Sauter innovation factory: The World turns with us.

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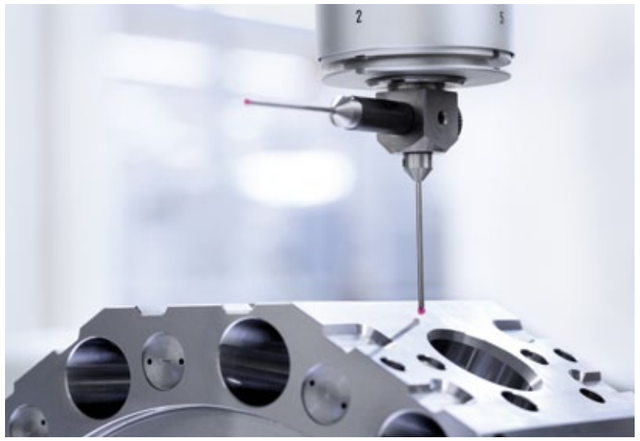


“It was always a dream of mine to produce innovative high-tech products.”
Werner Heckmann,
Team Manager Direct Drive assembly

“I feel good in this cooperative working atmosphere. Responsibility and independent working are asked for.”
Alhaji Sesay,
Grinding parts manufacturing

“It is a joy for me to share my treasure trove of experience with young design engineers.”
Günther Schips,
Product Development Manager

The experts in tool turrets.

Sauter innovation factory: The World turns with us.

Heiko Müller and Bernhard Sauter, Managing Directors

Innovations for maximum productivity

Ingenious innovations – outstanding technologies – this is Sauter.
World leader and trendsetter in advanced tool carrier systems.
Our highly qualified development staff continuously converts innovative ideas into cutting edge technologies.

At Sauter, tradition, know-how and innovation are inseparably linked.
A family owned company where personal contacts and fair teamwork are fostered. With the latest manufacturing technologies, constantly revised processes and some 320 highly motivated, experienced employees we stand for outstanding quality in everything that we do.
We develop, produce and sell sophisticated products in-line with the market trends and demands.
Our product range contains a wide and diverse variety of tool turrets and tooling as well as motorized spindles for turning, drilling and milling operations, plus high quality rotary tables.

“Enthusiasm is at the bottom of all progress. With it, there is accomplishment. Without it, there are only alibis.” Henry Ford

Pure commitment

At Sauter our customers are always center stage. A fair partnership is our guiding theme. Your satisfaction is the ultimate benchmark for us.
Day by day we strive to maintain this goal.

Our expert Global Support team, always there for you when needed.

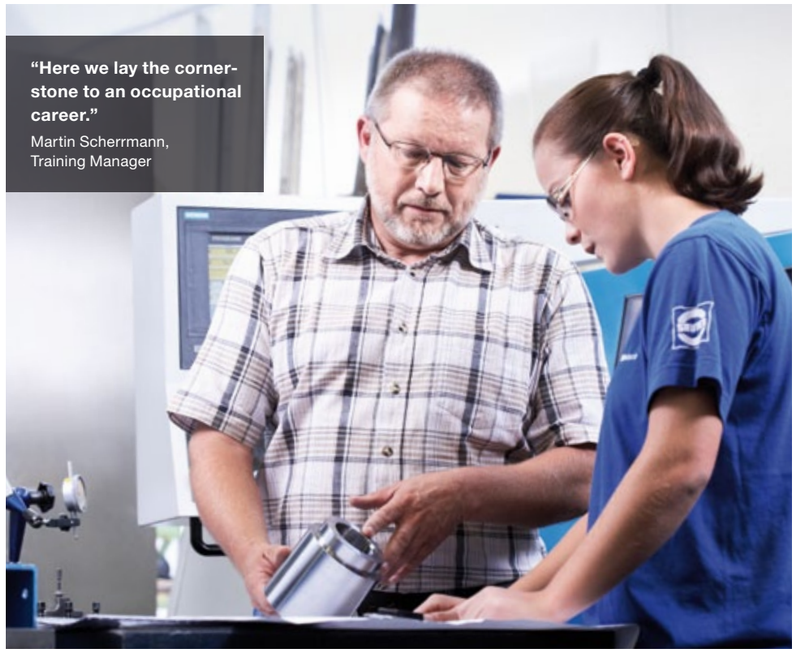
Dependable, competent and in the shortest possible time.
Our multi lingual, after - sales service team is as reliable as our products. Most issues can be solved online or over the phone. Otherwise we guarantee fast on-site assistance and support backed by our state of the art and fully automated spare parts inventory & distribution system.

