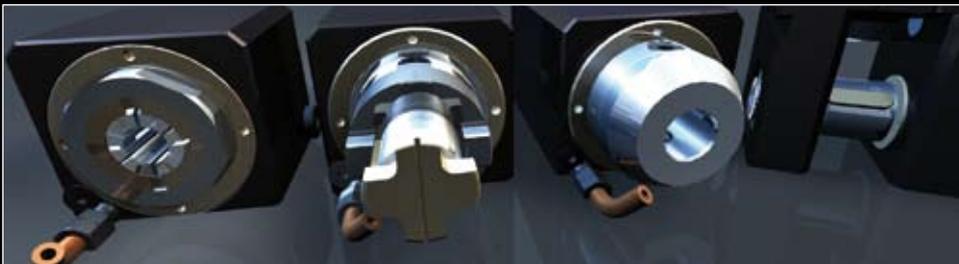
For detailed information,  
see PI 48

### >> Sauter spindle heads and tool holders - always the first choice

Sauter tool turrets fulfill the most demanding criteria for rapid, precise production. And, if the tooling is also sourced from Sauter, you have made the optimum choice. We know our tool turrets better than anyone else and, in parallel with this, develop perfectly adapted spindle heads and tool holders - putting you a step ahead of the competition, a position from which you as the user will benefit. Decide in favor of a combination of the ultimate in engineering with the highest quality. Perfection from the ground up !



## Twelve reasons to specify Sauter



Collet chucks

Milling arbors

Weldons

Saw blades

- 1 Highest possible rotational accuracy
  - 2 Qualified datum surface for rapid alignment
  - 3 Optimum pre-loaded bearing configurations for maximum stiffness
  - 4 Sauter patented high-pressure internal coolant delivery system that can also be used dry
  - 5 High-precision gear train of optimum power and performance
  - 6 Laser etched identification plate with all relevant information
  - 7 Independent external coolant connection
  - 8 Sauter patented "rapid-set" spindle alignment device to minimize tool change and set-up time
  - 9 Sauter patented spindle orientation detent for rapid tool drive engagement – Series #941
  - 10 Universal mounting shank with double tooth rack for right-hand or left-hand operation
  - 11 External coolant supply – can be individually fitted
  - 12 Recessed collet clamping nut ensures maximum stiffness and an optimum interference free zone
- All spindle units undergo stringent testing, including thermal testing and monitoring during a running-in procedure prior to delivery, to ensure guaranteed performance immediately upon being placed into service.



0.5.320.0..

