

Machining technology

Medical Technology



- OD Whirling
- ID Whirling
- Form Drilling
- Milling
- OD Grooving
- ID Grooving and Turning
- Broaching
- Single-point threading

Schwannag



Schwanog tools for the medical industry:

A PERFECT SOLUTION FOR EVERY MANUFACTURING PROCESS!

The requirements in the medical field increase continuously. Global competition, maximum product liability, and rising costs are calling for manufacturing solutions which offering significant advantages in productivity.

Schwanog has already established itself for decades as an expert in medical applications with thread whirling of bone screws.

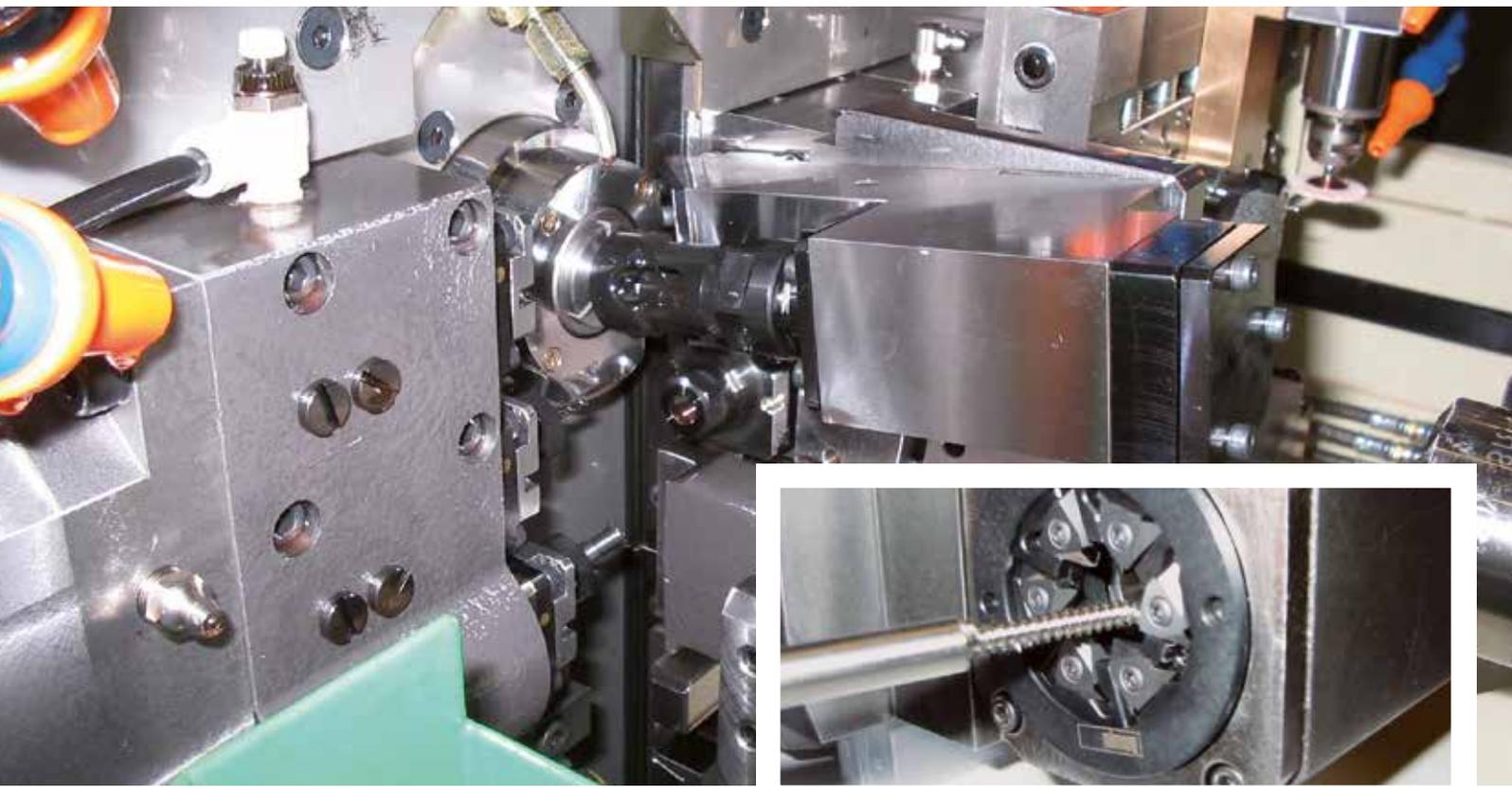
With the increase in complex requirements, further technical solutions for the medical industry were developed which today result in vast cost reductions along with maximum precision.