Nevertheless, „the best service is the one you never need“ a company core value which by the way all our employees tirelessly strive to achieve.

David Hsiao,
Managing Director, Sauter Asia Co., Ltd.

Sauter Asia

Since the founding of our subsidiary company: Sauter Asia, we are well equipped to closely serve the Asian market with local personnel and production. We are able to cater to any special market needs and achieve optimal customer relationships.



“Here we lay the corner-stone to an occupational career.”
Martin Scherrmann,
Training Manager

“Our service makes you even more competitive.”
Jörg Hiller,
After Sales Manager

The perfect choice.
Tool turrets from Sauter.

Overview disc type tool turrets

Type of usage	Medium volume production **Blue Series**	High volume production **Orange Series**	High volume production **Direct-Drive**	High volume production **Red Series**
				
Service life	II	IIII	IIIII	IIII
Crash resistance	II	IIII	IIIII	IIII
Turret drive	AC-motor	synchronous motor	synchronous motor	AC-servomotor
Locking system	electro-mechanical	hydraulic	hydraulic	hydraulic
Indexing speed	II	IIII	IIII	IIII
Suitability for back-turning	I	III	IIII	IIII
Tool drive	axial AC-servomotor, 2-motor system	axial/radial AC-servomotor, 2-motor system	radial Direct-Drive 1-/2-motor system	axial/radial no additional motor, single motor system

Common features of the Disc Type Tool Turrets

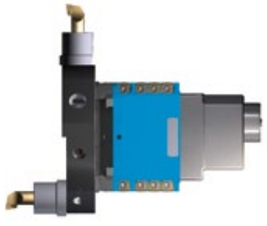
To provide you with quick, straightforward information about our disc turrets, we have divided them into quick reference colors. All offer high precision, rigidity and a repetitive accuracy of +/- 1.6 seconds of arc.

Shortest travels achieved by bi-directional rotation (pivoting angle max. 180 degrees). Increased functional reliability as the tool disc does not lift while unlocking (3-part Hirth serration). Resistance to damage during collisions is achieved by the low kinetic energy of the drive system and a circular slot for attaching the tool disc.

Blue Series
Proven thousands of times over.

_ **Proven reliable time and time again**
_ **Simple, electromechanical drive**
_ **Straightforward control**
_ **Economically priced**
_ **Medium indexing time**
_ **Ideal for medium volume production**

The electromechanical disc type turrets of the blue series – a thousand-fold proven classic through many years of service. Simple to install and require no additional media 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.

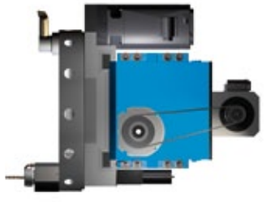


_ **0.5.480.5…**
For detailed information, see PI 49

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

_ **0.5.473.5…/476…**
For detailed information, see PI 49

_ Design features of the 480 series
_ Tool drive 473: without spindle positioning
_ Tool drive 476: with 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 502**
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

Orange Series
The fast ones – Sauter's synchronous technology.

_ **Compact, highly dynamic Sauter Synchronous Motor for indexing drive**
_ **Hydraulic locking system**
_ **Outstanding thermal stability**
_ **High speed indexing**
_ **Suited for high volume production**

For the tool turrets of the orange line Sauter has developed a drive system for the shortest possible time from chip to chip. This is achieved by minimized idle times in the control system and by matching the indexing speed to the tooling fitted. An additional CNC-axis is no longer required. The Sauter control system has a straightforward interface, works independently and is compatible to all machine control systems. For the live tool drive versions, an additional AC servomotor is required.