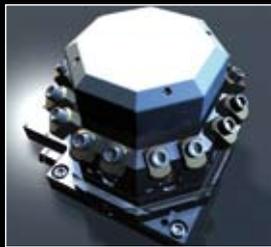
For detailed information,  
see PI 01

- Head type turret,  
square version as  
standard

## High performance for special applications



Hexagon version



Octagon version



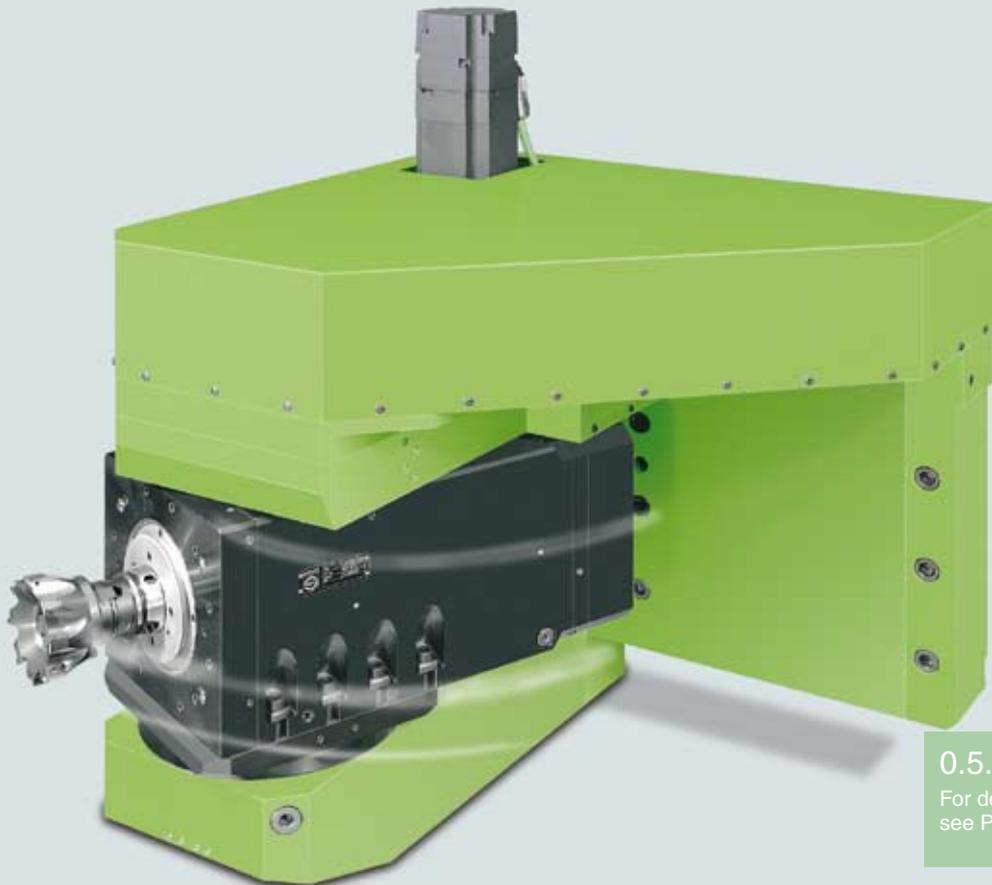
EK 501

For detailed information, see PI 42

- Compact, self contained control system
- Suitable for most models of tool turrets
- To perform and monitor all the functions of the turret without a live tool drive system
- For function and status monitoring of turret drives with a live tool drive system

### Tool head type turret

Our square head turrets are suitable for use on classic heavy-duty vertical and flat bed lathes, as well as in combination with our disc type turrets. They are particularly suitable for accommodating long boring bars. Other advantages; Simple and reliable electromechanical drive system for indexing and locking, and universal tool mounts that complying with DIN 69881. Hexagon and Octagon versions are available and needless to say, all versions can be prepared for alternate tool mounting systems, if preferred.



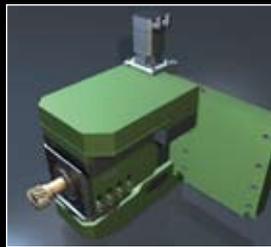
0.5.052.0..

