



CUTTING TOOLS

New high-performance
clamping system iCT

From S3 to iCT



Variant diversity on the optimize tool

Reduce complexity. In line with this credo, we have standardized the add-on parts for a large number of our turning tools as far as possible. This is because fewer variants of add-on parts make it easier for our customers to allocate spare parts to our toolholders.

The reduction of variants concerns the mounting parts of the toolholders with trough clamping of the S3 turning tool series. The IKS and Non-IKS toolholder series are excluded. At the same time, we have used the reduction in variants to achieve the best possible range of functions with the design, execution and choice of materials for the add-on parts, as well as user-friendly and easy operation of the rotary toolholder. These requirements led to the development of the new clamping system **iCT** (innovative Clamping Technology).

The entire turning tool system contributes to process-reliable machining and enables the full potential of our high-performance cutting materials to be exploited in everyday applications.

The variant reduction affects the following attachment parts:

- Clamping finger
- Clamping finger screw
- Shim screw
- Shim

Comparison of the tool systems

The variant optimized iCT System

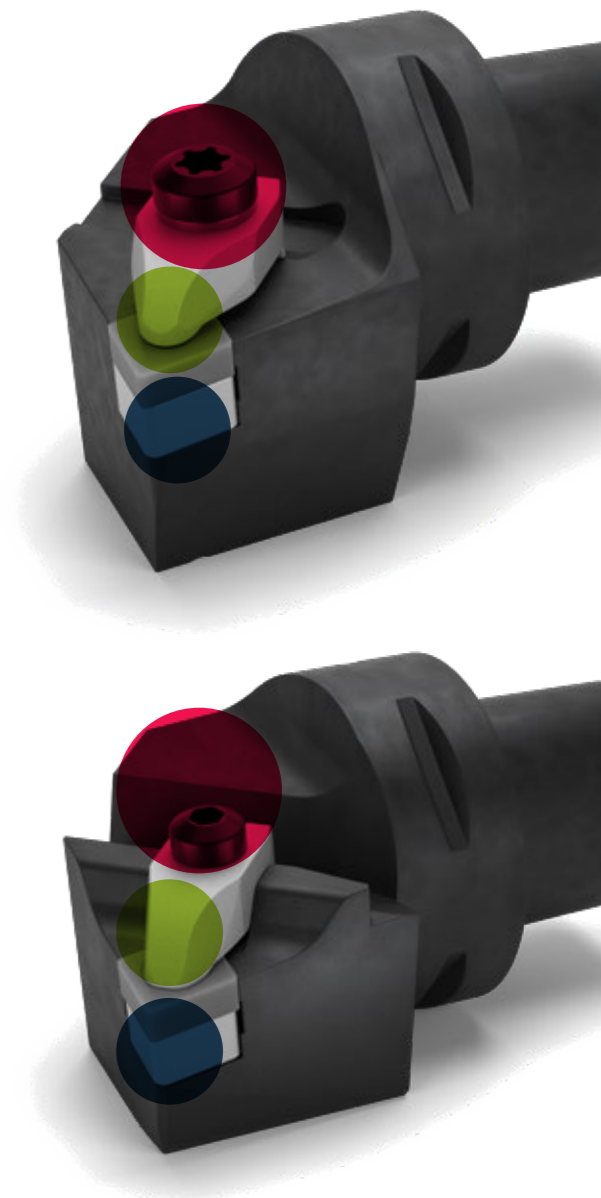
- Clamping finger screw in uniform diameter, M8
- Optimized clamping finger design
- One screw size for all shim

The previous system S3

- Clamping finger screw M6
- Clamping finger basic design
- Different screw sizes for shim

further advantages of the iCT system

- slimmer holder design
- improved clamping finger guide
- optimal retraction movement of the clamping finger



We paid particular attention to the clamping finger. Due to its task of holding the cutting insert securely in the insert seat, it is essential for the machining result as well as the process reliability during the machining operation. We have therefore redesigned the clamping finger and selected new clamping finger materials. This provides a turning tool with significantly improved performance and considerably simplified spare parts allocation.



Clamping finger design

The clamping finger design has been completely revised. The new design offers numerous advantages in daily use:

1 Dimple geometry

A new designed dimple geometry enables a perfect tight fit between the clamping element and the insert. Stress peaks will not occur, the insert is securely clamped during drawn cuts and roughest applications.

2 Chip sliding surface

The clamping element nose is designed for optimal chip flight. The chip slides over the clamping element and thus finds only a minimal contact surface. This reduce the crater wear to a minimum which is caused by chip flight.