_ **0.5.440…**
For detailed information, see PI 43.2

_ Compact, highly dynamic Sauter synchronous motor for indexing drive
_ Hydraulic locking
_ High speed indexing
_ 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: without spindle positioning
_ Tool drive system 436: 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

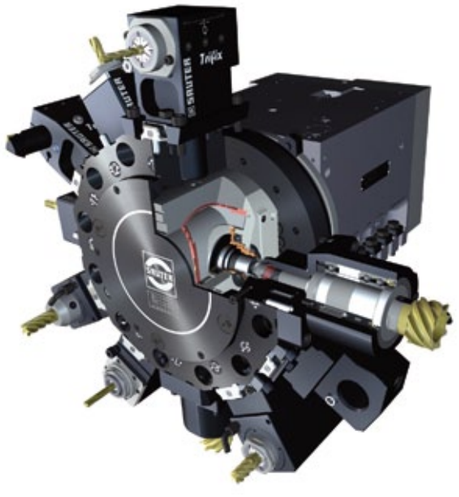
_ **0.5.434…**
For detailed information, see PI 57

_ Design features of the 440 series
_ Tools with BMT-interface
_ Specially designed housing for back turning
_ Radial tool mount
_ Tools individually driven

Direct-Drive
High performance turret with direct tool drive.

_ High Torque – Direct Drive for greater stock removal
_ Tool speeds up to 12,000 rpm
_ Thermal stability via integral cooling
_ Extremely quiet running
_ Short and compact design, saves up to 25% installation space

We take you to highest speeds, economically and efficiently. Our show-stopper: we have integrated the exceptionally compact high-performance motor directly into the tool disc. The tools are driven directly. Without gear train. Without gears. Without vibrations and almost without sound. For you this means: more speed, higher performance and productivity.



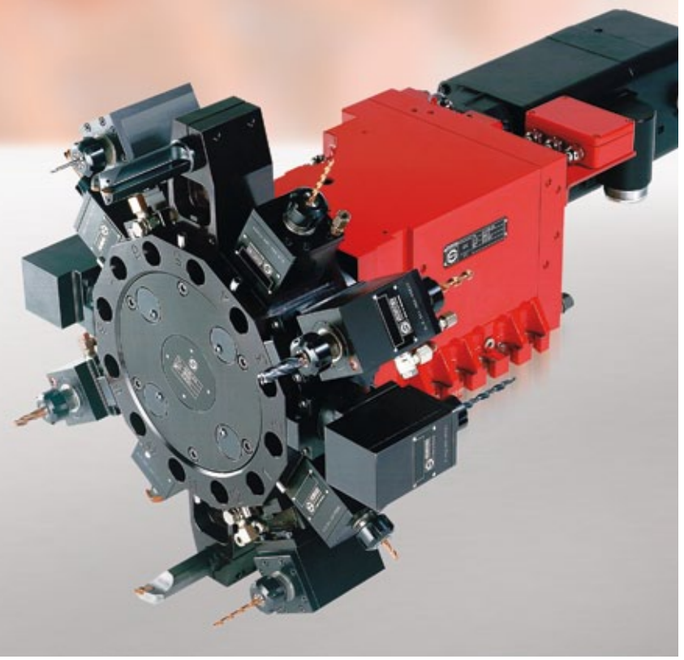
_ 0.5.437...
For detailed information, see PI 62

_ Design features of the 440 series
_ Integrated direct tool drive in the tool disc
_ Speeds up to 12,000 rpm
_ Tools individually driven
_ Radial tool mount
_ Specially designed housing for back turning
_ Sauter High Precision Interface: On inquiry

_ 0.5.457...
For detailed information, see PI 60

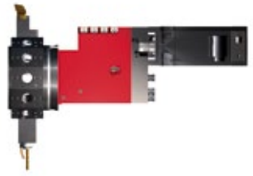
_ Indexing and tool drive with integrated motor
_ Hydraulic locking
_ Speeds up to 12,000 rpm
_ Tools individually driven
_ Radial tool mount
_ Specially designed housing for back turning

Red Series
High-performance turret with single motor system.