The solution at a glance:

- ▣ Whirling of external threads on swiss-type lathes
- ▣ Thread whirling of external threads on post finishing machines
- ▣ Whirling of internal threads
- ▣ Form Drilling
- ▣ Milling of threads
- ▣ OD Grooving
- ▣ ID Grooving and Turning
- ▣ Broaching
- ▣ Single-point threading

Benefit from maximum productivity, exceptional quality and precision, as well as maximum flexibility in manufacturing processes.

Schwanog. The Cost-Cutter.



Manufacturing of external threads: Thread whirling on swiss-type lathes.

The basic requirement for manufacturing a thread using a single machining process on swiss-type lathes is a whirling attachment or a B-axis. Whirling attachments are available for nearly all swiss-type automatic lathes from the original equipment manufacturer and from manufacturers of driven tools.

Schwanog has developed special whirling tools for these whirling attachments. Thread whirling with the Schwanog system has the advantage that it uses insertable cutters which results in superior surface finishes, prolonged tool life, and vast cost reduction due to quick tool changeovers.

With the existing cutter bodies with 6 (WEP System), 9 or 12 cutters (DCI-System), machining times are drastically reduced due to increased feed rates when compared to the original 3 cutter circular (button) style system.

Most whirling attachments can be equipped with Schwanog's 3 piece whirling assembly. This modular configuration provides faster tool changeovers between the WEP and DCI whirling systems.





Manufacturing of external threads:

Thread whirling with post finishing machines.

For the manufacturing of bone screws, Schwanog offers another perfect solution with the thread whirling on post finishing machines. The implants are pre-turned on the lathes and the thread is whirled in a separate operation on the post finishing machine.

For thread whirling on post finishing machines, Schwanog has developed corresponding cutter bodies for various machine types.



Whirling using a single process on swiss-type lathes

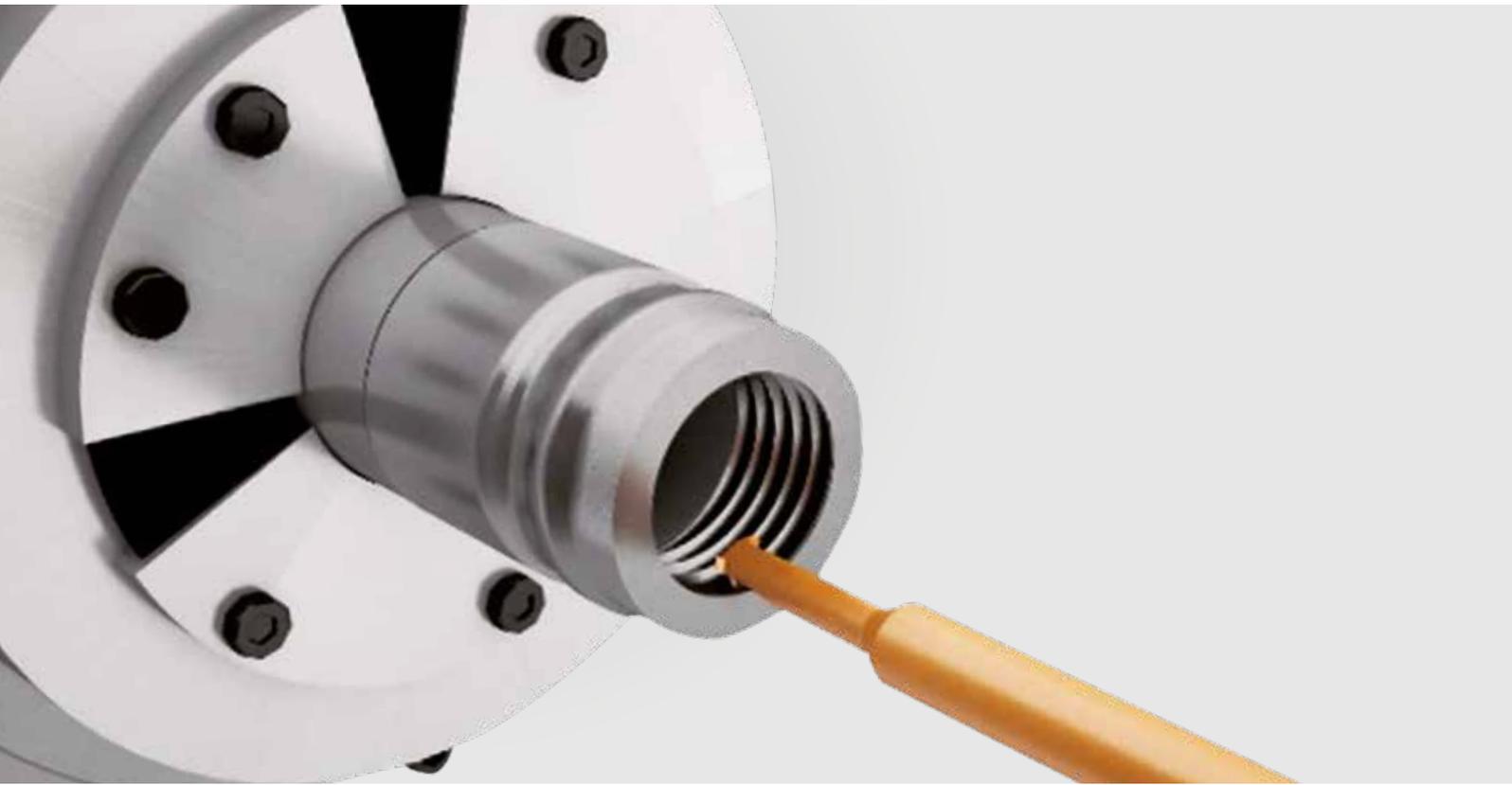
Standard Schwanog cutter bodies are available for the following machines:

- Tornos
- Citizen
- Tsugami
- Traub
- BAZ
- Hanwa
- Star
- Maier
- Nexturn
- Gildemeister

Thread whirling on post finishing machines

Schwanog cutter bodies are available for the following machines:

- Monnier & Zahner
- Leistriz



Manufacturing of internal threads:

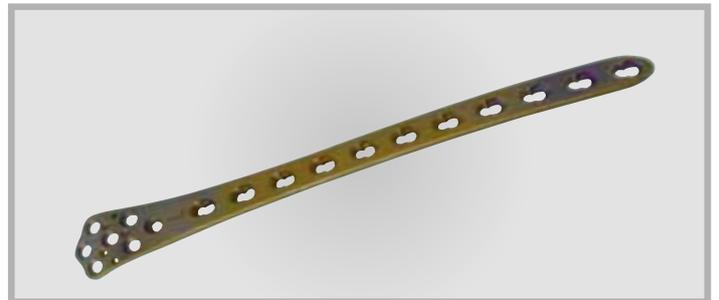
Whirling tools (thread mills) for ID threads.

Orthopedic or dental high tech applications call often for a maximum in precision and longevity. Schwanog ID whirling tools (thread mills) precisely and efficiently produce internal threads on bone screws and bone (cervical) plates.

The Schwanog whirling tools for internal threads are available in thread sizes from M1 to M5; and come with 1 to 3 flutes, depending on the thread size. Specials are available upon request.



ID whirling



Bone (cervical) plates

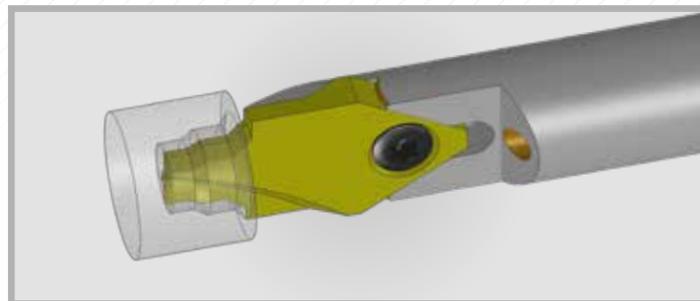
Manufacturing of boreholes:

Form drilling with insertable and solid carbide drills.

Schwanog offers two highly efficient options for manufacturing boreholes on medical precision parts.

Form drills with insertable tools are particularly efficient and cost-saving, as only the carbide insert is ground and not the entire solid carbide drill. These insertable form drill systems can hold a minimum tolerance of $\geq \pm 0.02$ mm.

If smaller tolerances or deeper drilling depths are required, Schwanog offers solid carbide drills in all common carbide grades and coatings.



Form drilling

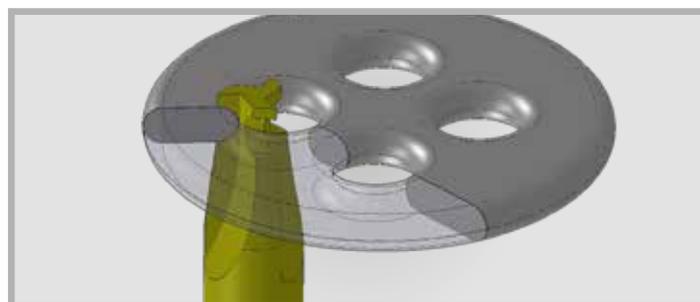
Basic principle: All form drill solutions are individually ground, part-specifically, according to customer requirements to ensure maximum productivity.

Milling operations:

Milling of threads and internal contours on post finishing machines.

For milling of threads and internal contours on post finishing machines, the individually manufactured Schwanog milling cutters offer an optimal solution.

Depending on requirements, they are available in different diameter and number of teeth for maximum productivity. The Schwanog milling cutters can be used on machines with circular milling cycle.