For detailed information,  
see PI 46

## Driven spindle with swiveling unit



X-axis connection

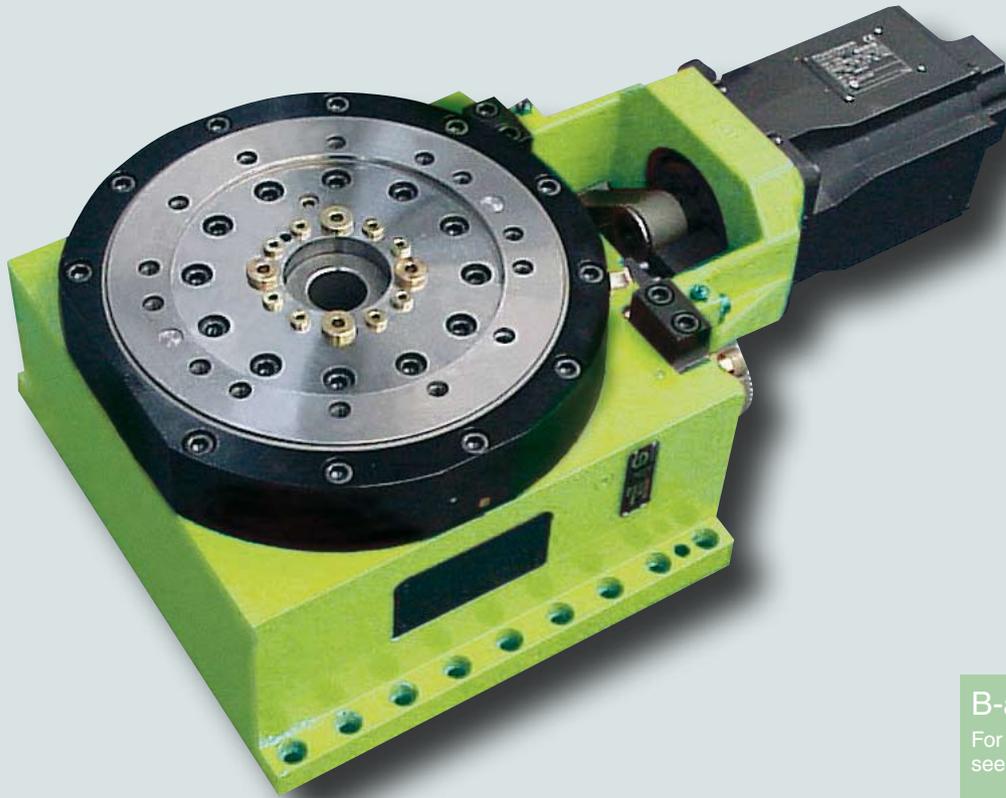


Y-axis connection

### B-axis technology

Complete machining in a single set-up increases precision and reduces non-productive times. In this case, the B-axis spindle, in conjunction with a tool storage magazine, is the ideal solution. Its capabilities are exceptional in increasing productivity through efficient turning and milling operations on complex work pieces and performing milling functions even during the swiveling process. The high-performance driven spindle is pre-designed for rapid, automatic tool changing. Locking via a unique 3 piece Hirth tooth system results in a high load bearing capacity during turning operations. The high-performance spindle is incorporated into a rugged backlash free B-axis swiveling unit which permits infinitely variable contouring, the high-precision positioning is by an AC servomotor with a pre stressed gear train.

Additional locking is achieved by the Hirth tooth system in 5-degree increments. A direct angular position measuring system provides feedback to the control during the precision machining of specified complex contours.

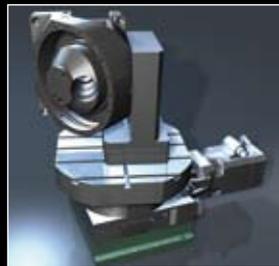


**B-axis rotary table**  
For detailed information,  
see PI 52

## Sauter precision – almost inspirational



With driven spindle installed



With pallet and work piece installed

### The Sauter rotary table

Sauter rotary tables are particularly suitable for machines which perform multi angle processing. They can be used in any attitude for milling and grinding machines as the supporting base for the work spindle or as the tool carrier and permits the positioning to any desired angle within it's range. The zero backlash, pre stressed gear train offers high thrust and rotational accuracy and permits powerful simultaneous five-axis machining. Another advantage of the pre stressed belt drive is its immunity to damage in the event of a collision. Through the use of standard servomotors, the tables can be readily integrated into the NC control system of the machine tool. A twelve line rotary manifold system serves to transfer coolant, compressed air or hydraulic fluid to the working zone. Electrical leads are led through the hollow center shaft.



Sauter training courses – always up-to-date

## Sauter premium after sales services

### **Our service team is always there for you**

Dependable, competent and responsive. Our highly trained technicians strategically located around the world can resolve most turret problems and concerns on-line or over the phone. This team is supported by our state of the art computerized spare parts warehouse to ensure prompt and comprehensive assistance. In addition, professional customer training forms a valuable part of our services. Nevertheless, "The best service is the one you never need" - a company objective which all our employees tirelessly strive to achieve.



[www.sauter-feinmechanik.com](http://www.sauter-feinmechanik.com)



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