_ Single motor system
_ Overload clutch helps prevent damage in the event of collision during indexing
_ Hirth coupling located up close to the cutting loads
_ Equal performance when conventional or back-turning
_ Hydraulic locking
_ High speed indexing

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

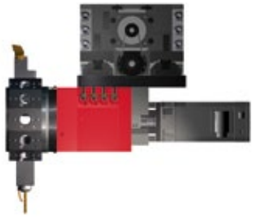


_ 0.5.450
For detailed information, see PI 21.3

_ Indexing and tool drive with one 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

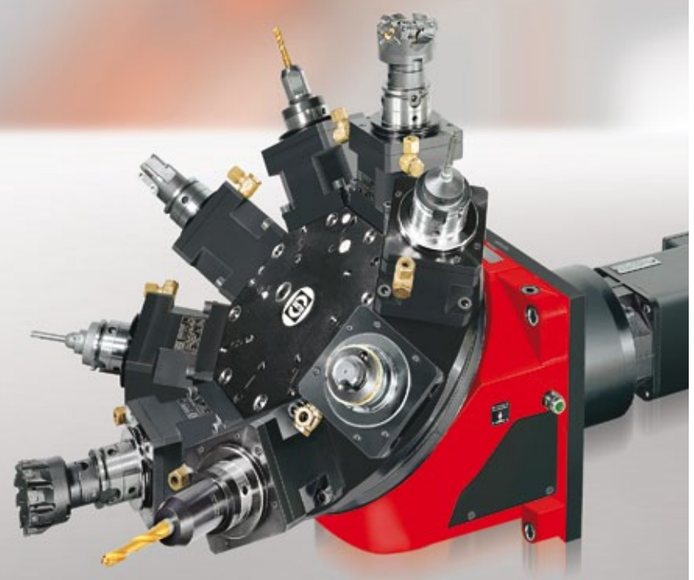
_ Indexing and tool drive with one single AC servomotor
_ Specially designed housing for back turning
_ Tool drive with spindle positioning
_ Tools individually driven
_ Hydraulic locking
_ Axial tool mounts



_ 0.5.453
For detailed information, see PI 31.2

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

Tool turrets for in-line and rotary transfer machines



- **Optimum application for high performance cutting**
- **Increased productivity by the fast exchange of redundant tooling**
- **Variable turret mounting**
- **Wide tooling range with flange mounting**
- **High flexibility and a greater interference-free cutting zone**

Crown-type tool turrets
Super fast indexing, available with 4, 6 or 8 tool stations and shaped to allow maximum clearances between piece part and tooling.

Horizontal-axis turret
With 3 or more tool positions in axial mounts. Due to the proven two motor technology we achieve shortest chip to chip times.

0.5.170…
For detailed information, see PI 25.3

- Indexing and tool drive with a single AC servomotor
- Tool drive with spindle positioning
- Tool holding fixtures in 45° configuration
- Tools individually driven
- Hydraulic locking

0.5.180…
For detailed information, see PI 61

- Small, highly dynamic Sauter synchronous motor for indexing
- Tool drive with AC servomotor, all live tools driven simultaneously
- Tool drive with spindle positioning
- Hydraulic locking
- Axial tool mounts

0.5.934…
For detailed information, see PI 25.3

- Spindle bearings in O or Tandem O- arrangement
- Coolant supply externally or internally
- Spindle orientation detent in disengaged state
- Tool interface for HSK clamping system

High performance for special applications

- **Rigid design for heavy duty applications**
- **Electromechanical drive system for indexing and clamping**
- **Perfectly adapted for boring bars**

Head Type Tool Turrets
Our head type 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 drills and boring bars. Simple and reliable electromechanical drive system for indexing and locking. Available with either a Square, Haxagon or Octagon tool carrier that comply with DIN 69881 or prepared with an alternate tooling sytem, if preferred.

0.5.320…
For detailed information, see PI 01

- Head type turrets optionally with 4, 6 or 8 tool positions
- Electromechanical drive system for rotation and locking
- Tool holding fixtures according to DIN 69881

EK 502
For detailed information, see PI 42

- Compact, self-contained control system
- Suitable for most models of tool turrets of the series 0.5.320.0XX, 0.5.473.5XX, 0.5.480.2XX/5XX
- 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