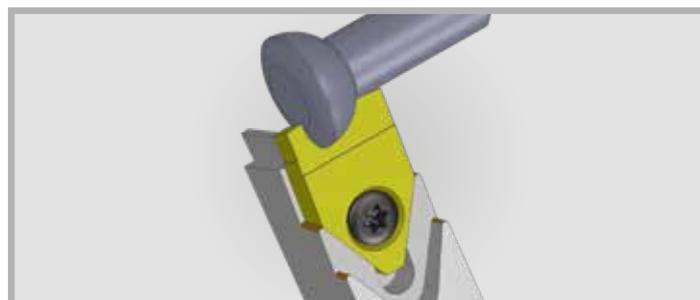
Milling

Manufacturing of external contours:

OD grooving with insertable form tools.

From simple to complex contours of medical parts, with the Schwanog system all requirements can be manufactured with maximum productivity and precision.

A total of five systems are available with cutting widths, ranging from 3.5 up to 33mm. Depending on complexity, grooving instead of single-point turning, achieves part cost reductions of up to 40 %.



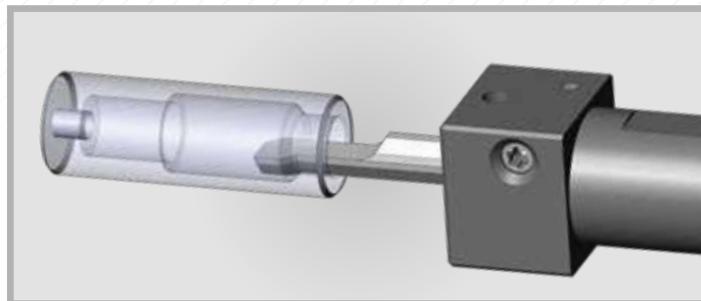
OD Grooving

Manufacturing of internal contours:

ID grooving and/or turning with insertable form tools.

With the Schwanog WSI system, internal contours are manufactured perfectly and in a shorter time.

What is significant is, that both, ID grooving and turning process can be combined into one operation which offers maximum flexibility. The tool holder comes with a coolant-through feature and the insertable tool is continuously adjustable due to the variable length adjustment in the Z-axis.



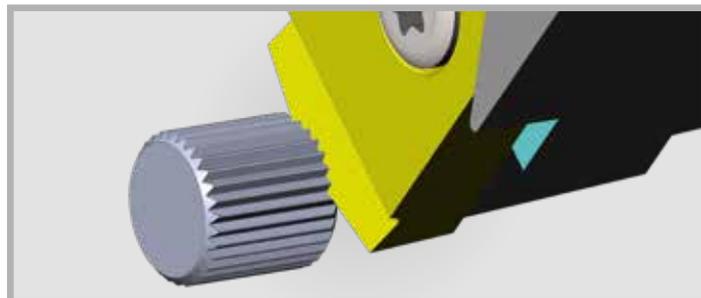
ID Grooving and turning with WSI

Broaching of OD serrations, keyways and grooves:

Broaching on the same machine without the need of a secondary process.

If you want to keep your costs low, the Schwanog broaching tools provide a perfect solution. Often, this process has been subcontracted or required a secondary operation on a separate machine.

With Schwanog, serrations, keyways, grooves, and any type of special contours can be manufactured very efficiently on the same machine without the need for an additional operation. The only requirement is that the machine has a C-axis.

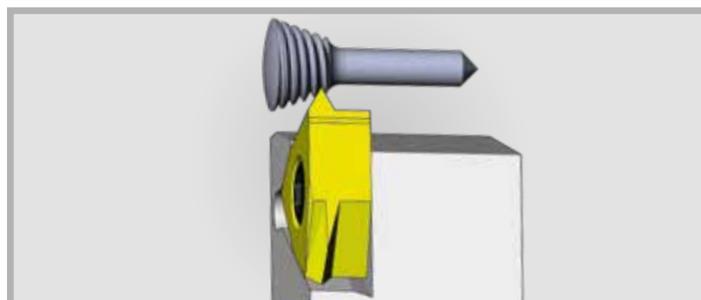


Broaching

Manufacturing of external threads on bone screws:

Insertable single-point threading tools.

When manufacturing more than one thread on a bone screw, the use of a single-point threading tool is often without an alternative, either because a second whirling head cannot be applied to the machine or is not available.



Single-point threading

Insertable tooling systems.



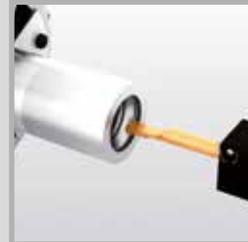
OD Grooving



OD Grooving for rotary transfer machines



ID Grooving



ID Grooving and turning with WSI



Form drilling



Solid Carbide drills



Shave Tools



Skiving Tools



Polygon turning



Broaching of Serrations



OD Whirling



ID Whirling Tools (Thread Mills)



Parts selector



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