3 Retraction slope

The slanted end of the clamping finger back slides back on the counter part of the shank when tightening the clamping finger screw and draw the cutting insert into the pocket seat. Heavy interrupted cuts, drawn cuts or finishing application, which need a secure positioning of the cutting insert in the pocket seat of the shank, can be performed in best way.

Clamping finger material

The clamping finger material is available in three different variants.

- tempered version (1)
- tempered and plasma-nitride version (2)
- and in solid carbide (3)

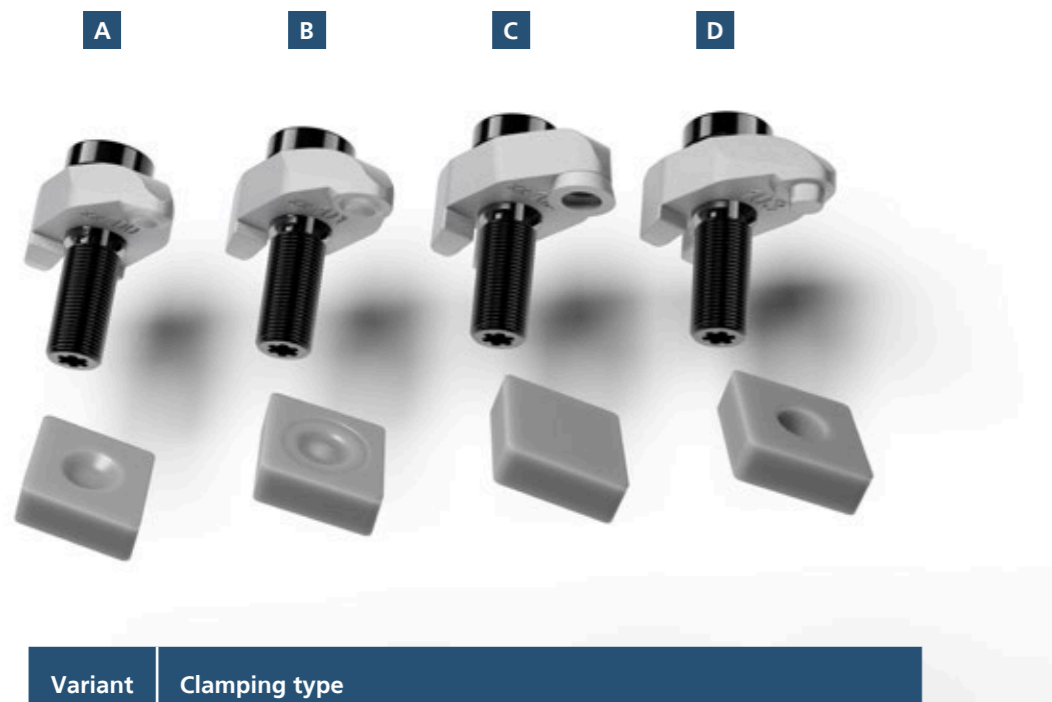


The respective clamping finger material was selected in such a way that a high heat input into the clamping finger does not lead to the clamping force being reduced by thermal expansion and the insert no longer being held securely in the insert seat.

Material	tempered	tempered and plasma-nitride	solid carbide
Mark	none	One diamond	Two diamonds
Picture			
Application	Roughing and finishing	Roughing and finishing	Roughing and finishing
Clamping finger	moderate in chip flight	moderate to strong in chip flight	strong in chip flight
Wear behavior	★	★ ☆	★★★



Clamping types of the iCT series



Variant	Clamping type	
A	H10M and H10L (IC15,88) dimple	C Flat
B	DO dimple	D Hole

All common insert clamping types from CeramTec are available for the ICT clamping system. Variants A, B, C are available as standard, variant D, hole clamping, on request.

One screw for all iCT clamping fingers

All screws of the clamping finger are manufactured as M8 screws from a high-strength 12.9 steel, which performs its work safely even under high thermal load, as occurs in mass production. There is therefore no risk of the screw head breaking off during application or tightening, provided the recommended maximum torque is observed.

The selected external and internal drive sizes allow the clamping screw to be safely tightened and loosened to the required torque.

The extra deep contour IP (Torx Plus) effectively reduces tearing of the drive contour when intact keys are used.

Application	Roughing and finishing
Screw head	IP 40
Screw downside	IP 25
Machining type	Continuous cuts, moderate to heavily interrupted cuts, roughest use

Shim screw

One screw size has been standardized here. M4x10 mm screws are used. Here, too, a heat-treatable steel is used that corresponds to the application. This ensures that the screw can be loosened as safely as possible after many hours of use in order to replace the shim.



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