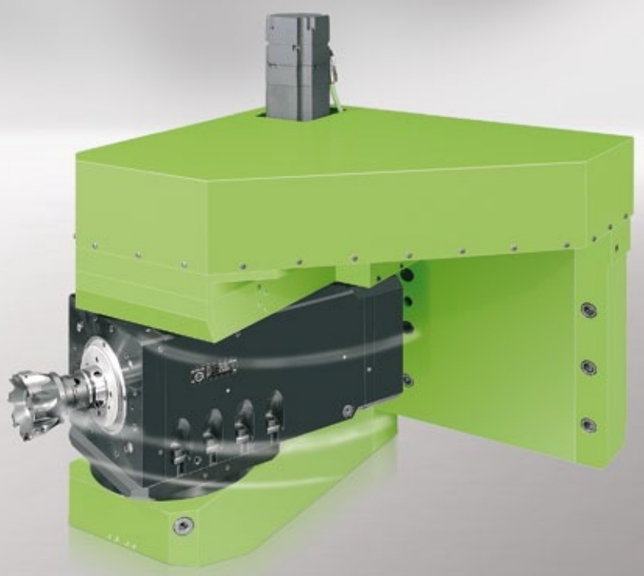
0.5.320.1…
For detailed information, see PI 53

- Head type turrets optionally with 4, 6 or 8 tool positions
- Bidirectional indexing
- Electromechanical drive system for indexing with AC-motor
- Electromechanical locking with highly dynamic Sauter synchronous motor and EK 601
- Tool holding fixtures according to DIN 69881

Machining unit
For detailed information, see PI 54

- Y-Axis optional
- Fast changing of bulky tooling

Driven spindle with swiveling base



_ Compact design
_ Rugged backlashfree positioning of motor spindle and swiveling base
_ Infinite variable milling functions even during the swiveling process

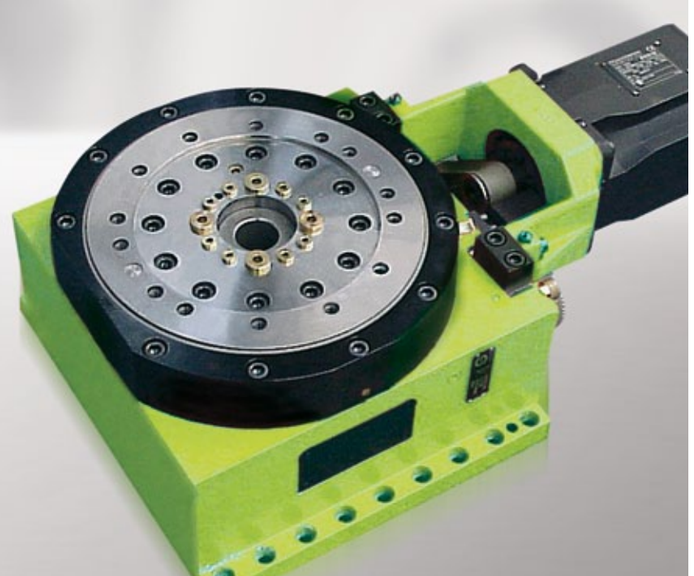
Complete machining in a single set-up increases precision and reduces non-productive times. In this case, the B-axis spindle, in conjunction with a tool storage magazine, is the ideal solution. Its capabilities are exceptional in increasing productivity through efficient turning and milling operations 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 Hirth coupling results in a high load bearing capacity during turning operations. The high-performance spindle is incorporated into a rugged backlash free B-axis, heavy duty swiveling base which permits infinitely variable high-precision positioning through 210 degrees via an AC servomotor with a pre stressed gear train. Additional locking is achieved by the Hirth coupling in 5-degree increments (repeat accuracy +/- 0.0008 mm). Exact machining of preset contours by a direct angular position measuring system.

_ 0.5.052...
For detailed information, see PI 46

_ X-axis connection

_ Y-axis connection

Sauter rotary table



_ Infinitely variable high precision positioning
_ Hydraulic clamping system
_ Compact design

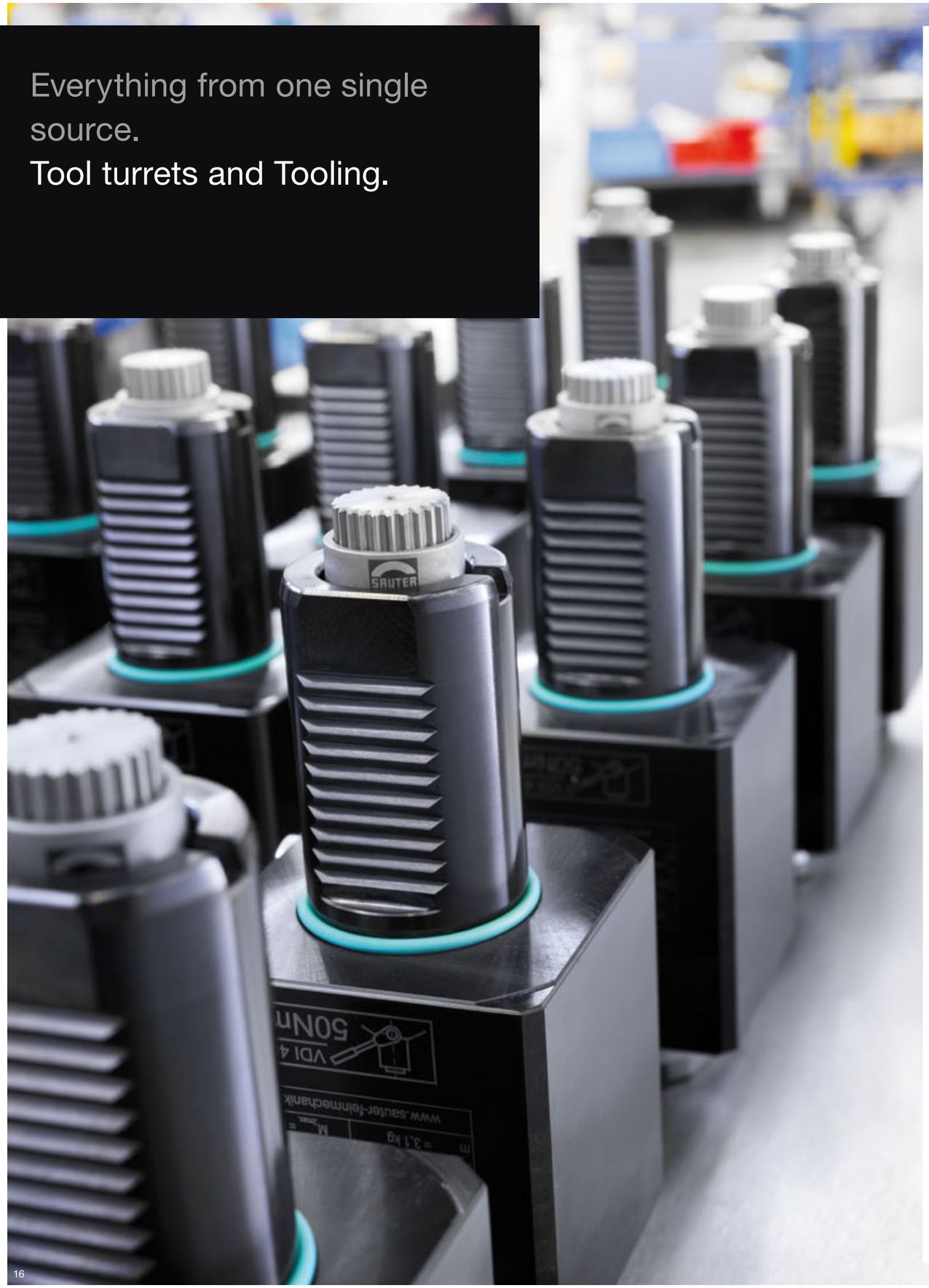
Sauter rotary tables are particularly suitable for machines that perform multi angle processing. They can be used in milling and grinding machines as the supporting base for the milling spindle or the work piece. They can position to any desired angle and the zero backlash, pre stressed gear train combined with high axial and radial accuracy permit rugged 5 axis machining. Another advantage of the pre stressed belt drive is its ruggedness during collisions. By using standard servomotors the tables can be readily integrated in the NC control system of the machine. Any mounting position is possible. A multi-line rotary manifold is available to transfer coolant, compressed air or hydraulic fluid through the table and electrical lines can be fed through the hollow axle shaft.

_ 0.9.320.032
For detailed information, see PI 52

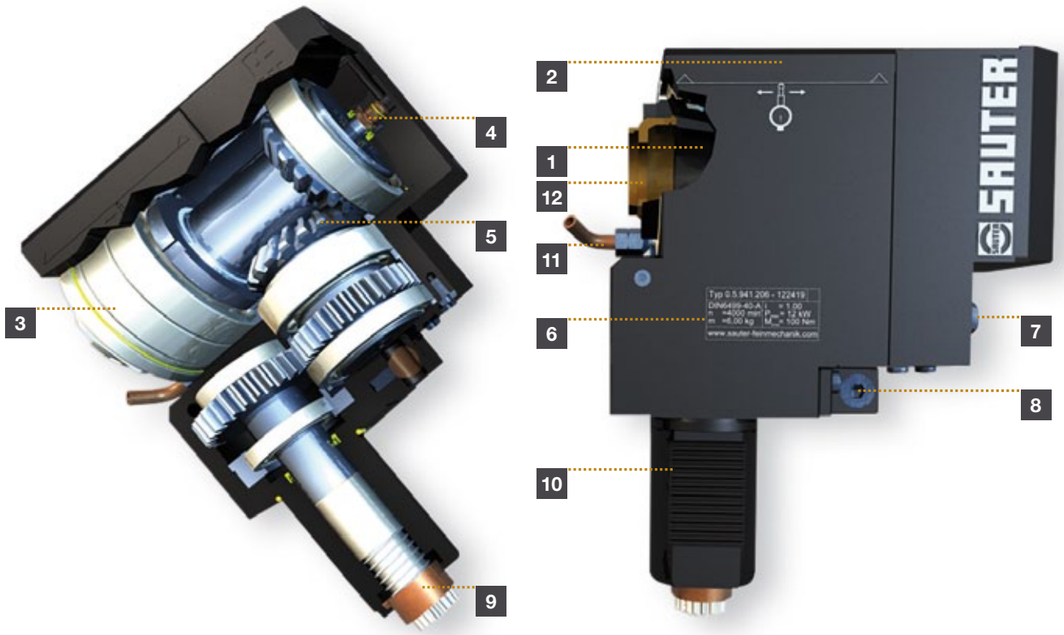
_ with driven spindle

_ with pallet and work piece

Everything from one single source.
Tool turrets and Tooling.



Twelve reasons to specify Sauter



1. Highest possible rotational accuracy
2. Qualified datum surface for rapid alignment
3. Optimum pre-loaded bearing configurations for maximum rigidity
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 rigidity 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.

Always first choice.
Sauter Tooling.

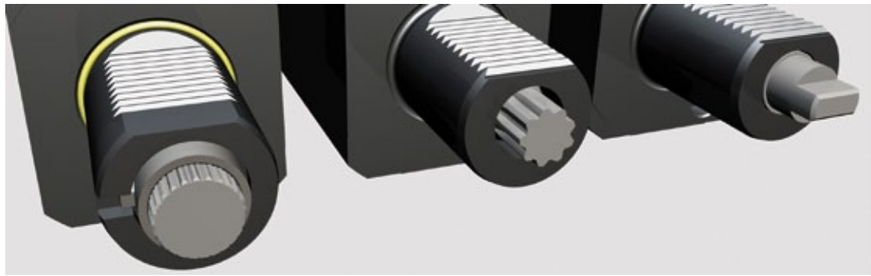
_ **Everything from one single source – Sauter tool turrets and Sauter tooling**
_ **Individual solutions for every requirement**

The name Sauter is synonymous with quality the world over and Sauter tool turrets are the prerequisite for fast, 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 units and tool holders- a lead from which you as the user will benefit. Decide for perfected technology with highest quality. Perfection from one source.

Be it standard or special – you can fully depend on us. Our goal is to optimize your manufacturing process. Often quite amazing results can be achieved by using the right tooling. With our large range of standard tooling we cover a multitude of applications.

For individual manufacturing tasks we develop special solutions completely according to your requests and demands. Our experience for many years and the resulting know-how makes us a competent partner in the development of your specialized tooling.

Tooling interfaces for Sauter tool turrets



_ **DIN 5480**
For detailed information, see PI 29.3

_ With patented spindle orientation detent

_ **DIN 5482**
For detailed information, see PI 14.2

_ **DIN 1809**
For detailed information, see PI 48

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